



TECH TIP #34

STEAM TRAP SELECTION GUIDE

The chart below lists various steam trapping applications and enables the correct choice of trap to be made.

A = First Choice

B = Alternate Choice

Application	Spirax Sarco FT Range (Float/ Thermostatic)	Spirax Sarco FT/TV/SLR (Float/Thermo- static with Steam Lock Release)	Spirax Sarco FT/SLR (Float/Steam Lock Release)	Spirax Sarco TD Range (Thermo- dynamic)	Spirax Sarco BPT (Balanced Pressure Thermostatic)	Spirax Sarco SM (Bimetallic)	Spirax Sarco Thermoton (Liquid Expansion)	Spirax Sarco IB Range (Inverted Bucket)
CANTEEN EQUIPMENT								
Boiling Pans – Fixed	A	B	B ¹	B ¹	B			
Boiling Pans – Tilting		A	B		B			
Boiling Pans – Pedestal	B	B	B ¹		A ²			
Steaming Ovens					A ²			
Hot Plates	B	B	B ¹		A ²			
FUEL OIL HEATING								
Bulk Oil Storage Tanks				A				B ¹
Line Heaters	A							B ¹
Outflow Heaters	A							B ¹
Tracer Lines & Jacketed Pipes				B	A ³	B	B	
HOSPITAL EQUIPMENT								
Autoclaves and Sterilizers	B	B	B ¹		A			B
INDUSTRIAL DRYERS								
Drying Coils (continuous)	A				B	B		B
Drying Coils (grid)					B	A		B ¹
Drying Cylinders	B	A	B ¹					B ¹
Multi Bank Pipe Dryers	A				B			B ¹
Multi Cylinder Sizing Machines	B	A	B ¹					B ¹
LAUNDRY EQUIPMENT								
Garment Presses	B			A				B
Ironers and Calenders	B	A	B ¹	B ¹	B			B ¹
Solvent Recovery Units	A			B				B
Tumbler Dryers	A	B	B ¹					B ¹
PRESSES								
Multi Platen Presses (parallel connections)	B			A				B
Multi Platen Presses (series connections)				A ¹				B ¹
Tire Molds	B			A	B			B
PROCESS EQUIPMENT								
Boiling Pans – Fixed	A	B	B ¹	B ¹	B			
Boiling Pans – Tilting		A	B					
Brewing Coppers	A	B	B ¹					B ¹
Digesters	A			B ¹				B ¹
Evaporators	A	B	B ¹					B ¹
Hot Tables				B	A			
Retorts	A							B ¹
Bulk Storage Tanks				A ¹				B ¹
Vulcanizers	B			A				B ¹
SPACE HEATING EQUIPMENT								
Shell & Tube Heat Exchangers	A	B	B ¹					B ¹
Heating Coils & Unit Heaters	A	B	B ¹					B ¹
Radiant Panels & Strips	A	B	B ¹	B ¹				B ¹
Radiators & Convection								
Cabinet Heaters	B				A	B		
Overhead Pipe Coils	B				A			B ¹
STEAM MAINS								
Horizontal Runs	B			A	B ²			B
Separators	A			B	B ²			B
Terminal Ends	B			A ¹	B ²			B ¹
Shut Down Drain (Frost Protection)					B ³		A	
TANKS AND VATS								
Process Vats (Rising Discharge Pipe)	B			A	B			B
Process Vats (Discharge Pipe at Base)	A			B	B			B
Small Coil Heated Tanks (quick boiling)	A				B			B
Small Coil Heated Tanks (slow boiling)							A	

1. With air vent in parallel 2. At end cooling leg Minimum length 3 ft (1m) 3. Use special tracing traps which offer fixed temperature discharge option.



TECH TIP #34 (Cont.)

A QUICK GUIDE TO THE SIZING OF STEAM TRAPS

Need To Know:

1. The steam pressure at the trap—after any pressure drop through control valves or equipment.
2. THE LIFT, if any, after the trap.
Rule of thumb: 2 ft. = 1 psi back pressure, approximately.
3. Any other possible sources of BACK PRESSURE in the condensate return system.
e.g. A) Condensate taken to a pressurized DA. tank.
B) Local back pressure due to discharges of numerous traps close together into small sized return.
4. QUANTITY of condensate to be handled. Obtained from
A) Measurement, B) Calculation of heat load (see page 24), and
C) Manufacturer's Data
5. SAFETY FACTOR—These factors depend upon particular applications, typical examples being as follows:

	General	With Temp. Control
Mains Drainage	x2	—
Storage Heaters	x2	—
Space Unit Heaters	x2	x3
Air Heating Coils	x2	x4
Submerged Coils (low level drain)	x2	—
Submerged Coils (siphon drain)	x3	—
Rotating Cylinders	x3	—
Tracing Lines	x2	—
Platen Presses	x2	—

Rule of thumb: Use factor of 2 on everything except Temperature Controlled Air Heater Coils and Converters, and Siphon applications.

How To Use

The difference between the steam pressure at the trap, and the total back pressure, including that due to any lift after the trap, is the DIFFERENTIAL PRESSURE. The quantity of condensate should be multiplied by the appropriate factor, to produce SIZING LOAD. The trap may now be selected using the DIFFERENTIAL PRESSURE and the SIZING LOAD.

Example

A trap is required to drain 22 lb/hr of condensate from a 4" insulated steam main, which is supplying steam at 100 PSIG. There will be a lift after the trap of 20 ft.

Supply Pressure	= 100 PSIG
Lift	= 20 ft = 10 PSI approx.
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Therefore	
Differential Pressure	= 100 - 10 = 90 PSI
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Quantity	= 22 lb/hr
Mains Drainage Factor	= 2
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Therefore sizing load	= 44 lb/hr
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The ½" TD42L will easily handle the 44 lb/hr sizing load at a differential pressure of 90 PSI.