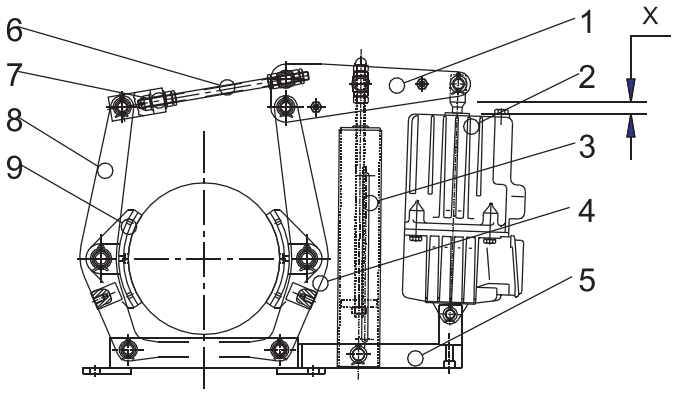
THRUSTER BRAKES TYPE (SMD) WITH ELDRO

INTRODUCTION

Thruster operated Drum Brakes operate on the same principle as MDT brakes but has improved features like elegant aesthetics and calibrated torque adjustment.



COMPONENTS AND OPERATION

The brake mounting base (5) has two arms, Main Arm (4) and Side Arm (8) fitted on it by hinge pins. Each of the arms carry a cast iron brake shoe (9) fitted with woven brake liner pad. A tie rod (6) connects the operating lever (1) to the side arm by a swivel block (7). A hinge pin connects the lever to the main arm (4). The lever (1) operated by the thrust exerted by electro-hydraulic thruster (3) which is hinged to the base in a clevis. The brake torque setting arrangement (5) pulls down the lever by pre-loaded compression spring. Lower ends of the arms are inter-connected by synchronisation mechanism. The arms have a screw for setting the brake shoe to prevent rubbing of the liners on the brake drum when the brake is released.

When the thruster is energised, the thrust rod moves up and turns the lever clockwise with hinge in main arm as pivot, and the side arm turns anti-clockwise and moves the brake shoe away from the drum. Simulteniously, the synchronising arrangement turns the main arm clockwise and releases the shoe from the drum. The shoes free the brake drum with a pre-set gap. The brake is now released. Turning of lever pulls out the spring and stores energy for the next braking cycle.

When the thruster is de-energised, the spring force pulls down the lever and pulls the side and main arms and the shoes clamp with the braking force with spring force multiplied by the leverage of the mechanism. The thrust rod is pushed down by the spring force.

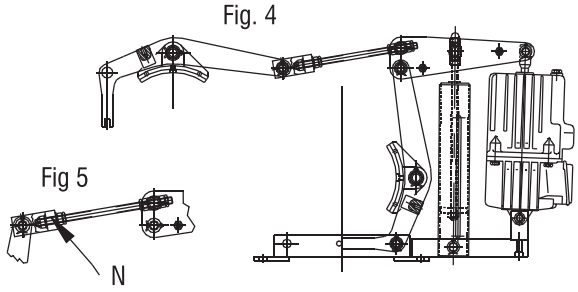
The braking torqe MB is proportional to the brake drum radius RB, co-efficient of friction of liner on drum surface μ, and the normal force F exerted by the spring at the brake shoe.

$M_B = \mu \times F \times R_B$

INSTALLATION OF BRAKE

The brake foundation is made as per the dimensional catalogue. Mount brake as follows:

Fig. 4

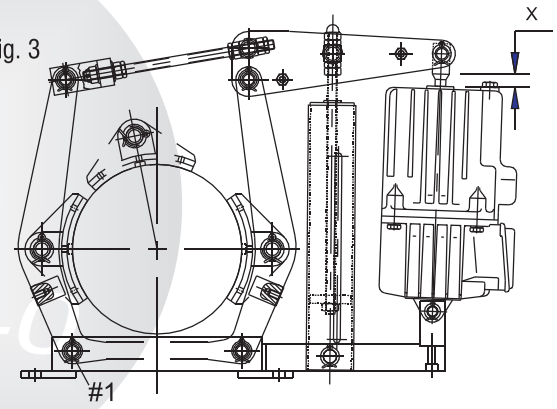


ADJUSTMENT OF RESERVE STROKE

The brake should be adjusted such that only about 80% of thruster strokl is used. This is done to ensure the brake is applied fully and also the wear of brake liner is accounted for. This is done while installing the brake.

REPLACEMENT OF WORN OUT SHOES

Fig. 3



1. Unscrew tie rod nut N to release brake shoes from drum.
2. Remove hinge pin in the shoe and remove brake shoe by sliding it over the drum as shown.
3. Replace brake shoe with new one in similar manner and install it by putting hinge pin in arm.
4. Repeat (2) and (3) for second arm.
5. Re-adjust brake.

THRUSTER BRAKE SERIES (SMD) WITH ELD

FEATURES

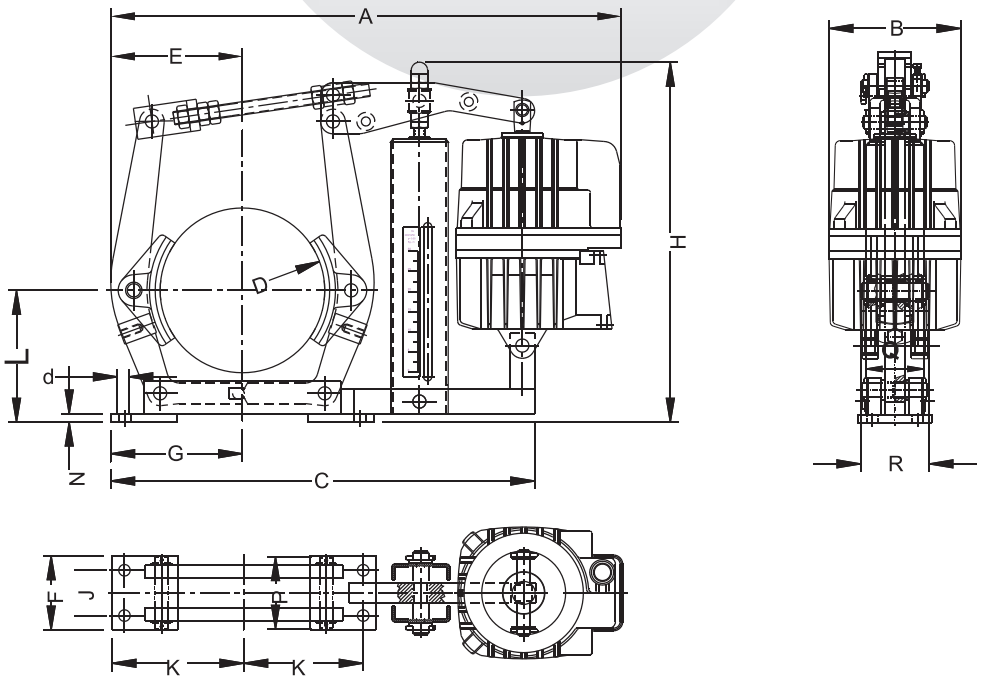
1. Robust and rugged design to withstand ardious enverionment in Steel and Rolling mills, Lifts and elevators, Cement and Concr plant machines.
2. Good designs and manufacturing processes ensure reliable product.
3. Consistant braking torque due to properly selected and tested brake liner material.
4. The design ensures efficient destribution of forces.
5. Sturdy components and Thruster ensure long, trouble free service and requires no major attention.
6. Ease of maintainance and replacement of brake shoes without dismounting the brake.
7. Compact designs and elegant aesthetic looks.
8. Sychronising mechanism ensures equal drum-liner clearance by

RELEASE DEVICES

The brake is of fail-safe design and stops moving components in the event of mains supply failure. Manual release, or other release devices like Pneumatic or Hydraulic cylinders arrangement can be offered, in lieu of or addition to the thruster.

THRUSTER SPECIFICATIONS

The centrifugual pump and motor are immune from external overloading. Standard motor design is suitable for 415 Volts / 50Hz/ 3-phase supply. Other volatges and frequencies can be offered against request. The star (wye) connected, Class F windings have internal star point, and the three supply phases can be connected on the terminal board, irrespective of the phase sequence. The bi-directional radial flow impeller works with equal performance efficiency in both directions.



Brake type	Thruster type & stroke	Mbr torqe μ = 0.4 (Nm) (kg-m)	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R	d	*kg
SMD 160	Eld - 23/5	200 / 20	580	160	470	160	140	85	135	390	55	120	125	8	75	70	85	12	12
SMD 200	Eld - 23/5	300 / 30	640	160	515	200	170	90	160	475	55	145	160	10	75	70	85	14	19
	Eld - 30/5	400 / 40	640	160						475									
SMD 250	Eld - 23/5	325 / 32	760	160	625	250	210	110	200	550	65	180	190	10	95	90	104	18	30
	Eld - 30/5	425 / 42	760	160						550									
SMD 300	Eld - 23/5	420 / 42	885	160	745	315	260	125	250	650	80	220	230	10	118	110	126	18	50
	Eld - 30/5	550 / 55	885	160						650									
SMD 315	Eld - 50/6	1050 / 105	925	195						660									
SMD 380	Eld - 30/5	575 / 57	1030	160	900	400	310	160	300	765	100	270	280	12	150	140	156	22	85
SMD 400	Eld - 50/6	1100 / 110	1075	195						775									
SMD 500	Eld - 80/6	1400 / 140	1225	195	1040	500	385	190	370	870	130	325	340	13	190	180	191	22	130