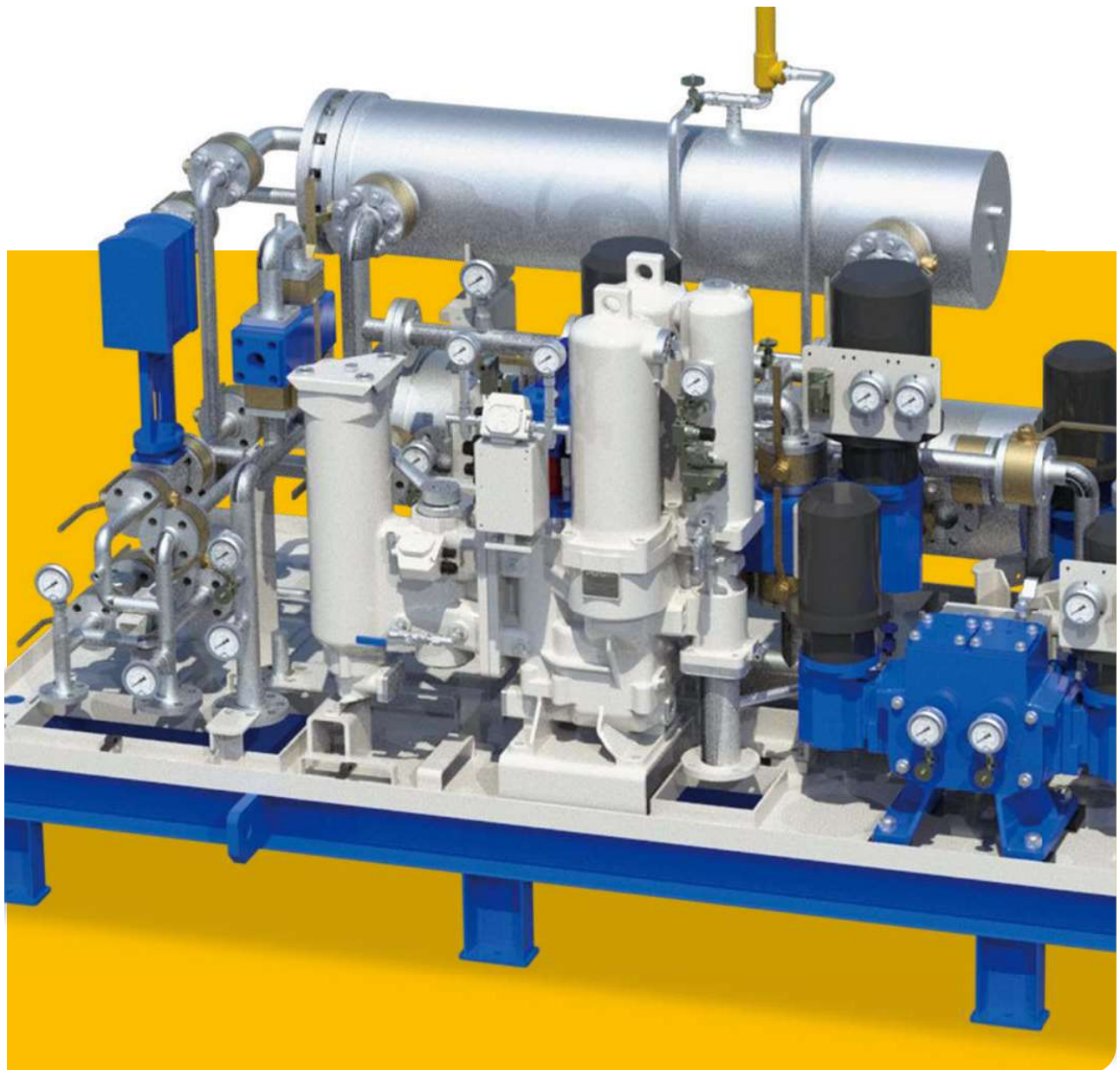
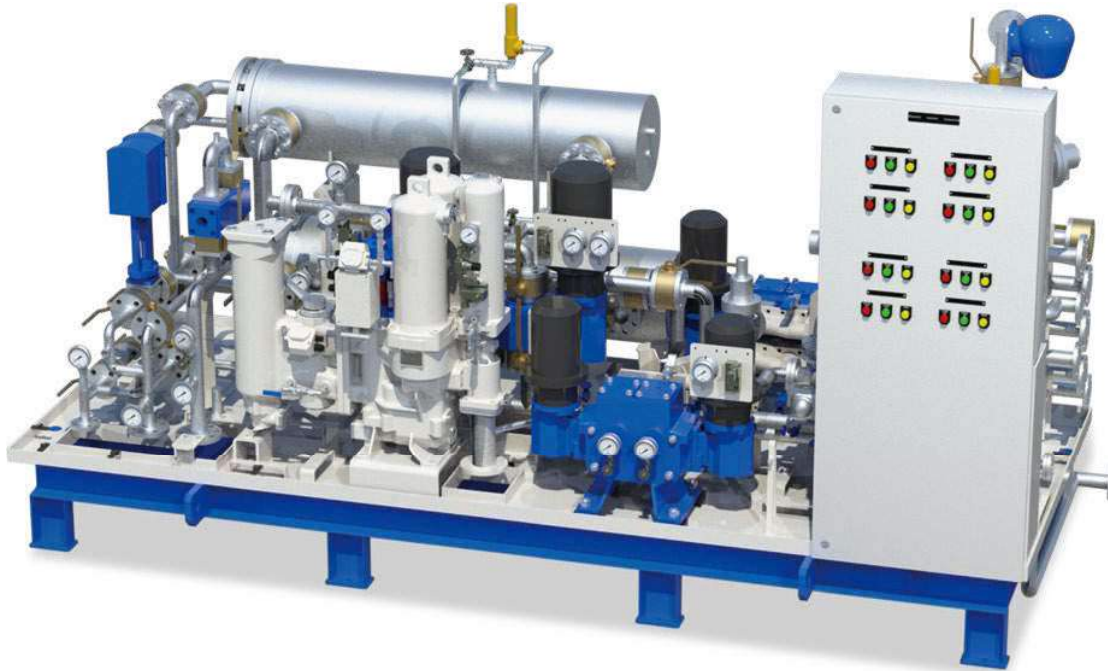


Fuel Oil Supply Booster & Purifier Module

Create Customer Value
through Innovative System Engineering



Fuel Oil Supply Booster & Purifier Module



MnSi Fuel Oil Supply Booster Unit and Purifier Unit can enhance the efficiency and performance of the main engine by keeping fuel temperature, pressure and viscosity in best conditions, which contribute to the excellent productivity for ship and plant operation.

Benefits

- Availability of engine room space by compact size
- Simple and easy installation by compact structure and all nozzle connections in bottom plate
- Easy operation and maintenance by optimal layout

Quality

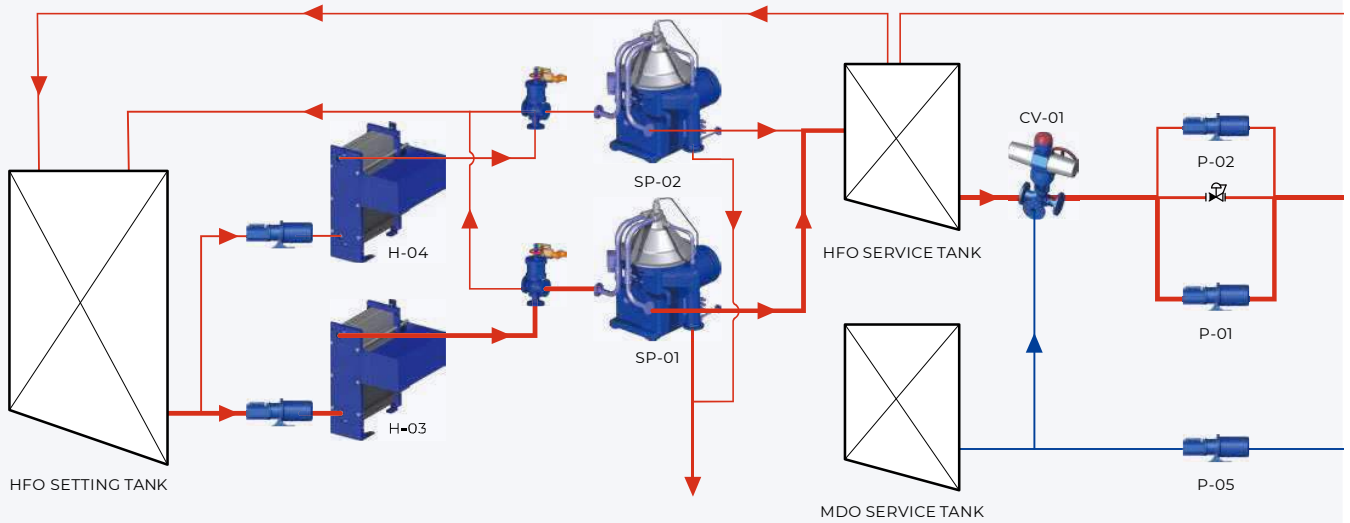
- High reliability and safety by quality key components and 3D design
- Complete functional test and commissioning at shop as well as Onboard

Application

- Diesel engine fuel oil operation for Power and Marine application

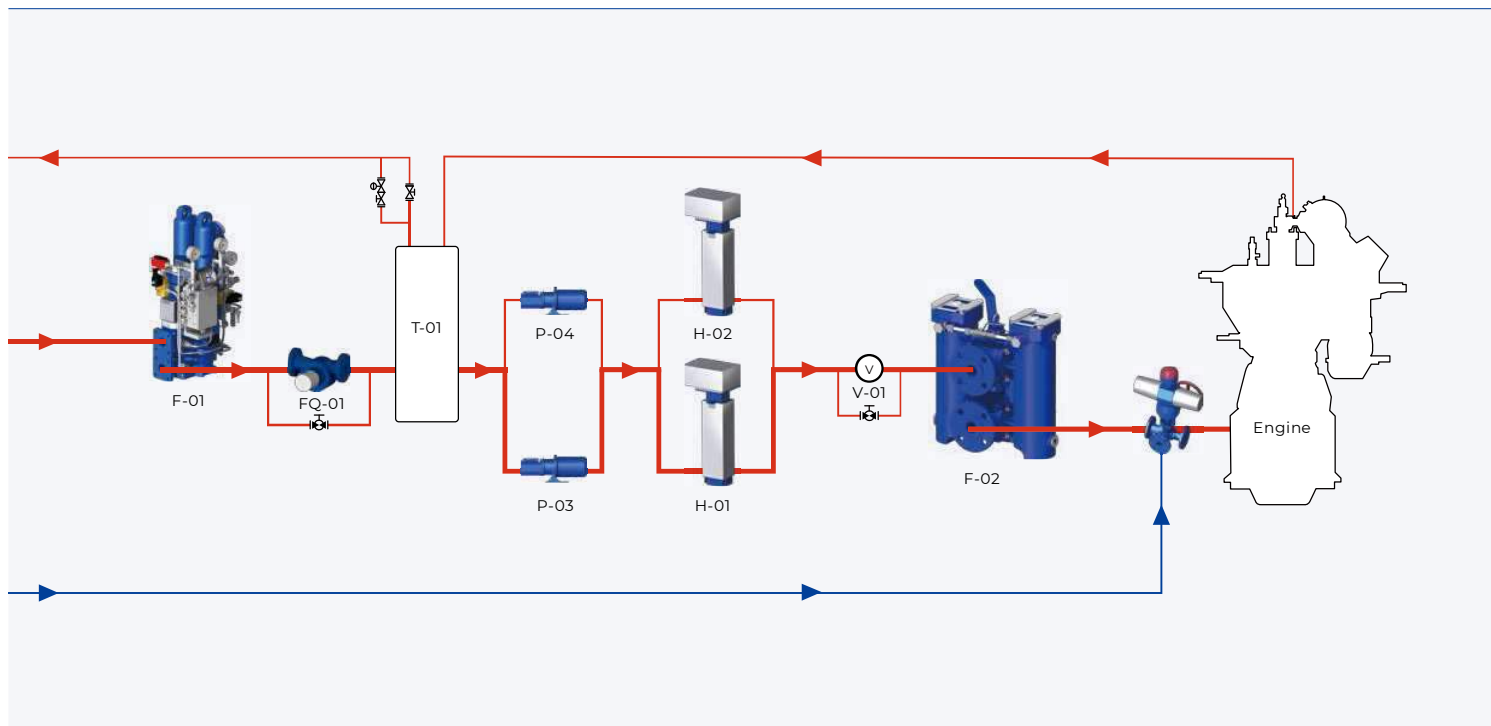


Schematic Diagram



Main Components and Options

Item	Components	Options
CV-01	3-Way HFO / MDO Change - over valve	Local Manually
		Remote (Air / Electric)
		Automatic (Temp & Time)
P-01/02	Supply Pump	
FQ-01	Flow Meter	Volume
		Mass
T-01	Mixing Vessel	
P-03/04	Circulating Pump	
H-01/02	Pre Heater for Engines	Steam
		Electric
H-03/04	Pre Heater for Purifiers	Thermal Oil
V-01	Viscosity Control System	Local Controller
F-01	Automatic Filter	Remote Loosely
		10 / 25 / 34 / 50 μm
		By-Pass Manual Filter
F-02	Manual Duplex Filter	Indicator Filter
		10 / 25 / 34 / 50 μm
P-05	MDO Pump	Electric Motor
		Air Motor
SP-01/02	Purifier	Selfjector



Main Specification & Application

Model	HSBM-6000, HSBM-11000, HSBM-18000, HSBM-26000 (max. 26,000 kW engine(s) output)
	Customized design & engineering according to the building specification
Fuel Oil	MGO (min. 1.5 cSt), MDO (min. 2 cSt), HFO (max. 380 / 700 / 1,200 cSt)
	DO, HFO, Crude Oil Viscosity control range : 0 ~ 50 cSt
Process	Fuel supply and circulating booster process separated or combined
Application	Uni-fuel system combined main engine and aux. Engines
	Separate fuel system for main engine and aux. Engines
Auto Filter	Hot side of circulating process or cold side of supply process
Mode	HFO / MDO Manual or automatic change-over
	HFO / MDO Smooth change-over, time & temp controlled

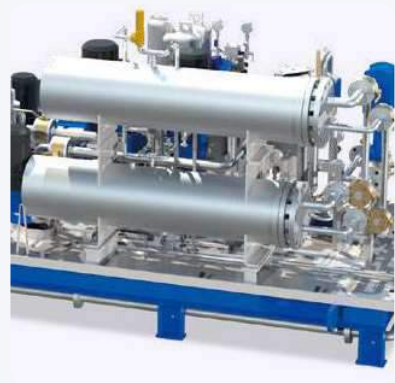
Key Components



SP-01 / 02
Purifier



P-01 / 02, P-03 / 04
Supply Pumps, Circ. Pumps



H-01 / 02 / 03 / 04
Thermal Oil / Steam Heaters



CV-01
3 Way Change - Over Valve



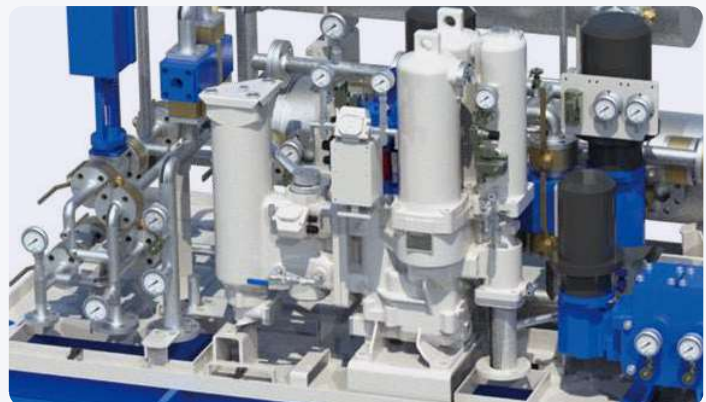
F-01
Indicator Filters



H-01 / 02 / 03 / 04
Electric Heaters



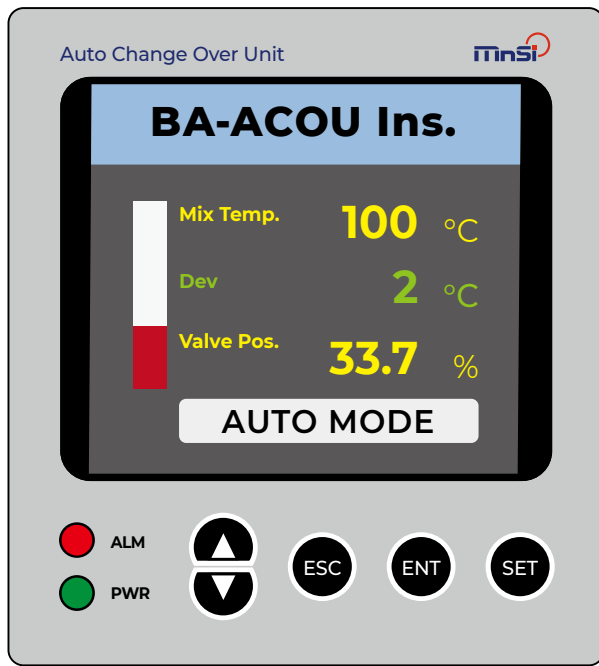
V-01
Viscosity Sensor & Controller



F-01
Automatic Filter

Control Systems

Auto Change Over Unit (BA-ACOU)

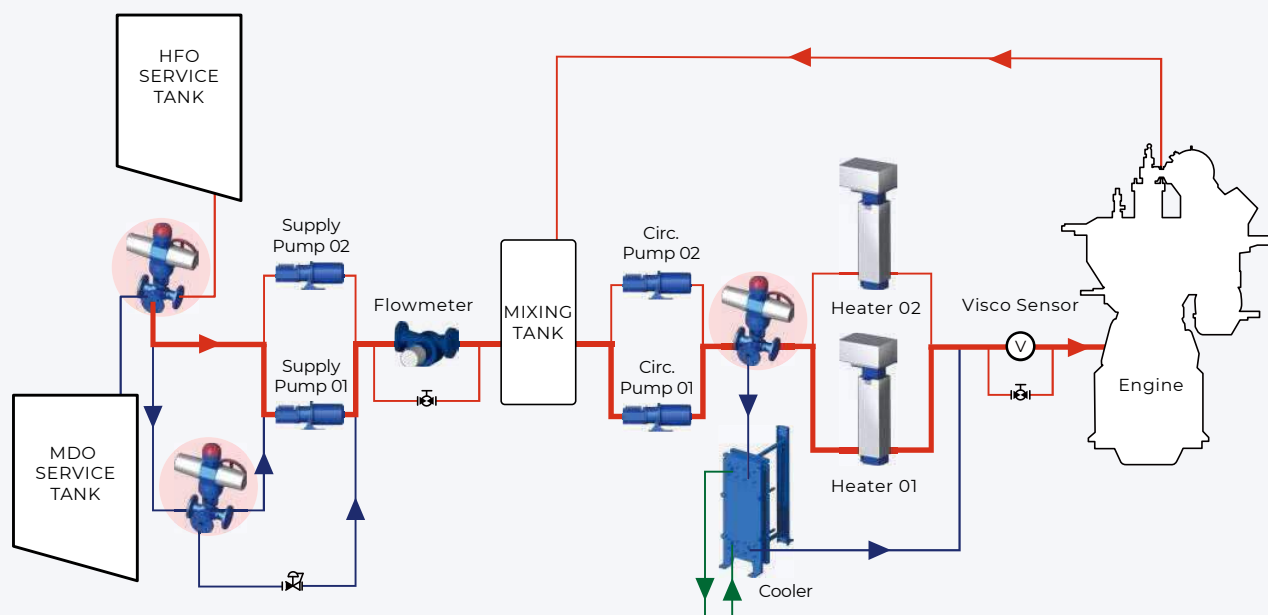


Auto Change Over Unit is limited use of HFO due to environmental regulation in the littoral sea and uses a valve system to control the conversion of HFO to MDO/MGO according to user setting.

Specification

Item	Description
Display	3.2" TFT-LCD with Touch
Analog Input	3ch (Temp, RTD, TC)
Analog Output	2ch (Valve control)
Digital Input	2ch, Open Collector Type
Digital Output	4ch, Dry Contact
Dimension	96 x 96 x 120 (mm)
Power	100 ~ 240 VAC 50 / 60Hz

Control System Diagram

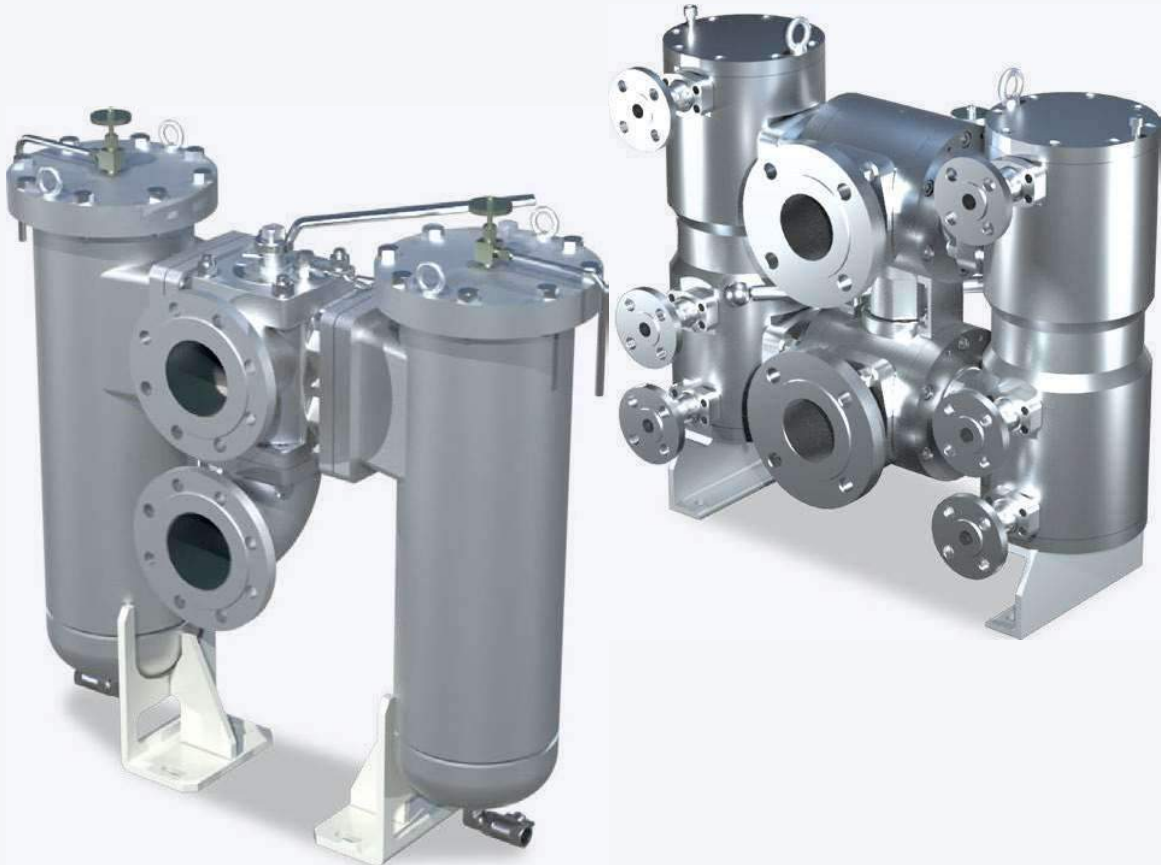


Filter & 2 Way 6 Port Valve

Create Customer Value
through Innovative System Engineering



Filter & 2Way 6 Port Valve



MnSi filter can be applied to the various fluid process such as fuel oil, lubricating oil, cutting oil and coolant in marine and industrial application. It is developed by MnSi's accumulated technical knowhow. Longstanding casting housing and customized filtering fineness is available with approval of classification such as ASEM, API Explosion Proof, CE and Marine Class.

Benefits

- Enlarged surface of filter element can make extended lifetime and maintenance cleaning period.
- Easy replacement of the element

Quality

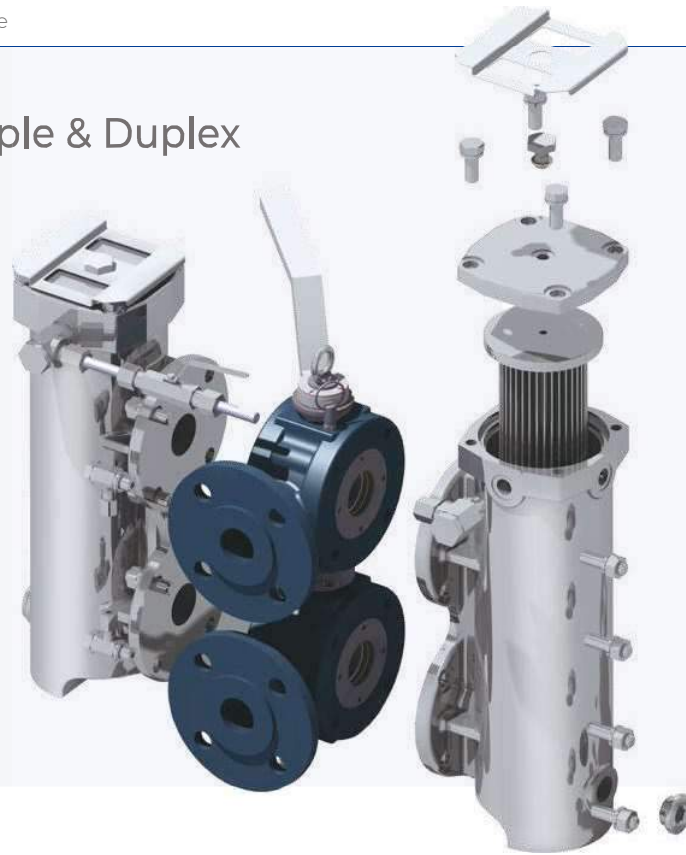
- Excellent performance with safety in various customized specification

Application

- Diesel engine fuel oil / Diesel engine, turbine and compressor lubricating oil / Miller, driller and lathe cutting oil / Chemical process / Sea water, raw water etc in Power and Marine Application



Filter Simple & Duplex



Specification

Body	
Design Code	ASME VIII Division 1, U-STAMP, PED, API614
Material	FCD400
Connections	DN25 to DN100
Flow Rate	2,000 l/h ~25,000 l/h
Design Temperature	Up to 150°C or Customizing
Design Pressure	Up to 20 bar or Customizing
Element	
Material	SUS304 / 316L / PAPER
Fineness	25, 34, 50, 60 micron
Diff.pressure(clean)	0.2 bar
Design Temperature	Up to 150°C or Customizing
Collapse Pressure	Up to 10 bar
Other Application	
Change Over System	Manual
Differential Pressure	Indicator / Transmitter
Nozzle Size	1"~6"
Fluid Application	
Liquid	Water / Lub. Oil / Fuel Oil / Chemical
Gas & Etc.	Customizing

Filter Simple & Duplex



Specification

Body	
Design Code	ASME VIII Division 1, U-STAMP, PED, API614
Material	ASTM or Equivalent
Connections	DIN / ANSI / JIS / KS / all other STD
Flow Rate	Up to 1,000m ³ /h or Customizing
Design Temperature	Up to 200°C or Customizing
Design Pressure	Up to 200 bar or Customizing
Element	
Material	SUS304 / 316L / PAPER
Fineness	Over all Fineness
Collapse Pressure	Up to 10 bar
Design Temperature	Up to 150°C or Customizing
Design Pressure	Customizing
Other Application	
Change Over System	Manual / Electric / Hydraulic Actuator
Differential Pressure	Indicator / Switch / Transmitter
Nozzle Size	1/2" ~ 24"
Fluid Application	
Liquid	Water / Lub. Oil / Fuel Oil / Chemical
Gas & Etc.	Customizing

Valve 2 Way 6 Port



Specification

Body	
Design Code	API614 / ASME B16.5
Material	ASTM or Equivalent
Connections	DIN / ANSI / JIS / KS / all other STD
Design Temperature	Customizing
Design Pressure	Up to 200 bar of Equivalent
Seat Material	PTFE / Silicon of Customizing
Ball Material	A182 F316L or A351 CF3M
Other Application	
Change Over	Manual / Electric / Hydraulic Actuator

