

Steam Trap Selection Guide



Yarway™ Steam Traps



Selection Guide

APPLICATION		TECHNOLOGY							
		FLOAT AND THERMOSTATIC	THERMODYNAMIC LEVER	THERMODYNAMIC DISC	THERMODYNAMIC PISTON	THERMOSTATIC BELLOWS	THERMOSTATIC BIMETALLIC	INVERTED BUCKET	
DISTRIBUTION	Steam Header			Green		Light Green	Light Green		
	Steam Mains, Pressure Reduction Station, End of Steam Line			Green		Light Green	Light Green		
	Separator	Green		Light Green					
TRACING	Critical			Green		Light Green	Light Green		
	Non-critical			Light Green		Green	Green		
PROCESS HEATING	Liquid Indirectly	Freezing Possible: Heat Exchangers, Reboilers, Reheaters, Storage Tanks, Tank Cars	Light Green	Green			Light Green		
		Freezing Not Possible: Heat Exchangers, Reboilers, Reheaters, Storage Tanks, Tank Cars	Green			Light Green			Light Green
		Indoor Batch Equipment: Jacketed Kettles, Tanks, Vats, Evaporators, Mixers, Water Heaters	Green	Light Green			Light Green		
		Syphon Application: Tilting Kettles, Tanks with Submerged Coils	with SLR	Green		Green			
	Air/Gas Indirectly	Dryers, Unit Heaters	Green	Light Green	Light Green				Light Green
	Solid Indirectly	Platten Press, Vulcanizer Press	Light Green		Green				
		Syphon drainage, Rotating Dryers	with SLR	Green		Green			
	Solid Directly	Autoclave, Retort	Green	Light Green			Light Green		
		Sterilizers	Green	Light Green			Light Green	Light Green	
	OTHER	Turbines, Propulsion		Green	Light Green	Green		Light Green	
Atomization, Direct Injection			Light Green	Green	Light Green				

Sizing Parameters of a Steam Trap

In order to select the correct steam trap to suit your application, it needs to be properly sized and the following conditions must be known:

- Operating inlet pressure
- Operating outlet pressure or back pressure
- Differential pressure (i.e. the difference between the inlet pressure and the outlet pressure)
- Flow capacity of condensate to be removed (if this data is not known, refer below)

Once these parameters are determined, selection of the required trap can be made from our product bulletins.

Estimation of Flow Rates for Various Applications

(Rule-of-thumb estimates as follows)

1. Instrument Steam Tracing

Flow does not normally exceed 60 lb/hr

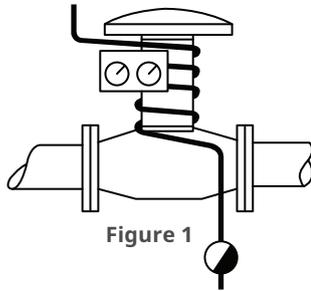


Figure 1

2. Line Steam Tracing

Flow does not normally exceed 100 lb/hr

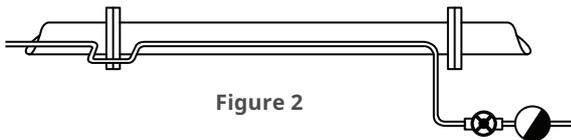


Figure 2

3. Main Steam Supply Line

Condensate flow for a properly insulated line is shown below.

Insulated Steam Mains Condensate Load per 100 ft. sch. 40 Pipe									
Steam Pressure PSIG	Steam Main Size (in.)								
	2	4	6	8	10	12	16	20	24
10	4	8	12	15	19	22	28	35	42
50	6	11	17	22	27	32	41	51	61
75	7	13	20	26	32	38	47	59	71
100	8	15	22	29	36	43	54	67	80
150	10	18	27	35	44	52	67	81	97
200	11	21	31	41	51	61	71	95	114
300	14	26	39	50	63	74	93	117	140
450	17	32	48	62	77	92	115	144	173
600	20	39	57	74	92	109	137	172	206

Table based on 70°F ambient temperature; 85% insulation efficiency. For 0°F ambient - multiply by 1.5

4. Steam Trapping for Turbines

As steam is always superheated, there should theoretically, not be any condensate formation. Here, flow rate is not a determining factor for steam trap selection. Only the operating pressure and the degree of superheat are relevant. In this case, the steam trap is only used as a safety device, on startup or shutdown.

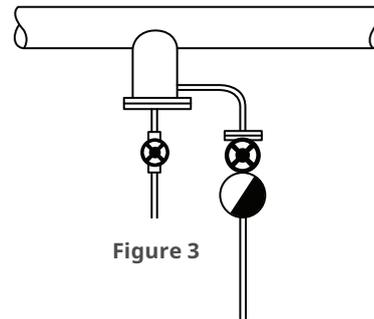


Figure 3

5. Steam Trapping for Process Equipment

If the flow rate is unknown, condensate flow rate can be simply estimated by means of the calorific power of the heating apparatus expressed in BTU/hr and by using the following formula:

$$\text{Condensate Flow Rate lb/hr} = \frac{\text{BTU Rating (in millions)}}{100}$$

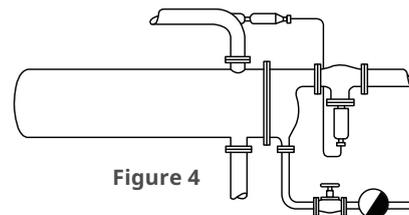


Figure 4

Product Table

	SERIES	ICON	PRESSURE RANGE	MAXIMUM CAPACITY (LB/HR)	SIZE (NPS)	CONNECTION	REPAIRABLE	MATERIAL	FLOW DIRECTION
FLOAT AND THERMOSTATIC	FIT100		1 to 465 psig	2,750	1/2, 3/4, 1	T, F	Repairable	Ductile Iron, Carbon Steel, SST	Horizontal
	FIT200		1 to 465 psig	50,500	1, 1-1/2, 2	T, SW, F	Repairable	Ductile Iron, Carbon Steel, SST	Horizontal
	FXT		1 to 600 psig	25,400	1/2, 3/4, 1, 1-1/2, 2	T, SW, F	Repairable	Cast Iron, Carbon Steel	Horizontal
	UF800		1 to 464 psig	1,389	1/2, 3/4, 1	T, SW, UC	Repairable	SST	Multi
THERMODYNAMIC LEVER	40D		10 to 600 psig	10,000	1/2, 3/4, 1	T, SW, F	Repairable	F11 Chrome Moly Steel	Horizontal
	40		20 to 600 psig	80,000	1-1/2, 2, 3	T, SW, F	Repairable	F11 Chrome Moly Steel	Horizontal
THERMODYNAMIC DISC	721		4 to 650 psig	2,400	3/8, 1/2, 3/4, 1	T, SW, F, UC	Repairable	F11 Chrome Moly Steel	Multi
	29		4 to 300 psig	10,000	1/4, 3/8, 1/2, 3/4, 1	T	Non-repairable	SST	Multi
	129Y		4 to 400 psig	3,000	3/8, 1/2, 3/4, 1	T	Non-repairable	SST	Multi
	460D3 / 515D3		150 to 900 psig	500	1/2, 3/4, 1	SW	Repairable	F11 Chrome Moly Steel	Multi
THERMODYNAMIC PISTON	741		20 to 600 psig	4,100	1/2, 3/4, 1	T, SW, F	Repairable	F11 Chrome Moly Steel	Multi
	460 / 515		40 to 1500 psig	5,000	1/2, 3/4, 1	SW	Repairable	F11 Chrome Moly Steel	Multi
	C-250		50 to 600 psig	13,000	1, 1-1/2	SW	Repairable	F11 Chrome Moly Steel	Horizontal
	C-260		50 to 1500 psig	12,000	1, 1-1/2, 2	SW	Repairable	F11 Chrome Moly Steel	Horizontal
	C-500		300 to 2500 psig	5,000	1/2, 3/4, 1	SW	Repairable	F11 Chrome Moly Steel	Horizontal
	546		300 to 4500 psig	7,500	1	SW	Repairable	F11 Chrome Moly Steel	Horizontal
THERMOSTATIC BELLOWS	151		1 to 300 psig	13,000	3/4, 1	T, SW, F	Repairable	F11 Chrome Moly Steel	Multi
	761		1 to 600 psig	900	3/8, 1/2, 3/4, 1	T, SW, UC	Repairable	F11 Chrome Moly Steel	Multi
	PB		1 to 600 psig	1,000	1/2, 3/4	T	Non-repairable	SST	Vertical
	CT100		1 to 100 psig	3,500	1/2, 3/4, 1	T, SW	Non-repairable	SST	Vertical
	CT150		1 to 150 psig	3,400	1/2, 3/4, 1	Sanitary	Non-repairable	SST	Vertical
	ST600		1 to 100 psig	3,500	1/2, 3/4, 1, 1-1/2	Sanitary	Non-repairable	SST	Vertical

Product Table (cont.)

THERMOSTATIC BIMETALLIC	B302 / B303		1 to 464 psig	2,500	1/2, 3/4, 1, 1-1/2, 2	T, SW, F	Repairable	F11 Chrome Moly Steel	Multi
	UB300		1 to 247 psig	4,000	1/2, 3/4, 1	T, SW, UC	Repairable	SST	Multi
	B318 / B320		1 to 1595 psig	2,100	1/2, 3/4, 1	T, SW, F	Repairable	F11 Chrome Moly Steel	Multi
INVERTED BUCKET	INB100		1 to 465 psig	20,200	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2	T, SW	Repairable	Cast Iron, Carbon Steel	Horizontal
	INB200		1 to 650 psig	2,400	1/2, 3/4, 1	T, SW, UC	Non-repairable	SST	Multi

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