

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

PRODUCTS RANGE



RECIPROCATING PLUNGER PUMPS SERIES PF/PM

- *Triplex and Quintuplex*
- *Flow up to 1000 lt./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*



CHECK VALVES SERIES CV

- *DN 6 ÷ DN 300*
- *PN 315 ÷ 1000 bar*
- *Completely in stainless steel*
- *In line and with cartridge*



SOLENOID CONTROLLED VALVES SERIES VPM

- *2/3 ways - 2 positions*
- *In line and with panel*
- *DN 40 ÷ DN 200*
PN 350 bar



STOP BALANCED VALVES SERIES VIT

- *DN 50 ÷ DN 250*
- *PN 350 ÷ 500 bar*
- *Manual or electromechanical control*



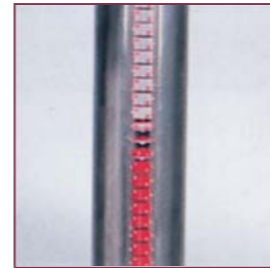
SOLENOID CONTROLLED VALVES SERIES VPT

- *2/3 ways - 2 positions*
- *In line and with panel*
- *DN 10 ÷ DN 32*
PN 600 bar



LEVEL INDICATORS SERIES MLI

- *Field of control up to 6 mt.*
- *PN40 ÷ 350 bar*
- *Continuous visual indication*
- *Continuous electric signal or at points*



SOLENOID CONTROLLED VALVES SERIES VPZ-M

- *2/3 ways - 2 positions*
- *DN 20 ÷ DN 80*
- *PN 320 ÷ 500 bar*
- *In line, with panel and with cartridge*

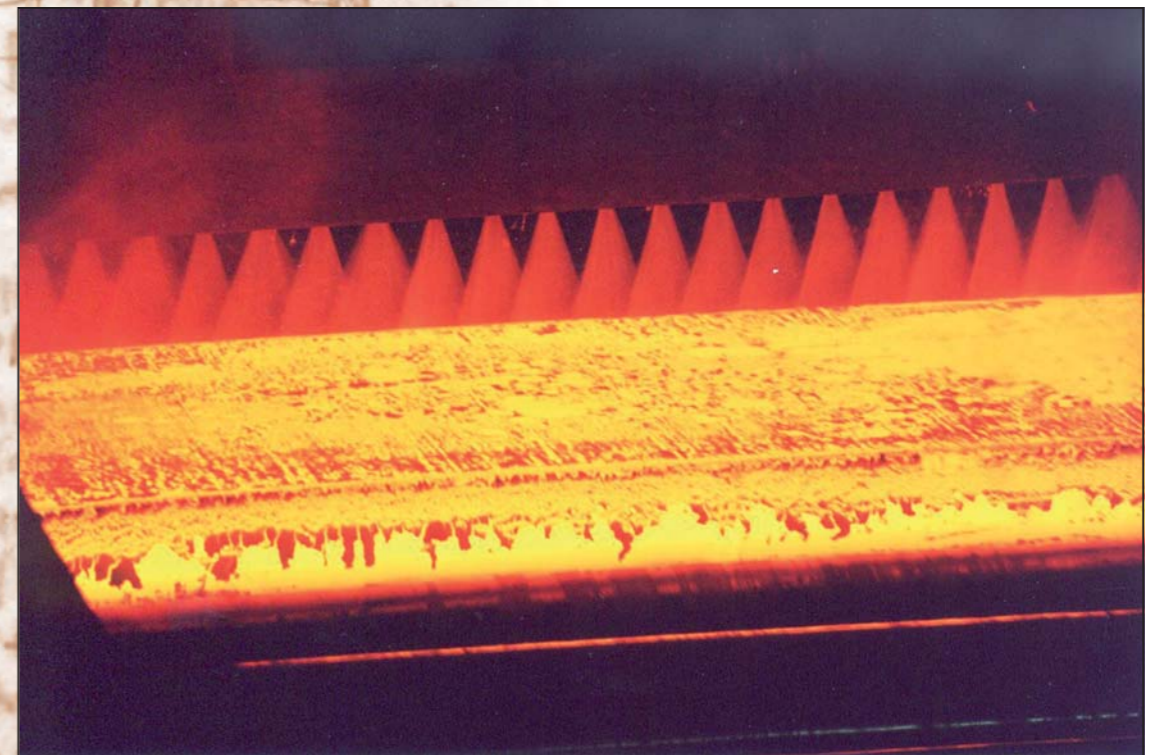


PROPORTIONAL VALVES SERIES VPZ-E

- *DN 20 ÷ DN - PN 315*
- *In line, with panel and with cartridge*
- *Continuous control of the opening position*



HYDRAULIC DESCALING SYSTEMS



INOXIHP
COMPONENTS AND SYSTEMS FOR HIGH PRESSURE WATER

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

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INTRODUCTION TO HYDRAULIC DESCALING

The need to manufacture high quality materials to be competitive in the 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 on 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 natural cooling 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 constantly improved quality.

From the early practice of using salt, branches of wood, etc., methods progressed to mechanical removal with rollers and chains, then to the use of compressed air, steam and low pressure water jets, up to the current hydraulic descaling with high pressure water.

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

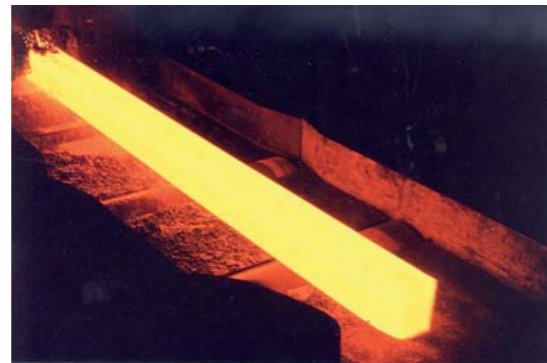
The technology of descaling components has evolved continuously, urged on by the growing pressure needs which are higher and higher and indispensable for the best possible scaling and optimisation of energy resources.

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

Descaling occurs by passing the product through a nozzle 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) causes the detachment and elimination of the mill scale.



The correct preparation of the project data provided by the user, will allow us to obtain excellent descaling of the surfaces without producing harmful drops in temperature of the product.

Therefore, the completeness of the project data and the correct interpretation of the same is a determining factor in evaluating the type of descaling system, the necessary energy to use and in obtaining the best result with the best quality-price ratio.

This is why it is absolutely necessary to rely on qualified suppliers with vast and documented experience in design and construction of all types of descaling systems.

ADVANTAGES OF HYDRAULIC DESCALING

The indisputable advantages of Hydraulic Descaling are:

- Increased value 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
- Mill scale deposits in only one place of the roller
- Reduction of environmental pollution.

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.

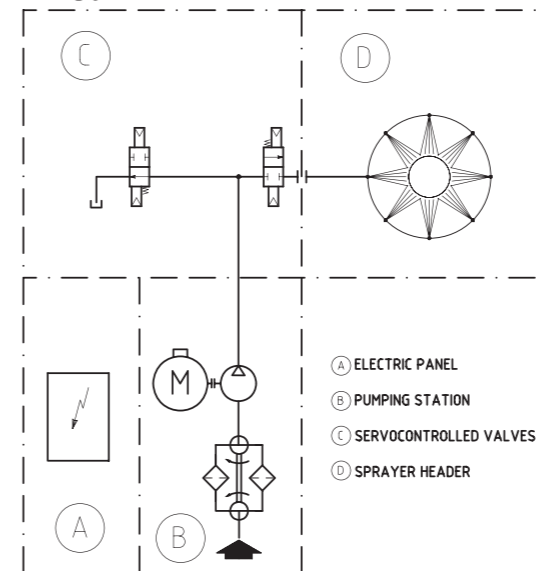


Types which will be briefly examined below:

DIRECT SYSTEM

Uses a pumping station which feeds the sprayer header directly. Its structure is simple and operation is intuitive.

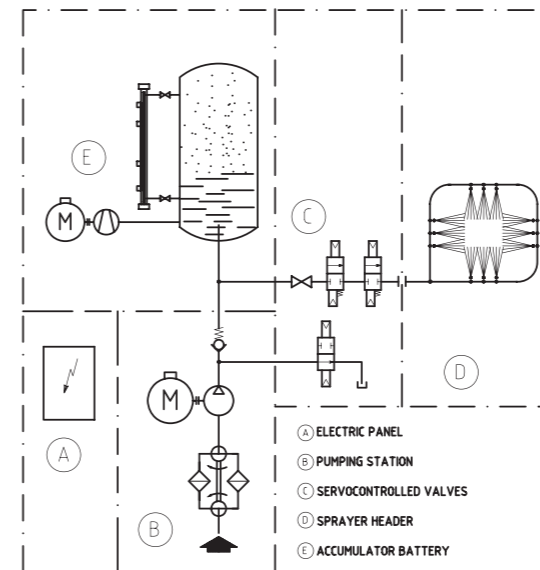
This is recommended for smaller products with high frequency production. The operative logic calls for a spray cycle and a waiting cycle.



HYDROPNEUMATIC SYSTEM

This uses an accumulator for water air - storage, a pumping station and a series of servo-controlled valves.

The nozzle header is fed by the accumulator battery, recharged by the pumping station between one cycle and the next. Its structure is more complex and requires more specifically competent operators. This is recommended for larger products with low frequency production.



The operative logic of the two systems is similar and calls for a spray cycle and a waiting cycle.

In the direct system the pumps 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 sprayer header until the end cycle signal which reopens the bypass valve.

In the hydropneumatic system the accumulator is pre-charged to the operating pressure and the pumps are in recirculation via an open bypass valve. When the start signal is received the descaling valve opens which allows the accumulator to feed the spraying header and on the end cycle signal the descaling valve and the bypass valve close, allowing the pumps to recharge for the next cycle.

INOXIHP AND HYDRAULIC DESCALING

The pressing request for highly reliable and efficient components to be dedicated for this use and the increasing irrefutability 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 which descale requires.

These failures have convinced 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, way back in 1977, INOXIHP accepted 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.

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



The service which INOXIHP 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.