

Spirax FREME Flash Recovery Energy Management Equipment

Spirax FREME system

The Spirax FREME system recovers the useful energy from condensate return and utilises it to pre-heat boiler feedwater, or other process water applications. Standard systems can be provided for boiler duties up to 15,000 kg/h and bespoke systems for larger duties. Systems are supplied fully assembled and pressure tested ready for installation.

Principal features:

- Reduces steam raising costs, utility bills and CO₂ emissions.
- Reduces or completely removes unsightly plumes of flash steam.
- Significant savings – fuel, water and feedwater chemicals provide rapid return on investment.
- Increases boiler efficiency and reduces boiler blowdown.
- No pumps or complicated controls and instrumentation.
- Prevents feedtank boiling and pump cavitation risks.
- Fully assembled skid-mounted system offers minimal installation time and trouble-free commissioning.

Flash vessel

The FV flash vessel is designed and constructed to the following standard ASME VIII DIV 1 2004 + ADD06. The design is free-draining and provides efficient separation of flash steam from condensate return.

Heat exchangers

Fully welded Plate & Shell heat exchangers, with stainless steel plates and steel shell, for efficient heat transfer within a very compact size. The heat exchangers are designed to extract heat from the flash and the condensate for maximum efficiency and minimal flash steam wastage.

Standards and certification

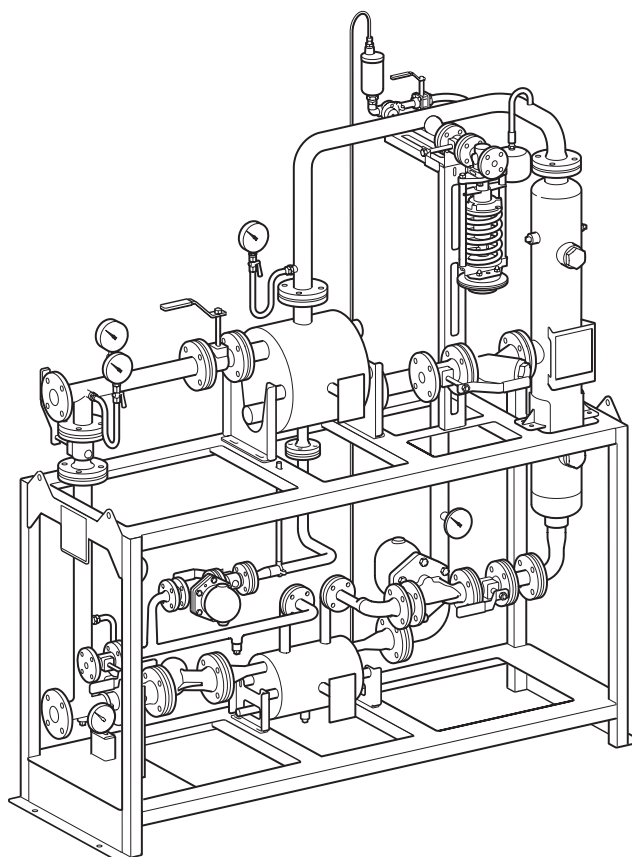
The Spirax FREME systems are CE marked and fully comply with the European Pressure Equipment Directive 97/23/EC. Material certification to EN 10204 2.1 and EN10204 2.2 is available and a data dossier is provided with each system. **Note:** All certification/inspection requirements must be stated at the time of order placement.

Quality management

Spirax FREME is manufactured under our Quality Management System that meets the requirement of BS EN ISO 9001:2000.

Pressure/temperature limits

Part	Maximum operating pressure	Maximum operating temperature
Primary side (plant steam) condensate and flash steam	14 bar g	198°C
Secondary side (Boiler feedwater)	25 bar g	170°C



Materials

Part	Material
Flash vessel	Carbon steel
Interconnecting pipework	Carbon steel
Heat exchangers	Stainless steel plate, carbon steel shell
Isolation valves	Cast steel
Check valves	Stainless steel
Frame	Steel box section

Dimensions and weights (approximate) in mm and kg

Feedwater flowrate kg/h	Type	Height H	Length L	Width W	Weight kg	Piping connections			
						Condensate		Water	
						Inlet A	Outlet B	Inlet C	Outlet D
5 000	1-VA-FV6	2235	2133	763	750	DN50	DN25	DN50	DN50
10 000	2-VA-FV8	2830	2550	1 000	800	DN80	DN50	DN50	DN50
15 000	3-VA-FV8	2830	2550	1 000	825	DN80	DN50	DN50	DN50

Sizing

Please contact Spirax Sarco for assistance with application, sizing and selection guidance.

Information required for system appraisal:

1. Application.
2. Maximum boiler capacity, pressure and operating hours.
3. Type of boiler level control system.
4. System pressure and temperature.
5. Fuel type and costs.
6. Process conditions.
7. Condensate return rate.

Pipework and frame

All pipework is correctly sized correctly for the application and is fabricated using modern welding techniques, approved welders and weld procedures

Scale formation

There may be a danger of scale formation in the heat exchangers and pipeworks. This depends mainly on the water quality, and expert advice from a water treatment specialist should be sought.

Hard water scale in heat exchangers and pipework reduces system efficiency. Chemical cleaning is the only satisfactory method of restoring the heat transfer efficiency by complete removal of the deposits.

Typical specification

The Spirax FREME heat recovery shall be a Spirax Sarco packaged heat exchanger system with shell & plate heat exchangers. The system shall come complete with heat exchangers and condensate removal equipment. All items shall be pre-assembled and mounted on a compact frame.

How to order

The best way of ensuring that we have all the necessary information for your application is to complete our enquiry data sheet.

Copies can be supplied on request.

