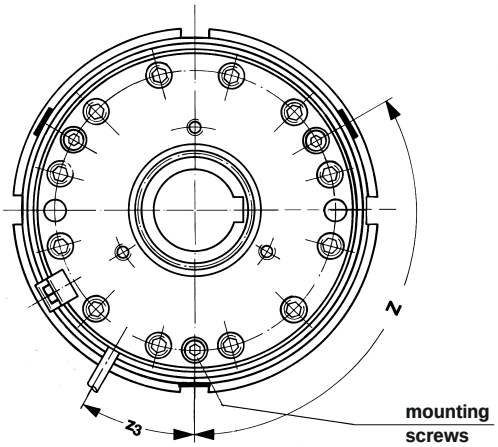
Sizes 3 – 11 Standard

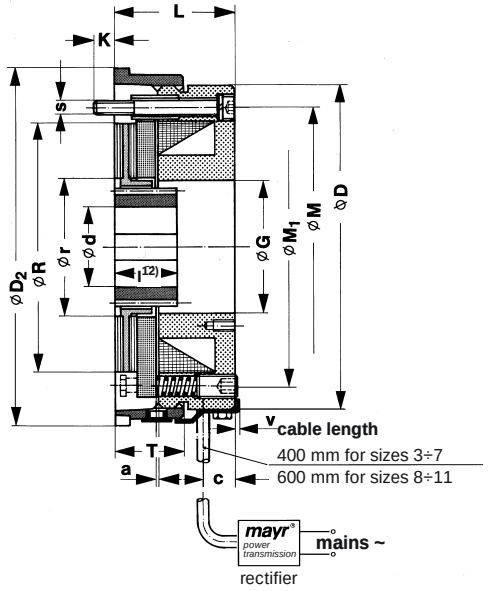
Type 80_.41_._

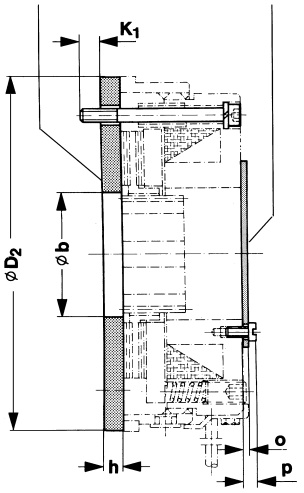
Flange plate Type 802.411.3

Back cover Type 802.412.3

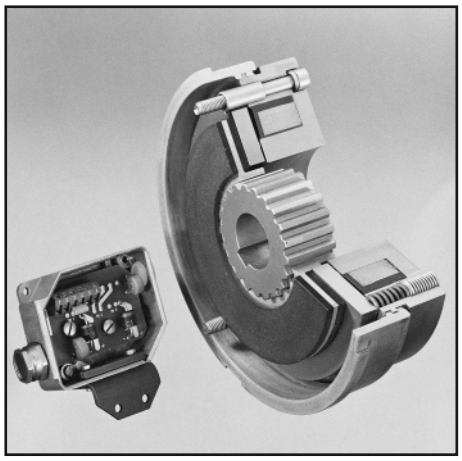


Sizes 3 - 11 Type 802.410.3





Sizes 3 - 11 Type 802.411.3
Type 802.412.3



Electromagnetic safety brake for braking and exact positioning. A highly repetitive accuracy is guaranteed with high switching frequencies. Three different armature discs are available for various requirements according to friction work, switching times and braking noise of the brake.

Standard armature

Short attraction time (brake release), longer switching time from switching-off power supply to the time when bake torque is provided (drop time). Heavy duty of construction allows the absorption of high friction work.

Fast acting armature

Same characteristics as the standard armature with somewhat longer attraction time, however, with substantial shorter drop time.

The switching times can be substantially affected by the electrical switching and the kind of voltage supplied.

The brake can easily be connected to DC voltage supply via our comprehensive range of electrical accessories (see page 26).

Order example:

To be included when ordering, please state:	size	type	voltage [V DC]	bore Ø d^{H7}	keyway DIN
Order number:		80_.41_._			

3 - 11

Standard armature 0
Fast acting armature 2

Without supplementary parts 0
Flange plate 1
Back cover 2
Hand release 3
Flange plate/Back cover 4
Flange plate/Hand release 5
Back cover/Hand release 6
Flange plate/Back cover/ Hand release 7

6885/1
6885/3

according to size

24; 104; 180; 207 V-coil

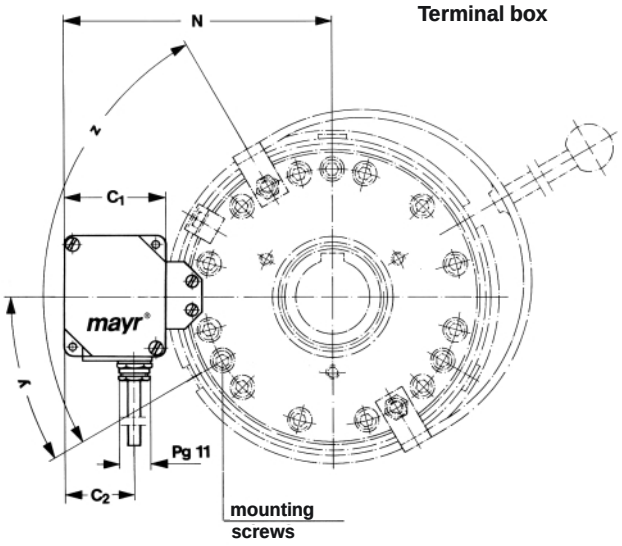
1 Terminal box with terminal
3 Cable
4 Terminal box half-wave rectifier
5 Terminal box bridge connected rectifier
6 Terminal box spark quenching

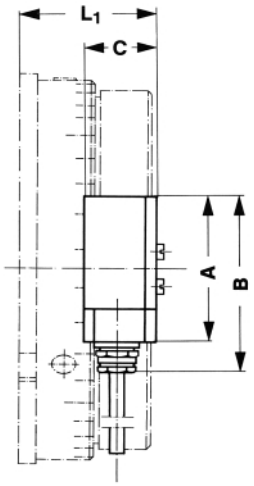
Example: Order number 6 / 800.411.3 / 104 / 20 / 6885/1

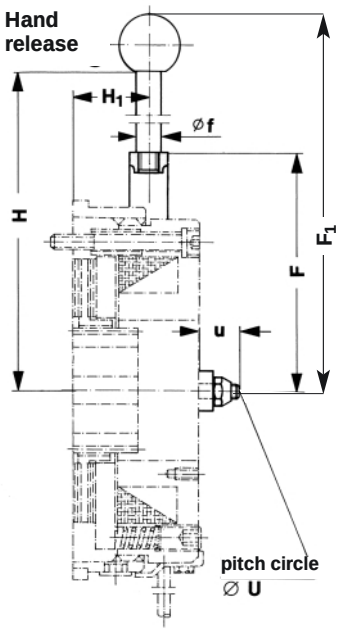
ROBA-stop® Positioning Brake

Sizes 3 – 11

Type 80_.41_._







Sizes 3 - 11 Type 802.41_.1 terminal box with
.4 half wave rectifier
.5 bridge connected rectifier
.6 spark quenching

Sizes 3 - 10 Type 802.413.3
(Size 11 on request)

Technical data and dimensions

size	brake torque M[13] [Nm]	max. speed[1] n [rpm]	input power P_{20} [W]	moment of inertia rotor and hub with bore d_{max} I [10^{-4} kgm²]	tightening torque mounting screws [Nm]	weight [kg]	A	a	B	b	C	C_1	C_2	c
3	3	6000	17	0,077	3	0,6	64	0,2	77	22	36	58	29	8
4	6	5000	24	0,23	3	0,95	64	0,2	77	26	36	58	29	8
5	12	4800	33	0,68	6	1,8	64	0,25	77	35	36	58	29	9
6	26	4000	50	1,99	8	3,1	64	0,25	77	40	36	58	29	10,5
7	50	3800	70	4,02	8	5,4	79,5	0,35	92,5	48	37	66,5	45,5	16,5
8	100	3400	87	13,2	10	9,4	79,5	0,35	92,5	68	37	66,5	45,5	18
9	200	3000	102	24,2	10	15,5	79,5	0,4	92,5	75	37	66,5	45,5	18
10	400	3000	134	56,4	10	30	79,5	0,4	92,5	90	37	66,5	45,5	25
11	800	3000	196	242	40	55	79,5	0,5	92,5	120	37	66,5	45,5	30

size	D	D_2	d_{min}[12]	d_{max}	preferred bore H7	F	F_1	f	G^{H7}	H	H_1	h	K	K_1	L	L_1	l[12]
3	72	79	8	12[2]	10, 11, 12	48,3	104,3	6	21,9	86,3	19	6	6	5	30,2[10]	38,2	15
4	86	98	10	15[3]	12, 15	55,8	111,8	6	26,9	93,8	21	7	5	8	32,2[11]	40,2	20
5	104,5	114	10	20[4]	15, 20	68,2	133,2	8	30,9	115,2	22,5	8	6	8	39,3	47,3	20
6	131,5	142	15	25[5]	20, 25	84,6	158,6	10	38,9	136,1	27,5	8	8	10	43,2	51,2	25
7	146	165	20	32[6]	25, 30	96,8	191,8	12	50,9	169,3	38	8	8	10	58,2	61,2	30
8	183	199	25	45	30, 40	117,8	210,3	14	73,9	181,3	38	10	12	12	66,7	69,7	35
9	201	220	25	50[7]	40, 45	125,6	245,6	15	80,4	208,6	50	12	9	12	74,3	77,2	35
10	255	275	25	60[8]	45, 50	158	427	15	90	390	65	14	12	18	96,3	99,3	50
11	330	360	30	80[9]	60, 70	--	--	--	129	--	--	16	24	18	116,3	119,3	60

size	M	M_1	N	o	p	R	r	s	T	U	u	v	y	Z	z	z_3
3	58	58	102	1,5	3,5	50	25	3xM4	17	60,5	6,5	1	33°	3x120°	98°	33°
4	72	72	109	2,5	5,1	62,5	32	3xM4	19	75	7	1	32°	3x120°	98°	32°
5	90	89	118,5	2,5	5,1	79,5	40	3xM5	25	91	9	1	32°	3x120°	105°	33°
6	112	112	132	3,5	6,1	99	45	3xM6	27	115,5	11,5	1,5	32°	3x120°	90°	33°
7	124	124	151,5	3,5	6,8	110,5	60	3xM6	36	129	13,5	1,5	30°	3x120°	90°	30°
8	156	156	170	2	5,3	139	77	3xM8	38	181	19	1,5	30°	3x120°	90°	30°
9	175	175	179	2	5,9	158	83	6xM8	47	175	21,5	2	30°	6x60°	90°	30°
10	215	215	206	2	5,9	188	94	6xM8	56	215	29	2	30°	6x60°	90°	30°
11	280	280	243,5	2	7	253	128	6xM12	74	--	--	2	22,5°	6x60°	90°	22,5°

1) higher speeds on request
2) over Ø11 keyway to DIN 6885/2 (width b = 4 JS9; depth t = 1,2+0,1)
3) over Ø 13 keyway to DIN 6885/3
4) over Ø 18 keyway to DIN 6885/3
5) over Ø 23 keyway to DIN 6885/3
6) over Ø 30 keyway to DIN 6885/3
7) over Ø 47 keyway to DIN 6885/3
8) over Ø 57 keyway to DIN 6885/3
9) over Ø 76 keyway to DIN 6885/3
10) fixing screws protruding 3,2 mm
10) fixing screws protruding 2,2 mm
12) observe load shaft or keyway
13) tolerance
standard voltages 24, 104, 180, 207 V
permissible voltage tolerance ±10%; to IEC 60038
We reserve the right to make dimensional and design alterations.

Fitting the brake

Assembly conditions

The eccentricity of the shaft end against the fixing hole p.c.d. must not exceed 0,2 mm (with brake sizes 3 - 6), with larger brakes it must not exceed 0,4 mm.

The deviation in the true running of the screw-on surface to the shaft must not exceed the permissible true running tolerance according to DIN 42955.

Larger deviations can cause a reduction in torque, a continuous wear of the rotor and overheating.

Rotor (35) and braking surfaces must be free of oil and grease.

There has to be a suitable counter friction surface for rotor (35) made from steel or cast iron. Sharp-edged interruptions of the friction surface have to be avoided.

If no suitable friction face is available, our flange plate (29, Fig. 2 bottom half) can be used.

Installation

ROBA-stop® brakes are known to be easily installed:

The hub (1) is mounted onto the shaft and is located axially (by means of a snap ring for example). Recommended key with hub-shaft connection = k6/H7. Fitting of the hub to the shaft with the bore being tight may cause a binding of the rotor on the hub and a trouble-free function is not possible. After the rotor (35) has been pushed onto the hub (1), the brake just needs to be secured at the B-bearing housing of the motor or on the machine wall by mounting screws (13). These screws (13) are to be tightened to the tightening torque M_a (according to table 1). The assembly can be in vertical or horizontal mounting positions.

In case of the design with assembled cover plate (30) the brake is completely closed and corresponds to protection IP 54.

Brake torque

Definition

The braking torque indicated in the technical data is the switching torque measured with mean friction radius and circumferential speed of v = 1,0 m/sec.

For the different applications of the brake it is to be considered that the brake torque deviations can arise of up to +40/-20% (please contact the works, if necessary).

The load moment existing at the machine should be max. 50% of the indicated brake torque.

Adjustment

The rated torque indicated in the technical data for the ROBA-stop® brakes are set at the factory. The brake torque may be reduced by turning the setscrews (14) to the left and may be increased by turning them to the right. When adjusting the brake torque all setscrews (14) must be uniformly adjusted.

Helical springs (11) must be removed out of the brake, if the brake torque requires considerable reduction. In this case the springs (11) still remaining in the brake should be distributed so that the load on the armature disc (5) is evenly distributed.

Please contact the works for the corresponding adjusting diagrams, if you would like to change the brake torque.

Fitting the hand release

The hand release is fitted and adjusted according to the instruction.

When adjusting the lock nuts (21) please notice the following:

The restoring bolts (17) limit the stroke of the armature disc (5) in braking direction. They may only be tightened by the lock nuts so that the armature disc (5) can carry out the stroke „X“ according to table 1 and figure 2 (detail).

Parts List

1 hub
2 coil carrier
3 armature disc
11 helical spring
13 fixing screw
14 setscrew
16 threaded bolt
17 restoring bolt
18 knob
19 return spring
21 lock nut
22 hand release yoke
29 flange plate
30 cover plate
31 distance ring
35 rotor
58 lock washer

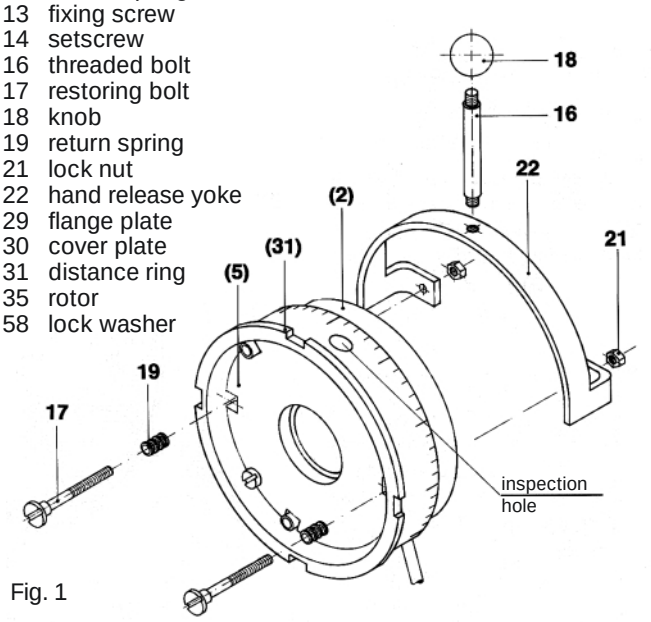


Fig. 1

size	rated air gap a [mm]	stroke x [mm]	release angle α [°]	manual force F [N]	screw tightening torque M_a [Nm]
2	0,15	0,8	10	10	3
3	0,2	1,0	15	17	3
4	0,2	1,1	15	30	3
5	0,2	1,2	11	50	6
6	0,25	1,6	11	80	8
7	0,35	1,4	8	160	8
8	0,35	1,5	7	200	10
9	0,4	1,5	7	350	10
10	0,4	2,0	15	350	10
11	0,5	-	-	-	40

Table 1

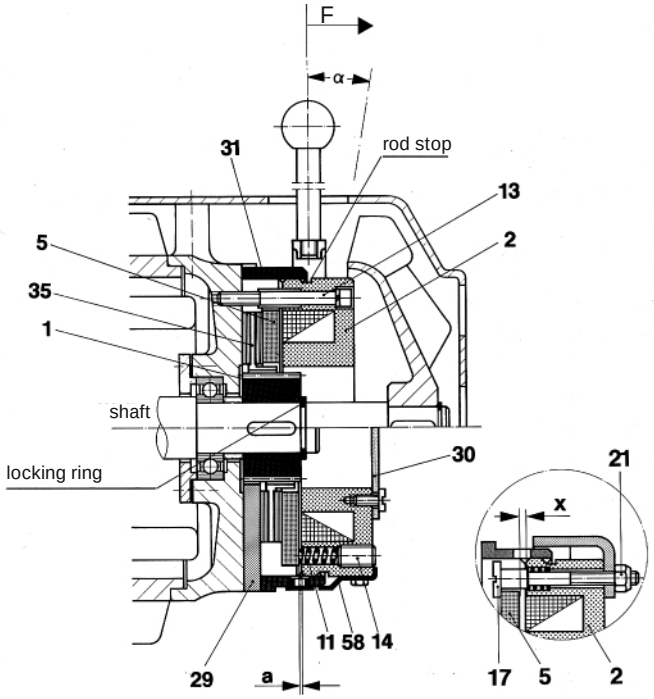


Fig. 2

Adjusting the air gap

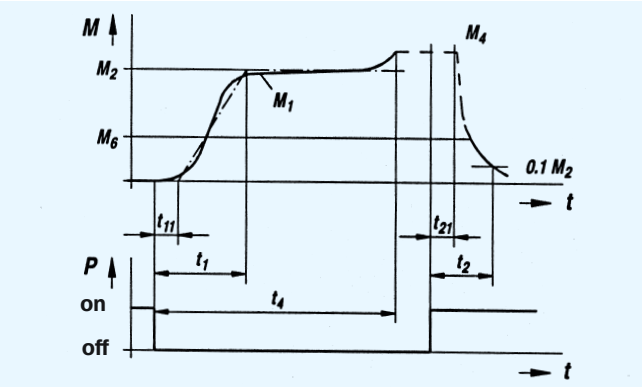
As the rotor friction material (35) wears down, the air gap „a“ increases. The rated air gap can be restored by turning the graduated distance ring (31). One graduation = 0,05 mm. The fixing screws (13) and the lock washer (58) are loosened, the graduated distance ring (31) is rotated counter-clockwise to equal the wear (view to rear side of the brake). Afterwards, the fixing screws (13) and lock washer (58) must be tightened. This adjustment can be repeated until the graduated distance ring (31) contacts the rod-stop of the coil carrier (2).

Switching times

The switching times of the brakes are influenced by the temperature, the different methods of spark quenching or the air gap between the armature disc and the coil carrier depending on the wear condition of the linings.
The values given in Table 2 are mean values which refer to the nominal air gap with warm brake.

Maintenance

At specific intervals the air gap between armature disc and coil carrier must be checked and adjusted. When the rotor has reached the max. permissible degree of wear, it has to be exchanged. You have to take care when exchanging that the **friction faces** and **brake linings are free of oil and grease.**
The brake does not require any other maintenance.



torque - time - diagram

Fig. 3

It means:

M_1 = switching torque
M_2 = nominal torque (characteristic torque)
M_4 = transmittable torque
M_6 = load torque
t_1 = engaging time
t_{11} = delay in re-action during engagement
t_2 = disconnection time
t_{21} = react delay during switching off

Switching times

size	braking torque M [Nm]	DC switching				AC switching			
		brake with standard armature		brake with fast acting armature		brake with standard armature		brake with fast acting armature	
		t_2 [ms]	t_1 [ms]	t_2 [ms]	t_1 [ms]	t_2 [ms]	t_1 [ms]	t_2 [ms]	t_1 [ms]
2	1,5	20	13	-	-	20	80	-	-
3	3	25	20	30	13	25	120	30	90
4	6	30	26	35	20	30	200	35	100
5	12	40	46	50	26	40	260	50	200
6	26	60	78	70	33	60	650	70	330
7	50	80	100	85	50	80	700	85	310
8	100	100	200	110	80	100	1000	110	600
9	200	150	250	170	120	150	1300	170	800
10	400	200	400	230	250	200	3000	230	1800
11	800	300	500	350	350	300	3100	350	2000

Table 2