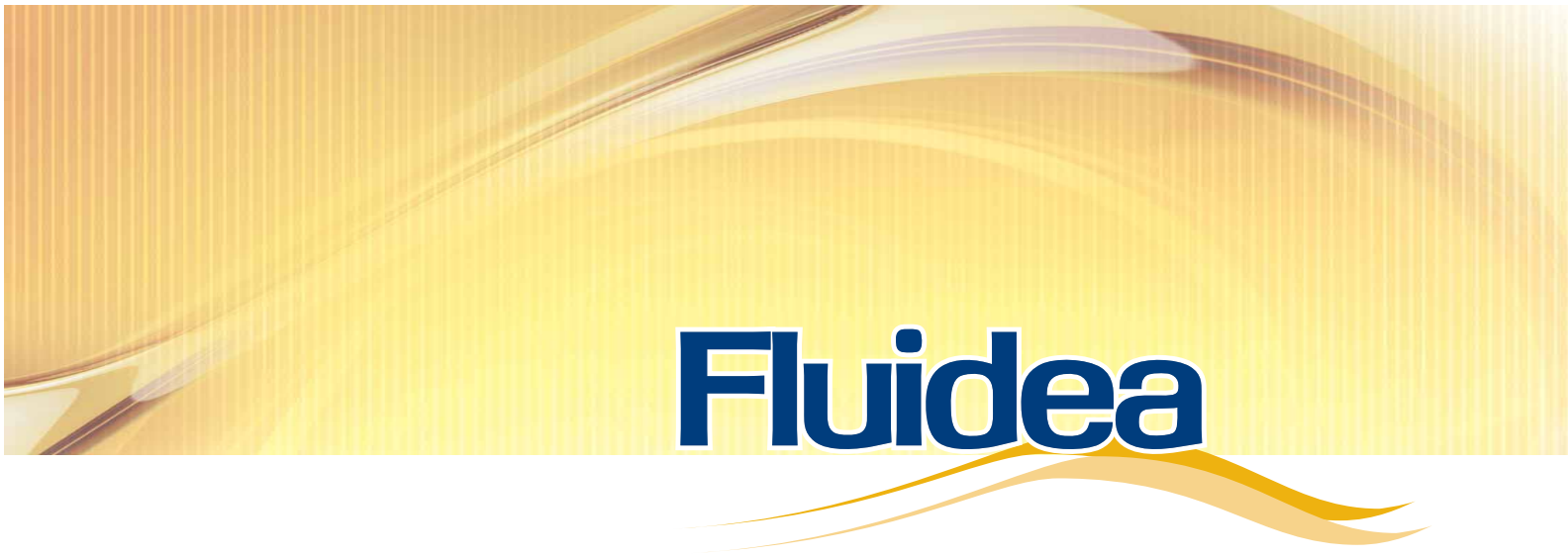
product survey



excellence in hydraulic & electronic systems

with competence and innovative ideas

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1. Hydraulic pumps & motors

1.1 Gear pumps & motors aluminium body

Gear pumps and motors with aluminium body; four groups Gr1, Gr2, Gr3, Gr4; 28 different sizes with displacement from 1,3 up to 120 cc; maximum working pressure up to 320 bar; driving speed from 500 up to 4.000 rpm.

All pumps are suitable for multiple combinations through coupling kits. Wide range of mounting adaptors and driving shafts, interchangeable with the most popular options available on the market.
Flanged and threaded port options.
Mounting adaptors and rear covers also available in casted iron version.
Pressure relief valves and flow control valves bolted on blocks. Hydraulic motors with optional internal or external drain and either single or reversible rotation.

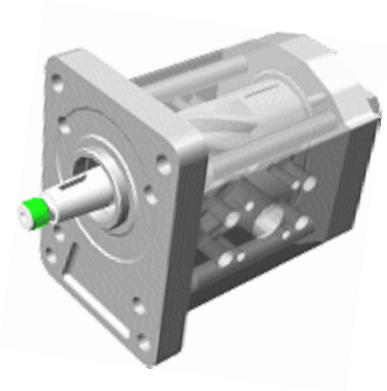
1.2 Gear pumps & motors casted iron body

High performance hydraulic gear pumps and motors with casted iron body; mono-bloc driving and driven gear-shafts; roller and plain bearing design options.

8 groups with up to 39 different sizes; displacement ranging from 12 up to 306 cc. Maximum working pressure 300 bar; driving speed range from 400 up to 3.000 rpm.

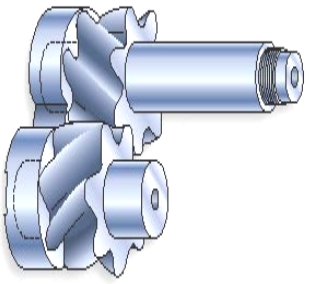
Single, double and triple combinations also fitted with rear aluminium body auxiliary unit.

SAE, DIN, ZF and European mounting adaptors; splined, parallel and taper driving shafts options; SAE flanged, BSP and metric threaded ports.



1.3 Low noise helical rotors pumps

Innovative concept helical rotor design pumps for high pressure, low noise, low pulsations and high volumetric efficiency.
The concept is based on three patented breakthroughs: the rotor profile, the screw step and the inner force balancing.



The range covers 6 groups for a total of 30 sizes from 6 up to 184 cc/rev; maximum working pressure up to 250 bar; driving speed range from 700 to 3.600 rpm; typical noise level from 58 to 62 dBA @ 2.750 rpm according to ISO 4410.

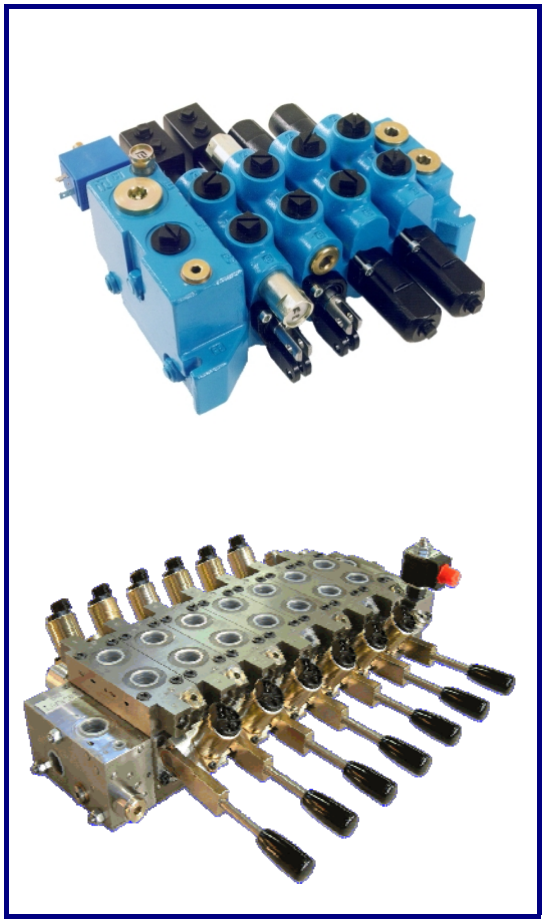
BSP threaded and SAE flanged ports; parallel, taper and spline driving shafts.
SAE and European mounting adaptors.
Multiple dual and triple configuration are also available.

1.4 Orbitrol motors & flow dividers

Comprehensive range of orbitrol motors with displacement from 50 up to 2.100 cc/rev; working pressure up to 240 bar; max output torque up to 3.350 Nm and max driving speed up to 1.300 rpm.
SAE mounting adaptors and driving shafts; threaded ports, single and dual rotation; internal and external drain options. Variety of features for mobile applications including bolted on valve blocks, drum and disc brakes options loosen or integral on motors and speed sensors.

Compact rotary flow dividers with reduced internal leakage and friction resulting in accurate output flows and quite operation.
Input flow ranging from 7,5 up to 150 lpm and working pressure up to 276 bar.

2. Directional control valves



2.1 Open centre sectional control valves

Open centre sectional control valves; 3/8", 1/2", 3/4" and 1" port' size with nominal flows from 30 up to 200 lpm; maximum working pressure up to 320 bar.
Parallel, series and tandem circuit options.
BSP threaded and SAE flanged ports.

Intermediate inlet sections for dual inlet and outlet ports; special features available on inlet and outlet modules to optimize spool control and system's efficiency.
Hydraulic and electric operated unloader options available.

Special spool design to match any customer requirement.

Wide range of auxiliary valves to control service pressure and flow.

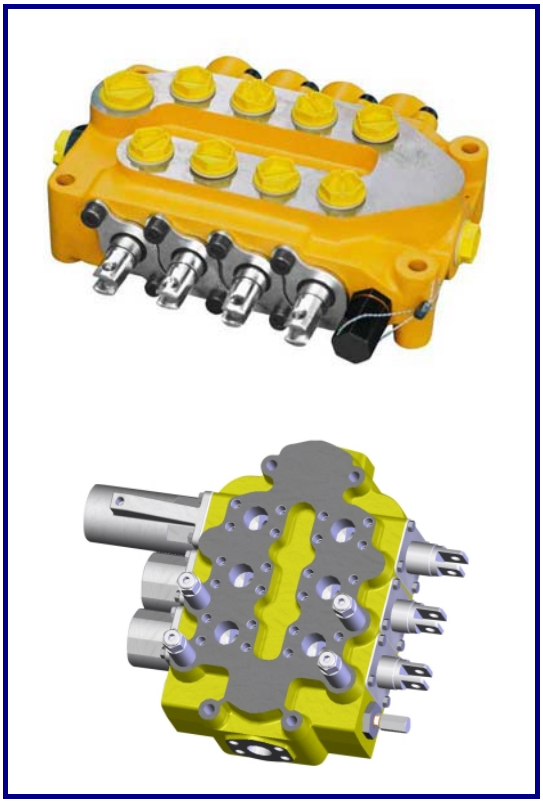
Spool control options including lever & cable direct operation in addition to pneumatic, hydraulic, electro-hydraulic and radio proportional and on-off remote controls.

2.2 Open centre monobloc control valves

Open centre monobloc control valves; 3/8", 1/2", 3/4", 1" & 1"1/4" port' size with nominal flows ranging from 30 up to 450 lpm; maximum working pressure up to 320 bar.

Parallel, tandem and mixed circuit options.
Metric, BSP threaded and SAE flanged ports.
Special spools available to optimize service control; spool functions inclusive of regenerative and float options with mechanical and electro-magnetic detents.
Load check valves inside spools; wide range of auxiliary valves to control service pressure and flow in cartridge and bolted on block design options.

Spool control options including lever & cable direct operation and pneumatic, hydraulic, electro-hydraulic and radio proportional and on-off remote controls.



2.3 Closed centre "load sensing" valves

Proportional closed centre pressure compensated directional control valves for circuits with either fixed or variable displacement pumps.
1/2", 3/4", 1" and 1"1/4" size options with maximum inlet flows ranging from 80 up to 600 lpm. Maximum working pressure up to 420 bar.
BSP threaded and SAE flanged ports.
Individual pressure compensators on each spool for an accurate metering control, independent from the working pressure even on contemporary services, with optional anti-saturation system.

Auxiliary valves to control pressure and flow in both cartridge and manifold version.
Manual, hydraulic, electro-hydraulic and radio "on-off" and proportional control system' options.

These valves are also available in kit form for cost reduction and high flexibility.

2.4 Selector valves

Wide range of single, double and triple monobloc design selector valves, in 3, 6 and 8 ways configuration with 2 and 3 positions.

Maximum flow up to 450 l/min, maximum working pressure up to 320 bar.

Port sizigi from 1/2" up to 1"1/4 BSP; SAE 3000 and 6000 psi metric flanges option also available on request.

Range of manual, hydraulic and electric controls.

Mechanical detents; internal or external drain options.

3. Remote controls & control electronics

3.1 Electric “on-off” remote controls

Range of “on-off” electric joysticks to control solenoid operated services at 12 or 24 V DC. Available in single and dual axis configuration, with single (north-south and east-west) or combined movements at 45°.
They are fitted with 10A inductive micro-switches inside the bottom housing, mounted single or twin in sequence on the 4 cardinal points with up to 8 contacts.
The product is robust and reliable for heavy applications working in rough environmental conditions.
These joysticks can be coupled with the range of Fluidea multi-function ergo grips and the on-off or proportional rocker switches.

The dual axis version combined with the IE series ergo grip can be configured with up to a maximum of 18 “on-off” contacts.
Mounting holes are interchangeable with most of the hydraulic and electric joysticks available on the market.

3.2 Electric proportional remote controls

Electric proportional remote controls in single and dual axis joystick configuration, single and dual pedal. Hall effect contact-less system with full protection against EMI and RFI interferences.

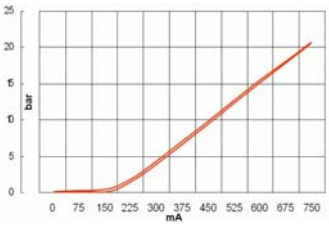
Analogue, PWM and Can Bus output signal options.
Maximum reliability, electric life up to 15 Million cycles; IP 68 protection class; wide metering angle; pre-stroke and extra stroke, starting and ending points, response time and safety features can be set via PC and palm programmers.
Suitable for both mobile and stationary applications, to control electro-hydraulic proportional servo systems on directional valves, variable displacement pumps and motors.
Joysticks can be fitted with our range of multi-function ergonomic grips.

3.3 Proportional & “on-off” radio controls

Complete remote radio control system for wireless proportional and on-off control of hydraulic stationary and mobile systems.
Light, easy to use, fast responding, precise, absolutely safe and suitable for the most difficult environmental conditions.
The portable chest-pack can be configured with up to a maximum of 8 proportional and 10 on-off functions; battery, transmitter and aerial are contained in the main box.
The system is fully protected against EMI and RFI interferences and it is inclusive of electronic amplifier and receiver to be fitted on board of machine.
To ensure maximum safety each system always works on univocal identification code.
Optional display and lightening leds to monitor all the functional parameters of the machine.
12 an 24 VDC supply; radio frequency from 405 up to 490 Mhz; maximum control distance 200 m; protection class of the 3 control units IP65; weight of the chest pack 1,90 Kg battery included; standard Can Bus interface.

3.4 Proportional pressure reducing valves

Range of electric operated pressure reducing valves that vary the output pressure signal in direct proportion with the supply current to the



electric magnet, at a constant input pressure. When operated via cable by electric proportional remote controls, with PWM current output signal, these valves can control various type of remote services like spools of directional valves and servo controls of variable displacement pumps and motors.
Available in single and double magnet option and sectional easy to fit design with parallel connection; ¼” BSP threaded ports for in-line mounting or sub-plates for either threaded ports or CETOP connections.
Max. inlet pressure 350 bar; output metering curves from 7 up to 350 bar; supply flow from 5 up to 20 lpm.

3.5 Control electronics

Digital amplifier cards to convert input voltage analogue signal to PWM current output signal to control electro-hydraulic proportional pressure reducing valves; supply voltage from 10 up to 30 VDC; output signal adjustable from 10 up to 2.500 mA @ 30 ÷ 330 Hz frequency; full protection against EMI and RFI interferences.

Palm serial programmer and dedicated software with PC interface kit to set up the digital amplifier adjustable parameters like starting and ending points, acceleration and deceleration time, hysteresis band and safety parameters.

Input voltage signal stabilizer, 08 ÷ 30 Volt supply; constant output voltage 5, 8, 12, 24 Volt @ max 1 Amp current consumption; typically used to feed electric proportional joysticks.

3.6 Multi-function grips

Multi-function grips in knob, cylindrical, palm and ergonomic design options available loosen or fitted on our remote controls.
On-off push button switches suitable for current loads of 0,5, 1 and 10 Amps inductive, with protection rating IP 64 and IP68, in 9 colours and 2 height' sizes to optimize operator's control sensibility; mechanical and electrical life over 1 million cycles.

Optional high intensity lightening leds, safety trigger, 3 position rocker switches "on-off" and proportional, spring centred or detented, dual axis "on-off" & proportional mini-joysticks with 4 outputs.
Variety of mounting adaptors and customized levers on request.
Choice of round and square rubber boots.
Standard or customized high flexibility cables and special connectors conforming to international standards.

4. Filters & contamination controls

4.1 Hydraulic filters

Full range of hydraulic filters in low, medium and high pressure design and suction, in-line, top-tank and in-tank configuration options.
Flows rating from 30 up to 1.300 lpm; maximum working pressure up to 420 bar.
Filter elements with high dirt holding capacity in stainless steel wire mesh, paper, polyester and inorganic micro fibbers rated from 3 up to 500 µm, with standard βx≥200 ratio and collapse pressure of 30 bar standard or 210 bar optional for servo-valve' systems protection.

Visual, electrical and combined standard or differential indicators.
Optional reverse flow valves for in line high pressure filters fitted in hydrostatic systems.
BSP, NPT and SAE flanged ports.
Wide range of replacements elements which fit with the most popular hydraulic filters available on the market.

4.2 Industrial filters & ball valves

Industrial standard and customized filters available in simplex and duplex design options and suitable for a variety of fluids including hydraulic oils, lubrication and combustion fluids, seal gases and injection water.
Maximum flow up to 27.000 lpm; maximum working pressure up to 420 bar; cast, welded and forged bodies in aluminium, carbon steel and stainless steel; threaded or flanged ports up to 6" size.
Demister and separators filters options also available. Standard filter elements in stainless steel wire mesh and inorganic micro fibre rated from 3 up to 200 µm, with standard Beta ratio βx≥1.000.
Wide range of particulate, coalescing and combined particulate/coalescing filter elements for water content removal.
Full flow transfer ball valves with 3 and 6 ways design in single and double options, with flanged ports sizing up to 14". Product conformity to ASME , API, P.E.D., T.B.K., STOOM-VEZEN and other major International Standards.

4.3 Flushing & decontamination equipment

Design, construction and supply of flushing and decontamination equipment for hydraulic fluids, available in portable and trolley design configuration in standard and customized options.

Low, high and mixed working pressure versions with maximum pressure up to 420 bar and maximum flow up to 500 lpm.
Flow supply either from main system or from self contained pump/motor unit.

High dirt holding capacity filter elements for solid contaminant's removal, with minimum micron ratings of 1µm absolute and Beta ratio up to βx ≥ 1.000.
Particulate, coalescing and combined particulate/coalescing filter elements for water content removal from the hydraulic fluid.

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"Off-line" by-pass filters available in 5 sizes; flow from 1 up to 5 l/min; max pressure 345 bar; micron rating 0,1 µm absolute; dirt holding capacity up to 1.130 gr; SAE threaded ports for deep filtration and water removal from oil.

5. Heat exchangers & cooling systems

5.1 Heat exchangers & cooling systems

Comprehensive range of heat exchangers including air/oil, air/water and combined options for oil and water systems and for stationary or mobile applications in standard or customized design configuration.
Radiant mass in aluminium alloy, copper and brass, made by vacuum brazing process to allow high thermal efficiency and great resistance.
Working pressure up to 20 bar and standard testing pressure of 30 bar.
Fans can be driven either by electric or hydraulic motors.

Wide range of accessories available including thermostatic switches, pres-sure switches and by-pass valves.

In order to match any requirement in term of cooling systems the range is completed with tube and plate heat exchangers made in copper and nickel pipes and stainless steel plates.

6. Equipment to monitor fluids & hydraulic systems

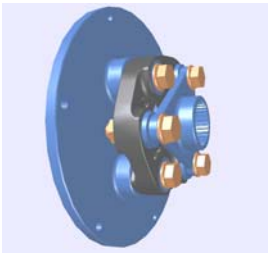
6.1 Equipment to monitor fluids & hydraulic systems

Complete line of instruments for monitoring the functional parameters of hydraulic systems, comprising: analogue and digital pressure gauges also available in wireless option; temperature, pressure, angular velocity and flow digital transducers, flow meters turbines and precision volumetric counters.

Solid particle counters for instant reading of cleanliness class of hydraulic fluids; portable, in-line and laboratory design options, with up to 8 channels microprocessor controlled to detect solid particles sizing from 4, 6, 14 and 21 $\mu m_{(c)}$ (conforming with ISO 4406, ISO 11943 and ISO 11171 standards); PC interface connection kit and software for data acquisition and processing.
Field oil sampling and particle counting analysis service.
Oil sampling valves and bottles
Equipment to monitor fluid's water content.

7. Auxiliary components for hydraulic systems

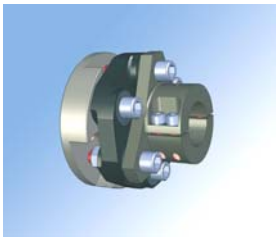
7.1 Bell housings, driving hubs & flexible couplings



Bell housings in cast iron and aluminium alloy, flexible couplings, driving hubs and flanges for diesel engines and electric motors.

Compact, light and silent elastic couplings of symmetrical design, made in special patented structure for high torque capacity and long life; both axial and radial clearance compensation; maintenance free.

Continuous transmission torque from 100 up to 15.000 Nm; maximum speed range from 1.500 up to 17.000 rpm.
Maximum deflection angle 3°, maximum axial misalignment +/- 2 mm; maximum working temperature 90°C.



The range is suitable for mobile, stationary and marine applications.

7.2 Auxiliary valves & accessories

Comprehensive range of accessories for hydraulic systems comprising: check valves, flow restrictors, pressure and flow control valves, flow dividers and counterbalance valves in both cartridge and manifold options.

Screw-in test points and test couplings for tube fitting and accessories for hydraulic and pneumatic systems with stainless steel ball or poppet valve option; metal protection caps.

Variety of fittings and adaptors available in metric, BSP, NPT, & UNF threads and in welding options; materials include also stainless steel versions.

Hand pumps with or without integral tank, diaphragm and bladder accumulators, SAE flanges and threaded fittings; oil level indicators; filling plugs and air-breathers.

7.3 Fixing systems

Complete range of fixing systems for pipes, hoses, electric applications and cables or for particular mounting purposes, suitable for diameters from 6 up to 500 mm.

Available in 4 series: light, standard, heavy and flat or round steel U bolt clamps; standard and heavy series can be supplied fitted with rubber inserts to reduce vibrations and noise. Choice of clamp's materials including polypropylene, polyamide, santoprene and aluminium alloys.

Support brackets in bolted, welded and rail options are available in carbon and stainless steel. Single and multiple options and custom design pipe clamps available on request.

Product conformity to Bureau Veritas, Germanischer Lloyd, Lloyd's Register, RINA, TUV and several others International Standards.

hydraulic equipment & electronic contols

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