



Price Index



PRICES

- Orders placed are accepted subject to the Standard Conditions of Sale.
- Orders placed on a deferred delivery basis will be invoiced at the prices ruling at the date of despatch.
- Prices do not include VAT.

PACKING

- Standard packing is included at no extra cost.
- Special packing and labelling can be arranged at an additional cost.

DELIVERY

- Orders over £250.00 include delivery free of charge, orders under this value are subject to a £25.00 fee. Please contact the office for further details.
- Typical delivery for an in stock item in the UK is 2-3 working days.
- Special arrangements for urgent delivery can be made, subject to an additional cost.
- Packaged units will incur a delivery charge.

TERMS OF PAYMENT

- Our terms of payment are strictly nett 30 days from end of invoice month.
- Visa or MasterCard accepted via Worldpay.

QUALITY

- TLV Euro Engineering have been assessed and approved by DEKRA to ISO 9001:2015 standards. Certificate No. 100212112/2-3.
- TLV Co Ltd Kakogawa, Japan have been assessed and approved by Lloyd's Register Quality Assurance against BS5750: Part 1, 1987 ISO 9001, for the Design and Manufacture of Fluid Control Equipment and Instrumentation for Fluid Flow Measurement CERTIFICATE NO 0077369.
- All products are tested prior to despatch from the works.

WARRANTY

- All products have a manufacturer's guarantee for one year from date of dispatch, following receipt of an order.

TECHNICAL SERVICE AND SUPPORT

- Our office and regional engineers, who have considerable experience with the application of all our products are available to discuss any technical questions you may have. Please contact 01242 227223 in the first instance.

CERTIFICATION

- Please request any required certification at time of enquiry and placing your order.
- Prices for certification can be found on Test and Material Certificates page.
- Please note: Retrospective supply of certificates may not be possible and may incur extra cost.

CUSTOMER SERVICE AND SUPPORT

- As part of TLV's commitment to customers, we aim to offer a paramount service across all areas.
- Should you have ANY issue please contact a member of the Senior Management Team:

Commercial/Sales - Lisa McCann - lisamccann@tlv.co.uk

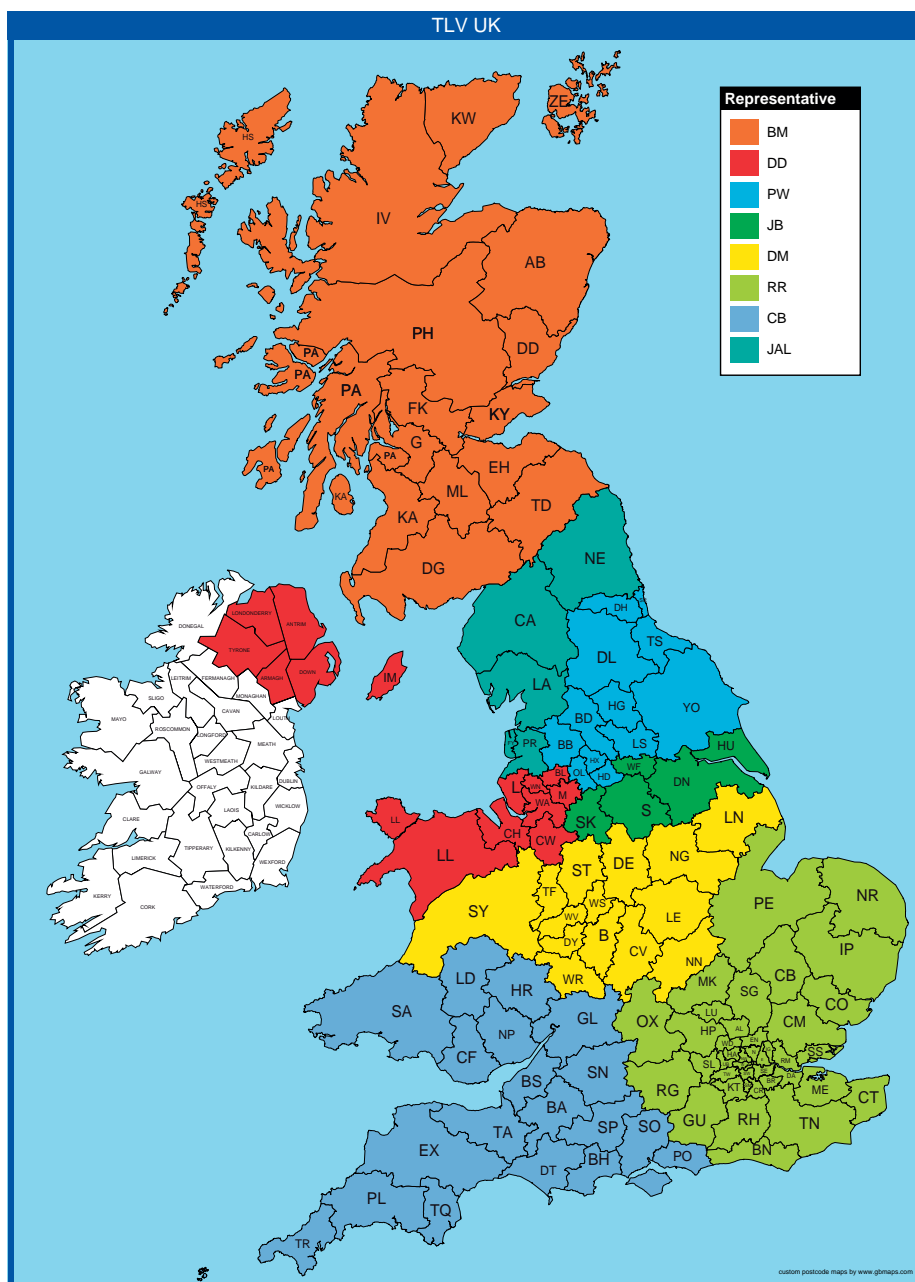
Technical - Ian Hockley - ianhockley@tlv.co.uk

General Manager - Michael Povey - michaelpovey@tlv.co.uk



Contact Us

Regional Sales Engineers



- SCOTLAND**
 Boyd Moore
 07713 393793
 boydmoore@tlv.co.uk
- NORTH WEST**
 John Lea
 07879 422297
 johnlea@tlv.co.uk
- MID WEST, NORTH WALES & NORTHERN IRELAND**
 Dave Dolan
 07725 244858
 davedolan@tlv.co.uk
- NORTH CENTRAL**
 Peter Webber
 07879 422298
 peterwebber@tlv.co.uk
- NORTH**
 Joshua Broadley
 07885 879956
 joshuabroadley@tlv.co.uk
- MIDLANDS & MID WALES**
 David Mutton
 07879 422296
 davidmutton@tlv.co.uk
- SOUTH WEST & SOUTH WALES**
 Chris Barrett
 07810 374770
 chrisbarrett@tlv.co.uk
- SOUTH EAST & EAST ANGLIA**
 Andy Rout
 07725 242320
 andyrout@tlv.co.uk

UK Head Office



Units 7 & 8, Furlong Business Park, Bishops Cleeve, Gloucestershire GL52 8TW
 Telephone: +44(0)1242 227 223

Please contact our technical team (technical@tlv.co.uk) if you require any technical advice about any TLV products, future projects or current installations.

TLV sales team (sales@tlv.co.uk) can offer support for purchasing, invoicing and delivery information.

Company Profile	4
System Surveys	6
Steam System Optimization Program	6
BPSTM (Best Practice of Steam Trap Management) Program	8
Consultation and Auditing Services	9
Clamp on Flowmeter Service	10
SonicMan Survey	10
Steam and Condensate Training Seminars	11
Valves	12
Stainless Steel Ball Valves	13
Globe and Bellows Sealed Valves	14
Fig 640 Bleed Flange	15
Check Valves	16
Strainers, Sight Glasses and Other Products	17
Y-strainers	18
Sight Glasses	19
Automatic Non-freeze and Blowdown Valves	20
NF6 Non-freeze Valve	20
BD2 Blowdown Valve	20
Bypass Blow Valve	21
Separators	22
Separators for Steam	23
Vortex Flowmeters	24
Flowmeters for Steam	25
Sensors and Gauges	26
Sensors and Gauges for Steam	27
Pressure Reducing Valves	28
Pilot Pressure Reducing Valves (With Built-in Separator, Strainer and Trap)	29
Pilot Pressure Reducing Valves	31
Direct Acting Pressure Reducing Valves	32
Automatic Control Valves & Controllers	33
Control Valves with Pneumatic Actuators	34
Control Valves with Pneumatic Actuators (Continued)	35
Electric Control Valves	36
Self-acting Temperature Regulators	37
Surplussing Valves for Steam	38
PID Controller	39
Safety Valves	40
Safety Valves for Steam	41
Steam Traps	42
Summary	42
Free Float Steam Traps	44
Summary	44
J-Series	45
SJ-Series	46
JH-Series	47
S-Series	50
SH-Series	51
Large Capacity Traps	53
Thermodynamic Steam Traps	54
Summary	54
PowerDyne Disc Type Steam Traps	55
Thermostatic Steam Traps	57
Summary	57
Thermostatic Steam Traps (Balanced Pressure)	58
Temperature Control Traps (Bimetal type)	59
QuickTrap® Steam Traps & Connectors	60
Summary	60
Quick Install Steam Traps	61
Quick Install Trap Stations	62
Manifolds for Steam and Condensate	63

Condensate Recovery Equipment	64
Summary	64
GT PowerTrap® (Mechanical Pump with Trap & Check Valves)	65
GP PowerTrap® (Mechanical Pump with Check Valves)	66
Solutions	67
Packaged Pump Systems	68
SteamAqua	69
HeatPacks	70
Flash Steam Condenser (SR)	71
Flash Vessel (FV)	72
Steam Compressor (SC)	73
Vacuumiser	74
Air Vents and Vacuum Breakers	75
Rapid Initial Air Vents (For Liquids)	76
Automatic Air Vents (For Liquids)	77
Air Vents (For Steam)	78
Vacuum Breakers (For Steam)	79
Clean Steam Equipment	80
Filters for Steam	81
Clean Steam Traps	82
Direct Acting for Clean Steam (USP/FDA Compliant Material)	83
Air Equipment	84
Cyclone Separator for air	85
Direct Acting for Air (with built-in Strainer)	86
Free Float Air Traps	87
Air Traps for High Viscosity Condensate	88
Maintenance Instruments	89
PT1 Pocket TrapMan	89
Documentation	90
Test and Material Certificates	90
Application Drawings	91
FAQs	110
Tables and Data	113
Steam Table	113
Steam Capacity (kg/h) in a pipe based on Velocities	114
TLV Guarantee	116

Company Profile

Peace of mind for your plant

“Trouble Less Valve” – This is what the name TLV stands for.

TLV was founded in 1950 with the goal of creating the world's No. 1 steam trap.

Witnessing the problems and challenges faced by plants, our pursuit evolved into a determination to bring plants peace of mind.

This inspired a change – what customers need are solutions, not just products.

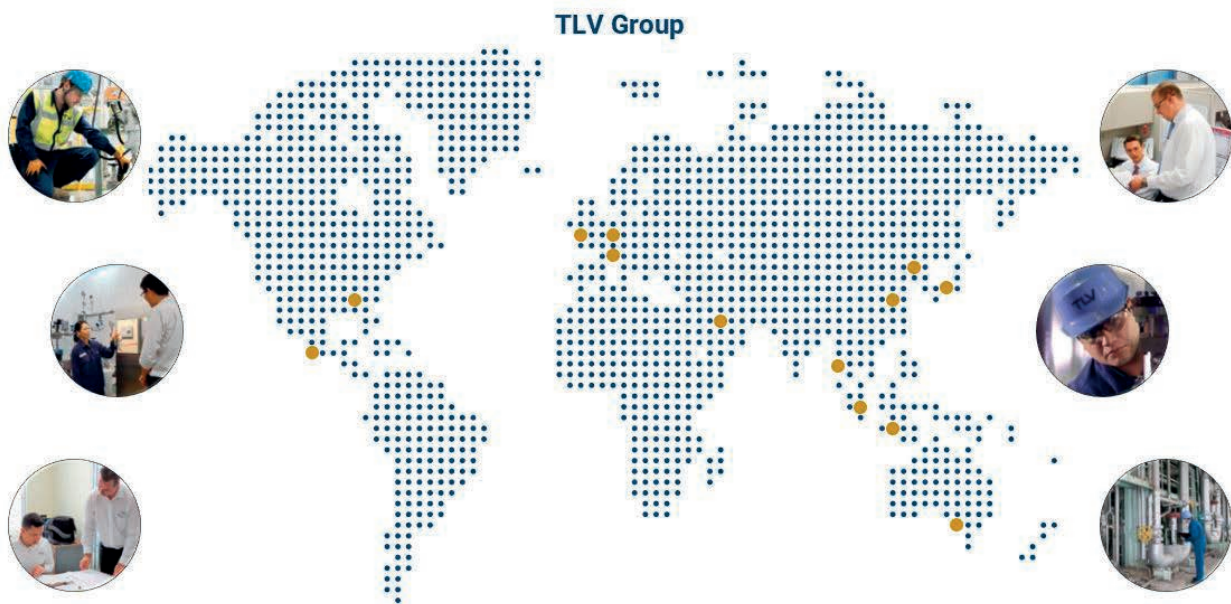
Drawing on our experience, TLV will continue to provide solutions and value to plants, striving to become the world's No. 1 steam specialist.

Peace of mind for your plant



Improved productivity, energy conservation, safety and reliable operation

Overcoming challenges in your industry.



Subsidiaries in 12 countries, and a network of over 100 distributors in more than 50 countries

A tradition of pioneering products

Product development starts from our customers' perspective.

Our goal is to produce products that exceed your expectations.

To meet the needs of the market, we have developed a broad range of solutions including steam traps, valves and separators, as well as sophisticated system products and software.

To date, we have obtained over 4,000 patents and utility models across the world, underlining our commitment to creating new, innovative technologies.



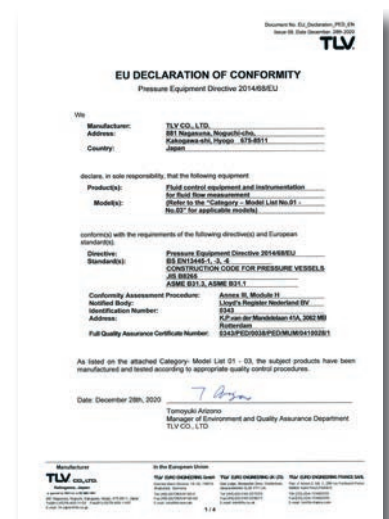
COSPECT®



Free Float®



VACUUMIZER®



SSOP®

Steam System Optimisation Program

Steam System Optimisation Program (SSOP®) is TLV's flagship assessment service, a sustainable asset management program that continuously optimizes the performance of the entire steam system through visualization.

In this program, TLV's Consulting Engineering Services (CES) specialists assess and provide visualizations of the performance of clients' steam systems, optimize these steam systems with innovative solutions, and implement long-term management programs to ensure that the system remains sustainable.

The goals of SSOP® are to improve safety, reliability and profitability by minimizing condensate problems and steam loss, thereby reducing plant energy use and CO2 emissions. Through SSOP, TLV is helping plants build a low-carbon society.

Steam is an Asset

To ensure that your plant makes the most of this valuable resource, it is of utmost importance that you optimize your entire steam system. The key concepts of steam system optimization are as follows:

Visualization

By expressing the performance of the steam system through visual aids, CES specialists expose problems and make clear how the system can be improved.

Systematization

By designing and implementing a clear system of appraisal, management, and inspection, CES specialists ensure that the steam system remains consistently and continuously optimized and sustainable.

Phase
3

Optimise the entire steam system.

Phase
2

Optimise all steam applications such as steam-using equipment, tracing.

Phase
1

Optimise all condensate discharge locations.

Potential Steam Savings

Oil Refineries &
Petrochemical Plants:

4.60%

(Steam generation: approx. 640 t/h *)

General
Industrial Plants:

12%

(Steam generation: approx. 4-40 t/h *)

* Average potential steam savings identified through surveys

SSOP® Can Help Your Plant...



Reduce CO2 Emissions

- Stop steam loss
- Improve energy efficiency

Improve Safety, Reliability

- Eliminate problems caused by condensate
- Eliminate water hammer
- Prevent unexpected equipment failures
- Improve equipment longevity

Increase Profitability

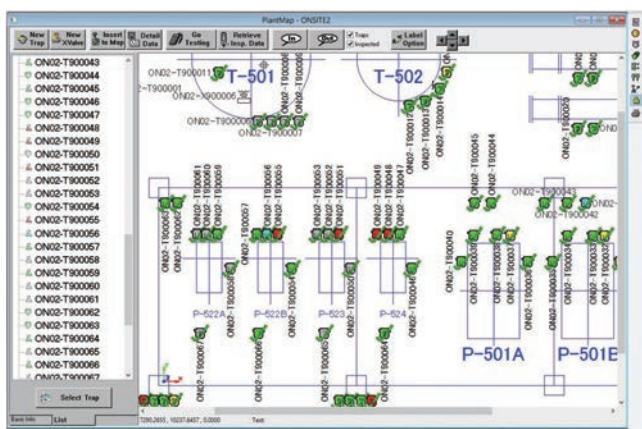
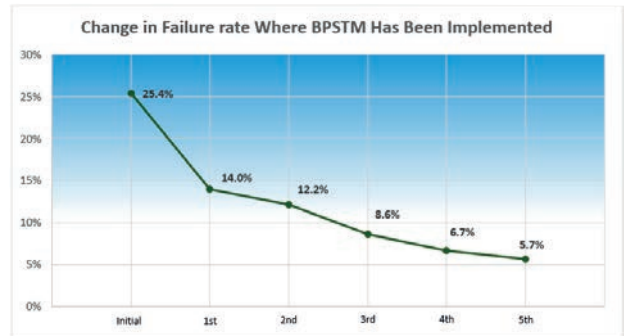
- Increase production efficiency
- Reduce operating expenditure
- Mitigate production bottlenecks

BPSTM (Best Practice of Steam Trap Management) Program

The BPSTM program is a condensate discharge location (CDL) management program. The BPSTM Survey conducts a comprehensive data collection of condensate discharge locations as well as an accurate inspection of the steam trap operation and the bypass valve internal leak. Through BPSTM implementation and valve optimisation, the target is to achieve and maintain the lowest possible annual steam trap failure rate.

The general target to achieve this low point steam trap failure rate is expected to take around five years to accomplish, depending on site size.

The comprehensive BPSTM database contains more than 90 data points for each CDL. Each CDL is tagged with a unique number, located on a site map and photos taken for easy and quick identification.



Each steam trap is then tested with the TM7 Trapman device which can judge very accurately the operational status of steam traps. It estimates the steam loss of steam traps and bypass valves with a high degree of accuracy, validated by an external company. This precise estimation is achieved by comparison of measured data with an internal database, containing the detailed characteristics of all available steam trap models in the world. These characteristics are obtained through a test rig matching ISO 7841.

From this database, the ideal steam trap is determined for each location. All TLV supplied BPSTM models are chosen for their high energy efficiency and longevity. These steam traps also have a five year warranty from date of purchase.

For all failed steam trap locations a unique work replacement guide will be generated to show the location, new steam trap model and scale of replacement works. This allows a clear working document for those involved

BPSTM Survey Output

All survey results are provided with the report, including failure rates and basic trends regarding pressure, application and survey areas. The monetary loss caused by failed traps and leaking bypass valves shows the optimization potential, a comparison with previous surveys reveals achieved steam system improvement.

Output from the BPSTM program includes:

- PlantMap for easy location control.
- Detail Analysis and Best Model Selection with the CES Proposal.
- Standards & Trap Application Review (STAR) to support standardization of steam trap selection.
- Condensate Discharge Location (CDL) Work Replacement Guide and Pocket Application Guide (PAG) for replacement Support.
- Performance Warranty on steam traps.
- Potential database access with BPSTM.net.

9/12/2012

Condensate Discharge Location Work Replacement Guide TLV

ID Locacion DOCK-137223
Locacion DOCK G. EAST BIG PLATFORM
Nombre de Equipo

Vista Extendida del Mapa

Vista Detallada

Arreglo Actual de la Locacion

Aplicacion Tracing Fe
 P Linea / 10.6Kg/cm² / 0C
 T Fluido
 Dimension Tub 25 / SCREW NPT
 Altura Tub
 Modelo SS1NH-21
 Long Cara a Cara F: 310mm / S: 130mm

Modelo de Reemplazo-Especif Basicas

Modelo SS1NH-21
 Conexion 25 mm
 Tipo de Con. SCREW NPT
 Long C a C 130 mm
 TMA/PMA 350°C/21kg/cm²

Configuracion de la Tuberia
 Patron de Arreglo de Tuberia 4
 Trampa de conexion rosca montada en tuberia que requiere un ajuste de longitud mediante una union

A reemplazar Se Mantiene

Notas

- Instalar el equipo en total concordancia con la seguridad del sitio y estandares de tuberia.
- Confirme que el producto coincide con el modelo de reemplazo recomendado.
- Previo a instalarse referirse al manual del prod.

Detalles para Responsable de Mantenimiento

<input type="checkbox"/> Instalada segun recomendacion	<input type="checkbox"/> Pospuesto para el siguiente paro	TLV check	Firma
<input type="checkbox"/> Instalada con la sig desviacion	Razones: _____		
Comentarios: _____			

Consultation and Auditing Services

Recent legislation by international organisations has seen a substantial increase in the awareness of global warming, the need to reduce carbon emissions from fossil fuels and to conserve energy. Whilst steam is one of the most efficient sources of heat energy used in modern processes, any plant which uses this medium must be regularly inspected and maintained to ensure that the equipment, which is crucial to the efficiency of the process plant, is operating correctly.

TLV offers a range of consultation and auditing services that not only identify and suggest possible solutions to problems associated with steam systems but also quantifies the losses and offers solutions in order to increase energy efficiency.

Steam System Audit

TLV's steam and condensate steam and condensate system audit is a method of identifying opportunities for energy savings and steam and condensate system optimisation. A full report will be compiled on the condition of the steam and condensate system that details any opportunities, faults or installation issues concerning the target issue and recommendations to rectify the issues, allowing efforts to be concentrated to areas where modifications are needed to maintain an efficient steam system.

A full written report will be produced, with recommendations for improvements where possible. The report will contain:

- Analysis of the existing conditions and set up against best design and specific TLV written recommendations for improvements based on best engineering practices, supported by calculations (when applicable) and visual means (for example thermographic images, processed photos, drawings etc).
- Identification and investigation of energy saving opportunities, (where applicable). Payback of quantifiable proposed energy savings projects (based on utilities costs supplied by you or industry standard figures):
- Investigation of external leakages in the steam and condensate distribution system, condensate losses, insulation losses, flash steam losses, improved heat transfer etc. Based on our findings and measurements taken from your site we will perform all the necessary calculations to quantify the loss (when applicable), its environmental impact and the payback on any possible investment required for recovering the loss.
- Evaluation of the general condition of the equipment to be investigated and more specifically the pipework, steam distributing and condensate return equipment (such as Pressure Reducing Valves, Safety Valves, Condensate Pumps, Condensate Return Units, Heat Exchanger Packages etc) and insulation.
- The report will include any steam related health and safety issue that the surveyor(s) will identify and any environmental compliance issues with regards to our specific issue investigation (for example discharging Safety Valves to safe areas to avoid staff injury and discharging hot water / condensate to drain at the designated temperatures).
- Survey of the boiler house and its equipment.

From this a report is compiled, which will provide observations, recommendations and operational judgements on;

- Possible energy saving projects.
- System and process optimisation.
- The steam system installation.
- The condensate system installation.
- The correct installation and functionality of steam traps.

Targeted Steam System Audit

A more specific Steam System Audit, focusing on a specific issue within the plant. This may include: poor system performance, water hammer, areas of low pressures and fluctuating steam temperatures.

Engineers will carry out an analysis of the affected system and perform tests to correctly diagnose the problems. Results will be detailed in a written report and will include possible solutions to rectifying the problem.

Drawing Function

Drawing Function offers TLV to create a CAD overlay on existing plant schematics showing accurate steam and condensate layout. If adjustment to the site installation is necessary, we can include before and after drawings if required.

Prices

Surveys are bespoke to size and complexity of plant; proposals are calculated by a fixed daily rate with the exception of the Drawing Function where a fixed cost proposal will be offered after an initial site survey.

Please contact TLV to discuss your site requirements.

Clamp on Flowmeter Service

TLV offers a combined information gathering and analysis service for determining steam line flow rates utilising a clamp on flowmeter.

A clamp on flowmeter is an externally installed flowmeter which doesn't require a site shut down to install. This is a temporary rental installation (based on the quoted length of time) but can be considered a permanent fixture. With this flowmeter the steam flowrate and temperature down a given line can be determined and recorded with an external data logger. The flowrate can be used for system analysis or specification.

Considerations

- Installation takes 1-2 working days and must be in a ventilated accessible area.
- Once installed the logger can record for approximately one week before further works are required.
- Removal will take approximately 1 working day.

The following information is required prior to quotation

- Pipe Diameter.
- Pipe Schedule.
- Pipe Material.
- Is the line insulated?
- Is the steam dry?
- Length of straight pipework.
- Steam pressure.
- Steam temperature.
- Location.
- Photos should be supplied of the proposed installation location.

If the information provided is not accurate there is a high chance of inaccurate data. If uncertain, please contact your regional engineer for support.

Once the information gathering is complete, the data will be analysed and a report generated. The report will be supplied along with the raw data.

Please contact TLV to discuss your site requirements.

SonicMan Survey

Certified surveyors detect points leaking air or gas by the use of a special designed ultrasonic sound detector (SonicMan system), within the area defined by a contract with the customer.

After detecting a leak point, surveyors perform the following actions.

- Taking photographs of the leak points and plotting the leak location onto a map.
- Entering of fluid type and the detailed information of leak points.
- Very accurate estimation of the amount of leakage.

After completing these steps for all found leak points, the surveyors will generate and submit a report. Repair of the leak points and data collection excluding necessary information to generate a report is not included in SonicMan Survey.

Leak locations that have been detected are provided in a survey report. This report consists of the summary list of the leakage amount of each fluid type, the monetary loss and the detailed information of each leak locations. This report is submitted to the customer at the end of the service.

Please contact TLV to discuss your site requirements.

Steam and Condensate Training Seminars

Every month TLV trains hundreds of steam users worldwide either in TLV Classrooms or on-site on best practice methods to manage steam and condensate systems.

More than 300 workshops and seminars are held annually, covering topics such as steam basics, trapping principles & applications, and effective energy utilization. For advanced steam users, training on steam and condensate piping design, control theory and waste heat management is also available.

Special workshops are also organized where plant managers and other key personnel are invited to exchange opinions and discuss new ways of optimising their steam system.

TLV Euro Engineering offer a three-day steam training seminar with hands-on opportunities covering the efficient use of process steam. Our course has been developed to meet the specific needs of our learners and has been accredited by NCFE, a verification of the course's quality and rigor.

The three-day seminar is followed by two written papers and an observation-based test to gain certification.

The seminars are held in English at TLV's European headquarters in Germany. The seminar can also be held in the UK office, but will not have access to the live demonstrations.

Increase Your Expertise

Strengthen Your Skills

Create a strong foundation that strengthens problem-solving skills and enhances plant safety awareness by reviewing applied steam engineering principles.

Learn Through Experience

Learn interactively by manipulating product cross-sections and participating in live demonstrations that help visualize thermodynamic concepts.

Apply Your New Knowledge

Discover new ways to reduce energy costs through case studies that help quantify energy and monetary savings, and then apply these principles to your system for improved efficiency.

Syllabus

- Fundamentals of steam and condensate.
- System design, pipe sizing, valve sizing and best practice.
- Steam trap testing, management and maintenance.
- Improving efficiency and reducing losses.
- Pressure reduction, temperature control and metering.
- Trapping and condensate return.
- Energy conservation and its recovery.

Other Seminars and Training

TLV can also offer smaller versions of the efficient use of process steam, focusing on specific topics. The courses available are as follows.

- Best utilisation of steam traps.
- Pressure reduction fundamentals.

TLV also offer unique courses that go into more depth on specific topics. These include.

- System design (Basic & Advanced courses)
- Control valves and controllers, installation and set up.
- Traps, pumps and pressure reducing valves overhaul.

Finally TLV on request, can design bespoke courses to fit specific needs. Please contact the office for further details.

Valves

TLV offers a variety of valves for use on steam, air, water, etc.



Stainless Steel Ball Valves

Ball valves suitable for steam lines.



Globe and Bellows Sealed Valves

Bellows sealed valves with a no-leak gland seal.



Check Valves

Check valves suitable for steam and other media or fluids.

Benefits and Features

- Designed for a tight seal and excellent durability for use on steam, water and condensate lines.

Application Areas

- Stainless steel ball valves are typically used as low pressure/ temperature isolation for steam and condensate equipment. This can be used in applications where pressure drop or cleanliness need to be considered.
- Globe valves are one of the most diverse valves for the steam industry and are utilised throughout the steam and condensate distribution system as isolation valves.
- Check valves are utilised to prevent condensate or fluid backflow in a section of pipework.

Information needed for quotation

- Application (Steam Trap Isolation)
- Process connection type. (PN40)
- Process connection size (DN50)
- Process medium. (Saturated Steam)
- Medium pressure and temperature` (10 barG, 184 °C)

Valves

Stainless Steel Ball Valves

TLV provides ball valves suitable for steam, water and air lines.

Operating Pressure Range: 0 - 10 barg

Operating Temperature Range: 0 - 185 °C



Benefits and Features

- All stainless steel for excellent resistance to rust, and the carbon-flourine resin (PTFE) valve seat provides superior durability and resistance to pressure.

BV1

- All stainless steel full bore ball valve of 3-piece design for steam, water, air, liquids and gases, with lockable lever.



BV6

- Stainless steel wafer-type ball valve with full bore for steam, water, air, other fluids and gases. Maintenance free.



BV4290

- Stainless steel full bore flanged PN16 (PN40 also available) ball valve of 2-piece design.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
BV1	10	185	10	185	Stainless Steel
BV6	10	185	10	185	Stainless Steel
BV4290	10	185	10	200	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
BV1	Stainless Steel	Screwed	68.00	81.00	107.00	134.00	206.00	274.00	609.00	888.00	-
BV6	Stainless Steel	Wafer-type	144.00	182.00	223.00	302.00	438.00	531.00	646.00	831.00	1103.00
BV4290	Stainless Steel	Flanged	189.00	231.00	292.00	386.00	484.00	683.00	995.00	1274.00	1883.00

Valves

Globe and Bellows Sealed Valves

TLV makes available bellows sealed valves with secondary gland seal or gland sealed valves.

Operating Pressure Range: 0 - 40 barg

Operating Temperature Range: 0 - 400 °C

Benefits and Features

- Bellows-type gland prevents leakage to the outside. No need to tighten or replace the gland packing. (excluding 1029)



1029

- Bronze Gland Sealed Globe Valve suitable for saturated steam up to 14 barg, water, oil and air.



BE3L

- Compact forged steel bellow sealed globe valve for steam, hot water, heat transfer fluid, etc. Suitable for use with small-process equipment.



BE8H

- Two port durable bellows sealed globe valve for steam, hot water, heat transfer fluid, etc. Available in cast iron (BE8H-16), S.G. Iron (BE8H-25), or cast steel (BE8H-40).



Model	Max Operating Pressure (barg) – Sat. Steam	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
1029	14.0	198 @ 14barg	32 @ 100°C	198	Bronze
BE3L	50.0	400	57	427	Carbon Steel
BE8H-16	12.8	300 @9.6 barg	16 @ 120°C	300	Cast Iron
BE8H-25	22.5	350 @17.5barg	25 @ 120°C	350	S.G. Iron
BE8H-40	30.4	400 @23.8barg	40 @ 50°C	400	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100	5" DN125	6" DN150
1029	Bronze	Screwed	51.00	72.00	100.00	192.00	192.00	294.00	-	-	-	-	-
BE3L	Carbon Steel	Screwed/SW	146.00	155.00	173.00	-	340.00	398.00	-	-	-	-	-
BE8H-16	Cast Iron	Flanged	82.00	87.00	99.00	115.00	131.00	150.00	214.00	265.00	356.00	548.00	690.00
BE8H-25	S.G. Iron	Flanged	123.00	130.00	144.00	171.00	196.00	228.00	312.00	399.00	612.00	929.00	1173.00
BE8H-40	Cast Steel	Flanged	169.00	178.00	190.00	255.00	318.00	402.00	551.00	735.00	932.00	1464.00	1669.00

Other sizes are available upon request.

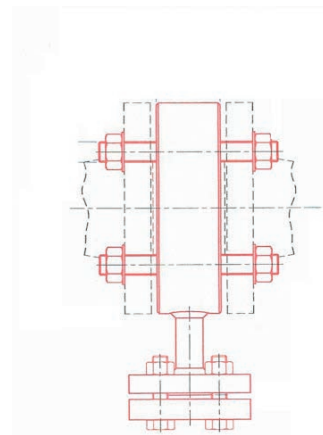
Valves

Fig 640 Bleed Flange

Bleed flange for creating a double block and bleed assembly.

Benefits and Features

- The Fig 640 Bleed Flange is an approved seal welded assembly, consisting of the body, extension tube and 15mm diameter PN16-40 flange in certified carbon steel, B7 tie-rods with 2H nuts and 2 spiral wound graphite filled gaskets suitable for use on steam.
- The Fig 640 Bleed Flange can be used with the BE8H Bellow Sealed Isolation Valves to create a compact Double Block and Bleed assembly (valves not included).



Model	2" DN50	3" DN80	4" DN100	5" DN125	6" DN150
Fig 640	681.00	681.00	681.00	951.00	1097.00

Other sizes are available upon request.

Valves

Check Valves

Check valves for steam and other fluids. Automatic valves for preventing backflow.

Operating Pressure Range: 0 - 40 barg

Operating Temperature Range: -100 - 400 °C



Benefits and Features

- Check valves with disc and spring construction that assures performance with installation in either vertical or horizontal pipelines with reliable backflow prevention.
- There are no restrictions on installation orientation. After the valve has closed, it opens again at the slightest pressure differential.
- TLV's unique centre-guided disc (CK3MG, CKF3MG, and CKF3RG) offers greater durability.



CK3M(G) / CK3T

- Coil spring, disc type screwed check valve.
- Stainless steel or brass option on CK3M.
- Available with metal seat (CK3M) or flourine resin (PTFE) seat (CK3T).

CKF3M(G) / CKF3R(G)

- Coil spring, disc type wafer check valve.
- Stainless steel with metal seat (CKF3M) or FPM seat (CKF3R).
- Compatible with almost all flange specifications (ASME, BS, DIN, JIS).



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
CK3M(G)	21	220	21 (G – 32)	220 (G – 350)	Stainless Steel
CK3M	10	220	10	220	Brass
CK3T	16	185	21	220	Stainless Steel
CKF3M(G)	30	350	30	350	Stainless Steel
CKF3R(G)	16	150	30	350	Stainless Steel

Model	Body Material	Seat Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
CK3M(G)*	Stainless Steel	Stainless Steel	Screwed	102.00	112.00	139.00	288.00	340.00	414.00	-	786.00	-
CK3M	Brass	Brass	Screwed	97.00	102.00	128.00	244.00	280.00	349.00	-	-	-
CK3T	Stainless Steel	Fluorine Resin	Screwed	89.00	112.00	148.00	244.00	277.00	335.00	-	-	-
CKF3M(G)	Stainless Steel	Stainless Steel	Wafer	89.00	102.00	119.00	140.00	153.00	180.00	287.00	316.00	414.00
CKF3R(G)	Stainless Steel	Fluorine Rubber	Wafer	107.00	119.00	139.00	168.00	185.00	206.00	-	-	-

* (G) type: centre guided valve disc for sizes >1"

VALVES

Strainers, Sight Glasses and Other Products

TLV offers equipment including strainers, sight glasses, non-freeze valves and a variety of other ancillary products – used in the steam trap periphery.



Y-strainers

For removing dirt and scale from inside piping. Helping keep critical equipment such as control valves and steam traps free from any particulates.



Sight Glasses

For visually monitoring the flow of fluids from the outside of the piping. This helps to determine the steam traps current operational status and allows observation of condensate.



Automatic Non-freeze and Blowdown Valves

Miscellaneous valves for using with steam systems for either manually blowing down steam traps or draining them of condensate when not in use.



Bypass Blow Valve

Valve for use in high temperature and high pressure applications. Ideal for installation on steam trap blowdown and bypass lines. Unique construction enables in-line scale removal from the valve seat.

Benefits and Features

- Strainers help keep valuable steam and condensate equipment from being impacted by containments.
- All strainers are in line maintainable.
- Option of automatic non-freeze valve or blow-off valve combined with the trap body can be manufactured
- (Consult with TLV when placing trap order)

Application Areas

- Strainers can be located in front of steam using equipment such as pressure reducing valves and control valves.
- They can also be utilised in front of steam traps.
- Sight Glasses are typically located after a steam trap.
- Automatic non-freeze valve - protects steam traps from problems caused by frozen condensate
- Blowdown valve - blows scale out of steam traps
- Bypass blow valves are typically used to reliably bypass critical steam traps

Information needed for quotation

- Application (Steam Trap Bypass)
- Process connection type. (PN40)
- Process connection size (DN50)
- Process medium. (Saturated Steam)
- Medium pressure and temperature` (10 barG, 184 °C)

Strainers, Sight Glasses and Other Products

Y-strainers

TLV offers a range of strainers for removing dirt and scale from steam and other fluids inside piping.

Operating Pressure Range: 0 - 40 barg
 Operating Temperature Range: 0 - 400 °C



Benefits and Features

- Compact size requires very little installation space. Designed for easy inline cleaning and maintenance.
- Stable operation of various types of equipment.
- Double-layer screen catches even tiny particles of dirt.
- Large flow surface area results in minimal pressure drop, so there is no effect on equipment operation.

Y3

- Stainless steel screwed Y-type strainer.



Y8F

- Flanged Y-type strainer. Available in a range of material types. Screen has aperture size 1.0mm (DN15 – 20), 1.25mm (DN25-65) or 1.6mm (DN80-200)



Model	Mesh Size	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
Y3	60	21	220	21	220	Stainless Steel
Y8F-16	See text	16 @ 120°C	300 @ 13 barg	16	300	Cast Iron
Y8F-25	See text	25 @ 120°C	350 @ 12barg	25	350	S.G. Iron
Y8F-40	See text	40 @ 50°C	400 @ 23.8barg	40	400	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100	5" DN125	6" DN150
Y3	Stainless Steel	Screwed	58.00	74.00	88.00	120.00	147.00	230.00	-	-	-	-	-
Y8F-16	Cast Iron	Flanged	40.00	43.00	44.00	51.00	67.00	69.00	108.00	139.00	194.00	291.00	394.00
Y8F-25	S.G. Iron	Flanged	71.00	76.00	81.00	107.00	147.00	168.00	224.00	274.00	450.00	480.00	641.00
Y8F-40	Cast Steel	Flanged	112.00	137.00	151.00	191.00	234.00	279.00	292.00	430.00	652.00	879.00	1187.00

Strainers, Sight Glasses and Other Products

Sight Glasses

TLV provides sight glasses for visually monitoring the flow of fluids from the outside of the piping.

Operating Pressure Range: 0 - 25 barg

Operating Temperature Range: 0 - 450 °C

Benefits and Features

- Ball movement indicates flow status, which gives superior visibility. Use of fluorine resin (PTFE) gasket results in superior maintainability.



T8N / TF8N

- Sight glass for use up to 16 barg/200 °C. For use on water, air and steam.



SG18

- Sight glass in straightaway form with body made of cast steel. Also available in stainless steel on request.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
T8N	16	200	16	200	Cast Iron
TF8N	16	200	16	200	Cast Iron
SG18	17.8 @ 200	450 @ 9.1barg	25	450	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50
T8N	Cast Iron	Screwed	112.00	121.00	124.00	180.00	180.00	195.00
TF8N	Cast Iron	Flanged	173.00	180.00	208.00	208.00	239.00	267.00
SG18	Cast Steel	Flanged	546.00	634.00	837.00	-	837.00	1192.00

Strainers, Sight Glasses and Other Products

Automatic Non-freeze and Blowdown Valves



Operating Pressure Range: 0 - 65 barg
 Operating Temperature Range: 0 - 425 °C

Benefits and Features

Automatic Non-Freeze Valve

- Automatically removes condensate from inside the trap to prevent damage to the trap from freeze-up of residual condensate during shut-down. Compact size makes for simple installation. No adjustment necessary as it remains closed during equipment operation, automatically opening to discharge condensate using gravity after the shut-off of equipment.

Blowdown Valve

- Simple to use blowdown valve which utilises the steam pressure to clear debris out of steam trap. Simple unscrewing action of the collar to operate the valve.

NF6 Non-Freeze Valve

- Non-freeze valve for draining residual condensate from traps to prevent steam trap damage caused by freeze-up. Built-in screen protects the valve from trouble caused by clogging.

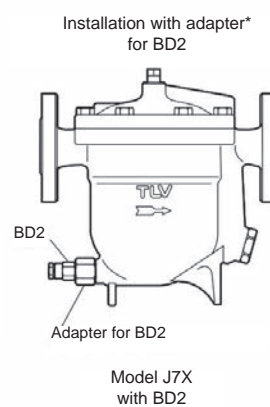
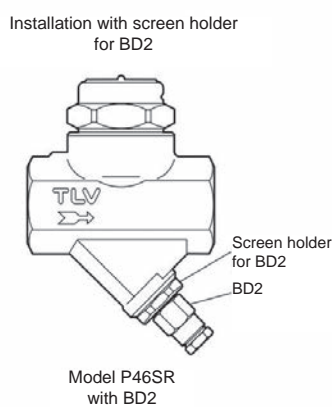
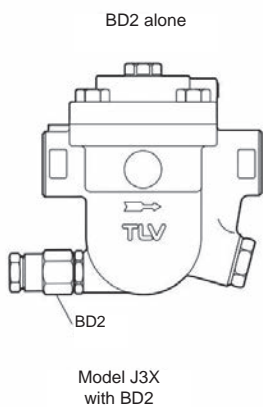


BD2 Blowdown Valve

- Stainless steel valve utilises a steam trap's internal pressure to blow any condensate, oil, dirt or scale inside the steam trap out to atmosphere. Simple design, compact and light weight. Easy to use and maintain.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
NF6	20	220	20	220	Brass
BD2	65	425	65	425	Stainless Steel



*Adapter may vary depending on product

Model	Body Material	Connection Type	1/4" DN8
NF6	Brass	Screwed	82.00
BD2	Stainless Steel	Screwed	74.00

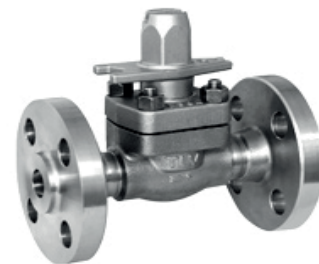
Strainers, Sight Glasses and Other Products

Bypass Blow Valve

TLV supplies reliable bypass valves for critical applications.

Operating Pressure Range: 0 - 65 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- Valve for use in high temperature and high pressure applications. Ideal for installation on steam trap bypass lines.
- Unique construction enables in-line scale removal from the valve seat.
- Unique self-cleaning valve trim: Scale build-up on valve trim is cleaned and cleared through valve operation.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
BD800	65	425	65	425	Stainless Steel

Model	Connection Type	1/2" DN15	3/4" DN20	1" DN25
BD800	Screwed	535.00	571.00	616.00
BD800	Socket Welded	535.00	571.00	616.00
BD800	Flanged	798.00	851.00	918.00

Separators

TLV offers a range of steam separators to help protect and extend the life of inline equipment by removing abrasive entrained condensate from the steam flow. Several models are available, including models with integral steam traps and others with a welded stainless steel construction.



Cyclonic Steam Separator with integral steam trap

Cyclone separator (with integral strainer and steam trap) for steam.



Cyclonic Steam Separator, stainless steel welded construction

Can be used with steam, air, and non hazardous gases. Stainless steel welded construction. Cyclone separator for use with separate steam trap.



Cyclonic Steam Separator, custom made, to order

Cyclonic separator provides high-quality dry steam. Flanged connections for the majority of specifications.

Benefits and Features

- Increase the life-span of expensive steam using equipment such as pressure reducing valves, control valves and filters.
- Provides condensate separation efficiency as high as 98%.
- Improves productivity and product quality with dry, high quality steam.

Application Areas

- In the steam distribution system, to help keep the steam line free from abrasive condensate.
- Located before direct injection processes, to help prevent large condensate particulates being injected into the process.

Information needed for quotation

- Application (Post Boiler Separator)
- Process connection type. (PN40)
- Process connection size (DN50)
- Process medium. (Saturated Steam)
- Medium pressure and temperature` (10 barG, 184 °C)
- Expected flowrate (500kg/hr)
- Maximum allowable pressure drop (0.5 barG)

Separators (Cyclone Type)

Separators for Steam

TLV makes available inline installation type steam and air separators.

Operating Pressure Range: 0 - 40 barg (higher pressures on special applications)

Operating Temperature Range: 0 - 400 °C



Benefits and Features

- A separator that forcibly separates out the condensate generated and entrained in steam, air or non-hazardous gas pipelines.
- All models equipped with a cyclone separator that demonstrates a remarkably high 98% separation efficiency. The integral trap, which is included with the DC3 variants, is a free float type that uses three-point seating, with continuous discharge and a tight seal.
- The separator supplies high-quality steam or air from which the condensate has been removed, which has a direct connection to productivity and product quality.

DC3S

- Cyclone separator (with integral strainer and steam trap) for steam.



DC7

- Can be used with steam, air, and non hazardous gasses. Stainless steel welded construction. Cyclone separator for use with separate steam trap.



Model BZ

- Cyclonic separator provides high-quality dry steam. Flanged connections for the majority of specifications.
- To be utilised when the flow range exceeds the DC3S range. Can be made out of cast or stainless steel in sizes exceeding DN100.
- Prices are available on request.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
DC3S	21	220	21	220	Ductile Cast Iron
DC7	25	300	25	300	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
DC3S	Ductile Cast Iron	Screwed	857.00	857.00	987.00	-	-	-	-	-
		Flanged	972.00	982.00	11093.00	1343.00	1903.00	4245.00	4279.00	6015.00
DC7	Stainless Steel	Screwed	537.00	554.00	778.00	907.00	1584.00	-	-	-
		Flanged	1127.00	1242.00	1289.00	1722.00	1907.00	-	-	-

Vortex Flowmeters

TLV provides vortex flowmeters which measures the mass and volume flow rates of a variety of fluids, including steam, air and water.

Benefits and Features

- Requires no maintenance, has no moving parts, and experiences no zero point drift.
- Low pressure drop through body.
- Capable of measuring and transmitting volume or mass flows
- Optional versions include
 - Wired remote heads for hard to access areas.
 - Steam dryness fraction measurement.

Application Areas

- Located off the boiler header for total boiler flow output measurement.
- Located off each line in a steam distribution header for instantaneous site wide flow information.

Information needed for quotation

- | | |
|---|-------------------------|
| • Application | (Post Boiler Flowmeter) |
| • Process connection type. | (PN40) |
| • Process connection size | (DN50) |
| • Process medium. | (Saturated Steam) |
| • Medium pressure and temperature` | (10 barG, 184 °C) |
| • Expected flowrate | (500kg/hr) |
| • Maximum allowable pressure drop | (0.1 barG) |
| • Length of straight pipework available | (5m) |
| • Required output signal | (Pulsed output) |

Vortex Flowmeters

Flowmeters for Steam

TLV provides vortex flowmeters and flow computers. Measures the flow rates of a variety of fluids, including steam, air and water.

Operating Pressure Range: 0 - 49.6 barg

Operating Temperature Range: -200 °C - 400 °C (Limited by freezing point of liquid)

Benefits and Features

- High performance vortex flowmeter with robust sensor for highly accurate volume or mass flow measurements of gases, liquids, saturated and superheated steam. Measures flow by means of the regular vortices (von Karman vortex) generated downstream of an object as fluid flows around the object.
- The EF200 flowmeter requires no maintenance as it has no moving parts and experiences no zero point drift. Simple to install with minimum number of components. Range of accessories available to suit all applications.
- Integrated temperature sensor, automatically corrects for mass flow rate and is equipped with a digital readout display. Capable of pulse (interval), analogue (instantaneous) and digital HART. outputs.
- Ingress resistant to IP 67 (NEXA 4X)



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
EF200	0 – 49.6	400	49.6	400	Cast Stainless Steel
Conditioner Plate	-	-	50	400	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	1" DN25	1 1/2" DN40	2" DN50	3" DN80	4" DN100	6" DN150
EF200	Stainless Steel	Wafer	3555.00	3555.00	3755.00	3755.00	3951.00	4088.00	5299.00
EF200	Stainless Steel	Flanged	4405.00	4488.00	4724.00	4795.00	5103.00	5493.00	7478.00
Conditioner Plate	Stainless Steel	Wafer	227.00	316.00	347.00	365.00	493.00	579.00	1035.00

Larger sizes are available for flanged version.
 Additional and or remote displays can also be purchased.
 Option for Dryness Fraction Measurement available

Sensors and Gauges

Complete range of sensors and gauges to complement a standard steam system.



Temperature Sensor

Temperature sensor for steam or condensate used for monitoring or control purposes.



Pressure Transmitter

Pressure transmitter for steam or condensate used for monitoring or control purposes.



Pressure Gauge

Pressure gauge for locally monitoring steam and condensate pressures.

Benefits and Features

- Simple digital and analogue sensors and gauges for steam and condensate use.
- Stainless steel options available.

Application Areas

- Temperature sensors can be located wherever temperature monitoring or control is required.
- Pressure sensors can be located wherever temperature monitoring or control is required.
- Pressure gauges can be located wherever pressure monitoring is required.

Information needed for quotation

- Application (Pressure transmitter for main steam line)
- Process connection type. (bsp)
- Process connection size (1/4")
- Process medium. (Saturated Steam)
- Medium pressure and temperature` (10 barG, 184 °C)
- Required output signal (Pulsed output)

Sensors and Gauges

Sensors and Gauges for Steam

Complete range of sensors and gauges to complement a standard steam system.



Benefits and Features

- High quality and steam system ready sensors and gauges. Available in a range of materials, digital and analogue outputs.
- Alternative models available on request.

PT100

- Rigid temperature sensor which has a stainless steel welded closed end sheath. Sensor is rated from -40°C up to 200°C. Terminated with an IP67 miniature weatherproof head.
- Higher temperature ranges available on request.
- Available lengths of 50, 150, 300mm (Others on request).

Pressure Transmitter

- Silicone strain gauge type pressure transmitter. IP65 rated, resists vibration and shock, easy-to-install design. 24V DC supply and 4...20mA output.
- Gauge cock and syphon (U or P) available on request (includes adaptor for 3/8" connection).

Gauge Sets

- 100mm Diameter Pressure Gauge (63mm for PGC) with stainless steel (AISI 304) case. Phosphor bronze bourdon tube sensing element, steel siphon tube and laminated safety glass window. Scaled in bar with ranges of 0 – 2 / 6 / 10 / 16 / 25 barg.
- Complete with gauge cock and syphon (U or P) or cooling tower (C).
- Optional plastic face, for food / pharmaceutical industry applications available free of charge.

Model	Max Operating Pressure (barg)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
PT100	-	-	200	Stainless Steel
Pressure Transmitter	25	50	-	Stainless Steel
PGC	25	25	-	Stainless Steel
PGP/PGU	25	25	-	Steel / Stainless Steel

Model	Body Material	Connection Type	50mm Length	150mm Length	300mm Length
PT100	Stainless Steel	Screwed	87.00	125.00	137.00

PT100 Options					
Thermowell				46.00	
4...20mA Output				POR	

Model	Body Material	Connection Type	1/4"	3/8"
PGP/PGU	Brass / Mild Steel	Screwed	-	142.00**
	Stainless Steel	Screwed	-	242.00**
PGC	Stainless Steel	Screwed	POR	-
Pressure Transmitter	Stainless Steel	Screwed	399*	-

*1/4" Syphon and gauge cock not available

** Complete with gauge cock and syphon (U or P).

Pressure Reducing Valves

TLV makes available pressure reducing valves for steam. A wide assortment of models are available, including pilot operated models, direct-acting models and models with integral separators and steam traps.



Pressure Reducing Valves (with built-in strainer, separator, trap and pressure gauges)

Pilot operated pressure reducing valves with built-in strainer, separator, trap and pressure gauges, whose features result to supply dry steam or air with stable secondary pressure, improve product quality and/or heat efficiency.



Pressure Reducing Valves (without built-in separator and trap)

Pilot operated pressure reducing valves to supply steam or air with stable secondary pressure for general use.



Pressure Reducing Valves (Direct Acting)

Compact, light-weight direct-acting pressure reducing valves.

Benefits and Features

- Valves for controlling steam pressure. Selection can be made from among a wide assortment of models — including pilot operated and direct-acting models and models with integral separators and steam traps — to suit the objective or application.
- The high precision pressure reducing valves for process applications employ a separator with steam trap and shock-absorbing spherical piston to yield a superior flow rate characteristic with high quality steam.

Application Areas

- For the supply of dry steam with no entrained condensate at a stable pressure - Pressure reducing valves for steam process applications
- For equipment such as compact steam heating equipment - Compact pressure reducing valves for steam
- For steam transport lines, heaters, etc. - Multi-purpose pressure reducing valves for steam.

Information needed for quotation

- Application (Let down station)
- Process connection type. (PN40)
- Process connection size (DN50)
- Process medium. (Saturated Steam)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Secondary target pressure (5 barG)
- Expected flowrate (500kg/hr)
- Length of straight pipework available (5m)

Pressure Reducing Valves (Pilot Operated)

Pilot Pressure Reducing Valves (With Built-in Separator, Strainer, Trap and Pressure Gauges)

COSPECT® - High precision pressure reducing valves with built-in separator & trap.

Operating inlet Pressure Range: 1 - 21 barg

Operating Temperature Range: 0 - 220 °C



COSPECT.

Benefits and Features

- Product features a built-in super cyclonic effects separator, which removes 98% of condensate present in the steam system. Condensate entrained in the steam is separated out, and a strainer further removes any scale. The condensate that is separated out is quickly removed through the built-in free float trap. This improvement in the quality of the steam itself also results in an improvement to the heat transfer of the steam.
- Accuracy of pressure reducing valve's secondary set pressure is within ± 0.1 bar. Even if the steam load to the equipment or the primary pressure at the pressure reducing valve changes, the Shock-absorbing Spherical Piston supplies steam at a constant pressure in order to maintain the temperature of the steam used as the heating source.
- Integrated pressure gauges means that the COSPECT can be adjusted without having to leave the device.

COS-3

- Pressure reducing valve for use on low pressures up to a maximum operating pressure of 3 barg.
- Pressure adjustment range: 0.1 – 0.5 barg.



COS-16

- Pressure reducing valve for use up to a maximum operating pressure of 16 barg.
- Pressure adjustment range: 0.3 – 13.4 barg.



COS-21

- Pressure reducing valve for use on high pressures up to a maximum operating pressure of 21 barg.
- Pressure adjustment range: 5.5 – 17.6 barg.



SCOS-16

- Pressure reducing valve specialised for low flow rates, the body has an extremely compact design.
- Pressure adjustment range: 0.3 – 13.4 barg.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
COS-3/16/21	3, 16, 21	220	21	220	Ductile Cast Iron
COS-3/16/21E	3, 16, 21	220	21	220	Cast Stainless Steel
COS-16G	16	220	21	220	Carbon Steel
SCOS-16	16	220	16	220	Bronze

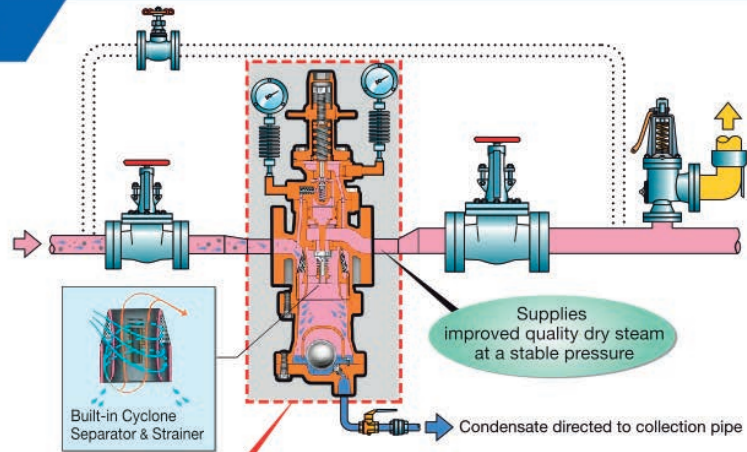
Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
COS-3/16/21 [^]	Ductile Cast Iron	Flanged	2026.00	2050.00	2208.00	2824.00	3522.00	6052.00	6415.00	8725.00
COS-3/16/21E [^]	Stainless Steel	Flanged	3304.00	3424.00	3740.00	5241.00	5409.00	-	-	-
COS-16G	Carbon Steel	Flanged	-	-	-	-	-	8142.00	8342.00	-
SCOS-16	Bronze	Screwed	1650.00	1661.00	1695.00	-	-	-	-	-

[^] COS-3 only in DN20, DN25, DN40 and DN50.

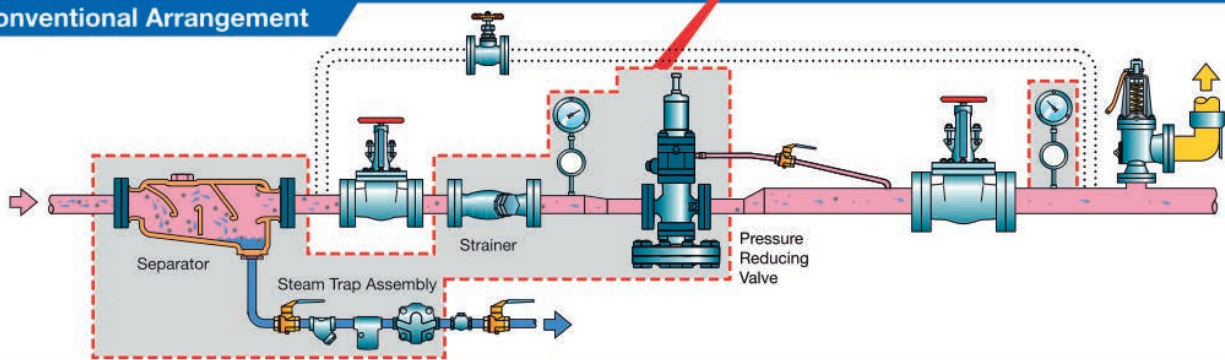
TLV COSPECT Steam Pressure Reducing Valve

Combined Pilot Operated PRV, Cyclone Separator, Strainer & Steam Trap

- Space saving (ideal for plant rooms, etc.)
- Weight saving (lighter than the sum of many components)
- Fewer gaskets, fewer spool pieces, fewer fixings
- Less risk of leaks
- Faster & easier to install
- Reduced amount of insulation required
- Reduced requirement for pipe support brackets, etc.
- Improved moisture separation with cyclone separator (98% efficient at steam velocity of 30m/s)
- Accurate & stable pressure control
- Sensitive to downstream pressure fluctuations
- Reliable "Trouble-Less" operation
- Modular construction facilitates easy in-line maintenance



Conventional Arrangement



TLV EURO ENGINEERING UK LTD. Units 7 & 8, Furlong Business Park, Bishops Cleeve, Gloucestershire, GL52 8TW, UK

Contact Us

Tel: 01242-227223 Fax: 01242-223077
E-mail: technical@tlv.co.uk <https://www.tlv.com>

Rev. 7/2021 (1)

Pressure Reducing Valves (Pilot Operated)

Pilot Pressure Reducing Valves

Multi-purpose pressure reducing valves for steam.

Operating Inlet Pressure Range: 1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- Accuracy of pressure reducing valve's secondary set pressure is within ± 0.1 bar. Even if the steam load to the equipment or the primary pressure at the pressure reducing valve changes, the shock-absorbing spherical piston supplies steam at a constant pressure in order to maintain the temperature of the steam used as the heating source.
- Rust is the biggest enemy of the very points most important in the control performance of the product. Therefore all major internal components are made of stainless steel, to prevent rust.
- Pressure adjustment is simple, and can be done by using the cover cap (not on SCOSR) as the adjustment spanner.

COSR-3

- Multi-purpose pressure reducing valve for use on low pressures up to a maximum operating pressure of 3 barg.
- Pressure adjustment range: 0.1 – 0.5 barg.



COSR-16

- General-use multi-purpose pressure reducing valve for use up to a maximum operating pressure of 16 barg.
- Pressure adjustment range: 0.3 – 13.4 barg.



COSR-21

- Multi-purpose pressure reducing valve for use on high pressures up to a maximum operating pressure of 21 barg.
- Pressure adjustment range: 5.5 – 17.6 barg.



SCOSR-16

- Pressure reducing valve for use on low flow rates. Specialised for low flow rates.
- Pressure adjustment range: 0.3 – 13.4 barg.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
COSR-3/16	3, 13	200	13	200	Cast Iron
COSR-3/16/21	3, 16, 21	220	21	220	Ductile Cast Iron
COSR-3/16/21E	3, 16, 21	220	21	220	Cast Stainless Steel
COSR-16G	16	220	21	220	Carbon Steel
SCOSR-16	16	220	16	220	Bronze

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100	6" DN150
COSR-3/16*	Cast Iron	Screwed	821.00	821.00	897.00	-	-	-	-	-	-	-
COSR-3/16/21^	Ductile Cast Iron	Flanged	967.00	971.00	1051.00	1403.00	1417.00	1666.00	3075.00	3157.00	3806.00	9860.00
COSR-3/16/21E^	Stainless Steel	Flanged	1874.00	1874.00	1908.00	3317.00	3360.00	3480.00	-	-	-	-
COSR-16G^	Carbon Steel	Flanged	-	-	-	-	-	-	4028.00	4697.00	-	-
SCOSR-16	Bronze	Screwed	540.00	637.00	680.00	-	-	-	-	-	-	-

^ COSR-3 only in DN20, DN25, DN32, DN40 and DN50.

* Available also with flanged connections according to ASME.

Pressure Reducing Valves (Direct Acting)

Direct Acting Pressure Reducing Valves

Compact, light-weight direct-acting pressure reducing valves.

Operating Inlet Pressure Range: 2 - 16 barg

Operating Temperature Range: 0 - 220 °C

Benefits and Features

- Extremely light and compact pressure reducing valve for use on small process equipment. All wetted parts are of all stainless steel construction with high durability and corrosion resistance for long service life.
- Stable secondary pressure with high flow rate for its class.
- Easy to operate and adjust.
- Built-in screen ensures extended trouble-free operation.



DR20-2

- Multi-purpose compact pressure reducing valve for use on low target pressures.
- Pressure adjustment range: 0.14 – 2 barg.

DR20-6

- Multi-purpose compact pressure reducing valve for use on medium target pressures.
- Pressure adjustment range: 1.8 – 6 barg.

DR20-10

- Multi-purpose compact pressure reducing valve for use on higher target pressures.
- Pressure adjustment range: 5.4 – 10 barg.

Model	Max Operating Pressure (barg)	Adjustable pressure range	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
DR20-2	16	0.14 - 2 barg	220	20	220	Cast Stainless Steel
DR20-6	16	1.8 – 6 barg	220	20	220	Cast Stainless Steel
DR20-10	16	5.4 – 10 barg	220	20	220	Cast Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
DR20	Stainless Steel	Screwed	340.00	362.00	385.00
DR20	Stainless Steel	Flanged	457.00	484.00	514.00

Automatic Control Valves & Controllers

TLV provides multi-purpose control valves and high precision control valves for steam. Can be used for a variety of types of control when combined with a controller.



Pneumatic and electro-pneumatic Control Valves

Electro-pneumatic control valve with built-in separator and trap for steam process use, and valves without those for general use.



Self-acting Temperature Regulators

Presenting self-acting temperature regulators for general steam applications. Self-acting temperature regulators requiring no external input.



Surplussing Valves for Steam

Self-operated control valves for stabilising the primary steam pressure of valves. Also known as 'Primary pressure control valves'.



Controllers

X5 controllers, that are used together with multi-control valves or general control valves.

Benefits and Features

- Pneumatic and electric control valves have quick and accurate control for whatever duty they are required for. With a large customisable range, TLV can provide control valves can be used in most steam and water applications.
- Self acting temperature regulators are very useful in non critical steam heating applications where access to pneumatic air or electricity for actuation is scarce.

Application Areas

- Pneumatic control valves can be utilised in any area where steam or water control is required. This is typically seen in steam pressure and or temperature control.
- Electric controls are typically utilised in areas where noise is a concern or there is a lack of pneumatic air in the vicinity.
- Pneumatic or electric on/off valves are typically utilised for steam or water line isolation as part of a control system or in its own dedicated system as part of a temperature high limit system.
- Self acting temperature regulators are normally located in non critical heating or cooling applications such as steam heating for hotwell or for cooling water in a blowdown vessel.
- Surplussing valves are typically used in applications where the upstream pressure is more critical to be maintained than the downstream use. A surplussing valve will prevent the downstream user from drawing so much steam from the system as to lower the pressure beyond a set point. It is also a critical requirement for any flash vessel solutions.
- Controllers are critical for setting up automatic controls system. Whether it's a pressure, temperature, flow or high temperature cut off system, a controller in combination with the necessary sensor, is necessary for the system to operate.

Information needed for quotation

- Application (Temperature control)
- Process connection type. (PN40)
- Process connection size (DN50)
- Process medium. (Saturated Steam)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Expected flowrate (500kg/hr)
- Type of actuation required (Electric)
- Failure mode (Fail closed)
- Voltage required (24 VAC/DC)
- Control signal required (4-20mA)
- Retransmission required (4-20mA)

Automatic Control Valves

Control Valves with Pneumatic Actuators

Extremely versatile control valves with pneumatic actuators.

Operating inlet Pressure Range: 0 - 25 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

The product line-up includes flanged pneumatically actuated control valves in a range of sizes and capabilities.

- The compact design of the CV-COS, which consists of an integrated separator, steam trap and I/P positioner, enables simple operation.
- The CV-COS is designed for applications requiring the supply of dry, high quality steam.
- For specific applications, the CV5 or its extended range have access to a range of accessories and modifications to make it suitable for most steam, condensate and water applications.

CV-COS

- Steam control valve featuring a digital I/P positioner combined with a compact pneumatic actuator. Built-in cyclone separator and steam trap to provide high quality steam for process applications.



CV5

- Electro-pneumatic globe valve with I/P positioner for steam and non-hazardous fluids.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
CV-COS	See data sheet	220	16	220	Ductile Cast Iron
CV-COS	See data sheet	220	16	220	Cast Stainless Steel
CV5	See data sheet	200	13	200	Cast Iron
CV5	See data sheet	220	25	220	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
CV-COS	Ductile Cast Iron	Flanged	2583.00	2607.00	2672.00	-	2997.00	3498.00	-	-	-
CV-COS	Stainless Steel	Flanged	3484.00	3519.00	3711.00	-	4361.00	4938.00	-	-	-
CV5	Cast Iron	Flanged	1942.00	1942.00	1948.00	2059.00	2083.00	2126.00	2877.00	2969.00	4193.00
CV5	Cast Steel	Flanged	2306.00	2320.00	2332.00	2474.00	2509.00	2583.00	3498.00	3725.00	4633.00

Please note: CV5 and CV-COS – maximum air supply pressure is 4 - 6 barg.

Automatic Control Valves

Control Valves with Pneumatic Actuators (Continued)

Extremely versatile control valves with pneumatic actuators.

Operating inlet Pressure Range: 0 - 10 barg

Operating Temperature Range: 0 - 200 °C

Benefits and Features

- Convenient and easy to install pneumatic stainless steel ball valves. The two or three piece design mean that they are easily maintainable and reliable.
- Both models are highly customisable including the choice of failure position, local position indicator, solenoids and feed back units.



BV4291-ACT

- Pneumatically actuated 3-piece ball valve with stainless steel body. Full bore, AntiStatic and Firesafe design with spring return or double acting.



BV4290-ACT

- Pneumatically actuated 2-piece flanged PN16 (PN40 also available) ball valve with stainless steel body. Full bore AntiStatic and Firesafe design with spring return or double acting.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
BV4291-ACT	10	180	10	200	Stainless Steel
BV4290-ACT	10	200	10	200	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65
BV4291-ACT [^]	Stainless Steel	Screwed	521.00	565.00	724.00	800.00	970.00	1277.00	-
BV4290-ACT [^]	Stainless Steel	Flanged	679.00	720.00	778.00	869.00	1047.00	1306.00	1721.00
Solenoid for BV4291 & 90	State voltage	to suit	128.00						

Optional NAMUR mounted solenoid and switch box available - Prices on request.

Automatic Control Valves

Electric Control Valves

TLV offers electrically actuated control valves for mechanical and plant engineering.

Operating inlet Pressure Range: 0 - 16 barg
 Operating Temperature Range: 0 - 200 °C

Benefits and Features

- V2001 Globe Valves are equipped with electric actuators E1 or E3 and have integral positioners.
- The control valves can be optionally equipped limit switches.



Please note; the actuator voltage and options must be stated upon order.

V2001-E1

- Globe Valve with electric actuator for 85-264 V AC (50 Hz) (standard) or 24 V AC (50 Hz) / DC supply. Nominal thrust 0.7 kN.
- Rated IP 54.



V2001-E3

- Globe Valve with electric actuator for 85-264 V AC (47 - 63 Hz) (standard) or 24 V AC (47 - 63 Hz) / DC supply. Nominal thrust 2.5 kN.
- Optional 'Failsafe' on power failure safety function (type tested). Nominal thrust 2 kN.
- Rated IP 54



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
V2001-E1/E3	See data sheet	200	13	200	Cast Iron
V2001-E1/E3	See data sheet	220	16	220	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80
V2001-E1^	Cast Iron	Flanged	1270.00	1272.00	1278.00	1402.00	1432.00	1478.00	-	-
	Cast Steel	Flanged	1682.00	1700.00	1712.00	1874.00	1912.00	1996.00	-	-
V2001-E3	Cast Iron	Flanged	1758.00	1760.00	1766.00	1892.00	1920.00	1968.00	2316.00	2422.00
	Cast Steel	Flanged	2172.00	2188.00	2200.00	2362.00	2400.00	2486.00	3018.00	3276.00
V2001-E3 (Failsafe)	Cast Iron	Flanged	1994.00	1996.00	2002.00	2128.00	2156.00	2204.00	2552.00	2658.00
	Cast Steel	Flanged	2408.00	2424.00	2436.00	2598.00	2636.00	2722.00	32554.00	3512.00

^ Not capable of being retrofitted with limit contacts.

Options	
Limit contacts (24V AC/DC Only)	138.00

Automatic Control Valves

Self-acting Temperature Regulators

TLV offers self-acting temperature regulators for general steam applications, which requires no electricity.

Operating Inlet Pressure Range: 0.1 - 16 barg

Operating Temperature Range: 0 - 220 °C

Benefits and Features

- Self-acting design simplifies installation by eliminating the need for power supply or instrument signal lines.
- Can be used as either a self acting regulator for a heating or cooling duty. It can also be used as an independent high limit shut off.



Type 43-5

- Screwed self-acting temperature regulating valve for steam heating of non-hazardous liquids and gases. Also available for self-acting cooling duty in a model variation.
- 2m capillary tube as standard.



TC1

- Flanged self-acting temperature regulating valve for steam heating of non-hazardous liquids and gases.
- 5m capillary tube as standard.



TC2

- Flanged self-acting temperature regulating valve for steam heating of non-hazardous liquids and gases. Pressure-balancing bellows provides improved flow and differential pressure performance.
- 5m capillary tube as standard.

Model	Max Operating Steam Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
Type 43-5	13	200	14	200	Gunmetal
TC1	See data sheet	200	13	200	Cast Iron
	See data sheet	220	16	220	Cast Steel
TC2	13	200	13	200	Cast Iron
	16	220	16	220	Cast Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
Type 43-5	Gunmetal	Screwed	852.00	864.00	876.00	-	-	-	-	-	-
TC1	SG Iron	Flanged	1552.00	1648.00	1706.00	2124.00	2252.00	2486.00	-	-	-
	Cast Steel	Flanged	1928.00	2048.00	2128.00	2316.00	2480.00	2716.00	-	-	-
TC2	SG Iron	Flanged	2400.00	2508.00	2556.00	2752.00	2954.00	3060.00	3868.00	4006.00	5288.00
	Cast Steel	Flanged	2664.00	2786.00	2936.00	3202.00	3642.00	4118.00	5008.00	5518.00	7210.00

43-5 Options	
Stainless Steel Pocket	72.00
5m Capillary Upgrade	32.00

TC1 & TC2 Options	
Stainless Steel Pocket	144.00
High limit cut-out thermostat instead of modulating temperature control	1078.00
10m Capillary Upgrade	210.00
15m Capillary Upgrade	312.00

Automatic Control Valves

Surplussing Valves for Steam

Self-operated pilot control valves for maintaining the upstream pressure of the system.

Operating Inlet Pressure Range: 1 - 16 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- Self-actuated back pressure control valve (pilot-operated surplussing valve) for maintaining upstream pressure. Internal pressure sensing channel makes external sensing line unnecessary and results in a compact installation.
- Features a wide range of pressure adjustment settings with stable operation. Self-aligning and shock absorbing spherical piston ensures high accuracy of control. Also compact in size, yet large capacity.
- Ideal for prioritising the flow of steam to critical processes or for controlling the pressure of “flash steam” recovery systems.

For sizes and pressure ranges beyond the SP-COSR range, control valves can be used for the same duty in a different arrangement. Please contact TLV for further details.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
SP-COSR-16	16	220	21	220	Ductile Cast Iron

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50
SP-COSR-16	Ductile Cast Iron	Flanged	967.00	971.00	1050.00	1403.00	1417.00	1667.00

Automatic Valve Controllers

PID Controller

TLV makes available high precision controllers for steam valves.

Benefits and Features

- Rated voltage free between 85 and 264V AC.
- PID Control
- Self-tuning
- 4 – 20 mA output
- Universal input
- 6 outputs (relay, triac, logic, current)
- 2 analogue outputs
- Programmer: 4 programs with 16 segments each
- Memory chip for rapid re-configuration
- Retransmission of single peice of data.



An easy configurable 3 term, PID, controller available with serial communication (PROFIBUS DP Slave, Modbus Master and Modbus Slave). Functions can include: auto tune, IP65 front panel protection, serial communications, continuous control output, custom linearisation, transmitter power supply, start-up and timer special functions (Function depends on type of controller).

TLV can provide X5 controller set up and ready to install for a number of processes including but not limited to temperature control, pressure control (for reduction and surplussing duties), flow control and set up for use as an independent high limit. TLV can design and implement more complex control schemes, including master/slave interfaces and integrating X5 units with touch screen interfaces upon request.

Model	Price
X5	892.00

Safety Valves

TLV offers full-lift spring loaded type safety valves. The purpose of the safety valve is to protect the equipment to which the steam is being supplied from overpressure by venting the excess to atmosphere.

It is imperative that the capacity of the safety valve can discharge all of the steam that can flow through the pressure regulating valve if the valve fails fully open.

Benefits and Features

- Protects steam using equipment from over pressure.

Application Areas

- Safety valves should be located nearby any steam using equipment which has a PMA that may be exceeded under certain conditions such as an upstream valve failure.

Safety Valve Selection / Sizing

TLV engineers will select / size a valve that will suit the required discharge capacity for the given site and pressure conditions.

However the following should be considered when purchasing a safety valve.

- The inlet pipe size may not be sufficient. This can lead to either;
 - An under-capacity valve that will not vent sufficiently therefore over-pressurisation of the system is possible - with the possibility of damage to the system components or, at worst rupture.
 - An over-capacity valve with the risk of “hammering” in operation, which will lead to rapid valve seat degradation.
- The outlet pipe size may need to increase from the outlet connection size if the outlet pipe length is long or convoluted.
- The outlet pipe must include a cap when venting outdoors .
- Any low points in the outlet pipe must include a low point drain port to prevent liquids from accumulating.

The safety valve set pressure and any certificates required should be requested at the time of ordering.

Information needed for quotation

- | | |
|--|------------------------------------|
| • Application | (Post let down station) |
| • Process connection type. | (PN40) |
| • Process medium. | (Saturated Steam) |
| • Primary set pressure and temperature | (10 barG, 184 °C) |
| • Primary and secondary pressures | (12 barG & 7 barG) |
| • Upstream failure point | (Upstream pressure reducing valve) |
| | (Make, model, KVS) |
| • Length of pipework to safe vent area | (10m and two 90° bends) |

Safety Valves

Safety Valves for Steam

TLV offers full-lift spring loaded type safety valves. For use on steam, air, water and other non-hazardous fluid. Safety valves automatically discharge when steam or other fluid pressure rises abnormally.

Operating Pressure Range: 0 - 40 barg (higher pressures on special applications)

Operating Temperature Range: 0 - 450 °C



Benefits and Features

- Safety valves are a type of automatic valve designed to automatically open and discharge their fluid contents when the pressure reaches the designated pressure, then automatically close again when the pressure falls below the designated value. They are used as a safety device to protect equipment, instrumentation and piping from excessive pressure.

Please note: Safety Valve's Set Pressure (and any certification) is required to be stated at time of ordering.

SV25.912 / SV35.912

- Full lift closed bonnet spring loaded flanged type safety valve with open lifting device. Other materials and options are available on request.



Series 451 / 645

- Spring loaded screwed safety valve with resilient soft seating design. High degree of seat tightness and is suitable for hot water, steam and air. Large discharge capacities with safe manual testing operation.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
SV25.912	25	350	25	350	Nodular Iron
SV35.912	40	400	40	450	Cast Steel
Series 451	25	225	25	225	Stainless Steel
Series 645	13	195	13	195	Gunmetal

See data sheet for pressure / temperature ranges

Model	Body Material	Connection Type	Inlet Size									
			1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100	5" DN125
			Outlet Size refer to data sheet									
SV25.912	Nodular Iron	Flanged	-	534.00	536.00	647.00	826.00	1032.00	1471.00	1960.00	2907.00	3622.00
SV35.912	Cast Steel	Flanged	747.00	749.00	756.00	928.00	1142.00	1441.00	1923.00	2543.00	3662.00	5214.00
451	Stainless Steel	Screwed	666.00	830.00	1003.00	1165.00	1300.00	-	-	-	-	-
645	Gunmetal	Screwed	247.00	311.00	429.00	593.00	772.00	-	-	-	-	-

Steam Traps

Summary

A steam trap is an automatic valve that discharges condensate generated during processes and in steam transport lines, without allowing the discharge of any steam.

A steam trap for most normal applications should perform the following three functions,

- Discharge condensate.
- Prevent steam loss.
- Discharge incondensable gases.

There are various different types of steam traps that carry out these functions but they can be roughly divided into three categories –



Mechanical: Operates using the differences in densities between steam and condensate.



Thermostatic: Operates using the differences in temperature between steam and condensate.



Thermodynamic: Operates using the differences in properties between steam and condensate.

An extensive product line-up for all of these categories makes it possible to select the optimal product to suit the objective or application.

Steam traps, generally should be located in any area where steam is used to provide useful work in the form of heating or periodically located along the method of distribution, put simply, wherever condensate will gather. It's critical that condensate is removed from the system as soon as it is formed as pooling condensate can lead to many issues within the steam system.

Pooling condensate can cause the following issues within the steam system.

- Loss of heating efficiency
- Uneven heating
- Water hammer
- Corrosion
- Condensate erosion

TLV Core Product 'Free Float' Mechanical Steam Trap

TLV has developed the 'Free Float Trap' to eliminate the problems previously experienced by mechanical steam traps. Due to its success, it has become one of TLV's core products, leading the industry with regards to innovation and reliability.

The development of the Free Float Steam Trap has increased the longevity and reliability of the trap by reducing the number of moving parts to one – the "Free Float". The high quality component has a spherical tolerance of only 0.004D, resulting in unparalleled sealing performance, even when operating under low condensate loads at high pressures and temperatures

Due to the free float's versatile nature, it is suitable for almost all saturated and superheated steam using applications including, but not limited to, heat exchangers, critical tracing, turbine drainage and line drainage.

Application Guide

Below are some common applications and the steam trap types that are often used for each application.

INDUSTRIAL APPLICATIONS	TRAP CHOICE	INDUSTRIAL APPLICATIONS	TRAP CHOICE
Superheated Steam – All Service		Barrel Jackets / Screen Holder	FFT
P ≤ 80 barg	FFT	Die Plate	FFT
80 barg < P ≤ 120 barg	FF	Paper Mills	
120 barg < P ≤ 260 barg	TD	Digesters	FFT
Saturated Steam Mains	FFT	Rolling Dryers	FF-LRV
Steam Turbines		Press Dryer	FFT
Supply Lines	FFT	Surface Condensers (Require a Pressure-Balancing Line)	
Governor/Trip & Throttle Valve	FFT	Intercooler	FF
Casing Drains: P ≤ 0 barg	MPT	After Cooler	FF
Casing Drains: P > 0 barg	FFT	Gland Seal Condenser	FF
Exhaust Steam Lines: P ≤ 0 barg	MPT	Vacuum Jets Supply Line	FFT
Exhaust Steam Lines: P > 0 barg	FFT	Heating and Air Conditioning	
Process Equipment Supply Lines	FFT	Absorption Chillers	FFT
Tracing Lines		Air heating Coils with Stall Condition	MPT
Low Temperature: T ≤ 80°C	BMT	Air heating Coils without Stall Condition	FFT
High Temp. Supported: T > 80°C	FFT	Heat Exchangers with Stall Condition	MPT
High Temp. Unsupported: T > 80°C	BPT	Heat Exchangers without Stall Condition	FFT
Sampling Equipment: T ≤ 70°C	BMT	Radiators	BPT
Sampling Equipment: T > 70°C	FFT	Hospital Equipment	
Sulphur Unit		Sterilisers / Autoclaves	FFT
Pit Coils	FF-LRV	Food Equipment	
Jacketed Pipe	FFT	Kettles	FFT
Process Heaters: P ≤ 10 barg Supply		Boiling Pans - Fixed / Tilting	FFT
Stall Condition	MPT	Hot Plates / Ovens	FFT
No Stall Condition	FFT	Retorts	FFT
Process Heaters: P > 10 barg Supply		Process Equipment	
Stall Condition	FFT / MP	Brewing Coppers	FFT
No Stall Condition	FFT	Drying Coils / Water Heaters	FFT
Storage Tank Heating with Temperature Control Valve		Platen Presses	FFT
Stall Condition	MPT	Vulcanisers	FFT
No Stall Condition	FFT		
Storage Tank Heating without Temperature Control Valve			
Temperature Control Not Required	FFT		
Partial Temperature Control by Trap	BMT		
Freeze Protection	BMT		
Motive Steam Supply to Mechanical Pump	FFT		
Extruders			

FFT	- Free Float with Thermostatic Air Vent	MPT	- Mechanical Pump with Built-in Trap
FF	- Free Float	MP	- Mechanical Pump
FF-LRV	- Free float with Lock Release Valve	BPT	- Balanced Pressure Thermostatic
TD	- Thermodynamic	BMT	- Bimetal Thermostatic (Temp. Control Trap)

Information needed for quotation

- Application (Process Heaters: P ≤ 10 barg Supply)
- Process connection type. (PN40)
- Process connection size (DN15)
- Process medium. (Saturated Steam)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Inlet control methodology (Modulating control valve)
- Is condensate recovered?
- Known back pressure or lift (1 barG, 10m)
- Anticipated condensate load (300kg/hr)

Free Float Steam Traps

Summary

The operation principle for these steam traps utilises the differences in density between steam and condensate.

Operating Inlet Pressure Range: 0.1 - 120 barg

Operating Temperature Range: 0 - 530 °C (up to 600 °C on special applications)

Free Float Steam Traps (Low Pressure)

Free float steam traps, which offer continuous discharge, are optimal for processes.

Models for use on low pressure up to 21 barg.

Free Float Steam Traps (Medium / High Pressure)

Free float steam traps, which offer continuous discharge, are optimal for processes.

Models for use on mid to high pressure up to 120 barg, and some models for main lines are also available.

Free Float Steam Traps for Main Lines

Free float steam traps for main lines, with a tight seal even under low condensate load conditions.

Large Capacity Float Steam Traps

Large capacity steam traps with a maximum discharge capacity of 150,000 kg/h.

For Clean Steam Free Float Traps – see Clean Steam Trap Section.

Benefits and Features

- The moving float provides an infinite number of contact surfaces with the valve seat, ensuring long service life.
- Air venting feature for improved equipment productivity.
- Compact design with no levers or hinges.
- Large tolerance for back pressure allows for problem-free operation.

Application Areas

- Free Float mechanical steam traps can be utilised for almost all steam using applications.
- Continuous discharge makes it ideal for both line drainage and heat exchange applications.
- Can be used in conjunction with insulation for energy savings.



Free Float Steam Traps (Low Pressure)

J-Series

Steam Traps for low pressure processes.

Operating Inlet Pressure Range: 0.1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- The built-in X-element functions as an air vent, discharging both cool and hot air. As a result, the steam chamber inside the equipment contains only steam, which allows the equipment to achieve optimised heating performance. For additional safety, the X-element is designed to fail open.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life. The bodies of the J3SX and J5SX and J6SX models are constructed of stainless steel for increased durability.

J5X / JF5X

- Free float steam trap with built-in strainer and X-element type automatic air vent, for use on process equipment.
- Lock release valve option available.



J3SX / JF3SX / J5SX / J6SX

- All stainless steel construction free float steam trap with integral strainer for use on process equipment.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.



J7X / J7.2X / J7.5X / J8X

- Free float steam trap with built-in strainer and X-element type automatic air vent, for use on process equipment.



Model	Max Differential Pressure range (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacities up to kg/h
J3SX	2, 5, 10, 14, 21	220	21	220	Stainless Steel	760
J5X	2, 5, 8, 10, 13	200	13	200	Ductile Cast Iron	1,000
J5SX	2, 5, 10, 14, 21	220	21	220	Stainless Steel	1,050
J6SX	2, 5, 10, 16, 21	220	21	220	Stainless Steel	3,500
J7X	2.5, 5, 10, 13	200	13	200	Cast Iron	4,000
J7.2X	0.5, 1, 2, 5, 10, 13	200	13	200	Cast Iron	9,000
J7.5X	1, 2, 5, 10, 13	200	13	200	Cast Iron	15,000
J8X	0.5, 1, 2, 5, 10, 13	200	13	200	Cast Iron	25,000

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	3" DN80	4" DN100
J3SX [^]	Stainless Steel	Screwed	262.00	275.00	288.00	-	-	-	-	-
JF3SX	Stainless Steel	Flanged	443.00	461.00	491.00	-	-	-	-	-
J5X [^]	Ductile Cast Iron	Screwed	-	399.00	399.00	453.00	453.00	-	-	-
JF5X [^]	Ductile Cast Iron	Flanged	-	510.00	537.00	566.00	651.00	743.00	-	-
J5SX [^]	Stainless Steel	Screwed	-	574.00	578.00	601.00	634.00	-	-	-
J5SX [^]	Stainless Steel	Flanged	-	912.00	946.00	-	-	-	-	-
J6SX [^]	Stainless Steel	Screwed	622.00	633.00	640.00	-	-	-	-	-
JS7X [^]	Cast Iron	Screwed	-	-	833.00	-	880.00	-	-	-
J7X [^]	Cast Iron	Flanged	-	928.00	928.00	936.00	936.00	954.00	-	-
J7.2X [^]	Cast Iron	Flanged	-	-	-	-	1609.00	1654.00	-	-
J7.5X [^]	Cast Iron	Flanged	-	-	-	-	2015.00	2061.00	2220.00	-
J8X [^]	Cast Iron	Flanged	-	-	-	-	-	4384.00	4608.00	4781.00

[^] Other connection standards available.

Free Float Steam Traps (DIN Standard)

SJ-Series

Meets DIN standards (DN2501) for flanges.

Operating Inlet Pressure Range: 0.1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- The built-in X-element functions as an air vent, discharging both cool and hot air. As a result, the steam chamber inside the equipment contains only steam, which allows the equipment to achieve optimised heating performance. For additional safety, the X-element is designed to fail open.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life. The bodies of the J3SX and J5SX and J6SX models are constructed of stainless steel for increased durability.

SJ3FX / SJ3VX / SJ5FX / SJ6FX / SJ7FX

- Free float steam trap for use on process equipment. Available in both horizontal pipe (N) and vertical pipe (V) formats.
- Flanged PN 25/40. Vertical format (SJ3VX) threaded BSP.



SJH3X / SJH5X / SJH7X

- Available in both horizontal flow (N) and vertical flow (V) formats. Flanged PN 25/40.
- Bimetal air vent option.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
SJ3FX	2, 5, 9, 14, 22	220	22	220	Ductile Cast Iron	1,000
SJ3VX	2, 5, 9, 14, 22	220	22	220	Ductile Cast Iron	1,000
SJ5FX	2, 5, 9, 14, 22	220	22	220	Ductile Cast Iron	1,390
SJ6FX	2, 5, 9, 14, 22	220	22	220	Ductile Cast Iron	3,000
SJ7FX	2, 5, 9, 14, 22	220	22	220	Ductile Cast Iron	5,000
SJH3X	5, 10, 14, 22, 32	240, 400*	40	400	Stainless Steel	890
SJH5X	5, 10, 14, 22, 32	240, 400*	40	400	Stainless Steel	1,390
SJH7X	5, 10, 14, 22, 32	240, 400*	40	400	Stainless Steel	5,000

* With bimetal air vent option.

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50
SJ3FX	Ductile Cast Iron	Flanged	515.00	531.00	593.00	-	-
SJ3VX	Ductile Cast Iron	Screwed	463.00	479.00	495.00	-	-
SJ5FX	Ductile Cast Iron	Flanged	-	661.00	684.00	-	-
SJ6FX	Ductile Cast Iron	Flanged	-	-	-	1206.00	1242.00
SJ7FX	Ductile Cast Iron	Flanged	-	-	-	1362.00	1437.00
SJH3X	Stainless Steel	Flanged	1219.00	-	-	-	-
SJH5X	Stainless Steel	Flanged	-	1418.00	1418.00	-	-
SJH7X	Stainless Steel	Flanged	-	-	-	3018.00	3062.00

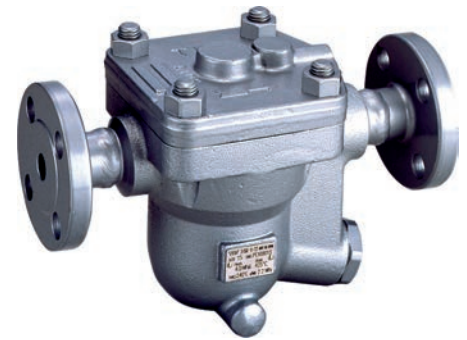
Free Float Steam Traps (Medium / High Pressure)

JH-Series

Suitable for medium to high pressure processes.

Operating Inlet Pressure Range: 0.1 - 120 barg

Operating Temperature Range: 0 - 530 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- The built-in X-element functions as an air vent, discharging both cool and hot air. As a result, the steam chamber inside the equipment contains only steam, which allows the equipment to achieve optimised heating performance. For additional safety, the X-element is designed to fail open.
- The B variant changes the x element with a thermostatic bimetal air vent to allow for the increased temperature.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

JH3SX / JH3SB

- All stainless steel construction free float trap for use on high pressure process applications.



JH5RLX / JH5RLB / JH5SLX / JH5SLB

- Cast steel (JH5RLX) / All stainless steel (JH5SLX) construction free float trap for use on high pressure process applications.



JH5RHB / JH5SHB

- Cast steel (JH5RHB) / all stainless steel (JH5SHB) construction free float trap for use on high pressure process applications.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
JH3 SX	2, 5, 10, 14, 22, 32	240	32	350	Stainless Steel	600
JH3 SB	2, 5, 10, 14, 22, 32	350	32	350	Stainless Steel	450
JH5 RL X	5, 10, 14, 22, 32	240	40	400	Cast Steel	1,000
JH5 RL B	2, 5, 10, 14, 22, 32, 40, 46	400	46	400	Cast Steel	700
JH5 RH B	80	400	80	400	Cast Steel	120
JH5 SL X	5, 10, 22, 32	240	40	425	Stainless Steel	1,000
JH5 SL B	2, 5, 10, 14, 22, 32, 40, 46	425	46	425	Stainless Steel	700
JH5 SH B	65	425	65	425	Stainless Steel	150

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50
JH3 SX/B	Stainless Steel	Screwed/SW	438.00	468.00	499.00	-	-
	Stainless Steel	Flanged*	678.00	727.00	750.00	-	-
JH5 RL X/B	Cast Steel	Screwed/SW	863.00	873.00	897.00	-	-
	Cast Steel	Flanged*	1002.00	1033.00	1059.00	1230.00	1255.00
JH5 RH B	Cast Steel	SW	1635.00	1666.00	1699.00	1740.00	1788.00
	Cast Steel	Flanged*	1808.00	1886.00	1940.00	2274.00	2655.00
JH5 SL X/B	Stainless Steel	Screwed/SW	1288.00	1317.00	1342.00	1399.00	1530.00
	Stainless Steel	Flanged*	1491.00	1528.00	1623.00	1924.00	1938.00
JH5 SH B	Stainless Steel	SW	1712.00	1764.00	1817.00	1884.00	1940.00
	Stainless Steel	Flanged*	1884.00	1944.00	2011.00	2338.00	2394.00

* Connections according to DIN/ASME available.

Free Float Steam Traps (Medium / High Pressure)

JH-Series continued

Suitable for medium to high pressure processes.

Operating Inlet Pressure Range: 0.1 - 120 barg

Operating Temperature Range: 0 - 530 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- The built-in X-element functions as an air vent, discharging both cool and hot air. As a result, the steam chamber inside the equipment contains only steam, which allows the equipment to achieve optimised heating performance. For additional safety, the X-element is designed to fail open.
- The B variant changes the x element with a thermostatic bimetal air vent to allow for the increased temperature.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

JH7RLX / JH7RLB

- Free float trap for use on high pressure process applications.



JH7RMB

- Free float trap for use on high pressure process applications.



JH7RHB / JH7RHP / JH7RHW

- Free float trap for use on high pressure / temperature process applications.
- P & W variants can be utilised for higher temperature applications.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
JH7 RL X	2, 5, 10, 14, 22, 32	240	40	400	Cast Steel	4,000
JH7 RL B	2, 5, 10, 14, 22, 32, 40, 46	400	46	400	Cast Steel	3,800
JH7 RM B	65	400	65	400	Cast Steel	750
JH7 RH B(P/W)	80 ,100, (120)	425 (530)	120	425 (530)	Cast Steel	600

Values in () are those for P/W variations only

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50
JH7 RL X/B	Cast Steel	Screwed/SW	-	1645.00	1683.00	1786.00	1802.00
	Cast Steel	Flanged*	-	1787.00	1834.00	1850.00	2001.00
JH7 RM B	Cast Steel	SW	-	2459.00	2369.00	2541.00	2812.00
	Cast Steel	Flanged*	-	2637.00	2699.00	2919.00	3197.00
JH7 RH B/P/W	Cast Steel	SW	6007.00	6007.00	6607.00	-	-
	Cast Steel	Flanged*	6930.00	6930.00	6930.00	-	-

* Connections according to DIN/ASME available.

Free Float Steam Traps (Medium / High Pressure)

JH-Series continued

Suitable for medium to high pressure processes.

Operating Inlet Pressure Range: 0.1 - 120 barg

Operating Temperature Range: 0 - 530 °C (up to 600 °C on special applications)



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Constant water seal design ensures a steam-tight seal, even under low-load conditions. (not JH15 Range)
- The built-in X-element functions as an air vent, discharging both cool and hot air. As a result, the steam chamber inside the equipment contains only steam, which allows the equipment to achieve optimised heating performance. For additional safety, the X-element is designed to fail open.
- The B variant changes the x element with a thermostatic bimetal air vent to allow for the increased temperature.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

JH7.2RX/B / JH7.5RX/B / JH8RX/B

- Free float trap for use on high pressure process applications.



JH15E / JH15M / JH15S

- Extra-large capacity high pressure float steam trap with two built-in screens.
- FLOATDYNAMIC® feature uses a free float as a pilot valve.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
JH7.2RX	2, 5, 10, 14, 22, 32	240	46	400	Cast Steel	6,000
JH7.2RB	2, 5, 10, 14, 22, 32, 40, 46	400	46	400	Cast Steel	5,800
JH7.5RX	2, 5, 10, 14, 22, 32	240	46	400	Cast Steel	15,000
JH7.5RB	2, 5, 10, 14, 22, 32, 40, 46	400	46	400	Cast Steel	15,000
JH8RX	0.5, 2, 5, 10, 14, 22, 32	240	46	400	Cast Steel	25,000
JH8RB	0.5, 2, 5, 10, 14, 22, 32, 40, 46	400	46	400	Cast Steel	25,000
JH15E-21	21	400	50	400	Cast Steel	130,000
JH15M-21	21	400	50	400	Cast Steel	68,000
JH15S-21	21	400	50	400	Cast Steel	21,000
JH15E-46	46	400	50	400	Cast Steel	160,000
JH15M-46	46	400	50	400	Cast Steel	85,000
JH15S-46	46	400	50	400	Cast Steel	25,000

Model	Body Material	Connection Type	1 1/2" DN40	2" DN50	3" DN80	4" DN100
JH7.2R X/B	Cast Steel	SW	2698.00	2840.00	-	-
	Cast Steel	Flanged*	2698.00	2840.00	-	-
JH7.5R X/B	Cast Steel	SW	3878.00	3901.00	4300.00	-
	Cast Steel	Flanged*	3878.00	3901.00	4300.00	-
JH8R X/B	Cast Steel	SW	-	7128.00	7617.00	7893.00
	Cast Steel	Flanged*	-	7128.00	7617.00	7893.00
JH15E/M/S-21	Cast Steel	Flanged*	-	-	-	14641.00
JH15E/M/S-46^	Cast Steel	Flanged*	-	-	-	16725.00

* Connections according to DIN/ASME available.

Free Float Steam Traps (For Mains Lines)

S-Series

Suitable for mains lines drainage.

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- Automatic bimetal air vent for rapid start up. As a result, the steam space contains only steam, which allows optimised heating performance.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

SS1

- Maintainable free float trap for use on steam mains. Available in horizontal (N) and vertical (V) formats and low (L) and high (H) temperature option.

SS3

- Sealed free float trap for use on steam mains. Welded all stainless steel construction with built-in strainer. Available in horizontal (N) and vertical (V) formats. Insulation cover also available.

SS5

- Free float trap for use on steam mains. Unique three-point seating ensures steam-tight seal, even under no-load conditions. Welded all stainless steel construction with built-in strainer. Available in horizontal (N) and vertical (V) formats.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
SS1(L)	5, 10, 21	220	21	220	Stainless Steel	200
SS1(H)	5, 10, 21	350	21	350	Stainless Steel	200
SS3	5, 10, 21	400	24	400	Stainless Steel	300
SS5 (H)	5, 10, 16, 21, 32, (46)	425	46	425	Stainless Steel	800

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
SS1	Stainless Steel	Screwed/SW	294.00	317.00	324.00
	Stainless Steel	Flanged*	395.00	409.00	440.00
SS3	Stainless Steel	Screwed/SW	292.00	306.00	340.00
	Stainless Steel	Flanged*	439.00	452.00	467.00
SS5(H)	Stainless Steel	Screwed/SW	486.00	511.00	547.00
	Stainless Steel	Flanged*	782.00	895.00	982.00

* Connections according to DIN/ASME available.

Free Float Steam Traps (High Pressure)

SH-Series

Suitable for very high pressures and superheated steam.

Operating Inlet Pressure Range: 0.1 - 100 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- Automatic bimetal air vent for rapid start up. As a result, the steam space contains only steam, which allows optimised heating performance.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

SH3NL

- Free float steam trap with built-in strainer for use on high pressure steam mains.
- For use on horizontal pipelines.



SH5NL / SH5NH

- Free float steam trap with built-in strainer for use on high pressure steam mains. For use on horizontal pipelines.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
SH3NL	14, 32, 45	425	45	425	Cast Steel	300
SH5NL/H	14, 32, 46, 65, 80*	425	65, 80*	425	Cast Steel	600

*For SH5NH only.

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
SH3NL	Cast Steel	SW	988.00	999.00	1021.00
	Cast Steel	Flanged**	1000.00	1012.00	1048.00
SH5NL	Cast Steel	SW	1012.00	1039.00	1062.00
	Cast Steel	Flanged**	1164.00	1191.00	1206.00
SH5NH	Cast Steel	SW	1680.00	1696.00	1725.00
	Cast Steel	Flanged**	1923.00	2229.00	2401.00

** Connections according to ASME.

Free Float Steam Traps (High Pressure)

SH-Series continued

Suitable for very high pressures and superheated steam.

Operating Inlet Pressure Range: 0.1 - 100 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Unique three-point seating ensures perfect steam-tight seal, even under no-load conditions.
- Automatic bimetal air vent for rapid start up. As a result, the steam space contains only steam, which allows optimised heating performance.
- Built in strainer catches debris that may impede steam trap operation.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring a long service life.

SH6NL / SH6NH

- Free float steam trap with built-in strainer for use on high pressure steam mains. For use on horizontal pipelines.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
SH6NL/H	14, 32, 46, 65, 100*	400	65, 100*	400	Cast Steel	2,000

*For SH6NH and SH7NH respectively only.

Model	Body Material	Connection Type	1" DN25	1 1/2" DN40	2" DN50
SH6NL	Cast Steel	SW	2343.00	2416.00	2541.00
	Cast Steel	Flanged**	3189.00	3311.00	3378.00
SH6NH	Cast Steel	SW	-	4011.00	-
	Cast Steel	Flanged**	3905.00	4011.00	-

** Connections according to ASME.

Free Float Steam Traps (Large Capacity)

Large Capacity Traps

Steam traps suitable for large levels of condensate.

Operating Inlet Pressure Range: 0 - 32 barg

Operating Temperature Range: 0 - 400 °C



Benefits and Features

- The float (free float) rises and falls as the flow of condensate fluctuates, opening the valve to discharge condensate and closing off the valve when steam enters.
- Lever float or float pilot designs result in extremely high capacity steam traps.
- Built in strainer catches debris that may impede steam trap operation.

J10

- Extra-large capacity float steam trap. FLOATDYNAMIC® feature uses a free float as a pilot valve.
- Manual lock release allows venting to prevent air and steam locking conditions.



JL9X / JLH9X

- Lever Float with Dual Valve mechanism for high capacity, for use on process equipment. Features thermostatic air venting.



JL14X / JLH14X / JLH14B

- Lever Float with Dual Valve mechanism for high capacity, for use on process equipment. Features thermostatic air venting.
- Bimetal air vent option.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
J10	13	220	13	220	Cast Iron*	60,000
JL 9X	10, 13	200	13	200	Cast Iron	18,000**
JL H 9X	10, 18, (32)	220 (240)	32	400	Cast Steel	18,000**
JL 14X	10, 13	200	13	200	Cast Iron	60,000**
JL H 14X/B	10, 18	240 / 400 ^a	32	400	Cast Steel	60,000**

** Minimum flow rate is applicable

() Values are for the 32 Barg variant. ^a With bi-metal air vent option

Model	Body Material	Connection Type	2" DN50	3" DN80	4" DN100
J10	Cast Iron	Flanged	-	-	7551.00
JL 9X	Cast Iron	Screwed	1822.00	-	-
	Cast Iron	Flanged	2025.00	-	-
JL H 9X	Cast Steel	Screwed/SW	4349.00	-	-
	Cast Steel	Flanged	4349.00	-	-
JL 14X	Cast Iron	Screwed	-	3391.00	-
	Cast Iron	Flanged	-	3391.00	-
JL H 14X/B	Cast Steel	Screwed/SW	-	5462.00	-
	Cast Steel	Flanged	-	7285.00	-

Thermodynamic Steam Traps

Summary

The operation principle for these traps utilises the difference in the thermodynamic properties of condensate and steam.

Also known as 'Disc Traps'

Operating Inlet Pressure Range: 0.3 - 260 barg

Operating Temperature Range: 0 - 550 °C



PowerDyne Disc Type Steam Traps

Extremely versatile disc type steam traps.

Benefits and Features

- In line replaceable valve modules mean that the critical elements can be removed and without removing it from the line.
- Compact design means that it can be installed in constrained areas.
- Air jacket helps protect the valve from unnecessary operation.
- TLV's thermodynamic steam traps are all disc type traps, which allow less steam leakage and have fewer problems with sticky scale and build-up of dirt.

Application Areas

- Suitable for compact areas.
- Can be used on high pressure superheated lines.

Thermodynamic Steam Traps

PowerDyne Disc Type Steam Traps

Compact thermodynamic steam traps suitable for most applications.

Operating Inlet Pressure Range: 0.3 - 65 barg

Operating Temperature Range: 0 - 550 °C



Benefits and Features

- Only TLV has a line of thermodynamic (disc) steam traps that have been developed to cover the complete range of pressures from low pressures to supercritical pressures (260 barg).
- Disc steam trap operation may suffer if the trap is exposed to cold air and rain, so to prevent wasteful leakage of steam all models include an integrated air jacket.
- Productivity is impaired if the large amounts of cold condensate and air inside the system are not discharged as soon as the equipment is started up. With the exception of models P46S, HR150A and HR260A, all models have an integral bimetal type automatic air venting feature. The valve is fully open when temperatures are low, allowing for the rapid discharge of cold condensate and air.

P21S ver. C

- Thermodynamic steam trap which can be used up to 21 barg. Designed for coping with high levels of dirt around the valve seat typical in copper tracing lines. No facility for air venting.



P46SRN

- Thermodynamic steam trap which can be used up to 46 barg.



P46SRM

- Thermodynamic steam trap which can be used up to 46 barg. Higher capacity variant of P46SRN.



P46SRW

- Thermodynamic steam trap which can be used up to 46 barg. Higher capacity variant of P46SRM.



P65SRN

- Thermodynamic steam trap which can be used up to 65 barg.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
P21S ver. C	21	425	42	425	Stainless Steel	400
P46SRN	46	425*	56	425/550*	Carbon Steel/SS	750
P46SRM	46	425*	56	425/550*	Forged Steel/SS	1,400
P46SRW	46	425*	46	425*	Carbon Steel	2,500
P65SRN	65	425*	65	425/550*	Carbon Steel/SS	450

*400°C on PN Flange models

Model	Body Material	Connection Type	1/4" DN8	3/8" DN10	1/2" DN15	3/4" DN20	1" DN25
P21S ver. C	Stainless Steel	Screwed	124.00	124.00	124.00	-	-
P46SRN	Carbon Steel	Screwed/SW	-	-	149.00	152.00	157.00
	Carbon Steel	Flanged	-	-	236.00	243.00	282.00
	Stainless Steel	Screwed/SW	-	-	195.00	200.00	206.00
	Stainless Steel	Flanged	-	-	265.00	286.00	337.00
P46SRM	Carbon Steel	Screwed/SW	-	-	215.00	222.00	240.00
	Carbon Steel	Flanged	-	-	419.00	447.00	480.00
P46SRW	Carbon Steel	Screwed/SW	-	-	-	-	334.00
P65SRN	Carbon Steel	SW	-	-	252.00	273.00	356.00
	Carbon Steel	Flanged	-	-	543.00	554.00	584.00

Thermodynamic Steam Traps

PowerDyne Disc Type Steam Traps continued

Compact thermodynamic steam traps suitable for high pressure applications.

Operating Inlet Pressure Range: 0.3 - 260 barg

Operating Temperature Range: 0 - 550 °C



Benefits and Features

- Only TLV has a line of thermodynamic (disc) steam traps that have been developed to cover the complete range of pressures from low pressures to supercritical pressures (260 barg).
- Disc steam trap operation may suffer if the trap is exposed to cold air and rain, so to prevent wasteful leakage of steam all models include an integrated air jacket.
- Productivity is impaired if the large amounts of cold condensate and air inside the system are not discharged as soon as the equipment is started up. With the exception of models P46S, HR150A and HR260A, all models have an integral bimetal type automatic air venting feature. The valve is fully open when temperatures are low, allowing for the rapid discharge of cold condensate and air.

HR80A

- Thermodynamic steam trap which can be used on pressures up to 80 barg.



HR150A

- Thermodynamic steam trap which can be used on high pressures up to 150 barg. No facility for air venting.



HR260A

- Thermodynamic steam trap which can be used on high pressures up to 260 barg. No facility for air venting.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
HR80A	80	475	80	475	Alloy Steel	190
HR150A	150	550	150	550	Alloy Steel	230
HR260A	260	550	260	550	Alloy Steel	230

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
HR80A	Alloy Steel	SW / BW	969.00	1026.00	1064.00
HR150A	Alloy Steel	SW / BW	1764.00	1788.00	1813.00
HR260A	Alloy Steel	SW / BW	2296.00	2314.00	2443.00

Thermostatic Steam Traps

Summary

The operation principle for these traps utilises the difference in the temperatures of steam and condensate.

Also known as 'Temperature Control Traps' or 'Balanced Pressure Traps.'

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 350 °C



Thermostatic Steam Traps (Balanced Pressure type)

Utilising an X-element, the valve will discharge upon the condensate sub cooling below a set value (6 °C).



Temperature Control Traps (Bimetal type)

Utilising a set of bimetal disks and adjusting stem, the temperature of condensate discharge can be set from 50-200°C. Using the same adjusting stem the valve seat can also be manually cleaned before maintenance.

Benefits and Features

- X-element steam traps are extremely easy to maintain and repair.
- Bimetal steam traps are temperature adjustable making it very useful in non critical tracing applications.
- Bimetal steam traps has a built in device for removing scale build up from the valve seat. This is extremely useful for removing copper particulate from copper tracing lines.
- High pressure/temperature range.
- Extremely compact.
- Outstanding air venting capability.

Application Areas

- Suitable for low temperature or non critical tracing.
- Can be utilised as a shut down drain / freeze protection to remove condensate from low points in the system during shut downs.

Thermostatic Steam Traps

Thermostatic Steam Traps (Balanced Pressure)

Compact thermostatic steam traps suitable for most applications.

Operating Inlet Pressure Range: 0.1 - 32 barg

Operating Temperature Range: 0 - 240 °C



Benefits and Features

- All L and LV series models employ a built-in strainer and a thermo-liquid-filled X-element, which acts as the valve.
- The X-element discharges hot air as well as causing the rapid discharge of low temperature air and cold condensate. This encourages the inflow of steam, thereby reducing start-up times.
- The valve remains open even in the event of failure. The 'fail open' X-element means that the equipment can continue operating without any interruption in heating.
- Built in strainer catches debris that may impede steam trap operation.

L21S / L21SE / L32S / L32SE

- Balanced pressure thermostatic steam trap which can be used up to 21 barg (L21S) / 32 barg (L32S). 'SC' models, incorporating a built in check valve, are also available at extra cost.



LV13L

- Angle pattern balanced pressure thermostatic steam trap with built-in screen which can be used up to 13 barg.



LV21

- Balanced pressure thermostatic steam trap with built-in screen which can be used up to 21 barg. Suitable for vertical installation only.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
L21S	21	240	32	300	Carbon Steel	750
L21SE	21	240	32	300	Stainless Steel	750
L32S	32	240	32	300	Carbon Steel	520
L32SE	32	240	32	300	Stainless Steel	520
LV13 L	13	200	16	220	Brass	700
LV21	21	235	63	425	Stainless Steel	700

STEAM TRAPS

Model	Body Material	Connection Type	1/4" DN8	3/8" DN10	1/2" DN15	3/4" DN20	1" DN25
L21S*	Carbon Steel	Screwed/SW	-	-	169.00	175.00	242.00
		Flanged	-	-	313.00	349.00	356.00
L21SE	Stainless Steel	Screwed/SW	-	-	252.00	261.00	282.00
		Flanged	-	-	455.00	511.00	584.00
L32S*	Carbon Steel	Screwed	-	-	243.00	256.00	266.00
		Flanged	-	-	332.00	349.00	400.00
L32SE	Stainless Steel	Screwed	-	-	314.00	316.00	330.00
		Flanged	-	-	555.00	604.00	750.00
LV13 L	Brass	Screwed	-	-	107.00	114.00	-
LV21	Stainless Steel	Screwed	160.00	160.00	160.00	-	-

* 'SC' option with in-built check valve for L21 and L32 – extra £35.00

Thermostatic Steam Traps

Temperature Control Traps (Bimetal type)

Compact thermostatic steam traps suitable for non critical tracing and shut down drain applications.

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 350 °C



Benefits and Features

- A bimetal element is used for temperature sensing, and the user is able to set the condensate discharge temperature. (50-200 °C)
- Can be utilised as a shut down drain / freeze protection to remove condensate from low points in the system during shut downs.
- Discharges condensate at the desired temperature below the saturation temperature of steam. The sensible heat in the condensate is also used, making it possible to minimise the amount of steam used by utilising the condensate sensible heat.
- The overexpansion mechanism protects the bimetal element from being subjected to excessive force, thereby minimising deterioration of the bimetal. Condensate discharge temperature is adjustable without disconnecting the trap from the piping.
- The trap can also be disassembled and reassembled while still installed in the piping.
- Blockages at the valve seat can be eliminated without disassembling the trap with the **built-in scale removal function**.

Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Discharge Capacity up to kg/h
LEX3N-TZ	46	350	63	400	Stainless Steel	300

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
LEX3N-TZ	Stainless Steel	Screwed/SW	237.00	245.00	258.00
	Stainless Steel	Flanged	378.00	428.00	440.00

QuickTrap® Steam Traps & Connectors

Summary

Steam Traps of all types, redesigned for a quick two-bolt system removal from a compatible connector for quick and easy steam trap changes.

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 425 °C



Free Float QuickTrap

A range of free float steam traps with the QuickTrap connector.



Thermodynamic QuickTrap

A small range of thermodynamic steam traps with QuickTrap connector. The P46UC-Y is suitable for connectors without an integral strainer.



Thermostatic QuickTrap

A range of both balanced pressure and bimetal steam traps with the QuickTrap connector.



QuickTrap Connector

Several variants of QuickTrap connector, the more advanced including isolation and blowdown facilities.



Manifolds

Variants of manifolds suitable for steam and condensate.

Benefits and Features

- The two-bolt system means that even inexperienced personnel can quickly and easily change out a steam trap.
- When combined with a V2 Connector and an additional upstream valve, the unit can be safely isolated and proven via blowdown, ready for a quick steam trap replacement.
- TLV QuickTrap connectors always contain an integral strainer.
- Also the design of the universal flange permits the installation of a steam trap in the correct position regardless of the piping installation.
- Connections for the Steam Traps and the Stations are universal; therefore traps can be interchanged for different types and manufactures.
- Connector and therefore steam trap, can be installed in either a vertical or horizontal orientation.

Application Areas

- In any area where accessibility or environmental considerations mean that maintenance needs to be carried out quickly.

QuickTrap®

Quick Install Steam Traps

Steam traps designed for installation on the two bolt, universal QuickTrap Station.

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- TLV QuickTrap two-bolt system will enable the most inexperienced personnel to easily replace a steam trap in minutes.
- The design of the universal flange permits the installation of a steam trap in the correct position regardless of the piping installation.
- Connections for the Steam Traps and the Stations are universal; therefore traps can be interchanged for different types and manufactures.

S1 / S3 / S5 / S5H QuickTrap®

- Free Flow Steam Traps. Free float trap for use on steam mains.
- QuickTrap connections allow for inline replacement. Can be used on either vertical or horizontal pipelines.



P46UC-Y QuickTrap®

- Thermodynamic Steam Traps. Can be used up to 46 barg. Integral universal flange allows for inline replacement. Air-jacketing insulates and reduces the influence of harsh environmental conditions. Stainless steel body.
- The P46UC-Y steam trap integrates a screen to the trap's body making it suitable for connectors that do not have a screen built in the connector body.



L21 / L32 QuickTrap®

- Thermostatic Steam Traps. Can be used up to 32 barg. Universal flange allows for inline replacement. Trap cover is carbon steel. Body and connector body are stainless steel.



X1

- Bimetal type temperature control steam trap. All stainless steel construction, with built-in scale removal function that allows for elimination of clogs in the valve seat without disassembling the trap.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Discharge Capacity up to kg/h
S1	10, 21	350	21	350	Stainless Steel	200
S3	5, 10, 21	400	21	400	Stainless Steel	310
S5	5, 10, 21, 32	400	32	400	Stainless Steel	800
S5H	46	425	46	425	Stainless Steel	250
P46UC-Y	46	425	46	425	Stainless Steel	740
L21	32	425	32	425	Stainless Steel	800
L32	32	240	32	300	Stainless Steel	520
X1	21	350	21	350	Stainless Steel	300

Model	Body Material	Connection Type	Price
S1	Stainless Steel	Universal	277.00
S3	Stainless Steel	Universal	236.00
S5	Stainless Steel	Universal	425.00
S5H	Stainless Steel	Universal	530.00
P46UC-Y	Stainless Steel	Universal	217.00
L21	Stainless Steel	Universal	200.00
L32	Stainless Steel	Universal	204.00
X1	Stainless Steel	Universal	257.00

Please note: the steam trap and stations are bought separately.

QuickTrap®

Quick Install Trap Stations

Steam Stations designed for use with a two bolt, universal QuickTrap.

Operating Inlet Pressure Range: 0.1 - 46 barg

Operating Temperature Range: 0 - 425 °C



Benefits and Features

- TLV QuickTrap two-bolt system allows for easy replacement of a steam trap in minutes. Guidance on the correct installation can be found in the Operation and Maintenance Manual.
- The design of the universal flange permits the installation of a steam trap in the correct position regardless of the piping installation.
- Connections for the steam traps and the stations are universal; therefore traps can be interchanged for different types and manufacturers.

F46

- Stainless steel trap in-line connector with in-built strainer.
- When used with the S3 and S5, the combination is referred to as the FS3 and FS5 respectively. This is similar for the P46UC and L32 which are referred to as FP46UC and FL32 respectively.
- Available in male thread "union" connection (F46UN) and pipe end connection (F46UN-P). F46 with P46UC attached.



V1 / V2 Series

- Stainless steel trap station incorporating bellows sealed valves.
- The stations are 'handed' (RB / LB) and direction of flow should be advised at time of placing order.
- V1 incorporates one valve at the trap inlet whilst V2 incorporates 2 valves at the inlet and the outlet of the trap.



Model	V1-RB	V1-LB	V2-RB	V2-LB
Flow direction				

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
F46	46 *	425 *	46	425	Stainless Steel
V1	46 *	400 *	46	400	Stainless Steel
V2	46 *	400 *	46	400	Stainless Steel

* Actual condition limitation is governed by trap selection

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
F46	Stainless Steel	Screwed/SW	108.00	111.00	195.00
	Stainless Steel	Flanged	246.00	266.00	338.00
V1	Stainless Steel	Screwed/SW	428.00	557.00	-
V2	Stainless Steel	Screwed/SW	732.00	750.00	-

Please note: the steam trap and stations are bought separately.

QuickTrap®

Manifolds for Steam and Condensate

TLV offers manifolds suitable for use on steam supply branches and for convergence of condensate from trace lines etc.

Operating Pressure Range: 0 - 50 barg
 Operating Temperature Range: 0 - 400 °C



Benefits and Features

- The simple installation of a manifold to steam or condensate piping often reduces the labour necessary for both design and piping construction. By packaging valves and steam traps together, a manifold offers optimisation of process management. Inspection and maintenance are easy after installation.
- The manifolds for condensate collection can accommodate various types of steam traps with the QuickTrap design.

Manifolds

- Forged steel manifold with maintainable built in bellows sealed valves suitable for use on trace line branches or where trap outlet piping meets. Line-up features manifold body with inlet isolation valves with or without optional extras. Nominal bore of manifold is 40mm. Customised design to meet customer's need.
- SM - Steam Manifold, Individual manifold complete with upstream steam inlet valve, and steam trap connector and isolation valve on the manifold drain. Comes in option of 4 (SM4), 8 (SM8) or 12 (SM12) branch models.
- CM - Condensate Manifold, Individual manifold complete with V1 trap stations on condensate inlets, bellows sealed valve on condensate outlet and blow-off valve on manifold base. Comes in option of 4 (CM4), 8 (CM8) or 12 (CM12) branch models.
- All items come preassembled.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
SM4/SM8/SM12	50*	400^	57	425	Carbon Steel
CM4/CM8/CM12	50*	400^	57	425	Carbon Steel

^ Restrictions to traps used

Manifolds								
Model	Body Material	Connection Type	4 Branch Manifold		8 Branch Manifold		12 Branch Manifold	
			1/2" DN15	3/4" DN20	1/2" DN15	3/4" DN20	1/2" DN15	3/4" DN20
Steam Manifold	Carbon Steel	Socket Weld	POR	POR	POR	POR	POR	POR
Condensate Manifold	Carbon Steel	Socket Weld	POR	POR	POR	POR	POR	POR

Condensate Recovery Equipment

Summary

TLV makes available condensate recovery pumps.

Offering products suitable for use on high-lift closed recovery applications and applications involving mechanical pumps where the use of electric power is not possible. Equipment for recovering and transporting condensate even in negative differential situations, without cavitation issues..



GT PowerTrap® (Mechanical Pump with Built-in Trap)

Condensate recovery pump with integral trap requiring no electricity.



GP PowerTrap® (Mechanical Pump)

Condensate recovery pumps requiring no electricity.

Benefits and Features

- A broad line-up of optimised condensate recovery equipment, to suit each condensate recovery application and capacity.
- Comprehensive consulting services for optimised condensate recovery systems, including onsite surveys, measures to ensure water quality, system design, pipeline construction, and confirmation of results.

Application Areas

- Recovers high temperature condensate and delivers it to another location.
- Collects, removes and transports condensate that has accumulated inside the equipment.

Information needed for quotation

- Application (Process Heaters: P ≤ 10 barg Supply)
- Process connection type. (PN40)
- Process connection size (DN15)
- Process medium. (Saturated Steam)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Highest local pressure available (10 barG)
- Inlet control methodology (Modulating control valve)
- Is condensate recovered?
- Known back pressure (1 barG)
- Anticipated condensate load (300kg/hr)

Condensate Recovery Equipment

GT PowerTrap® (Mechanical Pump with Trap & Check Valves)

A combination of a steam trap and condensate pump.

Operating Pressure Range: Vacuum - 14 barg

Operating Temperature Range: 0 - 220 °C

Benefits and Features

- Recovers and pumps condensate in order to recycle heat energy and water resources. The snap-action mechanism rapidly switches between sending condensate to the mechanical pump and preventing delay-induced leakage of motive medium (steam/air).
- Steam using equipment utilising control valves, have a tendency to suffer from the 'stall' phenomenon. This results in process temperature swings, water hammer or tube corrosion. By installing PowerTrap® this stall phenomenon can be prevented. The GT series has an integral steam trap, making it suitable for condensate recovery from equipment that experiences fluctuations in pressure from negative to positive pressure.
- The unit is powered by steam or air, so there is no need for electrical facilities, which makes it suitable for use in hazardous area installations. They are designed to allow maintenance without being removed from condensate recovery lines.



GT5C

- Most compact mechanical Pump/Trap with lowest filling head of 155mm.

GT10L

- This is the compact version of the GT10. Requires a lower filling head of 450mm screwed, 300mm flanged.

GT14L/GT14M

- This compact version of the GT14 and can operate with a low filling head (min. 300mm (GT14L), 350 mm (GT14M)).

GT10/GT14

- High capacity version for larger loads. Minimum filling head of 710mm.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h Pump	Capacity up to kg/h Trapping
GT5C	5	185	8	200	Cast Iron / Stainless Steel	250*	1,000
GT10L	10.5	185	13 (CI)/21 (CS/SS)	200 (CI)/220 (CS/SS)	Cast Iron / Cast Steel / Stainless Steel	1,445	10,000
GT10	10.5	185	13 (CI)/16 (CS/SS)	200 (CI)/220 (CS/SS)	Cast Iron / Cast Steel / Stainless Steel	8,200	35,000
GT14L	13	200	13	200	Cast Iron	2,200	14,000
GT14M	13	220	14	220	Cast Steel / Stainless Steel	3,200	15,000
GT14	14	200	16	220	Cast Steel	5,500	35,000

* Please refer to specification data sheets / consult TLV for your application.

Model	Body Material	Connection Type	1" x 1" DN25 x 25	1 1/2" x 1" DN40 x 25	1 1/2" x 1 1/2" DN40 x 40	2" x 2" DN50 x 50	3" x 2" DN80 x 50
GT5C	Cast Iron	Screwed / Flanged	1595.00	-	-	-	-
	Stainless Steel	Screwed / Flanged	2887.00	-	-	-	-
GT10L	Cast Iron	Screwed / Flanged	2858.00	3298.00*	-	-	-
	Cast Steel	Screwed / Flanged	3924.00	4698.00*	-	-	-
	Stainless Steel	Screwed / Flanged	6064.00	6863.00*	-	-	-
GT10	Cast Iron	Screwed	-	-	-	-	7913.00
	Cast Steel	Screwed	-	-	-	-	9713.00
GT14L	Cast Iron	Flanged	-	5196.00	-	-	-
GT14M	Cast Iron	Flanged	-	-	7203.00	-	-
	Stainless Steel	Flanged	-	-	8160.00	-	-
GT14	Cast Steel	Screwed	-	-	-	10026.00	10026.00

* Screwed connection only.

Condensate Recovery Equipment

GP PowerTrap® (Mechanical Pump with Check Valves)

A mechanical condensate pump.

Operating Pressure Range: Vacuum - 14 barg

Operating Temperature Range: 0 - 220 °C

Benefits and Features

- Recovers and pumps condensate in order to recycle heat energy and water resources. The snap-action mechanism rapidly switches between sending condensate to the mechanical pump, preventing delay-induced leakage of motive medium (steam/air).
- The unit is powered by steam or air, which makes it suitable for use in hazardous area installations. It is designed for insitu maintenance lines.



PowerTrap

GP5C

- Most compact mechanical Pump/Trap with lowest filling head of 155mm.

GP10L

- This is the compact version of the GT10. Requires a lower filling head of 450mm screwed, 300mm flanged.

GP14L/GP14M

- This compact version of the GT14 and can operate with a low filling head (min. 300mm (GT14L),350 mm(GT14M)).

GP10/GP14

- High capacity version for larger loads. Minimum filling head of 710mm.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity up to kg/h
GP5C	5	185	10	200	Cast Iron / Stainless Steel	270
GP10L	10.5	185	13(CI)/21(CS/SS)	200(CI)/220(CS/SS)	Cast Iron / Cast Steel /Stainless Steel	1,500
GP10	10.5	185	13(CI)/16	200(CI)/220(CS)	Cast Iron / Cast Steel	8,000
GP14L	13	200	13(CI)/21(CS)	200	Cast Iron / Cast Steel	2,400
GP14M	14	200	13	200	Cast Steel / Stainless Steel	5,500
GP14	14	200	16	220	Cast Steel	6,000

Model	Body Material	Connection Type	1" x 1" DN25 x 25	1 1/2" x 1" DN40 x 25	1 1/2" x 1 1/2" DN40 x 40	2" x 2" DN50 x 50	3" x 2" DN80 x 50
GP5C	Cast Iron	Screwed	1344.00	-	-	-	-
	Cast Iron	Flanged	1506.00	-	-	-	-
	Stainless Steel	Screwed	2612.00	-	-	-	-
	Stainless Steel	Flanged	2663.00	-	-	-	-
GP10L	Cast Iron	Screwed/Flanged	2516.00	2933.00*	-	-	-
	Cast Steel	Screwed/Flanged	3490.00	4207.00*	-	-	-
	Stainless Steel	Screwed/Flanged	5731.00	6802.00*	-	-	-
GP10	Cast Iron	Flanged	-	-	-	-	6045.00
	Cast Steel	Flanged	-	-	-	-	8365.00
GP14L	Cast Iron	Flanged	-	3793.00	-	-	-
GP14M	Cast Steel	Flanged	-	-	4888.00	-	-
	Stainless Steel	Flanged	-	-	7943.00	-	-
GP14	Cast Steel	Flanged	-	-	-	-	8316.00

* Screwed connection only.

Solutions

TLV offers a wide variety of solutions ranging from condensate recovery to recovering and reusing flash steam.



Packaged Pump

Compact skid based mechanical condensate return units.



SteamAqua

SteamAqua is a compact, instantly connectable water heater that combines TLV's best practices in steam and condensate handling.



HeatPack

TLV bespoke HeatPack is an instantly connectable heat exchanger station which uses steam to heat water or other liquids with high-precision control.



Flash Steam Condenser

The TLV flash steam condenser (SR) allows the re-use of flash steam at atmospheric conditions.



Flash Vessel

The flash vessel provides a simple and efficient method to make use of flash steam in the condensate recovery system.



Steam Compressor

Flash steam forms in all steam plants, but it is often considered unusable due to its low pressure level. Featuring a highly efficient ejector and a pressure control valve, the TLV steam compressor offers an interesting alternative by compressing flash steam until it reaches a higher, usable pressure level.



Vacuumizer

TLV's Vacuumizer system utilises an ejector to adjust the vacuum and discharge condensate while precise pressure and temperature controls ensure a consistent supply of saturated steam. For efficient and safe heating of products below 100°C.

Benefits and Features

- We can provide a range of solutions from individual packages through to full system design.
- Bespoke & stock solutions are available to suit any requirement
- Packages reduce the cost of installation on site
- The whole system is covered by warranty rather than individual components
- Complex design processes are no longer required

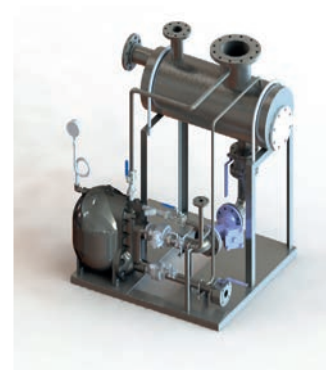
Solutions

Packaged Pump Systems

TLV provides a skid based mechanical condensate pumping unit.

Operating Inlet Pressure Range: 0.1 – 14.0 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

Complete package for the return of condensate from process area to hotwell. Simple selection and installation with compact design to ensure efficient use of available floor space.

- Interconnecting pipe work and receiver also included. Stainless steel.
- Improved energy efficiency by using the residual heat energy of the condensate to maintain the hotwell temperature.
- Available with a duty/stand-by or full duplex (parallel operating) option.
- All models are intrinsically safe.
- Complete system including; inlet and outlet check valves, motive steam isolation valve and strainer, exhaust pipe steam isolation valve and motive steam trap.
- Mounted on a common stainless steel frame. Interconnecting pipework and receiver also included.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Capacity p to kg/h
GP10L	10.5	185	13(CS)/21(CS)	200 / 220	Cast Iron / Cast Steel	1,800
GP14L	14	220	14	220	Cast Iron / Cast Steel	2,400
GP14M	13 / 14	200 / 220*	13 / 21	200 / 220*	Cast Iron / Cast Steel	4,000
GP10 Package	10.5	220	10.5	220	Carbon Steel / Stainless Steel	8,000

* Depending on the GP14M Body Material selection.

Model	Body Material	Connection Type	1" x 1" DN25 x 25	1 1/2" x 1" DN40 x 25	1 1/2" x 1 1/2" DN40 x 40	3" x 2" DN80 x 50
GP10L	Cast Iron	Screwed / Flanged	7936.00	8725.00	-	-
GP14L	Cast Iron	Screwed / Flanged	-	9167.00	-	-
GP14M	Cast Iron	Screwed / Flanged	-	9650.00	9650.00	-
GP10	Cast Iron	Flanged	-	-	-	10721.00

Duty standby and duplex options are available on request.

Information needed for quotation

- Process medium. (Low temperature condensate)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Is condensate recovered?
- Highest local pressure available (10 barG)
- Known back pressure (1 barG)
- Anticipated condensate load (300kg/hr)

Solutions

SteamAqua

TLV provides a instantaneous hot water generator for industrial applications.

Operating Inlet Pressure Range: 0.1 – 13.0 barg

Operating Temperature Range: 0 - 200 °C



Benefits and Features

SteamAqua quickly produces a stable supply of water up to 95 °C for heating and hot water supply for the food industry, chemical and pharmaceutical manufacturing as well as for building technology.

- Hot water at the desired temperature will be supplied in moments.
- Thanks to the spiral tube heat exchanger and efficient steam supply, the entire system can be packaged into a space saving footprint of only 0.7m² and moved through spaces as narrow as 80cm.
- Instantly connectable packages simplifies installation with integrated control technology and control panel.
- A built-in PowerTrap (steam trap/mechanical pump) enables reliable condensate drainage and prevents water hammer.
- An integrated condensate preheater utilises heat from condensate to optimise energy efficiency.*
- Simple and reliable operation with touch panel for temperature setting and system control.
- Automatic shutoff functions prevent overheating.

Model	Thermal Capability Class (kW)	Temperature Setting Range (°C)	Max Allowable Pressure (barg) (Primary/ Secondary Side)	Max Allowable Temperature (°C) (Primary/ Secondary Side)	Max Water Flowrate (m ³ /hr)
SQ2	200	25-75*	13/10	200/105	7.1 [^]
SQ4	400	25-85*	13/10	200/105	24 [^]
SQ6	600	25-95*	13/10	200/105	24 [^]

* At 20 °C cold water temperature, further details on request.

[^] At target temperature of 40 °C

Model	Connection Type	Water Connection Inlet/Outlet (PN40)	Steam Connection Steam/Condensate (PN40)	Price
SQ2	Flanged	40/40	25/32	POA
SQ4	Flanged	50/50	40/40	POA
SQ6	Flanged	65/65	50/40	POA

Information needed for quotation

- Process medium. (low temperature water heating)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Is condensate recovered?
- Highest local pressure available (10 barG)
- Known back pressure (1 barG)
- Anticipated condensate load (300kg/hr)
- Initial secondary temperature (20 °C)
- Desired secondary temperature (70 °C)
- Secondary flowrate required (10 m³/hr)

Solutions

HeatPacks

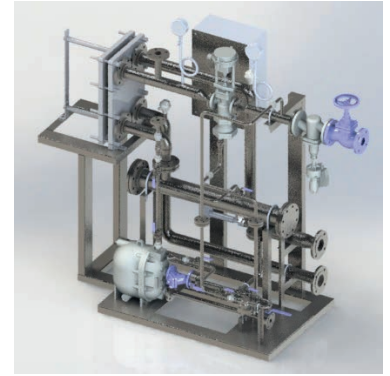
TLV can provide bespoke hot water skid units to suit any requirement.

Operating Inlet Pressure Range: 0.1 – 14 barg
Heat Load: 75 – 7000 kW

Benefits and Features

HeatPack heat exchanger systems are designed, manufactured, tested and supplied in accordance with TLV Euro Engineering UK Ltd material, component and assembly specifications. Units are designed with a small footprint to deliver the rated output within agreed parameters and can be connected with site BMS.

- Ready to install free standing fabricated package. Incorporates stainless steel tubular or plate heat exchanger, tailored to meet given load and pressure criteria, with stainless steel primary and secondary pipework.
- Utilises fast acting electric or pneumatic actuated control valve with PID microprocessor controller with PT100 sensor complete with touch screen display. Optional pumped condensate removal system.
- Available with cast iron, ductile cast iron and cast steel ancillary components.



Domestic Hot Water (DHW)

- The packaged unit delivers a constant, stable temperature supply of hot water, even with sudden and large load fluctuations found in domestic hot water systems.
- An integrated shunt pump ensures residual heat is removed from the heat exchanger during low-load situations providing protection against pressurisation due to boiling-off of the secondary fluid.

Low Temperature Hot Water (LTHW)

- The packaged unit ensures accurate control of temperature whatever the heating load requirement.
- Unit responds exceptionally well to changes in load throughout the heating circuits.

Units are fully compliant with PER, and CE marked where appropriate.

Information needed for quotation

- Process medium. (low temperature water heating)
- Primary medium pressure and temperature (10 barG, 184 °C)
- Is condensate recovered?
- Highest local pressure available (10 barG)
- Known back pressure (1 barG)
- Anticipated condensate load (300kg/hr)
- Initial secondary temperature (20 °C)
- Desired secondary temperature (70 °C)
- Secondary flowrate required (10 m3/hr)

For specific pricing information – please contact TLV.

Solutions

Flash Steam Condenser (SR)

TLV provides a simple and reliable way to generate hot water without impacting the wider system.

Operating Inlet Pressure Range: 0 barg

Operating Temperature Range: 30 - 110 °C

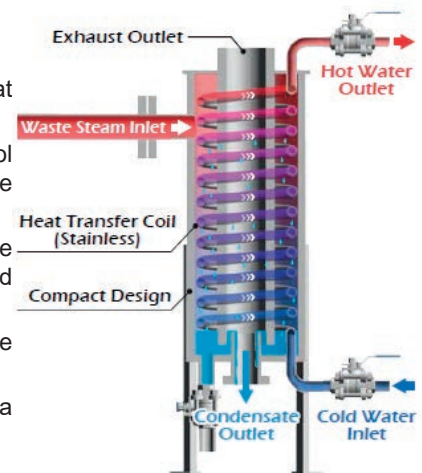
Benefits and Features

The TLV flash steam condenser (SR) allows the re-use of flash steam at atmospheric conditions. It consists of a specially-designed spiral pipe heat exchanger in a compact tank.

The SR can be installed next to the condensate tank. In addition to saving energy, the SR also offers the additional benefits of adding very little back pressure to steam-using equipment and the elimination of unsightly steam clouds in plant environments.

Operation

- Exhaust steam flows into the top of the exchanger as cool water enters the heat transfer coil from the bottom and flows upward toward the top of the exchanger.
- The steam is cooled upon contact with the heat transfer coil containing the cool water and condenses, transferring its latent heat. As a result, the temperature of the water in the coils rises.
- The resulting condensate drips down to collect in the base of the exchanger. Once the condensate level rises high enough, it flows over the top of the drain pipe and is discharged.
- The formation of a controlled hydraulic seal ensures that no back pressure can be formed upstream.
- The water seal breaks down at high pressure; excess flash steam is discharged via the vent line.
- Efficient energy recovery in confined space by efficient heat transfer.



Information needed for quotation

- Process medium. (low temperature water heating)
- Condensate pressure and temperature (10 barG, 184 °C)
- Anticipated condensate load (300kg/hr)
- Initial secondary temperature (20 °C)
- Desired secondary temperature (70 °C)
- Secondary flowrate required (10 m3/hr)
- Photos of the flash steam plume

For specific pricing information – please contact TLV.

Solutions

Flash Vessel (FV)

TLV provides the design methodology and support for implementing a flash vessel solution.

Operating Inlet Pressure Range: 0-10 barg

Operating Temperature Range: 0 - 185 °C



Benefits and Features

The flash vessel provides a simple and efficient method to make use of flash steam in the condensate recovery system. Inside the flash vessel, the condensate and the emergent flash steam separate from each other. The steam rising to the top can be fed into a steam line for a technical application, and therefore the steam generation is reduced in the boiler. Additional savings are obtained through reduced expenditure on water purification.

Successful application of flash vessel systems depends on the flash vessel's sizing, a stable pressure control, and the effective draining of the condensate. TLV provides competently designed flash recovery systems complete with a flash vessel and all the necessary valves to control and safeguard the condensate line.

Information needed for quotation

- Application (Low pressure steam injection)
- Condensate pressure and temperature (10 barG, 184 °C)
- Anticipated condensate load (300kg/hr)
- Desired outlet pressure (2 barG)
- Desired flash steam flowrate (300kg/hr)
- Photos of the flash steam plume

TLV site visit required, please contact your regional engineer to arrange a visit.

For specific pricing information – please contact TLV.

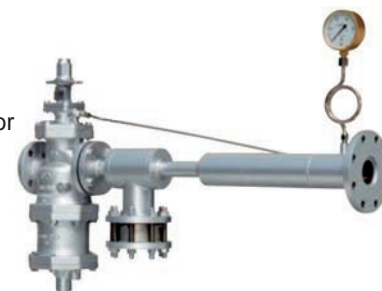
Solutions

Steam Compressor (SC)

TLV provides the design methodology and support for implementing a steam compressor solution.

Operating Inlet Pressure Range: 0 barg

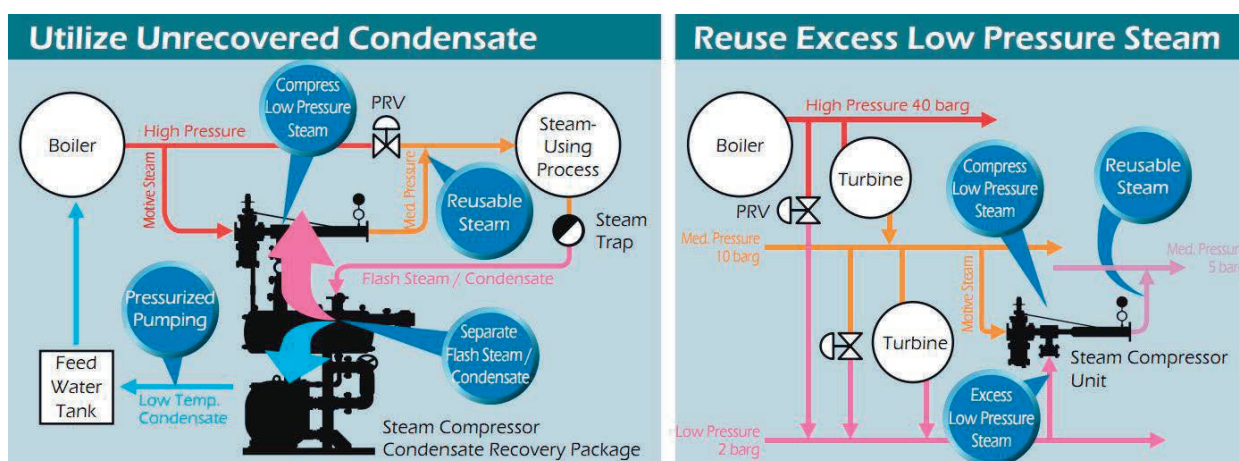
Operating Temperature Range: 30 - 110 °C



Benefits and Features

Flash steam forms in all steam plants, but it is often considered unusable due to its low pressure level. Featuring a highly efficient ejector and a pressure control valve, the TLV steam compressor offers an interesting alternative by compressing flash steam until it reaches a higher, usable pressure level. This process takes place without the need for auxiliary power.

Successful application of steam compressor systems depends on the flash vessel's sizing, a stable pressure control, and the effective draining of the condensate. TLV provides competently designed flash recovery systems complete with a steam compressor, flash vessel and all the necessary valves to control and safeguard the condensate line.



Information needed for quotation

- Application (Into medium pressure steam main)
- Condensate pressure and temperature (10 barG, 184 °C)
- Anticipated condensate load (300kg/hr)
- Desired outlet pressure (2 barG)
- Desired flash steam flowrate (300kg/hr)
- Photos of the flash steam plume

TLV site visit required, please contact your regional engineer to arrange a visit.

For specific pricing information – please contact TLV.

Solutions

Vacuimizer

TLV provides the design methodology and support for implementing a vacuum steam system.

Operating Inlet Pressure Range: 1.0 – 2.0 barg

Operating Temperature Range: 30 - 110 °C

Benefits and Features

Temperature-sensitive products which must be heated below 100°C are often heated with hot water, but there are downsides to this. Because hot water systems operate slowly, temperature consistency is difficult, resulting in a decrease in product quality.

Using low pressure or vacuum steam, however, alleviates these issues. Even below 100°C, steam at reduced pressure offers rapid, evenly-applied heating.

TLV's Vacuimizer system utilises an ejector to adjust the vacuum and discharge condensate while precise pressure and temperature controls ensure a consistent supply of saturated steam. For efficient and safe heating of products below 100°C, the Vacuimizer system is the ideal choice.



Basic Specifications			
Positive steam pressure supply		1 to 2 barg	
Vacuum steam temperature range		30 to 110°C	
Vacuum steam temperature stability		± 1°C	
Vacuum steam capacity range			
	Packaged systems:	VM1HP	70 kg/h (42 kW)
		VM3HP-25	100 kg/h (60 kW)
		VM3HP-40	350 kg/h (210 kW)
		VM3HP-50	520 kg/h (310 kW)
	Engineered System:	VM-H	on customer request

Information needed for quotation

- Application (low temperature calendar rolls)
- Desired steam temperature (80 °C)
- Desired flash steam flowrate (300kg/hr)

TLV site visit required, please contact your regional engineer to arrange a visit.

For specific pricing information – please contact TLV.

Air Vents and Vacuum Breakers

TLV offers air vents for liquid and air vents for steam. These automatic valves for the removal of air from fluids make use of the reliable high technology developed for steam traps.

Operating Pressure Range: vacuum - 21 barg

Operating Temperature Range: 0 - 235 °C



Rapid Initial Air Vents

Specialised air vents to remove initial air from pipelines carrying liquids.



Automatic Air Vents

Air vents to remove air from pipelines carrying liquids.



Air Vents and Vacuum Breakers for Steam

Air vents to remove air from steam piping and equipment.

Benefits and Features

The product line-up includes both air vents for use on pipelines for liquids and those for use on pipelines for steam.

- The air vents for pipes carrying liquids make use of free float steam trap technology for a tight seal and excellent durability.
- There are two types of air vent series for pipes carrying liquids. One features a specialised rapid initial air vent to discharge initial air when the supply of liquid begins, and the other features an automatic air vent to discharge air during operation.
- The air vents for steam piping make use of thermostatic steam trap technology to discharge incondensable gases as they accumulate.

Information needed for quotation

- | | |
|---|-------------------------|
| • Application | (Steam Jacket air vent) |
| • Process connection type. | (bsp) |
| • Process connection size | (1/2") |
| • Process medium. | (Saturated Steam) |
| • Primary medium pressure and temperature | (10 barG, 184 °C) |

Air Vents and Vacuum Breakers

Rapid Initial Air Vents (For Liquids)

Specialised air vents to remove initial air from pipelines carrying liquids.

Operating Pressure Range: 0.1 - 10 barg

Operating Temperature Range: 0 - 100 °C



Benefits and Features

- The large-size valve seat rapidly discharges initial air. The float responds with great sensitivity to condensate levels, automatically closing the valve and thereby eliminating the need for manual intervention.
- The float is the only moving part. Simple design, with no hinges or levers. Tight sealing with a pressurised system.
- Once the valve closes, it remains closed even if air enters. Also install an automatic air vent if it is necessary to discharge air during operation.

VA

- Automatic rapid initial air vent. Specialised for venting air at start-up on water line. Suitable for both cold and hot water systems. Larger capacity air vents available. Contact TLV for details.



VAS

- Automatic rapid initial air vent. Specialised for venting air at start-up on water line. Suitable for both cold and hot water systems and other liquids (not toxic or flammable) 3/4" inlet and 1/2" outlet BSP screwed.



AIR VENTS

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
VA	10	100	10	100	Cast Iron
VAS	10	100	13	100	Cast Iron

Model	Body Material	Connection Type	3/4" DN20	2" DN50
VA1	Cast Iron	Flanged	-	527.00
VAS	Cast Iron	Screwed	221.00	-

Air Vents and Vacuum Breakers

Automatic Air Vents (For Liquids)

Air vents to remove air from pipelines carrying liquids.

Operating Pressure Range: 0.1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- Air entering the automatic air vent is rapidly discharged, even during water or liquid transport or during operation. The float responds with great sensitivity to condensate levels, automatically opening and closing the valve and thereby eliminating the need for manual intervention.
- The float is the only moving part. Simple design, with no hinges or levers.
- All valves benefit from tight sealing: VC Series has ground float and rubber valve seat; VS1C Series has 3-point seating.

VC2 / VC3 / VC4

- Rubber seat for tight shut-off. Outlet connections are 3/8" BSP screwed.
- Also acts as a vacuum breaker.



VS1C

- All stainless steel construction.
- Two orifice sizes – one for max pressure of 10 barg (greater capacity) and other for max pressure of 21 barg.
- Optional metal seat for high temperature applications.
- Also acts as a vacuum breaker.



SA3

- Super compact automatic air vent. Installation is possible even in limited spaces.
- Two orifice sizes – one for max pressure of 3 barg (greater capacity) and the other for max pressure of 10 barg.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
VC2	5	90	5	185	Bronze
VC3	6	90	6	200	Cast Iron
VC4	10	90	10	150	Cast Iron
VS1C	10, 21	150 / 220 [^]	21	220	Stainless Steel
SA3	3, 10	100	10	100	Brass

[^] With optional metal seat

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
VC2	Bronze	Screwed	155.00	-	-
VC3	Cast Iron	Screwed	-	-	223.00
VC4	Cast Iron	Screwed	-	-	408.00
VS1C	Stainless Steel	Screwed	593.00	602.00	609.00
SA3	Brass	Screwed	97.00	102.00	-

Air Vents and Vacuum Breakers

Air Vents (For Steam)

Air vents to remove air from steam piping and equipment.

Operating Pressure Range: vacuum - 21 barg

Operating Temperature Range: 0 - 260 °C

Benefits and Features

- The X-element discharges air at a temperature, approximately 22 °C (40 °F) lower than the saturation temperature of steam. This helps improve the overall heating efficiency of the process by eliminating air from the system and improve the steam quality.
- With high-capacity venting capability, it rapidly vents air and lessens residual air inside equipment.



LA13L

- Balanced pressure thermostatic angled air vent for steam, featuring an X-element.



LA21

- Compact all stainless steel air vent for steam, featuring an X-element.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
LA13L	13	200	16	220	Brass
LA21	21	235	63	425	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20
LA13L	Brass	Screwed	107.00	119.00
LA21	Stainless Steel	Screwed	155.00	-

AIR VENTS

Air Vents and Vacuum Breakers

Vacuum Breakers (For Steam)

Vacuum breakers to break the vacuum in steam systems.

Operating Pressure Range: vacuum - 21 barg

Operating Temperature Range: 0 - 260 °C



Benefits and Features

- Designed for general purpose application to break the vacuum in a system when the system pressure drops below atmospheric pressure. This helps protect plant & process equipment against vacuum and at the same time allows condensate to drain effectively from pipework and storage vessels.

1940

- Small, purpose designed vacuum breaker for general purpose applications on condensing vapour or liquid systems. Constructed from stainless steel.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
1940	16	260	24	260	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15
1940	Stainless Steel	Screwed	140.00

Clean Steam Equipment

TLV offers a range of steam filters suitable for various grades of clean steam.



Steam Filters

Separator and filter for use on steam and other gases (non-toxic, non-flammable).



Clean Steam Traps

Steam traps designed for clean steam applications.



Clean pressure reducing valves

for reducing steam pressure within a clean steam system.

Benefits and Features

- Filtration removes fine unwanted particulates from the steam flow making suitable for some culinary and pharmaceutical applications.
- Separation and filtration improves productivity and product quality with dry, high quality steam.
- Multiple internal and external finishes available for steam traps and pressure reducing valves.

Application Areas

Filtration

- Prior to a direct injection process where steam will have contact with food or pharmaceutical products.
- Where steam is used as for a sterilisation processes.

Clean Steam Traps

- For condensate removal in a clean steam system.

Clean pressure reducing valves

- For when the pressure needs reduced within a clean steam system

Information needed for quotation

- Application (Steam filter)
- Process connection type. (SW)
- Process connection size (DN15)
- Process medium. (Saturated Steam)
- Primary medium pressure and temperature (5 barG, 158 °C)
- Filter porosity (2.0 µm)
- Anticipated steam/condensate load (300kg/hr)

Clean Steam Equipment

Filters for Steam

TLV offers filters for the production of high quality steam and clean steam generation.

Operating Pressure Range: 0 - 16 barg

Operating Temperature Range: -50 - 200 °C



Benefits and Features

- In regular piping, steam carries large quantities of entrained material. With the following filters, improved heating efficiency and product quality can be obtained by removing dirt and scale. Ideal for food, bio-related industries and other applications requiring high quality steam.
- All stainless steel, with a compact, light-weight design. Easy to clean and inspect.

Filter Porosity

Suggested filter element ratings:

- 0.5 µm – Pharmaceutical grade steam
- 2.0 µm – Culinary (Clean steam) grade steam
- 10.0 µm – General applications

Please note that this is a suggestion for typical porosity requirements and may not reflect specific requirements.

SF1

- Separator and filter for use on steam and other gases (non-toxic, non-flammable). The cyclone separator separates out and removes the condensate, which allows for the supply of dry steam, so no wet spots occur.
- Filter available in a range of mesh sizes. 5-layer sintered wire mesh filter is reusable and easy to clean.
- This also greatly reduces clogging of the filter and lengthens the time between cleaning and parts' replacement cycles.



P-EGS Series

- The P-EGS filter designed for use in critical application areas of steam filtration. High quality stainless steels, highly-polished housing surfaces and the avoidance of corners and edges form the basis for the optimised flow design of the P-EGS housing series.
- Flow is free of turbulence minimising pressure losses through the filter.
- Suitable for clean steam applications.



Model	Filter Porosity µm	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
SF1	0.5, 2, 5, 10	10	185	10	185	Stainless Steel
P-EGS Series	0.5, 1, 5, 25	8	200	16	200	Stainless Steel

Model	Connection Type	Filter Porosity	1/2" DN15	3/4" DN20	1" DN25	1 1/4" DN32	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80
SF1	Screwed/SW	0.5	2998.00	2998.00	3524.00	-	4702.00	6232.00	-	-
	Screwed/SW	2	2538.00	2538.00	3042.00	-	4089.00	5487.00	-	-
	Screwed/SW	5, 10	2406.00	2406.00	2911.00	-	3507.00	5312.00	-	-
	Flanged	0.5	3242.00	3251.00	3594.00	-	4808.00	6392.00	-	-
	Flanged	2	2781.00	2790.00	3112.00	-	4194.00	5646.00	-	-
	Flanged	5, 10	2650.00	2659.00	2981.00	-	3612.00	5471.00	-	-
P-EGS	Screwed	POR	POR	POR	POR	POR	POR	POR	POR	POR
	Flanged	POR	POR	POR	POR	POR	POR	POR	POR	POR

Clean Steam Equipment

Clean Steam Traps

Clean steam traps designed to allow complete condensate drainage and easy disassembly and cleaning.

Operating Inlet Pressure Range: 0.1 - 6 barg

Operating Temperature Range: 0 - 165 °C



Benefits and Features

- The interior of these steam traps are designed to prevent corrosion and growth of bacteria. All components are stainless steel.
- Clamp connection at the joint allows for easy disassembly and cleaning.
- Interior and exterior surfaces of the steam trap are available in three classes, natural machining, fine machining and buff-polishing. Models are also available with electro-polished surfaces for further improvement to prevent bacterial growth.
- All models designed to prevent any areas where condensate can accumulate.
- Available in ISO 2852 Clamp, ISO 2037 Tube and ASME-BPE (Tri-Clamp compatible).

SS3P

- Free float type clean steam trap. Internal finishes available are:
- SS3E – 25µm Ra electro-polished.
- SS3P – 0.8µm Ra buff-polished.
- SS3ER – buff polished and then 0.4µm Ra electro-polished.



SS5P

- Free float type clean steam trap. Internal finish – buff polished 0.8µm.
- Ra. 0.4µm Ra internal and external electro-polished finish available on request.



LV6

- Thermostatic steam traps for clean steam. Virtually crevice-free design allows for condensate drainage without pooling. Internal finishes available are:
- LV6CE – Natural Machining.
- LV6SF – Fine Machining 0.8µm Ra.
- LV6P – Polished 0.8µm Ra.
- LV6EP 0.4µm Ra finish also available.



Model	Max Differential Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material	Discharge Capacity up to kg/h
SS3P	6	165	10	185	Stainless Steel	170
SS5P	6	165	10	185	Stainless Steel	510
LV6	6	165	10	185	Stainless Steel	780

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
SS3P^*	Stainless Steel	Tri clamp	830.00	851.00	-
SS5P^	Stainless Steel	Tri clamp	-	-	1091.00
LV6CE	Stainless Steel	Tri clamp / Tube end	353.00	378.00	399.00
LV6SF	Stainless Steel	Tri clamp / Tube end	572.00	593.00	691.00
LV6P	Stainless Steel	Tri clamp / Tube end	733.00	753.00	906.00

[^] Tube connections available on request * Different surface finishes are available.

Clean Steam Equipment

Direct Acting for Clean Steam (USP/FDA Compliant Material)

Compact, easy to adjust direct acting pressure reducing valves

Benefits and Features

- Wetted parts are stainless steel and USP/FDA compliant materials with high durability and corrosion resistance for long service life.
- Compact, suitable for use in tight spaces, easy to adjust.
- Easy access to internal parts simplifies cleaning.



DR8-P

- Internal finish 0.8µm Ra buff-polished.

DR8-EP

- Internal buff-polishing with an additional interior and exterior electro-polish option to 0.4µm Ra for improved resistance to bacterial growth.

Model	Max Operating Pressure (barg)	Adjustable pressure range	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
DR8-3P/DR8-6P	8	0.18 – 3 barg	175	10	185	Cast Stainless Steel
DR8-3EP/DR8-6EP	8	2.7 – 6 barg	175	10	185	Cast Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
DR8-P	Cast Stainless Steel	Clamp End	2135.00	2135.00	2195.00
DR8-EP	Cast Stainless Steel	Clamp End	2135.00	2135.00	2195.00

Air Equipment

Automatic valves for duties such as removing condensate from air and inert gases and reducing air pressure.

Operating Inlet Pressure Range: 0.1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Cyclone separators

Cyclone separators for removing condensate from air and inert gas lines.



Pressure reducing valves

For reducing air pressure



Free Float Air Traps

Traps for the removal of condensate from air and inert gas lines.



Air Traps for High Viscosity Condensate

Air traps for high viscosity condensate, with large valve seat and self-cleaning function.

Benefits and Features

- Uses a precision-grounded float to automatically discharge condensate generated or entrained in compressed air.
- The use of rubberised seals ensure a tight shut off.
- Can handle low specific gravity liquids (some models can handle down to 0.5).

Information needed for quotation

- Application (Air pressure reduction)
- Process connection type. (bsp)
- Process connection size (1/2")
- Process medium. (compressed air)
- Primary medium pressure and temperature (7 barG, 20 °C)
- Anticipated air/condensate load (300kg/hr)

Separators (Cyclone Type)

Cyclone Separator for air

TLV makes available inline installation type steam and air separators.

Operating Pressure Range: 0 - 10 barg (higher pressures on special applications)

Operating Temperature Range: 0 - 100 °C



Benefits and Features

- A separator that forcibly separates out the condensate generated and entrained in air or non-hazardous gas pipelines.
- All models equipped with a cyclone separator that demonstrates a remarkably high 98% separation efficiency. The integral trap, which is included with the DC3 variants, is a free float type that uses three-point seating, with continuous discharge and a tight seal.
- The separator supplies high-quality air from which the condensate has been removed, which has a direct connection to productivity and product quality.

Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
DC3A	10	100	10	100	Ductile Cast Iron

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25	1 1/2" DN40	2" DN50	2 1/2" DN65	3" DN80	4" DN100
DC3A	Ductile Cast Iron	Screwed	963.00	963.00	1065.00	-	-	-	-	-
	Ductile Cast Iron	Flanged	1122.00	1131.00	1196.00	1400.00	1902.00	4467.00	4612.00	6455.00

Pressure Reducing Valves (Direct Acting)

Direct Acting for Air (with built-in Strainer)

Compact, light-weight direct-acting pressure reducing valves.

Operating Inlet Pressure Range: 2 - 16 barg

Operating Temperature Range: 0 - 100 °C



Benefits and Features

- Compact and light-weight, suitable for installation in tight spaces.
- DR20 is an all stainless steel construction for steam.
- Includes a soft seat for tight shut off on air duty.
- Not only extremely durable, but also suitable for applications in which clean performance is required. Easy, in-line access to internal parts simplifies cleaning and reduces maintenance cost.
- Compact pressure reducing valve for use on air where extra tight shut off from a soft seat is preferred. All other major components are made in stainless steel for long service life. Easy to operate and adjust, and suitable for clean air pressure reduction.

Model	Max Operating Pressure (barg)	Adjustable pressure range	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
A-DR20-2	10	0.14 - 2 barg	100	20	220	Cast Stainless Steel
A-DR20-6	10	1.8 – 6 barg	100	20	220	Cast Stainless Steel
A-DR20-10	10	5.4 – 9 barg	100	20	220	Cast Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
A-DR20	Stainless Steel	Screwed	429.00	454.00	482.00
A-DR20	Stainless Steel	Flanged	569.00	604.00	639.00

Traps

Free Float Air Traps

Traps for the removal of condensate from air lines and non-hazardous gases.

Operating Inlet Pressure Range: 0.1 - 21 barg

Operating Temperature Range: 0 - 220 °C



Benefits and Features

- The valve opening is under a continuous water-seal, so no air can escape through the valve.
- The high precision spherical float rotates, allowing its entire surface to function as valve sealing surfaces and thus ensuring long service life.
- The scale-removal function can be used to eliminate oily clogs without disassembling the body (JA3).
- Compact, light-weight design requires little installation space.

JA3D

- Compact free float air trap with built-in strainer to automatically drain condensate from air lines.



JA3

- Light free float air trap with built-in strainer to discharge condensate or oil from air systems. Manual blowdown feature assists with removal of oily clogs.



SS1VG

- Free float drain trap with built-in strainer, can be used up to 21 barg. For use with both air and inert gases.
- For use on vertical pipelines.
- Available with Rubber seat "-R" for a "bubble-tight" seal (up to 10 barg, 150 °C)
Metal seat "-M" (up to 21 barg).



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
JA3D	16	100	16	100	Zinc Alloy
JA3	16	100	21	100	Ductile Cast Iron
SS1VG-R	10	150	21	220	Stainless Steel
SS1VG-M	5, 10, 16, 21	220	21	220	Stainless Steel

Model	Body Material	Connection Type	1/2" DN15	3/4" DN20	1" DN25
JA3D	Zinc Alloy*	Screwed	223.00	-	-
JA3	S.G.Iron	Screwed	214.00	229.00	246.00
SS1VG-R	Stainless Steel	Screwed	695.00	715.00	732.00
SS1VG-M	Stainless Steel	Screwed	695.00	715.00	732.00

* All internal parts are made from Stainless Steel.

Air Traps

Air Traps for High Viscosity Condensate

TLV provides air traps for high viscosity condensate, with large valve seat and self-cleaning function.

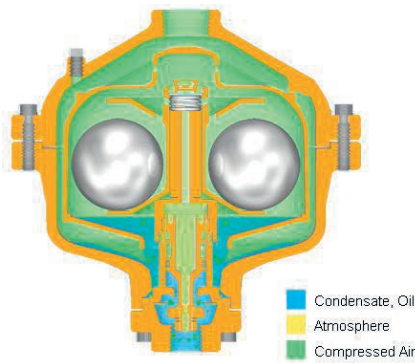
Operating Inlet Pressure Range: 2 - 10 barg

Operating Temperature Range: 0 - 80 °C



Benefits and Features

- Unique design allows self-cleaning of the trap interior during each discharge. Y-strainer and blow down valve allow cleaning during operation to ensure trouble-free service. Internal parts are made of stainless steel or other non-corrosive materials.
- The large size orifice smoothly discharges any entrained oil, rust and scale together with the condensate.
- Large capacity air trap for pipe end installation. Automatically drains condensate and oil from compressed air systems such as receiver tanks, after coolers and air mains. For systems with pressures between 2 and 10 barg and temperatures up to 80°C.
- Especially suitable for complete automatic drainage of medium to large capacity air receivers. This unit does not require ancillary electrical support.



Model	Max Operating Pressure (barg)	Max Operating Temperature (°C)	Max Allowable Pressure (barg)	Max Allowable Temperature (°C)	Body Material
TATSU2	10	80	10	150	Cast Iron

Model	Body Material	Connection Type	1" DN25
TATSU2	Cast Iron	Screwed	1681.00

Maintenance Instruments

PT1 Pocket TrapMan

Portable diagnostic tool suitable for small sites or random spot checks

Benefits and Features

Daily inspection tool used to measure vibration (ultrasound) and temperature, and for basic operational judgement of steam traps, valves and shaft bearings.

Takes a simultaneous ultrasonic and temperature reading. Compact design, easy to carry around in a pocket, also comes with removable earphones.

The band pass filter eliminates interference from ambient noises, resulting in high precision ultrasonic measurement.

Automatically gives a quick judgment of traps or valve leaks on air piping.



Model	Max Trap Surface Temperature (°C)	Price
PT1	350.00	1707.00

Documentation

Test and Material Certificates

Description	Price
PERFORMANCE TEST CERTIFICATE	40.00
CERTIFICATE OF CONFORMITY	FOC
HYDROSTATIC PRESSURE TEST CERTIFICATE	35.00
MATERIAL CERTIFICATE BS EN10204-2.2 (CHARGED PER LINE ITEM)	35.00
MATERIAL CERTIFICATE BS EN10204-3.1 (CHARGED PER LINE ITEM)	55.00
CERTIFICATE OF ORIGIN	40.00
SET POINT CERTIFICATE FOR SAFETY VALVE	FOC

PLEASE STATE ANY CERTIFICATION REQUIREMENTS WHEN PLACING AN ORDER.

CERTIFICATION MAY INCREASE DELIVERY TIME

RETROSPECTIVE SUPPLY OF CERTIFICATES MAY NOT BE POSSIBLE AND WILL INCUR ADDITIONAL COST.

Application Drawings

On the following pages are typical installation drawings for steam applications. They include:

Steam Distribution System Drainage

Draining Steam Mains-Free Float, Draining Steam Mains-Thermodynamic Steam Trap, Draining and Air Venting the Terminal Point of Steam Mains, Draining a Steam Header.

Pressure Control

Low Level Pressure Reducing Station, COSR Pressure Reducing Station, Series Pressure Reducing Valve Station for High Turndown Ratio, Parallel Pressure Reducing Valve Station for Wide Load Variations, Protection Critical Steam Supply With Surplussing Valve, COSPECT Pressure Reducing Station.

Temperature Control

Basic Tank Heating Coil, Plate Heat Exchanger, Shell and Tube Heat Exchanger, Prevention of Stall on a Shell and Tube Heat Exchangers.

Condensate and Flash Steam Recovery

Steam Pipe Draining to a Manifold, Flash Vessel Installation, General Condensate Recovery System using GP10, Example of Flash Steam and Condensate Recovery from an Air Heater, Air Handling Unit – Gravitational Drainage (Zero Back Pressure), Air Handling Unit – Pumped Drainage (For High Level Condensate Recovery), Condensate Recovery from a Cylinder Dryer using a GP10 Power Trap.

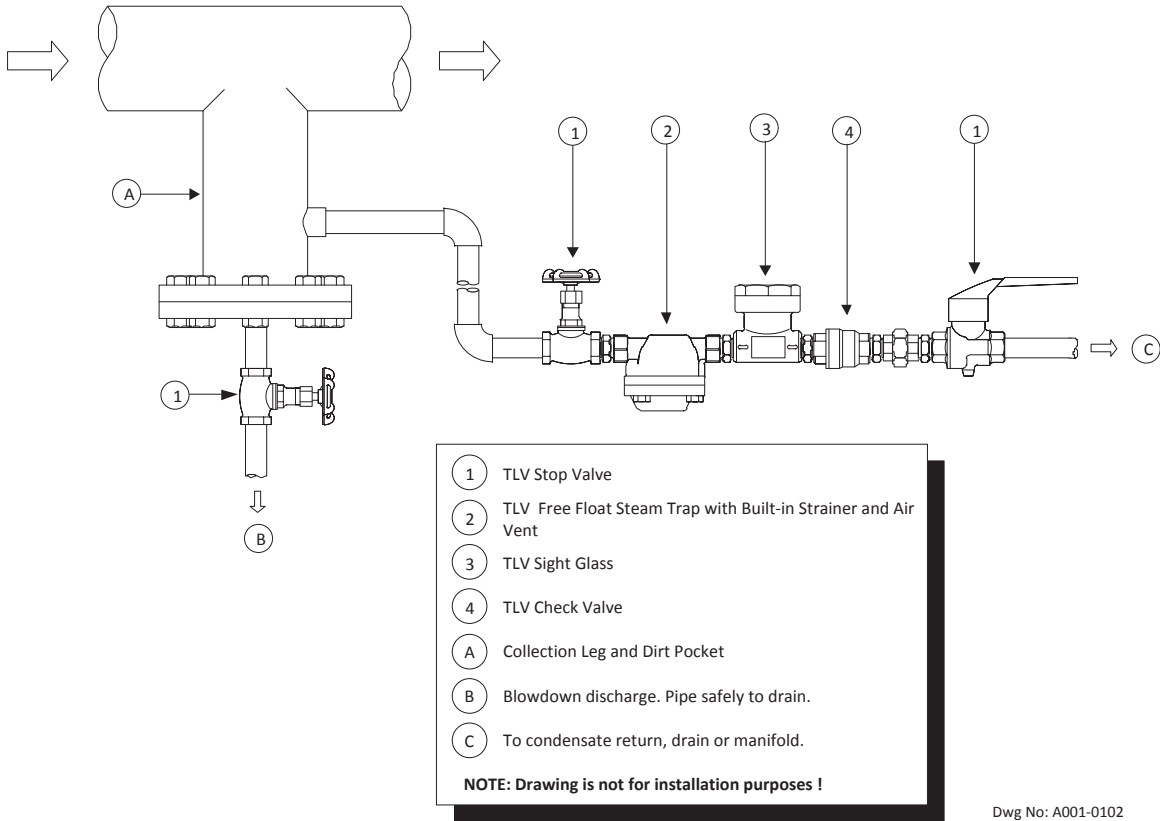
Other Applications

Boiling Pan (Fixed), Laundry Conditioning Tunnel, Multi-Roll Ironer, Platen Press, Plating Tank, Mill Roller and Cylinder Dryer, Space Heater, Sump Pit Waste Water Removal, Multi-Cylinder Dryer, Laundry Tumble Dryer, Small Ironer.

The following are provided as a guide only and professional advice should be sought before carrying out any installations. For any queries reference equipment suitability visit www.tlv.com or contact TLV's Technical Sales Department.

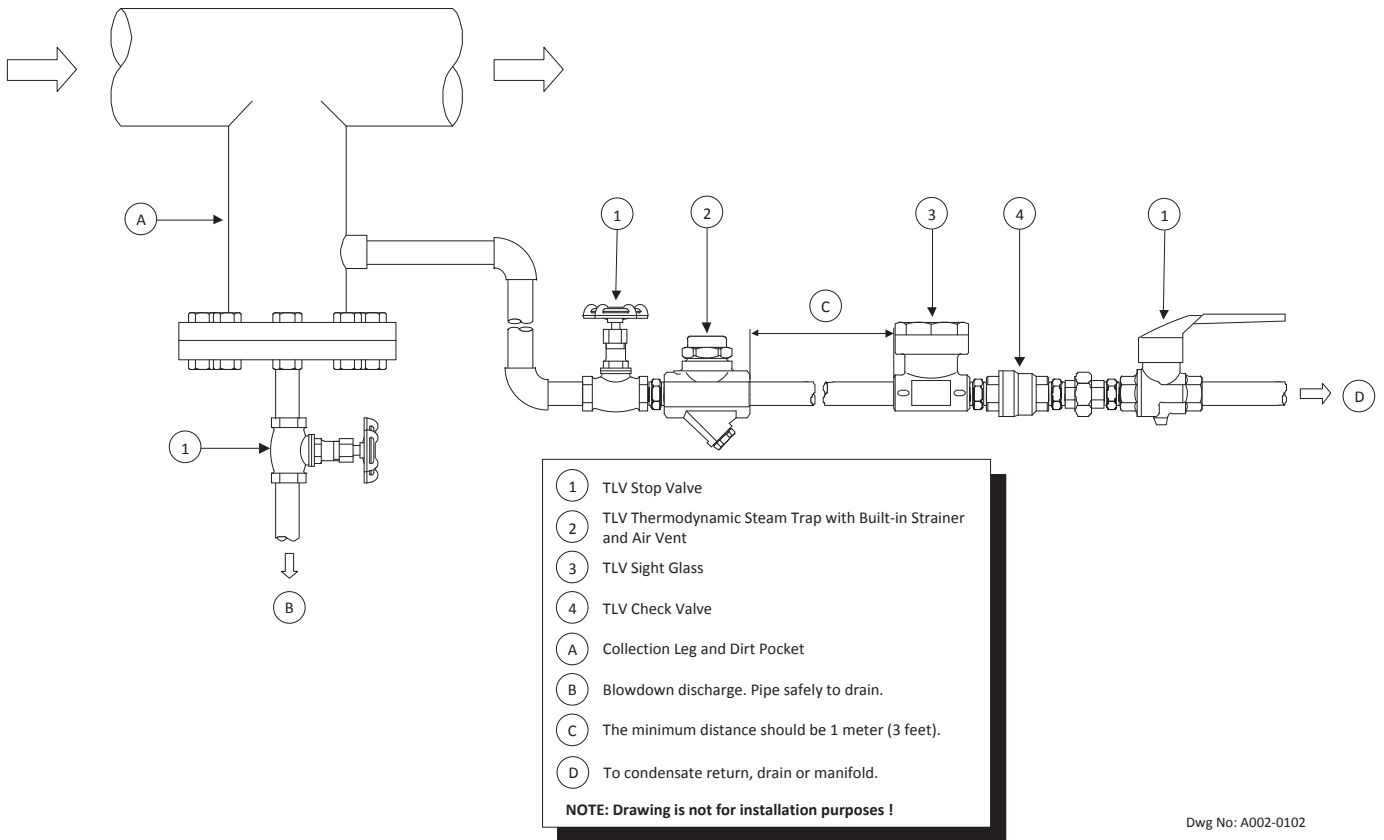
Steam Distribution System Drainage

Draining Steam Mains-Free Float



Steam Distribution System Drainage

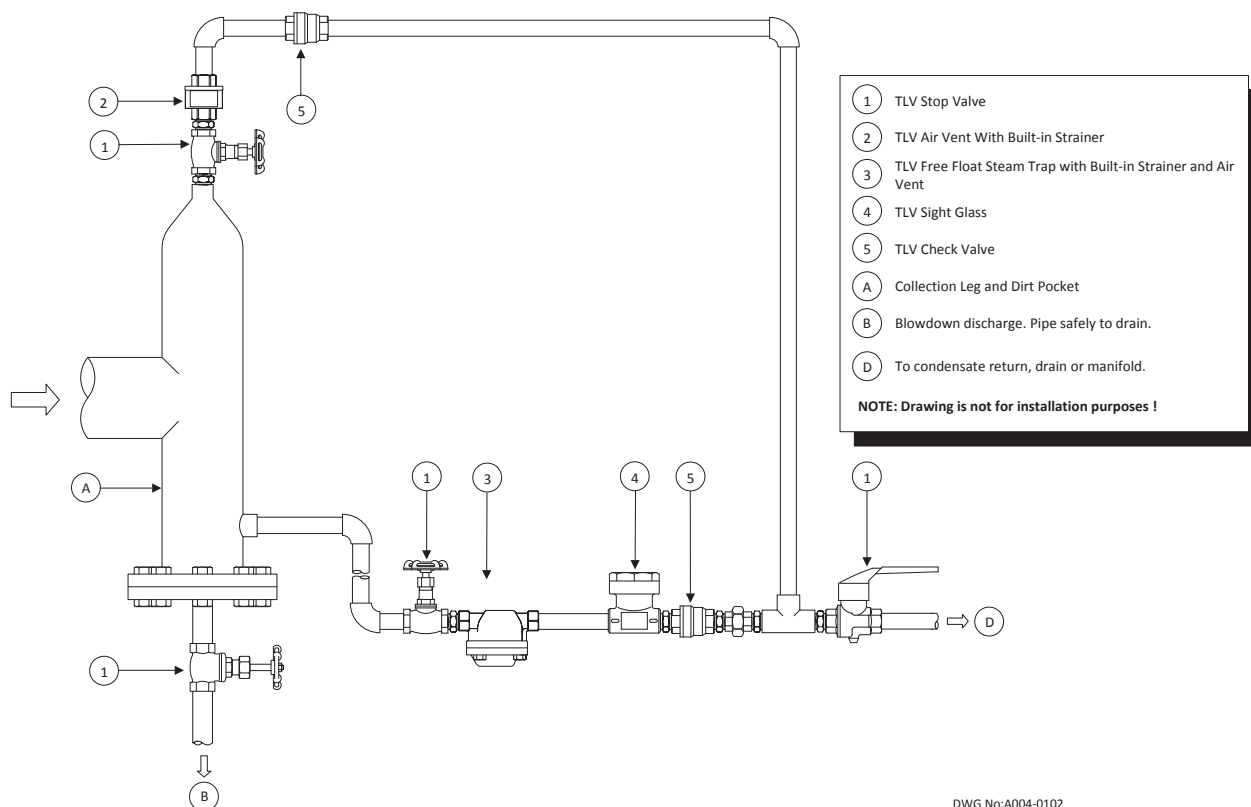
Draining Steam Mains-Thermodynamic Steam Trap



DOCUMENTATION & APPLICATION DRAWINGS

Steam Distribution System Drainage

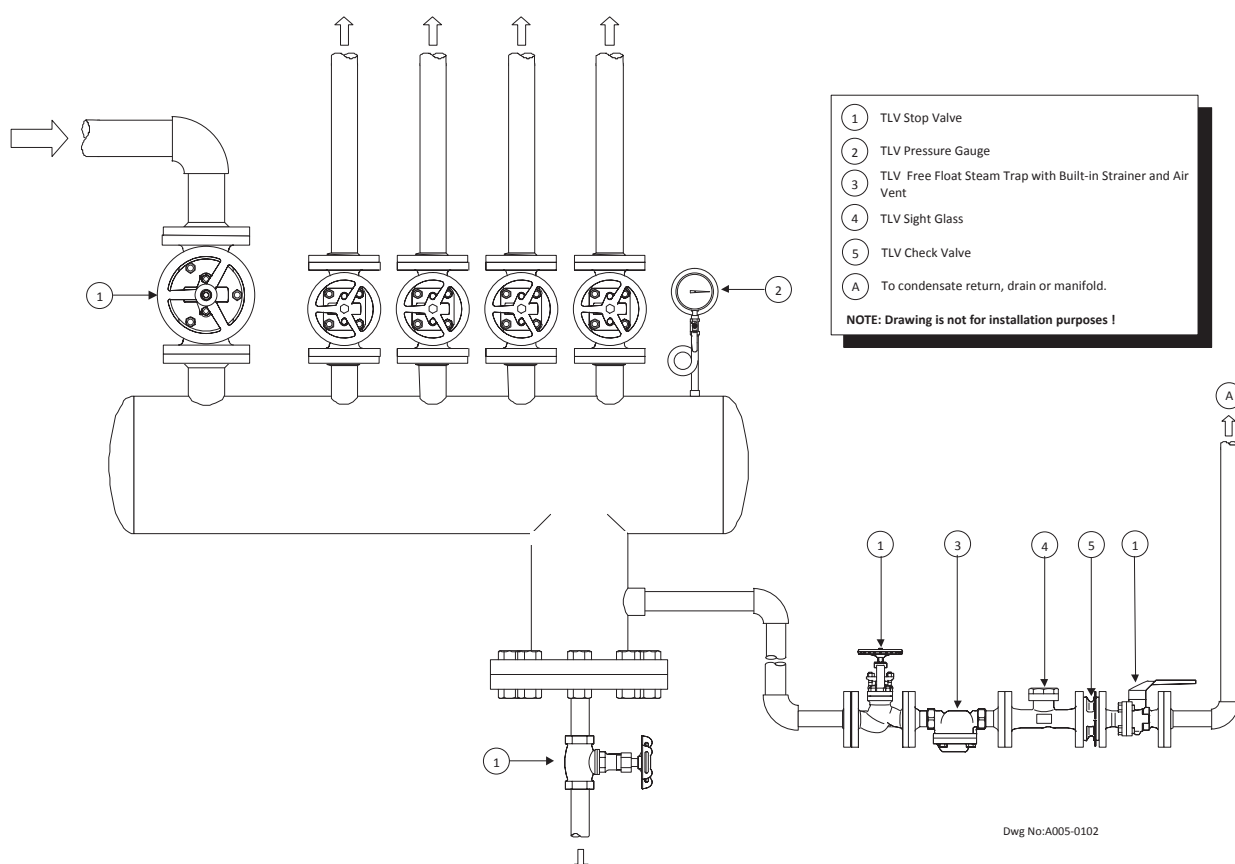
Draining and Air Venting the Terminal Point of Steam Mains



DOCUMENTATION & APPLICATION DRAWINGS

Steam Distribution System Drainage

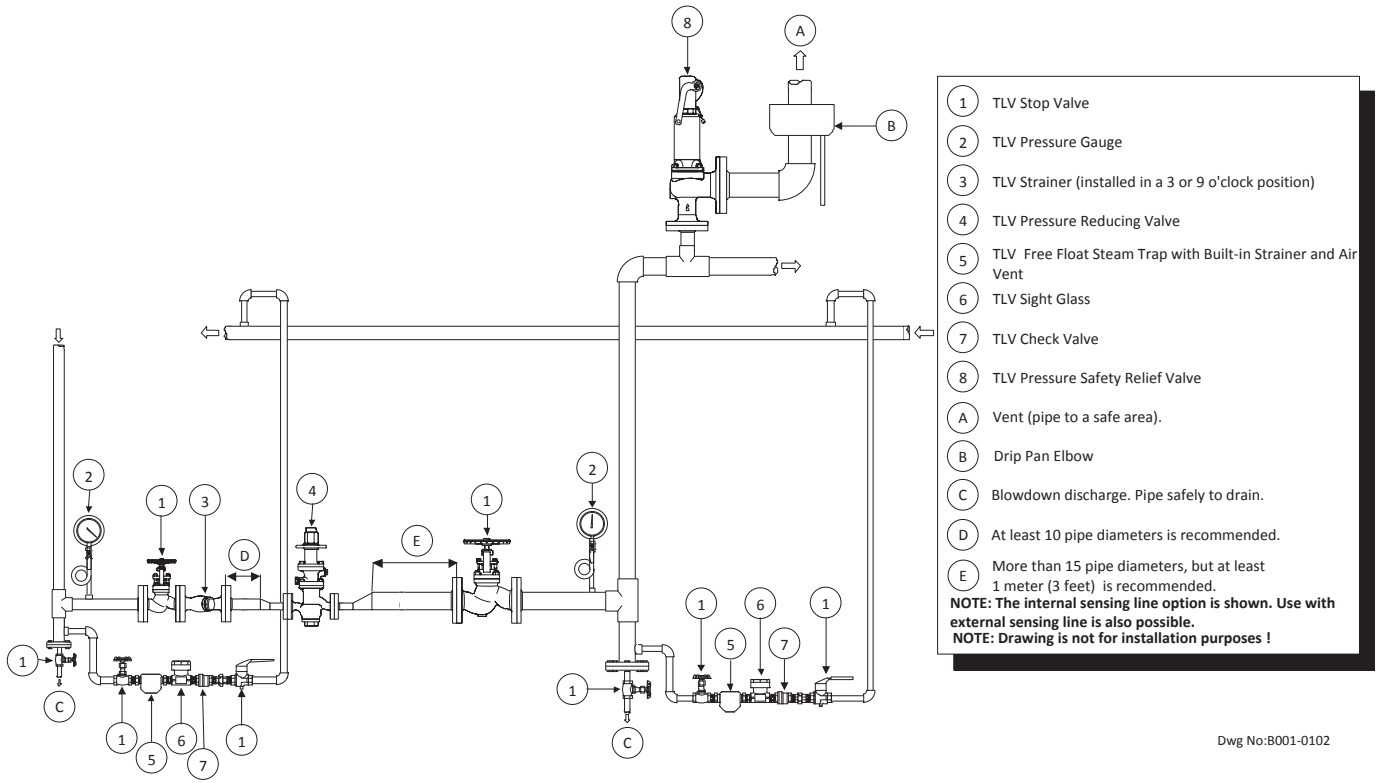
Draining a Steam Header



Pressure Control

Low Level Pressure Reducing Station

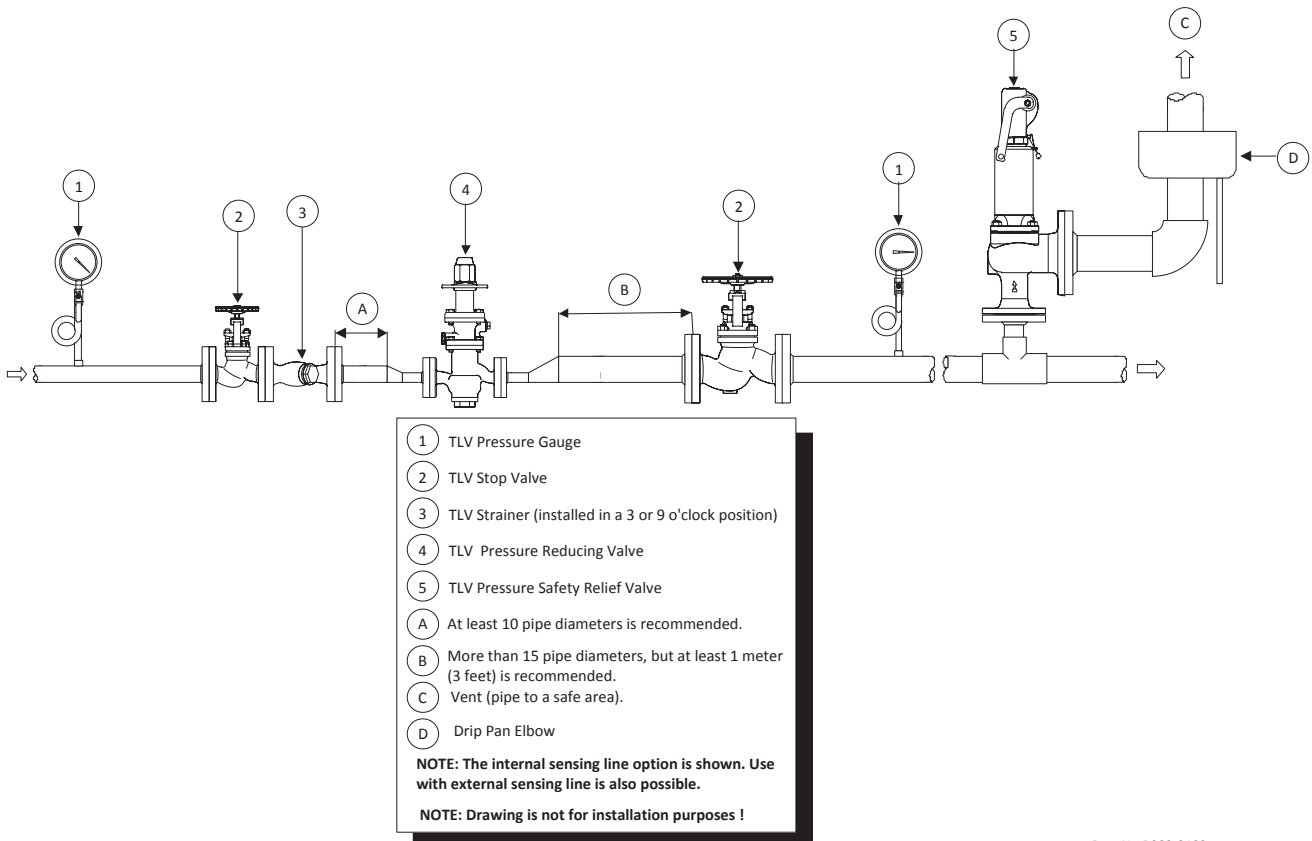
DOCUMENTATION & APPLICATION DRAWINGS



Dwg No:8001-0102

Pressure Control

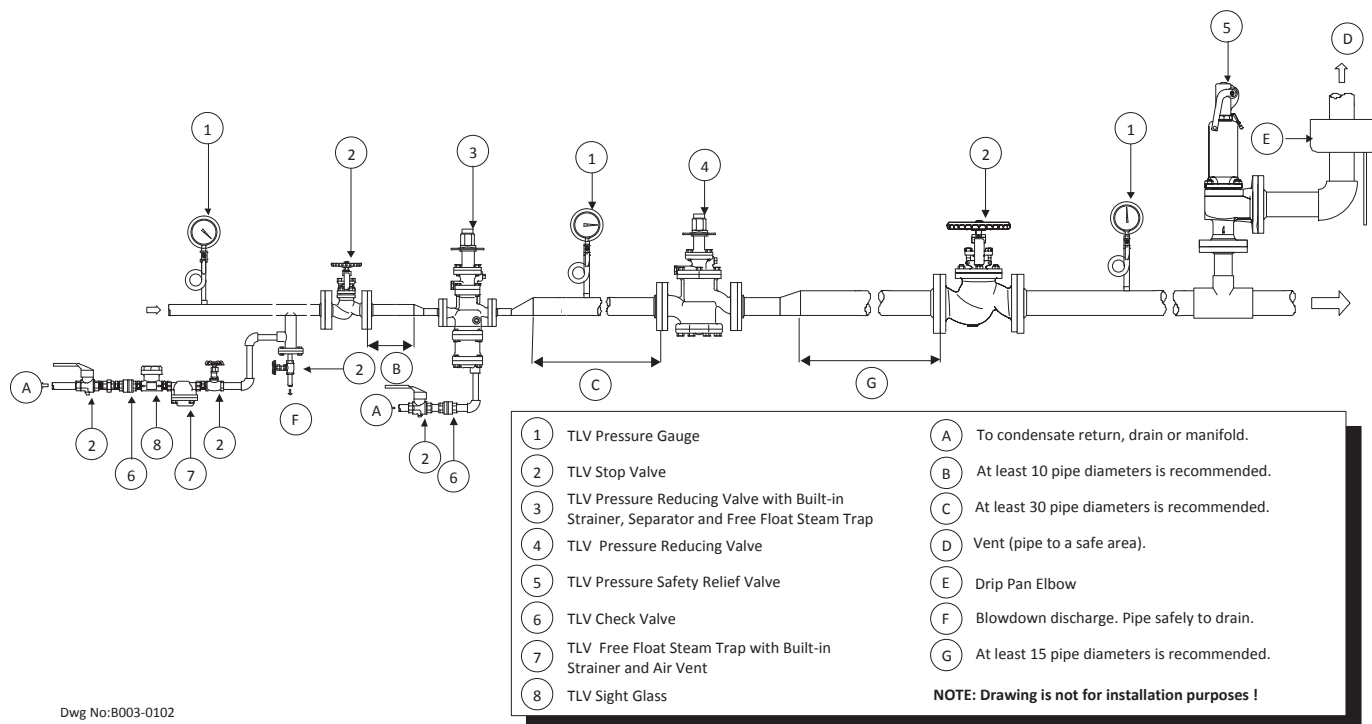
COSR Pressure Reducing Station



Dwg No:8002-0102

Pressure Control

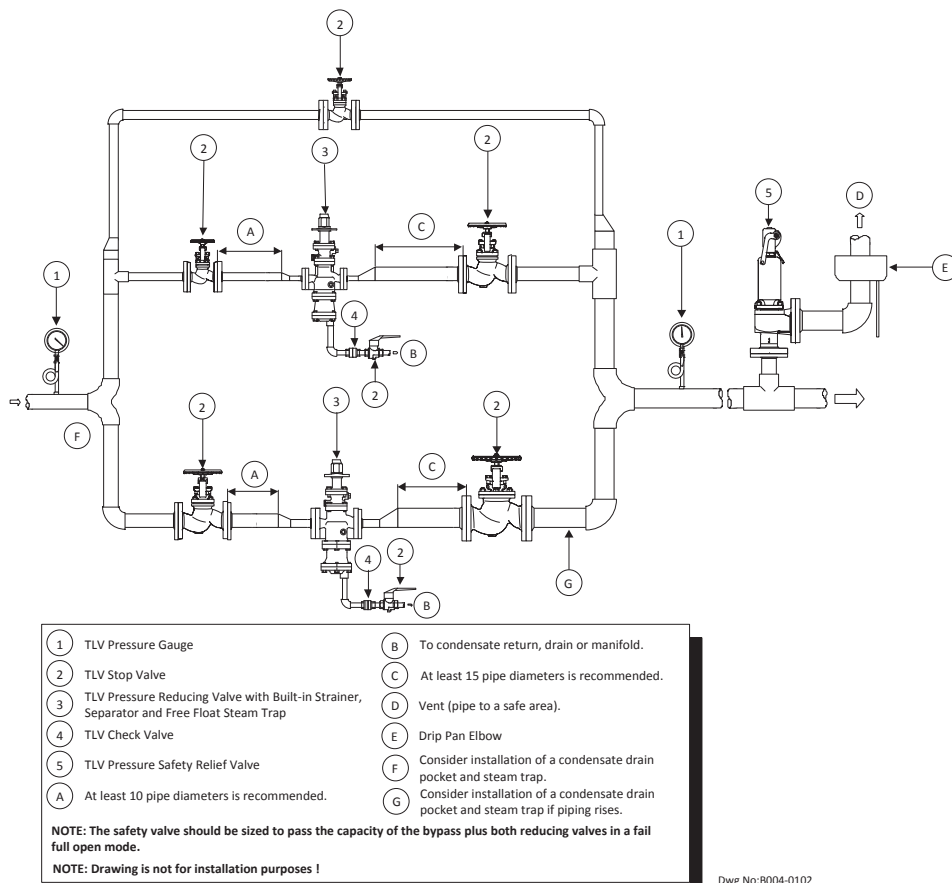
Series Pressure Reducing Valve Station for High Turndown Ratio



Dwg No: B003-0102

Pressure Control

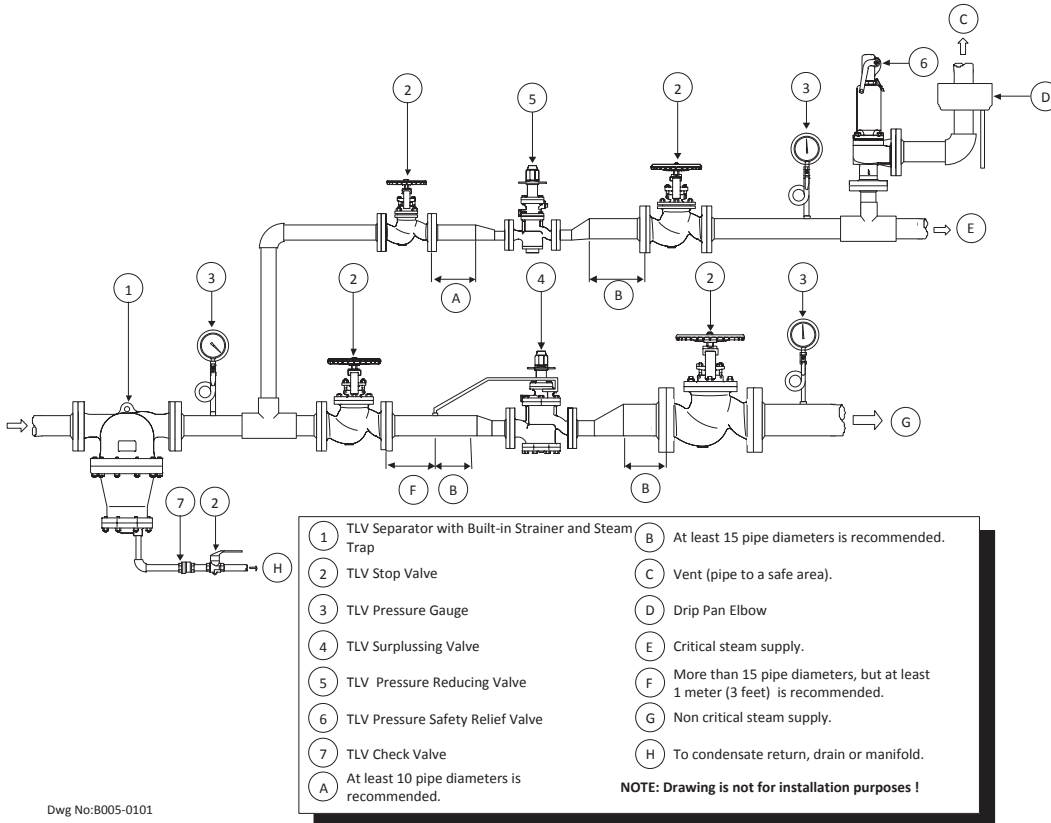
Parallel Pressure Reducing Valve Station for Wide Load Variations



Dwg No: B004-0102

Pressure Control

Protection Critical Steam Supply With Surplussing Valve

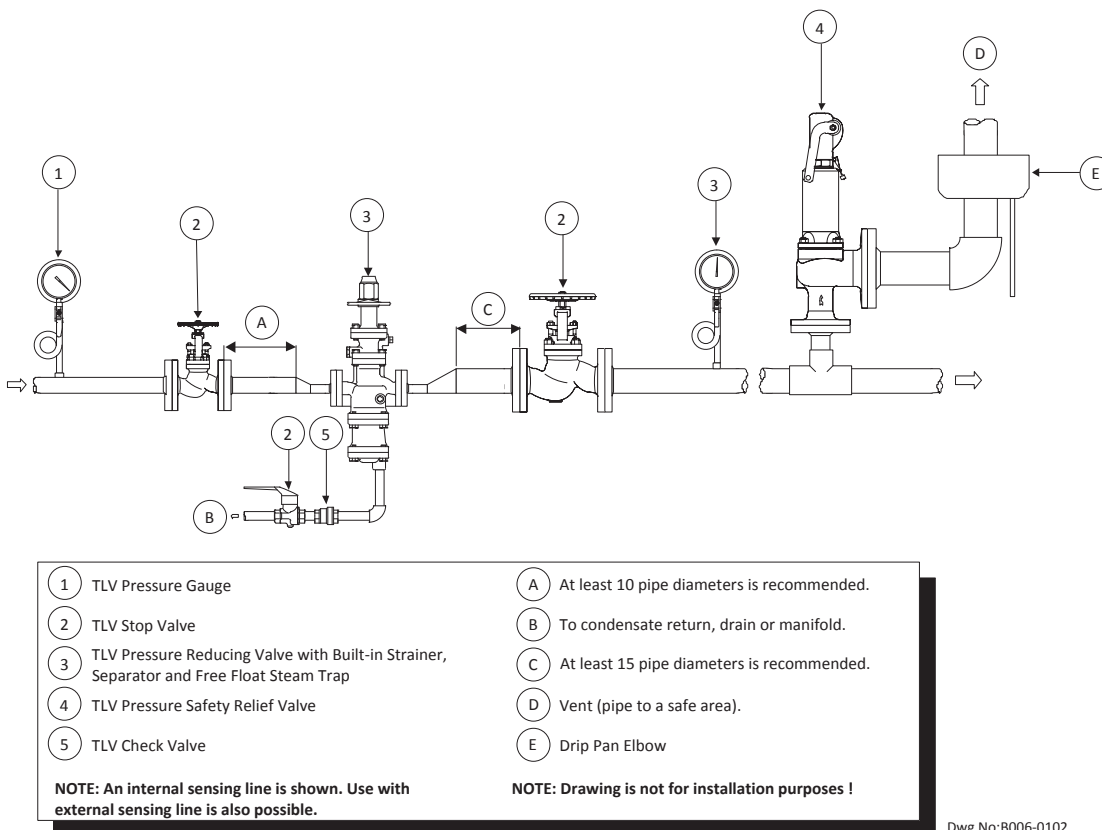


Dwg No:8005-0101

DOCUMENTATION & APPLICATION DRAWINGS

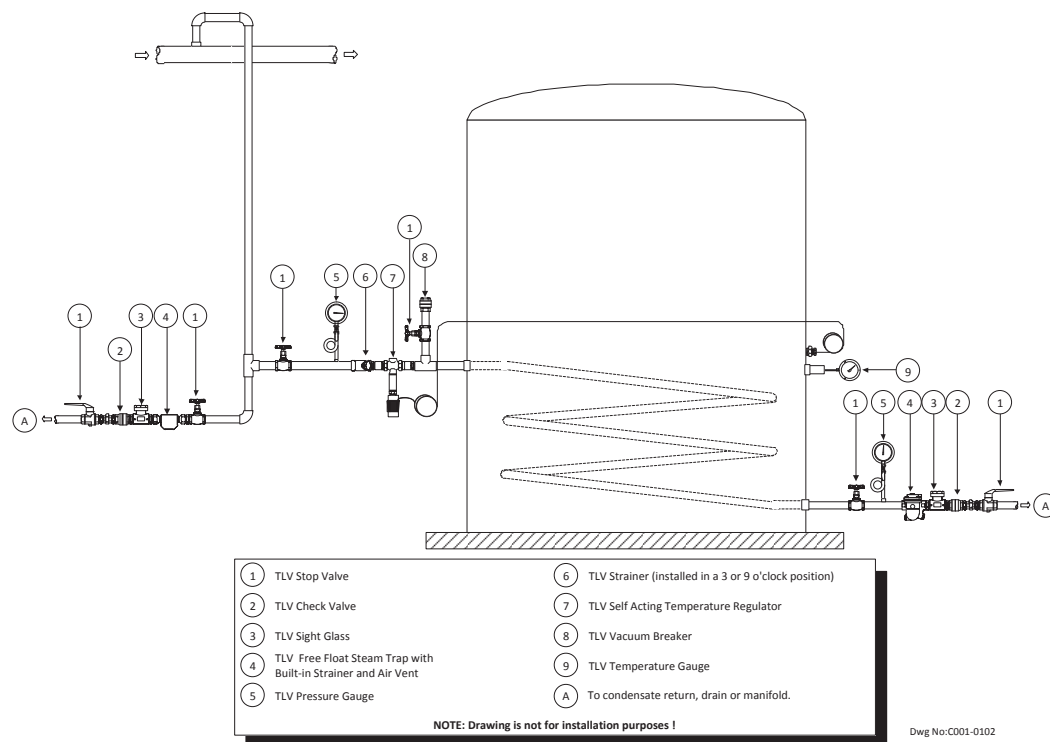
Pressure Control

COSPECT Pressure Reducing Station (Internal Sensing Line)

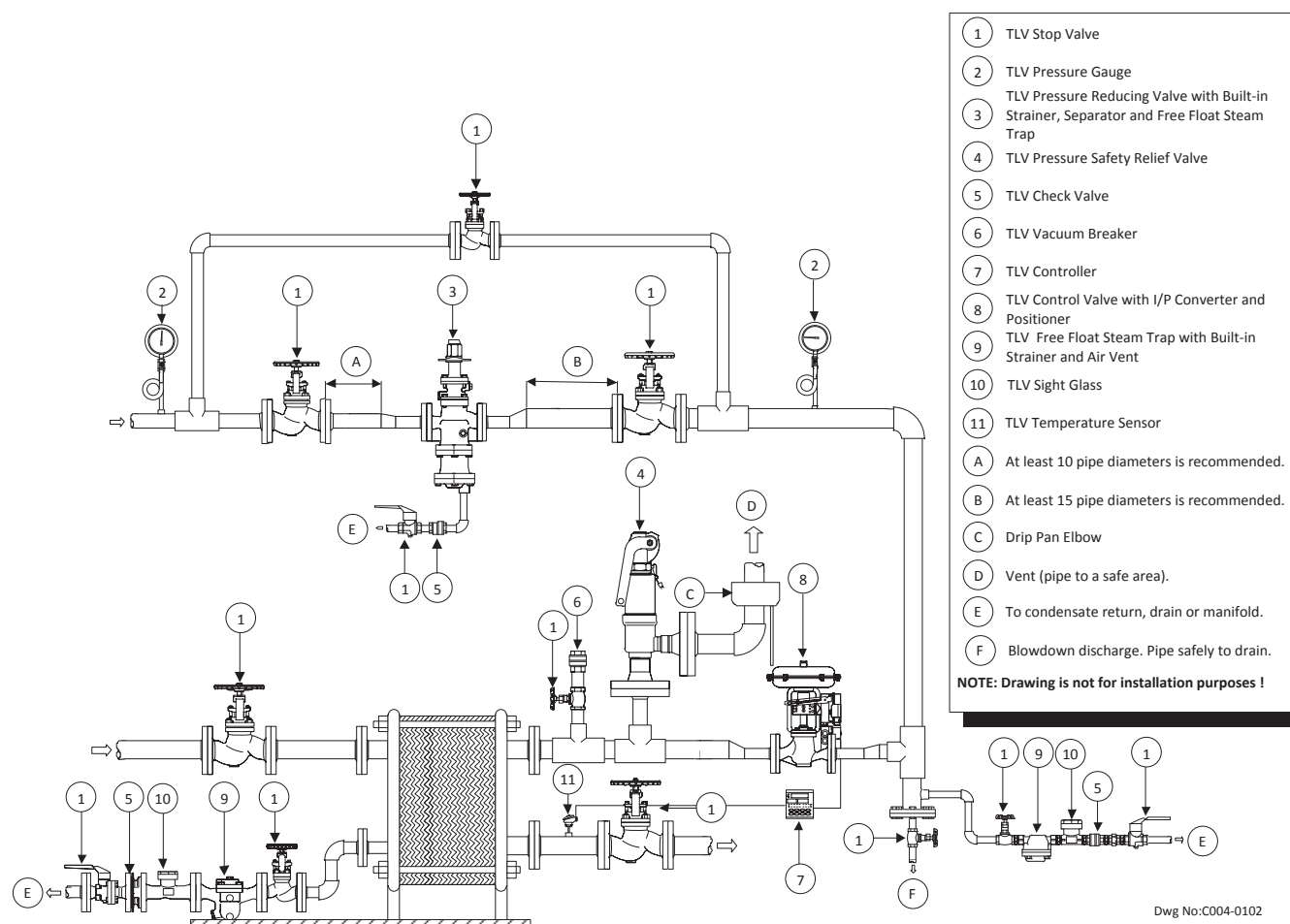


Dwg No:8006-0102

Temperature Control Basic Tank Heating Coil

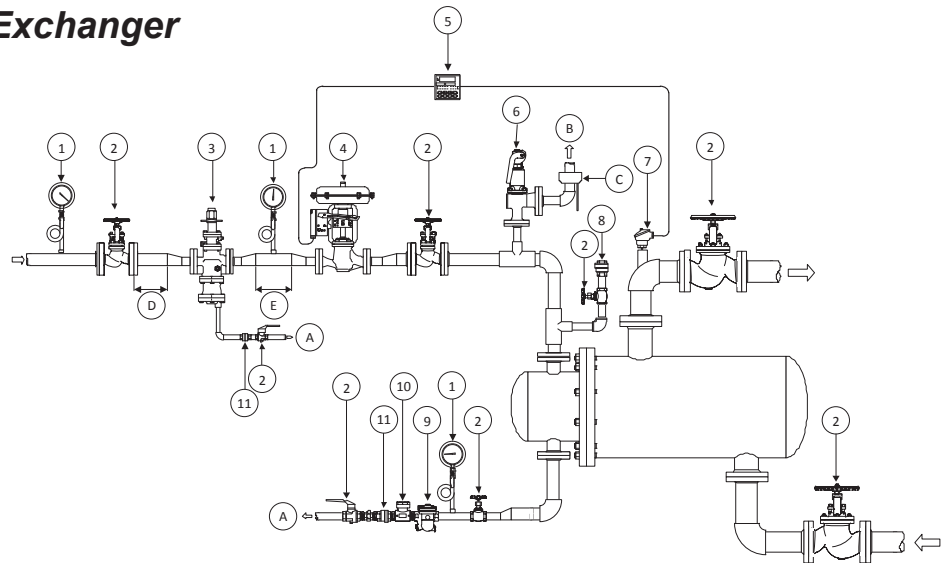


Temperature Control Plate Heat Exchanger



Temperature Control

Shell and Tube Heat Exchanger



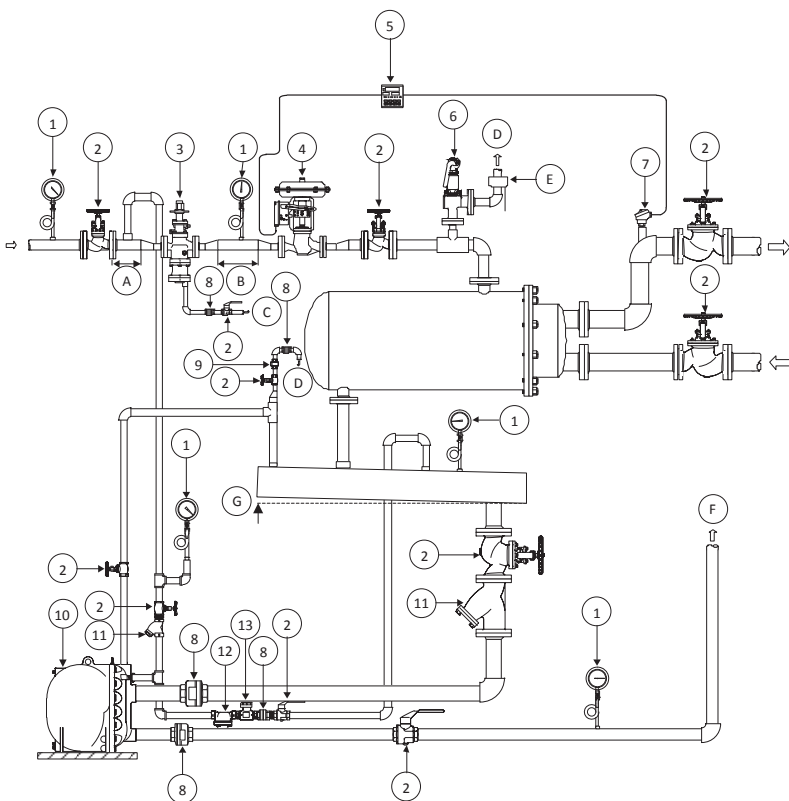
- | | |
|---|---|
| 1 TLV Pressure Gauge | 9 TLV Free Float Steam Trap with Built-in Strainer and Air Vent |
| 2 TLV Stop Valve | 10 TLV Sight Glass |
| 3 TLV Pressure Reducing Valve with Built-in Strainer, Separator and Free Float Steam Trap | 11 TLV Check Valve |
| 4 TLV Control Valve with I/P Converter and Positioner | A To condensate return, drain or manifold. |
| 5 TLV Controller | B Vent (pipe to a safe area). |
| 6 TLV Pressure Safety Relief Valve | C Drip Pan Elbow |
| 7 TLV Temperature Sensor | D At least 10 pipe diameters is recommended. |
| 8 TLV Vacuum Breaker | E At least 30 pipe diameters is recommended. |
- NOTE: Drawing is not for installation purposes !**

Dwg No:C005-1020

DOCUMENTATION & APPLICATION DRAWINGS

Temperature Control

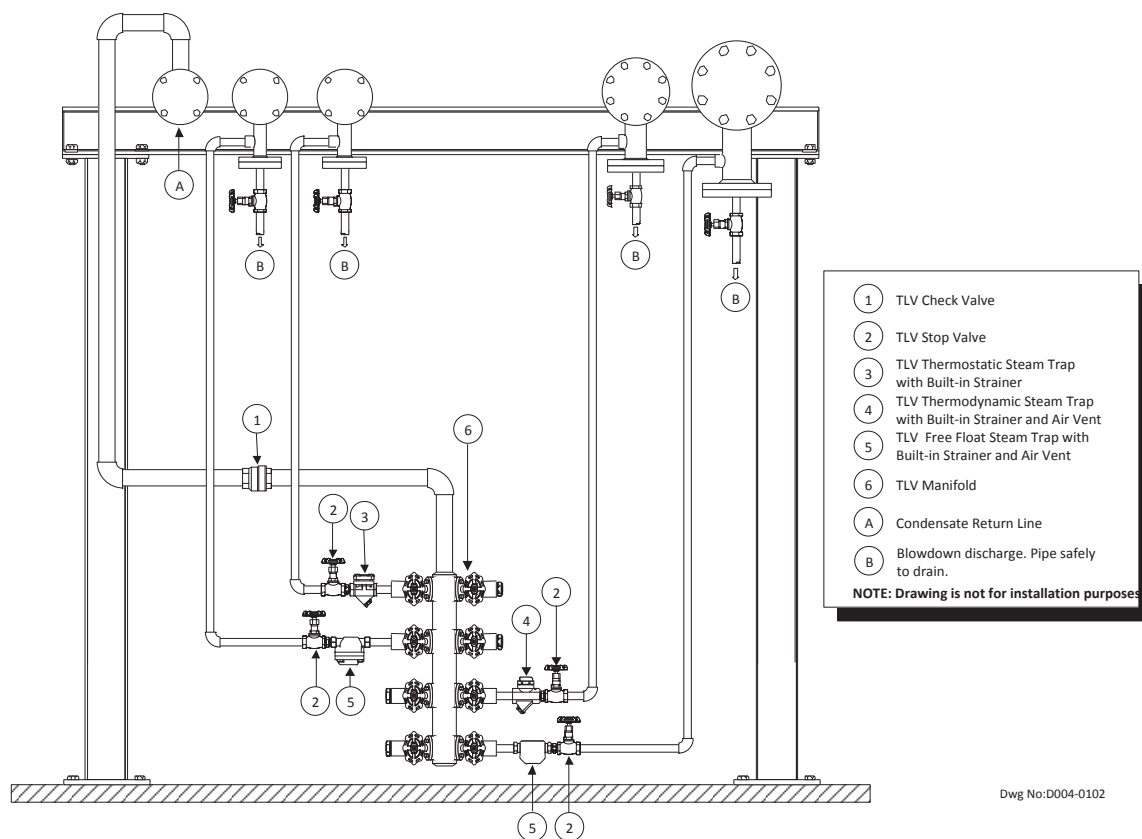
Prevention of Stall on a Shell and Tube Heat Exchangers



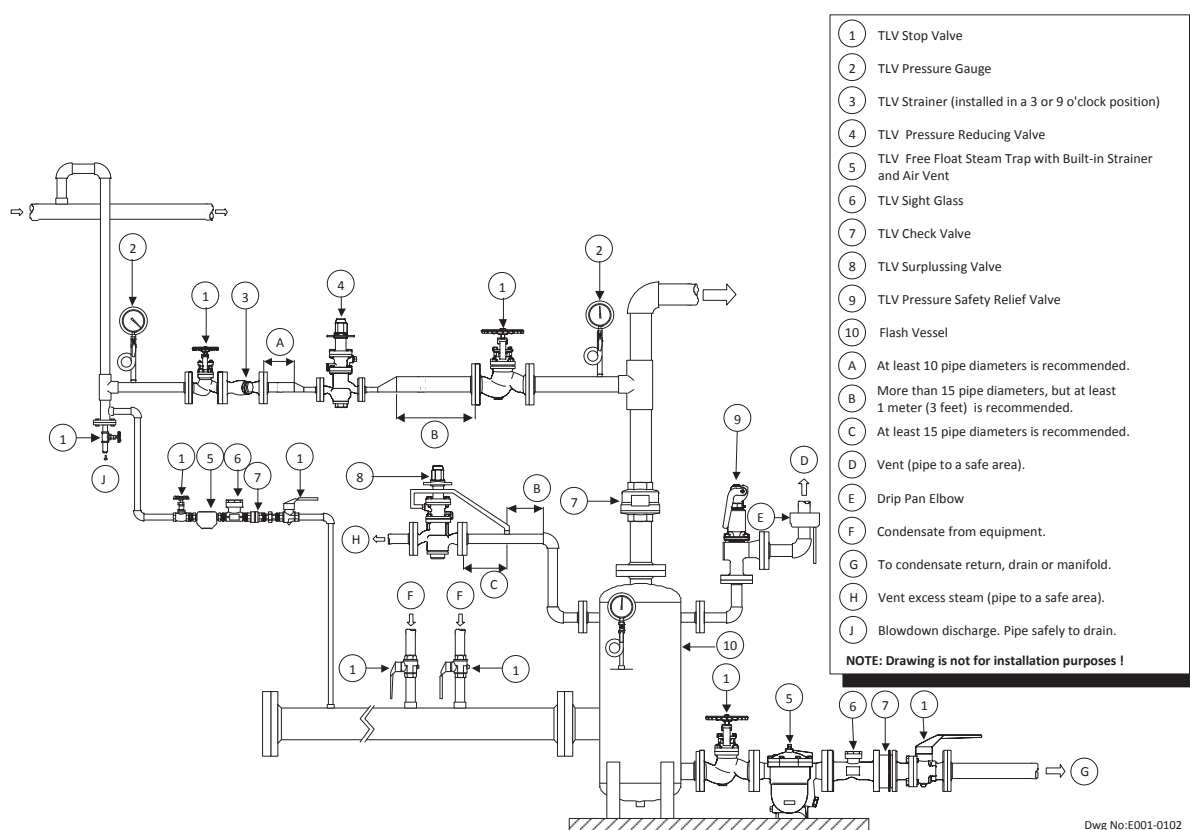
- | |
|---|
| 1 TLV Pressure Gauge |
| 2 TLV Stop Valve |
| 3 TLV Pressure Reducing Valve with Built-in Strainer, Separator and Free Float Steam Trap |
| 4 TLV Control Valve with I/P Converter and Positioner |
| 5 TLV Controller |
| 6 TLV Pressure Safety Relief Valve |
| 7 TLV Temperature Sensor |
| 8 TLV Check Valve |
| 9 TLV Air Vent with Built-in Strainer |
| 10 TLV Power Trap with Built-in Steam Trap |
| 11 TLV Strainer |
| 12 TLV Free Float Steam Trap with Built-in Strainer and Air Vent |
| 13 TLV Sight Glass |
| A At least 10 pipe diameters is recommended. |
| B At least 30 pipe diameters is recommended. |
| C To condensate return, drain or manifold. |
| D Vent (pipe to a safe area). |
| E Drip Pan Elbow |
| F To condensate return (at high level). |
| G Slightly pitch to pump inlet. |
- NOTE: Drawing is not for installation purposes !**

Dwg No:C006-0102

Condensate and Flash Steam Recovery Steam Pipe Draining To a Manifold



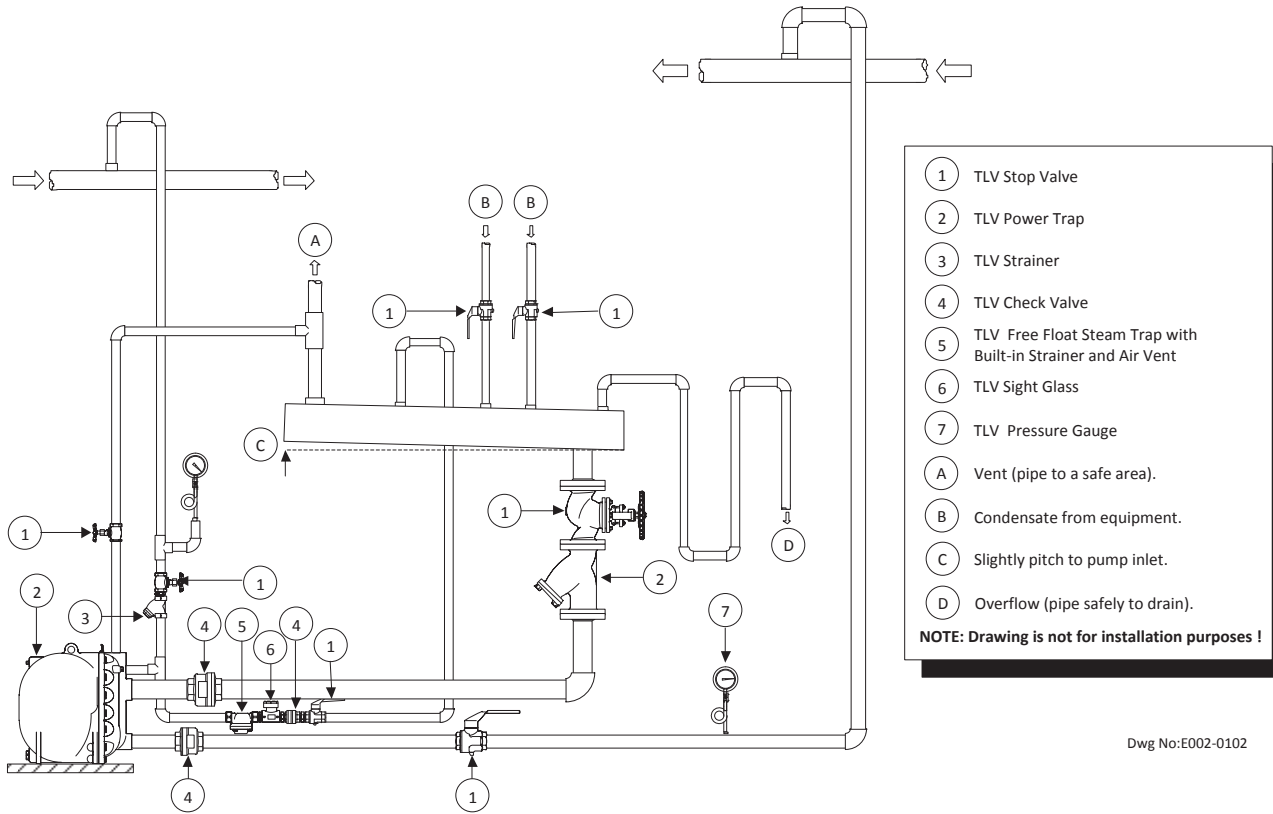
Condensate and Flash Steam Recovery Flash Vessel Installation



Condensate and Flash Steam Recovery

General Condensate Recovery System using GP10 PowerTrap

DOCUMENTATION & APPLICATION DRAWINGS

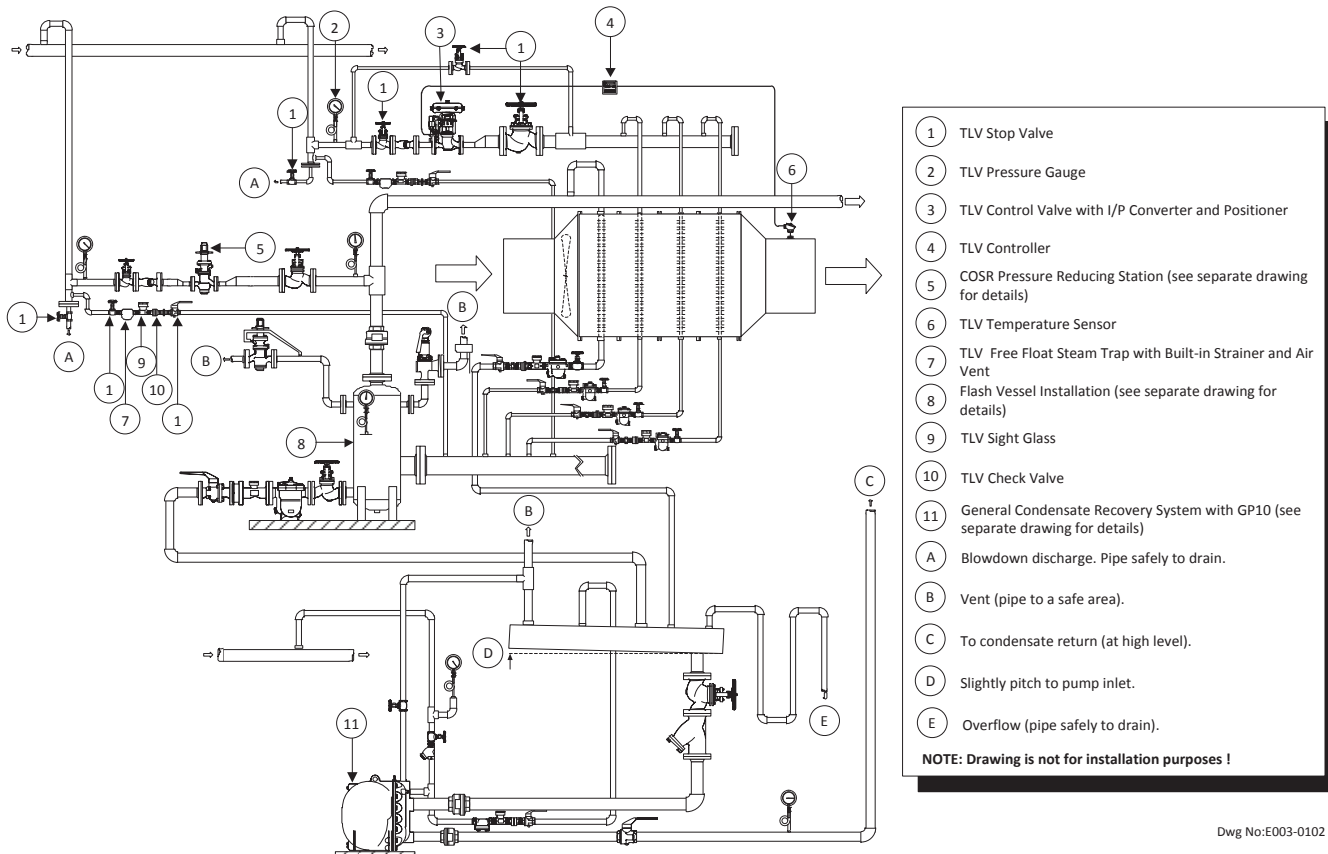


- 1 TLV Stop Valve
 - 2 TLV Power Trap
 - 3 TLV Strainer
 - 4 TLV Check Valve
 - 5 TLV Free Float Steam Trap with Built-in Strainer and Air Vent
 - 6 TLV Sight Glass
 - 7 TLV Pressure Gauge
 - A Vent (pipe to a safe area).
 - B Condensate from equipment.
 - C Slightly pitch to pump inlet.
 - D Overflow (pipe safely to drain).
- NOTE: Drawing is not for installation purposes !**

Dwg No:E002-0102

Condensate and Flash Steam Recovery

Example of Flash Steam and Condensate Recovery from an Air Heater

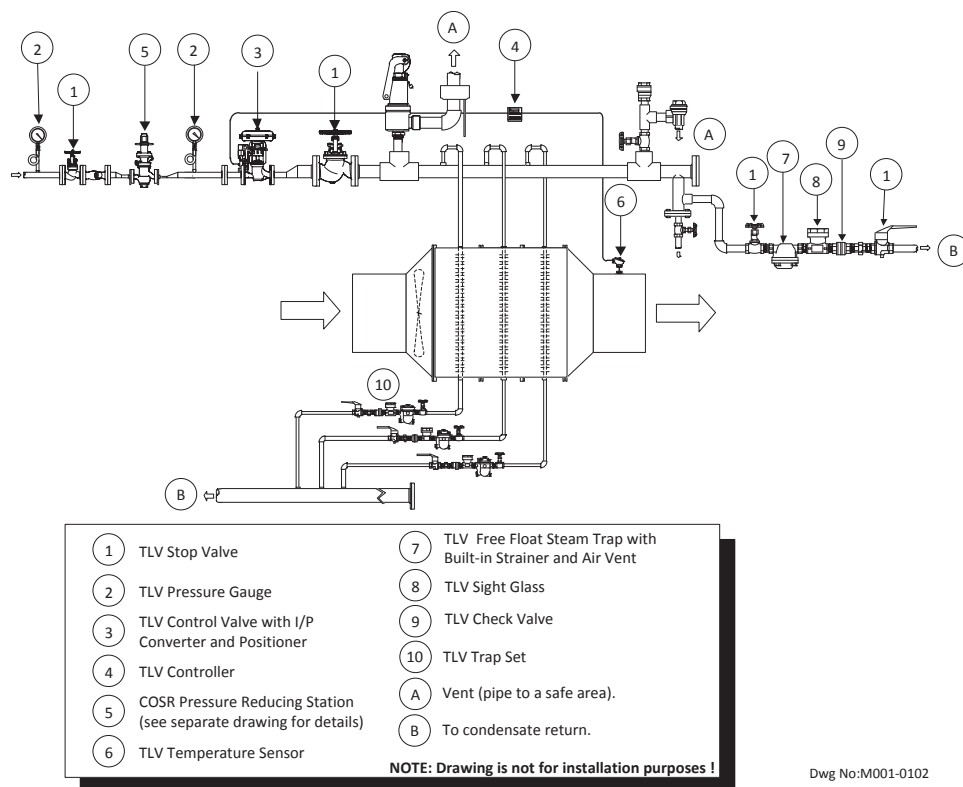


- 1 TLV Stop Valve
 - 2 TLV Pressure Gauge
 - 3 TLV Control Valve with I/P Converter and Positioner
 - 4 TLV Controller
 - 5 COSR Pressure Reducing Station (see separate drawing for details)
 - 6 TLV Temperature Sensor
 - 7 TLV Free Float Steam Trap with Built-in Strainer and Air Vent
 - 8 Flash Vessel Installation (see separate drawing for details)
 - 9 TLV Sight Glass
 - 10 TLV Check Valve
 - 11 General Condensate Recovery System with GP10 (see separate drawing for details)
 - A Blowdown discharge. Pipe safely to drain.
 - B Vent (pipe to a safe area).
 - C To condensate return (at high level).
 - D Slightly pitch to pump inlet.
 - E Overflow (pipe safely to drain).
- NOTE: Drawing is not for installation purposes !**

Dwg No:E003-0102

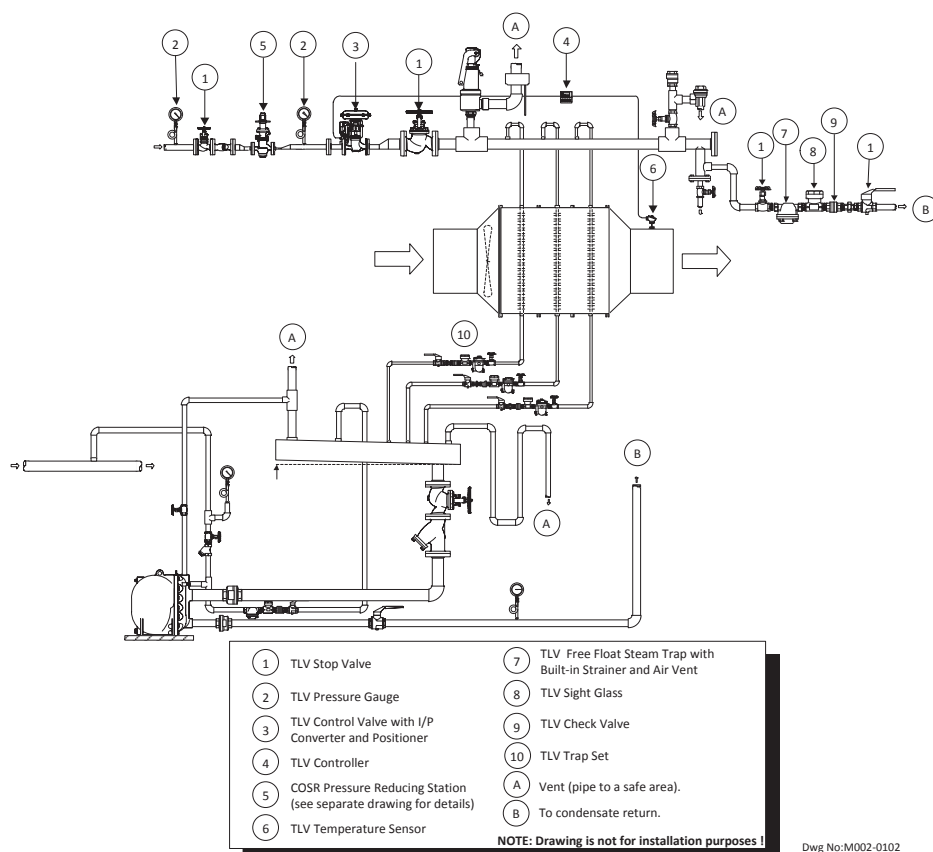
Condensate and Flash Steam Recovery

Air Handling Unit – Gravitational Drainage (Zero Back Pressure)



Condensate and Flash Steam Recovery

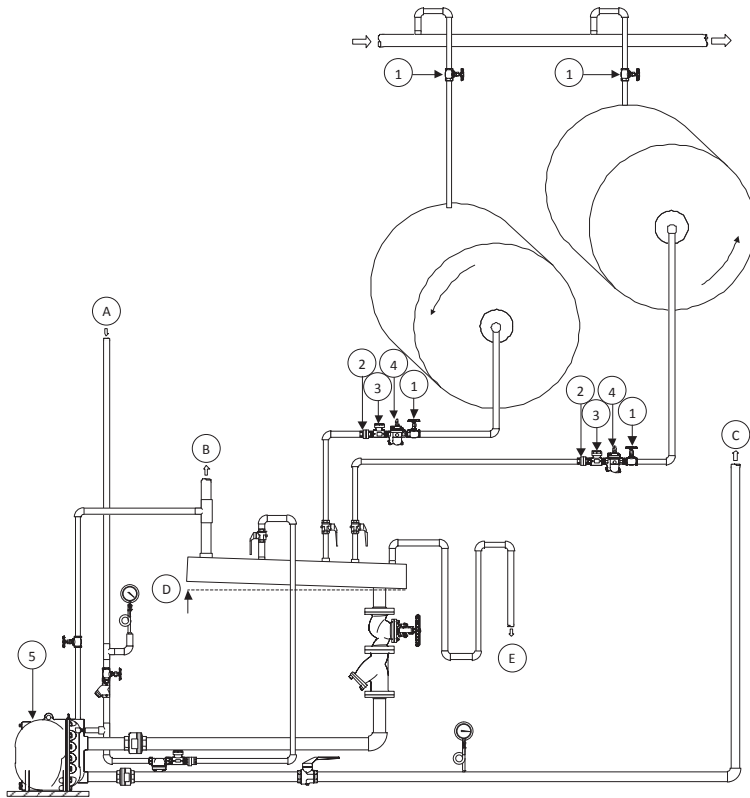
Air Handling Unit – Pumped Drainage (For High Level Condensate Recovery)



Condensate and Flash Steam Recovery

Condensate Recovery from a Cylinder Dryer using a GP10 Power Trap

DOCUMENTATION & APPLICATION DRAWINGS

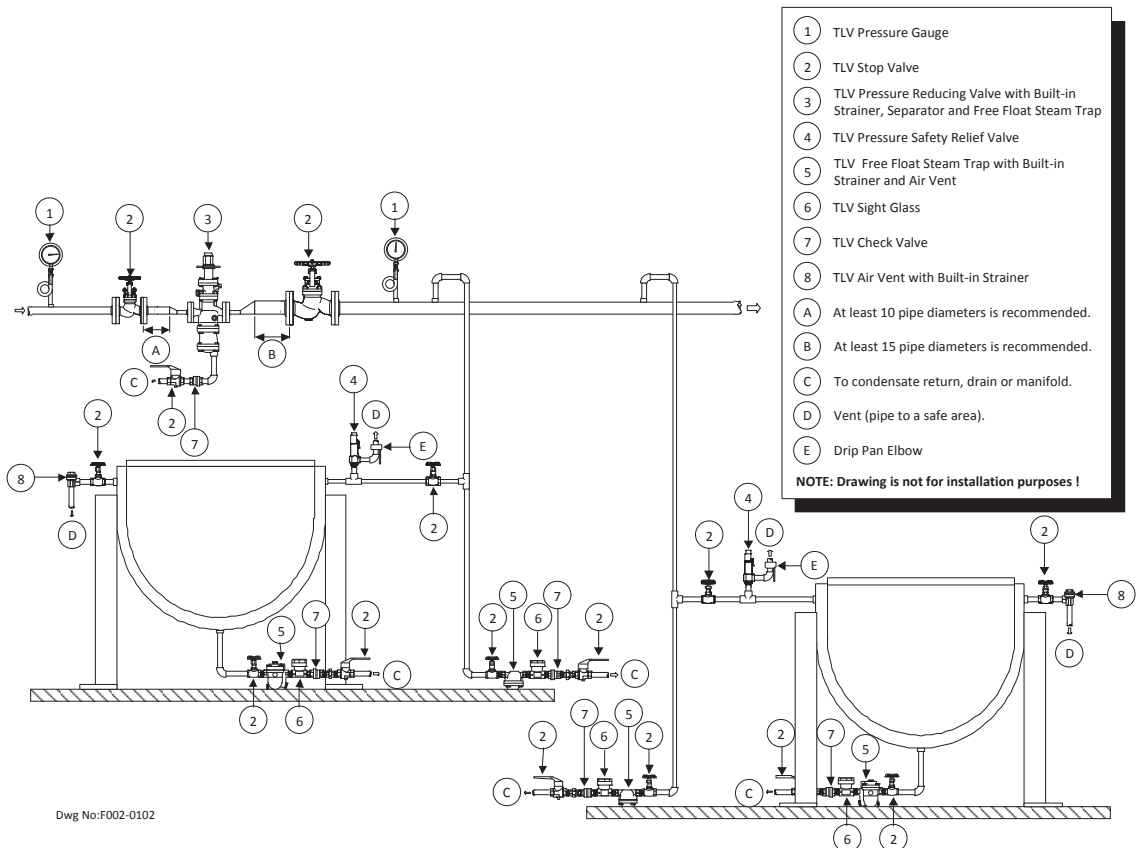


- 1 TLV Stop Valve
 - 2 TLV Check Valve
 - 3 TLV Sight Glass
 - 4 TLV Free Float Steam Trap with Built-In Strainer, Air Vent and Steam Lock Release Valve
 - 5 General Condensate Recovery System with GP10 (see separate drawing for details).
 - A Motive Steam Supply
 - B Vent (pipe to a safe area).
 - C To condensate return (at high level).
 - D Slightly pitch to pump inlet.
 - E Overflow (pipe safely to drain).
- NOTE: Drawing is not for installation purposes !**

Dwg No:E004-0102

Other Applications

Boiling Pan (Fixed)

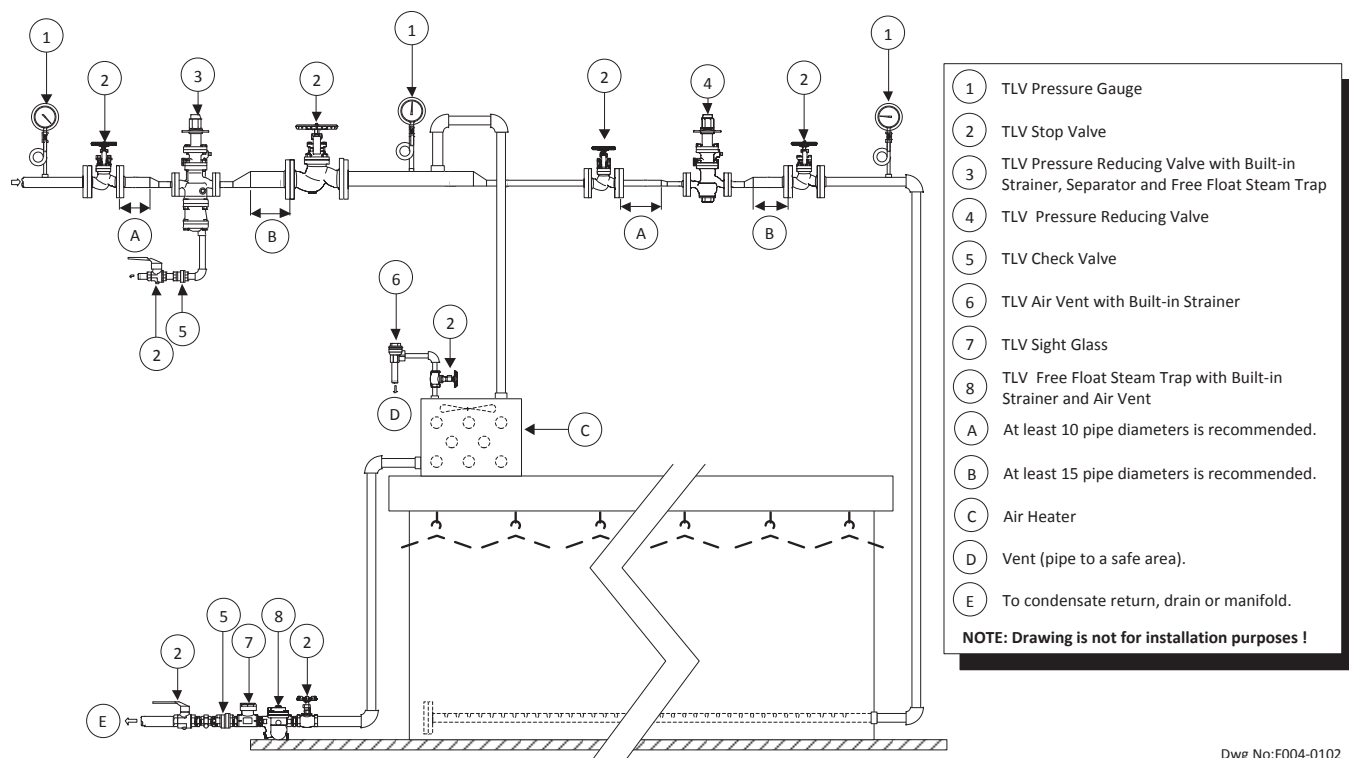


- 1 TLV Pressure Gauge
 - 2 TLV Stop Valve
 - 3 TLV Pressure Reducing Valve with Built-in Strainer, Separator and Free Float Steam Trap
 - 4 TLV Pressure Safety Relief Valve
 - 5 TLV Free Float Steam Trap with Built-in Strainer and Air Vent
 - 6 TLV Sight Glass
 - 7 TLV Check Valve
 - 8 TLV Air Vent with Built-in Strainer
 - A At least 10 pipe diameters is recommended.
 - B At least 15 pipe diameters is recommended.
 - C To condensate return, drain or manifold.
 - D Vent (pipe to a safe area).
 - E Drip Pan Elbow
- NOTE: Drawing is not for installation purposes !**

Dwg No:F002-0102

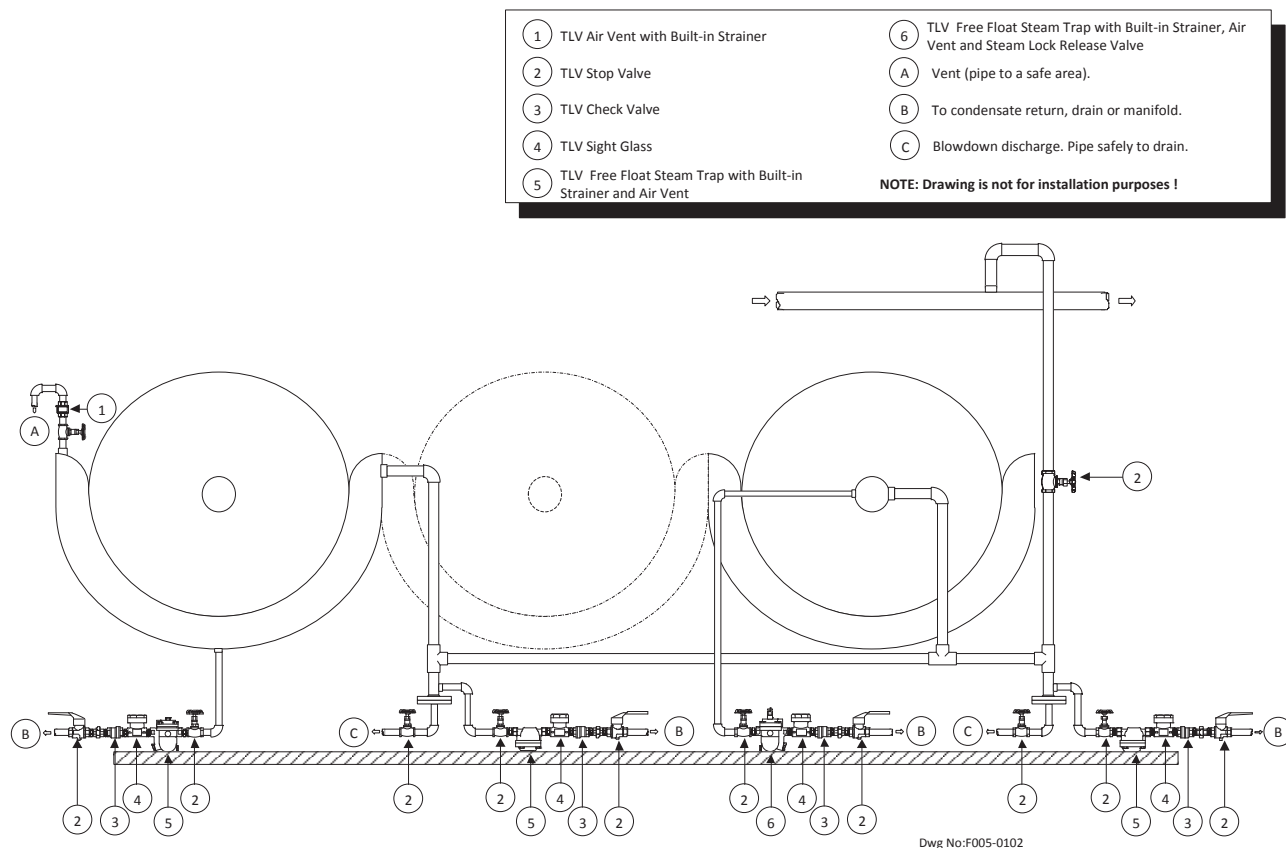
Other Applications

Laundry Conditioning Tunnel



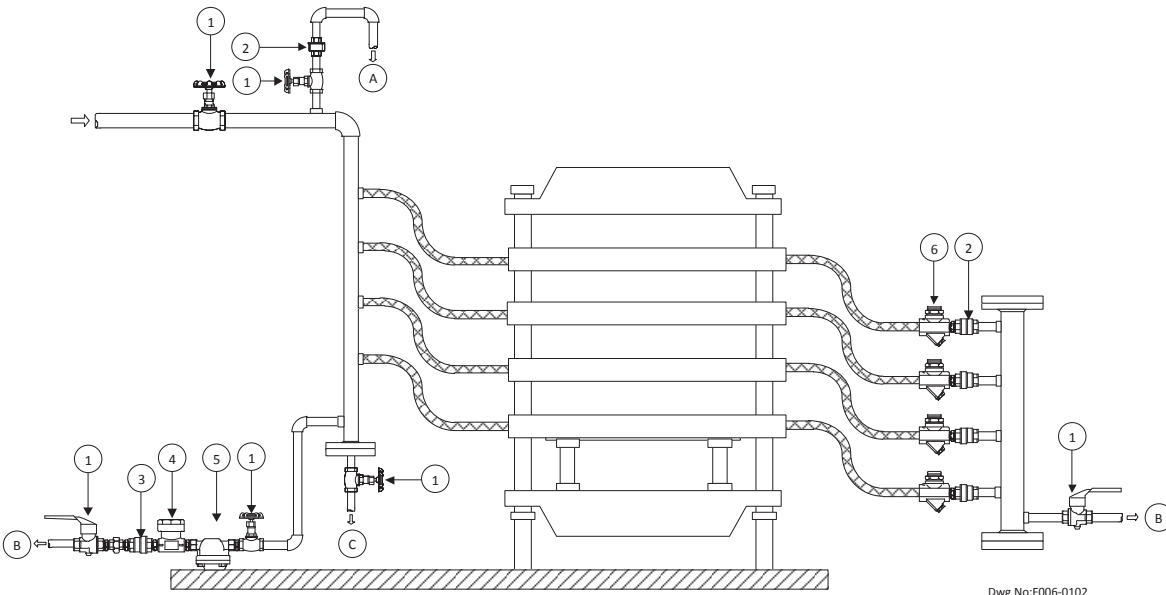
Other Applications

Multi-Roll Ironer



Other Applications

Platen Press



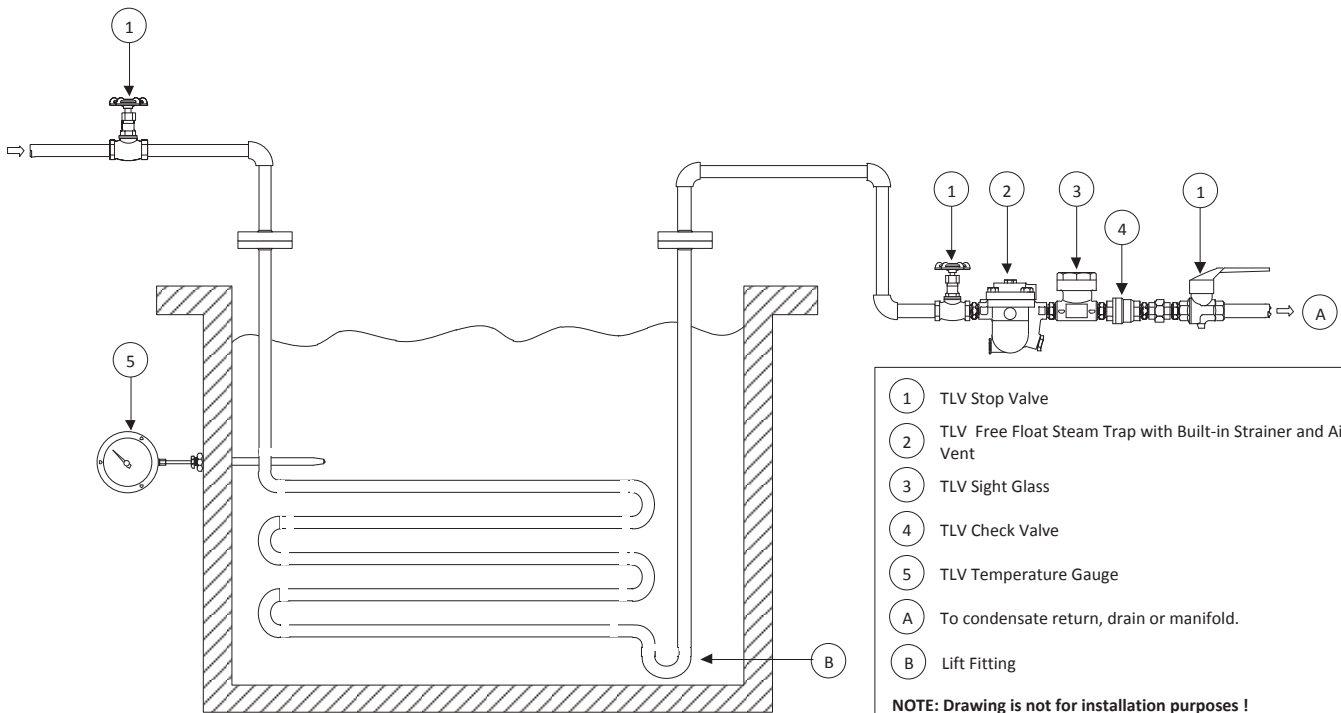
Dwg No:F006-0102

- | | |
|---|--|
| ① TLV Stop Valve | ⑥ TLV Thermodynamic Steam Trap with Built-in Strainer and Air Vent |
| ② TLV Air Vent with Built-in Strainer | ⑦ Vent (pipe to a safe area). |
| ③ TLV Check Valve | ⑧ To condensate return, drain or manifold. |
| ④ TLV Sight Glass | ⑨ Blowdown discharge. Pipe safely to drain. |
| ⑤ TLV Free Float Steam Trap with Built-in Strainer and Air Vent | |

NOTE: Drawing is not for installation purposes !

Other Applications

Plating Tank



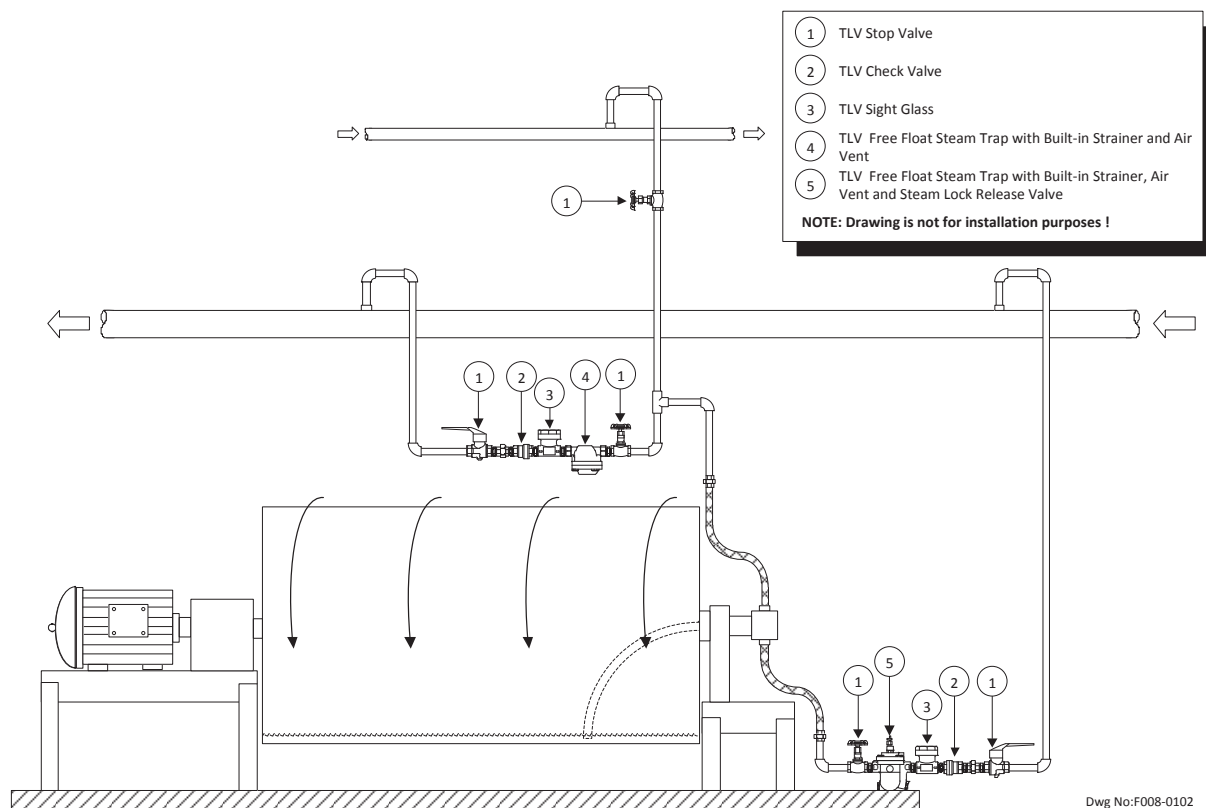
Dwg No:F007-0102

- | |
|---|
| ① TLV Stop Valve |
| ② TLV Free Float Steam Trap with Built-in Strainer and Air Vent |
| ③ TLV Sight Glass |
| ④ TLV Check Valve |
| ⑤ TLV Temperature Gauge |
| ⑥ To condensate return, drain or manifold. |
| ⑦ Lift Fitting |

NOTE: Drawing is not for installation purposes !

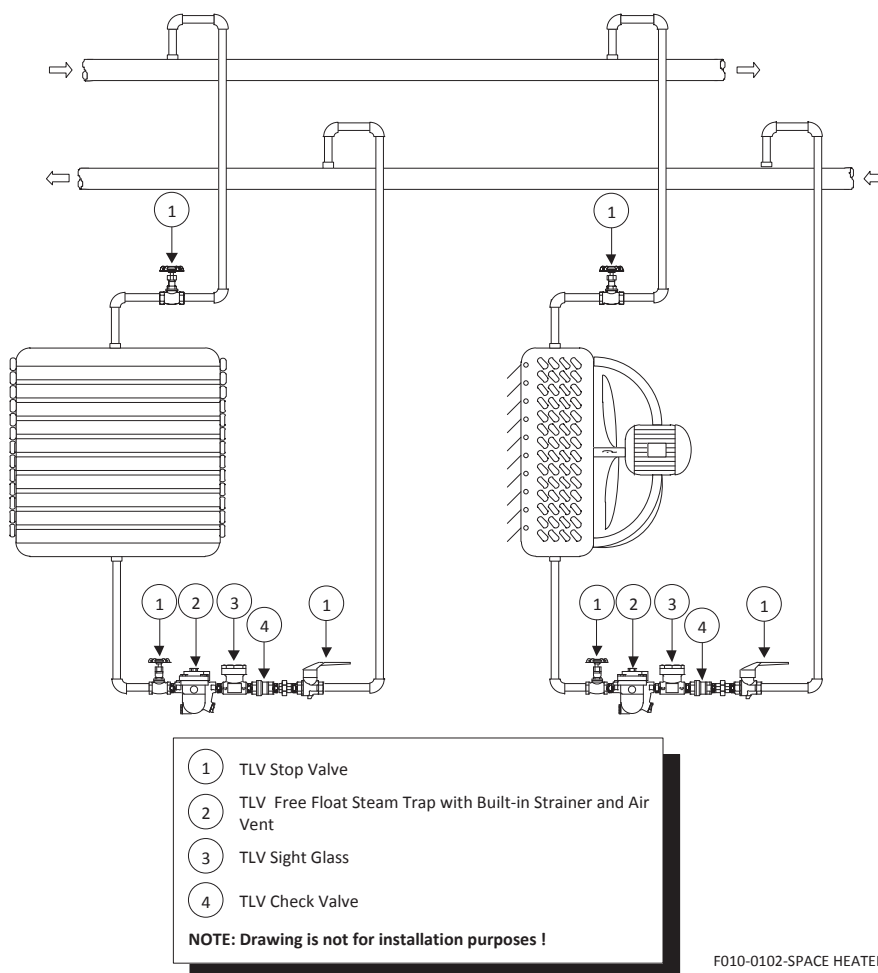
Other Applications

Mill Roller and Cylinder Dryer



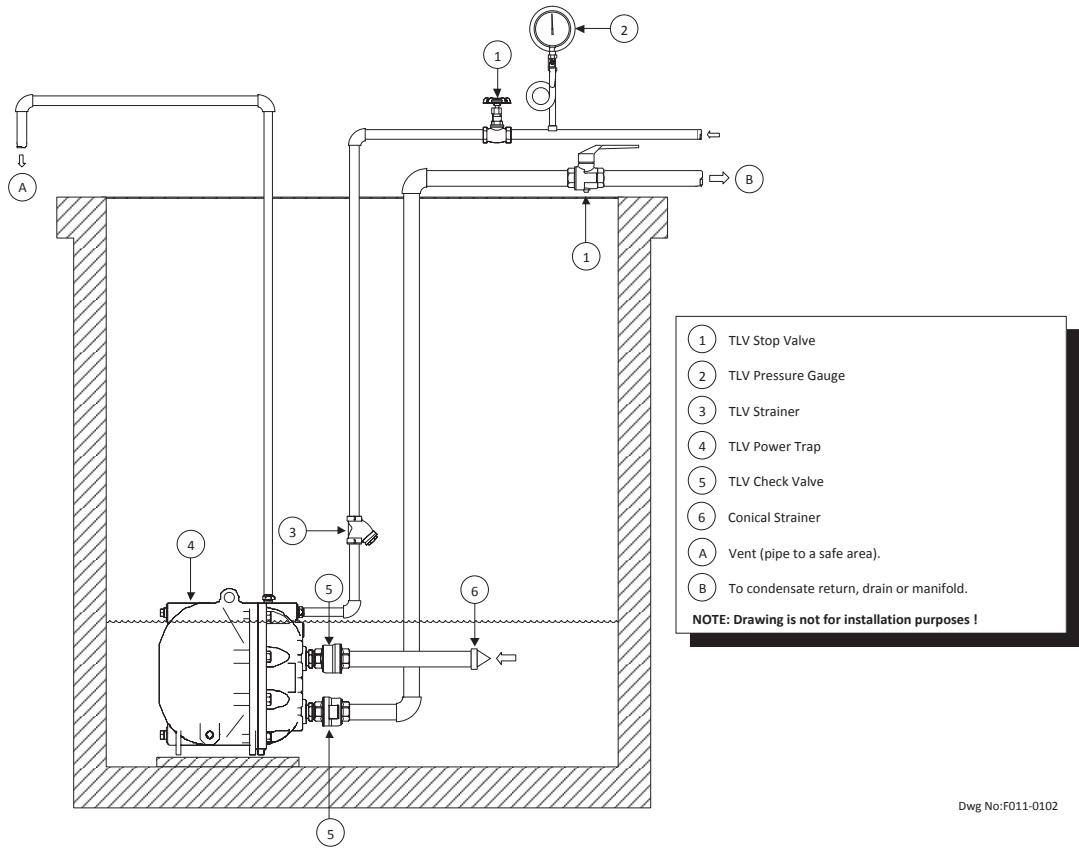
Other Applications

Space Heater



Other Applications

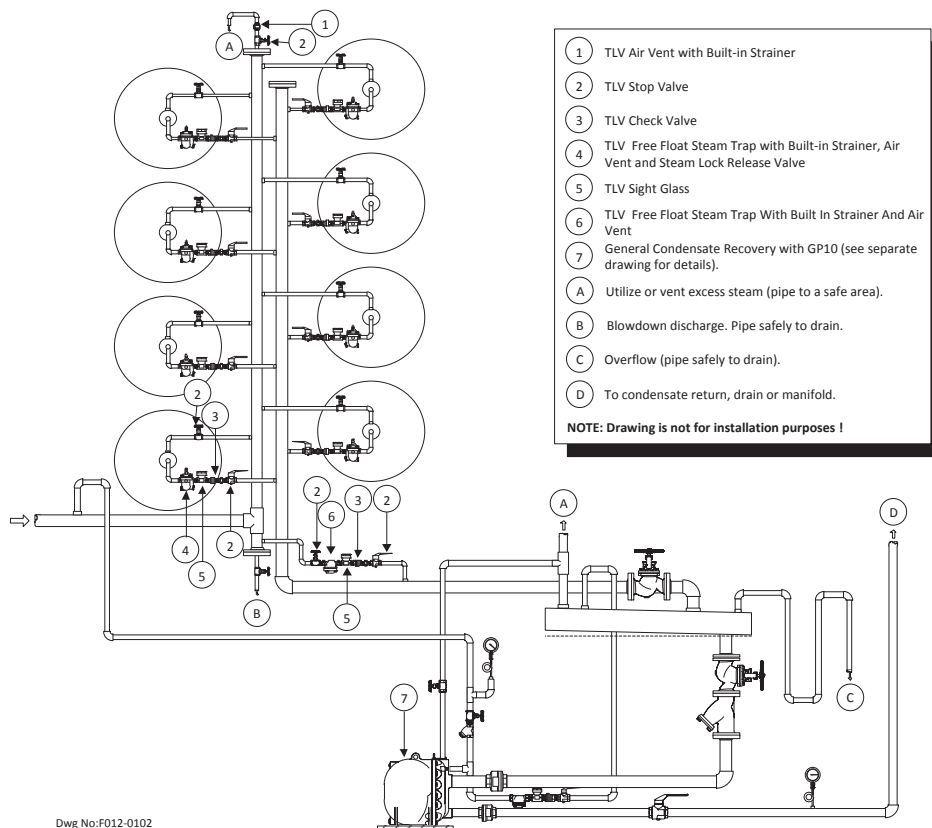
Sump Pit Waste Water Removal using a GP10L (Motive Medium: Air)



Dwg No:F011-0102

Other Applications

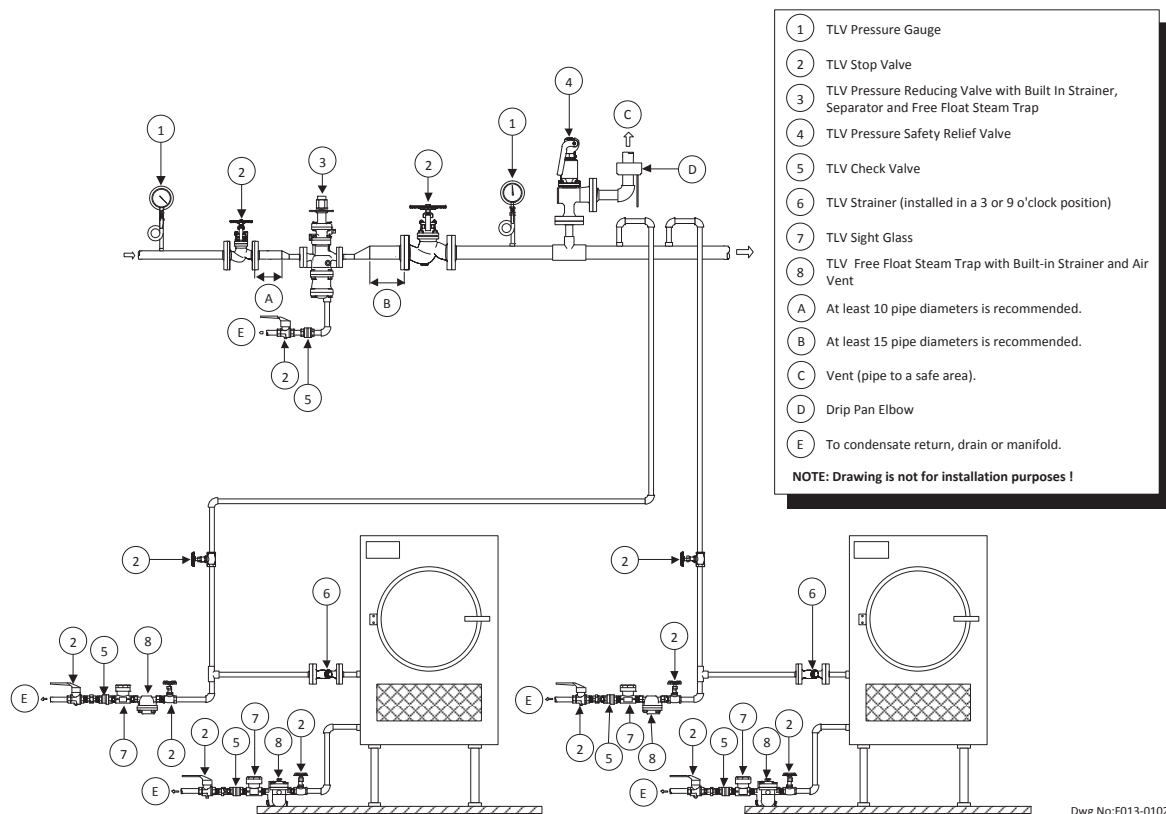
Multi-Cylinder Dryer



Dwg No:F012-0102

Other Applications

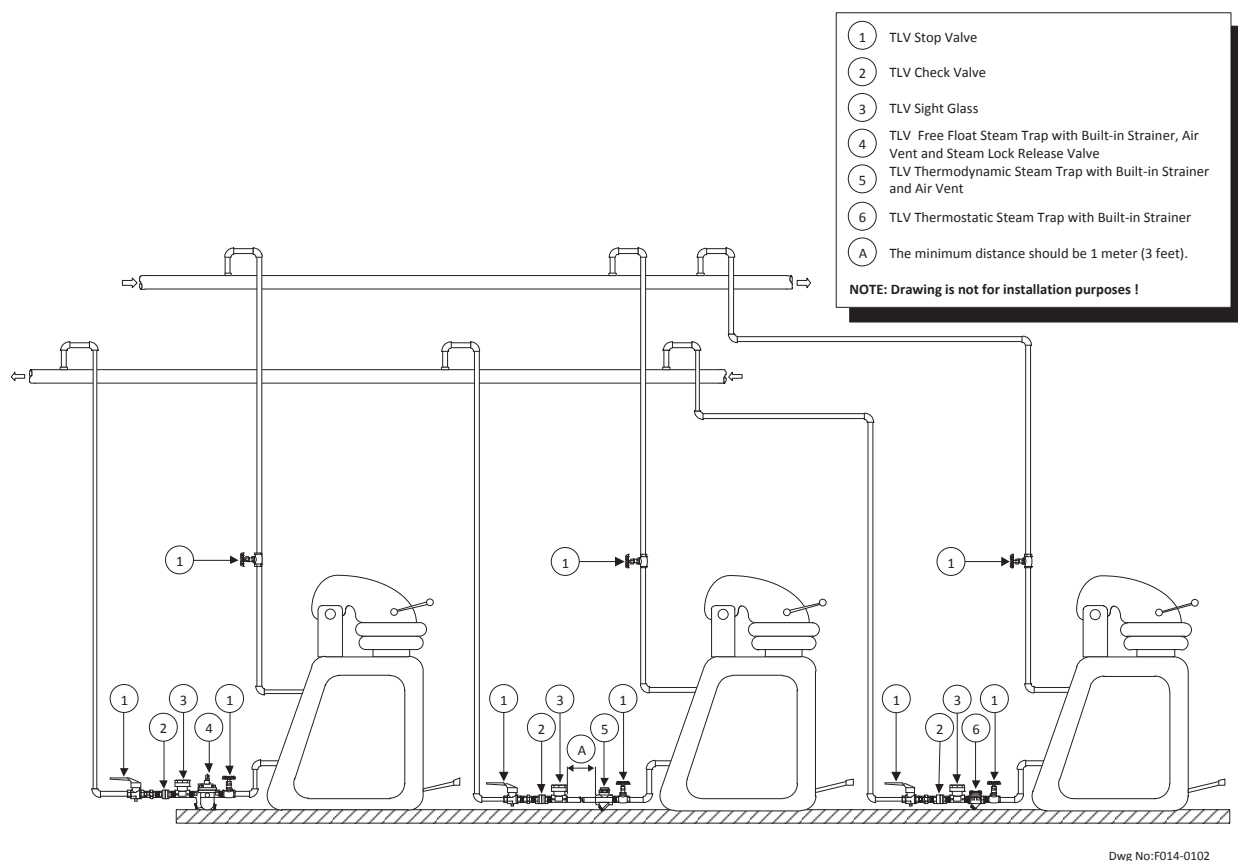
Laundry Tumble Dryer



DOCUMENTATION & APPLICATION DRAWINGS

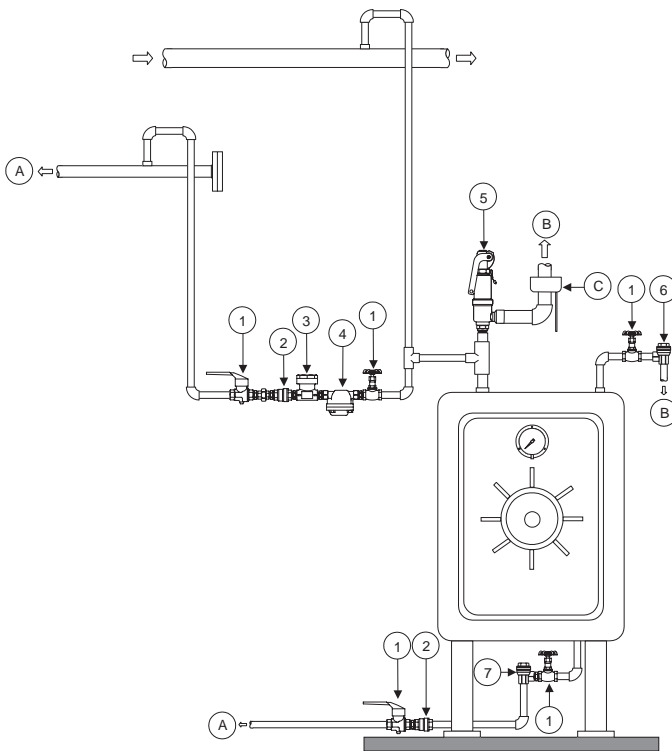
Other Applications

Small Ironer



Other Applications

Hospital Steriliser



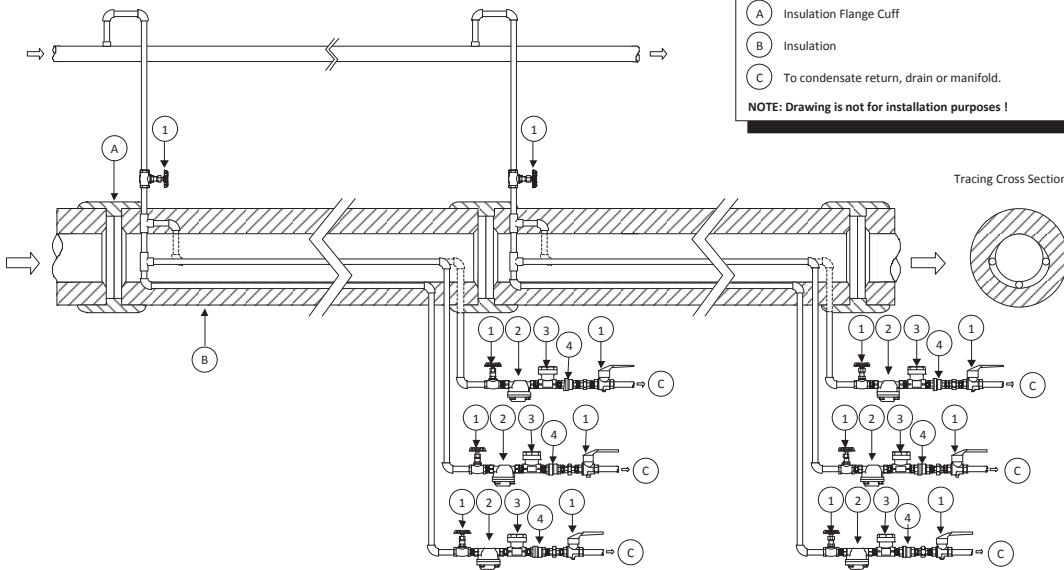
- ① TLV Stop Valve
- ② TLV Check Valve
- ③ TLV Sight Glass
- ④ TLV Free Float Steam Trap with Built-in Strainer and Air Vent
- ⑤ TLV Pressure Safety Relief Valve
- ⑥ TLV Air Vent with Built-in Strainer
- ⑦ TLV Thermostatic Steam Trap with Built-in Strainer
- A To condensate return, drain or manifold.
- B Vent (pipe to a safe area).
- C Drip Pan Elbow

NOTE: Drawing is not for installation purposes !

DOCUMENTATION & APPLICATION DRAWINGS

Other Applications

Optimum Critical Process Line Trace



- ① TLV Stop Valve
- ② TLV Free Float Steam Trap with Built-in Strainer and Air Vent
- ③ TLV Sight Glass
- ④ TLV Check Valve
- A Insulation Flange Cuff
- B Insulation
- C To condensate return, drain or manifold.

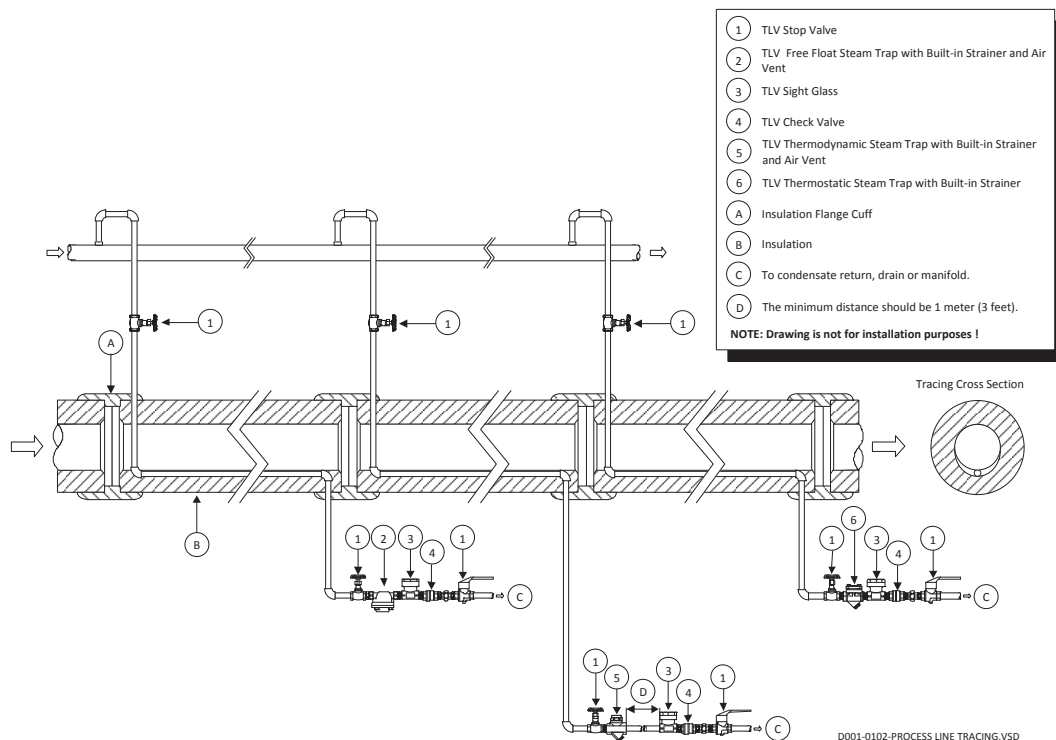
NOTE: Drawing is not for installation purposes !

Tracing Cross Section

D002-0102-CRITICAL PROCESS LINE TRACING.VSD

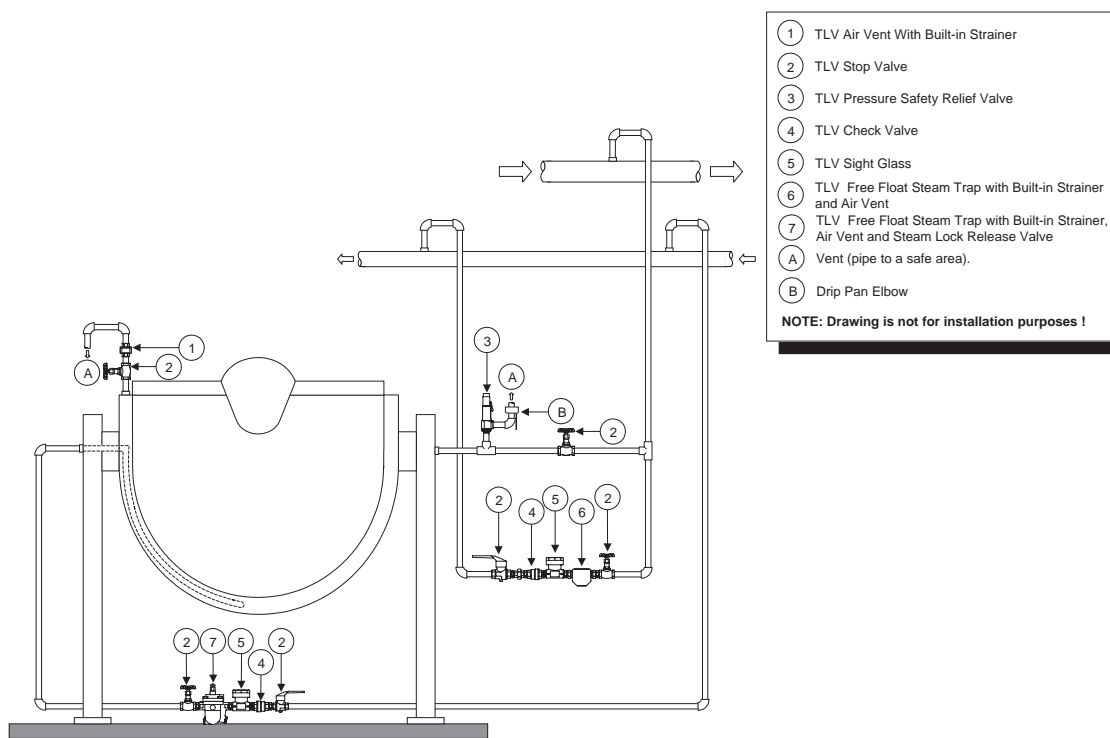
Other Applications

Process Line Tracing



Other Applications

Boiling Pan (Tilting)



FAQs

Questions about Traps

Is it OK to insulate steam traps?

The operating principle of some types of steam traps relies on fluctuations in temperature, so those types of traps must not be insulated. Mechanical types (float and bucket) may be insulated without any problem. Thermostatic types will not operate properly if insulated. For thermodynamic types, insulating measures should be limited to rain-proofing.

Is it OK to submerge trap outlets?

Trap outlets should not be submerged as a general rule. If submerged, there is the danger that a vacuum will form inside the trap or at the trap inlet when the equipment is shut down, causing water to be sucked back up. This is not a problem if only water is sucked up, but if particulate matter such as dirt or sand is also sucked up, it can result in problems. If for some reason the outlet must be submerged, make a small air-intake hole in the piping to prevent the formation of a vacuum.

Is it OK to have a rise in the trap outlet piping?

If the condensate is pressurised, this pressure (self-pressure) will allow the condensate to flow upward through rising piping. For example, the self-pressure of condensate at 1 barg will theoretically allow it to flow upward through a rise of approximately 10 m. However, and this is not limited to rises in piping, if the trap back pressure increases, the risk of the following must be considered:

- Reduced discharge capacity due to a decrease in trap operating differential pressure
- Tendency for failure of traps with low allowable back pressures (e.g. disc type)

In addition, as condensate will pool in vertical sections of piping during equipment shutdown, some arrangement for blowing out this condensate must be considered if such pooling is undesirable.

What is the safety factor for trap selection?

The mechanism of operation for traps differs depending on the trap operation type. Some traps are extremely responsive, whereas others are extremely slow to respond. The recommended safety factors are determined based on the different operation types. Another parameter used in determining the various safety factors is the speed with which equipment start-up occurs. If rapid start-up times are required, a larger safety factor must be considered.

What is the possible trap operating pressure?

Traps have a specified maximum operating pressure. They may not be used at pressures exceeding this value. Mechanical traps are broken down minutely into categories of maximum operating pressures. The maximum operating pressure is usually found in the numbers displayed at the end of each model of almost all TLV free float traps (units: bar). If this pressure is exceeded, the operation principle will cause the valve-closing force to become greater than the valve-opening force, and the trap will cease to operate (i.e. valve will no longer open).

Questions about Pressure Reducing Valves and Control Valves

Is a safety factor necessary in pressure reducing valve selection?

There is no need to take into account a safety factor if selecting from within the designated flow rate.

Is it necessary to install a strainer in front of a pressure reducing valve?

All TLV pilot-type reducing valves have an integral screen in the pilot section. In the COS series (with built-in separator and trap), there is an integral main valve screen. The COS-R series, however, does not have an integral main valve screen, so installation of a strainer with a minimum of a 60 mesh is recommended. In addition, in the COS series, if there is noticeable clogging of the integral screen due to dirt or scale, use the COS in conjunction with a strainer.

Questions about Spares

Does TLV supply spare parts for their equipment?

TLV offers a comprehensive range of replacement parts for their products. Should you need advice, please contact us.

Is there a Spare Parts guide?

A product manual is supplied with all equipment. Within this document you can find exploded / cross sectional views with detailed descriptions of the Spare Parts available.

Details for routine maintenance and product specific trouble shooting can also be found within the manual.

These documents are available on our website.

General Questions about Steam

Why is a separator used?

Separators are installed in steam or air piping and are used to separate out and remove moisture entrained in the steam or air. TLV's DC-A and DC-S series features a cyclone style separator and free float trap combined into one unit.

What is the difference between an air vent for steam and an air vent for water?

An air vent for steam is used to discharge air from a system in which both steam and air are found. An air vent for water is used to remove air from water piping systems. The air vent for steam employs thermostatic trap technology, which operates based on temperature differences. The air vent for water employs free float trap technology, which makes use of buoyancy. Thus, though they are both called 'air vents,' they cannot be used interchangeably; the air vent for steam must not be used on water systems, and vice versa.

What is 'stall'?

'Stall' occurs when a lack of trap operating differential pressure (the difference between the pressure in front of the trap and the pressure behind the trap) causes condensate to no longer be discharged from the trap and instead to pool inside the heat exchanger. It is sometimes due to the relationship between the load and heat transfer surface area of the equipment whose temperature is being controlled. A detailed explanation with animated drawings is available on our website

What is 'steam locking'?

'Steam locking' occurs when the flow of condensate into the trap is hindered by the steam pocket in front of the trap, and the discharge of condensate is delayed. Steam locking has a tendency to occur in equipment such as that with a rotating body and on which a siphon pipe is used (cylinder dryers, roll heaters). There are steam traps with an optional 'lock release valve' designed to eliminate such steam locking.

What are dampeners and siphon pipes used for?

Dampeners are used to minimise the effects of pulsations or sudden surges on equipment such as pressure gauges. They restrict the pathway by means of a throttling mechanism similar to that of a needle valve. Siphon pipes are filled with fluid to prevent high temperature fluids from coming into direct contact with pressure gauges and transmitters, while at the same time preventing the radiant transmission of heat from the surface to the instrumentation.

Please note a detailed explanation with animated drawings can be found online at:

<http://www.tlv.com/global/UK/steam-theory/>

Questions about Condensate Recovery

Are check valves needed at trap outlets?

Trap outlets are piped independently, and no check valve is required if the outlet is piped to atmosphere. For applications in which trap outlets are piped to a condensate return line, if some equipment may still be running while others are shutdown there is a chance that condensate will flow back up through the trap. A check valve must be installed to prevent this backflow.

What is two-phase flow design for condensate return lines?

As the name implies, condensate return lines are pipelines through which condensate flows. Flash steam often accompanies hot condensate, however, and in this case flash steam (gas phase) and condensate (liquid phase) are found mixed together inside the piping. Two-phase flow piping design takes into account this mixture of gas and liquid. As the specific volume of steam is 100's to over 1,000 times that of condensate, condensate return piping is more like steam piping than water piping. However, consideration must be given to flow rates that prevent the occurrence of condensate-induced (liquid phase) water hammer.

What is the motive medium for PowerTrap?

Motive medium at a pressure higher than the back pressure is introduced into the body of the PowerTrap, and this pressure forces the discharge of condensate from the PowerTrap. The motive medium acts as the driving force, in the same manner as the piston in a child's water pistol.

Is it ok to connect the outlets of traps with different pressures to the same return line?

It depends on the conditions. Condensate will flash into flash steam when it travels from high pressure to low pressure. This results in a two-phase flow of flash steam and condensate inside the condensate return line. Such conditions require that this flash steam be taken into account when sizing the condensate return line (selecting proper pipe diameter). Careful consideration must be given if high pressure condensate is to be added to a return line designed to receive only low pressure condensate.

Questions about Air and Drain Traps

What is the difference between air and drain traps?

Air traps are used to remove condensate from the ends of air piping, from receiver tanks, etc. Some models have larger orifices to facilitate the removal of high viscosity condensate with entrained oil or scale. As corrosion resistance is not of particular importance, trap bodies are typically constructed of cast iron.

Drain traps, as defined by TLV, are traps which are available in two forms - for air or non-flammable, non-toxic gas applications. Drain traps are used to remove condensate from air or non-flammable, non-toxic gas systems requiring a tight seal. For this reason, TLV drain traps employ 3-point seating to provide a tight seal even under low condensate load conditions. Products constructed of materials suitable for use on high pressure lines are also available.

What is the difference between metal valve seats and rubber valve seats?

The most important feature of rubber valve seats in comparison with metal valve seats is their superior sealing ability under low condensate load conditions. Rubber valve seats are therefore ideal for applications in which a trap is necessary but the amount of condensate is extremely small. However, even under the same maximum operating pressure rubber valve seats also feature small discharge capacities, low maximum operating temperatures and a limited number of fluids with which they can be used.

I'm using an air trap, but why is condensate not being removed as expected?

Is the trap designed for use with a pressure-balancing line? If the displacement of the air inside the trap by the in flowing condensate is not taking place as it should, condensate can no longer flow into the trap and the discharge of condensate from the trap will cease completely. A pressure-balancing line will prevent this from occurring. The air inside the trap is released through the pressure-balancing line when condensate flows into the trap, allowing the condensate to be discharged smoothly.

General Questions about Air Systems

Why does water drip from air equipment during hot, humid weather?

In humid weather incoming air contains a higher water content and this is seen being discharged. If the condensate that forms inside the piping is not removed properly, the operation of air-using equipment such as receiver tanks, after-coolers and piping may be hindered. In particular, during periods of high humidity and high temperatures condensate flow rates increase, this can lead to these types of problems.

Is there a valve for use on air applications?

TLV ball butterfly valves are a soft-seat type, employing a Fluorine Resin (PTFE) valve seat, making them suitable for use on air applications. These products are not listed in our promotional materials or website so please contact us directly for further information. The standard bellows-sealed valve series are of a metal-seat type with a metal valve seat and valve body, which from the standpoint of sealing ability are not particularly suited for use on air applications.

General Questions about Information

Are there Operating Manuals for TLV equipment? And how can I get them?

All TLV products are shipped with the relevant Operation and Maintenance Manuals. These offer a detailed explanation of the product along with exploded views for better understanding of the products. Spare parts list and maintenance guidelines are also included. If you need an additional copy, please feel free to contact TLV to request these. Most are also available to download on our website.

Is there any more information for the products included within this price list?

A range of literature is available online at www.tlv.com should the information you seek cannot be found there, please feel free to contact us by phone or email.

The following literature can be found online:

Datasheets

<http://www.tlv.com/global/UK/products>

Pamphlets

<http://www.tlv.com/global/UK/colour-pamphlets.html>

CAD Drawings

<http://www.tlv.com/global/UK/>

Animations

<http://www.tlv.com/global/UK/product-operation/>

Tables and Data

Steam Table

Gauge Pressure		Saturated Temperature (t) °C	Specific enthalpy		
(P)	Water (hf) kJ/kg		Evaporation (hfg) kJ/kg	Steam (hg) kJ/kg	
barg	kPa				
0.0	0	100.0	419	2257	2676
0.1	10	102.7	430	2250	2680
0.2	20	105.1	441	2243	2684
0.3	30	107.4	450	2237	2688
0.4	40	109.6	460	2231	2691
0.5	50	111.6	468	2226	2694
0.6	60	113.6	476	2220	2697
0.7	70	115.4	484	2215	2700
0.8	80	117.1	492	2211	2702
0.9	90	118.8	499	2206	2705
1.0	100	120.4	506	2201	2707
1.5	150	127.6	536	2181	2717
2.0	200	133.7	562	2163	2726
2.5	250	138.9	584	2147	2731
3.0	300	143.8	605	2133	2739
3.5	350	147.9	623	2120	2743
4.0	400	152.0	641	2108	2749
4.5	450	155.6	656	2097	2753
5.0	500	158.9	671	2086	2757
5.5	550	162.1	685	2076	2760
6.0	600	165.0	698	2066	2764
6.5	650	167.8	710	2057	2767
7.0	700	170.5	721	2048	2769
7.5	750	173.0	733	2039	2772
8.0	800	175.4	743	2031	2774
8.5	850	177.8	753	2023	2776
9.0	900	180.0	763	2015	2778
9.5	950	182.1	773	2008	2780
10.0	1000	184.1	782	2000	2782
11.0	1100	188.0	799	1986	2785
12.0	1200	191.7	815	1973	2788
13.0	1300	195.1	830	1960	2790
14.0	1400	198.4	845	1947	2792
15.0	1500	201.5	859	1935	2794
16.0	1600	204.4	872	1923	2796
17.0	1700	207.2	885	1912	2797
18.0	1800	209.9	897	1901	2799
19.0	1900	212.5	909	1891	2800
20.0	2000	215.0	920	1880	2801
21.0	2100	217.4	931	1870	2801
22.0	2200	219.7	942	1860	2802
23.0	2300	221.9	952	1850	2803
24.0	2400	224.0	962	1841	2803
25.0	2500	226.1	972	1831	2804

Steam Capacity (kg/h) in a pipe based on velocities

Pressure barg	Velocity (m/s)	Pipe Size (mm)												
		15	20	25	32	40	50	65	80	100	125	150	200	250
0.5	10	7	12	19	33	45	72	120	166	279	423	619	1048	1654
	15	10	18	29	50	67	108	180	249	419	634	928	1572	2481
	20	14	24	39	67	90	144	241	332	559	846	1238	2096	3308
	30	21	36	59	101	135	217	361	498	839	1269	1857	3145	4963
1	10	9	15	25	44	59	94	157	217	366	553	810	1372	2165
	15	14	23	38	66	88	142	236	325	549	830	1215	2058	3247
	20	19	31	51	88	118	189	315	434	732	1107	1620	2744	4330
	30	28	47	77	132	177	284	473	651	1098	1661	2430	4116	6495
2	10	13	23	37	64	86	138	230	317	535	809	1184	2006	3165
	15	20	34	56	96	130	208	346	476	803	1214	1777	3009	4748
	20	27	46	75	129	173	277	461	635	1071	1619	2369	4012	6331
	30	41	69	113	193	260	416	692	953	1606	2429	3554	6018	9497
3	10	18	30	49	84	113	181	302	416	701	1060	1552	2628	4147
	15	27	45	74	126	170	272	453	624	1052	1591	2328	3942	6221
	20	36	60	99	169	227	363	604	832	1403	2121	3104	5257	8295
	30	54	91	149	253	340	545	906	1248	2104	3182	4656	7885	12443
4	10	22	37	61	104	140	224	372	513	865	1308	1914	3242	5116
	15	33	56	91	156	210	336	559	770	1298	1962	2871	4863	7674
	20	45	75	122	208	280	448	745	1027	1730	2617	3829	6484	10232
	30	67	112	183	313	420	672	1118	1540	2596	3925	5743	9726	15348
5	10	26	44	72	123	166	266	442	609	1027	1554	2273	3850	6075
	15	40	66	109	185	249	399	664	914	1541	2331	3410	5775	9113
	20	53	89	145	247	332	532	885	1219	2055	3108	4547	7700	12151
	30	80	133	218	371	499	798	1328	1829	3083	4662	6821	11551	18226
6	10	31	51	84	143	192	307	512	705	1189	1797	2630	4454	7028
	15	46	77	126	215	288	461	768	1058	1783	2696	3945	6681	10543
	20	62	103	168	286	385	615	1024	1411	2378	3595	5260	8909	14057
	30	93	154	252	430	577	923	1536	2116	3567	5393	7891	13363	21086
7	10	35	58	95	162	218	349	581	800	1349	2041	2986	5057	7979
	15	52	87	143	244	327	524	872	1201	2024	3061	4479	7585	11969
	20	70	117	191	325	437	699	1163	1601	2699	4082	5972	10114	15959
	30	105	175	286	488	655	1048	1774	2402	4049	6123	8958	15171	23938
8	10	39	65	106	182	244	390	650	895	1509	2282	3339	5654	8922
	15	59	98	160	273	366	586	975	1343	2264	3423	5008	8482	13383
	20	78	130	213	364	488	781	1300	1791	3018	4564	6678	11309	17845
	30	118	196	320	546	733	1172	1950	2686	4528	6847	10017	16964	26767
9	10	43	72	118	201	270	432	718	990	1668	2523	3691	6251	9863
	15	65	108	177	301	405	648	1078	1485	2502	3784	5537	9376	14795
	20	87	144	236	402	540	864	1437	1980	3337	5046	7382	12502	19727
	30	130	217	354	603	810	1296	2156	2970	5005	7569	11074	18753	29590
10	10	47	79	129	220	296	473	787	1084	1828	2764	4045	6850	10808
	15	71	118	194	330	444	710	1181	1627	2742	4147	6067	10275	16213
	20	95	158	258	441	592	946	1575	2169	3656	5529	8090	13700	21617
	30	143	237	388	661	888	1420	2363	3254	5485	8294	12135	20550	32426
14	10	64	106	174	297	398	637	1061	1461	2462	3724	5448	9227	14559
	15	96	160	261	445	598	956	1591	2192	3694	5586	8173	13840	21839
	20	128	213	348	594	797	1275	2122	2922	4925	7448	10897	18454	29118
	30	192	320	523	891	1196	1913	3183	4384	7388	11172	16346	27681	43678
16	10	72	120	196	335	450	719	1197	1649	2779	4202	6149	10413	16430
	15	108	180	295	502	675	1079	1796	2473	4169	6304	9223	15619	24646
	20	145	241	393	670	900	1439	2395	3298	5558	8405	12298	20826	32861
	30	217	361	590	1005	1350	2159	3592	4947	8338	12608	18447	31239	49292
21	10	93	155	253	431	579	926	1540	2122	3576	5408	7912	13399	21143
	15	139	232	379	647	868	1389	2311	3183	5364	8112	11868	20099	31714
	20	186	310	506	862	1158	1852	3081	4244	7153	10816	15825	26798	42286
	30	279	465	759	1294	1737	2778	4622	6366	10729	16224	23737	40198	63429

Based on DIN 2448 Reihe 1

Index

1029	14
1940	79

A

A-DR20	86
Air Equipment	84
Air Vents	75

B

BD2	20
BD800	21
BE3L	14
BE8H	14
Bleed Flanges	15
BV1	13
BV6	13
BV4290	13
BV4290-ACT	35
BV4291-ACT	35
BZ	23

C

Certificates	90
Check Valves	16
CK3M	16
CK3T	16
CKF3M	16
COS-3	29
COS-16	29
COS-21	29
COSR-3	31
COSR-16	31
COSR-21	31
CV5	34
CV-COS	34

D

DC3A	85
DC3S	23
DC7	23
Documentation	90
DR8-EP	83
DR8-P	83
DR20	32

E

EF200	25
-------	----

F

F46	62
Fig 640	15
Filters	81
FV	72

G

GP5C	66
GP10	66
GP10L	66
GP10L Packaged Pump	68
GP10 Packaged Pump	68
GP14	66
GP14L	66
GP14L Packaged Pump	72
GP14M	66
GP14M Packaged Pump	68
GT5C	65
GT10/GT14	65
GT10L	65
GT10M/GT14M	65

H

HeatPacks	70
HR80A	56
HR150A	56
HR260A	56

J

J3SX	45
J3X	45
J5SX	45
J5X	45
J6SX	45
J7.2X	45
J7.5X	45
J7X	45
J8X	45
J10	53
JA3	87
JA3D	87
JF3SX	45
JF3X	45
JF5X	45
JH3SB	47
JH3SX	47
JH5RHB	47
JH5RLB	47
JH5RLX	47
JH5SHB	47
JH5SLB	47
JH5SLX	47
JH7.2RX/B	49
JH7.5RX/B	49
JH7RHB	48
JH7RHP	48
JH7RHW	48
JH7RLB	48
JH7RLX	48
JH7RMB	48
JH8RX/B	49
JH15E	49
JH15M	49
JH15S	49
JL9X	53
JL14X	53
JLH9X	53
JLH14B	53
JLH14X	53

L

L21	61
L21S	58
L21SE	58
L32	61
L32S	58
L32SE	58
LA13L	78
LA21	78
LEX3N-TZ	59
LV6	82
LV13L	58
LV21	58

M

Manifolds	63
-----------	----

N

NF6	20
-----	----

P

P21S ver. C	55
P46SRM	55
P46SRN	55
P46SRW	55
P46UC-Y	61
P65SRN	55
P-EGS Series	81
Pressure gauge	27
Pressure Reducing Valves	28
Pressure Transmitter	27
PT1	89
PT100	27

S

S1	61
S3	61
S5	61
S5H	61
SA3	77
Safety Valves	40
SCOS-16	29
SCOSR-16	31
Separators (Cyclone Type)	22
Series 451	41
Series 645	41
SF1	81
SG18	19
SH3NL	51
SH5NH	51
SH5NL	51
SH6NH	51
SH6NL	51
Sight Glasses	19
SJ3FX	46
SJ3VX	46
SJ5FX	46
SJ6FX	46
SJ7FX	46
SJH3X	46
SJH5X	46
SJH7X	46

SP-COSR-16	38			VC3	77
SQ	69			VC4	77
SR	71	T		Vortex Flowmeters	24, 25
SS1	50	T8N	19	VS1C	77
SS1VG	87	TATSU	88		
SS3	50	TC1	37		
SS3P	82	TC2	37	X	
SS5	50	TF8N	19	X1	61
SS5P	82	Type 43-5	37	X5	39
Steam Compressor	73				
Strainers	18	V		Y	
SV25.912	41	V1	61	Y3	18
SV35.912	41	V2	61	Y8F	18
		V2001-E1	36		
		V2001-E3	36		
		VA	76		
		Vacuumiser	74		
		VAS	76		
		VC2	77		

TLV Guarantee

Customer Satisfaction

TLV is true to the philosophy of complete customer satisfaction through strict adherence to its two fundamental policies:

- Quality First
- Incomparable Originality

Only through providing superior products and services that are of great benefit to the customer can complete satisfaction be guaranteed. This is the credo that has supported TLV's growth since its inception, and will continue to be the guide into the future.

Quality First

TLV's quality system is certified to ISO9001, with products and services exceeding the strictest standards and requirements for a wide range of applications including nuclear power generation and pharmaceutical grade clean steam.

Incomparable Originality

TLV approaches product development with continuous dedication to customer needs. Development means the creation of totally new ideas and concepts. The many patents derived through this development process attest to TLV's dedication to innovation.

Useful Information

Connection Standards

Screwed – BSP, NPT

Socket Weld – ASME B16.11

Butt Weld – DIN 3239 Form C

Flanges – DIN 2501 (PN16, 25 & 40), ANSI (Class 150, 300, 600, 900)

Tube end - 8, 10, 15mm OD (suitable for Lockring couplings) (F32)

Tri-clamp[†] connections – 2 piece and 3 piece to ISO, DIN and BS standards

[†] Trademark of Tri-Clover Inc.

Contact

TLV Euro Engineering UK Ltd.

Units 7 & 8 Furlong Park

Bishops Cleeve

Cheltenham,

Gloucestershire. GL52 8TW

Telephone: +44(0)1242 227 223

Please contact our Technical Team (technical@tlv.co.uk) if you require any technical advice about any TLV products, future projects or current installations.

TLV Sales team (sales@tlv.co.uk) can offer support for purchasing, invoicing and delivery information.

TLV also offers site visits from one of our Regional Sales Engineer.

TLV[®]

Steam Specialist



[TLV Website](#)



[TLV Calculator](#)



[TLV Animations](#)

TLV Euro Engineering UK Ltd

Units 7 & 8 Furlong Park • Bishops Cleeve • Cheltenham • Gloucestershire GL52 8TW

T: +44(0)1242 227 223

E: sales@tlv.co.uk • E: technical@tlv.co.uk

www.tlv.com

TSX-NASDAQ Merger Price Index

Version 28