

## INSTALLATION AND SERVICE GUIDE

### KLINGER Reflex Level Gauges for process applications

Models R 100 (PN 100), R 160 (PN 160), R 250 (PN 250)

#### 1 COMMISSIONING

##### To minimise thermal shock to gauge glass.

Thermal shock considerably affects the life and performance of the glasses. If a complete plant is being commissioned, thermal shock is generally not too great for the gauge, as long as the gauge cocks are left in the open position.

If the gauge has been isolated for maintenance, while the rest of the plant is under temperature and pressure, then the following procedure is recommended to bring the gauge back into service

1.1 With the top and bottom cocks/valves shut, open the drain cock and then crack the top cock/valve to allow a small flow of steam to pass through the gauge until working temperature is attained.

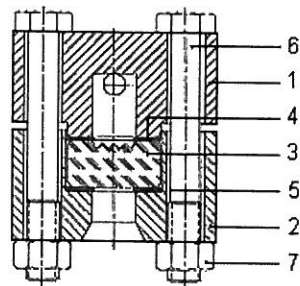
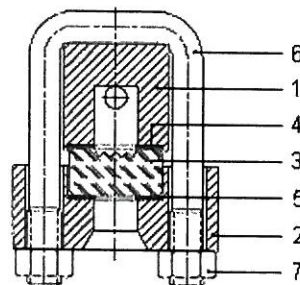
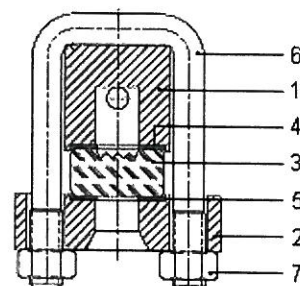
1.2 Close drain cock.

1.3 Open the top gauge cock/valve fully and allow the gauge to fill with condensates.

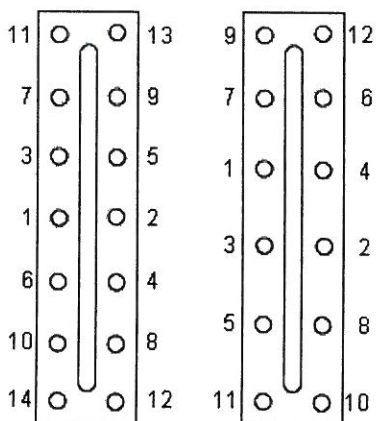
1.4 Open the bottom gauge cock/valve fully.

1.5 During the commissioning period, the covers and their joints could settle, and it is essential therefore to follow up all clamping nuts to maintain the required torque (for correct order and torque see tightening procedure).

Also joints and glands should be tightened on gauge cocks or valves (see appropriate maintenance sheet for correct procedure).



#### TIGHTENING PROCEDURE



Item	Part list
1	Centre piece
2	Cover
3	Reflex glass type B
4	Sealing joint
5	Cushion joint
6	U-bolt / Bolt
7	Nut

#### COVER NUT TORQUE

Gauge	DaN.m	Lbs.ft
R 100	5	36
R 160	5	36
R 250	7,6	55

#### Further information

For further information, please send an E-mail to the following address: [instruments@tc-fluidcontrol.com](mailto:instruments@tc-fluidcontrol.com)

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#### 2 MAINTENANCE INSTRUCTIONS

2.1 Any leaks which appear during service should immediately be stopped by following up at the appropriate point.

A. Gauge see 1.5

B. Cocks or valves see appropriate maintenance sheet

#### 2.2 Changing glass

- Isolate the gauge from the source of pressure,
- Relieve the gauge from internal pressure,
- Isolate and remove ancillary equipment (see appropriate maintenance sheet),
- Remove the clamping nuts,
- Remove the bolts from the gauge (supporting covers and internals),
- Remove the covers, glasses and joints from the centre piece,
- Clean joint faces of centre piece and cover, taking care not to damage joint face of centre piece,
- With new glass and joint re-assemble bolts from center bolt as shown in

Tightening procedure overleaf,

- Follow the commissioning procedure (points 1.1 to 1.5) to bring the gauge back into service.

#### 2.3 Removing level gauge

This procedure varies depending on which cocks/valves are fitted. Please refer to appropriate cock/valve maintenance sheet.

#### 3 REFURBISHING

No refurbishing should be necessary other than the replacement of glasses and (refer to 2.2).

#### 4 IMPORTANT INSTRUCTIONS

4.1 Use only original KLINGER replacement parts,

4.2 Cleanliness is most essential when assembling and points listed under 2.2 must be observed,

4.3 Draughts may cause thermal shock, resulting in glass breakages. If there are windows, lift doors, etc..., in the vicinity it is advisable that the gauge should be screened off.

4.4 Glass corrosion - if the glasses become opaque or the liquid level definition deteriorates, the glasses should be examined, cleaned and if worn, replaced at once.

4.5 Protective shields can only be fitted to Reflex Level Gauges - they must never be fitted to Reflex Level Gauges.

#### 5 SPARES

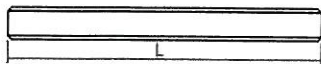
It is recommended that one complete set of glasses and joints be kept for spares and a new set ordered as soon as these are used.

5.1 When ordering spares, please quote :

- type and size of gauge, e.g. R100 2 - IX as stated on gauge type plate.

- construction of the level gauge components as stated on gauge plate, e.g. FS/H, M/H or M.

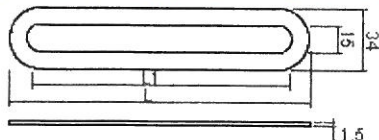
5.2 When ordering glasses, please quote transparent glasses type B + size :



Size	II	III	IV	V	VI	VII	VIII	IX
L	140	165	190	220	250	280	320	340



5.3 When ordering gaskets or Micacs, please quote glasses type B + size of glass on which they are fitted :



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