

# COMPACT, SAFE LESS EMISSIONS



**MARINE**



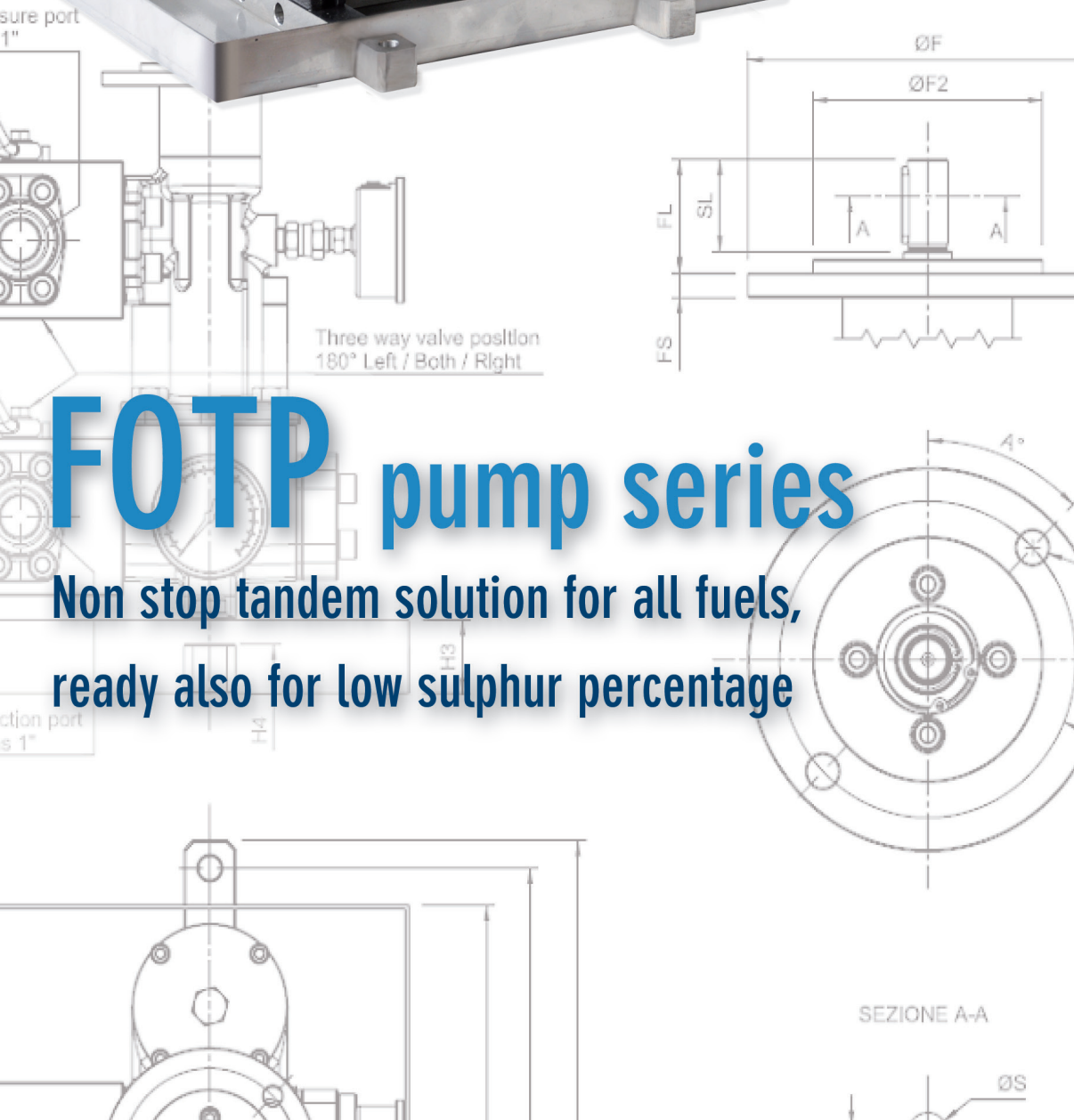
**POWER GEN**



**OIL & GAS**

## FOTP pump series

Non stop tandem solution for all fuels,  
ready also for low sulphur percentage



## FOTP Twin system series

**FOTP** twin unit is an advanced version of pump for diesel fuel, strongly oriented to solve the new problems connected to low viscosity and low sulphur content of the new marine diesel fuels (MDO).

This product has been designed to fulfil the market requirements of LOW SULPHUR – MDO specifications, according to latest ISO 8217 International Standard.

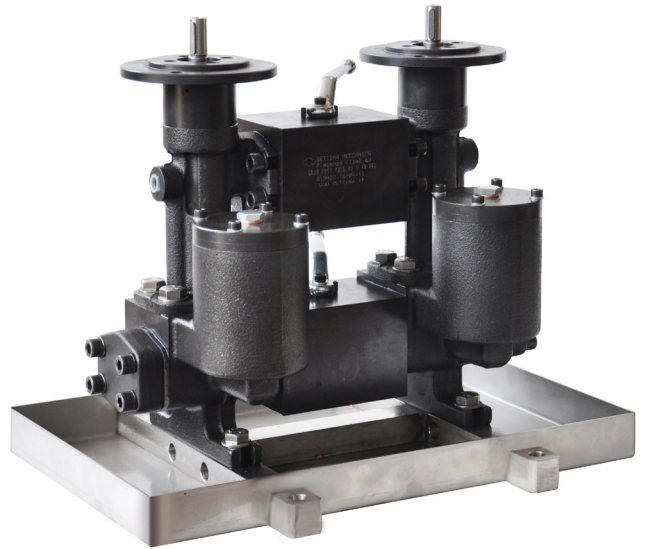
**FOTP** is a fuel oil handling twin unit designed principally for Marine and Power Generation application, especially for Burner boosting systems and burner injections (shipyards and power plants). The unit handles common diesel, MDO, MGO, Low sulphur MDO, HFO, Bunker oil (all fuels and marine distillate and marine residual fuels). The main advantage of **FOTP** is to be composed by two pumps driven at the same time or alternatively; in the second case the goal is to have the system always running, also in case of failure of one pump, or when is necessary to pump a different fuel.

**FOTP** is a compact unit that requires little space, it is easy to install and to operate. The costs due to maintenance operations are reduced because the system can always operate also during the service activities.

The innovative **FOTP** tandem unit it has been designed to permit the fuel to flow from inside the filter to outside towards the pump. All dirt and eventual metal chips stop inside the filter with no possibility to go in the pump case. Filters can be removed for cleaning without losing liquid around.

When required, **FOTP** series may be certified according to the most common classification societies: DNV, BV, LRS, RS, GL, RINA, KR, NK or CCS.

**FOTP** can be equipped with mechanical seal or magnetic coupling (optional).



### Fuels compatibility

- **Compact solution for all fuels, ready also for low sulphur percentage**
- **Fuels, marine distillate fuels, marine residual fuels**
- **DMX (according to latest ISO 8217), DMA, DMB, DMC, DMZ**

### Magnetic coupling sealless pump - FGM option

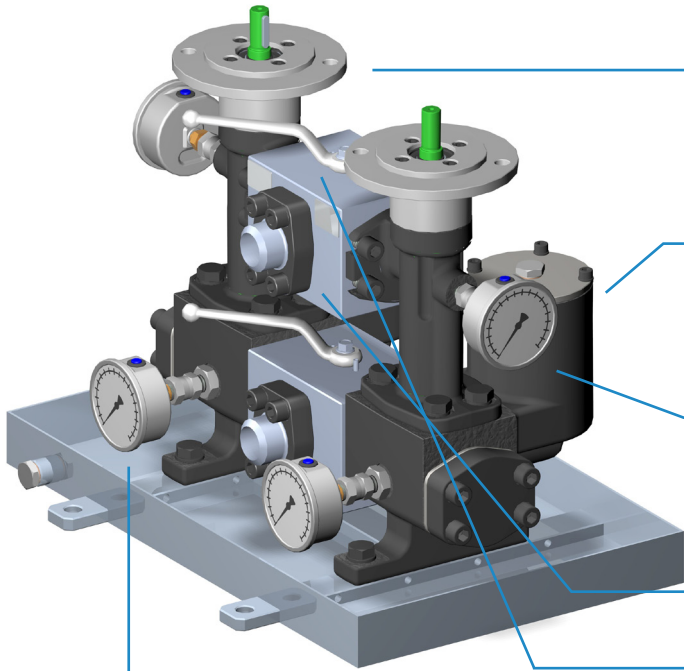
A hermetically sealed **magnetic coupling** is a permanent magnetic synchronous coupling able to transmit torque through magnetic forces between the internal and external rotors. Applying a **magnetic coupling**, the drive and the driven sides are hermetically separated. In case of critical media the **magnetic coupling** is a reliable seal and avoid any leaking.

The **magnetic coupling** comes with a containment shroud that is fixed to the pump and separates internal and external rotors from each other. Due to the absence of mechanical connection the vibration torque transmission are very low, with completely leak-proof separation of product and atmosphere.

The **magnetic coupling** is used to ensure no media leaking when working in environments with potentially explosive atmospheres or with high temperature fluids.



## Parts function description



Twin unit to allow operation to continue while one pump is out of service for assistance, or for any necessity to swap from one pump to another.

Outside filter to clean all eventual dirt of HFO or other fuel. Easy to remove for cleaning without draining oil.

Pressure gauge to indicate the outlet pressure.

3 way valve enables to switch the fuel fluid either to the right or left pump or both at the same time.

Pressure gauge to indicate pressure after filter also used as filter contamination indicator.

Switch over level to permit the functioning of both pumps at the same time or just one.

## Applications

### MARINE

- Burner boosting systems
- Burners injection
- Feeding and circulation of fuels and lubricants in marine environments
- Feeding, transfer and filling tank systems MDO, MGO, Low sulphur MDO, Bunker oil, HFO
- Handling DMX (according to latest ISO8217), DMA, DMB, DMC, DMZ.



### POWER GEN

- Turbine and compressors lubrication
- Seal oil (API676)
- Tandem solution for burner boosting systems
- Tandem solution for burners injection (power plants)

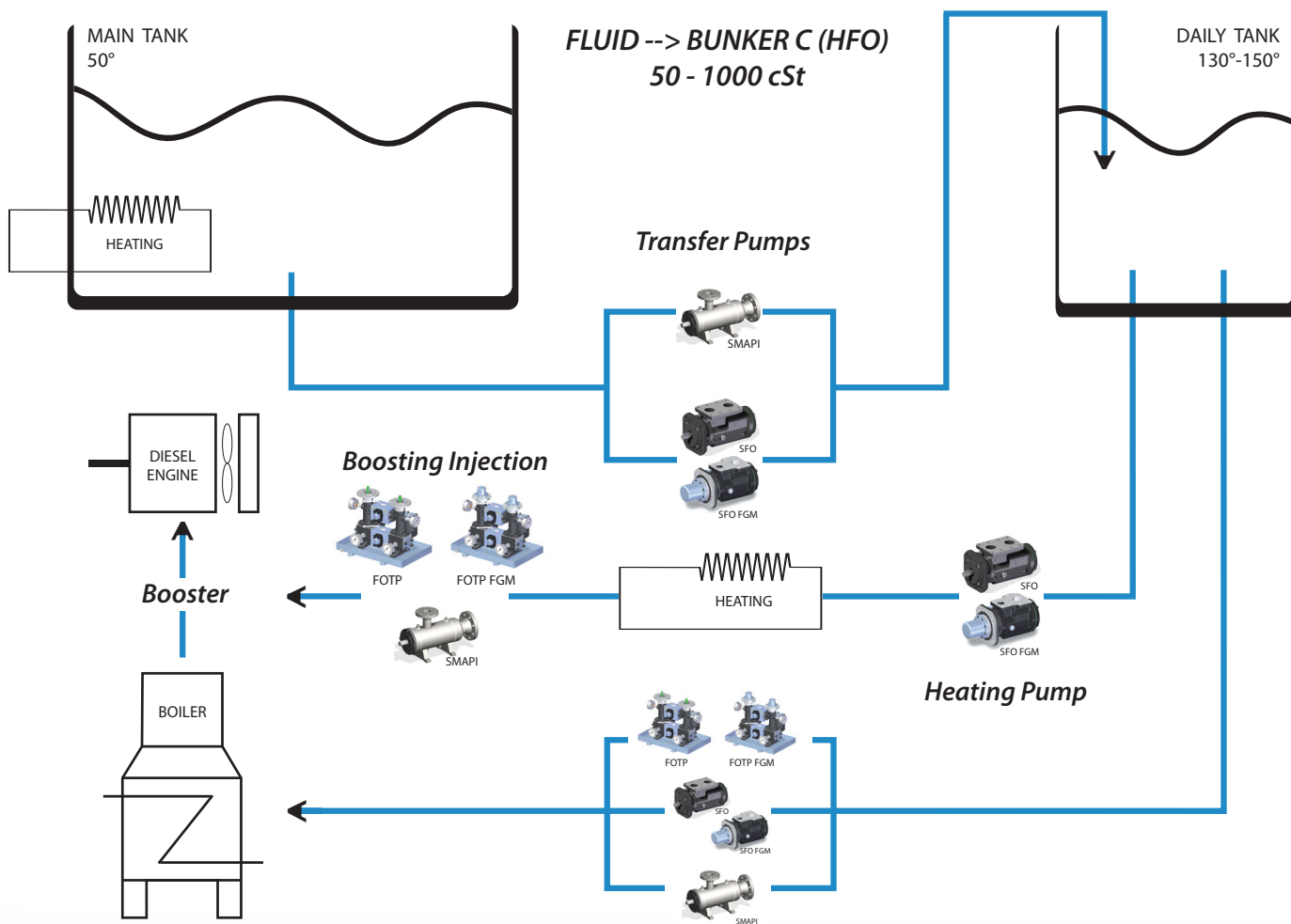


### OIL & GAS

- Circular pipeline transfer



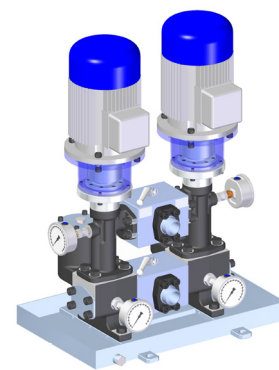
# Settima products for marine application



## Technical characteristics

**PRESSURE RELIEF SECURITY VALVE: FOTP** twin system can be equipped, upon request, with two Internal Security Valves (one for each pump) with the principal scope to protect the pumps and to limit the differential pressure across the pump.

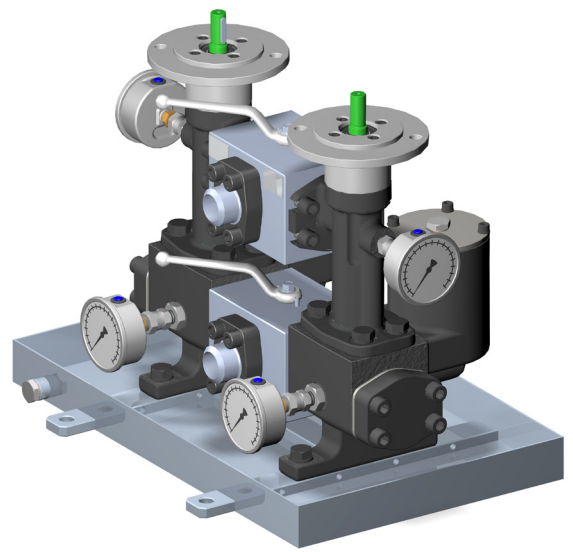
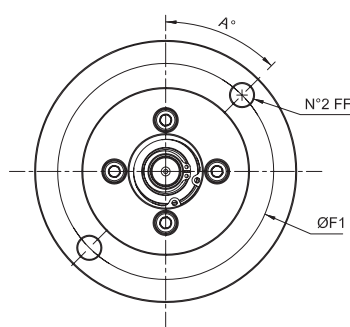
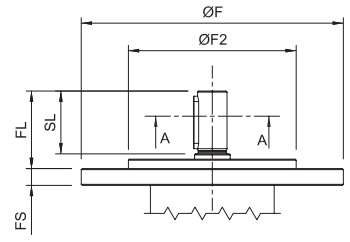
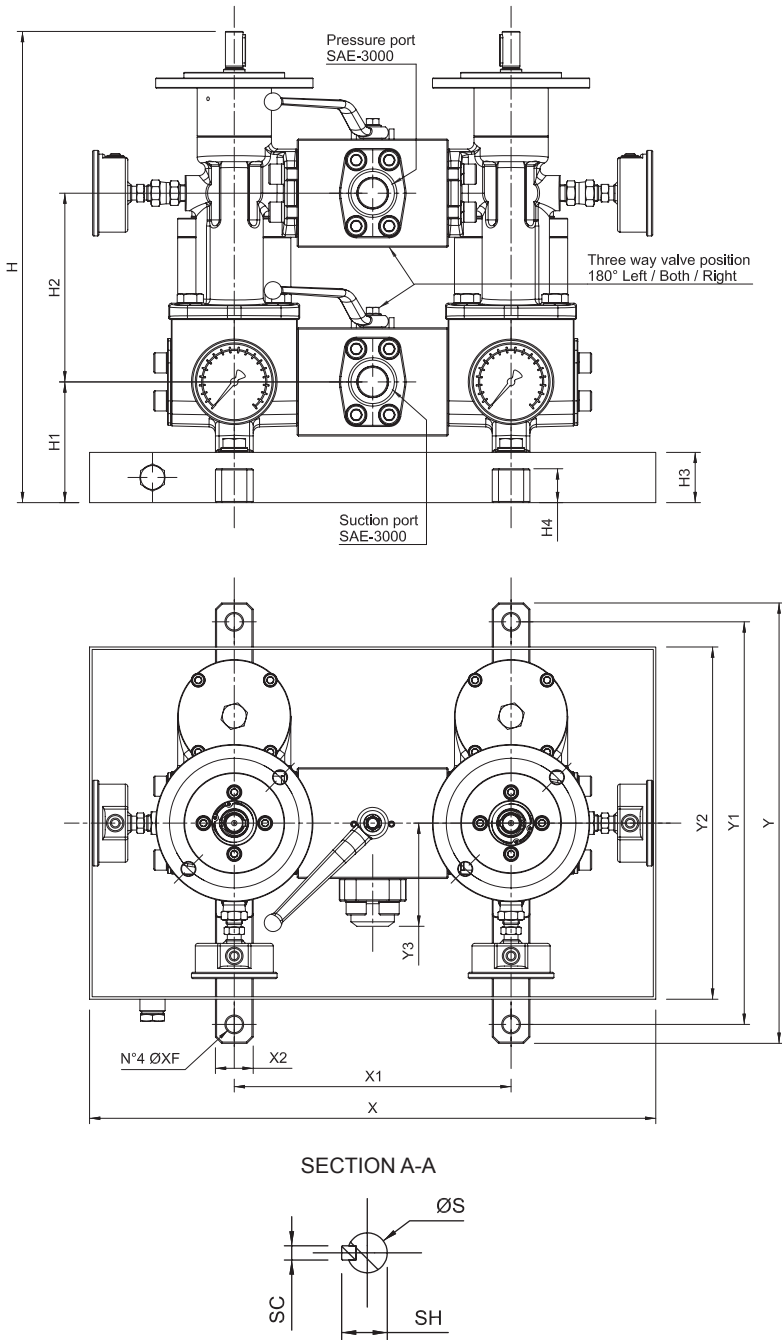
**DRIVE: FOTP** twin system can be connected to electrical motors also by magnetic coupling. This ensures the reliable seal of the magnetic coupling to avoid any leaking (please contact Settima).



### Technical characteristics

Models / Modelli	20 - 25
Flanges / Flange	ISO 3019/2
Connections Conessioni	SAE 3000 from 1"
Shaft rotation Rotazione albero	Clockwise (from shaft end) – counter clockwise (contact Settima) Destra – sinistra (contattare Settima)
Shaft speed Velocità di rotazione	From 500 to 3.600 rpm Da 500 a 3.600 rpm
Flows Portate	From 8 up to 30 L/min at 3.000 rpm Da 8 a 30 L/min a 3.000 rpm
Outlet pressure Pressione di mandata	Up to 70 bar Fino a 70 bar
Inlet pressure Pressione di aspirazione	Min. -0.7 bar max. 8 bar (for higher pressure please contact Settima) Min. -0.7 bar max. 8 bar (per pressioni maggiori contattare Settima)
Fluids Fluidi	Fuels, Marine distillate fuels, Marine residual fuels, all fuels according to latest ISO 8217 international standard (DMX, DMA, DMB, DMC, DMZ)
Viscosity Viscosità	Down to 1 cSt (as per latest ISO 8217 international standard) Fino a 1 cSt (come da versione più aggiornata ISO 8217)
Seals Guarnizioni	Mechanical seal - NBR, FKM, EPDM (others on request), magnetic coupling FGM (optional) Tenuta meccanica – NBR, FKM, EPDM (altri su richiesta), giunto magnetico FGM (opzione)
Acoustic emissions Emissioni acustiche	From 55 up to 58 db(A) at 2.750 rpm Da 55 fino a 58 db(A) a 2.750 rpm
Pump body Corpo pompa	Molten cast iron Fusione in ghisa
Screws Viti	Steel, core hardened steel Acciaio, acciaio temprato
Environment temperature Temperatura ambiente	From -20°C up to +50°C Da -20°C fino a +50°C
Hydraulic temperature Temperatura olio	From -20°C up to +150°C Da -20°C fino a +150°C
Filtration Filtrazione	Permitted 70 µm, (in case of low viscosity 20 µm) Permesso 70 µm, (in caso di bassa viscosità 20 µm)

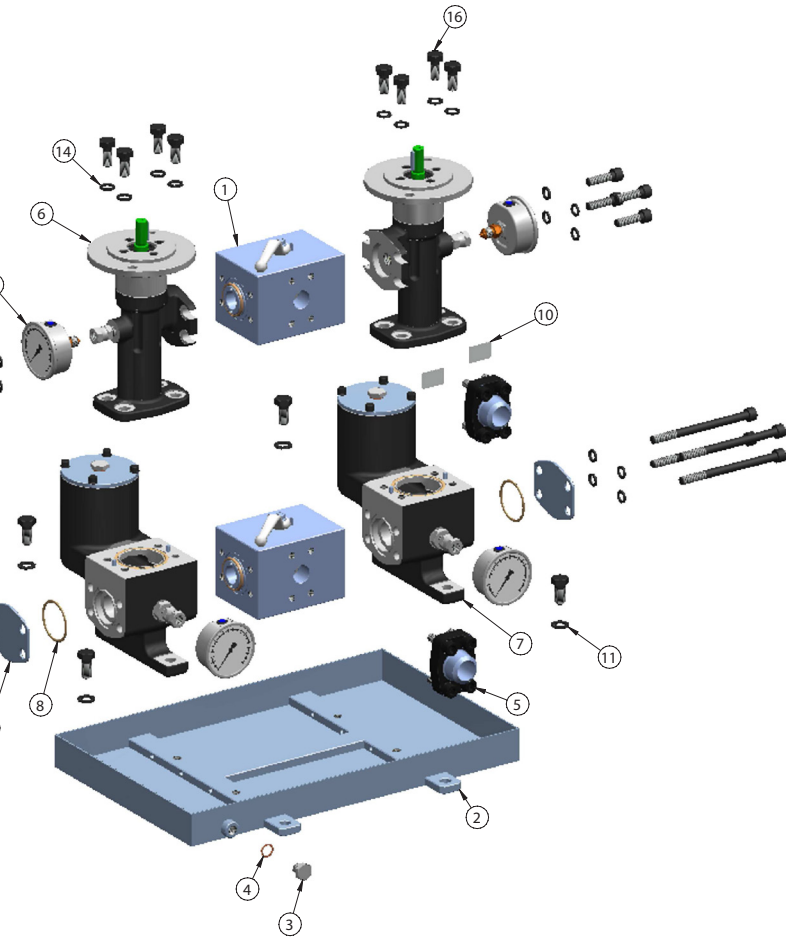
# Dimensional drawing



	L/min	X	X1	X2	XF	Y	Y1	Y2	Y3	H	H1	H2	H3
<b>GR20</b>	8-12-15-23	450	220	30	13	350	320	280	82	374.5	96	150	40
<b>GR 25</b>	25-30									447		197.5	

	H4	F	F1	F2	FF	FS	FL	A	S	SH	SC	SL
<b>GR 20</b>	27	125	103	80	11	8	37	45°	14	16	5	30
<b>GR 25</b>							42	0°	19	21.5	6	36

## Standard type and options - Ordering Code



N°	Title	Material
1	3 way valve	-
2	Oil pan	Stainless steel
3	Cap	Steel
4	Seal	Copper
5	SAE Flange from 1"	-
6	Pump group TM	-
7	Suction group	-
8	O-ring seal	FKM
9	Protection flange SAE	Steel
10	Plate	Steel
11	Washer	Steel
12	Pressure gauge	Steel
13	Screw	Steel
14	Washer	Steel
15	Screw	Steel
16	Screw	Steel
17	Washer	Steel

### Standard type and options

	Standard	Options
Pressure valve	With no relief valve	*Internal safety valve
Corrosion preservation	Phosphating	*Varnishing upon request
Sealing	Mechanical seal	*Magnetic coupling (FGM)

\*Please write the option(s) chosen in your order. Si prega di riportare nell'ordine le opzioni scelte

### Ordering code

Type Tipo	Class Classe	L/min	Seals Guarnizioni	Rotation Rotazione	Internal safety valve Valvola di sicurezza interna
GR 20	FOTP	8L	Standard TMV*	Standard DX clockwise	Standard none
		12L			
		15L			
		23L			
GR 25	FOTP	25L	** Optional NBR - EPDM -FGM	*** Optional SX counter clockwise	Optional RF
		30L			

\*Mechanical seal FKM. Tenuta meccanica FKM.

\*\* Others available upon request, please contact Settima. Altre su richiesta, contattare Settima.

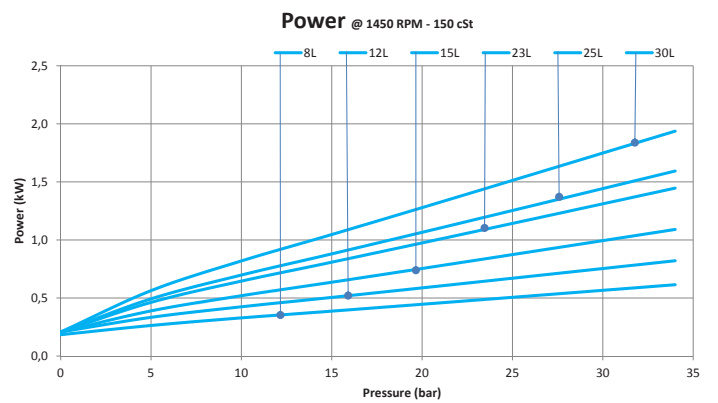
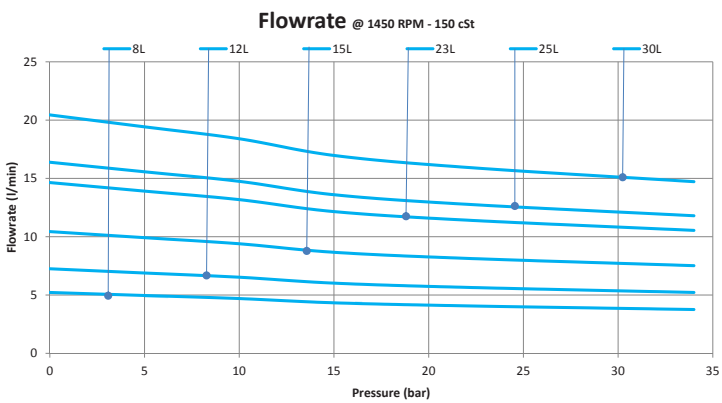
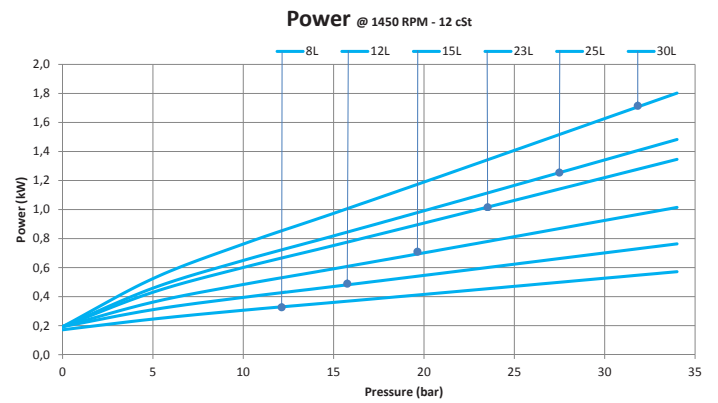
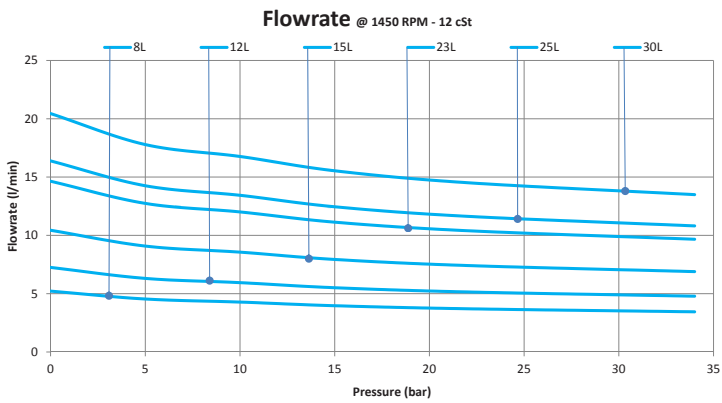
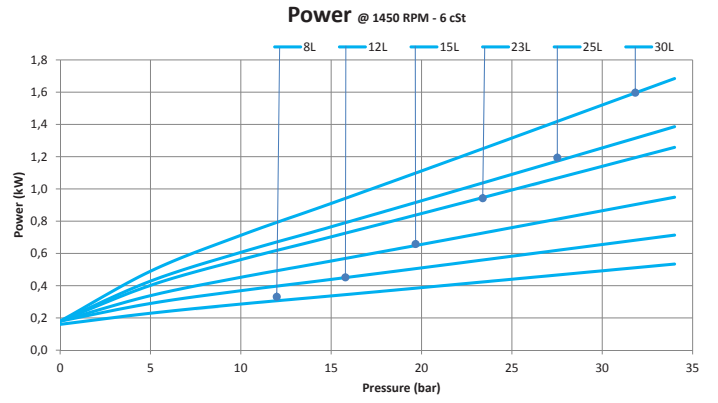
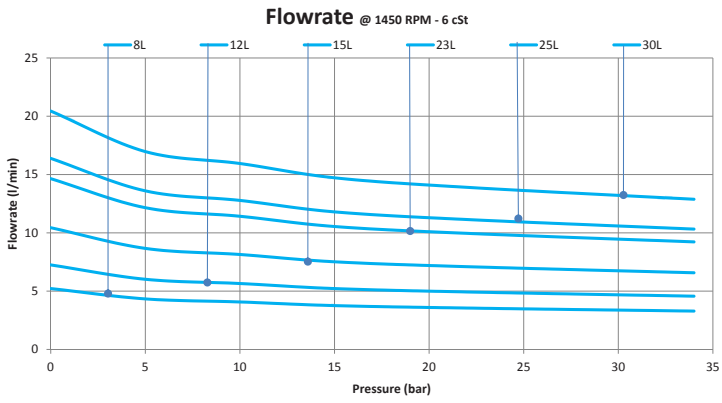
\*\*\* For rotation counter clockwise, please contact Settima. Per rotazione antioraria contattare Settima.

To request pump varnishing, please write it in your order. Per richieste di verniciatura riportarlo sull'ordine.

# Performance @1450 rpm

## FLOWRATE (L/min)

## POWER (Kw)



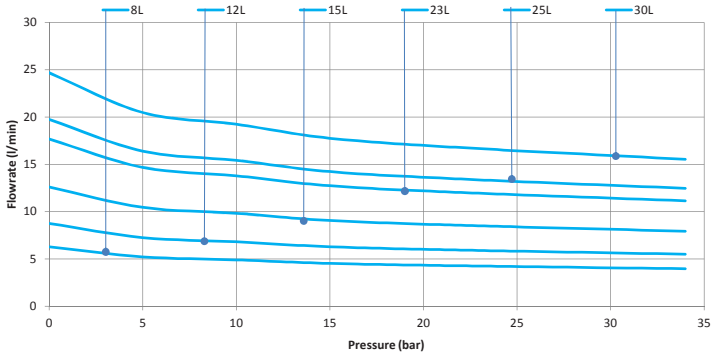


# Performance @1750 rpm

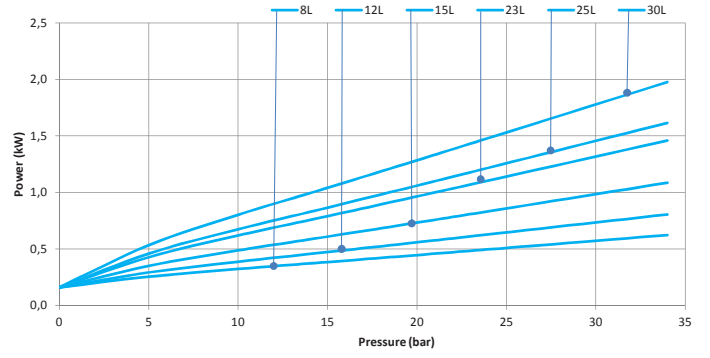
## FLOWRATE (L/min)

## POWER (Kw)

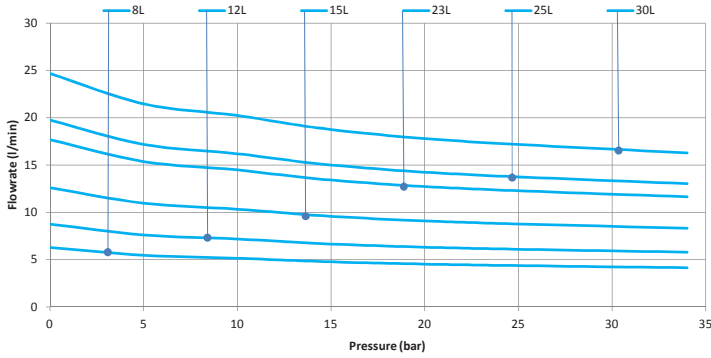
Flowrate @ 1750 RPM - 6 cSt



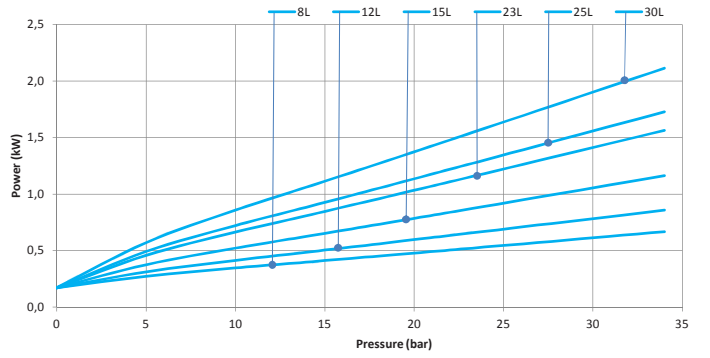
Power @ 1750 RPM - 6 cSt



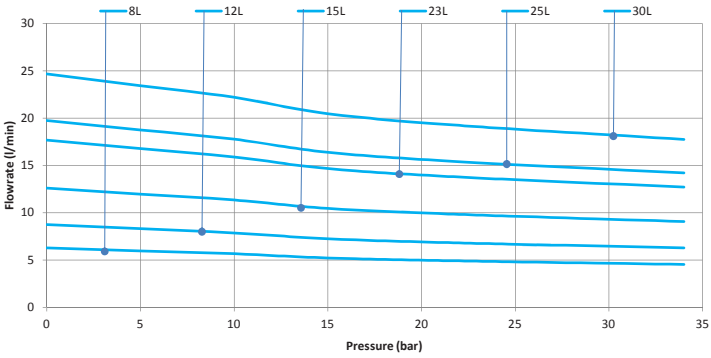
Flowrate @ 1750 RPM - 12 cSt



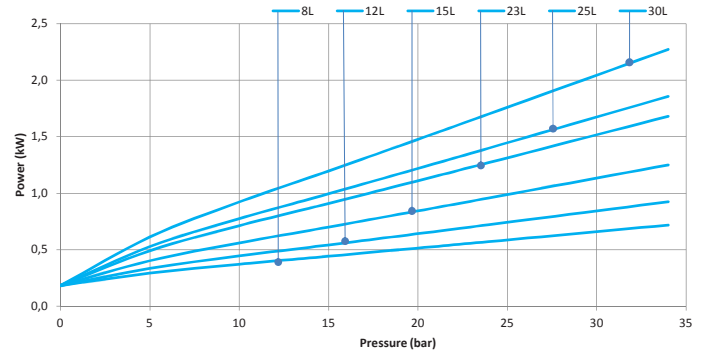
Power @ 1750 RPM - 12 cSt



Flowrate @ 1750 RPM - 150 cSt



Power @ 1750 RPM - 150 cSt

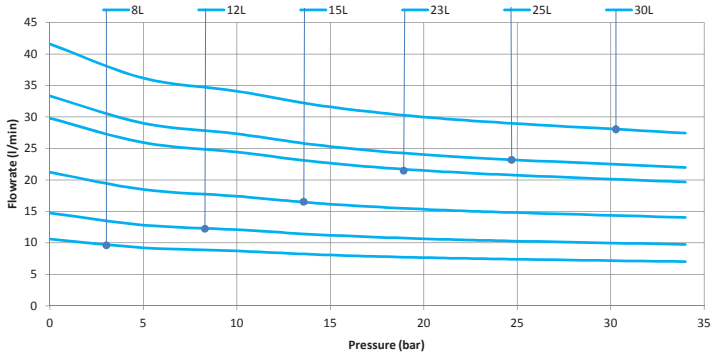


# Performance @2950 rpm

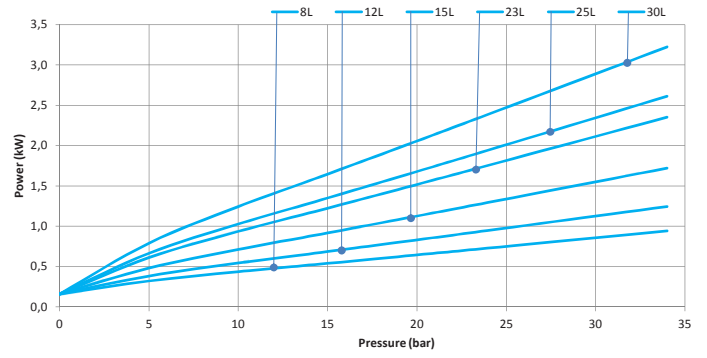
## FLOWRATE (L/min)

## POWER (Kw)

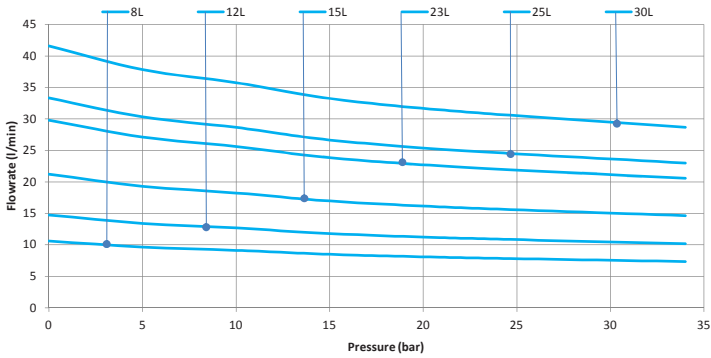
Flowrate @ 2950 RPM - 6 cSt



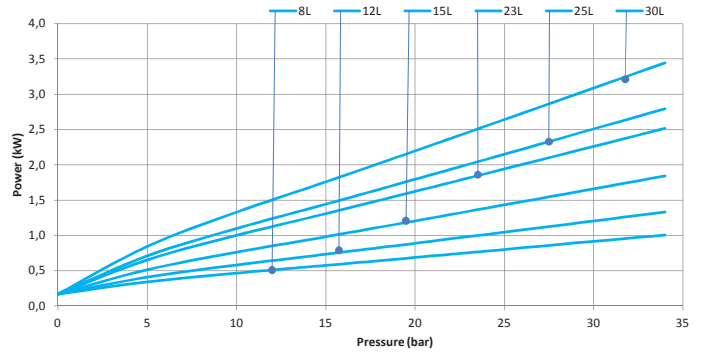
Power @ 2950 RPM - 6 cSt



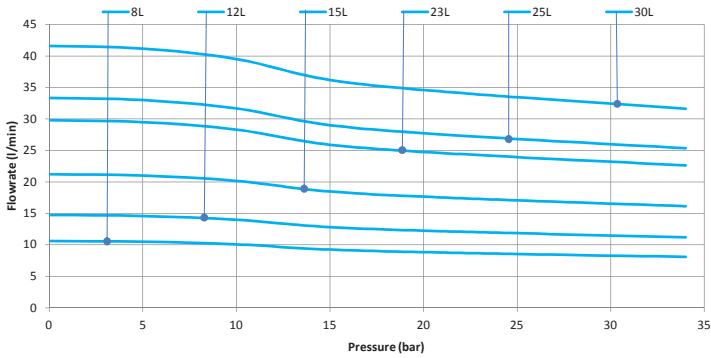
Flowrate @ 2950 RPM - 12 cSt



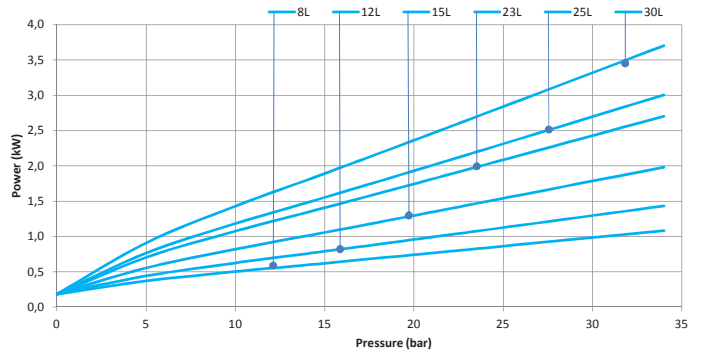
Power @ 2950 RPM - 12 cSt



Flowrate @ 2950 RPM - 150 cSt



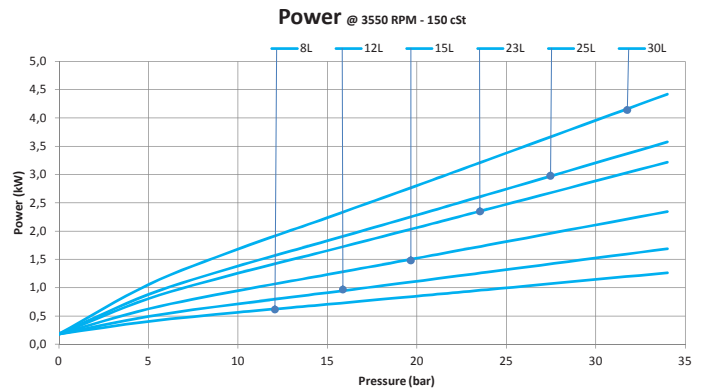
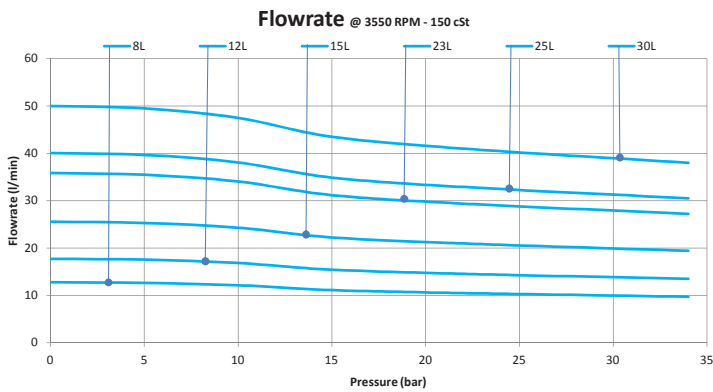
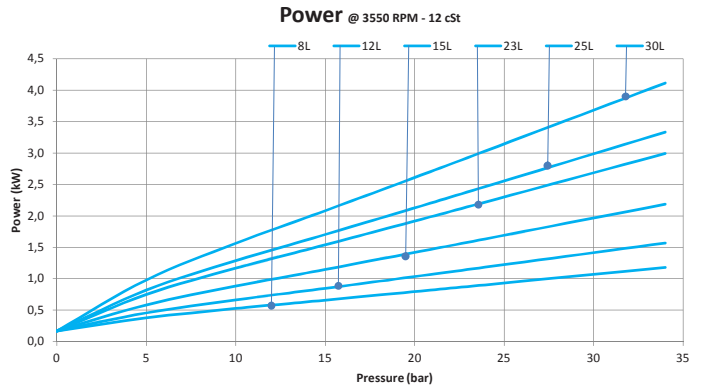
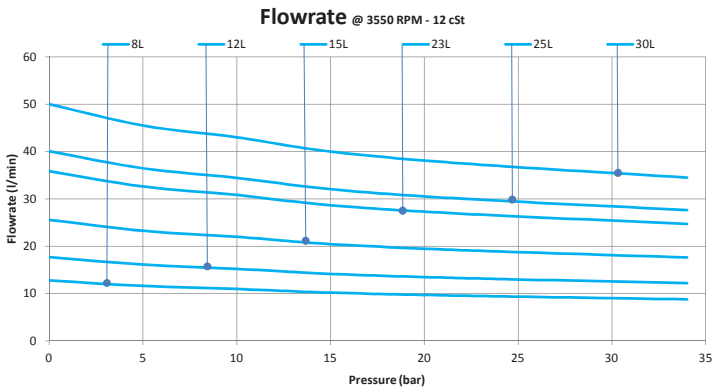
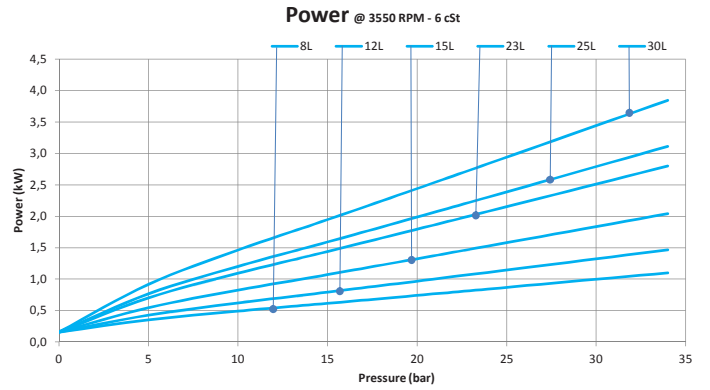
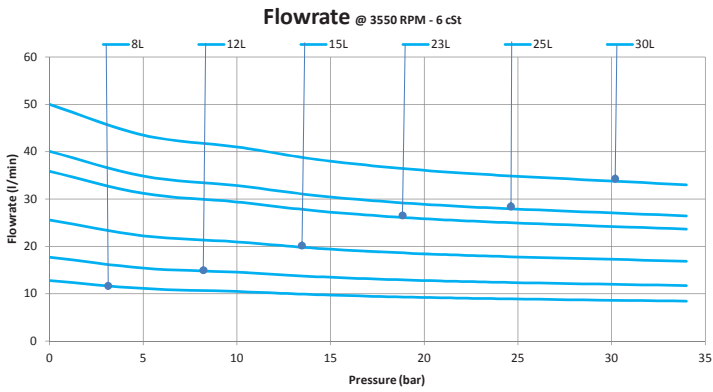
Power @ 2950 RPM - 150 cSt



# Performance @3550 rpm

## FLOWRATE (L/min)

## POWER (Kw)



**SETTIMA**

**Settima, Italy**

Headquarter, r&d and production

**SETTIMA**

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Warehouse

**SETTIMA**

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