



Catalog | June 2013

AC Induction low inertia motors

High dynamic performance series

We provide motors and generators, services and expertise to save energy and improve customers' processes over the total lifecycle of our products, and beyond.



AC Induction low inertia motors

High dynamic performance (HDP) series

Sizes H100 to H250, 2 to 750 kW

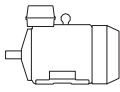
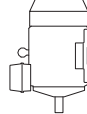
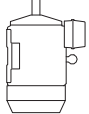
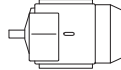

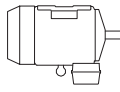
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General information

Mounting arrangements

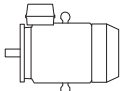
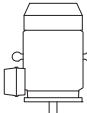
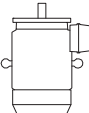
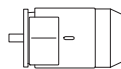
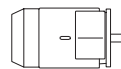
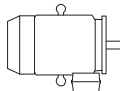
Foot-mounted motor

Code I / code II

					
S07281			S07282		
IM B3	IM V5	IM V6	IM B6	IM B7	IM B8
IM 1001	IM 1011	IM 1031	IM 1051	IM 1061	IM 1071

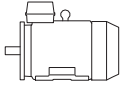
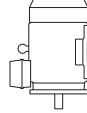
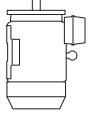

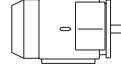
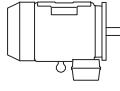
Flange-mounted motor, large flange

Code I / code II

					
S07283			S07284		
IM B5	IM V1	IM V3	*)	*)	*)
IM 3001	IM 3011	IM 3031	IM 3051	IM 3061	IM 3071

Foot- and flange-mounted motor with feet, large flange

Code I / code II

					
S07285			S07286		
IM B35	IM V15	IM V36	*)	*)	*)
IM 2001	IM 2011	IM 2031	IM 2051	IM 2061	IM 2071

*) Not stated in IEC 60034-7.

Note: If the motor is mounted shaft upwards, take measures to prevent water or any other liquid from running down the shaft into the motor.

High dynamic performance (HDP) series

High Dynamic Performance series have been designed to be used in rough operating conditions and to operate only with a frequency converter. Square frame design and high overload capacity gives the motor an excellent dynamic response due to low moment of inertia and high pulse torque. Motors can be equipped with an mechanical integrated holding brake and/or a wide variation of feedback devices.

Industries and applications

High Dynamic Performance series are ideal for:

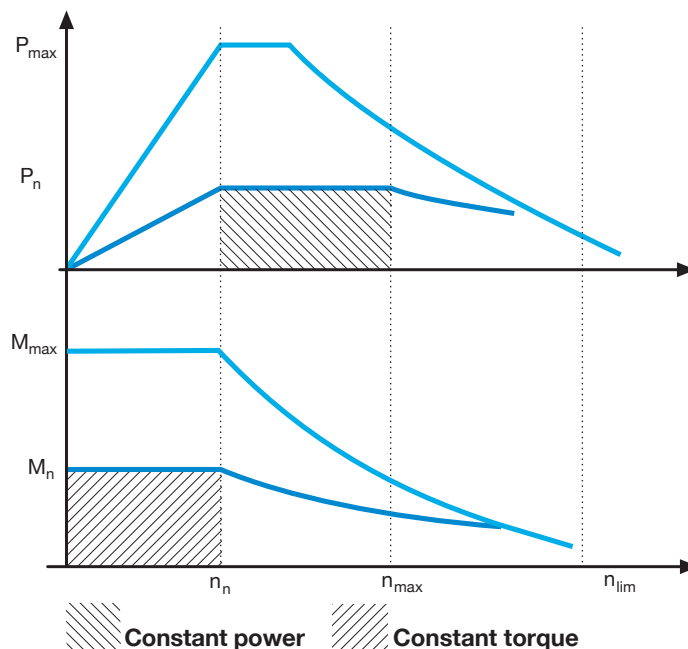
DC motor replacement

Plastic & rubber	Extruders
	Injection moulding machines
	Mixers
Paper	Printing machines
	Paper-making machines
	Sheet-fed printing, commercial printing
	Paper and cardboard cutters
	Winding and unwinding
	Conveyors
Metal	Coilers and de-coilers machines
	Presses
	Winding and unwinding
	Conveyors
	Wire-drawing machines
	Cable stranding machines

Machine tools

Automotive	Test stands
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HDP - Power and torque calculation



n_n	Nominal speed
n_{max}	End constant power
n_{lim}	Mechanical limit speed
P_n	Nominal power
P_{max}	Max power
M_n	Nominal torque
T_{max}	Max torque

Main formulas

Formula	Symbol	Unit	Meaning
$P = M \times \omega$	P	(W)	Power
	M	(Nm)	Torque
	ω	(rad/s)	Angular speed
$\omega = n \times \frac{2\pi}{60}$	ω	(rad/s)	Angular speed
	n	(RPM)	Rev.per minute
$M_{RMS} = \sqrt{\frac{\sum M^2 \times t}{T}}$	MRMS	(Nm)	Average torque
	M	(Nm)	Cycle torque
	t	(s)	Cycle time
	T	(s)	Total time

Frequency converter drives — Full range of products to meet your motor and machine control needs

A wide selection of ABB drives and programmable logic controllers is available for HDP motors and machine control. Our drive products offer flexible choices ranging from different enclosure alternatives and safety features to control performance. Most of the drives are equipped with direct torque control (DTC) enabling premium motor control, even without a feedback device. The AC500 range of PLCs offers a scalable platform for machine control with powerful programming and supervision software. Automation Builder is a new PC suite integrating PLC and drive programming with many other useful features for engineering productivity.



ABB industrial drives

ABB industrial drives are highly flexible AC drives that can be customized to meet the precise needs of industrial applications. The new-generation ACS880 drives are part of ABB's new all-compatible drives portfolio that is designed to provide customers across industries and applications with unprecedented levels of compatibility, flexibility and ease of use.

ACS880 series - all-compatible drive with everything built-in:

- Power range 0.55 to 560 kW (208 to 690 V)
- IP20, IP21 and IP55 enclosures
- Compact drives with all important features built-in, saving installation space and time
- Premium motor control with direct torque control (DTC)
- Integrated safety features with safe torque off (STO) as standard and several safety functions as an option
- A broad range of options offer flexibility and universal connectivity

For further information, see catalog "ABB industrial drives, ACS880, single drives", code: 3AUA0000098111 EN.

ABB machinery drives

ABB machinery drives can be flexibly configured to meet demands set by different machines. The drives have a broad range of standard and optional features. User-specific programming offers additional flexibility to meet challenging machine requirements.

ACS850 series - flexibility and scalability for machinery applications:

- Power range 0.37 to 560 kW and voltage range 380 to 500 V
- IP20 enclosure for cabinet installation
- Compact size and side-by-side mounting save space in cabinets
- Premium motor control with direct torque control (DTC)
- Standard control program can be easily modified to meet specific application needs, and function block programming with DrivesPC software provides additional flexibility
- Integrated safety with safe torque off (STO)

For further information, see catalog "ABB machinery drives, ACS850", code: 3AUA0000041481 EN

ABB motion control drives

ABB motion control drives offer dynamic and highly accurate motor control for both single and multi-axis systems. The drives have open communication options as well as real-time Ethernet technologies such as EtherCAT® and PowerLink. In addition to drives, ABB offers complete motion control solutions, including motion controllers, programmable logic controllers, safety features and human-machine interfaces. All of which seamlessly interface to provide a complete machine control solution.

ACSM1 series - the flexible workhorse for many high performance applications:

- Current range 3 to 635 A rms (0.75 to 355 kW)
- Voltage range 230 to 500 V AC (3-phase)
- IP20 enclosure for cabinet installation
- Different product variants, options and programming flexibility ensure an optimum solution

- Premium motor control with direct torque control (DTC)
- Regenerative supply for applications with high braking power duty cycles
- Integrated safety with safe torque off (STO)

For further information, see catalog “ABB motion control drives, ACSM1”, code: 3AFE68675073 EN.



High availability configurations are easy to implement for CPU redundancy. The AC500-XC series is the first choice for eXtreme Conditions such as vibrating machines used in harsh ambient environments such as extreme humidity and temperature. -Automation Builder is the effortless, straightforward engineering suite for PLCs, drives, HMI, robots, motion and internet services.

For further information, see catalog “PLC Industrial Automation”, code: 1SBC125003C0205 EN and www.abb.com/plc

MotiFlex e100 series - versatile motion control drive for a wide range of applications:

- Current range 1.5 to 65 A rms in three frame sizes
- Voltage range 180 to 528 V AC (3-phase)
- IP20 enclosure for cabinet installation
- Ethernet PowerLink technology for real-time motion control
- Mint programming for multitasking control of communications, logic, motion and HMI interaction in a powerful yet simple programming language.

For further information, see flyer “ABB motion control products, MotiFlex e100 servo drives”, code: 3AUA0000116019 EN.



ABB's programmable logic controllers (PLCs)

ABB offers a comprehensive range of scalable, powerful PLCs, integrated engineering software suite and robust HMI control panels. The PLC range starts with the affordable compact AC500-eCo. AC500 is the powerful flagship PLC, offering a wide range of performance levels and the AC500-S is the Safety PLC which can be used with the AC500 combining safe and non-safe applications into the same platform.

High dynamic performance (HDP) motors, IP54 series

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Mechanical design

Bearings

The motors are normally fitted with single-row deep groove ball bearings as listed in the table below. If the bearing at the D-end is replaced with a roller bearing (NU-type), higher radial forces can be handled. Roller bearings are suitable for belt drive applications. For high speed applications a special ball bearing or roller bearing should be used. Other special bearings may be mounted upon request, please check with ABB if required.

Basic version with deep groove ball bearings

Motor type	D-end	N-end
CH (H100)	6308-2Z/C3*	6206-2Z/C3*
CM (H132)	6310-2Z/C3*	6308-2Z/C3*
CN (H160)	6312-2Z/C3*	6309-2Z/C3*
CR (H200)	6315-2Z/C3*	6314-2Z/C3*
RT (H250)	6322-C3/LGHP2	6319-C3/LGHP2

* Bearing greased for life

Version with deep groove high speed ball bearings

Motor type	D-end	N-end
CH (H100)	6308-C3/LGHP2	6206-2Z/C3*
CM (H132)	6310-C3/LGHP2	6308-2Z/C3*
CN (H160)	6312-C3/LGHP2	6309-2Z/C3*
CR (H200)	6315-C3/LGHP2	6314-2Z/C3*
RT (H250)	6319-C3/LGHP2	6319-C3/LGHP2

* Bearing greased for life

Insulated bearing at N-end is required from 100kW and above. HDP motors frame size 200 & 250 are equipped with insulated bearing at N-end as standard. Smaller frames can also be equipped with an insulated bearing as an option.

Bearing life depends on the environment and the radial force. Average life time of the bearings is 20.000 hrs of operation.

Version with roller bearing at D-end

Motor type	D-end	N-end
CH (H100)	NU308/LGMT3	6206-2Z/C3*
CM (H132)	NU310/LGMT3	6308-2Z/C3*
CN (H160)	NU312/LGMT3	6309-2Z/C3*
CR (H200)	NU315/LGMT3	6314-2Z/C3*
RT (H250)	NU322/LGMT3	6319-C3/LGHP2

* Bearing greased for life

Version with high speed roller bearing at D-end

Motor type	D-end	N-end
CH (H100)	NU308/LGHP2	6206-2Z/C3*
CM (H132)	NU310/LGHP2	6308-2Z/C3*
CN (H160)	NU312/LGHP2	6309-2Z/C3*
CR (H200)	NU315/LGHP2	6314-2Z/C3*
RT (H250)	N/A	N/A

* Bearing greased for life

Maximum mechanical motor speed according to bearing type and mounting

Mounting	Horizontal B3 - B5 - B35				Vertical V1 - V5 - V15 - V3 - V6 - V35			
	Standard		High speed		Standard		High speed	
D-end bearing	Ball bearing greased for life	Roller bearing re-greasable	Ball bearing re-greasable	Roller bearing re-greasable	Ball bearing greased for life	Roller bearing re-greasable	Ball bearing re-greasable	Roller bearing re-greasable
N-end bearing	Ball bearing greased for life		Ball bearing greased for life		Ball bearing greased for life		Ball bearing greased for life	
	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm
CH (H100)	7500	6700	11000	8000	5300	6700	7500	7500
CM (H132)	6000	5000	8500	6700	4300	5000	5300	5300
CN (H160)	5300	4800	6700	5600	3600	4800	5300	5300
CR (H200)	4300	3800	5600	5300 ⁽¹⁾	2800	3200	5600 ⁽¹⁾	5300 ⁽¹⁾
RT (H250)	3800 ⁽¹⁾	3000 ⁽¹⁾	4800 ⁽¹⁾	N/A	3000 ⁽¹⁾	3000 ⁽¹⁾	4500 ⁽¹⁾	N/A
			4200 ⁽²⁾				4200 ⁽²⁾	

⁽¹⁾ Frame size 200 & 250 with re-greasable bearings

⁽²⁾ Frame size 250 with stator length 6

Lubrication

The motors are delivered with bearing grease for use at normal temperatures in dry or humid environments. The motors are lubricated for ambient temperatures 40°C.

Motor sizes 100 to 200 are provided with bearings greased for life. As an option motor sizes 100-200 can be provided with regreasable bearings. Motor size 250 is provided with regreasable bearings.

The lubrication interval L1, suitable for regreasable bearings, is defined as the number of operating hours after which 99 percent of the bearings are adequately lubricated.

On delivery, the motors are ready lubricated with high quality grease. Please find details and instructions in HDP Motor Manual before first start-up. The recommended grease can be found in ABB's HDP Motors Manual delivered together with the motor.

Standard ball bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours								
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm		
CH (H100)	DE	6308-2Z/C3	-	Bearings greased for life							
	NDE	6206-2Z/C3	-	Bearings greased for life							
CM (H132)	DE	6310-2Z/C3	-	Bearings greased for life							
	NDE	6308-2Z/C3	-	Bearings greased for life							
CN (H160)	DE	6312-2Z/C3	-	Bearings greased for life							
	NDE	6309-2Z/C3	-	Bearings greased for life							
CR (H200)	DE	6315-2Z/C3	-	Bearings greased for life							
	NDE	6314-2Z/C3	-	Bearings greased for life							
RT (H250)	DE	6322-C3/LGHP2	120	13000	10000	6000	3000	2000	-	-	
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-	

High speed ball bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours							
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm	
CH (H100)	DE	6308-C3/LGHP2	10	-	25000	20000	16000	12000	10000	6000
	NDE	6206-2Z/C3	-	Bearings greased for life						
CM (H132)	DE	6310-C3/LGHP2	30	24000	24000	18500	14500	11000	9000	5600
	NDE	6308-2Z/C3	-	Bearings greased for life						
CN (H160)	DE	6312-C3/LGHP2	40	24000	23000	17500	13500	12000	8000	-
	NDE	6309-2Z/C3	-	Bearings greased for life						
CR (H200)	DE	6315-C3/LGHP2	60	18000	15000	11500	8000	6000	-	-
	NDE	6314-C3/LGHP2	50	25000	15000	12000	9000	7000	-	-
RT (H250)	DE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-

Standard and high speed roller bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours							
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm	
CH (H100)	DE	NU308	10	-	12000	10000	8000	6000	5000	2000
	NDE	6206-2Z/C3	-	Bearings greased for life						
CM (H132)	DE	NU310	30	12000	12000	9000	7000	5500	4500	3000
	NDE	6308-2Z/C3	-	Bearings greased for life						
CN (H160)	DE	NU312	40	12000	11500	8500	6500	5000	4000	2000
	NDE	6309-2Z/C3	-	Bearings greased for life						
CR (H200)	DE	NU315	60	9000	7500	5500	4000	3000	2000	500
	NDE	6314-C3/LGHP2	50	25000	15000	12000	9000	7000	-	-
RT (H250)*	DE	NU322	120	6500	5000	3000	1500	1000	-	-
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-

* High speed version not available

Terminal box

Standard terminal box and dimensions

Terminal box standard delivery IP54-motors

Terminal boxes are mounted on the top of the motor at N-end as standard on frame sizes 100, 132, 160 and 200. On the 250 frame size the terminal box is mounted on the right hand side seen from the D-end as standard. The terminal boxes can be turned 4x90° to allow cable entries from different positions. Motor sizes 100, 132 and 160 come with an terminal box made of aluminum alloy with threaded cable entries. Motor size 200 come with an terminal box made of steel with an connection flange with threaded cable entries. Motor size 250 come with an terminal box made of steel with an un-drilled connection flange. Cable glands are not included as standard on HDP-motors, but can be ordered as a separate option.

Motor type	Threaded holes
CH IP54 (H100)	1xM50 + 1xM20 + 3xM16
CM IP54 (H132)	1xM50 + 1xM20 + 3xM16
CN IP54 (H160)	1xM50 + 1xM20 + 3xM16
CR IP54 (H200)	2xM63 + 1xM20 + 1xM16
RT IP54 (H250)	Blind flange

Terminal boxes and boards

The pictures below show examples of standard terminal boxes and the corresponding terminal boards for various motor sizes.

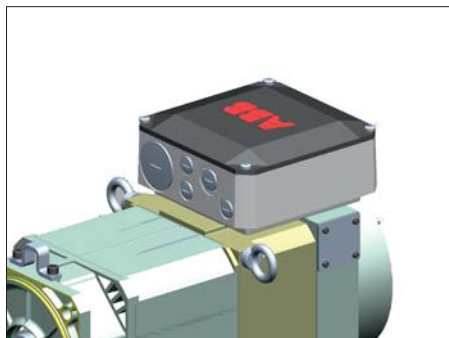


Fig. 1. Terminal box for motor sizes 100 - 160.

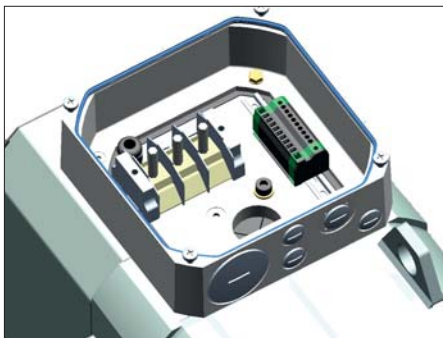


Fig. 2. Terminal board for motor sizes 100 - 160.

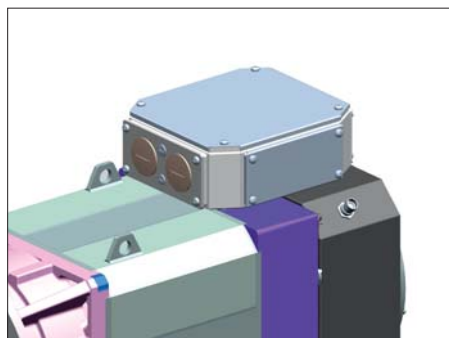


Fig. 3. Terminal box for motor sizes 200.

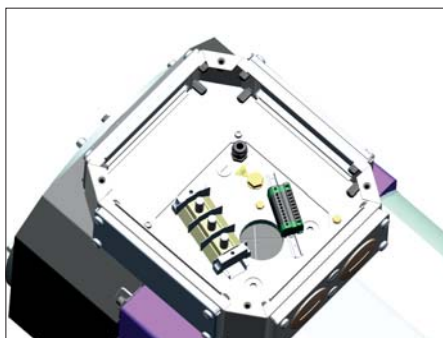


Fig. 4. Terminal board for motor sizes 200.

Frame dimensions

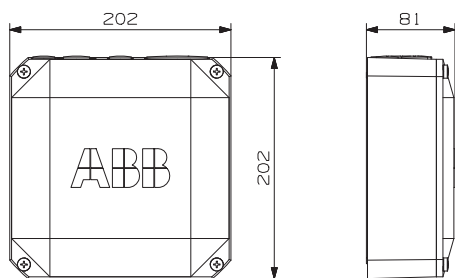


Fig. 1 Motor sizes 100 – 160 CH, CM and CN, standard design with 3 terminals

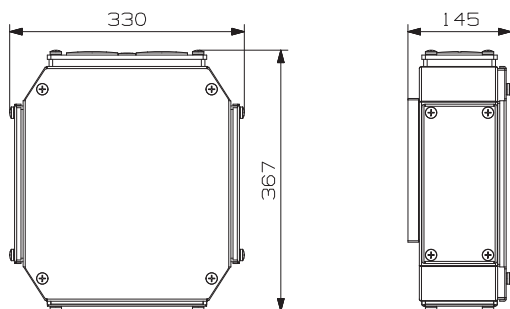


Fig. 2 Motor sizes 200 CR, standard design with 3 terminals

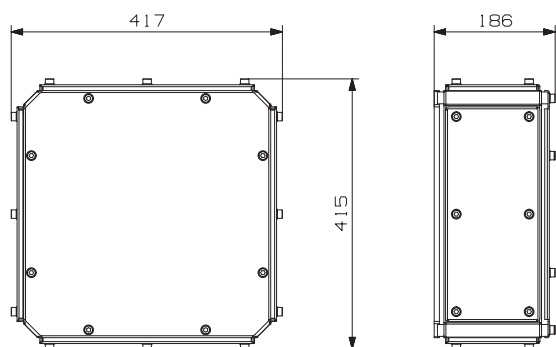


Fig. 3 Motor sizes 250, standard design with 9 terminals

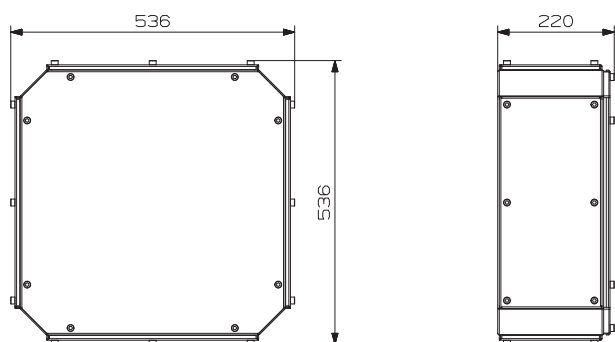



Fig. 4 Motor sizes 250, special oversized design with 21 terminals

Rating plate

Rating plate is in table form giving values for speed, current, power factor, frequency and torque for one voltage. Values for the external fan motor will also be visible both on the motor rating plate and on the fan motor rating plate.

1.	ABB HDP MOTOR		CE	12.
2.				13.
	CH23300K02002A000 S/N:3GV1311106741001			
3.	IEC 60034-1	Date : 20130403	Fan	14.
4.	Pn 5,3 [kW]	Vn 400 [V]	Vn 400[V]	15.
5.	cosφ 0,634	In 13,4 [A]	fn 50[Hz]	16.
6.	ωn 2000 [rpm]	fn 102,3 [Hz]	In50 0,15[A]	17.
7.	ωm 4000 [rpm]	fm 205,2 [Hz]	In60 ---[A]	18.
8.	Tn 25,3 [Nm]		Pn 53[W]	19.
9.	IP54 S1 INS.CL. F 3-ph			
10.	Feedback: Enc. HTL 1024 ppr 9-30V			
11.	Brake: ---	--- Vdc	--- Nm	

1. Motor Definition (HDP Low inertia motor)
2. Motor product code (Type) and serial number (S/N)
3. Manufacturing standards (IEC 60034-1) and date (Date)
4. Rated power (Pn) and voltage (Vn)
5. Power factor (cosφ) and rated current (In)
6. Rated speed (ωn) and frequency (fn)
7. Maximum speed (ωm) and frequency (fm)
8. Rated torque (Tn)
9. Manufacturing details (IP version, duty type, insulation class, supply system)
10. Feedback type (ENCODER or RESOLVER or NO feedback)
11. Mechanical brake rated- voltage (Vdc), current (Adc), torque (Nm)
12. CE marking
13. Motor Bar Code
14. Fan Type
15. Fan rated voltage (Vn)
16. Fan rated frequency (fn)
17. Fan rated current at 50 Hz frequency (In50)
18. Fan rated current at 60 Hz frequency (In60)
19. Fan rated power (Pn)

Ordering information

When placing an order, specify motor type and other product codes according to the following example.

Explanation of the product code

Motor type	Shaft height	Stator length	Nominal speed	Construction and mounting details	Supply voltage	Painting	Accessories
C	M	3	1	300002001	A	0	00
1	2	3	4	5 6 7 8 9 10 11 12 13	14	15	16 17

Position 1

C: IP54 HDP, H100 - H200

K: IP54 HDP (UL)*, H100 - H200

R: IP54 HDP, (H250)

Position 2

H: H100

M: H132

N: H160

R: H200

T: H250

Position 3

Stator length; from 1 to 6 (see technical data)

Position 4

Nominal speed; from 0 to 7: (0=500 rpm, 1=1000, 2=1500, A=1750, 3=2000, 4=2500, 5=3000, 6=3500, 7=4000)

Position 5

Terminal box position and fan position

3: IP54 terminal box upside, axial fan (H100-200)

1: IP54 terminal box right side, radial fan (H250)

Position 6

Mounting

From 100 to 200: 0= B3/B5/B35, 1=V15*, 3=V35*

250: 4= B3, 0=B5*, 5=V5*, 6=V6*

Positions 7 and 8

Position transducer

00: Without transducer

0K: HTL 1024 ppr*

2K: TTL 1024 ppr*

03: HTL 2048 ppr*

2J: TTL 2048 ppr*

50: 0,5 Vpp 1024 sin/cos*

53: 1Vpp 2048 sin/cos*

Position 9

Holding brake

0: Without brake

1: Standard spring brake*

2: Special spring brake high torque*

Position 10

Shaft details

2: With keyway, without oil seal

3: Without keyway, without oil seal

Position 11

Bearings type

0: Ball bearings

1: Roller bearings*

7: High speed ball bearings*

8: High speed roller bearings*

Position 12

Shaft details

0: Standard for H100, H132, H160, H250

1: Standard for H200

Position 13

Thermal protection

1: 3 × Thermal switch in terminal box, 140°C

2: 3 × PTC in terminal box, 140°C

9: 3+3 thermal switch in terminal box, 120°C and 140°C*

A: 3+3 PTC in terminal box, 120°C and 140°C*

B: PT100, 2-wire in stator winding, one per phase*

C: PT100, 3-wire in stator winding, one per phase*

Position 14

A: 400 V motor power supply and 400 V 50 Hz fan power supply

B: 460 V motor power supply and 460 V 60 Hz fan power supply

Position 15

Painting

0: Black RAL 9005

Positions 16 and 17

Accessories

00: No accessories

01: 230 V Anti-condensation heaters*

02: Micro switch for radial fan*

04: Insulated ball bearing for size H100, H132, H160
(not necessary for H200 and H250 since this function is basic)*

* See price list for additional cost adders. Selection of options may extend lead time.

Technical data – HDP-motors, IP54 series

Axial fan, H100

Rated voltage 400V/370V, CH [H100 IP54]

Duty			S1 400 V								S1 370 V							
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²
					n _{max} r/min	f _N Hz							n _{max} r/min	f _N Hz				
CH 1	1	.1	2.0	1000	2000	52.5	19.1	5.4	0.647	82.7	1.9	925	1850	48.6	19.1	5.4	2.28	0.0062
		.2	3.0	1500	3000	77.4	19.1	7.9	0.629	86.8	2.8	1388	2775	71.6	19.1	7.9	2.44	
		.3	4.0	2000	4000	102.4	19.1	10.2	0.636	88.7	3.7	1850	3700	94.7	19.1	10.2	2.45	
		.5	5.0	3000	6000	152.2	15.9	12.7	0.626	91.0	4.6	2775	5550	140.8	15.9	12.7	2.77	
		.7	6.0	4000	8000	202.3	14.3	15.4	0.613	91.8	5.6	3700	7400	187.1	14.3	15.4	2.85	
CH 2	2	.1	2.7	1000	2000	52.4	25.8	7.1	0.649	84.1	2.5	925	1850	48.5	25.8	7.1	2.30	0.0075
		.2	4.0	1500	3000	77.3	25.5	10.3	0.636	87.9	3.7	1388	2775	71.5	25.5	10.3	2.45	
		.3	5.3	2000	4000	102.3	25.3	13.4	0.634	89.6	4.9	1850	3700	94.6	25.3	13.4	2.51	
		.5	6.7	3000	6000	152.1	21.3	17.1	0.619	91.5	6.2	2775	5550	140.7	21.3	17.1	2.83	
		.7	8.2	4000	8000	202.1	19.6	21.2	0.605	92.2	7.6	3700	7400	186.9	19.6	21.2	2.94	
CH 3	3	.1	3.7	1000	2000	52.3	35.4	9.5	0.659	85.0	3.4	925	1850	48.4	35.4	9.5	2.27	0.0102
		.2	5.4	1500	3000	77.2	34.4	13.7	0.641	88.6	5.0	1388	2775	71.4	34.4	13.7	2.46	
		.3	7.2	2000	4000	102.3	34.4	17.8	0.647	90.3	6.7	1850	3700	94.6	34.4	17.8	2.46	
		.5	9.4	3000	6000	152.0	29.9	23.4	0.630	92.0	8.7	2775	5550	140.6	29.9	23.4	2.75	
		.7	11.3	4000	8000	202.2	27.0	27.8	0.632	92.7	10.5	3700	7400	187.0	27.0	27.8	2.77	
CH 4	4	.1	5.0	1000	2000	52.3	47.7	12.5	0.667	86.4	4.6	925	1850	48.4	47.7	12.5	2.30	0.0142
		.2	7.4	1500	3000	77.2	47.1	18.4	0.650	89.4	6.8	1388	2775	71.4	47.1	18.4	2.44	
		.3	9.7	2000	4000	102.2	46.3	23.5	0.654	91.0	9.0	1850	3700	94.5	46.3	23.5	2.46	
		.5	12.6	3000	6000	151.9	40.1	31.2	0.631	92.4	11.7	2775	5550	140.5	40.1	31.2	2.80	
		.7	15.3	4000	8000	202.0	36.5	38.9	0.611	92.9	14.2	3700	7400	186.9	36.5	38.9	2.98	
CH 5	5	.1	6.0	1000	2000	52.2	57.3	15.0	0.665	86.6	5.6	925	1850	48.3	57.3	15.0	2.33	0.0168
		.2	9.0	1500	3000	77.1	57.3	22.2	0.654	89.7	8.3	1388	2775	71.3	57.3	22.2	2.44	
		.3	11.7	2000	4000	102.1	55.9	28.5	0.649	91.2	10.8	1850	3700	94.4	55.9	28.5	2.50	
		.5	15.0	3000	6000	151.9	47.7	36.5	0.640	92.6	13.9	2775	5550	140.5	47.7	36.5	2.81	
		.7	18.0	4000	8000	202.0	43.0	44.5	0.627	93.1	16.7	3700	7400	186.9	43.0	44.5	2.89	
CH 6	6	.1	7.4	1000	2000	52.3	70.6	18.1	0.677	86.9	6.8	925	1850	48.4	70.6	18.1	2.24	0.0198
		.2	11.0	1500	3000	77.1	70.1	26.9	0.657	89.9	10.2	1388	2775	71.3	70.1	26.9	2.41	
		.3	14.2	2000	4000	102.2	67.8	33.7	0.665	91.4	13.1	1850	3700	94.5	67.8	33.7	2.43	
		.5	18.0	3000	6000	151.9	57.3	43.8	0.639	92.7	16.7	2775	5550	140.5	57.3	43.8	2.82	
		.7	20.5	4000	8000	202.0	48.9	49.8	0.637	93.3	19.0	3700	7400	186.9	48.9	49.8	2.87	

Technical data – HDP-motors, IP54 series

Axial fan, H100

Rated Voltage 460V/430V, CH [H100 IP54]

Duty			S1 460 V									S1 430 V								
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²		
CH 1	1	.1	2.0	1000	2000	52.5	19.1	4.7	0.648	82.7	1.9	935	1870	49.1	19.1	4.7	2.27	0.0062		
		.2	3.0	1500	3000	77.3	19.1	7.1	0.613	86.6	2.8	1402	2804	72.3	19.1	7.1	2.49			
		.3	4.0	2000	4000	102.5	19.1	8.8	0.640	89.0	3.7	1870	3739	95.8	19.1	8.8	2.43			
		.5	5.0	3000	6000	152.2	15.9	11.0	0.628	91.0	4.7	2804	5609	142.3	15.9	11.0	2.75			
		.7	6.0	4000	8000	202.3	14.3	13.4	0.611	91.8	5.6	3739	7478	189.1	14.3	13.4	2.87			
CH 2	2	.1	2.7	1000	2000	52.4	25.8	6.2	0.646	84.1	2.5	935	1870	49.0	25.8	6.2	2.32	0.0075		
		.2	4.0	1500	3000	77.3	25.5	9.1	0.630	87.8	3.7	1402	2804	72.3	25.5	9.1	2.47			
		.3	5.3	2000	4000	102.4	25.3	11.4	0.647	89.8	5.0	1870	3739	95.7	25.3	11.4	2.42			
		.5	6.7	3000	6000	152.1	21.3	14.7	0.624	91.6	6.3	2804	5609	142.2	21.3	14.7	2.80			
		.7	8.2	4000	8000	202.1	19.6	18.7	0.597	92.1	7.7	3739	7478	188.9	19.6	18.7	3.00			
CH 3	3	.1	3.7	1000	2000	52.3	35.4	8.3	0.657	85.2	3.5	935	1870	48.9	35.4	8.3	2.29	0.0102		
		.2	5.4	1500	3000	77.1	34.4	12.5	0.614	88.4	5.0	1402	2804	72.1	34.4	12.5	2.56			
		.3	7.2	2000	4000	102.2	34.4	15.6	0.641	90.3	6.7	1870	3739	95.5	34.4	15.6	2.50			
		.5	9.4	3000	6000	152.0	29.9	20.4	0.627	92.0	8.8	2804	5609	142.1	29.9	20.4	2.76			
		.7	11.3	4000	8000	202.2	27.0	24.3	0.628	92.7	10.6	3739	7478	189.0	27.0	24.3	2.80			
CH 4	4	.1	5.0	1000	2000	52.2	47.8	11.0	0.659	86.2	4.7	935	1870	48.8	47.8	11.0	2.33	0.0142		
		.2	7.4	1500	3000	77.2	47.1	16.1	0.647	89.3	6.9	1402	2804	72.2	47.1	16.1	2.46			
		.3	9.7	2000	4000	102.1	46.3	20.7	0.645	90.9	9.1	1870	3739	95.4	46.3	20.7	2.52			
		.5	12.6	3000	6000	152.0	40.1	26.8	0.639	92.4	11.8	2804	5609	142.1	40.1	26.8	2.77			
		.7	15.3	4000	8000	202.0	36.5	34.1	0.607	92.9	14.3	3739	7478	188.8	36.5	34.1	3.01			
CH 5	5	.1	6.0	1000	2000	52.1	57.3	13.3	0.652	86.6	5.6	935	1870	48.7	57.3	13.3	2.39	0.0168		
		.2	9.0	1500	3000	77.1	57.3	19.3	0.653	89.7	8.4	1402	2804	72.1	57.3	19.3	2.44			
		.3	11.7	2000	4000	102.1	55.9	25.0	0.643	91.2	10.9	1870	3739	95.4	55.9	25.0	2.53			
		.5	15.0	3000	6000	151.9	47.8	31.1	0.653	92.7	14.0	2804	5609	142.0	47.8	31.1	2.75			
		.7	18.0	4000	8000	202.0	43.0	38.0	0.637	93.2	16.8	3739	7478	188.8	43.0	38.0	2.82			
CH 6	6	.1	7.4	1000	2000	52.2	70.7	15.9	0.671	87.1	6.9	935	1870	48.8	70.7	15.9	2.29	0.0198		
		.2	11.0	1500	3000	77.1	70.0	23.8	0.644	89.9	10.3	1402	2804	72.1	70.0	23.8	2.48			
		.3	14.2	2000	4000	102.2	67.8	29.1	0.668	91.4	13.3	1870	3739	95.5	67.8	29.1	2.41			
		.5	18.0	3000	6000	151.9	57.3	37.3	0.652	92.8	16.8	2804	5609	142.0	57.3	37.3	2.77			
		.7	20.5	4000	8000	202.0	48.9	43.1	0.639	93.3	19.2	3739	7478	188.8	48.9	43.1	2.85			

Technical data – HDP-motors, IP54 series

Axial fan, H132

Rated Voltage 400V/370V, CM [H132 IP54]

Duty			S1 400 V							S1 370 V							Torque T_{max}/T_N	Inertia J kg.m ²
Size	Lenght	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A		
CM	1	.1	7.8	1000	2500	35.2	74.3	17.4	0.777	83.1	7.2	925	2313	32.6	74.3	17.4	2.86	0.061
		.2	11.0	1500	3750	51.6	70.0	25.7	0.708	87.0	10.2	1388	3469	47.7	70.0	25.7	3.68	
		.3	14.2	1990	5000	68.2	68.0	29.0	0.785	89.8	13.1	1841	4625	63.1	68.0	29.0	3.61	
		.5	18.3	3000	7500	101.7	58.2	36.1	0.795	92.0	16.9	2775	6938	94.1	58.2	36.1	3.60	
		.7	21.0	4000	8000	135.6	50.1	37.2	0.877	92.8	19.4	3700	7400	125.4	50.1	37.2	3.20	
CM	2	.1	10.4	1000	2500	35.0	99.4	22.0	0.802	84.8	9.6	925	2313	32.4	99.4	22.0	3.02	0.080
		.2	14.8	1500	3750	51.5	94.3	32.1	0.751	88.5	13.7	1388	3469	47.6	94.3	32.1	3.60	
		.3	19.3	2000	5000	68.3	92.2	37.4	0.820	90.8	17.9	1850	4625	63.2	92.2	37.4	3.68	
		.5	24.6	3000	7500	101.5	78.3	48.2	0.795	92.6	22.8	2775	6938	93.9	78.3	48.2	3.70	
		.7	30.0	4000	8000	135.9	71.6	51.8	0.898	93.0	27.8	3700	7400	125.7	71.6	51.8	2.85	
CM	3	.1	12.5	1000	2500	34.9	119.4	26.3	0.798	85.8	11.6	925	2313	32.3	119.4	26.3	3.20	0.094
		.2	18.0	1500	3750	51.5	114.7	37.1	0.783	89.3	16.7	1388	3469	47.6	114.7	37.1	3.70	
		.3	23.5	2000	5000	68.2	112.3	46.1	0.805	91.2	21.7	1850	4625	63.1	112.3	46.1	3.80	
		.5	29.6	3000	7500	101.6	94.2	55.7	0.825	93.0	27.4	2775	6938	94.0	94.2	55.7	3.80	
		.7	34.5	4000	8000	135.5	82.4	59.6	0.893	93.5	31.9	3700	7400	125.3	82.4	59.6	3.26	
CM	4	.1	16.2	1000	2500	34.8	154.7	33.2	0.808	87.1	15.0	925	2313	32.2	154.7	33.2	3.43	0.122
		.2	23.5	1500	3750	51.5	149.6	46.3	0.812	90.2	21.7	1388	3469	47.6	149.6	46.3	3.70	
		.3	30.6	2000	5000	68.2	146.1	57.4	0.838	91.8	28.3	1850	4625	63.1	146.1	57.4	3.80	
		.5	38.2	3000	7500	101.5	121.6	70.3	0.840	93.4	35.3	2775	6938	93.9	121.6	70.3	3.80	
		.7	43.2	4000	8000	135.3	103.1	74.5	0.892	93.9	40.0	3700	7400	125.2	103.1	74.5	3.57	
CM	5	.1	21.0	1000	2500	34.8	200.5	42.6	0.810	87.6	19.4	925	2313	32.2	200.5	42.6	3.51	0.150
		.2	30.2	1500	3750	51.4	192.3	60.8	0.791	90.5	27.9	1388	3469	47.5	192.3	60.8	3.70	
		.3	40.0	2000	5000	68.2	190.9	75.6	0.829	92.1	37.0	1850	4625	63.1	190.9	75.6	3.60	
		.5	49.3	3000	7500	101.4	157.0	91.4	0.831	93.6	45.6	2775	6938	93.8	157.0	91.4	3.60	
		.7	54.4	4000	8000	135.5	129.8	92.5	0.904	93.9	50.3	3700	7400	125.3	129.8	92.5	3.29	

Technical data — HDP-motors, IP54 series

Axial fan, H132

Rated Voltage 460V/430V, CM [H132 IP54]

Duty			S1 460 V										S1 430 V									
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²				
CM 1	1	.1	7.8	1000	2500	35.1	74.5	15.2	0.776	82.9	7.3	935	2337	32.8	74.5	15.2	2.85	0.061				
		.2	11.0	1500	3750	51.6	70.0	22.5	0.705	87.1	10.3	1402	3505	48.2	70.0	22.5	3.71					
		.3	14.2	2000	5000	68.4	67.8	25.6	0.775	89.7	13.3	1870	4674	63.9	67.8	25.6	3.67					
		.5	18.3	3000	7500	101.6	58.3	32.2	0.775	91.9	17.1	2804	7011	95.0	58.3	32.2	3.80					
		.7	21.0	4000	8000	135.5	50.1	32.5	0.873	92.9	19.6	3739	7478	126.7	50.1	32.5	3.30					
CM 2	2	.1	10.4	1000	2500	34.9	99.4	19.7	0.778	85.0	9.7	935	2337	32.6	99.4	19.7	3.16	0.080				
		.2	14.8	1500	3750	51.5	94.2	28.2	0.742	88.6	13.8	1402	3505	48.1	94.2	28.2	3.66					
		.3	19.3	2000	5000	68.4	92.2	31.8	0.840	90.7	18.0	1870	4674	63.9	92.2	31.8	3.52					
		.5	24.6	3000	7500	101.6	78.3	41.2	0.809	92.6	23.0	2804	7011	95.0	78.3	41.2	3.70					
		.7	30.0	4000	8000	136.0	71.6	45.0	0.901	92.9	28.0	3739	7478	127.1	71.6	45.0	2.77					
CM 3	3	.1	12.5	1000	2500	34.9	119.5	22.8	0.803	85.7	11.7	935	2337	32.6	119.5	22.8	3.17	0.094				
		.2	18.0	1500	3750	51.6	114.6	31.5	0.802	89.3	16.8	1402	3505	48.2	114.6	31.5	3.57					
		.3	23.5	2000	5000	68.2	112.2	40.5	0.799	91.2	22.0	1870	4674	63.8	112.2	40.5	3.67					
		.5	29.6	3000	7500	101.6	94.2	48.2	0.828	93.0	27.7	2804	7011	95.0	94.2	48.2	3.72					
		.7	34.5	4000	8000	135.6	82.4	51.7	0.897	93.4	32.3	3739	7478	126.8	82.4	51.7	3.11					
CM 4	4	.1	16.2	1000	2500	34.8	154.7	28.9	0.808	87.1	15.1	935	2337	32.5	154.7	28.9	3.43	0.122				
		.2	23.5	1500	3750	51.5	149.5	40.6	0.805	90.2	22.0	1402	3505	48.1	149.5	40.6	3.64					
		.3	30.6	2000	5000	68.2	146.2	49.8	0.841	91.8	28.6	1870	4674	63.8	146.2	49.8	3.61					
		.5	38.2	3000	7500	101.5	121.6	61.4	0.836	93.4	35.7	2804	7011	94.9	121.6	61.4	3.71					
		.7	43.2	4000	8000	135.3	103.1	64.7	0.892	93.9	40.4	3739	7478	126.5	103.1	64.7	3.54					
CM 5	5	.1	21.0	1000	2500	34.7	200.7	38.4	0.783	87.5	19.6	935	2337	32.4	200.7	38.4	3.65	0.150				
		.2	30.2	1500	3750	51.5	192.2	50.8	0.823	90.6	28.2	1402	3505	48.1	192.2	50.8	3.71					
		.3	40.0	2000	5000	68.1	191.0	66.9	0.815	92.1	37.4	1870	4674	63.7	191.0	66.9	3.79					
		.5	49.3	3000	7500	101.5	157.0	77.9	0.849	93.6	46.1	2804	7011	94.9	157.0	77.9	3.81					
		.7	54.4	4000	8000	135.2	129.9	81.2	0.893	94.1	50.9	3739	7478	126.4	129.9	81.2	3.67					

Technical data – HDP-motors, IP54 series

Axial fan, H160

Rated voltage 400V/370V, CN [H160 IP54]

Duty			S1 400 V								S1 370 V							
Size	Lenght	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
CN 1	1	.0	11.0	500	1250	17.6	210	25.3	0.766	82.0	10.2	463	1156	16.3	210	25.3	2.92	0.24
		.1	21.4	1000	2500	34.2	205	43.5	0.792	89.6	19.8	925	2313	31.6	205	43.5	3.26	
		.2	30.0	1500	3750	50.9	191	57.8	0.811	92.2	27.8	1388	3469	47.1	191	57.8	3.50	
		.3	36.0	2000	5000	67.5	172	68.2	0.816	93.4	33.3	1850	4625	62.4	172	68.2	3.62	
		.5	46.0	3000	7500	100.8	147	83.2	0.844	94.5	42.6	2775	6938	93.2	147	83.2	3.76	
CN 2	2	.0	13.5	500	1250	17.5	258	29.7	0.786	83.3	12.5	463	1156	16.2	258	29.7	3.00	0.28
		.1	26.4	1000	2500	34.2	252	52.6	0.801	90.3	24.4	925	2313	31.6	252	52.6	3.39	
		.2	37.0	1500	3750	50.8	236	70.7	0.815	92.6	34.2	1388	3469	47.0	236	70.7	3.50	
		.3	45.1	2000	5000	67.5	215	84.7	0.820	93.7	41.7	1850	4625	62.4	215	84.7	3.72	
		.5	56.0	3000	7500	100.9	178	97.2	0.877	94.7	51.8	2775	6938	93.3	178	97.2	3.65	
CN 3	3	.0	16.3	500	1250	17.5	311	34.4	0.807	84.6	15.1	463	1156	16.2	311	34.4	3.10	0.34
		.1	31.7	1000	2500	34.2	302	60.6	0.830	90.8	29.3	925	2313	31.6	302	60.6	3.38	
		.2	45.0	1500	3750	50.8	286	85.1	0.821	93.0	41.6	1388	3469	47.0	286	85.1	3.43	
		.3	54.4	2000	5000	67.4	260	100.5	0.831	94.0	50.3	1850	4625	62.3	260	100.5	3.82	
		.5	69.0	3000	7500	100.9	220	118.4	0.886	94.9	63.8	2775	6938	93.3	220	118.4	3.65	
CN 4	4	.0	19.2	500	1250	17.5	367	39.2	0.826	85.4	17.8	463	1156	16.2	367	39.2	3.13	0.40
		.1	37.3	1000	2500	34.2	356	70.2	0.840	91.2	34.5	925	2313	31.6	356	70.2	3.33	
		.2	52.7	1500	3750	50.8	335	99.2	0.822	93.2	48.7	1388	3469	47.0	335	99.2	3.45	
		.3	64.6	2000	5000	67.4	309	119.3	0.830	94.1	59.8	1850	4625	62.3	309	119.3	3.73	
		.5	80.0	3000	7500	100.8	255	137.3	0.885	95.0	74.0	2775	6938	93.2	255	137.3	3.62	
CN 5	5	.0	22.0	500	1250	17.4	420	47.3	0.782	85.6	20.4	463	1156	16.1	420	47.3	3.13	0.46
		.1	42.0	1000	2500	34.1	401	78.8	0.840	91.5	38.9	925	2313	31.5	401	78.8	3.29	
		.2	59.0	1500	3750	50.8	375	107.8	0.845	93.4	54.6	1388	3469	47.0	375	107.8	3.35	
		.3	72.0	2000	5000	67.4	344	134.7	0.819	94.2	66.6	1850	4625	62.3	344	134.7	3.88	
		.5	92.0	3000	7500	100.8	293	156.6	0.891	95.1	85.1	2775	6938	93.2	293	156.6	3.58	

Technical data — HDP-motors, IP54 series

Axial fan, H160

Rated Voltage 460V/430V, CN [H160 IP54]

Duty			S1 460 V										S1 430 V									
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²				
																			CN	1	.0	11.0
		.1	21.4	1000	2500	34.2	205	37.8	0.792	89.6	20.0	935	2337	32.0	205	37.8	3.36					
		.2	30.0	1500	3750	50.9	191	50.6	0.807	92.2	28.0	1402	3505	47.6	191	50.6	3.40					
		.3	36.0	2000	5000	67.5	172	57.5	0.841	93.5	33.7	1870	4674	63.1	172	57.5	3.50					
		.5	46.0	3000	7500	100.9	146	70.6	0.865	94.5	43.0	2804	7011	94.3	146	70.6	3.66					
CN	2	.0	13.5	500	1250	17.6	257	25.1	0.806	83.5	12.6	467	1168	16.5	257	25.1	2.93	0.28				
		.1	26.4	1000	2500	34.2	252	45.7	0.803	90.3	24.7	935	2337	32.0	252	45.7	3.37					
		.2	37.0	1500	3750	50.9	235	59.8	0.838	92.7	34.6	1402	3505	47.6	235	59.8	3.54					
		.3	45.1	2000	5000	67.5	215	72.4	0.833	93.8	42.2	1870	4674	63.1	215	72.4	3.61					
		.5	56.0	3000	7500	100.9	178	84.3	0.879	94.8	52.3	2804	7011	94.3	178	84.3	3.63					
CN	3	.0	16.3	500	1250	17.5	311	29.8	0.812	84.5	15.2	467	1168	16.4	311	29.8	3.07	0.34				
		.1	31.7	1000	2500	34.2	302	53.0	0.826	90.8	29.6	935	2337	32.0	302	53.0	3.32					
		.2	45.0	1500	3750	50.8	286	73.3	0.828	93.0	42.1	1402	3505	47.5	286	73.3	3.47					
		.3	54.4	2000	5000	67.4	260	87.1	0.834	94.0	50.9	1870	4674	63.0	260	87.1	3.79					
		.5	69.0	3000	7500	100.9	220	103.0	0.886	94.9	64.5	2804	7011	94.3	220	103.0	3.65					
CN	4	.0	19.2	500	1250	17.5	367	33.9	0.832	85.3	17.9	467	1168	16.4	367	33.9	3.09	0.40				
		.1	37.3	1000	2500	34.2	356	60.1	0.853	91.2	34.9	935	2337	32.0	356	60.1	3.33					
		.2	52.7	1500	3750	50.7	336	87.2	0.814	93.1	49.3	1402	3505	47.4	336	87.2	3.71					
		.3	64.6	2000	5000	67.5	308	100.8	0.854	94.2	60.4	1870	4674	63.1	308	100.8	3.79					
		.5	80.0	3000	7500	100.8	255	118.3	0.893	95.0	74.8	2804	7011	94.2	255	118.3	3.71					
CN	5	.0	22.0	500	1250	17.4	421	40.5	0.793	85.8	20.6	467	1168	16.3	421	40.5	3.10	0.46				
		.1	42.0	1000	2500	34.1	401	69.0	0.834	91.6	39.3	935	2337	31.9	401	69.0	3.46					
		.2	59.0	1500	3750	50.8	375	92.8	0.853	93.5	55.2	1402	3505	47.5	375	92.8	3.68					
		.3	72.0	2000	5000	67.4	344	116.2	0.825	94.2	67.3	1870	4674	63.0	344	116.2	3.81					
		.5	92.0	3000	7500	100.8	293	137.0	0.886	95.1	86.0	2804	7011	94.2	293	137.0	3.62					

Technical data – HDP-motors, IP54 series

Axial fan, H200

Rated voltage 400V/370V, CR [H200 IP54]

Duty			S1 400 V								S1 370 V									
Size	Lenght	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P		Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P		Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
					n_{max} r/min	n_{max} r/min								n_{max} r/min	n_{max} r/min					
CR 1	1	.0	20.0	500	1250	17.3	381	44	0.765	86.5	18.5	463	1156	16.0	381	44	3.21	0.68		
		.1	37.5	1000	2500	33.9	358	79	0.745	91.9	34.7	925	2313	31.4	358	79	3.31			
		.2	53.0	1500	3750	50.6	337	104	0.787	93.8	49.0	1388	3469	46.8	337	104	3.53			
		.3	65.5	2000	5000	67.2	313	123	0.813	94.7	60.6	1850	4625	62.2	313	123	3.71			
		.4	74.0	2500	6250	83.9	283	134	0.839	95.2	68.5	2313	5781	77.6	283	134	3.85			
CR 2	2	.0	25.0	500	1250	17.3	477	52	0.796	86.9	23.1	463	1156	16.0	477	52	3.08	0.78		
		.1	45.5	1000	2500	33.9	434	95	0.750	92.2	42.1	925	2313	31.4	434	95	3.35			
		.2	62.5	1500	3750	50.5	398	123	0.778	94.0	57.8	1388	3469	46.7	398	123	3.62			
		.3	75.0	2000	5000	67.2	358	143	0.799	94.8	69.4	1850	4625	62.2	358	143	3.85			
		.4	85.5	2500	6250	83.9	326	153	0.846	95.3	79.1	2313	5781	77.6	326	153	3.77			
CR 3	3	.0	28.0	500	1250	17.2	536	57	0.807	88.0	25.9	463	1156	15.9	536	57	3.27	0.91		
		.1	52.0	1000	2500	33.9	496	104	0.781	92.8	48.1	925	2313	31.4	496	104	3.33			
		.2	72.5	1500	3750	50.5	462	140	0.790	94.3	67.1	1388	3469	46.7	462	140	3.66			
		.3	88.5	2000	5000	67.2	422	163	0.824	95.1	81.9	1850	4625	62.2	422	163	3.82			
		.4	103.0	2500	6250	83.9	393	183	0.850	95.5	95.3	2313	5781	77.6	393	183	3.84			
CR 4	4	.0	33.0	500	1250	17.2	631	64	0.835	88.9	30.5	463	1156	15.9	631	64	3.35	1.09		
		.1	60.0	1000	2500	33.9	572	111	0.840	93.3	55.5	925	2313	31.4	572	111	3.52			
		.2	85.0	1500	3750	50.5	541	153	0.849	94.7	78.6	1388	3469	46.7	541	153	3.65			
		.3	103.0	2000	5000	67.2	491	185	0.844	95.3	95.3	1850	4625	62.2	491	185	3.84			
		.4	117.5	2500	6250	83.9	449	201	0.882	95.7	108.7	2313	5781	77.6	449	201	3.71			
CR 5	5	.0	40.5	500	1250	17.2	775	76	0.861	89.6	37.5	463	1156	15.9	775	76	3.36	1.34		
		.1	70.0	1000	2500	33.8	669	129	0.838	93.8	64.8	925	2313	31.3	669	129	3.51			
		.2	94.5	1500	3750	50.4	602	170	0.847	95.0	87.4	1388	3469	46.6	602	170	3.81			
		.3	111.5	2000	5000	67.1	533	190	0.887	95.5	103.1	1850	4625	62.1	533	190	3.73			
		.4	134.0	2500	6250	83.9	512	223	0.904	95.8	124.0	2313	5781	77.6	512	223	3.69			

Technical data – HDP-motors, IP54 series

Axial fan, H200

Rated voltage 460V/430V, CR [H200 IP54]

Duty			S1 460 V								S1 430 V							
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
CR 1	1	.0	20.0	500	1250	17.3	381	38	0.763	86.4	18.7	467	1168	16.2	381	38	3.21	0.68
		.1	37.5	1000	2500	33.9	358	70	0.736	91.8	35.1	935	2337	31.7	358	70	3.38	
		.2	53.0	1500	3750	50.6	337	92	0.769	93.7	49.5	1402	3505	47.3	337	92	3.56	
		.3	65.5	2000	5000	67.2	313	107	0.811	94.7	61.2	1870	4674	62.8	313	107	3.63	
		.4	74.0	2500	6250	83.9	283	119	0.824	95.2	69.2	2337	5842	78.4	283	119	3.72	
CR 2	2	.0	25.0	500	1250	17.3	477	45	0.794	87.1	23.4	467	1168	16.2	477	45	3.11	0.78
		.1	45.5	1000	2500	33.9	434	84	0.741	92.2	42.5	935	2337	31.7	434	84	3.33	
		.2	62.5	1500	3750	50.5	398	106	0.787	94.1	58.4	1402	3505	47.2	398	106	3.40	
		.3	75.0	2000	5000	67.2	358	121	0.822	94.9	70.1	1870	4674	62.8	358	121	3.59	
		.4	85.5	2500	6250	83.9	326	133	0.846	95.4	79.9	2337	5842	78.4	326	133	3.68	
CR 3	3	.0	28.0	500	1250	17.3	534	48	0.832	88.3	26.2	467	1168	16.2	534	48	3.19	0.91
		.1	52.0	1000	2500	33.9	496	91	0.774	92.8	48.6	935	2337	31.7	496	91	3.33	
		.2	72.5	1500	3750	50.5	462	123	0.786	94.3	67.8	1402	3505	47.2	462	123	3.62	
		.3	88.5	2000	5000	67.2	422	142	0.824	95.1	82.7	1870	4674	62.8	422	142	3.73	
		.4	103.0	2500	6250	83.8	394	164	0.826	95.4	96.3	2337	5842	78.3	394	164	3.83	
CR 4	4	.0	33.0	500	1250	17.2	631	56	0.828	89.0	30.8	467	1168	16.1	631	56	3.41	1.09
		.1	60.0	1000	2500	33.9	572	97	0.833	93.3	56.1	935	2337	31.7	572	97	3.43	
		.2	85.0	1500	3750	50.5	542	131	0.861	94.7	79.5	1402	3505	47.2	542	131	3.45	
		.3	103.0	2000	5000	67.2	492	157	0.862	95.3	96.3	1870	4674	62.8	492	157	3.65	
		.4	117.5	2500	6250	83.9	449	176	0.875	95.7	109.8	2337	5842	78.4	449	176	3.76	
CR 5	5	.0	40.5	500	1250	17.2	774	67	0.851	89.8	37.9	467	1168	16.1	774	67	3.47	1.34
		.1	70.0	1000	2500	33.8	669	113	0.828	93.8	65.4	935	2337	31.6	669	113	3.62	
		.2	94.5	1500	3750	50.5	602	142	0.880	95.0	88.3	1402	3505	47.2	602	142	3.60	
		.3	111.5	2000	5000	67.2	532	162	0.905	95.6	104.2	1870	4674	62.8	532	162	3.54	
		.4	134.0	2500	6250	83.9	512	194	0.904	95.8	125.3	2337	5842	78.4	512	194	3.57	

Technical data – HDP-motors, IP54 series

Radial fan, H250

Rated voltage 400V/370V, RT [H250 IP54]

Duty			S1 400 V									S1 370 V										
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at const		Max freq. at const		Torque T _N Nm	Current I _N A	Power factor	Eff. 100% %	Power P _N kW	Speed n _N r/min	Max speed at const		Max freq. at const		Torque T _N Nm	Current I _N A	Torque over-loadability T _{max} /T _N	Inertia J kg.m ²
					P	f _N Hz	P	f _{max} Hz							P	f _{max} Hz	P	f _N Hz				
RT 1	1	.0	43	500	1000	17.1	34.3	822	81	0.854	90.0	39.8	463	925	15.8	31.7	822	81	2.62	2.12		
		.1	85	1000	2000	33.8	67.7	812	152	0.862	93.9	78.6	925	1850	31.3	62.6	812	152	2.83			
		.2	123	1500	3400	50.4	114.4	784	219	0.851	95.2	113.8	1388	3145	46.6	105.8	784	219	3.09			
		.A	142	1750	4000	58.8	134.4	774	253	0.849	95.5	131.4	1619	3700	54.4	124.3	774	253	3.17			
		.3	160	2000	4500	67.1	151.1	764	281	0.857	95.8	148.0	1850	4163	62.1	139.8	764	281	3.13			
		.4	183	2500	5100	83.8	171.1	699	310	0.887	96.2	169.3	2313	4718	77.5	158.3	699	310	2.98			
RT 2	2	.0	55	500	1000	17.1	34.2	1050	102	0.855	90.9	50.9	463	925	15.8	31.6	1050	102	2.73	2.55		
		.1	105	1000	2400	33.7	81.1	1004	187	0.858	94.5	97.1	925	2220	31.2	75.0	1004	187	3.12			
		.2	150	1500	3400	50.4	114.4	955	262	0.864	95.5	138.8	1388	3145	46.6	105.8	955	262	3.24			
		.A	175	1750	4000	58.7	134.3	955	310	0.850	95.8	161.9	1619	3700	54.3	124.2	955	310	3.34			
		.3	200	2000	4500	67.1	151.0	954	350	0.858	96.0	185.0	1850	4163	62.1	139.7	954	350	3.27			
		.4	230	2500	5100	83.8	171.0	878	388	0.887	96.3	212.8	2313	4718	77.5	158.2	878	388	3.03			
RT 3	3	.0	68	500	1100	17.0	37.6	1302	126	0.848	91.7	62.9	463	1018	15.7	34.8	1302	126	2.98	3.18		
		.1	130	1000	2400	33.7	81.0	1241	232	0.853	94.7	120.3	925	2220	31.2	74.9	1241	232	3.29			
		.2	183	1500	3500	50.4	117.6	1164	320	0.861	95.7	169.3	1388	3238	46.6	108.8	1164	320	3.41			
		.A	202	1750	4000	58.7	134.4	1103	341	0.890	96.0	186.9	1619	3700	54.3	124.3	1103	341	3.21			
		.3	220	2000	4450	67.0	149.3	1051	373	0.885	96.2	203.5	1850	4116	62.0	138.1	1051	373	3.41			
		.4	255	2500	5100	83.7	170.8	974	432	0.884	96.4	235.9	2313	4718	77.4	158.0	974	432	3.45			
RT 4	4	.0	77	500	1000	17.0	34.1	1474	140	0.865	92.1	71.2	463	925	15.7	31.5	1474	140	2.98	3.68		
		.1	150	1000	2300	33.7	77.6	1432	261	0.874	95.0	138.8	925	2128	31.2	71.8	1432	261	3.28			
		.2	218	1500	3600	50.3	120.9	1389	385	0.852	95.9	201.7	1388	3330	46.5	111.8	1389	385	3.59			
		.A	245	1750	4100	58.7	137.5	1336	435	0.846	96.1	226.6	1619	3793	54.3	127.2	1336	435	3.77			
		.3	270	2000	4300	67.0	144.2	1289	462	0.875	96.3	249.8	1850	3978	62.0	133.4	1289	462	3.48			
		.4	320	2500	5200	83.7	174.1	1222	541	0.885	96.5	296.0	2313	4810	77.4	161.0	1222	541	3.43			
RT 5	5	.0	87	500	1100	17.0	37.5	1662	160	0.850	92.4	80.5	463	1018	15.7	34.7	1662	160	3.19	4.12		
		.1	163	1000	2300	33.7	77.6	1556	280	0.882	95.1	150.8	925	2128	31.2	71.8	1556	280	3.28			
		.2	240	1500	3600	50.3	120.9	1529	417	0.865	96.0	222.0	1388	3330	46.5	111.8	1529	417	3.56			
		.A	270	1750	4000	58.7	134.2	1473	462	0.877	96.2	249.8	1619	3700	54.3	124.1	1473	462	3.58			
		.3	295	2000	4300	67.0	144.1	1409	504	0.877	96.4	272.9	1850	3978	62.0	133.3	1409	504	3.58			
		.4	350	2500	5300	83.7	177.4	1336	598	0.875	96.6	323.8	2313	4903	77.4	164.1	1336	598	3.74			
RT 6	6	.0	96	500	1100	17.0	37.5	1835	172	0.868	92.7	88.8	463	1018	15.7	34.7	1835	172	3.15	4.52		
		.1	175	1000	2300	33.7	77.5	1670	303	0.876	95.3	161.9	925	2128	31.2	71.7	1670	303	3.47			
		.2	260	1500	3600	50.3	120.8	1656	452	0.863	96.1	240.5	1388	3330	46.5	111.7	1656	452	3.65			
		.A	300	1750	4000	58.7	134.1	1636	519	0.867	96.3	277.5	1619	3700	54.3	124.0	1636	519	3.65			
		.3	323	2000	4300	67.0	144.1	1542	547	0.883	96.4	298.8	1850	3978	62.0	133.3	1542	547	3.52			
		.4	385	2500	5000	83.7	167.5	1471	641	0.897	96.6	356.1	2313	4625	77.4	154.9	1471	641	3.38			

Technical data – HDP-motors, IP54 series

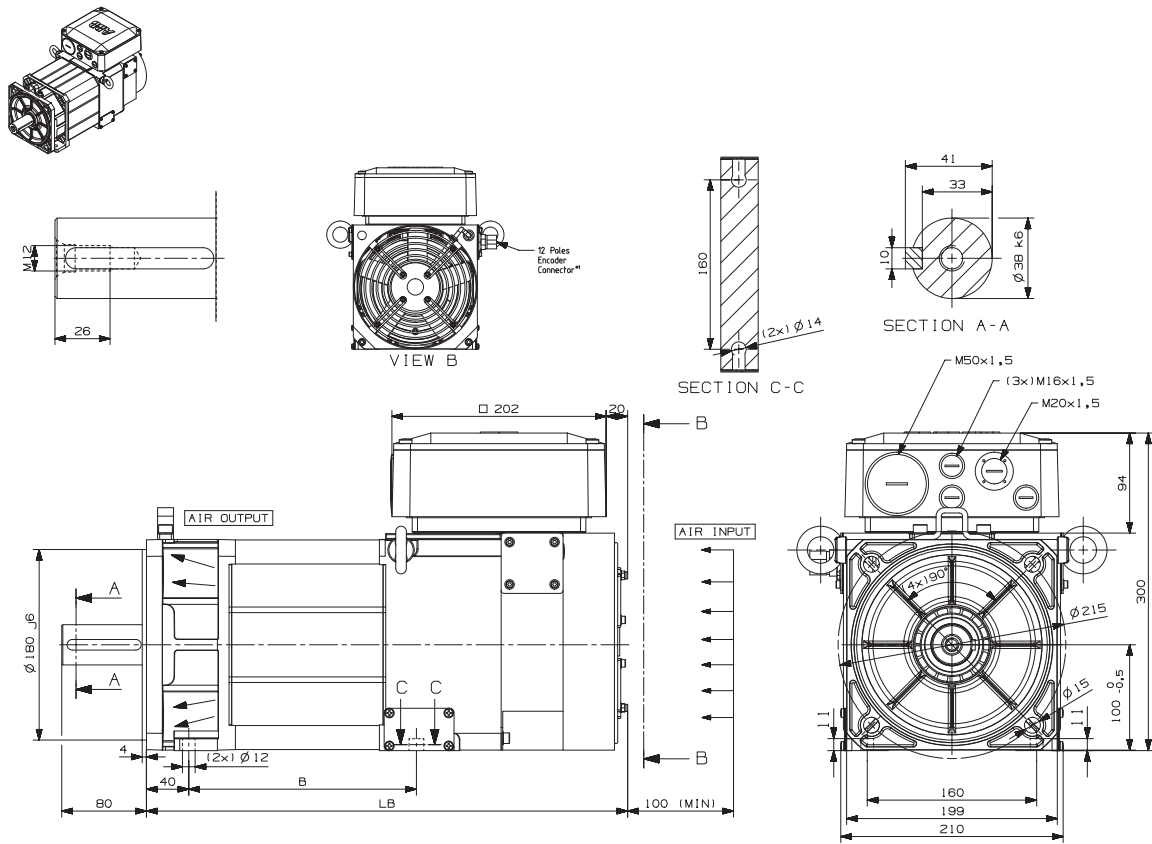
Radial fan, H250

Rated voltage 460V/430V, RT [H250 IP54]

Duty			S1 400 V								S1 370 V									
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const n_{max} r/min	Freq. f_N Hz	Max freq. at const f_{max} Hz	Torque T_N Nm	Current I_N A	Power factor	Eff. 100% %	Power P_N kW	Speed n_N r/min	Max speed at const n_{max} r/min	Freq. f_N Hz	Max freq. at const f_{max} Hz	Torque T_N Nm	Current I_N A	Torque over- load- ability T_{max}/T_N	Inertia J kg.m ²
RT 1	1	.0	43	500	1000	17.1	34.3	822	70	0.854	90.1	40.2	467	935	16.0	32.1	822	70	2.63	2.12
		.1	85	1000	2000	33.8	67.7	811	132	0.859	93.9	79.5	935	1870	31.6	63.3	811	132	2.86	
		.2	123	1500	3400	50.4	114.4	784	191	0.848	95.2	115.0	1402	3178	47.1	106.9	784	191	3.13	
		.A	142	1750	4000	58.8	134.5	774	218	0.857	95.5	132.7	1636	3739	55.0	125.7	774	218	3.08	
		.3	160	2000	4500	67.1	151.1	764	242	0.866	95.8	149.6	1870	4207	62.7	141.2	764	242	3.10	
		.4	183	2500	5100	83.8	171.1	699	270	0.883	96.2	171.1	2337	4767	78.3	159.9	699	270	2.96	
RT 2	2	.0	55	500	1000	17.1	34.3	1050	89	0.858	90.8	51.4	467	935	16.0	32.1	1050	89	2.70	2.55
		.1	105	1000	2300	33.8	77.8	1001	162	0.860	94.5	98.2	935	2150	31.6	72.7	1001	162	3.03	
		.2	150	1500	3400	50.4	114.4	956	225	0.878	95.5	140.2	1402	3178	47.1	106.9	956	225	3.07	
		.A	175	1750	4000	58.8	134.4	954	263	0.871	95.8	163.6	1636	3739	55.0	125.6	954	263	3.19	
		.3	200	2000	4500	67.1	150.9	954	309	0.846	96.0	187.0	1870	4207	62.7	141.1	954	309	3.41	
		.4	230	2500	5100	83.8	171.0	878	338	0.885	96.3	215.0	2337	4767	78.3	159.8	878	338	3.06	
RT 3	3	.0	68	500	1100	17.1	37.6	1295	108	0.863	91.8	63.6	467	1028	16.0	35.1	1295	108	2.95	3.18
		.1	130	1000	2400	33.7	81.0	1242	202	0.854	94.7	121.5	935	2243	31.5	75.7	1242	202	3.27	
		.2	183	1500	3500	50.4	117.6	1164	276	0.868	95.8	171.1	1402	3272	47.1	109.9	1164	276	3.44	
		.A	202	1750	4000	58.7	134.3	1103	299	0.882	96.0	188.8	1636	3739	54.9	125.5	1103	299	3.35	
		.3	220	2000	4450	67.0	149.3	1051	325	0.883	96.2	205.7	1870	4160	62.6	139.6	1051	325	3.45	
		.4	255	2500	5000	83.7	167.5	974	374	0.888	96.4	238.4	2337	4674	78.2	156.6	974	374	3.35	
RT 4	4	.0	77	500	1000	17.0	34.1	1473	122	0.858	92.2	72.0	467	935	15.9	31.9	1473	122	3.05	3.68
		.1	150	1000	2300	33.7	77.5	1432	231	0.858	95.1	140.2	935	2150	31.5	72.4	1432	231	3.38	
		.2	218	1500	3600	50.3	120.9	1389	336	0.848	95.9	203.8	1402	3365	47.0	113.0	1389	336	3.63	
		.A	245	1750	4100	58.7	137.5	1336	374	0.855	96.2	229.0	1636	3833	54.9	128.5	1336	374	3.66	
		.3	270	2000	4300	67.0	144.2	1290	400	0.881	96.3	252.4	1870	4020	62.6	134.8	1290	400	3.38	
		.4	320	2500	5200	83.7	174.2	1222	470	0.886	96.5	299.1	2337	4861	78.2	162.8	1222	470	3.40	
RT 5	5	.0	87	500	1100	17.0	37.5	1662	138	0.854	92.6	81.3	467	1028	15.9	35.1	1662	138	3.26	4.12
		.1	163	1000	2300	33.7	77.6	1556	246	0.873	95.2	152.4	935	2150	31.5	72.5	1556	246	3.33	
		.2	240	1500	3600	50.3	120.9	1529	362	0.867	96.0	224.3	1402	3365	47.0	113.0	1529	362	3.63	
		.A	270	1750	4000	58.7	134.2	1472	406	0.867	96.2	252.4	1636	3739	54.9	125.4	1472	406	3.62	
		.3	295	2000	4300	67.0	144.1	1409	434	0.885	96.4	275.8	1870	4020	62.6	134.7	1409	434	3.55	
		.4	350	2500	5300	83.7	177.4	1336	522	0.872	96.6	327.2	2337	4954	78.2	165.8	1336	522	3.78	
RT 6	6	.0	96	500	1100	17.0	37.5	1835	150	0.865	92.8	89.7	467	1028	15.9	35.1	1835	150	3.11	4.52
		.1	175	1000	2300	33.7	77.5	1669	265	0.871	95.3	163.6	935	2150	31.5	72.4	1669	265	3.45	
		.2	260	1500	3600	50.3	120.9	1656	389	0.873	96.0	243.0	1402	3365	47.0	113.0	1656	389	3.62	
		.A	300	1750	4000	58.7	134.1	1636	450	0.869	96.3	280.4	1636	3739	54.9	125.4	1636	450	3.62	
		.3	323	2000	4400	67.0	147.4	1542	481	0.874	96.4	301.9	1870	4113	62.6	137.8	1542	481	3.67	
		.4	385	2500	5000	83.7	167.4	1470	558	0.896	96.6	359.9	2337	4674	78.2	156.5	1470	558	3.42	

Dimension drawings

HDP-motor types CH1 - 6, IP54, H100



Motor types CH1 - 6, IP54, H100

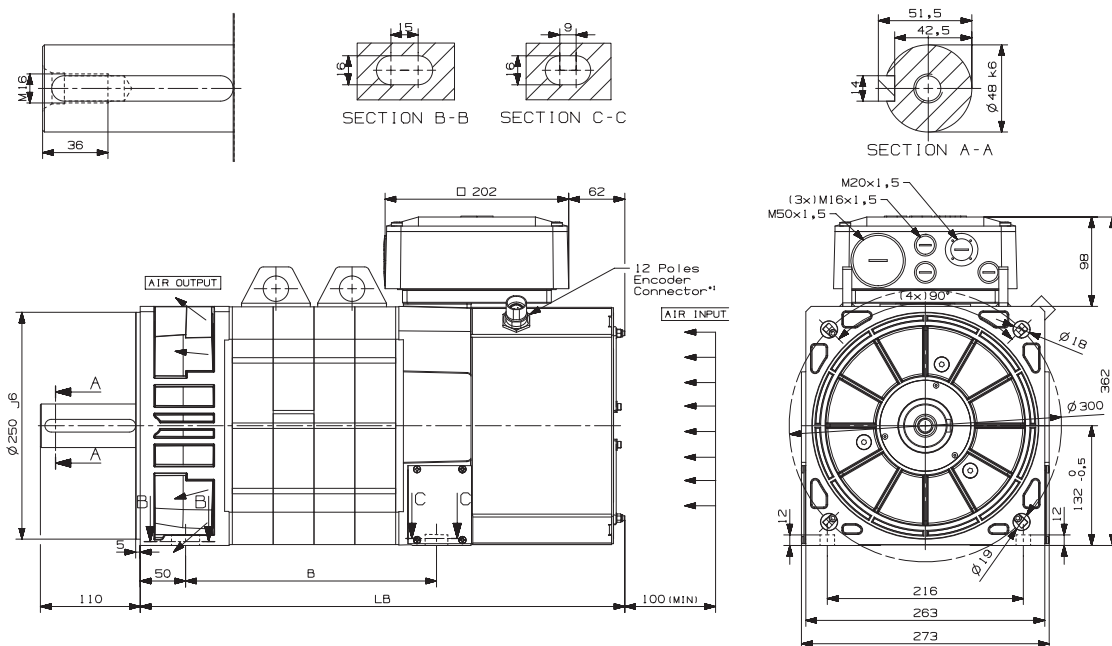
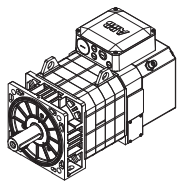
Motor type	B [mm]	LB [mm]	LB* ² with brake [mm]	Mass [kg]
CH1	155	395	458	30
CH2	180	420	483	36
CH3	215	455	518	44
CH4	265	505	568	56
CH5	305	545	608	65
CH6	350	590	653	76

*1 Connector in terminal box if requested

*2 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types CM1 - 5, IP54, H132



Motor types CM1 - 5, IP54, H132

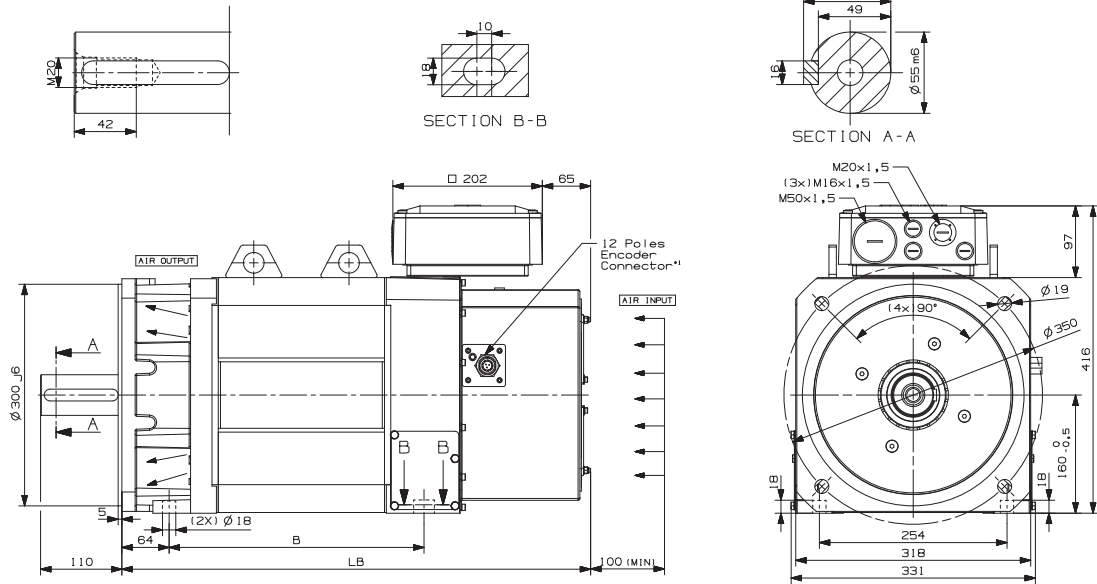
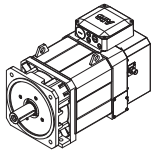
Motor type	B [mm]	LB [mm]	LB* ² with brake [mm]	Mass [kg]
CM1	219.5 - 243.5	489	599	91
CM2	264.5 - 288.5	534	644	109
CM3	299.5 - 323.5	569	679	123
CM4	369.5 - 393.5	639	749	151
CM5	439.5 - 463.5	709	819	179

*1 Connector in terminal box if requested

*2 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types CN1 - 5, IP54, H160



Motor types CN1 - 5, IP54, H160

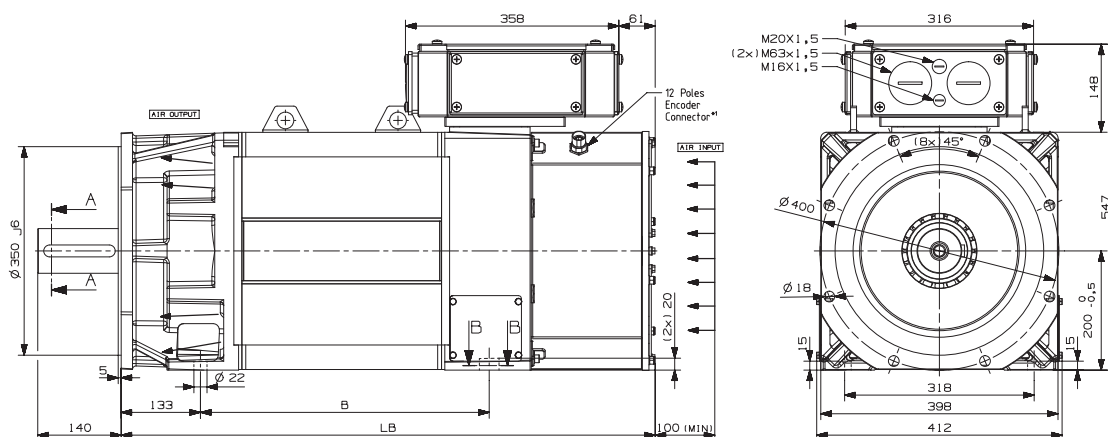
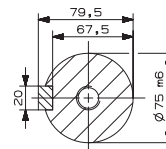
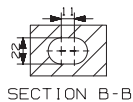
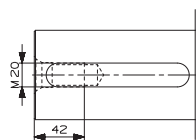
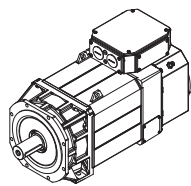
Motor type	B [mm]	LB [mm]	LB* ² with brake [mm]	Mass [kg]
CN1	340 - 350	635	765	183
CN2	390 - 400	685	815	212
CN3	450 - 460	745	875	247
CN4	510 - 520	805	935	282
CN5	570 - 580	865	995	317

*1 Connector in terminal box if requested

*2 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types CR1 - 5, IP54, H200



Motor types CR1 - 5, IP54, H200

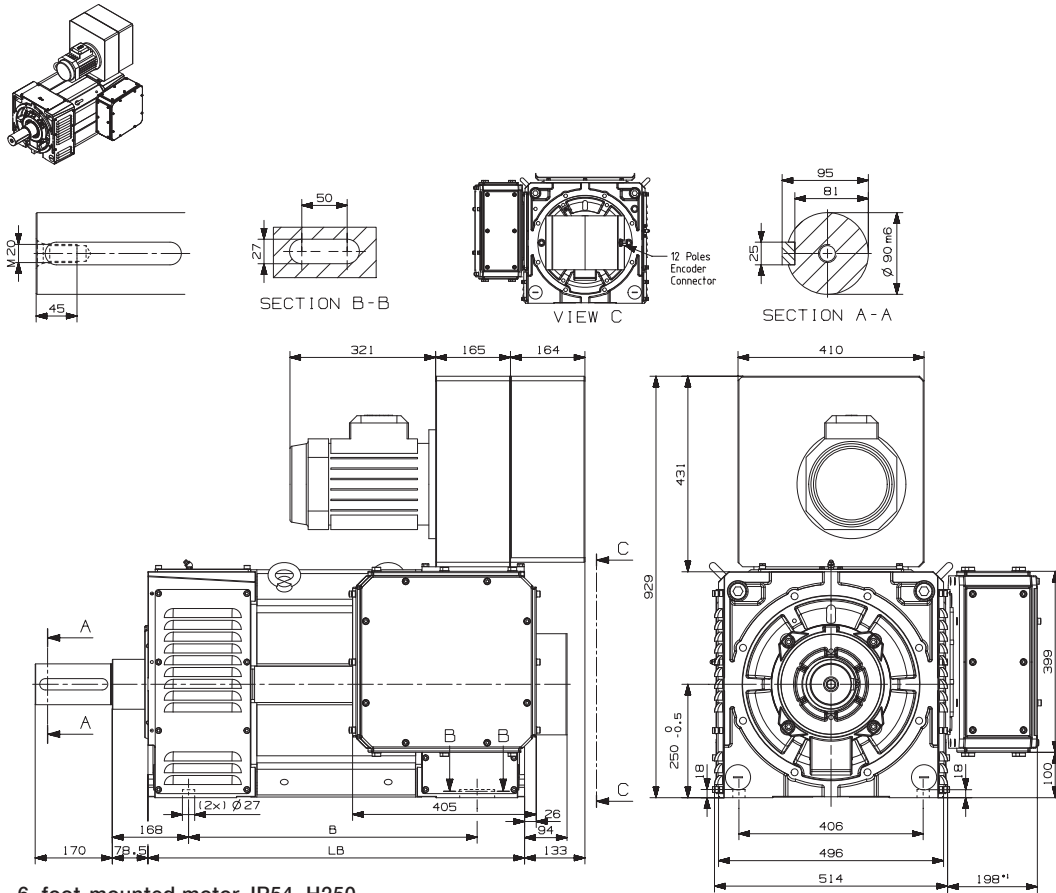
Motor type	B [mm]	LB [mm]	LB* ² with brake [mm]	Mass [kg]
CR1	389 - 400	806	956	359
CR2	429 - 440	846	996	396
CR3	479 - 490	896	1046	443
CR4	549 - 560	966	1116	509
CR5	649 - 660	1066	1216	603

*1 Connector in terminal box if requested

*2 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types RT1 - 6, foot-mounted motor, IP54, H250



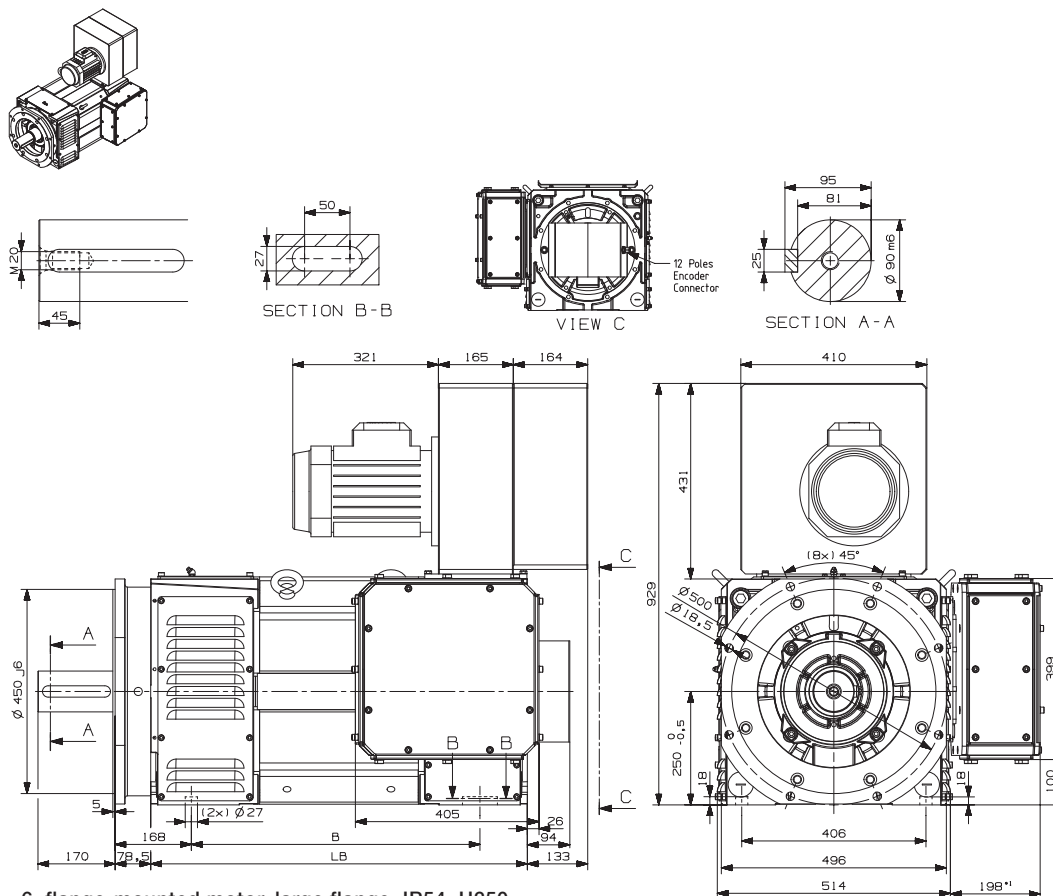
Motor types RT1 - 6, foot-mounted motor, IP54, H250

Motor type	B [mm]	LB [mm]	Mass [kg]
RT1	541 - 591	760	843
RT2	611 - 661	830	973
RT3	711 - 761	930	1153
RT4	791 - 841	1010	1303
RT5	861 - 911	1080	1423
RT6	921 - 971	1140	1543

**1 Equivalent dimension for terminal box in position A or D

Dimension drawings

HDP-motor types RT1 - 6, flange-mounted motor, large flange, IP54, H250



Motor types RT1 - 6, flange-mounted motor, large flange, IP54, H250

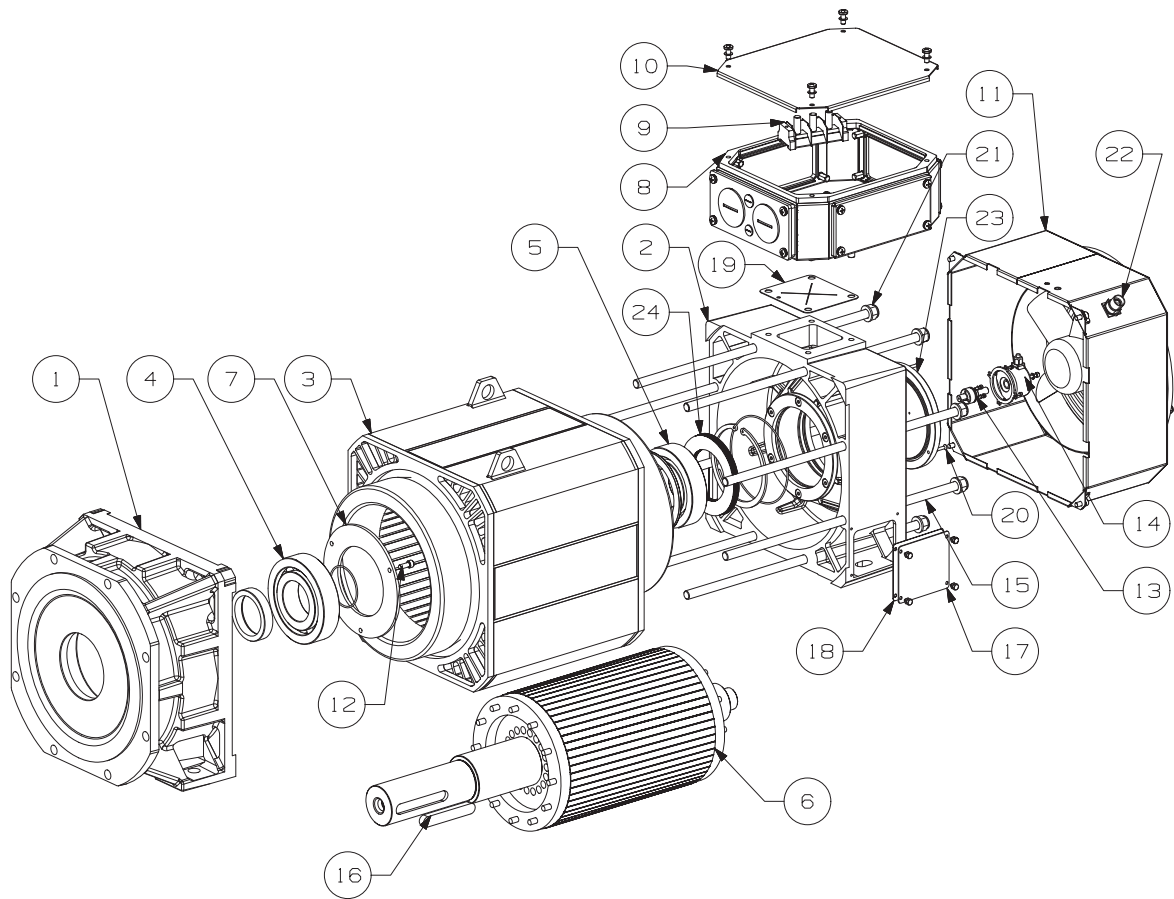
Motor type	B [mm]	LB [mm]	Mass [kg]
RT1	541 - 591	760	893
RT2	611 - 661	830	1023
RT3	711 - 761	930	1203
RT4	791 - 841	1010	1353
RT5	861 - 911	1080	1473
RT6	921 - 971	1140	1593

*1 Equivalent dimension for terminal box in position A or D

Motor construction

High dynamic performance motors, IP54 series

Typical exploded view of frame size H200



1	Endshield, D-end	9	Terminal board	17	Foot cover with screws
2	Endshield, N-end	10	Terminal box cover with screws	18	Foot cover seal
3	Stator	11	Kit blower	19	Terminal box support seal
4	Bearing, D-end	12	Screws for bearing cover, D-end	20	Screws for encoder flange
5	Bearing, N-end	13	Adapt. shaft encoder with screws	21	Nuts for tierods with washers
6	Rotor with shaft	14	Encoder	22	Encoder connector
7	Inner bearing cover, D-end	15	Tierods	23	Encoder flange
8	Terminal box	16	Key	24	Washers

Motors in brief

High dynamic performance motors, IP54 series

Size	HDP	IP54 100	IP54 132	IP54 160	IP54 200	IP54 250
Stator	Paint colour shade	Black RAL 9005				
Feet		Integrated in end shields				
	Material	Diecast aluminium alloy				Cast iron
Bearing end shields	Material	Diecast aluminium alloy				Cast iron
	Paint colour shade	Black RAL 9005				
Bearings	D-end	6308-2Z/C3	6310-2Z/C3	6312-2Z/C3	6315-2Z/C3	6322-C3/LGHP2
	N-end	6206-2Z/C3	6308-2Z/C3	6309-2Z/C3	6314-2Z/C3	6319-C3/LGHP2
Axially-locked bearings	Inner bearing cover	As standard locked at D-end				
Lubrication		Permanently lubricated shielded bearings				Relubrication. Grease temp range -40 to 150°C
Terminal box	Material	Aluminum	Aluminum	Aluminum	Steel	Steel
	Screws	Steel 8.8, zinc electroplated and chromated				
Connections	Cable entries	1 × M50, 1 × M20, 3 × M16			2 × M63, 1 × M20, 1 × M16	Blind plate
	Cable glands	Available on request				
Fan cover	Material	Steel				
	Paint colour shade	Black RAL 9005				
Stator winding	Material	Copper				
	Insulation	Class F				
	Temperature rise	Class F				
	Winding protection	3 × bimetal detectors, 140°C or 3 × PTC thermistors as standard, 140°C				
Rotor winding	Material	Diecast aluminum				Copper
Balancing method		Half key balancing				
Key ways		Closed keyway				
Heating element 220-240V	On request CE	21W	40W	26W	54W	65W
Heating element 110-120V	On request UL	28W	53W	35W	63W	84W
Enclosure		IP54				
Cooling method		IC 416 - axial cooling				IC 06 - radial cooling
Ambient conditions	Ambient conditions	0-40°C				
	Altitude conditions	0-1000 meter above sea level				

High dynamic performance (HDP) motors, IP23 series

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Mechanical design

Bearings

The motors are normally fitted with single-row deep groove ball bearings as listed in the table below. If the bearing at the D-end is replaced with a roller bearing (NU-type), higher radial forces can be handled. Roller bearings are suitable for belt drive applications. For high speed applications a special ball bearing or roller bearing should be used. Other special bearings may be mounted upon request, please check with ABB if required.

Basic version with deep groove ball bearings

Motor type	D-end	N-end
VH (H100)	6308-2Z/C3*	6206-2Z/C3*
VM (H132)	6310-2Z/C3*	6308-2Z/C3*
VN (H160)	6312-2Z/C3*	6309-2Z/C3*
VR (H200)	6315-2Z/C3*	6314-2Z/C3*
VT (H250)	6322-C3/LGHP2	6319-C3/LGHP2

* Bearing greased for life

Version with deep groove high speed ball bearings

Motor type	D-end	N-end
VH (H100)	6308-C3/LGHP2	6206-2Z/C3*
VM (H132)	6310-C3/LGHP2	6308-2Z/C3*
VN (H160)	6312-C3/LGHP2	6309-2Z/C3*
VR (H200)	6315-C3/LGHP2	6314-2Z/C3*
VT (H250)	6319-C3/LGHP2	6319-C3/LGHP2

* Bearing greased for life

Insulated bearing at N-end is required from 100kW and above. HDP motors frame size 200 & 250 are equipped with insulated bearing at N-end as standard. Smaller frames can also be equipped with an insulated bearing as an option.

Bearing life depends on the environment and the radial force. Average life time of the bearings is 20.000 hrs of operation.

Version with roller bearing at D-end

Motor type	D-end	N-end
VH (H100)	NU308/LGMT3	6206-2Z/C3*
VM (H132)	NU310/LGMT3	6308-2Z/C3*
VN (H160)	NU312/LGMT3	6309-2Z/C3*
VR (H200)	NU315/LGMT3	6314-2Z/C3*
VT (H250)	NU322/LGMT3	6319-C3/LGHP2

* Bearing greased for life

Version with high speed roller bearing at D-end

Motor type	D-end	N-end
VH (H100)	NU308/LGHP2	6206-2Z/C3*
VM (H132)	NU310/LGHP2	6308-2Z/C3*
VN (H160)	NU312/LGHP2	6309-2Z/C3*
VR (H200)	NU315/LGHP2	6314-2Z/C3*
VT (H250)	N/A	N/A

* Bearing greased for life

Maximum mechanical motor speed according to bearing type and mounting

Mounting	Horizontal B3 - B5 - B35				Vertical V1 - V5 - V15 - V3 - V6 - V35			
	Standard		High speed		Standard		High speed	
D-end bearing	Ball bearing greased for life	Roller bearing re-greasable	Ball bearing re-greasable	Roller bearing re-greasable	Ball bearing greased for life	Roller bearing re-greasable	Ball bearing re-greasable	Roller bearing re-greasable
N-end bearing	Ball bearing greased for life		Ball bearing greased for life		Ball bearing greased for life		Ball bearing greased for life	
	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm
VH (H100)	7500	6700	11000	8000	5300	6700	7500	7500
VM (H132)	6000	5000	8500	6700	4300	5000	5300	5300
VN (H160)	5300	4800	6700	5600	3600	4800	5300	5300
VR (H200)	4300	3800	5600	5300 ⁽¹⁾	2800	3200	5600 ⁽¹⁾	5300 ⁽¹⁾
VT (H250)	3800 ⁽¹⁾	3000 ⁽¹⁾	4800 ⁽¹⁾	N/A	3000 ⁽¹⁾	3000 ⁽¹⁾	4500 ⁽¹⁾	N/A
			4200 ⁽²⁾				4200 ⁽²⁾	

⁽¹⁾ Frame size 200 & 250 with re-greasable bearings

⁽²⁾ Frame size 250 with stator length 6

Lubrication

The motors are delivered with bearing grease for use at normal temperatures in dry or humid environments. The motors are lubricated for ambient temperatures 40°C.

Motor sizes 100 to 200 are provided with bearings greased for life. As an option motor sizes 100-200 can be provided with regreasable bearings. Motor size 250 is provided with regreasable bearings.

The lubrication interval L1, suitable for regreasable bearings, is defined as the number of operating hours after which 99 percent of the bearings are adequately lubricated.

On delivery, the motors are ready lubricated with high quality grease. Please find details and instructions in HDP Motor Manual before first start-up. The recommended grease can be found in ABB's HDP Motors Manual delivered together with the motor.

Standard ball bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours								
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm		
VH (H100)	DE	6308-2Z/C3	-	Bearings greased for life							
	NDE	6206-2Z/C3	-	Bearings greased for life							
VM (H132)	DE	6310-2Z/C3	-	Bearings greased for life							
	NDE	6308-2Z/C3	-	Bearings greased for life							
VN (H160)	DE	6312-2Z/C3	-	Bearings greased for life							
	NDE	6309-2Z/C3	-	Bearings greased for life							
VR (H200)	DE	6315-2Z/C3	-	Bearings greased for life							
	NDE	6314-2Z/C3	-	Bearings greased for life							
VT (H250)	DE	6322-C3/LGHP2	120	13000	10000	6000	3000	2000	-	-	
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-	

High speed ball bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours							
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm	
VH (H100)	DE	6308-C3/LGHP2	10	-	25000	20000	16000	12000	10000	6000
	NDE	6206-2Z/C3	-	Bearings greased for life						
VM (H132)	DE	6310-C3/LGHP2	30	24000	24000	18500	14500	11000	9000	5600
	NDE	6308-2Z/C3	-	Bearings greased for life						
VN (H160)	DE	6312-C3/LGHP2	40	24000	23000	17500	13500	12000	8000	-
	NDE	6309-2Z/C3	-	Bearings greased for life						
VR (H200)	DE	6315-C3/LGHP2	60	18000	15000	11500	8000	6000	-	-
	NDE	6314-C3/LGHP2	50	25000	15000	12000	9000	7000	-	-
VT (H250)	DE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-

Standard and high speed roller bearings

Framesize	Bearing type	Amount of grease (g)	Lubrication intervals in duty hours							
			500 rpm	1000 rpm	1500 rpm	2000 rpm	2500 rpm	3000 rpm	4000 rpm	
VH (H100)	DE	NU308	10	-	12000	10000	8000	6000	5000	2000
	NDE	6206-2Z/C3	-	Bearings greased for life						
VM (H132)	DE	NU310	30	12000	12000	9000	7000	5500	4500	3000
	NDE	6308-2Z/C3	-	Bearings greased for life						
VN (H160)	DE	NU312	40	12000	11500	8500	6500	5000	4000	2000
	NDE	6309-2Z/C3	-	Bearings greased for life						
VR (H200)	DE	NU315	60	9000	7500	5500	4000	3000	2000	500
	NDE	6314-C3/LGHP2	50	25000	15000	12000	9000	7000	-	-
VT (H250)*	DE	NU322	120	6500	5000	3000	1500	1000	-	-
	NDE	6319-C3/LGHP2	90	20000	13000	10000	6000	4000	-	-

* High speed version not available

Terminal box

Standard terminal box

Terminal box standard delivery IP23-motors

Terminal boxes are mounted on the right hand side seen from the D-end as standard on all IP23-motors. The terminal boxes can be turned 4x90° to allow cable entries from different positions. Motor sizes 100 and 132 come with an terminal box made of aluminum alloy with threaded cable entries. Motor sizes 160 and 200 come with an terminal box made of steel with an connection flange with threaded cable entries. Motor size 250 come with an terminal box made of steel with an un-drilled connection flange. Cable glands are not included as standard on HDP-motors, but can be ordered as a separate option. It is possible to order an larger terminal box than standard on IP23-motors.

Motor type	Threaded holes
VH IP23 (H100)	1xM50 + 1xM20 + 3xM16
VM IP23 (H132)	1xM50 + 1xM20 + 3xM16
VN IP23 (H160)	2xM63 + 1xM20 + 1xM16
VR IP23 (H200)	2xM63 + 1xM20 + 1xM16
VT IP23 (H250)	Blind flange

Terminal boxes and boards

The pictures below show examples of standard terminal boxes and the corresponding terminal boards for various motor sizes.

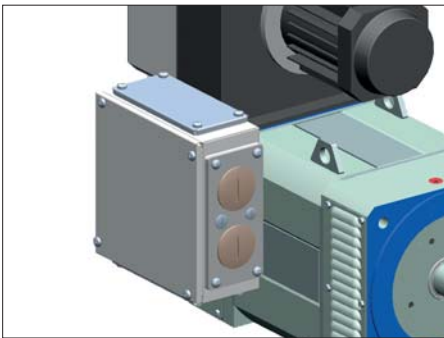


Fig. 1. Terminal box for motor sizes 100 - 160.

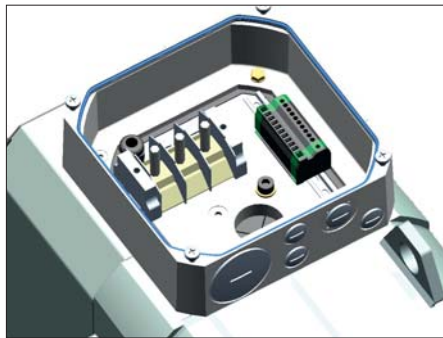


Fig. 2. Terminal board for motor sizes 100 - 160.

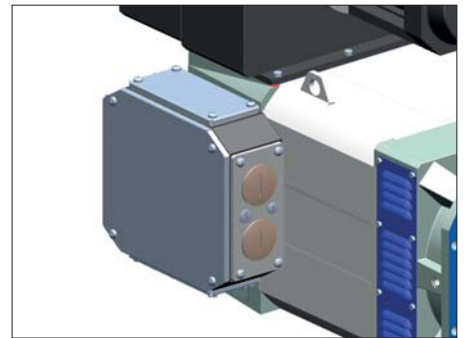


Fig. 3. Terminal box for motor sizes 200.

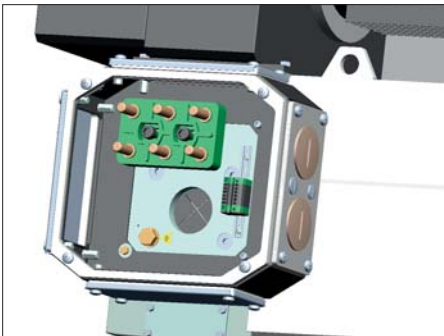


Fig. 4. Terminal board for motor sizes 200.



Fig. 5. Terminal box for motor sizes 250.

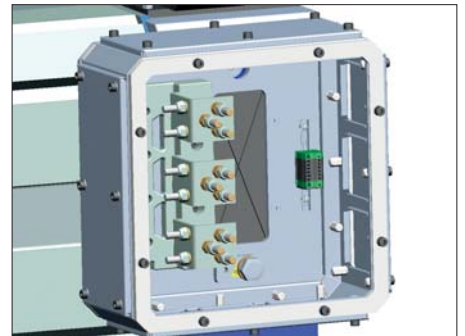


Fig. 6. Terminal board for motor sizes 250.

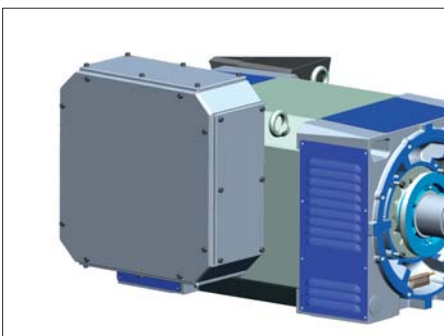


Fig. 7. Terminal box for motor sizes 250 (_XL).

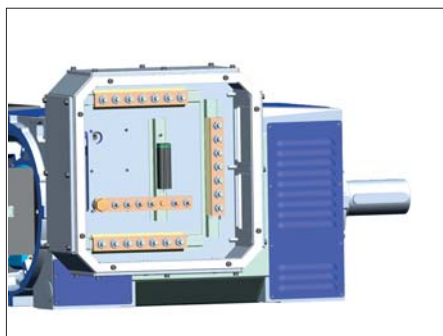


Fig. 8. Terminal board for motor sizes 250 (_XL).

Terminal box Dimensions

Frame dimensions

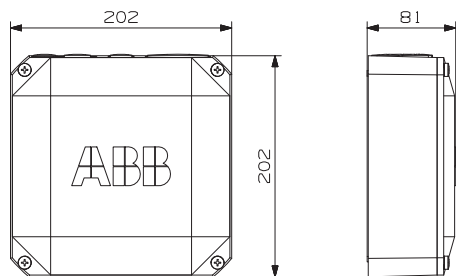


Fig. 1. Motor sizes 100 – 160 VH and VM, standard design with 3 terminals

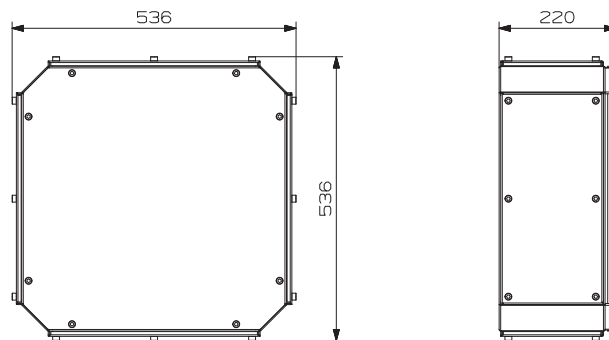


Fig. 5 Motor sizes 250, special oversized design with 21 terminals

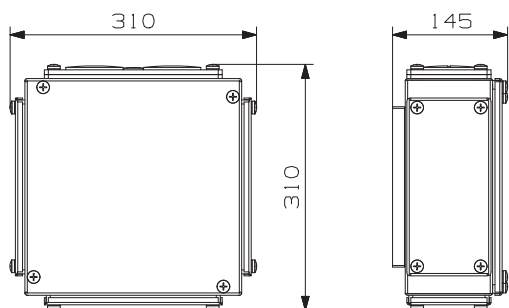


Fig. 2. Motor sizes 160 VN, standard design with 3 terminals

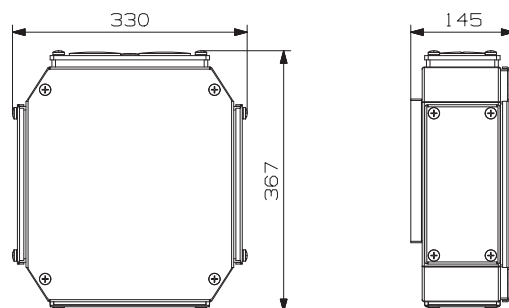


Fig. 3. Motor sizes 200 VR, standard design with 6 terminals

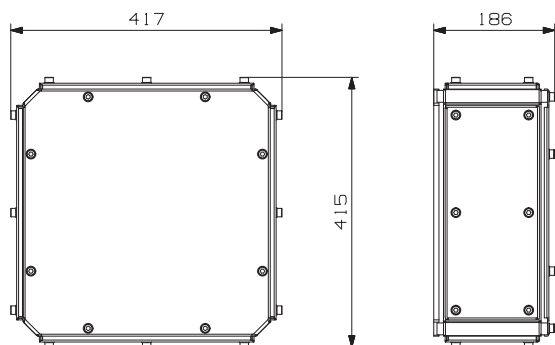



Fig. 4. Motor sizes 250, standard design with 9 terminals

Rating plate

Rating plate is in table form giving values for speed, current, power factor, frequency and torque for one voltage. Values for the external fan motor will also be visible both on the motor rating plate and on the fan motor rating plate.

1.	ABB HDP MOTOR		CE	12.
				13.
2.	VR52A00K02002A000 S/N:3GV1211057266001			
3.	IEC 60034-1	Date : 20130116	Fan	14.
4.	Pn 202 [kW]	Vn 400 [V]	Vn 400[V]	15.
5.	cosφ 0,855	In 363 [A]	fn 50[Hz]	16.
6.	ωn 1500 [rpm]	fn 50,8 [Hz]	In50 5,8[A]	17.
7.	ωm 2700 [rpm]	fm 91,5 [Hz]	In60 ---[A]	18.
8.	Tn 1286 [Nm]		Pn 3000[W]	19.
9.	IP23 S1 INS.CL. F 3-ph			
10.	Feedback: Enc. HTL 1024 ppr 9-30V			
11.	Brake: ---	--- Vdc	--- Nm	

1. Motor Definition (HDP Low inertia motor)
2. Motor product code (Type) and serial number (S/N)
3. Manufacturing standards (IEC 60034-1) and date (Date)
4. Rated power (Pn) and voltage (Vn)
5. Power factor (cosφ) and rated current (In)
6. Rated speed (ωn) and frequency (fn)
7. Maximum speed (ωm) and frequency (fm)
8. Rated torque (Tn)
9. Manufacturing details (IP version, duty type, insulation class, supply system)
10. Feedback type (ENCODER or RESOLVER or NO feedback)
11. Mechanical brake rated- voltage (Vdc), current (Adc), torque (Nm)
12. CE marking
13. Motor Bar Code
14. Fan Type
15. Fan rated voltage (Vn)
16. Fan rated frequency (fn)
17. Fan rated current at 50 Hz frequency (In50)
18. Fan rated current at 60 Hz frequency (In60)
19. Fan rated power (Pn)

Ordering information

When placing an order, specify motor type and other product codes according to the following example.

Explanation of the product code

Motor type	Shaft height	Stator length	Nominal speed	Construction and mounting details	Supply voltage	Painting	Accessories
V	M	3	1	A00002001	A	0	00
1	2	3	4	5 6 7 8 9 10 11 12 13	14	15	16 17

Position 1

V: IP23 HDP, H100 - H250

W: IP23 HDP (UL)*, H100 - H250

Position 2

H: H100

M: H132

N: H160

R: H200

T: H250

Position 3

Stator length; from 1 to 6 (see technical data)

Position 4

Nominal speed; from 0 to 7: (0=500 rpm, 1=1000, 2=1500, A=1750, 3=2000, 4=2500, 5=3000, 6=3500, 7=4000)

Position 5

Terminal box position and fan position

A: IP23 terminal box right side and fan upside

D: IP23 terminal box left side and fan upside

Position 6

Mounting

From 100 to 200: 0= B3/B5/B35, 1=V15*, 3=V35*

250: 4= B3, 0=B5*, 5=V5*, 6=V6*

Positions 7 and 8

Position transducer

00: Without transducer

0K: HTL 1024 ppr*

2K: TTL 1024 ppr*

03: HTL 2048 ppr*

2J: TTL 2048 ppr*

50: 0,5 Vpp 1024 sin/cos*

53: 1Vpp 2048 sin/cos*

Position 9

Holding brake

0: Without brake

1: Standard spring brake*

2: Special spring brake high torque*

Position 10

Shaft details

2: With keyway, without oil seal

3: Without keyway, without oil seal

Position 11

Bearings type

0: Ball bearings

1: Roller bearings*

7: High speed ball bearings*

8: High speed roller bearings*

Position 12

Shaft details

0: Standard for H100, H132, H160, H250

1: Standard for H200

Position 13

Thermal protection

1: 3 × Thermal switch in terminal box, 140°C

2: 3 × PTC in terminal box, 140°C

9: 3+3 thermal switch in terminal box, 120°C and 140°C*

A: 3+3 PTC in terminal box, 120°C and 140°C*

B: PT100, 2-wire in stator winding, one per phase*

C: PT100, 3-wire in stator winding, one per phase*

Position 14

A: 400 V motor power supply and 400 V 50 Hz fan power supply

B: 460 V motor power supply and 460 V 60 Hz fan power supply

Position 15

Painting

0: Black RAL 9005

Positions 16 and 17

Accessories

00: No accessories

01: 230 V Anti-condensation heaters*

02: Micro switch for radial fan*

04: Insulated ball bearing for size H100, H132, H160

(not necessary for H200 and H250 since this function is basic)*

* see price list for additional cost adders. Selection of options may extend lead time.

Technical data – HDP-motors, IP23 series

Radial fan, H100

Rated voltage 400V/370, VH [H100 IP23]

Duty			S1 400 V								S1 370 V							
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const		Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const		Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
					P	f_N Hz							n_{max} r/min	f_N Hz				
VH 1	1	.1	3.2	1000	1600	53.3	30.6	10.1	0.589	77.3	3.0	925	1480	49.3	30.6	10.1	1.90	0.0062
		.2	4.8	1500	2400	78.5	30.5	13.5	0.613	83.7	4.4	1388	2220	72.6	30.5	13.5	1.90	
		.3	6.3	2000	3200	103.3	30.1	17.6	0.598	86.5	5.8	1850	2960	95.6	30.1	17.6	2.00	
		.5	9.0	3000	4800	153.2	28.6	24.3	0.594	89.8	8.3	2775	4440	141.7	28.6	24.3	2.13	
		.7	11.5	4000	6400	202.9	27.5	33.3	0.548	91.0	10.6	3700	5920	187.7	27.5	33.3	2.34	
VH 2	2	.1	4.4	1000	1600	53.3	42.0	13.3	0.600	79.3	4.1	925	1480	49.3	42.0	13.3	1.87	0.0075
		.2	6.6	1500	2400	78.2	42.0	19.1	0.591	84.3	6.1	1388	2220	72.3	42.0	19.1	1.96	
		.3	8.8	2000	3200	103.3	42.0	24.1	0.603	87.4	8.1	1850	2960	95.6	42.0	24.1	1.95	
		.5	12.3	3000	4800	153.0	39.2	33.9	0.579	90.4	11.4	2775	4440	141.5	39.2	33.9	2.14	
		.7	15.2	4000	6400	203.0	36.3	39.1	0.609	92.0	14.1	3700	5920	187.8	36.3	39.1	2.19	
VH 3	3	.1	6.0	1000	1600	53.2	57.3	17.6	0.612	80.5	5.6	925	1480	49.2	57.3	17.6	1.86	0.0102
		.2	9.0	1500	2400	78.1	57.3	25.3	0.597	85.7	8.3	1388	2220	72.2	57.3	25.3	1.96	
		.3	12.0	2000	3200	103.2	57.3	31.4	0.623	88.6	11.1	1850	2960	95.5	57.3	31.4	1.92	
		.5	16.7	3000	4800	152.9	53.2	44.5	0.594	91.1	15.4	2775	4440	141.4	53.2	44.5	2.13	
		.7	20.3	4000	6400	202.9	48.5	51.1	0.620	92.5	18.8	3700	5920	187.7	48.5	51.1	2.16	
VH 4	4	.1	8.0	1000	1600	53.0	76.3	23.2	0.604	82.3	7.4	925	1480	49.0	76.3	23.2	1.95	0.0142
		.2	12.0	1500	2400	78.1	76.3	32.0	0.620	87.1	11.1	1388	2220	72.2	76.3	32.0	1.96	
		.3	15.8	2000	3200	103.0	75.4	41.6	0.613	89.4	14.6	1850	2960	95.3	75.4	41.6	2.02	
		.5	21.6	3000	4800	152.7	68.8	56.7	0.599	91.7	20.0	2775	4440	141.2	68.8	56.7	2.22	
		.7	27.7	4000	6400	202.7	66.1	71.8	0.600	92.8	25.6	3700	5920	187.5	66.1	71.8	2.29	
VH 5	5	.1	9.2	1000	1600	52.8	87.9	26.3	0.607	83.3	8.5	925	1480	48.8	87.9	26.3	2.01	0.0168
		.2	13.8	1500	2400	77.8	87.8	37.4	0.606	87.8	12.8	1388	2220	72.0	87.8	37.4	2.08	
		.3	17.8	2000	3200	102.8	85.0	46.3	0.616	89.9	16.5	1850	2960	95.1	85.0	46.3	2.12	
		.5	25.2	3000	4800	152.5	80.2	69.5	0.570	91.8	23.3	2775	4440	141.1	80.2	69.5	2.38	
		.7	31.2	4000	6400	202.6	74.5	78.4	0.617	93.1	28.9	3700	5920	187.4	74.5	78.4	2.32	
VH 6	6	.1	10.7	1000	1600	52.7	102.1	30.6	0.599	84.1	9.9	925	1480	48.7	102.1	30.6	2.08	0.0198
		.2	16.1	1500	2400	77.8	102.4	42.3	0.622	88.2	14.9	1388	2220	72.0	102.4	42.3	2.08	
		.3	21.3	2000	3200	102.7	101.7	56.6	0.602	90.2	19.7	1850	2960	95.0	101.7	56.6	2.18	
		.5	30.0	3000	4800	152.6	95.5	77.6	0.605	92.2	27.8	2775	4440	141.2	95.5	77.6	2.26	
		.7	32.3	4000	6400	202.3	77.1	79.4	0.629	93.3	29.9	3700	5920	187.1	77.1	79.4	2.49	

Technical data – HDP-motors, IP23 series

Radial fan, H100

Rated voltage 460V/430V, VH [H100 IP23]

Duty			S1 460 V										S1 430 V									
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²				
VH 1	1	.1	3.2	1000	1600	53.3	30.6	8.7	0.594	77.5	3.0	935	1496	49.8	30.6	8.7	1.89	0.0062				
		.2	4.8	1500	2400	78.5	30.5	11.5	0.623	84.0	4.5	1402	2243	73.4	30.5	11.5	1.89					
		.3	6.3	2000	3200	103.3	30.1	15.2	0.599	86.5	5.9	1870	2991	96.6	30.1	15.2	1.99					
		.5	9.0	3000	4800	153.2	28.6	20.8	0.603	89.9	8.4	2804	4487	143.2	28.6	20.8	2.10					
		.7	11.5	4000	6400	202.9	27.5	28.0	0.566	91.1	10.8	3739	5983	189.7	27.5	28.0	2.31					
VH 2	2	.1	4.4	1000	1600	53.3	42.0	11.8	0.594	79.0	4.1	935	1496	49.8	42.0	11.8	1.88	0.0075				
		.2	6.6	1500	2400	78.3	42.0	16.3	0.600	84.7	6.2	1402	2243	73.2	42.0	16.3	1.92					
		.3	8.8	2000	3200	103.3	42.0	21.2	0.596	87.3	8.2	1870	2991	96.6	42.0	21.2	1.96					
		.5	12.3	3000	4800	153.0	39.2	28.8	0.592	90.5	11.5	2804	4487	143.0	39.2	28.8	2.13					
		.7	15.2	4000	6400	203.0	36.3	33.5	0.619	92.1	14.2	3739	5983	189.8	36.3	33.5	2.13					
VH 3	3	.1	6.0	1000	1600	53.2	57.3	15.0	0.619	81.1	5.6	935	1496	49.7	57.3	15.0	1.85	0.0102				
		.2	9.0	1500	2400	78.1	57.3	22.2	0.592	85.8	8.4	1402	2243	73.0	57.3	22.2	1.98					
		.3	12.0	2000	3200	103.3	57.3	26.8	0.635	88.6	11.2	1870	2991	96.6	57.3	26.8	1.88					
		.5	16.7	3000	4800	153.0	53.2	37.3	0.615	91.2	15.6	2804	4487	143.0	53.2	37.3	2.06					
		.7	20.3	4000	6400	202.9	48.5	44.4	0.620	92.5	19.0	3739	5983	189.7	48.5	44.4	2.16					
VH 4	4	.1	8.0	1000	1600	53.0	76.3	20.2	0.604	82.4	7.5	935	1496	49.5	76.3	20.2	1.95	0.0142				
		.2	12.0	1500	2400	78.0	76.4	28.5	0.607	86.9	11.2	1402	2243	72.9	76.4	28.5	1.97					
		.3	15.8	2000	3200	103.0	75.5	35.8	0.619	89.4	14.8	1870	2991	96.3	75.5	35.8	2.00					
		.5	21.6	3000	4800	152.8	68.7	48.6	0.607	91.8	20.2	2804	4487	142.8	68.7	48.6	2.19					
		.7	27.7	4000	6400	202.6	66.1	63.8	0.588	92.7	25.9	3739	5983	189.4	66.1	63.8	2.33					
VH 5	5	.1	9.2	1000	1600	52.9	87.8	22.5	0.615	83.5	8.6	935	1496	49.5	87.8	22.5	1.99	0.0168				
		.2	13.8	1500	2400	77.8	87.8	33.3	0.595	87.5	12.9	1402	2243	72.7	87.8	33.3	2.09					
		.3	17.8	2000	3200	102.8	85.0	40.4	0.615	90.0	16.6	1870	2991	96.1	85.0	40.4	2.12					
		.5	25.2	3000	4800	152.5	80.2	59.3	0.581	91.9	23.6	2804	4487	142.6	80.2	59.3	2.35					
		.7	31.2	4000	6400	202.6	74.5	67.2	0.626	93.1	29.2	3739	5983	189.4	74.5	67.2	2.28					
VH 6	6	.1	10.7	1000	1600	52.7	102.2	25.8	0.618	84.3	10.0	935	1496	49.3	102.2	25.8	2.05	0.0198				
		.2	16.1	1500	2400	77.8	102.6	36.2	0.632	88.3	15.1	1402	2243	72.7	102.6	36.2	2.02					
		.3	21.3	2000	3200	102.7	101.7	48.9	0.606	90.2	19.9	1870	2991	96.0	101.7	48.9	2.16					
		.5	30.0	3000	4800	152.6	95.5	67.7	0.603	92.2	28.0	2804	4487	142.6	95.5	67.7	2.27					
		.7	32.3	4000	6400	202.3	77.1	70.3	0.618	93.3	30.2	3739	5983	189.1	77.1	70.3	2.54					

Technical data – HDP-motors, IP23 series

Radial fan, H132

Rated voltage 400V/370V, VM [H132 IP23]

Duty			S1 400 V								S1 370 V							
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²
					n _{max} r/min	f _N Hz							n _{max} r/min	f _N Hz				
VM 1	1	.1	14.2	1000	1500	36.6	135.5	32.1	0.829	76.9	13.1	925	1388	33.9	135.5	32.1	1.80	0.061
		.2	21.0	1500	2500	53.3	133.7	43.4	0.841	83.0	19.4	1388	2313	49.3	133.7	43.4	1.97	
		.3	27.0	2000	3400	69.8	129.0	53.5	0.840	86.5	25.0	1850	3145	64.6	129.0	53.5	2.13	
		.5	37.0	3000	5100	103.1	117.7	70.0	0.845	90.2	34.2	2775	4718	95.4	117.7	70.0	2.38	
		.7	44.3	4000	6800	136.7	105.7	79.2	0.880	91.7	41.0	3700	6290	126.4	105.7	79.2	2.27	
VM 2	2	.1	18.0	1000	1500	36.1	172.0	38.7	0.838	80.1	16.7	925	1388	33.4	172.0	38.7	2.01	0.080
		.2	27.0	1500	2500	52.9	171.8	53.9	0.848	85.2	25.0	1388	2313	48.9	171.8	53.9	2.18	
		.3	35.2	2000	3400	69.5	168.1	67.5	0.853	88.1	32.6	1850	3145	64.3	168.1	67.5	2.30	
		.5	48.2	3000	5100	102.7	153.5	89.6	0.850	91.3	44.6	2775	4718	95.0	153.5	89.6	2.63	
		.7	59.1	4000	6800	136.4	141.1	103.8	0.888	92.5	54.7	3700	6290	126.2	141.1	103.8	2.41	
VM 3	3	.1	22.0	1000	1500	36.2	209.8	45.7	0.858	80.8	20.4	925	1388	33.5	209.8	45.7	1.99	0.094
		.2	33.0	1500	2500	52.8	209.9	65.3	0.848	86.0	30.5	1388	2313	48.8	209.9	65.3	2.26	
		.3	43.0	2000	3400	69.5	205.4	80.8	0.867	88.6	39.8	1850	3145	64.3	205.4	80.8	2.29	
		.5	58.4	3000	5100	102.6	185.9	107.4	0.855	91.7	54.0	2775	4718	94.9	185.9	107.4	2.69	
		.7	69.0	4000	6800	136.5	164.7	119.5	0.899	92.7	63.8	3700	6290	126.3	164.7	119.5	2.36	
VM 4	4	.1	28.4	1000	1500	35.9	271.0	57.4	0.861	82.8	26.3	925	1388	33.2	271.0	57.4	2.17	0.122
		.2	43.0	1500	2500	52.5	274.0	84.1	0.845	87.3	39.8	1388	2313	48.6	274.0	84.1	2.46	
		.3	57.0	2000	3400	69.2	272.0	107.7	0.851	89.7	52.7	1850	3145	64.0	272.0	107.7	2.56	
		.5	74.2	3000	5100	102.3	236.1	137.0	0.845	92.5	68.6	2775	4718	94.6	236.1	137.0	3.03	
		.7	93.0	4000	6800	135.9	222.1	161.7	0.888	93.5	86.0	3700	6290	125.7	222.1	161.7	2.76	
VM 5	5	.1	36.0	1000	1500	35.9	343.0	71.5	0.869	83.5	33.3	925	1388	33.2	343.0	71.5	2.19	0.150
		.2	53.0	1500	2500	52.4	338.0	101.7	0.855	87.9	49.0	1388	2313	48.5	338.0	101.7	2.52	
		.3	70.0	2000	3400	69.1	334.0	129.3	0.866	90.2	64.8	1850	3145	63.9	334.0	129.3	2.58	
		.5	91.0	3000	5100	102.3	290.0	163.3	0.867	92.8	84.2	2775	4718	94.6	290.0	163.3	2.98	
		.7	111.5	4000	6800	135.7	266.0	193.9	0.884	93.8	103.1	3700	6290	125.5	266.0	193.9	3.00	

Technical data – HDP-motors, IP23 series

Radial fan, H132

Rated voltage 460V/430V, VM [H132 IP23]

Duty			S1 460 V								S1 430 V							
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
VM 1	1	.1	14.2	1000	1500	36.5	135.6	28.3	0.820	76.7	13.3	935	1402	34.1	135.6	28.3	1.82	0.061
		.2	21.0	1500	2500	53.3	133.8	37.7	0.843	82.8	19.6	1402	2337	49.8	133.8	37.7	1.95	
		.3	27.0	2000	3400	69.8	128.9	46.8	0.835	86.7	25.2	1870	3178	65.2	128.9	46.8	2.16	
		.5	37.0	3000	5100	103.1	117.8	60.5	0.850	90.2	34.6	2804	4767	96.4	117.8	60.5	2.35	
		.7	44.3	4000	6800	136.6	105.8	69.0	0.878	91.8	41.4	3739	6357	127.7	105.8	69.0	2.30	
VM 2	2	.1	18.0	1000	1500	36.1	171.7	33.8	0.832	80.3	16.8	935	1402	33.7	171.7	33.8	2.05	0.080
		.2	27.0	1500	2500	52.9	171.8	46.9	0.848	85.1	25.2	1402	2337	49.5	171.8	46.9	2.18	
		.3	35.2	2000	3400	69.5	168.1	58.8	0.852	88.1	32.9	1870	3178	65.0	168.1	58.8	2.30	
		.5	48.2	3000	5100	102.8	153.4	77.5	0.855	91.3	45.1	2804	4767	96.1	153.4	77.5	2.59	
		.7	59.1	4000	6800	136.3	141.1	90.9	0.881	92.6	55.2	3739	6357	127.4	141.1	90.9	2.51	
VM 3	3	.1	22.0	1000	1500	36.0	210.0	40.6	0.837	81.2	20.6	935	1402	33.7	210.0	40.6	2.10	0.094
		.2	33.0	1500	2500	52.7	210.1	57.3	0.839	86.0	30.8	1402	2337	49.3	210.1	57.3	2.30	
		.3	43.0	2000	3400	69.4	205.4	71.1	0.855	88.7	40.2	1870	3178	64.9	205.4	71.1	2.37	
		.5	58.4	3000	5100	102.5	185.9	95.2	0.839	91.8	54.6	2804	4767	95.8	185.9	95.2	2.80	
		.7	69.0	4000	6800	136.4	164.7	103.9	0.898	92.7	64.5	3739	6357	127.5	164.7	103.9	2.39	
VM 4	4	.1	28.4	1000	1500	35.9	271.0	49.8	0.865	82.7	26.5	935	1402	33.6	271.0	49.8	2.14	0.122
		.2	43.0	1500	2500	52.4	274.0	74.0	0.834	87.3	40.2	1402	2337	49.0	274.0	74.0	2.52	
		.3	57.0	2000	3400	69.0	272.0	96.2	0.827	89.9	53.3	1870	3178	64.5	272.0	96.2	2.70	
		.5	74.2	3000	5100	102.4	236.1	117.8	0.855	92.4	69.4	2804	4767	95.7	236.1	117.8	2.94	
		.7	93.0	4000	6800	135.7	222.0	143.6	0.868	93.6	86.9	3739	6357	126.9	222.0	143.6	3.01	
VM 5	5	.1	36.0	1000	1500	35.9	344.0	62.1	0.872	83.3	33.7	935	1402	33.6	344.0	62.1	2.17	0.150
		.2	53.0	1500	2500	52.2	338.0	91.4	0.825	88.2	49.5	1402	2337	48.8	338.0	91.4	2.69	
		.3	70.0	2000	3400	69.1	334.0	112.9	0.862	90.3	65.4	1870	3178	64.6	334.0	112.9	2.62	
		.5	91.0	3000	5100	102.1	290.0	147.0	0.836	92.9	85.1	2804	4767	95.4	290.0	147.0	3.25	
		.7	111.5	4000	6800	135.6	266.0	170.6	0.874	93.9	104.2	3739	6357	126.8	266.0	170.6	3.13	

Technical data – HDP-motors, IP23 series

Radial fan, H160

Rated voltage 400V/370V, VN [H160 IP23]

Duty			S1 400 V								S1 370 V							
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at		Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²
					n _{max} r/min	f _N Hz							n _{max} r/min	f _N Hz				
VN 1	1	.0	17.2	500	1000	18.0	329	39.4	0.808	77.8	15.9	463	925	16.7	329	39.4	2.12	0.24
		.1	34.7	1000	2200	34.7	331	70.2	0.818	87.1	32.1	925	2035	32.1	331	70.2	2.54	
		.2	51.5	1500	3300	51.4	328	97.3	0.842	90.6	47.6	1388	3053	47.5	328	97.3	2.67	
		.3	67.1	2000	4400	68.0	320	127.3	0.824	92.2	62.1	1850	4070	62.9	320	127.3	2.95	
		.5	91.0	3000	6500	101.3	290	165.1	0.846	94.0	84.2	2775	6013	93.7	290	165.1	3.15	
VN 2	2	.0	20.6	500	1000	17.9	394	45.8	0.819	79.3	19.1	463	925	16.6	394	45.8	2.21	0.28
		.1	41.6	1000	2200	34.6	397	81.7	0.833	88.1	38.5	925	2035	32.0	397	81.7	2.65	
		.2	62.0	1500	3300	51.3	394	116.2	0.844	91.1	57.4	1388	3053	47.5	394	116.2	2.82	
		.3	79.0	2000	4400	67.9	377	149.3	0.823	92.8	73.1	1850	4070	62.8	377	149.3	3.18	
		.5	105.0	3000	6500	101.2	334	188.1	0.853	94.4	97.1	2775	6013	93.6	334	188.1	3.30	
VN 3	3	.0	24.2	500	1000	17.8	463	52.1	0.825	81.1	22.4	463	925	16.5	463	52.1	2.36	0.34
		.1	48.0	1000	2200	34.5	458	95.0	0.818	89.0	44.4	925	2035	31.9	458	95.0	2.93	
		.2	71.2	1500	3300	51.2	453	131.4	0.851	91.9	65.9	1388	3053	47.4	453	131.4	3.01	
		.3	92.0	2000	4400	67.8	440	167.1	0.852	93.2	85.1	1850	4070	62.7	440	167.1	3.20	
		.5	123.2	3000	6500	101.1	392	215.0	0.874	94.7	114.0	2775	6013	93.5	392	215.0	3.35	
VN 4	4	.0	27.5	500	1000	17.8	525	57.2	0.844	82.2	25.4	463	925	16.5	525	57.2	2.41	0.40
		.1	56.0	1000	2200	34.4	535	108.5	0.831	89.6	51.8	925	2035	31.8	535	108.5	2.98	
		.2	82.0	1500	3300	51.1	523	148.1	0.867	92.2	75.9	1388	3053	47.3	523	148.1	3.03	
		.3	105.0	2000	4400	67.8	501	186.2	0.870	93.5	97.1	1850	4070	62.7	501	186.2	3.21	
		.5	136.5	3000	6500	101.1	435	233.0	0.890	94.9	126.3	2775	6013	93.5	435	233.0	3.36	
VN 5	5	.0	30.5	500	1000	17.7	584	62.7	0.845	83.0	28.2	463	925	16.4	584	62.7	2.52	0.46
		.1	62.1	1000	2200	34.4	592	120.7	0.823	90.1	57.4	925	2035	31.8	592	120.7	3.18	
		.2	92.2	1500	3300	51.0	587	169.6	0.847	92.6	85.3	1388	3053	47.2	587	169.6	3.30	
		.3	117.4	2000	4400	67.7	561	211.0	0.856	93.7	108.6	1850	4070	62.6	561	211.0	3.47	
		.5	156.0	3000	6500	101.1	496	267.0	0.889	95.0	144.3	2775	6013	93.5	496	267.0	3.50	

Technical data – HDP-motors, IP23 series

Radial fan, H160

Rated voltage 460V/430V, VN [H160 IP23]

Duty			S1 460 V								S1 430 V							
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
		.1	34.7	1000	2200	34.7	331	60.3	0.828	87.2	32.4	935	2057	32.4	331	60.3	2.51	
		.2	51.5	1500	3300	51.4	328	84.2	0.847	90.6	48.1	1402	3085	48.0	328	84.2	2.65	
		.3	67.1	2000	4400	68.0	321	108.1	0.843	92.3	62.7	1870	4113	63.6	321	108.1	2.84	
		.5	91.0	3000	6500	101.3	290	142.5	0.852	94.0	85.1	2804	6076	94.7	290	142.5	3.11	
VN	2	.0	20.6	500	1000	18.0	392	39.3	0.830	79.2	19.3	467	935	16.8	392	39.3	2.16	0.28
		.1	41.6	1000	2200	34.6	398	70.3	0.842	88.1	38.9	935	2057	32.3	398	70.3	2.60	
		.2	62.0	1500	3300	51.3	395	100.0	0.852	91.2	58.0	1402	3085	48.0	395	100.0	2.77	
		.3	79.0	2000	4400	67.8	377	131.0	0.815	92.8	73.8	1870	4113	63.4	377	131.0	3.22	
		.5	105.0	3000	6500	101.2	334	163.6	0.853	94.4	98.2	2804	6076	94.6	334	163.6	3.29	
VN	3	.0	24.2	500	1000	17.8	463	45.5	0.821	81.2	22.6	467	935	16.6	463	45.5	2.39	0.34
		.1	48.0	1000	2200	34.5	458	81.8	0.826	89.1	44.9	935	2057	32.3	458	81.8	2.91	
		.2	71.2	1500	3300	51.2	453	113.3	0.859	91.8	66.6	1402	3085	47.9	453	113.3	2.96	
		.3	92.0	2000	4400	67.9	439	143.6	0.863	93.2	86.0	1870	4113	63.5	439	143.6	3.11	
		.5	123.2	3000	6500	101.2	392	184.9	0.883	94.7	115.2	2804	6076	94.6	392	184.9	3.21	
VN	4	.0	27.5	500	1000	17.8	525	50.0	0.837	82.3	25.7	467	935	16.6	525	50.0	2.44	0.40
		.1	56.0	1000	2200	34.4	535	93.6	0.838	89.6	52.3	935	2057	32.2	535	93.6	2.95	
		.2	82.0	1500	3300	51.1	522	128.9	0.866	92.2	76.7	1402	3085	47.8	522	128.9	3.04	
		.3	105.0	2000	4400	67.8	501	162.7	0.866	93.6	98.2	1870	4113	63.4	501	162.7	3.26	
		.5	136.5	3000	6500	101.1	434	206.0	0.878	94.9	127.6	2804	6076	94.5	434	206.0	3.31	
VN	5	.0	30.5	500	1000	17.7	583	55.3	0.831	83.2	28.5	467	935	16.5	583	55.3	2.60	0.46
		.1	62.1	1000	2200	34.3	594	105.1	0.822	90.1	58.1	935	2057	32.1	594	105.1	3.19	
		.2	92.2	1500	3300	51.0	587	150.2	0.832	92.6	86.2	1402	3085	47.7	587	150.2	3.41	
		.3	117.4	2000	4400	67.8	560	181.0	0.868	93.8	109.7	1870	4113	63.4	560	181.0	3.38	
		.5	156.0	3000	6500	101.1	496	233.0	0.886	95.0	145.8	2804	6076	94.5	496	233.0	3.40	

Technical data – HDP-motors, IP23 series

Radial fan, H200

Rated voltage 400V/370, VR [H200 IP23]

Duty			S1 400 V								S1 370 V							
Size	Length	Speed	Power P_N kW	Speed n_N r/min	Max speed at		Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at		Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
					const P n_{max} r/min	Freq. f_N Hz							const P n_{max} r/min	Freq. f_N Hz				
VR 1	1	.0	38.0	500	750	18.0	725	78	0.874	79.9	35.2	463	694	16.7	725	78	1.70	0.68
		.1	76.0	1000	1800	34.5	726	145	0.850	88.8	70.3	925	1665	31.9	726	145	2.13	
		.2	109.4	1500	2700	51.1	697	203	0.844	92.1	101.2	1388	2498	47.3	697	203	2.36	
		.3	138.0	2000	3600	67.8	659	247	0.861	93.6	127.7	1850	3330	62.7	659	247	2.43	
		.4	161.0	2500	4500	84.4	615	282	0.873	94.5	148.9	2313	4163	78.1	615	282	2.51	
VR 2	2	.0	43.6	500	750	17.9	831	88	0.873	81.7	40.3	463	694	16.6	831	88	1.83	0.78
		.1	87.0	1000	1800	34.4	832	164	0.857	89.6	80.5	925	1665	31.8	832	164	2.22	
		.2	125.2	1500	2700	51.1	796	228	0.856	92.5	115.8	1388	2498	47.3	796	228	2.42	
		.3	158.0	2000	3600	67.7	755	278	0.874	93.9	146.2	1850	3330	62.6	755	278	2.47	
		.4	186.0	2500	4500	84.4	710	325	0.872	94.7	172.1	2313	4163	78.1	710	325	2.64	
VR 3	3	.0	50.0	500	750	17.8	954	99	0.878	83.0	46.3	463	694	16.5	954	99	1.92	0.91
		.1	100.6	1000	1800	34.4	960	187	0.858	90.4	93.1	925	1665	31.8	960	187	2.34	
		.2	146.2	1500	2700	51.0	931	263	0.862	93.0	135.2	1388	2498	47.2	931	263	2.51	
		.3	184.0	2000	3600	67.7	878	319	0.883	94.2	170.2	1850	3330	62.6	878	319	2.52	
		.4	214.0	2500	4500	84.4	817	364	0.895	94.9	198.0	2313	4163	78.1	817	364	2.59	
VR 4	4	.0	58.8	500	750	17.6	1125	116	0.863	84.7	54.4	463	694	16.3	1125	116	2.14	1.09
		.1	120.0	1000	1800	34.3	1145	222	0.856	91.0	111.0	925	1665	31.7	1145	222	2.48	
		.2	175.0	1500	2700	51.0	1113	312	0.867	93.4	161.9	1388	2498	47.2	1113	312	2.61	
		.3	212.0	2000	3600	67.6	1012	364	0.889	94.6	196.1	1850	3330	62.5	1012	364	2.67	
		.4	242.4	2500	4500	84.2	926	416	0.882	95.3	224.2	2313	4163	77.9	926	416	2.99	
VR 5	5	.0	70.0	500	750	17.5	1339	136	0.862	86.1	64.8	463	694	16.2	1339	136	2.33	1.34
		.1	137.0	1000	1800	34.2	1308	248	0.869	91.9	126.7	925	1665	31.6	1308	248	2.70	
		.2	202.0	1500	2700	50.8	1286	363	0.855	94.0	186.9	1388	2498	47.0	1286	363	2.97	
		.3	262.3	2000	3600	67.6	1252	446	0.896	94.9	242.6	1850	3330	62.5	1252	446	2.73	
		.4	270.0	2500	4500	84.2	1031	452	0.902	95.6	249.8	2313	4163	77.9	1031	452	3.14	

Technical data – HDP-motors, IP23 series

Radial fan, H200

Rated voltage 460V/430, VR [H200 IP23]

Duty			S1 460 V								S1 430 V							
Size	Lenght	Speed	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Power factor $\cos \varphi$	Eff. %	Power P_N kW	Speed n_N r/min	Max speed at const P n_{max} r/min	Freq. f_N Hz	Torque T_N Nm	Current I_N A	Torque T_{max}/T_N	Inertia J kg.m ²
VR	1	.0	38.0	500	750	18.0	725	68	0.874	80.4	35.5	467	701	16.8	725	68	1.72	0.68
		.1	76.0	1000	1800	34.5	726	126	0.848	89.0	71.0	935	1683	32.3	726	126	2.14	
		.2	109.4	1500	2700	51.1	697	176	0.848	92.1	102.3	1402	2524	47.8	697	176	2.34	
		.3	138.0	2000	3600	67.8	659	214	0.866	93.6	129.0	1870	3365	63.4	659	214	2.39	
		.4	161.0	2500	4500	84.4	615	246	0.869	94.5	150.5	2337	4207	78.9	615	246	2.54	
VR	2	.0	43.6	500	750	17.9	832	77	0.876	81.6	40.8	467	701	16.7	832	77	1.81	0.78
		.1	87.0	1000	1800	34.4	832	142	0.854	89.8	81.3	935	1683	32.2	832	142	2.24	
		.2	125.2	1500	2700	51.0	798	200	0.850	92.5	117.0	1402	2524	47.7	798	200	2.45	
		.3	158.0	2000	3600	67.7	754	243	0.868	94.0	147.7	1870	3365	63.3	754	243	2.53	
		.4	186.0	2500	4500	84.4	710	280	0.880	94.8	173.9	2337	4207	78.9	710	280	2.58	
VR	3	.0	50.0	500	750	17.8	954	86	0.880	83.1	46.7	467	701	16.6	954	86	1.92	0.91
		.1	100.6	1000	1800	34.3	962	164	0.851	90.5	94.0	935	1683	32.1	962	164	2.39	
		.2	146.2	1500	2700	51.0	931	227	0.870	93.0	136.7	1402	2524	47.7	931	227	2.45	
		.3	184.0	2000	3600	67.7	879	277	0.885	94.2	172.0	1870	3365	63.3	879	277	2.49	
		.4	214.0	2500	4500	84.3	818	320	0.884	95.1	200.0	2337	4207	78.8	818	320	2.71	
VR	4	.0	58.8	500	750	17.6	1125	100	0.866	84.8	55.0	467	701	16.5	1125	100	2.13	1.09
		.1	120.0	1000	1800	34.3	1145	195	0.848	91.2	112.2	935	1683	32.1	1145	195	2.55	
		.2	175.0	1500	2700	51.0	1113	271	0.866	93.4	163.6	1402	2524	47.7	1113	271	2.62	
		.3	212.0	2000	3600	67.6	1012	320	0.878	94.7	198.2	1870	3365	63.2	1012	320	2.79	
		.4	242.4	2500	4500	84.2	926	361	0.884	95.3	226.6	2337	4207	78.7	926	361	2.97	
VR	5	.0	70.0	500	750	17.5	1339	118	0.864	86.3	65.4	467	701	16.4	1339	118	2.33	1.34
		.1	137.0	1000	1800	34.2	1309	213	0.878	91.9	128.1	935	1683	32.0	1309	213	2.63	
		.2	202.0	1500	2700	50.9	1285	308	0.878	93.9	188.8	1402	2524	47.6	1285	308	2.80	
		.3	262.3	2000	3600	67.6	1252	387	0.897	94.8	245.2	1870	3365	63.2	1252	387	2.71	
		.4	270.0	2500	4500	84.2	1031	390	0.910	95.5	252.4	2337	4207	78.7	1031	390	2.98	

Technical data – HDP-motors, IP23 series

Radial fan, H250

Rated voltage 400V/370V, VT [H250 IP23]

Duty			S1 400 V								S1 370 V							
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²
VT 1	1	.0	74	500	750	17.4	1412	144	0.853	86.6	68.5	463	694	16.1	1412	144	1.81	2.12
		.1	148	1000	1650	34.0	1415	271	0.853	92.5	136.9	925	1526	31.5	1415	271	2.03	
		.2	220	1500	2450	50.7	1401	394	0.854	94.3	203.5	1388	2266	46.9	1401	394	2.01	
		.A	255	1750	3000	59.0	1391	462	0.839	94.9	235.9	1619	2775	54.6	1391	462	2.16	
		.3	282	2000	3400	67.3	1347	502	0.850	95.3	260.9	1850	3145	62.3	1347	502	2.15	
VT 2	2	.0	91	500	800	17.3	1738	174	0.851	88.5	84.2	463	740	16.0	1738	174	1.97	2.55
		.1	180	1000	1700	33.9	1721	328	0.848	93.3	166.5	925	1573	31.4	1721	328	2.16	
		.2	265	1500	2500	50.6	1688	467	0.864	94.8	245.1	1388	2313	46.8	1688	467	2.17	
		.A	300	1750	3000	59.0	1636	528	0.861	95.2	277.5	1619	2775	54.6	1636	528	2.19	
		.3	345	2000	3600	67.2	1648	624	0.834	95.7	319.1	1850	3330	62.2	1648	624	2.42	
VT 3	3	.0	116	500	800	17.3	2211	217	0.862	89.4	107.3	463	740	16.0	2211	217	2.03	3.18
		.1	228	1000	1700	33.9	2177	411	0.853	93.8	210.9	925	1573	31.4	2177	411	2.21	
		.2	330	1500	2700	50.6	2099	587	0.853	95.1	305.3	1388	2498	46.8	2099	587	2.31	
		.A	380	1750	3000	58.9	2073	667	0.861	95.5	351.5	1619	2775	54.5	2073	667	2.29	
		.3	430	2000	3600	67.2	2053	763	0.849	95.8	397.8	1850	3330	62.2	2053	763	2.42	
VT 4	4	.0	133	500	850	17.2	2540	250	0.849	90.3	123.0	463	786	15.9	2540	250	2.17	3.68
		.1	257	1000	1800	33.8	2458	465	0.848	94.0	237.7	925	1665	31.3	2458	465	2.37	
		.2	375	1500	2700	50.5	2389	656	0.866	95.3	346.9	1388	2498	46.7	2389	656	2.32	
		.A	433	1750	3000	58.9	2361	755	0.865	95.7	400.5	1619	2775	54.5	2361	755	2.37	
		.3	490	2000	3400	67.2	2340	843	0.873	96.1	453.3	1850	3145	62.2	2340	843	2.33	
VT 5	5	.0	153	500	900	17.2	2920	288	0.850	90.1	141.5	463	833	15.9	2920	288	2.16	4.12
		.1	296	1000	1800	33.9	2823	528	0.860	94.0	273.8	925	1665	31.4	2823	528	2.28	
		.2	435	1500	2700	50.5	2772	750	0.877	95.4	402.4	1388	2498	46.7	2772	750	2.30	
		.A	500	1750	3000	58.9	2727	863	0.872	95.9	462.5	1619	2775	54.5	2727	863	2.32	
		.3	560	2000	3600	67.2	2673	976	0.862	96.1	518.0	1850	3330	62.2	2673	976	2.45	
VT 6	6	.0	180	500	800	17.2	3445	334	0.863	90.1	166.5	463	740	15.9	3445	334	2.05	4.52
		.1	350	1000	1700	33.9	3339	628	0.855	94.0	323.8	925	1573	31.4	3339	628	2.23	
		.2	500	1500	2800	50.5	3183	891	0.847	95.6	462.5	1388	2590	46.7	3183	891	2.43	
		.A	573	1750	3000	58.9	3125	990	0.872	95.9	530.0	1619	2775	54.5	3125	990	2.34	
		.3	643	2000	3500	67.2	3069	1110	0.870	96.2	594.8	1850	3238	62.2	3069	1110	2.41	
.4	750	2500	4400	83.8	2866	1284	0.874	96.5	693.8	2313	4070	77.5	2866	1284	2.43			

Technical data – HDP-motors, IP23 series

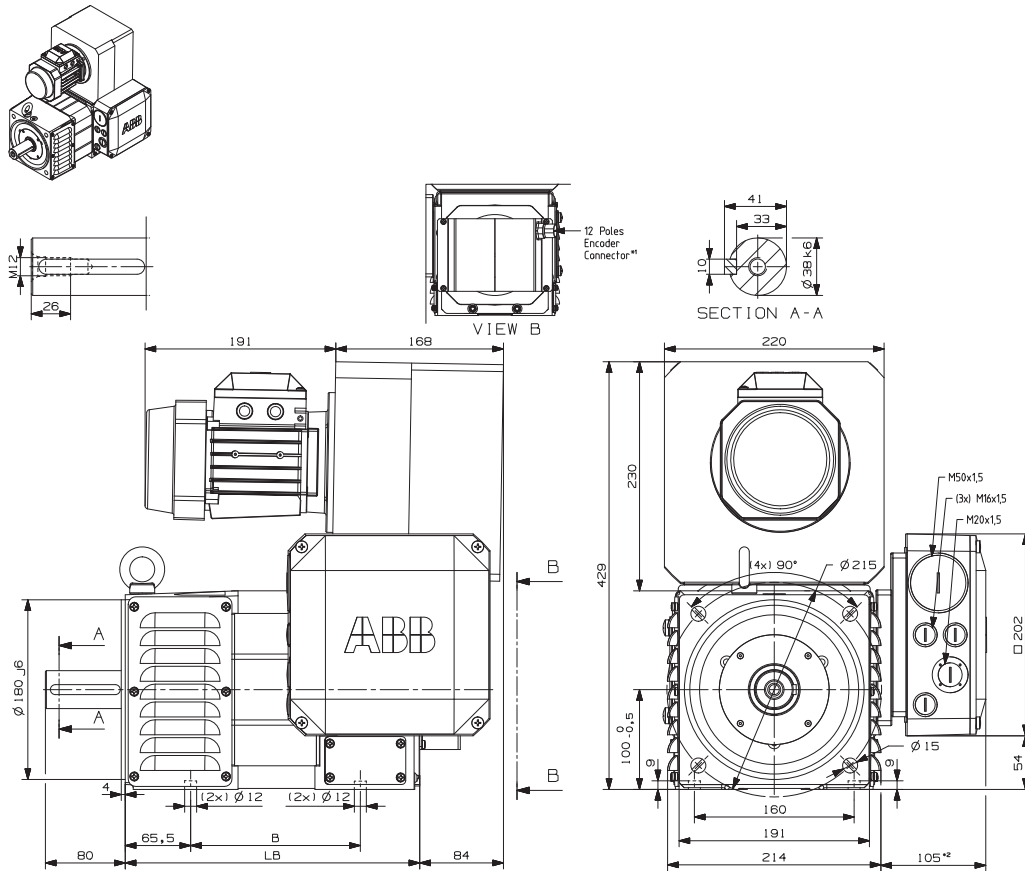
Radial fan, H250

Rated voltage 460V/430V, VT [H250 IP23]

Duty			S1 460 V								S1 430 V							
Size	Lenght	Speed	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Power factor cos φ	Eff. %	Power P _N kW	Speed n _N r/min	Max speed at const P n _{max} r/min	Freq. f _N Hz	Torque T _N Nm	Current I _N A	Torque T _{max} /T _N	Inertia J kg.m ²
VT 1	1	.0	74	500	750	17.4	1413	124	0.859	86.8	69.2	467	701	16.3	1413	124	1.83	2.12
		.1	148	1000	1650	34.0	1414	237	0.846	92.5	138.3	935	1542	31.8	1414	237	2.02	
		.2	220	1500	2500	50.7	1400	343	0.853	94.3	205.7	1402	2337	47.4	1400	343	2.10	
		.A	255	1750	3000	59.0	1392	397	0.850	94.9	238.4	1636	2804	55.2	1392	397	2.15	
		.3	282	2000	3400	67.3	1347	440	0.845	95.2	263.6	1870	3178	62.9	1347	440	2.18	
		.4	340	2500	4500	83.9	1299	540	0.824	95.9	317.8	2337	4207	78.4	1299	540	2.41	
VT 2	2	.0	91	500	800	17.3	1738	151	0.855	88.5	85.1	467	748	16.2	1738	151	1.99	2.55
		.1	180	1000	1700	33.9	1721	287	0.844	93.3	168.3	935	1589	31.7	1721	287	2.18	
		.2	265	1500	2500	50.6	1688	412	0.851	94.8	247.7	1402	2337	47.3	1688	412	2.17	
		.A	300	1750	3000	59.0	1636	456	0.867	95.2	280.4	1636	2804	55.2	1636	456	2.18	
		.3	345	2000	3600	67.2	1648	546	0.829	95.7	322.5	1870	3365	62.8	1648	546	2.41	
		.4	422	2500	4400	83.9	1613	639	0.863	96.1	394.5	2337	4113	78.4	1613	639	2.28	
VT 3	3	.0	116	500	800	17.3	2209	190	0.856	89.5	108.4	467	748	16.2	2209	190	2.08	3.18
		.1	228	1000	1700	33.9	2177	357	0.856	93.7	213.1	935	1589	31.7	2177	357	2.26	
		.2	330	1500	2700	50.6	2100	502	0.866	95.2	308.5	1402	2524	47.3	2100	502	2.28	
		.A	380	1750	3000	58.9	2073	582	0.858	95.5	355.2	1636	2804	55.1	2073	582	2.31	
		.3	430	2000	3600	67.2	2053	657	0.857	95.8	402.0	1870	3365	62.8	2053	657	2.36	
		.4	514	2500	4500	83.8	1964	789	0.849	96.3	480.5	2337	4207	78.3	1964	789	2.53	
VT 4	4	.0	133	500	850	17.2	2543	216	0.857	90.1	124.3	467	795	16.1	2543	216	2.11	3.68
		.1	257	1000	1800	33.8	2457	403	0.849	94.2	240.2	935	1683	31.6	2457	403	2.44	
		.2	375	1500	2700	50.5	2389	572	0.863	95.3	350.5	1402	2524	47.2	2389	572	2.35	
		.A	433	1750	3000	58.9	2362	651	0.872	95.7	404.8	1636	2804	55.1	2362	651	2.31	
		.3	490	2000	3400	67.2	2340	727	0.881	96.0	458.0	1870	3178	62.8	2340	727	2.32	
		.4	580	2500	4500	83.8	2217	864	0.874	96.4	542.2	2337	4207	78.3	2217	864	2.43	
VT 5	5	.0	153	500	900	17.2	2923	247	0.859	90.3	143.0	467	841	16.1	2923	247	2.17	4.12
		.1	296	1000	1800	33.9	2824	455	0.867	94.2	276.7	935	1683	31.7	2824	455	2.30	
		.2	435	1500	2600	50.6	2767	649	0.881	95.4	406.6	1402	2430	47.3	2767	649	2.23	
		.A	500	1750	3000	58.9	2728	744	0.880	95.8	467.4	1636	2804	55.1	2728	744	2.30	
		.3	560	2000	3600	67.2	2673	843	0.867	96.2	523.5	1870	3365	62.8	2673	843	2.41	
		.4	675	2500	4500	83.8	2579	1018	0.863	96.5	631.0	2337	4207	78.3	2579	1018	2.53	
VT 6	6	.0	180	500	800	17.3	3429	289	0.867	90.1	168.3	467	748	16.2	3429	289	1.96	4.52
		.1	350	1000	1700	33.9	3341	539	0.866	94.1	327.2	935	1589	31.7	3341	539	2.20	
		.2	500	1500	2800	50.5	3184	766	0.857	95.5	467.4	1402	2617	47.2	3184	766	2.42	
		.A	573	1750	3000	58.8	3128	879	0.852	95.9	535.6	1636	2804	55.0	3128	879	2.44	
		.3	643	2000	3500	67.2	3069	968	0.867	96.2	601.1	1870	3272	62.8	3069	968	2.44	
		.4	750	2500	4400	83.9	2863	1109	0.880	96.5	701.1	2337	4113	78.4	2863	1109	2.36	

Dimension drawings

HDP-motor types VH1 - 6, IP23, H100



Motor types VH1 - 6, IP23, H100

Motor type	B [mm]	LB [mm]	LB* ³ with brake [mm]	Mass [kg]
VH1	170	295	386	39
VH2	195	320	410	43
VH3	230	355	445	49
VH4	280	405	495	57
VH5	320	445	545	65
VH6	365	490	580	76

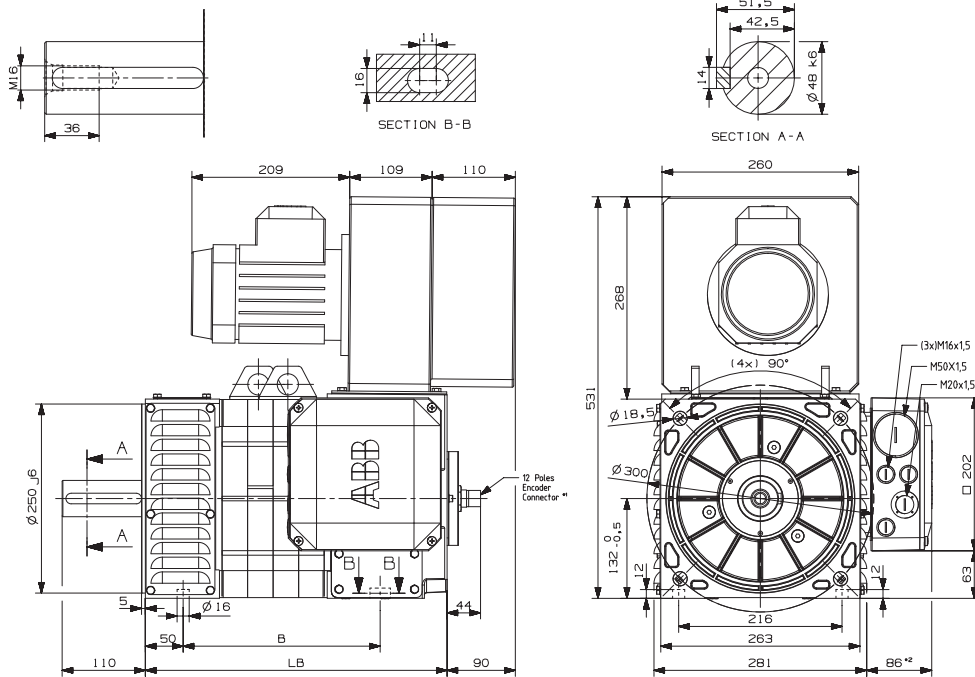
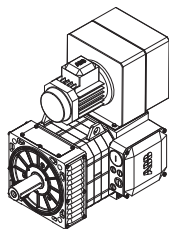
*1 Connector in terminal box if requested

*2 Equivalent dimension for terminal box in position A or D

*3 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types VM1 - 5, IP23, H132



Motor types VM1 - 5, IP23, H132

Motor type	B [mm]	LB [mm]	LB* ³ with brake [mm]	Mass [kg]
VM1	255 - 266	399	509	104
VM2	300 - 311	444	554	122
VM3	335 - 346	479	589	136
VM4	405 - 416	549	659	164
VM5	475 - 486	619	729	191

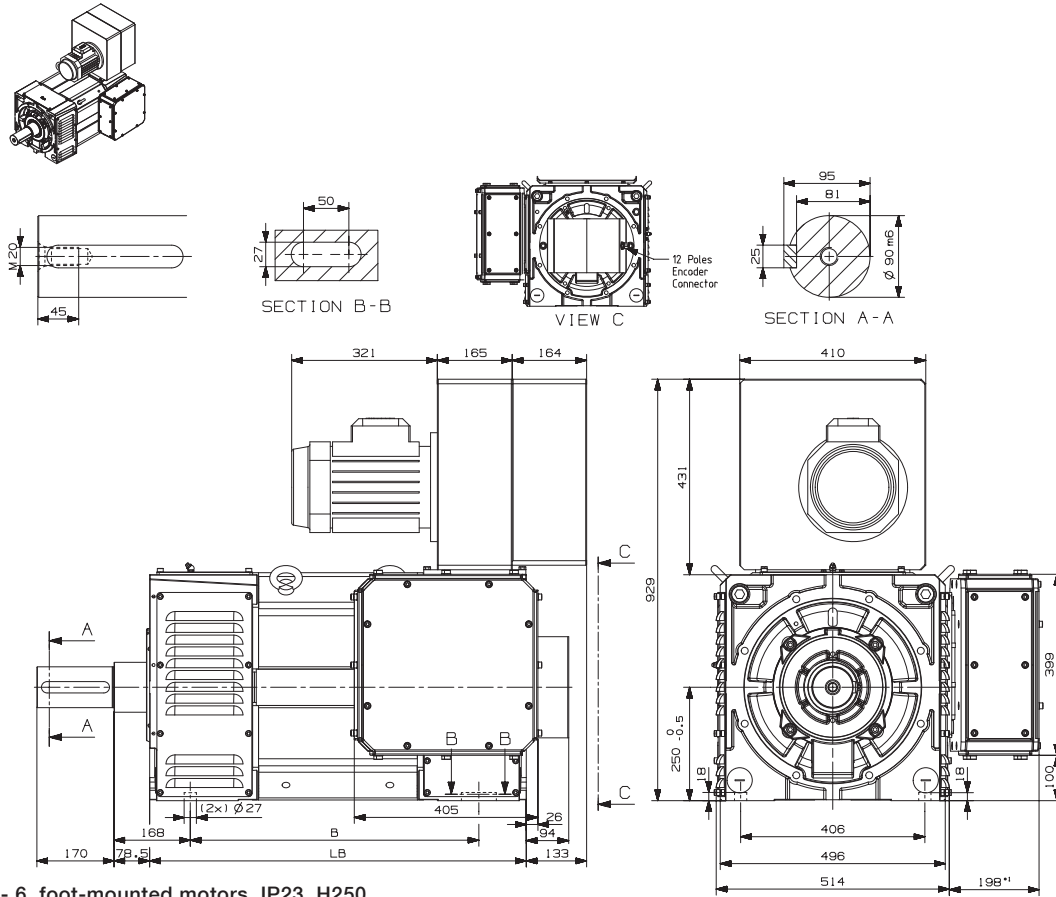
*1 Connector in terminal box if requested

*2 Equivalent dimension for terminal box in position A or D

*3 Value for standard brake only. For value related to improved brake please apply to technical dept.

Dimension drawings

HDP-motor types VT1 - 6, foot-mounted motors, IP23, H250



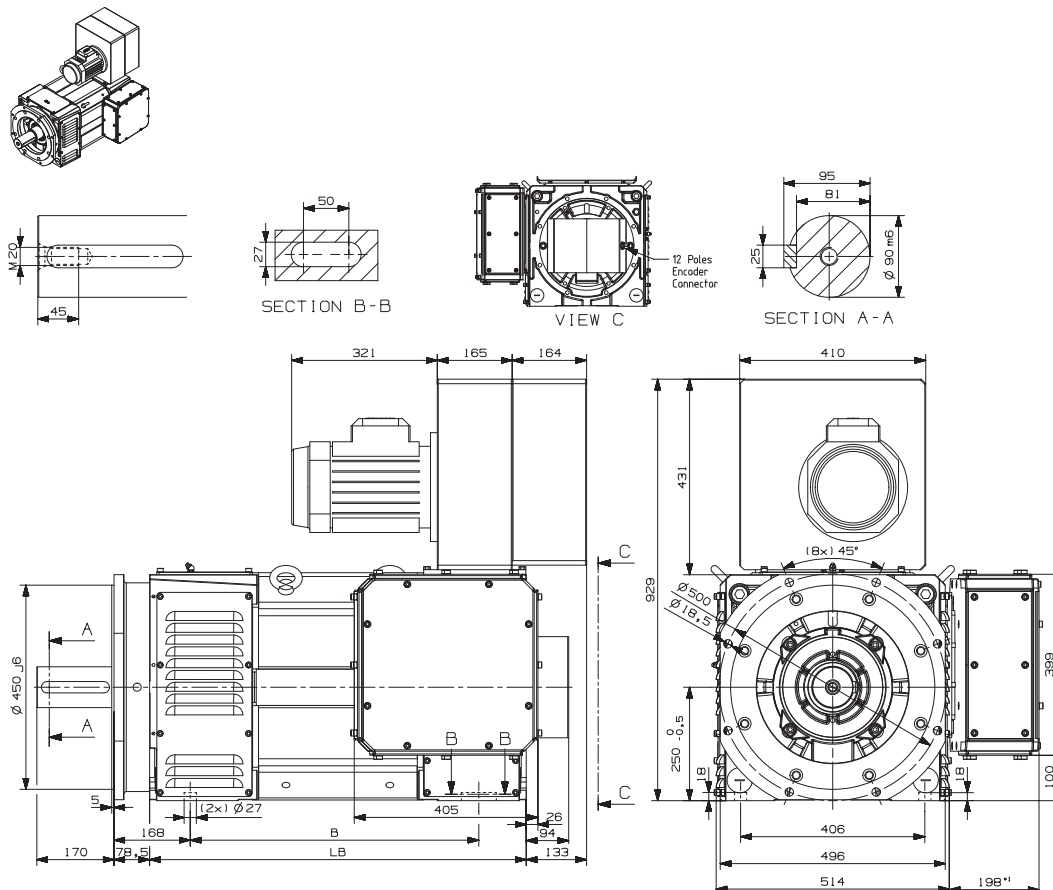
Motor types VT1 - 6, foot-mounted motors, IP23, H250

Motor type	B [mm]	LB [mm]	Mass [kg]
VT1	541 - 591	760	843
VT2	611 - 661	830	973
VT3	711 - 761	930	1153
VT4	791 - 841	1010	1303
VT5	861 - 911	1080	1423
VT6	921 - 971	1140	1543

*1 Equivalent dimension for terminal box in position A or D

Dimension drawings

HDP-motor types VT1 - 6, flange-mounted motor, large flange, IP23, H250



Motor types VT1 - 6, flange-mounted motor, large flange, IP23, H250

Motor type	B [mm]	LB [mm]	Mass [kg]
VT1	541 - 591	760	893
VT2	611 - 661	830	1023
VT3	711 - 761	930	1203
VT4	791 - 841	1010	1353
VT5	861 - 911	1080	1473
VT6	921 - 971	1140	1593

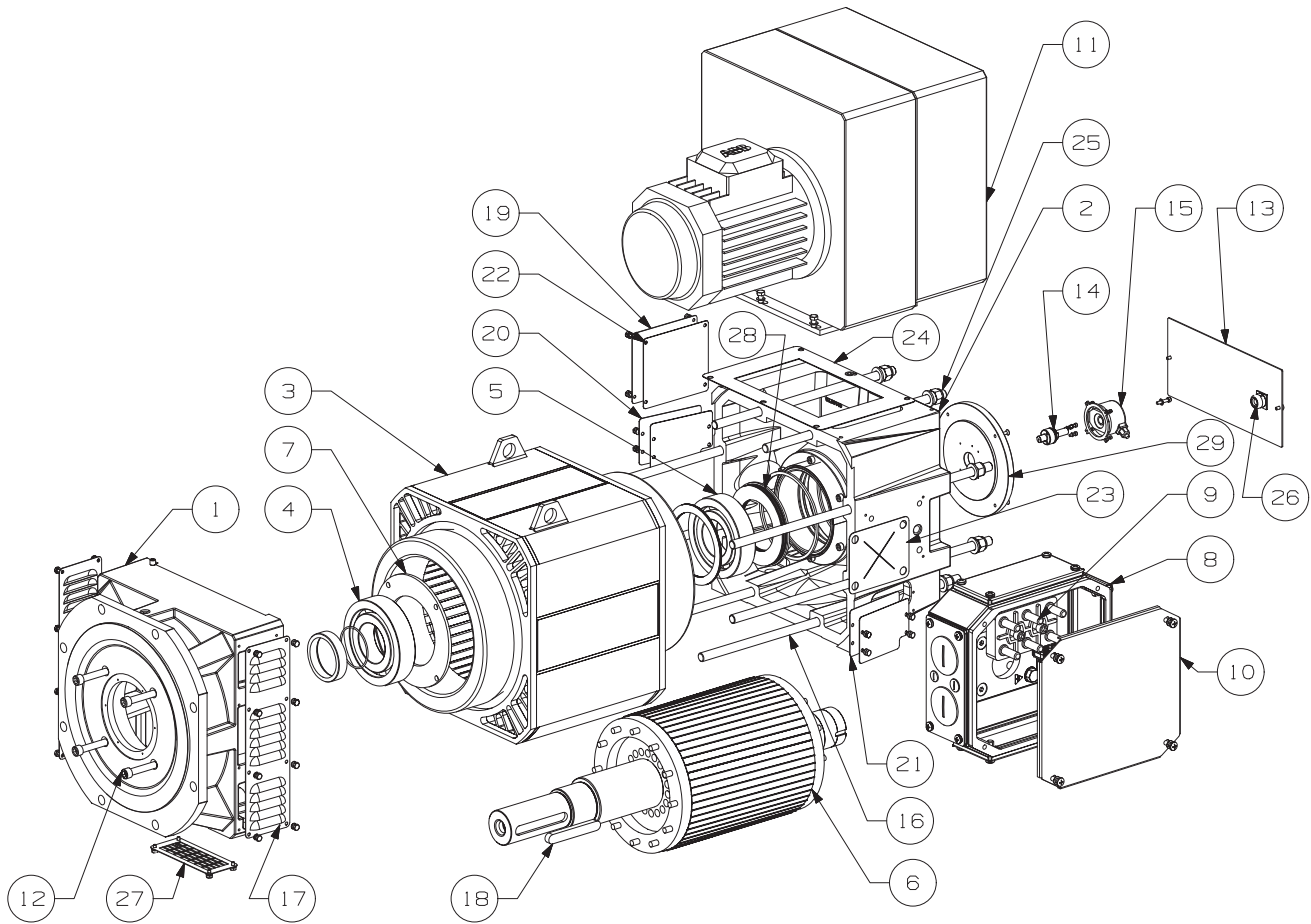
*1 Connector in terminal box if requested

*2 Equivalent dimension for terminal box in position A or D

Motor construction

High dynamic performance motors, IP23 series

Typical exploded view of frame size H200



1	Endshield, D-end	11	Kit blower with screws	21	Foot cover seal
2	Endshield, N-end	12	Screws for bearing cover, D-end	22	Side closing seal
3	Stator	13	Encoder cover plate with screws	23	Terminal box support seal
4	Bearing, D-end	14	Adapt. shaft for encoder with screws	24	Blower seal
5	Bearing, N-end	15	Encoder	25	Nuts for tierods with washers
6	Rotor with shaft	16	Tierods	26	Encoder connector
7	Inner bearing cover, D-end	17	IP23 protection cover with screws	27	Lower protection with screws
8	Terminal box	18	Key	28	Washers
9	Terminal board	19	Side closing sheet with screws	29	Encoder flange with screws
10	Terminal box cover with screws	20	Foot cover sheet with screws		

Motors in brief

High dynamic performance motors, IP23 series

Size	HDP	IP23 100	IP23 132	IP23 160	IP23 200	IP23 250
Stator	Paint colour shade	Black RAL 9005				
Feet		Integrated in end shields				
	Material	Diecast aluminium alloy				Cast iron
Bearing end shields	Material	Diecast aluminium alloy				Cast iron
	Paint colour shade	Black RAL 9005				
Bearings	D-end	6308-2Z/C3	6310-2Z/C3	6312-2Z/C3	6315-2Z/C3	6322-C3/LGHP2
	N-end	6206-2Z/C3	6308-2Z/C3	6309-2Z/C3	6314-2Z/C3	6319-C3/LGHP2
Axially-locked bearings	Inner bearing cover	As standard locked at D-end				
Lubrication		Permanently lubricated shielded bearings				Relubrication. Grease temp range -40 to 150°C
Terminal box	Material	Aluminum	Aluminum	Steel	Steel	Steel
	Screws	Steel 8.8, zinc electroplated and chromated				
Connections	Cable entries	1 × M50, 1 × M20, 3 × M16		2 × M63, 1 × M20, 1 × M16		Blind plate
	Cable glands	Available on request				
Fan cover	Material	Steel				
	Paint colour shade	Black RAL 9005				
Stator winding	Material	Copper				
	Insulation	Class F				
	Temperature rise	Class F				
	Winding protection	3 × bimetal detectors, 140°C or 3 × PTC thermistors as standard, 140°C				
Rotor winding	Material	Diecast aluminum				Copper
Balancing method		Half key balancing				
Key ways		Closed keyway				
Heating element 220-240V	On request CE	21W	40W	26W	54W	65W
Heating element 110-120V	On request UL	28W	53W	35W	63W	84W
Enclosure		IP23				
Cooling method		IC 06 - radial cooling				
Ambient conditions	Ambient conditions	0-40°C				
	Altitude conditions	0-1000 meter above sea level				

Accessories

Holding brake

As an accessory the HDP motor can be equipped with an electrically driven brake that mechanically acts on the motor shaft. The motor's mechanical brake is intended to be used as a holding brake; whose main function is to lock the motor shaft when the converter is discharged. Upon request, HDP motors can be supplied with the standard brake or the improved brake. The motors equipped with a brake are subject to special speed limitations which are summarized below.

Motor type	Version	Torque (Nm)	Power (W)	Current (A)	Voltage (V)	Max speed (rpm)
CH IP54 (H100)	Standard	55	33	1.38	24VDC	5500
	Improved	80	33	1.38	24VDC	5500
CM IP54 (H132)	Standard	80	33	1.38	24VDC	5500
	Improved	185	67	2.79	24VDC	4000
CN IP54 (H160)	Standard	185	67	2.79	24VDC	4000
	Improved	400	67	2.79	24VDC	4000
CR IP54 (H200)	Standard	400	67	2.79	24VDC	4000
	Improved	800	469	2.13	230VAC	3000
RT IP54 (H250)	Standard	On request	On request	On request	On request	On request
	Improved	On request	On request	On request	On request	On request
VH IP23 (H100)	Standard	80	33	1.38	24VDC	5500
	Improved	125	33	1.38	24VDC	5500
VM IP23 (H132)	Standard	180	67	2.79	24VDC	4000
	Improved	400	67	2.79	24VDC	4000
VN IP23 (H160)	Standard	400	67	2.79	24VDC	4000
	Improved	800	469	2.13	230VAC	3000
VR IP23 (H200)	Standard	800	469	2.13	230VAC	3000
	Improved	1200	884	2.21	400VAC	2300
VT IP23 (H250)	Standard	1200	884	2.21	400VAC	2300
	Improved	2400	On request	On request	400VAC	On request

Cooling fan

ABB HDP-motors are equipped with an external cooling fan as standard. IP54 versions have an axial cooling fan, IC416 except frame size 250 which have an radial cooling fan, IC06. IP23 versions have an radial cooling fan, IC06. HDP-motors can also be delivered without cooling fan if an separate cooling source will be used. Please check for required air flow/ volume from ABB.

Protection	Frame size	Supply voltage	Power (W)	Current (A)	Certification
IP54	CH (H100)	400V 50Hz	53	0.15	CE
		460V 60Hz	70	0.11	CE
		230V 60Hz 1-ph	83	0.37	CE/UL
	CM (H132)	400V 50Hz	110	0.22	CE
		460V 60Hz	200	0.35	CE
		460V 60Hz	200	0.35	CE/UL
	CN (H160)	400V 50Hz	110	0.22	CE
		460V 60Hz	200	0.35	CE
		460V 60Hz	200	0.35	CE/UL
	CR (H200)	400V 50Hz	195	0.33	CE
		460V 60Hz	350	0.5	CE
		460V 60Hz	350	0.5	CE/UL
	RT (H250)	400V 50Hz	3000	5.8	CE
		460V 60Hz	3000	5.1	CE
		460V 60Hz	3000	5.1	CE/UL
IP23	VH (100)	400V 50Hz	250	0.5	CE
		460V 60Hz	300	0.64	CE
		460V 60Hz	250	0.52	CE/UL
	VM (H132)	400V 50Hz	370	0.95	CE
		460V 60Hz	370	0.84	CE
		460V 60Hz	370	0.9	CE/UL
	VN (H160)	400V 50Hz	1100	2.4	CE
		460V 60Hz	1100	2.1	CE
		460V 60Hz	1100	2.14	CE/UL
	VR (H200)	400V 50Hz	3000	5.8	CE
		460V 60Hz	3000	5.1	CE
		460V 60Hz	3000	5.1	CE/UL
	VT (H250)	400V 50Hz	3000	5.8	CE
		460V 60Hz	3000	5.1	CE
		460V 60Hz	3000	5.1	CE/UL

Feedback devices – Connectors – Thermal protection – T-box connections

Feedback devices

ABB HDP-motors can be equipped with different feedback devices for positioning and/or speed control.

The connector type is normally a 12 pin M23 intercontec male connector, IP67 protected. Different encoder types may require another number of pins.

For more information, please contact ABB.

Incremental encoders

HTL (10-30V) pulse encoders, output A+A-, B+B-, Z+Z-, 512/1024/2048/4096 ppr

TTL (5V) pulse encoders, output A+A-, B+B-, Z+Z-, 512/1024/2048/4096 ppr

Sin/cos incremental pulse encoder

Absolute encoders (SSI, Endat, Hiperface)

Single turn

Multi turn

Resolvers

Connectors and cables

Signal connectors¹⁾

400014148 loose signal connector 12 pin for encoder HTL-TTL-1Vpp

16091979 loose signal connector 17 pin for absolute encoder

¹⁾ To be ordered separately.

Encoder cables with motor connector ¹⁾	Length ²⁾ [m]
HDP1255L0	5
HDP12510L	10
HDP12515L	15
HDP12520L	20
HDP12530L	30

¹⁾ To be ordered separately.

²⁾ Other lengths available on request.

Cable characteristics

Multipolar cable with double shield for mobile application (Al/polyester and copper)

3 pairs AWG 26 and 3AWG 20 single

PVC transparent external sheat (style UL 2095)

Operating temperature +80°C

Working voltage 300V

Capacity: 120 pF/m between wires pairs 20°C

Number of cycles: minimum 3 millions

Minimum bending radius: 65mm

Reference standard: UL 758

Outside diameter: 7.5 ± 0.2mm

Thermal protection

HDP-motors are equipped with Bimetal detectors, break type (NCC), (3 in series), 140°C, in stator winding as standard. If required, it's possible to replace the bimetal detectors with PTC thermistors (3 in series), 140°C in stator winding.

Other available solutions which can be combined :

- PTC thermistors (3 in series, 120°C & 3 in series, 140°C), in stator winding
- KTY thermistors (3 in series 110°C or 130°C) in stator winding
- PT100 (2- or 3-wire) in stator winding, one per phase

For your notes

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Total product offering

Motors, generators and mechanical power transmission products with a complete portfolio of services

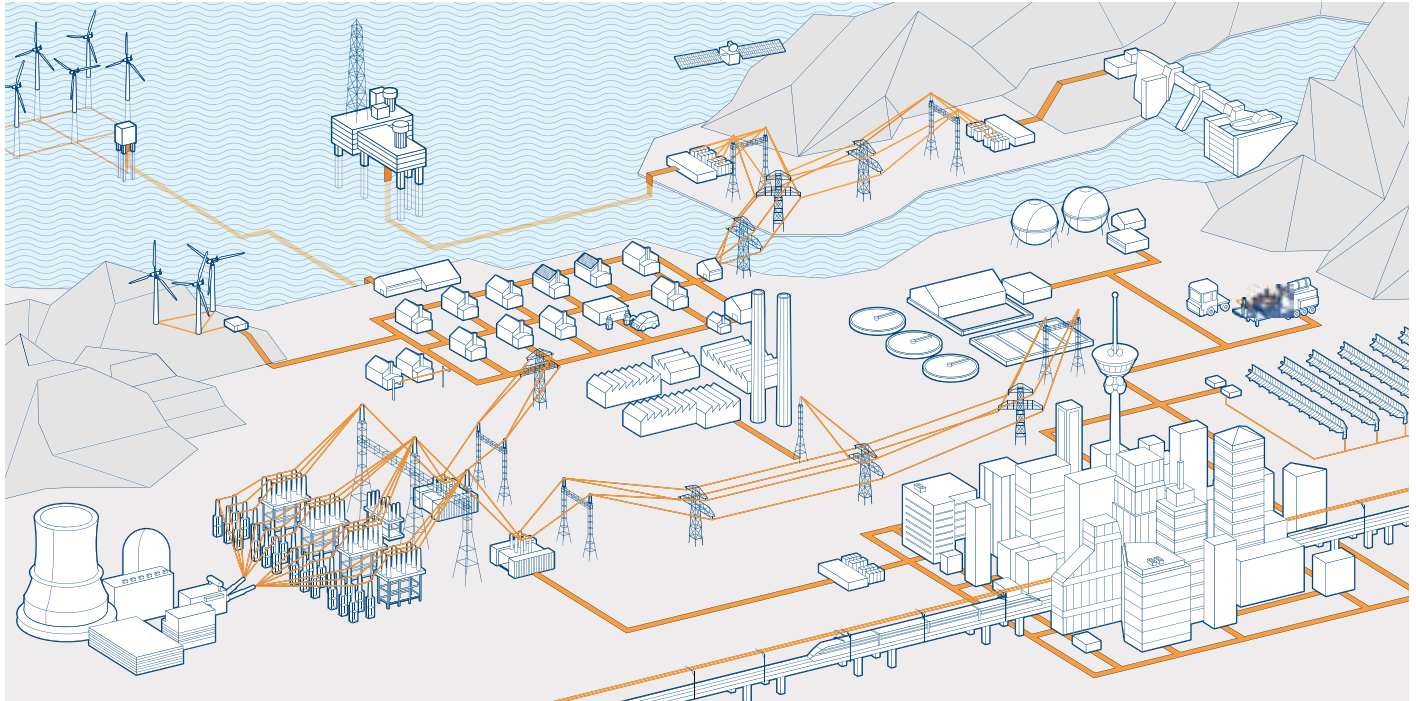


ABB is the leading manufacturer of low, medium and high voltage motors and generators, and mechanical power transmission products. ABB products are backed by a complete portfolio of services. Our in-depth knowledge of virtually every type of industrial process ensures we always specify the best solution for your needs.

> Low and medium voltage IEC induction motors

- Process performance motors
- General performance motors
- High voltage cast iron motors
- Induction modular motors
- Slip-ring modular motors
- Synchronous reluctance motors

> Low and medium voltage NEMA motors

- Steel frame open drip proof (ODP) motors
- Weather protected, water cooled, fan ventilated
- Cast iron frame (TEFC)
- Air to air cooled (TEAAC) motors

> Motors and generators for explosive atmospheres

- IEC and NEMA motors and generators, for all protection types

> Synchronous motors

> Synchronous generators

- Synchronous generators for diesel and gas engines
- Synchronous generators for steam and gas turbines

> Wind power generators

> Generators for small hydro

> Other motors and generators

- Brake motors
- DC motors and generators
- Gear motors
- Marine motors and generators
- Single phase motors
- Motors for high ambient temperatures
- Permanent magnet motors and generators
- High speed motors
- Smoke extraction motors

- Wash down motors
- Water cooled motors
- Generator sets
- Roller table motors
- Low inertia motors
- Traction motors and generators

> Life cycle services

- Installation and commissioning
- Spares and consumables
- Preventive maintenance
- Predictive maintenance
- Condition monitoring
- On-site and workshop
- Remote troubleshooting
- Technical support
- Engineering and consulting
- Extensions, upgrades and retrofits
- Replacements
- Training
- Service agreements

> Mechanical power transmission components, bearings, gears

Life cycle services and support

From pre-purchase to migration and upgrades

ABB offers a complete portfolio of services to ensure trouble-free operation and long product lifetimes. These services cover the entire life cycle. Local support is provided through a global network of ABB service centers and certified partners.

Pre-purchase

ABB's front-end sales organization can help customers to quickly and efficiently select, configure and optimize the right motor or generator for their application.

Installation and commissioning

Professional installation and commissioning by ABB's certified engineers represent an investment in availability and reliability over the entire life cycle.

Engineering and consulting

ABB's experts provide energy efficiency and reliability appraisals, advanced condition and performance assessments and technical studies.

Condition monitoring and diagnosis

Unique services collect and analyze data to provide early warnings of problems before failures can occur. All critical areas of the equipment are covered.

Maintenance and field services

ABB offers life cycle management plans and preventive maintenance products. The recommended four-level maintenance program covers the entire product lifetime.

Spare parts

Spare parts and support are offered throughout the life cycle of ABB products. In addition to individual spares, tailored spare part packages are also available.

Repair and refurbishment

Support for all ABB motors and generators and other brands is provided by ABB's global service organization. Specialist teams can also deliver emergency support.

Migration and upgrades

Life cycle audits determine the optimum upgrades and migration paths. Upgrades range from individual components to direct replacement motors and generators.

Training

Product and service training courses take a practical approach. The training ranges from standard courses to specially tailored programs to suit customer requirements.

Specialized support

Specialized support is offered through ABB's global service organization. Local units provide major and minor repairs as well as overhauls and reconditioning.

Service contracts

Service contracts are tailored to the customer's needs. The contracts combine ABB's entire service portfolio and 120 years of experience to deploy the optimal service practices.



Contact us

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