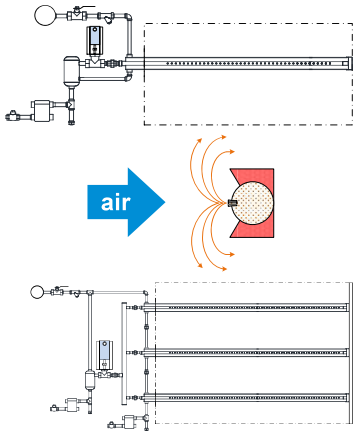
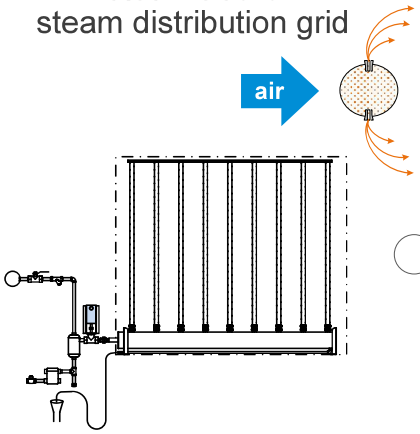
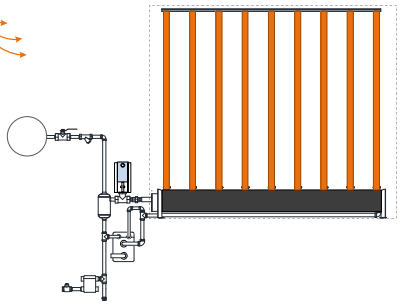
Live steam humidification

Live steam humidification is a very efficient and cost effective way for air humidification when pressurized steam is available on site. Some precautions and good design practices must be considered:

1. Pressurized steam supply must be free from harmful chemical; please refer to FDA - Code of Federal Regulations Title 21, Sec. 173.310 Boiler water additives, regarding the type and amount of additives that may be safely used in the preparation of steam for human consumption.
2. Pressurized steam should be conditioned before to be injected into the air stream. The use of a strainer and a steam separator as well as a properly sized steam valve ensure smooth and safe operation.
3. It is a good design practice to limit steam pressure in a range of 34 to 103kPa. Below 34kPa pressurized steam efficiency is limited, increasing the size of the component and cost. Above 103kPa there is a risk of cavitation in the control valve and there will be a need for high pressure components or addition of pressure reducing valve.

The selection guide below will help you select among our different **ILS** models and options.

Selection guide

		ILS-P	**ILS-SO**	**ILS-SE**
Model		Jacketed live steam 	Live steam with standard steamOsorb steam distribution grid 	Live steam with insulated steamOsorb steam distribution grid 
Heat Gain		Large heat gain in the air stream Best use when humidification is required only in winter	Some heat gain in the air stream Best use when humidification is required only in winter	Very limited heat gain in the stream All year long humidification, i.e. also when cooling is ON.
Condensate	**Amount**	Large amount of condensate	Good amount of condensate	Very few condensate
	Handling	Pressurized condensate returned to boiler	Atmospheric condensate to drain	
	Option	n/a	Optional pressure motive pump (model **PMP**) can pressurize atmospheric condensate and lift it back to the boiler	
Capacity	**Range**	2 to 1,500kg/h or more	2 to 1,500kg/h or more	
	Limit	Single ramp best adapted for small capacity	Not adapted for small capacity	
Non-wetting distance (NWD)		Very short	Steam distribution grid is fully adaptable to NWD requirements	
Duct	**Dim.**	Small to large duct dimensions	Best adapted for medium to large duct dimensions	
	Options	n/a	Options **- FF** & **-FI** with header below and outside the duct for large steam capacity with shorter NWD	
Initial cost		Moderate inital cost	Lowest initial cost	Highest initial cost
Other options		Integral stainless steel construction for pure steam (boiler supplied with DI water).		
		Steam control valve with stainless steel trim and seal or PFTE seal material are avalaible.		

ILS

LIVE STEAM HUMIDIFIER

ILS humidifier by **steamOvap®** uses steam from a central steam boiler as a source of humidity for air duct or air handling unit.

The **ILS** includes all the components required for the treatment and conditioning of low pressure steam.

Its integral stainless steel construction of grade 304 and its robust design makes the **ILS** the humidifier by excellence in its category.

When low pressure clean steam is available on site it is the most economical and effective way to provide humidification meeting any capacity requirement.

- Capacities from [2 to 1500kg/h.
- Cost effective humidification for medium to large load.
- Designed to use steam from boiler operating with DI, RO or tap water.
- Drip free steam guaranteed, and very short non wetting distance
- Supplied with strainer, separator, fully modulating electric actuated valve with fail safe and Float & thermostatic steam trap.
- Optional thermo-contact for F&T steam trap
- Optional Condensate drain cooler for **ILS-SO** and **ILS-SE**

Best warranty of the industry!

If your humidifier installation has been verified and validated (with a start-up report) by one of our authorized representatives.

ILS HUMIDIFIER OVERVIEW

steamOvap® is offering a full and complete range of Live steam humidifier solutions:

ILS-P is our pre-heated jacket model. Where steam is circulating into the jacketed tube before to pass through the steam separator and being distributed into AHU or the air duct. **ILS-P** is declined in 3 types:

- **Single ramp**
- **Mini rack**
  (factory assembled)
- **Horizontal Multi-ramp**
  (on-site assembly)

ILS-SO is our **steamOsorb** vertical multi-ramp model.

ILS-SE is the high efficiency **steamOsorb** vertical multi-ramp model.

With any of the **ILS** model you are sure to get a superior and robust solution that will be easy to select, install and operate for many years to come.

STEAM COMPONENTS SUPPLIED

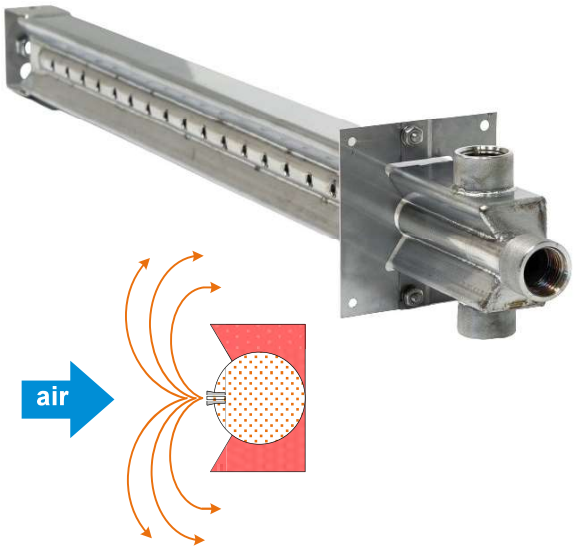
- Bronze body control valve with brass or S/S trim or optional full S/S construction
- Electric (24Vac) fully modulating (2-10 or 0-10Vdc) actuator with fail safe
- S/S steam separator
- Cast iron body with S/S strainer
- Cast iron body with S/S trim Float & Thermostatic steam trap , H type
- Steam jacketed steam ramp made of stainless steel

LIST OF OPTIONS

- Condensate drain cooler with thermostatic valve or electric
- S/S body control valve, S/S body strainer.
- Thermo contact for F&T steam trap
- Manual or actuated shut-off valve for steam supply .
- Pressure motive pump for condensate lifting.
- BACnet remote control.

ILS-P

LIVE STEAM HUMIDIFIER (JACKETED)



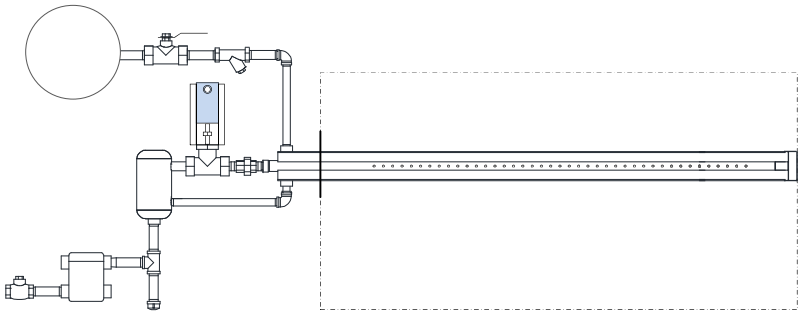
ILS-P humidifier by **steamOvap®** is using steam ramp with a pre-heated jacket.
Steam is circulating into the jacketed tube before to pass through the steam separator and being distributed into AHU or the air duct.

The **ILS-P** includes the following components: strainer, separator,
actuated control valve. steam ramps with pre-heated jacket and F & T condensate trap.

This old technology is still the best suited solution when clean steam from central boiler is available on site and humidification requirement correspond to the heating season, as the huge heat gain from the steam jacket will contribute to air heating. Steam injection against the air flow is ensuring a very short non wetting distance.

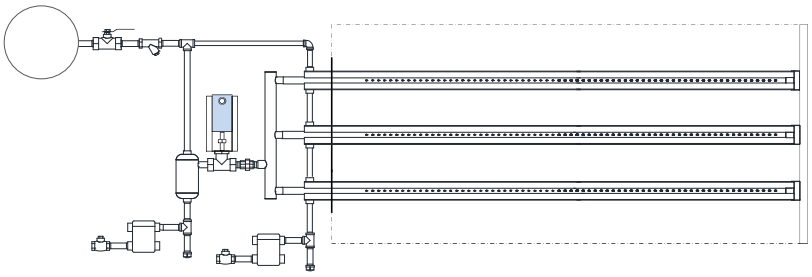
- Capacities from 2 to 1500kg/h.
- Very cost effective humidification for medium to large load.
- Designed to use steam from boiler operating with DI, RO or tap water.
- Drip free steam guaranteed, and very short non wetting distance
- All configurations are available:
  Single or Mini kit and horizontal Multi-ramp.
- Supplied with fully modulating electric actuated valve (24vac, signal 0-10 or 2-10Vdc)
- Optional thermo-contact for F&T steam trap

SINGLE RAMP



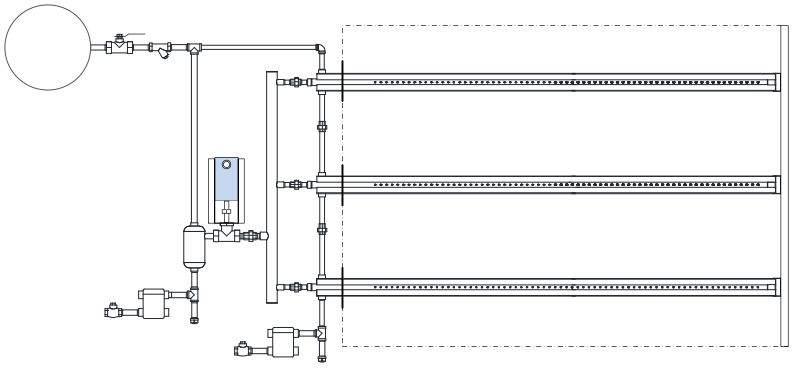
Single ramp type provides lowest initial investment cost for steam humidification.
Capacity from 2 to 150kg/h.

MINI-KIT



Mini kit (factory assembled) provides a compact design.
Capacity from 2 to 150kg/h.

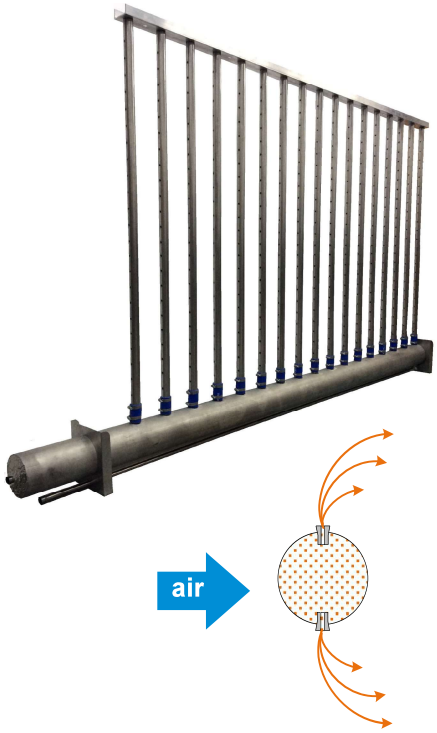
MULTI-RAMPS (HORIZONTAL)



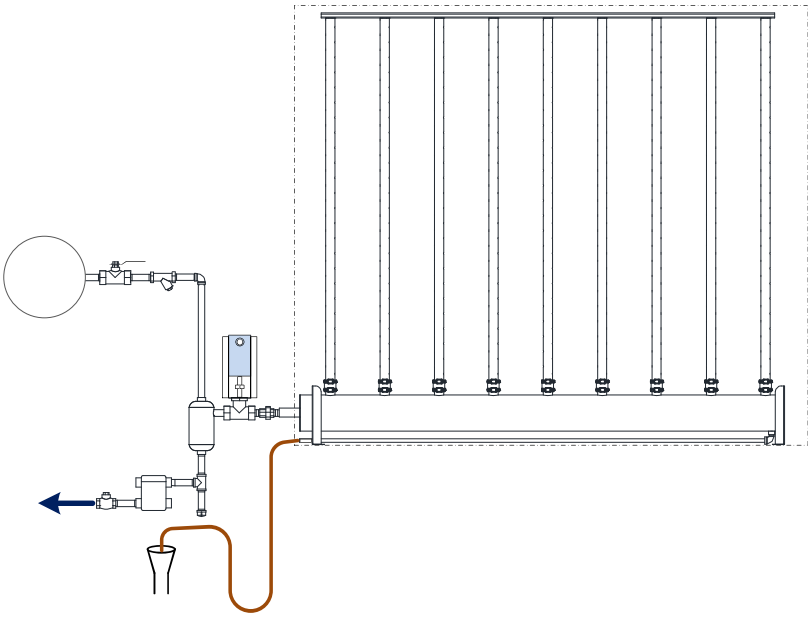
Horizontal multi-ramp (on-site assembly) is the best option for large AHU.
Capacity from 2 to 1500kg/h.

ILS-SO

LIVE STEAM HUMIDIFIER (STEAMOSORB)



VERTICAL MULTI-RAMP - ATMOSPHERIC CONDENSATE



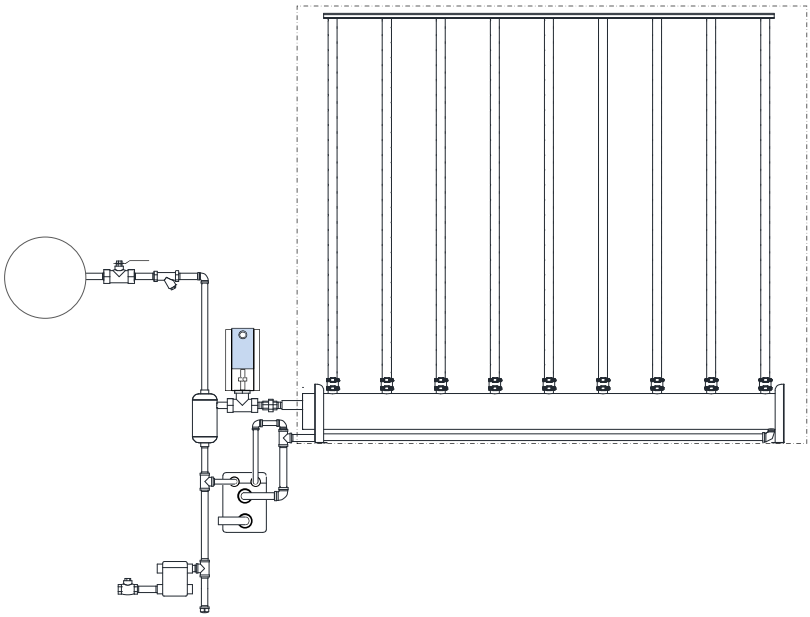
ILS-SO humidifier by **steamOvap®** is using vertical steam ramp.
Any condensate forming in the steam ramp will fall and collect into the large horizontal header, before to be directed to the drain or re-pressurized with pressure motive pump.
Drip free steam distribution is ensured by the special design of the nozzles.
It is a simple and very cost effective way to humidify when pressurized clean steam is available on site and humidification requirement correspond to the heating season, as the huge heat gain from the steam ramps will contribute to air heating.

- Capacities from 2 to 1500kg/h.
- Very simple to install and cost effective humidification for small to large load. AHU manufactured preferred.
- Designed to use steam from boiler operating with DI, RO or tap water.
- Atmospheric or pressurized condensate return available
- Supplied with fully modulating electric actuated valve (24vac, signal 0-10 or 2-10Vdc).
- Optional thermo-contact for F&T steam trap.
- Optional BACnet remote control.

Condensate is atmospheric and returned to main drain of the building.

Optional condensate drain cooler with thermostatic or electric valve.

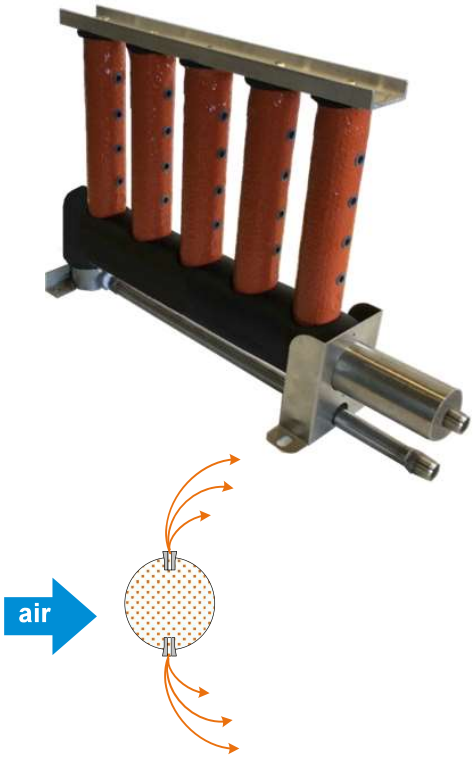
VERTICAL MULTI-RAMP - PRESSURIZED CONDENSATE



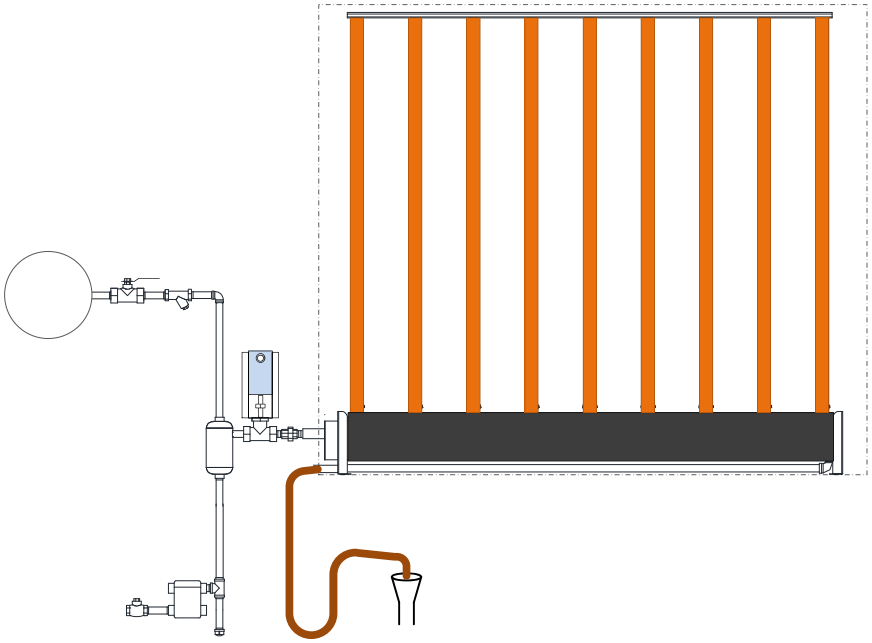
Condensate collected in the header is re-pressurized with pressure motive pump and returned to the boiler. 0 waste to drain.

ILS-SE

Live steam humidifier (high efficiency steamosorb)



Vertical multi-ramp - atmospheric condensate



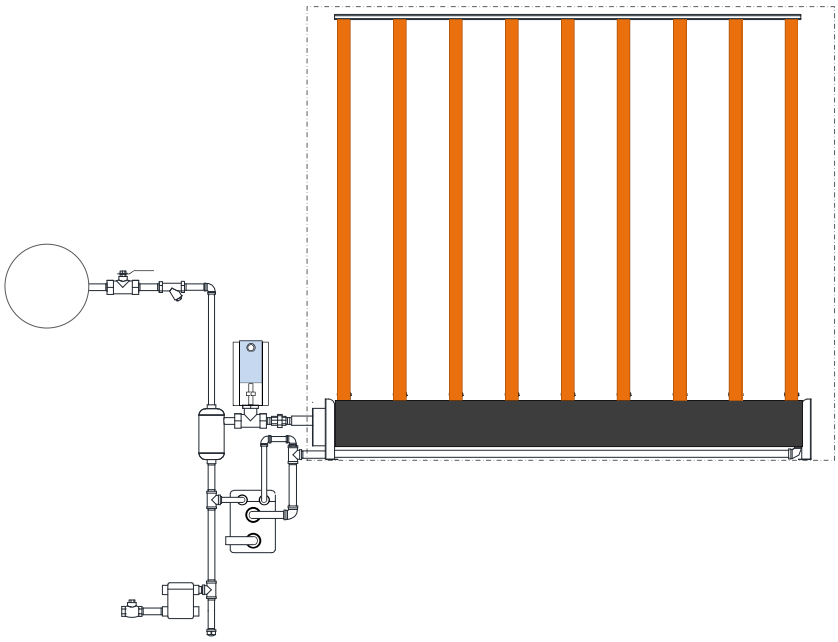
ILS-SE humidifier by **steamOvap®** is using thermally insulated vertical steam ramps.
This model combines the proven and simple Live steam humidification with latest sustainable developments.
The very few condensate forming in the steam ramp will fall and collect into the large horizontal header, before to be directed to the drain or re-pressurized with pressure motive pump.
Drip free steam distribution is ensured by the special design of the nozzles.
Heat gain to air flow is minimal so it is a good humidification solution for year round humidification requirement.

- Capacities from 2 to 1500kg/h.
- High efficiency with **robust** very thin thermal insulation covering **all** parts in contact with air.
- Rated for 260°C continuous operation & certified ASTM E84 (eq. UL723)
- Atmospheric or pressurized condensate return available
- Supplied with fully modulating electric actuated valve (24vac, signal 0-10 or 2-10Vdc)
- Optional thermo-contact for F&T steam trap
- Optional BACnet remote control

Condensate is atmospheric and returned to main drain of the building.

Optional condensate drain cooler with thermostatic or electric valve.

Vertical multi-ramp - pressurized condensate

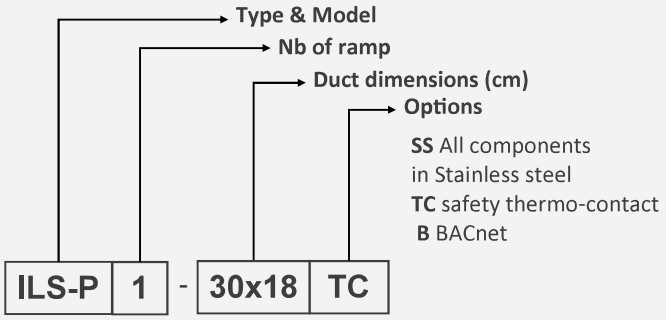


Condensate collected in the header is re-pressurized with pressure motive pump and returned to the boiler. 0 waste to drain.

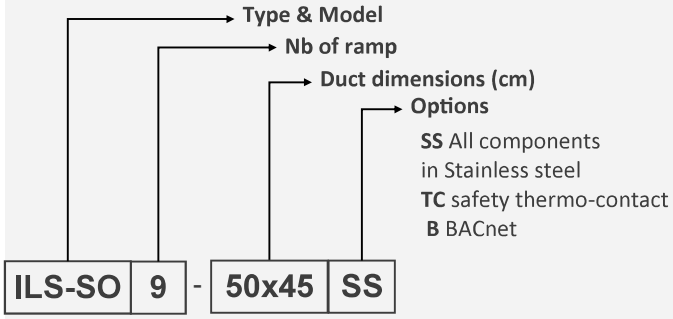
TECHNICAL DATA

Model	ILS-P single ramp	ILS-P mini-kit	ILS-P multi-ramp	ILS-SO	ILS-SE
Capacity	2 to 150kg/h	2 to 150kg/h	2 to 1500kg/h	2 to 1500kg/h	2 to 1500kg/h
Steam pressure	13 to 103kPa	13 to 103kPa	13 to 103kPa	13 to 103kPa	13 to 103kPa
Distance between ramps	n/a	76mm	150mm	76mm	76mm
Actuated valve (voltage & signal)	24Vac 0-10 or 2-10Vdc	24Vac 0-10 or 2-10Vdc	24Vac 0-10 or 2-10Vdc	24Vac 0-10 or 2-10Vdc	24Vac 0-10 or 2-10Vdc

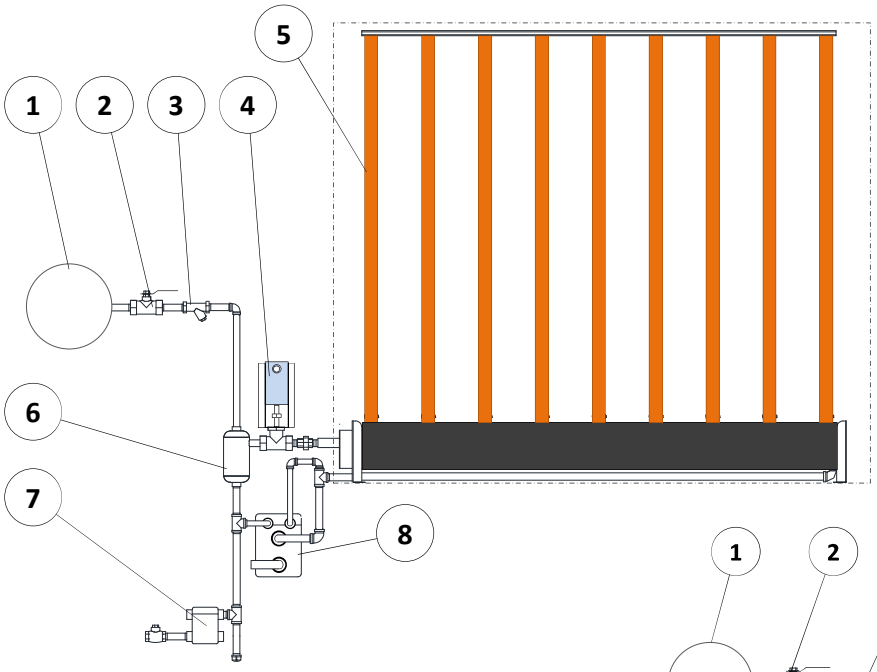
NOMENCLATURE ILS-P

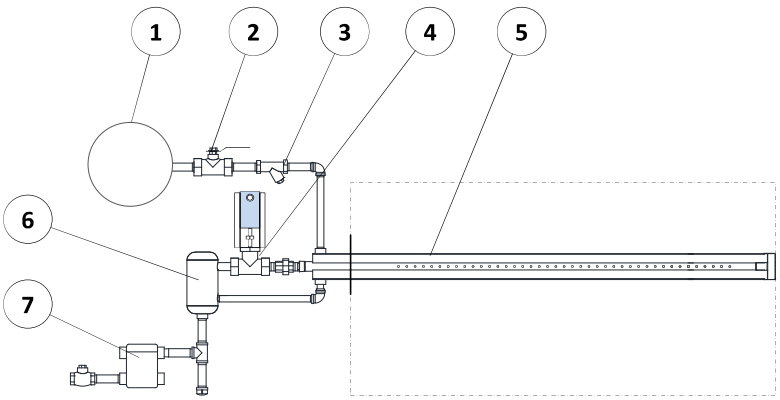


NOMENCLATURE ILS-SO/SE



CONFIGURATIONS & STEAM COMPONENTS





1: steam source

2: shut-off valve (by others)

3: Strainer (supplied)

4: Electric modulating actuated valve (supplied)

5: steam jacketed ramp (supplied)

6: separator: (supplied)

7: F&T steam trap (supplied)

8: Pressure motive pump (optional)