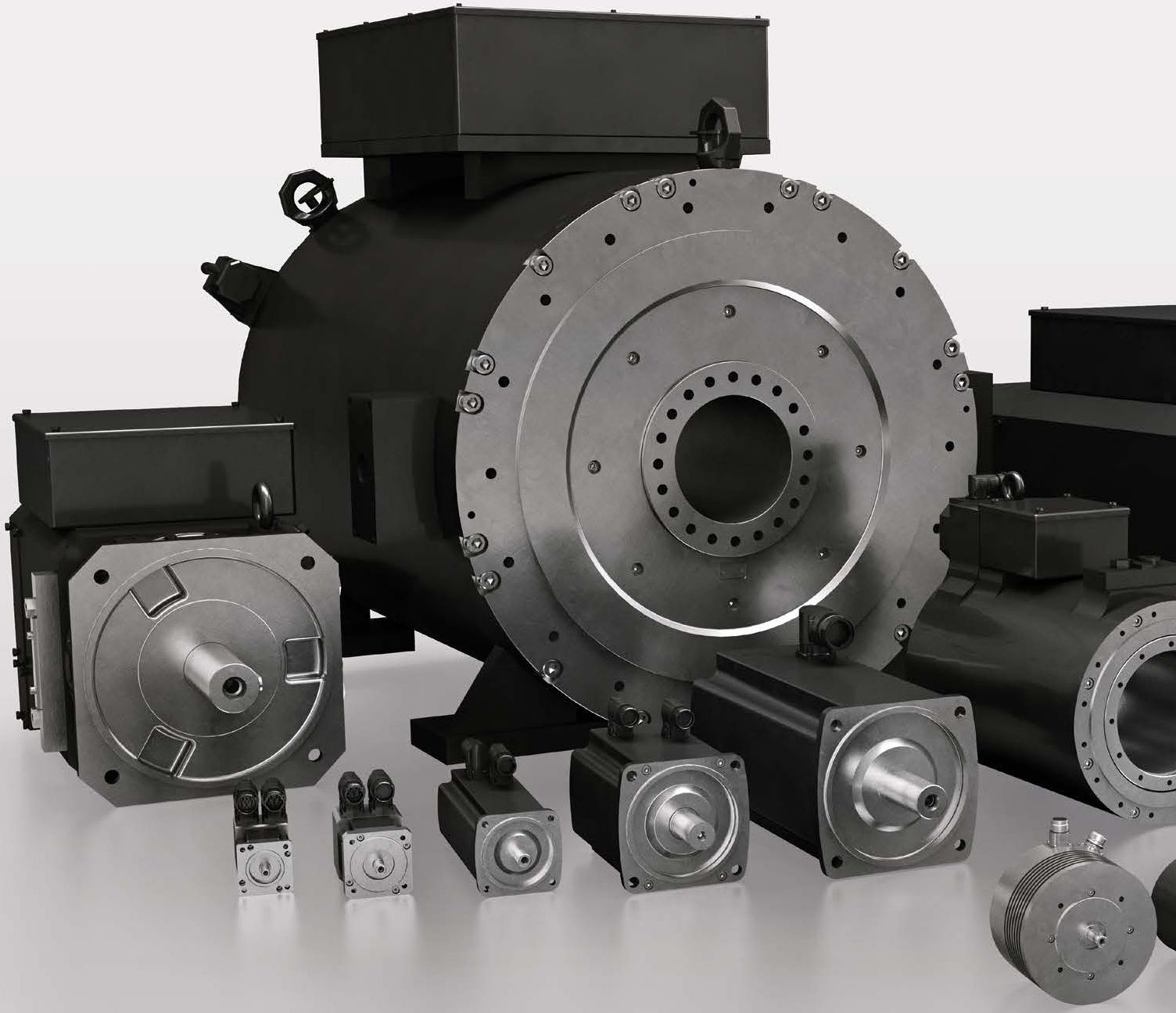
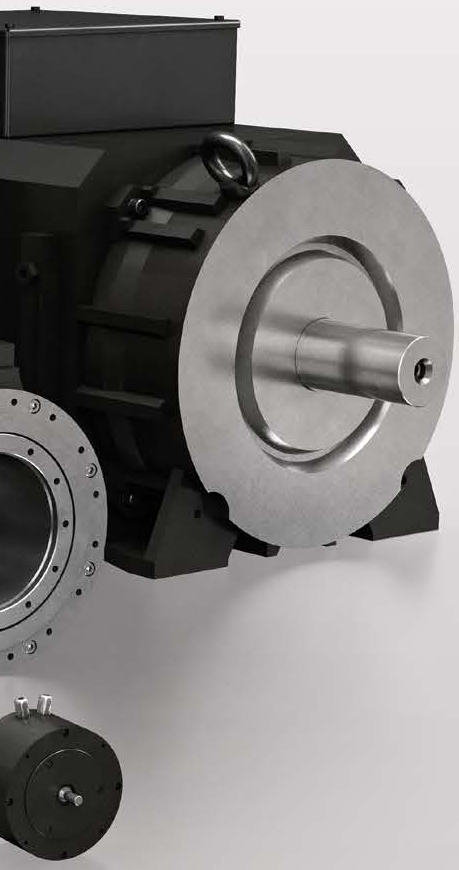
BAUMÜLLER

MOTORS

Servo motors DSD2, DSC1, DSP1, DSH1 • BPx • High-torque motors DST2
Main drives DS2, DA1 • Industry-specific solutions • Disc motors

Innovative motor portfolio for energy-efficient electric motors
according to the latest state of technical development





Powerful electric motors for every requirement

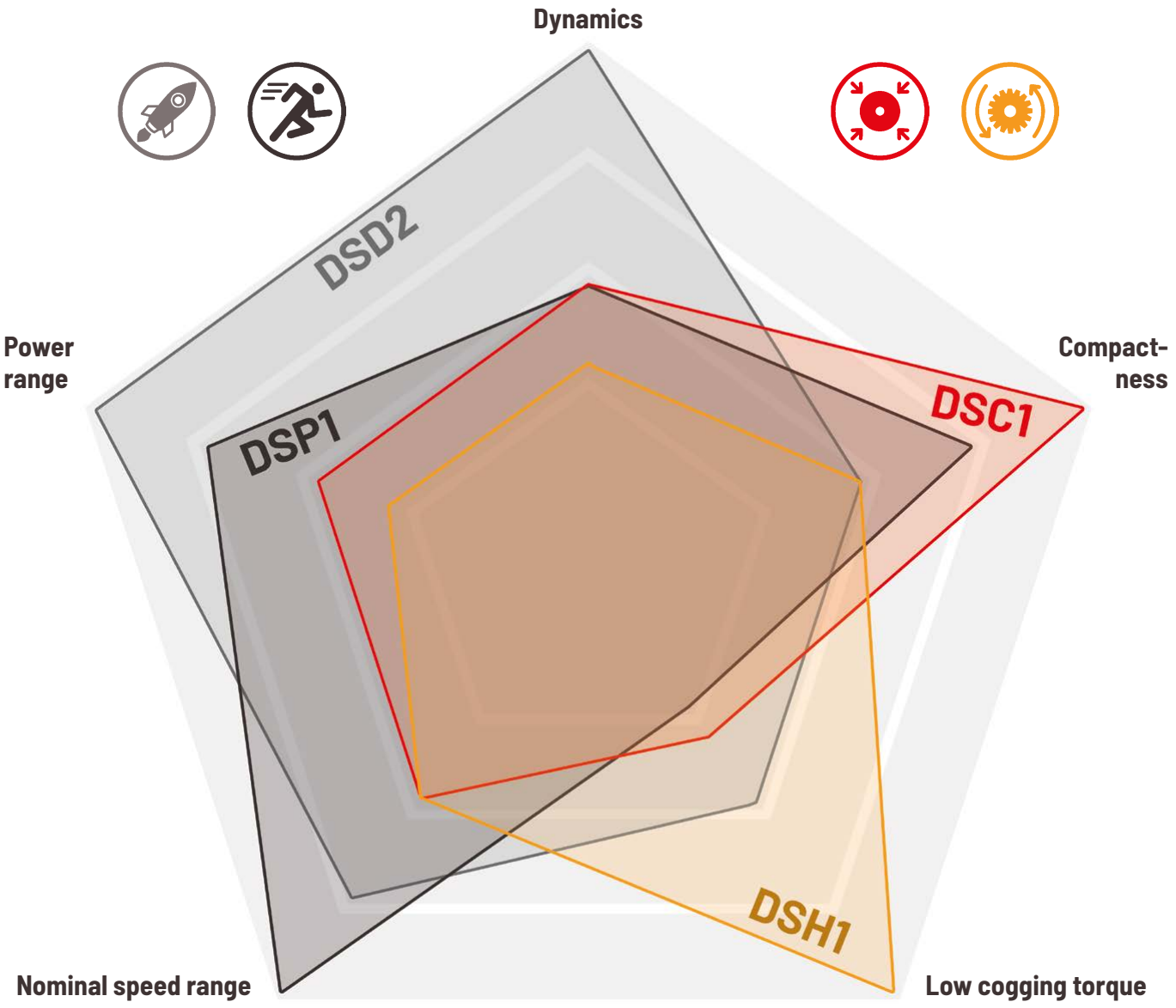
Our goal is to give your machines a competitive edge, to give you more flexibility in machine layout, and to guarantee the operator the necessary productivity and cost-effectiveness in operation. The focus of our developments is therefore not simply the overall system of a machine, but the added value, that we want to offer our customers with modularization, the scalability of modules and with technology modules.
Baumüller is an innovative motor manufacturer for energy-efficient electric motors built according to the latest state of technical development. As a supplier of state-of-the-art drive technology, our customers benefit from market-leading developments.

SERVO MOTORS

Baumüller modular motor system

With one of the broadest motor offers on the market, Baumüller offers efficient and scalable servo motors in numerous versions and sizes. The servo motors are currently available in seven sizes between 28 and 132 and, depending on their size, achieve power outputs from 0.3 to 150 kW. The nominal speed range begins at 0.6 Nm and extends up to 715 Nm.

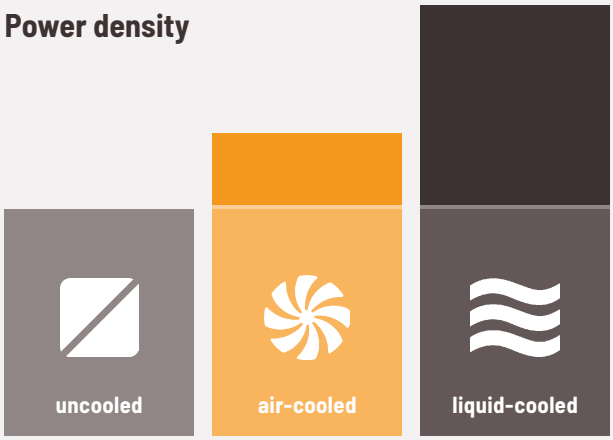
Application-specific products are created due to all kinds of different cooling options, connections, gear boxes, brakes, and encoder solutions. Baumüller also implements customers' specific wishes. The interaction of our b maXX servo drives with our motors is very precise and can be matched to the respective application. In many cases, we offer our customers cost-optimized system solutions.

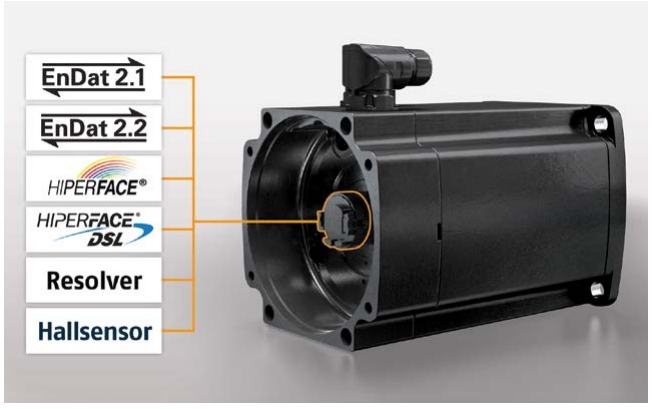


Cooling options

Our servo motor portfolio includes uncooled, air-cooled, and liquid-cooled servo motors. The active cooling increases the power density. In addition, close installation of multiple servo motors is easily possible due to the good heat dissipation. This saves space in the machine and is an advantage, particularly in applications with many axes.

Power density



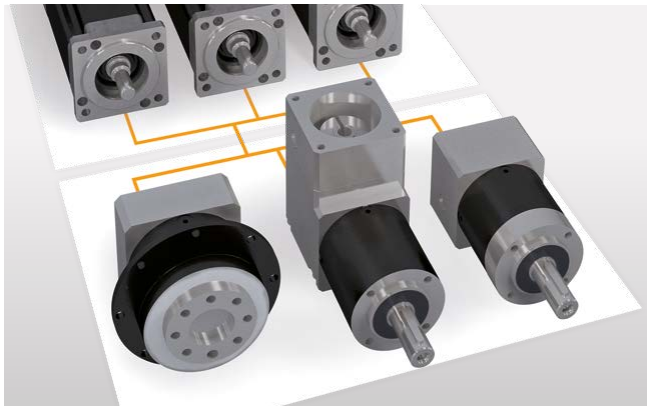


Encoder options

We work with numerous manufacturers and offer analog, digital and reliable rotary encoder systems. These differ, among other things, regarding their accuracy. Our drive experts advise you on the different variants depending on your requirements. The range extends from resolver to Sick to Heidenhain encoders with their different protocols.

Connection options

Single cable technology, terminal box or two outlets: At Baumüller, these connection options are available as standard features. Single cable technology with Hiperface DSL® is being used in an increasing number of applications. This is convincingly easy to install. The rotatable junction box with SpedTec® closure is fitted within a few sections. Power, encoder information and motor temperature are integrated in the hybrid line.



Planetary gearboxes

Our BPx planetary gear series is perfectly matched to our servo motors, and is therefore ideally suitable for applications with the highest torque and dynamics requirements.
With almost any combination option possible, BPx enables you to achieve a large number of gear transmission ratio increments. You can therefore optimally adapt our motor-transmission combinations to your specific applications.

DSD2 028–132

Dynamic servo motors

The DSD2 motors are suitable for highly dynamic applications with the highest acceleration capacity requirements, and the best start-stop qualities. This motor series covers a nominal speed range from 1000 to 6000 min^{-1}. The DSD2 motors are highly dynamic, their speed and position are very easily controlled, making them ideally usable for applications, for example, in packaging machines, textile machines, plastics machines, handling machines, special machines, and small robots.

- Cooling options: uncooled, air-cooled, liquid-cooled
- Encoders: Resolver, Hiperface DSL, Hiperface, EnDat 2.2
- Optionally with brake
- Single cable technology

Areas of application

- Packaging machines
- Textile machines
- Plastics machines
- Handling machines
- Special machines
- Small robots

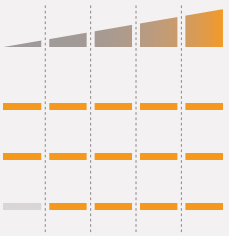
- Highest dynamics due to excellent torque-inertia ratio
- Degree of protection up to IP 65 regardless of the cooling method
- Main connection via rotatable plug or terminal box
- Single cable technology available
- Very good concentricity properties
- Almost cogging torque free
- Smooth housing surface - not susceptible to dirt
- Slim, integrated housing design
- Permanent magnet synchronous servo motors
- High overload capability
- Encoders: Resolver, SinCos (optional), digital encoders (optional)
- All types optionally with brake

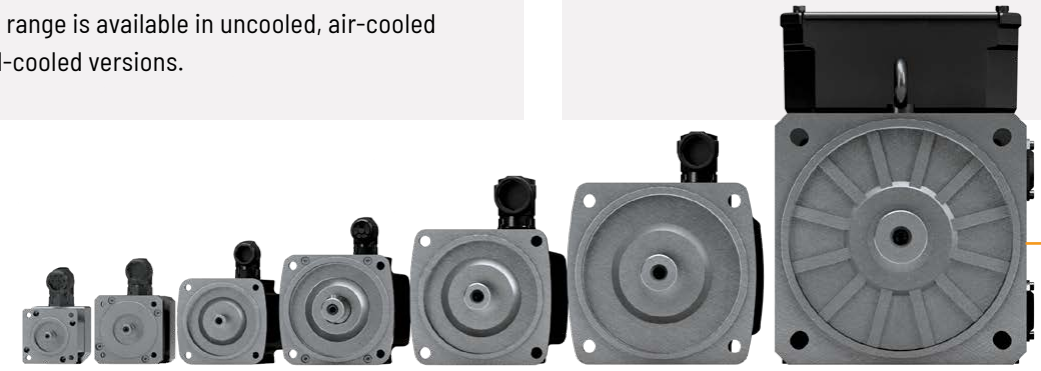
Cooling methods

UNCOOLED | **AIR-COOLED** | **LIQUID-COOLED**

The DSD2 range is available in uncooled, air-cooled and liquid-cooled versions.

Spectrum





Extremely high maximum torque and particularly low rotor inertia for excellent dynamic properties.

DSD2 028-132 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[$kgcm^2$]	[lb in^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DSD2-028	0.3-0.6	0.4-0.8	4500-6000	0.13-0.2	0.04-0.07	0.7-1.2	0.5-0.9	2.0-3.9	1.5-2.9
DSD2-036	0.4-0.9	0.5-1.2	4000-6000	0.18-0.4	0.06-0.14	1.2-2.8	0.9-2.1	2.8-8.4	2.1-6.2
DSD2-045	0.7-7.6	0.9-10	3000-6000	1.0-1.9	0.34-0.65	2.7-13	2.0-9.6	12-28	8.9-21
DSD2-056	1.3-12	1.7-16	2000-6000	3.6-6.6	1.2-2.3	7.0-30	5.2-22	25-57	18-42
DSD2-071	3.0-25	4.0-33	2000-6000	12-19	4.0-6.5	17-73	12-54	53-105	39-77
DSD2-100	1.9-42	2.5-56	1200-6000	52-105	18-36	42-210	31-155	105-280	77-206
DSD2-132	16-150	21-201	1000-6000	290-760	99-260	175-770	129-568	380-1080	280-797

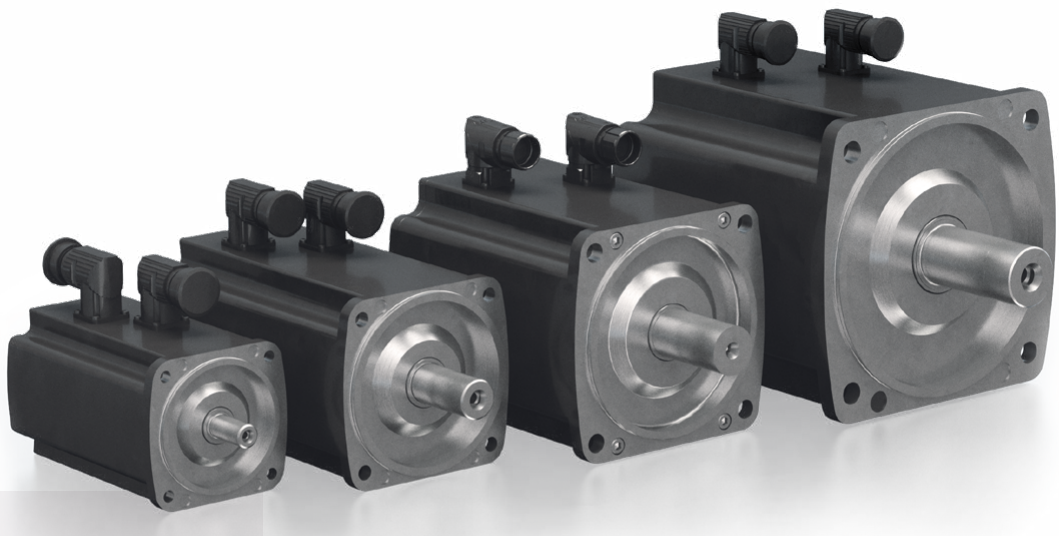
Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

DSC1 045–100

Compact servo motors

The DSC1 motors cover a speed range from 1,000 to 4,000 rpm. Compared to conventional servo motors, they are up to 15 percent more compact. A wide variety of cooling options, connections, gears, brakes and encoders create application-specific and flexible motor solutions. The low dead weight and minimal dimensions make the DSC1 a good solution for moving axes. The minimal cogging torque ensures precise positioning and high control quality. The advantage: precision in the process is increased. The motor also has a low CO_2 footprint due to the reduced use of materials.

- Cooling options: uncooled, air-cooled, liquid-cooled
- Encoders: Resolver, Hiperface DSL, Hiperface, EnDat 2.2
- Optionally with brake
- Single cable technology



Areas of application

- Packaging machines
- Textile machines
- Handling machines
- Robotics

- Permanent magnet synchronous servo motors
- Compact type of construction with high power density
- Degree of protection up to IP 65 regardless of the cooling method
- Main connection via rotatable plug or terminal box
- Single cable technology available
- Very good concentricity properties
- Smooth housing surface - not susceptible to dirt
- Slim, integrated housing design
- High overload capability
- Encoders: Resolver, SinCos (optional), digital encoders (optional)
- All types optionally with brake

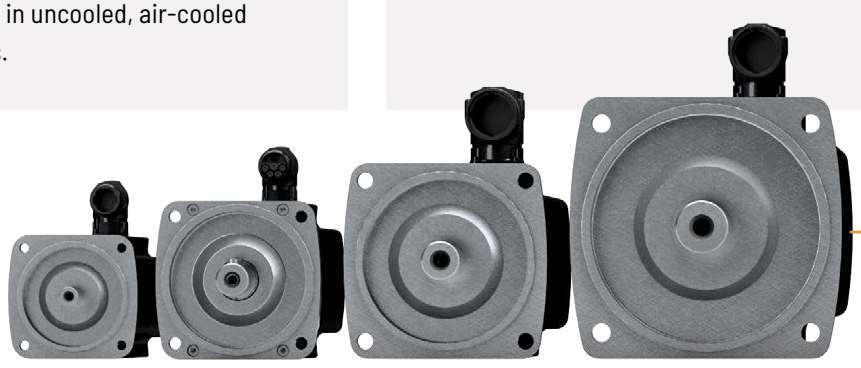
Cooling methods

UNCOOLED | **AIR-COOLED** | **LIQUID-COOLED**

The DSC range is available in uncooled, air-cooled and liquid-cooled versions.

Spectrum

Power
Torque
Acceleration



High torque range and small installation space - ideal for moving axes.

DSC1 045-100 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[$kgcm^2$]	[lb in^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DSC1-045	0.5-4	0.7-5.4	2000-4000	1.4-3.2	0.48-1.1	2.7-12	2.0-8.9	8.7-26	6.3-19
DSC1-056	0.6-6.5	0.8-8.7	900-4000	4.4-11	1.5-3.6	6.2-26	4.6-19	16-49	12-36
DSC1-071	1.2-14	1.6-19	750-4000	12.6-31	4.3-11	12-58	8.9-43	27-82	20-60
DSC1-100	2.3-18	3.1-24	850-3000	46-101	16-35	23-105	17-77	42-125	31-92

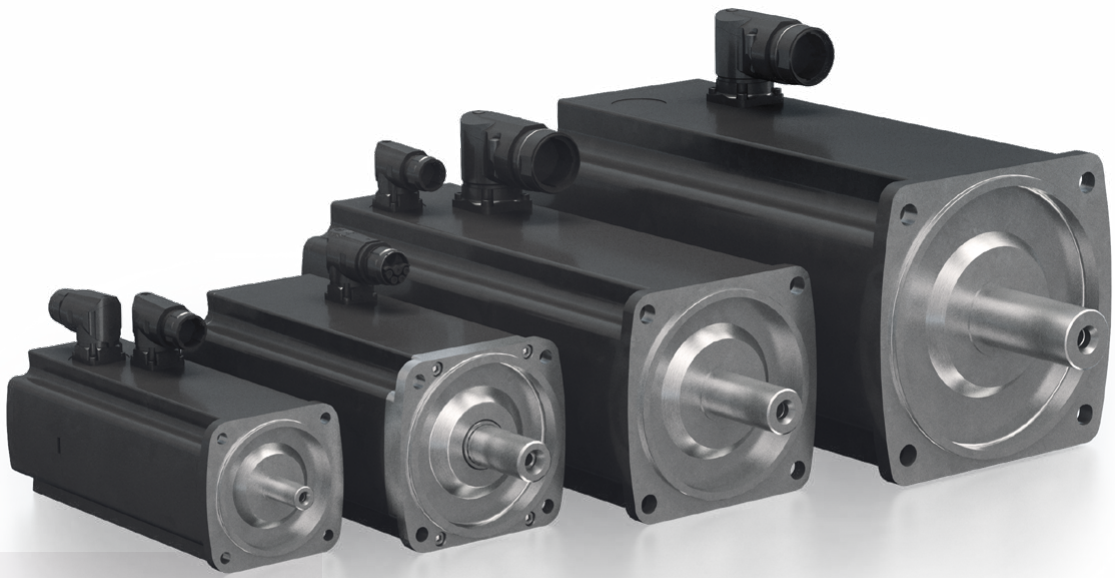
Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

DSP1 045–100

High-speed servo motors

For applications with high speed requirements, the DSP1 motors are the ideal complement to our DSC1 series. The Baumüller DSP1 motors are particularly high-speed and have nominal speeds from 4,000 to 6,000 min^{-1}. The high-speed servo motors are ideally suitable for applications in handling axes, machining, metal, packaging, and printing machines. The reason for this are the good acceleration and overload capabilities, as well as the high speed and power range.

- Cooling options: uncooled, air-cooled, liquid-cooled
- Encoders: Resolver, Hiperface DSL, Hiperface, EnDat 2.2
- Optionally with brake
- Single cable technology



Areas of application

- Handling machines
- Processing machines
- Printing presses
- Servo pump drives

- Permanent magnet synchronous servo motors
- Compact design with nominal speeds up to 6000 min^{-1}
- Degree of protection up to IP 65 regardless of the cooling method
- Main connection via rotatable plug or terminal box
- Single cable technology available
- Very good concentricity properties
- Smooth housing surface - not susceptible to dirt
- Slim, integrated housing design
- High overload capability
- Encoders: Resolver, SinCos (optional), digital encoders (optional)
- All types optionally with brake

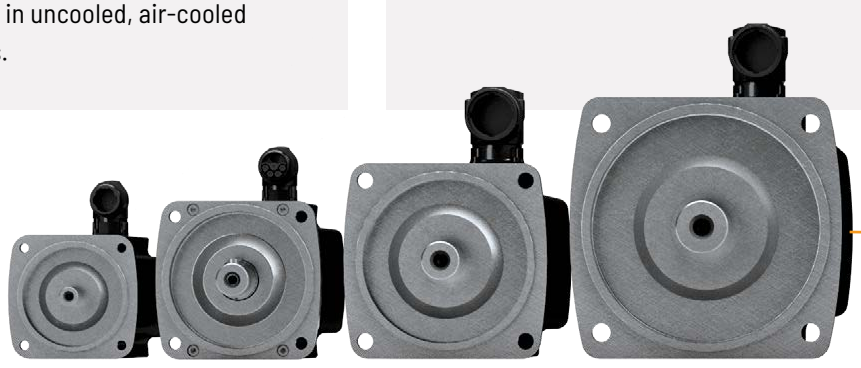
Cooling methods

UNCOOLED | **AIR-COOLED** | **LIQUID-COOLED**

The DSP range is available in uncooled, air-cooled and liquid-cooled versions.

Spectrum

Power
Torque
Acceleration



Special rotor geometry extends the maximum speed range.

DSP1 045-100 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[$kgcm^2$]	[lb in^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DSP1-045	1.2-6.3	1.6-8.4	6000	1.3-2.8	0.44-0.96	2.2-11	1.6-8	8.7-27	6.4-20
DSP1-056	2.5-12	3.3-16	4000-6000	4.0-9.8	1.4-3.3	4.8-21	3.5-15	16-47	12-35
DSP1-071	4.4-27	5.9-36	4000-6000	12-28	4.1-9.5	8.7-48	6.4-35	26-80	19-59
DSP1-100	4.9-32	6.6-43	1000-6000	36-108	12-37	18-115	13-85	39-155	29-114

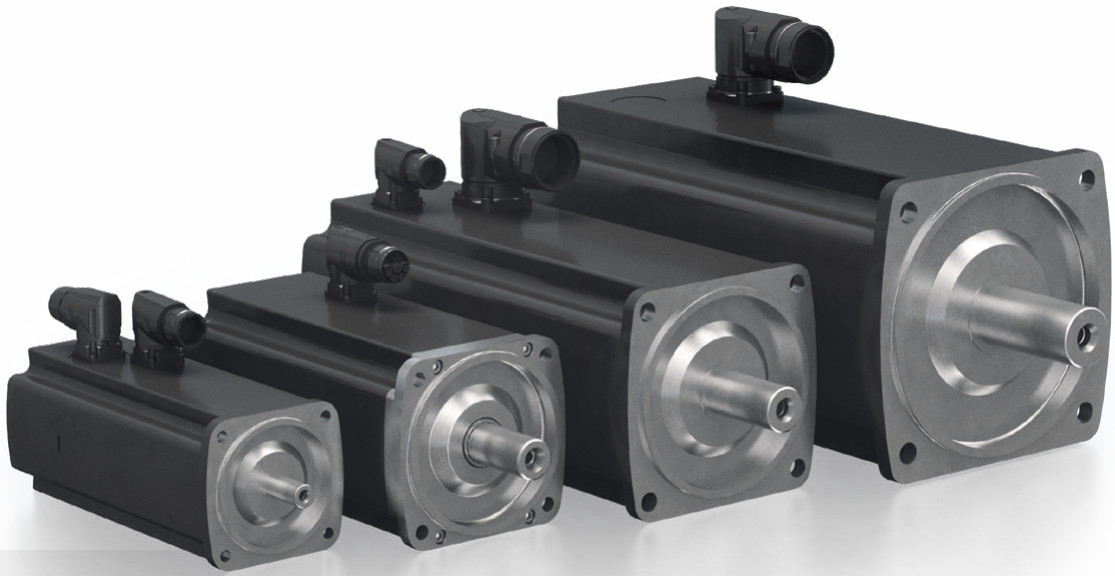
Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

DSH1 045–100

Precise servo motors

The DSH1 motors impress with a hardly noticeable cogging torque, and thus achieve an extremely high control quality, especially together with the Baumüller drive electronics. With speeds up to 5000 min^{-1} and virtually zero cogging, among other things, the DSH1 is the optimal solution for label printing machines and the robotics sector. The Baumüller developers were able to achieve the low cogging torque of the DSH1 motors by using various simulation techniques. The DSH1 series servo motors reduce the cogging torque significantly, and fit perfectly in the standard module.

- Cooling options: uncooled
- Encoders: Resolver, Hiperface DSL, Hiperface, EnDat 2.2
- Optionally with brake
- Single cable technology



Areas of application

- Robotics
- Label printing machines
- And many others

- Permanent magnet synchronous servo motors
- Extremely low cogging torque
- Low torque ripple
- Compact type of construction with high power density
- Degree of protection up to IP 65
- Main connection via rotatable plug or terminal box
- Single cable technology available
- Very good concentricity properties
- Smooth housing surface - not susceptible to dirt
- Slim, integrated housing design
- High overload capability
- Encoders: Resolver, SinCos (optional), digital encoders (optional)
- All types optionally with brake

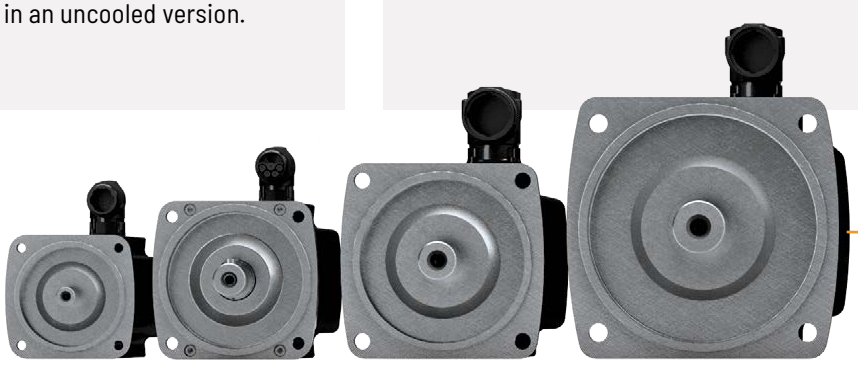
Cooling methods

UNCOOLED | AIR-COOLED | LIQUID-COOLED

The DSH range is available in an uncooled version.

Spectrum

Power
Torque
Acceleration



Particularly low cogging torque leads to highest precision of the end product.

DSH1 045-100 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[$kgcm^2$]	[lb in^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DSH1-045	0,5-1,3	0,68-1,7	1000-4000	1,3-3,0	0,44-1,0	2,5-6,1	1,8-4,5	7,8-23	5,8-17
DSH1-056	0,6-2,6	0,81-3,6	1000-4000	4,2-11	1,4-3,7	5,7-13	4,2-9,6	15-44	11-32
DSH1-071	1,1-5,7	1,5-7,6	1000-4000	13-30	4,3-10	11-27	7,9-20	27-78	20-57
DSH1-100	2,1-8,2	2,8-11	1000-3000	41-95	14-32	21-57	15-42	40-125	29-92

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

BPx GEARS

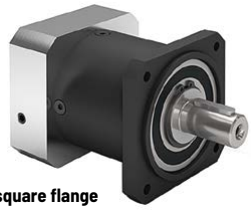
Planetary gear series

Our BPx planetary gearbox series is perfectly matched to our servo motors and, with almost limitless combination options, it enables you to achieve a large number of gear transmission ratio increments. You can therefore optimally adapt our motor-transmission combinations to your specific applications. With three series **BPE** (Economy), **BPN** (Precision) and **BPV** (Velocity), our planetary gears ensure compact and economic drive solutions are achieved at the highest technical level.

- Economy series BPE for simple applications with lower torque and speed requirements
- Precision series BPN for applications with high torque requirements and high demands on torsional stiffness
- Velocity series BPV for applications with high speed requirements

BPE Economy series

The so-called Economy version in Standard (BPE), Angle (BPEA) or Flange (BPEF) is available for simple applications and low torque and speed requirements.



BPE square flange

BPEA

BPE

BPEF

Type code BPE

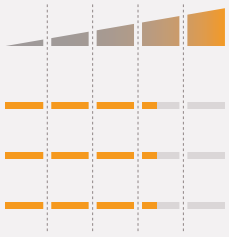
BP □□□

Baumüller Planetary

Economy, **EA** = Economy Angle, **EF** = Economy Flange

Frame size

Spectrum



Power

Torque

Acceleration

BPE/BPEA/BPEF – Technical data

*) square flange

Type		$n_{input\ max}$	M_{n2}		i
		[min^{-1}]	[Nm]	[lbf ft]	
	BPE 20	18000	5-20	4-15	3-512
	BPE 30	13000	15-44	11-32	3-512
	BPE 30/35*	13000	15-44	11-32	3-512
	BPE 40	7000	38-130	28-96	3-512
	BPE 40/45*	7000	38-130	28-96	3-512
	BPE 60	6500	95-260	70-192	3-512
	BPE 60/56*	6500	95-260	70-192	3-512
	BPE 80	6500	400-800	295-590	3-64
	BPEA 20	18000	4-20	3-15	3-512
	BPEA 30	13000	14-44	10-32	3-512
	BPEA 30/35*	13000	14-44	10-32	3-512
	BPEA 40	7000	38-130	28-96	3-512
	BPEA 40/45*	7000	38-130	28-96	3-512
	BPEA 60/56*	6500	80-260	59-192	3-512
	BPEA 60	6500	80-260	59-192	3-512
	BPEF 32	13000	15-44	11-32	3-64
	BPEF 45	7000	38-130	28-96	3-64
	BPEF 56	6500	95-260	70-192	3-64

Subject to change. The values specified are maximum values. For details, please refer to the technical documentation.

BPN Precision series

BPN is a precision transmission for connection to standard flange and shaft ends of the Baumüller DSC, DSD, DSH, and DSP motor series. The transmission series is available as a Standard (BPN), Angle (BPNA) or Flange (BPNF) version.

Type code BPN

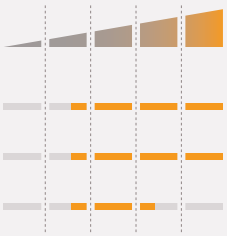
BP □□□

Baumüller Planetary

Precision
N = Precision, **NA** = Precision Angle, **NF** = Precision Flange

Frame size

Spectrum



Power

Torque

Acceleration

BPN/BPNA/BPNF – Technical data

Type		$n_{input\ max}$	M_{n2}		i
		[min^{-1}]	[Nm]	[lbf ft]	
	BPN 35	14000	27-77	20-57	3-100
	BPN 45	10000	60-150	44-111	3-100
	BPN 56	8500	125-300	92-221	3-100
	BPN 71	6500	305-1000	225-738	3-100
	BPN 95	6000	630-1800	465-1328	3-100
	BPNA 35	16000	22-77	16-57	4-100
	BPNA 45	16000	40-150	29-111	4-100
	BPNA 56	14000	75-300	55-221	4-100
	BPNA 71	9500	160-800	118-590	4-100
	BPNF 32	14000	27-77	20-57	4-100
	BPNF 45	14000	60-150	44-111	4-100
	BPNF 56	10000	125-300	92-221	4-100
	BPNF 71	8500	305-1000	225-738	4-100
	BPNF 100	6500	630-1800	465-1328	4-100

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

BPV Velocity series

The BPV transmission series with its skew planetary gear is ideally suitable for applications with high speed requirements. This version is not only characterized by its high torsional rigidity, but is also able to absorb high axial and radial forces. The Velocity series is thus an adequate transmission extension for Baumüller DSP and DSC motors. It is available as a Standard (BPV) and Flange (BPVF) version.

BPV

BPVF

Type code BPV

BP □□□

Baumüller Planetary

Velocity
V = Velocity, **VF** = Velocity Flange

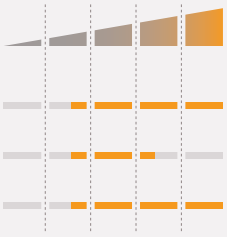
Frame size

Spectrum

Power

Torque

Acceleration



BPV/BPVF – Technical data

Type		$n_{input\ max}$	M_{n2}		i
		[min^{-1}]	[Nm]	[lbf ft]	
	BPV 35	14000	40	29	3-100
	BPF 45	14000	80	59	3-100
	BPV 56	10000	180	132	3-100
	BPV 71	8500	470	346	3-100
	BPV 95	6500	950	700	3-100
	BPVF 32	14000	40	29	4-100
	BPVF 45	14000	80	59	4-100
	BPVF 56	10000	180	132	4-100
	BPVF 71	8500	470	346	4-100
	BPVF 100	6500	950	700	4-100

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

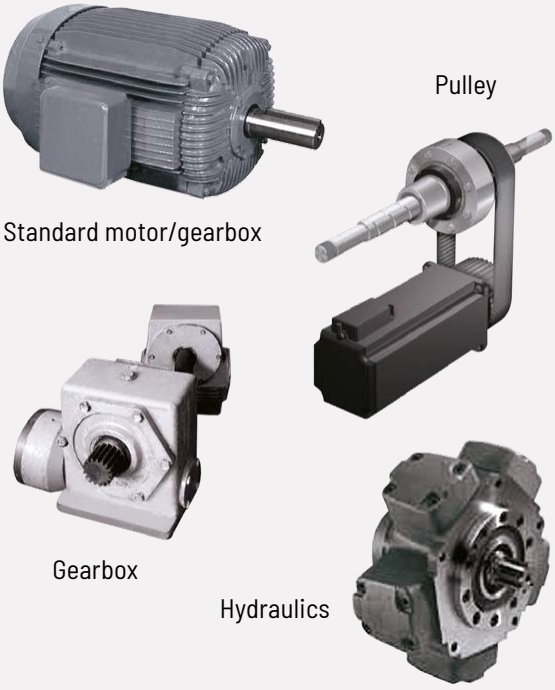
DIRECT DRIVES

Powerful direct drive technology

Today's machine concepts must meet strict requirements including dynamics. With high-maintenance transmissions and inefficient standard motors or hydraulic systems, these goals are not met. In addition to increased productivity and availability as well as higher energy efficiency, a torque motor also reduces costs in the drive system.

Gearless drive technology offers great advantages as an alternative both to the motor-transmission combination and to hydraulic systems. The reduced service costs without the transmission or hydraulic systems, the simplified assembly and logistics due to the smaller number of components, and the high efficiency and productivity account for the attractiveness of gearless drive solutions.

Conventional solution



Direct drive technology

High-torque servo motors from Baumüller

A high-torque motor is a multi-pole electric direct drive with very high torque. Compared to a motor-transmission combination, a high-torque motor can increase productivity of the machine while simultaneously reducing operating/energy costs. The torque spectrum starts at 325 Nm and extends to a peak torque of 60,000 Nm.

Baumüller is a pioneer in direct drive technology and has had high-torque servo motors in its product program since 1991.

DST2 motors for plastics machines

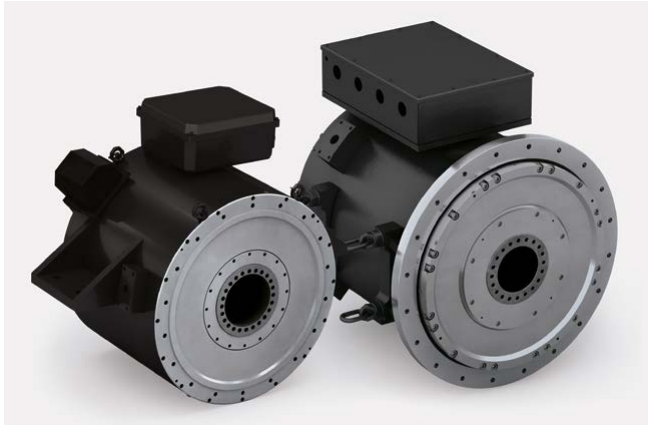
Many market leaders rely on water-cooled DST2 high-torque motors from Baumüller to power an extrusion screw. In injection molding machines, hydraulics are gradually being replaced with gearless drive technology from Baumüller. Without the gears, transmission and belts, a more compact machine construction is possible with significantly reduced service requirements. The DST2 motor has an integrated thrust bearing that absorbs the rear-acting axial forces arising in the process section.

DST2 motors for servo presses

Compared to conventional presses, servo presses are a superior solution in terms of productivity, product quality and flexibility. With high-performance direct drives and the compatible control unit from Baumüller, the processes of servo presses can be optimized with regard to cycle time, tool wear and tear, energy use and environmental compatibility.

DST2 motors for shredders

In order to provide the high power required for shredding processes, depending on the gear ratio, motors with very high maximum torques are needed. The DST2 high-torque motors are therefore predestined for this application.
The motors can be perfectly adapted to the shredder's requirements thanks to different shaft and flange options. Depending on the power requirements, the shredder shafts are each driven by one or two motors.



Powerful and clean alternative for ships

The high-torque motors DST2 are certified by the Lloyd's Register and meet the specific requirements for shipping. With their compact and robust construction, the motors take up minimal space in the engine room. The motors can optionally be ordered with wing mounts. Here, the feet are diametrically arranged on the outer diameter of the motor to facilitate integration into the ship's structure.

DST2 135–560

High-torque motors

With high-torque motors in the DST2 series, Baumüller offers a powerful gearless drive technology for low-maintenance and energy-efficient solutions. The high-torque servo motors are currently available in six sizes between 135 and 560, and depending on size can reach speeds up to 2000 min^{-1} and an output of 1150 kW. Thus they provide an optimal solution for many machine types in different applications and are an electrical alternative to hydraulic applications.

- Cooling options: water-cooled, oil-cooled
- Available as blind shaft, hollow shaft or with integrated thrust bearing
- Encoders: Resolver, SinCos (optional), digital encoders (optional)

Areas of application

- Plastics machines
- Shredders
- Rotary tables / Swivel axes
- Printing machines
- Press technology
- Winders
- Wire drawing machines
- Machine tools
- Ship drives

- Very good smooth running characteristics
- Energy-efficiency is maintained through wide speed/load range
- Suitable for sophisticated direct drive technology
- High torque at low velocities
- Low-noise
- Water cooling in a stainless steel design
- Compact and robust design
- Smooth housing surface – easy to keep clean
- Permanent field high-torque motors
- IP54 type of protection
- Encoders: Resolver, SinCos (option), digital encoder (optional)
- Other encoders on request

Cooling methods

WATER-COOLED

OIL-COOLED

The DST2 high-torque motors are available in water-cooled and oil-cooled versions.

Spectrum

Power
Torque
Acceleration

Very high torque and very good overload capacity up to 60,000 Nm.

DST2 135-560 – Technical data

Type	P_N		n_N	M_N		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DST2-135	2-60	2.7-80.4	175-1500	140-580	103-428	1325-1110	240-819
DST2-200	5-126	6.7-169	150-1000	310-2030	229-1497	790-4450	583-3282
DST2-260	20-225	27-302	150-750	1130-4760	833-3511	2410-9800	1777-7228
DST2-315	16-285	21-382	100-600	1200-8600	885-6343	3330-18400	2456-13570
DST2-400	92-530	123-710	100-300	8800-18600	6490-13718	14800-31600	10915-23305
DST2-560 *	153-875	205-1173	100-300	13900-29200	10251-21535	30200-60700	22273-44766

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

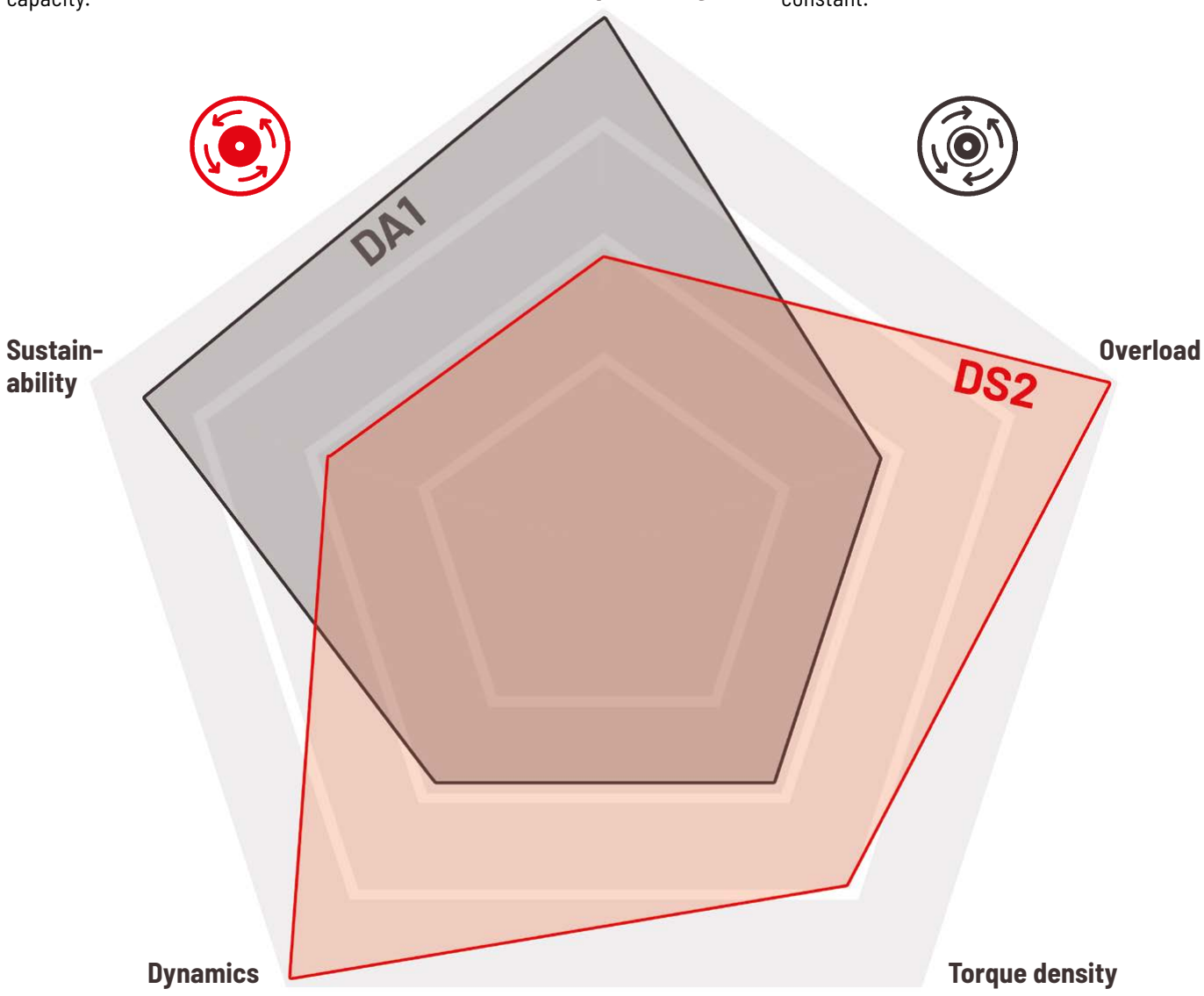
*) on request

MAIN DRIVES

Powerful synchronous and asynchronous motors

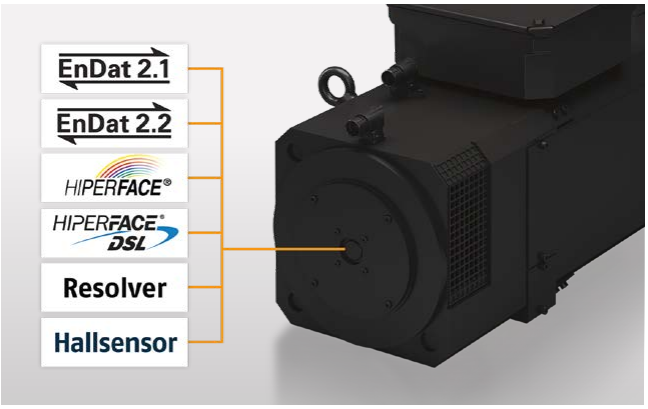
The permanent magnet three-phase synchronous motors **DS2** impress with their power density, efficiency and dynamics. They are ideal for demanding applications in mechanical engineering. For example for servo hydraulics, which requires a high overload capacity.

The **DA1** three-phase asynchronous motors are ideal for demanding applications that require a high speed control range. They are robust motors for classic continuous duty applications, such as a roller. The initial torque is very high here. The DA1 keeps the speed constant.



Cooling options

In order to achieve optimum performance, Baumüller continues its many years of experience in water cooling with the DA1 and DS2 main drives. In addition to water cooling, the standard portfolio also includes the surface-cooled IP54 and through-cooling IP23 motors. The fans are available in axial as well as radial ventilation variants.

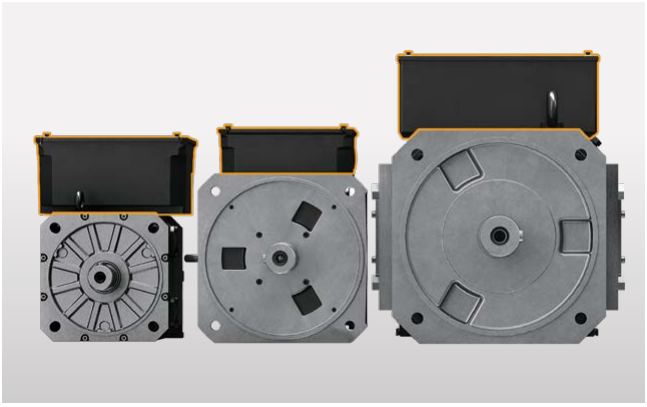


Encoder options

We cooperate with numerous manufacturers and offer analog, digital and safe encoder systems. These differ in terms of accuracy, among other things. Depending on your requirements, our drive experts will advise you on the different variants. The spectrum ranges from resolvers to Sick to Heidenhain encoders and incremental encoders with their various protocols.

Connection options

Baumüller offers high flexibility in the design of terminal boxes. The design and position of the terminal box can be individually adapted to the customer's needs.



DS2 motors for servo hydraulics

Baumüller offers various motor series for use in servo-hydraulic systems, from the DSD2 dynamic three-phase servo motor to the DS2 three-phase synchronous motor. The DS2 motor is ideal for servo-hydraulic solutions due to its high power range and torque.

DS2 100–200

General purpose (synchronous)

With shaft heights from 100 to 200 mm, Baumüller offers a range of synchronous motors with various cooling methods. The servo motor is suitable for all applications with the highest requirements on energy efficiency.

- Cooling options: Ventilated IP23, IP54, liquid-cooled IP54
- Encoders: resolver, SinCos (optional), digital encoder (optional)
- Optionally with brake

Areas of application

- Printing machines
- Packaging machines
- Textile machines
- Plastics machines
- Handling machines
- General mechanical engineering

- Perfect acceleration characteristics
- High power density
- Excellent smooth running characteristics
- High variability thanks to modular system
- High level of efficiency
- Permanent field servo motors
- Ventilated IP23, IP54 and liquid-cooled IP54
- Encoders: Resolver, SinCos (optional), digital encoder (optional)
- Optionally with brake

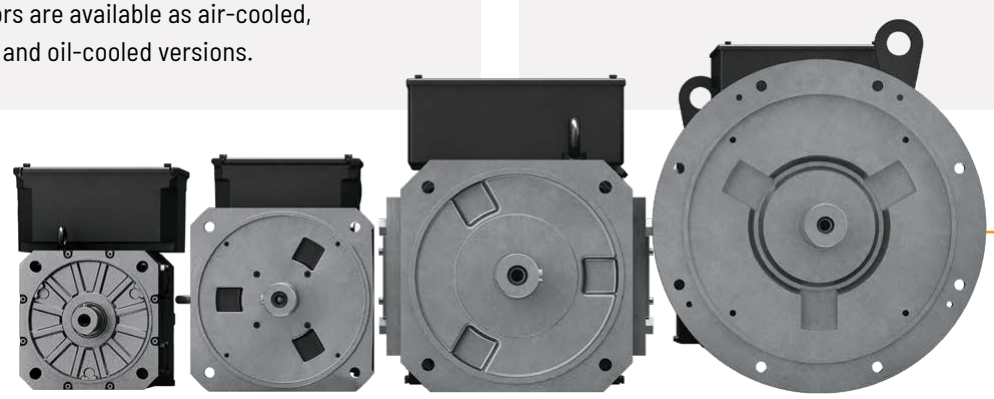
Cooling methods

AIR-COOLED | **WATER-COOLED** | **OIL-COOLED**

The DS2 motors are available as air-cooled, water-cooled and oil-cooled versions.

Spectrum

Power
Torque
Acceleration



Powerful synchronous drives for the most demanding applications in mechanical engineering.

DS2 100-200 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[kgm^2]	[lb ft^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DS2-100	5.3-47	7-63	1000-3000	0.01-0.02	0.24-0.47	48-165	35-122	120-340	89-251
DS2+-100	23-66	31-88	4000-4500	0.01-0.02	0.24-0.47	61-165	45-122	130-325	96-240
DS2-132	14-105	19-141	1000-3000	0.045-0.08	1.1-1.9	130-375	96-277	305-710	225-524
DS2+-132	56-123	75-165	4000-4500	0.045-0.08	1.1-1.9	180-365	133-269	340-680	251-501
DS2-160	30-155	40-208	1000-3000	0.15-0.25	3.6-5.9	320-695	236-513	690-1210	509-892
DS2-200	39-295	52-396	500-2700	0.44-0.79	10-19	570-1340	420-988	1130-2190	833-1615

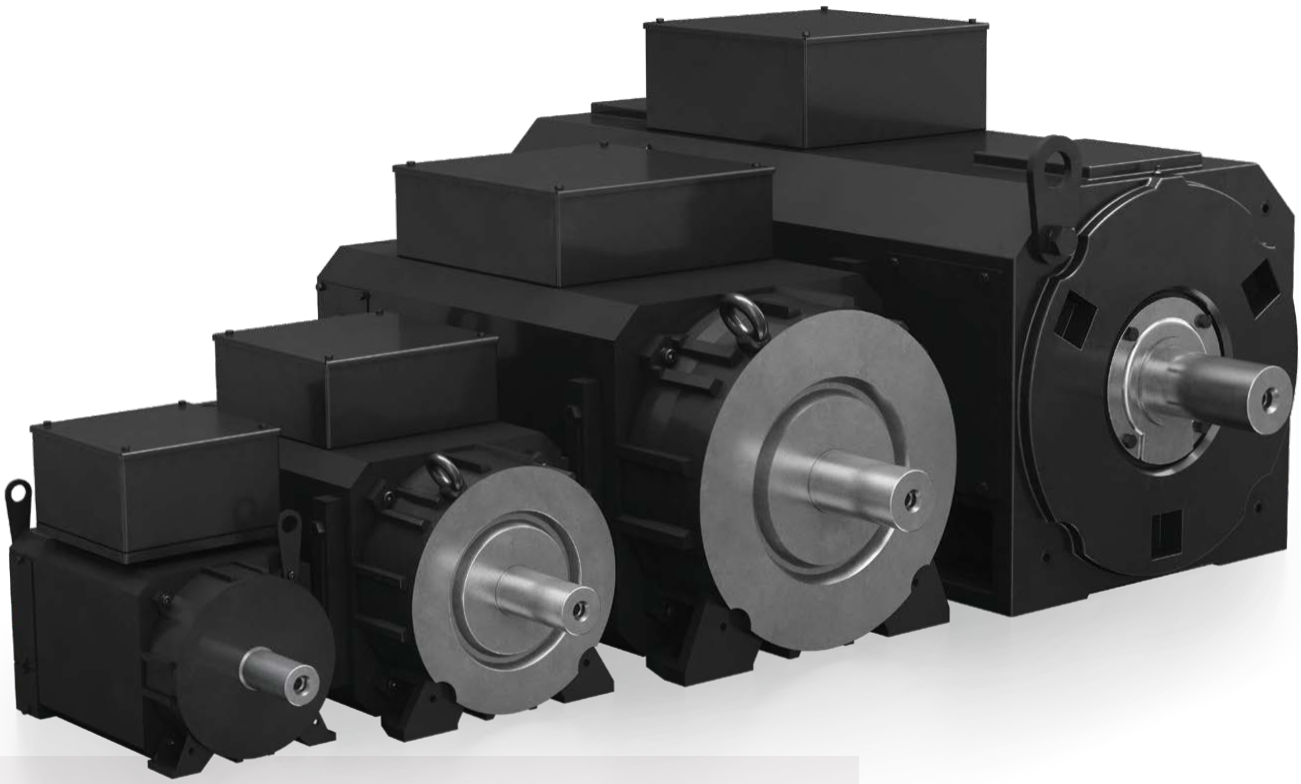
Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

DA1 100–280

General purpose (asynchronous)

With shaft heights from 100 to 280 mm, Baumüller offers a range of asynchronous motors with various cooling methods. The servo motor is suitable for all applications with the highest requirements on energy efficiency.

- Cooling options: Ventilated IP23, IP54, water-cooled IP54
- Encoders: Resolver 2-pole, SinCos (optional)
- Optionally with brake



Areas of application

- Printing machines
- Packaging machines
- Textile machines
- Plastics machines
- Handling machines
- General mechanical engineering

- Excellent smooth running characteristics
- Model as asynchronous cage rotor
- Extremely flexible due to modular design
- Large field weakening range
- High level of efficiency
- Compact and robust design
- High torque accuracy
- Ventilated IP23, IP54 and water-cooled IP54
- Encoders: Resolver 2-pole, SinCos (optional)
- All types optionally with brake

Cooling methods

RADIAL VENTED

AXIAL VENTED

WATER-COOLED

The DA1 motors are available as air-cooled and water-cooled versions.

Spectrum

Power

Torque

Acceleration

Robust asynchronous drives with high torque accuracy for demanding machines.

DA1 100-280 – Technical data

Type	P_N		n_N	J		M_0		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[kgm^2]	[lb ft^2]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DA1-100	3.5-25	4.7-34	1000-3000	0.02-0.03	0.47-0.71	25-86	18-64	66-138	49-102
DA1-132	10-50	13-67	1000-3000	0.07-0.12	1.7-2.8	73-215	54-159	192-350	142-258
DA1-160	10-120	13-161	400-3000	0.24-0.35	5.7-8.3	175-573	129-423	464-917	342-676
DA1-180	16-200	21-268	400-3000	0.51-0.68	12-16.1	277-955	204-704	764-1528	564-1127
DA1-225	27-265	36-355	400-3000	1.3-2.1	31-49	388-1862	286-1373	1290-2979	952-2197
DA1-280	82-400	110-536	650-2600	3.3-5.1	78-121	937-3262	691-2406	2100-5200	1549-3835

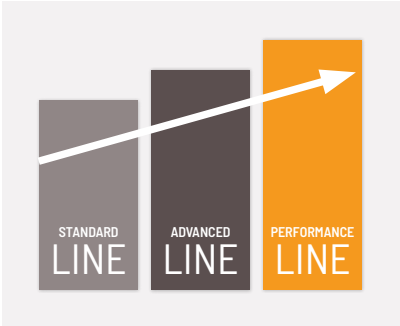
Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

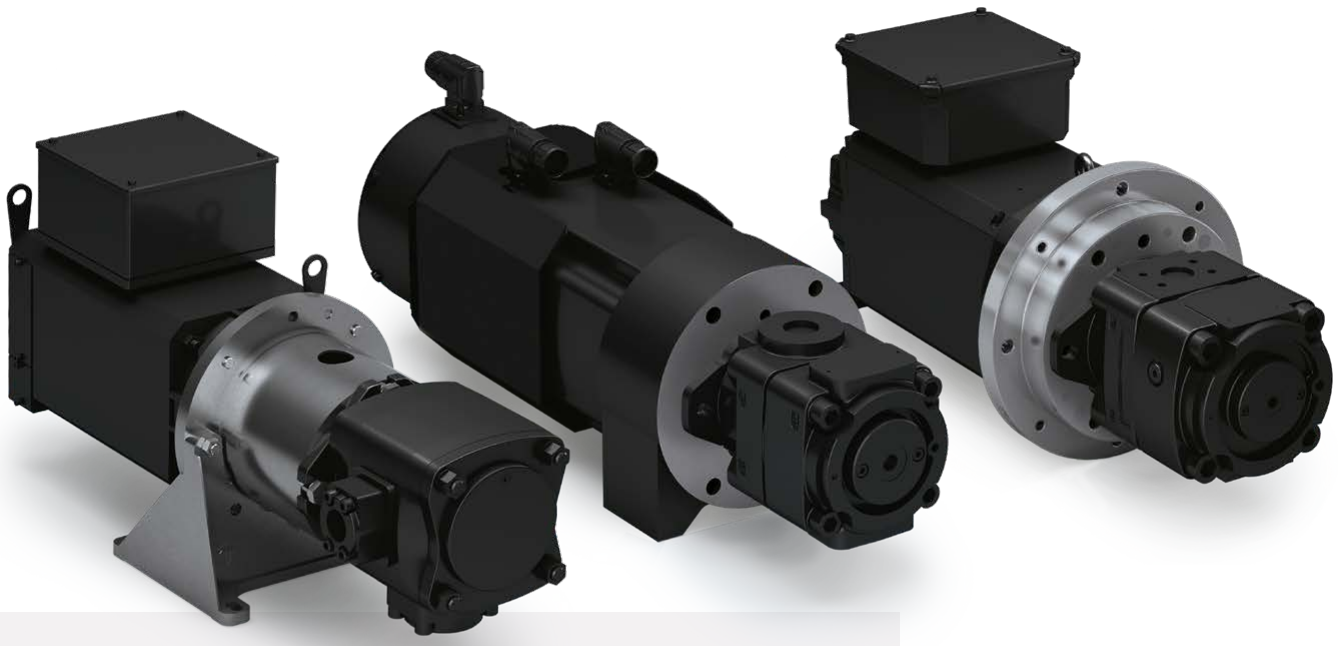
INDUSTRY-SPECIFIC

Through years of intensive cooperation with machine builders, Baumüller delivers innovative and optimized drive solutions for all sectors. Baumüller has responded to industry requirements with individual solutions. Motors have been developed especially for the plastics industry and for industries with high demands on hygiene, cleanliness and corrosion protection.

Servo pump direct attachment

Fixed displacement pumps are generally used in servo-hydraulic systems. Baumüller can work with any of the standard pump manufacturers on request. Numerous manufacturers have their own series for variable-speed operation in their product portfolio that exactly meets the requirements of servo-hydraulic systems and is designed for high accelerations. Compared to an uncontrolled hydraulic system with a standard motor, the pump will be smaller because decoupling from the power supply frequency occurs. This allows a higher speed and smaller pump dimensions.





- Standard Line – attachment via coupling and pump support
- Advanced Line – direct attachment with grease lubrication
- Performance Line – direct attachment with circulating oil lubrication

Standard Line – attachment via coupling and pump support

In the Standard Line, the attachment is made using the conventional solution of coupling and pump support. This tried-and-tested option can be achieved with a standard motor shaft and motor flange and is flexible due to the separate components.
Motors suitable for Standard Line: DSD2 sizes 45–132; DSC1 sizes 45–100; DS2 sizes 100–200

Advanced Line – direct attachment with grease lubrication

The Advanced Line describes the direct attachment of the pump on the motor via internal toothing. Here there is no need for a pump support and coupling, so the system is more compact and robust. Omitting the pump support as a resonating body also reduces the noise impact.
Motors suitable for Advanced Line: DSC1-056, DSC1-071, DSD2-100, DS2-100, DS2+-100, DS2-132, DS2+-132

Pump type		Motor size 56	Motor size 71	Motor size 100	Motor size 132
Bosch PGH2	(5–8 cm³)	*	-	-	-
Bosch PGH3	(11–16 cm³)	-	✓	-	-
Voith IPV3	(4–10 cm³)	-	✓	-	-
Bosch PGH4	(20–50 cm³)	-	✓	✓	-
Voith IPV4	(13–32 cm³)	-	✓	✓	-
Eckerle EIPC3	(20–64 cm³)	-	✓	✓	-
Voith IPV5	(32–64 cm³)	-	-	-	*
Eckerle EIPC5	(64–100 cm³)	-	-	-	*
Voith IPV6	(64–125 cm³)	-	-	-	*
Eckerle EIPC6	(125–250 cm³)	-	-	-	*
Bosch PGH5	(63–250 cm³)	-	-	-	*

Performance Line – direct attachment with circulating oil lubrication

In the Performance Line the hydraulic fluid is additionally used for intelligent circulating oil lubrication. For this purpose, connections were added not only to the motor but also to the constant pump, allowing the leakage flow of the pump to be used for the permanent lubrication of the toothing.
Motors suitable for Performance Line: DSD2-056, DSD2-071, DSD2-100, DSD2-132, DS2-100, DS2+-100, DS2-132, DS2+-132

Pump type		Motor size 56	Motor size 71	Motor size 100	Motor size 132
Bucher QXM23	(5–8 cm³)	*	-	-	-
Bucher QXEH(X)3	(10–16 cm³)	-	✓	-	-
Bucher QXEH(X)4	(20–32 cm³)	-	-	✓	-
Bucher QXEH(X)5	(40–63 cm³)	-	-	✓	✓
Bucher QXEH(X)6	(80–160 cm³)	-	-	-	*

Subject to change. ✓ available * on request

DSC1-135

Direct ejector

The DSC1-135 was designed especially with the plastics industry in mind, and here as an ejector drive. Therefore, the motor has a special bearing to compensate for the axial process forces.

- Permanent field synchronous servo motors
- Compact design with high power density
- Protection class IP64
- Smooth housing surface – not susceptible to dirt
- Solid four-point bearing on the A-side

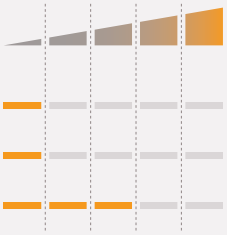
Cooling methods

WATER-COOLED

The DSC1-135 motor is available in a water-cooled version.

Spectrum

Power
Torque
Acceleration



DSC1-135 – Technical data

Type	P_N		n_N	M_N		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
DSC1-135	12-34	16.1-45.6	1000-1500	88-220	65-162	265-520	195-384

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

HYG1-036

Hygienic motor

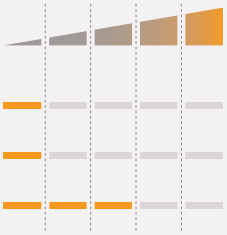
The compact servo motor is for industries with very high demands on hygiene, cleanliness and corrosion protection, even in aggressive environments. The IP69K protection class allows high-pressure/steam jet cleaning with water.

- Permanent field synchronous servo motors
- Stainless steel housing in hygienic design
- Protection class IP69K
- Smooth housing surface – not susceptible to dirt
- Optionally with brake

Cooling methods

The HYG1 motors are available as uncooled versions.

Spectrum



HYG1 036 – Technical data

Type	P_N		n_N	M_N		$M_{0\,MAX}$	
	[kW]	[hp]	[min^{-1}]	[Nm]	[lbf ft]	[Nm]	[lbf ft]
HYG1-036	0.19-1.16	0.25-1.56	1000-4000	1.1-4.4	0.81-3.25	4.8-14.6	3.54-10.77

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

DISC MOTORS

Baumüller disc motor series

Baumüller disc motors are primarily characterised by their space-saving, flat design. The shortest design requires only 36.5 mm installation space in the axial direction. Where the installation space is extremely limited, Baumüller offers a wide range of disc motors for the most diverse applications in a power range of 16 to 2260 W.

Two motor types are available depending on the application: 3-phase alternating current disc motors DSM and direct current disc motors GDM

DSM1

AC DISC MOTORS IRONLESS

DSM1

AC DISC MOTORS IRONCORE

GDM1

DC DISC MOTORS

Alternating current disc motors DSM

DSM are brushed permanent magnet motors with an ironless or ironcore rotor and barrel commutator. In the case of applications for which commutator direct current motors with carbon brushes are not suitable, brushless disc motors can be used. The required electrical control system can also be accommodated in the motor casing for special applications.

Available models:

- DSM1-115 ironless
- DSM1-117 ironcore
- DSM1-150 ironcore

Direct current disc motors GDM

GDM are brushless permanent magnet motors with ironless and ironcore motor windings. In the case of applications for which commutator direct current motors with carbon brushes are not suitable, brushless disc motors can be used. The required electrical control system can also be housed in the motor casing for special applications.

Available models:

- GDM1-075
- GDM1-080
- GDM1-009
- GDM1-010
- GDM1-100
- GDM1-012
- GDM1-120

Advantages DSM ironless

- High overload capacity
- High torque density
- High power with low construction volume
- No cogging and very quiet
- Practically constant torque over a wide speed range
- Customer-specific solutions possible

Advantages DSM ironcore

- Can be used as a torque motor
- Very high torque density
- High power with low construction volume
- Very good concentricity
- Low cogging
- Customizable to customer requirement
- Customer-specific solutions possible

Advantages GDM

- High overload capacity thanks to robust wire wrapping with barrel commutator
- High torque density due to NeFeBr perma magnets
- Extremely short design offering high power with low construction volume
- Very good torque / inertia ratio
- Very good concentricity tanks to low torque ripple
- Ironless rotors – No cogging and very quiet
- Low armature inductance and very low carbon brush wear
- Customer-specific solutions possible

DSM1 115-150

AC disc motor series

In the case of applications for which commutator direct current motors with carbon brushes are not suitable, brushless disc motors can be used. The required electrical control system can also be accommodated in the motor casing for special applications.
3-phase AC disc motors are available in two versions - ironless and ironcore.

Areas of application

- Ductor drives
- Knife drives
- Siliconizing drives
- Gravimetric systems
- Waverstepper
- Wave coating

ironless

- High overload capacity thanks to ironless motor winding
- High torque due to NeFeBr perma magnets
- High power with low construction volume and extremely short design
- No cogging and very quiet due to ironless motor winding
- Practically constant torque over a wide speed range

ironcore

- High torque thanks to NeFeBr perma magnets
- Can be used as a torque motor thanks to variable winding design
- Very high power with low construction volume and extremely short design
- Low cogging thanks to rotor optimization
- Optionally available with brake, tacho, transducer and gearbox

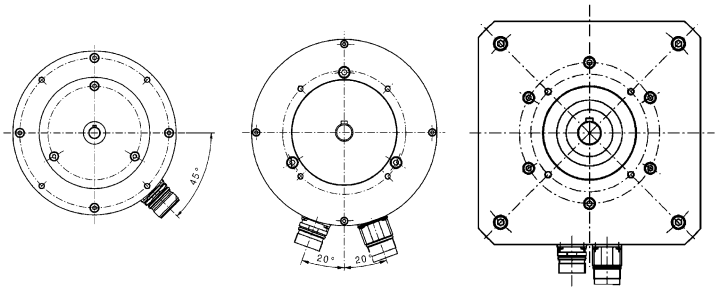
Cooling methods

UNCOOLED

The disc motor series DSM is available in uncooled versions.

Spectrum

Power
Torque
Acceleration



DSM1 ironless – Technical data

Type	Winding	P_N		n_N	J		M_N		I_N
		[W]	[hp]	[min^{-1}]	[$kgcm^2$]	[$lb\ in^2$]	[Nm]	[lbf ft]	[A]
DSM1-115N1	48/0800x2 96/0850	380 380	0.51 0.51	3000 3000	10 10	3.42 3.42	1.2 1.2	0.89 0.89	20 10

DSM1 ironcore – Technical data

Type	Winding	P_N		n_N	J		M_N		I_N
		[W]	[hp]	[min^{-1}]	[$kgcm^2$]	[$lb\ in^2$]	[Nm]	[lbf ft]	[A]
DSM1-117	558/0500 168/0500x3	262 785	0.35 1.05	500 3000	10 10	3.42 3.42	5.0 2.5	3.69 1.84	11.7 3.5
DSM1-150N1	540/0530x2 168/0560x6	870 2260	1.67 3.03	700 3000	40 40	13.67 13.67	11.8 7.2	8.70 5.31	4.2 9.1

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

GDM1 075-120

DC disc motor series

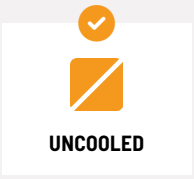
Baumüller direct current disc motors are permanent magnet motors with an ironless rotor and barrel commutator. They are therefore low in inertia and extremely dynamic when running. They are easy to regulate over their entire speed range and – even at really low speeds of less than one rotation per minutes – they retain exact concentricity. These motors are primarily characterized by their space-saving, flat design. The shortest design requires only 39.5 mm installation space in the axial direction. This motor, type GDM 12 N, is also the flattest and most compact disc motor in the world based on the ratio between the installation space and the achieved motor power.

Areas of application

- Vehicle and conveyor technology
- Semiconductor/microsystems
- Aerospace technology
- Medical and rehabilitation
- Measuring instruments
- Textile machines

- High overload capacity thanks to robust wire wrapping with barrel commutator
- High torque thanks to NeFeBr perma-magnets
- High power with small construction volume and extremely short design
- High dynamics thanks to high overload capacity
- Very low torque ripple thanks to high commutator lamination
- Very low carbon brush wear thanks to low armature inductance
- No cogging effect due to ironless rotors
- Practically constant torque over a wide speed range
- Easy to regulate
- Can be optionally supplied with brake, tacho, transducer, and gearbox

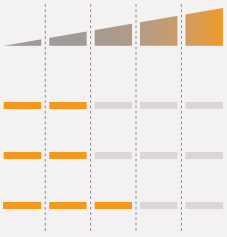
Cooling methods

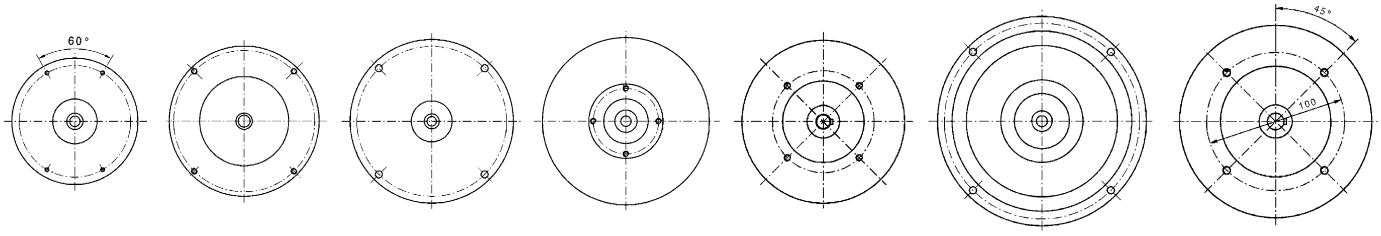


The disc motor series GDM is available in uncooled versions.

Spectrum

Power
Torque
Acceleration





GDM1 075-120 – Technical data

Type	P_N		n_N	J		M_0	
	[W]	[hp]	[min^{-1}]	[$kgcm^2$]	[lb in^2]	[Nm]	[lbf lb]
GDM1-075F1	16	0.02	3000	0.5	0.17	0.055	0.04
GDM1-080F1	44	0.06	4200	0.7	0.24	0.28	0.21
GDM1-080N1	71	0.1	2700	0.7	0.24	0.28	0.21
GDM1-009F1	32	0.04	3000	0.6	0.21	0.115	0.08
GDM1-010N1	142	0.19	3000	1.2	0.41	0.5	0.37
GDM1-100N2	250	0.34	4000	1.6	0.55	0.68	0.5
GDM1-012N1	147	0.2	2000	2.7	0.92	0.78	0.58
GDM1-120N2	550	0.74	3500	3.6	1.2	1.5	1.1

Subject to change.
The values specified are maximum values. For details, please refer to the technical documentation.

Automation – control platforms

With the b maXX control units, you can consistently implement the concept of scalability and modularity for flexible and individual adaptation to today's mechanical engineering requirements. Depending on the application, we support you during the development of central, modular decentralized and hybrid control architectures.

The control platforms are also suitable for highly synchronous drives and are completely integrated in the ProMaster engineering framework.

b maXX servo drives

With its converters, Baumüller provides its customers with important advantages: From cost savings to higher dynamics to increased safety.

Together, the converter series of the b maXX family cover a wide power range up to 400 kW. The b maXX family includes both stackable devices and powerful mono units. With optional safety packs, all devices in this series can be easily adapted to meet your individual safety needs.

Motors

You are looking for the right motor for your application? We offer you a wide portfolio of motors from 0.3 to 530 kW.

Depending on your requirements, we equip your plants or your mobile application with disk motors, dynamic three-phase motors, high-torque motors or if necessary, direct current motors also.

Software tools

As the complexity of machines and plants increases, so too do the demands on automation software. For this reason, it is important to provide users in the engineering field with the most user-friendly and flexible tools and software modules possible in each process phase in order to keep theengineering work required to a minimum. This allows software engineers to concentrate on their actual tasks and reach their goals faster. We offer the right tools and software modules for every stage of the engineering process. Because only with a holistic approach can state-of-the-art automation tasks be solved with minimum resources.

Sheet metal working / control cabinet construction

For many years, we have been implementing custom solutions for renowned machine and plant manufacturers – from sheet metal parts to completely wired control cabinets. You receive everything from us, a single source that can therefore deal optimally with your needs and wishes.

Planning | design | sheet metal production | serial production | assembly | installation

Service / Retrofit / drive modernization

With our services we support maintenance personnel, who are responsible for the smooth running of machines and plants every day, in all topics of industrial maintenance – and regardless of the manufacturer.

Regardless of the manufacturer, we offer you tailored and multi-level solutions for the modernization of your electrical drive systems.

HOUSE OF AUTOMATION

BAUMULLER ANLAGEN-SYSTEMTECHNIK	BAUMULLER	NÜRMONT	BAUMULLER SERVICES
System Engineering	Automation and Drive Systems	Installation and Relocation	Intelligent Services

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