

INDUSTRIAL AND MOBILE SOLUTIONS



Pumps



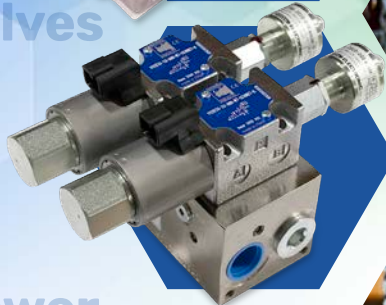
Controls



Valves



Pumps



Power
Units

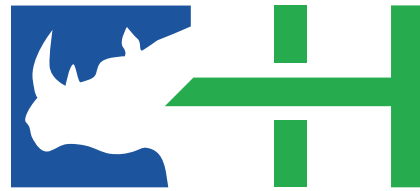


Valves



continentalhydraulics.com hydreco.com

INDUSTRIAL AND MOBILE SOLUTIONS



Welcome to Continental & Hydreco

As the world of Fluid Power evolves, so does Continental and Hydreco, at an increasingly faster pace.

From hydraulics to motion and mobile solutions, from the mid-west to the world, from analog control logics to computerized electronics, Continental and Hydreco are leading the way of technology in the current fast changing markets.

Continental and Hydreco are the driving force for industrial and mobile applications across North America. Combining dynamic offering, providing the company partners with the confidence to specify to the highest standards.

A natural evolution in the growth of Continental Hydraulics has been to develop proven mobile application technology and to partner with a global player - resulting in a new and exciting proposition. This is Continental and Hydreco, both part of the Duplomatic Motion Solutions Group now member of the Daikin Group, which are supported by investment into technology innovation and expertise that Continental and Hydreco customers value.

A global corporation with companies and plants throughout the UK, Australia, Italy, India, Germany, etc. and located in Minnesota, manufacturing and selling a full line of industrial and mobile hydraulics.

Let's work together.



CONTENTS



REMOTE CONTROLS 4-7

- Electrical & Hydraulic Joysticks
- Handles
- Pilot Supply Unit
- Pedals - Foot Valves

GEAR PUMPS 8-9

- HY Series
- World Series
- Roller Bearing Series

SECTIONAL VALVES 10

- SDL, SDN, and SDS
 - On-Off / Proportional
- SDN - Directional Control
- SLSE - Directional Control

VALVES 11

- NFPA - CETOP
- Solenoid Directional Valves
 - VS6M
 - VED03
 - VSNG10
- Special Applications
 - DD
 - HDR
 - KCB - Load Holding



VALVES: Direct Operated Control . . . 14-16

- Solenoid - Direct Operated
- Solenoid - Pilot Operated
- Pneumatic - Hydraulic - Manually Operated

VALVES: IO-LINK - Easy Integration. . . . 17

VALVES: Dual Monitoring 18

VALVES: Hazardous Location. 19

VALVES: Proportional. 20-23

- High Performance Servo-Proportional
- Directional Control with Feedback
- Directional Control with On-Board Control
- Directional Control without On-Board Control
- Proportional Pressure Control
 - Relief Functions
 - Reducing Functions

MODULAR STACK VALVES 24-26

- Check/Load Holding
- Pressure Controls
- Flow Controls

MANIFOLDS 27

- Subplates/Manifolds

PUMPS 28-29

VANE PUMPS

- PVX - Hydraulically Compensated
- PVR - Direct-Spring Compensated

PISTON PUMPS

- HPVR - Trunnion Design
- LPV - Saddle Block

POWER UNITS -

CUSTOM and STANDARD. 30-33

- Low Profile
- Little Champ®
- NFPA/JIC Style
- L - Shaped

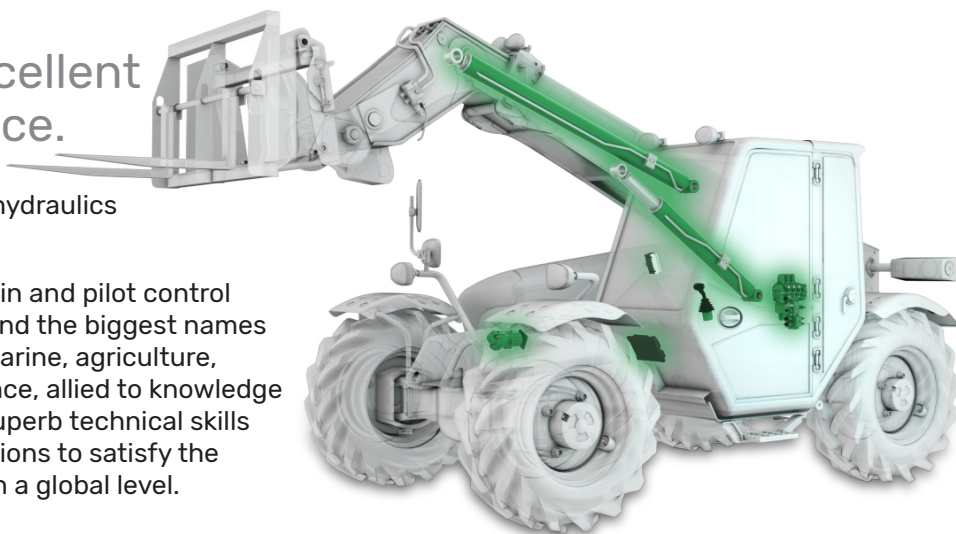


MOBILE HYDRAULICS

Superior performance,
outstanding quality, excellent
service and expert advice.

Those are the cornerstones of the global hydraulics
capability represented by Hydreco.

Our hydraulic gear pumps and motors, main and pilot control
valves provide the power and control behind the biggest names
for equipment in construction, forestry, marine, agriculture,
industrial and mining. Practical performance, allied to knowledge
of the user's application, and backed by superb technical skills
and capabilities, ensure we have the solutions to satisfy the
most demanding hydraulic applications on a global level.



MOBILE PRODUCTS

REMOTE CONTROLS 4-7

- Electrical & Hydraulic Joysticks
- Handles
- Pilot Supply Unit
- Pedals



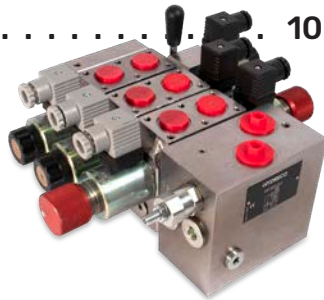
GEAR PUMPS 8-9

- HY Series
- World Series
- Roller Bearing Series



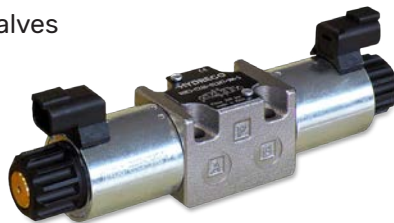
SECTIONAL VALVES 10

- SDL, SDN, and SDS
- On-Off / Proportional
- SDN - Directional Control
- SLSE - Directional Control



VALVES 11

- NFPA - CETOP
- Solenoid Directional Valves
- VS6M
- VED03
- VSNG10
- Special Applications
- DD
- HDR
- KCB - Load Holding



REMOTE CONTROLS

Electrical and Hydraulic

Extensive range of remote controls from the dual axis joystick to the single axis device suitable for armrest or console mounting. Rugged construction for long operating life with optional linkage for main and auxiliary levers connection. Low hysteresis, high accuracy pressure control curves. Low effort control with spring centered and electrical and mechanical detented versions available. All devices can be supplied with more than 200 metering curves for the optimal regulation of the main controls.



ELECTRICAL

MDC Joystick

Provides machine manufacturers with a robust, hard wearing solution as it features a PA66 body with fibre glass and a strong mechanical structure for long operating life. It operates between -40 and +85 °C (-40 + 185°F) and features IP65 protection.

The MDC is available also on single axis execution and it can be configured as crossed version (combined movements inhibited). It's electronics is based on SMD Hall effect technology, a well proven and very reliable solution. Voltage supply between 9 and 32 VDC.

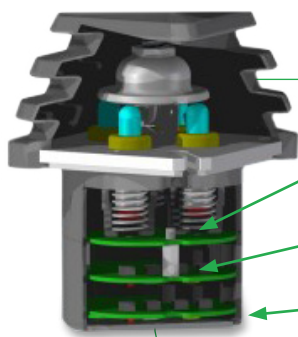
It features closed-loop digital controlled outputs and the output versions include 0 + 5V, PWM, CAN bus, Ratiometric. It is a user-friendly device, with the possibility of setting up the main parameters through a simple software interface provided by Hydreco.



Mini EPVJ Joystick

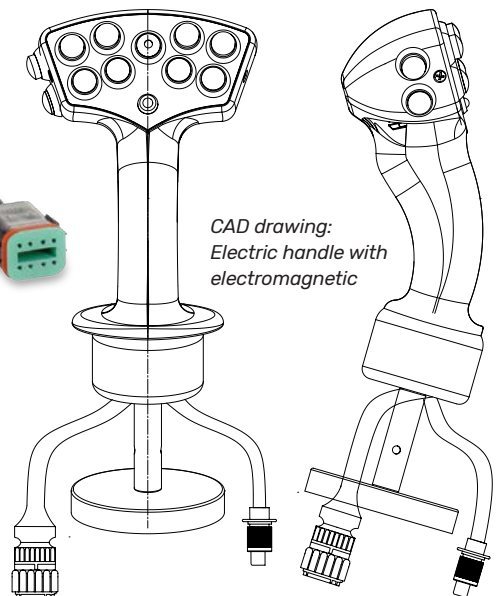
EPVJ features a new technology based on reliable REED magnetic switch (neodymium magnet) and four ON-OFF functions as standard.

Mini-EPVJ version is available to fit smaller space for armrest and console mounting, preserving strong mechanical structure and high reliability.



MDC - Electronic

- Level 1: SMD Hall effect sensor - permanent magnet (ferrite)
- Level 2: Electronic main board is based on micro-controller architecture
- Level 3: 2nd main board



CAD drawing:
Electric handle with
electromagnetic

HYDRAULIC



CPVL Series

Joystick with the inclusion of electrical and mechanical detent is designed specifically for wheeled loader applications. Supported by an extensive range of control curve characteristics and handles options and can be supplied to control either two or three service loader applications.

HPVL / SPVL Series

A precise remote control for the progressive operation of a main control valve, either with individual levers (SPVL), or with a dual axis joystick for individual or simultaneous control of two services (HPVL). Magnetic detents are fitted, making the valve suitable for wheeled loader applications. Single and dual axis R.C.V. for loaders.



HPV1 Series

HPV pilot control valves with their single lever dual axis control, and supported by an extensive range of control curve characteristics and handle options.

HPV2 Series

A very precise, dual axis remote control, for the progressive operation of two services either individually or in combination with each other.

This product has a new design meant to provide a comfortable and fine control for mobile and industrial machines.

The pilot valve, with its single lever dual axis control, is supported by an extensive range of characteristics and handle options which make it suitable for a wide range of both mobile and industrial applications.



HYDRAULIC PILOT CONTROL FEATURES

- Safety: Can't be overridden, no switch to manipulate.
- Self scanning: Device adjust itself to the environment at start-up which leads to increased reliability.
- Double redundancy: It is truly a safe trustworthy device that personalize the phrase "Fit & forget".
- Self contained controls in handle: No extra space is required outside handle for additional control boards.
- Control current: 3 AMPS No need for a relay in majority of applications simplifying the signal circuitry.
- Effort free and comfortable for user: Reduces risk of operator fatigue as there is no button to push. This in turn leads to improved safe operation.
- Works with/without gloves: Hands protected at all times, reduces uncertainty of switch being operated or not.
- No moving parts in safety circuit: Leading to improved safety plus smooth surface for cleanable and hygienic.
- Bottom port options are available for the HPVM/HPVS series.

HPVM / HPVS Series

A very precise remote control valve with individual lever control with

the advantage of being able to bank the units together. Compact and light weight. Suitable for arm rest or console mounting. Compatible with a wide range of products.

Stylish good looks suitable for modern cabs. Operator is insulated from high temperature components. Proven, simple pressure reducing elements. Wide range of low hysteresis, high accuracy, pressure control curves. Wide range of electrical options in both standard and multi-functional ergonomic handles.

HPVS series with its single lever control, supported by an extensive range of characteristics and handles is suitable for a wide range of both mobile and industrial applications.



HPVB / HPVE Series

New mono-block pilot valves with 1 (HPVE) or 2 (HPVB) control levers that replaces PRSVE and PRSVB.

This product, with its individual lever control, supported by an extensive range of characteristics, is suitable for a huge variety of applications. Plus 100% sealed for marine use.



HANDLES

Compact multifunctional solutions with knobs, levers and handles

Available fitting for Hydreco pilot valves or other types of devices. Handles can also be used as stand alone device in many applications.

Knobs and straight levers available with different options, integrating switches and push buttons. Ergonomical MFE, EXM, and MFE2 handles offer multifunction solutions for the most demanding applications; they can be equipped with a wide range of controls: rocker switch, proportional roller, mini joystick, latched or momentary push buttons, toggle switch, four-way switch etc.



MHC

HANDLE FEATURES

- Suitable to many environmental conditions
- High durability, low maintenance
- Configurable for right and left hand operation
- Extensive range of electrical switch and buttons
- Many configurations for knobs and straight handles suitable for single and dual-axis control
- Standard safety switch or capacitive safety function available to match redundancy requirements and different output ratings



EXM HEATED HANDLE FEATURES

- Suitable for cold conditions under 0°C
- One/Two steps of temperatures available
- Reliable thermostat controller, supplying currents to heating mats according to the handle surface temperature
- Configurable for right and left hand operation selecting proper tilting option
 - Possibility to integrate up to N.2 ON-OFF push buttons

HANDLE CONTROL OPTIONS



A Push Button Led

C Push Button

RP Proportional Rollers

R Rocker Switch

Linear Rotary Potentiometer

D Four Way Switch

Four Way Proportional Mini-Joystick Signalling Led

MFE2



MFE



SX



SY



MFE / MFE2 Series

Multifunctional Ergonomic With Built-In SafetyTgrip®

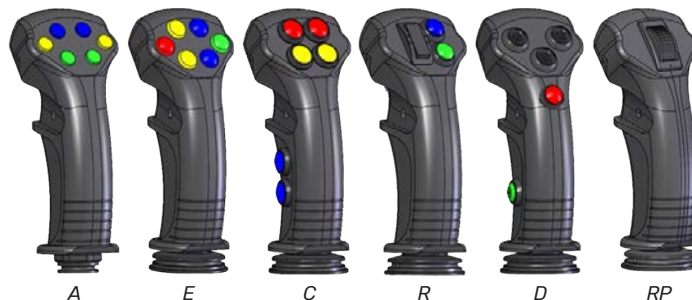
A very compact and efficient solution that fits all current pilot valves and joysticks and has all the components built into the handle structure.

Modern electronic component size and 'intelligence' gives inbuilt diagnostic functions that enable the improved safety, along with a maximum input/output current of 3A and nominal control voltage of 12 or 24V.

MFE is ready for CANBUS applications, the electronic card is integrated inside the handle. Safety functions can be managed with standard safety trigger switch or using the **SafeTGrip®** system, with a capacitive sensor that allow to control safety function in comfortable way. Capacitive sensor technology does not require any mechanical parts enabling compact and space-efficient digital switch package well encapsulated in the handle. Effort free and comfortable for user. Safety system redundancy including EMC tested and certified.



MFE Push Button and Rocker Switch Options



- A) Push button switch type A (open) rated at 3 Amps
- E) Push button switch type E (sealed) rated at 3 Amps
- C) Push button switch type C (IP67) rated at 0,4 Amps
- R) Long life rocker switch type R
- D) Push button switch type D (dual axis IP68) rated at 2 Amps
- RP) Proportional roller

PILOT SUPPLY UNIT

SUH Series

Direct acting pressure reducing valve which can be connected to either one or two main circuits via ports P1 and P2. Both ports feed through a shuttle valve to prevent circuit interaction. Reduced pressure is supplied to port U1 and U2.

A pre-set relief valve is fitted to prevent over pressure, and the unit is supplied with an accumulator connection for emergency power supply. A solenoid attachment is available to act as a safety system and to maintain the accumulator charged for a longer period by preventing leakage downstream to the 'U' ports. An integrated filter is available to protect the output line and downstream components.



PILOT SUPPLY UNIT

FEATURES

- Optional accumulator for peak and emergency power
- Optional 2-way and 3-way, 12 or 24 VDC solenoid valves for safety and extended accumulator storage time
- Dual ports for maximum installation flexibility

PEDALS

HPVP Series

The range of foot pedal controls supported by a huge variety of characteristics, makes it suitable for a wide range of applications.



HPVP03

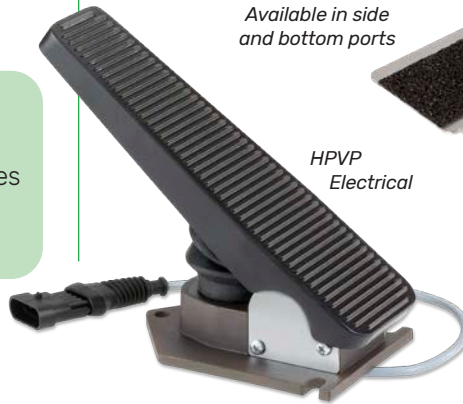


HPVP02

PEDAL FEATURES

- Simple to mount, ports positioned for easy installation
- Low hysteresis, high accuracy, pressure control curves
- Rubber boot protection to prevent contamination and to operate in the toughest environmental conditions
- Plunger manufactured from non-corrosive steel
- Double lip seal option available for increased product life
- End of stroke limited externally to prevent any damage to internal components
- Optimized angular movement of foot pedal

**HPVP01 Available in side and bottom ports*



HPVP Electrical



HPVP04



GEAR PUMPS

Performance, long life reliability, robustness and ease of use even in the harshest of environments



Trench Compactor

GEAR PUMPS	HY SERIES	WORLD SERIES (WSP)	ROLLER BEARING SERIES
Applications	1.0 to 88 cc/rev (0.061 to 5.37 cu in/rev)	12 to 88 cc/rev (0.73 to 5.37 cu in/rev)	12 to 237 cc/rev (0.738 to 14.43 cu in/rev)
Rated Pressure	250 bar (3625 psi)	350 bar (5075 psi)	207 bar (3000 psi)
Input Speed	450 to 5000 RPM	450 to 3500 RPM	400 to 3000 RPM
Bodies	Aluminum / Cast Iron	Cast Iron	Cast Iron

The hydraulic pump range includes helical gear and spur gear pumps together with cast iron and aluminium bodies, two and three piece design with and without bearings. High durability, long life, and high efficiency are features of these pumps, which, when combined with the low noise characteristics of the helical gear pumps, make them highly suitable for modern machinery.

Depending on model, features include: spur gears, helical gears, displacements from 0.061 to 14.43 in³/rev, uni-directional or reversible motors, single or multiple assemblies, cast iron or aluminium bodies, high pressure ratings up to 5075 psi.

GEAR PUMP FEATURES

- High volumetric efficiency
- Very low noise levels
- Long life with plain or roller bearings
- Multiple pumps on one shaft
- Popular drives/ports
- Range of custom interfaces
- Compatible with environmentally aware fluids
- Flexible build configuration

HY Series

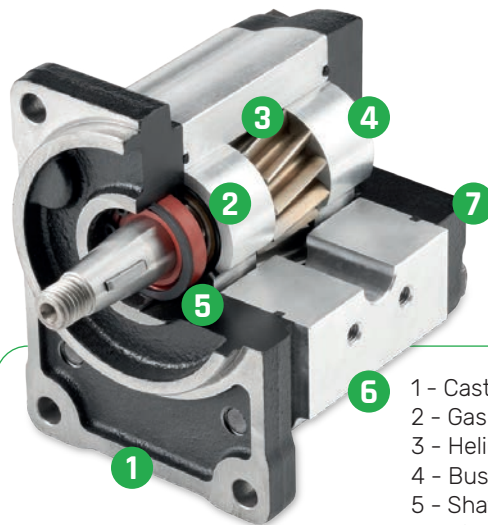
HY series pumps are available with aluminium body and cast iron flange. The HY2 is available in an all cast iron version as well.

Available as pumps and motors, offer high efficiency, **low noise** levels, and can be applied in standard and heavy duty applications, thanks to the high reliability and the accuracy of design and production. The pumps can be supplied as single, or as multiple units with a variety of optional flanges, shafts, and ports providing the right setup for each application.

Low Noise



HY2 SAE A Aluminium Tandem with cast iron adaptor and cover



- 1 - Cast Iron Flange
- 2 - Gaskets
- 3 - Helical Gears
- 4 - Bushings
- 5 - Shaft Seal
- 6 - Aluminium Alloy Body
- 7 - Cast Iron Cover



HY2 Cast Iron

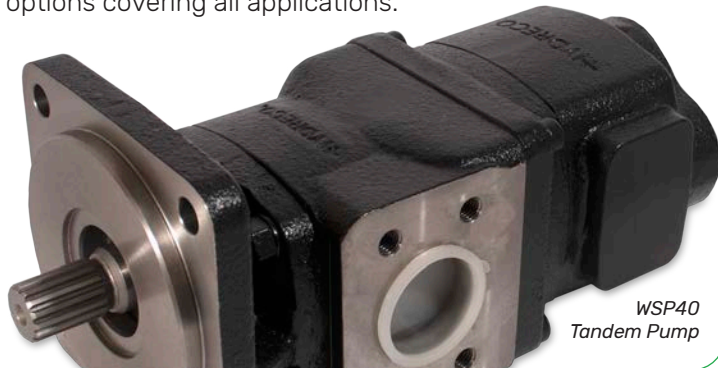
World Series (WSP)

The WSP is a **5000 psi** gear pump. This series of pumps reduce the amount of fluid borne noise generated by the pump and hence transmitted into the hydraulic system. This results in a reduction in the amount of air borne noise emitted from the machine.

Pumps are highly efficient and are designed to provide high performance levels and long life when operated within the rating parameters. Single and multiple pump options covering all applications.



WSP50



WSP40
Tandem Pump



Single Blade Mower

Roller Bearing Series

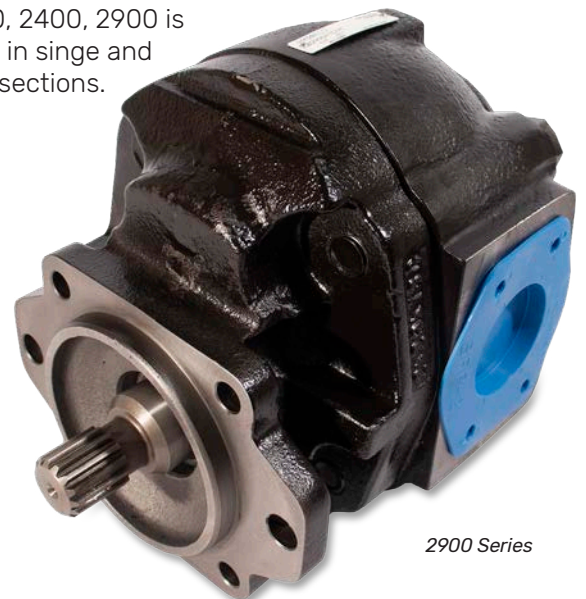
The 1500 K/M, 1900, 2400, 2900 Series Pump/Motor utilizes the many design and application features of the widely accepted Hydreco gear pump and motor technology. The pump contains pressure-balanced wear plates, utilize a very rigid two-piece and three-piece high density cast iron construction and specially designed, long life continuously pressure lubricated roller bearings. **The seals allow 2000 psi back pressure with no case drain.** Units are field repairable due to roller bearing design. Roller bearing construction is relatively insensitive to moderate amounts of contamination.



1500K Series

The 1500K and 1900 series maintains its **bi-rotational** pump and motor capabilities made possible by use of check valves which drain back to the low pressure side. The 1500M has a mechanical face seal which allows back pressures up to 2000 psi with no case drain.

The 1900, 2400, 2900 is available in single and multiple sections.



2900 Series

SECTIONAL VALVES

Wide variety and specific applications options

SDL, SDM and SDS ON-Off/Proportional/ Load-Sensing

Sectional directional control valves and can be assembled in parallel with up to 10 working sections. The same components allow creating series circuits by inserting plugs in order to modify the oil path. Operating pressure up to 320 bar and flow capacity up to 60 l/min.



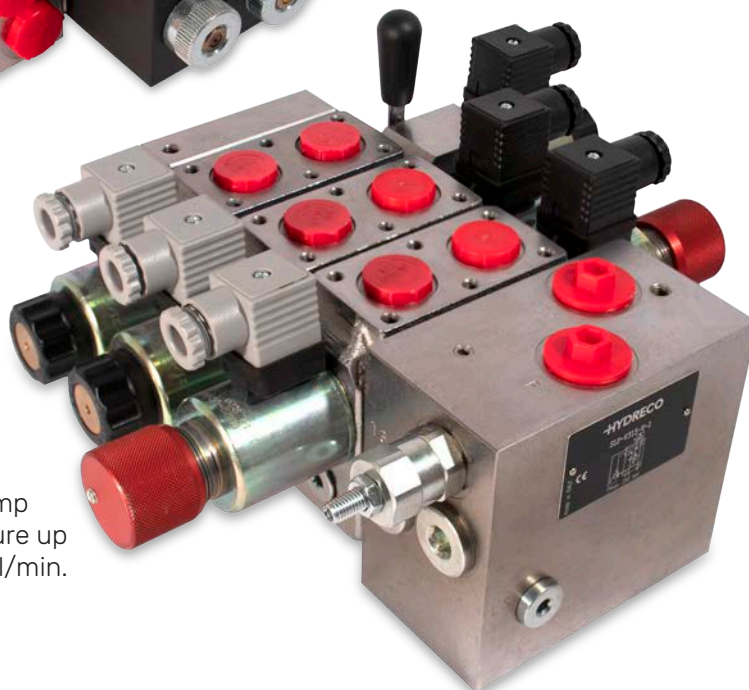
SDN Directional Control

Sectional valves can be assembled in parallel with up to 8 working sections suitable for compact applications, mainly in mobile industries and in mini-power packs. Operating pressure up to 350 bar and flow capacity up to 15 l/min.



SLSE Pre-Compensated

Sectional directional control valve with load sensing feature. It can be assembled with up to 8 working sections (proportional and solenoid valves together). Each module is equipped with a meter-in compensator that keep the flow constant, independent load changes. Sections with pressure compensator are not influenced by other operated functions, provided that sufficient pump capacity is available. Operating pressure up to 315 bar and flow capacity up to 45 l/min.



SECTIONAL VALVE FEATURES

- Sectional construction allows build-up of 1 to 10 spool valve banks.
- Spool sections for Parallel and Tandem circuits (or Combination circuits).
- Inlet sections for Single pump systems with optional Pilot-Operated System-Relief valve.
- Mid-Inlet Sections for 2-pump systems (flows separated or combined as required with optional second-system relief valve).
- Valves are normally supplied fully assembled and tested to customer requirements but individual sections can also be supplied where additional (optional) spools may be required.
- A wide range of spool types.
- Optional Service-Port Relief and Anti-Cavitation Valves.
- Manual, Hydraulic-Pilot, Pneumatic-Pilot and Electric Remote operation.
- Wide range of Spool-Positioning devices including Mechanical and Electrically-Operated Detents.
- Minimum Neutral 'Creep' of Cylinder.

VALVES

NFPA - CETOP Directional / Proportional

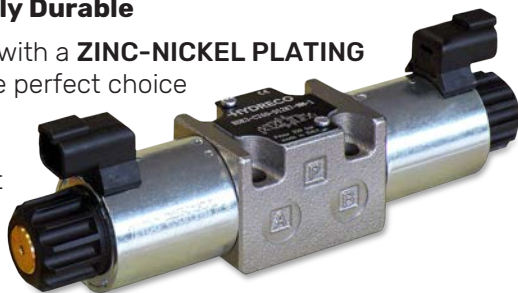
Range of electrical valves for specific applications while others can be used for a wide variety of applications. Control options include proportional directional, direct operated, solenoid directional, pressure compensated and sectional directional with load sensing for example.

Solenoid Directional Valves, Direct Operated.

VALVE	HDS3 / VS6M	HDL5 / VSNG10	HDE3 / VED03
Operating Pressure	up to 350 bar	up to 320 bar	up to 350 bar
Flow Capacity	Up to 80 l/mi	Up to 120 l/mi	Up to 80 l/mi

HDS3 / VS6M Environmentally Durable

Valves supplied with a **ZINC-NICKEL PLATING** making them the perfect choice for mobile and environmental applications that require better protection.



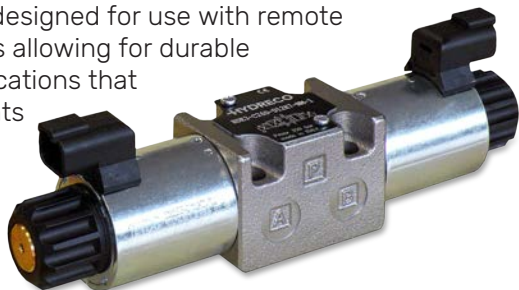
HDL5 / VSNG10 High Strength

Valve is **ZINC-NICKEL PLATING** and suitable for special applications, requiring high flows but with low wattage coils.



HDE3 / VED03 Durable Proportional Performance

These valves are designed for use with remote electronic controls allowing for durable performance in locations that require components to survive in rugged and harsh conditions.



Special Applications DD

Flow diverters with 6 ports, 2 positions. They allow the connection of the pressure lines with two working lines. The solenoid switches the flow alternatively through the flow paths. Version with drain port allows higher pressures.



HDR

Self-reversing valve - Directional control valves hydraulic actuated, with self-reversing spool. Operating pressure up to:
350 bar 50 l/min (HDR3),
320 bar 60 l/min (HDR5).



KCB* Load Holding Valves

Screw in, cartridge type, guided poppet, hydraulic pilot operated check valve. Use as a blocking or load holding device for high pressure applications.

Counterbalance valves are typically used with cylinders to safely hold suspended loads and deal with over-running loads. This valve can also be used with hydraulic motors and is then commonly called a brake valve. Both counterbalance valves and pilot-operated check valves can be used to lock fluid in a cylinder to prevent drifting.





INDUSTRIAL HYDRAULICS

Valves, Pumps and Hydraulic Power Units

Continental provides durable, high performance engineering solutions and delivers exceptional quality to you through our robust products and experienced people.

Continental manufactures a wide range of variable vane pumps, variable piston pumps, directional valves, pressure controls, modular stack valves, servo-proportional valves, proportional pressure control valves, hazardous location / explosion proof valves, position monitored valves and hydraulic power units with flow rates up to 500 GPM, tank size up to 1000 gallon, and pressure up to 5000 PSI.



Quality

Quality Management System, which complies with the ISO 9001:2015 Standard:

**ISO 9001:2015
CERTIFIED**

- Promoting a vision of quality in each function of our organization and challenging the whole team to always strive for standards above those of our competitors;
- Maintaining a talented and innovative work force that determines our reputation and vitality;
- Ensuring that innovation and improvement are at the forefront of our business by constantly challenging ourselves to exceed our customers' expectations;
- Monitoring real-time customer satisfaction through consumer feedback and constant product evaluations.

INDUSTRIAL PRODUCTS

VALVES: Direct Operated Control . . . 14-16

- Solenoid – Direct Operated
- Solenoid – Pilot Operated
- Pneumatic – Hydraulic – Manually Operated



Valves and IO-Link



VALVES: IO-LINK - Easy Integration. . . . 17

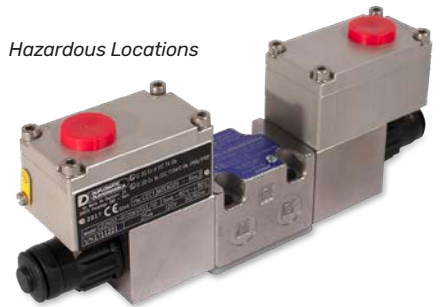
VALVES: Dual Monitoring 18

Dual Monitored



VALVES: Hazardous Location. 19

Hazardous Locations



VALVES: Proportional.20-23

- High Performance Servo-Proportional
- Directional Control with Feedback
- Directional Control with On-Board Control
- Directional Control without On-Board Control
- Proportional Pressure Control
- Relief Functions
- Reducing Functions



MODULAR STACK VALVES24-26

- Check/Load Holding
- Pressure Controls
- Flow Controls



MANIFOLDS 27

- Subplates/Manifolds

PUMPS28-29

VANE PUMPS

- PVX - Hydraulically Compensated
- PVR - Direct-Spring Compensated

PISTON PUMPS

- HPVR - Trunnion Design
- LPV - Saddle Block



**POWER UNITS -
CUSTOM and STANDARD.30-33**

- Low Profile
- Little Champ®
- NFPA/JIC Style
- L - Shaped



Custom unit with control panel

VALVES: DIRECT OPERATED CONTROL



VS6M-1A

VALVES		VSD03L IO-LINK		VSD03M		VSD05M		VSD03M Soft Shift		VSD05M Soft Shift		VS6M		VSN10	
Maximum Operating Pressure	P - A - B Ports	5000 psi	350 bar	5000 psi	350 bar	4600 psi	320 bar	5000 psi	350 bar	4600 psi	320 bar	5000 psi	350 bar	4600 psi	320 bar
	T Port	3000 psi	210 bar	3000 psi	210 bar	3000 psi	210 bar	3000 psi	210 bar	3000 psi	210 bar	3000 psi	210 bar	3000 psi	210 bar
Max Flow Rate		20 gpm	76 l/min	20 gpm	76 l/min	38 gpm	145 l/min	20 gpm	76 l/min	33 gpm	125 l/min	20 gpm	76 l/min	33 gpm	125 l/min
Mounting Surface		NFPA D03 ISO 4401-03-02-0-05		NFPA D03 ISO 4401-03-02-0-05		NFPA D05 ISO 4401-05-02-0-05		NFPA D03 ISO 4401-03-02-0-05		NFPA D05 ISO 4401-05-02-0-05		NFPA D03 ISO 4401-03-02-0-05		NFPA D05 ISO 4401-05-02-0-05	

Rugged, durable and efficient

High flows and low pressure drops make them the perfect choice for new systems or to improve older ones. Continental Hydraulics manufactures manifold mounted directional control valves. With pressures to 5000 PSI continues duty and many function flow direction options, Continental has the correct valves for your application.

DIRECTIONAL VALVE FEATURES

- AC and DC voltages and connection options
- CSA approval
- Pressures to 5000 PSI
- Interchangeable with all major manufactures
- CE compliant
- Solenoid Soft-Shift Hydraulic Pneumatic Manual Lever Low Watt Position Sensors Terminal Boxes

Solenoid Direct Operated

Available in both D03 and D05 mounting patterns, the direct operated valves can be supplied for circuits requiring 2 or 3 positions, as well as 3-way or 4-way functions. Valve body is made with high strength cast iron and internal passages designed to minimize pressure drop.

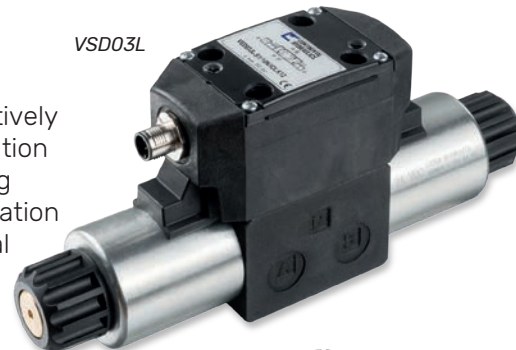


VSD03L

Solenoid Operated Directional Valve

With **IO-Link interface**, these valves effectively integrates the valve in a digital communication system driven by PLC, and allows collecting operational data and environmental information for predictive diagnostics. There are several functions available, including fast switch, energy saving and soft-shift. The valve is available in 3- or 4-way design, with 2 or 3 positions and a wide range of spools and available with DC solenoids.

VSD03L



VSD03M

Standard Performance Spool - In Body Design

Traditional high-performance directional control, valves that conform to NFPA D03 and ISO 4401 mounting standards. They are available in both 3-way and 4-way styles. All versions are available in 2 position spring offset, 2 position detent, 2 position spring centered and 3 position spring centered versions. A wide range of spools plus standard and CSA approved versions are available.



VSD03M*B



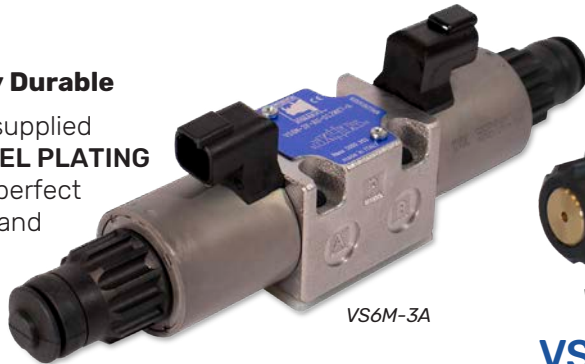
VSD03M

VALVES: DIRECT OPERATED CONTROL

VS6M

Environmentally Durable

These valves are supplied with a **ZINC-NICKEL PLATING** making them the perfect choice for mobile and environmental applications that require better protection.



VSD03M / VSD05M Soft-shift Solenoid Operated Directional Soft-Shift Valves

These Soft-shift valves provides a slow spool movement; slower than that of a standard directional valve. This results in reduction or elimination of hydraulic system shock produced by the spool movement and high flow rates. The valve is available in 3- or 4-way design, with 2 or 3 positions and a wide range of spools and available with DC solenoids.

Direct acting, subplate mounted directional control valve, with mounting surface according to NFPA D03 ISO 4401-03. Valve body is made with high strength iron castings with internal passages designed to minimize pressure drop.

This valve is designed using DC voltage core tubes. DC core tubes accept DIN 43650, AMP junior, DEUTSCH DT04-2P coil connections.



VSD05M

Solenoid Operated Directional Valves

Traditional high-performance directional control. These valves conform to NFPA D05 and ISO 4401 mounting standards. They are available in both 3-way and 4-way styles. All versions are available in 2 position spring offset, 2 position detent, 2 position spring centered and 3 position spring centered versions. A wide range of spools and standard and CSA approved versions are available.



VSN10

Low Power Consumption - High Performance

This valve is suitable for special applications, guaranteed by the reduced solenoid dimensions. These valves are supplied with a **ZINC-NICKEL PLATING** making them the perfect choice for mobile and environmental applications that require better protection.

Direct acting, subplate mounted directional control valve, with mounting surface according to NFPA D05 ISO 4401-05. The valve body is made with high strength iron castings with internal passages designed to minimize pressure drop. D05 pattern P, A & B ports to 4600PSI, T port to 3000 PSI and nominal flows to 33 GPM. Lower watts coils.

This valve is designed using DC voltage core tubes. DC core tubes accept DIN 43650, AMP junior, DEUTSCH DT04-2P coil connections.



VALVES: DIRECTIONAL CONTROL

VSDO*M / VPDO*M

Directional Control Valves: Solenoid - Pilot Operated

These valves are available with either electric solenoid or hydraulic actuation of the main spool. Available in 5 standard NFPA and ISO patterns, these pilot operated valves are used in applications requiring high flow rates. Valves available in both 2 or 3 position and various spool flow patterns. On VSD*M valves, the configuration for internal or external pilot/drains can be easily changed in the field. Also available to improve consistent cycling of the valve are pilot pressure reducing, pilot chocks, and main stage stroke adjustments.



VSD08M



VSD08M
Pilot Chock



VSD05AM

VALVES		VSD05*M		VSD07M		VSD08M		VSD10M	
Maximum Operating Pressure	P - A - B Ports	4600 psi	320 bar	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
	T Port (Ext. Drain)	3600 psi	250 bar	3600 psi	250 bar	3000 psi	210 bar	3000 psi	210 bar
	T Port (Int. Drain)	2000 psi	140 bar	2000 psi	140 bar	2000 psi	140 bar	2000 psi	140 bar
	X Port	3000 psi	210 bar	4000 psi	280 bar	5000 psi	350 bar	4000 psi	280 bar
Max Flow Rate		40 gpm	150 l/min	80 gpm	300 l/min	125 gpm	473 l/min	290 gpm	1100 l/min
Mounting Surface		NFPA D05 alt. A /alt. B ISO 4401-05-05-0-05		NFPA D07 ISO 4401-07-07-0-05		NFPA D08 ISO 4401-08-08-0-05		NFPA D10 ISO 4401-10-09-0-05	

Pneumatic – Hydraulic – Manually Operated Valves

Additional operators to help meet a variety of interface requirements. Choices of Air, Hydraulic, Levers and Cams with wide range of spool configurations.

VAD / VPD / VMD D03 and D05

Air Pilot, Hydraulic Pilot and Manual Lever Operators

Directional control valves with air pilot actuation, hydraulic pilot actuation and lever actuation. Valves conform to NFPA and ISO 4401 mounting standards.

Available in both 3 and 4-way styles. Air pilot to 175 PSI and hydraulic pilot to 3000 PSI.



VMD03M

VMD05M

VAD03M

VAD05M

VALVES		D03		D05	
Maximum Operating Pressure	P - A - B Ports	5000 psi	350 bar	4600 psi	320 bar
	T Port VA, VP	360 psi	25 bar	360 psi	25 bar
	T Port VM	3000 psi	210 bar	2300 psi	160 bar
Maximum Pilot Pressure	VA	175 psi	12 bar	175 psi	12 bar
	VP	3000 psi	210 bar	NA	NA
Minimum Pilot Pressure	VA	60 psi	4 bar	65 psi	4.5 bar
	VP	215 psi*	15 bar*	NA	NA
Flow Rate		20 gpm	76 l/min	32 gpm	120 l/min
Mounting Surface		NFPA D03 ISO 4401-03-		NFPA D05 ISO 4401-05-	

Easy integration

As production demands increase, factories are turning to real-time data to make smarter decisions. What if your devices could tell you what they are doing, how well they are doing and instantly alert you to problems?

By adopting **IO-Link** communication, your organization can benefit from these five powerful advantages:



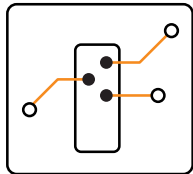
IO-Link solutions enable the integration of hydraulics valves, both ON-OFF and Proportional, in digital communication systems. IO-Link is not a communication bus, but a point-to-point digital communication protocol.

Also, by using IO-Link technology on the hydraulic power units, they become a dynamic system made "smarter" using the IO-Link protocol. Advantages which are derived from turning components into their smart and connected versions, a hydraulic power unit can now be used to manage the supply of power. A necessary condition to realize an authentic predictive maintenance.

Optimize your operations, get more from your devices, and make better, data-driven decisions with IO-Link solutions.

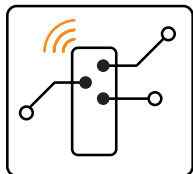
IO-Link Product Range

Mounting interface in compliance with ISO 4401-03 standards.



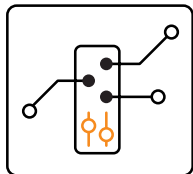
CONNECT

IO-Link devices are connected by cost-effective, standard cables with universal connectors to your components.



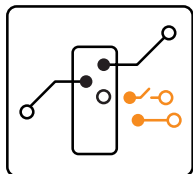
COMMUNICATE

IO-Link gives you access to operational and performance metrics for your devices. Smart components with IO-Link let you remotely access readings and see how well the component is doing. Real-time diagnostics, operators can be alerted in advance before it fails.



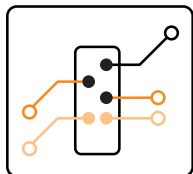
CONTROL

Remote configuration and monitoring to dynamically control devices. Easily switch between device parameters to speed up product changeover.



REPLACE

When you need to replace a component, simply swap it out with a new one and let IO-Link automatically import prior settings. Helps get your line back up and running quickly.



PREDICT

IO-Link anticipates problems before they escalate. Calculate equipment effectiveness, identify performance trends, and optimize maintenance schedules. Real-time data makes troubleshooting simple, and historical data predicts and prevents downtime.

VSD03L

ON-OFF Directional Control Valve

Direct operated, with digital integrated electronics. Different options are available: Soft-shifting, fast-shifting, power-saving; as well as **zinc-nickel coating** that ensures salt spray resistance up to 600 hrs.



Specifications on page 14

VED03JL

Proportional Directional Control Valves

Direct operated, with digital integrated electronics and LVDT position transducer. They control positioning and speed of hydraulic actuators.



VER03L

Proportional Pressure Control Valves

Direct operated, with digital integrated electronics and. Suitable to pilot two-stage valves, for pressure control in hydraulic circuits. Available in five pressure control ranges, up to 350 bar.





DUAL MONITORING

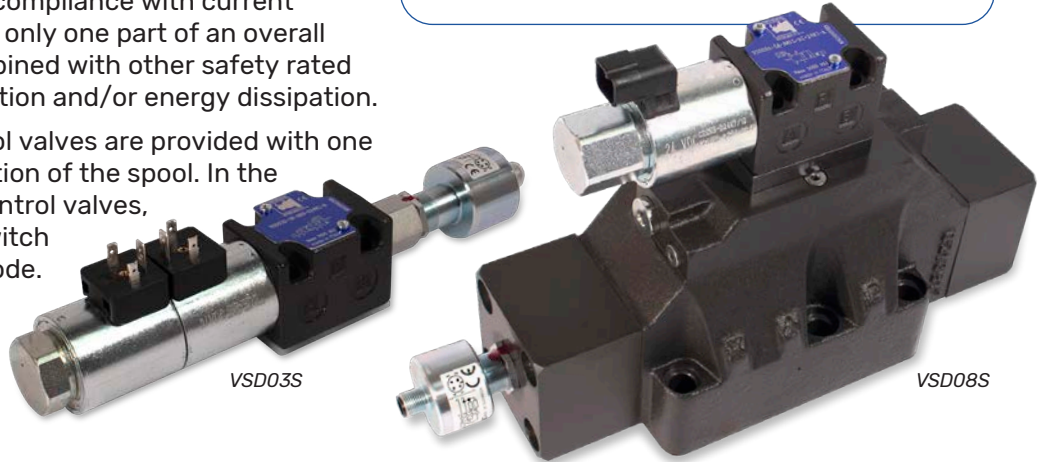
Spool Positioned Monitored Valves/Kits

Used as a component to help meet compliance with current machine safety standards. They are only one part of an overall system and are intended to be combined with other safety rated components to provide energy isolation and/or energy dissipation.

Solenoid operated directional control valves are provided with one or two switches to monitor the position of the spool. In the case of pilot operated directional control valves, the slave spool is monitored. The switch position is indicated with a binary code.

NFPA D03 (ISO 4401-03) to NFPA D10 (ISO 4401-10-09-0-05).

Also available with DC solenoids.



VSD03S

VSD08S

TÜV certification valves to help you achieve compliance to EC Machine Directives, ISO and ANSI regulatory standards

TÜV certification body certifies the compliance of VSD0*S valves with the EC safety standards ISO 4413:2012, UNI EN 12622:2014, UNI EN 693:2001 +A2:2001, UNI EN 201:2010 and UNI EN 422:2009 with certificate TÜV IT 14 MAC 0043.

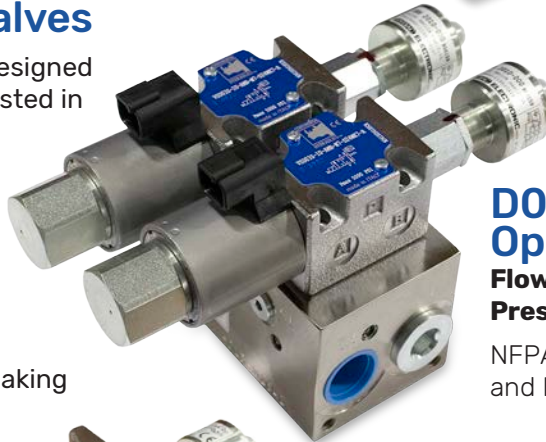


Block and Bleed Control Valves

Dual monitored block and bleed kits, are designed to assist in meeting safety requirements listed in ISO 13849-1/-2 and EN 692 directives.

These redundant design products, when properly implemented into the safety control and monitoring system using a high diagnostic coverage, can achieve Category 4, SIL 3 coverage requirements.

Dual monitored kits consist of ductile iron manifold and two single solenoid valves making it a redundant design. Blocks flow and pressure until both valves have been actuated to allow flow and pressure from the supply to the machine. If either valve is deactivated the flow to the outlet port will be blocked from the hydraulic supply source and the outlet port is then automatically connected to tank removing all potential hydraulic power at the machine.



D03 - Direct Operated Valve

**Flow to 15 GPM
Pressures to 5000 PSI**

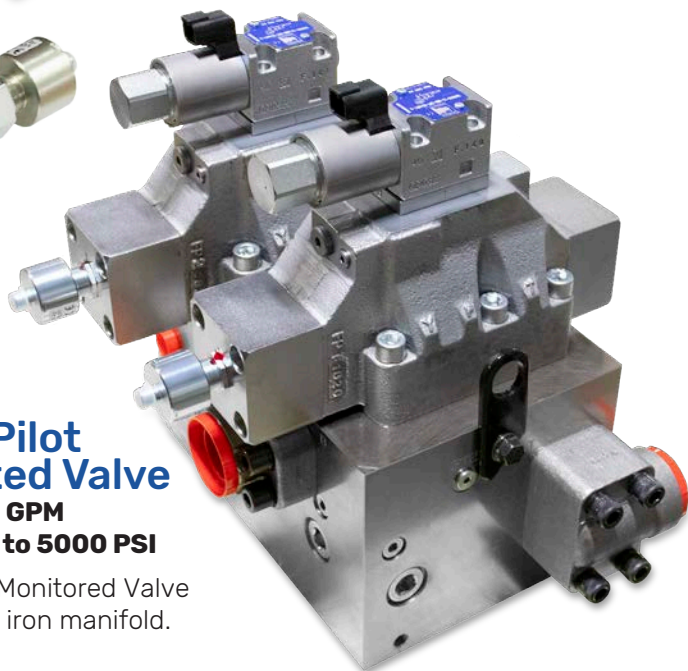
NFPA D03 Monitored Valve and Ductile iron manifold.



D05 - Direct Operated Valve

**Flow to 30 GPM
Pressures to 4600 PSI**

NFPA D05 Monitored Valve and Ductile iron manifold.



D08 - Pilot Operated Valve

**Flow to 80 GPM
Pressures to 5000 PSI**

NFPA D08 Monitored Valve and Ductile iron manifold.



VALVES: HAZARDOUS LOCATION

On-Off or Proportional / Directional Valves

Special provisions used in the solenoids, allow these products to meet the following area classifications: They are compliant with ATEX, EX d IIC, IECEx, INMETRO, UL, CSA requirements and are suitable for use in potentially explosive atmospheres, for surface plants or mines.



VALVES		VSD0* HL KD2		VSD03M EXA		VSD03 EX	
Maximum PSI	P - A - B Ports	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
	T Port	3000 psi	210 bar	3000 psi	210 bar	1000 psi	70 bar
Flow Rate		20 gpm	76 l/min	20 gpm	76 l/min	20 gpm	76 l/min
Mounting Surface		NFPA D03 ISO 4401-03-02-0-03		NFPA D03 ISO 4401-03-02-0-03		NFPA D03 ISO 4401-03-02-0-03	

VSD0* HL KD2 Series

Explosion-Proof Solenoid Operated Directional Valves

Compliant with ATEX, IECEx, INMETRO or PESO requirements and are suitable for use in explosive atmospheres.

The VSD03HL valve is supplied with a **Zinc-Nickel** surface treatment to ensure a salt spray resistance of up to 600 h. The **Zinc-Nickel** surface treatment is available on the pilot operated valves upon request.

A statement of conformity to the applicable standards is supplied with each valve.



VSD03HL-KD2

Valve Sizes Available

- VSD03HL D03 (ISO 4401-03)
- VSD05HL D05 (ISO 4401-05)
- VSD05*HL D05H (alt. A / alt. B)
- VSD07HL D07 (ISO 4401-07)
- VSD08HL D08 (ISO 4410-08)
- VSD10HL D10 (ISO 4401-10)

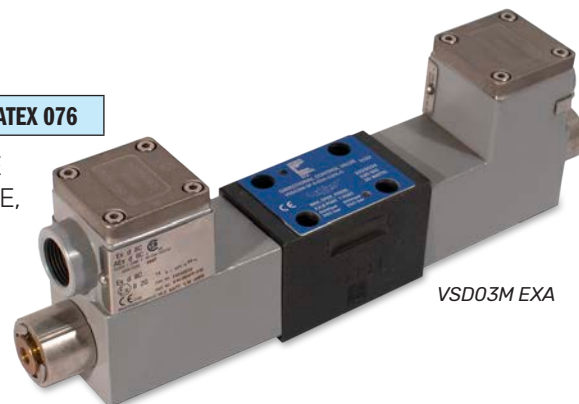
VSD03M EXA Series

Explosion-Proof Directional Control Valves

CERTIFICATE NUMBER: CEC II ATEX 076

These valves utilizes solenoids that are in compliance with ATEX 94/9/CE standards and for Class 1/Zone 1 (Class I Div 1 GRP C,D / Class II Div 1 GRP E, F, G) CSA listed to US and Canada Safety Standards.

Explosion proof solenoids are available in 12 VDC, 24 VDC and 120 VAC. AC coil is equipped with a rectifier bridge. DC coils has a built-in bi-directional diode for surge suppression. VSD03M-EXA valves can be used as pilot valves on all pilot operated D05H/D07/D08/D10 size valves.



VSD03M EXA

VSD03M EX 80 Series

Hazardous Duty Solenoid Actuated, Direct or Pilot Operated

This line of explosion proof, 4-way, directional control valves are designed for use in hazardous condition locations, which demand special considerations. Special provisions used in the solenoids, allow these products to meet the Hazardous area classifications.

The VSD03M-EX valves can be used as pilot valves on all pilot operated D05H/D07/D08/D10 size valves - Y1180-1 option.

Approved by Underwriters Laboratories Inc. and Canadian Standards Associations for use in Hazardous locations: Class I Groups C and D, Class II Groups E, F, and G. U.L. File No. E71190 (N); CSA File No. LR 49650-1.

- Recognized by U.S. Coast Guard
- Registered by Lloyd's Register of Shipping



VSD05AM EX Y1180-1

ALIGNMENT INSTRUCTIONS:
 1. LOOSEN & REMOVE HEX NUT.
 2. LOOSEN THE LARGE END CAP BY TURNING IT COUNTERCLOCKWISE AS VIEWED FROM THE END.
 3. ROTATE THE COIL TO ALIGN THE CONDUIT.
 4. TIGHTEN THE LARGE END CAP BY HAND. USE OF ANY TOOLS COULD DAMAGE THE UNIT. DO NOT EXCEED THE MAX. COIL TORQUE SPECIFIED IN THE COIL DATA SHEET.
 THE COIL IS NOT TO BE TIGHTENED.

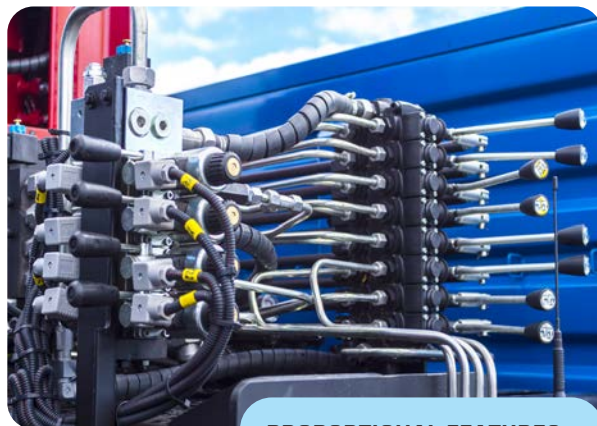




VALVES: PROPORTIONAL

Designed to increase productivity, precision, automation and decrease costs

Continental Hydraulics offers a complete range of proportional valves. The various models are available with or without on-board electronic (OBE), feedback and in closed loop as well as Field-bus and IO-Link configurations wastes and errors margins.



PROPORTIONAL FEATURES

- Directional control,
- Explosion-proof rated proportional solenoids,
- High performance servo-proportional
- Pressure control: Relief or reducing functions
- Pressure compensated flow control

HIGH PERFORMANCE SERVO-PROPORTIONAL

VALVES		VED03MX		VED05MX		VED*MX	
Maximum Operating Pressure	P - A - B Ports	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
	T Port (Ext. Drain)	-	-	-	-	3600 psi	250 bar
	T Port (Int. Drain)	3600 psi	250 bar	3600 psi	250 bar	440 psi	30 bar
	X Port	-	-	-	-	3600 psi	250 bar
Max Flow Rate		.26-10.5 gpm	1-40 l/min	15.8-26.4 gpm	60-100 l/min	26.4-265 gpm	100-1000 l/min
Mounting Surface		NFPA D03		NFPA D05		NFPA D05-D10	

VED03MX / VED05MX Series

Direct Operated Spool In Sleeve

High Response 4-way servo-proportional valve with precision lapped Spool / Sleeve, position sensing LVDT and Enhanced On-Board Digital Amplifier. 4-way with 3 position plus fail safe 4th position.



VED03MX



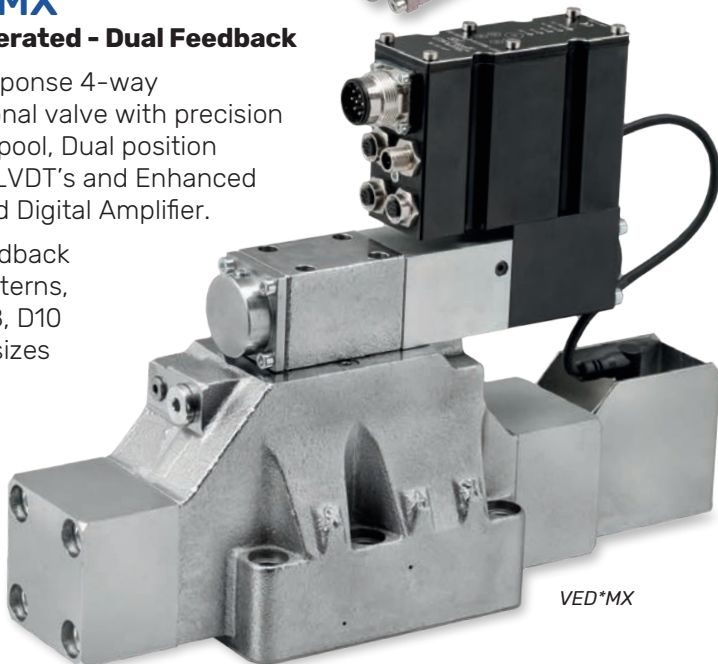
VED05MX

VED*MX

Pilot Operated - Dual Feedback

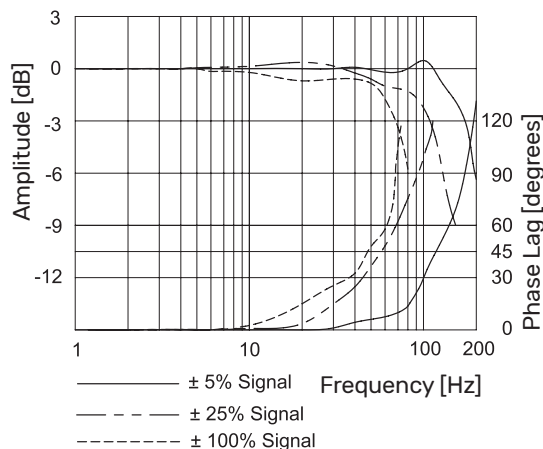
High Response 4-way proportional valve with precision lapped Spool, Dual position sensing LVDT's and Enhanced On-Board Digital Amplifier.

Dual Feedback D05* patterns, D07, D08, D10 and D11 sizes



VED*MX

VED03MX - Frequency Response



DIRECTIONAL CONTROL WITH FEEDBACK

The **J Series**, precision spool in body design valves with LVDT spool position feedback, are available with different types of on-board electronics:

- Industry standard version comes with electronics with analogue interface with current or voltage reference signal with common 7 pin connection (6 pin + PE).
- Economical JL version, compact box with IO-Link, Can-Open or analog interface and 5 pin M12 connection.
- JH version has interface for fieldbus communication type EtherCAT, Ethernet/IP, Profinet or PowerLink with 11 pin M12 connection.

VALVES	VED03 (J Series)	VED05 (J Series)	VED Pilot (J Series)
Type	Direct Operated	Direct Operated	Pilot Operated
Max Pressure	5000 PSI (350 bar)	4600 PSI (320 bar)	5000 PSI (350 bar)
Flow Rate	.25-8 gpm (1-30 l/min)	13-20 gpm (50-75 l/min)	21-210 gpm (80-800 l/min)
Control Signal	IO-Link, Analog, Fieldbus	Analog	IO-Link, Analog, Fieldbus
Step Response	25 ms	50 ms	45 to 120 ms

VED03 / VED05 J Series

Direct Operated

Directional control valves with proportional control, integrated digital electronics and LVDT Spool Position Sensing. Zero Lap, Equal Metering and 2:1 ratio spools available.



VED05MJ

VEDO* J Series

Proportional Pilot Operated

This 4-way proportional valves with on-board digital amplifier and LVDT spool position feedback are available in 5 standard NFPA and ISO patterns, IO-Link, analog or fieldbus interfaces. Equal metering, regenerative and 2:1 ratio spools available.



VED08MJ



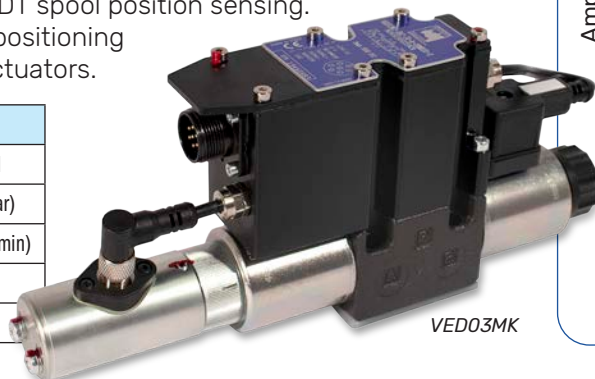
CONTROL BOARD

VED03MK

High Performance Spool-In Body, 5 Pin Cable

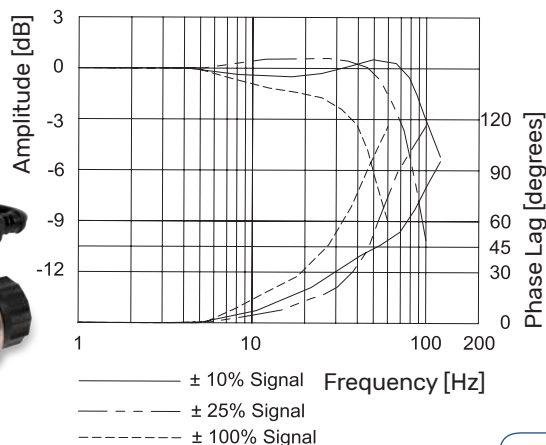
Directional control valves with proportional control with integrated digital electronics and LVDT spool position sensing. Economical control over positioning and speed of hydraulic actuators.

VALVES	VED03MK
Type	Direct Operated
Max Pressure	5000 PSI (350 bar)
Flow Rate	.25-8 gpm (1-30 l/min)
Control Signal	Analog
Step Response	25 ms



VED03MK

VED03MK - Frequency Response





VALVES: PROPORTIONAL

Directional Control with On-Board Control

G Series: On-Board proportional valves available in Direct Operated as well as Pilot Operated Proportional Directional Control Valves. Three types of digital integrated electronics, with analog, IO-Link or fieldbus control interfaces.

VED03 / VED05 G Series Direct Operated

Directional control valves with proportional control with integrated digital electronics.



VED03GL

VED03MG

VED05AMG

Directional Control without On-Board Control

M Series: Designed to control the direction and oil flow rate based on the amount of current supplied to the solenoid. In event of a loss in electrical power, the centering springs will return the valve spool to the center position. Solenoids valves can be driven by a variable current power supply or by use of external power amplifier cards designed to maximize the valves' performance.

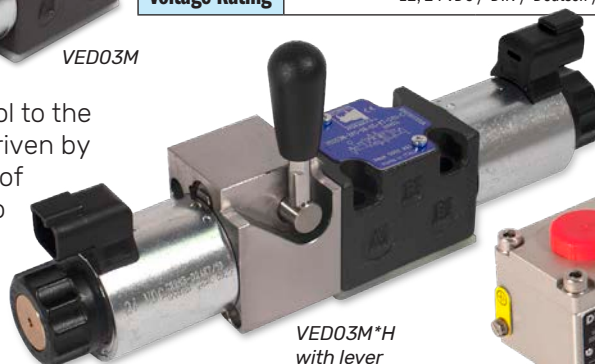


VED03M

VED03 / VED05 M Series Direct Operated

VED03M direct operated 4-way proportional valves conform to NFPA D03 and ISO 4401 mounting standards.

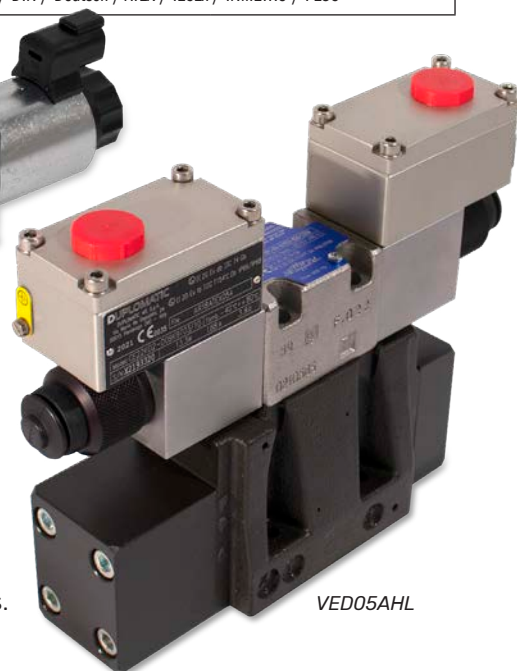
Valves designed for use with remote electronic controls allowing for durable performance in locations that require components to survive in rugged and harsh conditions.



VED03M*H
with lever

VED0* M Series Pilot Operated

VED*M pilot operated 4-way proportional valves conform to NFPA D05* to D10 and ISO 4401 mounting standards.



VED05AHL

Electronics

Open/Closed loop control modules

Large selection of motion controls. Variety of control interface options: Analog Voltage or Current / IO-Link / Ethernet IP / EtherCAT / Profinet / PROFIBUS DP / CAN Open / Powerlink.



VALVES	VED03 (G Series)	VED05 (G Series)	VED03*MG Pilot (G Series)
Type	Direct Operated	Direct Operated	Pilot Operated
Max Pressure	5000 PSI (350 bar)	4600 PSI (320 bar)	5000 PSI (350 bar)
Flow Rate	1-7 gpm (4-26 l/min)	8-16 gpm (30-60 l/min)	21-132 gpm (80-500 l/min)
Control Signal	IO-Link, Analog, Fieldbus	All	IO-Link, Analog, Fieldbus
Step Response	30 ms	60 ms	45 to 140 ms

VED0*M G Series Pilot Operated

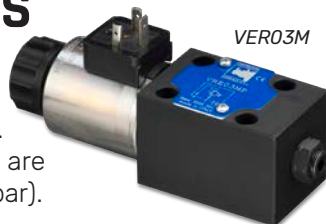
This 4-way proportional valves with on-board digital amplifier are available in 5 standard NFPA and ISO patterns.



VALVES: PROPORTIONAL PRESSURE CONTROLS

RELIEF FUNCTIONS

These valves have mechanical pressure limitation feature, for higher safety of the application. Five pressure regulation ranges are available, up to 5000 PSI (350 bar).



VER03M



VER03MP



VER06SP

VER03M / VER03MP / VER*SP

Direct Operated Pressure Relief

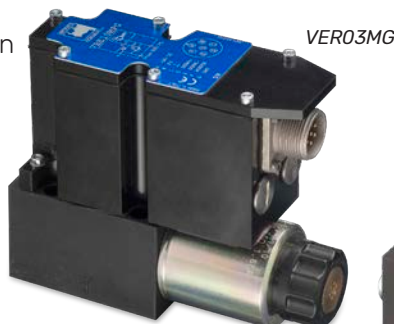
Provide excellent control over pilot signals with flow rates up to .5 GPM (2 LPM) The Pilot operated two stage valves are used to modulate the pressure of the hydraulic circuit and allow the use of the entire flow of the pump, used for flow rates from 10 GPM (40LPM) to 130 GPM (500LPM).

VALVES		VER03M/G		VER03MP/G	
Max Oper. Pressure	P - Port	5000 psi	350 bar	5000 psi	350 bar
	T - Port	30 psi	2 bar	30 psi	2 bar
Max Flow Rate		65 gpm	2 l/min	13.2 gpm	50 l/min
Mounting Surface		NFPA D03		NFPA D03	

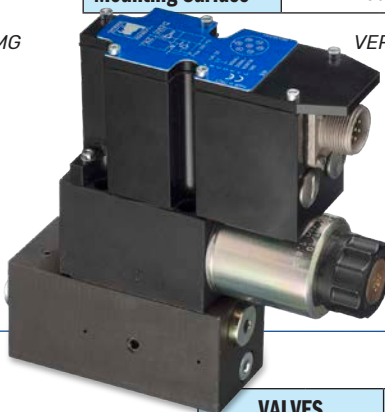
VER03MG / VER03MPG / VER*SPG

Pilot Operated Pressure Relief

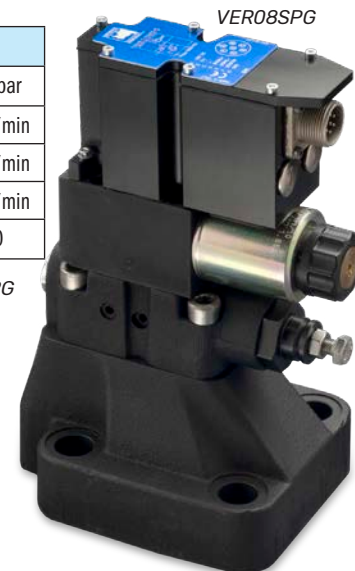
All the same performance features as M valves, these valves are available with different types of on-board electronics: The G version is our standard electronics with connection 6 pin + PE. The GL version comes with compact box with IO-Link, Can-Open or Analog interface and 5 pin M12 connection. The GH version has interface for fieldbus communication type EtherCAT, Ethernet/IP, Profinet, PowerLink, with 11 pin M12 connection.



VER03MG



VER03MPG



VER08SPG

VALVES		VER*SP/G	
Max Oper. Pressure		5000 psi	350 bar
Max Flow Rate	VER06SP/SPG	53 gpm	200 l/min
	VER08SP/SPG	105 gpm	400 l/min
	VER10SP/SPG	132 gpm	500 l/min
Mounting Surface		NFPA 06/08/10	

REDUCING FUNCTIONS

VEP03MSV / VEP05MSV

3-way Pilot Operated Pressure Reducing Valves

Proportional pressure reducing valves, pilot operated. Stackable mounting. They are used to reduce pressure in the secondary circuit branches thus ensuring stability of controlled pressure in the event of variations of the flow rate through the valve. Available in three different pressure reduction ranges of up to 230 bar. The valves can be controlled directly by a current-controlled power supply, or by an electronic card, to be order separately.



VEP03MSV



VEP05MSV

VALVES		VEP03MSV-PDRP		VEP05MSV-PDRP	
Max Oper. Pressure	P - Port	4600 psi	320 bar	4600 psi	320 bar
	T - Port	30 psi	2 bar	30 psi	2 bar
Max Flow Rate		11 gpm	50 l/min	26 gpm	100 l/min
Mounting Surface		NFPA D03		NFPA D05	



VALVES: MODULAR STACK

Flow, check and pressure control

Designed to install between the valve and its mounting surface. This will eliminate plumbing connections and reduce space requirements. Continental has a full range including check, flow control, relief, reducing, sequencing, shuttle valves and counterbalance valves. Manufactured to NFPA and ANSI/ISO's standards.

Modular stack valves allow for many circuit function components to be easily mounted in a very economical, no leak package. With all functions located in a single convenient space, adjustments can easily be made. Functions include checks, flow controls, pressure controls, load holding and solenoid operated blocking valves.



P03MSV-SP

MODULAR VALVE FEATURES

- High flow rates with low pressure drop
- Numerous functions and flow/pressure ranges
- NFPA D03/D05 mounting
- Aluminum body products rated up to 3000 PSI
- Cast Iron body products rated up to 5000 PSI

CHECK / LOAD HOLDING

VALVES	C03MSV-D		C05MSV-D		C03MSV-P*		C05MSV-P*	
Max Operating Pressure	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
Max Flow Rate	13.2 gpm	50 l/min	26 gpm	100 l/min	13 gpm	50 l/min	32 gpm	120 l/min

C03MSV-D / C05MSV-D

Direct Operated Check Valves

Direct check valve made as a modular stack version with D03/D05 mounting surface according to the NFPA and ISO 4401 standards. It is used to avoid oil back-flows and self-emptying of lines, or generate back-pressures. Pressure line or tank line circuits.



C03MSV-DP

C03MSV-P* / C05MSV-P*

Pilot Operated Check Valves

Allow free flow from the directional control valve work port to the load and blocks flow in the opposite direction. Flow is allowed from the load to the directional control valve work port when 30% of the load induced pressure is sensed in the opposing directional control valve work port. NFPA D03/D05 mounting patterns. Guided spool and poppet-seat lock the load in place.



C03MSV-PC

VALVES	P03MSV-C*		P05MSV-C*		F03MSV-BV		F05MSV-BV	
Max Operating Pressure	3000 psi	210 bar	3000 psi	210 bar	5000 psi	350 bar	5000 psi	350 bar
Max Flow Rate	15 gpm	57 l/min	30 gpm	114 l/min	20 gpm	76 l/min	30 gpm	114 l/min

P03MSV-C / P05MSV-C

Pilot Operated Counterbalance Valves

The P0*MSV-C counterbalance valves with pilot assist are designed to control an overrunning load or hold a load in position by maintaining a back pressure on the outlet of the cylinder. An integral check valve allows for free flow in the reverse direction. 0-5 Drop per minute leakage. NFPA D03 and D05 mounting patterns.

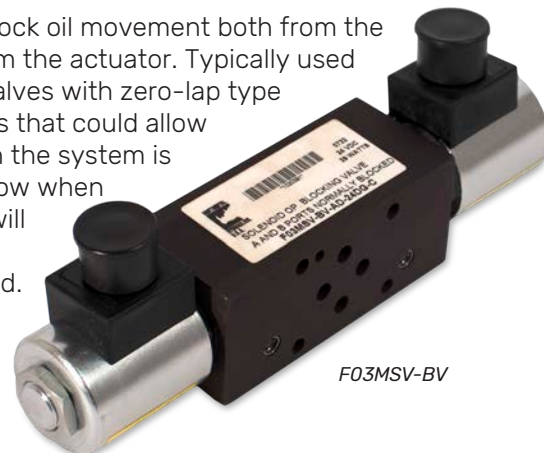


P03MSV-CA

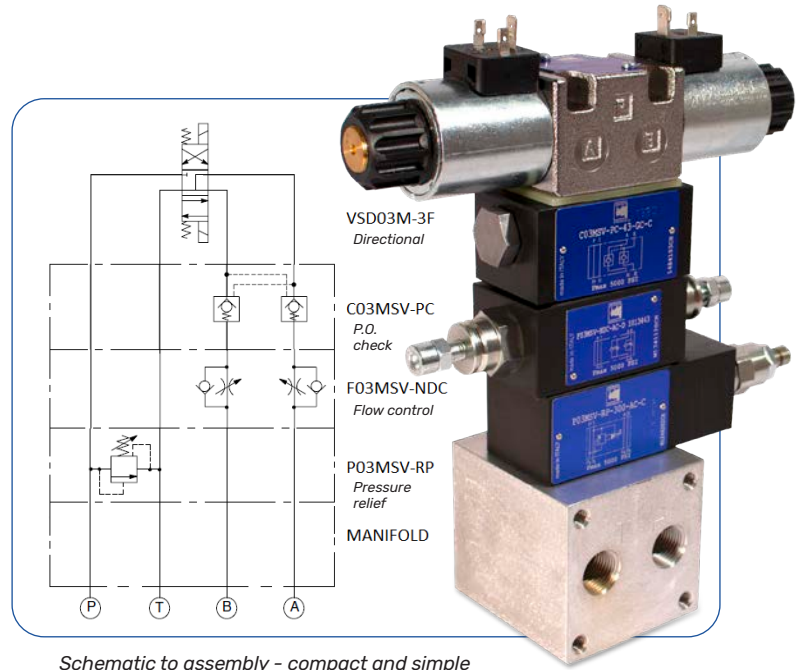
F03MSV-BV / F05MSV-BV

Working Port Blocking Valves With Zero Leak

Designed to help block oil movement both from the control valve or from the actuator. Typically used with proportional valves with zero-lap type spool configurations that could allow oil movement when the system is shut down. Block flow when de-energized and will allow bi-directional flow when energized. NFPA D03 and D05 mounting patterns.



F03MSV-BV



Schematic to assembly - compact and simple

PRESSURE CONTROLS

VALVES	P03MSV-RP		P05MSV-RP		P03MSV-XC		P05MSV-XC	
Max Operating Pressure	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
Max Flow Rate	20 gpm	75 l/min	32 gpm	120 l/min	20 gpm	75 l/min	32 gpm	120 l/min

P03MSV-RP / P05MSV-RP

Pilot Operated Pressure Relief Valves

Valve with D03/D05 mounting surface according to NFPA and ISO 4401 standards. Typically, it mounts sandwiched between a directional control valve and a subplate/manifold and functions as a hydraulic circuit pressure limiting device. Maximum travel of the adjustment screw is limited.



P03MSV-XC / P05MSV-XC

Pilot Operated Modular Pressure Relief Valves

Typically, the valves mount sandwiched between a directional control valve and a subplate/manifold and functions as pressure limiting devices in A and B ports. Code XC functions as a cross port relief valve. Code XCT relieves each work port to T independently. Maximum travel of the adjustment screw is limited.



VALVES	P03MSV-PD		P05MSV-PD		P03MSV-SP		P05MSV-SP	
Max Operating Pressure	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar	5000 psi	350 bar
Max Flow Rate	13 gpm	50 l/min	21 gpm	80 l/min	13 gpm	50 l/min	26 gpm	100 l/min

P03MSV-PD / P05MSV-PD

Pressure Reducing Valves

Valves mount sandwiched between a directional control valve and a subplate/manifold and functions as pressure limiting devices in A and B ports. Code XC functions as a cross port relief valve. Code XCT relieves each work port to T independently. Maximum travel of the adjustment screw is limited.



P03MSV-SP / P05MSV-SP

Direct Operated Sequence Valves

Direct operated spool type sequence valve and is used to control two or more actuators in succession. When the pressure in line P1 reaches the set value of the screw, the normally closed valve opens and allows passage of the fluid in the pressure line of the main circuit. NFPA D03 and D05 mounting patterns.





VALVES: MODULAR STACK

FLOW CONTROLS



VALVES	F03MSV-N*		F05MSV-N*		F03MSV-C*		F05MSV-C*		P03MSV-CC*		P05MSV-CC*		F12M	
Max Operating Pressure	5000 psi	350 bar	5000 psi	350 bar	3000 psi	210 bar	3000 psi	210 bar	5000 psi	350 bar	5000 psi	350 bar	3000 psi	207 bar
Max Flow Rate	13 gpm	50 l/min	32 gpm	120 l/min	12 gpm	55 l/min	12 gpm	45 l/min	10 gpm	40 l/min	26 gpm	100 l/min	16.5 gpm	68 l/min

F03MSV-N* / F05MSV-N* Flow Control - Non-Compensated Valves

Meter-in and meter-out flow control valves. This modular stack valve is a non-compensated flow control valve with a check valve for reverse free flow. Available with flow control function in port lines P, A, B, or both A + B. NFPA D03 and D05 mounting patterns. Adjustment knobs are available.



F03MSV-NIPC

F03MSV-C* / F05MSV-C* Pressure Compensated Flow Control

The F0*MSV-C series valves are pressure compensated, fully adjustable flow control valves with an integral reverse flow check valve. This valve maintains a constant flow rate regardless of system pressure or load changes. Sharp edge orifice minimizes flow variation due to changes in viscosity. NFPA D03 and D05 mounting patterns.



F03MSV-CIP

P03MSV-CC* / P05MSV-CC* Restrictive / By-Pass Pressure Compensator

These valves are available as two or three-way pressure compensator, developed as modular version with mounting surface according to NFPA and ISO 4401. Typically used with proportional directional valves, in order to control the flow rate independently of pressure variations. Restrictive or by-pass functions. Fixed or adjustable differential pressure options.



P03MSV-RCC



P05MSV-RCC

F12M Pressure and Temperature Compensated Flow Control

Pressure compensated to maintain constant flow out of the valve regardless of pressure changing to the inlet or outlet port. Exclusive internal pressure balancing allows easy adjustment of flow setting under pressure. Pressure compensation will maintain pre-set flow with 1 to 5%, depending on the basic flow range, as long as there is 150 psi pressure differential between the inlet and outlet ports.



F12M

MANIFOLDS

Subplates / Manifolds and custom integrated hydraulic circuits and kits

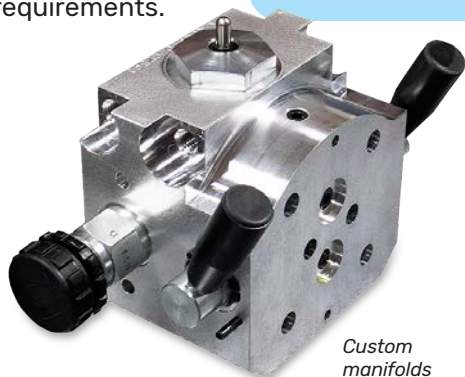
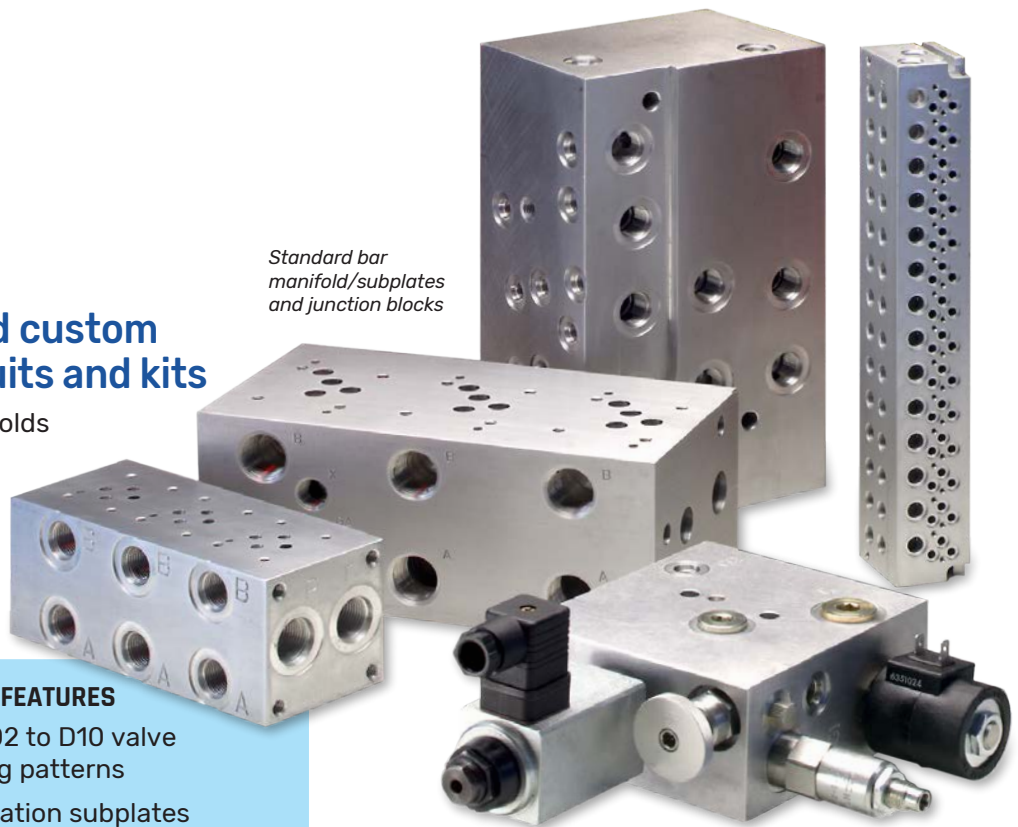
Continental supplies subplates, manifolds and custom block designs to meet your requirements.

Custom manifold products are available to match a variety of cartridge valve manufacturer's cavities. With our product and system expertise, we offer custom designs and solutions based on your requirements. Custom hydraulic manifolds made from ductile iron, aluminum, stainless steel to meet all your pressure and fluid requirements.

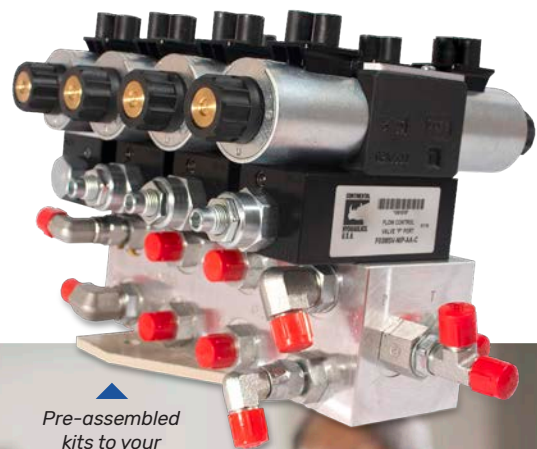
MANIFOLD FEATURES

- NFPA D02 to D10 valve mounting patterns
- Single station subplates to 16 station manifolds
- Valve adapters, header blocks, tapping plates and cover plates

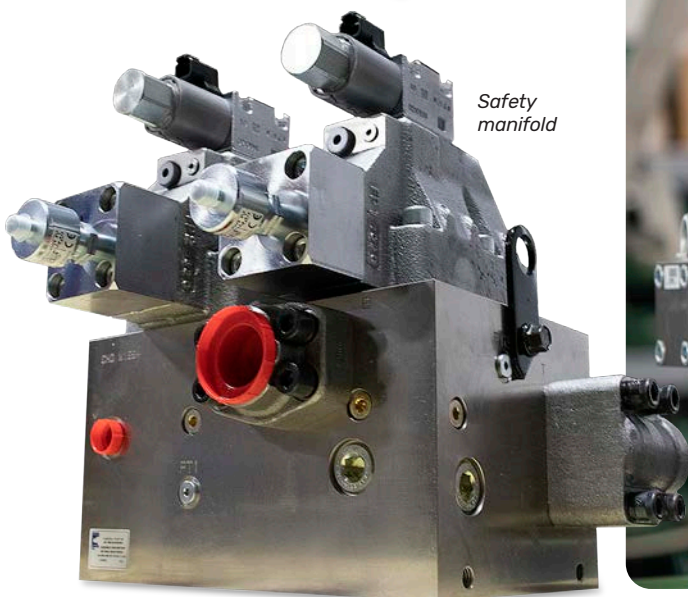
Standard bar manifold/subplates and junction blocks



Custom manifolds



Pre-assembled kits to your requirements



Safety manifold





PUMPS

Vane and Piston Pumps



PUMPS* <i>*Variable Displacement</i>	PVX - VANE PUMP	PVR - VANE PUMP	HPVR - AXIAL PISTON PUMP	LPV - AXIAL PISTON PUMP
Control Type	Hydraulic Compensated	Direct Spring Compensated	Trunnion Design	Saddle Block
Rated Pressure	Adjustable range 200-3000 PSI (14-210 bar)	Adjustable range 100-2000 PSI (7-138 bar)	Adjustable range 200-4000 PSI (14-275 bar)	Adjustable range 200-3000 PSI (14-210 bar)
Displacement	1 to 10.0 inch ³ /rev (16 to 164 cm ³ /rev)	0.7 to 9.9 inch ³ /rev (11.5 to 162 cm ³ /rev)	0.88 to 3.78 inch ³ /rev (14.4 to 61.9 cm ³ /rev)	0.488 to 2.8 inch ³ /rev (8 to 46 cm ³ /rev)
Mounting	SAE A to SAE D flange mounting	SAE flange and manifold mounting	SAE A to SAE C flange mounting	SAE A to SAE B flange mounting
Controls	Pressure comp / load sense / remote / HP limiting / solenoid operated	Direct spring / dual pressure - dual volume	Pressure comp / load sense / remote / HP limiting	Pressure comp / load sense / remote / D03 valve pad

Continental has been manufacturing variable volume, pressure compensated pumps since 1955! Our years of knowledge has resulted in some of the most robust, long life pumps available.

Vane pumps with inherent wear compensation and use of hydrodynamic bearing are known for their ability to out perform many other pumps.

Piston pumps with enhanced Trunnion bearing design are ideal for high cyclic applications.

Product knowledge and application know-how is our strength, that customers have come to rely and depend on!

STANDARD PUMP FEATURES

- Continuous duty medium pressures pumps, up to 4000 PSI (275 Bar)
- Fast response and recovery times
- High volumetric and overall efficiency
- Very low noise level
- Tandem mounting capable
- Interchangeable with many pump manufactures

HY Series Helical Gear Pump

Industrial uses available as pumps and motors, offering high efficiency, low noise and can be applied in standard and heavy duty applications.



PVX Series - Vane Pump Hydraulically Compensated

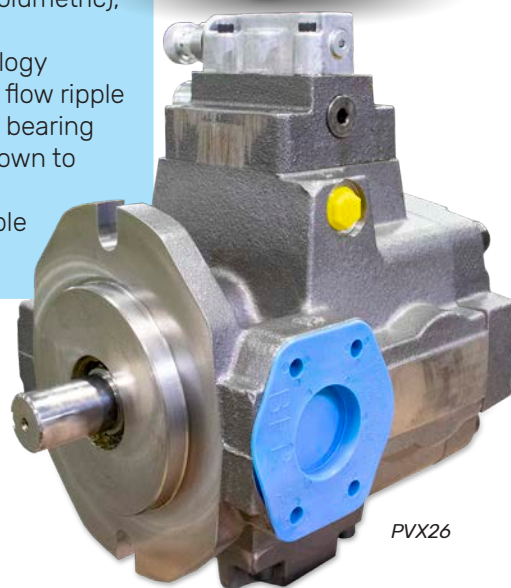
Pump is hydraulic controlled via bias pistons acting on the cam ring making them very application flexible by allowing for a variety of control options. The large pumping chambers using superior port plate design allow for smooth output flow and pressure while providing the ability to work with poor fluid conditions.

PVX FEATURES

- Fast response and recovery times, with as low as 20ms off stroke and 50ms on stroke
- High efficiency (94% volumetric), long life due to wear compensation technology
- Very low pressure and flow ripple
- Hydrodynamic journal bearing
- Very low noise level: down to 67dBA at 3000 PSI
- Uniquely field-repairable without special tools



PVX11



PVX26

PVR Series - Vane Pump

Direct-Spring Compensated

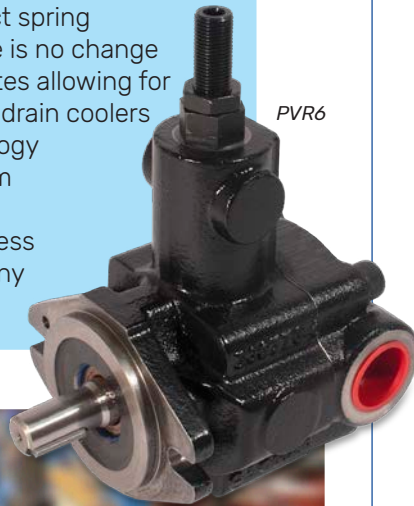
With few moving parts, these direct spring operated Vane Pumps are an extremely reliable and durable pump choice. The control spring acts directly against the Cam Ring to change the output volume to match system demand. Fast reaction time and walking ring technology make these pumps the perfect choice



PVR50

PVR FEATURES

- High efficiency and long life due to vanes self-adjusting wear compensation technology
- Hydrodynamic journal bearing
- Very low pressure and flow ripple
- Because of the direct spring compensation, there is no change in case drain flow rates allowing for efficient use of case drain coolers
- Walking ring technology reduces wear on cam ring and vane tips
- High reliability with less moving parts than any other pump types

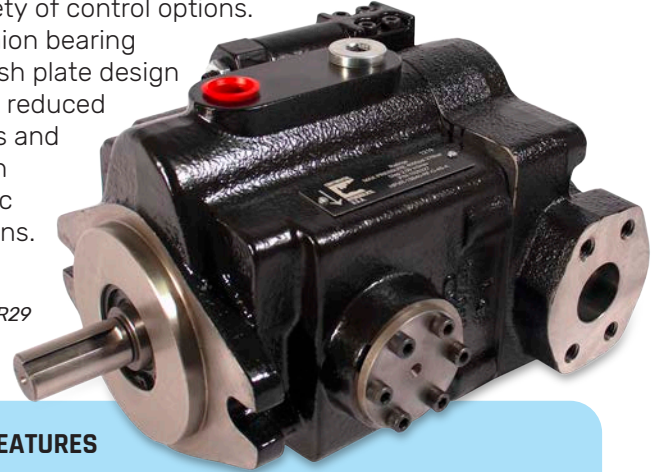


PVR6

HPVR Series - Piston Pump

Trunnion Design

Hydraulic control via a variety control compensator, making them very application flexible by allowing for a variety of control options. The trunnion bearing style swash plate design allows for reduced hysteresis and long life in high cyclic applications.



HPVR29

HPVR FEATURES

- Improved trunnion bearing design allows for long life and low hysteresis
- Pressure compensated, load sense, remote pressure
- Expanded porting options; rear and side ports with SAE threads, metric threads, split flange ports
- Maximum volume adjustment standard

LPV Series - Piston Pump

Saddle Block

Variable displacement axial piston pumps with variable swash block, suitable for applications with open loop circuits and intermediate pressures requiring low noise levels and small frame sizes.



LPV22

LPV FEATURES

- External shaft seal/bearing access for easy servicing
- Control compensator options: pressure compensator, remote pressure, load sense and a D03 valve mount allowing for pressure control circuits from dual pressure to proportional pressure
 - Swash block and saddle design
 - Specially designed spherical port plate makes these extremely quiet operating pumps with optimized filling performance
 - Maximum volume adjustment standard



LPV4





HYDRAULIC POWER UNITS

Standard / Custom HPU's:
Wide variety of options
to meet any application



680 Gallon HPU.
Custom engineered
to fit specific locations.
Tandem pumps mounted for
easy inspection and maintenance.

Continental has earned their outstanding reputation for high quality, long lasting power units over 60 years as a result of:

- International standard design and/or customized to your specific application.
- Engineering support, with 3D/2D drawings and documentation.
- Long life, low warranty claims and distribution support and built for light duty, heavy duty, continuous duty for today's harshest environments.
- Tank capacity: 1 to 5000+ gallons in steel, stainless steel or aluminum.
- For fast, easy set-ups, all power units are shipped 100% tested.

POWER UNITS	LOW PROFILE	LITTLE CHAMP	NFPA / JIC	L-SHAPED	CUSTOM
Size	10 to 30 gallons	3 to 40 gallons	10 to 210 gallons	10 to 210 gallons	5 to 5,000 gallons
Max Pressure	Up to 4,000 PSI	Up to 4,000 PSI	Up to 4,000 PSI	Up to 4,000 PSI	Up to 5000 PSI
Flow Rate	.5-12 GPM	.5-15 GPM	1-75 GPM	1-75 GPM	Up to 500 GPM
Power	1-20 HP	.5-20 HP	1-125 HP	1-125 HP	.5-300 HP

STANDARD HPU FEATURES:

- System flow up to 5000 GPM, and pressure to 5000 PSI
- Test to and beyond 200 HP including international voltages
- Fluids and compatible seals, water glycol, phosphate ester, mineral, ATF, and more
- Drawings in SolidWorks format or AutoCAD DWG/DXF
- Assemblers are CFPS with over 20 years experience each
- 18 months warranty on power units, 36 months on Continental components
- Documented and tested 100%
- Motor controls and panels
- Motor starters with system accessories
- Easily customized to customer specification with accessories

MULTITUDE OF ACCESSORIES:

- Gauges
- Filters
- Tank heaters
- SAE ports
- Pressure / temperature switches
- Hydraulic tubing, and hose with 37 degree tube fittings and more.
- Ball valves
- Check valves
- Heat exchangers
- Flange ports

Low Profile

When Space is at a Premium

Convenient access to components allows for easy adjustments and efficient maintenance. Economical and easy to configure without sacrificing quality.

Pumps/motors mounted horizontally on the top of the reservoir. Similar to a JIC unit, however, we removed the legs to fit in tight spaces. Plus, integrated the filter into the top plate, so the standard components are within the frame of the reservoir.

Valve varieties:

D03 size, on-off, and proportional.



"Steel it" Grey paint
utilizes standard
steel weldments with
wash-down approval.



Little Champ

Power in a Compact and Quiet Package

Economical, easy to configure, and stocked components allow for fast delivery. It's basically an intermittent unit, equipped with the right features it can run continuously and compete with rugged condition.

Vertical oriented power unit with a small foot print. Pump/motor is mounted vertical in the reservoir and submerged. This makes the pump quiet and provides positive inlet or flooded suction for long pump life.

Gear pumps: offered are SAE AA and SAE A size (.5 GPM to 15 GPM),

Vane pumps: PVR6/PVX8 all sizes with special feature of pressure and flow adjustment through the side of the reservoir.

Piston pumps: HPVR6 and 15. All with remote compensation options.



LITTLE CHAMP FEATURES:

- Vertical style tank, sizes 3 to 40 gallons for reduced foot print
- Motor sizes: 1/2 to 20HP 460/60/3. Single phase up to 3HP
- Submerged in oil for longer lasting and quieter performance
- Port block to D03 manifold options with up to 6 stations and integrated relief valves
- Pressure/flow adjustments through reservoir wall
- In-tank and in-line filters available
- Case drain and return line heat exchangers



LITTLE CHAMP WASH-DOWN:

Option available for the food industry or other applications.



LITTLE CHAMP KITS

HPU built at your facility at your convenience. Continental supply's the complete set of components and hardware.

NFPA / JIC

Industry Standard Design

Efficient, rugged, and easy to maintain. We stock a wide selection of components for competitive pricing and delivery.

Valve varieties: Sizes D03, D05, D07, D08, on-off, and proportional.



L-Shaped

One of the Most Rugged Designs

Flooded suction provides the longest lasting pumps. Positive pressure inlet allows the pump to work less and operate quieter. Combine this unit with a cooling and filtering circuit to provides years of service. Top it off with a control panel and you have a turn key system all from one source.

Gear pumps: .5 GPM to 12 GPM up to 3600 PSI

Vane pumps: 1-75 GPM up to 3000 PSI

Piston pumps: 6-29 GPM up to 4000 PSI

Multiple ways to service the reservoir to include the bolt on top plate or side clean out cover. Options for IO-Link ready sensors for predictive maintenance (pressure, temperature, and level).

Valve varieties:

Sizes D03, D05, D07, D08, on-off, and proportional.





CUSTOM: HYDRAULIC POWER UNITS

Custom design and manufacturing

The first things one thinks of when you say custom is; too complicated, expensive, and long lead times. Did you know 70% of all custom units are configured from our standard catalogs? Our standard units have so many options that they can act as a base unit.

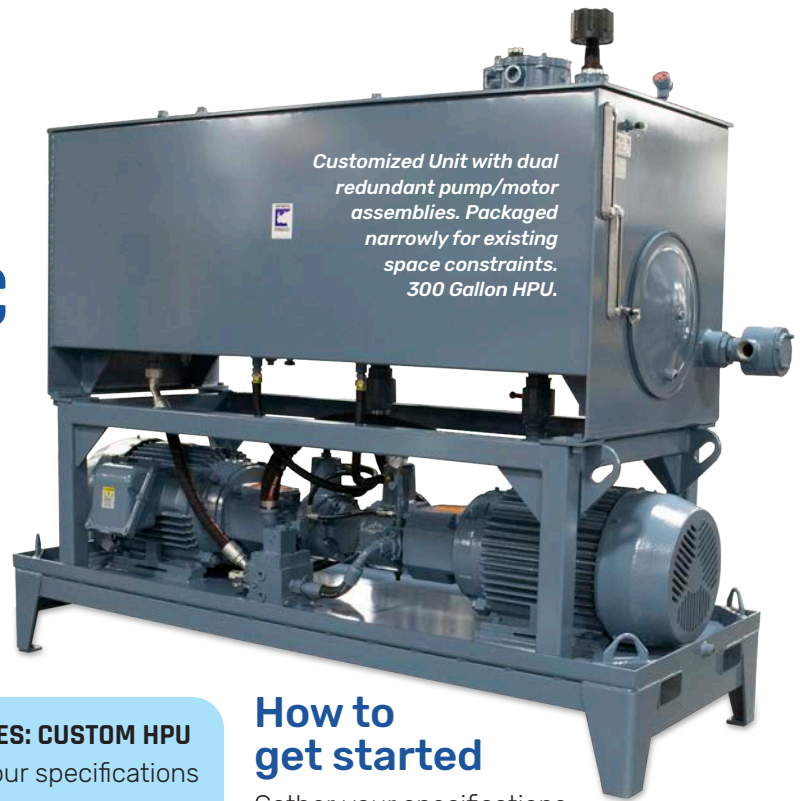
Modify a standard unit to your specification such as; making it stainless steel construction, special dimensions, custom paint spec or color, special voltages, special fluids, etc. This saves time and money by modifying standard units. However, there are special cases where a complete custom constructed unit with specially integrated circuits are required. With our engineering experience, design solutions, and complete documentation you will get a custom system that's easy to install and years of customer satisfaction.

KEY FEATURES: CUSTOM HPU

- Build to your specifications
- Tanks can be standard, modified or custom
- Pump motor mounting can be configured in any position
- Performance data acquisition technology for predictive maintenance
- Turn key control panels.
- SAE and flange porting for leak free system
- Customer integrated manifolds
- Structural weldments can be integrated into an existing machine
- Large systems can be tested and loaded for shipment efficiency

How to get started

Gather your specifications and questions and give us a call. Our sales engineers are here to listen and will direct you to the most efficient, cost effective way to build your system with our wealth of experience and history of building custom units. After review we will assign an estimate number to track all the communication and document all the components required. Estimates are completed in one to five days. Not only can we give you a written estimate, but with all our history on file likely we can show you pictures or 3D models of something similar to what you're looking for.



Robust L-base for flooded suction for multiple pump/motor groups. Easy access and ample room with integrated valve assembly.



Custom modified standard unit. All stock components configured to a specific design.





HYBRID POWER UNITS

Energy-efficient, inverter-driven

You can find Daikin hydraulic technology on machining centers, lathes, presses, and injection molding machines across North America. Daikin has paved the way by striving to develop energy saving solutions that help optimize efficiencies in industrial hydraulics since the launch of the world's first VFD controlled "hybrid" hydraulic power units in 2000. Our hybrid hydraulic Super Units and fluid cooling units offer energy-savings, lower noise, low heat generation, smaller footprint, and hassle-free preventive maintenance with IoT technologies.



POWER UNITS	ECORICH	SUPER UNIT
Size	18L (4.75 gallons)	100 L (26.5 gallons)
Max Pressure	100.0 MPA (1450 PSI)	20.6 MPA (3000 PSI)
Flow Rate	28.5 l/min (7.5 GPM)	110 LPM (29 GPM)
Power	2.8Kw (3.75 HP)	11.0 KW (15 HP)



EcoRich

Excellent power pack system for a machine tools. Energy-saving hydraulic units that incorporate an IPM motor and inverter, for machine tool applications. It is outside scope of high-efficiency motor regulations and can be used at any destination.

Average of 60% energy savings vs. standard units. Compact design. High-speed response. Autonomous energy-saving pressure and flow-rate control. Easy installation and operation with low noise.



Super Unit

Energy-saving hydraulic units that incorporate an IPM motor and inverter. A wide range of product variations enables applications in general industrial machinery. It is outside scope of high-efficiency motor and regulations and can be used at any destination.

Daikin is well known for its SUT, or Daikin Super Unit, which includes an IPM motor. This is energy efficient, inverter-driven, the hybrid hydraulic power unit that incorporates multi-stage pressure/flow control as well as functions of a conventional hydraulic power unit. The Super Unit incorporates the multi stage pressure/flow rate control system as well as the functions of conventional hydraulic units, resulting in the use of fewer valves.

WORLD WIDE SUPPORT

Industrial and mobile hydraulics motion solutions, from the Mid-West to the World, from analogue control logics to computerized electronics and AI, we are riding the wave of technology in our fast-changing markets.

We have been at the forefront of power transmission innovation for over 60 years and is – a leading force in transforming the industrial and mobile world we live in.



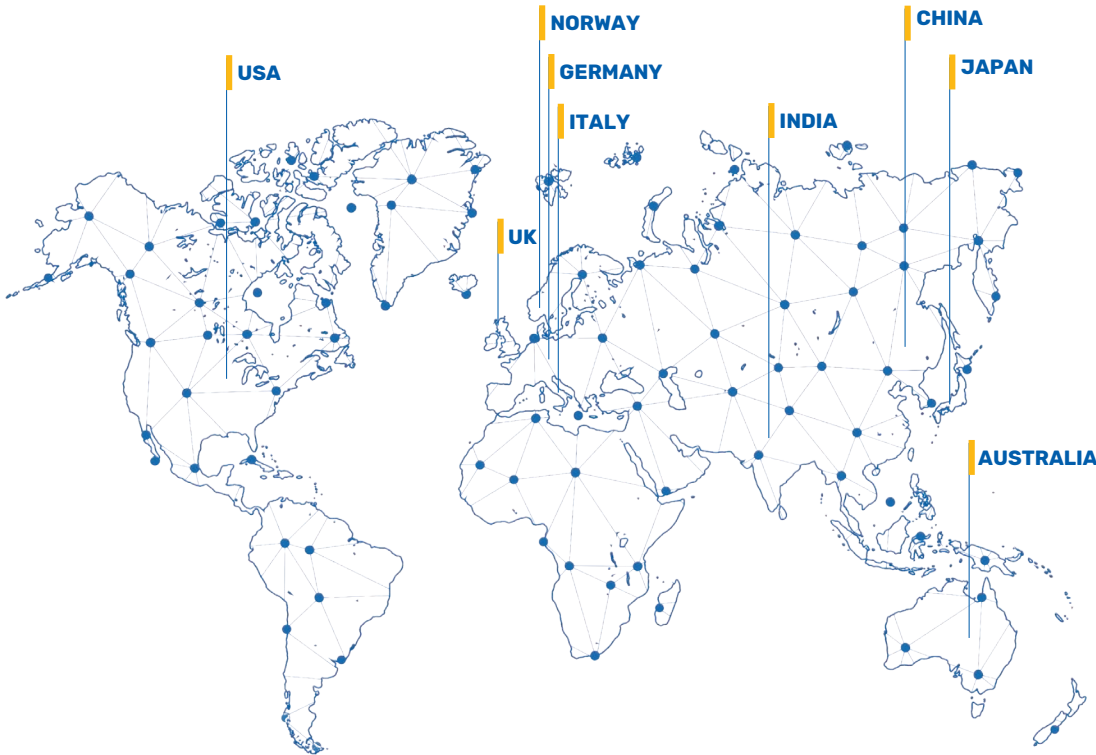
Network Support

As a member of the Daikin Group our family of distribution and service network is quick, reliable, and responsive to our customer's needs.



Technical Support

Quality products including advisory, planning, and design services specifically geared to your applications with full repair and test facility.



Location: Japan, China, Australia, India, Europe, Southeast Asia, North America, Middle East, Latin America, Africa

Products: Air conditioning, pumps, valves, power units, mobile hydraulics
www.daikin.com



a member of **DAIKIN** group

Location: Italy, China, Middle East,

Products: Valves, pumps, power units, electronic devices, electric actuators
www.diplomaticmotionsolutions.com



a member of **DAIKIN** group

Location: North America

Products: Pumps, valves, power units
www.continentalhydraulics.com



a member of **DAIKIN** group

Location: United Kingdom, Italy, Norway, India, Australia, North America

Products: Valves, pumps, PTOs, cylinders, controls, joysticks
www.hydreco.com



a member of **DAIKIN** group

Location: North America, Mexico

Products: Power units, pumps, motors, valves, fixtures, machine tool parts, and custom machine accessories
www.allworldmachinery.com



a member of **DAIKIN** group

Location: Germany

Products: Valves, control technology, cylinders, micro-hydraulics
www.till-hydraulik.de



CONTINENTAL HYDRAULICS INC. / HYDRECO HYDRAULICS INC.

4895 12th Avenue East, Shakopee, Minnesota 55379

952.895.6400 • sales@conthyd.com • www.continentalhydraulics.com

704.295.7575 • sales-us@hydreco.com • www.hydreco.com