



CYCLONE SEPARATOR TRAP FOR STEAM

MODEL DC3S

SEPARATOR WITH BUILT-IN STEAM TRAP

Features

Cyclone separator and steam trap incorporated into one unit to provide high-quality dry steam.

1. Separator achieves condensate separation efficiency as high as 98%.
2. Self-modulating free float steam trap continuously discharges condensate as it is separated.
3. Precision ground spherical float and positive three-point seating provide a complete seal, even under no-load conditions.
4. The large screen surface of the built-in strainer guarantees trouble-free service.
5. Only one moving part, the free float, prevents concentrated wear and increases service life.



Specifications

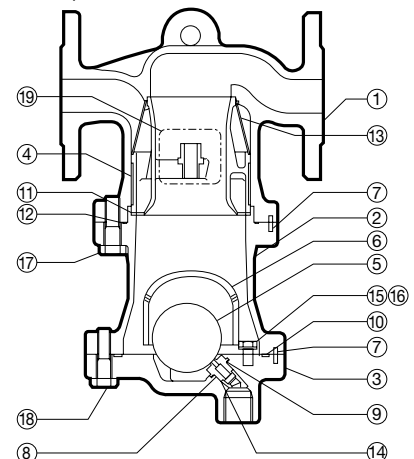
Model		DC3S	
Connection		Screwed	Flanged
Size (mm)		15, 20, 25	15, 20, 25, 40, 50, 65, 80, 100
Trap Orifice No.		10, 16, 21	
Maximum Operating Pressure (MPaG)	PMO	1.0, 1.6, 2.1	
Minimum Operating Pressure (MPaG)		0.01	
Maximum Operating Temperature (°C)	TMO	220	

1 MPa = 10.197 kg/cm²
 PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): Maximum Allowable Pressure (MPaG) PMA: 1.6 (#10, 16), 2.1 (#21)
 Maximum Allowable Temperature (°C) TMA: 220

No.	Description	Material	JIS	ASTM/AISI*	
①	Body	Ductile Cast Iron	FCD450	A536	
②	Separator Body	#10, 16	Cast Iron	FC250	A126 Cl.B
		#21	Ductile Cast Iron	FCD450	A536
③	Trap Cover	#10, 16	Cast Iron	FC250	A126 Cl.B
		#21	Ductile Cast Iron	FCD450	A536
④	Separator	15 - 50 mm	Cast Stainless Steel	SCS13	A351 Gr.CF8
		65 - 100 mm	Cast Stainless Steel	—	A351 Gr.CF8
⑤	Float	Stainless Steel	SUS316L	AISI316L	
⑥	Float Cover	15 - 50 mm	Cast Iron	FC250	A126 Cl.B
		65 - 100 mm	Ductile Cast Iron	FCD450	A536
⑦	Guide Pin	Stainless Steel	SUS304	AISI304	
⑧	Trap Valve Seat	—	—	—	
⑨	Valve Seat Gasket	Fluorine Resin	PTFE	PTFE	
⑩	Trap Cover Gasket	Fluorine Resin	PTFE	PTFE	
⑪	Wave Spring	Stainless Steel	SUS301	AISI301	
⑫	Body Gasket	Fluorine Resin	PTFE	PTFE	
⑬	Screen	Stainless Steel	SUS304	AISI304	
⑭	Bushing	Stainless Steel	SUS303	AISI303	
⑮	Float Cover Bolt	Stainless Steel	SUS304	AISI304	
⑯	Spring Washer	Stainless Steel	SUS304	AISI304	
⑰	Body Bolt	Carbon Steel	S45C	AISI1045	
⑱	Trap Cover Bolt	Carbon Steel	S45C	AISI1045	
⑲	Nameplate	Stainless Steel	SUS304	AISI304	
⑳	Baffle**	Stainless Steel	SUS304	AISI304	
㉑	Baffle Bolt**	Stainless Steel	SUS304	AISI304	
㉒	Baffle Nut**	Stainless Steel	SUS304	AISI304	

* Equivalent ** Sizes 65 - 100 mm, above float cover (not shown)
 # refers to the trap orifice number

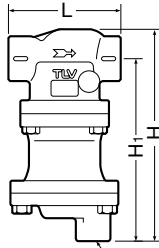
CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.



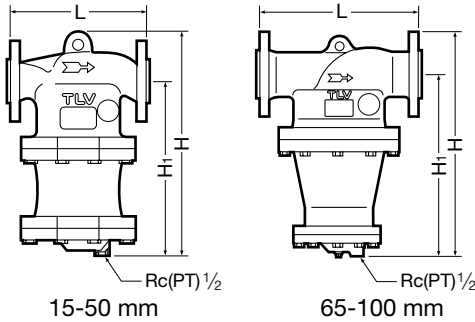
15 - 50 mm size shown, 65 - 100 mm configuration differs slightly

Dimensions

•DC3S
Screwed



•DC3S
Flanged



DC3S Screwed* (mm)

Size	L	H	H ₁	Weight (kg)
15	150	243	209	5.8
20				
25	170	278	241	9.6

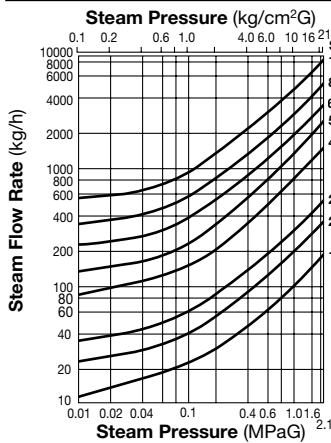
* Rc(PT), other standards available

DC3S Flanged (mm)

Size	L				H	H ₁	Weight* (kg)
	ASME Class						
	125FF	(150RF)	250RF	(300RF)			
(15)	—	170	—	176	265	209	8.4
(20)	—	173	—	179			9.3
25	185	191	197	197	306	241	13
40	212	218	225	225	352	269	18
50	242	257	255	263	418	320	32
65	366	375	381	381	520	430	71
80	365	374	383	384			75
100	434	434	450	450	645	520	120

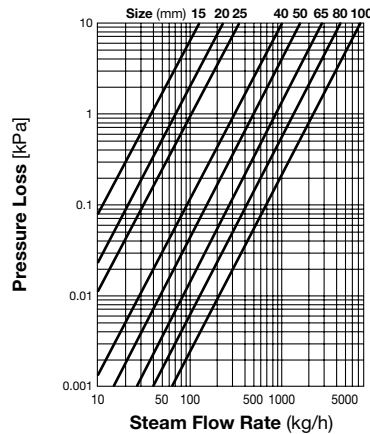
() No ASME standard for ductile or cast iron; machined to fit steel flanges. Class 125 FF can connect to 150 RF, 250 RF can connect to 300 RF ASME Class 125 FF and 250 RF not available with #21 trap orifice Other standards available, but length and weight may vary * Weight is for Class 250 RF / 300 RF

Steam Flow Rate



The chart on the left is used to determine the steam flow rate through the DC3S separator. It is based on a steam velocity in the piping of 30 m/sec. For other velocities, calculate the flow rate as follows:
Flow rate at v m/sec = flow rate at 30 m/sec × $\frac{v}{30}$
It is recommended that velocities not exceed 30 m/sec.

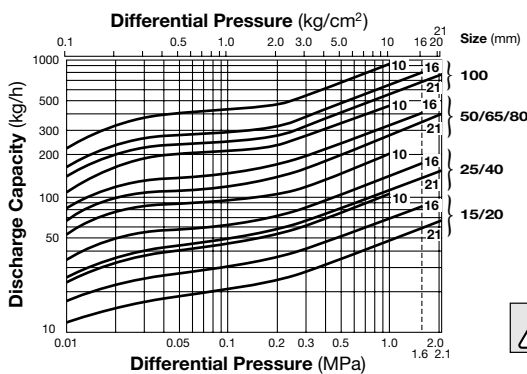
Pressure Loss



The pressure loss chart is based on a steam pressure of 1 MPaG. For other pressures, multiply the steam flow rate by the correction factor given in the table below. Use the result on the pressure loss chart.

1 kPa ≈ 0.01 kg/cm²

Condensate Discharge Capacity



Pressure [MPaG (kg/cm ² G)]	0.1 (1)	0.3 (3)	0.5 (5)	0.7 (7)	1.0 (10)	1.6 (16)	2.0 (20)	2.1 (21)
Steam Flow Rate Correction Factor	2.24	1.62	1.34	1.16	1	0.81	0.73	0.72

- Line numbers within the graph to the left refer to orifice numbers.
- Differential pressure is the difference between the separator inlet and its trap outlet.
- Capacities are based on continuous discharge of condensate 6°C below saturated steam temperature.
- Recommended safety factor: at least 1.5.



DO NOT use traps under conditions that exceed maximum differential pressure, as condensate backup will occur!

Manufacturer

TLV® CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001/ISO 14001

