

SHK-D

Shackle Load Cell

- Measurement ranges 0 ... 1 t to 0 ... 35 t
- Tension
- Non-linearity 1.0 % of RL
- Output nom. 1.5 mV/V, amplifier output optional
- Supply voltage 10 VDC, max. 15 VDC



The SHK-D range of Shackle Load Cells is designed for lifting and weighing in rugged or harsh environments.

The shackle pins are forged from high tensile carbon steel and are machined to an exacting specification. The basic shackle uses the Crosby G2150.

This range of load cells is Proof Loaded to 150 % of the normal rated load.

The SHK-D series are available in a range from 1 t to 35 t. The integral cable is normally enclosed in an armoured rubber hydraulic hose to give physical and environmental protection. The SHK-D is internally gauged and the whole instrumented area is sealed to IP66, to protect it in service.

They are simple to install and are available in standard shackle sizes. As an option, a rotating bobbin can be supplied, to centralise the load and to minimise any point-load effects when the shackle is placed under load.

We are always pleased to discuss any special requirements that can be accommodated. The SHK-D series can be supplied on it's own or combined with our extensive range of instrumentation to provide a complete load monitoring system.

■ More Features

- High Tensile Carbon Steel Construction
- Environmentally Sealed to IP66 (IP67 can also be offered)
- Simple installation and operation
- Shackle and load pin fully certified
- Optional load centralising bobbin
- Many other options available

■ Typical Applications

- Under-hook Hoist/Crane Weighing
- Cable Tension Monitoring
- Towing/Mooring Tension
- Crane Safe Load Monitoring

■ Specifications

Rated load (RL):	1 / 2 / 3.25 / 4.75 / 6.5 / 9.5 / 12 / 17 / 25 / 35 t (approx. 10 kN to 350 kN)	
Proof load:	150 % of RL	
Ultimate breaking load:	>300 % of RL	
Output:	1.5 mV/V at RL (nominal)	
Non-linearity:	<±1.0 % of RL (typically)	
Non-repeatability:	<±0.10 % or RL	
Supply voltage:	10 VDC recommended, 15 VDC maximum	
Bridge resistance:	350 Ω	
Insulation resistance:	>500 MΩ at 500 VDC	
Operating temperature range:	-20 °C ... +70 °C	
Compensated temperature range:	-10 °C ... +50 °C	
Zero temperature coefficient:	<±0.010 % of RL/K	
Span temperature coefficient:	<±0.010 % or RL/K	
Environmental sealing:	IP66 (IP67 optional)	
Electr. connections:	10 m 4-core, screened PUR cable	
Wiring connections:	red: + supply voltage green: + signal	blue: - supply voltage yellow: - signal
Options available:	Special ranges available Special electrical connections Integral signal conditioning Centralising Bobbin Subsea and Offshore versions Lloyd's, ABS or DNV witness testing	

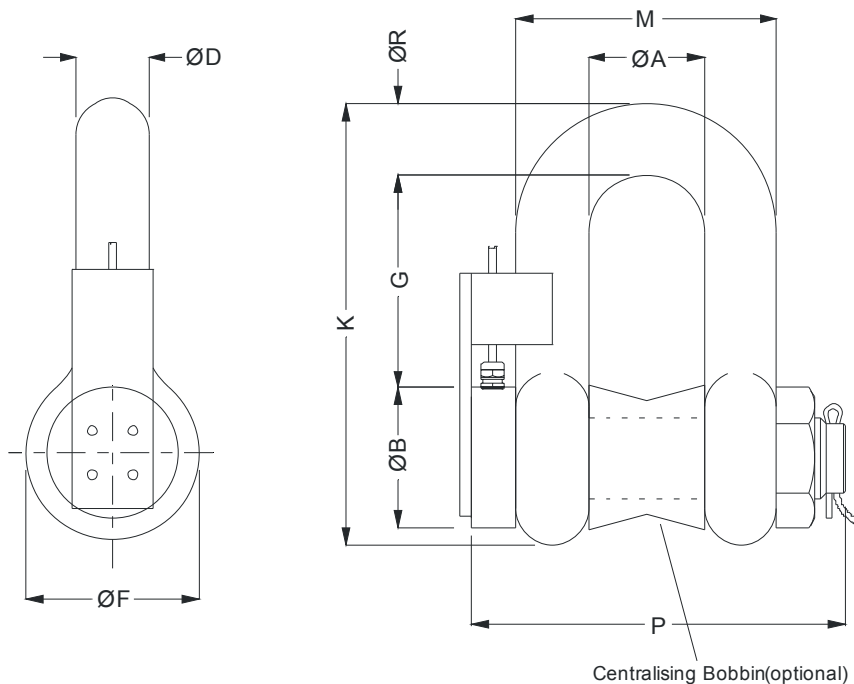
Specifications (for options)

All specifications for options are as detailed for the standard shackle, unless otherwise stated

Special ranges	The SHK-D can be supplied in any range, between 1 t and 400 t and calibrated as required. Usually we will choose the nearest standard shackle size. We can also offer special design shackles up to 2000 t. Consult our design team for more details.
Special electrical connections	The standard SHK-D cable exits the shackle pin via a gland and is restrained using the anti-rotation bracket. We can offer variations to the electrical connection method. For example, integral connectors, special length etc. For more details contact our office.
Integral signal conditioning	We can offer various integral signal conditioning options, including: Analogue Signals: 4 ... 20 mA 2-wire current output (7.5 ... 28 VDC supply) 4 ... 20 mA 3-wire current output (13 ... 28 VDC supply) 0 ... 5 VDC 3-wire voltage output (8.5 ... 14 VDC supply) 0 ... 10 VDC 3-wire voltage output (13 ... 30 VDC supply) Digital Signals: RS232 digital - various protocols (5.4 ... 18 VDC supply) RS485 digital - various protocols (5.4 ... 18 VDC supply)
Centralising bobbin	We can offer an optional centralising bobbin. This can help improve the overall Bobbin accuracy in certain cable tension applications. The bobbin is shown pictorially in the drawing below. For further information, please contact our design team.
Subsea or offshore	We are able to offer fully submersible versions, which are normally supplied with underwater mateable connectors. These versions can also be pressure tested and witnessed by a third party at any point through the manufacturing process. (ABS, Lloyds or DNV).
Radio telemetry	We have a version available that requires no cable connection, using radio telemetry to transmit data. There is a separate data sheet available for this product.



■ Dimensions



Model	Rated load (t)	ØA	ØB	ØD	ØF	G	K	M	P	R	Weight (kg)
SHK-D-1	1	16.8	11.2	9.65	23.1	31.0	58.5	35.8	55.0	9.65	2
SHK-D-2	2	20.6	16.0	12.7	30.2	41.4	77.0	46.0	84	12.7	2.2
SHK-D-3.25	3.25	26.9	19.1	16.0	38.1	51.0	95.5	58.5	89.5	16.0	2.4
SHK-D-4.75	4.75	31.8	22.4	19.1	46.0	60.5	115	70.0	103	20.6	2.8
SHK-D-6.5	6.5	36.6	25.4	22.4	53.0	71.5	135	81.0	120	24.6	3.5
SHK-D-9.5	9.5	46.0	31.8	28.7	68.5	91.0	172	103	150	31.8	6
SHK-D-12	12	51.5	35.1	31.8	76.0	100	191	115	165	35.1	8
SHK-D-17	17	60.5	41.4	38.1	92.0	122	230	137	196	41.1	10
SHK-D-25	25	73.0	51.0	44.5	106	146	179	162	230	54.0	15
SHK-D-35	35	82.5	57.0	51.0	122	172	312	184	264	60.0	22

All dimensions in mm, approx. values.

These drawings are for information only and not intended for construction purpose.

Please ask for detailed drawings.

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.