

LOAD GUARD



The PIAB Load Guard is designed to provide reliable control switching against overtension. For process control, overload alarm, stepped moment protection and load sensing systems. The instruments have a high repeating accuracy and fully conform to the International Protection Specification Class IP 67.

PIAB

Force Measurement



*PIAB Force Measurement
is certificated according to
SS-EN ISO 9001.*

RANGE OF APPLICATION

The PIAB Load Guard is intended for use as an overload guard in cranes and lifts, for the automatic tensioning

of belt conveyors and for other automatic power-sensing/load control.

FUNCTION

The movement of the pull rod operates the microswitches through spring-loaded contact points. The power-absorbing element consists of specially

made Belleville washers dimensioned to resist fatigue. The spring washers cannot be overloaded.

PROTECTION AGAINST CORROSION

The load guard is fully pressure tight. Each instrument is tested under pressure. Externally it is zinc coated and white chromated and the terminal

box is polyester-lacquered. If the load guard is to be used in a very corrosive environment, the complete instrument can be polyester-lacquered.

SAFETY

Safety factor 5:1 (guaranteed strength against breakage at least 5 times the max. capacity).

The load guard can be overloaded by 100% without interfering with the switch setting. As the transmission parts between the pull rod and the microswitch are spring-loaded, the load guard can withstand severe shock loads and sudden unloading. The pull rod and upper bracket of the load guards types IMB-IG are

made of drop forged steel SIS 2174 (St 52-3N acc. to DIN 17100, 50 D acc. to BS 4360) which has guaranteed impact strength down to -20°C.

The setting of the microswitch is sealed by an aluminium plate over the switch, on which the set value is engraved. The plate is screwed and glued to the housing with a 2-component adhesive. This plate cannot be removed without torch heating to about +80°C.

CONTACT FUNCTION

The load guard with one or two microswitches is supplied with alternative contact connections for each microswitch. Load guards with three, four or five microswitches have either one breaking or closing function on each switch. These are normally set for the breaking function (closed contacts at rest) and for rising loads, unless otherwise ordered. When setting for falling load, e.g. control on the slack line, the microswitch is connected for the closing function (open contact at rest). If the load guard is to be used for safety application, the breaking function should always be used.

The microswitches have gold-plated contacts, which make them suitable

for operation on low current/voltage (under 10 V and/or 60 mA).

The difference between the switching value on rising and falling loads is approximately 3% of the max. capacity of the instrument. This hysteresis is somewhat reduced at lower loads and increased slightly at higher load values. To avoid "chattering" of the contacts and contactors if the load should start to sway, a time relay to delay the reclosing of the hoisting circuit may be installed. When setting for falling loads, special microswitches with a reduced hysteresis are used.

The switch values are set by the factory to the required level.

TECHNICAL DATA

WORKING TEMPERATURES

Continuous operation up to +60°C.

Specially designed load guards can be supplied for temperatures up to +200°C.

REPEATABILITY

±0,6% of max. capacity.

CONTACT LOAD

Max. 250 VAC, 500 VA, 3A.

CABLE AREA

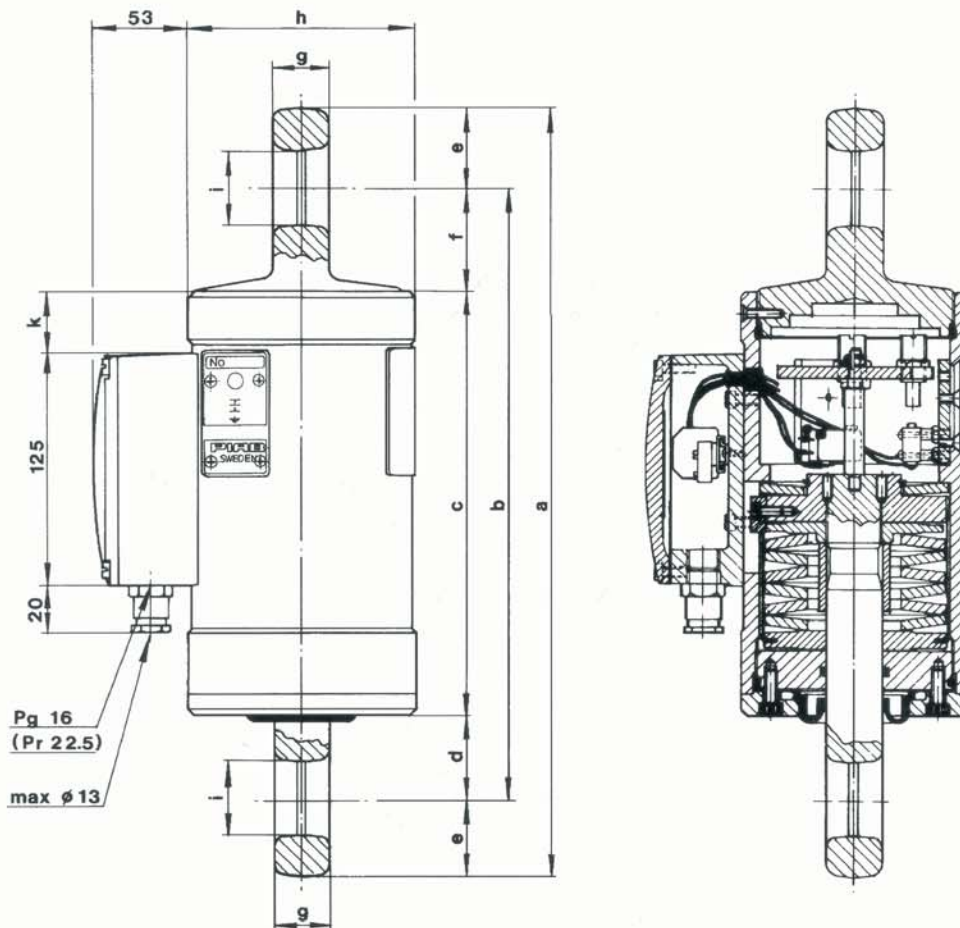
Max. 4 mm².

THE MECHANICAL LIFE OF THE MICROSWITCH

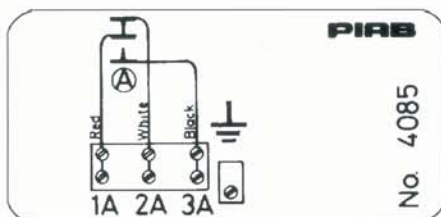
20 mill. cycles.

INTERNATIONAL PROTECTION SPECIFICATION CLASS

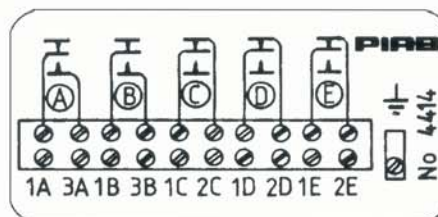
IP 67 according to IEC 529.



CONNECTION DIAGRAM



One microswitch



Five microswitches

TYPE/ NUMBER OF SWITCHES	CAPACITY KG	DEAD WEIGHT KG	MEASUREMENTS IN MM									
			a	b	c	d	e	f	g	h	i	k
IMB/ 1-3 IM/ 1-3 IO/ 1-3	1000 2000 3000	9,5	395	327	234	45	34	48	25	86	33	29
IQ/ 1-5	5000	17,5	413	329	230	45	42	55	30	122	40	35
IS/ 1-5	10000	29,5	495	385	260	60	55	65	45	149	56	40
IG/ 1-5	25000	81	675	505	300	102	85	103	70	228	81	64
IE/ 1-5	50000	129	831	631	387	123	100	121	95	234	115	74

The pull rod movement at full load is approx. 10 mm.

APPLICATIONS FOR THE PIAB LOAD GUARD

The PIAB Load Guard for automatic control of belt conveyors.



The PIAB Load Guard used as an overload guard in tower cranes.



The PIAB Load Guard as an overload guard for overhead travelling cranes.



PIAB

Force Measurement

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