LP CUSTOM STAINLESS STEEL LOAD PIN (U.S. & METRIC)

Interface Load Pins are made with a dual-shear design which are designed for center-loading with support from both ends. Interface load pins are strain gage based, the strain gages are installed in the inside-center, neutral axis of the load pin where they are protected from both physical damage and the environment. A full Wheatstone Bridge ensures the best specifications, while the physical design ensures proper alignment and anti-rotation of the application.

FEATURES & BENEFITS

- Capacities range up to 3,307K lbf (1,500MT)
- Designed to replace pins or bolts that carry a load
- Stainless steel construction
- Used with clevises, or pulley shafts to monitor loads
- Custom designs

OPTIONS

- Integral Connector
- Amplification (5VDC, 10VDC, 4-20mA)
- Wireless Communication
- Bidirectional Loading
- Dual Bridge
- ATEX and IECEx Approval
- High Temperature
- Submersible
- TEDS
- Anti-Rotation Plate
- Shackles

TYPICAL APPLICATIONS

- Crane Overload Protection
- Winch Force Monitoring
- Cable And Wire Dynamometers
- Hoist Overload Protection
- Tension/Compression Measurements
- Clevis Pin/Shackle Loading
- Sprockets and Pulley Axle
- Crane, Lifting, and Winch System
- Mooring Line Tension Measurements
- Hydraulic Systems

STANDARD CONFIGURATION

Model LP Load Pin (Shown)

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Nonlinearity – %FS		±1.0 (typically) depending on pin geometry
Nonrepeatability – %FS		±0.1
TEMPERATURE		
Compensated Range	°F	+14 to +158
	°C	-10 to +70
Operating Range	°F	-4 to +158
	°C	-20 to +70
Zero Temperature Coefficient – % of Rated Load / °C		±0.1
Span Temperature Coefficient – % of Rated Load / °C		±0.1
ELECTRICAL		
Rated Output – mV/V (Nominal)		1.5
Zero Balance – %RO		±1
Bridge Resistance – Ohm		350, 1000, 5000
Excitation Voltage – VDC MAX		15.0
Insulation Resistance – Megohm@ VDC		500 @ 500
MECHANICAL		
Standard Calibration		Compression
Safe Overload – %Capacity		150
Ultimate Overload – %Capacity		300
Cable Length	ft	16.4
	m	5
Environmental Rating		IP67
Material		Heat Treated Steel or High Tensile Stainless Steel

U.S. dimensions and capacities are provided for conversion only. Standard products have International System of Units (SI) capacities and dimensions.

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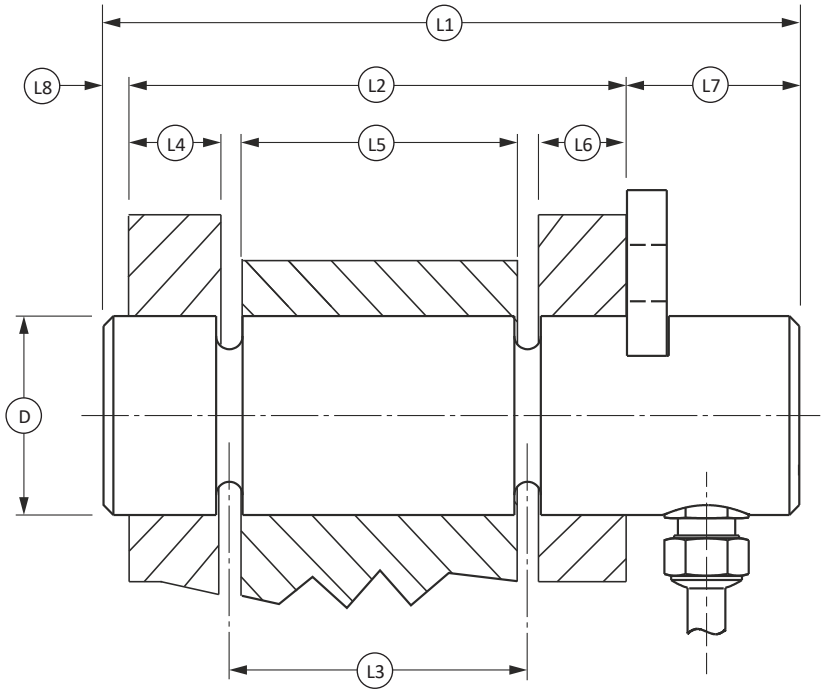
DIMENSIONAL INFORMATION



Dimension	in	mm	Dimension	in	mm
(L1)			**(L2)***		
(L3)			**(L4)***		
(L5)*			**(L6)***		
(L7)			(L8)		
(ØD)*			Diameter Tolerance		

Rated Load – The maximum operating load of the pin?

Proof Load - Interface default is 150% of Rated Load?

Break Load or Safety Factor?

Interface generally regard 3:1 as a minimum for general applications and 5:1 as a minimum for lifting applications. A higher Safety Factor may be required for certain applications (i.e. lifting people) or as requested by the customer.

Is the pin Bi-directional, Yes or No?*

Is the pin Dual Bridge, Yes or No? If Yes, how many cable exits, One or Two?

Is the pin Dual Axis (XY), Yes or No? If Yes, how many cable exits, One or Two?

Critical Information Required.

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ENVIRONMENTAL INFORMATION

Operating Temperature Range?	
Ingress Protection Level (IP / NEMA Rating) or submersion depth?	

Type of environment e.g. Marine, Indoors, Dust, Subsea etc? Please specify:*

LOAD PIN OUTPUT

Specify the required output:*

Analog:

- ☐ mV/V bridge output (Bridge Resistance 350 Ohm unless otherwise specified)
- ☐ 0.1-10.1 volt output Amplifier (ICA1)
- ☐ 0.1-5.1 volt output Amplifier (ICA2)
- ☐ 4-20 mA (3 wire) current output Amplifier (ICA4)
- ☐ 4-20 mA (2 wire) current output Amplifier (ICA5)
- ☐ +/- 10 volt output Amplifier (ICA6)

Digital:

- ☐ RS485 ASCII DCell Amplifier
- ☐ RS485 MantraBUS DCell Amplifier
- ☐ RS485 ModBus RTU DCell Amplifier
- ☐ MantraCAN DCan Amplifier
- ☐ CANopen DCan Amplifier

Wireless:

- ☐ WTS Wireless Telemetry System

The output of the Amplifier / DCell / Telemetry unit will be scaled between zero and the rated load of the pin unless otherwise specified. Please specify different scaling if required.

Critical Information Required.

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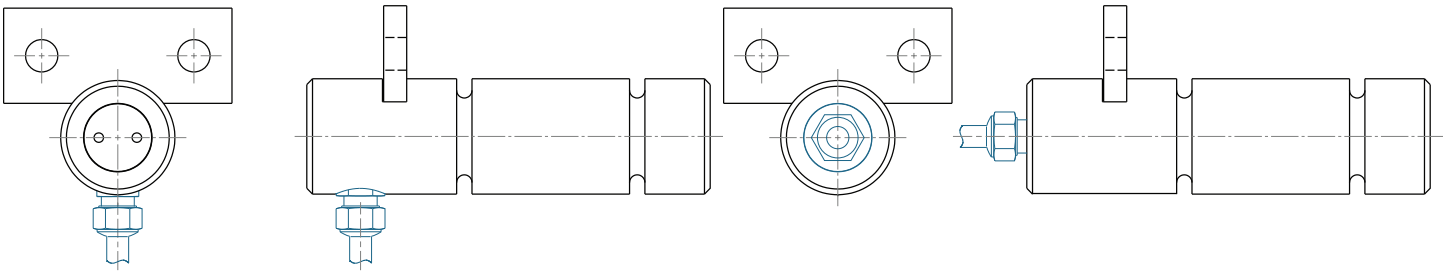
CABLE EXIT

Specify whether a gland or connector is required.*

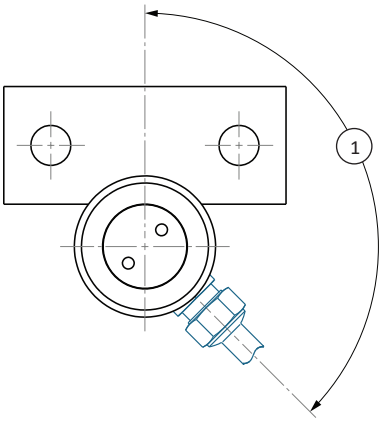
If a connector is required, please specify the type. (If unspecified we will use one of our standard connectors).

Axial or Radial cable exit:



☐ Radial Cable Exit ☐ Axial Cable Exit

If a Radial exit is required, specify its rotational position, relative to the anti-rotation method.



Dimension	Angle
(1°)	
Notes:	

Is mechanical protection of the Gland or Connector required, i.e. Recessed in the pin, bracket, cage etc. , Yes or No? If Yes, please specify:

Is Hose Protection required for the cable, Yes or No? If yes, please specify the hose type and length:

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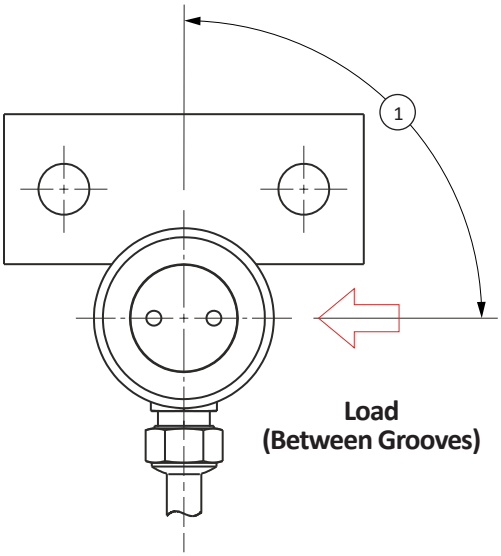
LOAD INFORMATION



Load Direction. Relative to the anti-rotation method (show load angle or provide sketch or separate drawing).

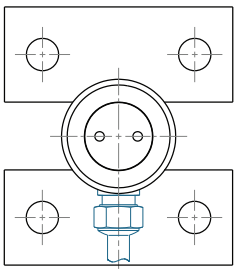
Dimension	Angle
(1)	
Sketch:	

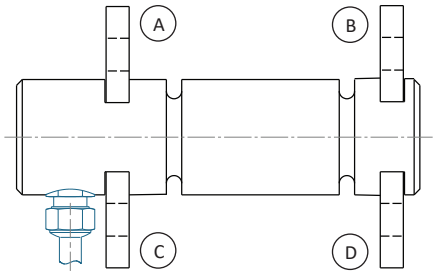
ANTI-ROTATION AND RETENTION METHODS

Keeper Plate

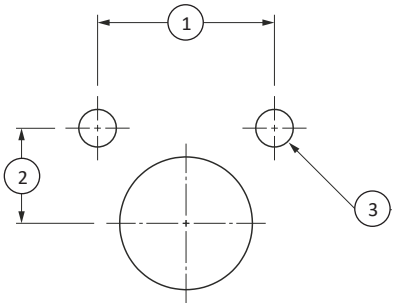
How many keeper plates are required 1,2, 3, or 4? Also, what positions are required A, B, C, or D?

If there is a preferred position for the keeper plate(s), please specify at which end of the pin and the angle in relation to the load direction.





If tapped holes for a keeper plate already exist in the structure, specify the size and position.



Dimension	in	mm	Position
(1)			
(2)			
(Ø3)			
Notes:			

Critical Information Required.

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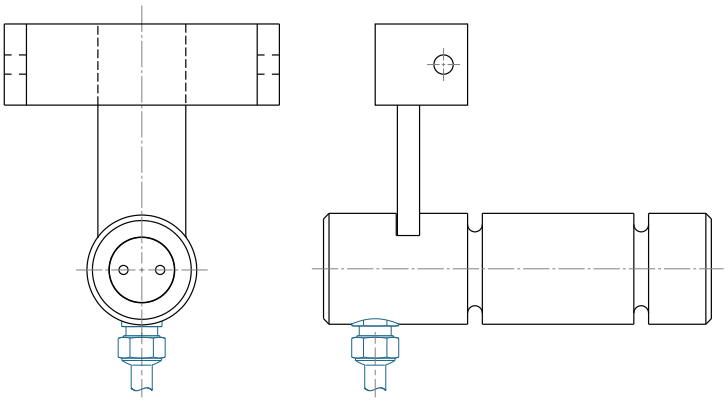
Grab Bracket

Provide dimensional information for what the bracket will grab and its position relative to the cable exit / load direction.



TESTING AND CALIBRATION

State the required calibration units.*

CERTIFICATIONS

Hazardous Area ATEX / IECEx protection required, Yes or No? If yes, please specify Zone and Protection type:*

Other certification required, please specify:

OTHER INFORMATION

If possible, please include the following:

1, Photographs of the load pin location and the structure around it so that we can see the space around the pin and how it is loaded.

2, If the load pin is replacing a non-instrumented pin, include a drawing or dimensions of that pin.

Notes / Comments

**** Critical Information Required.***

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