

Emco-Simplatroll marine duty brakes stand approved for IP 66 degree of protection by 'The Electrical Research & Development Association'(ERDA). These are specially designed and recommended for applications where protection is required against water and dust - especially in marine environment. These brakes are electromagnetically actuated single disk with two friction surfaces. The braking power is applied by means of compression springs. The braking torque is generated in the power off state or in event of power failure condition.

Salient Features of Type WP458.xx & 14.488.xx



- ▶ IP 65, IP 66 and IP 56 protection.
- ▶ IP 67 protection available on request.
- ▶ Fail safe.
- ▶ Torque up to 2500 Nm.
- ▶ Non asbestos friction linings.*
- ▶ Twin friction surfaces.
- ▶ Low inertia rotors.
- ▶ Class 'F' coil insulation.#
- ▶ Hard chrome plated armature plates & flanges.
- ▶ German low-wear non asbestos lining available on request.
- ▶ Microswitch available on request.
- ▶ Cold climate version available.
- ▶ Screw type manual release.

Higher coil insulation available on request.
* Standard Indian liner. German liner available on request.

Typical Applications



Tower Cranes



Port Cranes



Gantry Cranes



Machine Tools



Windmills



Cement Plants



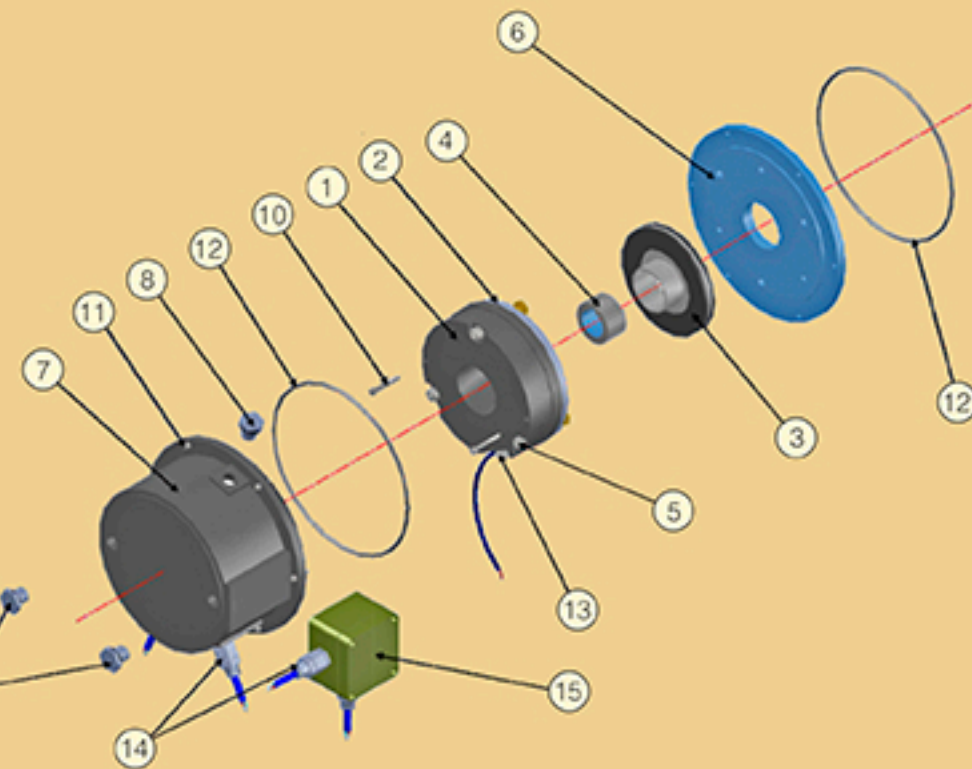
Mining Equipment



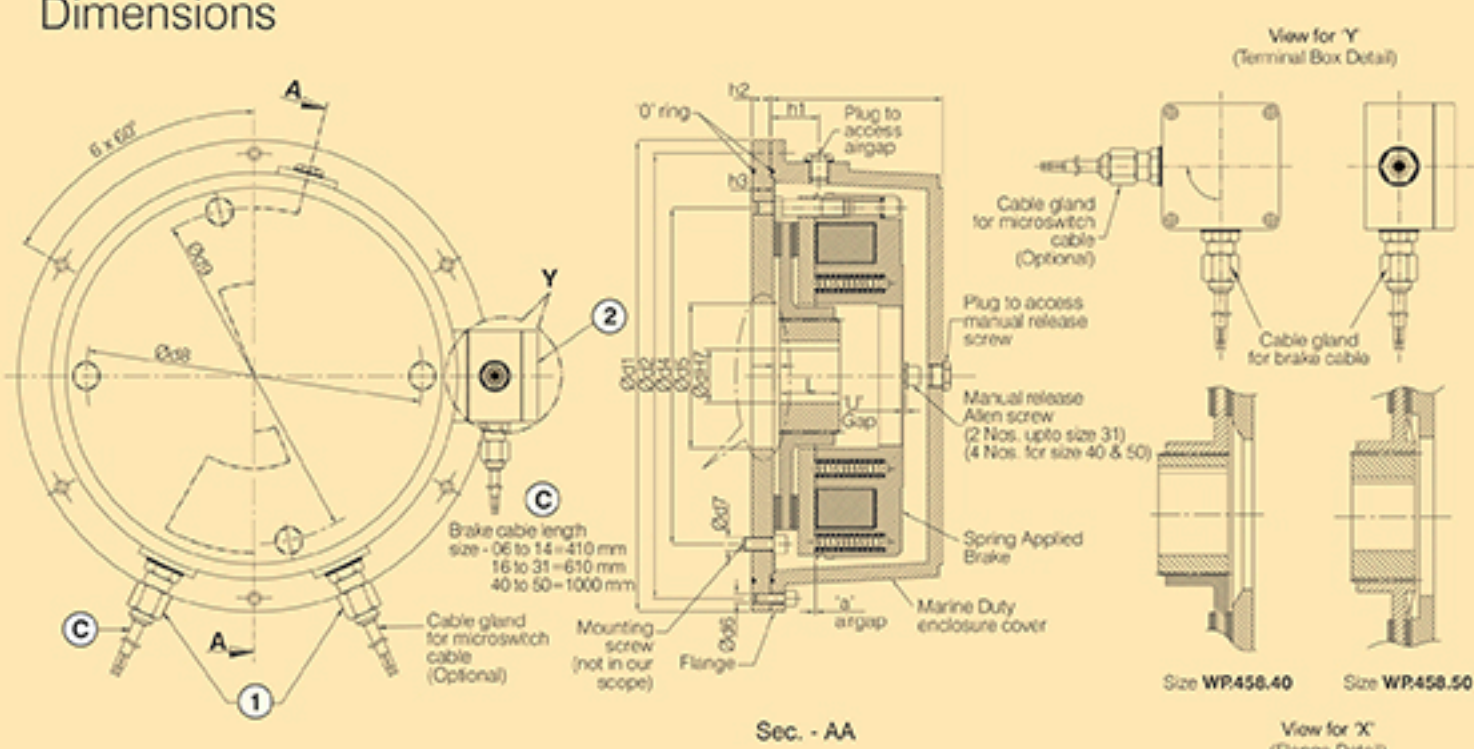
Mooring Winches

Components exploded view

1. Stator
2. Armature Plate
3. Rotor
4. Hub
5. A/B, Mounting Bolt & Washer
6. Mounting Flange
7. Marine Duty Enclosure Cover
8. Air Gap Checking Screw
9. Manual Release Access Screw
10. Manual Release Screw
11. Cover Mounting Screw
12. 'O' Ring
13. Microswitch (Optional)
14. Cable Gland
15. Terminal Box (Optional)



Dimensions



Parameters

Size	Input power P 20	Torque (Nm)	ØD17	Ø31	Ø32	Ø34	Ø35 H8	Ø36	Flange Mounting Holes Ø37	Ø38	Ø39	L	Z	h	h1	h2	h3	±0.05 ± (Airgap)	±0.1 U Gap	Flange Mounting Screw Without Microswitch	With Microswitch
WP458.06	20																			M4 x 16 (3 Nos.)	M4 x 16 (3 Nos.)
WP488.06	8	4	10, 11, 12, 14 15	140	125	72	31	M5 x 12 (4 Nos.)	3 x Ø4.5	77	-	18	1	61	17	7.5	10	0.2	1	M5 x 20 (3 Nos.)	M5 x 20 (3 Nos.)
WP458.08	25																			M5 x 20 (3 Nos.)	M5 x 20 (3 Nos.)
WP488.08	10	8	11, 12, 14, 15 19, 20, 24	160	148	90	41	M5 x 16 (4 Nos.)	3 x Ø5.5	90.5	-	20	1.5	68	18	8.8	11	0.2	1	M5 x 20 (3 Nos.)	M5 x 20 (3 Nos.)
WP458.10	30																			M5 x 20 (3 Nos.)	M5 x 20 (3 Nos.)
WP488.10	12	16	11, 12, 14, 15 19, 20, 24	185	166	112	40	M5 x 16 (4 Nos.)	3 x Ø6.6	112	-	20	2	76	21	9	11.5	0.2	1	M5 x 20 (3 Nos.)	M5 x 20 (3 Nos.)
WP458.12	40																			M5 x 25 (3 Nos.)	M5 x 25 (3 Nos.)
WP488.12	16	32	20, 24, 25, 28 30, 32, 34	205	192	132	45	M6 x 16 (6 Nos.)	3 x Ø6.6	132	-	25	2	86	23	9	11.5	0.3	1	M6 x 30 (3 Nos.)	M6 x 30 (3 Nos.)
WP458.14	50																			M6 x 30 (3 Nos.)	M6 x 30 (3 Nos.)
WP488.14	20	60	20, 24, 25, 28 30, 32, 34	225	212	145	55	M6 x 16 (6 Nos.)	3 x Ø9	150	-	30	2	100	34	10	12.5	0.3	1	M6 x 30 (3 Nos.)	M6 x 30 (3 Nos.)
WP458.16	76																			M6 x 30 (3 Nos.)	M6 x 30 (3 Nos.)
WP488.16	22	100	25, 28, 30, 32 34, 35, 38	250	236	170	65	M6 x 16 (6 Nos.)	3 x Ø9	170	-	30	2.25	105	25	10	12.5	0.3	1.5	M6 x 35 (6 Nos.)	M6 x 35 (6 Nos.)
WP458.18	65																			M6 x 35 (6 Nos.)	M6 x 35 (6 Nos.)
WP488.18	34	150	30, 35, 38, 40 42, 45	285	268	196	75	M6 x 20 (6 Nos.)	6 x Ø9	196	-	35	2.75	122	29	12.5	15	0.4	1.5	M6 x 35 (6 Nos.)	M6 x 35 (6 Nos.)
WP458.20	100																			M10 x 35 (6 Nos.)	M10 x 35 (6 Nos.)
WP488.20	40	200	35, 40, 42, 45 48, 50	330	314	230	90	M8 x 20 (6 Nos.)	6 x Ø11	230	-	40	3.5	131	35	12.5	15	0.4	1.5	M10 x 35 (6 Nos.)	M10 x 35 (6 Nos.)
WP458.25	110																			M10 x 35 (6 Nos.)	M10 x 35 (6 Nos.)
WP488.25	44	400	45, 48, 50, 52 55, 60, 65, 70	390	368	278	120	M8 x 20 (6 Nos.)	6 x Ø11	278	-	50	4.5	142	40	12.5	15	0.5	2	M10 x 45 (6 Nos.)	M10 x 45 (6 Nos.)
WP458.31	140	600	45, 48, 50, 52 55, 60, 65, 70	390	368	278	120	M8 x 20 (6 Nos.)	6 x Ø11	278	-	50	4.5	168	37	12.5	15	0.5	2	M10 x 45 (6 Nos.)	M10 x 45 (6 Nos.)
WP458.40	340	1600	30, 50, 52, 55 60, 65, 70, 75, 80, 85, 90 95, 100, 110	450	420	325	145	M10 x 35 (6 Nos.)	6 x Ø11	335	325	64	4.5	172	41	21.5	24	0.5	2.5	M10 x 45 (6 Nos.)	M10 x 45 (6 Nos.)
WP458.50	440	2500	40, 60, 65, 70 75, 80, 85, 90 95, 100, 110	630	608	480	210	M10 x 40 (6 Nos.)	6 x Ø16.5	488	475	83	6.5	230	56	30	33	0.8	2.5	M16 x 65 (6 Nos.)	M16 x 65 (6 Nos.)

Liner wear is directly proportional to the speed at which braking takes place.

All dimensions are in mm.

EMCO-Simplatroll®

Spring Applied Marine Duty Brake

CE Type WP458.xx (IP 66)
Type WP488.xx (IP 66)

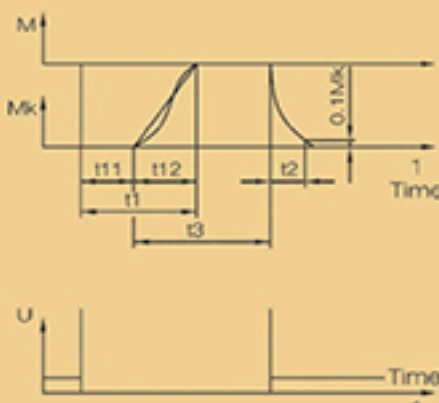


Emco Dynatorq Pvt. Ltd.
(Formerly Emco Lenze Pvt. Ltd.)

ISO 9001:2008 Company



Operating times



The engagement times are valid for switching on DC side. The table shows the delay during engagement t11, the rise time of brake torque t12 and the engagement time t1 = t11 + t12. Disengagement time is not influenced by DC or AC side switching. However it can be reduced by suitable excitation or over excitation.

		WP458 Brake		WP488 Brake	
		t1ms	t2ms	t1ms	t2ms
11 Engagement time 12 Disengagement time	06	17	35	4	12
	08	35	65	6	18
	10	40	90	8	30
	12	50	120	10	45
	14	65	150	11	55
	16	90	180	12	75
	18	110	300	15	105
	20	200	400	22	130
	25	270	500	28	170

Brake Size	Average Braking Torque %	Braking Torque at RPM			Maximum Speed (RPM)
		1500	3000	MAX	
06	100	87	80	65	12400
08	100	85	78	66	10100
10	100	83	76	66	8300
12	100	81	74	66	6700
14	100	80	73	67	6000
16	100	79	72	66	5300
18	100	77	70	66	4400
20	100	75	68	66	3700
25	100	73	66	66	3000

Selection

- Select basic brake according to the torque.
Torque (Nm) = 9550 X (Motor kW / RPM) X Safety factor (K)
- Describe the brake with the ordering parameters. (Type, size, operating voltage & hub bore)
- For brake size 06, 08, 10 & 12 terminal box with cover will not be provided. Only cable gland will be provided.
- Choose appropriate safety factor for the hoist, lift, inclined conveyors or equipment where holding against gravity is required.
- Choose correct input AC voltage for rectifier.
- For brake size 14 to 50 terminal box will be provided on request. (optional item)
- Microswitch will be provided on request. (optional item)
- Brake enclosure will be provided with either item 1 or 2. (Refer dimension drawing)

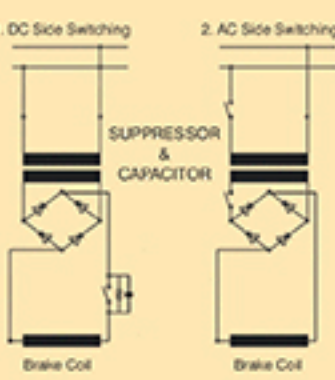
Load Condition	Safety Factor (K)
Low masses, equal loading & non - intermittent operation	2.0
Low masses, light shock load & intermittent operation	2.5
Medium masses, light shock load & intermittent operation	3.0
Large masses, light shock load & intermittent operation	3.0
Diesel engine drive	4-5
Compressor drive	5-6
Non overhauling Loads	2-3
Overhauling Loads	3-4

Working

Braking During braking, the rotor(3) which is axially movable on the hub(4), is pressed against the friction surface via the armature plate(2). For releasing the brake, a DC voltage is applied to the stator coil. The magnetic force generated attracts the armature towards the stator against the spring force. The rotor(3) is then released and can rotate freely.

Releasing When the brake is applied, there is an air gap between stator(1) & armature plate(2). For releasing the brake, a DC voltage is applied to the stator coil. The magnetic force generated attracts the armature towards the stator against the spring force. The rotor(3) is then released and can rotate freely.

Brake Torque Reduction The spring force & the brake torque can be reduced by unscrewing the torque adjusting ring.



Switching

Brake coils are operated with DC voltage. Generally when braking time is not critical AC side switching is done. This method is often used with brake motors, where brake is switched with motor contacts. Due to the inductance of the brake coil, engagement time can be 3 to 6 times longer than with DC switching. Therefore this arrangement is not suitable for hoist applications.

For falling loads such as hoist, lifts and cranes, also the high inertia loads, a brake motor to some extent regenerate the supply and hold off the brake. Here it is essential to switch on the DC side of the rectifier. DC side switching requires provision of universal spark suppressor & capacitor to protect the coil & switches against inductive voltages.

For normal rectifier converting AC to DC you can use separate universal spark suppressor and capacitor across the switch. Rectifier supplied by us are designed to include suppressor and capacitor suitable for DC switching.

For optimum performance we suggest the following Rectifiers (Power supply).	Brake Coil Voltage	AC Input Voltage	Current Rating	Rectifier Type
All rectifiers offered by us are with inbuilt DC switching protection circuit. Use of inferior quality & cheap rectifiers may damage your costly brake coils.	190 VDC	415 VAC	2 Amp	EH 720 HHD
		230 VAC	2 Amp	EH 720 AD
	96 VDC	230 VAC	2 Amp	EH 720 CD
		110 VAC	2 Amp	EH 720 BD
For brake size 18 and above use UM rectifiers. UM series rectifiers are over excitation rectifiers.	190 VDC	415 VAC	1 Amp	UM 101
		415 VAC	3 Amp	UM 101 B
	96 VDC	230 VAC	1 Amp	UM 101 A
		230 VAC	3 Amp	UM 101 C
	190 VDC	415 VAC	1 Amp	UM 201
	96 VDC	230 VAC	1 Amp	UM 201 A

Note : WP488.xx brakes are to be operated with UM 201 rectifier only.

Rectifiers made by Usha Medias