



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Hose Catalog - FY24

Fluid Connectors, India.



HoseFinder

Parker

ENGINEERING YOUR SUCCESS.

Parker Hannifin – the global leader and your partner

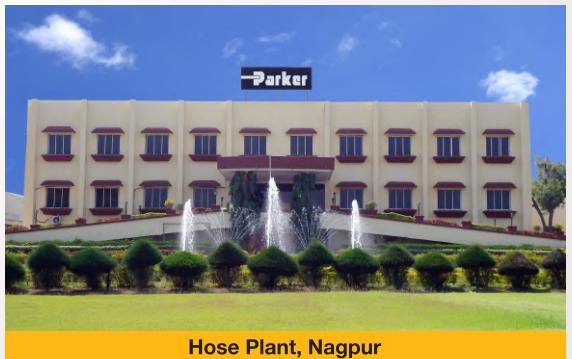


With annual sales exceeding \$13 billion, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial and aerospace markets. Our products are vital to virtually everything that moves or requires control, including the manufacture and processing of raw materials, durable goods, infrastructure development and all forms of transport.

Within Parker's seven operating groups, the company's engineering expertise spans the core motion technologies – electromechanical, hydraulic and pneumatic – with a full complement of fluid handling, filtration, sealing and shielding, climate control, process control and aerospace technologies.

The leader in "dry technology" for the fluid power industry, Parker's Fluid Connectors Group is your single source for high-quality tube fittings, hose and hose fittings, thermoplastic tubing, brass fittings and valves, quick-disconnect couplings and assembly tools. The Fluid Connectors Group serves customers in a broad range of markets, including Aerial Lift, Agriculture, Bulk Chemical Handling, Construction Machinery,

Food & Beverage, Fuel & Gas Delivery, Industrial Machinery, Medical, Mining, Mobile, Oil & Gas and Transportation. Products are available for shipment 24 hours a day, supported by 49 manufacturing facilities throughout the world, a global distribution network and 25 company-owned stocking service centers. Our commitment to you is impeccable customer service. To meet your specific requirements, we offer a broad range of programs designed to reduce your overall operating costs, streamline manufacturing, improve productivity, manage inventory, enhance delivery and address safety and environmental issues. For value-added services that generate value-added solutions, team up with Parker!

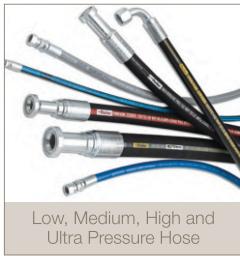


Parker Hannifin India Pvt. Ltd. is India's leading hose and end fittings solutions provider catering to a wide range of industries. Offering an extensive spread of regular and customizable braided and multi-spiral hoses besides end-fittings, Parker is playing a vital role in enhancing productivity and growth of diverse industries including mining, construction, transportation, on-shore and off-shore oil exploration & drilling, cement manufacturing, machine tools, aviation and agricultural machinery.

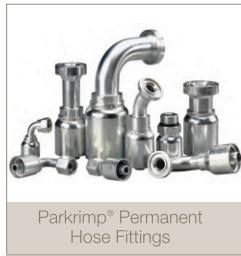
Backed by two state-of-the-art ATEX certified manufacturing facilities at Hyderabad and Nagpur, Parker Hannifin India Pvt. Ltd. is delivering products that conform to DIN, EN, SAE, ISO, IS & BS specifications. And the type approvals for our products from globally acclaimed agencies like MSHA-USA, Directorate General Mines Safety DGMS-India & Pressure Equipment Directorate (ATEX) testify Parker's unflinching commitment to quality while ISO 9001: 2008 certification to Parker's Quality Management Systems reinforces the claim.

Apart from the above, Parker Hannifin India Pvt. Ltd. lays unrivaled emphasis on customer service. We constantly innovate to present a host of service solutions that reduce our customers' overall operating costs, streamline manufacturing, improve productivity, manage inventory, enhance delivery and address safety and environmental issues. Presently, the gamut of such path-breaking services encompasses Parker Tracking System (PTS), Parker Onsite and Complete Piping Solutions (CPS) among others.

So, team up with Parker to enjoy peerless products and seamless services. And together we can, usher newer paradigms of performance, productivity and profitability!



Low, Medium, High and Ultra Pressure Hose



Parkrimp® Permanent Hose Fittings



Parkrimp® Assembly Equipment



Field Attachable Fittings



Accessories

Hose Products Division



Parker Tracking System



Parker Onsite Container Program



Complete Piping Solutions (CPS)

PARKER SAFETY GUIDE FOR SELECTING AND USING HOSE, TUBING, FITTINGS AND RELATED ACCESSORIES

⚠️ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF HOSE, TUBING, FITTINGS, ASSEMBLIES OR RELATED ACCESSORIES ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocution from high voltage electric powerlines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping hose.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion while spraying paint or flammable liquids.

Before selecting or using any of these products, it is important that you read and follow the instructions below. Only hose from Parker's Stratofex Products Division is approved for flight aerospace applications, and no other hose can be used for such in flight applications.

DO NOT MIX & MATCH

Components from different manufacturers should not be combined to create hose assemblies (apart from rare instances when both manufacturers have approved the exception). To mix and match components is to increase the risk of hose failure – a dangerous situation regardless of setting or application. Possible consequences of hose failure resulting from the use of incompatible components include:

- Fittings thrown off at high speed
- High velocity fluid discharge
- Fluid injection injury
- Violently "whipping" hose
- Sparking or explosion from sprayed flammable fluids
- Suddenly moving / falling objects otherwise held static by fluid pressure
- Only assemble hoses and fittings of the same make
- Always use a crimper approved by the manufacturer of the hose and fittings
- Crimp only to the manufacturer's specification

The individual is solely responsible for the hose assemblies he or she fabricates. Fluid power professionals should abide by three basic tenets when fabricating hose assemblies:

Parker's recommendations are consistent with SAE standard J1273: Industry Consensus on Best Practices for Using Hydraulic Hose. The complete technical paper, which includes SAE-recommended practices for hose assembly fabrication, can be purchased from www.SAE.org.

Table of contents

If you have questions about the products contained in this catalog, or their applications, please contact:
sales.india@parker.com

Extra care is taken in the preparation of this literature, but Parker is not responsible for any inadvertent typographical errors or omissions. Information is subject to change without notice. The information in this catalog is only accurate as of the date publication. Hose Weight mentioned are approx. and could change based on actuals

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions in the "Offer of Sale."

www.parker.com/offeroftsale

Hose - Hydraulic

Braided Hydraulic – Industry Standard
Braided Hydraulic – Proprietary
Spiral Hydraulic – Industry Standard

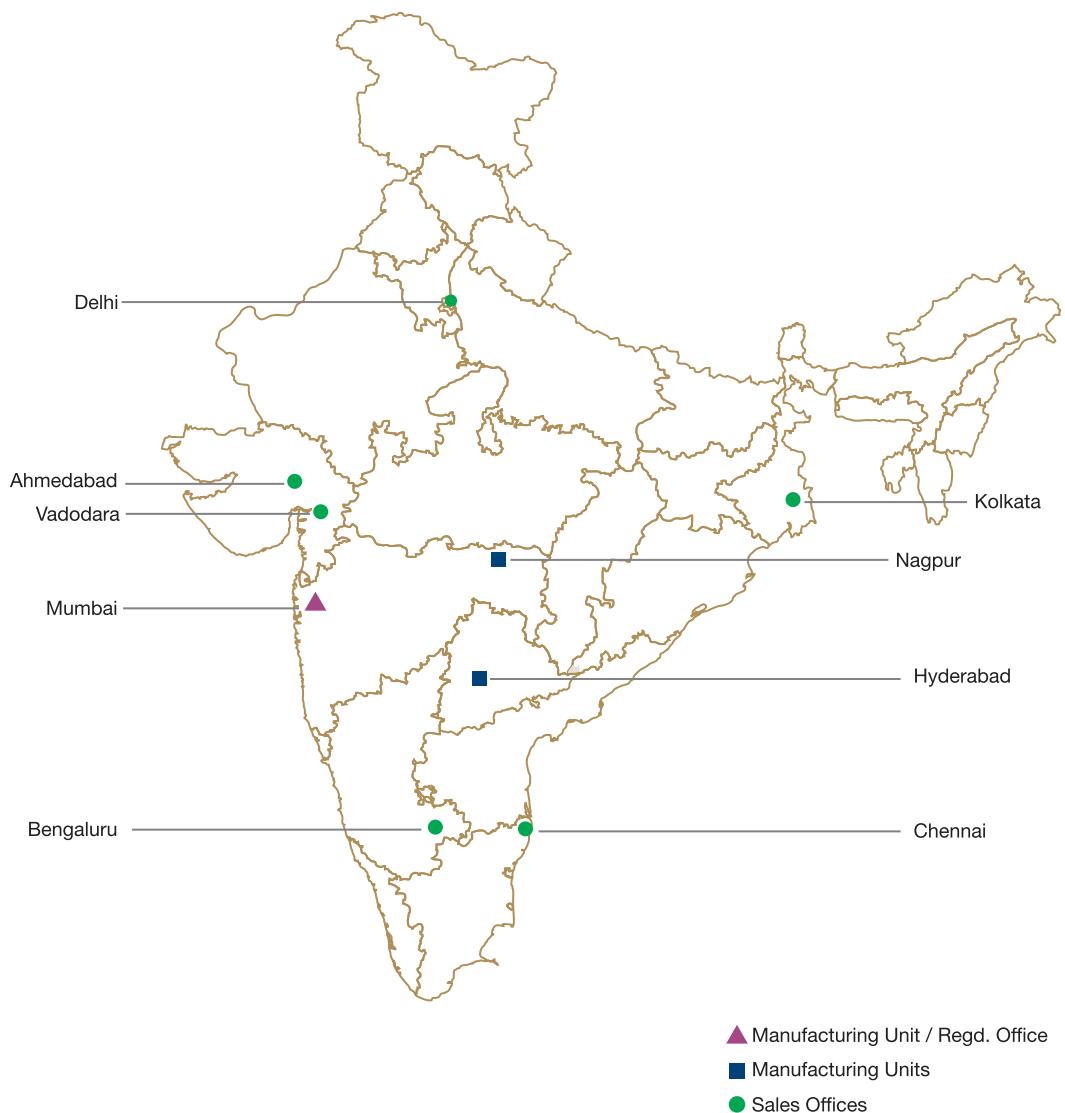
Technical

Nomogram
Conversion Table
Chemical Resistance Table
Safety Guide
Safety Guide & MSDS Statement
Offer of Sale

A

B

Making our presence felt in India.



- ▲ Manufacturing Unit / Regd. Office
- Manufacturing Units
- Sales Offices

Global Services

End-to-end excellence!



PARKER TRACKING SYSTEM (PTS)

PTS helps customers reduce equipment and machinery downtime by increasing the speed, timing and accuracy of acquiring replacements. Using our web-based application, PTS generates a unique identification code for each hose assembly which is printed on a durable barcode or RFID label.

PTS can eliminate costly hours of equipment downtime, helping customers achieve greater productivity and profitability.

www.parker.com/pts



PARKER ONSITE

Parker OnSite brings our solutions to fabricate hose and tube assemblies to your worksite, even in the most remote locations. Parker OnSite containers are built to order and are an ideal maintenance and repair solution for Oil Fields, Mining, Forestry, Construction and any other industry that can't afford to have extended downtime.

www.parker.com/onsite



COMPLETE PIPING SOLUTIONS (CPS)

Combining the best non-welded piping system with a complete engineered piping services package, CPS offers your project incomparable assurance, efficiency and value.

CPS centers feature our Parflange F37 technology supported with engineering consultation, design, state-of-the art piping fabrication and installation.

www.completepipingsolutions.com

The Parker Tracking System (PTS)

Global asset tagging and identification system.



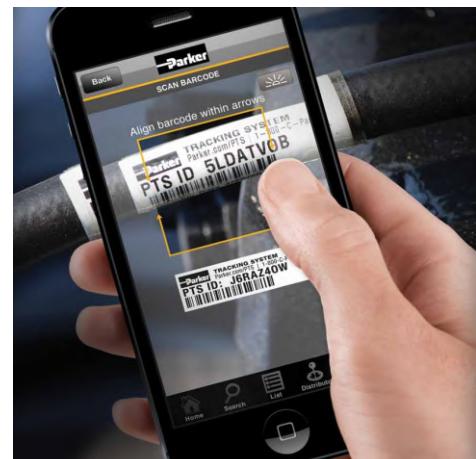
The Parker Tracking System is a unique and valuable service available exclusively for Parker customers.

The Parker Tracking System (PTS) is a unique and valuable service available exclusively for Parker customers. PTS is an advanced global tagging and tracking solution that reduces vehicle or asset downtime by increasing the speed, timing and accuracy of necessary hose assembly replacements.

Powered by the best of mobility technologies, PTS just requires a simple scan and send effort from clients to get them a perfect replacement of their product or to resolve maintenance issues in a very short time.

Using a secure Web-based application, PTS generates a unique identification code for each hose assembly which is printed on an ultra-durable barcode or RFID label. PTS labels are specifically engineered to withstand harsh chemicals, temperatures, UV exposure and other challenging conditions.

PTS can eliminate hours of costly equipment downtime, helping customers achieve greater productivity and profitability.



A host of advantages



- Unique ID enables accurate traceability back to specific location or asset
- Assembly date provides time-based inspection or replacement triggers
- Customer part numbers & barcodes enable link to back office systems
- Custom label data can display a variety of instructions or contact information

- Inspection and Maintenance Planning
- Intuitive reporting tools facilitating product engineering, quality & sales analysis
- Enhanced operational efficiency
- Access to replacement details and history
- Storage of customer information
- Generation of customized instructions for MRO activities
- Creating file attachment for prints, certifications and photos
- Generation of custom reports with PDF and Excel extracts.
- Creating custom user profiles to set required security

Parker Onsite Mobile Work Containers

To provide expert service even in the most remote job site locations, the Parker Onsite Program delivers a fully customized mobile workspace directly to your job site. These highly efficient and mobile container-based work sites provide all the technology, equipment and inventory needed for remote fabrication of hose and tube assemblies, and much more.

The Parker Onsite container solution will significantly reduce the time it takes to obtain critical spares or fabricate replacement hose assemblies. Equipment and labor downtime are greatly reduced, keeping your operations up and running longer. And your Parker Onsite container can be personalized to meet your specific site or project needs.

Find out more at www.parker.com/onsite



Cargo Doors



Storage Racks and Cabinets



Equipped with Crimping & Cutting Machines etc.



Interior View of Container



Heating/Cooling Service



Ambient Lighting & Ventilation



Ensuring seamless flow of productivity.

Parker's Complete Piping Solutions (CPS) combines the innovative Parflange F37 non-welded piping system with a broad array of piping services.

By using cold drawn seamless tubes, the non-welded Parflange F37 system is inherently cleaner than welded piping systems, providing the benefit of reduced system flushing time.

Parker CPS delivers improved hydraulic piping systems to industries ranging from energy and mining to metal processing on a turn-key basis including design and development, fabrication through to installation and everything in between.

A comparison of two approaches to a 2" – 4" piping system:

Welded System	CPS Cold Bent Parflange F37 System	
<ul style="list-style-type: none"> Welds : 6 Elbow Fittings : 2 Welding Fabrication Time : High System Flushing Time : High Flow Characteristics : Abrupt 	<ul style="list-style-type: none"> Welds : 0 Elbow Fittings : 0 Cold Bends : 2 Welding Fabrication Time : N/A System Flushing Time : Low Flow Characteristics : Best Installation Time : Low 	

Seamless processes, state-of-the-art products.

Development and design:

- Modern CAD systems process all common 3D and 2D data formats and simulate installation situations.

Cold bending:

- The available bending machines process tubes with diameters from 6 x 1 mm to 190 x 20 mm (thin-walled Ø 220x6mm) accurately on the basis of the data fed to them.

Tube end processing:

- Modern CNC controlled machines for processing pipe ends. Tube end processing is carried out based on internal standards.

Tube cleaning:

- Tube cleaning using the ISO 4406 / NAS 1638 standard.

Pressure test:

- Pressure test to customer specifications possible and documentation provided at the customer's request.

Installation / support:

- Includes delivery of pre-configured tube systems to the customer's desired location or on-site installation by Parker or end customer training conducted by Parker.

Fabrication Capabilities: 1-1/4" (42 mm) to 10" (273 mm) bending at 2D to 3D bend radius



Parflange F37
non-welded flange system



- Flare Flange

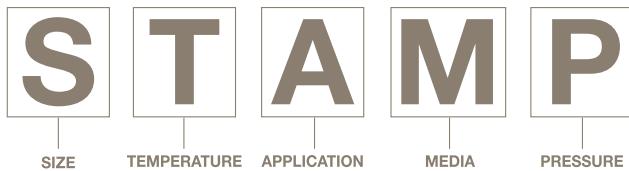



- Compliant with SAE/ISO 6162-1/2 and ISO 6164 dimensions and flange patterns
- DNV and ABS type approved system

Advantages that pay off.

- Reduced pipe repair downtime
- Leak proof dry technology (NDT, X-Ray not required)
- No post weld finishing (grinding etc. not required)
- No Hot-work permit required (Defence)
- Faster on-site assembly
- Eliminates weld induced corrosion
- More vibration tolerant

Before you spec it, STAMP it.

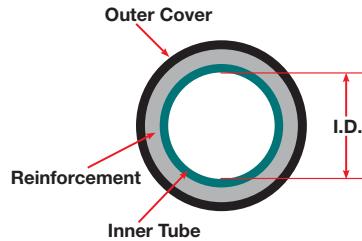


Size

Parker uses a system of measurement called Dash Numbers to indicate hose and fitting size. The dash number, or dash size, is the measure of a hose's Inner Diameter (I.D.) in sixteenths of an inch. (The exception to this is SAE 100R5 hose. See the chart below for complete details.)

This measuring system of the inside diameter of the hose is universally used by the fluid power industry today.

Hose I.D. (Inches)				
All Except R5 Series Hose			R5	
Dash No.	Inches	Millimeters	Inches	Millimeters
-3	3/16	4.8	-	-
-4	1/4	6.3	3/16	4.8
-5	5/16	7.9	1/4	6.3
-6	3/8	9.5	5/16	7.9
-8	1/2	12.7	13/32	10.3
-10	5/8	15.9	1/2	12.7
-12	3/4	19.0	5/8	15.9
-16	1	25.4	7/8	22.2
-20	1-1/4	31.8	1-1/8	28.7
-24	1-1/2	38.1	1-3/8	34.9
-32	2	50.8	1-13/16	46.0
-40	2-1/2	63.5	2-3/8	60.3
-48	3	76.2	-	-
-56	3-1/2	88.9	-	-
-64	4	101.6	-	-



The hose size is determined by the inside diameter which can be measured or found on the layline.

Temperature

When specifying hose, there are two temperatures you need to identify. One is the ambient temperature, which is the temperature that exists outside the hose where it is being used; the other is the media temperature, which is the temperature of the media conveyed through the hose.

Very high or low ambient temperatures can have adverse affects on the hose cover and reinforcement materials, resulting in reduced service life.

Media temperatures can have a much greater impact on hose life. For example, rubber loses flexibility if operated at high temperatures for extended periods.

Parker hoses carry different temperature ratings for different fluids. For example, a hose has a temperature range of **-40°C to +125°C (-40°F to + 257°F)** for petroleum-based hydraulic fluids. However for water, water/glycol and water/oil emulsion hydraulic fluids, the range drops to a rating of up to **+85°C (+185°F)**. Air is rated even lower up to **+70°C (+158°F)**.

Some media can increase or decrease the effects of temperature on the hose. The maximum rated temperature of a hose is specific to the media.

Application

Before selecting a hose, it is important to consider how the hose assembly will be used. Answering the following questions may help:

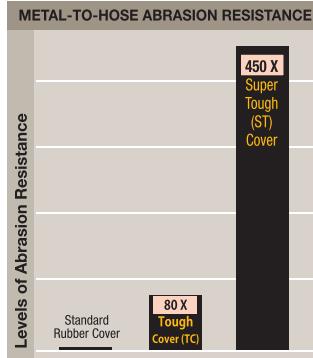
- What type of equipment is involved?
 - What are the environmental factors?
 - Are mechanical loads applied to the assembly?
 - Will the routing be confined?
 - What about hose fittings – permanent or field attachable?
 - Will the assembly be subjected to abrasion?

Sometimes specific applications require specific hoses. For example, applications where hoses will encounter rubbing or abrasive surfaces, would be best handled by our family of abrasion-resistant hose with both Tough and Super Tough covers.

When application space is tight, bend radius is another important consideration. Parker offers a full line of hoses designed for one-half SAE bend radius at full SAE-rated pressures. We offer hoses with increased flexibility and smaller outer diameters enabling faster, easier routing in small spaces, reducing both hose length and inventory requirements.

Industry standards set specific requirements concerning construction type, size, tolerances, burst pressure, and impulse cycles of hoses. Parker hydraulic hoses meet or exceed standards such as:

- SAE (Society of Automotive Engineers)
 - EN (European Norm)
 - DIN (Deutsches Institut für Normung)
 - ISO (International Organization for Standardization)



Results from the ISO 6945 metal-to-hose abrasion test show that Tough Cover and Super Tough cover hoses offer significantly greater abrasion resistance than standard rubber cover hose.

Hose Hint

When considering the bend radius of a hose assembly, a minimum straight length of twice the hose's outside diameter should be allowed between the hose fitting and the point at which the bend starts.

Media

What will the hose convey? Some applications require the use of specialized oils or chemicals. The hose you order must be compatible with the medium being conveyed.

Compatibility must cover the inner tube, the cover, hose fittings, and O-rings as well. Use the Chemical Resistance Chart found in Section D to select the correct components of the hose assembly that will be compatible with your system's media. The chart contains the chemical resistance rating of a variety of fluids.

Hose Hint

For long service life and leak-free functionality, it is vital that the hose assembly be chemically compatible with both the fluid being conveyed through the hose as well as the environment of the hose.

Pressure

When considering hose pressure, it's important to know both the system working pressure and any surge pressures and spikes.

Hose selection must be made so that the published maximum working pressure of the hose is equal to or greater than the maximum system pressure.

Surge pressures or peak transient pressures in the system must be below the published maximum working pressure for the hose.

Each Parker hose has a pressure rating which can be found on the Hose Overview Chart on page 17 to 20.

All Parker hydraulic hoses have passed the industry rated specifications for burst pressure and carry a 4:1 design factor unless otherwise noted. Burst pressure ratings for hose are for manufacturing test purposes only. They are not an indication that the product can be used above the published maximum working

pressure. It is for this reason that the burst pressure ratings have been removed from the hose charts within the catalog.

Care must also be taken when looking at the "weakest link" of the hose assembly. A hose assembly is rated at the maximum working pressure of the hose and the fitting component. Therefore the maximum working pressure of the hose assembly is the lesser of the rated working pressure of the hose and the end connections used.



To mix and match components is to increase the risk of hose failure – a dangerous situation regardless of setting or application.

Hose Overview Chart											
Series	Series Description	Size	Material	Burst Pressure	Working Pressure	Temperature Range	Outer Diameter	Inner Diameter	Wall Thickness	Weight	Color
AS700	AS700 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS710	AS710 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS715	AS715 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS720	AS720 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS725	AS725 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS730	AS730 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS735	AS735 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS740	AS740 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS745	AS745 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS750	AS750 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS755	AS755 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS760	AS760 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS765	AS765 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS770	AS770 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS775	AS775 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS780	AS780 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS785	AS785 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS790	AS790 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS795	AS795 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS800	AS800 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS805	AS805 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS810	AS810 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS815	AS815 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS820	AS820 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS825	AS825 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS830	AS830 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS835	AS835 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS840	AS840 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS845	AS845 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS850	AS850 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS855	AS855 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS860	AS860 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS865	AS865 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS870	AS870 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS875	AS875 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS880	AS880 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS885	AS885 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS890	AS890 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS895	AS895 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS900	AS900 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS905	AS905 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS910	AS910 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS915	AS915 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS920	AS920 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS925	AS925 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS930	AS930 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS935	AS935 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS940	AS940 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS945	AS945 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS950	AS950 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS955	AS955 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS960	AS960 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS965	AS965 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS970	AS970 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS975	AS975 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS980	AS980 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS985	AS985 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS990	AS990 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS995	AS995 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"
AS995	AS995 Series	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/8"	1 1/4"	1 1/2"

Hose Overview page 19 to 20

Pressure spikes can occur during machine operation in an instant. They can occur so quickly in fact, that standard glycerin filled gages will never detect them. Using a pressure diagnostic system like Parker's Senso Control can help detect how often and how drastic these pressure spikes are. Contact your Parker representative today.

Hose Hint

A hose assembly should be routed so that the hose is not stretched, compressed, or kinked to assure maximum service life and safety.



GLOBALCORE™

Five Hoses. Two Fittings. One Solution.

Providing a simple solution of robust hydraulic hoses designed to endure the tough conditions where work gets done, GlobalCore is the future that OEMs and end users around the world have been asking for.

You know Parker as the global leader in providing unprecedented performance and value for hydraulic systems with high-pressure applications. With our GlobalCore solution, you can significantly reduce your inventory and part number complexity by using just five hoses and two fittings.

Designed to meet the most common working pressures in industry, GlobalCore stands above the competition and serves customers around the world with a simple family of constant working pressure hoses.

GlobalCore hoses are manufactured in the major regions of the world – North America, Europe and Asia – supporting the equipment they serve, regardless of where it was originally manufactured, or where it is today.

Designed, built and tested to the ISO 18752 specifications, GlobalCore reduces engineering and service complexity by providing the first comprehensive product family across the most commonly used constant working pressure classes.

Parker's worldwide reach makes GlobalCore easier to specify and source through our unrivaled industrial distribution network of 13,000 locations globally.

Hoses	-4	-6	-8	-10	-12	-16	-20	-24	-32
21 MPa / 3,000 psi	387	387	387	387	387	387	387	387	387
28 MPa / 4,000 psi	487/722	487/722	487/722	487/722	487/722	487	487	487	487
35 MPa / 5,000 psi	□	□	787	787	787	787	787	787	787
42 MPa / 6,000 psi	□	□	797	797	797	797	797	797	797

Fittings	-4	-6	-8	-10	-12	-16	-20	-24	-32
21 MPa / 3,000 psi	43	43	43	43	43	43	43,77	77	77
28 MPa / 4,000 psi	43	43	43	43	43	77	77	77	77
35 MPa / 5,000 psi	□	□	77	77	77	77	77	77	77
42 MPa / 6,000 psi	□	□	77	77	77	77	77	77	77

□ Not in GlobalCore family. See Page A-6 for alternative existing product.



Leading the World.

High Performance

Because challenges can emerge anytime and anywhere, your solution should endure the tough conditions of your work environment. The high performance standards designed, engineered and manufactured into GlobalCore provide the longest service life possible.

With GlobalCore hoses tested to twice their ISO 18752 standard, high performance in rugged environments and high impulse applications is ensured.

Long known as the premier manufacturer of hydraulic hoses, you can expect Parker's GlobalCore system will continue to meet our own rigorous standards of excellence.

Additional value is realized through:

- 212° / 257° F temperature ratings
- Standard, ToughCover and SuperTough cover technologies for abrasion resistance
- 1/2 minimum bend radius
- Low force to flex for ease of installation
- Advanced inner tube chemistry

Cohesive

GlobalCore is a unified system that delivers hoses designed, built and tested to the ISO 18752 specification.

Released in 2006, and quickly adopted by customers worldwide, Parker is at the forefront of delivering this universal standard for hydraulic hoses.

The ISO 18752 specification was developed based on how hoses are specified and used by customers - by pressure range, and not by construction. It's a truer specification based on today's needs. Although the specification covers hoses ranging from 500 psi through 8,000 psi and in sizes from -3 to -64, our focus is on the critical range where our customers operate.

GlobalCore expands our range of ISO 18752 hoses and provides options for the most critical sizes and pressure ranges - 3,000 psi to 6,000 psi in sizes -4 through -32.

ISO 18752 Performance Definitions (4.2 Grades and Types)				
Grade	Type ^a	Resistance to Impulse		
		Temperature °C	Impulse Pressure (% of MWPa ^b)	Minimum Number of Cycles
A	AS	100	133%	200,000
	AC			
B	BS	100	133%	500,000
	BC			
C	CS	120	133% and 120% ^c	500,000
	CC			
D	DC	120	133%	1,000,000
^a Standard or compact, e.g., CS is grade C and standard type. Standard types have larger outside diameters and larger bend radii and compact types have smaller outside diameters and smaller bend radii.				
^b Maximum working pressure.				
^c 120% of the MW shall be used for classes 350, 420 and 560 instead of 133%.				
ISO 18752 classifies according to their resistance to impulse into four grades: A, B, C and D. Each grade is classified by outside diameter into standard types (AS, BS and CS) and compact types (AC, BC, CC and DC) as shown in this table.				

Global

A single cohesive family of complimentary products so qualified has never before been offered globally.

With manufacturing locations in the major global regions, regardless of where your equipment was originally manufactured or is today, GlobalCore will support your hydraulic hose needs.

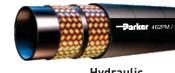
Simple

The GlobalCore system is simple. With only five hoses, you'll enjoy selecting the right hose based on working pressure.

Selecting the fitting is even simpler. Choose the renowned 43 Series, with more than 2,500 configurations, or the 77 Series, designed specifically for higher pressure applications and available in more than 500 configurations.



Hose Visual Index

Section - A	421SN A-1  Hydraulic EN 853 1SN / SAE 100 R1 AT	421SN High Temperature A-1  Hydraulic EXCEEDS EN 853 1SN / SAE 100R1AT	SLIMLINE 1SC A-2  Hydraulic EN 857 1SC
301SN A-2  Hydraulic EN 853 2SN / SAE 100 R2AT	301SN High Temperature A-3  Hydraulic EXCEEDS EN 853 2SN / SAE 100R2AT	462PM / SLIMLINE 2SC A-3  Hydraulic EN 857 2SC	387 / 387TC A-4  Hydraulic - Constant Working Pressure ISO 18752 CLASS 210 - AC
487 / 487TC A-4  Hydraulic - Constant Working Pressure ISO 18752 CLASS 280 - AC	471 / 471TC A-5  Hydraulic - Tough Cover En857 2SC	451PM / TRI-K-FLEX A-5  Hydraulic - SAE 100R17	436 A-6  Hydraulic - Compact High Temperature SAE 100R16
DRAGON RIG A-6  PARKER MARKWELL DRAGON RIG	MH-174™ A-7  BCS 174-1992 Underground Mining	401 / PILOT HOSE A-7  PARKER 401 PILOT HOSE	601PM / EN 854 R3 A-8  Hydraulic
881PM / SAE 100R4 A-8  Hydraulic Suction and Return Line	SAE 100R5R A-9  Hydraulic	EN 854 R6 / SAE 100R6 A-9  Hydraulic	POWERFLEX™ A-10  Hydraulic High Flexibility Hose
PERPETUITY A-10  High Impulse Hose	HITECH HOSE A-11  Hot Oil / Air Return Line	SUPERJACK A-11  Hydraulic Jack Hose	PXT A-12  Exceeds EN 853 and EN 857 Performance
701 A-13  Hydraulic EN 856 4SP	721 A-13  Hydraulic EN 856 R12	731 A-14  Hydraulic EN 856 4SH	781 A-14  Hydraulic EN 856 R13
784PM A-15  Hydraulic SAE100R13	792PM / SPIRAFLEX A-15  Hydraulic SAE 100R15	S-FLEX HOSE A-16  PARKER S-FLEX	XT-FLEX HOSE A-16  PARKER XT-FLEX
709AN LIMBER HOSE A-17  PARKER LIMBER 709AN-H			

Markets



Transportation



RV & Bus



Military



Construction



Agriculture



Grounds & Building Maintenance



Forestry



Railroad



Utility Equipment



Personnel Lift Equipment



Machine Tool



Oil Field Service



Waste & Refuse



Material Handling



Marine



Paving & Road Maintenance



Ground Support Equipment



Industrial



Mining



Automotive

Hose Overview Chart

Hose Size	Hose Reinforcement	-4	-5	-6	-8	-10	-12	-14	-16	-18	-20	-24	-32	-38	-40	-48	-56	-64	Standard Temp. Range °C	SAE	EN	ISO	Page
Braided Hydraulic - Industry Standard																							
421SN EN 853 1SN / SAE 100R1 AT		3250	3125	2600	2325	1875	1525		1275		900	725	575	362	362	290	220	145	-40/+100	100R1AT	853 1SN		A-1
421SN - HIGH TEMP EXCEEDS EN 853 1SN / SAE 100R1AT		3250	3125	2600	2325	1875	1525		1275		900	725	575						-40/+135	100R1AT	853 1SN		A-1
SLIMLINE 1SC EN 857 1SC		3265	3120	2610	2325	1885	1525		1275										-40/+100		857 1SC		A-2
301SN EN 853 2SN / SAE 100R2AT		5800	5000	4775	4000	3600	3100		2400		1800	1300	1150	1015	1000	650	400	365	-40/+100	100R2AT	853 2SN		A-2
301SN - High Temp. EXCEEDS EN 853 2SN / SAE 100R2AT		5800	5000	4775	4000	3600	3100		2400		1800	1300	1150						-40/+135	100R2AT	853 2SN		A-3
462PM / SLIMLINE 2SC EN 857 2SC		5800	5000	4785	4000	3625	3120		2395										-40/+100		857 2SC		A-3
387/387TC Hydraulic - Constant Working Pressure ISO 18752 - AC		3000		3000	3000	3000	3000		3000										Standard Cover -40/+100 TC -40/+125			18752	A-4
487/487TC Hydraulic - Constant Working Pressure ISO 18752 - AC		4000		4000	4000	4000	4000		4000										Standard Cover -40/+100 TC -40/+125			18752	A-4
471/471TC Hydraulic - Tough Cover EN 857 2SC		5800		5000	4250	3625	3125		2500										-40/+100		857 2SC		A-5
451PM / TRI-K-FLEX Hydraulic SAE 100R17		3000	3000	3000	3000	3000	3000		3000										-40/+100	100R17			A-5
436 Hydraulic - Compact High Temperature SAE 100R16		5000		4000	3500	2750	2250		2000		1625	1250	1125						-48/+150	100R16			A-6
DRAGONRIG		---									1800	1500							-48/+150	100R16			A-6
MH-174™ BCS 174-1992 Underground Mining		6525		5510	5250	4060	4000		3120		2495	2120	1625						-40/+100				A-7
401 / PILOT HOSE Return Line Hose		2170		1450	1450														-40/+100				A-7
601PM / EN 854 R3 Hydraulic		1250	1200	1125	1000	875	750		565		375	250	215						-40/+100	100R3	854		A-8
881PM / SAE 100R4 Hydraulic Suction and Return line									305		250	205	145	145		145	145		-40/+100	100R4			A-8
SAE 100R5R Hydraulic		3000	3000	2250	2000	1750	1500		800		625	500	350	350					-40/+100	100R5R			A-9

Hose Overview Chart

Hose Size	Hose Reinforcement	-4	-5	-6	-8	-10	-12	-14	-16	-18	-20	-24	-32	-38	-40	-48	-56	-64	Standard Temp. Range °C	SAE	EN	ISO	Page
EN 854 R6 / SAE 100R6 Hydraulic		400	400	400	400	350	300		190										-40/+100	100R6	854		A-9
POWERFLEX Hydraulic High Flexibility Hose		5800	5100	4800	4000	4000	4000		3600										-40/+100				A-10
PERPETUITY High Impulse Hose		6520	5800	5290	5070	4350	4350		3260										-40/+120				A-10
HITECH HOSE Hot Oil / Air Return Line						1000		1000				500	500						-40/+150				A-11
SUPERJACK Hydraulic Jack Hose		10000		10000	10000														-40/+100				A-11
PXT Exceeds EN 853 and EN 857 Performance		6000	4800	4000	3625	3125		2400											-40/+100				A-12
701 Hydraulic EN 856 4SP			6500	6000	5000	5000		4000											-40/+100				A-13
721 Hydraulic EN 856 R12			4000	4000	4000	4000		4000	3000	2500	2500								-40/+125		856 R12		A-13
731 Hydraulic EN 856 4SH					6000		5500		4700	4200	3600								-40/+100		856 4SH		A-14
781 Hydraulic EN 856 R13					5000		5000		5000	5000	5000								-40/+125		856 R13		A-14
784PM Hydraulic SAE100R13									5000										-40/+125				A-15
792PM / SPIRAFLEX Hydraulic SAE 100 R15						6000		6000		6000	6000								-40/+125				A-15
S-FLEX HOSE					6000		5500												-40/+125		856 R13		A-16
XT-FLEX HOSE					4000														-40/+125				A-16
709AN LIMBER HOSE						5000		5000											-40/+120				A-17



- Braided Hydraulic - Industry Standard
 - Braided Hydraulic - Proprietary
 - Spiral Hydraulic - Industry Standard

Hydraulic Hose

A



ENGINEERING YOUR SUCCESS.

Certifications



Confirmation of Product Type Approval

Product: Flexible Hose

Model(s): 301SN

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	17-SG1593004-PDA-DUP	13-JAN-2017	12-JAN-2022
Manufacturing Assessment (MA)	20-4152498	23-JUN-2020	22-JUN-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3

Intended Service

Hydraulic Oils, Water, Compressed Air

Description

Flexible hose

Ratings

Hose internal diameter 1/4 inch to 2 inches, pressure range 80 – 400 bar.

Design temperature: -40 C to 100 C

For detailed ratings see attached table.

Service Restrictions

Unit Certification is not required for this product.

Comments

- 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- 2) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.
- 3) End connections are to comply with applicable requirements and limitations of the Steel Vessel Rules for the intended service (e.g. 4-6-73/5.1)
- 4) Hose assemblies are to be installed only where flexibility is required and are not to be subject to

07/04/2020 3:53:58 AM

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Confirmation of Product Type Approval

Product: Flexible Hose

Model(s): Parker NO-SKIVE 701

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	17-SG1687634-PDA-DUP	16-NOV-2017	15-NOV-2022
Manufacturing Assessment (MA)	20-4152498	23-JUN-2020	22-JUN-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3

Intended Service

Petroleum base hydraulic fluids and lubricating oils, water, water/oil emulsion and water/glycol hydraulic fluids, compressed air.

Description

Flexible hose

Ratings

701-8 Nominal Bore 3/8" (10 mm) Design Pressure 450 Bar

701-8 Nominal Bore 1/2" (12.5 mm) Design Pressure 420 Bar

701-10 Nominal Bore 5/8" (16 mm) Design Pressure 350 Bar

701-12 Nominal Bore 3/4" (19 mm) Design Pressure 350 Bar

701-16 Nominal Bore 1" (25.4 mm) Design Pressure 280 Bar

701-32 Nominal Bore 1" (25 mm) Design Pressure 170 Bar

Design Temperature: -40 Degree C to 100 Degree C

Service Restrictions

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments

07/04/2020 3:56:18 AM

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Page 1 of 3



Confirmation of Product Type Approval

Company Name: PARKER HANNIFIN INDIA PVT. LTD

Address: #26-29, 18-19/16A PHASE I/IDA PATANCHERU TELANGANA 502319 India

Product: Flexible Hose

Model(s): 421SN

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	17-SG1592996-PDA-DUP	13-JAN-2017	12-JAN-2022
Manufacturing Assessment (MA)	20-4152498	23-JUN-2020	22-JUN-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3

Intended Service

Hydraulic Oils, Water, Compressed Air

Description

Flexible hose

Ratings

Hose internal diameter 1/4 inch to 2 inches, pressure range 40 – 225 bar.

Design temperature: -40 deg C to 125 deg C

For detailed ratings see attached table.

Service Restrictions

Unit Certification is not required for this product.

Comments

- 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- 2) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.
- 3) End connections are to comply with applicable requirements and limitations of the Steel Vessel Rules for the intended service (e.g. 4-6-73/5.1)
- 4) Hose assemblies are to be installed only where flexibility is required and are not to be subject to

07/04/2020 3:55:14 AM

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Confirmation of Product Type Approval

Company Name: PARKER HANNIFIN INDIA PVT. LTD

Address: #26-29, 18-19/16A PHASE I/IDA PATANCHERU TELANGANA 502319 India

Product: Flexible Hose

Model(s): 387/387TC and 487/487TC

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	20-1995242-PDA-DUP	17-JUL-2020	16-JUL-2025
Manufacturing Assessment (MA)	20-4152498	23-JUN-2020	22-JUN-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3

Intended Service

Hydraulic Oils, Water and Compressed Air

Description

The hose consists of an inner tube of oil and heat resistant synthetic rubber, one, two or four braids layers of high tensile steel wire reinforcement, one layer of high adhesion synthetic rubber as an interlayer, and an oil, weather and abrasion resistant, synthetic rubber cover.

Ratings

1. 387/387TC (ISO 18752 Standard for Class 210 Grade A Type AC with Parker coupling series 43/77)

1.1 Temperature range: Standard Cover: -40 to 100 degree C, ToughCover(TC): -40 to 125 degree C

1.2 Max. working pressure: 21 MPa

1.3 Size: 1/4 to 2 inch (6.3 to 51 mm)

2. 487/487TC (ISO 18752 Standard for Class 280 Grade A Type AC with Parker coupling series 43/77)

2.1 Temperature range: Standard Cover: -40 to 100 degree C, ToughCover(TC): -40 to 125 degree C

2.2 Max. working pressure: 28 MPa

2.3 Size: 1/4 to 2 inch (6.3 to 51 mm)

Service Restrictions

1. Unit Certification is not required for this product. If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including

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Certifications



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000H2
Revision No:
4

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)

Parker No Skive 301SN, 421SN / Parker GlobalCore 387, 487, 387TC, 487TC / Parker 471, 471TC, PIX-PERFORMER 1SN, 2SN / PIX-PROKOMP 1SC, 2SC / PIX-THERMAL 1SN, 2SN / PIX-ARMOUR 1SN, 2SN

Issued to

Parker Hannifin India Pvt. Ltd.

Nagpur, maharashtra, India

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018

DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
Parker No Skive 301SN, 421SN / Parker GlobalCore 387, 487, 387TC, 487TC / Parker 471, 471TC, PIX-PERFORMER 1SN, 2SN / PIX-PROKOMP 1SC, 2SC / PIX-THERMAL 1SN, 2SN / PIX-ARMOUR 1SN, 2SN	See page 3	See page 3	See page 3
	See page 3 & 4	See page 3 & 4	See page 3 & 4

Issued at Høvik on 2021-05-19

for DNV

This Certificate is valid until 2025-12-31.

DNV local station: Mumbai FiS



Digitally Signed By: Zeinab, Sharifi

Location: DNV Høvik, Norway

Approval Engineer: Thomas Wilhelm Juell

Zeinab Sharifi

Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Page 1 of 5

Certifications



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000H3
Revision No:
3

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)

PARKER: Parker No Skive 701, 731, 781, 792 & Parker 721 / PIX: HIPULSE, IMPETUS, BASTION

Issued to

Parker Hannifin India Pvt. Ltd.

Nagpur, maharashtra, India

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018

DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Temperature range: See page 4

Max. working press.: See page 3 & 4

Sizes: See page 3 & 4

Issued at Høvik on 2021-05-12

This Certificate is valid until 2025-12-31.

DNV local station: Mumbai FIS

Approval Engineer: Thomas Wilhelm Juell

for DNV



Digitally Signed By: Zeinab, Sharifi

Location: DNV Høvik, Norway

**Zeinab Sharifi
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

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421SN**Hydraulic**

EN 853 1SN / SAE 100 R1 AT



# Part Number	Hose I.D.		Hose R.O.D. mm	Hose O.D. mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
421SNMSHA-4	1/4	6.4	11.1	13.4	3250	225	2.0	50	0.15	0.23
421SNMSHA-5	5/16	7.9	12.7	15.0	3125	215	2.3	58	0.18	0.27
421SNMSHA-6	3/8	9.5	15.1	17.4	2600	180	2.5	65	0.22	0.33
421SNMSHA-8	1/2	12.7	18.2	20.7	2325	160	3.5	90	0.30	0.44
421SNMSHA-10	5/8	15.9	21.4	23.9	1875	130	4.0	100	0.34	0.50
421SNMSHA-12	3/4	19.0	25.4	27.8	1525	105	4.8	120	0.46	0.68
421SNMSHA-16	1	25.4	33.3	35.8	1275	88	6.0	150	0.63	0.94
421SNMSHA-20	1-1/4	31.8	41.8	44.8	900	63	16.5	420	0.97	1.44
421SNMSHA-24	1-1/2	38.1	46.4	51.0	725	50	20.0	500	1.07	1.59
421SNMSHA-32	2	50.8	59.5	64.5	575	40	25.0	630	1.51	2.25
*421SNPMP-38PM	2-3/8	60.3	69.0	75.0	362	25	30.0	762	1.73	2.58
*421SNPMP-40PM	2-1/2	63.5	73.0	77.5	362	25	30.0	762	1.86	2.77
*421SNPMP-48PM	3	76.2	86.4	94.4	290	20	36.0	915	2.59	3.85
*421SNPMP-56PM	3-1/2	88.9	98.5	105.5	220	15	42.0	1067	2.89	4.30
*421SNPMP-64PM	4	101.6	110.0	117.0	145	10	43.5	1105	3.09	4.60

Impulse test conducted with Parker Fittings. *All hoses upto -16 have passed 1,50,000 cycles impulse test at half the Min. bend radius. *Not covered under HS/SAE/EN

Markets**Application:**

Recommended for medium pressure hydraulic oil lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One braid steel wire
Outer Cover : Synthetic rubber

Bend radius up to 1"

Temp. Range

-40°C to 100°C (-40°F to 212°F)

Impulse Cycles:

Specified - 1,50,000 cycles.
Tested upto - 3,00,000 cycles (@ Full MBR)

421SN High Temperature**Hydraulic**

EXCEEDS EN 853 1SN / SAE 100R1AT

# Part Number	Hose I.D.		Hose R.O.D. mm	Hose O.D. mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
421SNPMHITEMP-4PM	1/4	6.4	11.1	13.4	3250	225	4.0	100	0.15	0.23
421SNPMHITEMP-5PM	5/16	7.9	12.7	15.0	3125	215	4.5	115	0.18	0.27
421SNPMHITEMP-6PM	3/8	9.5	15.1	17.4	2600	180	5.0	130	0.22	0.33
421SNPMHITEMP-8PM	1/2	12.7	18.2	20.7	2325	160	7.0	180	0.30	0.44
421SNPMHITEMP-10PM	5/8	15.9	21.4	23.9	1875	130	8.0	200	0.34	0.50
421SNPMHITEMP-12PM	3/4	19.0	25.4	27.8	1525	105	9.5	240	0.46	0.68
421SNPMHITEMP-16PM	1	25.4	33.3	35.5	1275	88	12.0	300	0.63	0.94
421SNPMHITEMP-20PM	1-1/4	31.8	40.5	43.5	900	63	16.5	420	0.97	1.44
421SNPMHITEMP-24PM	1-1/2	38.1	46.6	50.4	725	50	20.0	500	1.07	1.59
421SNPMHITEMP-32PM	2	50.8	60.1	63.5	575	40	25.0	630	1.51	2.25

Application:

Recommended for medium pressure hydraulic oil lines & up to 135°C

Construction:

Inner tube : Synthetic rubber
Reinforcement: One braid steel wire
Outer Cover : Synthetic rubber

Temp. Range

-40°C to 135°C
(-40°F to 275°F)

Markets

SLIMLINE**Hydraulic**
EN 857 1SC

# Part Number	Hose I.D		Hose R.O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	mm	mm	psi	bar	inch	mm	lbs/ft	kg/m
EN857PM-4PM	1/4	6.4	9.9	12.0	3265	225	2.9	75	0.13	0.19
EN857PM-5PM	5/16	7.9	11.7	14.0	3120	215	3.3	85	0.14	0.21
EN857PM-6PM	3/8	9.5	13.6	15.7	2610	180	3.5	90	0.17	0.26
EN857PM-8PM	1/2	12.7	16.5	19.5	2325	160	5.1	130	0.24	0.35
EN857PM-10PM	5/8	15.9	20.4	22.5	1885	130	5.9	150	0.30	0.45
EN857PM-12PM	3/4	19.0	23.8	26.2	1525	105	7.0	180	0.36	0.54
EN857PM-16PM	1	25.4	31.3	33.5	1275	88	9.0	230	0.54	0.80

*Extremely Compact hose dimensions, extra high flexibility, extra small minimum bend radius, very low weight

Application:

Recommended for medium pressure hydraulic oil lines, compact design supports at constraint installation routing.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One high tensile steel wire braid
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +100°C (-40°F to +212°F)

Impulse Cycles :

Tested upto - 1,50,000 cycles

Markets**301SN****Hydraulic**
EN 853 2SN / SAE 100 R2AT

# Part Number	Hose I.D		Hose R.O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	mm	mm	psi	bar	inch	mm	lbs/ft	kg/m
301SNMSHA-4	1/4	6.4	12.7	15.0	5800	400	2.0	50	0.26	0.39
301SNMSHA-5	5/16	7.9	14.3	16.6	5000	350	2.2	58	0.29	0.43
301SNMSHA-6	3/8	9.5	16.7	19.0	4775	330	2.5	65	0.36	0.53
301SNMSHA-8	1/2	12.7	19.8	22.3	4000	275	3.5	90	0.42	0.63
301SNMSHA-10	5/8	15.9	23.0	25.5	3600	250	4.0	100	0.50	0.74
301SNMSHA-12	3/4	19.0	27.0	29.4	3100	215	4.8	120	0.64	0.95
301SNMSHA-16	1	25.4	34.9	38.1	2400	165	6.0	150	0.91	1.35
301SNMSHA-20	1-1/4	31.8	44.0	47.5	1800	125	16.5	420	1.52	2.26
301SNMSHA-24	1-1/2	38.1	50.8	54.5	1300	90	20.0	500	1.58	2.35
301SNMSHA-32	2	50.8	63.5	67.2	1150	80	25.0	630	1.96	2.92
*301SNPM-38PM	2-3/8	60.3	71.5	75.8	1000	70	30.0	762	2.29	3.41
*301SNPM-40PM	2-1/2	63.5	76.2	82.5	1000	70	30.0	762	2.81	4.18
*301SNPM-48PM	3	76.2	89.4	96.0	650	45	36.0	915	3.19	4.75
*301SNPM-56PM	3-1/2	88.9	101.2	107.5	400	28	42.0	1067	3.49	5.20
*301SNPM-64PM	4	101.6	113.2	118.5	365	25	43.5	1105	3.56	5.30

Impulse test conducted with Parker Fittings. "All hoses upto -16 have passed 2,00,000 cycles impulse test at half the Min. bend radius". *Proprietary

Application:

Recommended for high pressure hydraulic oil lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two braids steel wire
Outer Cover : Synthetic rubber

Bend radius up to 1"

Temp. Range

- 40°C to 100°C (-40°F to 212°F)

Impulse Cycles:

Specified - 2,00,000 cycles.
Tested upto - 4,00,000 cycles (@ Full MBR)

Type Approvals:

BV, DNV-GL, LR, MED, ABS

Markets

301SN High Temperature

Hydraulic

Exceeds EN 853 2SN / SAE 100 R2AT



# Part Number	Hose I.D		Hose R.O.D	Hose O.D	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
301SNPMHITEMP-4PM	1/4	6.4	12.9	15.0	5800	400	4.0	100	0.26	0.39
301SNPMHITEMP-5PM	5/16	7.9	14.3	16.6	5000	350	4.5	115	0.29	0.43
301SNPMHITEMP-6PM	3/8	9.5	16.9	19.0	4775	330	5.0	130	0.36	0.53
301SNPMHITEMP-8PM	1/2	12.7	19.8	22.3	4000	275	7.0	180	0.42	0.63
301SNPMHITEMP-10PM	5/8	15.9	23.0	25.5	3600	250	8.0	200	0.50	0.74
301SNPMHITEMP-12PM	3/4	19.0	27.0	29.4	3100	215	9.5	240	0.64	0.95
301SNPMHITEMP-16PM	1	25.4	34.9	38.1	2400	165	12.0	300	0.91	1.35
301SNPMHITEMP-20PM	1-1/4	31.8	40.5	43.5	1800	125	16.5	420	1.09	1.62
301SNPMHITEMP-24PM	1-1/2	38.1	46.5	50.0	1300	90	20.0	500	1.33	1.98
301SNPMHITEMP-32PM	2	50.8	60.3	64.0	1150	80	25.0	635	1.84	2.74

Application:

Recommended for high pressure hydraulic oil lines & up to 135°C.

Construction:

Inner tube : Synthetic rubber
Reinforcement : Two braids steel wire
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to 135°C
(-40°F to 275°F)

Markets

 Transportation	 Military	 Construction	 Agriculture
 Grounds & Building Maintenance	 Railroad	 Utility Equipment	 Personnel Lift Equipment
 Machine Tool	 Waste & Refuse	 Material Handling	 Paving & Road Maintenance
 Ground Support Equipment	 Industrial	 Mining	 Automotive

462PM / SLIMLINE

Hydraulic

EN 857 2SC



# Part Number	Hose I.D		Hose R.O.D	Hose O.D	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
462PM-4PM	1/4	6.4	11.2	13.2	5800	400	3.0	75	0.20	0.30
462PM-5PM	5/16	7.9	12.7	14.7	5000	350	3.3	85	0.24	0.35
462PM-6PM	3/8	9.5	15.0	17.0	4785	330	3.5	90	0.28	0.41
462PM-8PM	1/2	12.7	18.3	20.3	4000	275	5.1	130	0.34	0.50
462PM-10PM	5/8	15.9	21.4	24.0	3625	250	6.7	170	0.48	0.71
462PM-12PM	3/4	19.0	25.5	27.7	3120	215	7.4	200	0.54	0.81
462PM-16PM	1	25.4	33.4	35.9	2395	165	9.8	250	0.82	1.22

Application:

Recommended for high pressure hydraulic oil lines, compact design supports at constraint installation routing.

Construction:

Inner tube : Synthetic rubber
Reinforcement : Two braids steel wire
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +100°C
(-40°F to +212°F)

Impulse Cycles:

Tested upto - 2,00,000 cycles

Markets

 Transportation	 Military	 Construction	 Agriculture
 Grounds & Building Maintenance	 Machine Tool	 Utility Equipment	 Personnel Lift Equipment
 Industrial			

387 / 387TC**Hydraulic - Constant Working Pressure**

ISO 18752 CLASS 210 - AC



# Part Number	Standard Cover	Tough Cover	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	387	387TC	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
	ISO 18752 Performance											
387-4	AC	AC	1/4	6.3	0.53	13.4	3000	210	2	50	0.16	0.24
387-6	AC	AC	3/8	10.0	0.69	17.4	3000	210	2-1/2	65	0.23	0.34
387-8	AC	AC	1/2	12.5	0.82	20.7	3000	210	3-1/2	90	0.29	0.43
387-10	AC	AC	5/8	16.0	0.94	23.9	3000	210	4	100	0.33	0.49
387-12	AC	AC	3/4	19.0	1.10	27.8	3000	210	4-3/4	120	0.58	0.86
387-16	AC	AC	1	25.0	1.40	35.4	3000	210	6	150	0.79	1.17

Application:

Petroleum base hydraulic fluids and lubricating oils.

Construction:

Inner tube : Synthetic rubber
 Reinforcement: One or two braid steel wire
 Outer Cover : Synthetic rubber
 Standard Cover : Synthetic rubber
 Tough Cover : Synthetic rubber abrasion resistant

Impulse Cycles - 2,00,000 Cycles

Markets**Performance****487 / 487TC****Hydraulic - Constant Working Pressure**

ISO 18752 CLASS 280 - AC



# Part Number	Standard Cover	Tough Cover	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	487	487TC	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
	ISO 18752 Performance											
487-4	AC	AC	1/4	6.3	0.52	13.1	4000	280	2	50	0.20	0.30
487-6	AC	AC	3/8	10.0	0.68	17.2	4000	280	2-1/2	65	0.28	0.42
487-8	AC	AC	1/2	12.5	0.81	20.4	4000	280	3-1/2	90	0.35	0.52
*487-10	AC	AC	5/8	16.0	0.94	23.9	4000	280	4	100	0.44	0.66
487-12	AC	AC	3/4	19.0	1.10	27.8	4000	280	4-3/4	120	0.58	0.86
487-16	AC	AC	1	25.4	1.49	37.8	4000	280	5.90	150	1.30	1.99

* - Under validation

Application:

Petroleum base hydraulic fluids and lubricating oils.

Construction:

Inner tube : Synthetic rubber
 Reinforcement: One or two braid steel wire
 Outer Cover : Synthetic rubber
 Standard Cover : Synthetic rubber
 ToughCover : Synthetic rubber abrasion resistant

Impulse Cycles - 2,00,000 Cycles

Markets**Performance**

471 / 471TC

Hydraulic – Tough Cover
EN857 TYPE 2SC



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
471 / 471TC-4	1/4	6.3	0.51	13	5800	400	2	50	0.20	0.30
471 / 471TC-6	3/8	10.0	0.68	17	5000	350	2-1/2	65	0.28	0.42
471 / 471TC-8	1/2	12.5	0.80	20	4250	293	3-1/2	90	0.35	0.52
471 / 471TC-10	5/8	16.0	0.94	24	3625	250	4	100	0.44	0.66
471 / 471TC-12	3/4	19.0	1.09	28	3125	215	4-3/4	120	0.58	0.86
*471 / 471TC-16	1	25.0	1.40	35	2500	175	6	150	0.79	1.17

* Under Validation

Application:

Petroleum base hydraulic fluids and lubricating oils.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two braids steel wire
Tough Cover : Synthetic Rubber Abrasion Resistant
Standard Cover: Wrap Finish

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Type Approvals: ABS

Impulse Cycles - 2,00,000 Cycles

451PM / TRI-K-FLEX

Hydraulic
SAE 100R17



# Part Number	Hose I.D		Hose R.O.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	mm	mm	mm	psi	bar	inch	mm	lbs/ft	kg/m	
451PM-4PM	1/4	6.4	10.2	12.2	3045	210	2.0	50	0.12	0.18		
451PM-6PM	3/8	9.5	13.8	15.8	3045	210	2.5	65	0.20	0.30		
451PM-8PM	1/2	12.7	18.0	20.1	3045	210	3.5	90	0.31	0.46		
451PM-10PM	5/8	15.9	22.1	23.9	3045	210	3.9	100	0.47	0.70		
451PM-12PM	3/4	19.0	25.6	27.7	3045	210	4.7	120	0.60	0.90		
451PM-16PM	1	25.4	34.6	37.6	3045	210	5.9	150	0.81	1.20		

Application:

Petroleum base hydraulic fluids and lubricating oils.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One or two braids steel wire
Outer Cover : Synthetic rubber

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Impulse Cycles:

Tested upto - 2,00,000 cycles

Markets

	Transportation		Construction		Agriculture
	Grounds & Building Maintenance		Forestry		Machine Tool
	Waste & Refuse		Material Handling		Industrial

436

Hydraulic - Compact High Temperature (150°C)
SAE 100R16



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
436-20	1-1/4	31.8	1.79	45.4	1625	113	8.3	210	1.23	1.82
436-24	1-1/2	38.1	2.01	51.0	1250	87	10.0	250	1.25	1.86
436-32	2	50.8	2.54	64.6	1125	78	12.5	315	1.83	2.72

Application:

Recommended for high pressure hydraulic oil lines & up to 150°C.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two braids steel wire
Outer Cover : Synthetic rubber, blue colour cover

Temp. Range

- 40°C to +150°C
(-40°F to +302°F)

Markets



Impulse Cycles:

Specified : 2,00,000 Cycles
Tested Upto : 4,00,000 Cycles

DRAGON RIG



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
DRPM-24PM	1.1/2	38.1	2.08	53.0	1800	124	20	500	1.58	2.35
DRPM-32PM	2	50.8	2.61	66.5	1500	103	25	630	2.08	3.10

Application:

Recommended for water well rigs, pneumatic service in quarries, construction & General Industry

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two wire braid
Outer Cover : Synthetic rubber

Temp. Range

-40°C to +150°C
(-40°F to +302°F)

MH-174**BCS 174-1992 Underground Mining**

# Part Number	Hose I.D		Hose R.O.D mm	Hose O.D mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
MH174PM-4PM	1/4	6.4	12.7	17.0	6525	450	4.0	100	0.31	0.46
MH174PM-6PM	3/8	9.5	17.0	21.1	5510	380	5.1	130	0.46	0.68
MH174PM-8PM	1/2	12.7	21.1	26.4	5250	362	5.9	150	0.64	0.95
MH174PM-10PM	5/8	15.9	24.5	29.8	4060	280	7.5	190	0.73	1.08
MH174PM-12PM	3/4	19.0	28.3	33.7	4000	276	9.0	230	0.97	1.45
MH174PM-16PM	1	25.4	35.3	40.7	3120	215	11.8	300	1.15	1.71
MH174PM-20PM	1-1/4	31.8	41.4	47.5	2495	172	15.0	380	1.61	2.40
MH174PM-24PM	1-1/2	38.1	48.0	54.1	2120	146	17.7	450	1.81	2.70
MH174PM-32PM	2	50.8	60.7	66.8	1625	112	23.6	600	2.35	3.50

* Conforms to British Coal 174-1992 specifications, except - 10 size

Application:

Recommended for medium-high pressure hydraulic oil lines & for underground mines applications.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two high tensile steel wire braids
Outer Cover : Synthetic rubber, flame resistant

Markets

Construction



Mining



Material Handling

Temp. Range

-40°C to +100°C (-40°F to +212°F)

Impulse Cycles:

Tested upto - 1,00,000 cycles

401 / PILOT HOSE

# Part Number	Hose I.D		Hose R.O.D mm	Hose O.D mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
401PM-4PM	1/4	6.4	9.7	11.6	2170	150	2.0	50	0.09	0.14
401PM-6PM	3/8	9.5	13.1	14.8	1450	100	2.6	65	0.14	0.21
401PM-8PM	1/2	12.7	16.5	18.6	1450	100	3.0	75	0.20	0.29

Application:

Recommended for low pressure lines with installation constraints. Ideal for severe installations like engine compartments.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One braid steel wire
Outer Cover : Synthetic rubber

Markets

Transportation



Construction



Grounds & Building Maintenance



Utility Equipment

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Impulse Cycles:

Tested upto - 1,50,000 cycles

601PM / EN 854 R3**Hydraulic**

# Part Number	Hose I.D		Hose O.D mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm		psi	bar	inch	mm	lbs/ft	kg/m
601PM-4PM	1/4	6.4	14.3	1250	86	3.0	75	0.11	0.17
601PM-5PM	5/16	7.9	17.5	1200	83	4.0	100	0.16	0.24
601PM-6PM	3/8	9.5	19.0	1125	78	4.0	100	0.19	0.28
601PM-8PM	1/2	12.7	23.8	1000	69	4.9	125	0.32	0.47
601PM-10PM	5/8	15.9	27.0	875	60	5.5	140	0.37	0.55
601PM-12PM	3/4	19.0	31.8	750	52	5.9	150	0.42	0.63
601PM-16PM	1	25.4	38.1	565	39	8.0	205	0.57	0.85
601PM-20PM	1-1/4	31.8	44.5	375	26	9.8	250	0.74	1.10
*601PM-24PM	1-1/2	38.1	50.8	250	17	12.0	306	0.82	1.22
*601PM-32PM	2	50.8	64.0	215	15	16.1	410	0.91	1.35

* Proprietary

Application:

Recommended for hydraulic oil lines, heavy-duty transmission oil cooler lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Two fibre braids
Outer Cover : Synthetic rubber

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Markets

Transportation



Construction



Grounds & Building Maintenance



Personnel Lift Equipment



Machine Tool



Waste & Refuse



Material Handling



Industrial

881PM / SAE 100R4**Hydraulic****Suction and Return line****Exceeds SAE100 R4 Performance**

# Part Number	Hose I.D		Hose O.D mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm		psi	bar	inch	mm	lbs/ft	kg/m
881PM-12PM	3/4	19.0	29.0	305	21	1.6	40	0.32	0.49
881PM-16PM	1	25.4	35.0	250	17	2.2	55	0.42	0.62
881PM-20PM	1-1/4	31.8	42.0	205	14	2.8	70	0.53	0.79
881PM-24PM	1-1/2	38.0	50.0	145	10	3.2	80	0.75	1.12
881PM-32PM	2	50.8	62.0	145	10	3.9	100	0.89	1.33
881PM-40PM	2-1/2	63.5	75.0	145	10	6.7	170	1.21	1.80
881PM-48PM	3	76.2	88.0	145	10	8.9	225	1.45	2.15

Application:

Recommended for hydraulic return lines / suction lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Multiple layers of fibre braids and one helical wire
Outer Cover : CR-Synthetic rubber

Markets

Transportation



Construction



Grounds & Building Maintenance



Utility Equipment



Personnel Lift Equipment



Oil Field Service



Industrial



Automotive

Type Approvals: ABS

SAE 100R5R

Hydraulic

# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
R5RPM-4PM	3/16	5.0	0.51	13.0	3045	210	2.95	75	0.15	0.23
R5RPM-5PM	1/4	6.4	0.57	14.4	3045	210	3.35	85	0.17	0.26
R5RPM-6PM	5/16	7.9	0.68	17.2	2277	157	3.93	100	0.24	0.35
R5RPM-8PM	13/32	10.3	0.77	19.5	2030	140	4.52	115	0.27	0.40
R5RPM-10PM	1/2	12.7	0.92	23.4	1769	122	5.51	140	0.38	0.56
R5RPM-12PM	5/8	15.9	1.0	27.4	1523	105	6.49	165	0.44	0.66
R5RPM-16PM	7/8	22.2	1.23	31.4	812	56	7.28	185	0.45	0.67
R5RPM-20PM	1-1/8	28.7	1.5	38.1	624	43	9.0	230	0.54	0.80
R5RPM-24PM	1-3/8	34.9	1.5	44.5	508	35	10.43	265	0.72	1.07
R5RPM-32PM	1-13/16	46.0	1.75	56.5	348	24	13.2	335	0.99	1.48
R5RPM-40PM	2-3/8	60.0	2.87	73.0	348	24	21.0	610	1.41	2.10

Application:

Recommended for medium pressure hydraulic oil lines & meets SAE 100R5 specifications.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One fibre braid and one steel wire braid
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +100°C
(-40°F to +212°F)

Impulse Cycles:

Tested upto - 1,50,000 cycles



EN 854 R6 / SAE 100R6

Hydraulic

# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	mm	mm	psi	bar	inch	mm	lbs/ft	kg/m
SAE100R6PM-4PM	1/4	6.4	12.7	400	28	2.5	65	0.09	0.13	
SAE100R6PM-5PM	5/16	7.9	14.3	400	28	3.0	75	0.11	0.16	
SAE100R6PM-6PM	3/8	9.5	15.9	400	28	3.0	75	0.12	0.18	
SAE100R6PM-8PM	1/2	12.7	19.8	400	28	3.9	100	0.17	0.25	
SAE100R6PM-10PM	5/8	15.9	23.0	350	24	4.9	125	0.20	0.30	
SAE100R6PM-12PM	3/4	19.0	26.0	300	21	5.9	150	0.23	0.34	
*SAE100R6PM-16PM	1	25.4	32.5	190	13	9.1	230	0.31	0.46	

* Proprietary

Application:

Recommended for hydraulic low pressure lines, return lines & drain lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: One synthetic textile braid
Outer Cover : Synthetic rubber

Markets

 Transportation	 Construction	 Grounds & Building Maintenance
 Utility Equipment	 Personnel Lift Equipment	 Machine Tool
 Material Handling	 Ground Support Equipment	 Automotive

Temp. Range

- 40°C to +100°C
(-40°F to +212°F)

POWERFLEX



Hydraulic

More Power - More Flexibility

# Part Number	Hose I.D		Hose R.O.D mm	Hose O.D mm	Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm			psi	bar	inch	mm	lbs/ft	kg/m
PFPM-4PM	1/4	6.4	11.2	13.2	5800	400	2.0	50	0.20	0.30
PFPM-5PM	5/16	7.9	13.8	15.4	5100	350	2.1	55	0.26	0.39
PFPM-6PM	3/8	9.5	15.8	17.4	4800	330	2.4	60	0.33	0.49
PFPM-8PM	1/2	12.7	18.2	19.9	4000	275	3.5	90	0.34	0.51
PFPM-10PM	5/8	15.9	21.9	23.5	4000	275	4.0	100	0.48	0.71
PFPM-12PM	3/4	19.0	27.0	30.1	4000	275	6.0	150	0.74	1.10
PFPM-16PM	1	25.4	35.0	38.2	3600	250	8.0	200	1.04	1.55

Special Characteristics : Very high pressure exceeding EN 853 2SN Extra high flexibility with half SAE/DIN bend radius

Compact OD suited for better hose routing in tight areas

Markets



Application:

Recommended for high pressure hydraulic oil lines. **Highly flexible & resistant to impulses.**

Construction:

Inner tube : Synthetic rubber
Reinforcement : Two special high tensile steel wire braids
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +100°C
(-40°F to +212°F)

PERPETUITY ELITE



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
465PPEPM-4PM	1/4	6.4	11.2	13.0	5075	350	2.0	50	0.19	0.28
465PPEPM-6PM	3/8	9.5	15.2	17.0	4785	330	2.4	60	0.30	0.44
465PPEPM-8PM	1/2	12.7	18.2	20.5	3988	275	3.0	75	0.34	0.50
465PPEPM-10PM	5/8	15.8	21.8	24.0	3988	275	3.5	90	0.43	0.64

Application:

Recommended for High pressure hydraulic applications in construction, Earth moving, Material handling & General Industry

Construction:

Inner tube : Synthetic rubber
Reinforcement : Two wire braid
Outer Cover : Synthetic rubber

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Impulse Cycles - 10,00,000 Cycles



HITECH HOSE

Hydraulic
Hot Oil

# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius	
	inch	mm	inch	mm	psi	bar	inch	mm
HITECHPM-12PM	3/4	19.1	1.04	26.4	1000	69	4.75	121
HITECHPM-16PM	1	25.4	1.30	33.0	1000	69	6.00	152
HITECHPM-32PM	2	50.8	2.48	63.0	500	34	18.00	457
HITECHPM-40PM	2-1/2	63.5	2.97	75.4	500	34	22.05	560

Markets



Application:

Pressurised hot oil lines and
rotary oil / air compressor lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: High tension steel wire braid
Outer Cover : Fibre braid

Temp. Range

- 40°C to + 150°C
(-40°F to +302°F)

SUPERJACK



Hydraulic Jack Hose

# Part Number	Hose I.D		Hose R.O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	mm	mm	psi	bar	inch	mm	lbs/ft	kg/m
JKPM-4PM	1/4	6.4	12.7	14.8	10000	690	4.0	102	0.26	0.38
JKPM-6PM	3/8	9.5	16.7	18.8	10000	690	5.0	127	0.36	0.53
JKPM-8PM	1/2	12.7	19.9	22.0	10000	690	7.0	180	0.44	0.65

Markets



Application:

Recommended for
constant high pressure
hydraulic oil lines,
for applications like
hydraulic jacks.

Construction:

Inner tube : Synthetic rubber
Reinforcement : Two braids steel wire
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +100°C
(-40°F to +212°F)

PXT

Exceeds EN 853 and EN 857 Performance



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
PXT-4	1/4	6.4	0.55	14.0	5800	400	1.5	38	0.19	0.29
PXT-6	3/8	9.5	0.68	17.3	4800	330	2.5	64	0.26	0.39
PXT-8	1/2	12.7	0.78	20.0	4000	275	2.8	70	0.32	0.48
PXT-10	5/8	15.9	0.94	24.0	3625	250	3.0	75	0.45	0.67
PXT-12	3/4	19.1	1.07	27.3	3125	215	4.7	120	0.52	0.77
PXT-16	1	25.4	1.38	35.0	2400	165	5.9	150	0.80	1.20

* Under Impulse Test Validation

** Impulse test Conducted with Parker fittings

Application:Petroleum base Hydraulic Fluids
and lubricating oils**Construction:**

Inner tube : Synthetic rubber
 Reinforcement : Two braids steel wire
 Outer Cover : Synthetic rubber, MSHA

Temp. Range

-40°C to +100°C
 (-40°F to +212°F)

Impulse Cycles - 6,50,000 Cycles

701

Hydraulic
EN 856 4SP

# Part Number	Hose I.D. inch	Hose I.D. mm	Hose R.O.D. mm	Hose O.D. mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
701MSHA-6	3/8	9.5	17.5	21.4	6500	450	7.0	180	0.48	0.71
701MSHA-8	1/2	12.7	20.2	24.6	6000	420	9.0	230	0.60	0.90
701MSHA-10	5/8	15.9	23.8	28.0	5000	350	10.0	250	0.77	1.15
701MSHA-12	3/4	19.0	28.2	32.0	5000	350	11.8	300	1.04	1.55
701MSHA-16	1	25.4	35.3	39.5	4000	280	13.3	340	1.40	2.08

* Impulse test conducted with Parker Fittings.

Application:

Recommended for very high pressure hydraulic power lines.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Four spiral steel wire
Outer Cover : Synthetic rubber

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

Impulse Cycles:

Specified - 4,00,000 cycles
Tested up to - 8,00,000 cycles

Markets



Construction



Grounds & Building Maintenance



Oil Field Service



Material Handling



Paving & Road Maintenance



Ground Support Equipment



Automotive

Type Approvals:

BV, LR, MED

721

Hydraulic
EN 856 R12

# Part Number	Hose I.D. inch	Hose I.D. mm	Hose R.O.D. mm	Hose O.D. mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
721MSHA-6	3/8	9.5	17.2	20.0	4000	280	2.5	65	0.47	0.70
721MSHA-8	1/2	12.7	20.7	24.0	4000	280	3.5	90	0.56	0.84
721MSHA-10	5/8	15.9	24.6	27.2	4000	280	4.0	100	0.70	1.04
721MSHA-12	3/4	19.0	27.7	30.5	4000	280	4.7	120	0.94	1.40
721MSHA-16	1	25.4	34.9	38.0	4000	280	6.0	150	1.28	1.90
721MSHA-20	1-1/4	31.8	43.9	46.2	3000	210	8.2	210	1.68	2.50
721MSHA-24	1-1/2	38.1	50.4	53.3	2500	175	10.0	250	1.93	2.87
721PM-32PM*	2	50.8	63.6	65.9	2500	175	25.0	635	2.76	4.10

* Under validation with Parker fittings / specification

* Impulse test conducted with Parker Fittings.

Application:

Recommended for very high pressure hydraulic power lines. Constant pressure on all IDs upto 1"

Construction:

Inner tube : Synthetic rubber
Reinforcement: Four spiral steel wire
Outer Cover : Synthetic rubber



Bend radius up to 1-1/2"

Temp. Range

-40°C to +125°C
(-40°F to +257°F)

Impulse Cycles:

Specified - 5,00,000 cycles
Tested up to - 10,00,000 cycles

Markets



Construction



Grounds & Building Maintenance



Utility Equipment



Personnel Lift Equipment



Oil Field Service



Material Handling



Paving & Road Maintenance



Ground Support Equipment



Industrial



Mining

Type Approvals:

BV, LR, MED

731

Hydraulic
EN 856 4SH

# Part Number	Hose I.D inch	Hose I.D mm	Hose R.O.D mm	Hose O.D mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
731MSHA-12	3/4	19.0	28.4	32.0	6000	420	11.0	280	1.06	1.58
731MSHA-16	1	25.4	35.2	39.0	5500	380	13.5	340	1.36	2.03
731MSHA-20	1-1/4	31.8	41.9	45.3	4700	325	18.0	460	1.81	2.70
731MSHA-24	1-1/2	38.1	48.8	53.3	4200	290	22.0	560	2.21	3.29
731PM-32PM**	2	50.8	63.2	68.0	3600	250	27.0	700	3.09	4.60

**Impulse test conducted with Parker Fittings.

Application:

Recommended for very high pressure hydraulic power lines.

Construction:Inner tube : Synthetic rubber
Reinforcement: Four spiral steel wire
Outer Cover : Synthetic rubber**Temp. Range**-40°C to +100°C
(-40°F to +212°F)**Impulse Cycles:**

Specified - 4,00,000 cycles

*Tested up to - 8,00,000 cycles

Markets

Military



Construction



Grounds & Building Maintenance



Personnel Lift Equipment



Oil Field Service



Paving & Road Maintenance



Ground Support Equipment



Mining

Type Approvals:

ABS, BV, LR, MED

781

Hydraulic
EN 856 R13

# Part Number	Hose I.D inch	Hose I.D mm	Hose R.O.D mm	Hose O.D mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
781MSHA-12	3/4	19.0	29.0	31.9	5000	350	9.5	240	1.04	1.55
781MSHA-16	1	25.4	35.6	38.5	5000	350	12.0	300	1.40	2.08
781MSHA-20	1-1/4	31.8	46.8	50.0	5000	350	16.5	420	2.59	3.85
781MSHA-24	1-1/2	38.1	54.3	57.6	5000	350	20.0	500	3.23	4.81
781PM-32PM*	2	50.8	68.1	70.9	5000	350	25.0	640	4.48	6.67

* Under validation with Parker fittings / specification

* Impulse test conducted with Parker Fittings.

Application:

Recommended for very high pressure hydraulic power lines, constant pressure on all hose sizes.

Construction:Inner tube : Synthetic Rubber
Reinforcement: Four or six spiral steel wire
Outer Cover : Synthetic Rubber**Temp. Range**-40°C to +125°C
(-40°F to +257°F)**Impulse Cycles:**

Specified - 5,00,000 cycles

#Tested up to - 10,00,000 cycles

Markets

Construction



Oil Field Service



Waste & Refuse



Material Handling



Paving & Road Maintenance



Industrial

Type Approvals:

ABS, BV, LR, MED

784PMHydraulic
SAE100R13

# Part Number	Hose I.D inch	Hose I.D mm	Hose R.O.D mm	Hose O.D mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
784PM-20PM	1-1/4	31.8	42.0	45.0	5000	350	16.5	420	1.88	2.8

Application:

Recommended for High Pressure hydraulic applications in Construction, Earth moving, Material Handling and General Industry.

Construction:

Inner tube : Synthetic rubber
Reinforcement : Four Spiral steel wire
Outer Cover : Synthetic rubber

Impulse Tested - 5,00,000 Cycles

Temp. Range

-40°C to +125°C
(-40°F to +257°F)

Markets

Construction



Oil Field Service



Waste & Refuse



Material Handling



Paving & Road Maintenance



Industrial

792PM / SPIRAFLEXHydraulic
SAE 100 R15

# Part Number	Hose I.D inch	Hose I.D mm	Hose R.O.D mm	Hose O.D mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
792PM-12PM	3/4	19.0	28.4	32.0	6000	420	10.5	265	1.08	1.60
792PM-16PM	1	25.4	35.2	38.5	6000	420	13.0	330	1.41	2.10
792PM-20PM	1-1/4	31.8	46.8	49.6	6000	420	17.5	445	2.62	3.90
792PM-24PM	1-1/2	38.1	54.3	57.1	6000	420	21.0	530	3.43	5.11

Application:

Recommended for very high pressure hydraulic power lines. Constant pressure on all hose sizes.

Construction:

Inner tube : Synthetic rubber
Reinforcement: Four or six high tensile steel wire spirals
Outer Cover : Synthetic rubber

Temp. Range

- 40°C to +125°C
(-40°F to +257°F)

Markets

Construction



Grounds & Building Maintenance



Utility Equipment



Machine Tool



Oil Field Service



Paving & Road Maintenance



Ground Support Equipment



Industrial

Type Approvals: MED

S-FLEX HOSE

Exceeds EN 856 4SH



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
SFLEX-12HBR	3/4	19.0	28.4	32.2	6000	420	5.5	140	1.08	1.60
SFLEX-16HBR	1	25.4	35.2	38.6	5500	380	6.7	170	1.36	2.03

Application:

Recommended for High pressure hydraulic applications in construction, Earth moving, Material handling & General Industry

Construction:

Inner tube : Synthetic rubber
Reinforcement : Four spiral steel wire
Outer Cover : Synthetic rubber

Impulse Cycles - 10,00,000 Cycles

Temp. Range

-40°C to +100°C
(-40°F to +212°F)

XT - FLEX HOSE

Exceeds EN 856 R12



# Part Number	Hose I.D		Hose O.D		Working Pressure		Minimum Bend Radius		Approx. Weight	
	inch	mm	inch	mm	psi	bar	inch	mm	lbs/ft	kg/m
XTFLEX-10	5/8	15.9	24.0	27.0	4000	280	3.1	80	0.69	1.02

Application:

Recommended for High pressure hydraulic applications in construction, Earth moving, Material handling & General Industry

Construction:

Inner tube : Synthetic rubber
Reinforcement : Four spiral steel wire
Outer Cover : Synthetic rubber through cover

Impulse Cycles - 10,00,000 Cycles

Temp. Range

-40°C to +125°C
(-40°F to +257°F)

709AN LIMBER HOSE

ISO 18752



# Part Number	ISO 18752	Hose I.D. inch	Hose I.D. mm	Hose R.O.D. mm	Hose O.D. mm	Working Pressure psi	Working Pressure bar	Minimum Bend Radius inch	Minimum Bend Radius mm	Approx. Weight lbs/ft	Approx. Weight kg/m
709AN-12	DC	3/4	19.0	28.4	30.5	5000	350	4.7	120	0.86	1.28
709AN-16	CC	1	25.4	35.6	38.0	5000	350	5.9	150	1.29	1.93

Application:

Mineral Oil, Glycol,
Water-glycol Emulsions,
Water (0°C to +70°C)

Construction:

Inner Tube : NBR Based Oil & Heat
Resistant Synthetic Rubber
Reinforcement: Four Spirals
Outer Cover : CR based Flame resistant
MSHA Cover

Temp. Range

- 40°C to +120°C
(-40°F to +248°F)

Markets

Construction



Oil Field Service



Waste & Refuse



Material Handling



Paving & Road Maintenance



Industrial

NOMOGRAM

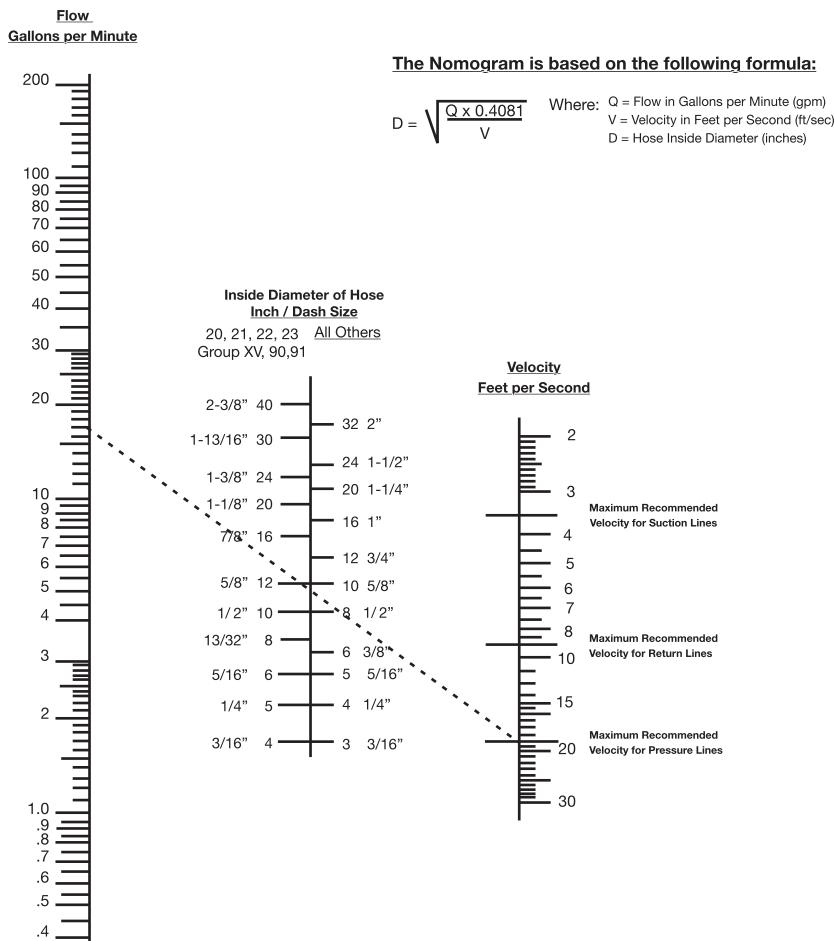
Flow Capacities at Recommended Flow Velocities

The nomogram below is provided as an aid in determining the correct hose size.

How to use the nomogram: Determine the proper flow rate your system requires, then connect a straight edge from the selected flow rate to the recommended velocity range. The required hose I.D. will appear at the intersection of the straight edge and the center column. If the straight edge passes through the scale between sizes listed, use the next larger I.D. hose.

Example: Locate 16 gallons per minute in the left-hand column and 20 feet per second (fps) in the right-hand column (the maximum recommended velocity range for pressure lines). Lay a straight edge across these two points. The inside diameter required is shown in the center column at or above the straight edge. In this case, we need a hose I.D. of 0.625 (5/8") inch (or larger).

Use the same procedure for suction or return lines, except utilizing their respective maximum recommended velocities.



CONVERSION TABLE

	UNIT	CONVERSION UNIT	FACTOR	PSI TO METRIC		
	1 pound per square-inch	bar	0.06895	Kilo Pascals (kPa)	Mega Pascals (MPa)	Bar (Bar)
	1 bar	psi	14.5035	10	68.9	0.07
	1 pound per square-inch	MPa	0.006895	20	137.9	0.14
PRESSURE	1 mega pascal	psi	145.035	30	206.8	0.21
	1 kilo pascal	bar	0.01	40	275.8	0.28
	1 bar	kPa	100	50	344.7	0.34
	1 mega pascal	bar	10	60	413.7	0.41
LENGTH	1 bar	MPa	0.1	70	482.6	0.48
	1 inch	mm	25.4	80	551.6	0.55
	1 millimetre	in	0.03934	90	620.5	0.62
	1 foot	m	0.3048	100	689	0.7
AREA	1 metre	ft	3.28084	200	1,379	1.4
	1 square-inch	cm ²	6.4516	300	2,068	2.1
	1 cubic centimetre	cubic in	0.0610	400	2,758	2.8
	1 gallon (UK)	ltr	4.54596	500	3,447	3.4
VOLUME	1 litre	gal (UK)	0.219976	600	4,137	4.1
	1 gallon (US)	ltr	3.78533	700	4,826	4.8
	1 litre	gal (US)	0.264177	800	5,516	5.5
	1 pound	kg	0.453592	900	6,205	6.2
FLOW RATE	1 kilogramme	lb	2.204622			
	1 gallon per minute (UK)	l / min	0.54556	5,000	34.474	34.5
	1 litre per minute	gal / min. (UK)	0.219976	6,000	41,369	41.4
	1 gallon per minute (US)	l / min.	3.78533	7,000	48,263	48.3
VELOCITY	1 litre per minute	gal / min. (US)	0.264178	8,000	55,158	55.2
	1 foot per second	m / s	0.3048	9,000	62,053	62.1
	1 metre per second	ft / s	3.280840	10,000	68,948	68.9
	Fahrenheit degree	°C	5(°F-32)	20,000	137,895	137.9
TEMPERATURE	Celsius degree	°F	°C(5/9+32)	30,000	206,843	206.8
			40,000	275,790	275.8	275.8

	METRIC TO PSI		
	Kilo Pascals (kPa)	Mega Pascals (MPa)	Bar (Bar)
	100	0.1	1
	200	0.2	2
	300	0.3	3
	400	0.4	4
	500	0.5	5
	600	0.6	6
	700	0.7	7
	800	0.8	8
	900	0.9	9
	1,000	1.0	10
	2,000	2.0	20
	3,000	3.0	30
	4,000	4.0	40
	5,000	5.0	50
	6,000	6.0	60
	7,000	7.0	70
	8,000	8.0	80
	9,000	9.0	90
	10,000	10.0	100
	20,000	20.0	200
	30,000	30.0	300
	40,000	40.0	400
	50,000	50.0	500
	60,000	60.0	600
	70,000	70.0	700
	80,000	80.0	800
	90,000	90.0	900
	100,000	100.0	1000
	200,000	200.0	2000
	300,000	300.0	3000

CHEMICAL RESISTANCE TABLE

Ratings	1. Excellent 2. Good Resistance 3. Testing recommended - Data not available x Not recommended
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Chemical Name	Hose Polymer					
	Nitrile	PVC NBR	SBR	CPE	EPDM	CR
A						
Acetic Acid 5-25%	2	2	-	1	1	1
Acetic Acid 50%	x	2	-	1	3	2
Acetic Acid Boiling	x	x	x	x	x	x
Alcohol Ethyl	1	1	1	1	1	1
Alcohol Methyl	1	1	1	1	1	1
Alcohol Isopropyl (Isopropanol)	2	2	2	2	2	2
Ammonium Hydroxide - dilute	1	1	1	1	1	2
Ammonium Hydroxide - concentrated	x	x	x	1	1	2
Animal Oil	1	1	x	1	x	2
Aniline	1	1	x	1	x	x
Antifreeze alcohol base	2	2	x	2	1	2
Antifreeze glycol base	1	1	x	1	x	x
Aqua Regia	x	x	x	2	x	x
ASTM Oil No 1 (IRM Oil No 1)	1	1	2	1	3	1
ASTM Oil No 2 (IRM Oil No 2)	1	1	3	1	3	1
ASTM Oil No 3 (IRM Oil No 3)	1	1	x	1	x	2
ASTM Ref fuel A	1	1	x	1	3	2
ASTM Ref fuel B	1	1	x	2	x	2
ASTM Ref fuel C	2	2	x	x	x	x
B						
Brake Fluid petroleum base	1	1	3	1	x	2
Brake Fluid synthetic base	x	x	x	1	x	x
Benzaldehyde	x	x	x	2	x	x
Benzine	x	x	x	x	x	x
Butyle Acetate	x	x	x	2	x	x
C						
Calcium Chloride	1	1	1	1	1	1
Calcium Carbonate	2	2	1	1	1	1
Calcium Hydroxide	2	2	1	1	1	1
Calcium Hydroxide 50%	-	-	-	-	-	-
Calcium Nitrate	1	1	1	1	1	1
Carbon Tetrachloride	-	-	-	-	-	-
Carbon Dioxide	1	1	-	1	1	1
Castor Oil	2	1	-	1	-	x
Carbon Disulfide	x	x	x	x	x	x
Caustic Soda 20%	2	-	-	1	1	2
Caustic Soda 50%	2	-	-	1	1	2
Chlorine Water 25%	x	x	x	x	x	x
Chlorobenzene	x	x	x	x	x	x
Chloroform	x	x	x	x	x	x
Chromic Acid 50%	x	x	x	x	x	x
Coal Tar	2	2	x	2	x	x
Corn Oil	2	2	x	2	x	2
Cottonseed Oil	1	1	x	2	x	x
Creosote	2	2	x	x	x	x
Cutting Oil Water soluble	1	1	x	1	x	x
Cyclohexane	2	2	x	x	x	x
Cyclohexanone	x	x	x	x	x	x

CHEMICAL RESISTANCE TABLE

Ratings	1. Excellent
2. Good Resistance	
3. Testing recommended	
- Data not available	
x Not recommended	

Chemical Name	Hose Polymer					
	Nitrile	PVC NBR	SBR	CPE	EPDM	CR
D						
Decalin	2	2	x	2	x	x
Developing Fluid - Hypo	-	-	-	1	x	2
Dibutyl Phthalate	x	x	x	2	x	x
Diesel Fuel	2	1	x	2	x	2
Diethyl Amine	2	2	x	2	x	x
Diethylene Glycol	1	1	1	1	1	1
Dimethylene Formamide	x	x	x	x	x	x
Diocetyl Phthalate	x	x	x	x	x	x
Diocetyl Sebacate	x	x	x	x	x	x
E						
Ethyle Acetate	x	x	x	x	x	x
Ethyle Acetoacetate	x	x	x	x	x	x
Ethylene Dichloride	x	x	x	x	x	x
Ethylene Glycol	1	1	1	1	1	1
Athyl Alcohol	1	1	1	1	1	1
Esters	x	x	x	x	x	x
F						
Ferric Chloride 5% agitated	2	2	x	2	x	2
Ferric Chloride 10%	1	1	x	2	x	x
Ferrous Sulphate 10%	2	2	x	2	x	x
Formaldehyde	x	x	x	x	x	x
Formic Acid	x	x	x	x	x	x
Freon 12	use A.C.	hose only	x	x	x	x
Freon 134 a	use A.C.	hose only	x	x	x	x
G						
Gas Natural	x	x	x	x	x	x
Gasohol	2	2	x	x	x	x
Gasoline Aviation	2	2	x	x	x	x
Glycol FR Fluids	1	1	x	x	x	x
Glycerene	1	1	1	1	1	1
H						
Heptane	1	1	x	1	x	x
Hexane	1	1	x	1	x	x
Hydraulic Fluids std-petroleum base	1	1	x	1	x	2
Hydraulic Fluids water - glycol base	1	1	1	1	1	1
Hydrochloric Acid - dilute	x	x	x	2	x	2
Hydrochloric Acid-concentrated 37%	x	x	x	1	x	x
Hydrogen	1	1	1	1	1	1
Hydrogen Peroxide - dilute 30%	2	x	x	1	x	x
Hyapoid Gas	1	1	x	x	x	x
I						
Ink	1	1	x	2	x	x
Insulating Oil (Transformer Oil)	1	1	x	2	x	2
Iso Octane	1	1	x	1	x	2
Iso Propyl Alcohol	2	2	3	1	1	1

CHEMICAL RESISTANCE TABLE

Ratings	1. Excellent
2. Good Resistance	
3. Testing recommended	
- Data not available	
x Not recommended	

Chemical Name	Hose Polymer					
	Nitrile	PVC NBR	SBR	CPE	EPDM	CR
K						
Kerosene	1	1	x	1	x	x
Ketones	x	x	x	x	x	x
L						
Lactic Acid	x	x	x	1	x	1
Light Grease	1	1	x	-	x	x
Lecithin	x	x	x	x	x	2
Linseed Oil	1	1	x	x	x	x
Lubricating Oil (SAE 10,20,30,40,50)	1	1	x	2	x	3
M						
Methylene Dichloride	x	x	x	x	x	x
Methyl Isobutyl Ketone (MIBK)	x	x	x	2	x	x
Motor Oil	1	1	x	2	x	2
Mineral Oil	1	1	x	2	x	2
Mahine Oil	1	1	x	3	x	x
Magnesium Hydroxide	2	2	x	1	2	1
Methanol / Methyl Alcohol	1	1	1	1	1	1
Methyl Acetate	x	x	x	x	x	x
Methyl Acrylate	x	x	x	x	x	x
Methyl Ethyl ketone (MEK)	x	x	x	2	x	x
Methylene Dichloride	x	x	x	x	x	x
Methyl Isobutyl Ketone (MIBK)	x	x	x	2	x	x
N						
Naphtha	x	x	x	x	x	x
Naphthalene (Camphor)	x	x	x	x	x	x
Nickel Plating Solution	2	2	x	-	x	2
Nitric Acid - dilute	x	x	x	3	x	x
Nitric Acid - concentrated	x	x	x	x	x	x
Nitrogen	1	2	1	1	1	1
Nitromethane	x	x	x	2	x	x
N-Octane	1	2	x	1	x	x
O						
Oil Crude	2	2	x	2	x	x
Oleic Acid	2	2	2	1	2	2
Olive Oil	2	2	x	2	x	x
Oils (SAE upto 95 degree C)	1	1	3	2	x	2
P						
Paint Solvent	x	x	x	x	x	x
Paint Thinner (Ducco)	x	x	x	x	x	x
Palm Oil	1	1	x	2	x	2
Paraffin Oil	1	1	x	2	x	2
Perchloric Acid	x	x	x	x	x	x
Perchloroethylene	x	x	x	x	x	x
Phenol (Carbolic Acid)	x	x	x	2	x	x
Phosphate Ester	x	x	x	2	x	x
Phosphoric Acid - dilute	2	2	x	2	x	2
Phosphoric Acid - concentrated	x	x	x	x	x	x
Phosphoric Acid 50%	x	x	x	2	x	2
Plating Solution Chrome	x	x	x	x	x	x
Plating Solution Nickel	2	-	-	-	-	-
Potassium Hydroxide	2	2	x	3	2	3
Propylene Glycol	1	1	x	1	1	1
Pyridine	x	x	x	x	x	x

CHEMICAL RESISTANCE TABLE

Ratings	1. Excellent 2. Good Resistance 3. Testing recommended - Data not available x Not recommended
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Chemical Name	Hose Polymer					
	Nitrile	PVC NBR	SBR	CPE	EPDM	CR
Q						
Quench Oil	2	2	-	-	-	-
Quinoline	1	2	-	-	-	-
R						
Refined Wax	1	1	x	1	-	2
Rapeseed Oil	1	1	x	1	x	2
S						
Salt water / Sea water	2	2	2	1	1	2
Sewage Water	2	2	2	1	1	1
Silicone Oils	2	2	x	1	1	2
Silicon Grease	2	2	x	2	x	x
Silver Nitrate	1	1	1	1	1	1
Soap Solution	1	1	1	1	1	1
Sodium Chloride - Saturated	1	1	1	1	1	1
Sodium Hydroxide - dilute	2	2	1	1	1	1
Sodium Hydroxide 50% cold	x	x	1	1	1	2
Sodium Thiosulphate (HYPO)	1	1	1	-	x	1
Soyabean Oil	2	2	x	-	x	3
Starch	2	2	-	-	-	2
Stearic Acid	2	2	2	1	2	2
Stodard Solvent	2	2	x	2	x	3
Styrene	x	x	x	x	x	x
Sulfuric Acid - concentrated	x	x	x	x	x	x
Sulfuric Acid - dilute	2	2	x	1	x	1
T						
Tall Oil	2	2	x	2	x	2
Tar (Bitumenous)	2	2	2	x	x	x
Terpenol	2	2	x	1	x	x
Transformer Oil	1	1	x	2	x	x
Toulene (Toulol)	3	3	x	3	x	x
Turbine Oil	2	2	x	2	x	x
Trichloroethylene	x	x	x	x	x	x
Turpentine	2	2	x	2	x	x
U						
Urea Solution	2	2	2	2	2	2
V						
Varnish	x	x	x	x	x	x
Vegetable Oils	1	1	x	1	x	2
Vinyle Chloride	x	x	x	x	x	x
Vinyle Acetate	x	x	x	x	x	x
W						
Water Mine Acid	1	1	1	1	1	1
Water Salt	1	1	1	1	1	1
Water in Oil Emulsion	1	1	1	1	1	1
X						
Xylene	x	x	x	x	x	x
Z						
Zinc Chloride	1	1	1	1	1	1
Zeolites	1	1	1	1	1	1

Safety Guide

⚠ Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings and Related Accessories

Parker Publication No.4400-B-1

Revised : May, 2002

WARNING : Failure or improper selection use of hose, tubing, fittings, assemblies or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include but are not limited to:

Fittings thrown off at high speed.

High Velocity fluid discharge.

Explosion or burning of the conveyed fluid.

Electrocution from high voltage electric powerlines.

Contact with suddenly moving or falling objects that are controlled by the

Conveyed fluid.

* Injections by high-pressure fluid discharge.

* Dangerously whipping Hose.

Contact with conveyed fluids that may be hot, cold toxic or otherwise injurious.

* Sparking or explosion caused by static electricity buildup or other sources of electricity.

* Sparking or explosion while spraying paint or flammable liquids.

* Injuries resulting from inhalation, ingestion or exposure to fluids.

Before selecting or using any of these Products, it is important that you read and follow the instructions below. Only Hose from Parker's Stratoflex Products Division is approved for in flight aerospace applications, and no other Hose can be used for such in flight applications.

1.0 GENERAL INSTRUCTIONS

1.1 Scope : This safety guide provides instruction for selecting and using (including assembling, installing, and maintaining) these products. For convenience, all rubber and / or thermoplastic products commonly called "hose" or "tubing" are called "Hose" in this safety guide. All assemblies made with Hose are called "Hose" in this safety guide. All assemblies made with Hose are called "Hose Assemblies". All products commonly called "fittings" or "couplings" are called "Fittings". All related accessories (including crimping and swaging machines and tooling) are called "Related Accessories". This safety guide is a supplement to and is to be used with, the specific Parker publications for the specific Hose, Fittings and Related Accessories that are being considered for use.

1.2 Fail-Safe : Hose, and Hose Assemblies and Fittings can and do fail without warning for many reasons. Design all systems and equipment in a fail safe mode, so that failure of the Hose or Hose Assembly or Fitting will not endanger persons or property.

1.3 Distribution : Provide a copy of this safety guide to each person that is responsible for selecting or using Hose and fitting products. Do not select or use Parker Hose or fittings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.4 User Responsibility : Due to the wide variety of operating conditions and applications for Hose and fittings, Parker and its distributors do not represent or warrant that any particular Hose or Fitting is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for :

- * Making the final selection of the Hose and Fitting
- * Assuring that the user's requirements are met and that the application presents no health or safety hazards.
- * Providing all appropriate health and safety warnings on the equipment on which the Hose and Fittings are used.
- * Assuring compliance with all applicable government and industry standards.

1.5 Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2.0 HOSE AND FITTING SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that the Hose be nonconductive to prevent electrical current flow. Other applications require the Hose and the Fitting and the Hose/Fitting interface to be sufficiently conductive to drain off static electricity. Extreme care must be exercised when selecting Hose and Fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

The electrical conductivity or nonconductivity of Hose and Fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the Hose and the Fittings, Fitting finish (some Fitting finishes are electrically conductive while others are non-conductive), manufacturing methods (including moisture control), how the Fittings contact the Hose, age and amount of deterioration or damage or other changes, moisture content of the Hose at any particular time, and other factors. The following are considerations for electrically nonconductive and conductive Hose. For other applications consult the individual catalog pages and the appropriate industry or regulatory standards for proper selection.

2.1.1 Electrically Nonconductive Hose: Certain applications require that the Hose be nonconductive to prevent electrical current flow or to maintain electrical isolation. For these applications that require Hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive Hose can be used. The manufacturer of the equipment in which the nonconductive Hose is to be used must be consulted to be certain that the Hose and Fittings that are selected are proper for the application. Do not use any Parker Hose or Fitting for any such application requiring nonconductive Hose, including but not limited to applications near high voltage electric lines, unless (i) the application is expressly approved in the Parker technical publication for the product, (ii) the Hose is marked "nonconductive", and (iii) the manufacturer of the equipment on which the Hose is to be used specifically approves the particular Parker Hose and Fitting for such use.

2.1.2 Electrically Conductive Hose: Parker manufacturers special Hose for certain applications that require electrically conductive Hose. Parker manufactures special Hose for conveying paint in airless paint spraying applications. This Hose is labeled "Electrically Conductive Airless Paint Spray Hose" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in all airless paint spraying applications. Do not use any other Hose for airless paint spraying, even if electrically conductive. Use of any other Hose or failure to properly connect the Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Parker manufactures a special Hose for certain compressed natural gas ("CNG") applications where static electricity buildup may occur. Parker CNG Hose assemblies comply with AGA Requirements 1-93, "Hoses for Natural Gas Vehicles and Fuel Dispensers". This Hose is labeled "Electrically Conductive for CNG Use" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in, for example, high velocity CNG dispensing or transfer. Do not use any other Hose for CNG applications where static charge buildup may occur, even if electrically conductive. Use of other Hoses in CNG applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Care must also be taken to protect against CNG permeation through the Hose wall. See section 2.6, Permeation, for more information. Parker CNG Hose is intended for dispenser and vehicle use at a maximum temperature of 180 °F. Parker CNG Hose should not be used in confined spaces or unventilated areas or areas exceeding 180 °F. Final assemblies must be tested for leaks. CNG Hose Assemblies should be tested on a monthly basis for conductivity per AGA 1-93.

Parker manufacturers special Hose for aerospace in flight applications. Aerospace in flight applications employing Hose to transmit fuel, lubricating fluids and hydraulic fluids require a special Hose with a conductive inner tube. This Hose for in flight applications is available only from Parker's Stratoflex Products Division. Do not use any other Parker Hose for in flight applications, even if electrically conductive. Use of other Hoses for in flight applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. These Hose assemblies for in flight applications must meet all applicable aerospace industry, aircraft engine, and aircraft requirements.

2.2 Pressure: Hose selection must be made so that the published maximum recommended working pressure of the Hose is equal to or greater than the maximum system pressure. Surge pressures system must be below the

published maximum working pressure for the Hose.Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation that measures and indicates pressures at millisecond intervals.Mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures.Published burst pressure ratings for Hose is for manufacturing test purposes only and is no indication that the Product can be used in applications at the burst pressure or otherwise above the published maximum recommended working pressure.

2.3 **Suction:**Hoses used for suction applications must be selected to insure that the Hose will withstand the vacuum and pressure of the system.Improperly selected Hose may collapse in suction application.

2.4 **Temperature:**Be certain that fluid and ambient temperatures,both steady and transient,do not exceed the limitations of the Hose.Temperatures below and above the recommended limit can degrade Hose to a point where a failure may occur and release fluid.Properly insulate and protect the Hose Assembly when routing near hot objects (e.g.manifolds).Do not use any Hose in any application where failure of the Hose could result in the conveyed fluids (or vapors or mist from the conveyed fluids)contacting any open flame,molten metal, or other potential fire ignition source that could cause burning or explosion of the conveyed fluids or vapors.

2.5 **Fluid Compatibility:**Hose Assembly selection must assure compatibility of the Hose tube,cover,reinforcement, and Fittings with the fluid media used. See the fluid compatibility chart in the Parker publication for the product being considered or used.This information is offered only as a guide.Actual service life can only be determined by the end user by testing under all extreme conditions and other analysis. Hose that is chemically compatible with a particular fluid must be assembled using Fittings and adapters containing likewise compatible seals.

2.6 **Permeation:**Permeation (that is,seepage through the Hose) will occur from inside the Hose to outside when Hose is used with gases,liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, diesel fuel, gasoline, natural gas, or LPG).This permeation may result in high concentrations of vapors which are potentially flammable,explosive,or toxic, and in loss of fluid.Dangerous explosions,fires, and other hazards can result when using the wrong Hose for such applications.The system designer must take into account the fact that this permeation will take place and must not use Hose if this permeation could be hazardous.The system designer must take into account all legal,government,insurance,or any other special regulations which govern the use of fuels and refrigerants.Never use a Hose even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the Hose Assembly. Permeation of moisture from outside the Hose to inside the Hose will also occur in Hose assemblies,regardless of internal pressure.If this moisture permeation would have detrimental effects (particularly,but not limited to refrigeration and air conditioning systems),incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used.

2.7 **Size:**Transmission of power by means of pressurized fluid varies with pressure and rate of flow.The size of the components must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.

2.8 **Routing:**Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to Hose collapse, twisting of the Hose,proximity to hot objects or heat sources).

2.9 **Environment:**Care must be taken to insure that the Hose and Fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed.Environmental conditions including but not limited to ultraviolet radiation,sunlight,heat,ozone,moisture,water,salt water, chemicals, and air pollutants can cause degradation and premature failure.

2.10 **Mechanical Loads:**External forces can significantly reduce Hose life or cause failure.Mechanical loads which must be considered include excessive flexing,twist,kinking,tensile or side loads,bend radius, and vibration.Use of swivel type Fittings or adapters may be required to insure no twist is put into the Hose.Unusual applications may require special testing prior to Hose selection.

2.11 **Physical Damage:**Care must be taken to protect Hose from wear, snagging,kinking,bending smaller than minimum bend radius, and cutting,any of which can cause premature Hose failure.Any Hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any Hose that has been cut or is cracked or is otherwise damaged,should be removed and discarded.

2.12 **Proper End Fitting:**See instructions 3.2 through 3.5.These recommendations may be substantiated by testing to industry standards such as SAE

J517 for hydraulic applications,or MIL-A-5070,AS1339,or AS3517 for Hoses from Parker 's Stratoflex Products Division for aerospace applications.

2.13 **Length:**When establishing a proper Hose length,motion absorption, Hose length changes due to pressure, and Hose and machine tolerances and movement must be considered.

2.14 **Specifications and Standards:**When selecting Hose and Fittings, government,industry, and Parker specifications and recommendations must be reviewed and followed as applicable.

2.15 **Hose Cleanliness:**Hose components may vary in cleanliness levels. Care must be taken to insure that the Hose Assembly selected has an adequate level of cleanliness for the application.

2.16 **Fire Resistant Fluids:**Some fire resistant fluids that are to be conveyed by Hose require use of the same type of Hose as used with petroleum base fluids.Some such fluids require a special Hose,while a few fluids will not work with any Hose at all.See instructions 2.5 and 1.5.The wrong Hose may fail after a very short service.In addition,all liquids but pure water may burn fiercely under certain conditions, and even pure water leakage may be hazardous.

2.17 **Radiant Heat:**Hose can be heated to destruction without contact by such nearby items as hot manifolds or molten metal.The same heat source may then initiate a fire.This can occur despite the presence of cool air around the Hose.

2.18 **Welding or Brazing:**When using a torch or arc-welder in close proximity to hydraulic lines,the hydraulic lines should be removed or shielded with appropriate fire resistant materials.Flame or weld spatter could burn through the Hose and possibly ignite escaping fluid resulting in a catastrophic failure.of plated parts,including Hose Fittings and adapters,above 450 °F (232 °C)such as during welding,brazing,or soldering may emit deadly gases.

2.19 **Atomic Radiation:**Atomic radiation affects all materials used in Hose assemblies.Since the long-term effects may be unknown,do not expose Hose assemblies to atomic radiation.

2.20 **Aerospace Applications:**The only Hose and Fittings that may be used for in flight aerospace applications are those available from Parker 's Stratoflex Products Division.Do not use any other Hose or Fittings for in flight applications. Do not use any Hose or Fittings from Parker 's Stratoflex Products Division with any other Hose or Fittings,unless expressly approved in writing by the engineering manager or chief engineer of Stratoflex Products Division and verified by the user 's own testing and inspection to aerospace industry standards.

2.21 **Unlocking Couplings:**Ball locking couplings or other couplings with disconnect sleeves can unintentionally disconnect if they are dragged over obstructions or if the sleeve is bumped or moved enough to cause disconnect. Threaded couplings should be considered where there is a potential for accidental uncoupling.

3.0 HOSE AND FITTING ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 **Component Inspection:**Prior to assembly,a careful examination of the Hose and Fittings must be performed.All components must be checked for correct style,size,catalog number, and length.The Hose must be examined for cleanliness,obstructions,blisters,cover looseness,kinks,cracks,cuts or any other visible defects.Inspect the Fitting and sealing surfaces for burrs,nicks, corrosion or other imperfections.Do NOT use any component that displays any signs of nonconformance.

3.2 **Hose and Fitting Assembly :**Do not assemble a Parker Fitting on a Parker Hose that is not specifically listed by Parker for that Fitting,unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.Do not assemble a Parker Fitting on another manufacturers Hose or a Parker Hose on another manufacturers Fitting unless (i)the engineering manager or chief engineer of the appropriate Parker division approves the Assembly in writing or that combination is expressly approved in the appropriate Parker literature for the specific Parker product, and (ii)the user verifies the Assembly and the application through analysis and testing.For Parker Hose that does not specify a Parker Fitting,the user is solely responsible for the selection of the proper Fitting and Hose Assembly procedures.See instruction 1.4. The Parker published instructions must be followed for assembling the Fittings on the Hose.These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used,or by calling 1-800-CPARKER,or at www.parker.com.

Do not crimp or swage another manufacturers Fitting with a Parker crimp or swage die unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.4 Parts:Do not use any Parker Fitting part (including but not limited to socket,shell,nipple,or insert)except with the correct Parker mating parts,in accordance with Parker published instructions,unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.5 Reusable/Permanent:Do not reuse any field attachable (reusable) Hose Fitting that has blown or pulled off a Hose.Do not reuse a Parker permanent Hose Fitting (crimped or swaged)or any part thereof.Complete Hose Assemblies may only be reused after proper inspection under section 4.0.Do not assemble Fittings to any previously used hydraulic Hose that was in service,for use in a fluid power application.

3.6 Pre-Installation Inspection:Prior to installation,a careful examination of the Hose Assembly must be performed.Inspect the Hose Assembly for any damage or defects.Do NOT use any Hose Assembly that displays any signs of nonconformance.

3.7 Minimum Bend Radius:Installation of a Hose at less than the minimum listed bend radius may significantly reduce the Hose life.Particular attention must be given to preclude sharp bending at the Hose to Fitting juncture.Any bending during installation at less than the minimum bend radius must be avoided.If any Hose is kinked during installation,the Hose must be discarded.

3.8 Twist Angle and Orientation:Hose Assembly installation must be such that relative motion of machine components does not produce twisting.

3.9 Securement:In many applications,it may be necessary to restrain,protect,or guide the Hose to protect it from damage by unnecessary flexing,pressure surges, and contact with other mechanical components.Care must be taken to insure such restraints do not introduce additional stress or wear points.

3.10 Proper Connection of Ports:Proper physical installation of the Hose Assembly requires a correctly installed port connection insuring that no twist or torque is transferred to the Hose when the Fittings are being tightened or otherwise during use.

3.11 External Damage:Proper installation is not complete without insuring that tensile loads,side loads,kinking,flattening,potential abrasion,thread damage,or damage to sealing surfaces are corrected or eliminated.See instruction 2.10.

3.12 System Checkout:All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Hose maximum working pressure)and checked for proper function and freedom from leaks.Personnel must stay out of potential hazardous areas while testing and using.

3.13 Routing:The Hose Assembly should be routed in such a manner so if a failure does occur,the escaping media will not cause personal injury or property damage.In addition,if fluid media comes in contact with hot surfaces,open flame, or sparks,a fire or explosion may occur.See section 2.4.

4.0 HOSE AND FITTING MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1 Even with proper selection and installation,Hose life may be significantly reduced without a continuing maintenance program.The severity of the application,risk potential from a possible Hose failure, and experience with any Hose failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs.A maintenance program must be established and followed by the user and,at minimum,must include instructions 4.2 through 4.7.

4.2 Visual Inspection Hose/Fitting:Any of the following conditions require immediate shut down and replacement of the Hose Assembly:

- Fitting slippage on Hose,,
- Damaged,,cracked,cut or abraded cover (any reinforcement exposed);
- Hard,,stiff,heat cracked,or charred Hose;
- Cracked,,damaged,or badly corroded Fittings;

- Leaks at Fitting or in Hose;;
- Kinked,,crushed, flattened or twisted Hose;and
- Blistered,,soft,degraded,or loose cover.

4.3 Visual Inspection All Other:The following items must be tightened, repaired,corrected or replaced as required:

- Leaking port conditions;;
- Excess dirt buildup;;
- Worn clamps,,guards or shields;and
- System fluid level,fluid type, and any air entrapment.

4.4 Functional Test : Operate the system at maximum operating pressure and check for possible malfunctions and leaks.Personnel must avoid potential hazardous areas while testing and using the system.See section 2.2.

4.5 Replacement Intervals : Hose assemblies and elastomeric seals used on Hose Fittings and adapters will eventually age,harden,wear and deteriorate under thermal cycling and compression set.Hose Assemblies and elastomeric seals should be inspected and replaced at specific replacement intervals,based on previous service life,government or industry recommendations,or when failures could result in unacceptable downtime,damage,or injury risk. See section 1.2.

4.6 Hose Inspection and Failure:Hydraulic power is accomplished by utilizing high-pressure fluids to transfer energy and do work.Hoses,Fittings, and Hose Assemblies all contribute to this by transmitting fluids at high pressures. Fluids under pressure can be dangerous and potentially lethal and,therefore, extreme caution must be exercised when working with fluids under pressure and handling the Hoses transporting the fluids.From time to time,Hose Assemblies will fail if they are not replaced at proper time intervals.Usually these failures are the result of some form of misapplication,abuse,wear,or failure to perform proper maintenance.When Hoses fail,generally the high-pressure fluids inside escape in a stream which may or may not be visible to the user.Under no circumstances should the user attempt to locate the leak by "feeling" with their hands or any other part of their body.High-pressure fluids can and will penetrate the skin and cause severe tissue damage and possibly loss of limb.Even seemingly minor hydraulic fluid injection injuries must be treated immediately by a physician with knowledge of the tissue damaging properties of hydraulic fluid. If a Hose failure occurs,immediately shut down the equipment and leave the area until pressure has been completely released from the Hose Assembly.Simply shutting down the hydraulic pump may or may not eliminate the pressure in the Hose Assembly.Many times check valves,etc.,are employed in a system and can cause pressure to remain in a Hose Assembly even when pumps or equipment are not operating.Tiny holes in the Hose,commonly known as pinholes, can eject small,dangerously powerful but hard to see streams of hydraulic fluid. It may take several minutes or even hours for the pressure to be relieved so that the Hose Assembly may be examined safely.

Once the pressure has been reduced to zero,the Hose Assembly may be taken off the equipment and examined.It must always be replaced if a failure has occurred. Never attempt to patch or repair a Hose Assembly that has failed.Consult the nearest Parker distributor or the appropriate Parker division for Hose Assembly replacement information. Never touch or examine a failed Hose Assembly unless it is obvious that the Hose no longer contains fluid under pressure.The high-pressure fluid is extremely dangerous and can cause serious and potentially fatal injury.

4.7 Elastomeric seals : Elastomeric seals will eventually age,harden,wear and deteriorate under thermal cycling and compression set.Elastomeric seals should be inspected and replaced.

4.8 Refrigerant gases : Special care should be taken when working with refrigeration systems.Sudden escape of refrigerant gases can cause blindness if the escaping gases contact the eye and can cause freezing or other severe injuries if it contacts any other portion of the body.

4.9 Compressed natural gas (CNG) : Parker CNG Hose Assemblies should be tested after installation and before use, and at least on a monthly basis per AGA 1-93 Section 4.2 "Visual Inspection Hose/Fitting ".The recommended procedure is to pressurize the Hose and check for leaks and to visually inspect the Hose for damage.

Caution: Matches,candles,open flame or other sources of ignition shall not be used for Hose inspection.Leak check solutions should be rinsed off after use.

MSDS 'S (Available upon request.)

Federal OSHA regulation 29 CFR 1910.1200 requires that we transmit to our customers Material Safety Data Sheets for all material covered under the law.If you are an employer in SIC 20-39 who has not yet received them,you are required to obtain them from us and provide the information to employees as directed in Section (b)of the regulation.Please contact the Hose Products Division -Technical Services Department:(PH)440-943-5700 (FAX)440-943-3129.

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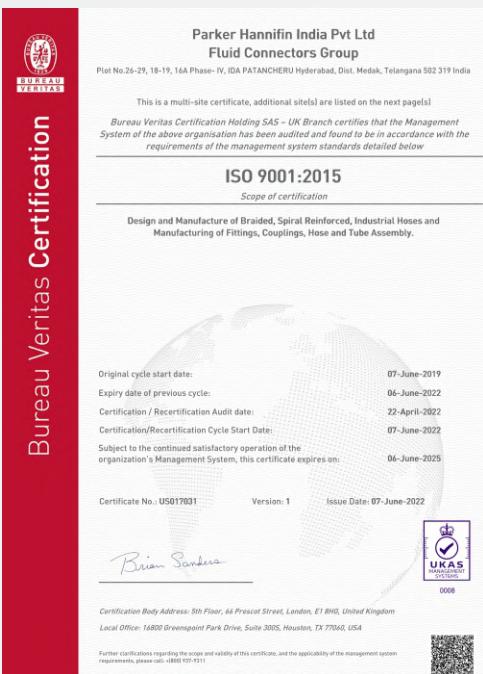
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7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by

Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

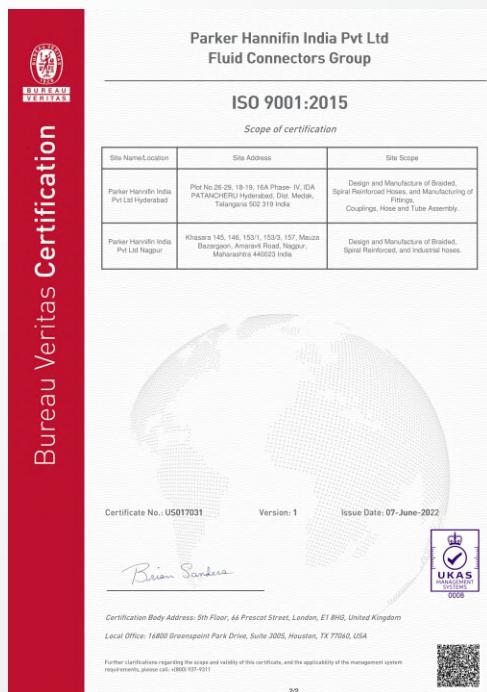
8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.
9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller of if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.
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12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

Certifications

Bureau Veritas Certification



Bureau Veritas Certification

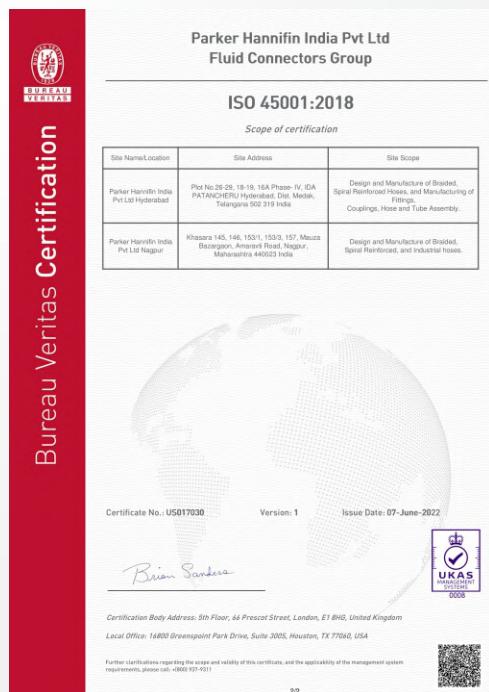


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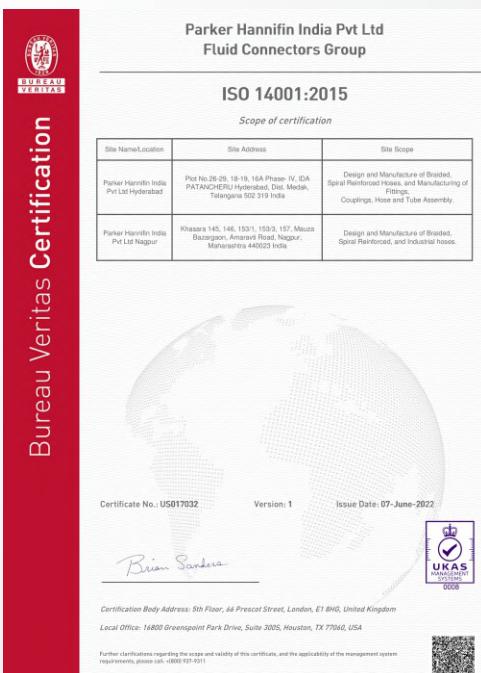


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