

RANGE OF APPLICATION FOR THE PIAB LKV

To be able to determine the size of the PIAB LKV and adjust it to the right switch value, it is necessary to know:

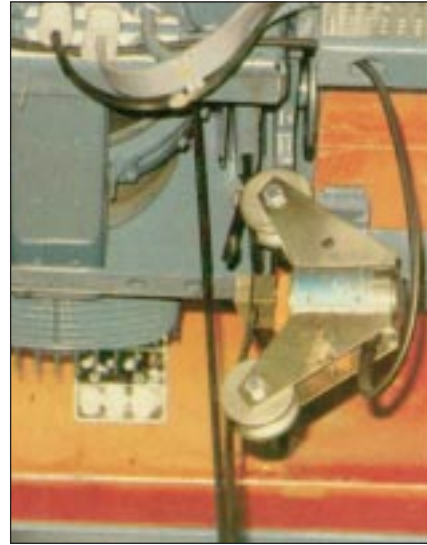
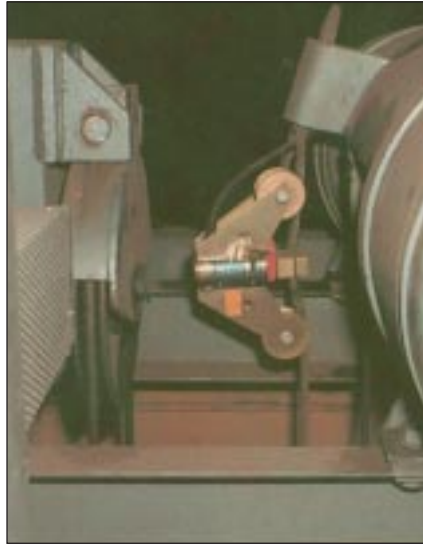
- The max. capacity of the crane.
- Number of rope parts and the rope diameter.

Adjustment of the switch value can be made by PIAB or on location. Instructions and tools are included in the delivery.

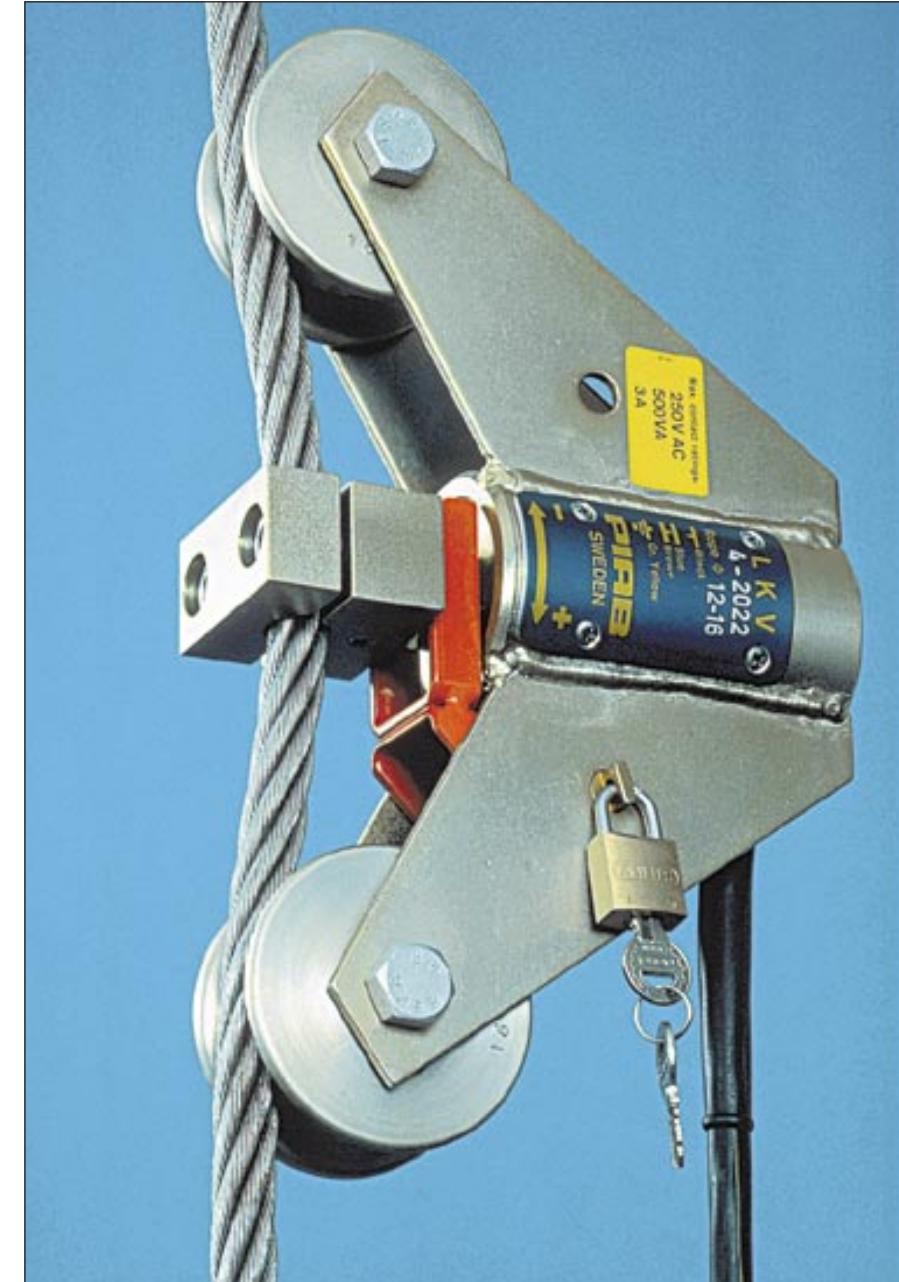
Some typical examples of the use of the PIAB LKV are illustrated here.

On tower cranes of different types the LKV is installed on the backstay and functions here as a moment switch. Due to the high protection class, the LKV functions summer or winter with constant reliability.

This is a typical installation of the PIAB LKV. The LKV is installed at the anchor point of the hoist rope in a traversing crane and functions either as an overload guard or as a slack line switch.



LKV OVERLOAD GUARD



The PIAB LKV Crane Overload Guard is designed for easy installation without disturbing the crane, particularly on overhead traversing cranes, container handling equipment and haulages where operators may not know when they have an overload condition.

PIABINFO 9010-1 am/Tabergs Tyck AB



Force Measurement

PIAB AB, Box 123, S-184 22 Åkersberga, Sweden.
Phone Int +46-8-540 825 00. Fax Int +46-8-540 213 64.





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

RANGE OF APPLICATION

The PIAB LKV is intended for use as an overload guard or as a slack line switch in lifting equipment and is

made for forces up to 35000 lb. (16000 kg) in single line part and for max 1.47/64" (44 mm) line diameter.

FUNCTION

The PIAB LKV is attached to a stationary line part. The rope is deflected through a slight angle between the two wheels and the clamping jaw. When loaded, the rope tends to straighten. This applies a force to the clamping jaw and so directly to the pull rod. When the set switch value is reached, the pull rod operates a microswitch and a close/open circuit is made.

The spring element of the load cell is preloaded, reducing pull rod movement to the last 25% of full load.

For the best possible accuracy the LKV is equipped with case-hardened wheels with carefully designed rope grooves. To ensure correct fitting on the rope diameter, the wheels and the clamping jaws are provided with line tracks at intervals of 5/32" (4 mm). The wheels should not be regarded as wheels but rather as moving support points, as the peripheral movement on the wheels at full line load is only about 1/64" (0.6 mm) (incl. the extension of the rope).

PROTECTION AGAINST CORROSION

The PIAB LKV is fully pressure tight. Each instrument is tested under pressure. The PIAB LKV fully conforms to the international protection specification class IP 67 acc. to IEC 529.

Externally it is zinc coated and yellow

chromated. The wheel bearings are sealed with O-rings and lubricated with MoS₂. If the LKV is to be used in a very corrosive environment, it may be polyester-lacquered.

SAFETY

The overload guard is not directly included in the rope system and does not affect the construction of the lifting equipment.

The locking device prevents unauthorized interference with the switch setting.

In spite of the changes that normally take place on the rope diameter, the PIAB LKV maintains its set switch value even after fitting to a new rope.

As the LKV is fully pressure tight, it is well protected against dust, dirt, damp, frost and other atmospheric conditions.

The power-absorbing element consists of specially made Belleville washers dimensioned to resist fatigue. The spring washers cannot be overloaded.

The PIAB LKV can be overloaded by 100% without affecting the repeatability.

INSTALLATION

Install the PIAB LKV directly to the static line part close to the anchor point or close to a compensating pulley. The line need not be unloaded.

Set the switch value with the spanner provided for this purpose. (The LKV can be delivered with the switch value set at our Works to trip at the value

you require.) Check the switch value with a buzzer or similar device.

Connect the LKV electrically, e.g. to the control circuit of the hoisting movement or the top limit switch.

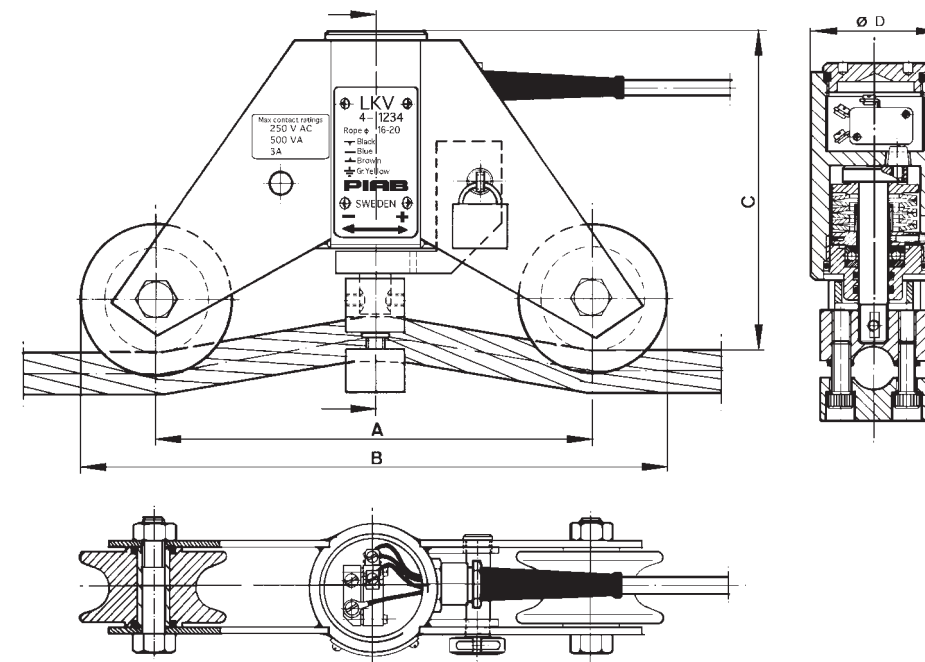
Test-load for control and possible re-adjustment. Seal the set value with the locking clamp and the padlock provided.

CONTACT FUNCTION

The microswitch has alternative contact functions. When the PIAB LKV is used as an overload guard, the normally closed function should always be used.

The microswitch has self-cleaning, gold-plated silver contacts, suitable also for operation on low current/voltage (under 10 V and/or 60 mA).

The difference between contact at rising and falling load is 5-8%. This hysteresis is somewhat reduced at lower loads and increases slightly at higher load values. To avoid "chatter" of the contacts and contactors if the load should start to sway, a time relay can be connected to prolong the re-connection of the hoisting movement.



The drawing is for an LKV 1-4. The other types are of a slightly different design.

TYPE	MAX SWITCH VALUE IN LB. AND (KG)	FOR WIRE DIMENSION Ø IN INCHES AND (MM)	DEAD WEIGHT IN LB. AND (KG)	DIMENSIONS IN INCHES AND (MM)			
				A	B	C	D
LKV 1	2200 (1000)	3/16 - 5/16 (5-8)	10 (5)	7.7/8 (200)	10.35/64 (268)	5.9/16 (142)	2.23/64 (60)
LKV 2	4400 (2000)	5/16 - 15/32 (8-12)					
LKV 4	8800 (4000)	15/32 - 5/8 (12-16)					
LKV 8	17600 (8000)	5/8 - 25/32 (16-20)	26 (12)	11.13/16 (300)	15.7/8 (403)	8.3/16 (208)	3.25/64 (86)
LKV 12	26000 (12000)	25/32 - 15/16 (20-24)					
		15/16 - 1.7/64 (24-28)					
LKV 16	35000 (16000)	1.7/64 - 1.1/4 (28-32)	48 (22)	18.57/64 (480)	23.5/8 (600)	8.15/32 (215)	5.5/16 (135)
		1.1/4 - 1.27/64 (32-36)					
		1.27/64 - 1.32/64 (36-40)					
		1.32/64 - 1.42/64 (40-44)					

LKV used as a slack line switch.

TYPE	MAX SWITCH VALUE IN LB. AND (KG)	FOR WIRE DIMENSION Ø IN INCHES AND (MM)	DEAD WEIGHT IN LB. AND (KG)	DIMENSIONS IN INCHES AND (MM)			
				A	B	C	D
LKV 01	2200 (1000)			See LKV 1-4			
LKV 08	4400 (2000)			See LKV 8-12			

TECHNICAL DATA

MEASUREMENTS
See drawing and table.

REPEATABILITY
± 1.5 % of the max. capacity.

MAX CONTACT LOAD
250 V AC, 500 VA, 3 A.

THE MECHANICAL LIFE LENGTH
OF THE MICROSWITCH
20 mill. cycles.

WORKING TEMPERATURES
Continuous operation up to
+140°F (+60°C). Specially
designed LKVs can be supplied
for up to +400°F (+200°C).

CABLE
12 feet (4 m) weather and oil
resistant cable RDO 4 x 0.0023
sq. inch (4 x 1.5 mm²).

WIRING DIAGRAM
(Also inscribed on the badge
plate.)

- Black
- Blue
- Brown
- Gr. Yellow