AMKASMART iDT/iDP.

The integrated servo drive solution.

AMK

iDT and iDP motors with integrated servo controller.

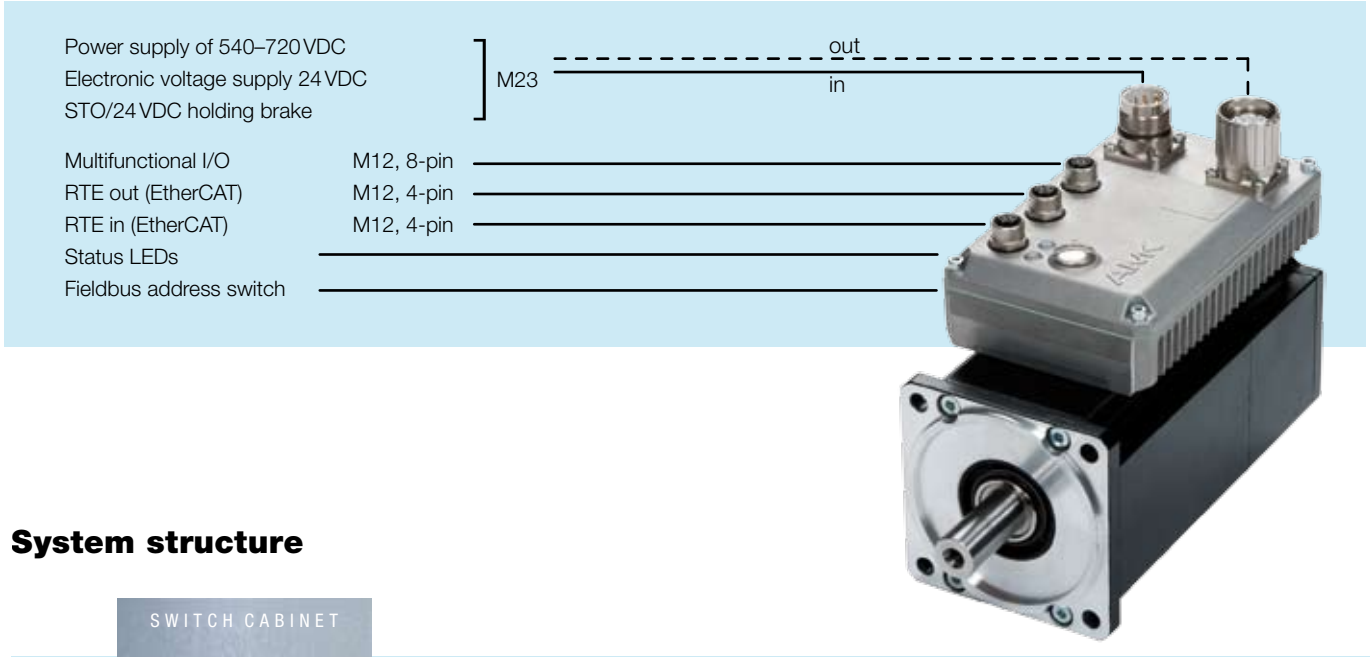
Modular machines intelligently realised.

The AMKASMART iDT and iDP series consist of a synchronous DT or DP motor with integrated servo controller. The motor design of the DP motors is used starting with size 7 to achieve greater speeds and higher power. As mechatronic functional units the motors are a plug & play solution for modular machine concepts. The system unifies mechanics, electronics and software for decentralised applications. Daisy-chaining power supply and communication lines from iDT to iDT reduces the cabling costs to a minimum even for extensive machinery. Additional machine modules can simply be in series to the machine. The switch cabinet is only required for the power and electronics supply and its volume is drastically reduced. The multifunctional I/Os that are available on every iDT can be used for sensors at actuators on the machine. The high IP65 protection class is perfectly suited for use in production environments. In terms of safety as well, with the iDT you are literally on the safe side: STO can be realised with any iDT. Safe stop and movement functions are available with the “functional safety” option.

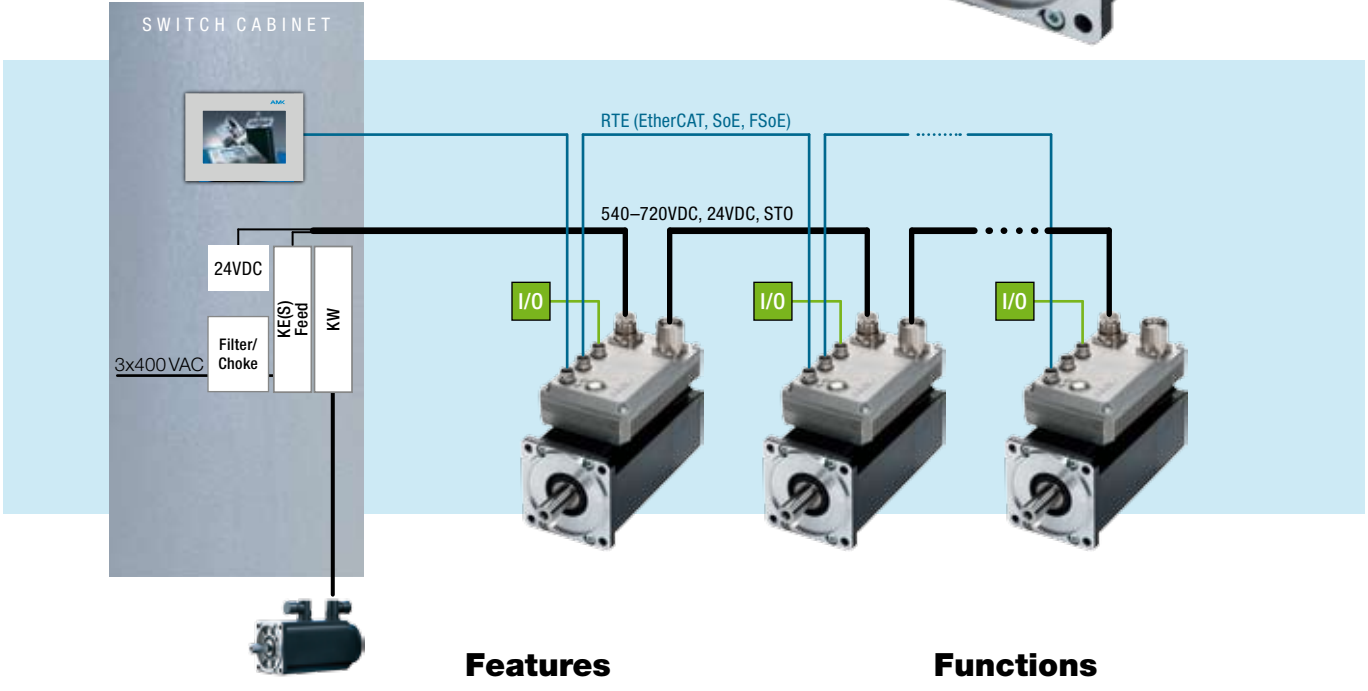
BENEFITS

- Economical and compact
- I/O interface integrated
- Real-time Ethernet fieldbus (EtherCAT)
- Optional holding brake
- Reduced switch cabinet costs
- Reduced Cabling costs
- STO
- Functional safety optional

Connections



System structure



Features

- DT/DP motors with integrated servo controller
- Inductive encoder (P, Q) Endat 2.2 light
- Realtime Ethernet fieldbus (EtherCAT)
- Power supply 540/720VDC Switch-off threshold 850VDC
- 5 multifunctional I/Os incl. 24VDC supply output
- Central STO (safe-torque-off)
- Functional safety optional
- Optional holding brake
- Protective functions

Functions

- Torque control
- Speed control
- Position control
- Cyclic filter
- Position setpoint filter
- Load model
- Homing cycle
- Parameter storage
- Monitoring
- Protective functions

Servo motors iDT 5

Features

- 5 multifunctional I/Os incl. 24VDC supply output
- Protection class IP65
- 540-720VDC power supply
- Absolute encoder
- STO - Safe torque off
- Realtime Ethernet (EtherCAT)

Applications

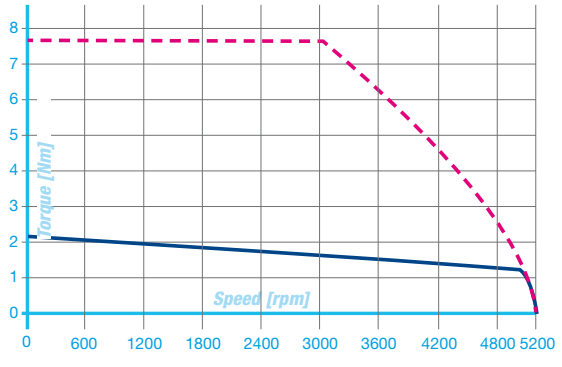
- Decentralised use
- Positioning
- Modular machine design

Equipment

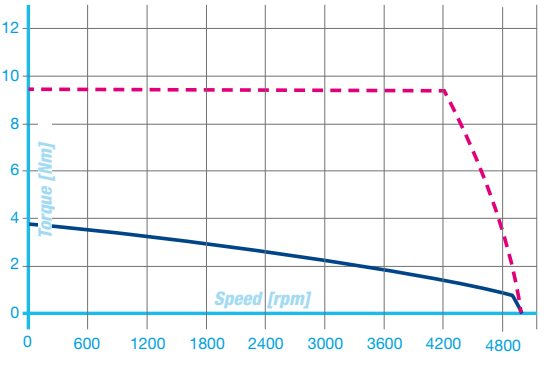
	Standard	Option
Brake	–	4.5 Nm
Encoder	P single-turn, inductive Q multi-turn, inductive	E single-turn, optical F multi-turn, optical

Connection cable: Power plug M23, communication M12

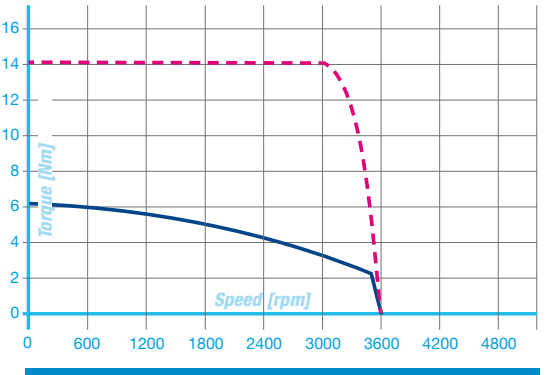
Characteristic curves



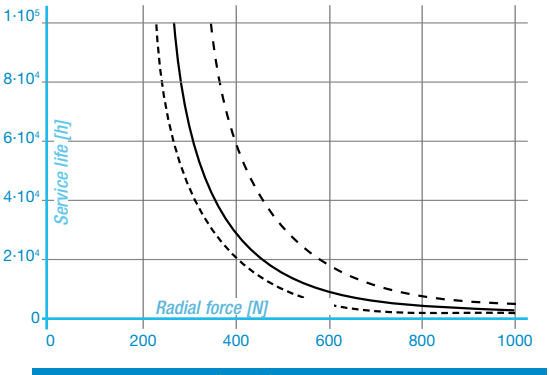
iDT 5-3



iDT 5-5



iDT 5-9



Bearing life time (L10h) characteristic

Maximum torque — Thermal continuous torque

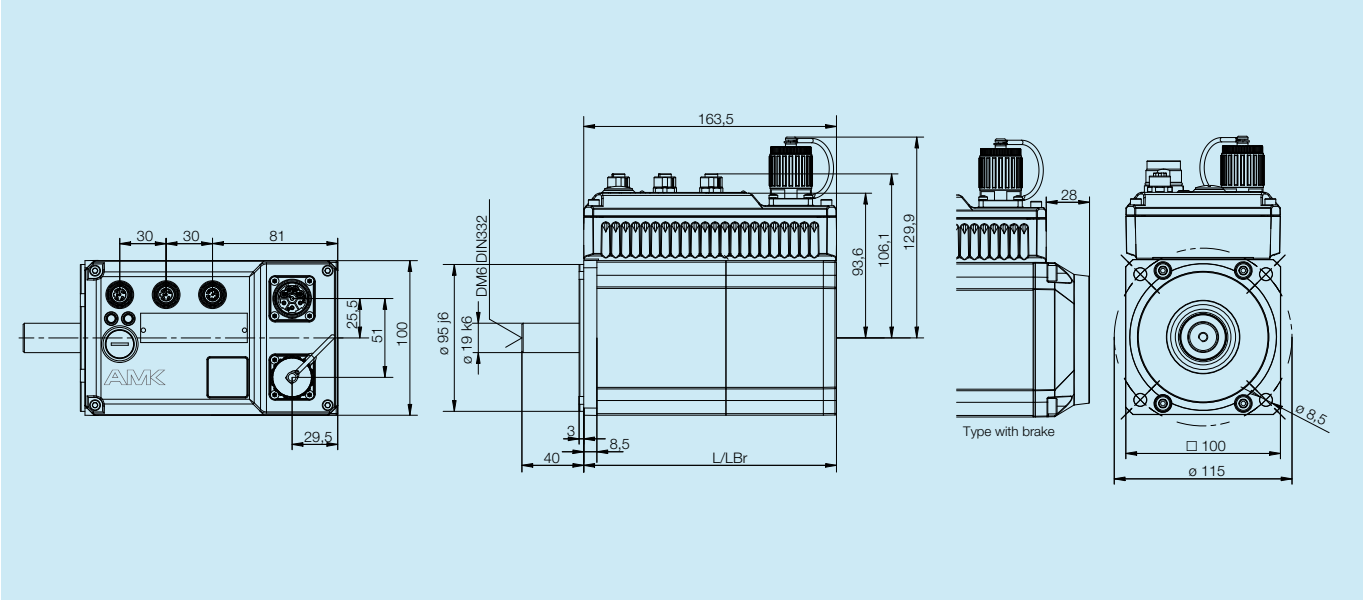
Bearing life time: 2 x n_N — n_N — 0.5 x n_N

Technical Data

Motor type	M_{max} [Nm]	I_{max} [Arms]	M_O [Nm]	I_o [Arms]	M_N [Nm]	I_N [Arms]	n_N [rpm]	P_N [W]	J [kgcm²]	L [mm]	L/L_{BR} [mm]	m [kg]
iDT5-3-10-xxO	7.7	8.5	2.2	2	1.36	1.2	4500	641	1.6	163.5	191.5	4.5
iDT5-5-10-xxO	9.6	8.5	3.8	3.3	2	1.7	3500	733	2.9	195	223	5.7
iDT5-9-10-xxO	14.1	8.5	7.1	4.6	3.3	2	3000	1037	5.5	258	286	8.3

Explanation of characteristics: **M_{max}** maximum torque · **I_{max}** maximum current · **M_o** continuous standstill torque · **I_o** continuous standstill current · **M_N** rated torque **I_N** rated current · **n_N** rated speed · **P_N** rated power · **J** moment of inertia · **L** motor length · **L_{BR}** motor length with brake · **m** weight

Dimensions



Servo motors iDP7

Features

- 5 multifunctional I/Os incl. 24 VDC supply output
- Protection class IP 65 (with fan: IP 54)
- 540–720 VDC power supply
- Absolute encoder
- STO – Safe torque off
- Real-time Ethernet (EtherCAT)
- Convection and air-cooled

Applications

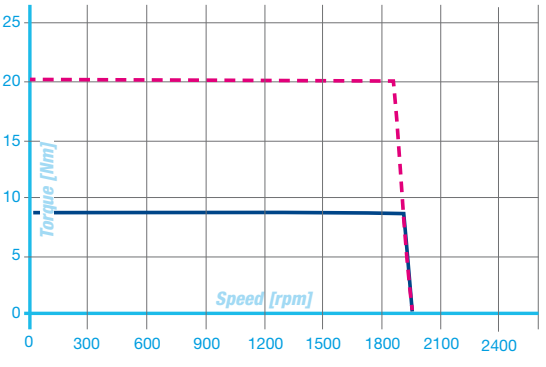
- Decentralised use
- Positioning
- Modular machine design

Equipment

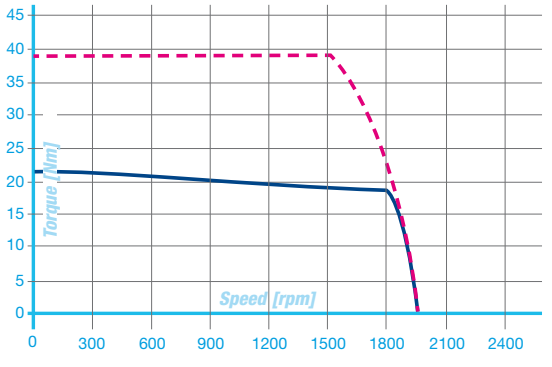
	Standard	Option
Brake	–	4.5 Nm
Encoder	P single-turn, inductive Q multi-turn, inductive	E single-turn, optical F multi-turn, optical

Connection cable: Power plug M23, communication M12

Characteristic curves

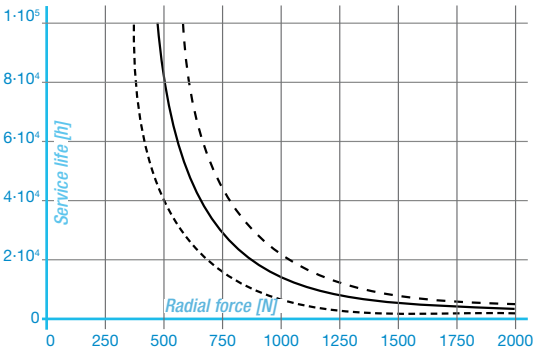


iDP 7-20



iDP 7-27

Maximum torque — Thermal continuous torque



Bearing life time (L10h) characteristic

Bearing life time: 2 x n_N — n_N — 0.5 x n_N

Technical Data

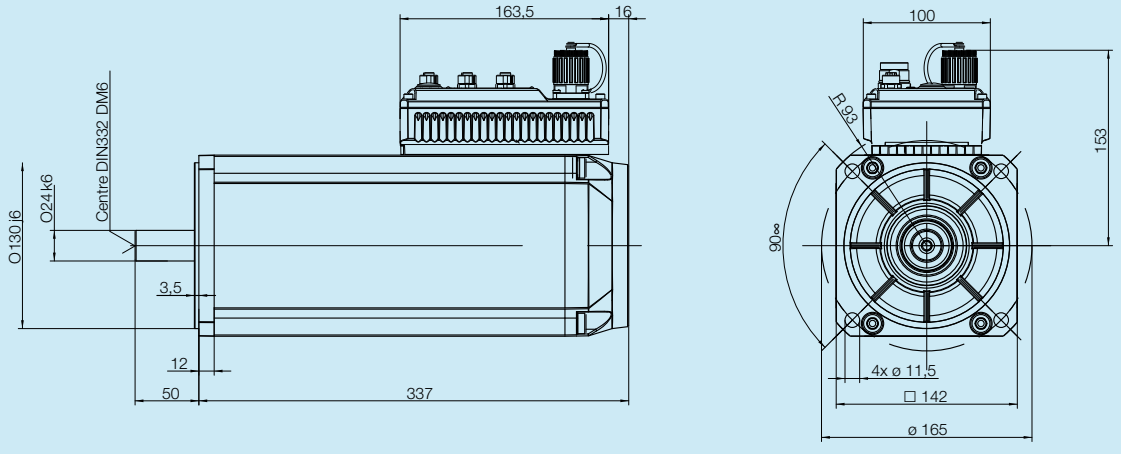
Motor type	M_{max} [Nm]	I_{max} [Arms]	M_o [Nm]	I_o [Arms]	M_N [Nm]	I_N [Arms]	n_N [rpm]	P_N [W]	J [kgcm²]	m [kg]
iDP7-20-10-xxO	20	6.6	16	5.4	9.7	3.4	1500	1520	16	22
iDP7-27-10-xxF	39	16	23	8.5	20	6.3	1500	3100	16	23

Preliminary data

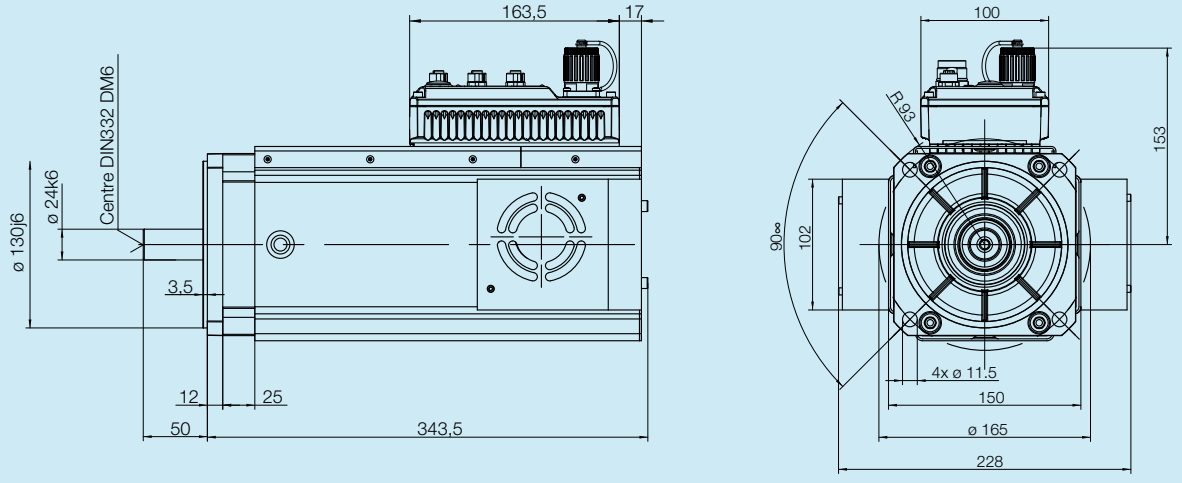
Explanation of characteristics: **M_{max}** maximun torque · **I_{max}** maximum current · **M_o** continuous standstill torque· **I_o** continuous standstill current · **M_N** continuous torque **I_N** rated current · **n_N** rated speed · **P_N** rated power · **J** moment of inertia · **m** weight

Dimensions

Convection-cooled iDP7-20

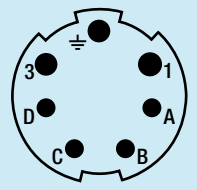


with integrated fan iDP7-27



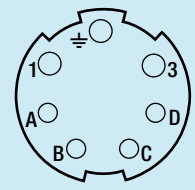
Power connection supply line
(M23, 6-pin, pin)

PIN	Signal	Explanation
1	UZP	Positive DC bus voltage
3	UZN	Negative DC bus voltage
A	24V	24VDC electronics supply
B	0V	Electronics supply 0V
C	24B	STO/24 VDC supply Holding brake
D	0B	STO 0V/holding brake
Q	PE	Protective earth conductor on housing



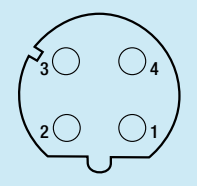
Power connection, transmission
(M23, 6-pin, socket)

PIN	Signal	Explanation
1	UZP	Positive DC bus voltage
3	UZN	Negative DC bus voltage
A	24V	24VDC electronics supply
B	0V	Electronics supply 0 V
C	24B	STO/24VDC supply Holding brake
D	0B	STO 0V/holding brake
Q	PE	Protective earth conductor on housing



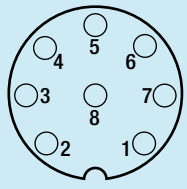
EtherCAT connection input and transmission (M12, 4-pin, socket)

PIN	Signal	Explanation
1	TX+	Transmission Data +
2	RX+	Receive data +
3	TX-	Transmission Data -
4	RX-	Receive data -



I/O pin assignment
(M12, 8-pin, socket)

Pin	Signal	Description	Level
1	GND	Ground	–
2	BE1	Binary input	24V/8 mA
	AE+	Analogue input not inverted	±10V/10-bit
3	BE2	Binary input	24V/8 mA
	AE-	Analogue input inverted	±10V/10-bit
4	BE3	Binary input 3	24V/8 mA
	BA1	Binary output 1	24V/max. 100 mA
5	BE4	Binary input 4	24V/8 mA
	BA2	Binary output 2	24V/max. 100 mA
6	BE5	Binary input 5	24V/8 mA
	BA3 *)	Binary output 3	24V/max. 250 mA
7	Data+	ModBus/CAN high	Differential signal, 5V
8	Data-	ModBus/CAN low	Differential signal, 5V



* BA3 as voltage supply, parametrisable

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