

DRIVING THE FUTURE





Assun Motor is an innovative manufacturer for Advanced DC Drive Systems. Products including DC Coreless Brushed Motor, DC Slot-less Brushless Motor, Planetary Gearbox, Right angle planetary gearbox, Screw planetary gearbox, Mini harmonic gearbox, Built-in servo drive integrated motor and Controller, Servo actuator, Encoder, and Brake. With state-of-the-art technologies and dedicated engineering spirits, the high precision, reliability and efficiency DC drive systems by ASSUN are perfect for performance critical applications.

With the high automation manufacturing base in Shenzhen, sales offices in China, Assun Motor is able to provide high-quality sales, customization, and after-sales services to various industries, fields, and systems.

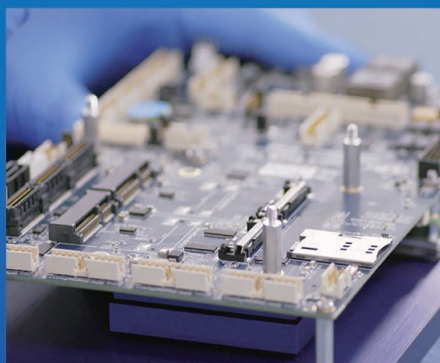


VISION

To provide cutting-edge DC motor drive solutions and redefine possibilities for applications across industries.

MISSION

Drive the future with precision in motion.



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BUSINESS INTRODUCTION

Assun Motor provide total solutions to Precision DC Drive. Started from the basic driving components—motor and gearbox, Assun has developed more enriched product line and now offers systematic DC drive products for motion control industry.

Motors by Assun include DC Coreless Brushed Motor, DC Slot-less Brushless Motor, electronics-integrated Servo Motor and Servo actuator, Special Coreless and Slot-less winding structure enabled the motors to perform much better in every technical aspect. Planetary Gearboxes are made with most advanced production technologies to ensure minor backlash and highest efficiency. Incremental and Absolute Encoders are made to provide reliable and precise feedback information. Servo Controllers by Assun provide bus control and analogue control to choose from, and are built to provide the most precise and reliable motion control to drive systems. Brakes has been developed to complete the whole drive system as the last brick.

Assun Motor has built the online shop inside the official website for customers to shop the standard products and combinations easily. Customers can browse every product with full detail on the website and shop their sample products or combinations for testing or development purposes. Online sales have guaranteed lead time of 12 working days. Shipping time usually within 5 working days for worldwide.

Except for the online sales which was set up mainly for standard products and samples, Assun provides further sales services with global network for vast quantity orders and customized requirements. Flexibility and fast response are the core competence of Assun. We can carry out deep customization based on customers' needs and offer the most suitable solution for specific applications. In close cooperation, we can even develop new products for the customer to satisfy their needs and enrich our product line at the same time. The highly automated and well managed factory supports our customization service perfectly with the shortest lead time possible.



TECHNICAL TERMINOLOGY

Nominal Voltage

The DC power supply voltage value based on the motor design.

No-Load Current

When there is no load applied to the motor shaft, the current value under Nominal Voltage

No-Load Speed

When there is no load applied to the motor shaft, the RPM speed value under Nominal Voltage.

Standard Testing Environment

When motor are installed horizontally to a vertical wood board by front cover screw, and environment temperature at 25°, relevant humidity 30%-60%.

Thermal Resistance

The added-up value of thermal resistances of between winding and housing, and between housing and Standard Testing Environment.

Maximum Winding Temperature

The maximum temperature limit for motor winding to ensure normal motor performance and lifetime.

Rated Torque

Maximum continuous torque applicable to the motor shaft under Nominal Voltage considering the limit of Maximum Winding Temperature.

Rated Speed

The rpm speed for the motor under Nominal Voltage and load of Rated Torque.

Rated Current

The current through motor winding when operating under Nominal Voltage and load of Rated Torque.

Rated Power

The power output under rated torque and rated speed.

Starting Current

The current through motor winding when powered by Nominal Voltage and motor speed is 0 rpm.

Stall Torque

The motor torque output under Starting Current and motor speed is 0 rpm.

DC BRUSHLESS MOTOR

Assun DC Brushless Motors are manufactured with slot-less structure to achieve highest efficiency and top-notch dynamic performance. With 4 sub-categories and different sizes, Assun BLDC product line can offer DC drive solutions to various industries with precision drive needs.

Power rating from 3 watts to 500 watts, diameter from 8mm to 65mm, temperature level include 85°C, 125°C and 155°C, Assun BLDC motors have been made to fit for all kinds of applications. Speed driver can be integrated inside motor for more application convenience.



AM-BL1632AN	AM-BL3270AN	AM-BL2248AE	AM-BL2248BF	AM-BL45100BF
AM-BL1640AN	AM-BL3660AN	AM-BL2845AE	AM-BL2453BF	AM-BD2453AN
AM-BL2032AN	AM-BL45100AN	AM-BL3260AE	AM-BL2845BF	AM-BD2845AN
AM-BL2040AN	AM-BL65110DN	AM-BL3270AE	AM-BL3260BF	AM-BD3260AN
AM-BL2051AN	AM-BL0824AE	AM-BL3660AE	AM-BL3270BF	AM-BD3270AN
AM-BL2453AN	AM-BL1640AE	AM-BL4060AE	AM-BL3675BF	AM-BD3660AN
AM-BL2845AN	AM-BL2040AE	AM-BL4080AE	AM-BL3690BF	AM-BD45100AN
AM-BL3260AN	AM-BL2051AE	AM-BL45100AE	AM-BL4060BF	
	AM-BL2453AE			

Company Name Abbreviation

AM - BL 1640 AE - 2420

Motor Type
BL - Brushless Motor
CL - Brushed Motor

Motor Dimension
16 - Diameter (mm)
40 - Length (mm)

Number of Pole Pairs
A - 1 Pole Pair
B - 2 Pole Pairs
C - 3 Pole Pairs
D - 4 Pole Pairs

Temp. Level
N - 85°C
E - 125°C
F - 155°C
H - 180°C

Nominal Voltage & No Load Speed
24 - Nominal Voltage (V)
20 - No Load Speed (x1000 RPM)

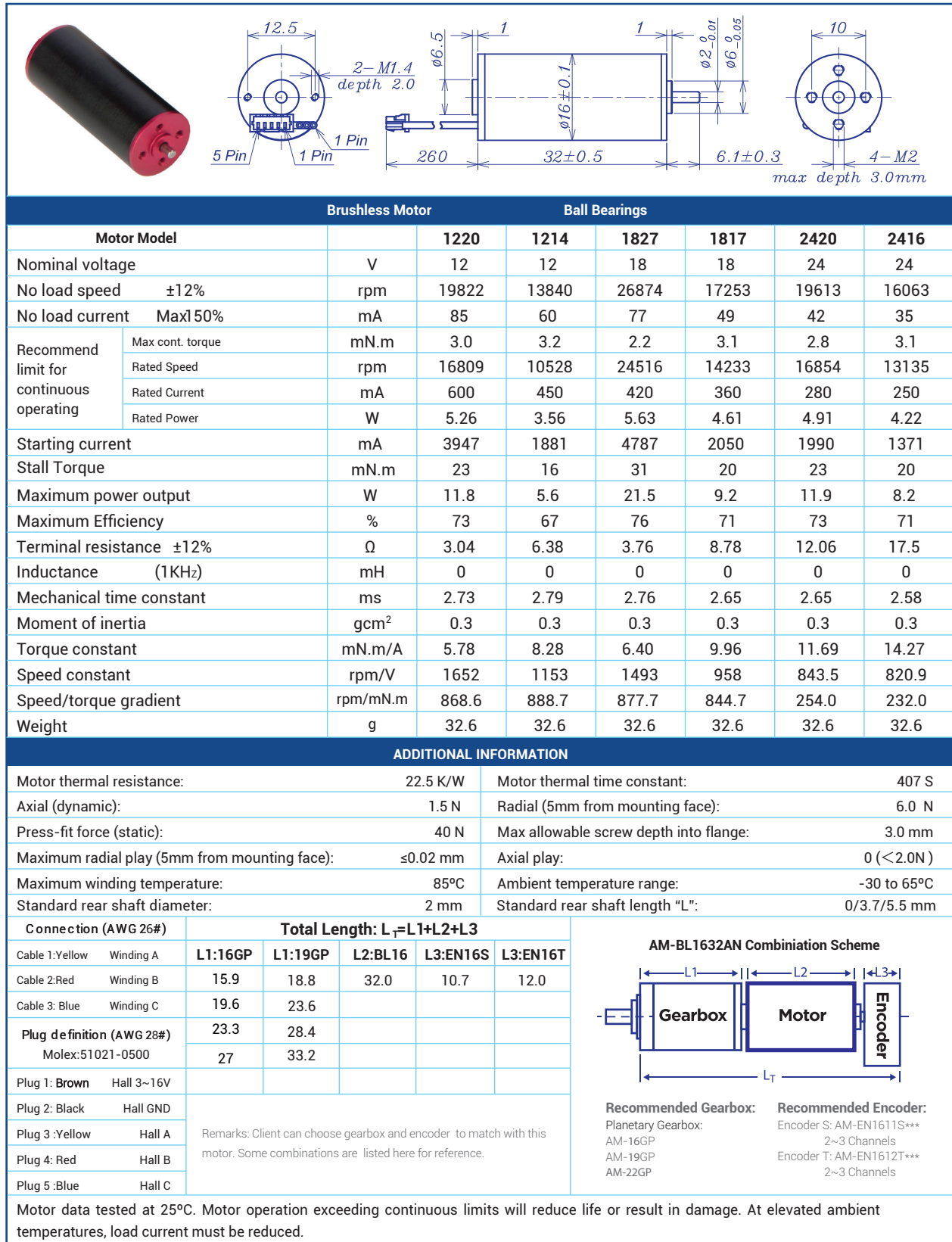
DC BRUSHLESS MOTOR STANDARD SERIES

Assun standard series BLDC motors were designed with slot-less winding structure for highest efficiency and smooth operation. High quality hardware and sintered NdFeB magnets were adopted to ensure the performance, reliability and lifetime.

Standard series BLDC products are equipped with hall sensor, which customers may choose to remove in customized service. These motors are widely used and are suitable for most applications with normal operation conditions.



AM-BL1632AN Series

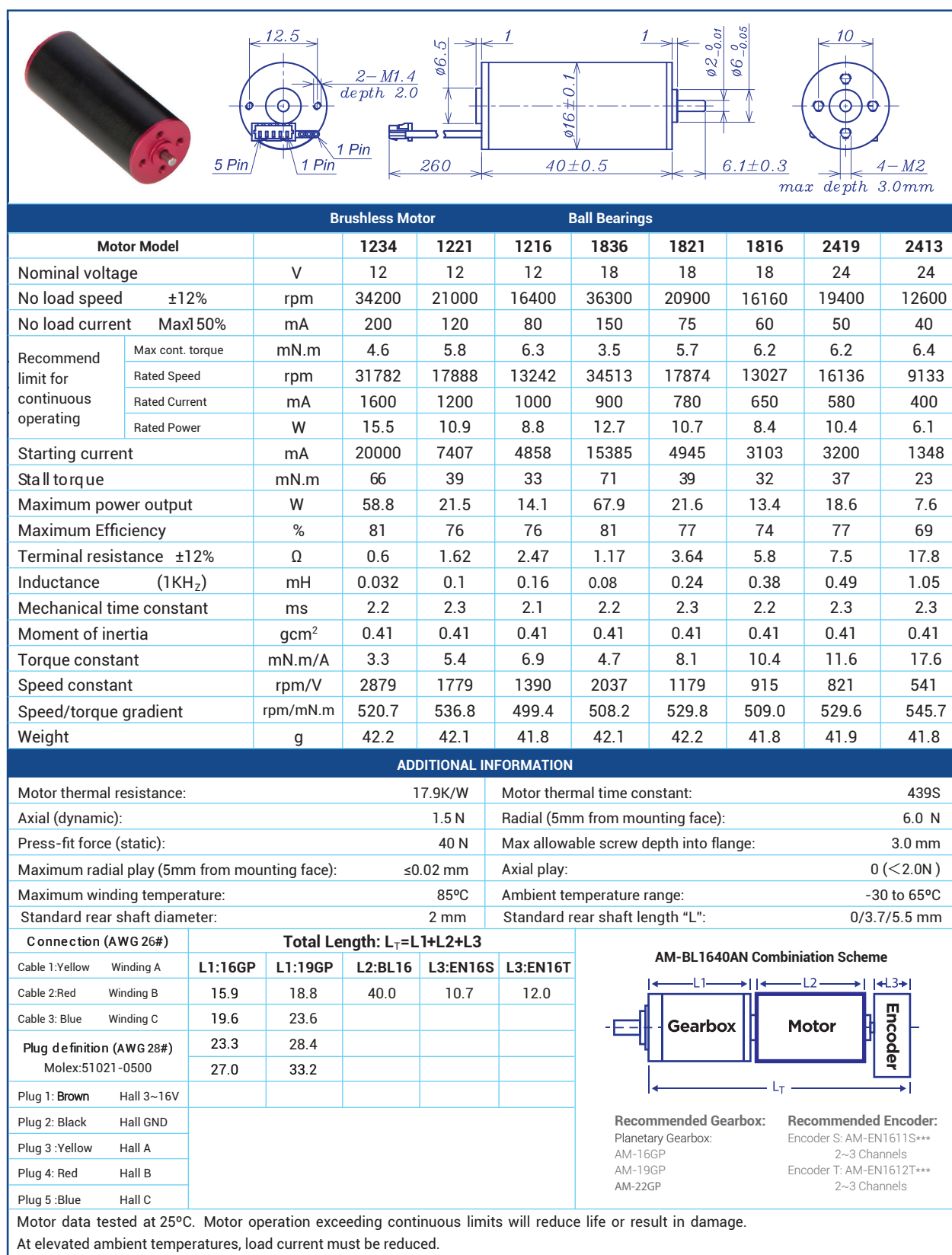


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DC BRUSHLESS MOTOR

STANDARD SERIES

AM-BL1640AN Series



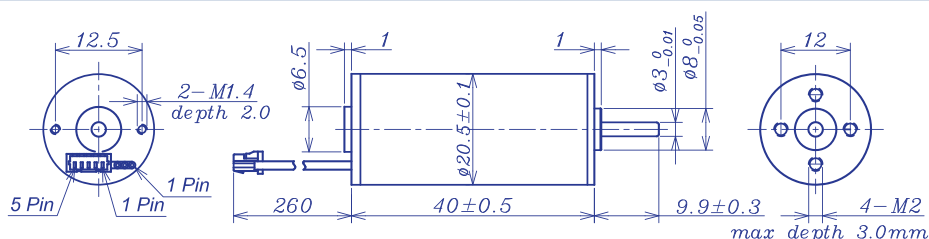
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Technical drawing of the AM-BL2032AN motor assembly. The drawing includes a perspective view of the black motor with a red end cap, and three cross-sectional views. The left cross-section shows a 12.5mm diameter with 5 pins and 1 pin. The middle cross-section shows a 260mm length with a 32±0.5mm section and a 9.9±0.3mm section. The right cross-section shows a 12mm diameter with 4 pins and a 3.0mm depth. Dimensions are given in mm.

AM-BL2040AN Series

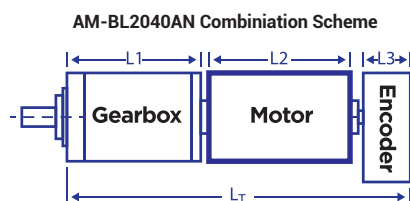


Brushless Motor			Ball Bearings					
Motor Model		1226	1220	1216	1820	1817	2420	2417
Nominal voltage	V	12	12	12	18	18	24	24
No load speed ±12%	rpm	26000	20360	16260	19500	17350	20000	16600
No load current Max 150%	mA	350	190	180	150	140	110	95
Recommend limit for continuous operating	Max cont. torque	mN.m	5.4	7.3	8.5	7.4	6.4	7.5
	Rated Speed	rpm	24682	18605	14445	17760	15721	18454
	Rated Current	mA	1600	1500	1400	1000	800	700
	Rated Power	W	14.0	14.2	12.8	13.7	10.6	12.9
Starting current	mA	25000	15385	11111	9677	7171	7742	5530
Stall torque	mN.m	107	84	76	83	68	86	74
Maximum power output	W	72.9	45.0	32.3	42.2	31.0	45.1	32.0
Maximum Efficiency	%	78	79	76	77	74	78	76
Terminal resistance ±12%	Ω	0.48	0.78	1.08	1.86	2.51	3.1	4.34
Inductance (1KHz)	mH	0.034	0.061	0.097	0.17	0.22	0.29	0.42
Mechanical time constant	ms	2.9	2.9	2.5	2.8	3.0	2.7	2.7
Moment of inertia	gcm ²	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Torque constant	mN.m/A	4.6	5.6	6.9	8.7	9.7	11.3	13.6
Speed constant	rpm/V	2197	1718	1377	1100	983	845	704
Speed/torque gradient	rpm/mN.m	242.7	241.1	214.5	235.8	254.0	232.0	225.1
Weight	g	65.9	66.2	66.6	65.7	65.4	65.1	65.9

ADDITIONAL INFORMATION

Motor thermal resistance:	15 K/W	Motor thermal time constant:	673 S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	50 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	0 (<4.0 N)
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	3 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 24#)		Total Length: $L_T = L_1 + L_2 + L_3$				
Cable 1: Yellow	Winding A	L1:19GP	L1:24GP	L2:BL20	L3:EN16S	L3:EN16T
Cable 2: Red	Winding B	18.8	24	40.0	10.7	12.0
Cable 3: Blue	Winding C	23.6	34.3			
Plug definition (AWG 28#) Molex: 51021-0500		28.4	42.8			
		33.2	51.3			
Plug 1: Brown	Hall 3~16V					
Plug 2: Black	Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				
Plug 3 :Yellow	Hall A					
Plug 4: Red	Hall B					
Plug 5 :Blue	Hall C					



Recommended Gearbox:	Recommended Encoder:
Planetary Gearbox:	Encoder S: AM-EN1611S***
AM-19GP	2~3 Channels
AM-22GP	Encoder T: AM-EN1612T***
AM-24GP	2~3 Channels

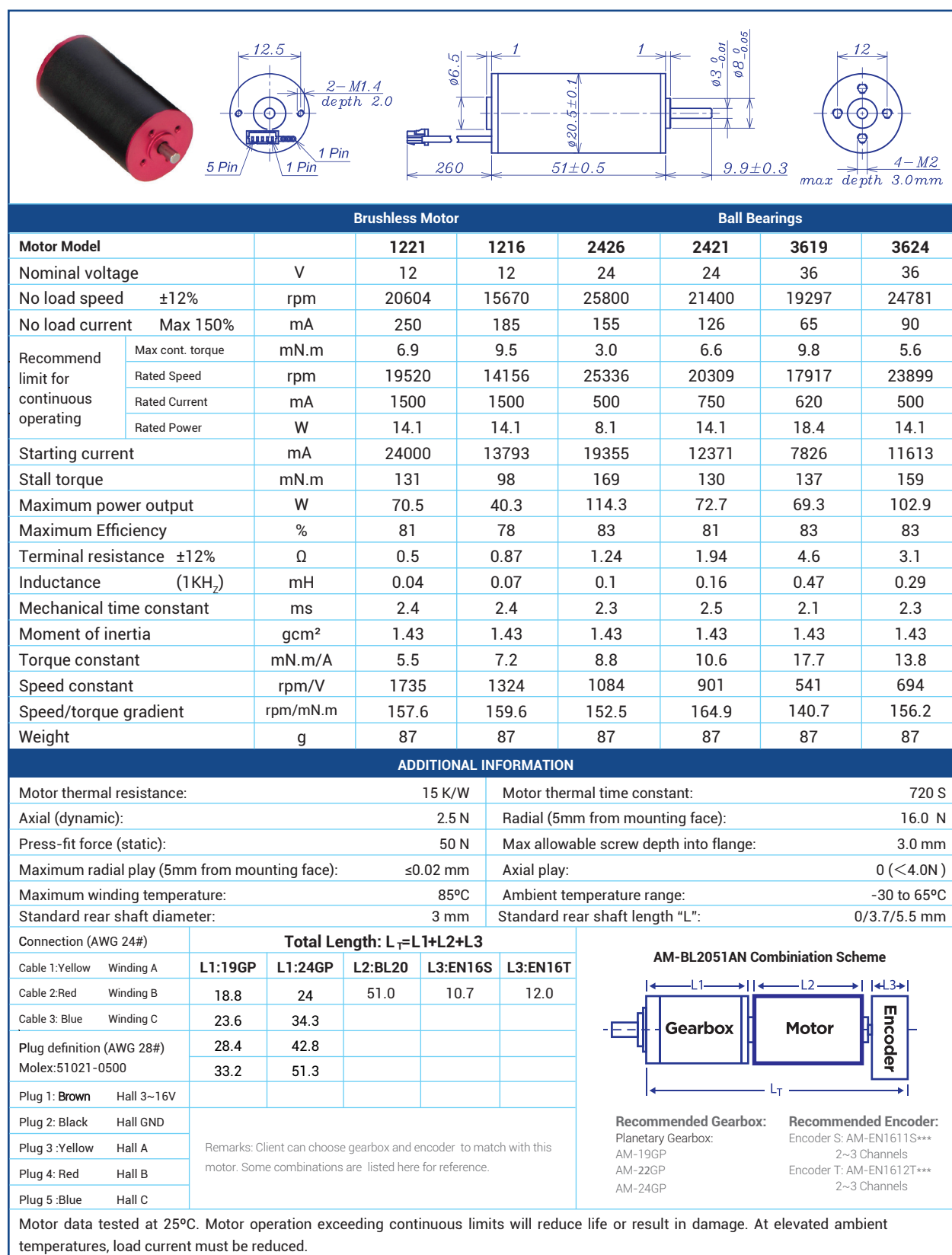
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-BL2051AN Series



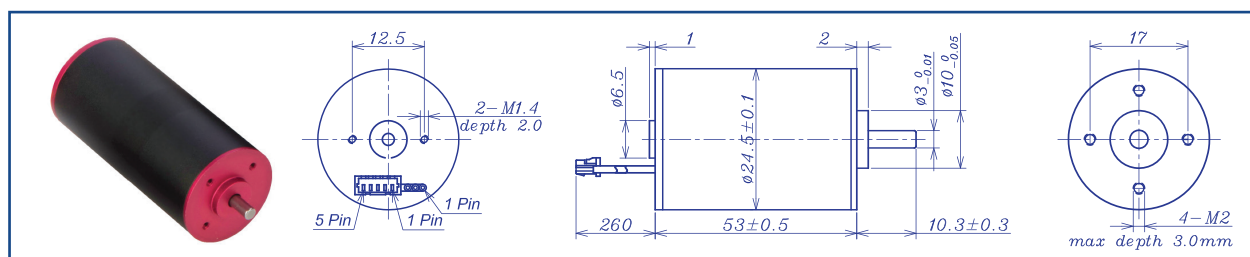
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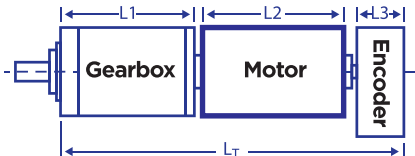
DC BRUSHLESS MOTOR

STANDARD SERIES



AM-BL2453AN Series



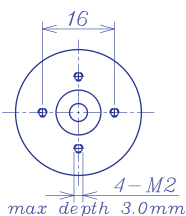
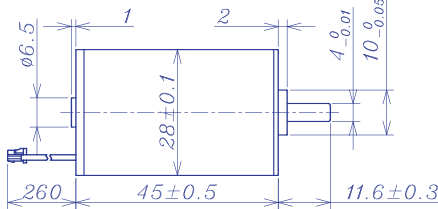
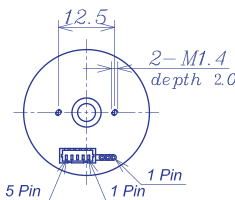
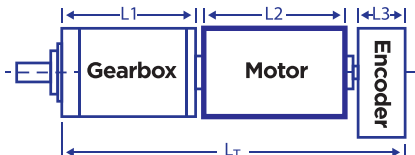
Brushless Motor			Ball Bearings					
Motor Model			1213	1210	1829	1813	2414	2410
Nominal voltage		V	12	12	18	18	24	24
No load speed ±12%		rpm	13010	10460	28715	12920	13625	9770
No load current Max 150%		mA	180	140	420	115	100	75
Recommend limit for continuous operating	Max cont. torque	mN.m	21.1	22.3	9.4	22.2	20.0	23.8
	Rated Speed	rpm	11582	8937.3	27928	11187	12320	8739
	Rated Current	mA	2600	2200	2000	1800	1300	1100
	Rated Power	W	25.6	20.9	27.5	26.0	25.8	20.9
Starting current		mA	22222	14286	58065	21676	12632	7273
Stall torque		mN.m	193	153	343	166	209	167
Maximum power output		W	65.6	40.2	257.5	56.0	74.6	42.7
Maximum Efficiency		%	83	81	84	82	83	81
Terminal resistance ±12%		Ω	0.54	0.84	0.29	1.42	1.9	3.3
Inductance (1KHz)		mH	0.055	0.092	0.032	0.14	0.14	0.45
Mechanical time constant		ms	2.4	2.5	3.0	2.8	2.4	2.1
Moment of inertia		gcm ²	3.45	3.45	3.45	3.45	3.45	3.45
Torque constant		mN.m/A	8.7	10.8	5.9	13.2	16.7	23.2
Speed constant		rpm/V	1093	880	1607	724	572	411
Speed/torque gradient		rpm/mN.m	67.6	68.2	83.8	78.0	65.2	58.5
Weigh		g	126.7	126.8	126.7	125.7	126.3	127.5
ADDITIONAL INFORMATION								
Motor thermal resistance:			10.5 K/W		Motor thermal time constant:			768 S
Axial (dynamic):			2.5 N		Radial (5mm from mounting face):			16.0 N
Press-fit force (static):			50 N		Max allowable screw depth into flange:			3.0 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play:			0 (<4.0N)
Maximum winding temperature:			85°C		Ambient temperature range:			-30 to 65°C
Standard rear shaft diameter:			3 mm		Standard rear shaft length "L":			0/3.7/5.5 mm
Connection (AWG 22#)		Total Length: L _T = L ₁ +L ₂ +L ₃					AM-BL2453AN Combination Scheme  Recommended Gearbox: Planetary Gearbox: AM-24GP AM-28GP Recommended Encoder: Encoder S: AM-EN1611S*** 2~3 Channels Encoder T: AM-EN1612T*** 2~3 Channels	
Cable 1: Yellow Winding A	L1:24GP	L1:28GP	L2:BL24	L3:EN16S	L3:EN16T			
Cable 2: Red Winding B	24	26.1	53.0	10.7	12.0			
Cable 3: Blue Winding C	34.3	33.3						
Plug definition (AWG 28#) Molex: 51021-0500	42.8	40.5						
	51.3	47.7						
Plug 1: Brown Hall 3~16V								
Plug 2: Black Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.							
Plug 3: Yellow Hall A								
Plug 4: Red Hall B								
Plug 5: Blue Hall C								
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.								

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AM-BL2845AN Series

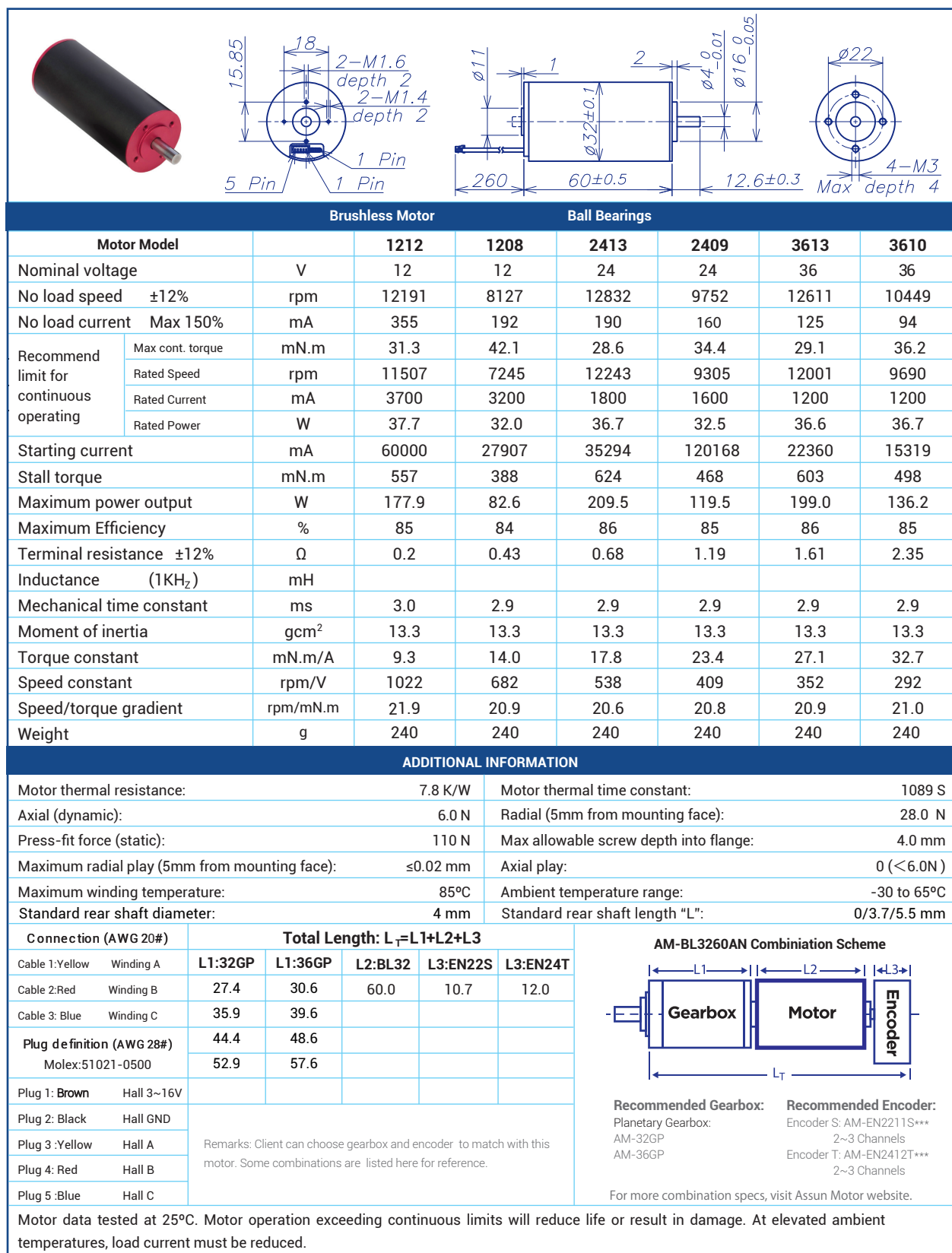
								
Brushless Motor			Ball Bearings					
Motor Model			1215	1210	1813	1810	2412	2409
Nominal voltage	V		12	12	18	18	24	24
No load speed	±12%	rpm	14800	10000	12520	9680	11680	9080
No load current	Max 150%	mA	300	190	170	120	120	85
Recommend limit for continuous operating	Max cont. torque	mN.m	28.4	34.2	30.4	33.1	28.8	35.4
	Rated Speed	rpm	13374	8455	11222	8282	10401	7593
	Rated Current	mA	4000	3200	2400	2000	1600	1500
	Rated Power	W	39.8	30.2	35.7	28.7	31.4	28.1
Starting current	mA		60000	19672	21687	13139	13636	8727
Stall torque	mN.m		295	221	293	229	263	216
Maximum power output	W		114.3	57.9	96.1	58.0	80.4	51.3
Maximum Efficiency	%		83	81	83	82	82	81
Terminal resistance	±12%	Ω	0.31	0.61	0.83	1.37	1.76	2.75
Inductance (1KH _z)	mH		0.034	0.086	0.126	0.22	0.27	0.46
Mechanical time constant	ms		3.3	2.9	2.8	2.7	2.9	2.7
Moment of inertia	gcm ²		6.19	6.19	6.19	6.19	6.19	6.19
Torque constant	mN.m/A		7.7	11.3	13.6	17.6	19.4	25.0
Speed constant	rpm/V		1243	841	701	543	491	382
Speed/torque gradient	rpm/mN.m		50.2	45.2	42.7	42.3	44.4	42.0
Weight	g		138.8	138.7	139.1	140.1	138.4	139.2
ADDITIONAL INFORMATION								
Motor thermal resistance:			10.2 K/W		Motor thermal time constant:			822 S
Axial (dynamic):			4.0 N		Radial (5mm from mounting face):			16.0 N
Press-fit force (static):			110 N		Max allowable screw depth into flange:			3.0 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play:			0 (<4.0N)
Maximum winding temperature:			85°C		Ambient temperature range:			-30 to 65°C
Standard rear shaft diameter:			4 mm		Standard rear shaft length "L":			0/3.7/5.5 mm
Connection (AWG 22#)		Total Length: L _T =L ₁ +L ₂ +L ₃					AM-BL2845AN Combination Scheme 	
Cable 1:Yellow	Winding A	L1:28GP	L1:32GP	L2:BL28	L3:EN16S	L3:EN16T		
Cable 2:Red	Winding B	26.1	27.4	45.0	10.7	12.0		
Cable 3: Blue	Winding C	33.3	35.9					
Plug definition (AWG 28#)		40.5	44.4					
Molex:51021-0500		47.7	52.9					
Plug 1: Brown	Hall 3~16V							
Plug 2: Black	Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.						
Plug 3 :Yellow	Hall A							
Plug 4: Red	Hall B							
Plug 5 :Blue	Hall C							
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.								

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DC BRUSHLESS MOTOR

STANDARD SERIES

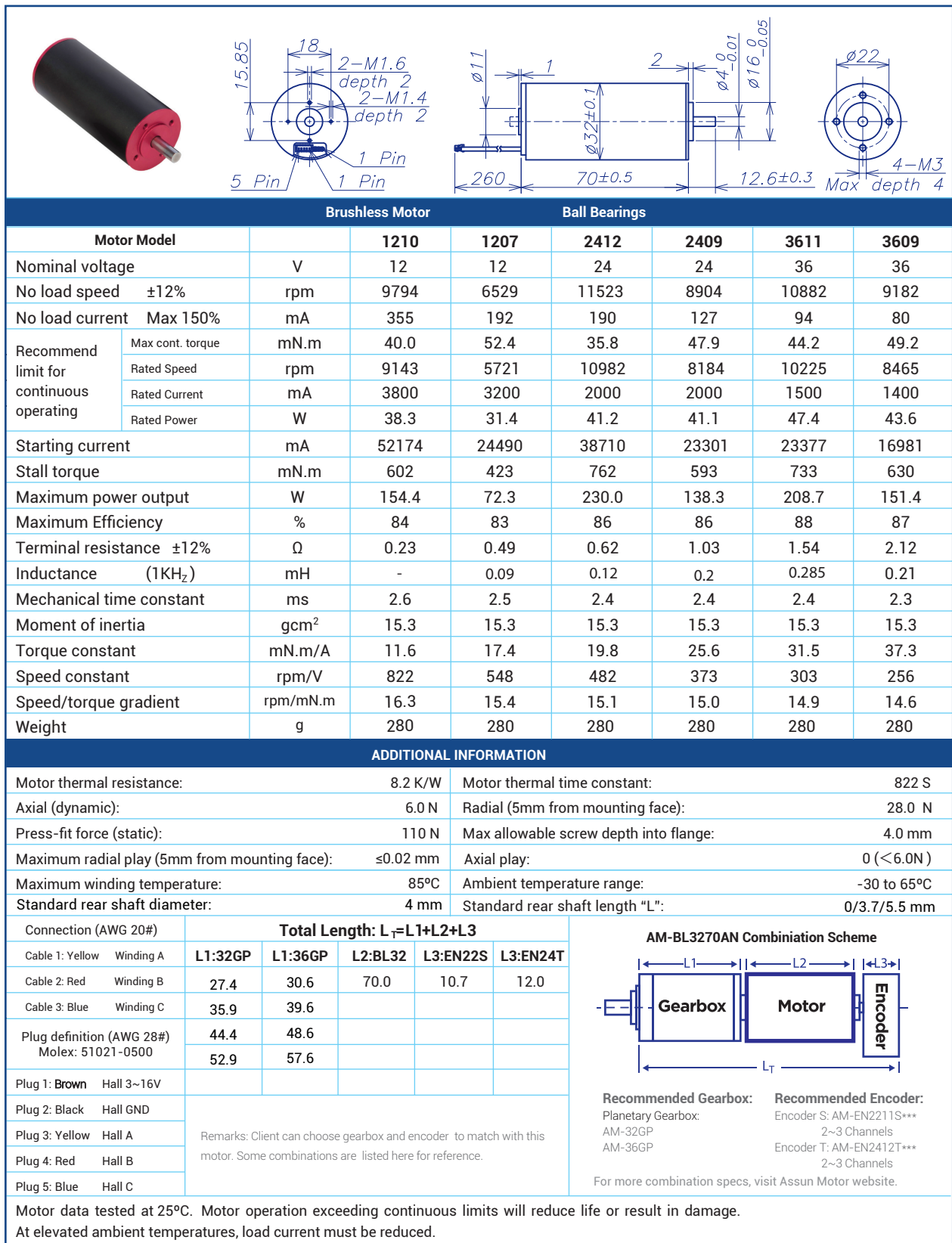
AM-BL3260AN Series



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AM-BL3270AN Series

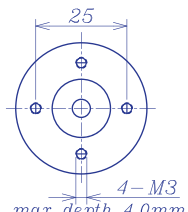
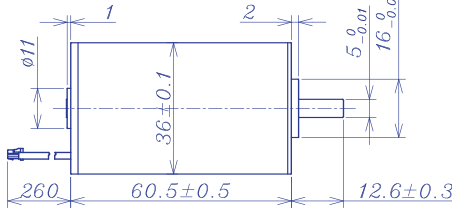
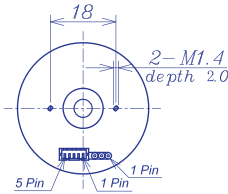
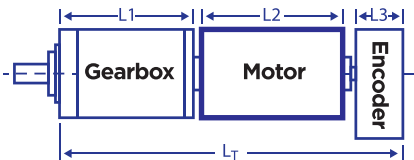


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DC BRUSHLESS MOTOR

STANDARD SERIES

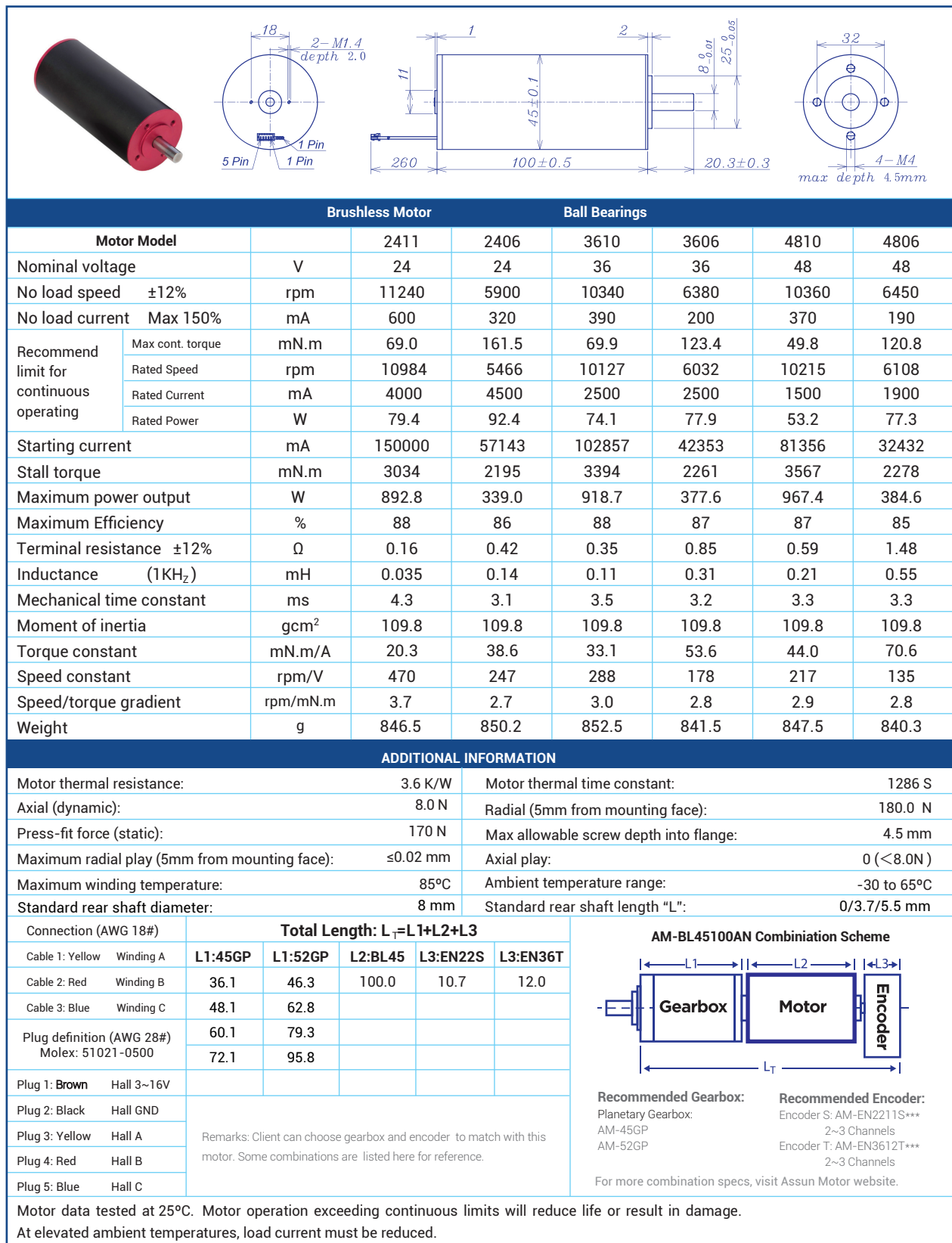
AM-BL3660AN Series

										
Brushless Motor			Ball Bearings							
Motor Model			1211	1209	2413	2410	3612	3610		
Nominal voltage		V	12	12	24	24	36	36		
No load speed ±12%		rpm	11200	8840	12500	10200	12300	10450		
No load current Max 150%		mA	400	230	220	165	120	105		
Recommend limit for continuous operating	Max cont. torque	mN.m	47.6	51.2	36.1	43.2	41.2	45.7		
	Rated Speed	rpm	10322	7928	11940	9489	11650	9758		
	Rated Current	mA	5000	4200	2200	2100	1600	1500		
	Rated Power	W	51.5	42.8	45.2	42.9	50.2	46.7		
Starting current		mA	60000	38710	44444	27907	28125	21176		
Stall torque		mN.m	607	496	807	620	779	690		
Maximum power output		W	178.1	114.8	264.0	165.5	251.0	188.7		
Maximum Efficiency		%	86	85	86	85	87	86		
Terminal resistance ±12%		Ω	0.2	0.31	0.54	0.86	1.28	1.7		
Inductance (1KHz)		mH	0.027	0.051	0.11	0.17	0.27	0.38		
Mechanical time constant		ms	3.2	3.1	2.7	2.9	2.8	2.7		
Moment of inertia		gcm ²	16.75	16.75	16.75	16.75	16.75	16.75		
Torque constant		mN.m/A	10.2	12.9	18.2	22.3	27.8	32.7		
Speed constant		rpm/V	938	741	523	428	343	292		
Speed/torque gradient		rpm/mN.m	18.4	17.8	15.5	16.5	15.8	15.2		
Weight		g	325.8	325.9	326.8	326.9	326.5	327.5		
ADDITIONAL INFORMATION										
Motor thermal resistance:			6.9 K/W			Motor thermal time constant:			1188S	
Axial (dynamic):			6.0 N			Radial (5mm from mounting face):			28.0 N	
Press-fit force (static):			110 N			Max allowable screw depth into flange:			4.0 mm	
Maximum radial play (5mm from mounting face):			≤0.02 mm			Axial play:			0 (<6.0N)	
Maximum winding temperature:			85°C			Ambient temperature range:			-30 to 65°C	
Standard rear shaft diameter:			5 mm			Standard rear shaft length "L":			0/3.7/5.5 mm	
Connection (AWG 20#)		Total Length: L _T =L ₁ +L ₂ +L ₃								
Cable 1: Yellow	Winding A	L1:36GP	L1:40GP	L2:BL36	L3:EN22S	L3:EN36T	AM-BL3660AN Combination Scheme  Recommended Gearbox: Planetary Gearbox: AM-36GP AM-40GP Recommended Encoder: Encoder S: AM-EN2211S*** 2~3 Channels Encoder T: AM-EN3612T*** 2~3 Channels For more combination specs, visit Assun Motor website.			
Cable 2: Red	Winding B	39.6	46.8	60.5	10.7	12.0				
Cable 3: Blue	Winding C	48.6	58.3							
Plug definition (AWG 28#) Molex: 51021-0500		57.6	69.8							
Plug 1: Brown		Hall 3~16V								
Plug 2: Black		Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.							
Plug 3: Yellow		Hall A								
Plug 4: Red		Hall B								
Plug 5: Blue		Hall C								
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.										

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AM-BL45100AN Series



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AM-BL65110DN Seires

DC BRUSHLESS MOTOR

HIGH TEMPERATURE SERIES (125 °C)

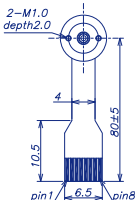
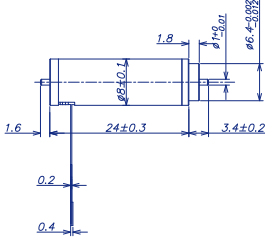
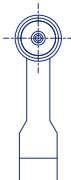
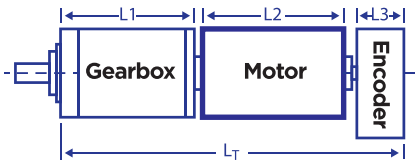
Assun high temperature series BLDC motors have been upgraded from the standard series in material and magnets to fit for higher power and operation temperature. Applications with bad thermal dissipation environments or higher power demands could chose the high temperature series products for a safer and more guaranteed overall performance.



DC BRUSHLESS MOTOR HIGH TEMPERATURE SERIES



AM-BL0824AE Series

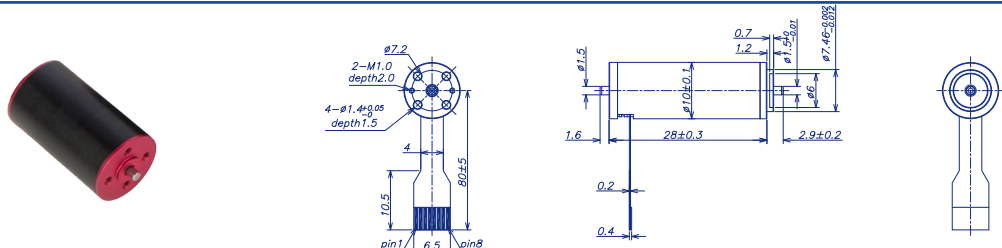
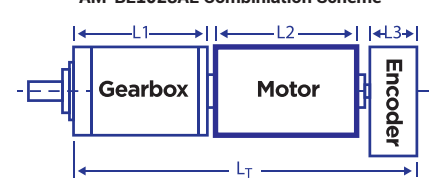
							
Brushless Motor			Ball Bearings				
Motor Model			0629	0929	1230		
Nominal voltage		V	6	9	12		
No load speed ±12%		rpm	29000	29000	30500		
No load current Max 150%		mA	130	65	52		
Recommend limit for continuous operating	Max cont. torque	mN.m	1.23	1.26	1.26		
	Rated Speed	rpm	26700	21200	22800		
	Rated Current	mA	900	497	391		
	Rated Power	W	2.8	2.8	3.0		
Starting current		mA	3340	1700	1430		
Stall torque		mN.m	5.18	4.83	5.18		
Maximum power output		W	4.6	3.5	4.0		
Maximum Efficiency		%	66	66	65		
Terminal resistance ±12%		Ω	1.8	5.3	8.4		
Inductance (1KHz)		mH	0.026	0.089	0.144		
Mechanical time constant		ms	1.9	1.6	1.6		
Moment of inertia		gcm ²	0.025	0.025	0.025		
Torque constant		mN.m/A	1.55	2.84	3.62		
Speed constant		rpm/V	6160	3360	2650		
Speed/torque gradient		rpm/mN.m	7130	6260	6110		
Weight		g	--	--	--		
ADDITIONAL INFORMATION							
Motor thermal resistance:			- K/W		Motor thermal time constant: -S		
Axial (dynamic):			0.2N		Radial (5mm from mounting face): 2 N		
Press-fit force (static):			10N		Max allowable screw depth into flange: NO		
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play: Preset		
Maximum winding temperature:			125°C		Ambient temperature range: -40 to 85°C		
Standard rear shaft diameter:			1 mm		Standard rear shaft length "L": 1.6 mm		
Connection (FPC)		Total Length: L _T =L ₁ +L ₂ +L ₃					
PIN 1:	Winding A	L1:8GP		L2:BL08	L3:EN10S		
PIN 2:	Winding B	6.9		24.0	8		
PIN 3:	Winding C	9.7					
PIN 4:	Hall 3~16V	12.5					
PIN 5:	Hall GND	15.3					
PIN 6:	Hall A	18.1					
PIN 7:	Hall B	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.					
PIN 8:	Hall C						
							
		Recommended Gearbox: Planetary Gearbox: AM-8GP				Recommended Encoder: Encoder S: AM-EN*** 2~3 Channels	
For more combination specs, visit Assun Motor website.							
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.							
At elevated ambient temperatures, load current must be reduced.							

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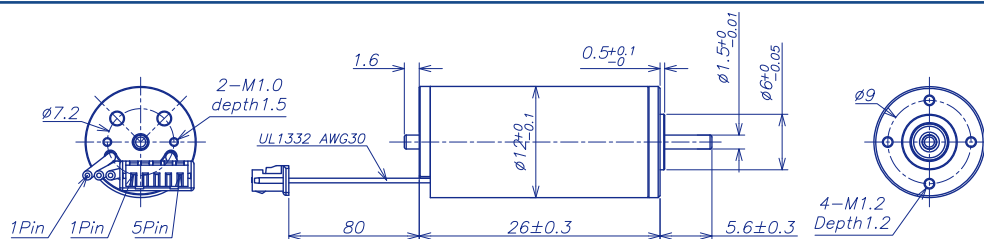
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AM-BL1028AE Series

						
Brushless Motor			Ball Bearings			
Motor Model			1234	1834	2434	
Nominal voltage		V	12	18	24	
No load speed ±12%		rpm	33500	33345	34000	
No load current Max 150%		mA	80	65	40	
Recommend limit for continuous operating	Max cont. torque	mN.m	1.6	1.6	1.6	
	Rated Speed	rpm	26800	26825	26360	
	Rated Current	mA	585	405	297	
	Rated Power	W	4.5	4.5	4.4	
Starting current		mA	2610	1807	1180	
Stall torque		mN.m	8.0	8.2	7.09	
Maximum power output		W	7.0	7.1	6.3	
Maximum Efficiency		%	65	63	64	
Terminal resistance ±12%		Ω	4.46	10	20.3	
Inductance (1KHz)		mH	Null	Null	Null	
Mechanical time constant		ms	5.1	5.1	5.1	
Moment of inertia		gcm ²	0.067	0.067	0.067	
Torque constant		mN.m/A	3.17	4.69	6.22	
Speed constant		rpm/V	2880	1921	1425	
Speed/torque gradient		rpm/mN.m	4182	4075	4799	
Weight		g	13	13	13	
ADDITIONAL INFORMATION						
Motor thermal resistance:			- K/W		Motor thermal time constant: -S	
Axial (dynamic):			0.5N		Radial (5mm from mounting face): 5 N	
Press-fit force (static):			10N		Max allowable screw depth into flange: NO	
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play: Preset	
Maximum winding temperature:			125°C		Ambient temperature range: -40 to 85°C	
Standard rear shaft diameter:			1.5 mm		Standard rear shaft length "L": 1.6 mm	
Connection (FPC)		Total Length: L _T =L1+L2+L3				AM-BL1028AE Combination Scheme  Recommended Gearbox: Planetary Gearbox: AM-10GP AM-12GP Recommended Encoder: Encoder S: AM-EN1008S*** 2~3 Channels For more combination specs, visit Assun Motor website.
PIN 1:	Winding A	L1:10GP	L1:12GP	L2:BL10	L3:EN10S	
PIN 2:	Winding B	6.8	15.4	28.0	8	
PIN 3:	Winding C	10	19.6			
PIN 4:	Hall 3~16V	13.2	23.8			
PIN 5:	Hall GND	16.4	28			
PIN 6:	Hall A	19.2	32.2			
PIN 7:	Hall B	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				
PIN 8:	Hall C					
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.						

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AM-BL1226AE Series

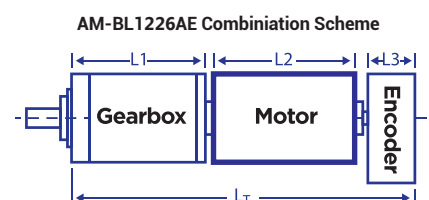


		Brushless Motor		Ball Bearings			
Motor Model			0621	1229	2430		
Nominal voltage		V	6	12	24		
No load speed	±12%	rpm	21180	29400	30020		
No load current	Max 150%	mA	130	90	46		
Recommend limit for continuous operating	Max cont. torque	mN.m	2.13	2.38	2.38		
	Rated Speed	rpm	17310	25000	25620		
	Rated Current	mA	1032	778	397		
	Rated Power	W	3.86	6.2	6.4		
Starting current		mA	5013	4864	2440		
Stall torque		mN.m	11.6	15.9	16.25		
Maximum power output		W	6.5	12.2	12.7		
Maximum Efficiency		%	64	67	67		
Terminal resistance ±12%		Ω	1.2	2.56	9.85		
Inductance (1KH _z)		mH	0.029	0.042	0.082		
Mechanical time constant		ms	5.1	5.1	5.1		
Moment of inertia		gcm ²	0.165	0.165	0.165		
Torque constant		mN.m/A	2.39	3.46	6.79		
Speed constant		rpm/V	3625	2498	1275		
Speed/torque gradient		rpm/mN.m	1817	1847	1847		
Weight		g	18.1	18.1	18.1		

ADDITIONAL INFORMATION

Motor thermal resistance:	- K/W	Motor thermal time constant:	-S
Axial (dynamic):	0.5N	Radial (5mm from mounting face):	5 N
Press-fit force (static):	0.5N	Max allowable screw depth into flange:	1.2 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	1.5 mm	Standard rear shaft length "L":	1.6 mm

Connection (AWG 26#)		Total Length: $L_T = L_1 + L_2 + L_3$				
Cable 1: Yellow	Winding A	L1:10GP	L1:12GP	L2:B1L12	L3:EN10S	
Cable 2: Red	Winding B	6.8	15.4	26.0	8	
Cable 3: Blue	Winding C	10	19.6			
Plug definition (AWG 28#) Molex: 51021-0500		13.2	23.8			
		16.4	28			
Plug 1: Brown	Hall 3~16V	19.2	32.2			
Plug 2: Black	Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				
Plug 3: Yellow	Hall A					
Plug 4: Red	Hall B					
Plug 5: Blue	Hall C					



Recommended

Gearbox:
Planetary Gearbox:
AM-10GP
AM-12GP

For more combination specs, visit Assun Motor website.

Recommended

Encoder:
Encoder S: AM-EN100S***
2~3 Channels

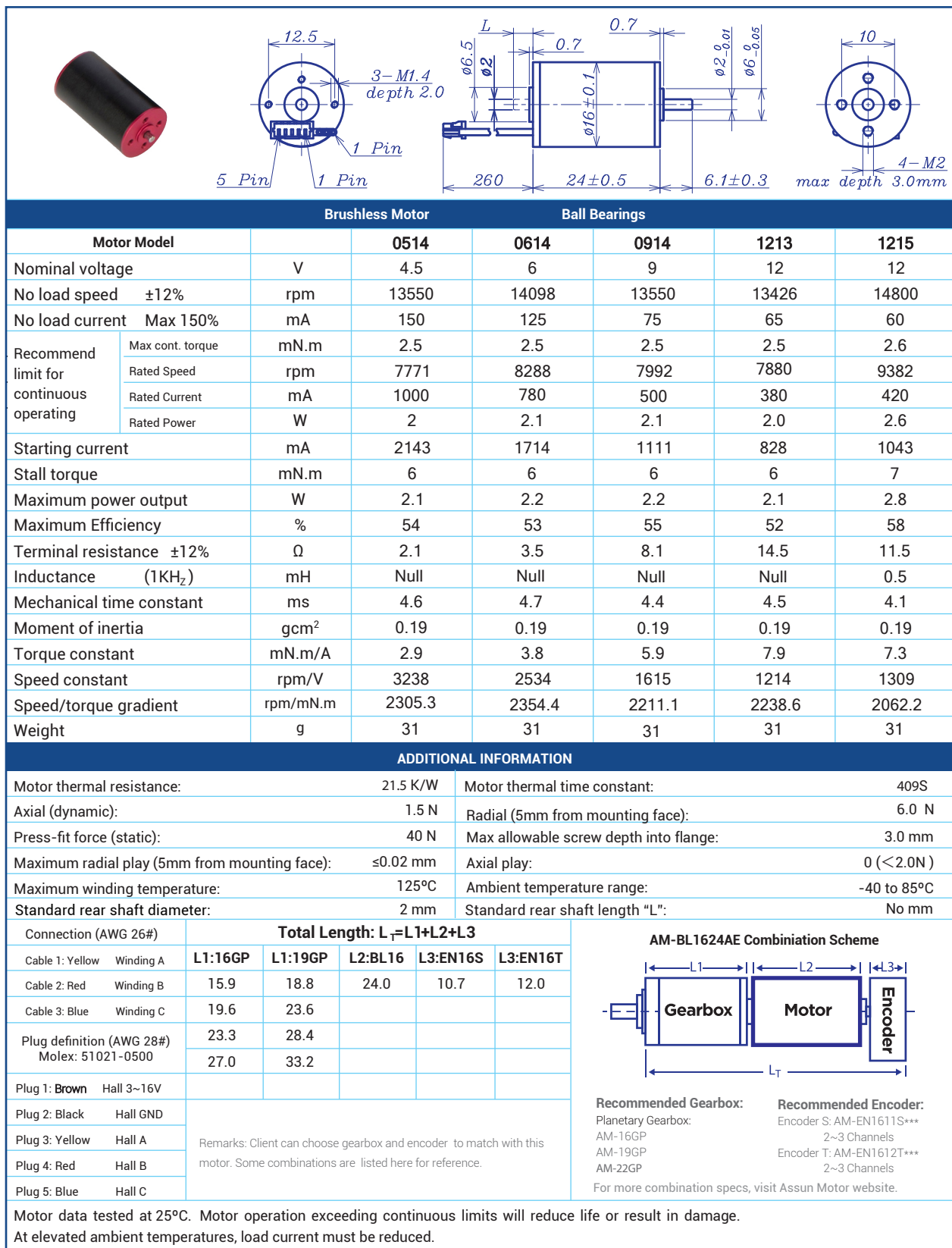
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

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AM-BL1624AE Series

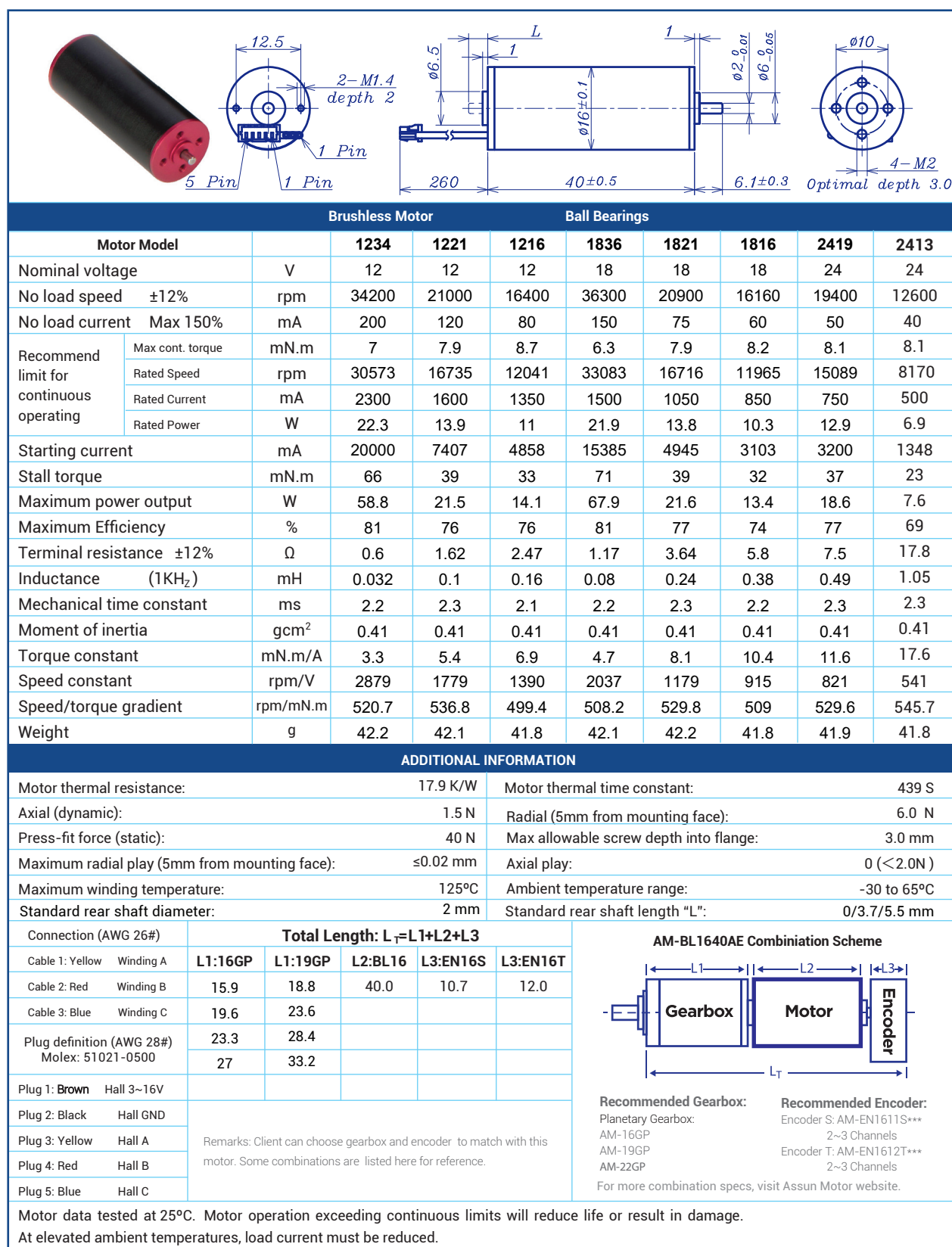


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HIGH TEMPERATURE SERIES

AM-BL1640AE Series

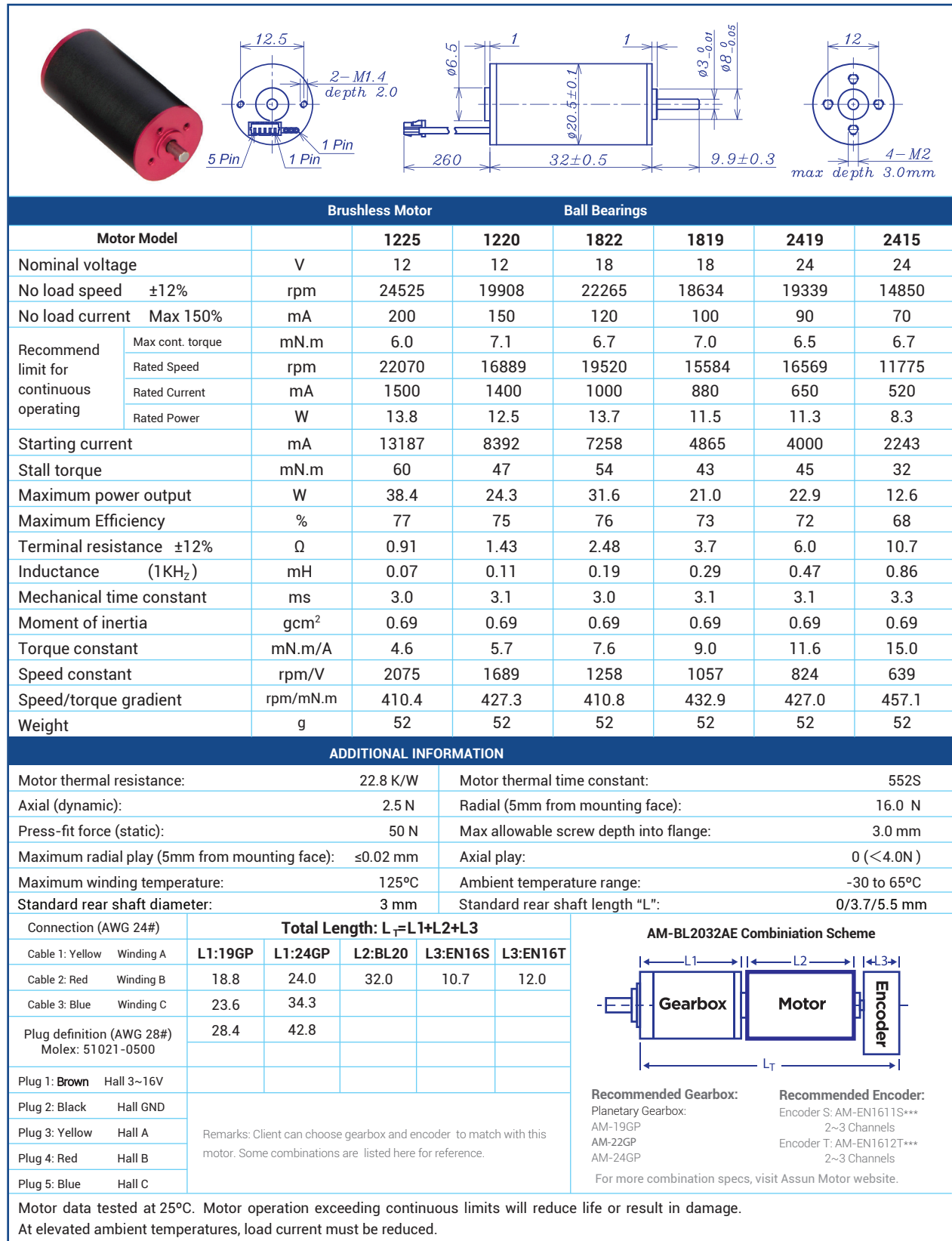


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AM-BL2032AE Series



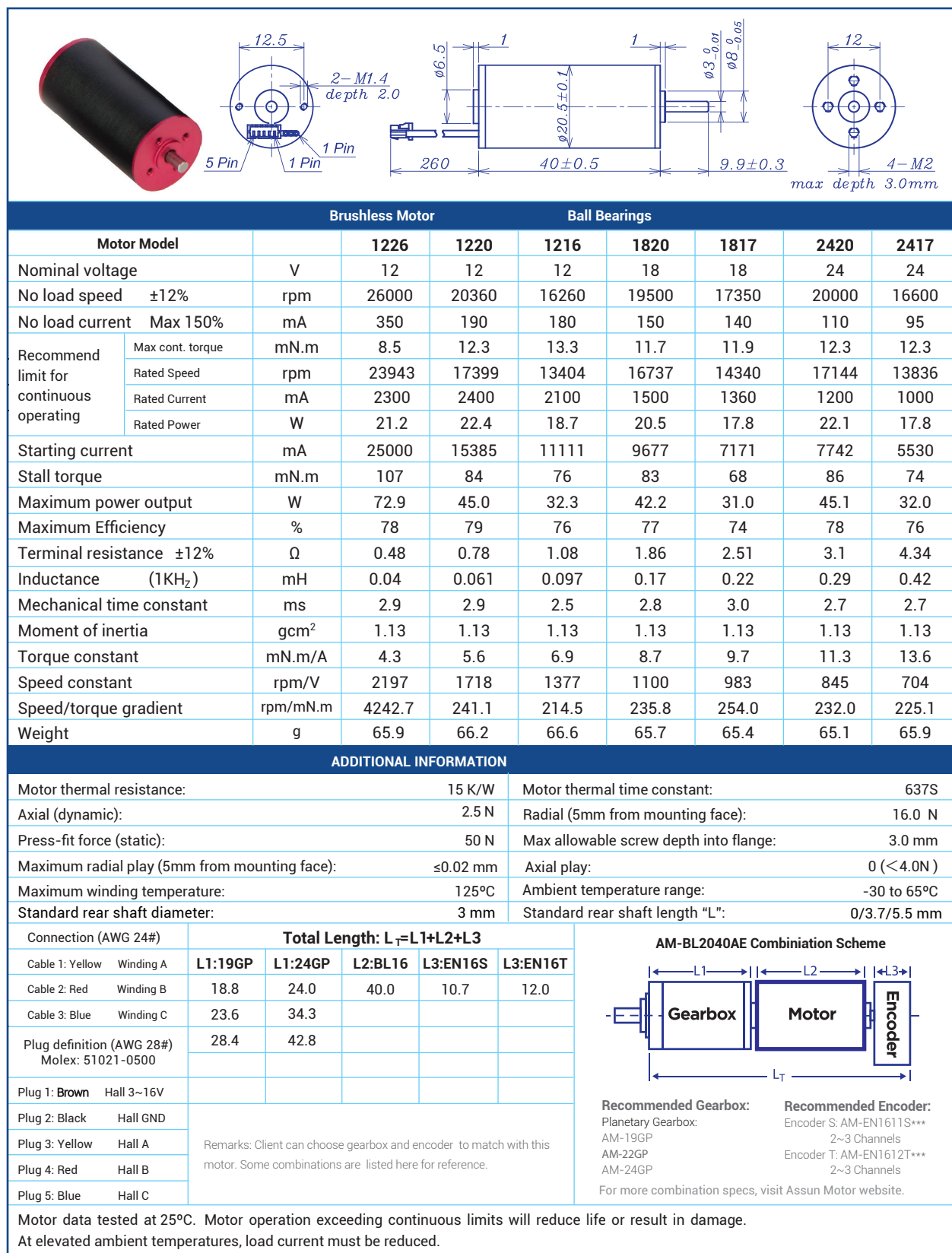
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HIGH TEMPERATURE SERIES

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AM-BL2040AE Series

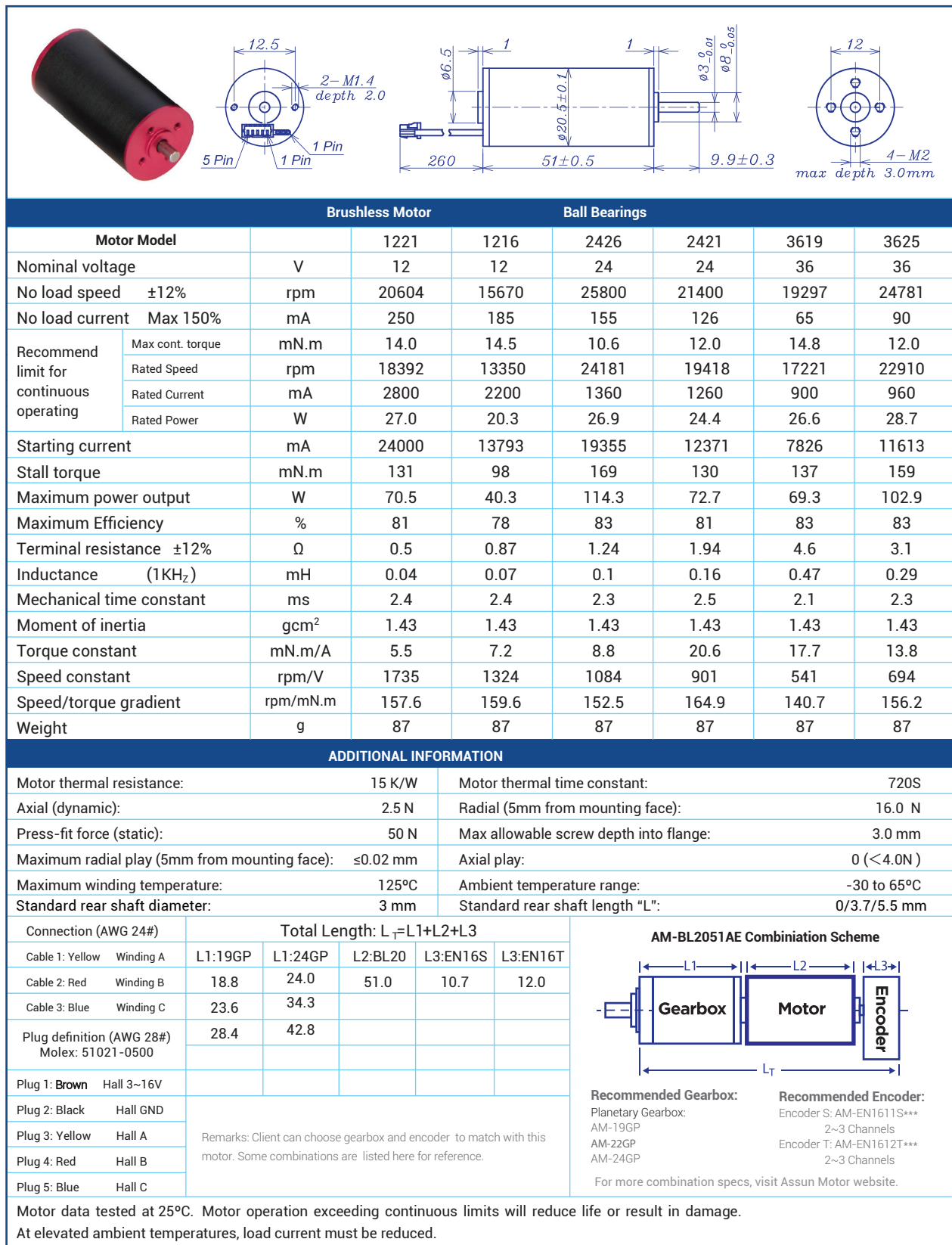


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AM-BL2051AE Series



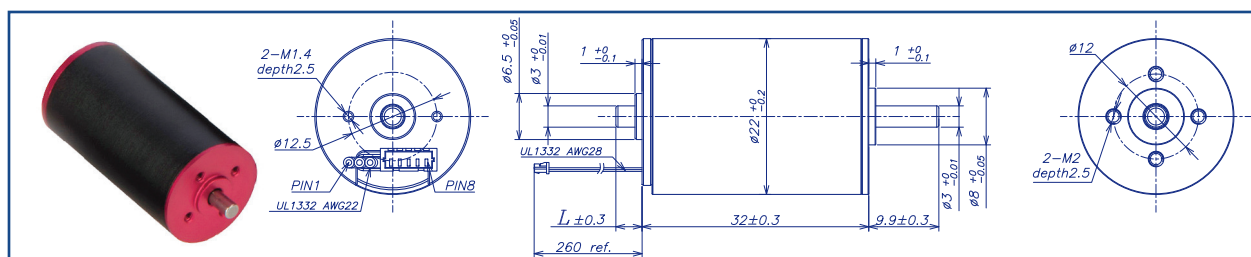
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HIGH TEMPERATURE SERIES

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AM-BL2232AE Series



Brushless Motor		Ball Bearings					
Motor Model		1212	1812	2412	3612		
Nominal voltage	V	12	18	24	36		
No load speed $\pm 12\%$	rpm	11920	12000	12440	12080		
No load current Max 150%	mA	120	150	65	40		
Recommend limit for continuous operating	Max cont. torque	mN.m	10.2	13.9	10.8	10.6	
	Rated Speed	rpm	9050	8250	9330	8990	
	Rated Current	mA	1210	1100	660	430	
	Rated Power	W	9.66	12.0	10.6	10.0	
Starting current	mA	4700	2700	2500	1540		
Stall torque	mN.m	42.3	32	43.2	41.5		
Maximum power output	W	13.2	19.8	14.0	13.1		
Maximum Efficiency	%	70.5	68.5	70.7	70.2		
Terminal resistance $\pm 12\%$	Ω	2.57	4.84	9.67	23.33		
Inductance (1KHz)	mH	-	-	-	-		
Mechanical time constant	ms	6.7	6.7	6.7	6.7		
Moment of inertia	gcm ²	2.8	2.8	2.8	2.8		
Torque constant	mN.m/A	9.33	11.9	17.88	27.6		
Speed constant	rpm/V	1024	611	534	346		
Speed/torque gradient	rpm/mN.m	281	389	287	291		
Weight	g	60.2	60.2	60.6	60.6		

ADDITIONAL INFORMATION

Motor thermal resistance:	-K/W	Motor thermal time constant:	-S
Axial (dynamic):	4.0 N	Radial (5mm from mounting face):	4.0 N
Press-fit force (static):	60 N	Max allowable screw depth into flange:	2.5 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	3 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 24#)	Total Length: $L_T = L_1 + L_2 + L_3$					AM-BL2232AE Combination Scheme
	L1:19GP	L1:24GP	L2:BL22	L3:EN16S	L3:EN16T	
Cable 1: Yellow Winding A	18.8	24.0	32.0	10.7	12.0	
Cable 2: Red Winding B	23.6	34.3				
Cable 3: Blue Winding C	28.4	42.8				
Plug definition (AWG 28#) Molex: 51021-0500						
Plug 1: Brown Hall 3~16V						
Plug 2: Black Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.					Recommended Gearbox: Planetary Gearbox: AM-19GP AM-22GP AM-24GP For more combination specs, visit Assun Motor website.
Plug 3: Yellow Hall A						
Plug 4: Red Hall B						
Plug 5: Blue Hall C						

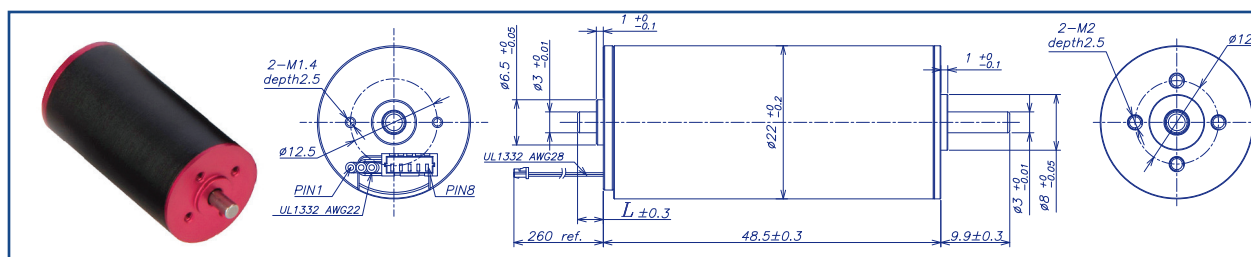
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-BL2248AE Series



Brushless Motor			Ball Bearings		
Motor Model		2412	2432		
Nominal voltage	V	24	24		
No load speed $\pm 12\%$	rpm	11700	32000		
No load current Max 150%	mA	280	380		
Recommend limit for continuous operating	Max cont. torque	mN.m	22.5	22.7	
	Rated Speed	rpm	10400	30500	
	Rated Current	mA	1200	3400	
	Rated Power	W	24.5	72.7	
Starting current	mA	12100	64400		
Stall torque	mN.m	214	487		
Maximum power output	W	62	409		
Maximum Efficiency	%	86.7	91		
Terminal resistance $\pm 12\%$	Ω	2	0.32		
Inductance (1KHz)	mH	0.224	-		
Mechanical time constant	ms	5.2	-		
Moment of inertia	gcm ²	4.2	4.2		
Torque constant	mN.m/A	17.7	7.6		
Speed constant	rpm/V	487	1367		
Speed/torque gradient	rpm/mN.m	54.7	65.9		
Weight	g	96.2	96.2		

ADDITIONAL INFORMATION			
Motor thermal resistance:	-K/W	Motor thermal time constant:	-S
Axial (dynamic):	4.0 N	Radial (5mm from mounting face):	4.0 N
Press-fit force (static):	60 N	Max allowable screw depth into flange:	2.5 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 65°C
Standard rear shaft diameter:	3 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 24#)	Total Length: $L_T = L_1 + L_2 + L_3$				
Cable 1: Yellow Winding A	L1:19GP	L1:24GP	L2:BL22	L3:EN16S	L3:EN16T
Cable 2: Red Winding B	18.8	24.0	32.0	10.7	12.0
Cable 3: Blue Winding C	23.6	34.3			
Plug definition (AWG 28#) Molex: 51021-0500	28.4	42.8			
Plug 1: Brown Hall 3~16V					
Plug 2: Black Hall GND					
Plug 3: Yellow Hall A					
Plug 4: Red Hall B					
Plug 5: Blue Hall C					

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-BL2248AE Combination Scheme

Recommended Gearbox:
Planetary Gearbox:
AM-19GP
AM-22GP
AM-24GP

Recommended Encoder:
Encoder S: AM-EN1611S***
Encoder T: AM-EN1612T***

For more combination specs, visit Assun Motor website.

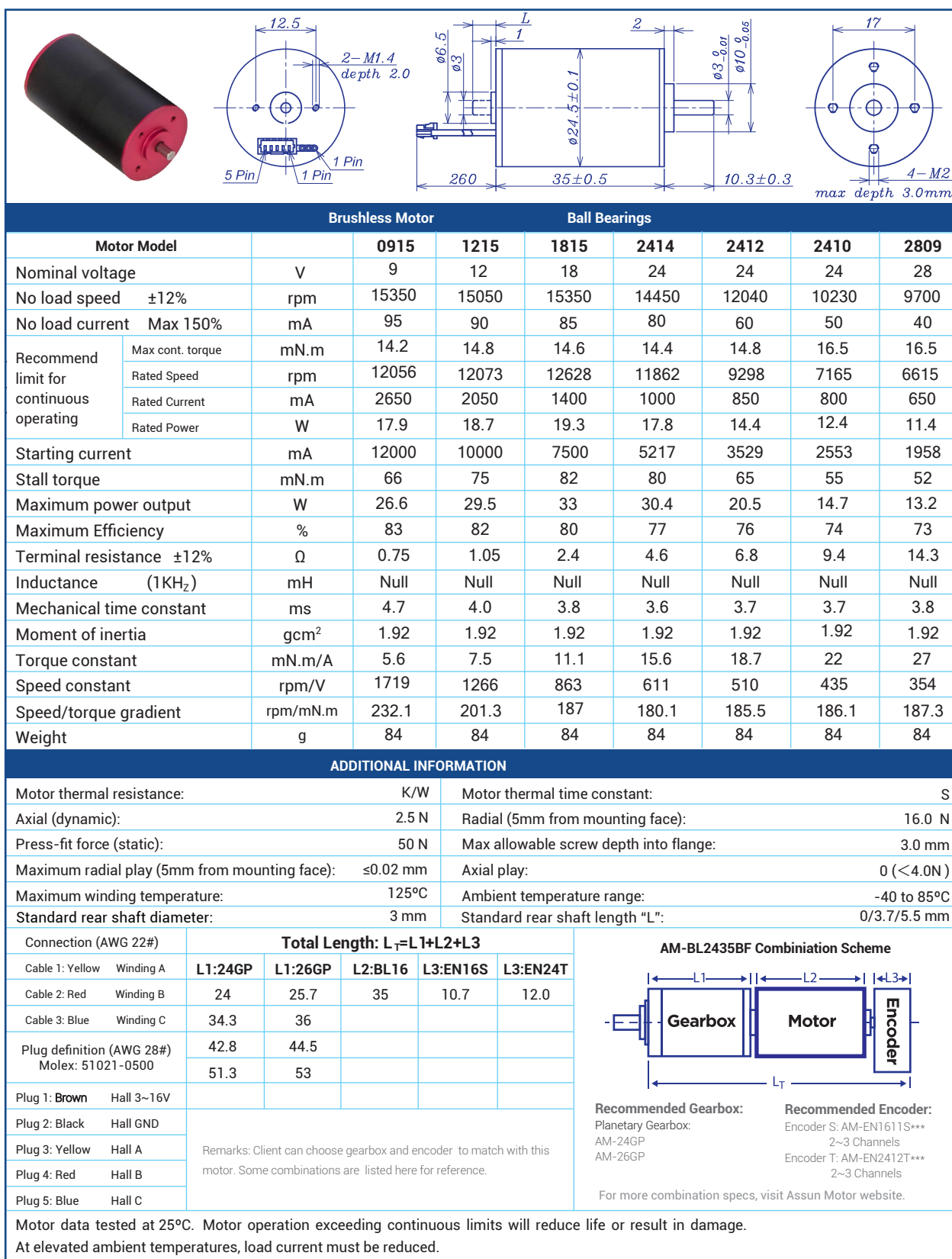
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-BL2435AE Series

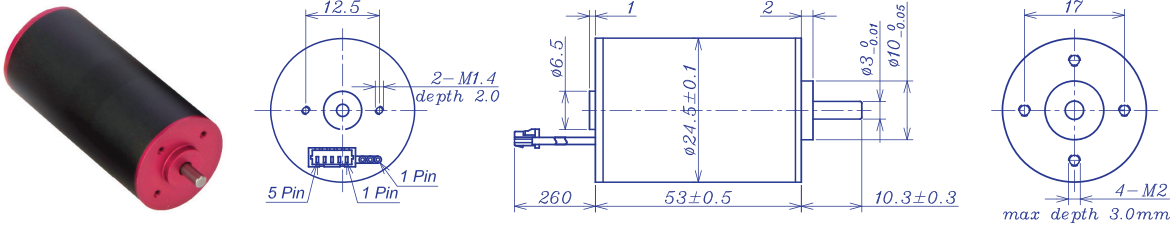
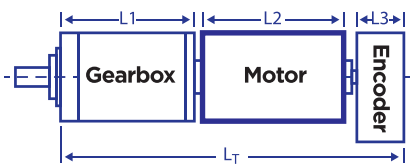


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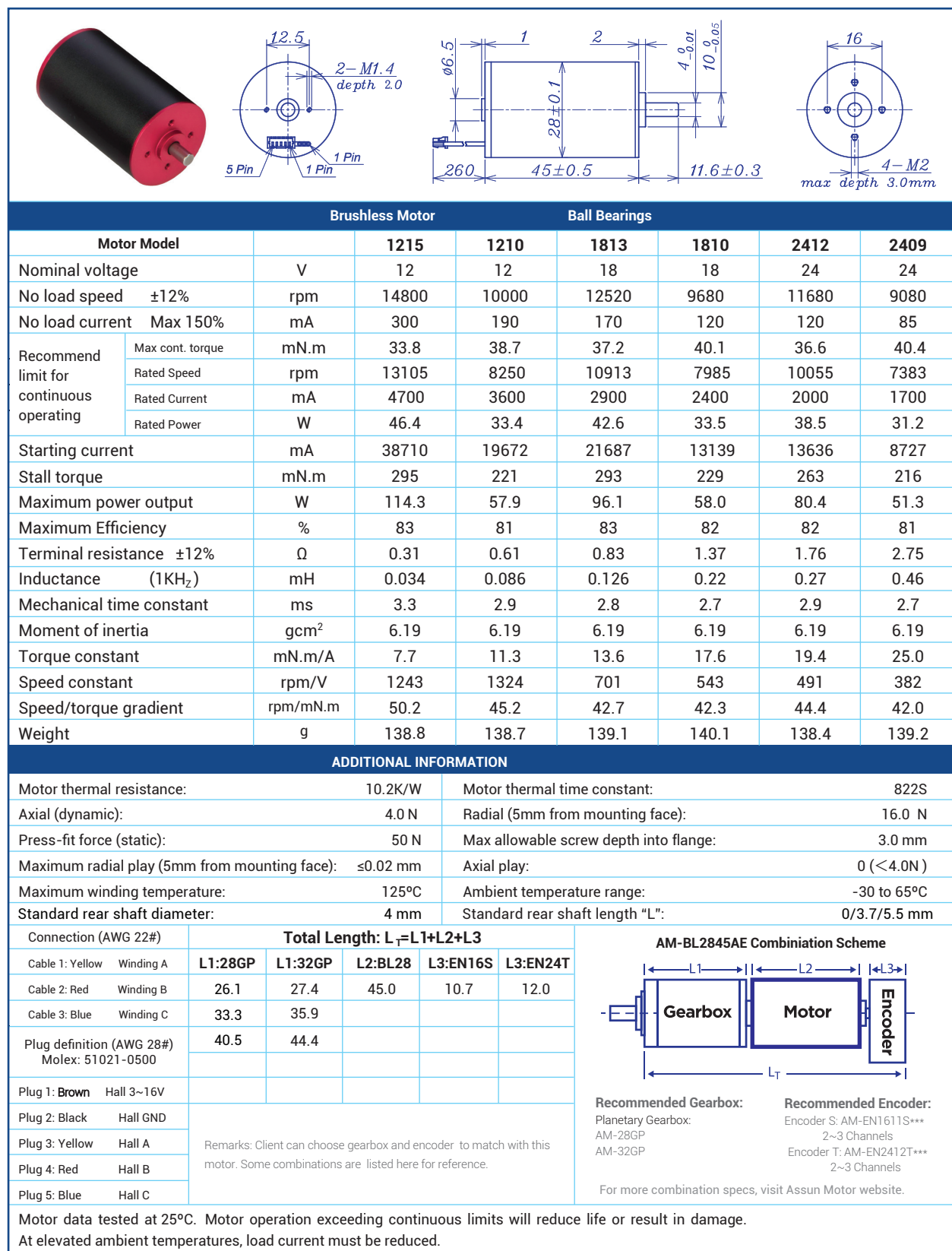
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AM-BL2453AE Series

							
Brushless Motor		Ball Bearings					
Motor Model		1213	1210	1829	1813	2414	2410
Nominal voltage	V	12	12	18	18	24	24
No load speed $\pm 12\%$	rpm	13010	10460	28715	12920	13625	9770
No load current Max 150%	mA	180	140	420	115	100	75
Recommend limit for continuous operating	Max cont. torque	mN.m	30.3	31.6	12.4	27.5	30.0
	Rated Speed	rpm	10962	8308	27679	10775	11668
	Rated Current	mA	3650	3050	2500	2200	1900
	Rated Power	W	34.8	27.5	35.8	31.0	36.7
Starting current	mA	22222	14286	58065	12676	12632	7273
Stall torque	mN.m	193	153	343	166	209	167
Maximum power output	W	65.6	40.2	257.5	56.0	74.6	42.7
Maximum Efficiency	%	83	81	84	82	83	81
Terminal resistance $\pm 12\%$	Ω	0.54	0.84	0.31	1.42	1.9	3.3
Inductance (1KHz)	mH	0.055	0.092	0.02	0.14	0.23	0.45
Mechanical time constant	ms	2.4	2.5	3.0	2.8	2.4	2.1
Moment of inertia	gcm ²	3.45	3.45	3.45	3.45	3.45	3.45
Torque constant	mN.m/A	8.7	10.8	5.9	13.2	16.7	23.2
Speed constant	rpm/V	1093	880	1607	724	572	411
Speed/torque gradient	rpm/mN.m	67.6	68.2	83.8	78.0	65.2	58.5
Weight	g	126.7	126.8	126.7	125.7	126.3	127.5
ADDITIONAL INFORMATION							
Motor thermal resistance:		10.5 K/W		Motor thermal time constant:		768 S	
Axial (dynamic):		2.5 N		Radial (5mm from mounting face):		16.0 N	
Press-fit force (static):		50 N		Max allowable screw depth into flange:		3.0 mm	
Maximum radial play (5mm from mounting face):		≤ 0.02 mm		Axial play:		0 (< 4.0 N)	
Maximum winding temperature:		125°C		Ambient temperature range:		-30 to 65°C	
Standard rear shaft diameter:		3 mm		Standard rear shaft length "L":		0/3.7/5.5 mm	
Connection (AWG 22#)		Total Length: $L=L_1+L_2+L_3$					 AM-BL2453AE Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-24GP, AM-26GP Recommended Encoder: Encoder S: AM-EN1611S*** 2~3 Channels Encoder T: AM-EN2412T*** 2~3 Channels For more combination specs, visit Assun Motor website.
Cable 1: Yellow	Winding A	L1:24GP	L1:26GP	L2:BL24	L3:EN16S	L3:EN24T	
Cable 2: Red	Winding B	24.0	25.7	53.0	10.7	12.0	
Cable 3: Blue	Winding C	34.3	36				
Plug definition (AWG 28#) Molex: 51021-0500		42.8	44.5				
			53				
Plug 1: Brown	Hall 3~16V						
Plug 2: Black	Hall GND						
Plug 3: Yellow	Hall A	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.					
Plug 4: Red	Hall B						
Plug 5: Blue	Hall C						
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.							

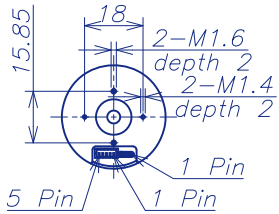
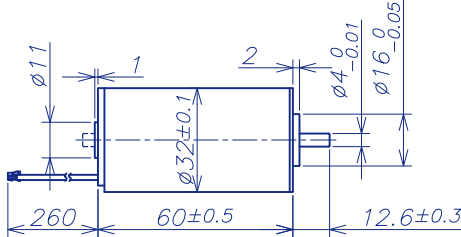
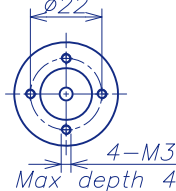
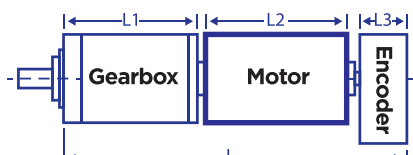
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AM-BL2845AE Series



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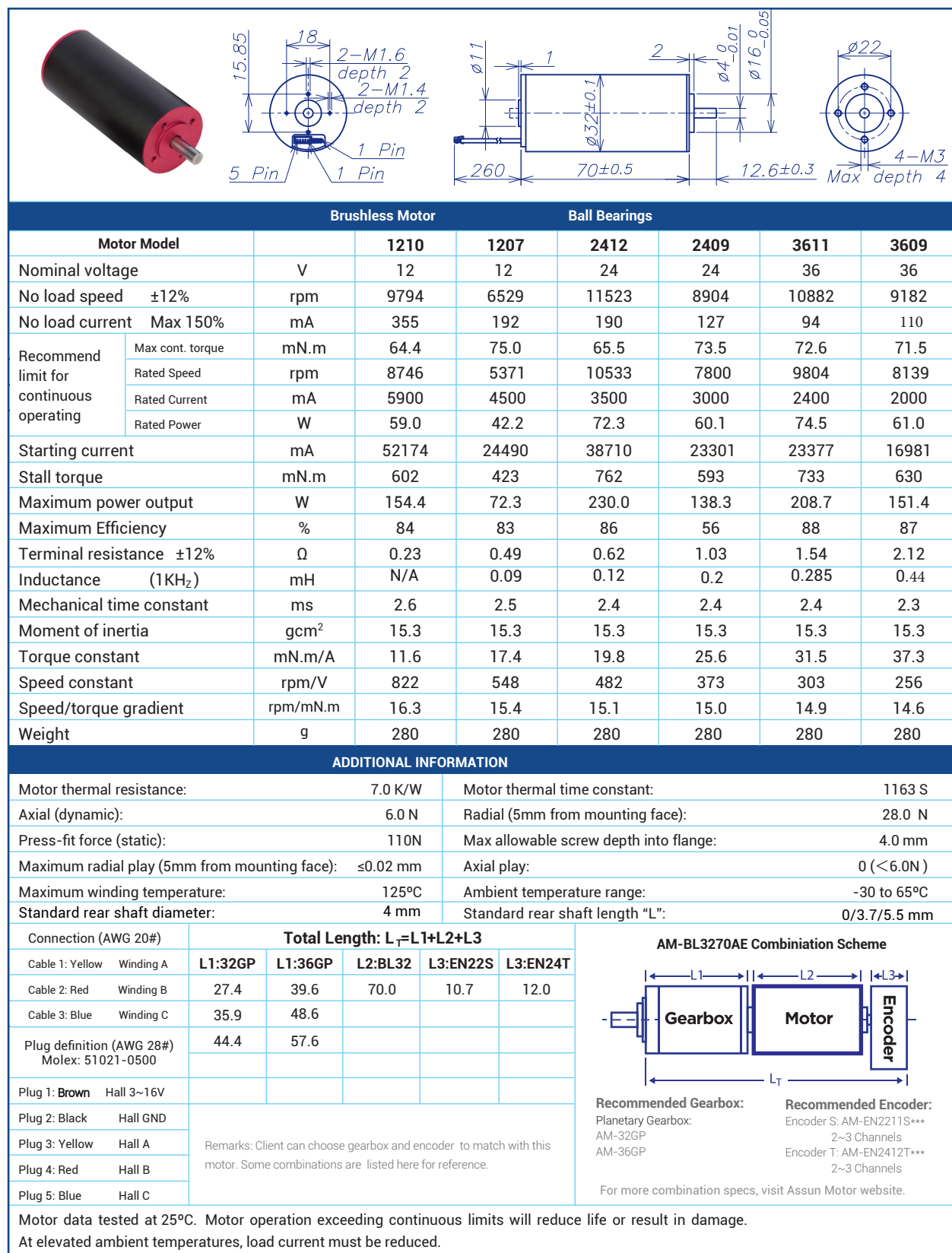
AM-BL3260AE Series

											
Brushless Motor			Ball Bearings								
Motor Model			1212	1208	2413	2409	3613	3610			
Nominal voltage		V	12	12	24	24	36	36			
No load speed ±12%		rpm	12191	8127	12832	9680	12311	10449			
No load current Max 150%		mA	355	192	190	127	125	94			
Recommend limit for continuous operating	Max cont. torque	mN.m	52.7	60.3	49.9	57.8	50.8	55.8			
	Rated Speed	rpm	11037	6864	11805	8549	11548	9278			
	Rated Current	mA	6000	4500	3000	2600	2000	1800			
	Rated Power	W	61.0	43.4	61.7	51.7	61.5	54.2			
Starting current		mA	60000	27907	35294	20168	22360	15319			
Stall torque		mN.m	557	388	624	468	603	438			
Maximum power output		W	177.9	82.6	209.5	119.5	80.4	136.2			
Maximum Efficiency		%	85	84	86	85	86	85			
Terminal resistance ±12%		Ω	0.2	0.43	0.68	1.19	1.61	2.35			
Inductance (1KHz)		mH	0.029	0.069	0.12	0.2	N/A	0.42			
Mechanical time constant		ms	3.0	2.9	2.9	2.9	2.9	2.9			
Moment of inertia		gcm ²	13.3	13.3	13.3	13.3	13.3	13.3			
Torque constant		mN.m/A	9.3	14.0	17.8	23.4	27.1	32.7			
Speed constant		rpm/V	1022	682	538	409	352	292			
Speed/torque gradient		rpm/mN.m	21.9	20.9	20.6	20.8	20.9	21.0			
Weight		g	240	240	240	240	240	240			
ADDITIONAL INFORMATION											
Motor thermal resistance:			7.8 K/W			Motor thermal time constant:			1089 S		
Axial (dynamic):			6.0 N			Radial (5mm from mounting face):			28.0 N		
Press-fit force (static):			110N			Max allowable screw depth into flange:			4.0 mm		
Maximum radial play (5mm from mounting face):			≤0.02 mm			Axial play:			0 (<6.0N)		
Maximum winding temperature:			125°C			Ambient temperature range:			-30 to 65°C		
Standard rear shaft diameter:			4 mm			Standard rear shaft length "L":			0/3.7/5.5 mm		
Connection (AWG 20#)		Total Length: L _T =L ₁ +L ₂ +L ₃							 AM-BL3260AE Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-28GP AM-32GP Recommended Encoder: Encoder S: AM-EN2211S*** 2~3 Channels Encoder T: AM-EN2412T*** 2~3 Channels For more combination specs, visit Assun Motor website.		
Cable 1: Yellow Winding A	L1:32GP	L1:36GP	L2:BL32	L3:EN22S	L3:EN24T						
Cable 2: Red Winding B	27.4	39.6	60.0	10.7	12.0						
Cable 3: Blue Winding C	35.9	48.6									
Plug definition (AWG 28#) Molex: 51021-0500	44.4	57.6									
Plug 1: Brown Hall 3~16V											
Plug 2: Black Hall GND											
Plug 3: Yellow Hall A	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.										
Plug 4: Red Hall B											
Plug 5: Blue Hall C											
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.											

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AM-BL3270AE Series

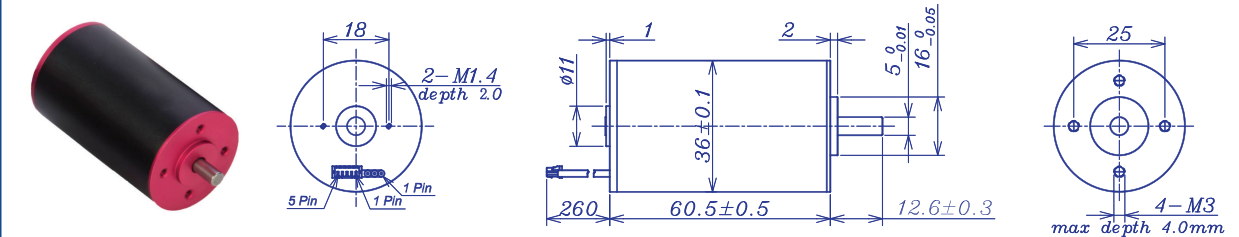
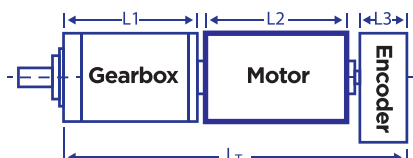


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AM-BL3660AE Series

								
Brushless Motor		Ball Bearings						
Motor Model		1211	1209	2413	2410	3612	3610	
Nominal voltage	V	12	12	24	24	36	36	
No load speed $\pm 12\%$	rpm	11200	8840	12500	10200	12300	10450	
No load current Max 150%	mA	320	230	220	165	120	105	
Recommend limit for continuous operating	Max cont. torque	mN.m	70.0	74.4	70.8	74.5	74.6	78.4
	Rated Speed	rpm	9909	7504	11403	8974	11123	9262
	Rated Current	mA	7200	6000	4100	3500	2800	2500
	Rated Power	W	72.7	58.5	84.5	70.0	86.9	76.0
Starting current	mA	60000	38710	44444	27907	28125	21176	
Stall torque	mN.m	607	496	807	620	779	690	
Maximum power output	W	178.1	114.8	264.0	165.5	251.0	188.7	
Maximum Efficiency	%	86	85	85	85	87	86	
Terminal resistance $\pm 12\%$	Ω	0.2	0.31	0.54	0.86	1.28	1.7	
Inductance (1KHz)	mH	0.027	0.051	0.11	0.17	0.27	0.38	
Mechanical time constant	ms	3.2	3.1	2.7	2.9	2.8	2.7	
Moment of inertia	gcm ²	16.75	16.75	16.75	16.75	16.75	16.75	
Torque constant	mN.m/A	10.2	12.9	18.2	22.3	27.8	32.7	
Speed constant	rpm/V	938	741	523	428	343	292	
Speed/torque gradient	rpm/mN.m	18.4	17.8	15.5	16.5	15.8	15.2	
Weight	g	325.8	325.9	326.8	326.9	326.5	327.5	
ADDITIONAL INFORMATION								
Motor thermal resistance:		6.9K/W		Motor thermal time constant:		1188S		
Axial (dynamic):		6.0 N		Radial (5mm from mounting face):		28.0 N		
Press-fit force (static):		110N		Max allowable screw depth into flange:		4.0 mm		
Maximum radial play (5mm from mounting face):		≤ 0.02 mm		Axial play:		0 (<6.0N)		
Maximum winding temperature:		125°C		Ambient temperature range:		-30 to 65°C		
Standard rear shaft diameter:		5 mm		Standard rear shaft length "L":		0/3.7/5.5 mm		
Connection (AWG 20#)		Total Length: $L_T=L_1+L_2+L_3$					 AM-BL3660AE Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-36GP AM-40GP Recommended Encoder: Encoder S: AM-EN2211S*** 2~3 Channels Encoder T: AM-EN3612T*** 2~3 Channels For more combination specs, visit Assun Motor website.	
Cable 1: Yellow Winding A		L1:36GP	L1:40GP	L2:BL36	L3:EN22S	L3:EN36T		
Cable 2: Red Winding B		39.6	46.8	60.5	10.7	12.0		
Cable 3: Blue Winding C		48.6	58.3					
Plug definition (AWG 28#) Molex: 51021-0500		57.6	69.8					
Plug 1: Brown Hall 3~16V								
Plug 2: Black Hall GND								
Plug 3: Yellow Hall A		Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.						
Plug 4: Red Hall B								
Plug 5: Blue Hall C								
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.								

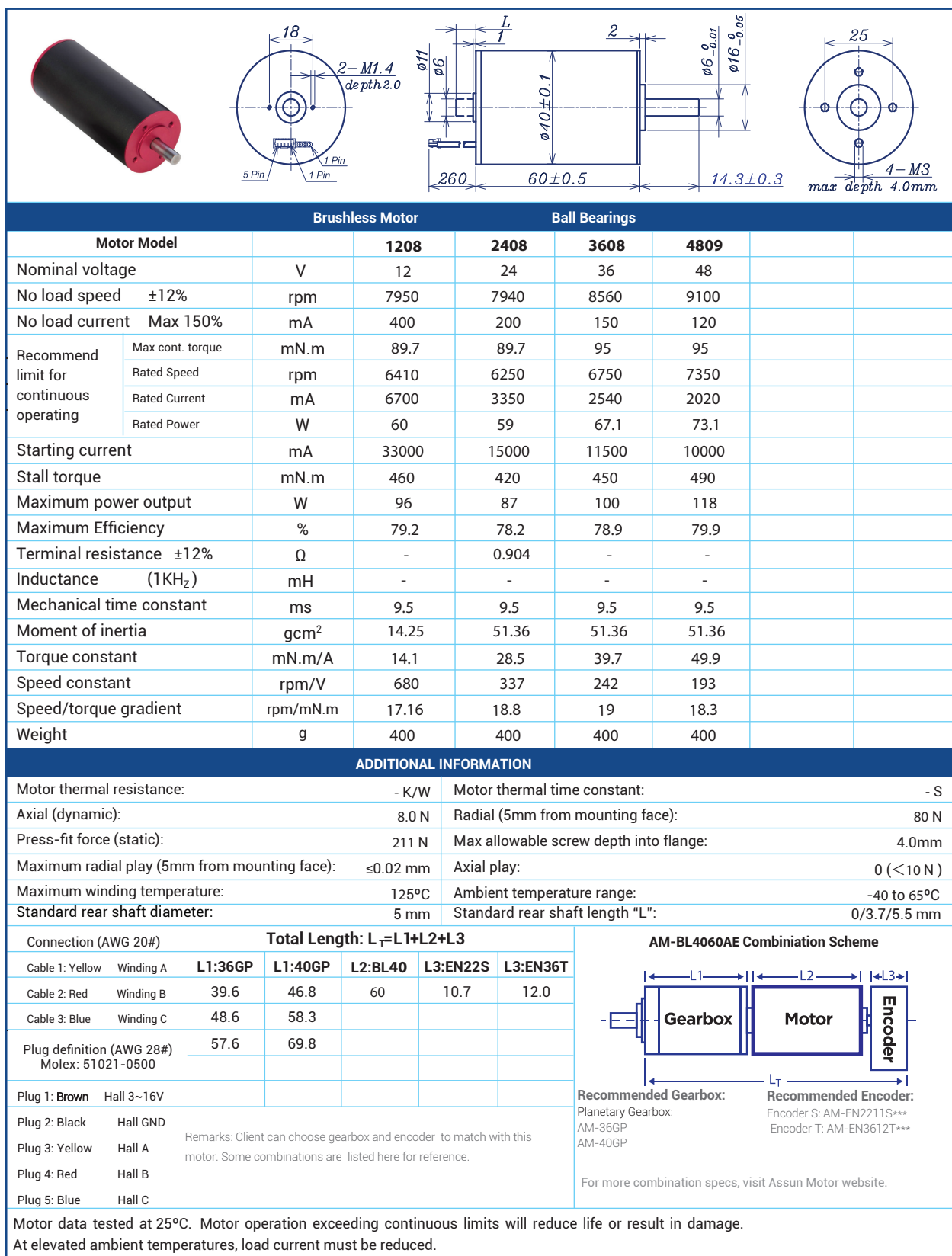
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DC BRUSHLESS MOTOR

HIGH POWER SERIES



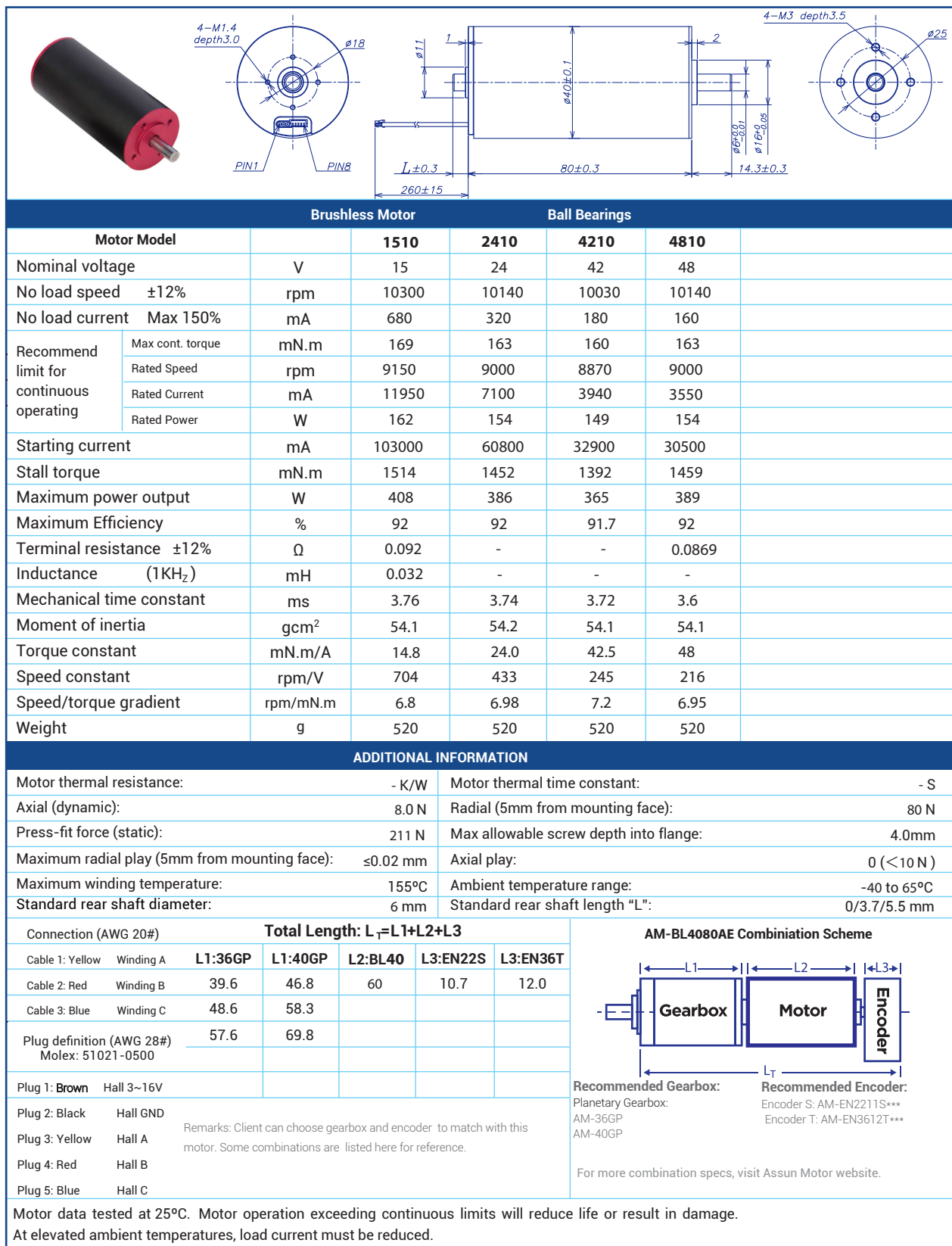
AM-BL4060AE Series



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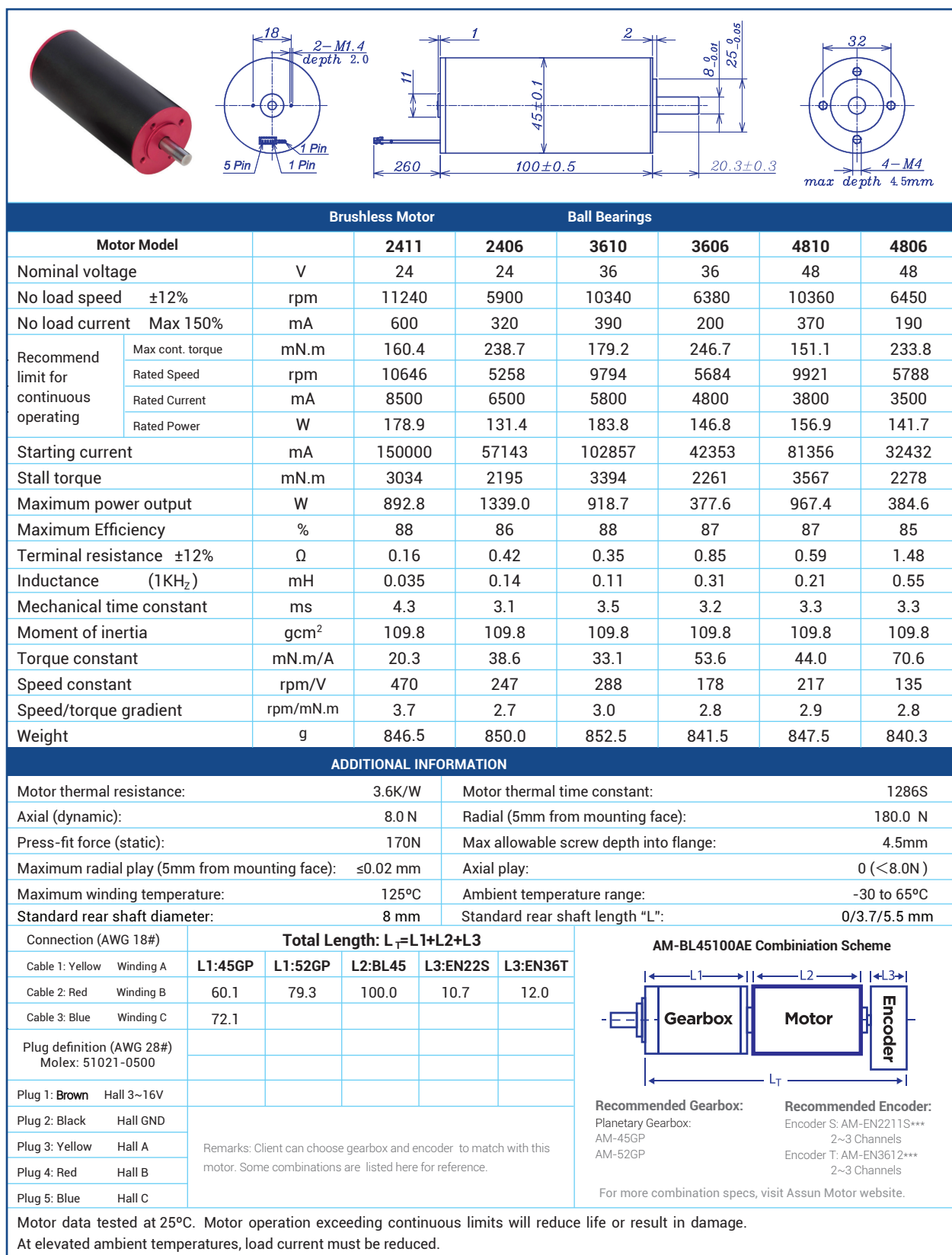


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DC BRUSHLESS MOTOR — HIGH TEMPERATURE SERIES

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AM-BL45100AE Series



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DC BRUSHLESS MOTOR

HIGH POWER SERIES (155 °C)

Assun high power series BLDC motors are designed with multi-pole (4 poles) structure. Together with the high power and high torque output, these motors have also been upgraded to cope with high winding temperatures up to 155 °C . Applications with heavy duty requirements now have the perfect choice to their best satisfaction.

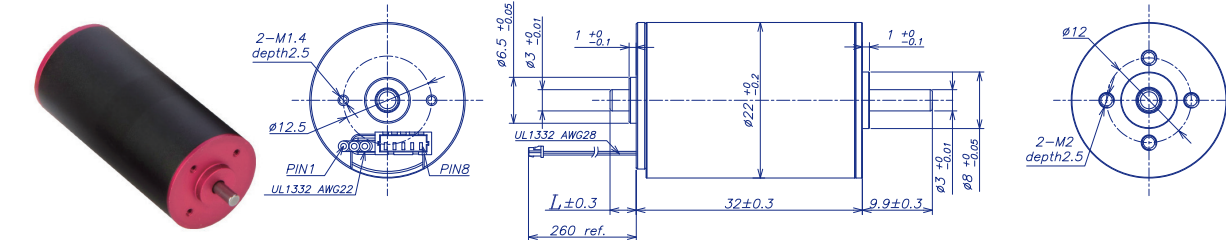
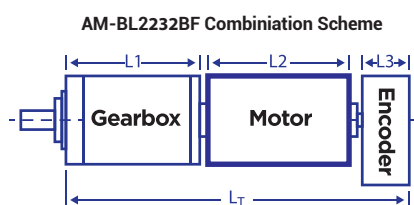


DC BRUSHLESS MOTOR

HIGH POWER SERIES

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AM-BL2232BF Series

								
Brushless Motor			Ball Bearings					
Motor Model			0607	1207	1507	1807	2407	
Nominal voltage		V	6	12	15	18	24	
No load speed ±12%		rpm	6850	6840	6900	6950	7000	
No load current Max 150%		mA	135	70	60	50	40	
Recommend limit for continuous operating	Max cont. torque	mN.m	14.8	14.8	14.8	14.8	14.8	
	Rated Speed	rpm	5600	5520	5470	5620	5550	
	Rated Current	mA	1800	900	730	610	460	
	Rated Power	W	8.7	8.5	8.5	8.7	8.6	
Starting current		mA	9260	4378	3297	2978	2085	
Stall torque		mN.m	81.1	76.7	71.4	77	71.2	
Maximum power output		W	14.6	13.7	12.9	14	13	
Maximum Efficiency		%	83	83	82	83	82	
Terminal resistance ±12%		Ω	0.61	2.74	2.74	6	11.5	
Inductance (1KHz)		mH	0.028	-	-	-	-	
Mechanical time constant		ms	2.3	2.3	2.3	2.3	2.3	
Moment of inertia		gcm ²	2.92	2.92	2.92	2.92	2.92	
Torque constant		mN.m/A	8.89	17.8	22	26.3	34.7	
Speed constant		rpm/V	1158	579	468	392	297	
Speed/torque gradient		rpm/mN.m	84	89.3	96.7	90.3	98.3	
Weight		g	-	-	-	-	-	
ADDITIONAL INFORMATION								
Motor thermal resistance:			-K/W		Motor thermal time constant:			-S
Axial (dynamic):			4.0 N		Radial (5mm from mounting face):			4.0 N
Press-fit force (static):			60 N		Max allowable screw depth into flange:			2.5 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play:			Preset
Maximum winding temperature:			155°C		Ambient temperature range:			-40 to 65°C
Standard rear shaft diameter:			3 mm		Standard rear shaft length "L":			0/3.7/5.5 mm
Connection (AWG 22#)		Total Length: L _T =L ₁ +L ₂ +L ₃						
Cable 1: Yellow	Winding A	L1:19GP	L1:24GP	L2:BL22	L3:EN16S	L3:EN16T	 AM-BL2232BF Combination Scheme 推荐齿轮箱: AM-19GP AM-22GP AM-24GP 推荐编码器: 磁电编码器: AM-EN1611S*** 光电编码器: AM-EN1612T*** For more combination specs, visit Assun Motor website.	
Cable 2: Red	Winding B	18.8	24.0	32.0	10.7	12.0		
Cable 3: Blue	Winding C	23.6	34.3					
Plug definition (AWG 28#) Molex: 51021-0500		28.4	42.8					
Plug 1: Brown	Hall 3~16V							
Plug 2: Black	Hall GND							
Plug 3: Yellow	Hall A							
Plug 4: Red	Hall B	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.						
Plug 5: Blue	Hall C							
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.								
At elevated ambient temperatures, load current must be reduced.								

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Brushless Motor			Ball Bearings					
Motor Model			1206	1806	2406			
Nominal voltage		V	12	18	24			
No load speed	±12%	rpm	5950	6400	6200			
No load current	Max 150%	mA	80	60	45			
Recommend limit for continuous operating	Max cont. torque	mN.m	26.4	26.4	26.4			
	Rated Speed	rpm	5000	5500	5300			
	Rated Current	mA	1480	1060	770			
	Rated Power	W	13.8	15.2	14.7			
Starting current		mA	10000	7260	5060			
Stall torque		mN.m	149	190	182			
Maximum power output		W	25.8	31.8	29.5			
Maximum Efficiency		%	81	82	81.7			
Terminal resistance ±12%		Ω	1.3	2.5	4.75			
Inductance (1KHz)		mH	-	-	-			
Mechanical time constant		ms	2.3	2.3	2.3			
Moment of inertia		gcm ²	2.92	2.92	2.92			
Torque constant		mN.m/A	18.9	26.4	36.2			
Speed constant		rpm/V	505	363	271			
Speed/torque gradient		rpm/mN.m	36	33.5	34.1			
Weight		g	95	95	95			

Motor thermal resistance:	-K/W	Motor thermal time constant:	-S
Axial (dynamic):	4.0 N	Radial (5mm from mounting face):	4.0 N
Press-fit force (static):	60 N	Max allowable screw depth into flange:	2.5 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 65°C
Standard rear shaft diameter:	3 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 24#)		Total Length: $L_1=L_1+L_2+L_3$				
Cable 1: Yellow	Winding A	L1:19GP	L1:24GP	L2:BL22	L3:EN16S	L3:EN16T
Cable 2: Red	Winding B	18.8	24.0	32.0	10.7	12.0
Cable 3: Blue	Winding C	23.6	34.3			
Plug definition (AWG 28#) Molex: 51021-0500		28.4	42.8			
Plug 1: Brown	Hall 3~16V					
Plug 2: Black	Hall GND	Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				
Plug 3: Yellow	Hall A					
Plug 4: Red	Hall B					
Plug 5: Blue	Hall C					

The diagram shows a horizontal assembly of three components: a Gearbox, a Motor, and an Encoder. The Gearbox is on the left, followed by the Motor, and the Encoder is on the right. The total length of the assembly is labeled as L_T . The individual lengths of the Gearbox, Motor, and Encoder are labeled as L_1 , L_2 , and L_3 respectively. The Gearbox and Motor are connected by a shaft, and the Encoder is connected to the Motor.

For more combination specs, visit Assun Motor website.

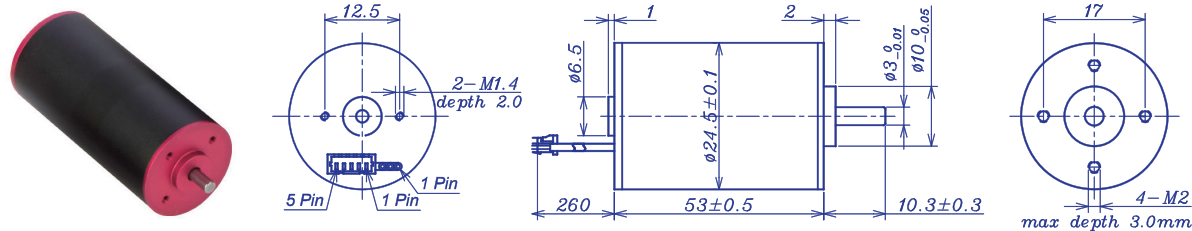
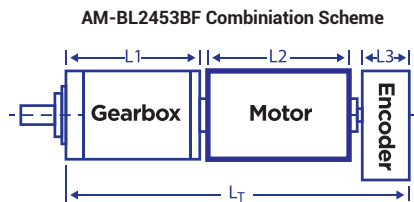
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HIGH POWER SERIES

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AM-BL2453BF Series

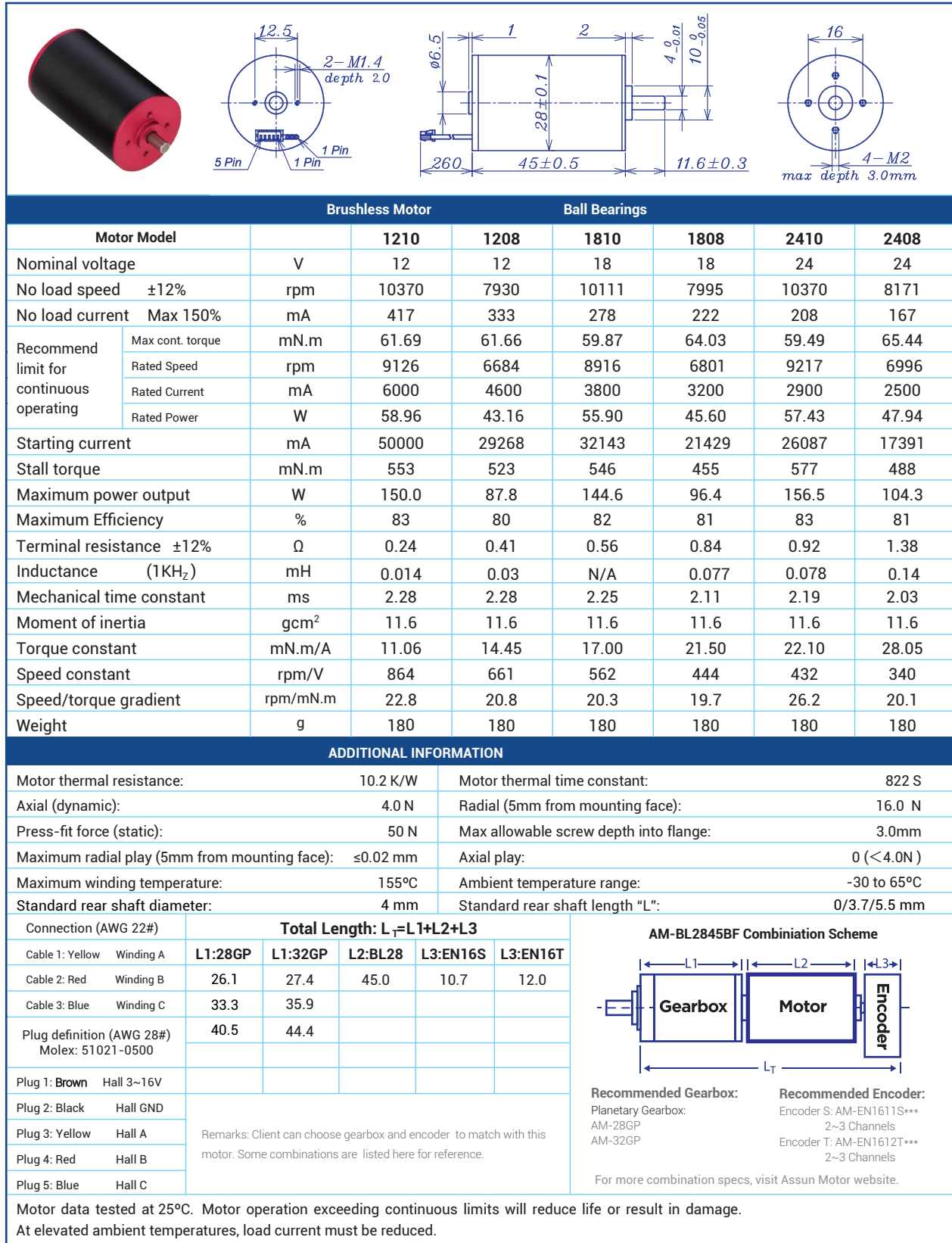
										
Brushless Motor			Ball Bearings							
Motor Model			1212	1209	1812	1809	2412	2409		
Nominal voltage		V	12	12	18	18	24	24		
No load speed ±12%		rpm	11937	9182	11937	8952	11937	9182		
No load current Max 150%		mA	358	300	239	200	179	150		
Recommend limit for continuous operating	Max cont. torque	mN.m	46.48	51.17	54.16	53.76	46.48	56.16		
	Rated Speed	rpm	10799	8037	10769	7818	10954	7979		
	Rated Current	mA	5200	4400	4000	3000	2600	2400		
	Rated Power	W	52.56	43.07	61.08	44.02	53.32	46.93		
Starting current		mA	54545	35294	40909	23684	31579	18321		
Stall torque		mN.m	524	440	589	455	606	457		
Maximum power output		W	163.6	105.9	174.1	106.6	189.5	109.9		
Maximum Efficiency		%	84	82	85	82	86	83		
Terminal resistance ±12%		Ω	0.22	0.34	0.44	0.76	0.76	1.31		
Inductance (1KHz)		mH	0.016	0.03	0.036	2.06	2.73	2.10		
Mechanical time constant		ms	2.38	2.18	2.12	2.06	2.08	2.10		
Moment of inertia		gcm ²	9.97	9.97	9.97	9.97	9.97	9.97		
Torque constant		mN.m/A	9.60	12.48	14.40	19.20	19.20	24.96		
Speed constant		rpm/V	995	765	663	497	497	383		
Speed/torque gradient		rpm/mN.m	22.8	20.8	20.3	19.7	19.7	20.1		
Weight		g	180	180	180	180	180	180		
ADDITIONAL INFORMATION										
Motor thermal resistance:			10.2 K/W			Motor thermal time constant:			768 S	
Axial (dynamic):			2.5 N			Radial (5mm from mounting face):			16.0 N	
Press-fit force (static):			50 N			Max allowable screw depth into flange:			3.0 mm	
Maximum radial play (5mm from mounting face):			≤0.02 mm			Axial play:			0 (<4.0N)	
Maximum winding temperature:			155°C			Ambient temperature range:			-30 to 65°C	
Standard rear shaft diameter:			3 mm			Standard rear shaft length "L":			0/3.7/5.5 mm	
Connection (AWG 22#)		Total Length: L _T =L ₁ +L ₂ +L ₃							 AM-BL2453BF Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-24GP AM-26GP Recommended Encoder: Encoder S: AM-EN1611S*** 2~3 Channels Encoder T: AM-EN1612T*** 2~3 Channels For more combination specs, visit Assun Motor website.	
Cable 1: Yellow Winding A		L1:24GP	L1:26GP	L2:BL24	L3:EN16S	L3:EN16T				
Cable 2: Red Winding B		24	25.7	53.0	10.7	12.0				
Cable 3: Blue Winding C		34.3	36							
Plug definition (AWG 28#) Molex: 51021-0500		42.8	44.5							
		51.3	53							
Plug 1: Brown Hall 3~16V										
Plug 2: Black Hall GND		Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.								
Plug 3: Yellow Hall A										
Plug 4: Red Hall B										
Plug 5: Blue Hall C										
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.										

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AM-BL2845BF Series



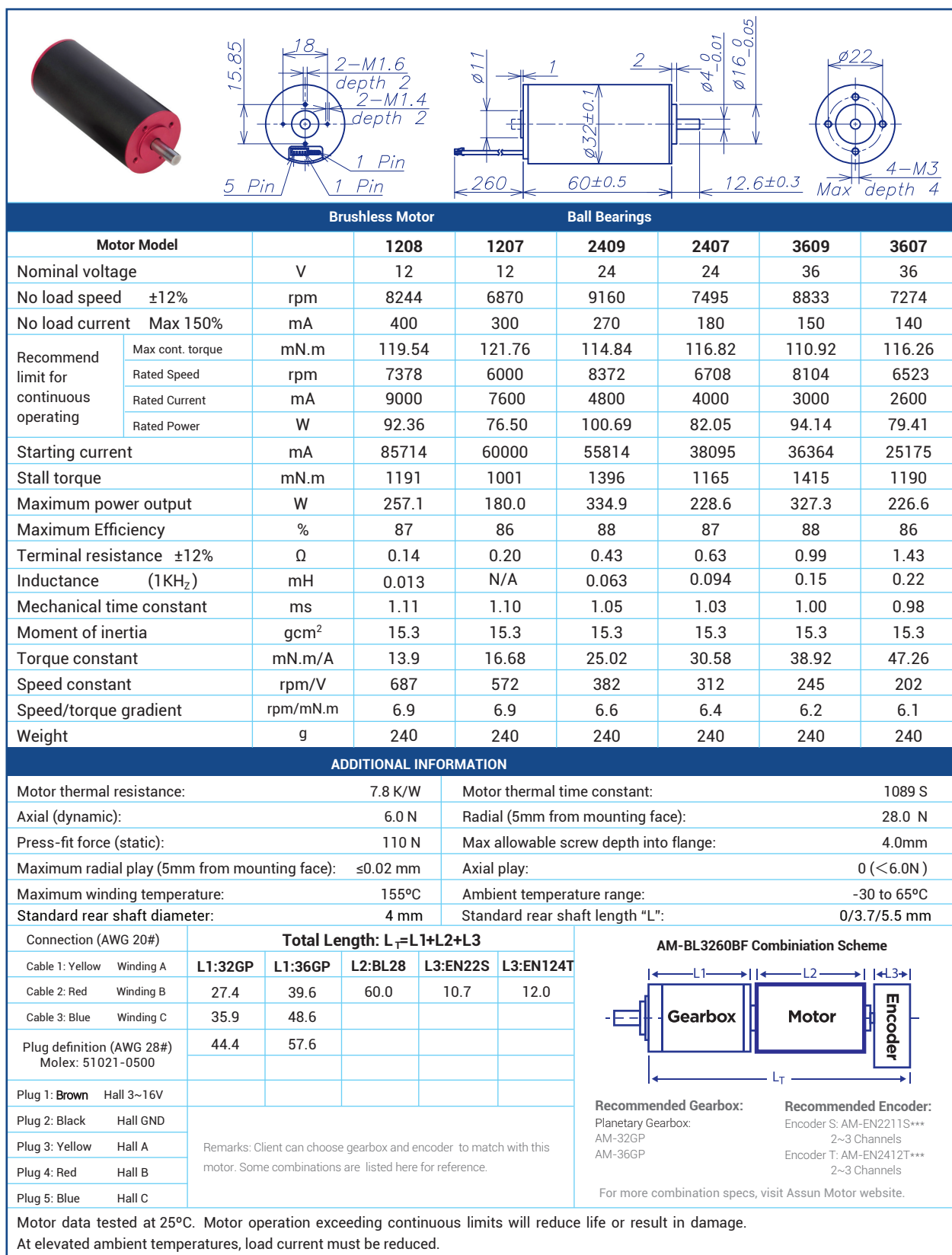
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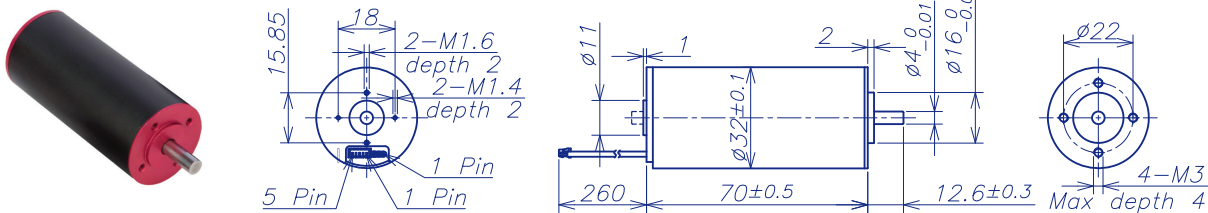


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AM-BL3270BF Series

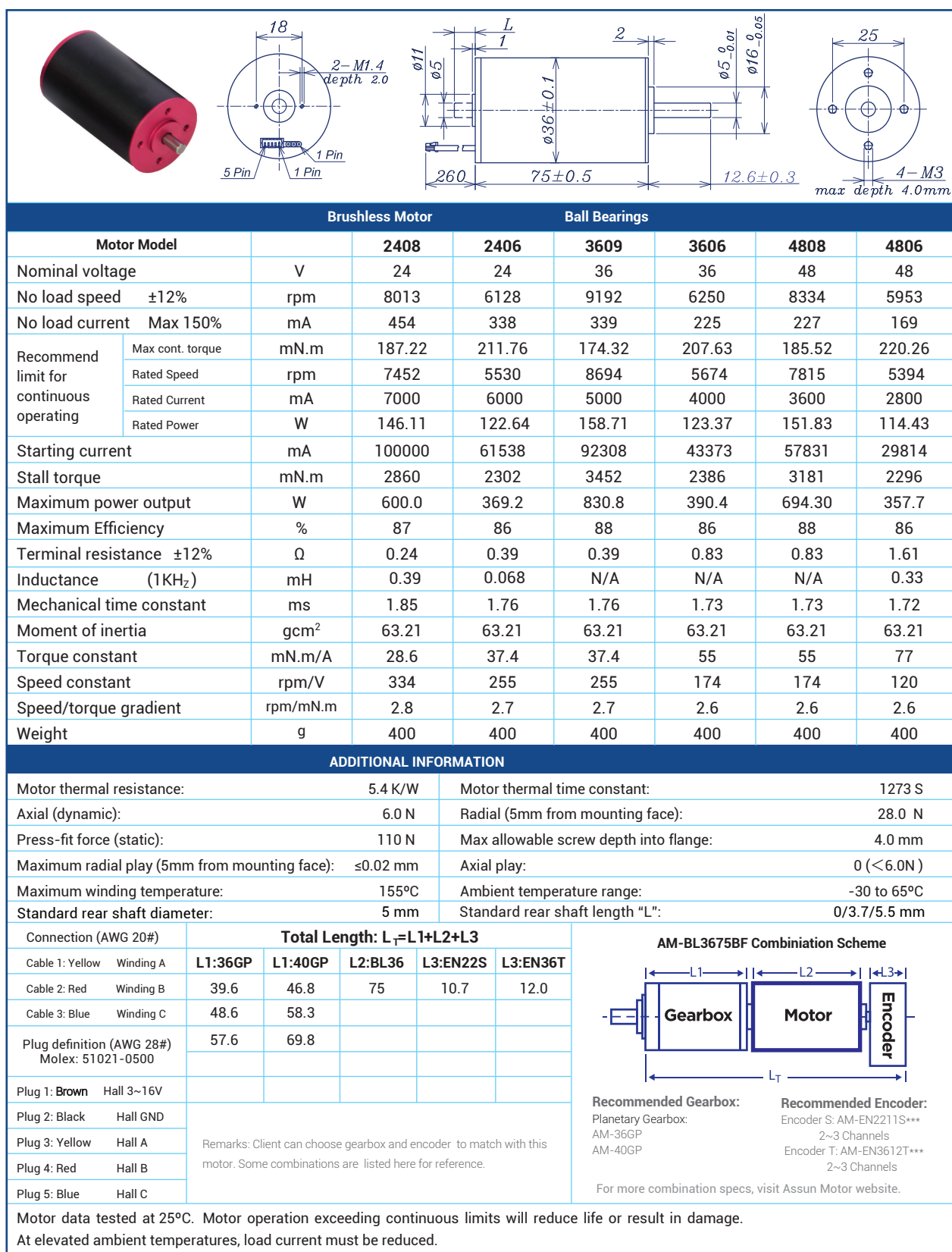
										
Brushless Motor			Ball Bearings							
Motor Model			1208	1207	2409	2407	3609	3607		
Nominal voltage		V	12	12	24	24	36	36		
No load speed ±12%		rpm	8426	6741	8988	7095	8792	7222		
No load current Max 150%		mA	750	500	375	250	250	167		
Recommend limit for continuous operating	Max cont. torque	mN.m	125.8	139.4	123.0	140.5	123.2	139.6		
	Rated Speed	rpm	7653	5959	8325	6347	8128	6513		
	Rated Current	mA	10000	8700	5200	4600	3400	3100		
	Rated Power	W	100.83	86.99	107.27	93.39	104.83	95.221		
Starting current		mA	109091	750000	70588	43636	45000	31579		
Stall torque		mN.m	1484	1275	1800	1409	1760	1503		
Maximum power output		W	327.3	225.0	423.5	261.8	405.0	284.2		
Maximum Efficiency		%	84	84	86	85	86	86		
Terminal resistance ±12%		Ω	0.11	0.15	0.34	0.55	0.80	1.14		
Inductance (1KHz)		mH	0.01	0.01	0.048	0.08	0.12	0.18		
Mechanical time constant		ms	1.12	1.05	0.99	1.00	0.99	0.95		
Moment of inertia		gcm ²	18.9	18.9	18.9	18.9	18.9	18.9		
Torque constant		mN.m/A	13.6	17.0	25.5	32.3	39.1	47.6		
Speed constant		rpm/V	702	562	374	296	244	201		
Speed/torque gradient		rpm/mN.m	5.7	5.3	5.0	5.0	5.0	4.8		
Weight		g	280	280	280	280	280	280		
ADDITIONAL INFORMATION										
Motor thermal resistance:			7.0 K/W			Motor thermal time constant:			1163 S	
Axial (dynamic):			6.0 N			Radial (5mm from mounting face):			28.0 N	
Press-fit force (static):			110 N			Max allowable screw depth into flange:			4.0 mm	
Maximum radial play (5mm from mounting face):			≤0.02 mm			Axial play:			0 (<6.0N)	
Maximum winding temperature:			155°C			Ambient temperature range:			-30 to 65°C	
Standard rear shaft diameter:			4 mm			Standard rear shaft length "L":			0/3.7/5.5 mm	
Connection (AWG 20#)		Total Length: L _T =L ₁ +L ₂ +L ₃								
Cable 1: Yellow	Winding A	L1:32GP	L1:36GP	L2:BL28	L3:EN22S	L3:EN24T				
Cable 2: Red	Winding B	27.4	39.6	70.0	10.7	12.0				
Cable 3: Blue	Winding C	35.9	48.6							
Plug definition (AWG 28#) Molex: 51021-0500		44.4	57.6							
Plug 1: Brown Hall 3~16V										
Plug 2: Black Hall GND										
Plug 3: Yellow Hall A		Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.								
Plug 4: Red Hall B										
Plug 5: Blue Hall C										

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DC BRUSHLESS MOTOR — HIGH POWER SERIES



AM-BL3675BF Series

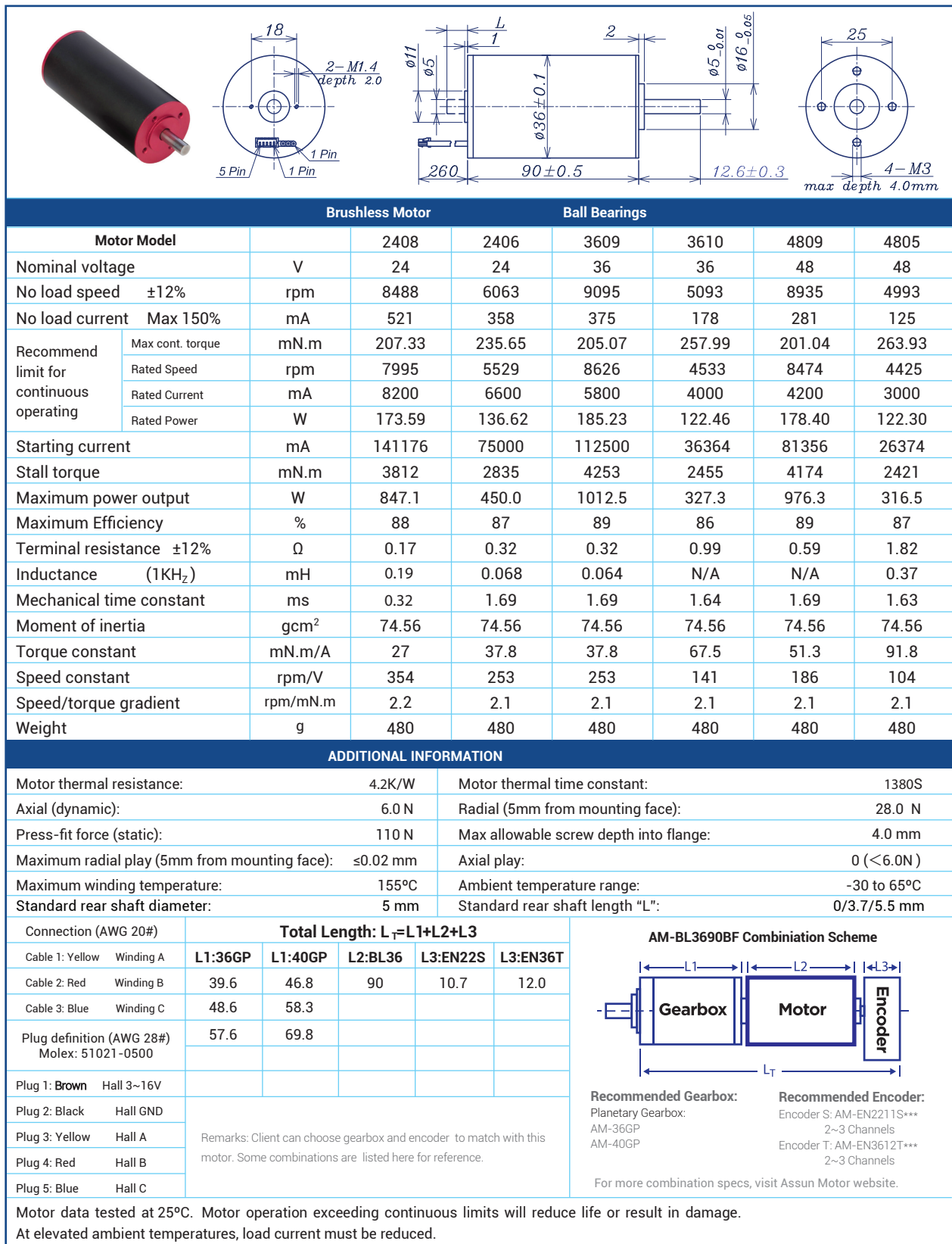


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AM-BL3690BF Series

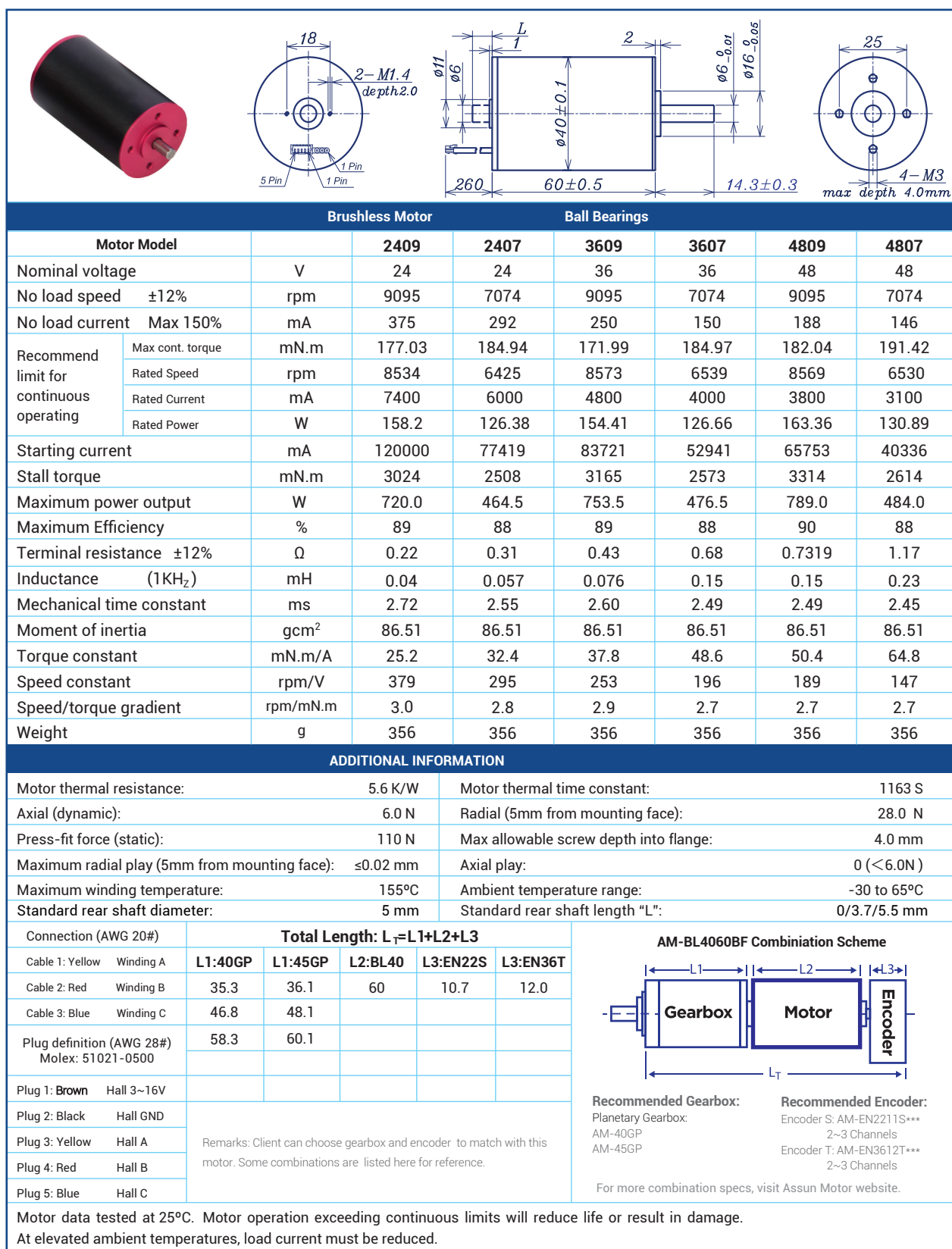


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DC BRUSHLESS MOTOR

HIGH POWER SERIES

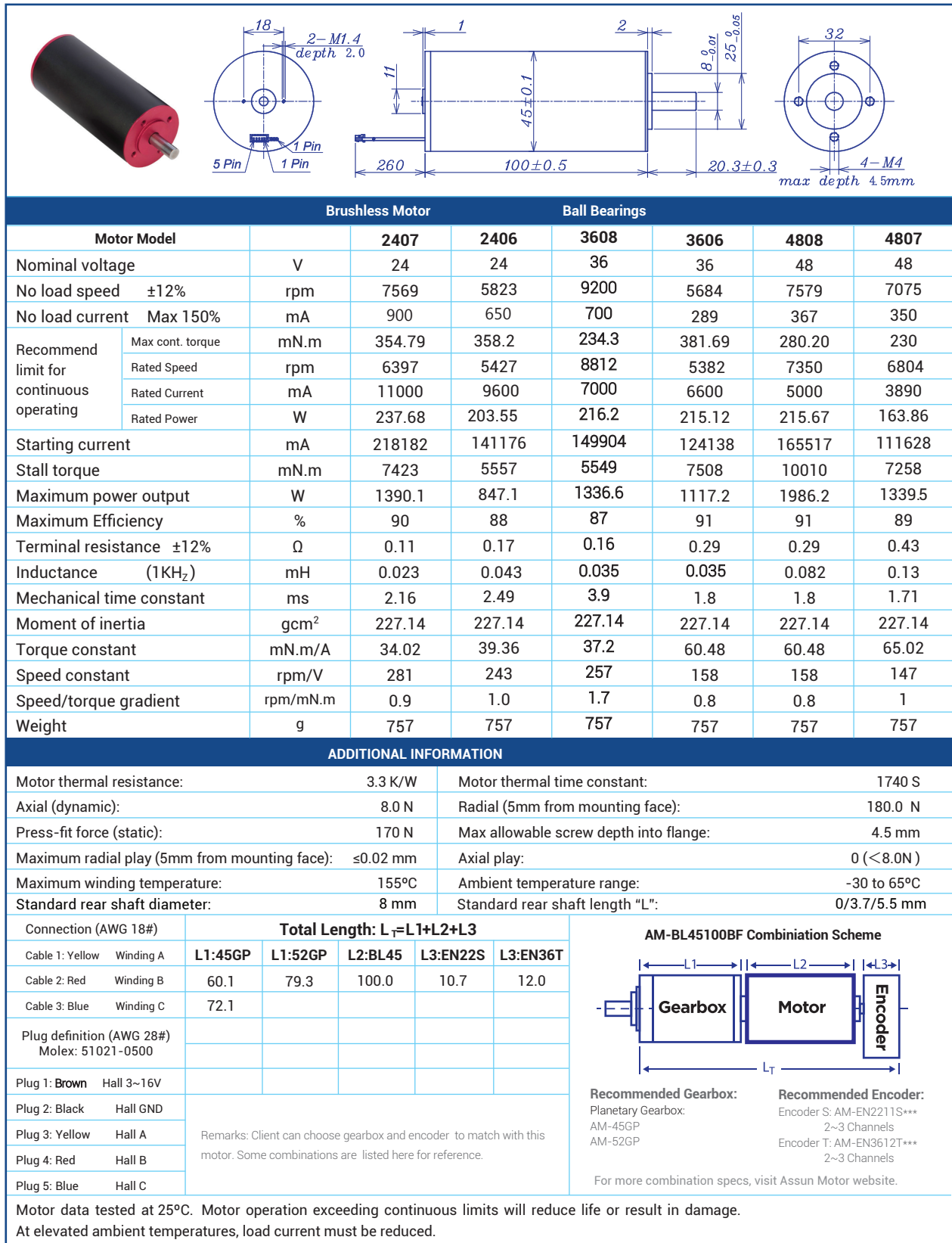
AM-BL4060BF Series



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AM-BL45100BF Series



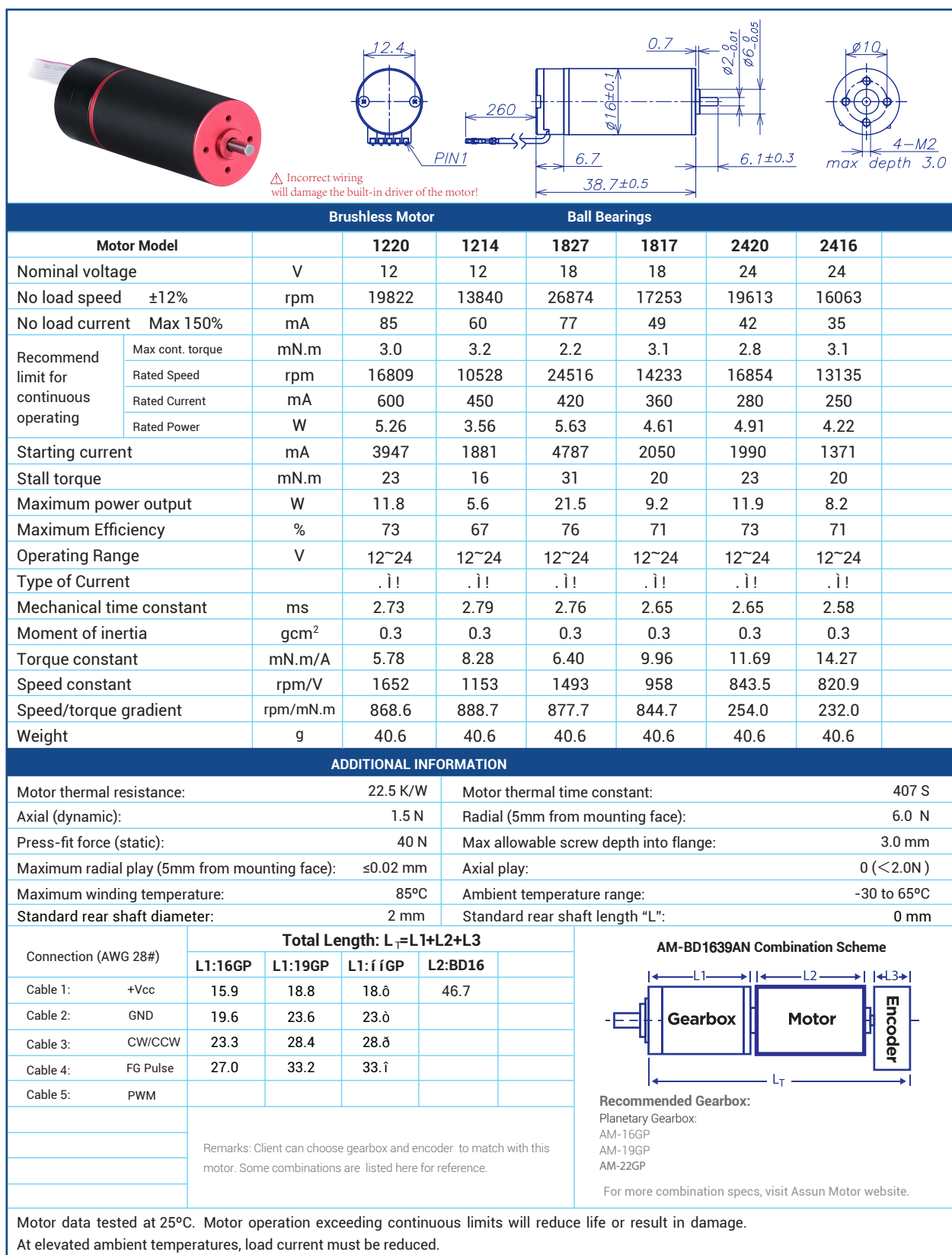
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DC BRUSHLESS MOTOR
SPEED DRIVER INTEGRATED SERIES

Assun driver integrated series BLDC motors are equipped with the speed driver inside of the motor for easier installation and more convenient use. Basic functions like speed control, rotation control and signal feedback can be achieved by the integrated driver.



AM-BD1639AN Series

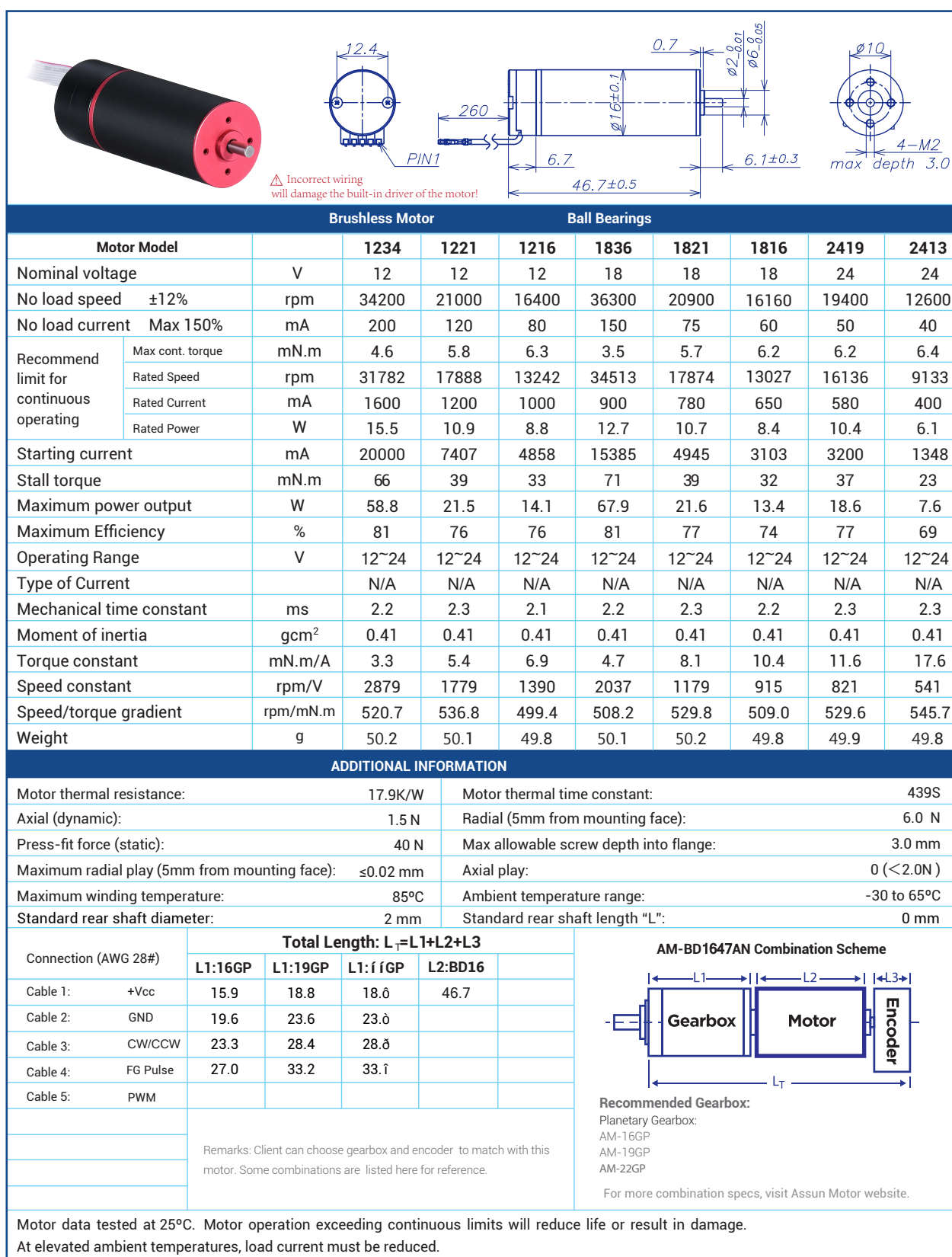


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DC BRUSHLESS MOTOR — SPEED DRIVER INTEGRATED SERIES

ASSUN
DRIVING THE FUTURE

AM-BD1647AN Series

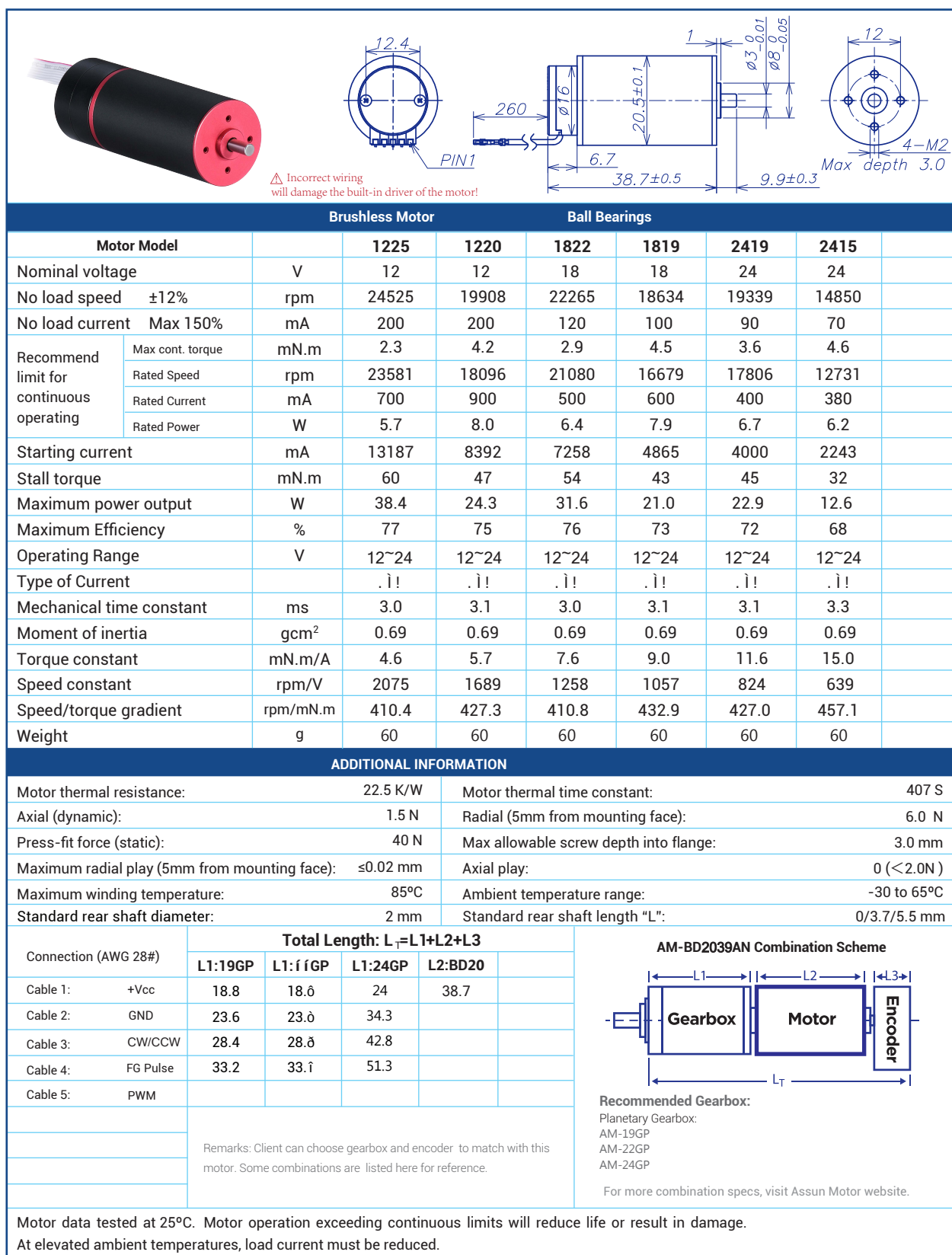


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AM-BD2039AN Series



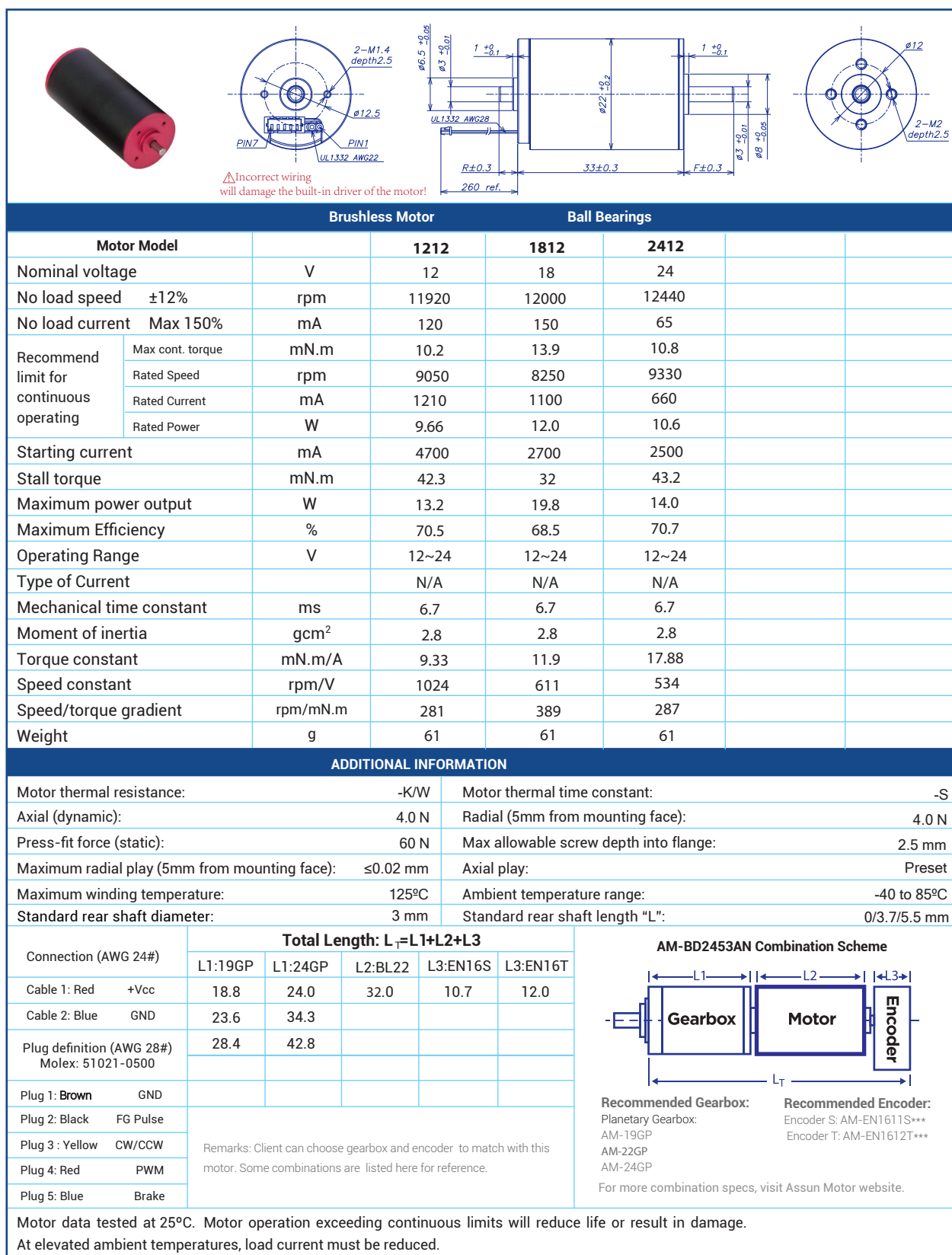
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DC BRUSHLESS MOTOR

SPEED DRIVER INTEGRATED SERIES

ASSUN
DRIVING THE FUTURE

AM-BD2233AE Series

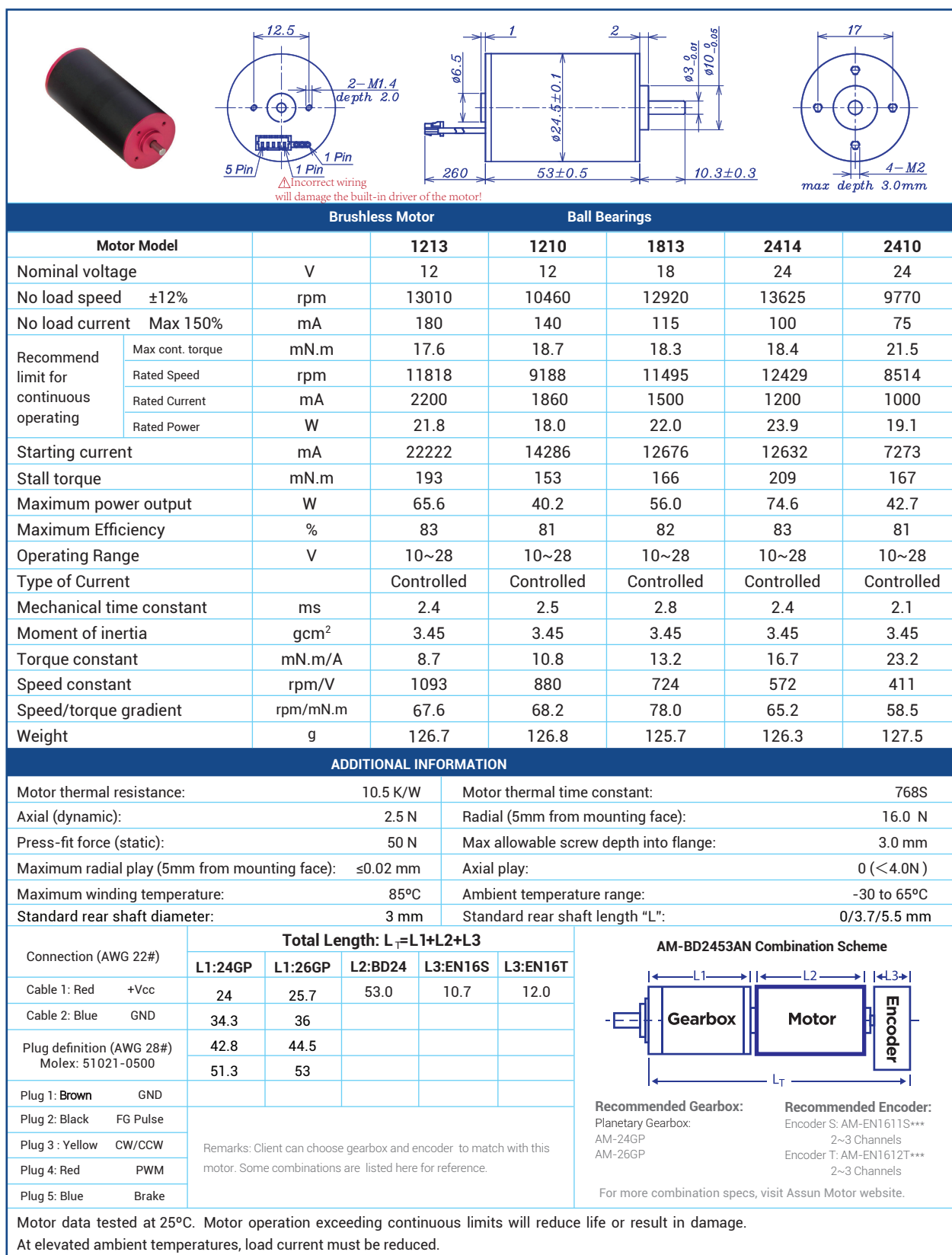


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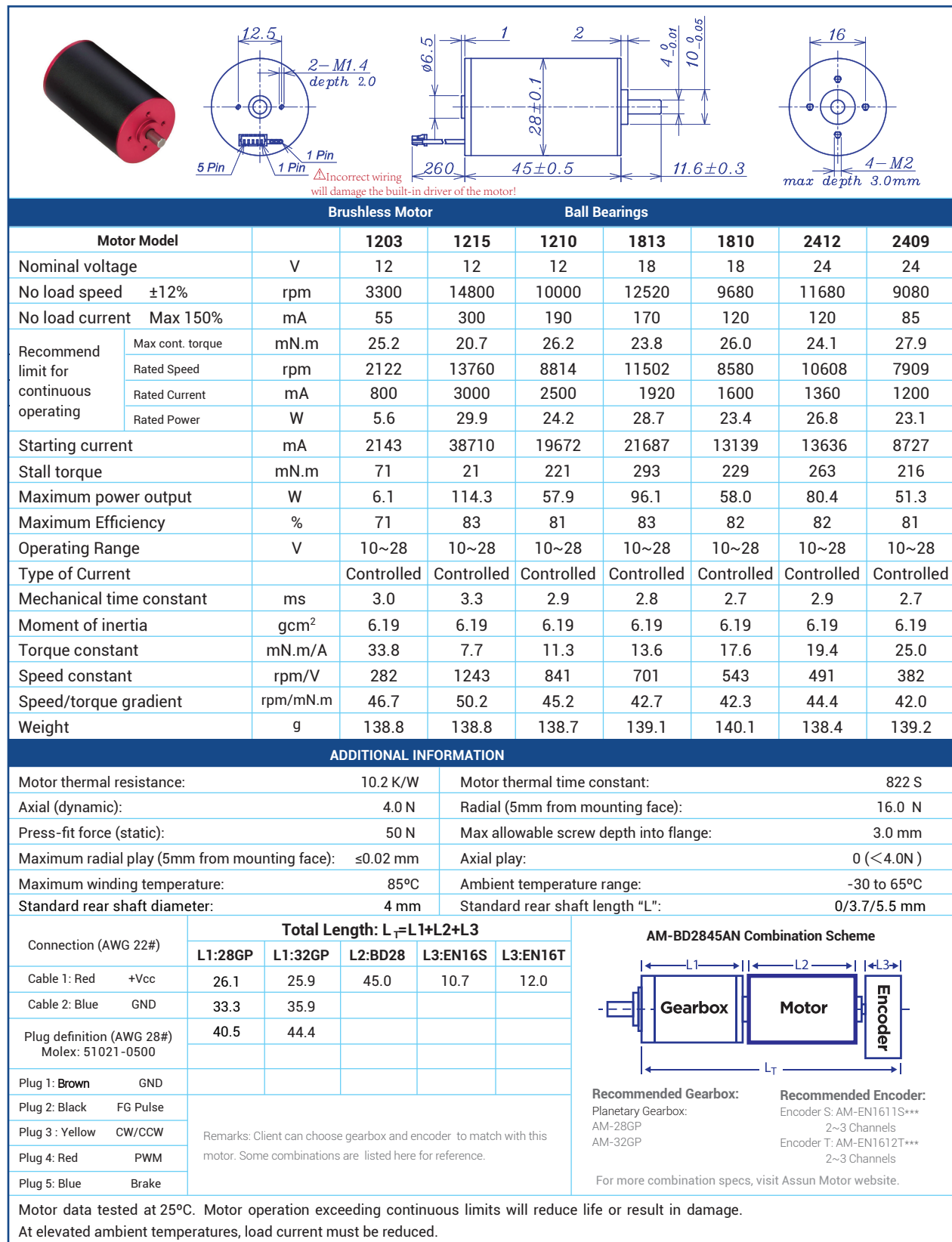
AM-BD2453AN Series



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DC BRUSHLESS MOTOR SPEED DRIVER INTEGRATED SERIES

AM-BD2845AN Series



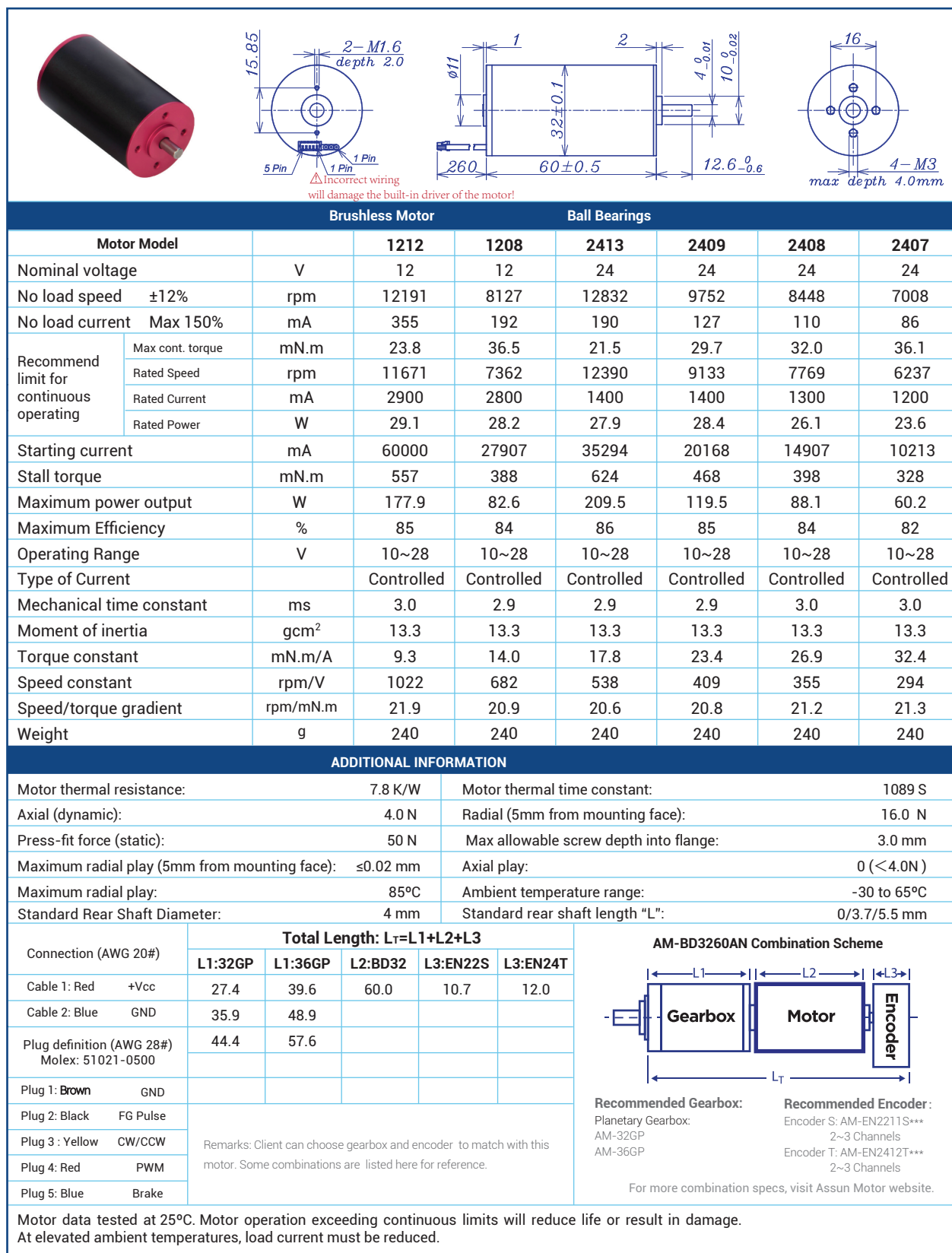
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DC BRUSHLESS MOTOR — SPEED DRIVER INTEGRATED SERIES



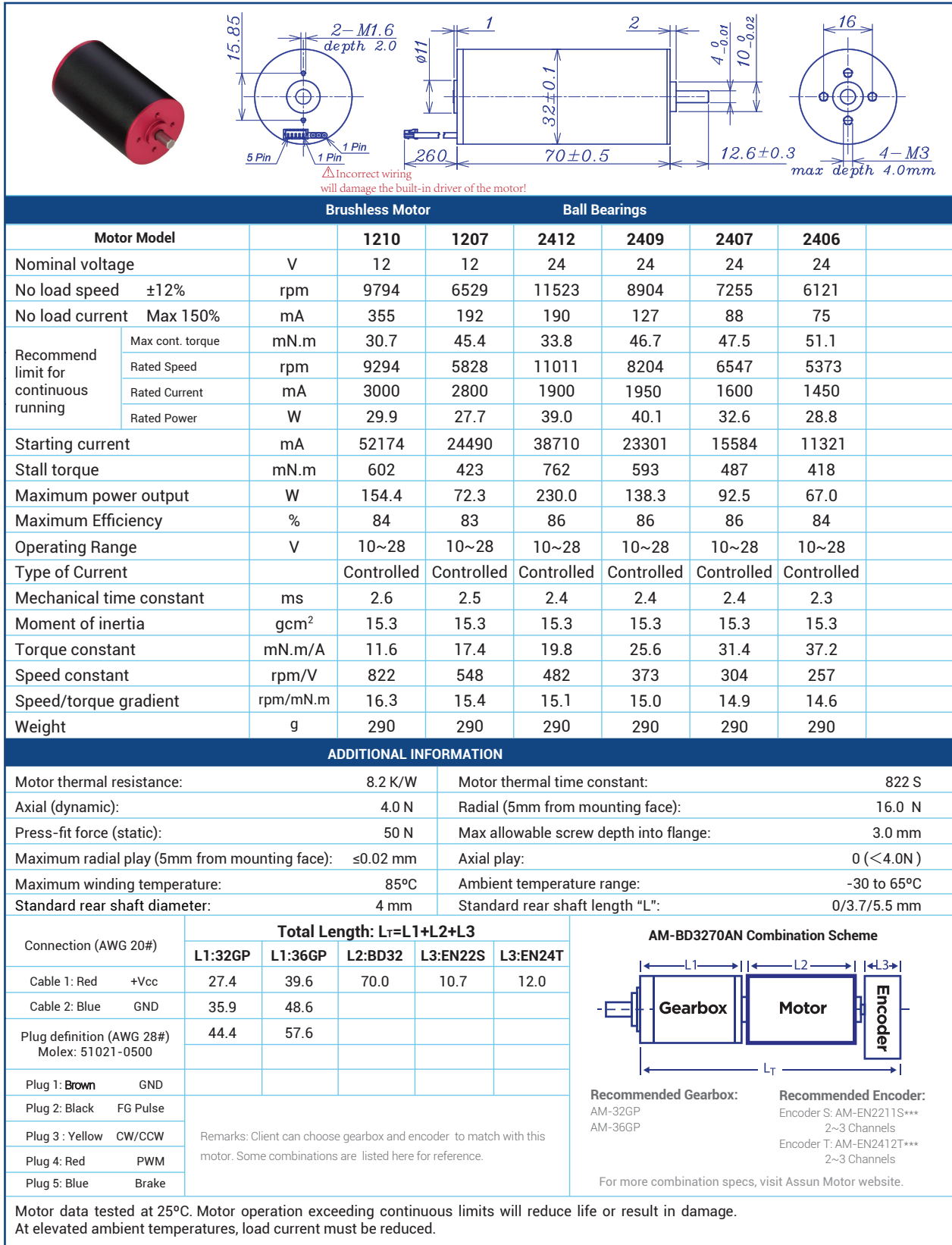
AM-BD3260AN Series



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DC BRUSHLESS MOTOR — SPEED DRIVER INTEGRATED SERIES

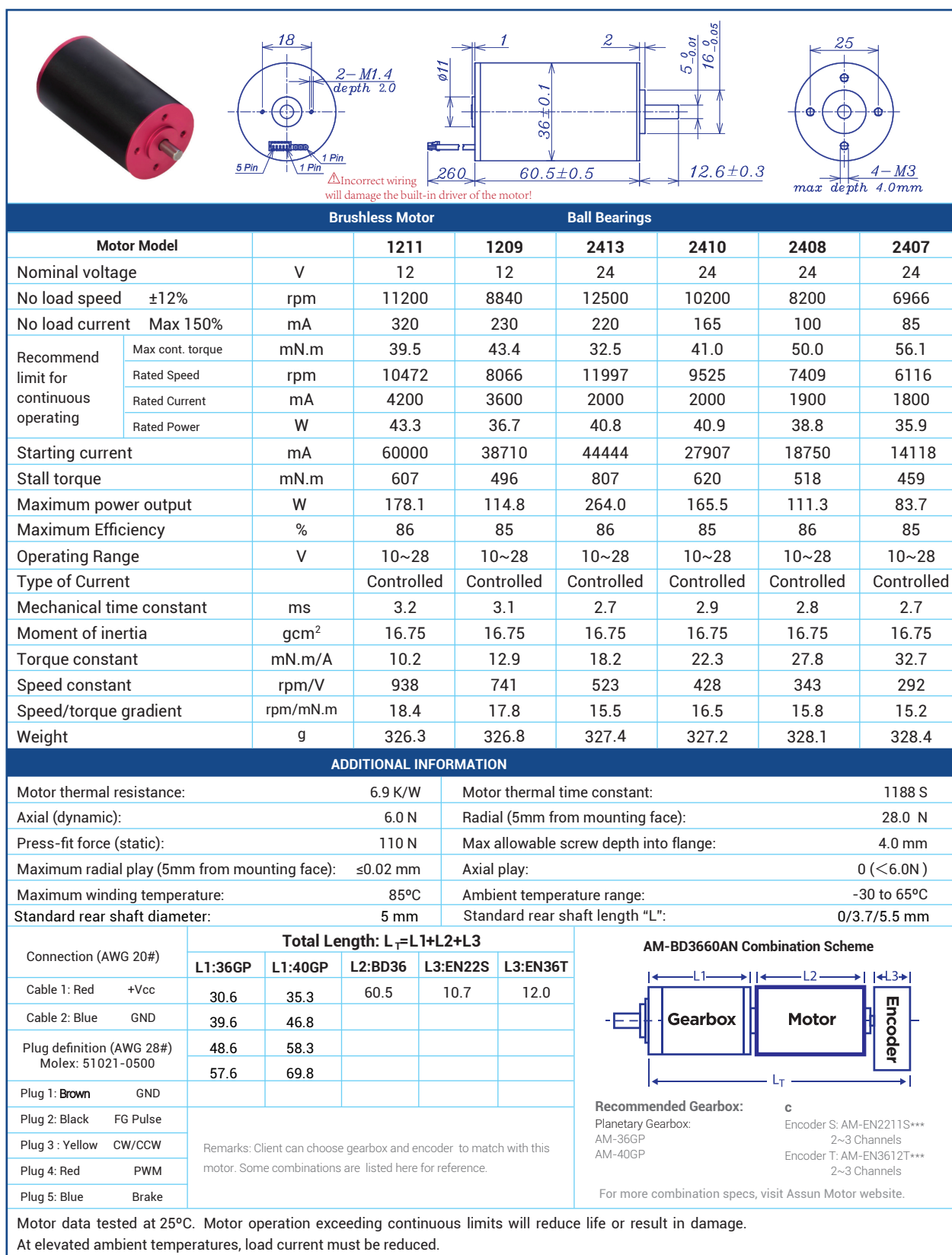
AM-BD3270AN Series



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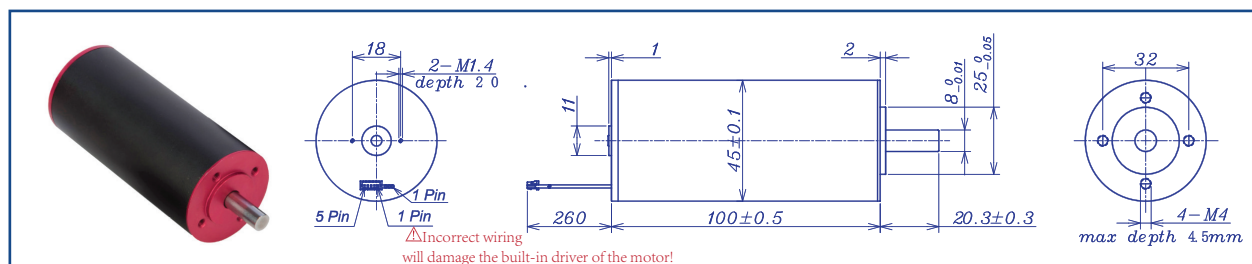
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AM-BD3660AN Series



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AM-BD45100AN Series



		Brushless Motor		Ball Bearings				
Motor Model			2411	2406	2407	2404	2405	2403
Nominal voltage		V	24	24	24	24	24	24
No load speed ±12%		rpm	11240	5900	6912	4272	5208	3240
No load current Max 150%		mA	600	320	320	180	220	160
Recommend limit for continuous operating	Max cont. torque	mN.m	48.7	134.4	121.4	171.6	156.7	170.9
	Rated Speed	rpm	11059	5539	6539	3782	4747	2748
	Rated Current	mA	3000	3800	4000	3400	3800	2600
	Rated Power	W	56.4	78.0	83.2	68.0	77.9	49.2
Starting current		mA	150000	57143	68571	28235	40678	16216
Stall torque		mN.m	3034	2195	2252	1496	1771	1125
Maximum power output		W	892.8	339.0	407.6	167.3	241.4	95.4
Maximum Efficiency		%	88	86	87	85	86	81
Operating Range		V	10~28	10~28	10~28	10~28	10~28	10~28
Type of Current			Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Mechanical time constant		ms	4.3	3.1	3.5	3.3	3.4	3.3
Moment of inertia		gcm ²	109.8	109.8	109.8	109.8	109.8	109.8
Torque constant		mN.m/A	20.3	38.6	33.0	53.3	43.8	70.0
Speed constant		rpm/V	470	247	289	179	218	136
Speed/torque gradient		rpm/mN.m	3.7	2.7	3.1	2.9	2.9	2.9
Weight		g	846.5	850.2	852.5	841.5	847.5	840.3

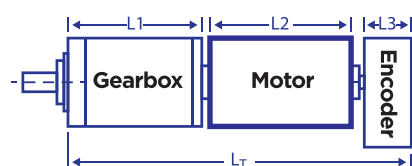
ADDITIONAL INFORMATION

Motor thermal resistance:	3.6 K/W	Motor thermal time constant:	1286S
Axial (dynamic):	6.0 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	4.5 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	8 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 18#)		Total Length: L _T =L1+L2+L3				
		L1:45GP	L1:52GP	L2:BD45	L3:EN22S	L3:EN36T
Cable 1: Red	+Vcc	60.1	79.3	100.0	10.7	12.0
Cable 2: Blue	GND	72.1				
Plug definition (AWG 28#) Molex: 51021-0500						
Plug 1: Brown	GND					
Plug 2: Black	FG Pulse					
Plug 3 : Yellow	CW/CCW					
Plug 4: Red	PWM					
Plug 5: Blue	Brake					

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-BD45100AN Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-45GP
AM-52GP

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels

Encoder T: AM-EN3612T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

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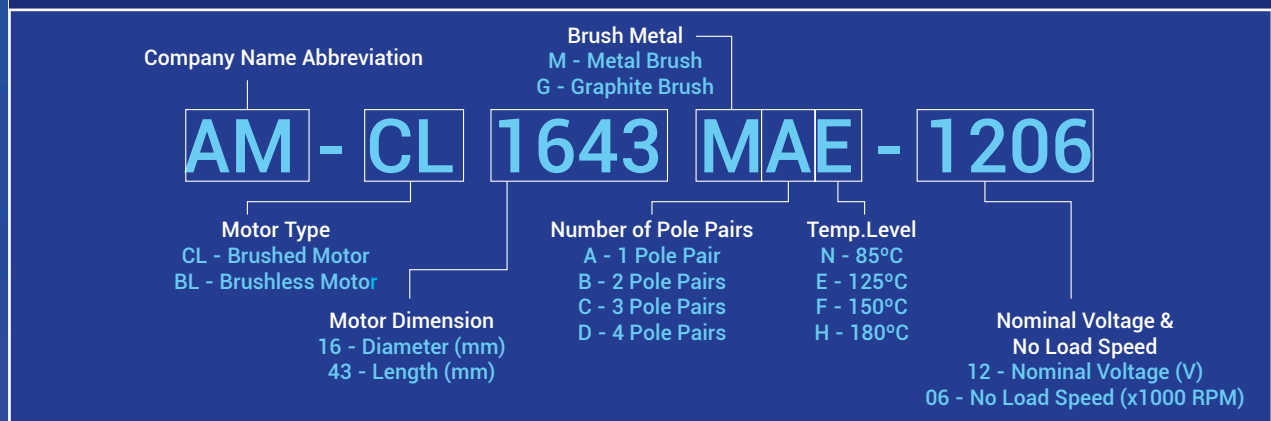
DC BRUSHED MOTOR

Assun DC Brushed Motors are manufactured with coreless rotors for high efficiency, smooth operation and low inertia. These coreless brushed motors are perfect for applications with high efficiency and precision control needs.

Power rating from less than 1 watt to 490 watts, diameter from 8mm to 40mm, Assun DC brushed motors can be used for various DC drive systems. Graphite and metal brushes are to be chosen for different operation conditions.



AM-CL1025MAF	AM-CL2235MAE	AM-CL2831MAN	AM-CL2235GAE	AM-CL2968GAE
AM-CL1623MAN	AM-CL2248MAE	AM-CL2845MAN	AM-CL2248GAE	AM-CL3570GAN
AM-CL1626MAN	AM-CL2532MAN	AM-CL2847MAE	AM-CL2642GAE	AM-CL3570GAF
AM-CL1633MAN	AM-CL2545MAN	AM-CL2857MAE	AM-CL2657GAE	AM-CL4071GAE
AM-CL1642MAN	AM-CL2642MAE	AM-CL2968MAE	AM-CL2847GAE	AM-CL50108GAF
AM-CL1643MAN	AM-CL2657MAE	AM-CL1935GAE	AM-CL2857GAE	
AM-CL1935MAE				



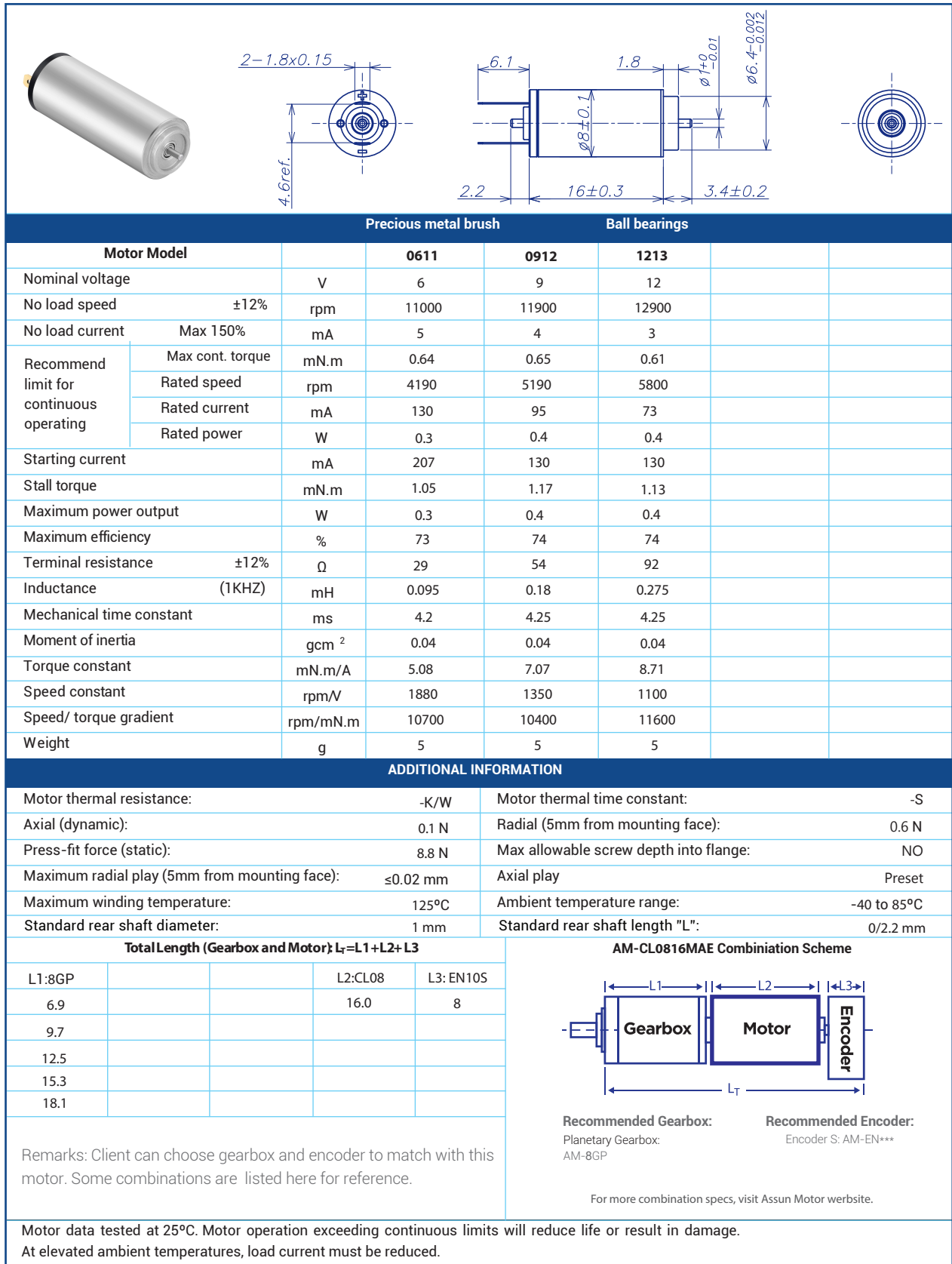
DC BRUSHED MOTOR

BRUSHED METAL SERIES

Assun Metal Brush Series Coreless motors are manufactured with coreless rotors and metal brush commutators. The high efficiency and precision character of metal brushed coreless motor made it perfect for energy critical and fast responding applications such as medical tools and robotic actuators.

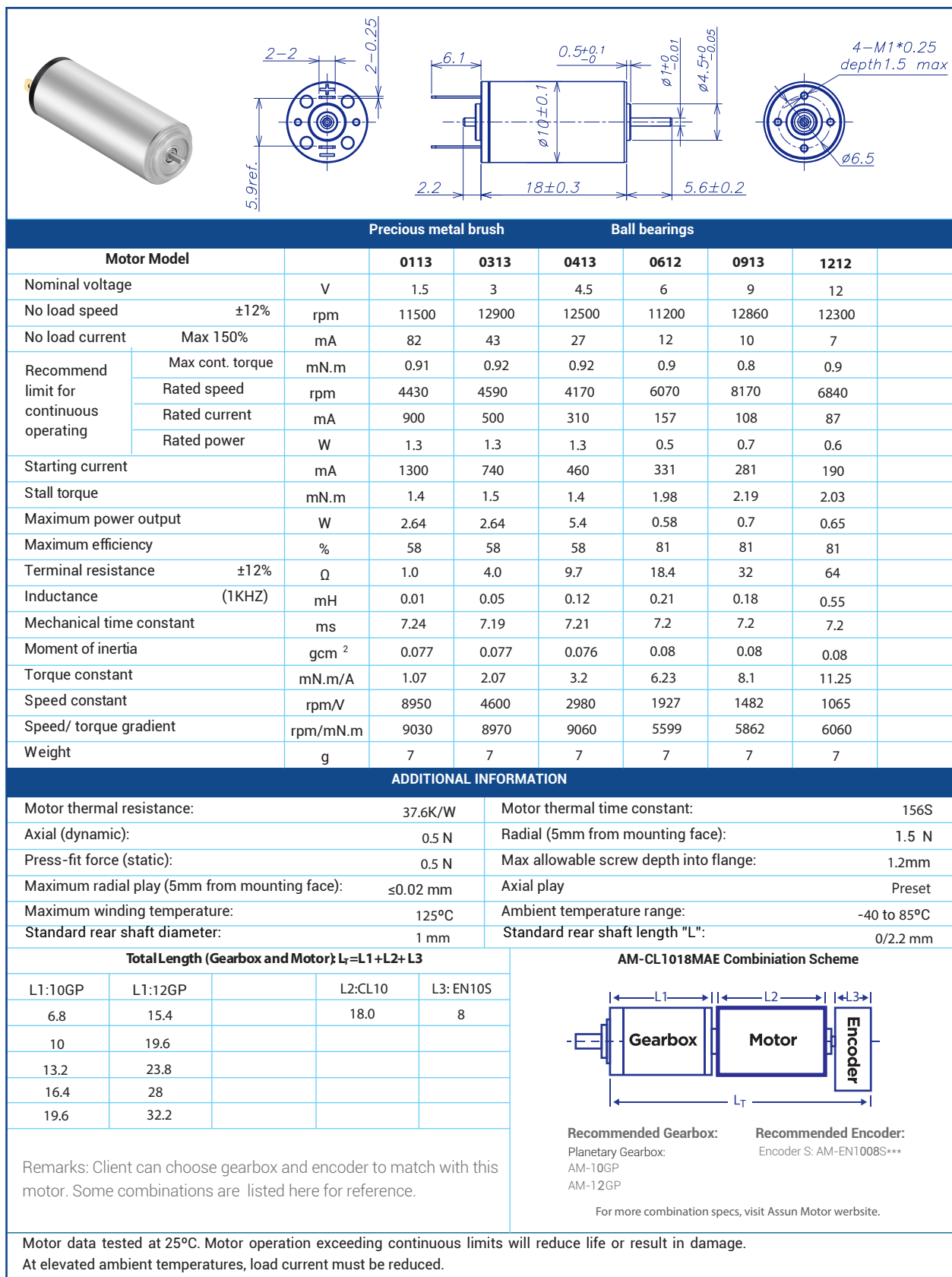


AM-CL0816MAE SERIES



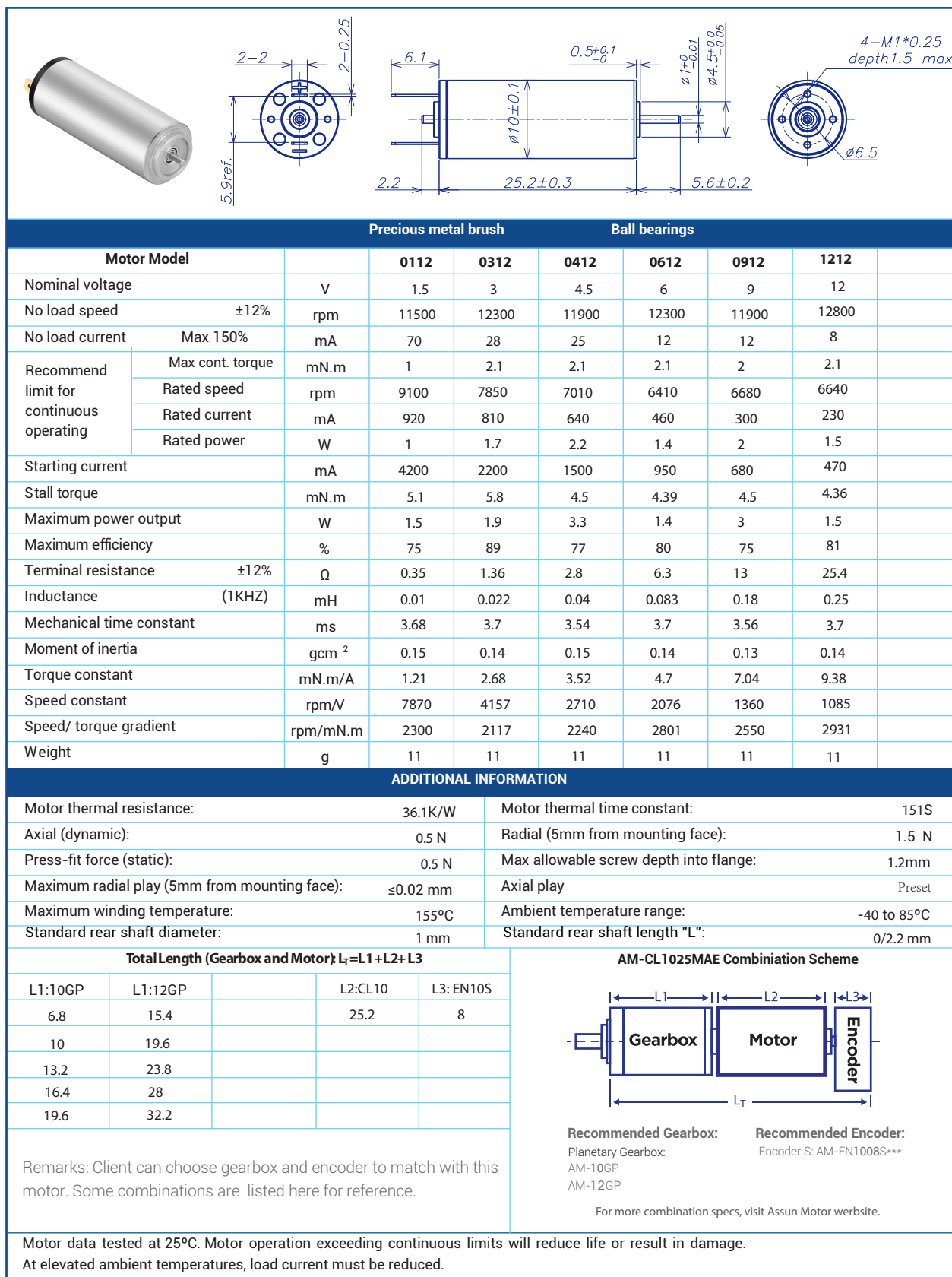
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AM-CL1018MAE SERIES



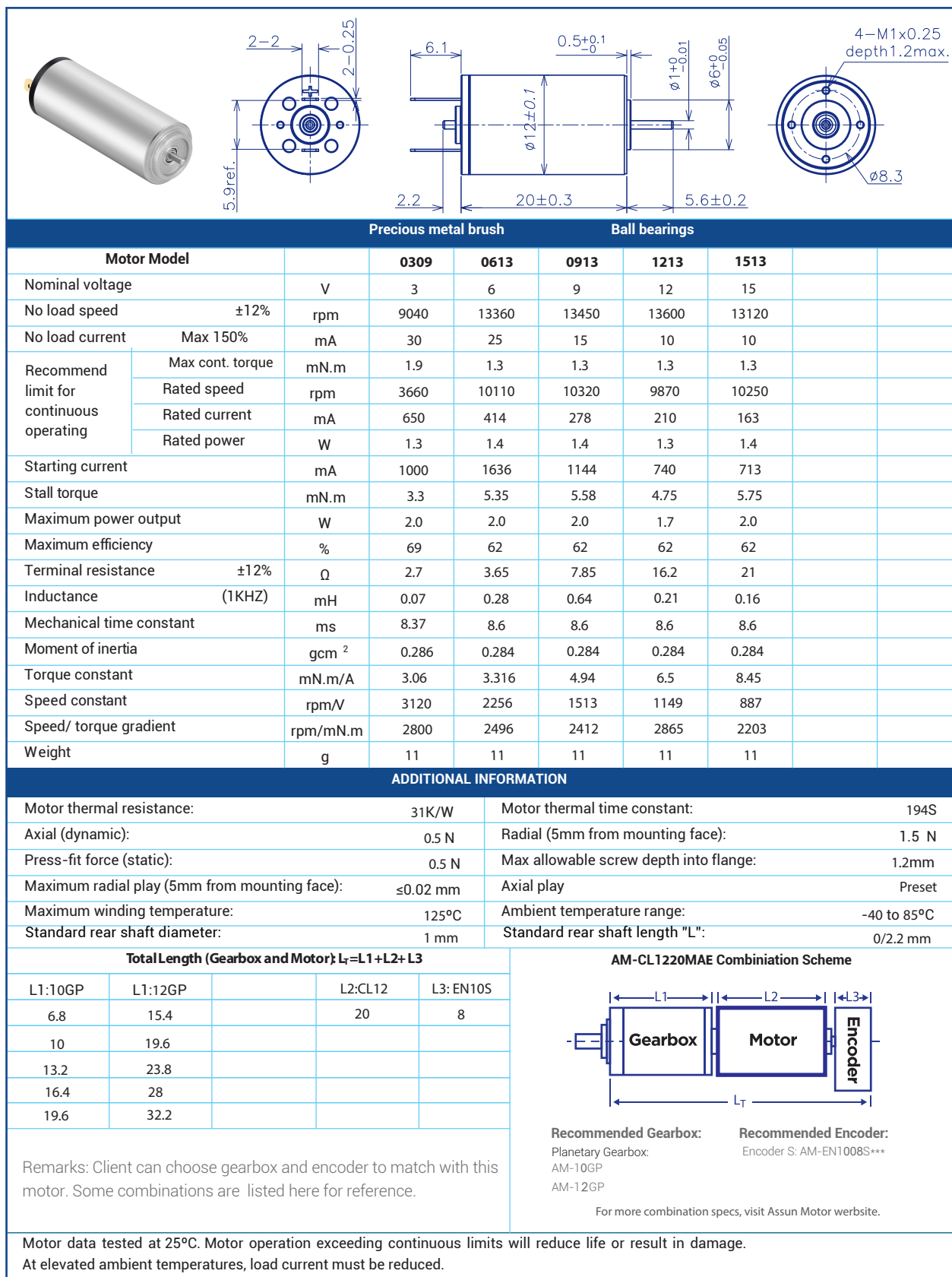
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AM-CL1025MAE SERIES



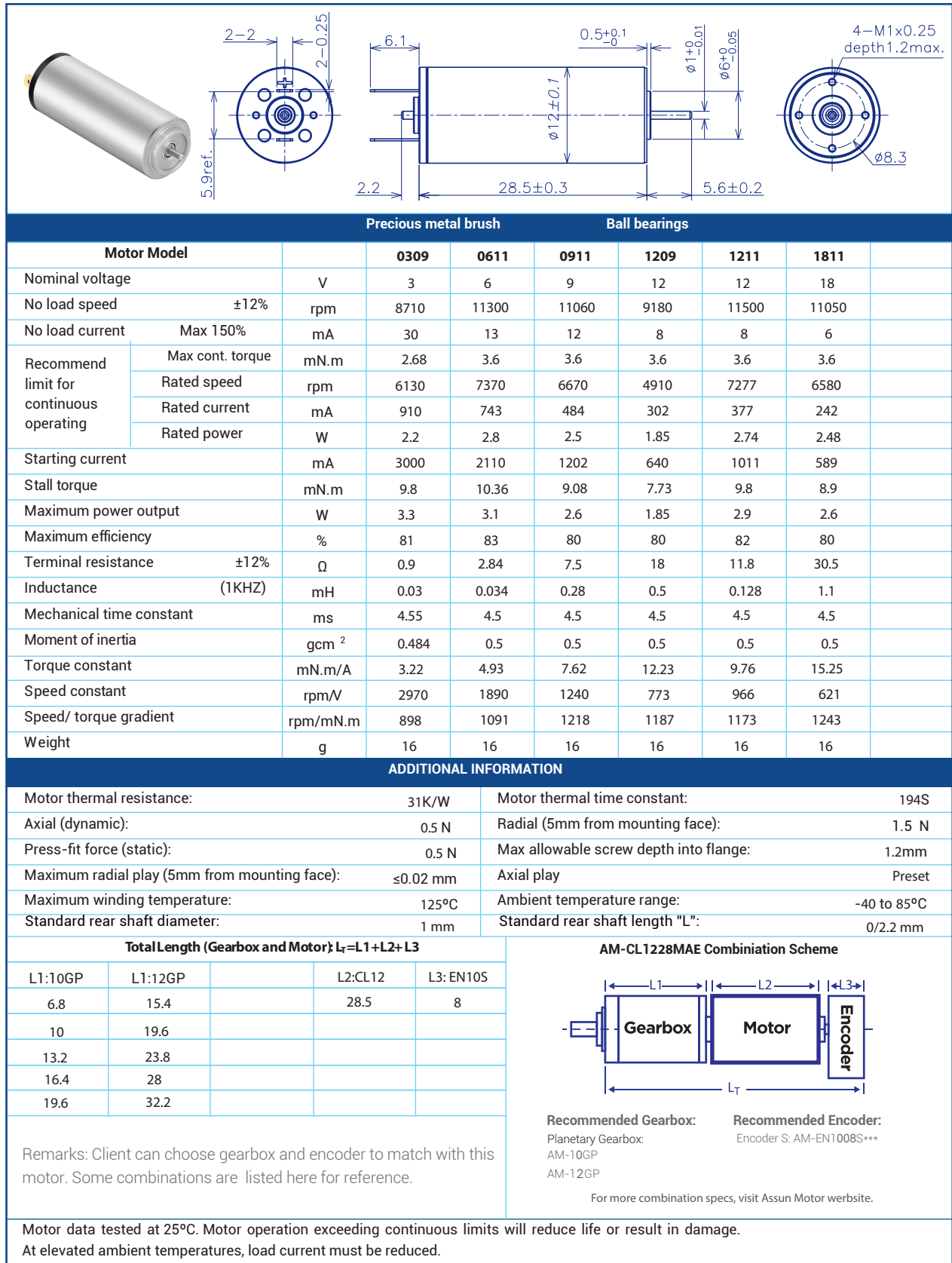
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AM-CL1220MAE SERIES



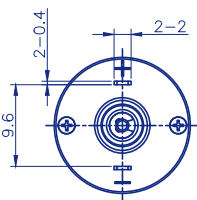
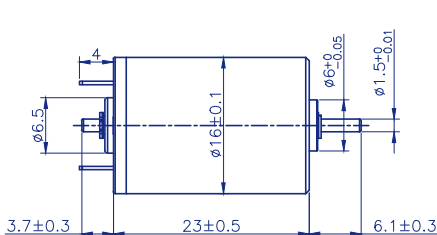
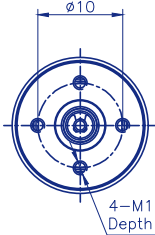
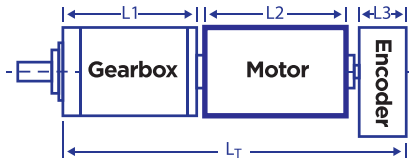
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AM-CL1228MAE SERIES



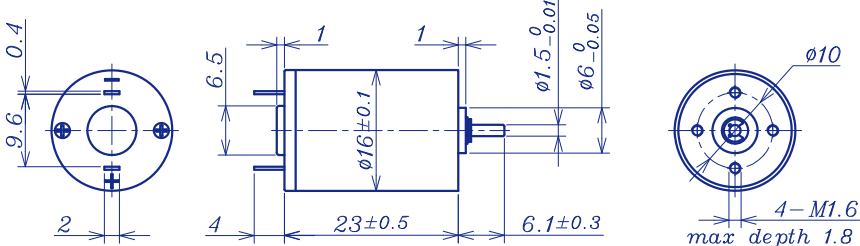
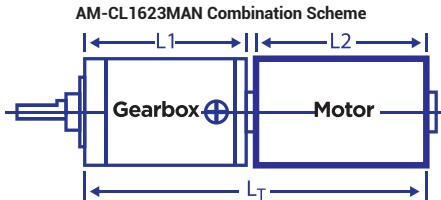
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AM-CL1623MAE SERIES (With an Encoder)

								
			Precious metal brush		Ball Bearings			
Motor Model			0310	0610	1212	1213	2412	
Nominal voltage		V	3	6	12	12	24	
No load speed ±12%		rpm	10000	10200	12040	13600	12050	
No load current Max 150%		mA	60	30	18	20	10	
Recommend limit for continuous operating	Max cont. torque	mN.m	1.8	1.8	1.8	1.8	1.8	
	Rated Speed	rpm	6440	6810	8370	10000	8450	
	Rated Current	mA	680	345	204	230	102	
	Rated Power	W	1.2	1.28	1.58	1.9	1.6	
Starting current		mA	1807	983	629	812	321	
Stall torque		mN.m	5.07	5.43	5.91	6.82	6.03	
Maximum power output		W	1.3	1.45	1.86	2.43	1.9	
Maximum Efficiency		%	70	71	72	74	72	
Terminal resistance ±12%		Ω	1.08	4.23	7.45	4.8	4.8	
Inductance (1KHz)		mH	0.038	0.15	0.27	0.152	0.152	
Mechanical time constant		ms	16.9	16.9	16.9	16.9	16.9	
Moment of inertia		gcm ²	1.33	1.33	1.33	1.33	1.33	
Torque constant		mN.m/A	2.9	5.7	9.67	8.75	19.35	
Speed constant		rpm/V	3333	1700	1003	1133	502	
Speed/torque gradient		rpm/mN.m	1970	1879	2038	1994	1998	
Weight		g	18.5	18.5	18.5	18.5	18.5	
ADDITIONAL INFORMATION								
Motor thermal resistance:			41.7K/W		Motor thermal time constant:			379S
Axial (dynamic):			0.8 N		Radial (5mm from mounting face):			12 N
Press-fit force (static):			26 N		Max allowable screw depth into flange:			1.8 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play:			Preset
Maximum winding temperature:			125°C		Ambient temperature range:			-30 to 65°C
Standard rear shaft diameter:			2 mm		Standard rear shaft length "L":			0/3.7 mm
Total Length (Gearbox and Motor): L=L1+L2+L3					AM-CL1623MAE Combination Scheme			
L1:16GP	L1:19GP		L2:CL16	L3: EN165				
15.9	18.8		23	10.7				
23.3	23.6							
27.0	28.4							
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.					Recommended Gearbox: Planetary Gearbox: AM-16GP AM-19GP			Recommended Encoder: Encoder S: AM-EN1611S*** 2~3 Channels
For more combination specs, visit Assun Motor website.								
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.								

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AM-CL1623MAN SERIES

									
		Precious metal brush				Ball Bearings			
Motor Model			0109	0108	0310	0308	0610	0608	1212
Nominal voltage	V		1.5	1.5	3	3	6	6	12
No load speed	±12%	rpm	9100	7850	10130	7690	9875	7574	12440
No load current	Max 150%	mA	60	55	35	23	22	18	14
Recommend limit for continuous operating	Max cont. torque	mN.m	1.2	1.3	1.9	2.1	2.2	2.1	2.1
	Rated Speed	rpm	7596	6106	7674	5142	7202	4861	9839
	Rated Current	mA	850	800	700	600	400	300	250
	Rated Power	W	1.0	0.9	1.5	1.1	1.6	1.1	2.2
Starting current	mA		4839	3409	2778	1765	1418	805	1143
Stall torque	mN.m		7	6	8	6	8	6	10
Maximum power output	W		1.8	1.2	2.0	1.3	2.1	1.2	3.3
Maximum Efficiency	%		79	76	79	78	77	72	79
Terminal resistance ±12%	Ω		0.31	0.44	1.08	1.7	4.23	7.45	10.5
Inductance (1KHz)	mH		0.001	0.006	0.038	0.058	0.15	0.27	0.41
Mechanical time constant	ms		17.6	18.7	19.0	17.2	16.9	17.7	16.9
Moment of inertia	gcm ²		1.37	1.37	1.37	1.37	1.3	1.3	1.33
Torque constant	mN.m/A		1.6	1.8	2.8	3.7	5.7	7.4	9.1
Speed constant	rpm/V		6143	5319	3420	2597	1672	1291	1050
Speed/torque gradient	rpm/mN.m		1225	1304	1323	1201	1238	1301	1211
Weight	g		18.6	18.6	18.6	18.4	18.4	18.4	18.5
ADDITIONAL INFORMATION									
Motor thermal resistance:			41.7K/W			Motor thermal time constant:			379S
Axial (dynamic):			0.8 N			Radial (5mm from mounting face):			12 N
Press-fit force (static):			26 N			Max allowable screw depth into flange:			1.8 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm			Axial play:			Preset
Maximum winding temperature:			85°C			Ambient temperature range:			-30 to 65°C
Standard rear shaft diameter:			2 mm			Standard rear shaft length "L":			0/3.7 mm
Total Length (Gearbox and Motor): L=L1+L2+L3									
L1:16GP	L1:19GP		L2:CL16						
15.9	18.8		22.50						
23.3	23.6								
27.0	28.4								
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.					Recommended Gearbox: Planetary Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.				
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.									

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DC BRUSHED MOTOR



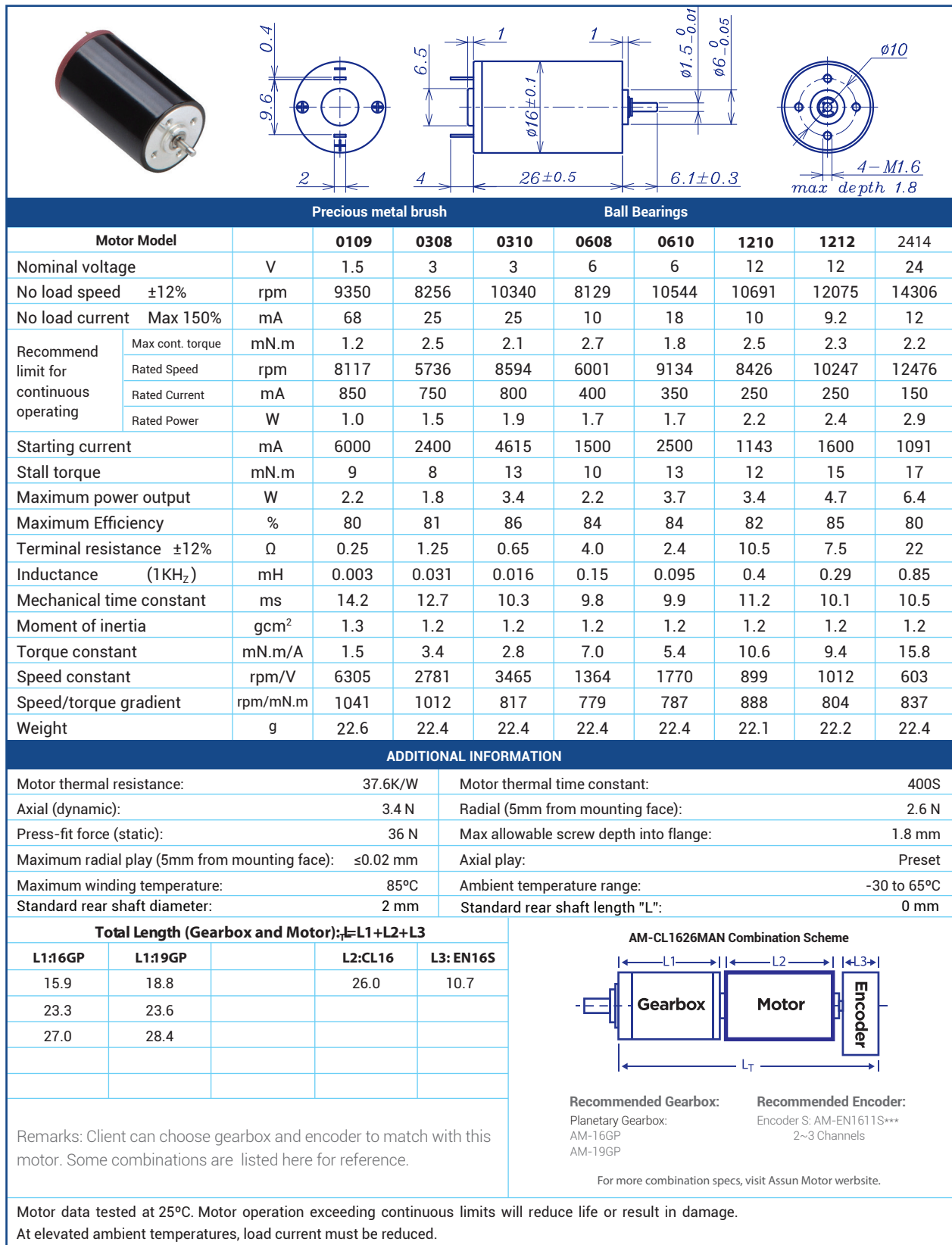
ADDITIONAL INFORMATION			
Motor thermal resistance:	37.6K/W	Motor thermal time constant:	400S
Axial (dynamic):	3.4 N	Radial (5mm from mounting face):	2.6 N
Press-fit force (static):	36 N	Max allowable screw depth into flange:	1.8 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	2 mm	Standard rear shaft length "L":	0 mm

The diagram illustrates the AM-CL1626MAE Combination Scheme. It shows a side view of the assembly with three main components: a Gearbox, a Motor, and an Encoder. The Gearbox is on the left, followed by the Motor, and the Encoder is on the right. The total length of the assembly is labeled as L_T . The individual lengths of the Gearbox, Motor, and Encoder are labeled as L_1 , L_2 , and L_3 respectively. The Encoder is shown as a separate unit connected to the Motor.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

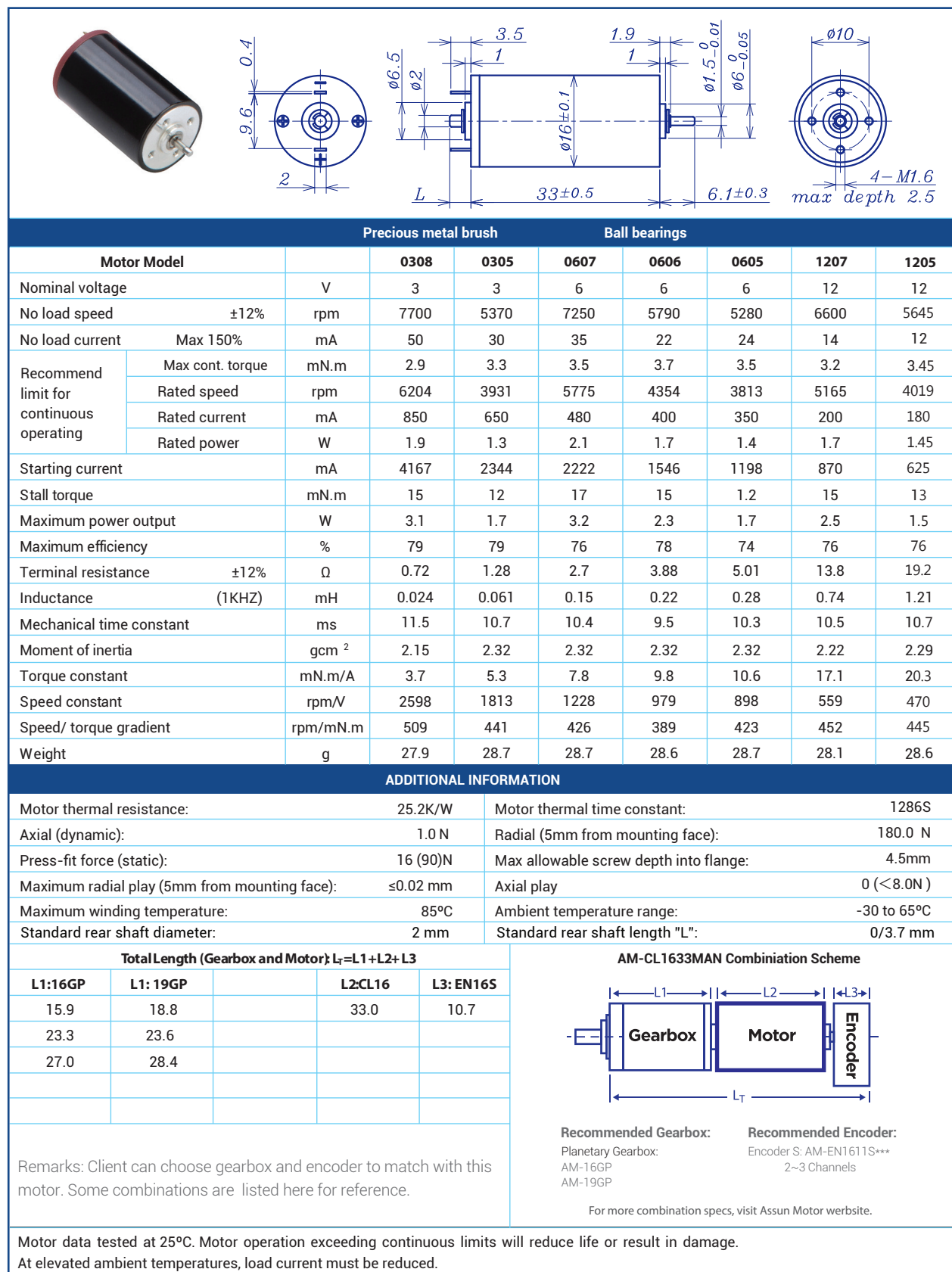
71

AM-CL1626MAN SERIES



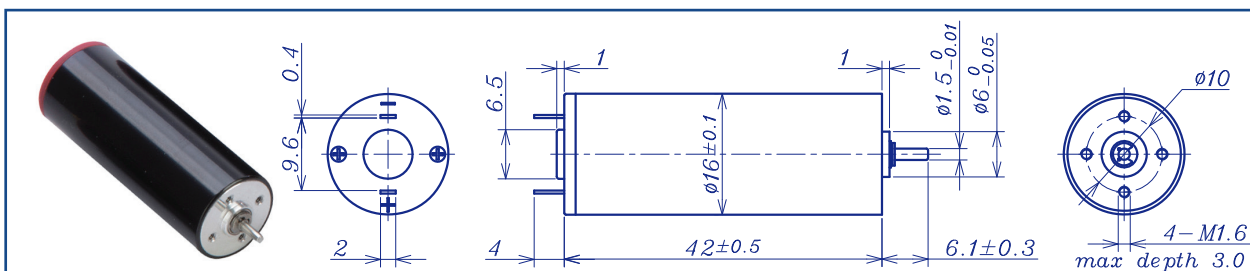
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AM-CL1633MAN SERIES



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AM-CL1642MAN SERIES



		Precious metal brush			Ball bearings					
Motor Model			0609	1210	2409	2411	3609	3611	4809	4811
Nominal voltage		V	6	12	24	24	36	36	48	48
No load speed ±12%		rpm	9222	9952	9450	11120	9207	11682	9339	11253
No load current Max 150%		mA	19	10.5	6.0	7.0	4.5	5.0	3.5	4.2
Recommend limit for continuous operating	Max cont. torque	mN.m	5.3	5.0	5.2	4.2	5.4	4.3	5.2	4.3
	Rated speed	rpm	8094	8874	8393	10215	8090	10700	8122	10242
	Rated current	mA	850	450	220	210	150	150	110	110
	Rated power	W	4.5	4.7	4.5	4.5	4.6	4.8	4.4	4.6
Starting current		mA	7059	4068	1920	2500	1204	1731	821	1182
Stall torque		mN.m	44	47	46	51	45	51	40	48
Maximum power output		W	10.5	12.1	11.4	14.9	10.8	15.5	9.8	14.1
Maximum efficiency		%	90	90	89	90	88	90	87	88
Terminal resistance ±12%		Ω	0.85	2.95	12.5	9.6	29.9	20.8	58.5	40.6
Inductance (1KHZ)		mH	0.054	0.2	0.95	0.66	2.22	2.22	3.8	3.8
Mechanical time constant		ms	7.0	6.7	6.4	6.8	6.1	7.3	7.1	9.6
Moment of inertia		gcm²	3.14	3.01	3.01	3.01	2.8	3.01	2.9	3.9
Torque constant		mN.m/A	6.2	11.5	24.2	20.6	37.2	29.3	48.9	40.6
Speed constant		rpm/V	1541	831	395	465	257	325	195	235
Speed/ torque gradient		rpm/mN.m	211	214	204	217	206	231	234	235
Weight		g	39.0	38.5	38.5	38.5	38.5	38.6	37.9	38.1

ADDITIONAL INFORMATION

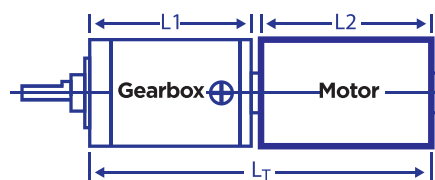
Motor thermal resistance:	K/W	Motor thermal time constant:	S
Axial (dynamic):	3.4 N	Radial (5mm from mounting face):	6.0 N
Press-fit force (static):	36N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play	Preset
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	N/A	Standard rear shaft length "L":	N/A

Total Length (Gearbox and Motor): L_T=L₁+L₂+ L₃

L1:16GP	L1: 19GP	L2:CL16
15.9	18.8	42.0
23.3	23.6	
27.0	28.4	

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL1642MAN Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-16GP
AM-19GP

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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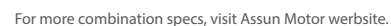
DC BRUSHED MOTOR



ADDITIONAL INFORMATION

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$	AM-CL1643MAN Combination Scheme
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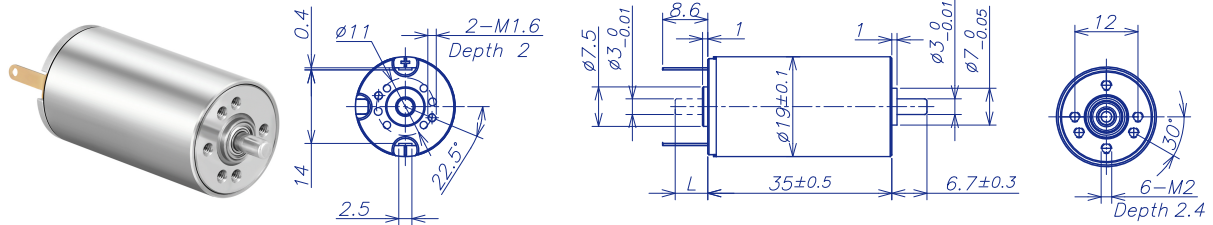
Diagram illustrating the lengths of three segments: L_1 , L_2 , and L_3 .



Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL1935MAE Series



			Precious metal brush		Ball bearings			
Motor Model			0506	0607	0907	1206	1807	2406
Nominal voltage		V	4.5	6	9	12	18	24
No load speed ±12%		rpm	5900	6620	6600	6480	6600	6450
No load current Max 150%		mA	60	51	34	26	18	12.5
Recommend limit for continuous operating	Max cont. torque	mN.m	8.9	10.7	11.2	11.1	11.1	11.2
	Rated speed	rpm	4502	4949	4835	4749	4911	4725
	Rated current	mA	1300	1300	900	660	450	330
	Rated power	W	4.2	5.5	5.7	5.5	5.7	5.5
Starting current		mA	5294	5000	3273	2400	1706	1200
Stall torque		mN.m	38	42	42	42	44	42
Maximum power output		W	5.8	7.3	7.2	7	7.5	7.1
Maximum efficiency		%	80	81	81	80	81	81
Terminal resistance ±12%		Ω	0.85	1.2	2.75	5	10.55	20
Inductance (1KHZ)		mH	Null	0.11	Null	Null	Null	1.86
Mechanical time constant		ms	5.4	5.4	5.5	5.4	5.2	5.3
Moment of inertia		gcm²	3.3	3.3	3.3	3.3	3.3	3.3
Torque constant		mN.m/A	7.2	8.6	12.9	17.5	25.8	35.2
Speed constant		rpm/V	1326	1115	741	546	371	272
Speed/torque gradient		rpm/mN.m	156.5	156.1	158.1	156	151.7	154.5
Weight		g	53	53	53	53	53	53

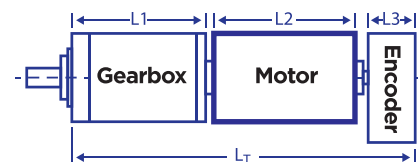
ADDITIONAL INFORMATION

Motor thermal resistance:	19.5 K/W	Motor thermal time constant:	643 S
Axial (dynamic):	2.5N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85 °C

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$			
L1: 19GP	L1: 24GP	L2: CL19	L3: EN16S
18.8	24	35.0	10.7
23.6	34.3		L3: EN16T
28.4	42.8		12
33.2	51.3		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL1935MAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-19GP
AM-24GP

Recommended Encoder:

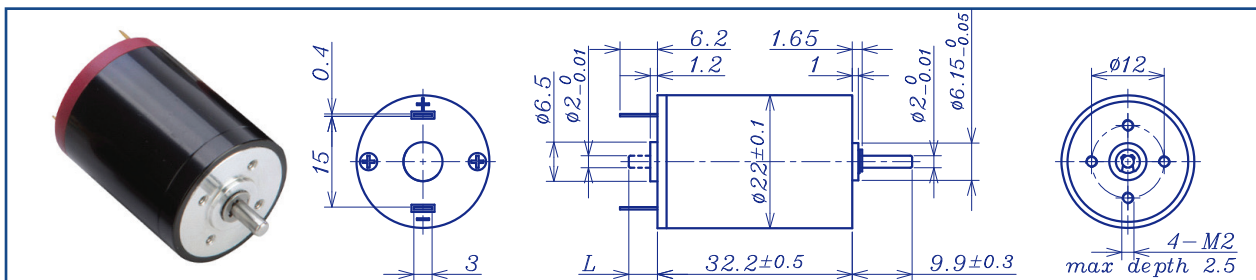
Encoder S: AM-EN1611S***
3 Channels
Encoder T: AM-EN1612T***
3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2232MAN SERIES



		Precious metal brush			Ball bearings					
Motor Model			0308	0305	0607	0605	1207	1205	2407	2406
Nominal voltage		V	3	3	6	6	12	12	24	24
No load speed ±12%		rpm	7600	4500	6998	5006	6548	4986	7048	6167
No load current Max 150%		mA	55	30	27	14	10.2	7	6.5	8.5
Recommend limit for continuous operating	Max cont. torque	mN.m	3.2	5.2	5.9	7.2	6.8	7.8	6.9	7.1
	Rated speed	rpm	6998	3745	6083	3843	5448	3769	5901	5041
	Rated current	mA	900	850	750	650	400	350	220	200
	Rated power	W	2.3	2.0	3.8	2.9	3.9	3.1	4.3	3.7
Starting current		mA	10714	4918	5556	2752	2330	1412	1319	1057
Stall torque		mN.m	40	31	45	31	40	32	42	39
Maximum power output		W	8.0	3.6	8.3	4.1	6.9	4.2	7.8	6.2
Maximum efficiency		%	86	85	87	86	87	86	86	83
Terminal resistance ±12%		Ω	0.28	0.61	1.08	2.18	4.84	8.50	18.2	22.7
Inductance (1KHZ)		mH	0.015	0.037	0.68	0.14	0.32	0.54	1.1	1.38
Mechanical time constant		ms	11.4	9.2	9.8	9.9	9.8	9.5	9.6	9.3
Moment of inertia		gcm²	5.75	6.02	6.02	5.88	5.75	5.82	5.55	5.55
Torque constant		mN.m/A	3.8	6.3	8.1	11.4	17.4	22.9	32.4	36.9
Speed constant		rpm/V	2546	1509	1172	839	548	418	295	259
Speed/torque gradient		rpm/mN.m	190.1	145.5	155.4	160.5	162.0	155.2	166.0	159.5
Weight		g	56.4	56.9	56.9	56.7	56.5	56.6	56.3	56.3

ADDITIONAL INFORMATION

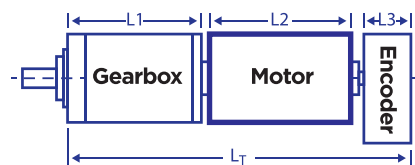
Motor thermal resistance:	24.5K/W	Motor thermal time constant:	685 S
Axial (dynamic):	5.9 N	Radial (5mm from mounting face):	8.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.5 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play	Preset
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	2 mm	Standard rear shaft length "L":	0/3.7 mm

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$

L1: 19GP	L1: 24GP	L2: CL22	L3: EN225
18.8	24.0	32.2	10.7
23.6	34.3		
28.4	42.8		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2232MAN Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-19GP
AM-24GP

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.

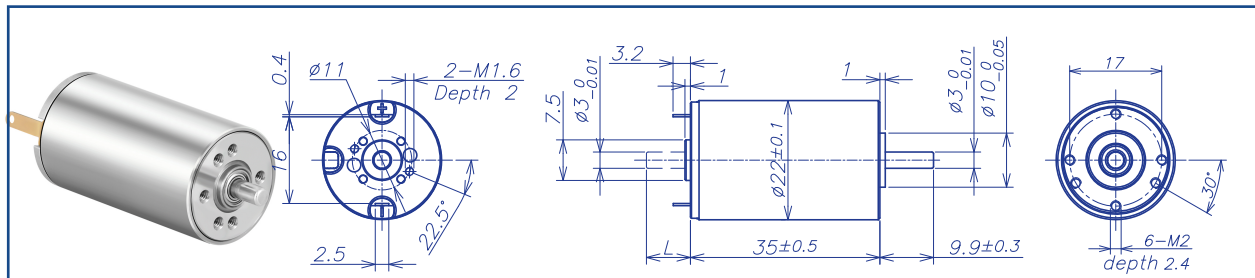
At elevated ambient temperatures, load current must be reduced.

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DC BRUSHED CORELESS MOTOR — METAL Brush

AM-CL2235MAE Series



		Precious metal brush				Ball bearings			
Motor Model			0606	0906	1206	1806	2406	3606	4806
Nominal voltage		V	6	9	12	18	24	36	48
No load speed		±12% rpm	5700	6000	5800	5950	6020	6000	6400
No load current		Max 150% mA	55	36	28	18	15	11	9
Recommend limit for continuous operating	Max cont. torque	mN.m	11.4	15.1	15.1	15.3	14.5	14.4	13.6
	Rated speed	rpm	4746	4714	4540	4675	4774	4757	5247
	Rated current	mA	1200	1100	800	550	400	265	200
	Rated power	W	5.7	7.5	7.2	7.5	7.3	7.2	7.5
Starting current		mA	6897	5000	3582	2500	1875	1237	1069
Stall torque		mN.m	68.2	70.6	69.7	71.2	70.2	69.6	75.3
Maximum power output		W	10.2	11.1	10.6	11.1	11.1	10.9	12.6
Maximum efficiency		%	83	84	83	84	83	82	82
Terminal resistance		±12% Ω	0.87	1.8	3.35	7.2	12.8	29.1	44.9
Inductance		(1KHZ) mH	0.11	Null	Null	Null	1.54	Null	Null
Mechanical time constant		ms	5.3	5.4	5.3	5.3	5.5	5.5	6.4
Moment of inertia		gcm ²	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Torque constant		mN.m/A	10	14.2	19.6	28.7	37.8	56.8	71.0
Speed constant		rpm/V	958	672	487	333	253	168	134
Speed/ torque gradient		rpm/mN.m	83.6	85	83.2	83.6	85.7	86.2	85.0
Weight		g	75	75	75	75	75	75	75

ADDITIONAL INFORMATION

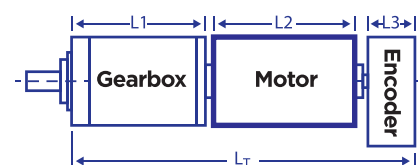
Motor thermal resistance:	15.7 K/W	Motor thermal time constant:	709 S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	16 (90)N	Max allowable screw depth into flange:	2.4mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C

Total Length (Gearbox and Motor): L_T=L₁+L₂+ L₃

L1:24GP	L1:22GP	L1:26GP	L2:CL22	L3: EN16S
24.0	18.9	25.7	35.0	10.7
34.3	23.7	36.0		L3: EN16T
42.8	28.5	44.5		12.0
51.3	33.3	53.0		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2235MAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-24GP
AM-22GP
AM-26GP

Recommended Encoder:

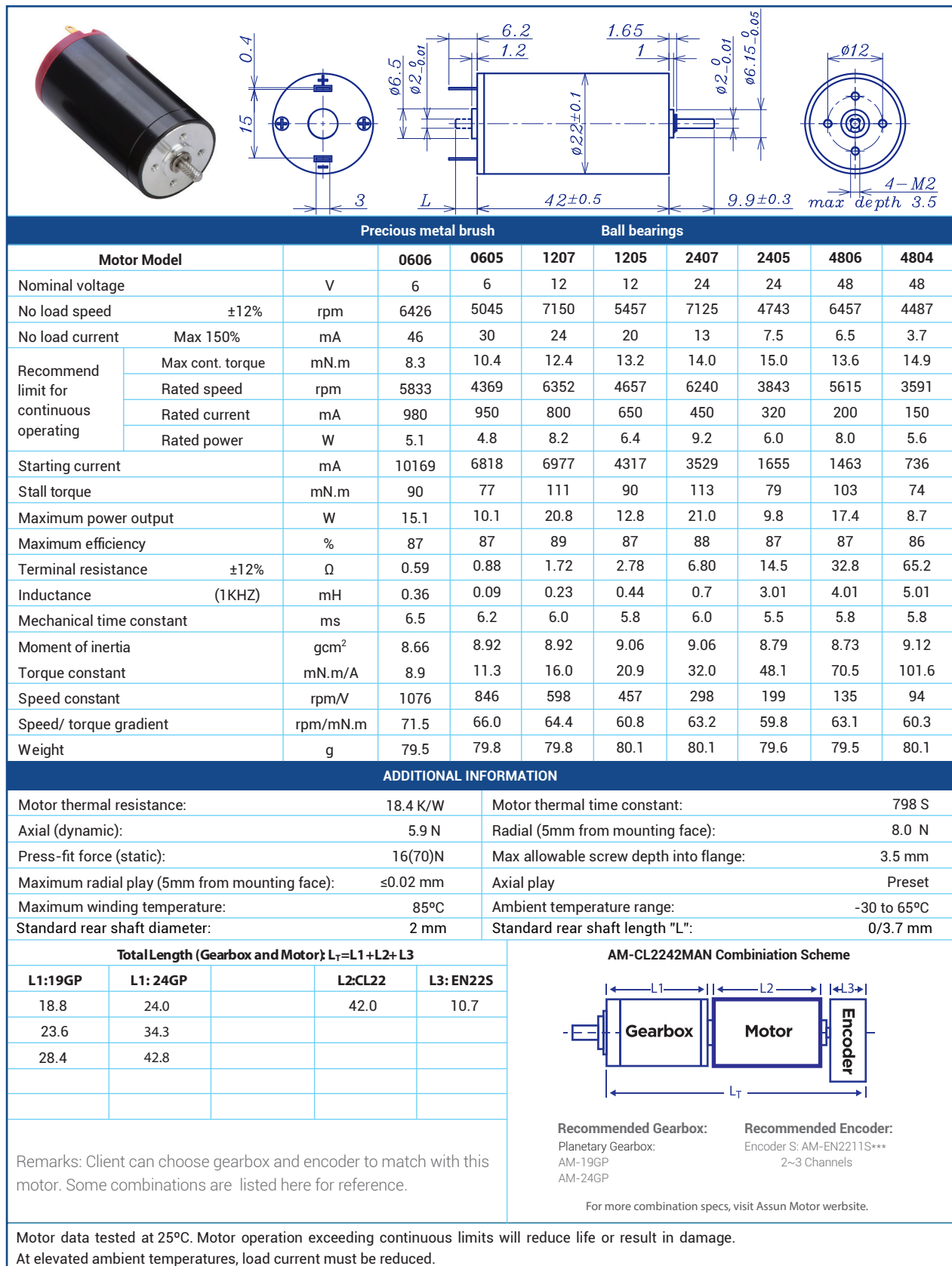
Encoder S: AM-EN1611S***
3 Channels
Encoder T: AM-EN1612T***
3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

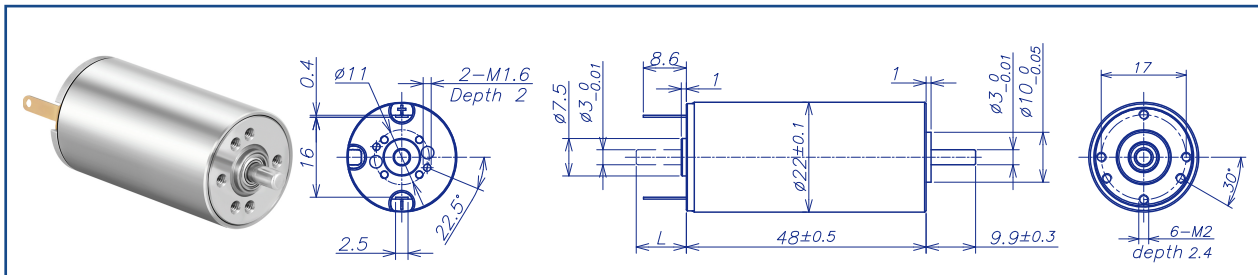
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AM-CL2242MAN SERIES



DC BRUSHED CORELESS MOTOR _ METAL Brush

AM-CL2248MAE Series



		Precious metal brush			Ball bearings					
Motor Model			0606	0906	1206	1806	2406	2806	3606	4806
Nominal voltage		V	6	9	12	18	24	28	36	48
No load speed		±12% rpm	6160	6160	6160	6160	6160	6210	6180	6180
No load current		Max 150% mA	70	60	50	35	25	20	18	10
Recommend limit for continuous operating	Max cont. torque	mN.m	14.1	21.4	29.5	29.8	29.2	29.2	29.2	27.8
	Rated speed	rpm	5650	5630	5100	5080	5060	5050	5070	5180
	Rated current	mA	1520	1540	1580	1040	800	720	550	400
	Rated power	W	8.3	12.6	15.8	15.9	15.5	15.4	15.1	15.1
Starting current		mA	17600	16360	8000	6000	4000	4000	3000	2000
Stall torque		mN.m	170	248	171.6	171	163	157	163	171.4
Maximum power output		W	27	40	27.8	27.5	26.3	25.4	26.3	27.8
Maximum efficiency		%	91	90	90	89	89	89	89	91
Terminal resistance		±12% Ω	0.34	0.55	1.5	3.06	5.5	8	12.8	21.5
Inductance		(1KHZ) mH	0.053	Null	Null	Null	Null	Null	Null	3.6
Mechanical time constant		ms	3.9	2.9	4.3	3.9	4.6	4.3	4.1	3.9
Moment of inertia		gcm ²	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Torque constant		mN.m/A	9.73	14.4	19.5	29.2	39	44.9	58	77.3
Speed constant		rpm/V	1026	684	513	342	257	222	172	128.7
Speed/ torque gradient		rpm/mN.m	36.2	24.8	35.9	36	37.8	39.6	37.8	36
Weight		g	102	102	102	102	102	102	102	102

ADDITIONAL INFORMATION

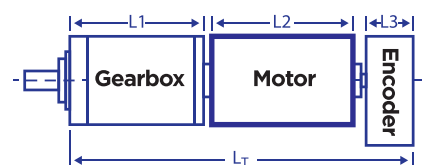
Motor thermal resistance:	12.2 K/W	Motor thermal time constant:	835 S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16 N
Press-fit force (static):	16(90) N	Max allowable screw depth into flange:	2.4 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C

Total Length (Gearbox and Motor): L_T=L₁+L₂+ L₃

L1:24GP	L1:26GP	L2:CL22	L3:EN16S	L3:EN16T
24.0	25.7	48.0	10.7	12.0
34.3	36.0			
42.8	44.5			
51.3	53.0			

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2248MAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-24GP
AM-26GP

Recommended Encoder:

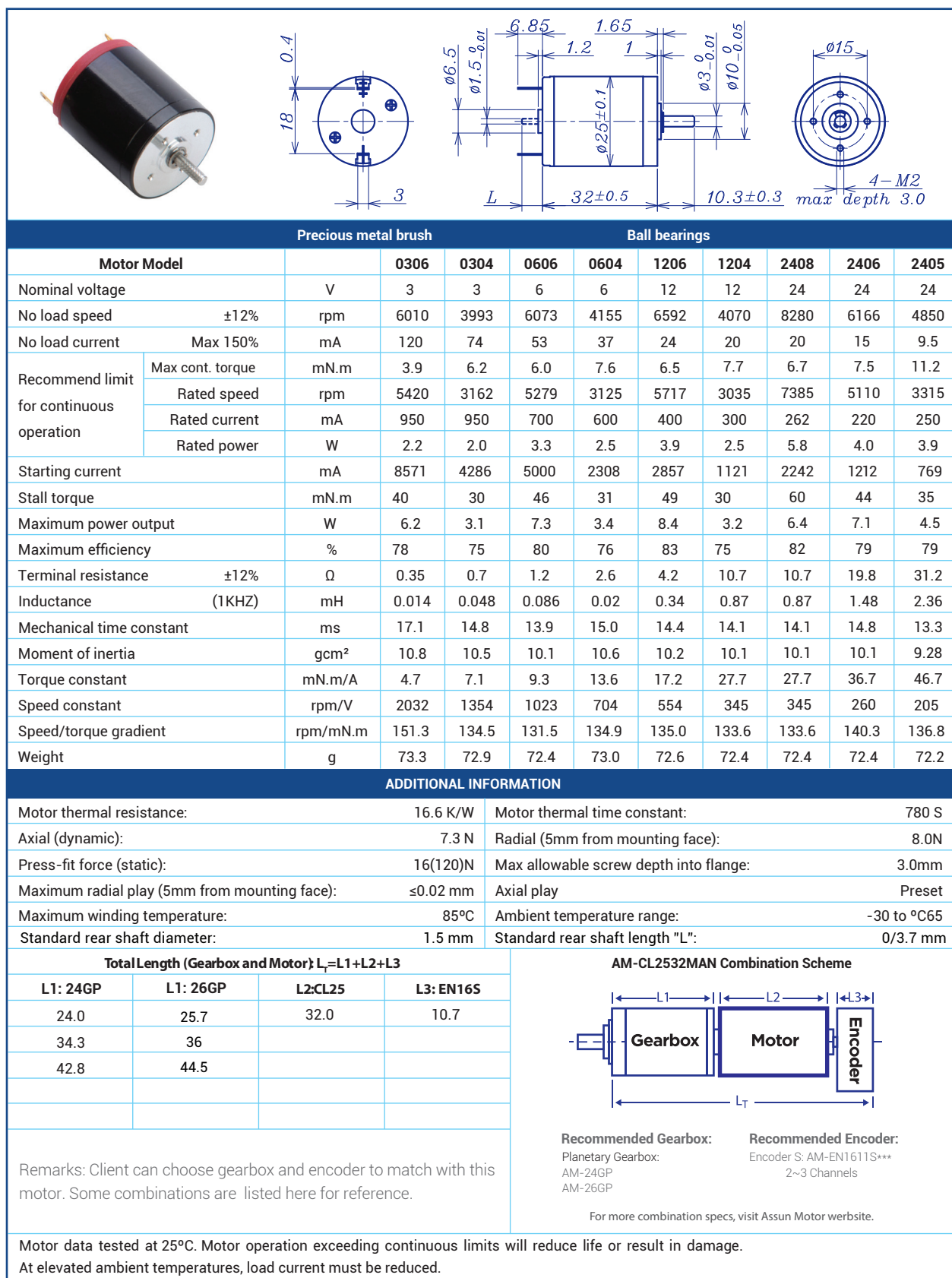
Encoder S: AM-EN1611S***
3 Channels
Encoder T: AM-EN1612T***
3 Channels

For more combination specs, visit Assun Motor website.

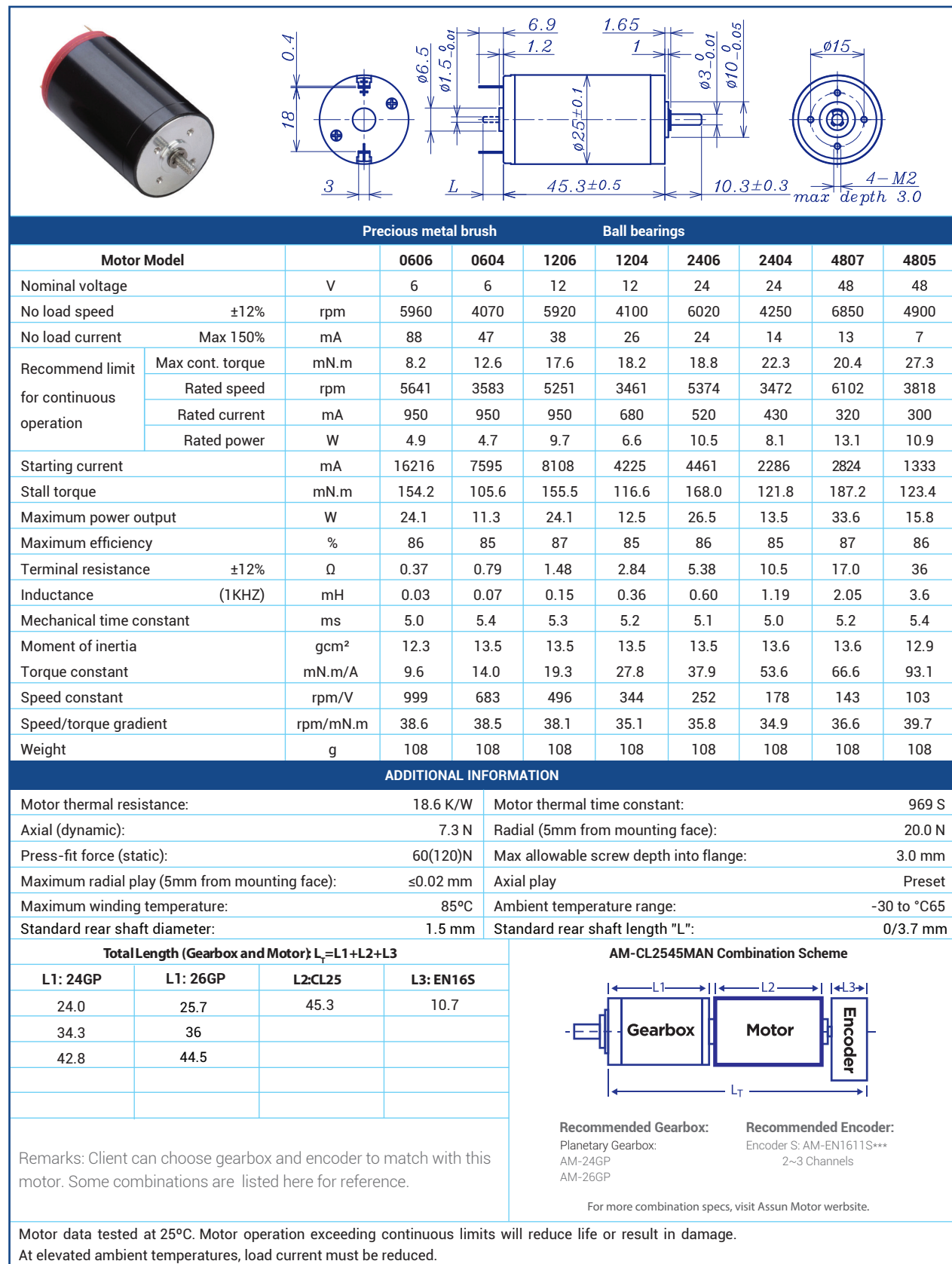
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2532MAN SERIES



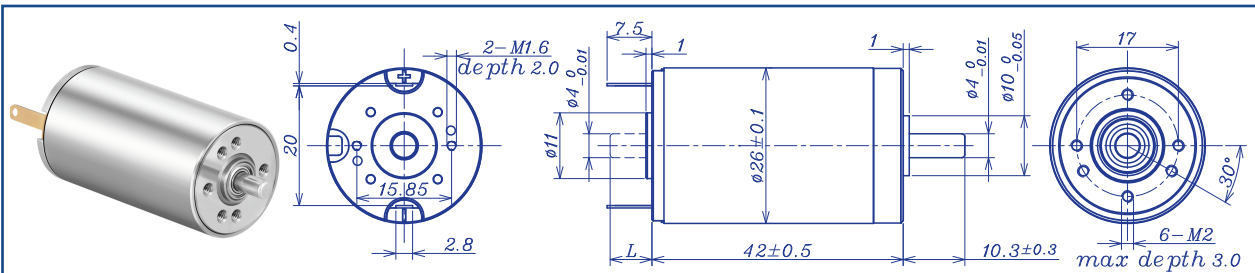
AM-CL2545MAN SERIES



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AM-CL2642MAE Series



		Precious metal brush			Ball bearings				
Motor Model			0605	0905	1205	1805	2405	3605	4805
Nominal voltage		V	6	9	12	18	24	36	48
No load speed $\pm 12\%$		rpm	5000	5000	5100	4950	4900	5100	5250
No load current Max 150%		mA	65	43	32	22	16	12	9
Recommend limit for continuous operating	Max cont. torque	mN.m	24.3	25.2	26.1	24.8	25.3	25	25.3
	Rated speed	rpm	4034	3985	4127	3937	3917	4116	4283
	Rated current	mA	2200	1520	1200	740	560	385	300
	Rated power	W	10.3	10.5	11.3	10.2	10.4	10.8	11.3
Starting current		mA	11111	7317	6154	3529	2727	1946	1589
Stall torque		mN.m	125.8	124.3	136.8	121	126.1	129.6	137.2
Maximum power output		W	16.5	16.3	18.3	15.7	16.2	17.3	18.9
Maximum efficiency		%	85	85	86	85	85	85	86
Terminal resistance $\pm 12\%$		Ω	0.54	1.23	1.95	5.1	8.8	18.5	30.2
Inductance (1KHZ)		mH	Null	Null	0.293	Null	Null	Null	4.56
Mechanical time constant		ms	5.7	5.8	5.4	5.9	5.6	5.7	5.5
Moment of inertia		gcm ²	13.8	13.8	13.8	13.8	13.8	13.8	13.8
Torque constant		mN.m/A	11.4	17.1	22.4	34.5	46.5	67	86.8
Speed constant		rpm/V	838	559	427	277	205	143	110
Speed/torque gradient		rpm/mN.m	39.7	40.2	37.3	40.9	38.9	39.4	38.3
Weight		g	122	122	122	122	122	122	122

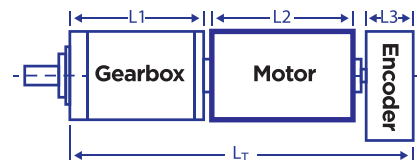
ADDITIONAL INFORMATION

Motor thermal resistance:	16.5 K/W	Motor thermal time constant:	**** S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C

Total Length (Gearbox and Motor) $L_T = L_1 + L_2 + L_3$				
L1: 26GP	L1: 28GP	L2: CL26	L3: EN22S	L3: EN24T
25.7	26.1	42	10.7	12.0
36	33.3			
44.5	40.5			
53	47.7			

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2642MAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP

Recommended Encoder:

Encoder S: AM-EN221S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

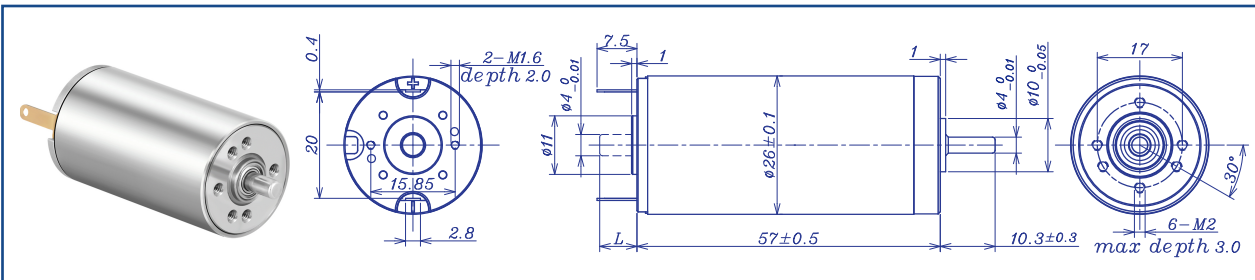
For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2657MAE Series



			Precious metal brush		Ball bearings			
Motor Model			0605	0905	1206	1805	2405	3605
Nominal voltage		V	6	9	12	18	24	36
No load speed ±12%		rpm	5200	5400	5540	5400	5400	5288
No load current Max 150%		mA	83	57	42	28	21	13
Recommend limit for continuous operating	Max cont. torque	mN.m	23.3	34.0	40.4	42.3	41.4	41.3
	Rated speed	rpm	4850	4884	4915	4715	4751	4650
	Rated current	mA	2200	2200	2000	1360	1000	650
	Rated power	W	11.8	17.4	20.8	21.0	20.6	20.1
Starting current		mA	31579	22500	17391	11111	8163	5294
Stall torque		mN.m	346.1	356.3	358.0	351.9	344.7	342.5
Maximum power output		W	47.1	50.4	51.9	50.0	48.7	47.4
Maximum efficiency		%	90	90	90	90	90	90
Terminal resistance ±12%		Ω	0.19	0.4	0.69	1.62	2.94	6.8
Inductance (1KHZ)		mH	0.041	Null	Null	Null	Null	1.4
Mechanical time constant		ms	3.2	3.3	3.3	3.3	3.4	3.3
Moment of inertia		gcm²	20.6	20.6	20.6	20.6	20.6	20.6
Torque constant		mN.m/A	11.0	15.9	20.6	31.8	42.3	64.9
Speed constant		rpm/V	869	602	463	301	226	147
Speed/torque gradient		rpm/mN.m	15.0	15.2	15.5	15.3	15.7	15.4
Weight		g	176	176	176	176	176	176

ADDITIONAL INFORMATION				
Motor thermal resistance:		11.2K/W	Motor thermal time constant:	1172 S
Axial (dynamic):		7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):		60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):		≤0.02 mm	Axial play:	Preset
Maximum winding temperature:		125°C	Ambient temperature range:	-40 to 85 °C

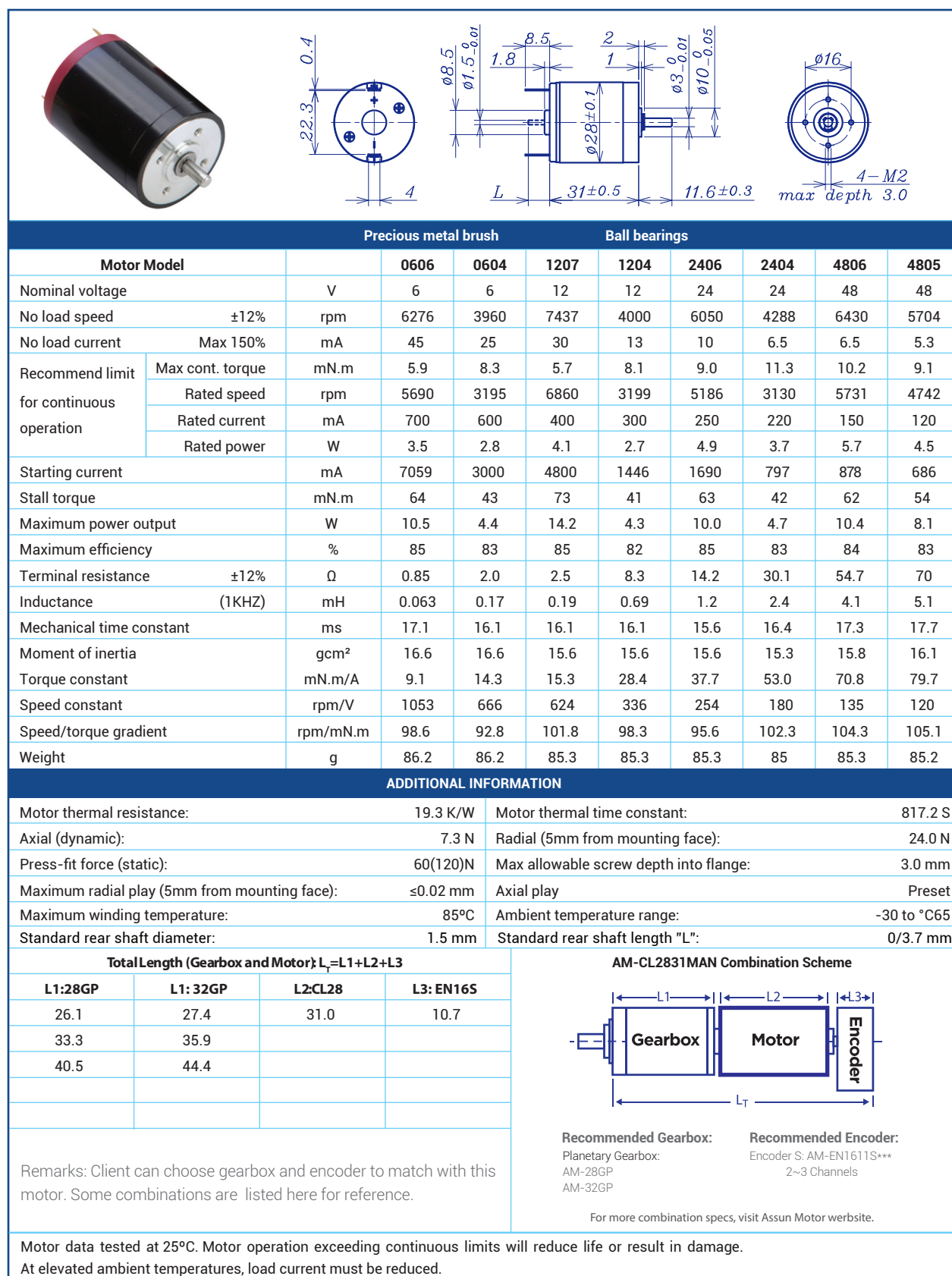
Total Length (Gearbox and Motor): L _T =L ₁ +L ₂ +L ₃			
L1:26GP	L1: 28GP	L2:26GP	L3: EN22S
25.7	26.1	42	10.7
36	33.3		L3: EN24T
44.5	40.5		12
53	47.7		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.	
Recommended Gearbox: Planetary Gearbox: AM-26GP AM-28GP Recommended Encoder: Encoder S: AM-EN2211S*** 2~ 3 Channels Encoder T: AM-EN2412T*** 2~ 3 Channels	

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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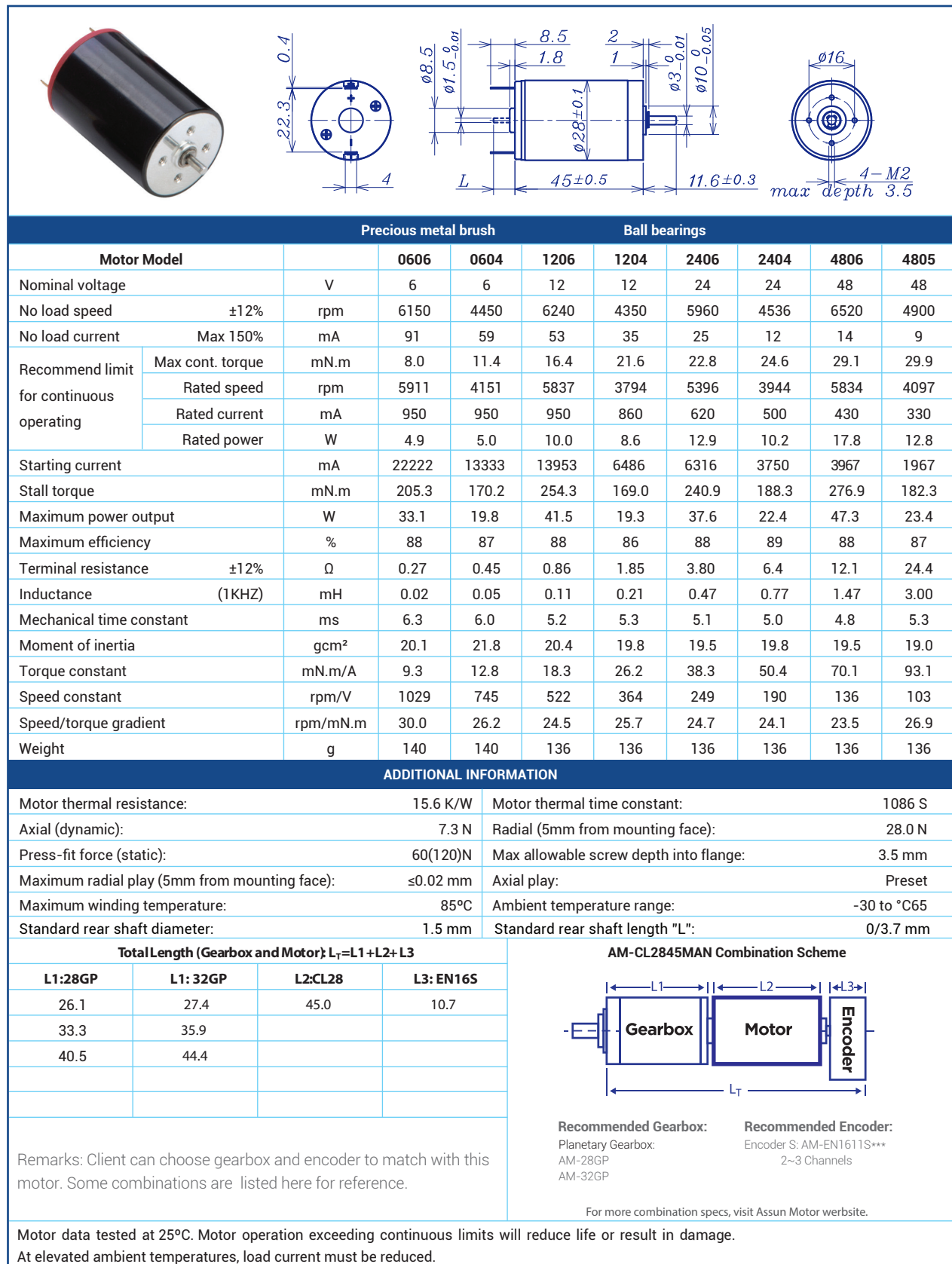
AM-CL2831MAN SERIES



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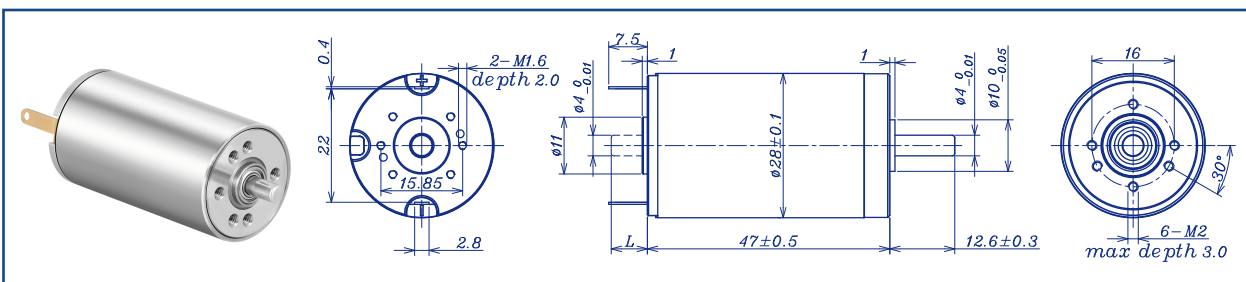
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AM-CL2845MAN SERIES



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AM-CL2847MAE Series



		Precious brush		Ball bearings				
Motor Model			0605	0905	1205	1805	2405	4805
Nominal voltage		V	6	9	12	18	24	48
No load speed ±12%		rpm	5110	5200	5100	5220	5100	5200
No load current Max 150%		mA	81	56	40.5	28	20	10.5
Recommend limit for continuous operating	Max cont. torque	mN.m	23.7	35.3	38.3	36.8	39.4	38.6
	Rated speed	rpm	4621	4479	4334	4469	4340	4483
	Rated current	mA	2200	2200	1750	1150	900	450
	Rated power	W	11.5	16.6	17.4	17.2	17.9	18.1
Starting current		mA	22222	15517	11429	7826	5926	3200
Stall torque		mN.m	247.4	254.6	255	255.9	264.5	280.2
Maximum power output		W	33.1	34.7	34	35	35.3	38.1
Maximum efficiency		%	88	88	88	88	89	89
Terminal resistance ±12%		Ω	0.27	0.58	1.05	2.3	4.05	15
Inductance (1KHZ)		mH	Null	0.087	0.18	Null	Null	2.66
Mechanical time constant		ms	4.9	4.8	4.7	4.8	4.5	4.4
Moment of inertia		gcm²	22.5	22.5	22.5	22.5	22.5	22.5
Torque constant		mN.m/A	11.2	16.5	22.4	32.8	44.8	87.9
Speed constant		rpm/V	855	580	427	291	213	109
Speed/torque gradient		rpm/mN.m	20.7	20.4	20	20.4	19.3	18.6
Weight		g	158	158	158	158	158	158

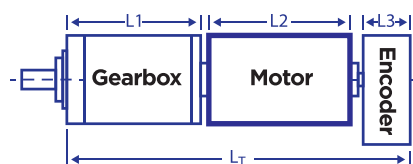
ADDITIONAL INFORMATION

Motor thermal resistance:	15.6 K/W	Motor thermal time constant:	1086 S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85 °C

Total Length (Gearbox and Motor): L _T =L ₁ +L ₂ + L ₃				
L1:26GP	L1: 28GP	L1:32GP	L2:CL28	L3: EN22S
25.7	26.1	27.4	47.0	10.7
36	33.3	35.9		L3: EN24T
44.5	40.5	44.4		12
53	47.7	52.9		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2847GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP
AM-32GP

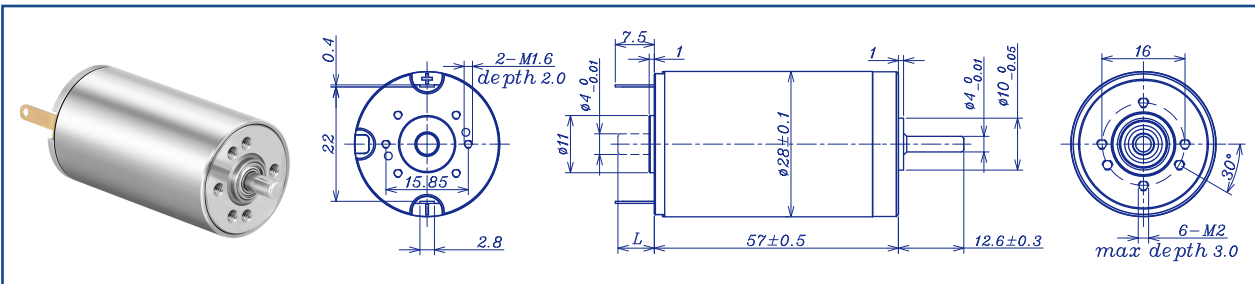
Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

AM-CL2857MAE Series



			Precious metal brush		Ball bearings			
Motor Model			0605	0906	1205	1805	2405	3605
Nominal voltage		V	6	9	12	18	24	36
No load speed ±12%		rpm	5700	5900	5400	5700	5500	5700
No load current Max 150%		mA	80	56	37	32	19	13
Recommend limit for continuous operating	Max cont. torque	mN.m	21.3	31.2	45.8	42	48.3	47.4
	Rated speed	rpm	5450	5537	4857	5200	5020	5123
	Rated current	mA	2200	2200	2200	1420	1200	800
	Rated power	W	12.1	18.1	23.3	22.9	25.4	25.4
Starting current		mA	48387	34884	21544	16000	11429	7792
Stall torque		mN.m	485	507	456	485	466	468
Maximum power output		W	72.3	78.2	64.4	72.4	68.3	69.9
Maximum efficiency		%	92	92	92	92	92	92
Terminal resistance ±12%		Ω	0.124	0.258	0.557	1.15	2.1	4.62
Inductance (1KHZ)		mH	0.018	Null	Null	Null	Null	0.89
Mechanical time constant		ms	3.5	3.5	3.5	3.6	3.6	3.6
Moment of inertia		gcm²	28.4	28.4	28.4	28.4	28.4	28.4
Torque constant		mN.m/A	10	14.5	21.2	30.2	40.9	60.2
Speed constant		rpm/V	952	657	451	316.7	234	158.6
Speed/torque gradient		rpm/mN.m	11.8	11.6	11.9	11.8	12	12
Weight		g	173	173	173	173	173	173

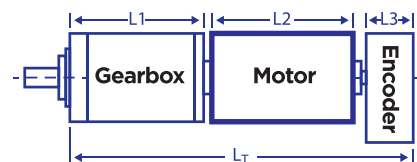
ADDITIONAL INFORMATION

Motor thermal resistance:	10.3 K/W	Motor thermal time constant:	1175 S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85 °C

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$				
L1: 26GP	L1: 28GP	L1: 32GP	L2: CL28	L3: EN22S
25.7	26.1	27.4	57.0	10.7
36	33.3	35.9		L3: EN24T
44.5	40.5	44.4		12
53	47.7	52.9		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2857MAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP
AM-32GP

Recommended Encoder:

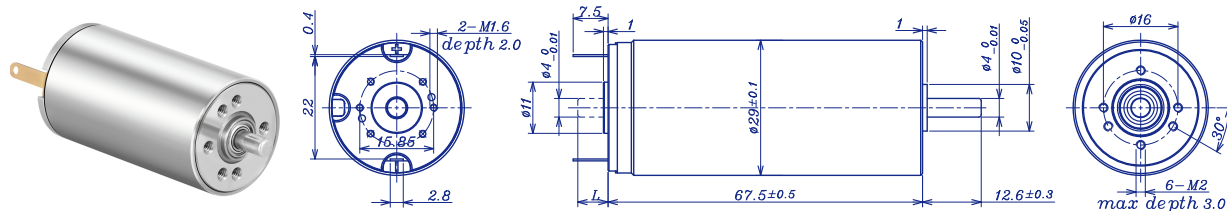
Encoder S: AM-EN2211S***
3 Channels
Encoder T: AM-EN2412T***
3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2968MAE Series



Precious metal brush				Ball bearings				
Motor Model			1206	1806	2406	3606	4806	6006
Nominal voltage		V	12	18	24	36	48	60
No load speed ±12%		rpm	6025	5875	6026	6026	6026	6026
No load current Max 150%		mA	100	70	50	40	30	25
Recommend limit for continuous operating	Max cont. torque	mN.m	43	43	45	44	44	44
	Rated speed	rpm	5680	5540	5670	5675	5685	5680
	Rated current	mA	2400	1600	1250	820	620	500
	Rated power	W	25.6	24.9	26.7	26.2	26.2	26.2
Starting current		mA	40000	26000	20000	14000	10000	8000
Stall torque		mN.m	751	754	756	763	779	776
Maximum power output		W	118	116	119	120	122	122
Maximum efficiency		%	89	89	89	89	89	89
Terminal resistance ±12%		Ω	0.35	0.7	1.25	2.7	4.7	7.4
Inductance (1KHZ)		mH	Null	Null	Null	Null	Null	Null
Mechanical time constant		ms	3.5	3	3.2	3	3	3
Moment of inertia		gcm²	35.3	35.3	35.3	35.3	35.3	35.3
Torque constant		mN.m/A	18.7	28.8	37.3	56.2	74.9	93.6
Speed constant		rpm/V	502	326	251	167	126	101
Speed/torque gradient		rpm/mN.m	8	7.8	8	7.9	7.74	7.8
Weight		g	267	267	267	267	267	267

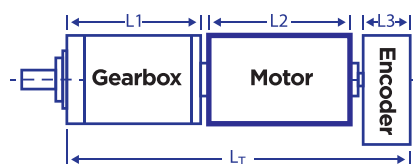
ADDITIONAL INFORMATION

Motor thermal resistance:	*** K/W	Motor thermal time constant:	*** S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C

Total Length (Gearbox and Motor): L _T =L ₁ +L ₂ + L ₃				
L1:26GP	L1: 28GP	L1:32GP	L2:CL29	L3: EN22S
25.7	26.1	27.4	67.5	10.7
36	33.3	35.9		L3: EN24T
44.5	40.5	44.4		12
53	47.7	52.9		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2968GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP
AM-32GP

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

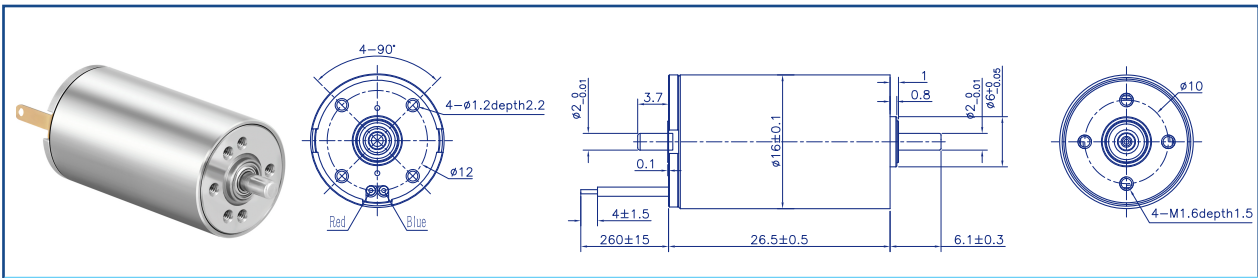
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

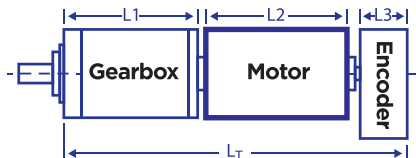
DC BRUSHED CORELESS MOTOR —
GRAPHITE BRUSH SERIES

Assun Graphite Brush Series Coreless motors are manufactured with coreless rotors and Graphite brush commutators. Benefited from the graphite brushes, these motors are more robust and can operate in higher current which lead to higher torque and power output. It's ideal for applications that need high power output and operate in harsh environments.



AM-CL1626GAE Series

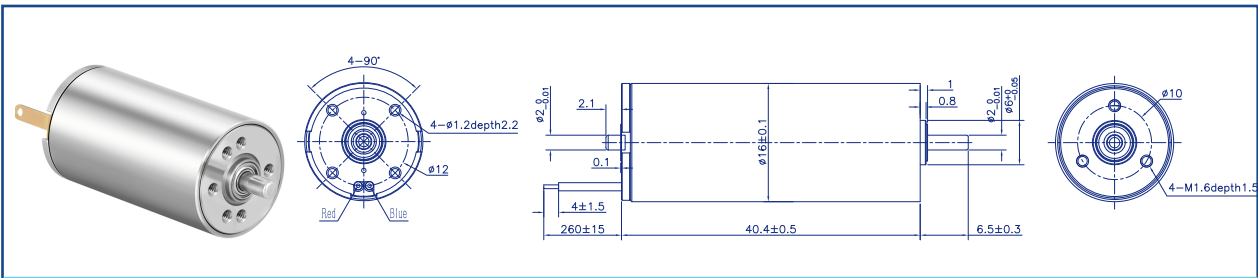


			Graphite brush		Ball bearings			
Motor Model			0613	0913	1213	1813	2413	4813
Nominal voltage		V	6	9	12	18	24	48
No load speed ±12%		rpm	12520	13280	13280	12660	12760	13150
No load current Max 150%		mA	76	51	40	26	20	10
Recommend limit for continuous operating	Max cont. torque	mN.m	5.45	5.4	5.36	5.21	5.43	5.32
	Rated speed	rpm	9300	9300	10300	9220	9480	9230
	Rated current	mA	1300	870	680	421	330	168
	Rated power	W	5.3	5.3	5.8	5.0	5.4	5.14
Starting current		mA	4835	3130	2880	1480	1220	538
Stall torque		mN.m	21.15	20.3	23.83	19.16	21.1	17.82
Maximum power output		W	6.9	6.7	8.3	6.35	7.1	6.1
Maximum efficiency		%	75	75	76	74	76	74
Terminal resistance ±12%		Ω	1.25	2.9	4.2	12.2	19.4	89
Inductance (1KHZ)		mH	N/A	N/A	N/A	N/A	0.495	N/A
Mechanical time constant		ms	6.4	6.4	6.4	6.4	6.4	6.4
Moment of inertia		gcm²	1.02	1.02	1.02	1.02	1.02	1.02
Torque constant		mN.m/A	4.44	6.58	8.39	13.17	17.6	33.74
Speed constant		rpm/V	2120	1431	1122	716	540	279
Speed/torque gradient		rpm/mN.m	592	625	557	660	603	738
Weight		g	18.5	18.5	18.5	18.5	18.5	18.5
ADDITIONAL INFORMATION								
Motor thermal resistance:			24.2 K/W		Motor thermal time constant:			235 S
Axial (dynamic):			0.8 N		Radial (5mm from mounting face):			2.0 N
Press-fit force (static):			18 N		Max allowable screw depth into flange:			1.8 mm
Maximum radial play (5mm from mounting face):			≤0.02 mm		Axial play:			Preset
Maximum winding temperature:			125°C		Ambient temperature range:			-40 to 85°C
Standard rear shaft diameter:			2.0mm		Standard rear shaft length "L":			0/3.7 mm
Total Length (Gearbox and Motor): L _T =L ₁ +L ₂ +L ₃				AM-CL1626GAE Combination Scheme				
L1:16GP	L2:CL16	L3: EN16-S						
15.9	26	8						
19.6								
23.3								
27.0								
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				Recommended Gearbox: Planetary Gearbox: AM-16GP Recommended Encoder: Encoder S: AM-EN1608S*** 2~3 Channels For more combination specs, visit Assun Motor website.				
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.								

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AM-CL1640GAE Series



		Graphite brush				Ball bearings		
Motor Model			0613	0913	1213	1813	2413	4813
Nominal voltage		V	6	9	12	18	24	48
No load speed $\pm 12\%$		rpm	12700	13000	13000	12700	12700	12700
No load current Max 150%		mA	75	52	40	25	25	15
Recommend limit for continuous operating	Max cont. torque	mN.m	8.6	12	10.5	11.8	11.3	11.6
	Rated speed	rpm	11000	11000	10700	10600	10600	10600
	Rated current	mA	2000	1860	1250	890	660	450
	Rated power	W	9.9	9.9	11.8	13.1	12.6	12.9
Starting current		mA	13800	11800	6850	5260	3900	2530
Stall torque		mN.m	61.2	78	59.3	71.4	68.3	37.5
Maximum power output		W	20.5	26.5	20.2	23.7	22.7	22.6
Maximum efficiency		%	85	87	84	86	85	85
Terminal resistance $\pm 12\%$		Ω	N/A	N/A	N/A	N/A	N/A	N/A
Inductance (1KHZ)		mH	N/A	N/A	N/A	N/A	N/A	N/A
Mechanical time constant		ms	4.78	4.5	5.3	4.68	4.45	4.4
Moment of inertia		gcm ²	2.35	2.35	2.35	2.35	2.35	2.35
Torque constant		mN.m/A	4.47	6.64	8.65	13.65	17.53	26.8
Speed constant		rpm/V	2128	1451	1090	709	532	358
Speed/torque gradient		rpm/mN.m	209	167	219	178	186	190
Weight		g	N/A	N/A	N/A	N/A	N/A	N/A

ADDITIONAL INFORMATION

Motor thermal resistance:	18.2 K/W	Motor thermal time constant:	296 S
Axial (dynamic):	0.8 N	Radial (5mm from mounting face):	10 N
Press-fit force (static):	18 N	Max allowable screw depth into flange:	1.8 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	2.0mm	Standard rear shaft length "L":	0/3.7 mm

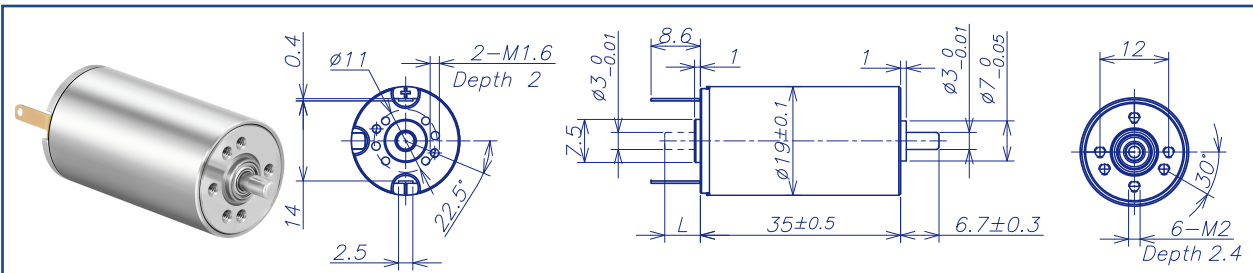
Total Length (Gearbox and Motor) $L_T = L_1 + L_2 + L_3$				AM-CL1640GAE Combination Scheme	
L1:16GP	L2:CL16	L3: EN16-S			
15.9	40.4	8			
19.6					
23.3					
27.0					
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				Recommended Gearbox: Planetary Gearbox: AM-16GP	Recommended Encoder: Encoder S: AM-EN1608S*** 2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL1935GAE Series



		Graphite brush			Ball bearings				
Motor Model			0613	0913	1213	1813	2413	3613	4813
Nominal voltage		V	6	9	12	18	24	36	48
No load speed $\pm 12\%$		rpm	13100	13100	13100	13100	12900	13100	12700
No load current Max 150%		mA	170	110	86	60	45	30	22
Recommend limit for continuous operating	Max cont. torque	mN.m	10.5	11.1	11	11.6	11.5	11.7	11.7
	Rated speed	rpm	10953	11089	11275	11269	11087	11349	10931
	Rated current	mA	2600	1820	1360	950	700	480	350
	Rated power	W	12.1	12.9	13.0	13.7	13.4	13.9	13.4
Starting current		mA	15000	11250	9231	6429	4706	3396	2376
Stall torque		mN.m	64	72	79	83	82	88	84
Maximum power output		W	22.0	24.8	27.2	28.4	27.7	30	28
Maximum efficiency		%	80	81	82	82	81	82	82
Terminal resistance $\pm 12\%$		Ω	0.4	0.8	1.3	2.8	5.1	10.6	20.2
Inductance (1KHZ)		mH	Null	Null	Null	Null	0.48	Null	Null
Mechanical time constant		ms	7.1	6.3	5.7	5.5	5.4	5.2	5.2
Moment of inertia		gcm ²	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Torque constant		mN.m/A	4.3	6.5	8.7	13	17.6	26	35.8
Speed constant		rpm/V	2208	1470	1102	735	543	367	267
Speed/torque gradient		rpm/mN.m	204.3	181	165.3	158.2	157.3	149.6	150.9
Weight		g	53	53	53	53	53	53	53

ADDITIONAL INFORMATION

Motor thermal resistance:	26.5 K/W	Motor thermal time constant:	**** S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	3.0mm	Standard rear shaft length "L":	0/3.7/5.5mm

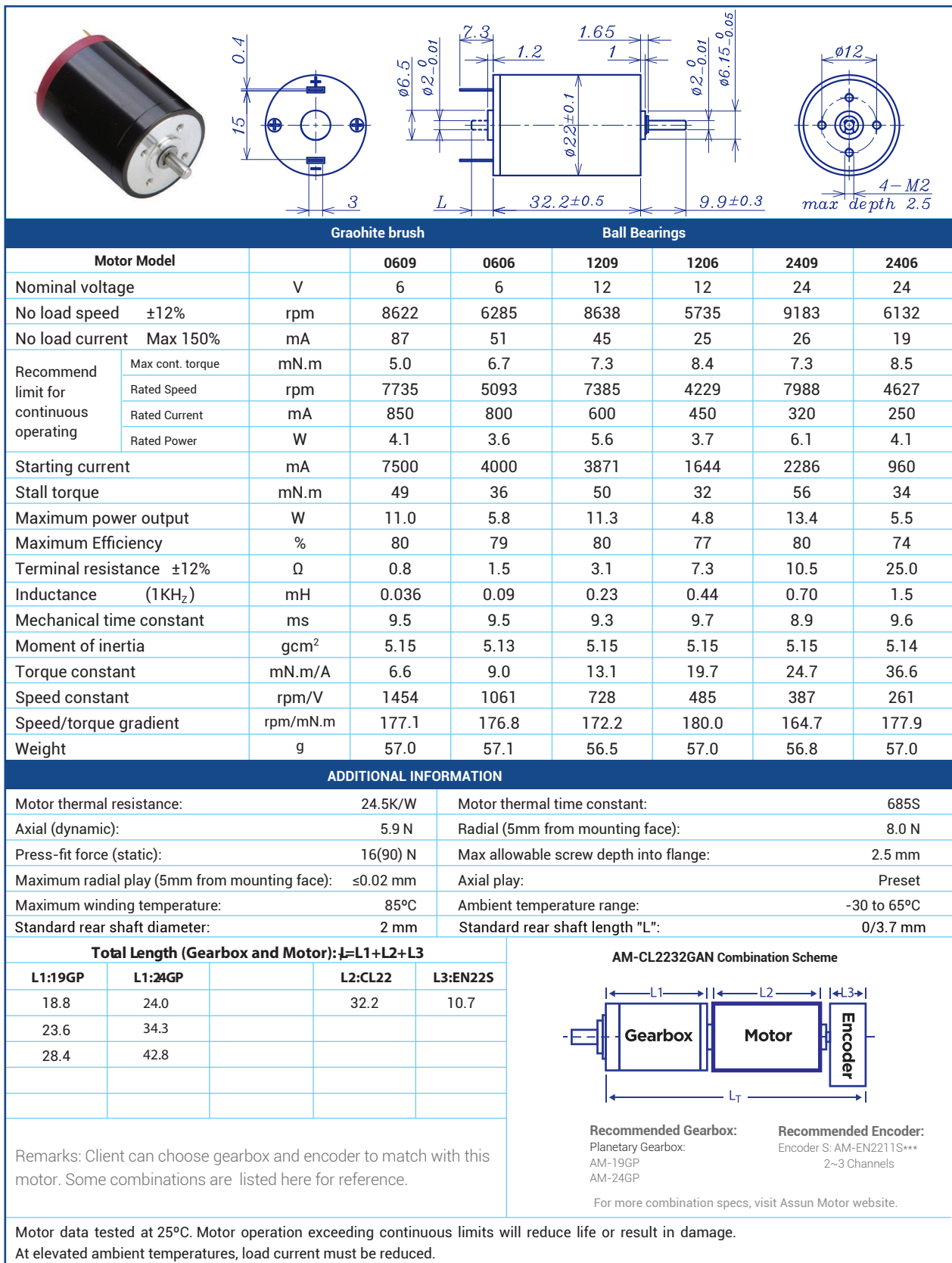
Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$				AM-CL1935GAE Combination Scheme	
L1: 19GP	L2: CL19	L3: EN16 S	L3: EN16 T		
18.8	35	10.7	12		
23.6					
28.4					
33.2					
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				Recommended Gearbox: Planetary Gearbox: AM-19GP	Recommended Encoder: Encoder S: AM-EN1611S*** 2~3 Channels Encoder T: AM-EN1612T*** 2~3 Channels

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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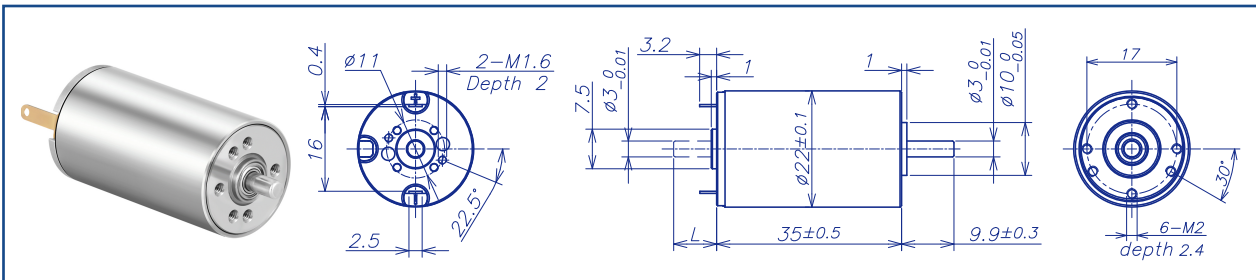
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AM-CL2232GAN SERIES



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AM-CL2235GAE Series



		Graphite brush		Ball bearings				
Motor Model			0612	1212	1812	2412	3612	4812
Nominal voltage		V	6	12	18	24	36	48
No load speed ±12%		rpm	12000	11800	12100	12000	12200	12300
No load current Max 150%		mA	330	160	110	80	60	45
Recommend limit for continuous operating	Max cont. torque	mN.m	12.1	13.3	12.5	13.2	12.2	12.7
	Rated speed	rpm	10855	10555	11011	10796	11083	11173
	Rated current	mA	2900	1550	1000	780	500	390
	Rated power	W	13.8	14.7	14.4	14.9	14.2	14.9
Starting current		mA	27273	13333	10000	7059	4865	3810
Stall torque		mN.m	127.1	126.4	138.9	131.8	133.7	138.6
Maximum power output		W	39.9	39	44	41.4	42.7	44.6
Maximum efficiency		%	79	79	80	80	79	79
Terminal resistance ±12%		Ω	0.22	0.9	1.8	3.4	7.4	12.6
Inductance (1KHZ)		mH	0.023	0.11	Null	0.35	0.8	1.4
Mechanical time constant		ms	6	6	5.6	5.8	5.8	5.7
Moment of inertia		gcm²	6.1	6.1	6.1	6.1	6.1	6.1
Torque constant		mN.m/A	4.7	9.6	14	18.9	27.8	36.8
Speed constant		rpm/V	2024	995	680	506	343	259
Speed/torque gradient		rpm/mN.m	94.4	93.4	87.1	91.1	91.2	88.7
Weight		g	75	75	75	75	75	75

ADDITIONAL INFORMATION

Motor thermal resistance:	15.7 K/W	Motor thermal time constant:	709 S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85 °C

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$				
L1: 24GP	L1: 26GP		L2: CL22	L3: EN16S
24	25.7		35	10.7
34.3	36			L3: EN16T
42.8	44.5			12
51.3	53			
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				

AM-CL2235GAE Combination Scheme

Recommended Gearbox:
Planetary Gearbox:
AM-24GP
AM-26GP

Recommended Encoder:
Encoder S: AM-EN1611S***
3 Channels
Encoder T: AM-EN1612T***
3 Channels

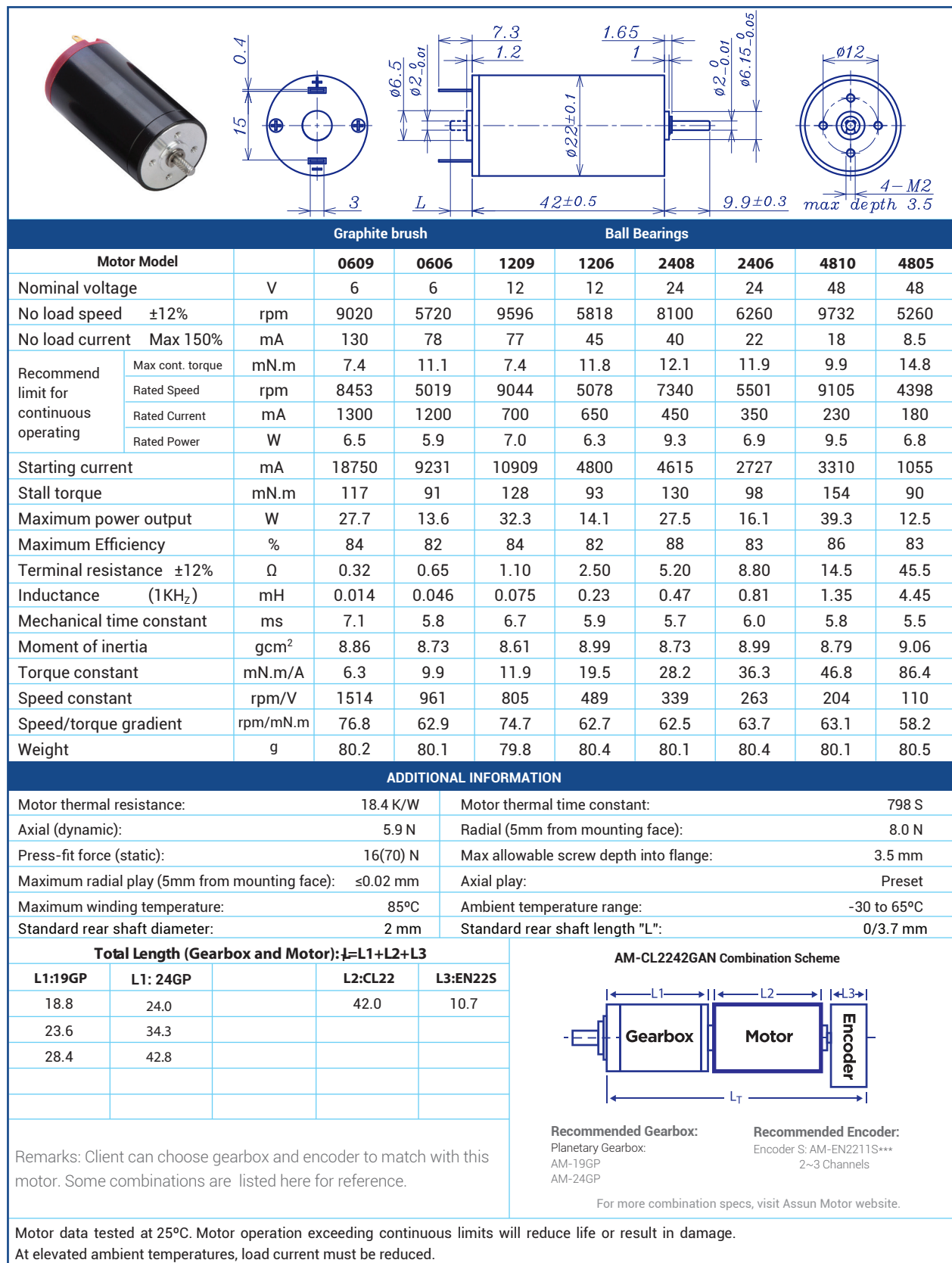
For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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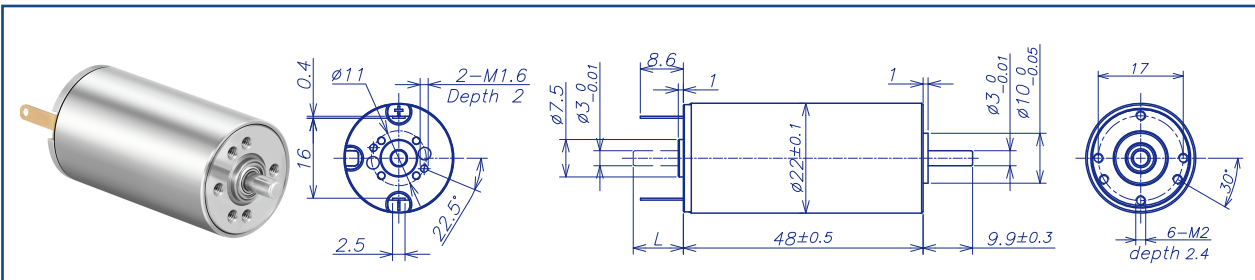
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AM-CL2242GAN Series



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AM-CL2248GAE Series



		Graphite brush			Ball bearings			
Motor Model			0911	1212	1812	2412	3612	4812
Nominal voltage		V	9	12	18	24	36	48
No load speed ±12%		rpm	11400	12300	12200	11900	12000	11900
No load current Max 150%		mA	250	210	136	100	65	55
Recommend limit for continuous operating	Max cont. torque	mN.m	19.9	18.4	18.4	18.2	18.9	18.9
	Rated speed	rpm	10657	11582	11510	11189	11287	11183
	Rated current	mA	2900	2200	1450	1050	730	550
	Rated power	W	22.2	22.3	22.2	21.3	22.4	22.2
Starting current		mA	40909	34286	23377	16000	11250	8276
Stall torque		mN.m	304.7	315.5	325.5	304.3	318.6	315
Maximum power output		W	90.9	101.6	104	94.8	100.1	98
Maximum efficiency		%	85	85	85	85	85	84
Terminal resistance ±12%		Ω	0.22	0.35	0.77	1.5	3.2	5.8
Inductance (1KHZ)		mH	0.034	Null	Null	Null	Null	0.94
Mechanical time constant		ms	3.6	3.8	3.6	3.8	3.7	3.7
Moment of inertia		gcm²	9.3	9.3	9.3	9.3	9.3	9.3
Torque constant		mN.m/A	7.5	9.3	14	19.1	28.5	38.3
Speed constant		rpm/V	1274	1031	682	499	335	250
Speed/torque gradient		rpm/mN.m	37.4	39	37.5	39.1	37.7	38
Weight		g	104	104	104	104	104	104

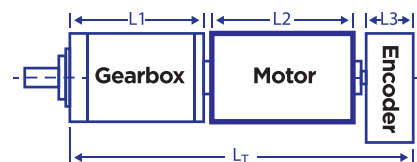
ADDITIONAL INFORMATION

Motor thermal resistance:	12.2 K/W	Motor thermal time constant:	835 S
Axial (dynamic):	2.5 N	Radial (5mm from mounting face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85 °C

Total Length (Gearbox and Motor) $L_T = L_1 + L_2 + L_3$			
L1:24GP	L1:26GP	L2:CL22	L3:EN16S
24	25.7	48.0	10.7
34.3	36		L3:EN16T
42.8	44.5		12.0
51.3	53		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2248GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-24GP
AM-26GP

Recommended Encoder:

Encoder S: AM-EN1611S***
3 Channels
Encoder T: AM-EN1612T***
3 Channels

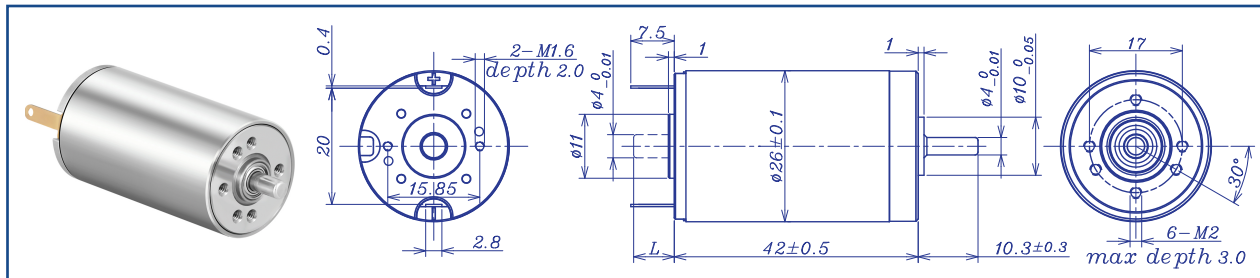
For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2642GAE Series



		Graphite brush		Ball bearings			
Motor Model			1210	1810	2410	3610	4810
Nominal voltage		V	12	18	24	36	48
No load speed ±12%		rpm	10230	10229	9950	10040	10090
No load current Max 150%		mA	142	95	68	46	35
Recommend limit for continuous operating	Max cont. torque	mN.m	25.1	25.1	25.2	25.3	25.5
	Rated speed	rpm	9164	9153	8800	8954	9002
	Rated current	mA	2400	1600	1170	790	600
	Rated power	W	24.1	24.1	23.2	23.7	24
Starting current		mA	21818	14400	9600	6923	5275
Stall torque		mN.m	241.2	238.8	218	233.9	236.4
Maximum power output		W	64.6	63.9	56.8	61.5	62.5
Maximum efficiency		%	85	84	84	84	84
Terminal resistance ±12%		Ω	0.55	1.25	2.5	5.2	9.1
Inductance (1KHZ)		mH	Null	Null	Null	Null	Null
Mechanical time constant		ms	6.1	6.2	6.6	6.2	6.2
Moment of inertia		gcm²	13.8	13.8	13.8	13.8	13.8
Torque constant		mN.m/A	11.1	16.7	22.9	34	45.1
Speed constant		rpm/V	858	572	418	281	212
Speed/torque gradient		rpm/mN.m	42.4	42.8	45.6	42.9	42.7
Weight		g	122	122	122	122	122

ADDITIONAL INFORMATION

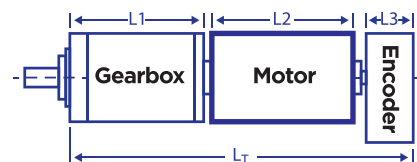
Motor thermal resistance:	16.5 K/W	Motor thermal time constant:	**** S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	4.0 mm	Standard rear shaft length "L":	No mm

Total Length (Gearbox and Motor) L_T=L₁+L₂+L₃

L1: 26GP	L1: 28GP	L2: CL26	L3: EN22S	L3: EN24T
25.7	26.1	42	10.7	12.0
36	33.3			
44.5	40.5			
53	47.7			

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2642GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP

Recommended Encoder:

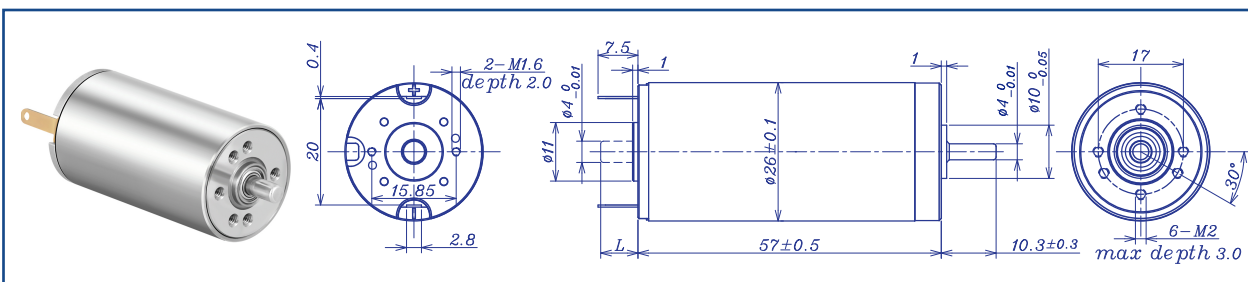
Encoder S: AM-EN211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-CL2657GAE Series



		Graphite brush		Ball bearings				
Motor Model			1211	1811	2411	3611	4811	6011
Nominal voltage		V	12	18	24	36	48	60
No load speed ±12%		rpm	10700	11030	11200	11100	10950	11300
No load current Max 150%		mA	180	128	100	65	48	40
Recommend limit for continuous operating	Max cont. torque	mN.m	45.1	44.6	44.1	44.3	44.7	43.5
	Rated speed	rpm	9907	10271	10462	10346	10190	10553
	Rated current	mA	4400	3000	2260	1500	1120	900
	Rated power	W	46.7	48	48.3	48	47.7	48
Starting current		mA	57143	41860	32877	21176	15484	13043
Stall torque		mN.m	608.1	648.4	668.7	651.8	644.1	567.3
Maximum power output		W	170.4	187.2	196.1	189.4	184.7	194.5
Maximum efficiency		%	89	89	89	89	89	89
Terminal resistance ±12%		Ω	0.21	0.43	0.73	1.7	3.1	4.6
Inductance (1KHZ)		mH	Null	Null	0.13	Null	Null	Null
Mechanical time constant		ms	3.8	3.7	3.6	3.7	3.7	3.7
Moment of inertia		gcm²	20.6	20.6	20.6	20.6	20.6	20.6
Torque constant		mN.m/A	10.7	15.5	20.4	30.9	41.7	50.5
Speed constant		rpm/V	894	615	468	309	229	189
Speed/torque gradient		rpm/mN.m	17.6	17	16.7	17	17	17.2
Weight		g	180	180	180	180	180	180

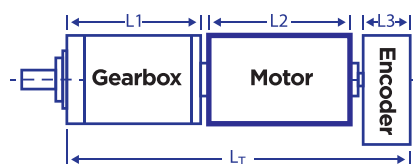
ADDITIONAL INFORMATION

Motor thermal resistance:	11.2 K/W	Motor thermal time constant:	1172 S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	4.0 mm	Standard rear shaft length "L":	No mm

Total Length (Gearbox and Motor): L _T =L ₁ +L ₂ + L ₃				
L1:26GP	L1: 28GP	L2:CL26	L3: EN22S	L3:EN24T
25.7	26.1	42	10.7	12.0
36	33.3			
44.5	40.5			
53	47.7			

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2657GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP

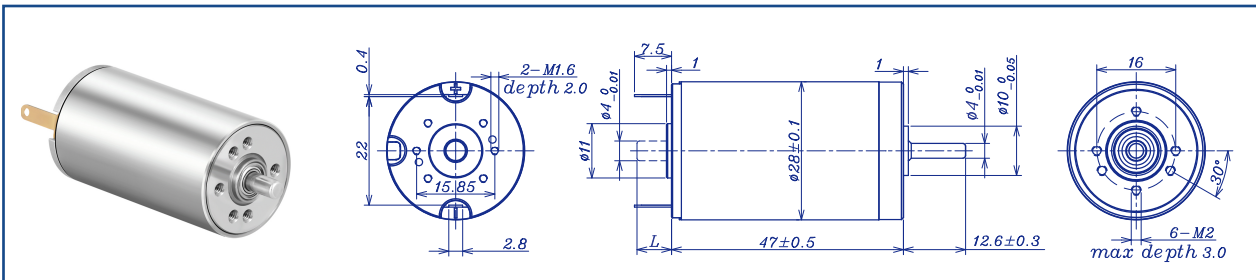
Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

AM-CL2847GAE Series



		Graphite brush		Ball bearings				
Motor Model			1210	1810	2410	3610	4810	6010
Nominal voltage		V	12	18	24	36	48	60
No load speed ±12%		rpm	9880	10140	10000	10140	9883	10360
No load current Max 150%		mA	165	115	80	60	45	40
Recommend limit for continuous operating	Max cont. torque	mN.m	27.0	26.8	29.2	25.0	25.6	24.2
	Rated speed	rpm	9359	9602	9411	9638	9401	9887
	Rated current	mA	2500	1700	1360	800	600	480
	Rated power	W	26.4	26.9	28.8	25.2	25.2	25.1
Starting current		mA	44444	30000	21818	15000	11429	9677
Stall torque		mN.m	511.7	504.7	496.4	504.5	525.9	530.8
Maximum power output		W	132.3	134.0	130.0	133.9	136.1	144.0
Maximum efficiency		%	88	88	88	88	88	88
Terminal resistance ±12%		Ω	0.27	0.6	1.1	2.4	4.2	6.2
Inductance (1KHZ)		mH						
Mechanical time constant		ms	4.5	4.7	4.7	4.7	4.4	4.6
Moment of inertia		gcm²	22.5	22.5	22.5	22.5	22.5	22.5
Torque constant		mN.m/A	11.6	16.9	22.8	33.8	46.2	55.1
Speed constant		rpm/V	826	566	418	283	207	173
Speed/torque gradient		rpm/mN.m	19.3	20.1	20.1	20.1	18.8	19.5
Weight		g	158	158	158	158	158	158

ADDITIONAL INFORMATION

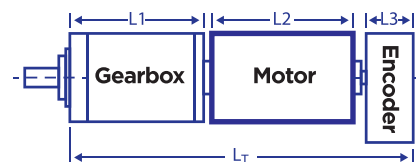
Motor thermal resistance:	15.6 K/W	Motor thermal time constant:	1086 S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.5 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to °C65
Standard rear shaft diameter:	1.5 mm	Standard rear shaft length "L":	0/3.7 mm

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$

L1: 28GP	L1: 32GP	L2: CL28	L3: EN22S
25.9	27.4	47.0	10.7
33.1	35.9		L3: EN24T
40.3	44.4		12

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2847GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-28GP
AM-32GP

Recommended Encoder:

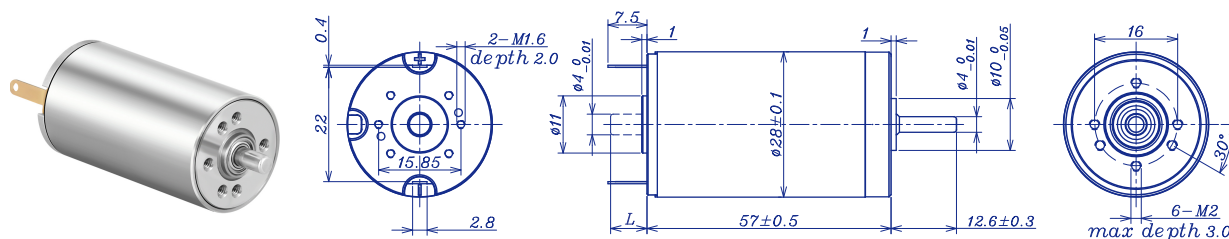
Encoder S: AM-EN211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

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At elevated ambient temperatures, load current must be reduced.

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AM-CL2857GAE Series



		Graphite brush		Ball bearings				
Motor Model			1211	1811	2410	3611	4811	6010
Nominal voltage		V	12	18	24	36	48	60
No load speed ±12%		rpm	10900	11400	10266	10960	10680	10290
No load current Max 150%		mA	210	155	95	72	53	40
Recommend limit for continuous operating	Max cont. torque	mN.m	55.5	51.8	55.8	54.1	55.5	54.4
	Rated speed	rpm	10177	10744	9643	10338	10044	9667
	Rated current	mA	5500	3600	2600	1800	1350	1020
	Rated power	W	59.1	58.3	56.3	58.5	58.4	55.1
Starting current		mA	80000	60000	41379	30508	21818	16216
Stall torque		mN.m	836.6	900	919.5	952.4	931.9	898.5
Maximum power output		W	238.7	268.6	247.1	273.3	260.5	242
Maximum efficiency		%	90	90	91	91	90	90
Terminal resistance ±12%		Ω	0.15	0.3	0.58	1.18	2.2	3.7
Inductance (1KHZ)		mH	Null	Null	0.11	Null	Null	Null
Mechanical time constant		ms	3.9	3.8	3.3	3.4	3.4	3.4
Moment of inertia		gcm²	28.4	28.4	28.4	28.4	28.4	28.4
Torque constant		mN.m/A	10.5	15.0	22.3	31.3	42.8	55.5
Speed constant		rpm/V	911	635	429	305	223	172
Speed/torque gradient		rpm/mN.m	13.0	12.7	11.2	11.5	11.5	11.5
Weight		g						

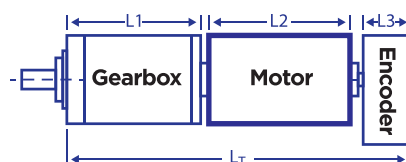
ADDITIONAL INFORMATION

Motor thermal resistance:	12.4 K/W	Motor thermal time constant:	**** S
Axial (dynamic):	7.3 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.5 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-40 to 85°C
Standard rear shaft diameter:	4.0 mm	Standard rear shaft length "L":	No mm

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$				
L1: 26GP	L1: 28GP	L1: 32GP	L2: CL28	L3: EN22S
25.7	26.1	27.4	57	10.7
36	33.3	35.9		L3: EN24T
44.5	40.5	44.4		12
53	47.7	52.9		

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL2857GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-26GP
AM-28GP
AM-32GP

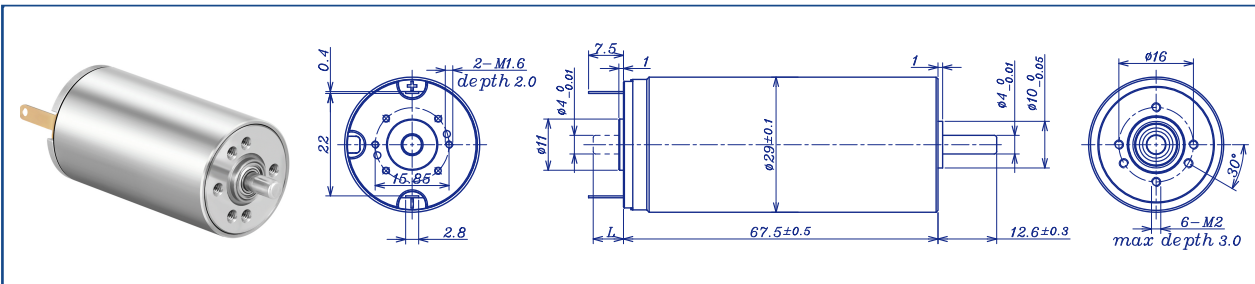
Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.

AM-CL2968GAE Series



		Graphite brush			Ball bearings			
Motor Model			1210	1810	2410	3610	4810	6010
Nominal voltage		V	12	18	24	36	48	60
No load speed ±12%		rpm	9790	9780	9800	9760	9780	9770
No load current Max 150%		mA	240	160	120	80	65	55
Recommend limit for continuous operating	Max cont. torque	mN.m	56.7	62.1	67.2	63.9	64.8	62.3
	Rated speed	rpm	9233	9221	9270	9216	9271	9266
	Rated current	mA	5100	3700	3000	1900	1450	1120
	Rated power	W	54.8	59.9	65.2	61.7	62.9	60.4
Starting current		mA	85714	62069	53333	32727	26667	20690
Stall torque		mN.m	997.7	1085.3	1241.6	1147.1	1243.7	1206.9
Maximum power output		W	255.7	277.9	318.6	293.1	318.4	308.7
Maximum efficiency		%	90	90	91	90	90	90
Terminal resistance ±12%		Ω	0.14	0.29	0.45	1.1	1.8	2.9
Inductance (1KHZ)		mH	0.094					
Mechanical time constant		ms	3.6	3.3	2.9	3.1	2.9	3
Moment of inertia		gcm²	35.3	35.3	35.3	35.3	35.3	35.3
Torque constant		mN.m/A	11.7	17.5	23.3	35.1	46.8	58.5
Speed constant		rpm/V	818	545	409	272	204	163
Speed/torque gradient		rpm/mN.m	9.8	9	7.9	8.5	7.9	8.1
Weight		g	268	268	268	268	268	268

ADDITIONAL INFORMATION			
Motor thermal resistance:		10.6 K/W	Motor thermal time constant: **** S
Axial (dynamic):		7.3 N	Radial (5mm from mounting face): 28.0 N
Press-fit force (static):		60(120)N	Max allowable screw depth into flange: 3.5 mm
Maximum radial play (5mm from mounting face):		≤ 0.02 mm	Axial play: Preset
Maximum winding temperature:		125°C	Ambient temperature range: -40 to 85°C
Standard rear shaft diameter:		4.0 mm	Standard rear shaft length "L": L mm

Total Length (Gearbox and Motor): $L_T = L_1 + L_2 + L_3$					AM-CL2968GAE Combination Scheme	
L1: 26GP	L1: 28GP	L1: 32GP	L2: CL29	L3: EN22S		
25.7	26.1	27.4	68	10.7		
36	33.3	35.9		L3: EN24T		
44.5	40.5	44.4		12		
53	47.7	52.9				

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

Recommended Gearbox:
Planetary Gearbox:
AM-26GP
AM-28GP
AM-32GP

Recommended Encoder:
Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

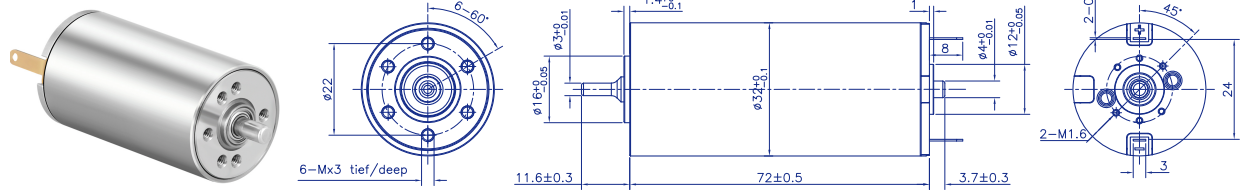
For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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DC BRUSHED CORELESS MOTOR _ Graphite Brush

AM-CL3272GAF Series



		Graphite brush		Ball bearings			
Motor Model			1208	1808	2408	3608	4808
Nominal voltage		V	12	18	24	36	48
No load speed ±12%		rpm	8400	8030	7850	8030	8120
No load current Max 150%		mA	445	280	208	142	108
Recommend limit for continuous operating	Max cont. torque	mN.m	116	116	116	116	116
	Rated speed	rpm	7720	7350	7160	7320	7400
	Rated current	mA	9130	5810	4260	2900	2200
	Rated power	W	93	89	90	89	90
Starting current		mA	106280	65360	24000	31600	24000
Stall torque		mN.m	1412	1364	1322	1320	1322
Maximum power output		W	311	287	281	277	281
Maximum efficiency		%	88	87.8	87.5	87.5	87.5
Terminal resistance ±12%		Ω	0.1	0.265	1.9	1.02	1.9
Inductance (1KHZ)		mH	N/A	N/A	N/A	N/A	N/A
Mechanical time constant		ms	3.2	3.2	3.2	3.2	3.2
Moment of inertia		gcm ²	76	76	76	76	76
Torque constant		mN.m/A	13.35	20.97	28.6	41.95	55.29
Speed constant		rpm/V	704	448	328	224	170
Speed/torque gradient		rpm/mN.m	5.96	5.88	5.94	6.08	6.14
Weight		g	320	320	320	320	320

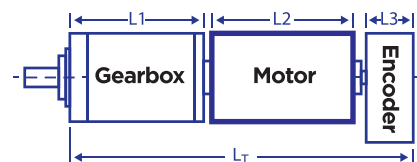
ADDITIONAL INFORMATION

Motor thermal resistance:	7.3 K/W	Motor thermal time constant:	840 S
Axial (dynamic):	7.0 N	Radial (5mm from mounting face):	63.5 N
Press-fit force (static):	22 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	preset
Maximum winding temperature:	155°C	Ambient temperature range:	-40 to 100°C
Standard rear shaft diameter:	4.0 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Total Length (Gearbox and Motor): L_T=L₁+L₂+ L₃

L1: 32GP	L1: 36GP	L2: CL32	L3: EN22S
27.4	39.6	72	10.7
35.9	48.6		L3: EN24T
44.4	57.6		12
52.9	66.6		

AM-CL2968GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-32GP
AM-36GP

Recommended Encoder:

Encoder S: AM-EN211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

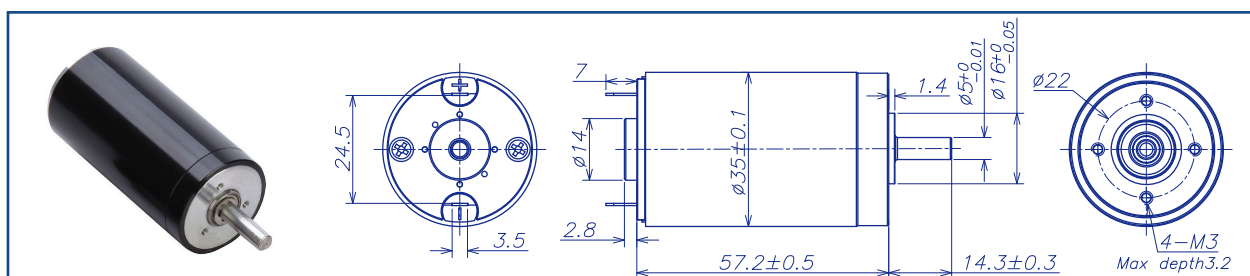
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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DC BRUSHED CORELESS MOTOR ____ GRAPHITE BRUSH

AM-CL3557GAE SERIES



		Graphite brush		Ball Bearings			
Motor Model		0904	1504	2404	3604		
Nominal voltage	V	9	15	24	36		
No load speed $\pm 12\%$	rpm	4420	4550	4500	4500		
No load current $+150\%$	mA	160	100	60	40		
Recommended Limit for Continuous Running	Max cont. torque	mN.m	115	115	115		
	Rated Speed	rpm	3360	3540	3430		
	Rated Current	mA	6140	3800	2350		
	Rated Power	W	41	42.6	41.3		
Starting current	mA	25310	16650	9680	6670		
Stall torque	mN.m	484	514	484	500		
Max power output	W	56	61	57	59		
Maximum Efficiency	%	85	85	84	85		
Terminal R $\pm 12\%$	Ω	0.35	0.9	2.3	5.4		
Inductance (1KHz)	mH	N/A	N/A	0.36	N/A		
Mech. time constant	ms	6.0	6.0	6.0	6.0		
Moment of inertia	gcm ²	85	85	85	85		
Torque constant	mN.m/A	19.2	31	50.3	75.5		
Speed constant	rpm/V	493	305	189	126		
Speed/torque gradient	rpm/mN.m	9.1	8.86	9.3	9.0		
Weight	g	220	220	220	220		

ADDITIONAL INFORMATION			
Motor thermal resistance:		9.1K/W	Motor thermal time constant: 1352S
Axial (dynamic):		5.5 N	Radial (5mm from mounting face): 28.0 N
Press-fit force (static):		100(1000) N	Max allowable screw depth into flange: 4.0 mm
Maximum radial play (5mm from mounting face):		≤ 0.02 mm	Axial play: Preset
Maximum winding temperature:		125°C	Ambient temperature range: -40 to 85°C
Standard rear shaft diameter:		4 mm	Standard rear shaft length "L": 0/3.7/5.5 mm

Total Length (Gearbox and Motor) LT=L1+L2+L3				
L1:36GP	L1:40GP	L1:45GP	L2:CL35	L3:EN22S
30.6	35.3	36.1	70.5	10.7
39.6	46.8	48.1		L3:EN24T
48.6	58.3	60.1		12.0
57.6	69.8	72.1		
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				

AM-CL3557GAE Combination Scheme

The diagram illustrates the physical arrangement of the motor assembly. It consists of three main components in a linear sequence: a Gearbox on the left, a Motor in the middle, and an Encoder on the right. The Gearbox has a length dimensioned as L1. The Motor has a length dimensioned as L2. The Encoder has a length dimensioned as L3. The total length of the assembly, from the start of the gearbox to the end of the encoder, is dimensioned as LT. The encoder is shown with a single output line on its right side.

Recommended Gearbox:

Planetary Gearbox:

AM-36GP

AM-40GP

AM-45GP

For more combination specs, visit Assun Motor website.

Recommended Encoder:

Encoder S: AM-EN2211S***

2~3 Channels

Encoder T: AM-EN2412T***

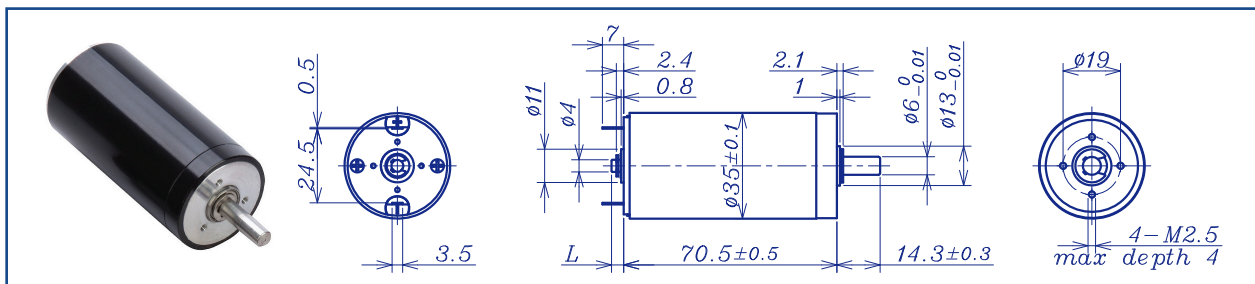
2~3 Channels

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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DC BRUSHED CORELESS MOTOR — GRAPHITE BRUSH

AM-CL3570GAN SERIES



		Graphite brush				Ball Bearings				
Motor Model		1206	1204	2408	2406	2404	4806	4804	4803	4802
Nominal voltage	V	12	12	24	24	24	48	48	48	48
No load speed $\pm 12\%$	rpm	6140	4150	7800	5930	4020	6060	4040	3240	1756
No load current $+150\%$	mA	190	130	155	100	70	55	33	26	12
Recommended Limit for Continuous Running	Max cont. torque	mN.m	63.3	73.3	59.9	69.3	81.1	67.4	86.6	100.3
	Rated Speed	rpm	5632	3695	7433	5506	3541	5686	3573	1223
	Rated Current	mA	3600	2800	2200	1900	1500	950	800	400
	Rated Power	W	37.4	28.4	46.6	40.0	30.1	40.2	32.4	12.9
Starting current	mA	41379	24490	43636	25263	12060	14545	6667	4068	1290
Stall torque	mN.m	765	669	1274	969	680	1092	749	568	331
Max power output	W	123.0	72.7	260.2	150.4	71.5	173.2	79.2	48.2	15.2
Maximum Efficiency	%	87	86	88	88	85	88	86	85	82
Terminal R $\pm 12\%$	Ω	0.29	0.49	0.55	0.95	1.99	3.3	7.2	11.8	37.2
Inductance (1KHz)	mH	0.036	0.11	0.11	0.21	0.45	0.83	1.71	2.75	9.6
Mech. time constant	ms	8.8	7.1	7.1	6.9	6.5	6.1	6.2	6.4	6.2
Moment of inertia	gcm ²	105.3	108.7	111	108.4	105.6	104.4	110.5	106.4	110.8
Torque constant	mN.m/A	18.6	27.5	29.3	38.5	56.7	75.4	112.9	140.6	258.6
Speed constant	rpm/V	514	348	326	248	168	127	85	68	37
Speed/torque gradient	rpm/mN.m	8.0	6.2	6.1	6.1	5.9	5.6	5.4	5.7	5.3
Weight	g	348.3	350.2	350.2	350.5	348.2	347.4	351.4	348.7	351.6

ADDITIONAL INFORMATION

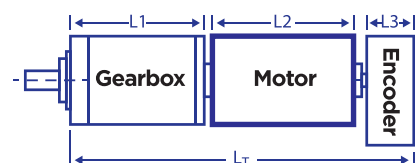
Motor thermal resistance:	9.1K/W	Motor thermal time constant:	1352S
Axial (dynamic):	5.5 N	Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	100(1000) N	Max allowable screw depth into flange:	4.0 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm	Axial play:	Preset
Maximum winding temperature:	85°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	4 mm	Standard rear shaft length "L":	3.7/5.5 mm

Total Length (Gearbox and Motor) $T=L_1+L_2+L_3$

L1:36GP	L1:40GP	L1:45GP	L2:CL35	L3:EN225
39.6	46.8	62.8	70.5	10.7
48.6	58.3	74.8		L3:EN24T
57.6	69.8			12.0

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL3570GAN Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-36GP
AM-40GP
AM-45GP

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

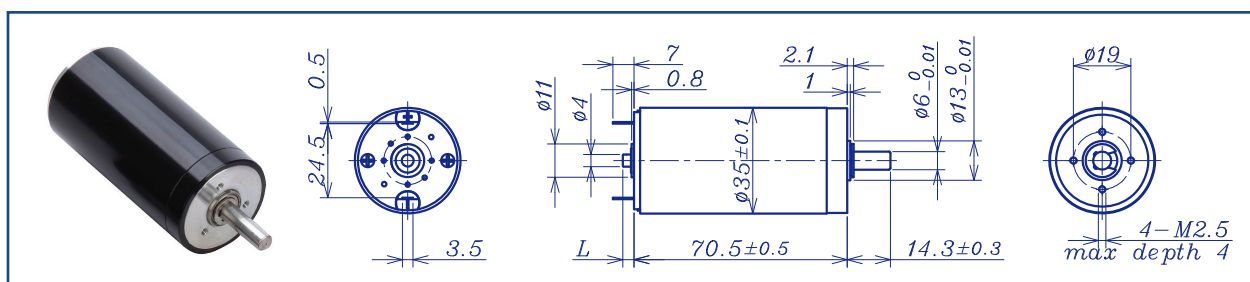
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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DC BRUSHED CORELESS MOTOR ____ GRAPHITE BRUSH

AM-CL3570GAF SERIES (155°C)



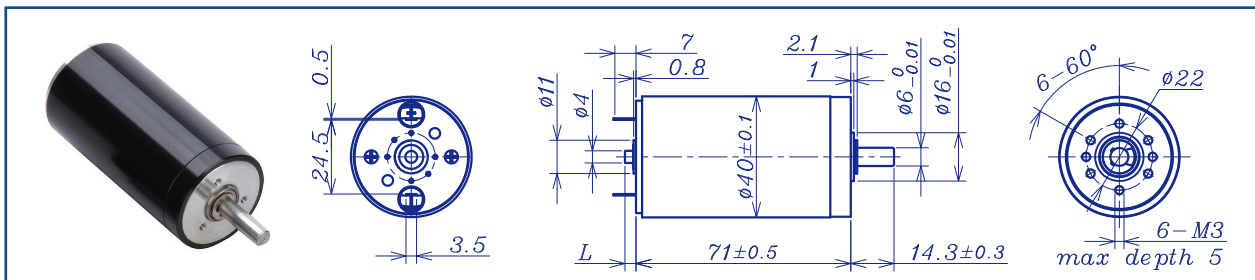
		Graphite brush				Ball Bearings					
Motor Model		1206	1204	2408	2406	2404	4806	4804	4803	4802	
Nominal voltage	V	12	12	24	24	24	48	48	48	48	
No load speed $\pm 12\%$	rpm	6400	4320	8130	6180	4190	6310	4210	3380	1830	
No load current $+150\%$	mA	182	125	170	96	67	53	60	25	12	
Recommended Limit for Continuous Running	Max cont. torque	mN.m	96.6	112.8	103.1	107.3	116.0	104.7	115.7	126.1	
	Rated Speed	rpm	5558	3562	7444	5467	3445	5584	3532	2648	1103
	Rated Current	mA	5600	4400	3800	3000	2200	1500	1100	900	520
	Rated Power	W	56.2	42.1	80.4	61.4	41.9	61.2	42.8	32.7	14.6
Starting current	mA	41379	24490	43636	25263	12060	12632	6667	4068	1290	
Stall torque	mN.m	734	643	1223	930	652	910	719	545	317	
Max power output	W	123.0	72.7	260.3	150.4	71.6	150.3	79.2	48.2	15.2	
Maximum Efficiency	%	87	86	89	88	86	87	87	85	82	
Terminal R $\pm 12\%$	Ω	0.29	0.49	0.55	0.95	1.99	3.3	7.2	11.8	37.2	
Inductance (1KHz)	mH	0.036	0.11	0.11	0.21	0.45	0.83	1.71	2.75	9.6	
Mech. time constant	ms	9.6	7.6	7.7	7.5	7.1	7.6	6.8	6.9	6.7	
Moment of inertia	gcm ²	105.3	108.7	111	108.4	105.6	104.4	110.5	106.4	110.8	
Torque constant	mN.m/A	17.8	26.4	28.1	36.9	54.4	72.3	108.4	134.8	248.1	
Speed constant	rpm/V	536	362	340	258	176	132	88	71	38	
Speed/torque gradient	rpm/mN.m	8.7	6.7	6.6	6.6	6.4	6.9	5.9	6.2	5.8	
Weight	g	348.3	350.2	350.2	350.5	348.2	347.4	351.4	348.7	351.6	

ADDITIONAL INFORMATION	
Motor thermal resistance:	9.1K/W
Motor thermal time constant:	1352S
Axial (dynamic):	5.5 N
Radial (5mm from mounting face):	28.0 N
Press-fit force (static):	100(1000) N
Max allowable screw depth into flange:	4.0 mm
Maximum radial play (5mm from mounting face):	≤ 0.02 mm
Axial play:	Preset
Maximum winding temperature:	155°C
Ambient temperature range:	-40 to 100°C
Standard rear shaft diameter:	4 mm
Standard rear shaft length "L":	3.7/5.5 mm

Total Length (Gearbox and Motor) $L_T = L_1 + L_2 + L_3$				
L1:36GP	L1:40GP	L1:45GP	L2:CL35	L3:EN225
39.6	46.8	60.1	70.5	10.7
48.6	58.3	72.1		L3:EN24T
57.6	69.8			12.0
Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.				
AM-CL3570GAF Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-36GP AM-40GP AM-45GP For more combination specs, visit Assun Motor website. Recommended Encoder: Encoder S: AM-EN2211S*** 2~3 Channels Encoder T: AM-EN2412T*** 2~3 Channels				
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.				

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AM-CL4071GAE SERIES (125°C)



		Graphite brush			Ball Bearings				
Motor Model		1207	2408	4809	4806	4805	4804	4803	4802
Nominal voltage	V	12	24	48	48	48	48	48	48
No load speed ±12%	rpm	6800	8450	8900	7000	6100	4000	2800	2250
No load current Max 150%	mA	275	170	70	65	56	36	25	22
Recommend limit for continuous operation	Max cont. torque	mN.m	96.1	144.3	150.6	169.5	153.2	158.7	186.0
	Rated Speed	rpm	6312	7905	8235	5747	5475	3361	2142
	Rated Current	mA	6000	5500	3000	2400	2100	1400	1000
	Rated Power	W	63.5	119.4	130.4	102.0	87.8	54.8	35.6
Starting current	mA	80000	82759	41206	26667	20000	8571	4174	2981
Stall torque	mN.m	1339	2235	2106	1931	1494	974	675	657
Maximum power output	W	238.4	494.5	490.6	318.4	238.7	102.0	49.5	35.3
Maximum Efficiency	%	89	91	92	90	90	87	85	84
Terminal resistance ±12%	Ω	0.15	0.29	1.17	1.8	2.4	5.6	11.5	16.1
Inductance (1KHz)	mH	0.03	0.08	0.34	0.55	0.76	1.84	3.65	5.3
Mechanical time constant	ms	6.6	4.9	5.3	4.1	5.1	5.3	5.2	3.9
Moment of inertia	gcm ²	123.5	122.6	120.8	120.8	120.2	122.2	120.5	120.7
Torque constant	mN.m/A	16.8	27.1	51.4	72.6	74.9	114.1	162.7	221.9
Speed constant	rpm/V	569	353	186	132	127	84	59	43
Speed/torque gradient	rpm/mN.m	5.1	3.8	4.2	3.3	4.1	4.1	3.2	3.1
Weight	g	495	496	498	495	496	497	495	496

ADDITIONAL INFORMATION

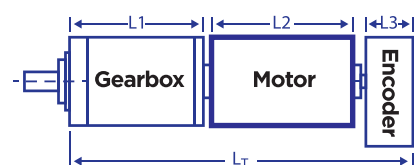
Motor thermal resistance:	-K/W	Motor thermal time constant:	-S
Axial (dynamic):	5.5 N	Radial (5mm from mounting face):	29.0 N
Press-fit force (static):	100(1000) N	Max allowable screw depth into flange:	5.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature:	125°C	Ambient temperature range:	-30 to 65°C
Standard rear shaft diameter:	4 mm	Standard rear shaft length "L":	3.7/5.5 mm

Total Length (Gearbox and Motor) L=L1+L2+L3

L1:40GP	L1:45GP	L2: CL40	L3:EN22S	L3:EN24T
46.8	60.1	71	10.7	12.0
58.3	72.1			
69.8				

Remarks: Client can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

AM-CL4071GAE Combination Scheme



Recommended Gearbox:

Planetary Gearbox:
AM-40GP
AM-45GP

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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ADDITIONAL INFORMATION			
Motor thermal resistance:	-K/W	Motor thermal time constant:	- S
Axial (dynamic):	30N	Radial (5mm from mounting face):	100N
Press-fit force (static):	150N	Max allowable screw depth into flange:	6.5mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	Present
Maximum winding temperature:	125°C	Ambient temperature range:	-30 to 100°C
Standard rear shaft diameter:	8.0 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

AM-CL50109GAF Combination Scheme

The diagram illustrates the physical layout of the AM-CL50109GAF combination scheme. It consists of three main components arranged horizontally: a Gearbox on the left, a Motor in the center, and an Encoder on the right. The Gearbox is connected to the Motor. The Encoder is connected to the Motor. The dimensions are labeled as follows: L_1 is the length of the Gearbox, L_2 is the length of the Motor, and L_3 is the length of the Encoder. The total length of the assembly is labeled as L_T .

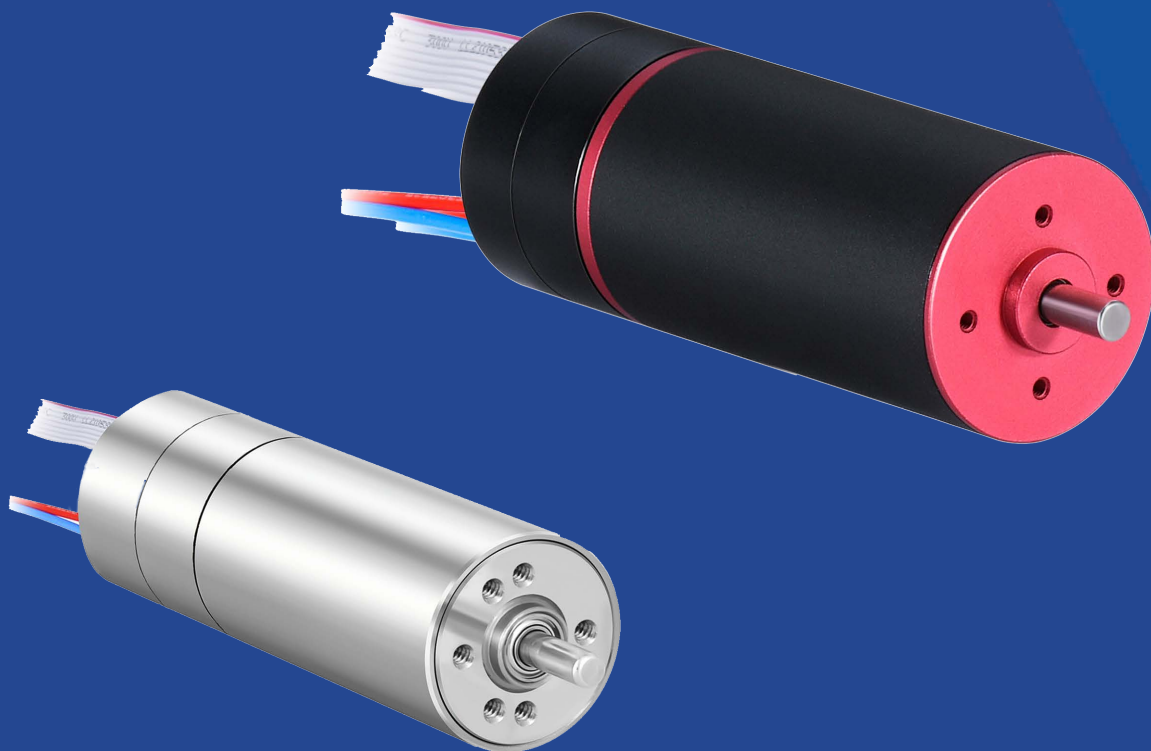
Recommended Gearbox:
Planetary Gearbox:
AM-45GP
AM-52GP

Recommended Encoder:
Encoder S: AM-EN2211S***
Encoder T: AM-EN2412T***

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INTEGRATED SERVO MOTOR

Assun Servo Motors are built with servo controller integrated inside the Assun brushless motor. With diameter from 20mm to 65mm, Assun servo motors can be connected directly to the industrial PLC and are ideal for applications that need simple and precise position control.



AM-PC16 AM-PC20 AM-PC22 AM-PI22 AM-PC28 AM-PC32
AM-PC36 AM-PC45

Company Name
Abbreviation

Motor Dimension
20 - Diameter (mm)
51 Length (mm)

Temperature level

N 85°C
E 125°C
F 155°C
H 180°C

AM - PI2051 AN - 2412

Number of Pole Pairs

A - 1 Pole Pair
B - 2 Pole Pairs
C - 3 Pole Pairs
D - 4 Pole Pairs

Servo Motor Type

PI - Controller Integrated Servo Motor
PC - Controller Integrated + CAN Communication Servo Motor
PP - Controller Integrated + Profibus Communication Servo Motor
PE - Controller Integrated + EtherCAT Communication Servo Motor

Nominal Voltage & Rated Speed

24 - Nominal Voltage (V)
12 - No load Speed (×1000rpm)

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ASSUN SERVO MOTOR
PULSE & CAN BUS CONTROL

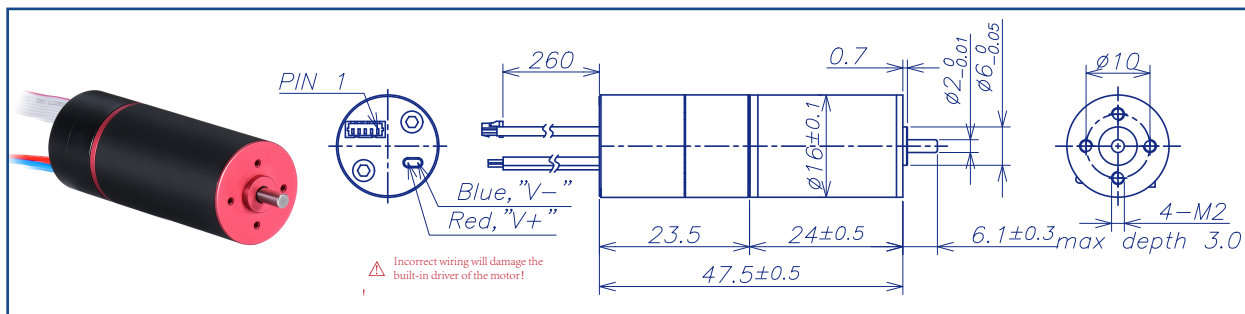
Assun Servo Motor are DC brushless motors with integrated position servo controller. It uses traditional analogue or digital signal input for position control. As feedback function integrated inside, no more encoders are needed and thus achieving compact overall sizes.



ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC1648AE SERIES (Built-In CAN+RS485 Communication Protocol)



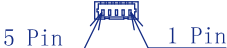
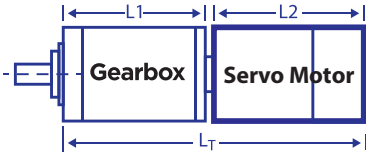
Brushless Servo Motor		Ball Bearing	
Motor Model		1213	1215
Nominal voltage	V	12	12
Voltage Range	V	9.5~14.5	9.5~14.5
Standby current	mA	55	55
Rated current	mA	380	420
Torque constant	mN.m/A	6.6	6.2
Rated torque	mN.m	2.5	2.6
Rated speed	rpm	7800	9300
Pulse number / circle	Pulse / circle	16384	16384
Overload torque	mN.m	5	5.2
Maximum overload time	second	5	5
Moment of inertia	gcm ²	0.19	0.19
Weight	g	51	51

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	**** K/W	Motor thermal time constant:	**** S
Axial (dynamic):	1.5 N	Radial (5mm from head face):	6.0 N
Press-fit force (static):	40 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<2.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

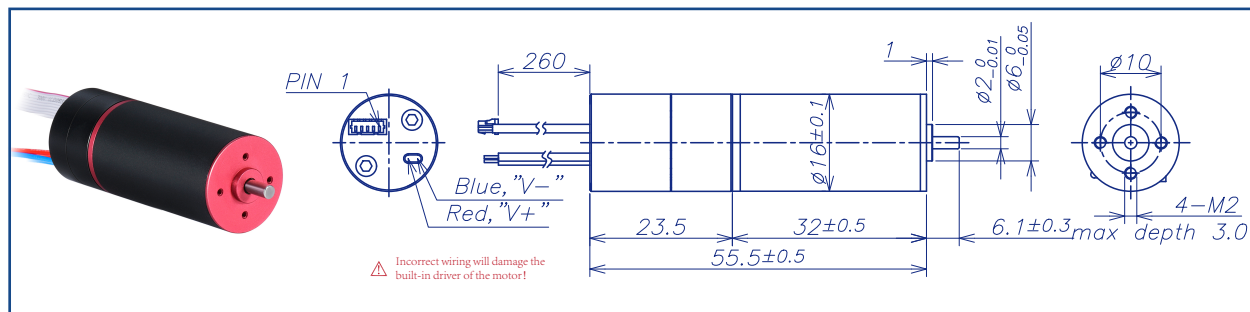
Control function description		Pin Definition		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-L 3. CAN-H		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1-5: Brown-Black-Yellow-Red-Blue Wiring diagram	
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B	5. RS485-A		
Total Length $L_T=L_1+L_2+L_3$				AM-PC1648AE Combination Scheme 	
L1:16GP	L1:19GP	L2:PC16			
15.9	18.8	47.5			
19.6	23.6				
23.3	28.4				
27	33.2			Recommended Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.	
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.					

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC1656AN SERIES (Built-In CAN+RS485 Communication Protocol)



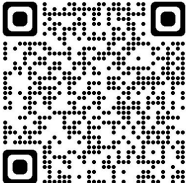
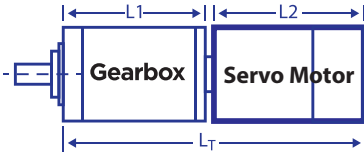
Brushless Servo Motor		Ball Bearing					
Motor Model		1220	1214	1827	1817	2420	2416
Nominal voltage	V	12	12	18	18	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	15.5~20.5	15.5~20.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	45	45	35	35
Rated current	mA	600	450	420	360	280	250
Torque constant	mN.m/A	5	7.1	5.2	8.6	10	12.4
Rated torque	mN.m	3	3.2	2.2	3.1	2.8	3.1
Rated speed	rpm	16800	10500	24500	14200	16800	13100
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	6	6.4	4.4	6.2	5.2	6.2
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	0.3	0.3	0.3	0.3	0.3	0.3
Weight	g	52.6	52.6	52.6	52.6	52.6	52.6

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	22.5 K/W	Motor thermal time constant:	407 S
Axial (dynamic):	1.5 N	Radial (5mm from head face):	6.0 N
Press-fit force (static):	40 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

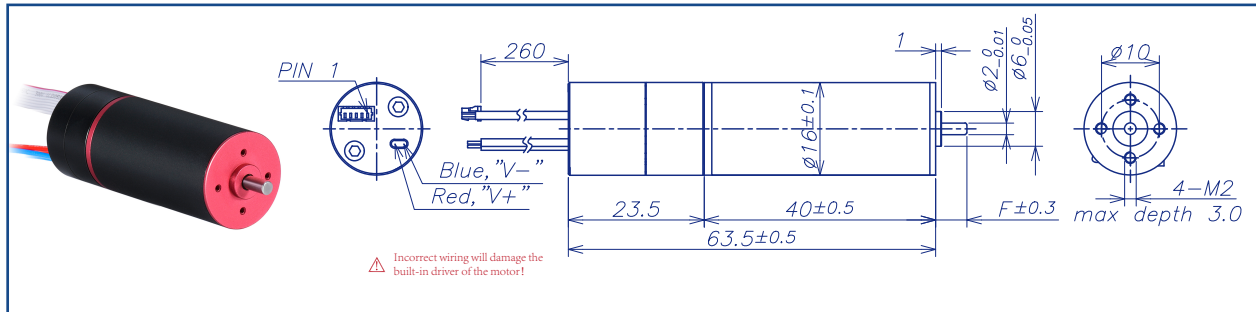
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-L 3. CAN-H					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length $L_T=L_1+L_2+L_3$							
L1:16GP	L1:19GP	L2:PC16		AM-PC1656AN Combination Scheme 			
15.9	18.8	55.5					
19.6	23.6						
23.3	28.4						
27	33.2						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.			

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC1664AN SERIES (Built-In CAN+RS485 Communication Protocol)



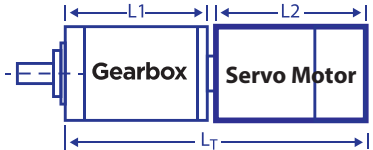
Brushless Servo Motor		Ball Bearing							
Motor Model		1234	1221	1216	1836	1821	1816	2419	2413
Nominal voltage	V	12	12	12	18	18	18	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	9.5~14.5	15.5~20.5	15.5~20.5	15.5~20.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	55	45	45	45	35	35
Rated current	mA	1600	1200	1000	900	780	650	580	400
Torque constant	mN.m/A	2.9	4.8	6.3	3.9	73	9.5	10.7	16.0
Rated torque	mN.m	4.6	5.8	6.3	3.5	5.7	6.2	6.2	6.4
Rated speed	rpm	31700	17800	13200	34500	17800	13000	16100	9100
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	9.2	11.6	12.6	7	11.4	12.4	12.4	12.8
Maximum overload time	second	5	5	5	5	5	5	5	5
Moment of inertia	gcm ²	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Weight	g	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	17.9 K/W	Motor thermal time constant:	439 S
Axial (dynamic):	1.5 N	Radial (5mm from head face):	6.0 N
Press-fit force (static):	40 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-L 3. CAN-H					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length $L_T=L_1+L_2+L_3$				AM-PC1664AN Combination Scheme 			
L1:16GP	L1:19GP	L2:PC16					
15.9	18.8	63.5					
19.6	23.6						
23.3	28.4						
27	33.2						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.			

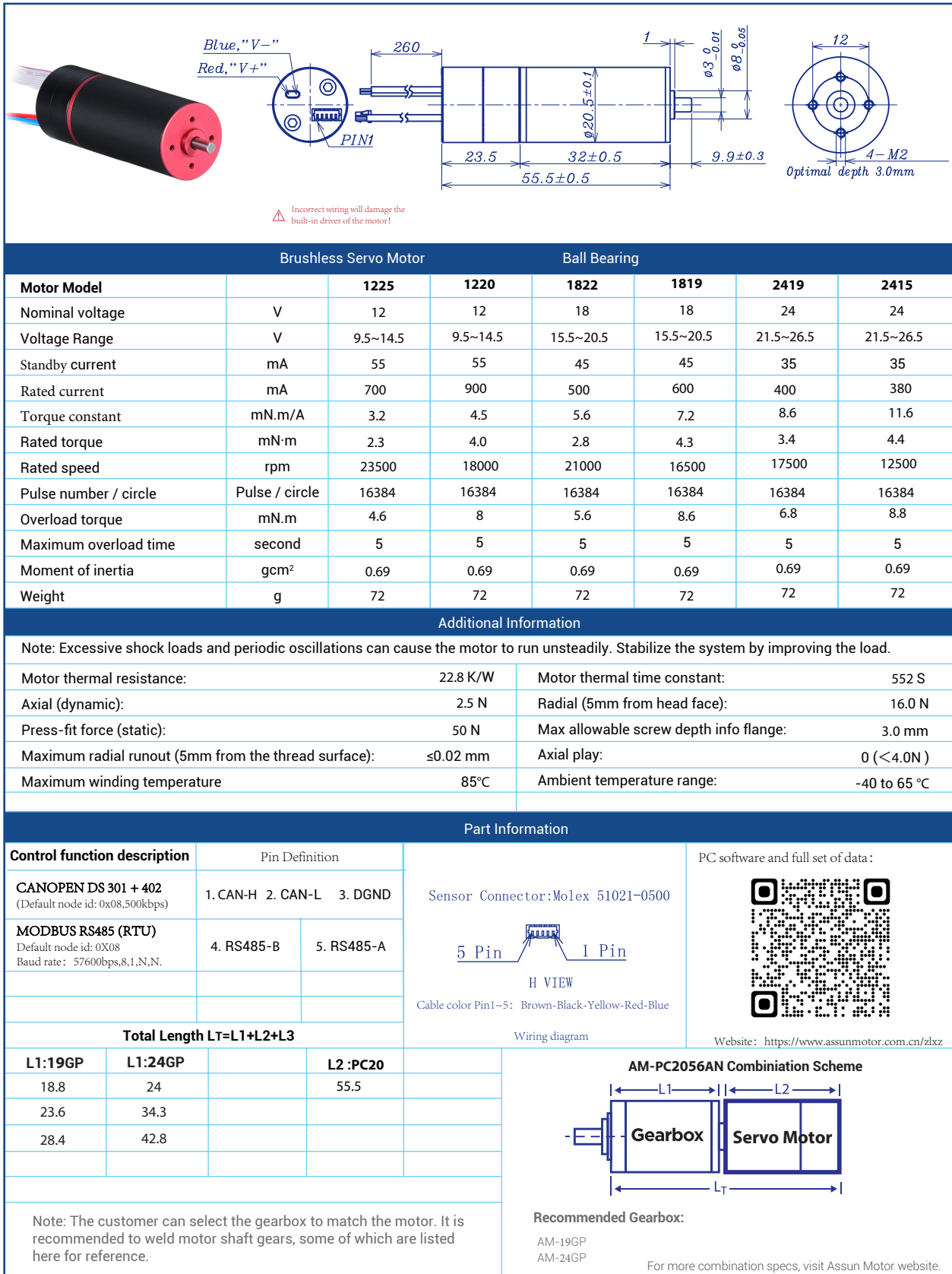
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2056AN SERIES (Built-In CAN+RS485 Communication Protocol)

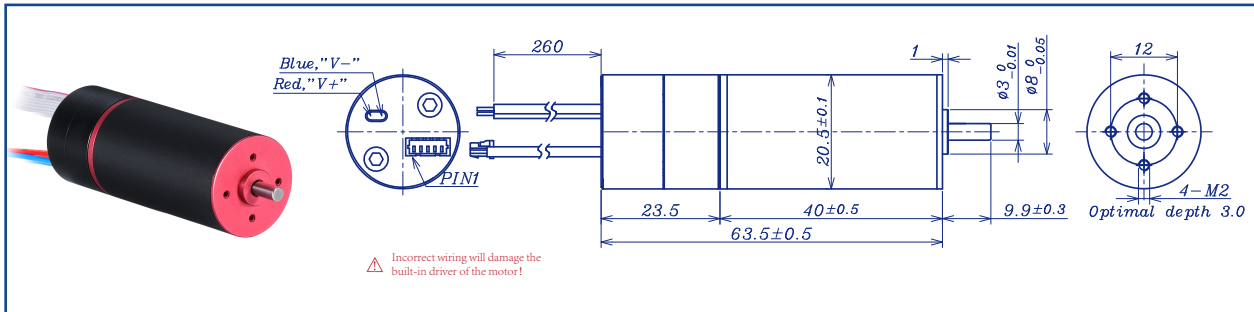


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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2064AN SERIES (Built-In CAN+RS485 Communication Protocol)



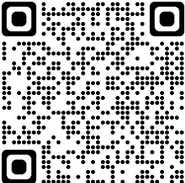
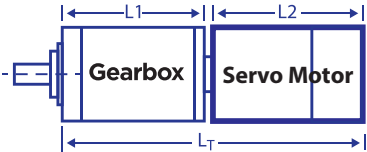
Brushless Servo Motor		Ball Bearing						
Motor Model		1226	1220	1216	1820	1817	2420	2417
Nominal voltage	V	12	12	12	18	18	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	9.5~14.5	15.5~20.5	15.5~20.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	55	45	45	35	35
Rated current	mA	1600	1500	1400	1000	800	700	650
Torque constant	mN.m/A	3.2	4.7	5.8	8.5	7.7	9.2	11.1
Rated torque	mN.m	5.2	7.0	8.2	7.1	6.1	6.4	7.2
Rated speed	rpm	24500	18500	14200	17500	15500	18200	14600
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	10.4	14	16.4	14.2	12.2	12.8	14.4
Maximum overload time	second	5	5	5	5	5	5	5
Moment of inertia	gcm ²	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Weight	g	85.9	86.2	86.6	85.7	85.4	85.1	85.9

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	15 K/W	Motor thermal time constant:	673S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	50 N	Max allowable screw depth info flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H 2. CAN-L 3. DGND					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length $LT=L1+L2+L3$				Website: https://www.assunmotor.com.cn/zlxz			
L1:19GP	L1:24GP		L2 :PC20	AM-PC2064AN Combination Scheme 			
18.8	24		63.5				
23.6	34.3						
28.4	42.8						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-19GP AM-24GP For more combination specs, visit Assun Motor website.			

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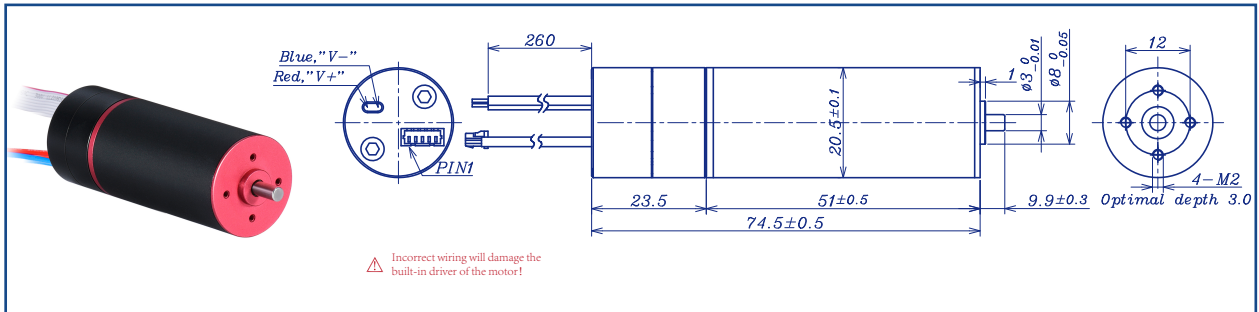
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2075AN SERIES (Built-In CAN+RS485 Communication Protocol)



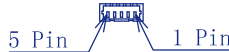
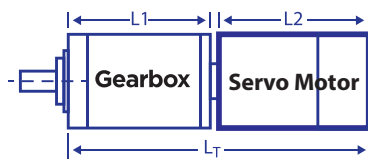
Brushless Servo Motor		Ball Bearing			
Motor Model		1221	1216	2426	2421
Nominal voltage	V	12	12	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	35	35
Rated current	mA	1500	1500	500	750
Torque constant	mN.m/A	4.4	6.1	5.8	8.4
Rated torque	mN.m	6.6	9.1	2.9	6.3
Rated speed	rpm	19000	14000	25000	20000
Pulse number / circle	Pulse / circle	16384	16384	16384	16384
Overload torque	mN.m	13.2	18.2	5.8	12.6
Maximum overload time	second	5	5	5	5
Moment of inertia	gcm ²	1.43	1.43	1.43	1.43
Weight	g	177.6	179.6	172.5	184.9

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	15 K/W	Motor thermal time constant:	720 S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	50 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

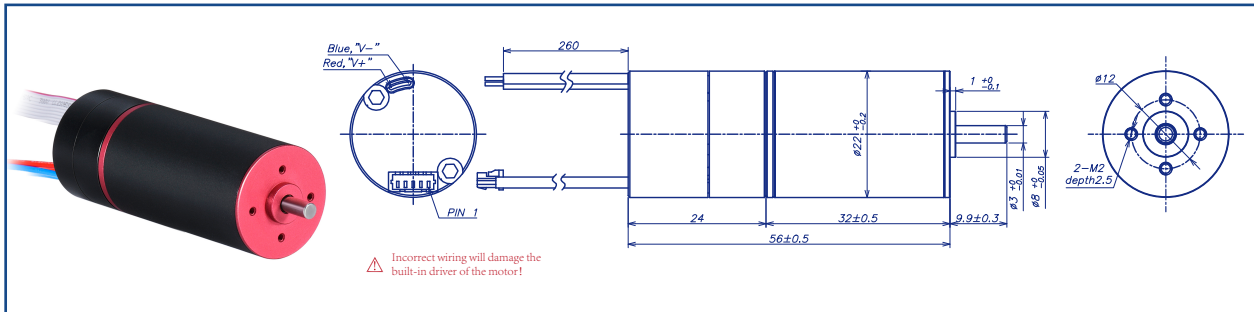
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H 2. CAN-L 3. DGND				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B	5. RS485-A			 H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue
Total Length LT=L1+L2+L3						
L1:19GP	L1:24GP		L2 :PC20	AM-PC2075AN Combination Scheme 		
18.8	24		74.5			
23.6	34.3					
28.4	42.8					
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-19GP AM-24GP For more combination specs, visit Assun Motor website.		

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2256AE SERIES (Built-In CAN+RS485 Communication Protocol)



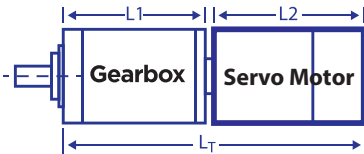
Brushless Servo Motor		Ball Bearing		
Motor Model		1212	1812	2412
Nominal voltage	V	12	18	24
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5
Standby current	mA	55	45	35
Rated current	mA	1210	1100	660
Torque constant	mN.m/A	8.4	12.6	16.36
Rated torque	mN.m	10.2	13.9	10.8
Rated speed	rpm	9000	8200	9300
Pulse number / circle	Pulse / circle	16384	16384	16384
Overload torque	mN.m	20.4	27.8	21.6
Maximum overload time	second	5	5	5
Moment of inertia	gcm ²	2.8	2.8	2.8
Weight	g	80.2	80.2	80.2

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	- K/W	Motor thermal time constant:	-S
Axial (dynamic):	4 N	Radial (5mm from head face):	4.0 N
Press-fit force (static):	60 N	Max allowable screw depth into flange:	2.5 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 100 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-H 3. CAN-L				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-A 5. RS485-B				
Total Length $L_T=L_1+L_2+L_3$				Website: https://www.assunmotor.com.cn/zlxz		
L1:19GP	L1:24GP		L2 :PC22	AM-PC2256AE Combination Scheme 		
18.8	24		56			
23.6	34.3					
28.4	42.8					
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-19GP AM-24GP For more combination specs, visit Assun Motor website.		

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AM-PI2256AE SERIES

(Built in RS485 communication protocol, pulse+direction control)

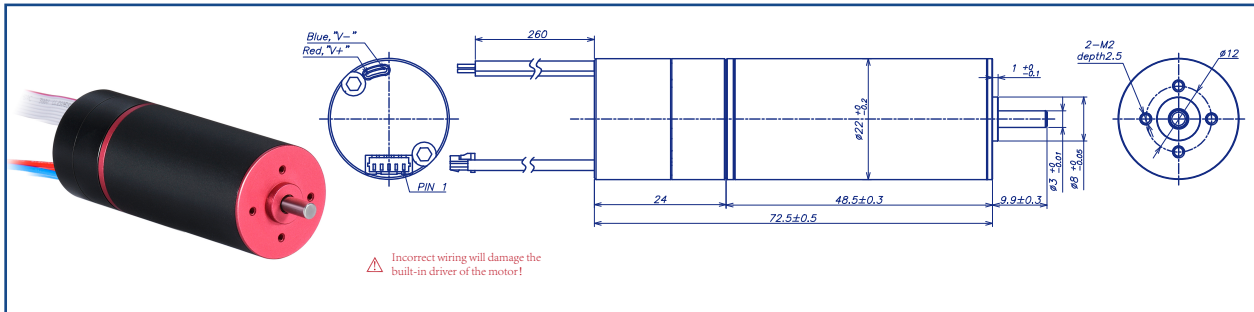


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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2273AE SERIES (Built-In CAN+RS485 Communication Protocol)



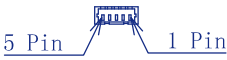
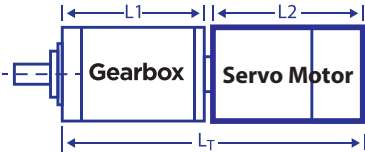
Brushless Servo Motor			Ball Bearing		
Motor Model		2412			
Nominal voltage	V	24			
Voltage Range	V	21.5~26.5			
Standby current	mA	35			
Rated current	mA	1200			
Torque constant	mN.m/A	18.8			
Rated torque	mN.m	22.5			
Rated speed	rpm	10400			
Pulse number / circle	Pulse / circle	16384			
Overload torque	mN.m	45			
Maximum overload time	second	5			
Moment of inertia	gcm ²	4.2			
Weight	g	116.2			

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	- K/W	Motor thermal time constant:	-S
Axial (dynamic):	4 N	Radial (5mm from head face):	4.0 N
Press-fit force (static):	60 N	Max allowable screw depth into flange:	2.5 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 100 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data:  Website: https://www.assunmotor.com.cn/zlxz
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-H 3. CAN-L			
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-A 5. RS485-B			
Total Length $L_T=L_1+L_2+L_3$				AM-PC2273AE Combination Scheme 	
L1:19GP	L1:24GP		L2 :PC22		
18.8	24		72.5		
23.6	34.3				
28.4	42.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-19GP AM-24GP For more combination specs, visit Assun Motor website.	

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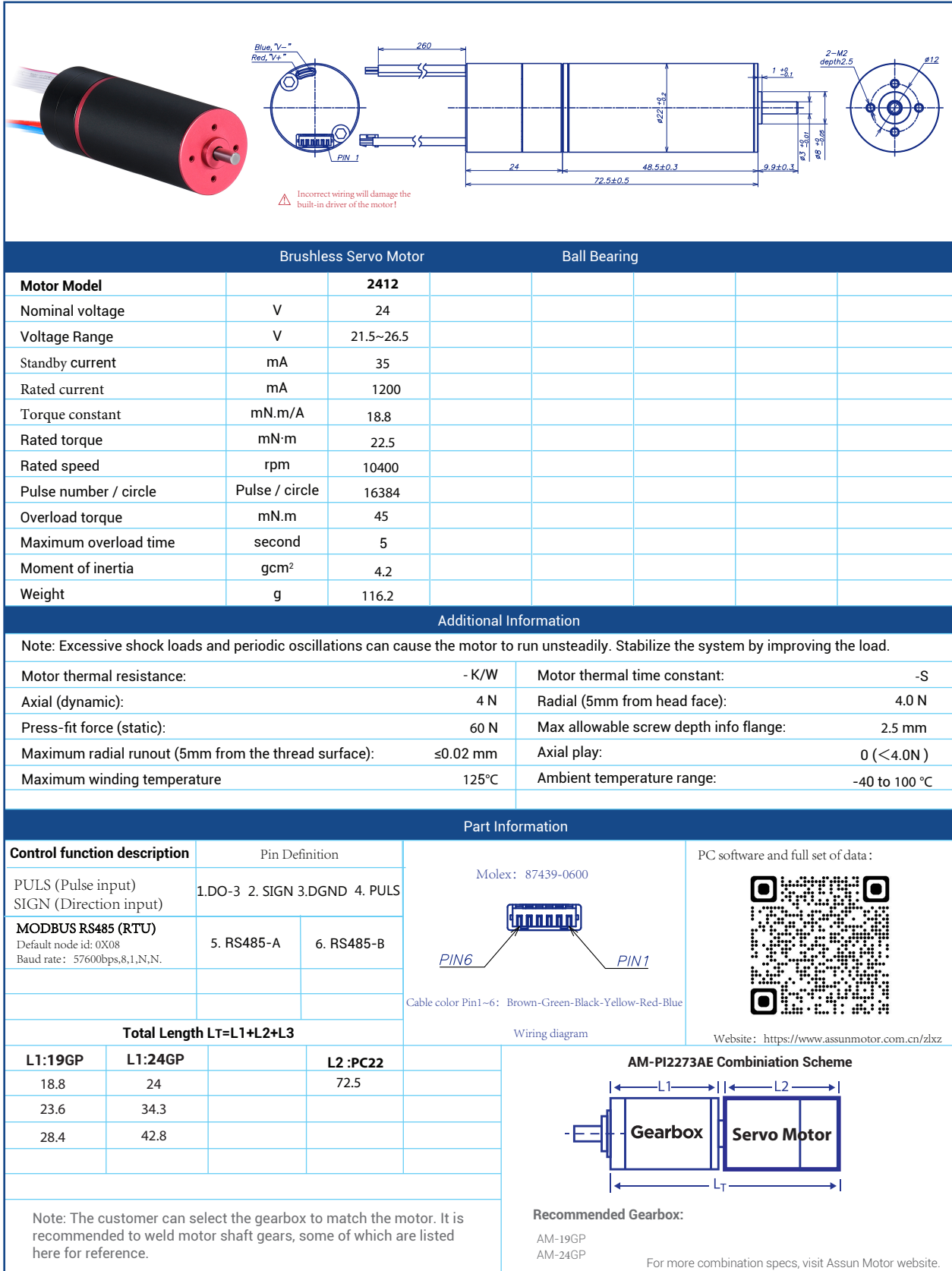
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PI2273AE SERIES

(Built in RS485 communication protocol, pulse+direction control)

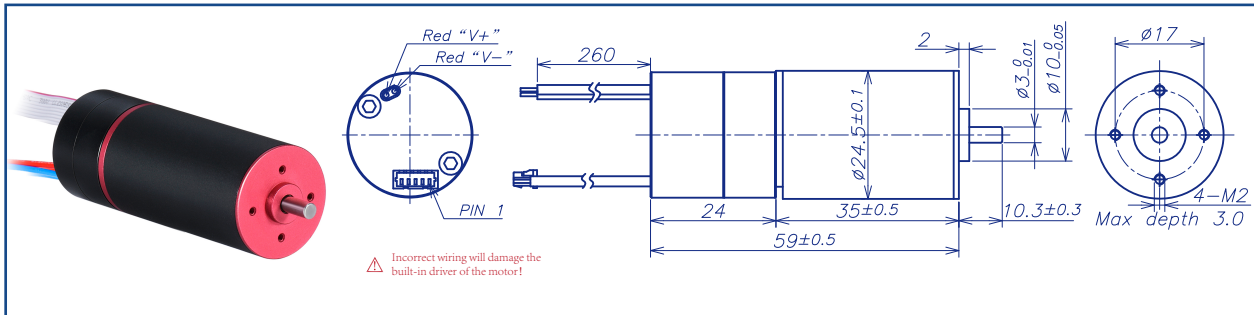


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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2459AE SERIES (Built-In CAN+RS485 Communication Protocol)



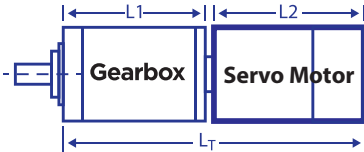
Brushless Servo Motor		Ball Bearing				
Motor Model		1215	1815	2414	2412	2410
Nominal voltage	V	12	18	24	24	24
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5	21.5~26.5	21.5~26.5
Standby current	mA	55	45	35	35	35
Rated current	mA	85	80	75	55	45
Torque constant	mN.m/A	167	175	184	258	351
Rated torque	mN.m	14.2	14.0	13.8	14.2	15.8
Rated speed	rpm	12000	12600	11800	9200	7100
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384
Overload torque	mN.m	28.4	28.0	27.6	28.4	31.6
Maximum overload time	second	5	5	5	5	5
Moment of inertia	gcm ²	1.92	1.92	1.92	1.92	1.92
Weight	g	100	100	100	100	100

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	20.7K/W	Motor thermal time constant:	272 S
Axial (dynamic):	2.5N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	50 N	Max allowable screw depth info flange:	3 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-H 3. CAN-L					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-A	5. RS485-B				
Total Length $L_T=L_1+L_2+L_3$						Website: https://www.assunmotor.com.cn/zlxz	
L1:24GP	L1:26GP		L2 :PC24	AM-PC2459AE Combination Scheme 			
24	25.7		59				
34.3	36						
42.8	44.5						
51.3	53						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.			

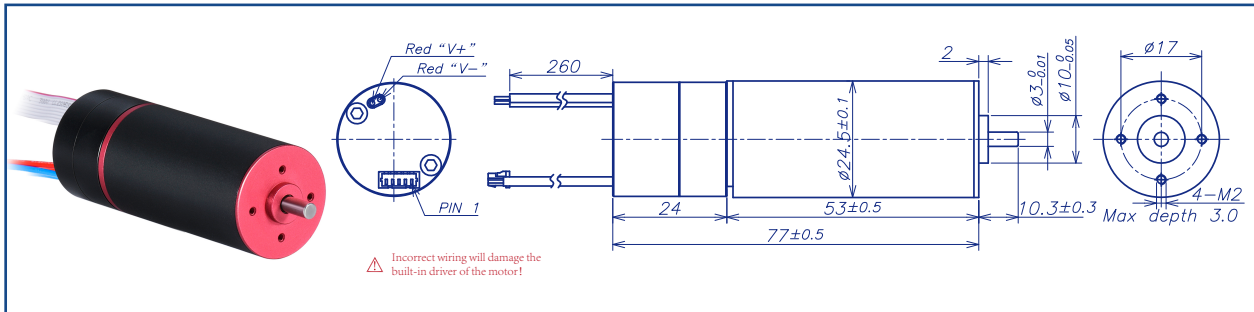
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2477AE SERIES (Built-In CAN+RS485 Communication Protocol)



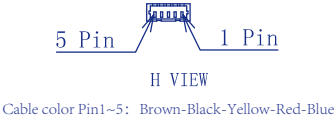
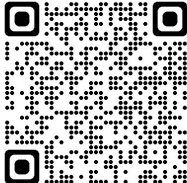
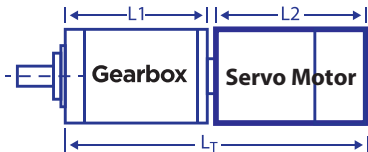
Brushless Servo Motor		Ball Bearing					
Motor Model		1213	1210	1829	1813	2414	2410
Nominal voltage	V	12	12	18	18	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	15.5~20.5	15.5~20.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	45	45	35	35
Rated current	mA	170	130	410	110	90	70
Torque constant	mN.m/A	169.4	233.1	29.0	240	297.8	454.3
Rated torque	mN.m	28.8	30.3	11.9	26.4	26.8	31.8
Rated speed	rpm	10900	8300	27600	10700	11600	7800
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	57.6	60.6	23.8	52.8	53.6	63.6
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	3.45	3.45	3.45	3.45	3.45	3.45
Weight	g	148.7	148.8	148.7	147.7	148.3	149.5

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	10.5 K/W	Motor thermal time constant:	768 S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	50 N	Max allowable screw depth info flange:	3 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85 °C

Part Information

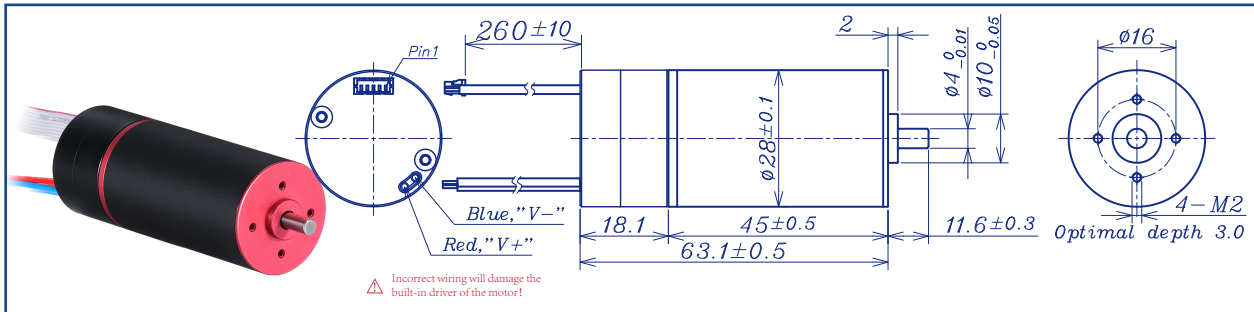
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-H 3. CAN-L					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-A 5. RS485-B					
Total Length $LT=L1+L2+L3$						Website: https://www.assunmotor.com.cn/zlxz	
L1:24GP	L1:26GP		L2 :PC24	AM-PC2477AE Combination Scheme 			
24	25.7		77				
34.3	36						
42.8	44.5						
51.3	53						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.			

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC2863AN SERIES (Built-In CAN+RS485 Communication Protocol)



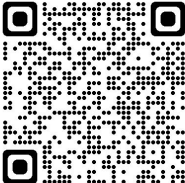
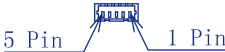
Brushless Servo Motor		Ball Bearing					
Motor Model		1215	1210	1813	1810	2412	2409
Nominal voltage	V	12	12	18	18	24	24
Voltage Range	V	9.5~14.5	9.5~14.5	15.5~20.5	15.5~20.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	45	45	35	35
Rated current	mA	4000	3200	2400	2000	1600	1500
Torque constant	mN.m/A	6.8	10.3	12.2	15.9	17.3	22.6
Rated torque	mN.m	27.2	32.8	79.2	31.8	27.6	34.0
Rated speed	rpm	13200	8200	11000	8000	10200	7500
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	54.4	65.6	58.4	63.6	55.2	68
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	6.19	6.19	6.19	6.19	6.19	6.19
Weight	g	163.8	163.7	164.1	165.1	163.4	164.2

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	10.2K/W	Motor thermal time constant:	822 S
Axial (dynamic):	4.0 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<4.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

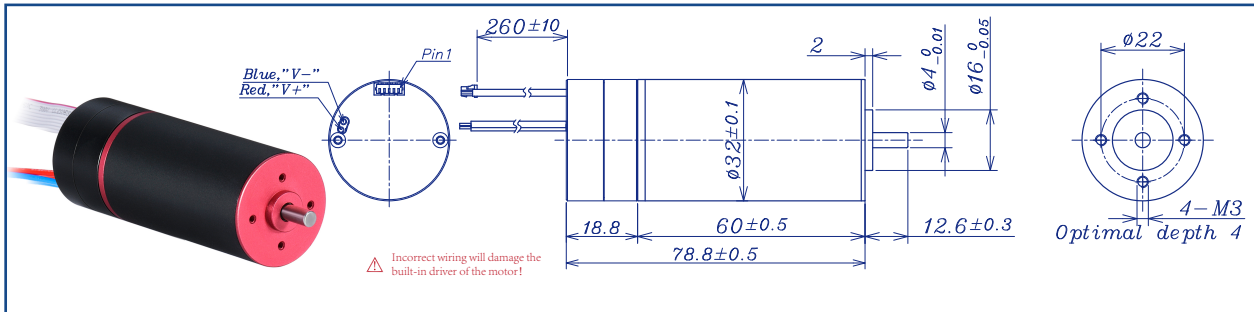
Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500	PC software and full set of data : 
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		1. DGND 2. RS485-B 3. RS485-A			
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		4. CAN-H	5. CAN-L		
Total Length LT=L1+L2+L3				 H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram	Website: https://www.assunmotor.com.cn/zlxz
L1:28GP	L1:32GP		L2 :PC28		
26.1	27.4		63.1		
33.3	35.9				
40.5	44.4				

ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC3279AN SERIES (Built-In CAN+RS485 Communication Protocol)



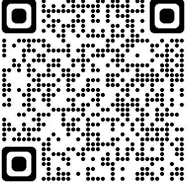
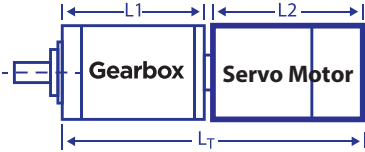
Brushless Servo Motor		Ball Bearing					
Motor Model		1212	1208	2413	2409	3613	3610
Nominal voltage	V	12	12	24	24	36	36
Voltage Range	V	14.5~9.5	14.5~9.5	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5
Standby current	mA	55	55	35	35	25	25
Rated current	mA	3700	3200	1800	1600	1200	1200
Torque constant	mN.m/A	8.1	12.6	15.2	20.6	23.3	28.9
Rated torque	mN.m	30.0	40.4	27.5	33.0	27.9	34.7
Rated speed	rpm	11500	7000	12000	9200	12000	9500
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	60	80.8	55	66	55.8	69.4
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	13.3	13.3	13.3	13.3	13.3	13.3
Weight	g	270	270	270	270	270	270

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	7.8 K/W	Motor thermal time constant:	1089 S
Axial (dynamic):	6.0 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	4.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

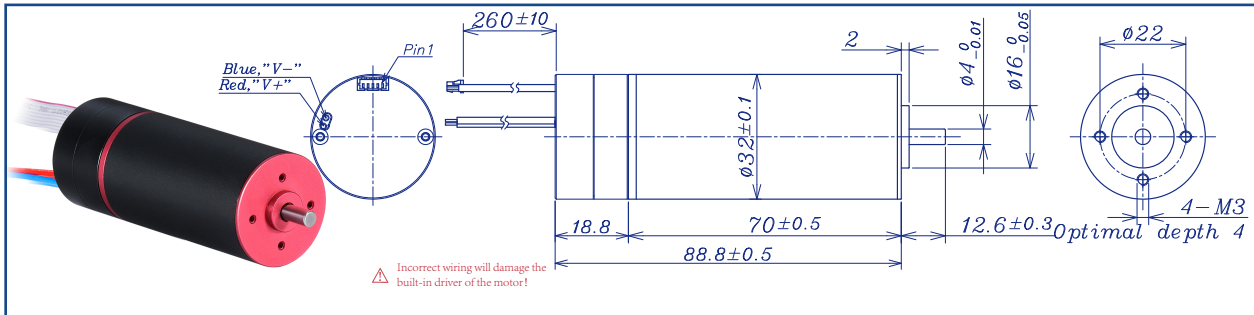
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H 2. DGND 3. CAN-L					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length LT=L1+L2+L3				Website: https://www.assunmotor.com.cn/zlxz			
L1:32GP	L1:36GP		L2 :PC32	AM-PC3279AN Combination Scheme 			
27.4	30.6		78.8				
35.9	39.6						
44.4	57.6						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-32GP AM-36GP For more combination specs, visit Assun Motor website.			

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC3289AN SERIES (Built-In CAN+RS485 Communication Protocol)



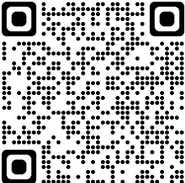
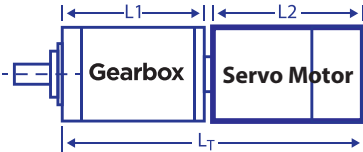
Brushless Servo Motor		Ball Bearing					
Motor Model		1210	1207	2412	2409	3611	3609
Nominal voltage	V	12	12	24	24	36	36
Voltage Range	V	14.5~9.5	14.5~9.5	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5
Standby current	mA	55	55	35	35	25	25
Rated current	mA	3800	3200	2000	2000	1500	1400
Torque constant	mN.m/A	10.1	15.7	17.2	23.0	28.3	33.7
Rated torque	mN.m	38.4	50.3	34.4	46.0	42.4	47.2
Rated speed	rpm	9000	5600	10800	8000	10000	8400
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	76.8	100.6	68.8	92	84.8	94.4
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	15.3	15.3	15.3	15.3	15.3	15.3
Weight	g	310	310	310	310	310	310

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	8.2 K/W	Motor thermal time constant:	822 S
Axial (dynamic):	6.0 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth info flange:	4.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

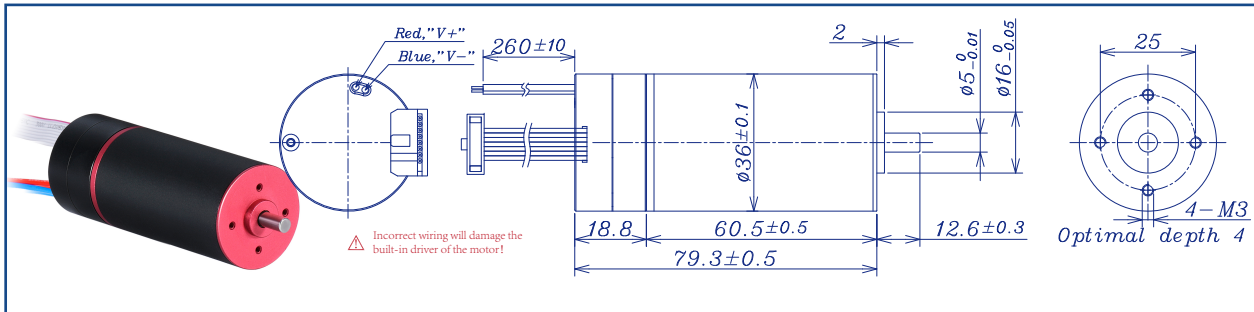
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H 2. DGND 3. CAN-L					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length $LT=L1+L2+L3$				Website: https://www.assunmotor.com.cn/zlxz			
L1:32GP	L1:36GP		L2 :PC32	AM-PC3289AN Combination Scheme 			
27.4	30.6		88.8				
35.9	39.6						
44.4	57.6						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-32GP AM-36GP For more combination specs, visit Assun Motor website.			

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AM-PC3679AN SERIES (Built-In CAN+RS485 Communication Protocol, Pulse+Direction Control)



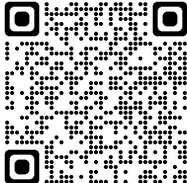
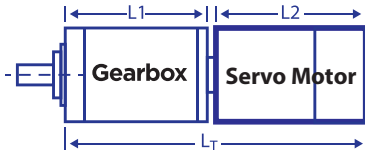
Brushless Servo Motor		Ball Bearing					
Motor Model		1211	1209	2413	2410	3612	3610
Nominal voltage	V	12	12	24	24	36	36
Voltage Range	V	14.5~9.5	14.5~9.5	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5
Standby current	mA	55	55	35	35	25	25
Rated current	mA	5000	4200	2200	2100	1600	1500
Torque constant	mN.m/A	9.1	11.7	15.7	20.1	24.7	29.3
Rated torque	mN.m	45.7	49.1	34.6	38.0	39.5	43.8
Rated speed	rpm	10000	7800	11500	9000	1120	9500
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	91.4	98.2	69.2	76	79	87.6
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	16.75	16.75	16.75	16.75	16.75	16.75
Weight	g	360.8	361	361.9	362.0	361.6	362.6

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	6.9 K/W	Motor thermal time constant:	1188 S
Axial (dynamic):	6.0 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	4.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

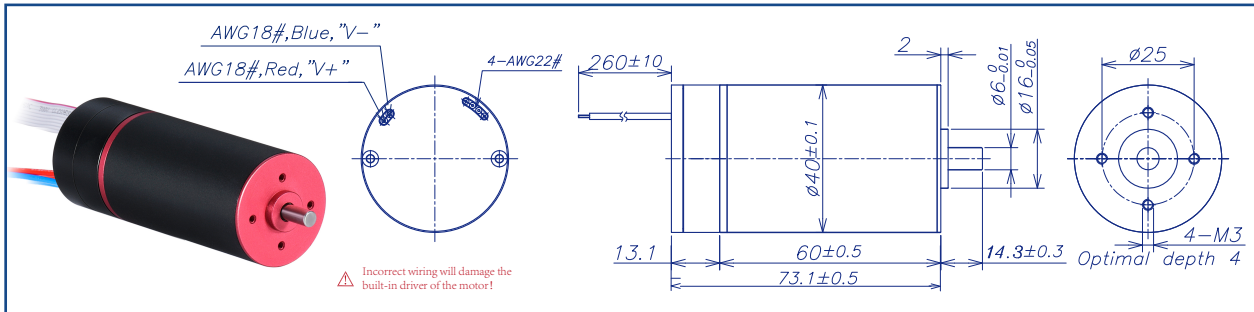
Control function description		Pin Definition		DIN Connector: 41651  I view Cable color Pin1: Red, the other: Gray Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H	2. CAN-L		
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		3. RS485-B	4. RS485-A		
PULS (Pules input)		5. NC	6. PULS		
SIGN (Direction input)		7. SIGN	8. DGND		
Total Length $LT=L1+L2+L3$					
L1:36GP	L1:40GP		L2 :PC36	AM-PC3679AN Combination Scheme  Recommended Gearbox: AM-36GP AM-40GP For more combination specs, visit Assun Motor website.	
39.6	46.8		79.3		
48.6	58.3				
57.6	69.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.					

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PP4073AE SERIES (Built-In Communication Protocol)



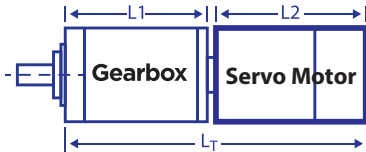
Brushless Servo Motor		Ball Bearing		
Motor Model		1208	2408	3608
Nominal voltage	V	24	24	36
Voltage Range	V	21.5~26.5	21.5~26.5	33.5~38.5
Standby current	mA	35	35	25
Rated current	mA	6700	3350	2540
Torque constant	mN.m/A	14.1	28.5	39.7
Rated torque	mN.m	89.7	89.7	95
Rated speed	rpm	6410	6250	6750
Pulse number / circle	Pulse / circle	16384	16384	16384
Overload torque	mN.m	460	420	450
Maximum overload time	second	5	5	5
Moment of inertia	gcm ²	14.25	51.36	51.36
Weight	g	396	396	396

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	5.6 K/W	Motor thermal time constant:	1163 S
Axial (dynamic):	6.0 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	155°C	Ambient temperature range:	-40 to 65 °C

Part Information

Control function description		Pin Definition		PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
DO Digital Output (5~24VDC)		1. D GND	4. DI-1	
DI Digital Input (5~24VDC)				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps, 8, 1, N, N.		3. RS485-A	4. RS485-B	
Wiring diagram: NO Cable color Pin1~4: Black-Yellow-Red-Blue				
Total Length LT=L1+L2+L3				
L1:40GP	L1:45GP		L2:PC40	
36.1	36.1		73.1	
48.1	48.1			
60.1	60.1			
	72.1			
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				
AM-PP4073BF Combination Scheme  Recommended Gearbox: AM-40GP AM-45GP				

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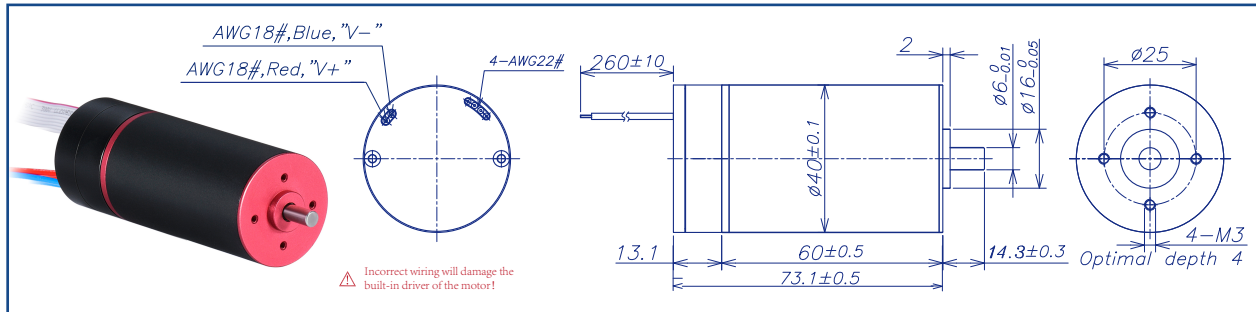
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PP4073BF SERIES (Built-In Communication Protocol)



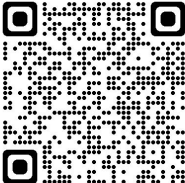
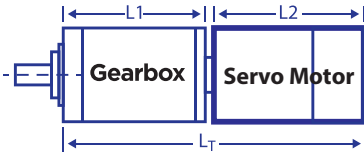
Brushless Servo Motor		Ball Bearing			
Motor Model		2409	2407	3609	3607
Nominal voltage	V	24	24	36	36
Voltage Range	V	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5
Standby current	mA	35	35	25	25
Rated current	mA	7400	6000	4800	4000
Torque constant	mN.m/A	23.0	29.6	34.4	44.4
Rated torque	mN.m	170	177.5	165	177.6
Rated speed	rpm	8200	6000	8500	6500
Pulse number / circle	Pulse / circle	16384	16384	16384	16384
Overload torque	mN.m	340	355	330	355.2
Maximum overload time	second	5	5	5	5
Moment of inertia	gcm ²	86.51	86.51	86.51	86.51
Weight	g	396	396	396	396

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	5.6 K/W	Motor thermal time constant:	1163 S
Axial (dynamic):	6.0 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	110 N	Max allowable screw depth into flange:	4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	155°C	Ambient temperature range:	-40 to 65 °C

Part Information

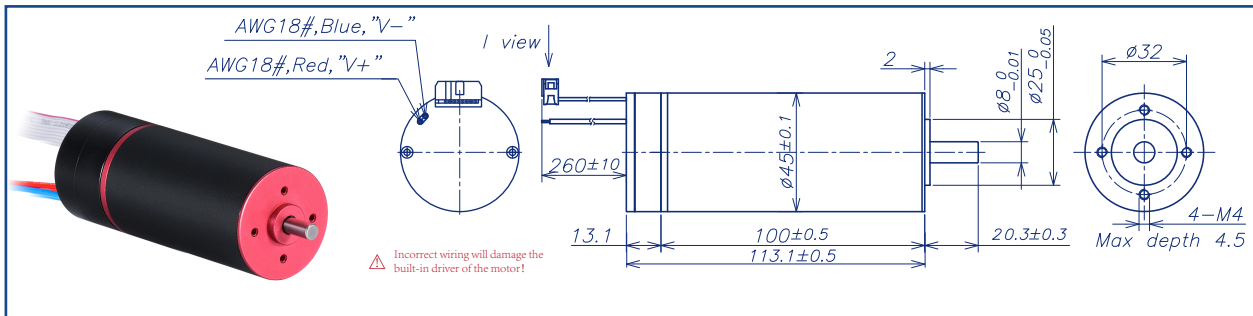
Control function description		Pin Definition		Wiring diagram:NO Cable color Pin1~4: Black-Yellow-Red-Blue	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zhxz
DO Digital Output (5~24VDC)		1. D GND	4. DI-1		
DI Digital Input (5~24VDC)					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		3. RS485-A	4. RS485-B		
Total Length $L_T=L_1+L_2+L_3$					
L1:40GP	L1:45GP		L2 :PC40	AM-PP4073BF Combination Scheme  Recommended Gearbox: AM-40GP AM-45GP	
36.1	36.1		73.1		
48.1	48.1				
60.1	60.1				
	72.1				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.					

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC45113AE SERIES (Built-In CAN+RS485 Communication Protocol)



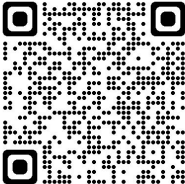
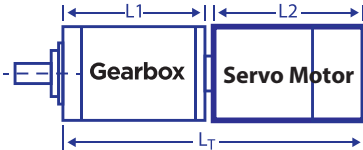
Brushless Servo Motor		Ball Bearing					
Motor Model		2411	2406	3610	3606	4810	4806
Nominal voltage	V	24	24	36	36	48	48
Voltage Range	V	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5	45.5~50.5	45.5~50.5
Standby current	mA	35	35	25	25	15	15
Rated current	mA	8500	6500	5800	4800	3800	3500
Torque constant	mN.m/A	18.1	35.2	29.7	49.0	38.1	36.6
Rated torque	mN.m	154	229	172	237	145	128
Rated speed	rpm	10600	5200	9700	5600	9900	5700
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	308	458	344	474	290	256
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	109.8	109.8	109.8	109.8	109.8	109.8
Weight	g	891.5	895.2	897.5	886.5	892.5	885.3

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	3.6 K/W	Motor thermal time constant:	1286 S
Axial (dynamic):	8.0 N	Radial (5mm from head face):	180.0 N
Press-fit force (static):	170 N	Max allowable screw depth info flange:	4.5 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<8.0N)
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 65 °C

Part Information

Control function description		Pin Definition		DIN Connector:41651  I view Cable color Pin1: Red, the other: Gray Wiring diagram	PC software and full set of data :  Website : https://www.assunmotor.com.cn/zlxz
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		1. RS485-B	2. RS485-A		
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		3. CAN-H	4. CAN-L		
DO Digital Output (5~24VDC)		5. DO-1	6. DI-1		
DI Digital Input (5~24VDC)		7. DI-2	8. NC		
Total Length $L_T=L_1+L_2+L_3$					
L1:45GP	L1:52GP		L2 :PC45		
36.1	46.3		113.1		
48.1	62.8				
60.1	79.3				
72.1	95.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				AM-PC45113AE Combination Scheme  Recommended Gearbox: AM-45GP AM-52GP For more combination specs, visit Assun Motor website.	

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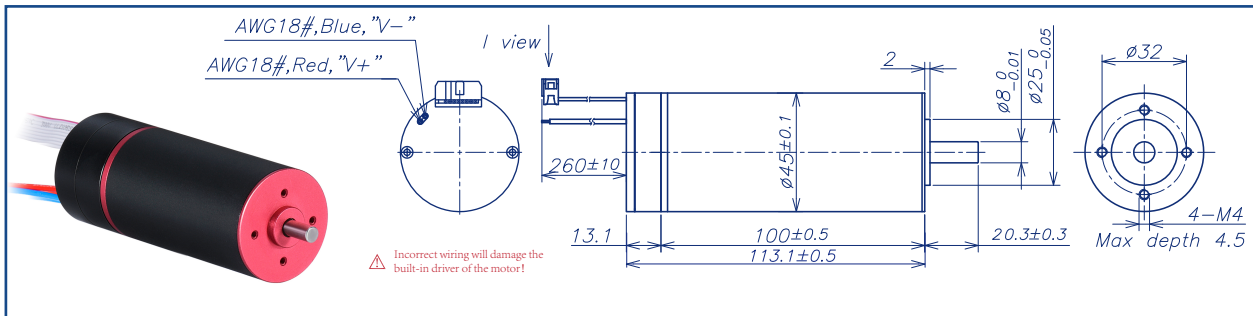
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushless



AM-PC45113AN SERIES (Built-In CAN+RS485 Communication Protocol)



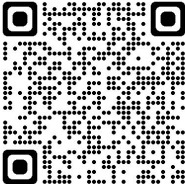
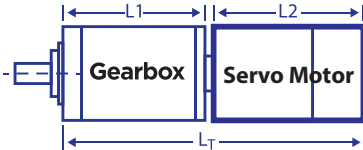
Brushless Servo Motor		Ball Bearing					
Motor Model		2411	2406	3610	3606	4810	4806
Nominal voltage	V	24	24	36	36	48	48
Voltage Range	V	21.5~26.5	21.5~26.5	33.5~38.5	33.5~38.5	45.5~50.5	45.5~50.5
Standby current	mA	35	35	25	25	15	15
Rated current	mA	4000	4500	2500	2500	1500	1900
Torque constant	mN.m/A	16.5	3434	26.8	47.4	31.9	61.0
Rated torque	mN.m	66.0	155.0	67.0	118.5	47.8	116
Rated speed	rpm	10600	5400	10000	6000	10000	6000
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384	16384
Overload torque	mN.m	132	310	134	237	95.6	232
Maximum overload time	second	5	5	5	5	5	5
Moment of inertia	gcm ²	109.8	109.8	109.8	109.8	109.8	109.8
Weight	g	891.5	895.2	897.5	886.5	892.5	885.3

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	3.6 K/W	Motor thermal time constant:	1286 S
Axial (dynamic):	8.0 N	Radial (5mm from head face):	180.0 N
Press-fit force (static):	100 N	Max allowable screw depth info flange:	4.5 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	0 (<6.0N)
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

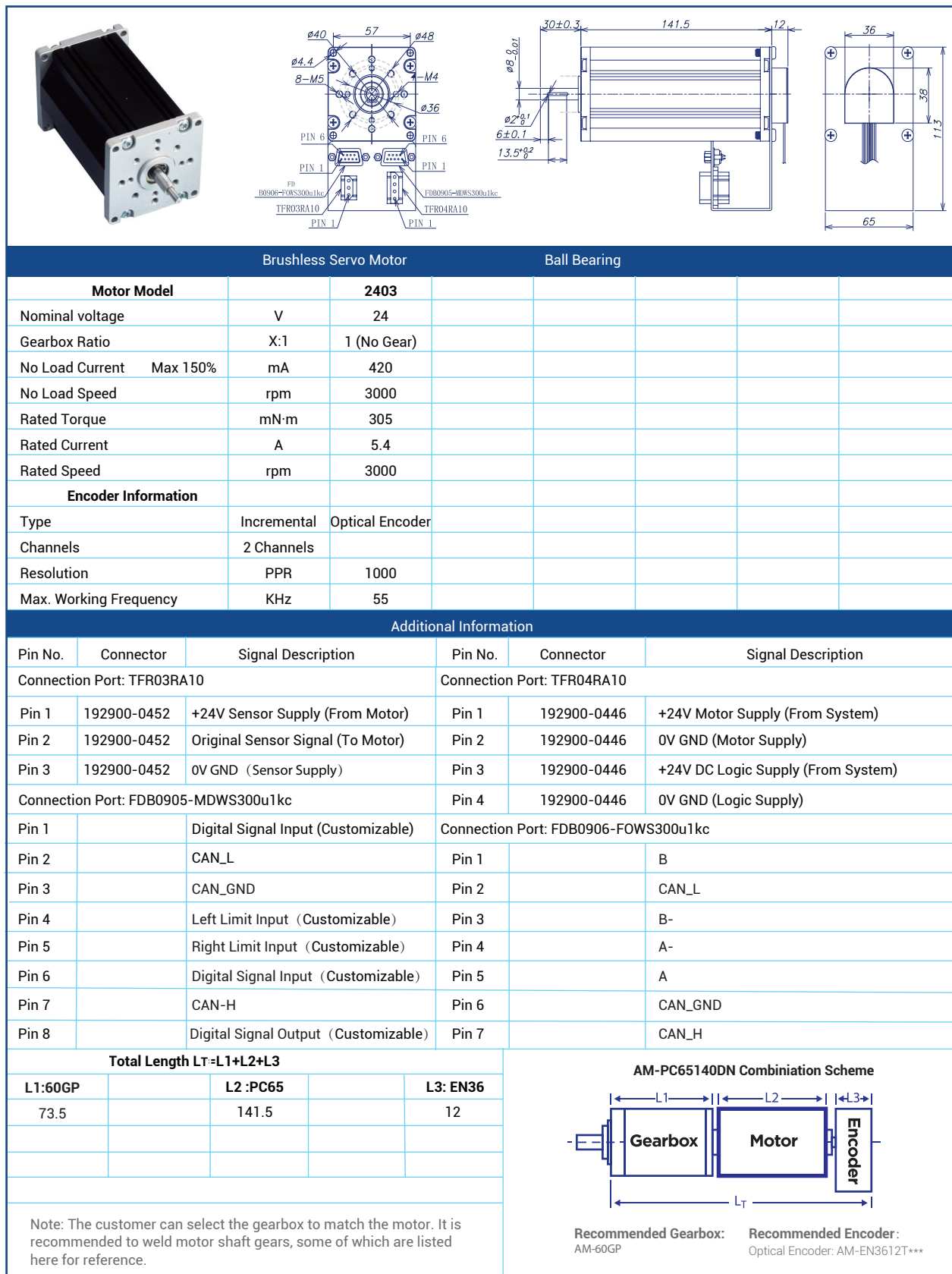
Part Information

Control function description		Pin Definition		DIN Connector:41651  I view Cable color Pin1: Red, the other: Gray Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		1. RS485-B	2. RS485-A		
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		3. CAN-H	4. CAN-L		
DO Digital Output (5~24VDC)		5. DO-1	6. DI-1		
DI Digital Input (5~24VDC)		7. DI-2	8. NC		
Total Length $L_T=L_1+L_2+L_3$					
L1:45GP	L1:52GP		L2 :PC45		
36.1	46.3		113.1		
48.1	62.8				
60.1	79.3				
72.1	95.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				AM-PC45113AN Combination Scheme  Recommended Gearbox: AM-45GP AM-52GP For more combination specs, visit Assun Motor website.	

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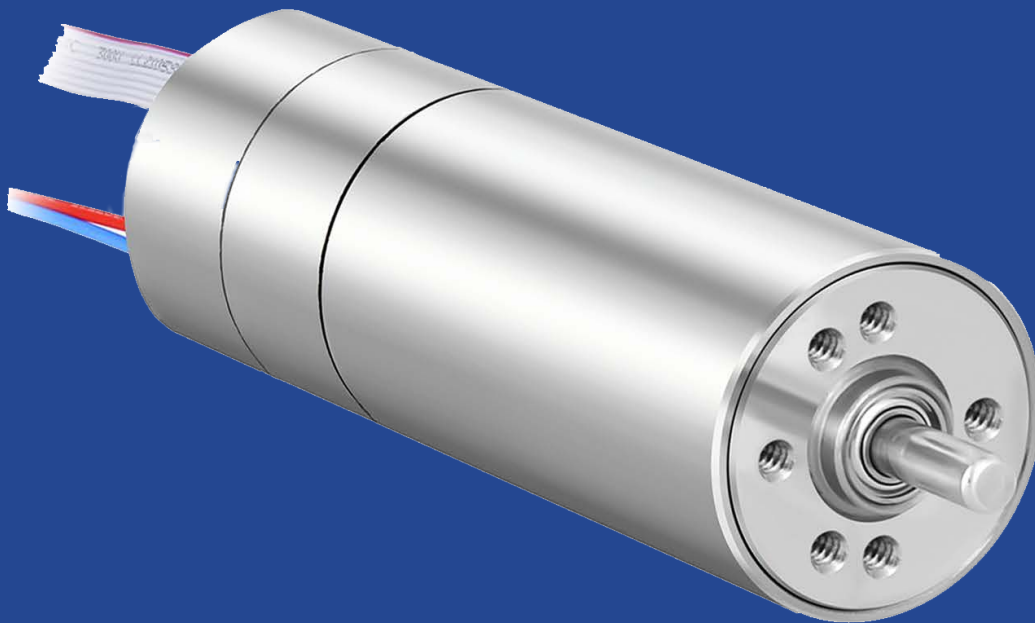
AM-PC65140DN SERIES (Built-In Position Control, with Encoder)



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ASSUN SERVO MOTOR (DC Brushed)
PULSE & CAN BUS CONTROL

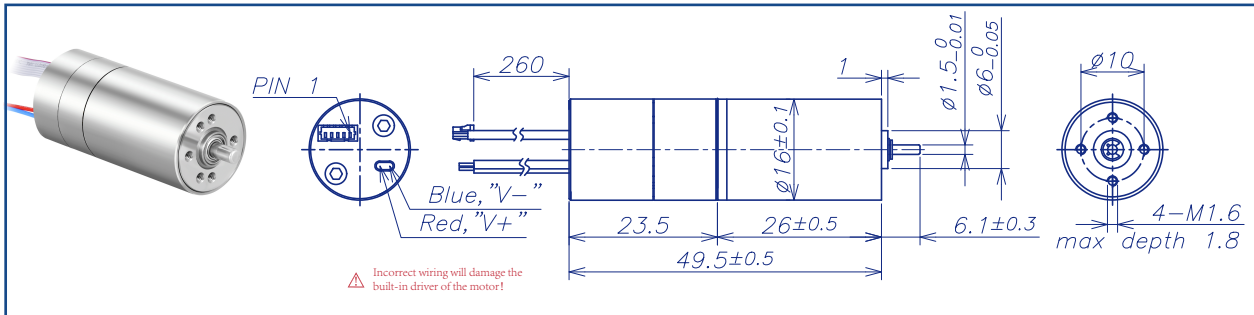
Assun Servo Motor are DC brushless motors with integrated position servo controller. It uses traditional analogue or digital signal input for position control. As feedback function integrated inside, no more encoders are needed and thus achieving compact overall sizes.



ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC1650MAN SERIES (Built-In CAN+RS485 Communication Protocol)



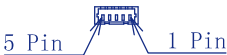
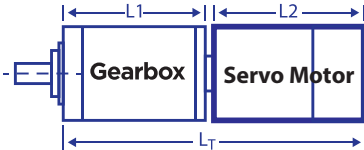
Brushed Servo Motor		Ball Bearing				
Motor Model		1210	1212	2414		
Nominal voltage	V	12	12	24		
Voltage Range	V	9.5~14.5	9.5~14.5	21.5~26.5		
Standby current	mA	55	55	35		
Rated current	mA	250	250	150		
Torque constant	mN.m/A	10	9.2	14.7		
Rated torque	mN.m	2.5	2.3	2.2		
Rated speed	rpm	8400	10200	12400		
Pulse number / circle	Pulse / circle	16384	16384	16384		
Overload torque	mN.m	5	4.6	4.4		
Maximum overload time	second	5	5	5		
Moment of inertia	gcm ²	1.2	1.2	1.2		
Weight	g	42.1	42.2	42.4		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	37.6K/W	Motor thermal time constant:	400 S
Axial (dynamic):	3.4N	Radial (5mm from head face):	2.6 N
Press-fit force (static):	36 N	Max allowable screw depth info flange:	1.8 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

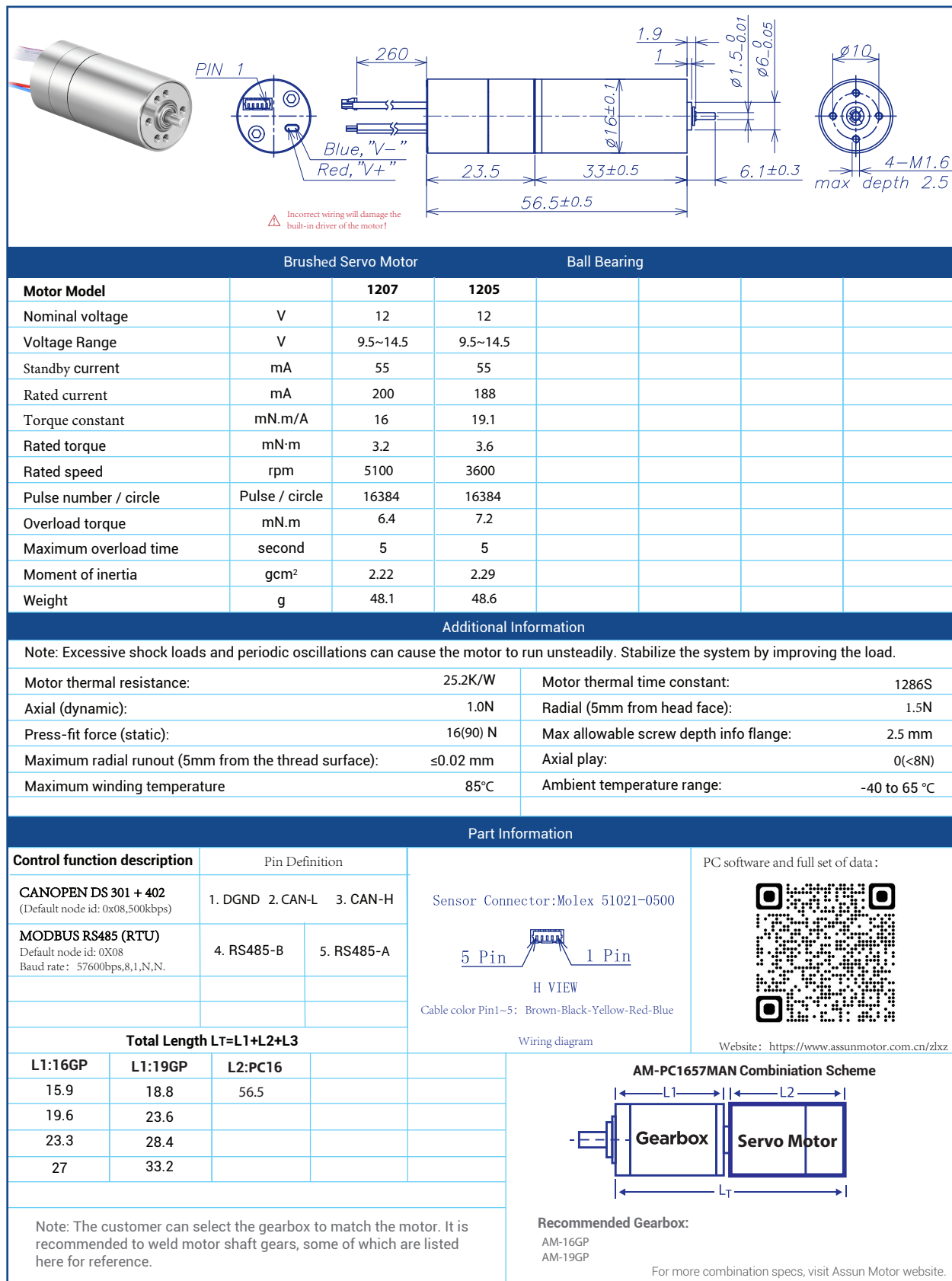
Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-L 3. CAN-H					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length LT=L1+L2+L3				Website: https://www.assunmotor.com.cn/zlxz			
L1:16GP	L1:19GP	L2:PC16		AM-PC1650MAN Combination Scheme 			
15.9	18.8	49.5					
19.6	23.6						
23.3	28.4						
27	33.2						
				Recommended Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.			
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.							

ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC1657MAN SERIES (Built-In CAN+RS485 Communication Protocol)

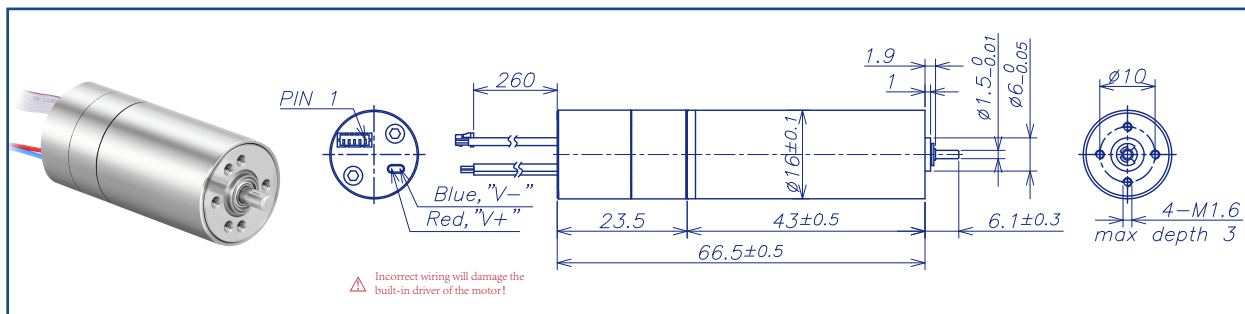


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BUILT-IN SERVO DRIVE
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AM-PC1667MAN SERIES (Built-In CAN+RS485 Communication Protocol)



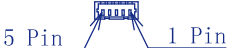
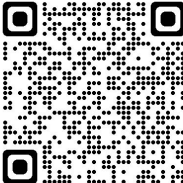
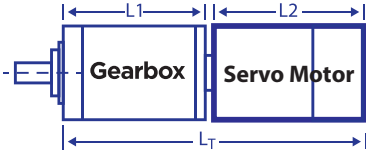
Brushed Servo Motor		Ball Bearing		
Motor Model		1206	1204	2607
Nominal voltage	V	12	12	26
Voltage Range	V	9.5~14.5	9.5~14.5	23.5~28.5
Standby current	mA	55	55	30
Rated current	mA	320	250	160
Torque constant	mN.m/A	16.9	24.8	32.5
Rated torque	mN.m	5.4	6.2	5.2
Rated speed	rpm	5000	2700	5500
Pulse number / circle	Pulse / circle	16384	16384	16384
Overload torque	mN.m	10.8	12.4	10.4
Maximum overload time	second	5	5	5
Moment of inertia	gcm ²	2.94	2.91	2.87
Weight	g	58.7	58.5	58.4

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	24.9K/W	Motor thermal time constant:	412 S
Axial (dynamic):	1.0N	Radial (5mm from head face):	1.8N
Press-fit force (static):	16(70) N	Max allowable screw depth info flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data :	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-L 3. CAN-H					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-B 5. RS485-A					
Total Length $L_T=L_1+L_2+L_3$				Website: https://www.assunmotor.com.cn/zlxz			
L1:16GP	L1:19GP	L2:PC16		AM-PC1667MAN Combination Scheme 			
15.9	18.8	66.5					
19.6	23.6						
23.3	28.4						
27	33.2						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-16GP AM-19GP For more combination specs, visit Assun Motor website.			

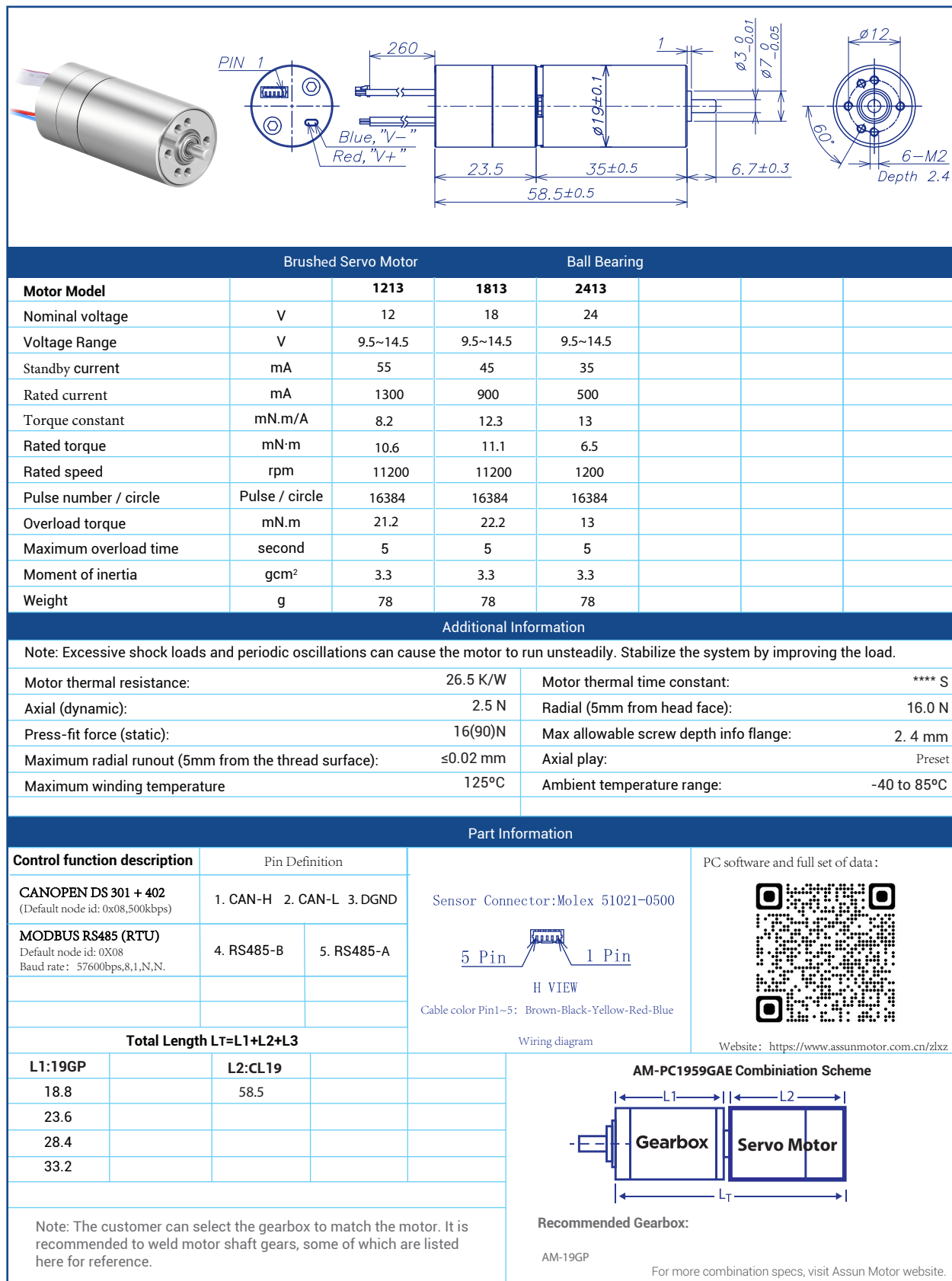
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC1959GAE SERIES (Built-In CAN+RS485 Communication Protocol)

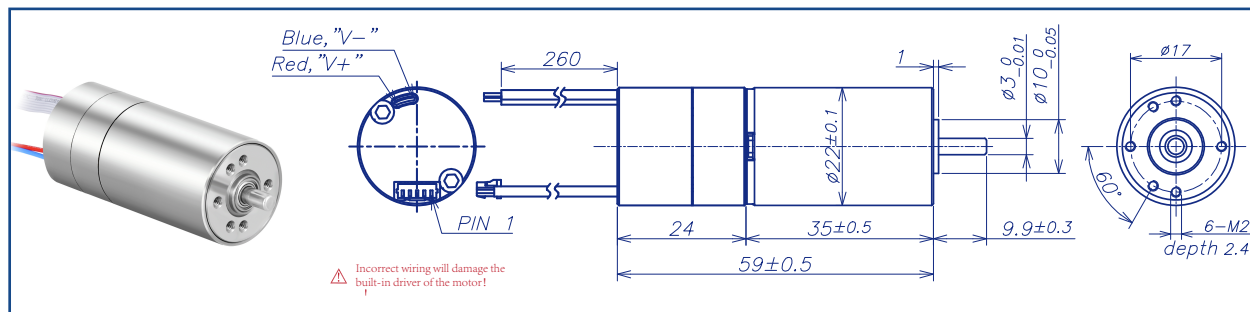


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AM-PC2259GAE SERIES (Built-In CAN+RS485 Communication Protocol)



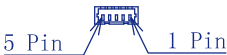
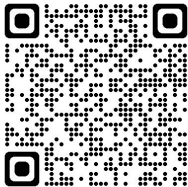
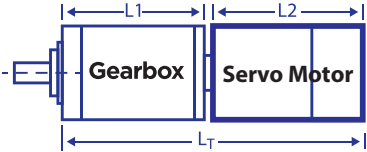
Brushed Servo Motor		Ball Bearing				
Motor Model		1212	1812	2412		
Nominal voltage	V	12	18	24		
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5		
Standby current	mA	55	45	35		
Rated current	mA	1550	1000	780		
Torque constant	mN.m/A	8.6	12.5	16.9		
Rated torque	mN.m	13.3	12.5	13.2		
Rated speed	rpm	4700	2700	2500		
Pulse number / circle	Pulse / circle	16384	16384	16384		
Overload torque	mN.m	26.6	25	26.4		
Maximum overload time	second	5	5	5		
Moment of inertia	gcm ²	6.1	6.1	6.1		
Weight	g	95	95	95		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	15.7 K/W	Motor thermal time constant:	709 S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)	1. DGND 2. CAN-H 3. CAN-L				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.	4. RS485-A	5. RS485-B			
Total Length $L_T=L_1+L_2+L_3$					
L1:24GP	L1:26GP		L2: CL22	AM-PC2259GAE Combination Scheme 	
24	25.7		59		
34.3	36				
42.8	44.5				
51.3	53				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference. Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.					

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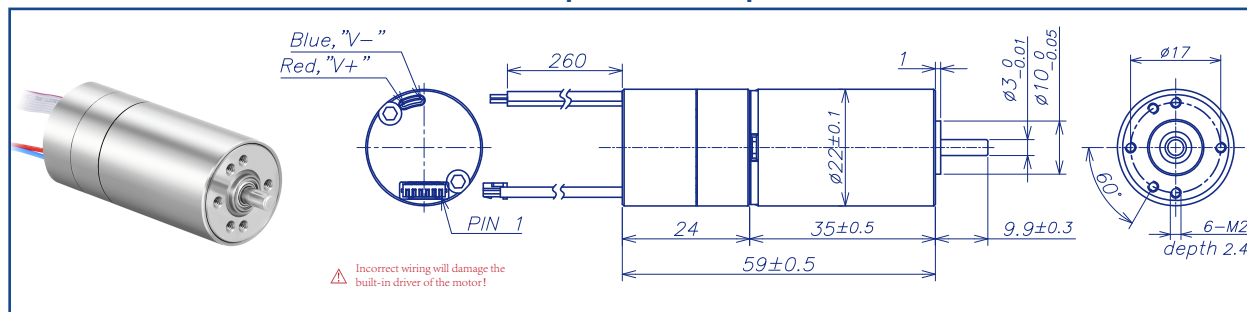
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PI2259GAE SERIES

(Built in RS485 communication protocol, pulse+direction control)



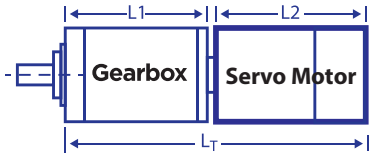
		Brushed Servo Motor			Ball Bearing		
Motor Model		1212	1812	2412			
Nominal voltage	V	12	18	24			
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5			
Standby current	mA	55	45	35			
Rated current	mA	1550	1000	780			
Torque constant	mN.m/A	8.6	12.5	16.9			
Rated torque	mN.m	13.3	12.5	13.2			
Rated speed	rpm	4700	2700	2500			
Pulse number / circle	Pulse / circle	16384	16384	16384			
Overload torque	mN.m	26.6	25	26.4			
Maximum overload time	second	5	5	5			
Moment of inertia	gcm ²	6.1	6.1	6.1			
Weight	g	95	95	95			

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	15.7 K/W	Motor thermal time constant:	709 S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0 N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

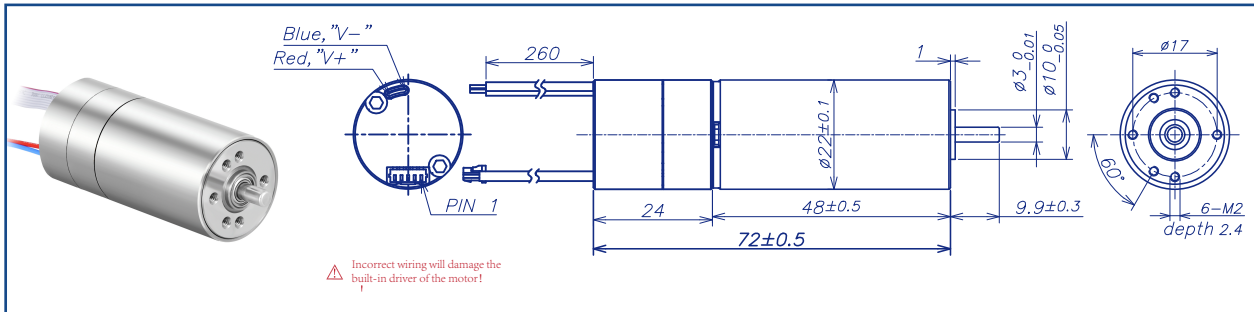
Control function description		Pin Definition		Molex: 87439-0600  <i>PIN6</i> <i>PIN1</i> Cable color Pin1-6: Brown-Green-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
PULS (Pulse input) SIGN (Direction input)	1.DO-3 2. SIGN 3.DGND 4. PULS				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.	5. RS485-A	6. RS485-B			
Total Length $L_T=L_1+L_2+L_3$					
L1: 24GP	L1: 26GP		L2: CL22		
24	25.7		59		
34.3	36				
42.8	44.5				
51.3	53				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				AM-PI2259GAE Combination Scheme  Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.	

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC2272GAE SERIES (Built-In CAN+RS485 Communication Protocol)



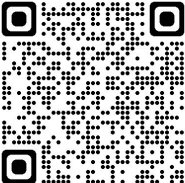
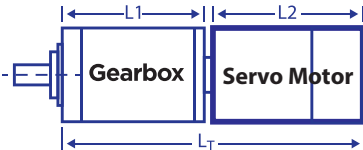
Brushed Servo Motor		Ball Bearing				
Motor Model		1212	1812	2412		
Nominal voltage	V	12	18	24		
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5		
Standby current	mA	55	45	35		
Rated current	mA	2200	1400	1000		
Torque constant	mN.m/A	8.4	13.1	18.2		
Rated torque	mN.m	18.4	18.4	18.2		
Rated speed	rpm	11500	11500	11100		
Pulse number / circle	Pulse / circle	16384	16384	16384		
Overload torque	mN.m	36.8	36.8	36.4		
Maximum overload time	second	5	5	5		
Moment of inertia	gcm ²	9.3	9.3	9.3		
Weight	g	124	124	124		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	12.2 K/W	Motor thermal time constant:	835S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram		PC software and full set of data : 	
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. DGND 2. CAN-H 3. CAN-L					
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		4. RS485-A	5. RS485-B				
Total Length $LT=L1+L2+L3$							
L1:24GP	L1:26GP		L2: CL22	AM-PC2272GAE Combination Scheme 			
24	25.7		72				
34.3	36						
42.8	44.5						
51.3	53						
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.			

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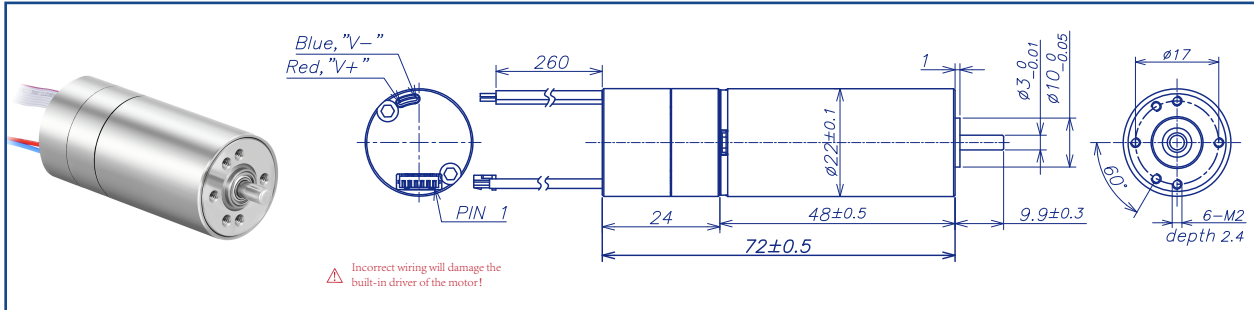
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PI2272GAE SERIES

(Built in RS485 communication protocol, pulse+direction control)



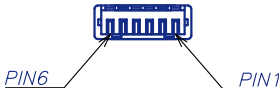
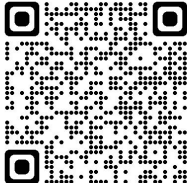
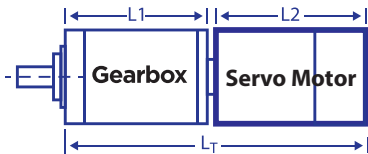
Brushed Servo Motor		Ball Bearing				
Motor Model		1212	1812	2412		
Nominal voltage	V	12	18	24		
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5		
Standby current	mA	55	45	35		
Rated current	mA	2200	1400	1000		
Torque constant	mN.m/A	8.4	13.1	18.2		
Rated torque	mN.m	18.4	18.4	18.2		
Rated speed	rpm	11500	11500	11100		
Pulse number / circle	Pulse / circle	16384	16384	16384		
Overload torque	mN.m	36.8	36.8	36.4		
Maximum overload time	second	5	5	5		
Moment of inertia	gcm ²	9.3	9.3	9.3		
Weight	g	124	124	124		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	12.2 K/W	Motor thermal time constant:	835S
Axial (dynamic):	2.5 N	Radial (5mm from head face):	16.0N
Press-fit force (static):	16(90)N	Max allowable screw depth into flange:	2.4 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

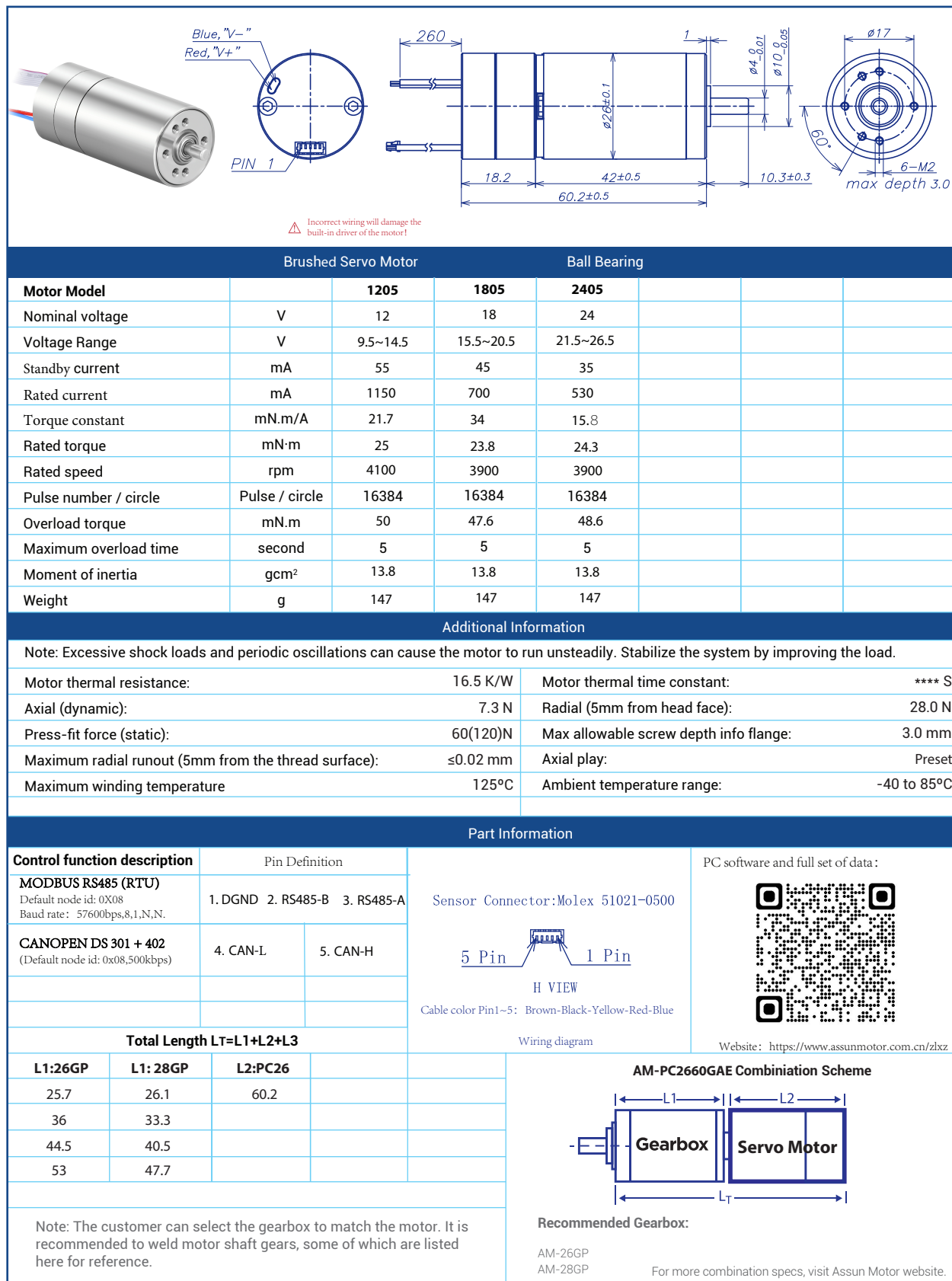
Part Information

Control function description		Pin Definition		Molex: 87439-0600  Cable color Pin1~6: Brown-Green-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
PULS (Pulse input) SIGN (Direction input)	1.DO-3 2. SIGN 3.DGND 4. PULS				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.	5. RS485-A	6. RS485-B			
Total Length LT=L1+L2+L3					
L1:24GP	L1:26GP		L2: CL22		
24	25.7		72		
34.3	36				
42.8	44.5				
51.3	53				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				AM-PI2272GAE Combination Scheme  Recommended Gearbox: AM-24GP AM-26GP For more combination specs, visit Assun Motor website.	

ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC2660GAE SERIES (Built-In CAN+RS485 Communication Protocol)



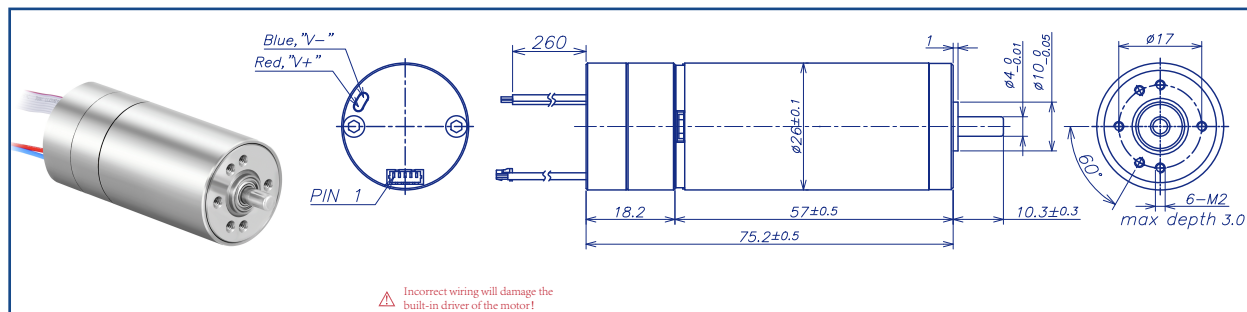
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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
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AM-PC2675GAE SERIES (Built-In CAN+RS485 Communication Protocol)



⚠ Incorrect wiring will damage the built-in driver of the motor!

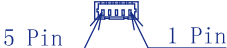
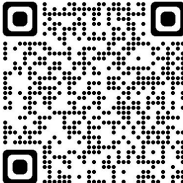
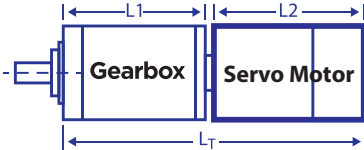
Brushed Servo Motor		Ball Bearing				
Motor Model		1211	1811	1811		
Nominal voltage	V	12	18	18		
Voltage Range	V	9.5~14.5	15.5~20.5	15.5~20.5		
Standby current	mA	55	45	45		
Rated current	mA	4350	2960	2230		
Torque constant	mN.m/A	10	14.5	19		
Rated torque	mN.m	43.3	42.8	42.3		
Rated speed	rpm	9900	10200	10400		
Pulse number / circle	Pulse / circle	16384	16384	16384		
Overload torque	mN.m	86.6	85.6	84.6		
Maximum overload time	second	5	5	5		
Moment of inertia	gcm ²	20.6	20.6	20.6		
Weight	g	205	205	205		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	11.2 K/W	Motor thermal time constant:	1172 S
Axial (dynamic):	7.3 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

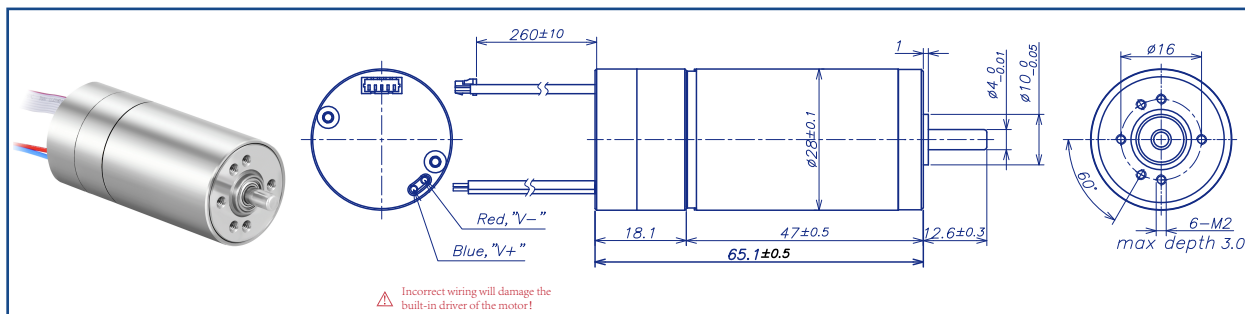
Control function description		Pin Definition		Sensor Connector:Molex 51021-0500  H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		1. DGND 2. RS485-B 3. RS485-A			
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		4. CAN-L	5. CAN-H		
Total Length LT=L1+L2+L3					
L1:26GP	L1: 28GP	L2:PC26		AM-PC2675GAE Combination Scheme 	
25.7	26.1	75.2			
36	33.3				
44.5	40.5				
53	47.7				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-26GP AM-28GP For more combination specs, visit Assun Motor website.	

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC2865GAE SERIES (Built-In CAN+RS485 Communication Protocol)



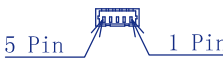
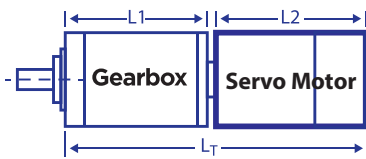
Brushed Servo Motor		Ball Bearing		
Motor Model		1210	1810	2410
Nominal voltage	V	12	18	24
Voltage Range	V	9.5~14.5	15.5~20.5	21.5~26.5
Standby current	mA	55	45	35
Rated current	mA	2500	1700	1360
Torque constant	mN.m/A	10.8	15.7	21.5
Rated torque	mN.m	27	26.8	29.2
Rated speed	rpm	9300	9600	9400
Pulse number / circle	Pulse / circle	16384	16384	16384
Overload torque	mN.m	54	53.6	58.4
Maximum overload time	second	5	5	5
Moment of inertia	gcm ²	22.5	22.5	22.5
Weight	g	183	183	183

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	15.6 K/W	Motor thermal time constant:	1086 S
Axial (dynamic):	7.3 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	60(120)N	Max allowable screw depth into flange:	3.5 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 85°C

Part Information

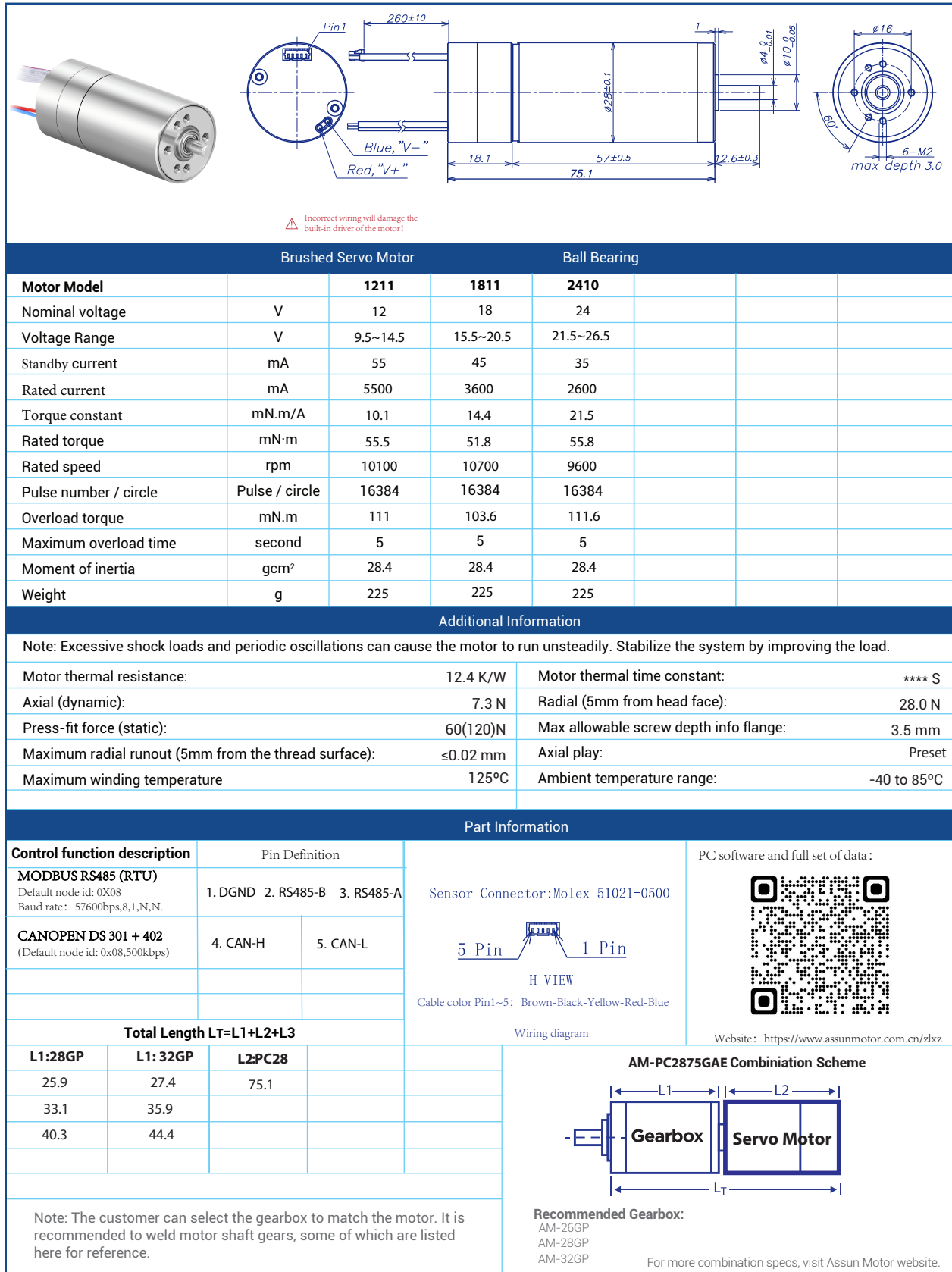
Control function description		Pin Definition		Sensor Connector: Molex 51021-0500	PC software and full set of data : 
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps, 8, 1, N, N.		1. DGND	2. RS485-B 3. RS485-A		
CANOPEN DS 301 + 402 (Default node id: 0x08, 500kbps)		4. CAN-H	5. CAN-L	 H VIEW Cable color Pin1~5: Brown-Black-Yellow-Red-Blue	 AM-PC2865GAE Combination Scheme Recommended Gearbox: AM-26GP AM-28GP AM-32GP For more combination specs, visit Assun Motor website.
Total Length LT=L1+L2+L3					
L1:28GP	L1: 32GP	L2:PC28			
25.9	27.4	65.1			
33.1	35.9				
40.3	44.4				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.					

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PC2875GAE SERIES (Built-In CAN+RS485 Communication Protocol)

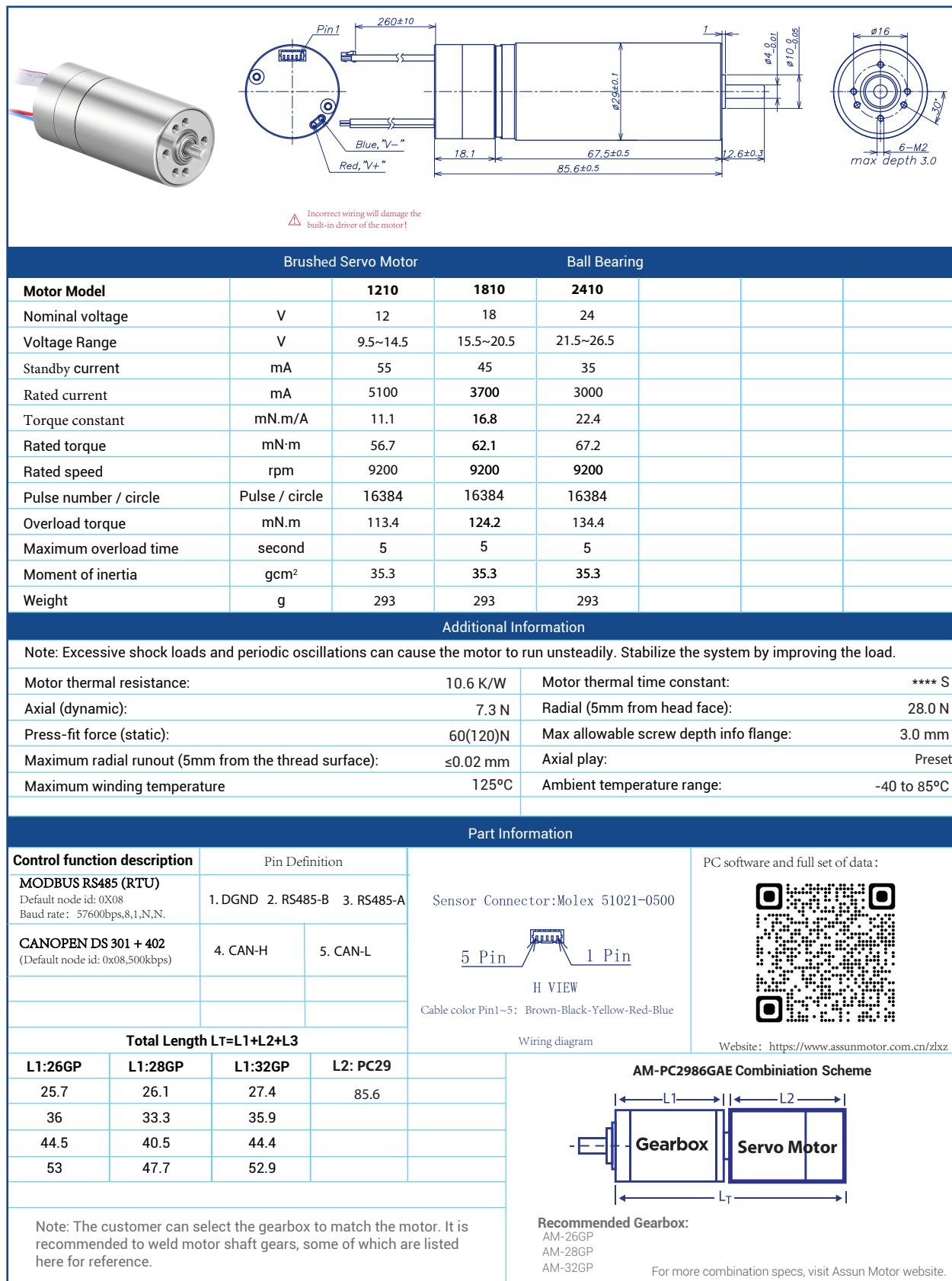


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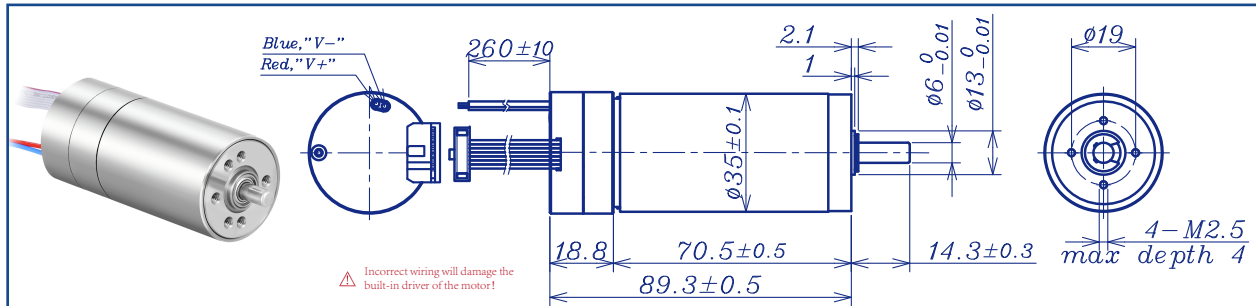
AM-PC2986GAE SERIES (Built-In CAN+RS485 Communication Protocol)



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AM-PC3589GAF SERIES (Built-In CAN+RS485 Communication Protocol, Pulse+Direction Control)



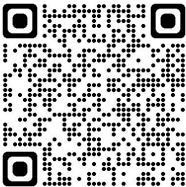
Brushed Servo Motor		Ball Bearing				
Motor Model		1206	1204	2408	2406	2404
Nominal voltage	V	12	12	24	24	24
Voltage Range	V	14.5~9.5	14.5~9.5	21.5~26.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	35	35	35
Rated current	mA	5600	4400	3800	3000	2200
Torque constant	mN.m/A	17.25	25.6	27.1	35.8	52.7
Rated torque	mN.m	96.6	112.8	103.1	107.3	116
Rated speed	rpm	5500	3500	7400	5400	3400
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384
Overload torque	mN.m	193.2	225.6	206.2	214.6	232
Maximum overload time	second	5	5	5	5	5
Moment of inertia	gcm ²	105.3	108.7	111	108.4	105.6
Weight	g	383.3	385.2	385.2	385.5	383.2

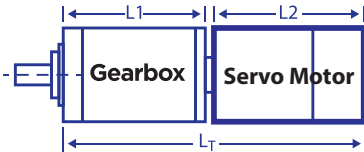
Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	9.1 K/W	Motor thermal time constant:	1352 S
Axial (dynamic):	5.5 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	100 N	Max allowable screw depth info flange:	4.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	155°C	Ambient temperature range:	-40 to 100 °C

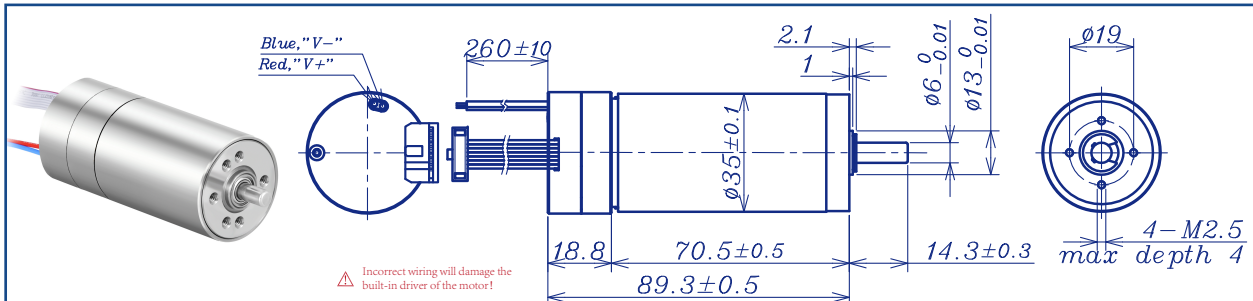
Part Information

Control function description		Pin Definition		DIN Connector:41651  I view Cable color Pin1: Red, the other: Gray Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H	2. CAN-L		
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		3. RS485-B	4. RS485-A		
PULS (Pules input)		5. NC	6. PULS		
SIGN (Direction input)		7. SIGN	8. DGND		
Total Length $L_T=L_1+L_2+L_3$					
L1:36GP	L1:40GP		L2 :PC35		
39.6	46.8		89.3		
48.6	58.3				
57.6	69.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.					

AM-PC3589GAF Combination Scheme	
	
Recommended Gearbox:	
AM-36GP	
AM-40GP	
AM-45GP	
For more combination specs, visit Assun Motor website.	

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AM-PC3589GAN SERIES (Built-In CAN+RS485 Communication Protocol, Pulse+Direction Control)



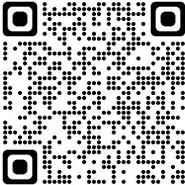
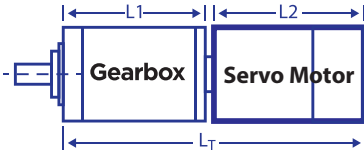
Brushed Servo Motor		Ball Bearing				
Motor Model		1206	1204	2408	2406	2404
Nominal voltage	V	12	12	24	24	24
Voltage Range	V	14.5~9.5	14.5~9.5	21.5~26.5	21.5~26.5	21.5~26.5
Standby current	mA	55	55	35	35	35
Rated current	mA	3600	2800	2200	1900	1500
Torque constant	mN.m/A	16.9	25.1	26.1	35.0	51.9
Rated torque	mN.m	60.8	70.3	57.5	66.5	77.8
Rated speed	rpm	5600	3600	7400	5500	3500
Pulse number / circle	Pulse / circle	16384	16384	16384	16384	16384
Overload torque	mN.m	121.6	140.6	115	133	155.6
Maximum overload time	second	5	5	5	5	5
Moment of inertia	gcm ²	110	110	110	110	110
Weight	g	383.3	385.2	385.2	385.5	383.2

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	9.1 K/W	Motor thermal time constant:	1352 S
Axial (dynamic):	5.5 N	Radial (5mm from head face):	28.0 N
Press-fit force (static):	100 N	Max allowable screw depth info flange:	4.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	85°C	Ambient temperature range:	-40 to 65 °C

Part Information

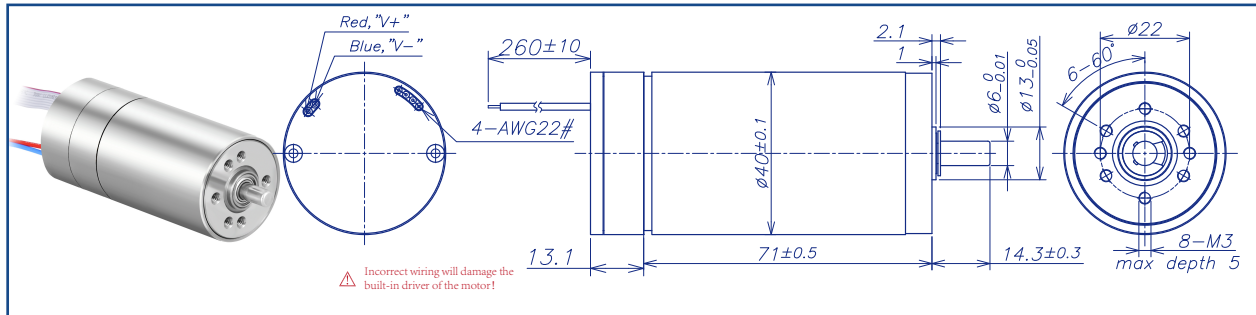
Control function description		Pin Definition		DIN Connector: 41651  I view Cable color Pin1: Red, the other: Gray Wiring diagram	PC software and full set of data :  Website: https://www.assunmotor.com.cn/zlxz
CANOPEN DS 301 + 402 (Default node id: 0x08,500kbps)		1. CAN-H	2. CAN-L		
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		3. RS485-B	4. RS485-A		
PULS (Pules input)		5. NC	6. PULS		
SIGN (Direction input)		7. SIGN	8. DGND		
Total Length $LT=L1+L2+L3$					
L1:36GP	L1:40GP		L2 :PC35	AM-PC3589GAN Combination Scheme 	
39.6	46.8		89.3		
48.6	58.3				
57.6	69.8				
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				Recommended Gearbox: AM-36GP AM-40GP For more combination specs, visit Assun Motor website.	

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ASSUN SERVO MOTOR
BUILT-IN SERVO DRIVE
INTEGRATED MOTOR-Brushed



AM-PP4084GAE SERIES (Built-In Communication Protocol)



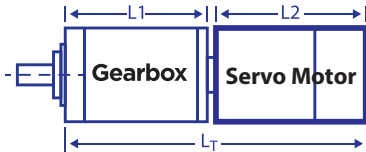
Brushless Servo Motor			Ball Bearing		
Motor Model		1207	2408		
Nominal voltage	V	12	24		
Voltage Range	V	9.5~14.5	21.5~26.5		
Standby current	mA	55	35		
Rated current	mA	6000	5500		
Torque constant	mN.m/A	16	26.2		
Rated torque	mN.m	96.1	144.3		
Rated speed	rpm	6300	7900		
Pulse number / circle	Pulse / circle	16384	16384		
Overload torque	mN.m	192.2	288.6		
Maximum overload time	second	5	5		
Moment of inertia	gcm ²	123.5	122.6		
Weight	g	535	536		

Additional Information

Note: Excessive shock loads and periodic oscillations can cause the motor to run unsteadily. Stabilize the system by improving the load.

Motor thermal resistance:	--K/W	Motor thermal time constant:	--S
Axial (dynamic):	5.5 N	Radial (5mm from head face):	29.0 N
Press-fit force (static):	100(1000) N	Max allowable screw depth info flange:	5.0 mm
Maximum radial runout (5mm from the thread surface):	≤0.02 mm	Axial play:	Preset
Maximum winding temperature	125°C	Ambient temperature range:	-40 to 65°C

Part Information

Control function description		Pin Definition		PC software and full set of data :  Website: https://www.assunmotor.com.cn/zhxz
DO Digital Output (5~24VDC)		1. D GND	4. DI-1	
DI Digital Input (5~24VDC)				
MODBUS RS485 (RTU) Default node id: 0X08 Baud rate: 57600bps,8,1,N,N.		3. RS485-A	4. RS485-B	
Total Length LT=L1+L2+L3				 AM-PP4084GAE Combination Scheme Recommended Gearbox: AM-40GP AM-45GP
L1:40GP	L1:45GP		L2:PC40	
36.1	36.1		84.1	
48.1	48.1			
60.1	60.1			
	72.1			
Note: The customer can select the gearbox to match the motor. It is recommended to weld motor shaft gears, some of which are listed here for reference.				

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PLANETARY GEARBOX

Assun Planetary Gearbox are made for precision DC drive systems. The high efficiency, small backlash, and wide range of stages and ratios made the gearboxes ideal for various DC drive applications. With diameter from 8mm to 60mm, wide range ratios and various output torques, customers could choose their best fitting gearbox for combination.



AM-16P	AM-32P	AM-8GP	AM-24GP	AM-45GP
AM-22P	AM-36P	AM-10GP	AM-28GP	AM-52GP
AM-26P	AM-45P	AM-16GP	AM-32GP	
AM-28P		AM-19GP	AM-36GP	
		AM-22GP	AM-40GP	

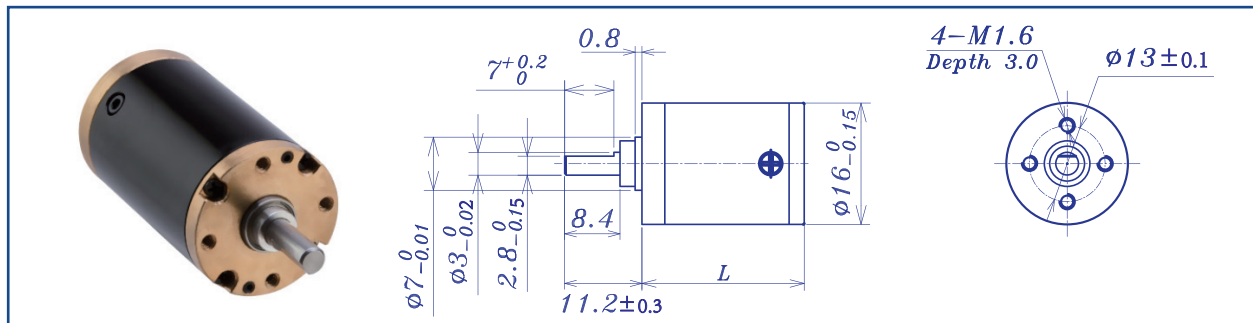
Company Name Abbreviation				
AM - 16GPA - 5.4:1				
Gearbox Dimension 16 - Diameter (mm)		Gearbox Stage		
		A : First Stage B : Second Stage C : Three Stage D : Four Stage		
Gearbox Type GP - Precisions Gearbox P - Regular Gearbox		Gear Ratio		

PLANETARY GEARBOX —
REGULAR SERIES

Assun Planetary Gearbox of regular series are most widely used planetary gearbox for DC drive system. With diameter from 16mm to 45mm, these gearboxes made by hobbing gears provide a bunch of choices for customers' applications.



AM-16P Series

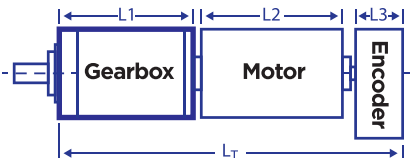
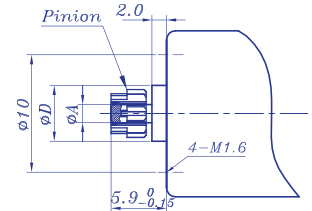


GEARBOX CHARACTER

Gear type	Straight teeth	Average backlash on load	$\leq 3^\circ$
Output shaft	Stainless steel hardened	Radial Play	≤ 0.04
Main gear	Alloy Steel	Permissible axial load	$\leq 10N$
Ring gear	Steel	Permissible force press fits	$\leq 50N$ (5mm from mounting face)
Adapter plate	Copper	Recommended input speed	$\leq 10000RPM$
Bearing AT output	Ball bearing	Operating temperature range	$-20^\circ C \sim +100^\circ C$
Axial play	0-0.3	Operating humidity range	10-90%RH
Directions	CW/CCW		

GEARBOX DATA

Number of stage	1	2	3	4	5
Reduction ratio X:1	3.3 3.8 4.4 5.4	11 19 12 20 14 24 16 29 18	37 62 97 41 64 104 47 72 109 53 76 128 84 158	175 370 591 198 410 690 231 455 850 270 522 316 561	742 1996 1014 2458 1185 3027 1386 3728 1621 4592
Reduction ratio absolute	63/19 15/4 57/13 27/5	3969/361 3249/169 945/76 81/4 225/16 1539/65 855/52 729/25 1701/95	250049/6859 1215/16 59635/1444 185193/2197 3375/64 45927/475 14175/304 87723/845 12825/208 2187/20 204687/3211 41553/325 48735/676 19683/125	21625/1216 6561/16 50625/256 5000/211/10985 192375/832 1240029/2375 731025/2704 2368521/4225 2777895/8788 59049/100 10556001/28561 1121931/625 531441/625	759375/1024 10965375/10816 41668425/35152 158340015/114244 601692057/371293 285012027/142805 135005697/54925 63950067/21125 30292137/8125 14348907/3125
Gearbox length "L" (mm)	18.5	22.4	26.3	30.2	34.0
Max. continuous torque (N.m)	0.3	0.5	0.6	0.7	0.7
Max. intermitten torque (N.m)	0.5	0.7	0.9	1	1
Gearbox efficiency	90%	81%	72%	65%	59%
Moment of inertia range (g.cm ²)	0.06	0.05	0.05	0.05	0.05
Gearbox weight approx (g)	23	28	31	36	40
Gearbox model	AM-16PA-X-01	AM-16PB-X-01	AM-16PC-X-01	AM-16PD-X-01	AM-16PE-X-01

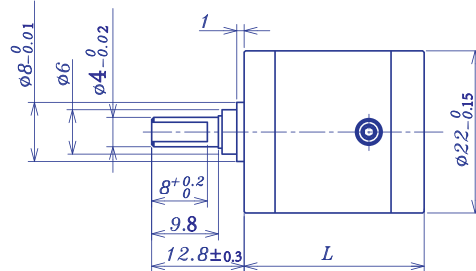
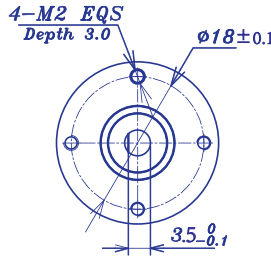
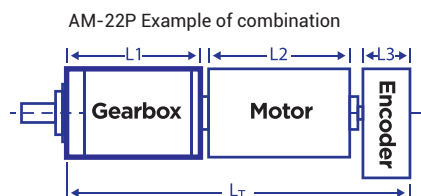
AM-16P Example of combination 		INPUT GEARBOX DATA <table><tr><td>Modulus</td><td colspan="4">0.3</td></tr><tr><td>Press angle</td><td colspan="4">20°</td></tr><tr><td>Teeth number</td><td>10</td><td>13</td><td>16</td><td>19</td></tr><tr><td>Max gear hole "A"</td><td>1.5</td><td colspan="3">2.0</td></tr><tr><td>Max motor shaft</td><td>1.5</td><td colspan="3">2.0</td></tr><tr><td>Motor dimension "D"</td><td colspan="4">6.0</td></tr></table>		Modulus	0.3				Press angle	20°				Teeth number	10	13	16	19	Max gear hole "A"	1.5	2.0			Max motor shaft	1.5	2.0			Motor dimension "D"	6.0				MOTOR DIMENSION 	
Modulus	0.3																																		
Press angle	20°																																		
Teeth number	10	13	16	19																															
Max gear hole "A"	1.5	2.0																																	
Max motor shaft	1.5	2.0																																	
Motor dimension "D"	6.0																																		
Recommend Motor: Coreless Motor: AM-CL1642MA Coreless Motor (w/E): AM-CL1623MAN AM-CL1626MAN AM-CL1633MAN AM-CL1643MAN Brushless Motor (w/E) AM-BL1640A/B		Recommend Encoder: Suitable for Coreless Motor Encoder S: AM-EN1611S***		GEARBOX MOTOR LENGTH "LT" <table><tr><td>Gear motor length L_T</td><td>52.2</td><td>59.1</td><td>70</td><td>82.2</td></tr><tr><td>Gearbox length L_1</td><td>18.5</td><td>22.4</td><td>26.3</td><td>30.2</td></tr><tr><td>Motor length L_2</td><td>23</td><td>26</td><td>33</td><td>40</td></tr><tr><td>Encoder length L_3</td><td>10.7</td><td>10.7</td><td>10.7</td><td>12</td></tr></table>		Gear motor length L_T	52.2	59.1	70	82.2	Gearbox length L_1	18.5	22.4	26.3	30.2	Motor length L_2	23	26	33	40	Encoder length L_3	10.7	10.7	10.7	12										
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		Encoder T: AM-EN1612T***																																	

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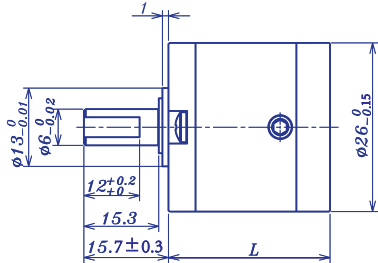
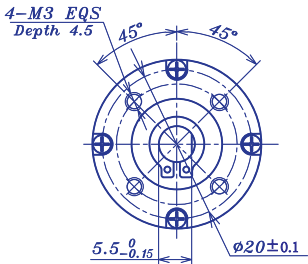
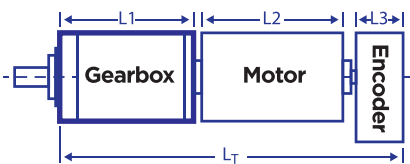
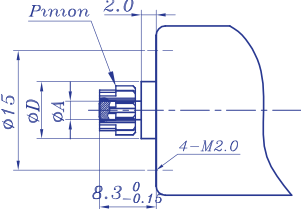
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AM-22P Series

									
GEARBOX CHARACTER									
Gear type	Straight teeth		Average backlash on load		$\leq 2^{\circ}$				
Output shaft	Stainless steel hardened		Radial Play		≤ 0.1				
Main gear	Alloy Steel		Permissible axial load		$\leq 40N$				
Ring gear	Steel		Permissible force press fits		$\leq 100N$ (5mm from mounting face)				
Adapter plate	Copper		Recommended input speed		$\leq 10000RPM$				
Bearing AT output	Ball bearing		Operating temperature range		$-20^{\circ}C \sim +100^{\circ}C$				
Axial play	0-0.3		Operating humidity range		10-90%RH				
Directions	CW/CCW								
GEARBOX DATA									
Number of stage	1	2	3	4	5				
Reduction ratio X:1	3.3	11 19	37 62 97	175 370 591	742 1996				
	3.8	12 20	41 64 104	198 410 690	1014 2458				
	4.4	14 24	47 72 109	231 455 850	1185 3027				
	5.4	16 29	53 76 128	270 522	1386 3728				
		18	84 158	316 561	1621 4592				
Reduction ratio absolute	63/19	3969/361	250047/6859	21625/1216	759375/1024				
	15/4	945/76	59535/1444	50625/256	10965375/10816				
	57/13	225/16	3375/64	192375/832	41668425/35152				
	27/5	855/52	14175/304	731025/2704	158340015/114244				
		1701/95	12825/208	2777895/8788	601692057/371293				
			204687/3211	10556001/28561	285012027/142805				
			48735/676	531441/625	135005697/54925				
					63950067/21125				
					30292137/8125				
					14348907/3125				
Gearbox length "L" (mm)	22.3	27.3	32.3	37.3	42.6				
Max. continuous torque (N.m)	0.6	0.8	1	1.2	1.2				
Max. intermitten torque (N.m)	0.9	1.2	1.5	1.8	1.8				
Gearbox efficiency	90%	81%	72%	65%	59%				
Moment of inertia range (g.cm ²)	0.5	0.4	0.5	0.4	0.5				
Gearbox weight approx (g)	56	68	82	92	103				
Gearbox model	AM-22PA-X-01	AM-22PB-X-01	AM-22PC-X-01	AM-22PD-X-01	AM-22PE-X-01				
		INPUT GEARBOX DATA		MOTOR DIMENSION					
		Modulus		0.35					
		Press angle		20°					
		Teeth number		10	13	16	19		
		Max gear hole "A"		2.0		3.0			
		Max motor shaft		2.0		3.0			
		Motor dimension "D"		6.15		8.0			
Recommend Motor: Coreless Motor (w/E): AM-CL2232MAN AM-CL2232GAN AM-CL2242MAN AM-CL2242GAN Brushless Motor (w/E): AM-BL2040AN AM-BL2453AN		Recommend Encoder: Suitable for Coreless Motor Encoder S: AM-EN2211S*** Suitable for Brushless Motor Encoder S: AM-EN1611S*** Encoder T: AM-EN1612T***		GEARBOX MOTOR LENGTH "LT"					
				Gear motor length L_T		66.5	80.0	80.3	101
				Gearbox length L_1		22.3	27.3	32.3	37.3
				Motor length L_2		32.2	42	40	53
		Encoder length L_3		12	10.7	12	10.7		

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AM-26P Series

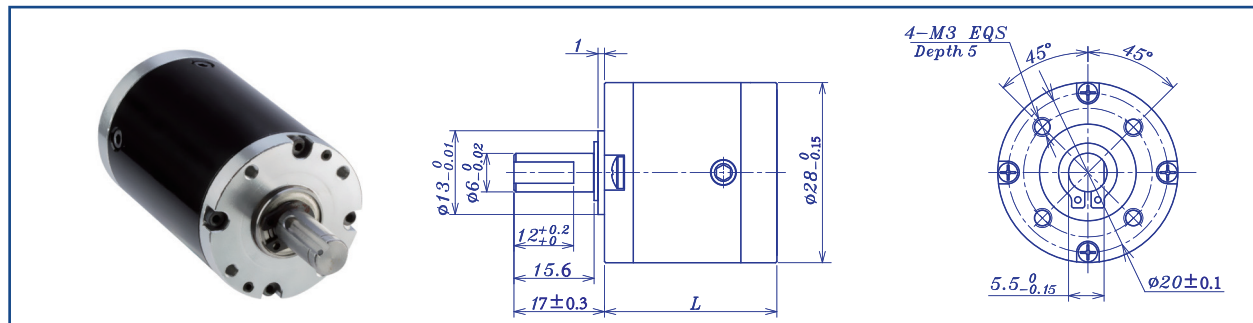
																																											
GEARBOX CHARACTER																																											
Gear type	Straight teeth		Average backlash on load		≤2°																																						
Output shaft	Stainless steel hardened		Radial Play		≤0.1																																						
Main gear	Alloy Steel		Permisssible axial load		≤80N																																						
Ring gear	Steel		Permissible force press fits		≤150N (5mm from mounting face)																																						
Adapter plate	Alluminium alloy		Recommended inut speed		≤8000RPM																																						
Bearing AT output	Ball bearing		Operating temperature range		-20°C ~ +100°C																																						
Axial play	0-0.3		Operating humidity range		10-90%RH																																						
Directions	CW/CCW																																										
GEARBOX DATA																																											
Number of stage	1	2		3		4																																					
Reduction ratio X:1	3.4	12	18	28	40	74	129	296	534	1016																																	
	3.8	13	19	29	45	85	152	327	637	1136																																	
	4.4	15	20	35	50	95	184	375	760	1304																																	
	5.3	17	23	44	56	106	233	405	860	1556																																	
	6.7		26		65	121	296	447	965	1975																																	
Reduction ratio absolute	24/7	576/49	18/1	441/16	13824/343	189/2		85169/288	194481/256																																		
	23/6	92/7	484/25	88/3	2208/49	3381/32		122452/375	7744/9																																		
	22/5	529/36	161/8	35/1	1053/21	4851/40		234256/625	15435/16																																		
	21/4	253/15	231/10	400/9	12167/2	1936/15		25921/64	64000/63																																		
	20/3		230/9		5819/90	3200/21		53361/100	92000/81																																		
					5566/75	735/4		101871/160	35200/27																																		
					10648/125	700/3			14000/9																																		
						8000/27			160000/81																																		
Gearbox lenght "L" (mm)	28.2	34.5		40.8		47.1																																					
Max. continuous torque (N.m)	1.3	1.7		2.1		2.6																																					
Max. intermitten torque (N.m)	1.9	2.6		3.2		3.8																																					
Gearbox efficiency	90%	81%		72%		65%																																					
Moment of inertia range (g.cm²)	1	0.9		0.6		0.6																																					
Gearbox weight approx (g)	65	85		105		120																																					
Gearbox model	AM-26PA-X-01	AM-26PB-X-01		AM-26PC-X-01		AM-26PD-X-01																																					
AM-26P Example of combination 		INPUT GEARBOX DATA <table><tr><td>Modulus</td><td colspan="5">0.4</td></tr><tr><td>Press angle</td><td colspan="5">20°</td></tr><tr><td>Teeth number</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td></tr><tr><td>Max gear hole "A"</td><td>1.5</td><td>3.0</td><td colspan="3">4.0</td></tr><tr><td>Max motor shaft</td><td>1.5</td><td>3.0</td><td colspan="3">4.0</td></tr><tr><td>Motor dimension "D"</td><td colspan="5">10.0</td></tr></table>			Modulus	0.4					Press angle	20°					Teeth number	9	12	15	18	21	Max gear hole "A"	1.5	3.0	4.0			Max motor shaft	1.5	3.0	4.0			Motor dimension "D"	10.0					MOTOR DIMENSION 		
Modulus	0.4																																										
Press angle	20°																																										
Teeth number	9	12	15	18	21																																						
Max gear hole "A"	1.5	3.0	4.0																																								
Max motor shaft	1.5	3.0	4.0																																								
Motor dimension "D"	10.0																																										
Recommend Motor: Coreless Motor (w/E): AM-CL2532MAN AM-CL2545MAN Brushless Motor (w/E) AM-BL2453AN		Recommend Encoder: Suitable for Coreless Motor Encoder S: AM-EN1611S*** Suitable for Brushless Motor Encoder S: AM-EN1611S*** Encoder T: AM-EN2412T***		GEARBOX MOTOR LENGTH "LT" <table><tr><td>Gear motor length L_T</td><td>72.2</td><td>90.2</td></tr><tr><td>Gearbox length L₁</td><td>28.2</td><td>34.5</td></tr><tr><td>Motor length L₂</td><td>32</td><td>45</td></tr><tr><td>Encoder length L₃</td><td>12</td><td>10.7</td></tr></table>				Gear motor length L _T	72.2	90.2	Gearbox length L ₁	28.2	34.5	Motor length L ₂	32	45	Encoder length L ₃	12	10.7																								
Gear motor length L _T	72.2	90.2																																									
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Encoder length L ₃	12	10.7																																									

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AM-28P Series

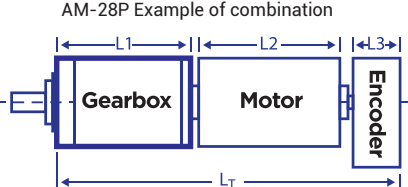
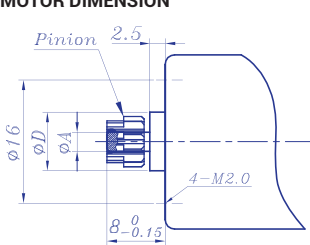
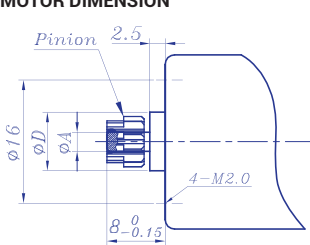
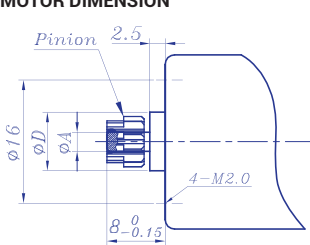


GEARBOX CHARACTER

Gear type	Straight teeth	Average backlash on load	$\leq 2^\circ$
Output shaft	Stainless steel hardened	Radial Play	≤ 0.1
Main gear	Alloy Steel	Permissible axial load	$\leq 80N$
Ring gear	Steel	Permissible force press fits	$\leq 150N$ (5mm from mounting face)
Adapter plate	Aluminum Alloy	Recommended input speed	$\leq 8000RPM$
Bearing AT output	Ball bearing	Operating temperature range	$-20^\circ C \sim +100^\circ C$
Axial play	0-0.3	Operating humidity range	10-90%RH
Directions	CW/CCW		

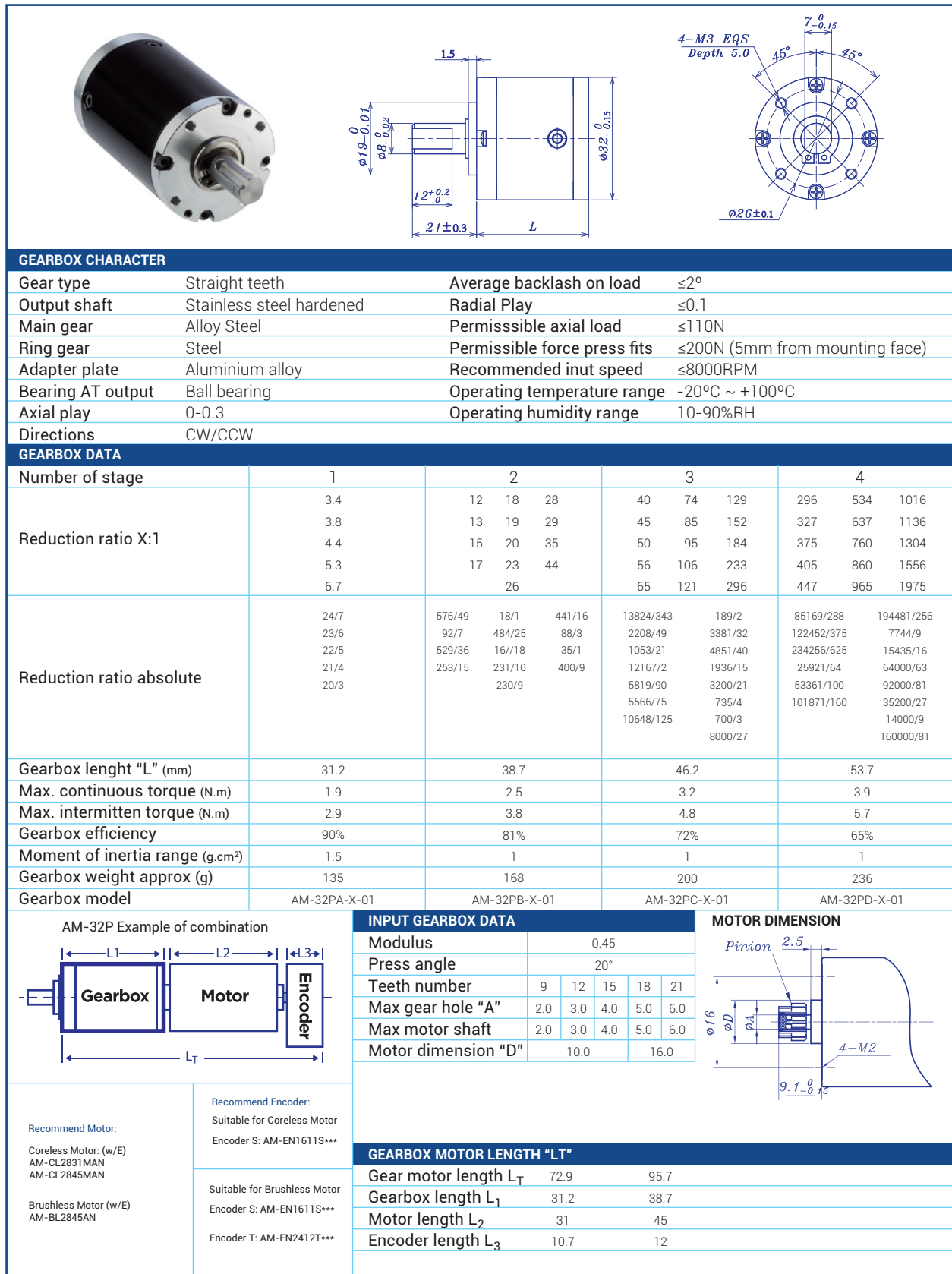
GEARBOX DATA

Number of stage	1	2	3	4
Reduction ratio X:1	3.4 3.8 4.4 5.3 6.7	12 18 28 13 19 29 15 20 35 17 23 44 26	40 74 129 45 85 152 50 95 184 56 106 233 65 121 296	296 534 1016 327 637 1136 375 760 1304 405 860 1556 447 965 1975
Reduction ratio absolute	24/7 23/6 22/5 21/4 20/3	576/49 18/1 441/16 92/7 484/25 88/3 529/36 16//18 35/1 253/15 231/10 400/9 230/9	13824/343 189/2 2208/49 3381/32 1053/21 4851/40 12167/2 1936/15 5819/90 3200/21 5566/75 735/4 10648/125 700/3 8000/27	85169/288 194481/256 122452/375 7744/9 234256/625 15435/16 25921/64 64000/63 53361/100 92000/81 101871/160 35200/27 14000/9 160000/81
Gearbox length "L" (mm)	26.9	33.2	39.5	45.8
Max. continuous torque (N.m)	1.3	1.7	2.1	2.6
Max. intermitten torque (N.m)	1.9	2.6	3.2	3.8
Gearbox efficiency	90%	81%	72%	65%
Moment of inertia range (g.cm ²)	1	0.9	0.6	0.6
Gearbox weight approx (g)	78	102	126	149
Gearbox model	AM-28PA-X-01	AM-28PB-X-01	AM-28PC-X-01	AM-28PD-X-01

AM-28P Example of combination 		<table><tr><th colspan="6">INPUT GEARBOX DATA</th></tr><tr><td>Modulus</td><td colspan="5">0.4</td></tr><tr><td>Press angle</td><td colspan="5">20°</td></tr><tr><td>Teeth number</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td></tr><tr><td>Max gear hole "A"</td><td>1.5</td><td>3.0</td><td colspan="3">4.0</td></tr><tr><td>Max motor shaft</td><td>1.5</td><td>3.0</td><td colspan="3">4.0</td></tr><tr><td>Motor dimension "D"</td><td colspan="5">10.0</td></tr></table>	INPUT GEARBOX DATA						Modulus	0.4					Press angle	20°					Teeth number	9	12	15	18	21	Max gear hole "A"	1.5	3.0	4.0			Max motor shaft	1.5	3.0	4.0			Motor dimension "D"	10.0					<table><tr><th colspan="5">MOTOR DIMENSION</th></tr><tr><td colspan="5"></td></tr></table>	MOTOR DIMENSION									
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Motor dimension "D"	10.0																																																						
MOTOR DIMENSION																																																							
																																																							
Recommend Motor: Coreless Motor: AM-CL2532MAN AM-CL2545MAN AM-CL2831MAN AM-CL2845MAN Brushless Motor AM-BL2845AN AM-BL2453AN	Recommend Encoder: Suitable for Coreless Motor Encoder S: AM-EN1611S*** Suitable for Brushless Motor Encoder S: AM-EN1611S*** Encoder T: AM-EN2412T***	<table><tr><th colspan="5">GEARBOX MOTOR LENGTH "LT"</th></tr><tr><td>Gear motor length L_T</td><td>69.6</td><td>90.2</td><td>81.2</td><td>109.5</td></tr><tr><td>Gearbox length L_1</td><td>26.9</td><td>33.2</td><td>39.5</td><td>45.8</td></tr><tr><td>Motor length L_2</td><td>32</td><td>45</td><td>31</td><td>53</td></tr><tr><td>Encoder length L_3</td><td>10.7</td><td>12</td><td>10.7</td><td>10.7</td></tr></table>			GEARBOX MOTOR LENGTH "LT"					Gear motor length L_T	69.6	90.2	81.2	109.5	Gearbox length L_1	26.9	33.2	39.5	45.8	Motor length L_2	32	45	31	53	Encoder length L_3	10.7	12	10.7	10.7																										
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Motor length L_2	32	45	31	53																																																			
Encoder length L_3	10.7	12	10.7	10.7																																																			

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AM-32P Series

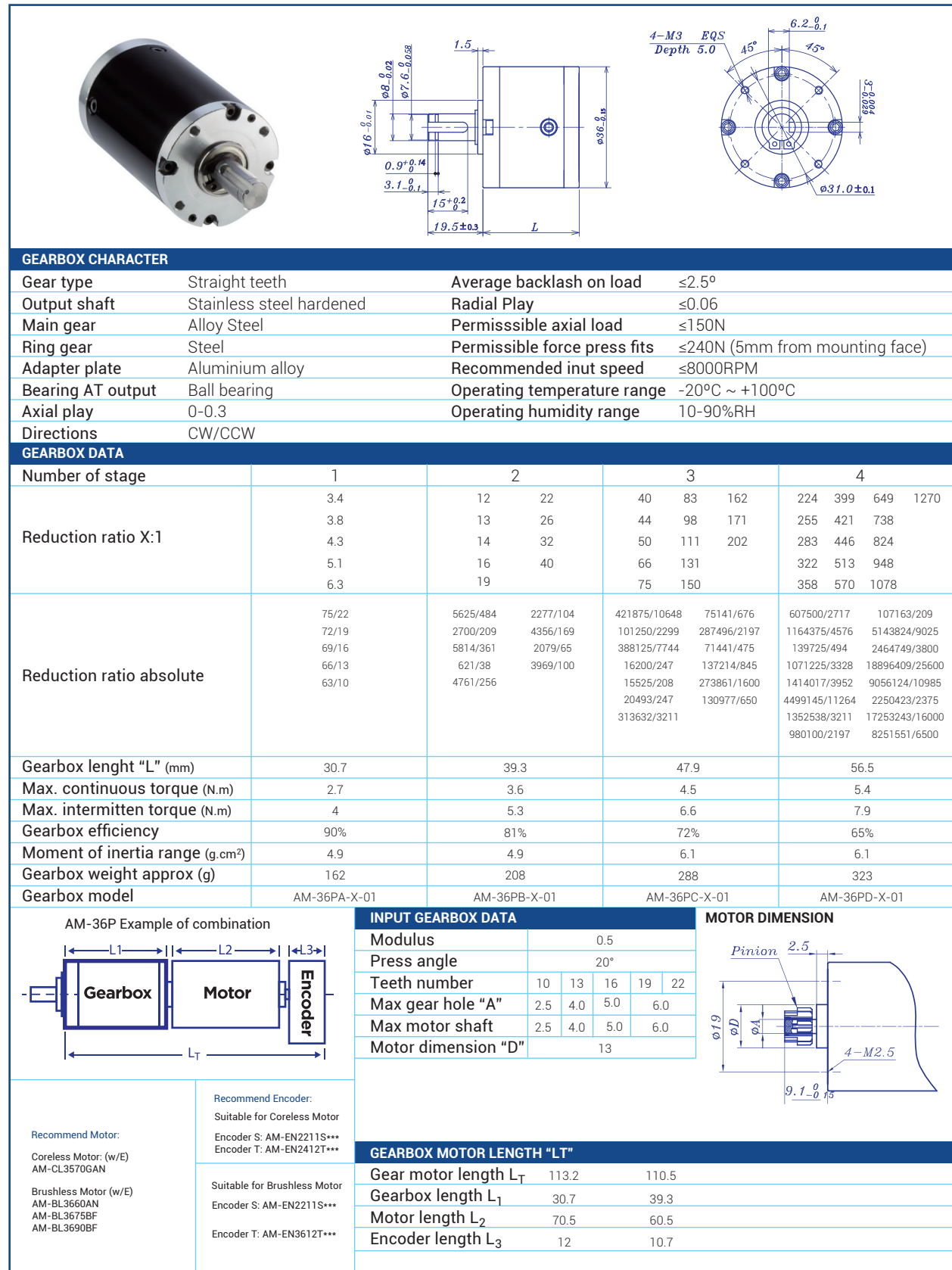


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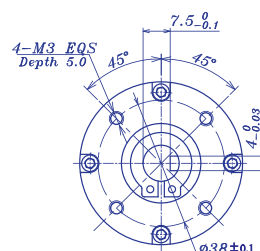
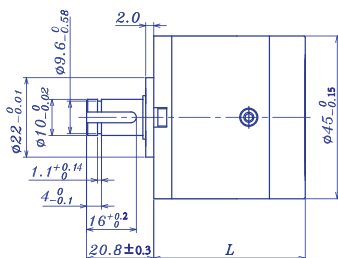
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AM-36P Series



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PLANETARY GEARBOX



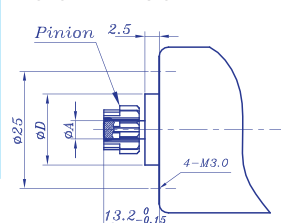
Gear type	Straight teeth	Average backlash on load	≤1.5°
Output shaft	Stainless steel hardened	Radial Play	≤0.06
Main gear	Alloy Steel	Permisssible axial load	≤150N
Ring gear	Steel	Permissible force press fits	≤280N (5mm from mounting face)
Adapter plate	Aluminium alloy	Recommended inut speed	≤8000RPM
Bearing AT output	Ball bearing	Operating temperature range	-20°C ~ +100°C
Axial play	0-0.3	Operating humidity range	10-90%RH
Directions	CW/CCW		

GEARBOX DATA												
Number of stage	1			2			3			4		
Reduction ratio X:1	3.4		12	22	40	83	162	224	399	649	1270	
	3.8		13	26	44	98	171	255	421	738		
	4.3		14	32	50	111	202	283	446	824		
	5.1		16	40	66	131		322	513	948		
	6.3		19		75	150		358	570	1078		
Reduction ratio absolute	75/22	5625/484	2277/104	421875/10648	75141/676	607500/2717	107163/209					
	2700/209	4356/169		101250/2299	287496/2197	1164375/4576	5143824/9025					
	69/16	5814/361	2079/65	388125/7744	71441/475	139725/494	2464749/3800					
	66/13	621/38	3969/100	16200/247	137214/845	1071225/3328	18896409/25600					
	63/10	4761/256		15525/208	273861/1600	1414017/3952	9056124/10985					
				20493/247	130977/650	4499145/11264	2250423/2375					
				313632/3211		1352538/3211	17253243/16000					
Gearbox lenght "L" (mm)	38.9	49.7	60.5	71.3								
Max. continuous torque (N.m)	5.4	7.2	9	10.8								
Max. intermitten torque (N.m)	7.9	10.6	13.2	15.9								
Gearbox efficiency	90%	81%	72%	65%								
Moment of inertia range (g.cm²)	12	14	14	15								
Gearbox weight approx (g)	305	418	520	633								
Gearbox model	AM-45PA-X-01	AM-45PB-X-01	AM-45PC-X-01	AM-45PD-X-01								



Modulus	0.6				
Press angle	20°				
Teeth number	10	13	16	19	22
Max gear hole "A"	2.5	5.0	6.0	8.0	
Max motor shaft	2.5	5.0	6.0	8.0	
Motor dimension "D"	13.0			16.0	

MOTOR DIMENSION



Suitable for Brushless Motor
Encoder S: AM-EN2211S***
Encoder T: AM-EN3612T***

Gear motor length L_T	119.6	121.7	172.5
Gearbox length L_1	38.9	49.7	60.5
Motor length L_2	70	60	100
Encoder length L_3	10.7	12	12

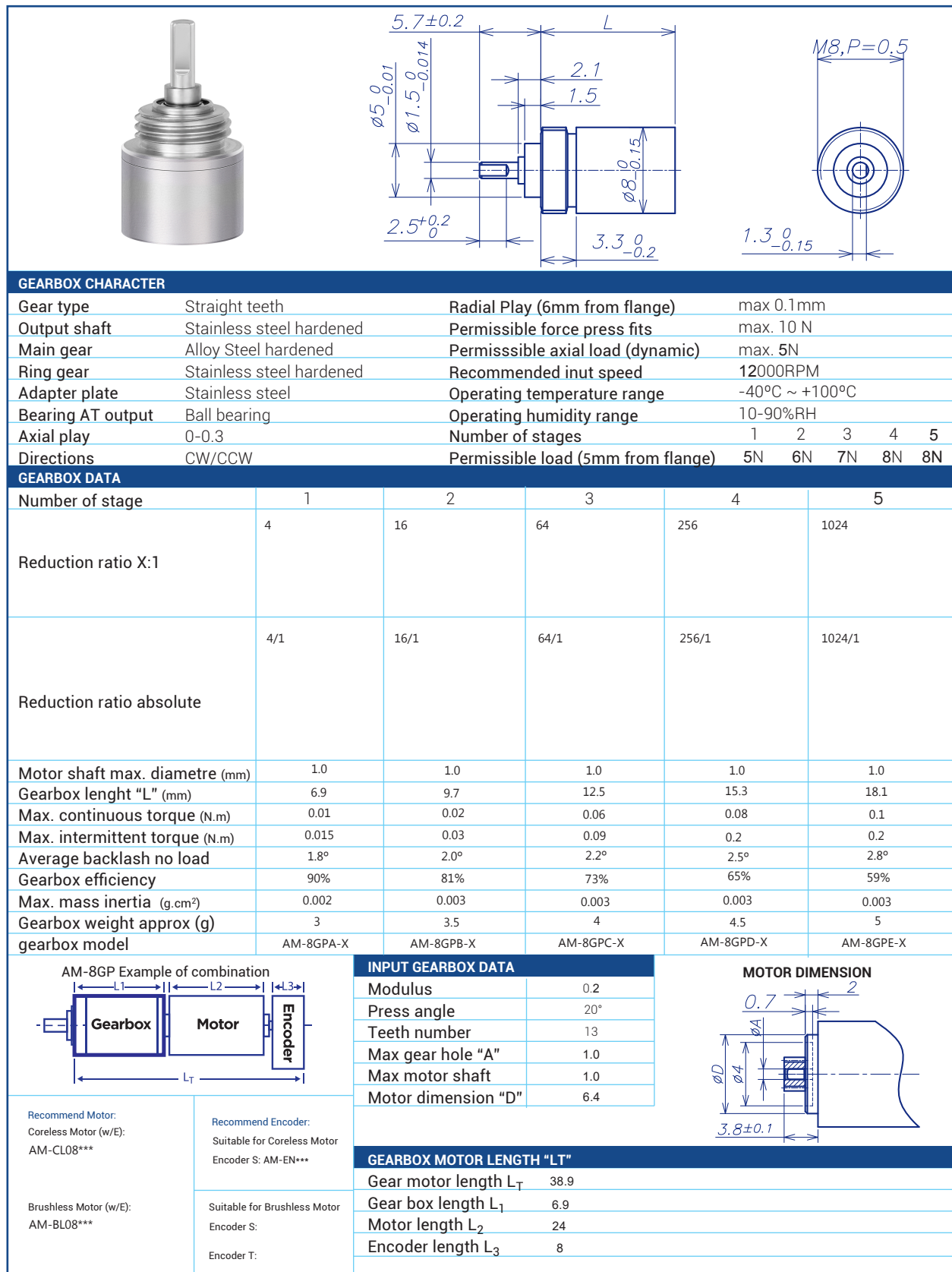
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PLANETARY GEARBOX
PRECISION SERIES

Assun Planetary Gearbox of precision series are manufactured with the latest production technology to achieve very low backlash, higher efficiency, longer lifetime and higher output torque. Diameter from 8mm to 60mm, the precision series planetary gearboxes offer a wide range of high precision choices for DC drive solution.



AM-8GP Series

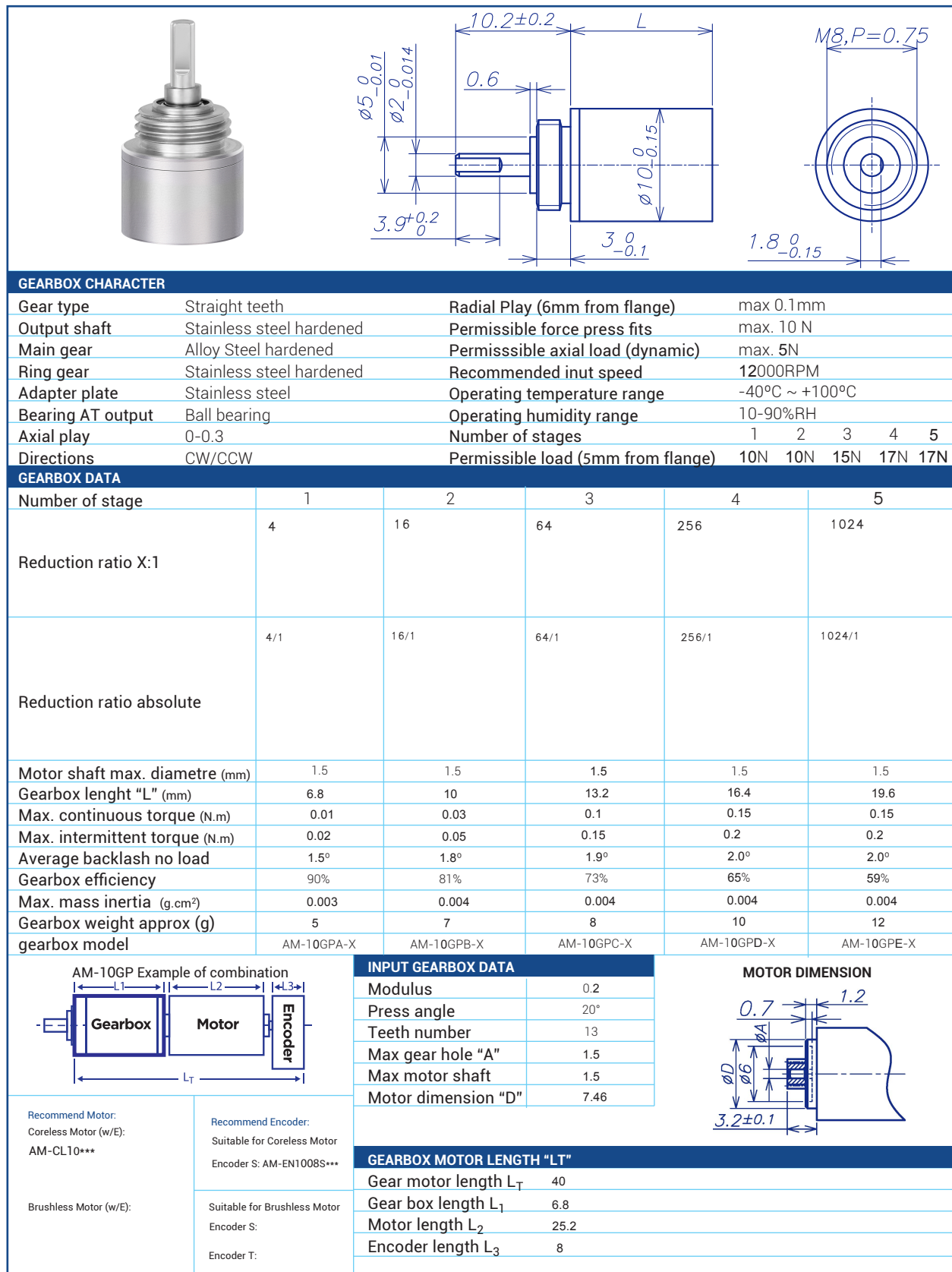


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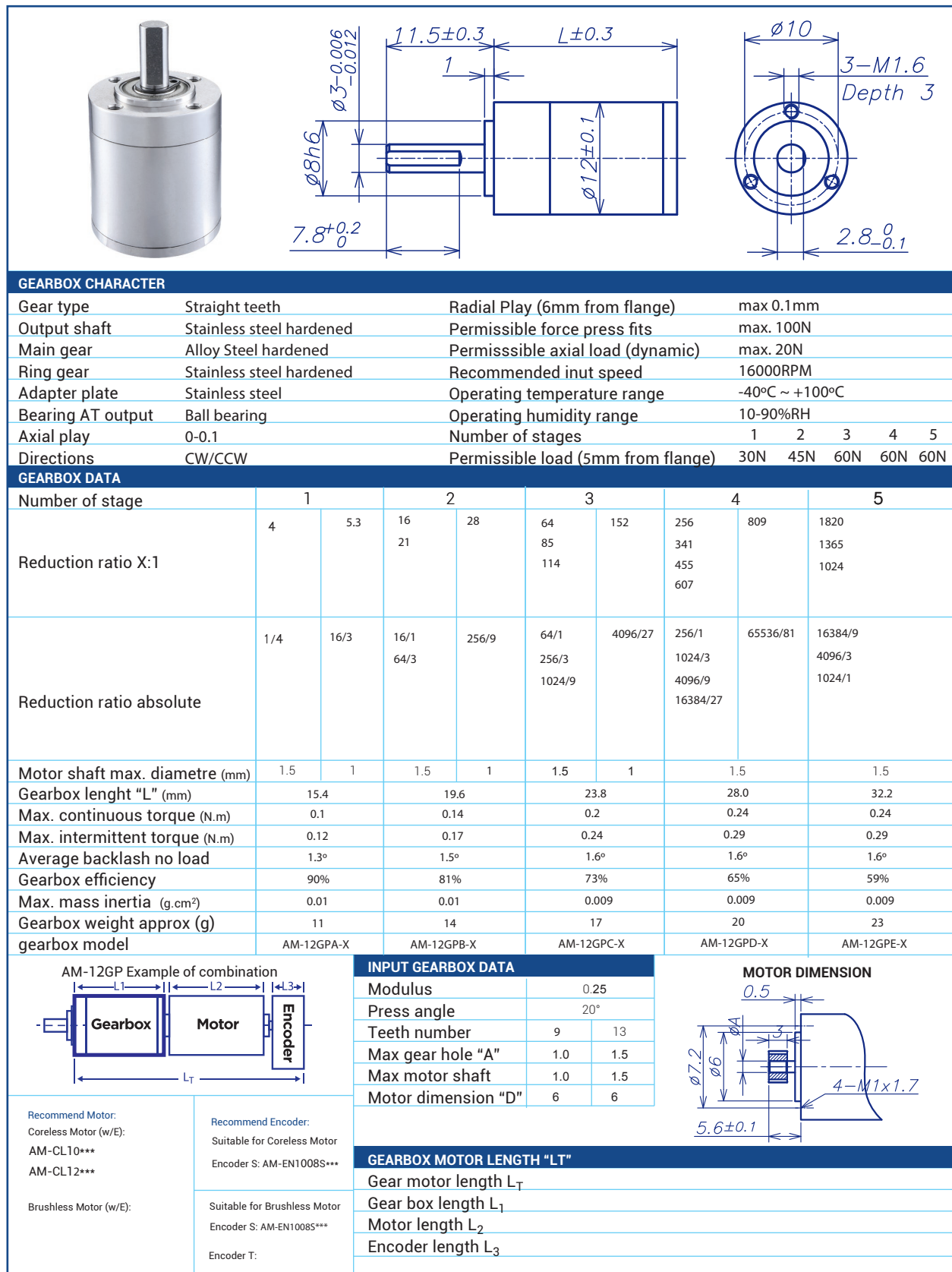
AM-10GP Series



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AM-12GP Series

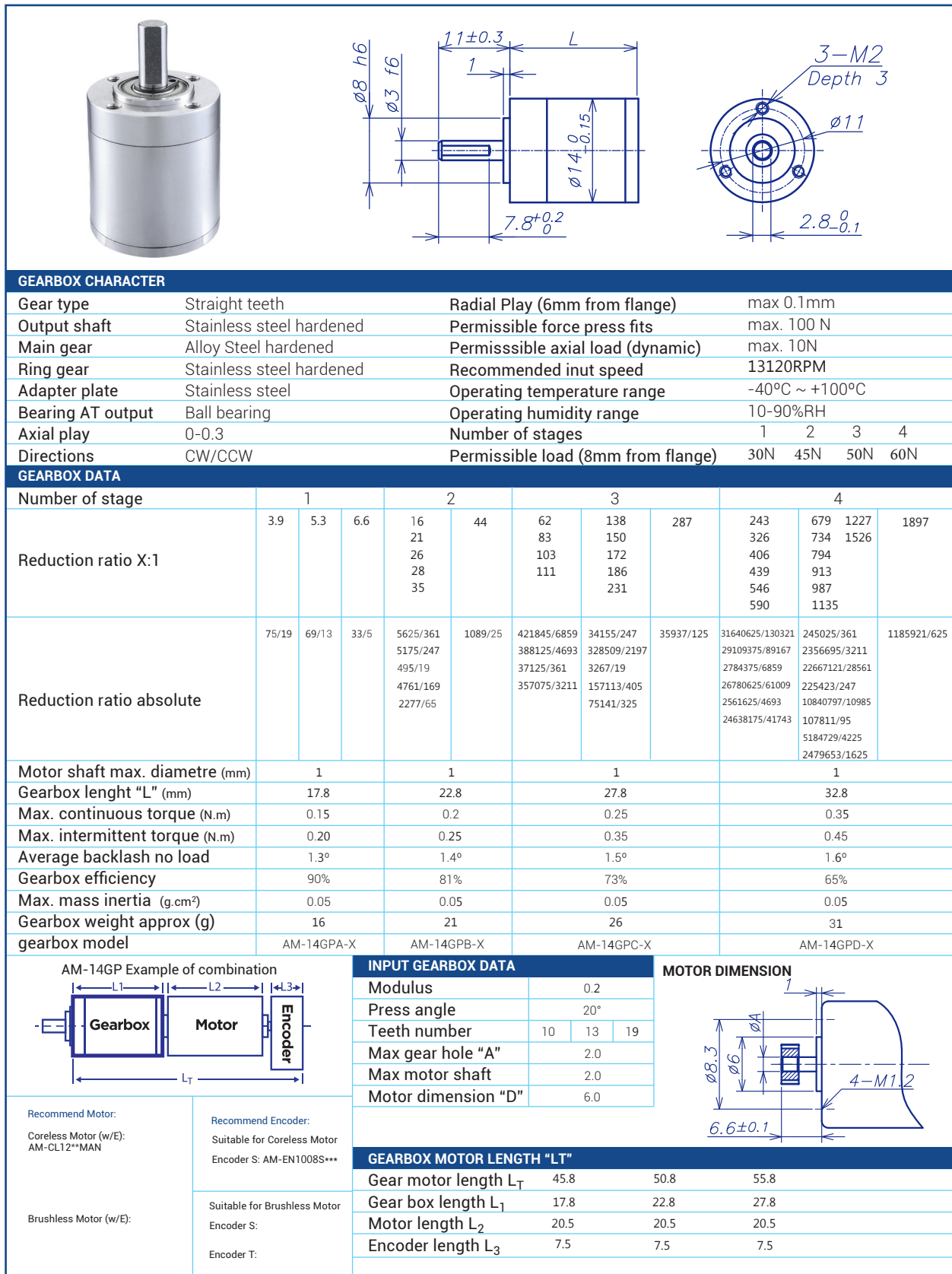


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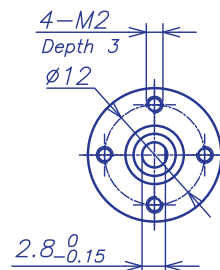
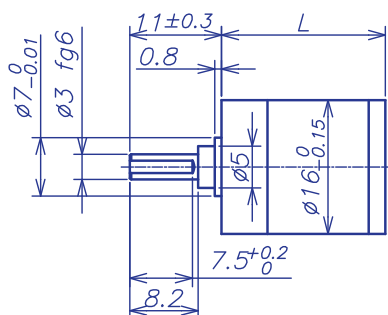
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AM-14GP Series



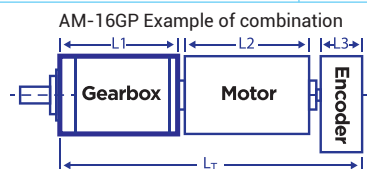
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PLANETARY GEARBOX

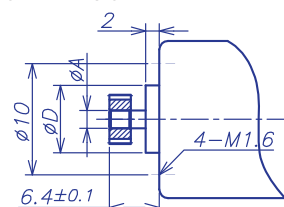


Gear type	Straight teeth	Radial Play (6mm from flange)	max 0.1mm			
Output shaft	Stainless steel hardened	Permissible force press fits	max. 100 N			
Main gear	Alloy Steel hardened	Permissible axial load (dynamic)	max. 10N			
Ring gear	Stainless steel hardened	Recommended input speed	8000RPM			
Adapter plate	Stainless steel	Operating temperature range	-40°C ~ +100°C			
Bearing AT output	Ball bearing	Operating humidity range	10-90%RH			
Axial play	0-0.3	Number of stages	1	2	3	4
Directions	CW/CCW	Permissible load (6mm from flange)	15N	23N	23N	23N

Number of stage	1			2		3			4			
Reduction ratio X:1	3.8	4.4	5.4	14 16 19 20 24	29	53 62 72 76	84 89 104 109 128	157	198 231 270 285 316 333	370 389 410 455 479 561	590 690	850
	15/4	57/13	27/5	225/16 855/52 3249/169 81/4 1539/65	729/25	3375/64 12825/208 48735/676 1215/16	185193/2197 4617/52 87723/845 2187/20 41551/325	19683/125	50625/256 192375/832 731025/2704 18225/64 2777895/8788 69255/208	10556001/28561 263169/676 6561/16 5000211/10985 124659/260 2368521/4225 59049/100 1121931/1625	531441/625	
	Motor shaft max. diametre (mm)		2	1.5	2	1.5	2		1.5	2		1.5
	Gearbox lenght "L" (mm)		15.9		19.6		23.3		27			
	Max. continuous torque (N.m)		0.1		0.2		0.25		0.3			
Max. intermittent torque (N.m)		0.15		0.3		0.375		0.45				
Average backlash no load		1.2°		1.4°		1.5°		1.5°				
Gearbox efficiency		90%		81%		73%		65%				
Max. mass inertia (g.cm²)		0.05		0.06		0.06		0.06				
Gearbox weight approx (g)		20		25		30		35				
gearbox model		AM-16GPA-X		AM-16GPB-X		AM-16GPC-X		AM-16GPD-X				



INPUT GEARBOX DATA			
Modulus	0.3		
Press angle	20°		
Teeth number	10	13	16
Max gear hole "A"	1.5	2.0	
Max motor shaft	1.5	2.0	
Motor dimension "D"	6.0		



Recommend Motor:
Coreless Motor (w/E):
AM-CL1623MAN
AM-CL1626MAN
AM-CL1633MAN
AM-CL1643MAN

Recommend Encoder:
Suitable for Coreless Motor
Encoder S: AM-EN1611S***

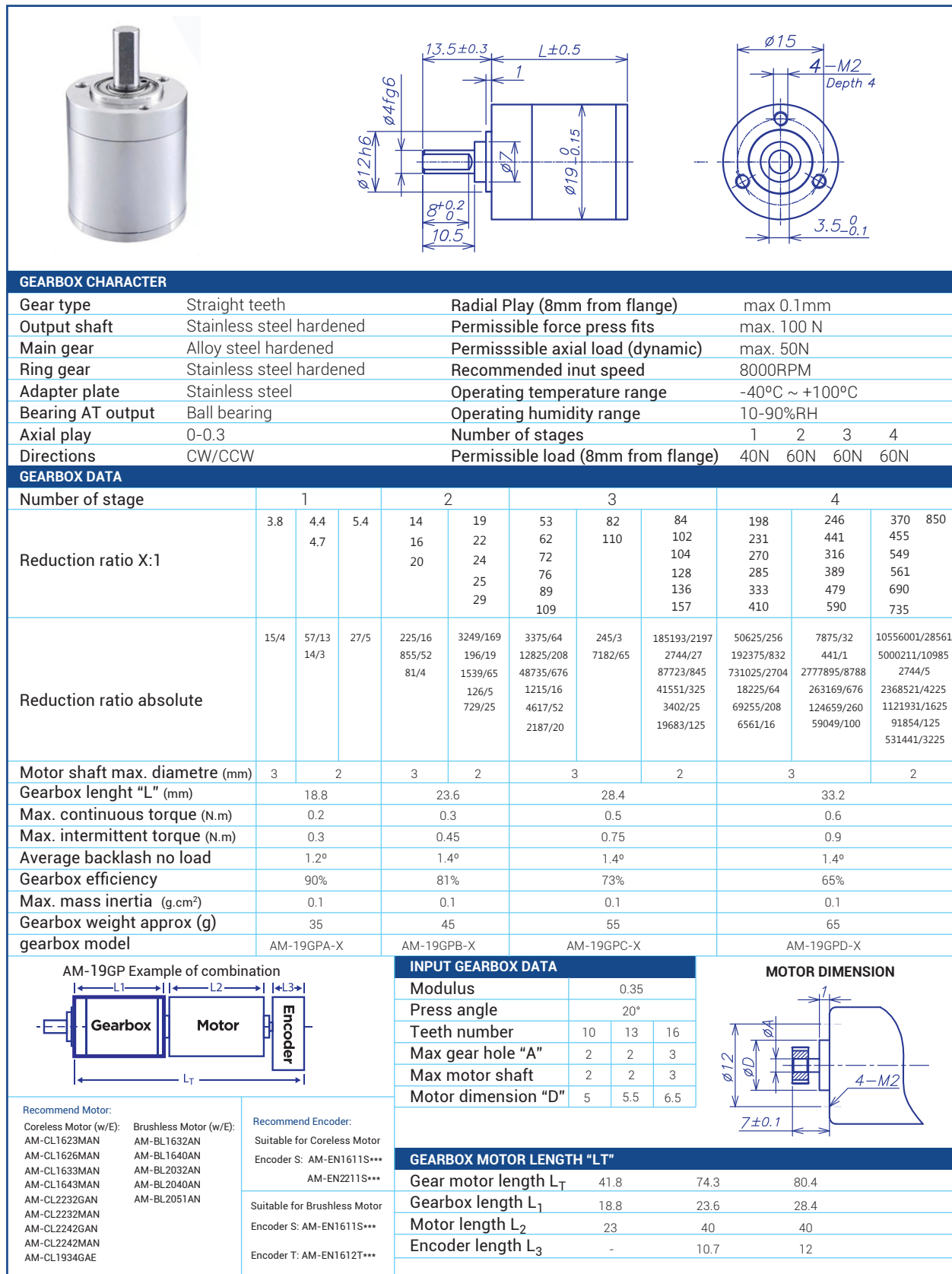
Brushless Motor (w/E):
AM-BL1632AN
AM-BL1640AN

Suitable for Brushless Motor
Encoder S: AM-EN1611S***
Encoder T: AM-EN1612T***

Gear motor length L_T	38.9	67	79
Gear box length L_1	15.9	23.3	27
Motor length L_2	23	33	40
Encoder length L_3	-	10.7	12

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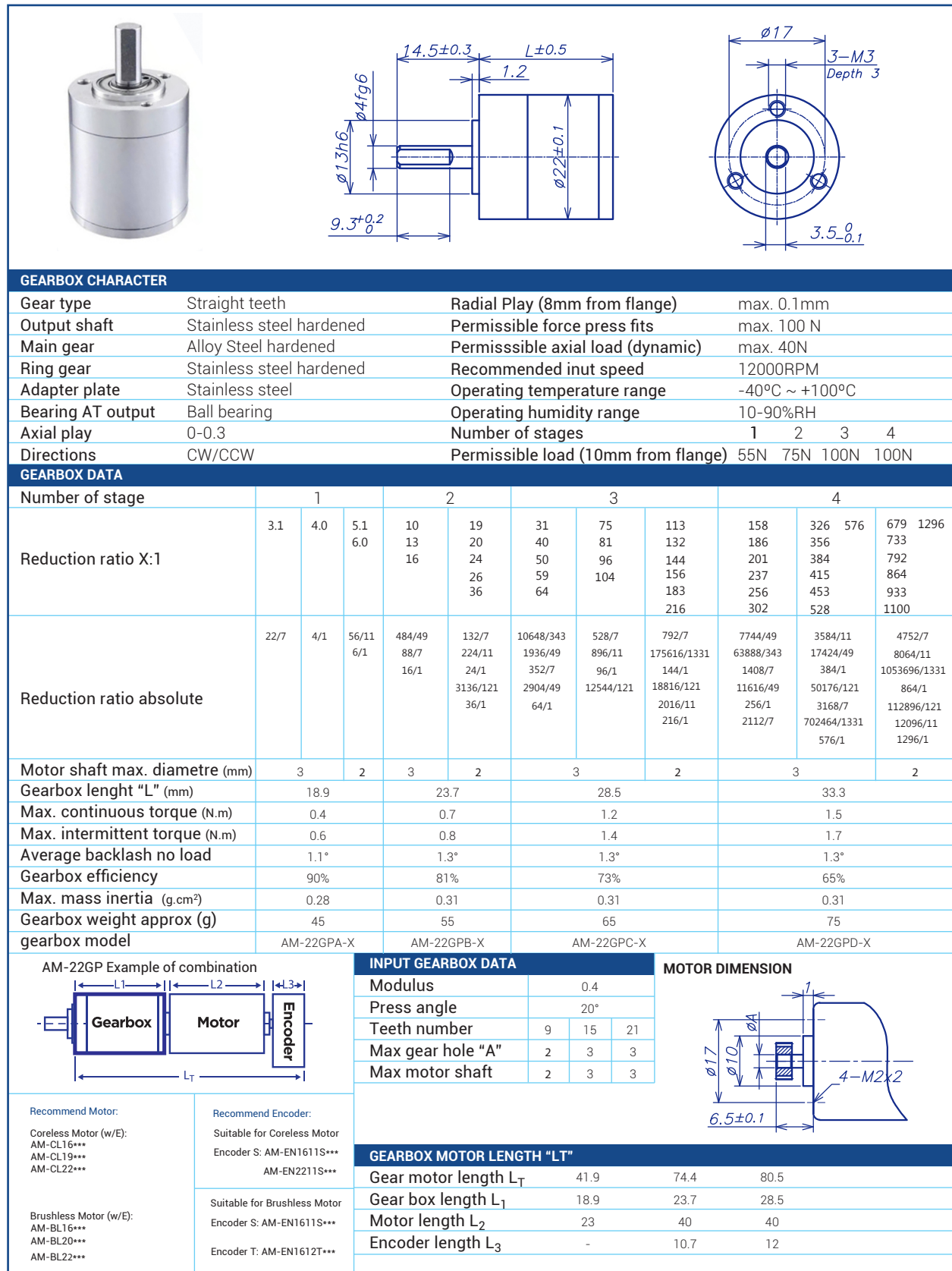
AM-19GP Series



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AM-22GP Series

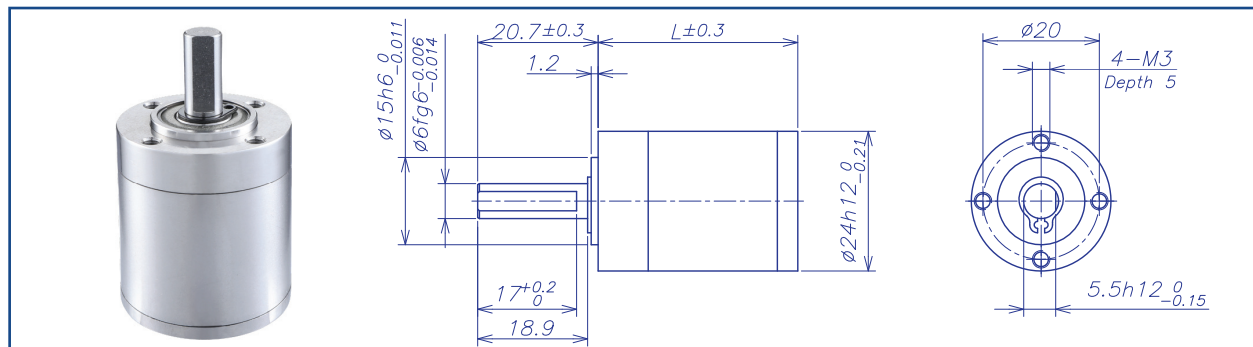


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AM-24GP Series

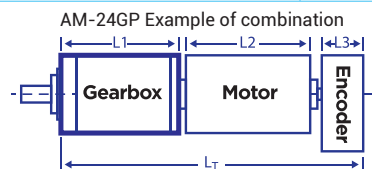


GEARBOX CHARACTER

Gear type	Straight teeth	Radial Play (10mm from flange)	max 0.1mm
Output shaft	Stainless steel hardened	Permissible force press fits	max. 120 N
Main gear	Alloy steel hardened	Permissible axial load (dynamic)	max. 100N
Ring gear	Stainless steel hardened	Recommended input speed	10000RPM
Adapter plate	Stainless steel	Operating temperature range	-40°C ~ +100°C
Bearing AT output	Ball bearing	Operating humidity range	10-90%RH
Axial play	0-0.3	Number of stages	1 2 3 4
Directions	CW/CCW	Permissible load (12mm from flange)	95N 110N 120N 120N

GEARBOX DATA

Number of stage	1			2		3			4		
Reduction ratio X:1	3.7	4.3	6.0	13 16 19 22 26	36	49 58 69 81 95	113 132 156	216	181 214 252 298 353 413	488 572 676	792 936 1296
Reduction ratio absolute	11/3	13/3	6/1	121/9 143/9 169/9 22/1 26/1	36/1	1331/27 1573/27 1859/27 2197/27 286/3	338/3 132/1 156/1 216/1	216/1	14641/81 17303/81 20449/81 24167/81 28561/81 3718/9	4394/9 572/1 676/1	792/1 936/1 1296/1
Motor shaft max. diameter (mm)	4	2		4	2	4	2		4		2
Gearbox length "L" (mm)	24			34.3		42.8			51.3		
Max. continuous torque (N.m)	1			2.25		4.5			4.5		
Max. intermittent torque (N.m)	1.5			3.4		6			6		
Average backlash no load	1.2°			1.4°		1.5°			1.5°		
Gearbox efficiency	90%			81%		73%			65%		
Max. mass inertia (g.cm²)	0.58			0.58		0.58			0.58		
Gearbox weight approx (g)	80			110		140			170		
gearbox model	AM-24GPA-X			AM-24GPB-X		AM-24GPC-X			AM-24GPD-X		



Recommend Motor:

Coreless Motor (w/E)	Brushless Motor (w/E)
AM-CL2232GAN	AM-BL2032AN
AM-CL2232MAN	AM-BL2040AN
AM-CL2242GAN	AM-BL2051AN
AM-CL2242MAN	AM-BL2453AN
AM-CL2532MAN	
AM-CL2545MAN	

Recommend Encoder:

Suitable for Coreless Motor

Encoder S: AM-EN1611S***

Encoder S: AM-EN2211S***

Suitable for Brushless Motor

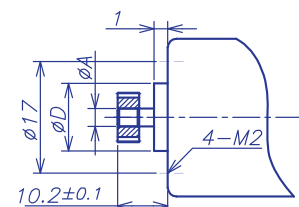
Encoder S: AM-EN1611S***

Encoder T: AM-EN2412T***

INPUT GEARBOX DATA

Modulus	0.5		
Press angle	20°		
Teeth number	8	12	15
Max gear hole "A"	2	4	4
Max motor shaft	2	4	4
Motor dimension "D"	6	8	8.5

MOTOR DIMENSION



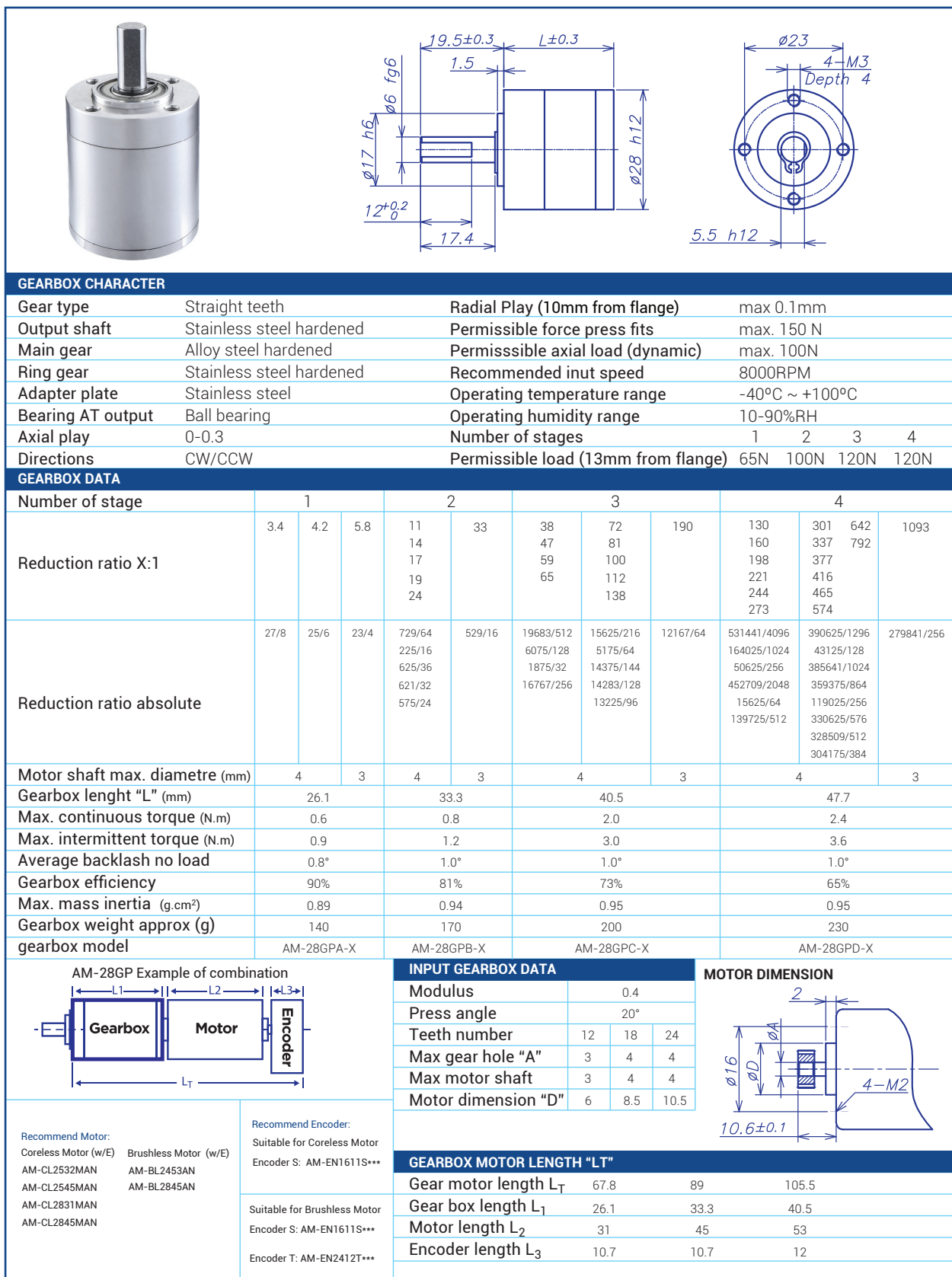
GEARBOX MOTOR LENGTH "LT"

Gear motor length L_T	87	110.5	108.3
Gear box length L_1	34.3	42.8	51.3
Motor length L_2	42	57	45
Encoder length L_3	10.7	10.7	12

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AM-28GP Series

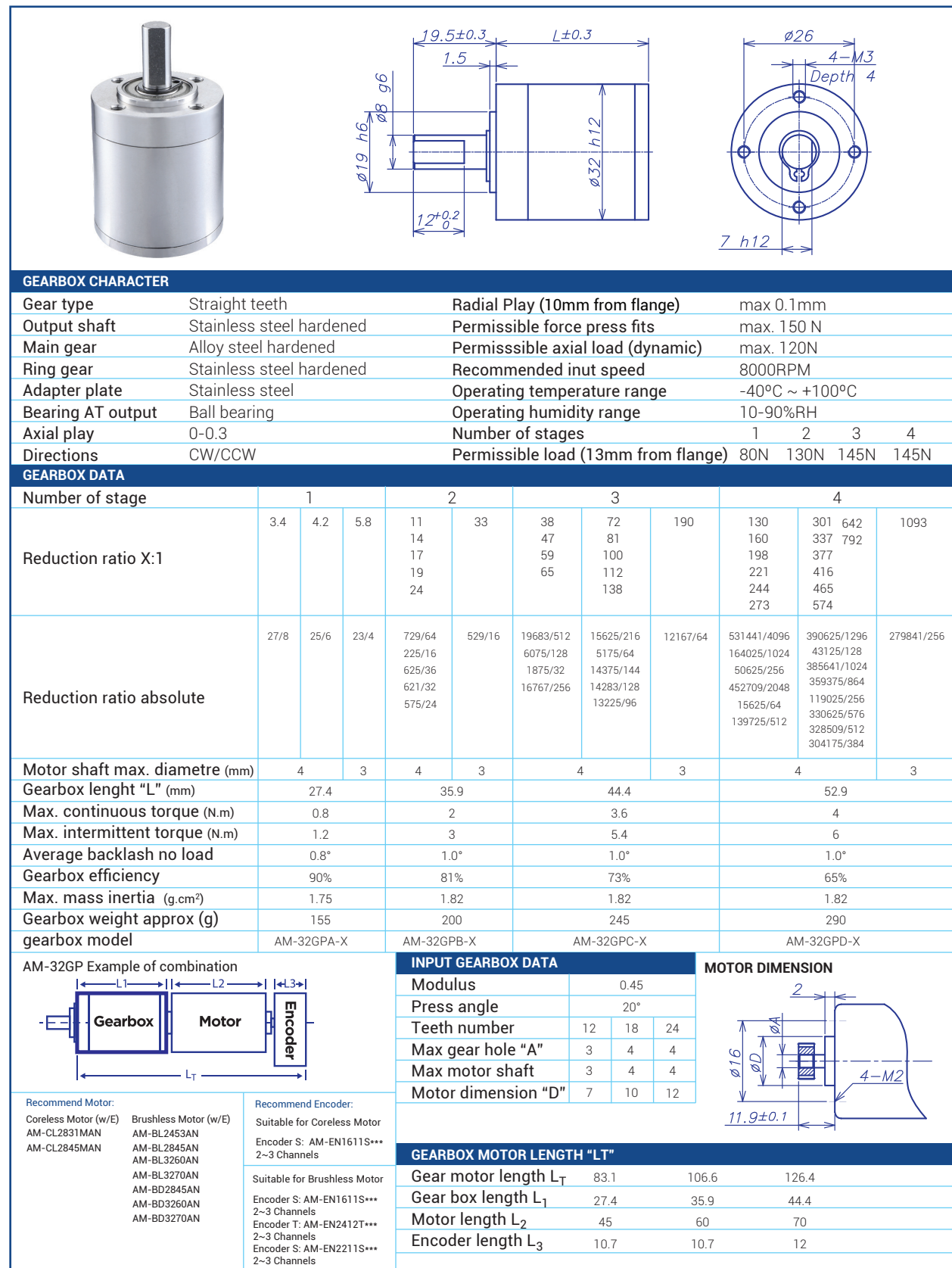


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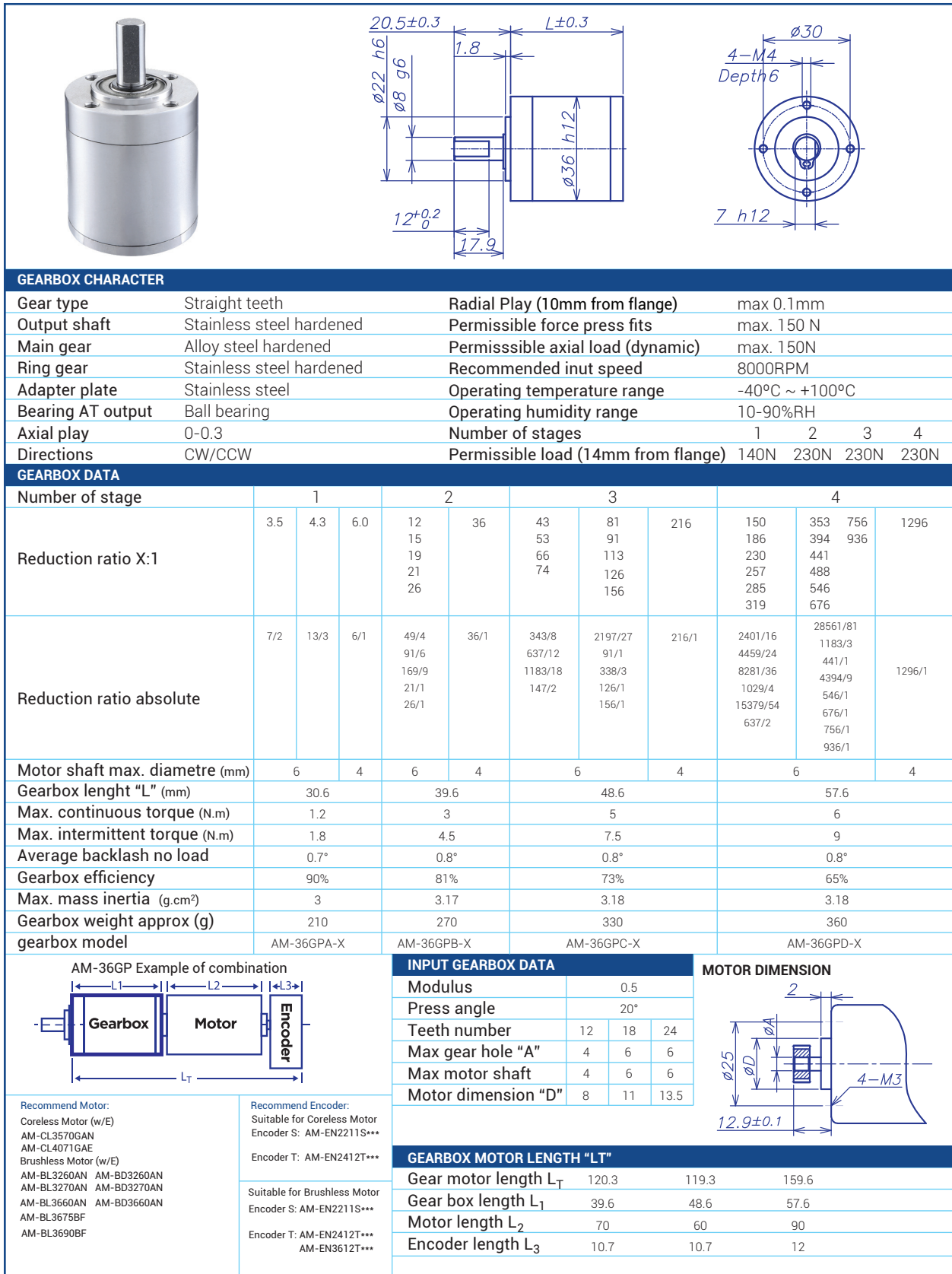
AM-32GP Series



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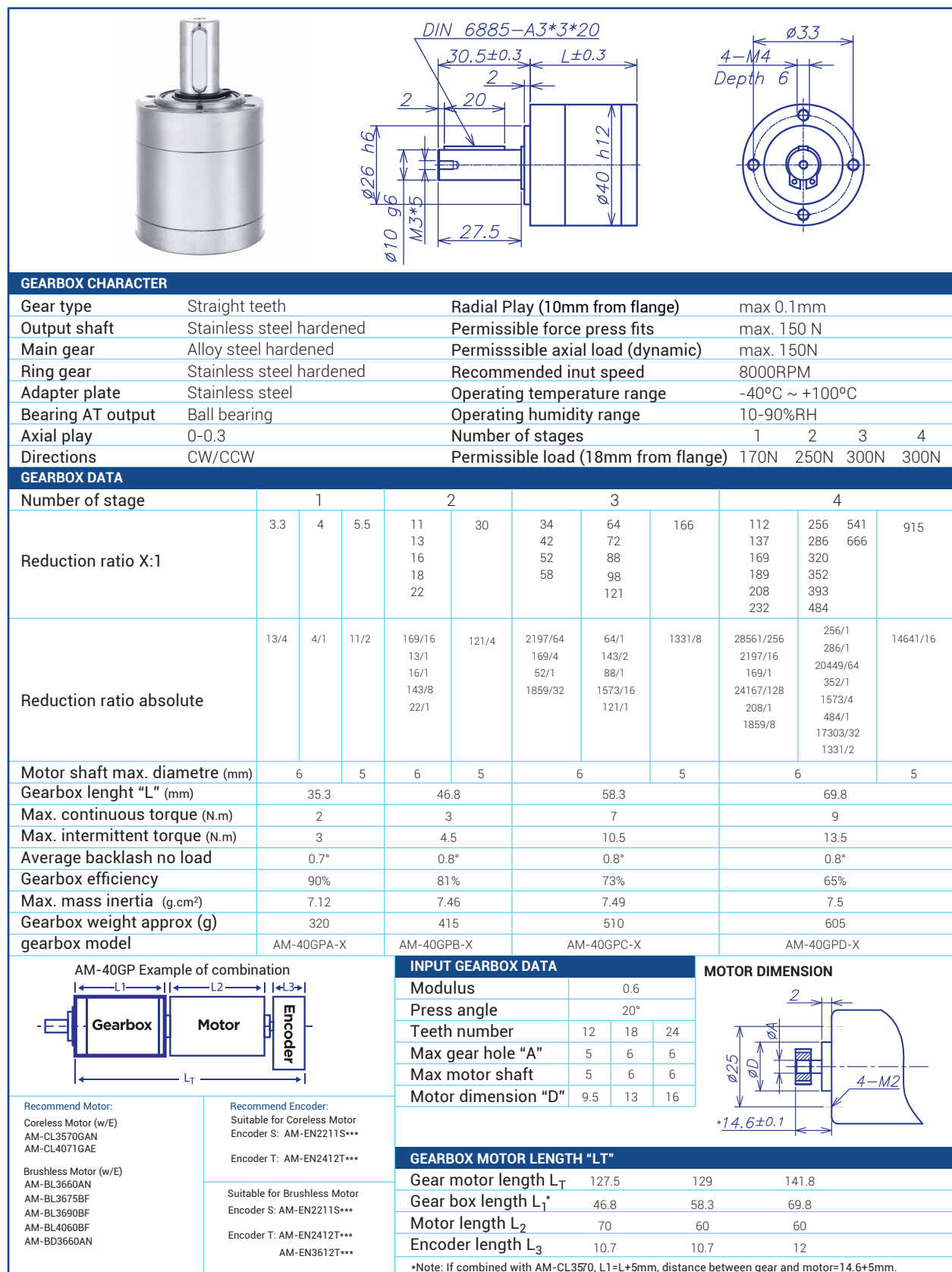
AM-36GP Series



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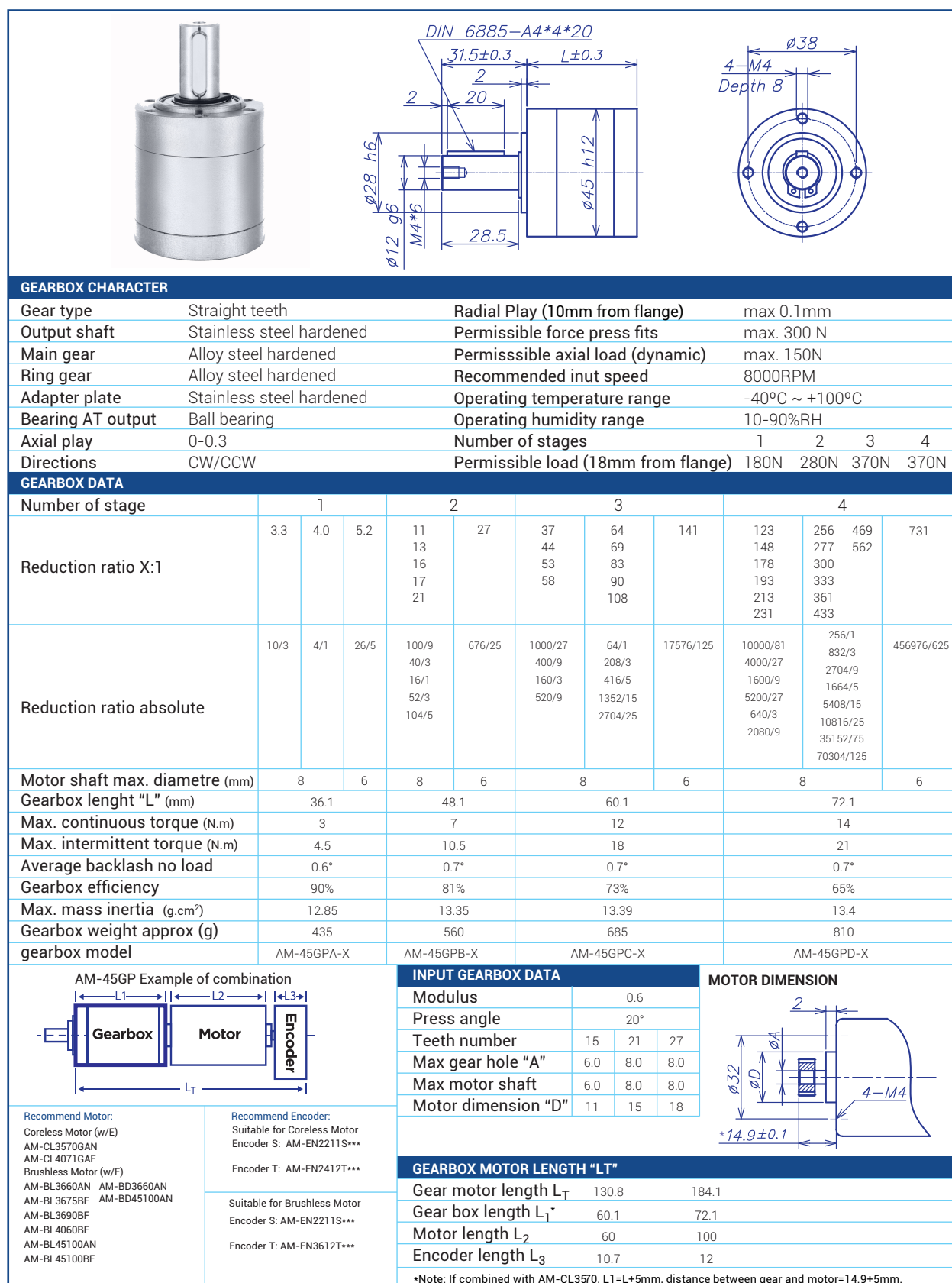
AM-40GP Series



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AM-45GP Series

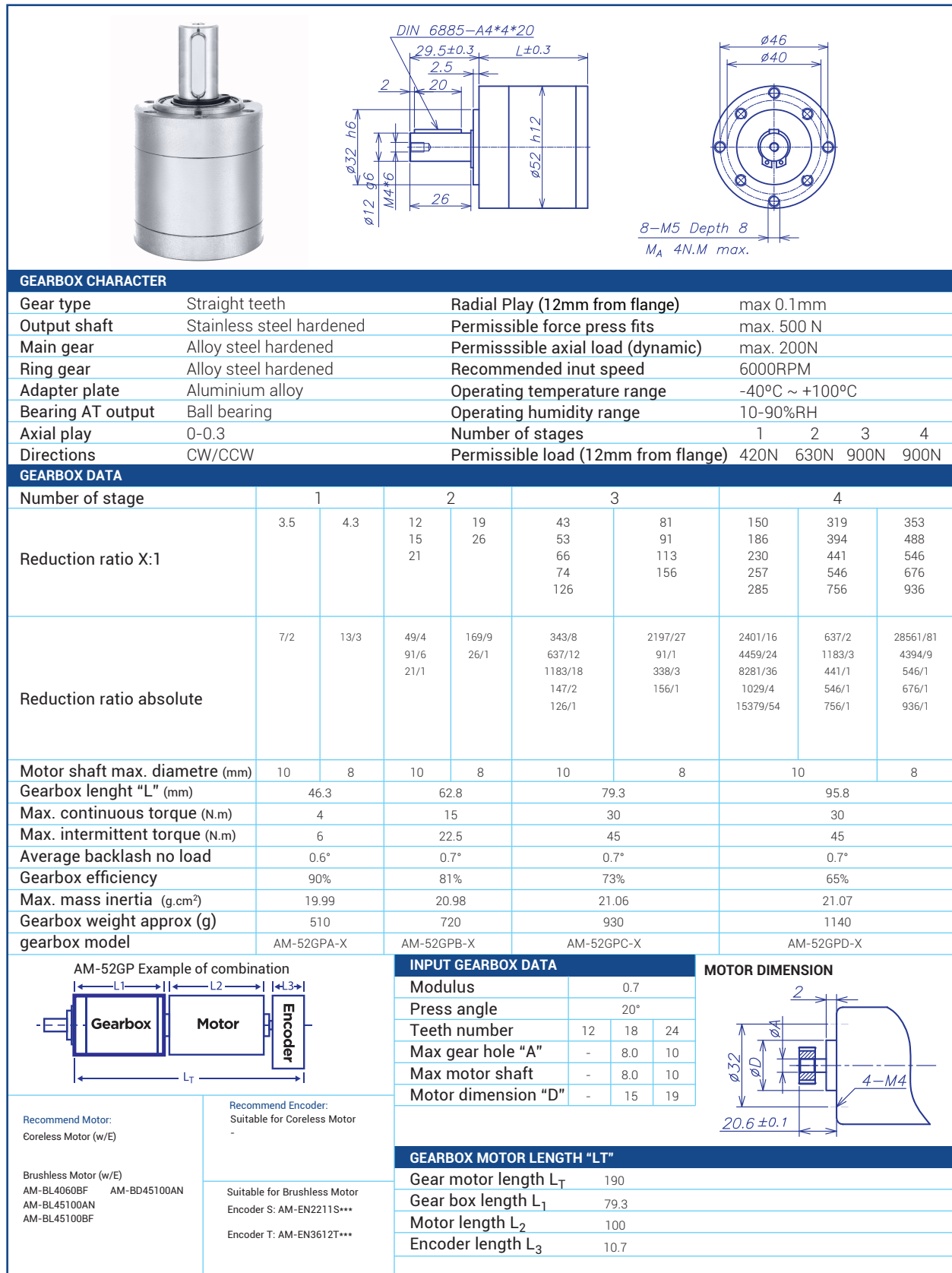


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AM-52GP Series



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PLANETARY GEARBOX_____

Self-locking PRECISION SERIES

While achieving extremely low backlash, higher efficiency, longer service life and higher torque output, Assun Motor self-locking precision planetary gearboxes also feature an automatic self-locking function when the motor stops, preventing load reversal. This not only enhances safety but is particularly critical for applications requiring stable positioning.

With diameters ranging from 8 mm to 60 mm, the self-locking precision gearboxes offer a wide selection range for users of precision DC drive systems.



GEARBOX CHARACTER												
Gear type	Straight teeth				Radial and axial play (6mm from flange)				max 0.1mm/0~0.3mm			
Output shaft	Stainless steel hardened				Permissible force press fits				max. 100 N			
Main gear	Alloy Steel hardened				Permissible axial load (dynamic)				max. 10N			
Ring gear	Stainless steel hardened				Recommended inut speed				8000RPM			
Adapter plate	Stainless steel				Operating temperature range				-40°C ~ +100°C			
Bearing AT output	Ball bearing				Operating humidity range				10~90%RH			
Directions	CW/CCW				Number of stages				1 2 3 4			
Holding torque	1N.m				Permissible load (6mm from flange)				15N 23N 23N 23N			

GEARBOX DATA													
Number of stage	1			2			3			4			
Reduction ratio X:1	3.8	4.4	5.4	14 16 19 20 24	29	53 62 72 76	84 89 104 109 128	157	198 231 270 285 316 333	370 389 410 455 479 561	590 690	850	
Reduction ratio absolute	15/4	57/13	27/5	225/16 855/52 3249/169 81/4 1539/65	729/25	3375/64 12825/208 48735/676 1215/16	185193/2197 4617/52 87723/845 2187/20 41551/325	19683/125	50625/256 192375/832 731025/2704 18225/64 2777895/8788 69255/208	10556001/28561 263169/676 6561/16 5000211/10985 124659/260 2368521/4225 59049/100 1121931/1625	531441/625		
Motor shaft max. diameter (mm)	2		1.5	2		1.5	2		1.5	2		1.5	
Gearbox lenght "L" (mm)	17.8			21.5			25.2			28.9			
Max. continuous torque (N.m)	0.1			0.2			0.25			0.3			
Max. intermittent torque (N.m)	0.15			0.3			0.375			0.45			
Average backlash no load	1.2°			1.4°			1.5°			1.5°			
Gearbox efficiency	90%			81%			73%			65%			
Max. mass inertia (g.cm²)	0.05			0.06			0.06			0.06			
Gearbox weight approx (g)	22.6			27.6			32.6			37.6			
gearbox model	AM-16SLGPA-X			AM-16SLGPB-X			AM-16SLGPC-X			AM-16SLGPD-X			

AM-16SLGP Example of combination

Recommend Motor:
Coreless Motor (w/E):
AM-CL1623MAN
AM-CL1626MAN
AM-CL1633MAN
AM-CL1643MAN

Recommend Encoder:
Suitable for Coreless Motor
Encoder S: AM-EN1611S***

Suitable for Brushless Motor
Encoder S: AM-EN1611S***
Encoder T: AM-EN1612T***

INPUT GEARBOX DATA			
Modulus	0.3		
Press angle	20°		
Teeth number	10	13	16
Max gear hole "A"	1.5	2.0	
Max motor shaft	1.5	2.0	
Motor dimension "D"	6.0		

MOTOR DIMENSION			
2	2		
10	10		
6.4±0.1	6.4±0.1		
4-M1.6	4-M1.6		

GEARBOX MOTOR LENGTH "LT"			
Gear motor length LT	40.8	68.9	80.9
Gear box length L1	17.8	25.2	28.9
Motor length L2	23	33	40
Encoder length L3	-	10.7	12

PLANETARY GEARBOX

HIGH PERFORMANCE SERIES

Assun Planetary Gearbox of high performance series are manufactured with the latest production technology to achieve very low backlash, higher output torque, longer lifetime. Diameter from 12mm to 52mm, the high performance series planetary gearboxes offer a wide range of high precision choices for DC drive solution.



AM-12HP	AM-16HP	AM-19HP	AM-22HP	AM-26HP	AM-28HP
AM-32HP	AM-36HP	AM-40HP	AM-45HP	AM-52HP	

Company Name Abbreviation

AM - 16HPA - 5.4:1

Gearbox Dimension
16 - Diameter (mm)

Gearbox Type
HP - High Performance

Gearbox Stage

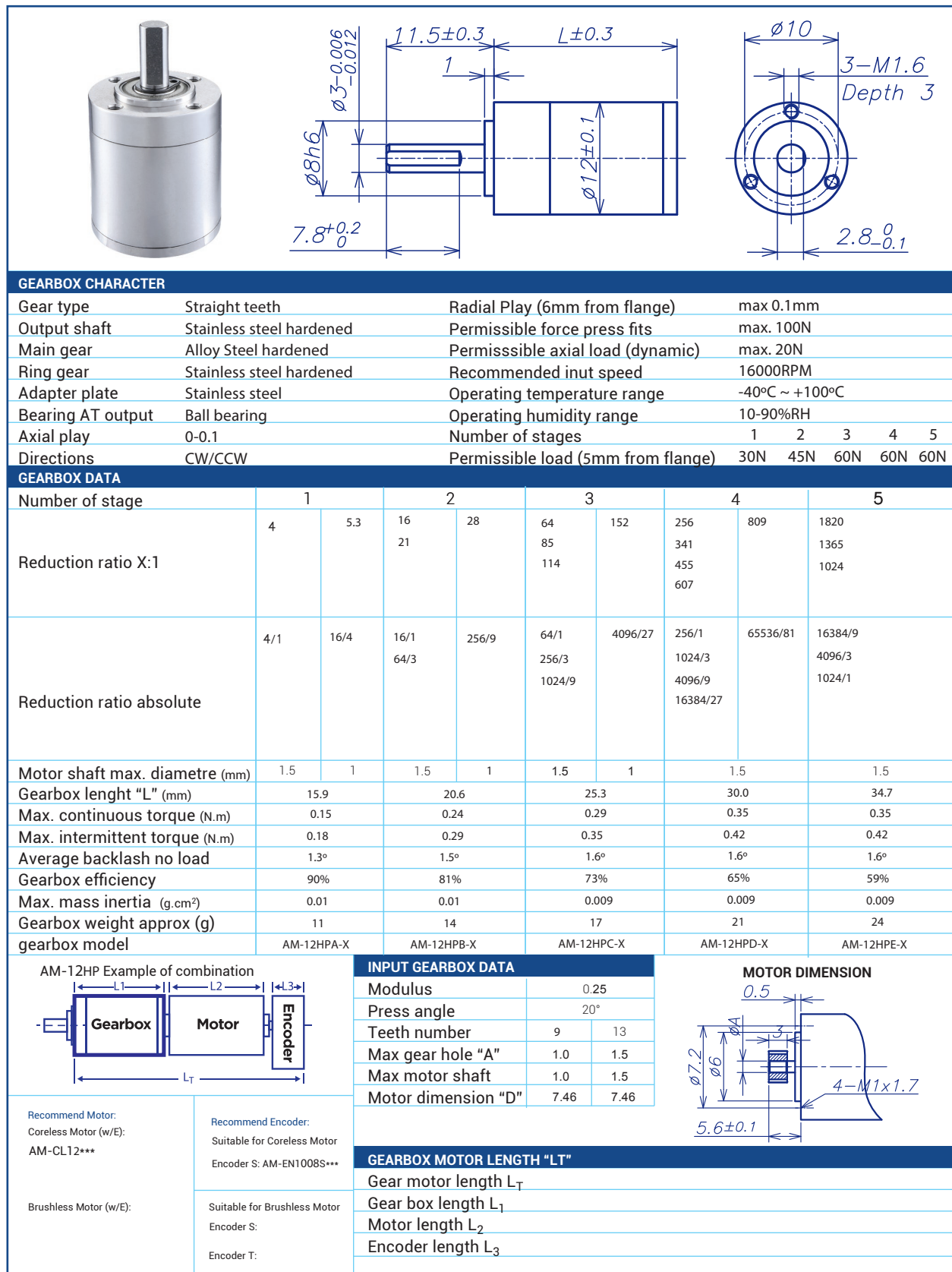
A : One Stage
B : Two Stage
C : Three Stage
D : Four Stage

Gear Ratio

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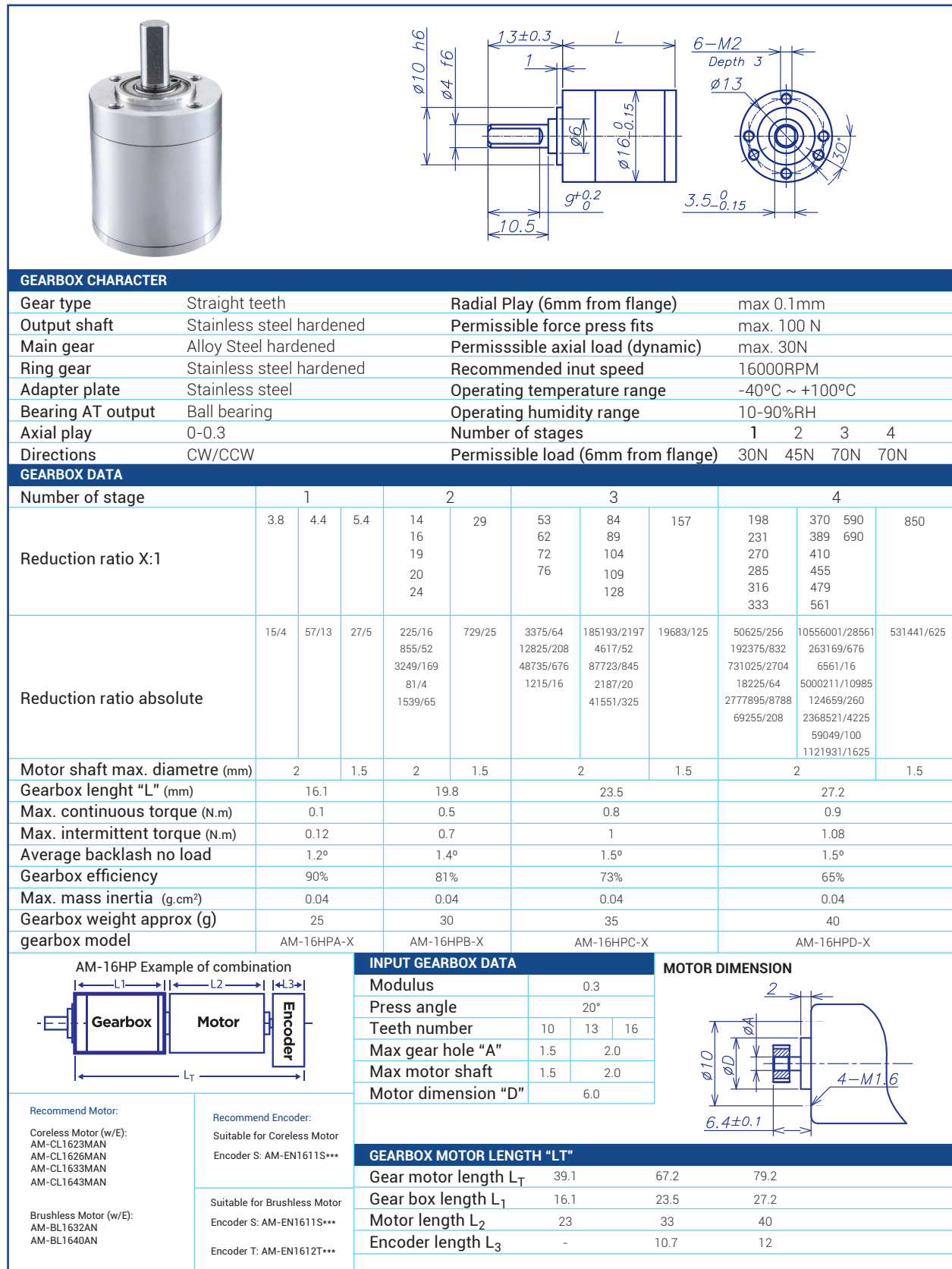
AM-12HP Series



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AM-16HP Series

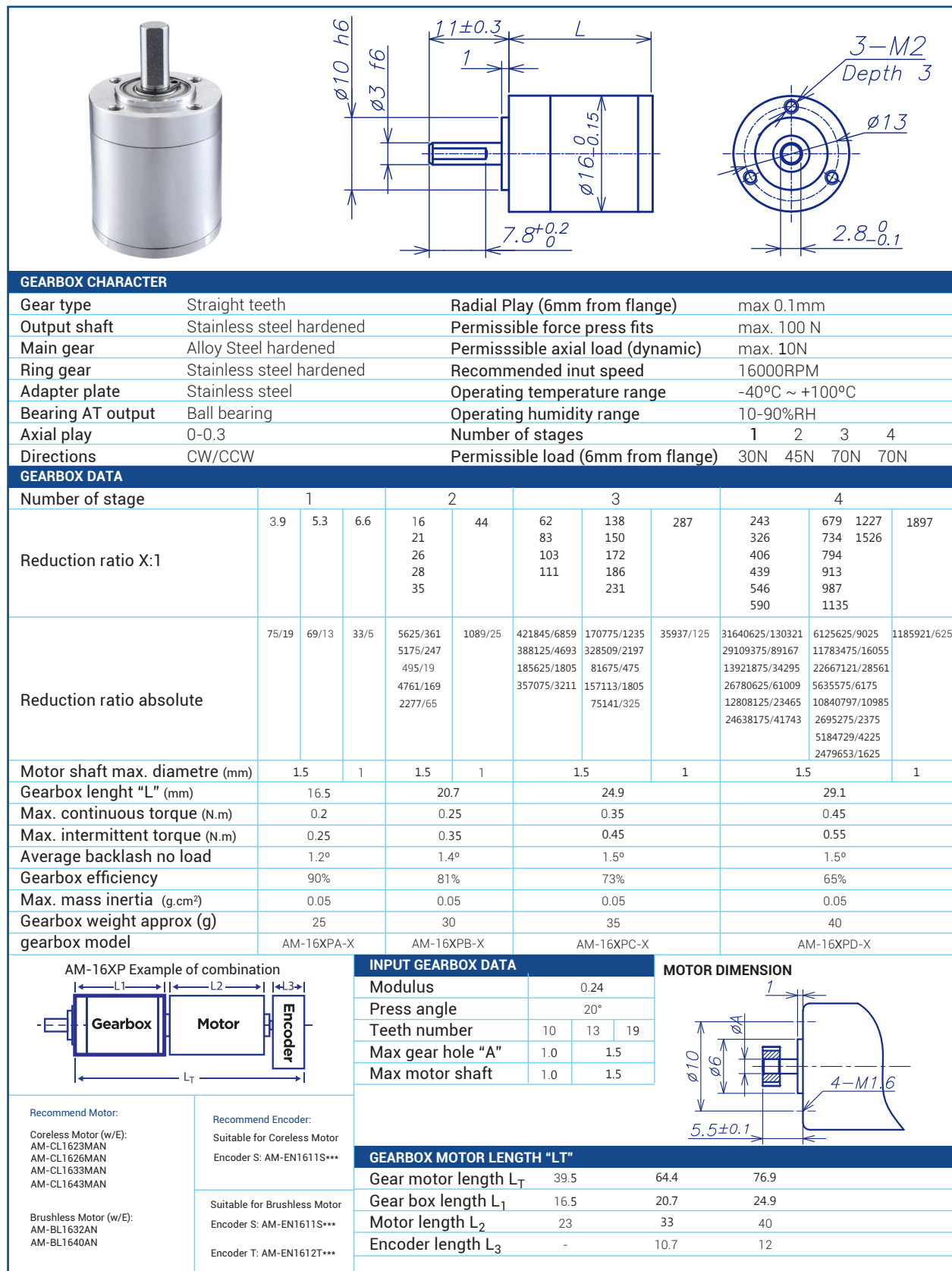


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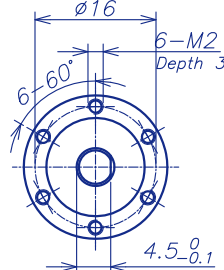
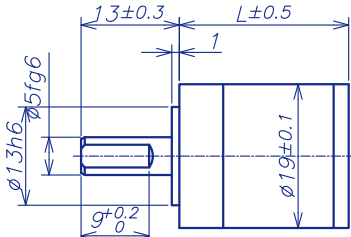
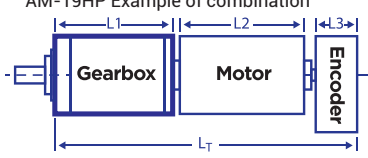
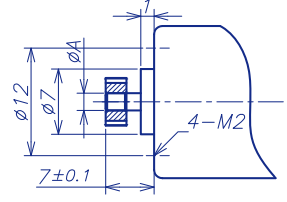
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AM-16XP Series



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AM-19HP Series

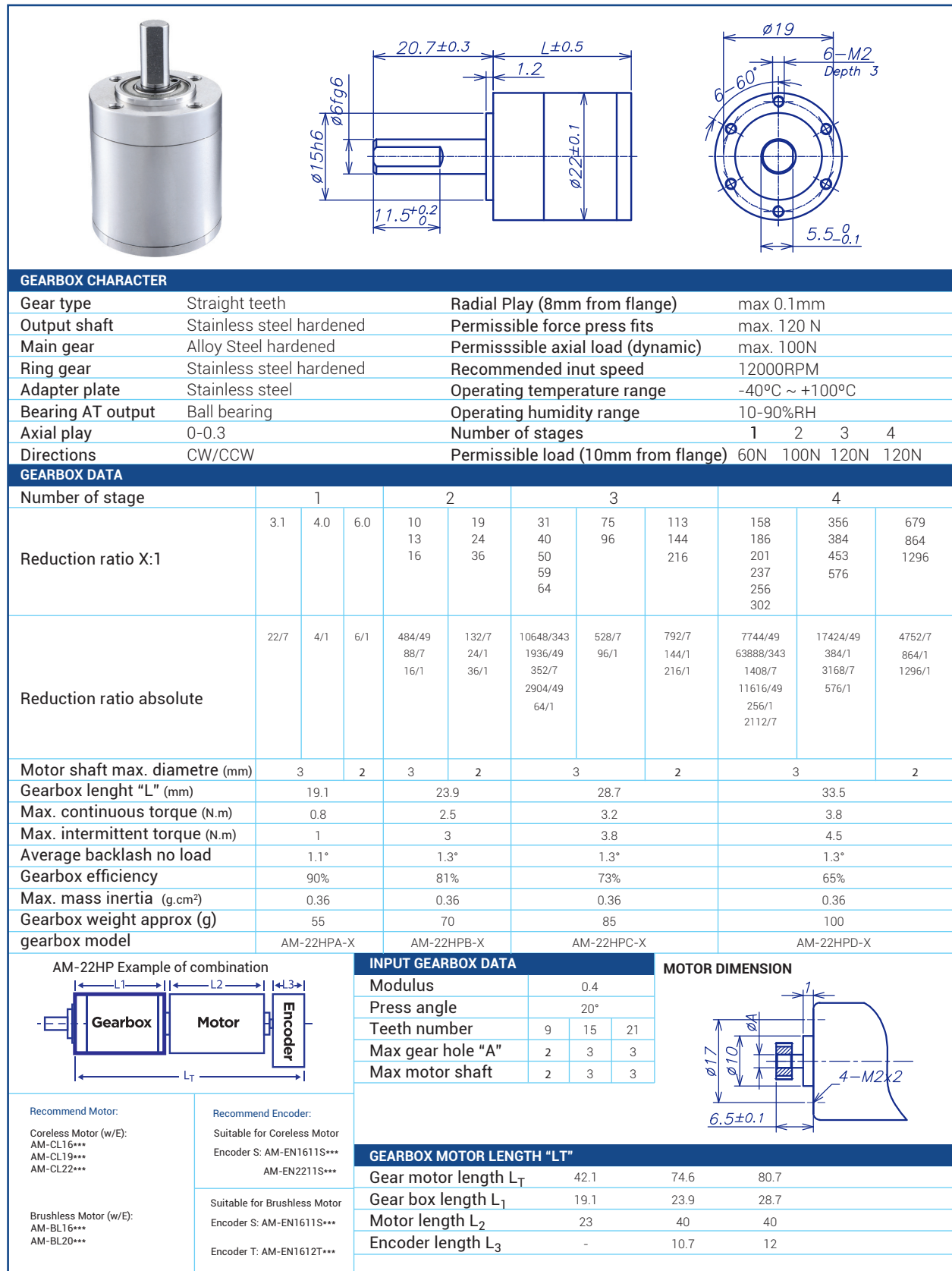
																														
GEARBOX CHARACTER																														
Gear type	Straight teeth			Radial Play (8mm from flange)			max 0.1mm																							
Output shaft	Stainless steel hardened			Permissible force press fits			max. 100 N																							
Main gear	Alloy Steel hardened			Permissible axial load (dynamic)			max. 50N																							
Ring gear	Stainless steel hardened			Recommended input speed			15000RPM																							
Adapter plate	Stainless steel			Operating temperature range			-40°C ~ +100°C																							
Bearing AT output	Ball bearing			Operating humidity range			10-90%RH																							
Axial play	0-0.3			Number of stages			1	2	3	4																				
Directions	CW/CCW			Permissible load (5mm from flange)			60N	100N	120N	120N																				
GEARBOX DATA																														
Number of stage	1			2		3		4																						
Reduction ratio X:1	3.8	4.4	5.4	14	19	53	72	198	316	370																				
				16	24	62	84	231	389	455																				
				20	29	76	89	270	479	561																				
							104	285	590	690																				
Reduction ratio absolute	15/4	57/13	27/5	225/16	3249/169	3375/64	48735/676	50625/256	2777895/8788	10556001/28561																				
				855/52	1539/65	12825/208	185193/2197	192375/832	263169/676	5000211/10985																				
				81/4	729/25	1215/16	4617/52	731025/2704	124659/260	2368521/4225																				
							87723/845	18225/64	59049/100	1121931/1625																				
							2187/20	69255/208																						
							41553/325	6561/16																						
Motor shaft max. diameter (mm)	3	2		3	2	3	2	3	2																					
Gearbox length "L" (mm)	17.6			22.4		27.2		32																						
Max. continuous torque (N.m)	0.2			0.9		1.6		2																						
Max. intermittent torque (N.m)	0.3			1.1		2		2.5																						
Average backlash no load	1.2°			1.4°		1.4°		1.4°																						
Gearbox efficiency	90%			81%		73%		65%																						
Max. mass inertia (g.cm²)	0.11			0.11		0.11		0.11																						
Gearbox weight approx (g)	40			50		60		70																						
gearbox model	AM-19HPA-X			AM-19HPB-X		AM-19HPC-X		AM-19HPD-X																						
AM-19HP Example of combination 				INPUT GEARBOX DATA <table><tr><td>Modulus</td><td colspan="3">0.35</td></tr><tr><td>Press angle</td><td colspan="3">20°</td></tr><tr><td>Teeth number</td><td>10</td><td>13</td><td>16</td></tr><tr><td>Max gear hole "A"</td><td>2</td><td>2</td><td>3</td></tr><tr><td>Max motor shaft</td><td>2</td><td>2</td><td>3</td></tr></table>				Modulus	0.35			Press angle	20°			Teeth number	10	13	16	Max gear hole "A"	2	2	3	Max motor shaft	2	2	3	MOTOR DIMENSION 		
Modulus	0.35																													
Press angle	20°																													
Teeth number	10	13	16																											
Max gear hole "A"	2	2	3																											
Max motor shaft	2	2	3																											
Recommend Motor: Coreless Motor (w/E): AM-CL16*** AM-CL19*** AM-CL22***				Recommend Encoder: Suitable for Coreless Motor Encoder S: AM-EN1611S*** AM-EN2211S***				GEARBOX MOTOR LENGTH "LT" <table><tr><td>Gear motor length LT</td><td>40.6</td><td>73.1</td><td>79.2</td></tr><tr><td>Gear box length L1</td><td>17.6</td><td>22.4</td><td>27.2</td></tr><tr><td>Motor length L2</td><td>23</td><td>40</td><td>40</td></tr><tr><td>Encoder length L3</td><td>-</td><td>10.7</td><td>12</td></tr></table>			Gear motor length LT	40.6	73.1	79.2	Gear box length L1	17.6	22.4	27.2	Motor length L2	23	40	40	Encoder length L3	-	10.7	12				
Gear motor length LT	40.6	73.1	79.2																											
Gear box length L1	17.6	22.4	27.2																											
Motor length L2	23	40	40																											
Encoder length L3	-	10.7	12																											
Brushless Motor (w/E): AM-BL16*** AM-BL20***				Suitable for Brushless Motor Encoder S: AM-EN1611S*** Encoder T: AM-EN1612T***																										

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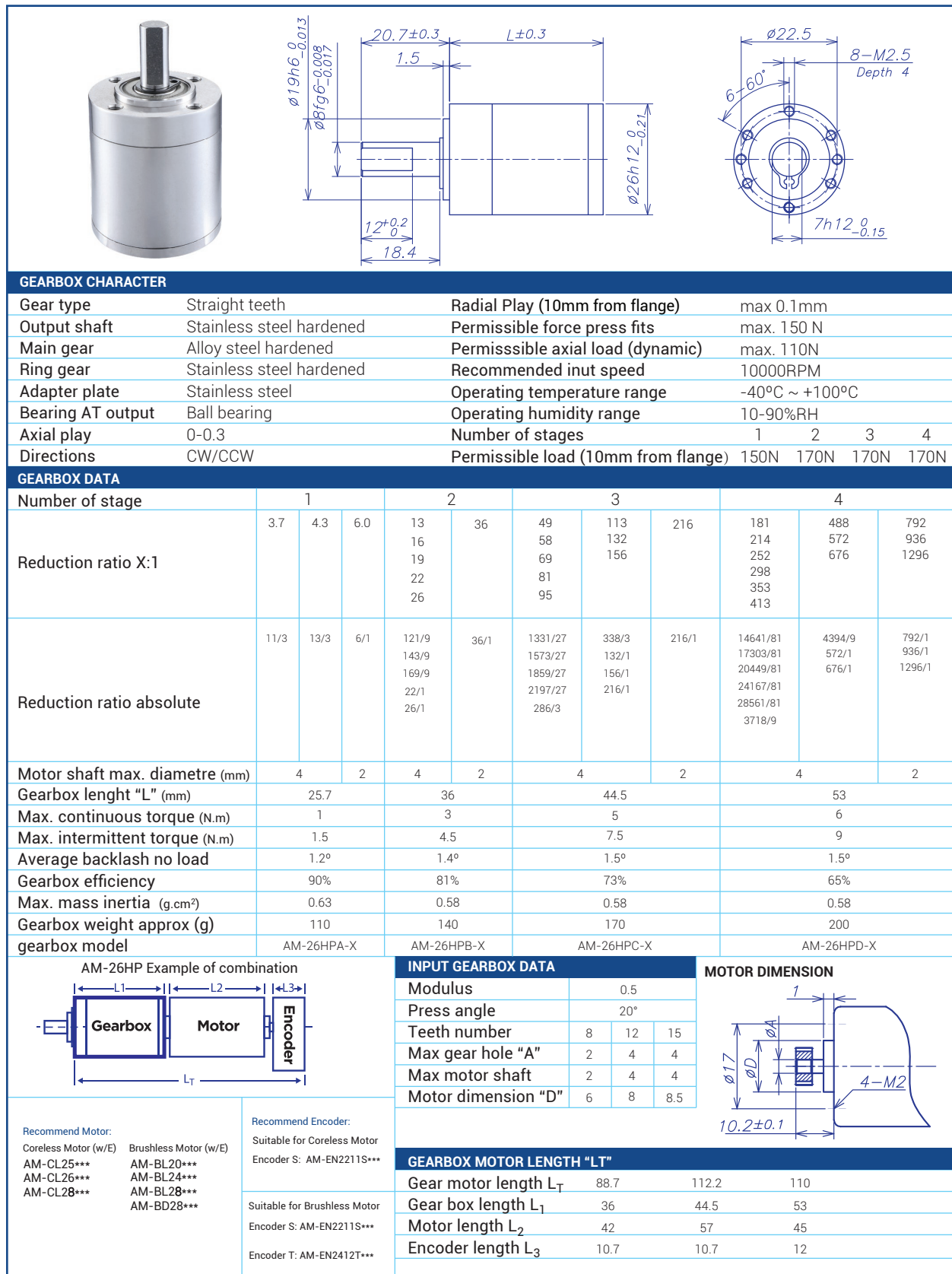
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AM-22HP Series



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AM-26 HP Series

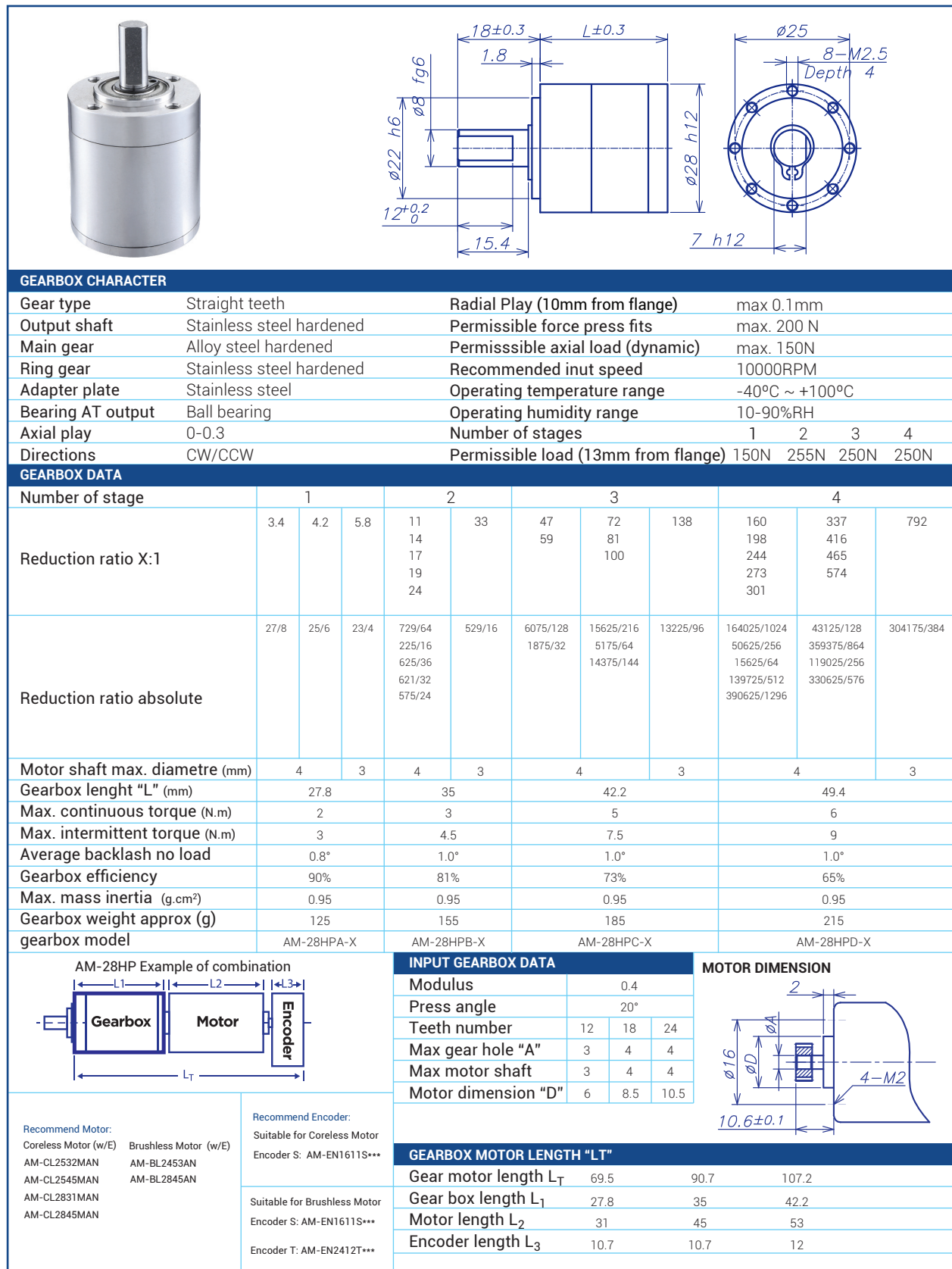


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AM-28HP Series



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AM-32HP Series

GEARBOX CHARACTER

Gear type	Straight teeth	Radial Play (10mm from flange)	max 0.1mm
Output shaft	Stainless steel hardened	Permissible force press fits	max. 150 N
Main gear	Alloy steel hardened	Permissible axial load (dynamic)	max. 120N
Ring gear	Stainless steel hardened	Recommended input speed	10000RPM
Adapter plate	Stainless steel	Operating temperature range	-40°C ~ +100°C
Bearing AT output	Ball bearing	Operating humidity range	10-90%RH
Axial play	0-0.3	Number of stages	1 2 3 4
Directions	CW/CCW	Permissible load (13mm from flange)	110N 175N 205N 205N

GEARBOX DATA

Number of stage	1			2		3			4		
Reduction ratio X:1	3.4	4.2	5.8	11 14 17 19 24	33	47 59	72 81 100	138	160 198 244 273	337 416 465 574	792
Reduction ratio absolute	27/8	25/6	23/4	729/64 225/16 625/36 621/32 575/24	529/16	6075/128 1875/32	15625/216 5175/64 14375/144	12167/64 13225/96	164025/1024 50625/256 15625/64 139725/512	43125/128 359375/864 119025/256 330625/576	304175/384
Motor shaft max. diameter (mm)	4		3	4	3	4		3	4		3
Gearbox length "L" (mm)	27.4			35.9		44.4			52.9		
Max. continuous torque (N.m)	3			5		8.5			9.5		
Max. intermittent torque (N.m)	4.5			7.5		12.5			14		
Average backlash no load	0.8°			1.0°		1.0°			1.0°		
Gearbox efficiency	90%			81%		73%			65%		
Max. mass inertia (g.cm ²)	1.6			1.49		1.48			1.48		
Gearbox weight approx (g)	160			240		260			310		
gearbox model	AM-32HPA-X			AM-32HPB-X		AM-32HPC-X			AM-32HPD-X		

Recommend Motor:

Coreless Motor (w/E)	Brushless Motor (w/E)
AM-CL2831MAN	AM-BL2453AN
AM-CL2845MAN	AM-BL2845AN
	AM-BL3260AN
	AM-BL3270AN
	AM-BD2845AN
	AM-BD3260AN
	AM-BD3270AN

Recommend Encoder:

Suitable for Coreless Motor
Encoder S: AM-EN1611S***
2~3 Channels
Suitable for Brushless Motor
Encoder S: AM-EN1611S***
2~3 Channels
Encoder T: AM-EN2412T***
2~3 Channels
Encoder S: AM-EN2211S***
2~3 Channels

INPUT GEARBOX DATA

Modulus	0.45		
Press angle	20°		
Teeth number	12	18	24
Max gear hole "A"	3	4	4
Max motor shaft	3	4	4
Motor dimension "D"	7	10	12

MOTOR DIMENSION

GEARBOX MOTOR LENGTH "LT"

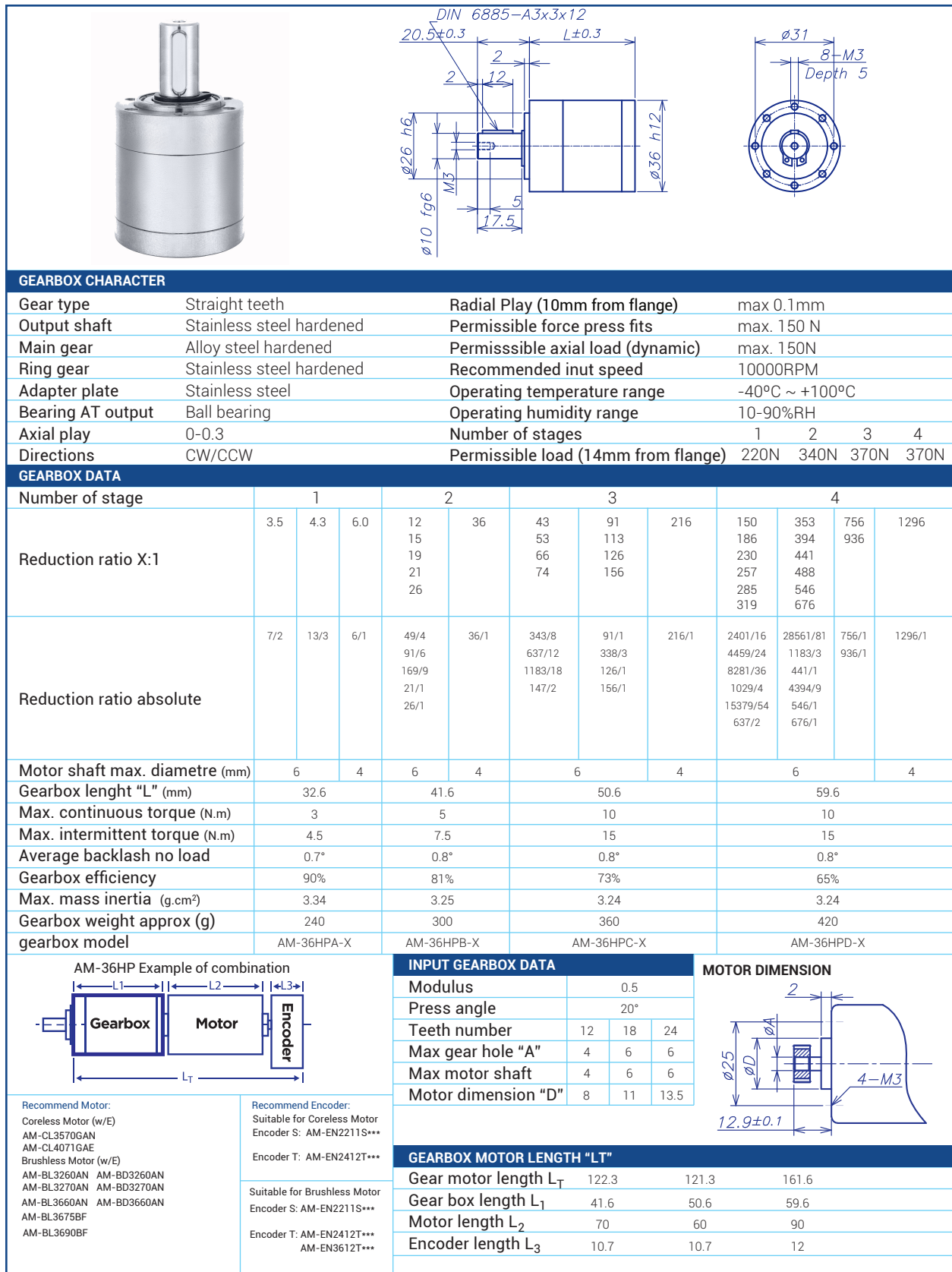
Gear motor length L _T	83.1	106.6	126.4
Gear box length L ₁	27.4	35.9	44.4
Motor length L ₂	45	60	70
Encoder length L ₃	10.7	10.7	12

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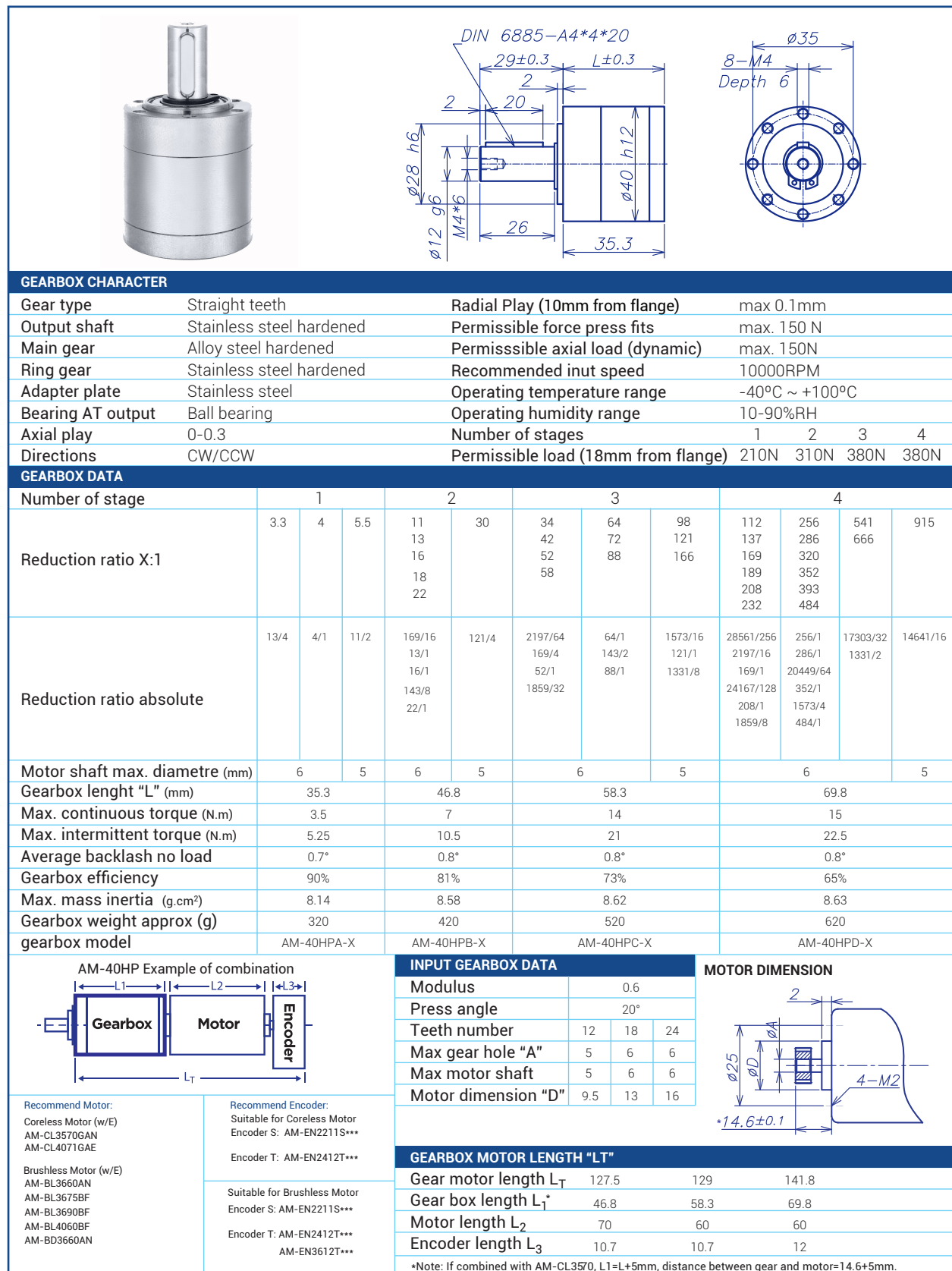
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AM-36HP Series



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AM-40HP Series

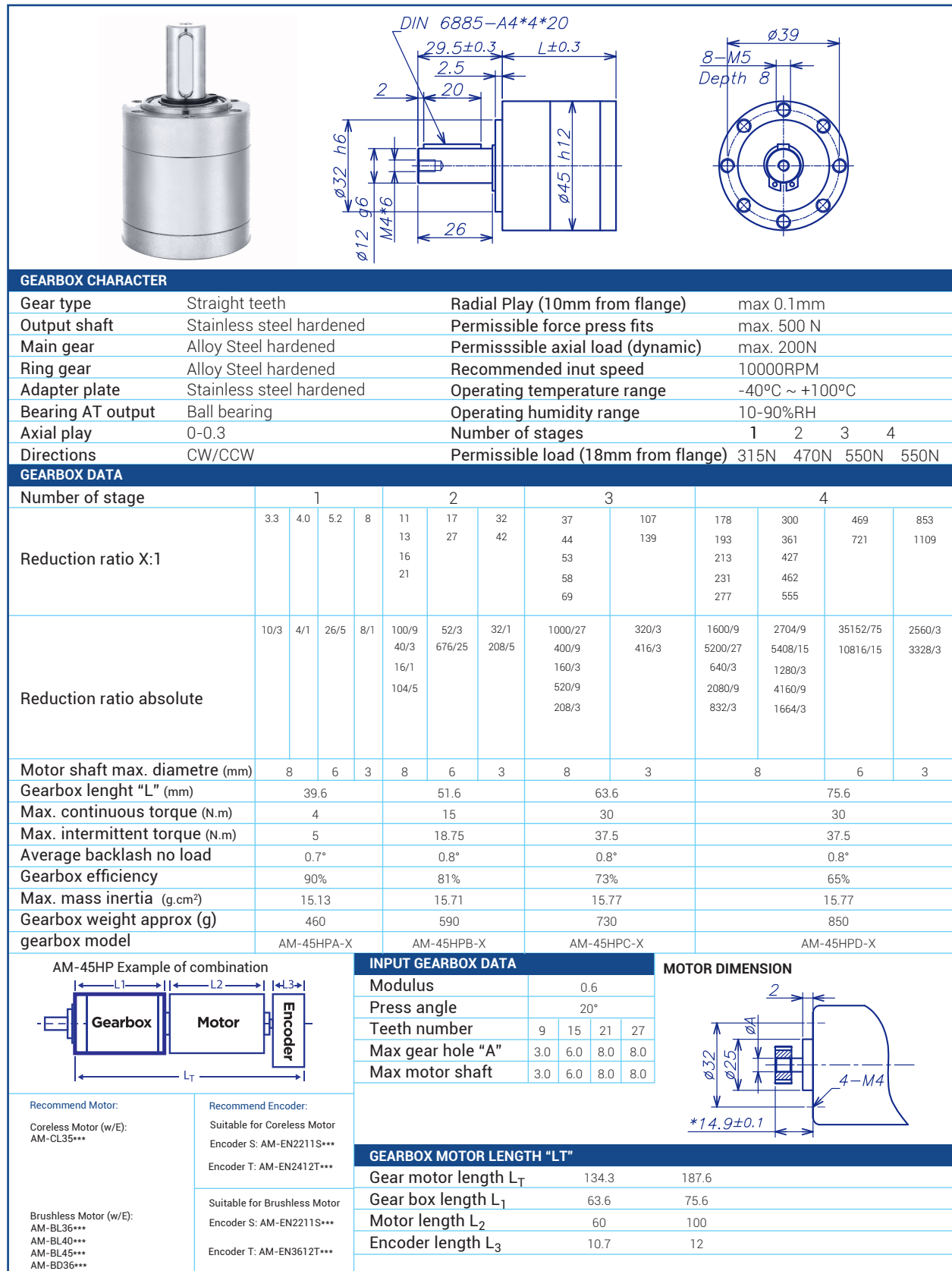


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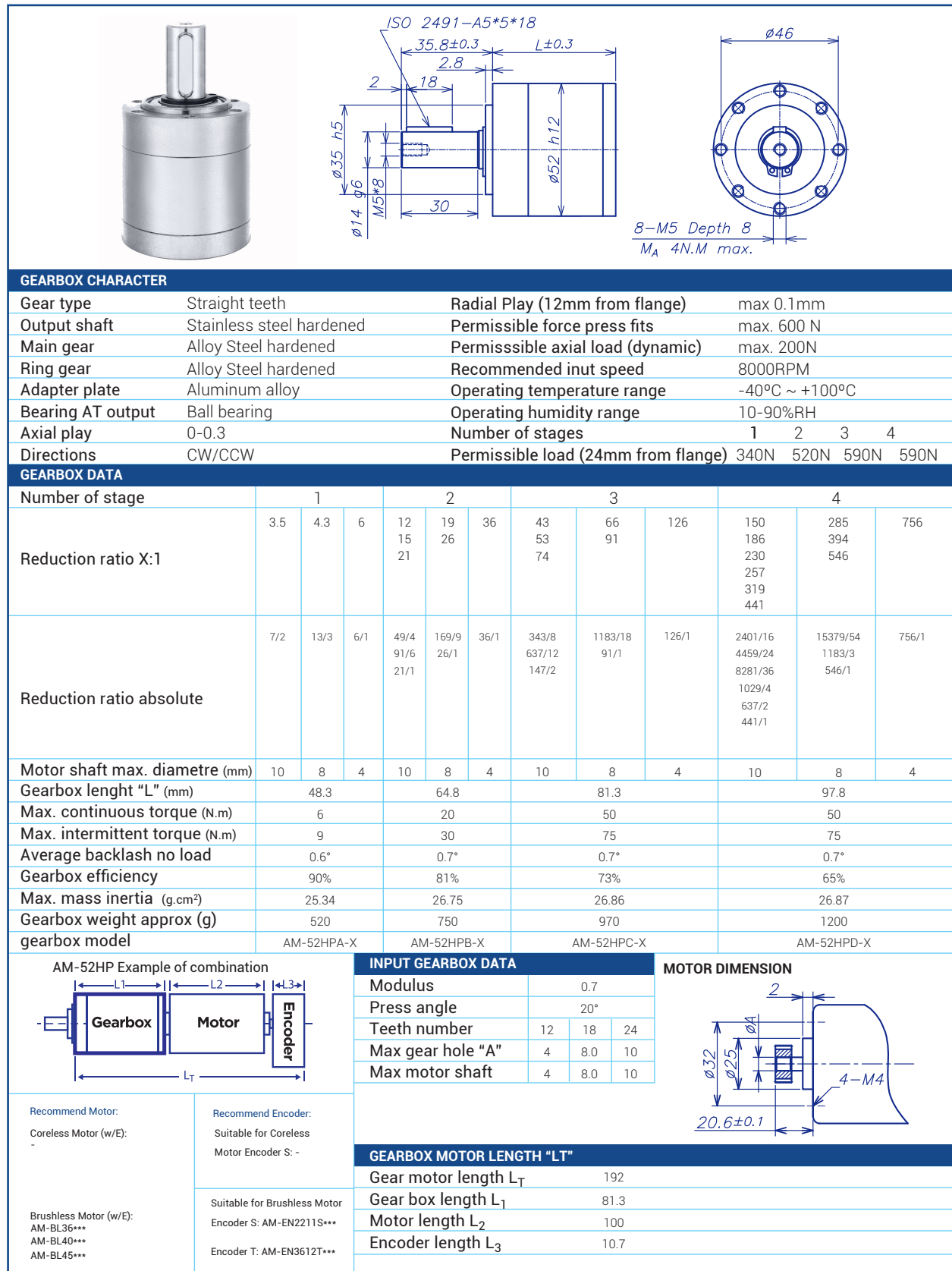
AM-45HP Series



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AM-52HP Series

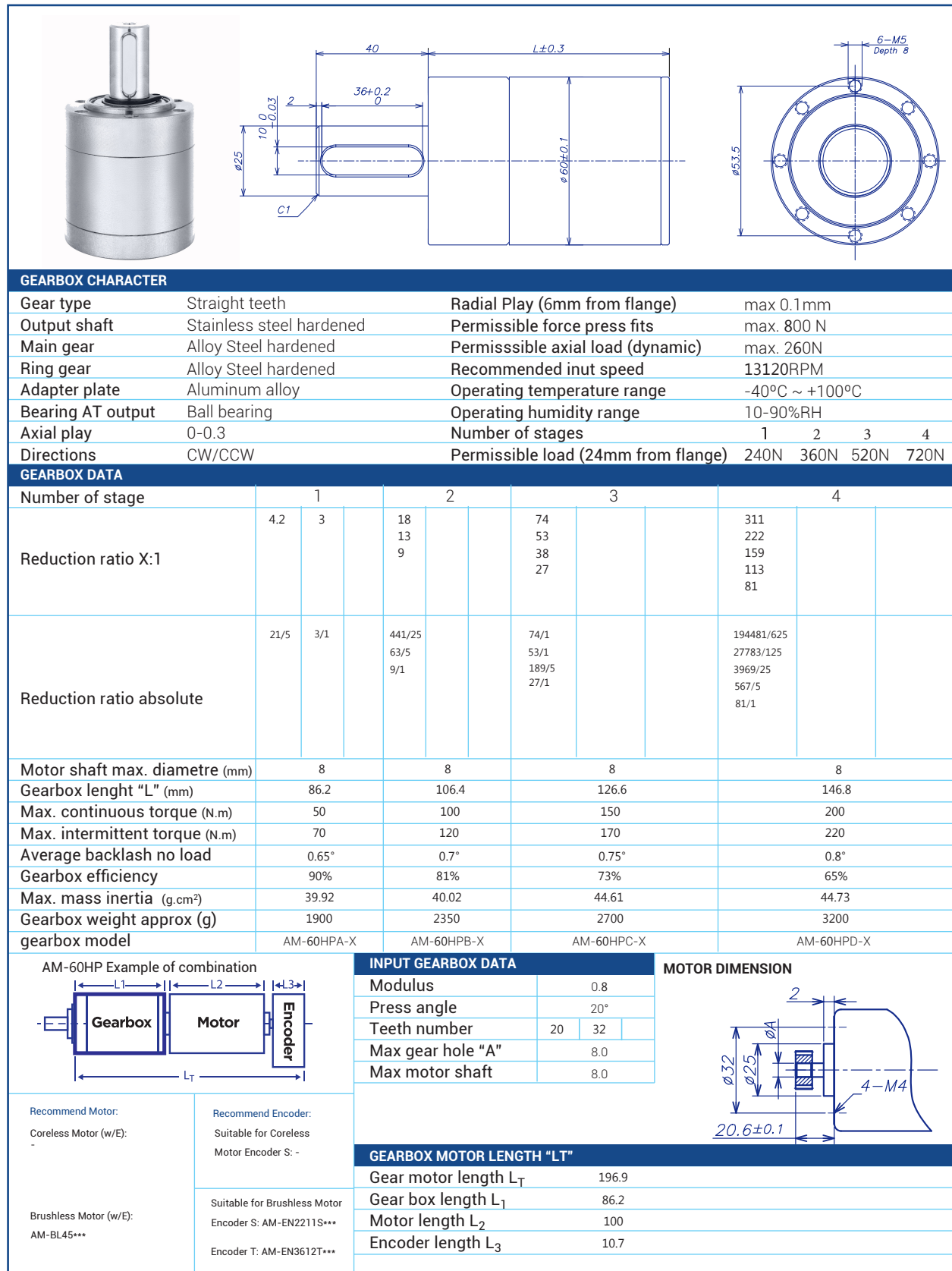


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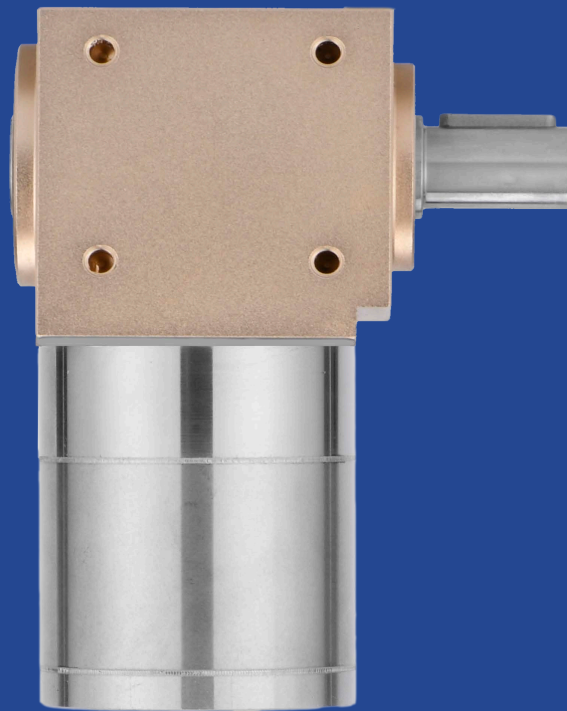
AM-60HP Series



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RIGHT ANGLE PLANETARY GEARBOX HIGH PERFORMANCE SERIES

The angle between the output shaft and input shaft of a right angle planetary gearbox is 90 degrees, which means they are in a perpendicular relationship. This design allows the gearbox to save space during installation and is suitable for situations that require 360 degree installation without dead corners. Its compact structure can withstand high load conditions with small volume and light weight.



AM-40HR

Company Name Abbreviation

AM

Gearbox Dimension
40 - Diameter (mm)

40

HR

Gearbox Type
HR - Right angle
planetary gearbox

A

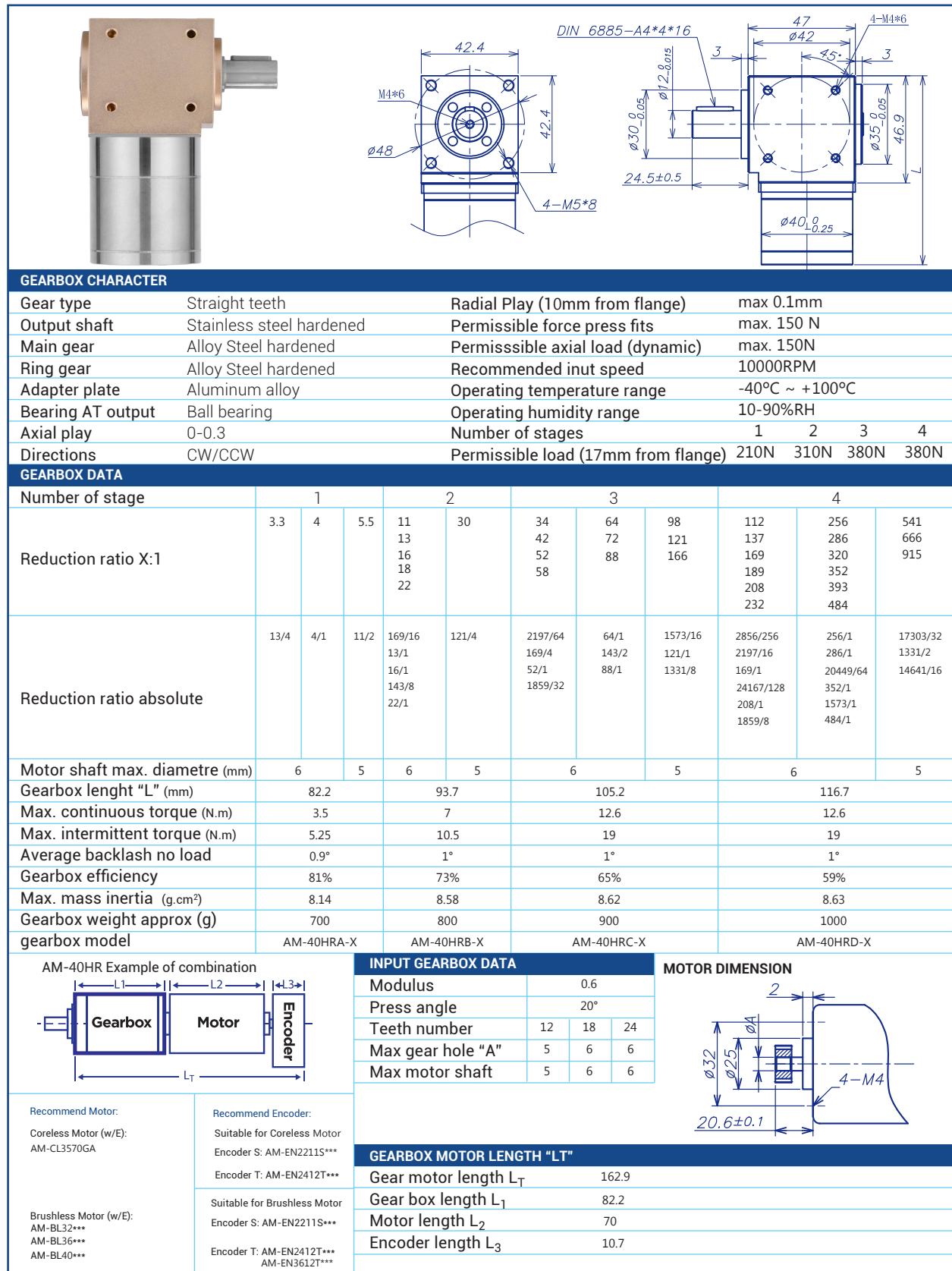
Gearbox Stage

A : One Stage
B : Two Stage
C : Three Stage
D : Four Stage

5.5:1

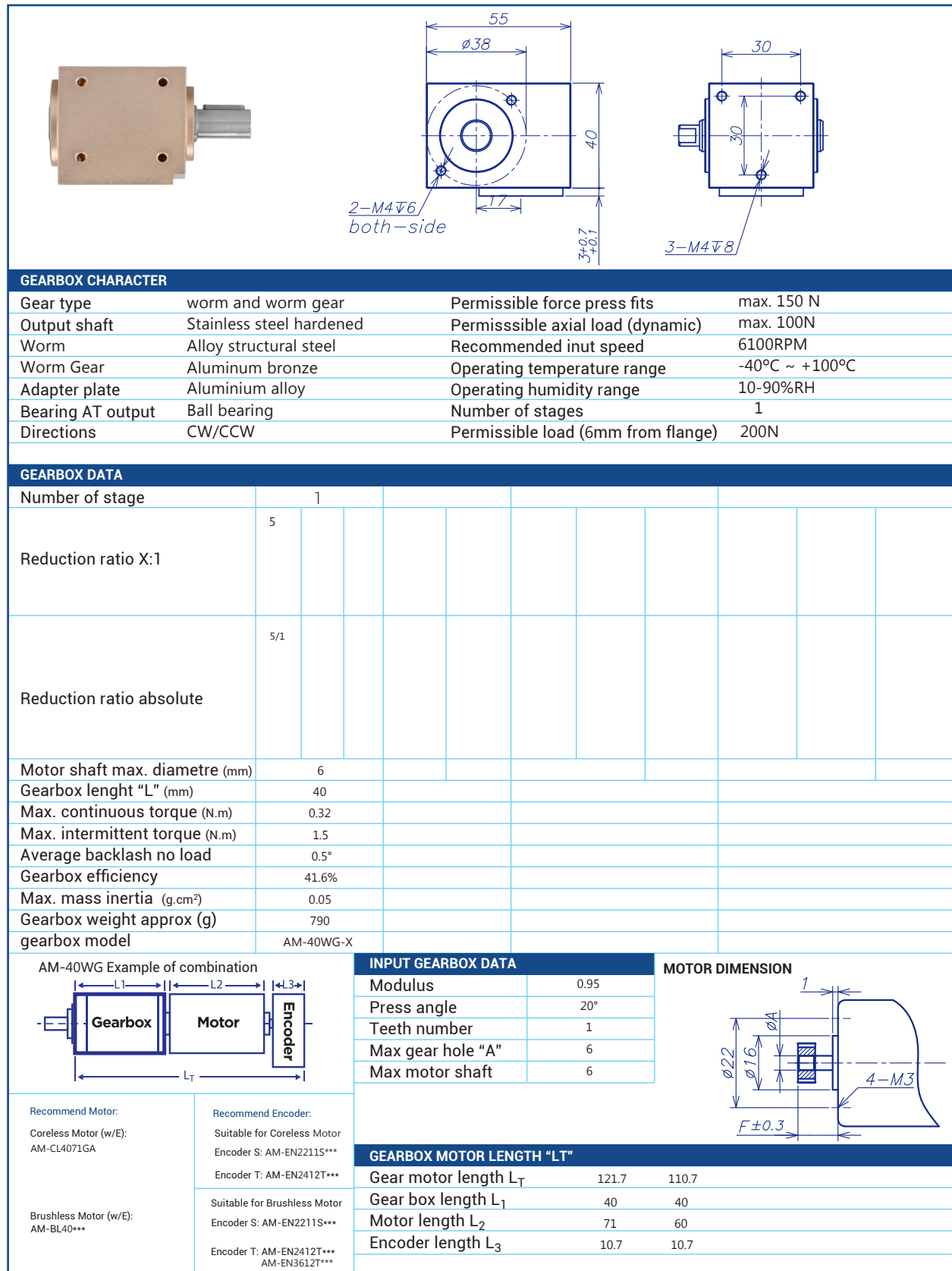
Gear Ratio

AM-40HR Series



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AM-40WG Series



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Technical drawings showing the gearbox assembly and its dimensions. The assembly includes a motor, gearbox, and encoder. The gearbox is shown in a perspective view and two cross-sectional views. The dimensions are provided in millimeters.

GEARBOX CHARACTER												
Gear type	Straight teeth		Radial Play (12mm from flange)		max 0.1mm							
Output shaft	Stainless steel hardened		Permissible force press fits		max. 500 N							
Main gear	Alloy Steel hardened		Permissible axial load (dynamic)		max. 200N							
Ring gear	Alloy Steel hardened		Recommended inut speed		6000RPM							
Adapter plate	Aluminum alloy		Operating temperature range		-40°C ~ +100°C							
Bearing AT output	Ball bearing		Operating humidity range		10-90%RH							
Axial play	0-0.3		Number of stages		1		2		3		4	
Directions	CW/CCW		Permissible load (12mm from flange)		420N		630N		900N		900N	

GEARBOX DATA										
Number of stage	1		2		3		4			
Reduction ratio X:1	3.5	4.3	12	19	43	81	150	319	353	
			15	26	53	91	186	394	488	
			21		66	113	230	441	676	
					74	156	257	546	936	
					126		285	756		
Reduction ratio absolute	7/2	13/3	49/4	169/9	343/8	2197/27	2401/16	637/2	28561/81	
			91/6	26/1	637/12	91/1	4459/24	1183/3	4394/9	
			21/1		1183/18	338/3	8281/36	441/1	676/1	
					147/2	156/1	1029/4	546/1	936/1	
					126/1		15379/54	756/1		
Motor shaft max. diametre (mm)	10	8	10	8	10	8	10	8		
Gearbox lenght "L" (mm)	106.3		122.8		139.3		155.8			
Max. continuous torque (N.m)	4		15		30		30			
Max. intermittent torque (N.m)	6		22.5		45		45			
Average backlash no load	0.6°		0.7°		0.7°		0.7°			
Gearbox efficiency	90%		81%		73%		65%			
Max. mass inertia (g.cm²)	19.99		20.98		21.06		21.07			
Gearbox weight approx (g)	1386		1596		1806		2016			
gearbox model	AM-52HRA-X		AM-52HRB-X		AM-52HRC-X		AM-52HRD-X			

AM-52HR Example of combination

Diagram illustrating the combination of the gearbox, motor, and encoder. The dimensions are labeled: L1 (gearbox length), L2 (motor length), L3 (encoder length), and LT (total length).

INPUT GEARBOX DATA			
Modulus	0.7		
Press angle	20°		
Teeth number	12	18	24
Max gear hole "A"	-	8	10
Max motor shaft	-	15	19

MOTOR DIMENSION

Diagram illustrating the motor dimension. The dimensions are labeled: 2 (encoder length), 32 (shaft diameter), 20.6±0.1 (encoder diameter), and 4-M4 (mounting holes).

RECOMMEND MOTOR:	
Coreless Motor (w/E):	AM-CL40**GA AM-CL50109GA
Brushless Motor (w/E):	AM-BL36*** AM-BL45*** AM-BL40*** AM-BL52***

RECOMMEND ENCODER:	
Suitable for Coreless Motor	Encoder S: AM-EN2211S*** Encoder T: AM-EN2412T***
Suitable for Brushless Motor	Encoder S: AM-EN2211S*** Encoder T: AM-EN3612T***

GEARBOX MOTOR LENGTH "LT"	
Gear motor length LT	190
Gear box length L1	106.3
Motor length L2	100
Encoder length L3	10.7

HARMONIC DRIVE GEARBOX MINI ——— PRECISION SERIES

Assun harmonic gearbox is a gearbox that uses a flexible ring called a wave generator to transmit torque from the input shaft to the output shaft. The wave generator is in contact with two other components: a flexible spline and a circular spline; And equipped with a series of small zero clearance gears and actuators. Very suitable for semiconductors and robots.



AM-11XB(CSF-2.5)

AM-30XB(CSF-08)

AM-13XB(CSF-03)

AM-40XB(CSF-11)

AM-20XB(CSF-05)

Company Name Abbreviation

AM - **13** **XB** (**CSF-03**) - **30**

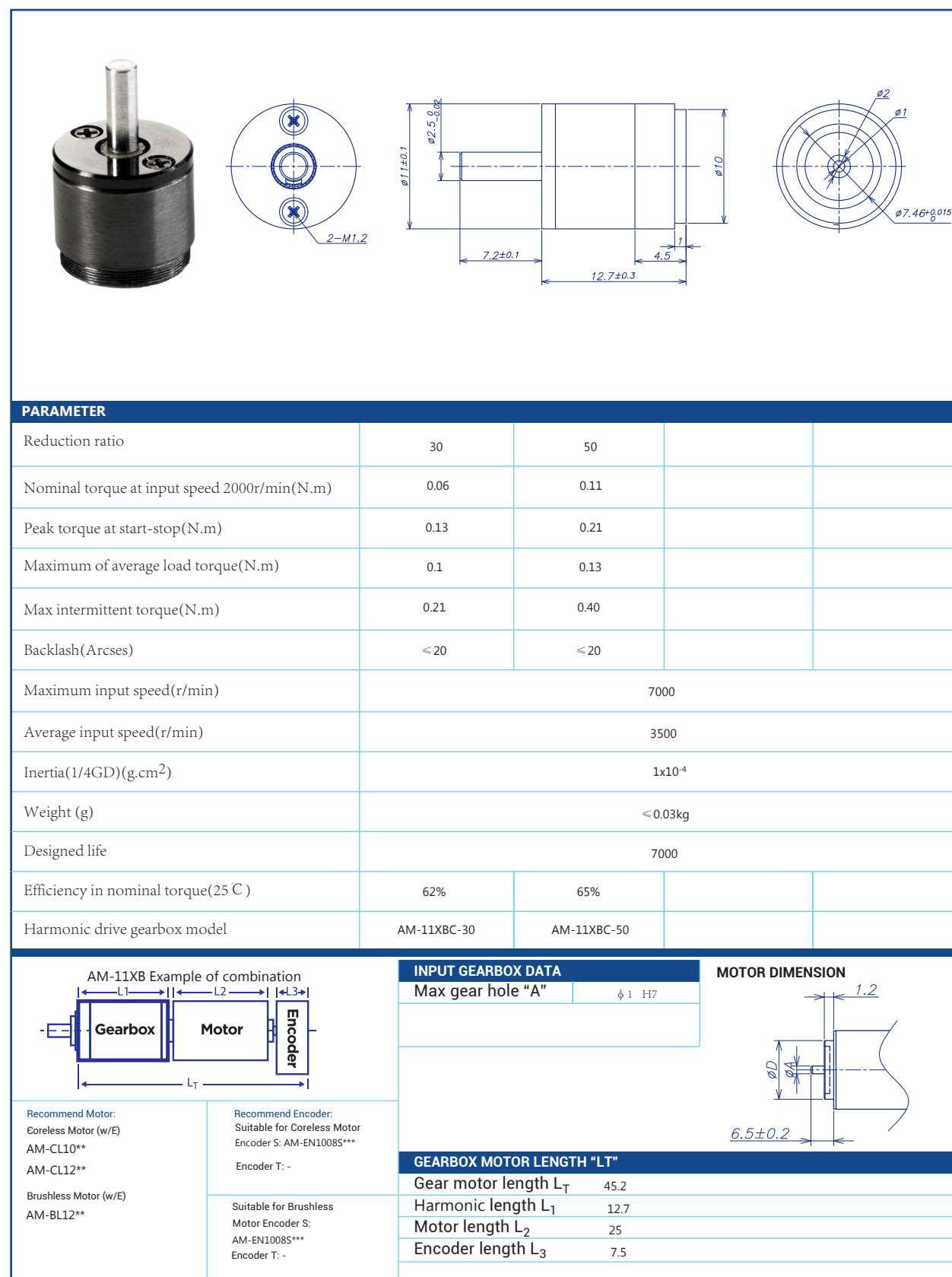
Gearbox Dimension
13 - Diameter (mm)

Gearbox Type
XB- Harmonic
gearbox

Gearbox Stage
03
05
08
11

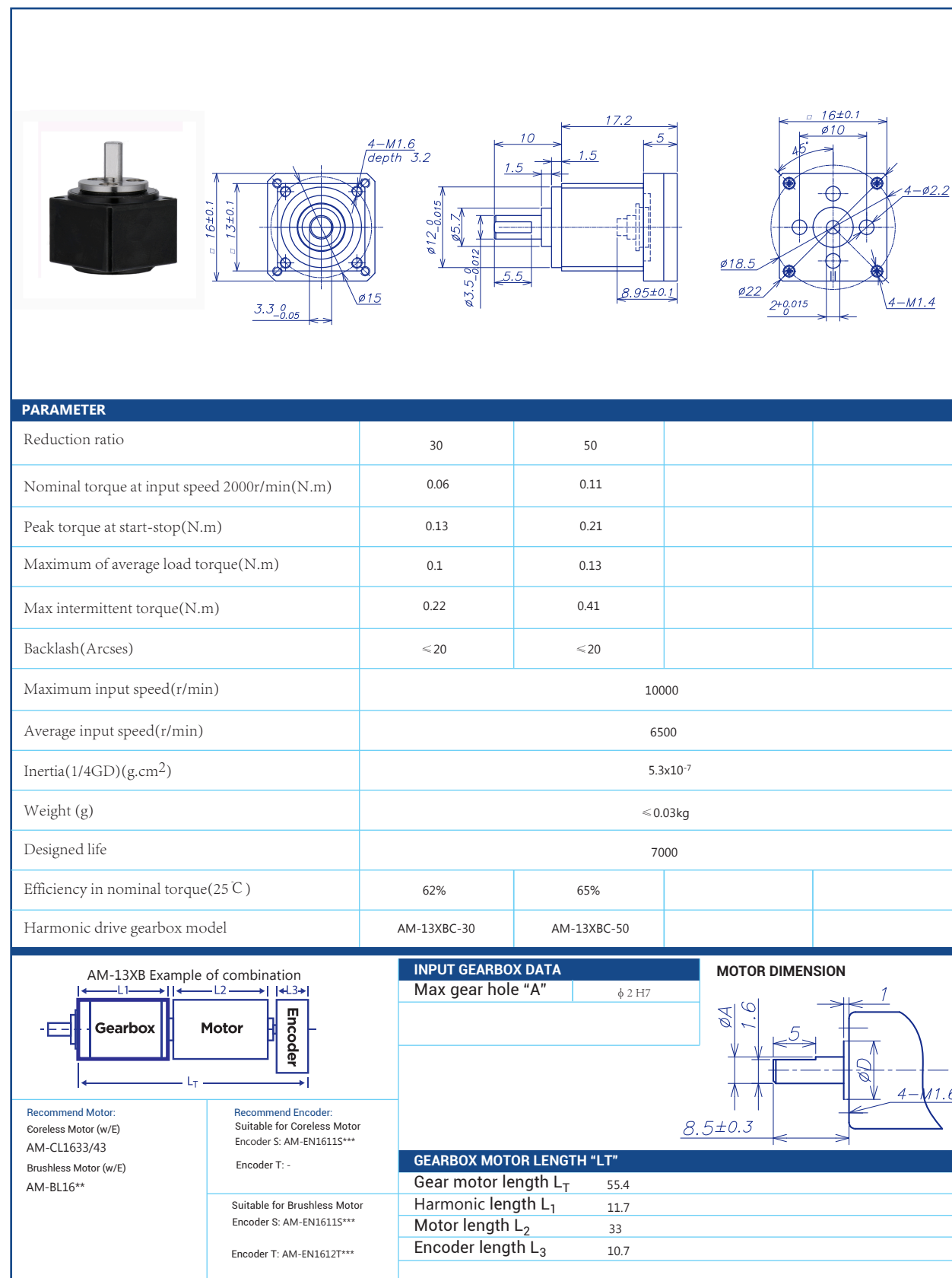
Gear Ratio

AM-11XB(CSF-2.5) Series



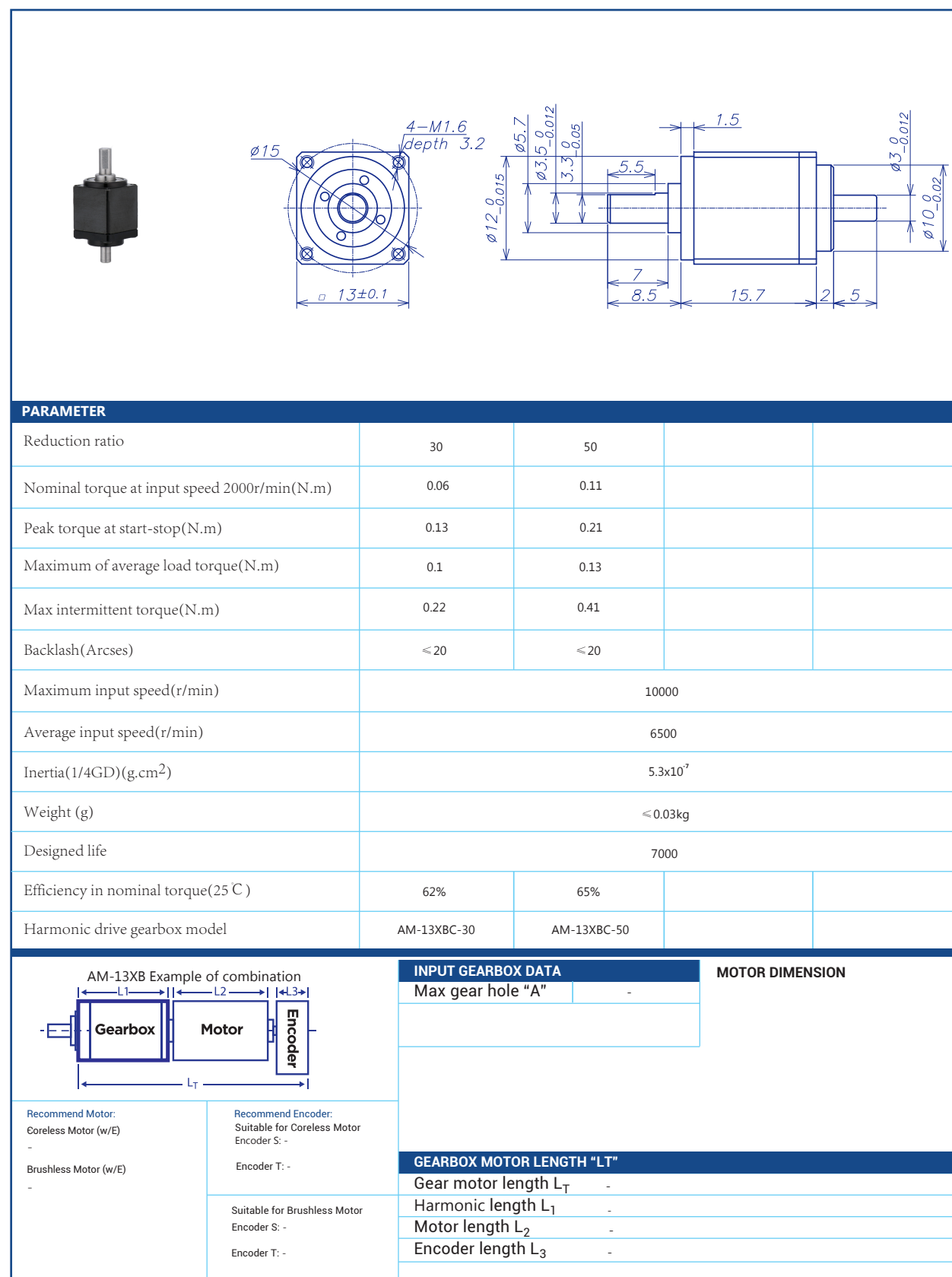
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AM-13XB(CSF-03) Series



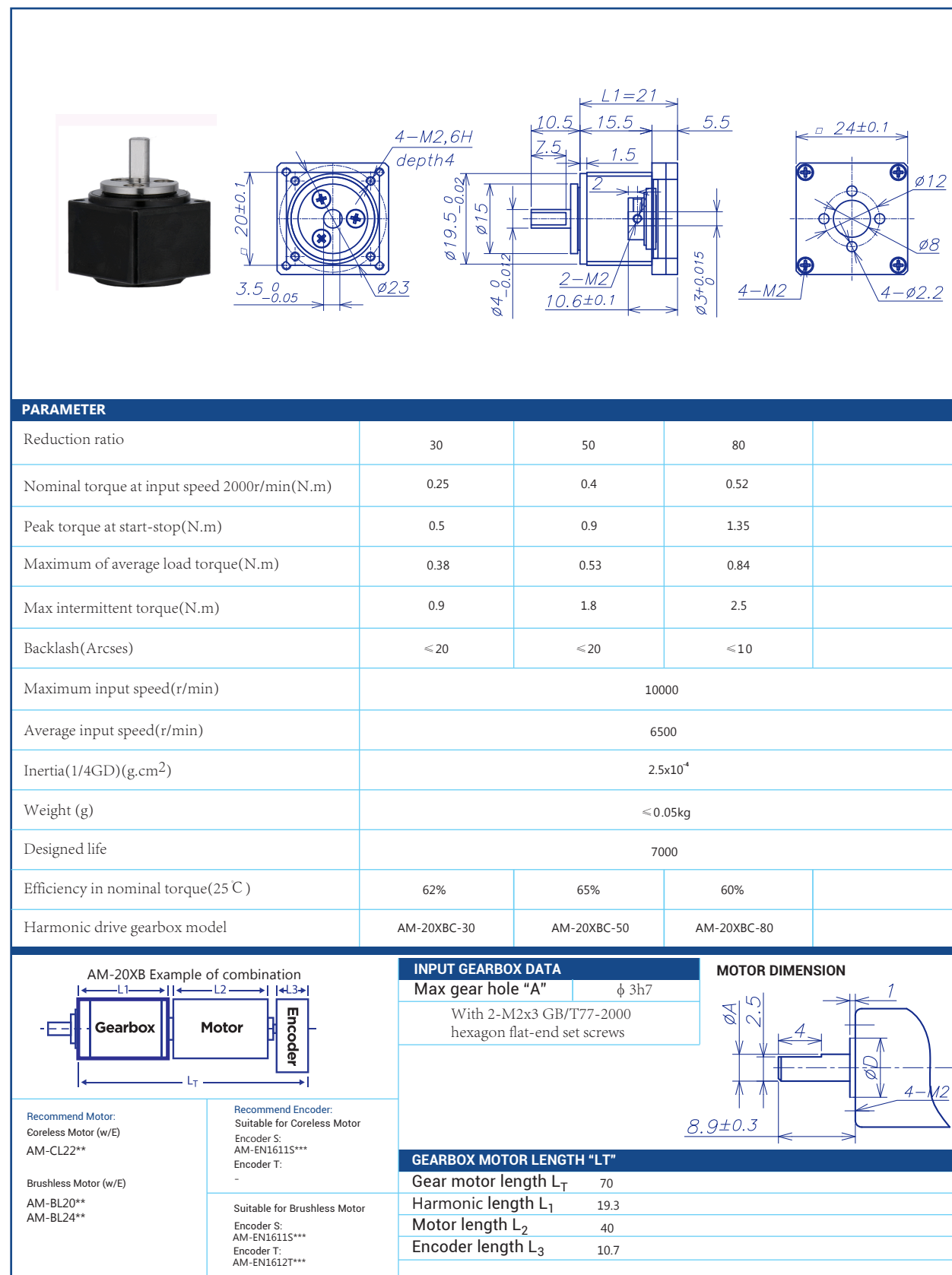
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AM-13XB(CSF-03) (Double output shaft) Series



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AM-20XB(CSF-05) Series



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PARAMETER				
Reduction ratio	30	50	80	100
Nominal torque at input speed 2000r/min(N.m)	0.9	1.8	2.2	2.4
Peak torque at start-stop(N.m)	1.8	3.3	4.3	4.8
Maximum of average load torque(N.m)	1.4	2.3	2.9	3.3
Max intermittent torque(N.m)	3.3	6.6	8	9
Backlash(Arcses)	≤ 20	≤ 20	≤ 10	≤ 10
Maximum input speed(r/min)	8500			
Average input speed(r/min)	3500			
Inertia(1/4GD)(g.cm ²)	3.2x10 ³			
Weight (g)	≤ 0.07kg			
Designed life	7000			
Efficiency in nominal torque(25℃)	62%	65%	60%	60%
Harmonic drive gearbox model	AM-30XBC-30	AM-30XBC-50	AM-30XBC-80	AM-30XBC-100

AM-30XB Example of combination

Recommend Motor:
Coreless Motor (w/E)
AM-CL25**
AM-CL28**

Recommend Encoder:
Suitable for Coreless Motor
Encoder S:
AM-EN1611S***
Encoder T:
-

Brushless Motor (w/E)
AM-BL24**
AM-BL28**

Suitable for Brushless Motor
Encoder S:
AM-EN1611S***
Encoder T:
AM-EN1612T***

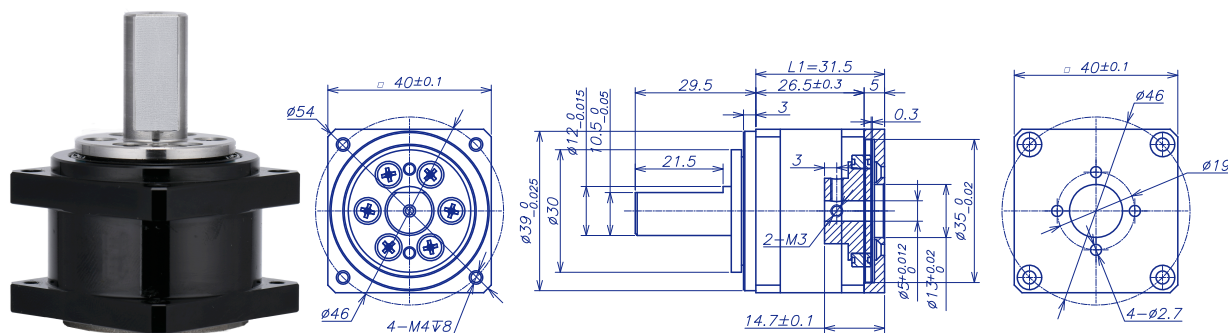
INPUT GEARBOX DATA	
Max gear hole "A"	φ 3h7
With 2-M2.5x4 GB/T77-2000 hexagon flat-end set screws	

MOTOR DIMENSION

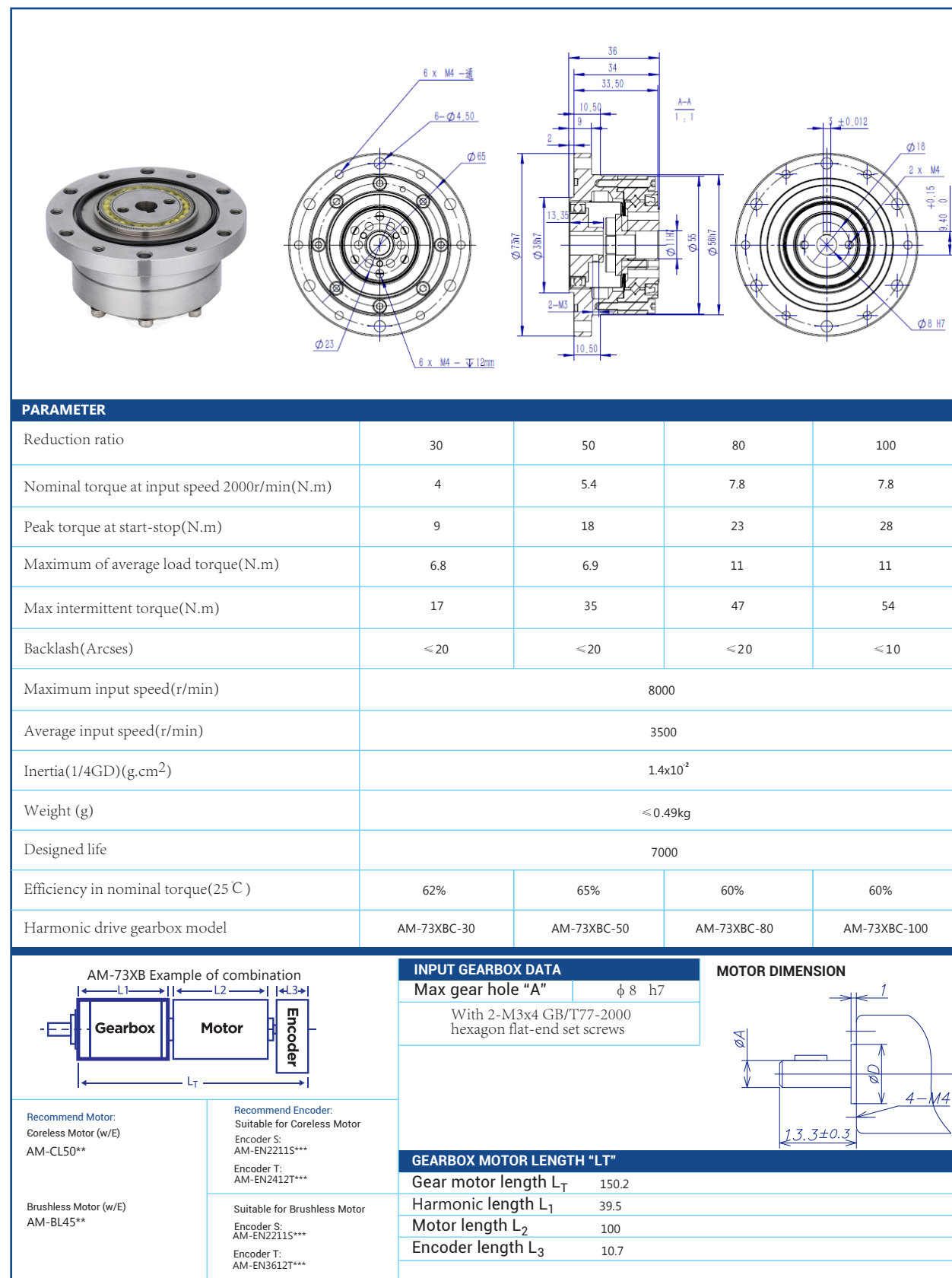
GEARBOX MOTOR LENGTH "LT"	
Gear motor length L _T	90.2
Harmonic length L ₁	26.5
Motor length L ₂	53
Encoder length L ₃	10.7

198

AM-40XB(CSF-11) Series



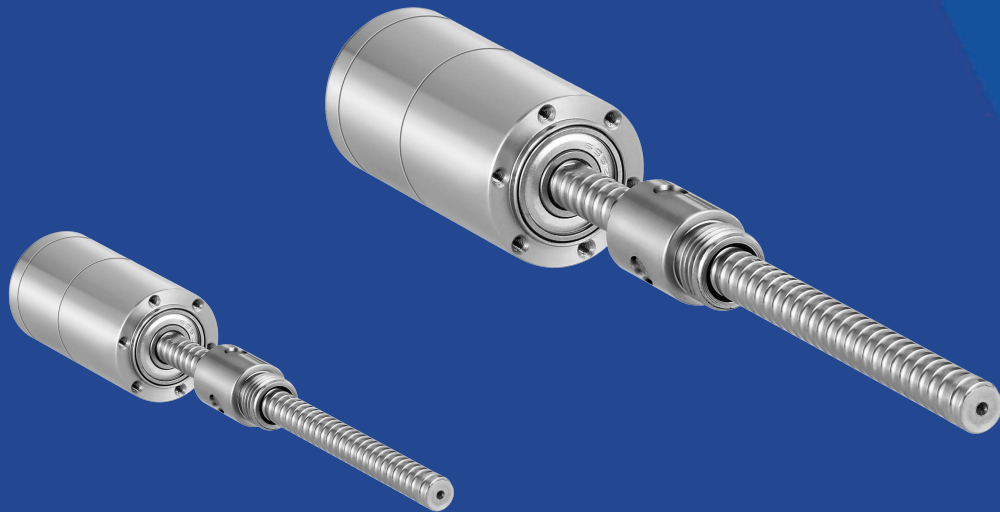
AM-73XB(CSF-14) Series



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PLANETARY GEARBOX _____ SCREW PRECISION SERIES

The precision planetary gearbox with Assun screw adopts the most advanced production technology to achieve efficient conversion of torque and thrust. With diameters from 10mm to 52mm, screw precision gearbox meet the different application needs of customers.



AM-BS0303-56-10GP	AM-BS0602-151-22GP	AM-BS1505-251-45GP
AM-BS0402-81-12GP	AM-BS0802-151-28GP	AM-BS2005-301-52GP
AM-BS0502-102-16GP	AM-BS1002-201-32GP	
AM-BS0602-151-19GP	AM-BS1204-201-36GP	

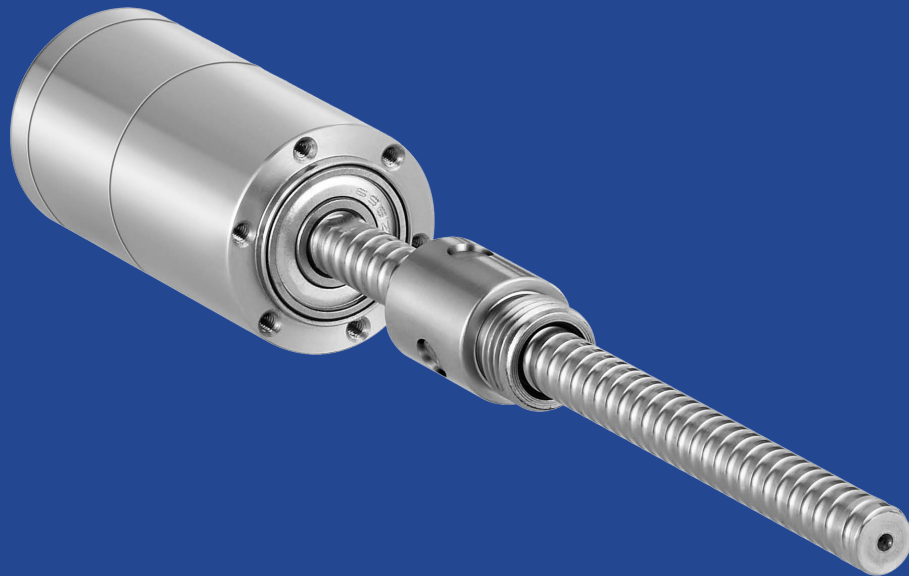
AM-BS 20 05-301-52 GP A-180	
Company Name	Reduction ratio
Abbreviation	Gearbox Stage
Screw type	Gearbox Type
BS: Ball screw	A: One Stage
TS: Trapezoidal lead screw	P: Regular
MS: Screw	GP: Precisions
	HP: High Performance
Screw diameter	D: Four Stage
	E: Five Stage
Lead	Overall dimensions
Length	

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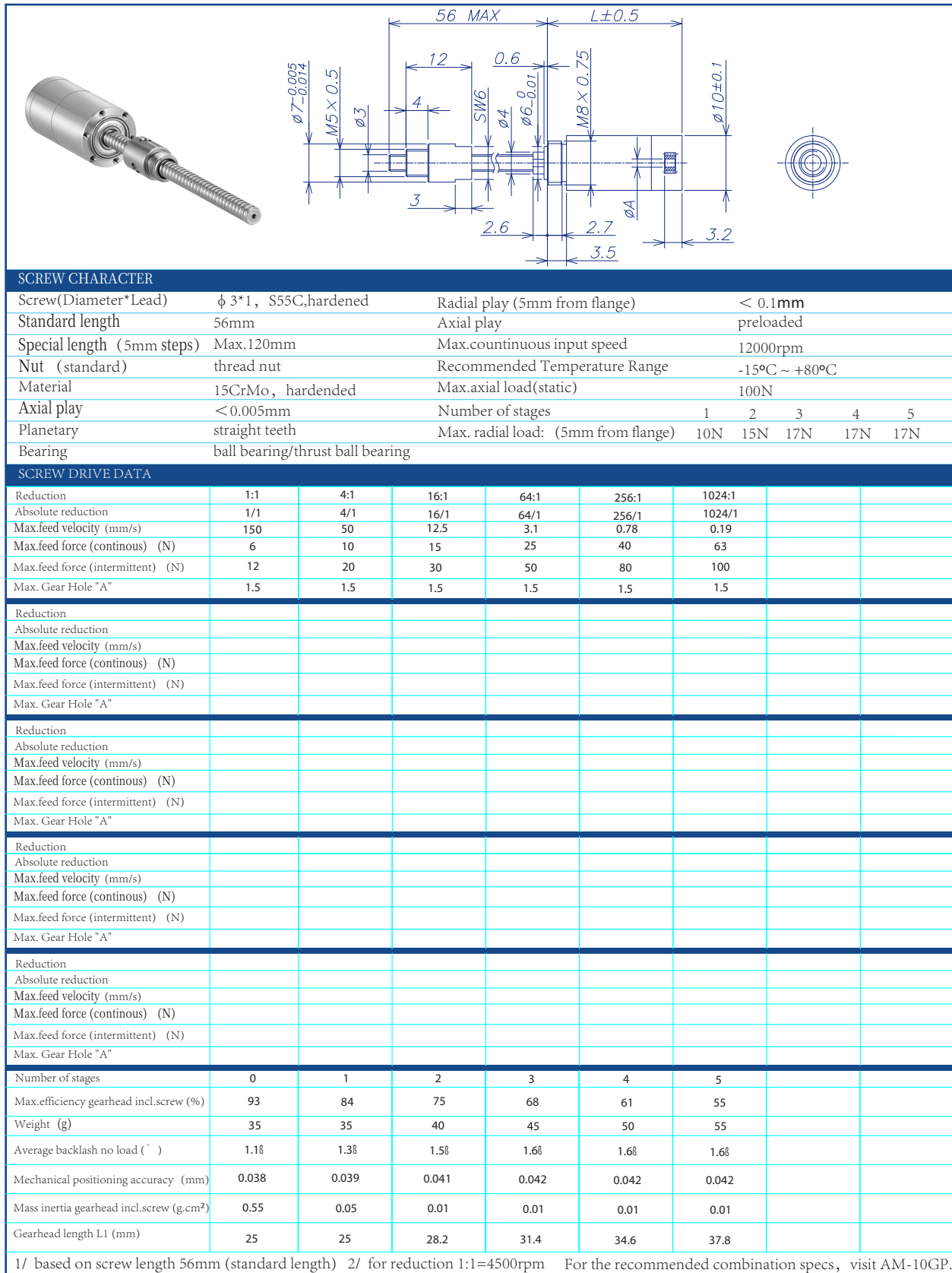
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BALL SCREW GEARBOX _____
SCREW PRECISION SERIES

Assun ball screw precision planetary gearbox uses balls to reduce friction, with high efficiency, high precision, and high load. The diameter ranges from 10mm to 52mm, and the ball screw precision gearbox meets the application needs of customers in precision control.

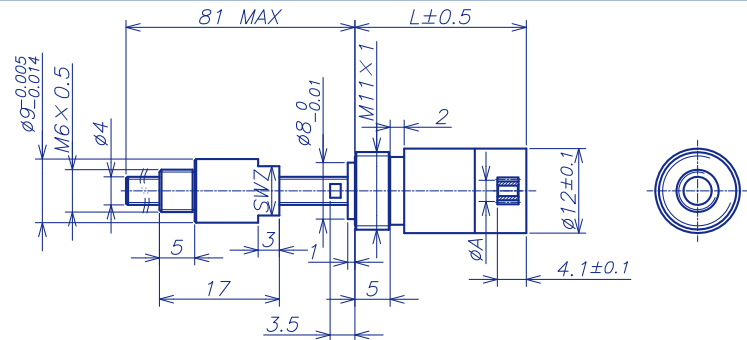


AM-BS0301-56-10GP Series



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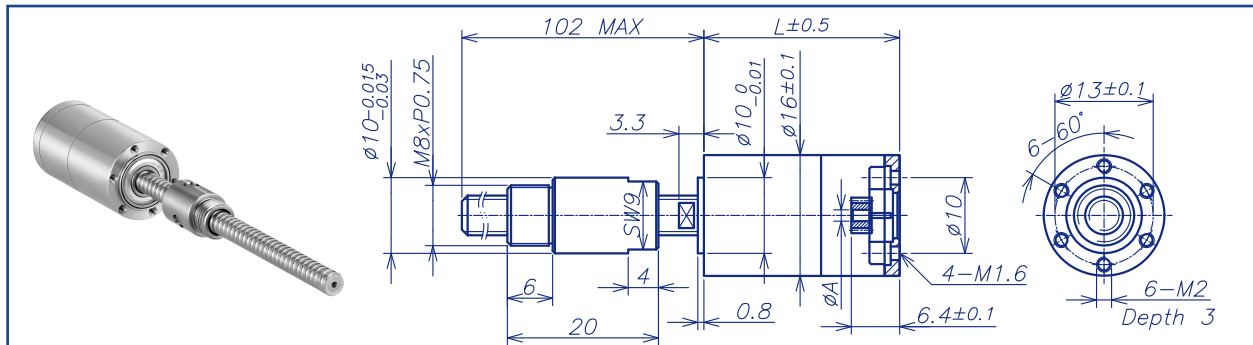


Screw(Diameter*Lead)	φ 4*2, S55C, hardened	Radial play (5mm from flange)	< 0.1mm				
Standard length	81mm	Axial play	preloaded				
Special length (5mm steps)	Max.150mm	Max.countinuous input speed	12000rpm				
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C				
Material	15CrMo, hardended	Max.axial load(static)	300N				
Axial play	<0.005mm	Number of stages	0	1	2	3	4
Planetary	straight teeth	Max. radial load: (5mm from flange)	45N	50N	50N	50N	50N
Bearing	ball bearing/thrust ball bearing						

Reduction	1:1	4:1	16:1	64:1	256:1			
Absolute reduction	1/1	4/1	16/1	64/1	256/1			
Max.feed velocity (mm/s)	150	100	25	6.3	1.6			
Max.feed force (continous) (N)	20	29	46	73	116			
Max.feed force (intermittent) (N)	40	58	92	146	232			
Max. Gear Hole "A"	1.5	1.5	1.5	1.5	1.5			
Reduction		5.3:1	21:1	85:1	341:1			
Absolute reduction		16/3	64/3	256/3	1024/3			
Max.feed velocity (mm/s)		75	18.8	4.7	1.2			
Max.feed force (continous) (N)		32	51	80	127			
Max.feed force (intermittent) (N)		64	102	160	254			
Max. Gear Hole "A"		1.2	1.5	1.5	1.5			
Reduction			28:1	114:1	455:1			
Absolute reduction			256/9	1024/9	4096/9			
Max.feed velocity (mm/s)			14	3.5	0.9			
Max.feed force (continous) (N)			56	88	140			
Max.feed force (intermittent) (N)			112	176	280			
Max. Gear Hole "A"			1.2	1.5	1.5			
Reduction				152:1	607:1			
Absolute reduction				4096/27	16384/27			
Max.feed velocity (mm/s)				2.6	0.7			
Max.feed force (continous) (N)				97	154			
Max.feed force (intermittent) (N)				194	300			
Max. Gear Hole "A"				1.2	1.5			
Reduction					809:1			
Absolute reduction					65536/81			
Max.feed velocity (mm/s)					0.5			
Max.feed force (continous) (N)					170			
Max.feed force (intermittent) (N)					300			
Max. Gear Hole "A"					1.2			
Number of stages	0	1	2	3	4			
Max.efficiency gearhead incl.screw (%)	93	84	75	68	61			
Weight (g)	35	30	30	35	40			
Average backlash no load (´´)	1.1°	1.3°	1.5°	1.6°	1.6°			
Mechanical positioning accuracy (mm)	0.038	0.039	0.041	0.042	0.042			
Mass inertia gearhead incl.screw (g.cm²)	0.78	0.05	0.01	0.01	0.01			
Gearhead length L1 (mm)	24.6	24.6	29.3	34.0	48.7			

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AM-BS0502-102-16GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	φ 5*2, S55C, hardened	Radial play (5mm from flange)	< 0.05mm
Standard length	102mm	Axial play	preloaded
Special length (5mm steps)	Max.200mm	Max.continuous input speed	12000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	15CrMo, hardended	Max.axial load(static)	400N
Axial play	< 0.01mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (6mm from flange)	20N 40N 60N 80N 80N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

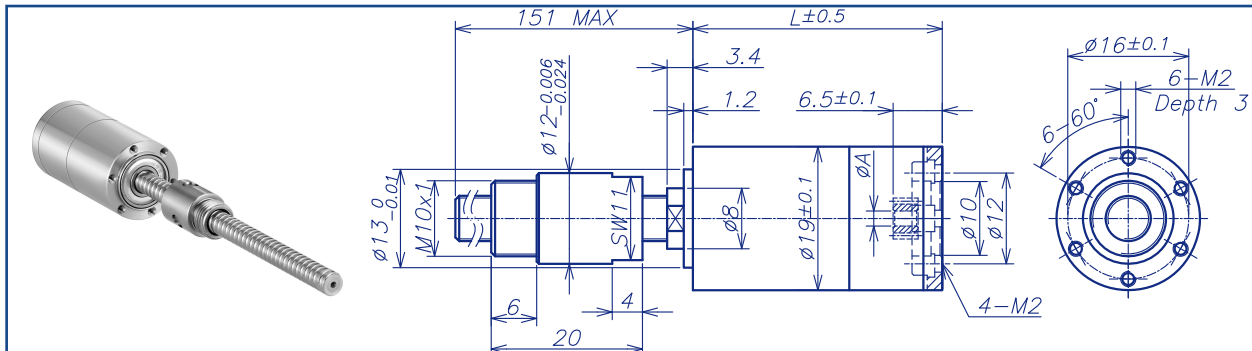
Reduction	1:1	3.8:1	14:1	29:1	53:1	89:1	198:1	455:1
Absolute reduction	1/1	15/4	225/16	729/25	3375/64	4617/52	50625/256	5000211/10985
Max.feed velocity (mm/s)	150	106.7	28.4	13.7	7.6	4.5	2	0.9
Max.feed force (continuous) (N)	54	61	94	120	146	174	227	300
Max.feed force (intermittent) (N)	149	168	256	331	400	400	400	400
Max. Gear Hole "A"	1.5	2	2	1.5	2	2	2	2
Reduction		4.4:1	16:1		62:1	104:1	231:1	561:1
Absolute reduction		57/13	855/52		12825/208	87723/845	192375/832	236852/4225
Max.feed velocity (mm/s)		91.2	24.3		6.5	3.9	1.7	0.7
Max.feed force (continuous) (N)		64	99		154	183	239	321
Max.feed force (intermittent) (N)		177	273		400	400	400	400
Max. Gear Hole "A"		2	2		2	2	2	2
Reduction		5.4:1	19:1		72:1	109:1	270:1	690:1
Absolute reduction		27/5	3249/169		48735/676	2187/20	731025/2704	1121931/1625
Max.feed velocity (mm/s)		74.1	20.8		5.5	3.7	1.5	0.6
Max.feed force (continuous) (N)		68	104		162	186	252	345
Max.feed force (intermittent) (N)		188	287		400	400	400	400
Max. Gear Hole "A"		1.5	2		2	2	2	2
Reduction			20:1		76:1	128:1	316:1	850:1
Absolute reduction			81/4		1215/16	41553/325	2777895/8788	531441/625
Max.feed velocity (mm/s)			19.8		5.3	3.1	1.3	0.5
Max.feed force (continuous) (N)			106		165	196	266	369
Max.feed force (intermittent) (N)			292		400	400	400	400
Max. Gear Hole "A"			2		2	2	2	1.5
Reduction			24:1		84:1	157:1	370:1	
Absolute reduction			1539/65		185193/2197	19683/125	10556001/28561	
Max.feed velocity (mm/s)			16.9		4.7	2.5	1.1	
Max.feed force (continuous) (N)			112		171	211	280	
Max.feed force (intermittent) (N)			309		400	400	400	
Max. Gear Hole "A"			2		2	1.5	2	
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	71	84	75	75	68	68	61	61
Weight (g)	55	50	55	55	60	60	65	65
Average backlash no load (°)	1.18	1.38	1.68	1.68	1.68	1.68	1.68	1.68
Mechanical positioning accuracy (mm)	...19	...4	...42	...42	...42	...42	...42	...42
Mass inertia gearhead incl.screw (g.cm ²)	1.48	0.1	0.01	0.01	0.01	0.01	0.01	0.01
Gearhead length L1 (mm)	27.9	27.9	31.6	31.6	35.3	35.3	39.0	39.0

1/ based on screw length 102mm (standard length) 2/ for reduction 1:1=4500rpm For the recommended combination specs, visit AM-16GP.

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AM-BS0602-151-19GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	φ 6*2, S55C, hardened	Radial play (5mm from flange)	< 0.05mm
Standard length	151mm	Axial play	preloaded
Special length (5mm steps)	Max.300mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	15CrMo, hardended	Max.axial load(static)	500N
Axial play	0	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	90N 115N 120N 120N 120N
Bearing	ball bearing/thrust ball bearing		

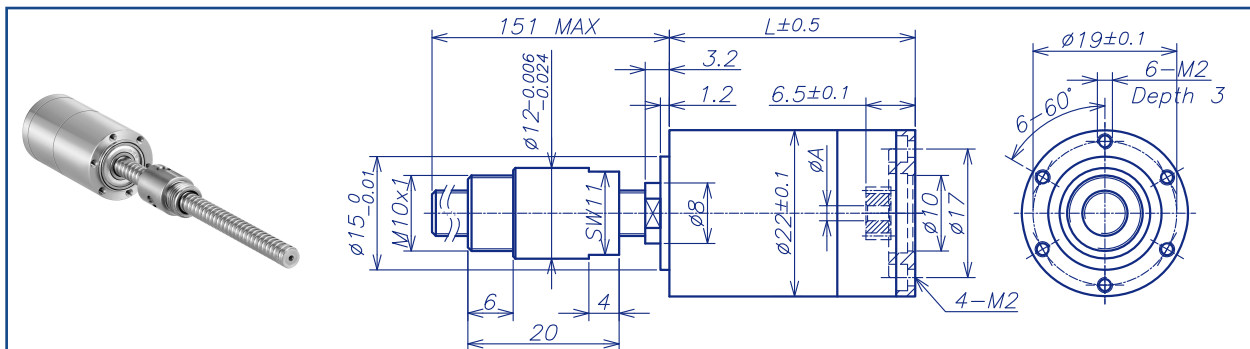
SCREW DRIVE DATA

Reduction	1:1	3.8:1	14:1	29:1	53:1	67:1	198:1	455:1
Absolute reduction	1/1	15/4	225/16	729/25	3375/64	24/5/30	50625/256	5000211/10985
Max.feed velocity (mm/s)	150	71.1	19.0	9.1	5.1	1..	1.3	0.6
Max.feed force (continous) (N)	77	99	154	197	239	063	372	491
Max.feed force (intermittent) (N)	155	198	308	393	479	500	500	500
Max. Gear Hole "A"	3	3	3	2	3	3	3	2
Reduction		4.4:1	16:1		62:1	1..2:1	231:1	561:1
Absolute reduction		57/13	855/52		12825/208	65501/623	192375/832	2368521/4225
Max.feed velocity (mm/s)		60.8	16.2		4.3	0.4	1.2	0.5
Max.feed force (continous) (N)		105	162		252	1..	392	500
Max.feed force (intermittent) (N)		209	325		500	500	500	500
Max. Gear Hole "A"		3	3		3	0	3	2
Reduction		5.4:1	19:1		72:1	109:1	270:1	690:1
Absolute reduction		27/5	3249/169		48735/676	2187/20	731025/2704	1121931/1625
Max.feed velocity (mm/s)		49.4	13.9		3.7	2.4	1.0	0.4
Max.feed force (continous) (N)		112	171		266	305	123	500
Max.feed force (intermittent) (N)		224	342		500	500	500	500
Max. Gear Hole "A"		2	2		3	3	3	2
Reduction			20:1		76:1	128:1	316:1	850:1
Absolute reduction			81/4		1215/16	41553/325	2777895/8788	531441/625
Max.feed velocity (mm/s)			13.2		3.5	2.1	0.8	0.3
Max.feed force (continous) (N)			174		270	322	435	500
Max.feed force (intermittent) (N)			348		500	500	500	500
Max. Gear Hole "A"			3		3	2	3	2
Reduction			24:1		84:1	157:1	370:1	
Absolute reduction			1539/65		185193/2197	19683/125	10556001/28561	
Max.feed velocity (mm/s)			11.3		3.2	1.7	0.7	
Max.feed force (continous) (N)			183		280	345	458	
Max.feed force (intermittent) (N)			367		500	500	500	
Max. Gear Hole "A"			2		2	2	2	
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	71	84	75	75	68	68	61	61
Weight (g)	100	100	110	110	120	120	130	130
Average backlash no load (°)	18	1.28	1.58	1.58	1.58	1.58	1.58	1.58
Mechanical positioning accuracy (mm)	...16	...4	...41	...41	...41	...41	...41	...41
Mass inertia gearhead incl.screw (g.cm ²)	3.44	0.25	0.04	0.04	0.04	0.04	0.04	0.04
Gearhead length L1 (mm)	32.8	32.8	37.6	37.6	42.4	42.4	47.2	47.2

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=4500rpm For the recommended combination specs, visit AM-19GP.

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AM-BS0602-151-22GP Series



SCREW CHARACTER

Screw (Diameter*Lead)	φ 6*2, S55C, hardened	Radial play (5mm from flange)	< 0.05mm
Standard length	151mm	Axial play	preloaded
Special length (5mm steps)	300mm	Max. continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	15CrMo, hardened	Max. axial load (static)	500N
Axial play	0	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	120N 140N 200N 200N 200N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

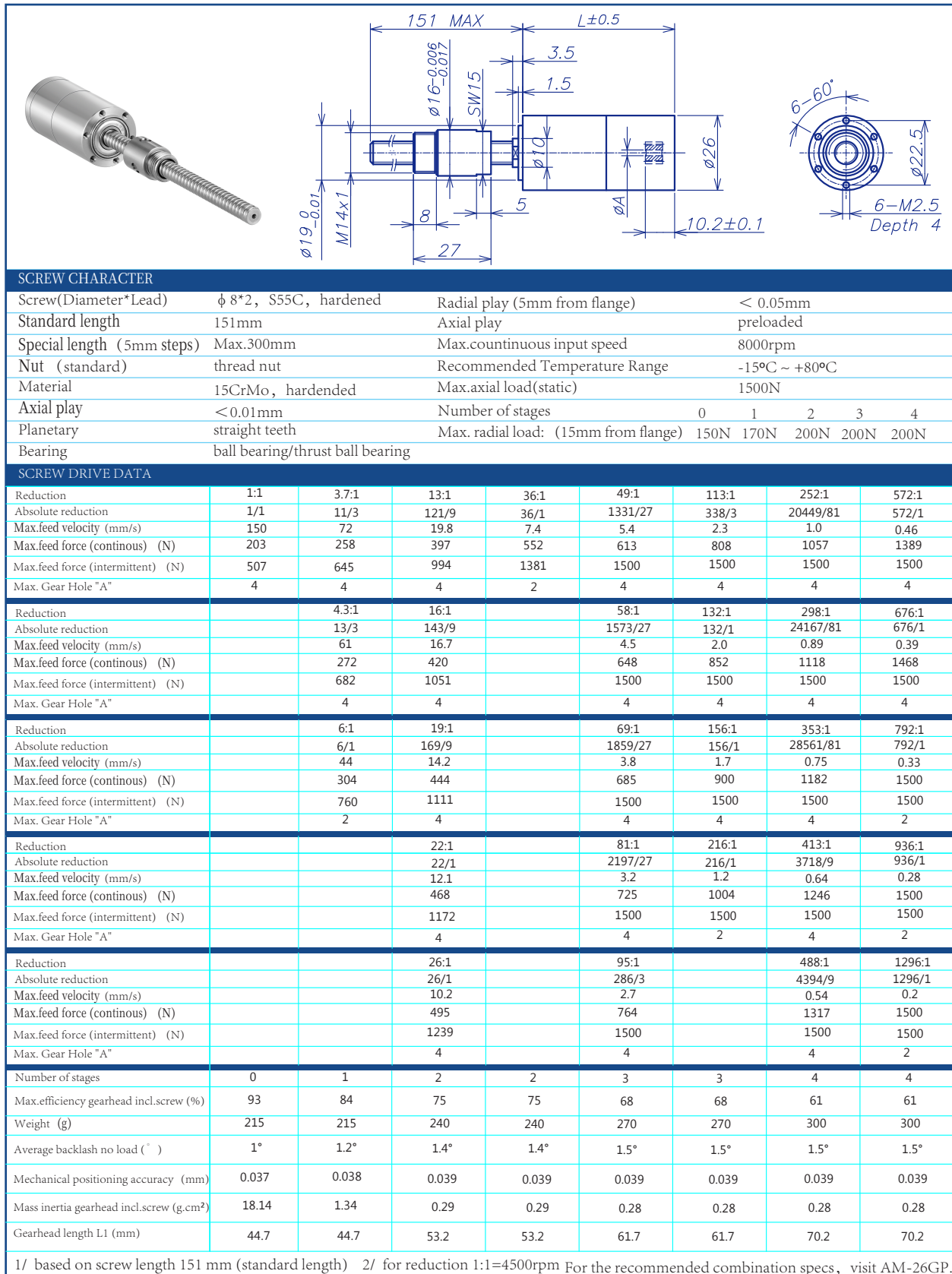
Reduction	1:1	3.1:1	10:1	36:1	31:1	75:1	201:1	384:1
Absolute reduction	1/1	22/7	484/49	36/1	10648/343	528/7	1408/7	384/1
Max. feed velocity (mm/s)	150	86	26	7.4	8.6	3.5	1.3	0.7
Max. feed force (continuous) (N)	77	93	137	210	200	269	374	464
Max. feed force (intermittent) (N)	154	186	274	420	400	500	500	500
Max. Gear Hole "A"	3	3	3	2	3	3	3	3
Reduction		4:1	13:1		40:1	96:1	237:1	453:1
Absolute reduction		4/1	88/7		1936/49	96/1	11616/49	3168/7
Max. feed velocity (mm/s)		66	20		6.6	2.7	1.1	0.6
Max. feed force (continuous) (N)		101	150		218	292	395	490
Max. feed force (intermittent) (N)		202	300		436	500	500	500
Max. Gear Hole "A"		3	3		3	3	3	3
Reduction		6:1	16:1		50:1	113:1	256:1	576:1
Absolute reduction		6/1	16/1		352/7	792/7	256/1	576/1
Max. feed velocity (mm/s)		44	17		5.3	2.3	1.0	0.4
Max. feed force (continuous) (N)		116	161		235	308	405	500
Max. feed force (intermittent) (N)		232	322		470	500	500	500
Max. Gear Hole "A"		2	3		3	3	3	3
Reduction			19:1		59:1	144:1	302:1	679:1
Absolute reduction			132/7		2904/49	144/1	2112/7	4752/7
Max. feed velocity (mm/s)			14		4.5	1.9	0.8	0.4
Max. feed force (continuous) (N)			170		248	334	428	500
Max. feed force (intermittent) (N)			340		496	500	500	500
Max. Gear Hole "A"			3		3	3	3	3
Reduction			24:1		64:1	216:1	356:1	864:1
Absolute reduction			24/1		64/1	216/1	17424/49	864/1
Max. feed velocity (mm/s)			11		4.2	1.2	0.7	0.3
Max. feed force (continuous) (N)			184		255	383	452	500
Max. feed force (intermittent) (N)			368		500	500	500	500
Max. Gear Hole "A"			3		3	2	3	3
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl. screw (%)	71	84	75	75	68	68	61	61
Weight (g)	113	113	123	123	140	140	150	150
Average backlash no load (°)	..68	1.18	1.38	1.38	1.38	1.38	1.38	1.38
Mechanical positioning accuracy (mm)	..16	..19	..4	..4	..4	..4	..4	..4
Mass inertia gearhead incl. screw (g.cm ²)	4.65	0.73	0.14	0.14	0.13	0.13	0.13	0.13
Gearhead length L1 (mm)	36.5	36.5	41.3	41.3	46.1	46.1	50.9	50.9

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=4500rpm For the recommended combination specs, visit AM-22GP.

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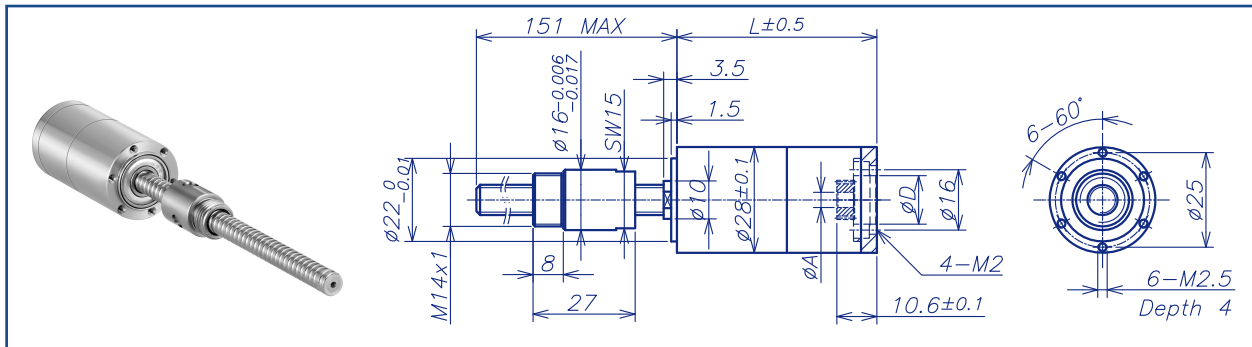
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AM-BS0802-151-26GP Series



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AM-BS0802-151-28GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	φ 8*2, S55C, hardened	Radial play (5mm from flange)	< 0.05mm
Standard length	151mm	Axial play	preloaded
Special length (5mm steps)	Max.300mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	15CrMo, hardended	Max.axial load(static)	1500N
Axial play	<0.01mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	200N 200N 350N 400N 400N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

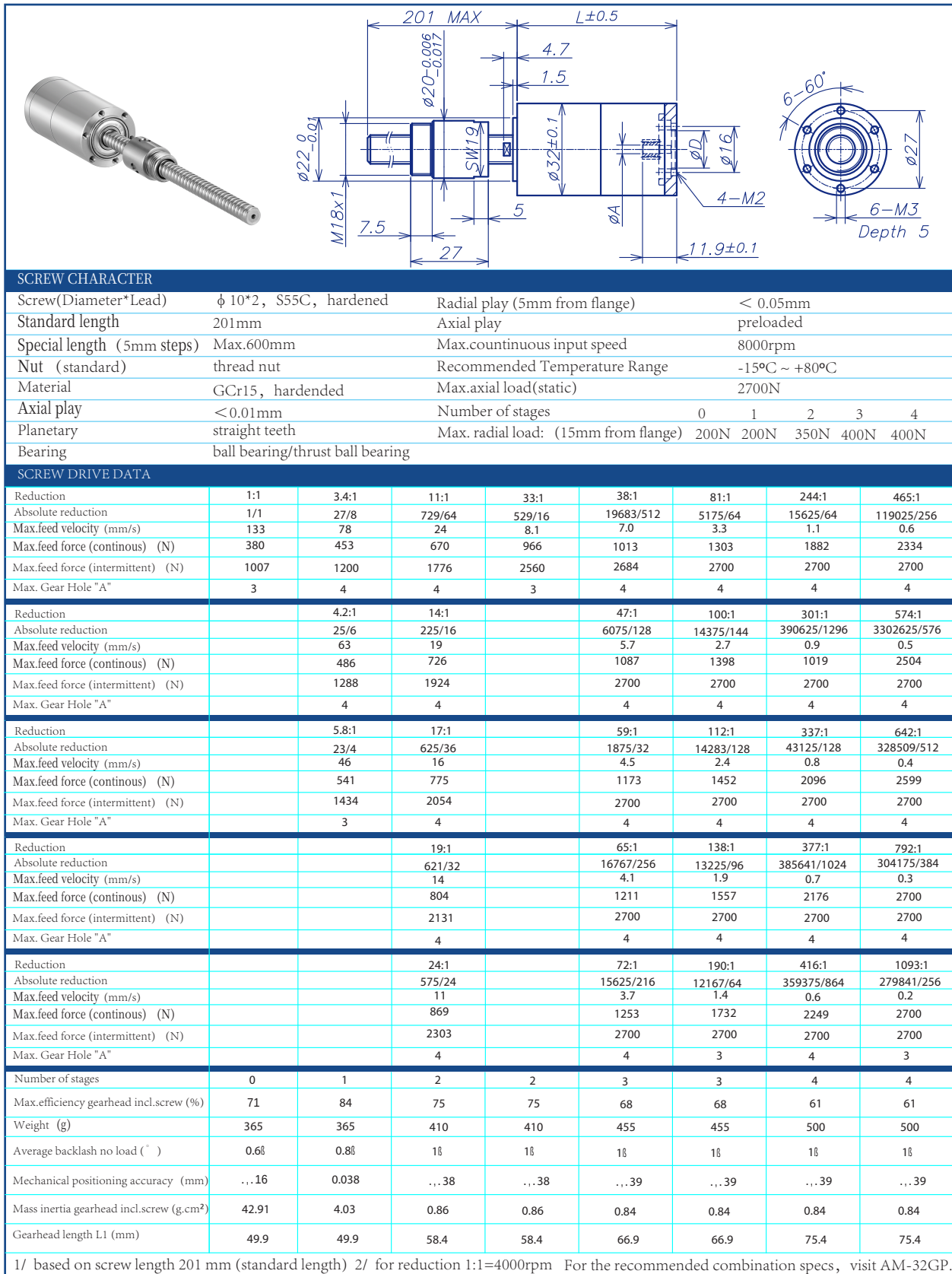
Reduction	1:1	3.4:1	11:1	33:1	38:1	81:1	244:1	465:1
Absolute reduction	1/1	27/8	729/64	529/16	19683/512	5175/64	15625/64	119025/256
Max.feed velocity (mm/s)	150	79	23.4	8.1	6.9	3.3	1.1	0.6
Max.feed force (continous) (N)	203	251	377	537	565	724	1046	1297
Max.feed force (intermittent) (N)	507	628	941	1343	1412	1500	1500	1500
Max. Gear Hole "A"	4	4	4	3	4	4	4	4
Reduction		4.2:1	14:1		47:1	100:1	301:1	574:1
Absolute reduction		25/6	225/16		6075/128	14375/144	390625/1296	3302625/576
Max.feed velocity (mm/s)		64	19		5.6	2.7	0.9	0.5
Max.feed force (continous) (N)		269	404		606	776	1122	1391
Max.feed force (intermittent) (N)		673	1010		1500	1500	1500	1500
Max. Gear Hole "A"		4	4		4	4	4	4
Reduction		5.8:1	17:1		59:1	112:1	337:1	642:1
Absolute reduction		23/4	625/36		1875/32	14283/128	43125/128	328509/512
Max.feed velocity (mm/s)		46.4	15.4		4.6	2.4	0.8	0.4
Max.feed force (continous) (N)		300	433		650	806	1165	1443
Max.feed force (intermittent) (N)		750	1083		1500	1500	1500	1500
Max. Gear Hole "A"		3	4		4	4	4	4
Reduction			19:1		65:1	138:1	377:1	792:1
Absolute reduction			621/32		16767/256	13225/96	385641/1024	304175/384
Max.feed velocity (mm/s)			13.7		4.1	1.9	0.7	0.3
Max.feed force (continous) (N)			450		675	864	1209	1500
Max.feed force (intermittent) (N)			1124		1500	1500	1500	1500
Max. Gear Hole "A"			4		4	4	4	4
Reduction			24:1		72:1	190:1	416:1	1093:1
Absolute reduction			575/24		15625/216	12167/64	359375/864	279841/256
Max.feed velocity (mm/s)			11.1		3.7	1.4	0.6	0.2
Max.feed force (continous) (N)			482		697	962	1249	1500
Max.feed force (intermittent) (N)			1206		1500	1500	1500	1500
Max. Gear Hole "A"			4		4	3	4	3
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	71	84	75	75	68	68	61	61
Weight (g)	240	240	265	265	295	295	325	325
Average backlash no load (°)	0.7%	0.9%	1%	1%	1.1%	1.1%	1.1%	1.1%
Mechanical positioning accuracy (mm)	...17	0.038	...39	...39	...39	...39	...39	...39
Mass inertia gearhead incl.screw (g.cm ²)	25.07	2.28	0.4	0.4	0.39	0.39	0.39	0.39
Gearhead length L1 (mm)	48.6	48.6	55.8	55.8	63.0	63.0	70.2	70.2

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=4500rpm For the recommended combination specs, visit AM-28GP.

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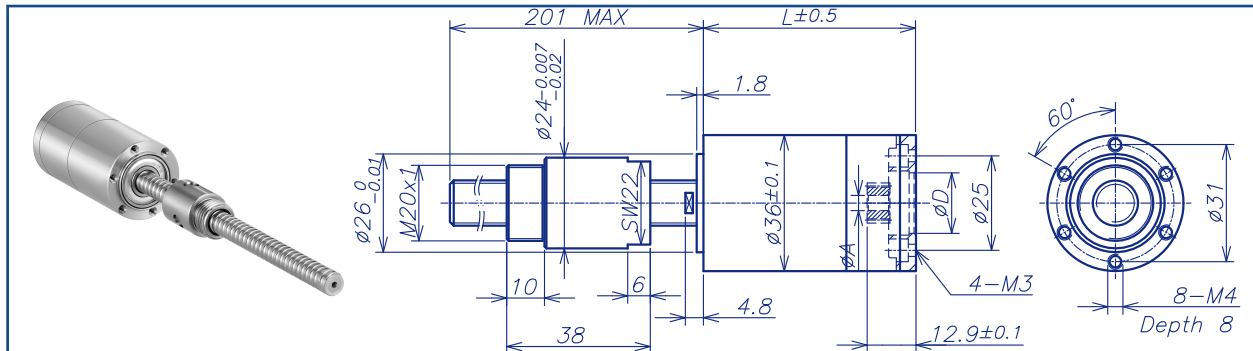
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AM-BS1002-201-32GP Series



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AM-BS1204-201-36GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	φ 12*4, S55C, hardened	Radial play (5mm from flange)	< 0.05mm
Standard length	201mm	Axial play	preloaded
Special length (5mm steps)	Max.600mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	15CrMo, hardended	Max.axial load(static)	5700N
Axial play	< 0.01mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	360N 440N 660N 700N 700N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

Reduction	1:1	3.5:1	12:1	36:1	43:1	91:1	285:1	546:1
Absolute reduction	1/1	7/2	49/4	36/1	343/8	91/1	15379/54	546/1
Max.feed velocity (mm/s)	266.7	152.4	43.5	14.8	12.4	5.9	1.9	1
Max.feed force (continous) (N)	487	538	816	1170	1240	1593	2331	2896
Max.feed force (intermittent) (N)	1219	1346	2042	2925	3100	3984	5700	5700
Max. Gear Hole "A"	6	6	6	4	6	6	6	6
Reduction		4.3:1	15:1		53:1	113:1	353:1	676:1
Absolute reduction		13/3	91/6		637/12	338/3	28561/81	676/1
Max.feed velocity (mm/s)		123.1	35.2		10	4.7	1.54	0.8
Max.feed force (continous) (N)		577	877		1331	1711	2503	3109
Max.feed force (intermittent) (N)		1444	2192		3329	4278	5700	5700
Max. Gear Hole "A"		6	6		6	4	6	6
Reduction		6:1	19:1		66:1	126:1	394:1	756:1
Absolute reduction		6/1	169/9		1183/18	126/1	1183/3	756/1
Max.feed velocity (mm/s)		88.9	28.4		8.1	4.2	1.4	0.7
Max.feed force (continous) (N)		643	941		1430	1776	2598	3228
Max.feed force (intermittent) (N)		1609	2354		3575	4441	5700	5700
Max. Gear Hole "A"		4	6		6	6	6	6
Reduction			21:1		74:1	156:1	441:1	936:1
Absolute reduction			21/1		147/2	156/1	441/1	936/1
Max.feed velocity (mm/s)			25.4		7.3	3.4	1.2	0.6
Max.feed force (continous) (N)			977		1484	1907	2697	3466
Max.feed force (intermittent) (N)			1955		3710	4768	5700	5700
Max. Gear Hole "A"			6		6	6	6	6
Reduction			26:1		81:1	216:1	488:1	1296:1
Absolute reduction			26/1		2197/27	216/1	4394/9	1296/1
Max.feed velocity (mm/s)			20.5		6.6	2.5	1.1	0.4
Max.feed force (continous) (N)			1049		1535	2126	2790	3863
Max.feed force (intermittent) (N)			2624		3838	5315	5700	5700
Max. Gear Hole "A"			6		6	4	6	4
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	93	84	75	75	68	68	61	61
Weight (g)	515	530	590	590	655	655	720	720
Average backlash no load (°)	0.5°	0.7°	0.8°	0.8°	0.8°	0.8°	0.8°	0.8°
Mechanical positioning accuracy (mm)	0.039	0.04	0.042	0.042	0.042	0.042	0.042	0.042
Mass inertia gearhead incl.screw (g.cm ²)	113.24	9.92	1.47	0.47	1.41	1.41	1.41	1.41
Gearhead length L1 (mm)	59.9	59.9	68.9	68.9	77.9	77.9	86.9	86.9

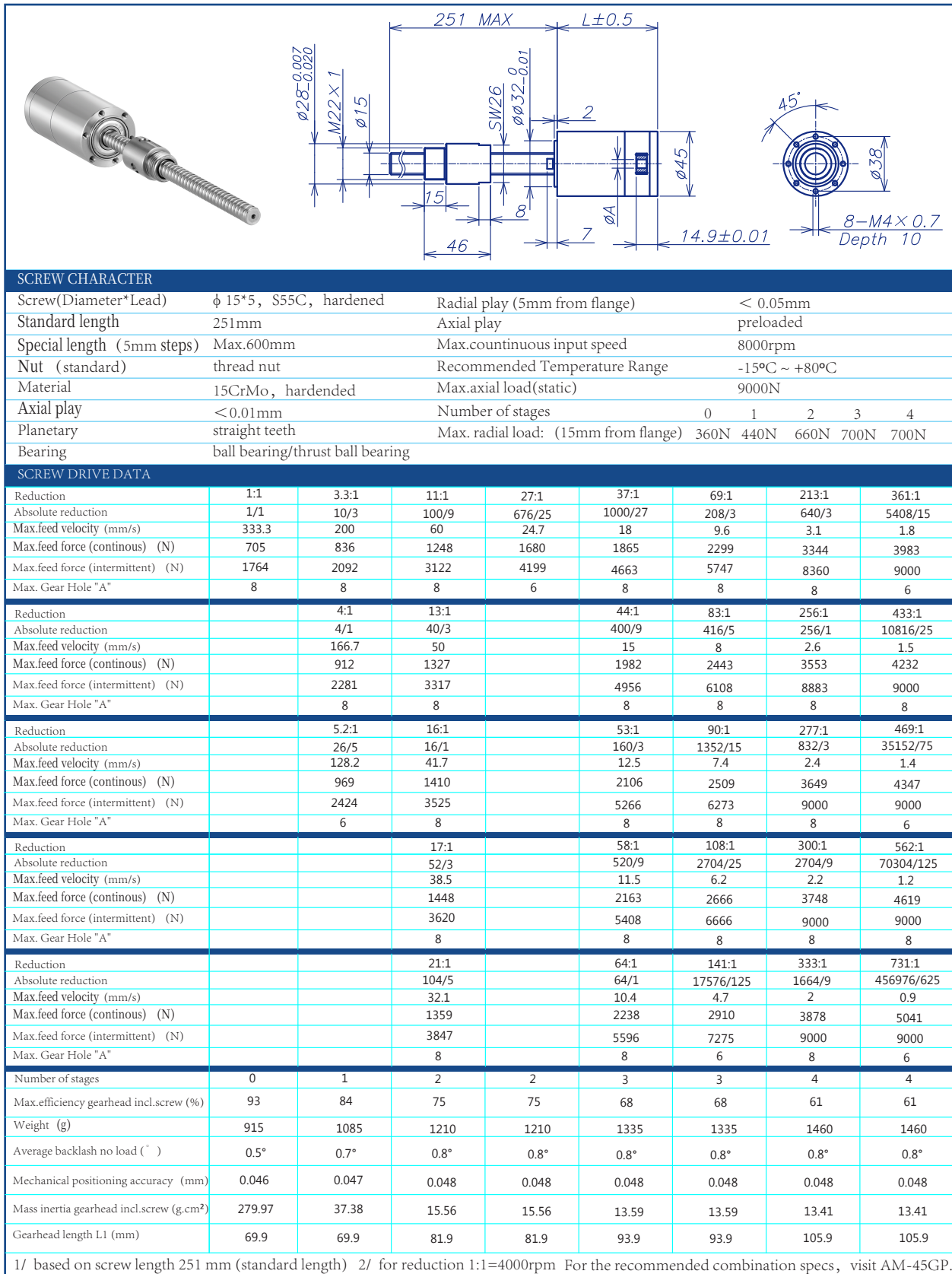
1/ based on screw length 201 mm (standard length) 2/ for reduction 1:1=4000rpm For the recommended combination specs, visit AM-36GP.

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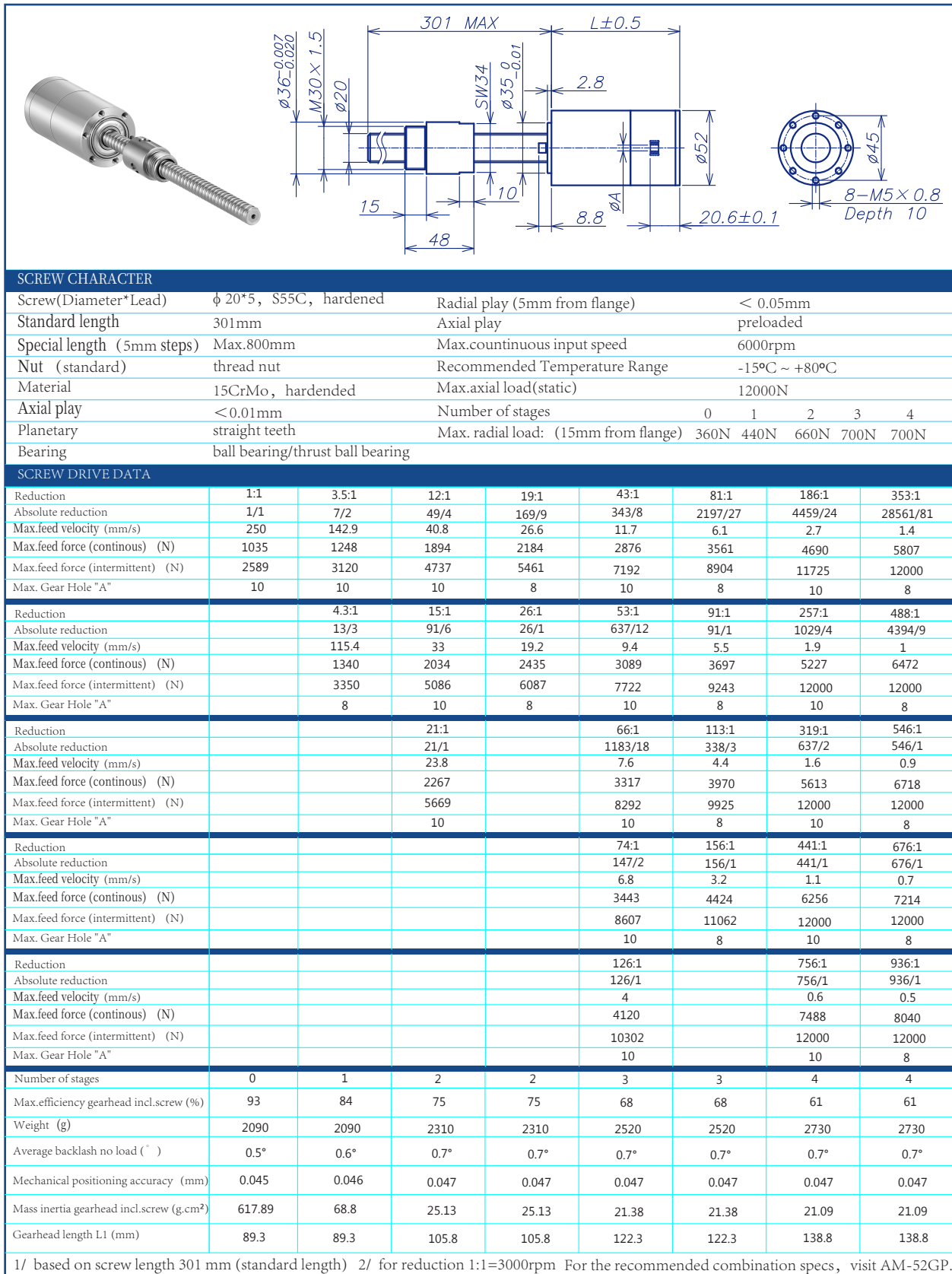
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AM-BS1505-251-45GP Series



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AM-BS2005-301-52GP Series



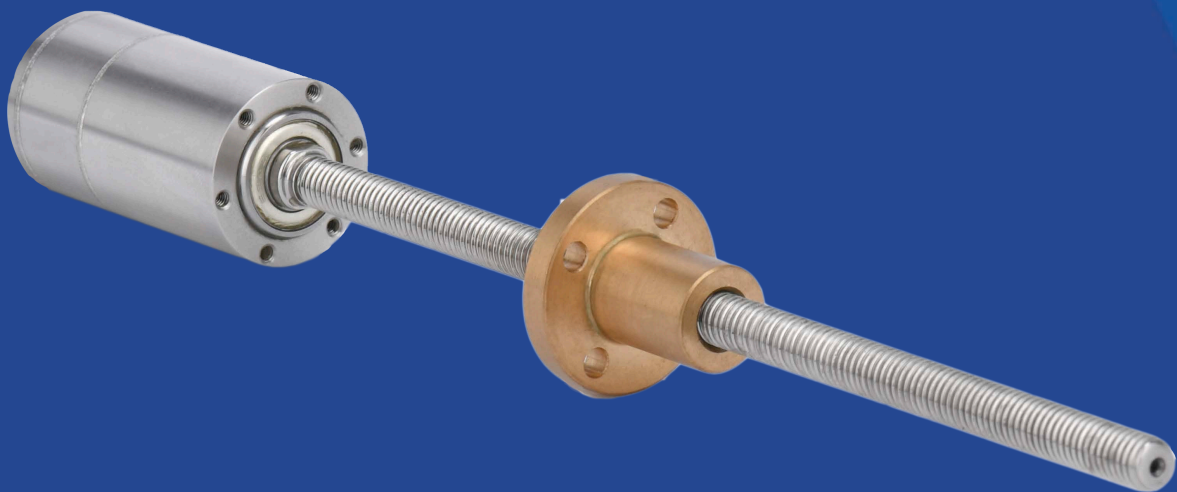
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TRAPEZOIDAL SCREW GEARBOX SCREW PRECISION SERIES

The precision planetary gearbox ball screw of Assun trapezoidal screw has a simple structure, long service life, and stable performance. High torque and power Higher characteristics. The trapezoidal screw precision gearbox with diameters ranging from 10mm to 52mm meets the application needs of customers under high loads.



Technical drawing of a 100mm stroke pneumatic cylinder. The drawing includes a perspective view of the cylinder and a detailed cross-sectional view with dimensions.

Dimensions:

- Total length: 56 MAX
- Stroke: $L \pm 0.5$
- Bore diameter: $\phi 6_{-0.01}^{0.6}$
- Rod diameter: $\phi 8_{-0.022}^{0}$
- Flange diameter: $\phi 10 \pm 0.1$
- Flange mounting holes: 4- $\phi 2.3$ on a $\phi 12$ flange
- Other dimensions: 15, 3, 0.6, 0.75, 3.1, 2.7, 3.5, 3.2, 16, 4, 1.6

Screw(Diameter*Lead)	Tr4*2, SUS304	Radial play (5mm from flange)	< 0.1mm						
Standard length	56mm	Axial play	preloaded						
Special length (5mm steps)	Max.120mm	Max.countinuous input speed	8000rpm						
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C						
Material	copper	Max.axial load(static)	50N						
Axial play	<0.13mm	Number of stages	0	1	2	3	4	5	
Planetary	straight teeth	Max. radial load: (5mm from flange)	10N	10N	15N	17N	17N	17N	
Bearing	ball bearing/thrust ball bearing								

Reduction	1:1	4:1	16:1	64:1	256:1	1024:1		
Absolute reduction	1/1	4/1	16/1	64/1	256/1	1024/1		
Max.feed velocity (mm/s)	100	66.7	16.6	4.1	1.0	0.26		
Max.feed force (continous) (N)	5	8	12	20	32	50		
Max.feed force (intermittent) (N)	10	16	24	40	50	50		
Max. Gear Hole "A"	1.5	1.5	1.5	1.5	1.5	1.5		

Number of stages	0	1	2	3	4	5		
Max. efficiency gearhead incl. screw (%)	45.6	41	36.9	33.2	29.9	26.9		
Weight (g)	35	35	40	45	50	55		
Average backlash no load (°)	1.28	1.38	1.58	1.68	1.68	1.68		
Mechanical positioning accuracy (mm)	0.166	0.167	0.168	0.171	0.171	0.171		
Mass inertia gearhead incl. screw (g.cm²)	0.28	0.05	0.01	0.01	0.01	0.01		
Gearhead length L1 (mm)	25	25	28.2	31.4	34.6	37.8		

TRAPEZOIDAL SCREW

[illegible]

Screw(Diameter*Lead)	Tr4*2, SUS304	Radial play (5mm from flange)	< 0.1mm				
Standard length	81mm	Axial play	preloaded				
Special length (5mm steps)	Max.150mm	Max.countinuous input speed	8000rpm				
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C				
Material	copper	Max.axial load(static)	75N				
Axial play	<0.13mm	Number of stages	0	1	2	3	4
Planetary	straight teeth	Max. radial load: (5mm from flange)	25N	30N	45N	60N	60N
Bearing	ball bearing/thrust ball bearing						

Reduction	1:1	4:1	16:1	64:1	256:1			
Absolute reduction	1/1	4/1	16/1	64/1	256/1			
Max.feed velocity (mm/s)	100	66.7	16.6	4.1	1.0			
Max.feed force (continous) (N)	7	13	16	32	52			
Max.feed force (intermittent) (N)	14	26	32	65	75			
Max. Gear Hole "A"	1.5	1.5	1.5	1.5	1.5			
Reduction		5.3:1	21:1	85:1	341:1			
Absolute reduction		16/3	64/3	256/3	1024/3			
Max.feed velocity (mm/s)		50	12.5	3.1	0.78			
Max.feed force (continous) (N)		15	22	36	57			
Max.feed force (intermittent) (N)		30	45	72	75			
Max. Gear Hole "A"		1.2	1.5	1.5	1.5			
Reduction			28:1	114:1	455:1			
Absolute reduction			256/9	1024/9	4096/9			
Max.feed velocity (mm/s)			9.3	2.3	0.58			
Max.feed force (continous) (N)			25	39	63			
Max.feed force (intermittent) (N)			50	75	75			
Max. Gear Hole "A"			1.2	1.5	1.5			
Reduction				152:1	607:1			
Absolute reduction				4096/27	16384/27			
Max.feed velocity (mm/s)				1.7	0.43			
Max.feed force (continous) (N)				43	69			
Max.feed force (intermittent) (N)				75	75			
Max. Gear Hole "A"				1.2	1.5			
Reduction					809:1			
Absolute reduction					65536/81			
Max.feed velocity (mm/s)					0.32			
Max.feed force (continous) (N)					75			
Max.feed force (intermittent) (N)					75			
Max. Gear Hole "A"					1.2			
Number of stages	0	1	2	3	4			
Max.efficiency gearhead incl.screw (%)	45.6	41	36.9	33.2	29.9			
Weight (g)	35	30	30	35	40			
Average backlash no load (°)	1.1°	1.3°	1.5°	1.6°	1.6°			
Mechanical positioning accuracy (mm)	0.167	0.168	0.170	0.170	0.170			
Mass inertia gearhead incl.screw (g.cm ²)	0.78	0.05	0.01	0.01	0.01			
Gearhead length L1 (mm)	24.6	24.6	29.3	34.0	48.7			

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Technical drawing of a 100mm stroke pneumatic cylinder. The drawing includes a 3D perspective view on the left and a detailed 2D technical drawing on the right. The 2D drawing shows the cylinder with dimensions in millimeters (mm) and a maximum length of 102 mm. Key dimensions include: overall length 102 MAX, stroke length 18, mounting bracket width 3.3, mounting bracket thickness 0.8, mounting bracket hole diameter 4, mounting bracket hole offset M, mounting bracket hole diameter 4, mounting bracket hole offset 10, mounting bracket hole diameter 10, mounting bracket hole offset 6.4, mounting bracket hole diameter 16, mounting bracket hole offset 6, mounting bracket hole diameter 13, mounting bracket hole offset 6, mounting bracket hole diameter 6-M2, mounting bracket hole offset Depth 3. The 3D view shows the cylinder with a mounting bracket and a threaded rod.

VIEW M

Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl. screw (%)	39.8	35.8	32.2	32.2	29	29	26.1	26.1
Weight (g)	50	50	55	55	60	60	65	65
Average backlash no load (°)	1.18	1.38	1.68	1.68	1.68	1.68	1.68	1.68
Mechanical positioning accuracy (mm)	0.167	0.168	0.170	0.170	0.170	0.170	0.170	0.170
Mass inertia gearhead incl. screw (g.cm ²)	1.48	0.1	0.01	0.01	0.01	0.01	0.01	0.01
Gearhead length L1 (mm)	27.9	27.9	31.6	31.6	35.3	35.3	39.0	39.0

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Technical drawing of a 100W 24VDC brushless motor. The drawing includes a 3D perspective view of the motor and a detailed cross-sectional view with dimensions.

Dimensions:

- Overall length: $L \pm 0.5$
- Shaft diameter: $\phi 12_{-0.007}^{+0.000}$
- Motor body diameter: $\phi 18$ (P.C.D.)
- Motor body length: 151 MAX
- Shaft length: 20
- Shaft thread: $4 - \phi 3.3$
- Motor body length (excluding shaft): 4
- Motor body length (excluding shaft and mounting flange): 3.4
- Motor body length (excluding shaft and mounting flange): 1.2
- Motor body length (excluding shaft and mounting flange): 6.5 ± 0.1
- Motor body length (excluding shaft and mounting flange): $\phi 13 \begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$
- Motor body length (excluding shaft and mounting flange): $\phi 19 \pm 0.1$
- Motor body length (excluding shaft and mounting flange): $\phi 16 \pm 0.1$
- Motor body length (excluding shaft and mounting flange): $6 - M2$ Depth 3
- Motor body length (excluding shaft and mounting flange): $6 - 60^\circ$

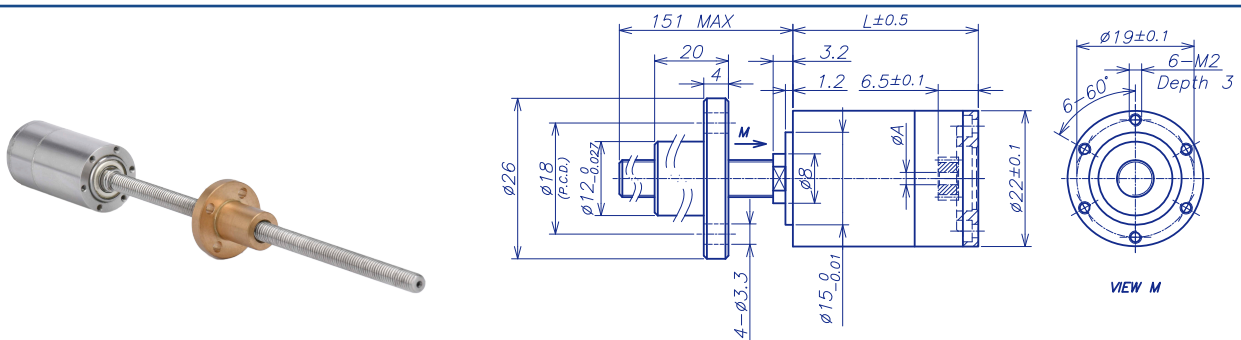
VIEW M

Reduction	1:1	3.8:1	14:1	29:1	53:1	67:1	198:1	455:1
Absolute reduction	1/1	15/4	225/16	729/25	3375/64	24/5/30	50625/256	5000211/10985
Max.feed velocity (mm/s)	100	71.1	18.9	9.1	5.0	1.1	1.3	0.58
Max.feed force (continous) (N)	30	38	93	118	144	171	224	296
Max.feed force (intermittent) (N)	60	76	186	237	289	343	350	350
Max. Gear Hole "A"	3	3	3	2	3	3	3	2
Reduction		4.4:1	16:1		62:1	/ .2:1	231:1	561:1
Absolute reduction		57/13	855/52		12825/208	65501/623	192375/832	2368521/4225
Max.feed velocity (mm/s)		60.8	16.2		4.3	2.5	1.1	0.47
Max.feed force (continous) (N)		46	98		152	181	236	317
Max.feed force (intermittent) (N)		92	196		304	350	350	350
Max. Gear Hole "A"		3	3		3	0	3	2
Reduction		5.4:1	19:1		72:1	109:1	270:1	690:1
Absolute reduction		27/5	3249/169		48735/676	2187/20	731025/2704	1121931/1625
Max.feed velocity (mm/s)		49.3	13.9		3.7	2.4	0.98	0.38
Max.feed force (continous) (N)		60	103		160	184	249	340
Max.feed force (intermittent) (N)		120	206		320	350	350	350
Max. Gear Hole "A"		2	2		3	3	3	2
Reduction			20:1		76:1	128:1	316:1	850:1
Absolute reduction			81/4		1215/16	41553/325	2777895/8788	531441/625
Max.feed velocity (mm/s)			13.1		3.5	2.0	0.84	0.31
Max.feed force (continous) (N)			105		163	194	262	350
Max.feed force (intermittent) (N)			210		326	350	350	350
Max. Gear Hole "A"			3		3	2	3	2
Reduction			24:1		84:1	157:1	370:1	
Absolute reduction			1539/65		185193/2197	19683/125	10556001/28561	
Max.feed velocity (mm/s)			11.2		3.1	1.7	0.72	
Max.feed force (continous) (N)			110		169	208	276	
Max.feed force (intermittent) (N)			221		338	350	350	
Max. Gear Hole "A"			2		2	2	2	
Number of stages	0	1	2	2	3	3	4	4
Max.efficiency gearhead incl.screw (%)	35.3	31.7	28.5	28.5	25.7	25.7	23.1	23.1
Weight (g)	100	100	110	110	120	120	130	130
Average backlash no load (°)	18	1.28	1.58	1.58	1.58	1.58	1.58	1.58
Mechanical positioning accuracy (mm)	0.165	0.168	0.170	0.170	0.0170	0.170	0.170	0.170
Mass inertia gearhead incl.screw (g.cm²)	3.44	0.25	0.04	0.04	0.04	0.04	0.04	0.04
Gearhead length L1 (mm)	32.8	32.8	37.6	37.6	42.4	42.4	47.2	47.2

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SCREW PLANETARY GEARBOX TRAPEZOIDAL SCREW

AM-TS0602-151-22GP Series



SCREW CHARACTER				
Screw(Diameter*Lead)	Tr6*2, SUS304	Radial play (5mm from flange)	< 0.05mm	
Standard length	151mm	Axial play	preloaded	
Special length (5mm steps)	300mm	Max.continuous input speed	8000rpm	
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C	
Material	copper	Max.axial load(static)	350N	
Axial play	≤ 0.13mm	Number of stages	0	1
Planetary	straight teeth	Max. radial load: (15mm from flange)	120N	140N
Bearing	ball bearing/thrust ball bearing		200N	200N

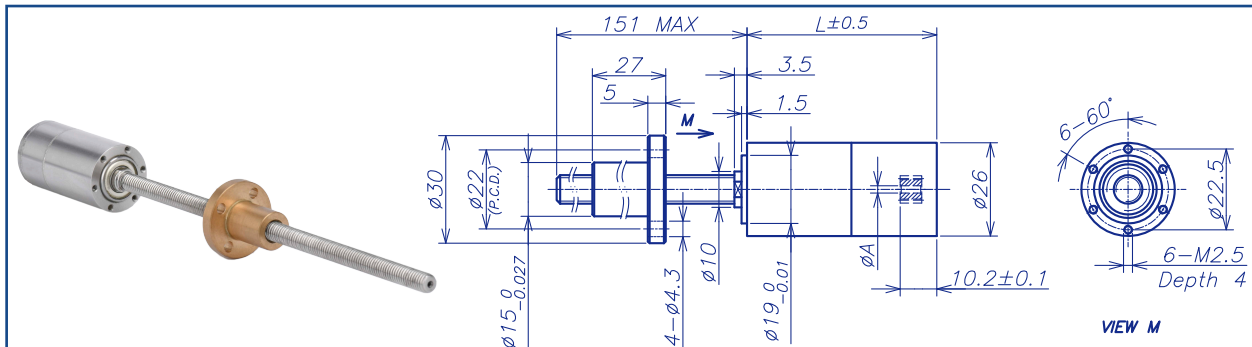
SCREW DRIVE DATA									
Reduction	1:1	3.1:1	10:1	36:1	31:1	75:1	201:1	384:1	
Absolute reduction	1/1	22/7	484/49	36/1	10648/343	528/7	1408/7	384/1	
Max.feed velocity (mm/s)	100	84.8	27	7.4	8.6	3.5	1.3	0.69	
Max.feed force (continuous) (N)	30	32	82	126	120	161	223	277	
Max.feed force (intermittent) (N)	60	64	164	252	240	322	350	350	
Max. Gear Hole "A"	3	3	3	2	3	3	3	3	
Reduction		4:1	13:1		40:1	96:1	237:1	453:1	
Absolute reduction		4/1	88/7		1936/49	96/1	11616/49	3168/7	
Max.feed velocity (mm/s)		66.6	21.2		6.7	2.7	1.1	0.59	
Max.feed force (continuous) (N)		43	88		130	175	236	293	
Max.feed force (intermittent) (N)		86	177		260	350	350	350	
Max. Gear Hole "A"		3	3		3	3	3	3	
Reduction		6:1	16:1		50:1	113:1	256:1	576:1	
Absolute reduction		6/1	16/1		352/7	792/7	256/1	576/1	
Max.feed velocity (mm/s)		44.4	16.6		5.3	2.3	1.0	0.46	
Max.feed force (continuous) (N)		69	96		141	184	242	317	
Max.feed force (intermittent) (N)		138	192		282	350	350	350	
Max. Gear Hole "A"		2	3		3	3	3	3	
Reduction			19:1		59:1	144:1	302:1	679:1	
Absolute reduction			132/7		2904/49	144/1	2112/7	4752/7	
Max.feed velocity (mm/s)			14.1		4.5	1.8	0.88	0.39	
Max.feed force (continuous) (N)			101		149	200	256	335	
Max.feed force (intermittent) (N)			203		298	350	350	350	
Max. Gear Hole "A"			3		3	3	3	3	
Reduction			24:1		64:1	216:1	356:1	864:1	
Absolute reduction			24/1		64/1	216/1	17424/49	864/1	
Max.feed velocity (mm/s)			11.1		4.1	1.2	0.75	0.3	
Max.feed force (continuous) (N)			110		152	229	270	350	
Max.feed force (intermittent) (N)			220		305	350	350	350	
Max. Gear Hole "A"			3		3	2	3	3	
Number of stages	0	1	2	2	3	3	4	4	
Max. efficiency gearhead incl.screw (%)	35.3	31.7	28.5	28.5	25.7	25.7	23.1	23.1	
Weight (g)	1/3	1/3	1/23	1/23	140	140	150	150	
Average backlash no load (°)	.68	1.18	1.38	1.38	1.38	1.38	1.38	1.38	
Mechanical positioning accuracy (mm)	0.164	0.167	0.168	0.168	0.168	0.168	0.168	0.168	
Mass inertia gearhead incl.screw (g.cm ²)	4.65	0.73	0.14	0.14	0.13	0.13	0.13	0.13	
Gearhead length L1 (mm)	36.5	36.5	41.3	41.3	46.1	46.1	50.9	50.9	

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-22GP.

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AM-TS0802-151-26GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	Tr8*2, SUS304	Radial play (5mm from flange)	< 0.05mm
Standard length	151mm	Axial play	preloaded
Special length (5mm steps)	Max.300mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	copper	Max.axial load(static)	1000N
Axial play	< 0.13mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	150N 170N 200N 200N 200N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

Reduction	1:1	3.7:1	13:1	36:1	49:1	113:1	252:1	572:1
Absolute reduction	1/1	11/3	121/9	36/1	1331/27	338/3	20449/81	572/1
Max.feed velocity (mm/s)	150	72	19.8	7.4	5.4	2.3	1.0	0.46
Max.feed force (continuous) (N)	203	77	277	386	428	564	739	970
Max.feed force (intermittent) (N)	507	154	554	772	857	1000	1000	1000
Max. Gear Hole "A"	4	4	4	2	4	4	4	4
Reduction		4.3:1	16:1		58:1	132:1	298:1	676:1
Absolute reduction		13/3	143/9		1573/27	132/1	24167/81	676/1
Max.feed velocity (mm/s)		61	16.7		4.5	2.0	0.89	0.39
Max.feed force (continuous) (N)		61	294		453	595	781	1000
Max.feed force (intermittent) (N)		92	588		906	1000	1000	1000
Max. Gear Hole "A"		4	4		4	4	4	4
Reduction		6:1	19:1		69:1	156:1	353:1	792:1
Absolute reduction		6/1	169/9		1859/27	156/1	28561/81	792/1
Max.feed velocity (mm/s)		44	14.2		3.8	1.7	0.75	0.33
Max.feed force (continuous) (N)		136	310		479	629	826	1000
Max.feed force (intermittent) (N)		272	620		958	1000	1000	1000
Max. Gear Hole "A"		2	4		4	4	4	2
Reduction			22:1		81:1	216:1	413:1	936:1
Absolute reduction			22/1		2197/27	216/1	3718/9	936/1
Max.feed velocity (mm/s)			12.1		3.2	1.2	0.64	0.28
Max.feed force (continuous) (N)			327		506	701	870	1000
Max.feed force (intermittent) (N)			655		1000	1000	1000	1000
Max. Gear Hole "A"			4		4	2	4	2
Reduction			26:1		95:1		488:1	1296:1
Absolute reduction			26/1		286/3		4394/9	1296/1
Max.feed velocity (mm/s)			10.2		2.7		0.54	0.2
Max.feed force (continuous) (N)			346		534		920	1000
Max.feed force (intermittent) (N)			692		1000		1000	1000
Max. Gear Hole "A"			4		4		4	2
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	28.7	25.8	23.2	23.2	20.9	20.9	18.8	18.8
Weight (g)	215	215	240	240	270	270	300	300
Average backlash no load (°)	1°	1.2°	1.4°	1.4°	1.5°	1.5°	1.5°	1.5°
Mechanical positioning accuracy (mm)	0.167	0.168	0.170	0.170	0.171	0.171	0.171	0.171
Mass inertia gearhead incl.screw (g.cm ²)	18.14	1.34	0.29	0.29	0.28	0.28	0.28	0.28
Gearhead length L1 (mm)	44.7	44.7	53.2	53.2	61.7	61.7	70.2	70.2

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-26GP.

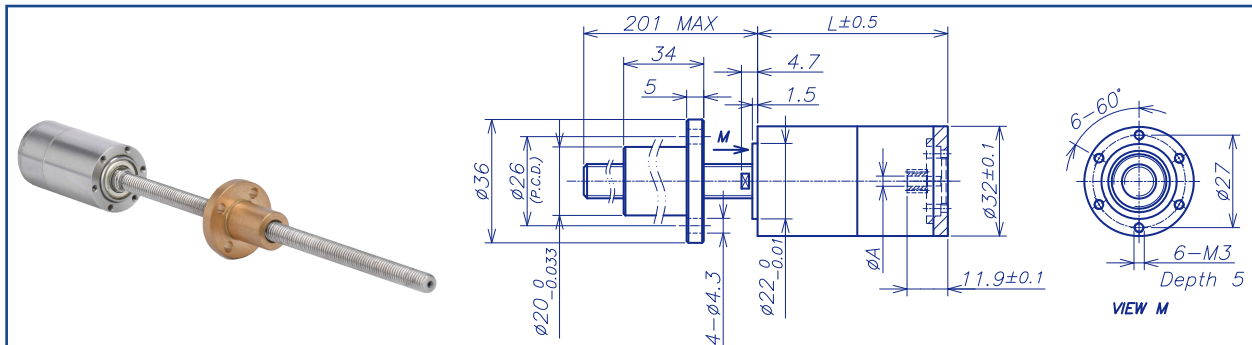
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Reduction	1:1	3.4:1	11:1	33:1	38:1	81:1	244:1	465:1
Absolute reduction	1/1	27/8	729/64	529/16	19683/512	5175/64	15625/64	119025/256
Max.feed velocity (mm/s)	100	79	23.4	8.0	6.9	3.3	1.1	0.57
Max.feed force (continous) (N)	55	75	263	375	395	506	731	906
Max.feed force (intermittent) (N)	90	150	526	751	792	1000	1000	1000
Max. Gear Hole "A"	4	4	4	3	4	4	4	4
Reduction		4.2:1	14:1		47:1	100:1	301:1	574:1
Absolute reduction		25/6	225/16		6075/128	14375/144	390625/1296	3302625/576
Max.feed velocity (mm/s)		64	18.9		5.6	2.6	0.88	0.46
Max.feed force (continous) (N)		92	282		423	542	784	972
Max.feed force (intermittent) (N)		184	565		847	1000	1000	1000
Max. Gear Hole "A"		4	4		4	4	4	4
Reduction		5.8:1	17:1		59:1	112:1	337:1	642:1
Absolute reduction		23/4	625/36		1875/32	14283/128	43125/128	328509/512
Max.feed velocity (mm/s)		46.3	15.3		4.5	2.3	0.79	0.41
Max.feed force (continous) (N)		135	303		454	563	814	1000
Max.feed force (intermittent) (N)		270	606		909	1000	1000	1000
Max. Gear Hole "A"		3	4		4	4	4	4
Reduction			19:1		65:1	138:1	377:1	792:1
Absolute reduction			621/32		16767/256	13225/96	385641/1024	304175/384
Max.feed velocity (mm/s)			13.7		4.0	1.9	0.7	0.33
Max.feed force (continous) (N)			314		471	604	845	1000
Max.feed force (intermittent) (N)			629		943	1000	1000	1000
Max. Gear Hole "A"			4		4	4	4	4
Reduction			24:1		72:1	190:1	416:1	1093:1
Absolute reduction			575/24		15625/216	12167/64	359375/864	279841/256
Max.feed velocity (mm/s)			11.1		3.6	1.4	0.64	0.24
Max.feed force (continous) (N)			337		487	673	873	1000
Max.feed force (intermittent) (N)			674		975	1000	1000	1000
Max. Gear Hole "A"			4		4	3	4	3
Number of stages	0	1	2	2	3	3	4	4
Max.efficiency gearhead incl.screw (%)	28.7	25.8	23.2	23.2	20.9	20.9	18.8	18.8
Weight (g)	240	240	265	265	295	295	325	325
Average backlash no load (°)	0.68	0.98	18	18	1.18	1.18	1.18	1.18
Mechanical positioning accuracy (mm)	0.164	0.166	0.167	0.167	0.168	0.168	0.168	0.168
Mass inertia gearhead incl.screw (g.cm²)	25.07	2.28	0.4	0.4	0.39	0.39	0.39	0.39
Gearhead length L1 (mm)	48.6	48.6	55.8	55.8	63.0	63.0	70.2	70.2

1/ based on screw length 151 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs , visit AM-28GP.

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AM-TS1002-201-32GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	Tr10*2, SUS304	Radial play (5mm from flange)	< 0.05mm
Standard length	201mm	Axial play	preloaded
Special length (5mm steps)	Max.600mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	Copper	Max.axial load(static)	1530N
Axial play	<0.15mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	200N 350N 400N 400N 400N
Bearing	ball bearing/thrust ball bearing		

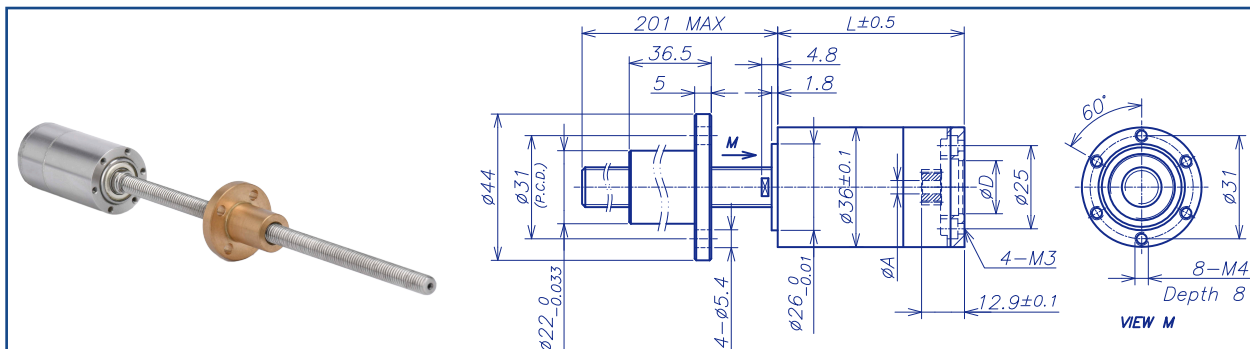
SCREW DRIVE DATA

Reduction	1:1	3.4:1	11:1	33:1	38:1	81:1	244:1	465:1
Absolute reduction	1/1	27/8	729/64	529/16	19683/512	5175/64	15625/64	119025/256
Max.feed velocity (mm/s)	100	79	23.4	8.0	6.9	3.3	1.1	0.57
Max.feed force (continuous) (N)	82	82	288	600	631	809	1169	1450
Max.feed force (intermittent) (N)	164	164	576	1201	1263	1530	1530	1530
Max. Gear Hole "A"	3	4	4	3	4	4	4	4
Reduction		4.2:1	14:1		47:1	100:1	301:1	574:1
Absolute reduction		25/6	225/16		6075/128	14375/144	390625/1296	3302625/576
Max.feed velocity (mm/s)		64	18.9		5.6	2.6	0.88	0.46
Max.feed force (continuous) (N)		103	398		677	868	1254	1530
Max.feed force (intermittent) (N)		206	796		1355	1530	1530	1530
Max. Gear Hole "A"		4	4		4	4	4	4
Reduction		5.8:1	17:1		59:1	112:1	337:1	642:1
Absolute reduction		23/4	625/36		1875/32	14283/128	43125/128	328509/512
Max.feed velocity (mm/s)		46.3	15.3		4.5	2.3	0.79	0.41
Max.feed force (continuous) (N)		135	451		727	901	1302	1530
Max.feed force (intermittent) (N)		270	902		1454	1530	1530	1530
Max. Gear Hole "A"		3	4		4	4	4	4
Reduction			19:1		65:1	138:1	377:1	792:1
Absolute reduction			621/32		16767/256	13225/96	385641/1024	304175/384
Max.feed velocity (mm/s)			13.7		4.0	1.9	0.7	0.33
Max.feed force (continuous) (N)			503		754	966	1351	1530
Max.feed force (intermittent) (N)			1006		1509	1530	1530	1530
Max. Gear Hole "A"			4		4	4	4	4
Reduction			24:1		72:1	190:1	416:1	1093:1
Absolute reduction			575/24		15625/216	12167/64	359375/864	279841/256
Max.feed velocity (mm/s)			11.1		3.6	1.4	0.64	0.24
Max.feed force (continuous) (N)			539		779	1076	1397	1530
Max.feed force (intermittent) (N)			1079		1530	1530	1530	1530
Max. Gear Hole "A"			4		4	3	4	3
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	24	21.6	19.4	19.4	17.5	17.5	15.7	15.7
Weight (g)	365	365	410	410	455	455	500	500
Average backlash no load (°)	0.68	0.88	18	18	18	18	18	18
Mechanical positioning accuracy (mm)	0.164	0.166	0.167	0.167	0.167	0.167	0.167	0.167
Mass inertia gearhead incl.screw (g.cm ²)	42.91	4.03	0.86	0.86	0.84	0.84	0.84	0.84
Gearhead length L1 (mm)	49.9	49.9	58.4	58.4	66.9	66.9	75.4	75.4

1/ based on screw length 201 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-32GP.

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AM-TS1204-201-36GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	Tr12*4, SUS304	Radial play (5mm from flange)	< 0.05mm
Standard length	201mm	Axial play	preloaded
Special length (5mm steps)	Max.600mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	Copper	Max.axial load(static)	2300N
Axial play	< 0.13mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (20mm from flange)	360N 440N 660N 700N 700N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

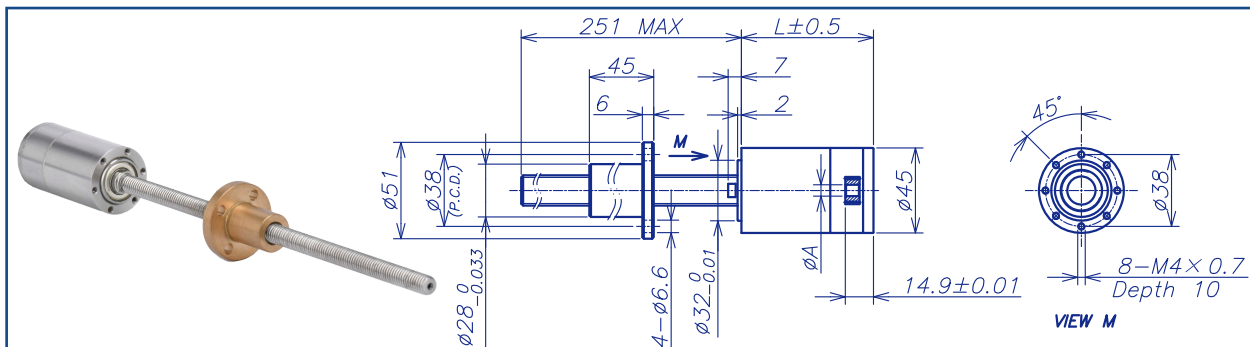
Reduction	1:1	3.5:1	12:1	36:1	43:1	91:1	285:1	546:1
Absolute reduction	1/1	7/2	49/4	36/1	343/8	91/1	15379/54	546/1
Max.feed velocity (mm/s)	200	152.3	43.5	14.8	12.4	5.8	1.8	0.9
Max.feed force (continuous) (N)	80	112	485	872	924	1187	1737	2158
Max.feed force (intermittent) (N)	160	224	970	1744	1848	2300	2300	2300
Max. Gear Hole "A"	6	6	6	4	6	6	6	6
Reduction		4.3:1	15:1		53:1	113:1	353:1	676:1
Absolute reduction		13/3	91/6		637/12	338/3	28561/81	676/1
Max.feed velocity (mm/s)		123.0	35.1		10	4.7	1.5	0.8
Max.feed force (continuous) (N)		145	582		992	1275	1865	2300
Max.feed force (intermittent) (N)		290	1164		1985	2300	2300	2300
Max. Gear Hole "A"		6	6		6	4	6	6
Reduction		6:1	19:1		66:1	126:1	394:1	756:1
Absolute reduction		6/1	169/9		1183/18	126/1	1183/3	756/1
Max.feed velocity (mm/s)		88.8	28.4		8.1	4.2	1.3	0.7
Max.feed force (continuous) (N)		208	702		1065	1324	1936	2300
Max.feed force (intermittent) (N)		416	1404		2131	2300	2300	2300
Max. Gear Hole "A"		4	6		6	6	6	6
Reduction			21:1		74:1	156:1	441:1	936:1
Absolute reduction			21/1		147/2	156/1	441/1	936/1
Max.feed velocity (mm/s)			25.3		7.2	3.4	1.2	0.5
Max.feed force (continuous) (N)			728		1106	1421	2010	2300
Max.feed force (intermittent) (N)			1457		2212	2300	2300	2300
Max. Gear Hole "A"			6		6	6	6	6
Reduction			26:1		81:1	216:1	488:1	1296:1
Absolute reduction			26/1		2197/27	216/1	4394/9	1296/1
Max.feed velocity (mm/s)			20.5		6.5	2.4	1.1	0.4
Max.feed force (continuous) (N)			782		1144	1584	2079	2300
Max.feed force (intermittent) (N)			1564		2288	2300	2300	2300
Max. Gear Hole "A"			6		6	4	6	4
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl. screw (%)	84	84	75	75	68	68	61	61
Weight (g)	518	530	590	590	655	655	720	720
Average backlash no load (°)	0.5°	0.7°	0.8°	0.8°	0.8°	0.8°	0.8°	0.8°
Mechanical positioning accuracy (mm)	0.164	0.164	0.166	0.167	0.167	0.167	0.167	0.167
Mass inertia gearhead incl. screw (g.cm ²)	113.24	9.92	1.47	0.47	1.41	1.41	1.41	1.41
Gearhead length L1 (mm)	59.9	59.9	68.9	68.9	77.9	77.9	86.9	86.9

1/ based on screw length 201 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-36GP.

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AM-TS1605-251-45GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	Ts16*5, SUS304	Radial play (5mm from flange)	< 0.05mm
Standard length	251mm	Axial play	preloaded
Special length (5mm steps)	Max.600mm	Max.countinuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	Copper	Max.axial load(static)	5000N
Axial play	<0.13mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (15mm from flange)	440N 660N 700N 700N 700N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

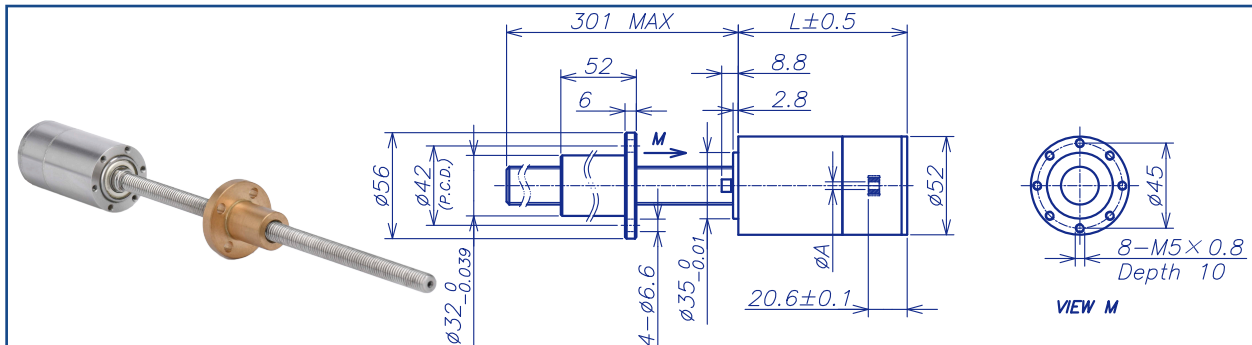
Reduction	1:1	3.3:1	11:1	27:1	37:1	69:1	213:1	361:1
Absolute reduction	1/1	10/3	100/9	676/25	1000/27	208/3	640/3	5408/15
Max.feed velocity (mm/s)	250	200	60	24.6	18	9.6	3.1	1.8
Max.feed force (continous) (N)	110	188	561	1118	1241	1530	2225	2651
Max.feed force (intermittent) (N)	220	376	1122	2236	2483	3060	4451	5000
Max. Gear Hole "A"	8	8	8	6	8	8	8	6
Reduction		4:1	13:1		44:1	83:1	256:1	433:1
Absolute reduction		4/1	40/3		400/9	416/5	256/1	10816/25
Max.feed velocity (mm/s)		166.7	50		15	8	2.6	1.5
Max.feed force (continous) (N)		231	646		1319	1626	2365	2817
Max.feed force (intermittent) (N)		2281	1292		2638	3252	4730	5000
Max. Gear Hole "A"		8	8		8	8	8	8
Reduction		5.2:1	16:1		53:1	90:1	277:1	469:1
Absolute reduction		26/5	16/1		160/3	1352/15	832/3	35152/75
Max.feed velocity (mm/s)		128.2	41.6		12.5	7.3	2.4	1.4
Max.feed force (continous) (N)		272	835		1402	1670	2429	2893
Max.feed force (intermittent) (N)		544	1670		2804	3340	4858	5000
Max. Gear Hole "A"		6	8		8	8	8	6
Reduction			17:1		58:1	108:1	300:1	562:1
Absolute reduction			52/3		520/9	2704/25	2704/9	70304/125
Max.feed velocity (mm/s)			38.4		11.5	6.1	2.2	1.1
Max.feed force (continous) (N)			964		1440	1774	2494	3074
Max.feed force (intermittent) (N)			1928		2880	3549	4989	5000
Max. Gear Hole "A"			8		8	8	8	8
Reduction			21:1		64:1	141:1	333:1	731:1
Absolute reduction			104/5		64/1	17576/125	1664/9	456976/625
Max.feed velocity (mm/s)			32.0		10.4	4.7	2	0.9
Max.feed force (continous) (N)			1024		1489	1936	2581	3355
Max.feed force (intermittent) (N)			2048		2979	3873	5000	5000
Max. Gear Hole "A"			8		8	6	8	6
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl.screw (%)	36	32	29	29	26	26	23	23
Weight (g)	1085	1085	1210	1210	1335	1335	1460	1460
Average backlash no load (°)	0.5°	0.7°	0.8°	0.8°	0.8°	0.8°	0.8°	0.8°
Mechanical positioning accuracy (mm)	0.167	0.167	0.168	0.168	0.168	0.168	0.168	0.168
Mass inertia gearhead incl.screw (g.cm ²)	279.97	37.38	15.56	15.56	13.59	13.59	13.41	13.41
Gearhead length L1 (mm)	69.9	69.9	81.9	81.9	93.9	93.9	105.9	105.9

1/ based on screw length 251 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-45GP.

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SCREW PLANETARY GEARBOX TRAPEZOIDAL SCREW

AM-TS2005-301-52GP Series



SCREW CHARACTER

Screw(Diameter*Lead)	Tr20*5, SUS304	Radial play (5mm from flange)	< 0.05mm
Standard length	301mm	Axial play	preloaded
Special length (5mm steps)	Max.800mm	Max.continuous input speed	8000rpm
Nut (standard)	thread nut	Recommended Temperature Range	-15°C ~ +80°C
Material	Copper	Max.axial load(static)	7000N
Axial play	< 0.13mm	Number of stages	0 1 2 3 4
Planetary	straight teeth	Max. radial load: (20mm from flange)	440N 660N 700N 700N 700N
Bearing	ball bearing/thrust ball bearing		

SCREW DRIVE DATA

Reduction	1:1	3.5:1	12:1	19:1	43:1	81:1	186:1	353:1
Absolute reduction	1/1	7/2	49/4	169/9	343/8	2197/27	4459/24	28561/81
Max.feed velocity (mm/s)	250	190.4	54.4	35.5	15.5	8.1	3.5	1.8
Max.feed force (continuous) (N)	150	198	670	1138	1912	2368	3118	3860
Max.feed force (intermittent) (N)	300	396	1340	2276	3825	4736	6236	7000
Max. Gear Hole "A"	10	10	10	8	10	8	10	8
Reduction		4.3:1	15:1	26:1	53:1	91:1	257:1	488:1
Absolute reduction		13/3	91/6	26/1	637/12	91/1	1029/4	4394/9
Max.feed velocity (mm/s)		153.8	43.9	25.6	12.5	7.3	2.5	1.3
Max.feed force (continuous) (N)		271	851	1619	2053	2458	3475	4303
Max.feed force (intermittent) (N)		542	1702	3238	4107	4916	6951	7000
Max. Gear Hole "A"		8	10	8	10	8	10	8
Reduction			21:1		66:1	113:1	319:1	546:1
Absolute reduction			21/1		1183/18	338/3	637/2	546/1
Max.feed velocity (mm/s)			31.7		10.1	5.9	2.0	1.2
Max.feed force (continuous) (N)			1338		2205	2639	3732	4466
Max.feed force (intermittent) (N)			2676		4410	5278	7000	7000
Max. Gear Hole "A"			10		10	8	10	8
Reduction					74:1	156:1	441:1	676:1
Absolute reduction					147/2	156/1	441/1	676/1
Max.feed velocity (mm/s)					9.0	4.2	1.5	1.0
Max.feed force (continuous) (N)					2289	2941	4159	4796
Max.feed force (intermittent) (N)					4578	5883	7000	7000
Max. Gear Hole "A"					10	8	10	8
Reduction					126:1		756:1	936:1
Absolute reduction					126/1		756/1	936/1
Max.feed velocity (mm/s)					5.2		0.9	0.7
Max.feed force (continuous) (N)					2739		4978	5345
Max.feed force (intermittent) (N)					5479		7000	7000
Max. Gear Hole "A"					10		10	8
Number of stages	0	1	2	2	3	3	4	4
Max. efficiency gearhead incl. screw (%)	31	28	25	25	22	22	20	20
Weight (g)	2090	2090	2310	2310	2520	2520	2730	2730
Average backlash no load (°)	0.5°	0.6°	0.7°	0.7°	0.7°	0.7°	0.7°	0.7°
Mechanical positioning accuracy (mm)	0.164	0.166	0.167	0.167	0.167	0.167	0.167	0.167
Mass inertia gearhead incl. screw (g.cm ²)	617.89	68.8	25.13	25.13	21.38	21.38	21.09	21.09
Gearhead length L1 (mm)	89.3	89.3	105.8	105.8	122.3	122.3	138.8	138.8

1/ based on screw length 301 mm (standard length) 2/ for reduction 1:1=3000rpm For the recommended combination specs, visit AM-52GP.

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CONTROLLER

Assun controllers include speed drivers and servo controllers. The speed drivers are usually used to drive the motor with several simple control functions, and servo controllers are used to achieve accurate speed, torque and position control.

Assun Servo Controllers are compact and efficient, customer may choose Can Open, Ether Cat and RS485 communication protocols based on their needs.

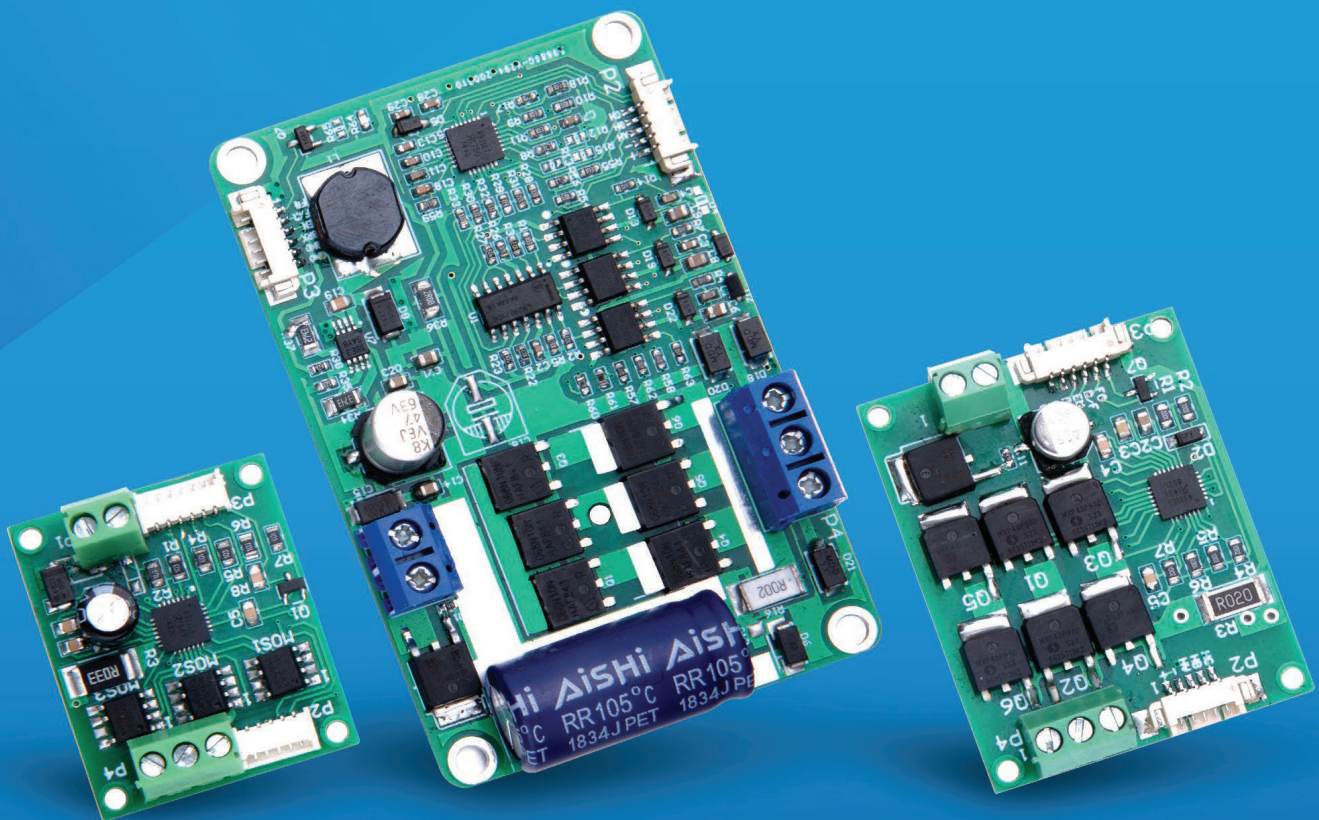


AM-CDN-0305-LAAS		AM-CDN-0815-LAAS		AM-CDN-1525-NAAS		AM-CDR-1224-NAAS	
Traditional Controller		CAN Bus Controller		EtherCAT Bus Controller			
Company Name Abbreviation		Feedback Type				Installation	
		A - Feedback support: Incremental encoder (differential or single end), SSI absolute encoder, RS 485 absolute encoder, Hall Sensor				S - Standard Installation	
AM -		CDN	1525	N	AAS	S	
		Controller Type CD - Speed Driver SO - Servo Controller		Current Level 15 - Rated Current (A) 25 Maximum Current (A)	Voltage Level L - 5V-24V M - 9V-70V N - 12V-48V		
		Communication Protocols				Operation Temperature	
		D - CAN Bus Control (RS422, RS485, CAN, USB Commissioning)				A -40°C - 85°C	
		E - (Direction+pulse, AB Pulse, Analogue Input Control, USB Commissioning)				B -40°C - 105°C	
		C - EtherCat Bus Control (Include USB Commissioning)				C -40°C - 125°C	
		N - No Communication (Speed Driver)					
		R - RS 485 Communication ((Speed Driver))					

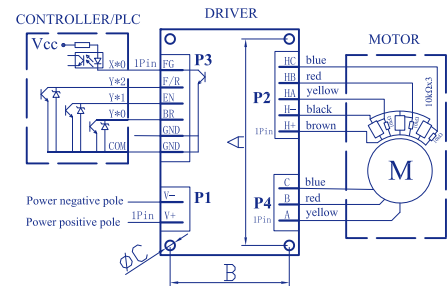
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CONTROLLER
SPEED DRIVER

Assun Speed Drivers are made to drive the brushless DC motors with several potential control functions like speed control, rotation direction control and speed feedback. Customer can choose different models based on the specific current rating.



AM-CDN-0305-LAAS (3 Amps)



SYSTEM CHARACTERISTICS:	INFORMATION:	INSTALLATION NOTES:
Input Voltage: 12~28V DC	Dimension: Length: 34mm. width: 28mm	a) Please install in dry and ventilated place
Continuous Current: 3A	Hole Size: A: 30.0mm; B: 24.0mm; C: 2.1mm	b) Avoid vibration and collision
Temperature - Operation: 0 ~+45°C	Cooling Method: Natural Cooling	c) Do not let metal dust and iron cut falling on controller
Temperature - Storage: -20 ~+85°C	Protective Function: Current limit, Undervoltage	d) Fix installation is needed
Humidity: ≤85% (non-condensing)	Weight: 8.5g	e) Use quality connection cables

INTERFACE & CONTROL SIGNALS

P1: Electric Connections

Number	Name	Note
1	M+	Power Vcc
2	M-(GND)	Power GND

P2: Motor Sensor Connections

Number	Name	Note
1	H+	Hall sensor power supply Vcc
2	H-	Hall sensor power supply GND
3	HA	Hall Sensor Phase A
4	HB	Hall Sensor Phase B
5	HC	Hall Sensor Phase C

P3: Control Signal Connections

Number	Name	Note (Low: 0~0.8VDC; High: 2.2~5.0VDC; Null: Not Connect)
1	FG	Motor Speed Signal Output (3 puls/turn)
2	F/R	Direction port (Low-CW; High/Null-CCW); Direction defined when looking from motor front.
3	EN	Enable port (Low-Motor rotate; High/Null-motor stop). This port can be used as PWM control (PWM requirement: 20KHz, the lower the duty cycle, the higher the speed).
4	BR	Brake port (Low-Brake; High/Null-Release)
5	GND	Control GND
6	GND	Control GND

P4: Motor Electric Connection

Number	Name	Note
1	A	Motor Winding A (U)
2	B	Motor Winding B (V)
3	C	Motor Winding C (W)

NOTE ON USAGE

- Controller should be installed with 20mm space for cooling. The environment should be ventilated
- When using the braking function, please calculate the braking speed. Ensure that the motor speed is lower than the braking speed to avoid high back EMF which will damage the components
- Change direction only when motor stopped completely to prevent damage of electronic components.
- The controller is a two-quadrant operation mode, it cannot be use when speed change is rapid.
- Please read this instruction carefully before installation. Whenever there is problem, please stop the current immediately.

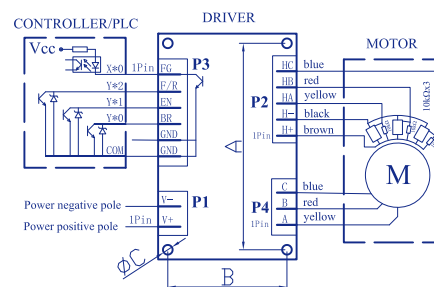
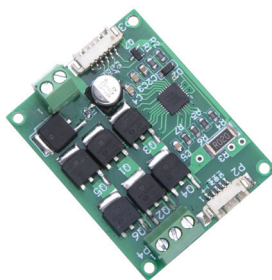
REMARKS

Data Tested at 25°.

Operation exceeds continuous limits of operating range will compromise the life of the device.

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AM-CDN-0815-LAAS (8 Amps w/ optional signal or manual control.)



SYSTEM CHARACTERISTICS:	INFORMATION:	INSTALLATION NOTES:
Input Voltage: 12~48V DC	Dimension: Length: 50mm. width: 35mm	a) Please install in dry and ventilated place
Max. Continuous Current: 8A	Installation Hole Diameter: 2.5mm	b) Avoid vibration and collision
Recommended Operation Temp: -20~+45°C	Cooling Method: Natural Cooling	c) Do not let metal dust and iron cut falling on controller
Recommended Storage Temp: -20 ~+85°C	Protective Function: Current limit, Undervoltage	d) Fix installation is needed
Humidity: ≤85% (non-condensing)	Weight: 25g	e) Use quality connection cables

INTERFACE & CONTROL SIGNALS

P1: Electric Connections

Number	Name	Note
1	M+	Power Vcc
2	M-(GND)	Power GND

P2: Motor Sensor Connections

Number	Name	Note
1	H+	Hall sensor power supply Vcc
2	H-	Hall sensor power supply GND
3	HA	Hall Sensor Phase A
4	HB	Hall Sensor Phase B
5	HC	Hall Sensor Phase C

P5: Manual Controls

Number	Name	Note
1	Potential Meter Knob	Rotate to control speed Manually.
2	Direction Button	Default in CCW; Switch direction for each click of button.

P3: Control Signal Connections

Number	Name	Note (Low: 0~0.8VDC; High: 2.2~5.0VDC; Null: Not Connect)
1	FG	Motor Speed Signal Output (1 pulse/turn)
2	F/R	Direction port (Low-CW; High/Null-CCW); Direction defined when looking from motor front.
3	EN	PWM speed control signal input (PWM requirement: 30KHz, the higher the duty cycle, the higher the speed).
4	BR	Brake port (Low-Brake; High/Null-Release)
5	GND	Control GND

P4: Motor Connections

Number	Name	Note
1	A	Motor Winding A (U)
2	B	Motor Winding B (V)
3	C	Motor Winding C (W)

Note:

Manual control knob and buttons will be connected to the board by lead wire;
User must select Signal Control or Manual Control upon order. Choosing one mode will dis-able the other mode.
***Only one model available with end users.**

NOTE ON USAGE

- Controller should be installed with 20mm space for cooling. The environment should be ventilated
- When using the braking function, please calculate the braking speed. Ensure that the motor speed is lower than the braking speed to avoid high back EMF which will damage the components
- Change direction only when motor stopped completely to prevent damage of electronic components.
- The controller is a two-quadrant operation mode, it cannot be use when speed change is rapid.
- Please read this instruction carefully before installation. Whenever there is problem, please stop the current immediately.

REMARKS

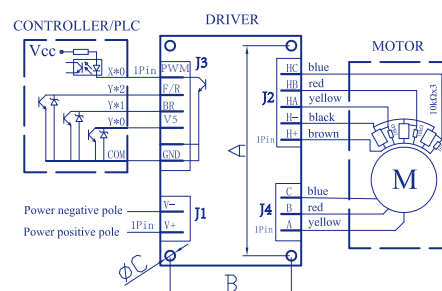
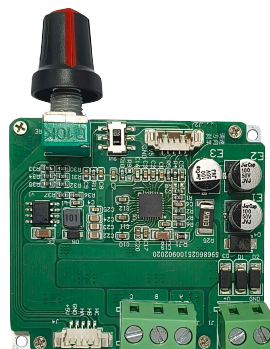
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AM-CDN-1525-NAAS (15 Amps, w/ signal & manual controls.)



SYSTEM CHARACTERISTICS:	INFORMATION:	INSTALLATION NOTES:
Input Voltage: 12~48V DC	Dimension: Length: 60mm. width: 50mm	a) Please install in dry and ventilated place
Max. Continuous Current: 15A	Installation Hole Diameter: 3.4mm	b) Avoid vibration and collision
Recommended Operation Temp: -20~+45°C	Cooling Method: Natural Cooling	c) Do not let metal dust and iron cut falling on controller
Recommended Storage Temp: -20~+85°C	Control: Manual Control/Signal Control	d) Fix installation is needed
Humidity: ≤85% (non-condensing)	Weight: 40g	e) Use quality connection cables

INTERFACE & CONTROL SIGNALS

P1: Electric Connections

Number	Name	Note
1	V+	Power Vcc
2	GND	Power GND

P2: Motor Sensor Connections

Number	Name	Note
1	H+	Hall sensor power supply Vcc
2	H-	Hall sensor power supply GND
3	HA	Hall Sensor Phase A
4	HB	Hall Sensor Phase B
5	HC	Hall Sensor Phase C

P5: Manual Controls

Number	Name	Note
1	Potential Meter Knob	Rotate to control speed Manually.
2	Direction Button	Default in CCW; change direction after pushing to the other side.

P3: Control Signal Connections

Number	Name	Note (Low: 0~0.8VDC; High: 2.2~5.0VDC; Null: Not Connect)
1	PWM	PWM speed control signal input (PWM requirement: 30KHz, the higher the duty cycle, the higher the speed).
2	F/R	Direction port (Low-CW; High/Null-CCW); Direction defined when looking from motor front.
3	BR	Brake port (Low-Brake; High/Null-Release)
4	V5	Control GND
5	GND	Power Vcc 5V

P4: Motor Electric Connection

Number	Name	Note
1	A	Motor Winding A (U)
2	B	Motor Winding B (V)
3	C	Motor Winding C (W)

Note:

User could use the driver either with manual control or with PWM and analogue signal control; Both control models available with end users.

NOTE ON USAGE

- Controller should be installed with 20mm space for cooling. The environment should be ventilated
- When using the braking function, please calculate the braking speed. Ensure that the motor speed is lower than the braking speed to avoid high back EMF which will damage the components
- Change direction only when motor stopped completely to prevent damage of electronic components.
- The controller is a two-quadrant operation mode, it cannot be used when speed change is rapid.
- Please read this instruction carefully before installation. Whenever there is a problem, please stop the current immediately.

REMARKS

Data Tested at 25°.

Operation exceeds continuous limits of operating range will compromise the life of the device.

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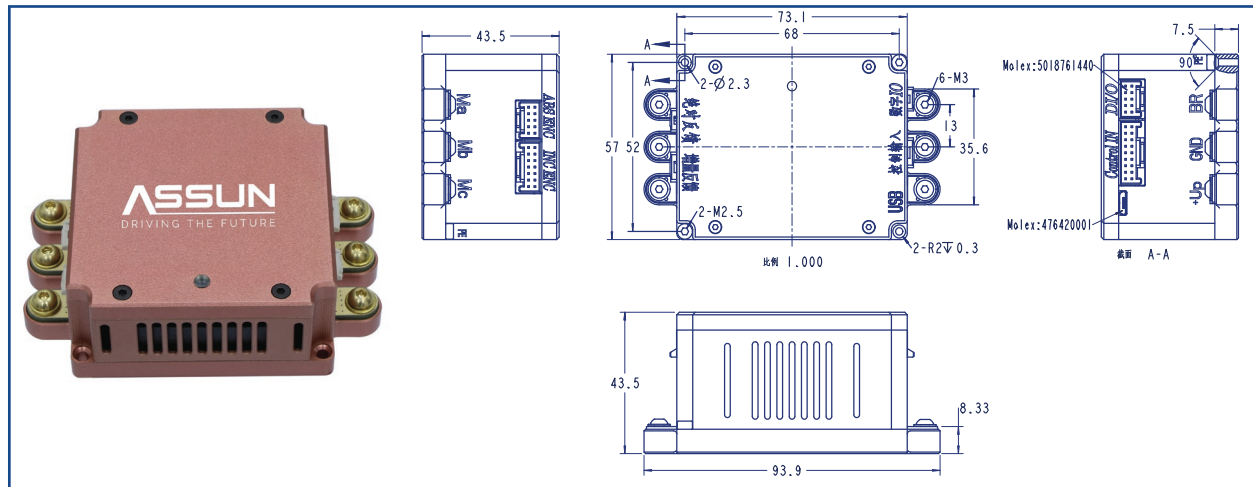
SERVO CONTROLLER

SERVO CONTROLLER

Assun Servo Controllers are produced for close-loop speed, torque and position control of DC brushed and brushless motors. High precision character of the controller is favored by many applications with DC drive control. Models of Traditional Control (without communication) and Bus Control (with communication) have been provided for customer to choose the suitable type. Can Open, Ether Cat and RS485/422 communication protocols are provided for bus control systems.



Traditional Controller



Model		Servo Controller (Traditional Control)				
		AM-SOE-0103-MAAS	AM-SOE-0206-MAAS	AM-SOE-0510-MAAS	AM-SOE-1020-MAAS	AM-SOE-1530-MAAS
Dimension (mm)		73.1*57*43.5				
Weight (g)		225				
Fundamental Specs	Output Rated Current (Continuous, RMS)	1 A	2 A	5 A	10	15 A
	Output Max. Current (Intermittent, RMS)	3 A	6 A	10 A	20	30 A
	Input Power Supply Voltage Range	12 VDC~48 VDC (Usually according to Motor Rated Voltage)				
	Overload Recognition Time	3 s				
	Overload Trip Reset Delay	30 s				
	Temperature Raise	(Under Rated Current) 30min≤40K				
	Working Frequency	6khz ~ 34khz				
Rated Electric Insulation		Under DC voltage 1000V from input/output to housing, current leakage smaller than 3mA				
Total Electric Resistance		≥1MΩ (Temp. 40℃, RH 95%, no condensing water)				
Mean Time Before Failure (MTBF)		≥8000 Hrs				
Power Control		For BLDC & Servo Motor: SVPWM, Square Wave For Brushed Motor: Bipolar PWM				
IP Level		IP20				
Cooling Type		Natural Air Cool				
Connection Portal Info	Analog Voltage Input Portal	2 Channel (±10V)				
	Digital IO Input Portal	4 Channel (5VDC~24VDC), hardware default in high voltage level when not connected. Detail control functions can be set and adjusted by changing parameters.				
	Digital IO Output Portal	4 Channel (All four channels are open collector output, highest voltage at 30V; First three channels have max. continuous current of 0.25A, and last channel has max. continuous current of 2A)				
	Direction + Pulse	1 set of Direction + Pulse (Differential & Non-differential)				
	Feedback Type	Electromagnetic/Optical Incremental Encoder; SSI Absolute Encoder; RS 485 Absolute Encoder				

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Traditional Controller

Model		Servo Controller (Traditional Control)	
Basic Function	Application Mode		Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control
	Preparation Time		Power on and no malfunction, controller ready in 3 seconds
	Hardware Protection Threshold	Under Voltage	9.5 V
		Over Voltage	75 V
		Over Current	Over Current Protection
		Overheat	85℃ Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
	Software Protection	Malfunction Lock	Automate slow down and stop when detect malfunction, and lock the malfunction for inspection.
		Over Load	When current is continuously over Max. continuous current for 10 seconds, default to alarm for malfunction.
		Over Current	Monitor real time current value, immediate cut off motor output when current over the pre-set value.
		Differential Protection	Current or speed setting and feedback differential protection
	Digital IO	Input	Multiplex the following functions by adjusting parameters: Servo start, zero-speed position clamp, emergency shut down, origin point signal, positive position limit, negative position limit.
		Output	Multiplex the following functions by adjusting parameters: Power supply under voltage, position abnormal, hall feedback abnormal, over current, over load, driver overheat, current differentiate, speed differentiate, power supply over voltage, servo ready, servo operation, zero speed arrival, targeted speed arrival,targeted position arrival, brake output, origin point recover finish, error alarm, negative stall, positive stall, negative indicate.
	Communication Portal	USB	Usually for Commissioning (also support host computer control)
		CAN	N/A
		RS422/485	N/A
		Transmission Distance	Based on the hardware connection
Torque Control	Stop Response		Rise times≤1.5ms ; Over tunes≤5% ; Shock ≤2 times
	Current Closed Loop Control		≥1KHz
	Speed Limitation		Parameter Limits
Speed Control	Speed Feedback		Based on Encoder
	Encoder Power Supply		+5V±2%/500mA
	Speed Ratio		≥3000 : 1
	Step Response		Rise times≤40ms ; Overtunes≤15% ; Shocks≤2.5 times
	Sinusoidal Band Response		≥500Hz
	Static Error Rate		≤0.4% （In speed 1000RPM, rated torque load）
	Speed Fluctuation Rate		≤0.6%
	Linearity		≤0.45%
Postition Close-Loop Control	Highest input pulse frequency		Digital Insulation 500K (1 meter cable)
	Pulse commande mode		AB Pulse; Direction + Pulse
	Command control mode		Outer Pulse control, anaglogue input
	Electronic gear ratio		Electronic Gear N/M, N: 1～65535, M: 1～65535 (parameter setting)
	Torque Limit		(Parameter Setting)
Environmental Requirements	Operation Temp.		-30℃+60℃
	Storage Temp.		-30℃+65℃
	Relative Humidity		0%～90%RH （No condensing）
	Vibration Requirements		Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.

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Figure 1 shows the PCB layout of the AM-CDR0306-NAAS Servo Controller. The top view (left) shows the main components including the microcontroller (U3), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), and resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100). The bottom view (right) shows the reverse side of the PCB with components like capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100) and resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100).

Model		Servo Controller (Traditional Control+RS-485) AM-CDR0306-NAAS
Dimension (mm)		30*7.5*5
Weight (g)		10
Fundamental Specs	Output Rated Current (Continuous, RMS)	2 A
	Output Max. Current (Intermittent, RMS)	5 A
	Input Power Supply Voltage Range	5 VDC~24 VDC (Usually according to Motor Rated Voltage)
	Overload Recognition Time	3 s
	Overload Trip Reset Delay	60 s
	Temperature Raise	(Under Rated Current) 30min≤40K
	Working Frequency	16khz
Rated Electric Insulation		Under DC voltage 1000V from input/output to housing, current leakage smaller than 3mA
Total Electric Resistance		≥1MΩ (Temp. 40℃, RH 95%, no condensing water)
Mean Time Before Failure (MTBF)		≥8000 Hrs
Power Control		Brushless DC motor, brushless DC motor
Power control mode		SVPWM
IP Level		IP20
Cooling Type		Natural cooling (if the continuous output exceeds the rated current, auxiliary heat dissipation is required)
Connection Portal Info	Analog Voltage Input Portal	None/Customization optional
	Digital IO Input Portal	None/Customization optional
	Digital IO Output Portal	None/Customization optional
	Direction + Pulse	Non-differential)
	Feedback Type	Magnetic electric/photoelectric incremental encoder; RS485 absolute value encoder

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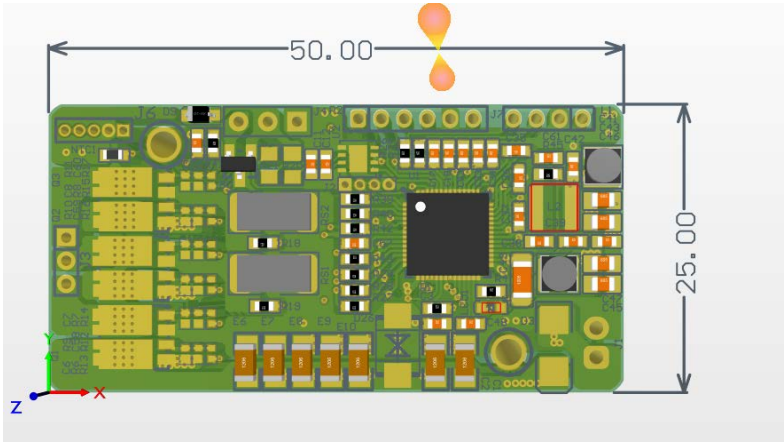
Traditional Controller +RS-485

Model		Servo Controller (Traditional Control+RS-485)	
Basic Function	Application Mode		Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control
	Preparation Time		Power on and no malfunction, controller ready in 3 seconds
	Hardware Protection Threshold	Under Voltage	5V
		Over Voltage	25 V
		Over Current	Over Current Protection
		Overheat	85℃ Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
		Software Protection	Malfunction Lock
	Over Load		Detect whether the current continuously exceeds the maximum current setting in real time, and the fault alarm will be given after 3S by default
	Over Current		Monitor real time current value, immediate cut off motor output when current over the pre-set value.
	Differential Protection		Current or speed setting and feedback differential protection
	Digital IO≤4	Input	None/Customization optional
		Output	None/Customization optional
	Communication Portal	USB	N/A
		CAN	N/A
		RS422/485	RS485 communication
		Transmission Distance	Based on the hardware connection
Torque Control	Step Response		Rise times≤1.5ms；Over tunes≤5%；Shock ≤2 times
	Current Closed Loop Control		≥1KHz
	Speed Limitation		Parameter Limits
Speed Control	Speed Feedback		Hall feedback Incremental encoder feedback (differential / non differential)
	Encoder Power Supply		+5V±2%/50mA
	Speed Ratio		≥3000：1
	Step Response		Rise times≤40ms；Overtunes≤15%；Shocks≤2.5 times
	Sinusoidal Band Response		≥500Hz
	Static Error Rate		≤0.4%（In speed 1000RPM, rated torque load）
	Speed Fluctuation Rate		≤0.6%
	Linearity		≤0.45%
Position Close-Loop Control	Highest input pulse frequency		Digital Insulation 60KHz (1 meter cable)
	Pulse commande mode		AB Pulse; Direction + Pulse
	Command control mode		External pulse control, analog input, duty cycle input
	Electronic gear ratio		Electronic Gear N/M, N: 1～65535, M: 1～65535 (parameter setting)
	Torque Limit		(Parameter Setting)
Environmental Requirements	Operation Temp.		-30℃+60℃
	Storage Temp.		-30℃+60℃
	Relative Humidity		0%～90%RH（No condensing）
	Vibration Requirements		Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.

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Traditional Controller +RS-485

		
Model		Servo Controller (Traditional Control+RS-485) AM-CDR0306-NAAS
Dimension (mm)		50*25*2
Weight (g)		20
Fundamental Specs	Output Rated Current (Continuous, RMS)	3 A
	Output Max. Current (Intermittent, RMS)	6 A
	Input Power Supply Voltage Range	12 VDC~48 VDC (Usually according to Motor Rated Voltage)
	Overload Recognition Time	3 s
	Overload Trip Reset Delay	60 s
	Temperature Raise	(Under Rated Current) 30min≤40K
	Working Frequency	16khz
Rated Electric Insulation		Under DC voltage 1000V from input/output to housing, current leakage smaller than 3mA
Total Electric Resistance		≥1MΩ (Temp. 40℃, RH 95%, no condensing water)
Mean Time Before Failure (MTBF)		≥8000 Hrs
Power Control		Brushless DC motor, brushless DC motor
Power control mode		SVPWM
IP Level		IP20
Cooling Type		Natural cooling (if the continuous output exceeds the rated current, auxiliary heat dissipation is required)
Connection Portal Info	Analog Voltage Input Portal	Optional ≤ 4 channels(±5V)
	Digital IO Input Portal	Optional ≤ 4 channels(±5V)
	Digital IO Output Portal	Optional ≤ 4 channels(±5V)
	Direction + Pulse	Non-differential)
	Feedback Type	Magnetic electric/photoelectric incremental encoder; RS485 absolute value encoder

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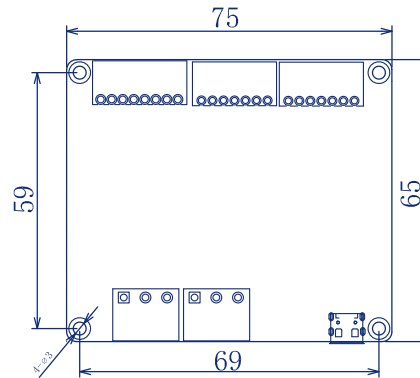
Traditional Controller +RS-485

Model		Servo Controller (Traditional Control+RS-485)	
Basic Function	Application Mode		Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control
	Preparation Time		Power on and no malfunction, controller ready in 3 seconds
	Hardware Protection Threshold	Under Voltage	9 V
		Over Voltage	48 V
		Over Current	Over Current Protection
		Overheat	85°C Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
		Software Protection	Malfunction Lock
	Over Load		Detect whether the current continuously exceeds the maximum current setting in real time, and the fault alarm will be given after 3S by default
	Over Current		Monitor real time current value, immediate cut off motor output when current over the pre-set value.
	Differential Protection		Current or speed setting and feedback differential protection
	Digital IO≤4	Input	Multiplex the following functions by adjusting parameters: Servo start, zero-speed position clamp, emergency shut down, origin point signal, positive position limit, negative position limit.
		Output	Multiplex the following functions by adjusting parameters: Power supply under voltage, position abnormal, hall feedback abnormal, over current, over load, driver overheat, current differentiate, speed differentiate, power supply over voltage, servo ready, servo operation, zero speed arrival, targeted speed arrival,targeted position arrival, brake output, origin point recover finish, error alarm, negative stall, positive stall, negative indicate.
	Communication Portal	USB	N/A
		CAN	N/A
		RS422/485	RS485 communication
		Transmission Distance	Based on the hardware connection
Torque Control	Step Response		Rise times≤1.5ms ; Over tune≤5% ; Shock ≤2 times
	Current Closed Loop Control		≥1KHz
	Speed Limitation		Parameter Limits
Speed Control	Speed Feedback		Hall feedback Incremental encoder feedback (differential / non differential)
	Encoder Power Supply		+5V±2%/50mA
	Speed Ratio		≥3000 : 1
	Step Response		Rise times≤40ms ; Overtune≤15% ; Shocks≤2.5 times
	Sinusoidal Band Response		≥500Hz
	Static Error Rate		≤0.4% (In speed 1000RPM, rated torque load)
	Speed Fluctuation Rate		≤0.6%
	Linearity		≤0.45%
Position Close-Loop Control	Highest input pulse frequency		Digital Insulation 60KHz (1 meter cable)
	Pulse commande mode		AB Pulse; Direction + Pulse
	Command control mode		External pulse control, analog input, duty cycle input
	Electronic gear ratio		Electronic Gear N/M, N: 1~65535, M: 1~65535 (parameter setting)
	Torque Limit		(Parameter Setting)
Environmental Requirements	Operation Temp.		-30°C+80°C
	Storage Temp.		-30°C+80°C
	Relative Humidity		0%~90%RH (No condensing)
	Vibration Requirements		Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.

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Traditional Controller +RS-485



Model		Servo Controller (Traditional Control+RS-485) AM-COF-05-10-OBDS
Dimension (mm)		75*65*25
Weight (g)		70
Fundamental Specs	Output Rated Current (Continuous, RMS)	5 A
	Output Max. Current (Intermittent, RMS)	12 A
	Input Power Supply Voltage Range	12 VDC~48 VDC (Usually according to Motor Rated Voltage)
	Overload Recognition Time	3 s
	Overload Trip Reset Delay	60 s
	Temperature Raise	(Under Rated Current) 30min≤40K
	Working Frequency	16khz
Rated Electric Insulation		Under DC voltage 1000V from input/output to housing, current leakage smaller than 3mA
Total Electric Resistance		≥1MΩ (Temp. 40°C, RH 95%, no condensing water)
Mean Time Before Failure (MTBF)		≥8000 Hrs
Power Control		Brushless DC motor, brushless DC motor
Power control mode		SVPWM
IP Level		IP20
Cooling Type		Natural cooling (if the continuous output exceeds the rated current, auxiliary heat dissipation is required)
Connection Portal Info	Analog Voltage Input Portal	1 Channel (±10V)
	Digital IO Input Portal	3 Channel (3.3VDC~24VDC), the hardware defaults to low level , and the effective level control state can be modified through parameters
	Digital IO Output Portal	1 Channel (open collector output, maximum withstand voltage 30V, maximum continuous current 0.22a)
	Direction + Pulse	1 set of Direction + Pulse (Differential & Non-differential)
	Feedback Type	Hall feedback ; Incremental encoder feedback (differential / non differential)

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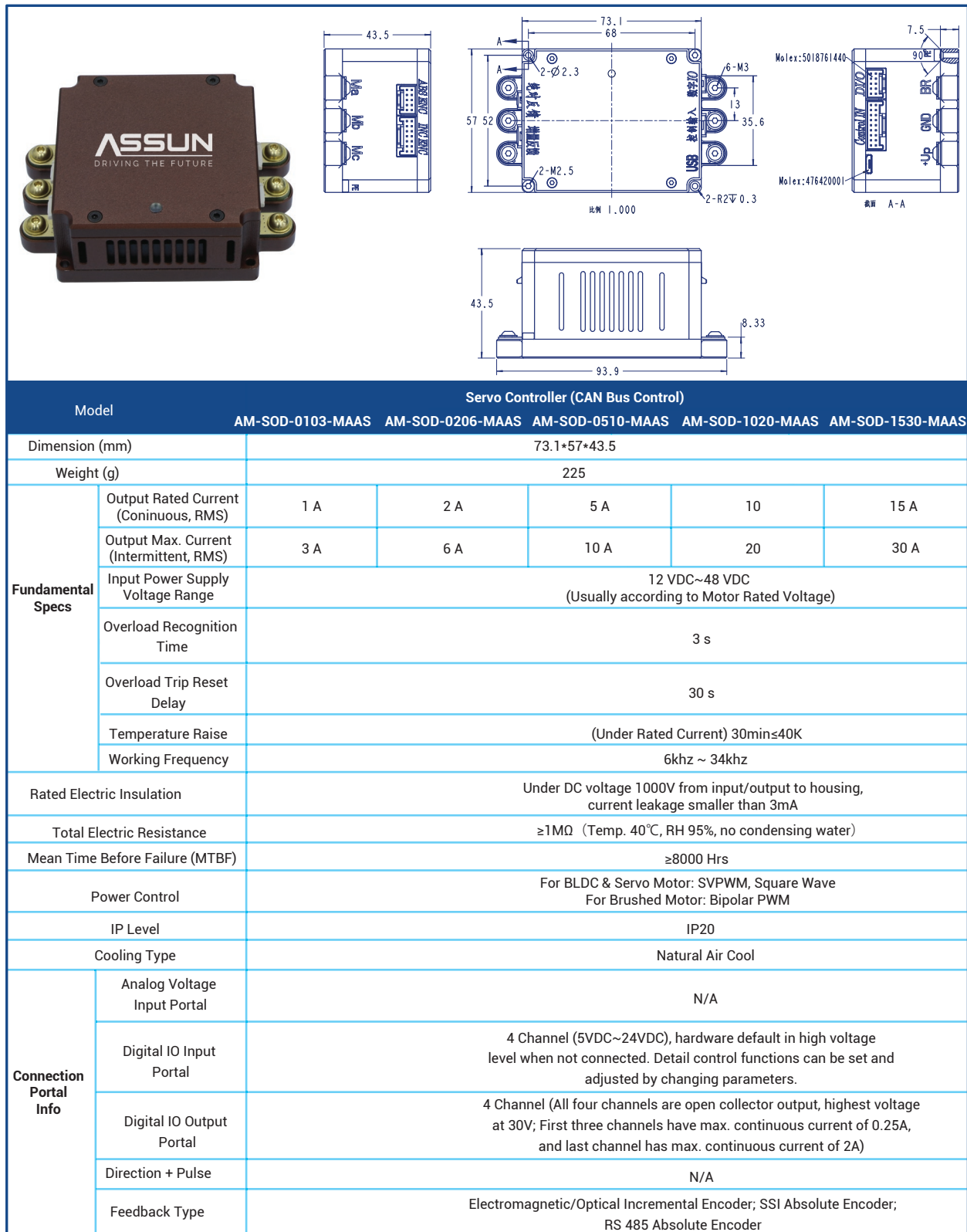
Traditional Controller +RS-485

Model		Servo Controller (Traditional Control+RS-485)	
Basic Function	Application Mode		Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control
	Preparation Time		Power on and no malfunction, controller ready in 3 seconds
	Hardware Protection Threshold	Under Voltage	9 V
		Over Voltage	65 V
		Over Current	Over Current Protection
		Overheat	85°C Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
		Software Protection	Malfunction Lock
	Over Load		Detect whether the current continuously exceeds the maximum current setting in real time, and the fault alarm will be given after 3S by default
	Over Current		Monitor real time current value, immediate cut off motor output when current over the pre-set value.
	Differential Protection		Current or speed setting and feedback differential protection
	Digital IO	Input	Multiplex the following functions by adjusting parameters: Servo start, zero-speed position clamp, emergency shut down, origin point signal, positive position limit, negative position limit.
		Output	Multiplex the following functions by adjusting parameters: Power supply under voltage, position abnormal, hall feedback abnormal, over current, over load, driver overheat, current differentiate, speed differentiate, power supply over voltage, servo ready, servo operation, zero speed arrival, targeted speed arrival,targeted position arrival, brake output, origin point recover finish, error alarm, negative stall, positive stall, negative indicate.
	Communication Portal	USB	Usually for Commissioning (also support host computer control)
		CAN	N/A
		RS422/485	RS485 communication
		Transmission Distance	Based on the hardware connection
Torque Control	Step Response		Rise times≤1.5ms ; Over tune≤5% ; Shock ≤2 times
	Current Closed Loop Control		≥1KHz
	Speed Limitation		Parameter Limits
Speed Control	Speed Feedback		Hall feedback Incremental encoder feedback (differential / non differential)
	Encoder Power Supply		+5V±2%/50mA
	Speed Ratio		≥3000 : 1
	Step Response		Rise times≤40ms ; Overtune≤15% ; Shocks≤2.5 times
	Sinusoidal Band Response		≥500Hz
	Static Error Rate		≤0.4% (In speed 1000RPM, rated torque load)
	Speed Fluctuation Rate		≤0.6%
	Linearity		≤0.45%
Position Close-Loop Control	Highest input pulse frequency		Digital Insulation 60KHz (1 meter cable)
	Pulse commande mode		AB Pulse; Direction + Pulse
	Command control mode		External pulse control, analog input, duty cycle input
	Electronic gear ratio		Electronic Gear N/M, N: 1~65535, M: 1~65535 (parameter setting)
	Torque Limit		(Parameter Setting)
Environmental Requirements	Operation Temp.		-30°C+60°C
	Storage Temp.		-30°C+65°C
	Relative Humidity		0%~90%RH (No condensing)
	Vibration Requirements		Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.

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CAN BUS CONTROLLER



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CAN BUS CONTROLLER

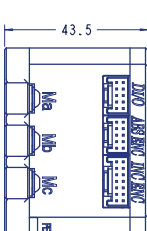
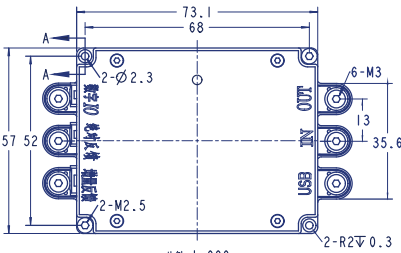
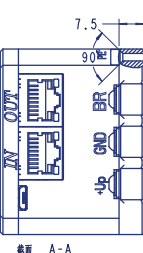
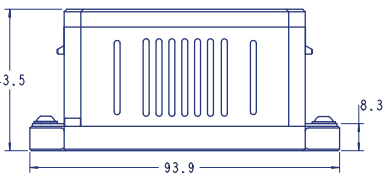
Model		Servo Controller (Bus Control)	
Basic Function	Application Mode	Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control	
	Preparation Time	Power on and no malfunction, controller ready in 3 seconds.	
	Hardware Protection Threshold	Under Voltage	9.5 V
		Over Voltage	75 V
		Over Current	Over Current Protection
		Overheat	85 Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
	Software Protection	Malfunction Lock	Automate slow down and stop when detect malfunction, and lock the malfunction for inspection.
		Over Load	When current is continuously over Max. continuous current for 10 seconds, default to alarm for malfunction.
		Over Current	Monitor real time current value, immediate cut off motor output when current over the pre-set value.
		Differential Protection	Current or speed setting and feedback differential protection
	Digital IO	Input	Multiplex the following functions by adjusting parameters: Servo start, zero-speed position clamp, emergency shut down, origin point signal, positive position limit, negative position limit.
		Output	Multiplex the following functions by adjusting parameters: Power supply under voltage, position abnormal, hall feedback abnormal, over current, over load, driver overheat, current differentiate, speed differentiate, power supply over voltage, servo ready, servo operation, zero speed arrival, targeted speed arrival, targeted position arrival, brake output, origin point recover finish, error alarm, negative stall, positive stall, negative indicate.
	Communication Portal	USB	Usually for Commissioning (also support host computer control)
		CAN	CANOPEN 301 + DS402(Default node id: 0x08,500kbps)
		RS422/485	MODBUS RS422/485(ASCII/RTU) (Default node id: 0x08,57600bps,8,1,N,N,)
		Transmission Distance	≥100 Meters
Torque Control	Stop Response	Rise times≤1.5ms ; Over tunes≤5% ; Shock ≤2 times	
	Current Closed Loop Control	≥1KHz	
	Speed Limitation	Parameter Limits	
Speed Control	Speed Feedback	Based on Encoder	
	Encoder Power Supply	+5V±2%/500mA	
	Speed Ratio	≥3000 : 1	
	Step Response	Rise times≤40ms ; Overtunes≤15% ; Shock≤2.5 times	
	Sinusoidal Band Response	≥500Hz	
	Static Error Rate	≤0.4% (In speed 1000RPM, rated torque load)	
	Speed Fluctuation Rate	≤0.6%	
	Linearity	≤0.45%	
Position Close-Loop Control	Highest input pulse frequency	N/A	
	Pulse commande mode	N/A	
	Command control mode	RS422/485 Modbus Communication; CAN Bus Control	
	Electronic gear ratio	Electronic Gear N/M, N: 1~65535, M: 1~65535 (parameter setting)	
	Torque Limit	(Parameter Setting)	
Environmental Requirements	Operation Temp.	-30°C+60°C	
	Storage Temp.	-30°C+65°C	
	Relative Humidity	0%~90%RH (No condensing)	
	Vibration Requirements	Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.	

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ETHERCAT BUS CONTROLLER

    						
Servo Controller (EtherCAT Bus Control) Model AM-SOC0103-MAAS AM-SOC0206-MAAS AM-SOC0510-MAAS AM-SOC1020-MAAS AM-SOC1530-MAAS						
Dimension (mm)		93.9*57*43.5				
Weight (g)		225				
Fundamental Specs	Output Rated Current (Continuous, RMS)	1 A	2 A	5 A	10 A	15 A
	Output Max. Current (Intermittent, RMS)	3 A	6 A	10 A	20 A	30 A
	Input Power Supply Voltage Range	12 VDC~48 VDC (Usually according to Motor Rated Voltage)				
	Overload Recognition Time	3 s				
	Overload Trip Reset Delay	30 s				
	Temperature Raise	(Under Rated Current) 30min≤40K				
	Working Frequency	6khz ~ 34khz				
Rated Electric Insulation		Under DC voltage 1000V from input/output to housing, current leakage smaller than 3mA				
Total Electric Resistance		≥1MΩ (Temp. 40℃, RH 95%, no condensing water)				
Mean Time Before Failure (MTBF)		≥8000 Hrs				
Power Control		For BLDC & Servo Motor: SVPWM, Square Wave For Brushed Motor: Bipolar PWM				
IP Level		IP20				
Cooling Type		Natural Air Cool				
Connection Portal Info	Digital IO Input Portal	4 Channel (5VDC~24VDC), hardware default in high voltage level when not connected. Detail control functions can be set and adjusted by changing parameters.				
	Digital IO Output Portal	4 Channel (All four channels are open collector output, highest voltage at 30V; First three channels have max. continuous current of 0.25A, and last channel has max. continuous current of 2A)				
	Feedback Type	Electromagnetic/Optical Incremental Encoder; SSI Absolute Encoder; RS 485 Absolute Encoder				

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ETHERCAT BUS CONTROLLER

Model		Servo Controller (Traditional Control)	
Basic Function	Application Mode	Position Closed-loop Control / Speed Closed-loop Control / Torque Closed-loop Control	
	Preparation Time	Power on and no malfunction, controller ready in 3 seconds	
	Hardware Protection Threshold	Under Voltage	9.5v
		Over Voltage	75v
		Over Current	Over Current Protection
		Overheat	85°C Automate Alarm and Shut Down
		Power Switch	Equipped power switch to turn on or off the motor.
	Software Protection	Malfunction Lock	Automate slow down and stop when detect malfunction, and lock the malfunction for inspection.
		Over Load	When current is continuously over Max. continuous current for 10 seconds, default to alarm for malfunction.
		Over Current	Monitor real time current value, immediate cut off motor output when current over the pre-set value.
		Differential Protection	Current or speed setting and feedback differential protection
	Digital IO	Input	Multiplex the following functions by adjusting parameters: Servo start, zero-speed position clamp, emergency shut down, origin point signal, positive position limit, negative position limit.
		Output	Multiplex the following functions by adjusting parameters: Power supply under voltage, position abnormal, hall feedback abnormal, over current, over load, driver overheat, current differentiate, speed differentiate, power supply over voltage, servo ready, servo operation, zero speed arrival, targeted speed arrival, targeted position arrival, brake output, origin point recover finish, error alarm, negative stall, positive stall, negative indicate.
	Communication Portal	USB	Usually for Commissioning (also support host computer control)
		EtherCAT	1 set of in and out ports
Torque Control	Step Response		Rise time $\leq$ 1.5ms ; Over tune $\leq$ 5% ; Shock $\leq$ 2 times
	Current Closed Loop Control		$\geq$ 1KHz
	Speed Limitation		Parameter Limits
Speed Control	Speed Feedback		Based on Encoder
	Encoder Power Supply		+5V $\pm$ 2%/500mA
	Speed Ratio		$\geq$ 3000 : 1
	Step Response		Rise time $\leq$ 40ms ; Overtune $\leq$ 15% ; Shocks $\leq$ 2.5 times
	Sinusoidal Band Response		$\geq$ 500Hz
	Static Error Rate		$\leq$ 0.4% (In speed 1000RPM, rated torque load)
	Speed Fluctuation Rate		$\leq$ 0.6%
	Linearity		$\leq$ 0.45%
Position Close-Loop Control			
	Command control mode		EtherCAT Bus Control
	Electronic gear ratio		Electronic Gear N/M, N: 1 $\sim$ 65535, M: 1 $\sim$ 65535 (parameter setting)
	Torque Limit		(Parameter Setting)
Environmental Requirements	Operation Temp.		-30°C+60°C
	Storage Temp.		-30°C+65°C
	Relative Humidity		0% $\sim$ 90%RH (No condensing)
	Vibration Requirements		Frequency 5Hz to 25Hz, amplitude with 1.6mm; Frequency 25Hz to 200Hz, Acceleration within 1.2g, time 30min.

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ENCODER

Assun Encoders include incremental and absolute types. For incremental controller, there are models of electromagnetic and optical, and both offers wide ranges of resolution choices. For absolute encoder, customer can choose for single or multi turns and also different resolutions.

High precision (resolution) and high reliability encoders by Assun are perfect for precision DC drive feedback and play an important role in the precision control system.



AM-EN1008S103	AM-EN2211S103	AM-EN2412T003	AM-EN3612T103
AM-EN1611S003	AM-EN1612T003	AM-EN2412T103	AM-EN1611S113
AM-EN1611S103	AM-EN1612T103	AM-EN3612T003	AM-EN2211S113
AM-EN2211S003			

Company Name Abbreviation	Function Principle S - Electromagnetic Encoder T - Optical Encoder
AM - EN	T103 -
Encoder Code	Encoder Type
Encoder Dimension 16 - Diameter (mm) 12 - Thickness (mm)	002 - Incremental Two Channel Encoder 003 - Incremental Three Channel Encoder 103 - Incremental Cable Drive Three Channel Encoder 113 Absolute Cable Drive Three Channel Encoder
	Resolution Incremental Encoder - Pules per Revolve Absolute Encoder 40: Revolve bits; 96: Angular bits
	4096

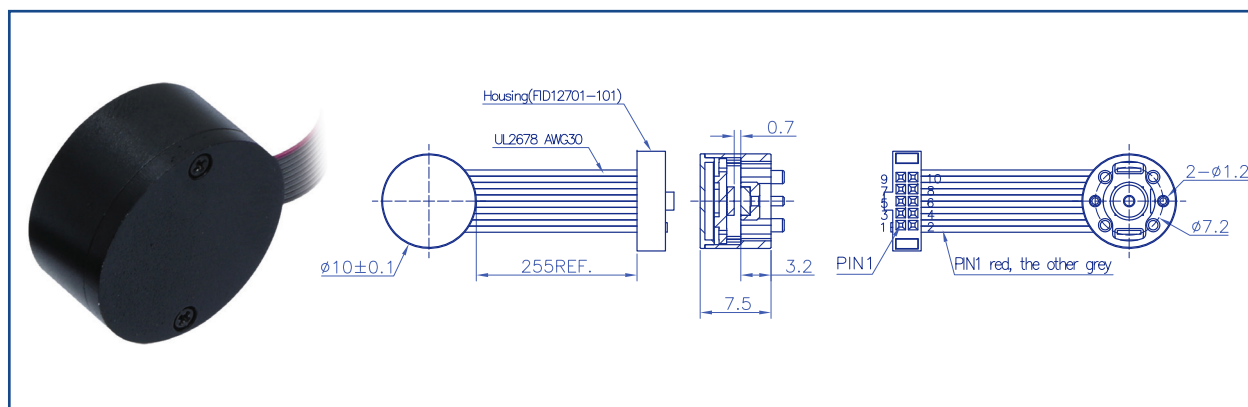
ENCODER

INCREMENTAL ENCODER

Incremental encoders by Assun are used for providing feedback information of motion to controllers and resolutions can be from 32 ppr/turn to 4096 ppr/turn. Cable drive and differential types of encoders can be chosen based on actual needs.



AM-EN1008S003(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1008 S003-0032	AM-EN1008 S003-0064	AM-EN1008 S003-0128	AM-EN1008 S003-0256	AM-EN1008 S003-0512	AM-EN1008 S003-1024
Diameter	10	10	10	10	10	10
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	no	no	no	no	no	no

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	1.0; 1.5	1. V+ Motor	2. Vcc	
Vcc=5.0V Signal	TTL	Suitable for shaft length	2.2~5.0	3. GND	4. A+	
Operating Temperature	-40~125°C	Suitable for boss diameter	10.0~14.0	5. NC	6. B+	
Inertia (max)	0.012 g.cm ²	Suitable for boss thickness	Maximum 0.8	7. NC	8. Z+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. NC	10. V- Motor	
Weight	2.0 g	Other fixed size	Drawing			

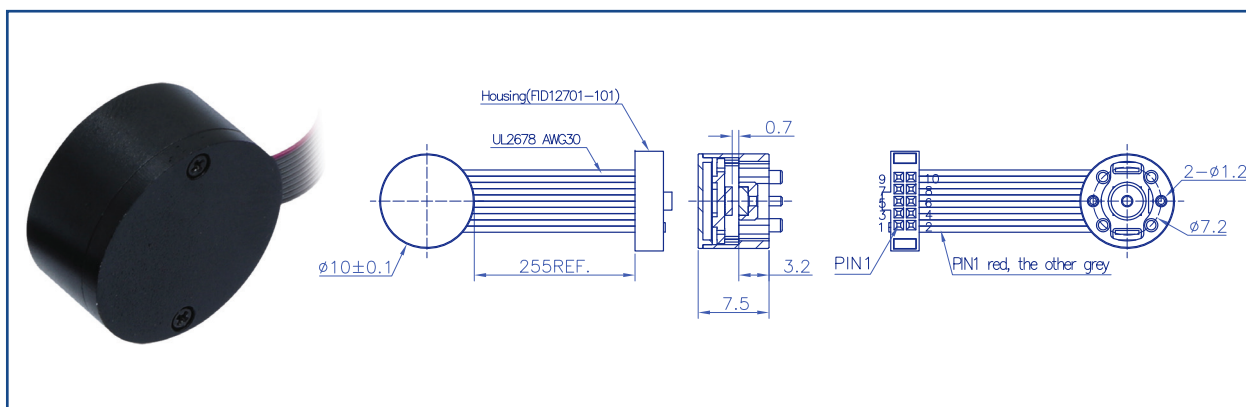
3) Recommend Combination

Total Length of Geared Motor System : L _T =L ₁ +L ₂ +(L ₃ =8mm)						AM-EN1008S*** Combination Scheme
L1:10GP	L1:12GP	L2:CL10				
6.8	15.4	25.2				Recommended Gearbox: Planetary Gearbox: AM-10GP Recommended Motor: Coreless Motor: AM-CL10**
10	19.6					
13.2	23.8					
16.4	28					
19.6	32.2					
						Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-EN1008S103(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1008 S103-0032	AM-EN1008 S103-0064	AM-EN1008 S103-0128	AM-EN1008 S103-0256	AM-EN1008 S103-0512	AM-EN1008 S103-1024
Diameter	10	10	10	10	10	10
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	1.0; 1.5	1. V+	2. Vcc	
Vcc=5.0V Signal	TTL	Suitable for shaft length	2.2~5.0	3. GND	4. A+	
Operating Temperature	-40~125℃	Suitable for boss diameter	10.0~14.0	5. A-	6. B+	
Inertia (max)	0.012 g.cm ²	Suitable for boss thickness	Maximum 0.8	7. B-	8. Z+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z-	10. V-	
Weight	2.0 g	Other fixed size	Drawing			

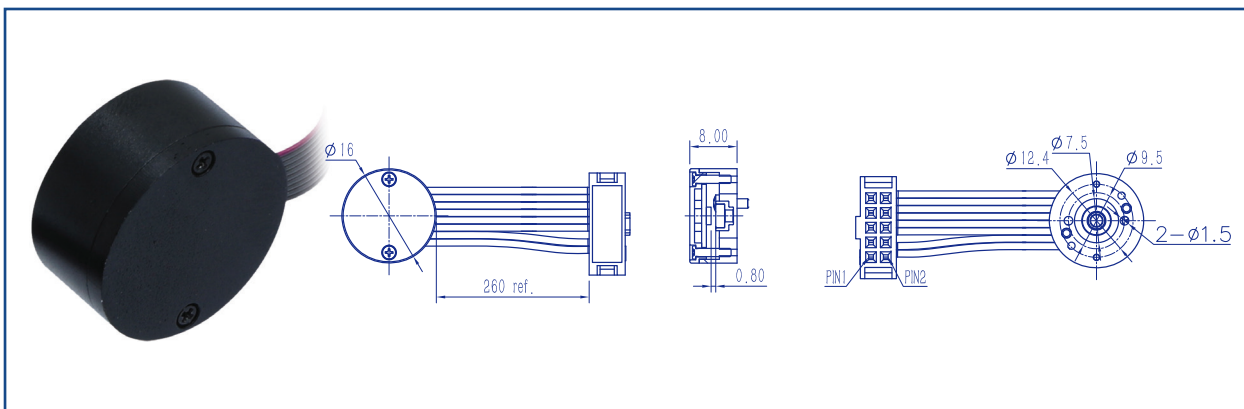
3) Recommend Combination

Total Length of Geared Motor System : $L_T = L_1 + L_2 + (L_3 = 8\text{mm})$						AM-EN1008S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-10GP Recommended Motor: Coreless Motor: AM-CL10**
L1:10GP	L1:12GP	L2:CL10				
6.8	15.4	25.2				
10	19.6					
13.2	23.8					
16.4	28					
19.6	32.2					
						Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-EN1608S103-RS422(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1611 S103-0032	AM-EN1611 S103-0064	AM-EN1611 S103-0128	AM-EN1611 S103-0256	AM-EN1611 S103-0512	AM-EN1611 S103-1024
Diameter	16	16	16	16	16	16
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	1.5; 2.0;3.0	1. NC	2. Vcc	
Vcc=5.0V Signal	ISL32179	Suitable for shaft length	2.1	3. GND	4. NC	
Operating Temperature	-40~125°C	Suitable for boss diameter	6.45~6.5	5. A-	6. A+	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z-	10. Z+	
Weight	5 g	Other fixed size	Drawing			

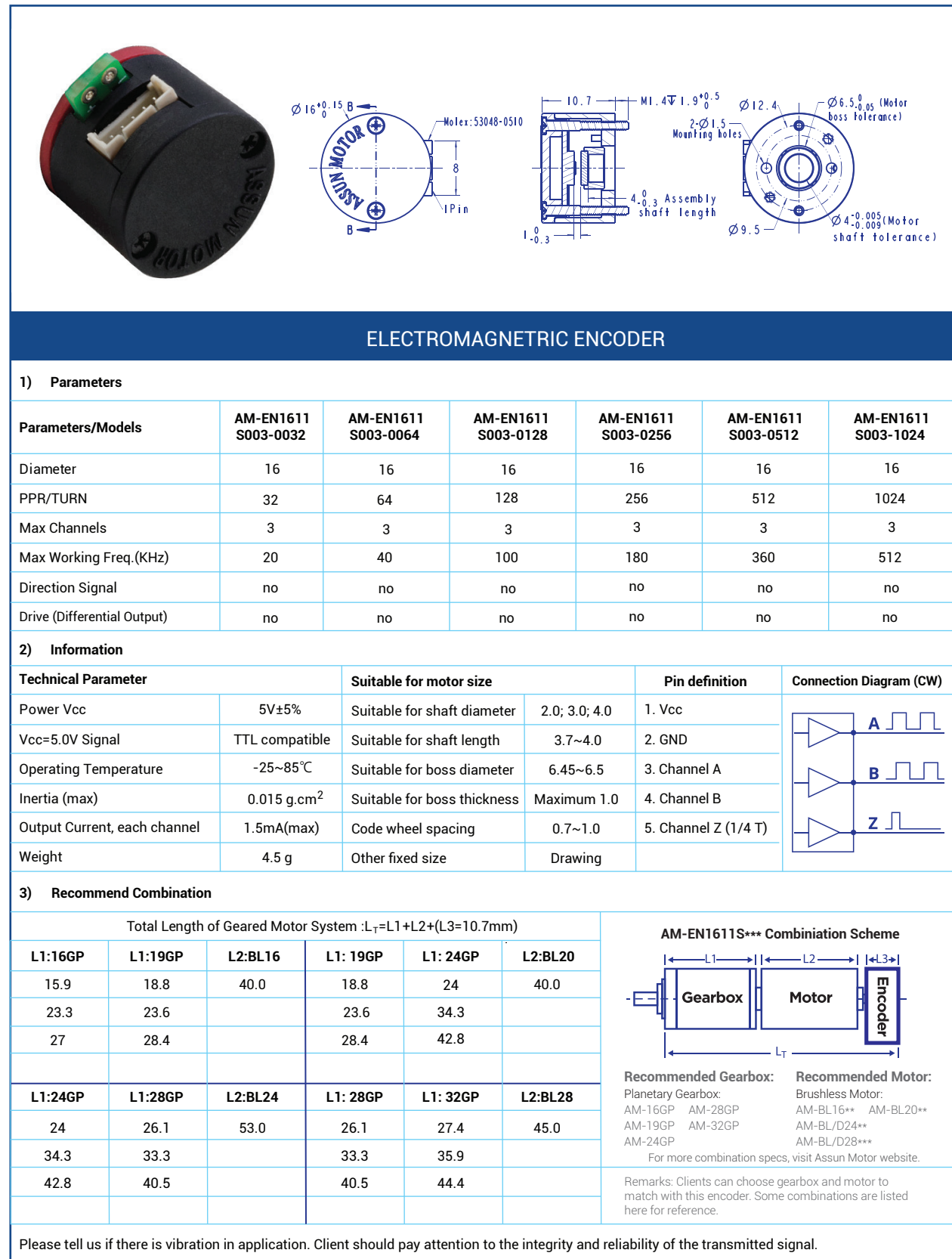
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =8mm)						AM-EN1608S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-16GP AM-28GP AM-19GP AM-32GP AM-24GP Recommended Motor: Coreless Motor: AM-CL16** AM-CL19** AM-CL25** AM-CL28** AM-CL28** For more combination specs, visit Assun Motor website. Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:16GP	L1:19GP	L2:CL19	L1: 24GP	L1: 28GP	L2:CL25	
15.9	18.8	35.0	24	26.1	32.0	
23.3	23.6		34.3	33.3	45.3	
27	28.4		42.8	40.5		
L1:28GP	L1:32GP	L2:CL28				
26.1	27.4	31.0				
33.3	35.9	45.0				
40.5	44.4					

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-EN1611S003(BL) SERIES

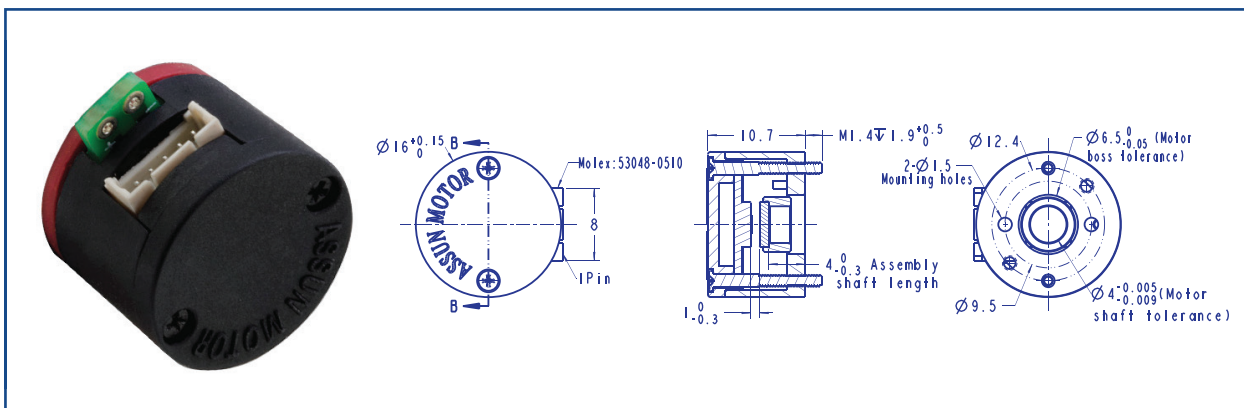


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AM-EN1611S003(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1611 S003-0032	AM-EN1611 S003-0064	AM-EN1611 S003-0128	AM-EN1611 S003-0256	AM-EN1611 S003-0512	AM-EN1611 S003-1024
Diameter	16	16	16	16	16	16
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	no	no	no	no	no	no

2) Information

Technical Parameter		Suitable for motor size		Pin definition	Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	1.5; 2.0	1. Vcc	
Vcc=5.0V Signal	TTL compatible	Suitable for shaft length	3.7~4.0	2. GND	
Operating Temperature	-25~85°C	Suitable for boss diameter	6.45~6.5	3. Channel A	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	4. Channel B	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	5. Channel Z (1/4 T)	
Weight	5.0 g	Other fixed size	Drawing		

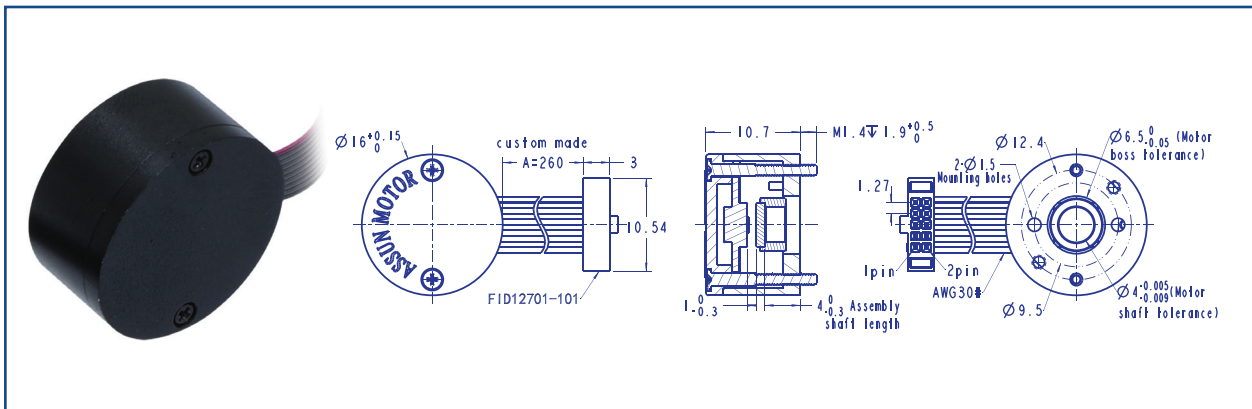
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =10.7mm)						AM-EN1611S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-16GP AM-28GP AM-19GP AM-32GP AM-24GP Recommended Motor: Coreless Motor: AM-CL16** AM-CL25** AM-CL28** For more combination specs, visit Assun Motor website. Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:16GP	L1:19GP	L2:CL16	L1: 24GP	L1: 28GP	L2:CL25	
15.9	18.8	33.0	24	26.1	32.0	
23.3	23.6	43.0	34.3	33.3	45.3	
27	28.4		42.8	40.5		
L1:28GP	L1:32GP	L2:CL28				
26.1	27.4	31.0				
33.3	35.9	45.0				
40.5	44.4					

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-EN1611S103(BL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1611 S103-0032	AM-EN1611 S103-0064	AM-EN1611 S103-0128	AM-EN1611 S103-0256	AM-EN1611 S103-0512	AM-EN1611 S103-1024
Diameter	16	16	16	16	16	16
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	2.0; 3.0; 4.0	1. NC	2. Vcc	
Vcc=5.0V Signal	ISL32179	Suitable for shaft length	3.7~4.0	3. GND	4. NC	
Operating Temperature	-40~125°C	Suitable for boss diameter	6.45~6.5	5. A-	6. A+	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z-	10. Z+	
Weight	6.5 g	Other fixed size	Drawing			

3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =10.7mm)						AM-EN1611S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-16GP AM-28GP AM-19GP AM-32GP AM-24GP Recommended Motor: Brushless Motor: AM-BL16*** AM-BL20** AM-BL/D24** AM-BL/D28***
L1:16GP	L1:19GP	L2:BL16	L1: 19GP	L1: 24GP	L2:BL20	
15.9	18.8	40.0	18.8	24	40.0	
23.3	23.6		23.6	34.3		
27	28.4		28.4	42.8		
L1:24GP	L1:28GP	L2:BL24	L1: 28GP	L1: 32GP	L2:BL28	For more combination specs, visit Assun Motor website. Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
24	26.1	53.0	25.9	27.4	45.0	
34.3	33.3		33.1	35.9		
42.8	40.5		40.3	44.4		

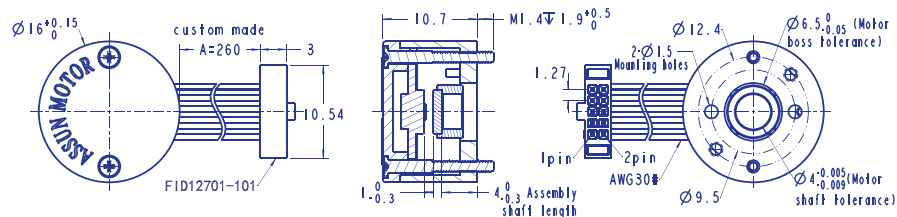
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AM-EN1611S103(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN1611 S103-0032	AM-EN1611 S103-0064	AM-EN1611 S103-0128	AM-EN1611 S103-0256	AM-EN1611 S103-0512	AM-EN1611 S103-1024
Diameter	16	16	16	16	16	16
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	1.5; 2.0	1. NC	2. Vcc	
Vcc=5.0V Signal	ISL32179	Suitable for shaft length	3.7~4.0	3. GND	4. NC	
Operating Temperature	-40~125°C	Suitable for boss diameter	6.45~6.5	5. A-	6. A+	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z-	10. Z+	
Weight	6.5 g	Other fixed size	Drawing			

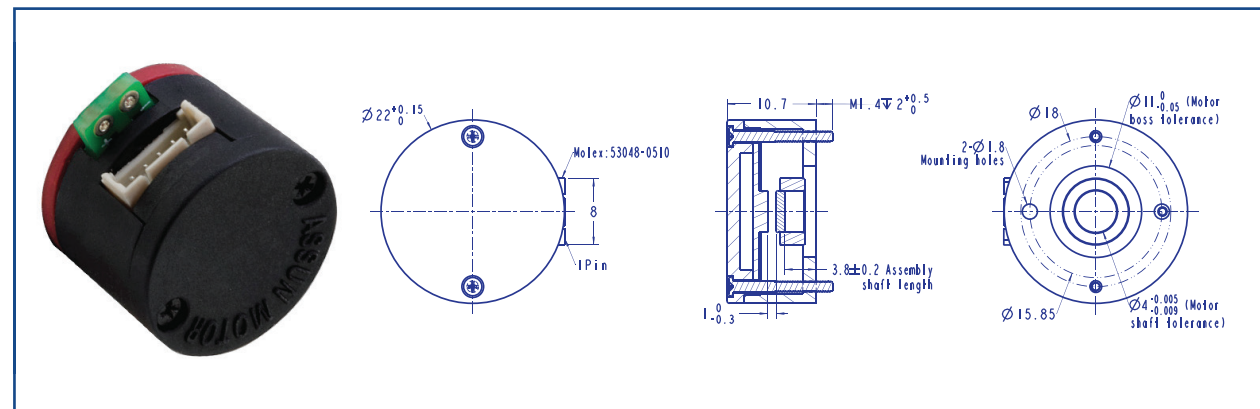
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =10.7mm)						AM-EN1611S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-16GP AM-28GP AM-19GP AM-32GP AM-24GP Recommended Motor: Coreless Motor: AM-CL16** AM-CL25** AM-CL28** For more combination specs, visit Assun Motor website. Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:16GP	L1:19GP	L2:CL16	L1: 24GP	L1: 28GP	L2:CL25	
15.9	18.8	33.0	24	26.1	32.0	
23.3	23.6	43.0	34.3	33.3	45.3	
27	28.4		42.8	40.5		
L1:28GP	L1:32GP	L2:CL28				
26.1	27.4	31.0				
33.3	35.9	45.0				
40.5	44.4					

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AM-EN2211S003(BL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN2211 S003-0032	AM-EN2211 S003-0064	AM-EN2211 S003-0128	AM-EN2211 S003-0256	AM-EN2211 S003-0512	AM-EN2211 S003-1024
Diameter	22	22	22	22	22	22
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	no	no	no	no	no	no

2) Information

Technical Parameter		Suitable for motor size	Pin definition	Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	4.0; 5.0; 8.0	1. Vcc
Vcc=5.0V Signal	TTL compatible	Suitable for shaft length	3.7~4.0	2. GND
Operating Temperature	-25~85℃	Suitable for boss diameter	10.95~11.0	3. Channel A
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	4. Channel B
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	5. Channel Z (1/4 T)
Weight	7.0 g	Other fixed size	Drawing	

3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =10.7mm)						AM-EN2211S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-32GP AM-45GP AM-36GP AM-52GP AM-40GP Recommended Motor: BRUSH LESS Motor: AM-BL/D32** AM-BL40** AM-BL/D36** AM-BL/D45*** For more combination specs, visit Assun Motor website.
L1:32GP	L1:36GP	L1: BL32	L1: 36GP	L1: 40GP	L2:BL36	
27.4	39.6	60.0	39.6	46.8	60.5	
35.9	48.6	70.0	48.6	58.3		
44.4	57.6		57.6	69.8		Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:45GP	L1:52GP	L2:BL45	L1:52GP		L2:BL65	
60.1	79.3	100.0	79.3		108.5	
72.1						

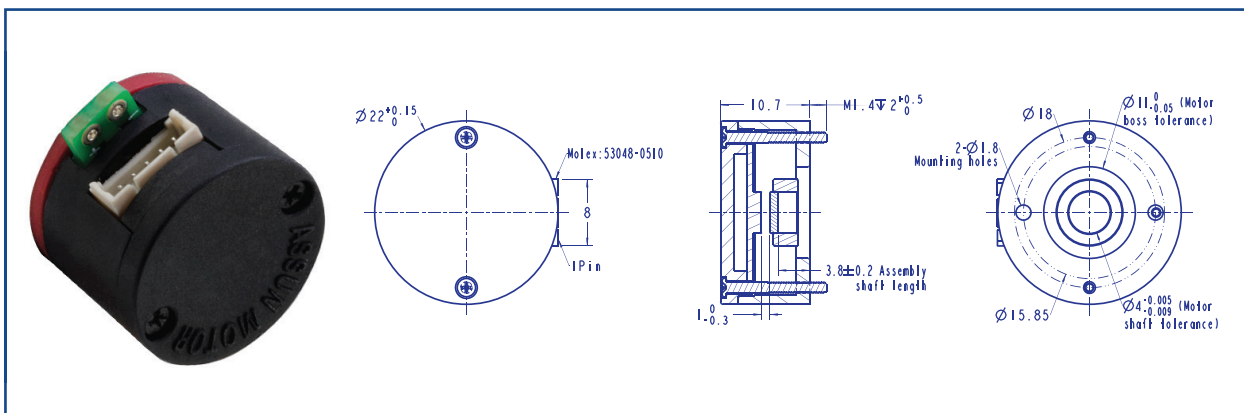
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AM-EN2211S003(CL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN2211 S003-0032	AM-EN2211 S003-0064	AM-EN2211 S003-0128	AM-EN2211 S003-0256	AM-EN2211 S003-0512	AM-EN2211 S003-1024
Diameter	22	22	22	22	22	22
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	no	no	no	no	no	no

2) Information

Technical Parameter		Suitable for motor size		Pin definition	Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	4.0; 5.0; 8.0	1. Vcc	
Vcc=5.0V Signal	TTL compatible	Suitable for shaft length	3.7~4.0	2. GND	
Operating Temperature	-25~85°C	Suitable for boss diameter	10.95~11.0	3. Channel A	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	4. Channel B	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	5. Channel Z (1/4 T)	
Weight	7.0 g	Other fixed size	Drawing		

3) Recommend Combination

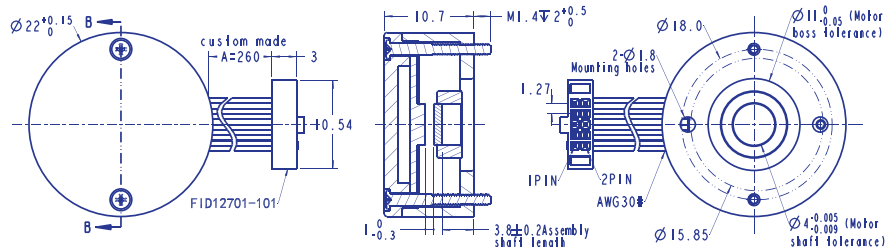
Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =10.7mm)						AM-EN2211S*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-19GP AM-40GP AM-24GP AM-45GP AM-36GP Recommended Motor: Coreless Motor: AM-CL22** AM-CL35**
L1:19GP	L1:24GP	L2:CL22	L1:36GP	L1:40GP	L2:CL35	
18.8	24	32.2	39.6	46.8	70.5	
23.6	34.3	42.0	48.6	58.3		
28.4	42.8		57.6	69.8		
L1:45GP		L2:CL35				For more combination specs, visit Assun Motor website. Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
60.1		70.5				
72.1						

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AM-EN2211S103(BL) SERIES



ELECTROMAGNETIC ENCODER

1) Parameters

Parameters/Models	AM-EN2211 S103-0032	AM-EN2211 S103-0064	AM-EN2211 S103-0128	AM-EN2211 S103-0256	AM-EN2211 S103-0512	AM-EN2211 S103-1024
Diameter	22	22	22	22	22	22
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition	Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	4.0; 5.0; 8.0	1. NC 2. Vcc	
Vcc=5.0V Signal	ISL32179	Suitable for shaft length	3.7~4.0	3. GND 4. NC	
Operating Temperature	-40~125°C	Suitable for boss diameter	10.95~11.0	5. A- 6. A+	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B- 8. B+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z- 10. Z+	
Weight	9.0 g	Other fixed size	Drawing		

3) Recommend Combination

Total Length of Geared Motor System : L _T =L ₁ +L ₂ +(L ₃ =10.7mm)					
L1:32GP	L1:36GP	L2:BL32	L1: 36GP	L1: 40GP	L2:BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1:45GP	L1:52GP	L2:BL45	L1:52GP		L2:BL65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2211S* Combination Scheme**

Recommended Gearbox:
Planetary Gearbox:
AM-32GP AM-45GP
AM-36GP AM-52GP
AM-40GP

Recommended Motor:
BRUSH LESS Motor:
AM-BL/D32** AM-BL40**
AM-BL/D36**
AM-BL/D45***

For more combination specs, visit Assun Motor website.

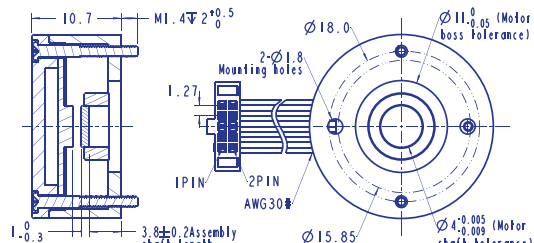
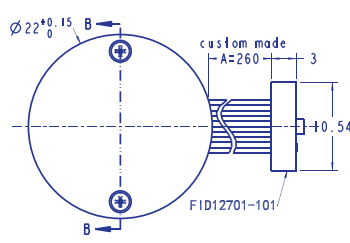
Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

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1) Parameters

Parameters/Models	AM-EN2211 S103-0032	AM-EN2211 S103-0064	AM-EN2211 S103-0128	AM-EN2211 S103-0256	AM-EN2211 S103-0512	AM-EN2211 S103-1024
Diameter	22	22	22	22	22	22
PPR/TURN	32	64	128	256	512	1024
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	20	40	100	180	360	512
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	2.0; 4.0	1. NC	1. Vcc	
Vcc=5.0V Signal	ISL32179	Suitable for shaft length	3.7~4.0	3. GND	4. NC	
Operating Temperature	-40~125℃	Suitable for boss diameter	10.95~11.0	5. A-	6. A+	
Inertia (max)	0.015 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.7~1.0	9. Z-	10. Z+	
Weight	9.0 g	Other fixed size	Drawing			

Total Length of Geared Motor System : $L_T=L_1+L_2+(L_3=10.7\text{mm})$					
L1:19GP	L1:24GP	L2:CL22	L2: 36GP	L1:40GP	L2:CL35
18.8	24	32.2	39.6	46.8	70.5
23.6	34.3	42.0	48.6	58.3	
28.4	42.8		57.6	69.8	
L1:45GP		L2:CL35			
60.1		70.5			
72.1					

AM-EN2211S* Combination Scheme**

The diagram illustrates the physical arrangement of the AM-EN2211S*** combination scheme. It consists of three main components: a Gearbox, a Motor, and an Encoder. The Gearbox is on the left, followed by the Motor, and the Encoder is on the right. The dimensions are defined as follows: L1 is the length of the Gearbox, L2 is the length of the Motor, and L3 is the length of the Encoder. The total length of the assembly is denoted as LT.

Recommended Gearbox:
 Planetary Gearbox:
 AM-19GP AM-40GP
 AM-24GP AM-45GP
 AM-36GP

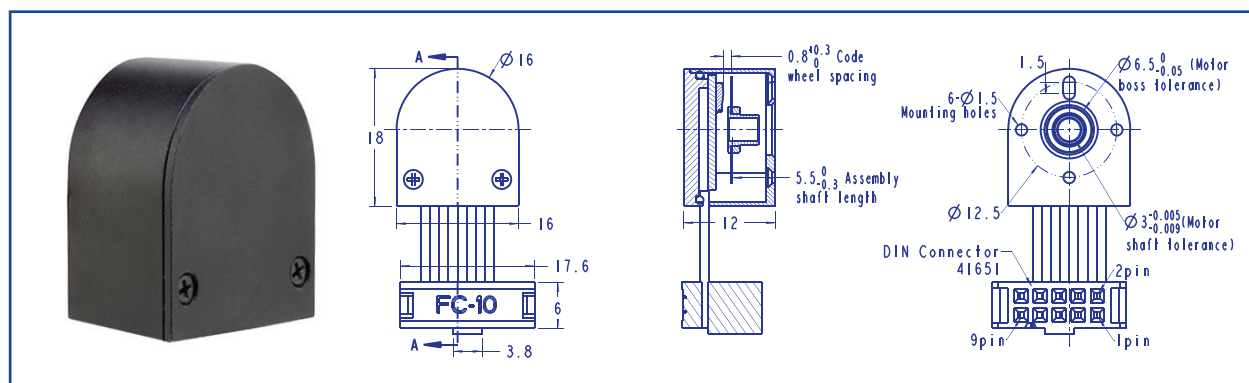
Recommended Motor:
 Coreless Motor:
 AM-CL22**
 AM-CL35**

For more combination specs, visit [Assun Motor website](#).

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

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AM-EN1612T003 SERIES



OPTICAL ENCODER

1) Parameters

Parameters/Models	AM-EN1612 T003-360	AM-EN1612 T003-720	AM-EN1612 T003-1440			
Diameter	16	16	16			
PPR/TURN	360	720	1440			
Max Channels	3	3	3			
Max Working Freq.(KHz)	55~220	55~220	55~220			
Direction Signal	no	no	no			
Drive (Differential Output)	no	no	no			

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	2.0; 3.0	1. NC	2. Vcc	
Vcc=5.0V Signal	TTL compatible	Suitable for shaft length	5.2~5.5	3. A	4. B	
Operating Temperature	-25~80 °C	Suitable for boss diameter	6.45~6.5	5. GND	6. NC	
Inertia (max)	0.06 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. Z	8. NC	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.8~1.1	9. NC	10. NC	
Weight	11.0 g	Other fixed size	Drawing			

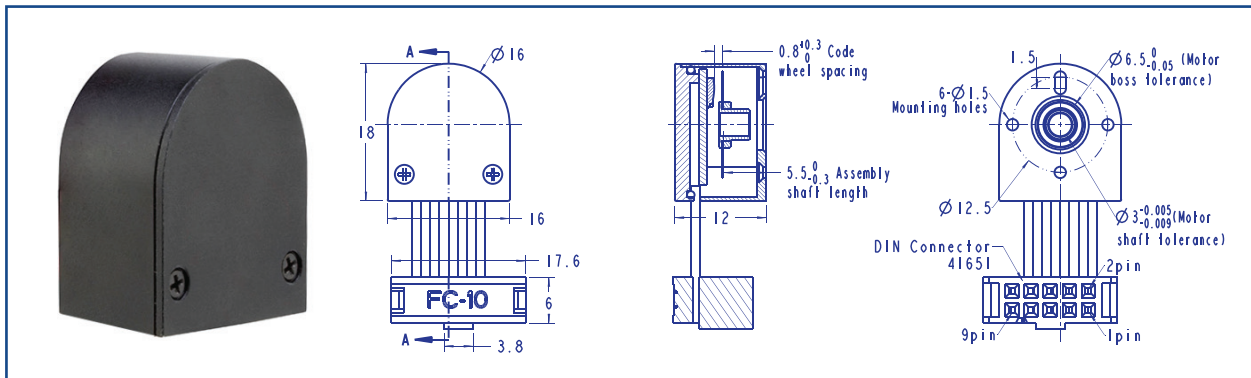
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =12.0mm)						AM-EN1612T*** Combination Scheme
L1:19GP	L1:24GP	L2:BL20	L1:16GP	L1:19GP	L2:BL16	
18.8	24	40.0	15.9	18.8	40.0	
23.6	34.3		23.3	23.6		
28.4	42.8		27.0	28.4		
						Recommended Gearbox: Planetary Gearbox: AM-16GP AM-19GP AM-24GP For more combination specs, visit Assun Motor website. Recommended Motor: BRUSH LESS Motor: AM-BL16** AM-BL20** Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

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AM-EN1612T103 SERIES



OPTICAL ENCODER

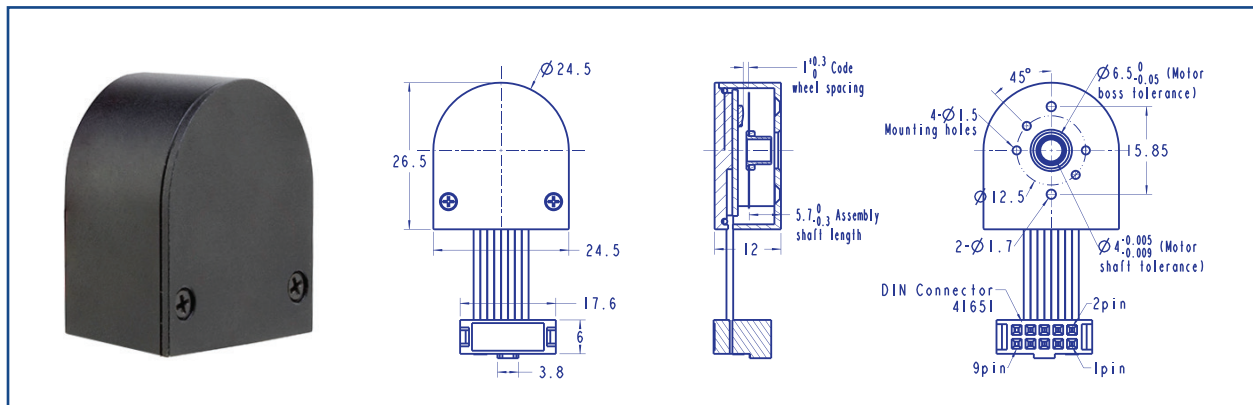
1) Parameters

Parameters/Models	AM-EN1612 T103-360	AM-EN1612 T103-720	AM-EN1612 T103-1440			
Diameter	16	16	16			
PPR/TURN	360	720	1440			
Max Channels	3	3	3			
Max Working Freq.(KHz)	55~220	55~220	55~220			
Direction Signal	no	no	no			
Drive (Differential Output)	yes	yes	yes			

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	2.0; 3.0	1. NC	2.Vcc	

AM-EN2412T003 SERIES



OPTICAL ENCODER

1) Parameters

Parameters/Models	AM-EN2412 T003-500	AM-EN2412 T003-512	AM-EN2412 T003-1000	AM-EN2412 T003-1024	AM-EN2412 T003-2000	AM-EN2412 T003-2048
Diameter	24.5	24.5	24.5	24.5	24.5	24.5
PPR/TURN	500	512	1000	1024	2000	2048
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	55~220	55~220	55~220	55~220	55~220	55~220
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	no	no	no	no	no	no

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	3.0; 4.0	1. NC	.Vcc	
Vcc=5.0V Signal	TTL compatible	Suitable for shaft length	5.2~5.5	3. A	4. B	
Operating Temperature	-25~80 °C	Suitable for boss diameter	6.45~6.5	5. GND	6. NC	
Inertia (max)	0.23 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. Z	8. NC	
Output Current, each channel	1.5mA(max)	Code wheel spacing	0.8~1.1	9. NC	10. NC	
Weight	17.0 g	Other fixed size	Drawing			

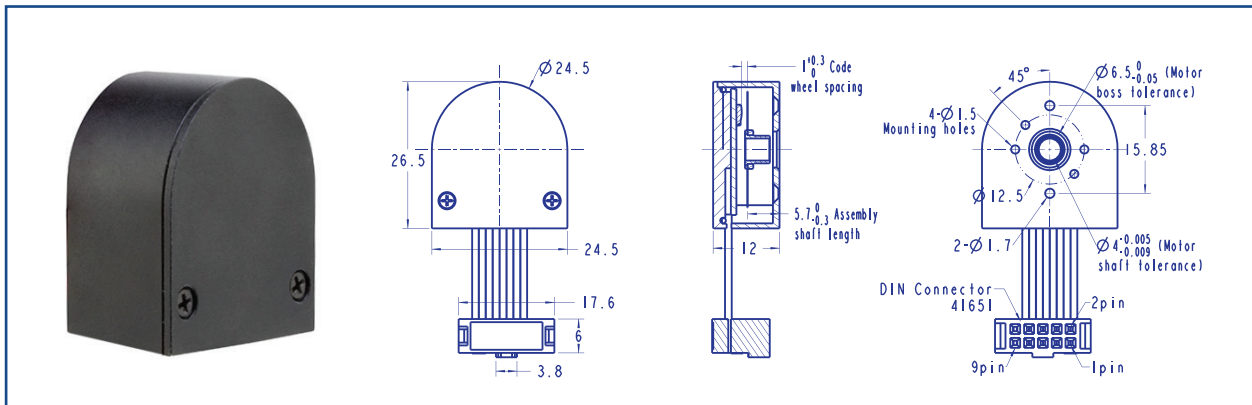
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =12.0mm)						AM-EN2412T*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-24GP AM-28GP AM-32GP AM-36GP For more combination specs, visit Assun Motor website. Recommended Motor: BRUSH LESS Motor: AM-BL/D24** AM-BL/D28** AM-BL/D32** Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:24GP	L1:28GP	L2:BL24	L1:28GP	L1:32GP	L2:BL28	
24	26.1	53.0	26.1	27.4	45.0	
34.3	33.3		33.3	35.9		
42.8	40.5		40.5	44.4		
L1:32GP	L1:36GP	L2:BL32				
27.4	39.6	60.0				
35.9	48.6	70.0				
44.4	57.6					

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AM-EN2412T103 SERIES



OPTICAL ENCODER

1) Parameters

Parameters/Models	AM-EN2412 T103-500	AM-EN2412 T103-512	AM-EN2412 T103-1000	AM-EN2412 T103-1024	AM-EN2412 T103-2000	AM-EN2412 T103-2048
Diameter	24.5	24.5	24.5	24.5	24.5	24.5
PPR/TURN	500	512	1000	1024	2000	2048
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	55~220	55~220	55~220	55~220	55~220	55~220
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	3.0; 4.0	1. NC	2.Vcc	
Vcc=5.0V Signal	ISL 32179	Suitable for shaft length	5.2~5.5	3. GND	4. NC	
Operating Temperature	-25~80 °C	Suitable for boss diameter	6.45~6.5	5. A-	6. A+	
Inertia (max)	0.23 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	20mA(max)	Code wheel spacing	0.8~1.1	9. Z-	10. Z+	
Weight	17.0 g	Other fixed size	Drawing			

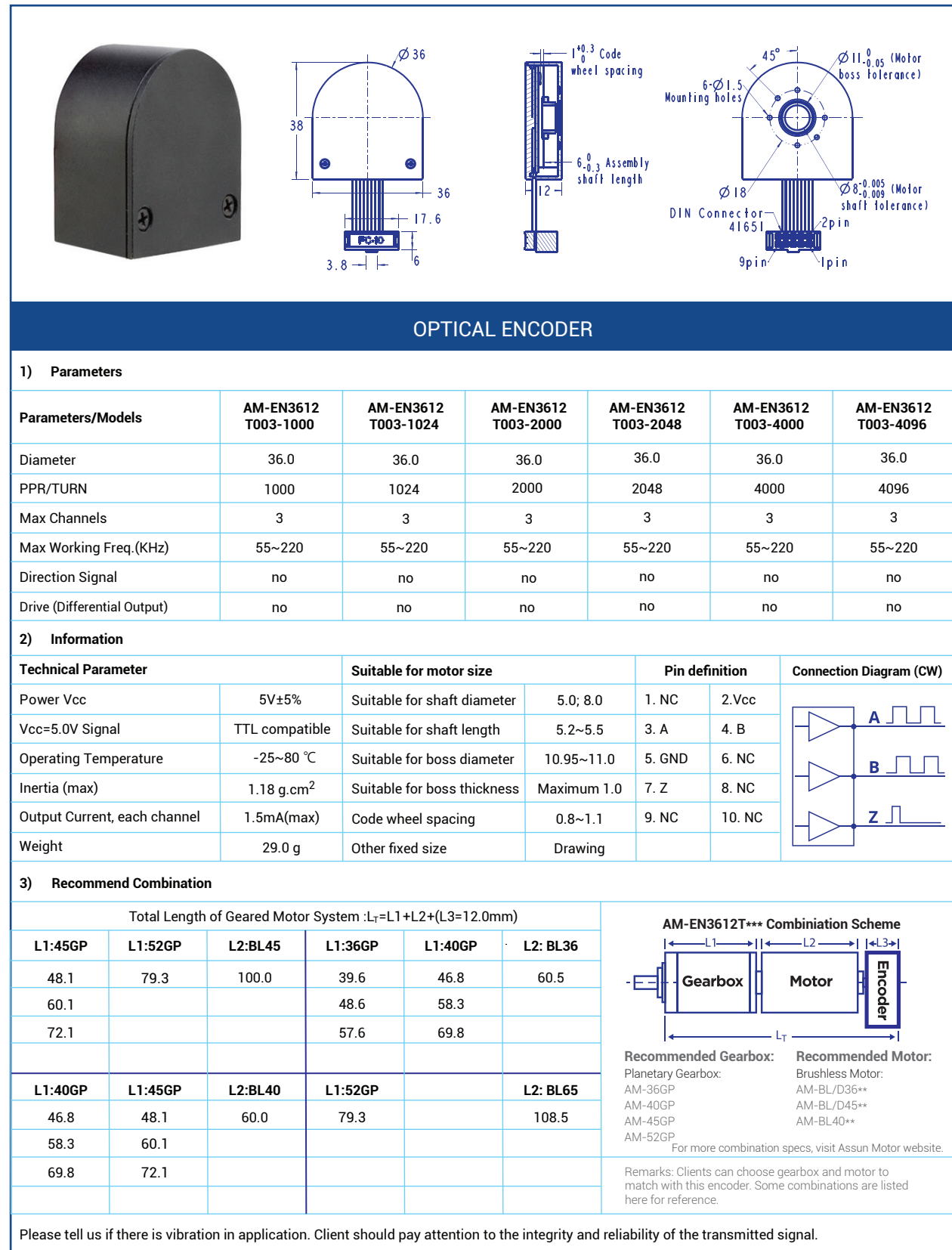
3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =12.0mm)						AM-EN2412T*** Combination Scheme Recommended Gearbox: Planetary Gearbox: AM-24GP AM-28GP AM-32GP AM-36GP For more combination specs, visit Assun Motor website. Recommended Motor: BRUSH LESS MOTOR: AM-BL/D24** AM-BL/D28** AM-BL/D32** Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.
L1:24GP	L1:28GP	L2:BL24	L1:28GP	L1:32GP	L2:BL28	
24	26.1	53.0	26.1	27.4	45.0	
34.3	33.3		33.3	35.9		
42.8	40.5		40.5	44.4		
L1:32GP	L1:36GP	L2:BL32				
27.4	39.6	60.0				
35.9	48.6	70.0				
44.4	57.6					

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

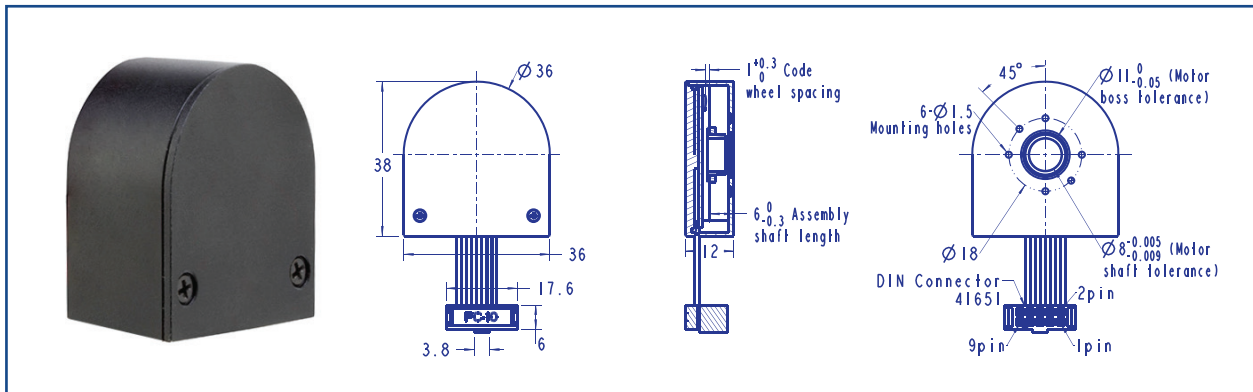
Download datasheet: <https://assunmotor.com/documents-download>

AM-EN3612T003 SERIES



Download datasheet: <https://assunmotor.com/documents-download>

AM-EN3612T103 SERIES



OPTICAL ENCODER

1) Parameters

Parameters/Models	AM-EN3612 T103-1000	AM-EN3612 T103-1024	AM-EN3612 T103-2000	AM-EN3612 T103-2048	AM-EN3612 T103-4000	AM-EN3612 T103-4096
Diameter	36.0	36.0	36.0	36.0	36.0	36.0
PPR/TURN	1000	1024	2000	2048	4000	4096
Max Channels	3	3	3	3	3	3
Max Working Freq.(KHz)	55~220	55~220	55~220	55~220	55~220	55~220
Direction Signal	no	no	no	no	no	no
Drive (Differential Output)	yes	yes	yes	yes	yes	yes

2) Information

Technical Parameter		Suitable for motor size		Pin definition		Connection Diagram (CW)
Power Vcc	5V±5%	Suitable for shaft diameter	5.0; 8.0	1. NC	2.Vcc	
Vcc=5.0V Signal	ISL 32179	Suitable for shaft length	5.2~5.5	3. GND	4. NC	
Operating Temperature	-25~80 °C	Suitable for boss diameter	10.95~11.0	5. A-	6. A+	
Inertia (max)	1.18 g.cm ²	Suitable for boss thickness	Maximum 1.0	7. B-	8. B+	
Output Current, each channel	20mA(max)	Code wheel spacing	0.8~1.1	9. Z-	10. Z+	
Weight	29.0 g	Other fixed size	Drawing			

3) Recommend Combination

Total Length of Geared Motor System :L _T =L ₁ +L ₂ +(L ₃ =12.0mm)						AM-EN3612T*** Combination Scheme
L1:45GP	L1:52GP	L2:BL45	L1:36GP	L1: 40GP	L2: BL36	
48.1	79.3	100.0	39.6	46.8	60.5	
60.1			48.6	58.3		
72.1			57.6	69.8		
L1:40GP	L1:45GP	L2:BL40	L1:52GP		L2: BL65	Recommended Gearbox: Planetary Gearbox: AM-36GP AM-40GP AM-45GP AM-52GP Recommended Motor: Brushless Motor: AM-BL/D36** AM-BL/D45** AM-BL40** For more combination specs, visit Assun Motor website.
46.8	48.1	60.0	79.3		108.5	
58.3	60.1				140.0	
69.8	72.1					

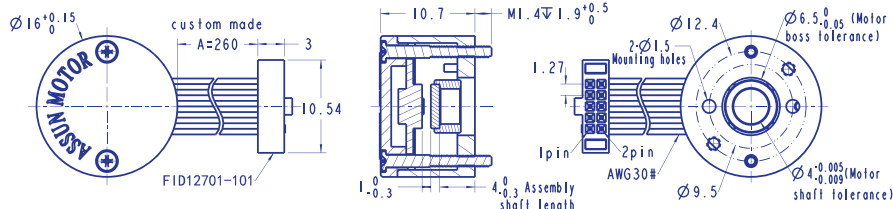
Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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ENCODER _____
ABSOLUTE ENCODER

Absolute encoders by Assun are used for providing extreme precision feedback information of motion to controllers and are mostly used when there are specific high precision needs in the DC drive applications.





1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	2.0;3.0;4.0	1. Vcc	2.Vcc
Multiple circles/bits	One lap	Transmission rate	<10MHz	Suitable for shaft length	3.7~4.0	3. GND	4. GND
Angle/bit	21Bit	Start-up time	< 10ms	Suitable for boss diameter	6.45~6.5	5. CLOCK+	6. CLOCK-
protocol	BiSS-C	Data refresh time	20ns	Suitable for boss thickness	Max 1.0	7. DATA+	8. DATA-
Differential signal	Bus difference	Power dissipation	≤ 0.1W	Code wheel spacing	0.7~1.0		
EMC anti-interference	EN 61000-6-2	Operating Temperature	-40~125℃	Other fixed size	Drawing		

MA

SLO1

Ack Start CDS 1.n 1.n-1 ... 1.0 F1 F0 CRC.n ... CRC.0

Line Delay

Data Range

BiSS-Timeout

Stop1

CDM

Total Length of Geared Motor System: $L_T=L_1+L_2+L_3(=10.7\text{mm})$					
L1: 16GP	L1: 19GP	L2: BL16	L1: 19GP	L1: 24GP	L2: BL20
15.9	18.8	40.0	18.8	24	40.0
23.3	23.6		23.6	34.3	
27	28.4		28.4	42.8	
L1: 24GP	L1: 28GP	L2: BL24	L1: 28GP	L1: 32GP	L2: BL 28
24	26.1	53.0	26.1	27.4	45.0
34.3	33.3		33.3	35.9	
42.8	40.5		40.5	44.4	

The diagram shows a horizontal arrangement of three components: a Gearbox, a Motor, and an Encoder. The Gearbox and Motor are represented by rectangles, while the Encoder is a smaller rectangle on the right. Dimension lines indicate the following lengths: L_1 is the length of the Gearbox; L_2 is the length of the Motor; L_3 is the width of the Encoder; and L_T is the total length from the left edge of the Gearbox to the right edge of the Encoder.

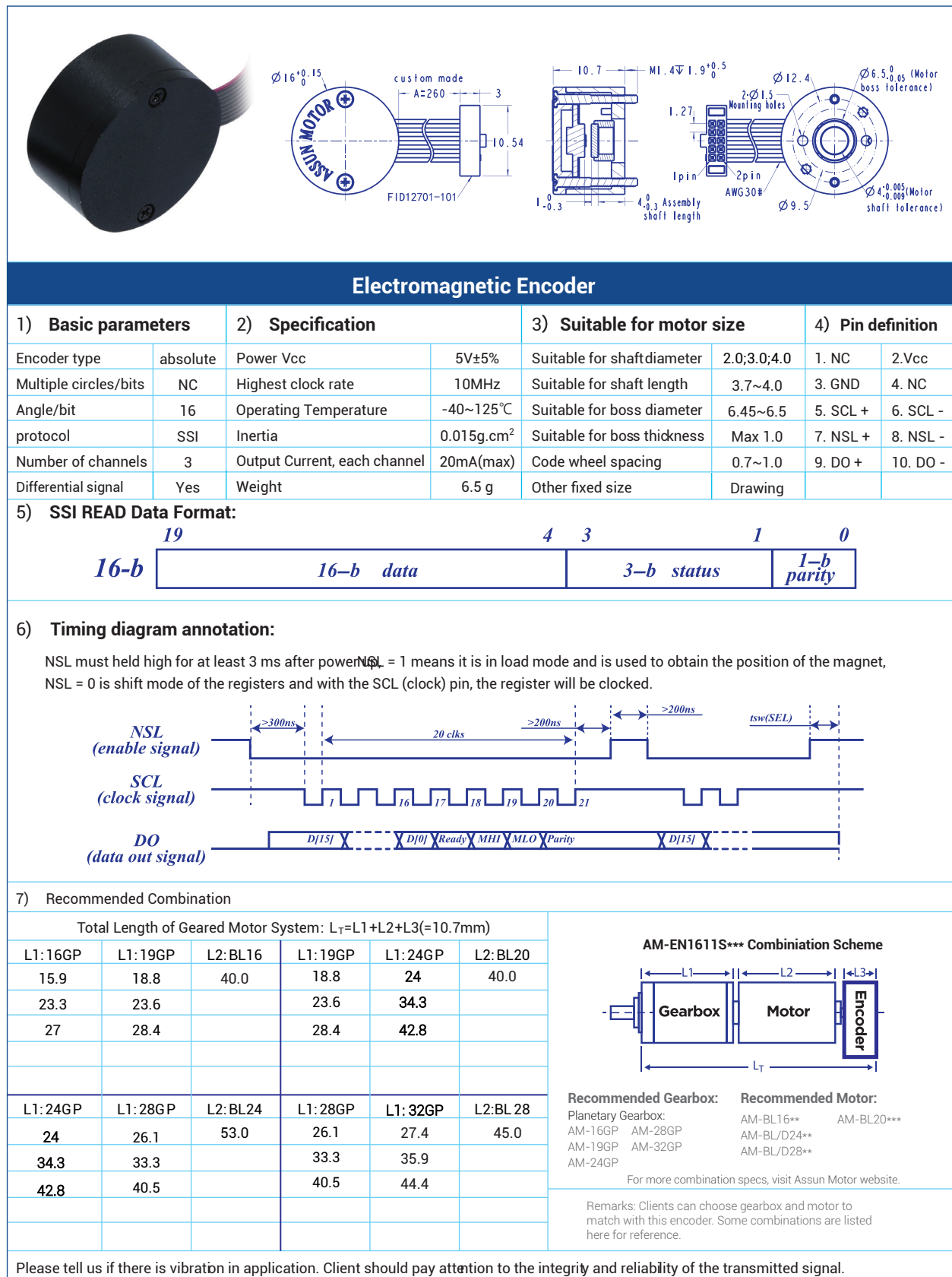
Recommended Gearbox:	Recommended Motor:
Planetary Gearbox:	AM-BL16** AM-BL20***
AM-16GP AM-28GP	AM-BL/D24**
AM-19GP AM-32GP	AM-BL/D28**
AM-24GP	

For more combination specs, visit Assun Motor website

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

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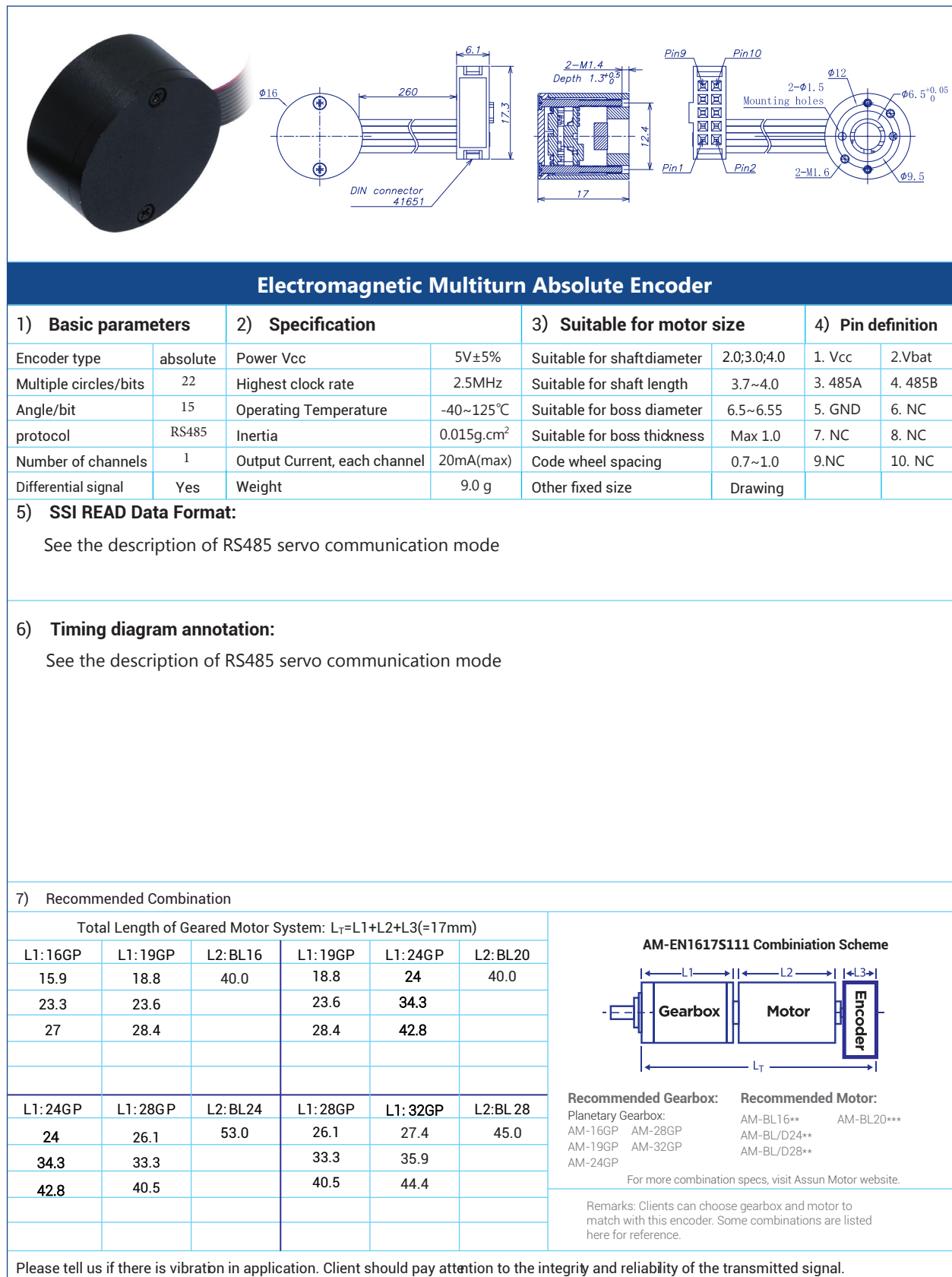
AM-EN1611S113 SERIES



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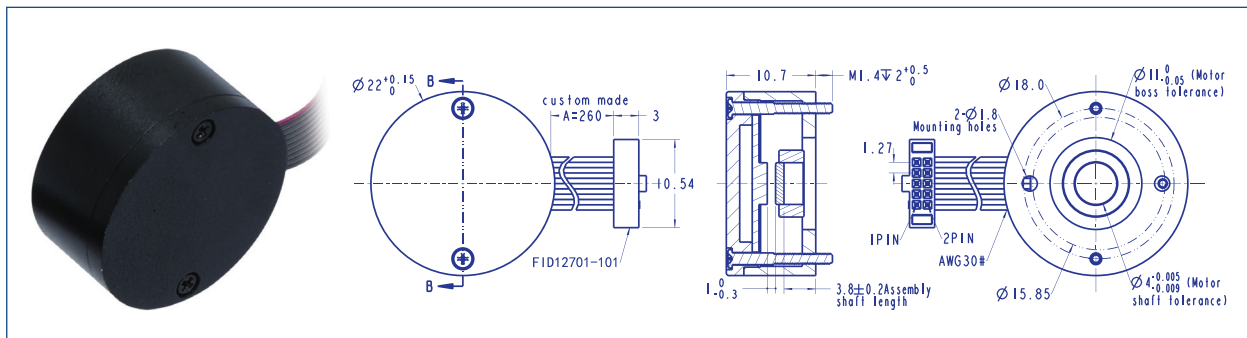
AM-EN1617S111 SERIES



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AM-EN2211S113 SERIES



Electromagnetic Encoder

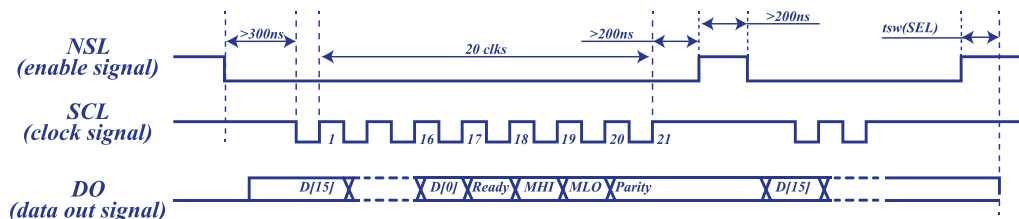
1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	4.0;5.0;8.0	1. NC	2. Vcc
Multiple circles/bits	NC	Highest clock rate	10MHz	Suitable for shaft length	3.7~4.0	3. GND	4. NC
Angle/bit	16	Operating Temperature	-40~125℃	Suitable for boss diameter	10.95~11.0	5. SCL +	6. SCL -
protocol	SSI	Inertia	0.015g.cm ²	Suitable for boss thickness	Max 1.0	7. NSL +	8. NSL -
Number of channels	3	Output Current, each channel	20mA(max)	Code wheel spacing	0.7~1.0	9. DO +	10. DO -
Differential signal	Yes			Other fixed size	Drawing		

4) SSI READ Data Format:



5) Timing diagram annotation:

NSL must held high for at least 3 ms after power ON. NSL = 1 means it is in load mode and is used to obtain the position of the magnet, NSL = 0 is shift mode of the registers and with the SCL (clock) pin, the register will be clocked.



6) Recommended Combination

Total Length of Geared Motor System: L _T =L ₁ +L ₂ +L ₃ (L ₃ =10.7mm)					
L1: 32GP	L1: 36GP	L2: BL32	L1: 36GP	L1: 40GP	L2: BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1: 45GP	L1: 52GP	L2: BL45	L1: 52GP		L2: BL65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2211S* Combination Scheme**

Recommended Gearbox:
Planetary Gearbox:
AM-32GP AM-45GP
AM-36GP AM-52GP
AM-40GP

Recommended Motor:
AM-BL/D32** AM-BL/D45***
AM-BL/D36** AM-BL65***
AM-BL40**

For more combination specs, visit Assun Motor website.

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

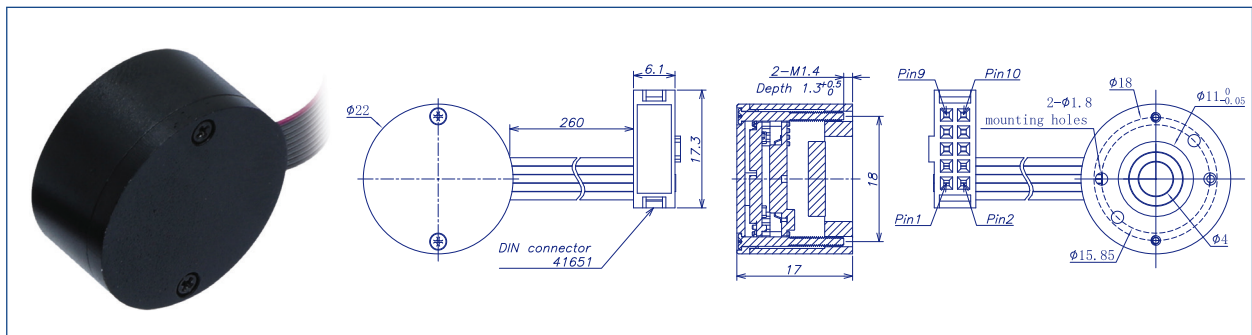
ENCODER

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-EN2217S111 SERIES



Electromagnetic Multiturn Absolute Encoder

1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	2.0;3.0;4.0	1. Vcc	2. Vbat
Multiple circles/bits	22	Highest clock rate	2.5MHz	Suitable for shaft length	3.7~4.0	3. 485A	4. 485B
Angle/bit	15	Operating Temperature	-40~125℃	Suitable for boss diameter	6.5~6.55	5. GND	6. NC
protocol	RS485	Inertia	0.015g.cm ²	Suitable for boss thickness	Max 1.0	7. NC	8. NC
Number of channels	1	Output Current, each channel	20mA(max)	Code wheel spacing	0.7~1.0	9. NC	10. NC
Differential signal	Yes	Weight	13.5 g	Other fixed size	Drawing		

4) SSI READ Data Format:

See the description of RS485 servo communication mode

5) Timing diagram annotation:

See the description of RS485 servo communication mode

6) Recommended Combination

Total Length of Geared Motor System: L _T =L ₁ +L ₂ +L ₃ (L ₃ =17mm)					
L1: 32GP	L1: 36GP	L2: BL32	L1: 36GP	L1: 40GP	L2: BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1: 45GP	L1: 52GP	L2: BL45	L1: 52GP		L2: BL65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2217S111 Combination Scheme

Recommended Gearbox:
Planetary Gearbox:
AM-32GP AM-45GP
AM-36GP AM-52GP
AM-40GP

Recommended Motor:
AM-BL/D32** AM-BL/D45***
AM-BL/D36** AM-BL65***
AM-BL40**

For more combination specs, visit Assun Motor website.

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

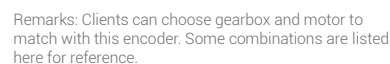
Download datasheet: <https://assunmotor.com/documents-download>

1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaftdiameter	4.0;5.0;8.0	1. Vcc	2.GND
Multiple circles/bits	One lap	Transmission rate	2.5Mbps	Suitable for shaft length	3.7~4.0	3. B-	4. A+
Angle/bit	14Bit	Start-up time	< 100ms	Suitable for boss diameter	10.95~11.0		
protocol	RS-485	Data refresh time	<100us	Suitable for boss thickness	Max 1.0		
Differential signal	Bus difference	Power dissipation	≤ 0.1W	Code wheel spacing	0.7~1.0		
EMC anti-interference	EN 61000-6-2	Operating Temperature	-40~125℃	Other fixed size	Drawing		

Command frame sent by main control end: send data (HEX): 0x02

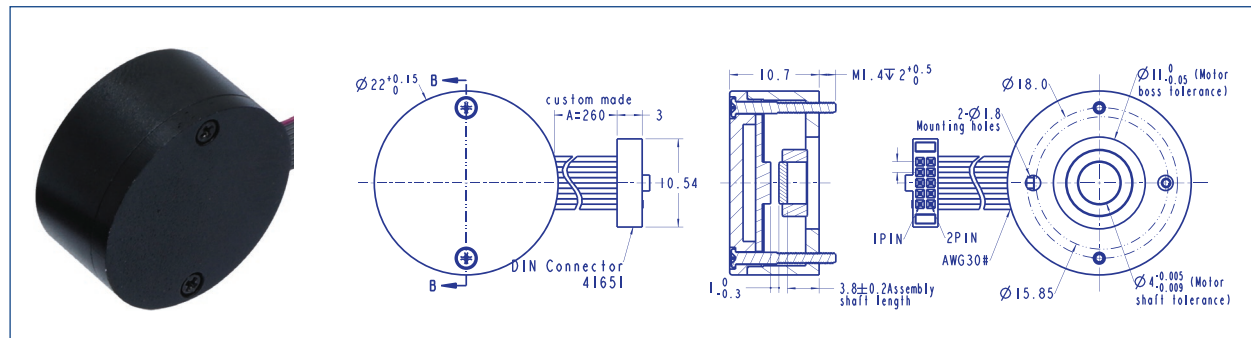
0x16: CRC check(Performs an XOR operation on all the preceding bytes)

Total Length of Geared Motor System: $L_T = L_1 + L_2 + L_3 (=10.7\text{mm})$					
L1:32GP	L1:36GP	L2:BL32	L1:36GP	L1:40GP	L2:BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1:45GP	L1:52GP	L2:BL45	L1:52GP		L2:BL65
60.1	79.3	100.0	79.3		108.5
72.1					



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AM-EN2211S112-21Bit SERIES



Electromagnetic Encoder

1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	4.0;5.0;8.0	1. Vcc	2.GND
Multiple circles/bits	One lap	Transmission rate	2.5Mbps	Suitable for shaft length	3.7~4.0	3. B-	4. A+
Angle/bit	21Bit	Start-up time	< 100ms	Suitable for boss diameter	10.95~11.0		
protocol	RS-485	Data refresh time	<100us	Suitable for boss thickness	Max 1.0		
Differential signal	Bus difference	Power dissipation	≤ 0.1W	Code wheel spacing	0.7~1.0		
EMC anti-interference	EN 61000-6-2	Operating Temperature	-40~125℃	Other fixed size	Drawing		

5)Encoder single turn data request command:

Command frame sent by main control end: send data (HEX): 0x02

6)The main control end receives the data frame from the encoder:

Receive data(HEX): 0x02 0x20 0x03 0x02 0x01 0x22 among:

0x02: Return same command CF

0x20: Status Byte SF

0x03 0x02 0x01: Single turn data value DF(Low order first) = 0x010203 = 66051

0x16: CRC check(Performs an XOR operation on all the preceding bytes)

7) Recommended Combination

Total Length of Geared Motor System: $L_T = L_1 + L_2 + L_3 (=10.7\text{mm})$					
L1: 32GP	L1: 36GP	L2: BL32	L1: 36GP	L1: 40GP	L2: BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1: 45GP	L1: 52GP	L2: BL45	L1: 52GP		L2: BL 65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2211S* Combination Scheme**

Recommended Gearbox:
AM-32GP AM-45GP
AM-36GP AM-52GP
AM-40GP

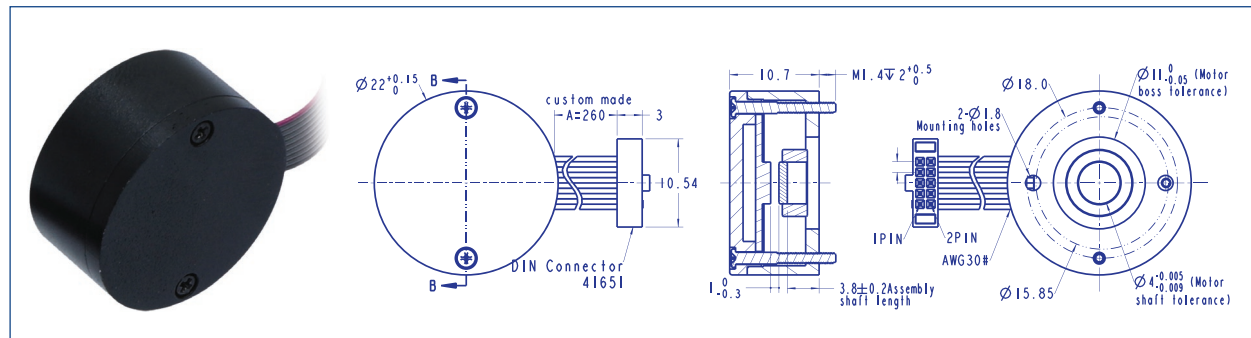
Recommended Motor:
AM-BL/D32** AM-BL/D45***
AM-BL/D36** AM-BL65***
AM-BL40**

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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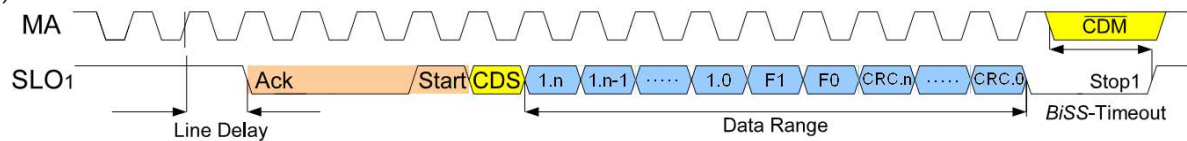
AM-EN2211S112-21Bit-BiSS-C SERIES



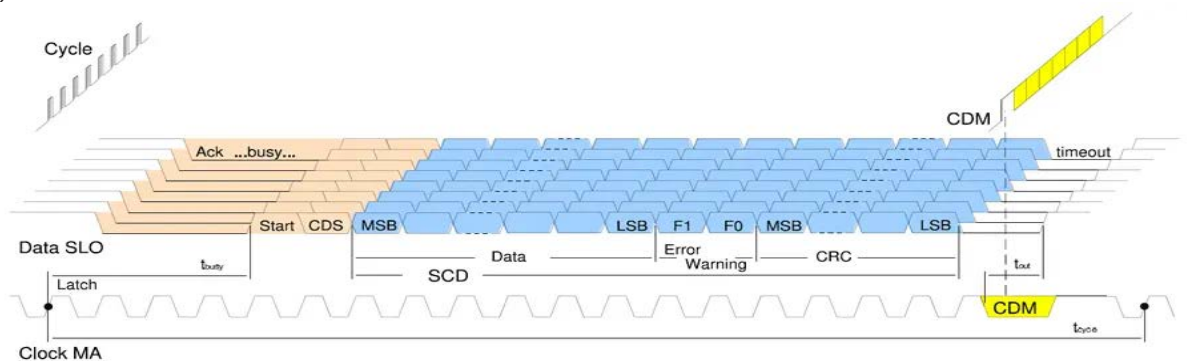
Electromagnetic Encoder

1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	4.0;5.0;8.0	1. Vcc	2. Vcc
Multiple circles/bits	One lap	Transmission rate	<10MHz	Suitable for shaft length	3.7~4.0	3. GND	4. GND
Angle/bit	21Bit	Start-up time	< 10ms	Suitable for boss diameter	10.95~11.0	5. CLOCK+	6. CLOCK-
protocol	BiSS-C	Data refresh time	20ns	Suitable for boss thickness	Max 1.0	7. DATA+	8. DATA-
Differential signal	Bus difference	Power dissipation	≤ 0.1W	Code wheel spacing	0.7~1.0		
EMC anti-interference	EN 61000-6-2	Operating Temperature	-40~125℃	Other fixed size	Drawing		

5) BiSS Communication Frame:



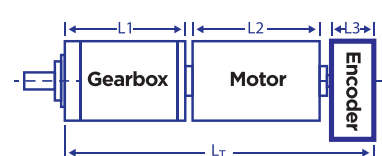
6) BiSS Protocol Frame Structure:



7) Recommended Combination

Total Length of Geared Motor System: $L_T = L_1 + L_2 + L_3 (=10.7\text{mm})$					
L1: 32GP	L1: 36GP	L2: BL32	L1: 36GP	L1: 40GP	L2: BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1: 45GP	L1: 52GP	L2: BL45	L1: 52GP		L2: BL 65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2211S*** Combination Scheme



Recommended Gearbox: Recommended Motor:

Planetary Gearbox:
AM-32GP AM-45GP AM-36GP AM-52GP AM-40GP
For more combination specs, visit Assun Motor website.

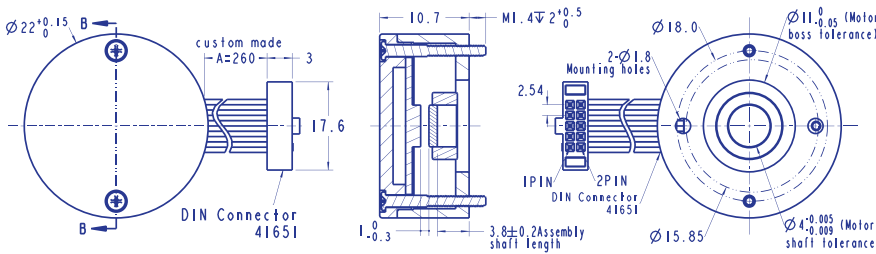
Recommended Motor:
AM-BL/D32** AM-BL/D36** AM-BL/D45*** AM-BL65*** AM-BL40**

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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Electromagnetic Encoder

1) Basic parameters		2) Specification		3) Suitable for motor size		4) Pin definition	
Encoder type	absolute	Power Vcc	5V±5%	Suitable for shaft diameter	4.0;5.0;8.0	1. Vcc	2.Vcc
Multiple circles/bits	One lap	Transmission rate	2.5Mbps	Suitable for shaft length	3.7~4.0	3. GND	4. GND
Angle/bit	21Bit	Start-up time	< 100ms	Suitable for boss diameter	10.95~11.0	5. RX+	6. RX-
protocol	RS-422	Data refresh time	<100us	Suitable for boss thickness	Max 1.0	7. TX-	8. TX+
Differential signal	Bus difference	Power dissipation	≤ 0.1W	Code wheel spacing	0.7~1.0		
EMC anti-interference	EN 61000-6-2	Operating Temperature	-40~125℃	Other fixed size	Drawing		

5)Encoder single turn data request command:

Command frame sent by main control end: send data (HEX): 0x02

6)The main control end receives the data frame from the encoder:

Receive data(HEX): 0x02 0x20 0x03 0x02 0x01 0x22 among:

0x02: Return same command CF

0x20: Status Byte SF

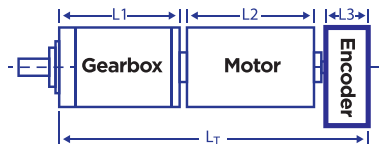
0x03 0x02 0x01: Single turn data value DF(Low order first) = 0x010203 = 66051

0x16: CRC check(Preforms an XOR operation on all the preceding bytes)

7) Recommended Combination

Total Length of Geared Motor System: L _T =L ₁ +L ₂ +L ₃ (=10.7mm)					
L1:32GP	L1:36GP	L2:BL32	L1:36GP	L1:40GP	L2:BL36
27.4	39.6	60.0	39.6	46.8	60.5
35.9	48.6	70.0	48.6	58.3	
44.4	57.6		57.6	69.8	
L1:45GP	L1:52GP	L2:BL45	L1:52GP		L2:BL 65
60.1	79.3	100.0	79.3		108.5
72.1					

AM-EN2211S* Combination Scheme**



Recommended Gearbox: AM-32GP AM-45GP AM-36GP AM-52GP AM-40GP

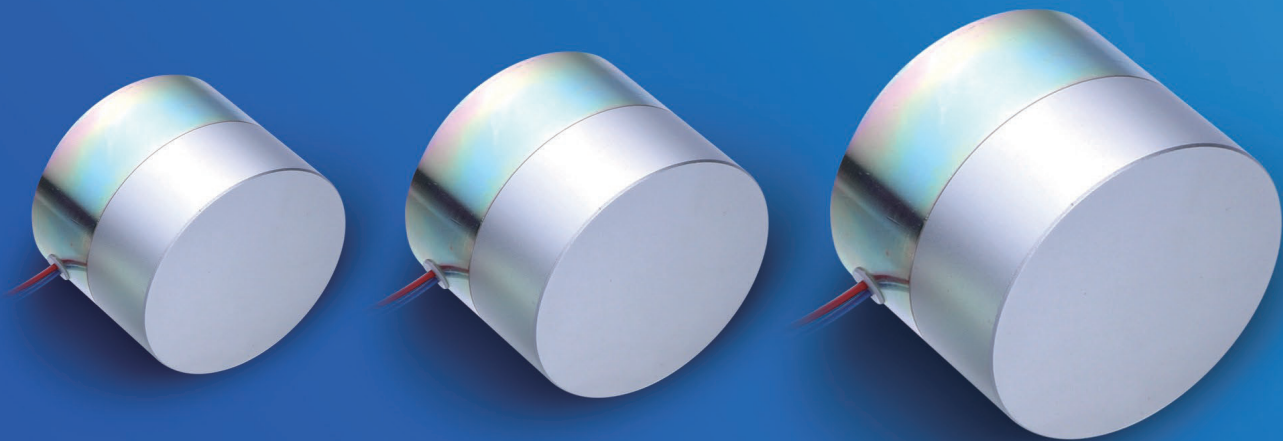
Recommended Motor: AM-BL/D32** AM-BL/D36** AM-BL40** AM-BL/D45*** AM-BL65***

Remarks: Clients can choose gearbox and motor to match with this encoder. Some combinations are listed here for reference.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

BRAKES

Assun Brakes are regarded as the final compartments for total solution of DC drive. Brakes are used to clamp the motor shafts and hold it in fixed position when motors stop. Power-on and power-off types are provided to fit for different applications.



AM-BK2420GE

AM-BK2423LE

AM-BK3526GE

AM-BK3531LE

AM-BK4228GE

AM-BK4235LE

AM-BK5032GE

AM-BK5039LE

Company Name Abbreviation

AM - BK 4228 GE - 2410

Code Of Brake

Break Type

G - Power-On Brake
L - Power-Off Brake

Temp. Level

N - 85°C
E - 120°C
F - 155°C
H - 180°C

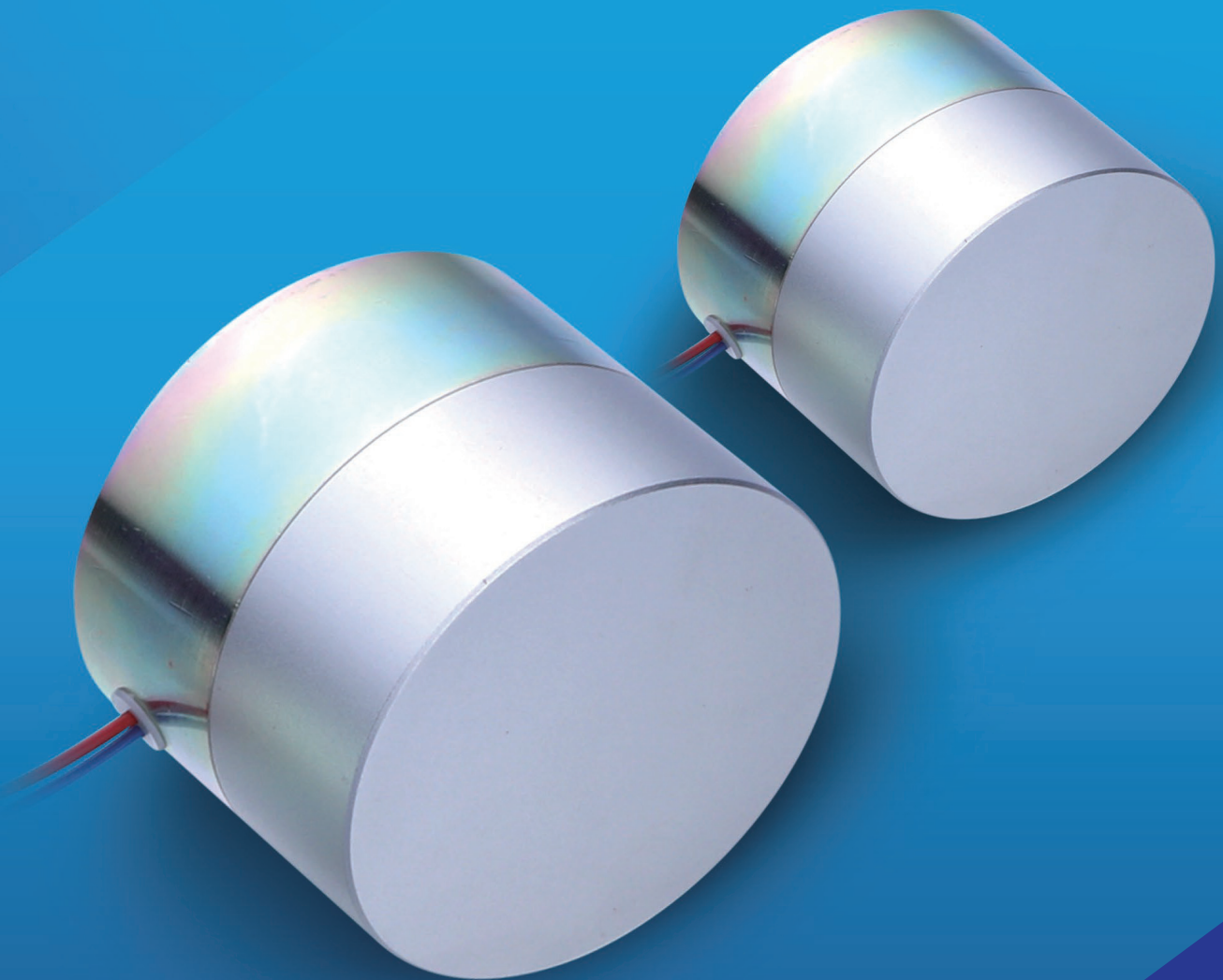
Break Dimension
42 - Diameter
28 - Thickness

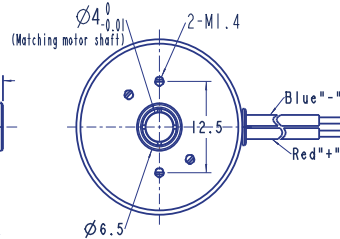
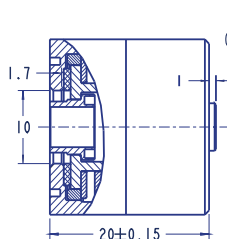
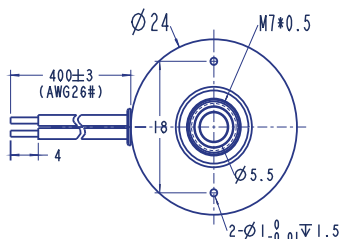
Voltage & Torque
24 - Nominal Voltage (V)
10 - Static Braking Torque (x0.1Nm)

BRAKES

POWER ON AND POWER OFF BRAKES

Power-On and Power-Off brakes by Assun have got diameters of 24mm, 35mm, 42mm and 50mm, static brake torque values of 0.2Nm, 0.5Nm, 1Nm and 1.5 Nm, to fit for different motors and applications.





1) Parameters

Parameters/Models	Static friction torque	Rated Voltage	Power	Temperature Rating	Maximum Speed	Moment of inertia	Weight
AM-BK2420GE-2401	0.1 N.M	24 V	4.5 W	120 °C	10000 rpm	18.0 g.cm ²	62.0 g
AM-BK2420GE-1201	0.1 N.M	12 V	3.2 W	120 °C	10000 rpm	18.0 g.cm ²	62.0 g
Parameters/Models	Life time	Thermal Resistance	Thermal time Constant	Coil Inductance	Electrical Time Constant	Operating Environment Temperature	
AM-BK2420GE-2401	100000 Times	30.0 K/W	830 s	86.3 mH	0.7 ms	-25~55 °C (Customizable)	
AM-BK2420GE-1201	100000 Times	30.0 K/W	830 s	31.25 mH	0.7 ms	-25~55 °C (Customizable)	

3) Applications

1. Fixed accuracy, no backlash	2. Small size and high torque	1. Robotic brake	2. Z-axis brake
3. Low noise, high speed	4. Fast response and long life	3. Servo motor static braking	4. General purpose motor

1. Avoid contact with oil or dust, these factors will reduce the torque of the product;
2. Please connect with the product with the correct voltage and polarity to avoid damage or abnormal work;
3. The initial torque may not reach the rated torque for the first time. Please rotate 50 to 60 times at 40 to 60 rpm in the braking state;
4. This product cannot be used as a high-speed dynamic brake.

Total Length of Geared Motor System: $L_T = L_2 + L_3 + L_4 (=20\text{mm})$

L2:BL24	L3:EN16S	L3:EN24T	L2:BL28	L3:EN16S	L3:EN24T
53.0	10.7	12.0	45.0	10.7	12.0
L2:BL32	L3:EN22S	L3:EN24T			
60.0	10.7	12.0			
70.0					

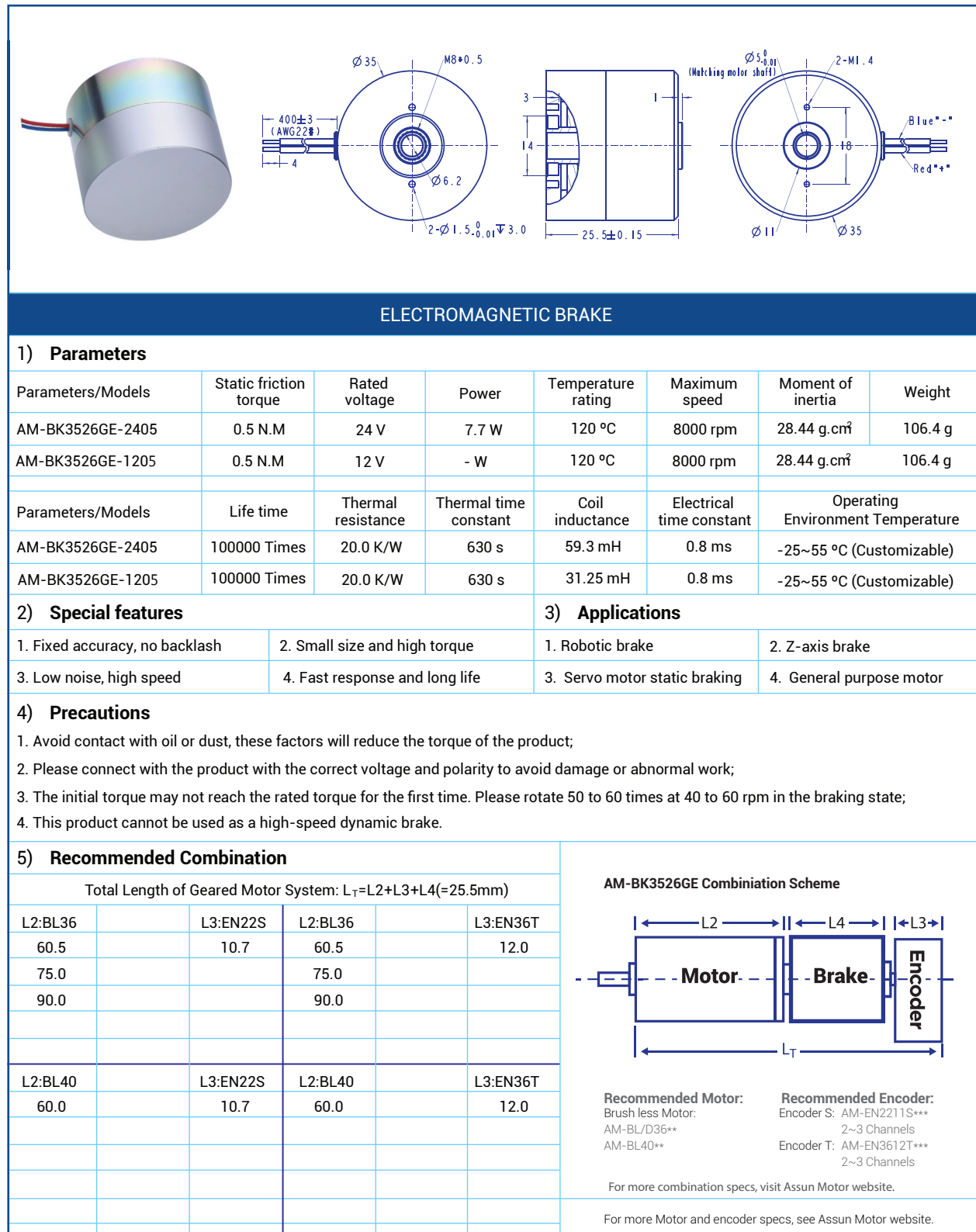
A schematic diagram of a motor-brake-encoder assembly. The assembly consists of three main components in series: a Motor, a Brake, and an Encoder. The Motor is represented by a rectangle with a dashed line through its center and a small protrusion on its left side. The Brake is a rectangle to its right. The Encoder is a rectangle to the right of the Brake, with a small protrusion on its left side. Dimensions are indicated by arrows above the components: L_2 is the length of the Motor, L_4 is the length of the Brake, and L_3 is the length of the Encoder. A dimension L_T is shown below the Motor and Brake, representing the total length of these two components.

For more Motor and encoder specs, see Assun Motor website.

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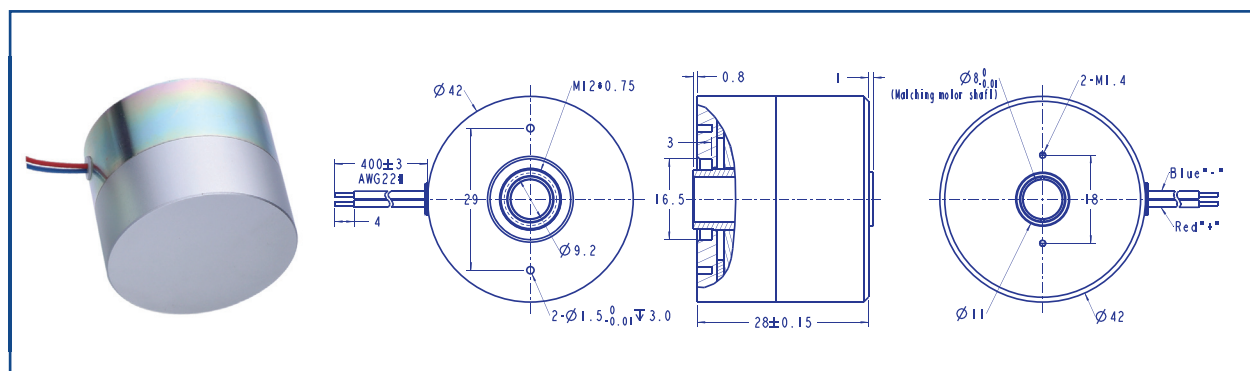
AM-BK3526GE Series



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AM-BK4228GE Series



ELECTROMAGNETIC BRAKE

1) Parameters

Parameters/Models	Static friction torque	Rated voltage	Power	Temperature rating	Maximum speed	Moment of inertia	Weight
AM-BK4228GE-2410	1.0 N.M	24 V	10.7 W	120 °C	8000 rpm	77.56 g.cm ²	162 g
Parameters/Models	Life time	Thermal resistance	Thermal time constant	Coil inductance	Electrical time constant	Operating Environment Temperature	
AM-BK4228GE-2410	100000 Times	13.2 K/W	789 s	50.2 mH	0.9 ms	-25~55 °C (Customizable)	

2) Special features

- Fixed accuracy, no backlash
- Small size and high torque
- low noise, high speed
- Fast response and long life

3) Applications

- Robotic brake
- Z-axis brake
- Servo motor static braking
- General purpose motor

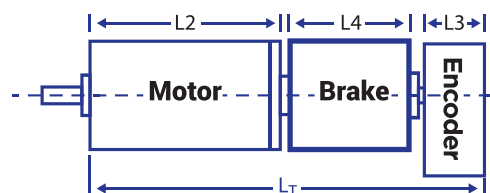
4) Precautions

- Avoid contact with oil or dust, these factors will reduce the torque of the product;
- Please connect with the product with the correct voltage and polarity to avoid damage or abnormal work;
- The initial torque may not reach the rated torque for the first time. Please rotate 50 to 60 times at 40 to 60 rpm in the braking state;
- This product cannot be used as a high-speed dynamic brake.

5) Recommended Combination

Total Length of Geared Motor System: $L_T = L_2 + L_3 + L_4 (=28\text{mm})$				
L2:BL45		L3:EN22S	L2:BL45	L3:EN36T
100.0		10.7	100.0	12.0
L2:BL65		L3:EN22S	L2:BL65	L3:EN36T
108.5		10.7	108.5	12.0
140.0			140.0	

AM-BK4228GE Combination Scheme



Recommended Motor:

Brush less Motor:
AM-BL/D45***
AM-BL65***

Recommended Encoder:

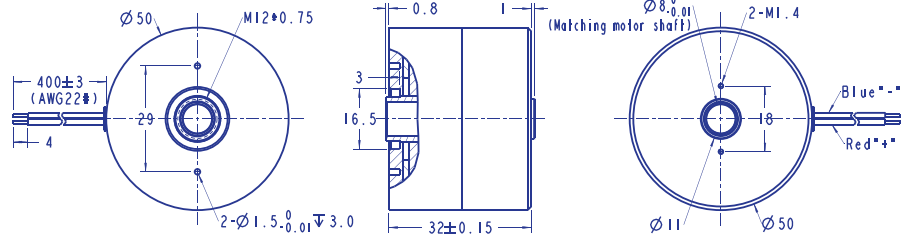
Encoder S: AM-EN221S***
2~3 Channels
Encoder T: AM-EN3612T***
2~3 Channels

For more combination specs, visit Assun Motor website.

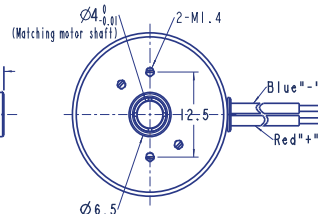
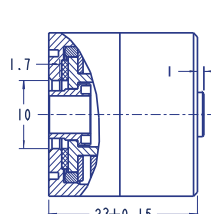
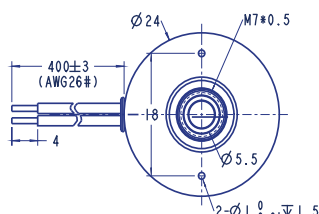
For more Motor and encoder specs, see Assun Motor website.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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1) Parameters

Parameters/Models	Static friction torque	Rated voltage	Power	Temperature Rating	Maximum speed	Moment of inertia	Weight
AM-BK2423LE-2401	0.1 N.M	24 V	4.0 W	120 °C	10000 rpm	18.0 g.cm ²	80.8 g
AM-BK2423LE-1201	0.1 N.M	12 V	2.1 W	120 °C	10000 rpm	18.0 g.cm ²	80.8 g
Parameters/Models	Life time	Thermal Resostamnce	Thermal time constant	Coil Inductance	Electrical time constant	Operating Environment Temperature	
AM-BK2423LE-2401	100000 Times	24.0 K/W	830 s	86.3 mH	0.9 ms	-25~55 °C (Customizable)	
AM-BK2423LE-1201	100000 Times	24.0 K/W	830 s	30.9 mH	0.9 ms	-25~55 °C (Customizable)	

3) Applications

1.Fixed accuracy, no backlash	2. Small size and high torque	1. Robotic brake	2. Z-axis brake
3. Low noise, high speed	4. Fast response and long life	3. Servo motor static braking	4. General purpose motor

1. Avoid contact with oil or dust, these factors will reduce the torque of the product;
2. Please connect with the product with the correct voltage and polarity to avoid damage or abnormal work;
3. The initial torque may not reach the rated torque for the first time. Please rotate 50 to 60 times at 40 to 60 rpm in the braking state;
4. This product cannot be used as a high-speed dynamic brake.

Total Length of Geared Motor System: $L_T = L_1 + L_3 + L_4$ ($L_4 = 23\text{mm}$)

L2:BL24	L3:EN16S	L3:EN24T	L2:BL28	L3:EN16S	L3:EN24T
53.0	10.7	12.0	45.0	10.7	12.0
L2:BL32	L3:EN22S	L3:EN24T			
60.0	10.7	12.0			
70.0					

The diagram shows a horizontal assembly of three components: a Motor, a Brake, and an Encoder. The Motor is on the left, connected to a shaft. The Brake is in the middle, and the Encoder is on the right. Dimension lines indicate the following lengths: L_2 is the length of the Motor; L_4 is the length of the Brake; and L_3 is the length of the Encoder. A total dimension line at the bottom indicates the overall length of the assembly.

Recommended Motor:
Brushless Motor:
AM-BL/D24**
AM-BL/D28**
AM-BL/D32**

Recommended Encoder:
Encoder S: AM-EN11S***
AM-EN2211S***
Encoder T: AM-EN2412T***

For more combination specs, visit Assun Motor website.

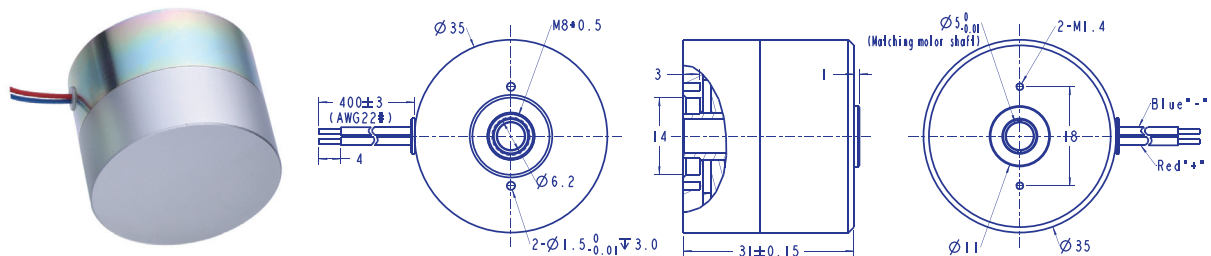
For more Motor and encoder specs, see Assun Motor website

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AM-BK3531LE Series



ELECTROMAGNETIC BRAKE

1) Parameters

Parameters/Models	Static friction torque	Rated voltage	Power	Temperature rating	Maximum speed	Moment of inertia	Weight
AM-BK3531LE-2405	0.5 N.M	24 V	5.0 W	120 °C	8000 rpm	28.44 g.cm ²	132.8 g
AM-BK3531LE-1205	0.5 N.M	12 V	5.0W	120 °C	8000 rpm	28.44 g.cm ²	132.8 g
Parameters/Models	Life time	Thermal resistance	Thermal time constant	Coil inductance	Electrical time constant	Operating Environment Temperature	
AM-BK3531LE-2405	100000 Times	16.0 K/W	700 s	92.7 mH	1.2 ms	-25~55 °C (Customizable)	
AM-BK3531LE-1205	100000 Times	16.0 K/W	700 s	30.9mH	1.2 ms	-25~55 °C (Customizable)	

2) Special features

1. Fixed accuracy, no backlash
2. Small size and high torque
3. Low noise, high speed
4. Fast response and long life

3) Applications

1. Robotic brake
2. Z-axis brake
3. Servo motor static braking
4. General purpose motor

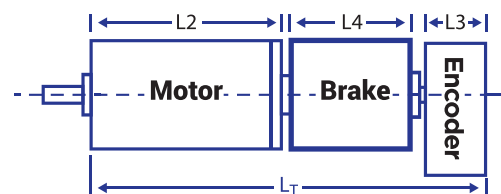
4) Precautions

1. Avoid contact with oil or dust, these factors will reduce the torque of the product;
2. Please connect with the product with the correct voltage and polarity to avoid damage or abnormal work;
3. The initial torque may not reach the rated torque for the first time. Please rotate 50 to 60 times at 40 to 60 rpm in the braking state;
4. This product cannot be used as a high-speed dynamic brake.

5) Recommended Combination

Total Length of Geared Motor System: $L_T = L_2 + L_3 + L_4 (=31\text{mm})$				
L2:BL36	L3:EN22S	L2:BL36	L3:EN36T	
60.5	10.7	60.5	12.0	
75.0		75.0		
90.0		90.0		
L2:BL40	L3:EN22S	L2:BL40	L3:EN36T	
60.0	10.7	60.0	12.0	

AM-BK3531LE Combination Scheme



Recommended Motor:

Brush less Motor:
AM-BL/D36**
AM-BL40**

Recommended Encoder:

Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN3612T***
2~3 Channels

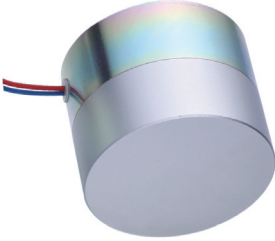
For more combination specs, visit Assun Motor website.

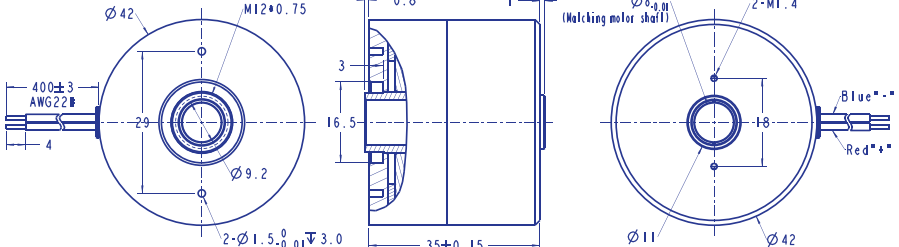
For more Motor and encoder specs, see Assun Motor website.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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AM-BK4235LE Series





ELECTROMAGNETIC BRAKE

1) Parameters

Parameters/Models	Static friction torque	Rated voltage	Power	Temperature rating	Maximum speed	Moment of inertia	Weight
AM-BK4235LE-2410	1.0 N.M	24 V	7.5 W	120 °C	8000 rpm	77.56 g.cm ²	211.2 g

Parameters/Models	Life time	Thermal resistance	Thermal time constant	Coil inductance	Electrical time constant	Operating Environment Temperature
AM-BK4235LE-2410	100000 Times	12.6 K/W	908 s	60.9 mH	1.1 ms	-25~55 °C (Customizable)

2) Special features

1. Fixed accuracy, no backlash	2. Small size and high torque
3. low noise, high speed	4. Fast response and long life

3) Applications

1. Robotic brake	2. Z-axis brake
3. Servo motor static braking	4. General purpose motor

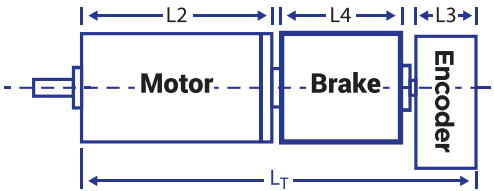
4) Precautions

- Avoid contact with oil or dust, these factors will reduce the torque of the product;
- Please connect with the product with the correct voltage and polarity to avoid damage or abnormal work;
- The initial torque may not reach the rated torque for the first time. Please rotate 50 to 60 times at 40 to 60 rpm in the braking state;
- This product cannot be used as a high-speed dynamic brake.

5) Recommended Combination

Total Length of Geared Motor System: $L_T = L_2 + L_3 + L_4 (=35\text{mm})$				
L2:BL45		L3:EN22S	L2:BL45	L3:EN36T
100.0		10.7	100.0	12.0
L2:BL65		L3:EN22S	L2:BL65	L3:EN36T
108.5		10.7	108.5	12.0
140.0			140.0	

AM-BK4235LE Combination Scheme



Recommended Motor:
Brush less Motor:
AM-BL/D45***
AM-BL65***

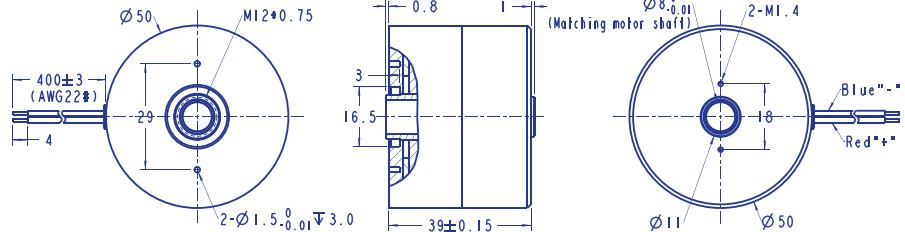
Recommended Encoder:
Encoder S: AM-EN2211S***
2~3 Channels
Encoder T: AM-EN3612T***
2~3 Channels

For more combination specs, visit Assun Motor website.

For more Motor and encoder specs, see Assun Motor website.

Please tell us if there is vibration in application. Client should pay attention to the integrity and reliability of the transmitted signal.

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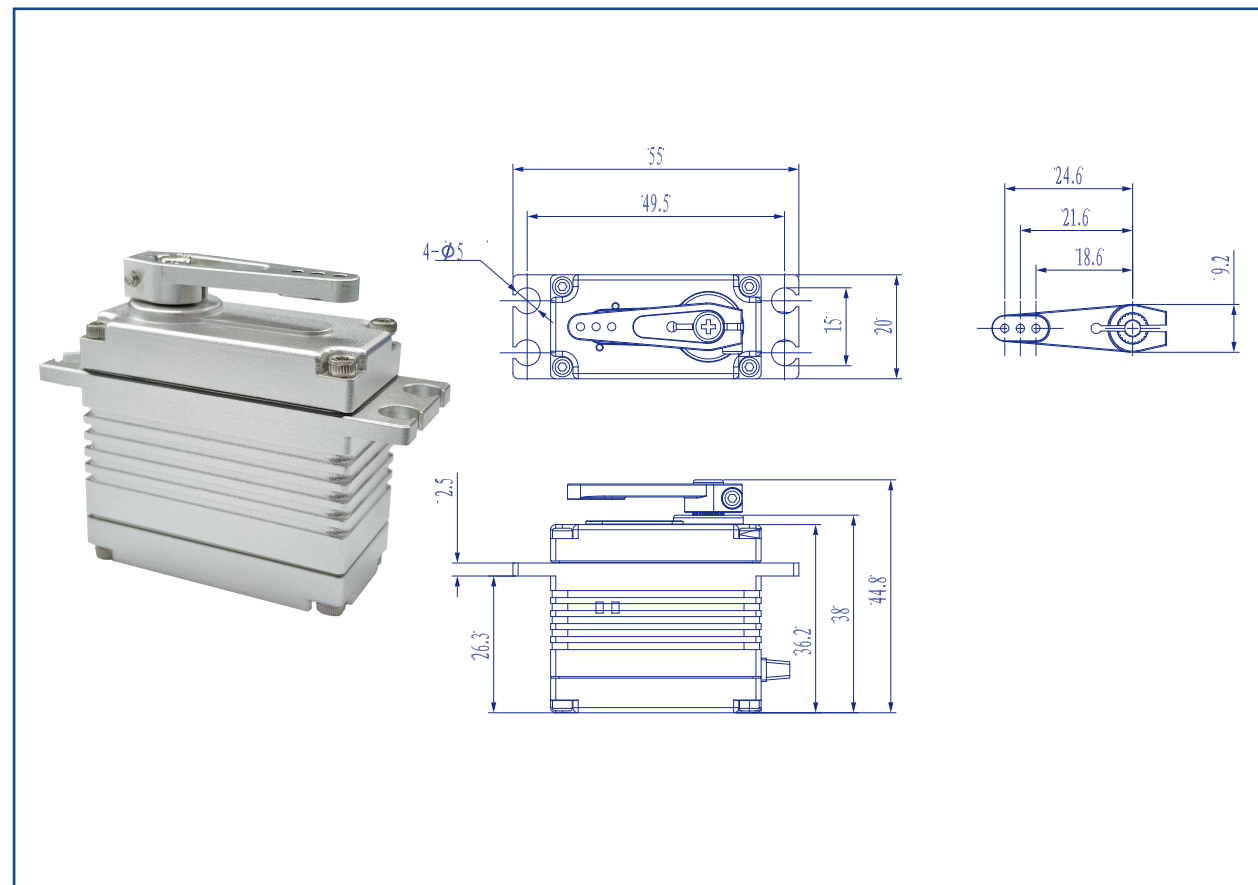
COMBINATION PRODUCT
SERVO ACTUATOR

Assun Motor is developer, manufacturer and supplier of Servo Actuator, including the BLDC motor, gearbox and control system. For gearbox there is spur gear and planetary gear 2 versions in the actuator.

With 20 years of industry experience, we deliver mission-critical solutions that meet the highest standards of functional safety and reliability. We provide highly customization on both hardware and software.



AM-4020SPI1618AE-298-0787 Series



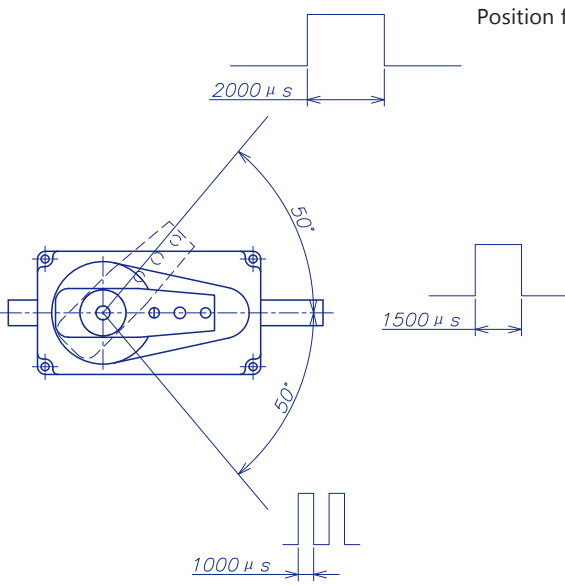
SERVO ACTUATOR DATA		COMMAND SIGNAL	
Rated voltage	DC 7.4V	PWM Command interface	
Voltage range	DC 6V-8.4V	Signal voltage	HIGH:min.3.3V , max.5.0V LOW:min.0V , max.1.5V
Peak torque	30 Kg.cm@7.4V	Pulse lengths	900µs-2100µs
Rated torque	9 Kg.cm@7.4V	Pulse lengths for position	1000µs/1500µs/2000µs -50°/0°/+50°
No load rotation speed	500°/Sec@7.4V	RS485 command interface and protocol specifications	
Rated rotation speed	380°/Sec@7.4V		
Peak current	<6A		
Rated current	1.5A 120%Max		
Default angle	±50°	Baud-rate	57600±1.5% bits/s
Operating temperature range	-20°C ~ +65°C	Protocol(Documentation available)	10 Byte(incl.1byte check sum)
Shell material	6061 T6	Number of data bits	8
Motor type	DC Brushless motor	Number of stop bits	1
Gear material	Steel	Parity	None
Position sensor	Non-contact sensor	Annotate: (1) Tolerance±10%; (2) Programming Tool for PWM-Versions required ; (3) -20°C...+65°C, Δt=85°C (- 4°F...+149°F, Δt=153°F) ; (4) Low Temperature Modification on request (-20°C/-4°F) 。	
Outline dimension	44.8mm*55mm*20mm		
Weight	66g±10g		
Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage. At elevated ambient temperatures, load current must be reduced.			

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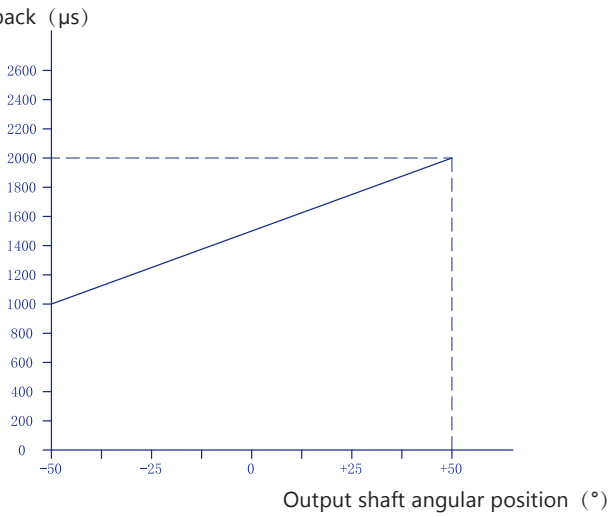
AM-4020SPI1618AE-298-0787 Series

Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.



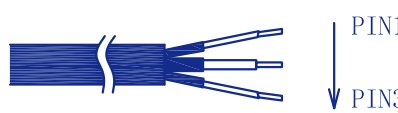
Position feedback (μs)



Output shaft angular position (°)	Position feedback (μs)
-50	1000
-25	1250
0	1500
+25	1750
+50	2000

CONNECTOR

PIN FUNCTION DEFINITION



Pin	
1	SIG
2	DC+
3	DC-(GND)

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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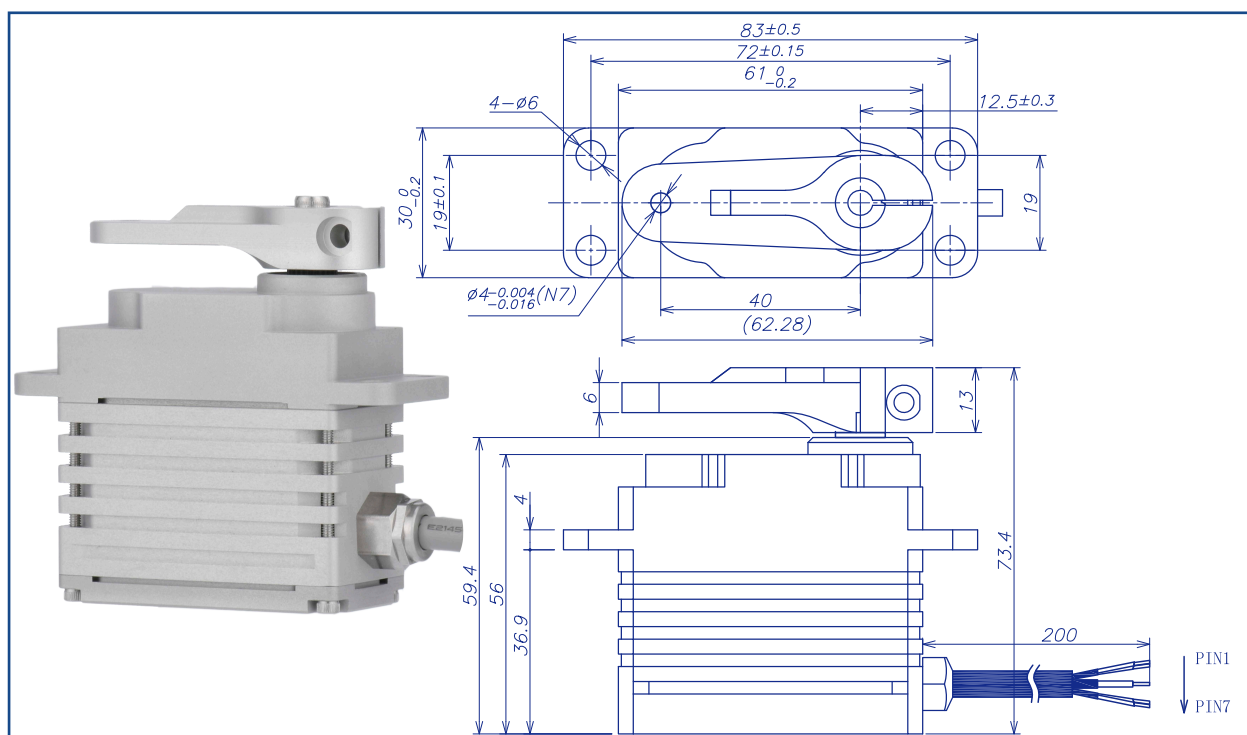
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SERVO ACTUATOR

AM-6130SPC2435AE-245-2852EA Series



SERVO ACTUATOR DATA

Rated voltage	DC 28V
Temperature range	-40°C ~ +65°C
Running direction	CW/CCW(adjustable)
Operating angle/stroke	±60°(±150°customizable)
Testing voltage	DC 28V
Idle running speed	0.19S/60°
Stall torque	100Kgf.cm
Rated torque	35Kgf.cm
Static current	0.05A
No-load current	0.6A
Stall current	5A/2.5A/2A
Motor type	Brushless
Potentiometer type	Magnetic encoding
Bearing type	Ball bearing
Gear material	Steel
Rocker arm locking type	Spline
Wire model	Power line0.5 ² ,Signal line0.2 ²
Waterproof grade	IP67
External dimensions	61mm*30mm*59.4mm
Weight	330g

CONTROL FUNCTION DESCRIPTION

CANOPEN DS 301+402	
Default node id	0x08,500kbps
MODBUS RS485(RTU)	
Default node id	0x08
Baud rate	57600bps,8,1,N,N

PIN FUNCTION DEFINITION

PIN	Functional definition
1	Motor+
2	Motor-
3	CAN-H
4	CAN-L
5	GND
6	RS485-A
7	RS485-B

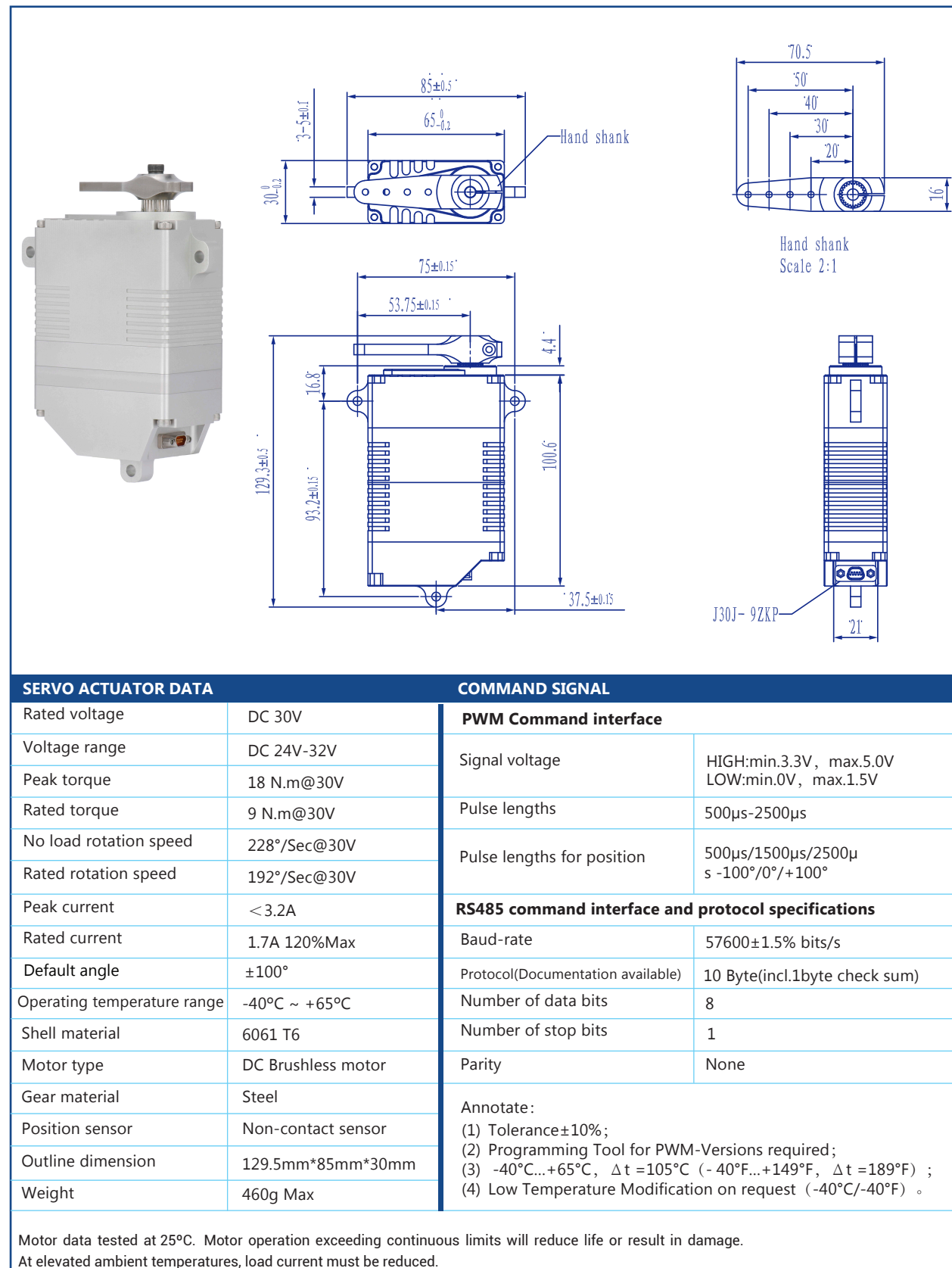
Annotate:

- (1) Tolerance±10%;
- (2) -40°C...+65°C, Δt =105°C (- 40°F...+149°F, Δt =189°F) ;
- (3) Low Temperature Modification on request (-40°C/-40°F) 。

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-6530SPC2448BF-218-3037EA Series



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AM-6530SPC2448BF-218-3037EA Series

Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.

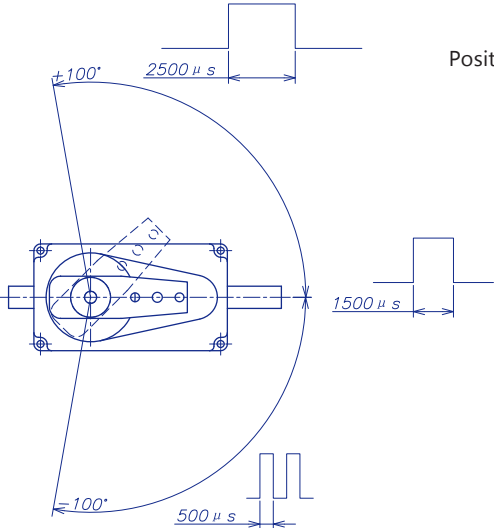
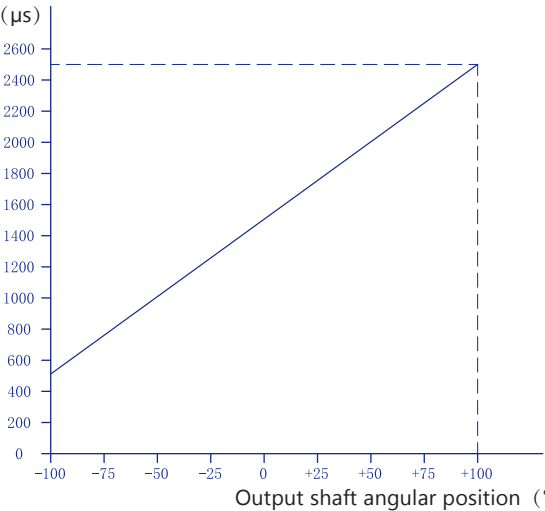


Diagram illustrating the position feedback signal. The servo actuator is shown with a range of $\pm 100^\circ$. The position feedback signal is a square wave output signal. The pulse width is $2500 \mu s$ for the positive position and $1500 \mu s$ for the negative position. The period of the signal is $500 \mu s$.

Position feedback (μs)



Graph showing the position feedback signal (in μs) versus the output shaft angular position (in $^\circ$). The signal is a linear ramp from $500 \mu s$ at -100° to $2500 \mu s$ at $+100^\circ$.

CONNECTOR

Industrial standard J30J-15ZKP electrical connector

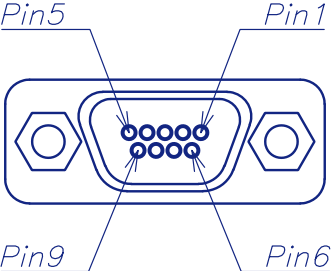


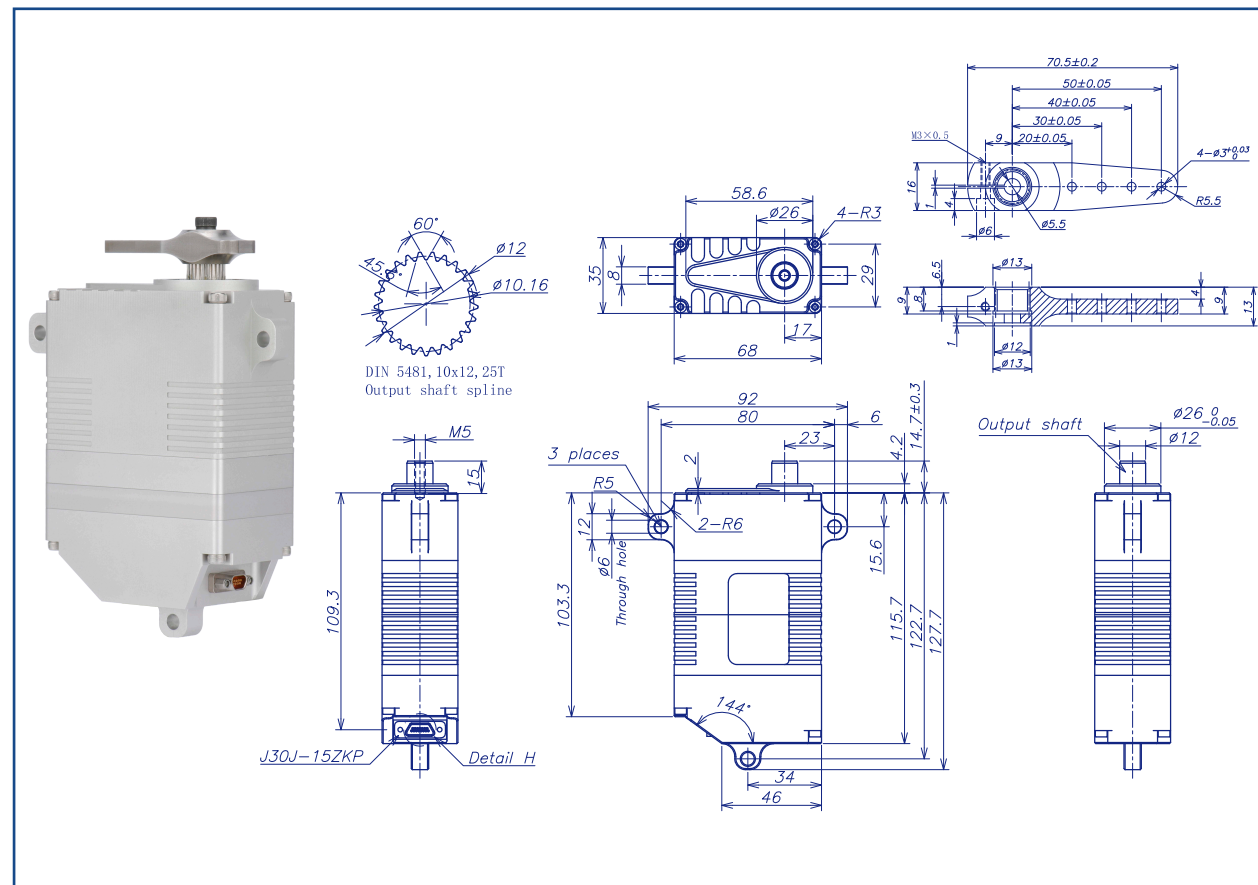
Diagram of the J30J-15ZKP electrical connector showing the pin connections: Pin 1, Pin 5, Pin 6, and Pin 9.

J30J-9ZKP	
1	GND
2	V+
3	GND
4	3V
5	PWM
6	CAN-H
7	CAN-L
8	485-B
9	485-A

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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AM-6835SPI2845AE-200-3056EA Series



SERVO ACTUATOR DATA

Rated voltage	DC 30V
Voltage range	DC 24V-32V
Peak torque	18 N.m@30V
Rated torque	9 N.m@30V
No load rotation speed	240°/Sec@30V
Rated rotation speed	160°/Sec@30V
Peak current	< 3A
Rated current	1.4A 120%Max
Default angle	±100°
Operating temperature range	-40°C ~ +65°C
Shell material	7075 T6
Motor type	DC Brushless motor
Gear material	Steel
Position sensor	Non-contact sensor
Outline dimension	92mm*122.7mm*35mm
Weight	600g Max

COMMAND SIGNAL

PWM Command interface	
Signal voltage	HIGH:min.3.3V, max.5.0V LOW:min.0V, max.1.5V
Pulse lengths	500μs-2500μs
Pulse lengths for position	500μs/1500μs/2500μs s -100°/0°/+100°
RS485 command interface and protocol specifications	
Baud-rate	57600±1.5% bits/s
Protocol(Documentation available)	10 Byte(incl.1byte check sum)
Number of data bits	8
Number of stop bits	1
Parity	None
Annotate: (1) Tolerance±10%; (2) Programming Tool for PWM-Versions required; (3) -40°C...+65°C, Δt =105°C (-40°F...+149°F, Δt =189°F); (4) Low Temperature Modification on request (-40°C/-40°F)。	

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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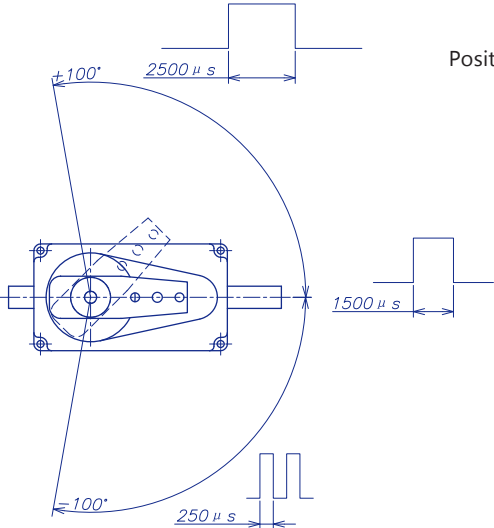
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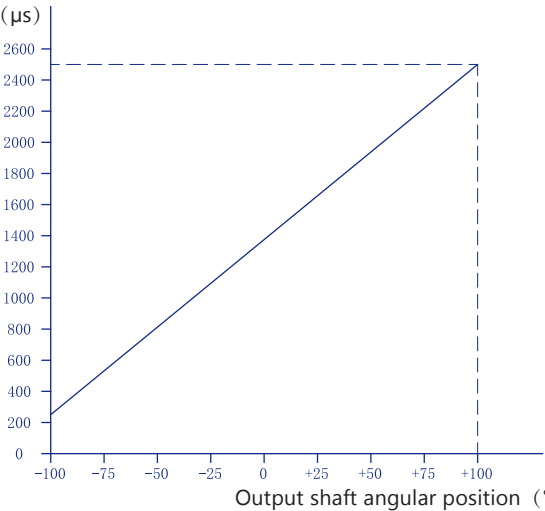
AM-6835SPI2845AE-200-3056EA Series

Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.



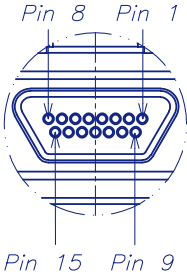
Position feedback (µs)



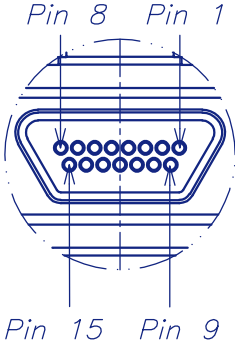
Output shaft angular position (°)

CONNECTOR

Industrial standard J30J-15ZKP electrical connector



J30J-15ZKP PWM+RS485	
1-4、12	DC + Supply voltage
9	NC Do not connect
5-8、13	DC- Supply ground
10-11	PWM Command signal
14	RS485-B
15	RS485-A

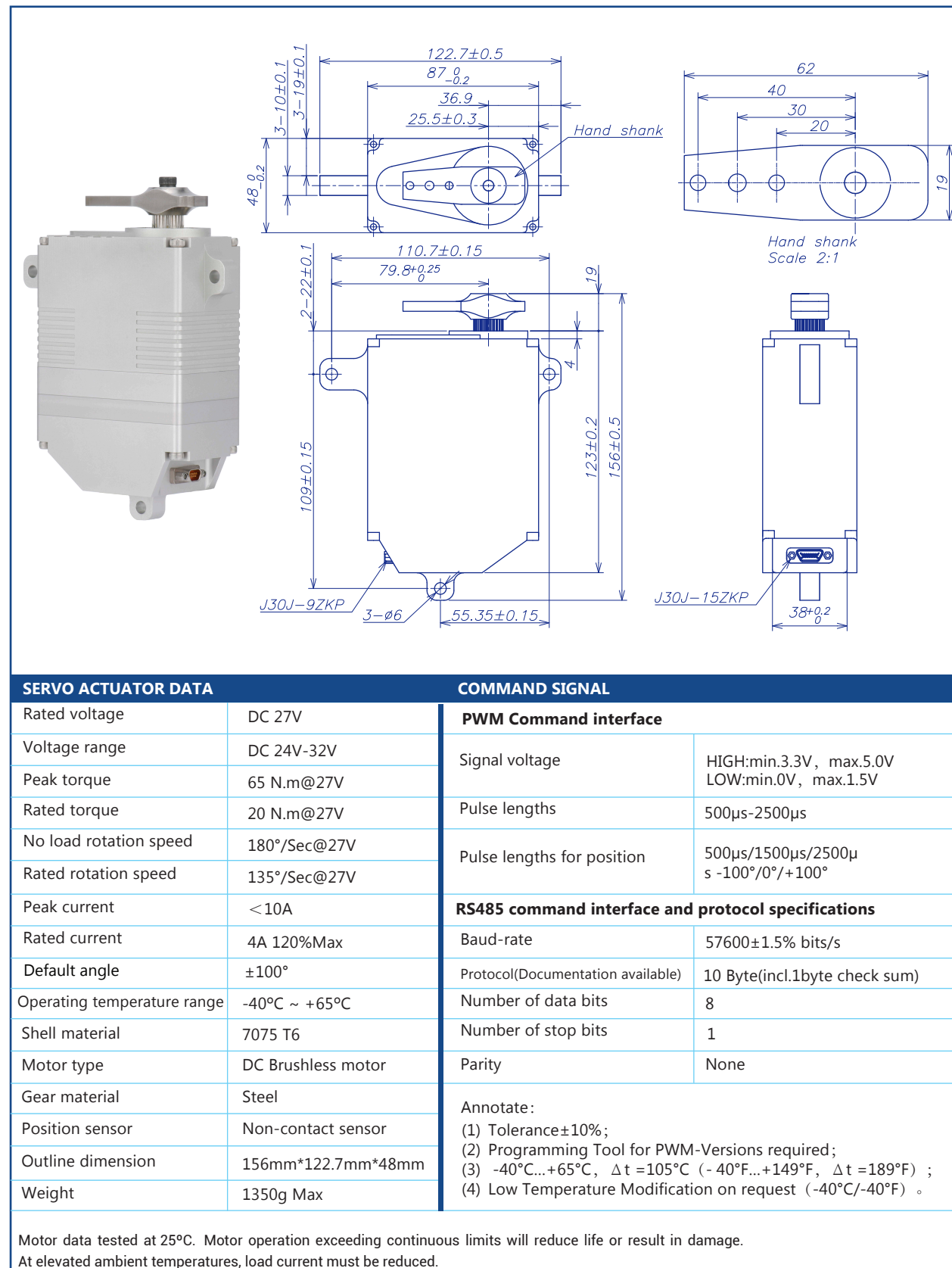


J30J-15ZKP PWM+RS485+CAN	
1-4	DC + Supply voltage
5-8	DC- Supply ground
9	NC Do not connect
10-11	PWM Command signal
12	CAN-H
13	CAN-L
14	RS485-B
15	RS485-A

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

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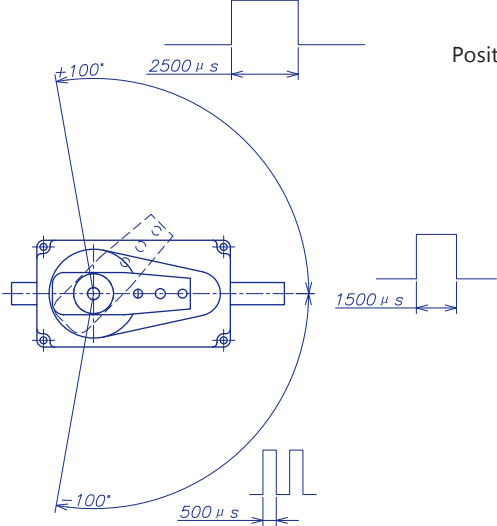
AM-8748HPP3260BF-286-2424EA Series



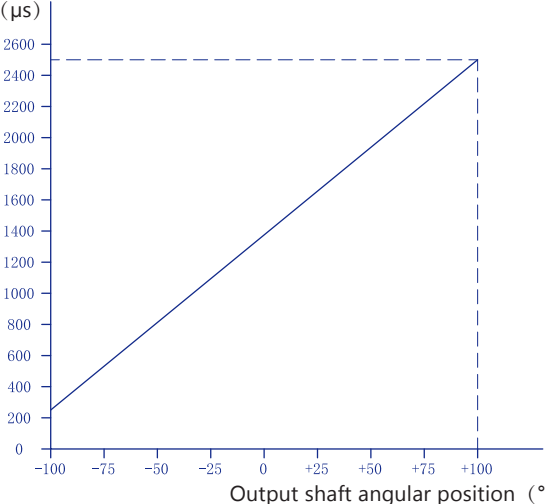
AM-8748HPP3260BF-286-2424EA Series

Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.



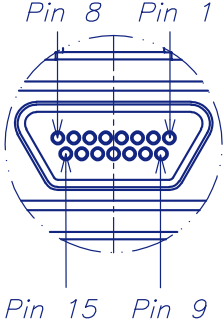
Position feedback (μs)



Output shaft angular position (°)

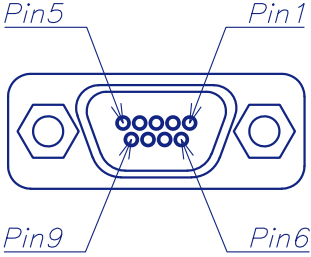
CONNECTOR

Industrial standard J30J-15ZKP electrical connector



J30J-15ZKP PWM	
1-4 12-13	DC + Supply voltage
9	NC Do not connect
5-8 14-15	DC- Supply ground
10 11	PWM Command signal

Industrial standard J30J-9ZKP electrical connector



J30J-9ZKP RS485	
1	RS-485A
2	SWCLK
3	SWDIO
4	GND
5	DIO(3.3~5V)
6	RS-485B
7	A+
8	B+
9	Z+

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

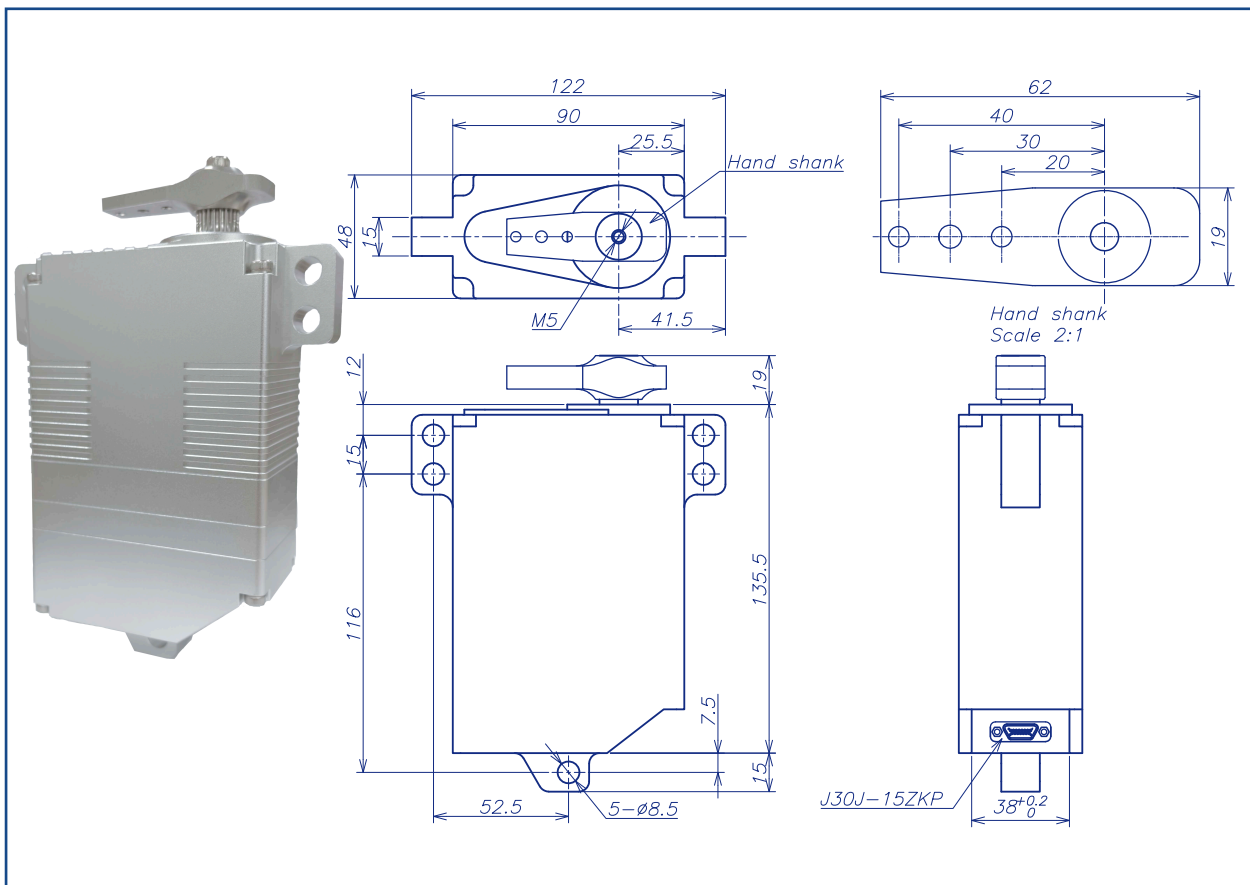
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AM-9048HPP3675BF-286-3021ER Series



SERVO ACTUATOR DATA

Rated voltage	DC 30V
Voltage range	DC 24V-32V
Peak torque	150 N.m@30V
Rated torque	60 N.m@30V
No load rotation speed	180°/Sec@30V
Rated rotation speed	130°/Sec@30V
Peak current	< 88.2A
Rated current	11A 120%Max
Default angle	±100°
Operating temperature range	-40°C ~ +65°C
Shell material	7075 T6
Motor type	DC Brushless motor
Gear material	Steel
Position sensor	Non-contact sensor
Outline dimension	169.5mm*122mm*48mm
Weight	1750g Max

COMMAND SIGNAL

PWM Command interface	
Signal voltage	HIGH:min.3.3V, max.5.0V LOW:min.0V, max.1.5V
Pulse lengths	500μs-2500μs
Pulse lengths for position	500μs/1500μs/2500μs s -100°/0°/+100°
RS485 command interface and protocol specifications	
Baud-rate	57600±1.5% bits/s
Protocol(Documentation available)	10 Byte(incl.1byte check sum)
Number of data bits	8
Number of stop bits	1
Parity	None
Annotate: (1) Tolerance±10%; (2) Programming Tool for PWM-Versions required; (3) -40°C...+65°C, Δt =105°C (-40°F...+149°F, Δt =189°F); (4) Low Temperature Modification on request (-40°C/-40°F)。	

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

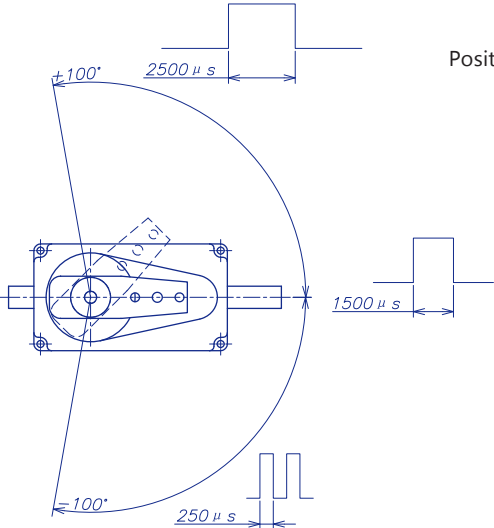
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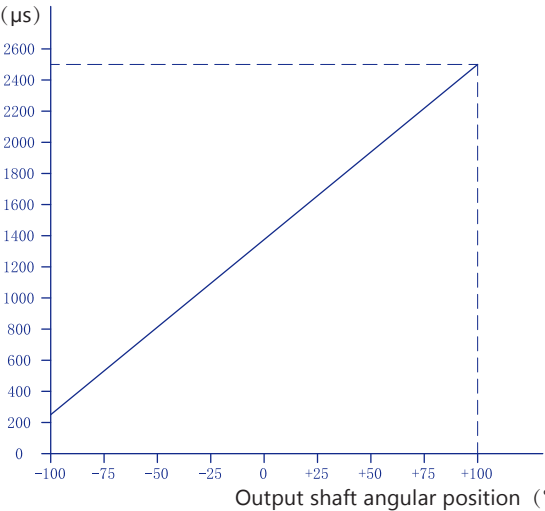
AM-9048HPP3675BF-286-3021ER Series

Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.



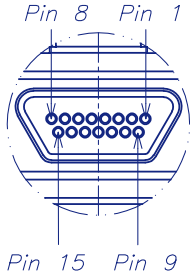
Position feedback (μs)



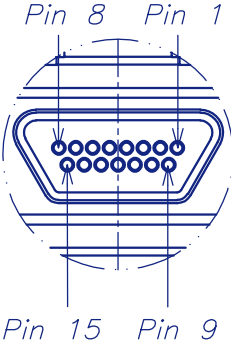
Output shaft angular position (°)

CONNECTOR

Industrial standard J30J-15ZKP electrical connector



J30J-15ZKP PWM+RS485	
1-4、12	DC + Supply voltage
9	NC Do not connect
5-8、13	DC- Supply ground
10-11	PWM Command signal
14	RS485-B
15	RS485-A



J30J-15ZKP PWM+RS485+CAN	
1-4	DC + Supply voltage
5-8	DC- Supply ground
9	NC Do not connect
10-11	PWM Command signal
12	CAN-H
13	CAN-L
14	RS485-B
15	RS485-A

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

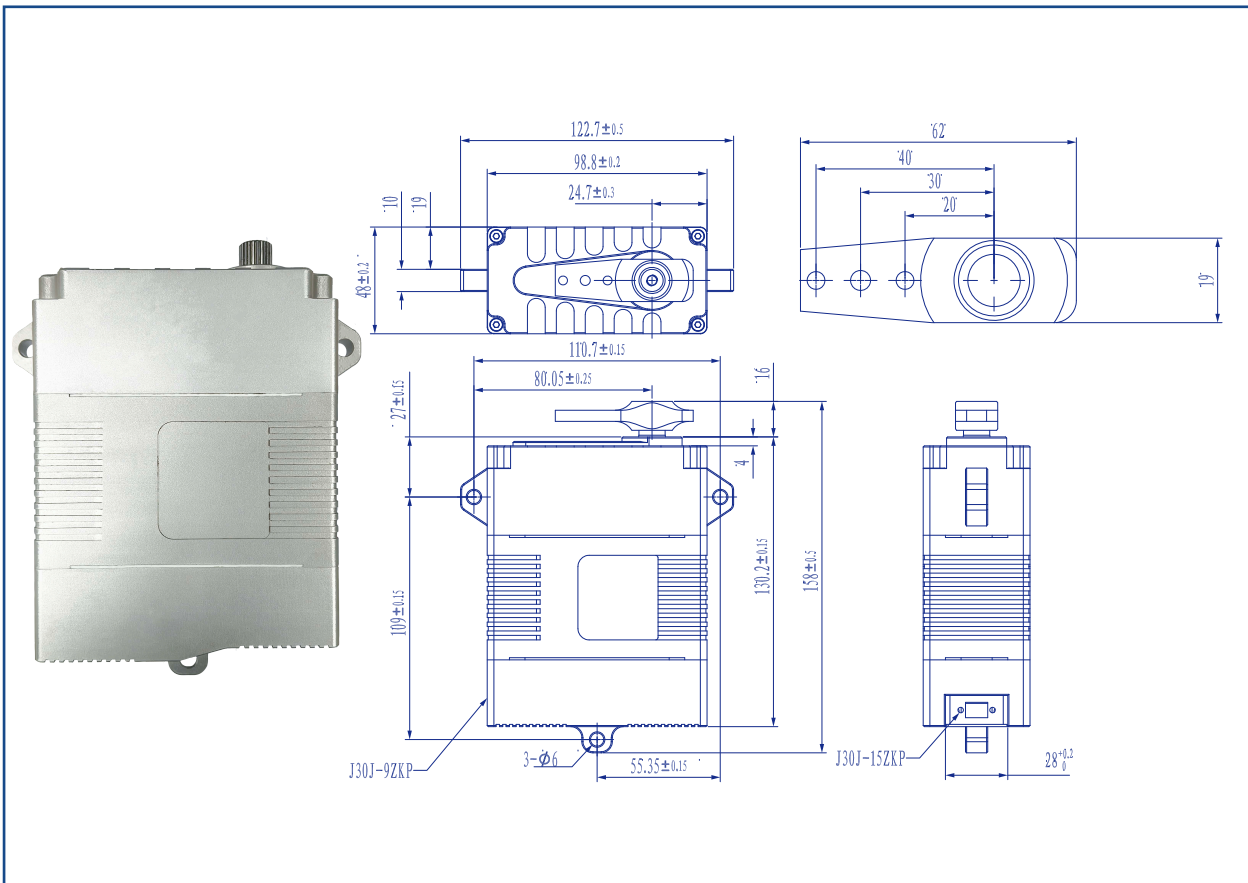
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AM-9948SPI4060BF-200-2734EA Series



SERVO ACTUATOR DATA		COMMAND SIGNAL	
Rated voltage	DC 27V	PWM Command interface	
Voltage range	DC 24V-32V	Signal voltage	HIGH:min.3.3V, max.5.0V LOW:min.0V, max.1.5V
Peak torque	65 N.m@27V	Pulse lengths	500µs-2500µs
Rated torque	20 N.m@27V	Pulse lengths for position	500µs/1500µs/2500µs s -100°/0°/+100°
No load rotation speed	204°/Sec@27V	RS485 command interface and protocol specifications	
Rated rotation speed	193°/Sec@27V	Baud-rate	57600±1.5% bits/s
Peak current	< 11.2A	Protocol(Documentation available)	10 Byte(incl.1byte check sum)
Rated current	3.7A 120%Max	Number of data bits	8
Default angle	±100°	Number of stop bits	1
Operating temperature range	-40°C ~ +65°C	Parity	None
Shell material	7075 T6	Annotate: (1) Tolerance±10%; (2) Programming Tool for PWM-Versions required; (3) -40°C...+65°C, Δt =105°C (-40°F...+149°F, Δt =189°F); (4) Low Temperature Modification on request (-40°C/-40°F)。	
Motor type	DC Brushless motor		
Gear material	Steel		
Position sensor	Non-contact sensor		
Outline dimension	158mm*122.7mm*48mm		
Weight	1340g Max		

Motor data tested at 25°C. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

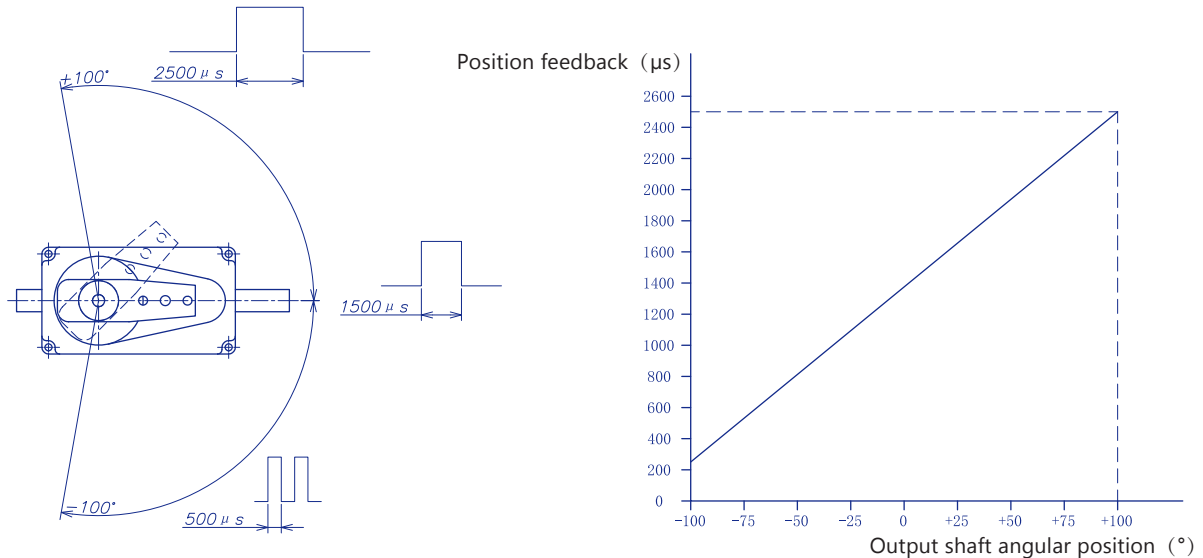
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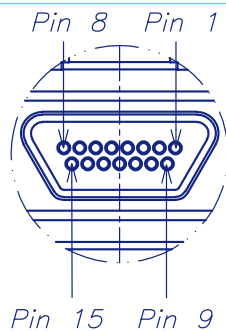
Position feedback signal

The position feedback signal is a square wave output signal that is directly related to the angular position of the output shaft.



CONNECTOR

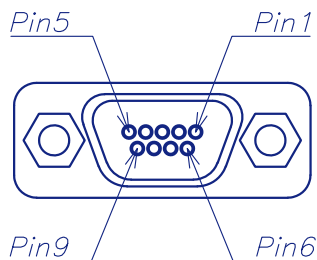
Industrial standard J30J-15ZKP electrical connector



J30J-15ZKP PWM

1-4 12-13	DC + Supply voltage
9	NC Do not connect
5-8 14-15	DC- Supply ground
10 11	PWM Command signal

Industrial standard J30J-9ZKP electrical connector



J30J-9ZKP RS485

1	RS-485A
2	SWCLK
3	SWDIO
4	GND
5	DIO(3.3~5V)
6	RS-485B
7	A+
8	B+
9	Z+

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SHENZHEN, CHINA

Assun Motor Co., Ltd

7F, Building Block 6, Yongping Industrial Area, 9 Tongfu Road,
Gankeng Community, Buji Town, Longgang District, Shenzhen, Guangdong, P.R.China

☎ +86-755 83688818

✉ info_cn@assunmotor.com

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