DC-CH
General Presentation
Compact Hydraulics
Companies & history

From 1986 ...to 2007 years

From 2007 and forward...

A Bosch Company
Compact Hydraulics
5 Product Lines

- Mechanical & Solenoid cartridge valves
- On/off & proportional cartridge valves
- Steering & control blocks
- Hybrid solutions available
- Motion control valves
- Load holding valves
- Compact power units
- Modular steering & control blocks
- Flow Diverters
- Hybrid solutions available
CH Manufacturing Plants and Customizing Centers Worldwide Overview
Manufacturing Plants
Nonantola (Nnt)

Employees: 676
Total area: 52,862 m²
Production area: 16,680 m²

Product groups:
- Load-holding motion control valves (CMC/PiB)
- Mechanical cartridge valves (mCV)
- Solenoid cartridge valves (eCV)
- Hydraulic integrated circuits (HIC)

Yearly production figures:
- PiB: 720,000 pcs
- HIC: 260,000 pcs
- eCV: 1,350,000 pcs
- mCV: 410,000 pcs
Manufacturing Plants
Vezzano sul Crostolo (Vzz)

Employees: 317
Total Area: 9,674 m²
Production Area: 4,936 m²

Product groups:
• Compact directional valves (CDV)
• Flow diverters
• CETOP valves
• Compact Power Modules (CPM)
• Sleeve valves for line mounting

Yearly production figures:
• CDV: 1,480,000 pcs
• CPM: 197,000 pcs
Manufacturing Plants
Pavullo (Pvo)

Employees: 464
Total Area: 19,790 m²
Production Area: 7,362 m²

Product groups:
• Mechanical cartridge valves (mCV)
• Insert type valves
• Control Parts

Yearly production figures:
• mCV: 6,000,000 pcs
• Components: 35,000,000 pcs
Compact Hydraulics
Our Main Applications

Construction

Material Handling

Industrial & Others

Excavators

AG & Forestry
Mechanical Cartridge Valves (mCV)

**PRESSURE, FLOW & DIRECTIONAL CONTROL**

**LOGIC ELEMENTS & COMPENSATORS**

**PRIORITY CARTRIDGE VALVES**

**Features:**
- Solid (reliable), 350 bar-rated construction
- Accurate, repeatable pressure & flow regulation
- Wide range of option selections for each family
- New springs for lower and higher setting pressure range
- New development of multifunction range

**Product Line Keys:**
- Complete range of 350 bar cartridge solutions available
- Designated for industry common cavities size 8 up to 20 for ease of creating the most cost-effective integrated manifold circuit solutions

**MULTIFUNCTION CARTRIDGE VALVES**

**VMR:** Pressure relief pilot operated poppet type and anti-cavitation valve

**Features:**
- Max. operating pressure 420 bar
- Max. flow 240 l/min.
- Special cavities LG, FC, FB

**LOAD HOLDING CARTRIDGE VALVES**

**Features:**
- Designed for cylinder and motor motion control applications
- Stable control of negative loads through a wide flow range
- Great controllability of the load in conjunction with no need to adopt low pilot ratios
- New compact design solutions

**Product Line Keys:**
- Available in industry common cavities size 8 through 20 with clockwise adjustment increase standard
- Available in cavities size T-11A up to T-23 with counter-clockwise adjustment increase standard
- Constantly expanding portfolio of pilot ratios and pressure adjustment ranges
- VBSN/P/T/Y customized solutions

**VSRF:** Flow control, 2-way pressure compensated, fixed setting with integrated relief pilot operated spool type. Relief with LS flow control

**Features:**
- Max. operating pressure 420 bar
- Max. flow 20 l/min.
- Q max. relief: 5 l/min.; regulated Q: 2-3 l/min.
- Special cavity 019-E (3/4-16-UNF 15.87mm); available also in CA-08A-2N
PROPORTIONAL PRESSURE, FLOW & DIRECTIONAL CONTROL

Features:
- Higher switching capacity (Qmax) with same cavity and lower operating pressure
- Extended operating range (temperature) due to adequate design of magnetic system
- Design prevents spool squeezing improved sealing concept
- New modular concept solutions development

Product Line Keys:
- 2-way and 3-way not compensated versions available in a variety of flow-optimized models
- Poppet versions with low pressure drop available up to 60 l/min.
- Pressure compensated, proportional flow regulators
- 4/3 and 5/3 spool type directional control valve size 10 with LS-port
- Relief with increase and falling curves in common cavities

- KSVs: proportional valves pilot operated poppet type, 2-way flow regulator not compensated
  - Max. operating pressure 350 bar
  - Nominal flow up to 100 l/min.
  - Size 08, 10, 12, and 16
  - Common cavity

- DRE05: direct-operated proportional pressure reducing valve for reducing system pressure
  - Max. operating pressure 50 bar
  - Max. flow 30 l/min.
  - Mounting cavity R/DRE 05 TAP
  - Main application: gear shifting

PROPORTIONAL PRESSURE REDUCING (MHDRE)

Features:
- Direct operated proportional pressure reducing valve for reducing a system pressure
- Size 02, 04, and 06
- Max. control pressure 30 bar
- Max. flow 40 l/min.

STD REMOTE CONTROL MANIFOLD (HICFP)

Features:
- Cost-effective solution variant for electro-hydraulic proportional control systems of mobile control blocks
- Size 02, 04, and 06
- Max. control pressure 30 bar
- Max. flow 40 l/min.

MULTIFUNCTION CARTRIDGE VALVES

VER-10A: Solenoid operated valves on-off relief, adjustable
- Max. operating pressure 350 bar
- Max. flow 120 l/min.
- Common cavity CA-10A-2N
- Size 10
- Coil type D36

KUDSR: Proportional flow control valve with integrated pressure compensator
- Max. operating pressure 350 bar
- Max. flow 120 l/min.
- Size 3
- Coil type GP45
Electrical Cartridge Valves (eCV)

SOLENOID OPERATED ON-OFF (DIRECT AND PILOT OPERATED) VALVES

Features:
• Reliable, shifting at high pressure and flow
• Durable, high-cycle construction
• Wide input voltage tolerance
• Broad selection of electrical connections

Product Line Keys:
• Available in common industry cavities sizes 8 through 16
• New 16mm diameter pole tube
• New design concept of hydraulic parts
• New D36 coil with round shape 36mm diameter
• New D36 coil available for all new solenoid cartridge valves

Performance improvements:
• Max ambient temperature range now upgraded to 90°C
• Better performance in terms of flow and pressure
• Leakage ≤ 5 drops per minute
• Lifecycle improved up to 2 million cycles
• Larger admissible voltage fluctuations
• Easier positioning / turning of the coil

✓ A greater operating range
## CH Products

### Hydraulic Integrated Circuit (HIC)

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<td>Higher temperature, lower voltage, greater operating range applications</td>
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<td>New solutions for AWP and combine harvesters</td>
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<td>New proportional relief with falling curve</td>
<td>New compact solutions for fan drive applications</td>
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<td>Proportional valves pilot operated poppet type, 2-way flow regulator not compensated (KSVS)</td>
<td>Agricultural machines: combine harvesters (header height), tractors (hitch control), AWP (acting cylinder)</td>
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<td>Combiblock</td>
<td>Optimized hybrid manifold solution providing unique advantages compared to traditional HIC Applications: forklift, combine harvester, AWP, agricultural implements</td>
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<td>Direct-operated proportional pressure reducing valve for reducing system pressure (DRE05)</td>
<td>New solutions for tractor gearbox, pilot oil supply, pump controller</td>
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CH Products
Compact Motion Control (CMC / PiB)

CH is the world leader for PiB products thanks to constant machinery performance improvement

NEW HOSE BURST VALVE CONTROLLED BY ELECTRONICS
Customer benefits:
- Lower pressure drop
- Easy set up on the machine - software tuning
- Possible energy recovery in “ghost mode”
- Simplified installation - no hydraulic piloting hose
- Flexible solution
- Enhanced metering via software
- Part of electronified system

NEW PROPORTIONAL REMOTE CONTROLLED PRIORITY FLOW REGULATOR
It allows the operation of single-acting attachments (hydraulic hammers, milling cutters, etc.) on machines that are not equipped for them. The Regulated Flow rate, pressure compensated, is remotely controlled and proportionally set to feed the attachment while the excess flow can be used for normal construction machine functions.

Customer benefits:
- Precise flow distribution, pressure compensated
- Remote controlled
- Pressure cut-off on priority port connected to the attachment (independently of flow rate)
- Low pressure loss in exceeding-flow
- Compact dimensions
- Less weight

VBSO_P
From a standard concept of counterbalance to solutions with dedicated control piston.

Customer benefits:
- Enhance stability and lowering control
- Interchangeable with current solution

CONTROL PLUS VALVE
From a standard concept of counterbalance to a load holding and lowering control valve with built in pressure sensitive oil recovery.

Customer benefits:
- Energy saving (gravitational lowering)
- Proportional control of lowering speed
- Oil recovering function
- Wide range of options for a complete customization
- Smooth lowering
Compact Directional Valves (CDV)

COMPLETE PRODUCT RANGE:

- Modular system to create electro-hydraulic control of actuators (motors or cylinders) in open circuits
- Flow sharing (LUDV) system for simultaneous multiple movements
- Energy saving
- Simplification of the hydraulic circuit
- Solution of flow saturation problems seen in load-sensing circuits
- Mobile and Industrial applications when simultaneous movements are required (e.g. Aerial Work Platforms, Truck Cranes)

EDC

- 4/2 and 4/3 valve for oil flow up to 80 l/min.
- Max. operating pressure 310 bar
- Direct acting
- Flangeable to all ED valves

STEERING MODE VALVE (SMV)

- Direct acting directional valve (electrically actuated) designed to select the steering mode in backhoe loader application. Mechanical detent integrated.
- Redundant system: the steering mode selected remains in position even in case of coil burned. The position is always guaranteed by the detent
- Compact design
- Simplification of the electrical circuit
- Reduction of power consumption

SPOOL SENSOR OPTION

Standard spool sensor option to be fitted with all ED valves and CETOP valve families

Advantages:

- Any standard directional valves can be equipped with spool sensor to verify whether the spool is in neutral or in an operating position
- Increase of the diagnostics capability
- Suitable in applications where high safety requirements must be met
- Available with either proportional or on-off outputs
CH Products
Compact Power Modules (CPM)

**Features:**
- Compact design
- Customized solutions to meet customer needs
- Availability of a wide range of components
- Modular, flexible, cost effective systems

**Product Line Keys:**
- Applications: mobile, light industrial
- Max working pressure: < 300 bar
- Flow rate: < 60 l/min.
- External gear pumps (high pressure and low noise solutions available)
- Reservoir: steel and plastic; < 120 liters
- Electric motor: AC / DC
- Central manifold: Aluminum die-cast / extruded bar

**Special Customization**
- Dedicated die cast central manifold
- Wide range of motor-pump combination
- Low noise solutions
- Special Plastic and steel tanks
- Customized HIC
- Main applications: AWP, Forklift, Tailgate

**ME-MR line**
- Pump Gr05, 0.18-1.5cc
- Reversible solution available
- 0.15-2.2kW DC motor
- 0.09-1.1kW AC motor
- Plastic and steel tanks up to 12l capacity
- Main applications: Small Pallet Truck, Table Lift

**KE-K-KS line**
- Pump Gr1, 0.9-7.4cc
- 0.15-3kW DC motor
- 0.75-4kW AC motor
- Plastic and aluminum tanks up to 60l capacity
- Main applications: Garage Equipment, Pallet truck, Car lift, Dumper

**DL line**
- Pump Gr1
- Specific design for dock leveller application
- Compact mounting style AC motors (0.75-2.2kW)
- Plastic tanks
- Main applications: Hinge Lip and Telescopic Dock Levellers

**MT line**
- Pump Gr1
- Specific design for light industrial clamping applications
- Standardized modular solution
- Light Industrial (Machine tool clamping)
The updated data sheets are available real-time on the Interactive catalog present on the CH official website:

www.boschrexroth.com/compact-hydraulics

The visitors will be able to consult all the technical information related to the CH product lines and, thanks to the integrated search engine, finding the needed product will be very fast and easy

http://apps.boschrexroth.com/products/compact-hydraulics/CH-Catalog/
THANKS FOR YOUR ATTENTION