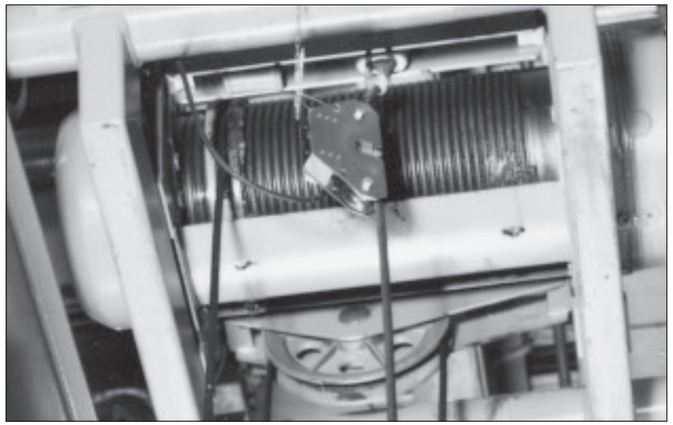
APPLICATIONS FOR THE PIAB LKVE

In order to avoid damage caused by overloading in multi-point lifting, the LKVE protects each lift and the various combinations simultaneously.

Here, the force transducer LKVE is attached to a stationary line part.



PIAB

Force Measurement

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LKVE OVERLOAD GUARD

The PIAB LKVE is an electronic transmitter which is attached direct to a stationary line part. The PIAB LKVE provides for load indication and summation of two or more lifts. It has high repeatability, is made for use in aggressive industrial environments and fully conforms to IP 67 acc. to IEC 144.

PIAB

RANGE OF APPLICATION

The PIAB LKVE is intended for use as an overload guard and/or a slack line switch in lifting equipment and is made in a range for forces up to 35000 lb. (16000 kp) in single line part and for max. 1.3/4" (44 mm) line diameter.

The PIAB LKVE provides load indication and/or sums two or more lifts.

FUNCTION

The PIAB electronic overload guard system consists of a force transducer with amplifier and an electronic signal processing unit.

The force transducer LKVE 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 and applies a force which is transmitted to the load cell.

The foil gauge of the load cell is fed with a constant tension from the transducer amplifier. A signal is received in return, which is proportional to the force on the load cell. The signal is amplified and is converted to a current signal of 4 - 20 mA.

The strong signal makes it possible for the distance between the force transducer and the electronic unit to be up to 550 yards (500 m).

PROTECTION AGAINST CORROSION

The PIAB LKVE is zinc coated and yellow chromated. The bearings of the hardened wheels are sealed with O-rings and lubricated with MoS_2 .

The load cell and the amplifier are hermetically sealed and meet the requirements for international protection specification class IP 67 according to IEC 144.

SAFETY

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

Owing to the design of the clamping jaw, the measurement test result is not affected by the changes in the rope diameter that occur after some use.

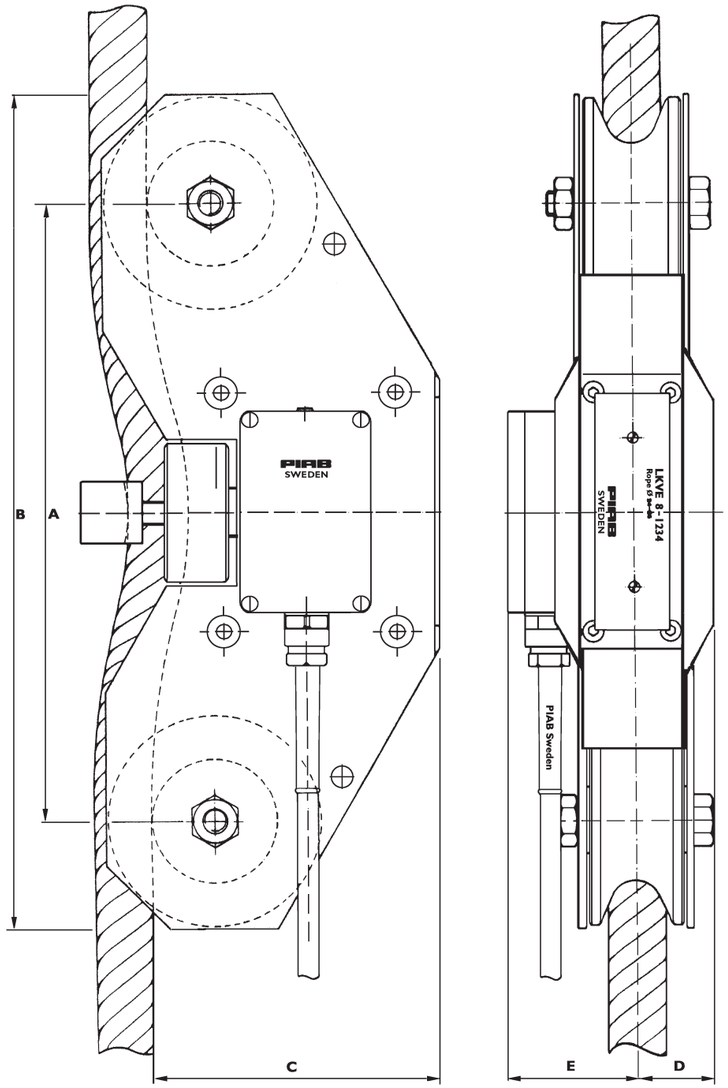
Together with the PIAB electronics the PIAB LKVE is protected against faulty operation and adopts overload mode in all combinations of cable breakdowns and/or short circuits that can arise due to cable damage.

The load cell can be overloaded mechanically by 100% nominal load without affecting the accuracy of measurement.

MEASURING SIGNAL

The PIAB LKVE gives a defined output of 4-20 mA, which is hard to disturb.

The strong signal manages serial resistances of up to 250 ohm and the cable can therefore be lengthened without special demands on joints or cable lenghts. The unshielded cable, 4x1/16 sq.inch (4x 1.5 mm^2) transfers supply voltage to the transmitter amplifier and load cell as well as measuring signal to the electronic unit. The cable can be placed close to other live cables without affecting the measuring signal.



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

TYPE	MAX. SWITCH VALUE IN LB. (KG)	FOR WIRE DIMENSION Ø IN INCHES AND (MM)	DEADWEIGHT IN LB. (KG)	DIMENSIONS IN INCHES AND (MM) A	B	C	D	E
LKVE 1	2200 (1000)	3/16- 5/16 (5-8)	10 (5)	7.8740 (200)	10.7087 (272)	4.8031 (122)	1.1024 (28)	2.1654 (55)
LKVE 2	4400 (2000)	5/16- 15/32 (8-12)						
LKVE 4	8800 (4000)	15/32- 5/8 (12-16)						
		5/8- 25/32 (16-20)						
LKVE 8	17600 (8000)	5/8- 25/32 (16-20)	26 (12)	11.8110 (300)	15.9843 (406)	5.5118 (140)	1.5354 (39)	2.4803 (63)
		25/32- 15/16 (20-24)						
LKVE 12	26000 (12000)	15/16- 1.7/64 (24-28)						
		1.7/64- 1.1/4 (28-32)						
		1.1/4-1.27/64 (32-36)						
LKVE 16	35000 (16000)	1.1/4-1.27/64 (32-36)	48 (21)	18.8976 (480)	23.6220 (600)	5.7087 (145)	2.7559 (70)	2.7559 (70)
		1.27/64-1.1/2 (36-40)						
		1.1/2-1.3/4 (40-44)						

TECHNICAL DATA

CONNECTION
The supply voltage to the transducer is 15-30 VDC. Power consumption 60 mA.

WORKING TEMPERATURES
-4°F-+158°F (-40°C -+70°C).
The load cell is temperature compensated with regard to both span and zero-offset.

ACCURACY
The repeatability and linearity of the load cell are better than 0.1%.
Mounted on the rope the LKVE has a repeatability of 0.1-1.5% and a linear deviation of 0-4%.
The variations arise from differing rope characteristics.

INTERNATIONAL PROTECTION SPECIFICATION CLASS
IP 67, according to IEC 144.

LKVE WITHOUT TRANSDUCER AMPLIFIER
PIAB LKVE is also available without transducer amplifier and is then called LKVEI. The impedance of the transducer bridge is 350Ω and the sensitivity 1.6 mV/V nominally. Recommended supply voltage 10 VDC.