



TC Fluid Control Ltd
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INSTALLATION AND SERVICE GUIDE KLINGER Reflex Level Gauges for saturated steam

Model SR 22 - SR 20 - R100 with "D" type cocks

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 shut, open the drain cock then crack the top cock to allow a small flow of steam to pass through the gauge until working temperature is attained.

1.2 Close drain cock allowing the resulting condensate to gradually fill the gauge.

1.3 Open the top cock fully.

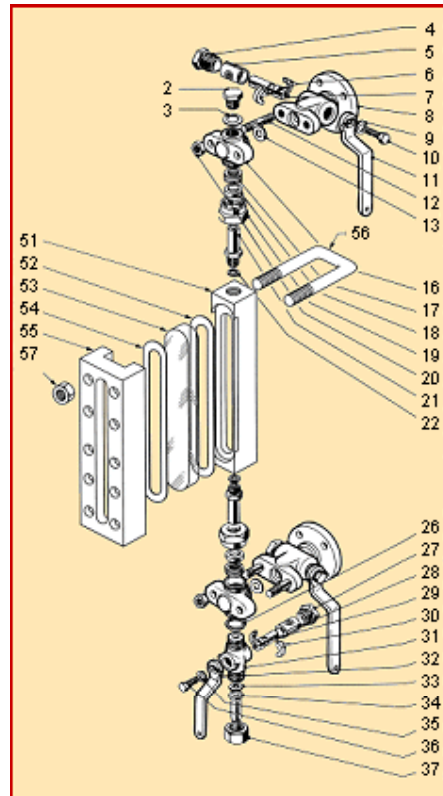
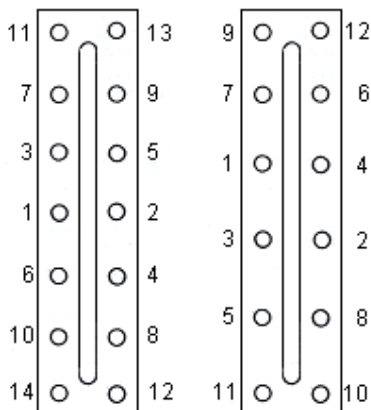
1.4 Open the bottom cock fully. (Note - Rapid opening of cocks can make ball checks close)

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

The tightening nut on the stuffing boxes, and the top and bottom cocks should also be followed up (the plug should be in the OPEN POSITION during this operation)

TIGHTENING PROCEDURE

Cover nut	daN.m	lbs.ft
SR 20 - SR 22 - MR	5	36
UR	6	44



Item	Part list	Item	Part list
2	Plug 1/2"	27	Tightening nut
3	Plug joint 1/2"	27	Tightening nut
4	Tightening nut AB 18	28	Packing sleeve AB 12
5	Packing sleeve AB 18	29	Plug AB 12
6	Split ring AB 18	30	Split ring AB 12
7	Plug AB 18	31	Drain cock body
8	Cock body	32	Lever AB 12
9	Lever washer	33	Union tailpipe joint
10	Lever screw	34	Union tailpipe
11	Lever AB 18	35	Gland ring
12	Stud	36	Lever screw
13	Stuffing box joint	37	Union tailpipe nut
16	Stuffing box / Ball Check	51	Body
17	KU graphit ring	52	Sealing joint
18	Packing ring	53	Prismatic glass
19	Stuf.box tightening nut	54	Cushion joint
20	M 12 nut	55	Covers
21	Tube 16 mm	56	Covers
22	Joint	57	Nut
26	Joint 1/2"	58	U-bolt

Further information

For further information, please send an E-mail to the following address: 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 (see 1.5).

2.2 Removing level gauge/Changing glass

- Isolate the gauge from the source of pressure,
- Drain the gauge and relieve it of internal pressure,
- Remove stuffing box retaining nuts,
- Slide gauge, complete with top and bottom stuffing boxes from retaining studs,
- Remove the clamping nuts,
- Remove the bolts from the gauge (supporting covers and internals),
- Remove the covers, glass 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 joints re-assemble gauge using reverse procedure, re-torque bolts from centre bolt as shown in Tightening procedure (see 1.5),
- Clean joint faces of stuffing box and cock bodies taking care not to damage surfaces,
- Re-assemble using new stuffing box joints following gauge commissioning procedure to bring the gauge and cocks back into service.
- Follow the commissioning procedure (points 1.1 to 1.5) to bring the gauge and cocks back into service.

2.3 Changing packing sleeve

- With cocks/valves in OPEN POSITION drain vessel to a level below that of the bottom connection,- Relieve vessel and gauge of internal pressure,
- Unscrew tightening nut and remove,
- Unscrew lever securing screw, remove washer and lever,
- Tap top plug with wooden drift until it is clear of cock body,
- Screw the tightening nut back into the cock body to clear the threads of any particules which may be remaining from the old packing sleeve, then remove it again,
- Remove the split retaining ring from the plug and slip off the old packing sleeve,
- Examine the plug and inside of cock body for scoring or signs of damage and if necessary, replace,
- Insert plug into the new packing sleeve. Replace the split retaining ring and push the packing sleeve up towards it, to hold it in position,
- Insert plug (together with packing sleeve and split retaining ring) into the bottom of the cock body ensuring that ridge of the packing sleeve enters the corresponding groove in the cock body. Push in plug and packing sleeve together using a wooden drift if necessary until the tightening nut can be engaged with the thread inside the cock body,
- Replace on to plug and tighten lever screw with washer in place,
- With plug in the OPEN POSITION, follow up the tightening nut to compress the packing sleeve firmly around the plug, ensuring that the lever can still be moved without undue effort being required,
- Follow gauge commissioning procedure (point 1.1 to 1.5) to bring the gauge and cocks back into service.

3 REFURBISHING

No refurbishing should be necessary other than the replacement of packing sleeves, plugs, joints, Micas or glasses.

4 IMPORTANT INSTRUCTIONS

- 4.1 Use only original KLINGER replacement parts,
- 4.2 If primary isolation valves are fitted it is not necessary to drain the vessel or relieve it of internal pressure. With "D" type cock in the OPEN POSITION close isolating valves and relieve gauge and cocks of internal pressure. Then continue as stated procedure,
- 4.3 Cleanliness is most essential when assembling and points listed under 2.2 & 2.3 must be observed,
- 4.4 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.
- 4.5 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.
- 4.6 Any following up with the packing sleeve tightening nuts must be carried out with the plug in the OPEN POSITION,
- 4.7 Micas can be only fitted to Transparent Level Gauges - they must never be fitted to Reflex Gauges. When Micas are fitted, they should be positioned between sealing joint and gauge glass,
- 4.8 Gauge tubes are threaded 16,2mm LEFT HAND,
- 4.9 Threads on gauge bolts and nuts should be kept lubricated.
- 4.10 Any leaks which appear during service should immediately be stopped by following up at the appropriate point (see 1.5). Otherwise wire drawing may occur on the sealing face & render the gauge/valve unserviceable.

5 SPARES

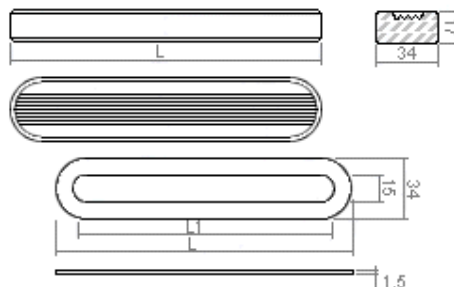
It is recommended that one complete set of glasses, joints and Micas be kept for spares.

5.1 When ordering spares, please quote :

- type and size of gauge, e.g. ST22- 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.
- type size and material of cocks (NB. Drain cock, please indicate whether AB12 or AB18)
- gauge identification number
- part description

5.2 When ordering glasses, please quote **reflex glasses type B** + size

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



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

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