

Descaling Solutions in the Steel Industry by Oilgear

INTRODUCTION

This case study examines how Oilgear provides innovative, efficient, and safe descaling solutions for the steel industry. Drawing on industry expertise, Oilgear's offerings address the critical process of removing scale from steel—a process vital for ensuring both product quality and operational efficiency.

UNDERSTANDING SCALE AND ITS IMPACT

Scale is a hard, brittle outer layer (primarily iron oxide) that forms when hot-worked carbon steel is exposed to the atmosphere after furnace processing. Although only about 1mm thick, this layer significantly affects subsequent steel processing. While scale acts as a temporary protective barrier at high temperatures, its brittleness means that it often breaks off, leaving steel surfaces vulnerable to uneven corrosion and physical imperfections.



WHY SCALE NEEDS TO BE REMOVED

- **Quality Assurance:** Presence of scale degrades surface finish and can embed inclusions within the steel, negatively affecting both mechanical and electrical properties.
- **Economic Impact:** Unremoved scale renders steel pieces unfit for purpose, leading to increased scrap rates, loss of profits, and costly delivery delays for end customers.
- **Operational Efficiency:** Scale increases wear on processing equipment and complicates further treatment steps.

METHODS FOR DESCALING

There are several common methods employed for scale removal:



METHOD	PROS	CONS
Chemical Pickling	Effective oxide removal	Expensive, hazardous chemicals, complex disposal
Abrasive Blasting	Can be effective for some applications	Expensive, unhealthy, messy
Mechanical/Hydropneumatic	No chemical hazards, clean, cost-effective	Requires specialist knowledge and equipment



■ METHODS FOR DESCALING

PICKLING

Pickling uses acidic solutions to dissolve the oxide layer. However, it is costly due to the constant need for fresh chemicals, poses health risks, and requires specialized disposal of hazardous waste.

ABRASIVE BLASTING

This method uses propelled abrasive materials to physically strip scale from steel surfaces. It is expensive, creates messy particulates, and can be harmful to workers' health.

OILGEAR'S HYDROMECHANICAL DESCALING: A SUPERIOR APPROACH

Oilgear specializes in hydromechanical descaling, recognized as the most effective and advantageous method. It utilizes highly pressurized water jets to break and remove scale via kinetic energy and thermal shock.

KEY BENEFITS

- **Cost-Effective:** Water is both readily available and reusable, reducing operational expenses.
- **Clean & Safe:** No hazardous chemicals involved; minimal cleanup compared to alternatives.
- **Superior Surface Finish:** Delivers high-quality, clean surfaces ready for further processing.
- **Worker Safety:** Eliminates fire risks, lowers injury risk through low-maintenance systems, and reduces exposure to hazardous substances.

■ TECHNICAL HIGHLIGHTS

Oilgear's system typically combines pumps and accumulators to handle the high volume of water needed in short bursts. Adjustable pumps allow for energy savings by running at optimal power only when required.

OILGEAR'S VALUE PROPOSITION

OILGEAR STANDS OUT BY OFFERING:

- Advanced transfer barrier pumps
- Accumulator auto shut-off controls
- Pump bypass controls
- A comprehensive range of descaling control manifolds
- Essential ancillary components such as prefilling, non-return, shut-off, and directional valves

Specialized Expertise: Oilgear focuses on core hydraulic technologies and maintains strategic partnerships with nozzle specialists, ensuring every aspect of the descaling system is handled by proven experts.

CONCLUSION

For steel manufacturers facing challenges associated with scale, Oilgear delivers a robust, secure, and low-maintenance hydromechanical descaling solution. These systems ensure high-quality steel production, maximize operational safety, and significantly improve overall plant efficiency, setting a benchmark in steel industry descaling performance.

