

UKL THERMODYNAMIC STEAM TRAP WITH INTEGRAL FLANGE

(Replaceable Seat Arrangement)

The enthalpy in the steam basically has two components : The Latent heat and the Sensible heat. Whereas condensate has only sensible heat. This condensate has to be removed as soon as it is formed, because it hinders to efficient heat transfer as well as leads to water hammer phenomenon as it is hot water (having more Specific Gravity) that moves with high velocity of steam (8 to 10 times higher than water), carrying enough momentum to rupture pipes and which is damaging to the plant pipelines as well as piping equipments. Hence, need to remove condensate from steam main and trap steam. This is done by steam trap.

The thermodynamic traps separate condensate and steam based on velocity which in case of steam is higher than that of condensate. These are used mainly on drip lines of the main steam distribution line, platen presses and super heated steam lines to remove condensate.

Condensate pressure is used to open the trap by lifting the disc, discharging condensate in low pressure. Due to low pressure flashing of condensate takes place. High flash steam velocity (approximately 5 times of condensate) creates a low pressure zone below the disc. Accumulated flash steam force over the disc becomes greater than the incoming condensate pressure this leads to closure of the disc. Subsequently the flash steam condenses and the incoming higher pressure condensate pushes the disc opening the trap and thus the cycle continues.

The UTD 51R is a steam trap with integral flange, strainer & replaceable seat gives ease in maintenance & specifically designed to meet above application. An insulating cover can be fitted as an option on superheated steam mains.

MATERIAL OF CONSTRUCTION:

ASTM A105

SIZES AVAILABLE:-

Flanged End	
Size	Class / Rating
15 NB	# 150 / # 300
20 NB	# 150
Socket Weld End	
15 NB	#3000
20 NB	#3000

Flanged as per ASME B16.5

Socket Weld to ASME B 16.11

Threaded to NPT , BSP and BSPT

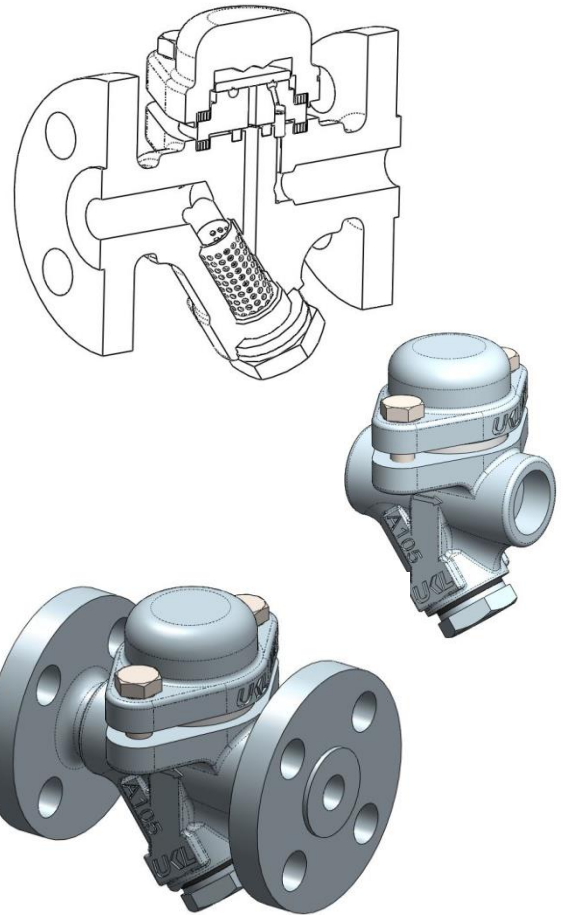
Other Sizes on request

INSTALLATION:-

Preferably in horizontal position.

ON REQUEST:-

IBR/Non-IBR



OPERATING CONDITIONS :-

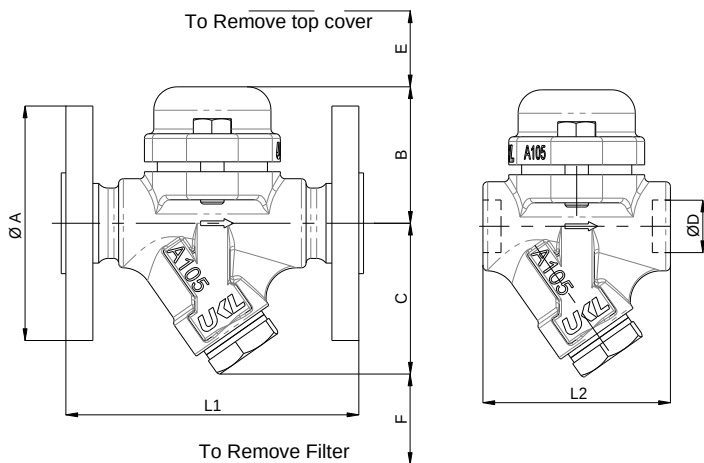
End Conn.	Flanged End #150
Max. Allowable Pressure.	19.6 bar [20 Kg/cm ²] @ 38 °C
Max Allowable Temperature	425 °C @ 5.5 bar [5.6 Kg/cm ²]
Max. Operating Pressure	6.5 bar [6.6 Kg/cm ²] @ 400 °C
Max. Operating Temperature	400 °C @ 6.5 bar [6.6 Kg/cm ²]

End Conn.	Flanged End #300
Max. Allowable Pressure.	51 bar [52 Kg/cm ²] @ 38 °C
Max Allowable Temperature	425 °C @ 28.8 bar [29.4 Kg/cm ²]
Max. Operating Pressure	34.7 bar [35.4 Kg/cm ²] @ 400 °C
Max. Operating Temperature	400 °C @ 34.7 bar [35.4 Kg/cm ²]

End Conn.	SW / BSPT / NPT
Max. Allowable Pressure.	51 bar [52 Kg/cm ²] @ 38 °C
Max Allowable Temperature	425 °C @ 28.8 bar [29.4 Kg/cm ²]
Max. Operating Pressure	34.7 bar [35.4 Kg/cm ²] @ 400 °C
Max. Operating Temperature	400 °C @ 34.7 bar [35.4 Kg/cm ²]

Hydro Test Pressure :- 1.5 times design pressure

General Arrangement of UTD 51R:-



Overall Dimensions in mm (Flanged End)			
Size	15 NB	15 NB	20 NB
Class	150	300	150
L1	125	125	125
ØA	90	95	100
B	58	58	58
C	65	65	65
E	40	40	40
F	55	55	55
Weight (Kg)	2.9	3.3	3.4

Overall Dimensions in mm (Socket End)		
Size	15 NB	20 NB
L2	80	80
ØD	21.8	27.2
Weight (Kg)	2.0	1.9

Bill of Material UTD 51R:-

No.	PART NAME	MATERIAL	MATERIAL CODE
1	Body	Forged Steel	ASTM A 105
2	Top Cover	Forged Steel	ASTM A 105
3#	Replaceable Seat	Tool Steel	ASTM A 681 Gr D2
4#	Disc	Tool Steel	ASTM A 681 Gr D2
5#	Locater	Stainless Steel	AISI 304
6#	Gasket	Spiral Wound	Reinforced Exfoliated S.W. AISI304 With Graphite Filler
7#	Gasket	Spiral Wound	Reinforced Exfoliated S.W. AISI304 With Graphite Filler
8	Filter Cap	Forged Steel	ASTM A 105
9#	Filter	Stainless Steel	AISI 304
10#	Gasket For Filter Cap	Spiral Wound	Reinforced Exfoliated S.W. AISI304 With Graphite Filler
11#	Hex Bolt	Stainless Steel	ASTM A 193 Gr .B7

#Parts available as Spare: 3, 4, 5, 7, 9, 10, 11

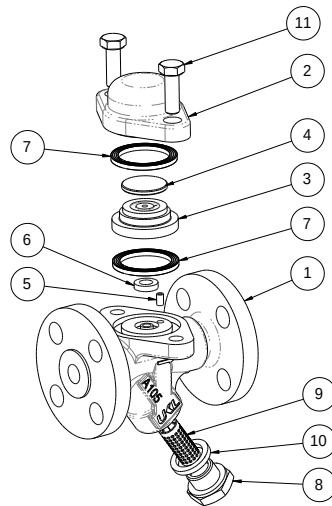
Item	Recommended Tightening Torque			
	Part	Size	A/F	Nm
9	Filter Cap		32	145-158
12	Nut	M10	17	55-60

How to Replace Seat & disc :-

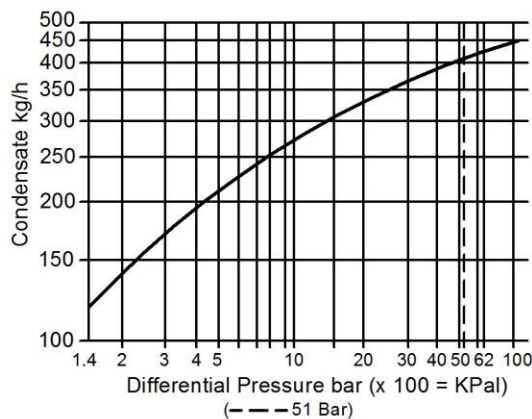
Unscrew the four nuts and remove the top cover. Lift off the disc. Lift of Seat and remove gasket, insert new two gasket on groove below seat, Properly locate locater, fit new seat and disc. Ensure that the seating surface is not unduly worn. Lapping is necessary for worn out seats. Re- assemble cover using a new gasket making sure that gasket faces are perfectly clean.

To clean or replace strainer remove strainer cap. Remove strainer screen. Fit new or cleaned strainer screen into recess in cap. A new gasket should be fitted and the cap screwed into the body.

To replace cover studs after removing old cover studs fit new cover studs.



UTD-51R Flowchart :-



Note: Minimum Differential pressure for satisfactory operation 1.4 bar g with Positive Pressure and Discharge to atmosphere.



Cast / Forged Steel Piston Valves, Bellow seal valves, High Pressure valves (Gate/Globe) , Strainers – "Y" Type, ITVS Steam Traps (Thermodynamic, Thermostatic, Ball Float Traps and IBT), Pressure Reducing Station, Condensate Recovery Products. Level Gauges (Reflex, Transparent, Bicolor), Sight Glass, Hot Water Generation System, Safety and Relief Valves.

FSD Products : Compressed Asbestos / Non Asbestos Fiber Sheetting / Cut Gaskets, Spiral Wound Gaskets.

Page 2 of 2



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