

Steam Trapping

*Expertise
Service
Product*



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Your Partner For Steam System

What is a Steam Trap?

steam trap adalah peralatan otomatis yang membuang udara dan condensate, dan menahan steam

Steam trap bekerja berdasarkan perbedaan densitas, mendeteksi perbedaan temperatur danu thermodinamika yang membuat condensat terbang

Steam trap sangat penting untuk efficiency process

Steam trap berfungsi membuang condensate dan udara, dan menahan steam secara otomatis

Your Partner For Steam System

Jenis-Jenis Steam Trap

- 3 Jenis Pokok:
 - a. Mekanik : Ball Float & Inverted BUcket
 - b. Termodinamik
 - c. Termostatik : Bimetallic & Capsule



1/2" – 1" FLT17



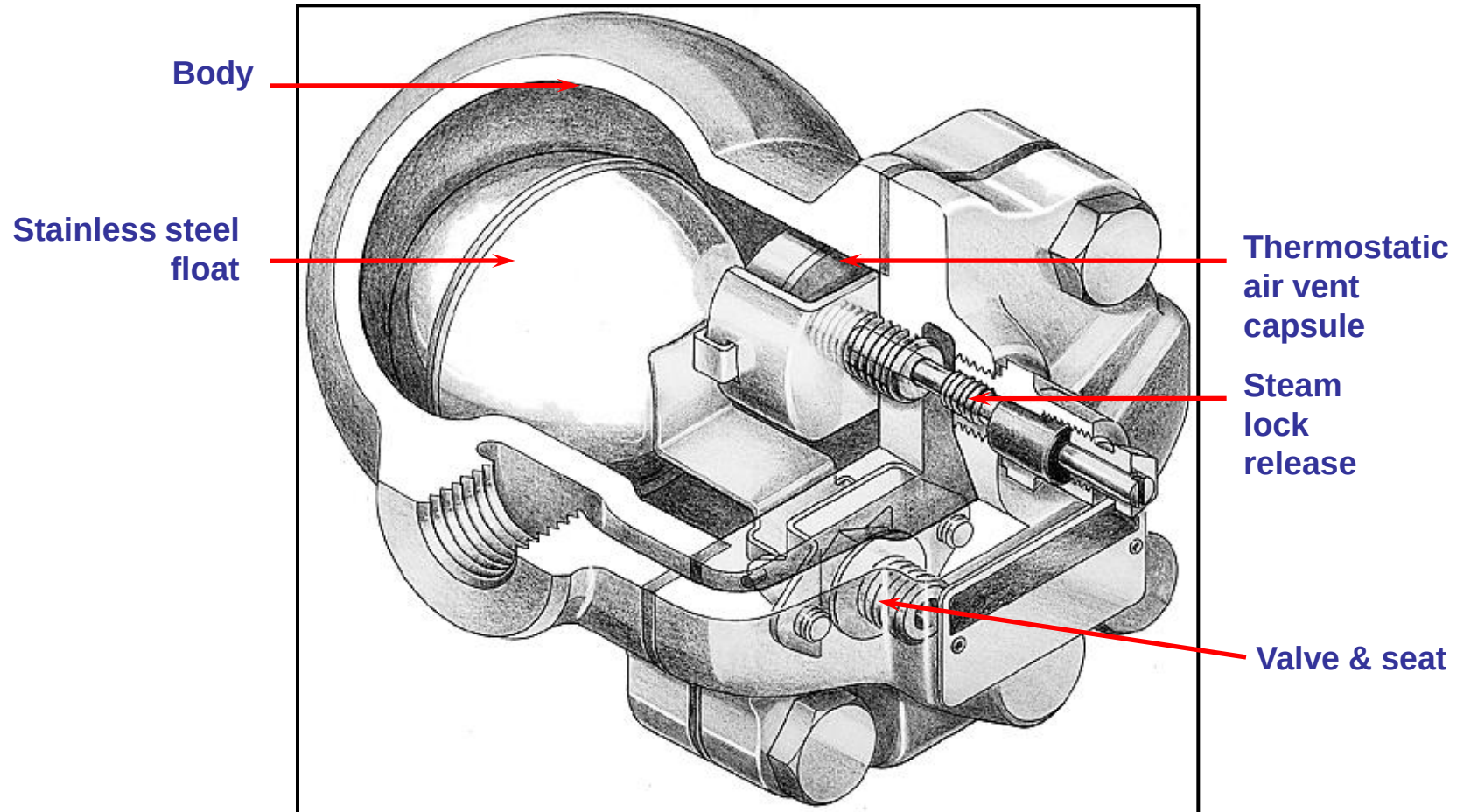
1" FLT17HC



1.1/2" & 2" FLT17

Ball Float Steam traps

Penampang Ball Float Trap

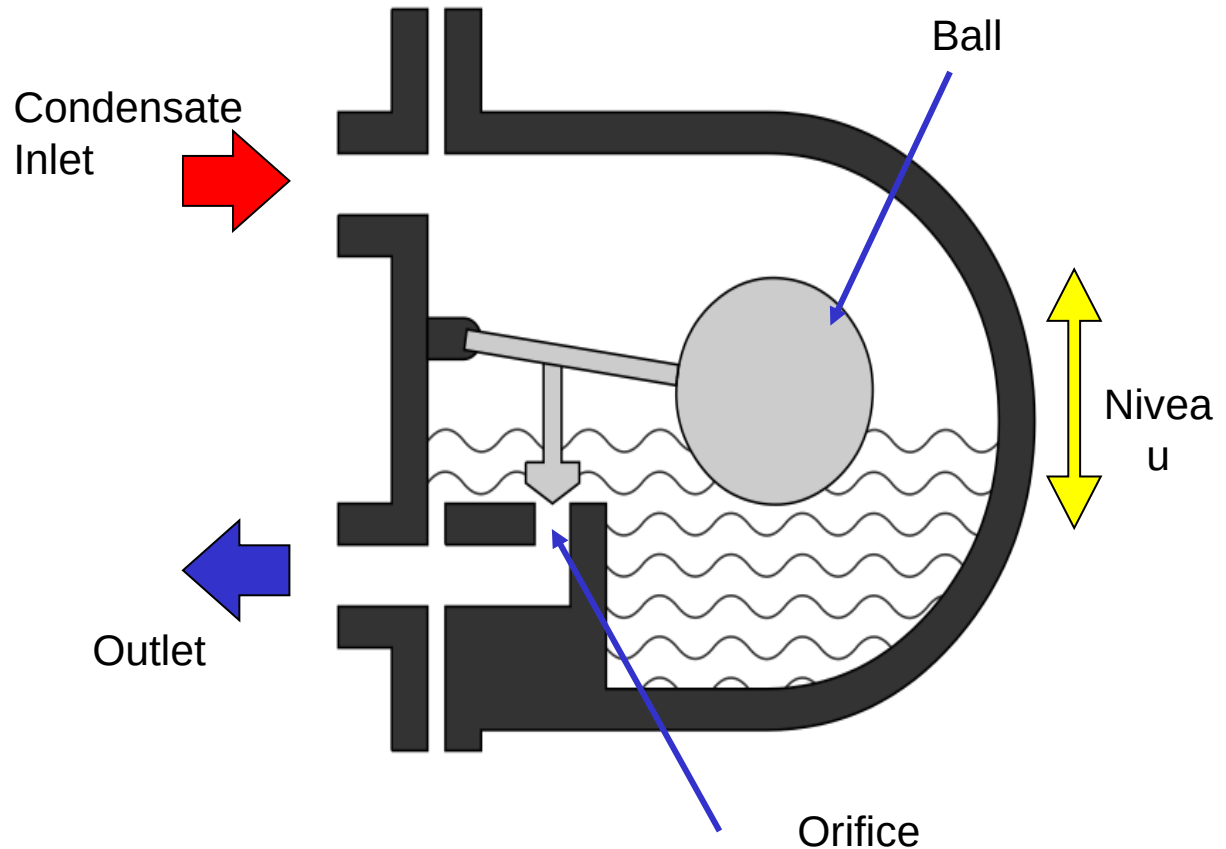


Main Steam Trap Types

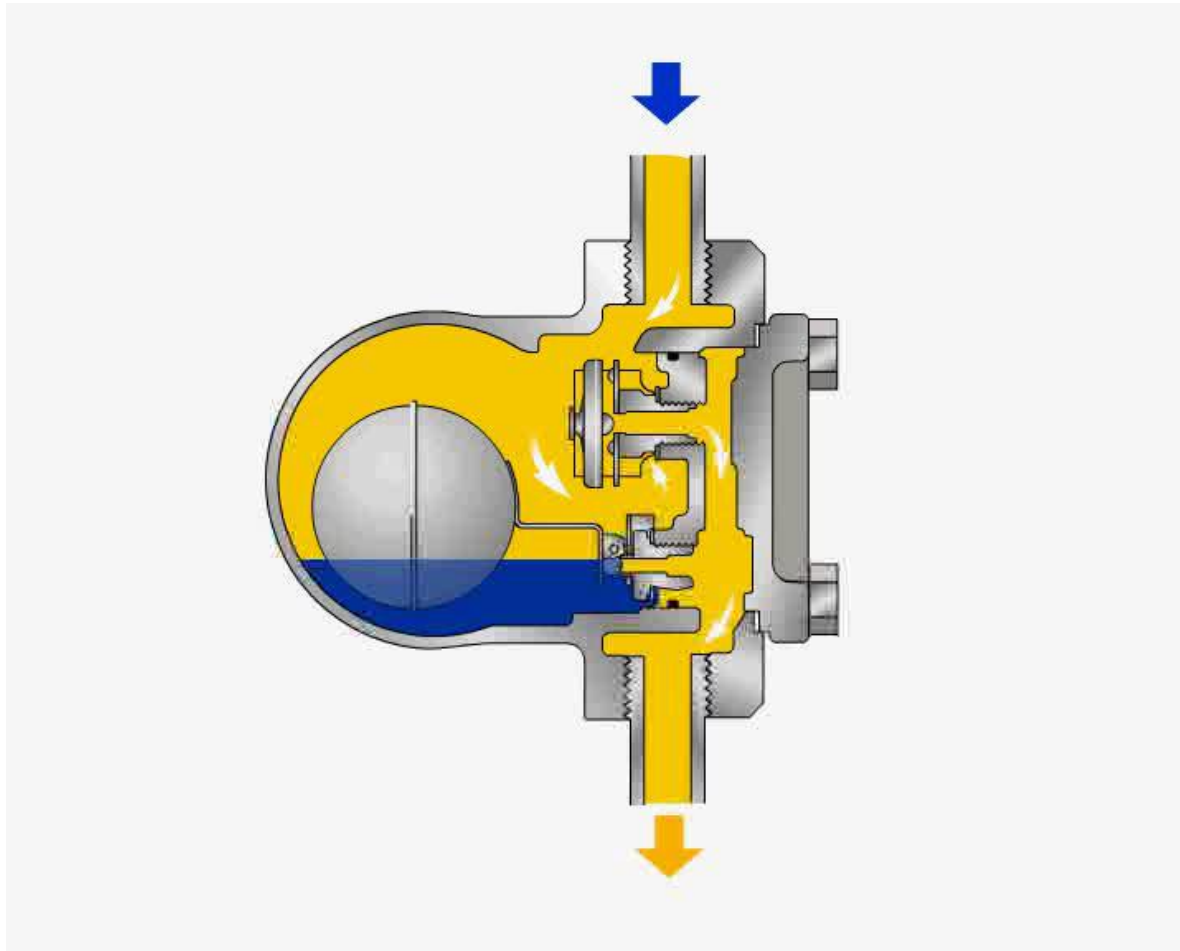
MECHANICAL

Ball Float

Float trap principle



Mekanisme Ball Float Steam Trap



Main Steam Trap Types

MECHANICAL

Ball Float

Pengeluaran kondensat cepat. Temperatur kondensat pada temperatur steam.

Respon sangat baik terhadap perubahan beban dan tekanan

Dapat membuang udara pada saat start up

Dapat dipasang horizontal ataupun vertical



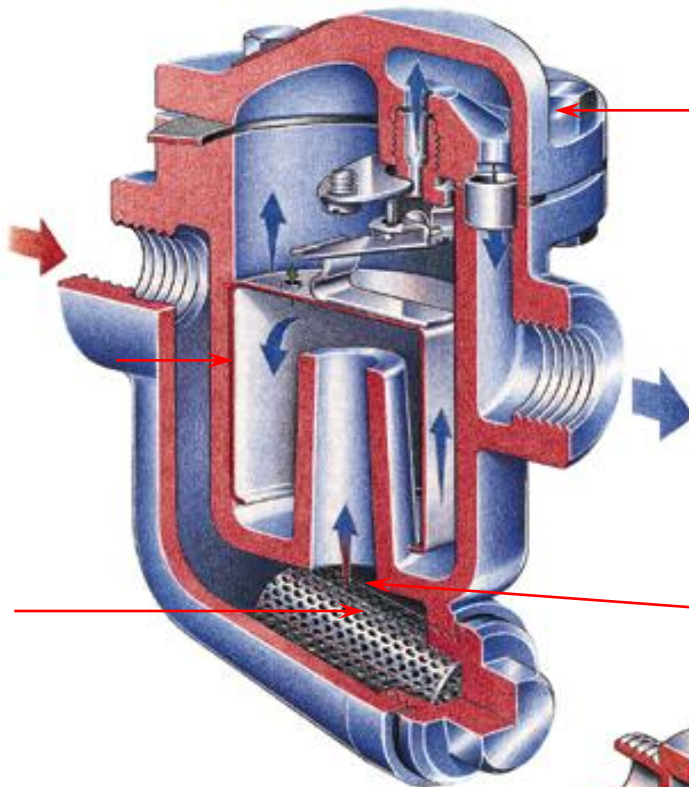
3/4" – 1" IBB12

Inverted Bucket

PENAMPANG INVERTED BUCKET

Screwed,
socket weld,
butt weld or
flanged
connections

Integral
strainer for
HM and HM34



Stainless steel
internals
attached
to cover for
simplified
maintenance

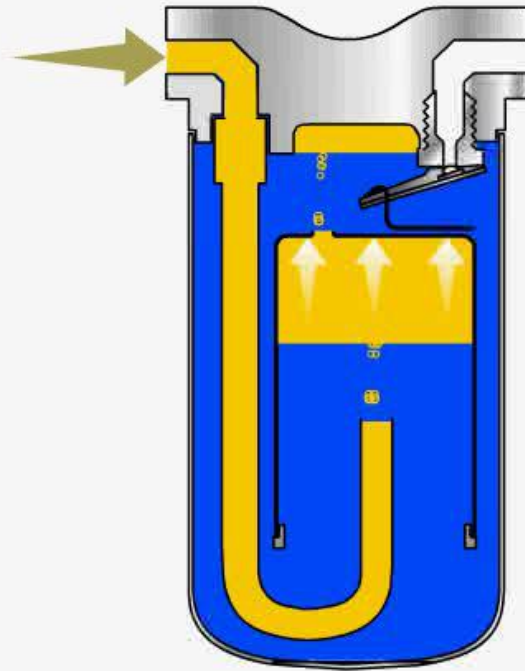
Sealed
maintenance
free models

Deep
waterseal
in body of
trap

Optional blowdown valve
for HM and HM34



Mekanisme Inverted Bucket



Main Steam Trap Types

MECHANICAL

Inverted Bucket

Pengeluaran kondensat cepat. Temperatur kondensat pada temperatur steam.

Respon sangat baik terhadap perubahan beban dan tekanan

Robust, steam trap lebih tahan lama

Steam tidak mudah bocor melalui steam trap



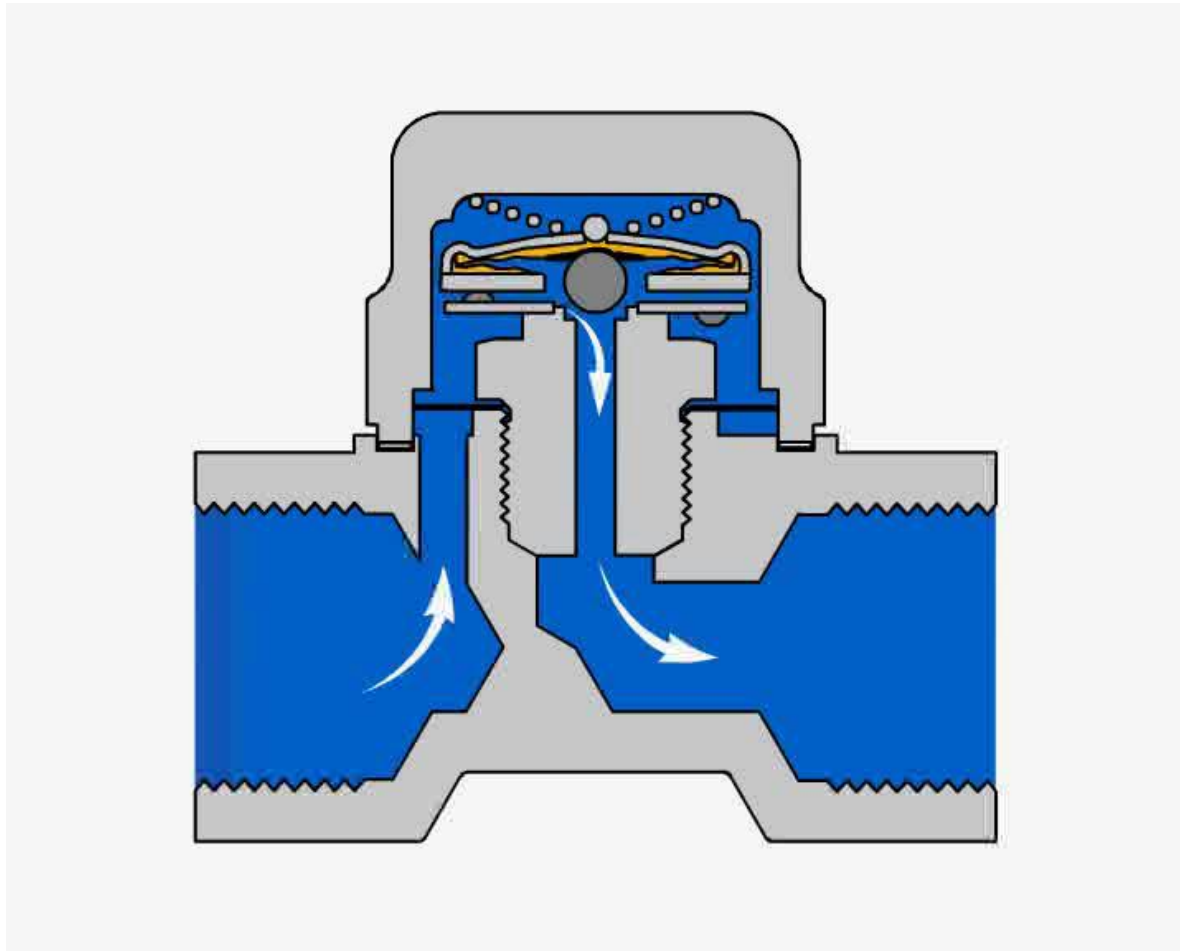
Bimetallic



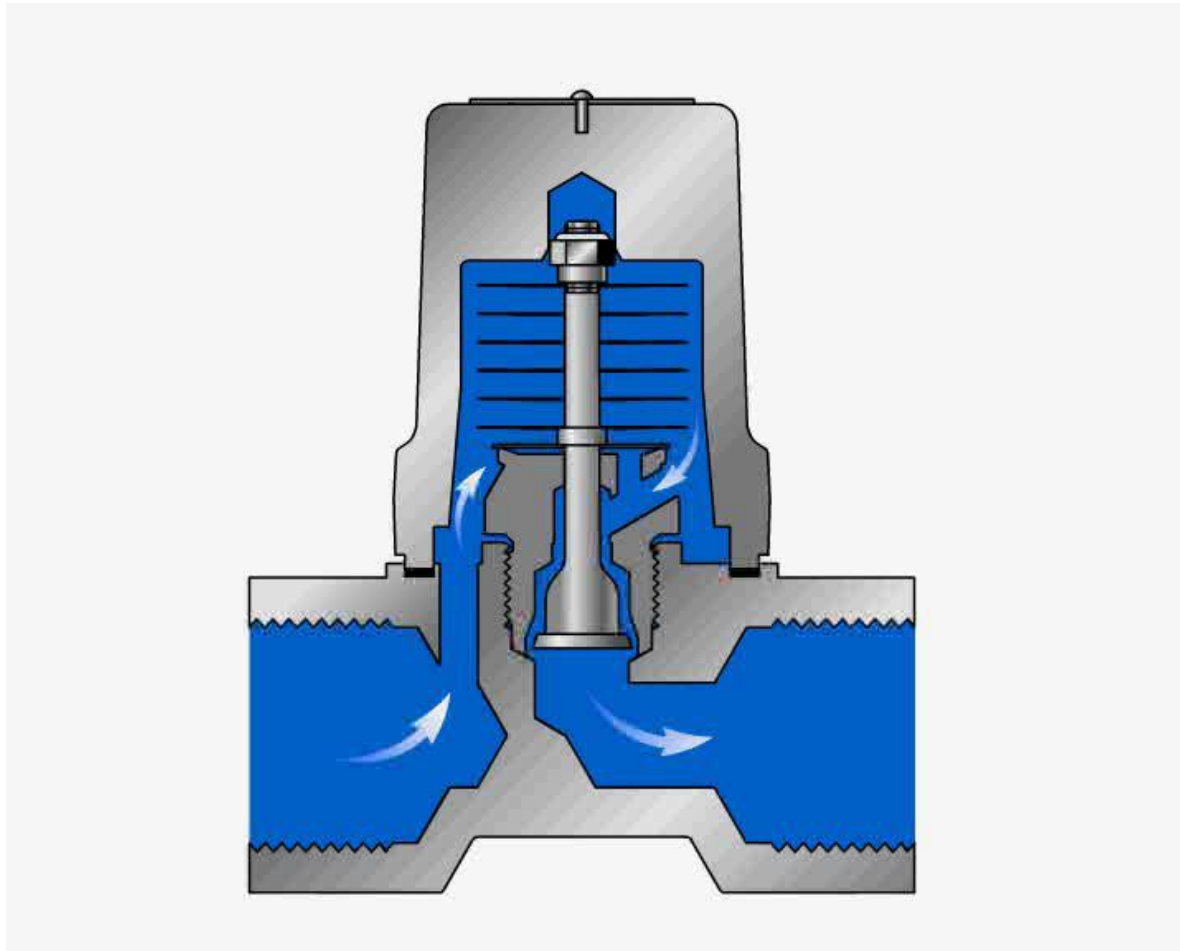
Capsule

Thermostatic Steam Trap

Mekanisme Capsule



Mekanisme Bimetallic



Thermodynamic Steam Trap

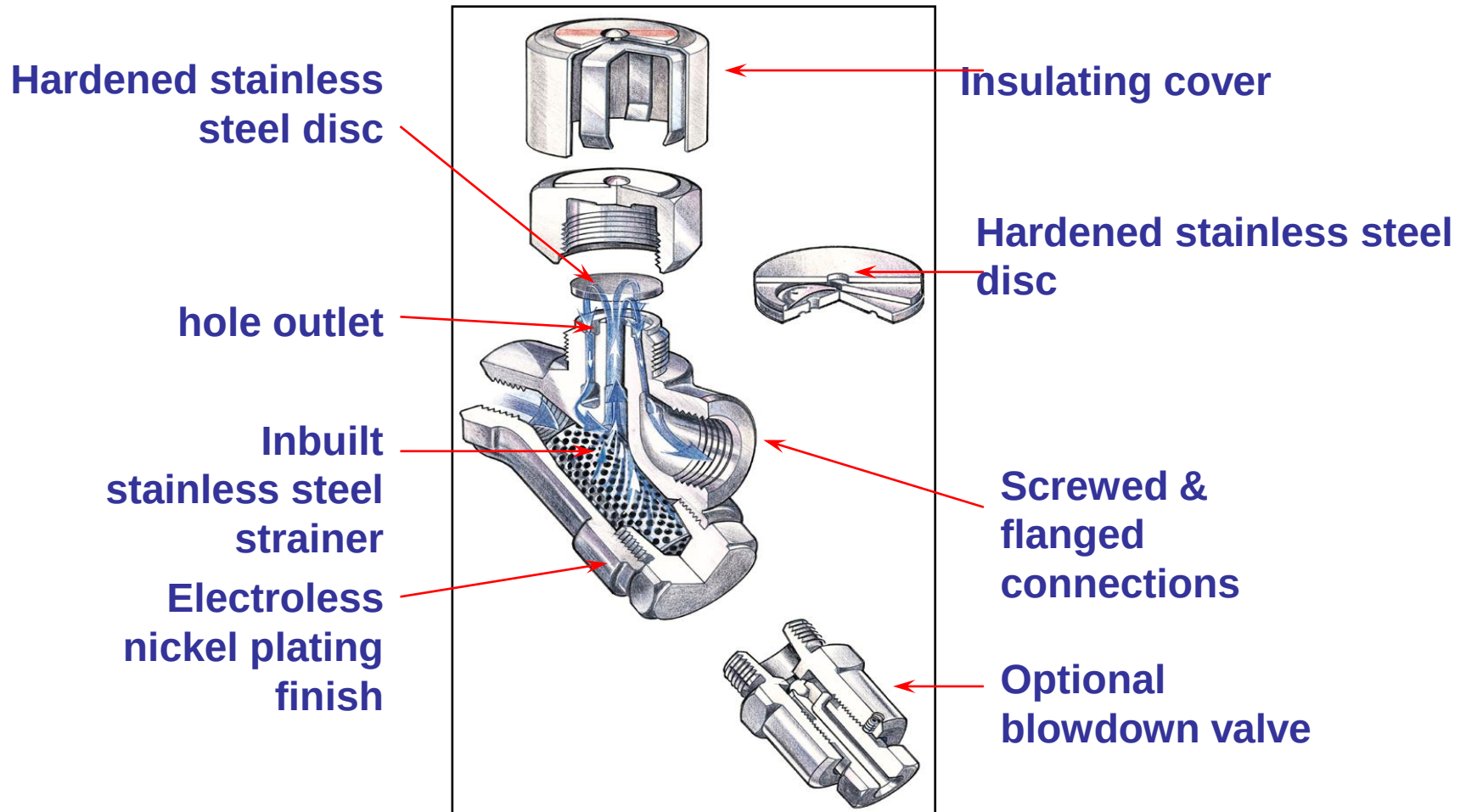


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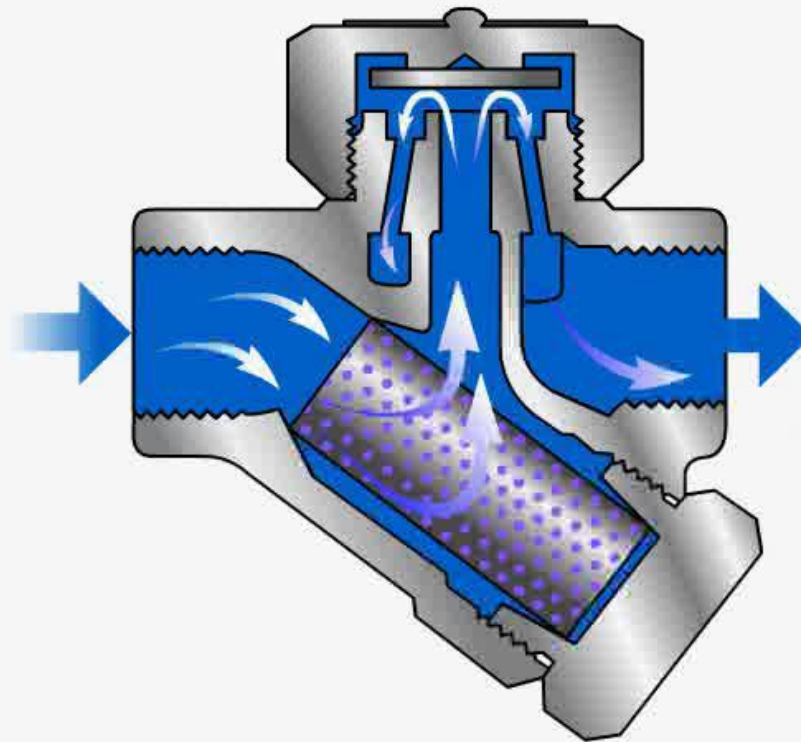


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Penampang Thermodynamic Traps



Mekanisme Thermodynamic Traps



Thermodynamic Steam Trap Feature

THERMODYNAMIC

Ekonomis

Compact design & ringan

DISC

Mudah mendeteksi kebocoran

Simple operation – hanya 1 moving part - disc



CDV32 Automatic Condensat Drain Valve

condensate drain valve

Latar Belakang:

Selama shutdown, steam yang tersisa di dalam pipa akan kondensasi dan membentuk condensat yang menggenangi di dalam pipa steam dan kemungkinan menyebabkan terjadinya vacuum dalam pipa

Permasalahan Yang Ditimbulkan:

- Waterhammer pada saat start up
- Deformation (Perubahan bentuk pipa) karena terjadi vacuum
- Meningkatkan korosi

The Solution:

A Condensate Drain Valve

condensate drain valve

Then comes the next issue...

Automatic or Manual operated?!?!?

Lets compare...

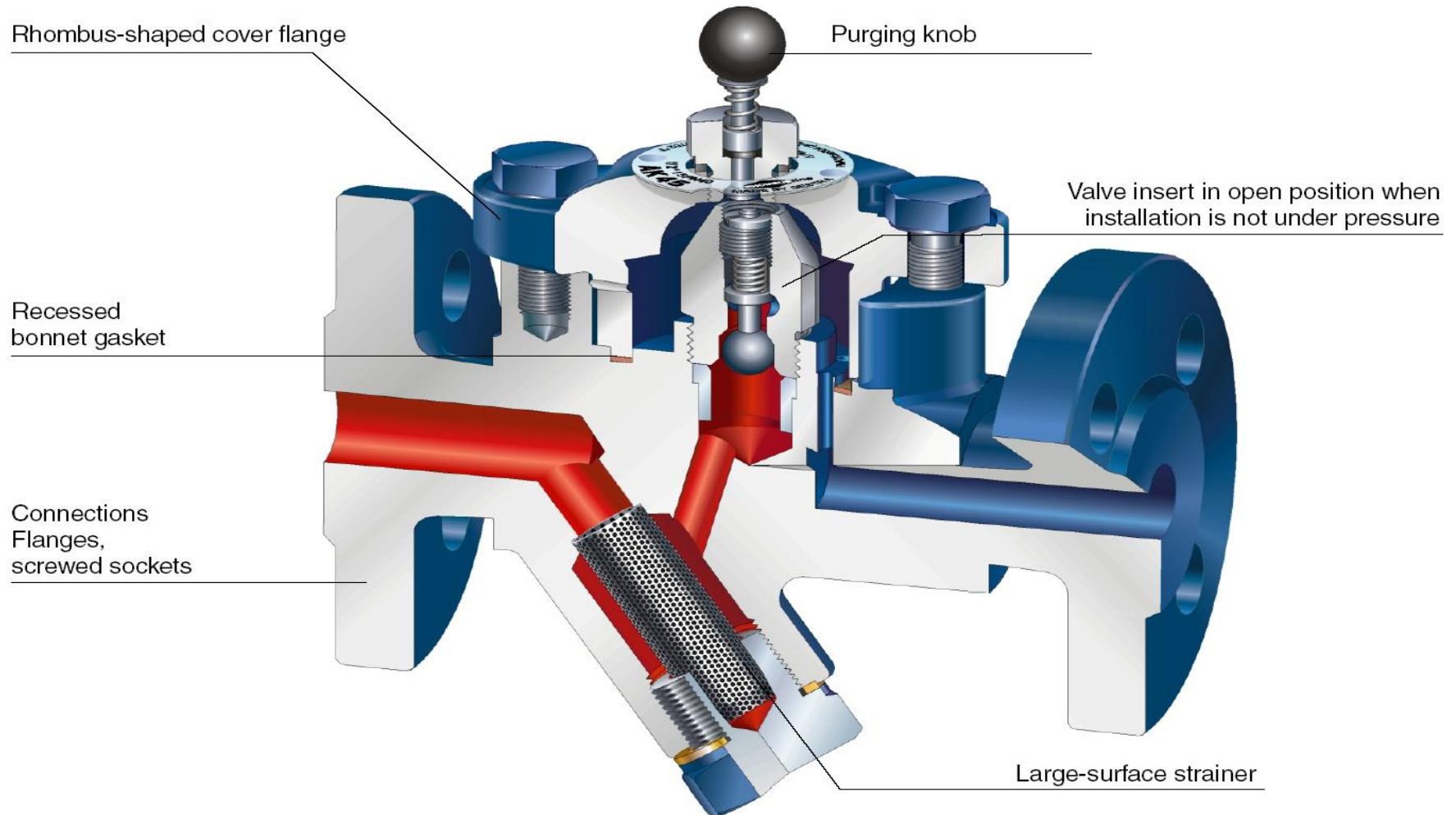
Manual

- Biaya Murah

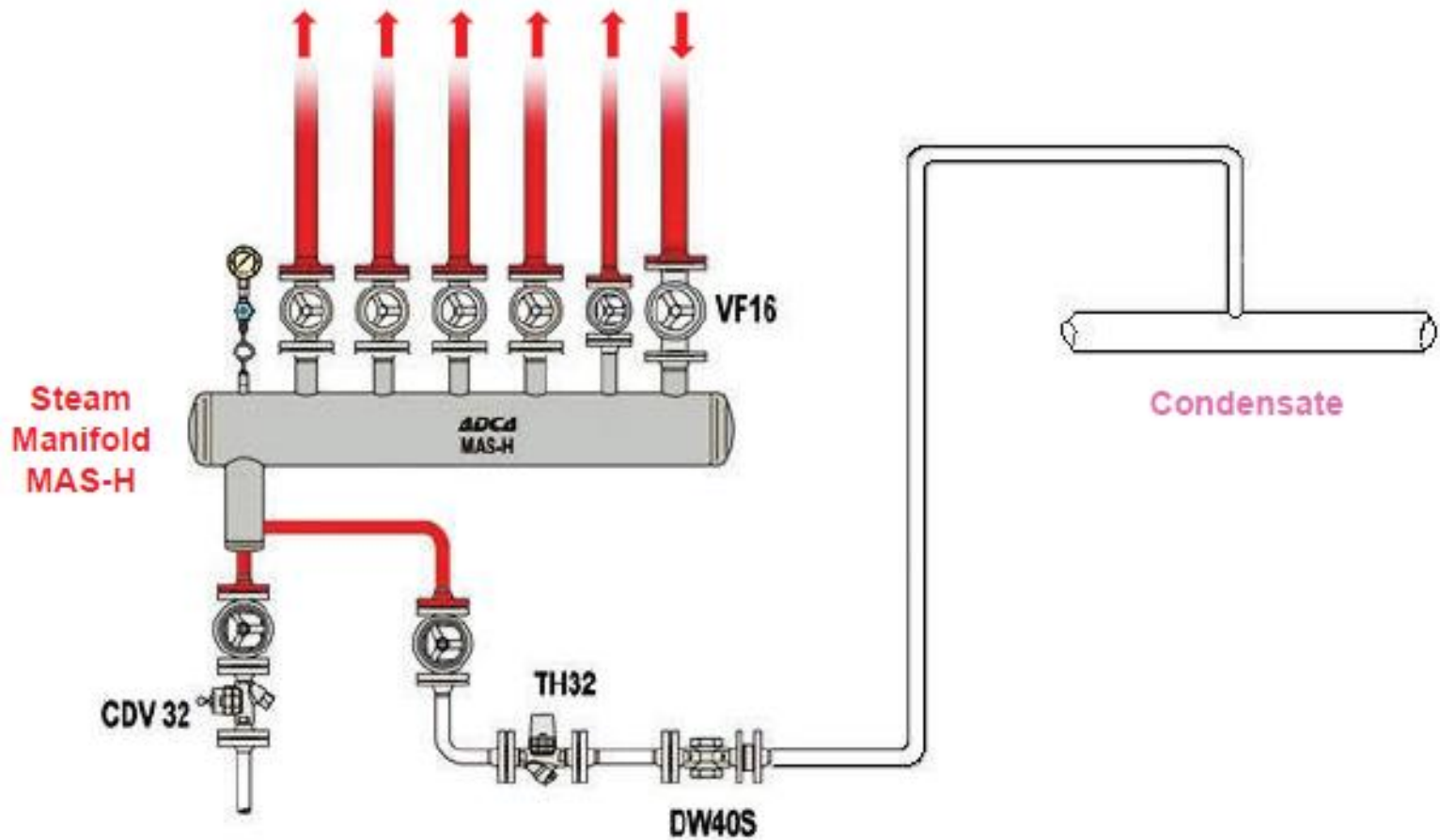
Automatic

- Relatively Low Cost
- Mengeliminasi human error pada saat Start up
- Mencegah waterhammer
- Mencegah Steam Loss akibat human error
- Dipasang di tempat yang sulit diakses
- Memiliki Manual Purging of Dirt (knob)

Automatic condensate drain valve



CDV32 Application



Pemilihan Steam Trap

A - Best choice, B - Acceptable alternative. See bottom of table for remarks.

Application	FT range (float-thermostatic)	FT-C (float-thermostatic with steam release)	TD range (Thermodynamic)	BPT (Balanced pressure thermostatic)	SM (Bimetallic)	No.8 (Liquid expansion)	IB range (Inverted bucket)	Page Numbers
Canteen equipment								
Boiling pans - tilting		B		A2, 5				51
Boiling pans - fixed	A	B	B ¹	B				52
Boiling pans - pedestal	B			A2, 5				52
Steaming ovens				A2, 5				53
Hot plates	B			A2, 5				53
Oil transfer / storage								
Bulk oil storage tanks	A						B ¹	54
Line heaters	A						B ¹	55
Outflow heaters	A						B ¹	56
Tracer lines			B	A	B ² (non-critical only)		B	57
Jacketed pipes			B ^{1, 6}	A ⁵			B ¹	58
Hospital equipment								
Autoclaves and sterilisers	B	B		A ⁵				59
Industrial dryers								
Hot air dryers	A		B ¹	B				60
Drying coils			B ¹	A			B ¹	61
Multi-bank pipe dryers	A		B ¹	B			B ¹	62
Drying cylinders	B	A					B ¹	63, 64 and 66
Multi-cylinder sizing machines	B	A					B ¹	65
Laundry equipment								
Garment presses	B	B	A ⁶					67
Ironers and calenders	B	A	B ¹	B ⁵				68
Tumbler dryers	A	B						69
Dry cleaning machines	A		B ¹					69
Presses								
Multi-platen presses (parallel connections)	B		A ⁶					70
Multi-platen presses (series connections)			A ^{1, 6}					71
Tyre presses	B		B ¹	A			B ¹	72

Pemilihan Steam Trap

Process equipment								
Boiling pans - fixed	A	B	B ¹	B				73
Boiling pans - tilting	B	A						74
Retorts	A							75
Industrial autoclaves	A						B ¹	76
Digesters	A ¹		B ¹					77
Hot tables	B		B ⁶	A ²				78
Brewing coppers	A ¹	B						79
Evaporators, calandrias	A ¹	B					B ¹	80
Vulcanisers	A		B ¹ (jacket only)				B ¹	81
Space heating equipment								
Calorifiers	A ⁴							82, 83 and 85
Heater batteries	A ⁴							84
Radiant panels and strips	A	B ¹	B ¹				B ¹	86
Radiators and convection cabinets	B			A	B			86 and 87
Unit heaters and air batteries	A ⁴							88 and 89
Overhead pipe coils	B			A			B ¹	90
Steam mains								
Pressure reducing valve station	A			B ⁵				46
Horizontal runs	B		A				B	91
Shutdown drain (frost protection)				B ³	B	A		91
Separators	A		B				B	92
Steam header drainage	A		B ⁶				B	93
Terminal ends	B		A ¹				B ¹	93
Tanks and vats								
Process vats (rising discharge pipe)	B	B	A	B ⁵			B	95
Process vats (discharge pipe at base)	A		B ⁶	B ⁵				96
Small coil heated tanks (quick boiling)	A			B ⁵				97
Small coil heated tanks (slow boiling)					B	A		97

1. With air vent in parallel.
2. At end of unlagged cooling leg. Minimum length 1 m.
3. Use special tracing traps which offer fixed temperature discharge option.
4. If the equipment is temperature controlled, a condensate pump and trap combination may be required.
5. With close to steam temperature capsule.
6. Fitted with anti-air-binding disc.

FLT17 - Capacity

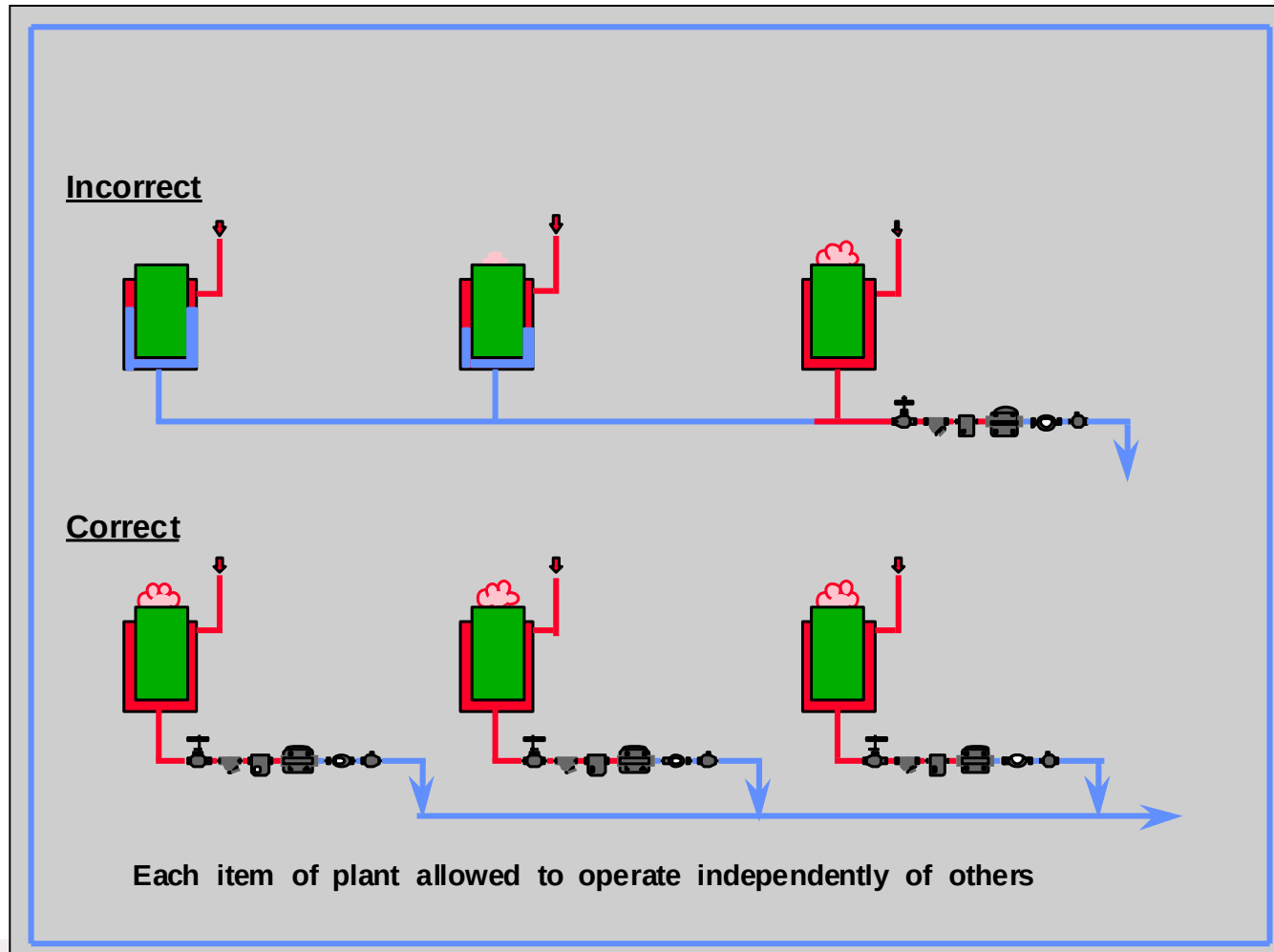
FLOW RATE CAPACITY (kg/h)

MODEL	SIZE DN	DIFFERENTIAL PRESSURE (bar)															
		0,1	0,3	0,5	0,7	1	1,5	2	3	4,5	6	7	8	9	10	12	14
FLT17-4,5	15 – 25	165	205	230	280	330	400	440	535	630	—	—	—	—	—	—	—
FLT17-10	15 – 25	110	130	150	170	200	250	280	340	400	460	495	520	550	595	—	—
FLT17-14	15 – 25	80	100	120	140	150	190	220	260	320	380	400	425	440	480	510	550

- Maximum Load 500 kg/h
- Maximum Differential Pressure 8 bar
- Select FLT17 - 10

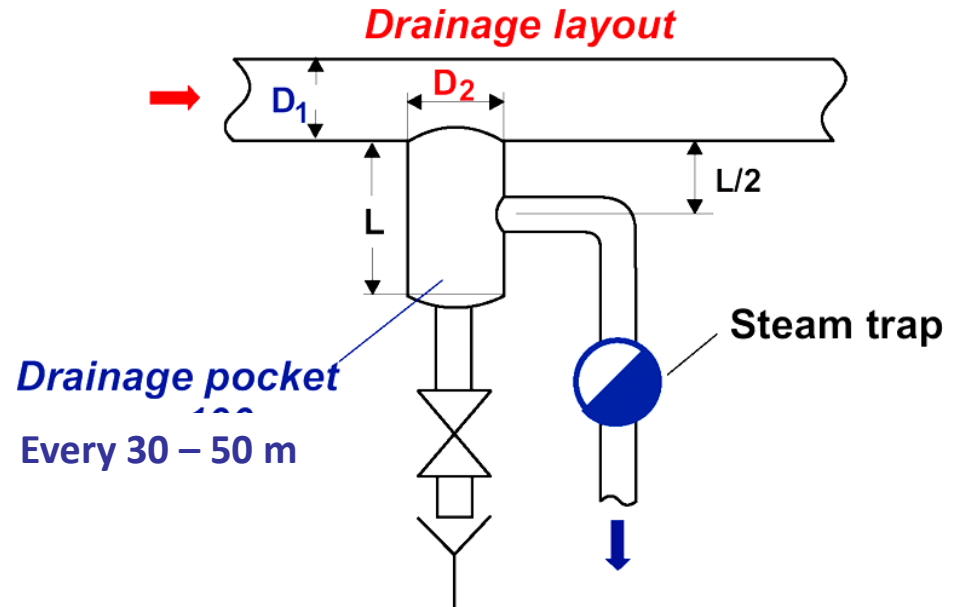
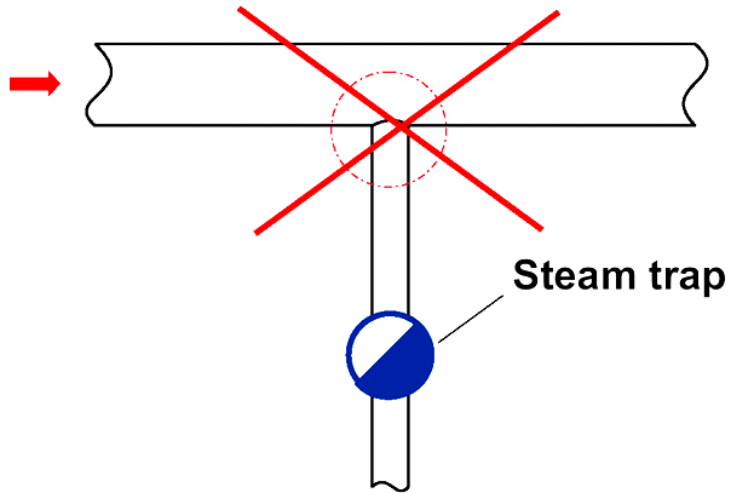
Common Trapping Problems

Group Trapping



Common Trapping Problems

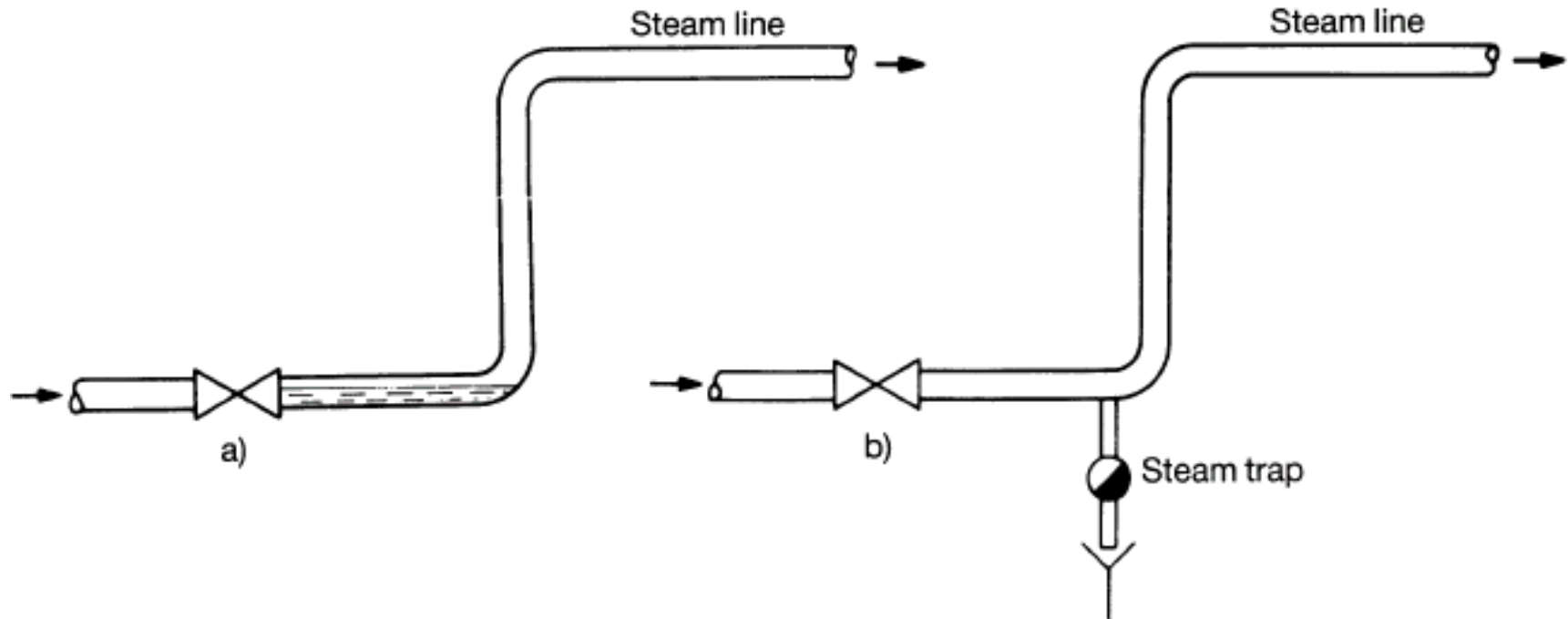
No drip pocket



D_1	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
D_2	mm	50	65	80	80	80	100	150	150	200	200	200	250	250	250
L	mm	For all sizes: $L \geq 250$													

Common Trapping Problems

Pipe bend or end of line



If the stop valve is closed the remaining steam in the line will condense. The condensate collects in the lower part of the line and cools down. If the valve is reopened the inflowing steam meets the cold condensate. The result is waterhammer.

TERIMA KASIH

