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Phastite® for Pipe Connection System

A Non-Welded System for High-Pressure Piping



ENGINEERING YOUR SUCCESS.

Key Features and Benefits

REDUCED TIME AND COST

- Produces non-welded permanent piping
- Eliminates post-weld/between-weld pass inspection, grinding and finishing
- Eliminates non-destructive examination, such as radiography, liquid dye penetrant (LDP) and magnetic particle inspection (MPI)

INCREASED SAFETY

- Pre-assembled fittings with no loose parts
- Utilizes hydraulic assembly with 10Kpsi pump
- Eliminates need for hot-work permits/fire watch
- Vibration tolerant
- Fully heat code traceable (HCT)
- Reduces airborne chromium exposure

OPTIMAL PERFORMANCE

- Reduces inspection/wait/cooling time
- Reduces pipe repair downtime
- Eliminates weld-induced corrosion and mechanical stresses
- Offers clean and safe assembly

INNOVATIVE DESIGN

- Has all stainless steel construction and metal-to-metal sealing
- Has built-in pipe tolerance control
- Has a broad range of configurations
- Clean assembly process requiring no lubrication

Parker Phastite® Technology

Permanent Piping Connections With Unprecedented Efficiency

Phastite® for pipe is a breakthrough in pipe connection technology. Its innovative design combines **fast installation** with a **simple assembly process** to achieve **permanent non-welded, leak-free connections** quickly and easily. When accounting for the total throughput time, a Phastite connection can be fabricated in just minutes, compared to the hours required for welded connections. What's more, Phastite reduces overall post-welding inspection time and costs by eliminating non-destructive examination (NDE) such as radiography/X-ray and even liquid dye penetrant.

A versatile system, Phastite for pipe is:

- Well suited for hydraulic, water and water/glycol, lubrication and other media
- Compatible with NPS/IPS schedule pipes sizes 3/4", 1", 1-1/2" and 2"
- Able to withstand pressures up to 10,000 psi/700 bar
- Designed to perform at subsea depths of 15,000 feet
- Meets requirements of ASME B31.1 and B31.3
- Tested in accordance with ASTM F1387
- DNV RP-A203 Technical

Qualification Program Certificate
Mechanical pipe joining technology for high pressure systems operating at 4500-6000 psi is generally limited to sizes up to 3/4". This systemic shortfall is attributed to both tube and threaded fitting limitations. Such limitations have required

customers to typically weld heavy schedule pipe in the 3/4" to 2" range. Welding introduces complexity, time and potential hazards for high-pressure hydraulic systems. Phastite for Pipe fills the gap between high-pressure threaded tube fittings and butt weld pipe connections.



Breakthrough Technology for High-Pressure Piping

How It Works

Technology in Action

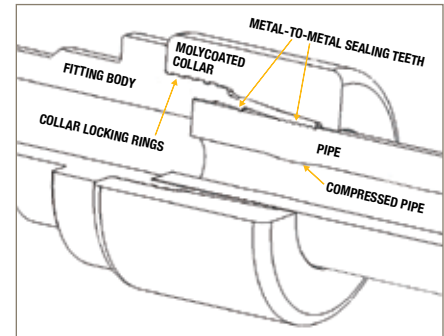
Phastite for pipe uses a patent-pending sealing technology to provide permanent connections to off-the-shelf schedule pipe. The robust design ensures a leak-free performance in even the most demanding hydraulic and gas applications, while assembly can be completed quickly and easily.

After a series of fast inspection and pipe-marking guidelines, Phastite fittings are axially swaged to the pipe using a bench-mounted Parker Phastool 100. Once the collar is fully locked to the fitting body, it will not disengage – offering a permanent connection solution in just minutes!

The superior pipe sealing and retention properties of Phastite are achieved through its unique design. As the Phastite collar is axially engaged to the fitting body, the radial sealing teeth are progressively and permanently locked to the pipe. The high radial force created by the axial load provides a precise amount of pipe compression. The pipe compression and radial sealing teeth combine to provide the holding and sealing functions of the Phastite connection.

By design, Phastite for pipe is highly resistant to vibration, pressure cycling and external loading often seen in high pressure hydraulic systems.

What's more, Phastite for pipe's metal-to-metal sealing reduces the risks associated with thread sealants, O-rings and gaskets, as well as expands the chemical and temperature operating ranges as compared to other non-welded solutions.



With the pre-assembled error-proof fittings and the ease of use of the Phastool 100, piping fabrication throughput improvement is as simple as these few steps:



1. Cut the pipe squarely. Use gauge to verify pipe diameter/ovality. Mark pre- and post-insertion marks on pipe.



2. Assemble Phastite fitting to pipe in Phastool 100 machine.

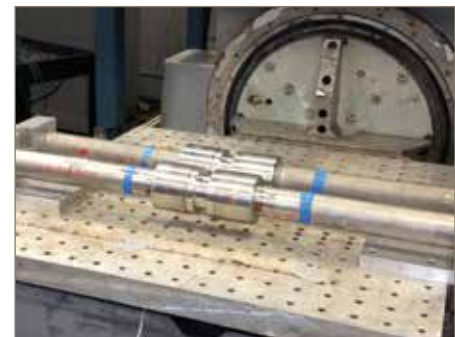


3. Actuate Phastool 100 swaging machine. Remove and visually inspect.



Power Piping
ASME Code for Pressure Piping, B31.1

Process Piping
ASME Code for Pressure Piping, B31.3



What takes other solutions hours, a Phastite connection can do minutes!

Fast, Consistent and Reliable Connections

Dramatic Decrease in Installation Time

Phastite for pipe offers greater overall efficiency with its impressive reduction of installation time. A typical complete pipe weld for 1" to 2" heavy schedule pipe (sch 160/XXS) may require many weld passes and commonly demands more than an hour for total fabrication. **In the same amount of time, as many as eight Phastite connections can be made.** This radically improves the piping fabrication efficiency. Extending across multiple days and welders/fitters, piping projects can be dramatically streamlined.

Phastite for pipe also allows for more consistent labor planning as fabrication times between pipe schedules are virtually the same. Further standardizing operation, one Phastool machine can be used throughout the range of schedule pipe sizes.

The Confidence of Rigorously Tested Technology

Virtually every industrial and oil and

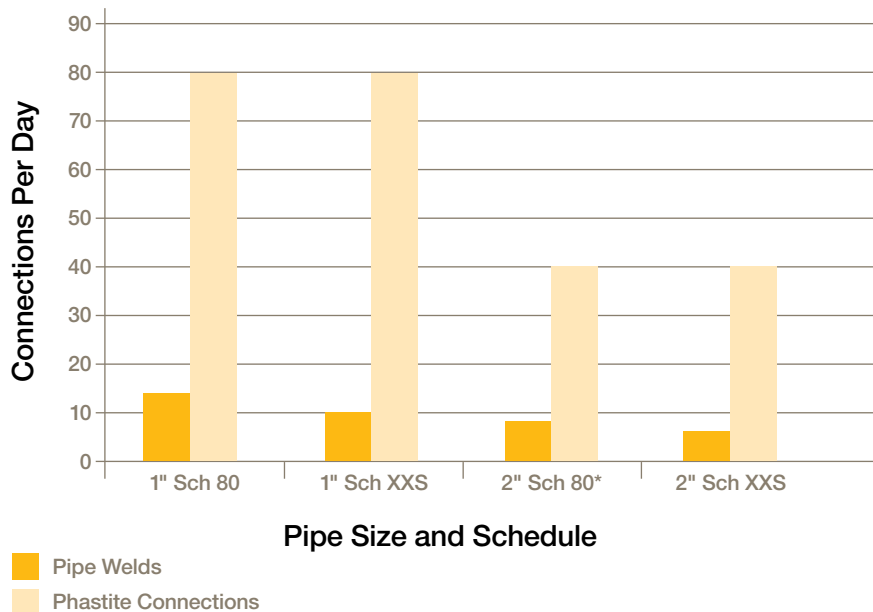
gas performance requirement has been considered in the development and validation process. Phastite meets or exceeds typical SAE/ISO performance requirements for mechanically attached fittings, as well as maintains both a fluid- and gas-tight seal throughout an exhaustive battery of application specific performance tests. Subjected to corrosion tests well beyond the traditional intensity, Phastite has passed SCC, Splash Zone and HISC tests to ensure proven durability.

Hydraulic systems in oil and gas applications carry stringent performance requirements. Knowing Phastite achieves compliance in these applications translates to worry-free operation across other industries. The research and testing that went into the development of Phastite assures optimal performance and integrity in critical piping systems.

Contact your Parker Distributor or visit www.parker.com/tfd to learn more.

Parker partnered with DNV (Det Norske Veritas) to validate Phastite's design and development. Using DNV's rigorous qualification of new technology (DNV-RP-A203) initiatives, the following tests were performed:

- Hydrostatic Leak and Burst to ASTM F1387
- Vibration to ASTM F1387/ MIL-STD-167
- Cyclic Endurance (impulse) to ASTM F1387/ISO19879
- Subsea Simulated Hyperbaric API 5C3 (modified)
- Torsion to ASTM F1387
- Tension to ASTM F1387
- Bending moment
- Fire to AS1055
- Hydrogen Induced Stress Cracking (HISC)
- Stress Corrosion Cracking to ASTM F1387 (modified)
- Corrosion Testing (general and crevice) to ASTM G44 (modified)



Typical 1-2" pipe with 3-socket weld fittings (6 welds).

**With Schedule 80 Pipe, using Phastite instead of welding could increase the number of connections completed per day from eight to 40 – giving you five times as many connections as welding.*

***Conservative estimate including all required processes and multiple passes*

Parker Fluid Connectors Group

North American Divisions & Distribution Service Centers

Your complete source for quality tube fittings, hose & hose fittings, brass & composite fittings, quick-disconnect couplings, valves and assembly tools, locally available from a worldwide network of authorized distributors.

Fittings:

Available in inch and metric sizes covering SAE, BSP, DIN, GAZ, JIS and ISO thread configurations, manufactured from steel, stainless steel, brass, aluminum, nylon and thermoplastic.

Hose, Tubing and Bundles:

Available in a wide variety of sizes and materials including rubber, wire-reinforced, thermoplastic, hybrid and custom compounds.

Worldwide Availability:

Parker operates Fluid Connectors manufacturing locations and sales offices throughout North America, South America, Europe and Asia-Pacific.

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North American Divisions

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fax 281 530 5353

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fax 419 878 7001
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Canada

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