The offer of INOXIHP components, is complete and meets all the needs of systems’ demands:

**PRODUCTS RANGE**

**RECIPIROTIC PLUNGER PUMPS**
- SERIES PF/PM
  - Tandem and Quintuplex
  - Flow up to 1000 l/min
  - Pressure up to 1000 bar
  - Power up to 450 Kw

**SOLENOID CONTROLLED VALVES**
- SERIES VDS
  - 2/3 ways - 2 positions
  - In line and with panel
  - DN 6 - DN 200 - PN 315

**SOLENOID CONTROLLED VALVES**
- SERIES VPM
  - 2/3 ways - 2 positions
  - In line and with panel
  - DN 40 - DN 200 - PN 350 bar

**SOLENOID CONTROLLED VALVES**
- SERIES VPZ-M
  - 2/3 ways - 2 positions
  - DN 20 - DN 80 - PN 320 - 500 bar
  - Continuous electric signal and control

**SOLENOID CONTROLLED VALVES**
- SERIES VPT
  - 2/3 ways - 2 positions
  - DN 10 - DN 32 - PN 600 bar

**LEVEL INDICATORS**
- SERIES MLI
  - Field of control up to 6 mt.
  - PN 40 - 350 bar

**CHECK VALVES**
- SERIES CV
  - DN 4 - DN 800
  - PN 315 - 1000 bar
  - Completely in stainless steel
  - In line and with cartridge

**STOP BALANCED VALVES**
- SERIES VIT
  - DN 50 - DN 250 - PN 350 - 500 bar
  - Manual or electromechanical control

**CHECK VALVES**
- SERIES CV
  - DN 6 - DN 300

**PROPORTIONAL VALVES**
- SERIES VPZ-E
  - DN 20 - DN 315
  - Continuous control of the opening position

**COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY ISO 9001:2000**

Due to continuing research and development, all specifications and dimensions are subject to change without notice.
INTRODUCTION TO HYDRAULIC DESCALING

The need to manufacture high quality materials in the competitive global market has by now become a well established fact.

A determining component to achieve this goal is the surface quality of hot rolled products.

The element which conditions this result is the mill scale which forms during the heating phase in the furnace. The consistency and anchorage of the mill scale depends in different variables such as the type of steel, the type of furnace, the product dimensions, etc.

The mill scale produced must therefore be completely removed as soon as the product has come out of the furnace and absolutely before it becomes a part of the base material due to the hot rolling.

Even the so called secondary mill scale which forms from the material ending of the product during the hot rolling process should not be considered negligible. Even this may need to be removed depending on the desired surface quality for the finished product.

Since the time that this need has existed, the mill scale removal methods have undergone significant transformations in the search for consistently improved quality.

From the early practice of using salt, branches of wood, etc., methods progressed to mechanical removal with rollers and brushes, then to the use of compressed air, steam and high pressure water.

Hydraulic descaling is indispensable in the manufacturing of all hot rolled products: slabs, blooms, billets, rounds, tubes, sheet metal, rails, rail profiles, beams, blankets.

The technology of descaling components has evolved continuously, supported by the growing pressure needs which are higher and higher and indispensable for the most possible quality and optimization of energy resources.

Today the reference pressures are between 200 and 300 bar with some applications of 400 bar.

Descaling waters by passing the product through a spraying header which sprays the pressurised water onto its surface.

The impact force generated by the pressurised stream and the thermal shock determined by the temperature difference between the water and the hot product (950-1250°C) cause the detachment and elimination of the mill scale.

Descaling occurs by passing the product through a nozzle with some applications of 400 bar.

Today the reference pressures are between 200 and 300 bar optimisation of energy resources.

Evidently, urged on by the growing pressure needs which are higher and higher, the technology of descaling components has evolved continuously, in the search for constantly improved quality.

The indisputable advantages of Hydraulic Descaling are:

- Increased safety of the hot rolled product due to the higher quality surface
- Improvement in the mechanical characteristics of the base material
- Zero return of non-conforming material
- Less use of the roller cylinders and the rolling cages
- High scale deposits in only one phase of the rollers
- Reduction of environmental pollution

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HYDRAULIC DESCALING SYSTEMS

The official literature recognises two types of systems which can be selected based on the project data given by the user and called DIRECT or HYDROPNEUMATIC SYSTEMS.

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Types which will be briefly examined below

DIRECT SYSTEM

Use a spraying station which feeds the spraying header directly. Its structure is simple and operation is intuitive. This is recommended for smaller products with high frequency production. The operation logic calls for a spray cycle and a waiting cycle.

In the direct system the sprays are in recirculation via an open bypass valve. When the cycle start signal is received the descaling valve opens, the bypass valve closes and the pumps feed the spraying header until the end cycle signal which reopens the bypass valve.

INNOXHP AND HYDRAULIC DESCALING

The request for highly reliable and efficient components to be dedicated for this use and the increasing irrepressibility of this application by steel manufacturers has awakened significant interest, but the solutions proposed, often derived from components which are mass produced and/or dedicated to other fluids and/or services, have always provided negative results due to the heavy continuous operation of the system and precise service with descale requiring.

These failures have made the users of the need to use components and systems designed specifically for this service and which can guarantee the efficiency of a service which is vital for a correct productive process.

This is why, prior to the year 1977, INNOXHP started and beat the challenge, designing and building a series of components for high pressure water which boast a widespread distribution in the global iron manufacturing market.

INNOXHP has also designed and built hundreds of complete systems, both direct and accumulated systems, thus acquiring valuable specific experience which aids in always identifying the best solution to adopt.

The service which INNOXHP provides is completed by making a team of capable technicians available to the client, able to assist them in the design phase as well as the commissioning, start up and post sale.

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