



# COMPACT, SAFE LESS EMISSIONS



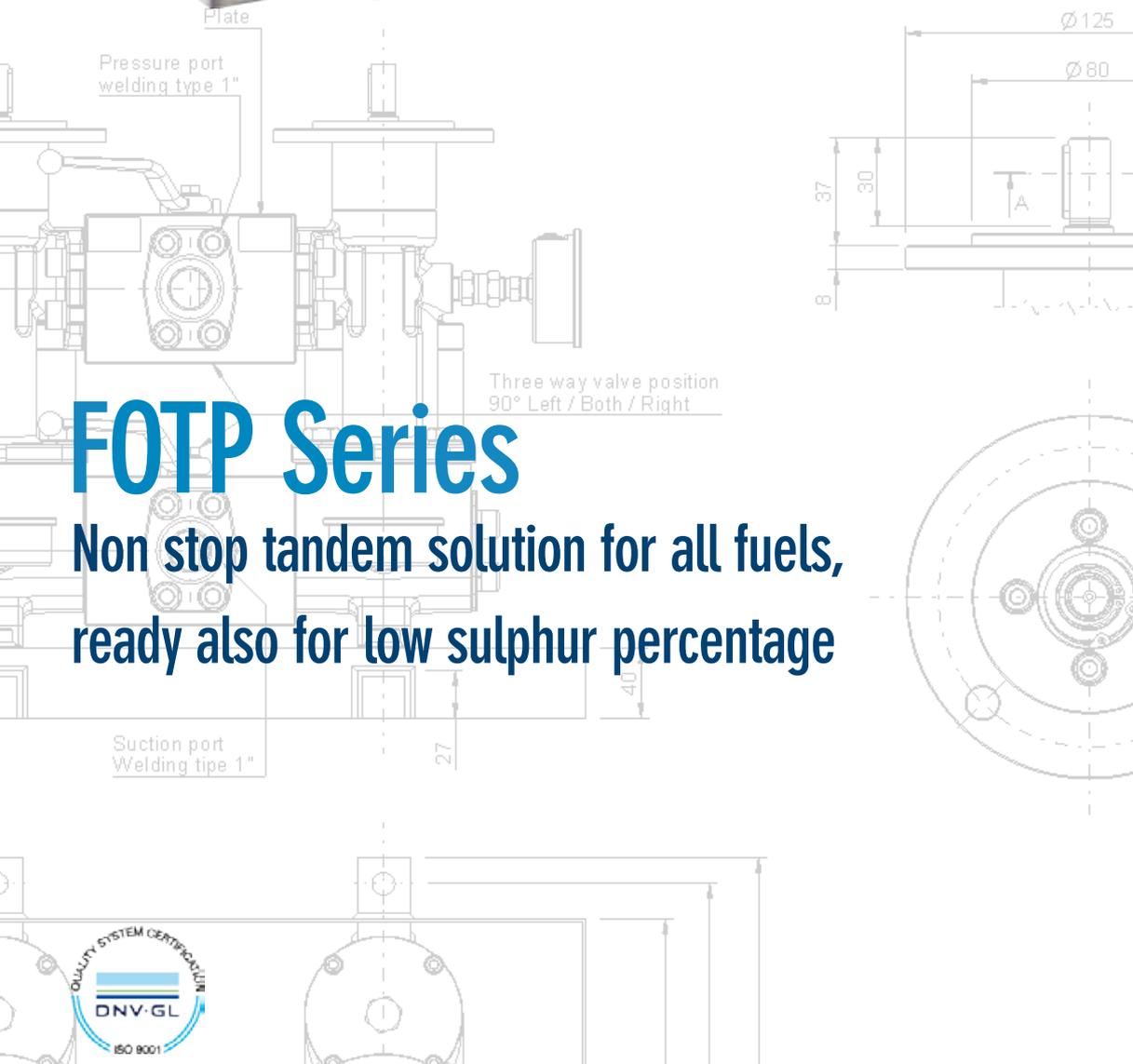
MARINE



POWER GEN



OIL & GAS



## FOTP 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.



GR40 FOTP

### Fuels compatibility

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



GR20 FOTP

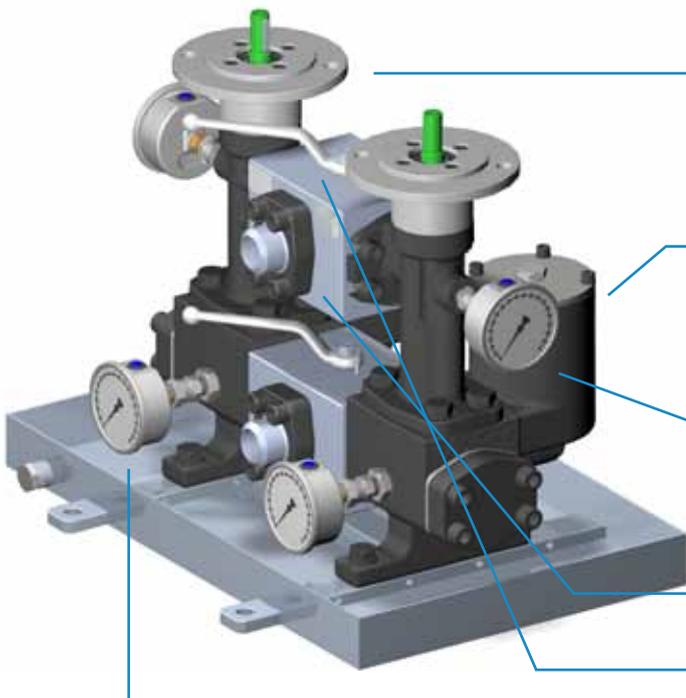
### Magnetic coupling sealless pump - FGM option

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.



GR20 FOTP FGM

## 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.

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

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

## 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 LSD, 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)

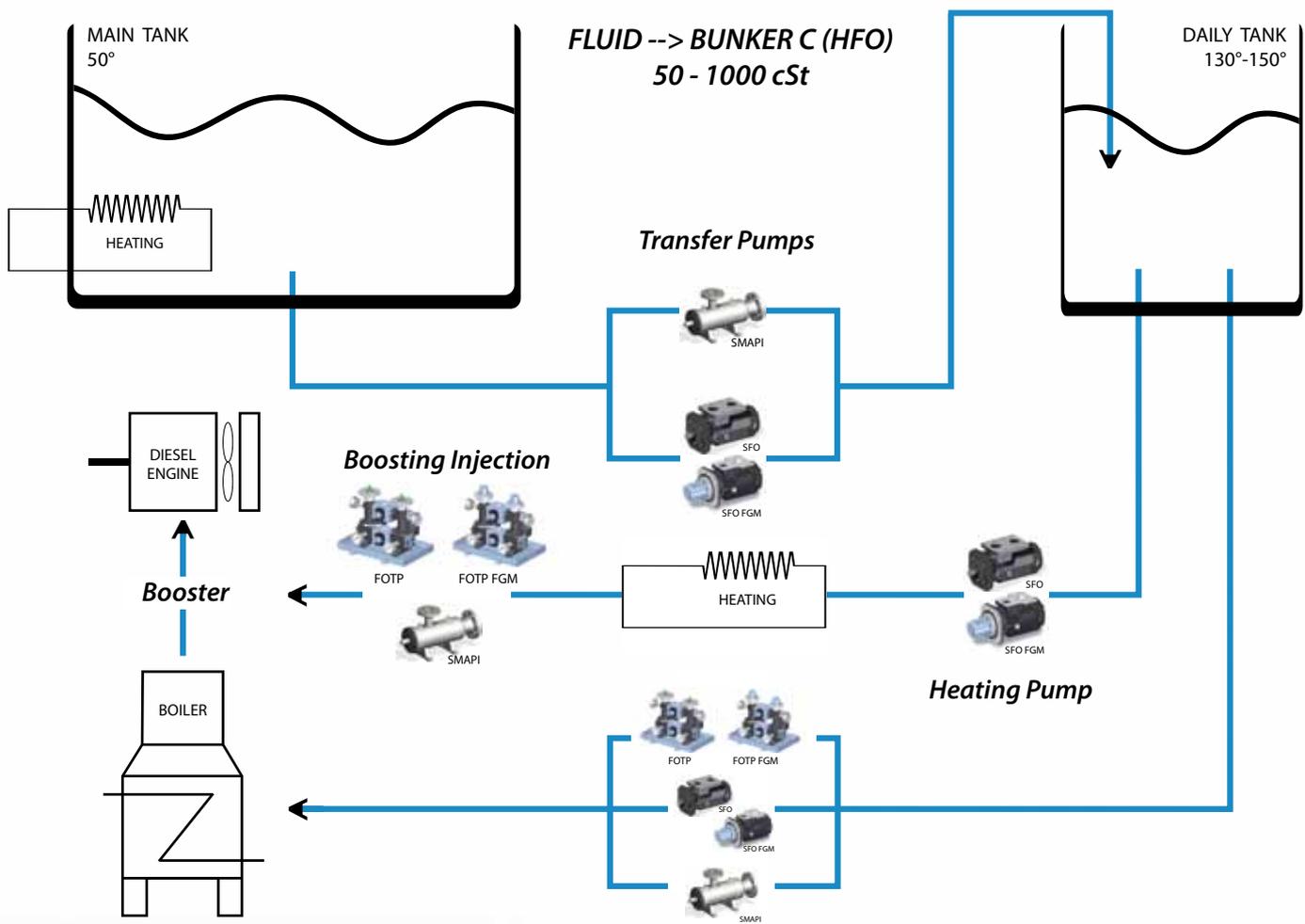


### OIL & GAS

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.

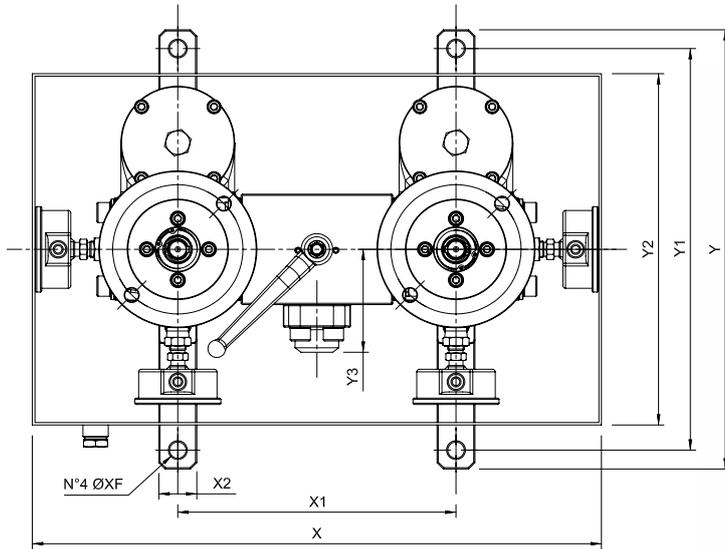
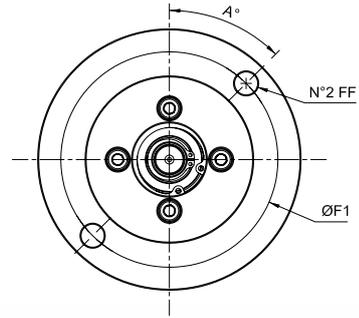
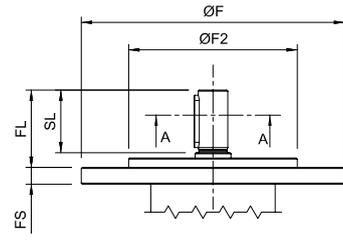
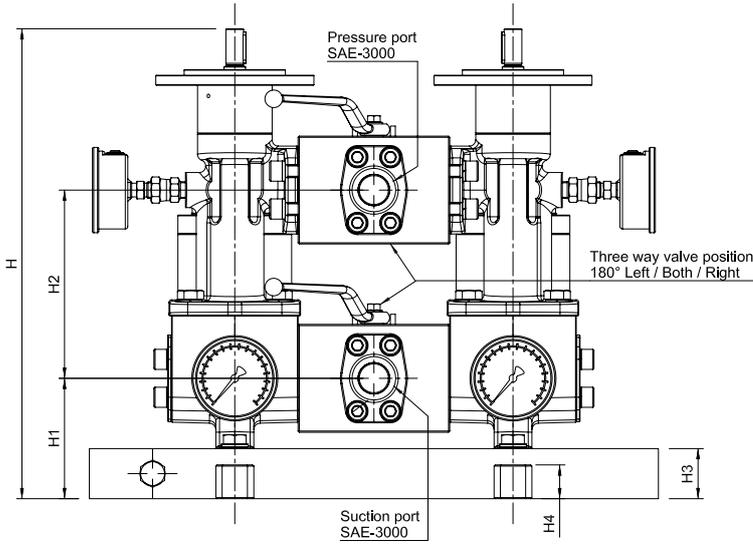
**DRIVE: FOTP** twin system can be connected to electrical motors also by magnetic coupling. This ensures the reliable seal of the magnetic coupling to avoid any leaking (please contact Settima).



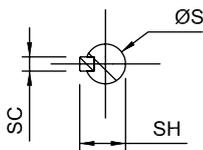
### Technical characteristics

<b>Models / Modelli</b>	20 - 25 - 32 - 40
<b>Flanges / Flange</b>	ISO 3019/2
<b>Connections Conessioni</b>	SAE 3000 from 1"
<b>Shaft rotation Rotazione albero</b>	Clockwise (from shaft end) – counter clockwise (contact Settima) Destra – sinistra (contattare Settima)
<b>Shaft speed Velocità di rotazione</b>	From 500 to 3.600 rpm Da 500 a 3.600 rpm
<b>Flows Portate</b>	From 8 up to 150 L/min at 3.000 rpm Da 8 a 150 L/min a 3.000 rpm
<b>Outlet pressure Pressione di mandata</b>	Up to 70 bar Fino a 70 bar
<b>Inlet pressure Pressione di aspirazione</b>	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)
<b>Fluids Fluidi</b>	Fuels, Marine distillate fuels, Marine residual fuels, all fuels according to latest ISO 8217 international standard (DMX, DMA, DMB, DMC, DMZ, LSD)
<b>Viscosity Viscosità</b>	Down to 1 cSt (as per latest ISO 8217 international standard) Fino a 1 cSt (come da versione più aggiornata ISO 8217)
<b>Seals Guarnizioni</b>	Mechanical seal - NBR, FKM, EPDM (others on request), magnetic coupling FGM (optional) Tenuta meccanica – NBR, FKM, EPDM (altri su richiesta), giunto magnetico FGM (opzione)
<b>Acoustic emissions Emissioni acustiche</b>	From 55 up to 58 db(A) at 2.750 rpm Da 55 fino a 58 db(A) a 2.750 rpm
<b>Pump body Corpo pompa</b>	Molten cast iron Fusione in ghisa
<b>Screws Viti</b>	Steel, core hardened steel Acciaio, acciaio temprato
<b>Environment temperature Temperatura ambiente</b>	From -20°C up to +50°C Da -20°C fino a +50°C
<b>Hydraulic temperature Temperatura olio</b>	From -20°C up to +150°C Da -20°C fino a +150°C
<b>Filtration Filtrazione</b>	Permitted 70 µm, (in case of low viscosity 20 µm) Permesso 70 µm, (in caso di bassa viscosità 20 µm)

# GR20 Dimensional drawing\*



SECTION A-A

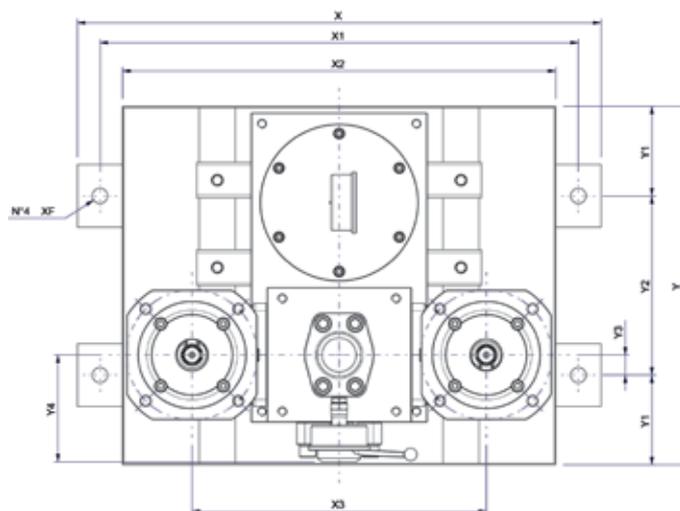
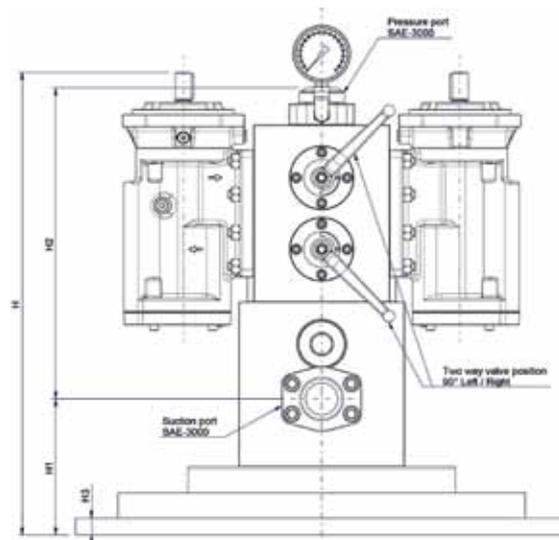
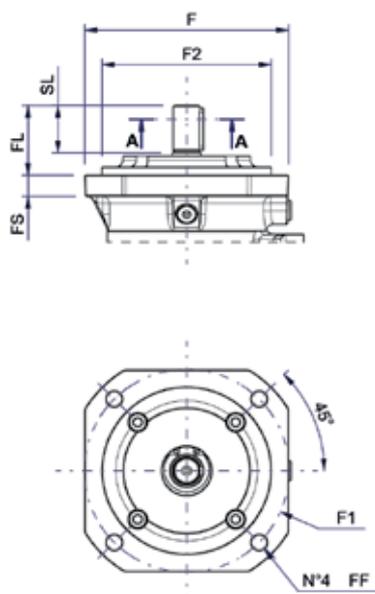


	L/min	X	X1	X2	XF	Y	Y1	Y2	Y3	H	H1	H2	H3
<b>GR20</b>	8-12-15-23	450	220	30	13	350	320	280	82	374.5	96	150	40

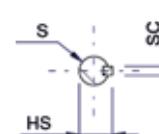
	H4	F	F1	F2	FF	FS	FL	A	S	SH	SC	SL
<b>GR 20</b>	27	125	103	80	11	8	37	45°	14	16	5	30

\* The dimensions reported in the present catalogue can change without any notice. Please, always contact Settima for exact dimensions.

# GR25-32-40 Dimensional drawing\*



### SECTION A-A

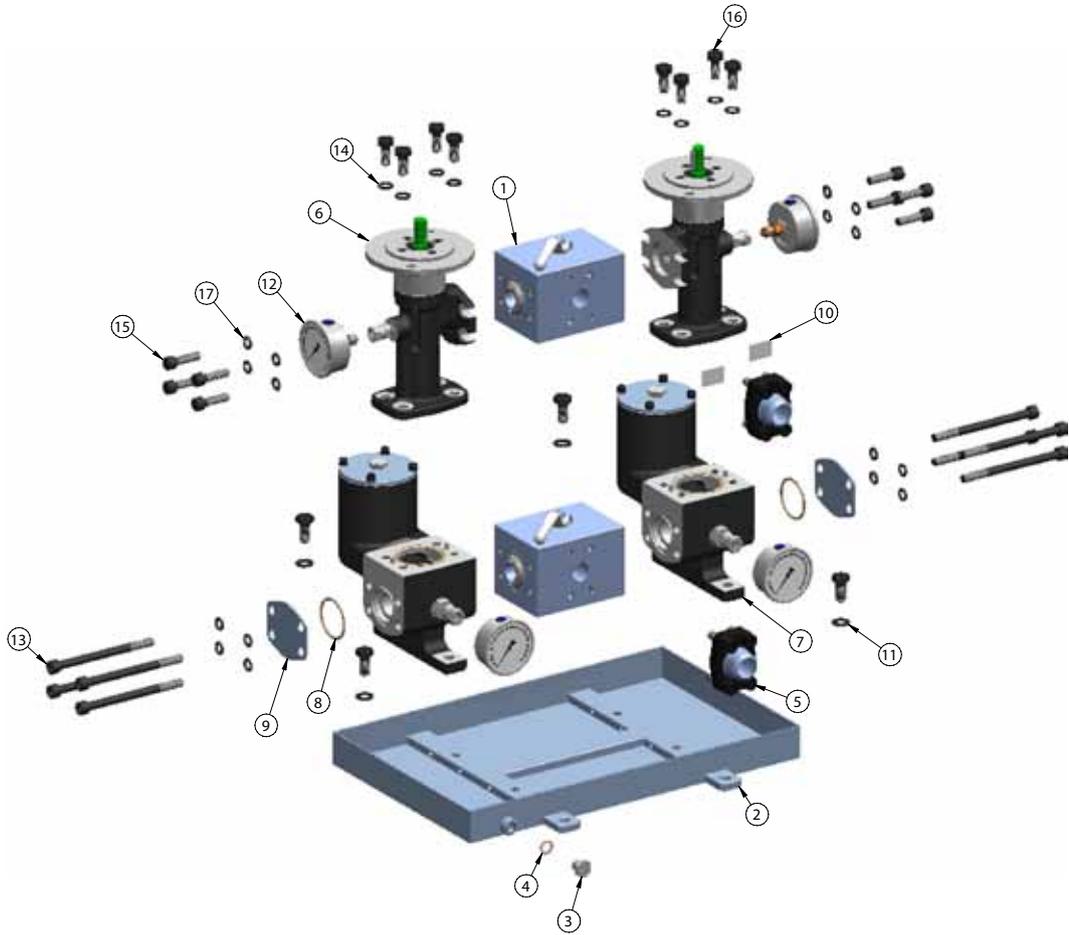


	L/min	X	X1	X2	XF	Y	Y1	Y2	Y3	H	H1	H2	H3
<b>GR25</b>	25-30	580	530	480	17	400	100	200	22,5	534	161,5	369	20
<b>GR32</b>	35-45-55-75									542			
<b>GR40</b>	100-125-150									549			

	F	F1	F2	FF	FS	FL	A	S	HS	SC	SL
<b>GR25</b>	135	130	110	9	12	50	45°	14	16	5	29
<b>GR32</b>											
<b>GR 40</b>								144	145	120	11

\* The dimensions reported in the present catalogue can change without any notice. Please, always contact Settima for exact dimensions.

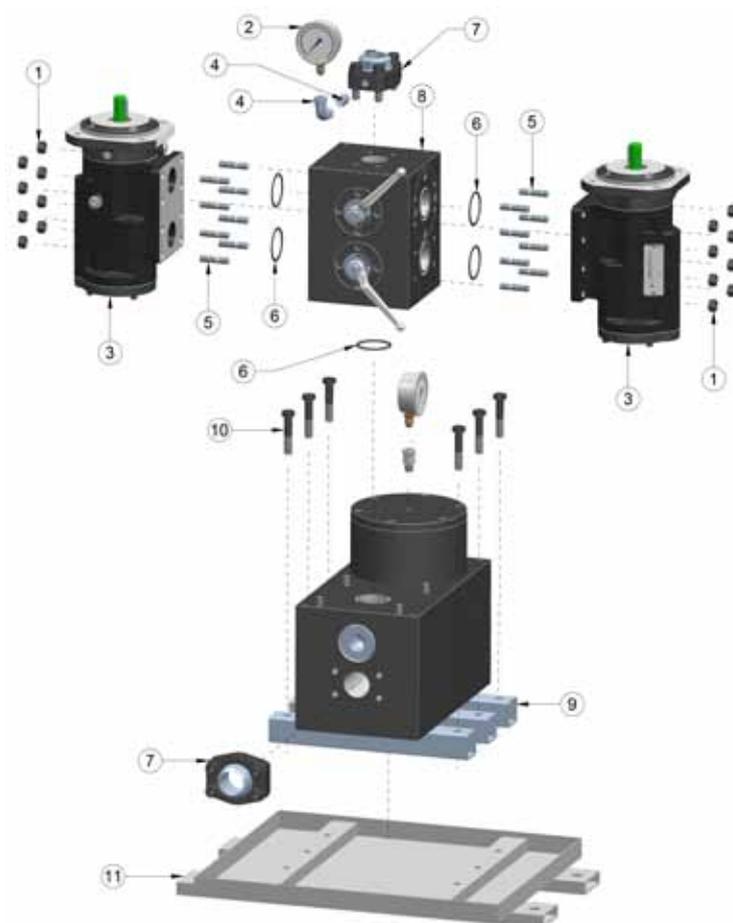
## GR20 Standard types and options - Ordering Code



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

N°	Title	Material
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

## GR25-32-40 Standard types and options - Ordering Code



N°	Title	Material
1	Nut	Steel
2	Pressure gauge	Steel
3	Pump	-
4	Fitting	Steel
5	Captive screw	Steel
6	O-ring seal	FKM

N°	Title	Material
7	SAE Flange from 1" 1/2	-
8	2 way valve	-
9	Suction group	-
10	Screw	Steel
11	Oil pan	Steel

# Standard types and options - Ordering Code

## Standard types 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			
		12L			
		15L			
		23L			
GR 25	FOTP	25L	Standard TM V*	Standard DX clockwise	Standard none
		30L			
GR32	FOTP	35L	** Optional NBR - EPDM -FGM	*** Optional SX counter clockwise	Optional RF
		45L			
		55L			
		75L			
GR40	FOTP	100L			
		125L			
		150L			

\*Mechanical seal FKM. Tenuta meccanica FKM.

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

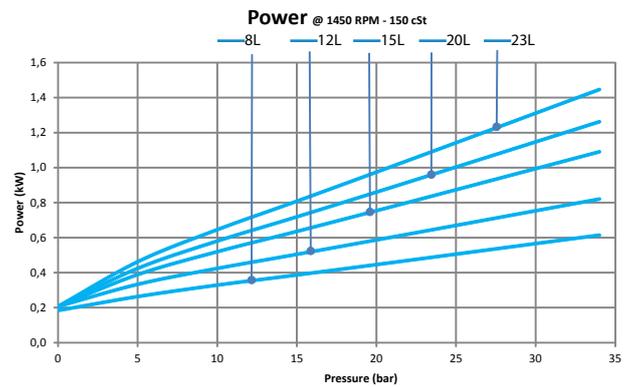
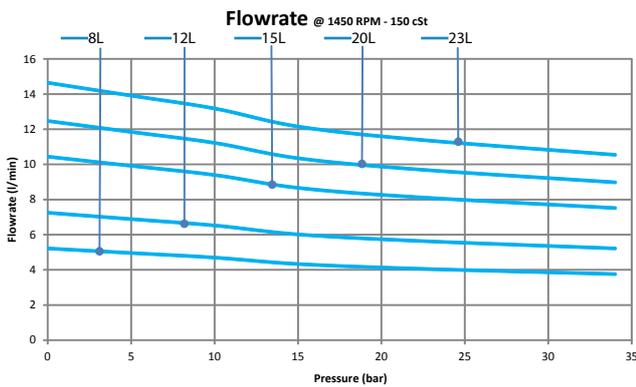
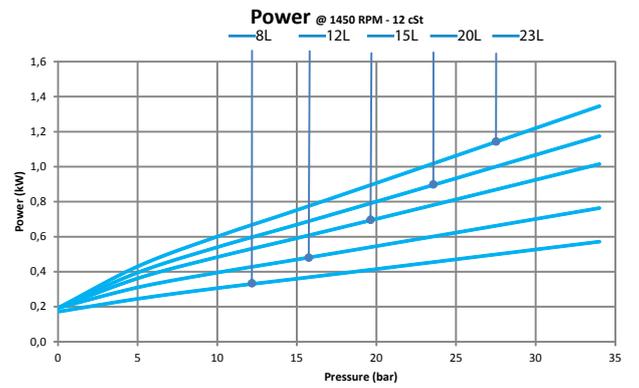
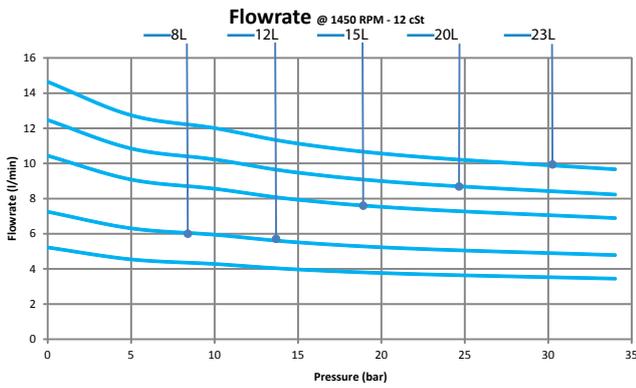
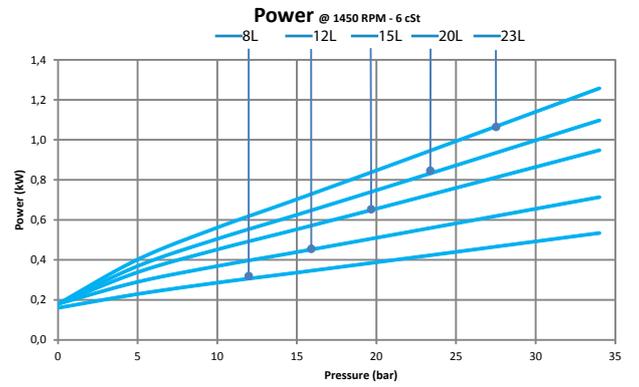
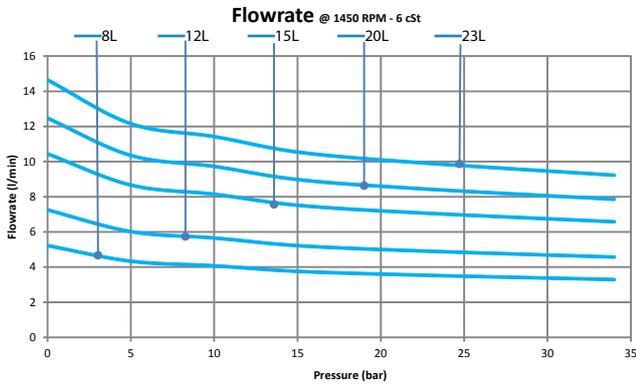
\*\*\* For rotation counter clockwise, please contact Settima. Per rotazione antioraria contattare Settima.

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

# GR20 Performance @1450 rpm

## FLOWRATE (L/min)

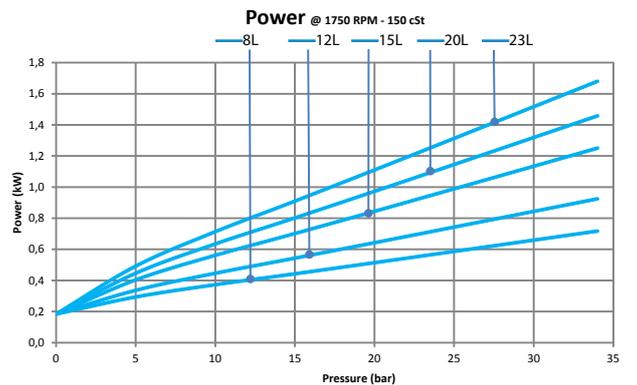
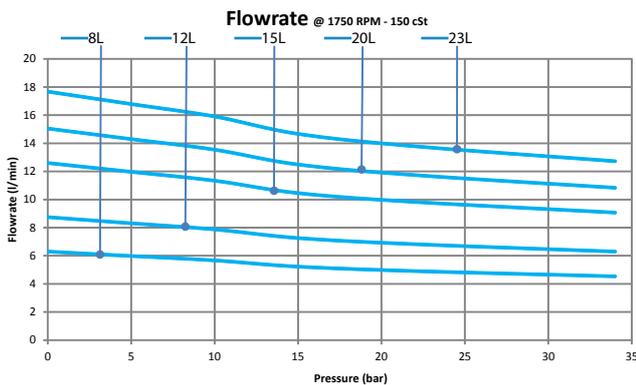
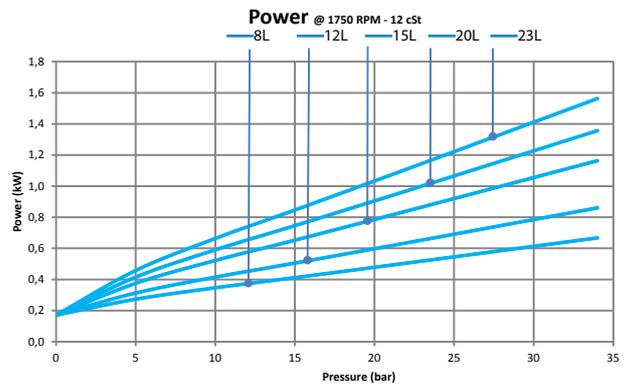
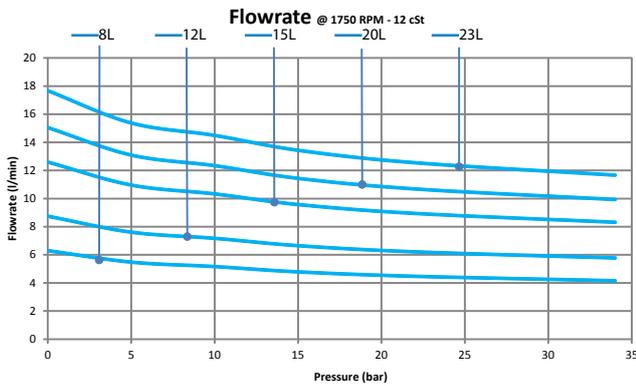
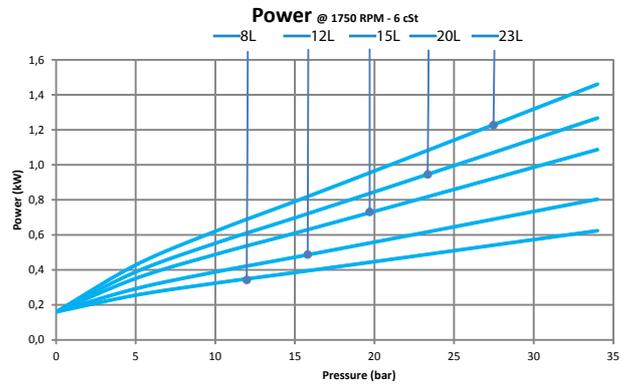
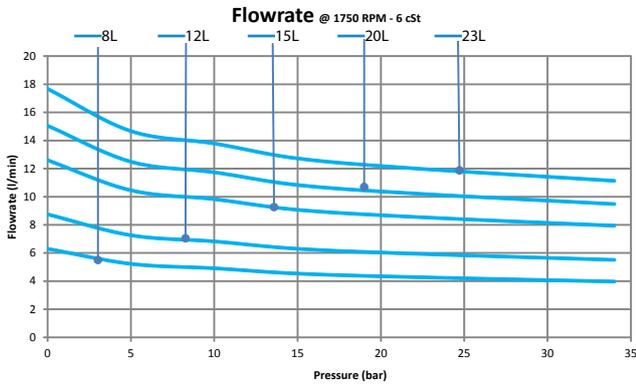
## POWER (Kw)



# GR20 Performance @1750 rpm

## FLOWRATE (L/min)

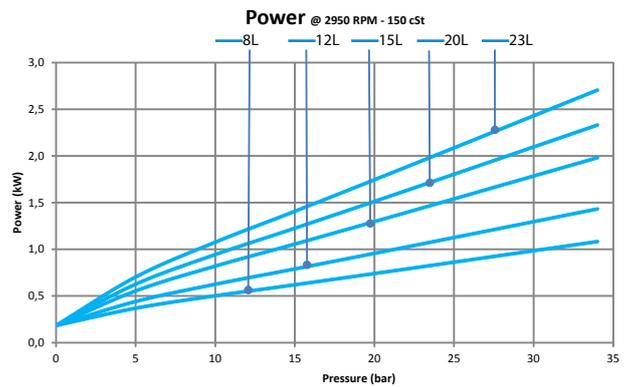
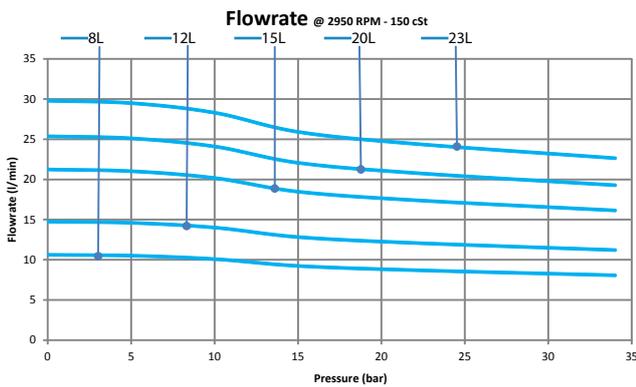
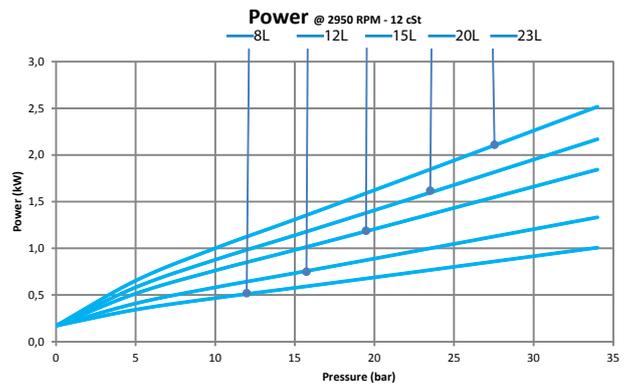
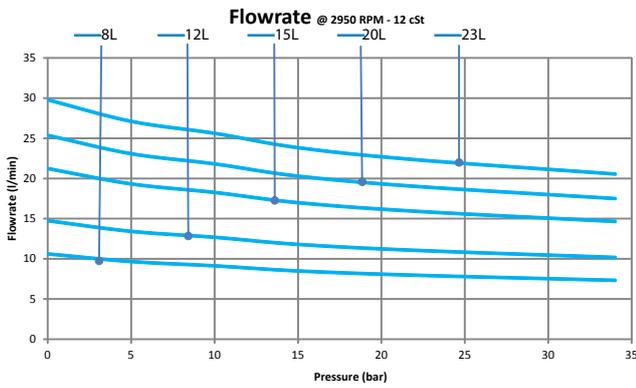
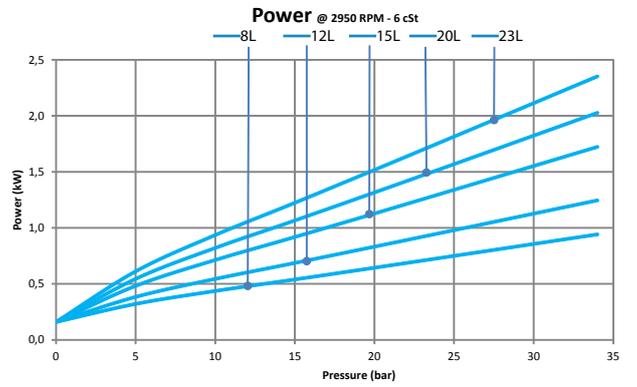
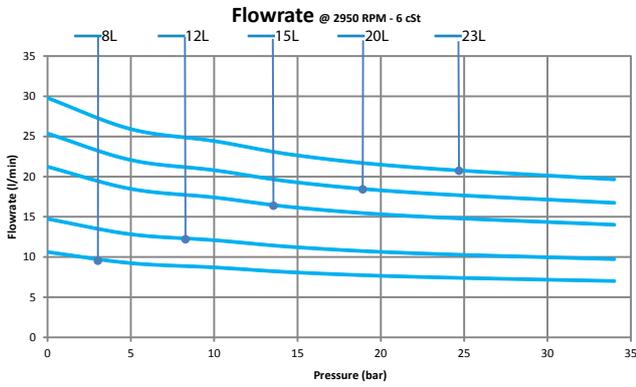
## POWER (Kw)



# GR20 Performance @2950 rpm

## FLOWRATE (L/min)

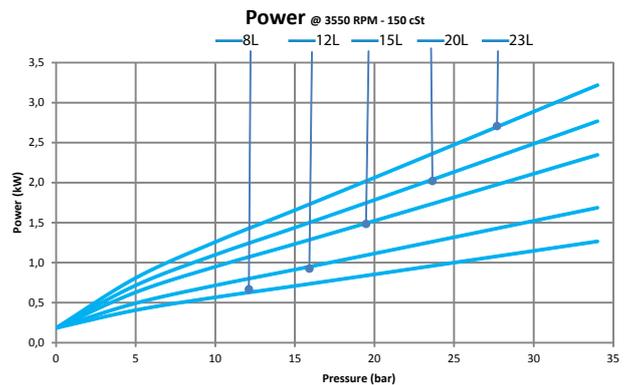
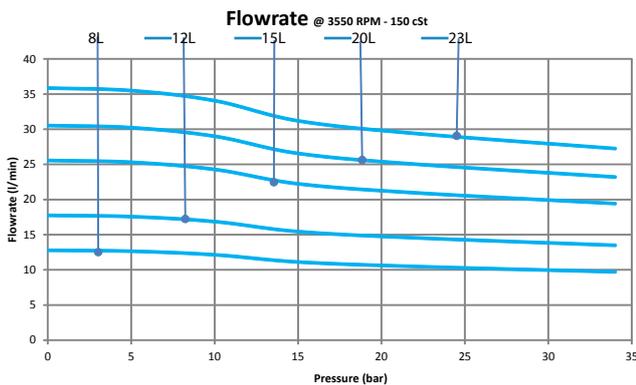
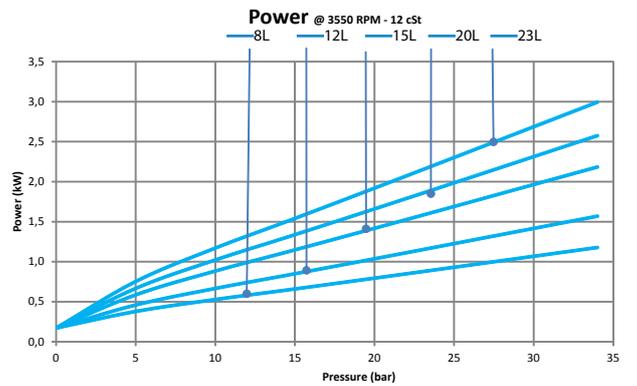
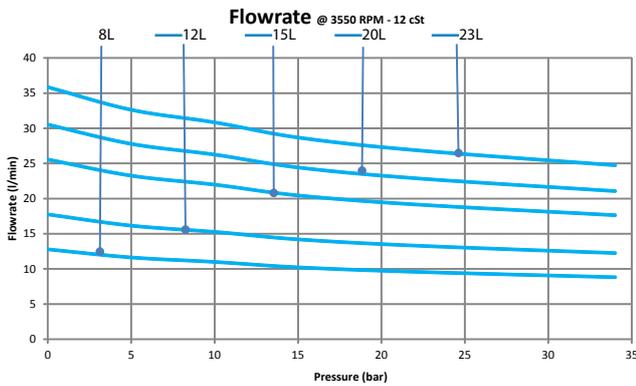
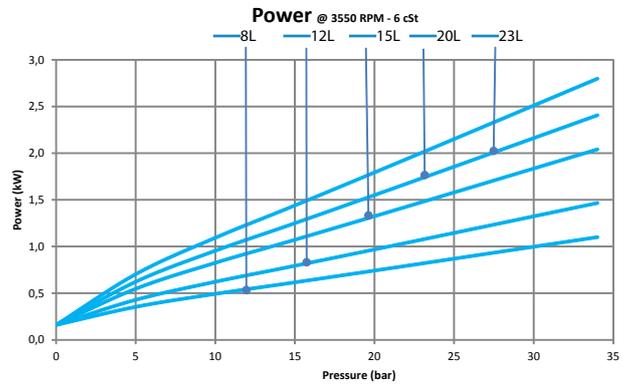
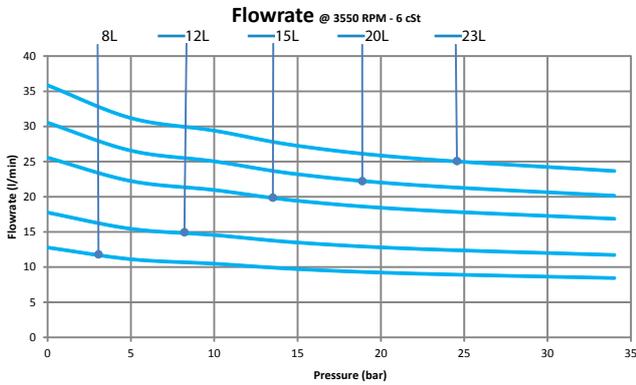
## POWER (Kw)



# GR20 Performance @3550 rpm

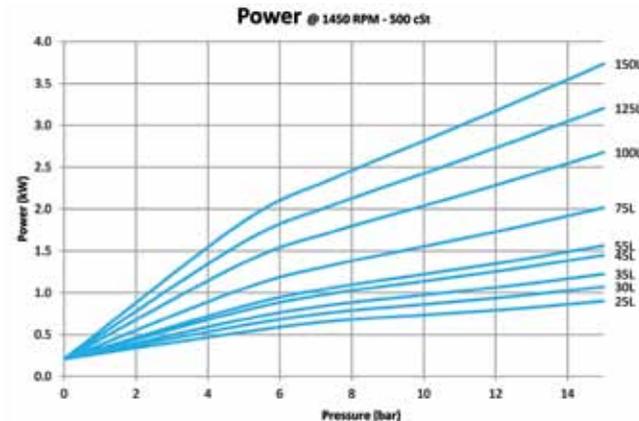
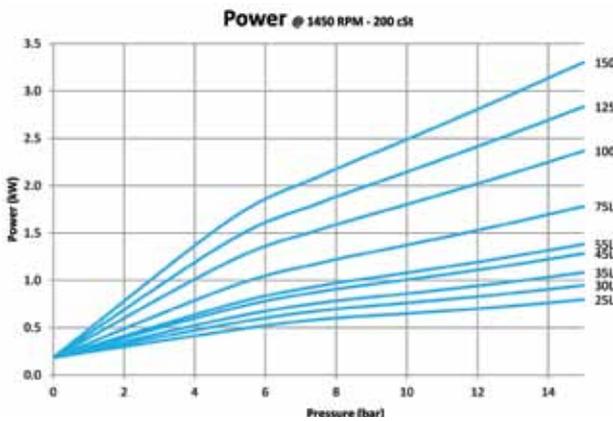
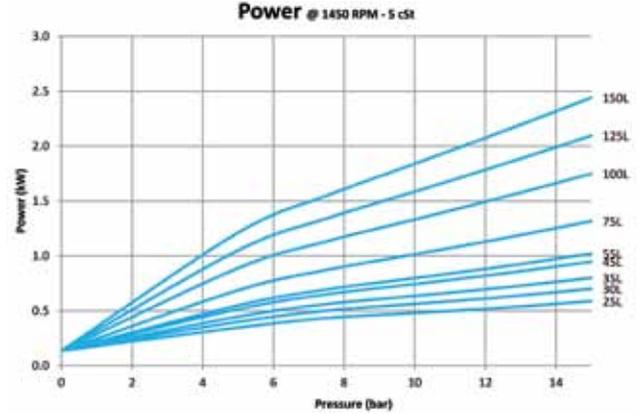
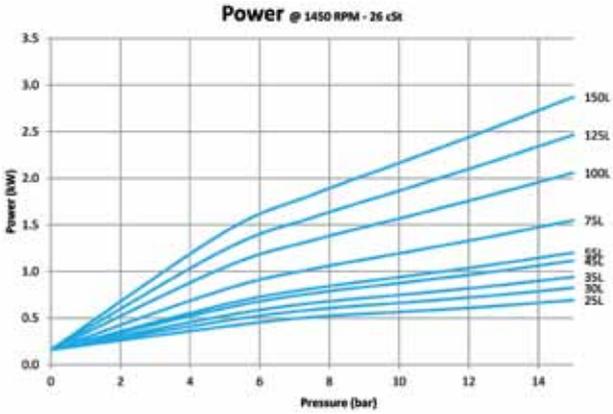
## FLOWRATE (L/min)

## POWER (Kw)

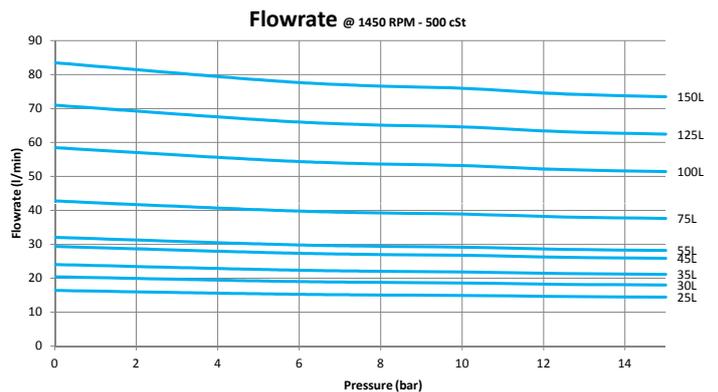
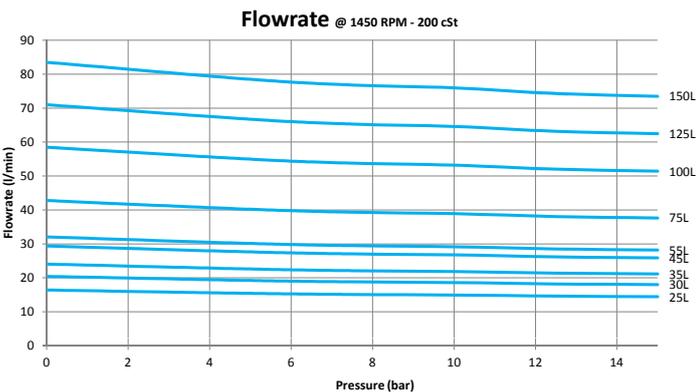
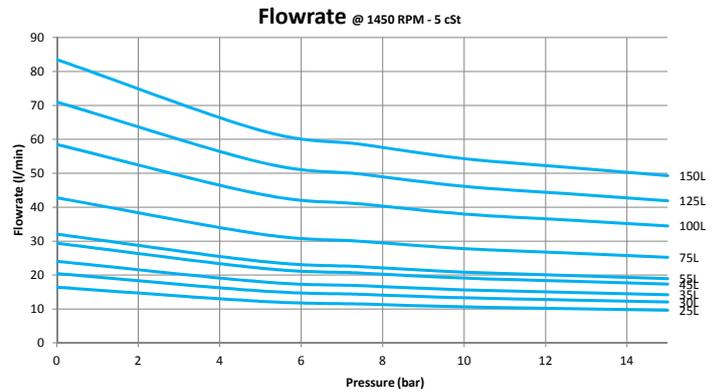
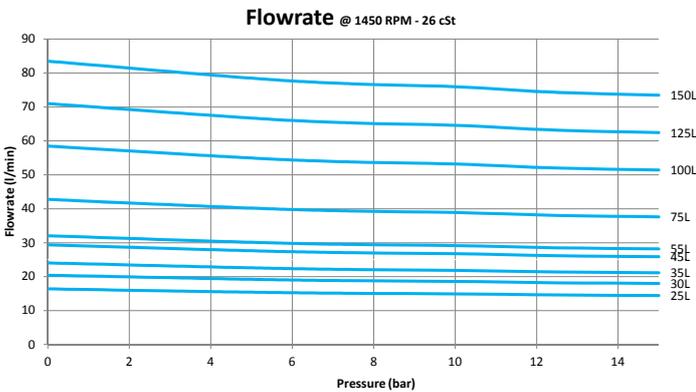


# GR25-32-40 Performance @1450 rpm

## POWER (Kw)

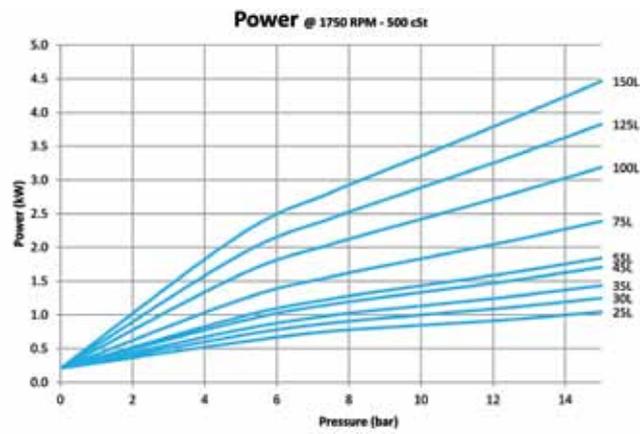
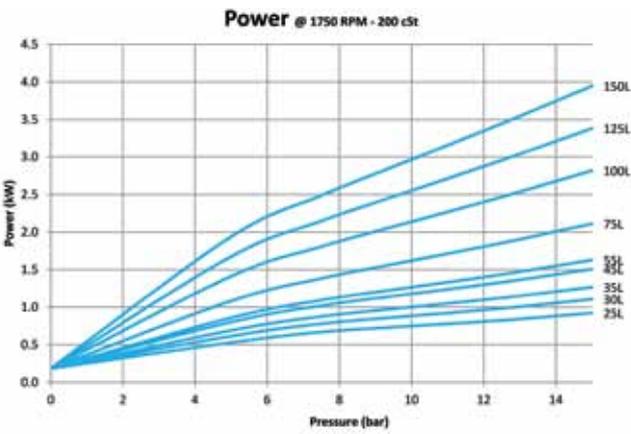
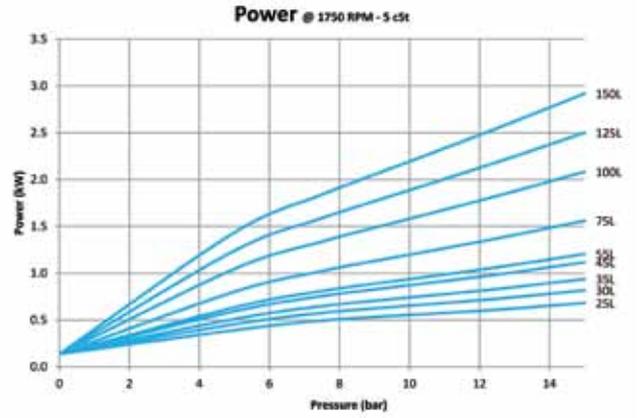
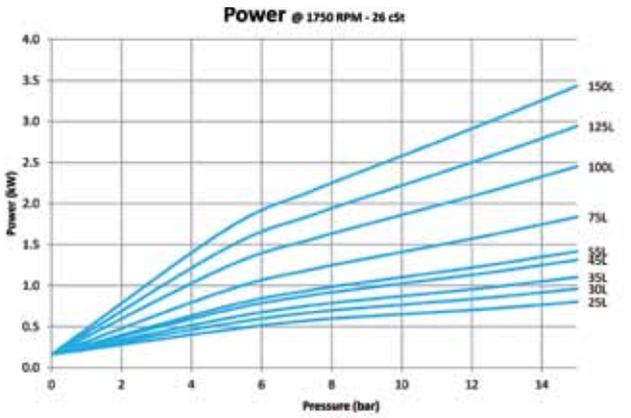


## FLOWRATE (L/min)

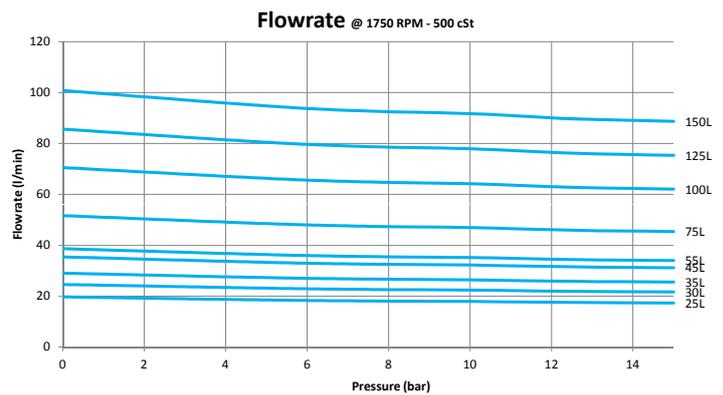
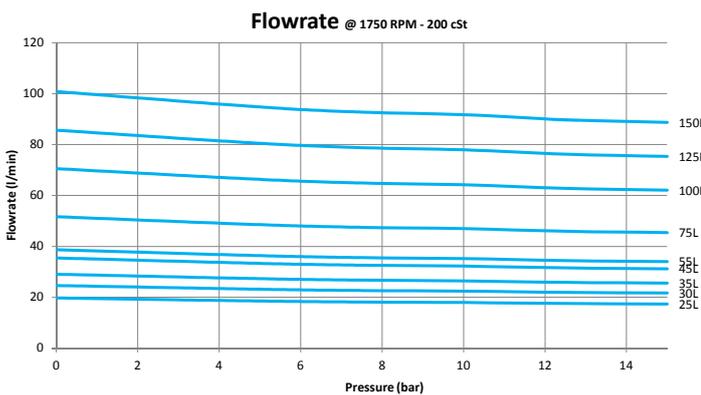
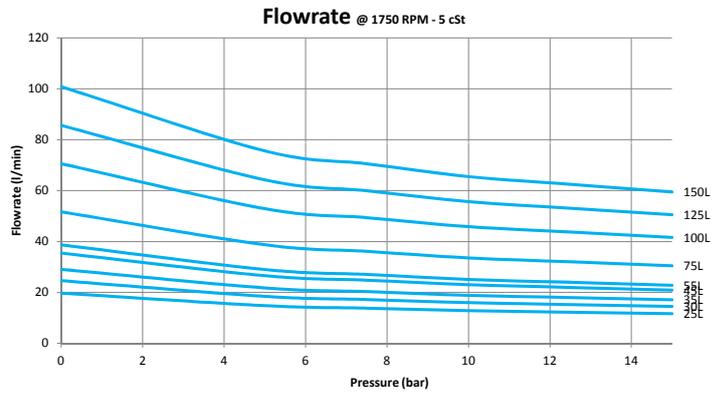
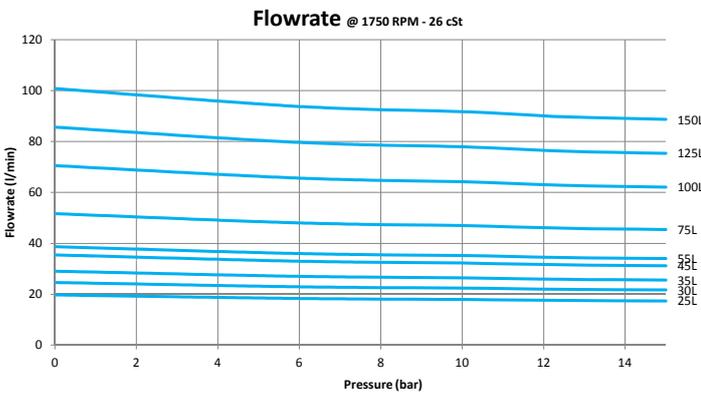


# GR25-32-40 Performance @1750 rpm

## POWER (Kw)

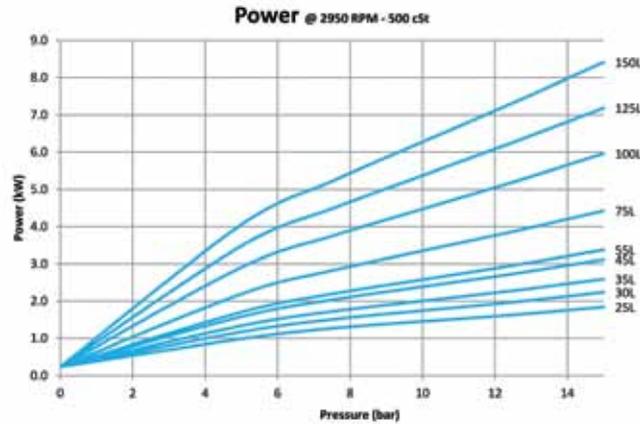
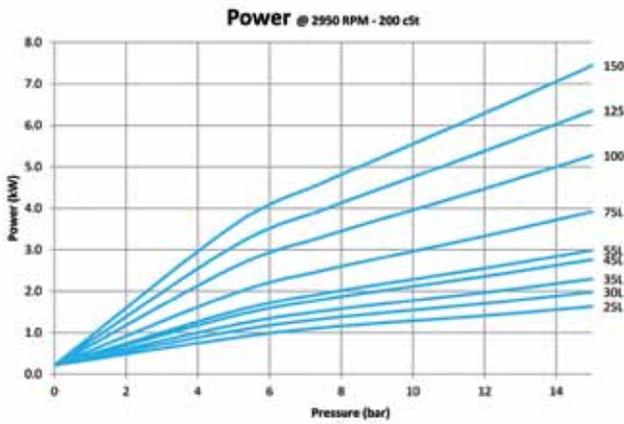
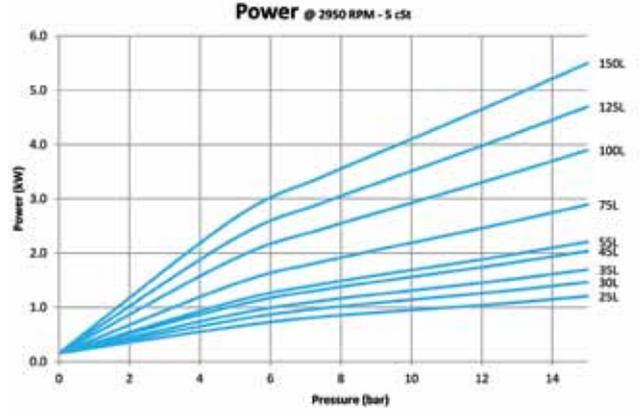
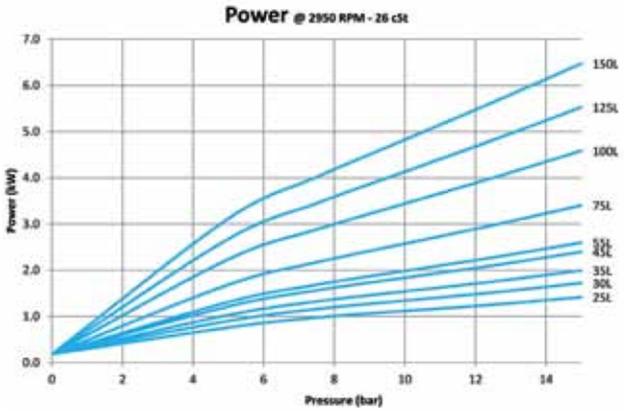


## FLOWRATE (L/min)

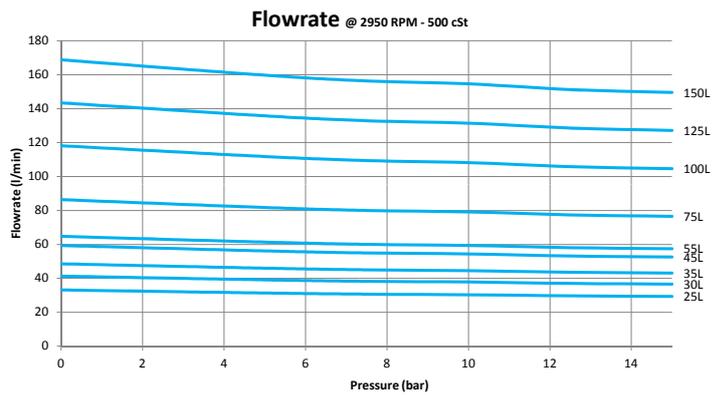
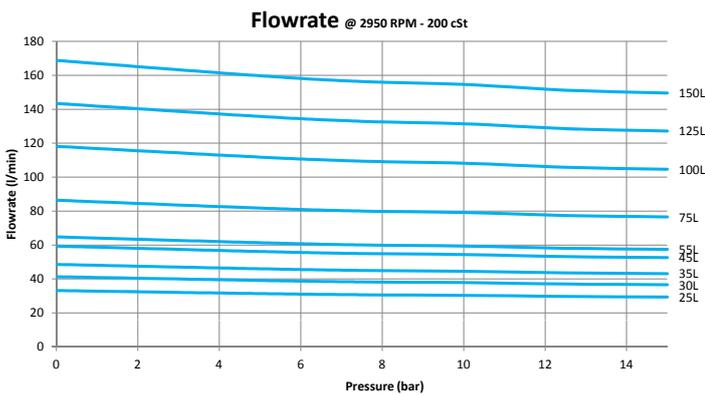
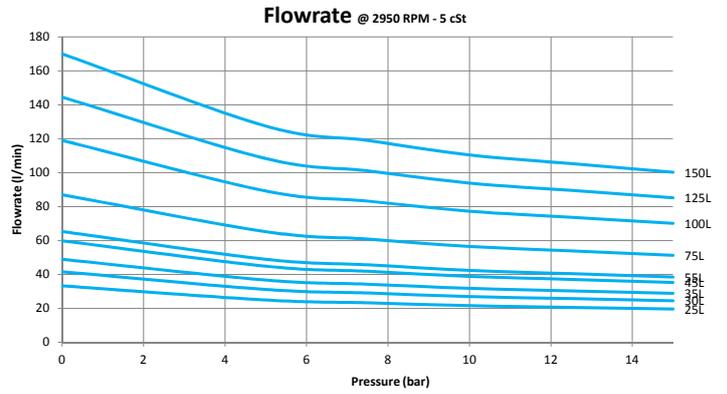
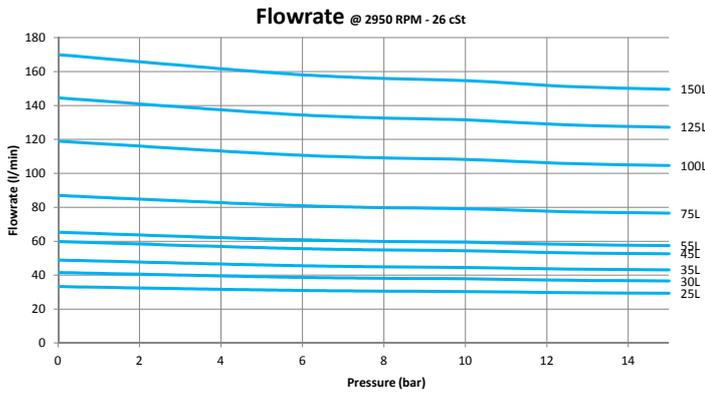


# GR25-32-40 Performance @2950 rpm

## POWER (Kw)

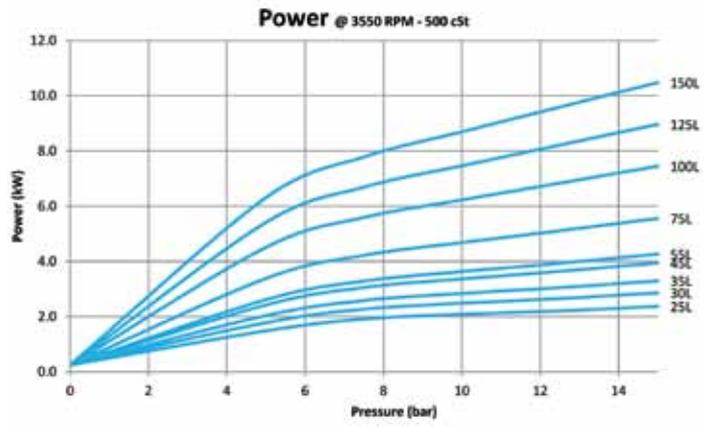
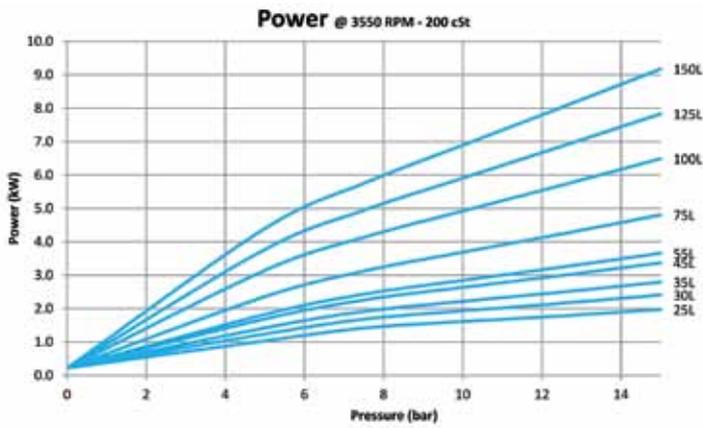
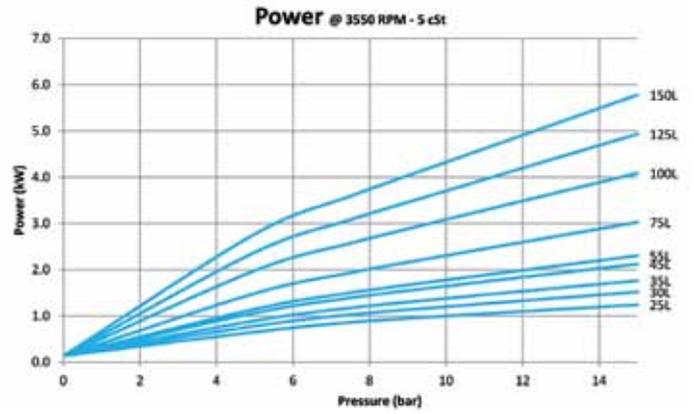
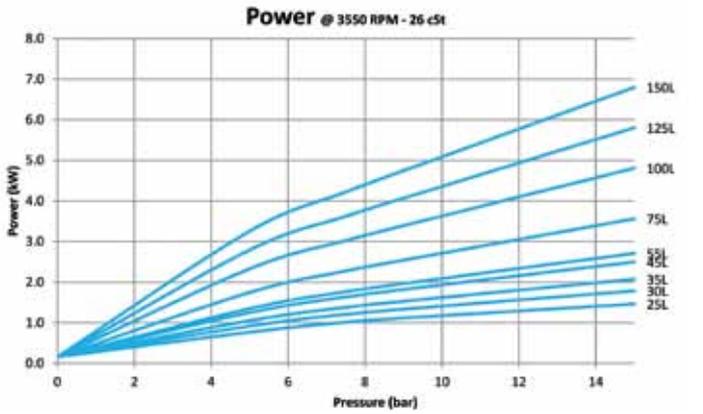


## FLOWRATE (L/min)

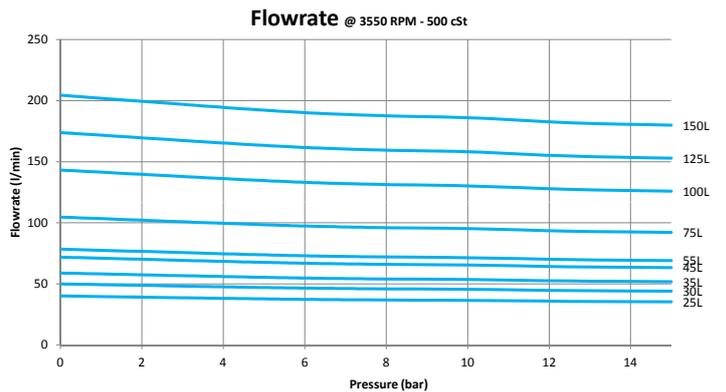
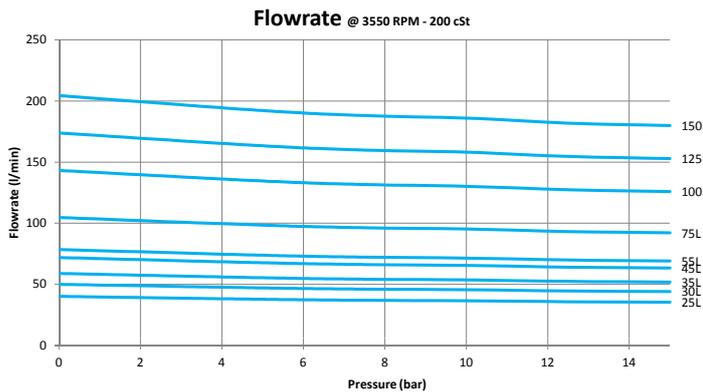
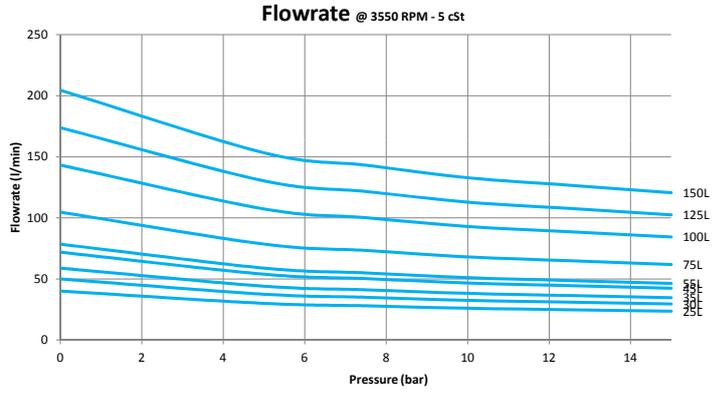
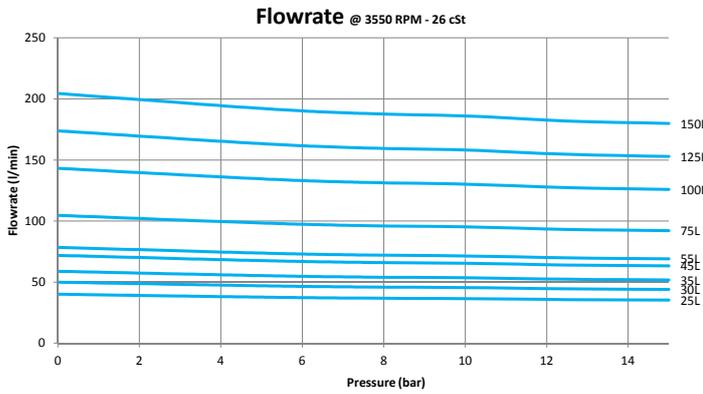


# GR25-32-40 Performance @3550 rpm

## POWER (Kw)



## FLOWRATE (L/min)



## Application form

For eventual requests of quotation and if not using the ordering code table (pag. 16), please use this application form. / Nel caso di richiesta di offerta si prega di inviare l'applicazione form a Settima.

Customer:						
Project number or name:						
<b>FIELD (select the right one):</b>			<b>APPLICATION (select the right one):</b>			
Industrial			Lubrication		Boosting	
Marine			Fuel transfer		Other:	
Oil & Gas			Filtration			
Other:			Cooling			
<b>PUMP TYPE (select the right one):</b>						
SMT16B		FOTP		SMAPI (API 676 compliant)		
SMT		Continuum		Other:		
SFO		2VHL				
<b>INSTALLATION</b>						
Horizontal/vertical:						
Above liquid level:		[m]				
<b>FLUID DATA</b>						
Type / name of fluid:						
Fluid neatness (filtration, contamination)		micron		NAS		
Temperature (min,normal,max):		[°C]		[°C]		[°C]
Viscosity (max,normal,min):		[cSt]		[cSt]		[cSt]
<b>APPLICATION DATA</b>						
Flow (min, design):		[l/min]				[l/min]
Discharge pressure (normal, design):		[bar]				[bar]
Suction pressure (normal, design):		[bar]				[bar]
<b>ELECTRICAL MOTOR</b>						
To be supply by Settima (yes, no):						
Driving coupling (select the right one):		[Elastic standard]		[Steel Laminae + 5" Spacer compliant API676]		
Other coupling requirements :						
Rated speed:		[rpm]				
Power:		[kW]				
Frequency:		[Hz]				
Other motor requirement (ATEX, ...):						
Other motor requirement (painting, ...):						
<b>PUMP OPTIONS</b>						
Rotation direction (select the right one)		[CW standard]		[CCW]		
Safety relief valve:						
Mechanical seal requirements:						
Screw set material requirements:						
Pump body material requirements:						
Pump certifications required:						
Pump test required:						
External pump case painting required:						
Other pump parts painting required (i.e. foot, ..):						

**SETTIMA**

**Settima, Italy**

Headquarter, r&d and production

**SETTIMA**

USA  
Warehouse

**SETTIMA**

ASIA Ltd.  
Sales Office



**Settima Meccanica Srl**

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**SETTIMA**  
research & innovation, always

FEB2015

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