

Installation and operating instructions for:


Hysteresis Brake – current control units type HB-3M-2 to HB-3500M-2

(All technical data and drawings on our website www.mobac.de and in our catalogue)

Torque range:

The torque of this units is adjustable from 0,003 Nm to 29 Nm.


Handling:

 **Do not lubricate mobac units. Bearings are self-lubricated with grease. This will affect torque capacity of the unit.**

The hysteresis disc and magnets are brittle by nature. Strokes on the housing, dropping the brake/clutch or similar can cause damage.

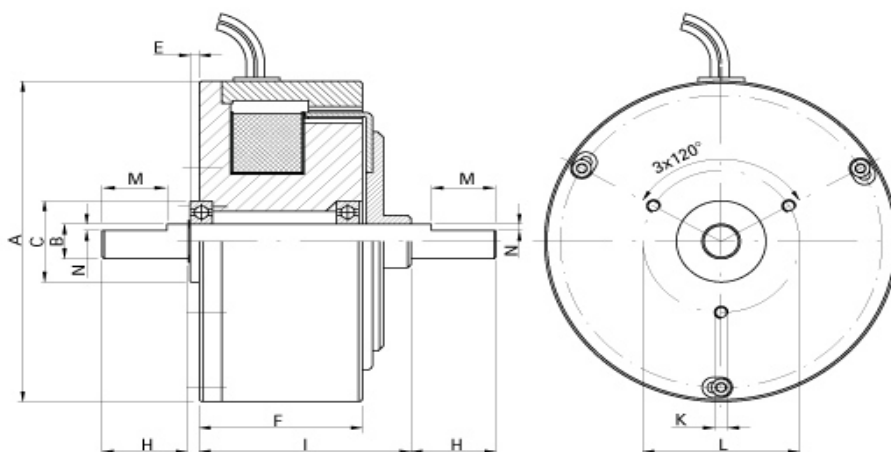
Handle and install with care. This is a precision brake/clutch with close internal clearances and tolerances. Pay attention to not contaminate the inside of the brake/clutch. Also pay attention not to damage the electrical connector cables.

Mounting:

 **Avoid the pollution of seals and bearings with solvent or liquid. It may reduce the life expectancy of your unit.**

Brakes are designed to be face mounted using a pilot diameter (C) for alignment. The brake face has tapped holes (L) for attaching to, mounting brackets or machinery. To avoid damage inside of the brake/clutch do not exceed the thread depth in the housing. See chart below for the mounting specifications for each model. Surface mounting provisions are provided as standard on all brakes except the HB-3500 series. The colour marked electrical connectors have to be connected with the power supply unit.

List 1



Abmessungen / Dimensions (mm)

Type	ØA	ØB _{h6}	ØCh ₆	E	F	H	I	K	ØL	M	N
HB- 3M-2	31,8	3,00	10,00	2,0	18,6	8,0	24,0	M2,5 x 4	19,0	—	—
HB- 10M-2	45,7	5,00	14,00	2,4	20,7	12,1	24,7	M2,5 x 5	19,0	9,5	0,7
HB- 20M-2	50,0	5,00	14,00	2,5	23,5	13,0	27,3	M3 x 6	21,0	9,5	0,7
HB- 50M-2	60,0	7,00	17,00	2,0	39,9	15,0	42,8	M4 x 8	25,0	10,0	0,7
HB- 140M-2	92,0	10,00	22,00	2,5	39,0	25,0	50,8	M4 x 9	38,0	16,0	1,0
HB- 250M-2	112,5	12,00	28,00	4,0	50,5	27,0	64,3	M5 x 10	45,0		
HB- 450M-2	137,5	15,00	32,00	3,5	52,4	27,0	73,0	M5 x 10	60,0		
HB- 750M-2	158,0	17,00	35,00	4,5	73,0	38,0	95,0	M6 x 10	70,0		
HB-1750M-2	226,0	25,00	52,00	6,0	76,2	50,0	107,0	M6 x 19	100,0		
HB-3500M-2	226,0	25,00	-	-	152,4	50,0	214,0	Grundplatte 216 X 130 It=121			

*Passfedernut s.unten
Keyway see below

Adjustment of the Brake:

Mobac Hysteresis Brakes are DC powered devices. The amount of braking torque transmitted by the brake is proportional to the amount of current flowing through the brake coil. The direction of current flow (polarity) has no consequence to the operation of the brake. For best torque regulation, especially in an open loop system, a DC supply with good current regulation (mobac Type IV C-E / IV C-A power supply or equivalent) is recommended. Since polarity has no effect on brake performance, switch power supply off and voltage or current adjustments at their lowest settings, connect brake leads to power supply. Make certain to secure and insulate all electrical connections according to approved methods and standards prior to application of power. The adjustment of the torque can be done by 0 - 2,0A DC current via potentiometer or 0 – 10V DC control voltage. The adjusted torque is already reached after 5 angle degrees.

Attention! If the adjustment from max. to min torque is done in still stand, a certain rest or rather an unsteady torque flow can appear when the shaft is rotating.

Help: set the torque to the max. position. After that start to rotate the shaft (always in the same direction) and in the same time set the torque slowly to the minimum (current adjustment to 0A). The brake got now an equal torque course.

Slower adjustment from maximum to minimum increase the level of the torque curve.

RPM and Temperature:

The general temperature of current control hysteresis brake is from – 20C° up to + 85C°
For maximum rpm see attached list 2. The maximum torque at the corresponding rpm has to be calculated on base of the possible dissipation.

**Do not touch mobac unit while or just after operation.
It may cause severe injuries.**

List 2

Technische Daten / Technical Data

Type	Moment bei Arbeitsstrom Torque at working current (Nm)	Arbeitsstrom Working current I 1 (mA)	Widerstand bei Resistance at 25°C±10% (Ohm)	Spannung Voltage V DC bei I 1	Drehzahl rpm max. 25°C±10% (min ⁻¹)	mögliche Verlustleistung Possible dissipation (Watt)		Restmoment ohne Strom Residual torque without Current (Nm)	Trägheitsmoment Rotor inertia (kgcm ²)	Gewicht Weight (kg)
						unterbrochen not continuous	kontinuierlich continuous			
HB- 3M-2	0,024	155	171	25	20000	20	5	3,53 × 10 ⁻⁴	0,0043	0,103
HB- 10M-2	0,095	143	180	24	20000	35	8	7,06 × 10 ⁻⁴	0,0435	0,238
HB- 20M-2	0,15	232	120	24	20000	50	12	7,77 × 10 ⁻⁴	0,0458	0,324
HB- 50M-2	0,38	270	95	24	15000	90	23	1,55 × 10 ⁻³	0,1670	0,764
HB- 140M-2	1,2	270	95	24	12000	300	75	5,42 × 10 ⁻³	1,00	1,850
HB- 250M-2	2,1	289	96	24	10000	450	110	7,77 × 10 ⁻³	3,45	3,500
HB- 450M-2	3,6	473	50	24	8000	670	160	1,51 × 10 ⁻²	7,50	5,460
HB- 750M-2	5,8	410	60	23	6000	1000	200	5,00 × 10 ⁻²	14,50	12,200
HB-1750M-2	14,5	535	52	26	6000	2400	350	9,18 × 10 ⁻²	62,50	24,500
HB-3500M-2	29,0	1070	26	26	6000	4800	600	1,36 × 10 ⁻¹	125,00	49,750

Maintenance:

The current controlled hysteresis-units and all main bearings are lubricated for lifetime and do not need special maintenance.

If you dismount the brake, be very careful and keep the brake clean.

Attention! Hysteresis drag cups are very shock-sensitive and could split into sharp-edged and dangerous pieces. If you have any problems with the mounting of the brake, please contact mobac GmbH Kiel.