Range of Products

Detailed Release

Overview

E0.000.0918.15.00IM06

salami
FLUID POWER SYSTEMS ®

OIL SOLUTIONS

1800-OILSOL
1800-645765

https://oilsolutions.com.au/

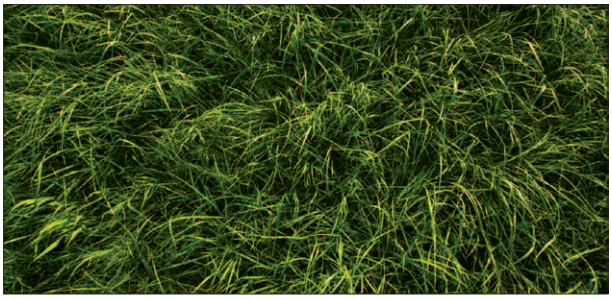
sales@oilsolutions.com.au

Applications

Mini loader

Hydraulic bushcutter

Backhoe loader



Forest crane

Cable hoist

Telescopic handler

Aerial Working Platform

Material handling

Garbage Truck

GENERAL CONSTRUCTIVE FEATURES

- Cast-iron monoblock construction.
- Steel spools, hardened and nickel plated.

GENERAL FUNCTIONAL FEATURES

- Several types of spools: double and single acting, motor spool, float position, regenerative position, etc.
- Several spool control devices and spool positioning devices.
- Power beyond (HPCO) configuration.
- Spool with overcenter valve built-in and hydraulic kick-out built-in.

VDM6/VDM065

- Parallel circuit with single load check valve on pressure “P” line.
- Tandem circuit.
- On-off electric control with manual override.
- Emergency unloading valve.

VDM6A

- Monoblock construction with sectional concept.
- Parallel circuit, load check valve protection on each section.
- Auxiliary valve either on port A or B or on both.
- Single/double acting conversion port valve.
- Electric carry over.

VDM07

- Parallel circuit with load check valve on pressure “P” line.
- Auxiliary valve on B port or relief valve on neutral line that can unload both the ports.

VDM8

- Monoblock construction with sectional concept.
- Parallel circuit, load check valve protection on each section.
- Auxiliary valve either on port A or B or on both.
- On-off electric control with manual override.
- Emergency unloading valve.

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	Nominal Flow		Max. Flow		Operating Pressure		Max. Operating Pressure						Nr of Sections	Circuit*
							P		A/B		T			
TYPE	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*	bar	*psi*	bar	*psi*	bar	*psi*		
VDM6	45	*12*	*60*	*16*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 7	P / S(1) / T(2)
VDM6A	45	*12*	*60*	*16*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 7	P
VDM065	60	*16*	*75*	*20*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 7	P
VDM07	50	*14*	*65*	*17*	315	*4560*	315	*4560*	315	*4560*	20	*300*	1 ÷ 6	P
VDM8	75	*20*	*90*	*24*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 5	P

* P = Parallel / S = Series / T = Tandem
(1) Tandem circuit available only on the first working section of the 2, 3, 4, 5 and 6 working sections monoblocks.
(2) Series circuit only on the first working section of the 2, 3, 4, 5 and 6 working sections monoblocks. Series realized inside the spool.

INLET VALVES	**VDM6**	**VDM065**	**VDM6A**	**VDM07**	**VDM8**
Direct	•	•	•	•	•
Pilot					•
Unload	•	•	•		•
AUXILIARY VALVES					
Overload			•	•	•
Overload and Anticavitation			•		•
Anticavitation			•	•	•
Conversion			•	•	•
Unidirectional Mechanical			•		
Unidirectional Piloted					
SPOOL CONTROLS					
Mechanical	•	•	•	•	•
Hydraulic	•		•	•	•
Pneumatic	•		•	•	•
Direct Electric	•	•	•	•	•
Electro-Hydraulic					•
Electro-Pneumatic	•		•	•	•
SPOOL POSITIONINGS					
Spring Return	•	•	•	•	•
Detent	•	•	•	•	•
Float	•	•	•	•	•
Microswitch/Potentiometer Device	•	•	•	•	•
Torque Limiting			•		•
Detent with Hydraulic Kick-Out	•	•		•	•

TYPES OF PORTS AND THREADS		**VDM6**							**VDM065**							**VDM6A**								**VDM07**				**VDM8**					
		P	**PL**	**P3**	**T**	**TL1**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TL1**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TS**	**TL1**	**TL**	**A/B**	**P**	**T**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TL**	**A/B**
BSP (UNI ISO 1179 - THREADS UNI ISO 228/1)	G3/8	•	•	•	S	•	S	•	S	S	S	S	S	S	S	•	•	•		•	•		•	•	•		•					
	G1/2	S	S		•		•		•	•	•	•	•	•	•	S	S	S	•			•	S		S			•	•	•			•
	G3/4																	S				S						S	S		•	•	
BSPF - JIS B 2351-1 (UNI EN ISO 8434-1)	G3/8	•	•	•		•		•								•	•	•		•	•		•										
	G1/2				•		•												•			•								S			S
	G3/4																											S	S		S	S	
METRIC ISO 262 (UNI EN ISO 9974-1 - THREADS UNI ISO 262)	M18x1,5	•	•	•		•		•								•	•	•		•	•		•										
	M22x1,5				•		•												•			•						•	•	•			•
	M27x2																														•	•	
METRIC ISO 6149 (UNI EN ISO 6149-1-2-3)	M18x1,5	•	•	•		•		•								•	•	•		•	•		•	•	•		•						
	M22x1,5				•		•											S	•			•						•	•	•			•
	M27x2																														•	•	
SAE UN-UNF (UNI ISO 11926 - THREADS UNI ISO 725)	SAE6 (9/16-18 UNF)		S					S	S	S	S	S	S	S	S																		
	SAE8 (3/4-16 UNF)	•	•	•	S	•	S	•	S	S	S	S	S	S	S	•	•	•	S	•	•	S	•	•	•		•						
	SAE10 (7/8-14 UNF)				•		•		•	•	•	•	•	•	•			S	•			•						•	•	•			•
	SAE12 (1-1/16-12 UN)																														•	•	

●= Standard/S= Special

GENERAL CONSTRUCTIVE FEATURES

- Cast-iron construction.
- Steel spools, hardened and nickel plated.

GENERAL FUNCTIONAL FEATURES

- Parallel, tandem and series circuit available.
- Load check valve protection on each section.
- Auxiliary valve either on port A or B or on both.
- Power beyond (HPCO) configuration.
- Several types of spool: double and single acting, motor spool, float position, regenerative position, etc.
- Several spool control devices and spool positioning devices.

VD6A

- Inlet with built-in pressure compensated priority flow control valve.
- On-off electric control with manual override.
- Emergency unloading valve.
- Spool with overcenter valve built-in and hydraulic kick-out built-in.
- Wide range of mid inlet modules.

VD8A

- Inlet module with priority flow valve adjustable by a pressure signal.
- Priority flow available to supply a power steering unit.
- Single or Biblock construction available.
- On-off electric control with manual override.
- Spool with overcenter valve built-in and hydraulic kick-out built-in.
- Wide range of mid inlet modules.

VD10A

- Modular construction up to 10 sections.
- Parallel, tandem and series circuit available.
- Load check valve protection on each section.
- Auxiliary valves available on ports A and B.

VD12A

- Modular construction up to 10 sections.
- Parallel, tandem and series circuit available.
- Load check valve protection on each section.
- Auxiliary valves available on ports A and B.

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	Nominal Flow		Max. Flow		Operating Pressure		Max. Operating Pressure						Nr of Sections	Circuit
							P		A/B		T			
TYPE	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*	bar	*psi*	bar	*psi*	bar	*psi*		
VD6A	45	*12*	*60*	*16*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 8(1)	P / S / T
VD8A	75	*20*	*90*	*24*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 8(1)	P / S / T
VD10A	120	*32*	*140*	*37*	280	*4060*	280	*4060*	315	*4560*	25	*360*	1 ÷ 8(1)	P / S / T
VD12A	180	*48*	*240*	*63*	280	*4060*	280	*4060*	315	*4560*	25	*360*	1 ÷ 8(1)	P / S / T

(1) For more working sections please contact our sales department.

INLET VALVES	**VD6A**	**VD8A**	**VD10A**	**VD12A**
Direct	●	●	●	●
Pilot		●	●	●
Unload	●	●	●	●
AUXILIARY VALVES				
Overload	●	●	●	●
Overload and Anticavitation	●	●	●	●
Anticavitation	●	●	●	●
Conversion	●	●		
Unidirectional Mechanical	●			
Unidirectional Piloted				
CONTROLS				
Mechanical	●	●	●	●
Hydraulic	●	●	●	●
Pneumatic	●	●	●	●
Direct Electric	●	●		
Electro-Hydraulic	●	●	●	●
Electro-Pneumatic	●	●	●	●
SPOOL POSITIONINGS				
Spring Return	●	●	●	●
Detent	●	●	●	●
Float	●	●	●	●
Microswitch/Potentiometer Device	●	●	●	●
Torque Limiting	●	●		
Detent with Hydraulic Kick-Out	●	●	●	●

TYPES OF PORTS AND THREADS		**P**	**PL**	**P3**	**T**	**TL1**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TL1**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TL**	**A/B**	**P**	**PL**	**P3**	**T**	**TL**	**A/B**
BSP (UNI ISO 1179 - THREADS UNI ISO 228/1)	G3/8	●	●	●	S	●		●																			
	G1/2				●		●	S*	●	●	●				●												
	G3/4								●			●		●	S	●	●	●			●						
	G1																		●			●	●	●	●	●	●
BSPF - JIS B 2351-1 (UNI EN ISO 8434-1)	G3/8	●	●	●		●		●																			
	G1/2				●		●		●	●	●				●												
	G3/4											●		●													
	G1																										
METRIC ISO 262 (UNI EN ISO 9974-1 - THREADS UNI ISO 262)	M18x1,5	●	●	●		●		●																			
	M22x1,5				●		●		●	●	●				●												
	M27x2											●		●													
METRIC ISO 6149 (UNI EN ISO 6149-1-2-3)	M18x1,5	●	●	●		●		●																			
	M22x1,5				●		●		●	●	●				●												
	M27x2											●		●													
SAE UN-UNF (UNI ISO 11926 - THREADS UNI ISO 725)	SAE6 (9/16-18 UNF)							S																			
	SAE8 (3/4-16 UNF)	●	●	●		●		●							S												
	SAE10 (7/8-14 UNF)				●		●		●	●	●	●			●												
	SAE12 (1-1/16-12 UN)											●		●		●	●	●			●						
	SAE16 (1-5/16-12 UN)																		●			●	●	●	●	●	●

● = Standard/S= Special/S*= Special, max pressure= 280 bar / *4060 psi.*

GENERAL CONSTRUCTIVE FEATURES

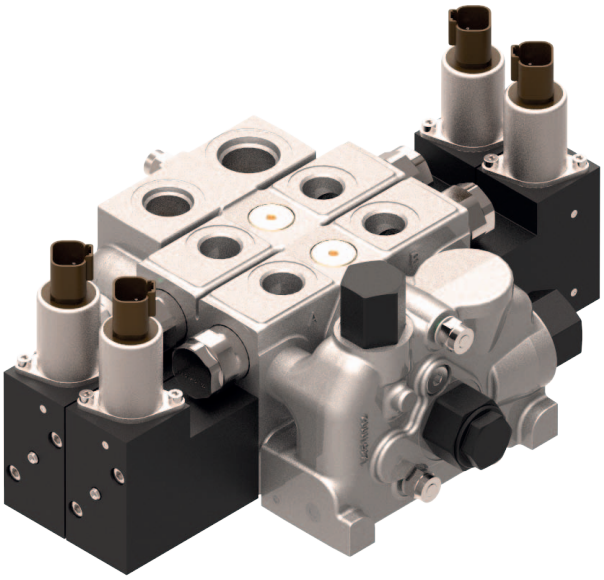
- Cast iron sectional and biblock construction.
- Steel spools, hardened and nickel plated.

GENERAL FUNCTIONAL FEATURES

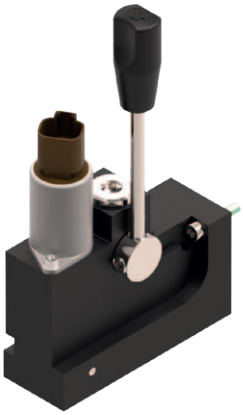
- Electro-Hydraulic open loop on-off and proportional control (12 or 24 Vdc).
- Parallel circuit with load check valve on every section.
- Several types of spools: double and single acting, motor spool, regenerative position, etc.
- Emergency command button.
- Hand lever.
- Power beyond (HPCO) configuration.
- Availability of auxiliary valves either on port A or B or on both.
- Spool positioning sensor.

NEW

- Assemblable with VD8A standard sections
- Elettro-Hydraulic control version
- On-Off and Proportional controls
- Compact dimensions
- No need of external pilot lines

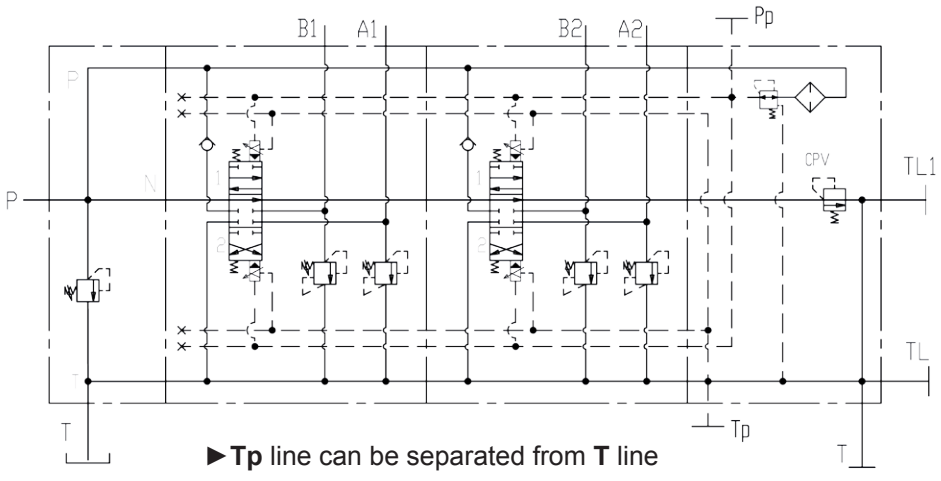


VD8Z



Hand lever available

Example of hydraulic circuit



►**Tp** line can be separated from **T** line

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	Nominal Flow		Max. Flow		Operating Pressure		Max. Operating Pressure						Nr of Sections	Circuit*
							P		A/B		T			
TYPE	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*	bar	*psi*	bar	*psi*	bar	*psi*		
VD8Z	75	20	*90*	*24*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 8	P

* P = Parallel

INLET VALVES	**VD8Z**
Direct	•
Pilot	•
Unload	•
AUXILIARY VALVES	
Overload	•
Overload and Anticavitation	•
Anticavitation	•
Conversion	•
Unidirectional Mechanical	
Unidirectional Piloted	
CONTROLS	
Electro-Hydraulic On/Off	•
Electro-Hydraulic Proportional	•
Electro-Hydraulic On/Off with Lever	•
Electro-Hydraulic Proportional with Lever	•
SPOOL POSITIONINGS	
Spring Return	•
Spool position sensor	•

TYPES OF PORTS AND THREADS		**P**	**PL**	**P3/T3**	**T**	**TL1***	**TL**	**A/B**	**Pp**	**Tp**
BSP (UNI ISO 1179 - THREADS UNI ISO 228/1)	G1/4								•	•
	G1/2	•	•	•				•		
	G3/4	•			•	•	•	S		
BSPF - JIS B 2351-1 (UNI EN ISO 8434-1)	G1/4								•	•
	G1/2	•	•	•				•		
	G3/4				•	•	•			
METRIC ISO 262 (UNI EN ISO 9974-1 - THREADS UNI ISO 262)	M22x1,5	•	•	•				•		
	M27x2				•	•	•			
	G1/4								•	•
METRIC ISO 6149 (UNI EN ISO 6149-1-2-3)	M22x1,5	•	•	•				•		
	M27x2				•	•	•			
	G1/4								•	•
SAE UN-UNF (UNI ISO 11926 - THREADS UNI ISO 725)	SAE4 (7/16-20 UNF)								•	•
	SAE8 (3/4-16 UNF)							S		
	SAE10 (7/8-14 UNF)	•	•	•				•		
	SAE12 (1-1/16-12 UN)				•	•	•			

ELECTRICAL DATA		
Voltage	12V	24V
Current	1500 mA	750 mA
Resistance	4.72 Ω ± 5%	20.8 Ω ± 5%
Type of control	On/Off	Proportional
	Direct Current 12 and 24 V	Current control/PWM 100 Hz recommended
Connector	AMP Junior Timer/Deutsch Connector DT04-2P/Flying Leads	

●= Standard/S= Special/**TL1***=Port available instead of CPV valve, ensure at least 10 bars on T line to guarantee the Electro-Hydraulic modules function.

Pressure Compensated Load Sensing Valves

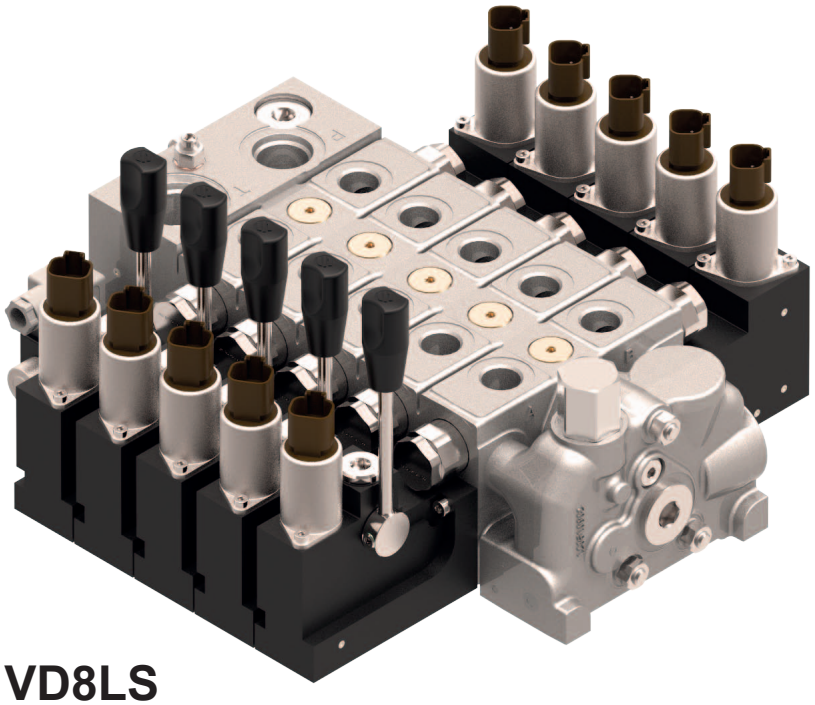
GENERAL CONSTRUCTIVE FEATURES

- Cast-iron construction (inlet section, working section, outlet section).
- Steel spools, hardened and nickel plated.

GENERAL FUNCTIONAL FEATURES

- Load Sensing directional control valve.
- Available with inlet module for fixed or variable displacement pump.
- Inlet module with built-in pressure compensator.
- Mechanical, pneumatic, hydraulic controls available.
- Electro-Hydraulic open loop on-off and proportional control available (12 or 24 Vdc).
- Range of spool sizes for different flow.
- Availability of venting valve into inlet section.
- Availability of auxiliary valves either on port A or B or on both.
- Several types of spool: double, single acting, motor spool, float position etc.

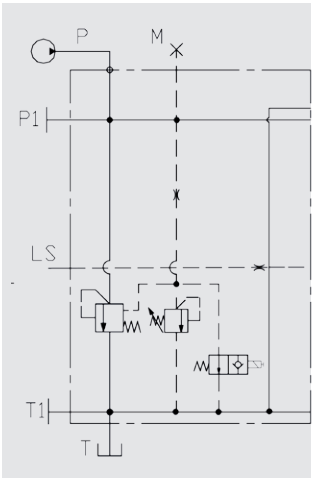
NEW



VD8LS

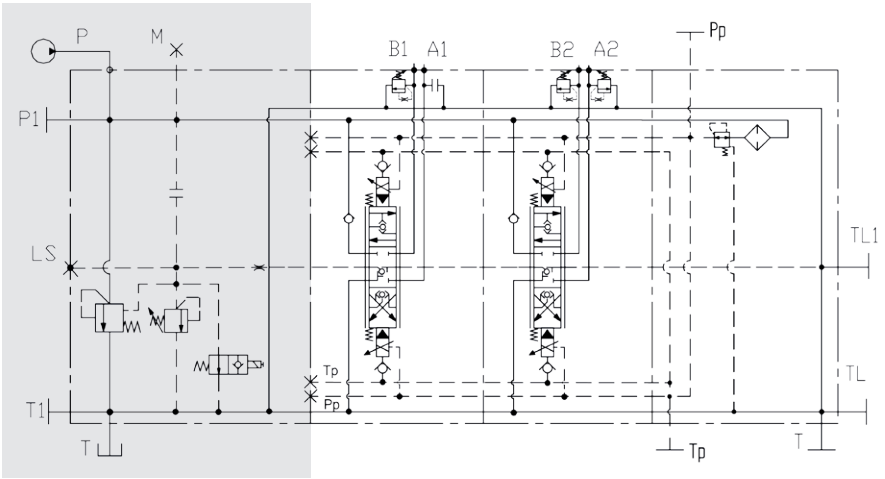
- Open and closed center inlet sections
- Mechanical, pneumatic and hydraulic controls
- Electro-hydraulic On/Off and proportional controls
- Compact dimensions

Inlet section for variable displacement pumps



Inlet section for fixed displacement pumps

Example of hydraulic circuit



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	Max. Flow				Operating Pressure		Max. Operating Pressure						Nr of Sections	Circuit*
	P		A/B				P		A/B		T			
TYPE	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*	bar	*psi*	bar	*psi*	bar	*psi*		
VD8LS	130	*34*	100	*26*	350	*5070*	350	*5070*	350	*5070*	25	*360*	1 ÷ 8	P

* P = Parallel

INLET VALVES		VD8LS							
Direct		•							
Pilot		•							
Unload		•							
AUXILIARY VALVES									
Overload		•							
Overload and Anticavitation		•							
Anticavitation		•							
Conversion		•							
Unidirectional Mechanical									
Unidirectional Piloted									
CONTROLS									
Mechanical		•							
Hydraulic		•							
Pneumatic		•							
Electro-Hydraulic On/Off		•							
Electro-Hydraulic Proportional		•							
Electro-Hydraulic On/Off with Lever		•							
Electro-Hydraulic Proportional with Lever		•							
SPOOL POSITIONINGS									
Spring Return		•							
Spool position sensor		•							
TYPES OF PORTS AND THREADS		**P**	**PL**	**T**	**TL1**	**TL**	**A/B**	**Pp**	**Tp**
BSP (UNI ISO 1179 - THREADS UNI ISO 228/1)	G1/4							•	•
	G1/2	•	•				•		
	G3/4	•		•	•	•	S		
BSPF - JIS B 2351-1 (UNI EN ISO 8434-1)	G1/4							•	•
	G1/2	•	•				•		
	G3/4			•	•	•			
METRIC ISO 262 (UNI EN ISO 9974-1 - THREADS UNI ISO 262)	M22x1,5	•	•				•		
	M27x2			•	•	•			
	G1/4							•	•
METRIC ISO 6149 (UNI EN ISO 6149-1-2-3)	M22x1,5	•	•				•		
	M27x2			•	•	•			
	G1/4							•	•
SAE UN-UNF (UNI ISO 11926 - THREADS UNI ISO 725)	SAE4 (7/16-20 UNF)							•	•
	SAE8 (3/4-16 UNF)						S		
	SAE10 (7/8-14 UNF)	•	•				•		
	SAE12 (1-1/16-12 UN)			•	•	•			

ELECTRICAL DATA		
Voltage	12V	24V
Current	1500 mA	750 mA
Resistance	4.72 Ω ± 5%	20.8 Ω ± 5%
Type of control	On/Off	Proportional
	Direct Current 12 and 24 V	Current control/PWM 100 Hz recommended
Connector	AMP Junior Timer/Deutsch Connector DT04-2P/Flying Leads	

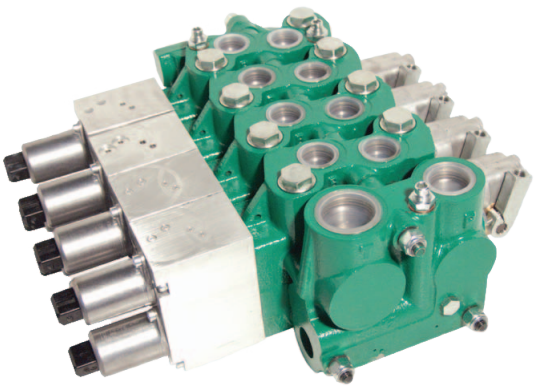
●= Standard/S= Special

GENERAL CONSTRUCTIVE FEATURES

- Cast-iron construction (inlet section, working section, outlet section).
- Steel spools, hardened and nickel plated.

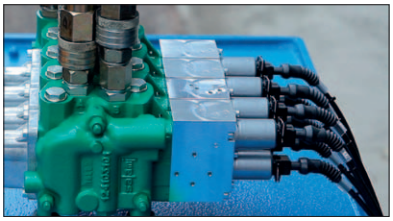
GENERAL FUNCTIONAL FEATURES

- Proportional Load Indipendent, Load Sensing control valve
- Available with inlet module for variable displacement pump and fixed displacement pump (with built-in pressure compensator).
- Availability of venting valve.
- Several types of spool: double, single acting, motor spool, float position etc.
- Working modules with built-in pressure compensator.
- Electro-Hydraulic open loop on-off, proportional control available (12 or 24 Vdc).
- Closed loop electro-hydraulic proportional control available in analog or CANBUS version.
- Handle, pneumatic, hydraulic controls available.
- Availability of auxiliary valves either on port A or B or on both.
- Availability of pressure relief valve on the LS line coming from the ports.



JEC

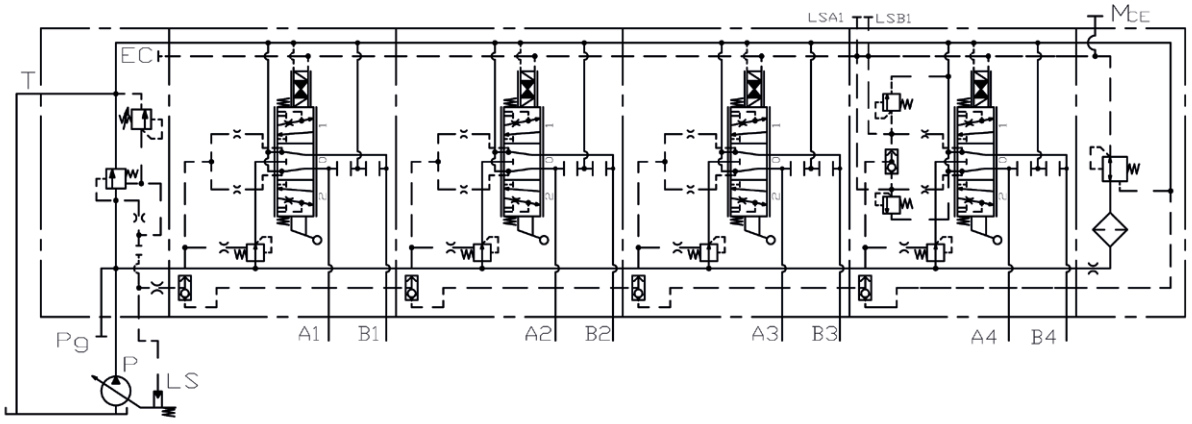
ECS



Cable Kit Option

VDP08 + Electronic Remote Control Systems (see page 16).

Example of hydraulic circuit



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	Max. Flow				Operating Pressure		Max. Operating Pressure						Nr of Sections	Circuit**
	P		A/B				P		A/B		T			
TYPE	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*	bar	*psi*	bar	*psi*	bar	*psi*		
VDP08	130	34	*95**	*25**	350	*5070*	350	*5070*	350	*5070*	10	*145*	1 ÷ 8	FDC / CDC

* with compensator.
** FDC = fixed displacement circuit / VDC = variable displacement circuit.

INLET VALVES	VDP08
Direct	
Pilot	●
Unload	●
AUXILIARY VALVES	
Overload	
Overload and Anticavitation	●
Anticavitation	●
Conversion	
Unidirectional Mechanical	
Unidirectional Piloted	
CONTROLS	
Mechanical	●
Hydraulic	●
Pneumatic	●
Electro-Hydraulic On/Off	●
Electro-Hydraulic Proportional open loop	●
Electro-Hydraulic Proportional closed loop	●
Electro-Pneumatic	●
SPOOL POSITIONINGS	
Spring Return	●
Detent	
Float	●
Microswitch/Potentiometer Device	
Torque Limiting	

TYPES OF PORTS AND THREADS		P	PL	T	TL	LS	A/B
BSP (UNI ISO 1179 - THREADS UNI ISO 228/1)	G1/4					●	
	G3/8						
	G1/2	S					●
	G3/4	●	●	S			
	G1			●	●		
BSPF - JIS B 2351-1 (UNI EN ISO 8434-1)	G3/8						
	G1/2						
	G3/4						
	G1						
METRIC ISO 262 (UNI EN ISO 9974-1 - THREADS UNI ISO 262)	M12x1,5						
	M22x1,5						
	M26x1,5						
	M27x2						
METRIC ISO 6149 (UNI EN ISO 6149-1-2-3)	M12x1,5						
	M22x1,5						
	M27x2						
SAE UN-UNF (UNI ISO 11926 - THREADS UNI ISO 725)	SAE4 (7/16-20 UNF)					●	
	SAE6 (9/16-18 UNF)						
	SAE8 (3/4-16 UNF)						
	SAE10 (7/8-14 UNF)	S					●
	SAE12 (1-1/16-12 UN)	●	●	S			
	SAE16 (1-5/16-12 UN)			●	●		

●= Standard/S= Special

JEC - Joystick Electronic Control

The **JEC system** performs the electronic remote control of electro-hydraulic directional control valves.

- Hall Effect contactless technology.
- Supply voltage: 8 - 32 Vdc.
- Main body material: aluminium.
- Suitable for heavy duty applications.
- Lever deflection angle: ± 22° ±1°.
- Operating temperature range: -25°C / + 80°C.
- Protection class (above panel): up to IP 67.
- Life: > 5 million cycles.
- Multifunction, ergonomic and symmetric handle.
- Single axis (bi-directional movement).
- Dual axes (cross or all diagonals movement).
- Availability to mount dead man push button.
- On-off (using 3 A inductive push buttons) and proportional (using axis movement and rollers) controls available.
- Deutsch connectors.

JEC - PWM version

The PWM version works connecting the appropriate cable kit, coming out from the joystick, at the connectors of the solenoid valves housed on the directional control valve.
In this way the electronic manipulator transfers the current required to operate at solenoid valves end becomes the only controllers of the entire system.

- PWM output: 2 x dual proportional/on-off solenoid valves (control of 2 mechanical sections, 12 or 24 Vdc).
- Availability to mount a roller (with a dedicated PWM driver inside the handle) on the front plate for third proportional function.
- Current output range (PWM): from 100 to 1600 mA.
- Dither frequency: from 60 to 250 Hz (100 Hz factory preset).
- Up to 6 push buttons on the front plate (only if there isn't the roller mounted).
- Up to 3 push buttons on rear plate.
- Joystick connector type: Deutsch DT
- Dedicated cable kit with AMP JT connectors for the connection with solenoid valves.
- Dedicated calibration and configuration tool for setting: Imin, Imax, ramps, duty cycle, dither. frequency
- PWM signals calibration: using an apposite software for PC and a RS232 serial line communication. It is necessary a special programming cable in order to realize the connection between the joystick and the PC.

JEC - CANBus version

Joystick with CAN-BUS output that can connect a large number of commands and transmit them remotely using the CAN-BUS protocol.
It needs an electronic control unit that "translates" the command messages sent to the electro-hydraulic directional control valve.

- Physical layer: ISO 11898, 250Kbit/s.
- Protocol: J1939/ CANOpen.
- Connector type: Deutsch DT04-4P

With Canbus link, following signals can be managed on the grip:
- 4 digital outputs 0.7 A (LEDs, detent coils, buzzers, etc.).
- 6 analog voltage input 0-5 Vdc (proportional rollers).
- 6 digital inputs (push buttons).

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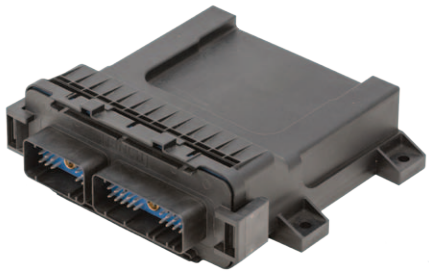
ECS - Electronic Control System

The “Electronic Control System - ECS” for hydraulic control valves provides greater flexibility and versatility than mechanical or hydraulic controls. It also allows greater integration between different controls and devices.
It is possible to manage from 1 to 8 mechanical sections of an electro-hydraulic directional control valve.



The communication between the joystick and the control unit takes place through a voltage signal or via CAN bus protocol.
The control units are equipped with a standard programming of the working parameters that allows to satisfy the vast majority of applications.
For special applications, you can use a software that lets you edit, via PC and in wireless mode (via Bluetooth), some parameters related to the control of solenoid valves; for example, to define the minimum and maximum values of the linear curves, or the frequency dither for the PWM outputs.
Cables kit configurations are available and depend on how many input/output signals the control unit has to manage.

MAIN TECHNICAL SPECIFICATIONS

ELECTRICAL FEATURES	
Supply Voltage:	8 ÷ 36V
Maximum current supplied:	up to 20A for each connector (40A total)
Electromagnetic certifications:	Emission Test: EN 55011 Class A Immunity Test: EN 61000-4-2,3,6
Protections:	reverse polarity, overvoltage, overcurrent and short circuits
Working temperature:	-40° ÷ 85 °C
Processing unit:	dual 32 bit-CPU
Stockage temperature:	-50° ÷ 125 °C
Number of connectors:	2 (30 + 18 pins)
Number of PWM/ Digital Outputs:	16 outputs programmable as proportional (PWM) or digital (ON/ OFF): - up to 5A for digital; - up to 2A for PWM proportional (with 12 bit resolution). High and low side protected with current feedback
Number of Analog / Digital Inputs:	10 (with 12 bit resolution, configurable as digitals, or 4-20mA, or 0-5V, or 0-10V, or ratiometrics)
Communication protocol:	2 independent CAN lines (J1939, CANopen)
Parameters Calibration/ Diagnostics:	Wireless, using “BT 2.1 + EDR” (2.4 GHz) trasmission between ECS (built-in antenna) and a PC with a dedicated software
Auxiliary voltages:	5V, 12V, V_{supply}

MECHANICAL FEATURES	
Operating Temperature:	-40°C to +85°C
Current:	10 Amp @ 85°C
Contact Resistance:	< 10mΩ
Insulation Resistance:	> 1000 MΩ
Sealing:	IP67, IP69K
Temperature Life:	1000 Hrs @ 85°C
Current Cycling:	500Hrs @ 10 Amp500 cycles 45 min ON – 15 min OFF
Vibration:	10 to 2000 to 10 Hz with 15 g’s peak level
Shock	50 g’s – 20 pulses
Salt Spray:	96 Hrs
Temperature Humidity Cycling:	320 Hrs. 40 – 8 Hrs cycles -40°C to +85°C
Fluid Resistance:	Resists to most fluids used in industrial applications

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Aluminium Body Gear Pumps

GENERAL CONSTRUCTIVE FEATURES

- Gear pumps made with aluminium body, cast iron flanges and covers.

GENERAL FUNCTIONAL FEATURES

- High volumetric efficiency achieved by floating bushings and axial compensation.
- 12 teeth integral one piece gear and shaft.
- modular construction.

Note: For bidirectional pump the max pressure has to be reduced by 10%. The max pressure is refered to pumps with flanged ports, using the threaded ports the pump life could be reduced.

1.5PE

- Single shaft seal.
- Rear covers with built-in valves.
- Flanges: European, SAE AA.
- Ports: European, German and American standards.
- Shafts: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
1.5PE - 1.4	1.4	*0.09*	250	*3625*	270	*3915*	290	*4205*	700	5000
1.5PE - 2.1	2.1	*0.13*	250	*3625*	270	*3915*	290	*4205*	700	5000
1.5PE - 2.8	2.8	*0.17*	250	*3625*	270	*3915*	290	*4205*	700	4500
1.5PE - 3.5	3.5	*0.21*	250	*3625*	270	*3915*	290	*4205*	700	4500
1.5PE - 4.1	4.1	*0.25*	250	*3625*	270	*3915*	290	*4205*	700	4000
1.5PE - 5.2	5.2	*0.32*	230	*3335*	250	*3625*	270	*3915*	700	4000
1.5PE - 6.2	6.2	*0.38*	230	*3335*	250	*3625*	270	*3915*	600	3600
1.5PE - 7.6	7.6	*0.46*	200	*2900*	220	*3190*	250	*3625*	600	3300
1.5PE - 9.3	9.3	*0.57*	180	*2610*	200	*2900*	240	*3480*	600	3000
1.5PE - 11	11	*0.67*	170	*2465*	190	*2755*	220	*3190*	600	3000

2PE

- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Compact design.
- Flanges: European, German, SAE A, SAE B, 4 Bolts
- Ports: European, German and American standards.
- Shafts: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
2PE - 3.2*	3.2	*0.19*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PE - 3.9*	3.9	*0.24*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PE - 4.5	4.6	*0.27*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PE - 6.5	6.5	*0.4*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PE - 8.3	8.2	*0.5*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PE - 10.5	10.6	*0.65*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PE - 11.3	11.5	*0.68*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PE - 12.5	12.7	*0.77*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PE - 13.8	13.8	*0.84*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PE - 16	16.6	*1.01*	250	*3625*	280	*4060*	300	*4350*	400	3000
2PE - 19	19.4	*1.15*	220	*3140*	240	*3480*	260	*3750*	400	3000
2PE - 22.5	22.9	*1.37*	200	*2900*	220	*3140*	240	*3480*	400	2750
2PE - 26	25.8	*1.58*	180	*2610*	200	*2900*	220	*3190*	300	2500

*Available only as rear pump

2.5PB

- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Compact design.
- Flanges: European, SAE A, SAE B, 3 Bolt.
- Ports: European, American standards.
- Shafts: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
2.5PB - 5.5*	5.97	*0.36*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB -8.3*	8.29	*0.5*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB - 11.5*	11.76	*0.72*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB - 13.8*	14.07	*0.86*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB - 16	16	*0.97*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB - 19	19.3	*1.17*	250	*3625*	280	*4060*	300	*4350*	600	3000
2.5PB - 22	22.2	*1.35*	250	*3625*	280	*4060*	300	*4350*	500	3000
2.5PB - 25	25.2	*1.53*	250	*3625*	280	*4060*	300	*4350*	500	3000
2.5PB - 28	27.6	*1.68*	250	*3625*	280	*4060*	300	*4350*	500	3000
2.5PB - 32	32.4	*1.97*	230	*3330*	250	*3625*	260	*3750*	500	3000
2.5PB - 38	38.1	*2.32*	200	*2900*	220	*3140*	240	*3480*	400	2750
2.5PB - 44	44.2	*2.69*	170	*2465*	190	*2755*	210	*3040*	400	2500

*Available only as rear pump,displacements 11.5-13.8 are available as single pump only with drive shaft "55"

3PE

- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Compact design.
- Flanges: European, German standards and SAE B.
- Ports: European, German and American standards.
- Shafts: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
3PE - 21	20.6	*1.26*	250	*3625*	280	*4060*	300	*4350*	600	3000
3PE - 27	27	*1.65*	250	*3625*	280	*4060*	300	*4350*	600	3000
3PE - 33	33.5	*2.04*	250	*3625*	280	*4060*	300	*4350*	600	3000
3PE - 38	38.7	*2.36*	240	*3480*	260	*3750*	275	*3990*	500	2750
3PE - 46	46.9	*2.86*	250	*3625*	270	*3915*	280	*4060*	500	2750
3PE - 55	54.1	*3.3*	220	*3140*	240	*3480*	250	*3625*	400	2500
3PE - 65	63.1	*3.85*	200	*2900*	220	*3140*	240	*3480*	400	2500
3PE - 75	73.4	*4.48*	180	*2610*	200	*2900*	220	*3140*	400	2500

Aluminium Body Gear Pumps

GENERAL CONSTRUCTIVE FEATURES

- Gear pumps made with aluminium body, cast iron flanges and covers.

GENERAL FUNCTIONAL FEATURES

- High volumetric efficiency achieved by floating bushings and axial compensation.
- 12 teeth integral one piece gear and shaft.
- modular construction.

Note: For bidirectional pump the max pressure has to be reduced by 10%. The max pressure is refered to pumps with flanged ports, using the threaded ports the pump life could be reduced.

3.5PC

- Double shaft seal.
- Outrigger bearing available.
- Flanges: European, SAE B.
- Ports: European, American standards.
- Shafts: European and American standards.

*** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.*

*Available for quantity

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
3.5PC - 55	54.8	*3.34*	250	*3625*	280	*4060*	300	*4350*	400	2750
3.5PC - 64	63.2	*3.85*	250	*3625*	280	*4060*	300	*4350*	350	2750
3.5PC - 75	74.7	*4.55*	230	*3330*	250	*3625*	280	*4060*	300	2500
3.5PC - 87	88	*5.36*	210	*3040*	230	*3330*	260	*3750*	300	2250
3.5PC - 98*	99	*6.03*	200	*2900*	220	*3140*	250	*3625*	300	2000

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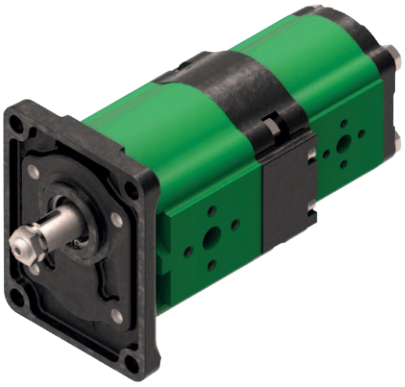
MULTIPLE STAGE CONFIGURATIONS WITH DIFFERENT PUMPS GROUP

2PE/1.5PE

Allowed combination:

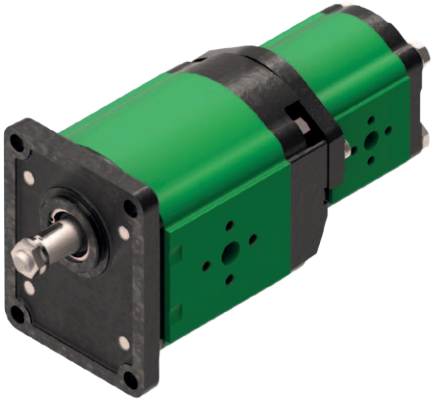
one or a multiple 2PE pump assembled with one or a multiple 1.5PE pump, with common or separated suction.



2.5PB/2PE

Allowed combination:

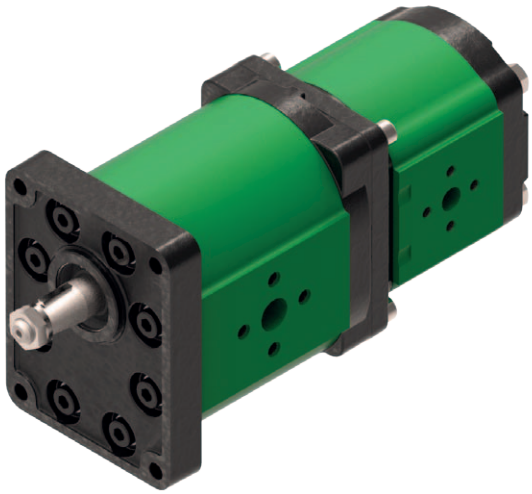
one or a multiple 2.5PB pump assembled with one or a multiple 2PE pump, with common or separated suction.



3PE/2PE
3PE/1.5PE

Allowed combination:

one or a multiple 3PE pump assembled with one or a multiple 2PE or 1.5PE pump, with common or separated suction.



3.5PC/3PE
3.5PC/2PE

Allowed combination:

one or a multiple 3.5PC pump assembled with one or a multiple 3PE or 2PE pump, with common or separated suction.

Aluminium Body Gear Pumps - Silent Type

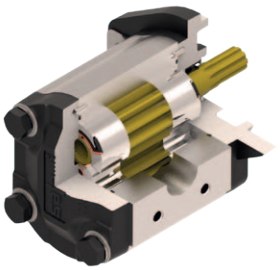
GENERAL CONSTRUCTIVE FEATURES

- Gear pumps made with aluminium body, cast iron flanges and covers.

GENERAL FUNCTIONAL FEATURES

- Low Noise emissions.
- High volumetric efficiency achieved by floating bushings and axial compensation.
- 12 teeth integral one piece gear and shaft.
- modular construction.

Note: For bidirectional pump the max pressure has to be reduced by 10%. The max pressure is refered to pumps with flanged ports, using the threaded ports the pump life could be reduced.



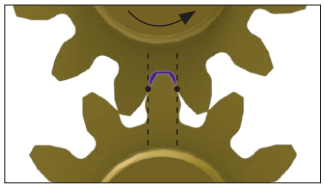
2PW

- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Compact design.
- Flanges: European, German, SAE A, SAE B, 4 Bolts.
- Ports: European, German and American standards.
- Shafts: European and American standards.
- Double flank engagement to reduce pressure pulsation.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

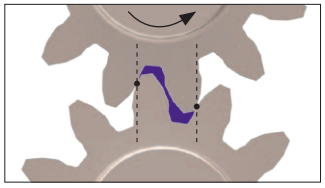
TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
2PW - 3.2*	3.2	*0.19*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PW - 3.9*	3.9	*0.24*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PW - 4.5	4.6	*0.27*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PW - 6.5	6.5	*0.4*	250	*3625*	280	*4060*	300	*4350*	600	4000
2PW - 8.3	8.2	*0.5*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PW - 10.5	10.6	*0.65*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PW - 11.3	11.5	*0.68*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PW - 12.5	12.7	*0.77*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PW - 13.8	13.8	*0.84*	250	*3625*	280	*4060*	300	*4350*	500	3500
2PW - 16	16.6	*1.01*	250	*3625*	280	*4060*	300	*4350*	400	3000
2PW - 19	19.4	*1.15*	220	*3140*	240	*3480*	260	*3750*	400	3000
2PW - 22.5	22.9	*1.37*	200	*2900*	220	*3140*	240	*3480*	400	2750
2PW - 26	25.8	*1.58*	180	*2610*	200	*2900*	220	*3190*	300	2500

2PW



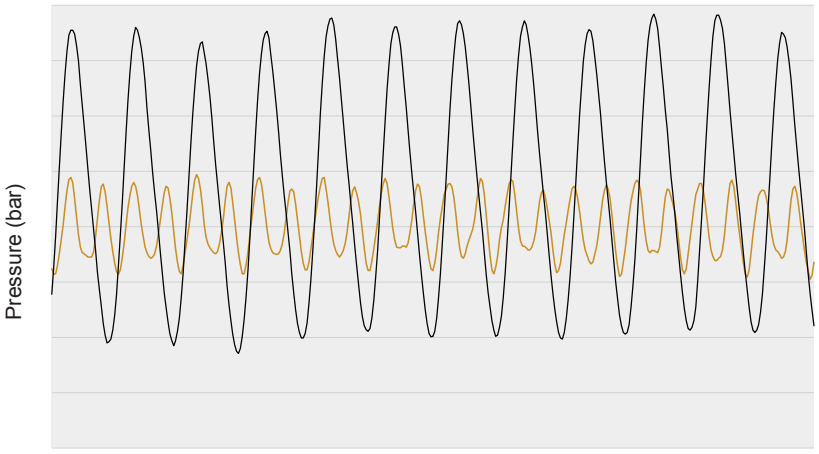
Low Noise gear pump

2PE



Standard gear pump

Pressure Ripple



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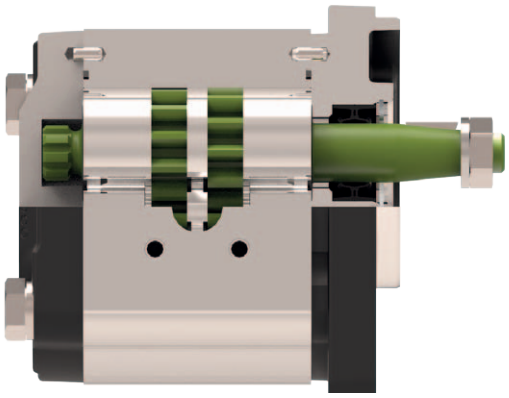
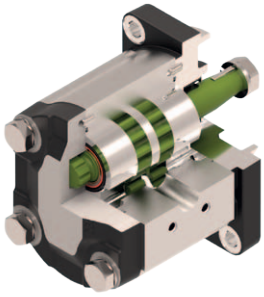
2PZ

- 12 teeth offset split gear construction.
- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Flanges: European, German, SAE A, SAE B, 4 Bolts
- Ports: European, German and American standards.
- Shafts: European and American standards.





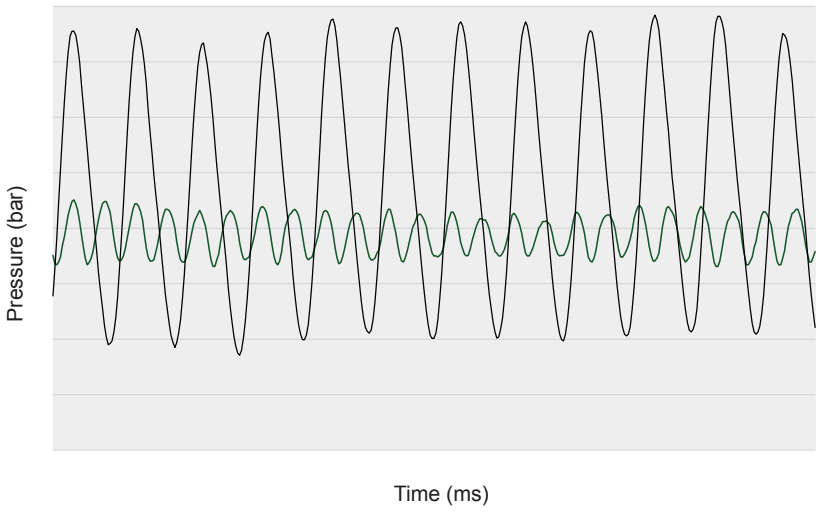
** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
2PZ - 5	5	*0.30*	220	*3190*	250	*3625*	275	*3990*	600	4000
2PZ - 8	8	*0.49*	220	*3190*	250	*3625*	275	*3990*	600	4000
2PZ - 11	10.9	*0.66*	220	*3190*	250	*3625*	275	*3990*	500	3500
2PZ - 14	13.9	*0.85*	220	*3190*	250	*3625*	275	*3990*	500	3500
2PZ - 16	16	*0.98*	210	*3040*	230	*3330*	250	*3625*	400	3000
2PZ - 19	19	*1.16*	190	*2755*	210	*3040*	230	*3330*	400	3000
2PZ - 22.5	22.5	*1.37*	180	*2610*	200	*2900*	220	*3190*	400	2750

Pressure Ripple

2PZ ——

2PE ——

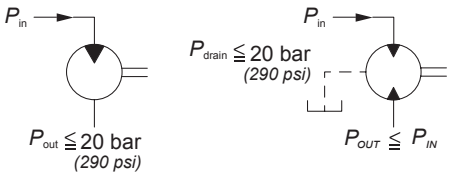


GENERAL CONSTRUCTIVE FEATURES

- Gear motors made with aluminium body, cast iron flanges and covers.

GENERAL FUNCTIONAL FEATURES

- High volumetric efficiency achieved by floating bushings and axial compensation.
- 12 teeth integral one piece gear and shaft.
- modular construction.



The Motors are equipped with HPD shaft seal (20bar), on request is available also for motor with outrigger bearing. Max drain pressure is influenced by rotational speed of the unit.

1.5ME

- Single shaft seal.
- Rear covers with built-in valves.
- Flanges: European, SAE AA.
- Ports: European, German and American standards.
- Shafts: European and American standards.

TYPE	Displacement		Max. continuous pressure P¹		Max. starting pressure P²		Min. speed at P¹	Max. speed at P²
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min^{-1}	
1.5ME - 2.8	2.8	*0.17*	250	*3625*	270	*3915*	700	4500
1.5ME - 3.5	3.5	*0.21*	250	*3625*	270	*3915*	700	4500
1.5ME - 4.1	4.1	*0.25*	250	*3625*	270	*3915*	700	4000
1.5ME - 5.2	5.2	*0.32*	230	*3335*	250	*3625*	700	4000
1.5ME - 6.2	6.2	*0.38*	230	*3335*	250	*3625*	600	3600
1.5ME - 7.6	7.6	*0.46*	200	*2900*	220	*3190*	600	3300
1.5ME - 9.3	9.3	*0.57*	180	*2610*	200	*2900*	600	3000
1.5ME - 11	11	*0.67*	170	*2465*	190	*2755*	600	3000

2ME

- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Flanges: European, German, SAE A, SAE B, 4 Bolts
- Ports: European, German and American standards.
- Shafts: European and American standards.

TYPE	Displacement		Max. continuous pressure P¹		Max. starting pressure P²		Min. speed at P¹	Max. speed at P²
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min^{-1}	
2ME - 4.5	4.6	*0.27*	250	*3625*	280	*4060*	600	4000
2ME - 6.5	6.5	*0.4*	250	*3625*	280	*4060*	600	4000
2ME - 8.3	8.2	*0.5*	250	*3625*	280	*4060*	500	3600
2ME - 10.5*	10.6	*0.65*	250	*3625*	280	*4060*	500	3500
2ME - 11.3	11.5	*0.68*	250	*3625*	280	*4060*	500	3500
2ME - 12.5*	12.7	*0.77*	250	*3625*	280	*4060*	500	3400
2ME - 13.8	13.8	*0.84*	250	*3625*	280	*4060*	500	3400
2ME - 16	16.6	*1.01*	250	*3625*	280	*4060*	450	3200
2ME - 19	19.4	*1.15*	220	*3140*	240	*3480*	450	3200
2ME - 22.5	22.9	*1.37*	200	*2900*	220	*3140*	450	3000
2ME - 26	25.8	*1.58*	180	*2610*	200	*2900*	450	2850

*Available for quantity

2.5MB

- Double shaft seal.
- Outrigger bearing available.
- Flanges: European, SAE A, SAE B, 3 Bolt.
- Ports: European and American standards.
- Shafts: European and American standards.

TYPE	Displacement		Max. continuous pressure P1		Max. starting pressure P2		Min. speed at P1	Max. speed at P2
	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min-1	
2.5MB - 16	16	*0.97*	250	*3625*	280	*4060*	600	3000
2.5MB - 19	19.3	*1.17*	250	*3625*	280	*4060*	600	3000
2.5MB - 22	22.2	*1.35*	250	*3625*	280	*4060*	500	3000
2.5MB - 25	25.2	*1.53*	250	*3625*	280	*4060*	500	3000
2.5MB - 28	27.6	*1.68*	250	*3625*	280	*4060*	500	3000
2.5MB - 32	32.4	*1.97*	230	*3330*	250	*3625*	500	3000
2.5MB - 38	38.1	*2.32*	200	*2900*	220	*3140*	400	2750
2.5MB - 44	44.2	*2.69*	170	*2465*	190	*2755*	400	2500

3ME

- Double shaft seal.
- Outrigger bearing available.
- Flanges: European, German standards and SAE B.
- Ports: European, German and American standards.
- Shafts: European and American standards.

TYPE	Displacement		Max. continuous pressure P1		Max. starting pressure P2		Min. speed at P1	Max. speed at P2
	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min-1	
3ME - 27	27	*1.65*	250	*3625*	300	*4350*	600	3000
3ME - 33	33.5	*2.04*	250	*3625*	300	*4350*	600	3000
3ME - 38	38.7	*2.36*	250	*3625*	300	*4350*	500	2750
3ME - 46	46.9	*2.86*	250	*3625*	280	*4060*	500	2750
3ME - 55	54.1	*3.3*	220	*3140*	250	*3625*	400	2500
3ME - 65	63.1	*3.85*	200	*2900*	240	*3480*	400	2500
3ME - 75	73.4	*4.48*	180	*2610*	220	*3140*	400	2500

2ME CONFIGURATIONS

Reversible

- available also with internal drain

Air compressor drive

- electric or manual motor speed control
- electric venting valve

Fan drive

- Compact design.
- High pressure level thanks to a cast iron manifold.
- Proportional relief valve for a precise temperature regulation.
- Available with directional valve for an efficient declogging of the fan.
- Waterproof coils protection up to IP69K.
- Reduced weight thanks to a Finite Elements structural optimization.
- Protection against pressure and torque shocks.
- Maximum speed in case of electric power failure.

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GENERAL CONSTRUCTIVE FEATURES

- Gear pumps made with Cast iron body, flanges, rear bodies and cover.

GENERAL FUNCTIONAL FEATURES

- High pressure capability by DU bearing.
- 12 teeth integral one piece gear and shaft.
- Double shaft seals.

Note: For bidirectional pump the max pressure has to be reduced by 10%. The max pressure is refered to pumps with flanged ports, using the threaded ports the pump life could be reduced.

2PGE

- High volumetric efficiency by innovative design and accurate control of machining tolerances.
- Flanges: European, German, SAE A, SAE B, ISO (for PTO designs).
- Ports: European, German and American standards.
- Shaft: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
2PGE - 6.5	6.5	*0.4*	270	*3915*	300	*4350*	320	*4650*	600	4000
2PGE - 8.3	8.2	*0.5*	270	*3915*	300	*4350*	320	*4650*	500	3500
2PGE - 11.3	11.5	*0.68*	270	*3915*	300	*4350*	320	*4650*	500	3500
2PGE - 13.8	13.8	*0.84*	270	*3915*	300	*4350*	320	*4650*	500	3500
2PGE - 16	16.6	*1.01*	270	*3915*	300	*4350*	320	*4650*	500	3000
2PGE - 19	19.4	*1.18*	270	*3915*	300	*4350*	320	*4650*	500	3000
2PGE - 22.5	22.9	*1.37*	250	*3625*	280	*4060*	300	*4350*	500	2750
2PGE - 26	25.8	*1.58*	230	*3335*	260	*3750*	280	*4060*	500	2500

PG330 - OEMS Construction
PG331 - Dealers Construction

- High volumetric efficiency throughout the full pressure range, by narrow machining tolerance range and by floating thrust plates, that ensure axial compensation too.
- Flanges: European, SAE A, SAE B, SAE C, ISO (for PTO designs).
- Ports: European and American standards.
- Shafts: European and American standards.

** Max speed allowed with P^2 pressure working continously at P^1 the max. speed must be reduced by10%.

TYPE	Displacement		Continuous pressure P^1		Intermittent pressure P^2		Peak pressure P^3		Min. speed at P^1	Max. speed at P^{2**}
	cm^3/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	bar	*psi*	min^{-1}	
PG330 - 23	23.4	*1.43*	260	*3750*	280	*4060*	300	*4350*	400	3000
PG330 - 28	28.6	*1.74*	280	*4060*	300	*4350*	320	*4650*	400	3000
PG330 - 34	34.4	*2.1*	280	*4060*	300	*4350*	320	*4650*	400	3000
PG330 - 40	40.3	*2.46*	260	*3750*	280	*4060*	300	*4350*	400	2700
PG330 - 47	47.4	*2.89*	280	*4060*	300	*4350*	320	*4650*	400	2700
PG330 - 55	55.2	*3.37*	260	*3750*	280	*4060*	300	*4350*	400	2700
PG330 - 64	64.3	*3.92*	240	*3500*	260	*3750*	280	*4060*	350	2500
PG330 - 72	73.4	*4.48*	220	*3200*	240	*3500*	260	*3750*	350	2500
PG330 - 80	80.6	*4.91*	200	*2900*	220	*3200*	240	*3500*	350	2500

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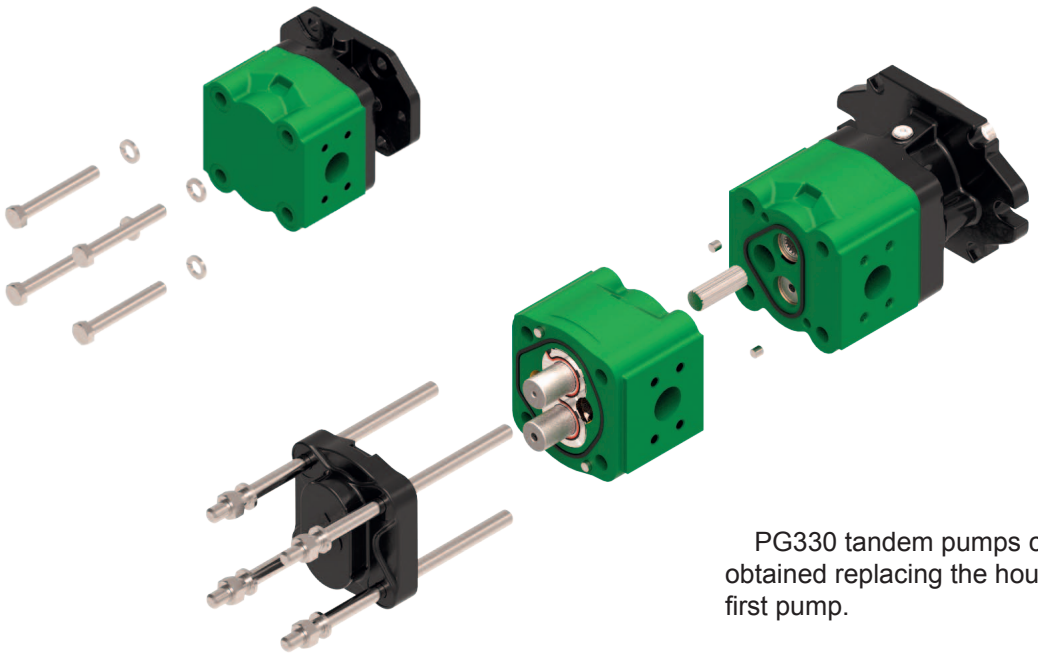
PG330 and PG331

Sharing the same features, in terms of dimensions and working conditions.
PG330 optimized for high volume and for OEM's customers, PG331 has been designed for Retailers simplifying the switch from single to multiple stage pump configuration. Both are available in single, double, triple version.

PG330 Single pump

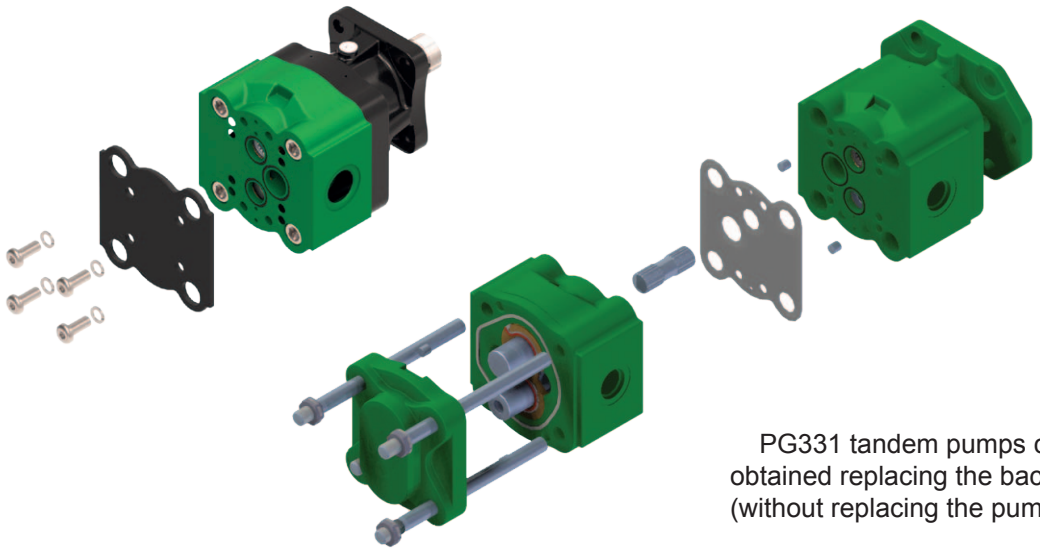
PG330 Multiple pump assembly



PG330 tandem pumps can be obtained replacing the housing of the first pump.

PG331 Single pump

PG331 Multiple pump assembly



PG331 tandem pumps can be obtained replacing the back cover (without replacing the pump's housing)

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MULTIPLE STAGE CONFIGURATIONS WITH DIFFERENT PUMPS GROUP

2PGE/1.5PE

Allowed combination:

one or a multiple 2PGE pump assembled with one or a multiple 1.5PE pump, with common or separated suction.

2PGE/2PE

Allowed combination:

one or a multiple 2PGE pump assembled with one or a multiple 2PE pump, with common or separated suction.

PG330/2PGE
PG330/2PE

Allowed combination:

one or a multiple PG330 pump assembled with one or a multiple 2PE or 2PGE pump, with common or separated suction.

PG331/2PE
PG331/2PGE

Allowed combination:

one or a multiple PG331 pump assembled with one or a multiple 2PE or 2PGE pump, with common or separated suction.

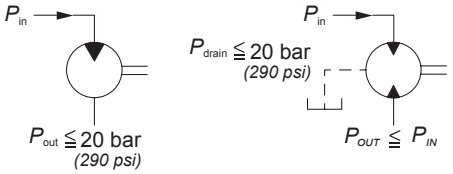
Cast Iron Gear Motors

GENERAL CONSTRUCTIVE FEATURES

- Gear motors made with Cast iron body, flanges, rear bodies and cover.

GENERAL FUNCTIONAL FEATURES

- High pressure capability by DU bearings.
- 12 teeth integral one piece gear and shaft.
- Double shaft seal.



The Motors are equipped with HPD shaft seal (20bar), on request is available also for motor with outrigger bearing. Max drain pressure is influenced by rotational speed of the unit.

2MGE

- High volumetric efficiency by innovative design and accurate control of machining tolerances.
- Flanges: European, German, SAE A, SAE B.
- Ports: European, German and American standards.
- Shaft: European and American standards.

TYPE	Displacement		Max. continuous pressure P¹		Max. starting pressure P²		Min. speed at P¹	Max. speed at P²
	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min⁻¹	
2MGE - 6.5	6.5	*0.4*	250	*3625*	280	*4060*	600	4000
2MGE - 8.3	8.2	*0.5*	250	*3625*	280	*4060*	600	3600
2MGE - 11.3	11.5	*0.68*	250	*3625*	280	*4060*	600	3500
2MGE - 13.8	13.8	*0.84*	250	*3625*	280	*4060*	600	3400
2MGE - 16	16.6	*1.01*	250	*3625*	280	*4060*	450	3200
2MGE - 19	19.4	*1.18*	220	*3190*	240	*3480*	450	3200
2MGE - 22.5	22.9	*1.37*	200	*2900*	220	*3190*	450	3000
2MGE - 26	25.8	*1.58*	180	*2610*	200	*2900*	450	2850

MG330

- High volumetric efficiency throughout the full pressure range, by narrow machining tolerance range and by floating thrust plates, that ensure axial compensation too.
- Flanges: European, SAE B, SAE C.
- Ports: European and American standards.
- Shaft: European and American standards.

TYPE	Displacement		Max. continuous pressure P¹		Max. starting pressure P²		Min. speed at P¹	Max. speed at P²
	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	min⁻¹	
MG330 - 34	34.4	*2.1*	240	*3480*	300	*4350*	600	3000
MG330 - 40	40.3	*2.46*	220	*3190*	280	*4060*	550	2700
MG330 - 47	47.4	*2.89*	240	*3480*	280	*4060*	550	2700
MG330 - 55	55.2	*3.37*	220	*3190*	280	*4060*	550	2700
MG330 - 64	64.3	*3.92*	200	*2900*	260	*3750*	500	2500
MG330 - 72	73.4	*4.48*	200	*2900*	260	*3750*	500	2500

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GENERAL CONSTRUCTIVE FEATURES

- Gear flow dividers made with aluminium body, cast iron side covers.

GENERAL FUNCTIONAL FEATURES

- High volumetric efficiency achieved by floating bushings and axial compensation.
- Two or more modular stages.
- 12 teeth integral one piece gear and shaft in every single stages.
- Available with ports for the main European, German and American standards.
- Common Inlet Port available also on the side-cover.

1.5DRE

- Common Inlet Port available also on the side-cover.
- Assembling up to 8 Stages possible.
- 1.5DRE-VA: cylinder synchronize function.

TYPE	Displacement		Max outlet pressure				Max outlet Δp		Speed		Flow per section		Flow per section	
			P_1	P_2	P_1	P_2	between sections		min.	max.	min.	max.	min.	max.
	cm^3/rev	*cu.in./rev*	bar	bar	*psi*	*psi*	bar	*psi*	min-1		l/min		*gpm*	
1.5DRE - 2.8	2.8	*0.17*	250	270	*3625*	*3915*	50	*725*	1200	4500	3.54	13.26	0.93	3.49
1.5DRE - 3.5	3.5	*0.21*	250	270	*3625*	*3915*	50	*725*	1200	4500	4.42	16.58	1.16	4.36
1.5DRE - 4.1	4.1	*0.25*	250	270	*3625*	*3915*	50	*725*	1200	4000	5.18	17.26	1.36	4.54
1.5DRE - 5.2	5.2	*0.32*	230	250	*3335*	*3625*	50	*725*	1200	4000	6.57	21.89	1.73	5.76
1.5DRE - 6.2	6.2	*0.38*	230	250	*3335*	*3625*	50	*725*	1200	3400	7.83	22.19	2.06	5.84
1.5DRE - 7.6	7.6	*0.46*	200	220	*2900*	*3190*	50	*725*	1200	3400	9.60	27.20	2.53	7.16
1.5DRE - 9.3	9.3	*0.57*	180	200	*2610*	*2900*	50	*725*	1200	3000	11.75	29.37	3.09	7.73
1.5DRE - 11	11	*0.67*	170	190	*2465*	*2755*	50	*725*	1200	3000	13.89	34.74	3.66	9.14

2DRE

- All bodies pre-arranged for assembling of AR cylinder synchronize valves.
- Assembling up to 8 Stages possible.
- 2DRE-VA: cylinder synchronize function.
- 2DRE-AR: for cylinder synchronized in both directions (additional Tank connection required)

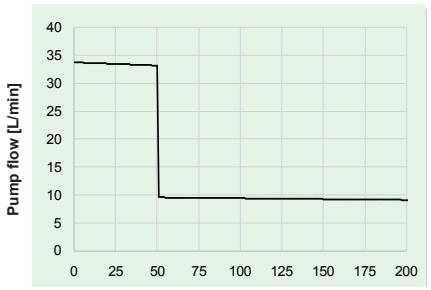
TYPE	Displacement		Max. Outlet Pressure				Max. Outlet Δp		Speed		Flow per section		Flow per section	
			P_1	P_2	P_1	P_2	between sections		min.	max.	min.	max.	min.	max.
	cm^3/rev	*cu.in./rev*	bar	bar	*psi*	*psi*	bar	*psi*	min^{-1}		l/min		*gpm*	
2DRE - 8,3	8.20	*0.50*	250	280	*3625*	*4060*	50	*725*	1200	3600	10.36	31.07	*2.73*	*8.18*
2DRE - 10,5	10.60	*0.65*	250	280	*3625*	*4060*	50	*725*	1200	3500	13.39	39.05	*3.52*	*10.28*
2DRE - 11,3	11.50	*0.68*	250	280	*3625*	*4060*	50	*725*	1200	3500	14.53	42.37	*3.82*	*11.15*
2DRE - 12,5	12.70	*0.77*	250	280	*3625*	*4060*	50	*725*	1200	3400	16.04	45.45	*4.22*	*11.96*
2DRE - 13,8	13.80	*0.84*	250	280	*3625*	*4060*	50	*725*	1200	3400	17.43	49.39	*4.59*	*13.00*
2DRE - 16	16.60	*1.01*	250	280	*3625*	*4060*	50	*725*	1100	3200	19.22	55.92	*5.06*	*14.71*
2DRE - 19	19.40	*1.15*	220	240	*3150*	*3450*	50	*725*	1100	3200	22.46	65.35	*5.91*	*17.20*
2DRE - 22,5	22.90	*1.37*	220	240	*3150*	*3450*	50	*725*	1100	3000	26.52	72.32	*6.98*	*19.03*
2DRE - 26	25.80	*1.58*	200	220	*2900*	*3150*	50	*725*	1100	2850	29.87	77.40	*7.86*	*20.37*
2DRE - 30	30.10	*1.84*	200	220	*2900*	*3150*	50	*725*	1100	2700	34.85	85.55	*9.71*	*22.51*

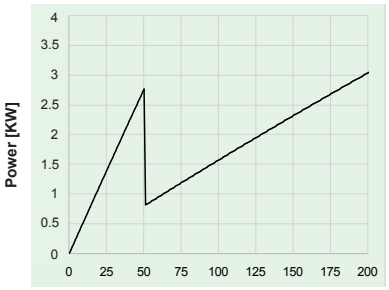
2PE - High Low Multiple Pump- VSQ

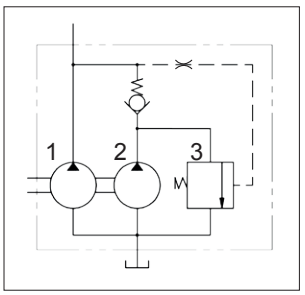
High-Low option is the most suitable choice when the actuator needs quick movements without pressure and slow speed under load. This particular dual pump with integrated valves has been specially designed for applications such as clamping mechanisms, metal forming, crimping machines, compactors, splitters, etc.

- For this Unloading valve you can choose two setting ranges:
  30-60 bar (*440-870 psi*)
  60-120 bar *(870-1740 psi*)

Example: 6.5cc/16cc - 1500 rpm - 50 bar







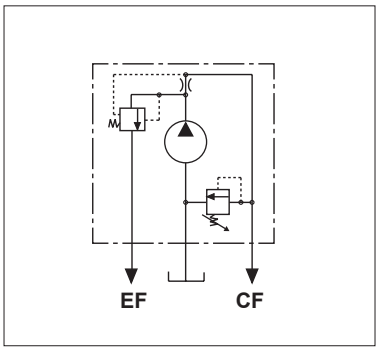
1= Stage high pressure
2= Stage low pressure
3= Unloading valve

Priority flow valve - VPS1/VPDS1

Two different type of valve available:

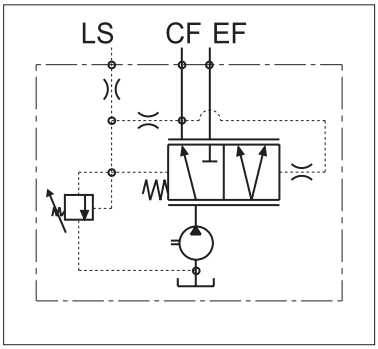
- fixed priority flow valve
- Dynamic priority flow valve adjustable by LS signal.

VPS1



CF= Priority flow port
EF= Excess flow port

VPDS1



CF= Priority flow port
EF= Excess flow port
LS= Load sensing signal port

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