AM30xx | **Synchronous Servomotors**

Pole-wound motor series
For the AM3000 servomotors, the stator is not wound outside the housing but inside through a needle winder. With conventional technology, the winding is pressed into the grooved laminated core. This only achieves a copper filling ratio (which determines the maximum torque) of approx. 40 %. Furthermore, the insulation layer has to be significantly thicker in order to protect the wire from mechanical stress and prevent damage.

With pole winding, the copper wire is in close contact with the iron core. The wire insulation can be much thinner, since no pressing of the winding head is required. These measures lead to a significant increase in the proportion of "active" copper, which determines the torque value, so that the performance of the AM3000 series is approx. 25–35 % higher. An additional benefit is that the motors are significantly shorter than conventional models.

Sealed winding
The AM3000 servomotors are characterised by an extremely low moment of inertia, robust design and high overload capacity. The winding is sealed in order to eliminate air between the individual wires, since the thermal resistance of air is higher than that of epoxy resin. This further increases mechanical resilience, e.g. in case of vibrations.

Single-piece motor housing
Servomotors dissipate a large proportion of the heat generated via the mounting flange. It is therefore important to keep the heat transfer resistance as small as possible. For this reason, the housings of the AM3000 motor series are made from a single piece, since material transitions increase the thermal resistance and have a negative influence on the stability of the motor.

The AM3000 Synchronous Servomotors are available with seven different flange sizes. For each size, once the flange size has been defined, there is scope for variation in the length. The motors are offered with torques between 0.18 and 53 Nm and with a wide range of nominal speeds, so that for each application and gear ratio the motor with the optimum dimensions can be selected.

Features
- Rotable plug connectors: The plug connectors for power and feedback are freely rotatable, making wiring of the whole machine easier.
- pressed bearings: preventing axial motion of the shaft
- tight tolerances: resulting in a highly symmetric structure inside the motor reducing cogging to an absolute minimum
- feedback option (similar to the AM2000 series): resolver, single-turn and multi-turn absolute encoders
- The motors are available with smooth shaft or with groove and feather key.
- protection class IP 65, shaft bush IP 54

Option
- planetary gear units in different variants

AM3000-wxyz-000a	Standstill torque	Stand-still current	Rated speed at rated supply voltage 230 V AC	400 V AC	480 V AC	Rotor moment of inertia	Weight	Preferred type Resol-ver	BiSS SingleTurn
AM3011-wB00	0.18 Nm	1.16 A	8000 min^{-1}	–	–	0.017 kg cm²	0.35 kg		
AM3012-wC00	0.31 Nm	1.51 A	8000 min^{-1}	–	–	0.031 kg cm²	0.49 kg	L	
AM3013-wC00	0.41 Nm	1.48 A	8000 min^{-1}	–	–	0.045 kg cm²	0.63 kg		
AM3021-wCyz-000a	0.48 Nm	1.58 A	8000 min^{-1}	8000 min^{-1}	8000 min^{-1}	0.107 kg cm²	0.82 kg	L	L
AM3022-wCyz-000a	0.84 Nm	1.39 A	3500 min^{-1}	8000 min^{-1}	8000 min^{-1}	0.161 kg cm²	1.10 kg	L	L
AM3023-wCyz-000a	1.13 Nm	1.41 A	2500 min^{-1}	5500 min^{-1}	7000 min^{-1}	0.216 kg cm²	1.38 kg	L	L
AM3023-wDyz-000a	1.16 Nm	2.19 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	0.216 kg cm²	1.38 kg		
AM3024-wCyz-000a	1.38 Nm	1.42 A	2000 min^{-1}	4500 min^{-1}	5500 min^{-1}	0.270 kg cm²	1.66 kg		
AM3024-wDyz-000a	1.41 Nm	2.21 A	4000 min^{-1}	8000 min^{-1}	8000 min^{-1}	0.270 kg cm²	1.66 kg		
AM3031-wCyz	1.15 Nm	1.37 A	2500 min^{-1}	5000 min^{-1}	6000 min^{-1}	0.330 kg cm	1.55 kg	L	L
AM3031-wEyz	1.20 Nm	2.99 A	6000 min^{-1}	6000 min^{-1}	6000 min^{-1}	0.330 kg cm	1.55 kg		L
AM3032-wCyz	2.00 Nm	1.44 A	1500 min^{-1}	6000 min^{-1}	3500 min^{-1}	0.590 kg cm²	2.23 kg	L	L
AM3032-wDyz	2.04 Nm	2.23 A	2500 min^{-1}	5500 min^{-1}	6000 min^{-1}	0.590 kg cm²	2.23 kg	L	L
AM3033-wCyz	2.71 Nm	1.47 A	1000 min^{-1}	2000 min^{-1}	2500 min^{-1}	0.850 kg cm²	2.90 kg		
AM3033-wEyz	2.79 Nm	2.58 A	2000 min^{-1}	4500 min^{-1}	5000 min^{-1}	0.850 kg cm²	2.90 kg	L	L
AM3041-wCyz	1.95 Nm	1.46 A	1200 min^{-1}	3000 min^{-1}	3500 min^{-1}	0.810 kg cm²	2.44 kg	L	L
AM3041-wEyz	2.02 Nm	2.85 A	3000 min^{-1}	6000 min^{-1}	6000 min^{-1}	0.810 kg cm²	2.44 kg		
AM3042-wEyz	3.42 Nm	2.74 A	1800 min^{-1}	3500 min^{-1}	4000 min^{-1}	1.450 kg cm²	3.39 kg		
AM3042-wGyz	3.53 Nm	4.80 A	3500 min^{-1}	6000 min^{-1}	6000 min^{-1}	1.450 kg cm²	3.39 kg	L	L
AM3043-wEyz	4.70 Nm	2.76 A	1500 min^{-1}	2500 min^{-1}	3000 min^{-1}	2.090 kg cm²	4.35 kg		
AM3043-wGyz	4.80 Nm	4.87 A	2500 min^{-1}	5000 min^{-1}	6000 min^{-1}	2.090 kg cm²	4.35 kg	L	L
AM3044-wEyz	5.76 Nm	2.90 A	1200 min^{-1}	2000 min^{-1}	2500 min^{-1}	2.730 kg cm²	5.30 kg		
AM3044-wGyz	5.88 Nm	5.00 A	2000 min^{-1}	4000 min^{-1}	5000 min^{-1}	2.730 kg cm²	5.30 kg	L	L
AM3044-wJyz	6.00 Nm	8.80 A	4000 min^{-1}	6000 min^{-1}	6000 min^{-1}	2.730 kg cm²	5.30 kg	L	L
AM3051-wEyz	4.70 Nm	2.75 A	1200 min^{-1}	2500 min^{-1}	3000 min^{-1}	3.420 kg cm²	4.20 kg	L	
AM3051-wGyz	4.75 Nm	4.84 A	2500 min^{-1}	5000 min^{-1}	6000 min^{-1}	3.420 kg cm²	4.20 kg	L	L
AM3052-wGyz	8.43 Nm	4.72 A	1500 min^{-1}	2500 min^{-1}	3000 min^{-1}	6.220 kg cm²	5.80 kg	L	
AM3052-wKyz	8.60 Nm	9.30 A	3000 min^{-1}	5500 min^{-1}	6000 min^{-1}	6.220 kg cm²	5.80 kg	L	L
AM3053-wGyz	11.37 Nm	4.77 A	1000 min^{-1}	2000 min^{-1}	2400 min^{-1}	9.120 kg cm²	7.40 kg		
AM3053-wKyz	11.60 Nm	9.40 A	2000 min^{-1}	4000 min^{-1}	4500 min^{-1}	9.120 kg cm²	7.40 kg	L	L
AM3054-wKyz	14.40 Nm	9.70 A	1800 min^{-1}	3500 min^{-1}	4000 min^{-1}	11.92 kg cm²	9.00 kg		
AM3062-wKyz	12.20 Nm	9.60 A	2000 min^{-1}	3500 min^{-1}	4500 min^{-1}	16.90 kg cm²	8.90 kg	L	L
AM3062-wMyz	12.20 Nm	13.40 A	3000 min^{-1}	6000 min^{-1}	6000 min^{-1}	16.90 kg cm²	8.90 kg		
AM3063-wKyz	16.80 Nm	9.90 A	1500 min^{-1}	3000 min^{-1}	3500 min^{-1}	24.20 kg cm²	11.1 kg		
AM3063-wMyz	17.00 Nm	13.80 A	2000 min^{-1}	4000 min^{-1}	4500 min^{-1}	24.20 kg cm²	11.1 kg		
AM3063-wNyz	17.00 Nm	17.40 A	3000 min^{-1}	5000 min^{-1}	6000 min^{-1}	24.20 kg cm²	11.1 kg		
AM3064-wKyz	20.80 Nm	9.20 A	1200 min^{-1}	2000 min^{-1}	2500 min^{-1}	31.60 kg cm²	13.3 kg		
AM3064-wLyz	21.00 Nm	12.80 A	1500 min^{-1}	3000 min^{-1}	3500 min^{-1}	31.60 kg cm²	13.3 kg		L

The table is continued on the next page.

AM3000-wxyz-000a	Standstill torque	Stand-still current	Rated speed at rated supply voltage 230 V AC	400 V AC	480 V AC	Rotor moment of inertia	Weight	Preferred type Resol-ver	BiSS SingleTurn
AM3064-wPyz	20.40 Nm	18.60 A	2500 min^{-1}	4500 min^{-1}	5500 min^{-1}	31.60 kg cm²	13.3 kg		L
AM3065-wKyz	24.80 Nm	9.80 A	1000 min^{-1}	2000 min^{-1}	2200 min^{-1}	40.00 kg cm²	15.4 kg		
AM3065-wMyz	25.00 Nm	13.60 A	1500 min^{-1}	2500 min^{-1}	3000 min^{-1}	40.00 kg cm²	15.4 kg		
AM3065-wNyz	24.30 Nm	17.80 A	2000 min^{-1}	3500 min^{-1}	4000 min^{-1}	40.00 kg cm²	15.4 kg	L	L
AM3072-wKyz	29.70 Nm	9.30 A	–	1500 min^{-1}	1800 min^{-1}	64.50 kg cm²	19.7 kg		
AM3072-wMyz	30.00 Nm	13.00 A	–	2000 min^{-1}	2500 min^{-1}	64.50 kg cm²	19.7 kg		
AM3072-wPyz	29.40 Nm	18.70 A	1800 min^{-1}	3000 min^{-1}	3500 min^{-1}	64.50 kg cm²	19.7 kg		L
AM3073-wMyz	42.00 Nm	13.60 A	–	1500 min^{-1}	1800 min^{-1}	92.10 kg cm²	26.7 kg		
AM3073-wPyz	41.60 Nm	19.50 A	1300 min^{-1}	2400 min^{-1}	2800 min^{-1}	92.10 kg cm²	26.7 kg		
AM3074-wLyz	53.00 Nm	12.90 A	–	1200 min^{-1}	1400 min^{-1}	119.7 kg cm²	33.6 kg		
AM3074-wPyz	52.50 Nm	18.50 A	–	1800 min^{-1}	2000 min^{-1}	119.7 kg cm²	33.6 kg		L

u: flange code
v: motor length

Option w = 0: smooth shaft (standard)
w = 1: shaft with groove and feather key according to DIN 6885 (no preferred type)
w = 2: shaft with IP 65 sealing ring and smooth shaft (no preferred type)
w = 3: shaft with IP 65 sealing ring and shaft with groove and feather key (no preferred type)

Option x = winding code A…P

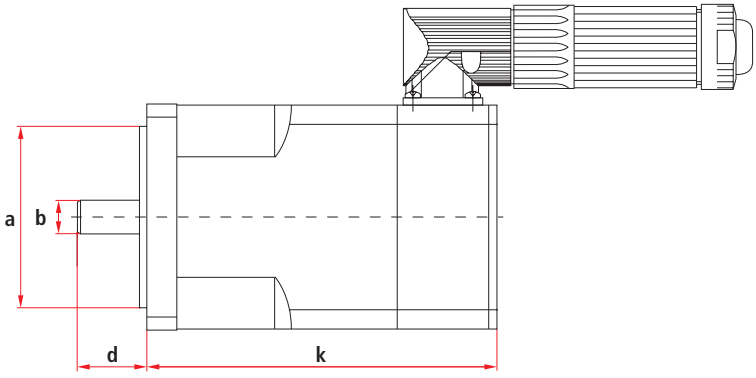
Option y = 0: resolver, 2-pole
y = 1: single-turn absolute encoder, Heidenhain EnDAT
absolute position within one revolution, electronic identification plate
AM302x…AM304x: 512 sine periods per revolution
AM305x…AM307x: 2,048 sine periods per revolution
y = 2: multi-turn absolute encoder, Heidenhain EnDAT
absolute position within 4,096 revolutions, electronic identification plate
AM302x…AM304x: 512 sine periods per revolution
AM305x…AM307x: 2,048 sine periods per revolution
y = 3: single-turn absolute encoder, Hengstler BiSS
absolute position within one revolution,
electronic identification plate, 2,048 sine periods per revolution for AM302x…AM307x
y = 4: multi-turn absolute encoder, Hengstler BiSS
absolute position within 4,096 revolutions,
electronic identification plate, 2,048 sine periods per revolution for AM302x…AM307x

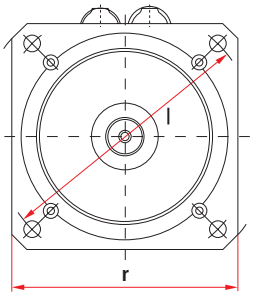
Option z = 0: without stopping brake
z = 1: with stopping brake for AM302x…AM307x

Option a = 0: connection boxes for motor and feedback cable
a = 1: connection cable 0.5 m

Special flange, special shaft and other accessories on request

Dimensions





Dimensions	a	b	d	k (resolver) (without brake)	k (resolver) (with brake)	k (encoder) (without brake)	k (encoder) (with brake)	l	r
AM3011	30 mm	8 mm	25 mm	69.6 mm	–	–	–	46 mm	40 mm
AM3012	30 mm	8 mm	25 mm	88.6 mm	–	–	–	46 mm	40 mm
AM3013	30 mm	8 mm	25 mm	107.6 mm	–	–	–	46 mm	40 mm
AM3021	40 mm	9 mm	20 mm	95.4 mm	129.5 mm	95.4 mm	129.5 mm	63 mm	58 mm
AM3022	40 mm	9 mm	20 mm	114.4 mm	148.5 mm	114.4 mm	148.5 mm	63 mm	58 mm
AM3023	40 mm	9 mm	20 mm	133.4 mm	167.5 mm	133.4 mm	167.5 mm	63 mm	58 mm
AM3024	40 mm	9 mm	20 mm	152.4 mm	186.5 mm	152.4 mm	186.5 mm	63 mm	58 mm
AM3031	60 mm	14 mm	30 mm	109.8 mm	140.3 mm	109.8 mm	140.3 mm	75 mm	70 mm
AM3032	60 mm	14 mm	30 mm	140.8 mm	171.3 mm	140.8 mm	171.3 mm	75 mm	70 mm
AM3033	60 mm	14 mm	30 mm	171.8 mm	202.3 mm	171.8 mm	202.3 mm	75 mm	70 mm
AM3041	80 mm	19 mm	40 mm	118.8 mm	153.3 mm	118.8 mm	153.3 mm	100 mm	84 mm
AM3042	80 mm	19 mm	40 mm	147.8 mm	181.3 mm	147.8 mm	181.3 mm	100 mm	84 mm
AM3043	80 mm	19 mm	40 mm	176.8 mm	210.3 mm	176.8 mm	210.3 mm	100 mm	84 mm
AM3044	80 mm	19 mm	40 mm	205.8 mm	239.3 mm	205.8 mm	239.3 mm	100 mm	84 mm
AM3051	110 mm	24 mm	50 mm	127.5 mm	172.5 mm	146.0 mm	189.0 mm	130 mm	108 mm
AM3052	110 mm	24 mm	50 mm	158.5 mm	203.5 mm	177.0 mm	220.0 mm	130 mm	108 mm
AM3053	110 mm	24 mm	50 mm	189.5 mm	234.5 mm	208.0 mm	251.0 mm	130 mm	108 mm
AM3054	110 mm	24 mm	50 mm	220.5 mm	265.5 mm	239.0 mm	282.0 mm	130 mm	108 mm
AM3062	130 mm	32 mm	58 mm	153.7 mm	200.7 mm	172.2 mm	219.7 mm	165 mm	138 mm
AM3063	130 mm	32 mm	58 mm	178.7 mm	225.7 mm	197.2 mm	244.7 mm	165 mm	138 mm
AM3064	130 mm	32 mm	58 mm	203.7 mm	250.7 mm	222.2 mm	269.7 mm	165 mm	138 mm
AM3065	130 mm	32 mm	58 mm	228.7 mm	275.7 mm	247.2 mm	294.7 mm	165 mm	138 mm
AM3072	180 mm	38 mm	80 mm	192.5 mm	234.5 mm	201.7 mm	253.7 mm	215 mm	188 mm
AM3073	180 mm	38 mm	80 mm	226.5 mm	268.5 mm	235.7 mm	287.7 mm	215 mm	188 mm
AM3074	180 mm	38 mm	80 mm	260.5 mm	302.5 mm	269.7 mm	321.7 mm	215 mm	188 mm

k: for feedback resolver, technical drawings at www.beckhoff.com

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