ABB Motion product brochure

High Density, High Accuracy and High Efficiency

HDS high-performance AC PM servo motor

High Efficiency, High Accuracy, High Density, Open Options

Adopting multiple advanced servo motor manufacturing technologies and the industry's state-of-the-art design and based on ABB's robot and system application experience, the HDS high-performance AC permanent magnet servo motor with a full range of voltage, output, size, and feedback options fully meets the industrial application requirements and supports standard power and signal cables.

First to obtain energy efficiency level certification and with better dynamic response and higher control accuracy, HDS series servo motors will boost the continuous innovation of automation system integrators and machine manufacturers in various industries and enable them to enter a new era of high accuracy and intelligence together.

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HDS servo motors
Product highlights

The HDS series servo motors provide more effective combinations of torque and inertia. Equipped with various high performance and high-resolution feedback options, HDS meets various requirements of applications and drives. By providing control on speed, torque and position with high precision and quality for the operation of terminal equipment, HDS helps to improve the efficiency and stability of equipment and ensure higher reliability of complete system.

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

—
In accordance with the energy efficiency standard GB 30253, models with a rated power of no less than 4kW are of energy efficiency level 1, and models with a rated power of less than 4kW are of energy efficiency level 2 [*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.

—
UL, CE, RoHS certification [*2].

Notes: *1. Motors with a power of less than 550 W are not included in the category of energy efficiency rating.
*2. Some models do not pass all certifications. Please contact ABB for the certifications passed.

—
Applicable options: brake and oil seal optional. 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 feedback options, including Hiperface DSL - single cable absolute encoder solution.

—
Wide speed characteristic, optional high speed characteristic.

Product overview and typical applications

HDS servo motor overview	
Flange dimension	60 mm、80 mm、65 mm、100 mm、130 mm、180 mm、240 mm
Rated torque/Peak torque	0.6...93 N·m/1.8...279 N·m
Rated speed/Maximum speed	1500...3000 rpm/2700...6000 rpm
Motor inertia	w/o brake 0.04...26.66 kg·cm^2 w brake 0.23...12.84 kg·cm^2
Motor type	AC permanent magnet synchronous servo motor
Cooling Method	Totally enclosed, non-ventilated; Fan-cooled; Water-cooled *1
Magnet Material	Ultra-high intrinsic coercive field rare earth
Insulation Class	F
Mounting	IMB5; IMB35 optional
Thermal Protection *2	3 × PTC155
Exterior Paint	Epoxy
Color	Motor body: Black End-cover: White, with ABB logo
Feedback Device	Resolver, Incremental/absolute encoder
Ingress Protection	IP54 without oil seal IP65 with oil seal
Certification	UL, CE, RoHS
Energy efficiency class	Models with a rated power of no less than 4kW are of energy efficiency level 1, and models with a rated power of less than 4kW are of energy efficiency level 2 .

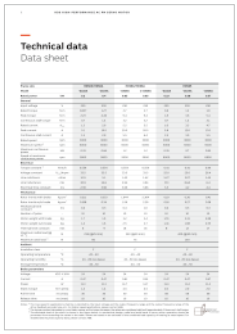
Typical industries and applications		
	Automotive and new energy industries	Automotive manufacturing equipment, lithium battery manufacturing, photovoltaic multi-wire cutting, diffusion furnace feeding
	Logistics and packaging	Smart truss, AGV, automatic packing equipment and packaging manufacturing
	Rubber and plastic industries	Injection molding machines, blow molding machines
	Others	3C semiconductor manufacturing equipment, motor manufacturing equipment, metal processing, textile and chemical roll handling, security equipment, test benches

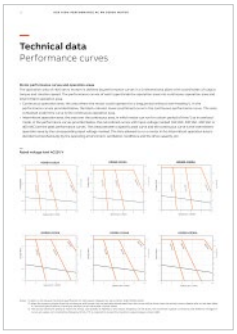
Notes: *1, For more details on water cooling options, please contact ABB.
*2, Standard models of 60 and 80 flanges do not have the heat protection option. If customization is required, please contact ABB.

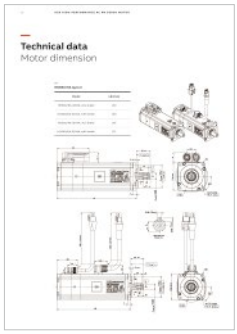
How to select a servo system
ABB servo product model selection steps

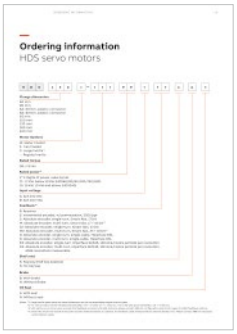
Step 1: Select the servo motor
Calculate and verify the following technical data
- Torque
- Speed
- Rotary inertia
- Encoder
- Brake

See page 8 for motor technical data and ordering information.



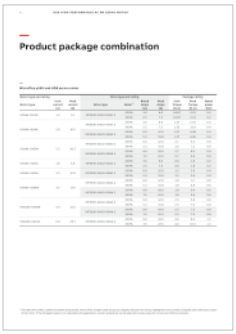


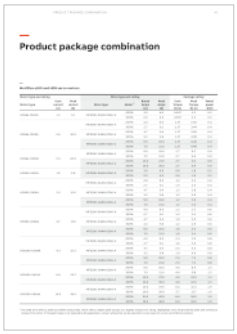




Step 2: Select the servo drive via the following technical data
- Current
- Input voltage
- Overload mode

See pages 32, 36, 42, and 43 for the drive configuration table and ordering information.





Step 3: Select cables and optional parts / accessories

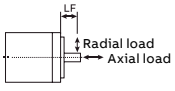
See page 30, page 35, and page 39 for the information of the cables and optional parts / accessories of the drive and motor.

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

Technical data
Data sheet

Frame size		HDS60/HDS6A		HDS80/HDS8A		HDS65		
Model		**-0102A**	**-0104A**	**-0309A**	**C-0309A**	**-0102A**	**-0104A**	**-0206A**
Rated power	**kW**	**0.2**	**0.4**	**0.85**	**0.85**	**0.19**	**0.38**	**0.57**
General								
Input voltage	V	230	230	230	230	230	230	230
Rated torque	N·m	0.637	1.27	2.7	2.7	0.6	1.2	1.8
Peak torque	N·m	2.23	4.46	9.4	9.4	1.8	3.6	5.4
Continuous stall torque	N·m	0.7	1.4	3.2	3.2	0.7	1.4	2.1
Rated current	A_{rms}	1.3	2.6	5.5	5.5	1.6	3.3	4.7
Peak current	A	5.1	10.5	20.5	20.5	5.8	12.0	17.6
Continuous stall current	A	1.5	2.8	5.5	6.4	1.9	3.9	5.5
Rated speed	rpm	3000	3000	3000	3000	3000	3000	3000
Maximum speed [1]	rpm	6000	6000	6000	6000	5000	5000	5000
Maximum continuous power	kW	0.33	0.66	1.2	1.2	0.35	0.7	0.95
Speed at maximum continuous power	rpm	5800	5800	5800	5800	8000	8000	6800
Electrical								
Torque constant [1]	N·m/A	0.554	0.554	0.554	0.554	0.41	0.41	0.44
Voltage constant	V_{rms}/krpm	33.5	33.5	33.5	33.5	25.0	25.0	26.4
Line resistance	ohms	12.9	5.1	1.42	1.42	5.27	2.07	1.45
Line inductance	mH	30.9	14.6	3.94	3.94	17.3	8.64	6.4
Electrical time constant	ms	2.39	3.96	3.66	3.66	3.3	4.2	4.4
Mechanical								
Rotor inertia with brake	$kg{\cdot}cm^2$	0.211	0.353	1.644	2.364	0.19	0.30	0.41
Rotor inertia w/o brake	$kg{\cdot}cm^2$	0.198	0.34	1.56	2.28	0.16	0.27	0.38
Mechanical time constant	ms	0.4	0.3	0.4	1.0	0.4	0.3	0.3
Number of poles	p	10	10	10	10	10	10	10
Motor weight with brake	kg	1.7	1.9	3.2	3.4	1.74	2.31	2.88
Motor weight w/o brake	kg	1.4	1.6	2.5	2.7	1.41	1.98	2.55
Thermal time constant	min	6	9	16	16	8	12	17
Maximum radial load (@ LF [3])	N	235 (@25 mm)		250 (@20 mm)		420 (@30 mm)		
Maximum axial load [3]	N	60		75		150		
Ambient								
Insulation class	-	F		F		F		
Operating temperature	°C	-20…40		-20…40		-20…40		
Operating humidity	%	40…80 (no dews)		40…80 (no dews)		40…80 (no dews)		
Storage temperature	°C	-40…50		-40…50		-40…50		
Brake parameters								
Voltage	VDC ± 10%	24	24	24	24	24	24	24
Current	A	0.47	0.47	0.61	0.61	0.47	0.47	0.47
Power	W	11.3	11.3	14.7	14.7	11.4	11.4	11.4
Static torque	N·m (min)	1.4	1.4	4.5	4.5	2.0	2.0	2.0
Pull-in time	ms (max)	30	30	50	50	58	58	58
Release time	ms (max)	10	10	10	10	10	10	10

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.



Technical data
Data sheet

Frame size		HDS100						HDS130	
Model		**-0308A**	**C-0308A**	**-0413A**	**C-0413A**	**-0619A**	**C-0619A**	**-0620A**	**C-0620A**
Rated power	**kW**	**0.75**	**0.75**	**1.3**	**1.3**	**1.9**	**1.9**	**2.0**	**2.0**
General									
Input voltage	V	230	230	230	230	230	230	230	230
Rated torque	N·m	2.5	2.5	4.0	4.0	6.0	6.0	6.4	6.4
Peak torque	N·m	7.5	7.5	12.0	12.0	18.0	18.0	19.1	19.1
Continuous stall torque	N·m	3.4	3.4	5.0	5.0	7.5	7.5	7.2	7.2
Rated current	A_{rms}	4.3	4.3	6.9	6.9	10.5	10.5	10.9	10.9
Peak current	A	15.5	15.5	25.7	25.7	39.5	39.5	36.0	36.0
Continuous stall current	A	5.8	5.8	8.6	8.6	12.6	12.6	11.5	11.5
Rated speed	rpm	3000	3000	3000	3000	3000	3000	3000	3000
Maximum speed [1]	rpm	4000	4000	4000	4000	4000	4000	5000	5000
Maximum continuous power	kW	1.2	1.2	1.6	1.6	2	2	2.5	2.5
Speed at maximum continuous power	rpm	4600	4600	4700	4700	4600	4600	4500	4500
Electrical									
Torque constant [1]	N·m/A	0.68	0.68	0.68	0.68	0.69	0.69	0.685	0.685
Voltage constant	V_{rms}/krpm	41.3	41.3	41.3	41.3	41.8	41.8	41.4	41.4
Line resistance	ohms	1.1	1.1	1.1	1.1	0.65	0.65	0.5	0.5
Line inductance	mH	7.54	7.54	7.54	7.54	5.15	5.15	4.8	4.8
Electrical time constant	ms	6.9	6.9	6.9	6.9	7.9	7.9	9.6	9.6
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	1.44	2.81	1.44	2.81	1.98	3.48	5.06	11.8
Rotor inertia w/o brake	$kg{\cdot}cm^2$	1.31	2.68	1.31	2.68	1.85	3.35	4.06	10.8
Mechanical time constant	ms	0.3	0.6	0.3	0.6	0.2	0.4	0.5	1.2
Number of poles	p	10	10	10	10	10	10	10	10
Motor weight with brake	kg	5.47	5.76	5.47	5.76	6.27	6.56	8.6	9.45
Motor weight w/o brake	kg	4.71	5.0	4.71	5.0	5.51	5.8	6.65	7.5
Thermal time constant	min	28	28	28	28	23	23	32.5	32.5
Maximum radial load (@ LF [3])	N	550 (@30 mm)						600 (@40 mm)	
Maximum axial load [3]	N	150						270	
Ambient									
Insulation class	-	F						F	
Operating temperature	°C	-20…40						-20…40	
Operating humidity	%	40…80 (no dews)						40…80 (no dews)	
Storage temperature	°C	-40…50						-40…50	
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.58	0.58	0.58	0.58	0.58	0.58	0.87	0.87
Power	W	14	14	14	14	14	14	20.8	20.8
Static torque	N·m (min)	4.5	4.5	4.5	4.5	4.5	4.5	18	18
Pull-in time	ms (max)	80	80	80	80	80	80	145	145
Release time	ms (max)	20	20	20	20	20	20	40	40

Technical data
Data sheet

Frame size		HDS130						HDS180	
Model		**-0817B**	**C-0817B**	**-1226B**	**C-1226B**	**-1829B**	**C-1829B**	**-2540B**	**C-2540B**
Rated power	**kW**	**1.7**	**1.7**	**2.6**	**2.6**	**2.9**	**2.9**	**4.0**	**4.0**
General									
Input voltage	V	400	400	400	400	400	400	400	400
Rated torque	N·m	8	8	12	12	18	18	25	25
Peak torque	N·m	24	24	36	36	54	54	75	75
Continuous stall torque	N·m	10	10	15	15	20	20	29	29
Rated current	A_{rms}	7.7	7.7	9.5	9.5	14.8	14.8	15.7	15.7
Peak current	A	29.5	29.5	30.6	30.6	51.0	51.0	48.8	48.8
Continuous stall current	A	9.0	9.0	11.7	11.7	16.1	16.1	18.0	18.0
Rated speed	rpm	2000	2000	2000	2000	1500	1500	1500	1500
Maximum speed [1]	rpm	4000	4000	4000	4000	4000	4000	3500	3500
Maximum continuous power	kW	2.5	2.5	3.3	3.3	4.2	4.2	5.5	5.5
Speed at maximum continuous power	rpm	4500	4500	4000	4000	4000	4000	3300	3300
Electrical									
Torque constant [1]	N·m/A	1.22	1.22	1.41	1.41	1.40	1.40	1.75	1.75
Voltage constant	V_{rms}/krpm	73.5	73.5	85.4	85.4	84.7	84.7	105.9	105.9
Line resistance	ohms	1.6	1.6	0.78	0.78	0.58	0.58	0.36	0.36
Line inductance	mH	12.3	12.3	8.3	8.3	6.13	6.13	5.9	5.9
Electrical time constant	ms	7.7	7.7	10.6	10.6	10.5	10.5	16.5	16.5
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	5.06	11.8	8.46	15.82	10.74	18.7	51.7	153.7
Rotor inertia w/o brake	$kg{\cdot}cm^2$	4.06	10.8	7.46	14.82	9.74	17.7	44.6	146.6
Mechanical time constant	ms	0.4	1.0	0.3	0.5	0.3	0.5	0.5	1.5
Number of poles	p	10	10	10	10	10	10	10	10
Motor weight with brake	kg	8.6	9.45	10.4	11.65	12.2	13.25	23.4	28.8
Motor weight w/o brake	kg	6.65	7.5	8.75	9.7	10.25	11.3	19.7	25.1
Thermal time constant	min	49	49	64	64	54	54	45	45
Maximum radial load (@ LF [3])	N	600 (@40 mm)				700 (@40 mm)		1900 (@65 mm)	
Maximum axial load [3]	N	270				350		600	
Ambient									
Insulation class	-	F						F	
Operating temperature	°C	-20…40						-20…40	
Operating humidity	%	40…80 (no dews)						40…80 (no dews)	
Storage temperature	°C	-40…50						-40…50	
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	0.87	0.87	0.87	0.87	0.87	0.87	1.06	1.06
Power	W	20.8	20.8	20.8	20.8	20.8	20.8	25.3	25.3
Static torque	N·m (min)	18	18	18	18	18	18	55	55
Pull-in time	ms (max)	145	145	145	145	145	145	127	127
Release time	ms (max)	40	40	40	40	40	40	22	22

Technical data
Data sheet

Frame size		HDS180				HDS240			
Model		**-3555B**	**C-3555B**	**-4876B**	**C-4876B**	**-5011B**	**F-6715B**	**-7215B**	**F-9320B**
Rated power	**kW**	**5.5**	**5.5**	**7.6**	**7.6**	**11.0**	**15.0**	**15.0**	**20.0**
General									
Input voltage	V	400	400	400	400	400	400	400	400
Rated torque	N·m	35	35	48	48	50	67	72	93
Peak torque	N·m	105	105	150	150	150	201	216	279
Continuous stall torque	N·m	41	41	53	53	65	90	92	122
Rated current	A_{rms}	22.3	22.3	30.8	30.8	23.5	30.5	29.5	39.0
Peak current	A	68.5	68.5	99.7	99.7	93	120	117	150
Continuous stall current	A	25.7	25.7	33	33	31	40	39	50
Rated speed	rpm	1500	1500	1500	1500	2200	2200	2000	2000
Maximum speed [1]	rpm	3500	3500	3500	3500	3000	3000	2700	2700
Maximum continuous power	kW	7.5	7.5	9	9	12	16	16	21
Speed at maximum continuous power	rpm	3300	3300	3300	3300	2400	2400	2300	2300
Electrical									
Torque constant [1]	N·m/A	1.74	1.74	1.75	1.75	2.2	2.2	2.4	2.4
Voltage constant	V_{rms}/krpm	105.1	105.1	105.9	105.9	135	135	150	150
Line resistance	ohms	0.19	0.19	0.13	0.13	0.15	0.15	0.13	0.13
Line inductance	mH	3.9	3.9	2.9	2.9	3.7	3.7	3.2	3.2
Electrical time constant	ms	20.2	20.2	22.2	22.2	32	32	29	29
Mechanical									
Rotor inertia with brake	$kg{\cdot}cm^2$	70.6	176.2	89.2	198.4	155.6	155.6	190.6	190.6
Rotor inertia w/o brake	$kg{\cdot}cm^2$	63.5	169.1	82.1	191.3	107	107	142	142
Mechanical time constant	ms	0.4	1.0	0.3	0.7	5.4	5.4	5.9	5.9
Number of poles	p	10	10	10	10	6	6	6	6
Motor weight with brake	kg	28.1	33.9	32.6	38.8	66	71	81.5	86.5
Motor weight w/o brake	kg	24.4	30.2	28.9	35.1	57.5	62.5	73	78
Thermal time constant	min	58	58	56	56	27	37	32	40
Maximum radial load (@ LF [3])	N	1900 (@65 mm)				2810 (@60 mm)		2730 (@80 mm)	
Maximum axial load [3]	N	600				530		530	
Ambient									
Insulation class	-	F				F			
Operating temperature	°C	-20…40				-20…40			
Operating humidity	%	40…80 (no dews)				40…80 (no dews)			
Storage temperature	°C	-40…50				-40…50			
Brake parameters									
Voltage	VDC ± 10%	24	24	24	24	24	24	24	24
Current	A	1.06	1.06	1.06	1.06	1.80	1.80	1.80	1.80
Power	W	25.3	25.3	25.3	25.3	42.7	42.7	42.7	42.7
Static torque	N·m (min)	55	55	55	55	143	143	143	143
Pull-in time	ms (max)	127	127	127	127	450	450	450	450
Release time	ms (max)	22	22	22	22	60	60	60	60

Technical data
Performance curves

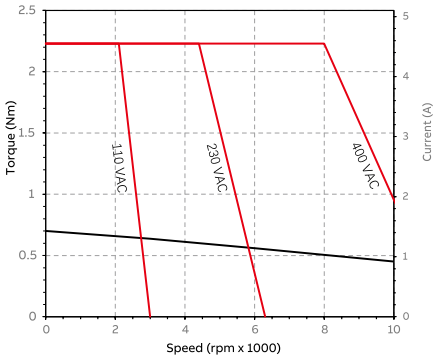
Motor performance curves and operation areas

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.

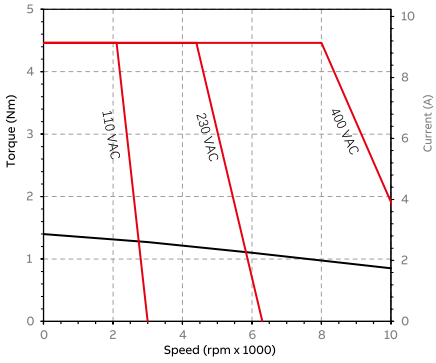
- Continuous operation area: the area where the motor could operate for a long period without over-heating*1. In the performance curves provided below, the black-colored, lower-positioned curve is the continuous performance curve. The area contained under this curve is the continuous operation area.
- Intermittent operation area: the area over the continuous area, in which motor can run for a short period of time*1 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

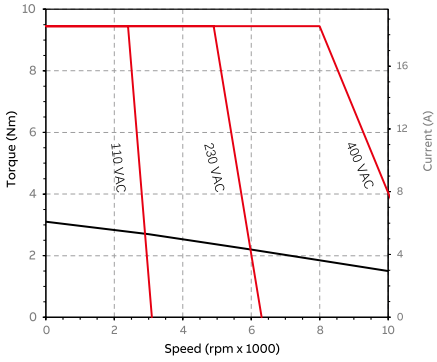
HDS60-0102A



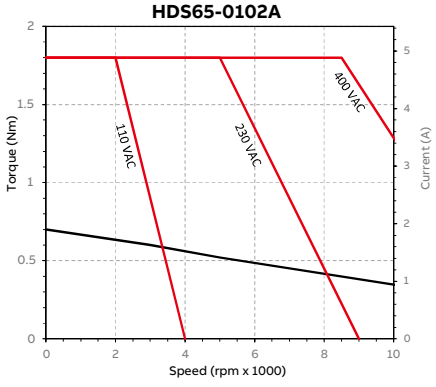
HDS60-0104A



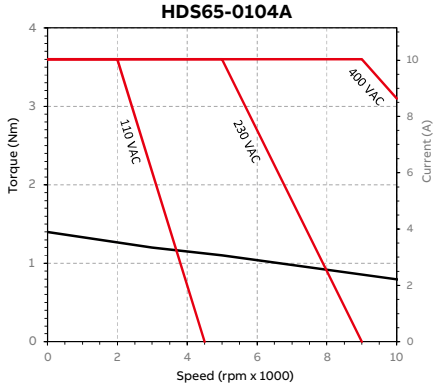
HDS80-0309A



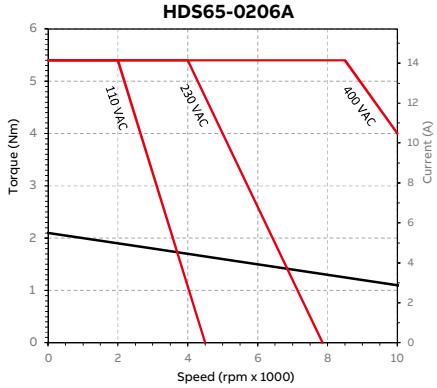
HDS65-0102A



HDS65-0104A



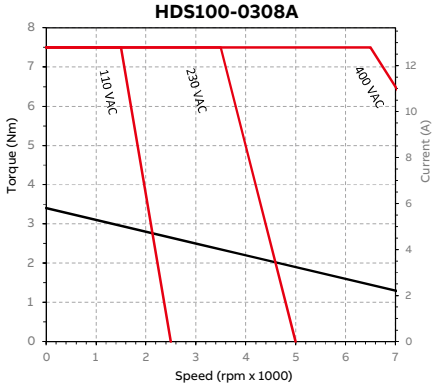
HDS65-0206A



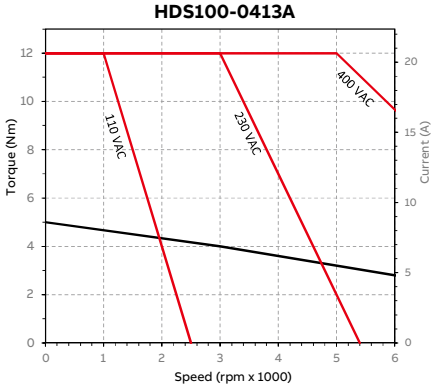
Notes: *1, Refer to the General Technical Specification for Permanent Magnetic AC Servo Motor (GB/T30549-2014).
*2, When the torque is higher than the continuous stall torque, the current value interpreted from the curves will be lower than the actual current, please refer to the data table in Technical specifications of previous section for accurate peak current values.
*3, The actual maximum speed at which the motor can operate is related to the output frequency of the drive. The maximum speeds covered by the different voltages in curves are values not considering frequency limits. If it is required to exceed the maximum speed, please contact ABB.

Technical data
Performance curves

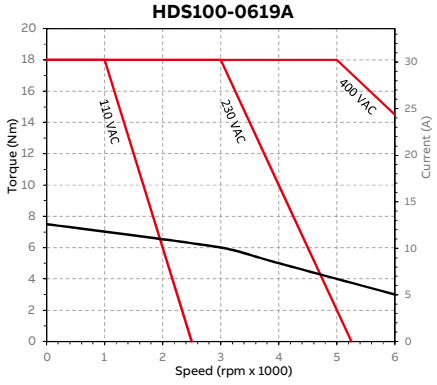
HDS100-0308A



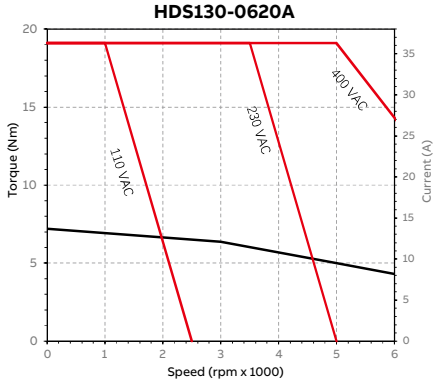
HDS100-0413A



HDS100-0619A

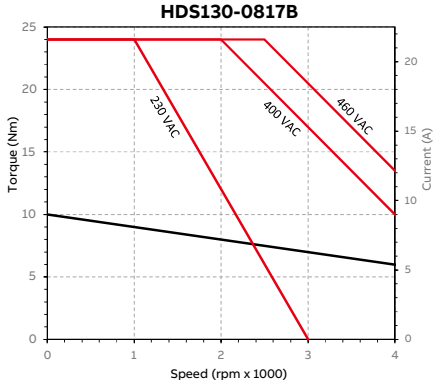


HDS130-0620A

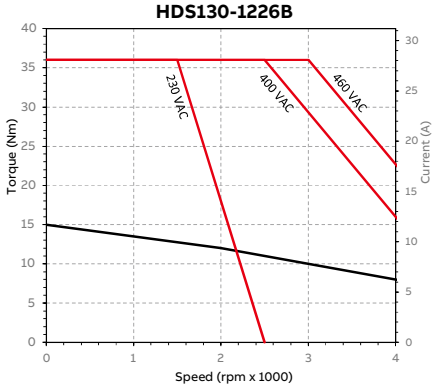


Rated voltage level AC400 V

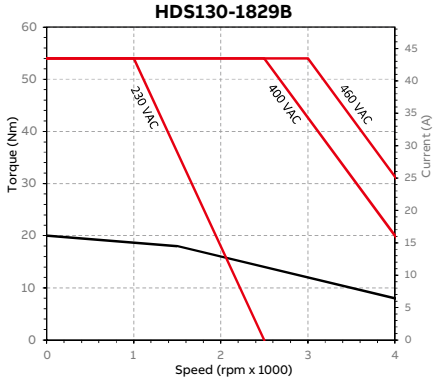
HDS130-0817B



HDS130-1226B

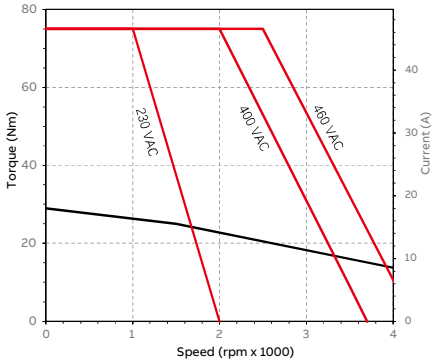


HDS130-1829B

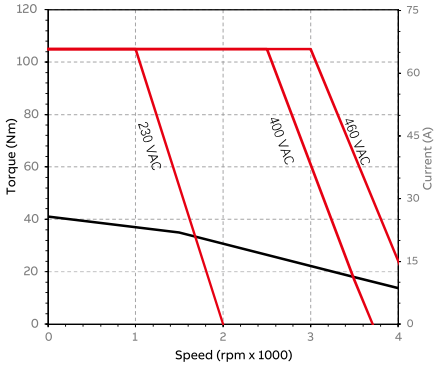


Technical data
Performance curves

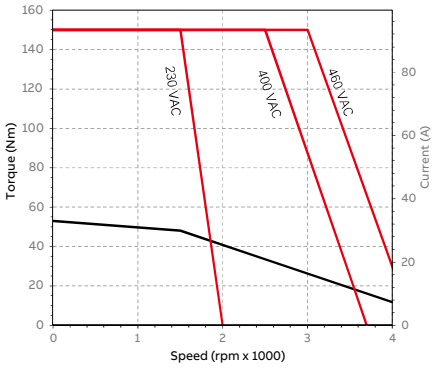
HDS180-2540B



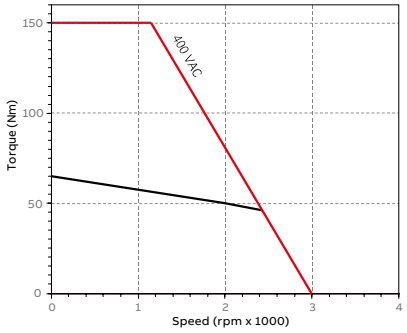
HDS180-3555B



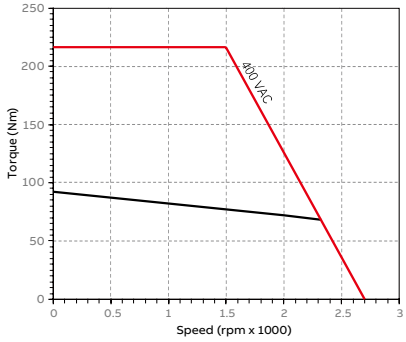
HDS180-4876B



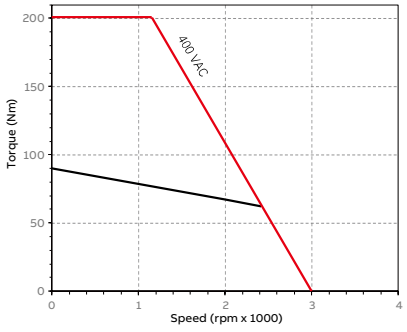
HDS240-5011B



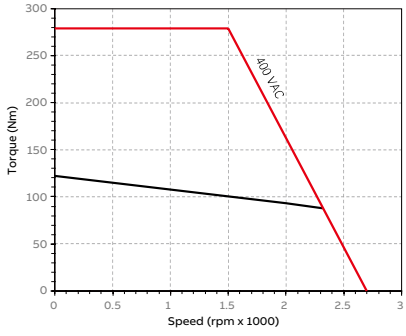
HDS240-7215B



HDS240F-6715B



HDS240F-9320B



Technical data
Service environment

Standard environment conditions for operation of HDS series servo motors

- Ambient temperature: - 20 ~ 40 ℃
- Altitude: ≤1000 m
- Air pressure: 86 ~ 106 kPa
- Humidity: 40 ~ 80% (no dews)
- Same protection grade as motor frame

If the ambient temperature is higher than 40℃ , or altitude higher than 1000m, 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)	Heat dissipation panel dimensions L*W*H (mm)
60/80	250*250*6
65	210*210*5
100	300*300*8
130	390*390*10
180	380*380*8 (two panels)
240	380*380*8 (two panels)

In derating scenarios, the allowable torque/power of the motor shall be determined according to the table below[*2] (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.

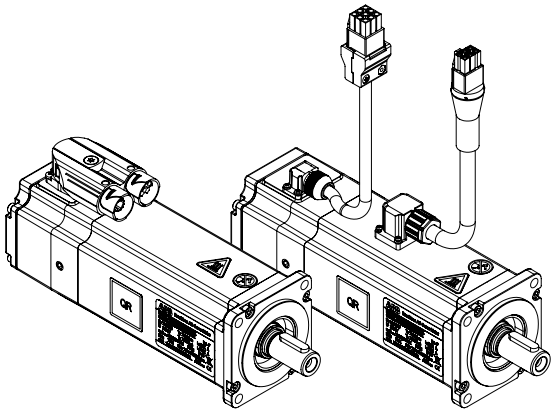
Installation altitude (m)	Ambient temperature (°C)				
	<30	40	45	50	55
1000	1.07	1.00	0.96	0.92	0.87
1500	1.04	0.97	0.93	0.89	0.84
2000	1.00	0.94	0.90	0.86	0.82
2500	0.96	0.90	0.86	0.83	0.78
3000	0.92	0.86	0.82	0.79	0.75
3500	0.88	0.82	0.79	0.75	0.71
4000	0.82	0.77	0.74	0.71	0.67
4500	0.76	0.72	0.70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

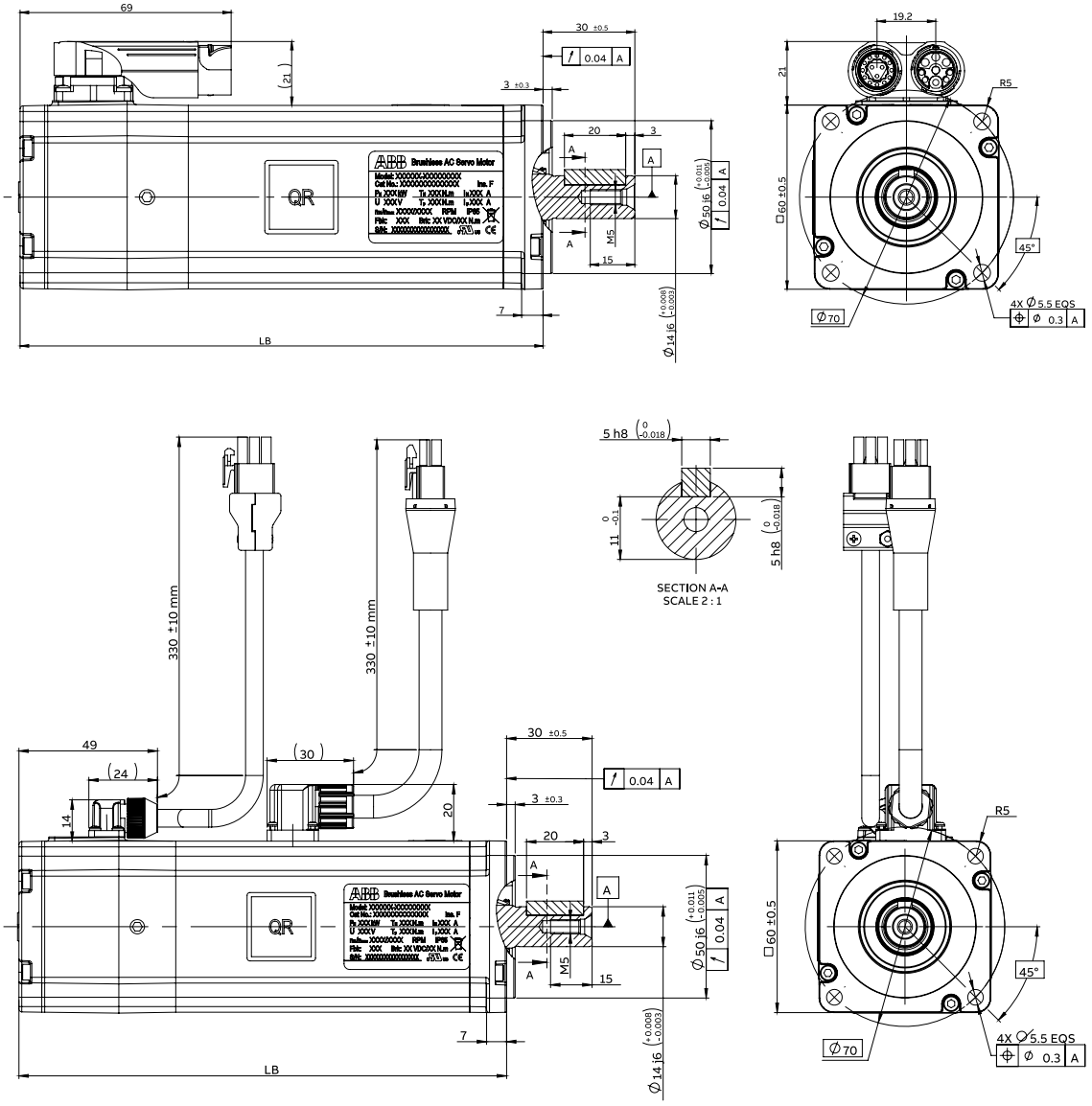
Notes: *1, If proper capacity derating operations are not done when motor's bearable load is exceeded, the servo motor will be overheated or damaged.

Technical data
Motor dimension

HDS60/6A layout

Model	LB [mm]
HDS60/6A-0102A, w/o brake	120
HDS60/6A-0102A, with brake	150
HDS60/6A-0104A, w/o brake	141
HDS60/6A-0104A, with brake	171

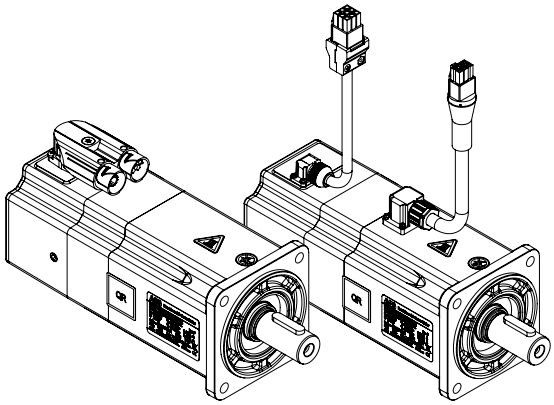


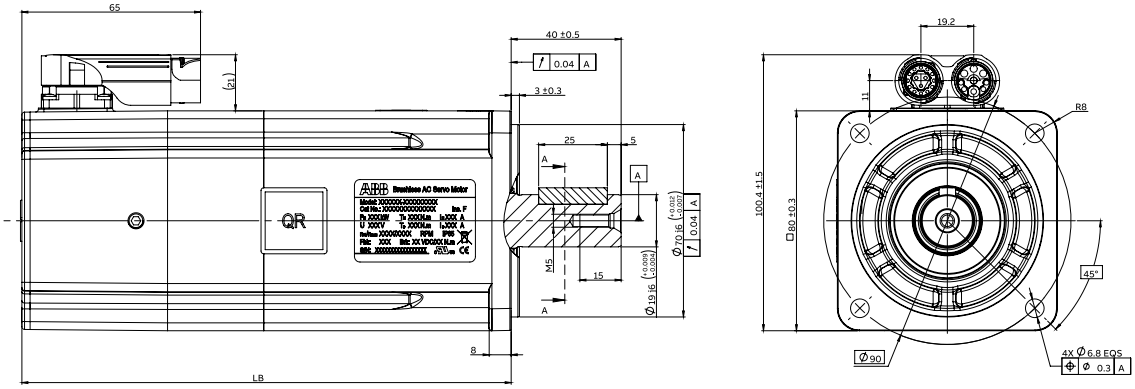


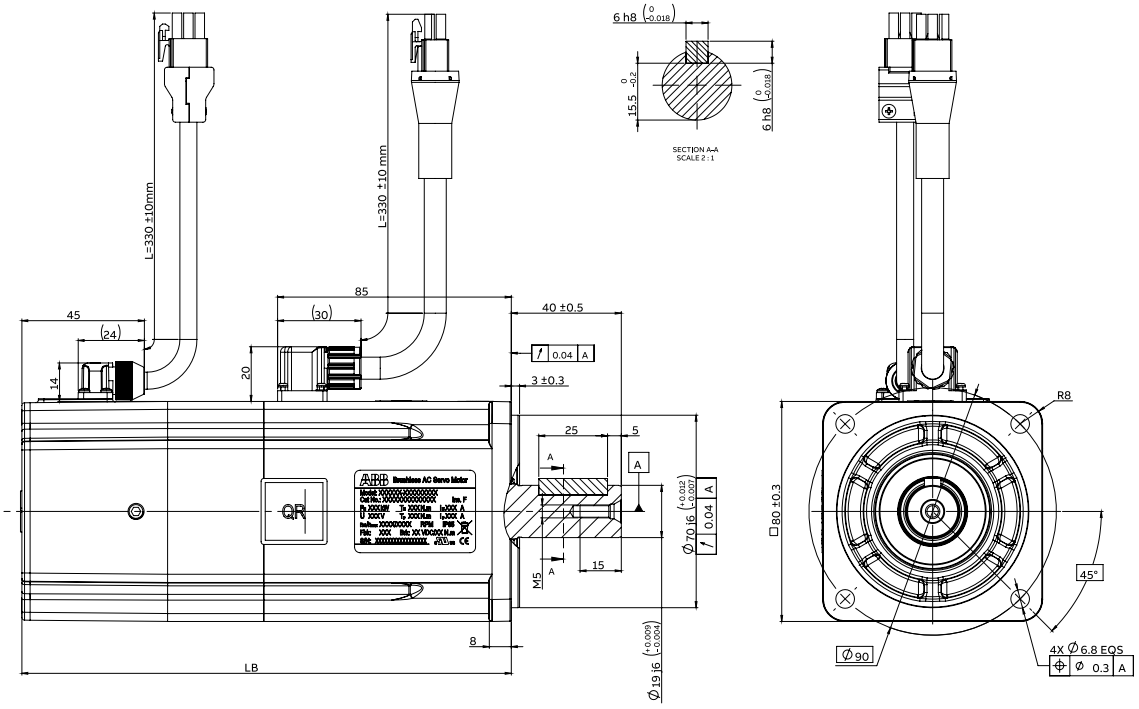
Technical data
Motor dimension

HDS80/8A layout

Model	LB [mm]
HDS80/8A-0309A, w/o brake	143
HDS80/8A-0309A, with brake	178



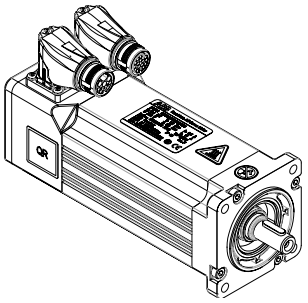


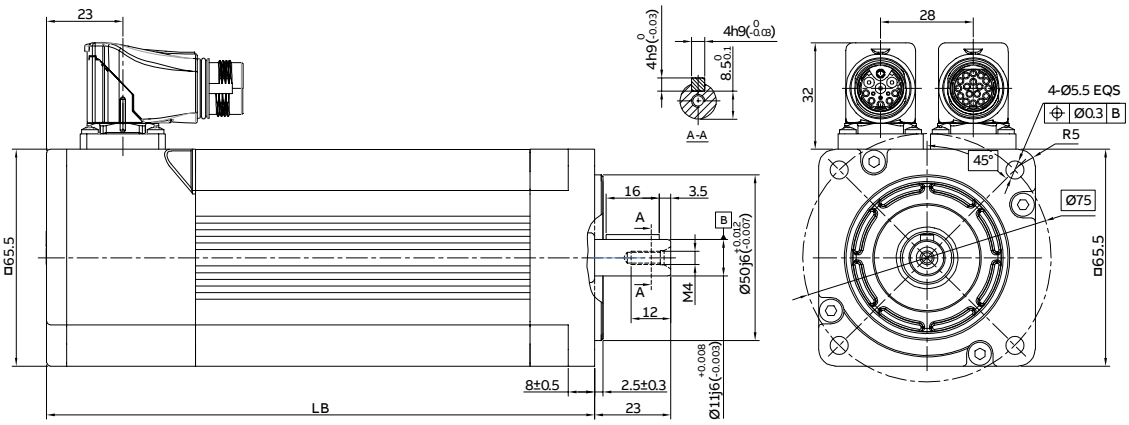


Technical data
Motor dimension

HDS65 layout (dual cable)

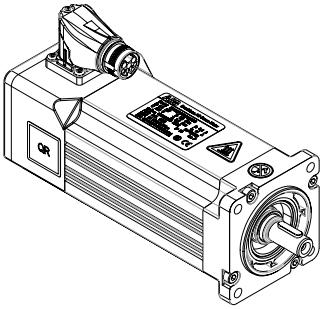
Model	LB [mm]
HDS65-0102	147.5
HDS65-0104	165.5
HDS65-0206	183.5

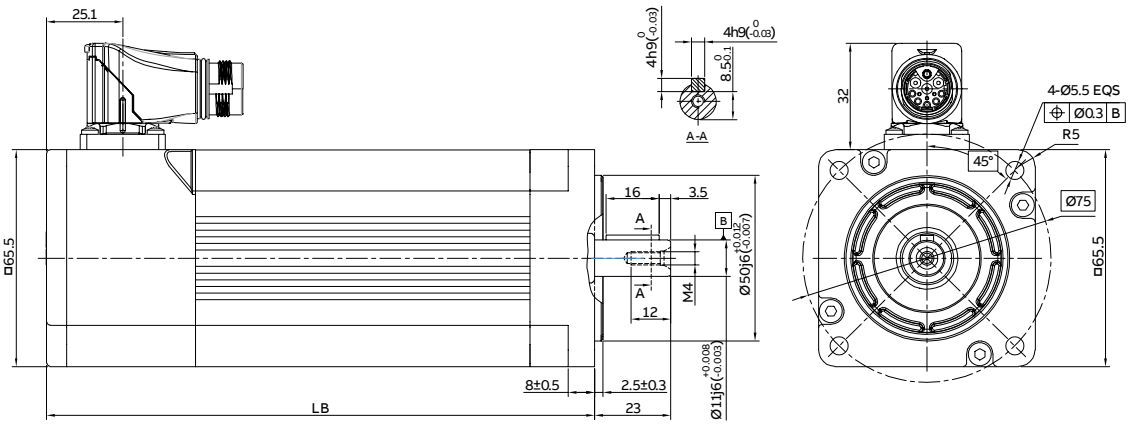




HDS65 layout (single cable)

Model	LB [mm]
HDS65-0102	147.5
HDS65-0104	165.5
HDS65-0206	183.5

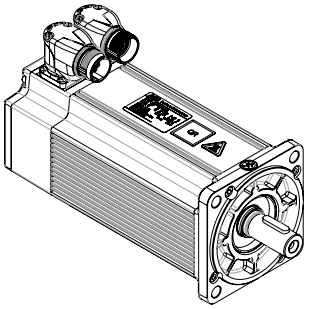


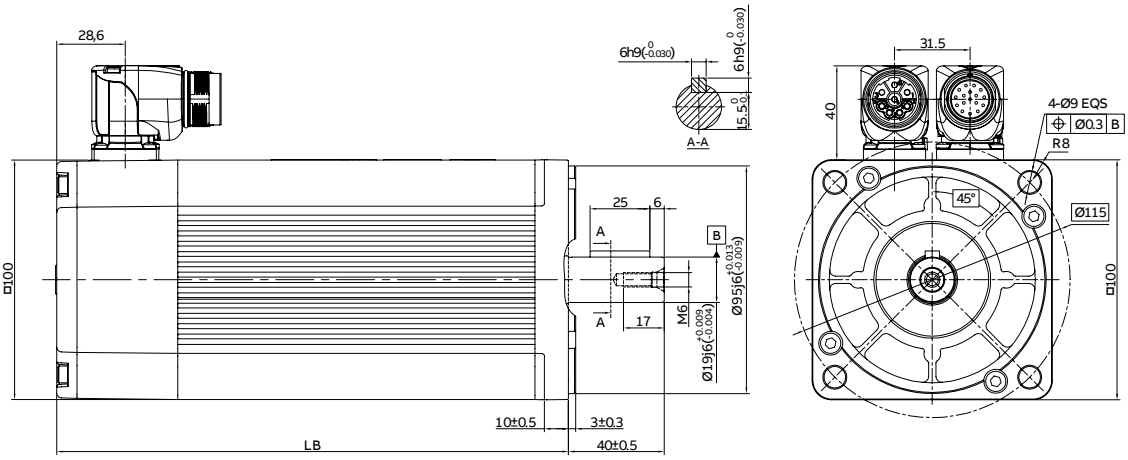


Technical data
Motor dimension

HDS100 layout (dual cable)

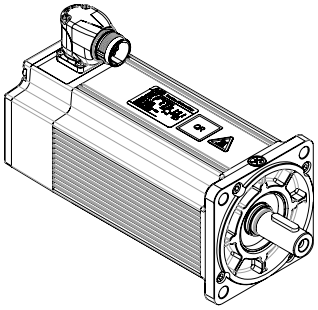
Model	LB [mm]
HDS100-0308	213.5
HDS100-0413	213.5
HDS100-0619	237.5

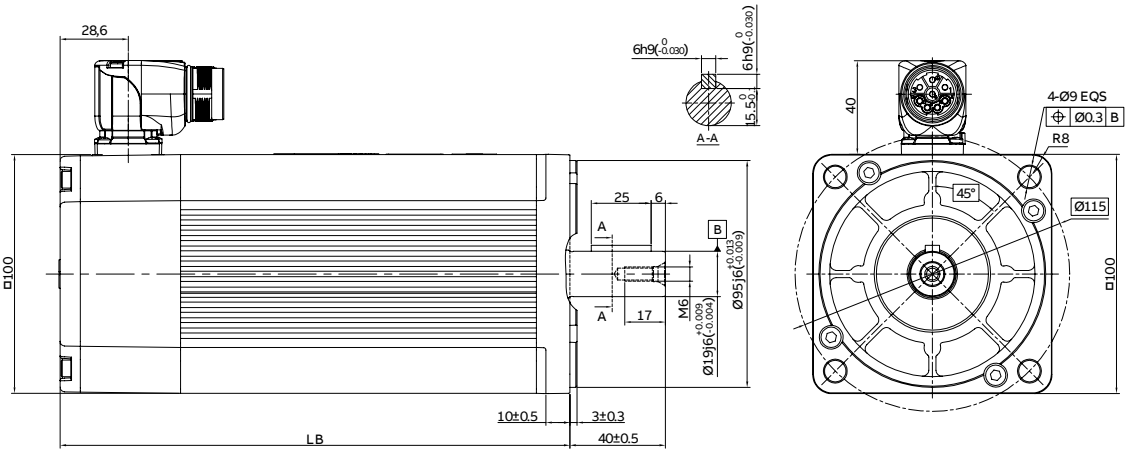




HDS100 layout (single cable)

Model	LB [mm]
HDS100-0308	213.5
HDS100-0413	213.5
HDS100-0619	237.5

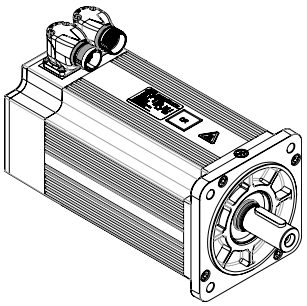


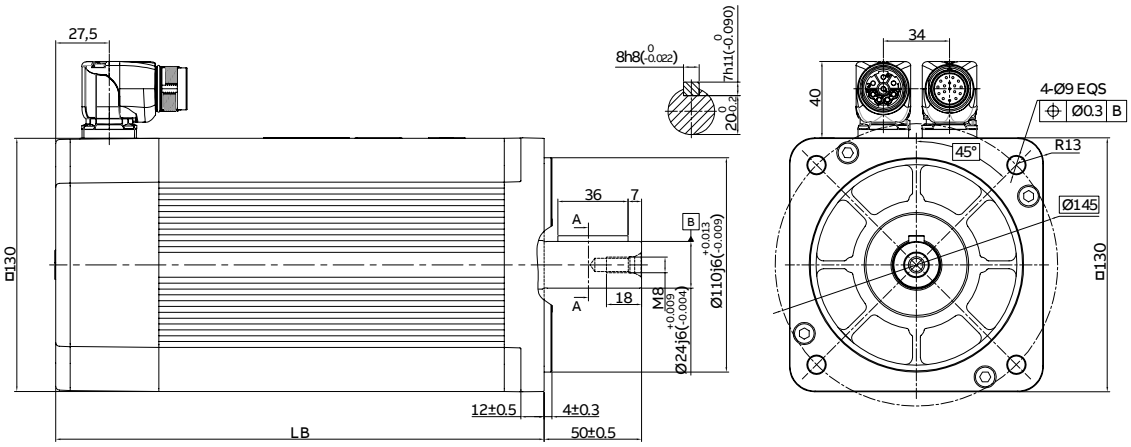


Technical data
Motor dimension

HDS130 layout (dual cable)

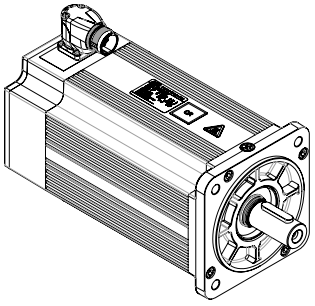
Model	LB [mm]
HDS130-0817, HDS130-0620	207
HDS130-1226	233
HDS130-1829	251

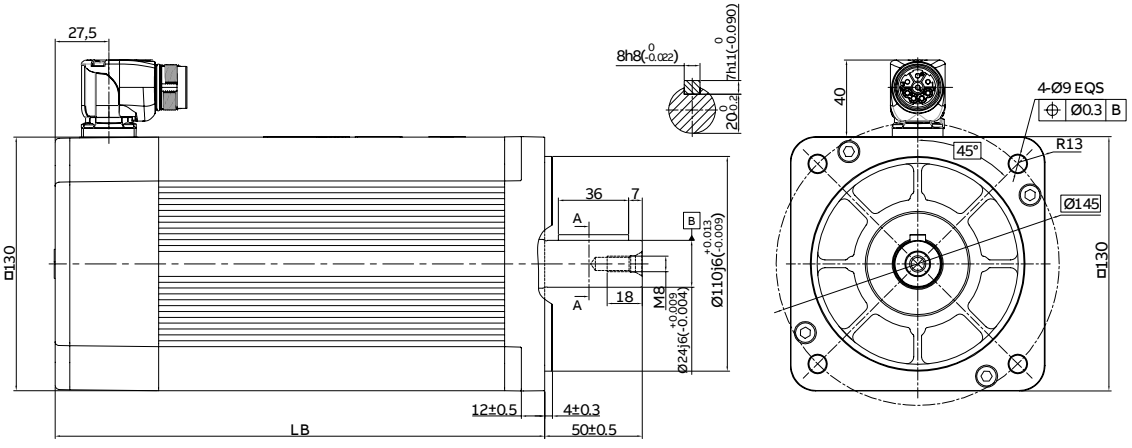




HDS130 layout (single cable)

Model	LB [mm]
HDS130-0817, HDS130-0620	207
HDS130-1226	233
HDS130-1829	251

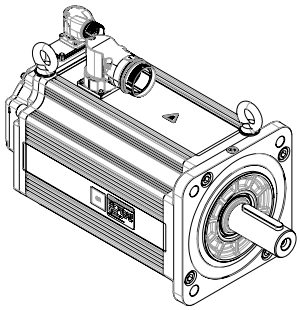


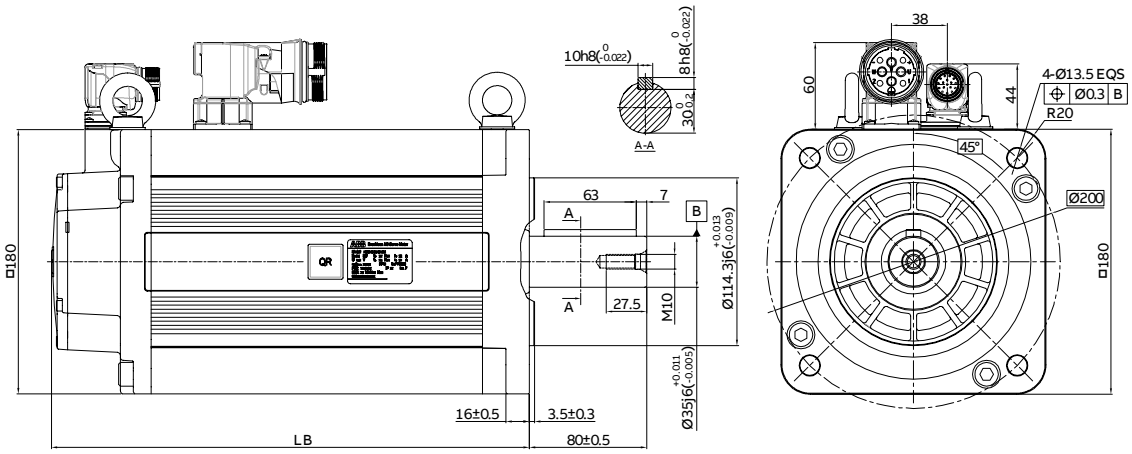


Technical data
Motor dimension

HDS180 layout (dual cable)

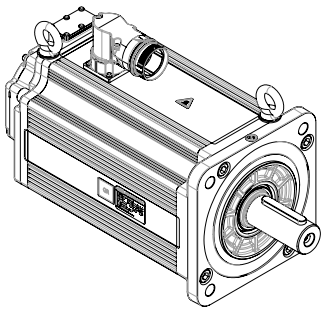
Model	LB [mm]
HDS180-2540	297
HDS180-3555	326
HDS180-4876	355

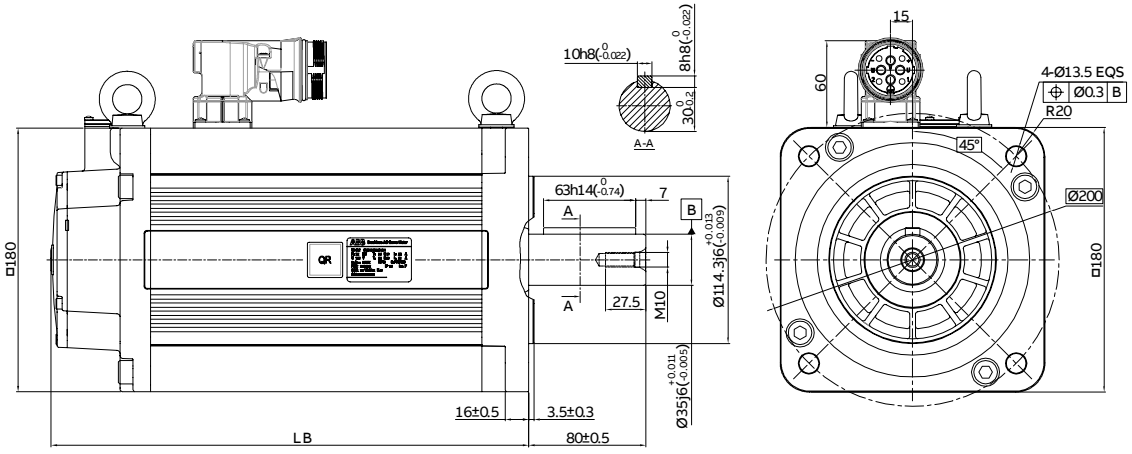




HDS180 layout (single cable)

Model	LB [mm]
HDS180-2540	297
HDS180-3555	326
HDS180-4876	355

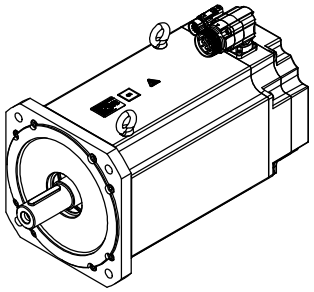


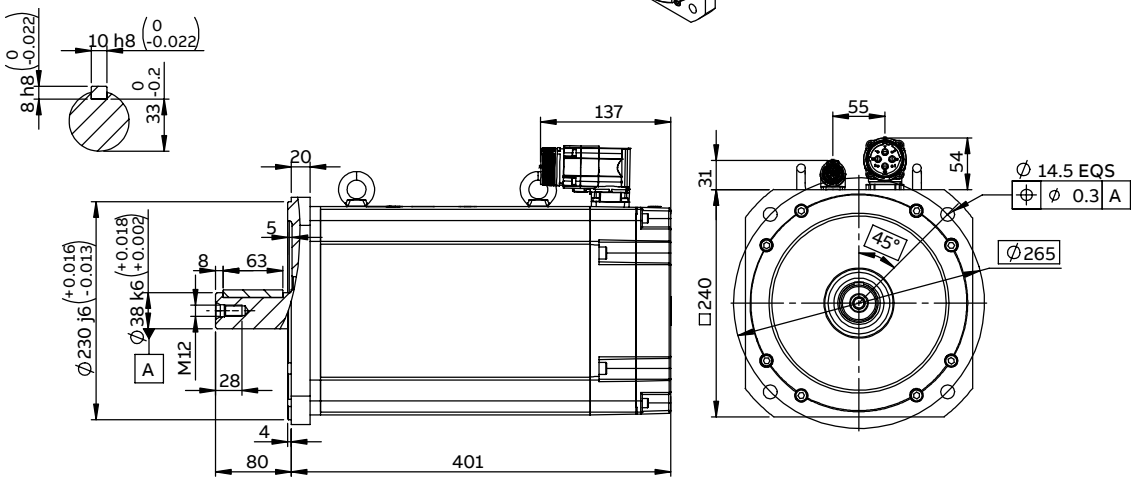


Technical data
Motor dimension

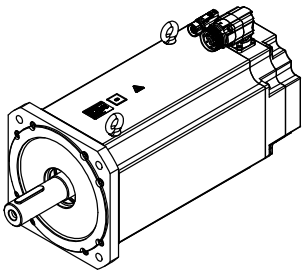
HDS240 layout (w/o brake [*1])

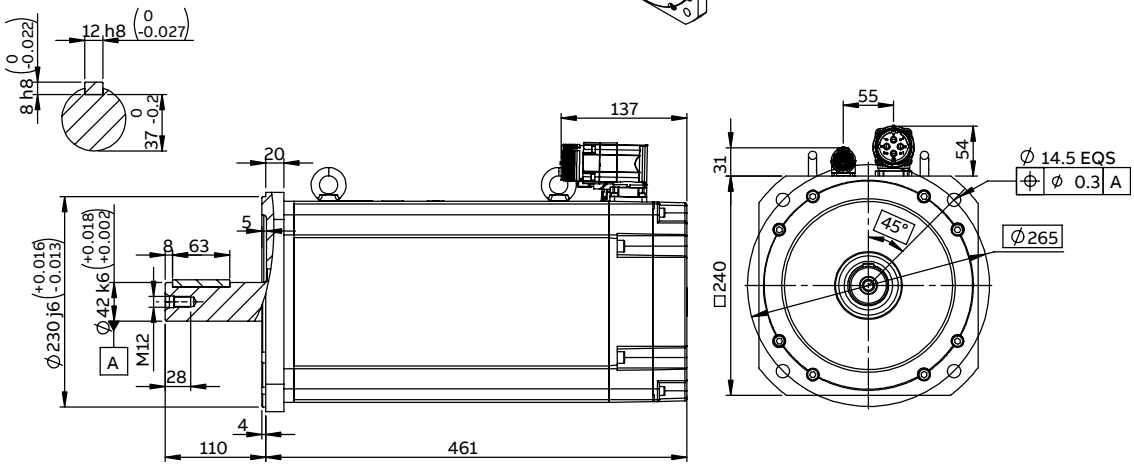
Model: HDS240-5011B





Model: HDS240-7215B



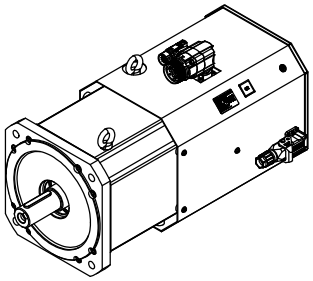


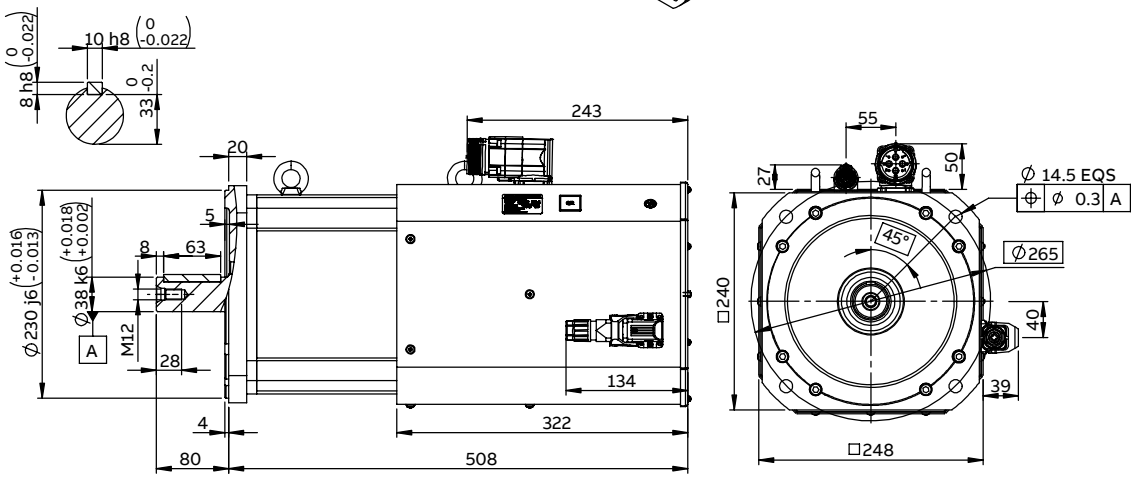
Notes: *1, For models with brakes, the length of HDS240 motors are 70 mm longer.

Technical data
Motor dimension

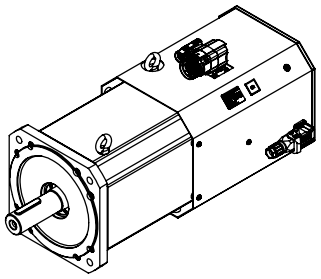
HDS240 layout (w/o brake)

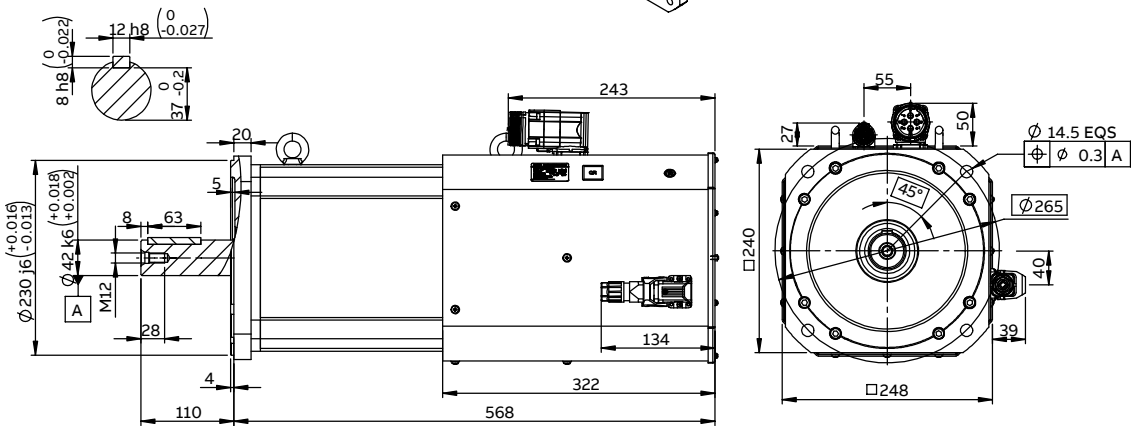
Model: HDS240F-6715B





Model: HDS240F-9320B



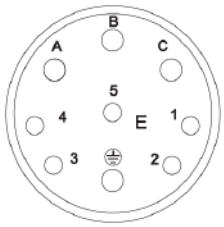


Technical data
Interface definition

Power interface - HDS60/80/6A/8A

Metal connector

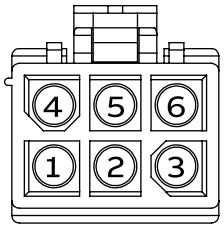
M15 power connector



HDS60/80	
Pin	**Definition**
A	U
B	V
C	W
PE	GND
1	Brake 24 V (optional)
2	Brake 0 V (optional)
3~5	-

Plastic connector

6-pin plastic connector

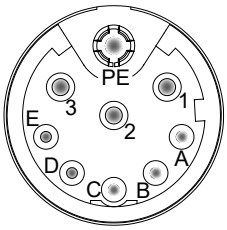


HDS6A/8A	
Pin	**Definition**
1	U
2	V
3	Brake 24 V (optional)
4	W
5	GND and shield
6	Brake 0 V (optional)

Power interface - HDS65/100/130/180/240

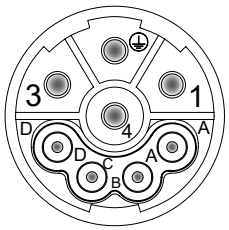
Dual cable

M17 power connector



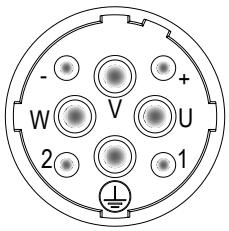
HDS65	
Pin	**Definition**
1	U
2	V
3	W
PE	Ground
A	Thermistor
B	Thermistor
C	Brake (optional)
D	Brake (optional)
E	-

M23 power connector



HDS100/130	
Pin	**Definition**
1	U
2	Ground
3	W
4	V
A	Thermistor
B	Thermistor
C	Brake (optional)
D	Brake (optional)

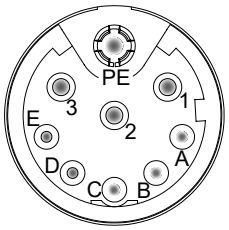
M40 power connector



HDS180/240	
Pin	**Definition**
U	U
V	V
W	W
PE	Ground
1	Thermistor
2	Thermistor
+	Brake (optional)
-	Brake (optional)

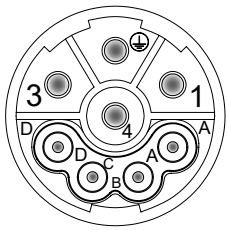
Single cable

M17 power connector



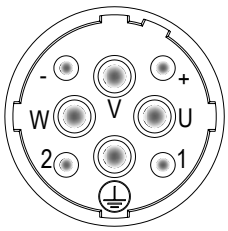
HDS65	
Pin	**Definition**
1	U
2	V
3	W
PE	Ground
A	+Us/DSL+/PTC
B	GND/DSL-/PTC
C	Brake (optional)
D	Brake (optional)
E	-

M23 power connector



HDS100/130	
Pin	**Definition**
1	U
2	Ground
3	W
4	V
A	+Us/DSL+/PTC
B	GND/DSL-/PTC
C	Brake (optional)
D	Brake (optional)

M40 power connector

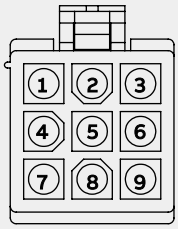


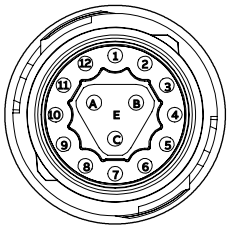
HDS180/240	
Pin	**Definition**
U	U
V	V
W	W
PE	Ground
1	+Us/DSL+/PTC
2	GND/DSL-/PTC
+	Brake (optional)
-	Brake (optional)

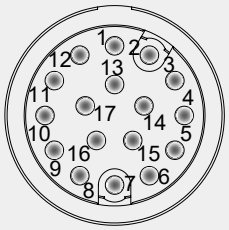
Technical data
Interface definition

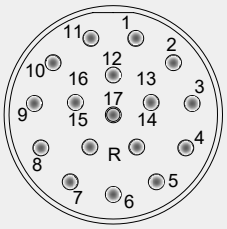
Feedback interface

Motor type	HDS6A/8A		HDS60/80		HDS65/100/130/180/240			
Pin	**Smart ABS**	**Hiperface**	**Smart ABS**	**Hiperface**	**Resolver**	**Smart ABS**	**Hiperface**	**Incremental encoder**
1	DC +5V	Us	DC +5V	Us	R1 (REF +)	DC +5V	Us	DC +5V
2	GND	GND	GND	GND	R2 (REF -)	GND	GND	GND
3	VB (battery)	COS +	VB (battery)	-	S1 (COS +)	VB (battery)	-	A +
4	GND (battery)	COS -	GND (battery)	-	S3 (COS -)	GND (battery)	-	A -
5	Data +	Data +	Data +	Data +	S4 (SIN -)	Data +	Data +	B +
6	Data -	Data -	Data -	Data -	S2 (SIN +)	Data -	Data -	B -
7	-	SIN +	-	SIN +	-	-	SIN +	Z +
8	-	SIN -	-	SIN -	-	-	SIN -	Z -
9	shield	shield	-	COS +	-	-	COS +	-
10	-	-	-	COS -	-	-	COS -	U +
11	-	-	-	-	-	-	-	U -
12	-	-	-	-	-	-	-	V +
13	-	-	-	-	-	-	-	V -
14	-	-	-	-	-	-	-	W +
15	-	-	-	-	-	-	-	W -
16~17	-	-	-	-	-	-	-	-
Connector type	**9-pin plastic connector**		**M15 signal connectors**		**M17（HDS65），M23（HDS100/130/180/240）**			





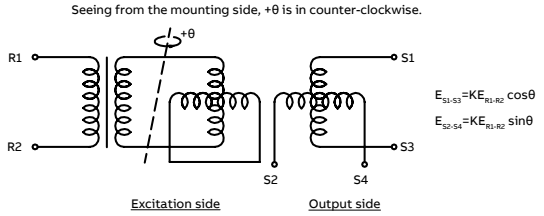




Product information
Feedback

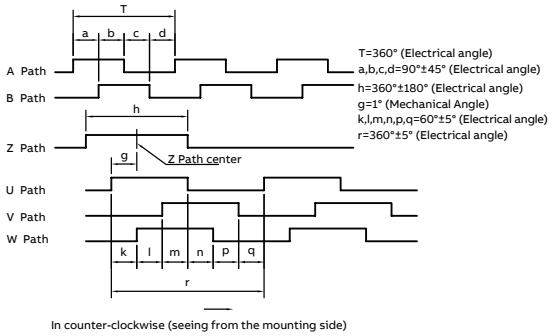
HDS series provides standard feedback options including resolver, incremental encoder, absolute encoder (Smart Abs® or Hiperface®), Hiperface DSL®, and EnDat 2.2. Please contact ABB in case of a customized feedback requirement.

Resolver



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	DC 500 V, ≥ 100 MΩ
Operating temperature	-55°C ~ +155°C
Maximum speed	6000 rpm (HDS100/130/180/240)
	20000 rpm (HDS65)

Incremental encoder



In counter-clockwise (seeing from the mounting side)

Input voltage	DC+5 V±5%
Data output	Long distance drive (AM26C31 differential drive)
	Incremental orthogonal 2 path
	10-polar Hall output
Resolution	2500 ppr
Precision	0.018° (mechanical angle)
Maximum electrical frequency	250 kHz
Maximum speed	6000 rpm
Operating temperature	-20°C ~+85°C

Smart Abs absolute encoder

Input voltage	DC +5 V±5%
Resolution	Code S and M: 17 bits/turn
	Code S2 and M2: 23 bits/turn
Multi-turns*1	16 bits
Memory	762 Bytes
Protocol	Smart protocol
Data transmission type	RS 485
Communication Baud rate	2.5 Mbps
Maximum rotation speed	6000 rpm
Maximum angular acceleration	80,000 rad/s^2
Direction of rotation	CCW (seeing from the mounting side)
Operating temperature	-10°C ~+85°C

*1, Smart Abs multi-turn absolute encoder needs external battery

Hiperface DSL absolute encoder

Input voltage	DC +7~+12 V
Input current	150 mA max (idle load)
Number of bids/rotation	18 bits (single-turn)
	18 bits (multi-turn)
Recordable rotation number	1 rotation (single-turn)
	4096 rotations (multi-turn)
Memory	8192 Bytes
Protocol	HIPERFACE DSL®
Data transmission type	RS 485
Digital position output frequency	0~75 kHz
Communication Baud rate	9.375 Mbps
Maximum speed	6000 rpm
Direction of rotation	CW (seeing from the mounting side)
Operating temperature	-20°C ~+115°C

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*2	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

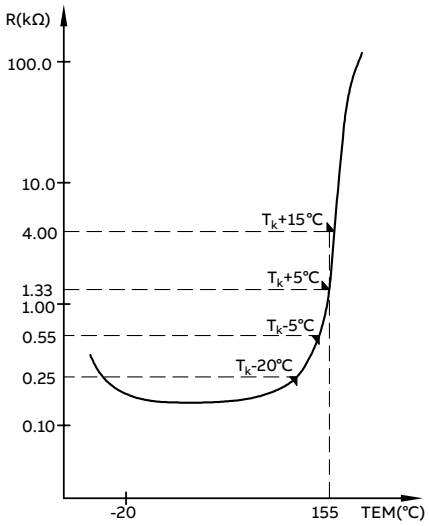
*2, The resolution of Hiperface encoder is co-decided by sine/cosine periods per revolution and the interpolation of the sine/cosine signals

Product information
Thermal protection & Fan

Thermal protection

The HDS series servo motors have Class F thermal protection, the maximum allowable operating temperature of the motor winding is 155°C and the maximum allowable temperature rise is 105 K at the environmental temperature 40°C.

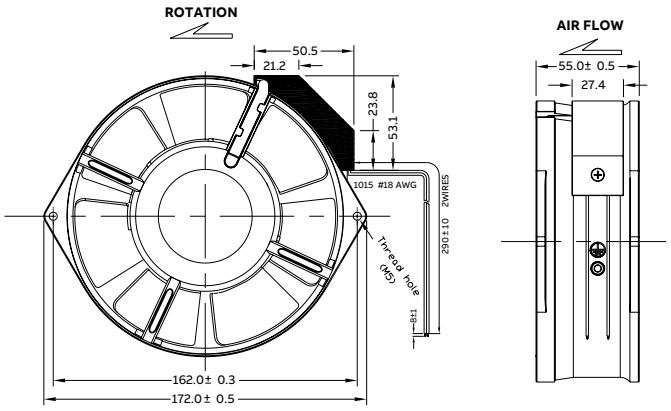
3 x PTC 155 thermistor [*1] is used and are connected in series to protect the 3-phase windings of motor.



Temperature curve of thermistor

Features of 3xPTC155	
Operating temperature	155℃
Resistance at 25℃	≤300Ω
Resistance below 135℃	≤750Ω
Resistance at 150℃	≤1650Ω
Resistance at 160℃	≥3990Ω

Fan



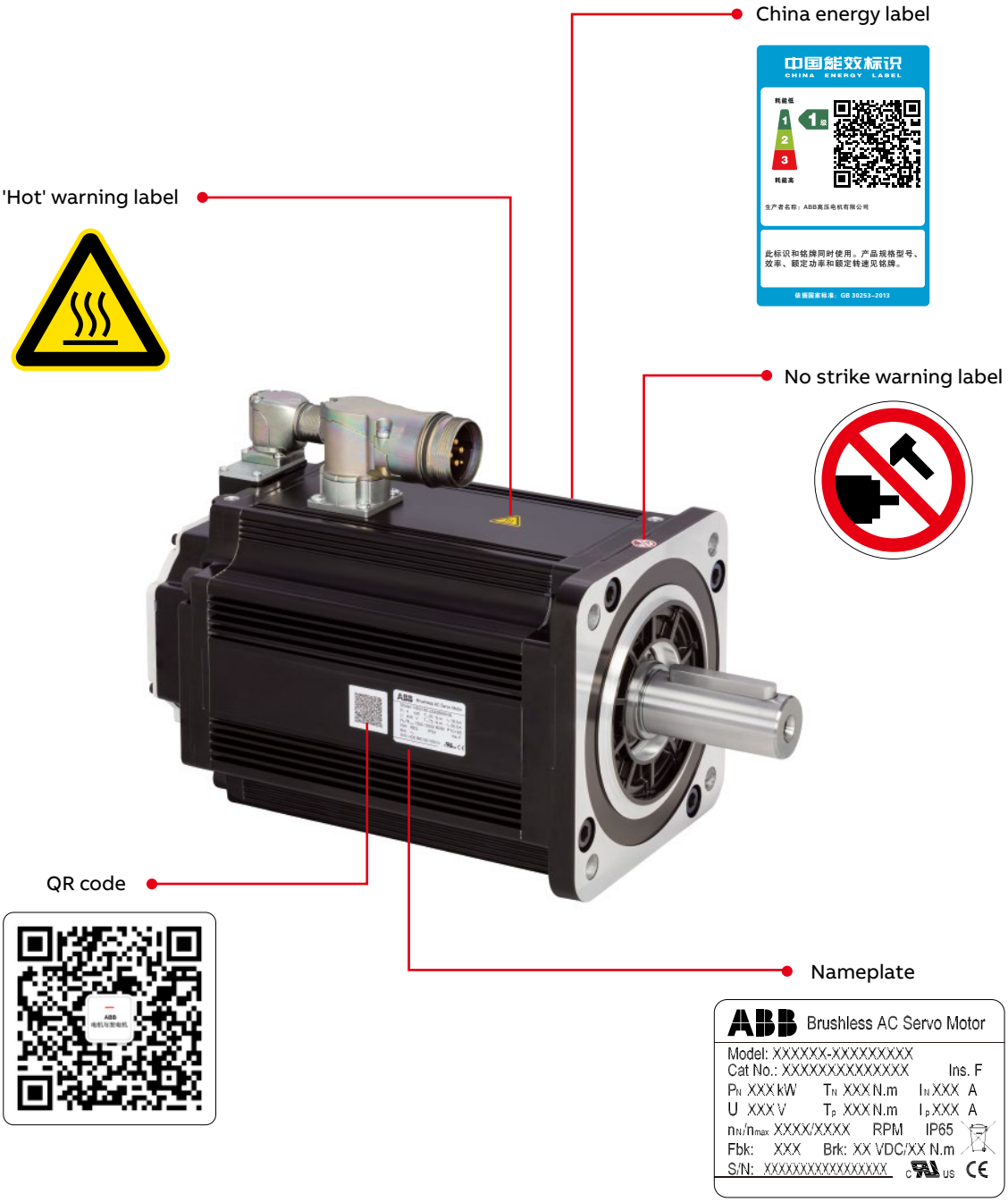
Project	Specifications/Conditions	
Form factor	Φ150 * 172 mm * 55 mm	
Rated voltage	AC 220 V~240 V	
Voltage range	AC 160 V~250 V	
Frequency	50/60 Hz	
Rated current	0.15 A/0.17 A±10%	25℃ 60~80%RH
Consumption power	34 W/37 W±10%	25℃ 60~80%RH
Speed	2800/3250RPM±10%	25℃ 60~80%RH
Max airflow rate	245/280CFM±10%	25℃ 60~80%RH
Max static pressure	0.50/0.55Inch-H_2O	Rated current
Noise	50/54dB (A)	
Weight	830g	

Notes: *1, Standard models with 60 and 80 flanges do not have the heat protection option. If required, please contact ABB.

Product information
Nameplate and identifiers

HDS series motor is accompanied with nameplate, QR code, hot warning and no strike warning marks.

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



Ordering information
HDS servo motors

H	D	S	1	3	0	c	–	t	t	t	p	p	v	f	f	k	b	s

Flange dimension

60 mm
80 mm
6A: 60mm, plastic connector
8A: 80mm, plastic connector
65 mm
100 mm
130 mm
180 mm
240 mm

Motor Options

W: Water Cooled
F: Fan Cooled
C: Large inertia*1
- : Regular inertia

Rated torque

08: ≤ 8 Nm

Rated power*2

1st 2 digits of power value by kW
17: 1.7 kW, below 10 kW (HDS60/80/65/100/130/180)
15: 15 kW, 10 kW and above (HDS240)

Input voltage

A: 3ph 230 VAC
B: 3ph 400 VAC

Feedback*3

R: Resolver
E: Incremental encoder, w/commutation, 2500 ppr
S: Absolute encoder, single-turn, Smart Abs, 17 bit
M: Absolute encoder, multi-turn, Smart Abs, 17 + 16 bit*4
S2: Absolute encoder, single-turn, Smart Abs, 23 bit
M2: Absolute encoder, multi-turn, Smart Abs, 23 + 16 bit*4
G: Absolute encoder, single-turn, single-cable, Hiperface DSL
D: Absolute encoder, multi-turn, single-cable, Hiperface DSL
D3: Absolute encoder, single-turn, Hiperface SKS36, 128 sine/cosine periods per revolution
D4: Absolute encoder, multi-turn, Hiperface SKM36, 128 sine/cosine periods per revolution, 4096 revolutions measurable

Shaft end

K: Keyway (Half key balance)
N: No Keyway

Brake

B: With brake
N: Without Brake

Oil Seal

S: With seal
N: Without seal

Notes: *1, Large inertia types have the same dimensions as the corresponding regular inertia types.
*2, For motors below 10 kW (HDS65/100/130/180), "04" = 0.4 kW, "17" = 1.7 kW, etc.; for 10 kW and above (HDS240), "15" = 15 kW, etc.
*3, HDS series servo motors also provide the feedback encoders of Endat protocol, please contact ABB for configuration and motor types of EnDat feedback options.
*4, Smart Abs multi-turn absolute encoder requires external battery to operate, its feedback cable shall provide an external battery box. Please contact ABB for necessary customization needs.

Ordering information
Cable

Cable assembly P/N

C	B	L	C	0	3	0	0	6	F	3	X	F

Cable length *1
030: 3 m
050: 5 m
100: 10 m
150: 15 m
200: 20 m
300: 30 m

Motor type - Power and DSL cable
08: HDS60, HDS80
A8: HDS6A, HDS8A
06: HDS65
13: HDS100, HDS130
18: HDS180
24: HDS240

Motor type - Feedback cable
08: HDS60, HDS80
A8: HDS6A, HDS8A
06: HDS65
13: HDS100, HDS130, HDS180
24: HDS240

Power and DSL cable – maximum current
06: 6 A
12: 12 A
20: 20 A
35: 35 A
50: 50 A

Feedback cable – feedback type (corresponding ABB servo drive)
F1: Incremental encoder (MotiFlex e180, MicroFlex e190)
F3: Resolver (MotiFlex e180)
F3X: Resolver (MicroFlex e190)
A3: Resolver (ACS880)
F6: Absolute encoder, Hiperface single-turn/multi-turn, Smart Abs single-turn (MotiFlex e180, MicroFlex e190)
F6X: Absolute encoder, Smart Abs multi-turn, with battery box (MotiFlex e180, MicroFlex e190)
A6: Absolute encoder, Hiperface single-turn/multi-turn, Smart Abs single-turn (ACS880)
A6X: Absolute encoder, Smart Abs multi-turn, with battery box (ACS880)

Type
P: Power cable, with brake
M: Power cable, w/o brake
F: Feedback cable
D: DSL cable

Example:
CBLC0300606P: 3 m power cable, suitable to HDS65 series motor, maximum current 6 A;
CBLC10013F3XF: 10 m feedback cable, HDS100/130/180 motor, resolver feedback, MicroFlex e190.

Notes: *1, For non-standard lengths, please contact ABB.

Ordering information
Cable

Connector P/N

S	P	M	C	0	6	F	1

Motor type - Power and DSL cable

08: HDS60, HDS80
A8: HDS6A, HDS8A
06: HDS65
13: HDS100, HDS130
18: HDS180
24: HDS240

Motor type - feedback cable

08: HDS60, HDS80
A8: HDS6A, HDS8A
06: HDS65
13: HDS100, HDS130, HDS180
24: HDS240

Type

P: Power or DSL connector
F: Feedback connector, HDS60/80/6A/8A
F1: Feedback connector, resolver, 6 pins
F2: Feedback connector, incremental encoder, 12 pins
F6: Feedback connector, Smart ABS and Hiperface, 10 pins

Example:
SPMC06P: HDS65 power connector;
SPMC13F2: HDS100/130/180 incremental encoder feedback connector.

Cable P/N

S	P	C	B	1	0	0	1	6	C	F

Cable length

100: 10 m
150: 15 m
200: 20 m
300: 30 m

Power and DSL cable – maximum current

06: 6 A
12: 12 A
20: 20 A
35: 35 A
50: 50 A

Number of cores in feedback cable

06C: 6-core
08C: 8-core
12C: 12-core
16C: 16-core

Type

P: Power and HDS cable
F: Feedback cable

Example:
SPCB20006P: 20 m power cable, maximum current 6 A;
SPCB30016CF: 30 m feedback cable, 16-core.

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

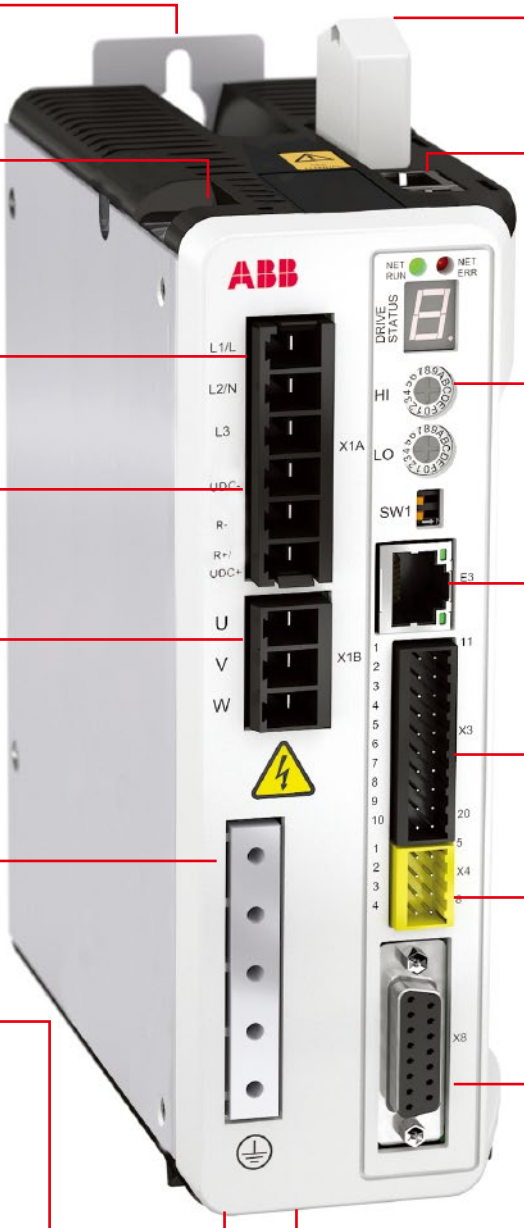
DC bus connection and braking resistor connection
- 270...340 V DC

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

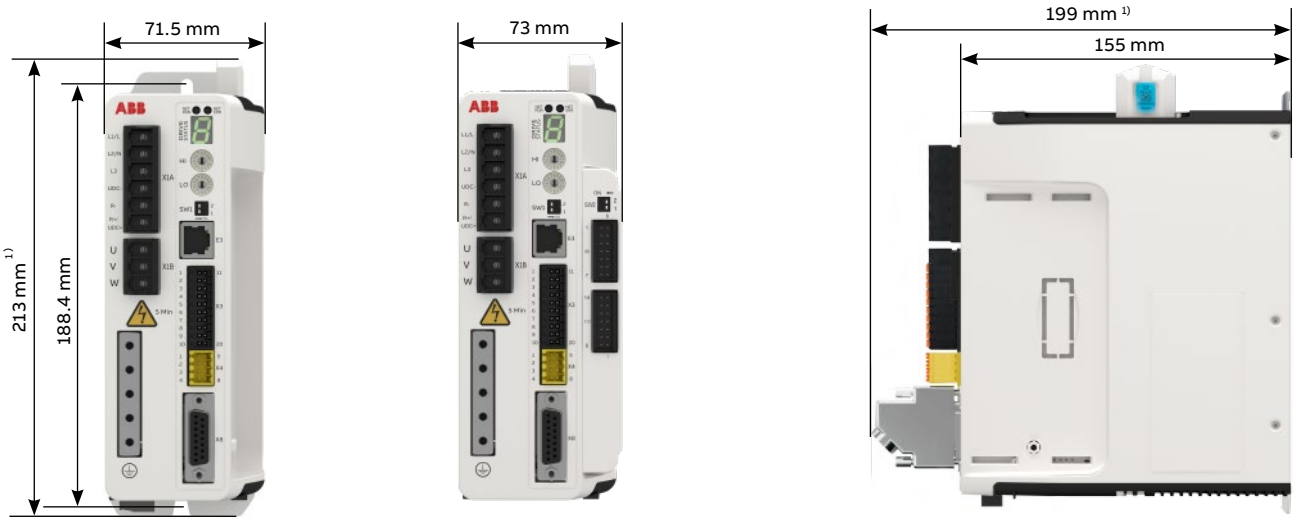
Digital and analog I/O
- 4 DIs, 3 DOs, 1 AI, 1 AO
- Including 2 latch inputs for position registration <1 µs latency
- Expandable via OPT-SIO-1 to a total of 10 DIs, 7 DOs, 2 AIs, 1 AO + serial port 2-wire RS485 or 4-wire RS422

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 35.

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

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

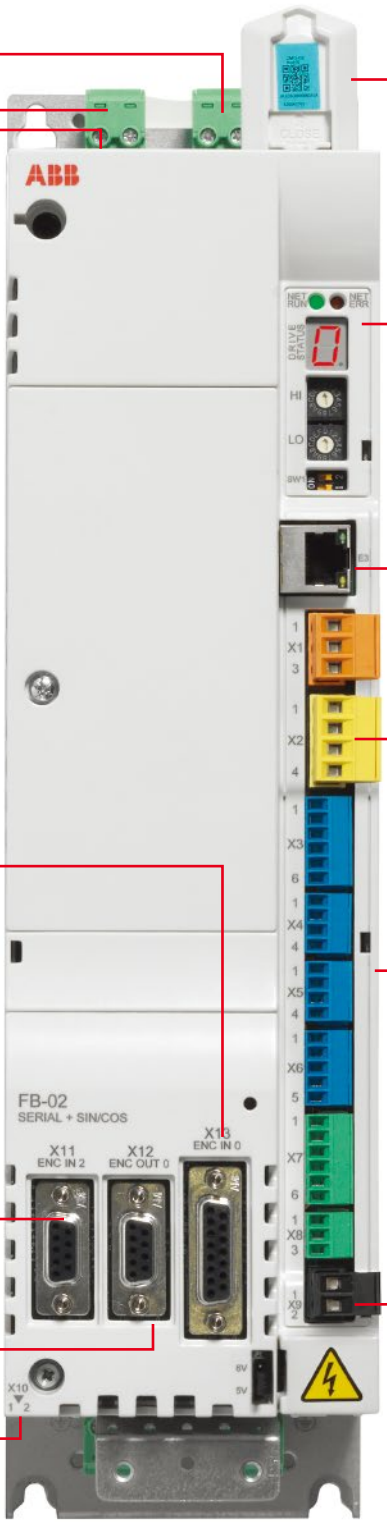
Ethernet ports E1 and E2
2 Ethernet ports with LED indicators for:
- EtherCAT
- POWERLINK
- PROFINET IO

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)

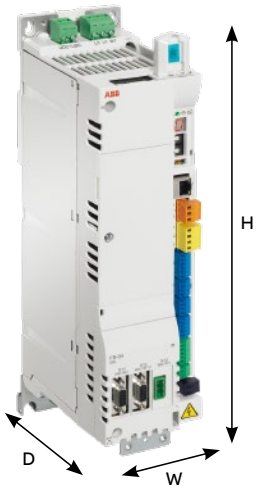
24 V control supply
- Maintain communications and position with AC power removed

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 39.

More motion control solutions

ACS880 (+N5700) - choice of the high power position control application

Technical data

ACS880 position control program (+N5700)	
Motor and feedback	
Motors	Asynchronous, permanent magnet (servo and high torque), synchronous reluctance motors
Feedback devices	HTL, TTL, sin/cos, EnDat, Hiperface, SSI, resolvers
Position control function	
Homing	Different modes with home switch, and index pulse
Absolute/relative positioning	Linear/rotary/modulo
Profiled positioning	Target position, velocity, acceleration/deceleration, jerk 8 predefined sets via DI/fieldbus Target change on the fly
Position synchronizing/electrical shaft	Reference via master encoder, drive-to-drive link, or virtual master
Fast position latching	With 2 position registers for homing, position correction
Jogging	Adjusting an axis while maintaining smooth position control
Control performance	
Position control loop	500 µs
Drive-to-drive link	500 µs
Speed control loop	500 µs
Torque control loop	125 µs

ACS880 position control program (+N5700)	
Programmability	
IEC61131 programming	Ladder, IL, CFC, FBD, ST, SFC
Motion control library	PLCopen motion function blocks and additional ABB specific blocks
Adaptive programming	50 blocks for flexible adjustments
Programming tools	Drive application builder for IEC programming Drive composer for adaptive programming
ACS880 drive product family	
Power and voltage range	0.55 to 5600 kW, 3-phase, 230 to 690 V
Enclosure	IP00 to IP55
Configurations	Single and multidrive (common DC)
Mounting	Wall-mounting up to IP55, stand-alone cabinet-built, modules for cabinet mounting, flange (push through) mounting
Functional safety	
Supported functions	Safe torque off (STO), Safe stop 1 (SS1), Safe stop emergency (SSE), Safe brake control (SBC), Safely limited speed (SLS) with without encoder, Safe maximum speed (SMS), Prevention of unexpectedstartup (POUS), Safe direction (SDI), Safe speed monitoring (SSM), Safe temperature monitoring (SMT)
Safety data	PL e、SIL 3
Safety communication	PROFIsafe over PROFINET IO

Ordering information of the ACS880 for position control

ACS880 - XX - XXXX - 3 + D150 + N5700

Product series

Type and construction

01: Wall-mounted
04: Single drive module

Rated current

Rated voltage

3: 400V

Option code

D150: Brake unit

Position control program

More motion control solutions

ACS880 (+N5700) - choice of the high power position control application

Technical data

Drive type	Frame size	Brake unit	Nominal ratings			Low overload		High overload		Noise level (dB (A))	Heat dissipation (W)	Air flow (m^3/h)
			I_N (A)	I_{MAX} (A)	P_N (KW)	I_{Ld} (A)	P_{Ld} (kW)	I_{Hd} (A)	P_{Hd} (kW)			
ACS880-01-02A4-3+N5700	R1	Built-in	2.4	3.1	0.75	2.3	0.75	1.8	0.55	46	30	44
ACS880-01-03A3-3+N5700	R1	Built-in	3.3	E4.1	1.1	3.1	1.1	2.4	0.75	46	40	44
ACS880-01-04A0-3+N5700	R1	Built-in	4.0	5.6	1.5	3.8	1.5	3.3	1.1	46	52	44
ACS880-01-05A6-3+N5700	R1	Built-in	5.6	6.8	2.2	5.3	2.2	4.0	1.5	46	73	44
ACS880-01-07A2-3+N5700	R1	Built-in	8.0	9.5	3.0	7.6	3.0	5.6	2.2	46	94	44
ACS880-01-09A4-3+N5700	R1	Built-in	10	12.2	4.0	9.5	4.0	8.0	3.0	46	122	44
ACS880-01-12A6-3+N5700	R1	Built-in	12.9	16	5.5	12	5.5	10	4.0	46	172	44
ACS880-01-017A-3+N5700	R2	Built-in	17	21	7.5	16	7.5	12.6	5.5	51	232	88
ACS880-01-025A-3+N5700	R2	Built-in	25	29	11	24	11	17	7.5	51	337	88
ACS880-01-032A-3+N5700	R3	Built-in	32	42	15	30	15	25	11	57	457	134
ACS880-01-038A-3+N5700	R3	Built-in	38	54	18.5	36	18.5	32	15	57	562	134
ACS880-01-045A-3+N5700	R4	Built-in	45	64	22	43	22	38	18.5	62	667	134
ACS880-01-061A-3+N5700	R4	Built-in	61	76	30	58	30	45	22	62	907	280
ACS880-01-072A-3+N5700[1]	R5	Optional	72	104	37	68	37	61	30	62	1117	280
ACS880-01-087A-3+N5700[1]	R5	Optional	87	122	45	83	45	72	37	62	1120	280
ACS880-01-105A-3+N5700[1]	R6	Optional	105	148	55	100	55	87	45	67	1295	435
ACS880-01-145A-3+N5700[1]	R6	Optional	145	178	75	138	75	105	55	67	1440	435
ACS880-01-169A-3+N5700[1]	R7	Optional	169	247	90	161	90	145	75	67	1940	450
ACS880-01-206A-3+N5700[1]	R7	Optional	206	287	110	196	110	169	90	67	2310	450
ACS880-01-246A-3+N5700[1]	R8	Optional	246	350	132	234	132	206	110	65	3300	550
ACS880-01-293A-3+N5700[1]	R8[2]	Optional	293	418	160	278	160	246[5]	132	65	3900	550
ACS880-01-363A-3+N5700[1]	R9[3]	Optional	363	498	200	345	200	293	160	68	4800	1150
ACS880-01-430A-3+N5700[1]	R9[4]	Optional	430	545	250	400	200	363[6]	200	68	6000	1150
ACS880-04-505A-3+N5700[1]	R10	Optional	505	560	250	485	250	361	200	72	5602	1200
ACS880-04-585A-3+N5700[1]	R10	Optional	585	730	315	575	315	429	250	72	6409	1200
ACS880-04-650A-3+N5700[1]	R10	Optional	650	730	355	634	355	477	250	72	8122	1200
ACS880-04-725A-3+N5700[1]	R11	Optional	725	1020	400	715	400	566	315	72	8764	1200
ACS880-04-820A-3+N5700[1]	R11	Optional	820	1020	450	810	450	625	355	72	9862	1200
ACS880-04-880A-3+N5700[1]	R11	Optional	880	1100	500	865	500	725[7]	400	71	10578	1420

Note	
I_N	Rated current available continuously without overloadability at 40 °C.
P_N	Typical motor power in no-overload use.
I_{MAX}	Maximum output current. Available for 10 seconds at start, then as long as allowed by drive temperature. Low overload.
I_{Ld}	Continuous current allowing 110% I_{Ld} for 1 minute every 5 minutes at 40 °C.
P_{Ld}	Typical motor power in low overload use.
I_{Hd}	Continuous current allowing 150% I_{Hd} for 1 minute every 5 minutes at 40 °C.
P_{Hd}	Typical motor power in high overload use.

The ratings apply at 40 °C ambient temperature. At higher temperatures (up to 55 °C) the derating is 1%/1 °C.

[1] For the drives with the frame size from R5 to R11, you can choose to assemble an optional brake unit. Add the option code "+D150" when you order the drives and then the brake unit is assembled at delivery.
[2] For drives with enclosure class IP55 the ratings apply at 40 °C ambient temperature. At higher temperature the derating is from 40 to 45 °C 1%/1 °C and 45 to 55 °C 2.5%/1 °C.
[3] For drives with enclosure class IP55 the ratings apply at 40 °C ambient temperature. At higher temperatures the derating is from 40 to 45 °C. 1%/1 °C and 45 to 50 °C 2.5%/1 °C and 50 to 55 °C 5%/1 °C.
[4] For drives with enclosure class IP55 the maximum ambient temperature is 35 °C.
[5] =130% overload.
[6] =125% overload.
[7] Continuous rms output current allowing 40% overload for 1 minute every 5 minutes.

Product package combination

MicroFlex e190 and HDS servo motor

Motor type and rating			Drive type and rating				Package rating		
Motor type	Cout 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)
HDS6x-0102A	1.3	5.1	MFE190-04UD-03A0-2	200%	3.0	6.0	0.637	2.23	0.2
				300%	2.5	7.5	0.637	2.23	0.2
HDS6x-0104A	2.6	10.5	MFE190-04UD-03A0-2	200%	3.0	6.0	1.27	2.55	0.4
				300%	2.5	7.5	1.22	3.19	0.4
			MFE190-04UD-06A0-2	200%	6.0	12.0	1.27	4.46	0.4
				300%	5.3	15.8	1.27	4.46	0.4
HDS8x-0309A	5.5	20.5	MFE190-04UD-06A0-2	200%	6.0	12.0	2.7	5.5	0.9
				300%	5.3	15.8	2.6	7.2	0.9
			MFE190-04UD-090A-2	200%	9.0	18.0	2.7	8.3	0.9
				300%	7.5	22.5	2.7	9.4	0.9
HDS65-0102A	1.6	5.8	MFE190-04UD-03A0-2	200%	3.0	6.0	0.6	1.8	0.2
				300%	2.5	7.5	0.6	1.8	0.2
HDS65-0104A	3.3	12.0	MFE190-04UD-06A0-2	200%	6.0	12.0	1.2	3.6	0.4
				300%	5.3	15.8	1.2	3.6	0.4
HDS65-0206A	4.7	17.6	MFE190-04UD-06A0-2	200%	6.0	12.0	1.8	3.7	0.6
				300%	5.3	15.8	1.8	4.8	0.6
			MFE190-04UD-090A-2	200%	9.0	18.0	1.8	5.4	0.6
				300%	7.5	22.5	1.8	5.4	0.6
HDS100-0308A	4.3	15.5	MFE190-04UD-06A0-2	200%	6.0	12.0	2.5	5.8	0.8
				300%	5.3	15.8	2.5	7.5	0.8
			MFE190-04UD-090A-2	200%	9.0	18.0	2.5	7.5	0.8
				300%	7.5	22.5	2.5	7.5	0.8
HDS100-0413A	6.9	25.7	MFE190-04UD-090A-2	200%	9.0	18.0	4.0	8.4	1.3
				300%	7.5	22.5	4.0	10.5	1.3

[1] The e190 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.

Product package combination

MotiFlex e180 and HDS servo motors

Motor type and rating			Drive type and rating				Package rating		
Motor type	Cout 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)
HDS6x-0102A	1.3	5.1	MFE180-04AN-03A0-4	200%	3.0	6.0	0.637	2.2	0.2
				300%	2.0	6.0	0.637	2.2	0.2
HDS6x-0104A	2.6	10.5	MFE180-04AN-05A0-4	200%	4.0	8.0	1.27	3.40	0.4
				300%	2.7	8.1	1.27	3.44	0.4
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.27	3.99	0.4
				300%	3.2	9.6	1.27	4.08	0.4
			MFE180-04AN-016A-4	200%	9.0	18.0	1.27	4.46	0.4
				300%	7.0	21.0	1.27	4.46	0.4
HDS8x-0309A	5.5	20.5	MFE180-04AN-016A-4	200%	9.0	18.0	2.7	8.3	0.9
				300%	7.0	21.0	2.7	9.4	0.9
			MFE180-04AN-024A-4	200%	13.0	27.0	2.7	9.4	0.9
				300%	10.0	30.0	2.7	9.4	0.9
HDS65-0102A	1.6	5.8	MFE180-04AN-03A0-4	200%	3.0	6.0	0.6	1.8	0.2
				300%	2.0	6.0	0.6	1.8	0.2
HDS65-0104A	3.3	12.0	MFE180-04AN-05A0-4	200%	4.0	8.0	1.2	2.4	0.4
				300%	2.7	8.1	1.0	2.4	0.4
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.2	2.8	0.4
				300%	3.2	9.6	1.2	2.9	0.4
			MFE180-04AN-016A-4	200%	9.0	18.0	1.2	3.6	0.4
				300%	7.0	21.0	1.2	3.6	0.4
HDS65-0206A	4.7	17.6	MFE180-04AN-05A0-4	200%	4.0	8.0	1.5	2.5	0.6
				300%	2.7	8.1	1.0	2.5	0.6
			MFE180-04AN-07A0-4	200%	4.7	9.4	1.8	2.9	0.6
				300%	3.2	9.6	1.2	2.9	0.6
			MFE180-04AN-016A-4	200%	9.0	18.0	1.8	5.4	0.6
				300%	7.0	21.0	1.8	5.4	0.6
HDS100-0308A	4.3	15.5	MFE180-04AN-05A0-4	200%	4.0	8.0	2.3	3.9	0.8
				300%	2.7	8.1	1.6	3.9	0.8
			MFE180-04AN-07A0-4	200%	4.7	9.4	2.5	4.5	0.8
				300%	3.2	9.6	1.9	4.6	0.8
			MFE180-04AN-016A-4	200%	9.0	18.0	2.5	7.5	0.8
				300%	7.0	21.0	2.5	7.5	0.8
HDS100-0413A	6.9	25.7	MFE180-04AN-016A-4	200%	9.0	18.0	4.0	8.4	1.3
				300%	7.0	21.0	4.0	9.8	1.3
			MFE180-04AN-024A-4	200%	13.0	27.0	4.0	12.0	1.3
				300%	10.0	30.0	4.0	12.0	1.3
HDS100-0619A	10.5	39.5	MFE180-04AN-024A-4	200%	13.0	27.0	6.0	12.3	1.9
				300%	10.0	30.0	5.7	13.7	1.9
			MFE180-04AN-031A-4	200%	21.0	42.0	6.0	18.0	1.9
				300%	16.0	48.0	6.0	18.0	1.9

[1] The e180 drive offers a 200% and 300% rating mode, which offers a higher peak torques at a slightly reduced rms rating. Highlighted rows will provide full peak and continuous torque of the motor. If 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.

Product package combination

MotiFlex e180 and HDS servo motors

Motor type and rating			Drive type and rating				Package rating		
Motor type	Cout 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)
HDS130-0620A	10.9	36.0	MFE180-04AN-024A-4	200%	13.0	27.0	6.4	14.3	2.0
				300%	10.0	30.0	5.9	15.9	2.0
			MFE180-04AN-031A-4	200%	21.0	42.0	6.4	19.1	2.0
				300%	16.0	48.0	6.4	19.1	2.0
HDS130-0817B	7.7	29.5	MFE180-04AN-024A-4	200%	13.0	27.0	8.0	22.0	1.7
				300%	10.0	30.0	8.0	24.0	1.7
			MFE180-04AN-031A-4	200%	21.0	42.0	9.0	24.0	1.7
				300%	16.0	48.0	10.0	24.0	1.7
HDS130-1226B	9.5	30.6	MFE180-04AN-024A-4	200%	13.0	27.0	12.0	31.8	2.6
				300%	10.0	30.0	12.0	35.3	2.6
			MFE180-04AN-031A-4	200%	21.0	42.0	12.0	36.0	2.6
				300%	16.0	48.0	12.0	36.0	2.6
HDS130-1829B	14.8	51.0	MFE180-04AN-031A-4	200%	21.0	42.0	18.0	44.5	2.9
				300%	16.0	48.0	18.0	50.8	2.9
			MFE180-04AN-046A-4	200%	28.0	56.0	18.0	54.0	2.9
				300%	20.0	60.0	18.0	54.0	2.9
HDS180-2540B	15.7	48.8	MFE180-04AN-031A-4	200%	21.0	42.0	25.0	64.5	4.0
				300%	16.0	48.0	25.0	73.8	4.0
			MFE180-04AN-046A-4	200%	28.0	56.0	25.0	75.0	4.0
				300%	20.0	60.0	25.0	75.0	4.0
HDS180-3555B	22.3	68.5	MFE180-04AN-046A-4	200%	28.0	56.0	35.0	85.8	5.5
				300%	20.0	60.0	31.4	92.0	5.5
			MFE180-04AN-060A-4	200%	35.0	70.0	35.0	105.0	5.5
				300%	25.0	75.0	35.0	105.0	5.5
HDS180-4876B	30.8	99.7	MFE180-04AN-060A-4	200%	35.0	70.0	48.0	105.3	7.6
				300%	25.0	75.0	39.0	112.8	7.6
			MFE180-04AN-090A-4	200%	55.0	110.0	48.0	150.0	7.6
				300%	40.0	120.0	48.0	150.0	7.6
HDS240-5011B	23.5	93.0	MFE180-04AN-046A-4	200%	28.0	56.0	50.0	90.3	11.0
				300%	20.0	60.0	42.6	96.8	11.0
			MFE180-04AN-060A-4	200%	35.0	70.0	50.0	112.9	11.0
				300%	25.0	75.0	50.0	121.0	11.0
			MFE180-04AN-090A-4	200%	55.0	110.0	50.0	150.0	11.0
				300%	40.0	120.0	50.0	150.0	11.0
HDS240-7215B	29.5	117.0	MFE180-04AN-060A-4	200%	35.0	70.0	72.0	129.2	15.0
				300%	25.0	75.0	61.0	138.5	15.0
			MFE180-04AN-090A-4	200%	55.0	110.0	72.0	203.1	15.0
				300%	40.0	120.0	72.0	216.0	15.0
HDS240F-6715B	30.5	120.0	MFE180-04AN-060A-4	200%	35.0	70.0	67.0	117.3	15.0
				300%	25.0	75.0	54.9	125.6	15.0
			MFE180-04AN-090A-4	200%	55.0	110.0	67.0	184.3	15.0
				300%	40.0	120.0	67.0	201.0	15.0
HDS240F-9320B	39.0	150.0	MFE180-04AN-090A-4	200%	55.0	110.0	93.0	204.6	20.0
				300%	40.0	120.0	93.0	223.2	20.0

[1] The e180 drive offers a 200% and 300% rating mode, which offers a higher peak torques at a slightly reduced rms rating. Highlighted rows will provide full peak and continuous torque of the motor. If 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.

More ABB servo motor products

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HY Series High-performance Explosion-proof Servo Motor
ATEX Zone 2/22, CCC Zone 2/21/22

HY series explosion-proof servo motor perfectly inherit the family characteristics of high-power density and low torque fluctuation from HDS high-performance servo motor. Relying on ABB's local technologies, products, sales, channels, and service teams in China and these servo motors that can be seamlessly connected with ABB smart servo drives MotiFlex e180 and MicroFlex e190, we can provide a one-stop solution to protect our customers' equipment in explosion-proof environments.

As the first explosion-proof product series launched by ABB China’s servo motor division, the HY series is all researched and developed, designed, and produced strictly according to the most stringent explosion protection standards, adopting the increased safety type (ec) and enclosure protection type (tb) explosion protection design to enable an explosion protection capacity that meets the corresponding explosion protection requirements. Regarding the CCC system, the HY series meets the explosion protection requirements of dust zone 1, is suitable for more explosion-proof applications, and has more support for customers.

- Flange: 65/100/130/180
- Rated torque: 1.5 – 38 Nm
- Rated power: 0.4 – 8 kW
- Feedback: Resolver
- Explosion-proof zone:
  - With regard to the CCC system, it applies to Zone 2—gas explosion environments, and Zone 1 and Zone 2—dust explosion environments.
  - With regard to the ATEX system, it applies to Zone 2—gas explosion environments, and Zone 2—dust explosion environments.
- ATEX explosion proof mark :
  II 3G Ex ec IIC T4 Gc and II 3D Ex tc IIIC T130° C Dc IP65
- CCC explosion proof mark :
  Ex ec IIC T4 Gc and Ex tb IIIC T130° C Db IP65
- Energy efficiency level: China energy efficiency level 1

More ABB servo motor products

HL High-performance Linear Motor
HLSM series single-axis module

ABB's linear motor module product solution integrates the linear motor with the guide rail, slider, and high-resolution and high-precision feedback into one platform with optimized design. With the ABB MicroFlex e190 smart drive, ABB provides customers with efficient and silent linear motor solutions that enable easy configuration and use. With the solutions, linear applications such as screw & servo motor, etc. can be quickly superseded, the performance and productivity of customers' equipment can be improved, maintenance costs can be reduced, and operating noise can be reduced.

- Output capacity: 44.8 - 802 N, 4 times peak thrust, 1 G acceleration
- Load weight: 0.1 - 100 KG
- Interface size: 60 - 210 mm
- Travel: maximum: 1800 mm in a unit of 60 mm
- Feedback: Standard magnetic encoder and grating. The resolution of the magnetic encoder is 1 µm and the grating 0.5 µm, or above optionally
- Repeated positioning accuracy: magnetic encoder: 5 µm; grating: 2 µm, or above optionally
- Some models support multiple rotors
- Cable length and tow chain cable can be set optionally
- Horizontal and side mounting supported

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