2.3 Technical data EM1

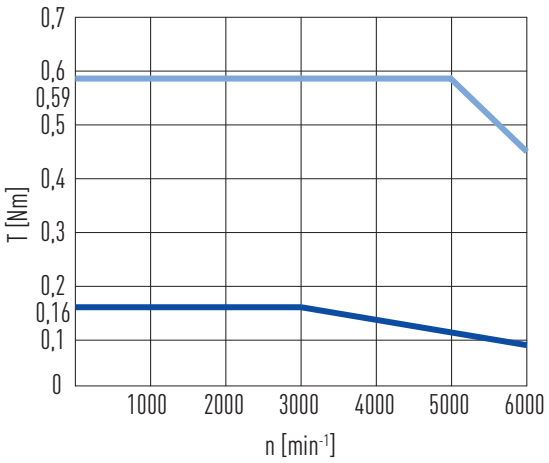
2.3.1 AC servo motor EM1 – 50 W

Table 2.3 **Technical data EM1 – 50 W**

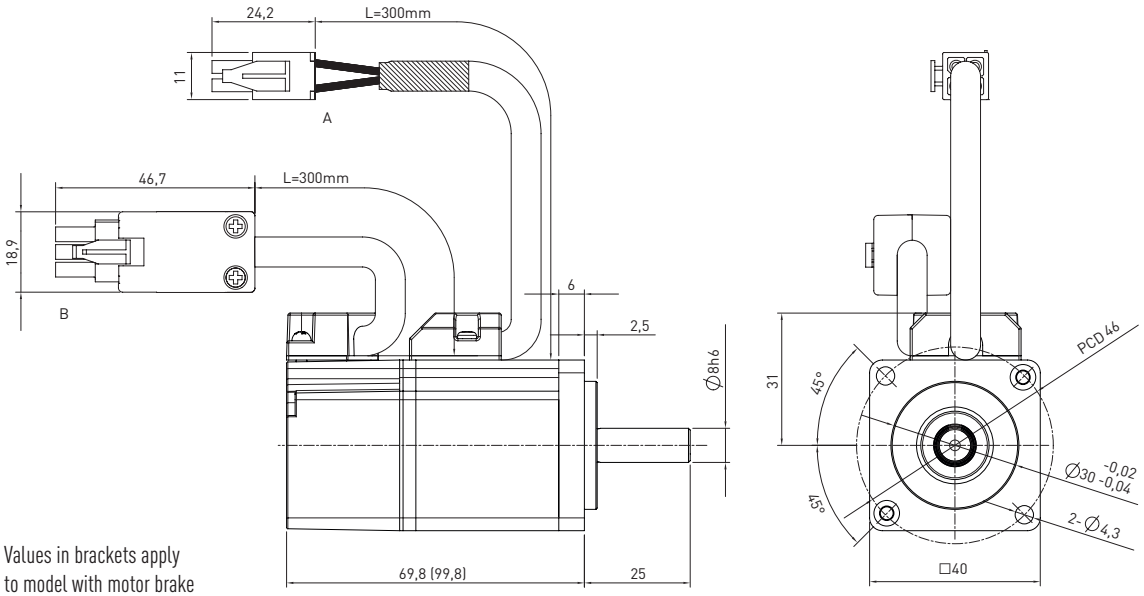
Motor data	Symbol	Unit	EM1-05
Drive input voltage	V	VAC	230
Rated power	W	W	50
Rated torque	T_C	Nm	0.16
Rated current	I_C	A_{eff}	0.64
Peak max. torque	T_P	Nm	0.59
Peak max. current	I_P	A_{eff}	2.8
Rated speed	n_N	rms	3,000
Peak max. speed	n_{max}	rms	6,000
Torque constant	K_t	Nm/A_{eff}	0.25
Back EMF constant	K_e	V_{eff}/(1,000 rms)	18.526
Resistance [1]	R	Ω	25.24
Inductance [1]	L	mH	13.09
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	0.0368 (0.0401)
Mass (with brake)	M	kg	0.36 (0.56)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	0.32
Enabled current	A_b	A	0.25
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	40
Release time	t_R	ms	20

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 50 W



Dimensions EM1 – 50 W:



Values in brackets apply to model with motor brake

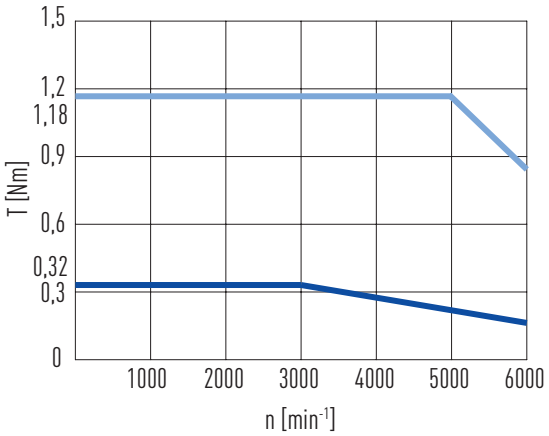
2.3.2 AC servo motor EM1 – 100 W

Table 2.4 **Technical data EM1 – 100 W**

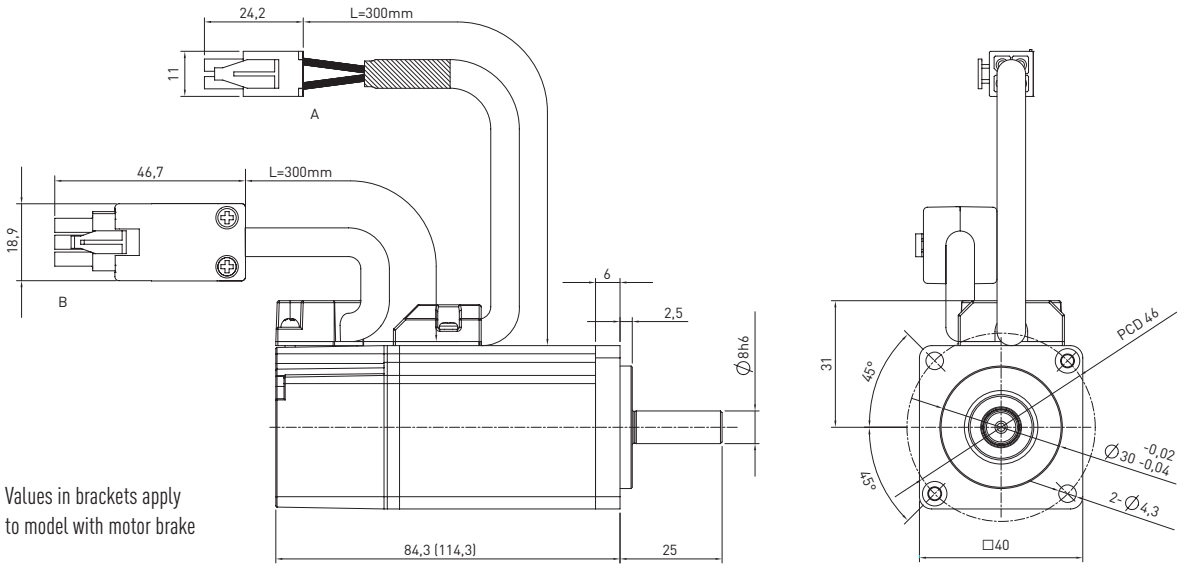
Motor data	Symbol	Unit	EM1-10
Drive input voltage	V	VAC	230
Rated power	W	W	100
Rated torque	T_C	Nm	0.32
Rated current	I_C	A_{eff}	0.78
Peak max. torque	T_P	Nm	1.18
Peak max. current	I_P	A_{eff}	3.45
Rated speed	n_N	rms	3,000
Peak max. speed	n_{max}	rms	6,000
Torque constant	K_t	Nm/A_{eff}	0.41
Back EMF constant	K_e	V_{eff}/(1,000 rms)	28.364
Resistance [1]	R	Ω	22.72
Inductance [1]	L	mH	13.86
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	0.0620 (0.0653)
Mass (with brake)	M	kg	0.47 (0.67)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	0.32
Enabled current	A_b	A	0.25
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	40
Release time	t_R	ms	20

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 100 W:



Dimensions EM1 – 100 W:



Values in brackets apply to model with motor brake

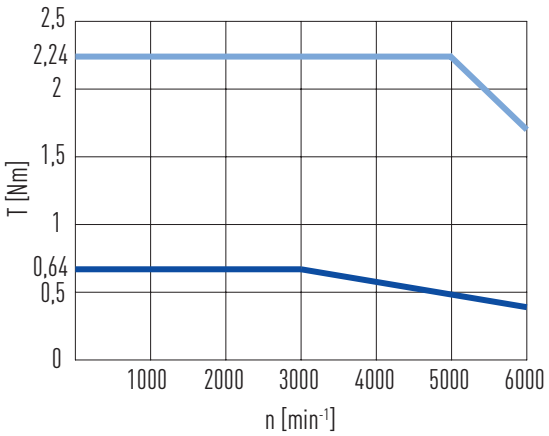
2.3.3 AC servo motor EM1 – 200 W

Table 2.5 **Technical data EM1 – 200 W**

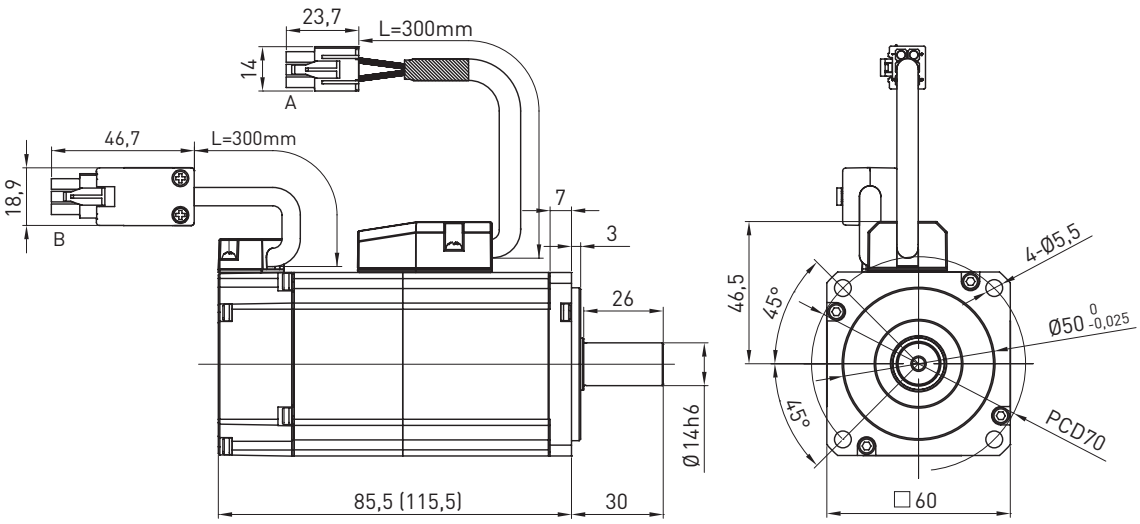
Motor data	Symbol	Unit	EM1-20
Drive input voltage	V	VAC	230
Rated power	W	W	200
Rated torque	T_C	Nm	0.64
Rated current	I_C	A_{eff}	1.6
Peak max. torque	T_P	Nm	2.24
Peak max. current	I_P	A_{eff}	6.4
Rated speed	n_N	rms	3,000
Peak max. speed	n_{max}	rms	6,000
Torque constant	K_t	Nm/A_{eff}	0.4
Back EMF constant	K_e	V_{eff}/(1,000 rms)	27.23
Resistance [1]	R	Ω	5.53
Inductance [1]	L	mH	8.76
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	0.263 (0.326)
Mass (with brake)	M	kg	0.851 (1.085)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	1.3
Enabled current	A_b	A	0.32
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_D	ms	30
Release time	t_R	ms	20

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 200 W:



Dimensions EM1 – 200 W:



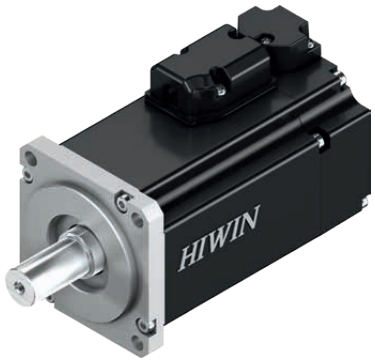
Values in brackets apply to model with motor brake

2.3.4 AC servo motor EM1 – 400 W

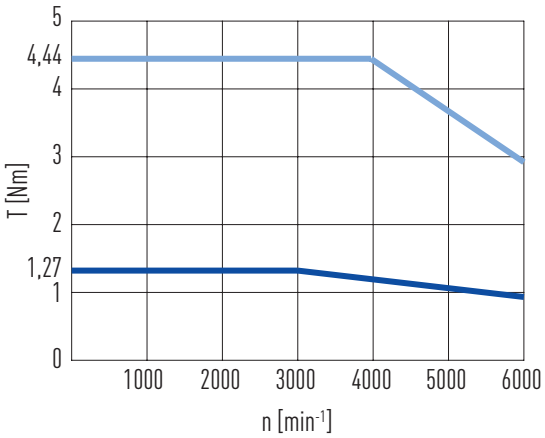
Table 2.6 **Technical data EM1 – 400 W**

Motor data	Symbol	Unit	EM1-40
Drive input voltage	V	VAC	230
Rated power	W	W	400
Rated torque	T_C	Nm	1.27
Rated current	I_C	A_{eff}	2.5
Peak max. torque	T_P	Nm	4.44
Peak max. current	I_P	A_{eff}	10
Rated speed	n_N	rms	3,000
Peak max. speed	n_{max}	rms	6,000
Torque constant	K_t	Nm/A_{eff}	0.508
Back EMF constant	K_e	V_{eff}/(1,000 rms)	33.87
Resistance [1]	R	Ω	3.59
Inductance [1]	L	mH	7.22
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	0.48 (0.49)
Mass (with brake)	M	kg	1.25 (1.8)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	1.3
Enabled current	A_b	A	0.32
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	30
Release time	t_R	ms	20

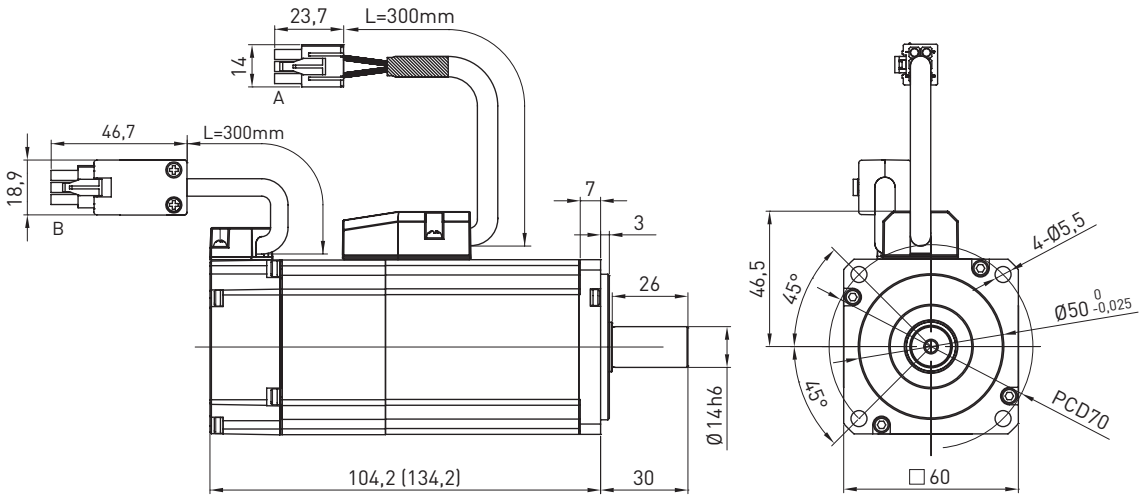
[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes



Torque-speed curve EM1 – 400 W:



Dimensions EM1 400 – W:



Values in brackets apply to model with motor brake

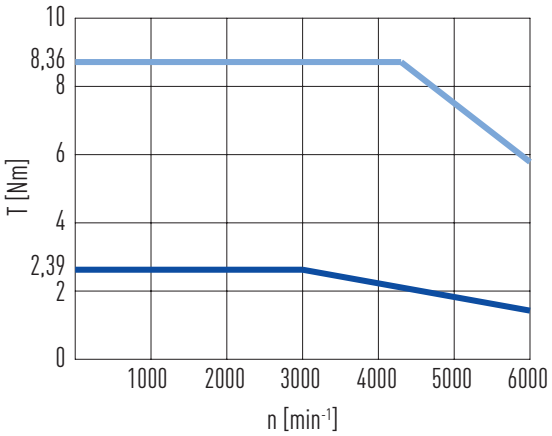
2.3.5 AC servo motor EM1 – 750 W

Table 2.7 **Technical data EM1 – 750 W**

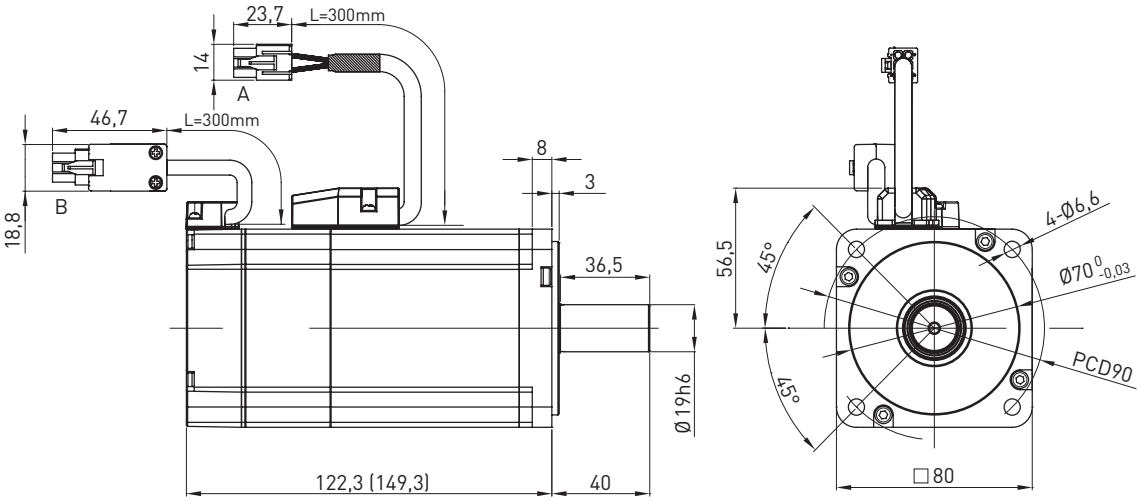
Motor data	Symbol	Unit	EM1-75
Drive input voltage	V	VAC	230
Rated power	W	W	750
Rated torque	T_C	Nm	2.39
Rated current	I_C	A_{eff}	4.65
Peak max. torque	T_P	Nm	8.36
Peak max. current	I_P	A_{eff}	18.6
Rated speed	n_N	rms	3,000
Peak max. speed	n_{max}	rms	6,000
Torque constant	K_t	Nm/A_{eff}	0.514
Back EMF constant	K_e	V_{eff}/(1,000 rms)	33.48
Resistance [1]	R	Ω	1.08
Inductance [1]	L	mH	4.6
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	1.44 (1.47)
Mass (with brake)	M	kg	2.7 (3.36)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	2.4
Enabled current	A_b	A	0.358
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_D	ms	45
Release time	t_R	ms	10

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 750 W:



Dimensions EM1 – 750 W:



Values in brackets apply to model with motor brake

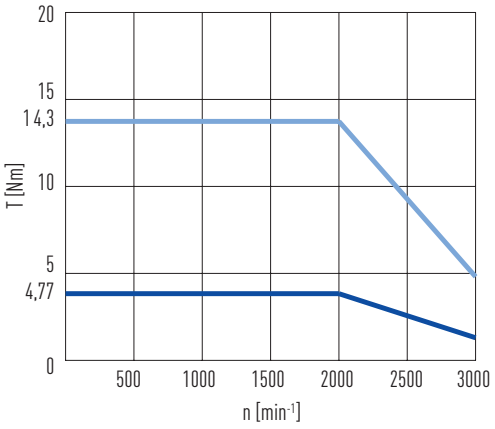
2.3.6 AC servo motor EM1 – 1,000 W

Table 2.8 **Technical data EM1 – 1,000 W**

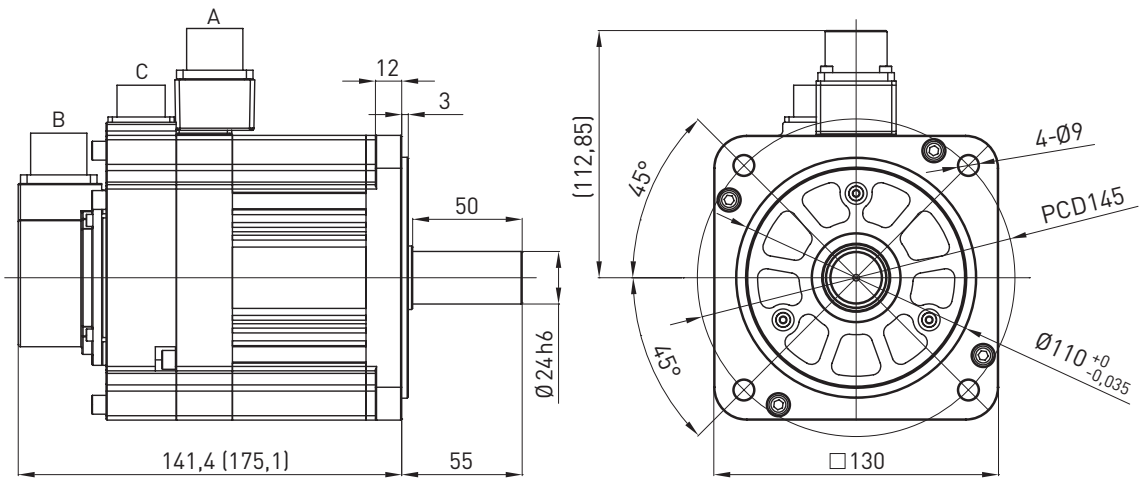
Motor data	Symbol	Unit	EM1-1K
Drive input voltage	V	VAC	230
Rated power	W	W	1,000
Rated torque	T_C	Nm	4.77
Rated current	I_C	A_{eff}	5.1
Peak max. torque	T_P	Nm	14.3
Peak max. current	I_P	A_{eff}	15.3
Rated speed	n_N	rms	2,000
Peak max. speed	n_{max}	rms	3,000
Torque constant	K_t	Nm/A_{eff}	0.935
Back EMF constant	K_e	V_{eff}/(1,000 rms)	54.15
Resistance [1]	R	Ω	0.81
Inductance [1]	L	mH	8
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	7.2 (8.0)
Mass (with brake)	M	kg	5.4 (6.2)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	10
Enabled current	A_b	A	0.56
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	80
Release time	t_R	ms	30

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 1,000 W:



Dimensions EM1 – 1,000 W:



Values in brackets apply to model with motor brake

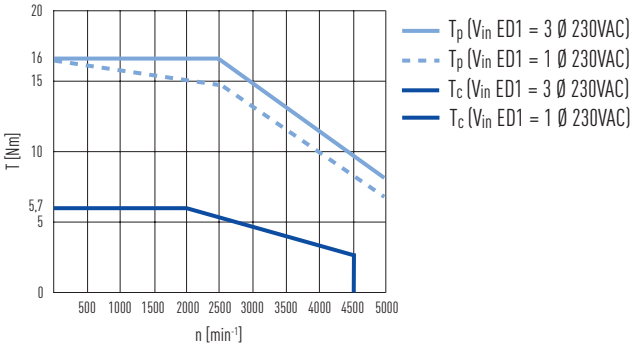
2.3.7 AC servo motor EM1 – 1,200 W

Table 2.9 **Technical data EM1 – 1,200 W**

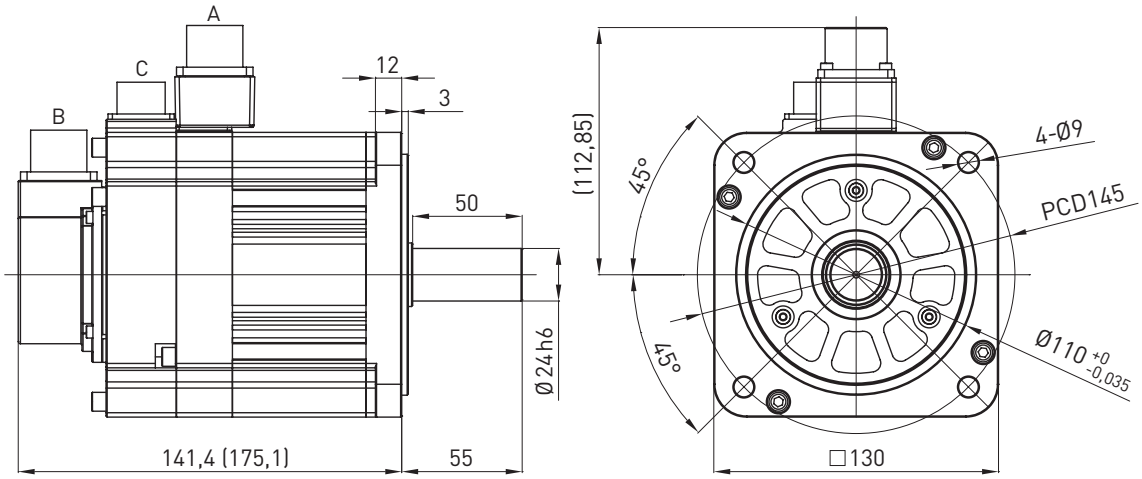
Motor data	Symbol	Unit	EM1-1A
Drive input voltage	V	VAC	230
Rated power	W	W	1,200
Rated torque	T_C	Nm	5.73
Rated current	I_C	A_{eff}	9.1
Peak max. torque	T_P	Nm	16
Peak max. current	I_P	A_{eff}	27
Rated speed	n_N	rms	2,000
Peak max. speed	n_{max}	rms	5,000
Torque constant	K_t	Nm/A_{eff}	0.63
Back EMF constant	K_e	V_{eff}/(1,000 rms)	41.52
Resistance [1]	R	Ω	0.482
Inductance [1]	L	mH	4.54
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	7.2 (8.0)
Mass (with brake)	M	kg	5.3 (6.1)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	10
Enabled current	A_b	A	0.56
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	80
Release time	t_R	ms	30

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 1,200 W:



Dimensions EM1 – 1,200 W:



Values in brackets apply to model with motor brake

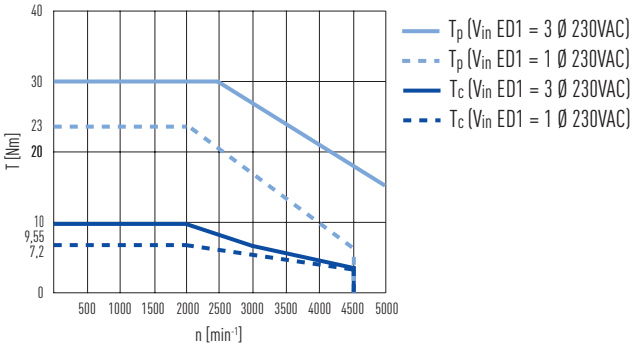
2.3.8 AC servo motor EM1 – 2,000 W

Table 2.10 **Technical data EM1 – 2,000 W**

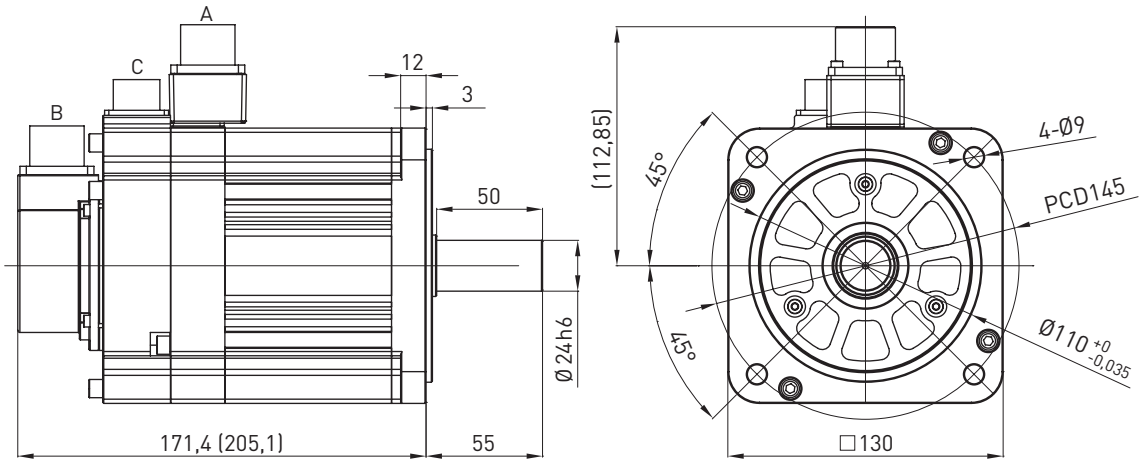
Motor data	Symbol	Unit	EM1-2K
Drive input voltage	V	VAC	230
Rated power	W	W	2,000
Rated torque	T_C	Nm	9.55
Rated current	I_C	A_{eff}	12
Peak max. torque	T_P	Nm	30
Peak max. current	I_P	A_{eff}	42
Rated speed	n_N	rms	2,000
Peak max. speed	n_{max}	rms	5,000
Torque constant	K_t	Nm/A_{eff}	0.796
Back EMF constant	K_e	V_{eff}/(1,000 rms)	50.49
Resistance [1]	R	Ω	0.264
Inductance [1]	L	mH	2.825
Inertia of rotating parts (with brake)	J	kgm^2 ($\times 10^{-4}$)	12.8 (13.3)
Mass (with brake)	M	kg	7.9 (8.7)
Motor insulation level	Class F (under certification)		
Motor protection level	Total enclosed, self-cooled, IP65 (except for shaft and connector)		
Insulation resistance	10 MΩ, DC 500 V		
Insulation voltage resistance	AC 1500 V, 60 seconds		
Brake specifications [2]			
Static friction torque	T_b	Nm	10
Enabled current	A_b	A	0.56
Brake input voltage	V	VDC	24 ±10 %
Braking time	t_0	ms	80
Release time	t_R	ms	30

[1] Line to line
[2] The motor brakes are holding brakes only, not operating brakes

Torque-speed curve EM1 – 2,000 W:



Dimensions EM1 – 2,000 W:



Values in brackets apply to model with motor brake