Heidrive

A Company of Allied Motion

HMP - Servo drive systems

HeiMotion Premium

Introduction

The HeiMotion Premium series of brushless AC servo motors are engineered to meet the most demanding application requirements. Seven frame sizes are covering a wide range of torque levels and speeds. Use of our proven compressed winding technology enables the realization of a more compact motor with lower production costs compared to other motors on the market.

The HeiMotion Premium motors are available in seven standard frame sizes:

- ☐ 40 mm - HMP04
- ☐ 60 mm - HMP06
- ☐ 80 mm - HMP08
- ☐ 100 mm - HMP10
- ☐ 130 mm - HMP13

Overview of features:

- Outstanding servo performance in synchronization and precision
- Versatile configurable and customizable
- High efficiency
- Optimized moment of inertia
- Long service life
- Compact design
- High power density
- High overload capacity
- Low cogging torque
- Energy efficiency

Contents

Overview

HeiMotion Premium motors basic performance values

Type	Model	U_{bus} [V_{DC}]	I_o [A]	I_n [A]	M_o [Nm]	M_n [Nm]	M_{max} [Nm]	n_n [rpm]	J [kg-cm²]	P_n (S1) [W]
HMP04	HMP04-002	48	1.8	1.7	0.18	0.16	0.6	3,000	3.00E-02	50
		48	3.4	3.0	0.18	0.14	0.7	6,000	3.00E-02	85
		320	0.8	0.7	0.18	0.12	0.7	9,000	3.00E-02	110
	HMP04-004	48	3.5	3.3	0.35	0.32	1.3	3,000	5.40E-02	100
		48	6.3	5.7	0.35	0.28	1.3	6,000	5.40E-02	175
		320	1.6	1.2	0.35	0.21	1.4	9,000	5.40E-02	200
HMP06	HMP06-007	320	0.9	0.8	0.7	0.6	2.8	3,000	2.20E-01	200
		320	1.6	1.3	0.7	0.5	2.8	6,000	2.20E-01	325
	HMP06-015	320	1.8	1.5	1.5	1.2	6.0	3,000	4.13E-01	400
		320	3.3	2.2	1.5	0.9	6.0	6,000	4.13E-01	550
HMP08	HMP08-028	320	3.1	2.6	2.8	2.4	11.2	3,000	1.40E00	750
		320	5.6	3.7	2.8	1.7	11.2	5,500	1.40E00	1,000
		560	1.8	1.6	2.8	2.3	11.2	3,000	1.40E00	750
		560	3.3	2.2	2.8	1.7	11.2	5,500	1.40E00	1,000
	HMP08-035	320	3.9	3.7	3.5	3.2	14.0	3,000	1.93E00	1,000
		320	7.1	4.8	3.5	2.1	14.0	5,500	1.93E00	1,200
		560	2.2	2.1	3.5	3.2	14.0	3,000	1.93E00	1,000
		560	3.9	2.8	3.5	2.1	14.0	5,500	1.93E00	1,200
HMP10	HMP10-056	560	3.4	3.0	5.6	4.8	22.4	3,000	4.84E00	1,500
		560	5.4	3.7	5.6	3.4	22.4	5,000	4.84E00	1,800
	HMP10-075	560	4.6	4.1	7.5	6.4	30.0	3,000	6.41E00	2,000
		560	7.5	5.3	7.5	4.8	30.0	5,000	6.41E00	2,500
HMP13	HMP13-055	320	4.8	4.1	5.5	4.8	22.0	2,000	9.82E00	1,000
		320	8.2	6.0	5.5	4.0	22.0	3,600	9.82E00	1,500
		560	2.7	2.3	5.5	4.8	22.0	2,000	9.82E00	1,000
		560	4.7	3.4	5.5	4.0	22.0	3,600	9.82E00	1,500
	HMP13-091	560	4.4	3.4	9.1	7.2	36.4	2,000	1.40E01	1,500
		560	7.7	5.0	9.1	6.0	36.4	3,600	1.40E01	2,250
	HMP13-123	560	4.7	4.5	12.3	9.6	49.2	2,000	2.11E01	2,000
		560	10.3	6.7	12.3	8.0	49.2	3,600	2.11E01	3,000
	HMP13-185	560	8.4	6.5	18.5	14.4	74.0	2,000	3.38E01	3,000
		560	14.8	8.0	18.5	10.0	74.0	3,600	3.38E01	3,750

HeiMotion Premium motors mating servo drive matrix

Type	Model	n [rpm]	U_{bus} [V_{DC}]	I_o	HCD 1 x 230 V_{AC}	HCB 1 x 230 V_{AC}	HCB 3 x 400 V_{AC}	HCF 24 - 48 V_{DC}	HCJ 1 x 230 V_{AC}	HCJ 3 x 400 V_{AC}
HMP04	HMP04-002	3,000	48	1.8		HCB 2/6-1	HCB 4/12-3	HCF		
		6,000	48	3.4		HCB 4/12-1	HCB 4/12-3	HCF		
		9,000	320	0.8	HCD	HCB 2/6-1	HCB 4/12-3		HCJ 22.003	
	HMP04-004	3,000	48	3.5		HCB 4/12-1	HCB 4/12-3	HCF		
		6,000	48	6.3			HCB 8/24-3	HCF		
		9,000	320	1.6	HCD	HCB 2/6-1	HCB 4/12-3		HCJ 22.003	
HMP06	HMP06-007	3,000	320	0.9	HCD	HCB 2/6-1	HCB 4/12-3		HCJ 22.003	
		6,000	320	1.6	HCD	HCB 2/6-1	HCB 4/12-3		HCJ 22.003	
	HMP06-015	3,000	320	1.8	HCD	HCB 2/6-1	HCB 4/12-3		HCJ 22.003	
		6,000	320	3.3	HCD	HCB 4/12-1	HCB 4/12-3		HCJ 22.006	
HMP08	HMP08-028	3,000	320	3.1	HCD	HCB 4/12-1	HCB 4/12-3		HCJ 22.006	
		5,500	320	5.6			HCB 8/24-3		HCJ 22.006	
		3,000	560	1.8			HCB 4/12-3			HCJ 24.002
		5,500	560	3.3			HCB 4/12-3			HCJ 24.004
	HMP08-035	3,000	320	3.9		HCB 4/12-1	HCB 4/12-3		HCJ 22.006	
		5,500	320	7.1			HCB 8/24-3		HCJ 22.008	
		3,000	560	2.2			HCB 4/12-3			HCJ 24.004
		5,500	560	3.9			HCB 4/12-3			HCJ 24.007
HMP10	HMP10-056	3,000	560	3.4			HCB 4/12-3			HCJ 24.004
		5,000	560	5.4			HCB 8/24-3			HCJ 24.007
	HMP10-075	3,000	560	4.6			HCB 8/24-3			HCJ 24.007
		5,000	560	7.5			HCB 8/24-3			HCJ 24.012
HMP13	HMP13-055	2,000	320	4.8			HCB 8/24-3		HCJ 22.006	
		3,600	320	8.2			HCB 12/30-3		HCJ 22.008	
		2,000	560	2.7			HCB 4/12-3			HCJ 24.004
		3,600	560	4.7			HCB 8/24-3			HCJ 24.007
	HMP13-091	2,000	560	4.4			HCB 8/24-3			HCJ 24.007
		3,600	560	7.7			HCB 8/24-3			HCJ 24.012
	HMP13-123	2,000	560	4.7			HCB 8/24-3			HCJ 24.007
		3,600	560	10.3			HCB 12/30-3			HCJ 24.012
	HMP13-185	2,000	560	8.4			HCB 12/30-3			HCJ 24.012
		3,600	560	14.8						HCJ 24.016

HCD
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HCB
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HCF
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HCJ
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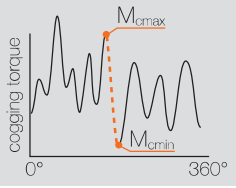
General information

Ambient conditions and technical characteristics

Motor type		Permanent magnet three-phase synchronous servo motor
Ambient operating temperature		- 10 °C to + 40 °C
Ambient storage temperature		- 20 °C to + 70 °C
Humidity		< 90 % relative humidity (without condensation)
Insulation class		F (155 °C) Δ T = 115 K
Protection class		IP65 (standard version), (except drive end, protection class is IP21, without shaft oil seal)
Cooling		Natural convective
Bearing life		20,000 h under rated operation conditions (M_n)
Temperature sensor		KTY84-130
Voltage slew rate dU / dt		8 kV / µs
Maximum altitude		4,000 meters above sealevel; derate 1% per 100 meters above 1,000 meters
Concentricity, coaxiality, and axial run-out		N (normal) per DIN 42955
Vibration		Stage N in accordance to ISO 2373
Cogging torque factor c_t	HMP04	< 2.8 % based on the stall torque (M_0)
	HMP06	< 2.5 % based on the stall torque (M_0)
	HMP08	< 2.0 % based on the stall torque (M_0)
	HMP10	< 1.7 % based on the stall torque (M_0)
	HMP13	< 1.5 % based on the stall torque (M_0)
Coating		Black top coat, RAL 9005
Magnet material		Neodymium-Iron-Boron (NdFeB)
Shaft end		Cylindrical shaft end with / without keyway
Balancing quality		Q 2.5
Encoder systems		Resolver, HIPERFACE®, HIPERFACE DSL®, Incremental encoder, SSI, EnDat 2.2
Approvals		CE, c UL us - certification

Abbreviations and definitions

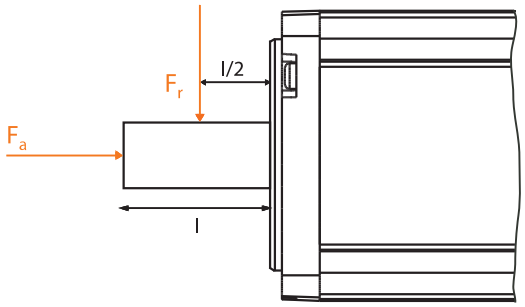
Abbr.	Unit	Explanation
f_n	[Hz]	Rated frequency
I_0	[A_{rms}]	Stall current per phase (motor current at stall torque M_0)
I_n	[A_{rms}]	Rated current (rated current per phase)
I_{max}	[A_{rms}]	Peak current (maximum permissible current per phase)
J	[kg-cm^2]	Moment of inertia rotor (motor without brake)
k_e	[V_{rms} / krpm]	Voltage constant (induced voltage between two phases at 1,000 rpm) rms (root mean square value)
k_t	[Nm / A_{rms}]	Theoretical torque constant (rms), without losses at 20 °C
L_{p-p}	[mH]	Winding inductance (phase-to-phase) at rated current I_n
m	[kg]	Weight (motor without brake)
M_0	[Nm]	Stall torque (stall torque at S1)
M_n	[Nm]	Rated torque (continuous torque at S1)
M_{max}	[Nm]	Peak torque (maximum permissible torque for short periods)
n_n	[rpm]	Rated speed
n_{max}	[rpm]	Maximum speed
P_n	[W]	Rated power (mechanical power at the shaft)
R_{p-p}	[Ω]	Winding resistance (phase-to-phase, at winding temperature of 20 °C)
c_t	[%]	Local cogging torque $c_t = \frac{M_{cmax} - M_{cmin}}{M_0} \times 100\ \%$
M_{cmax}	[Nm]	Local maximum of the cogging torque
M_{cmin}	[Nm]	Local minimum of the cogging torque
T_{el}	[ms]	Electrical time constant
T_{th}	[min]	Thermal time constant
U_{mot}	[V_{rms}]	Rated motor voltage (phase-to-phase at rated working point), rms
U_{bus}	[V_{DC}]	DC bus voltage



Life span

Shaft loading forces

Life span of the motors is at least 20,000 hours if operated under rated conditions. The table below shows admissible radial forces for the bearing load. Point of force application is in the middle of the shaft (see drawing).



Maximum radial force F_r, [N]

	1,000 [rpm]	2,000 [rpm]	3,000 [rpm]	4,000 [rpm]	5,000 [rpm]	6,000 [rpm]	7,000 [rpm]	8,000 [rpm]	9,000 [rpm]
HMP04-002	215	170	150	135	125	120	115	110	105
HMP04-004	235	185	160	150	135	130	125	120	115
HMP06-007	350	290	250	230	210	200	190	180	-
HMP06-015	390	310	270	250	230	220	205	195	-
HMP08-028	500	400	350	320	300	270	260	-	-
HMP08-035	520	410	360	320	300	280	265	-	-
HMP10-056	940	740	650	590	550	515	-	-	-
HMP10-075	970	770	680	615	570	540	-	-	-
HMP13-055	820	650	570	510	480	-	-	-	-
HMP13-091	860	680	590	540	500	-	-	-	-
HMP13-123	1,100	900	790	710	660	-	-	-	-
HMP13-185	1,200	960	840	760	700	-	-	-	-

Maximum axial force: $F_a = 0.2 \times F_r$

At stall, a one-time axial force of 40 % of the radial force may be applied during motor mounting.
Maximum allowed axial and radial forces must not occur together at the same time.

Order code

HMP08-028-320-30-B0H2MW23W

Frame/flange size

40 mm	→	04
60 mm	→	06
80 mm	→	08
100 mm	→	10
130 mm	→	13

Stall torque

0.2 Nm	→	002
0.4 Nm	→	004
0.7 Nm	→	007
1.5 Nm	→	015
2.8 Nm	→	028
3.5 Nm	→	035
5.6 Nm	→	056
7.5 Nm	→	075
5.5 Nm	→	055
9.1 Nm	→	091
12.3 Nm	→	123
18.5 Nm	→	185

DC bus voltage

24 V	→	024
48 V	→	048
320 V	→	320
560 V	→	560

Rated speed

2,000 rpm	→	20
3,000 rpm	→	30
3,600 rpm	→	36
5,000 rpm	→	50
5,500 rpm	→	55
6,000 rpm	→	60
9,000 rpm	→	90

Options

Without brake	0XXXXXXX
With brake	BXXXXXXX
Without feather key	X0XXXXXX
With feather key	XPXXXXXX
Resolver	XXR1PXXX
Resolver safely mounted	XXRAPXXX
HES 1 (1.0 V_{p-p})	XXM2SXXX
HEM 1 (1.0 V_{p-p} without battery)	XXM1MXXX
HEM 1 (1.0 V_{p-p} with battery)	XXM2MXXX
HES 3	XXM1IXXX
ECI 1118	XXE1SXXX
EQI 1131	XXE1MXXX
SEK 37	XXH1SXXX
SEL 37	XXH1MXXX
SKS 36	XXH2SXXX
SKS 36S safely mounted	XXHBSXXX
SKM 36	XXH2MXXX
SKM 36S safely mounted	XXHBMXXX
SRS 50	XXH3SXXX
SRM 50	XXH3MXXX
EES 37	XXD1SXXX
EES 37-2 safely mounted	XXDASXXX
EEM 37	XXD1MXXX
EEM 37-2 safely mounted	XXDAMXXX
EKS 36	XXD2SXXX
EKS 36-2 safely mounted	XXDBSXXX
EKM 36	XXD2MXXX
EKM 36-2 safely mounted	XXDBMXXX
EFS 50	XXD3SXXX
EFM 50	XXD3MXXX
CKS 36	XXI1SXXX
M23 angled	XXXXXW23X
Y-Tec	XXXXXY17X
I-Tec	XXXXXI17X
Cable outlet 1.5 m [1]	XXXXXK15X
Cable outlet 5 m [1]	XXXXXK50X
Twintus	XXXXXT16X
Without radial shaft seal	XXXXXXXX0
With radial shaft seal	XXXXXXXW

1) Upon request

Example: HMP08-028-320-30-B0H2MW23W

- Frame/flange size 80 mm
- Stall torque 2.8 Nm
- DC bus voltage 320 V
- Rated speed 3,000 rpm

Options:
- With brake
- Without feather key
- Encoder SKM 36
- Angled connector M23
- With radial shaft seal

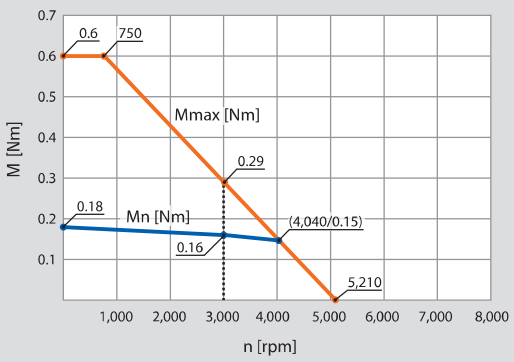
HMP04-002

Specifications

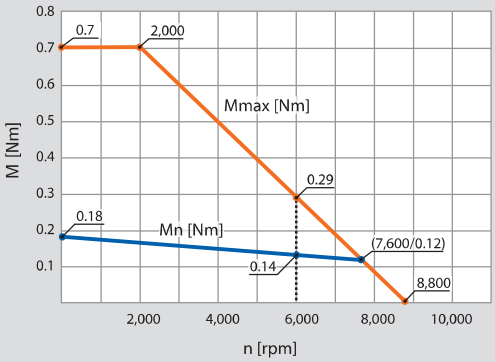
		HMP04-002		
Rated speed [rpm]	n_n	3,000	6,000	9,000
Number of pole pairs		2	2	2
Wiring of the motor winding		Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	48	48	320
Rated voltage motor [V_{rms}]	U_{mot}	27	23	140
Rated power [W]	P_n	50	85	110
Rated torque [Nm]	M_n	0.16	0.14	0.12
Rated current per phase [A_{rms}]	I_n	1.7	3,0	0.7
Stall torque [Nm]	**M_0**	**0.18**	**0.18**	**0.18**
Stall current per phase [A_{rms}]	I_0	1.8	3.4	0.8
Peak torque [Nm]	M_{max}	0.6	0.7	0.7
Peak current [A_{rms}]	I_{max}	5.7	13.0	3.2
Maximum speed [rpm]	n_{max}	5,210	8,800	10,000
Voltage constant at 1,000 rpm [V_{rms}]	k_e	6.2	3.3	13.5
Torque constant [Nm / A_{rms}]	k_t	0.09	0.05	0.17
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	4.9	1.4	25.6
Winding inductance (2 phases) [mH]	L_{p-p}	3.0	0.8	14.8
Electrical time constant [ms]	t_{el}	0.6	0.6	0.6
Thermal time constant [min]	t_{th}	15	15	15
Moment of inertia rotor [kg-cm²]	J	3.00E-02	3.00E-02	3.00E-02
Weight of motor [kg]	m	0.5	0.5	0.5

Performance

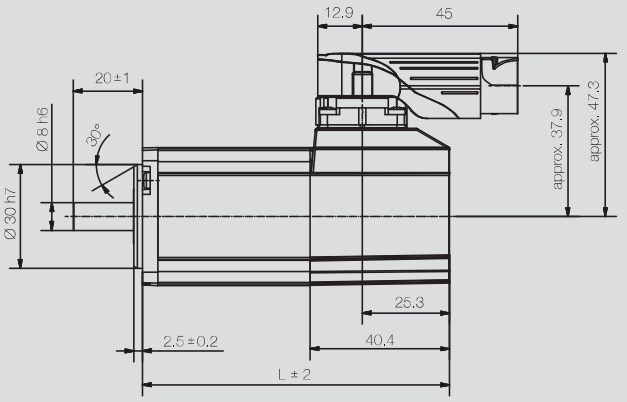
HMP04-002-048-30- *

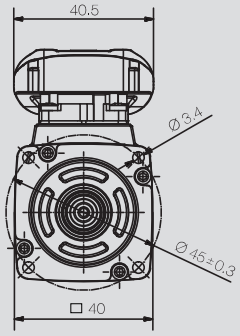


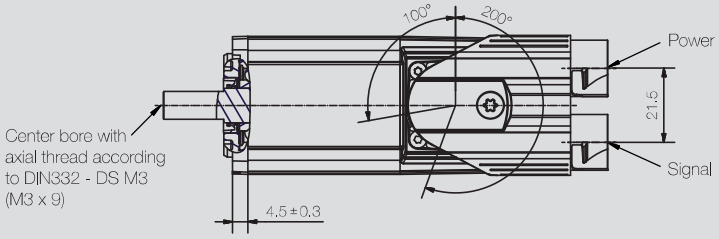
HMP04-002-048-60- *



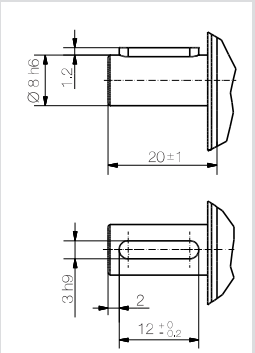
Dimensions



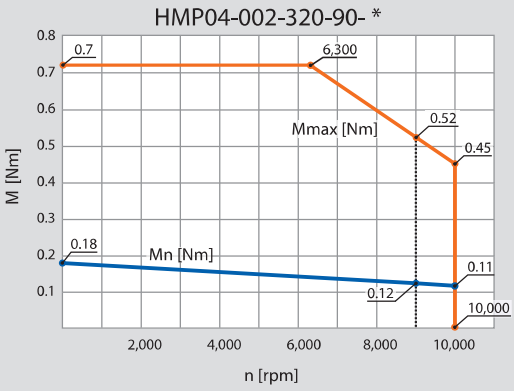




Feather key (option)



Motor model		L
HMP04-002	without brake	89 mm
HMP04-002	with brake	124 mm



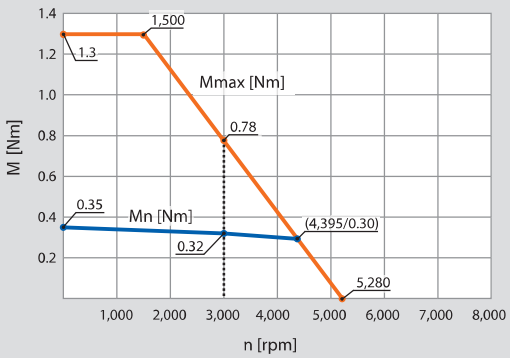
HMP04-004

Specifications

		HMP04-004		
Rated speed [rpm]	n_n	3,000	6,000	9.,000
Number of pole pairs		2	2	2
Wiring of the motor winding		Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	48	48	320
Rated voltage motor [V_{rms}]	U_{mot}	25	23	132
Rated power [W]	P_n	100	175	200
Rated torque [Nm]	M_n	0.32	0.28	0.21
Rated current per phase [A_{rms}]	I_n	3.3	5.7	1.2
Stall torque [Nm]	**M_0**	**0.35**	**0.35**	**0.35**
Stall current per phase [A_{rms}]	I_0	3.5	6.3	1.6
Peak torque [Nm]	M_{max}	1.3	1.3	1.4
Peak current [A_{rms}]	I_{max}	12.9	23.5	6.4
Maximum speed [rpm]	n_{max}	5,280	9,540	10,000
Voltage constant at 1,000 rpm [V_{rms}]	k_e	6.1	3.4	13.2
Torque constant [Nm / A_{rms}]	k_t	0.10	0.05	0.18
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	1.6	0.4	8.6
Winding inductance (2 phases) [mH]	L_{p-p}	1.4	0.4	6.6
Electrical time constant [ms]	t_{el}	0.9	1.1	0.8
Thermal time constant [min]	t_{th}	15	15	15
Moment of inertia rotor [kg-cm²]	J	5,40E-02	5,40E-02	5,40E-02
Weight of motor [kg]	m	0.7	0.7	0.7

Performance

HMP04-004-048-30- *



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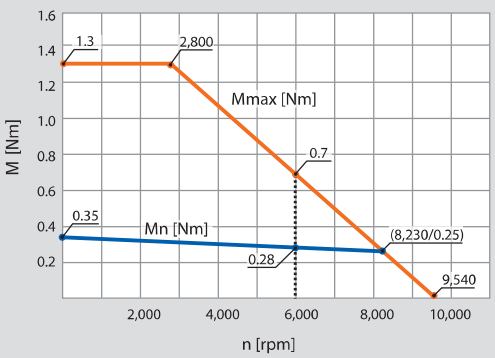
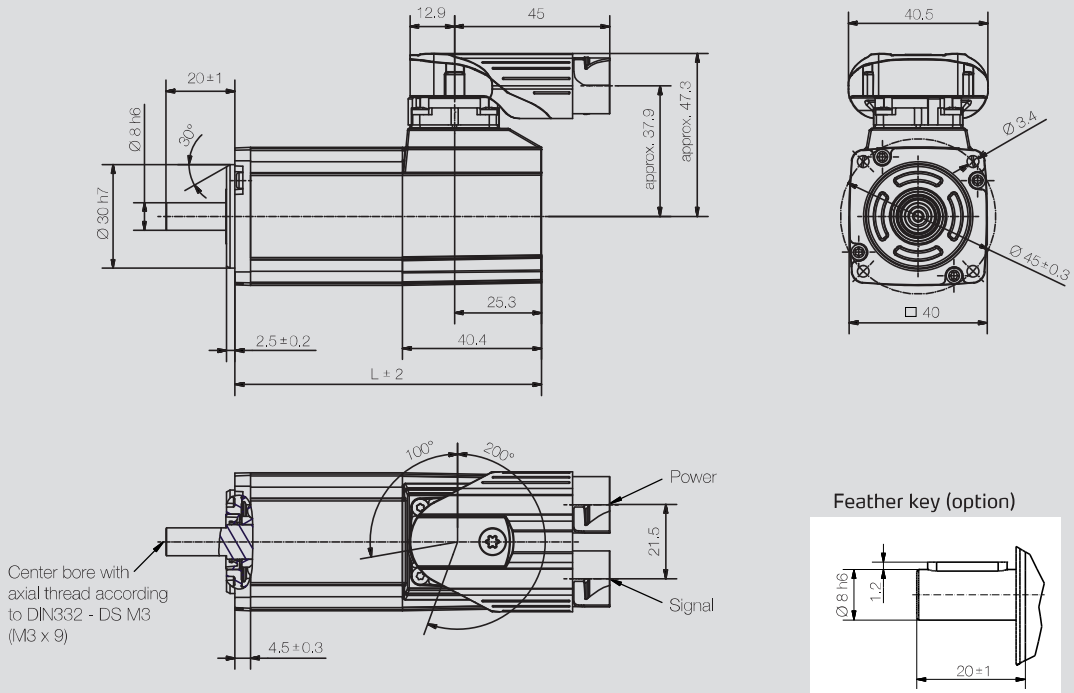
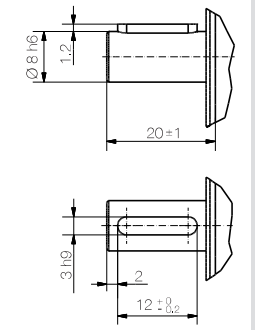


Dimensions

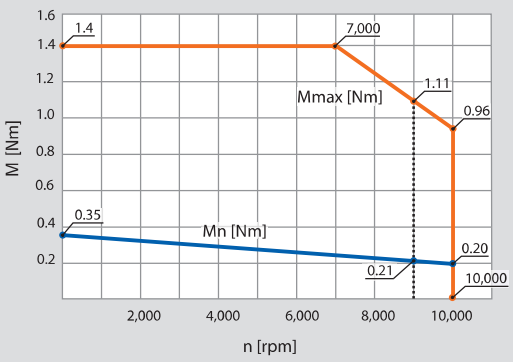


Feather key (option)



Motor model		L
HMP04-004	without brake	114 mm
HMP04-004	with brake	149 mm

HMP04-004-320-90- *



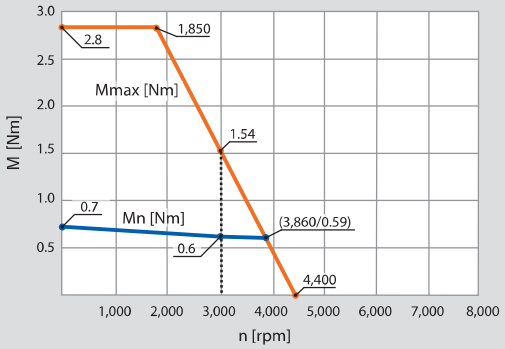
HMP06-007 / -015

Specifications

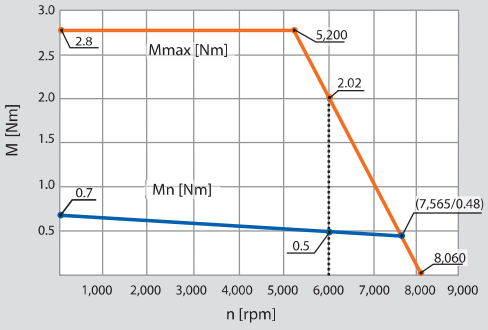
		HMP06-007		HMP06-015	
Rated speed [rpm]	n_n	3,000	6,000	3,000	6,000
Number of pole pairs		3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	320	320	320	320
Rated voltage motor [V_{rms}]	U_{mot}	181	179	181	180
Rated power [W]	P_n	200	325	400	550
Rated torque [Nm]	M_n	0.6	0.5	1.2	0.9
Rated current per phase [A_{rms}]	I_n	0.8	1.3	1.5	2.2
Stall torque [Nm]	**M_0**	**0.7**	**0.7**	**1.5**	**1.5**
Stall current per phase [A_{rms}]	I_0	0.9	1.6	1.8	3.3
Peak torque [Nm]	M_{max}	2.8	2.8	6.0	6.0
Peak current [A_{rms}]	I_{max}	3.6	6.4	7.2	13.2
Maximum speed [rpm]	n_{max}	4,400	8,060	4,220	7,350
Voltage constant at 1,000 rpm [V_{rms}]	k_e	49.6	27.1	51.7	27.9
Torque constant [Nm / A_{rms}]	k_t	0.75	0.38	0.80	0.41
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	26.4	8.0	9.8	3.0
Winding inductance (2 phases) [mH]	L_{p-p}	37.6	11.0	18.6	5.4
Electrical time constant [ms]	t_{el}	1.4	1.4	1.9	1.8
Thermal time constant [min]	t_{th}	25	25	25	25
Moment of inertia rotor [kg-cm²]	J	2.20E-01	2.20E-01	4.13E-01	4.13E-01
Weight of motor [kg]	m	1.45	1.45	2.0	2.0

Performance

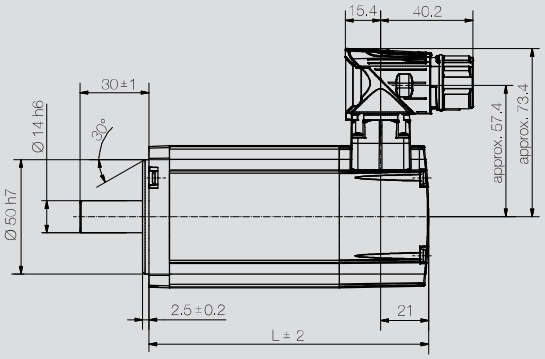
HMP06-007-320-30- *

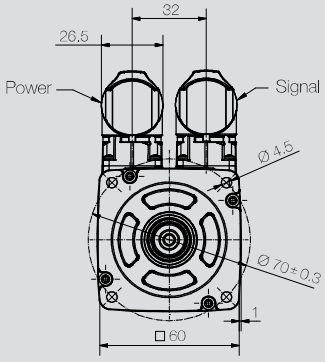


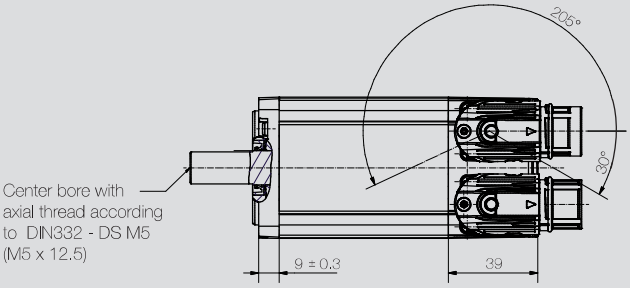
HMP06-007-320-60- *



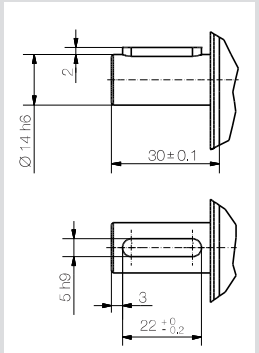
Dimensions





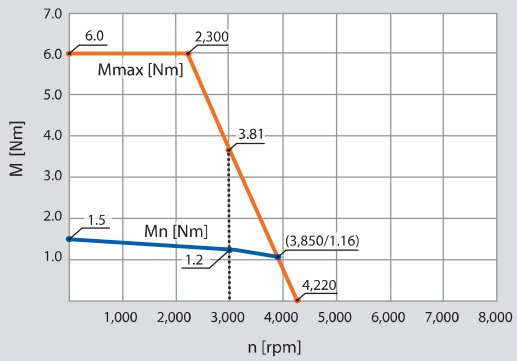


Feather key (option)

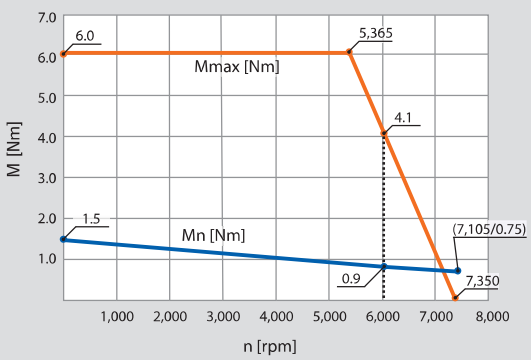


Motor model		L
HMP06-007	without brake	122 mm
HMP06-007	with brake	156 mm
HMP06-015	without brake	152 mm
HMP06-015	with brake	186 mm

HMP06-015-320-30- *



HMP06-015-320-60- *



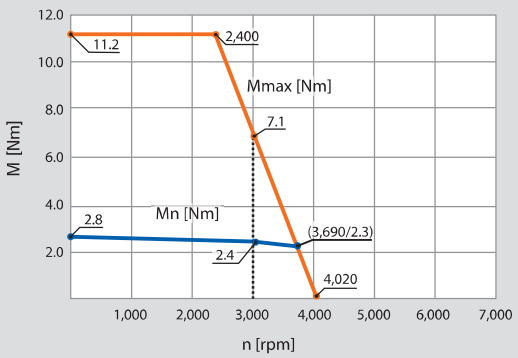
HMP08-028

Specifications

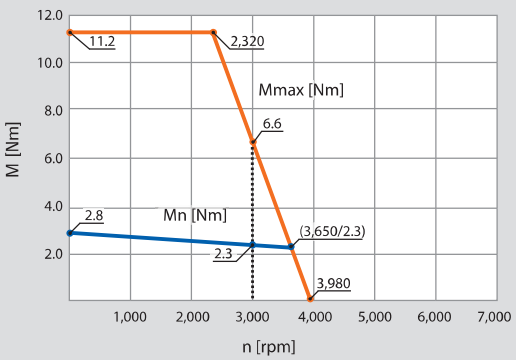
		HMP08-028			
Rated speed [rpm]	n_n	3,000	5,500	3,000	5,500
Number of pole pairs		3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	320	320	560	560
Rated voltage motor [V_{rms}]	U_{mot}	181	179	320	314
Rated power [W]	P_n	750	1,000	750	1,000
Rated torque [Nm]	M_n	2.4	1.7	2.3	1.7
Rated current per phase [A_{rms}]	I_n	2.6	3.7	1.6	2.2
Stall torque [Nm]	**M_0**	**2.8**	**2.8**	**2.8**	**2.8**
Stall current per phase [A_{rms}]	I_0	3.1	5.6	1.8	3.3
Peak torque [Nm]	M_{max}	11.2	11.2	11.2	11.2
Peak current [A_{rms}]	I_{max}	12.4	22.4	7.2	13.2
Maximum speed [rpm]	n_{max}	4,020	6,685	3,980	6,760
Voltage constant at 1,000 rpm [V_{rms}]	k_e	54.3	30.7	95.3	54.3
Torque constant [Nm / A_{rms}]	k_t	0.92	0.46	1.44	0.78
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	4.6	1.6	14.2	4.6
Winding inductance (2 phases) [mH]	L_{p-p}	11.8	3.8	36.2	11.8
Electrical time constant [ms]	t_{el}	2.6	2.4	2.5	2.6
Thermal time constant [min]	t_{th}	30	30	30	30
Moment of inertia rotor [kg-cm²]	J	1.40E00	1.40E00	1.40E00	1.40E00
Weight of motor [kg]	m	3.2	3.2	3.2	3.2

Performance

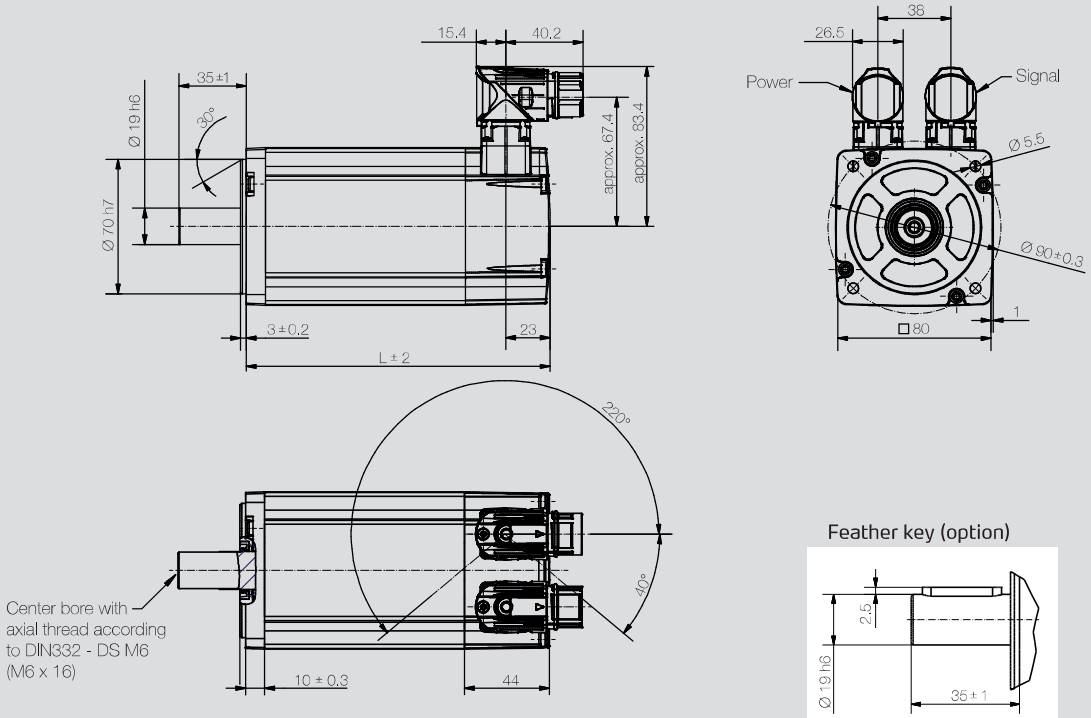
HMP08-028-320-30- *



HMP08-028-560-30- *

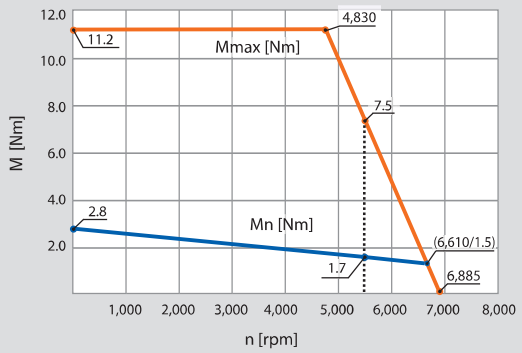


Dimensions

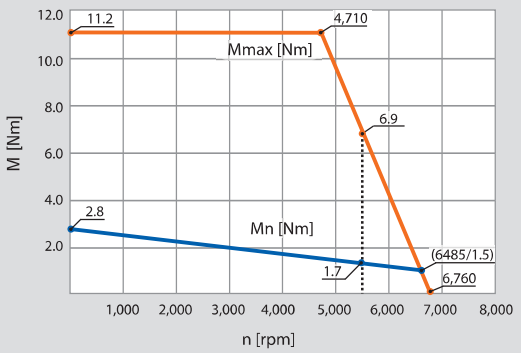


Motor model		L
HMP08-028	without brake	158 mm
HMP08-028	with brake	200 mm

HMP08-028-320-55- *



HMP08-028-560-55- *



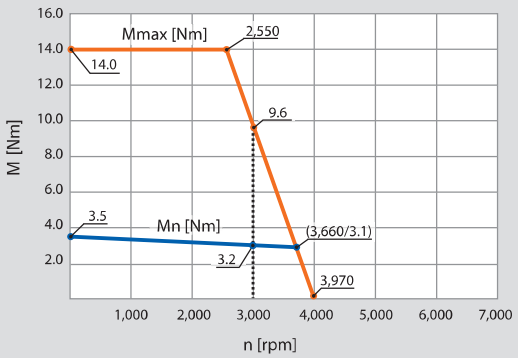
HMP08-035

Specifications

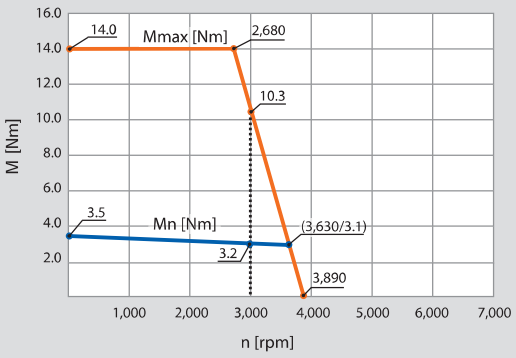
		HMP08-035			
Rated speed [rpm]	n_n	3,000	5,500	3,000	5,500
Number of pole pairs		3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	320	320	560	560
Rated voltage motor [V_{rms}]	U_{mot}	181	174	320	316
Rated power [W]	P_n	1,000	1,200	1,000	1,200
Rated torque [Nm]	M_n	3.2	2.1	3.2	2.1
Rated current per phase [A_{rms}]	I_n	3.7	4.8	2.1	2.8
Stall torque [Nm]	**M_0**	**3.5**	**3.5**	**3.5**	**3.5**
Stall current per phase [A_{rms}]	I_0	3.9	7.1	2.2	3.9
Peak torque [Nm]	M_{max}	14.0	14.0	14.0	14.0
Peak current [A_{rms}]	I_{max}	15.6	28.4	8.8	15.6
Maximum speed [rpm]	n_{max}	3,970	7,180	3,890	6,680
Voltage constant at 1,000 rpm [V_{rms}]	k_e	55.0	30.4	97.5	55.0
Torque constant [Nm / A_{rms}]	k_t	0.86	0.44	1.52	0.75
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	2.8	0.8	9.0	2.8
Winding inductance (2 phases) [mH]	L_{p-p}	8.4	2.6	26.0	8.4
Electrical time constant [ms]	t_{el}	3.0	3.3	2.9	3.0
Thermal time constant [min]	t_{th}	30	30	30	30
Moment of inertia rotor [kg-cm²]	J	1.93E00	1.93E00	1.93E00	1.93E00
Weight of motor [kg]	m	3.85	3.85	3.85	3.85

Performance

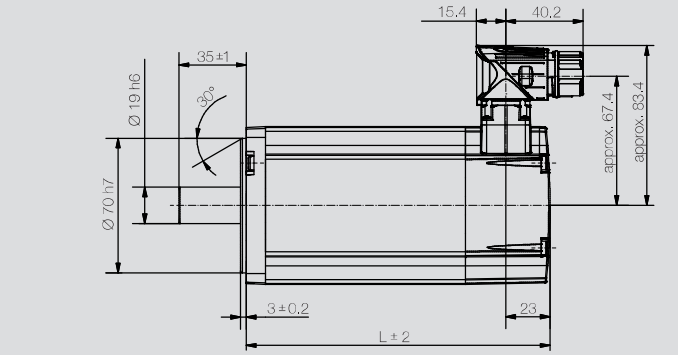
HMP08-035-320-30- *

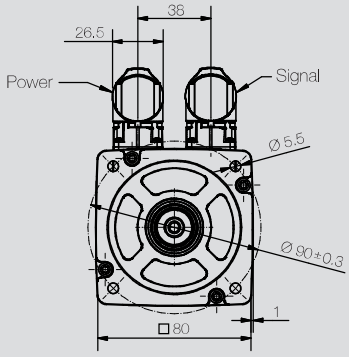


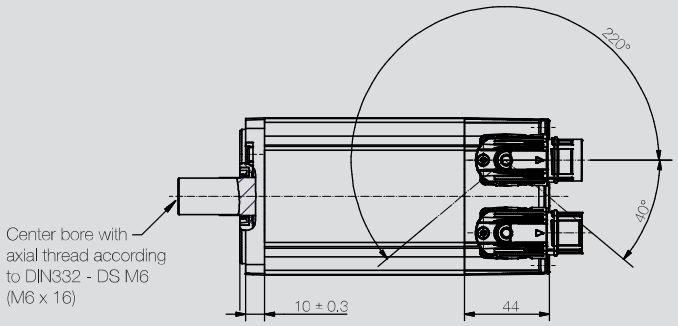
HMP08-035-560-30- *



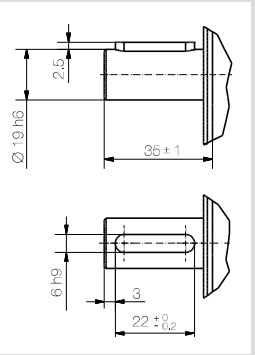
Dimensions





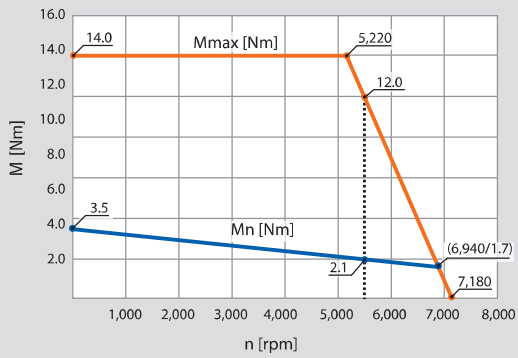


Feather key (option)

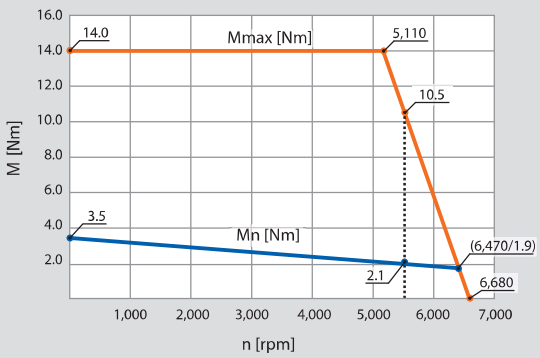


Motor model		L
HMP08-035	without brake	178 mm
HMP08-035	with brake	220 mm

HMP08-035-320-55- *



HMP08-035-560-55- *



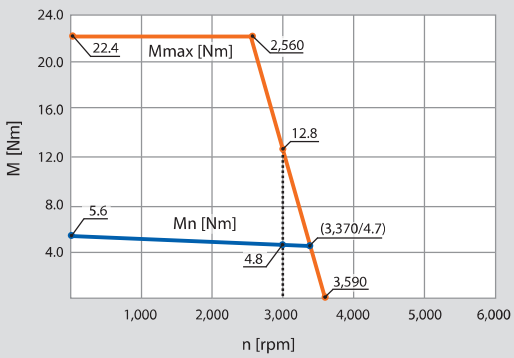
HMP10-056 / -075

Specifications

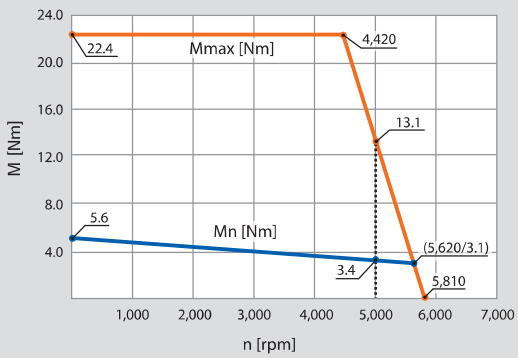
		HMP10-056		HMP10-075	
Rated speed [rpm]	n_n	3,000	5,000	3,000	5,000
Number of pole pairs		3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	560	560	560	560
Rated voltage motor [V_{rms}]	U_{mot}	316	316	320	318
Rated power [W]	P_n	1,500	1,800	2,000	2,500
Rated torque [Nm]	M_n	4.8	3.4	6.4	4.8
Rated current per phase [A_{rms}]	I_n	3.0	3.7	4.1	5.3
Stall torque [Nm]	**M_0**	**5.6**	**5.6**	**7.5**	**7.5**
Stall current per phase [A_{rms}]	I_0	3.4	5.4	4.6	7.5
Peak torque [Nm]	M_{max}	22.4	22.4	30.0	30.0
Peak current [A_{rms}]	I_{max}	13.6	21.6	18.4	30.0
Maximum speed [rpm]	n_{max}	3,590	5,810	3,620	5,950
Voltage constant at 1,000 rpm [V_{rms}]	k_e	102.2	63.2	101.4	61.7
Torque constant [Nm / A_{rms}]	k_t	1.60	0.92	1.56	0.91
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	4.6	1.8	3.2	1.4
Winding inductance (2 phases) [mH]	L_{p-p}	19.8	7.4	15.0	5.6
Electrical time constant [ms]	t_{el}	4.3	4.1	4.7	4.0
Thermal time constant [min]	t_{th}	30	30	35	35
Moment of inertia rotor [kg-cm²]	J	4.84E00	4.84E00	6.41E00	6.41E00
Weight of motor [kg]	m	6.4	6.4	7.75	7.75

Performance

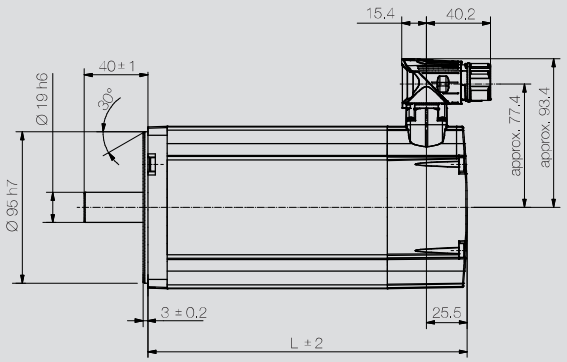
HMP10-056-560-30- *

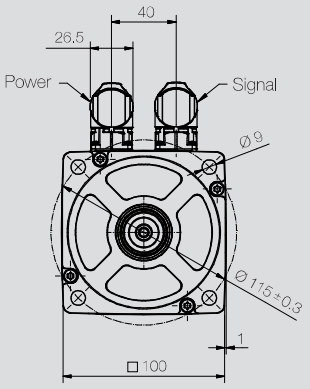


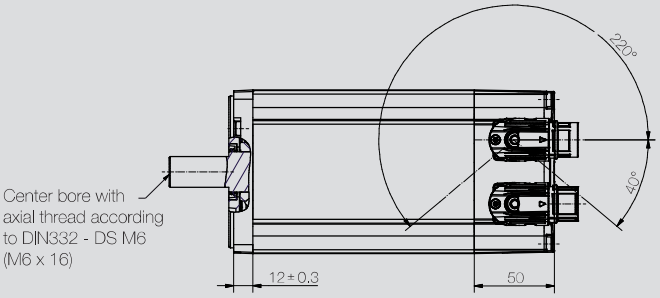
HMP10-056-560-50- *



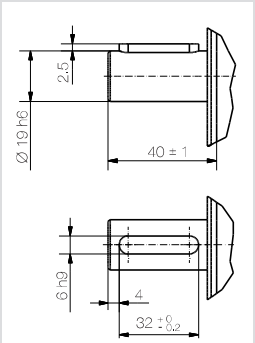
Dimensions





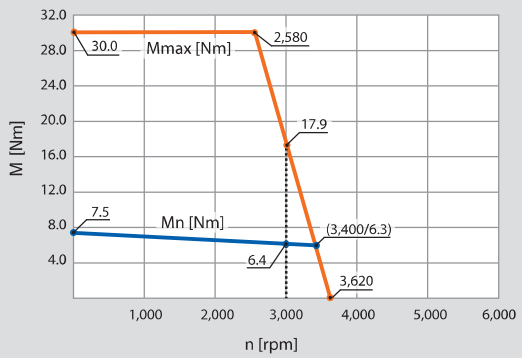


Feather key (option)

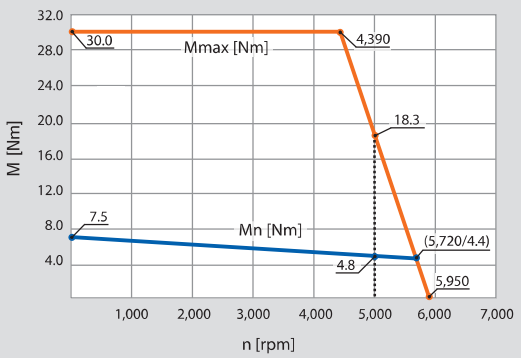


Motor model		L
HMP10-056	without brake	200 mm
HMP10-056	with brake	242 mm
HMP10-075	without brake	225 mm
HMP10-075	with brake	267 mm

HMP10-075-560-30- *



HMP10-075-560-50- *



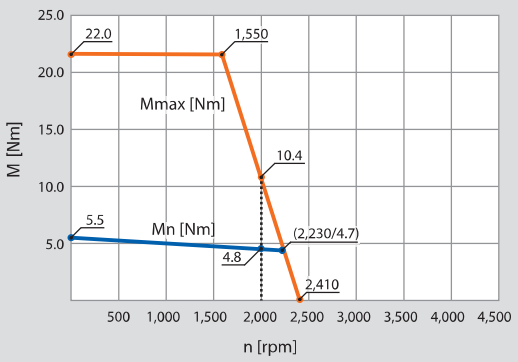
HMP13-055 / -091

Specifications

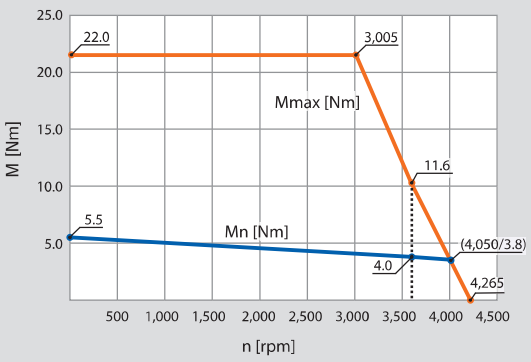
		HMP13-055				HMP13-091	
Rated speed [rpm]	n_n	2,000	3,600	2,000	3,600	2,000	3,600
Number of pole pairs		3	3	3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	320	320	560	560	560	560
Rated voltage motor [V_{rms}]	U_{mot}	178	175	317	307	315	310
Rated power [W]	P_n	1,000	1,500	1,000	1,500	1,500	2,250
Rated torque [Nm]	M_n	4.8	4.0	4.8	4.0	7.2	6.0
Rated current per phase [A_{rms}]	I_n	4.1	6.0	2.3	3.4	3.4	5.0
Stall torque [Nm]	**M_0**	**5.5**	**5.5**	**5.5**	**5.5**	**9.1**	**9.1**
Stall current per phase [A_{rms}]	I_0	4.8	8.2	2.7	4.7	4.4	7.7
Peak torque [Nm]	M_{max}	22.0	22.0	22.0	22.0	36.4	36.4
Peak current [A_{rms}]	I_{max}	19.0	32.8	10.8	18.8	17.6	30.8
Maximum speed [rpm]	n_{max}	2,480	4,220	2,340	4,310	2,440	4,150
Voltage constant at 1,000 rpm [V_{rms}]	k_e	85.0	49.0	164.0	85.0	155.0	86.0
Torque constant [Nm / A_{rms}]	k_t	1.17	0.67	2.09	1.18	2.12	1.20
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	3.5	1.1	10.9	3.5	6.1	1.9
Winding inductance (2 phases) [mH]	L_{p-p}	15.0	5.0	47.8	15.0	32.2	10.4
Electrical time constant [ms]	t_{el}	3.9	3.9	4.2	4.2	4.9	4.9
Thermal time constant [min]	t_{th}	35	35	35	35	42	42
Moment of inertia rotor [kg-cm²]	J	9.82E00	9.82E00	9.82E00	9.82E00	1.40E01	1.40E01
Weight of motor [kg]	m	7.0	7.0	7.0	7.0	8.6	8.6

Performance

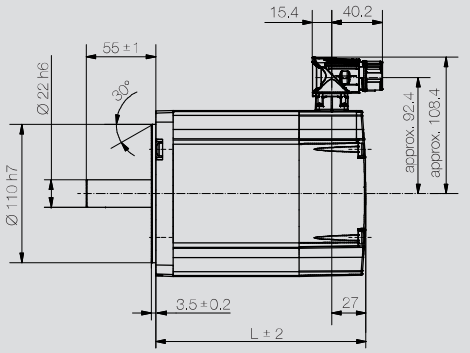
HMP13-055-XXX-20- *

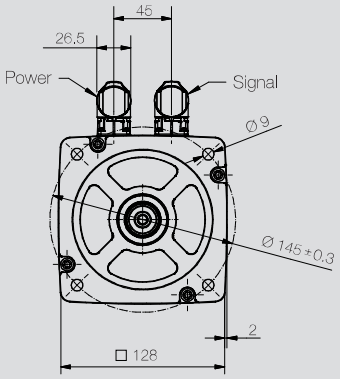


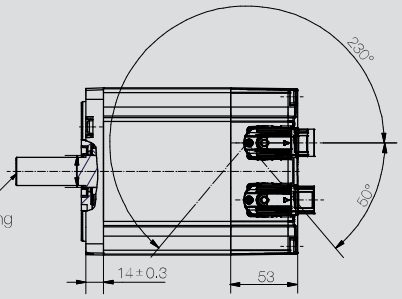
HMP13-055-XXX-36- *



Dimensions

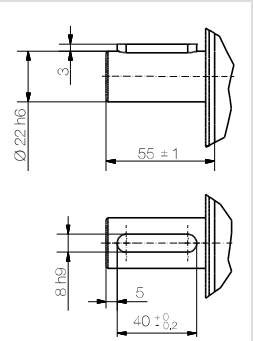






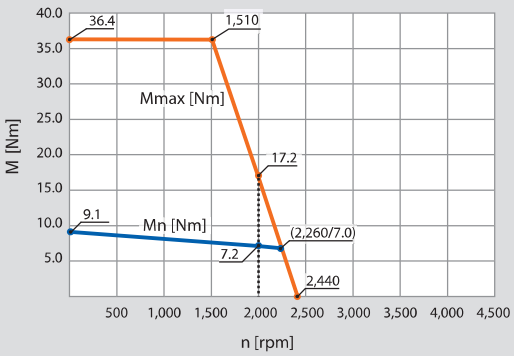
Center bore with axial thread according to DIN332 - DS M8 (M8 x 19)

Feather key (option)

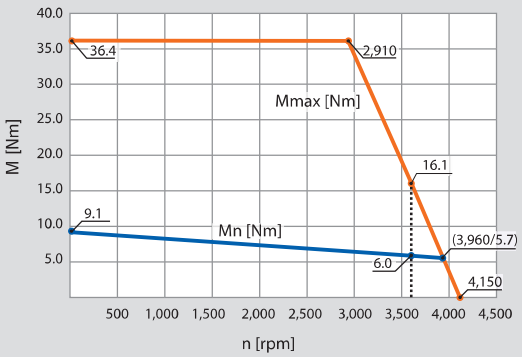


Motor model		L
HMP13-055	without brake	167 mm
HMP13-055	with brake	197 mm
HMP13-091	without brake	182 mm
HMP13-091	with brake	212 mm

HMP13-091-560-20- *



HMP13-091-560-36- *



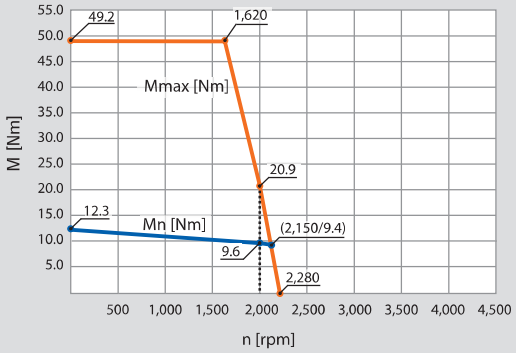
HMP13-123 / -185

Specifications

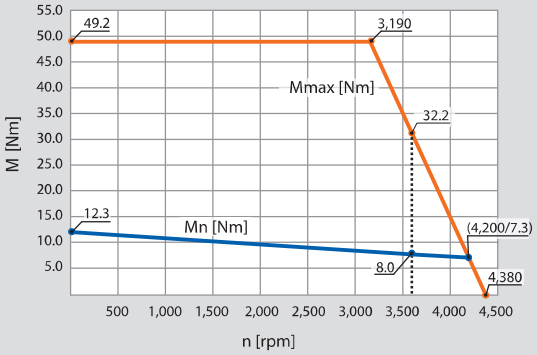
		HMP13-123		HMP13-185	
Rated speed [rpm]	n_n	2,000	3,600	2,000	3,600
Number of pole pairs		3	3	3	3
Wiring of the motor winding		Y	Y	Y	Y
DC bus voltage [V_{DC}]	U_{bus}	560	560	560	560
Rated voltage motor [V_{rms}]	U_{mot}	316	308	319	318
Rated power [W]	P_n	2,000	3,000	3,000	3,750
Rated torque [Nm]	M_n	9.6	8.0	14.4	10.0
Rated current per phase [A_{rms}]	I_n	4.5	6.7	6.5	8.0
Stall torque [Nm]	**M_0**	**12.3**	**12.3**	**18.5**	**18.5**
Stall current per phase [A_{rms}]	I_0	4.7	10.3	8.4	14.8
Peak torque [Nm]	M_{max}	49.2	49.2	74.0	74.0
Peak current [A_{rms}]	I_{max}	18.8	41.2	33.6	59.2
Maximum speed [rpm]	n_{max}	2,280	4,380	2,410	4,100
Voltage constant at 1,000 rpm [V_{rms}]	k_e	161.0	85.0	150.0	93.0
Torque constant [Nm / A_{rms}]	k_t	2.13	1.19	2.22	1.25
Winding resistance (2 phases) at 20 °C [Ω]	R_{p-p}	3.6	1.0	1.75	0.6
Winding inductance (2 phases) [mH]	L_{p-p}	21.2	6.6	13.2	4.2
Electrical time constant [ms]	t_{el}	5.4	5.4	5.4	5.4
Thermal time constant [min]	t_{th}	49	49	49	49
Moment of inertia rotor [kg-cm²]	J	2.11E01	2.11E01	3.38E01	3.38E01
Weight of motor [kg]	m	10.7	10.7	14.8	14.8

Performance

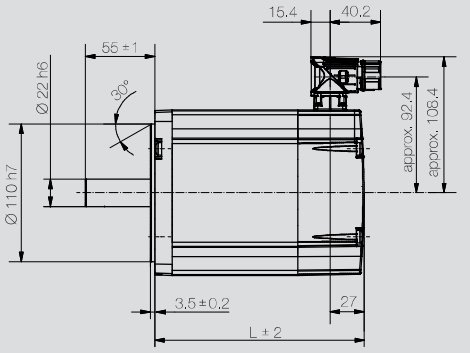
HMP13-123-560-20- *

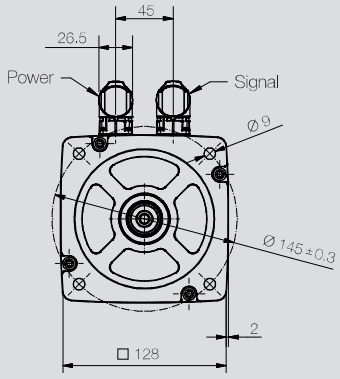


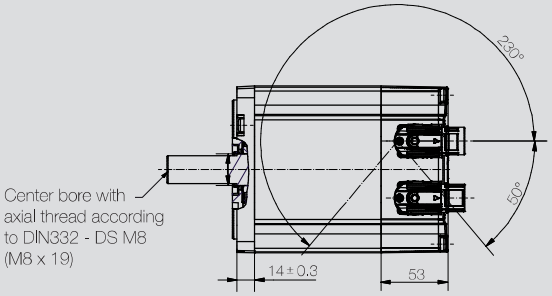
HMP13-123-560-36- *



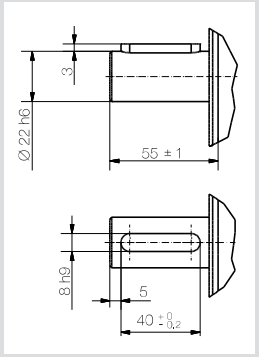
Dimensions





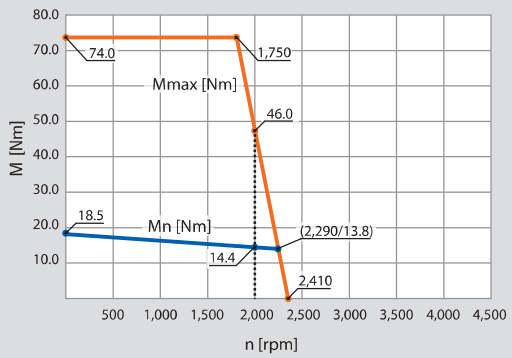


Feather key (option)

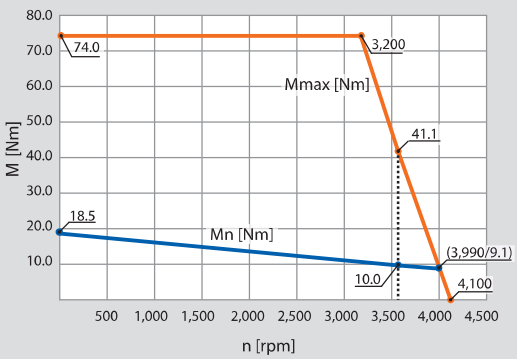


Motor model		L
HMP13-123	without brake	207 mm
HMP13-123	with brake	242 mm
HMP13-185	without brake	252 mm
HMP13-185	with brake	287 mm

HMP13-185-560-20- *



HMP13-185-560-36- *



Configuration options

Feedback options

As standard, HeiMotion Premium motors are supplied with a resolver. As an option, various encoders with different interfaces can be mounted to the series.

Motor model	Resolver *	CKS36	ECI 1118	EQI 1131
	Standard	Incremental encoder	EnDat 2.2	EnDat 2.2
HMP04	X		X	
HMP06	X	X	X	X
HMP08	X	X	X	X
HMP10	X	X	X	X
HMP13	X	X	X	X
	p. 28	p. 29	p. 30	

* Safety enhanced version available to alllow use of motors in applications up to cat. 3/PL d. acc. to EN ISO 13849-1 and SIL2 acc. to EN 62061/EN 61800-5-2

Motor model	SEK/ SEL37	SKS/ SKM36*	SRS/ SRM50	EES/ EEM37	EKS/ EKM36*	EFS/ EFM50	HES/ HEM
	HIPERFACE®	HIPERFACE®	HIPERFACE®	HIPERFACE DSL®	HIPERFACE DSL®	HIPERFACE DSL®	hall encoder
HMP04	X						X
HMP06	X	X		X	X		X
HMP08	X	X	X	X	X	X	X
HMP10	X	X	X	X	X	X	X
HMP13	X	X	X	X	X	X	X
		p. 32			p. 34		p. 36

* Safety enhanced version available to alllow use of motors in applications up to cat. 3/PL d. acc. to EN ISO 13849-1 and SIL2 acc. to EN 62061/EN 61800-5-2

Feedback system overview

Feedback device type	HCD	HCB	HCF	HCJ
Resolver		X	X	X
HIPERFACE® encoder		X		X
HIPERFACE DSL® encoder		X		X
Incremental encoder		X	X	X
Hall encoder (HES/HEM)	X	X	X	X
EnDat encoder		X		X
	p. 48	p. 50	p. 54	p. 56

Connection options

Motor model	Y-Tec	2 x M23	I-Tec	1 x M23
HMP04	X			
HMP06	X	X	X	X
HMP08	X	X	X	X
HMP10	X	X	X	X
HMP13	X	X	X	X
	p. 40	p. 42	p. 44	p. 45

Standard connectors are rotatable; fixed connector orientation available upon request Twintus and direct cable outlet available upon request.

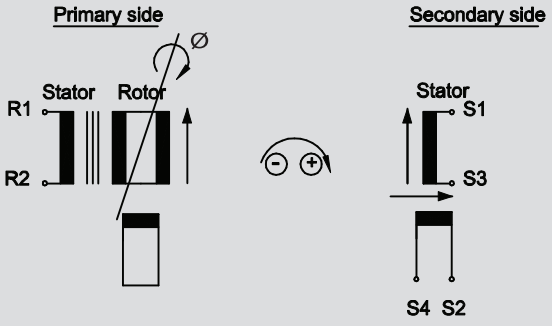
Standard Resolver

Specifications	RE-15
Number of pole pairs	1
Input frequency	10 kHz
Input voltage	7 V_{rms}
Maximum current input	50 mA
Transformation ratio	0.5 ± 10 %
Phase shift (nominal)	3 ± 3°
Ohmic resistance (at 25 °C)	
Stator winding	70 ± 10 %
Rotor winding	24 ± 10 %
Impedances	
Zro (no-load impedance rotor)	typ. 86 j 120
Zrs (short-circuit impedance rotor)	typ. 70 j 105
Zso (no-load impedance stator)	typ. 140 j 273
Zss (short-circuit impedance stator)	typ. 122 j 244
Maximum residual voltage	30 mV
Maximum electrical error	± 10'
Weight	77 g
Protection class	IP20
Insulation class	F
Insulation test housing / winding	500 V_{AC} / 50 Hz / 1 s
Moment of inertia rotor	15 g-cm²

Environmental

Working environment	IE 32 according to EN 60721-3-3
Operating temperature	- 55 °C to 155 °C
Vibration according to EN 60068-2-6	100 m/s² 10 - 150 Hz
Impact strength	400 m/s² 6 ms
Maximum operating speed	20,000 rpm

Dimensions



Safety norms

Safety Integrity Level	SIL 2 (EN 61800-5-2 / EN 62061)
Category	3 (EN ISO 13849-1)
Performance Level	PL d (EN ISO 13849-1)

SIL/PL Capability
TÜVRheinland CERTIFIED
www.tuv.com ID 0600000000

Option Incremental encoder

Optical sensing encoder

CKS36
(Incremental encoder)

Specifications:
· Resolution 2,048 pulses per revolution
· Commutation signals for 3 pole pairs
· Index pulse 90°

Specifications according to DIN 32878		**CKS36**
Number of lines per revolution		2,048
Commutation signals		3 pole pairs
Measurement step		90° / number of lines
Reference signal	Number Position	1 90° electrical, logically linked with A and B
Error limits	„binary“ number of lines „non-binary“ number of lines	± 0.09° ± 0.13°
Measurement step deviation	„binary“ number of lines „non-binary“ number of lines	± 0.035° ± 0.07°
Maximum output frequency	TTL/RS 422	400 kHz
Resistance	to shocks to vibration	100 g (6 ms) 50 g (10 … 2,000 Hz)
Operating voltage range		5 V ± 10 %
Maximum operating current without load		60 mA
Interface signals	Incremental and commutation signals Parameterization interface	according to EIA 422 IIC-Bus

Option absolute encoders

Inductive sensing encoder - EnDat 2.2

ECI1118

(Single-turn encoder)

Specifications:

- Inductive rotary encoder without integral bearing
- Purely serial EnDat 2.2 interface
- For machines with high demanding dynamics and robustness
- High system accuracy
- Digital data transfer
- Electronic type label

EnDat 2.2

EQI1131

(Multi-turn encoder)

Specifications:

- Inductive rotary encoder without integral bearing
- Multi-turn via gearbox
- Purely serial EnDat 2.2 interface
- For machines with high demanding dynamics and robustness
- High system accuracy
- Digital data transfer
- Electronic type label

EnDat 2.2

Specifications	ECI1118	EQI1131
Encoder type	inductive	inductive
Position values / revolution	262,144 18 bit	524,288 19 bit
Revolutions	-	4,096 12 bit
Calculation time t_{cal}	≤ 6 µs	≤ 5 µs
Clock frequency	≤ 8 MHz	≤ 16 MHz
System accuracy	± 120"	± 120"
Maximum operating temperature	+ 115 °C - 20 °C	+ 110 °C - 40 °C
Mechanically permissible speed	15,000 rpm	12,000 rpm
Voltage supply	3.6 - 14 V_{DC}	3.6 - 14 V_{DC}
Max. power consumption	520 - 600 mW	700 - 850 mW
Currect consumption (typical) at 5 V	80 mA	115 mA
Multiturn	-	gearbox
Vibration 55 Hz to 2,000 Hz Shock 6 ms	≤ 300 m/s² ≤ 1,000 m/s²	≤ 400 m/s² ≤ 2,000 m/s²
Digital interface	EnDat 2.2	EnDat 2.2

Option absolute encoders

Capacitive sensing encoder - HIPERFACE®

SEK / SEL37

(Single- or multi-turn encoder)

Specifications:

- 16 sin/cos periods per revolution
- Absolute position with a resolution of 512 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE®-interface

HIPERFACE® by SICK

Optical sensing encoder - HIPERFACE®

SKS / SKM36

(Single- or multi-turn encoder)

TÜVRheinland CERTIFIED SIL/PL Capability www.tuv.com ID 0600000000

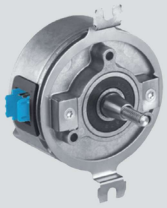
Specifications:

- 128 sin/cos periods per revolution
- Absolute position with a resolution of 4,096 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE®-interface

HIPERFACE® by SICK

SRS / SRM50

(Single- or multi-turn encoder)



Specifications:

- 1,024 sin/cos periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE®-interface

HIPERFACE® by SICK

Specifications	SEK/SEL37	SKS/SKM36	SRS/SRM50
Number of sin/cos periods per revolution	16	128	1,024
Maximum number of turns	Single SEK 1 Multi SEL 4,096	Single SKS 1 Multi SKM 4,096	Single SRS 1 Multi SRM 4,096
Code type for absolute value	binary	binary	binary
Code sequence[1]	ascending	ascending	ascending
Measuring step during interpolation of the sin/cos signals (for 12 bit)	20 arc seconds	2.5 arc seconds	0.3 arc seconds
Maximum sin/cos signals interpretation error, integral non-linearity	± 288 arc seconds	± 80 arc seconds	± 45 arc seconds
Non-linearity of a sin/cos period differential non-linearity	± 144 arc seconds [2]	± 40 arc seconds [2]	± 7 arc seconds [2]
Output frequency	-	0 ... 65 kHz	0 ... 200 kHz
Resistance to shocks	100 g / 10 ms	100 g / 6 ms	100 g / 10 ms
Resistance to vibration	50 g / 10...2,000 Hz	50 g / 10...2,000 Hz	50 g / 10...2,000 Hz
Operating voltage range	7...12 V	7...12 V	7...12 V
Recommended supply voltage	8 V	8 V	8 V
Maximum operating current without load	< 50 mA	60 mA	80 mA
Available memory area within EEPROM 2048 [3]	1,792 bytes	1,792 bytes	1,792 bytes
Interface signals Process data cable = SIN, REFSIN, COS, REFCOS Parameter channel = RS 485	analog, differential digital	analog, differential digital	analog, differential digital

Safety norms		SKS/SKM36S	
Safety Integrity Level [4]	-	SIL2 (EN 61800-5-2 / EN 62061)	-
Category [4]	-	3 (EN ISO 13849-1)	-
Performance Level [4]	-	PL d (EN ISO 13849-1)	-

1) For rotation of the shaft in clockwise direction when facing in the direction of "A"
2) In the nominal position ± 0.1 mm
3) When using the electronic nameplate in operative connection with numerical controls, consider the patent EP 425 912 B 2; use in operative connection with speed controllers is excluded from this rule.
4) Safety norms are only valid for motors with safely mounted encoders.

Option absolute encoders

Capacitive sensing encoder - HIPERFACE DSL®

EES / EEM37

(Single- or multi-turn encoder)

Specifications:
- Absolute position with a resolution of 131,072 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE DSL®-interface

Optical sensing encoder - HIPERFACE DSL®

EKS / EKM36

(Single- or multi-turn encoder)

Specifications:
- Absolute position with a resolution of 262,144 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE DSL®-interface

EFS / EFM50

(Single- or multi-turn encoder)

Specifications:
- Absolute position with a resolution of 8,388,608 steps per revolution
- Measuring of 4,096 revolutions (multi-turn)
- Programming of the position value
- Electronic type label
- HIPERFACE DSL®-interface

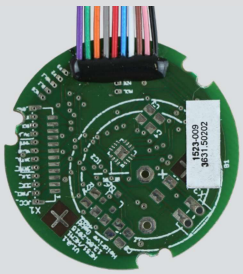
Specifications	EES/EEM37	EKS/EKM36	EFS/EFM50
Number of sin/cos periods per revolution	-	-	-
Maximum number of turns	Single EES 1 Multi EEM 4,096	Single EKS 1 Multi EKM 4,096	Single EFS 1 Multi EFM 4,096
Code type for absolute value	binary	binary	binary
Code sequence[1]	ascending	ascending	ascending
Measuring step during interpolation of the sin/cos signals (for 12 bit)	-	-	-
Maximum sin/cos signals interpretation error, integral non-linearity	± 160 arc seconds [2]	± 80 arc seconds	± 45 arc seconds
Non-linearity of a sin/cos period differential non-linearity	-	± 40 arc seconds	± 7 arc seconds
Output frequency	-	0 ... 75 kHz (digital position value)	0 ... 75 kHz (digital position value)
Resistance to shocks	100 g / 6 ms	100 g / 6 ms	100 g / 6 ms
Resistance to vibration	50 g / 10...2,000 Hz	50 g / 10...2,000 Hz	30 g / 10...2,000 Hz
Operating voltage range	7...12 V	7...12 V	7...12 V
Recommended supply voltage	-	8 V	9 V
Maximum operating current without load	150 mA	150 mA	150 mA
Available memory area within EEPROM 2048 [3]	8,192 Byte	8,192 Byte	8,192 Byte
Interface signals Process data cable = SIN, REFSIN, COS, REFCOS Parameter channel = RS 485	differential, digital	differential, digital	differential, digital

Safety norms		EKS/EKM36-2	
Safety Integrity Level [4]	-	SIL2 (EN 61800-5-2 / EN 62061)	-
Category [4]	-	3 (EN ISO 13849-1)	-
Performance Level [4]	-	PL d (EN ISO 13849-1)	-

1) For rotation of the shaft in clockwise direction when facing in the direction of "A"
2) System accuracy
3) When using the electronic nameplate in operative connection with numerical controls, consider the patent EP 425 912 B 2; use in operative connection with speed controllers is excluded from this rule.
4) Safety norms are only valid for motors with safely mounted encoders.

Option hall encoders

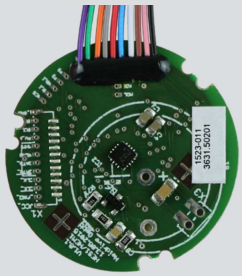
HES1-002



Specifications:

- Single-turn encoder with a resolution of 12 bit (interpolated 14 bit)
- SSI interface differential and single-ended
- Differential sin/cos signals with 1.0 V_{p-p}

HEM1-001



Specifications:

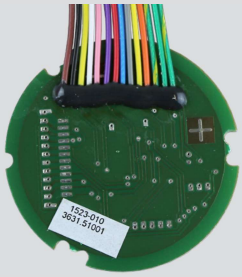
- Multi-turn encoder with a resolution of 32 bit (≈ 4.2 billion revolutions measurable)
- Single-turn encoder with a resolution of 12 bit (interpolated 14 bit)
- SSI interface differential and single-ended
- Differential sin/cos signals with 1.0 V_{p-p}
- External battery connector

HEM1-002*

Specifications:

- Multi-turn encoder with a resolution of up to 32 bit (≈ 4.2 billion revolutions measurable)
- Single-turn encoder with a resolution of 12 bit (interpolated 14 bit)
- SSI interface differential and single-ended
- Differential sin/cos signals with 1.0 V_{p-p}
- Battery on board

HES3



Specifications:

- Single-turn encoder with a resolution of 10 bit (interpolated 12 bit)
- Commutation and incremental signals ABZ, differential and single-ended
- Commutation signals for 2/4/6 or 8-pole motors

*Further information for your application upon request

Specifications (according to DIN 32878)	HES1-002	HEM1-001	HEM1-002	HES3
Diameter (mm)	34.95 ± 0.05	34.95 ± 0.05	34.95 ± 0.05	34.95 ± 0.05
Power supply voltage	5.0 V_{DC} ± 10%	5.0 V_{DC} ± 10%	5.0 V_{DC} ± 10%	5.0 V_{DC} ± 10%
Maximum output current	50 mA	50 mA	50 mA	50 mA
Maximum resolution single-turn	12 bit 0.088°	12 bit 0.088°	12 bit 0.088°	10 bit 0.35
Maximum resolution single-turn interpolated	14 bit 0.022°	14 bit 0.022°	14 bit 0.022°	12 bit 0.088°
Maximum number of turns	-	32 bit ≈ 4.2 billion	32 bit ≈ 4.2 billion	-
Backup battery for multi-turn encoder	-	external	on board	-
SSI interface	differential & single ended	differential & single ended	differential & single ended	-
Maximum SSI operating frequency	4 MHz	4 MHz	4 MHz	-
Sin/cos signals	differential	differential	differential	-
Number of sin/cos periods per turn	1	1	1	-
Amplitude sin/cos	1.0 V_{p-p}	1.0 V_{p-p}	1.0 V_{p-p}	-
Incremental signals ABZ	-	-	-	differential
High-level output voltage ABZ	-	-	-	min. 3.8 V
Low-level output voltage ABZ	-	-	-	max. 0.7 V
Commutation signals	-	-	-	differential
Commutation high-level output voltage (UVW)	-	-	-	min. 3.8 V
Commutation low-level output voltage (UVW)	-	-	-	max. 0.7 V
ESD voltage	2 kV	2 kV	2 kV	2 kV
Order code segment	XXM2SXXXX	XXM1MXXXX	XXM2MXXXX	XXM1IXXXX

Option holding brake

Any HeiMotion Premium motor maybe equipped with a permanent-magnet DC holding brake.

Features:

Insulation class:	F (155 °C)
Maximum speed:	10,000 rpm
Voltage supply:	24 V_{DC} + 6 % / -10 %

Specifications brake	HMP04		HMP06		HMP08	
	-002	-004	-007	-015	-028	-035
Moment of inertia motor with brake * [kg-cm²]	5.50E-02	7.90E-02	3.19E-01	5.12E-01	1.68E00	2.20E00
Static braking torque [Nm]	0.4	0.4	2.0	2.0	4.5	4.5
Dynamic braking torque [Nm]	0.3	0.3	1.7	1.7	3.8	3.8
Rated input power [W]	8	8	11	11	12	12
Working voltage [V_{DC}]	24	24	24	24	24	24
Input current brake [A]	0.33	0.33	0.46	0.46	0.50	0.50
Energy rating [kJ]	180	180	580	580	580	580
Separating time brake [ms]	10	10	25	25	35	35
Brake delay [ms]	2	2	2	2	2	2
Application delay time [ms]	6	6	10	10	15	15
Weight of motor with brake * [kg]	0.65	0.85	1.8	2.35	3.85	4.5
Slipping time ** [s]	0.5	0.5	0.5	0.5	0.5	0.5
Idle time ** [s]	0.5	0.5	0.5	0.5	0.5	0.5
Speed ** [min^{-1}]	250	250	200	200	100	100
Cycle quantity ** [-]	5	5	5	5	5	5

Specifications brake	HMP10 -056	HMP10 -075	HMP13 -055	HMP13 -091	HMP13 -123	HMP13 -185
Moment of inertia motor with brake * [kg-cm²]	5.63E00	7.20E00	1.05E01	1.48E01	2.31E01	3.58E01
Static braking torque [Nm]	9.0	9.0	9.0	9.0	20	20
Dynamic braking torque [Nm]	7.5	7.5	7.5	7.5	15	15
Rated input power [W]	18	18	18	18	24	24
Working voltage [V_{DC}]	24	24	24	24	24	24
Input current brake [A]	0.75	0.75	0.75	0.75	1.00	1.00
Energy rating [kJ]	890	890	890	890	1,290	1,290
Separating time brake [ms]	40	40	40	40	50	50
Brake delay [ms]	2	2	2	2	3	3
Application delay time [ms]	20	20	20	20	40	40
Weight of motor with brake * [kg]	7.4	8.75	8.0	9.4	12.2	16.4
Slipping time ** [s]	0.5	0.5	0.5	0.5	0.5	0.5
Idle time ** [s]	0.5	0.5	0.5	0.5	0.5	0.5
Speed ** [min^{-1}]	100	100	100	100	75	75
Cycle quantity ** [-]	5	5	5	5	5	5

* Incl. all attachment parts
** In order to ensure the optimum function of the brake at all times, it is recommended that the respective maintenance cycle (refreshment) be carried out when the brake is first put into operation and at four-week intervals.

The motor may not be operated with the brake applied. The brake is designed as a holding brake. An emergency stop of a running motor using the brake is permitted in exceptional cases. The number of emergency stops is limited by the moment of inertia of the entire system.

Option connector Y-Tec

Power

Pin	Function
A	U
B	V
C	W
Ground.	PE
1	Therm. Prot. + 2)
2	Therm. Prot. - 2)
3	Brake + 1)
4	Brake - 1)
5	-

1) If applicable
2) Only with CKS 36, HES3 and HEM1-001

Signal Resolver

Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin- / refsin
5	R1 (ref +)
6	R2 (ref -)
7	-
8	-
9	Therm. Prot. + / Temp +
10	Therm. Prot. - / Temp -
11	-
12	-

Signal HIPERFACE®

Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin- / refsin
5	Data +
6	Data -
7	Us
8	GND
9	Therm. Prot. + / Temp +
10	Therm. Prot. - / Temp -
11	-
12	-

Signal HES/M1

Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin- / refsin
5	V_{CC} / 5 V
6	GND
7	Data +
8	Data -
9	CLK +
10	CLK -
11	Therm. Prot. + / Temp + 3)
12	Therm. Prot. - / Temp - 4)

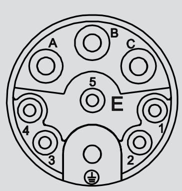
3) Battery + at HEM1-001
4) Battery - at HEM1-001

Signal EnDat 2.2

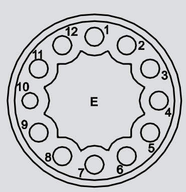
Pin	Function
1	-
2	-
3	-
4	-
5	U_p
6	GND / 0 V
7	Data +
8	Data -
9	CLK +
10	CLK -
11	Therm. Prot. +
12	Therm. Prot. -

Motor connector

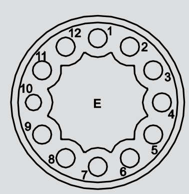
View mating face



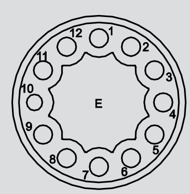
9-pole
9 x Ø 1 mm (3+PE+5)



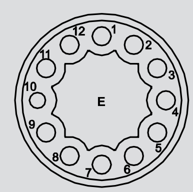
12-pole
12 x Ø 1 mm



12-pole
12 x Ø 1 mm



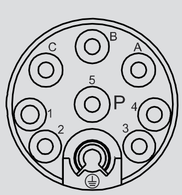
12-pole
12 x Ø 1 mm



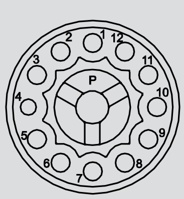
12-pole
12 x Ø 1 mm

Mating connector

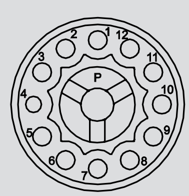
View mating face



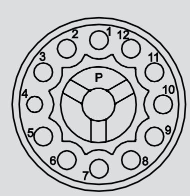
Intercontec type designation
ESTA 202 NN00 34 0500 000
(Cable clamping range 10.5 - 12 mm)



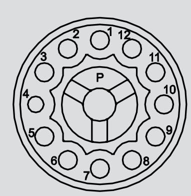
Intercontec type designation
ESTA 002 NN00 33 0001 000
(Cable clamping range 8.5 - 10.5 mm)



Intercontec type designation
ESTA 002 NN00 33 0001 000
(Cable clamping range 8.5 - 10.5 mm)



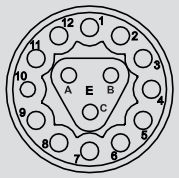
Intercontec type designation
ESTA 002 NN00 33 0001 000
(Cable clamping range 8.5 - 10.5 mm)



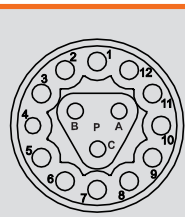
Intercontec type designation
ESTA 002 NN00 33 0001 000
(Cable clamping range 8.5 - 10.5 mm)

Signal CKS36

Pin	Function
1	Z
2	$\overline{Z}$
3	A
4	$\overline{A}$
5	B
6	$\overline{B}$
7	R
8	$\overline{R}$
9	S
10	$\overline{S}$
11	T
12	$\overline{T}$
A	Us
B	GND
C	-



15-pole
15 x Ø 1 mm

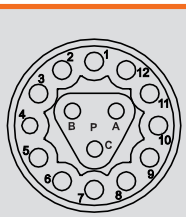


Intercontec type designation
ESTA 205 NN00 33 0001 000
(Cable clamping range
8.5 - 10.5 mm)

Signal HES3

Pin	Function
1	Z
2	$\overline{Z}$
3	A
4	$\overline{A}$
5	B
6	$\overline{B}$
7	U
8	$\overline{U}$
9	V
10	$\overline{V}$
11	W
12	$\overline{W}$
A	V_{CC} / 5 V
B	GND
C	-

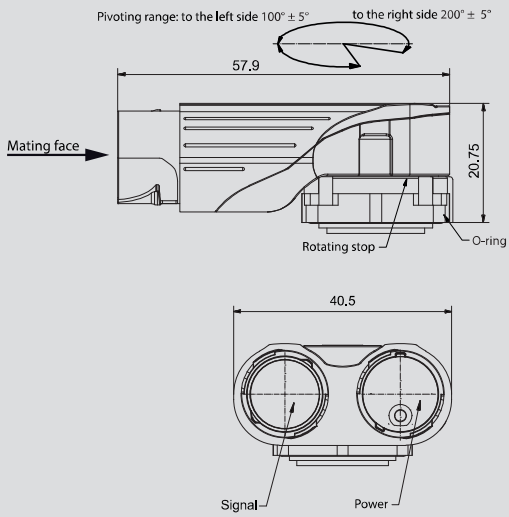
15-pole
15 x Ø 1 mm



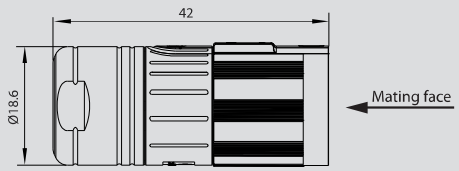
Intercontec type designation
ESTA 205 NN00 33 0001 000
(Cable clamping range
8.5 - 10.5 mm)

Mating connectors
available with metal fittings only

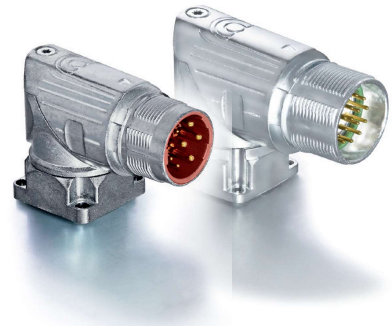
Motor connector Angled receptacle Y-Tec, rotatable



Mating connector



Option connector M23



Power

Pin	Function
A	Brake + [1]
B	Brake - [1]
C	Therm. Prot. +
D	Therm. Prot. -
1	U
4	V
3	W
Ground.	PE

1) If applicable
2) Battery + at HEM1-001
3) Battery - at HEM1-001

Signal Resolver

Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin - / refsin
5	-
6	R1 (ref +)
7	R2 (ref -)
8	-
9	-
10	-
11	Therm. Prot. + / Temp +
12	Therm. Prot. - / Temp -

Signal HIPERFACE®

Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin - / refsin
5	-
6	-
7	GND
8	-
9	US
10	Data +
11	Data -
12	-
13	-
14	Therm. Prot. + / Temp +
15	Therm. Prot. - / Temp -
16	-
17	-

Signal HES/M1

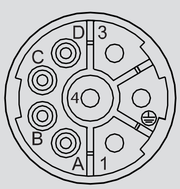
Pin	Function
1	cos +
2	cos - / refcos
3	sin +
4	sin - / refsin
5	V_{CC} / 5 V
6	GND
7	Data +
8	Data -
9	CLK +
10	CLK -
11	Therm. Prot. + / Temp +
12	Therm. Prot. - / Temp -
13	- [2]
14	- [3]
15	-
16	-
17	-

Signal EnDat 2.2

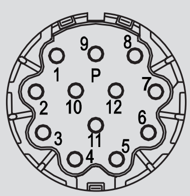
Pin	Function
1	-
2	-
3	-
4	-
5	U_p
6	GND/0V
7	Data +
8	Data -
9	Clock +
10	Clock -
11	Therm. Prot. +
12	Therm. Prot. -
13	-
14	-
15	-
16	-
17	-

Motor connector

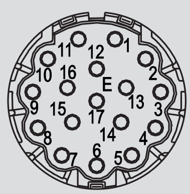
View mating face



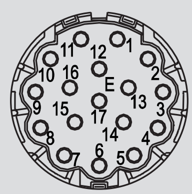
8-pole
4 x Ø 2 mm (3+PE)
+ 4 x Ø 1 mm



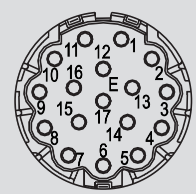
12-pole
12 x Ø 1 mm, 0° coded



17-pole
17 x Ø 1 mm, 0° coded



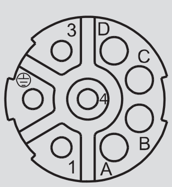
17-pole
17 x Ø 1 mm, 0° coded



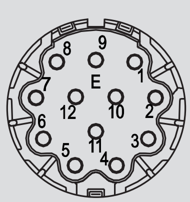
17-pole
17 x Ø 1 mm, 0° coded

Mating connector

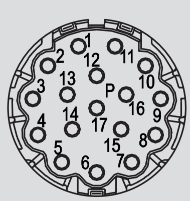
View mating face



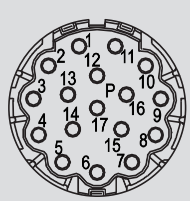
Intercontec type designation
BSTA 078 NN00 42 0100 000
(Cable clamping range
9.5-14.5 mm)



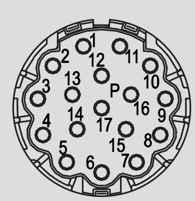
Intercontec type designation
ASTA 013 NN00 41 0100 000
(Cable clamping range
6-10 mm)



Intercontec type designation
ASTA 014 NN00 41 0100 000
(Cable clamping range
6-10 mm)



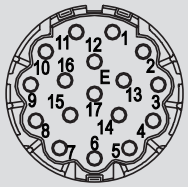
Intercontec type designation
ASTA 014 NN00 41 0100 000
(Cable clamping range
6-10 mm)



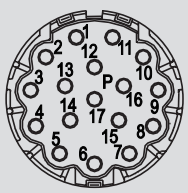
Intercontec type designation
ASTA 014 NN00 41 0100 000
(Cable clamping range
6-10 mm)

Signal CKS36

Pin	Function
1	Z
2	$\overline{Z}$
3	A
4	$\overline{A}$
5	B
6	$\overline{B}$
7	R
8	$\overline{R}$
9	S
10	$\overline{S}$
11	T
12	$\overline{T}$
13	Us
14	GND
15	Therm. Prot. +
16	Therm. Prot. -
17	-



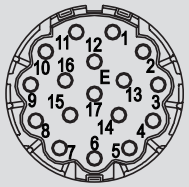
17-pole
17 x Ø 1 mm, 0° coded



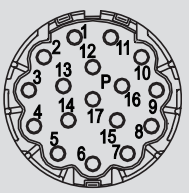
Intercontec type designation
ASTA 014 NN00 41 0100 000
(Cable clamping range
6-10 mm)

Signal HES3

Pin	Function
1	Z
2	$\overline{Z}$
3	A
4	$\overline{A}$
5	B
6	$\overline{B}$
7	U
8	$\overline{U}$
9	V
10	$\overline{V}$
11	W
12	$\overline{W}$
13	V_{CC} / 5 V
14	GND
15	Therm. Prot. +
16	Therm. Prot. -
17	-

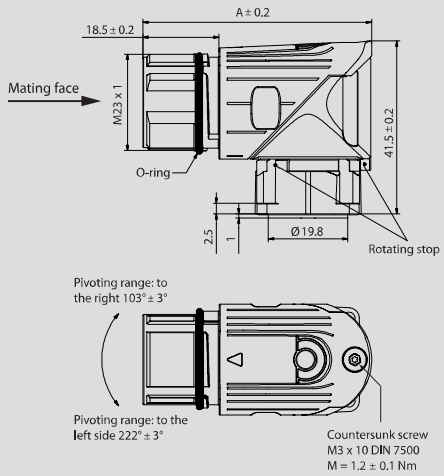


17-pole
17 x Ø 1 mm, 0° coded

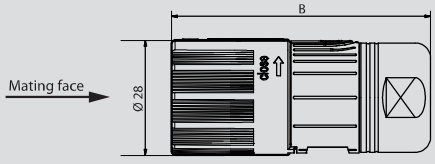


Intercontec type designation
ASTA 014 NN00 41 0100 000
(Cable clamping range
6-10 mm)

Motor connector



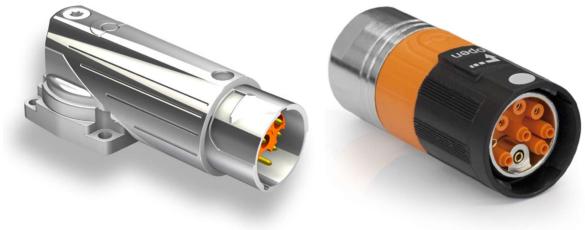
Mating connector



Connector type	A	B
Signal	55.6	59
Power	55.3	78

Option connectors for one cable solution

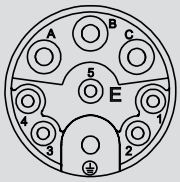
I-Tec connector



Power / Signal

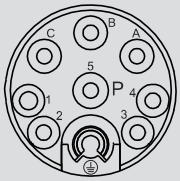
Pin	Function
A	U
B	V
C	W
Grounding	PE
1	U_S (DSL +)
2	GND (DSL -)
3	Brake + *
4	Brake - *
5	-

Motor connector



9-pole
9 x Ø 1 mm (3+PE+5)

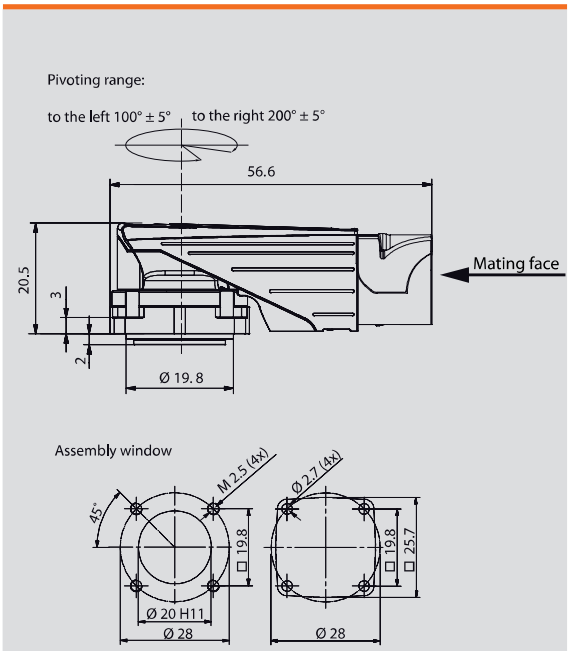
Mating connector



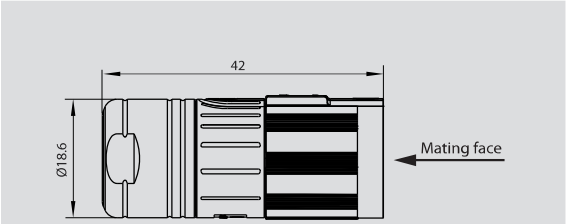
Intercontec type designation
ESTA 202 NN00 34 0500 000
(Cable clamping range 10.5 - 12 mm)

* If available

Motor connector



Mating connector

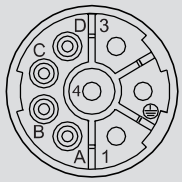


M23 connector

Power / Signal

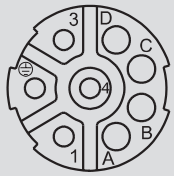
Pin	Function
A	Brake + *
B	Brake - *
C	U_s (DSL+)
D	GND (DSL-)
1	U
4	V
3	W
Grounding	PE

Motor connector



8-pole
4 x Ø 2mm (3+PE) + 4 x Ø 1mm

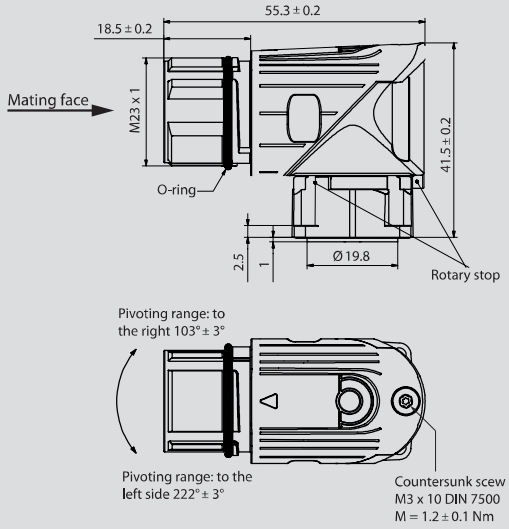
Mating connector



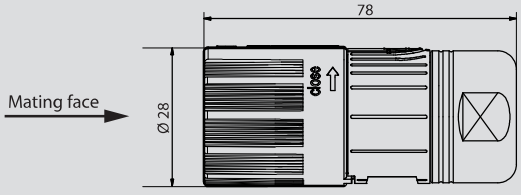
Intercontec type designation
BSTA 078 NN00 42 0100 000
(Cable clamping range 9.5 - 14.5 mm)

* If available

Motor connector



Mating connector



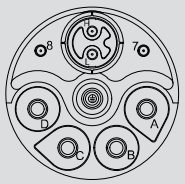
Option connectors for one cable solution

M23 H-Tec (hybrid) connector

Power / Signal

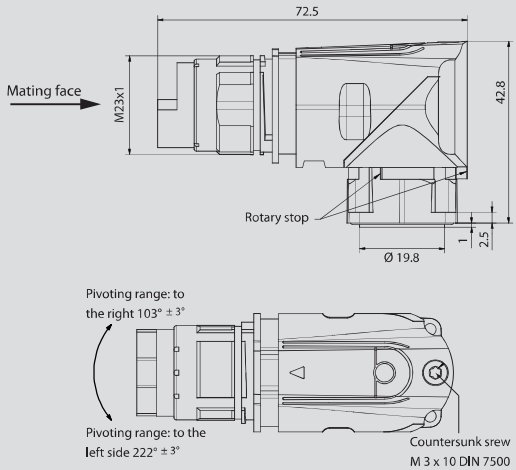
Pin	Function
A	U
B	V
C	W
D	-
Grounding	PE
7	Brake + *
8	Brake - *
H	U_S (DSL +)
L	GND (DSL -)

Motor connector

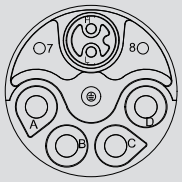


7-pole
5 x Ø 2 mm (4+PE)
+ 2 x Ø 1 mm

Motor connector

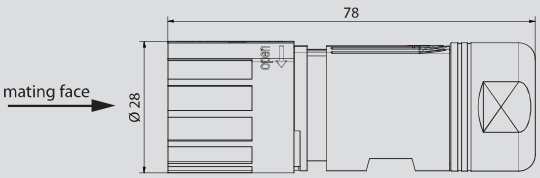


Mating connector



Intercontec type designation
H51A 425 NN00 59 0100 000
(Cable clamping range 14 - 17 mm)

Mating connector



* If available

Servo drives

HCD servo drive - AC 230 V p. 48

The servo drive HCD is specially designed for supply with single-phase mains supply. It can be controlled either via digital and analog inputs, PLC Motion or via the CANopen fieldbus.

HCB servo drive - The compact p. 50

The compact single-axis servo drives of the HCB series are true all-rounders in drive technology. They combine maximum power density with extensive motion control functions.

HCF servo drive - DC 24 / 48 V p. 54

The HCF servo drive is specially designed for direct supply from a 24 / 48 V mains. This enables an extremely compact and cost-optimised design which is limited to the essential elements of the drive unit.

HCJ servo drive - The allrounder p. 56

The modular single-axis servo drives of the HCJ series combine high performance volume and extensive motion control functions in four compact sizes. The high variance of the fieldbus connection and the encoder interfaces enables fast integration into existing industrial plants as well as a solid and future-proof basis for new plants and projects.

HCD servo drive
230 V_{AC}

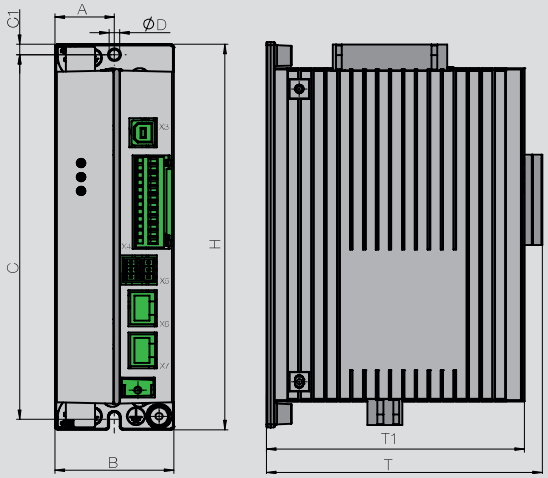
Specifications servo drive

Type	Supply voltage	DC bus voltage	Output Voltage	Continuous output current	Maximum output current	Rated power	Order Code
	[V_{AC}]	[V]	[V_{rms}]	[A_{rms}]	[A_{rms}]	[W]	
HCD	1 x 230	320	3 x 0 - 230	4	8	800	HCD2-004-0011-00

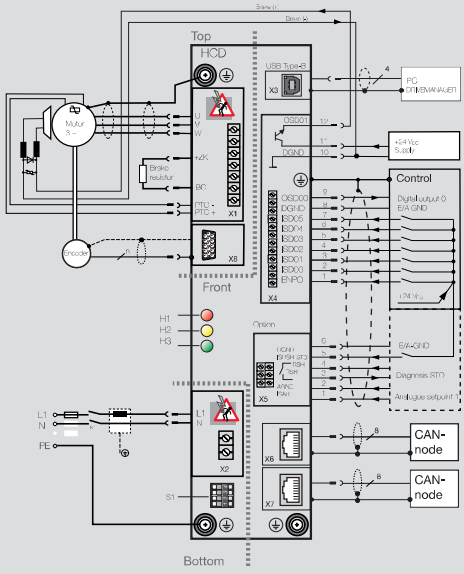
Switch frequency [kHz] 4, 8, 12, 16 (Factory setting 8 kHz)
Power rating [kVA] 1.84
Cable cross-section [mm²] 0.2...1.5
Mains frequency [Hz] 50 / 60 ± 10 %

The small 4-Q-servo-drive HCD has been specially developed for cost-sensitive and simple control tasks, such as speed-, torque-, and position-controlled applications. Its drive controll uses digital- and analogue inputs, PLC Motion or fieldbus (CANopen). Depending on the motor, the HCD has an output power up to 800 W in S1 mode. Our specially developed HES/HEM encoder systems is suitable for this porpuse.

Dimensions



Connection plan



Connections

Type	Connection	Function
H1, H2, H3	Light emitting diodes (integrated)	Device status display
S1	DIP circuit	Setting the CAN address
X2	Plug-in terminal (2-pole)	Single phase supply
PE	PE connection pins	Protective grounding
X4	Plug-in terminal (12-pole)	6 digital inputs 1 digital output Interface for motor brake
X1	Plug-in terminal (7-pole)	Motor phases (U/V/W) Brake resistor (+ZK, BC) Temperature monitoring (PTC+, PTC-)
X3	USB connector (Type-B)	Connection for PC with DriveManager
X6/ X7	2x RJ45 connector	CANopen interface
X8	D-Sub connector (15-pole)	Interface for rotary encoder
X5 (opt.)	Plug-in terminal (6-pole)	Connections for STO functionality (ISDSH, RSH)
X5 (opt.)	Plug-in terminal (6-pole)	Analogue input (ISA00), resolution 10-bit ADC

Ambient conditions

Humidity in operation:	relative humidity 5 - 85 % without condensation
Ambient temperature in operation:	+ 5 °C ... - + 40 °C
Storage humidity:	relative humidity 5 - 95 %
Storage temperature:	- 25 °C ... + 55 °C
Protection class:	IP00
Installation altitude:	up to 1,000 m, up to 2,000 meter with power reduction

Supported encoder systems

SSI, TTL

Interface

CANopen (CiA 402)

Functions

- PLC Motion
- Speed control
- Torque control
- Positioning
- Ramp generator
- Integrated mains filter
- Integrated braking chopper
- UL approval*: Certified according to UL 508c
- Safety function STO

* Valid as long as the prescribed operating conditions are observed.

HCB servo drive

General informations

The compact single-axis servo drives of the HCB series are true all-rounders in drive technology. They combine maximum power density with extensive motion control functions.

The HCB series consists of two sizes, which are divided into two power stages for the 1-phase units and two power stages for the 3-phase units. All proven fieldbus interfaces are „on board“ - from CANopen to EtherCAT to PROFINET, which promise problem-free communication. Its versatility is further underlined by the numerous encoder interfaces, also for single-cable solutions. Complex positioning tasks through linked position sets can be interconnected. The position-synchronous or speed- synchronous motion of various drives with variable gear ratios can be quickly parameterised via the software assistant. Rotary table applications, position triggers, rotor position triggers or switching cams - a wide range of dynamic application tasks can be handled via the integrated software functions.

In combination with the HeiMotion servo motors with precisely matched encoder variant and a gearbox from the HMPG series mounted in the gearbox direct attachment, you get a customized drive axis from a single source at an unbeatable price-performance ratio.

Connections / inputs and outputs

Connection	Function
X1	I/O communication
X2A	Resolver connection
X2B	Multi-encoder connection
X3	STO interface (STOA, STOB), limit switch (DIN6, DIN7) Dig. output (DOUT0)
X4	CANopen
X5	RS232/RS485 / Serial interface
X6	Motor connection
X6A	Motor brake / HIPERFACE DSL® (BL 4300-C)
X9	Voltage supply
X9A	Brake resistor
X9B	24V supply
X18	Ethernet interface
X19	USB interfae
X21	Realtime Ethernet interface

Specifications servo drive

	single-phase		three-phase		
	HCB 2/6-1	HCB 4/12-1	HCB 4/12-3	HCB 8/24-3	HCB 12/30-3
Voltage supply	230 V_{AC} [± 10 %], 50...60 Hz		3 x 230...480 V_{AC} [± 10 %], 45...66 Hz		
Control voltage	24 V_{DC} [± 20 %] (0,35 A)		24 V_{DC} [± 20 %] (0,35 A)	24 V_{DC} [± 20 %] (0,45 A)	24 V_{DC} [± 20 %] (0,65 A)
DC link voltage	325 V_{DC} (with U_{mains} = 230 V_{AC})		565 V_{DC} (with U_{mains} = 400 V_{AC})		
Output power	400 W	800 W	1.6 kW	3.2 kW	4.8 kW
Max. output power for 2 s	1 kW	2 kW	4.8 kW	9.6 kW	12 kW
Rated output current 2 Arms 4 Arms	2 A_{rms}	4 A_{rms}	4 A_{rms}	8 A_{rms}	12 A_{rms}
Max. output current for 2 s Arms	6 A_{rms}	12 A_{rms}	12 A_{rms}	24 A_{rms}	30 A_{rms}
Internal brake resistor	75 Ω		30 Ω		
Continuous power / pulse power	until 2 kW		until 24 kW		
External brake resistor	75 Ω, max. 2 kW		≥ 30 Ω		
Holding brake	24 V_{DC}, max. 2 A		24 VDC, max. 2A		
Dimensions servo drive H x W x D	200 x 50 x 163 mm 245 x 50 x 163 mm with mounting plate		230 x 67 x 200 mm 275 x 67 x 200 mm with mounting plate		
Weight	1,5 kg		2,9 kg		
Encoder evaluation	EnDat 2.2, HIPERFACE®, HIPERFACE DSL®, resolver, analogue and digital incremental encoders with/without commutation signals, BISS (Type C)		EnDat 2.2, HIPERFACE®, HIPERFACE DSL®, resolver, analogue and digital incremental encoders with/without commutation signals, BISS (Type C)		
Interfaces	USB 2.0, Ethernet, CAN-Bus, EtherCAT, PROFINET, MicroSD-Card		USB 2.0, Ethernet, CAN-Bus, EtherCAT, PROFINET, MicroSD-Card		
Inputs / outputs	8 x digital in (24 VDC), 2 x analogue in (± 10 V) 3 x digital out (24 VDC)		8 x digital in (24 VDC), 2 x analogue in (± 10 V) 3 x digital out (24 VDC)		
Product numbers	12-225-020-01-0	12-225-020-02-0	12-405-020-11-0	12-405-020-12-0	12-405-020-13-0

HCB servo drive

Ambient conditions

Ambient temperature in operation:	0 °C to +40 °C +40 °C to +50 °C with power reduction 2.5 %/K
Storage temperature:	-25 °C to +70 °C
Operating and storage humidity:	relative humidity 90 % (without condensation)
Protection class:	IP20
Installation altitude:	Mounting height max. 2000 m above sea level, above 1000 m above sea level with power reduction 1 % per 100 m

Functions*

- Safety function „Safe Torque-Off (STO)
- Realization of functionality SS1 possible
- Switching cams
- Safe Brake Control (SBC) if configured
- Direct control of the holding brake in the motor
- Automatic determination of motor parameters
- Flying Saw
- Path program / linking
- Integrated position control
- Parameterizable belt locks

* Some functions are not available for all models

Power Cable

Length	Heidrive-Nr.
3 m	14-007-051-18-0
5 m	14-007-051-19-0
10 m	14-007-051-23-0

Signal cable (resolver)

Length	Heidrive-Nr.
3 m	14-007-051-60-0
5 m	14-007-051-62-0
10 m	14-007-051-67-0

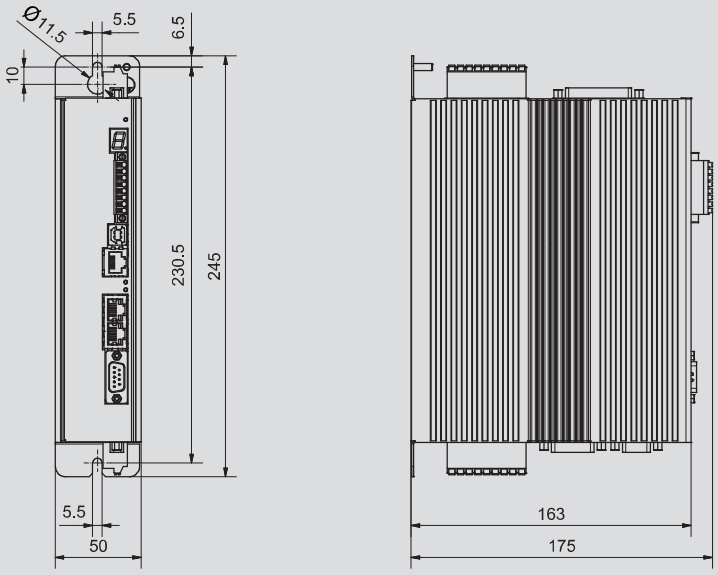
Signal cable (HIPERFACE)

Length	Heidrive-Nr.
3 m	14-007-051-78-0
5 m	14-007-051-80-0
10 m	14-007-051-85-0

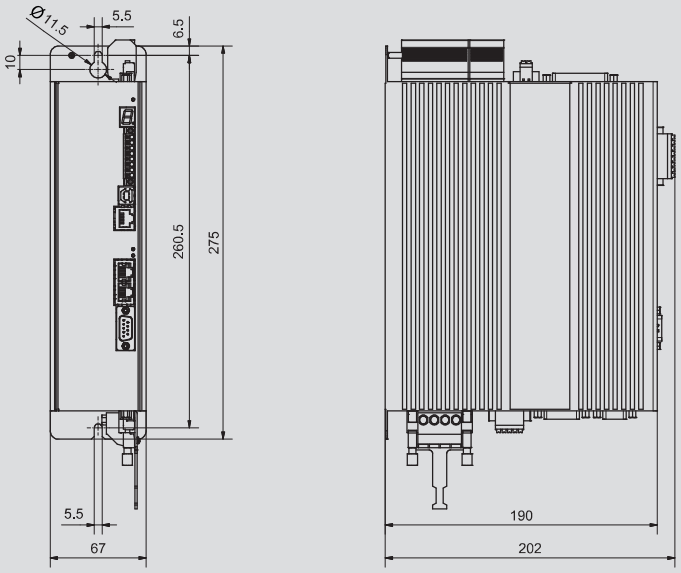
Connector sets

single-phase	three-phase
14-001-015-22-0	14-001-015-35-0

Dimensonal Drawing HCB / single phase



Dimensonal Drawing HCB / three-phase



HCF servo drive
24 to 48 V_{DC}

Specifications servo drive

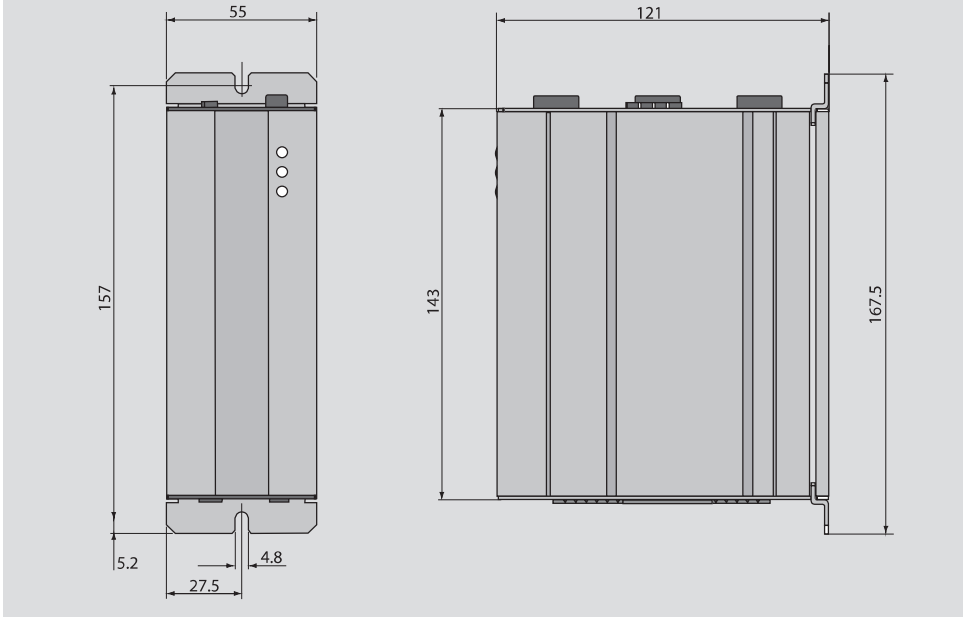
Typ	Supply voltage [V_{DC}]	DC bus voltage [V_{DC}]	Output voltage [V_{rms}]	Continuous output current [A_{rms}]	Maximum output current [A_{rms}]	Rated power [W]	Order code
HCF	24 - 48	24 - 48	3 x 0 - 33	8	16	240	HCF0-008-1x.x.-0

1) 2x rated current for 30 sec

Switch frequency [kHz] 8, 16 (Factory setting 8 kHz)
Power rating [kVA] 0.55
Cable cross-section [mm²] 1.5...2.5
Logic supply [V_{DC}] 24

The HCF servo drive is a cost-optimized, DC powered 24 V or 48 V motor controller for use in the demanding world of precision automation technology. The HCF features high precision positioning functionality, a sturdy mechanical design, CANopen CiA 402 support, safe stop according to Category 3 of IEC 954-1, and much more.

Dimensions (mm)



Connections / inputs and outputs

Type	Connection	Function
X1	Plug-in terminal (6-pole)	DC supply (L+ / L-) Brake resistor (L+ / RB)
X2	Plug-in terminal (2 x 10-pole)	Safe Stop with relay output 8 digital inputs 2 analog inputs 10-bit ADC 3 digital outputs 1 relay output (24 V / 1 A) Logic power supply
X3	Plug-in terminal (4-pole)	Motor phases (U/V/W/PE)
X4	D-sub connector (9-pole)	RS232 interface
X5	D-sub panel connector (9-pole)	CANopen interface
X6	D-sub connector (15-pole)	Interface for rotary encoders with temperature monitoring (PTC / KTY / Klixon)
S1	Rotary code switch	Setting the CANopen address

Ambient conditions

Ambient temperature in operation:	- 10 °C ... + 40 °C
Storage temperature:	- 25 °C ... + 55 °C
Operating and storage humidity:	15 ... 85 % relative humidity (without condensation)
Protection class:	IP20
Installation altitude:	up to 1,000 m

Supported encoder systems

Resolver, Incremental encoder, SSI absolute encoder

Interface

CANopen (CiA 402), RS232

Functions

- Brake driver
- PLC Motion
- DriveManager software
- Online position profile generator
- Integrated braking resistor
- Electronic cam
- Sequenced driving set positioning
- Safe stop according to EN 954-1, category 3

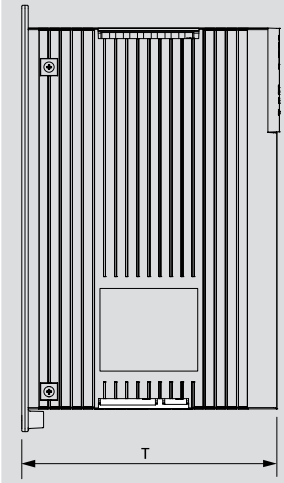
HCJ drive
230 / 400 V_{AC}

Specifications servo drive

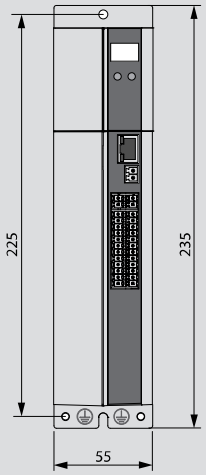
Typ	DC bus voltage	Input voltage	Continuous output current I_N	Maximum output current I_{MAX}	Frame size
	[V]	[V]	[A_{rms}]	[A_{rms}]	
HCJ22.003	325	1 / 3 x230	3	9	size 2
HCJ24.002	560	3 x 400	2	6	size 2
HCJ22.006	325	1 / 3 x 230	5.9	17.7	size 3
HCJ24.004	560	3 x 400	3.5	10.5	size 3
HCJ22.008	325	1 / 3 x 230	8	24	size 4
HCJ24.007	560	3 x 400	6.5	19.5	size 4
HCJ24.012	560	3 x 400	12	36	size 5
HCJ24.016	560	3 x 400	16	48	size 5

Mains frequency [Hz] 50 / 60 ± 10 %

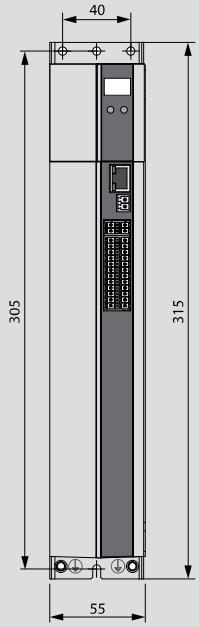
size 2/3/4



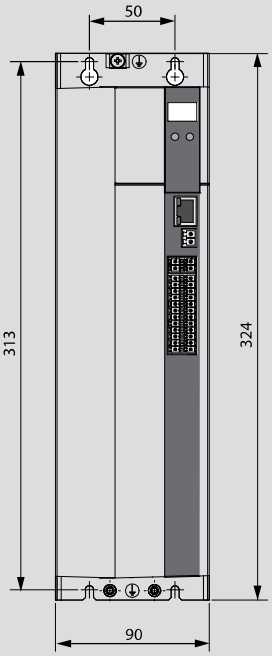
size 2/3



size 4



size 5



Type	T	Weight
size 2	142 mm	1.0 kg
size 3	189 mm	1.5 kg
size 4	235.5 mm	2.8 kg
size 5	235.5 mm	5.5 kg / 5.9 kg

Connections / inputs and outputs

Connection	Name	Function
X1	Plug-in terminal (7-pole)	Motor phases (U/V/W/PE) DC-link (L+/L-) Brake resistor (L+/RB)
X2	Plug-in terminal (2-pole)	Logic supply + 24 V_{DC}
X3	Plug-in terminal (4-pole)	Mains supply (L1/L2/L3/PE)
X4	Plug-in terminal (2x 10-pole)	7 digital inputs 2 analog inputs (10-bit ADC) 3 digital outputs 1 relay (24 V / 1 A) diagnosis STO
X5	Plug-in terminal (2-pole)	Temperature monitoring (PTC / KTY / Klixon)
X6	D-sub connector (9-pole)	Interface for resolver
X7	D-sub connector (15-pole)	Interface for rotary encoders (TTL / SSI / HIPERFACE / ENDAT)
X9	RJ-45 connector	Interface for Ethernet
X13	Plug-in terminal (4-pole)	Interface for motor brake
Option 1	Connector (depending on module)	Fieldbus interface e.g. CANopen, EtherCAT, SERCOS, ...
Option 2	Connector (depending on module)	Encoder interface e.g. second (safe) encoder, Encoder simulation, TwinSync, axis monitoring, ...

Ambient conditions

Ambient temperature in operation:	- 10 °C ... + 40 °C
Storage temperature:	- 25 °C ... + 55 °C
Operating and storage humidity:	< 85 % relative humidity (without condensation)
Protection class:	IP20 except clamps (IP00)
Installation altitude:	up to 1,000 m

Supported encoder systems

Resolver, HIPERFACE® encoder, HIPERFACE DSL® encoder, Incremental encoder, SSI absolute encoder
EnDat 2.2 encoder

Interface

CANopen (CiA 402), Ethernet (parameterization via DriveManager software)

Optional: EtherCAT, SERCOS III, Profibus DP or Profinet IRT

Functions

- PLC Motion
- Brake driver
- Sequenced driving set positioning
- Online position profile generator
- DriveManager software
- Integrated braking resistor (size 3+4)
- Safe stop according to EN 954-1, category 3
- Radio interference filters (RFI) up to 7.5 kW
- Electronic cam

Notes

Technical data subject to change! Last changes: 04/2022

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