



DYNASYN
Servo Motors DT and DP.
Dynamic. Compact. Powerful.

AMK





DYNASYN synchronous servo motors.

Five decades of experience in motor construction paired up with extensive expertise and innovative spirit result in a comprehensive range of motors characterized particularly by their outstanding power density and energy efficiency.

The synchronous servo motors of the DYNASYN series are optimized for high dynamics and compact dimensions. This results in extremely flexible automation options. Servo motors from AMK don't just make machines and systems more dynamic and economical, they also make them more energy efficient. All AMK motors are developed and produced in-house thanks to a high level of technical competence and innovative spirit. We keep a dialog going with the customer and can implement the optimum drive solution for any application thanks to the solution-oriented nature of our development department. We draw on a broad range of models with a wide variety of power classes, designs and encoder types.

As a result of our comprehensive experience and technological competence, we are able to offer you an extensive spectrum of motors which we have developed and produced ourselves. In addition to our standard motor line described in this brochure, other designs such as specially developed motors, integrated motors and hollow-shaft motors are available (these are described in the "SPINDASYN" brochure).

Overview



Type key

D T 3 - x - 10 - x x x - xxxx

D	T	K	4	12	R	B	O	
P			5	20	E, F	O	F	
			7		P, Q	W		No-load speed
			10		U, V			Cooling type (O=convection; F=fan; W=liquid)
			13					B= with brake; O=no brake
								Encoder type (R=resolver, optional; E, P, U=single-turn; F, Q, V=multi-turn)
								Number of poles
								Approx. continuous standstill torque in Nm
								Size
								Short version
								Motor families (T = Torque; P= Power)
								DYNASYN three-phase motor

DT DYNASYN Torque

	Square flange	Standstill data		Rating					Maximum data		Electrical data		Mechanical data				
Motor type DT	mm	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT motors, convection-cooled, <i>Pages 8 to 17</i>																	
DT3-0.5-10-Rx0-9000	55	0.64	1.08	0.54	0.34	0.91	6000	0.59	1.9	4	20	10.2	9000	0.1	114	144	0.8
DT3-1-10-Rx0-9000		1.59	3.25	0.94	0.59	2.18		0.49	4.5	9.6	4.7	4.3		0.27	174	204	1.9
DT4-1-10-Rx0-6000	70	1.25	1.32	1	0.44	1.1	4000	0.95	3.9	4	43	24	6000	0.38	110.5	143.5	2.3
DT4-2-10-Rx0-6000		2.4	2.55	1.9	0.8	2.0		0.94	6.4	6.3	16	8.5		0.75	142	175	2.7
DT4-4-10-Rx0-5000		3.9	4.53	2.33	0.98	2.7		0.86	14	16	5.4	3	5000	1.5	205	238	3.5
DT5-3-10-Rx0-5300	100	3.1	3.1	2.4	1.1	2.4	4500	1	8.6	9.9	12.9	5	5300	1.4	135.5	168.5	3.65
DT5-5-10-Rx0-5000		5.7	5.28	4.4	1.61	4.1	3500	1.08	17.3	20	7.2	2.47	5000	2.8	167	200	4.9
DT5-9-10-Rx0-3800		9.8	6.5	6.8	2.1	4.6	3000	1.5	39	33	6.4	1.93	3800	5.4	230	263	7.4
DT7-11-20-xx0-3500	142	10	6.62	6.6	1.9	4.4	2800	1.51	39	33	6	2.48	3500	15.2	202.5	231.5	9.3
DT7-17-20-xx0-3500		17	11.3	11	2.8	7.2	2500	1.5	60	50	3.3	0.92		28.4	232.5	261.5	14.2
DT7-28-20-xx0-2000		28	10.4	19	3	7.2	1500	2.68	140	67	6	1.2	2000	54.6	292.5	321.5	18.9
DT7-40-20-xx0-2000		42	15.2	29	3	10.5	1000	2.76	175	100	3.1	0.66		80.9	352.5	381.5	25.4
DT10-54-20-xx0-1500	190	51.3	13.2	33	3.5	9	1000	3.9	163	60	5.8	0.69	1500	173	298	359	32
DT10-95-20-xx0-700		90	12.3	73	3.8	10	500	7.3	300	47	9.6	1.03	700	339	418	479	53
DT motors, short version, convection-cooled, <i>Pages 18 to 21</i>																	
DTK5-3-10-xx0-5300	100	5.7	5.28	4.4	1.61	4.1	3500	1.08	17.3	20	7.2	2.47	5000	2.8	114.5	150	4.9
DTK7-11-20-xx0-3500	142	10	6.62	6.6	1.9	4.4	2800	1.51	39	33	8.4	2.48	3500	14	145	182	9.3
DT motors, fan-cooled, <i>Pages 22 to 25</i>																	
DT7-57-20-xxF-3900	142	61	25	28	5.8	12.5	2000	2.4	141	67	1.9	0.38	3900	80.9	355.5	384.5	29.9
DT10-127-20xxF-2300	190	160	80	83	13	40	1500	2	360	198	0.5	0.077	2300	339	419.5	480.5	67
DT motors, liquid-cooled, <i>Pages 26 to 33</i>																	
DT5-20-10-xxW-3600	100	20	13.3	17.5	5.5	11.6	3000	1.5	39	33	5.1	1.9	3600	5.5	256	276	8.6
DT5-30-10-xxW-6900		33	60	19	11.6	33.5	6000	0.55	58.5	132	0.5	0.147	6900	8.3	316	336	12.4
DT7-75-20-xxW-3500	150	75	51	66	21	48	3000	1.48	120	99	1.25	0.294	3400	55	298	342	3
DT7-110-20-xxW-3700		110	74	90	28.1	64		1.55	156	116	0.78	0.153	3700	81	348	392	28.5
DT7-145-20-xxW-4000		145	96	114	35.9	82		1.51	220	200	0.5	0.122	3600	107	408	452	35.7
DT10-120-20-xxW-2500	200	121	69	107	16.8	62	1500	1.75	160	132	1.3	0.153	2500	175	293	354	32
DT10-220-20-xxW-2400		215	99	175	36.6	85	2000	2.2	370	200	0.5	0.076	2400	339	413	474	55
DT10-320-20-xxW-2400		320	160	270	23.5	142	1500	2	530	330	0.4	0.052		504	533	594	75
DT13-360-20-xxW-2400	260	360	157	240	45.2	103	1800	2.3	640	330	0.2	0.052	2400	1260	1260	414	88
DT13-440-20-xxW-2200		430	165	325	61	125	1800	2.6	740	330	0.3	0.041	2200	1620	1620	474	112
DT13-650-20-xxW-1600		666	210	546	86	154	1500	3.3	1160	400	0.083	0.044	1600	2350	2350	594	160

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

DP DYNASYN Power

Motor type DP	Square flange	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	mm	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	LBR [mm]	m [kg]
DP motors, convection-cooled, <i>Pages 36/37</i>																	
DP7-20-10-xx0-4000	142	25	17.9	13.2	4.1	9.4	3000	1.4	62	67	13.0	0.46	4000	16.3	300	335.5	19
DP7-30-10-xx0-4000	142	31	25	16	5.9	12.9	3500	1.24	66	67	1.24	0.204	4000	24.0	360	395.5	24.5
DP motors, liquid-cooled, <i>Pages 38/39</i>																	
DP13-300-12-xxW-3000	260	300	143	260	54	123	2000	2.1	560	300	0.5	0.063	3000	958	958	465	105
DP13-460-12-xxW-2000	260	430	165	415	65.2	159	1500	2.61	760	330	0.7	0.071	2000	1250	1250	521.5	128
DP13-600-12-xxW-1200	260	660	157	650	68	154	1000	4.2	1150	330	1.1	0.104	1200	1830	1830	642	162

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K





DYNASYN Motor series DT.

High torques.

The DYNASYN DT series is a high-torque series of motors developed specifically for high torque densities. Their strength is evidenced in applications with intermittent operation. Thanks to their high overload capacity, these motors are absolutely ideal for peak loads like those required with tool machines, injection molding machines, robotics and packaging machines.

The DYNASYN DT synchronous motors are available convection-cooled, fan-cooled and liquid-cooled. For use under conditions of limited space, the convection-cooled variant of the DT series is also available in a short version.

DT3 convection-cooled servo motors



BENEFITS

- Very high standstill torques in relation to the shaft height
- High torque and power density
- High overload capacity
- Maximum dynamics with acceleration values of up to 160,000 rad/s²
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with or without gearbox
- For intermittent operation
- Variable-speed drive for continuous running

Connection cable:

Rated cross-section of copper conductor: 1.5 mm²

Power connector size 1

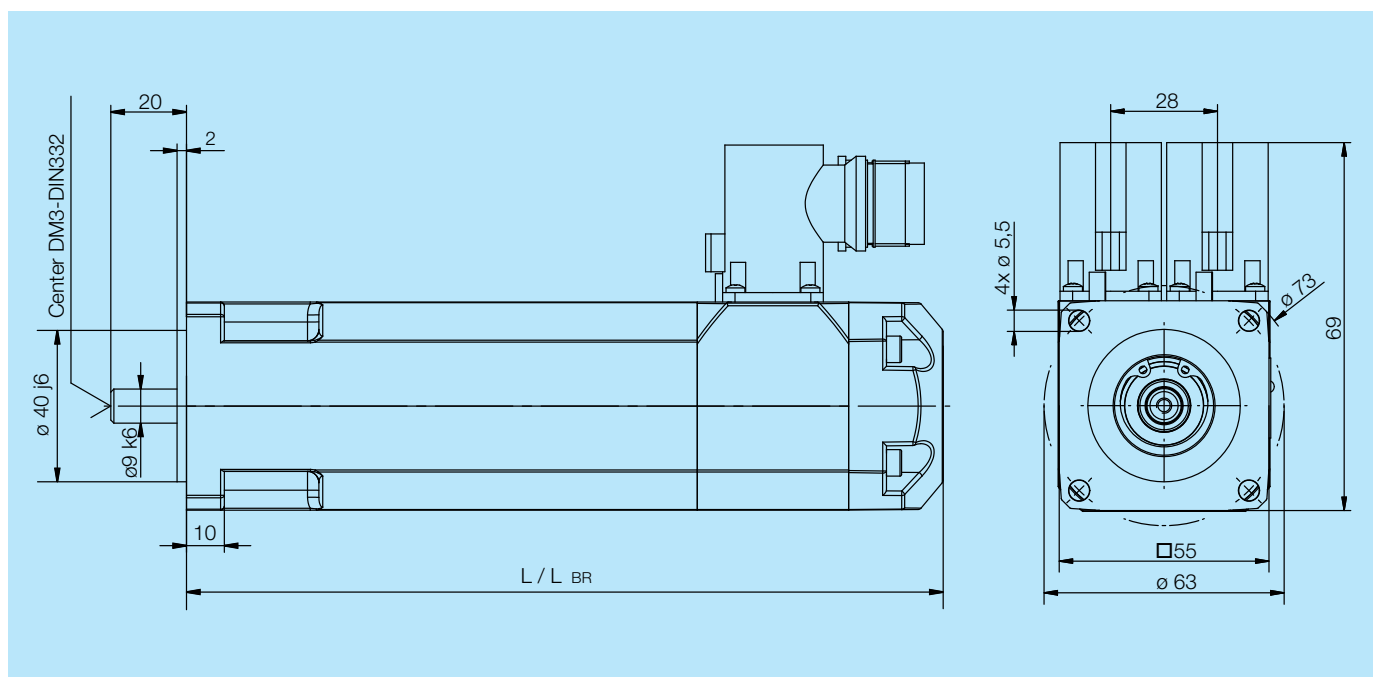
Equipment	Standard	Option
Brake	–	1.1 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A3x3x12

Technical data

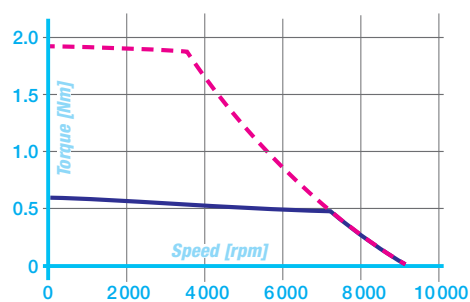
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT3-0.5-10-Rx0-9000	0.64	1.08	0.54	0.34	0.91	6000	0.59	1.9	4	20	10.2	9000	0.1	114	144	0.8
DT3-0.5-10-xx0-9000														126	156	
DT3-1-10-Rx0-9000	1.59	3.25	0.94	0.59	2.18	6000	0.49	4.5	9.6	4.7	4.3	9000	0.27	174	204	1.9
DT3-1-10-xx0-9000														186	216	

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

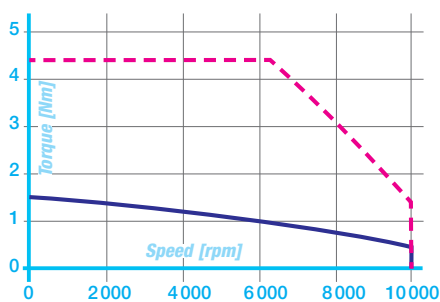
Dimensions



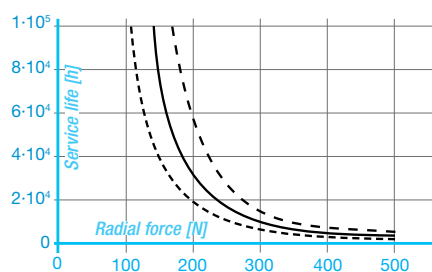
Characteristics



DT3-0.5-10-xx0-9000



DT3-1-10-xx0-9000



Bearing service life (L10h)

DT 4 convection-cooled servo motors



BENEFITS

- Very high standstill torques in relation to the shaft height
- High torque and power density
- High overload capacity
- Maximum dynamics with acceleration values of up to 100,000 rad/s²
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with or without gearbox
- For intermittent operation
- Variable-speed drive for continuous running

Connection cable:

Rated cross-section of copper conductor: 1.5 mm², Power connector size 1

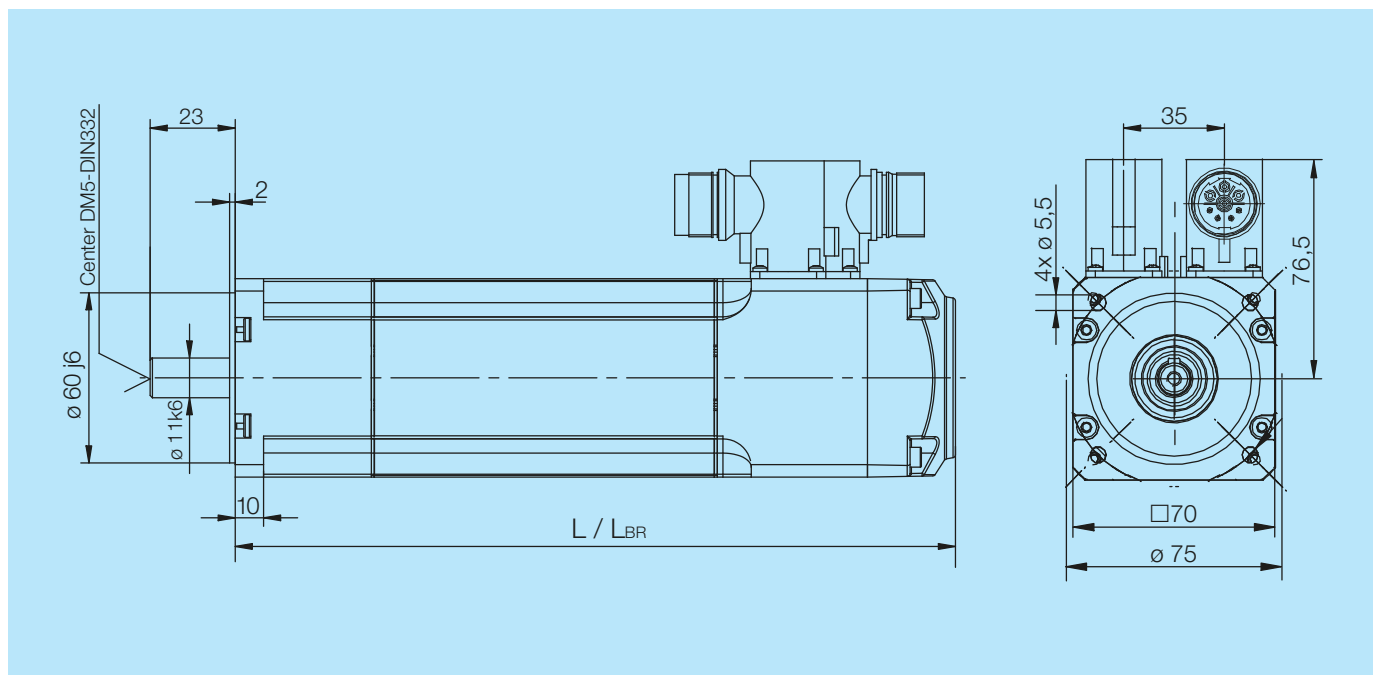
Equipment	Standard	Option
Brake	—	4.5 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A3x3x12

Technical data

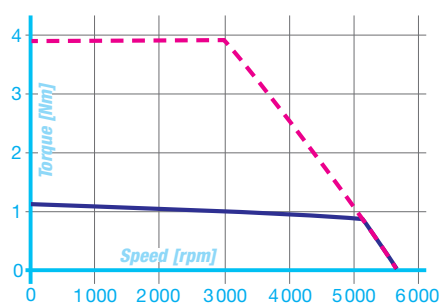
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT4-1-10-Rx0-6000	1.25	1.32	1	0.44	1.1	4000	0.95	3.9	4	43	24	6000	0.38	110.5	143.5	2.3
DT4-1-10-xx0-6000														131.5	164.5	
DT4-2-10-Rx0-6000	2.4	2.55	1.9	0.80	2	4000	0.94	6.4	6.3	16	8.5	6000	0.75	142	175	2.7
DT4-2-10-xx0-6000														163	196	
DT4-4-10-Rx0-5000	3.9	4.53	2.33	0.98	2.7	4000	0.86	14	16	5.4	3	5000	1.5	205	238	3.5
DT4-4-10-xx0-5000														226	259	

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

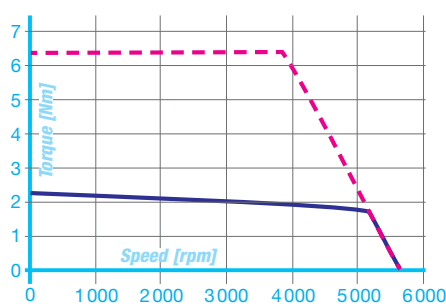
Dimensions



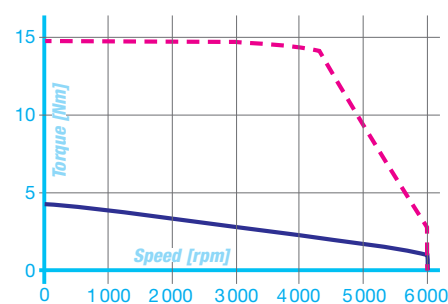
Characteristics



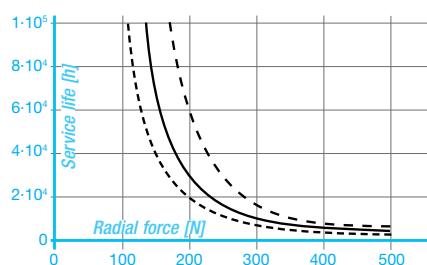
DT4-1-10-xx0-6000



DT4-2-10-xx0-6000



DT4-4-10-xx0-5000



Bearing service life (L_{10h})

DT 5 convection-cooled servo motors



BENEFITS

- Very high efficiency
- High standstill torques
- High torque and power density
- Maximum dynamics
- Very low cogging under torque pulsation
- IP65 degree of protection

Applications

- Positioning and actuating drive for drive tasks with or without gearbox
- For intermittent operation
- Variable-speed drive for continuous running

Connection cable:

Rated cross-section of copper conductor: 1.5 mm², Power connector size 1

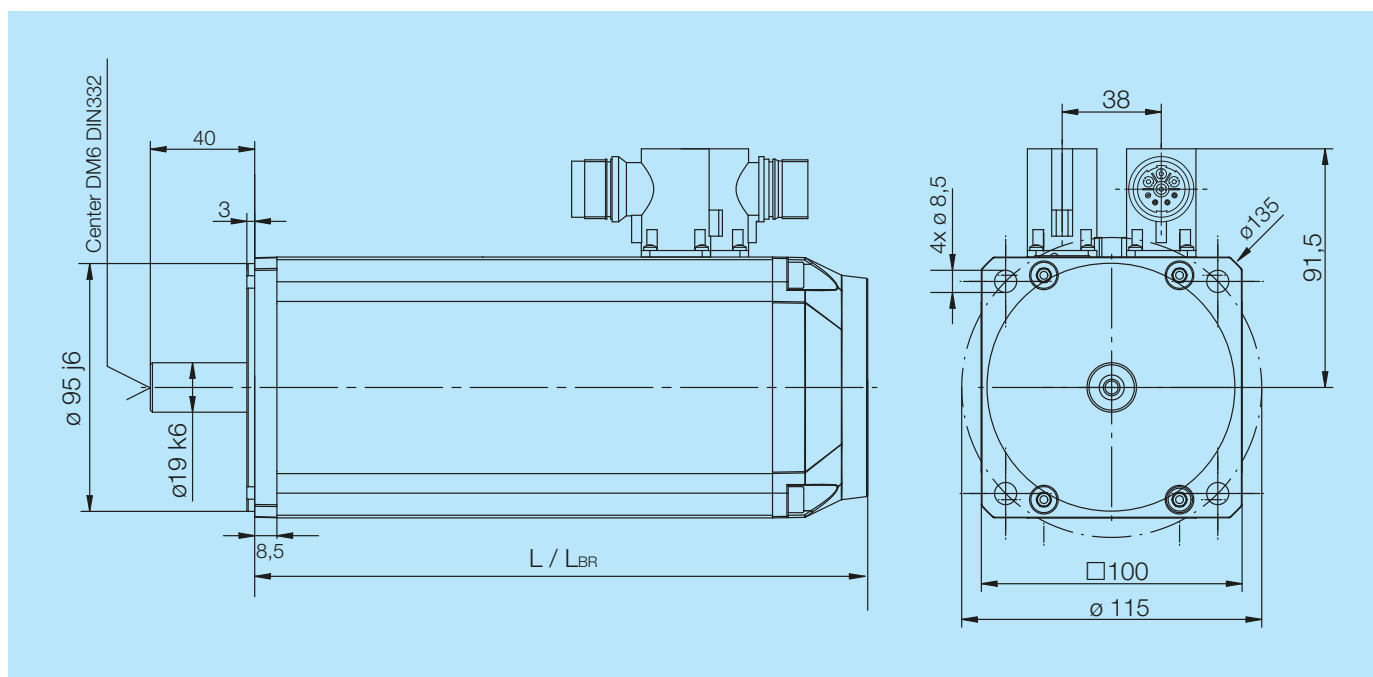
Equipment	Standard	Option
Brake	–	12 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A6x6x30

Technical data

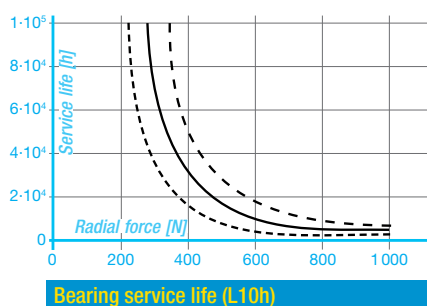
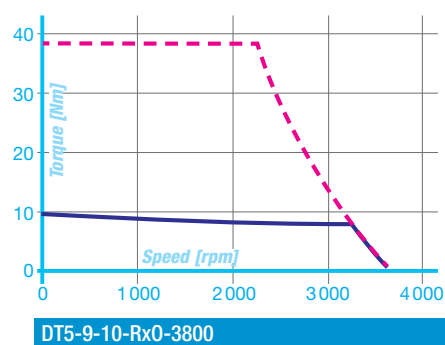
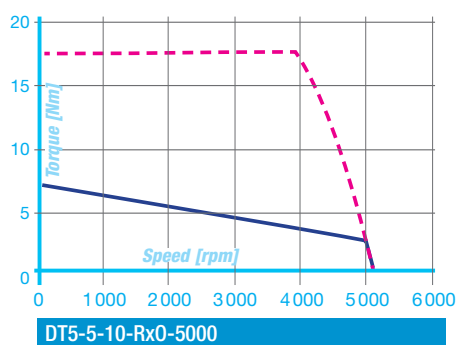
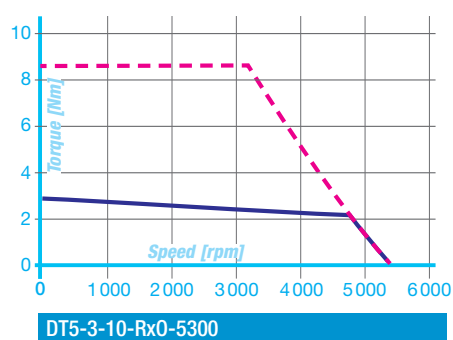
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT5-3-10-Rx0-5300	3.1	3.1	2.4	1.1	2.4	4000	1	8.6	9.9	12.9	5	5300	1.4	135.5	168.5	3.65
DT5-3-10-xx0-5300														163.5	196.5	
DT5-5-10-Rx0-5000	5.7	5.28	4.4	1.61	4.1	3500	1.08	17.3	20	7.2	2.47	5000	2.8	167	200	4.9
DT5-5-10-xx0-5000														195	228	
DT5-9-10-Rx0-3800	9.8	6.5	6.8	2.1	4.6	3000	1.5	39	33	6.4	1.93	3800	5.4	230	263	7.4
DT5-9-10-xx0-3800														258	291	

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

Dimensions



Characteristics



DT 7 convection-cooled servo motors



BENEFITS

- Very high standstill torques
- High overload capacity with no real saturation effect
- Extremely rigid mechanical construction
- IP65 degree of protection

Applications

- Direct drive for positioning and actuating tasks without gearbox or with low reduction ratio for intermittent operation
- Drive suitable for large load inertias
- Variable-speed drive for continuous running at low and medium speeds

Connection cable:

Rated cross-section of copper conductor:
1.5 mm², Power connector size 1

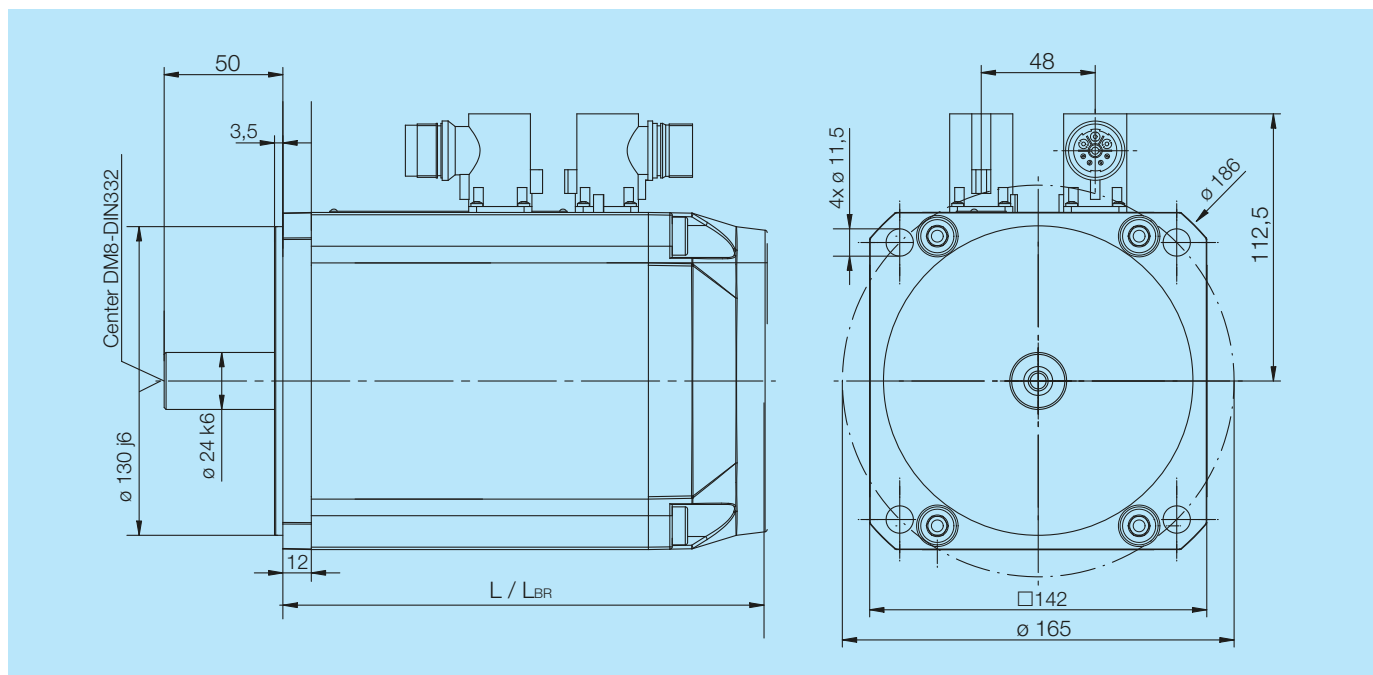
Equipment	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A8x7x36

Technical data

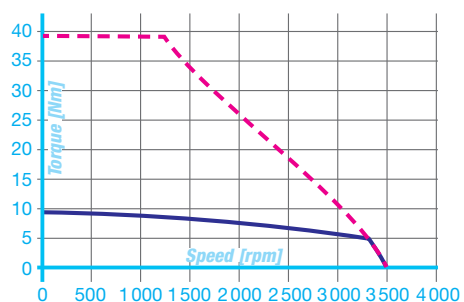
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT7-11-20-xx0-3500	10	6.62	6.6	1.9	4.4	2800	1.51	39	33	6	2.48	3500	15.2	202.5	231.5	9.3
DT7-17-20-xx0-3500	17	11.3	11	2.8	7.2	2500	1.5	60	50	3.3	0.92	3500	28.4	232.5	261.5	14.2
DT7-28-20-xx0-2000	28	10.4	19	3	7.2	1500	2.68	140	67	6	1.2	2000	54.6	292.5	321.5	18.9
DT7-40-20-xx0-2000	42	15.2	29	3	10.5	1000	2.76	175	100	3.1	0.66	2000	80.9	352.5	381.5	25.4

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

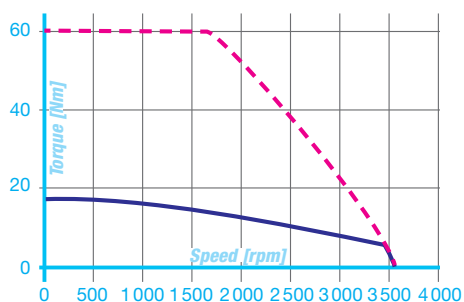
Dimensions



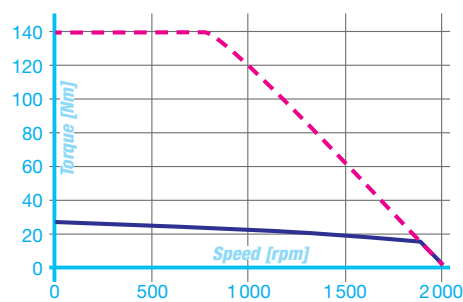
Characteristics



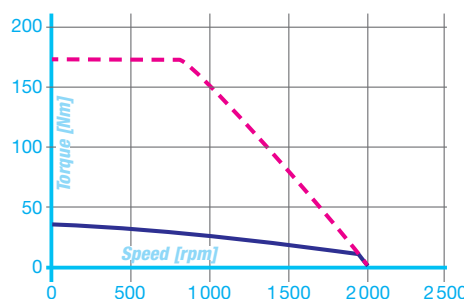
DT7-11-20-Rx0-3500



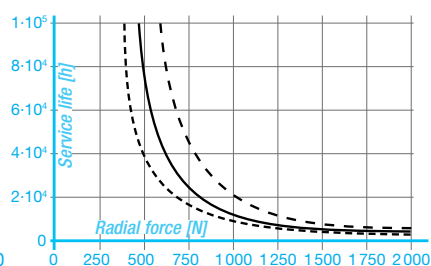
DT7-17-20-Rx0-3500



DT7-7-28-20-Rx0-2000



DT7-40-20-Rx0-2000



Bearing service life (L_{10h})

DT 10 convection-cooled servo motors



BENEFITS

- High standstill torques
- High overload capacity with no real saturation effect
- Extremely rigid mechanical construction
- IP65 degree of protection

Applications

- Direct drive for positioning and actuating tasks without gearbox or with low reduction ratio for intermittent operation
- Drive suitable for large load inertias

Connection cable:

Rated cross-section of copper conductor: 6 mm², Power connector size 1.5

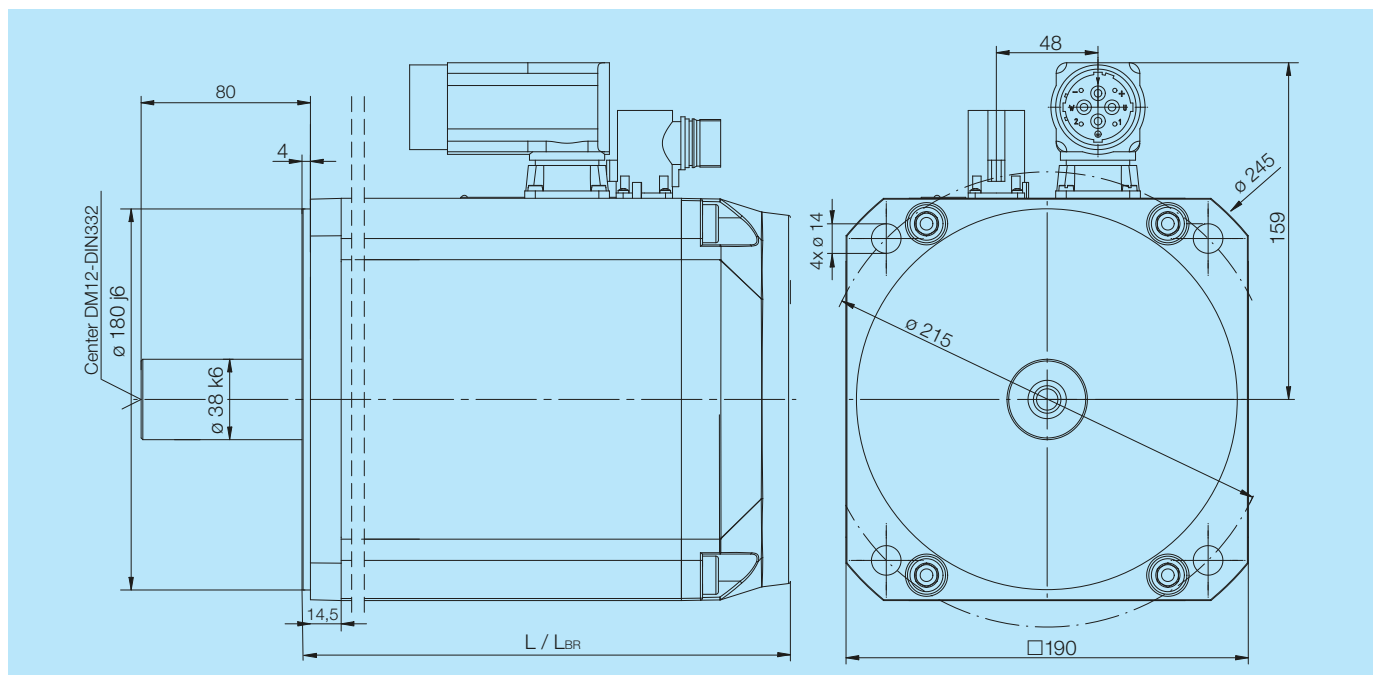
Equipment	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A10x8x60

Technical data

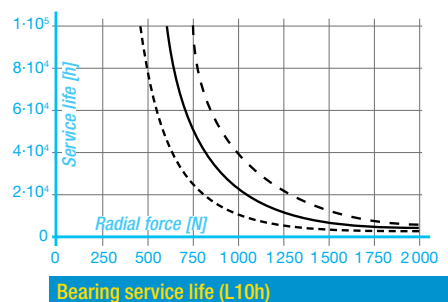
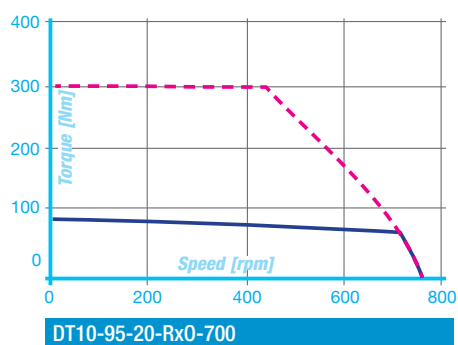
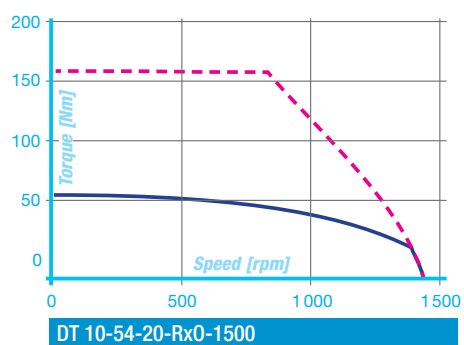
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm²]	L [mm]	L _{BR} [mm]	m [kg]
DT10-54-20-xx0-1500	51.3	13.2	33	3.5	9	1000	3.9	163	60	5.8	0.69	1500	173	298	359	32
DT10-95-20-xx0-700	90	12.3	73	3.8	10	500	7.3	300	47	9.6	1.03	700	339	418	479	53

Motor data for 350V motor voltage · Measuring data at winding overtemperature ΔT < 80 K

Dimensions



Characteristics



DTK5 convection-cooled servo motor



BENEFITS

- High standstill torque
- High torque and power density
- Maximum dynamics with acceleration values of up to 65,000 rad/s²
- IP65 degree of protection

Applications:

- For applications where space is at a premium, e.g. linear axes
- Positioning and actuating drive for drive tasks, particularly in the case of coupling or gearbox output

Connection cable:

Rated cross-section of copper conductor: 1.5 mm², Power connector size 1

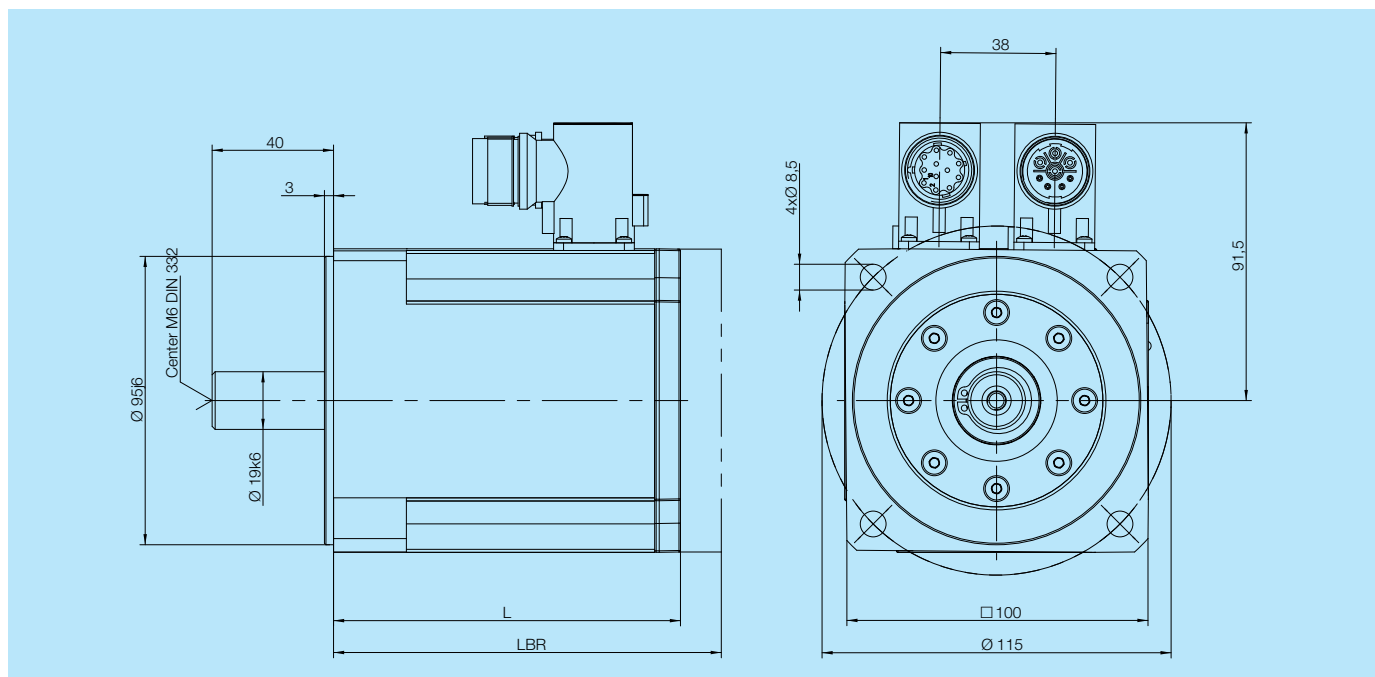
Equipment	Standard	Option
Brake	—	4.5 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A6x6x30

Technical data

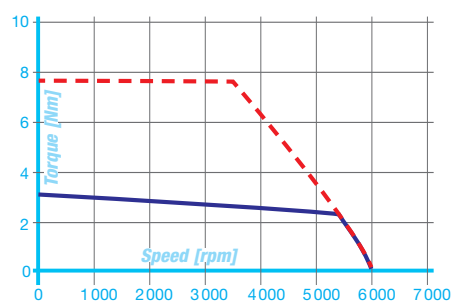
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm²]	L [mm]	L _{BR} [mm]	m [kg]
DTK5-3-10-xx0-5300	5.7	5.28	4.4	1.61	4.1	3500	1.08	17.3	20	7.2	2.47	5000	2.8	114.5	150	4.9

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

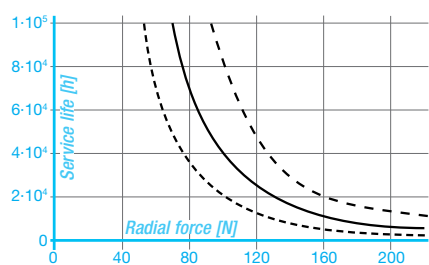
Dimensions



Characteristics



DTK 5-3-10-xx0-6000



Bearing service life (L10h)

DTK7 convection-cooled servo motor



BENEFITS

- High standstill torque
- High overload capacity with no real saturation effect
- Extremely rigid mechanical construction
- IP54 degree of protection

Applications

- For applications where space is at a premium, e.g. linear axes
- Positioning and actuating drive for drive tasks, particularly when using couplings and gearboxes

Connection cable:

Rated cross-section of copper conductor: 1.5 mm², Power connector size 1

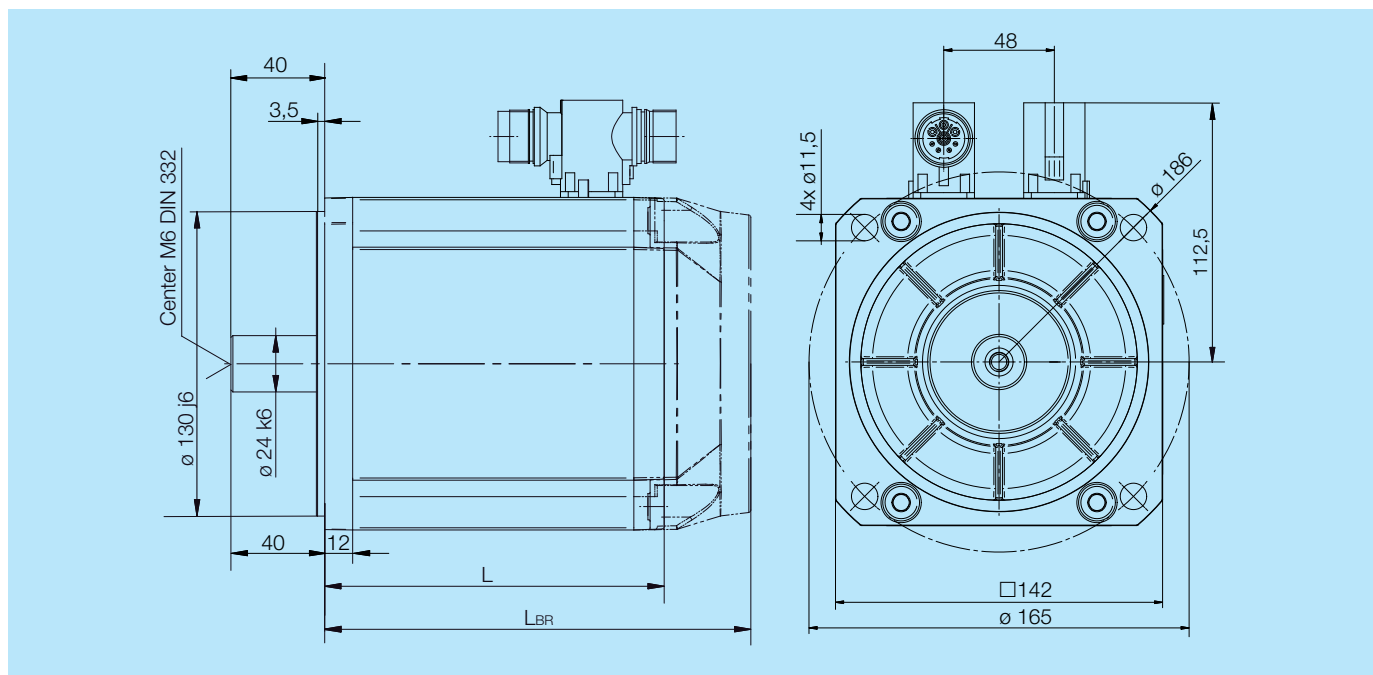
Equipment	Standard	Option
Brake	—	12 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A8x7x36

Technical data

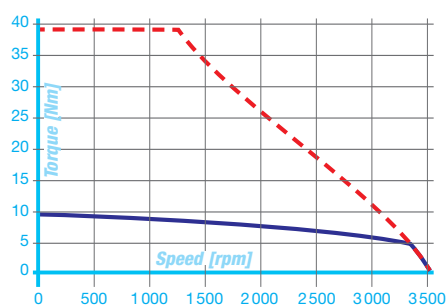
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm²]	L [mm]	L _{BR} [mm]	m [kg]
DTK7-11-20-xx0-3500	10.0	6.62	6.6	1.9	4.4	2800	1.51	39	33	8.4	2.48	3500	14	145	182.0	9.3

Motor data for 350V motor voltage - Measuring data at winding overtemperature ΔT < 80 K

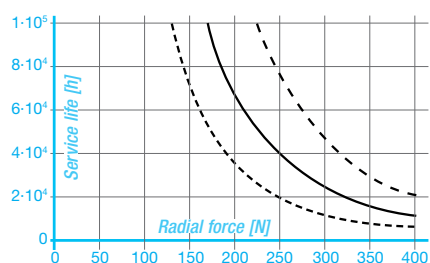
Dimensions



Characteristics



DTK7-11-20-3500



Bearing service life (L10h)

DT7 fan-cooled servo motor



BENEFITS

- Higher continuous duty data due to improved heat removal
- High standstill torque
- High overload capacity with no real saturation effect
- Extremely rigid mechanical construction
- IP40 degree of protection

Applications

- Direct drive for positioning and actuating tasks without gearbox or with low reduction ratio for intermittent operation
- Drive suitable for large load inertias
- Variable-speed drive for continuous running at low and medium speeds

Connection cable:

Rated cross-section of copper conductor: 10 mm², Power connector size 1.5

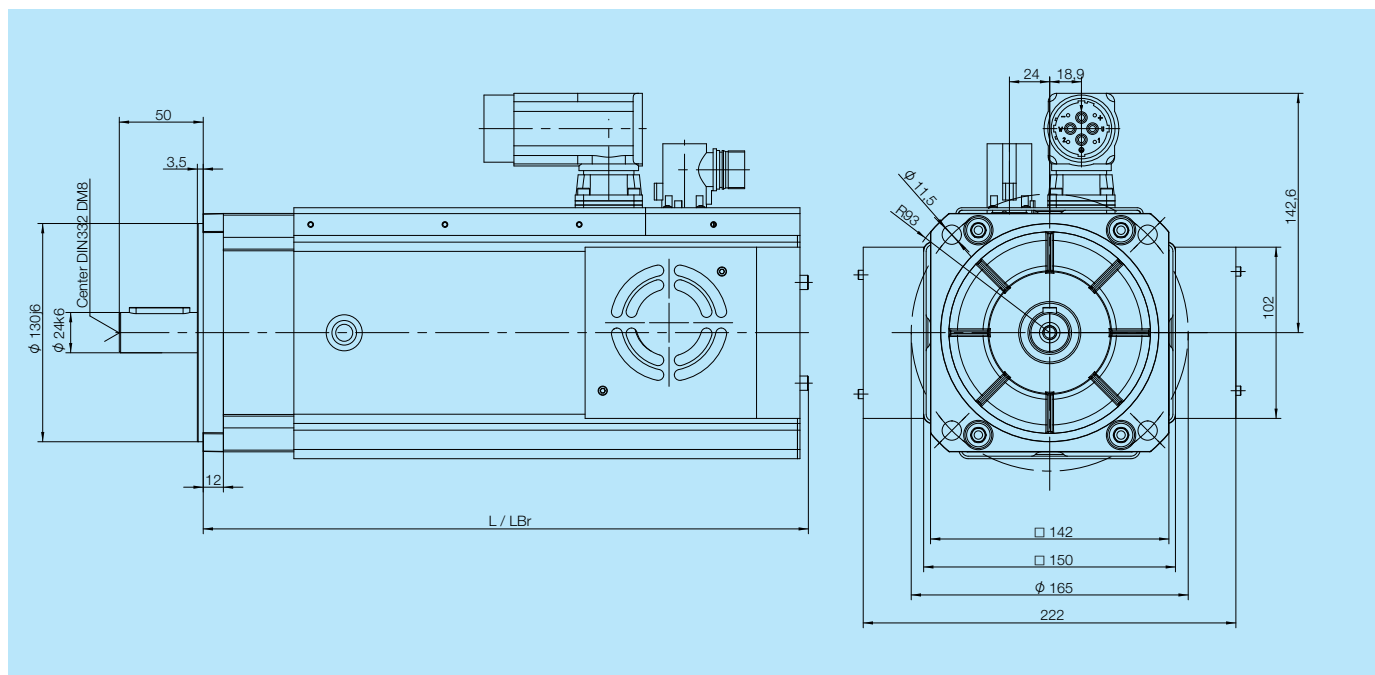
Equipment	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A8x7x36

Technical data

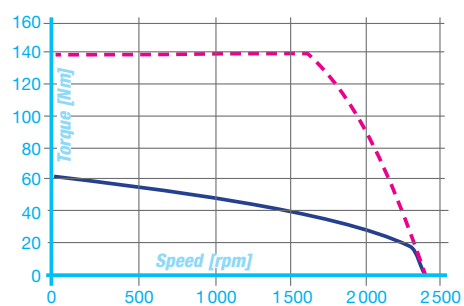
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT7-57-20-xxF-3900	61	25	28	5.8	12.5	2000	2.4	141	67	1.9	0.38	3900	80.9	355.5	384.5	29.9

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

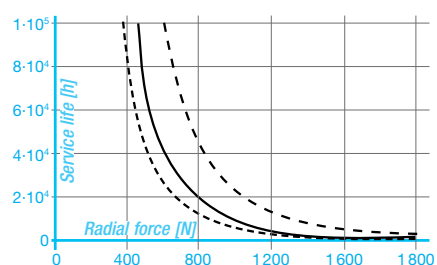
Dimensions



Characteristics



DT7-57-20-RxF-3900



Bearing service life (L10h)

DT10 fan-cooled servo motor



BENEFITS

- High standstill torques
- High overload capacity with no real saturation effect
- Extremely rigid mechanical construction
- IP40 degree of protection

Applications

- Direct drive for positioning and actuating tasks without gearbox or with low reduction ratio for intermittent operation
- Drive suitable for large load inertias

Connection cables:

Rated cross-section of copper conductor: 10 mm², Power connector size 1.5

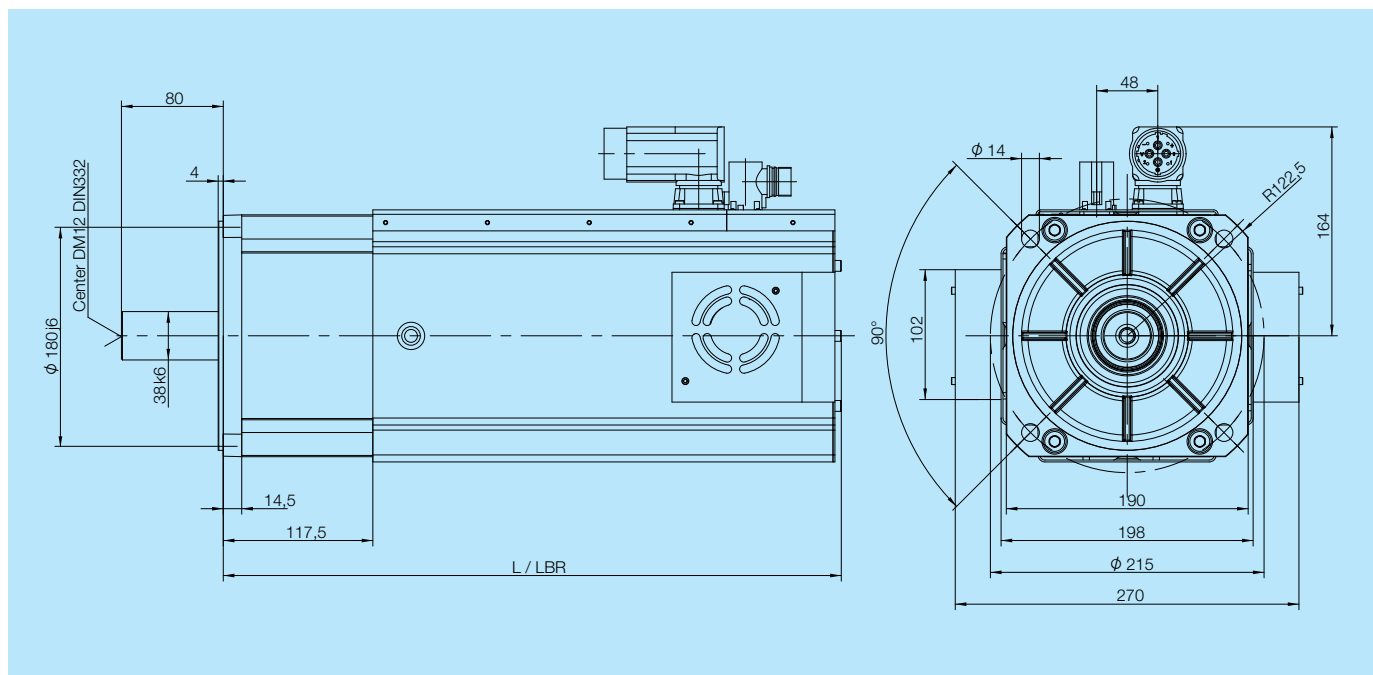
Equipment	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A10x8x60

Technical data

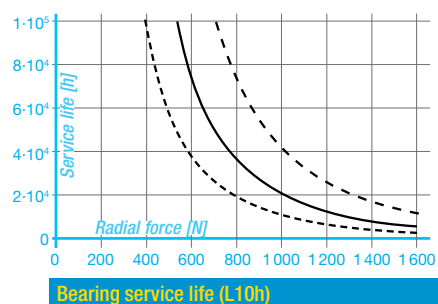
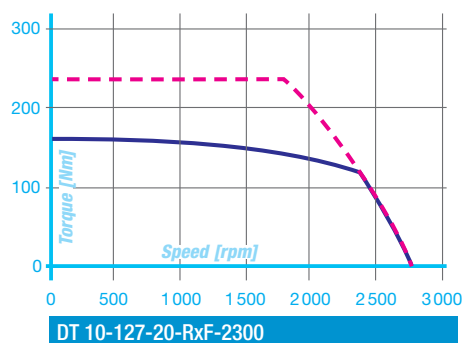
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT10-127-20-xxF-2300	160	80	83	13	40	1500	2	360	198	0.5	0.077	2300	339	419.5	480.5	67

Motor data for 350V motor voltage - Measuring data at winding overtemperature $\Delta T < 80 K$

Dimensions



Characteristics



DT 5 liquid-cooled servo motor



BENEFITS

- High standstill torques
- Maximum torque and power density
- Maximum dynamics even at very short repetitive cycles
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with exceptional requirements on dynamics and power density
- Variable-speed drive for continuous running
- For applications with difficult cooling situations due to a high integration density, contamination or ambient temperature conditions

Connection cable:

Rated cross-section of copper conductor:
DT 5-20 = 2.5 mm² · DT 5-30 = 4 mm²
Power connector size 1

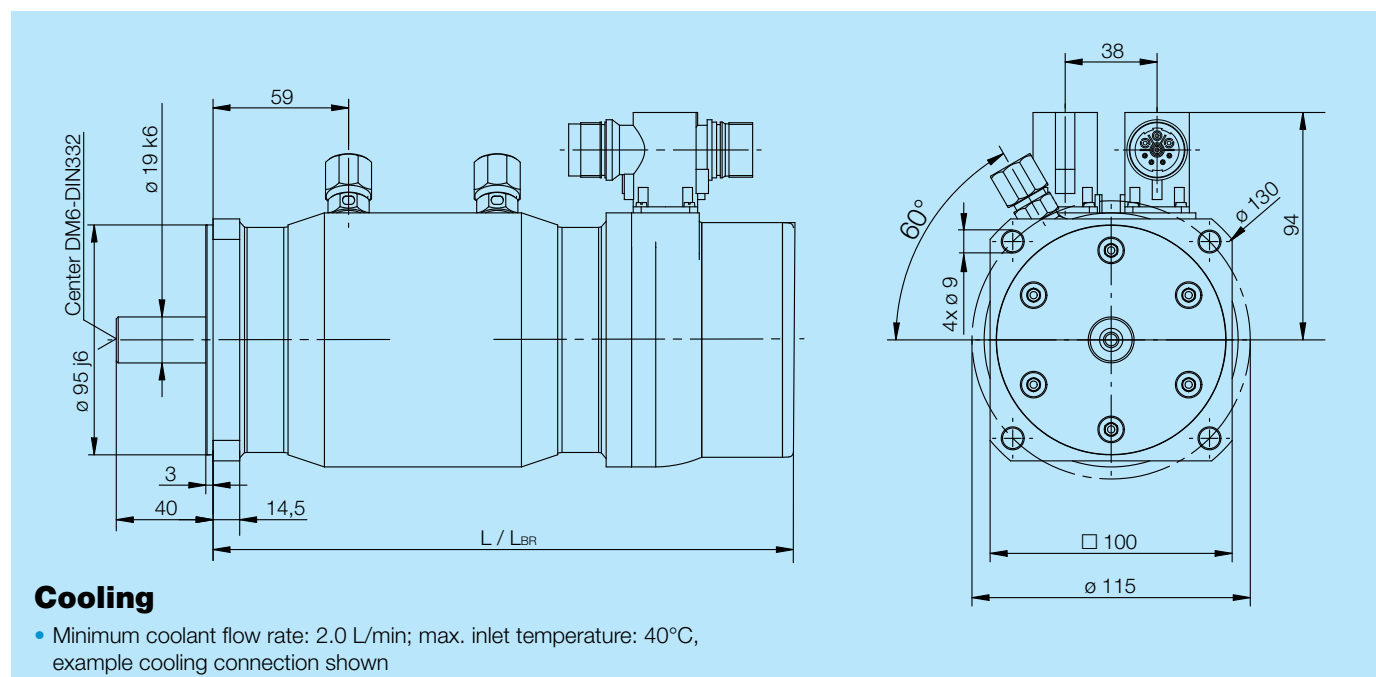
Equipment	Standard	Option
Brake	–	12 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A6x6x30

Technical data

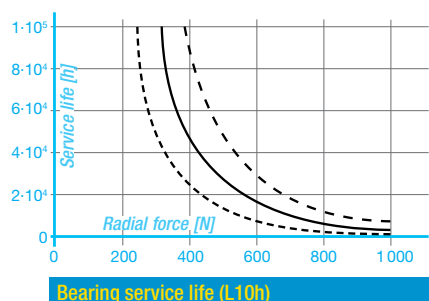
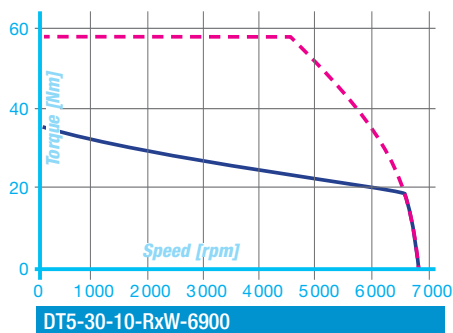
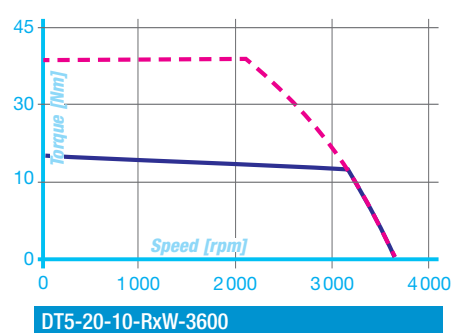
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT5-20-10-xxW-3600	20	13.3	17.5	5.5	11.6	3000	1.5	39	33	5.1	1.9	3600	5.5	256	276	8.6
DT5-30-10-xxW-6900	33	60	19	11.6	33.5	6000	0.55	58.5	132	0.5	0.147	6900	8.3	316	336	12.4

Motor data for 350V motor voltage · Measuring data at winding overtemperature ΔT < 80 K

Dimensions



Characteristics



DT 7 liquid-cooled servo motors



BENEFITS

- Excellent standstill torques
- Excellent torque and power density
- High power at low speeds
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with exceptional requirements on the torque and power density
- Variable-speed drive for continuous running
- For applications with difficult cooling situations due to a high integration density, contamination or ambient temperature conditions

Connection cable:

Rated cross-section of copper conductor:
10 mm², Power connector size 1.5

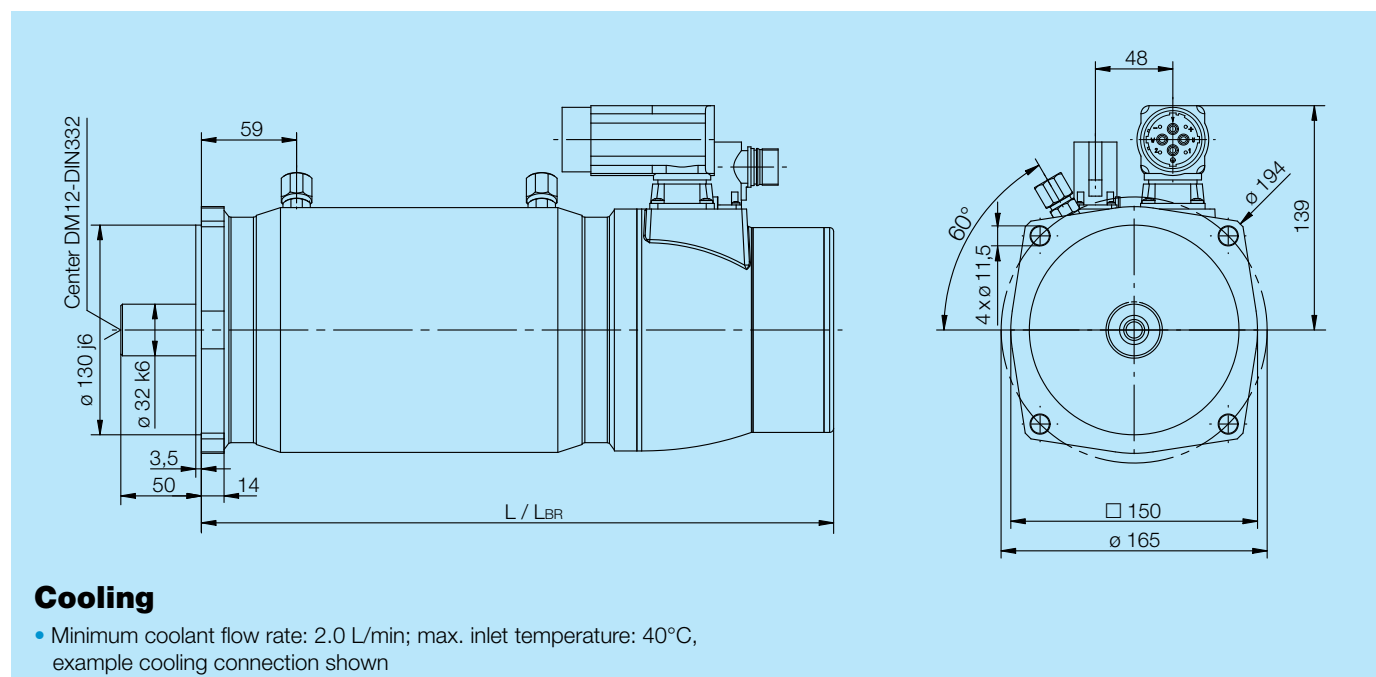
Equipment	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A10x8x36

Technical data

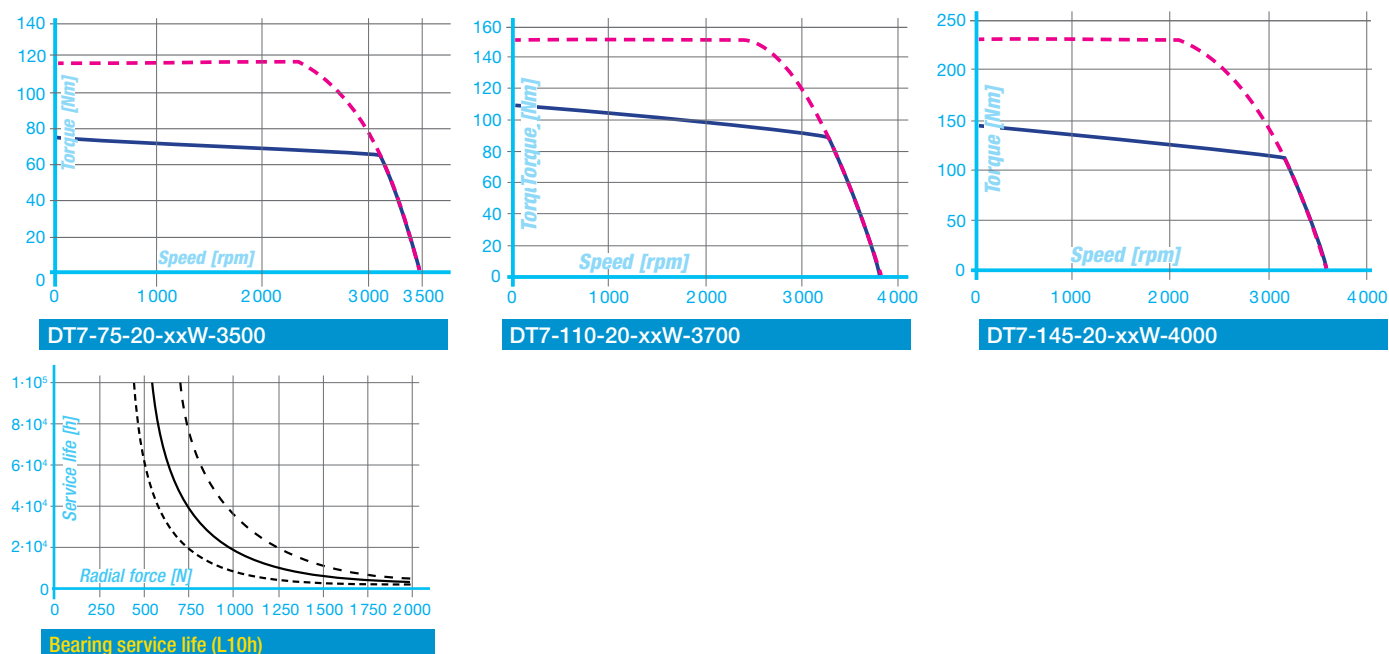
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT7-75-20-xxW-3500	75	51	66	21	48	3000	1.48	120	99	1.25	0.294	3400	55	298	342	3
DT7-110-20-xxW-3700	110	74	90	28.1	64	3000	1.55	156	116	0.78	0.153	3700	81	348	392	28.5
DT7-145-20-xxW-4000	145	96	114	35.9	82	3000	1.51	220	200	0.5	0.122	3600	107	408	452	35.7

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

Dimensions



Characteristics



DT 10 liquid-cooled servo motors



BENEFITS

- Excellent standstill torques
- Excellent torque and power density
- High power at low speeds
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with exceptional requirements on torque and power density
- Variable-speed drive for continuous running at low and medium speeds
- For applications with difficult cooling situations due to a high integration density, contamination or ambient temperature conditions

Connection cable:

Rated cross-section of copper conductor: 16 mm², Power connector size 1.5

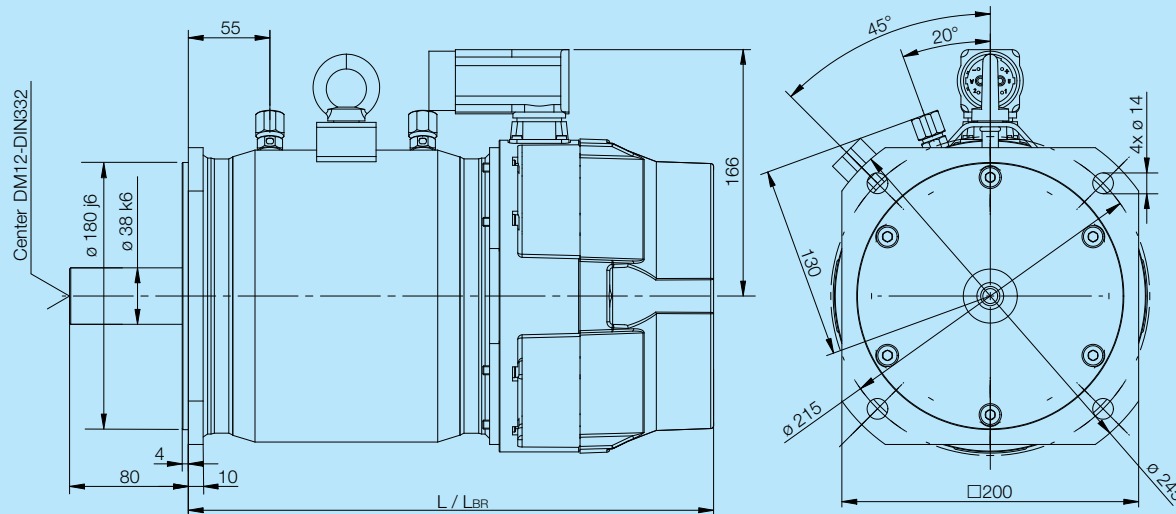
Equipment	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A10x8x60

Technical data

Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT10-120-20-xxW-2500	121	69	107	16.8	62	1500	1.75	160	132	1.3	0.153	2500	175	293	354	32
DT10-220-20-xxW-2400	215	99	175	36.6	85	2000	2.2	370	200	0.5	0.076	2400	339	413	474	55
DT10-320-20-xxW-2400	320	160	270	23.5	142	1500	2	530	330	0.4	0.052	2400	504	533	594	75

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

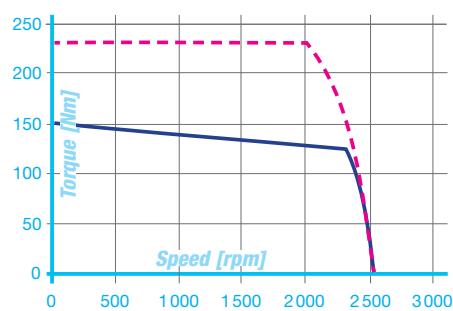
Dimensions



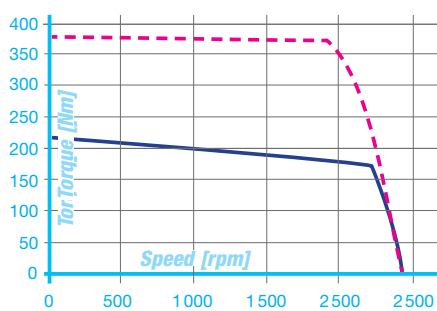
Cooling

- Minimum coolant flow rate: 4.0 L/min; max. inlet temperature: 40°C, example cooling connection shown

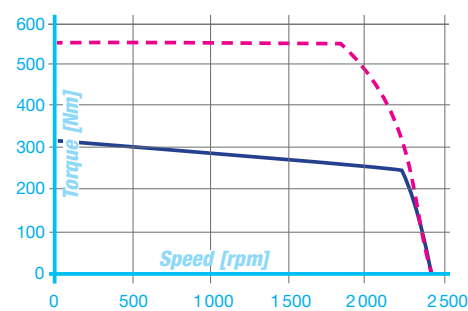
Characteristics



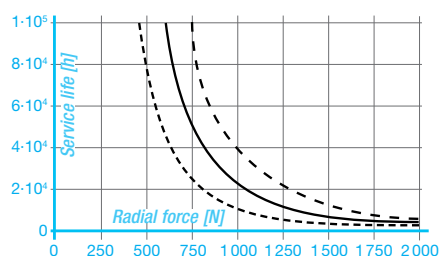
DT10-120-20-xxW-2500



DT 10-220-20-xxW-2400



DT10-320-20-xxW-2400



Bearing service life (L10h)

DT 13 liquid-cooled servo motors



BENEFITS

- Excellent standstill torques
- Excellent torque and power density
- High power at low speeds
- Servo motor for applications with high requirements on motor power
- IP54 degree of protection

Applications

- Positioning and actuating drive for drive tasks with exceptional requirements on torque and power density
- Variable-speed drive for continuous running at low and medium speeds
- For applications with difficult cooling situations due to a high integration density, contamination or ambient temperature conditions
- Variable-speed drive for machines with exceptional requirements on maintenance-free operation

Connection cable:

DT13-360 Rated cross-section of copper conductor: 16 mm²

DT13-440 Rated cross-section of copper conductor: 25 mm²

DT13-650 Rated cross-section of copper conductor: 35 mm²

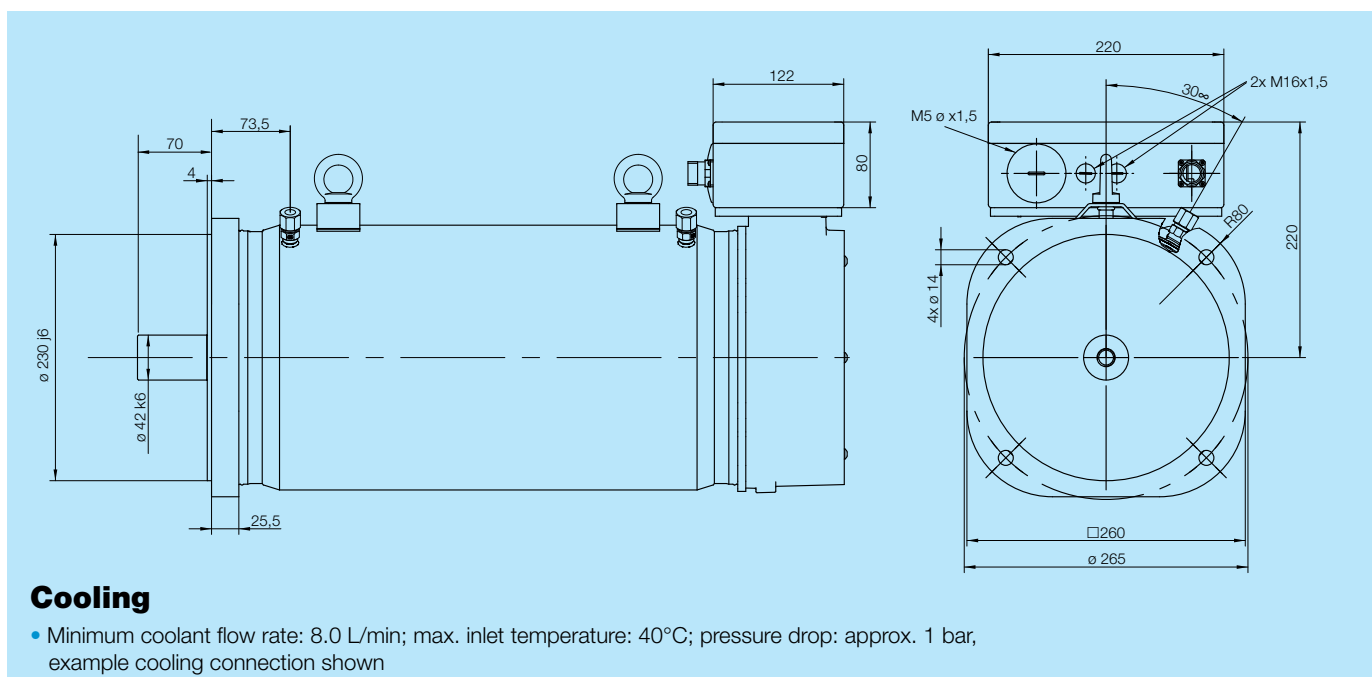
Equipment	Standard	Option
Brake	–	250 Nm
Encoder	E-encoder	F-encoder
Shaft	Keyless shaft	–

Technical data

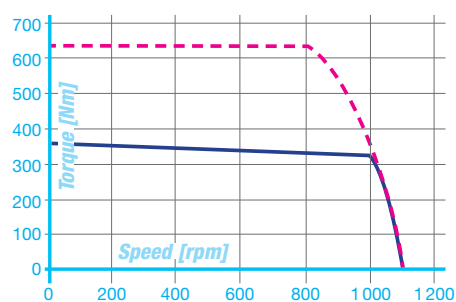
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data			
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	m [kg]
DT13-360-20-xxW-2400	360	157	240	45.2	103	1800	2.3	640	330	0.2	0.052	2400	1260	414	88
DT13-440-20-xxW-2200	430	165	325	61	125	1800	2.6	740	330	0.3	0.041	2200	1620	474	112
DT13-650-20-xxW-1600	666	210	546	86.0	154	1500	3.3	1160	400	0.083	0.044	1600	2350	594	160

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

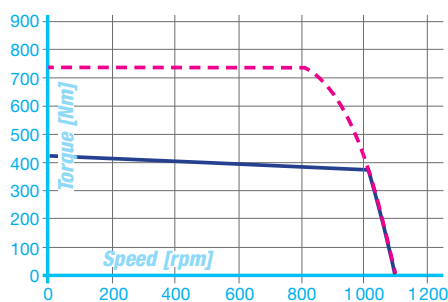
Dimensions



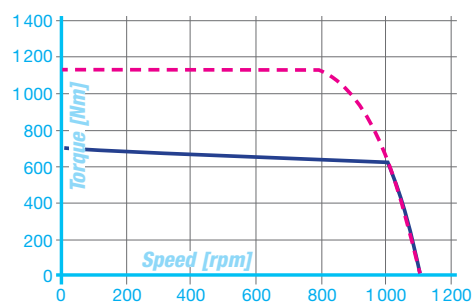
Characteristics



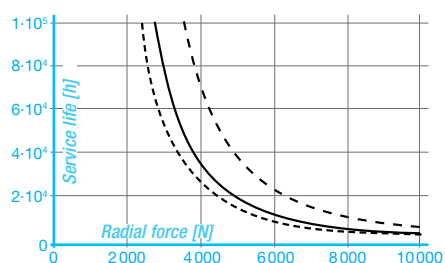
DT13-360-20-xxW-2400



DT13-440-20-xxW-2200



DT13-650-20-xxW-1600



Bearing service life (L10h)





DYNASYN DP motor series.

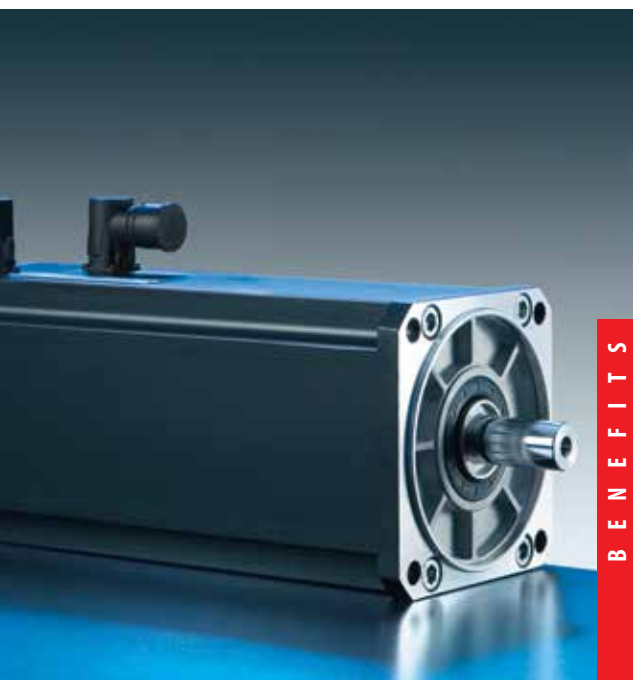
High power

The DYNASYN DP motor series is designed for high power density. DYNASYN DP motors achieve a considerably high continuous torque even at medium speeds.

Motors of this series are especially ideal for use where a high level of continuous operation in tight installation spaces is necessary and where maximum efficiency is expected during non-intermittent operation. Thanks to the excellent power density, motors with very compact sizes can be used for high power applications. The DYNASYN DP synchronous servo motors are characterized by their very good synchronous properties and low noise emissions and are especially suitable for continuous operation in the field-weakening range. Example applications include converting, printing and packaging.

The DYNASYN DP synchronous servo motors are available in convection- and liquid-cooled versions (forced ventilation upon request).

DP 7 convection-cooled servo motors



BENEFITS

- Very good synchronization properties
- Excellent power density thanks to a very high level of efficiency
- Exceptionally high dynamics thanks to a slim rotor design
- IP65 degree of protection

Applications

- Positioning and actuating drive for drive tasks with exceptional requirements on the dynamics
- Variable-speed drive for continuous running at medium speeds
- Servo drives with high power output without active cooling
- Variable-speed drives for drive tasks with exceptional requirements on synchronization

Connection cable:

DP7-20 Rated cross-section of copper conductor: 1.5 mm²
Power connector size 1

DP7-30 Rated cross-section of copper conductor: 2.5 mm²
Power connector size 1

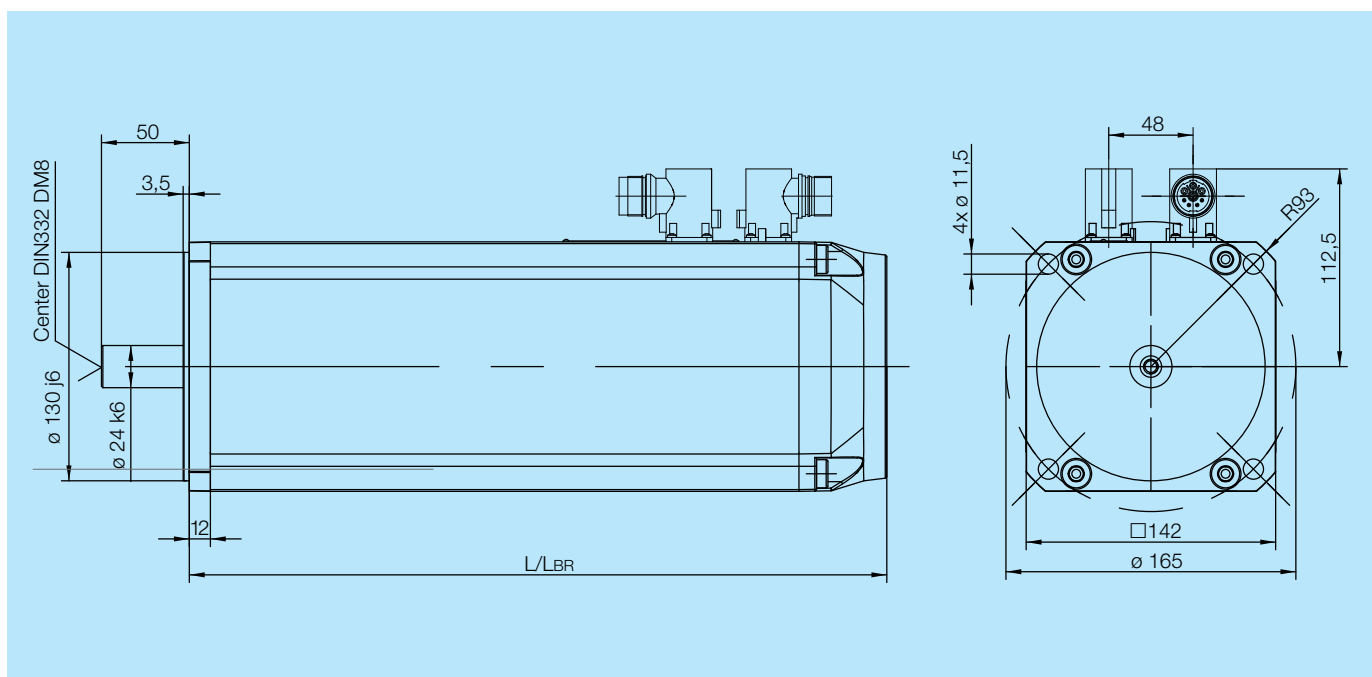
Equipment	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q-encoder
Shaft	Keyless shaft	Shaft key DIN6885 A10x8x36

Technical data

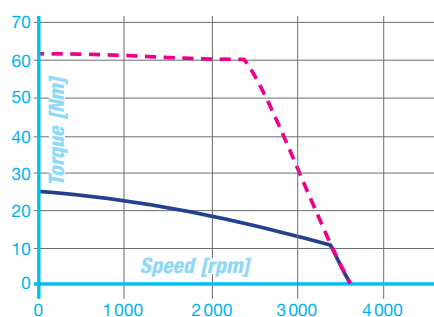
Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data				
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DP7-20-10-xx0-4000	25	17.9	13.2	4.1	9.4	3000	1.4	62	67	13	0.46	4000	16.3	300	335.5	19
DP7-30-10-xx0-2000	31	25	16	5.9	12.9	3500	1.24	66	67	1.24	0.204	4000	24	360	395.5	24.5

Motor data for 350V motor voltage · Measuring data at winding overtemperature ΔT < 80 K

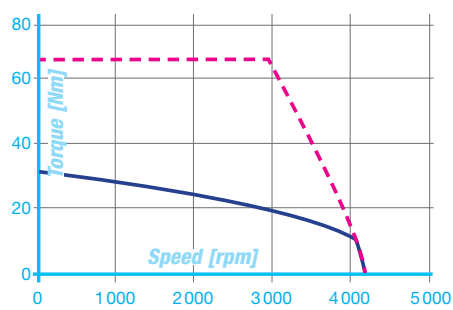
Dimensions



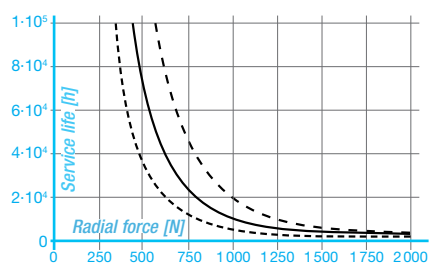
Characteristics



DP7-20-10-Rx0-4000



DP7-30-10-Rx0-4000



Bearing service life (L10h)

DP 13 liquid-cooled servo motors



BENEFITS

- Very good synchronization properties thanks to high number of stator slots
- Very high power density
- High efficiency
- Low noise emissions
- IP54 degree of protection

Applications

- Servo motor for positioning and actuating tasks with or without gearbox
- Variable-speed drive for continuous running at medium speeds
- Servo drives for continuous operation in field-weakening range
- Replacement for standard motors with increased requirements on: efficiency, compactness, dynamics and synchronization

Connection cable:

DP13-250 Rated cross-section of copper conductor: 25 mm²

DP13-300 Rated cross-section of copper conductor: 50 mm²

DP13-600 Rated cross-section of copper conductor: 95 mm²

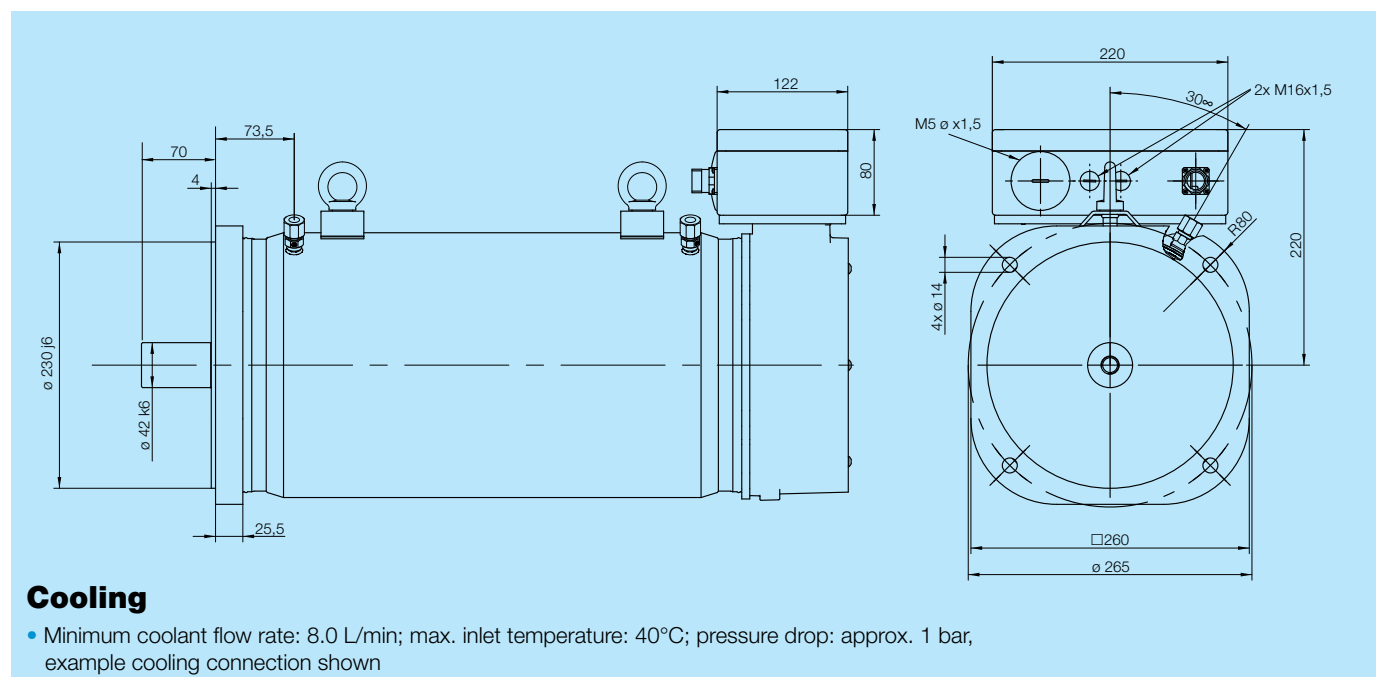
Equipment	Standard	Option
Brake	–	250 Nm
Encoder	E-encoder	F-encoder
Shaft	Keyless shaft	–

Technical data

Motor type	Standstill data		Rating data					Maximum data		Electrical data		Mechanical data			
	M ₀ [Nm]	I ₀ [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [rpm]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [rpm]	J [kg cm ²]	L [mm]	m [kg]
DP13-300-12-xxW-3000	300	143	260	54	123	2000	2.10	560	300	0.5	0.063	3000	958	465.0	105
DP13-460-12-xxW-2000	430	165	415	65.2	159	1500	2.61	760	330	0.7	0.071	2000	1250	521.5	128
DP13-600-12-xxW-1200	660	157	650	68	154	1000	4.20	1150	330	1.1	0.104	1200	1830	642.0	162

Motor data for 350V motor voltage • Measuring data at winding overtemperature ΔT < 80 K

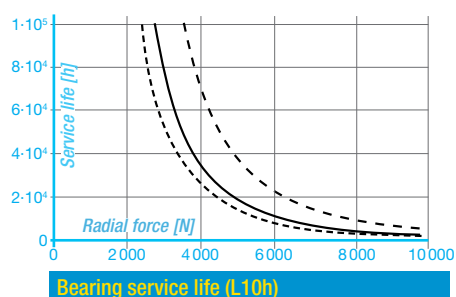
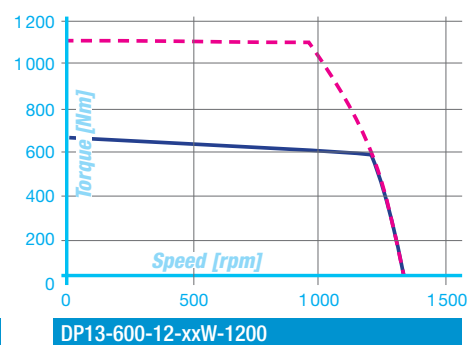
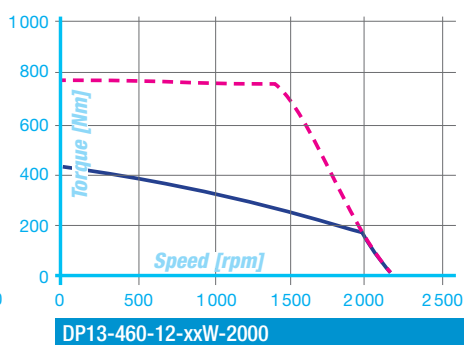
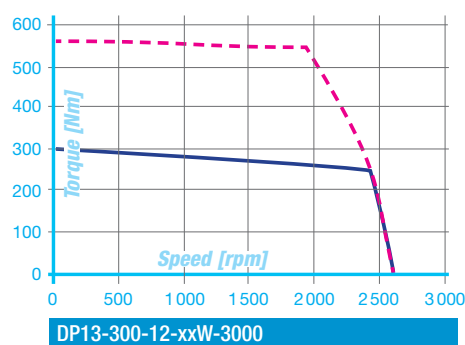
Dimensions



Cooling

- Minimum coolant flow rate: 8.0 L/min; max. inlet temperature: 40°C; pressure drop: approx. 1 bar, example cooling connection shown

Characteristics



Position encoder



Encoder overview

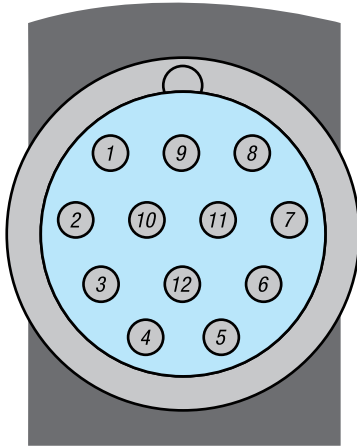
The motors can be fitted with various position encoders.

Type	Technical data	Max. speed [rpm]
R	Resolver, 1 cycle/revolution	15 000
E	Optical absolute encoder EnDAT, single-turn 512 cycles/revolution ¹ ± 25 " system accuracy	12 000
F	Optical absolute encoder EnDAT, multi-turn 512 cycles/revolution ¹ Multi-turn resolution 4 096 revolutions ± 25 " system accuracy	12 000
P	Inductive absolute encoder EnDAT, single-turn 16/32 cycles/revolution ± 280 " system accuracy	12 000
Q	Inductive absolute encoder EnDAT, multi-turn 16/32 cycles/revolution Multi-turn resolution 4 096 revolutions ± 280 " system accuracy	12 000
U	Capacitive absolute encoder Hiperface, single-turn 16 cycles/revolution ± 288 " system accuracy	12 000
V	Capacitive absolute encoder Hiperface, multi-turn 16 cycles/revolution Multi-turn resolution 4 096 revolutions ± 288 " system accuracy	12 000

1) Higher resolution available on request



Connector pin assignment Motor side



PIN Motor connector	Resolver	E-, F-, P-, Q-encoder		U-, V-encoder
	Signal	Signal	Meaning	Signal
1	+ sin	G2N	Channel 2 not inverted	G2N
2	- sin	G2I	Channel 2 inverted	G2I
3	+cos	G1N	Channel 1 not inverted	G1N
4	- cos	G1I	Channel 1 inverted	G1I
5	—	05P	Power supply: 5 V DC, max. 250 mA	—
6	—	GND	Reference for power supply	GND
7	—	CLK +	EnDat encoder interface	—
8	—	CLK -	EnDat encoder interface	—
9	+ Uref	DAT +	EnDat encoder interface	+ RS 485
10	- Uref	DAT -	EnDat encoder interface	- RS 485
11	—	05P	Power supply: 5 V DC, max. 250 mA	09P
12	—	GND	Reference for power supply	—
Shield	Connector housing			

Encoder cable

Prefabricated cables are available for connecting position encoders to KE/KW series servo controllers.

The cables are shielded twisted pair type cables.

Lengths can be purchased in 1 m increments (the minimum available length is 2 m).

Properties:

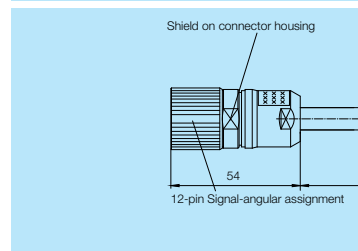
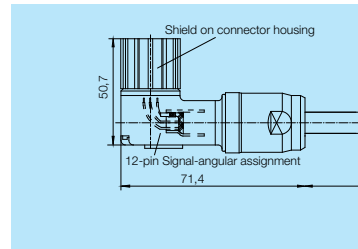
Sheath: PUR, TPE core

Trailing cable properties:

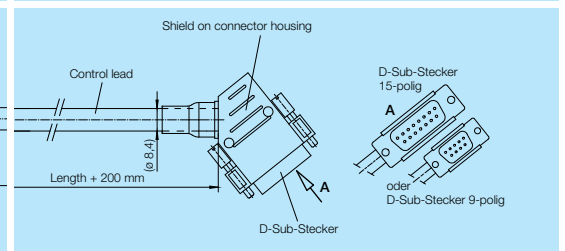
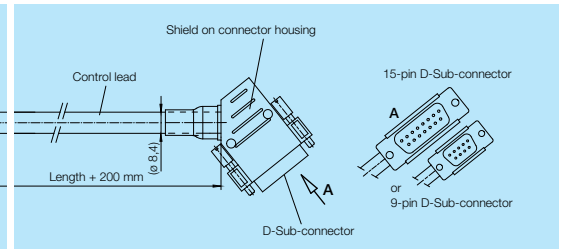
- Min. bending radius: 100 mm
- Max. speed: 1 m/s
- Max. acceleration: 4 m/s²

Order designation Encoder cable

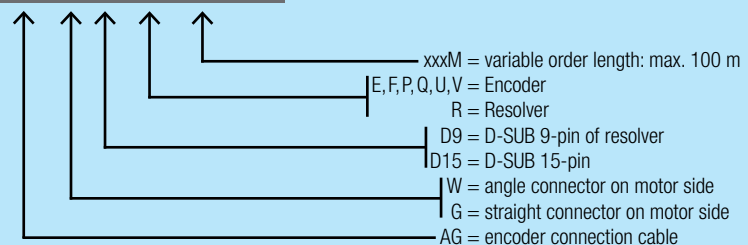
Motor side

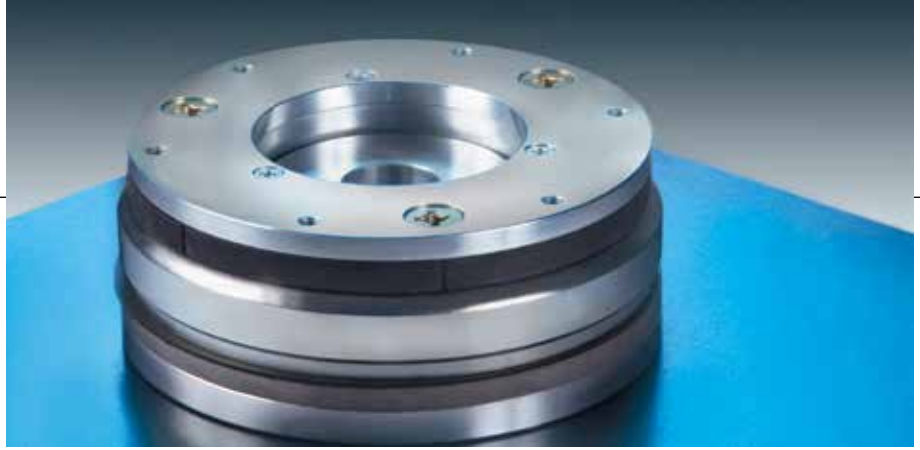


Device side



AG-GD9-R-xxxM





Holding brake

The motors can be fitted with a holding brake as an option. This is **not** suitable for use as an operational brake. The brakes are ventilated with 24 V of unfiltered DC voltage.

Note: The maximum brake speed must also be taken into account when considering the maximum motor speed.

Series	Holding brake							
	M _{BR} [Nm]	U _{BR} [V]	I _{BR} [A]	m _{BR} [kg]	n _{maxBR} [rpm]	J _{BR} [kg cm ²]	T _{on} [ms]	T _{off} [ms]
DT3	1.1	24	0.3	0.28	10000	0.013	35	55
DT4	4.5	24	0.4	0.45	7000	0.027	35	55
DT5	12	24	0.7	0.80	6000	0.294	30	60
DTK5	4.5	24	0.4	0.45	7000	0.027	35	55
DT7/DP7	18	24	0.8	1.10	6000	0.540	30	70
	50	24	1.1	2.66	3000	0.540	40	135
DTK7	12	24	0.7	0.80	6000	2.343	30	60
DT10	120	24	2.3	8.00	6000	5.898	30	70

Power connectors

Pre-fabricated cables with power connectors and various cable cross-sections are available for the power supply, temperature sensor and brake. The cable sheathing is removed from the ends of the wires on the device side. Lengths can be purchased in 1 m increments (the minimum available length is 2 m).

Features:

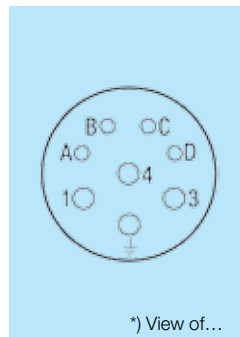
Sheath: Polyurethane, TPE core

Trailing cable properties:

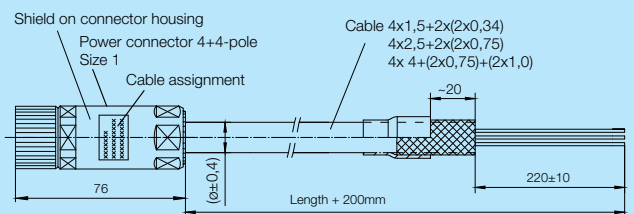
min. bending radius = 12 x ext. diameter of cable

Terminal assignment for power connector and power cable size 1

PIN	Meaning
A	Temperature sensor
B	Temperature sensor
C	Brake+
D	Brake 0 V
1	Motor phase u
3	Motor phase w
4	Motor phase v
⏚	Protective conductor

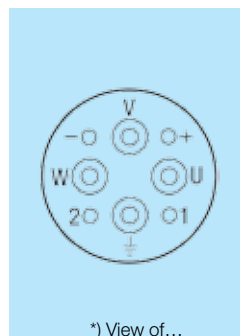


power cable

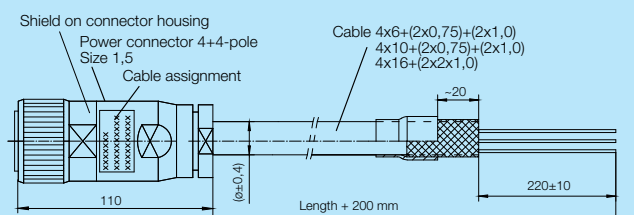


Terminal assignment for power connector and power cable size 1.5

PIN	Meaning
u	Motor phase u
v	Motor phase v
w	Motor phase w
1	Temperature sensor
2	Temperature sensor
+	Brake + 24 V
-	Brake 0 V
⏚	Protective conductor



power cable



*) The terminal assignment is as shown on the motor mounting box. All dimensions are given in mm.

Abbreviations

Symbol	Unit	Meaning
D_s	mm	Shaft diameter
I_{BR}	A	Brake current
I_{max}	A	Maximum current
I_N	A	Rated current
I_o	A	Continuous standstill current
J	kg cm ²	Motor moment of inertia
J_{BR}	kg cm ²	Brake moment of inertia
k_T	Nm/A	Torque constant ($M = I \cdot k_T$)
L	mm	Motor length
L_{BR}	mm	Length of motor with brake
L_{tt}	mH	Terminal inductance
m	kg	Motor mass
m_{BR}	kg	Brake mass
M_{BR}	Nm	Min. static brake torque
M_{max}	Nm	Maximum torque
M_N	Nm	Rated torque
M_o	Nm	Continuous standstill torque
n_{max}	rpm	Maximum speed
n_{maxBR}	rpm	Maximum brake speed
n_N	rpm	Rated speed
P_N	kW	Rated power
R_{tt}	Ω	Terminal resistance
T_{on}	ms	Brake application time
T_{off}	ms	Brake release time
U_{BR}	V	Brake voltage

General technical data

Degree of protection:

IP54/IP65. Higher degree of protection upon request

Rating data:

The rating data refers to a winding overtemperature of 80 K. The motor is checked by means of a thermally insulating flange.

The motor voltage is 350 V

Insulation class:

F in accordance with DIN VDE 0530

Thermal protection:

Thermistor (PTC), cold resistance: approx. 150 – 800 Ω

Motor bearings:

ball bearings lubricated for life

Axial run-out, shaft run-out:

N in accordance with DIN 42955

Balance quality:

G 2.5 in accordance with VDI 2056

Vibrational quality:

N in accordance with DIN ISO 2373

Paint:

RAL 9005, black matte finish

Cooling:

Convection cooling, air cooling or liquid cooling

Ambient conditions

Ambient temperature:

+5 to +40°C. At higher ambient temperatures up to 60°C, the rating data must be reduced by 1% per 1 K of temperature increase

Site altitude:

Up to 1,000 m a.m.s.l. If operating over 1,000 m, the ambient temperatures as per DIN VDE 0530 Table 4 are used

Humidity:

maximum 85% relative humidity, non-condensing

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