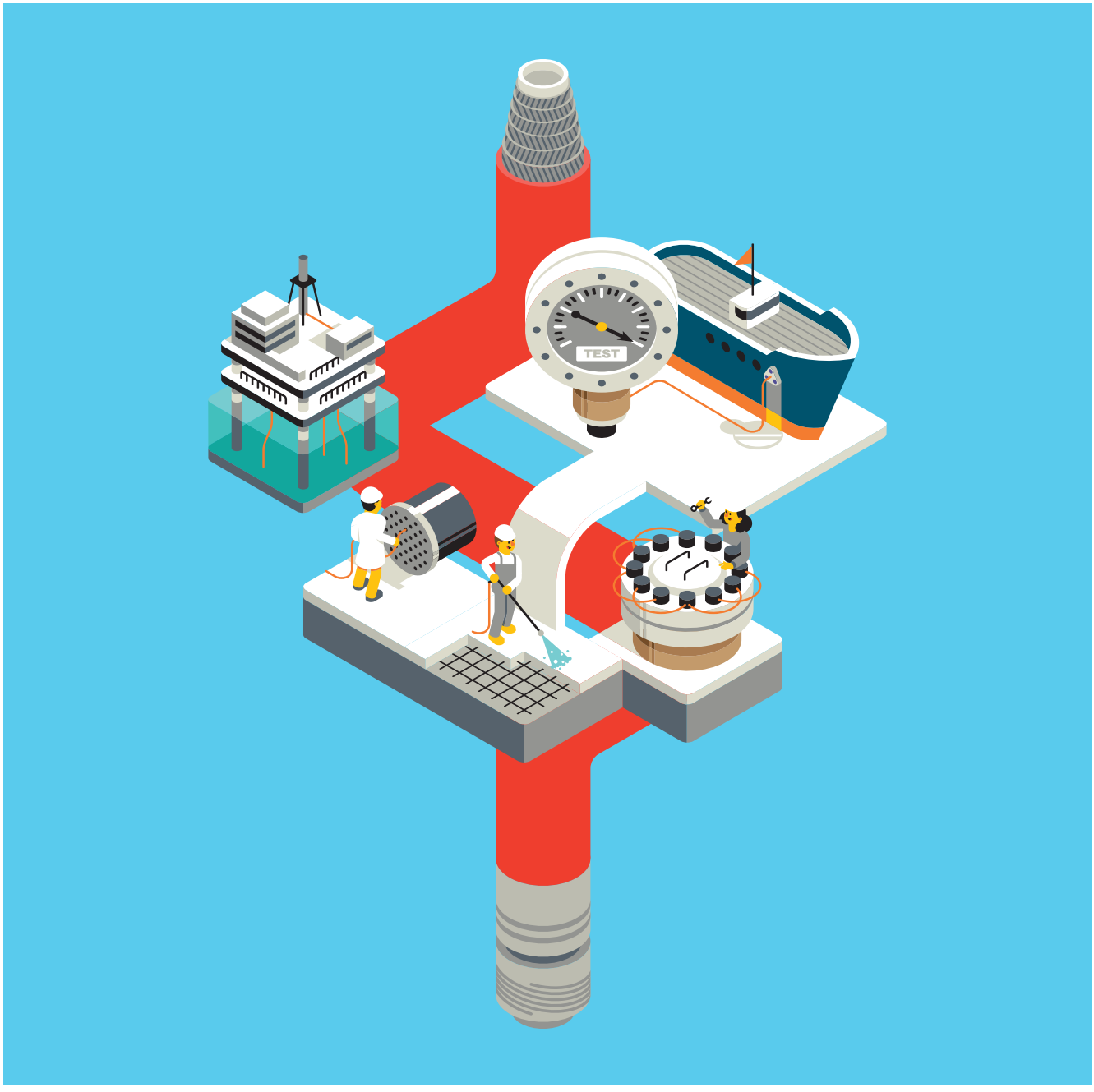
TO UHP

HELIX ULTRA HIGH PRESSURE
THERMOPLASTIC HOSE & FITTINGS



TRANSFER OIL
Pure Fluid Attitude

Fluid power transmission is a dynamic and challenging industry.
And we genuinely love to be part of it.

From the early days of our history, the hydraulic industry has changed significantly, requiring products to adapt to new necessities, coping with higher pressures and reaching new boundaries. Transfer Oil grew together with the fluid power transmission industry in a very similar way, providing a great understanding of the needs of the market, anticipating products, all this with a distinctive capability to change and improve.

In a nutshell, Pure Fluid Attitude.

General Index

Transfer Oil Independent since 1979

Transfer Oil is today one of the most representative manufacturing players in the high pressure thermoplastic hose industry.

The company was founded in 1979 not far from the city of Parma, in Italy, the UNESCO creative city of Gastronomy. Since its beginning, Transfer Oil produced reinforced thermoplastic hoses manufactured from the finest raw materials sourced from leading suppliers of premium engineering polymers and fibers. Transfer Oil products are the choice of the most significant distributors in our industry as well as renowned OEMs that can take great advantage of Transfer Oil direct product design capability, in house hose analysis and qualification.

With applications ranging from hydraulic systems, gas and fluid handling up to refrigeration and air conditioning, Transfer Oil products are used in several different industries.

Being qualified to assemble and proof test Ultra High Pressure products up to 6.000 bar / 90.000 psi, Transfer Oil is today the only independent hose manufacturer capable to offer to the market products covering virtually every pressure range that a thermoplastic hose can reach with the technology known today.

With a distinctive dedication for high technology, Transfer Oil products are manufactured in state of the art facilities where health and safety, environment and quality are taken to the highest level. In our newest manufacturing facility the energy produced through the solar panels installed on its roof is enough to cover about one fifth of the entire plant annual energy consumption. Furthermore, thanks to an uncommon floor heating system – made of over 40 thousands meters of tubes integrated in the concrete floor – we can grant unmatched comfort for our people and, since no ventilation is required, we dramatically limited dust particles circulation resulting in an healthier environment and higher quality products.

Health & Safety is the first and most important product in our range, and it is not a coincidence that our products are trusted parts in very critical equipment. But safety is a top priority also in our plants where, for

example, we introduced product manipulators eliminating heavy lifting operations for our people, allowing them to work in a safer, effortless and more ergonomic conditions.

Care for people and for the environment, an experienced team and an unrivalled range of products.

This is Transfer Oil, in a nutshell, Pure Fluid Attitude.

Transfer Oil is today a trendsetter in the manufacture of innovative, reliable and top quality products ranging from medium to ultra-high pressure applications covering all industry sectors.

Over these years, Transfer Oil acquired a level of expertise and a proven track record that together with passion, insight and inspiration of its management, brought the company to the forefront of international markets.

Transfer Oil products are sold over 65 countries in five continents thanks to a network of highly qualified customers and direct sales through its assembling and logistic hub in Singapore.

Transfer Oil response to an ever growing, complex and specialised market, was to create dedicated product segments individually focusing on product range capable of dealing with the needs of increasingly demanding fluid transfer applications.

TO HYDRAULIC

Hydraulic system solution - thermoplastic hose products and fittings designed and developed for markets like earth moving, marine, off-shore, agriculture and covering a wide variety of applications such as power steering, aerial platforms, rescue tools, cranes, fork lifts, pilot controls lines, waste disposal trucks, truck's lifting platforms, lubrication systems, mining. All supported by relevant and stringent international certifications.

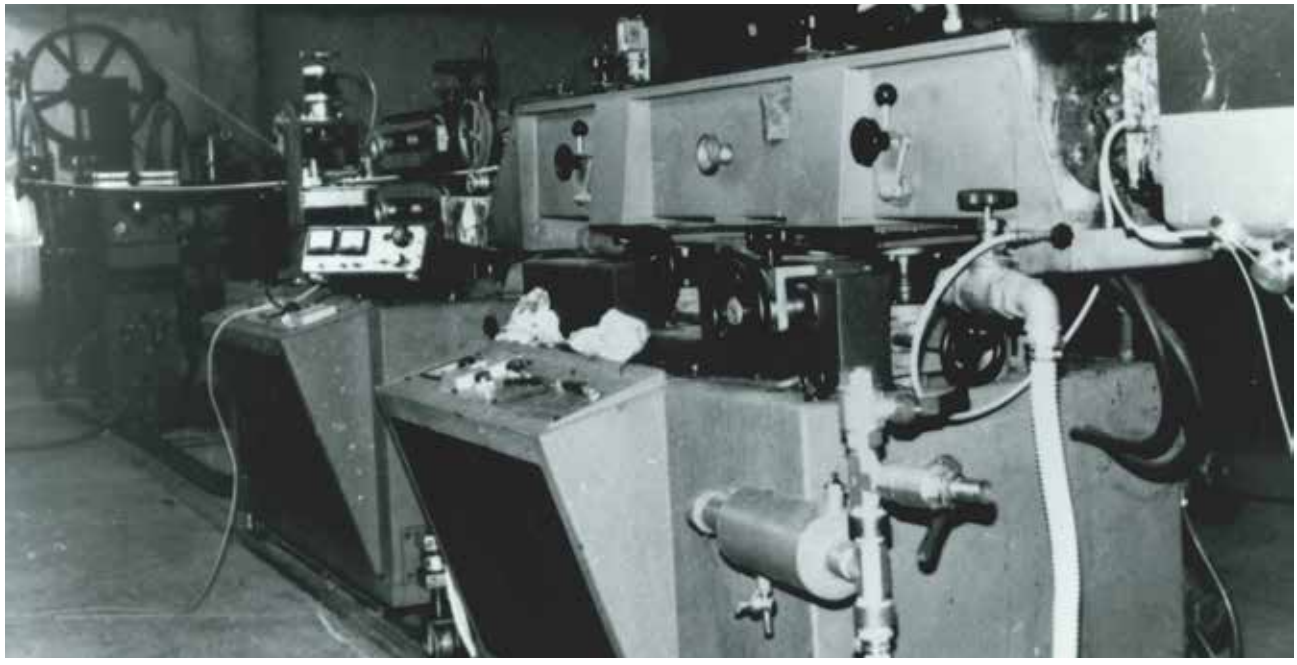
TO INDUSTRIAL

Fluid handling solution - thermoplastic and PTFE hose products and fittings designed and developed for markets like pharmaceutical, petrochemical, water and water treatment, chemical, food & beverages and covering a wide variety of applications such as sewer cleaning, injection moulding, paint spray, CNG transfer (CSA approved product and assembler) air breathing, air cylinder filling, beverage dispensing, indoor fogging and spraying. All supported by relevant and stringent international certifications.

TO UHP

Ultra High Pressure fluid handling solution – multispiral thermoplastic hose products and fittings designed and developed for applications ranging from 700 bar/10000 psi to 3800 bar/55000 psi and complying to the colour coding guideline set by the WJTA association. This state of the art product find its main application where extreme pressure is a must such as waterjet cutting, tube and pipe cleaning, surface preparation and paint removal, hydro demolition and waterblasting.

In a nutshell, Pure Fluid Attitude



Milestones

—1979

Transfer Oil is founded by Ferdinando Ferrari for the manufacturing of reinforced thermoplastic hoses for hydraulic applications.

—1981

Transfer Oil starts commercial activities in Europe and the first export take place with National and European distributors.

—1985

First steps toward OEM and process industrialization. The design and production of hoses for the high pressure washer cleaning industry are an important opportunity of growth.

—1992

Production plant expansion. Strong demand for Transfer Oil products calls for expansion of offices and production facilities.

—2004

Thinking about the future
After a strategic minority participation of an industrial group in the Transfer Oil capital, the majority shareholder gains control of 100% of the shares thanks to a leverage buy out. This change guarantees an important managerial and decision-making change for the future of the company.

—2006

New divisions
Launching of TO HYDRAULIC and TO INDUSTRIAL divisions widens the range to over 40 hose families. Spearheading the launch is the 10k psi VHP hose.

—2012

The expansion continues
The construction of a new 5100 sqm (16,732 sqf) adjacent plant allows to merge various processes and improve the workflow. The plant is a modern structure with a solar powered system that produce 1/5 of the total power demand.

—2015

Entering Ultra High Pressure
After a few years of research and product development Transfer Oil introduces the UHP Helix division: multispiral hoses for Ultra High-Pressure applications. Transfer Oil becomes the first independent manufacturer able to supply hoses from 20 to 3800 bar. (290 to 55k psi).

—2016 - 2018

Opening of three subsidiaries: Singapore, China and USA. These hubs allow a prompt response to our partners partners bringing Transfer Oil products “Made in Italy” closer to our customers thus promoting our brand outside Europe.

—2019

Set up of the VFT division. After the renovation of an old building, a new division for the production of valves, adapters, fittings and accessories for high pressure industry becomes a reality. Hence expanding Transfer Oil manufacturing boundries to stainless steel precision machining.

—2020

New offices, warehouse and production layout
The construction of a brand-new warehouse allows Transfer Oil to benefit of new logistic hub converging the various storage centers around the factory into one. The new headquarters offers innovative workstations, open space concept aiming at workers well-being.

Company and Product Certification

COMPANY CERTIFICATION

ISO 9001:2015
One of the first companies in our industry to achieve certification of its Quality Management System in accordance with the internationally recognised standard ISO 9001.

ISO 14001:2015
Environmental Management System in accordance with environmental standard ISO 14001.
A very significant and voluntary step that Transfer Oil decided to undertake.
This commitment, respect and protection of the environment is a guarantee of added value to services and products that Transfer Oil SpA proudly offers and exports all over the world.

ISO 45001:2018
Occupational health and safety management Systems. International practices to manage organically and systematically all issues concerning safety and health in the workplace to ensure compliance with current standards.

PRODUCT CERTIFICATION

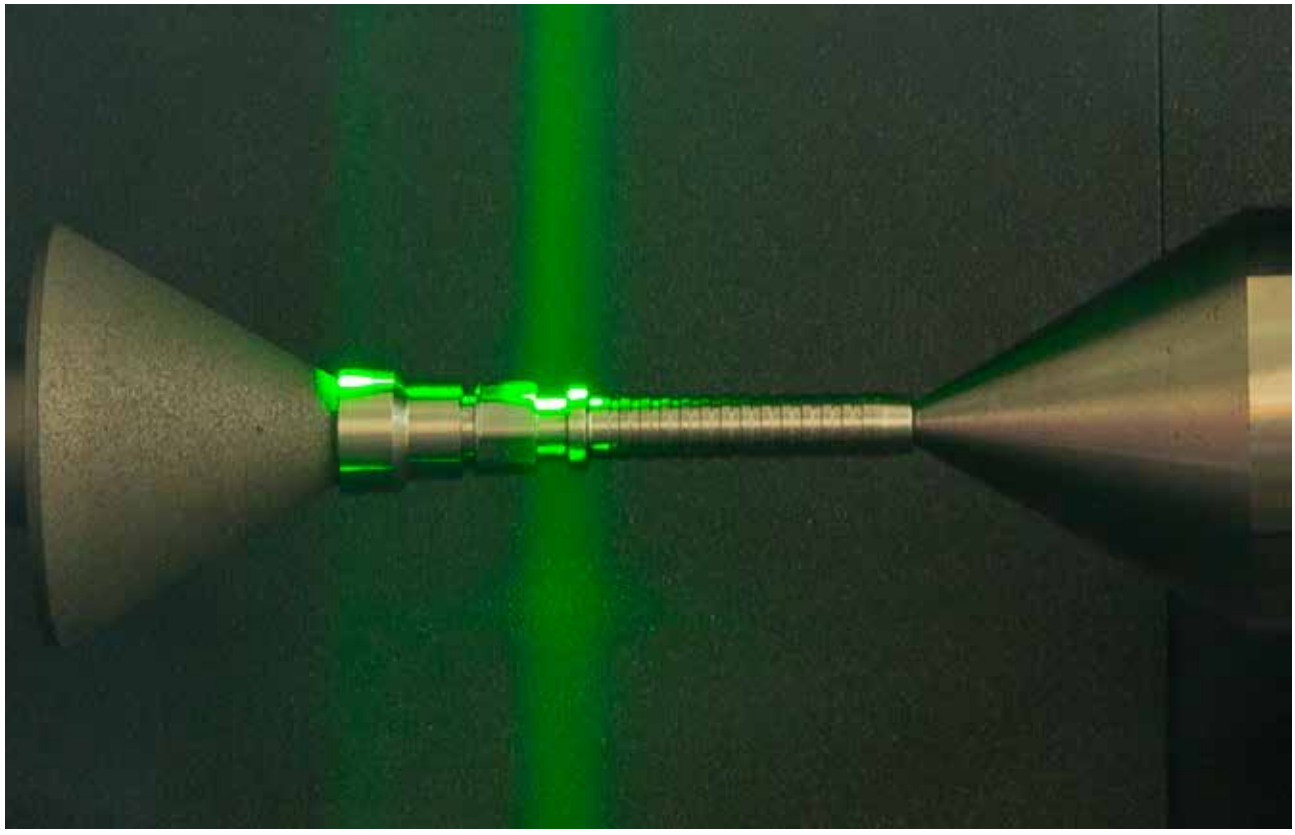
DNV type approval flexible hoses for CO2 systems
Specific type approval for Fire Extinguishing hose system.

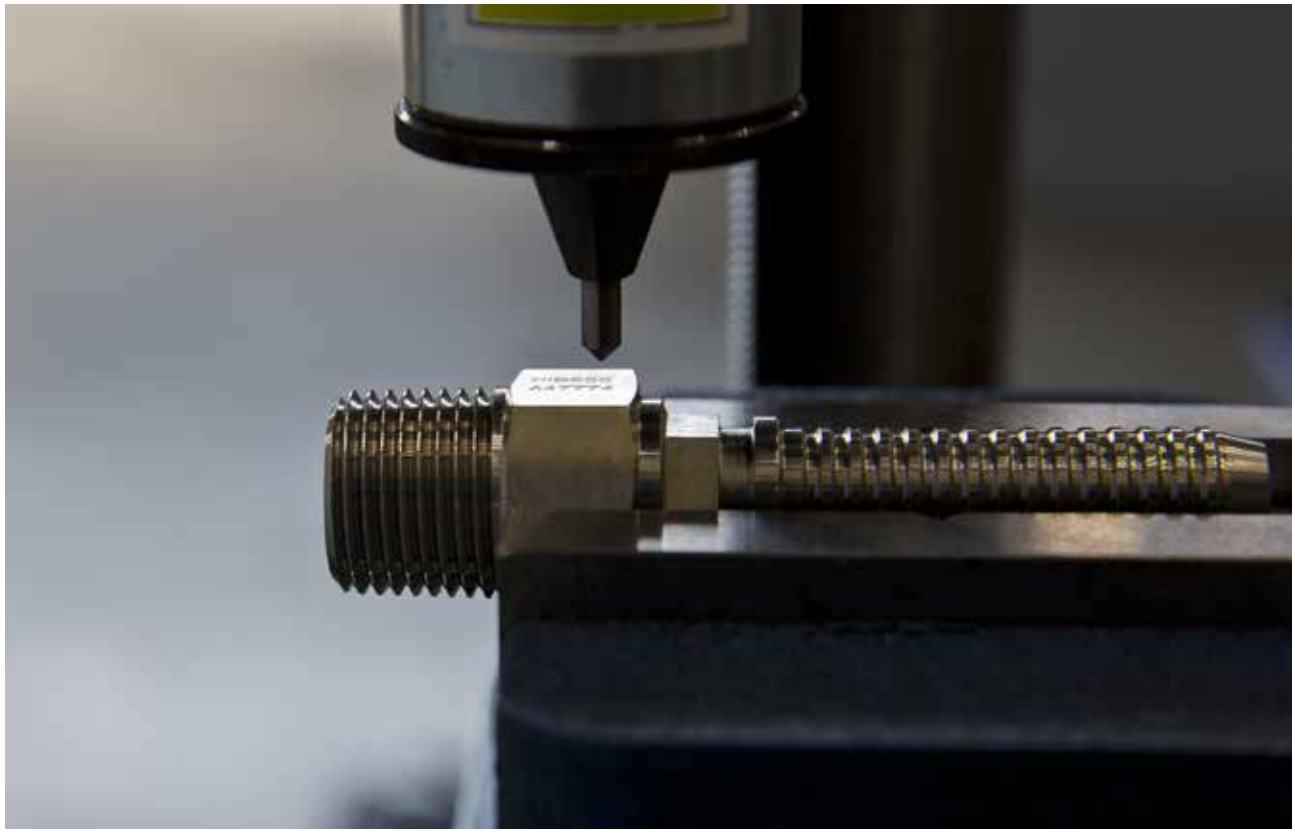
MSHA
Mine Safety and Health Administration. Synonymous of high quality and safety standard, due to the demanding level of flame resistant characteristics required.

CSA
Type approval for CNG gas applications.. The products are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US
(indicating that products have been manufactured to the requirements of both Canadian and US Standards).

ABS
American Bureau of Shipping type approval for use in Marine and Offshore Applications.

DNV GL
Type approval for use in Marine and Off Shore Applications.
Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.





Key List TO Ultra High Pressure

APPLICATIONS

Oil & Gas and Off–shore
Hose-bundles, chemical injection, control of subsea hydraulic components, subsea well control, gaseous media, methanol service such as oil rigs, distribution panels and umbilicals. High chemical resistance inner-tube available. Long lengths.

Water blasting
Applications for pressures up to 2800 bar. Ultra high-pressure waterjet cutting and hydro demolition such as cutting and demolition of armoured concrete, pipelines, paper or steel. Industrial cleaning services requiring Ultra High Pressures: tank and vessel cleaning, surface preparation, surface cleaning of buildings, paint removal.

Bolt–tensioning
Bolt tensioning systems and torque wrenching both for topside and subsea applications.

Heat exchanger
And tube cleaning where small bore routing is required.

Pressure test equipment
Such as valves, tooling and control panels, control of service equipment.

COLOR CODING

Transfer Oil has always been committed to the highest quality standards as well as to the application of the internationally recognized practices in Quality Health Safety and Environmental issues. This commitment led Transfer Oil to obtain ISO9001 – ISO14001 and BS-OHSAS 18001 certifications as well as various hose type approvals.
The globally recognized WJTA-IMCA association has recently issued a colour coding scheme recommendation aimed at hose manufacturers and assemblers.
The purpose of this recommendation is to help ensure on-the-job safety by making different hoses more easily identifiable on sight.
The colour coding scheme appears in the Recommended Practices for the Use of High Pressure Waterjetting Equipment.

10,000 psi — 690 bar

15,000 psi — 1034 bar

20,000 psi — 1379 bar

30,000 psi — 2068 bar

40,000 psi — 2758 bar

55,000 psi — 3792 bar

MEMBER
WJTA–IMCA™
WATERJET TECHNOLOGY ASSOCIATION AND
INDUSTRIAL & MUNICIPAL CLEANING ASSOCIATION

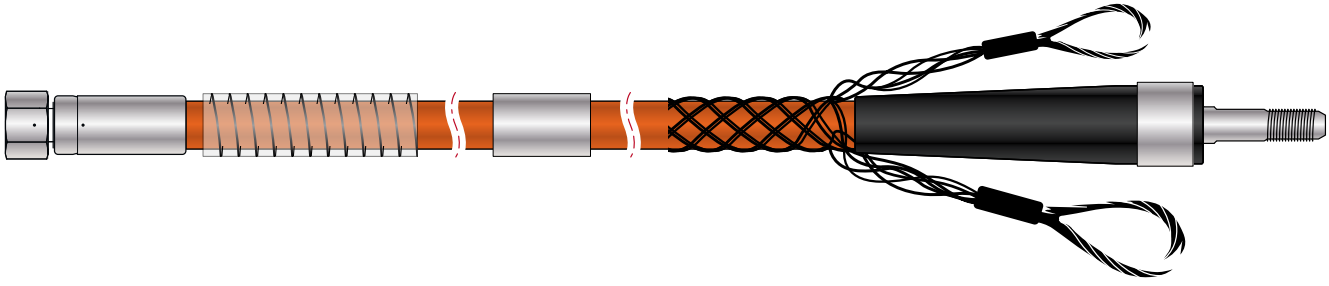
Hose Assembly

CUSTOMIZED HOSE ASSEMBLIES

When it comes to hose assemblies Transfer Oil provides the best UHP hose, fittings and accessories combination to satisfy market demand on tough applications like waterblast, heat exchanger tube cleaning, hydrodemolition equipment, hydraulic bolting, off-shore, paint removal, ship cleaning, surface preparation, removal of rubber streaks from airport runways and many more.
Hose assemblies have been Transfer Oil focus since entering the ultra high pressure market, and we endeavour to deliver top performing factory made assemblies always. We thoroughly test their strength and reliability with multiple quality checks before, during, and after assembly. Not one single component passes through our facility without being 100% inspected and tested to ensure that each assembly conforms to the operating conditions and meets our customer highest expectations.

HOSE SELECTION CRITERIA

To guide our customers through the ordering process of a hose assembly, we have featured below a typical hose assembly made up of all possible components that can be used on a single length of hose.
Hose selection must be made taking into consideration the **SIZE** of internal and external diameter and the length of the required assembly. Once the hose SIZE (ID x OD) and length is identified, make sure you have the working conditions right. Maximum **PRESSURE** of the system and any surge, must also be taken into account when selecting hose and fittings. **TEMPERATURE** (ambient and the maximum temperature of the material being conveyed).**APPLICATION** is also an important aspect when selecting a hose assembly. Application includes features like external conditions: abrasion, climate, heat, flexing, crushing, kinking, and degrees of bending)
Knowing what **MEDIA** is being conveyed, what kind of substance is it and chemical compatibility with the hose inner core and outer cover, will help in selecting the correct hose and fittings combination.
An assembly is not an assembly if the **END** fittings have not been selected. Knowing which fittings to mount is very important, and not necessarily be the same on both ends. The
DELIVERY is the final step that takes into account all the testing, quality check, packaging, and shipping requirements.



Protection jacket
A cristal clear PVC protection jacket or Extra tough cover with internal spiral for rough and harsh environment. Hose protection jacket is not a hose burst shield, and cannot be intended as protection for the operator from bursts, leaks or high pressure fluid injections.

Stainless steel catch ring
When using the Helix® UHP hose for cleaning of heat exchangers, the catch ring will assist the operator. Indicate at which distance from the end fitting it needs to be crimped on the hose.

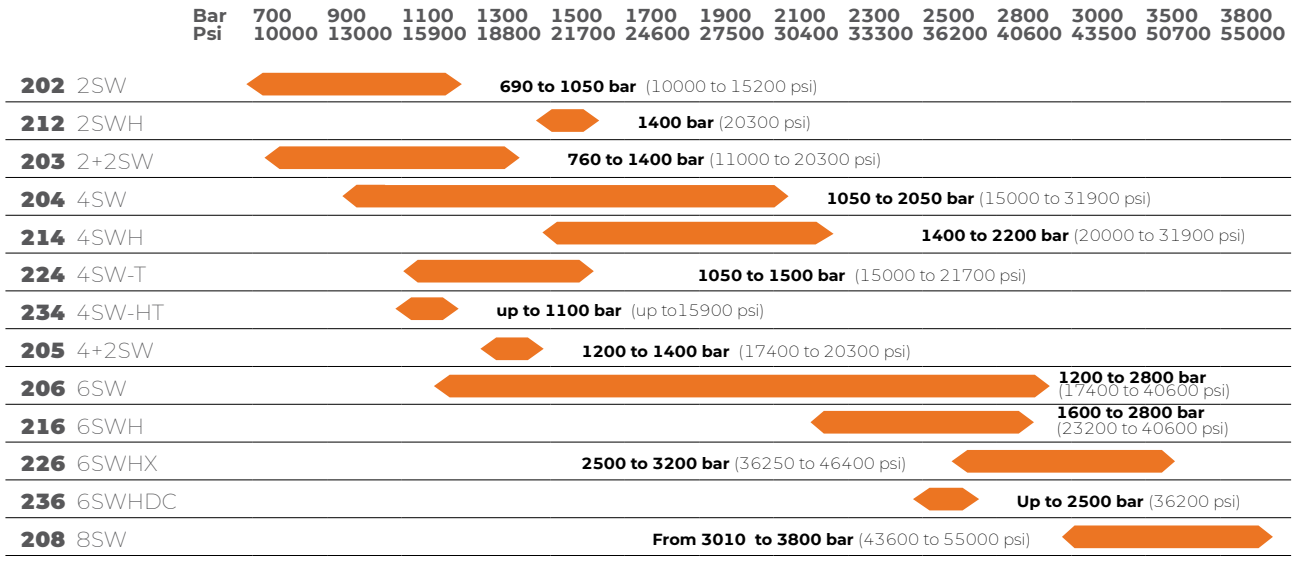
Hose arrestor
Hose arrestors are the safest way to restrain high-pressure hoses from whiplash in the event of a blow out, protecting operators and/or equipment. Strongly recommended for high-pressure applications. Pull strength ranging from 13,72 kN to 24,77 kN.

Bend restrictor
Transfer Oil bend restrictors are designed to protect the hose assembly from kinking and bending stresses at the hose and fitting junction that can occur during harsh operating conditions.

Hose selection by working pressure and ID

			Working pressure (Bar)								
			DN	3	4	5	6	8	10	12	20	25
			dash	-	-2	-3	-4	-5	-6	-8	-12	-1
	hose	color code	inch	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3/4	1
2SW	202B	●		1050								
	2020	●			1050							
	2021	●				1050						
	2022	●					1050					
	2023	●						1050				
	2024	●							690			
	2025	●								690		
2SWH	2120	●			1400							
	2121	●				1400						
2+2SW	2030	●			1400							
	2032	●					1400					
	2033	●						1400				
	2034	●							1050			
	2035	●								1050		
	2037	●									760	
4SW	2040	●			2050							
	2041	●				1800						
	2042	●					2050					
	2043	●						1500				
	2044	●							1400			
	2045	●								1300		
	2047	●									1050	
	2048	●										1050
4SWH	2140	●			2200							
	2145	●								1400		
4SW-T	2241	N/A				1500						
	2245	N/A								1050		
4SW-HT	2341	N/A				1100						
4+2SW	2055	●								1400		
	2057	●									1200	
6SW	2060	●			2800							
	2061	●				2500						
	2063	●						2050				
	2064	●							2050			
	2065	●								1800		
	2067	●									1400	
	2068	●										1200
6SWH	2161	●				2800						
	2162	●					2800					
	2163	●						2500				
	2165	●								2050		
	2167	●									1600	
6SWHX	2261	●				3200						
	2263	●						2800				
	2265	●								2500		
6SWHDC	2363	●						2500				
8SW	2081	●				3800						
	2083	●						3800				
	2085	●								3010		

Hose family selection by pressure rating



Pressure drop table

HOSE ID	1/8"		5/32"		3/16"		1/4"		5/16"		3/8"		1/2"		3/4"		1"	
Flow (l/min)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)	Speed (m/s)	Δp (bar)
2	4,7	10,8																
4	9,4	36,2																
6	14,2	73,8	8,0	18,8														
8	18,9	122,6	10,6	31,1	7,1	11,9												
10	23,6	181,9	13,3	46,1	8,8	17,5	5,5	5,7										
15			19,9	94,5	13,3	35,9	8,3	11,7										
20			26,5	157,6	17,7	59,8	11,0	19,4	6,8	6,1								
30					26,5	123,0	16,6	39,9	10,2	12,6	6,5	4,3						
40							22,1	66,7	13,6	20,9	8,7	7,1	5,1	2,0				
50									17,0	31,1	10,8	10,6	6,4	3,0				
100									34,0	108,0	21,7	36,6	12,8	10,3	5,9	1,6		
150											32,5	75,9	19,1	21,3	8,8	3,3		
200													25,5	35,7	11,8	5,6	6,9	1,6
300															17,6	11,6	10,4	3,2
400															23,5	19,5	13,8	5,4
500																	17,3	8,1
600																	20,7	11,3

KEY

Δp (bar) on a free lenght of 10m. Medium: water 20°C

Selection of an undersized hose could lead to high fluid velocity causing an excessive pressure drop and heat built up, with resultant damage to overall system performance. After determining the system pressure, hose selection should be made so that the recommended Max WP is equal or greater than the maximum system pressure.
Do not exceed the recommended working temperature.

Classification code

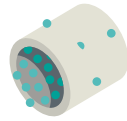
- Grey section of the table refers to velocity < 15 m/s (low drop pressure - recommended)
- Orange section of the table refers to velocity > 15 m/s (high drop pressure - not recommended)

Why Use Thermoplastic Hoses?

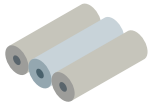
Chemical Resistance
Materials constituting Transfer Oil hoses are chemically resistant to a very wide range of fluids such as oils, solvents and gasses. Moreover there are special product able to withstand highly aggressive chemicals

Abrasion
Polyurethane or Polyester based elastomers are highly resistant to abrasion ensuring extended service life compared to standard rubber hoses

UV / Ozone & Seawater 4 Resistance
Standard cover materials used in TO hoses have remarkable resistance to ultraviolet radiation and ozone compared to rubber based elastomers. Transfer Oil also provides specific cover material (MARINER versions) for resistance in seawater environments



Permeation Resistance
Compared to rubber hoses, materials constituting inner tubes of Transfer Oil hoses have generally lower permeability rate for gasses



Twin Multiline
Thermoplastic hose can be bonded together as simple twin-line or in a variety of combinations of hose of differing pressures, tubes for electrical conduits or in certain applications with electrical cables

Cleanliness
Cleaner handling in the workshop. Yarn braided hoses can be cut/ prepared without the need for high powered cutting equipment in some cases simple hand or blade cutting equipment can be used. Clean inner tube reduce the contamination in hydraulic systems

Small ID
The benefits of having reduced pressure loss allows the customer to use a smaller hose ID for the same application, reducing costs and the entire weight of the system

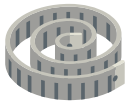
Compact OD
Reduced diameters allows the use of higher capacity hose reels and routing past obstructions in application

Low Weight
Lightweight, can be between 30-50% of conventional rubber hose

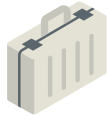
Reduced Bend Radii
This ensures easier routing in restricted or small constricted areas

Eco Hydraulic
Transfer Oil thermoplastic hose are compatible with many eco-fluids and biodegradable fluids

Longer Shelf Life
Will not degrade when stored under correct conditions



Long Length
The production of thermoplastic hoses is mandrel free and high load capacity braiders can make continuous long length of hose without any interruption on tube, braids or cover



Hose and Fitting System
Transfer Oil fittings have been designed and tested in order to reach the best performance with Transfer Oil hoses. Available in carbon steel and stainless steel

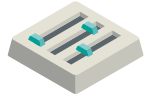
Highest Pressure
Transfer Oil hoses have a wide range of working pressure from 20 to 4000 bar, covering low, high, very high (VHP) and ultra high (UHP) pressure range

Minimal Volumetric Expansion
Due to lower elongation properties of reinforcing yarn braids, we have reduced pressure loss, and faster response time of hydraulic circuits, reduced oil / fluid requirement

Temperature Range
Standard hydraulic hoses have a temperature range of -40 °C to +100 °C (-40 °F to +212 °F), limited to +70 °C (+158 °F) for air and water based fluids. TO also developed special products which have an increased temperature range. CPLT hoses can be used down to -55°C a nd for PTFE hoses the temperature range is from -60°C to +260°C

Non Conductive
In high voltage environments (e.g. near electrical power lines) or for some specific hydraulic applications the importance to have a non-conductive hose is crucial for safety reasons. Transfer Oil provides a large number of non-conductive hoses, which meet standards SAE J517/J343 and ISO 3949 for non-conductivity

Extruded Outer Covers
which are Polyurethane or Polyester based elastomers. Available in a wide variety of colours, all cover materials are UV stabilised and are highly resistant to abrasion ensuring extended service life. Cover variations include properties that are resistant to a wide range of fluids, chemicals and extremities of temperature and atmospheric conditions



Customization
Transfer Oil thermoplastic hoses can be customized in terms of color of the hose cover, branding and the choice of different packaging. Black or white ink jetting provides a cost effective way to provide special branding including logos. Twin or multiline products can be made if requested

Thermoplastic Hose Installation Factors

The specifications and particular conditions of use also determine the limits for the correct use of Transfer Oil products. Accordingly, Transfer Oil can neither declare nor guarantee that any item will be suitable for a given applications: it is the business of users to apply their knowledge of the relevant details and carry out such tests as may be needed to ensure the selection of the item best suited for the particular requirements, eliminating risks to themselves, to the product, and to third parties.

Users are strongly advised in their own interest, before making any final decision on the item, to consult the full range of information supplied in the Transfer Oil technical literature, catalogues, website and appendixes. To eliminate any element of doubt, the Transfer Oil sales department will obviously be at the customer's disposal to provide further information and respond to any request for clarification.

Important note for users

Hose and UHP hose assemblies require caution in use not only to provide long service life but also to guard against potentially dangerous failure. Serious injury, death and destruction of property can result from the rupture or blowing-apart of a hydraulic hose | UHP hose assembly that is damaged, worn out, badly assembled or installed incorrectly. Users should follow good maintenance practices. Avoid expensive downtime by establishing a program of inspection, testing and replacement of hose assemblies before failure occurs; taking into account factors including: severity of application, frequency of equipment use, past performance of hose assemblies. Document your maintenance, inspections and testing.

Only properly trained persons should inspect, test or service hose assemblies and this training should be updated regularly. Users should carefully observe the precautions listed below as well as following closely our recommendations for the selection of hose and couplings. In addition, care should be taken not to go below the minimum bend radius listed for each hose size and type. Maximum operating pressure should not exceed the pressures listed. Instruction for assembling fittings to different hoses should be followed carefully to ensure the safe performance of the complete assembly.

By following the recommendations on hose assembly routing and installation, improved safety and longer service life of any hose installation will result. Hydraulic fluid and water under pressure can be potentially dangerous! An explosive burst or stream of escaping fluid can cause damage to equipment as well as serious injury to persons nearby.

Salient information

Highly pressurized fluid escaping from a small pinhole can be almost invisible and, yet, exert extreme force capable of penetrating the skin and other body tissues, causing possible severe injury.

Hot fluids or chemicals can cause severe burns. Pressurized fluids, if released uncontrolled, can exert a tremendous explosive force.Some hydraulic fluids are highly flammable.

Precautions

Wear safety glasses and proper protection clothes. Do not use your hands to check for leaks. Do not touch a pressurized water or hydraulic hose assembly with any part of your body, if fluid punctures the skin, even if no pain is felt, a serious emergency exists. Obtain medical assistance immediately. Failure to do so can result in loss of the injured body part or death. Stay out of hazardous areas while testing hose assemblies under pressure. Use proper safety protection. If an injury or reaction occurs, get medical attention right away. Use only non conductive thermoplastic hoses where electrical conductivity is not desired: for instance, equipment working on electric power lines.

TRANSFER OIL hose and fitting are designed, engineered and tested to be used together in an assembly. The use of TRANSFER OIL fittings on other manufactures hose or the use of TRANSFER OIL hose with other manufactures fittings may result in the production of unreliable or unsafe assemblies. UHP hose and hydraulic hose (and hose assemblies) has a limited life dependent on service conditions to which it is applied. Subjecting hose (and hose assemblies) to conditions more severe than the recommended limits significantly reduce service life. Exposure to combinations of recommended limits (i.e. continuous use at maximum rated working pressure, maximum recommended operating temperature and minimum bend radius) will also reduce service life.

WARNING!

Failure to follow proper selection, installation and maintenance procedures may result in premature failures, bodily injury, and damage to property.

Pressure

After determining the system pressure for an hydraulic system, hose selection must be made so that the recommended maximum operating pressure specified by a given hose, is equal or greater than the maximum system pressure.

Continuous use at maximum temperatures together with maximum pressures should always be avoided.Continuous use at or near the maximum temperature rating will cause a deterioration of

physical properties of the tube and cover of most hose. This deterioration will reduce the service life of the hose.

Pressure surges which exceed the maximum working pressure (pressure relief valve setting) affect the service life of system components, including a hose assembly and therefore need to be taken into consideration. Hoses used for suction lines must be selected to ensure the hose will withstand the negative pressure of the system.

Burst pressure
These are test values only and apply to hose assemblies that have not been used and have been assembled for less than 30 days.

High pressure gas
High pressure gaseous systems especially over 15 bar or 250 psi are very hazardous and should be adequately protected from external shock and mechanical or chemical damage. They should also be suitably protected to prevent whiplash action in the event of failure. TRANSFER OIL Thermoplastic hose is not recommended for high pressure pure oxygen charging applications.

Temperature
Care must be taken to ensure that the operating temperature of the fluid being conveyed and ambient temperatures do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds or molten metal.

Fluid compatibility
Hose selection must assure compatibility of the hose tube, cover, reinforcement, and fittings with the fluid used. Additional caution must be observed in hose selection for gaseous applications. Some fire resistant fluids require the same hose as petroleum oil. Some use a special hose.

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, solvents and other media, and refrigerants (including but not limited to such materials such as helium, fuel oil, natural gas or freon). This permeation may result in high concentrations of vapours which are potentially flammable, explosive, or toxic, and in loss of fluid. Even though the fluid compatibilty is acceptable, you must take into account the fact that permeation will occur and could be hazardous.

Permeation of moisture from outside the hose to inside the hose will also occur. 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.

Routing
Attention must be given to optimum routing to minimise inherent problems. Restrain, protect or guide hose with the use of clamps if necessary to minimise risk or damage due to excessive flexing, whipping or contact with other moving parts or corrosives. Determine hose lengths and configurations that will result in proper routing and protection from abrasion, snagging or kinking and provide leak resistant connections. Care must be taken to ensure that the hose and fittings are either compatible with or protected from the environment to which they are exposed.

Environmental conditions including but not limited to ultraviolet light, heat, ozone, moisture, water, salt water, chemicals, and air pollutants can cause degradation and premature failure and, therefore, must be considered.

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 part of the body.

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.

Mechanical loads
External forces can significantly reduce hose life. 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 adaptors may be required to ensure no twist is put into the hose. Unusual applications may require special testing prior to hose selection.

External pressure
In certain applications, such as in autoclaves or under water, the external environmental pressures may exceed the fluid pressure inside the hose. In these applications, consider the external pressures, and, if necessary, consult the manufacturers.

Abrasion
While a hose is designed with a reasonable level of abrasion resistance, care must be taken to protect the hose from excessive abrasion which can result in erosion, snagging, and cutting of the hose cover.

Exposure of the reinforcement will significantly accelerate hose failure.

Proper end fitting
Care must be taken to ensure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations.

Hose-assembly fabrication
Persons fabricating hose assemblies should be trained in the proper use of equipment and materials. The manufacturers' instructions must be followed. Properly assembled fittings are vital to the integrity of a hose assembly.Improperly assembled fittings can separate from the hose and may cause serious injury or property damage from whipping hose, or from fire or explosion of vapour expelled from the hose.

Length
When establishing proper hose length, motion absorption, hose length changes due to pressure, as well as hose and machine tolerances must be considered.

Specifications and standards
When selecting hose and fittings, government, industry and manufacturer's specifications and recommendations must be reviewed as applicable.

Electrical conductivity
Certain applications require that a hose be non-conductive to prevent electrical current flow. Other applications require the hose 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 non-conductivity is a factor. For application that require hose to be electrically non-conductive, including but not limited to applications near high voltage electric lines, only special non-conductive hose can be used.

The manufacturer of the equipment in which the non-conductive 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 TRANSFER OIL hose or fitting for any application requiring non-conductive hose, including but not limited to applications near high voltage electric lines, unless:

- the application is expressly approved in the TRANSFER OIL technical publication for the product
- the hose is both orange in colour and marked "non-conductive" (see non-conductive hoses)
- the manufacturer of the equipment on which the hose is to be used specifically approves the particular TRANSFER OIL hose and fitting for such use.

The electrical conductivity or non-conductivity of hose and fittings is dependant 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, manufacturing methods (including moisture control), how the fittings contact the hose, age and amount of deterioration of damage or others changes, moisture content of the hose at a particular time, and other factors.

Static-electric discharge
Fluid passing through hose can generate static electricity resulting in static-electric discharge. This may create sparks that can puncture hose. If this potential exists, select hose with sufficient conductivity to carry the static-electric charge to the ground.

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 avoid sharp bending at the hose/fitting juncture.

Twist angle and orientation
Hose installations must be such that relative motion of machine components does not produce twisting.

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, a contact with other mechanical components.
Care must be taken to ensure such restraints do not introduce additional stress or wear points.

Proper connection of ports
Proper physical installation of the hose requires a correctly installed port connection while ensuring that no twist or torque is transferred to the hose.

External damage
Proper installation is not complete without ensuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated.

Unintended uses
Hose assemblies are primarily designed for the internal forces of conducted fluids. Do not pull hose or use it for purposes that may apply external forces for which the hose or fittings were not designed.

Cutting of thermoplastic hoses with steel braid reinforcement
We recommend the use of slotted circular saw blades as a suitable tool for cutting thermoplastic hoses. The use of jagged or toothed blades may cause a cut of poor quality, causing a significant flaring, with consequent difficulties in inserting the ferrule. Blades need to be kept sharp at all times.

Storage
Reference for Storage and Maintenance should be made to ISO 8331 Rubber and plastics hose and hose assemblies - Guide to selection, storage, use and maintenance.
Hoses should be stored inside, not outside, and on a shelf, not on the floor. Hoses should be stored away from sunlight, strong artificial light or strong heat sources.
Hoses should not be stored in contact with, or close to, certain products, or their vapours, particularly solvents, oils, greases, acids, disinfectants.
If the hose assembly is to be cleaned before use than water only is to be recommended. Use of chemical cleaners may affect the product depending on the type used.
Hose should be stored in the original packaging until required. Thermoplastic hose should not be stored in contact with other products.

Even with proper selection and installation, hose life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential. A maintenance program must be established and followed to include the following as a minimum:

Visual inspection hose/fitting
Any of the following conditions require immediate shut down and replacement of the hose assembly:
- Damaged, cut or abraded cover (any reinforcement exposed).
- Hard, stiff, heat cracked, or charred hose.
- Cracked, damaged, or badly corroded fittings.
- Leaks at the fitting or in the hose.
- Kinked, crushed, flattened or twisted hose.
- Blistered, soft, degraded, or loose cover.

Visual inspection all other
Any of the following conditions require immediate shut down and replacement of the hose assembly:
- Leaking port conditions.
- Clamp, guards, shields.
- System fluid level, fluid type and any air entrapment.
- Remove excess dirt build - up.
-

Replacement intervals and Storage
Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage, or injury risk.
Reference for Storage and Maintenance should be made to ISO 8331 Rubber and plastics hose and hose assemblies - Guide to selection, storage, use and maintenance. Hoses should be stored inside, not outside, and on a shelf, not on the floor. Hoses should be stored away from sunlight, strong artificial light or strong heat sources. Hoses should not be stored in contact with, or close to, certain products, or their vapours, particularly solvents, oils, greases, acids, disinfectants. If the hose assembly is to be cleaned before use than water only is to be recommended. Use of chemical cleaners may affect the product depending on the type used. Hose should be stored in the original packaging until required. Thermoplastic hose should not be stored in contact with other products.

Thermoplastic Hose Installation Factors

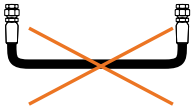
CORRECT ASSEMBLY INSTALLATION
Satisfactory performance and appearance depend upon proper hose installation.

Excessive length destroys the trim appearance of an installation and adds unnecessarily to the cost of the equipment.

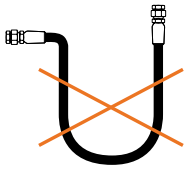
Hose assemblies of insufficient length to permit adequate flexing, expansion or contraction will cause poor power transmission and shorten the life of the hose.

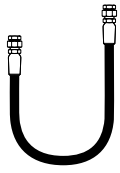
The diagrams below offer suggestions for proper hose installations to obtain the maximum in performance and economy.

Since hose may change in length under the surge of high pressure, provide sufficient slack for expansion and contraction.

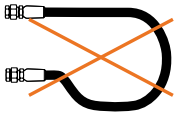


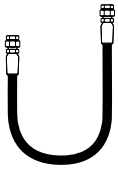
Hose should exit coupling in a straight position rather
than side loaded. The minimum bend radius must not
be exceeded to avoid kinking of hose and flow restriction.



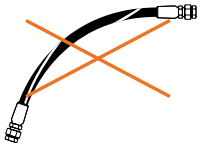


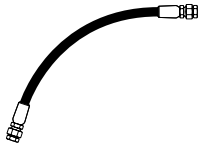
Where the radius falls below the required minimum, an angle adapter should be used to avoid sharp bends
in hose.





Avoid sharp twist or bend in hose by using proper angle adapters.





Hose is weakened when installed in twisted position. Also, pressure pulses in twisted hose tend to fatigue wire
and loosen fitting connections. Design so that machine motion produces bending rather than torsion.

Chemical Compatibility

Notes on the chemical resistance table
The fluid resistance tables are simplified rating tabulations based on immersion tests at ambient temperature 25°C. Higher temperatures tend to reduce ratings. Since final selection depends on pressure, fluid and ambient temperature and other factors, no performance guarantee is expressed or implied. The indications do not imply any compliance with standards and regulations and do not refer to possible changes of colour, taste or smell. For food and drinking water specially approved materials have to be used. For fluids not listed or for advice on particular applications, please consult Transfer Oil. Hose applications for these fluids must take into account legal and insurance regulations. The chemical resistance indicated does not express or imply approval by certain institutions. For gas applications, the cover should be pin-pricked. Chemical resistance does not imply low permeation rates. The indication of chemical resistance does not imply any special food compatibility; it refers only to the chemical resistance of the material.

Classification code
A The fluid has a minimum or absent effect
B The fluid has a weak or moderate effect
C The fluid has a serious effect
– Not available

Chemical product	Polyes-ter	Poly-amide	Poly-ure-thane	POM
Acetaldehyde	-	A	C	A
Acetic Acid, 10%	A	B	C	A
Acetone	B	A	C	A
Acetylene	A	-	-	A
Ammonia 10%	-	A	C	A
Ammonium Carbonate, 10%	-	-		-
Ammonium Chloride, 10%	A	A	-	B
Ammonium Hydroxide	-	-	C	C
Ammonium Sulfate	B	-	-	B
Amyl Acetate	B	B	C	B
Amyl Alcohol	A	A	C	A
Aniline	C	B	C	-
Antimony Chloride, 10%	-	-	-	-
Astm Fuel A	A	A	-	-
Astm Fuel B	A	A	-	-
Astm Fuel C	B		-	-
Astm Oil N. 1	A	A	B	-
Astm Oil N. 3	A	B	-	-
Atrazine	A	-	-	-
Barium Chloride, 10%	-	-	A	A
Barium Sulfate, 10%	-	-	A	B
Beer	A	A	A	A
Benzene	B	A	C	B
Benzoic Acid, 10%	-	B	-	B
Borax Solutions	A	A	A	B
Boric Acid, 10%	A	A	A	A
Bromine (Anhydrous)	C	C	C	-
Bromine Water, 25%	-	-	-	-
Butane	A	A	A	A
Butyric Acid, 10%	-	B	-	B
Butyl Acetate	B	A	C	A

Chemical product	Polyes-ter	Poly-amide	Poly-ure-thane	POM
Butyl Alcohol	-	A	C	A
Calcium Chloride, 5%	A	A	A	-
Calcium Hypochlorite, 5%	A	-	C	-
Calcium Thiocyanate	-	-	-	-
Carbon Dioxide	A	A	A	A
Carbon Disulfide	B	A	-	A
Carbon Monoxide	A	-	A	A
Carbon Tetrachloride	B	B	C	A
Carbonic Acid, 10%	A	-	A	-
Chlorine (Dry)	C	C	C	C
Chlorine (Wet)	C	C	C	C
Chloroacetic Acid, 10%	C	C	C	C
Chlorobenzene	C	C	C	B
Chloroform	C	C	-	C
Chlorosulfonic Acid	C	C	C	C
Chromic Acid, 10%	C	C	C	C
Citric Acid Solutions	A	-	B	B
Copper Chloride, 10%	A	-	A	A
Copper Cyanide	-	-	A	A
Copper Sulfate Solutions	A	-	A	A
Cottonseed Oil	A	-	A	-
Cresol	-	-	C	C
Cyclohexane	A	A	B	A
Dibutyl Phthalate	A	A	C	A
Diethyl Sebacate	A	-	B	A
Dioctyl Phthalate	A	-	B	
Ethanolamine	-	-	C	C
Ethyl Acetate	B	A	C	B
Ethyl Alcohol	A	A	B	-
Ethylene Chloride	C	B	B	A
Ethylene Glycol	A	A	B	B

Chemical product	Polyes-ter	Poly-amide	Poly-ure-thane	POM
Ethylene Oxide	A	-	C	C
Ferric Chloride Solutions	-	-	A	B
Fluorine	C	C	C	C
Formaldehyde, 40%	B	B	C	A
Formic Acid	B	C	C	B
Freon R 407C	A	-	C	A
Freon R134a	A	-	-	A
Gasoline	B	A	-	A
Glycerin	A	A	B	A
Glycolic Acid	-	-	-	-
Hexane	A	A	B	A
Hydrazine	C	-	C	B
Hydrochloric Acid, 10%	B	C	C	C
Hydrogen	A	A	A	A
Hydrogen Peroxide, 5%	-	B	-	-
Hydrogen Sulfide, 5%	A	C	-	C
Isooctane	A	A	B	A
Isopropyl Alcohol	A	B	-	A
Lactic Acid, 10%	-	A	-	A
Linseed Oil	A	A	-	-
Mercury	A	A	A	A
Methyl Alcohol	A	A	C	-
Methyl Chloride	C	C	C	B
Methyl Ethyl Ketone	B	A	C	B
Methylene Chloride	C	C	C	B
Mineral Oil	A	A	A	A
Naptha	A	A	C	A
Napthalene	B	A	B	A
Nitric Acid, 10%	B	C	C	C
Nitric Acid, 30%	C	C	C	C
Nitrobenzene	C	B	C	B
Nitromethane	-	A	-	A
Oil Fiat Tutela Lhm	A	-	-	-
Oil Kluber Summit Hy Syn Fg 22	A	-	-	-
Oil Panolin 9632	A	-	-	-
Oil Panolin Hlp Synth	A	-	-	-
Oil Pentosin Super Dot 4	-	A	-	-
Oleic Acid	A	A	B	A
Oleum, 20-25%	C	C	C	C
Palmitic Acid	A	-	A	A
Perchloric Acid, 10%	-	-	-	B
Perchloroethylene	C	A	C	A
Petrol	B	A	B	A

Chemical product	Polyes-ter	Poly-amide	Poly-ure-thane	POM
Phenol	C	C	C	C
Phosphoric Acid (10%)	-	-		A
Phosphoric Acid, 50%	-	-		C
Potassium Carbonate, 20%	-	-	-	-
Potassium Carbonate, 20%	-	-	-	-
Potassium Chloride, 90%	-	-	A	A
Potassium Hydroxide, (10%)	B	B	C	A
Potassium Permanga-nate, 5%	C	C	C	-
Potassium Thiocyanate	-	-	-	-
Pydraul 312	A	A	C	-
Sea Water	A	A	A	A
Shell Brake Fluid Dot4		A	-	-
Silicone Oils	A	A	A	A
Skydrol 500B	A	-	C	-
Soap Solution	A	A	A	A
Sodium Acetate, 60%	-	-	C	B
Sodium Bicarbonate	-	A	-	A
Sodium Carbonate	-	A	-	A
Sodium Chloride, 10%	A	A	A	A
Sodium Hydroxide, 10%	A	A	B	A
Sodium Hydroxide, 20%	A	A	B	A
Sodium Hydroxide, 50%	B	C	C	A
Sodium Hypolchlorite, 5%	A	B	C	B
Sodium Nitrate, 5%	-	-	-	A
Sodium Sulfate, 90%	-	-	A	B
Sodium Sulfide	-	-	-	B
Steam (100°C)	C	C	C	-
Sulfur Dioxide	-	-	-	-
Sulfuric Acid > 50%	C	-	C	C
Sulfuric Acid, 10%	A	B	C	A
Sulfuric Acid, 20 - 50%	A	B	C	C
Sulfurous Acid, 10%	B	-	C	B
Tannic Acid, 10%	A	-	A	B
Tetrafluoro Propane	-		-	-
Tetrahydrofuran	B	-	C	B
Toluene	B	A	C	A
Trichloroethylene	C	B	C	B
Triethanolamine	C	-	C	-
Trisodium Phosphate	A	-	-	A
Water	A	A	A	A
Xylene	B	A	C	A
Zinc Chloride, 10%	A	A	-	C

Installation and operation Instructions

These instructions have been prepared with reference to DIN EN 1829-2 High-pressure water jet machines-Safety requirements Part 2 Hoses, hose lines and connections. The instruction are for proper use of Hose assemblies manufactured by Transfer Oil and certified Transfer Oil assemblers.

These instructions much be read and understood prior to use of Hose assembly. Additional safety requirements issued by governments, trade associations or machine manufacturers must be adhered to.

LIST OF SIGNIFICANT HAZARDS

General
This clause contains the significant hazards, hazardous situations and events identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

Hazards due to leaking or bursting of hoses.
Hazards can occur when a hose bursts or leaks. The escaping stream of liquid can cause physical damage and also a sudden repositioning of the hose line in a dangerous manner (whip).

Hazards due to failure of connectors
Hazards can occur when a connector fails. The escaping stream of liquid can cause physical damage and also sudden repositioning of the hose line in a dangerous manner (whip).

Hazards due to errors by the operator
Hazards can occur if the operator uses incompatible substances or incompatible components. Hazards can also occur if the operator exceeds the limits of use specified by the manufacturer (e.g. too high pressure, too high tensile stress).

Hazards due to change in length of hose line
Hazardous situations occur when there is a sudden change of pressure in the hose line causing a change in length resulting in the operators losing their firm hold.

Warning
An injury caused by high pressure waterjet can be serious. In the event of any waterjet injury seek medical attention immediately. Do not delay. Inform the doctor of the cause of the injury.

Product Description
Hose assemblies manufactured from Transfer Oil High pressure hose using Transfer Oil manufactured and homologated fittings assembled according to Transfer Oil procedures. Assemblies may also incorporate a number of accessories. Each hose assembly has been proof pressure tested after completion and certified.

Marking
Hose lines are marked with manufacturer, Part number, Maximum working pressure for water jetting applications for hose only, batch number of hose only.

Ferrules are marked with manufacturer logo, the month and year of manufacture, assembly part number, unique assembly batch number, assembly length in meters and feet, Maximum working pressure of the hose assembly in bar and psi. Other information may be included.

Hose assemblies may also contain additional warnings often by means of a label attached to the hose assembly.

The Maximum working pressure of the hose assembly is that marked on the hose ferrule.

For certain applications or end termination types the hose assembly may have a lower maximum working pressure then that printed on the hose line.

Installation
Only competent and trained personnel should install high pressure hose assemblies.

The maximum working pressure shall not be exceeded

The hose must not be bent to lower than the stated minimum bend radius for the hose type

Do not twist or kink hose. Do not pull on hose loops. Allow for change in length of hose assembly under pressure up to +/-2%.

Check pressure rating of hose assembly is equal to, or lower than, pump pressure.

Check hose cover for damage, fittings for corrosion and threads and sealing faces for damage.

Check connections of fitting matches those of the machine

Remove protection caps immediately prior to installation.

During first use slowly build up the pressure and check the hose installation for leakages and proper behaviour under pressure.

Risk assessment will be required for use of the hose assemblies in explosive atmospheres. The hose will usually be electrically continuous from fitting to fitting via the steel spiral reinforcement but the hose cover and protection sleeves, if used, would be electrically insulating materials.

Correct use
Always wear protective gloves, face protection, garments and footwear when handling high pressure hose and waterjet lances. They must be specifically recommended for the application.

Hose assembly is intended for use with water. Use only clean filtered water For other media ensure suitable and compatibility for intended application.

Assemblies are designed for temperature usage -30 centigrade to +70 centigrade. Measures need to be taken to prevent freezing of media inside the hose in cold climates. Ensure hose assemblies used in hot climates do not exceed the maximum temperature of 70 centigrade.

Before performing any work on the connections always relieve the pressure. Never disconnect a hose under pressure.

If blistering or bubbles on the hose cover is noticed or leakage through the fitting or relief hole than the hose assembly must be taken out of service immediately.

Do not let the hose hang under its own weight for example when working on tall buildings or towers. The weight of the hose must be independently supported.

Clean, drain and neatly coil hoses after use. Water or soap and water should be used to clean the hose assembly. Never use solvents or strong detergents.

Risks or hazards may occur when the positioning of the hose is likely to cause people to trip. Hoses should not be run over by vehicles.

Storage
Hose assemblies must be stored in dry conditions away from rain and moist condition and away from direct sunlight. Protect the assemblies from heat sources and ozone sources.

Store hoses in unstressed condition, respecting the minimum bend radius limitations and in a horizontal position. Do not hang hoses from hooks or pegs.

Keep protective caps on the end fittings until immediately prior to use.

Maintenance and inspection
Before each use inspect the entire hose assembly for the following

Damage to hose cover such as abrasion, cuts or cracks. If the steel wire reinforcement is visible the hose should be taken out of service immediately. No attempt should be made to repair the hose cover.

Unnatural shape or movements of the hose when pressurised or depressurised may indicated degradation of the reinforcement layers. The hose should be taken out of service.

If observed that the hose is kinked or kinked at the fitting then the hose must be taken out of service immediately.

If bubbles or blisters are noted on the cover then the hose must be taken out of service immediately.

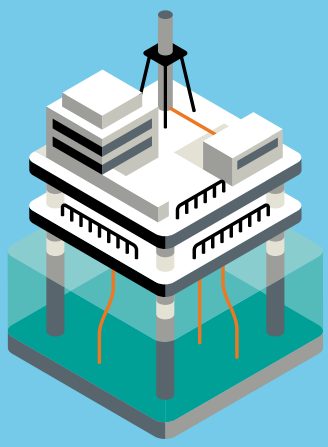
Hose with corroded or leaking end fittings must be taken out of service immediately.

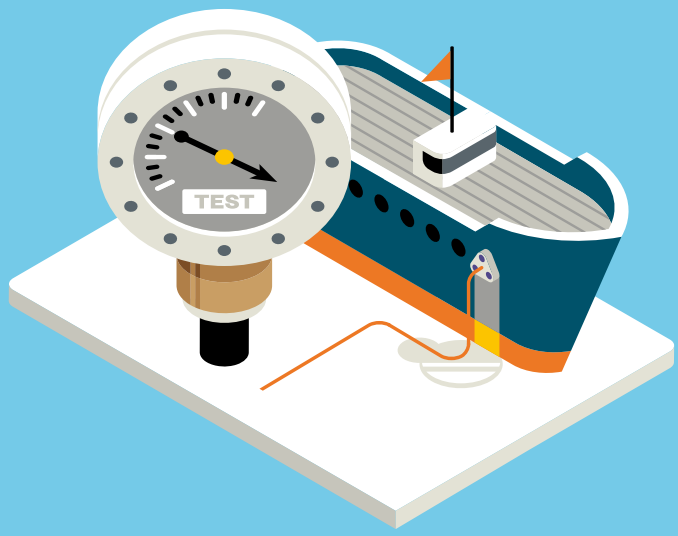
Service life and replacement intervals.
Hose assemblies are used in a great variety of applications with many variables involved. Therefore Transfer Oil is unable to guarantee a specific service life for a specific or particular application. No hose assembly will last indefinitely in any application. Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage or injury risk.

Hose Repair
Any hose repair must only be performed by Transfer Oil or Transfer Oil authorised assemblers. In general Transfer Oil advises against the repair of hose assemblies as the capabilities of a hose assembly that has already been in service has been reduced. However in certain circumstances repair is permissible within restrictions.

UHP

Multi Spiral Ultra High Pressure hoses and fittings (up to 3800 bar/55000 psi), characterized by a combination of different spiral steel reinforcement layers, perfect for waterjet cutting, tube & tanks cleaning, surface preparation & paint removal, hydro demolition, ships & vessel cleaning, waterblast and general industrial cleaning.





UHP HELIX original parts. Use UHP inserts and ferrules.

The safety factor between the burst pressure and working pressure depend on the application requirements. Four to one safety factor should be used in dynamic impulsing hydraulic applications. Miminum four to one safety factor should be used with gasses and the hose must be pinpricked.

The maximum WORKING PRESSURE of an assembly is given by the component having the lowest working pressure. This means that if the working pressure of a fitting is lower than the working pressure of the hose, the WORKING PRESSURE of the fitting becomes the WORKING PRESSURE of the entire assembly. The maximum WORKING PRESSURE of the assembly can be found marked on each sleeve of the assembly and on the pressure test report.

202 2SW

Thermoplastic Hose for Ultra High Pressure Applications
From 690 to 1050 bar (10000 to 15000 psi)

FEATURES

Inner tube
DN 3-6: Polyoxymethylene (POM); DN 8: Polyamide (PA)

Reinforcement
Two spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

COLOR CODE

10,000 psi 690 bar — 15,000 psi 1034 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
202B	-2	1/8	3	3,5	0,138	7,2	0,283	1050	15000	2625	37500	2,5:1	60	2,362	87	0,058	HAA1G1	-
2020	-	5/32	4	4,1	0,161	8,2	0,323	1050	15000	2625	37500	2,5:1	70	2,756	105	0,070	HAA101	HAA801
2021	-3	3/16	5	5,2	0,205	9,9	0,39	1050	15000	2625	37500	2,5:1	90	3,543	150	0,102	HAA111	HAA811
2022	-4	1/4	6	6,4	0,252	11,5	0,453	1050	15000	2625	37500	2,5:1	110	4,331	210	0,139	HAA121	HAA821
2023	-5	5/16	8	7,9	0,311	13,7	0,539	1050	15000	2625	37500	2,5:1	130	5,118	250	0,168	HAA131	-
2024	-6	3/8	10	9,9	0,390	16,4	0,646	690	10000	1725	25000	2,5:1	150	5,906	313	0,210	HAA141	-
2025	-8	1/2	12	12,8	0,504	20,4	0,803	690	10000	1725	25000	2,5:1	190	7,480	472	0,317	HAA151	-

212 2SWH

Thermoplastic Hose for Ultra High Pressure Applications

Up to 1400 bar (20000 psi)

FEATURES

Inner tube
Polyoxymethylene (POM)

Reinforcement
Two spiral layers of steel wire

Cover
Thermoplastic polymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

COLOR CODE

20,000 psi
1379 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2120	-	5/32	4	3,9	0,154	8.0	0,315	1400	20000	3500	50000	2,5:1	75	2,953	109	0,073	HAJ101	HAJ801
2121	-3	3/16	5	4,8	0,189	9,3	0,366	1400	20000	3500	50000	2,5:1	95	3,740	140	0,094	HAJ111	HAJ811

203 2+2SW

Thermoplastic Hose for Ultra High Pressure Applications
From 760 to 1400 bar (11000 to 20000 psi)

FEATURES

Inner tube
Polyamide (PA)

Reinforcement
Two + two spiral layers of steel wire

Cover
Polyurethane (PUR), non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

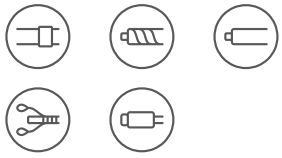
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



COLOR CODE

10,000 psi 690 bar | 15,000 psi 1034 bar | 20,000 psi 1379 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2030	-	5/32	4	4	0,157	10,3	0,406	1400	20000	3500	50000	2,5:1	60	2,362	180	0,121	HAB101	HAB801
2032	-4	1/4	6	6,2	0,244	13,2	0,52	1400	20000	3500	50000	2,5:1	90	3,543	243	0,163	HAB121	HAB821
2033	-5	5/16	8	7,9	0,311	15,4	0,606	1400	20000	3500	50000	2,5:1	100	3,937	360	0,241	HAB131	-
2034	-6	3/8	10	9,9	0,390	18,2	0,717	1050	15000	2625	37500	2,5:1	120	4,724	500	0,337	HAB141	HAB841
2035	-8	1/2	12	12,8	0,504	22,1	0,870	1050	15000	2625	37500	2,5:1	140	5,512	710	0,477	HAB151	HAB851
2037	-12	3/4	20	18,8	0,740	29,9	1,177	760	11000	1900	27500	2,5:1	220	8,661	1236	0,831	HAB171	HAB871

204 4SW

Thermoplastic Hose for Ultra High Pressure Applications

From 1050 to 2050 bar (15000 to 30000 psi)

FEATURES

Inner tube
DN 4-8: Polyoxymethylene (POM); DN 10-25: Polyamide (PA)

Reinforcement
Four spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

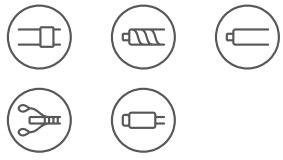
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



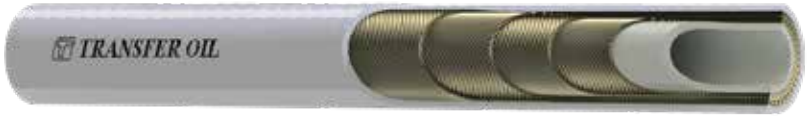
COLOR CODE

15,000 psi 1034 bar | 20,000 psi 1379 bar | 30,000 psi 2068 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2040	-	5/32	4	4	0,157	9,9	0,390	2050	30000	5125	75000	2,5:1	120	4,724	206	0,139	HAC101	HAC801
2041	-3	3/16	5	5,1	0,201	11,8	0,465	1800	26100	4500	65250	2,5:1	140	5,512	279	0,188	HAC111	HAC811
2042	-4	1/4	6	6,3	0,248	13,3	0,524	2050	30000	5125	75000	2,5:1	170	6,693	407	0,273	HAC121	HAC821
2043	-5	5/16	8	8,2	0,323	15,6	0,614	1500	21700	3750	54250	2,5:1	190	7,48	470	0,316	HAC131	HAC831
2044	-6	3/8	10	9,9	0,390	18,8	0,740	1400	20000	3500	50000	2,5:1	190	7,48	687	0,461	HAC141	HAC841
2045	-8	1/2	12	12,8	0,504	21,6	0,850	1300	18800	3250	47000	2,5:1	200	7,874	826	0,555	HAC151	HAC851
2047	-12	3/4	20	18,8	0,740	30.0	1,181	1050	15000	2625	37500	2,5:1	250	9,843	1407	0,946	HAC171	-
2048	-16	1	25	24,8	0,976	38,3	1,508	1050	15000	2625	37500	2,5:1	300	11,811	2197	1,476	-	HAC881

214 4SWH

Thermoplastic Hose for Ultra High Pressure Applications
From 1400 to 2200 bar (20000 to 31900 psi)



FEATURES

Inner tube
DN5: Polyoxymethylene (POM)
DN12: Polyamide (PA)

Reinforcement
Four spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition. Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

COLOR CODE

20,000 psi 1379 bar — 30,000 psi 2068 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2140	-	5/32	4	4,0	0,157	9,9	0,390	2200	31900	5500	79750	2,5:1	120	4,720	206	0,139	HAC101	HAC801
2145	-8	1/2	12	12,8	0,504	22,5	0,886	1400	20000	3500	50000	2,5:1	180	7,087	970	0,652	HAD151	HAD851

224 4SW-T

Thermoplastic multispiral hose for UHP hydraulic, oil and gas applications

From 1050 to 1500 bar (15200 to 21700 psi)

FEATURES

Inner tube
Polyvinylidene fluoride (PVDF)

Reinforcement
Four spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Oil and Gas applications
- Methanol service
- Chemical injection
- Control of subsea components
- Nitrogen service
- Subsea well control
- Gaseous media handling

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
-	2241	-3	3/16	5	5,1	0,201	11,6	0,457	1500	21700	4500	65100	3:1	250	9,843	280	0,188	HAC111	HAC811
-	2245	-8	1/2	12	12,8	0,504	22,0	0,866	1050	15000	3150	45000	3:1	300	11,811	975	0,655	HAD151	HAD851

234 4SW-HT

Thermoplastic multispiral hose for UHP hydraulic, oil and gas applications
Up to 1100 bar (up to 15900 psi)

FEATURES

Inner tube
Polyvinylidene fluoride (PVDF)

Reinforcement
Four spiral layers of steel wire

Cover
Polyvinylidene fluoride (PVDF) , black ink-jet branding

Industrial applications
- Oil and Gas applications
- Methanol service
- Chemical injection
- Control of subsea components
- Nitrogen service
- Subsea well control
- Gaseous media handling

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

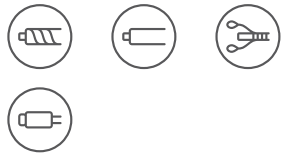
Temperature range
-20°C to +130°C
(-04°F to +266°F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
-	2341	-3	3/16	5	5,1	0,201	11,6	0,457	1100	15900	4400	63600	4:1	250	9,843	280	0,188	-	HAL811

205 4+2SW

Thermoplastic Hose for Ultra High Pressure Applications

From 1200 to 1400 bar (from 17400 to 20000 bar)

FEATURES

Inner tube
Polyamide (PA)

Reinforcement
Four spiral layers of steel wire + Two spiral layers of steel wire

Cover
Polyurethane (PUR), non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

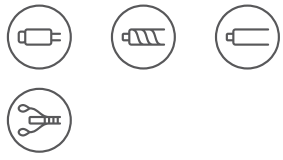
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



COLOR CODE

15,000 psi
1034 bar

20,000 psi
1379 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
● 2055	-8	1/2	12	12,8	0,504	24,3	0,957	1400	20000	3500	50000	2,5:1	110	4,331	1120	0,757	HAG151	-
● 2057	-12	3/4	20	18,8	0,740	32,6	1,283	1200	17400	3000	43500	2,5:1	170	6,693	1860	1,25	HAG171	-

206 6SW

Thermoplastic Hose for Ultra High Pressure Applications
From 1200 to 2800 bar (17400 to 40000 psi)

FEATURES

Inner tube
DN 4-10: Polyoxymethylene (POM); DN 12-25: Polyamide (PA)

Reinforcement
Six spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

COLOR CODE

15,000 psi 1034 bar
20,000 psi 1379 bar
30,000 psi 2068 bar
40,000 psi 2758 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2060	-	5/32	4	4	0,157	11,8	0,465	2800	40000	7000	100000	2,5:1	170	6,693	330	0,223	HAE101	-
2061	-3	3/16	5	5	0,197	14,4	0,567	2500	36200	6250	90500	2,5:1	190	7,48	550	0,37	HAE111	HAE811
2063	-5	5/16	8	7,9	0,311	18,0	0,709	2050	30000	5125	75000	2,5:1	240	9,449	775	0,522	HAE131	-
2064	-6	3/8	10	9,9	0,39	20,8	0,819	2050	30000	5125	75000	2,5:1	250	9,843	1070	0,718	HAE141	-
2065	-8	1/2	12	12,8	0,504	25,4	1,000	1800	26100	4500	65250	2,5:1	300	11,811	1550	1,041	HAE151	HAE851
2067	-12	3/4	20	19,2	0,756	33,7	1,327	1400	20000	3500	50000	2,5:1	350	13,78	2290	1,539	HAE171	-
2068	-16	1	25	24,8	0,976	41,0	1,614	1200	17400	3000	43500	2,5:1	600	23,622	3210	2,158	HAE181	-

216 6SWH

Thermoplastic multispiral hose for UHP water based applications
From 1600 to 2800 bar (23200 to 40000 psi)

FEATURES

Inner tube
DN 5-8: Polyoxymethylene (POM); DN 12: Polyamide (PA)

Reinforcement
Six spiral layers of higher tensile steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long lenght capability
- Excellent cut and crush resistance

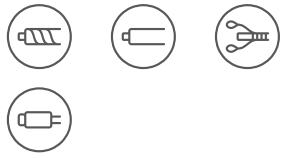
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers.
Tube and cover of engineering polymer with intermediate adhesion layers.
Available also as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



COLOR CODE

20,000 psi 1379 bar | 30,000 psi 2068 bar | 40,000 psi 2758 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2161	-3	3/16	5	5,1	0,201	14,8	0,583	2800	40000	7000	100000	2,5:1	210	8,268	594	0,399	HAF111	-
2162	-4	1/4	6	6,3	0,248	16,5	0,65	2800	40000	7000	100000	2,5:1	250	9,843	763	0,513	HAF121	-
2163	-5	5/16	8	8,1	0,319	19	0,748	2500	36200	6250	90500	2,5:1	250	9,843	970	0,652	HAF131	-
2165	-8	1/2	12	12,9	0,508	25,6	1,008	2050	30000	5125	75000	2,5:1	300	11,811	1627	1,093	HAF151	-
2167	-12	3/4	20	19,2	0,756	33,7	1,327	1600	23200	4000	58000	2,5:1	350	13,78	2290	1,539	HAF171	-

226 6SWHX

Thermoplastic multispiral hose for UHP water based applications
From 2500 to 3200 bar (36200 to 46400 psi)

FEATURES

Inner tube
Polyoxymethylene (POM)

Reinforcement
Six spiral layers of steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long length capability
- Excellent cut and crush resistance

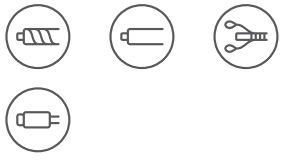
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers. Tube and cover of engineering polymer with intermediate adhesion layers. Available as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



COLOR CODE

30,000 psi
2068 bar

40,000 psi
2758 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2261	-3	3/16	5	4,6	0,181	14,8	0,583	3200	46400	8000	116000	2,5:1	210	8,268	627	0,421	HAH111	-
2263	-5	5/16	8	7,6	0,299	19,7	0,776	2800	40000	7000	100000	2,5:1	250	9,843	1087	0,730	HAH131	-
2265	-8	1/2	12	12,8	0,504	26,0	1,024	2500	36200	6250	90500	2,5:1	350	13,78	1782	1,197	HAH141	HAH851

236 6SWHDC

Thermoplastic multispiral hose for UHP water based applications
Up to 2500 bar (36200 psi)

FEATURES

Inner tube
Polyoxymethylene (POM)

Reinforcement
Six spiral layers of higher tensile steel wire

Cover
First cover Special Polyester Copolymer
Second cover Antiabrasion Polyurethane Black, non pinpricked, white ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long lenght capability
- Excellent cut and crush resistance

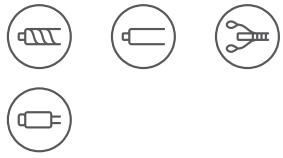
Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers.
Tube and cover of engineering polymer with intermediate adhesion layers.
Available also as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES



COLOR CODE

30,000 psi
2068 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
● 2363	-5	5/16	8	8,1	0,319	22,5	0,886	2500	36200	6250	90500	2,5:1	250	9,843	150	0,101	HAF132	-

208 8SW

Thermoplastic multispiral hose for UHP water based applications
From 3010 to 3800 bar (43600 to 55000 psi)

FEATURES

Inner tube
Polyoxymethylene (POM)

Reinforcement
Eight spiral layers of higher tensile steel wire

Cover
Special Polyester Copolymer, non pinpricked, black ink-jet branding

Industrial applications
- Waterjet cutting
- Tube cleaning, surface preparation and paint removal
- Hydro demolition
- Ships, tanks and vessel cleaning
- Waterblast supply hose
- General industrial cleaning
- Removal of accumulated dirt from surfaces

Hydraulic applications
- Hydraulic jacks
- Bolt tensioning
- Testing applications
- General UHP hydraulic applications

Features
- Ultra high working pressure
- Excellent chemical resistance
- Resistance to ozone, ultraviolet light and aging
- High resistance against abrasion
- Low volumetric expansion at maximum working pressure
- Resistant to sea water
- High impulse resistance
- Long lenght capability
- Excellent cut and crush resistance

Temperature range
-30 °C to +60 °C
(-22 °F to +140 °F)

Description
Ultra High Pressure hose utilising high tensile steel wire applied in counter rotating multiple spiral layers.
Tube and cover of engineering polymer with intermediate adhesion layers.
Available also as factory made assemblies: please contact our sales office for further details.

APPLICATIONS

PACKAGING

ACCESSORIES

COLOR CODE

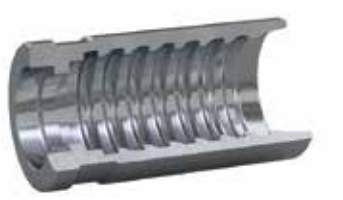
55,000 psi 3792 bar — 40,000 psi 2758 bar

Part No.	Hose size			ID		OD		WP		BP		Safety factor	Bend radius		Weight		Ferrule part no.	
	dash	inch	DN	mm	inch	mm	inch	bar	psi	bar	psi		mm	inch	g/m	lbs/ft	carbon	stainless
2081	-3	3/16	5	4,7	0,185	16	0,630	3800	55000	8500	123000	2,2:1	230	9,055	783	0,526	HAI111	-
2083	-5	5/16	8	7,6	0,299	22	0,866	3800	55000	9000	130000	2,4:1	300	11,811	1510	1,015	HAI131	-
2085	-8	1/2	12	12,8	0,504	28,7	1,130	3010	43600	6250	90500	2,1:1	350	13,78	2350	1,579	HAI151	HAI851

Hose Ferrules

Crimping ferrules designed and optimized for Transfer Oil UHP Helix® thermoplastic hoses.
The rated working pressure of the application should always be used to determine the correct hose selection. Operation within the recommended rated working pressure, will maximize service life before replacement is required. When new, the hose will meet or exceed the minimum burst pressure stated in the hose data sheet. The temperature range specified refers to the recommended temperature limits of fluids being conveyed or ambient temperatures. Exceeding these limits can result in degradation of material compounds, reduced hose service life and premature hose failure.

HAA 2SW



Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAA1G1	-	1/8" FERRULE HELIX 2SW	4	1/8	10,6	7,6	33,5
HAA101	HAA801	5/32" FERRULE HELIX 2SW	3	5/32	12,2	9,2	34,0
HAA111	HAA811	3/16" FERRULE HELIX 2SW	5	3/16	14,0	10,6	40,0
HAA121	HAA821	1/4" FERRULE HELIX 2SW	6	1/4	16,0	12,7	42,0
HAA131	-	5/16" FERRULE HELIX 2SW	8	5/16	21,0	14,8	41,0
HAA141	-	3/8" FERRULE HELIX 2SW	10	3/8	23,5	17,0	50,0
HAA151	-	1/2" FERRULE HELIX 2SW	12	1/2	29,0	21,2	55,0

HAJ 2SWH

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAJ101	HAJ801	5/32" FERRULE HELIX 2SWH	3	5/32	12,2	8,8	34,0
HAJ111	-	3/16'' FERRULE HELIX 2SWH	5	3/16	13,8	10,2	40,0

HAB 2+2SW

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAB101	HAB801	5/32" FERRULE HELIX 2+2SW	4	5/32	16,0	11,3	34,0
HAB121	HAB821	1/4'' FERRULE HELIX 2+2SW	6	1/4	19,5	14,2	42,0
HAB131	HAB831	5/16'' FERRULE HELIX 2+2SW	8	5/16	23,4	16,6	44,0
HAB141	HAB841	3/8'' FERRULE HELIX 2+2SW	10	3/8	25,7	19,5	50,0
HAB151	HAB851	1/2'' FERRULE HELIX 2+2SW	12	1/2	31,0	23,0	60,0
HAB171	HAB871	3/4" FERRULE HELIX 2+2SW	20	3/4	40,5	31,2	69,0

HAC 4SW

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAC101	HAC801	5/32'' FERRULE HELIX 4SW	4	5/32	16,8	12,0	45,0
HAC111	HAC811	3/16'' FERRULE HELIX 4SW	5	3/16	18,0	12,5	40,0
HAC121	HAC821	1/4'' FERRULE HELIX 4SW	6	1/4	19,5	14,0	43,0
HAC131	HAC831	5/16'' FERRULE HELIX 4SW	8	5/16	23,0	16,4	45,0
HAC141	HAC841	3/8'' FERRULE HELIX 4SW	10	3/8	26,0	20,0	50,0
HAC151	HAC851	1/2'' FERRULE HELIX 4SW	12	1/2	32,0	23,2	62,0
HAC171	HAC871	3/4'' FERRULE HELIX 4SW	20	3/4	41,0	31,6	70,0
-	HAC881	1'' FERRULE HELIX 4SW	25	1	49,3	39,8	75,0

HAD 4SWH

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAD151	HAD851	1/2'' FERRULE HELIX 4SWH	2	1/2''	33,0	24,5	62,0

HAG 4+2SW

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAG151	-	1/2'' FERRULE HELIX 4+2SW	12	1/2''	33,7	25	62
HAG171	-	3/4'' FERRULE HELIX 4+2SW	20	3/4''	45	34	71,5

HAL 4SWHT

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
-	HAL811	1/2'' FERRULE HELIX 4+2SW	5	3/16''	18	12,2	55

HAE 6SW

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAE101	-	5/32" FERRULE HELIX 6SW	4	5/32	17,6	12,8	45,0
HAE111	HAE811	3/16'' FERRULE HELIX 6SW	5	3/16	22,5	15,0	63,5
HAE131	-	5/16'' FERRULE HELIX 6SW	8	5/16	26,4	18,4	63,5
HAE141	-	3/8'' FERRULE HELIX 6SW	10	3/8	31,2	22,5	52,0
HAE151	HAE851	1/2'' FERRULE HELIX 6SW	12	1/2	35,5	26,8	66,0
HAE171	-	3/4'' FERRULE HELIX 6SW	20	3/4	46,0	35,0	72,0
HAE181	-	1'' FERRULE HELIX 6SW	25	1	52,2	41,8	78,0

HAF 6SWH

Carbon Steel	Stainless Steel		Hose size		OD	ID	L
Part No.	Part No.	Description	DN	Inches	mm	mm	mm
HAF111	HAF811	3/16'' FERRULE HELIX 6SWH	5	3/16	22,7	15,2	64,0
HAF121	-	1/4'' FERRULE HELIX 6SWH	6	1/4	24,4	17,2	64,0
HAF131	-	5/16'' FERRULE HELIX 6SWH	8	5/16	28,0	20,0	64,0
HAF132	-	5/16'' FERRULE HELIX 6SWH DC	8	5/16	28,0	20,0	70,0
HAF151	-	1/2'' FERRULE HELIX 6SWH	12	1/2	36,2	27,2	66,0
HAF171	-	3/4'' FERRULE HELIX 6SWH	20	3/4	46,0	34,6	72,0

HAH 6SWHX

Carbon Steel	**Stainless Steel**		**Hose size**		**OD**	**ID**	**L**
Part No.	Part No.	**Description**	DN	Inches	mm	mm	mm
HAH111	-	3/16'' FERRULE HELIX 6SWHX	5	3/16	24,7	15,9	69,0
HAH131	-	5/16'' FERRULE HELIX 6SWHX	8	5/16	29,2	21,0	66,5
HAH151	-	1/2'' FERRULE HELIX 6SWHX	12	1/2	37,6	28,4	75,0

HAI 8SWH

Carbon Steel	**Stainless Steel**		**Hose size**		**OD**	**ID**	**L**
Part No.	Part No.	**Description**	DN	Inches	mm	mm	mm
HAI111	-	3/16'' FERRULE HELIX 8SW	5	3/16	26,1	16,8	69,0
HAI131	-	5/16'' FERRULE HELIX 8SW	8	5/16	32,7	23,5	69,0
HAI151	-	1/2'' FERRULE HELIX 8SW	12	1/2	38,6	31,4	75,0

Fittings

Transfer Oil is aware that hose and fittings are two semi-manufactured elements of a finished product: the “hose assembly”. The quality level of the “hose assembly” equals the LOWEST level among those declared for the hose, for the fittings and for the coupling. The choice of optimum fittings is therefore a primary condition for the use of any hose assembly. Following pages shows the fittings and ferrules categories, with dimensions, and the compatible hose diameter. By following the recommendations on hose assembly routing and installation, improved safety and longer service life of any hose installation will result.

HB BSPP

FEMALE

Carbon steel	Stainless steel			Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description	Cone °		Thread F	psi	CH	DN	inch	Hose compatibility
HBA12G	-	1/4" F-BSPP A 1/8"	24-60	2	1/4"-19 GAS	22000	19	3	1/8"	202B
HBB120	-	1/4" F-BSPP B/A 5/32"	24-60	2,5	1/4"-19 GAS	22000	19	4	5/32"	2020, 2030,2120
HBC120	-	1/4" F-BSPP C 5/32"	24-60	1,8	1/4"-19 GAS	31900	19	4	5/32"	2040, 2140
HBA121	-	1/4" F-BSPP A 3/16"	24-60	3	1/4"-19 GAS	22000	19	5	3/16"	2021,2121
HBC121	HBC821	1/4" F-BSPP C 3/16"	24-60	2,5	1/4"-19 GAS	26100	19	5	3/16"	2041, 2141, 2241
-	HBF821	1/4" F-BSPP F/E 3/16"	24-60	2,4	1/4"-19 GAS	40600	19	5	3/16"	2061,2161
-	HBI821	1/4" F-BSPP I/H 3/16"	24-60	2	1/4"-19 GAS	40600	19	5	3/16"	2261,2081
HBB122	HBB822	1/4" F-BSPP B/A 1/4"	24-60	4	1/4"-19 GAS	22000	19	6	1/4"	2022,2032
HBC122	HBC822	1/4" F-BSPP C 1/4"	24-60	3,5	1/4"-19 GAS	24000	19	6	1/4"	2042
HBA143	-	3/8" F-BSPP A 5/16"	24-60	5,5	3/8"-19 GAS	22000	24	8	5/16"	2023
HBC143	HBC843	3/8" F-BSPP C/B 5/16"	24-60	4,5	3/8"-19 GAS	22000	24	8	5/16"	2033,2043
HBB154	HBB854	1/2" F-BSPP B/A 3/8"	24-60	6,5	1/2"-14 GAS	22000	27	10	3/8"	2024,2034
HBE154	HBE854	1/2" F-BSPP E/C 3/8"	24-60	5,5	1/2"-14 GAS	28000	27	10	3/8"	2044,2064
HBA155	HBA855	1/2" F-BSPP A 1/2"	24-60	8,5	1/2"-14 GAS	18000	27	12	1/2"	2025
HBG155	HBG855	1/2" F-BSPP G/D/C/B 1/2"	24-60	7,5	1/2"-14 GAS	22000	27	12	1/2"	2035,2045,2145,2055, 2245
HBG187	HBG887	1" F-BSPP G/C/A 3/4"	60	13	1"-11 GAS	18000	38	20	3/4"	2037,2047,2057
-	HBC898	1+1/4" F-BSPP C 1"	60	17,5	1+1/4"-11 GAS	15000	50	25	1"	2048

HP BSPP

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HPB120	-	1/4" M-BSPP B/A 5/32"	2,5	1/4"-19 GAS	22000	14	4	5/32"	2020,2030,2120
HPC100	-	1/8" M-BSPP C 5/32"	1,8	1/8"-28 GAS	31900	10	4	5/32"	2040, 2140
HPA101		1/8" M-BSPP A 3/16"	3	1/8"-28 GAS	22000	10	5	3/16"	2021, 2121
HPA121	-	1/4" M-BSPP A 3/16"	3	1/4"-19 GAS	22000	14	5	3/16"	2021
HPC121	HPC821	1/4" M-BSPP C 3/16"	2,5	1/4"-19 GAS	26100	14	5	3/16"	2041, 2141, 2241
HPB102	-	1/8" M-BSPP B/A 1/4"	4	1/8"-28 GAS	22000	10	6	1/4"	2022,2032
HPB122	-	1/4" M-BSPP B/A 1/4"	4	1/4"-19 GAS	22000	14	6	1/4"	2022,2032
HPB142	-	3/8" M-BSPP B/A 1/4"	4	3/8"-19 GAS	22000	17	6	1/4"	2022,2032
HPC122	-	1/4" M-BSPP C 1/4"	3,5	1/4"-19 GAS	24000	14	6	1/4"	2042
HPA123	-	1/4" M-BSPP A 5/16"	5,5	1/4"-19 GAS	22000	14	8	5/16"	2023
HPA143	-	3/8" M-BSPP A 5/16"	5,5	3/8"-19 GAS	22000	17	8	5/16"	2023
HPC123	-	1/4" M-BSPP C/B 5/16"	4,5	1/4"-19 GAS	22000	14	8	5/16"	2033,2043
HPC143	-	3/8" M-BSPP C/B 5/16"	4,5	3/8"-19 GAS	24000	17	8	5/16"	2033,2043
HPB144	-	3/8" M-BSPP B/A 3/8"	6,5	3/8"-19 GAS	22000	17	10	3/8"	2024,2034
HPC144	-	3/8" M-BSPP C 3/8"	5,5	3/8"-19 GAS	22000	17	10	3/8"	2044

HC METRIC 24°/60°

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HCA131	-	14X1.5 F-MET 24-60 A 3/16"	3	M14X1,5	22000	19	5	3/16"	2021, 2121
HCC131	-	14X1.5 F-MET 24-60 C 3/16"	2,5	M14X1,5	26100	19	5	3/16"	2041, 2141, 2241
-	HCF831	14X1.5 F-MET 24-60 F/E 3/16"	2,4	M14X1,5	40600	19	5	3/16"	2061,2161
-	HCI831	14X1.5 F-MET2 4-60 I/H 3/16"	2	M14x1,5	40600	19	5	3/16"	2261,2081
HCB132	-	14X1.5 F-MET 24-60 B/A 1/4"	4	M14X1,5	22000	19	6	1/4"	2022,2032
HCB142	HCB842	16X1.5 F-MET 24-60 B/A 1/4"	4	M16X1,5	22000	19	6	1/4"	2022,2032

HD DKOS

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HDB180	-	24X1.5 F-DKOS B/A 5/32"	2,5	M24x1,5	30000	30	4	5/32"	2020,2030, 2120
HDA181	-	24X1.5 F-DKOS A 3/16"	3	M24x1,5	30000	30	5	3/16"	2021, 2121
HDC161	-	20X1.5 F-DKOS C 3/16"	2,5	M20X1,5	30000	24	5	3/16"	2041, 2141, 2241
HDB152	-	18X1.5 F-DKOS B/A 1/4"	4	M18X1,5	24000	22	6	1/4"	2022,2032
HDB172	-	22X1.5 F-DKOS B/A 1/4"	4	M22X1,5	24000	27	6	1/4"	2022,2032
HDB182	-	24X1.5 F-DKOS B/A 1/4"	4	M24x1,5	24000	30	6	1/4"	2022,2032
HDC152	-	18X1.5 F-DKOS C 1/4"	3,5	M18X1,5	30000	22	6	1/4"	2042
HDA163	-	20X1.5 F-DKOS A 5/16"	5,5	M20X1,5	30000	24	8	5/16"	2023
HDA183	-	24X1.5 F-DKOS A 5/16"	5,5	M24x1,5	30000	30	8	5/16"	2023
HDB163	-	20X1.5 F-DKOS B 5/16"	4,5	M20X1,5	40000	24	8	5/16"	2033,2043
HDC173	-	22X1.5 F-DKOS C/B 5/16"	4,5	M22X1,5	40000	27	8	5/16"	2033,2043
HDC183	HDC883	24X1.5 F-DKOS C/B 5/16"	4,5	M24x1,5	40000	30	8	5/16"	2033,2043
HDF163	-	20X1.5 F-DKOS F/E 5/16	4,5	M20x1,5	40000	30	8	5/16	2063,2363,2163
HDF183	HDF883	24X1.5 F-DKOS F/E 5/16"	4,5	M24x1,5	40000	30	8	5/16"	2063,2163,2363
-	HDI883	24X1.5 F-DKOS I/H 5/16"	4,5	M24x1,5	46400	30	8	5/16"	2263,2083
HDB174	-	22X1.5 F-DKOS B/A 3/8"	6,5	M22X1,5	28000	27	10	3/8"	2024,2034
HDB184	-	24X1.5 F-DKOS B/A 3/8"	6,5	M24x1,5	28000	30	10	3/8"	2024,2034
-	HDE874	22X1.5 F-DKOS E/C 3/8"	5,5	M22X1,5	30000	27	10	3/8"	2044,2064
HDE184	HDE884	24X1.5 F-DKOS E/C 3/8"	5,5	M24x1,5	30000	30	10	3/8"	2044,2064
HDA175	-	22X1.5 F-DKOS A 1/2"	8,5	M22X1,5	18000	27	12	1/2"	2025
HDA185	HDA885	24X1.5 F-DKOS A 1/2"	8,5	M24x1,5	18000	30	12	1/2"	2025
HDG175	-	22X1.5 F-DKOS G/D/C/B 1/2"	7,5	M22X1,5	22000	27	12	1/2"	2035,2045,2145,2055,2245
HDG185	HDG885	24X1.5 F-DKOS G/D/C/B 1/2"	7,5	M24x1,5	22000	30	12	1/2"	2035,2045,2145,2055,2245
HDF185	HDF885	24X1.5 F-DKOS F/E 1/2"	7,5	M24x1,5	30000	30	12	1/2"	2065,2165
-	HDI885	24X1.5 F-DKOS I/H 1/2"	7,5	M24X1,5	43000	30	12	1/2"	2265,2085
HDE1G7	-	36X2 F-DKOS E/G/C/B 3/4"	13	M36X2	24000	46	20	3/4"	2037,2047,2057,2067,2167
-	HDE8H8	42X2 F-DKOS E/C 1"	17,5	M42X2	22000	50	25	1"	2048,2068
-	HDI8F6	30X2 F-DKOS I 5/8 SS	10,5	M30X2	30000	38	16	5/8"	2086

HE JIC

FEMALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
-	HEB8B2	9/16 F-JIC B/A 1/4"	4	9/16-18 UNF	22000	19	6	1/4"	2022,2032
-	HEC8B2	9/16 F-JIC C 1/4"	3,5	9/16-18 UNF	24000	19	6	1/4"	2042
HEA1B3	HEA8B3	9/16 F-JIC A 5/16"	5,5	9/16-18 UNF	22000	19	8	5/16"	2023
-	HEC873	3/4" F-JIC C/B 5/16"	4,5	3/4"-16 UNF	22000	24	8	5/16"	2033,2043
HEB174	HEB874	3/4" F-JIC B/A 3/8"	6,5	3/4"-16 UNF	22000	24	10	3/8"	2024,2034
HEC174	HEC874	3/4" F-JIC C 3/8"	5,5	3/4"-16 UNF	22000	24	10	3/8"	2044
HEG1C5	HEG8C5	7/8" F-JIC G/D/C/B 1/2"	7,5	7/8"-14 UNF	22000	30	12	1/2"	2035,2045,2145,2055,2245
-	HEG8F7	1+5/16" F-JIC G/C/A 3/4"	13	1+5/16"-12 UN	24000	46	20	3/4"	2037,2047,2057
-	HEC8F8	1+5/16" F-JIC C 1"	17,5	1+5/16"-12 UN	15000	46	25	1"	2048
-	HEI8F6	1+5/16 F-JIC I 5/8 SS	10.5	1+5/16"-12 UN	30000	46	16	5/8"	2086

HH NPT

FEMALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HHB122	-	1/4" F-NPT B/A 1/4"	4	1/4"-18 NPTF	22000	15	6	1/4"	2022,2032

HW NPT NO HEXAGON

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HWA1QG	-	1/16" M-NPT A 1/8" NO HEX	2	1/16"-27 NPTF	22000	7	3	1/8"	202B
HWB122	-	1/4" M-NPT B/A 1/4" NO HEX	4	1/4"-18 NPTF	22000	12	6	1/4"	2022,2032

HL MP

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HLB142	HLB842	3/8 M-MP B 1/4"	4	3/8"-24 UNF LH	22500	-	6	1/4"	2022, 2032
-	HLC842	3/8" M-MP C 1/4"	3,5	3/8" -24 UNF LH	22500	-	6	1/4"	2042
HLC1B3	-	9/16" M-MP C/B 5/16"	4,5	9/16"-18 UNF LH	22500	-	8	5/16"	2033,2043
HLC173	HLC873	3/4" M-MP C/B 5/16"	4,5	3/4"-16 UNF LH	22500	-	8	5/16"	2033,2043
-	HLF873	3/4" M-MP F/E 5/16"	4,5	3/4"-16 UNF LH	22500	-	8	5/16"	2063, 2363, 2163
-	HLI873	3/4" M-MP I/H 5/16"	4,5	3/4"-16 UNF LH	22500	-	8	5/16"	2263
-	HLA8B5	9/16" M-MP A 1/2"	8,5	9/16"-18 UNF LH	22500	-	12	1/2"	2025
-	HLF8B5	9/16" M-MP F/E 1/2"	7,5	9/16"-18 UNF LH	22500	-	12	1/2"	2065,2165
-	HLF875	3/4" M-MP F/E 1/2"	7,5	3/4"-16 UNF LH	22500	-	12	1/2"	2065,2165
-	HLG8B5	9/16" M-MP G/D/C/B 1/2"	7,5	9/16"-18 UNF LH	22500	-	12	1/2"	2035,2045,2145,2055,2245
-	HLG875	3/4" M-MP G/D/C/B 1/2"	7,5	3/4"-16 UNF LH	22500	-	12	1/2"	2035,2045,2145,2055,2245
-	HLE887	1" M-MP G/E/C 3/4"	13	1"-14 UNS LH	22500	-	20	3/4"	2037,2047,2057,2067
-	HLE888	1" M-MP E 1"	17,5	1"-14 UNS LH	20000	-	25	1"	2068

HI NPT

MALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HIB1Q0	-	1/16" M-NPT B/A 5/32"	2,5	1/16"-27 NPTF	22000	7	4	5/32"	2020,2030,2120
HIB100	-	1/8" M-NPT B/A 5/32"	2,5	1/8"-27 NPTF	22000	11	4	5/32"	2020,2030,2120
HIB120	-	1/4" M-NPT B/A 5/32"	2,5	1/4"-18 NPTF	22000	15	4	5/32"	2020,2030
HIC100	-	1/8" M-NPT C 5/32"	1,8	1/8"-27 NPTF	22000	11	4	5/32"	2040
HIA101	-	1/8" M-NPT A 3/16"	3	1/8"-27 NPTF	22000	11	5	3/16"	2021
HIA121	-	1/4" M-NPT A 3/16"	3	1/4"-18 NPTF	22000	15	5	3/16"	2021
HIC121	-	1/4" M-NPT C 3/16"	2,5	1/4"-18 NPTF	22000	15	5	3/16"	2041, 2141, 2241
HIB102	-	1/8" M-NPT B/A 1/4"	4	1/8"-27 NPTF	22000	11	6	1/4"	2022,2032
HIB122	HIB822	1/4" M-NPT B/A 1/4"	4	1/4"-18 NPTF	22000	15	6	1/4"	2022,2032
HIB142	-	3/8" M-NPT B/A 1/4"	4	3/8"-18 NPTF	22000	19	6	1/4"	2022,2032
HIC122	-	1/4" M-NPT C 1/4"	3,5	1/4"-18 NPTF	22000	15	6	1/4"	2042
HIA123	-	1/4" M-NPT A 5/16"	5,5	1/4"-18 NPTF	22000	15	8	5/16"	2023
HIA143	HIA843	3/8" M-NPT A 5/16"	5,5	3/8"-18 NPTF	22000	19	8	5/16"	2023
HIC123	-	1/4" M-NPT C/B 5/16"	4,5	1/4"-18 NPTF	22000	15	8	5/16"	2033,2043
HIC143	-	3/8" M-NPT C/B 5/16"	4,5	3/8"-18 NPTF	22000	19	8	5/16"	2033,2043
HIB144	HIB844	3/8" M-NPT B/A 3/8"	6,5	3/8"-18 NPTF	22000	19	10	3/8"	2024,2034
-	HIB854	1/2" M-NPT B/A 3/8"	6,5	1/2"-14 NPTF	22000	22	10	3/8"	2024,2034
HIA155	HIA855	1/2" M-NPT A 1/2"	8,5	1/2"-14 NPTF	18000	22	12	1/2"	2025
HIG155	HIG855	1/2" M-NPT G/D/C/B 1/2"	7,5	1/2"-14 NPTF	22000	22	12	1/2"	2035,2045,2145,2055,2245
HIG177	-	3/4" M-NPT G 3/4"	13	3/4"-14 NPT	15000	27	20	3/4"	2037,2047,2057
HIG187	HIG887	1" M-NPT G/C/A 3/4"	13	1"-11,5 NPTF	15000	36	20	3/4"	2037,2047,2057
-	HIC888	1" M-NPT C 1"	17,5	1"-11,5 NPTF	15000	36	25	1"	2048

HF TYPE-M

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HFB1B0	HFB8B0	9/16" F-TYPE M B/A 5/32"	2,5	9/16"-18 UNF	30000	19	4	5/32"	2020,2030,2120
-	HFE8B0	9/16" F-TYPE M E/C 5/32"	1,8	9/16"-18 UNF	58000	19	4	5/32"	2040,2060
HFA1B1	HFA8B1	9/16" F-TYPE M A 3/16"	3	9/16"-18 UNF	30000	19	5	3/16"	2021,2121
HFC1B1	HFC8B1	9/16" F-TYPE M C 3/16"	2,5	9/16"-18 UNF	30000	19	5	3/16"	2041,2141,2241
-	HFL8B1	9/16" F-TYPE M L 3/16" SS	2.5	9/16-18 UNF	30000	19	5	3/16"	2341
-	HFF8B1	9/16" F-TYPE M F/E 3/16"	2,4	9/16"-18 UNF	45000	19	5	3/16"	2061,2161
-	HFI8B1	9/16" F-TYPE M I/H 3/16"	2	9/16"-18 UNF	58000	19	5	3/16"	2261,2081
HFB1B2	HFB8B2	9/16" F-TYPE M B/A 1/4"	4	9/16"-18 UNF	24000	19	6	1/4"	2022,2032
HFC1B2	HFC8B2	9/16" F-TYPE M C 1/4"	3,5	9/16"-18 UNF	30000	19	6	1/4"	2042
-	HFF8B2	9/16" F-TYPE M F 1/4"	3	9/16"-18 UNF	45000	19	6	1/4"	2162
-	HFA873	3/4" F-TYPE M A 5/16"	5,5	3/4"-16 UNF	22000	27	8	5/16"	2023
HFC173	HFC873	3/4" F-TYPE M C/B 5/16"	4,5	3/4"-16 UNF	22000	27	8	5/16"	2033,2043
HFF173	HFF873	3/4" F-TYPE M F/E 5/16"	4,5	3/4"-16 UNF	40000	27	8	5/16"	2063,2163,2363
-	HFF8C3	7/8 F-TYPE M F/E 5/16"	4,5	7/8"-14 UNF	40000	30	8	5/16"	2063,2163,2263
-	HFI873	3/4" F-TYPE M I/H 5/16"	4,5	3/4"-16 UNF	46400	27	8	5/16"	2263,2083
-	HFI8C3	7/8" F-TYPE M I/H 5/16"	4,5	7/8"-14 UNF	46400	30	8	5/16"	2263,2083
-	HFI8K3	1+1/8" F-TYPE M I/H 5/16"	4,5	1+1/8"-12 UNF	46400	36	8	5/16"	2263,2083
-	HFB874	3/4" F-TYPE M B/A 3/8"	6,5	3/4"-16 UNF	22000	27	10	3/8"	2024,2034
-	HFC874	3/4" F-TYPE M C 3/8"	5,5	3/4"-16 UNF	22000	27	10	3/8"	2044
HFA185	HFA885	1" F-TYPE M A 1/2"	8,5	1"-12 UNF	18000	32	12	1/2"	2025
HFG185	HFG885	1" F-TYPE M G/D/C/B 1/2"	7,5	1"-12 UNF	22000	32	12	1/2"	2035,2045,2145,2055
HFF185	HFF885	1" F-TYPE M F/E 1/2"	7,5	1"-12 UNF	30000	32	12	1/2"	2065,2165
-	HFI885	1" F-TYPE M I/H 1/2"	7,5	1"-12 UNF	43000	32	12	1/2"	2265,2085
-	HFE8F7	1+5/16" F-TYPE M E/G/C/B/A 3/4"	13	1+5/16"-12 UN	24000	46	20	3/4"	2037,2047,2057,2067,2167
-	HFC8F8	1+5/16" F-TYPE M C 1"	17,5	1+5/16"-12 UN	22000	46	25	1"	2048

HM HP

MALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size"		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
	HMB820	1/4 M-HP B/A 5/32 SS	2.5	1/4-28 UNF LH	30000	-	4	5/32"	2020, 2030, 2120
	HME820	1/4 M-HP E/C 5/32 SS	1.8	1/4-28 UNF LH	58000	-	4	5/32"	2040, 2140, 2060
	HMK820	1/4 M-HP K 1/8 SS	1.8	1/4-28 UNF LH	31900	8	4	1/8"	2040, 2140
	HME840	3/8 M-HP E/C 5/32 SS	1.8	3/8-24 UNF LH	58000	-	4	5/32"	2040, 2140, 2060
	HME8B0	9/16 M-HP E/C 5/32 SS	1.8	9/16-18 UNF LH	58000	-	4	5/32"	2040, 2140, 2060
	HML821	1/4 M-HP L 3/16 SS	2.5	1/4-28 UNF LH	30000	-	5	3/16"	2341
HMC121	HMC821	1/4 M-HP C 3/16 SS	2.5	1/4-28 UNF LH	30000	-	5	3/16"	2241, 2041, 2141
	HMC841	3/8 M-HP LH C 3/16 SS	2.5	3/8-24 UNF LH	30000	-	5	3/16"	2241, 2041, 2141
	HMC8B1	9/16 M-HP C 3/16 SS	2.5	9/16-18 UNF LH	30000	-	5	3/16"	2241, 2041, 2141
	HMK821	1/4 M-HP K 3/16 SS	2.8	1/4-28 UNF LH	26100	10	5	3/16"	2041
	HMK841	3/8 M-HP K 3/16 SS	2.8	3/8-24 UNF LH	26100	10	5	3/16"	2041
	HMF821	1/4 M-HP F/E 3/16 SS	2.4	1/4-28 UNF LH	45000	-	5	3/16"	2061, 2161
	HMF841	3/8 M-HP F/E 3/16 SS	2.4	3/8-24 UNF LH	45000	-	5	3/16"	2061, 2161
	HMF8B1	9/16 M-HP F/E 3/16 SS	2.4	9/16-18 UNF LH	45000	-	5	3/16"	2061, 2161
	HMI821	1/4 M-HP I/H 3/16 SS	2	1/4-28 UNF LH	58000	-	5	3/16"	2261, 2081
	HMI841	3/8 M-HP I/H 3/16 SS	2	3/8-24 UNF LH	58000	-	5	3/16"	2261, 2081
	HMI8B1	9/16 M-HP I/H 3/16 SS	2	9/16-18 UNF LH	58000	-	5	3/16"	2261, 2081
	HMB8B2	9/16 M-HP B/A 1/4 SS	4	9/16-18 UNF LH	24000	-	6	1/4"	2022, 2032
	HMC842	3/8 M-HP C 1/4 SS	3.5	3/8-24 UNF LH	30000	-	6	1/4"	2042
	HMK842	3/8 M-HP K 1/4 SS	4	3/8-24 UNF LH	22000	12	6	1/4"	2042
	HMF842	3/8 M-HP F 1/4 SS	3	3/8-24 UNF LH	46400	-	6	1/4"	2162
	HMF8B2	9/16 M-HP F 1/4 SS	3	9/16-18 UNF LH	46400	-	6	1/4"	2162
	HMC8B3	9/16 M-HP C/B 5/16 SS	4.5	9/16-18 UNF LH	30000	-	8	5/16"	2033, 2043
	HMF843	3/8 M-HP F/E 5/16 SS	4.5	3/8-24 UNF LH	40000	-	8	5/16"	2063, 2363, 2163
	HMF8B3	9/16 M-HP F/E 5/16 SS	4.5	9/16-18 UNF LH	40000	-	8	5/16"	2063, 2363, 2163
	HMI843	3/8 M-HP I/H 5/16 SS	4.5	3/8-24 UNF LH	46400	-	8	5/16"	2263, 2083
	HMI8B3	9/16 M-HP I/H 5/16 SS	4.5	9/16-18 UNF LH	55100	-	8	5/16"	2263, 2083
	HME8B4	9/16 M-HP E/C 3/8 SS	5.5	9/16-18 UNF LH	40000	-	10	3/8"	2044, 2064
	HMG8B5	9/16 M-HP G/D/C/B 1/2 SS	7.5	9/16-18 UNF LH	22000	-	12	1/2"	2245, 2035, 2045, 2055, 2145
	HMF8B5	9/16 M-HP F/E 1/2 SS	7.5	9/16-18 UNF LH	30000	-	12	1/2"	2065, 2165
	HMI8B5	9/16 M-HP I/H 1/2 SS	7.5	9/16-18 UNF LH	43600	-	12	1/2"	2265, 2085

HN HP METRIC

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
-	HNF831	14X1.5 M-HP MET F/E 3/16"	2,4	M14X1,5 LH	45000	-	5	3/16"	2061,2161
-	HNI831	14X1.5 M-HP MET I/H 3/16"	2	M14X1,5 LH	58000	-	5	3/16"	2261,2081
-	HNF832	14X1.5 M-HP MET F 1/4"	3	M14X1,5 LH	46400	-	6	1/4"	2162
-	HNF833	14X1.5 M-HP MET F/E 5/16"	4,5	M14X1,5 LH	40000	-	8	5/16"	2063,2163,2363
-	HNI833	14X1.5 M-HP MET I/H 5/16"	4,5	M14X1,5 LH	55100	-	8	5/16"	2263,2083
-	HNF855	18X1.5 M-HP MET F/E 1/2''	7,5	M18x1,5 LH	30000	-	12	1/2"	2065,2165
-	HNI855	18X1.5 M-HP MET I/H 1/2"	7,5	M18x1,5 LH	43000	-	12	1/2"	2265,2085
-	HNI856	18X1.5 M-HP MET I 5/8" SS	10,5	M18x1,5 LH	30000	-		5/8"	2086

HG HP

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
	HGK821	1/4" F-HP K 3/16" SS	2,8	1/4-28 UNF LH	26100	10	5	3/16"	2041
-	HGF8B1	9/16" F-HP F/E 3/16"	2,4	9/16"-18 UNF	45000	19	5	3/16"	2061,2161
-	HGI8B1	9/16" F-HP I/H 3/16"	2	9/16"-18 UNF	58000	19	5	3/16"	2261,2081

HJ GAS

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HJB100	-	1/8" M-GAS B/A 5/32"	2,5	1/8"-28 GAS	22000	10	4	5/32"	2020,2030
HJB120	-	1/4" M-GAS B/A 5/32"	2,5	1/4"-19 GAS	22000	14	4	5/32"	2020,2030
HJA101	-	1/8" M-GAS A 3/16"	3	1/8"-28 GAS	22000	10	5	3/16"	2021
HJA121	-	1/4" M-GAS A 3/16"	3	1/4"-19 GAS	22000	14	5	3/16"	2021
HJC123	-	1/4" M-GAS C/B 5/16"	4,5	1/4"-19 GAS	22000	14	8	5/16"	2033,2043

HK METRIC

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
HKA1KG	-	6x1 M-MET A 1/8"	2	M6X1	20000	8	3	1/8"	202B
HKB1I0	-	7X1 M-MET B/A 5/32"	2,5	M7X1	22000	9	4	5/32"	2020,2030
HKB1J0	-	8X1.25 M-MET B/A 5/32"	2,5	M8x1.25	22000	9	4	5/32"	2020,2030
HKB110	-	10X1 M-MET B/A 5/32"	2,5	M10X1	22000	12	4	5/32"	2020,2030
HKA111	-	10X1 M-MET A 3/16"	3	M10X1	22000	12	5	3/16"	2021
HKA1I1	-	7X1 M-MET A 3/16"	3	M7X1	22000	9	5	3/16"	2021
HKB112		10X1 M-MET B 1/4	4	M10X1	24000	12	6	1/4"	2022, 2032
HKC112		10X1 M-MET C 1/4	3,5	M10X1	24000	12	6	1/4"	2042

HQ GAS100°

MALE
EXTERNAL CONE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HQB120	-	1/4" M-GAS100 EC B/A 5/32"	2,5	1/4"-19 GAS	22000	17	4	5/32"	2020, 2030, 2120
HQC121	-	1/4" M-GAS100 EC C 3/16"	2,5	1/4"-19 GAS	26100	17	5	3/16"	2241, 2041, 2141
HQF121		1/4" M-GAS100 EC F/E 3/16"	2,4	1/4"-19 GAS	40600	17	5	3/16"	2061,2161
HQB122	-	1/4" M-GAS100 EC B/A 1/4"	4	1/4"-19 GAS	22000	17	6	1/4"	2022,2032
HQA123	-	1/4" M-GAS100 EC A 5/16"	5,5	1/4"-19 GAS	22000	17	8	5/16"	2023
-	HQC823	1/4" M-GAS100 EC C/B 5/16"	4,5	1/4"-19 GAS	24000	17	8	5/16"	2033,2043

HR USIT

MALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HRB120	-	1/4" M-USIT B/A 5/32"	2,5	1/4"-19 GAS	22000	22	4	5/32"	2020, 2030, 2120
HRC121	-	1/4" M-USIT C 3/16"	2,5	1/4"-19 GAS	26100	22	5	3/16"	2020, 2030, 2120
HRB122	-	1/4" M-USIT B/A 1/4"	4	1/4"-19 GAS	22000	22	6	1/4"	2022,2032
HRB142	-	3/8" M-USIT B/A 1/4"	4	3/8"-19 GAS	22000	27	6	1/4"	2022,2032

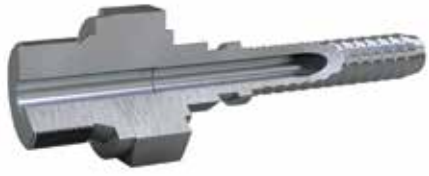
HS FLAT SEAL

MALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HSB100	-	1/8" M-FS B/A 5/32"	2,5	1/8"-28 GAS	22000	10	4	5/32"	2020, 2030, 2120
HSA101	-	1/8" M-FS A 3/16"	3	1/8"-28 GAS	22000	10	5	3/16"	2021, 2121
HSB122	-	1/4" M-FS B/A 1/4"	4	1/4"-19 GAS	22000	12	6	1/4"	2022,2032
HSA123	-	1/4" M-FS A 5/16"	5,5	1/4"-19 GAS	22000	12	8	5/16"	2023
-	HSB823	1/4" M-FS B 5/16"	4,5	1/4"-19 GAS	22000	12	8	5/16"	2033

HT DIN3852

MALE



Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HTB122	-	1/4" M-DIN3852 B/A 1/4"	4	1/4"-19 GAS	22000	19	6	1/4"	2022,2032
HTA123	-	1/4" M-DIN3852 A 5/16"	5,5	1/4"- 19 GAS	22000	19	8	5/16"	2023
HTA143	-	3/8" M-DIN3852 A 5/16"	5,5	3/8"-19 GAS	22000	22	8	5/16"	2023
HTC143	-	3/8" M-DIN3852 C/B 5/16"	4,5	3/8"-19 GAS	22000	22	8	5/16"	2033,2043
HTB144	-	3/8" M-DIN3852 B/A 3/8"	6,5	3/8"-19 GAS	22000	22	10	3/8"	2024,2034

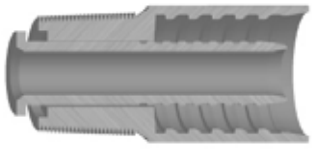
HU FLAT SEAL METRIC

MALE

Carbon steel	Stainless steel		Insert tail ID mm		WP	HEX	Hose size		
part no.	part no.	Description		Thread F	psi	CH	DN	inch	Hose compatibility
HUB1I0	-	7x1 M-FS MET B/A 5/32"	2,5	M7x1	22000	9	4	5/32"	2020, 2030, 2120

OI NPT ONE PIECE

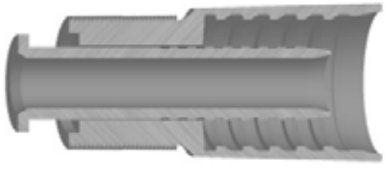
MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OIA1QG	-	1/16" M-NPT A 1/8" 1P	2	1/16"-27 NPTF	22000	-	3	1/8"	202B
OIA1Q0	-	1/16" M-NPT A 5/32" 1P	2,5	1/16"-27 NPTF	22000	-	4	5/32"	2020
OIJ1Q0	-	1/16" M-NPT A 5/32" 1	2,4	1/16"-27 NPTF	22000	-	4	5/32"	2120
OIA100	-	1/8" M-NPT A 3/16" 1P	2,5	1/8"-27 NPTF	22000	-	4	5/32"	2020
OIJ100	-	1/8" M-NPT A 3/16" 1P	2,4	1/8"-27 NPTF	22000	-	4	5/32"	2120
OIA101	-	1/8" M-NPT A 3/16" 1P	3,5	1/8"-27 NPTF	22000	-	5	3/16"	2021
OIJ101	-	1/8" M-NPT J 3/16 1P	3,5	1/8"-27 NPTF	22000	-	5	3/16"	2121
OIA122	-	1/4" M-NPT A 1/4" 1P	4	1/4"-18 NPTF	22000	-	6	1/4"	2022
OIA123	-	5/16" M-NPT A 1/4" 1P	5,5	1/4"-18 NPTF	22000	-	6	5/16"	2023

OJ GAS ONE PIECE

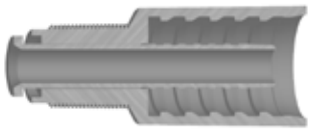
MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OJA122	-	1/4" M-GAS ONE PIECE A 1/4"	4	1/4"-19 GAS	22000	-	6	1/4"	2022

OS FLAT SEAL ONE PIECE

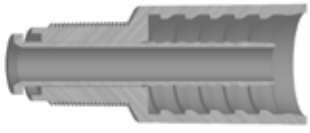
MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OSA101	-	1/8" M-FS A 3/16" 1P	3,5	1/8" - 28 GAS	22000	-	5	3/16"	2021
OSJ101	-	1/8" M-FS J 3/16" 1P	3,5	1/8" - 28 GAS	22000	-	5	3/16"	2121
OSA122	-	1/4" M-FS A 1/4" 1P	4	1/8" - 28 GAS	22000	-	6	1/4"	2022

OU FLAT SEAL METRIC ONE PIECE

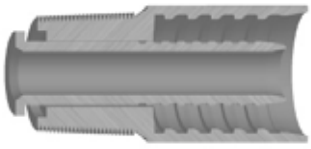
MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OUA1I0	-	7X1 M-FS MET A 5/32" 1P	2,5	M 7X1	22000	-	5	5/32"	2020
OUJ1I0	-	7X1 M-FS MET J 5/32" 1P	2,4	M 7X1	22000	-	4	5/32"	2120

OK NPT ONE PIECE

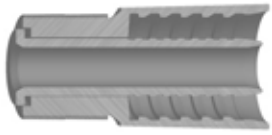
MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OKA1KG	-	6X1 M-NPT A 1/8" 1P	2	M 6X1	20000	-	3	1/8"	202B

OM M-HP ONE PIECE

MALE



Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
OMA130	-	5/16" M-HP A 5/32"	2,5	5/16"-24 UNF	22000	-	4	5/32"	2020

HY F-HP TO BLAST

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
-	HYK841	3/8" F-HP RH K 3/16"	2,8	3/8"-24 UNF RH	26100	10	5	3/16"	2041
-	HYK842	3/8" F-HP RH K 1/4"	4	3/8"-24 UNF RH	22000	12	6	1/4"	2042

HM M-HP TO BLAST

MALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
	HMK820	1/4 M-HP K 1/8 SS	1,8	1/4-28 UNF LH	30000	-	4	5/32"	2040
-	HMK821	1/4 M-HP K 3/16 SS	2,8	1/4-28 UNF LH	26100	10	5	3/16"	2041
-	HMK841	3/8 M-HP K 3/16 SS	2,8	3/8-28 UNF LH	26100	10	5	3/16"	2041
	HMK842	3/8 M-HP K 1/4 SS	4	3/8-24 UNF LH	22000	12	6	1/4"	2042

HG F-HP TO BLAST

FEMALE

Carbon steel	Stainless steel		Insert tail		WP	HEX	Hose size		
part no.	part no.	Description	ID mm	Thread F	psi	CH	DN	inch	Hose compatibility
-	HGK821	1/4" F-HP K 3/16"	2,8	1/4-28 UNF LH	26100	10	5	3/16"	2041

Accessories

Accessories for preparation and assembling of flexible hoses UHP Helix

SXD Hose Protection Jacket

Part No.	Description
SXD101	Protection Jacket 14X19
SXD102	Protection Jacket 16X22
SXD103	Protection Jacket 18X24
SXD104	Protection Jacket 20X27
SXD105	Protection Jacket 22X29
SXD106	Protection Jacket 25X33
SXD107	Protection Jacket 30X38
SXD108	Protection Jacket 35X45
SXD109	Protection Jacket 42X52

WARNING
Hose protection jacket is not an hose burst shield, and cannot be intended as protection for the operator from bursts, leaks or high pressure fluid injections.Hose protection jacket are intended only as hose cover protection from external surface abrasion and damages.

SXD Hose Protection Jacket Extra

INTERNAL STEEL SPIRAL

Part No.	Description
SXD001	Protection Jacket EXTRA 19X25,1
SXD002	Protection Jacket EXTRA 22X28,4
SXD003	Protection Jacket EXTRA 25X30,3
SXD004	Protection Jacket EXTRA 30X35,5
SXD005	Protection Jacket EXTRA 32X37,2
SXD006	Protection Jacket EXTRA 40X47,1
SXD007	Protection Jacket EXTRA 45X51,3
SXD008	Protection Jacket EXTRA 50X57,7

WARNING
Hose protection jacket is not an hose burst shield, and cannot be intended as protection for the operator from bursts, leaks or high pressure fluid injections.Hose protection jacket are intended only as hose cover protection from external surface abrasion and damages.

SRM Bend Restrictor

Part No.	Description	Length	Hose
SRM912	Bend Restrictor ID20	250 mm	2061 / 2161
SRM931	Bend Restrictor ID25	250 mm	2163
SRM932	Bend Restrictor ID23	250 mm	2063
SRM954	Bend Restrictor ID33	250 mm	2265
SRM971	Bend Restrictor ID41	250 mm	2067
SRM981	Bend Restrictor ID48,5	250 mm	2068

SXF Stainless Steel Ring

Part No.	Description
SXF001	Stainless Ring 29 X 25
SXF002	Stainless Ring 32 X 25
SXF003	Stainless Ring 35.1 X 25
SXF004	Stainless Ring 39.4 X 25
SXF005	Stainless Ring 45.3 X 27
SXF006	Stainless Ring 51 X 30
SXF007	Stainless Ring 57.3 X 30
SXF008	Stainless Ring 64 X 30
SXF009	Stainless Ring 22.6 X 20

SXE Hose Arrestor

Part No.	Description	Size	Strength
SXE001	Hose Arrestor D.6-10	L=600/740 mm	6,6 kN
SXE002	Hose Arrestor D.10-15	L=600/740 mm	10,2 kN
SXE003	Hose Arrestor D.15-20	L=600/780 mm	20,4 kN
SXE004	Hose Arrestor D.20-25	L=600/800 mm	20,5 kN
SXE005	Hose Arrestor D.25-30	L=600/800 mm	24,3 kN
SXE006	Hose Arrestor D.30-40	L=600/820 mm	35,1 kN
SXE007	Hose Arrestor D.40-50	L=600/850 mm	48,0 kN

SXE Hose Arrestor LI

Part No.	Description	Size	Strength
SXE102	Hose Arrestor D.10-15	L=600/740 mm	10,2 kN
SXE103	Hose Arrestor D.15-20	L=600/780 mm	20,4 kN
SXE104	Hose Arrestor D.20-25	L=600/800 mm	20,5 kN
SXE105	Hose Arrestor D.25-30	L=600/800 mm	24,3 kN
SXE106	Hose Arrestor D.30-40	L=600/820 mm	35,1 kN
SXE107	Hose Arrestor D.40-50	L=600/850 mm	48,0 kN

DAE Gland Nut

Part No.	Description	Compatible with collar
DAEAE09000901	Gland Nut MP 9/16 (ext. thread 13/16-16)	DAEAF09000901
DAEAE12001201	Gland Nut MP 3/4 (ext. thread 3/4-14)	DAEAF12001201
DAEAE16001601	Gland Nut MP 1 (ext. thread 1+3/8-12)	DAEAF16001601
DAHBE09000901	Gland Nut HP 9/16 & HP M14x1.5 (ext. thread 1+1/8-12)	DAHBF09000001 - DAHMF14000001
DAHBE06000601	Gland Nut HP 3/8 (ext. thread 3/4-16)	DAHBF06000601
DAHBE04000401	Gland Nut HP 1/4 (ext. thread 9/16-18)	DAHBF04000401

SXE Stainless Steel Catch Ring

Part No.	Description
SXG001	CATCH RING 9X33
SXG002	CATCH RING 10X39
SXG003	CATCH RING 13X41
SXG004	CATCH RING 14X42
SXG005	CATCH RING 24.4X48

DAE Collar

Part No.	Description	Compatible with
DAEAF09000901	Collar MP 9/16"-18 UNF LH	DAEAE09000901
DAEAF12001201	Collar MP 3/4"-16 UNF LH	DAEAE12001201
DAEAF16001601	Collar MP 1"-14 UNS LH	DAEAE16001601
DAHBF09000901	Collar HP 9/16"-18 UNF LH	DAHBE09000901 - DAHME14000001
DAHBF06000601	Collar HP 3/8"-24 UNF LH	DAHBE06000601 - DAHBE060M0001
DAHBF04000401	Collar HP 1/4"-28 UNF LH	DAHBE04000401 - DAHBE040M0001

Warning Label

Part No.	Description
MR242	WARNING LABEL

Skiving Tool

Part No.	Description
H0A008	TELESCOPIC SKIVING TOOL

General Terms Of Sale

General introduction
The following terms of sale will be applied to every contract concluded through a purchase order placed via the Internet, telefax, electronic mail and ordinary mail, and relating to the standard products listed in the site or in the Transfer Oil catalogues, at the appropriate page. Any different and specific terms and every order relating to personalised products may/must be the subject of a different, separate agreement.
In the event of a contrast between these standard terms and any special term agreed to between the parties, the special term will take priority, but without prejudice to all the other general terms, as per the points below, wherever compatible. The general introduction forms an integral part of every purchase and sale contract concluded through the sending of the order form, whether by e-mail, by post or by telefax.

Preamble
Transfer Oil, hereafter also referred to as the Seller, sells the products listed and described in the "Products" page that can be found in official Transfer Oil web site or in one of the Transfer Oil catalogues, hereafter also referred to as the Products, which may be purchased under the terms as per the clauses below.

Conclusion of the contract
The purchase order on the Internet site must be compiled by the Purchaser according to the instructions in the appropriate "Orders" WEB page. The sending of the order form on the site, compiled as per the instructions, shall imply acceptance on the part of the purchaser of all the clauses outlined below. The sale and purchase contract, also in the event that the order is sent by the purchaser via telefax, e-mail or post, will in any case be considered as concluded and complete with the dispatch, on the part of Transfer Oil, of the due acceptance of the purchase order by telefax or electronic mail.

Cancellation and/or modification of orders
Penalty.
Any cancellations, reductions and/or modifications of orders already accepted by Transfer Oil may be made within and not later than five days from the date of the order, by means of a written communication to be sent via fax or by registered letter with advice of receipt to the seller party. Any cancellation and/or modification notified after the above indicated period, or by other means different from those provided for in the previous paragraph shall imply a penalty of 10% of the price of the already ordered goods.
The penalty referred to in the above paragraph will be invariably equal to 50% of the price should the object of the sale be personalised products according to the purchaser's wishes and requirements.

The products
The Products that may be purchased, and the order of which implies – if accepted – total agreement with the general terms of sale, are those listed in the appropriate WEB page in the official Transfer Oil site, or in one of the Transfer Oil catalogues. The availability on stock of the above mentioned products is not guaranteed. In consideration of the particular applications of some products, the acceptance of the order can be subjected to a quantity equal to the economic batch of production in use at the moment of the order.
In the event that the subject of the sale are personalised products according to the purchaser's wishes and requirements, having as a result different characteristics from standard products, these general terms of sale shall be equally applicable and binding, but without prejudice to any different, special condition that shall take priority should it be the subject of specific, separate agreement. Should the purchaser's offer or the seller's acceptance make reference to a specific sample, the product which is the subject of the relative sale, except in the event of a different written agreement, is binding with respect to the sample characteristics only within the limits of reasonable approximation.

Price and payment
The price shall be fixed according to the products chosen by the purchaser on the date of dispatch of the order and shall remain unchanged, except with reference to the provisions of the following clause, also if the delivery is deferred by agreement but nevertheless within six months from the date of the order. The customer has the right to the price relating to the products effectively collected with reference to that order for a period of six months.
The seller has the right to revise the prices of the products on the basis of the price dynamics of raw materials, labour and packaging, but must notify the purchaser about new prices at least 30 days before their application, and in such cases, the purchaser has the right to withdrawal.
Payment must categorically be made following the methods specified by Transfer Oil in the completed order form and according to the terms therein prescribed.

Express resolutory clause
In accordance and by the effects of art. 1456 of the civil

code (c.c.), in the event of breach on the part of the purchaser of the obligations referred to in art. 5 (Price and payment), the seller shall have the right to cancel the contract/s already concluded, by means of a registered letter with advice of receipt, in which it declares to have made recourse to this clause, without prejudice, however, to any possible action for compensation for damages. Any change in the purchaser's balance sheet situation such as to endanger the correct fulfilment of the obligation of payment of the price, shall give the seller, in accordance with art. 1461 c.c., the right to suspend deliveries already agreed, and to cancel the contract by means of a simple written notice, without prejudice, however, to the payment of the amounts due for services already carried out. Equally, any incorrect or failed compliance with the obligations relating to the payment of the price shall give the seller the right to suspend deliveries already agreed, also those not relating to the breach in question, in accordance with art. 1460 c.c.

It should be understood, in particular, that:

Delivery
The sale is considered as Ex-Works, and as a result, the costs of transport are fully borne by the purchaser. Transfer Oil shall arrange to deliver the Products sold to the carrier indicated by the purchaser in the order form.

Cancellation
The seller may cancel the contract and not fulfil the obligation to deliver whenever, by reason of force majeure and in any case of unforeseen and extraordinary events, the execution of the delivery service becomes excessively onerous or in any case impossible.

Quality
Transfer Oil carries out a random check of its products on each production batch. Any technical modifications will be subject to acceptance by the purchaser for orders in progress.

Warranty
Transfer Oil guarantees the conformity of the products supplied to the characteristics expressly indicated in the relative WEB page and in its catalogues. The warranty for defects in the products is categorically limited only to manufacture defects attributable to the seller. The warranty has a limited duration of twelve months, starting from the date of delivery, and is dependent on the regular reporting of the defect by the purchaser in accordance with the following paragraphs, as well as on the express written request to the seller to take action under the warranty. As a consequence of the aforementioned request, the seller may, at its own choice and alternatively: a) supply ex-works free of charge to the purchaser, products of the same type and quantity as those found to be defective or non-conforming to what was agreed; b) declare the cancellation of the contract in writing, offering the return of the price against restitution of the supplied products.
Except in the event of malice or gross negligence on the part of the seller, any possible compensation for damages to the purchaser may not in any case exceed the invoice price for the disputed products. The warranty here agreed to assimilates and replaces legal guarantees for defects and deformities, and excludes any other liability on the part of Transfer Oil in any way arising from the supplied products; specifically, the purchaser may not make other requests for compensation for damages, a reduction in the price or the cancellation of the contract. Once the duration of the warranty has elapsed, no claim may be made against the seller. The seller may not be held liable with respect to the purchaser for any loss of profit, non-use, loss of production, loss of contracts or any other indirect or consequential damage, but only for proven damages to persons or things, attributable to the sold products, in the event of its proven gross negligence and/or incompetence in their manufacture.

Claims
Claims relating to quantity, colour, or to quality faults and defects or to non-conformity that the purchaser may detect as soon as they come into possession of the goods, must be made by the purchaser in writing by means of a registered letter with advice of receipt, on penalty of forfeiture, not later than eight days from the moment in which the products arrive at their place of destination. Should the claim turn out to be unfounded, the purchaser shall be bound to reimburse the seller all costs borne by the latter for carrying out checks (any travel costs, expert opinions, etc.).

Interpretations
Any reference made to general terms, list prices, various attachments or to other material of the seller or of third parties, must be considered as referring to the terms and documents applied upon the conclusion of the contract.

Applicable law and competent court
These General terms of Sale, together with the Contract to which they refer, shall be regulated by Italian laws. The Court of Parma shall be the exclusive competent court for any dispute relating to, or deriving from, the Contract.

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