

AMK*motion*

MEMBER OF THE ARBURG FAMILY

DYNASYN DT, DP SERVO MOTORS

Dynamic. Compact. Powerful.



DYNASYN



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DYNASYN

Synchronous servo motors

Five decades of experience in building motors, combined with vast quantities of expertise and plenty of capacity for innovation, and the result is a wide range of motors that are characterised by exceptional power density and energy efficiency.

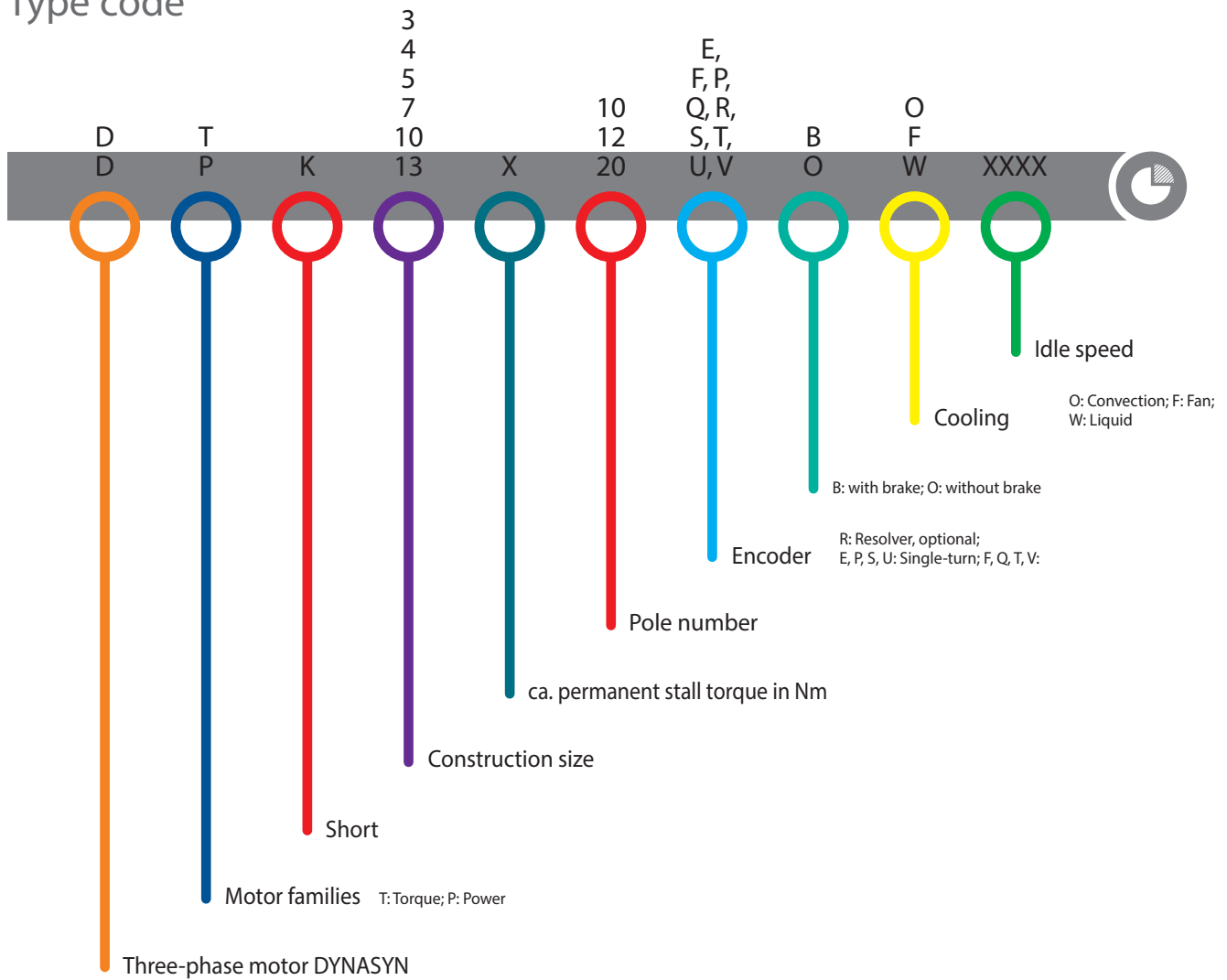
The DYNASYN series of synchronous servo motors are optimised for high levels of dynamism and compact geometric sizes. This leads to extremely flexible options as part of automation. Servo motors from AMK make machines and plants more dynamic, cost-effective, and energy-efficient. All motors at AMK are developed and produced in-house with a high degree of technical expertise and innovation. We are in constant dialogue with customers and can provide the ideal drive solution for any application with the solutions-oriented approach of our development teams. In doing so, we have a wide range of models with various performance classes, designs and encoder types.

We can offer a wide range of motors developed and produced in-house based on extensive experience and technical expertise. Alongside our standard range of motors described in this brochure, we also have other constructions such as special developments, auxiliary motors or even hollow shaft motors, as described in the "SPINDASYN" brochure.

Overview



Type code



DT DYNASYN Torque

DT motor type	Square flange mm	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
		M _O [Nm]	I _O [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [1/min]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [1/min]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DT motors, convection-cooled, pages 8 to 17																	
DT3-0.5-10-RxO-9000	55	0.71	1.1	0.54	0.34	0.9	6,000	0.62	2.1	4	21	19.7	9,000	0.1	114	144	0.8
DT3-1-10-RxO-9000		1.59	3.4	0.94	0.59	2.18		0.47	5	9.6	4.7	4.2		0.27	174	204	1.9
DT4-1-10-RxO-6000	70	1.25	1.32	1	0.44	1.1	4,000	0.95	3.9	4	43	22.4	6,000	0.38	110.5	143.5	2.3
DT4-2-10-RxO-6000		2.4	2.6	1.9	0.8	2.0		0.94	6.4	6.3	16	8.1		0.75	142	175	2.7
DT4-4-10-RxO-5000		3.9	4.53	2.33	0.98	2.7		0.86	14	16	5.4	3		5,000	1.5	205	238
DT5-3-10-RxO-5300	100	3.1	3.1	2.4	1.1	2.4	4,500	1	8.6	9.9	12.9	5	5,300	1.4	135.5	168.5	3.65
DT5-5-10-RxO-5000		5.7	5.28	4.4	1.61	4.1	3,500	1.08	17.3	20	7.2	2.47	5,000	2.8	167	200	4.9
DT5-9-10-RxO-3800		9.8	6.5	6.8	2.1	4.6	3,000	1.5	39	33	6.4	1.93	3,800	5.4	230	263	7.4
DT7-11-20-xxO-3500	142	10	6.62	6.6	1.9	4.4	2,800	1.51	39	33	6	2.48	3,500	15.2	202.5	231.5	9.3
DT7-17-20-xxO-3500		17	11.3	11	2.8	7.2	2,500	1.5	60	50	3.3	0.92		28.4	232.5	261.5	14.2
DT7-28-20-xxO-2000		28	10.4	19	3	7.2	1,500	2.68	140	67	6	1.2	2,000	54.6	292.5	321.5	18.9
DT7-40-20-xxO-2000		42	15.2	29	3	10.5	1,000	2.76	175	100	3.1	0.66		80.9	352.5	381.5	25.4
DT10-54-20-xxO-1500	190	51.3	13.2	33	3.5	9	1,000	3.9	163	60	5.8	0.69	1,500	173	298	359	32
DT10-95-20-xxO-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 construction, convection-cooled, pages 18 to 21																	
DTK5-3-10-xxO-5300	100	3.1	3.1	2.4	1.1	2.4	4,500	1	8.6	9.9	12.9	5	5,000	1.3	114.5	150	4.4
DTK7-11-20-xxO-3500	142	10	6.62	6.6	1.9	4.4	2,800	1.51	39	33	6	2.48	3,500	14	145	182	8.5
DT motors, air-cooled, pages 22 to 25																	
DT7-57-20-xxF-3900	142	61	45.5	25.5	5.3	19	2,000	1.34	185	175	0.5	0.124	4,000	84.6	355.5	384.5	30.3
DT10-127-20xxF-2300	190	160	80	83	13	40	1,500	2	360	198	0.5	0.077	2,300	339	419.5	480.5	67
DT motors, liquid-cooled, pages 26 to 33																	
DT5-20-10-xxW-3600	100	20	13.3	17.5	5.5	11.6	3,000	1.5	39	33	5.1	1.9	3,600	5.5	256	276	8.6
DT5-30-10-xxW-6900		33	60	19	11.6	33.5	6,000	0.55	58.5	132	0.5	0.147	6,900	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	3,400	55	298	342	23
DT7-110-20-xxW-3700		110	74	90	28.1	64		1.55	156	116	0.78	0.153	3,700	81	348	392	28.5
DT7-145-20-xxW-4000		145	96	114	35.9	82		1.51	220	200	0.5	0.122	3,600	107	408	452	35.7
DT10-120-20-xxW-2500	200	121	69	107	16.8	62	1,500	1.75	160	132	1.3	0.153	2,500	175	293	354	32
DT10-220-20-xxW-2400		215	99	175	36.6	85	2,000	2.2	370	200	0.5	0.076	2,400	339	413	474	55
DT10-320-20-xxW-2400		320	160	270	23.5	142	1,500	2	530	330	0.4	0.052		504	533	594	75
DT13-360-20-xxW-2400	260	360	157	240	45.2	103	1,800	2.3	640	330	0.2	0.052	2,400	1,260	1,260	414	88
DT13-440-20-xxW-2200		430	165	325	61	125	1,800	2.6	740	330	0.3	0.041	2,200	1,620	1,620	474	112
DT13-650-20-xxW-1600		666	210	546	86	154	1,500	3.3	1,160	400	0.083	0.044	1,600	2,350	2,350	594	160
Motor data at 350V motor voltage • rating data at winding temperature ΔT < 80K																	

DP DYNASYN Power

DP motor type	Square flange mm	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
		M _O [Nm]	I _O [A]	M _N [Nm]	P _N [kW]	I _N [A]	n _N [1/min]	k _T [Nm/A]	M _{max} [Nm]	I _{max} [A]	L _{tt} [mH]	R _{tt} [Ω]	n _{max} [1/min]	J [kg cm ²]	L [mm]	L _{BR} [mm]	m [kg]
DP motors, convection-cooled, pages 36/37																	
DP7-20-10-xxO-4000	142	25	17.9	13.2	4.1	9.4	3,000	1.4	62	67	13.0	0.46	4,000	16.3	300	335.5	19
DP7-30-10-xxO-4000	142	31	25	16	5.9	12.9	3,500	1.24	66	67	1.24	0.204	4,000	24.0	360	395.5	24.5
DP motors, liquid-cooled, pages 38/39																	
DP13-300-12-xxW-3000	260	300	143	260	54	123	2,000	2.1	560	300	0.5	0.063	3,000	958	958	465	105
DP13-460-12-xxW-2000	260	430	165	415	65.2	159	1,500	2.61	760	330	0.7	0.071	2,000	1,250	1,250	521.5	128
DP13-600-12-xxW-1200	260	660	157	650	68	154	1,000	4.2	1,150	330	1.1	0.104	1,200	1,830	1,830	642	162
Motor data at 350V motor voltage • rating data at winding temperature ΔT < 80K																	



DYNASYN DT motor range

High torques

The DYNASYN DT series is a high-torque series of motors that is designed to produce a particularly high torque density. It comes into its own in applications with intermittent operating conditions. With high overload capacity, these motors are ideal for load peaks such as is the case with machine tools and injection moulding machines that are essential in robotics or in packaging machines.

DYNASYN DT servo motors are available in convection-cooled, air-cooled and liquid-cooled versions. The convection-cooled variant in the DT series is also available with a short construction for use in smaller spaces.

DT3 convection-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with or without transmission
- For intermittent operations
- Control drive for continuous operation

Connection cable

Nominal cross-section of copper conductor 1.5 mm²
Power connector in size 1

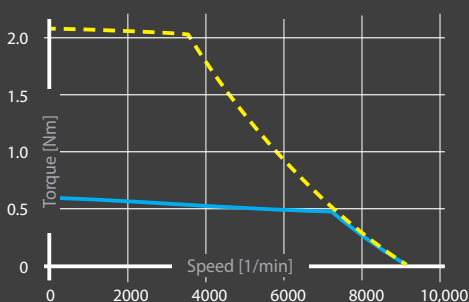
Equipment

	Standard	Option
Brake	–	1.1 Nm
Encoder	Resolver	S-, T-, U-, V encoder
Drive shaft	smooth	Feather key DIN6885 A3x3x12

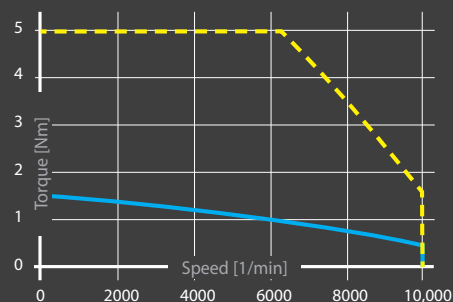
BENEFITS

- Extremely high standstill torques based on the axle height
- High torques and power density
- High overload capacity
- Exceptional dynamism with acceleration values of up to 160,000 rad/s²
- Protection class IP54

Characteristic



DT3-0.5-10-xxO-9000



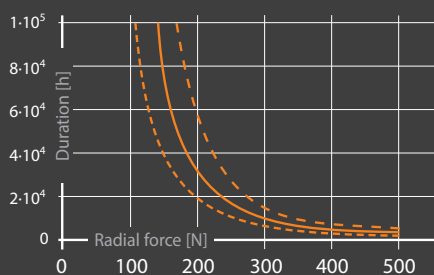
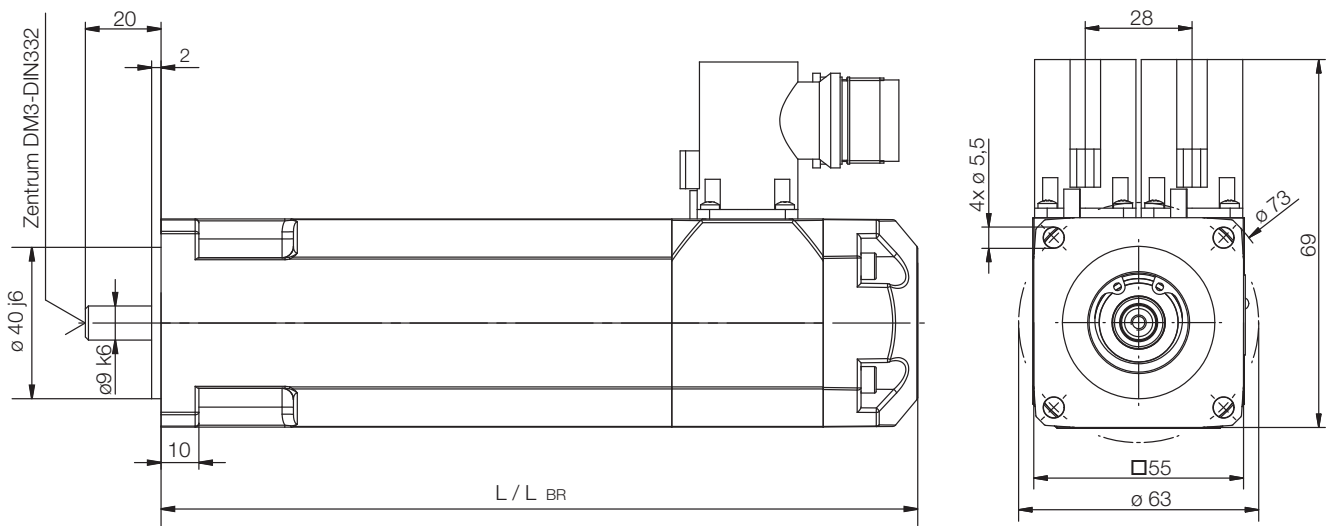
DT3-1-10-xxO-9000

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT3-0.5-10-xxO-9000	0.71	1.1	0.54	0.34	0.9	6,000	0.62	2.1	4	21	19.7	9,000	0.1	126	156	0.8
DT3-1-10-RxO-9000	1.59	3.4	0.94	0.59	2.18	6,000	0.47	5	9.6	4.7	4.2	9,000	0.27	174	204	1.9
DT3-1-10-xxO-9000														186	216	

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

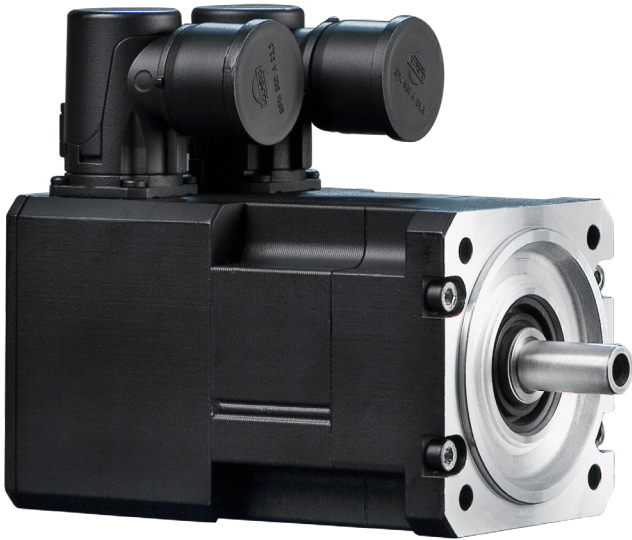
Dimensions



Bearing service life (L10h)

Maximum torque --- Thermal continuous torque —
 Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$

DT 4 convection-cooled servo motors



Features

- Extremely high standstill torques based on the axle height
- High torques and power density
- High overload capacity
- Exceptional dynamism with acceleration values of up to 100,000 rad/s²
- Protection class IP54

Applications

- Positioning and actuating drive for drive tasks with or without transmission
- For intermittent operations
- Control drive for continuous operation

Connection cable

Nominal cross-section of copper conductor 1.5 mm²

Power connector in size 1

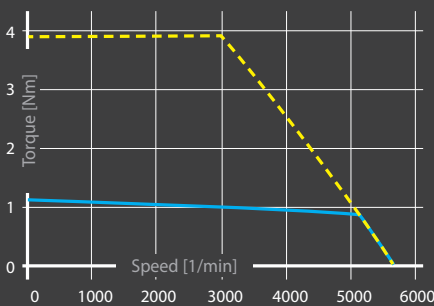
Equipment

	Standard	Option
Brake	–	4.5 Nm
Encoder	Resolver	S-, T-, U-, V encoder
Drive shaft	smooth	Feather key DIN6885 A3x3x12

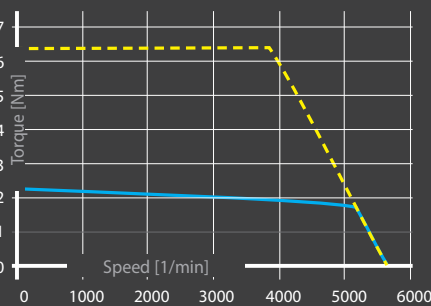
BENEFITS

- Extremely high standstill torques based on the axle height
- High torques and power density
- High overload capacity
- Exceptional dynamism with acceleration values of up to 100,000 rad/s²
- Protection class IP54

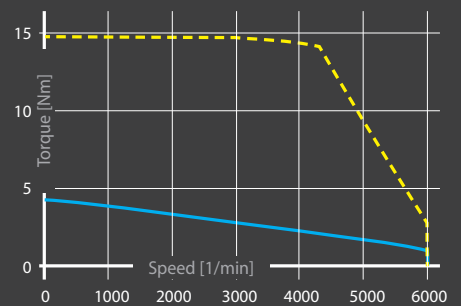
Characteristic



DT4-1-10-xxO-6000



DT4-2-10-xxO-6000



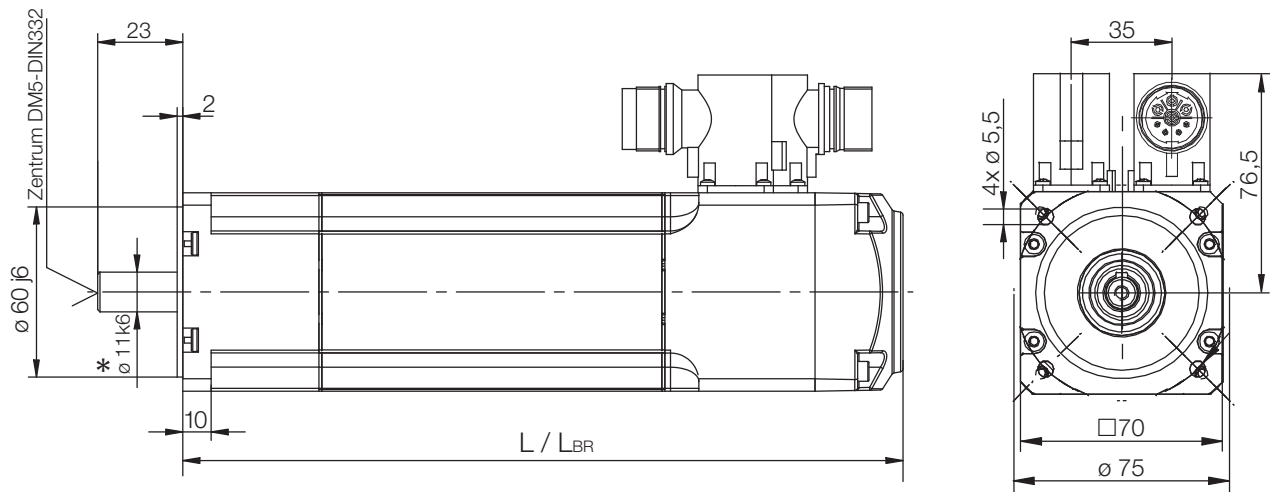
DT4-4-10-xxO-5000

Technical data

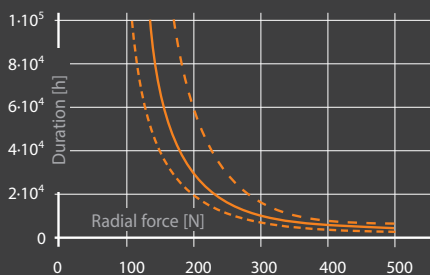
Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT4-1-10-RxO-6000	1.25	1.32	1	0.44	1.1	4,000	0.95	3.9	4	43	22.4	6,000	0.38	110.5	143.5	2.3
DT4-1-10-xxO-6000														131.5	164.5	
DT4-2-10-RxO-6000	2.4	2.6	1.9	0.80	2	4,000	0.94	6.4	6.3	16	8.1	6,000	0.75	142	175	2.7
DT4-2-10-xxO-6000														163	196	
DT4-4-10-RxO-5000	3.9	4.53	2.33	0.98	2.7	4,000	0.86	14	16	5.4	3	5,000	1.5	205	238	3.5
DT4-4-10-xxO-5000														226	259	

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80$ K

Dimensions



* Optionally available with $\varnothing 14$ k6



Bearing service life (L10h)

Maximum torque — Thermal continuous torque —
 Bearing service - - - $2 \times n_N$ — n_N - - - $0.5 \times n_N$

DT 5 convection-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with or without transmission
- For intermittent operations
- Control drive for continuous operation

Connection cable:

Nominal cross-section of copper conductor 1.5 mm²
Power connector in size 1

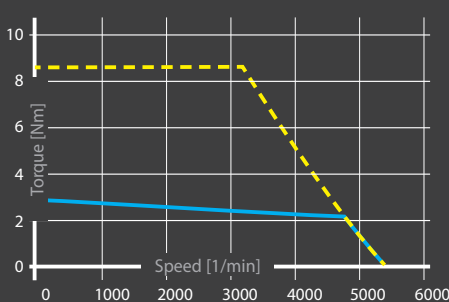
Equipment

	Standard	Option
Brake	–	12 Nm
Encoder	Resolver	E-, F-, P-, Q-, S-, T-, U-, V encoder
Drive shaft	smooth	Feather key DIN6885 A6x6x30

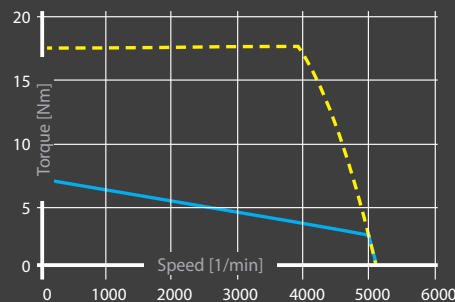
BENEFITS

- Extremely efficient
- High standstill torques
- High torques and power density
- Exceptional dynamism
- Extremely low cogging torques during moment pulsations
- Protection class IP65

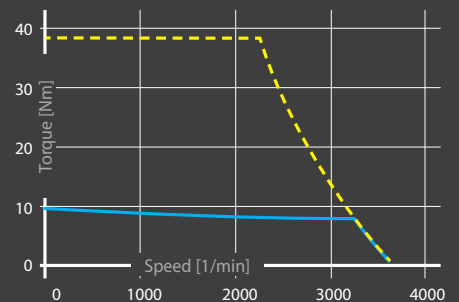
Characteristic



DT5-3-10-xxO-5300



DT5-5-10-xxO-5000



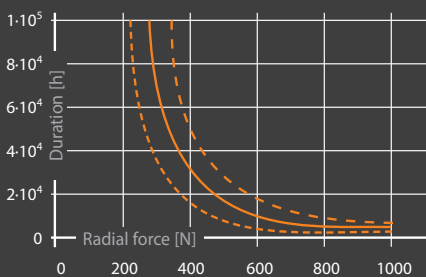
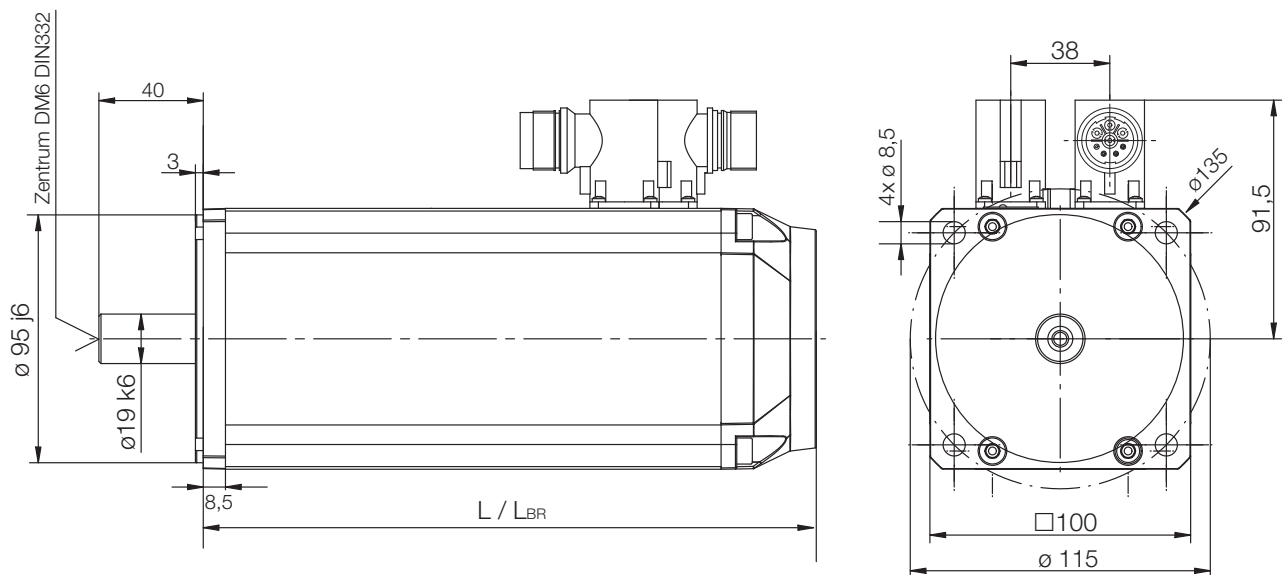
DT5-9-10-xxO-3800

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT5-3-10-RxO-5300	3.1	3.1	2.4	1.1	2.4	4,500	1	8.6	9.9	12.9	5	5,300	1.4	135.5	168.5	3.65
DT5-3-10-xxO-5300														163.5	196.5	
DT5-5-10-RxO-5000	5.7	5.28	4.4	1.61	4.1	3,500	1.08	17.3	20	7.2	2.47	5,000	2.8	167	200	4.9
DT5-5-10-xxO-5000														195	228	
DT5-9-10-RxO-3800														230	263	
DT5-9-10-xxO-3800	9.8	6.5	6.8	2.1	4.6	3,000	1.5	39	33	6.4	1.93	3,800	5.4	258	291	7.4

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

Dimensions



Bearing service life (L10h)

Maximum torque --- Thermal continuous torque —
 Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$

DT 7 convection-cooled servo motors



Applications

- Direct drive for positioning and actuating without transmissions or with low gear reductions for intermittent operations
- Drive is suitable for large load inertias
- Control drive for continuous operation at lower and average speeds

Connection cable

Nominal cross-section of copper conductor 1.5 mm²

Power connector in size 1

Equipment

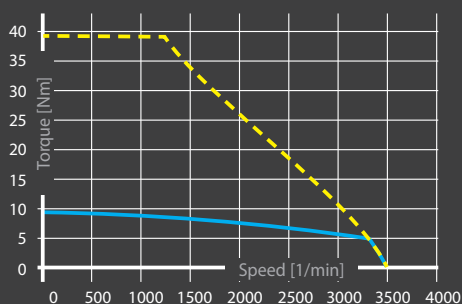
	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A8x7x36

BENEFITS

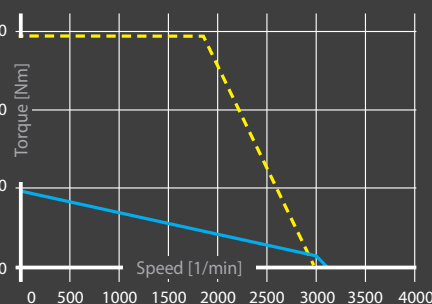
- Extremely high standstill torques
- High overload capacity without noticeable saturation effect
- Mechanically very rigid construction
- Protection class IP65

Maximum torque --- Thermal continuous torque —

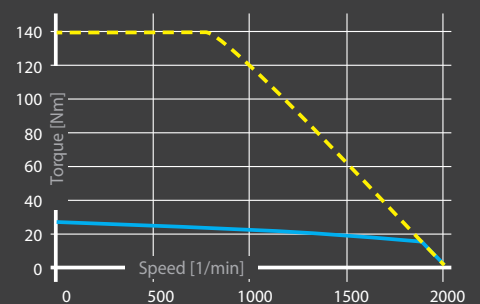
Characteristic



DT7-11-20-xxO-3500



DT7-17-20-xxO-3500



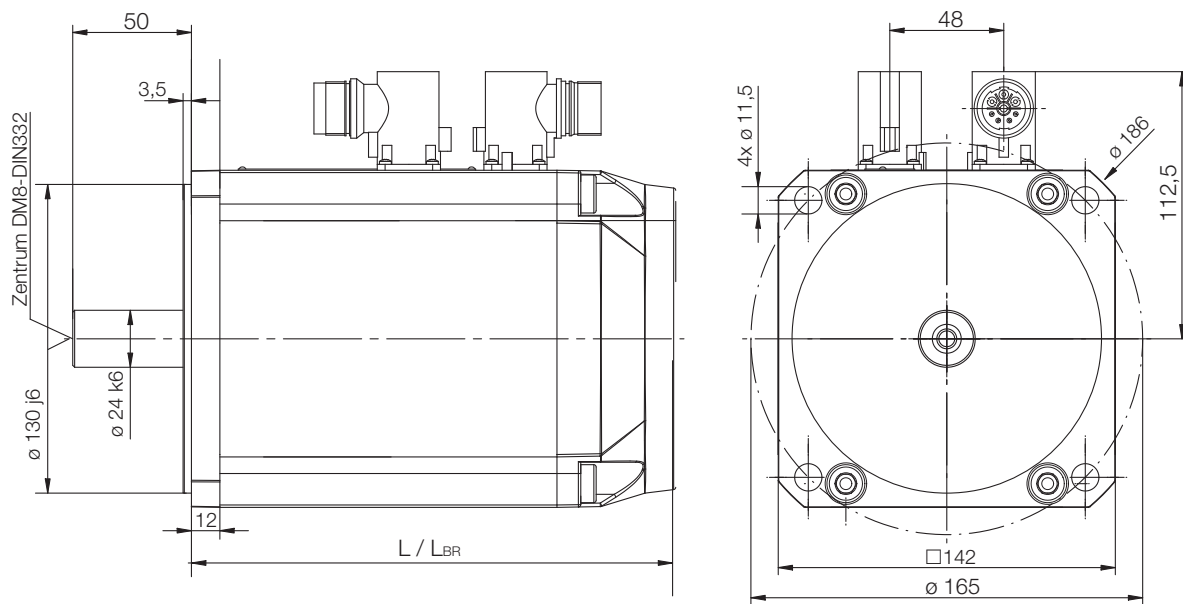
DT7-7-28-20-xxO-2000

Technical data

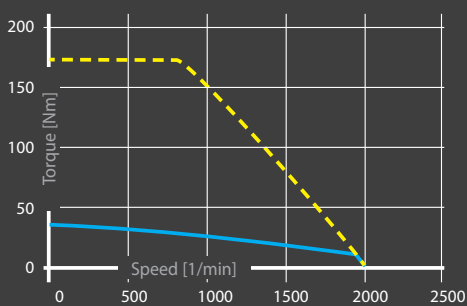
Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT7-11-20-xxO-3500	10	6.62	6.6	1.9	4.4	2,800	1.51	39	33	6	2.48	3,500	15.2	202.5	231.5	9.3
DT7-17-20-xxO-3500	18	10.3	10	2.1	6.1	2,000	1.75	57	50	3	0.92	5000	28.7	232.5	261.5	14.2
DT7-28-20-xxO-2000	28	10.4	19	3	7.2	1,500	2.68	140	67	6	1.2	2,000	54.6	292.5	321.5	18.9
DT7-40-20-xxO-2000	42	15.2	29	3	10.5	1,000	2.76	175	100	3.1	0.66	2,000	80.9	352.5	381.5	25.4

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80K$

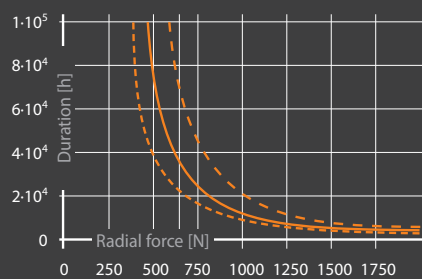
Dimensions



Bearing service --- $2 \times n_N$ --- n_N --- $0.5 \times n_N$



DT7-40-20-xxO-2000



Bearing service life (L10h)

DT 10 convection-cooled servo motors



Applications

- Direct drive for positioning and actuating without transmissions or with low gear reductions for intermittent operations
- Drive is suitable for large load inertias

Connection cable

Nominal cross-section of copper conductor 6 mm²

Power connector in size 1.5

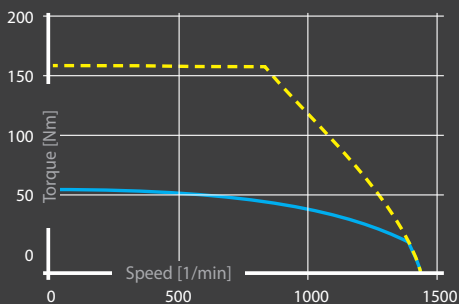
Equipment

	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x60

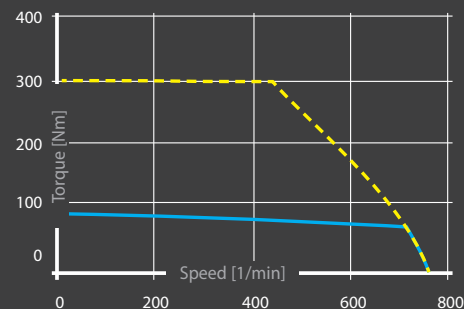
BENEFITS

- High stall torques
- High overload capacity without noticeable saturation effect
- Mechanically very rigid construction
- Protection class IP54 / IP65

Characteristic



DT 10-54-20-xxO-1500



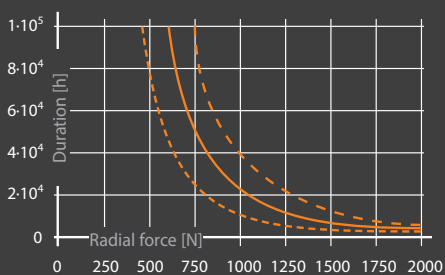
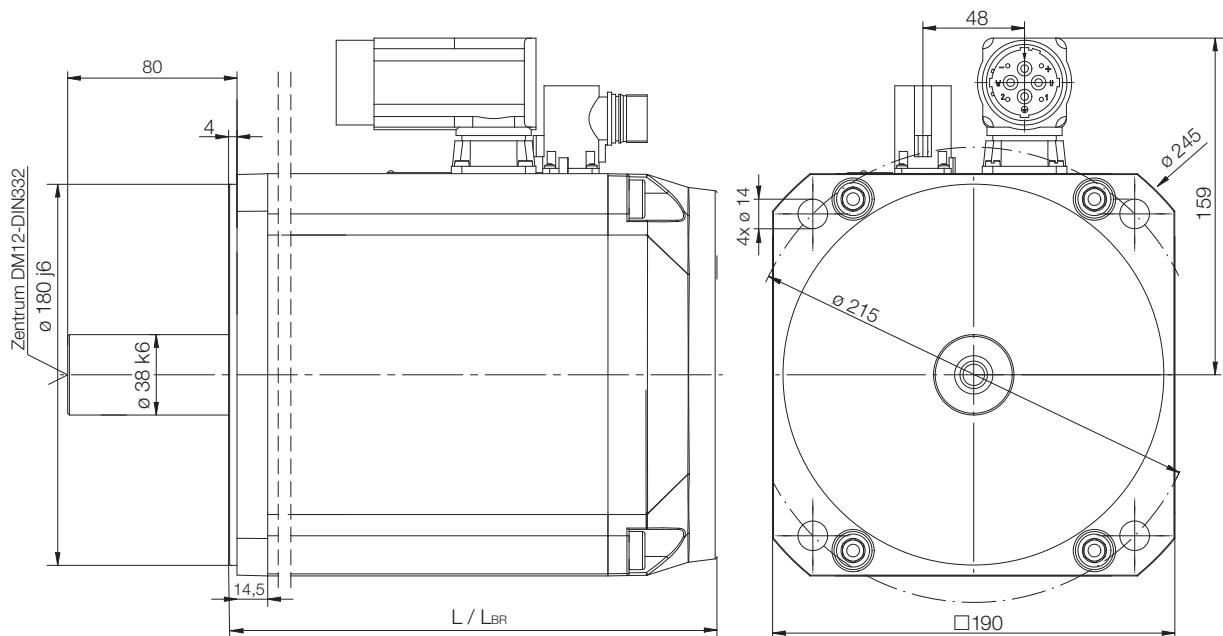
DT10-95-20-xxO-700

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT10-54-20-xxO-1500	51.3	13.2	33	3.5	9	1,000	3.9	163	60	5.8	0.69	1,500	173	298	359	32
DT10-95-20-xxO-700	90	12.3	73	3.8	10	500	7.3	300	47	9.6	1.03	700	339	418	479	53

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

Dimensions



Bearing service life (L10h)

Maximum torque --- Thermal continuous torque —
Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$

DTK5 convection-cooled servo motor



Applications:

- For applications in confined spaces such as linear axes
- Positioning and actuating drive for drive tasks, particularly if driven by coupling or transmission

Connection cable

Nominal cross-section of copper conductor 1.5 mm²
Power connector in size 1

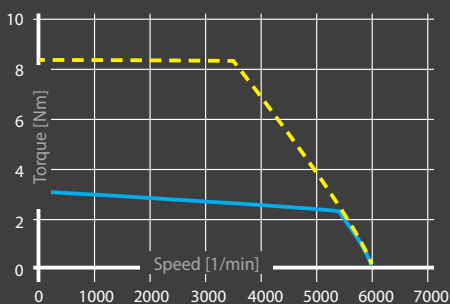
Equipment

	Standard	Option
Brake	–	4.5 Nm
Encoder	Resolver	E-, F-, P-, Q-, S-, T-, U-, V encoder
Drive shaft	smooth	Feather key DIN6885 A6x6x30

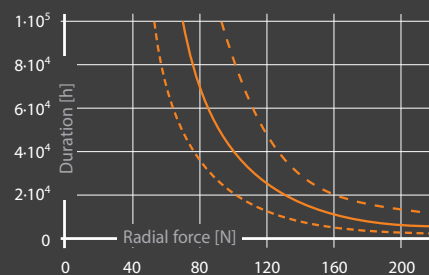
BENEFITS

- High standstill torque
- High torques and power density
- Exceptional dynamism with acceleration values of up to 65,000 rad/s²
- Protection class IP65

Characteristic



DTK 5-3-10-xxO-5300

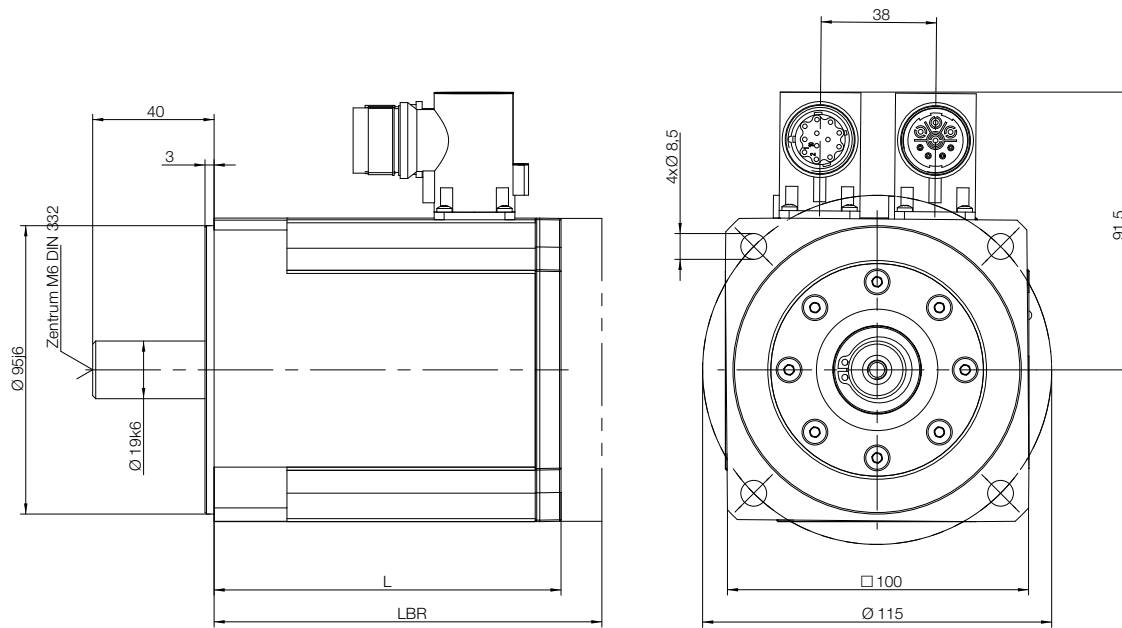


Bearing service life (L10h)

Technical data

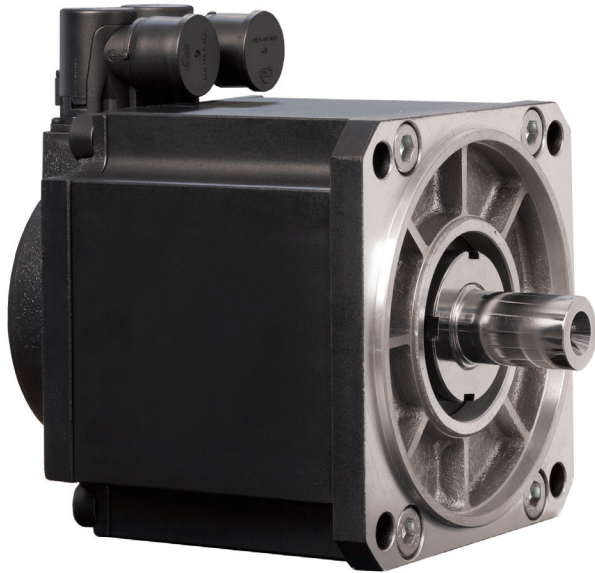
Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DTK5-3-10-xxO-5300	3.1	3.1	2.4	1.1	2.4	4,500	1.0	8.6	9.9	12.9	5	5,000	1.30	114.5	150	4.4
Motor data at 350 V motor voltage • rating data at winding temperature $\Delta T < 80$ K																

Dimensions



Maximum torque — — — Thermal continuous torque — — —
 Bearing service — — — $2 \times n_N$ — — — n_N — — — $0.5 \times n_N$

DTK7 convection-cooled servo motor



Applications

- For applications in confined spaces such as linear axes
- Positioning and actuating drive for drive tasks, particularly if using couplings and transmissions

Connection cable:

Nominal cross-section of copper conductor 1.5 mm²
Power connector in size 1

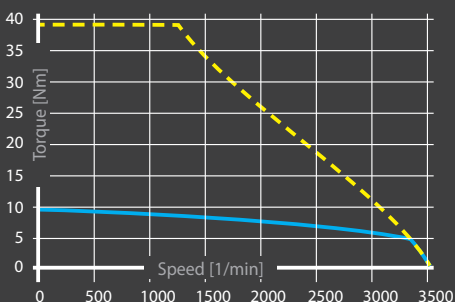
Equipment

	Standard	Option
Brake	–	12 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A8x7x36

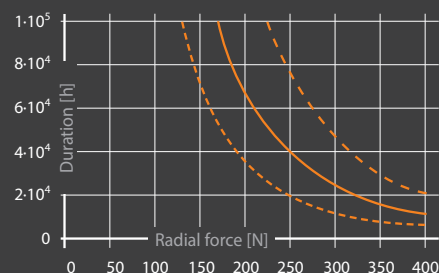
BENEFITS

- High standstill torque
- High overload capacity without noticeable saturation effect
- Mechanically very rigid construction
- Protection class IP54

Characteristic



DTK7-11-20-xx0-3500

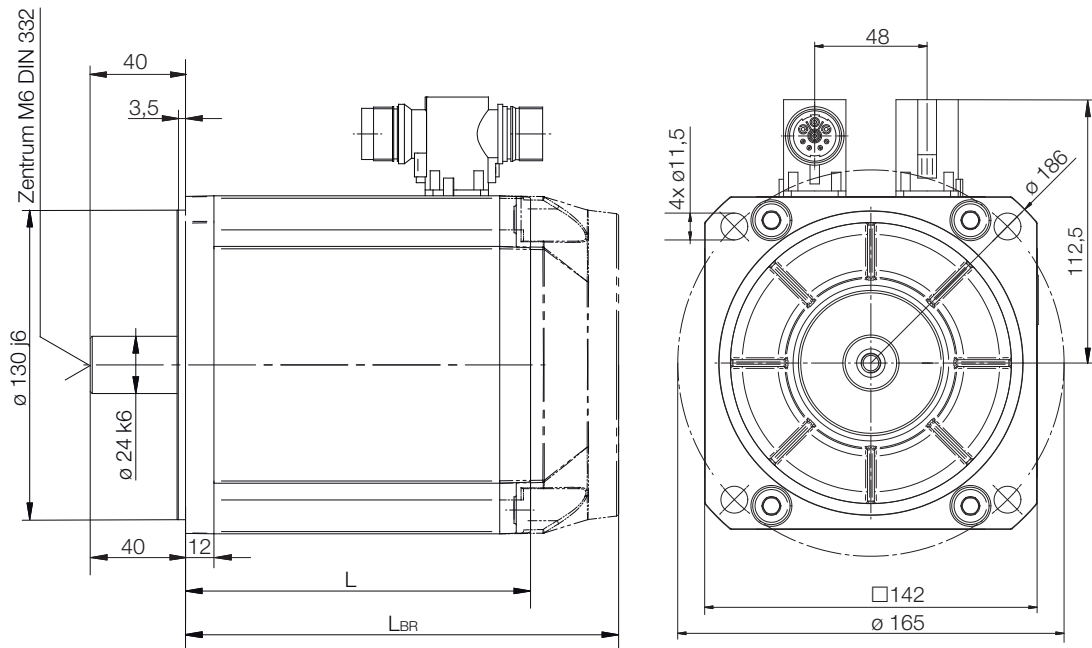


Bearing service life (L10h)

Technical data

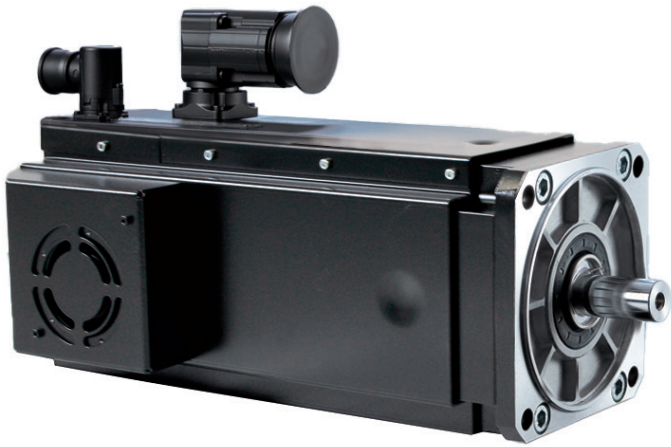
Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DTK7-11-20-xxO-3500	10.0	6.62	6.6	1.9	4.4	2,800	1.51	39	33	6	2.48	3,500	14	145	182.0	8.5
Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$																

Dimensions



Maximum torque — — — Thermal continuous torque — — —
 Bearing service — — — $2 \times n_N$ — — — n_N — — — $0.5 \times n_N$

DT7 air-cooled servo motor



Applications

- Direct drive for positioning and actuating without transmissions or with low gear reductions for intermittent operations
- Drive is suitable for large load inertias
- Control drive for continuous operation at lower and average speeds

Connection cable

Nominal cross-section of copper conductor 10 mm²

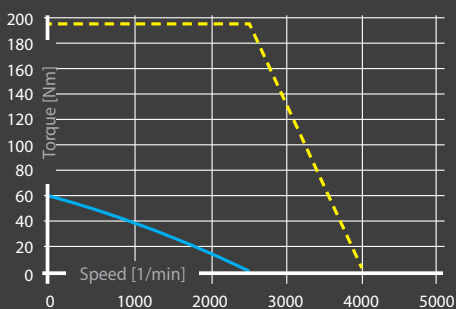
Equipment

	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A8x7x36

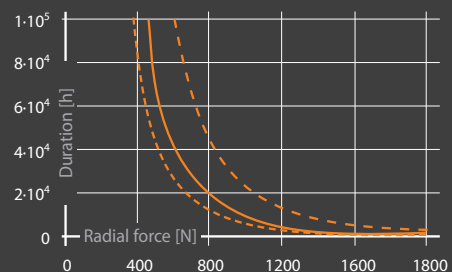
BENEFITS

- Higher values for continuous operation due to better heat dissipation
- High standstill torque
- High overload capacity without noticeable saturation effect
- Mechanically very rigid construction
- Protection class IP40

Characteristic



DT7-57-20-xxF-3900

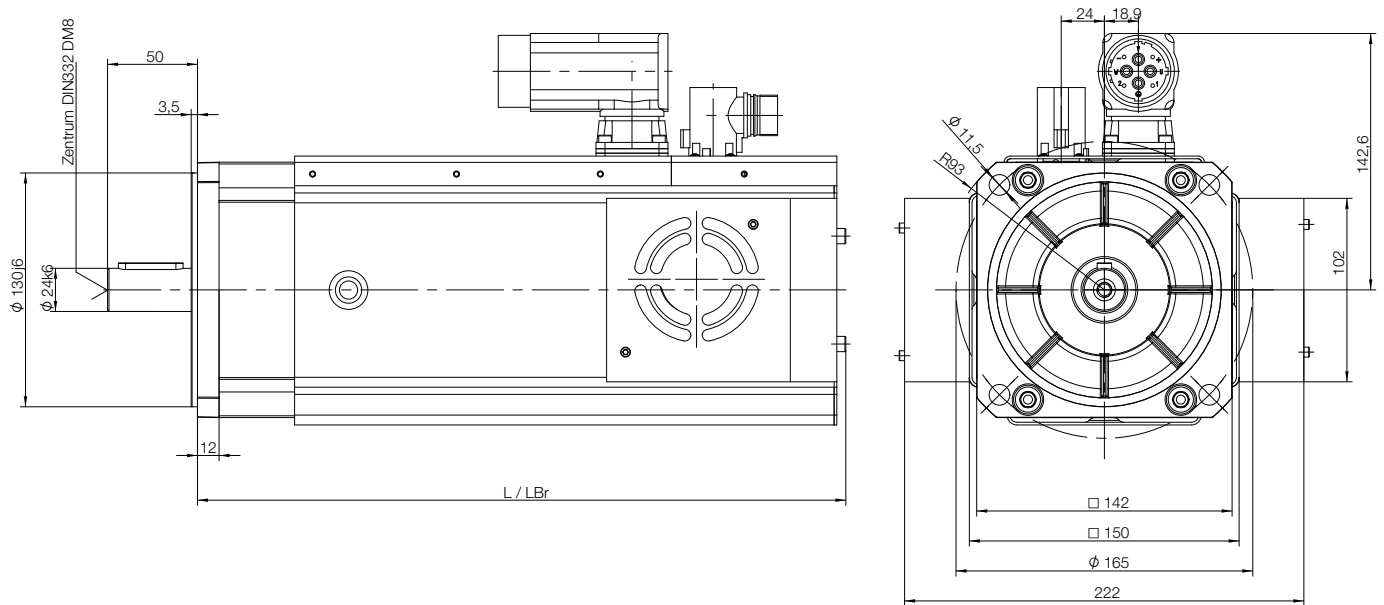


Bearing service life (L10h)

Technical data

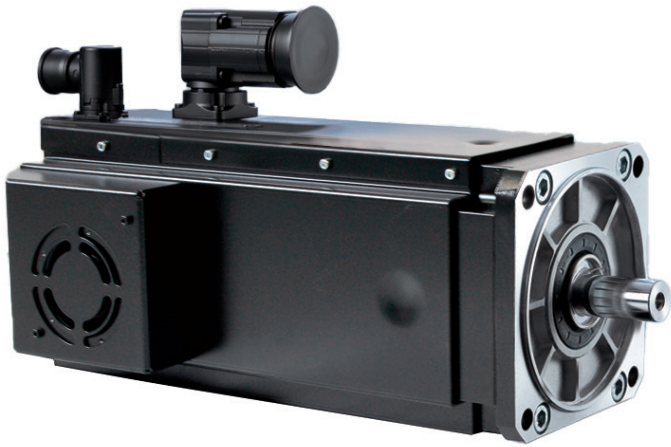
Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT7-57-20-xxF-3900	61	45.5	25.5	5.3	19	2,000	1.34	185	175	0.5	0.124	4,000	84.6	355.5	384.5	30.3
Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$																

Dimensions



Maximum torque — — — Thermal continuous torque — — —
 Bearing service — — — $2 \times n_N$ — — — n_N — — — $0.5 \times n_N$

DT10 air-cooled servo motor



Applications

- Direct drive for positioning and actuating without transmissions or with low gear reductions for intermittent operations
- Drive is suitable for large load inertias

Connection cable

Nominal cross-section of copper conductor 10 mm²

Power connector in size 1.5

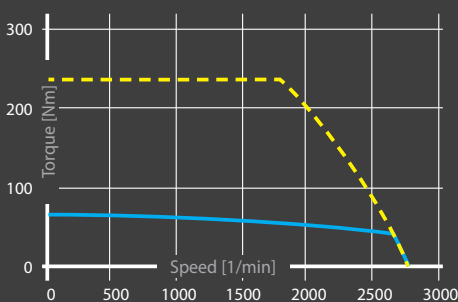
Equipment

	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x60

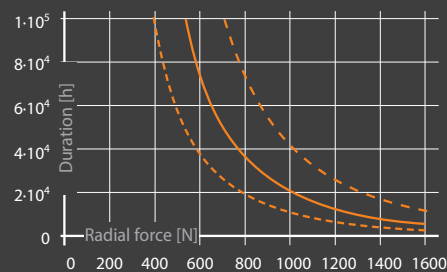
BENEFITS

- High stall torques
- High overload capacity without noticeable saturation effect
- Mechanically very rigid construction
- Protection class IP40

Characteristic



DT 10-127-20-xxF-2300

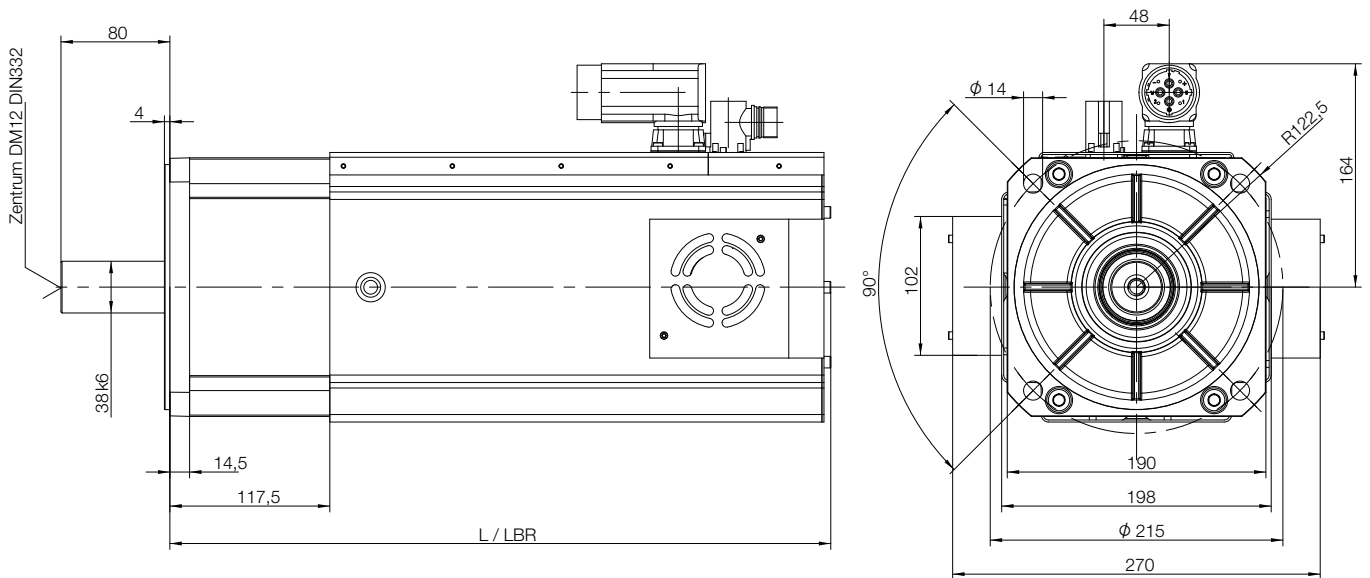


Bearing service life (L10h)

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT10-127-20-xxF-2300	160	80	83	13	40	1,500	2	360	198	0.5	0.077	2,300	339	419.5	480.5	67
Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80$ K																

Dimensions



Maximum torque — — — Thermal continuous torque — — —
 Bearing service — — — $2 \times n_N$ — — — n_N — — — $0.5 \times n_N$

DT 5 liquid-cooled servo motor



Applications

- Positioning and actuating drive for drive tasks with exceptional requirements in terms of dynamism and performance density
- Control drive for continuous operation
- For applications with demanding cooling situations due to a high integration density, pollution or ambient temperature conditions

Connection cable

Nominal cross-section of copper conductor

DT 5-20 = 2.5mm² · DT 5-30 = 4mm²

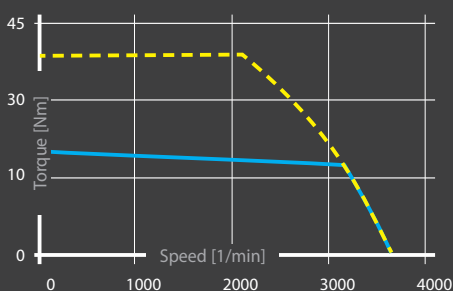
Equipment

	Standard	Option
Brake	–	12 Nm
Encoder	Resolver	E-, F-, P-, Q-, U-, V encoder
Drive shaft	smooth	Feather key DIN6885 A6x6x30

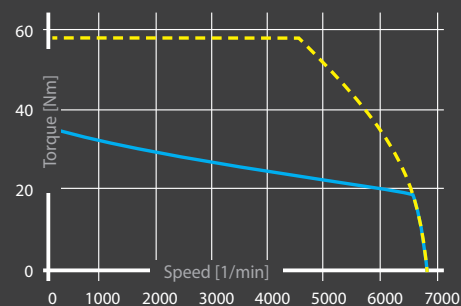
BENEFITS

- High standstill torques
- Exceptional torques and power density
- Exceptional dynamism even with extremely short repeat cycles
- Protection class IP54

Characteristic



DT5-20-10-xxW-3600



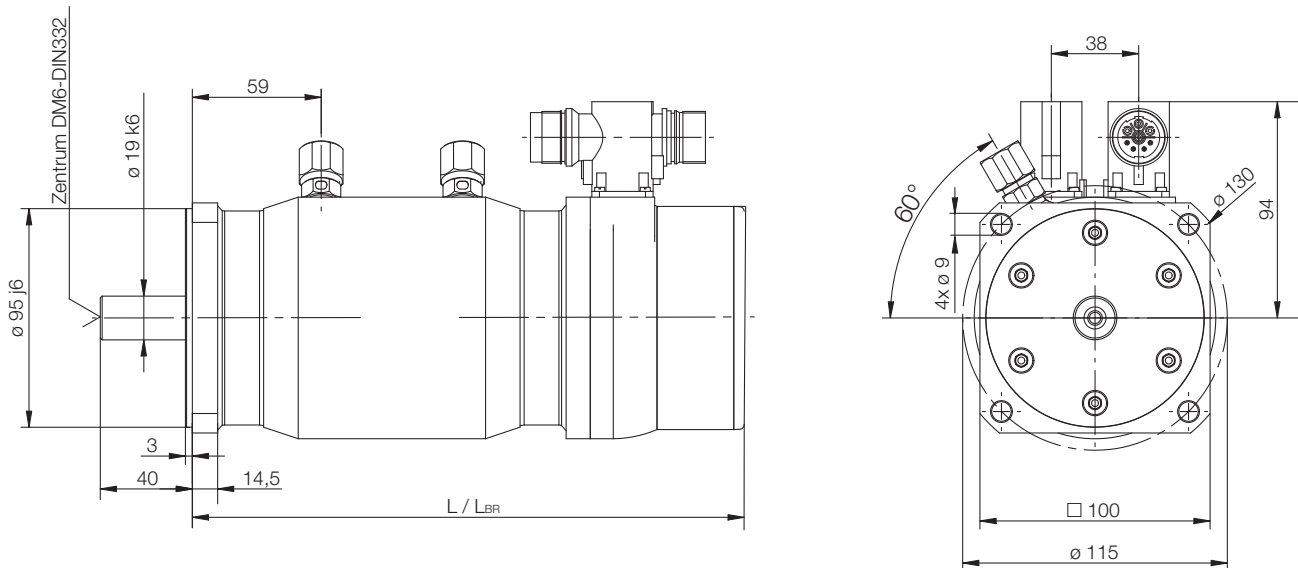
DT5-30-10-xxW-6900

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	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	3,000	1.5	39	33	5.1	1.9	3,600	5.5	256	276	8.6
DT5-30-10-xxW-6900	33	60	19	11.6	33.5	6,000	0.55	58.5	132	0.5	0.147	6,900	8.3	316	336	12.4

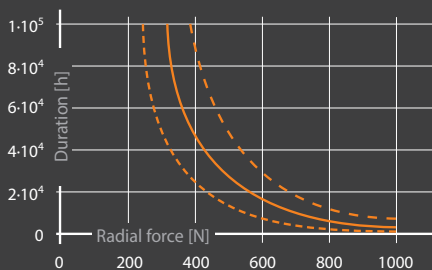
Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80$ K

Dimensions



Cooling

- Minimum coolant flow quantity of 2.0 l/min; max. inlet temperature of 40°C,
- Cooling connection shown as illustration



Bearing service life (L10h)

Maximum torque --- Thermal continuous torque —
 Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$

DT7 liquid-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with exceptional requirements in terms of torque and performance density
- Control drive for continuous operation
- For applications with demanding cooling situations due to a high integration density, pollution or ambient temperature conditions

Connection cable

Nominal cross-section of copper conductor 10 mm²

Power connector in size 1.5

Equipment

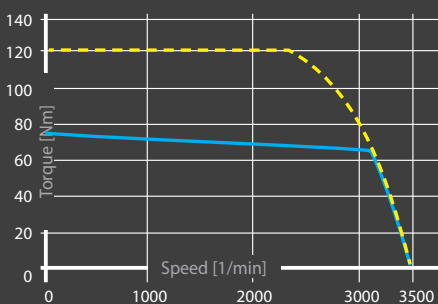
	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x36

BENEFITS

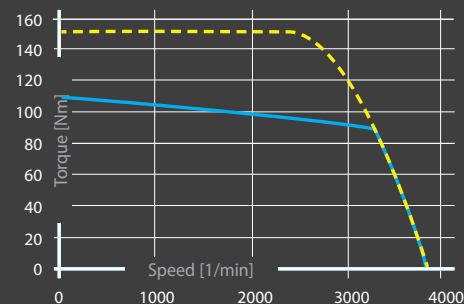
- Exceptional standstill torques
- Exceptional torques and power density
- High performance at lower speeds
- Protection class IP54

Maximum torque — — — Thermal continuous torque — — —

Characteristic



DT7-75-20-xxW-3500



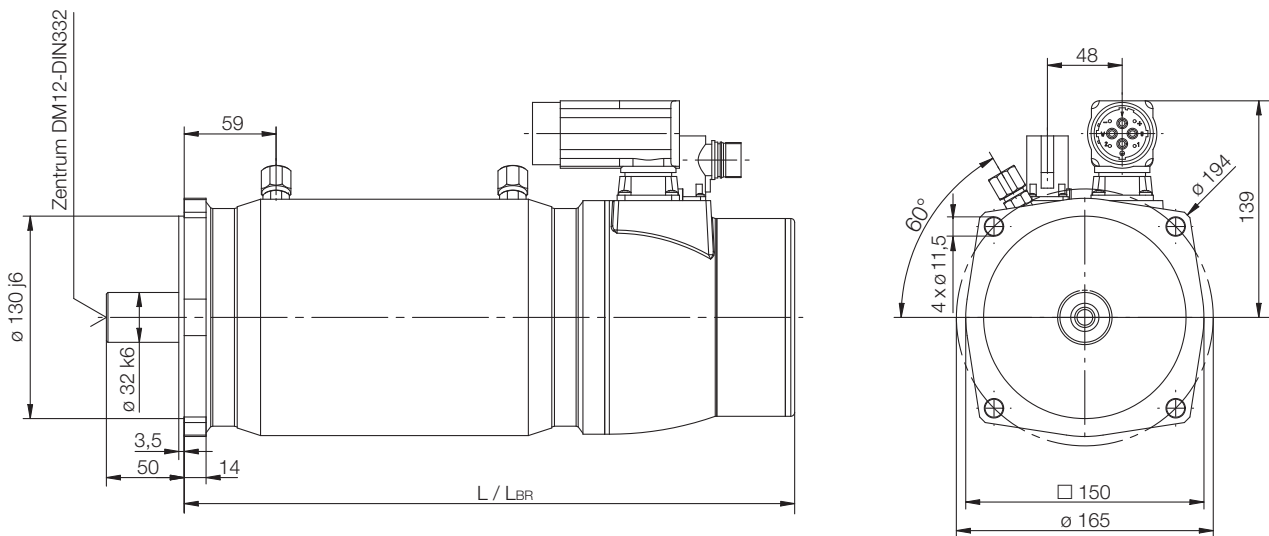
DT7-110-20-xxW-3700

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT7-75-20-xxW-3500	75	51	66	21	48	3,000	1.48	120	99	1.25	0.294	3,400	55	298	342	3
DT7-110-20-xxW-3700	110	74	90	28.1	64	3,000	1.55	156	116	0.78	0.153	3,700	81	348	392	28.5
DT7-145-20-xxW-4000	145	96	114	35.9	82	3,000	1.51	220	200	0.5	0.122	3,600	107	408	452	35.7

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80K$

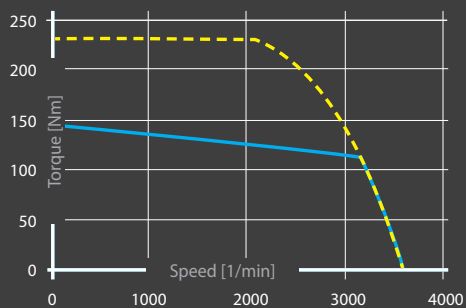
Dimensions



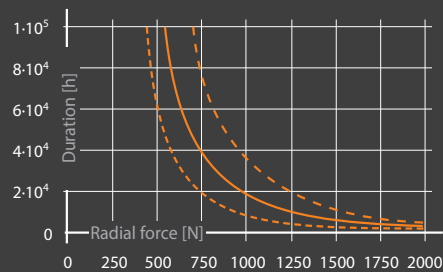
Cooling

- Minimum coolant flow quantity of 2.0 l/min; max. inlet temperature of 40°C,

Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$



DT7-145-20-xxW-4000



Bearing service life (L10h)

DT 10 liquid-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with exceptional requirements in terms of torque and performance density
- Control drive for continuous operation at lower and average speeds
- For applications with demanding cooling situations due to a high integration density, pollution or ambient temperature conditions

Connection cable

Nominal cross-section of copper conductor 16 mm²

Power connector in size 1.5

Equipment

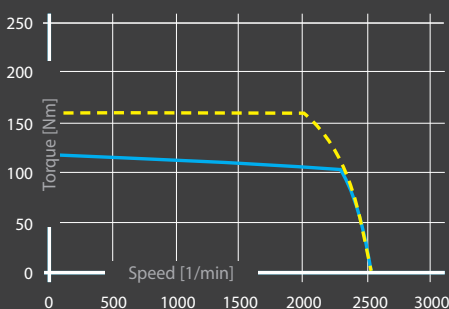
	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x60

BENEFITS

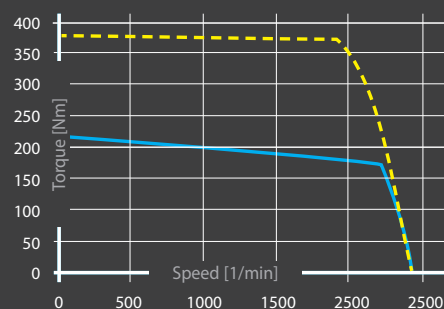
- Exceptional standstill torques
- Exceptional torques and power density
- High performance at lower speeds
- Protection class IP54

Maximum torque - - - - Thermal continuous torque ————

Characteristic



DT10-120-20-xxW-2500



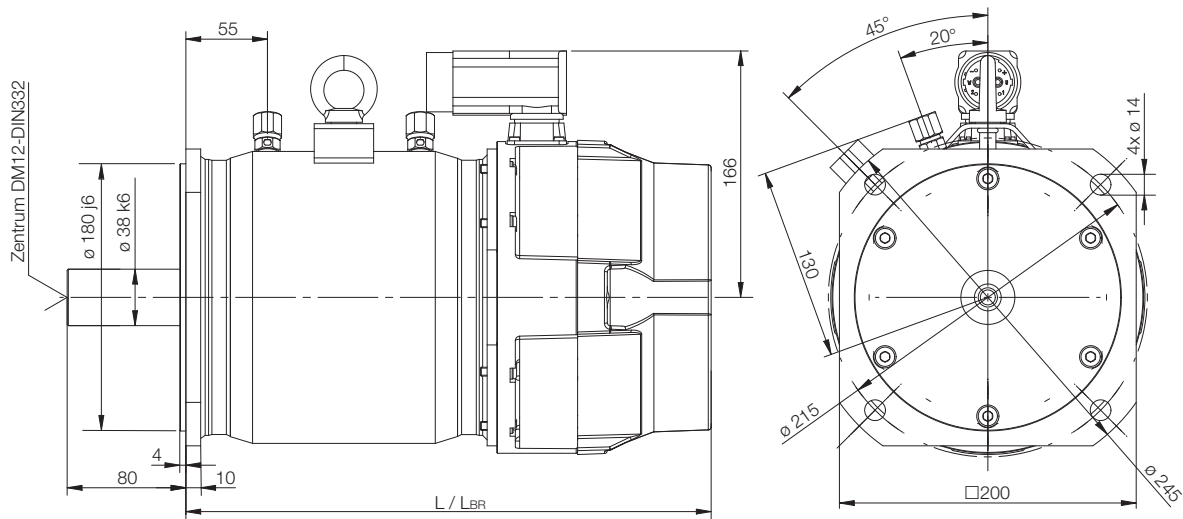
DT 10-220-20-xxW-2400

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DT10-120-20-xxW-2500	121	69	107	16.8	62	1,500	1.75	160	132	1.3	0.153	2,500	175	293	354	32
DT10-220-20-xxW-2400	215	99	175	36.6	85	2,000	2.2	370	200	0.5	0.076	2,400	339	413	474	55
DT10-320-20-xxW-2400	320	160	270	23.5	142	1,500	2	530	330	0.4	0.052	2,400	504	533	594	75

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

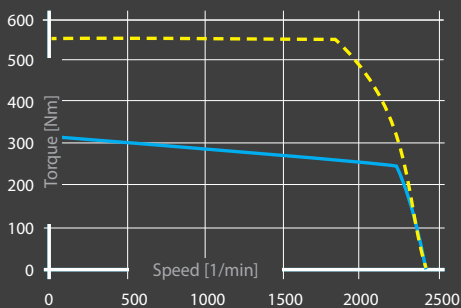
Dimensions



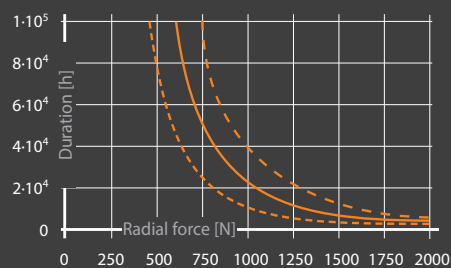
Cooling

- Minimum coolant flow quantity of 4.0 l/min; max. inlet temperature of 40°C,
- Cooling connection shown as illustration

Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$



DT10-320-20-xxW-2400



Bearing service life (L10h)

DT 13 liquid-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with exceptional requirements in terms of torque and performance density
- Control drive for continuous operation at lower and average speeds
- For applications with demanding cooling situations due to a high integration density, pollution or ambient temperature conditions
- Control drive for machines with exceptional requirements in terms of requiring little maintenance

Connection cable

DT13-360 nominal cross-section of copper conductor 16 mm²

DT13-440 nominal cross-section of copper conductor 25 mm²

DT13-650 nominal cross-section of copper conductor 35 mm²

Equipment

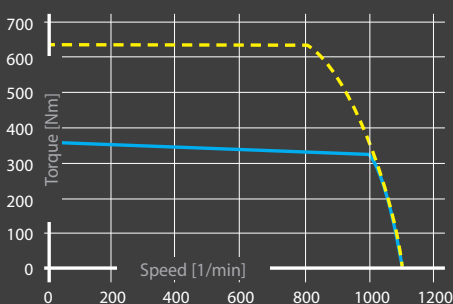
	Standard	Option
Brake	–	120 Nm
Encoder	Resolver	E-, F encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x60

BENEFITS

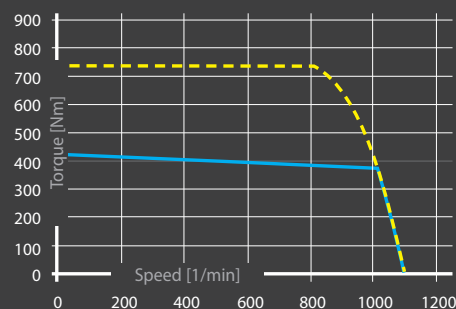
- Exceptional standstill torques
- Exceptional torques and power density
- High performance at lower speeds
- Servo motor for applications that demand a high level of motor performance
- Protection class IP54

Maximum torque — — — Thermal continuous torque — — —

Characteristic



DT13-360-20-xxW-2400



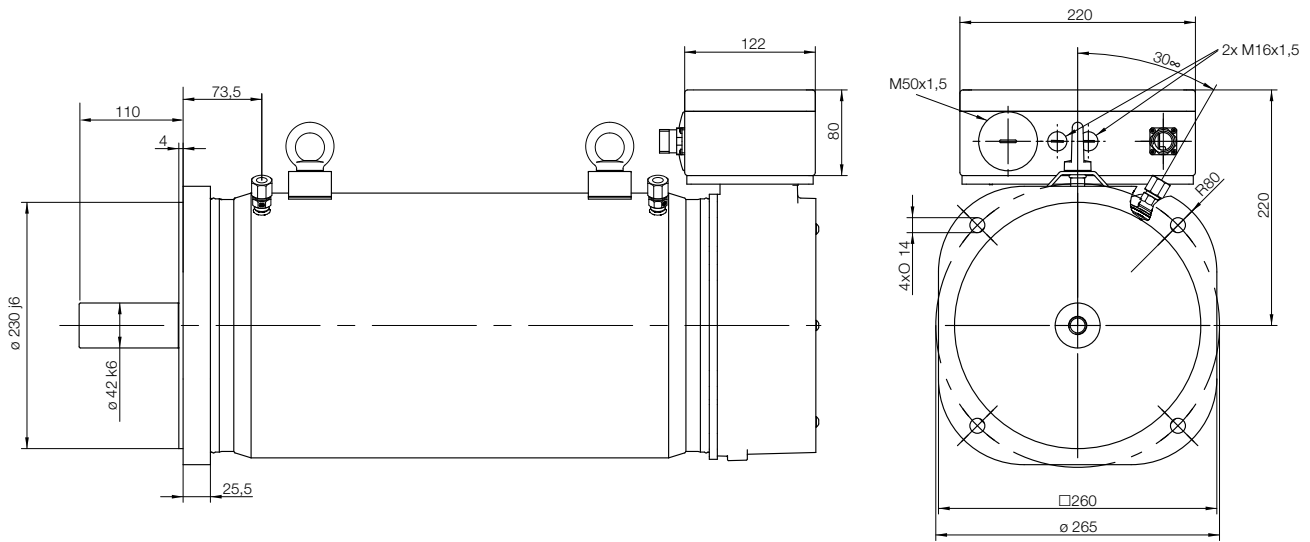
DT13-440-20-xxW-2200

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data			
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	m [kg]
DT13-360-20-xxW-2400	360	157	240	45.2	103	1,800	2.3	640	330	0.2	0.052	2,400	1,260	414	88
DT13-440-20-xxW-2200	430	165	325	61	125	1,800	2.6	740	330	0.3	0.041	2,200	1,620	474	112
DT13-650-20-xxW-1600	666	210	546	86.0	154	1,500	3.3	1,160	400	0.083	0.044	1,600	2,350	594	160

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

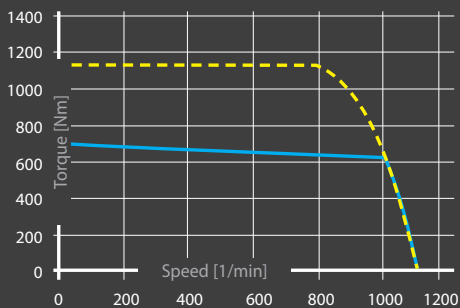
Dimensions



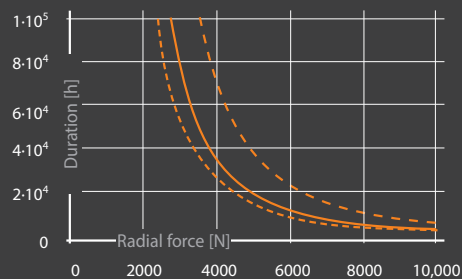
Cooling

- Minimum coolant flow quantity of 8.0 l/min; max. inlet temperature of 40°C; pressure drop ca. 1bar,

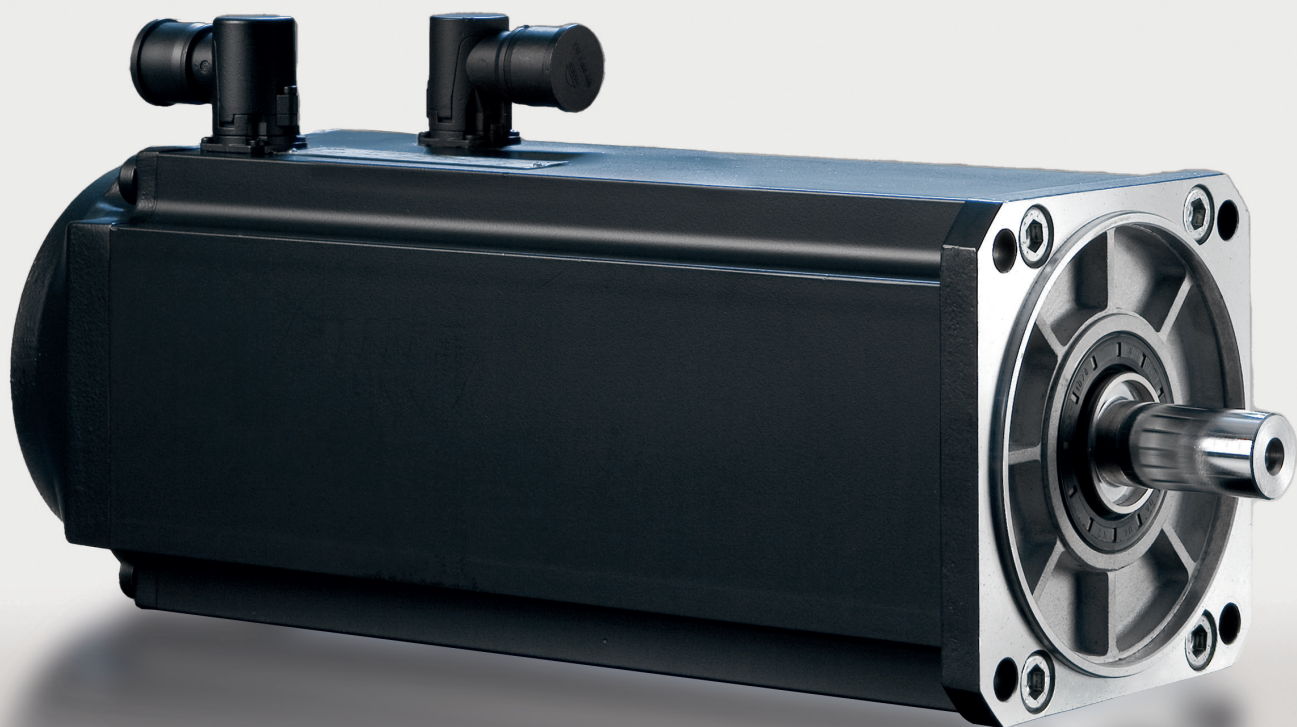
Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$



DT13-650-20-xxW-1600



Bearing service life (L10h)



DYNASYN DP motor range

High performance

The DYNASYN DP motor range is designed for high performance density. DYNASYN DP motors achieve a remarkable continuous torque even at average speeds.

The motors in this range are particularly suitable when a high degree of continuous power has to be provided in confined spaces, or when exceptional efficiency is required in continuous operations. Motors with extremely compact designs can provide great performance due to the exceptional performance density. The DYNASYN DP synchronous servo motors are characterised by extremely good synchronisation characteristics and low noise emissions. This makes them particularly suitable for continuous operation in the field weakening range. Examples of such applications include converting, printing and packaging.

DYNASYN DP servo engines are available in convection-cooled and liquid-cooled variants (forced ventilation available on request).

DP 7 convection-cooled servo motors



Applications

- Positioning and actuating drive for drive tasks with exceptional requirements in terms of dynamism
- Control drive for continuous operation at average speeds
- Servo drives with high performance without active cooling
- Control drives for drive tasks with machines with exceptional requirements in terms of synchronisation

Connection cable

DP7-20, nominal cross-section of copper conductor 1.5 mm², power connector in size 1

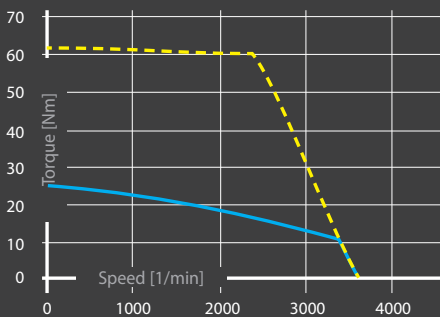
Equipment

	Standard	Option
Brake	–	18 Nm
Encoder	Resolver	E-, F-, P-, Q encoder
Drive shaft	smooth	Feather key DIN6885 A10x8x36

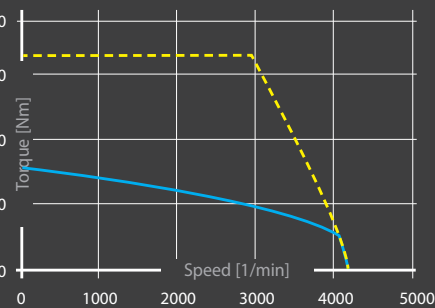
BENEFITS

- Extremely good synchronisation characteristics
- Exceptional performance density due to high levels of efficiency
- Extreme dynamism due to a streamlined rotor design
- Protection class IP65

Characteristic



DP7-20-10-xxO-4000



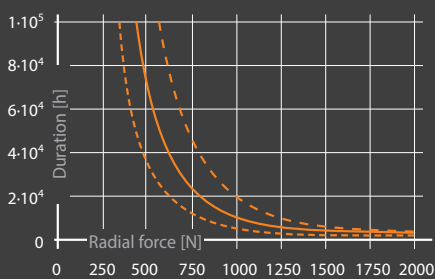
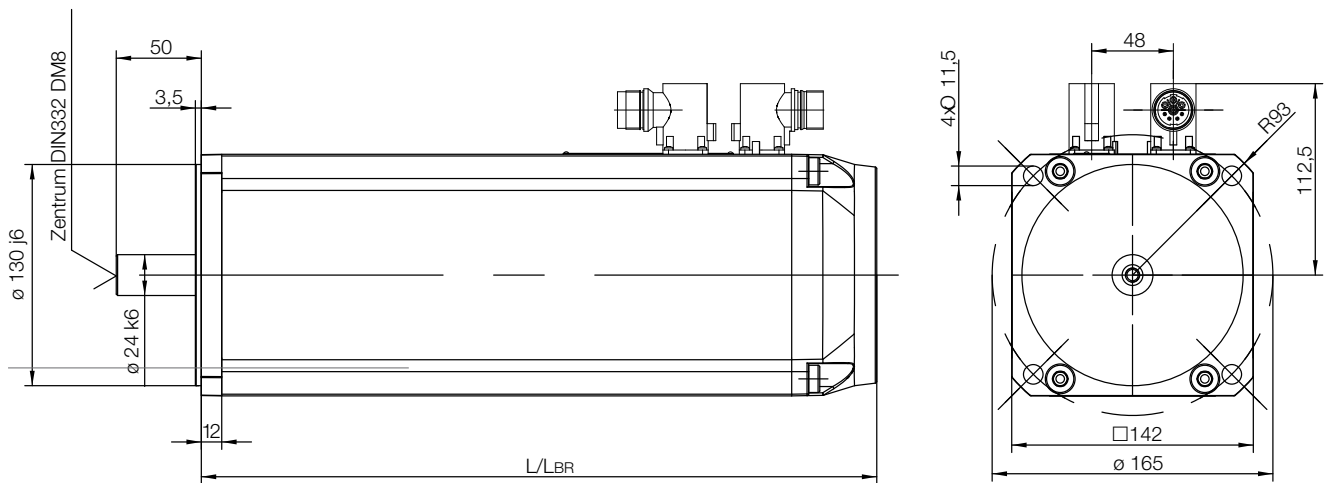
DP7-30-10-xxO-4000

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data				
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	L_{BR} [mm]	m [kg]
DP7-20-10-xxO-4000	25	17.9	13.2	4.1	9.4	3,000	1.4	62	67	13	0.46	4,000	16.3	300	335.5	19
DP7-30-10-xxO-2000	31	25	16	5.9	12.9	3,500	1.24	66	67	1.24	0.204	4,000	24	360	395.5	24.5

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80 K$

Dimensions



Bearing service life (L10h)

Maximum torque --- Thermal continuous torque —
 Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$

DP 13 liquid-cooled servo motors



Applications

- Servo motor for positioning and actuating with or without transmission
- Control drive for continuous operation at average speeds
- Servo drives for continuous operation in the field weakening range
- Replacement for standard motors with enhanced requirements in terms of efficiency, compactness, dynamism and synchronisation

Connection cable

Equipment

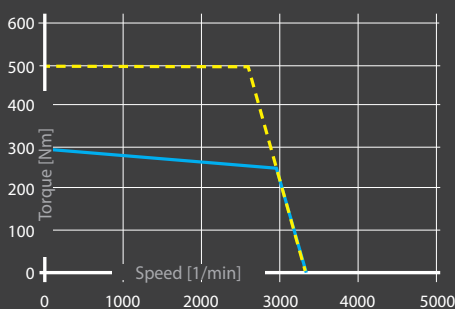
	Standard	Option
Brake	-	250 Nm
Encoder	E encoder	F encoder
Drive shaft	smooth	-

BENEFITS

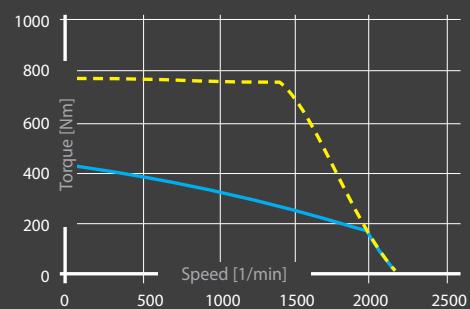
- Extremely good synchronisation characteristics due to a high number of stator slots
- Extremely high performance density
- High level of efficiency
- Low noise emissions
- Protection class IP54

Maximum torque --- Thermal continuous torque —

Characteristic



DP13-300-12-xxW-3000



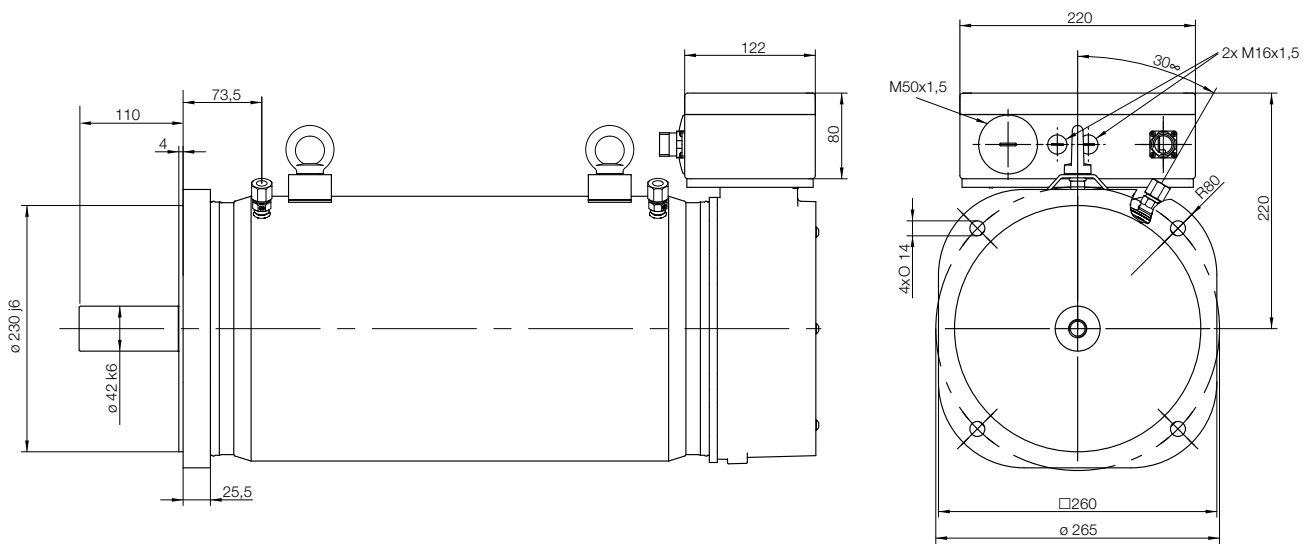
DP13-460-12-xxW-2000

Technical data

Motor type	Standstill data		Rating data					Maximal data		Electrical data		Mechanical data			
	M_o [Nm]	I_o [A]	M_N [Nm]	P_N [kW]	I_N [A]	n_N [1/min]	k_T [Nm/A]	M_{max} [Nm]	I_{max} [A]	L_{tt} [mH]	R_{tt} [Ω]	n_{max} [1/min]	J [kg cm ²]	L [mm]	m [kg]
DP13-300-12-xxW-3000	280	155.6	230	84.3	140	3,500	1.8	500	330	0.3	0.038	5,000	938.4	465.0	98.9
DP13-460-12-xxW-2000	430	165	415	65.2	159	1,500	2.61	760	330	0.7	0.071	2,000	1,250	521.5	128
DP13-600-12-xxW-1200	660	157	650	68	154	1,000	4.20	1,150	330	1.1	0.104	1,200	1,830	642.0	162

Motor data at 350V motor voltage • rating data at winding temperature $\Delta T < 80$ K

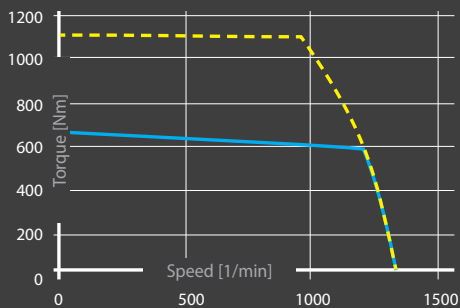
Dimensions



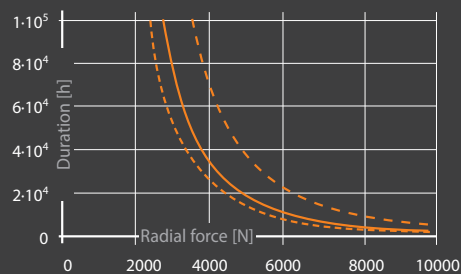
Cooling

- Minimum coolant flow quantity of 8.0 l/min; max. inlet temperature of 40°C; pressure drop ca. 1 bar,

Bearing service --- $2 \times n_N$ — n_N --- $0.5 \times n_N$



DP13-600-12-xxW-1200



Bearing service life (L10h)

Position encoder



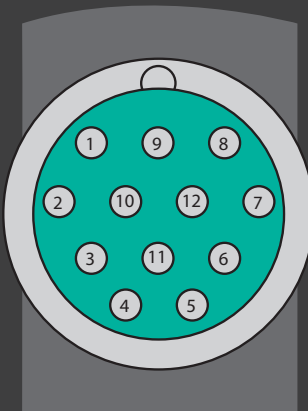
Overview of encoders

The motors can be equipped with different position encoders.

Type	Technical data	Max. speed [1/min]
R	Resolver, 1 period/rotation	15,000
E	Visual absolute encoder EnDAT, single-turn 512 periods/rotation ¹ ± 25" system accuracy	12,000
F	Visual absolute encoder EnDAT, multi-turn 512 periods/rotation ¹ Multi-turn resolution of 4,096 rotations ± 25" system accuracy	12,000
P	Inductive absolute encoder EnDAT, single-turn 16/32 periods/rotation ± 280" system accuracy	12,000
Q	Inductive absolute encoder EnDAT, multi-turn 16/32 periods/rotation Multi-turn resolution of 4,096 rotations ± 280" system accuracy	12,000
S	Visual absolute encoder Hiperface, single-turn 128/1024 periods/rotation ± 120 / 52" system accuracy	12,000
T	Visual absolute encoder Hiperface, single-turn 128/1024 periods/rotation Multi-turn resolution of 4096 rotations ± 120 / 52" system accuracy	12,000
U	Capacitive absolute encoder Hiperface, single-turn 16 periods/rotation ± 288" system accuracy	12,000
V	Capacitive absolute encoder Hiperface, multi-turn 16 periods/rotation Multi-turn resolution of 4,096 rotations ± 288" system accuracy	12,000

1) higher resolution available on request

Pin assignment on motor side



PIN Motor connector	Resolver	E, F, P, Q, S-, T encoder		U, V encod-
	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	Supply 5 VDC, max. 250 mA	-
6	-	GND	Reference for 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	Supply 5 VDC, max. 250 mA	09P
12	-	GND	Reference for supply	-
Shield	Connector housing			

Holding brake

The motors can be optionally equipped with a holding brake. This is not suitable as an operating brake. The brakes are ventilated with 24 V unsmoothed DC current.

Note: The brake's maximum speed should be taken into account for the motor's maximum



Series	Holding brake							
	M _{BR} [Nm]	U _{BR} [V]	I _{BR} [A]	m _{BR} [kg]	n _{maxBR} [1/min]	J _{BR} [kg cm ²]	T _{ein} [ms]	T _{aus} [ms]
DT3	1.1	24	0.3	0.28	10,000	0.013	35	55
DT4	4.5	24	0.4	0.45	7,000	0.027	35	55
DT5	12	24	0.7	0.80	6,000	0.294	30	60
DTK5	4.5	24	0.4	0.45	7,000	0.027	35	55
DT7/DP7	18	24	0.8	1.10	6,000	0.540	30	70
	50	24	1.1	2.66	3,000	0.540	40	135
DTK7	12	24	0.7	0.80	6,000	2.343	30	60
DT10	120	24	2.3	8.00	6,000	5.898	30	70

Power connector

Thermal sensors and brakes can be delivered in various cable cross-sections with cables that are pre-configured for performance with power connectors. The wire ends are unshathed at the device side. The length can be chosen in 1

m increments from a length of 2 m onwards.

Features:

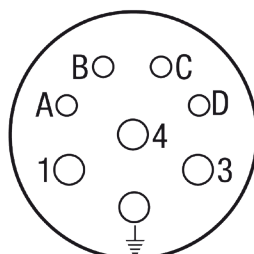
Sheath: PUR, wire is TPE

Cable delivery features:

min. bending radius = 12 x external diameter

Pin assignment of power connector and power cable, size 1

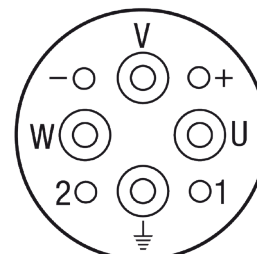
PIN	Meaning
A	Temperature sensor
B	Temperature sensor
C	Brake +
D	Brake 0 Volt
1	Motor phase u
3	Motor phase w
4	Motor phase v
↓	Protective conductor



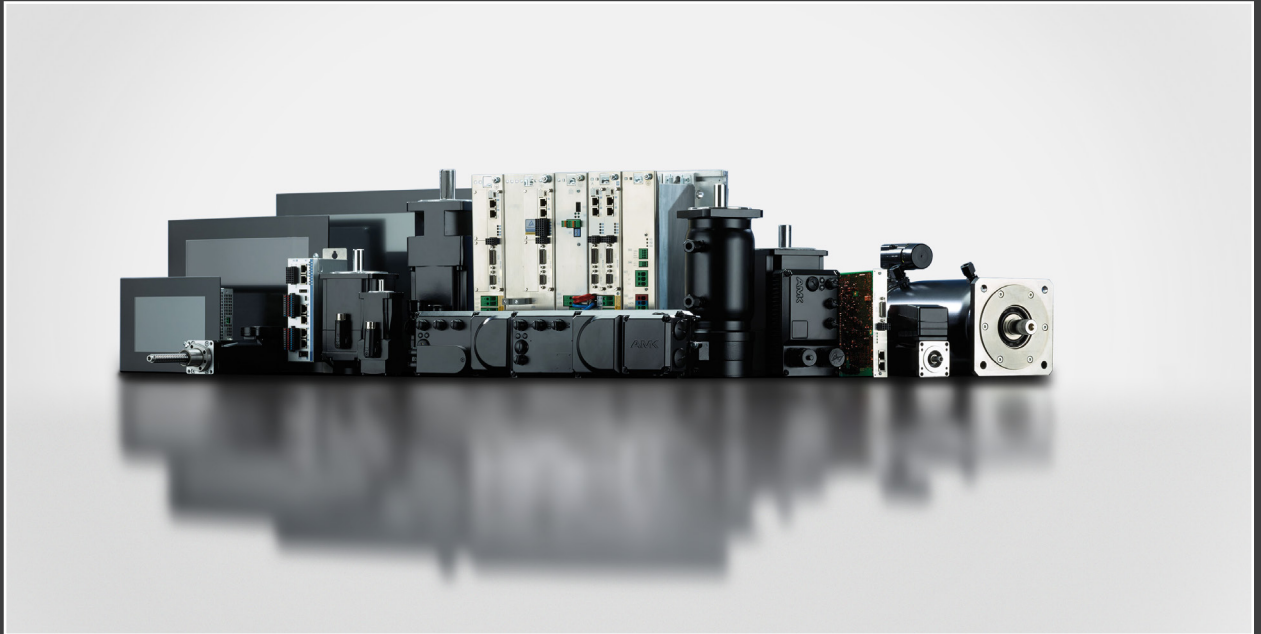
*) View of...

Pin assignment of 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 + 24V
-	Brake 0 Volt
↓	Protective conductor



*) View of...



- AMKAMAC
Controls
- AMKASMART
Decentralised
drive technology
- AMKASYN
Servo inverters
- DYNASYN
Servo motors
- SPINDASYN
Linear drives

Information in this brochure merely describes products in a series. Deviations are possible due to specific products and continuous product improvements. Before using data for calculations or designs, please make yourself aware of the latest state of affairs and request product-specific dimensions and data sheets.

Subject to technical modifications. 04/2022

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