

UNITORQ®

Clutches & Brakes

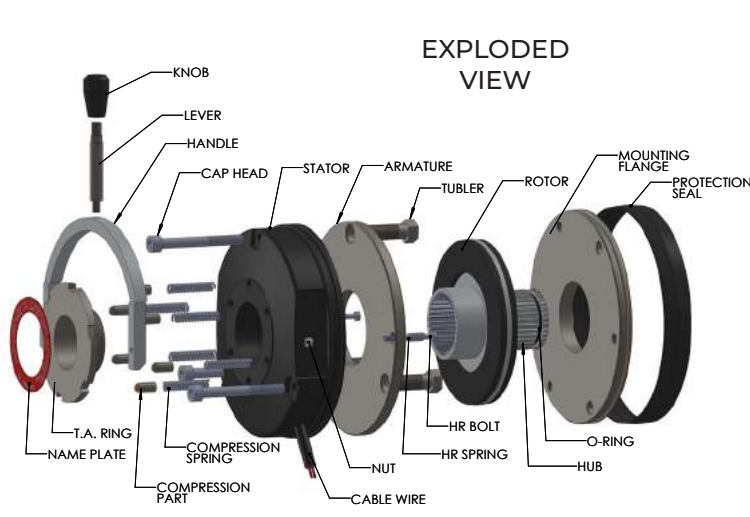
DC Spring Applied Fail Safe Brake

USB/UMB Series
(Normally on)



Electromatic Engineers Pvt. Ltd.
(Udaipur, Rajasthan)

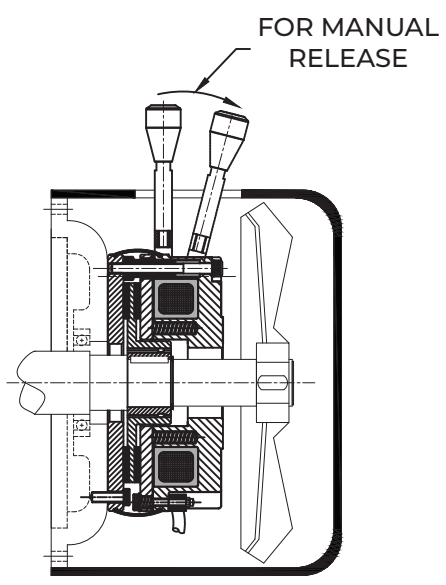




**UNITORQ
ELECTROMAGNETIC DC FAIL SAFE BRAKE
USB/UMB SERIES**

MOUNTING

BRAKE FITTED UNDER THE MOTOR FAN COVER



WORKING

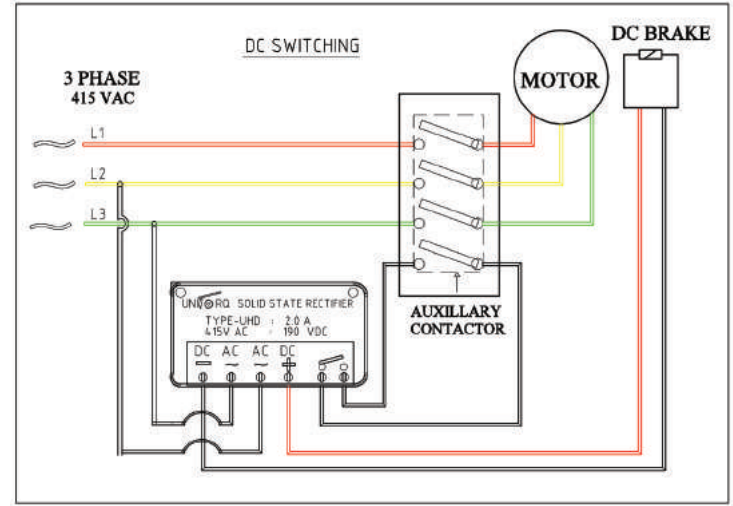
ELECTROMAGNETIC DC FAIL SAFE BRAKE

Unitorq USB & UMB series Brakes are absolutely fail safe in nature, and finds wide range of applications where emergency stop is required. When power fails or Brake remains in engaged condition for longer periods of time, these Brakes are ideal for the application. Unitorq D.C. fail safe brake functions on an electromagnetic principle.

PRINCIPLE OF OPERATION:

When electric current is given to the stator (brake coil) the armature plate is attracted to the stator against the spring force, thus releasing the rotor. When current is cut Off, strong compression springs push the armature plate back to its original position, which clamps the rotor (friction plate) providing the braking torque. Unitorq D.C. fail safe brake type UMB is provided with unique manual release provision. Many special options are available on request.

ADVISABLE SWITCHING



These types of brakes require DC Voltage to release. It can be done on either side. However for higher cycle time/ faster engagement and disengagement, switching must be carried out on DC side only.

To protect contactor points, coil & switches, resistor and capacitor networks must be provided across the contactor to restrict the high inductive voltage/ back EMF which is produced when power is switched off.

RECTIFIER SELECTION			
BRAKE COIL (VDC)	AC INPUT (VAC)	CURRENT RATING	RECTIFIER TYPE
190	230	2 Amp	UHD-B
	415	2 Amp	UHD-A
105	230	2 Amp	UHD-C
	230	2 Amp	UHD1-C
96	230	2 Amp	UHD-D
	110	2 Amp	UFD-C
24	415	2 Amp	UTR-A
	415	5 Amp	UTR-B
	230	2 Amp	UTR-C
	230	5 Amp	UTR-D

NOTE- ALL RECTIFIERS ARE WITH IN BUILT DC SWITCHING PROVISION

DIMENSIONAL DETAILS USB & UMB SERIES

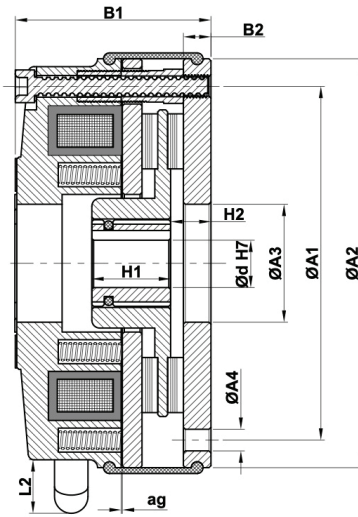
Nm=0.102 kgm = 0.737 lb-ft=10.2 kgcm.

Below Specifications are subject to change without prior notice.

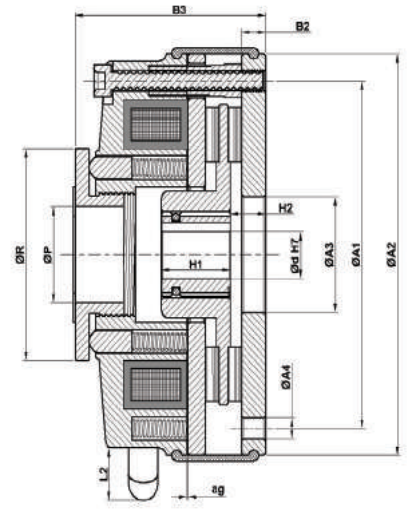
Cable Length 400 mm approx for sizes 2-65. 500 mm approx for sizes 85-1600. All dimensions are in mm only

'Keyways to DIN 6895 IS 2048 Standard'.

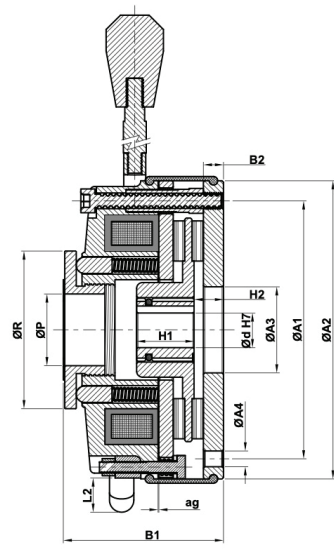
USB Design : 501



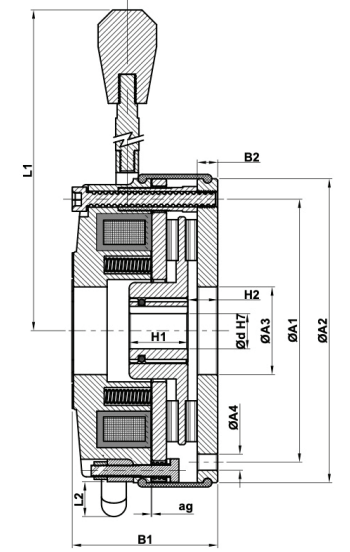
USB Design : 502



UMB Design : 503



UMB Design : 504



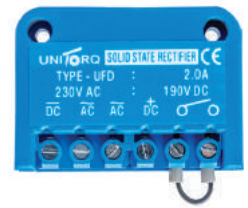
Size	Voltage DC	Wattage At 20° C	Max rpm	Torque Nm	A1	A2	A3	A4	B1	B2	B3	H1	H2	L1	L2	P	R	dH7		Air Gap	Weigh (kg) approx
																		Std	Max		
2	24/96/ 105/ 190/ 205 * Other Voltages on request	18	3000	2	54	65	25	3x4.5	42	4.0	41	15	8	60	450	14	38	8	11	0.2	0.90
5		20	3000	5	72	86	20	3x4.5	45	6.0	52	18	9	126	450	15	48	11	15	0.3	1.35
10		25	3000	10	90	104	30	3x5.5	49	7.0	57	20	10	135	450	25	55	14	20	0.3	2.05
15		25	3000	15	100	115	35	3x5.5	63	7.0	60	20	10	140	450	25	55	14	20	0.3	2.25
20		30	3000	20	112	128	40	3x6.6	63	9.0	69	20	12	148	450	30	68	19	25	0.35	3.70
35		40	3000	35	132	148	45	3x6.6	67	9.0	73	25	12	161	450	35	80	24	30	0.35	5.60
65		50	3000	65	145	164	55	3x9.0	81	11.0	89	30	15	172	450	42	92	28	34	0.35	8.50
85		78	3000	100	170	188	65	3x9.0	90	11.0	99	30	15	195	450	56	102	34	45	0.40	12.20
155		97	3000	155	196	212	75	6x9.0	104	11.0	113	35	15	217	650	56	115	42	48	0.40	18.50
200		75	3000	200	210	228	80	6x9.0	104	11.0	-	35	15	280	650	-	-	42	48	0.45	19.50
250		75	3000	250	230	250	90	6x11.0	115	11.0	128	40	16	303	650	70	135	42	50	0.45	27.0
400		100	3000	400	278	300	120	6x11.0	135	15.0	151	50	20	350	650	85	165	55	65	0.60	42.15
600		115	3000	600	278	300	120	6x11.0	135	15.0	151	50	20	350	650	85	165	55	65	0.60	42.15
800		150	1500	800	300	340	130	6x15.0	153	15.0	-	60	20	400	650	-	-	60	75	0.80	63.35
1200		375	1500	1200	320	360	140	6x18.0	192	20.0	-	70	25	420	650	-	-	70	80	1.00	72.90
1600		380	1500	1600	360	400	140	6x18.0	195	20.0	-	70	25	450	650	-	-	70	95	1.20	78.90

SALIENT FEATURES



- Simple Constructions
- Easy Mounting
- Fast Response Time
- Fixed/Adjustable Torques
- High Operating Frequency
- Backlash Free Long Life
- Absolutely Noiseless
- Insulation 'F' & 'H' Class Coils (Dual Coated)
- Non-Asbestos Imported Friction Liner
- Nitride Armature & Mounting Flanges
- Designed to Keep Maintenance to Minimum
- Low Rotor Inertia
- Dust Protection Seal
- Micro Switch Available on Request

UNITORQ- SOLID STATE RECTIFIERS

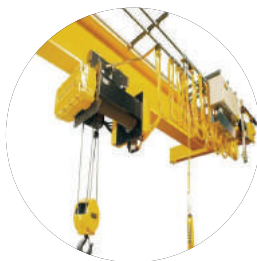


- Wide temperature range from -25 C to +60 C
- Flexible mounting positions available
- CE Certified
- High interference immunity
- Very Fast Acting
- Compact & Robust housing

TYPICAL APPLICATIONS



Brake Motor



Cranes & Hoists



Windmills



Textile Machines



Fork Lift



Conveyors



Elevators



Machine Tools



Tyre Machinery



Navy Deck Machinery

& Many More

SELECTIONS

FOR BRAKE MOTORS



USB / UMB SERIES SELECTION FOR BRAKE MOTORS				
Motor HP/KW	Motor RPM	Motor Frame	Brake size/ torque	Safety Factor
0.25/0.18	1500	63	05	4.2
	1000	71	05	2.79
	750	80	05	2.10
0.5/0.37	1500	71	05	2.10
	1000	80	10	2.79
	750	90S	10	2.10
0.75/0.55	1500	80	10	2.79
	1000	80	10	1.86
	750	90L	20	2.79
1.0/0.75	1500	80	10	2.10
	1000	90S	20	2.79
	750	100L	20	2.10
1.5/1.1	1500	90S	20	2.79
	1000	90 L	20	1.86
	750	100L	35	2.44
2.0/1.5	1500	90L	20	2.10
	1000	100L	35	2.44
	750	112M	35	1.83
3.0/2.2	1500	100L	35	2.44
	1000	112M	65	3.02
	750	132S	65	2.26
5.0/3.7	1500	112M	65	2.72
	1000	132S	65	1.82
	750	160M	85	1.78
7.5/5.5	1500	132S	85	2.37
	1000	132M	155	2.88
	750	160M	155	2.16
10.0/7.5	1500	132M	85	1.78
	1000	160M	155	2.16
	750	160L	250	2.65
12.5/9.3	1500	160M	155	2.60
	1000	160L	155	1.73
	750	180M	250	2.10
15.0/11.0	1500	160M	155	2.16
	1000	160L	250	2.33
	750	180L	400	2.79
20.0/15.0	1500	160L	250	2.62
	1000	180L	400	2.79
	750	200L	400	2.03

SELF SIZE SELECTION

The nominal torque of the prime mover can be calculated by the formula given below:

$$T = \frac{7160XP \text{ (HP)}}{N}$$

OR

$$T = \frac{9550XP \text{ (KW)}}{N}$$

T= Clutch / Brake static Torque in Nm

7160/9550 = Multiplying factor (constant)

P= Nominal power rating of prime mover in HP/KW

N= Speed at Clutch / Brake in min-1(RPM)

K= Safety factor

In addition to establish the nominal torque to be transmitted, it is necessary to consider the torsional characteristics of the prime mover and driven load. When there is high degree of non-uniform load & inertia, correspondingly large sizes should be selected, considering higher factor of safety K.

Typical K factor for selection

1. Low mass, even load, low cycle time
2. Low mass, light shock load, high cycle time
3. Medium mass, heavy shock load, high cycle time
4. Large mass, heavy shock load, high cycle time

NOTE: In case of Torque Limiters, Torque Limiter Couplings Safety Factor should be considered max upto 1.2



Clutches & Brakes

"PACE SETTER IN POWER TRANSMISSION"

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Electromatic Engineers Pvt. Ltd.