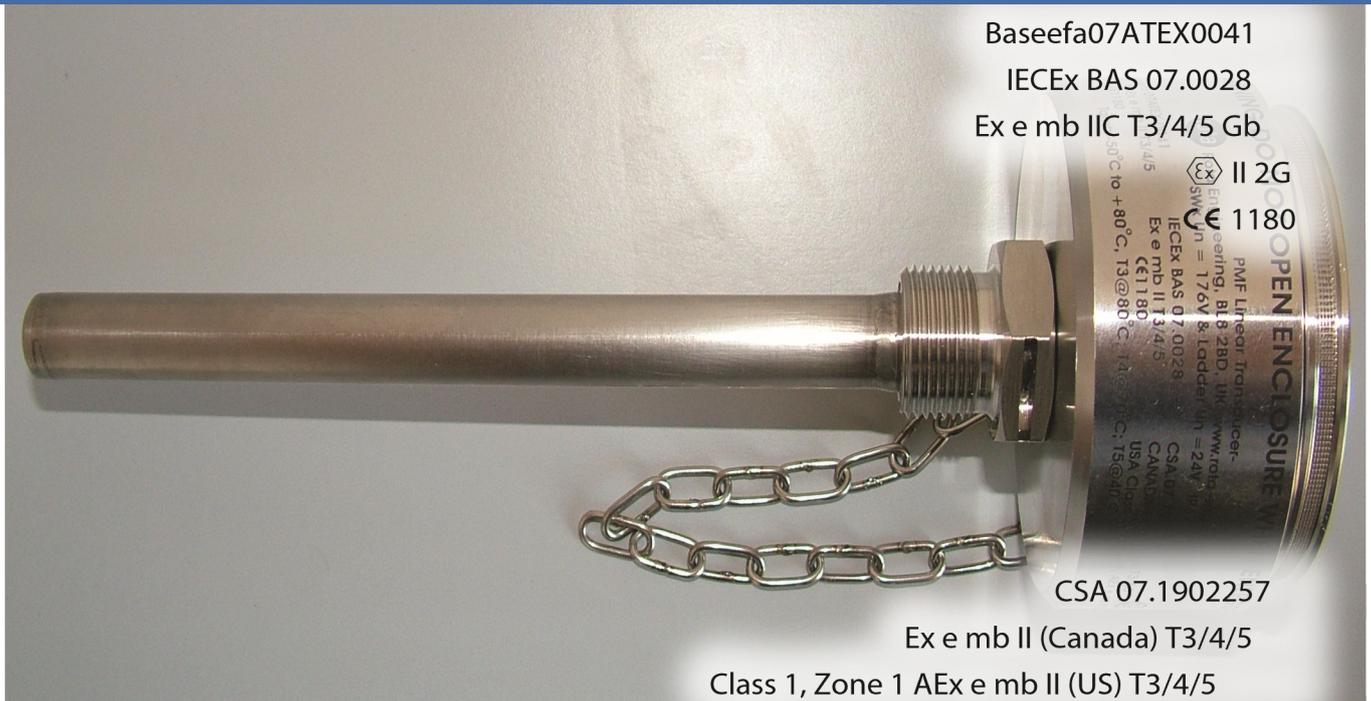




LZ Linear Transducer



Linear Transducer with Limit Switches

Certified to Equipment Protection Level Gb (ATEX Category 2)
and CSA Class 1/ Zone 1 Hazardous Areas

- Robust 316 Stainless Steel Construction
- -50°C Operating Temperature
- Rotatable 360° Junction Box for easy cable lay
- IP 67 double sealed one piece Junction Box
- High Voltage Limit Switches - 176 Volts
- High Reliability



ATEX



RELIABLE OPERATION TOUGH APPLICATION

Rota Engineering Limited, Manchester UK

www.rota-eng.com
LZ v0.1.04



LZ Linear Transducer

Rota Engineering Ltd is based in Manchester, UK, and was established in 1964. Linear Transducer production started in 1993. In addition to Linear Transducers the company also specialises in the design and manufacture of patented ultra robust electrical and fibre optic connectors for explosive atmospheres. These are specified by all the major oil and oilfield service companies worldwide.

In-Cylinder Linear Transducers

Rota introduced Linear Transducers into the hydraulic cylinder market in 1993. Incorporating well protected solid state electronics in a high pressure tube, when installed in the piston rod the only moving part is the non-contact magnet moved by the piston.

An Intrinsically Safe version for explosive atmospheres followed shortly afterwards.

In many oilfield applications Rota Transducers have proved to be particularly reliable be it subsea or hazardous atmospheres. This is why they are being used by the largest oil and oilfield equipment companies. Other OEMs include the largest companies in hydraulics, construction equipment, farm machinery, forestry equipment, military and mining equipment etc. Many of the applications have seen diverse combinations of shock, vibration, temperature, pressure spikes, EMC, etc.

Quality

Designing and building connectors and transducers for explosive atmospheres requires an obsession with quality.

Rotas' quality systems were originally approved to British Standard 5750 in 1986, and are now assessed by Baseefa to ISO 9001-2015. The Q.A. system is also audited by Baseefa and C.S.A for Ex certified transducers and connectors.

Other Sensor Ranges for Explosive Atmosphere's

LK Series

- Explosive atmosphere transducer for zones 0/1/2 Category's 1/2/3.
- Intrinsically safe design.
- 2 wire 4-20mA option.
- Very compact mounting head.
- Max stroke of 10 metres.

LD Series

- Explosive atmosphere transducer for zones 1/2 Category's 2/3.
- No I.S barrier or galvanic isolator needed.
- New AEx mb encapsulation design eliminates large electronic enclosure.
- Option with Rota's patented DR4 connector allows removal without a hot work permit.

LU/LN Series

- Independantly pin mounted transducers.
- All 316 stainless steel construction.
- Subsea and Ex. Intrinsically safe versions.
- LU Heavy Duty- 5 Metre Stroke
- LN Light Duty- 2 Metre Stroke

LZ Transducer

Design

The LZ linear sensor is a 2 in 1 measuring device combining a transducer for full stroke position monitoring and limit switches for beginning and end of stroke signalling. The limit switches are suitable for switching upto 176V/1A. The LZ type is suitable for use in Category 2 (Class 1, Zone 1) hazardous areas and is certified by both Baseefa and CSA

Features

Unique 360° rotational junction box allowing the cable entry point to be positioned in any orientation. This makes installation easier, more compact and limits the bending stress on the cable.

Manufactured in 316 stainless steel, the junction box and sensor tube is a one piece welded enclosure, pressure tested to 5000 psi (345 bar). The box lid is double sealed with 2 'o' rings (face and bore), providing a IP68 rating (self assessed)

For use in hazardous areas the junction box can be supplied with a Rota DE2 Exde connector or associated Ex cable assembly.

Reliability

The LZ transducer has been used extensively in the tough Canadian tar sands environment since 2007.



RELIABLE OPERATION TOUGH APPLICATION

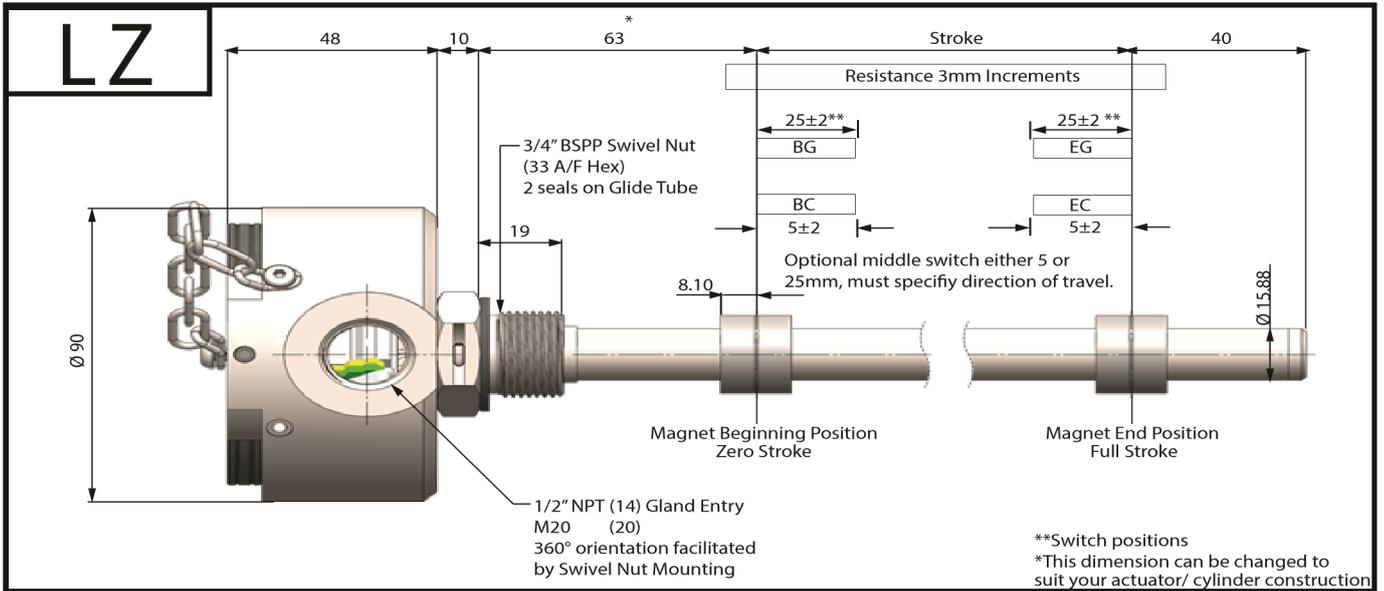
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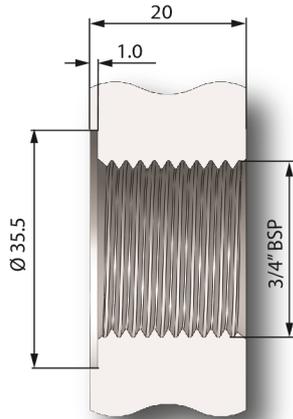


LZ Linear Transducer

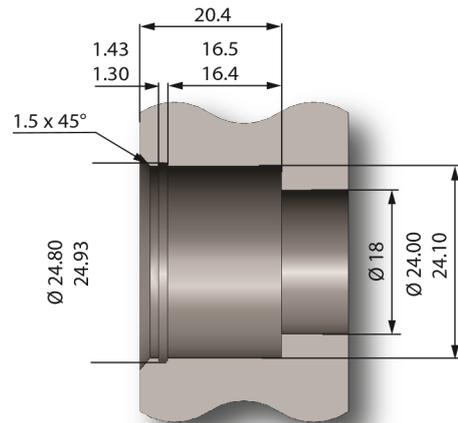
Linear Transducers



MACHINING DETAILS

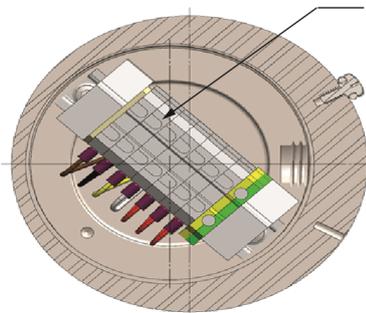


End cap Machining Detail



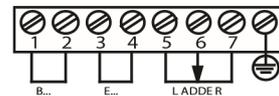
Magnet Housing Machining Detail

ELECTRICAL TERMINATION

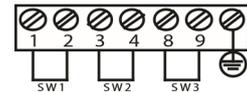


Associated cable must have a conductor cross sectional area of :- 0.5 to 2.5 mm²

Resistive Ladder + Switches



Switches



Multiple Switches



RELIABLE OPERATION TOUGH APPLICATION

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LZ Standard Performance

Ladder		Switches	
Resolution	3mm	Contact Rating	50W (VA)*
Resistive Output	1K5 up to 9K	Max Switching Current	1A*
Input Voltage	Max. 24 Volts DC	Max Switching Voltage	176V*
		Switching Accuracy	Standard +/- 2mm
		* Important - Combined Voltage and Current must not exceed 50W	

Electrical Termination :- See Page 3

Construction

Enclosure	360° Junction Box
Material	Stainless Steel 316 Welded Construction
Stroke	Up to 10 Metres
Working Pressure	Standard 4300 psi (300 bar)
Ingress Protection	IP68
Operating Temperature	-50°C to + 80°C (-58°F to + 176°F)

For any other requirements consult Rota Technical Department

Standard Technical Specification and Ordering Code

LZ J M 0740 3 9 BC M EC H 05 1234

LZ Series
Linear
Transducer

Mounting

J

Insert 'M' (IECEX / CSA)

Stroke (millimetres)
Max = 10000

Signal Resolution
3 millimetres (Resistive Ladder 1K5 upto 9K)

Nominal full stroke resistance in K ohms

Unique
Transducer
Calibration
Number

Flying lead length
(metres)

Electrical Termination

14	1/2" NPT Female Port
20	M20 Female Port
B	B Series
DR	DR4 Connector
H	Offshore Cable (Blue Unarmoured Screened)

End Switch

EC	End Switch for Control Circuits
EG	Switch for Guiding End Position

M	Switch at Middle of Stroke option
N	No Switch Required

Beginning Switch

BC	Beginning Switch for Control Circuits
BG	Switch for Guiding Beginning of Position

LZ Transducers are supplied complete with Magnet, Bonded Seal and Circlip as required

Spares kit - LZ2379 (Magnet, circlip & spare seal)
Magnet Kit - LT0112 (Magnet & circlip only)



RELIABLE OPERATION TOUGH APPLICATION

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