

TECHNOLOGY IN MOTION



SLN Series

Long life, compact three screw pumps for fuel
and lube oil handling (HFO, MDO, MGO, LSD)



INDUSTRIAL



SHIPBUILDING&OFFSHORE



CHEMICAL&PETROCHEMICAL



Three screw pumps

Three screw pumps represent the largest class of multiple screw pumps in service today. No matter the applications and the environmental conditions, three screw pump is the most flexible pump on the market. Well known to be very reliable, at reasonable cost, virtually pulsation-free flow, very low acoustic emissions, three screw pumps are extensively used in meeting the requirements of oil & gas, chemical, marine, industrial, mobile, alternative energy, food processing, paper, power gen, pharmaceutical and many other industries. Three screw pumps represent one of the most used pumps all over the world after thirty five years of experience.

Le pompe a tre viti

Le pompe a tre viti, oggi, rappresentano la classe di pompe a viti maggiormente utilizzate, indipendentemente dal tipo di applicazione e dalle condizioni ambientali, in quanto sono le più flessibili sul mercato. Sono considerate le più affidabili, a prezzi ragionevoli, e raggiungono bassissimi livelli di emissioni acustiche e assenza di vibrazioni nella trasmissione del flusso. Le pompe a tre viti sono ampiamente utilizzate in quanto rispettano i requisiti di settori quali oil & gas, chimico, navale, mobile, agroalimentare, power generation ed energie alternative, industria della carta, industria farmaceutica e molte altre. Le pompe a tre viti sono tra le più usate in tutto il mondo e vantano oltre trent'anni di esperienza.

No pulsation – smooth flow. Low noise

SLN three screw pumps are designed to avoid any pulsation, to ensure a smooth operation and to reduce to the lowest level the acoustic emissions, reducing all costs of second noise reduction measures. The pulsation-free flow of **SLN** pumps, allows Settima screw pumps also in output condition management critical to applications such as precision hydraulic controls and fuel metering.

Flusso omogeneo – Nessuna pulsazione. Basse emissioni acustiche

*Le pompe a tre viti della serie **SLN** sono progettate per eliminare le pulsazioni, assicurare un funzionamento omogeneo e ridurre al minimo le emissioni acustiche, riducendo in questo modo i costi legati alla necessità di ricorrere a misure secondarie per la riduzione del rumore. Il flusso privo di pulsazioni delle pompe **SLN**, permette l'applicazione delle pompe Settima anche in condizioni critiche, come ad esempio idraulica di precisione, dosaggio e misurazione di carburanti.*

Magnetic coupling sealless leakage free pumps - FGM option

SLN pump can be equipped with a magnetic coupling if required. The hermetically sealed magnetic coupling is a permanent magnetic synchronous coupling able to transmit torque through magnetic forces between the internal and external rotor. 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 avoids any serious leaking. The magnetic coupling is the containment shroud that is fixed to the driven sided power unit and separates internal and external rotor from each other. Due to the absence of mechanical connection the vibrations torque transmission are very low, with completely leak-proof separation of product and atmosphere. The magnetic coupling is used to ensure no media leaking or when working in environments with potentially explosive atmospheres.



Giunto magnetico senza tenute rotanti assenza di perdite garantita - Opzione FGM

*Le pompe **SLN** possono, su richiesta, essere dotate di giunto magnetico. Il giunto magnetico permette di sigillare l'accoppiamento che trasmette la coppia tra il rotore interno ed esterno tramite forza magnetica. Con l'applicazione del giunto magnetico, l'elemento di trasmissione e quello condotto sono ermeticamente separati. In caso di fluidi pericolosi, il giunto magnetico garantisce una tenuta affidabile che impedisce perdite. Il giunto magnetico consiste nella copertura fissata sull'elemento condotto che separa il rotore interno da quello esterno. Grazie all'assenza di connessioni meccaniche, le vibrazioni dovute alla trasmissione di potenza sono molto ridotte, senza possibilità di contaminazione dell'atmosfera da parte del fluido e viceversa. Il giunto magnetico è utilizzato per prevenire in modo sicuro perdite in ambienti con atmosfera potenzialmente esplosiva.*

Technical characteristics / Caratteristiche tecniche

Types <i>Tipi</i>	Dry or submerged <i>Esterno o sommerso</i>	
Models / <i>Modelli</i>	20 – 25 – 32 – 40 – 45 – 55 – 60 – 70	
Installation <i>Installazione</i>	Free or submerged (totally or partially) <i>Libera o sommersa (parzialmente o completamente)</i>	
Flanges / <i>Flange</i>	ISO 3019/2	
Connections / <i>Connessioni</i>	ISO 7500 PN 16/40	
Drive loading <i>Carichi</i>	No axial or radial loads <i>Nessun carico assiale o trasversale</i>	
Shaft rotation <i>Rotazione albero</i>	Clockwise (from shaft end) , (suitable also for counter clockwise rotation) <i>Destra (disponibile anche per rotazione sinistra)</i>	
Shaft speed <i>Velocità di rotazione</i>	From 500 to 3.600 rpm ⁽¹⁾ <i>Da 500 a 3.600 rpm⁽¹⁾</i>	
Flows <i>Portate</i>	From 4 up to 800 L/min <i>Da 4 a 800 L/min</i>	
Outlet Pressure <i>Pressione di mandata</i>	Up to 40 bar <i>Fino a 40 bar</i>	
Inlet Pressure <i>Pressione in aspirazione</i>	Min. -0.7 bar max. 3 bar ⁽²⁾ <i>Min. -0.7 bar max. 3 bar⁽²⁾</i>	
Fluids ⁽³⁾ <i>Fluidi⁽³⁾</i>	- Mineral oil HLP e HVLP - Ecologic fluids HETG, HEPG, HEE - Synthetic fluid or emulsion: HFA oil-water emulsion, HFB water-oil emulsion 40% of volume, HFC water/glycole – water max 35 to 55%, HFDR phosphate ester - Lubrication high viscosity oils - Special synthetic fluid: MIL-H, SKYDROL, - Fuel oil: MGO, MDO, Low sulfur LSD and HFO - DMX (ISO8217), DMA, DMB, DMC, DMZ - Bunker oil, furnace oil, engines oil, heating oil, hydraulics oils DIN 51524	- Oli minerali HLP e HVLP - Fluidi ecologici HETG, HEPG, HEE - Fluidi sintetici o emulsioni: HFA emulsione olio-acqua, HFB emulsione acqua-olio 40% dl volume, HFC acqua/glicole – acqua max 35 to 55%, HFDR phosphate ester - Olio ad alta viscosità per lubrificazione - Fluidi speciali sintetici: MIL-H, SKYDROL, - Fuel oil: MGO, MDO, Basso livello di zolfo LSD e HFO - DMX (ISO8217), DMA, DMB, DMC, DMZ - Bunker oil, furnace oil, olio per motori, heating oil, olio idraulico DIN 51524
Viscosity <i>Viscosità</i>	From 1 up to 10.000 cSt ⁽⁴⁾ <i>Da 1 fino a 10.000 cSt⁽⁴⁾</i>	
Seals polymer (shaft, O-ring) <i>Polimero guarnizioni (albero, anello di tenuta)</i>	NBR, FKM, EPDM ⁽⁵⁾	
Seal type <i>Tipo di guarnizioni</i>	TM, TMK, TMZ, FGM	
Acoustic Emissions <i>Emissioni Acustiche</i>	From 52 up to 68 db(A) at 2.950 rpm value based on ISO 4412 test procedure <i>Da 52 fino a 68 db(A) a 2.950 rpm (ISO 4412 test)</i>	
Pump body <i>Corpo pompa</i>	Cast iron EN-GJL-250, EN-GJS-400-15 <i>Ghisa EN-GJL-250, EN-GJS-400-15</i>	
Pump body (special applications) <i>Corpo pompa (applicazioni speciali)</i>	Cast iron, steel. Hardened steel and stainless steel available on request <i>Ghisa, acciaio. Acciaio temprato e acciaio inox su richiesta.</i>	
Screws <i>Viti</i>	Steel for main screw , idler cast iron <i>Acciaio vite principale, ghisa viti secondarie</i>	
Screws (special applications) <i>Viti (applicazioni speciali)</i>	Core hardened steel screws, surface treated screws <i>Viti in acciaio temprato, viti trattate superficialmente</i>	
Environment temperature <i>Temperatura ambiente</i>	From -50° up to +60°C <i>Da -50° a +60°C</i>	
Hydraulic Temperature <i>Temperatura olio</i>	From -50°C up to +300°C <i>Da -50°C a +300°C</i>	
Filtration <i>Filtrazione</i>	Permissible degree of fluid contamination NAS to 1638 class 10 or ISO DIS 4406 – 19/16. Recommended filtration $\beta_{25} \geq 75$. <i>Contaminazione NAS tipo 1638 classe 10 o ISO DIS 4406 – 19/16 . Filtrazione raccomandata $\beta_{25} \geq 75$.</i>	

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(1) For shaft speed lower than 1.000 rpm and over 1.800 rpm please contact Settima. Per velocità inferiori a 1.000 rpm e maggiori di 1.800 rpm contattare Settima.

(2) For higher pressure please contact Settima. Per pressioni maggiori contattare Settima.

(3) For request of different fluids please contact Settima. Per l'utilizzo di diversi fluidi contattare Settima.

(4) For level of viscosity lower than 20 cSt and over 320 cSt please contact Settima. Per livelli di viscosità inferiori a 20 cSt e superiori a 320 cSt contattare Settima.

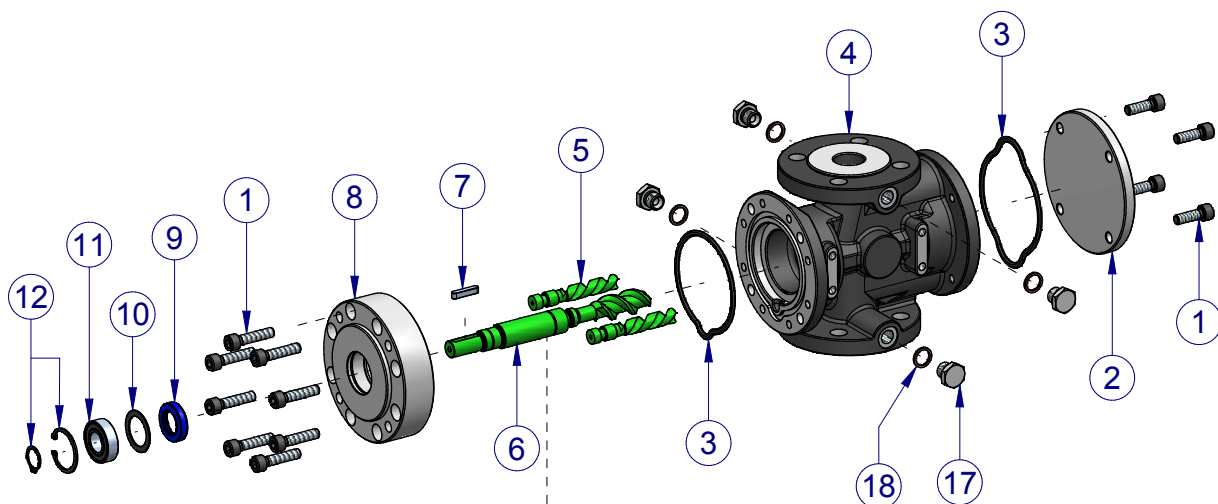
(5) For special seals, contact Settima. Per tenute speciali, contattare Settima.

Product description / Descrizione prodotto

DIFFERENT COMBINATIONS OF SLN PUMP DIFFERENTI COMBINAZIONI DELLA POMPA SLN

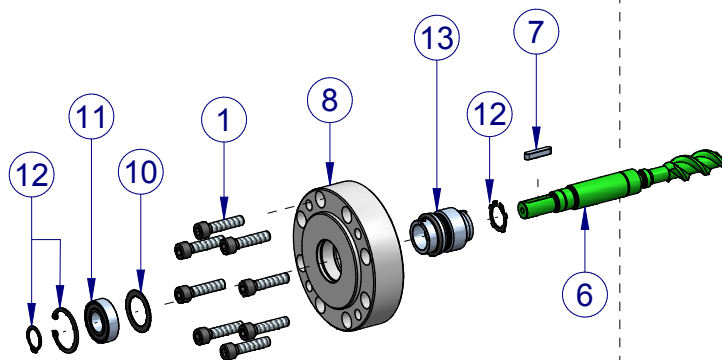
A

LIP SEAL TENUTA A LABBRO



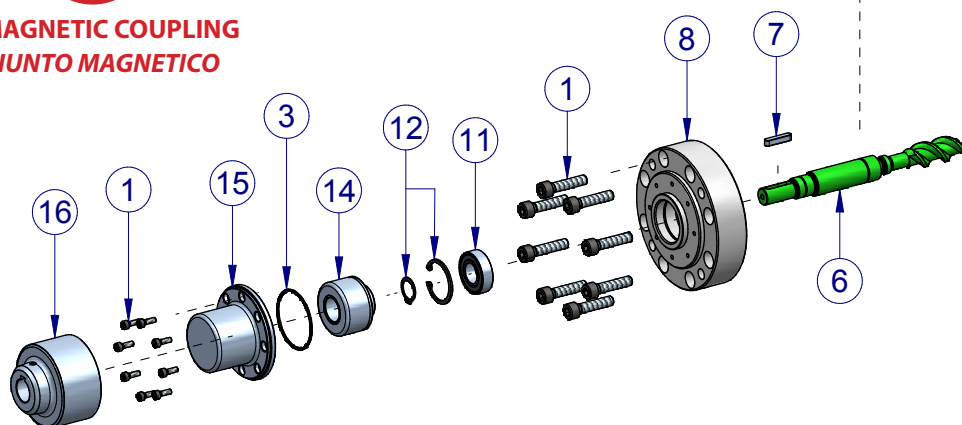
B

MECHANICAL SEAL TENUTA MECCANICA



C

MAGNETIC COUPLING GIUNTO MAGNETICO

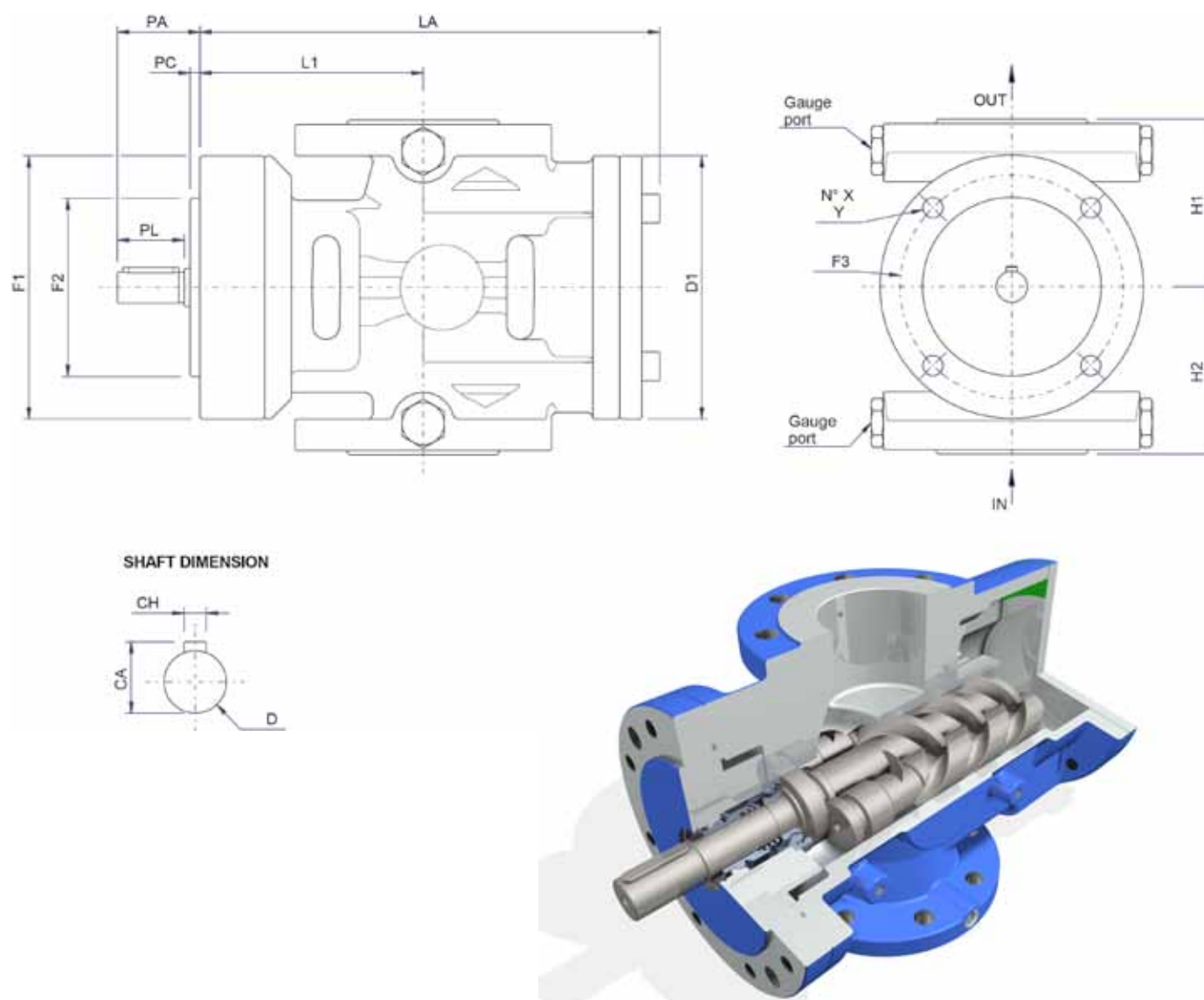


Product description / Descrizione prodotto

Shaft and seal options / Opzioni alberi e tenute

N°	Parts description / Descrizione componenti	Material / Materiale
1	Screw / Vite	Common components
2	Back flange / Flangia di chiusura	Common components
3	O-ring / Anello O-ring	Common components
4	Pump body / Corpo pompa	Common components
5	Idler screw / Vite laterale	Common components
17	Plug / Tappo	Common components
18	Seal / Guarnizione	Common components
A	LIP SEAL / TENUTA A LABBRO	
6	Main screw / Vite centrale	Common components
7	Key / Linguetta	Common components
8	Flange / Flangia	Common components
1	Screw / Vite	Common components
9	Lip seal / Anello di tenuta a labbro	Common components
10	Washer / Rondella	Common components
11	Ball bearing / Cuscinetto	Common components
12	Seeger	Common components
B	MECHANICAL SEAL - TM OPTION / TENUTA MECCANICA - OPZIONE TM	
6	Main screw / Vite centrale	Common components
7	Key / Linguetta	Common components
12	Seeger	Common components
13	Mechanical seal / Tenuta meccanica	Common components
8	Flange / Flangia	Common components
1	Screw / Vite	Common components
10	Washer / Rondella	Common components
11	Ball bearing / Cuscinetto	Common components
12	Seeger	Common components
C	MAGNETIC COUPLING - FGM OPTION / GIUNTO MAGNETICO - OPZIONE FGM	
6	Main Screw / Vite centrale	Common components
7	Key / Linguetta	Common components
8	Flange / Flangia anteriore	Common components
1	Screw / Vite	Common components
11	Ball bearing / Cuscinetto	Common components
12	Seeger	Common components
14	Internal rotor MC / Rotore interno MC	Common components
3	O-ring / Anello O-ring	Common components
15	Containment shroud MC / Cappuccio MC	Common components
1	Screw / Vite	Common components
16	External rotor MC / Rotore esterno MC	Common components

SLN pump - Dimensional drawings / Disegni dimensionali*



	Flange / Flangia						Shaft/Albero					Pump / Pompa						
Type/Tipò	ØF1	ØF2	ØF3	X	ØY	PC	PA	PL	CA	CH	ØD	LA	L1	D1	H1	H2	IN	OUT
GR20 SLN 8L-12L-15L-20L	118	80	100	4	9	4.5	37	30	16	5	14	206	100	118	75	75	DN25 PN40	DN25 PN40
GR25 SLN 25L-30L	118	80	100	4	9	4.5	47	36	21.5	6	19	212	106	118	75	75	DN25 PN40	DN25 PN40
GR32 SLN 35L-45L-55L-75L	125	80	103	4	9	4.5	42.5	36	21.5	6	19	230	115	125	85	85	DN80 PN40	DN80 PN40
GR40 SLN 100L-125L-150L	158	100	140	4	13	4	42.5	36	21.5	6	19	285.5	135.5	160	110	110	DN50 PN40	DN50 PN40
GR45 SLN 180L-210L	160	100	125	4	11	4.5	42.5	55	35	10	32	301	150.5	160	110	110	DN80 PN40	DN80 PN40
GR55 SLN 250L-300L-330L-380L	200	125	160	4	14	4.5	61.5	55	35	10	32	312	156	200	125	125	DN80 PN40	DN80 PN40
GR60 SLN 440L-500L	200	135	175	4	13	4	61.5	55	35	10	32	362	161	200	125	125	DN80 PN40	DN80 PN40
GR70 SLN 600L-660L-800L	236	160	200	4	18	4	61.5	55	35	10	32	436.5	182.5	236	135	135	DN100 PN16	DN100 PN16

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Applications

ENGINES & FUEL OIL SYSTEMS

Feed and booster pumps,
Transfer pumps,
Supply and waste oil pumps for transporting heavy and light oils,
All fluids with lubricity such as lube oil,
Fuel oil, waste and residual oil.



ROTATING MACHINERY

Lube oil, booster, seal oil,
Cooling and circulating pumps for diesel engines,
Compressors,
Gas, steam and water turbines,
Gears,
Refrigerating machinery,
Steel mill.



SHIPBUILDING & OFFSHORE INDUSTRY

Lube oil, transfer, cooling and circulating oil pumps,
Fuel pumps for diesel engines,
Compressors,
Gas and steam turbines,
cargo and unloading pumps.



CHEMICAL & PETROCHEMICAL

Oil filtration & cooling
Oil and fuel oil lubrication
Oil rigs
Refineries (transport, meter and mix)
Petrochemical industry
Transfer service for all lubricating fluids e.g. lube oil, crude oil, tar, grease,
resin, adhesive and glycerin products.



Ordering code table / Tabella codici di ordinazione

Type <i>Tipo</i>	Model <i>Modello</i>	Nominal flow <i>Portata nominale</i>	High viscosity flag <i>Alta viscosità</i>	Pump body <i>Corpo pompa</i>	Pressure relief valve <i>Valvola di sicurezza</i>	Seals polymer (shaft, O-ring) <i>Polimero guarnizioni (albero, anello di tenuta)</i>	Screw treatment <i>Trattamento viti</i>	Seal type <i>Tipo di tenuta</i>	Rotation <i>Rotazione</i>	Installation <i>Installazione</i>	Bearing type <i>Tipo cuscinetto</i>
GR20	SLN	8L, 12L, 15L, 20L	Standard up to/ <i>fino a</i> 100 cSt (none)	Standard G (none) Optional GZ (for fluids under 5 cSt <i>per fluidi al di sotto dei 5 cSt</i>)	Standard No security valve <i>Nessuna valvola (none)</i>	Standard NBR (none)	Standard steel main screw cast iron idler screws <i>vite centrale in acciaio viti laterali in ghisa (none)</i>	Standard Lip seal (none)	Standard Clock- wise <i>destra (none)</i>	Standard (none)	Standard (none)
GR25		25L, 30L									
GR32		35L, 45L, 55L, 75L	Optional S1 ⁽¹⁾ from/ <i>da</i> 100 cSt to/a 250 cSt		Optional RP Internal bypass variable regulation valve <i>Valvola interna a regolazione variabile</i>	Optional V FKM E EPDM	Optional HA core hardened steel screws (available only with mechanical seal) <i>viti in acciaio temprato (solo con tenuta meccanica)</i> HD surface treated screws <i>viti trattate super- ficialmente</i>	Optional TM*** mechanical seal for oil TMK mechanical seal for water and glycole and coolant fluids TMZ mechanical seal for fuel oil FGM magnetic seal- less coupling	Optional SX counter clockwise <i>sinistra</i>	Optional PO Vertical pedestal mounting <i>Installazione verticale con pedistallo</i>	Optional CS encapsu- lated ball bearing <i>cuscinetto schermato</i>
GR40		100L, 125L, 150L									
GR45		180L, 210L									
GR55		250L, 300L, 330L, 380L									
GR60		440L, 500L									
GR70		600L, 660L, 800L									
		S2 ⁽¹⁾ from/ <i>da</i> 250 cSt to/a 500 cSt									
		S3 ⁽¹⁾ from/ <i>da</i> 500 cSt to/a 800 cSt									
		S4 ⁽¹⁾ over/ <i>oltre</i> 800 cSt									

(1) This option may reduce the efficiency of the pump.

(1) Questa opzione potrebbe ridurre l'efficienza della pompa.

Internal bypass variable regulation valve Valvola interna a regolazione variabile

Available for models / Disponibile per i modelli GR20, GR25, GR32, GR40, GR45, GR55, GR60, GR70

Exemple of code / Esempio di codice GR60 SLN 440L RP



Vertical pedestal mounting Installazione verticale con piedistallo

SLN pumps can be face or flange mounted in both horizontal or vertical installation. Also vertical pedestal mounting is available. Please, contact Settima for this option.

Le pompe SLN possono essere installate in posizione orizzontale o verticale. E' possibile anche installare le pompe in posizione verticale con piedistallo. Contattare Settima per questa opzione.

Exemple of code / Esempio di codice

GR60 SLN 440L PO



Samples application summary / Esempi possibili per applicazioni

Low pressure ⁽¹⁾ fluid applications <i>Applicazioni fluidi a bassa pressione ⁽¹⁾</i>	High viscosity configuration <i>Configurazione per elevate viscosità</i>	Body material <i>Materiale corpo</i>	Screw material <i>Materiale viti</i>	Seals <i>Tenute</i>	Bearing type <i>Tipo cuscinetto</i>
Diesel fuel, marine distillate fuel, marine residual fuel <i>Diesel, distillati marini, residui,</i>	-	*	HA	TMK	*
Heavy fuel oil transfer <i>Trasferimento di olio combustibile</i>	S	*	HD	TMK	*
Lube services high viscosity <i>Lubrificazione ad alta viscosità</i>	S	*	*	*/TM	*
Water glycolic emulsion (low % of water ⁽¹⁾) <i>Emulsioni acqua-glicole (bassa % di acqua ⁽¹⁾)</i>	-	*	HA	TMZ	CS
Low viscosity fuel oil (from 1 cSt) <i>Fuel oil a bassa viscosità (da 1 cSt)</i>	-	-	HA	TMZ	*

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⁽¹⁾ Contact Settima for high pressure applications. *Contattare Settima per applicazioni ad alta pressione.*

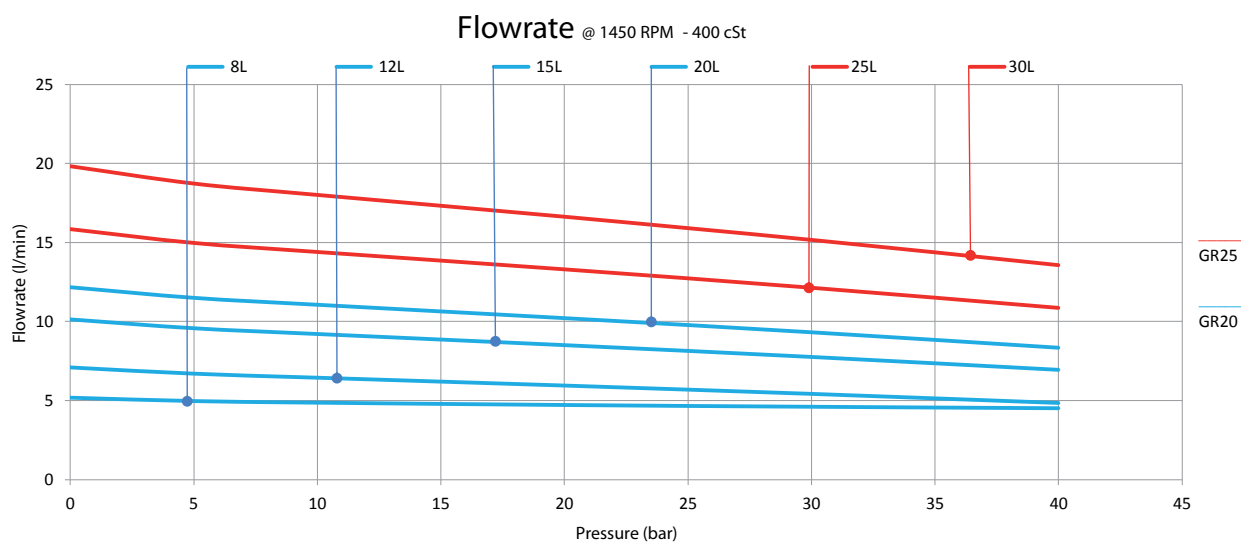
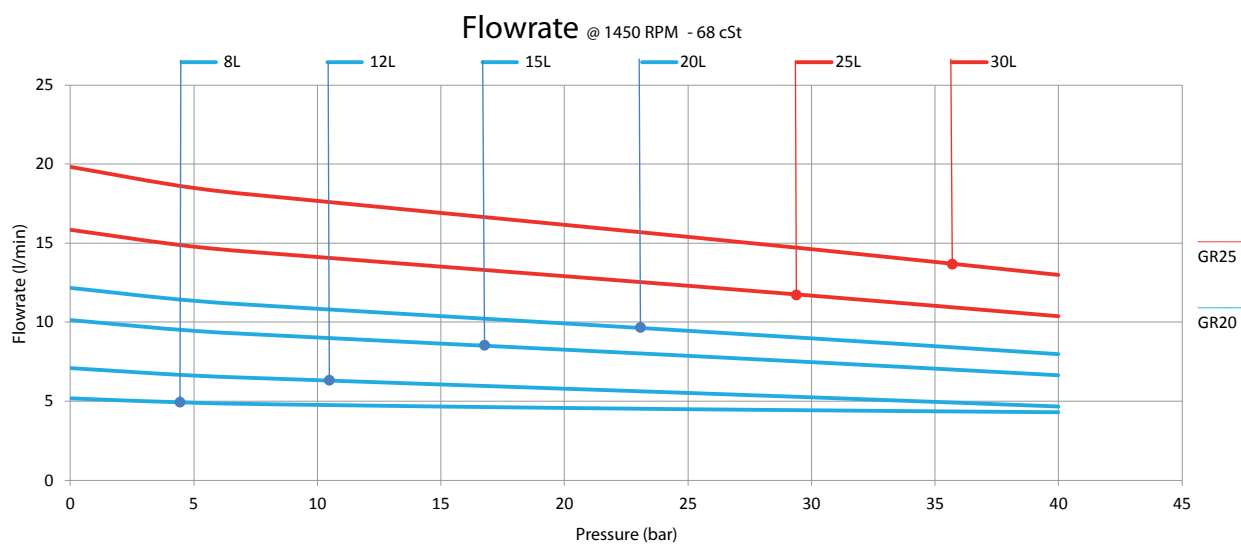
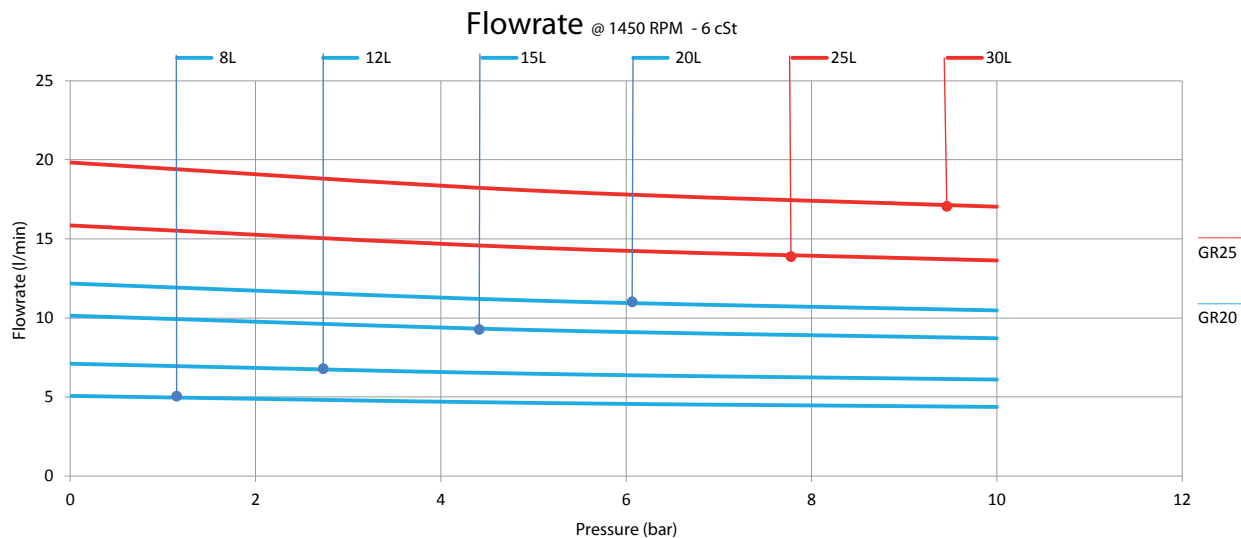
*Standard configuration and material. *Configurazione e materiali standard.*

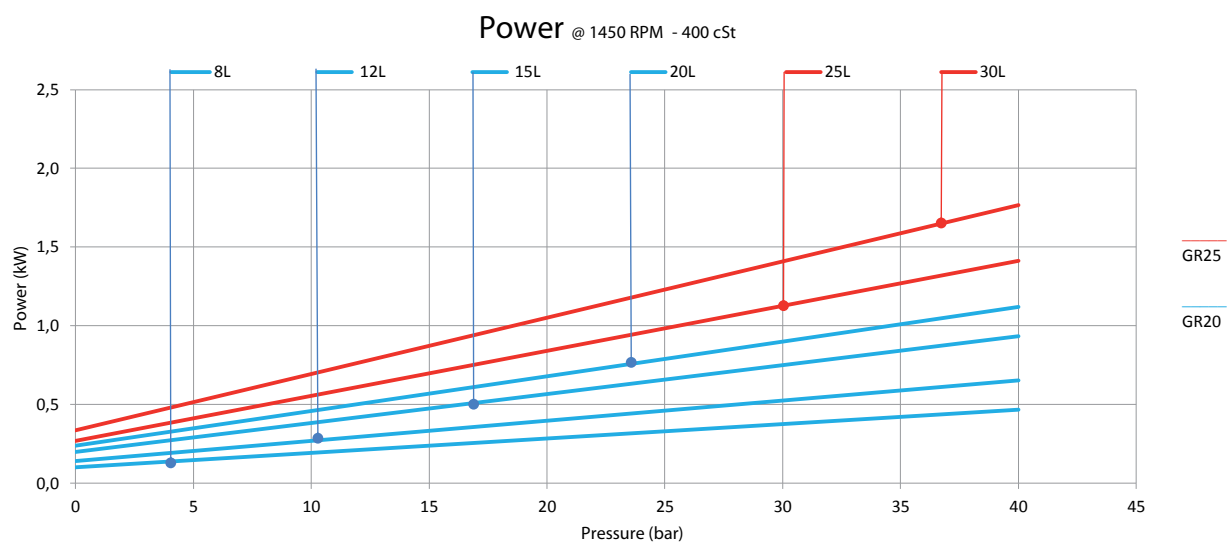
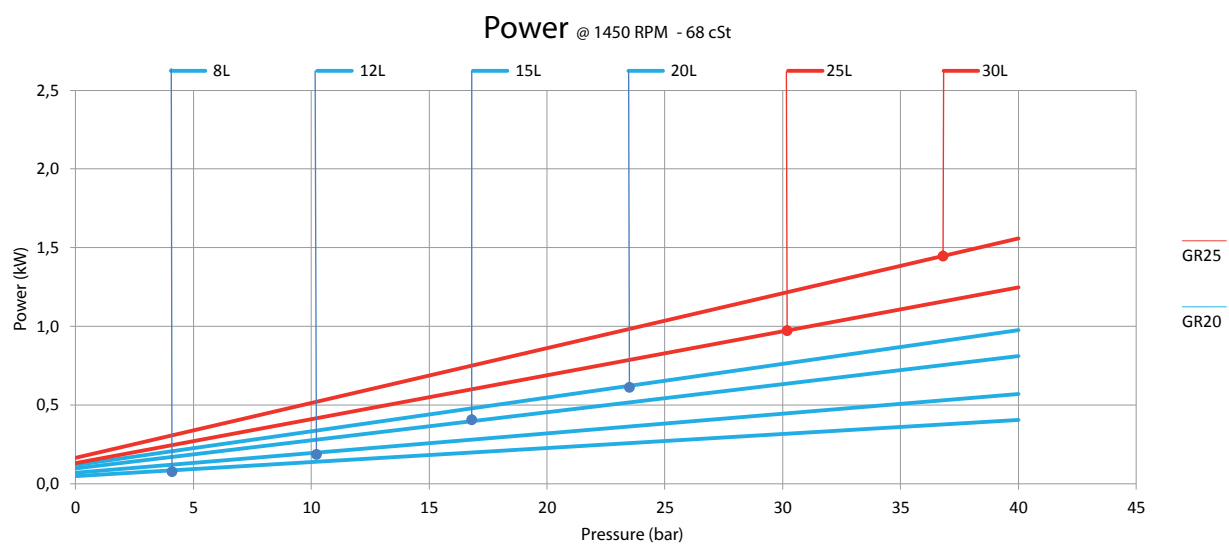
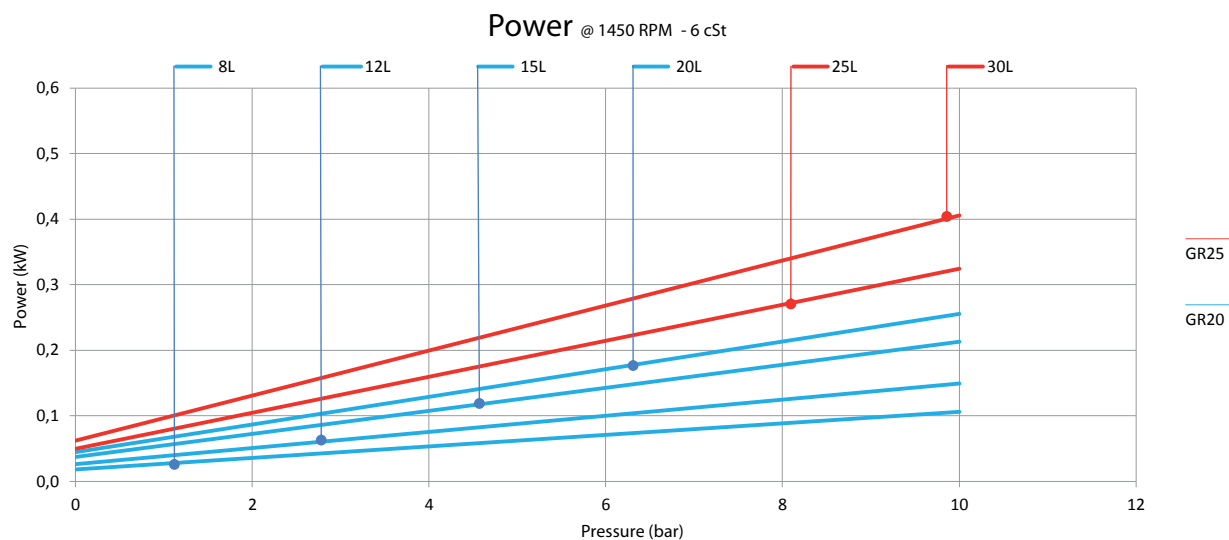
Example of code / Esempi di codice:

GR60 SLN 440L HD V

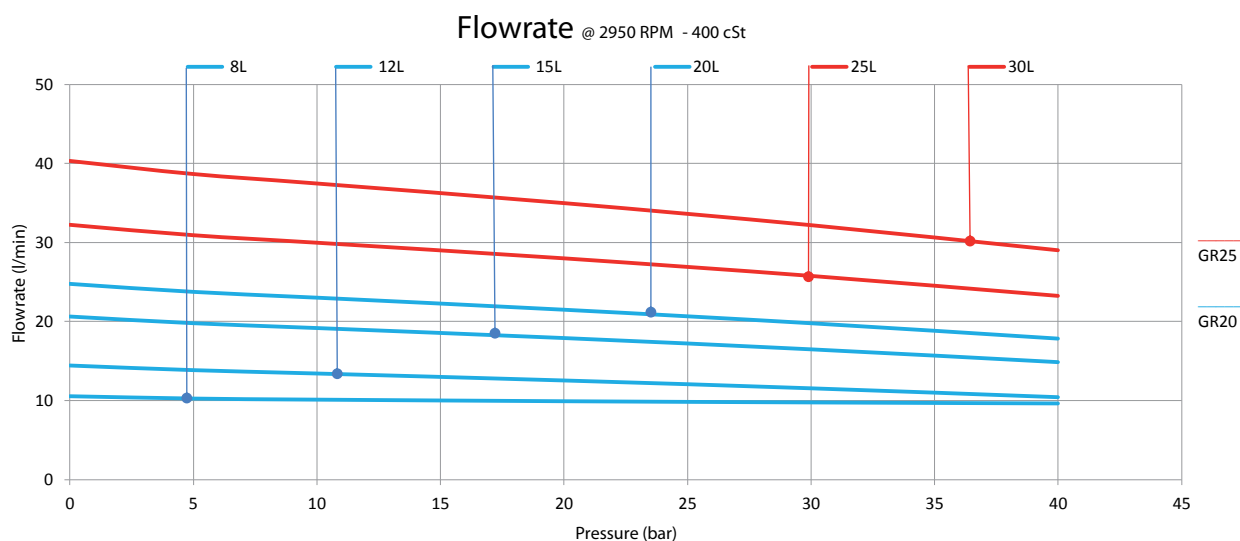
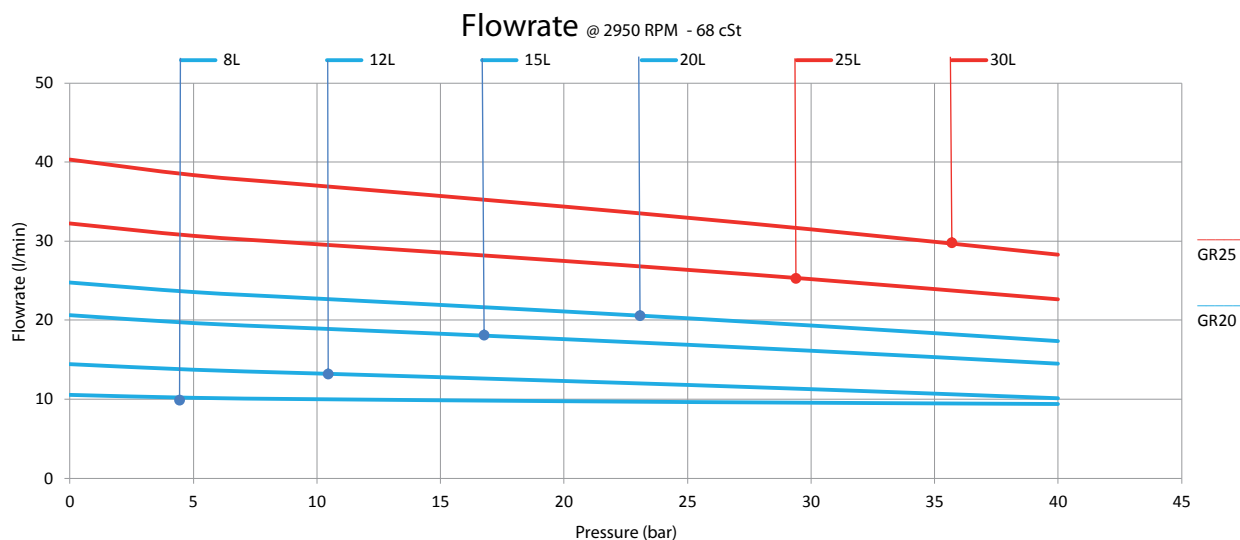
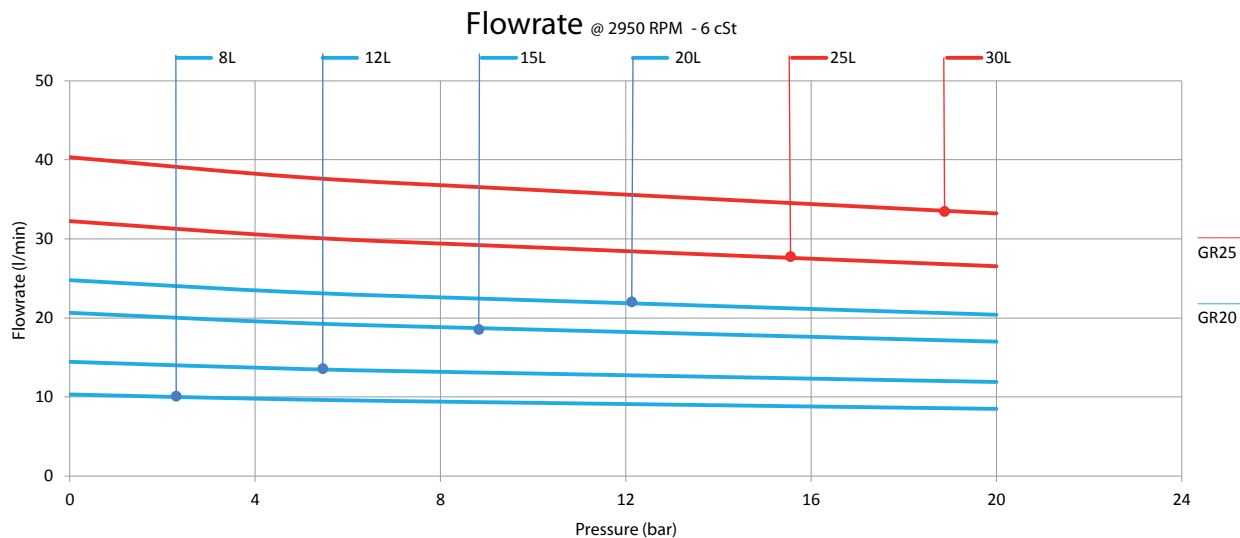


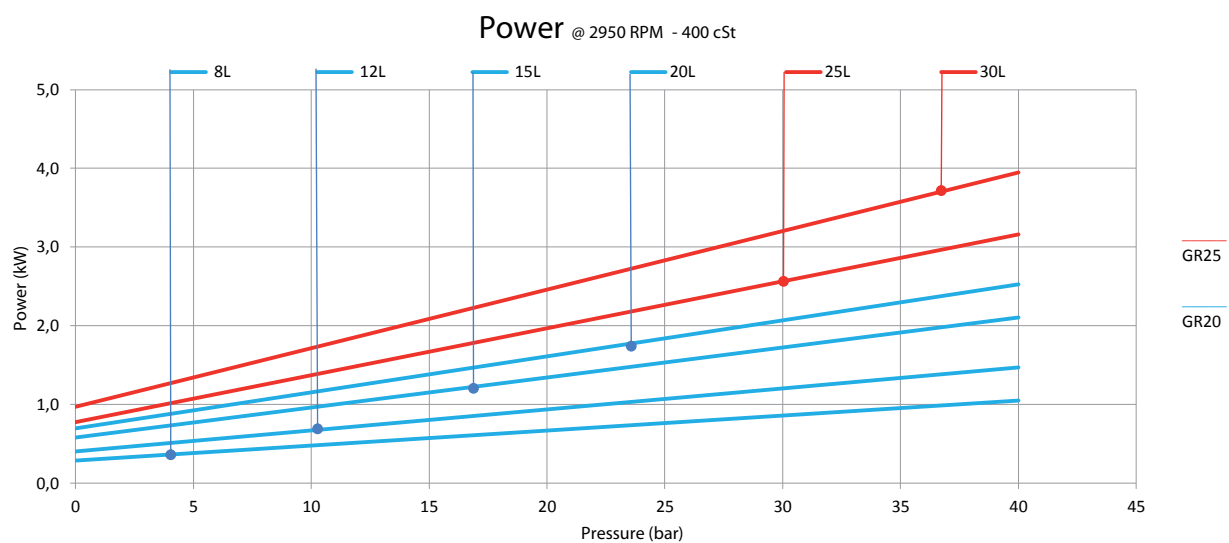
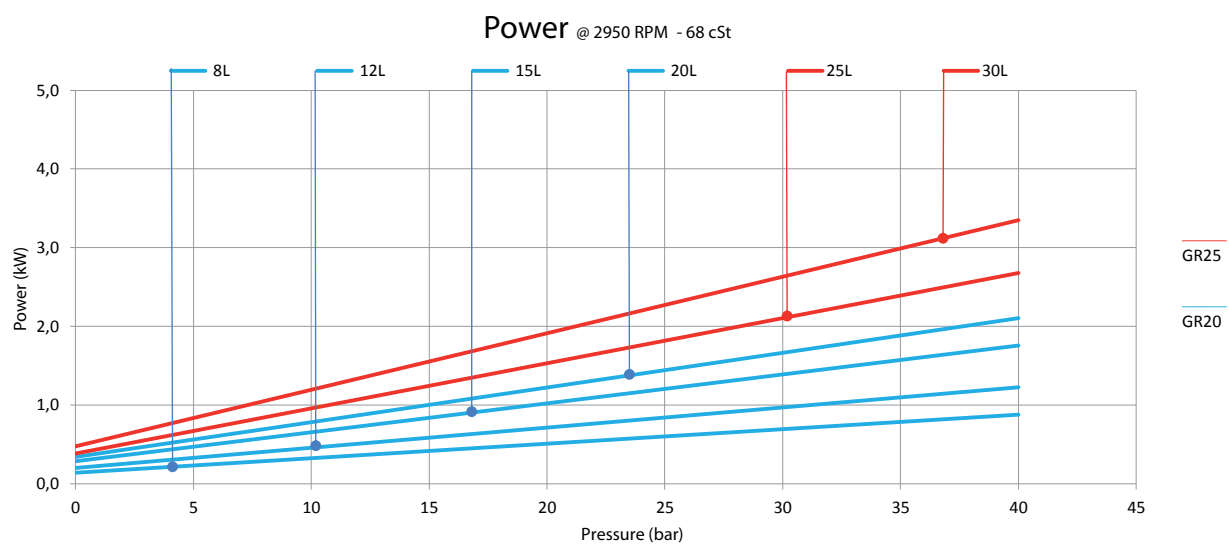
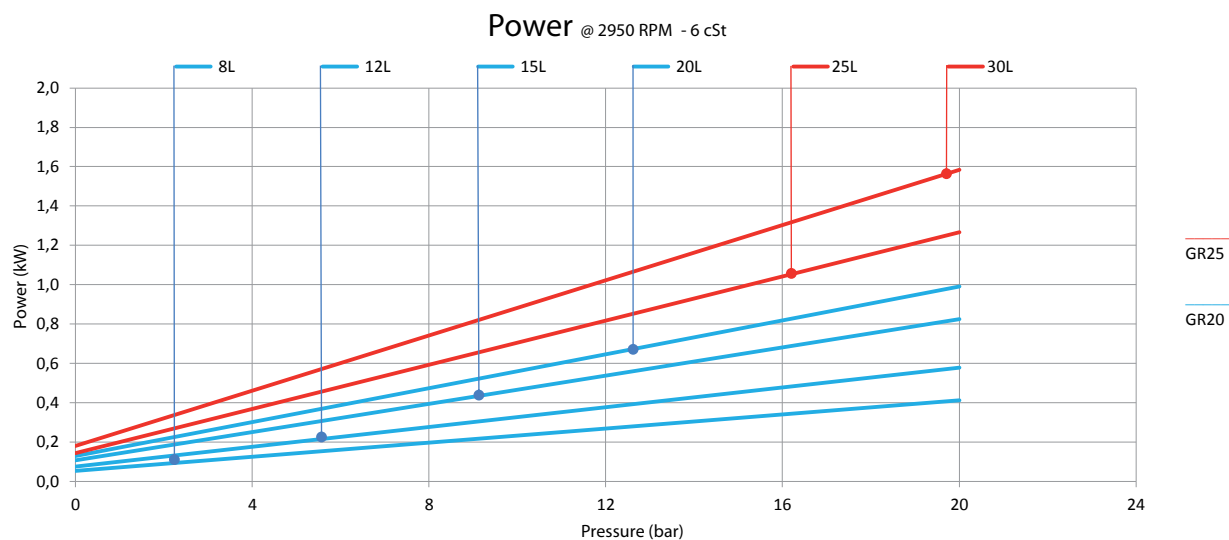
Performances @ 1500 - GR 20-25



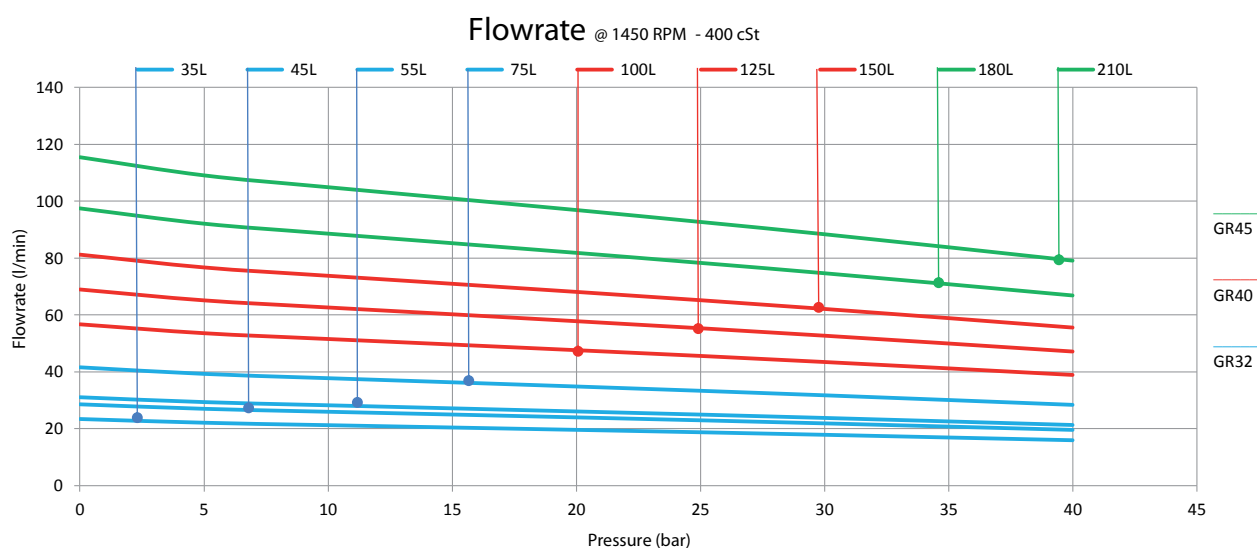
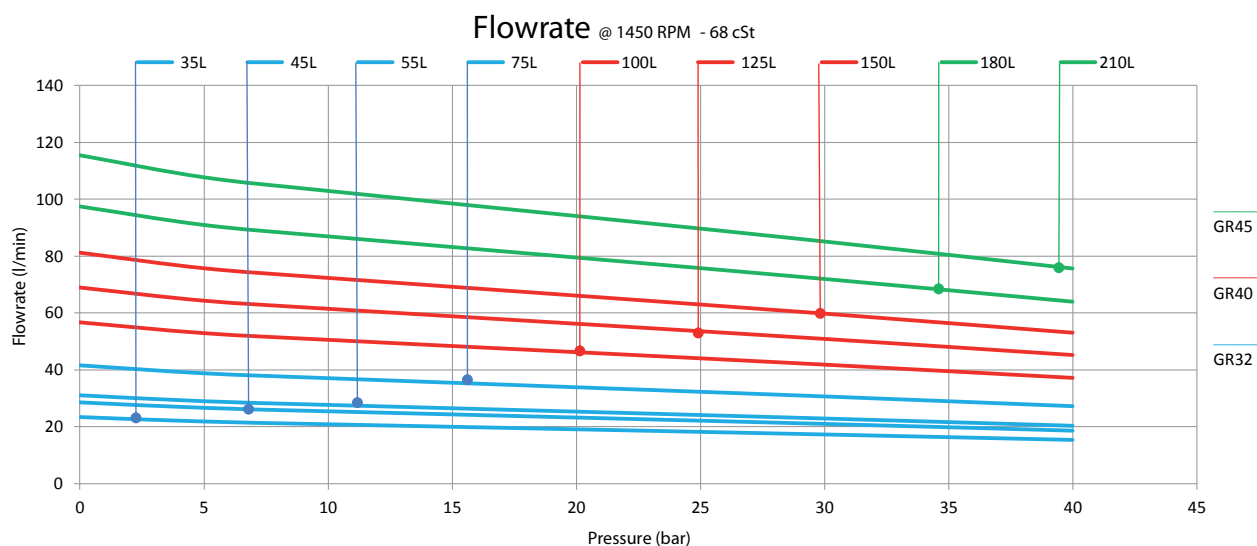
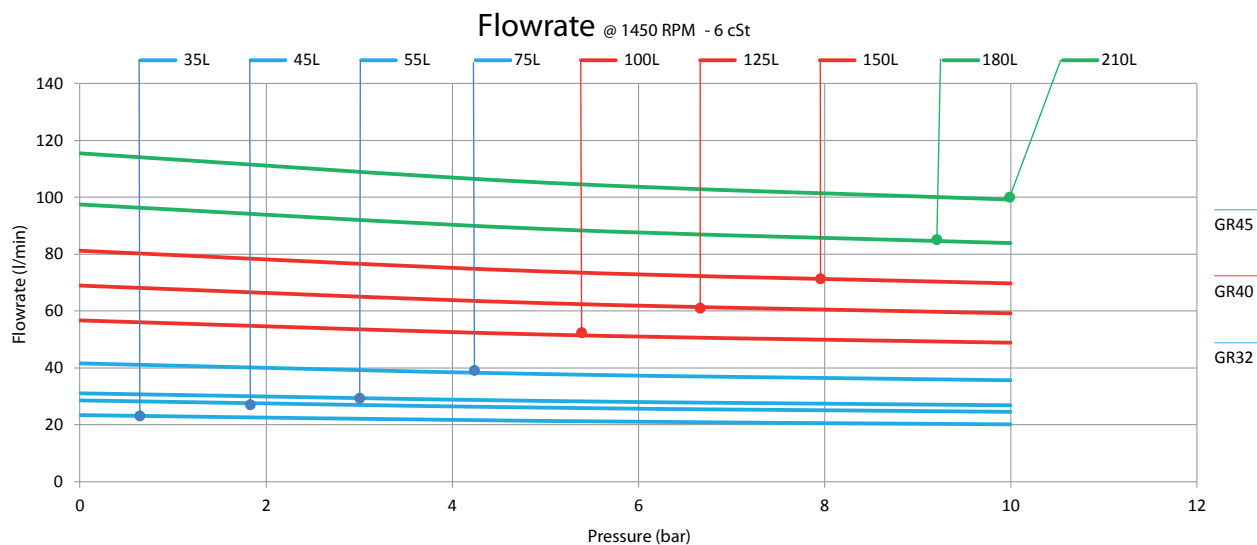


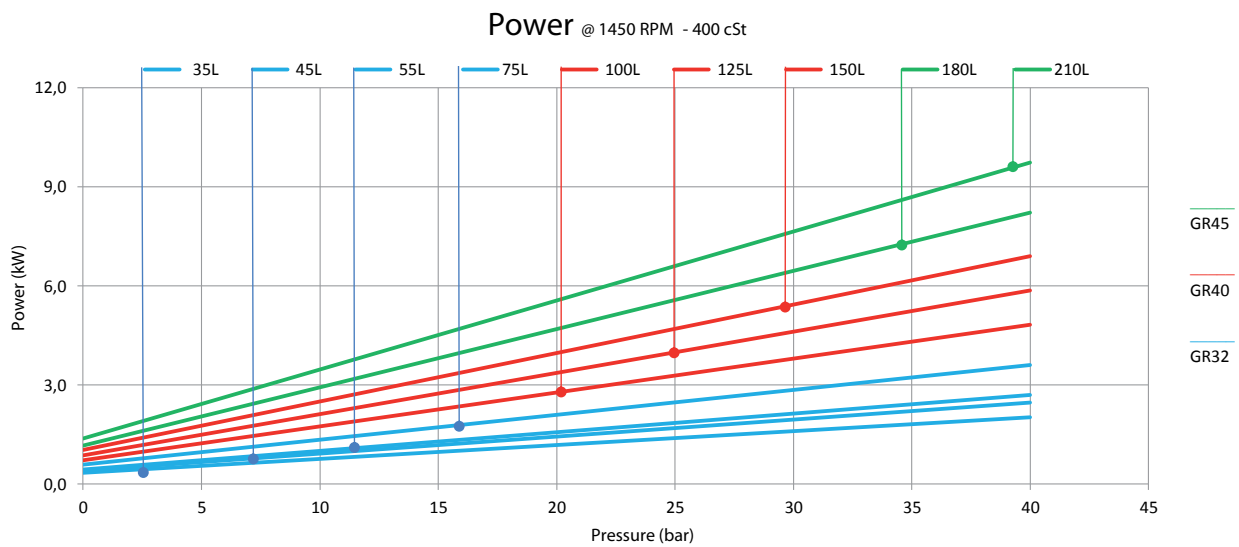
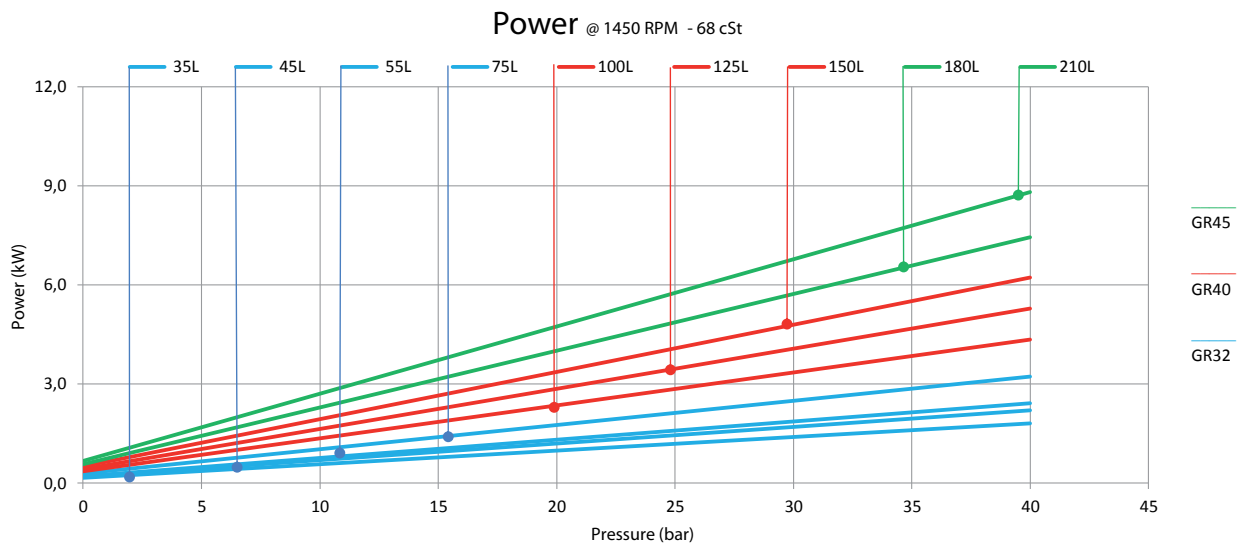
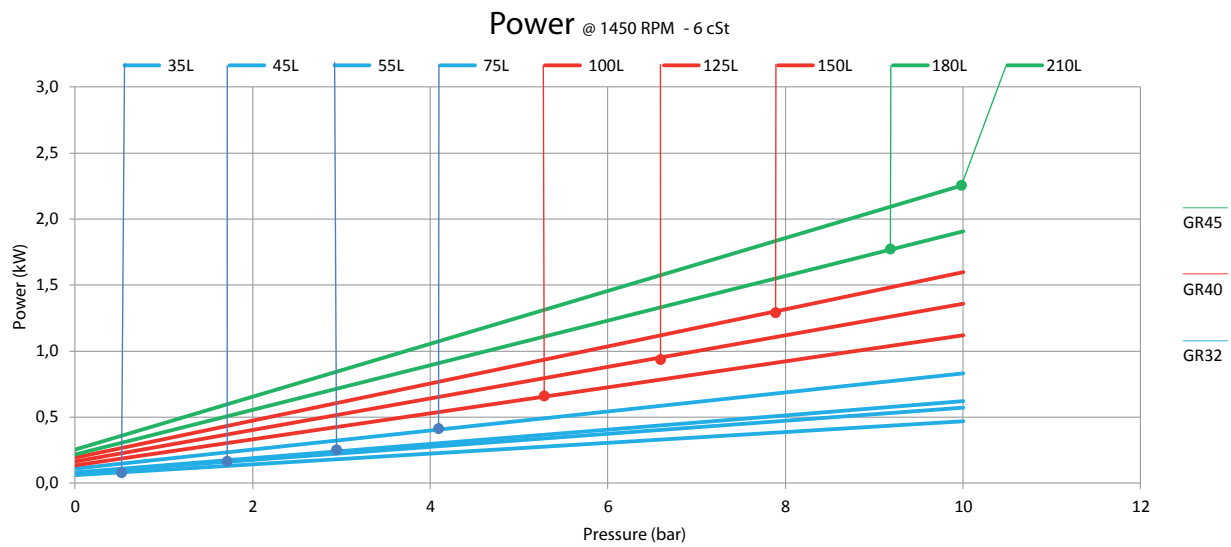
Performances @ 3000 - GR 20-25



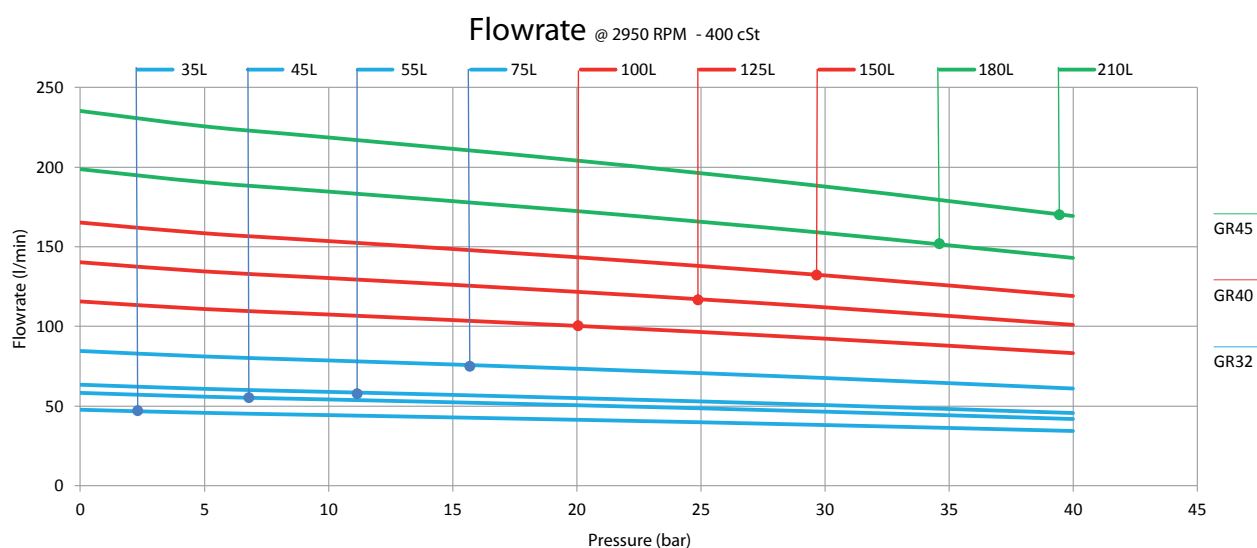
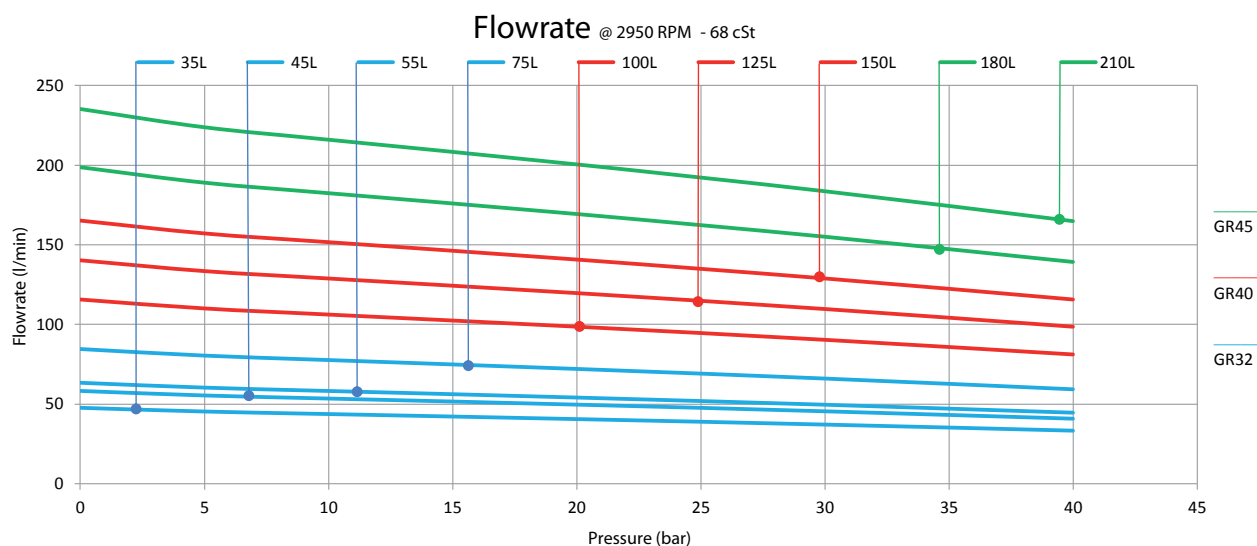
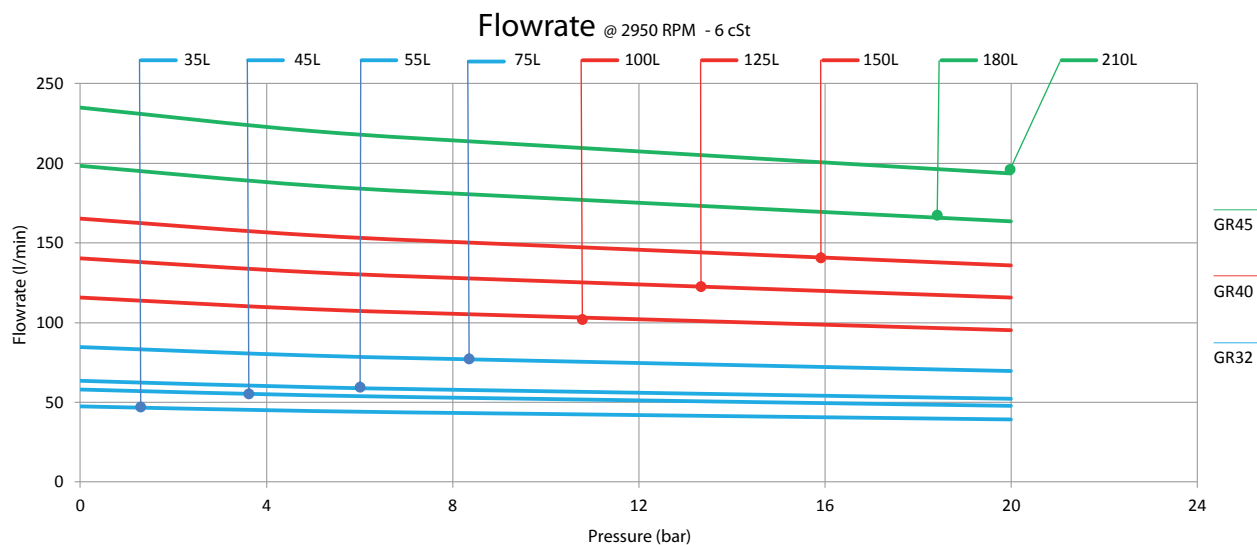


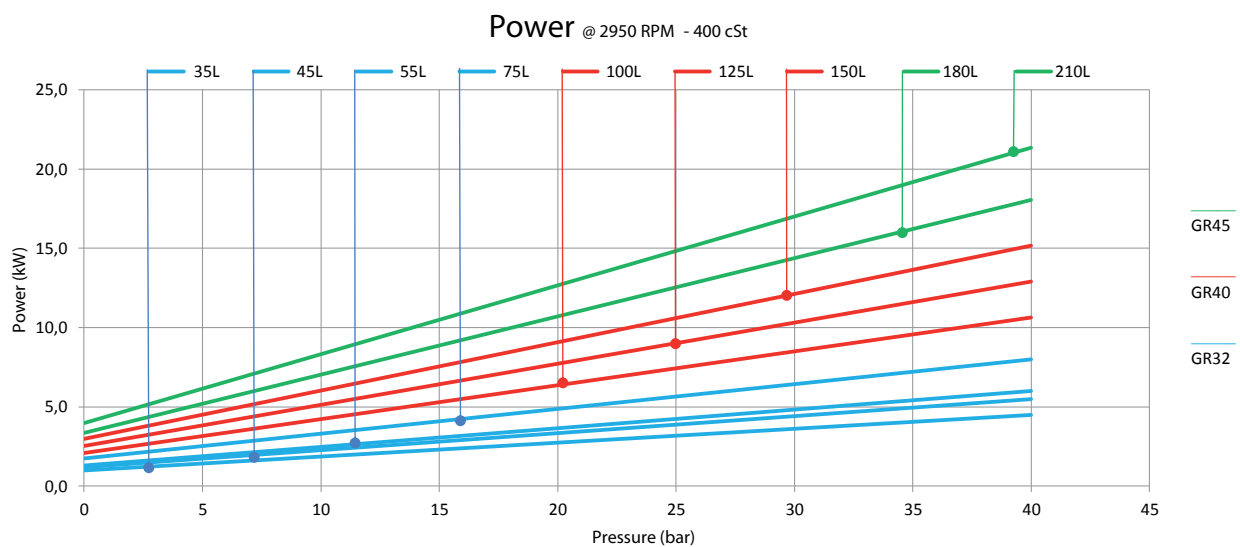
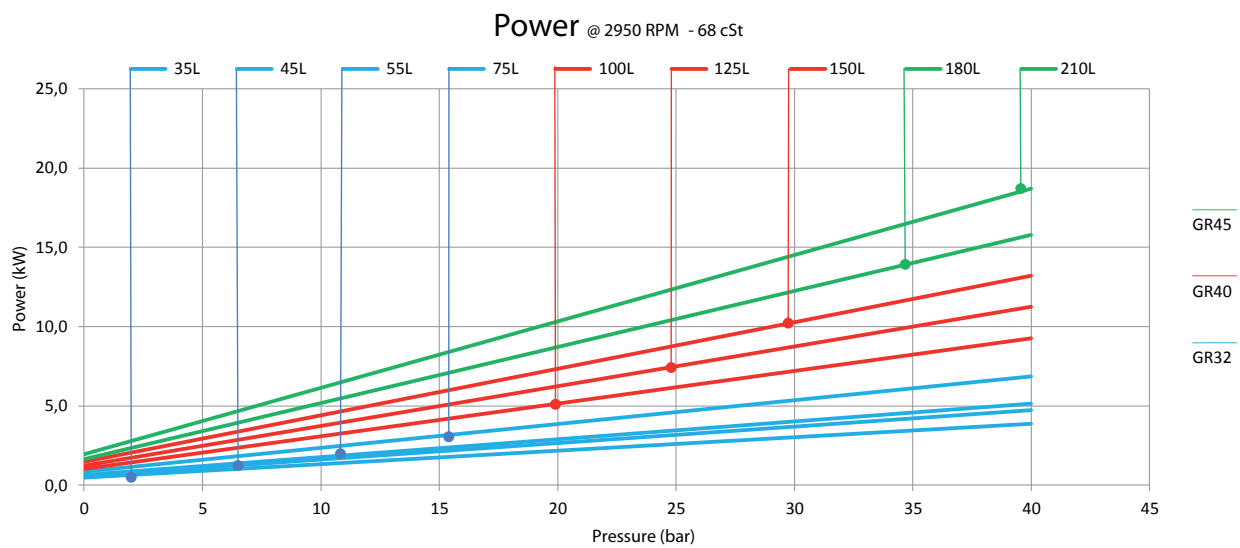
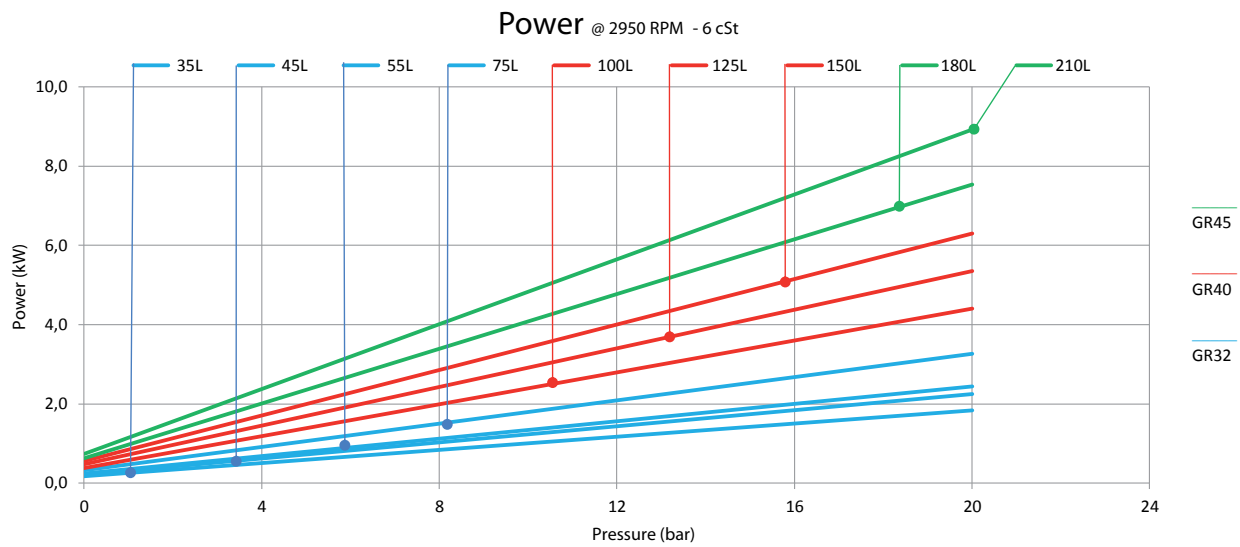
Performances @ 1500 - GR 32-40-45



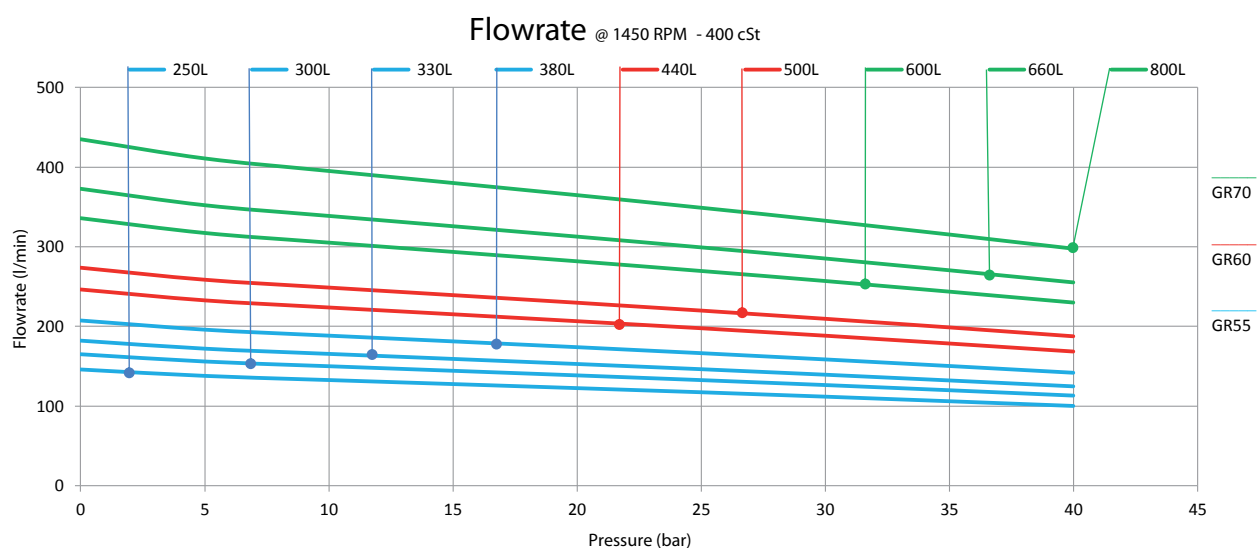
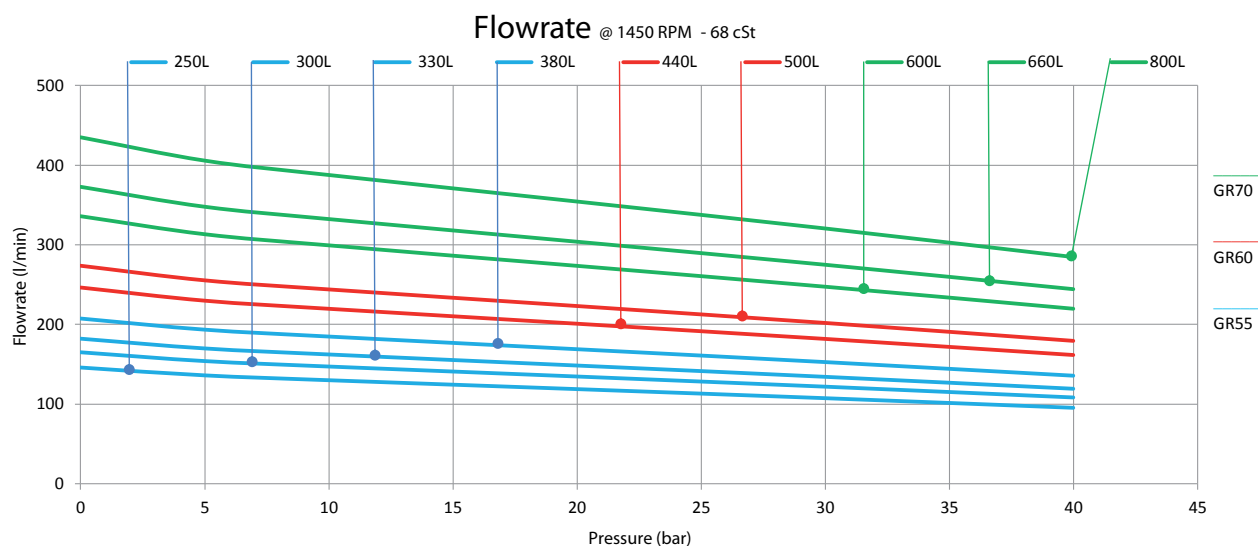
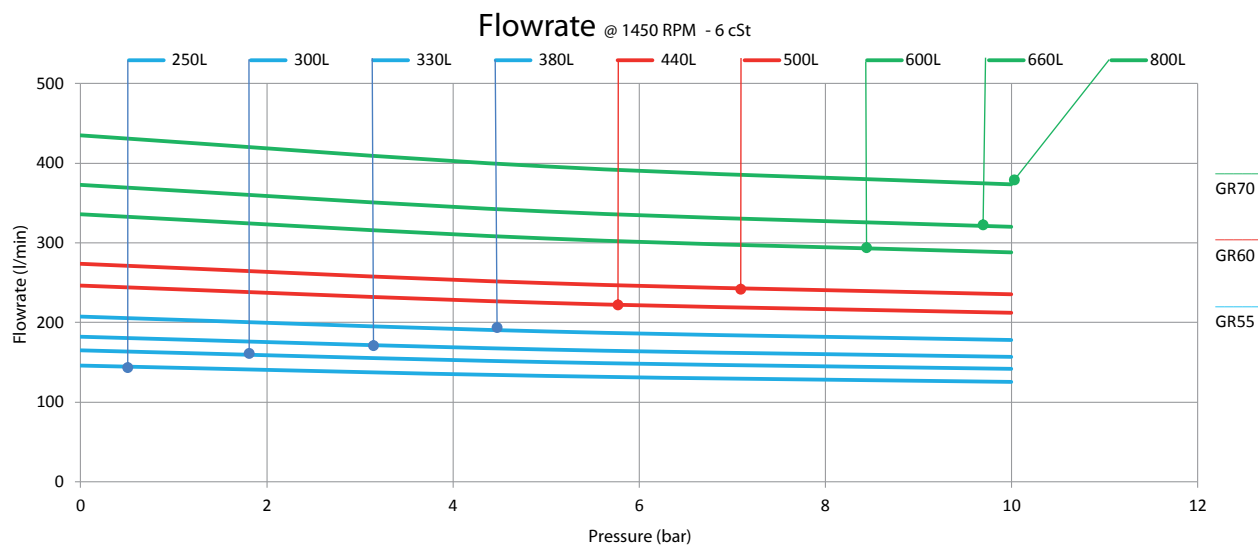


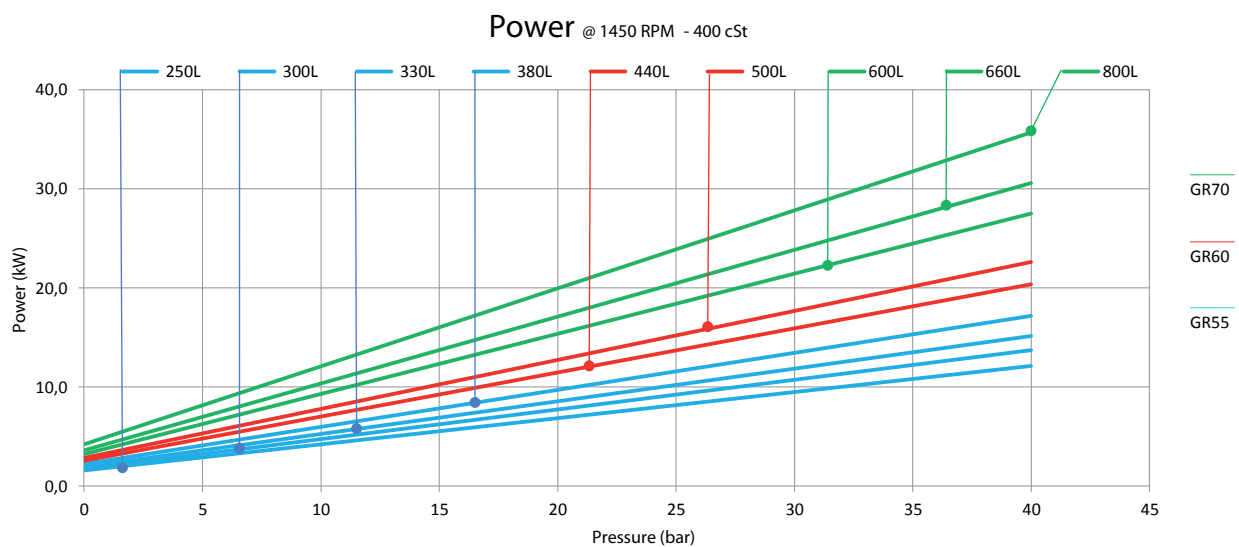
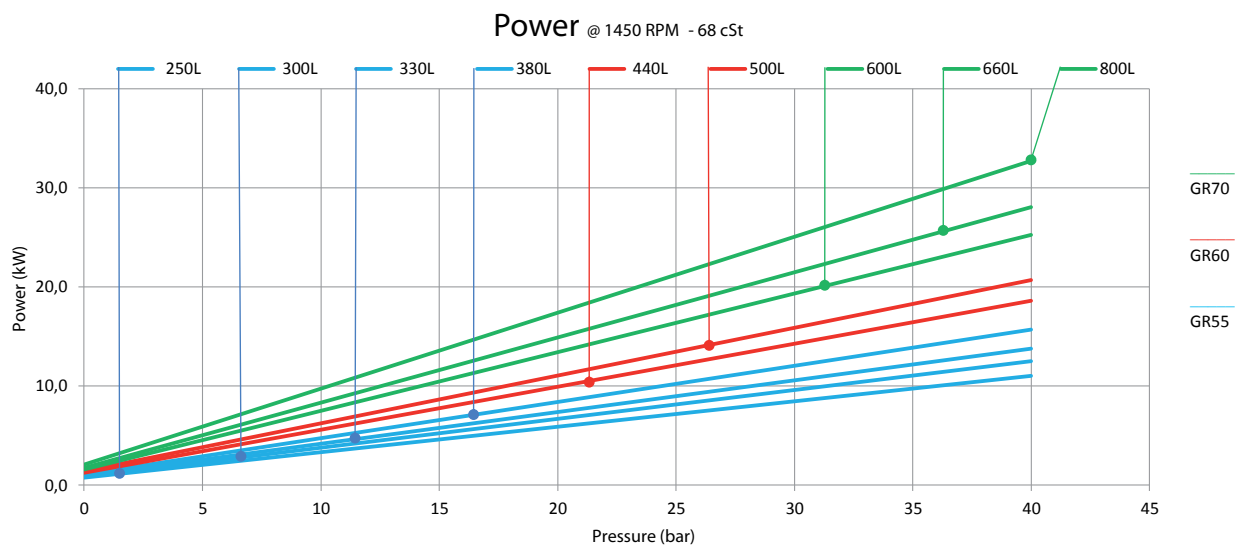
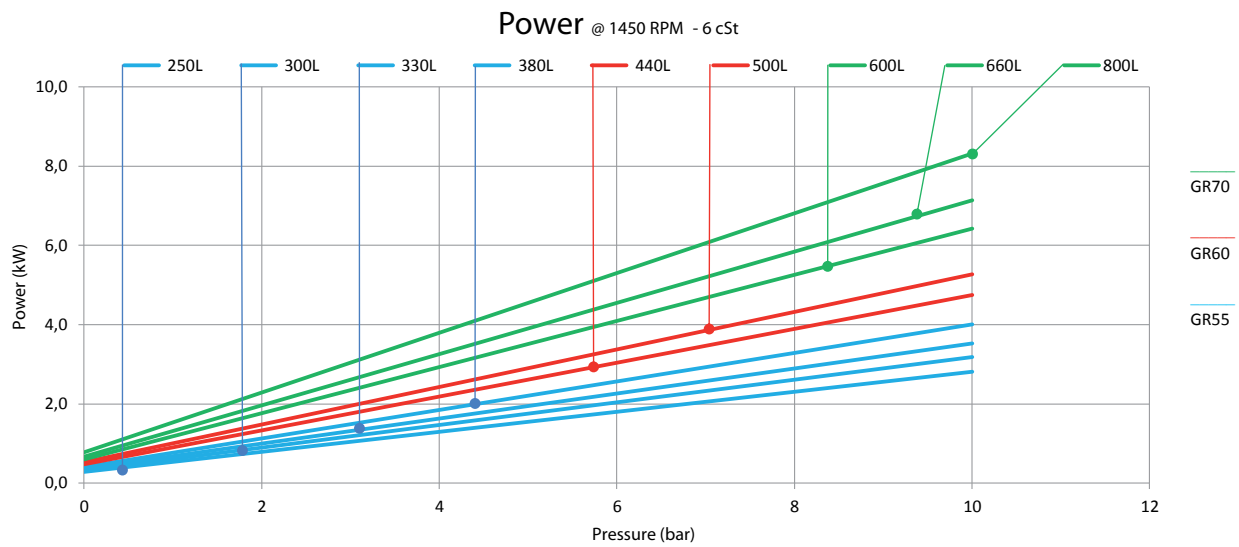
Performances @ 3000 - GR 32-40-45



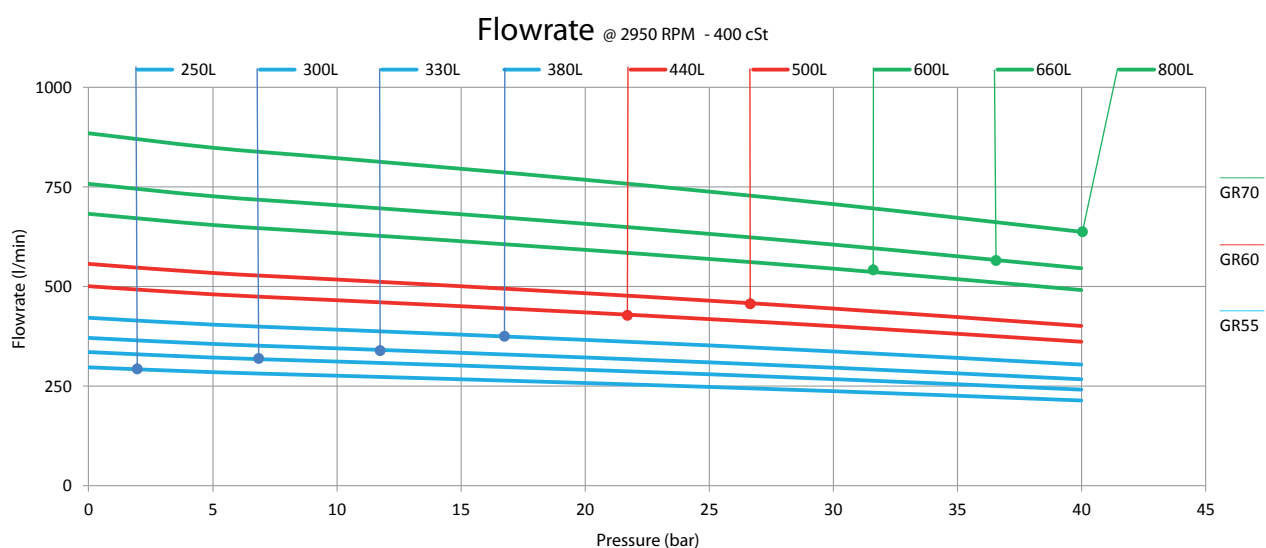
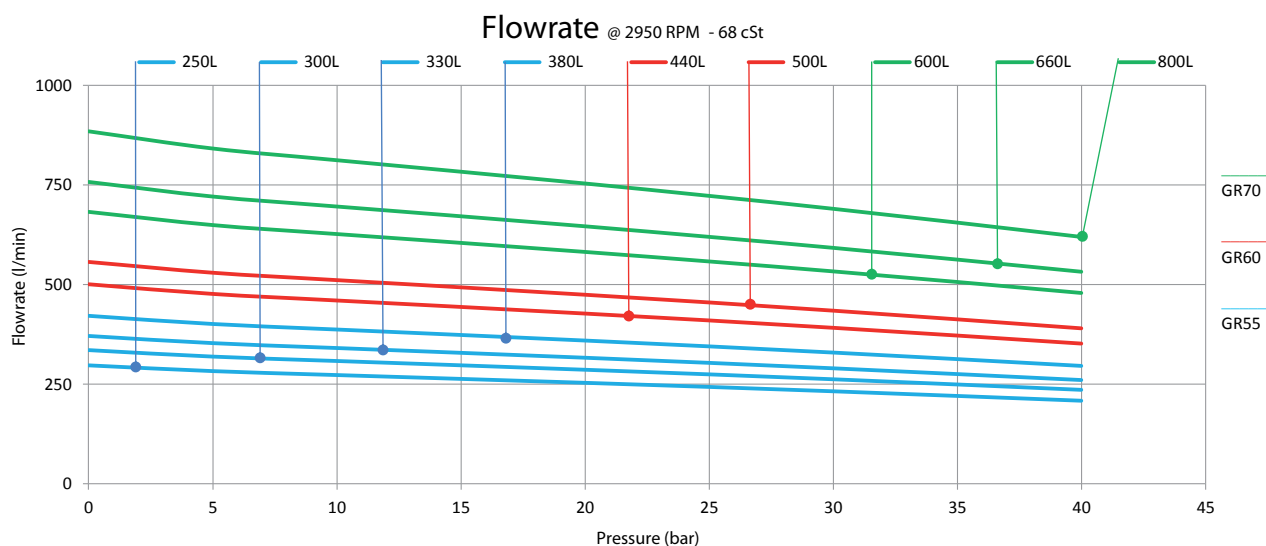
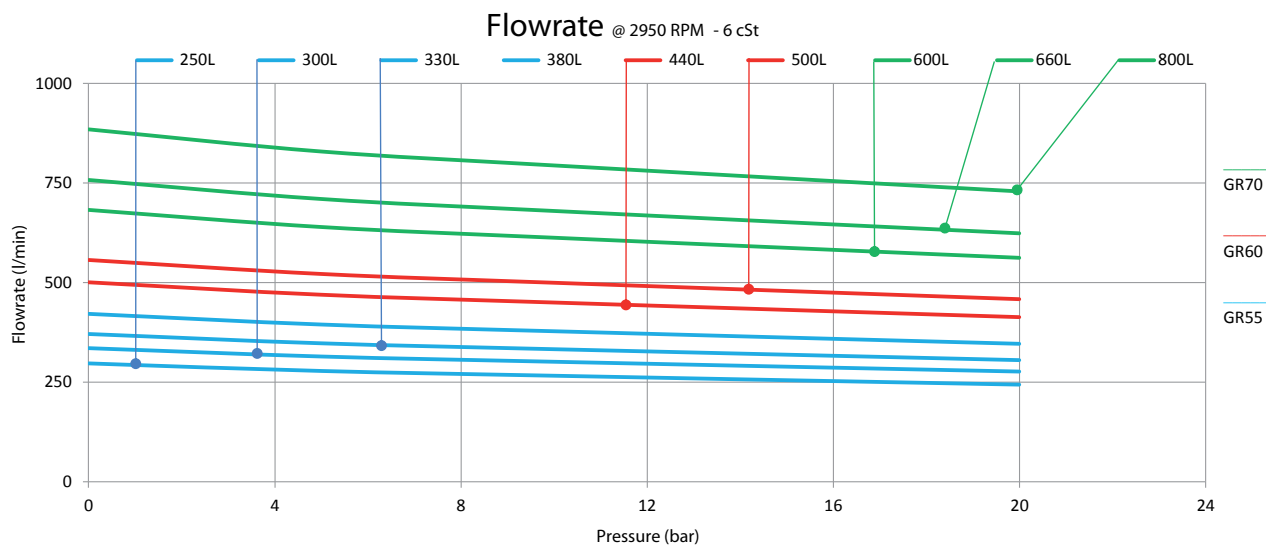


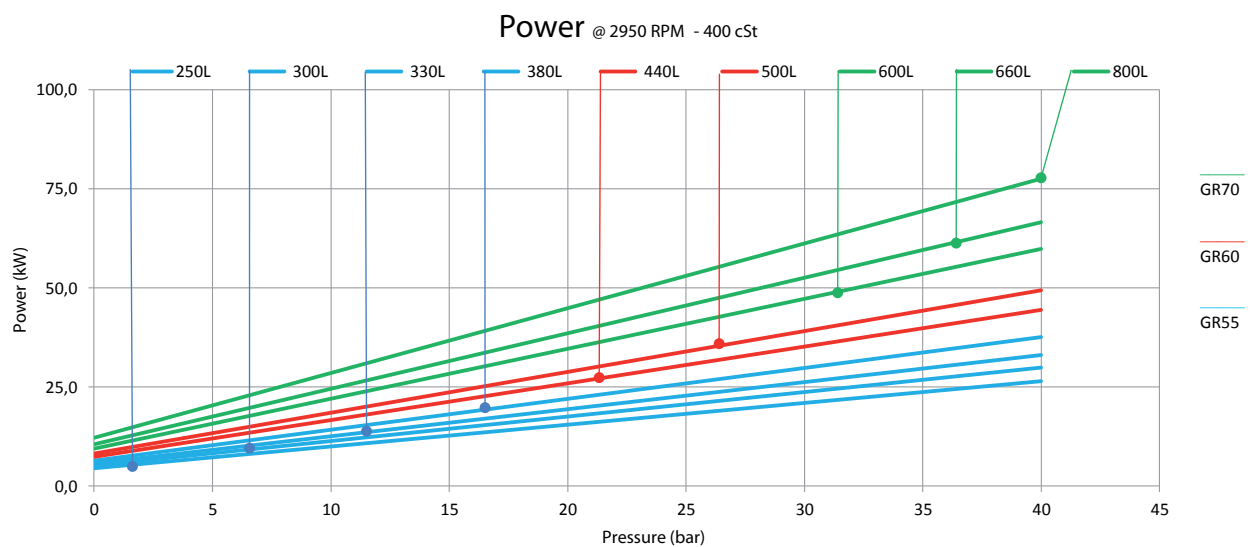
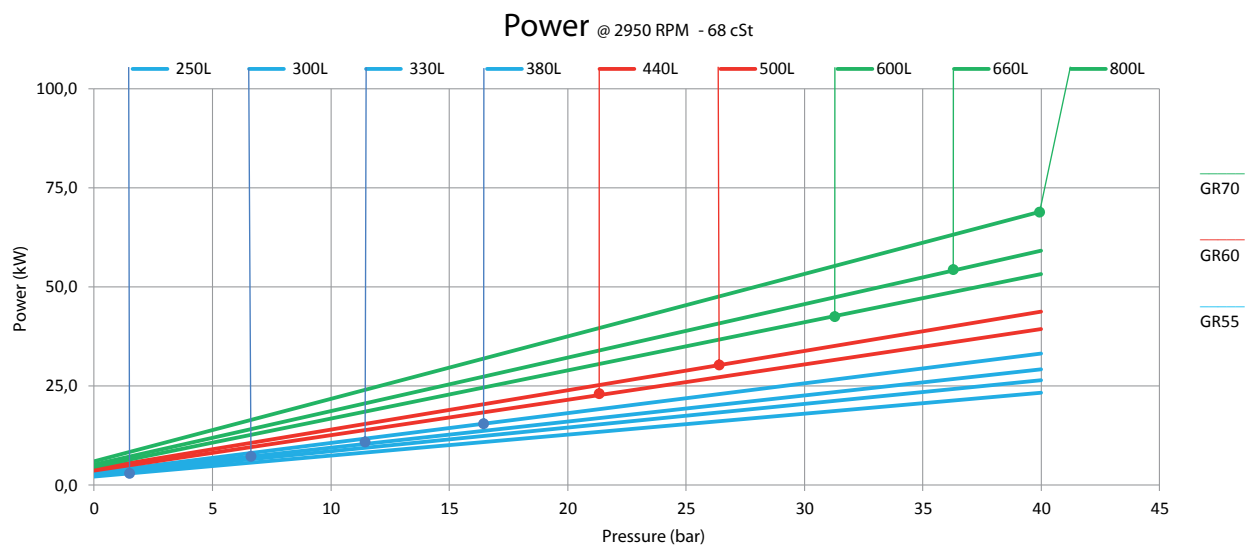
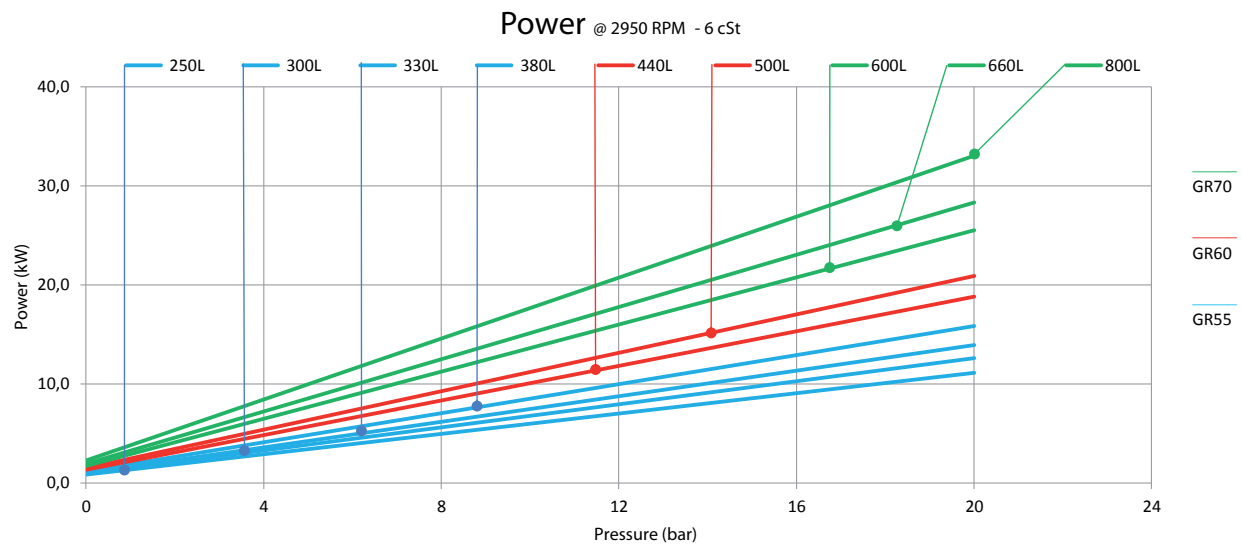
Performances @ 1500 - GR 55-60-70





Performances @ 3000 - GR 55-60-70





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:						
FIELD (select the right one):			APPLICATION (select the right one):			
Industrial			Lubrica- tion		Boosting	
Marine			Fuel transfer		Other:	
Oil & Gas			Filtration			
Other:			Cooling			
PUMP TYPE (select the right one):						
SMT16B		FOTP		SMAPI (API 676 compliant)		
SMT		Continuum		Other:		
SFO		2VHL				
INSTALLATION						
Horizontal/vertical:						
Above liquid level:		[m]				
FLUID DATA						
Type / name of fluid:						
Fluid neatness (filtration, contamination)		micron		NAS		
Temperature (min,normal,max):		[°C]		[°C]		[°C]
Viscosity (max,normal,min):		[cSt]		[cSt]		[cSt]
APPLICATION DATA						
Flow (min, design):		[l/min]				[l/min]
Discharge pressure (normal, design):		[bar]				[bar]
Suction pressure (normal, design):		[bar]				[bar]
ELECTRICAL MOTOR						
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, ...):						
PUMP OPTIONS						
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, ..):						

This image shows a full page of a handwriting practice worksheet. It consists of multiple rows of horizontal dashed lines spaced evenly apart, providing a guide for letter height and placement. The background is plain white, and there are no margins or additional markings.

SETTIMA

Settima, Italy

Headquarter, r&d and production

SETTIMA

USA
Warehouse

SETTIMA

ASIA Ltd.
Sales Office

Settima Meccanica Srl

Settima - 29020 Piacenza (Italia)

tel. +39 0523.3650

fax +39 0523.3650299

www.settima.it

info@settima.it

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