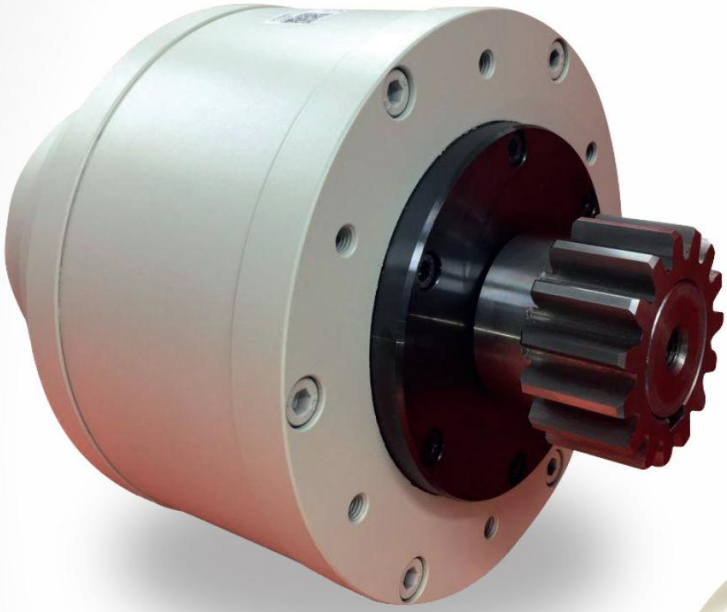
SAFETY DEVICES



Safety brakes - FPC

Centrifugal brakes - EC

EIDE

SAFETY BRAKES

Type FPC

**For rack and pinion lifts,
hoists (people and material),
elevators and all kind of machines**

The FPC safety brake is a mechanical unit designed to **prevent accidental falls** in lifting gear motorized or transmission sprockets.

The system only engages when the speed is higher than a pre-determined value, normally the nominal speed. The sensors come into action by means of the centrifugal force, interlocking the non-driving pinion into the structure. This **interlocking is a gradual process**, and the moving part is locked once it has been engaged.

When triggering the mechanism in the opposite direction to the interlocking, the safety bake returns to its original position with this revolutionary system of **automatic reset**. It means that it is possible to do repeated drop tests in a few seconds without any delay or manual reset. For the machine to operate properly, if there have been a real failure, it is essential to analyze the causes behind the problem affecting the safety brake, so that it can be solved.

These safety brakes have a micro-switch that comes into action at interlocking time. It can be used to cut the general current of the elevator, to trigger an alarm, turn on an emergency light, etc.

Features

Construction types
Versions:

- Double Shaft
- Throw hole Shaft
- Bidirectional

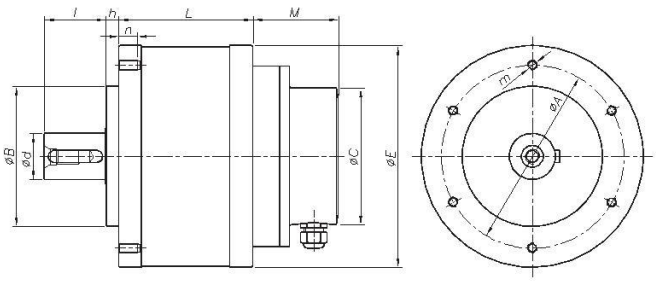
Main Applications:

- Construction Hoist
- Mast Climbing Working Platforms
- Industrial lifts
- Overhead Cranes
- Building Maintenance Units

Sizes	FPC-500	FPC-1000	FPC-3500	FPC-6000
Locking Speed	150-400 rpm	150-400 rpm	150-300 rpm	150-300 rpm
Torque	150-500 Nm	350-1250 Nm	900-3800 Nm	2000-7000 Nm

Dimensions

Sizes	FPC-500	FPC-1000	FPC-3500	FPC-6000
AØ	120	150	205	270
BØ	90	115	150	150
CØ	115	112	112	112
DØ	100	148	148	148
EØ	132	182	245	245
dø	28	38	50	60
Mxn	6 M8 x 15	6 M8 x 15	6 M10 x 19	12 Ø13 x 22.5
l	40	50	60	80
h	8	11	16	16
L	80	106	117	190
M	28	30	36	36
N	37	40	40	40

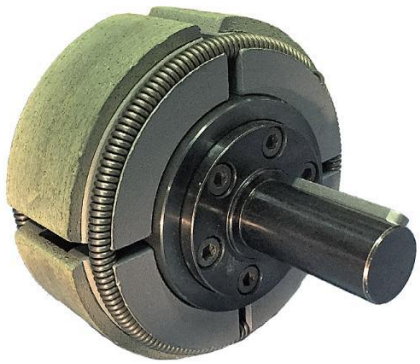


Double shaft and Throw hole

CENTRIFUGAL BRAKES

Type - EC

For elevators



EC centrifugal brakes **control the rate of descent** when this is made without a voluntary or accidental actuation of the engine. Its working principle is the centrifugal force. This force acts on masses that rub a static drum.

As the centrifugal force is an exponential function of the speed, a balance between load power during the descent and braking power always occurs. The load will be maintained by balancing speed up to the stop or until a parking brake acts. Consequently, centrifugal brakes **are not locking brakes but retaining brakes**.

The best results are obtained in fast axes. They are usually applied between the motor and gearbox. And by its tare, **these only slow when the rated engine speed is exceeded**.

Centrifugal brakes allow a controlled descent in the absence of motorization and in case of failure of the holding brake. Centrifugal brakes do not allow uncontrolled acceleration of the load. Thus, the expected accident only becomes an incident. Obviously, the brake and the centrifugal brake can not prevent an accident if the failure occurs on the reducer or any element that is in position after them. **If the centrifugal brake is mounted by an independent transmission, it will behave as a final safety**, since it will act independently if the parking brake or the reducer is disabled by a fault or a break.

Design

The EC centrifugal brakes consist essentially of a **central core that rotates integrally with the motor shaft**. On its periphery, a series of masses are distributed among sectors. These masses are carried by the guides.

The masses can move radially along its guide. The force of the wrap springs is opposed to this motion. The masses are externally coated by a friction material which is asbestos free. The whole system is mounted inside a drum or a concentric flange **attached directly to the reducer unit housing**. The flange works as engine mount.

Performance

Engine and brake core rotating at normal speed

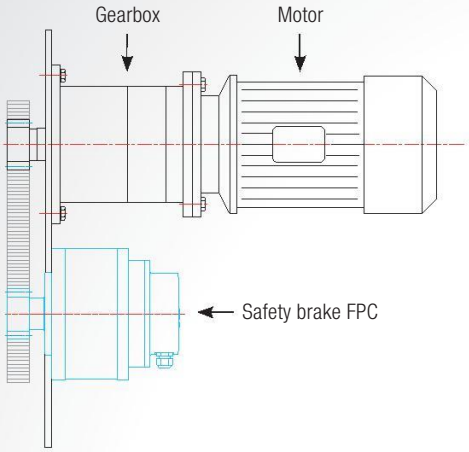
In these circumstances, the brake springs are rated so that action compensates centrifugal forces of the masses. The masses remain fixed to the core and brake behaves as a completely passive element.

Engine and brake core rotating at a speed higher than the normal speed

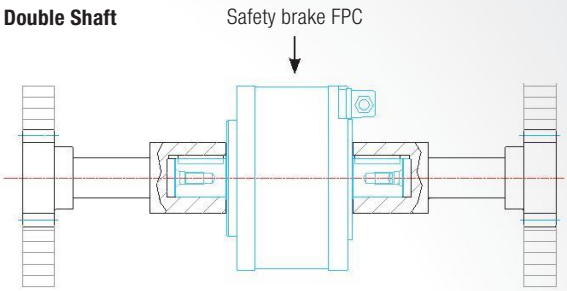
If for any reason the speed of rotation of the core exceeds the nominal, the masses overcome the springs' action, rubbing against the inner wall of the fixed drum and producing friction against the brake.

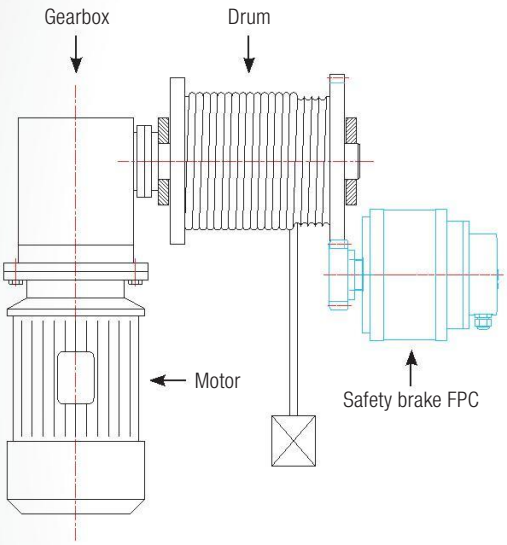
FPC safety brakes applications: rack and pinion, drum and cable or gearbox

It can also be applied to hinged doors, counterweights, palletizers, strapping machines, BMU's, graphic arts machinery, radioactive material containers, motorized cable reels, machine tools and all lifting devices.

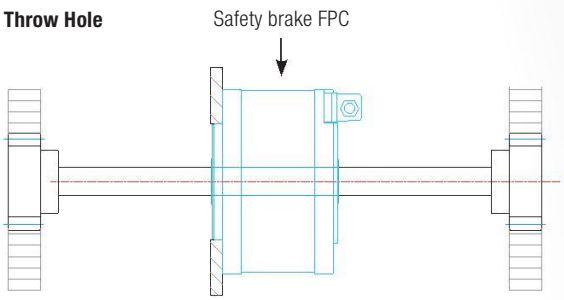


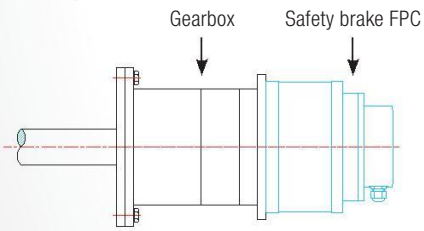
Double Shaft



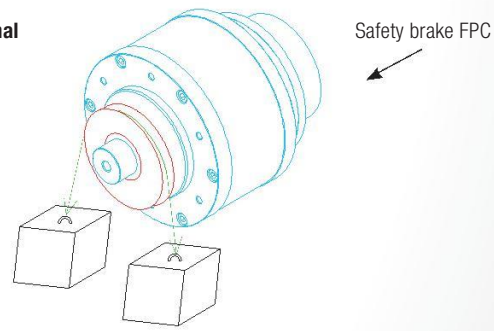


Throw Hole



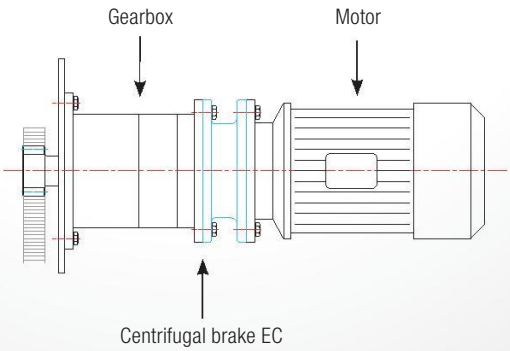


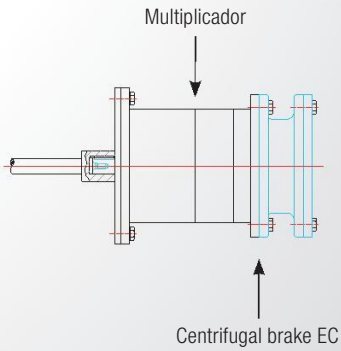
Bidirectional



EC Centrifugal brakes applications with independent transmissions

The gearbox and the centrifugal brake act as non-driving elements, without contributing any stress. They will only engage when there is an increase of speed that is higher than the nominal. Then, they will start the engage by controlling the descent speed, in the same way as it has been mentioned before. The layouts show a rack and pinion system and a gearbox with centrifugal brake.





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