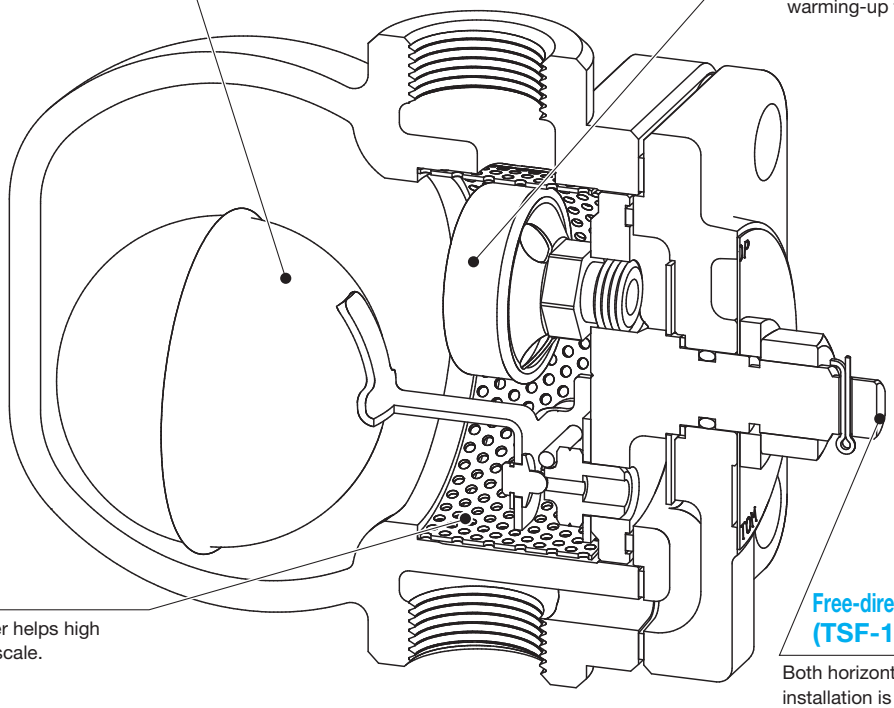
Float Type Steam Trap TSF Series

High durability

Excellent in durability thanks to important parts such as valve, seat, air vent and float in stainless steel material.

Air vent

Incorporated thermostatic air vent discharges air inside the piping and shortens warming-up time.



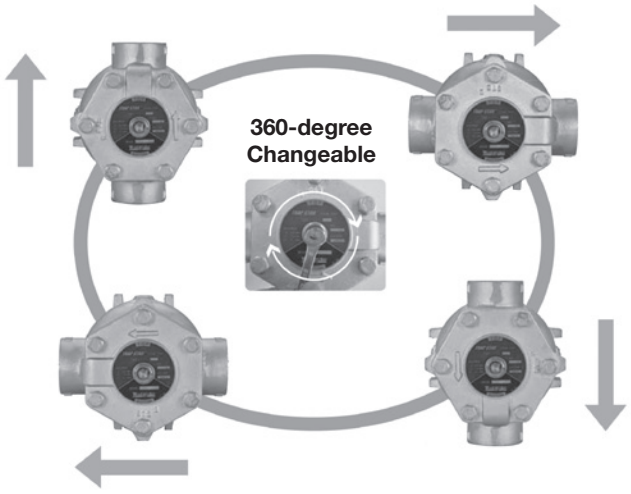
Strainer

Built-in strainer helps high resistance to scale.

Free-direction installation (TSF-10/11 series)

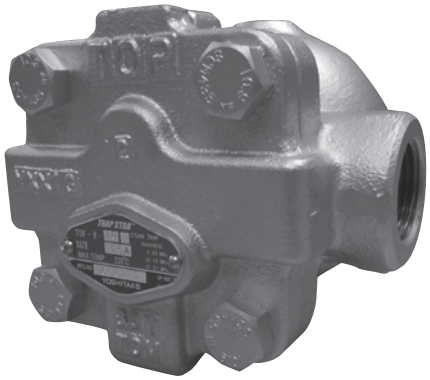
Both horizontal and vertical installation is possible thanks to rotating cock. Flow direction can be switched easily without disassembly.

· **Installation posture**



TSF-8

Bucket	Float	Disc	Bellows
Bimetal	Wafer	By-pass	Stainless steel
Connector	Right to Left	Down to Up	Up to Down



■Features

1. The TSF-8 can discharge condensate effectively without retention due to reliable operation by difference in specific gravity between steam and condensate.
2. Since the main parts are attached on the cover and it is possible to dismount the cover with the body connected to the piping, inspection and parts replacement can be conducted easily.
3. Excellent corrosion resistance and durability because the main parts are all made of stainless steel.
4. A strainer is incorporated to protect the internal parts from foreign substances and improve durability.

■Specifications

Model		TSF-8
Nominal size		15A, 20A, 25A
Application		Steam condensate
Working pressure (Max. working differential pressure)		TSF-8-5 : 0.01-0.5 MPa (0.5 MPa) TSF-8-10: 0.01-1.0 MPa (1.0 MPa) TSF-8-21: 0.01-2.1 MPa (2.1 MPa)
Max. temperature		220°C
Material	Body	Ductile cast iron
	Float	Stainless steel
	Valve, valve seat	Stainless steel
Connection		JIS Rc screwed

■Caution for Installation

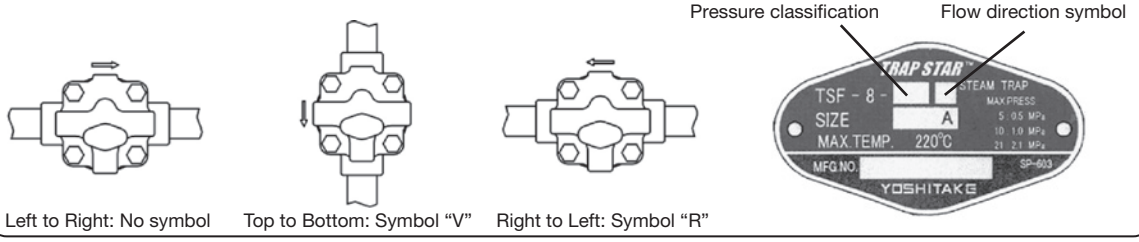
<Flow direction>

· Standard flow direction is Left to Right, however; the direction can be changed at your site.
Please refer to “Reassembly Procedures for Flow Direction Change.”

· If you reassemble the product and change its flow direction, inscribe the symbol on the plate according to the new flow direction. “V” for “Top to Bottom” flow, and “R” for “Right to Left” flow.

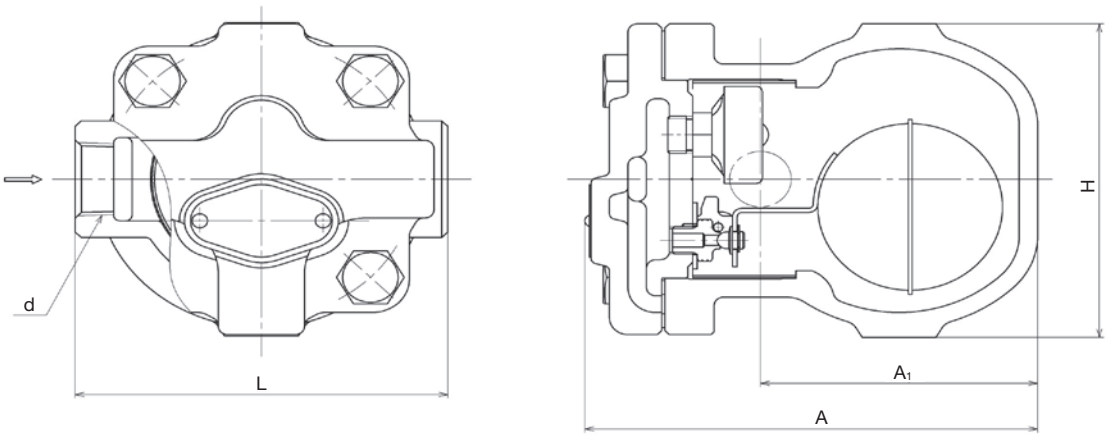
Flow direction	Symbol
Left to Right (Pre-set)	Blank
Top to Bottom	V
Right to Left	R

* Available Bottom and Top.
Please apply that shorten the vertical piping before the trap to open and discharge easily of trap in the condition of using upward flow direction.

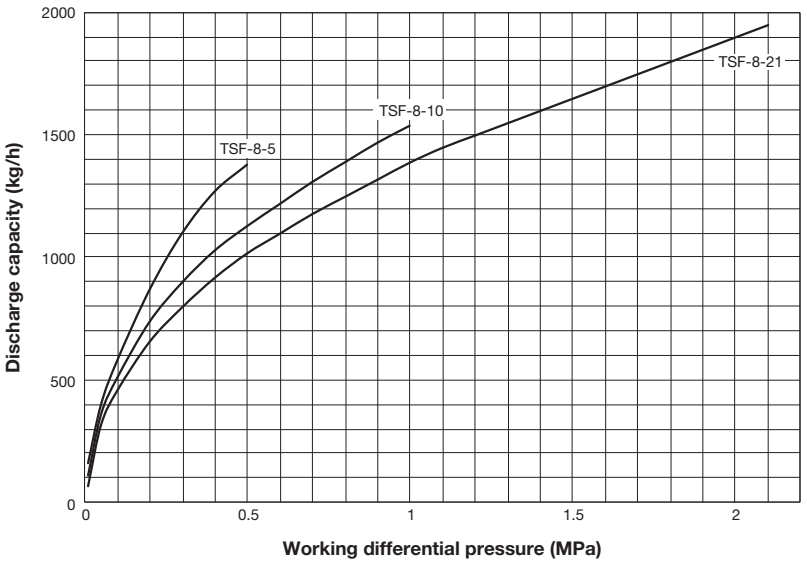


■Dimensions (mm) and Weights (kg)

Nominal size	d	L	A	A_1	H	Weight
15A	Rc 1/2	121	147	90	113	3.7
20A	Rc 3/4	121	147	90	113	3.7
25A	Rc 1	145	147	90	113	4.1



■Maximum Continuous Discharge Capacity Chart



The discharge capacity shown on the above chart is the maximum value.
In designing a system, select a steam trap with a sufficient safety factor (more than two times the regular level).

TSF-10,10F,11,11F

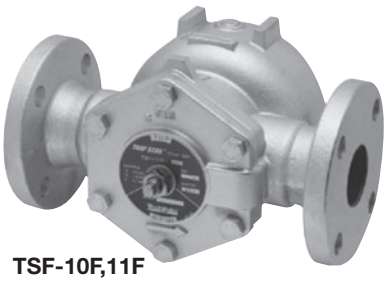
ULTRA STEAM TRAP TRAP STAR™

Bucket	Float	Disc	Bellows
Bimetal	Wafer	By-pass	Stainless steel
Connector	Right to Left	Down to Up	Up to Down

■Features

1. The TSF-10・10F・11・11F can discharge condensate effectively without retention, and realize energy saving steam system without steam loss.
2. Incorporated thermostatic air vent discharges air inside the piping and shortens warming-up time.
3. With turning the cock, it is possible to meet various flow direction such as horizontal or vertical installation.
   Flow direction can be switched easily without disassembly such as detaching the cover.
4. Since the main parts are installed on the cover and it is possible to disassemble the cover with the body installed on the piping, and inspection and parts replacement can be conducted easily.

TSF-10,11

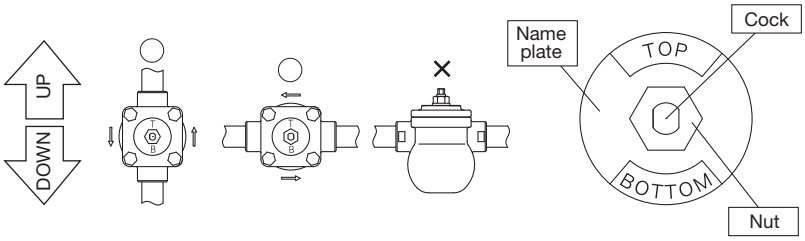


TSF-10F,11F

■Specifications

Model		TSF-10	TSF-10F	TSF-11	TSF-11F
Nominal size		15A-25A		25A-50A	
Application		Steam condensate			
Working pressure		TSF-1□□-5: 0.01-0.5 MPa TSF-1□□-10: 0.01-1.0 MPa TSF-1□□-21: 0.01-2.1 MPa			
Maximum temperature		220℃			
Material	Body	Ductile cast iron			
	Float	Stainless steel			
	Valve, valve seat	Stainless steel			
Connection		JIS Rc screwed NPT screwed	JIS 10K FF flanged JIS 20K FF flanged	JIS Rc screwed NPT screwed	JIS 10K FF flanged JIS 20K FF flanged

■Caution for Installation



Adjust direction of the name plate in no pressure condition after installation.
Fix the cock with spanner and loosen the nut. Turn the cock and adjust direction of the name plate to position “TOP” and “BOTTOM” signs on upside and downside respectively. Fix the cock with spanner and fasten the nut after adjustment.
* In case of Bottom to Top, Please apply that shorten the vertical piping before the trap to open and discharge easily of trap in the condition of using upward flow direction.

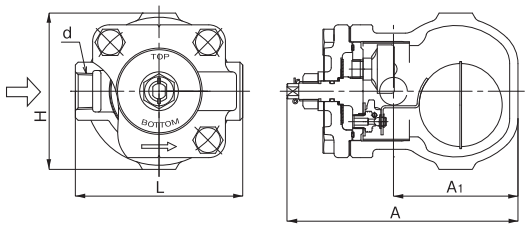
■Dimensions (mm) and Weights (kg)

· TSF-10

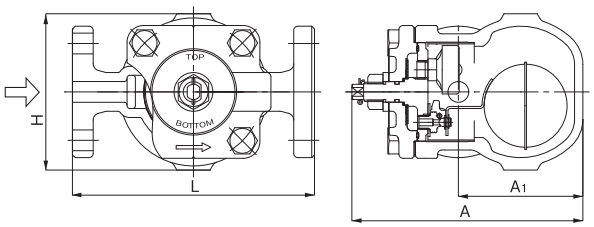
Nominal size	d	L	A	A_1	H	Weight
15A	Rc 1/2	121	167	90	113	3.6
20A	Rc 3/4	121	167	90	113	3.6
25A	Rc 1	145	167	90	113	4.0

· TSF-10F

Nominal size	d	L	A	A_1	H	Weight
15A	15	175	167	90	113	5.0
20A	20	195	167	90	113	5.8
25A	25	215	167	90	113	7.1



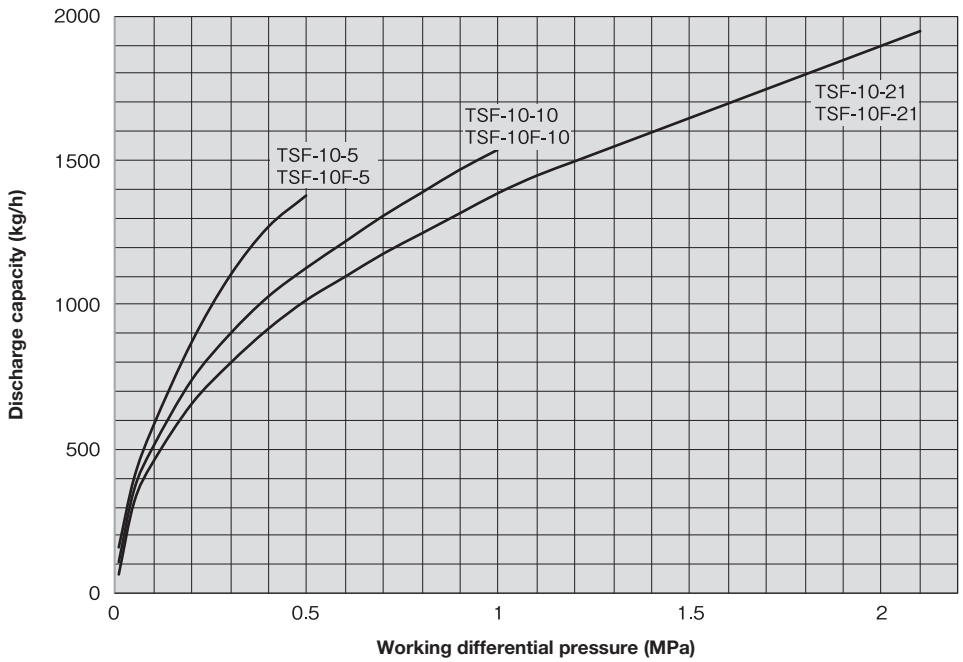
TSF-10



TSF-10F

■Maximum Continuous Discharge Capacity Chart

· TSF10, 10F



The discharge capacity shown in the charts on the above is the maximum value. In designing a system, select a steam trap with a sufficient safety factor (more than two times the regular level).

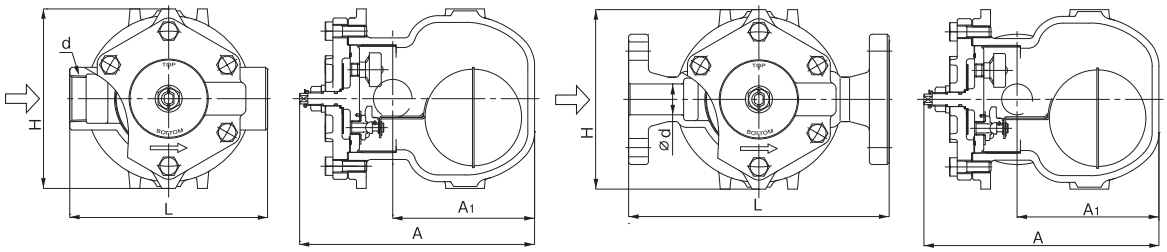
■Dimensions (mm) and Weights (kg)

· TSF-11

Nominal size	d	L	A	A_1	H	Weight
25A	Rc 1	190	244	147	186	9.9
32A	Rc 1-1/4	190	244	147	186	10.0
40A	Rc 1-1/2	205	244	147	186	10.2
50A	Rc 2	220	244	147	186	10.5

· TSF-11F

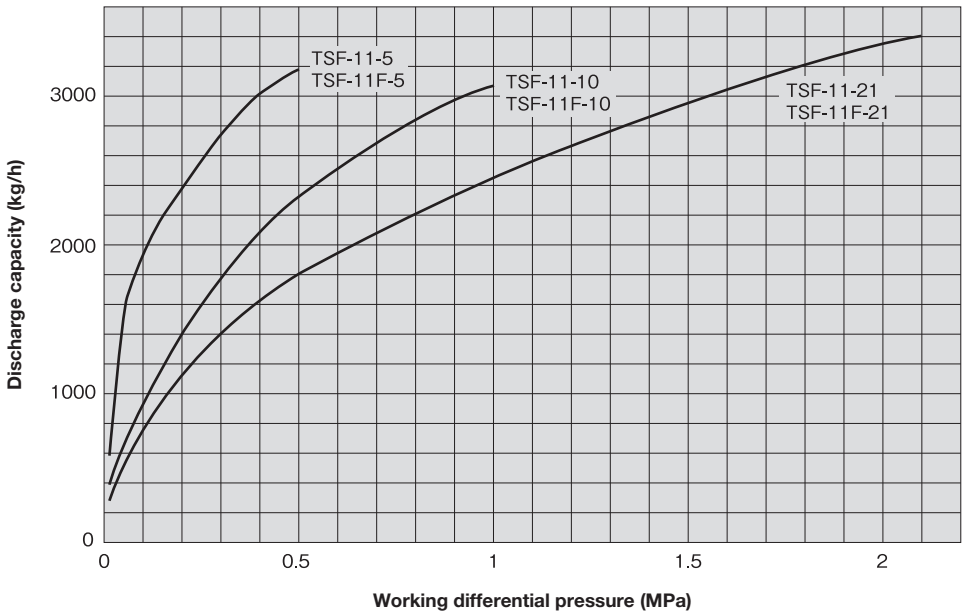
Nominal size	d	L	A	A_1	H	Weight
25A	25	270	244	147	186	13.4
32A	32	270	244	147	186	14.1
40A	40	280	244	147	186	14.4
50A	50	290	244	147	186	15.5



TSF-11 **TSF-11F**

■Maximum Continuous Discharge Capacity Chart

· TSF11, 11F



The discharge capacity shown in the charts on the above is the maximum value. In designing a system, select a steam trap with a sufficient safety factor (more than two times the regular level).

TSF-12

ULTRA STEAM TRAP TRAP STAR™

Bucket	Float	Disc	Bellows
Bimetal	Wafer	By-pass	Stainless steel
Connector	Right to Left	Down to Up	Up to Down

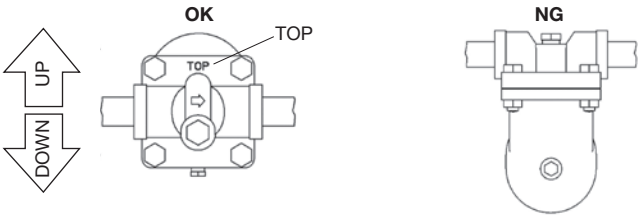
■Features

1. Reliable performance and large discharge capacity ensured by lever float system.
2. All main parts such as valves, seats, air vents and floats are made of stainless steel that offer excellent corrosion resistance and durability.
3. By adopting the high-pressure air vent, to exhaust the air in the steam piping system quickly, significantly shorten the equipment start-up time.

■Specifications

Model		TSF-12	
Nominal size		40A , 50A	
Application		Steam condensate	
Working pressure (Max. working differential pressure)		TSF-12-1: 0.01-0.1 MPa (0.1 MPa) TSF-12-2: 0.01-0.2 MPa (0.2 MPa) TSF-12-5: 0.01-0.5 MPa (0.5 MPa)	TSF-12-9: 0.01-0.9 MPa (0.9 MPa) TSF-12-12: 0.01-1.2 MPa (1.2 MPa) TSF-12-17: 0.01-1.7 MPa (1.7 MPa)
Maximum temperature		230℃	
Material	Body	Ductile cast iron	
	Float	Stainless steel	
	Valve, Valve seat	Stainless steel	
Connection		JIS Rc screwed NPT screwed	

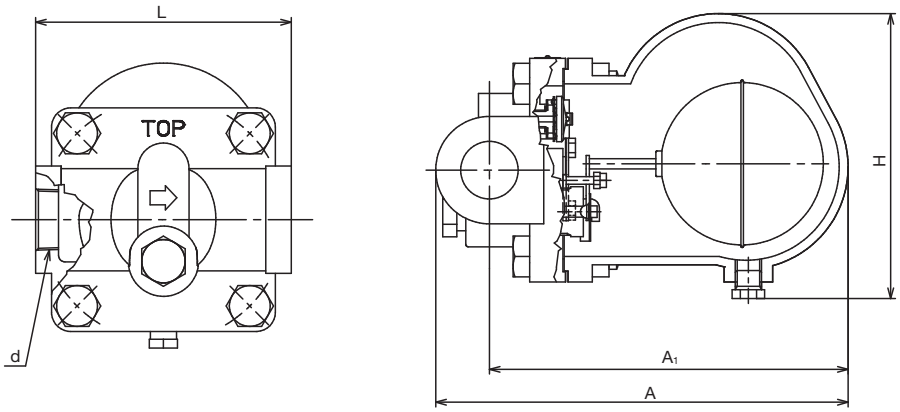
■Caution for Installation



To install the product, confirm if the direction of fluid flow matches with inlet and outlet sides of the product and install the product correctly.
* Setting the product in wrong directions prevents it from functioning properly.
Check installation posture. Do not tilt the product during use.
* Wrong posture hampers proper operation.

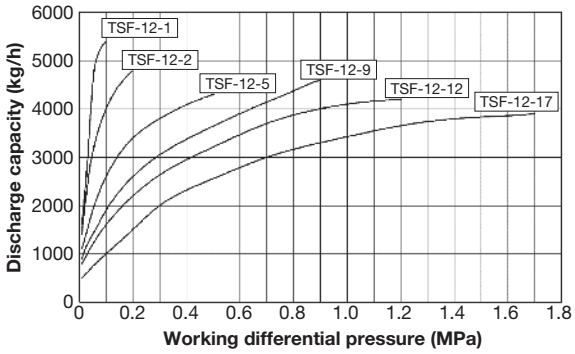
■Dimensions (mm) and Weights (kg)

Nominal size	d	L	A	A_1	H	Weight
40A	Rc 1-1/2	200	308	266	228	21.7
50A	Rc 2	200	361	319	285	24.6

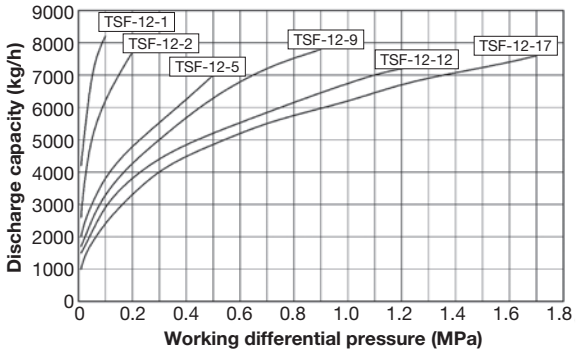


■Maximum Continuous Discharge Capacity Chart

· Nominal size: 40A



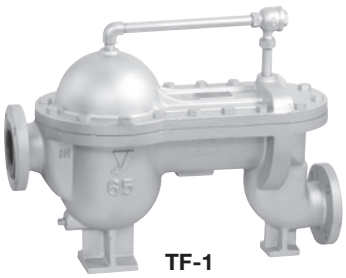
· Nominal size: 50A



The discharge capacity shown in the charts on the above is the maximum value. In designing a system, select a steam trap with a sufficient safety factor (more than two times the regular level).

TF-1,2

Bucket	Float	Disc	Bellows
Bimetal	Wafer	By-pass	Stainless steel
Connector	Right to Left	Down to Up	Up to Down



TF-1

TF-2

■Features

1. The stainless steel valve disc and valve seat offer excellent durability (TF-2).
2. Built-in air vent prevents air-binding problem, offering higher durability.
3. Reliable performance and large discharge capacity ensured by lever float system.

■Specifications

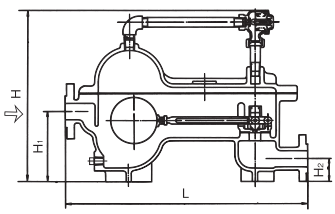
Model		TF-1	TF-2
Application		Steam condensate	
Working pressure		0.01-0.3 MPa	0.01-0.7 MPa
Max. temperature		150℃	170℃
Material	Body	Ductile cast iron	
	Valve, valve seat	Cast bronze	Stainless steel
	Float	Brass	Stainless steel
Connection		JIS 10K RF flanged	JIS Rc screwed

■Dimensions (mm) and Weights (kg)

· TF-1

Nominal size	L	H	H_1	H_2	Weight
65A	680	530	260	100	84
80A	680	530	260	100	84

· H_1 and H are reference values.

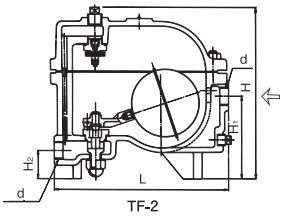


TF-1

· TF-2

Nominal size	d	L	H	H_1	H_2	Weight
15A	Rc 1/2	257	252	122	42	13.3
20A	Rc 3/4	257	252	122	42	13.3
25A	Rc 1	290	266	122	42	15.5
32A	Rc 1-1/4	290	266	122	42	15.5
40A	Rc 1-1/2	335	310	159	45	19.2
50A	Rc 2	335	310	159	45	19.2

· H_1, H_2, and H are reference values.



TF-2

■Maximum Continuous Discharge Capacity

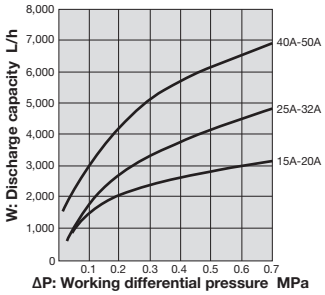
· TF-1

(L/h)

Nominal size	Working differential pressure MPa					
	0.05	0.10	0.15	0.20	0.25	0.30
65A	6,500	8,700	10,000	11,000	13,000	13,000
80A	6,500	8,700	10,000	11,000	13,000	13,000

· The discharge capacities shown in the table and chart are the maximum values. In designing a system, select a steam trap with a sufficient safety factor (three times to five times the regular level).

· TF-2



· In general, select a steam trap with a safety factor twice or threefold the regular level.