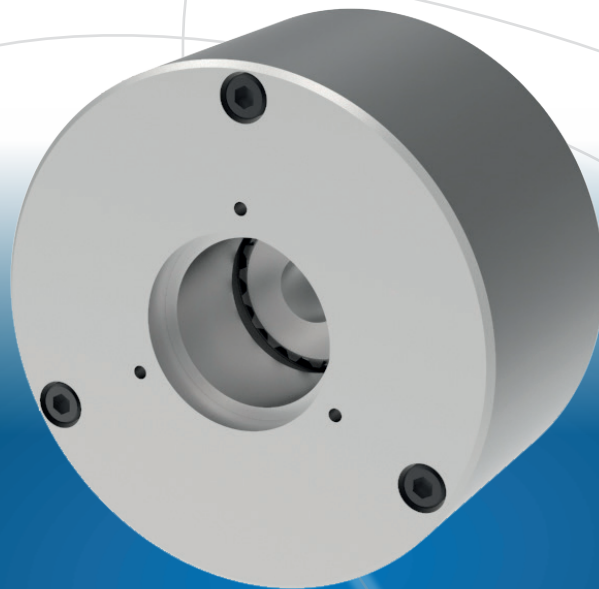




your reliable partner



ROBA-stop[®]-M
Servo Pitch Brake

Pitch brake with high performance density for demanding requirements

ROBA-stop[®]-M for servomotors and regulated AC drives

mayr[®] power transmission has developed a new application-optimized version of the ROBA-stop[®]-M safety brakes especially for pitch drives, which place very high demands on performance density and temperatures. Suitable for applications with ambient temperatures up to +90 °C and temperatures at the mounting flange up to max. +120 °C.

During emergency stops, brakes can face high demands with regards to friction work. These brakes are perfectly designed for use in pitch servomotors as well as in controlled AC drives.

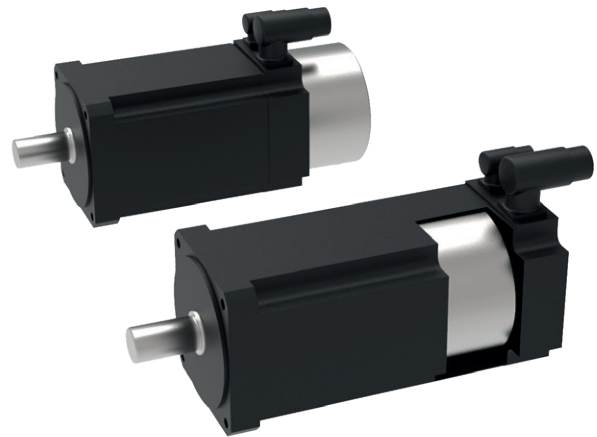
Due to their open construction, classic servo brakes are integrated in the motor housing, preferably on the A-bearing side of the motor. The ROBA-stop[®]-M safety brakes can

be placed inside and outside the housing. Thanks to their enclosed construction, they already have IP54 protection in the standard version. With appropriate additional sealing, they even achieve protection class IP66. This also makes open, B-bearing side attachment possible.

The performance-optimized ROBA-stop[®]-M pitch brakes don't require microswitches or non-contact sensors such as proximity switches to work and to monitor wear and tear. This task can be taken over by the ROBA[®]-brake-checker module, which continuously provides all information about the status of the brake without sensors by monitoring and evaluating coil current and coil voltage.

High level of protection thanks to enclosed construction

Due to the enclosed construction of the application-optimized ROBA-stop[®]-M pitch brake, it can also easily be installed outside the motor housing, in contrast to servo brakes.



Advantages of the ROBA-stop[®]-M pitch brake type 891.10_._

- High level of protection IP54 in standard or IP66 available on request
- High performance density
- Wide temperature range
- Versatile attachment options
- High permissible friction work for emergency stops

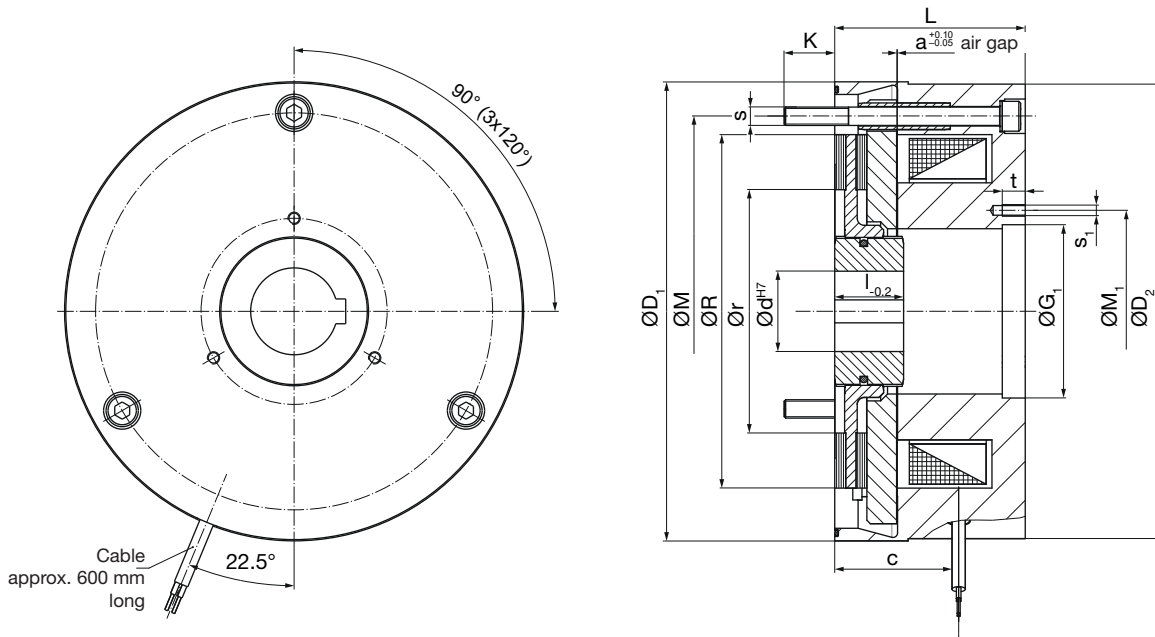
Order Number

Nominal torque holding brake		0	0	Without additional parts	
			4	Flange plate	
		▼	▼		
—	/	8	9	1	. 1 0 — . —
▲				▲	▲
Size 60 to 1000		Holding brake 1		Size 250, 1000 2 Size 60 / 100 / 150 / 500 5	

Example: 100 / 891.100.5

ROBA-stop®-M pitch brake

Type 891.100._



Technical Data			Size					
			60	100	150	250	500	1000
Braking torque ¹⁾	M _N	[Nm]	150	250	370	460	900	1800
Speed range		[rpm]	0 - 1500	0 - 1200	0 - 1000	0 - 900	0 - 750	0 - 650
Reduction of braking torque M _N ¹⁾		[%]	-15	-20	-20	-20	-20	-20
Speed range		[rpm]	1500 - 3000	1200 - 2400	1000 - 2000	900 - 1800	750 - 1500	650 - 1200
Reduction of braking torque M _N ¹⁾		[%]	-35	-35	-35	-35	-35	-35
Speed range		[rpm]	3000 - n _{max}	2400 - n _{max}	2000 - n _{max}	1800 - n _{max}	1500 - n _{max}	1200 - n _{max}
Maximum speed	n _{max}	[rpm]	4000	3200	2500	2400	2000	1600
Idle speed		[rpm]	7200	6200	5400	4700	3800	3200
Electrical power	P _N	[W]	73	88	96	120	152	160
Weight	m	[kg]	7.4	13.6	19.2	33.3	43	79
Maximum ambient temperature		[°C]	90					
Perm. friction work per braking action at n _{max}	Q _{r zul.}	[Joule]	7200	14000	17000	46000	52000	66000
Max. switching frequency		[1/h]	20	20	20	12	5	5

Dim.	Size					
	60	100	150	250	500	1000
a	0.25	0.3	0.3	0.35	0.4 ^{+0.2}	0.5
c	50	54	59	69	70	85
d _{min} ^{H7}	24	32	40	40	50	75
d _{max} ^{H7}	35	45	45	55	80	90
D ₁	168 _{h7}	200 _{h9}	220 _{h9}	258	310 _{h9}	382
D ₂	-	198	219	266	302	392
G ₁ ^{H7}	60	75.5	82.5	92	131	100
K	11.5	17	15	20	22	19
L	78	83	96	116	112	135
l	30	30	35	40	50	70
M	145	170	196	230	278	325
M ₁	75	88	100	112	145	115.5
r	106	106	122	140	161	190
R	129.5	154	178	206	253	300
s	M8	M8	M8	M10	M10	M12
s ₁	M5	M5	M6	M6	M8	M6
t	10	10	10	10	13	12

Bores	Ød _{min}		Ød _{max}	
	Size	DIN 6885/1	DIN 6885/1	DIN 6885/3
60	24	32	35	
100	32	42	45	
150	40	45	-	
250	40	55	60	
500	50	75	80	
1000	75	90	-	

1) Valid for temperatures of -40 °C to +60 °C:

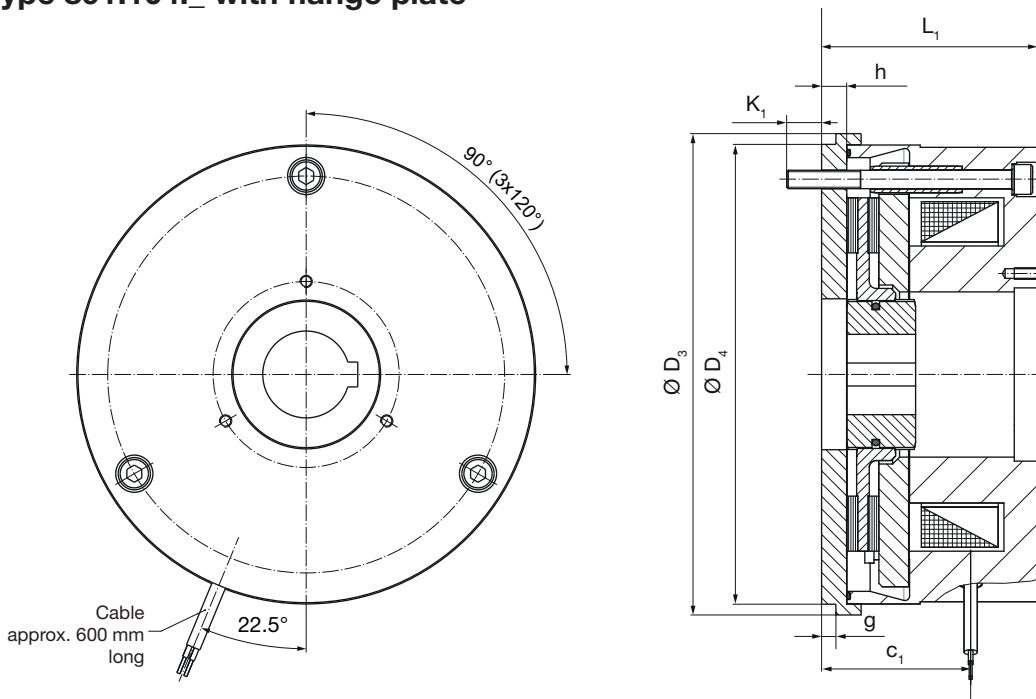
For higher temperatures on the mounting flange, please consider the following braking torque reductions:
 >60 °C to 80 °C: 10 % reduction
 >80 °C to 100 °C: 20 % reduction
 >100 °C to 120 °C: 30 % reduction

For higher ambient temperatures >60 °C up to max. +90 °C, these braking torque reductions must also be observed

2) Braking torque tolerance = +40 % / -20 % (friction lining pairing conditioning necessary, see Operational Instructions B.8.1.*)

We reserve the right to make dimensional and constructional alterations.

ROBA-stop[®]-M pitch brake
Type 891.104._ with flange plate



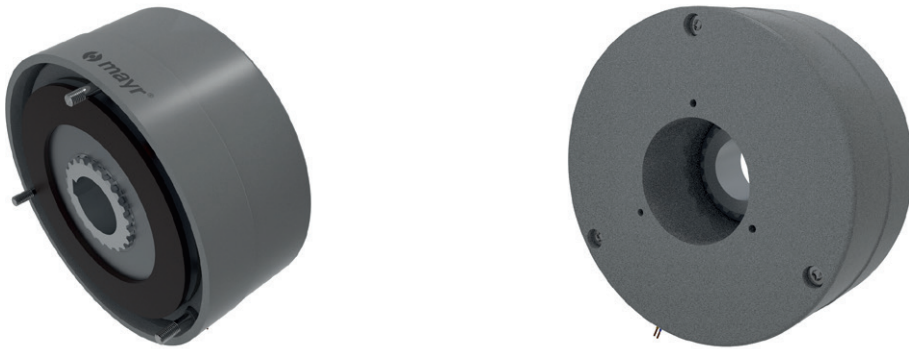
Technical Data

see Type 891.10._._

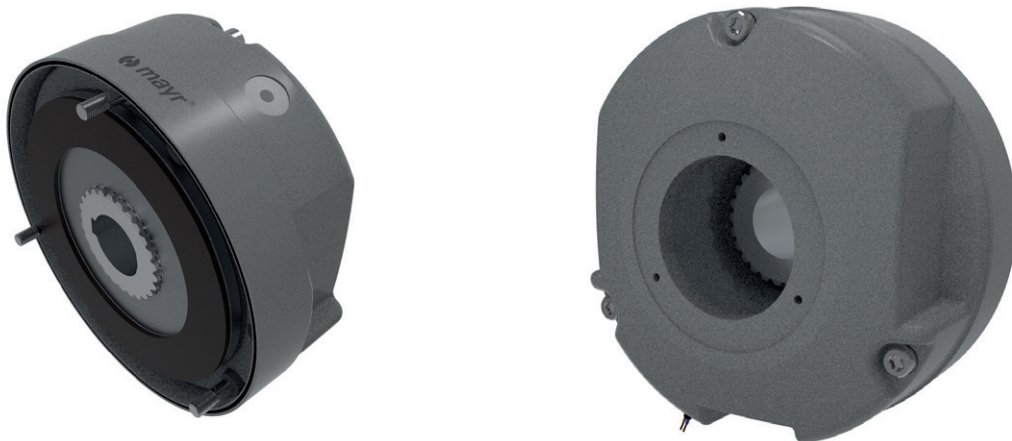
Dim.	Size					
	60	100	150	250	500	1000
c_1	58.5	64	71	83	89	106
D_3	174	206	227	266	318	392
D_4	168	200	221	258	310	382
g	4	5	6	7	7	7
h	8	10	12	14	19	21
K_1	14	12	18	26	23	19
L_1	80.5	94	109	130	133	156

Depending on the construction size, the ROBA-stop[®]-M Servo Pitch Brakes differ in terms of design. The common appearances of the individual construction sizes are shown below. The optimal project-specific solution is always developed in close cooperation with the customer and may therefore deviate from this.

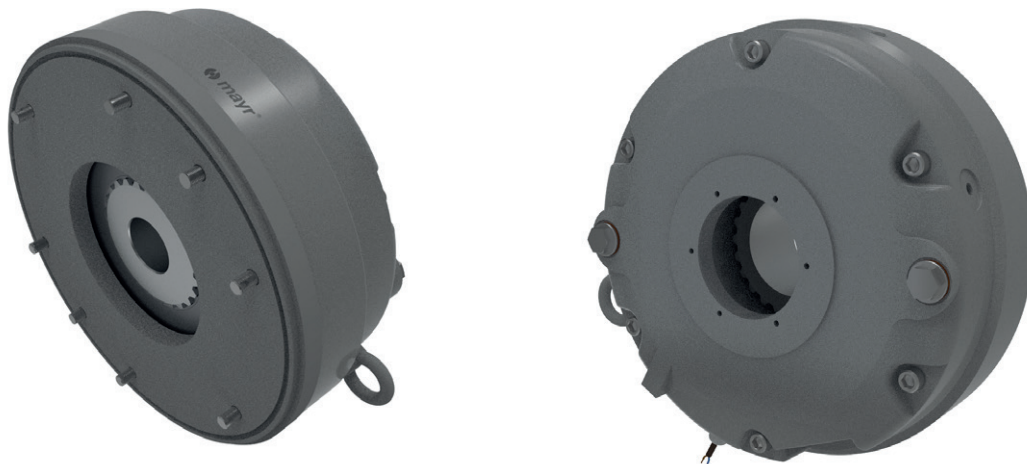
Size 60 / 100 / 150 / 500
exemplary type 891.100.5: Design without flange plate

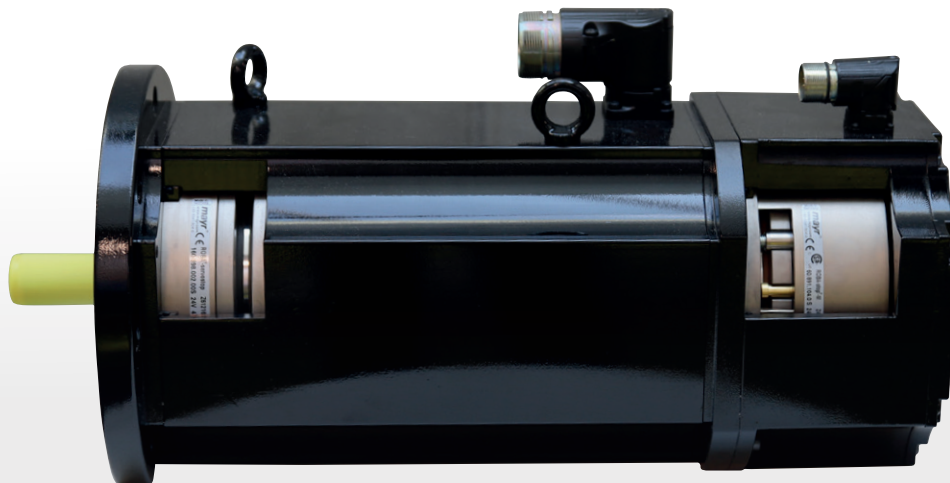


Size 250
exemplary type 891.10_2: Design without flange plate



Size 1000
exemplary type 891.104.2: Design with flange plate





The suitable solution for every application

Servomotors are increasingly being used in the pitch range. However, conventional brakes for servomotors cannot always cope with the high requirements placed on them by pitch applications. *mayr*® power transmission, on the other hand, offers a multitude of solutions here:

Integrated motor brakes

ROBA®-servostop®
ROBA-stop®-M Pitch

A-side flanged housing construction designs

ROBA®-topstop®
ROBA®-alphastop®

B-side installed brakes

ROBA-stop®-M
ROBA-stop®-M Pitch

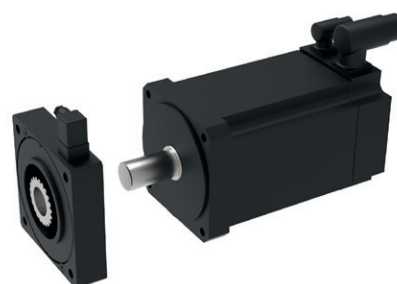
Product Catalogues

The detailed Product Catalogues **P.898000.V** (ROBA®-servostop®), **K.899.V** (ROBA®-topstop®), **P.897.V** (ROBA®-alphastop®) and **K.891.V** (ROBA-stop®-M) with all constructional designs, technical data and dimensions is available for download on our website www.mayr.com.

Servomotor with ROBA®-topstop®



Servomotor with ROBA®-alphastop®



Permanent brake monitoring

ROBA®-brake-checker – always retaining an overview of the brake

In the wind power sector, the monitoring of electromagnetic brakes is meanwhile one of the standard requirements. Therefore, *mayr*® power transmission with its intelligent monitoring modules sets new standards for yaw and pitch brakes. The ROBA®-brake-checker module works without sensors. In addition to the switching condition, temperature and wear, it monitors the pull-in distance or tensile force reserve, i.e. whether the magnet is still able to attract the armature disk. With the new module, substantially more processes are thus depicted than with microswitches and sensors. On reaching the tensile force reserve, the ROBA®-brake-checker sends out a warning signal early on enough

so that a certain operating time for the brake is still possible. During this time, the wind power plant operator or manufacturer can undertake maintenance in a targeted manner, aligned to their working process. In a further development stage, the module simultaneously also takes over the control of the brake and thus replaces the rectifier. In this way, the switching condition monitoring and the brake control are combined in one device.

Under continuous supervision – without additional sensors

The ROBA®-brake-checker is the perfect activation and control module for pitch and yaw brakes. All the important functions for the monitoring and supply of safety brakes are integrated.

- Release monitoring
- Wear monitoring
- Monitoring of critical coil temperatures
- Integrated overexcitation and drop in voltage

For pitch brakes, the following are preferred modules

ROBA®-brake-checker DC (Type 058.600.2) and

ROBA®-brake-checker plus DC (Type 028.600.2 / 028.700.2) are used.

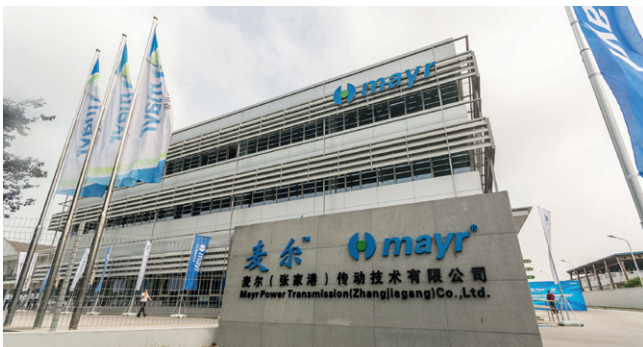


Strongly positioned

mayr® sets standards in power transmission with economically viable solutions. For maximum competitiveness of your machines and systems, we always aim for the best possible cost efficiency, starting with the development of your clutch/coupling or brake, right up to delivery of the finished and inspected product. For cost-efficient production, our factories in Poland and China represent the perfect supplement to the headquarters in Germany.



mayr® headquarters in Mauerstetten



Subsidiary with Production – *mayr*® China



Subsidiary with Production – *mayr*® Poland

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You can find the complete contact details for the representative responsible for your area in the Contact section at www.mayr.com

