

# Load Pin with Customizable Dimensions

## Applications

- Overload protection
- Cranes and hoisting devices
- Elevators and wire rope winches
- Direct load measurements such as pins, axle or shafts
- Oil production facilities
- Coal mining

## Features

- Application as pin or axle
- Made of stainless steel
- Customizable dimensions
- Hermetically sealed (IP 67)

## Options

- Integrated amplifier with standard signal output 0/4 ... 20 mA, -10 ... 0 ... +10 V
- Redundant system with two measuring bridges and two amplifiers
- CAN Bus/ CANopen interface
- ATEX for 10kN ... 5000kN (without amplifier)

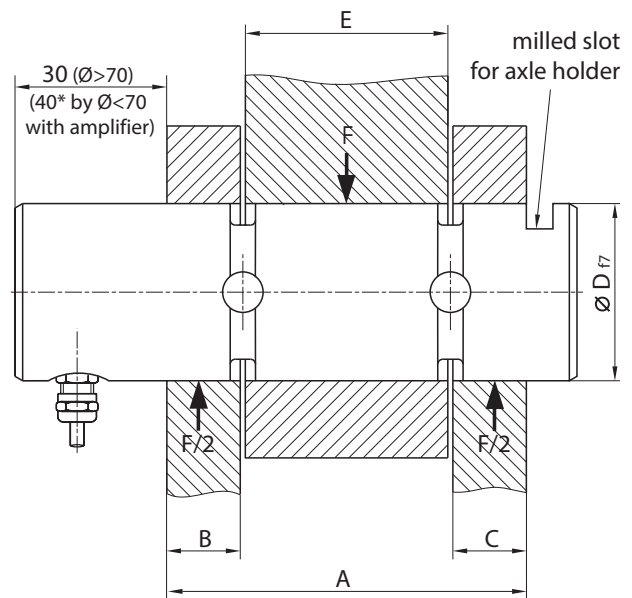
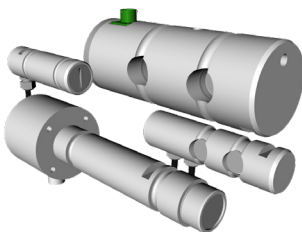
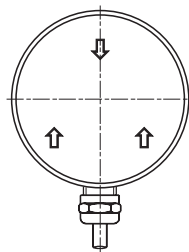


Typical shackle application with various signal options

## Dimensions (mm)

Fully customizable to fit the machine design

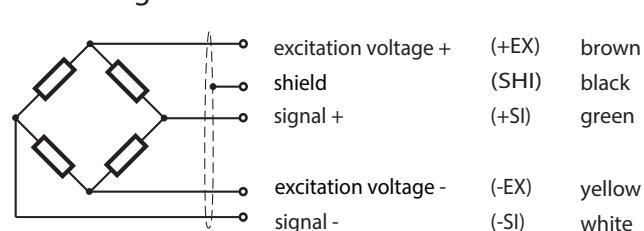
load (force) direction



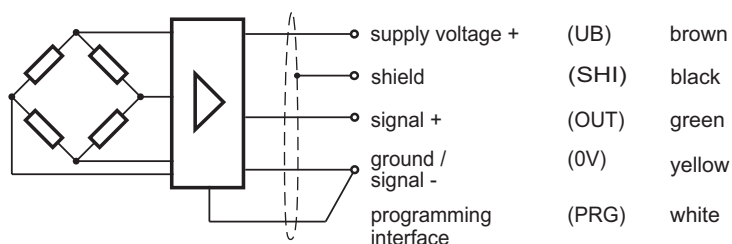
KAL Type	Nominal Load in kN						
	20	50	100	200	400	800	1200
Recommended Ø D <sub>f7</sub> (mm)	25 - 40	30 - 50	40 - 65	50 - 80	65 - 110	80 - 125	110 - 156

## Wiring Code

Cable length 3m



with integrated amplifier



(0V and PRG to be connected by the customer)

## Specifications

Accuracy Class *)	% F <sub>nom</sub>	0.5 ... 2	1 ... 2 (with Integrated Amplifier)
Rated (nominal) force (F <sub>nom</sub> )	kN	1 ... 5000	1 ... 5000
Maximum operating force (F <sub>G</sub> )	% F <sub>nom</sub>	150	150
Breaking force (F <sub>B</sub> )	% F <sub>nom</sub>	> 500	> 500
Lateral force limit (F <sub>Q</sub> )	% F <sub>nom</sub>	10	10
Rated characteristic value (C <sub>nom</sub> )	mV/V	1.00 ± 0.01	
Zero signal tolerance	%	≤ 3	
Reference excitation voltage (U <sub>ref</sub> )	VDC	5	
Operating range of excitation voltage (B <sub>UG</sub> )	VDC	0.5 ... 12	
Input resistance (R <sub>e</sub> )	Ω	380 ± 30	
Output resistance (R <sub>a</sub> )	Ω	352 ± 1.5	
Insulation resistance (R <sub>is</sub> )	Ω	> 5 × 10 <sup>9</sup>	
Relative linearity error (d <sub>lin</sub> )	%	≤ 0.5 ... 2	≤ 1 ... 2
Relative reversibility error (v)	%	≤ 0.5 ... 2	≤ 1 ... 2
Temperature effect on zero signal (TK <sub>0</sub> )	%/10K	≤ 0.5 ... 2	≤ 0.5 ... 2
Temp. effect on characteristic value (TK <sub>c</sub> )	%/10K	≤ 0.5 ... 2	≤ 0.5 ... 2
Relative creep over 30 minutes (d <sub>cr,F+E</sub> )	%	≤ 0.5 ... 2	≤ 0.5 ... 2
Supply voltage	VDC		19 ... 28
Input current	mA		35 (at 24V)
Current output signal	mA		0/4 ... 20
Voltage output signal (max. load 5mA)	V		0 ... 10/ -10 ... +10
Maximum resistance	Ω		300
Reference temperature (T <sub>ref</sub> )	°C		+23
Rated temperature range (B <sub>T, nom</sub> )	°C		-20 ... +60
Operating temperature range (B <sub>T, G</sub> )	°C		-30 ... +70
Storage temperature range (B <sub>T, S</sub> )	°C		-40 ... +70
Environmental protection (EN 60529)			IP 67

All data according to VDI/VDE/DKD 2638

\*) Accuracy depends on mounting conditions

## Order Example

Type Code	Description
KAL-E/200kN/1/D65h6/L232/2x4...20mA	Load pin 200kN with 1% accuracy Two amplifiers (redundant) with 4 ... 20 mA Length in mm Diameter in mm and tolerance Accuracy class Rated (nominal) force E = Integrated amplifier Model

## Options

	Type Code	Description
ATEX-Certificate	KAL-EX	for 10kN ... 5000kN. Please note ATEX data sheet!
CANopen interface	KAL-DI	for 1kN ... 5000kN Please note data sheet „Force Transducer with CANopen Interface“!