ABB Motion product brochure

HDS high performance explosion-proof servo motor

HX and HY series

High Accuracy, High Density, Safety, High Efficiency

Developed, designed, and produced strictly according to the most stringent standards, under both CCC and ATEX certification systems, ABB explosion-proof servo motors comply with the severe requirement from explosion-proof environment and enable safe applications for system integrators and equipment manufacturers.

Featuring in high energy efficiency level, compact dimension, rich options, and low current design, all derived from the deep experience of ABB in both general automation applications and hazardous environment applications, the HX and HY series explosion-proof servo motors enable customers in various industries with safe, reliable, and energy-saving solutions.

Table of contents

Product overview and typical applications

HX explosion-proof servo motor			
		ATEX	CCC
Explosion-proof zone		Zone 1/21	Zone 1/21
Explosion-proof signs	gas	II 2 G Ex db IIC T5/T4 Gb	Ex db IIC T5/T4 Gb
	dust	II 2 D Ex tb IIIC T100℃ / T130℃ Db IP66	Ex tb IIIC T100℃ /T130℃ Db IP66
Flange dimension		70 mm、100 mm、140 mm、185 mm	
Rated torque/Peak torque		1.6...63 N·m/3.4...210 N·m	
Rated speed/ Maximum speed		900...5000 rpm/900...5000 rpm	
Motor inertia		w/o brake 0.27...118.1 kg·cm^2	
		w brake 0.28...125.1 kg·cm^2	
Motor type		AC permanent magnet synchronous servo motor	
Cooling Method		Totally enclosed, non-ventilated	
Magnet Material		Ultra-high intrinsic coercive field rare earth	
Insulation Class		F	
Mounting		IMB5	
Thermal Protection		3 × PTC 155	
Exterior Paint		Epoxy	
Color		Motor body: Black	
		End-cover: White, with ABB logo	
Feedback Device		Resolver, Absolute encoder	
Ingress Protection		IP66	
Energy efficiency class		Level 1 or Level 2 energy efficiency (according to GB30253-2013)	
Standards		EN 60079-0: Explosive atmospheres - Part 0: Equipment - General requirements	GB/T 3836.1《Explosive atmospheres Part 1: Equipment - General requirements》
		EN 60079-1: Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”	GB/T 3836.2《Explosive atmospheres - Part 2: Equipment protection by flameproof enclosures ‘d’》
		EN 60079-31: Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t”	GB/T 3836.31《Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure ‘t’》

HY explosion-proof servo motor			
		ATEX	CCC
Explosion-proof zone		Zone 2/22	Zone 2/21
Explosion-proof signs	gas	II 3 G Ex ec IIC T4 Gc	Ex ec IIC T4 Gc
	dust	II 3 D Ex tc IIIC T130°C Dc IP65	Ex tb IIIC T130°C Db IP65
Flange dimension		65 mm、100 mm、130 mm、180 mm	
Rated torque/Peak torque		1.6...38.5 N·m/4.5...135 N·m	
Rated speed/ Maximum speed		2000...3000 rpm/3500...5000 rpm	
Motor inertia		w/o brake 0.38...82.1 kg·cm^2	
		w brake 0.41...89.2 kg·cm^2	
Motor type		AC permanent magnet synchronous servo motor	
Cooling Method		Totally enclosed, non-ventilated	
Magnet Material		Ultra-high intrinsic coercive field rare earth	
Insulation Class		F	
Mounting		IMB5	
Thermal Protection		3 × PTC 140	
Exterior Paint		Epoxy	
Color		Motor body: Black	
		End-cover: White, with ABB logo	
Feedback Device		Resolver	
Ingress Protection		IP65	
Energy efficiency class		Level 1 energy efficiency (according to GB30253-2013)	
Standards		EN 60079-0: Explosive atmospheres - Part 0: Equipment - General requirements	GB/T 3836.1《Explosive atmospheres Part 1: Equipment - General requirements》
		EN 60079-7: Explosive atmospheres - Part 7: Equipment protection by increased safety "e"	GB/T 3836.3《Explosive atmospheres Part 3: Equipment protection by increased safety ‘e’》
		EN 60079-31: Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"	GB/T 3836.31《Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure ‘t’》

Typical industries and applications

Oil and gas equipment

Pharmaceutical equipment

Spraying robot

Printing, food processing and other equipment

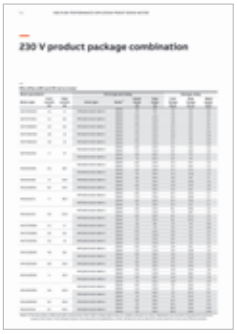
How to select a servo system
ABB servo product model selection steps

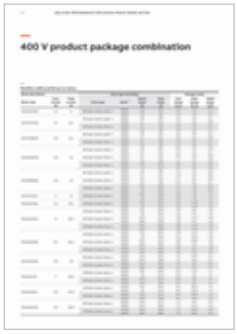
Step 1: Select the servo motor
Calculate and verify the following technical data
- Torque
- Speed
- Rotary inertia
- Brake

See page 12, 42, and 53 for motor technical data and ordering information.

Step 2: Select the servo drive via the following technical data
- Current
- Input voltage
- Overload mode

See pages 56, 60, 64 and 70 for the drive configuration table and ordering information.





Step 3: Select cables and optional parts / accessories

See page 54, page 59, and page 63 for the information of the cables and optional parts / accessories of the drive and motor.

Step 4: Select the controller
- B&R X20
- ABB AC500
- Third party products

HX explosion-proof markings description

Explosion-proof zone and explosion-proof markings

Motor series	Environment type	Explosion-proof certification system	Explosion-proof zone	Explosion-proof markings
HX	Gas atmospheres	CCC	Zone 1	Ex db IIC T5/T4 Gb
	Dust atmospheres		Zone 21	Ex tb IIIC T100℃ /T130℃ Db IP66
	Gas atmospheres	ATEX	Zone 1	II 2 G Ex db IIC T5/T4 Gb
	Dust atmospheres		Zone 21	II 2 D Ex tb IIIC T100°C /T130°C Db IP66

Explosion-proof zone

Explosive gas atmospheres

Zone 0	Places where an explosive gas atmosphere occurs continuously or exists for a prolonged period of time.
Zone 1	Places where an explosive gas atmosphere is likely to occur during normal operations.
Zone 2	Places where an explosive gas atmosphere is unlikely to occur during normal operations, and even if it occurs, it is only occasional and only exists for a short period of time.

Explosive dust atmospheres

Zone 20	Places where an explosive dust atmosphere occurs continuously or exists for a prolonged period of time.
Zone 21	Places where an explosive dust atmosphere is likely to occur during normal operations.
Zone 22	Places where an explosive dust atmosphere is unlikely to occur during normal operations, and even if it occurs, it is only occasional and only exists for a short period of time.

Explosion-proof markings

CCC explosion-proof certification system

Explosive gas atmospheres: Ex db IIC T5 / T4 Gb

HX series motors can meet the explosion-proof environment as: Zone 1 or Zone 2 explosion-proof, gas groups IIA, IIB and IIC, temperature level T1~T5.

Ex	db	II	C	T5 / T4	Gb
EX explosion-proof	**db** Flameproof enclosures	I Mine	Methane, coal dust	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Ma Very high protection level
	ec Increased safety ic Intrinsic safety mc Encapsulation nA Non-sparking nR Restricted breathing nL Energy-limited o Oil immersion pz Pressurization q Powder filling				Mb High protection level
		II Ground	A Propane	T1: 450°C T2: 300°C T3: 200°C **T4**: 135°C **T5**: 100°C T6: 85°C	Ga Very high protection level
			B Ethylene		**Gb** High protection level
			C Hydrogen, acetylene		Gc General protection level

HX explosion-proof markings description

Explosive dust atmospheres: Ex tb IIIC T100℃ /T130℃ Db IP66
HX series motors can meet the explosion-proof environment as: Zone 21 or Zone 22 explosion-proof, dust groups IIIA, IIIB and IIIC, temperature level T1~T100°C, protection level IP66.

Ex	tb	III	C	T100℃ / T130℃	Db
EX explosion-proof		**III** Ground	A Conductive	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Da Very high protection level
	tb Protection by enclosure ic Intrinsic safety mc Encapsulation p Pressurization		B Non-conductive dust	T1: 450°C T2: 300°C T3: 200°C T4: 135°C	**Db** High protection level
			C Conductive dust	T5: 100°C **T130°C** **T100°C** T6: 85°C	Dc General protection level

ATEX explosion-proof certification system

Explosive gas atmospheres: II 2 G Ex db IIC T5 / T4 Gb
HX series motors can meet the explosion-proof environment as: Zone 1 or Zone 2 explosion-proof, gas groups IIA, IIB and IIC, temperature level T1~T5.

II	2	G	Ex	db	II	C	T5 / T4	Gb
I Mine	M1 Very high protection level	**G** explosive gases	**EX** explosion-proof	**db** Flameproof enclosures ec Increased safety ic Intrinsic safety mc Encapsulation nA Non-sparking nR Restricted breathing nL Energy-limited o Oil immersion pz Pressurization q Powder filling	I Mine	Methane, coal dust	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Ma Very high protection level
	M2 High protection level							Mb High protection level
II Ground	1 Very high protection level				**II** Ground	A Propane	T1: 450°C T2: 300°C T3: 200°C **T4**: 135°C **T5**: 100°C T6: 85°C	Ga Very high protection level
	2 High protection level					B Ethylene		**Gb** High protection level
	3 General protection level					**C** Hydrogen, acetylene		Gc General protection level

Explosive dust atmospheres: II 2 D Ex tb IIIC T100°C / T130°C Db IP66
HX series motors can meet the explosion-proof environment as: Zone 21 or Zone 22 explosion-proof, dust groups IIIA, IIIB and IIIC, temperature level T1~T100°C, protection level IP66.

II	2	D	Ex	tb	III	C	T100°C / T130°C	Db
II Ground	1 Very high protection level	**D** explosive dust	**EX** explosion-proof		**III** Ground	A Conductive	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Da Very high protection level
	2 High protection level			**tb** Protection by enclosure ic Intrinsic safety mc Encapsulation p Pressurization		B Non-conductive dust	T1: 450°C T2: 300°C T3: 200°C T4: 135°C	**Db** High protection level
	3 General protection level					**C** Conductive dust	T5: 100°C **T130°C** **T100°C** T6: 85°C	Dc General protection level

HY explosion-proof markings description

Explosion-proof zone and explosion-proof markings

Motor series	Environment type	Explosion-proof certification system	Explosion-proof zone	Explosion-proof markings
HY	Gas atmospheres	CCC	Zone 2	Ex ec IIC T4 Gc
	Dust atmospheres		Zone 21	Ex tb IIIC T130°C Db IP65
	Gas atmospheres	ATEX	Zone 2	II 3 G Ex ec IIC T4 Gc
	Dust atmospheres		Zone 22	II 3 D Ex tc IIIC T130°C Dc IP65

Explosion-proof zone

Explosive gas atmospheres

Zone 0	Places where an explosive gas atmosphere occurs continuously or exists for a prolonged period of time.
Zone 1	Places where an explosive gas atmosphere is likely to occur during normal operations.
Zone 2	Places where an explosive gas atmosphere is unlikely to occur during normal operations, and even if it occurs, it is only occasional and only exists for a short period of time.

Explosive dust atmospheres

Zone 20	Places where an explosive dust atmosphere occurs continuously or exists for a prolonged period of time.
Zone 21	Places where an explosive dust atmosphere is likely to occur during normal operations.
Zone 22	Places where an explosive dust atmosphere is unlikely to occur during normal operations, and even if it occurs, it is only occasional and only exists for a short period of time.

Explosion-proof markings

CCC explosion-proof certification system

Explosive gas atmospheres: Ex ec IIC T4 Gc

HY series motors can meet the explosion-proof environment as: Zone 2 explosion-proof, gas groups IIA, IIB and IIC, temperature level T1~T4.

Ex	ec	II	C	T4	Gc
EX explosion-proof	db Flameproof enclosures	I Mine	Methane, coal dust	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Ma Very high protection level
	ec Increased safety				Mb High protection level
	ic Intrinsic safety mc Encapsulation nA Non-sparking nR Restricted breathing nL Energy-limited o Oil immersion pz Pressurization q Powder filling	**II** Ground	A Propane	T1: 450°C T2: 300°C	Ga Very high protection level
			B Ethylene	T3: 200°C **T4**: 135°C	Gb High protection level
			C Hydrogen, acetylene	T5: 100°C T6: 85°C	**Gc** General protection level

HY explosion-proof markings description

Explosive dust atmospheres: Ex tb IIIC T130℃ Db IP65

HY series motors can meet the explosion-proof environment as: Zone 21 or Zone 22 explosion-proof, dust groups IIIA, IIIB and IIIC, temperature level T1~T130°C, protection level IP65.

Ex	tb	III	C	T130℃	Db
EX explosion-proof	**tb** Protection by enclosure ic Intrinsic safety mc Encapsulation p Pressurization	**III** Ground	A Conductive	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Da Very high protection level
			B Non-conductive dust	T1: 450°C T2: 300°C T3: 200°C T4: 135°C	**Db** High protection level
			C Conductive dust	**T130°C** T5: 100°C T6: 85°C	Dc General protection level

ATEX explosion-proof certification system

Explosive gas atmospheres: II 3 G Ex ec IIC T4 Gc

HY series motors can meet the explosion-proof environment as: Zone 2 explosion-proof, gas groups IIA, IIB and IIC, temperature level T1~T4.

II	3	G	Ex	ec	II	C	T4	Gc
I Mine	M1 Very high protection level	**G** explosive gases	**EX** explosion-proof	db Flameproof enclosures **ec** Increased safety ic Intrinsic safety mc Encapsulation nA Non-sparking nR Restricted breathing nL Energy-limited o Oil immersion pz Pressurization q Powder filling	I Mine	Methane, coal dust	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Ma Very high protection level
	M2 High protection level							Mb High protection level
II Ground	1 Very high protection level				**II** Ground	A Propane	T1: 450°C T2: 300°C	Ga Very high protection level
	2 High protection level					B Ethylene	T3: 200°C **T4**: 135°C	Gb High protection level
	3 General protection level					**C** Hydrogen, acetylene	T5: 100°C T6: 85°C	**Gc** General protection level

Explosive dust atmospheres: II 3 D Ex tc IIIC T130°C Dc IP65

HY series motors can meet the explosion-proof environment as: Zone 22 explosion-proof, dust groups IIIA, IIIB and IIIC, temperature level T1~T130°C, protection level IP65.

II	3	D	Ex	tc	III	C	T130°C	Dc
II Ground	1 Very high protection level	**D** explosive dust	**EX** explosion-proof	**tc** Protection by enclosure ic Intrinsic safety mc Encapsulation p Pressurization	**III** Ground	A Conductive	Maximum permissible surface temperature Tx or Txxx°C Tx definition:	Da Very high protection level
	2 High protection level					B Non-conductive dust	T1: 450°C T2: 300°C T3: 200°C T4: 135°C	Db High protection level
	3 General protection level					**C** Conductive dust	**T130°C** T5: 100°C T6: 85°C	**Dc** General protection level

HX explosion-proof servo motors
Product highlights

HX explosion-proof servo motors has brand-new explosion-proof structure design, optimized winding types, and more feedback options. Certified for explosion-proof for Zone 1, HX is specifically tailored for environments requiring higher levels of explosion protection. It employs a flameproof explosion-proof design to ensure the motor casing that withstands internal explosions in gas and dust explosion scenarios without damage, guaranteeing equipment safety. The explosion-proof performance complies with standards, with CCC explosion-proof markings as Ex db IIC T5 / T4 Gb and Ex tb IIICT100℃ / T130℃ Db IP66, and ATEX markings as II 2 G Ex db IIC T5/T4 Gb and II 2 D Ex tb IIIC T100℃ /T130℃ Db IP66.

—
High torque density and power density: reduced volume and weight.

—
High torque constant, low current design, comprehensive consideration of overall solutions, controlling system costs.

—
Low cogging torque and torque ripple: excellent performance at low speed and system control.
Fast dynamic response, accurate rotor balance.

—
Outstanding overload performance: 3 times peak torque, 4 times mechanical overload capacity.

—

Brake optional. Resolvers are standard accessories. Cable kits are available, or you can purchase standard cable connectors.

—

Epoxy resin potting technology on complete stator: compact size and better heat dissipation.

—

High-precision machining technology, more precise engagement between the flange and rotating shaft to ensure less noise and vibration.

—

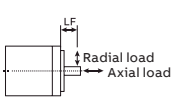
Various winding types designed for the stator to achieve different speeds and torques. Double-layer winding process with fully insulated neutral point connections inside the casing ensures safety.

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC230 V, temperature class T4

Frame size		**HXA70**					
Model		**5030A**	**7345A**	**6930A**	**9445A**	**8530A**	**1145A**
Rated power	**kW**	**0.50**	**0.73**	**0.69**	**0.94**	**0.85**	**1.15**
General							
Input voltage	Vac	230	230	230	230	230	230
Rated torque	N·m	1.6	1.55	2.2	2	2.72	2.43
Peak torque	N·m	3.4	3.4	5.2	5.2	7	7
Continuous stall torque	N·m	1.7	1.7	2.4	2.4	3	3
Rated current	A_{rms}	2.3	3.1	2.9	3.8	3.9	5
Peak current	A	6	8.5	8.5	12	12	17
Continuous stall current	A	2.3	3.3	3	4.3	4.1	5.9
Rated speed	rpm	3000	4500	3000	4500	3000	4500
Electrical							
Torque constant [1]	N·m /A	0.83	0.58	0.87	0.62	0.83	0.58
Voltage constant	V_{rms}/krpm	50	35	52.8	37.5	50	34.8
Line resistance	Ohms	8.6	4.2	5.8	2.9	3.8	1.9
Line inductance	mH	30	14.8	21.7	11	14.6	7.2
Electrical time constant	ms	3.5	3.5	3.7	3.8	3.8	3.8
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	0.28	0.28	0.39	0.39	0.51	0.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.27	0.27	0.39	0.39	0.51	0.51
Mechanical time constant	ms	0.3	0.3	0.3	0.3	0.2	0.3
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	2.74	2.74	3.03	3.03	3.31	3.31
Motor weight w/o brake	kg	2.28	2.28	2.57	2.57	2.84	2.84
Thermal time constant	min	10.0	10.0	20.0	20.0	26.0	26.0
Maximum radial load (@LF [2])	N	200 (@11.5 mm)					
Maximum axial load [2]	N	130					
Ambient							
Insulation class	-	F					
Operating temperature	℃	-20…40					
Operating humidity	%	5~95 (no dews)					
Storage temperature	℃	-40…50					
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	0.34	0.34	0.34	0.34	0.34	0.34
Power	W	8.2	8.2	8.2	8.2	8.2	8.2
Static torque	N·m (min)	2	2	2	2	2	2
Pull-in time	ms (max)	40	40	40	40	40	40
Release time	ms (max)	60	60	60	60	60	60

Notes: 1) The torque constant decreases in a non-linear manner as the torque increases, the values are considered valid until approximately 2 times cont. stall torque.
2) The allowable load of the shaft is shown in the figure below. In mechanical design, radial and axial loads in servo motor operation should be prevented from exceeding the values in the table. Values are based on an estimate of the combined load capacity of bearing at rated speed. For detailed bearing load capacity data, please contact ABB.



HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC230 V, temperature class T4

Frame size					**HXA10**			
Model		**1330A**	**1745A**	**1830A**	**2245A**	**1117A**	**1417A**	**2025A**
Rated power	**kW**	**1.35**	**1.79**	**1.82**	**2.21**	**1.14**	**1.46**	**2.02**
General								
Input voltage	Vac	230	230	230	230	230	230	230
Rated torque	N·m	4.3	3.8	5.8	4.7	6.3	8.1	7.7
Peak torque	N·m	11.8	11.8	17.7	17.7	17.7	23.6	23.6
Continuous stall torque	N·m	5.3	5.3	7.1	7.1	7.1	9	9
Rated current	A_{rms}	5.4	8	8.2	9.9	5	5.9	9.2
Peak current	A	19.1	30.5	30.5	42	18.5	22.8	36.9
Continuous stall current	A	6.5	10.3	9.5	13	5.8	6.5	10.5
Rated speed	rpm	3000	4500	3000	4500	1725	1725	2500
Electrical								
Torque constant [1]	N·m /A	0.9	0.57	0.85	0.61	1.41	1.52	0.95
Voltage constant	V_{rms}/krpm	54.7	34.2	51.5	37	85.1	92.2	57.2
Line resistance	Ohms	1.8	0.73	1	0.52	2.6	2.1	0.84
Line inductance	mH	13	5.1	7.6	4	20.8	17.5	6.7
Electrical time constant	ms	7.2	7.0	7.6	7.7	8.0	8.3	8.0
Mechanical								
Rotor inertia with brake	$kg{\cdot}cm^2$	1.41	1.41	1.96	1.96	1.96	2.51	2.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	1.29	1.29	1.84	1.84	1.84	2.39	2.39
Mechanical time constant	ms	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Number of poles	-	10	10	10	10	10	10	10
Motor weight with brake	kg	5.31	5.31	5.92	5.92	5.92	6.53	6.53
Motor weight w/o brake	kg	4.74	4.74	5.36	5.36	5.36	5.97	5.97
Thermal time constant	min	12.4	12.4	25.1	25.1	25.1	27.0	27.0
Maximum radial load (@LF [2])	N				470 (@20 mm)			
Maximum axial load [2]	N				250			
Ambient								
Insulation class	-				F			
Operating temperature	℃				-20…40			
Operating humidity	%				5~95 (no dews)			
Storage temperature	℃				-40…50			
Brake parameters								
Voltage	VDC ± 10%	24	24	24	24	24	24	24
Current	A	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Power	W	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Static torque	N·m (min)	7	7	7	7	7	7	7
Pull-in time	ms (max)	40	40	40	40	40	40	40
Release time	ms (max)	100	100	100	100	100	100	100

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC230 V, temperature class T4

Frame size		**HXA14**							
Model		**1511A**	**2217A**	**2725A**	**2011A**	**2817A**	**3625A**	**2511A**	**3417A**
Rated power	**kW**	**1.5**	**2.2**	**2.7**	**2.0**	**2.8**	**3.6**	**2.5**	**3.4**
General									
Input voltage	Vac	230	230	230	230	230	230	230	230
Rated torque	N·m	12.5	12	10.5	16.5	15.5	14	20.5	18.5
Peak torque	N·m	36	36	36	48	48	48	70	70
Continuous stall torque	N·m	14	14	14	19	19	19	24	24
Rated current	A_{rms}	6.7	10	12.5	9	12.5	18.7	12.5	18.5
Peak current	A	20.5	30.6	41.1	30.2	45.3	70.8	44	68.8
Continuous stall current	A	7.1	10.6	14.3	9.6	14.5	22.7	13.5	21
Rated speed	rpm	1150	1750	2500	1150	1750	2500	1150	1750
Electrical									
Torque constant [1]	N·m /A	2.1	1.4	1	2.1	1.4	0.8	2.1	1.3
Voltage constant	V_{rms}/krpm	127	85.3	63.5	127	84.7	54.2	127	81.3
Line resistance	Ohms	1.9	0.8	0.5	1.2	0.6	0.2	0.8	0.3
Line inductance	mH	17	7.7	4.3	12	5.4	2.2	8	3.3
Electrical time constant	ms	9.0	9.5	8.8	9.6	9.0	9.2	9.9	10.6
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	9.29	9.29	9.29	11.6	11.6	11.6	16.2	16.2
Rotor inertia w/o brake	$kg{\cdot}cm^2$	7.46	7.46	7.46	9.75	9.75	9.75	14.3	14.3
Mechanical time constant	ms	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2
Number of poles	-	10	10	10	10	10	10	10	10
Motor weight with brake	kg	13.3	13.3	13.3	15.1	15.1	15.1	18.4	18.4
Motor weight w/o brake	kg	11.4	11.4	11.4	13.2	13.2	13.2	16.5	16.5
Thermal time constant	min	58	58	58	54	54	54	40	40
Maximum radial load (@LF [2])	N	550 (@25 mm)							
Maximum axial load [2]	N	250							
Ambient									
Insulation class	-	F							
Operating temperature	℃	-20…40							
Operating humidity	%	5~95 (no dews)							
Storage temperature	℃	-40…50							
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Power	W	23	23	23	23	23	23	23	23
Static torque	N·m (min)	25	25	25	25	25	25	25	25
Pull-in time	ms (max)	40	40	40	40	40	40	40	40
Release time	ms (max)	120	120	120	120	120	120	120	120

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC230 V, temperature class T4

Frame size		**HXA18**					
Model		**5011A**	**7520A**	**6211A**	**9020A**	**6809A**	**9915A**
Rated power	**kW**	**5.0**	**7.5**	**6.2**	**9.0**	**6.8**	**9.9**
General							
Input voltage	Vac	230	230	230	230	230	230
Rated torque	N·m	42	36	52	43	72.5	63
Peak torque	N·m	105	105	140	140	210	210
Continuous stall torque	N·m	50	50	65	65	87	87
Rated current	A_{rms}	21	31.5	25.5	43	31	40.5
Peak current	A	51.3	90.6	70.3	137.6	93	137.6
Continuous stall current	A	23.3	41.2	30.4	60	35.5	52.5
Rated speed	rpm	1150	2000	1150	2000	900	1500
Electrical							
Torque constant [1]	N·m /A	2.3	1.3	2.3	1.1	2.6	1.7
Voltage constant	V_{rms}/krpm	140.1	79.4	140.1	71.6	158.8	107.4
Line resistance	Ohms	0.3	0.1	0.2	0.1	0.2	0.1
Line inductance	mH	5.6	1.8	4.2	1.1	3.5	1.6
Electrical time constant	ms	16.3	16.3	17.0	16.7	19.0	17.6
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	68.3	68.3	87.2	87.2	125.1	125.1
Rotor inertia w/o brake	$kg{\cdot}cm^2$	61.3	61.3	80.2	80.2	118.1	118.1
Mechanical time constant	ms	0.3	0.3	0.3	0.4	0.3	0.3
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	30.1	30.1	33.2	33.2	51.8	51.8
Motor weight w/o brake	kg	24.2	24.2	27.5	27.5	46.1	46.1
Thermal time constant	min	47	47	50	50	59	59
Maximum radial load (@LF [2])	N	1000 (@30 mm)					
Maximum axial load [2]	N	500					
Ambient							
Insulation class	-	F					
Operating temperature	℃	-20…40					
Operating humidity	%	5~95 (no dews)					
Storage temperature	℃	-40…50					
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	1.50	1.50	1.50	1.50	1.50	1.50
Power	W	36	36	36	36	36	36
Static torque	N·m (min)	60	60	60	60	60	60
Pull-in time	ms (max)	60	60	60	60	60	60
Release time	ms (max)	260	260	260	260	260	260

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC400 V, temperature class T4

Frame size		**HXA70**			**HXA10**				
Model		**7950B**	**1050B**	**1250B**	**1850B**	**2350B**	**1830B**	**2330B**	**2943B**
Rated power	**kW**	**0.79**	**1.02**	**1.24**	**1.88**	**2.36**	**1.82**	**2.36**	**2.93**
General									
Input voltage	Vac	400	400	400	400	400	400	400	400
Rated torque	N·m	1.5	1.95	2.36	3.6	4.5	5.8	7.5	6.5
Peak torque	N·m	3.4	5.2	7	11.8	17.7	17.7	23.6	23.6
Continuous stall torque	N·m	1.7	2.4	3	5.3	7.1	7.1	9	9
Rated current	A_{rms}	2.1	2.6	3.5	4.9	6.8	5	5.6	6.5
Peak current	A	6	8.5	12	19.1	30.5	18.5	22.8	36.9
Continuous stall current	A	2.3	3	4.1	6.5	9.5	5.8	6.5	10.5
Rated speed	rpm	5000	5000	5000	5000	5000	3000	3000	4300
Electrical									
Torque constant [1]	N·m /A	0.83	0.87	0.83	0.9	0.85	1.41	1.52	0.95
Voltage constant	V_{rms}/krpm	50	52.8	50	54.7	51.5	85.1	92.2	57.2
Line resistance	Ohms	8.6	5.8	3.8	1.8	1	2.6	2.1	0.84
Line inductance	mH	30	21.7	14.6	13	7.6	20.8	17.5	6.7
Electrical time constant	ms	3.5	3.7	3.8	7.2	7.6	8.0	8.3	8.0
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	0.28	0.39	0.51	1.41	1.96	1.96	2.51	2.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.27	0.39	0.51	1.29	1.84	1.84	2.39	2.39
Mechanical time constant	ms	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2
Number of poles	-	10	10	10	10	10	10	10	10
Motor weight with brake	kg	2.74	3.03	3.31	5.31	5.92	5.92	6.53	6.53
Motor weight w/o brake	kg	2.28	2.57	2.84	4.74	5.36	5.36	5.97	5.97
Thermal time constant	min	10.0	20.0	26.0	12.4	25.1	25.1	27.0	27.0
Maximum radial load (@LF [2])	N	200 (@11.5 mm)			470 (@20 mm)				
Maximum axial load [2]	N	130			250				
Ambient									
Insulation class	-	F			F				
Operating temperature	℃	-20…40			-20…40				
Operating humidity	%	5~95 (no dews)			5~95 (no dews)				
Storage temperature	℃	-40…50			-40…50				
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.34	0.34	0.34	0.82	0.82	0.82	0.82	0.82
Power	W	8.2	8.2	8.2	19.6	19.6	19.6	19.6	19.6
Static torque	N·m (min)	2	2	2	7	7	7	7	7
Pull-in time	ms (max)	40	40	40	40	40	40	40	40
Release time	ms (max)	60	60	60	100	100	100	100	100

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC400 V, temperature class T4

Frame size		**HXA14**							
Model		**2520B**	**3230B**	**3843B**	**3120B**	**4030B**	**4643B**	**3820B**	**4630B**
Rated power	**kW**	**2.5**	**3.3**	**3.8**	**3.1**	**4.1**	**4.6**	**3.8**	**4.6**
General									
Input voltage	Vac	400	400	400	400	400	400	400	400
Rated torque	N·m	12	10.5	8.5	15	13	10.3	18.3	14.8
Peak torque	N·m	36	36	36	48	48	48	70	70
Continuous stall torque	N·m	14	14	14	19	19	19	24	24
Rated current	A_{rms}	6.4	8.7	10	8.2	10.6	14	11.1	14.8
Peak current	A	20.5	30.6	41.1	30.2	45.3	70.8	44	68.8
Continuous stall current	A	7.1	10.6	14.3	9.6	14.5	22.7	13.5	21
Rated speed	rpm	2000	3000	4300	2000	3000	4300	2000	3000
Electrical									
Torque constant [1]	N·m /A	2.1	1.4	1	2.1	1.4	0.8	2.1	1.3
Voltage constant	V_{rms}/krpm	127	85.3	63.5	127	84.7	54.2	127	81.3
Line resistance	Ohms	1.9	0.8	0.5	1.2	0.6	0.2	0.8	0.3
Line inductance	mH	17	7.7	4.3	12	5.4	2.2	8	3.3
Electrical time constant	ms	9.0	9.5	8.8	9.6	9.0	9.2	9.9	10.6
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	9.29	9.29	9.29	11.6	11.6	11.6	16.2	16.2
Rotor inertia w/o brake	$kg{\cdot}cm^2$	7.46	7.46	7.46	9.75	9.75	9.75	14.3	14.3
Mechanical time constant	ms	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2
Number of poles	-	10	10	10	10	10	10	10	10
Motor weight with brake	kg	13.3	13.3	13.3	15.1	15.1	15.1	18.4	18.4
Motor weight w/o brake	kg	11.4	11.4	11.4	13.2	13.2	13.2	16.5	16.5
Thermal time constant	min	58	58	58	54	54	54	40	40
Maximum radial load (@LF [2])	N	550 (@25 mm)							
Maximum axial load [2]	N	250							
Ambient									
Insulation class	-	F							
Operating temperature	℃	-20…40							
Operating humidity	%	5~95 (no dews)							
Storage temperature	℃	-40…50							
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Power	W	23	23	23	23	23	23	23	23
Static torque	N·m (min)	25	25	25	25	25	25	25	25
Pull-in time	ms (max)	40	40	40	40	40	40	40	40
Release time	ms (max)	120	120	120	120	120	120	120	120

HX explosion-proof servo motors
Data sheet T4

Rated voltage level AC400 V, temperature class T4

Frame size		**HXA18**					
Model		**7520B**	**8735B**	**9020B**	**9430B**	**9815B**	**1225B**
Rated power	**kW**	**7.5**	**8.8**	**9.0**	**9.4**	**9.9**	**12.0**
General							
Input voltage	Vac	400	400	400	400	400	400
Rated torque	N·m	36	24	43	30	63	46
Peak torque	N·m	105	105	140	140	210	210
Continuous stall torque	N·m	50	50	65	65	87	87
Rated current	A_{rms}	17.9	20.5	21.2	30	27	29.6
Peak current	A	51.3	90.6	70.3	137.6	93	137.6
Continuous stall current	A	23.3	41.2	30.4	60	35.5	52.5
Rated speed	rpm	2000	3500	2000	3000	1500	2500
Electrical							
Torque constant [1]	N·m /A	2.3	1.3	2.3	1.1	2.6	1.7
Voltage constant	V_{rms}/krpm	140.1	79.4	140.1	71.6	158.8	107.4
Line resistance	Ohms	0.3	0.1	0.2	0.1	0.2	0.1
Line inductance	mH	5.6	1.8	4.2	1.1	3.5	1.6
Electrical time constant	ms	16.3	16.3	17.0	16.7	19.0	17.6
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	68.3	68.3	87.2	87.2	125.1	125.1
Rotor inertia w/o brake	$kg{\cdot}cm^2$	61.3	61.3	80.2	80.2	118.1	118.1
Mechanical time constant	ms	0.3	0.3	0.3	0.4	0.3	0.3
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	30.1	30.1	33.2	33.2	51.8	51.8
Motor weight w/o brake	kg	24.2	24.2	27.5	27.5	46.1	46.1
Thermal time constant	min	47	47	50	50	59	59
Maximum radial load (@LF [2])	N	1000 (@30mm)					
Maximum axial load [2]	N	500					
Ambient							
Insulation class	-	F					
Operating temperature	℃	-20…40					
Operating humidity	%	5~95 (no dews)					
Storage temperature	℃	-40…50					
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	1.50	1.50	1.50	1.50	1.50	1.50
Power	W	36	36	36	36	36	36
Static torque	N·m (min)	60	60	60	60	60	60
Pull-in time	ms (max)	60	60	60	60	60	60
Release time	ms (max)	260	260	260	260	260	260

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC230 V, temperature class T5

Frame size		**HXA70**					
Model		**4730A**	**6145A**	**5730A**	**6645A**	**6630A**	**7545A**
Rated power	**kW**	**0.47**	**0.61**	**0.57**	**0.66**	**0.66**	**0.75**
General							
Input voltage	Vac	230	230	230	230	230	230
Rated torque	N·m	1.5	1.3	1.8	1.4	2.1	1.6
Peak torque	N·m	3.4	3.4	5.2	5.2	7	7
Continuous stall torque	N·m	1.6	1.6	2.2	2.2	2.7	2.7
Rated current	A_{rms}	1.9	2.6	2.3	2.7	2.9	3.2
Peak current	A	6	8.5	8.5	12	12	17
Continuous stall current	A	2.1	3	2.7	3.8	3.6	5.1
Rated speed	rpm	3000	4500	3000	4500	3000	4500
Electrical							
Torque constant [1]	N·m /A	0.83	0.58	0.87	0.62	0.83	0.58
Voltage constant	V_{rms}/krpm	50	35	52.8	37.5	50	34.8
Line resistance	Ohms	8.6	4.2	5.8	2.9	3.8	1.9
Line inductance	mH	30	14.8	21.7	11	14.6	7.2
Electrical time constant	ms	3.5	3.5	3.7	3.8	3.8	3.8
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	0.28	0.28	0.39	0.39	0.51	0.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.27	0.27	0.39	0.39	0.51	0.51
Mechanical time constant	ms	0.3	0.3	0.3	0.3	0.2	0.3
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	2.74	2.74	3.03	3.03	3.31	3.31
Motor weight w/o brake	kg	2.28	2.28	2.57	2.57	2.84	2.84
Thermal time constant	min	10.0	10.0	20.0	20.0	26.0	26.0
Maximum radial load (@LF [2])	N	200 (@11.5 mm)					
Maximum axial load [2]	N	130					
Ambient							
Insulation class	-	F					
Operating temperature	℃	-20…40					
Operating humidity	%	5~95 (no dews)					
Storage temperature	℃	-40…50					
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	0.34	0.34	0.34	0.34	0.34	0.34
Power	W	8.2	8.2	8.2	8.2	8.2	8.2
Static torque	N·m (min)	2	2	2	2	2	2
Pull-in time	ms (max)	40	40	40	40	40	40
Release time	ms (max)	60	60	60	60	60	60

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC230 V, temperature class T5

Frame size				**HXA10**		
Model		**9430A**	**1130A**	**8717A**	**1017A**	**1325A**
Rated power	**kW**	**0.94**	**1.16**	**0.87**	**1.07**	**1.31**
General						
Input voltage	Vac	230	230	230	230	230
Rated torque	N·m	3	3.7	4.8	5.9	5
Peak torque	N·m	11.8	17.7	17.7	23.6	23.6
Continuous stall torque	N·m	4.9	6.1	6.1	7.8	7.8
Rated current	A_{rms}	3.5	4.9	3.9	4.2	5.8
Peak current	A	19.1	30.5	18.5	22.8	36.9
Continuous stall current	A	5.7	7.8	4.7	5.5	8.8
Rated speed	rpm	3000	3000	1725	1725	2500
Electrical						
Torque constant [1]	N·m /A	0.9	0.85	1.41	1.52	0.95
Voltage constant	V_{rms}/krpm	54.7	51.5	85.1	92.2	57.2
Line resistance	Ohms	1.8	1	2.6	2.1	0.84
Line inductance	mH	13	7.6	20.8	17.5	6.7
Electrical time constant	ms	7.2	7.6	8.0	8.3	8.0
Mechanical						
Rotor inertia with brake	$kg{\cdot}cm^2$	1.41	1.96	1.96	2.51	2.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	1.29	1.84	1.84	2.39	2.39
Mechanical time constant	ms	0.3	0.2	0.2	0.2	0.2
Number of poles	-	10	10	10	10	10
Motor weight with brake	kg	5.31	5.92	5.92	6.53	6.53
Motor weight w/o brake	kg	4.74	5.36	5.36	5.97	5.97
Thermal time constant	min	12.4	25.1	25.1	27.0	27.0
Maximum radial load (@LF [2])	N			470 (@20 mm)		
Maximum axial load [2]	N			250		
Ambient						
Insulation class	-			F		
Operating temperature	℃			-20…40		
Operating humidity	%			5~95 (no dews)		
Storage temperature	℃			-40…50		
Brake parameters						
Voltage	VDC ± 10%	24	24	24	24	24
Current	A	0.82	0.82	0.82	0.82	0.82
Power	W	19.6	19.6	19.6	19.6	19.6
Static torque	N·m (min)	7	7	7	7	7
Pull-in time	ms (max)	40	40	40	40	40
Release time	ms (max)	100	100	100	100	100

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC230 V, temperature class T5

Frame size		**HXA14**							
Model		**1211A**	**1617A**	**2025A**	**1510A**	**1917A**	**2020A**	**1611A**	**1817A**
Rated power	**kW**	**1.2**	**1.6**	**2.0**	**1.5**	**2.0**	**2.1**	**1.6**	**1.9**
General									
Input voltage	Vac	230	230	230	230	230	230	230	230
Rated torque	N·m	10.3	9	7.7	12.6	10.8	10	13.3	10.3
Peak torque	N·m	36	36	36	48	48	48	70	70
Continuous stall torque	N·m	12	12	12	16	16	16	19	19
Rated current	A_{rms}	5.5	7.3	8.3	6.5	8.4	12.2	8.1	9.7
Peak current	A	20.5	30.6	41.1	30.2	45.3	70.8	44	68.8
Continuous stall current	A	6	9	12	8.1	12.2	19	10.5	16.4
Rated speed	rpm	1150	1750	2500	1150	1750	2000	1150	1750
Electrical									
Torque constant [1]	N·m /A	2.1	1.4	1	2.1	1.4	0.8	2.1	1.3
Voltage constant	V_{rms}/krpm	127	85.3	63.5	127	84.7	54.2	127	81.3
Line resistance	Ohms	1.9	0.8	0.5	1.2	0.6	0.2	0.8	0.3
Line inductance	mH	17	7.7	4.3	12	5.4	2.2	8	3.3
Electrical time constant	ms	9.0	9.5	8.8	9.6	9.0	9.2	9.9	10.6
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	9.29	9.29	9.29	11.6	11.6	11.6	16.2	16.2
Rotor inertia w/o brake	$kg{\cdot}cm^2$	7.46	7.46	7.46	9.75	9.75	9.75	14.3	14.3
Mechanical time constant	ms	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2
Number of poles	-	10	10	10	10	10	10	10	10
Motor weight with brake	kg	13.3	13.3	13.3	15.1	15.1	15.1	18.4	18.4
Motor weight w/o brake	kg	11.4	11.4	11.4	13.2	13.2	13.2	16.5	16.5
Thermal time constant	min	58	58	58	54	54	54	40	40
Maximum radial load (@LF [2])	N	550 (@25 mm)							
Maximum axial load [2]	N	250							
Ambient									
Insulation class	-	F							
Operating temperature	℃	-20…40							
Operating humidity	%	5~95 (no dews)							
Storage temperature	℃	-40…50							
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Power	W	23	23	23	23	23	23	23	23
Static torque	N·m (min)	25	25	25	25	25	25	25	25
Pull-in time	ms (max)	40	40	40	40	40	40	40	40
Release time	ms (max)	120	120	120	120	120	120	120	120

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC230 V, temperature class T5

Frame size		**HXA18**					
Model		**4111A**	**5820A**	**4711A**	**5315A**	**5109A**	**6115A**
Rated power	**kW**	**4.2**	**5.9**	**4.8**	**5.3**	**5.1**	**6.1**
General							
Input voltage	Vac	230	230	230	230	230	230
Rated torque	N·m	34.8	28	39.6	34	54.2	39
Peak torque	N·m	105	105	140	140	210	210
Continuous stall torque	N·m	44	44	58	58	77	77
Rated current	A_{rms}	17.4	24.5	18.6	31.5	22.9	24.5
Peak current	A	51.3	90.6	70.3	137.6	93	137.6
Continuous stall current	A	20.2	35.5	26.8	52.3	31.2	46
Rated speed	rpm	1150	2000	1150	1500	900	1500
Electrical							
Torque constant [1]	N·m /A	2.3	1.3	2.3	1.1	2.6	1.7
Voltage constant	V_{rms}/krpm	140.1	79.4	140.1	71.6	158.8	107.4
Line resistance	Ohms	0.3	0.1	0.2	0.1	0.2	0.1
Line inductance	mH	5.6	1.8	4.2	1.1	3.5	1.6
Electrical time constant	ms	16.3	16.3	17.0	16.7	19.0	17.6
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	68.3	68.3	87.2	87.2	125.1	125.1
Rotor inertia w/o brake	$kg{\cdot}cm^2$	61.3	61.3	80.2	80.2	118.1	118.1
Mechanical time constant	ms	0.3	0.3	0.3	0.4	0.3	0.3
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	30.1	30.1	33.2	33.2	51.8	51.8
Motor weight w/o brake	kg	24.2	24.2	27.5	27.5	46.1	46.1
Thermal time constant	min	47	47	50	50	59	59
Maximum radial load (@LF [2])	N	1000 (@30 mm)					
Maximum axial load [2]	N	500					
Ambient							
Insulation class	-	F					
Operating temperature	℃	-20…40					
Operating humidity	%	5~95 (no dews)					
Storage temperature	℃	-40…50					
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	1.50	1.50	1.50	1.50	1.50	1.50
Power	W	36	36	36	36	36	36
Static torque	N·m (min)	60	60	60	60	60	60
Pull-in time	ms (max)	60	60	60	60	60	60
Release time	ms (max)	260	260	260	260	260	260

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC400 V, temperature class T5

Frame size			**HXA70**			**HXA10**	
Model		**6850B**	**7150B**	**7050B**	**9430B**	**1130B**	**1430B**
Rated power	**kW**	**0.68**	**0.71**	**0.68**	**0.94**	**1.16**	**1.41**
General							
Input voltage	Vac	400	400	400	400	400	400
Rated torque	N·m	1.3	1.35	1.3	3	3.7	4.5
Peak torque	N·m	3.4	5.2	7	11.8	17.7	23.6
Continuous stall torque	N·m	1.6	2.2	2.7	4.9	6.1	7.8
Rated current	A_{rms}	1.8	1.8	1.9	3.5	3	3.3
Peak current	A	6	8.5	12	19.1	18.5	22.8
Continuous stall current	A	2.1	2.7	3.6	5.7	4.7	5.5
Rated speed	rpm	5000	5000	5000	3000	3000	3000
Electrical							
Torque constant [1]	N·m /A	0.83	0.87	0.83	0.9	1.41	1.52
Voltage constant	V_{rms}/krpm	50	52.8	50	54.7	85.1	92.2
Line resistance	Ohms	8.6	5.8	3.8	1.8	2.6	2.1
Line inductance	mH	30	21.7	14.6	13	20.8	17.5
Electrical time constant	ms	3.5	3.7	3.8	7.2	8.0	8.3
Mechanical							
Rotor inertia with brake	$kg{\cdot}cm^2$	0.28	0.39	0.51	1.41	1.96	2.51
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.27	0.39	0.51	1.29	1.84	2.39
Mechanical time constant	ms	0.3	0.3	0.2	0.3	0.2	0.2
Number of poles	-	10	10	10	10	10	10
Motor weight with brake	kg	2.74	3.03	3.31	5.31	5.92	6.53
Motor weight w/o brake	kg	2.28	2.57	2.84	4.74	5.36	5.97
Thermal time constant	min	10.0	20.0	26.0	12.4	25.1	27.0
Maximum radial load (@LF [2])	N		200 (@11.5 mm)			470 (@20 mm)	
Maximum axial load [2]	N		130			250	
Ambient							
Insulation class	-		F			F	
Operating temperature	℃		-20…40			-20…40	
Operating humidity	%		5~95 (no dews)			5~95% (no dews)	
Storage temperature	℃		-40…50			-40…50	
Brake parameters							
Voltage	VDC ± 10%	24	24	24	24	24	24
Current	A	0.34	0.34	0.34	0.82	0.82	0.82
Power	W	8.2	8.2	8.2	19.6	19.6	19.6
Static torque	N·m (min)	2	2	2	7	7	7
Pull-in time	ms (max)	40	40	40	40	40	40
Release time	ms (max)	60	60	60	100	100	100

HX explosion-proof servo motors
Data sheet T5

Rated voltage level AC400 V, temperature class T5

Frame size		**HXA14**					**HXA18**				
Model		**1820B**	**2030B**	**2130B**	**2020B**	**1920B**	**5820B**	**5920B**	**5315B**	**6015B**	**6115B**
Rated power	**kW**	**1.9**	**2.1**	**2.1**	**2.1**	**1.9**	**5.9**	**5.9**	**5.3**	**6.1**	**6.1**
General											
Input voltage	Vac	400	400	400	400	400	400	400	400	400	400
Rated torque	N·m	9	6.8	6.8	10	9	28	28	34	39	39
Peak torque	N·m	36	36	36	48	70	105	105	140	210	210
Continuous stall torque	N·m	12	12	12	16	19	44	44	58	77	77
Rated current	A_{rms}	4.8	5.5	7.4	5.2	5.5	14	24.5	16	16.5	24.5
Peak current	A	20.5	30.6	41.1	30.2	44	51.3	90.6	70.3	93	137.6
Continuous stall current	A	6	9	12	8.1	10.5	20.2	35.5	26.8	31.2	46
Rated speed	rpm	2000	3000	3000	2000	2000	2000	2000	1500	1500	1500
Electrical											
Torque constant [1]	N·m /A	2.1	1.4	1	2.1	2.1	2.3	1.3	2.3	2.6	1.7
Voltage constant	V_{rms}/krpm	127	85.3	63.5	127	127	140.1	79.4	140.1	158.8	107.4
Line resistance	Ohms	1.9	0.8	0.5	1.2	0.8	0.3	0.1	0.2	0.2	0.1
Line inductance	mH	17	7.7	4.3	12	8	5.6	1.8	4.2	3.5	1.6
Electrical time constant	ms	9.0	9.5	8.8	9.6	9.9	16.3	16.3	17.0	19.0	17.6
Mechanical											
Rotor inertia with brake	$kg{\cdot}cm^2$	9.29	9.29	9.29	11.6	16.2	68.3	68.3	87.2	125.1	125.1
Rotor inertia w/o brake	$kg{\cdot}cm^2$	7.46	7.46	7.46	9.75	14.3	61.3	61.3	80.2	118.1	118.1
Mechanical time constant	ms	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Number of poles	-	10	10	10	10	10	10	10	10	10	10
Motor weight with brake	kg	13.3	13.3	13.3	15.1	18.4	30.1	30.1	33.2	51.8	51.8
Motor weight w/o brake	kg	11.4	11.4	11.4	13.2	16.5	24.2	24.2	27.5	46.1	46.1
Thermal time constant	min	58	58	58	54	40	47	47	50	59	59
Maximum radial load (@LF [2])	N	550 (@25mm)					1000 (@30mm)				
Maximum axial load [2]	N	250					500				
Ambient											
Insulation class	-	F					F				
Operating temperature	℃	-20…40					-20…40				
Operating humidity	%	5~95 (no dews)					5~95 (no dews)				
Storage temperature	℃	-40…50					-40…50				
Brake parameters											
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24	24	24
Current	A	0.96	0.96	0.96	0.96	0.96	1.50	1.50	1.50	1.50	1.50
Power	W	23	23	23	23	23	36	36	36	36	36
Static torque	N·m (min)	25	25	25	25	25	60	60	60	60	60
Pull-in time	ms (max)	40	40	40	40	40	60	60	60	60	60
Release time	ms (max)	120	120	120	120	120	260	260	260	260	260

HX explosion-proof servo motors
Performance curves

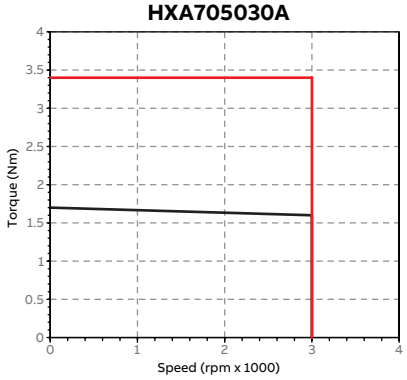
Motor performance curves and operation areas

The operation area of HDS servo motors is defined by performance curves in a 2-dimensional plane with coordinates of output torque and rotation speed. The performance curves of each type divide the operation area into continuous operation area and intermittent operation area.

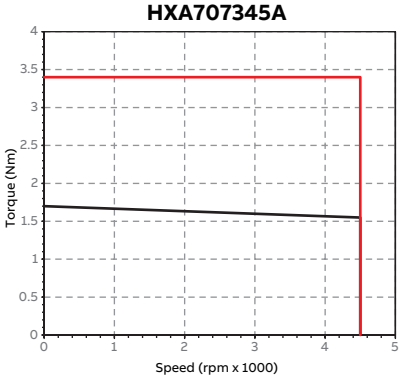
- Continuous operation area: the area where the motor could operate for a long period without over-heating. In the performance curves provided below, the black-colored, lower-positioned curve is the continuous performance curve. The area contained under this curve is the continuous operation area.
- Intermittent operation area: the area over the continuous area, in which motor can run for a short period of time as in overload mode. In the performance curves provided below, the red-colored curves with input voltage marked (110 VAC, 230 VAC, 400 VAC or 460 VAC) are the peak performance curves. The areas between a specific peak curve and the continuous curve is the intermittent operation area by the corresponding input voltage marked. The time allowed to run a motor in the intermittent operation area is decided comprehensively by the operating environment, ventilation conditions and the drive capacity, etc.

Rated voltage level AC230 V, temperature class T4

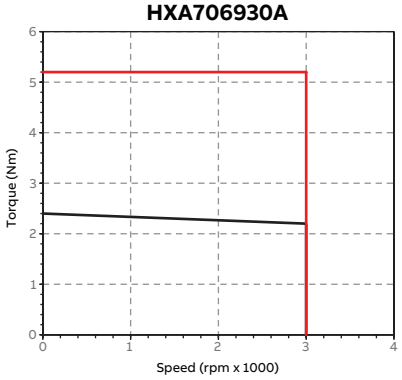
HXA705030A



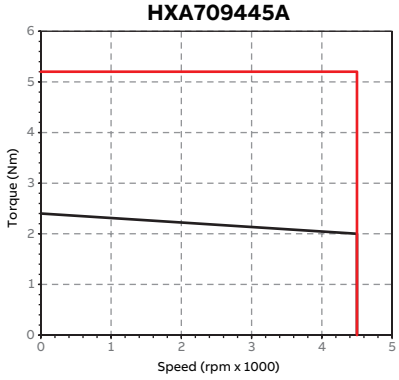
HXA707345A



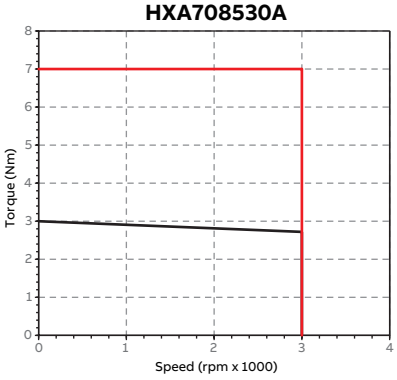
HXA706930A



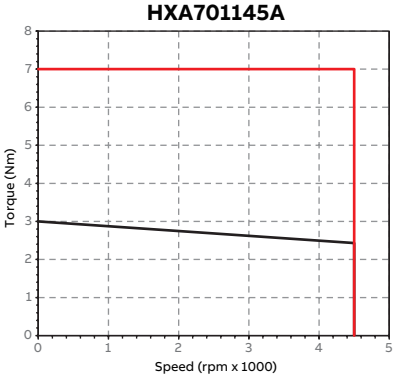
HXA709445A



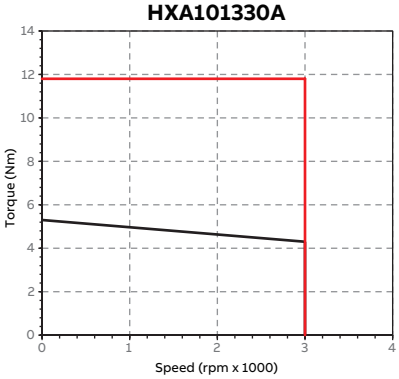
HXA708530A

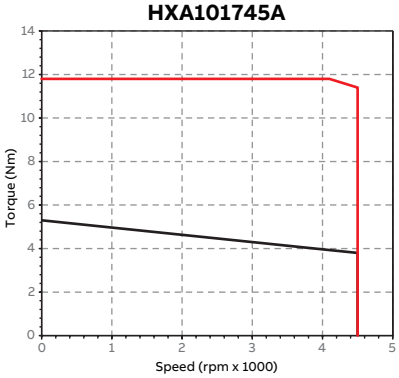


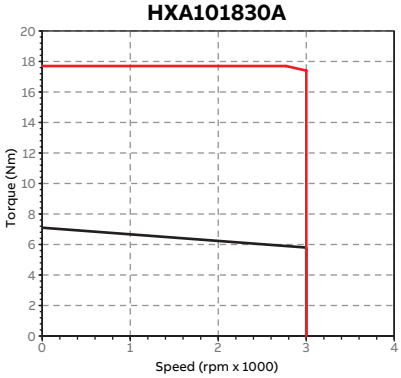
HXA701145A

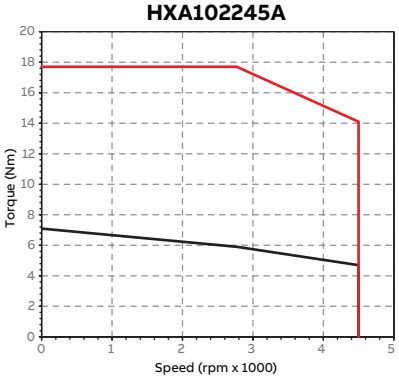


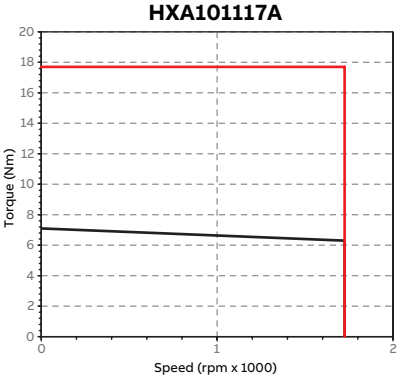
HX explosion-proof servo motors
Performance curves

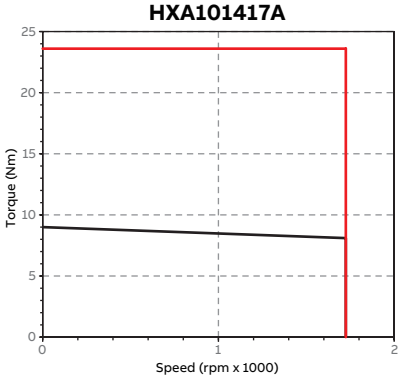
HXA101330A


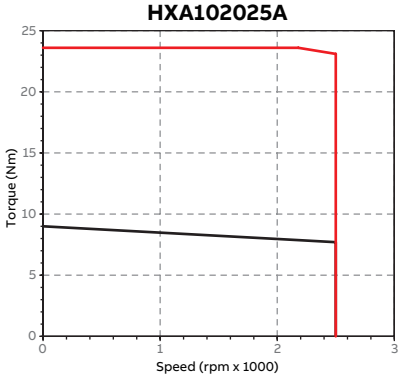
HXA101745A


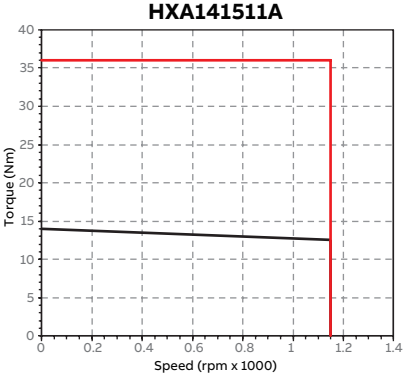
HXA101830A


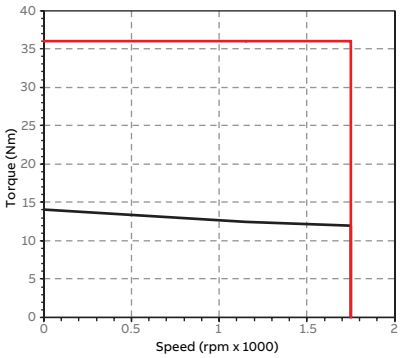
HXA102245A


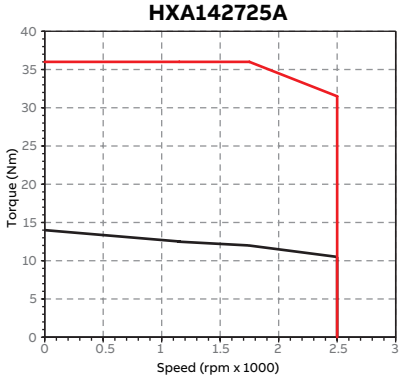
HXA101117A


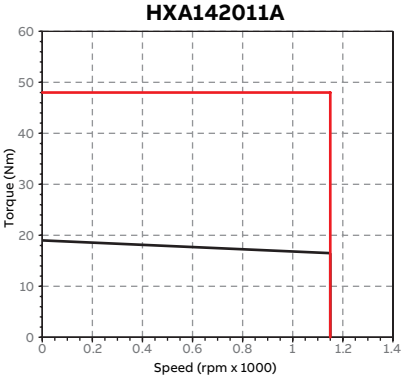
HXA101417A


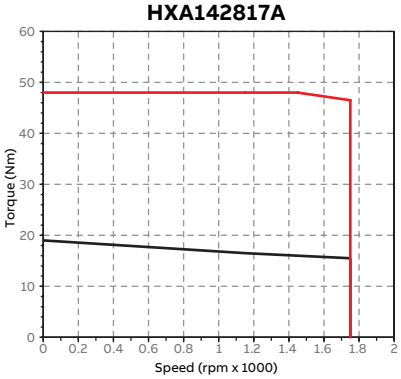
HXA102025A


HXA141511A


HXA142217A


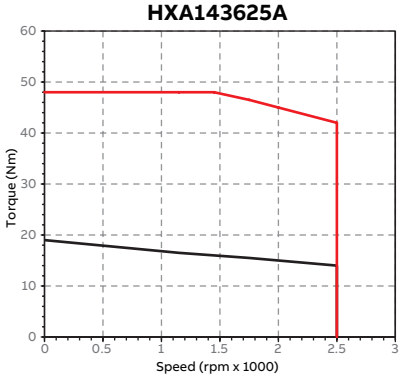
HXA142725A


HXA142011A


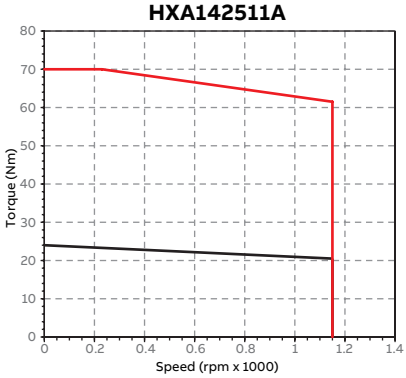
HXA142817A


HX explosion-proof servo motors
Performance curves

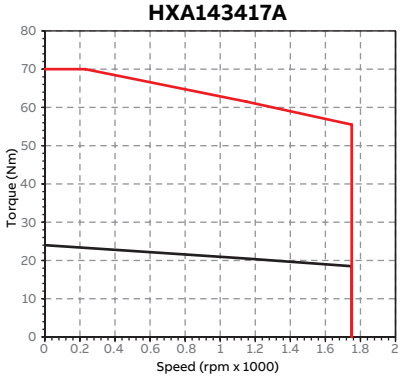
HXA143625A



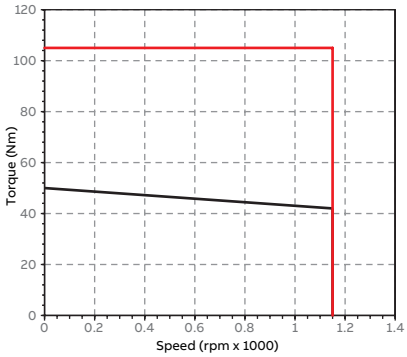
HXA142511A



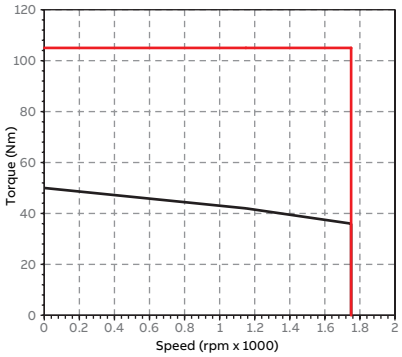
HXA143417A



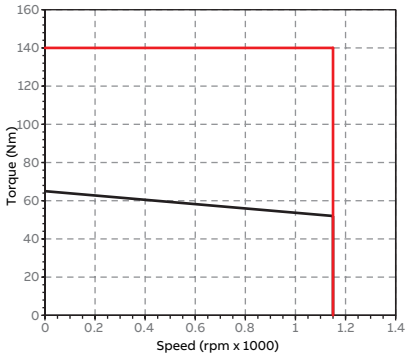
HXA185011A



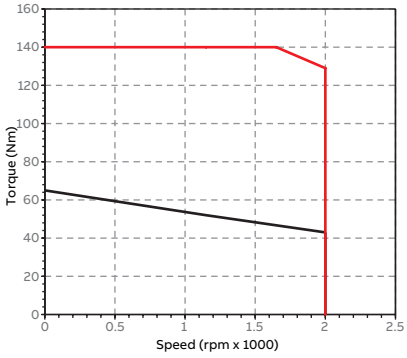
HXA187520A



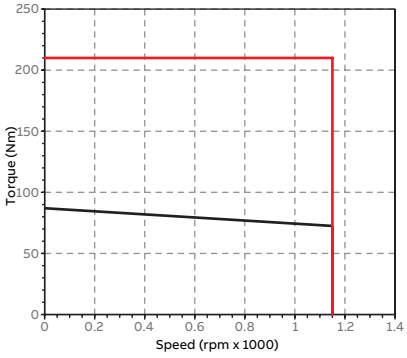
HXA186211A



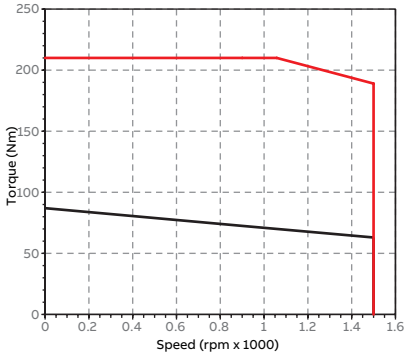
HXA189020A



HXA186809A

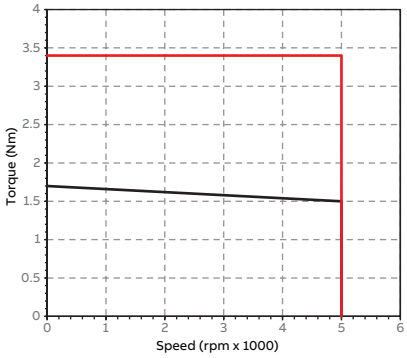


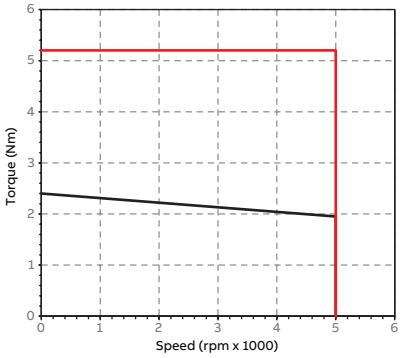
HXA189915A

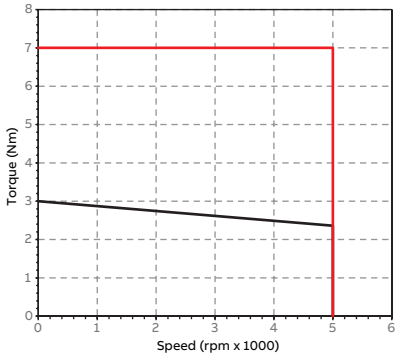


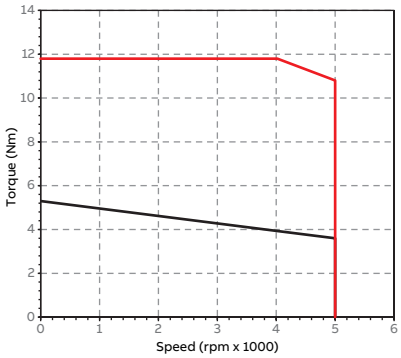
HX explosion-proof servo motors
Performance curves

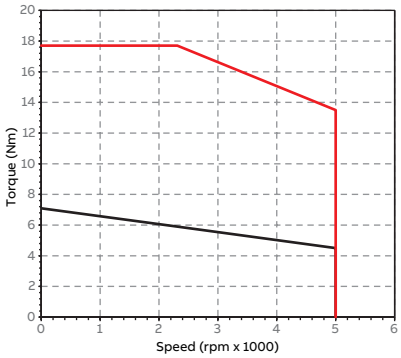
Rated voltage level AC400 V, temperature class T4

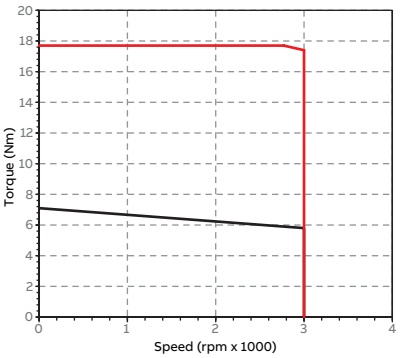
HXA707950B


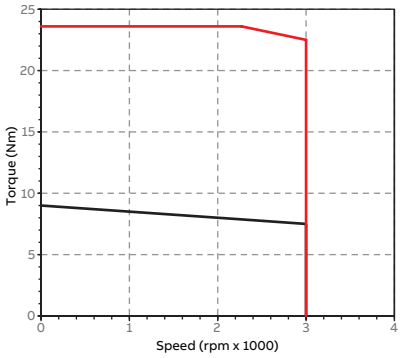
HXA701050B


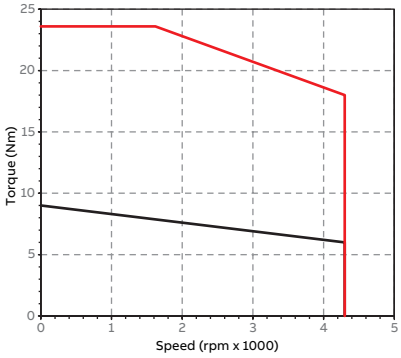
HXA701250B


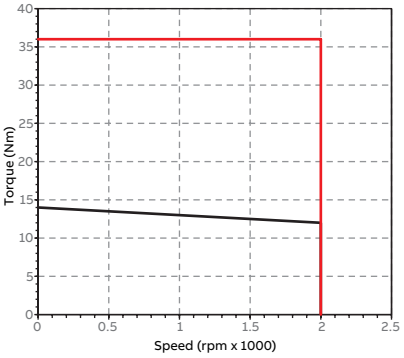
HXA101850B


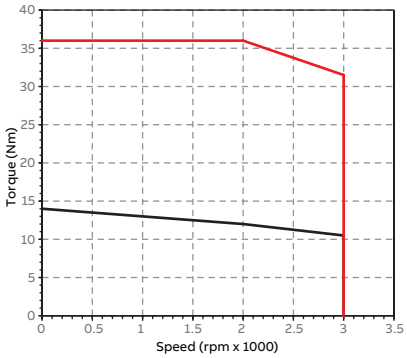
HXA102350B


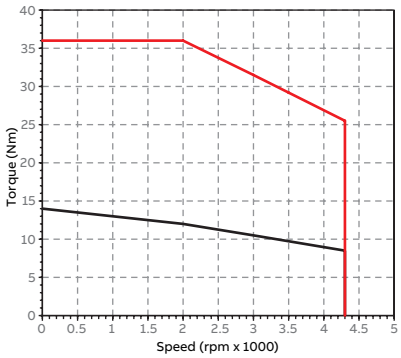
HXA101830B


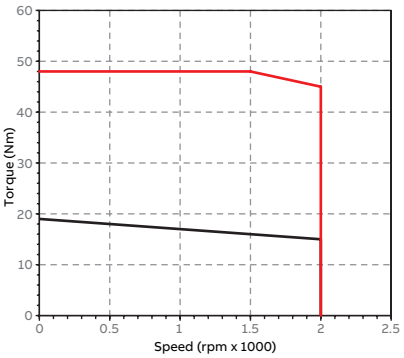
HXA102330B


HXA102943B


HXA142520B


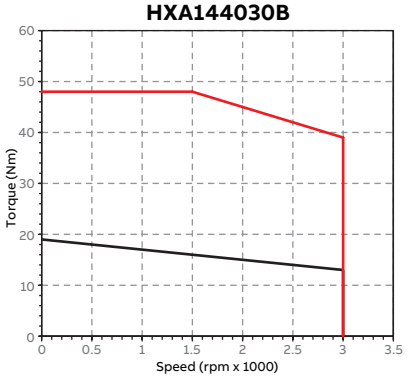
HXA143230B


HXA143843B


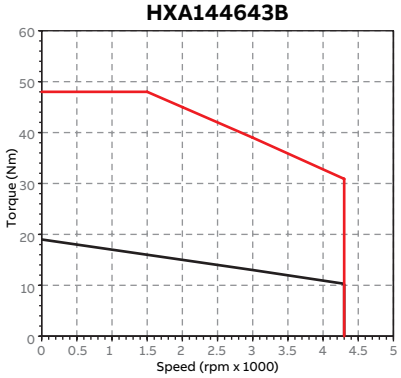
HXA143120B


HX explosion-proof servo motors
Performance curves

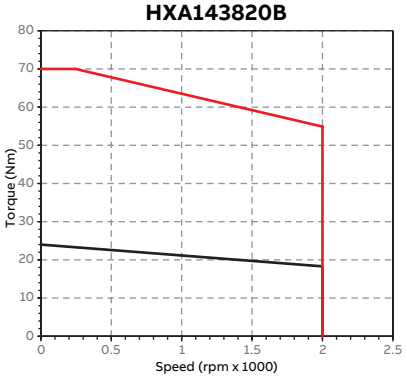
HXA144030B



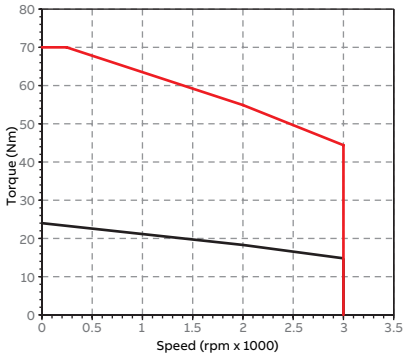
HXA144643B



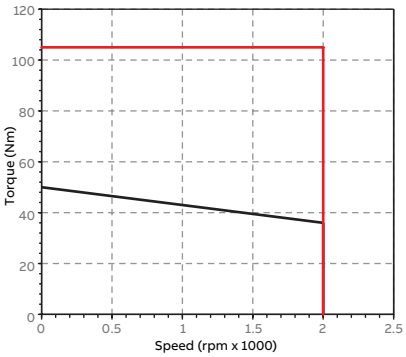
HXA143820B



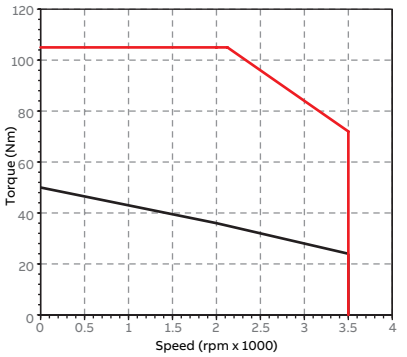
HXA144630B



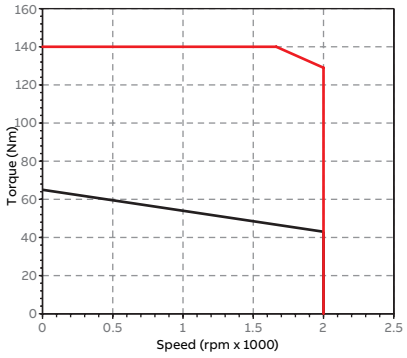
HXA187520B



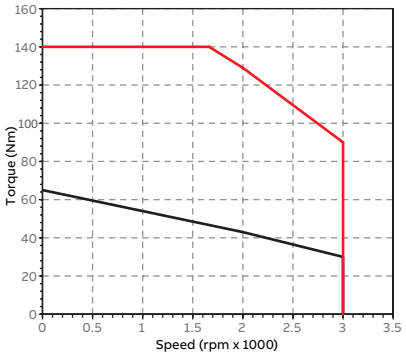
HXA188735B



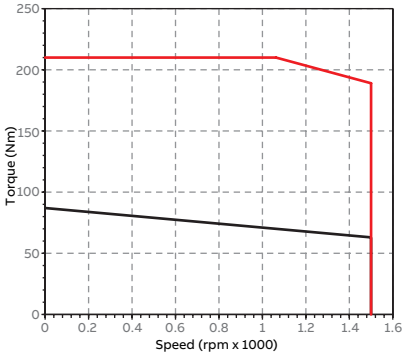
HXA189020B



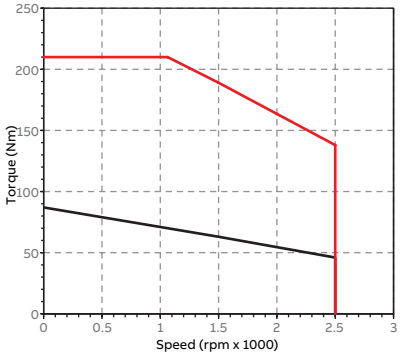
HXA189430B



HXA189815B



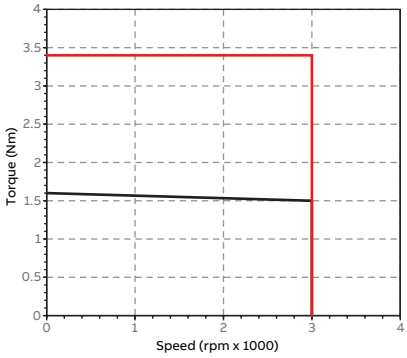
HXA181225B



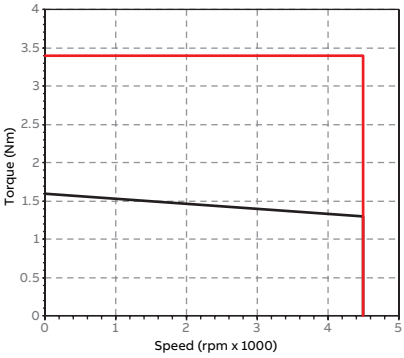
HX explosion-proof servo motors
Performance curves

Rated voltage level AC230 V, temperature class T5

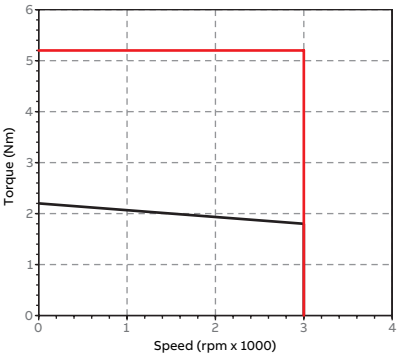
HXA704730A



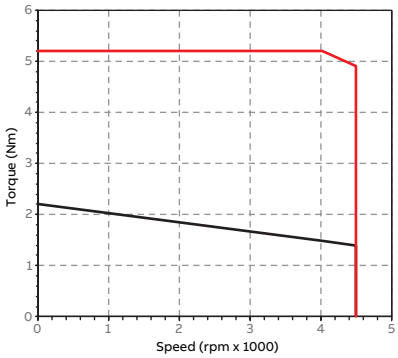
HXA706145A



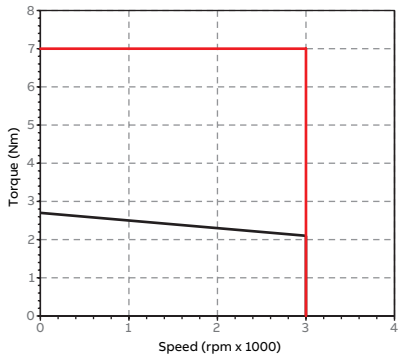
HXA705730A



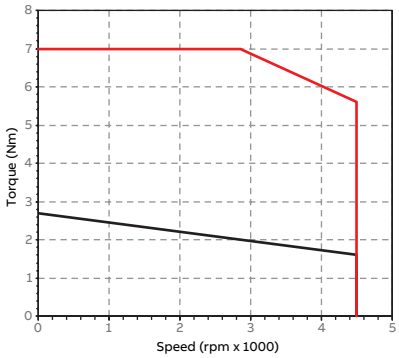
HXA706645A



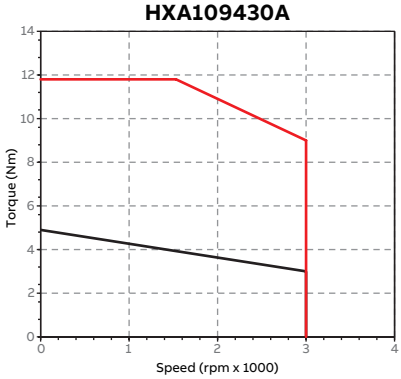
HXA706630A



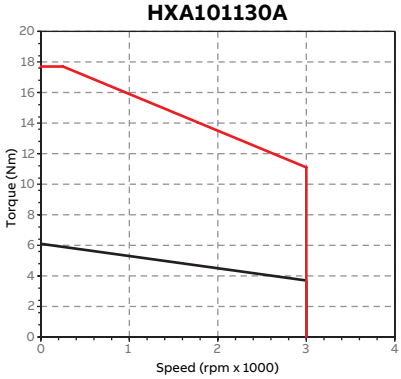
HXA707545A



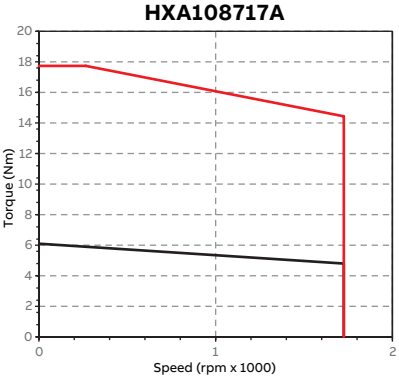
HXA109430A



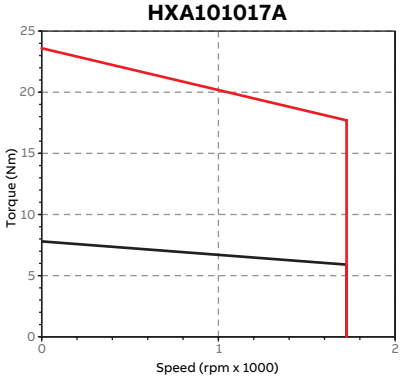
HXA101130A



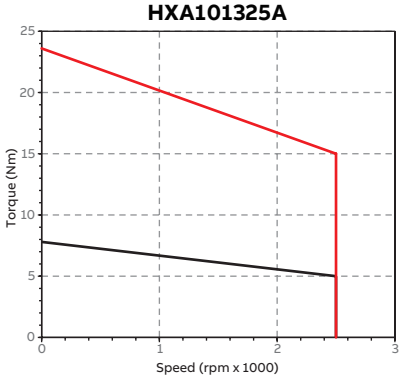
HXA108717A



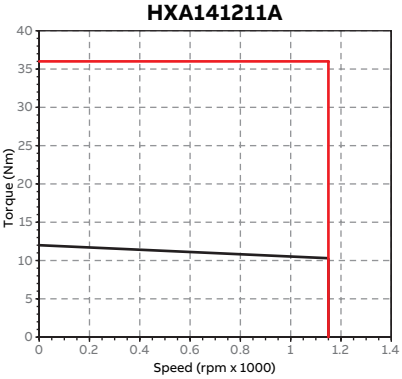
HXA101017A



HXA101325A

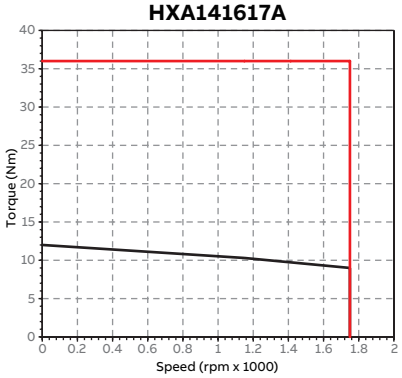


HXA141211A

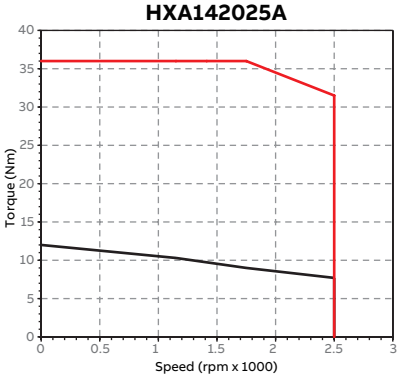


HX explosion-proof servo motors
Performance curves

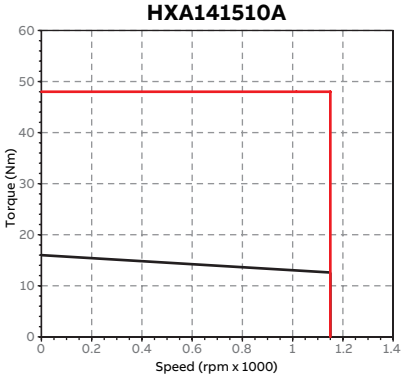
HXA141617A



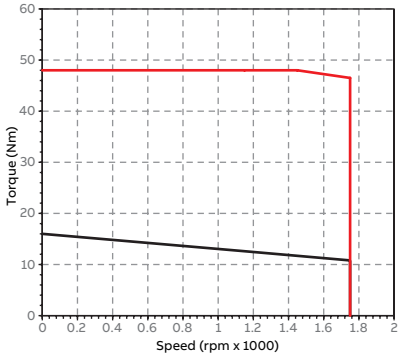
HXA142025A



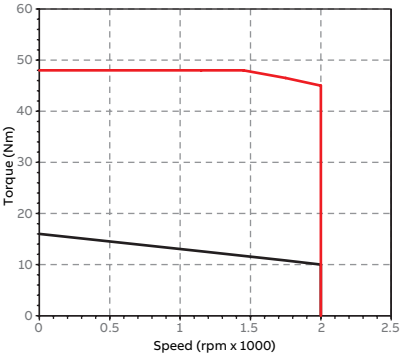
HXA141510A



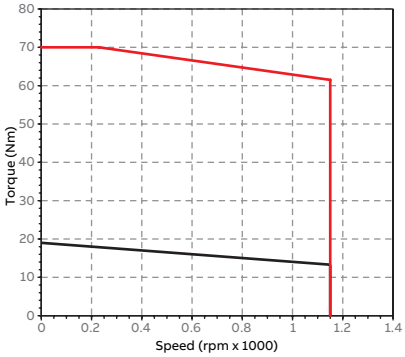
HXA141917A



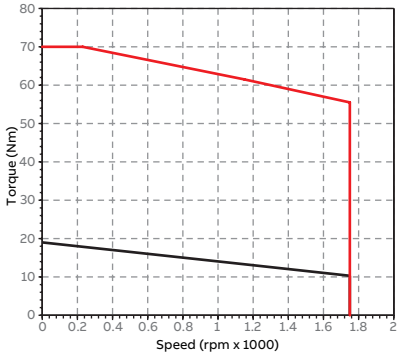
HXA142020A



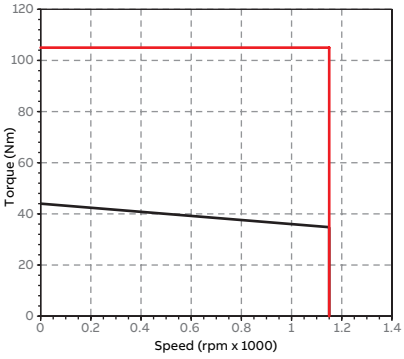
HXA141611A



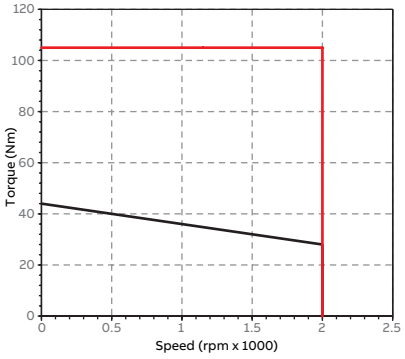
HXA141817A



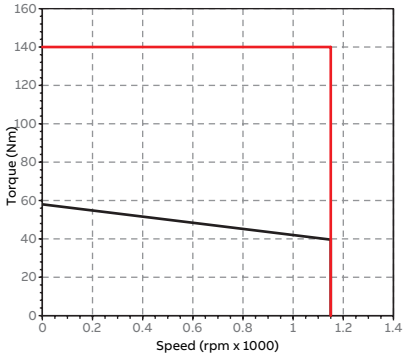
HXA184111A



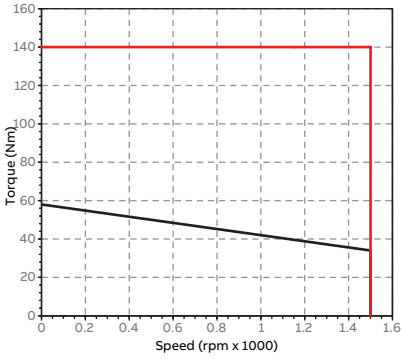
HXA185820A



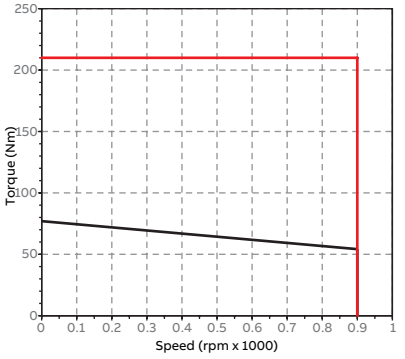
HXA184711A



HXA185315A

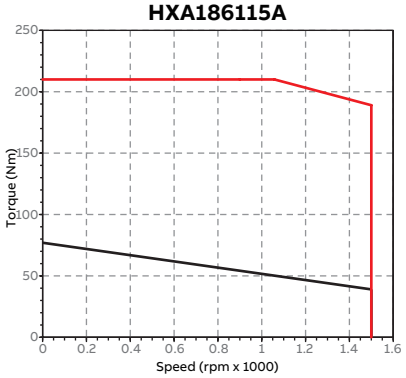


HXA185109A



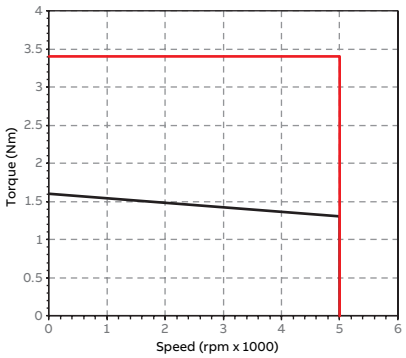
HX explosion-proof servo motors
Performance curves

HXA186115A

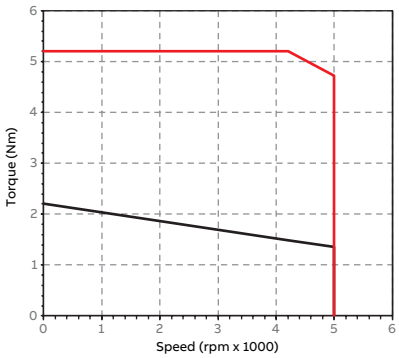


Rated voltage level AC400 V, temperature class T5

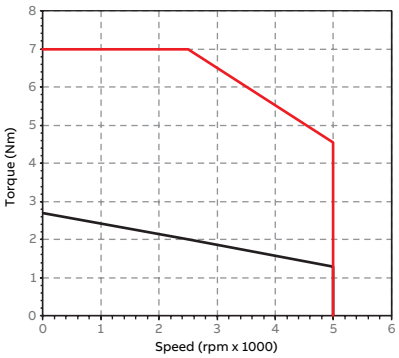
HXA706850B



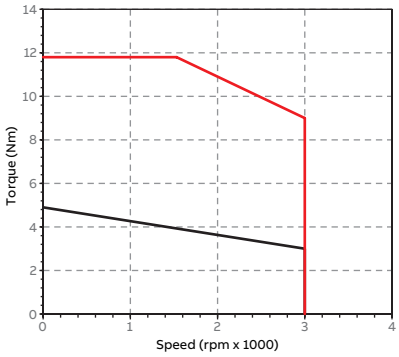
HXA707150B



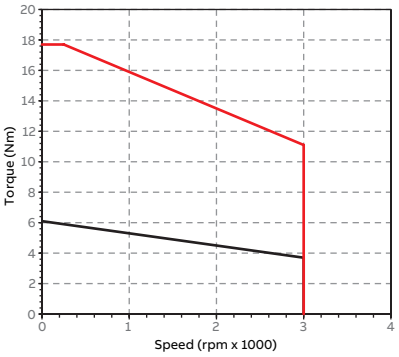
HXA707050B



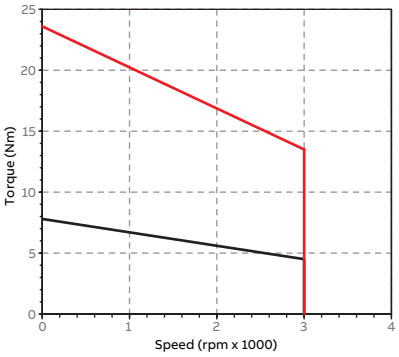
HXA109430B



HXA101130B

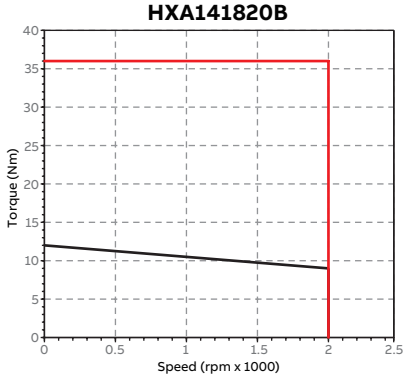


HXA101430B

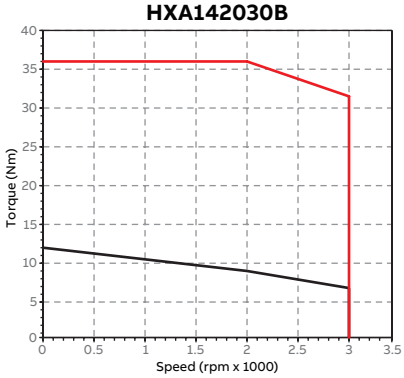


HX explosion-proof servo motors
Performance curves

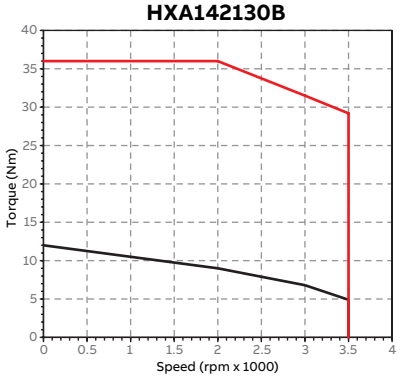
HXA141820B



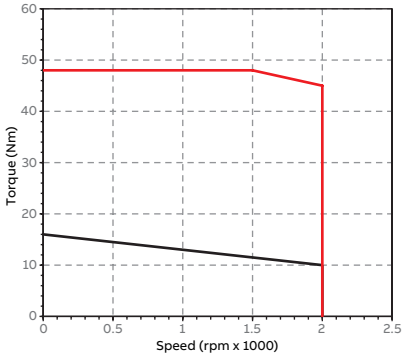
HXA142030B



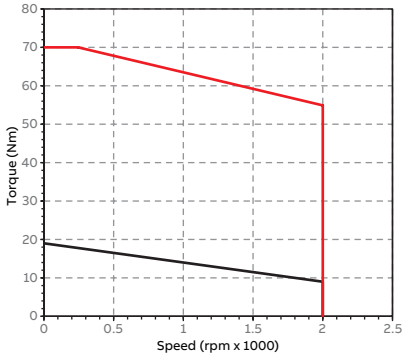
HXA142130B



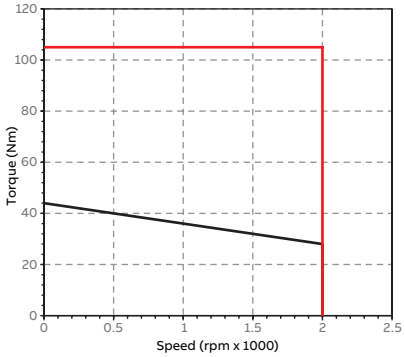
HXA142020B



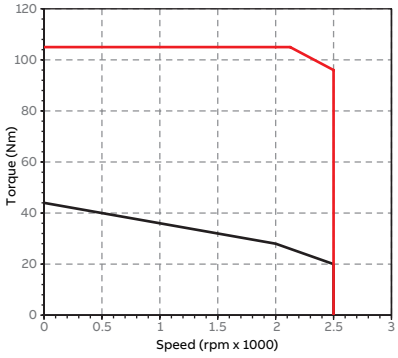
HXA141920B



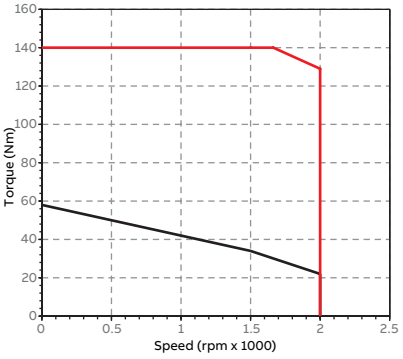
HXA185820B



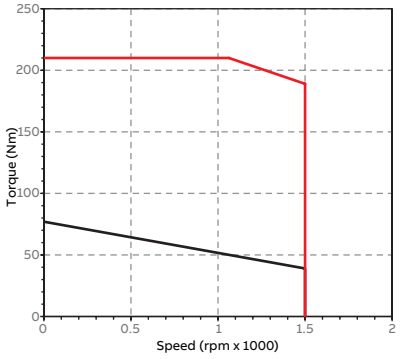
HXA185920B



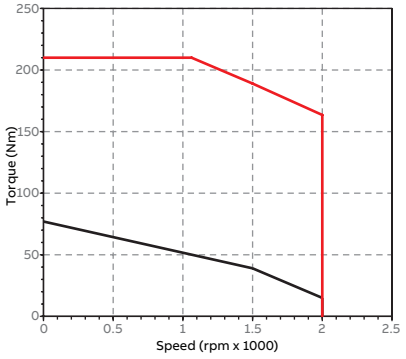
HXA185315B



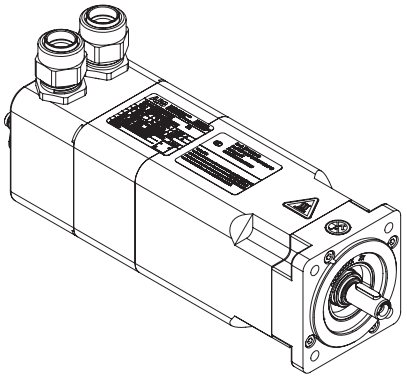
HXA186015B



HXA186115B

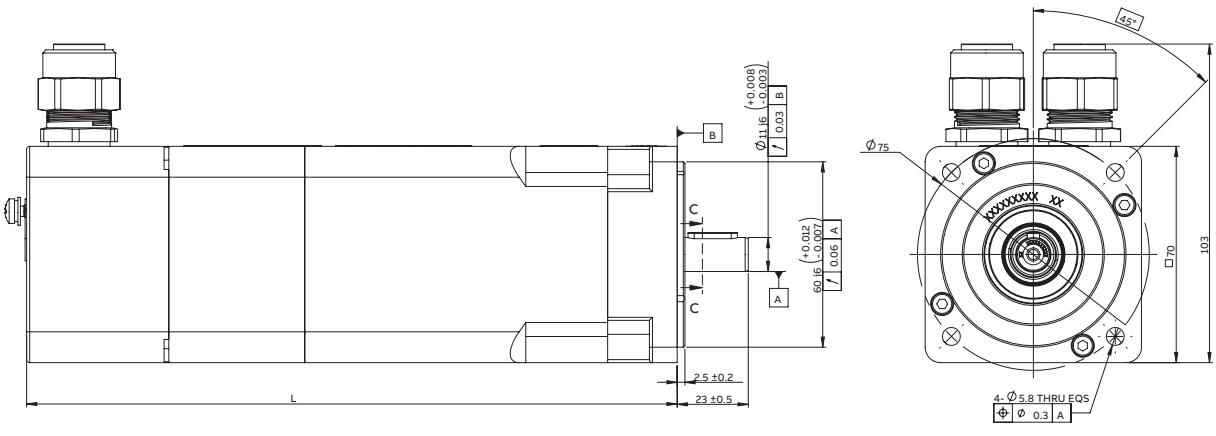


HX explosion-proof servo motors
Motor dimension

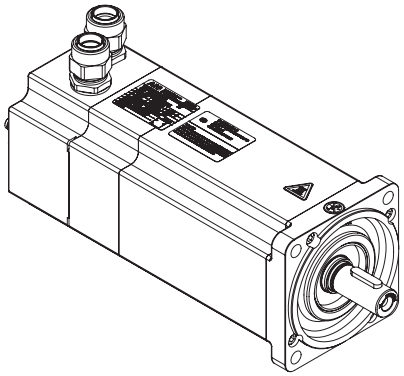


HXA70 layout

Model	Certified model	Motor size model	w/o brake LB [mm]	With brake LB [mm]
HXA705030A	HXA70L1W30	HXA70L1*	192	210.5
HXA707950B				
HXA704730A				
HXA706850B				
HXA707345A	HXA70L1W45			
HXA706145A				
HXA706930A	HXA70L2W30	HXA70L2*	210	228.5
HXA701050B				
HXA705730A				
HXA707150B				
HXA709445A	HXA70L2W45			
HXA706645A				
HXA708530A	HXA70L3W30	HXA70L3*	228	246.5
HXA701250B				
HXA706630A				
HXA707050B				
HXA701145A	HXA70L3W45			
HXA707545A				

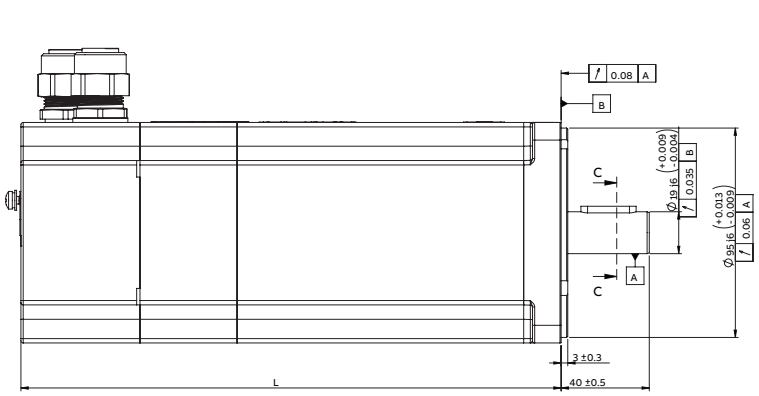


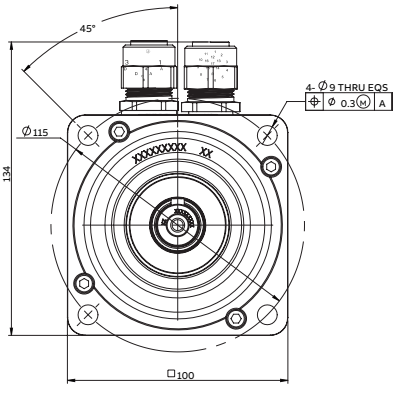
HX explosion-proof servo motors
Motor dimension

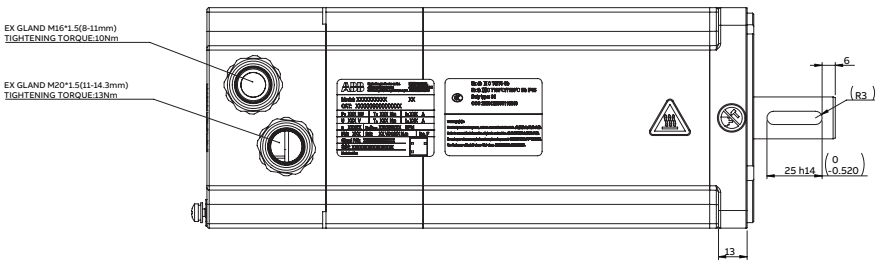


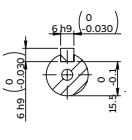
HXA10 layout

Model	Certified model	Motor size model	w/o brake LB [mm]	With brake LB [mm]
HXA101330A	HXA10L1W30	HXA10L1*	220	245
HXA101850B				
HXA109430A				
HXA109430B				
HXA101745A	HXA10L1W45			
HXA101117A	HXA10L2W17	HXA10L2*	242	267
HXA101830B				
HXA108717A				
HXA101130B				
HXA101830A	HXA10L2W30			
HXA102350B				
HXA101130A				
HXA102245A	HXA10L2W45			
HXA101417A	HXA10L3W30	HXA10L3*	264	289
HXA102330B				
HXA101017A				
HXA101430B				
HXA102025A	HXA10L3W43			
HXA102943B				
HXA101325A				

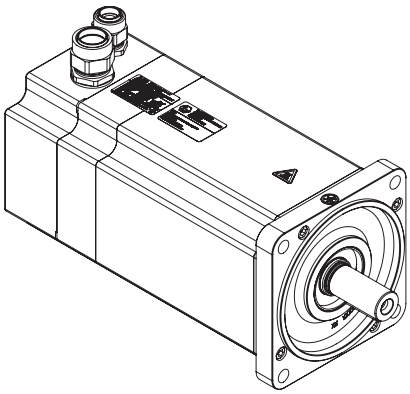






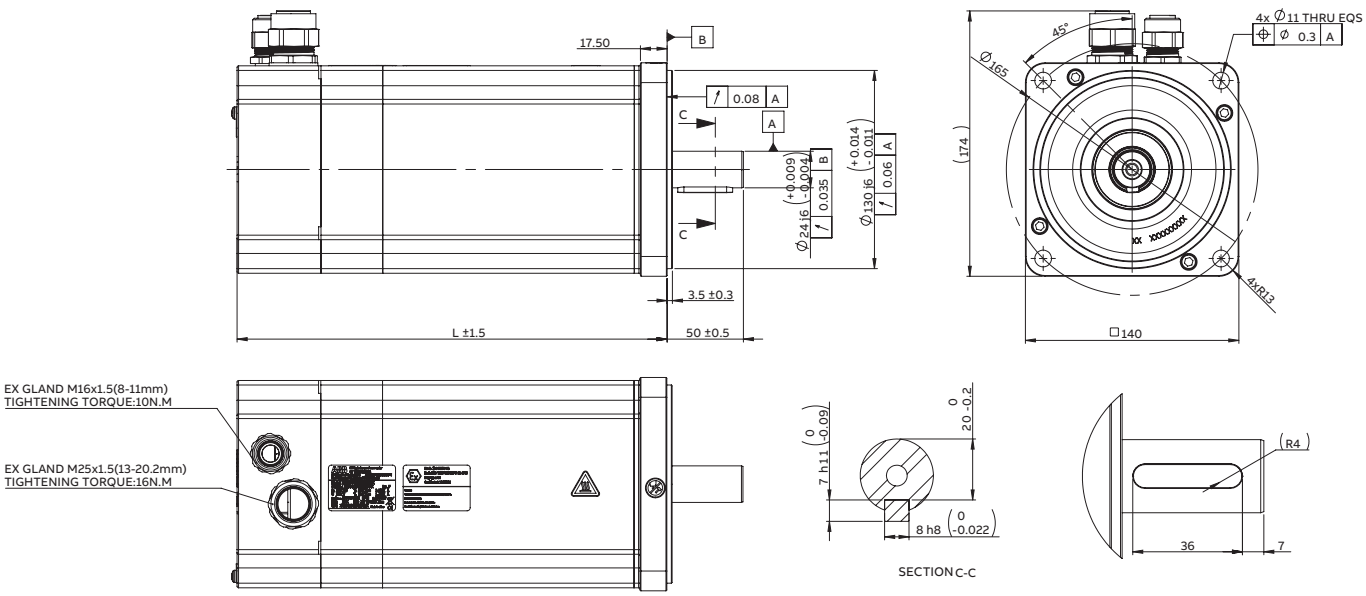


HX explosion-proof servo motors
Motor dimension

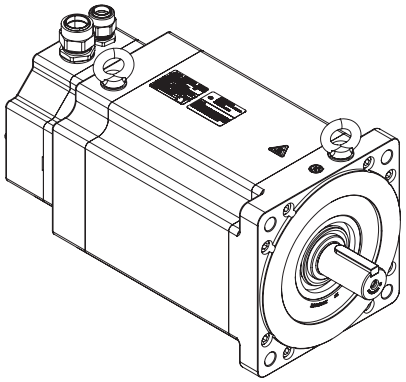


HXA14 layout

Model	Certified model	Motor size model	w/o brake LB [mm]	With brake LB [mm]
HXA141511A	HXA14L1W20	HXA14L1*	239.5	264.5
HXA142520B				
HXA141211A				
HXA141820B				
HXA142217A	HXA14L1W30			
HXA143230B				
HXA141617A				
HXA142030B				
HXA142725A	HXA14L1W43			
HXA143843B				
HXA142025A				
HXA142130B				
HXA142011A	HXA14L2W20	HXA14L2*	257	282
HXA143120B				
HXA141510A				
HXA142020B				
HXA142817A	HXA14L2W30			
HXA144030B				
HXA141917A				
HXA143625A	HXA14L2W43			
HXA144643B				
HXA142020A				
HXA142511A	HXA14L3W20	HXA14L3*	292	317
HXA143820B				
HXA141611A				
HXA141920B				
HXA143417A	HXA14L3W30			
HXA144630B				
HXA141817A				

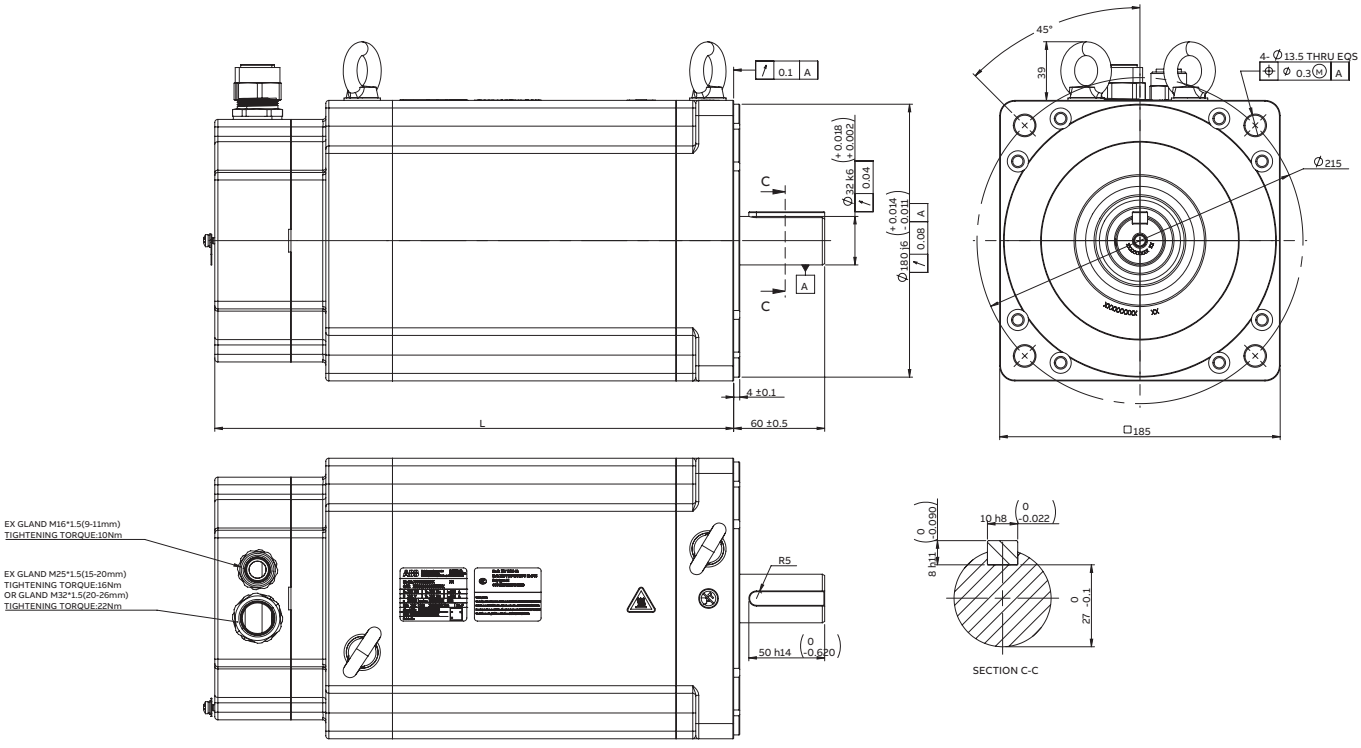


HX explosion-proof servo motors
Motor dimension



HXA18 layout

Model	Certified model	Motor size model	w/o brake LB [mm]	With brake LB [mm]
HXA185011A	HXA18L1W20	HXA18L1*	325	342
HXA187520B				
HXA184111A				
HXA185820B				
HXA187520A	HXA18L1W35			
HXA188735B				
HXA185820A				
HXA185920B				
HXA186211A	HXA18L2W20	HXA18L2*	354	371
HXA189020B				
HXA184711A				
HXA185315B				
HXA189020A	HXA18L2W30			
HXA189430B				
HXA185315A				
HXA186809A	HXA18L3W15	HXA18L3*	412	429
HXA189815B				
HXA185109A				
HXA186015B				
HXA189915A	HXA18L3W25			
HXA181225B				
HXA186115A				
HXA186115B				

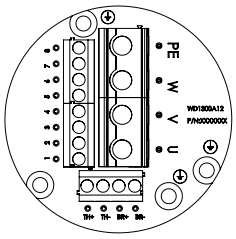


HX explosion-proof servo motors
Interface definition

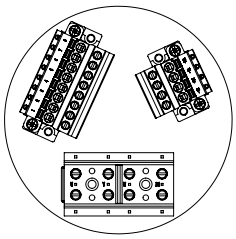
—

Power and Feedback interface – HXA70/10/14/18 [*1]

HXA70/10/14



HXA18

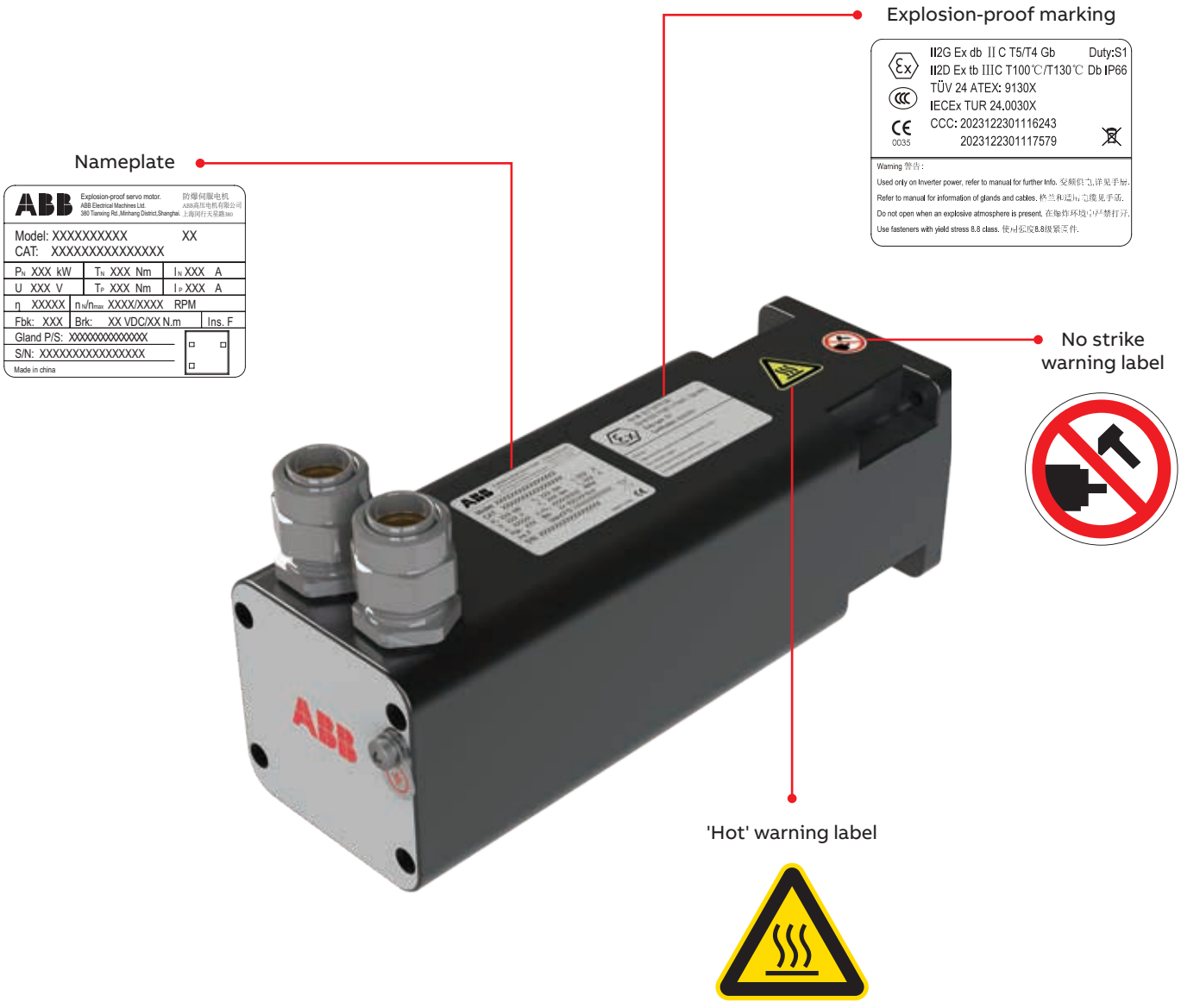


Power interface		
Pin	**Definition**	
U	U	
V	V	
W	W	
PE	Ground	
TH+	Thermistor	
TH-	Thermistor	
BR+	Brake (optional)	
BR-	Brake (optional)	
Feedback interface		
Pin	**Resolver**	**Hiperface**
1	R1 (REF+)	Us
2	R2 (REF-)	GND
3	S1 (COS+)	Data+
4	S3 (COS-)	Data-
5	S4 (SIN-)	SIN+
6	S2 (SIN+)	SIN-
7	-	COS+
8	-	COS-

Notes: *1, The cable and interface connection with an Allen key opening the rear cover of the motor.

HX explosion-proof servo motors
Nameplate and identifiers

HX series motor is accompanied with nameplate, explosion-proof marking, hot warning, no strike warning



HY explosion-proof servo motors
Product highlights

The HY series is ABB high-performance explosion-proof servo motor product series that is based on the same advanced platform and launched after the HDS AC permanent magnet servo motor family. With the safety-enhanced type and enclosure-equipped type explosion protection design, HY series is suitable for explosion-proof applications that require explosion protection certification and can ensure the safe operation of the product in gas and dust explosion–proof environments. The explosion-proof performance complies with standards, with CCC explosion-proof markings as Ex ec IIC T4 Gc and Ex tb IIIC T130°C Db IP65, and ATEX markings as II 3 G Ex ec IIC T4 Gc and II 3 D Ex tc IIIC T130˚C Dc IP65.

—
High torque density and power density: reduced volume and weight.

—
In accordance with the energy efficiency standard GB 30253, all models are of energy efficiency level 1.

—
Low cogging torque and torque ripple: excellent performance at low speed and system control. Fast dynamic response, accurate rotor balance.

—
Outstanding overload performance: 3 times peak torque, 4 times mechanical overload capacity.

—

Brake optional. Resolvers are standard accessories. Cable kits are available, or you can purchase standard cable connectors.

—

Epoxy resin potting technology on complete stator: compact size and better heat dissipation

—

High-precision machining technology, more precise engagement between the flange and rotating shaft to ensure less noise and vibration.

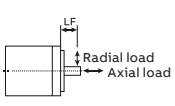
—

Explosion-proof double certification system, ATEX and CCC explosion-proof certification.

HY explosion-proof servo motors
Data sheet

Frame size		HYA65	HYA10		HYA13		HYA18		
Model		**5030A**	**1030A**	**1730A**	**1620B**	**2820B**	**5020B**	**6520B**	**8020B**
Rated power	**kW**	**0.5**	**1.0**	**1.7**	**1.6**	**2.8**	**5.0**	**6.5**	**8.0**
General									
Input voltage	V	230	230	230	400	400	400	400	400
Rated torque	N·m	1.6	3.2	5.3	7.5	13.4	24	31	38.5
Peak torque	N·m	4.5	9.6	16.5	22.5	45	75	105	135
Continuous stall torque	N·m	1.8	4	7	7.8	17	29	41	50
Rated current	A_{rms}	4.3	5.6	9.1	7	10.8	15.3	20.2	24.2
Peak current	A	14.7	20	36.2	27.8	42.4	48.8	68.5	95
Continuous stall current	A	4.4	6.7	11.4	7.1	12.7	18	25.7	30
Rated speed	rpm	3000	3000	3000	2000	2000	2000	2000	2000
Maximum speed [1]	rpm	5000	4000	4000	4000	4000	3500	3500	3500
Maximum continuous power	kW	0.54	1.0	1.7	1.9	3.2	5.1	7.1	8.5
Speed at maximum continuous power	rpm	4000	3000	3000	3000	3000	2500	2500	2500
Electrical									
Torque constant [2]	N·m/A	0.44	0.68	0.69	1.22	1.4	1.75	1.74	1.75
Voltage constant	V_{rms}/krpm	26.4	41.3	41.8	73.5	84.7	105.9	105.1	105.9
Line resistance	ohms	1.45	1.1	0.65	1.6	0.58	0.36	0.19	0.13
Line inductance	mH	6.4	7.54	5.15	12.3	6.13	5.9	3.9	2.9
Electrical time constant	ms	4.4	6.9	7.9	7.7	10.5	16.5	20.2	22.2
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	0.41	1.44	1.98	5.06	10.74	51.7	70.6	89.2
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.38	1.31	1.85	4.06	9.74	44.6	63.5	82.1
Mechanical time constant	ms	0.3	0.3	0.2	0.4	0.3	0.5	0.4	0.3
Number of poles	p	10	10	10	10	10	10	10	10
Motor weight with brake	kg	2.88	5.47	6.27	8.6	12.2	23.4	28.1	32.6
Motor weight w/o brake	kg	2.55	4.71	5.51	6.65	10.25	19.7	24.4	28.9
Thermal time constant	min	17	28	23	49	54	45	58	56
Maximum radial load (@LF [3])	N	420 (@30 mm)	550 (@30 mm)		600 (@40 mm)	700 (@40 mm)		1900 (@65 mm)	
Maximum axial load [3]	N	150	150		270	350		600	
Ambient									
Insulation class	-	F	F		F			F	
Operating temperature	℃	-20…40	-20…40		-20…40			-20…40	
Operating humidity	%	5~95 (no dews)	5~95 (no dews)		5~95 (no dews)			5~95 (no dews)	
Storage temperature	℃	-40…50	-40…50		-40…50			-40…50	
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.47	0.58	0.58	0.87	0.87	1.06	1.06	1.06
Power	W	11.4	14	14	20.8	20.8	25.3	25.3	25.3
Static torque	N·m (min)	2.0	4.5	4.5	18	18	55	55	55
Pull-in time	ms (max)	40	80	80	145	145	60	60	60
Release time	ms (max)	60	20	20	40	40	200	200	200

Notes: 1) The max speed in applications shall be co-decided by the input voltage and the output frequency range and the output frequency range of the drive, feedback encoder type, etc. For higher speed applications, please contact ABB.
2) The torque constant decreases in a non-linear manner as the torque increases, the values are considered valid until approximately 2 times cont. stall torque.
3) The allowable load of the shaft is shown in the figure below. In mechanical design, radial and axial loads in servo motor operation should be prevented from exceeding the values in the table. Values are based on an estimate of the combined load capacity of bearing at rated speed. For detailed bearing load capacity data, please contact ABB.



HY explosion-proof servo motors
Performance curves

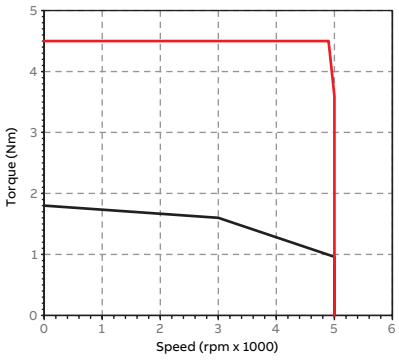
Motor performance curves and operation areas

The operation area of HDS servo motors is defined by performance curves in a 2-dimensional plane with coordinates of output torque and rotation speed. The performance curves of each type divide the operation area into continuous operation area and intermittent operation area.

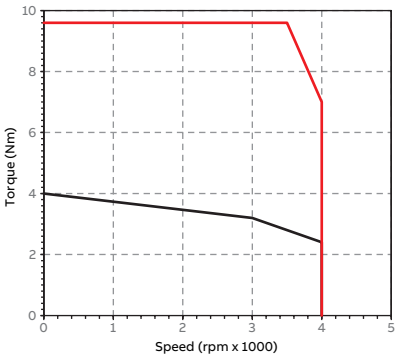
- Continuous operation area: the area where the motor could operate for a long period without over-heating. In the performance curves provided below, the black-colored, lower-positioned curve is the continuous performance curve. The area contained under this curve is the continuous operation area.
- Intermittent operation area: the area over the continuous area, in which motor can run for a short period of time as in overload mode. In the performance curves provided below, the red-colored curves with input voltage marked (110 VAC, 230 VAC, 400 VAC or 460 VAC) are the peak performance curves. The areas between a specific peak curve and the continuous curve is the intermittent operation area by the corresponding input voltage marked. The time allowed to run a motor in the intermittent operation area is decided comprehensively by the operating environment, ventilation conditions and the drive capacity, etc.

Rated voltage level AC230 V, temperature class T4

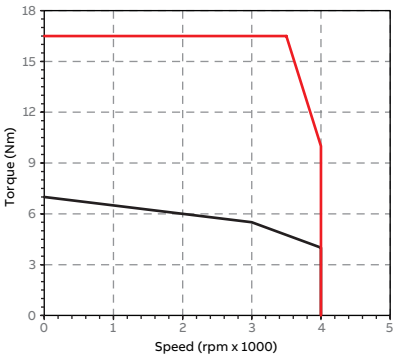
HYA655030A



HYA101030A



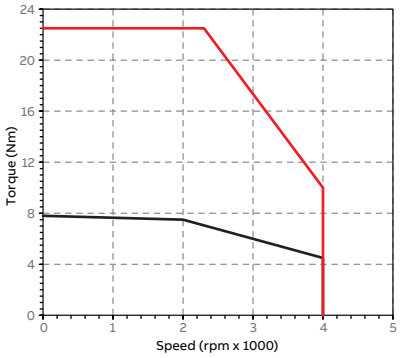
HYA101730A



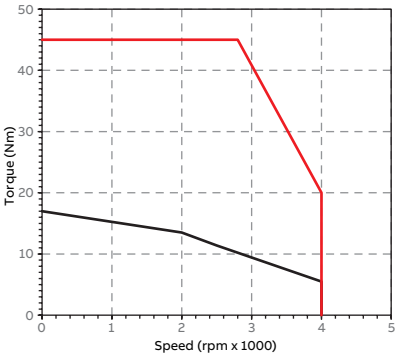
HY explosion-proof servo motors
Performance curves

Rated voltage level AC400 V, temperature class T4

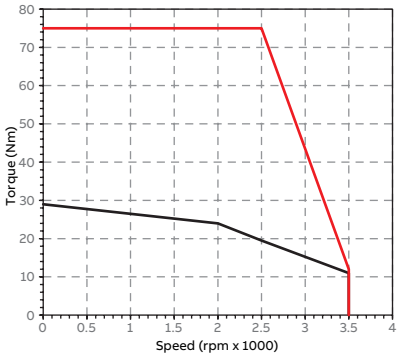
HYA131620B



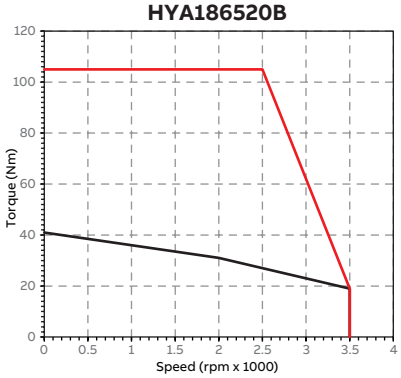
HYA132820B



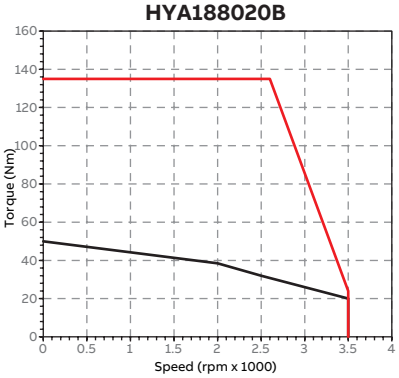
HYA185020B



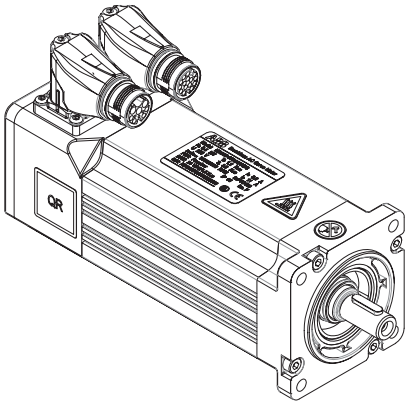
HYA186520B



HYA188020B

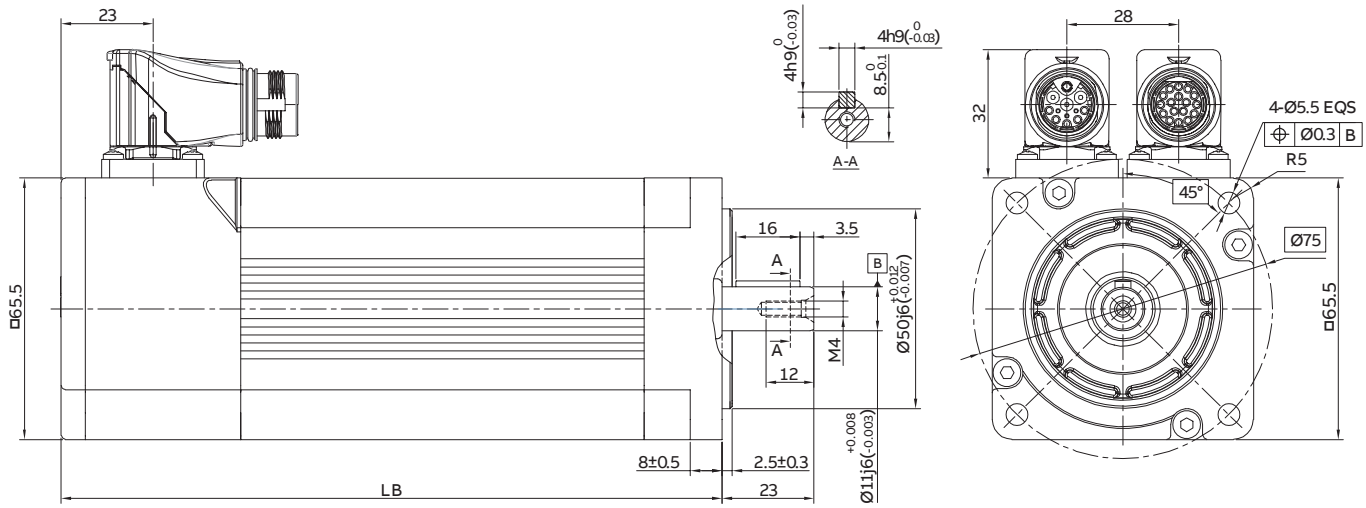


HY explosion-proof servo motors
Motor dimension

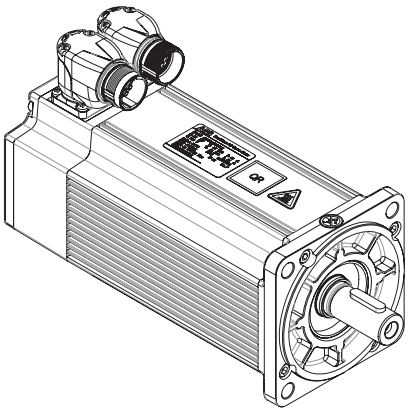


HYA65 layout

Model	LB [mm]
HYA655030A	183.5

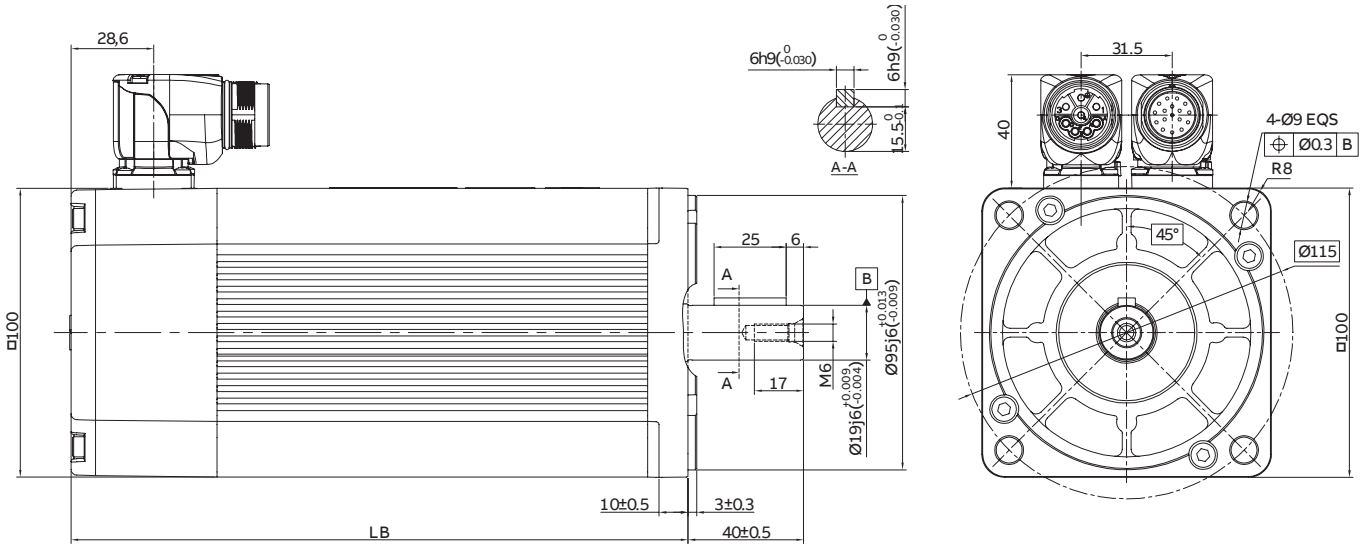


HY explosion-proof servo motors
Motor dimension

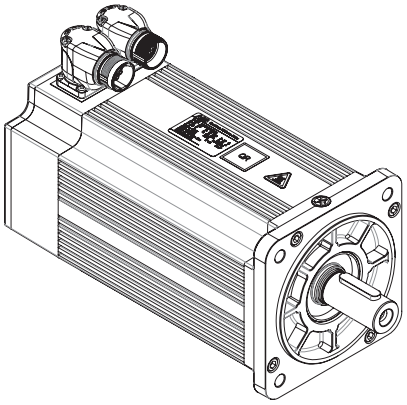


HYA10 layout

Model	LB [mm]
HYA101030A	213.5
HYA101730A	237.5

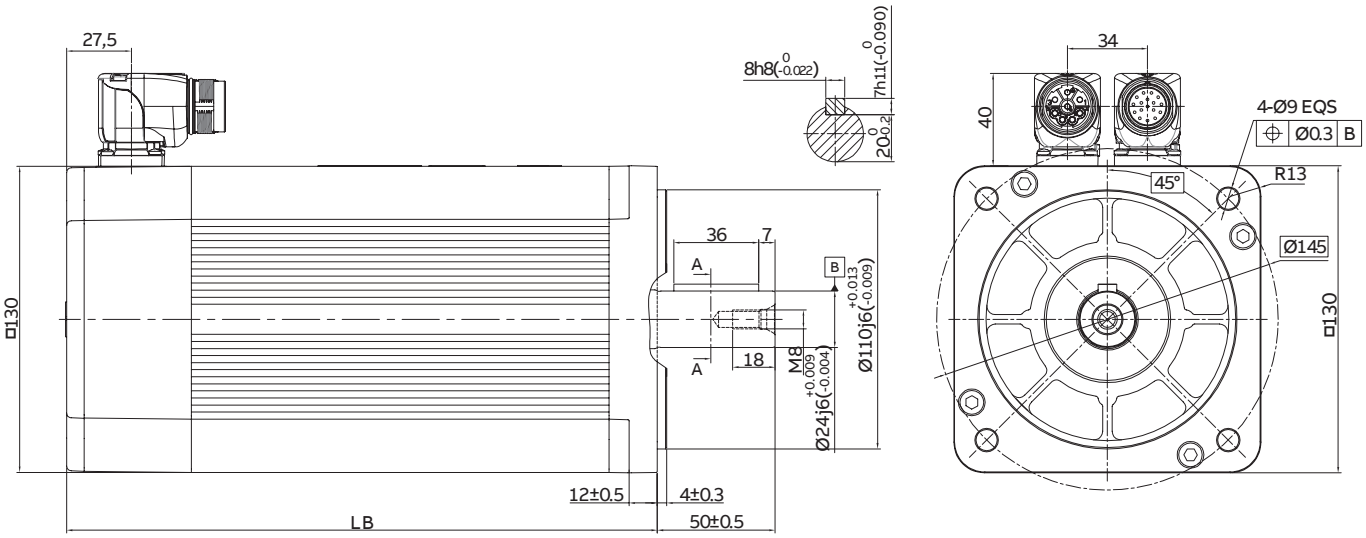


HY explosion-proof servo motors
Motor dimension

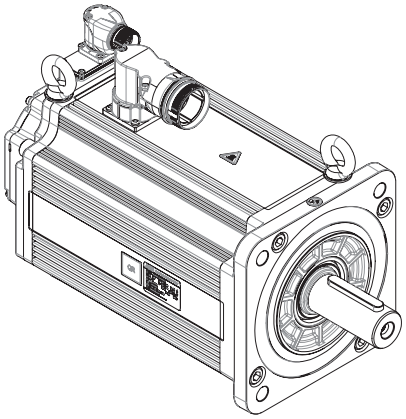


HYA13 layout

Model	LB [mm]
HYA131620B	207
HYA132820B	251

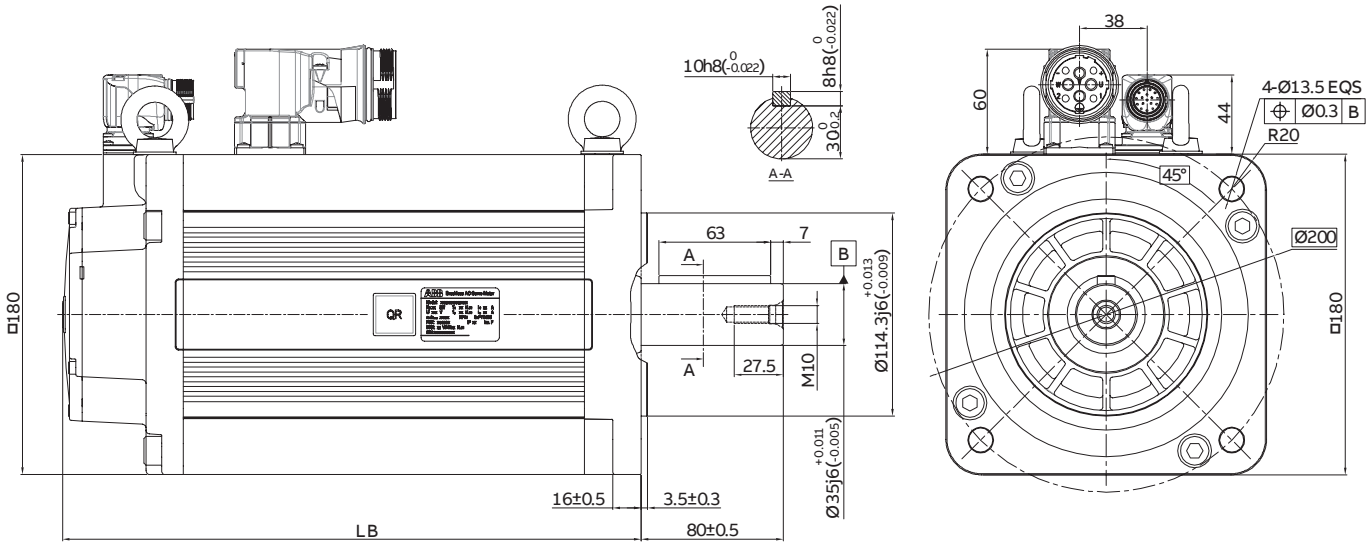


HY explosion-proof servo motors
Motor dimension



HYA18 layout

Model	LB [mm]
HYA185020B	297
HYA186520B	326
HYA188020B	355

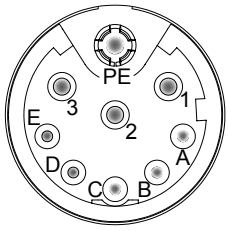


HY explosion-proof servo motors
Interface definition

Power interface - HYA65/10/13/18

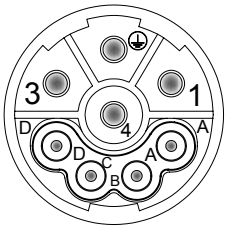
Dual cable

M17 power connector



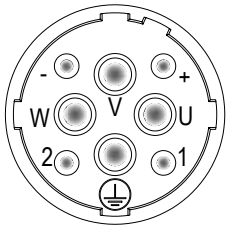
HYA65	
Pin	**Definition**
1	U
2	V
3	W
PE	Ground
A	Thermistor
B	Thermistor
C	Brake (optional)
D	Brake (optional)
E	-

M23 power connector



HYA10/13	
Pin	**Definition**
1	U
2	Ground
3	W
4	V
A	Thermistor
B	Thermistor
C	Brake (optional)
D	Brake (optional)

M40 power connector

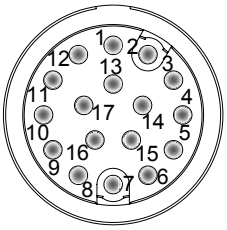


HYA18	
Pin	**Definition**
U	U
V	V
W	W
PE	Ground
1	Thermistor
2	Thermistor
+	Brake (optional)
-	Brake (optional)

Feedback interface - HYA65/10/13/18

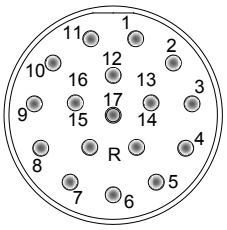
Resolver

M17 signal connectors



HYA65	
Pin	**Definition**
1	R1 (REF+)
2	R2 (REF-)
3	S1 (COS+)
4	S3 (COS-)
5	S4 (SIN-)
6	S2 (SIN+)
7~17	-

M23 signal connectors



HYA10/13/18	
Pin	**Definition**
1	R1 (REF+)
2	R2 (REF-)
3	S1 (COS+)
4	S3 (COS-)
5	S4 (SIN-)
6	S2 (SIN+)
7~17	-

HY explosion-proof servo motors
Nameplate and identifiers

HY series motor is accompanied with nameplate, explosion-proof marking, QR code, hot warning, no strike warning and grounding markings.

Besides the parameters on the nameplate, details of the motor could be learnt by scanning QR code.

Service environment

Standard environment conditions for operation of HX and HY series explosion-proof servo motors

- Ambient temperature: -20 ~ 40℃
- Altitude: ≤1000 m
- Air pressure: 86 ~ 106 kPa
- Humidity: 5 ~ 95% (no dews)

If the ambient temperature is higher than 40℃ , or altitude higher than 1000 m, please refer to the derating principles below. If any other conditions fall out of the above range, please contact ABB.

Cooling condition and derating

The performance specifications of HDS series servo motors provided in this catalog are obtained at an ambient temperature of 40°C, an altitude below 1,000 and with heat dissipation panel (aluminum alloy, dimensions [*1] listed in the table below) equipped. If actual operation environment does not meet these conditions, derating shall be considered in light of specific heat dissipation conditions.

Motor flange (mm)	HXA70/HYA65	HXA10/HYA10	HXA14/HYA13	HXA18/HYA18
Heat dissipation panel dimensions L*W*H (mm)	250*250*6	300*300*8	390*390*10	380*380*8 (two panels)

In derating scenarios, the allowable torque/power of the motor shall be determined according to the table below [*1] (when ambient temperature> 40°C or installation altitude > 1000 m). When the temperature value is not an integral multiple of 5°C or the installation altitude value is not an integral multiple of 500m, allowable torque/power should be determined using linear interpolation method or based on the next integral multiple.

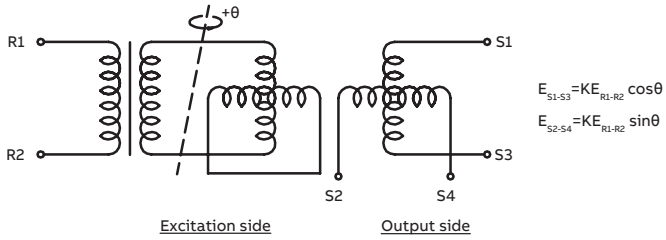
Installation altitude (m)	Ambient temperature (°C)				
	<30	40	45	50	55
1000	1.07	1.00	0.96	0.92	0.87
1500	1.04	0.97	0.93	0.89	0.84
2000	1.00	0.94	0.90	0.86	0.82
2500	0.96	0.90	0.86	0.83	0.78
3000	0.92	0.86	0.82	0.79	0.75
3500	0.88	0.82	0.79	0.75	0.71
4000	0.82	0.77	0.74	0.71	0.67
4500	0.76	0.72	0.70	0.67	0.63
5000	0.69	0.67	0.65	0.62	0.58

Notes: *1, If proper capacity derating operations are not done when motor's bearable load is exceeded, the servo motor will be overheated or damaged.

Product information
Feedback & Thermal protection

Resolver

Seeing from the mounting side, +θ is in counter-clockwise.



Input voltage	AC 5 Vrms/4 kHz
Input current	40 mA max
Transformer ratio	0.5±10%
Number of pole-pairs	1
Electrical error	6’ max (mechanical angle)
Phase displacement	0±10° (electrical angle)
Insulation resistance	DC500 V, ≥100 MΩ
Operating temperature	-40°C ~+155°C
Maximum speed	6000 rpm (HXA10/14/18, HYA10/13/18)
	20000 rpm (HXA70, HYA65)

Hiperface absolute encoder

Input voltage	DC +7 ~ +12 V
Input current	60 mA max (idle load)
Sine/cosine periods per revolution	128
Bits per revolution *1	19 bit (with 12-bit interpolation of the sine/cosine signals)
Recordable rotation number	1 rotation (single-turn)
	4096 rotation (multi-turn)
Memory	1792 Bytes
Protocol	HIPERFACE®
Data transmission type	RS 485
Digital position output frequency	0 ~ 65 kHz
Maximum speed	12000 rpm (single-turn)
	9000 rpm (multi-turn)
Direction of rotation	CW (seeing from the mounting side)
Operating temperature	-20°C ~ +110°C

Notes: *1, The resolution of Hiperface encoder is co-decided by sine/cosine periods per revolution and the interpolation of the sine/cosine signals.

Thermal protection

The HX series uses 3 x PTC 155 thermistors, while the HY series uses 3 x PTC 140 thermistors. The thermistors are connected in series to protect the 3-phase windings of the motor.

Features of 3xPTC155		Features of 3xPTC140	
Operating temperature	155°C ±5°C	Operating temperature	140°C ±5°C
Resistance at 25°C	≤300Ω	Resistance at 25°C	≤300Ω
Resistance below 135°C	≤750Ω	Resistance below 135°C	≤1650 Ω
Resistance at 150°C	≤1650Ω	Resistance at 145°C	≥3990Ω
Resistance at 160°C	≥3990Ω	Resistance at 155°C	≥12kΩ

Ordering information
HX and HY explosion-proof servo motors

H	X	A	7	0	5	0	3	0	A	R	0	N	K	0

HDS

Ex Zones
X: Zone 1/Zone 21
Y: Zone 2/Zone 21/
Zone 22

Cooling
A: Fully enclosed self-cooling

Flange size
65: 65 mm
70: 70 mm
10: 100 mm
13: 130 mm
14: 140 mm
18: 180 mm (HY), 185 mm (HX)

Power
1st 2 digits of power value by kW
See motor parameter table

Rated speed
15: 1500 rpm
17: 1725 rpm
20: 2000 rpm
25: 2500 rpm
30: 3000 rpm
45: 4500 rpm

Design voltage
A: Three-phase 230 VAC
B: Three-phase 400 VAC

Feedback type
R0: Resolver (HX, HY)
D4: Absolute encoder, multi-turn, Hiperface SKM36, 128 sine/cosine periods per revolution, 4096 revolutions measurable (HX)

Brake
N: Without brake
B: With brake

Accessories
K: Explosion-proof gland, keyway, with oil seal (HX)
3: Angled connector, key shaft, with oil seal (HY)

Design version
0: Standard

Ordering information
Cable

Finished cable type description

E	P	C	B	0	5	0	7	0	0	9	P

HX Finished cables

Cable length
050: 5 m
100: 10 m
150: 15 m
200: 20 m
300: 30 m

Motor type - Power cable
70: HXA70
10: HXA10
14: HXA14, HXA18

Motor type - Feedback cable
10: HXA70/10/14/18

Power cable - maximum current
09: 9 A (HXA70)
15: 15 A (HXA10)
20: 20 A (HXA14/18)
35: 35 A (HXA14/18)

Feedback cable – feedback type
F3: Resolver (MotiFlex e180)
F3X: Resolver (MicroFlex e190)
F6: Absolute encoder, Hiperface multi-turn (MotiFlex e180, MicroFlex e190)

Type
P: Power cable, with brake
M: Power cable, without brake
F: Feedback cable

Ordering information
Cable

Finished cable type description

C	B	L	C	0	5	0	0	6	F	3	F

HY Finished cables

Cable length
050: 5 m
100: 10 m
150: 15 m
200: 20 m
300v30 m

Motor type - Power cable
06: HYA65
13: HYA10, HYA13
18: HYA18

Motor type - Feedback cable
06: HYA65
13: HYA10, HYA13, HYA18

Power cable - maximum current
06: 6 A
12: 12 A
20: 20 A
35: 35 A

Feedback cable – feedback type
F3: Resolver (MotiFlex e180)
F3X: Resolver (MicroFlex e190)

Type
P: Power cable, with brake
M: Power cable, without brake
F: Feedback cable

Drive
MicroFlex e190

MicroFlex e190 technical specifications

Type designation	Current at PWM switching frequency 8 kHz (A)					
	Low speed output [1] (<2 Hz)		200% 3 s		300% 3 s	
	$I2_n$	$I2_{max}$	$I2_n$	$I2_{max}$	$I2_n$	$I2_{max}$
MFE190-04UD-03A0-2	3.00	4.50	3.00	6.00	2.50	7.50
MFE190-04UD-06A0-2	6.00	9.00	6.00	12.00	5.25	15.75
MFE190-04UD-090A-2	9.00	13.50	9.00	18.00	7.50	22.50

Ratings	
MicroFlex e190 has two different overload modes for user selection: 200%, 300%	
$I2_n$	Rated output current in selected overload mode. The rms current when continuous working should be lower than this.
$I2_{max}$	Max output current (last 3 s) in one duty cycle under the selected overload mode.
[1] The maximum overload current between 0 Hz and 2 Hz is 150% of rated current	

Technical specifications	
Voltage/Frequency	1-phase 200 to 240 V AC ± 10% 3-phase 200 to 240 V AC ± 10% 270...340 V DC ± 10% 50/60 Hz ± 5%
Efficiency	> 95%
PWM switching frequency/control	8 kHz/Space Vector Modulation
Motor types	Asynchronous motors (standard induction, servo), synchronous motors (servo, high torque), linear servo motors
Braking resistor (external)	0.25 kW nominal/2.7 kW peak 10% duty: 57 Ω nominal (min 39 Ω, max 100 Ω)
Product compliance	
Approvals	CE, cUL/UL, RoHS, UKCA, TüV functional safety
EMC	EN61800-3 C2 emissions with external filter (30 m motor cable limit)
Environmental limits	
Operating temperature	0 ~ 55°C no derating
Altitude	0...2000 m (6560 ft) above sea level Note: when above 1000 m (3280 ft), with derating of 1%/100 m
Degree of Protection	IP20 (cabinet installation)
Safety	
Safe torque-off (STO)	Two-channel STO function comply with the IEC 61800-5-2, SIL3 PLe as standard

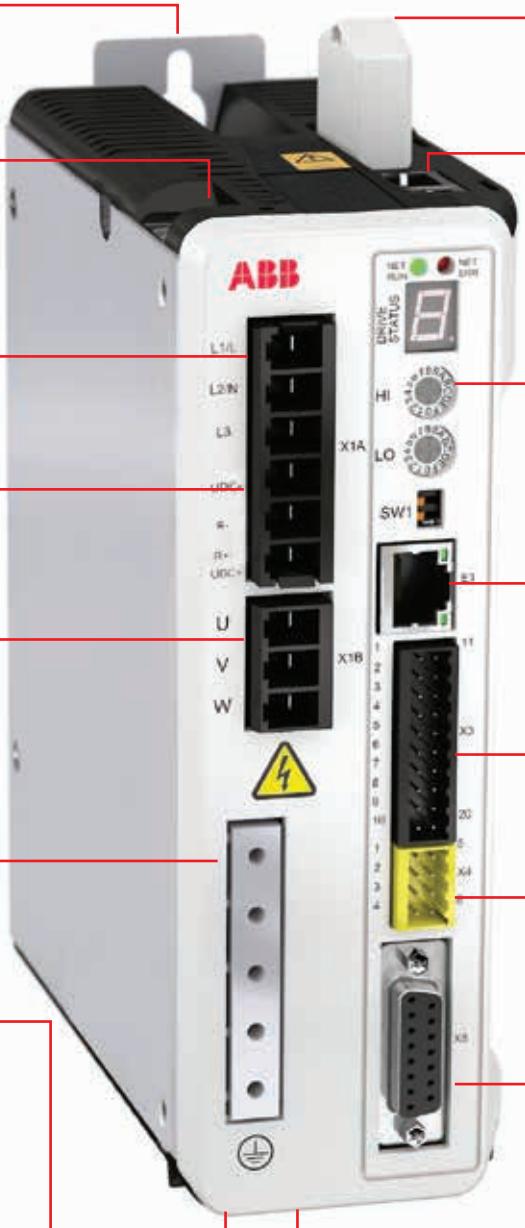
Drive
MicroFlex e190

MicroFlex e190 technical specifications

Technical specifications	
I/O (Standard)	
4 × digital inputs	Opto-isolated 24 V 2 inputs can be programmed as fast position latch inputs 1 µs (feedback device dependent) or pulse direction inputs (max 2 MHz)
3 × digital outputs	Opto-isolated 24 V 100 mA per channel Configurable/programmable function
1 × ±10 V analog input 1 × ±10 V analog output	12 bit . Analog speed/torque control with emulated encoder output
I/O (Expansion option)	
I/O and serial port expansion option	OPT-SIO-1 provides an additional 6 DIs, 4 DOs, 1 AI and a serial port (2-wire RS485 or 4-wire RS422). User installed via the expansion interface of the e190. Note when installed it increases the drive width by approximately 2 mm.
Communications	
EtherCAT (E2=In, E1=Out)	2 RJ45 interfaces for daisy chain connection LED indication built into RJ45 sockets Drive profile: DS402/IEC61800-7-1
POWERLINK (E2、E1)	2 RJ45 interfaces for daisy chain connection LED indication built into RJ45 sockets Drive profile: DS402/IEC61800-7-1
PROFINET IO (E2、E1)	2 RJ45 interfaces for daisy chain connection Communication with the PROFINET masters Drive operation can be customized with a Mint program
EtherNet/IP (E3 port only)	Drive operation can be customized with a Mint program Note: CIP™ sync not supported
Modbus TCP/IP (E3 port only)	Communication with PLCs/Industrial PCs/IO/ HMIs. Drive operation can be customized with a Mint program
E3 Ethernet configuration port	Mint PC support tool Mint WorkBench
7-segment status display	For error and communications notification to quickly identify problems and minimize downtime
NET RUN&NET ERR LEDs	Indicate EtherCAT status of operation in accordance with EtherCAT Technology Group (ETG) guidelines
Motor feedback	
Universal digital feedback	Incremental encoder + Halls, SSI (Synchronous Serial Interface), EnDat 2.1/2.2, 1V pk-pk SinCos, BiSS-B, SmartAbs, SmartInc, Hiperface (8 V)
Dual encoder input	For line shaft following or dual loop control (position/velocity and commutation) to eliminate mechanical errors
Ethernet and motor encoder feedback interfaces	Highly integrated with minimal latency, optimized for demanding motion applications
Encoder splitter	Provides the motor encoder and the 2nd encoder input interface via the option OPT-MF-200
Resolver	Support by option OPT-MF-201 adapter

Drive
MicroFlex e190

MicroFlex e190 connection



Simple mounting
- 2 key-holes

PE connection for AC supply

AC power 1-phase or 3-phase
- 200...240 V AC 50/60 Hz

DC bus connection and braking resistor connection
- 270...340 V DC

Separate motor power
- Easy to wire
- Easy to isolate the motor during startup/service

EMC/PE plate
- Shield bonding
- Motor PE

24 V control supply
- Maintain communications and position after the AC power is removed

Simulated encoder output/2nd incremental encoder input
- Electronic gearing (line-shaft) or dual-loop feedback operation

Memory unit
- For backing up the configuration information, firmware, and motion programming

Ethernet ports E1 and E2
2 Ethernet ports with LED indicators for:
- EtherCAT
- POWERLINK
- PROFINET IO

Status/Node ID
- 2 LED network status/error indicators
- 7-segment status display
- 2 hex switches for node ID/protocol setting

Ethernet port E3
- Port for drive commissioning
- Modbus TCP/IP (server/client)
- EtherNet/IP

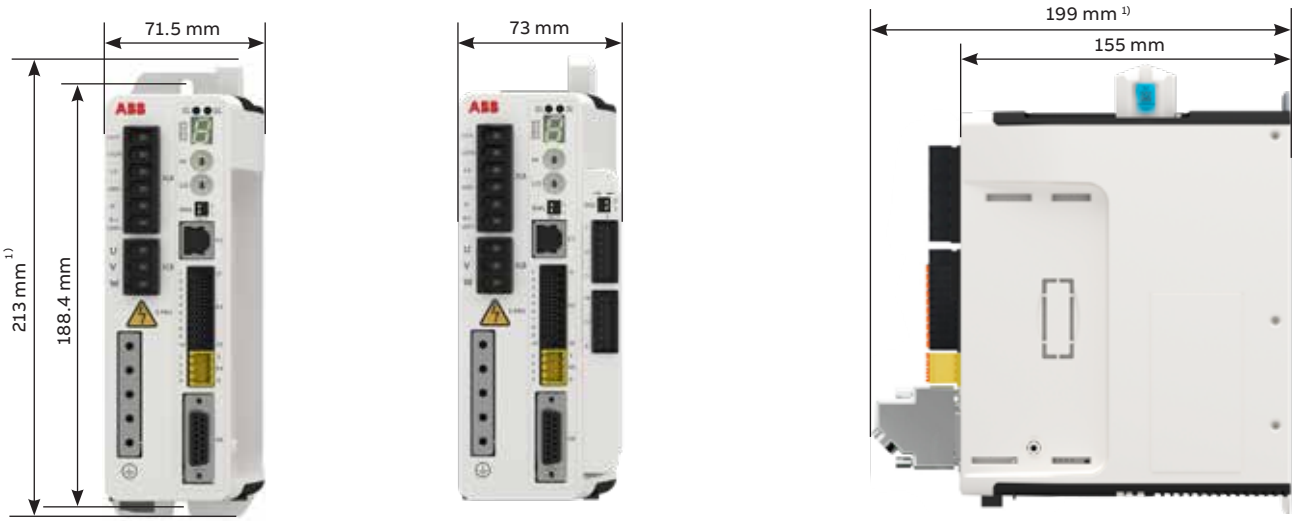
Digital and analog I/O
- 4 DIs, 3 DOs, 1 AI, 1 AO
- Including 2 latch inputs for position registration <1 µs latency
- Expandable via OPT-SIO-1 to a total of 10 DIs, 7 DOs, 2 AIs, 1 AO + serial port 2-wire RS485 or 4-wire RS422

STO PLe SIL 3
- Daisy chain and pulse tolerance
- Allows removal of STO leaving main I/O in-place for system testing

Universal encoder interface
- Incremental (ABZ) + Halls
- 1V pk-pk SinCos, SSI, BiSS-B, EnDat 2.1/2.2
- Smart Inc/Smart Abs and Hiperface
- 5 V/8 V selectable encoder supply
- Resolver support via adapter OPT-MF-201

Drive
MicroFlex e190

MicroFlex e190 dimensions



1) Approximate dimensions. Allow extra space for feedback and other control cables.

MicroFlex e190 accessories

Code	Description
OPT-SIO-1	I/O and serial port expansion option
OPT-MF-201	Resolver adapter - in-line adapter in the D-shell housing
OPT-MF-200	Encoder splitter - simplified the wiring for dual encoder connection

EMC filters

Code	Description		Rated Amps	Leakage current @40 °C	Weight kg (lbs)	Comppatible with MFE190-04UD-		
						03A0-2	06A0-2	09A0-2
OFI-01	Foot-mount filter with pre-drilled drive mounting holes and shielded AC input cable, suitable for all ratings. Saves space and install time	1-phase 230 V AC	20	12	0.72 (1.59)	•	•	•
OFI-02	Compact filter with low leakage current		8	0.7	0.33 (0.73)	•		
OFI-03	Compact filter	3-phase 230 V AC	7	33	0.5 (1.1)	•		
JFI-02	Compact filter		16	33	0.8 (1.76)		•	•

All filters meet EN 61800-3, category C2 with motor cables <50 m

MicroFlex e190 supported accessories and installation methods

Accessories	
Braking chopper	•
Braking resistor	□
AC choke	□
DC choke	-
Mains filter (EMC)/C3	□
Installation features	
Air cooling (fan)	•
Removable connectors Control/Power	• / •
Side by side mounting	•
DIN rail mounting	-
Horizontal mounting	-

• Standard □ External option - Not available

For the ordering information about the accessories, see page 59.

Drive
MotiFlex e180

MotiFlex e180 technical specifications

Type designation	Frame size	Current at PWM switching frequency 4/8 kHz (A)			
		200% 3 s		300% 3 s	
		$I2_n$	$I2_{max}$	$I2_n$	$I2_{max}$
MFE180-04AN-03A0-4	A	3.00	6.00	2.00	6.00
MFE180-04AN-05A0-4	A	4.00	8.00	2.70	8.10
MFE180-04AN-07A0-4	A	4.70	9.40	3.20	9.60
MFE180-04AN-016A-4	B	9.00	18.00	7.00	21.00
MFE180-04AN-024A-4	C	13.50	27.00	10.00	30.00
MFE180-04AN-031A-4	C	21.00	42.00	16.00	48.00
MFE180-04AN-046A-4	C	28.00	56.00	20.00	60.00
MFE180-04AN-060A-4	D	35.00	70.00	25.00	75.00
MFE180-04AN-090A-4	D	55.00	110.00	40.00	120.00

Ratings	
MotiFlex e180 has two different overload modes as user selection: 200%, 300%	
$I2_n$	Rated output current in selected overload mode. The rms current when continuous working should be lower than this.
$I2_{max}$	Max output current (last 3 s) in one duty cycle under the selected overload mode.

Technical specifications	
Supply connection	
AC Supply	3-phase 200 to 480 V AC ± 10% 270...650 V DC ± 10% 50/60 Hz ± 5%
Motor connection	
Voltage	3-phase output voltage
Frequency	0...± 500 Hz
Motor control	Vector
Motor types	Asynchronous motors (standard induction, servo), synchronous motors (servo, high torque), linear servo motors
Switching frequency/control	4 to 8 kHz/Space Vector Modulation
Braking power connection	
Braking chopper	As standard in all types
Braking resistor	External resistor connected to drive
Product compliance	
Approvals	CE, UKCA, cUL/UL
EMC	Category C3 with optional filter (according to EN 61800-3)
Functional safety	Safe torque off (STO according EN 61800-5-2) EN 61508 ed2: SIL 3 EN 62061: SIL CL 3 EN ISO 13849-1: PL e

Drive
MotiFlex e180

MotiFlex e180 technical specifications

Technical specifications	
Environmental limits	
Ambient temperature	
Transport Storage Operation	-40 to +70°C (-40 to +158°F) -40 to +70°C (-40 to +158°F) 0 to +55°C (32 to 131°F), no frost allowed. Note: When above 40°C (104°F), with derating of 2%/1°C
Cooling method	Air-cooled, dry clean air
Altitude	0 to 2000 m (6560 ft) above sea level Note: When above 1000 m (3280 ft), with derating of 1%/100 m (328 ft)
Relative humidity	Max. 95%, no condensation allowed
Degree of protection	IP20 acc. to EN 60529; Open Type acc. to UL 508C
Contamination levels	No conductive dust allowed
Vibration	Sinusoidal vibration (EN 60068-2-6:2008): 2 to 9 Hz: 3.0 mm (0.12'') 9 to 200 Hz: 1 g
Shock	Half sine pulse (IEC 60068-2-27:2008): 10 g for 11 ms
EMC	Category C3 with optional filter (according to EN 61800-3)

Drive
MotiFlex e180

MotiFlex e180 connection

AC power 1-phase or 3-phase
- 200...480 V AC 50/60 Hz

DC supply connection and Braking resistor connection
- 270...650 V DC

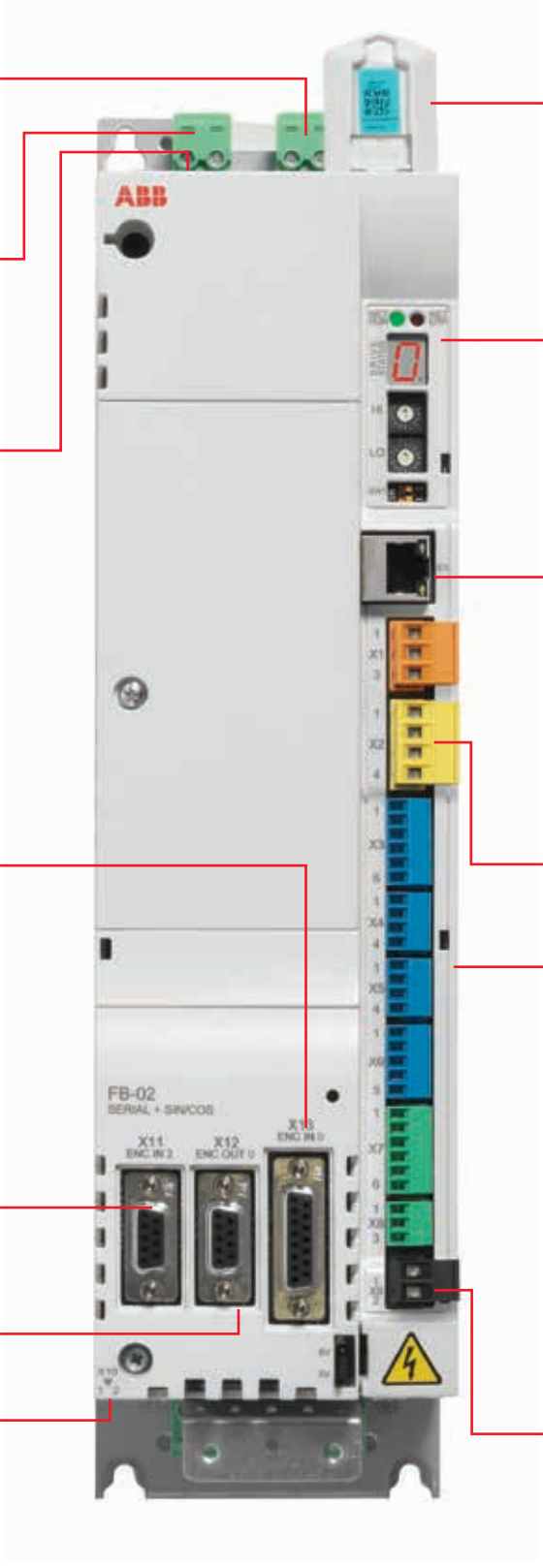
Ethernet ports E1 and E2
2 Ethernet ports with LED indicators for:
- EtherCAT
- POWERLINK
- PROFINET IO

Feedback options
- Serial Encoder + SinCos (1V pk-pk), EnDat 2.1/2.2, SSI, BiSS-B, SmartAbs, SmartInc,Hiperface
- Incremental + Halls
- Resolver
- DSL

Incremental encoder input
- Dual loop or line shaft functions

Simulated encoder output

Motor thermal PTC
(isolated)



Memory unit
- For backing up the configuration information, firmware, and motion programming

Status/Node ID
- 2 LED network status/error indicators
- 7-segment status display
- 2 hex switches for node ID/protocol setting
- 2 × DIP switches comms functions

Ethernet port E3
- Port for drive commissioning
- Modbus TCP/IP (server/client)
- EtherNet/IP
- PROFINET IO*

* Selectable via DIP switch

2 channel STO SIL 3 PL e

Digital and analog I/O
- 2 fast latch inputs (1 micro sec)
- 8 DIs (inc fast latch input)
- 4 DOs
- 2 AIs (12 bit, ±10 V)
- 1 AOs (12 bit, ±10 V)
- 1 Relay out (240 V 2.0 A)

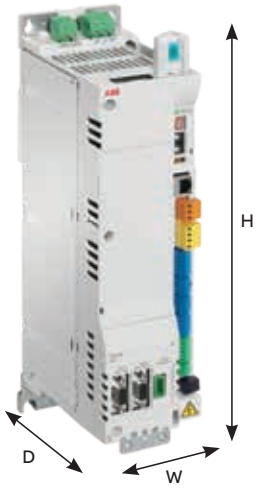
24 V control supply
- Maintain communications and position with AC power removed

Drive
MotiFlex e180

MotiFlex e180 dimensions

Frame	Height (H)	Width (W)	Depth (D)	Weight
	mm	mm	mm	kg
A	364	90	144	3
B	380	100	221	5
C	467	165	223	10
D	467	220	223	17

Note: Height is the maximum measure without clamping plates.
In depth, an additional 50 mm should be reserved for feedback cabling.



MotiFlex e180 accessories

Code	Description
FB-01	Encoder Adaptor, for Incremental + Halls (+L517)
FB-02	Encoder Adaptor, for Serial Encoder + SinCos (1V pk-pk) (+L518)
FB-03	Encoder Adaptor, for Resolver (+L516)
FB-04	Encoder Adaptor, for DSL (Stegmann 2 wire solution) (+L530)

MotiFlex e180 supported accessories and installation methods

Frame size	A	B	C	D
Accessories				
Braking chopper	•	•	•	•
Braking resistor	□	□	□	□
AC choke	□	□	□	□
DC choke	-	-	□	□
Mains filter (EMC) /C3	□	□	□	□
Installation features				
Air cooling (fan)	•	•	•	•
Removable connectors Control/Power	• / •	• / •	• / -	• / -
Side by side mounting	•	•	•	•
DIN rail mounting	•	•	-	-
Horizontal mounting	•	•	•	•

• Standard □ External option - Not available

For the ordering information about the accessories, see page 63.

230 V product package combination

MicroFlex e190 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA705030A	2.3	6	MFE190-04UD-03A0-2	200%	3.0	6.0	1.6	3.4	0.5
				300%	2.5	7.5	1.6	3.4	0.5
HXA707345A	3.1	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	1.6	3.4	0.7
				300%	5.3	15.8	1.6	3.4	0.7
HXA706930A	2.9	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	2.2	5.2	0.7
				300%	5.3	15.8	2.2	5.2	0.7
HXA709445A	3.8	12	MFE190-04UD-06A0-2	200%	6.0	12.0	2.0	5.2	0.9
				300%	5.3	15.8	2.0	5.2	0.9
HXA708530A	3.9	12	MFE190-04UD-06A0-2	200%	6.0	12.0	2.7	7.0	0.9
				300%	5.3	15.8	2.7	7.0	0.9
HXA701145A	5	17	MFE190-04UD-06A0-2	200%	6.0	12.0	2.4	5.6	1.0
				300%	5.3	15.8	2.4	6.8	1.0
			MFE190-04UD-09A0-2	200%	9.0	18.0	2.4	7.0	1.1
				300%	7.5	22.5	2.4	7.0	1.1
HXA101330A	5.4	19.1	MFE190-04UD-06A0-2	200%	6.0	12.0	4.3	8.7	1.3
				300%	5.3	15.8	4.3	10.7	1.3
			MFE190-04UD-09A0-2	200%	9.0	18.0	4.3	11.5	1.3
				300%	7.5	22.5	4.3	11.8	1.3
HXA101745A	8	30.5	MFE190-04UD-09A0-2	200%	9.0	18.0	3.8	8.3	1.7
				300%	7.5	22.5	3.6	10.0	1.6
HXA101830A	8.2	30.5	MFE190-04UD-09A0-2	200%	9.0	18.0	5.8	12.3	1.8
				300%	7.5	22.5	5.3	14.7	1.6
HXA101117A	5	18.5	MFE190-04UD-06A0-2	200%	6.0	12.0	6.3	14.0	1.1
				300%	5.3	15.8	6.3	16.8	1.1
			MFE190-04UD-09A0-2	200%	9.0	18.0	6.3	17.6	1.1
				300%	7.5	22.5	6.3	17.7	1.1
HXA101417A	5.9	22.8	MFE190-04UD-06A0-2	200%	6.0	12.0	8.1	16.0	1.4
				300%	5.3	15.8	7.3	19.7	1.3
			MFE190-04UD-09A0-2	200%	9.0	18.0	8.1	21.4	1.4
				300%	7.5	22.5	8.1	23.5	1.4
HXA707950B	2.1	6	MFE190-04UD-03A0-2	200%	3.0	6.0	1.5	3.4	0.8
				300%	2.5	7.5	1.5	3.4	0.8
HXA701050B	2.6	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	2.0	5.2	1.0
				300%	5.3	15.8	2.0	5.2	1.0
HXA701250B	3.5	12	MFE190-04UD-06A0-2	200%	6.0	12.0	2.4	7.0	1.2
				300%	5.3	15.8	2.4	7.0	1.2
HXA101850B	4.9	19.1	MFE190-04UD-06A0-2	200%	6.0	12.0	3.6	8.5	1.9
				300%	5.3	15.8	3.6	10.8	1.9
			MFE190-04UD-09A0-2	200%	9.0	18.0	3.6	11.5	1.9
				300%	7.5	22.5	3.6	11.8	1.9
HXA102350B	6.8	30.5	MFE190-04UD-09A0-2	200%	9.0	18.0	4.5	11.4	2.4
				300%	7.5	22.5	4.5	14.0	2.4
HXA101830B	5	18.5	MFE190-04UD-06A0-2	200%	6.0	12.0	5.8	13.4	1.8
				300%	5.3	15.8	5.8	16.2	1.8
			MFE190-04UD-09A0-2	200%	9.0	18.0	5.8	17.0	1.8
				300%	7.5	22.5	5.8	17.7	1.8
HXA102330B	5.6	22.8	MFE190-04UD-06A0-2	200%	6.0	12.0	7.5	15.5	2.4
				300%	5.3	15.8	7.1	19.5	2.2
			MFE190-04UD-09A0-2	200%	9.0	18.0	7.5	21.3	2.4
				300%	7.5	22.5	7.5	23.5	2.4
HXA102943B	6.5	36.9	MFE190-04UD-09A0-2	200%	9.0	18.0	6.0	15.8	2.9
				300%	7.5	22.5	6.0	19.0	2.9
HXA141511A	6.7	20.5	MFE190-04UD-09A0-2	200%	9.0	18.0	12.5	31.6	1.50
				300%	7.5	22.5	12.5	36.0	1.50

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

230 V product package combination

MicroFlex e190 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA704730A	1.9	6	MFE190-04UD-03A0-2	200%	3.0	6.0	1.5	3.4	0.5
				300%	2.5	7.5	1.5	3.4	0.5
HXA706145A	2.6	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	1.3	3.4	0.6
				300%	5.3	15.8	1.3	3.4	0.6
HXA705730A	2.3	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	1.8	5.2	0.6
				300%	5.3	15.8	1.8	5.2	0.6
HXA706645A	2.7	12	MFE190-04UD-06A0-2	200%	6.0	12.0	1.4	5.2	0.7
				300%	5.3	15.8	1.4	5.2	0.7
HXA706630A	2.9	12	MFE190-04UD-06A0-2	200%	6.0	12.0	2.1	7.0	0.7
				300%	5.3	15.8	2.1	7.0	0.7
HXA707545A	3.2	17	MFE190-04UD-06A0-2	200%	6.0	12.0	1.6	5.6	0.8
				300%	5.3	15.8	1.6	6.8	0.8
			MFE190-04UD-09A0-2	200%	9.0	18.0	1.6	7.0	0.8
				300%	7.5	22.5	1.6	7.0	0.8
HXA109430A	3.5	19.1	MFE190-04UD-06A0-2	200%	6.0	12.0	3.0	8.7	0.9
				300%	5.3	15.8	3.0	10.7	0.9
			MFE190-04UD-09A0-2	200%	9.0	18.0	3.0	11.5	0.9
				300%	7.5	22.5	3.0	11.8	0.9
HXA101130A	4.9	30.5	MFE190-04UD-09A0-2	200%	9.0	18.0	3.7	12.3	1.2
				300%	7.5	22.5	3.7	14.7	1.2
HXA108717A	3.9	18.5	MFE190-04UD-06A0-2	200%	6.0	12.0	4.8	14.0	0.9
				300%	5.3	15.8	4.8	16.8	0.9
			MFE190-04UD-09A0-2	200%	9.0	18.0	4.8	17.6	0.9
				300%	7.5	22.5	4.8	17.7	0.9
HXA101017A	4.2	22.8	MFE190-04UD-06A0-2	200%	6.0	12.0	5.9	16.0	1.1
				300%	5.3	15.8	5.9	19.7	1.1
			MFE190-04UD-09A0-2	200%	9.0	18.0	8.1	21.4	1.4
				300%	7.5	22.5	8.1	23.5	1.4
HXA101325A	5.8	36.9	MFE190-04UD-09A0-2	200%	9.0	18.0	5.0	14.8	1.3
				300%	7.5	22.5	5.0	17.5	1.3
HXA706850B	1.8	6	MFE190-04UD-03A0-2	200%	3.0	6.0	1.3	3.4	0.7
				300%	2.5	7.5	1.3	3.4	0.7
HXA707150B	1.8	8.5	MFE190-04UD-06A0-2	200%	6.0	12.0	1.4	5.2	0.7
				300%	5.3	15.8	1.4	5.2	0.7
HXA707050B	1.9	12	MFE190-04UD-06A0-2	200%	6.0	12.0	1.3	7.0	0.7
				300%	5.3	15.8	1.3	7.0	0.7
HXA109430B	3.5	19.1	MFE190-04UD-06A0-2	200%	6.0	12.0	3.0	8.5	0.9
				300%	5.3	15.8	3.0	10.8	0.9
			MFE190-04UD-09A0-2	200%	9.0	18.0	3.0	11.5	0.9
				300%	7.5	22.5	3.0	11.8	0.9
HXA101130B	3	18.5	MFE190-04UD-06A0-2	200%	6.0	12.0	3.7	13.4	1.2
				300%	5.3	15.8	3.7	16.2	1.2
			MFE190-04UD-09A0-2	200%	9.0	18.0	3.7	17.0	1.2
				300%	7.5	22.5	3.7	17.7	1.2
HXA102330B	3.3	22.8	MFE190-04UD-06A0-2	200%	6.0	12.0	4.5	15.5	1.4
				300%	5.3	15.8	4.5	19.5	1.4
			MFE190-04UD-09A0-2	200%	9.0	18.0	4.5	21.3	1.4
				300%	7.5	22.5	4.5	23.5	1.4
HXA141211A	5.5	20.5	MFE190-04UD-09A0-2	200%	9.0	18.0	10.3	31.6	1.24
				300%	7.5	22.5	10.3	36.0	1.24
HXA141510A	6.5	30.2	MFE190-04UD-09A0-2	200%	9.0	18.0	12.6	28.6	1.51
				300%	7.5	22.5	12.6	35.8	1.51

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

230 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA141511A	6.7	20.5	MFE180-04AN-016A-4	200%	9.0	18.0	12.5	31.6	1.5
				300%	7.0	21.0	12.5	36.0	1.5
HXA142217A	10.0	30.6	MFE180-04AN-024A-4	200%	13.5	27.0	12.0	31.8	2.2
				300%	10.0	30.0	12.0	35.3	2.2
			MFE180-04AN-031A-4	200%	21.0	42.0	12.0	36.0	2.2
				300%	16.0	48.0	12.0	36.0	2.2
HXA142725A	12.5	41.1	MFE180-04AN-031A-4	200%	21.0	42.0	10.5	36.0	2.7
				300%	16.0	48.0	10.5	36.0	2.7
HXA142011A	9.0	30.2	MFE180-04AN-024A-4	200%	13.5	27.0	16.5	42.9	2.0
				300%	10.0	30.0	16.5	47.7	2.0
			MFE180-04AN-031A-4	200%	21.0	42.0	16.5	48.0	2.0
				300%	16.0	48.0	16.5	48.0	2.0
HXA142817A	12.5	45.3	MFE180-04AN-031A-4	200%	21.0	42.0	15.5	44.5	2.8
				300%	16.0	48.0	15.5	48.0	2.8
HXA143625A	18.7	70.8	MFE180-04AN-046A-4	200%	28.0	56.0	14.0	38.0	3.6
				300%	20.0	60.0	14.0	40.7	3.6
			MFE180-04AN-060A-4	200%	35.0	70.0	14.0	47.5	3.6
				300%	25.0	75.0	14.0	48.0	3.6
HXA142511A	12.5	44	MFE180-04AN-031A-4	200%	21.0	42.0	20.5	66.8	2.5
				300%	16.0	48.0	20.5	70.0	2.5
HXA143417A	18.5	68.8	MFE180-04AN-046A-4	200%	28.0	56.0	18.5	57.0	3.4
				300%	20.0	60.0	18.5	61.0	3.4
			MFE180-04AN-060A-4	200%	35.0	70.0	18.5	70.0	3.4
				300%	25.0	75.0	18.5	70.0	3.4
HXA185011A	21.0	51.3	MFE180-04AN-060A-4	200%	35.0	70.0	42.0	105.0	5.0
				300%	25.0	75.0	42.0	105.0	5.0
HXA187520A	31.5	90.6	MFE180-04AN-090A-4	200%	55.0	110.0	36.0	105.0	7.5
				300%	40.0	120.0	36.0	105.0	7.5
HXA186211A	25.5	70.3	MFE180-04AN-060A-4	200%	35.0	70.0	52.0	139.4	6.2
				300%	25.0	75.0	51.0	140.0	6.1
			MFE180-04AN-090A-4	200%	55.0	110.0	52.0	140.0	6.2
				300%	40.0	120.0	52.0	140.0	6.2
HXA189020A	43.0	137.6	MFE180-04AN-090A-4	200%	55.0	110.0	43.0	111.9	9.0
				300%	40.0	120.0	40.0	122.1	8.4
HXA186809A	31.0	93	MFE180-04AN-090A-4	200%	55.0	110.0	72.5	210.0	6.8
				300%	40.0	120.0	72.5	210.0	6.8
HXA189915A	40.5	137.6	MFE180-04AN-090A-4	200%	55.0	110.0	63.0	167.9	9.9
				300%	40.0	120.0	62.2	183.1	9.8

230 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA141211A	5.5	20.5	MFE180-04AN-016A-4	200%	9.0	18.0	10.3	31.6	1.2
				300%	7.0	21.0	10.3	36.0	1.2
HXA141617A	7.3	30.6	MFE180-04AN-024A-4	200%	13.5	27.0	9.0	31.8	1.6
				300%	10.0	30.0	9.0	35.3	1.6
			MFE180-04AN-031A-4	200%	21.0	42.0	9.0	36.0	1.6
				300%	16.0	48.0	9.0	36.0	1.6
HXA142025A	8.3	41.1	MFE180-04AN-024A-4	200%	13.5	27.0	7.7	23.6	2.0
				300%	10.0	30.0	7.7	26.3	2.0
			MFE180-04AN-031A-4	200%	21.0	42.0	7.7	36.0	2.0
				300%	16.0	48.0	7.7	36.0	2.0
HXA141510A	6.5	30.2	MFE180-04AN-016A-4	200%	9.0	18.0	12.6	28.6	1.5
				300%	7.0	21.0	12.6	33.4	1.5
			MFE180-04AN-024A-4	200%	13.5	27.0	12.6	42.9	1.5
				300%	10.0	30.0	12.6	47.7	1.5
HXA141917A	8.4	45.3	MFE180-04AN-024A-4	200%	13.5	27.0	10.8	28.6	2.0
				300%	10.0	30.0	10.8	31.8	2.0
			MFE180-04AN-031A-4	200%	21.0	42.0	10.8	44.5	2.0
				300%	16.0	48.0	10.8	48.0	2.0
HXA142020A	12.2	70.8	MFE180-04AN-031A-4	200%	21.0	42.0	10.0	28.5	2.1
				300%	16.0	48.0	10.0	32.5	2.1
			MFE180-04AN-046A-4	200%	28.0	56.0	10.0	38.0	2.1
				300%	20.0	60.0	10.0	40.7	2.1
			MFE180-04AN-060A-4	200%	35.0	70.0	10.0	47.5	2.1
				300%	25.0	75.0	10.0	48.0	2.1
HXA141611A	8.1	44	MFE180-04AN-024A-4	200%	13.5	27.0	13.3	43.0	1.6
				300%	10.0	30.0	13.3	47.7	1.6
			MFE180-04AN-031A-4	200%	21.0	42.0	13.3	66.8	1.6
				300%	16.0	48.0	13.3	70.0	1.6
HXA141817A	9.7	68.8	MFE180-04AN-024A-4	200%	13.5	27.0	10.3	27.5	1.9
				300%	10.0	30.0	10.3	30.5	1.9
			MFE180-04AN-031A-4	200%	21.0	42.0	10.3	42.7	1.9
				300%	16.0	48.0	10.3	48.8	1.9
			MFE180-04AN-046A-4	200%	28.0	56.0	10.3	57.0	1.9
				300%	20.0	60.0	10.3	61.0	1.9
			MFE180-04AN-060A-4	200%	35.0	70.0	10.3	70.0	1.9
				300%	25.0	75.0	10.3	70.0	1.9
HXA184111A	17.4	51.3	MFE180-04AN-046A-4	200%	28.0	56.0	34.8	105.0	4.2
				300%	20.0	60.0	34.8	105.0	4.2
HXA185820A	24.5	90.6	MFE180-04AN-060A-4	200%	35.0	70.0	28.0	81.1	5.9
				300%	25.0	75.0	28.0	86.9	5.9
			MFE180-04AN-090A-4	200%	55.0	110.0	28.0	105.0	5.9
				300%	40.0	120.0	28.0	105.0	5.9
HXA184711A	18.6	70.3	MFE180-04AN-046A-4	200%	28.0	56.0	39.6	111.5	4.8
				300%	20.0	60.0	39.6	119.5	4.8
			MFE180-04AN-060A-4	200%	35.0	70.0	39.6	139.4	4.8
				300%	25.0	75.0	39.6	140.0	4.8

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

230 V product package combination

—

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA185315A	31.5	137.6	MFE180-04AN-090A-4	200%	55.0	110.0	34.0	111.9	5.3
				300%	40.0	120.0	34.0	122.1	5.3
HXA185109A	22.9	93	MFE180-04AN-060A-4	200%	35.0	70.0	54.2	158.1	5.1
				300%	25.0	75.0	54.2	169.4	5.1
			MFE180-04AN-090A-4	200%	55.0	110.0	54.2	210.0	5.1
				300%	40.0	120.0	54.2	210.0	5.1
HXA186115A	24.5	137.6	MFE180-04AN-060A-4	200%	35.0	70.0	39.0	106.8	6.1
				300%	25.0	75.0	39.0	114.5	6.1
			MFE180-04AN-090A-4	200%	55.0	110.0	39.0	167.9	6.1
				300%	40.0	120.0	39.0	183.1	6.1

230 V product package combination

MicroFlex e190 and HY servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HYA655030A	4.3	14.7	MFE190-04UD-06A0-2	200%	6.0	12.0	1.6	3.7	0.5
				300%	5.3	15.8	1.6	4.5	0.5
			MFE190-04UD-09A0-2	200%	9.0	18.0	1.6	4.5	0.5
				300%	7.5	22.5	1.6	4.5	0.5
HYA101030A	5.6	20	MFE190-04UD-06A0-2	200%	6.0	12.0	3.2	5.8	1.0
				300%	5.3	15.8	3.0	7.3	1.0
			MFE190-04UD-09A0-2	200%	9.0	18.0	3.2	8.6	1.0
				200%	9.0	18.0	3.2	8.6	1.0
HYA101730A	9.1	36.2	MFE190-04UD-09A0-2	200%	9.0	18.0	3.2	8.6	1.0
				200%	9.0	18.0	3.2	8.6	1.0

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

400 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA705030A	2.3	6	MFE180-04AN-03A0-4	200%	3.0	6.0	1.6	3.4	0.5
				300%	2.0	6.0	1.4	3.4	0.4
HXA707345A	3.1	8.5	MFE180-04AN-05A0-4	200%	4.0	8.0	1.6	3.3	0.7
				300%	2.7	8.1	1.4	3.3	0.6
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.6	3.4	0.7
				300%	3.2	9.6	1.6	3.4	0.7
HXA706930A	2.9	8.5	MFE180-04AN-05A0-4	200%	4.0	8.0	2.2	5.0	0.7
				300%	2.7	8.1	2.0	5.1	0.6
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.2	5.2	0.7
				300%	3.2	9.6	2.2	5.2	0.7
HXA709445A	3.8	12	MFE180-04AN-05A0-4	200%	4.0	8.0	2.0	4.0	0.9
				300%	2.7	8.1	1.4	4.1	0.7
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.0	4.6	0.9
				300%	3.2	9.6	1.7	4.7	0.8
			MFE180-04AN-016A-4	200%	9.0	18.0	2.0	5.2	0.9
				300%	7.0	21.0	2.0	5.2	0.9
HXA708530A	3.9	12	MFE180-04AN-05A0-4	200%	4.0	8.0	2.7	5.3	0.9
				300%	2.7	8.1	1.9	5.4	0.6
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.7	6.1	0.9
				300%	3.2	9.6	2.2	6.2	0.7
			MFE180-04AN-016A-4	200%	9.0	18.0	2.7	7.0	0.9
				300%	7.0	21.0	2.7	7.0	0.9
HXA701145A	5	17	MFE180-04AN-016A-4	200%	9.0	18.0	2.4	7.0	1.2
				300%	7.0	21.0	2.4	7.0	1.2
HXA101330A	5.4	19.1	MFE180-04AN-016A-4	200%	9.0	18.0	4.3	11.8	1.4
				300%	7.0	21.0	4.3	11.8	1.4
HXA101745A	8	30.5	MFE180-04AN-016A-4	200%	9.0	18.0	3.8	8.3	1.8
				300%	7.0	21.0	3.3	9.4	1.6
			MFE180-04AN-024A-4	200%	13.5	27.0	3.8	11.2	1.8
				300%	10.0	30.0	3.8	11.7	1.8
			MFE180-04AN-031A-4	200%	21.0	42.0	3.8	11.8	1.8
				300%	16.0	48.0	3.8	11.8	1.8
HXA101830A	8.2	30.5	MFE180-04AN-016A-4	200%	9.0	18.0	5.8	12.3	1.8
				300%	7.0	21.0	5.1	14.0	1.6
			MFE180-04AN-024A-4	200%	13.5	27.0	5.8	16.6	1.8
				300%	10.0	30.0	5.8	17.5	1.8
			MFE180-04AN-031A-4	200%	21.0	42.0	5.8	17.7	1.8
				300%	16.0	48.0	5.8	17.7	1.8
HXA102245A	9.9	42	MFE180-04AN-024A-4	200%	13.5	27.0	4.7	12.0	2.2
				300%	10.0	30.0	4.7	13.2	2.2
			MFE180-04AN-031A-4	200%	21.0	42.0	4.7	17.7	2.2
				300%	16.0	48.0	4.7	17.7	2.2
HXA101117A	5	18.5	MFE180-04AN-016A-4	200%	9.0	18.0	6.3	17.3	1.1
				300%	7.0	21.0	6.3	17.7	1.1
			MFE180-04AN-024A-4	200%	13.5	27.0	6.3	17.7	1.1
				300%	10.0	30.0	6.3	17.7	1.1
HXA101417A	5.9	22.8	MFE180-04AN-016A-4	200%	9.0	18.0	8.1	20.5	1.5
				300%	7.0	21.0	8.1	22.8	1.5
			MFE180-04AN-024A-4	200%	13.5	27.0	8.1	23.6	1.5
				300%	10.0	30.0	8.1	23.6	1.5
HXA102025A	9.2	36.9	MFE180-04AN-024A-4	200%	13.5	27.0	7.7	19.7	2.0
				300%	10.0	30.0	7.7	21.3	2.0
			MFE180-04AN-031A-4	200%	21.0	42.0	7.7	23.6	2.0
				300%	16.0	48.0	7.7	23.6	2.0

400 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA707950B	2.1	6	MFE180-04AN-03A0-4	200%	3.0	6.0	1.5	3.4	0.8
				300%	2.0	6.0	1.4	3.4	0.8
			MFE180-04AN-05A0-4	200%	4.0	8.0	1.5	3.4	0.8
				300%	2.7	8.1	1.5	3.4	0.8
HXA701050B	2.6	8.5	MFE180-04AN-03A0-4	200%	3.0	6.0	2.0	4.2	1.0
				300%	2.0	6.0	1.5	4.2	0.8
			MFE180-04AN-05A0-4	200%	4.0	8.0	2.0	5.1	1.0
				300%	2.7	8.1	2.0	5.1	1.0
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.0	5.2	1.0
				300%	3.2	9.6	2.0	5.2	1.0
HXA701250B	3.5	12	MFE180-04AN-05A0-4	200%	4.0	8.0	2.4	5.1	1.2
				300%	2.7	8.1	1.8	5.1	1.0
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.4	5.8	1.2
				300%	3.2	9.6	2.2	5.9	1.1
			MFE180-04AN-016A-4	200%	9.0	18.0	2.4	7.0	1.2
				300%	7.0	21.0	2.4	7.0	1.2
HXA101850B	4.9	19.1	MFE180-04AN-016A-4	200%	9.0	18.0	3.6	11.8	1.9
				300%	7.0	21.0	3.6	11.8	1.9
HXA102350B	6.8	30.5	MFE180-04AN-016A-4	200%	9.0	18.0	4.5	11.7	2.3
				300%	7.0	21.0	4.5	13.4	2.3
			MFE180-04AN-024A-4	200%	13.5	27.0	4.5	16.4	2.3
				300%	10.0	30.0	4.5	17.5	2.3
			MFE180-04AN-031A-4	200%	21.0	42.0	4.5	17.7	2.3
				300%	16.0	48.0	4.5	17.7	2.3
HXA101830B	5	18.5	MFE180-04AN-016A-4	200%	9.0	18.0	5.8	17.3	1.8
				300%	7.0	21.0	5.8	17.7	1.8
			MFE180-04AN-024A-4	200%	13.5	27.0	5.8	17.7	1.8
				300%	10.0	30.0	5.8	17.7	1.8
HXA102330B	5.6	22.8	MFE180-04AN-016A-4	200%	9.0	18.0	7.5	21.0	2.4
				300%	7.0	21.0	7.5	23.0	2.4
			MFE180-04AN-024A-4	200%	13.5	27.0	7.5	23.6	2.4
				300%	10.0	30.0	7.5	23.6	2.4
HXA102943B	6.5	36.9	MFE180-04AN-016A-4	200%	9.0	18.0	6.0	15.8	2.9
				300%	7.0	21.0	6.0	18.0	2.9
			MFE180-04AN-024A-4	200%	13.5	27.0	6.0	21.6	2.9
				300%	10.0	30.0	6.0	22.6	2.9
			MFE180-04AN-031A-4	200%	21.0	42.0	6.0	23.6	2.9
				300%	16.0	48.0	6.0	23.6	2.9
HXA142520B	6.4	20.5	MFE180-04AN-016A-4	200%	9.0	18.0	12.0	31.6	2.5
				300%	7.0	21.0	12.0	36.0	2.5
HXA143230B	8.7	30.6	MFE180-04AN-024A-4	200%	13.5	27.0	10.5	31.8	3.3
				300%	10.0	30.0	10.5	35.3	3.3
			MFE180-04AN-031A-4	200%	21.0	42.0	10.5	36.0	3.3
				300%	16.0	48.0	10.5	36.0	3.3
HXA143843B	10.0	41.1	MFE180-04AN-024A-4	200%	13.5	27.0	8.5	23.6	3.8
				300%	10.0	30.0	8.5	26.3	3.8
			MFE180-04AN-031A-4	200%	21.0	42.0	8.5	36.0	3.8
				300%	16.0	48.0	8.5	36.0	3.8
HXA143120B	8.2	30.2	MFE180-04AN-024A-4	200%	13.5	27.0	15.0	42.9	3.1
				300%	10.0	30.0	15.0	47.7	3.1
			MFE180-04AN-031A-4	200%	21.0	42.0	15.0	48.0	3.1
				300%	16.0	48.0	15.0	48.0	3.1

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

400 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA144030B	10.6	45.3	MFE180-04AN-031A-4	200%	21.0	42.0	13.0	44.5	4.1
				300%	16.0	48.0	13.0	48.0	4.1
HXA144643B	14.0	70.8	MFE180-04AN-031A-4	200%	21.0	42.0	10.3	28.5	4.6
				300%	16.0	48.0	10.3	32.5	4.6
			MFE180-04AN-046A-4	200%	28.0	56.0	10.3	38.0	4.6
				300%	20.0	60.0	10.3	40.7	4.6
			MFE180-04AN-060A-4	200%	35.0	70.0	10.3	47.5	4.6
				300%	25.0	75.0	10.3	48.0	4.6
HXA143820B	11.1	44	MFE180-04AN-031A-4	200%	21.0	42.0	18.3	66.8	3.8
				300%	16.0	48.0	18.3	70.0	3.8
HXA144630B	14.8	68.8	MFE180-04AN-031A-4	200%	21.0	42.0	14.8	42.7	4.6
				300%	16.0	48.0	14.8	48.8	4.6
			MFE180-04AN-046A-4	200%	28.0	56.0	14.8	57.0	4.6
				300%	20.0	60.0	14.8	61.0	4.6
			MFE180-04AN-060A-4	200%	35.0	70.0	14.8	70.0	4.6
				300%	25.0	75.0	14.8	70.0	4.6
HXA187520B	17.9	51.3	MFE180-04AN-046A-4	200%	28.0	56.0	36.0	105.0	7.5
				300%	20.0	60.0	36.0	105.0	7.5
HXA188735B	20.5	90.6	MFE180-04AN-060A-4	200%	35.0	70.0	24.0	81.1	8.8
				300%	25.0	75.0	24.0	86.9	8.8
			MFE180-04AN-090A-4	200%	55.0	110.0	24.0	105.0	8.8
				300%	40.0	120.0	24.0	105.0	8.8
HXA189020B	21.2	70.3	MFE180-04AN-060A-4	200%	35.0	70.0	43.0	139.4	9.0
				300%	25.0	75.0	43.0	140.0	9.0
			MFE180-04AN-090A-4	200%	55.0	110.0	43.0	140.0	9.0
				300%	40.0	120.0	43.0	140.0	9.0
HXA189430B	30.0	137.6	MFE180-04AN-090A-4	200%	55.0	110.0	30.0	111.9	9.4
				300%	40.0	120.0	30.0	122.1	9.4
HXA189815B	27.0	93	MFE180-04AN-090A-4	200%	55.0	110.0	63.0	210.0	9.9
				300%	40.0	120.0	63.0	210.0	9.9
HXA181225B	29.6	137.6	MFE180-04AN-090A-4	200%	55.0	110.0	46.0	167.9	12.0
				300%	40.0	120.0	46.0	183.1	12.0

400 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA704730A	1.9	6	MFE180-04AN-03A0-4	200%	3.0	6.0	1.5	3.4	0.5
				300%	2.0	6.0	1.5	3.4	0.5
HXA706145A	2.6	8.5	MFE180-04AN-05A0-4	200%	4.0	8.0	1.3	3.3	0.6
				300%	2.7	8.1	1.3	3.3	0.6
HXA705730A	2.3	8.5	MFE180-04AN-05A0-4	200%	4.0	8.0	1.8	5.0	0.6
				300%	2.7	8.1	1.8	5.1	0.5
HXA706645A	2.7	12	MFE180-04AN-05A0-4	200%	4.0	8.0	1.4	4.0	0.7
				300%	2.7	8.1	1.4	4.1	0.7
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.4	4.6	0.7
				300%	3.2	9.6	1.4	4.7	0.7
			MFE180-04AN-016A-4	200%	9.0	18.0	1.4	5.2	0.7
				300%	7.0	21.0	1.4	5.2	0.7
HXA706630A	2.9	12	MFE180-04AN-05A0-4	200%	4.0	8.0	2.1	5.3	0.7
				300%	2.7	8.1	1.9	5.4	0.6
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.1	6.1	0.7
				300%	3.2	9.6	2.1	6.2	0.7
			MFE180-04AN-016A-4	200%	9.0	18.0	2.1	7.0	0.7
				300%	7.0	21.0	2.1	7.0	0.7
HXA707545A	3.2	17	MFE180-04AN-016A-4	200%	9.0	18.0	1.6	7.0	0.8
				300%	7.0	21.0	1.6	7.0	0.8
HXA109430A	3.5	19.1	MFE180-04AN-016A-4	200%	9.0	18.0	3.0	11.8	0.9
				300%	7.0	21.0	3.0	11.8	0.9
HXA101130A	4.9	30.5	MFE180-04AN-016A-4	200%	9.0	18.0	3.7	12.3	1.1
				300%	7.0	21.0	3.7	14.0	1.1
			MFE180-04AN-024A-4	200%	13.5	27.0	3.7	16.6	1.1
				300%	10.0	30.0	3.7	17.5	1.1
			MFE180-04AN-031A-4	200%	21.0	42.0	3.7	17.7	1.1
				300%	16.0	48.0	3.7	17.7	1.1
HXA108717A	3.9	18.5	MFE180-04AN-016A-4	200%	9.0	18.0	4.8	17.3	0.9
				300%	7.0	21.0	4.8	17.7	0.9
			MFE180-04AN-024A-4	200%	13.5	27.0	4.8	17.7	0.9
				300%	10.0	30.0	4.8	17.7	0.9
HXA101017A	4.2	22.8	MFE180-04AN-016A-4	200%	9.0	18.0	5.9	20.5	1.1
				300%	7.0	21.0	5.9	22.8	1.1
			MFE180-04AN-024A-4	200%	13.5	27.0	5.9	23.6	1.1
				300%	10.0	30.0	5.9	23.6	1.1
HXA101325A	5.8	36.9	MFE180-04AN-016A-4	200%	9.0	18.0	5.0	14.6	1.3
				300%	7.0	21.0	5.0	16.5	1.3
			MFE180-04AN-024A-4	200%	13.5	27.0	5.0	19.7	1.3
				300%	10.0	30.0	5.0	21.3	1.3
			MFE180-04AN-031A-4	200%	21.0	42.0	5.0	23.6	1.3
				300%	16.0	48.0	5.0	23.6	1.3
HXA706850B	1.8	6	MFE180-04AN-03A0-4	200%	3.0	6.0	1.3	3.4	0.7
				300%	2.0	6.0	1.3	3.4	0.7
HXA707150B	1.8	8.5	MFE180-04AN-03A0-4	200%	3.0	6.0	1.4	4.2	0.7
				300%	2.0	6.0	1.4	4.2	0.7
			MFE180-04AN-05A0-4	200%	4.0	8.0	1.4	5.1	0.7
				300%	2.7	8.1	1.4	5.1	0.7
HXA707050B	1.9	12	MFE180-04AN-05A0-4	200%	4.0	8.0	1.3	5.1	0.7
				300%	2.7	8.1	1.3	5.1	0.7
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.3	5.8	0.7
				300%	3.2	9.6	1.3	5.9	0.7
			MFE180-04AN-016A-4	200%	9.0	18.0	1.3	7.0	0.7
				300%	7.0	21.0	1.3	7.0	0.7

Notes: 1) The drive offers a 200% and 300% rating mode, which offers a higher peak torque at a slightly reduced rms rating. Highlighted rows provide a full peak and continuous torque of the motor. If the full peak torque is not required by the application, a lower rating drive can be selected in some cases for a more cost effective solution.

400 V product package combination

MotiFlex e180 and HX servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HXA109430B	3.5	19.1	MFE180-04AN-016A-4	200%	9.0	18.0	3.0	11.8	0.9
				300%	7.0	21.0	3.0	11.8	0.9
HXA101130B	3	18.5	MFE180-04AN-07A0-4	200%	4.7	9.4	3.7	10.2	1.2
				300%	3.2	9.6	3.7	10.4	1.2
			MFE180-04AN-016A-4	200%	9.0	18.0	3.7	17.3	1.2
				300%	7.0	21.0	3.7	17.7	1.2
			MFE180-04AN-024A-4	200%	13.5	27.0	3.7	17.7	1.2
				300%	10.0	30.0	3.7	17.7	1.2
HXA101430B	3.3	22.8	MFE180-04AN-016A-4	200%	9.0	18.0	4.5	21.0	1.4
				300%	7.0	21.0	4.5	23.0	1.4
			MFE180-04AN-024A-4	200%	13.5	27.0	4.5	23.6	1.4
				300%	10.0	30.0	4.5	23.6	1.4
HXA141820B	4.8	20.5	MFE180-04AN-016A-4	200%	9.0	18.0	9.0	31.6	1.9
				300%	7.0	21.0	9.0	36.0	1.9
HXA142030B	5.5	30.6	MFE180-04AN-016A-4	200%	9.0	18.0	6.8	21.2	2.1
				300%	7.0	21.0	6.8	24.7	2.1
			MFE180-04AN-024A-4	200%	13.5	27.0	6.8	31.8	2.1
				300%	10.0	30.0	6.8	35.3	2.1
HXA142130B	7.4	41.1	MFE180-04AN-024A-4	200%	13.5	27.0	6.8	23.6	2.1
				300%	10.0	30.0	6.8	26.3	2.1
			MFE180-04AN-031A-4	200%	21.0	42.0	6.8	36.0	2.1
				300%	16.0	48.0	6.8	36.0	2.1
HXA142020B	5.2	30.2	MFE180-04AN-016A-4	200%	9.0	18.0	10.0	28.6	2.1
				300%	7.0	21.0	10.0	33.4	2.1
			MFE180-04AN-024A-4	200%	13.5	27.0	10.0	42.9	2.1
				300%	10.0	30.0	10.0	47.7	2.1
HXA141920B	5.5	44	MFE180-04AN-016A-4	200%	9.0	18.0	9.0	28.6	1.9
				300%	7.0	21.0	9.0	33.4	1.9
			MFE180-04AN-024A-4	200%	13.5	27.0	9.0	43.0	1.9
				300%	10.0	30.0	9.0	47.7	1.9
			MFE180-04AN-031A-4	200%	21.0	42.0	9.0	66.8	1.9
				300%	16.0	48.0	9.0	70.0	1.9
HXA185820B	14.0	51.3	MFE180-04AN-031A-4	200%	21.0	42.0	28.0	86.0	5.9
				300%	16.0	48.0	28.0	98.2	5.9
			MFE180-04AN-046A-4	200%	28.0	56.0	28.0	105.0	5.9
				300%	20.0	60.0	28.0	105.0	5.9
HXA185920B	24.5	90.6	MFE180-04AN-060A-4	200%	35.0	70.0	28.0	81.1	5.9
				300%	25.0	75.0	28.0	86.9	5.9
			MFE180-04AN-090A-4	200%	55.0	110.0	28.0	105.0	5.9
				300%	40.0	120.0	28.0	105.0	5.9
HXA185315B	16.0	70.3	MFE180-04AN-046A-4	200%	28.0	56.0	34.0	111.5	5.3
				300%	20.0	60.0	34.0	119.5	5.3
			MFE180-04AN-060A-4	200%	35.0	70.0	34.0	139.4	5.3
				300%	25.0	75.0	34.0	140.0	5.3
HXA186015B	16.5	93	MFE180-04AN-046A-4	200%	28.0	56.0	39.0	126.5	6.1
				300%	20.0	60.0	39.0	135.5	6.1
			MFE180-04AN-060A-4	200%	35.0	70.0	39.0	158.1	6.1
				300%	25.0	75.0	39.0	169.4	6.1
			MFE180-04AN-090A-4	200%	55.0	110.0	39.0	210.0	6.1
				300%	40.0	120.0	39.0	210.0	6.1
HXA186115B	24.5	137.6	MFE180-04AN-060A-4	200%	35.0	70.0	39.0	106.8	6.1
				300%	25.0	75.0	39.0	114.5	6.1
			MFE180-04AN-090A-4	200%	55.0	110.0	39.0	167.9	6.1
				300%	40.0	120.0	39.0	183.1	6.1

400 V product package combination

MotiFlex e180 and HY servo motor

Motor parameters			Drive type and rating				Package rating		
Motor type	Cont. current (A)	Peak current (A)	Drive type	Mode [1]	Rated Amps (A)	Peak Amps (A)	Cont Torque (N.m)	Peak Torque (N.m)	Rated power (kW)
HYA655030A	4.3	14.7	MFE180-04AN-05A0-4	200%	4.0	8.0	1.5	2.5	0.5
				300%	2.7	8.1	1.0	2.5	0.5
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.6	2.9	0.5
				300%	3.2	9.6	1.2	2.9	0.5
			MFE180-04AN-016A-4	200%	9.0	18.0	1.6	4.5	0.5
				300%	7.0	21.0	1.6	4.5	0.5
HYA101030A	5.6	20	MFE180-04AN-016A-4	200%	9.0	18.0	3.2	8.6	1.0
				300%	7.0	21.0	3.2	9.6	1.0
			MFE180-04AN-024A-4	200%	13.5	27.0	3.2	9.6	1.0
				300%	10.0	30.0	3.2	9.6	1.0
HYA101730A	9.1	36.2	MFE180-04AN-024A-4	200%	13.5	27.0	5.3	12.3	1.7
				300%	10.0	30.0	5.3	13.7	1.7
			MFE180-04AN-031A-4	200%	21.0	42.0	5.3	16.5	1.7
				300%	16.0	48.0	5.3	16.5	1.7
HYA131620B	7	27.8	MFE180-04AN-016A-4	200%	9.0	18.0	7.5	14.6	1.6
				300%	7.0	21.0	7.5	17.0	1.6
			MFE180-04AN-024A-4	200%	13.5	27.0	7.5	21.9	1.6
				300%	10.0	30.0	7.5	22.5	1.6
HYA132820B	10.8	42.4	MFE180-04AN-024A-4	200%	13.5	27.0	13.4	28.7	2.8
				300%	10.0	30.0	12.4	31.8	2.8
			MFE180-04AN-031A-4	200%	21.0	42.0	13.4	44.6	2.8
				300%	16.0	48.0	13.4	45.0	2.8
HYA185020B	15.3	48.8	MFE180-04AN-031A-4	200%	21.0	42.0	24.0	64.6	5.0
				300%	16.0	48.0	24.0	73.8	5.0
			MFE180-04AN-046A-4	200%	28.0	56.0	24.0	75.0	5.0
				300%	20.0	60.0	24.0	75.0	5.0
HYA186520B	20.2	68.5	MFE180-04AN-046A-4	200%	28.0	56.0	31.0	85. 8	6.5
				300%	20.0	60.0	30.7	92.0	6.5
			MFE180-04AN-060A-4	200%	35.0	70.0	31.0	105.0	6.5
				300%	25.0	75.0	31.0	105.0	6.5
HYA188020B	24.2	95	MFE180-04AN-060A-4	200%	35.0	70.0	38.5	99.5	8.0
				300%	25.0	75.0	38.5	106.6	8.0
			MFE180-04AN-090A-4	200%	55.0	110.0	38.5	135.0	8.0
				300%	40.0	120.0	38.5	135.0	8.0

For more information and contact details:

www.abb.com/motors&generators

Additional information
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

9AKK107304 Rev A 05-2024