HELIX

ULTRA HIGH PRESSURE

THERMOPLASTIC HOSE DIVISION

TRANSFER OIL


TRANSFER OIL


TRANSFER OIL
hydraulic
& industrial
GONIX
air conditioning
& refrigeration
TRANSFER OIL

Transfer Oil S.p.A., with more than 35 years of experience, are today one of the major independent thermoplastic hose manufacturers for various applications in the medium, high, very high and ultra high pressure range.
With a constant attention for quality and innovation, Transfer Oil continue to grow its strategic partner base and product range to offer solutions for a variety of specialized industries.

Since its founding all products manufactured by Transfer Oil are made in Italy.

Transfer Oil

Transfer Oil S.p.A., more than 20 years ago, was one of the first companies in its sector to achieve certification of its Quality Management System in accordance with the internationally recognised standard ISO 9001. With awareness that environment and environmental sustainability are fundamental core values for both society and for the future expansion of our company, Transfer Oil has strived for, and achieved, another important goal, the certification of our Environmental Management System in accordance with the internationally recognised environmental standard ISO 14001.

Engineered integrity is maintained throughout the manufacturing process which ensures that the critical dimensions can be continuously controlled and maintained throughout the production cycle.

Our complete range of TO UHP products will provide our distribution partners with a pressure capability spanning from 690 bar up to 2800 bar from one single source.

Hoses made by Transfer Oil are made to the highest internal standards which have been accredited by ISO 9001:2008 certification. Engineered integrity is maintained throughout the manufacturing process that ensures that the critical dimensions can be continuously controlled and maintained throughout the production cycle.

TO HYDRAULIC

Thermoplastic hose and fitting solutions used in a wide variety of high pressure hydraulic fluid power applications such as general hydraulic systems for lift-trucks, aerial platforms, cranes, mobile tensioning devices, rescue tools and off-shore equipment including non-conductive variants.

TO INDUSTRIAL

Thermoplastic and PTFE hose and fitting solutions for a wide variety of industrial applications such as high pressure sewer jetting, lubrication & greasing equipment, CNG refuelling systems, gas and water supply, paint spray and aggressive chemicals applicators, air breathing, cylinder refilling and many more.

TO UHP

Multi Spiral Ultra High Pressure hoses and fittings (up to 2800 bar/40600 psi), characterized by a combination of different spiral steel reinforcement layers, perfect for waterjet cutting, tube & tank cleaning, surface preparation & paint removal, hydro demolition, ships & vessel cleaning, waterblast and general industrial cleaning.

THE QUALITY SYSTEM

Transfer Oil – one of the first companies in the industry to obtain the ISO 9001 certification in 1993 – has developed its own quality system to guarantee customer's satisfaction by using computerized control production systems to which all processes of both production facilities are connected.

— ISO 9001:2008 Obtained in 1993
— One of the first italian industries applying ISO standards to manage the QUALITY SYSTEM
— ISO 14001:2004 Obtaind in 2013
— One of the first italian companies in this industry to certificate their Environmental management system
— BS OHSAS 18001 Obtained in 2015


TRANSFER OIL - TO UHP - 2163 - 6SWH - HELIX - 5/16 - DN8 - WP 2500 bar / 36200 psi - MADE IN ITALY - www.transferoil.com - A63222

Milestones

—1979

Foundation of Transfer Oil. Manufacturing of flexible thermoplastic hoses for hydraulic systems and industry.

—1985

The production facilities move to the industrial zone of Sacca 20 Km from Parma (Italy).

—1992

New building for production and offices were constructed. New covered space up to 6.000 m^2/ 65.000 sq ft.

—1995

With a total surface of 8.000 m^2 / 86.000 sq ft In 10 years (1985-1995) the production plants have tripled in size.

—2011

Transfer Oil's products are sold in over 65 countries in 5 Continents.

—2012

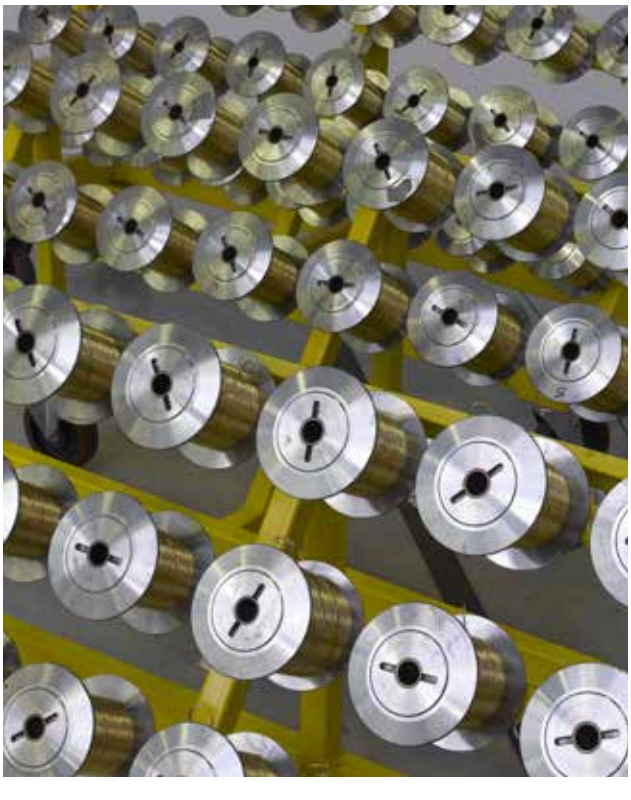
Construction of a new 5.000 m2 (16.700 sq ft) annexed plant. On the roof is installed a photovoltaic / solar system capable of generating one-fifth of the factory's annual energy demand.

—2013

Launch of the division TO UHP – Thermoplastic multispiral hoses for ultra high pressure applications such as water cutting, UHP tube cleaning, surface preparation, paint removal, hydro demolition, waterblasting, bolt tensioning. ISO14001 certification of Transfer Oil's environmental management system is one of the first in this industry.

—2015

OHSAS 18001 – Occupational Health and Safety Management System in accordance with the British Standard.



Quality system

FULL TRACEABILITY
ON EVERY SINGLE COMPONENT

At the start of the each spiral reinforcement process there is a dimensional control check and pressure performance check of the hose on the burst test rig by the Quality Assurance Department.

After extrusion of the cover and printing of the hose with unique batch number the performance of the batch of hose is verified on the burst test rig by the Quality Assurance Department.

BURST TEST RIG
10,000 BAR | 145,000 PSI

To perform burst pressure testing to confirm minimum burst pressure specification for validation of new HELIX multi spiral hose and fittings and also verification of HELIX production, Transfer Oil has installed a Burst test rig presently capable of testing hoses up to a pressure of 10000 bar (145000 psi). In addition the rig is capable of automatic measurement of change in length at specified maximum working pressure and performing Leakage testing. The machine is able to pressurise hose with a programmable pressure rise and tests are conducted in conformance with ISO 1402 specification.

The burst test pressure minimum requirement, pressure rise rate, pressure hold time for leakage test, pressure for automatic change in length measurement can be programmed by the operator according to the exact specification requirements using specialised synthetic oil as a test medium necessary for extreme high pressures.

This machine can test hoses with an internal diameter range from DN3 to DN25 up to 10000 bar (145000 psi) with facility to upgrade to 15000 bar (217500 psi).

The data of every single test performed is digitally recorded, and stored within, the QA data system.

FITTING INSPECTION AND VALIDATION

The control by the Quality Assurance Department on inserts and ferrules is carried out on 100% of items. The dimensional control of the inserts is performed by using a Tesa laser beam profile device. Upon positive inspection, Quality Assurance unlocks the articles.

At the packaging department the fittings are marked. At the end of the process the inserts and ferrules are packaged inside specially designed boxes.

At the HELIX assembly department with the order of production, the technician prepares the hose that is going to be assembled. After the crimping process, the ferrules are marked and then are added, if the order specifies, the various accessories such as cover, sleeves, catch ring, arrestor and yellow warning sticker.

ASSEMBLY VALIDATION TEST RIG
6,000 BAR | 87,000 PSI

To perform proof pressure testing on all production of HELIX multispiral hose assemblies Transfer Oil has installed a 6000 bar (87000 psi) proof pressure test stand. This machine is able to pressurize assembled hoses with a programmable pressure curve.

This means that the test pressure, the raise time, the pressure stabilization time, the pressure hold time, and the maximum allowable pressure drop can be programmed by the operator according to the exact specification requirements.

This machine can test hoses with a diameter range from DN3 to DN25, in long lengths, with a test pressure range from 400 bar (5800 psi) to 6000 bar (87000 psi) using a water mixture as test medium.

The data of every single test performed is recorded as an official test report and automatically sent to, and stored within, the QA data system.

Quality Assurance inspects the hose assembly before it is proof tested at the Maximator test stand. The pressure test of hose assemblies is performed 100%. At the end of testing, Quality Assurance issues the certificate of conformity which is attached to each hose assembly.

Key List

APPLICATIONS

Off–shore applications
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.

PACKAGING

Coils
Products identified with this icon, are supplied in coils. Just for officially released and certified Helix distributor. Depending on hose size and weight, coils can be of various lengths.

Hose assembly
Products identified with this icon, are supplied as factory made assemblies. Hose assemblies made in Transfer Oil's manufacturing plant are supplied, with protection caps, and with main data relative to pressure – order – length directly engraved on the ferrule.

Reel
Products identified with this icon, can be supplied on hose reels when long lengths are required. Just for officially released and certified Helix distributor.

CUSTOMIZED HOSE ASSEMBLIES

The rated working pressure of the application and the flow rate should always be used to determine the correct ID 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.

When ordering hose assemblies, be sure the following information is included:

- Quantity of assemblies required.
- Hose Catalog part number and description
- First coupling thread and end style.
- Second coupling thread and end style.
- Overall length of assembly.
- Hose assembly customization through accessories (protection jacket bend restrictor, hose arrestor, catch ring)

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

ACCESSORIES

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.

Protection jacket-spiral
Extra tough cover with internal spiral for rough and harsh environment. 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.

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.

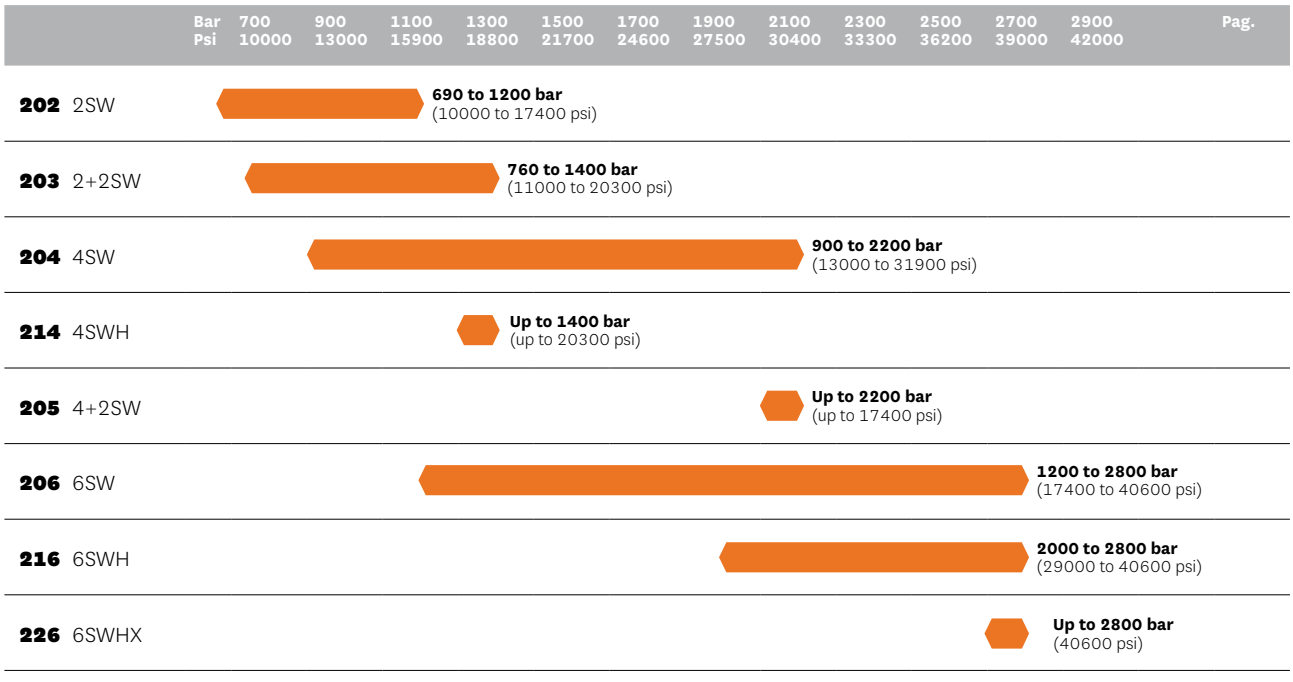
Protection jacket
A cristal clear PVC protection jacket provide an optimum protection from external surface abrasion and damage. Hose protection jacket is not an hose burst shield, and cannot be intended as protection for the operator from bursts, leaks or high pressure fluid injections. Hose protection jacket are intended only as hose cover protection from external surface abrasion and damages.

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)									
	nom. size	DN	3	4	5	6	8	10	12	20	25
		dash	-	-2	-3	-4	-5	-6	-8	-12	-1
		inch	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3/4	1
202B			1040								
2020				1200							
2021					1040						
2022						1040					
2023							900				
2024								690			
2025									690		
2030				1400							
2032						1280					
2033							1200				
2034								1100			
2035									1040		
2037										760	
2040				2200							
2041					1800						
2042						1640					
2043							1500				
2044								1400			
2045									1300		
2047										1000	
2048											900
2145									1400		
2057										1200	
2060				2800							
2061					2500						
2063							2100				
2064								1920			
2065									1800		
2067										1400	
2068											1200
2161					2800						
2162						2800					
2163							2500				
2165									2000		
2263							2800				

Hose family selection by pressure rating



Hose selection by pressure drop

HOSE ID	DN3		1/8"		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

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)

UHP

Multi Spiral Ultra High Pressure hoses and fittings (up to 2800 bar/40600 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. Hydraulic jacks, bolt tensioning, testing applications, general UHP hydraulic applications in the Off-Shore environment.

UHP 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.

202 2SW

Thermoplastic Hose for Ultra High Pressure Applications
From 690 to 1200 bar (10000 to 17400 psi)

FEATURES

Inner tube
DN 3-6: Polyoxymethylene (POM); DN 8-12: 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 +70°C
(-22°F to +158°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

Heat exchanger · Water blasting · Off-shore applications · Bolt tensioning · Pressure test equipment

PACKAGING

Coils · Hose-reel · Hose assembly

ACCESSORIES

Stainless steel catch ring · Protection jacket-spiral · Protection jacket · Hose arrestor

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	-	1/8	3	3,5	0,138	7,2	0,283	1040	15000	2600	37500	2,5:1	60	2,362	90	0,06	HAA1G1	-
●	2020	-2	5/32	4	4,1	0,161	8,2	0,323	1200	17400	3000	43500	2,5:1	70	2,756	110	0,074	HAA101	HAA801
●	2021	-3	3/16	5	5,2	0,205	9,8	0,386	1040	15000	2600	37500	2,5:1	90	3,543	150	0,101	HAA111	HAA811
●	2022	-4	1/4	6	6,4	0,252	11,5	0,453	1040	15000	2600	37500	2,5:1	110	4,331	210	0,141	HAA121	HAA821
●	2023	-5	5/16	8	7,9	0,311	13,7	0,539	900	13000	2250	32500	2,5:1	130	5,118	260	0,175	HAA131	-
●	2024	-6	3/8	10	9,9	0,390	16,4	0,646	690	10000	1725	25000	2,5:1	150	5,906	320	0,215	HAA141	-
●	2025	-8	1/2	12	12,8	0,504	20,4	0,803	690	10000	1725	25000	2,5:1	190	7,48	500	0,336	HAA151	-

Thermoplastic hose for Ultra High Pressure applications
From 760 to 1400 bar (11000 to 20300 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 +70°C
(-22°F to +158°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

Heat exchanger
Water blasting
Off-shore applications
Bolt tensioning
Pressure test equipment

PACKAGING

Coils
Hose-reel
Hose assembly

ACCESSORIES

Stainless steel catch ring
Protection jacket-spiral
Protection jacket
Hose arrestor

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
●	2030	-	5/32	4	4,0	0,157	10,3	0,406	1400	20300	3500	50750	2,5:1	60	2,362	180	0,121	HAB101	HAB801
●	2032	-4	1/4	6	6,2	0,244	13,2	0,520	1280	18500	3200	46250	2,5:1	90	3,543	280	0,188	HAB121	HAB821
●	2033	-5	5/16	8	7,9	0,311	15,4	0,606	1200	17400	3000	43500	2,5:1	100	3,937	370	0,249	HAB131	-
●	2034	-6	3/8	10	9,9	0,390	18,2	0,717	1100	15900	2750	39750	2,5:1	120	4,724	520	0,349	HAB141	HAB841
●	2035	-8	1/2	12	12,8	0,504	22,1	0,870	1040	15000	2600	37500	2,5:1	140	5,512	700	0,470	HAB151	HAB851
●	2037	-12	3/4	20	18,8	0,74	29,9	1,177	760	11000	1900	27500	2,5:1	220	8,661	1280	0,853	HAB171	HAB871

Thermoplastic Hose for Ultra High Pressure Applications
From 900 to 2200 bar (13000 to 31900 psi)

202 2SW
203 2+2SW
204 4SW
214 4SWH
205 4+2SW
206 6SW
216 6SWH
226 6SWHX

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
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Temperature range
-30°C to +70°C
(-22°F to +158°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

Heat exchanger · Water blasting · Off-shore applications · Bolt tensioning · Pressure test equipment

PACKAGING

Coils · Hose-reel · Hose assembly

ACCESSORIES

Stainless steel catch ring · Protection jacket-spiral · Protection jacket · Hose arrestor

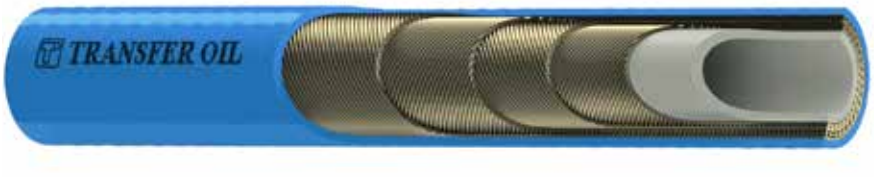
COLOR CODE

10,000 psi 690 bar · 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	0,157	9,9	0,390	2200	31900	5500	79750	2,5:1	120	4,724	210	0,141	HAC101	HAC801
●	2041	-3	3/16	5	5,1	0,201	11,6	0,457	1800	26100	4500	65250	2,5:1	140	5,512	270	0,181	HAC111	HAC811
●	2042	-4	1/4	6	6,3	0,248	13,3	0,524	1640	23700	4100	59250	2,5:1	170	6,693	400	0,269	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	480	0,323	HAC131	HAC831
●	2044	-6	3/8	10	9,9	0,390	18,8	0,740	1400	20300	3500	50750	2,5:1	190	7,48	710	0,477	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	840	0,565	HAC151	HAC851
●	2047	-12	3/4	20	18,8	0,740	30,0	1,181	1000	14500	2500	36250	2,5:1	250	9,843	1450	0,974	HAC171	-
●	2048	-16	1	25	24,8	0,976	38,3	1,508	900	13000	2250	32500	2,5:1	300	11,811	2220	1,492	-	HAC881

Thermoplastic hose for Ultra High Pressure applications

Up to 1400 bar (up to 20300 psi)



FEATURES

Inner tube
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
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- High impulse resistance
- Long length capability
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Hose assembly

ACCESSORIES

Stainless steel catch ring
Protection jacket-spiral
Protection jacket
Hose arrestor

COLOR CODE

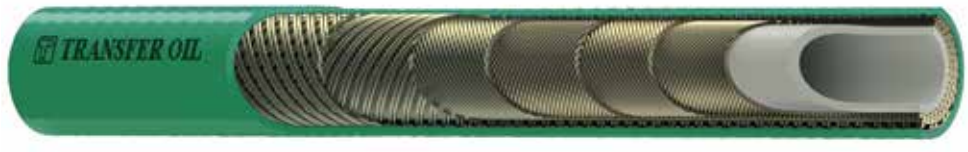
20,000 psi
1379 bar

	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
●	2145	-8	1/2	12	12,8	0,504	22,5	0,886	1400	20300	3500	50750	2,5:1	180	7,087	970	0,652	HAD151	HAD851

205 4+2SW

Thermoplastic Hose for Ultra High Pressure Applications

Up to 1200 bar (up to 17400 psi)



FEATURES

Inner tube
Polyamide (PA)

Reinforcement
Four + two spiral

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 +70°C
(-22°F to +158°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

Heat exchanger
Water blasting
Off-shore applications
Bolt tensioning
Pressure test equipment

PACKAGING

Coils
Hose - reel
Hose assembly

ACCESSORIES

Stainless steel catch ring
Protection jacket-spiral
Protection jacket
Hose arrestor

COLOR CODE

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
●	2057	-12	3/4	20	18,80	0,740	32,60	1,283	1200	17400	3000	43500	2,5:1	170	6,693	1860	1,250	HAG171	-

206 6SW

Thermoplastic hose for Ultra High Pressure applications

From 1200 to 2800 bar (17400 to 40600 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 +70°C
(-22°F to +158°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

Heat exchanger · Water blasting · Off-shore applications · Bolt tensioning · Pressure test equipment

PACKAGING

Coils · Hose-reel · Hose assembly

ACCESSORIES

Stainless steel catch ring · Protection jacket-spiral · Protection jacket · Hose arrestor · Bend restrictor

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	0,157	11,8	0,465	2800	40600	7000	101500	2,5:1	170	6,693	360	0,242	HAE101	-
●	2061	-3	3/16	5	5,0	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	2100	30400	5250	76000	2,5:1	240	9,449	770	0,517	HAE131	-
●	2064	-6	3/8	10	9,9	0,390	20,8	0,819	1920	27800	4800	69500	2,5:1	250	9,843	1070	0,719	HAE141	-
●	2065	-8	1/2	12	12,8	0,504	25,4	1,000	1800	26100	4500	65250	2,5:1	300	11,811	1570	1,055	HAE151	HAE851
●	2067	-12	3/4	20	18,8	0,740	33,7	1,337	1400	20300	3500	50750	2,5:1	350	13,78	2300	1,546	HAE171	-
●	2068	-16	1	25	24,8	0,976	41,0	1,614	1200	17400	3000	43500	2,5:1	600	23,622	2570	1,727	HAE181	-

Thermoplastic Hose for Ultra High Pressure Applications

From 2000 to 2800 bar (29000 to 40600 psi)

FEATURES

Inner tube
DN 5-8: Polyoxymethylene (POM); DN 12: 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 +70°C
(-22°F to +158°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

Heat exchanger
Water blasting
Off-shore applications
Bolt tensioning
Pressure test equipment

PACKAGING

Coils
Hose - reel
Hose assembly

ACCESSORIES

Stainless steel catch ring
Protection jacket-spiral
Protection jacket
Hose arrestor
Bend restrictor

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	5,0	0,197	14,8	0,583	2800	40600	7000	101500	2,5:1	210	8,268	600	0,403	HAF111	-
●	2162	-4	1/4	6	6,3	0,248	16,5	0,650	2800	40600	7000	101500	2,5:1	250	9,843	770	0,517	HAF121	-
●	2163	-5	5/16	8	8,1	0,319	19,0	0,748	2500	36200	6250	90500	2,5:1	250	9,843	980	0,659	HAF131	-
●	2165	-8	1/2	12	12,8	0,504	25,9	1,020	2000	29000	5000	72500	2,5:1	300	11,811	1650	1,109	HAF151	-

Thermoplastic multispiral hose for UHP water based applications
Up to 2800 bar (40600 psi)

FEATURES

Inner tube
Polyoxymethylene (POM)

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 length capability
- Excellent cut and crush resistance

Temperature range
-30°C to +70°C
(-22°F to +158°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

Heat exchanger
Water blasting
Off-shore applications
Bolt tensioning
Pressure test equipment

PACKAGING

Coils
Hose-reel
Hose assembly

ACCESSORIES

Stainless steel catch ring
Protection jacket-spiral
Protection jacket
Hose arrestor
Bend restrictor

COLOR CODE

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
●	2263	-5	5/16	8	7,60	0,299	19,40	0,764	2800	40600	7000	101500	2,5:1	250	9,843	1078	0,724	HAH131	-

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	Description	Hose size		C	D	L
Part No.	Part No.		DN	Inches	mm	mm	mm
HAA1G1	-	1/8" FERRULE HELIX 2SW	3	1/8	12,6	8,4	33,5
HAA101	HAA801	5/32" FERRULE HELIX 2SW	4	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

HAB 2+2SW

Carbon Steel	Stainless Steel	Description	Hose size		C	D	L
Part No.	Part No.		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	-	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	Description	Hose size		C	D	L
Part No.	Part No.		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	-	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	Description	Hose size		C	D	L
Part No.	Part No.		DN	Inches	mm	mm	mm
HAD151	HAD851	1/2" FERRULE HELIX 4SWH	12	1/2	33,0	24,5	62,0

HAE 6SW

Carbon Steel	Stainless Steel	Description	Hose size		C	D	L
Part No.	Part No.		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	52,7	43,0	78,0

HAF 6SWH

Carbon Steel	Stainless Steel	Description	Hose size		C	D	L
Part No.	Part No.		DN	Inches	mm	mm	mm
HAF111	-	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
HAF151	-	1/2" FERRULE HELIX 6SWH	12	1/2	36,2	27,2	66,0

HAG 4+2SW

Carbon Steel	Stainless Steel	Description	Hose size		C	D	L
Part No.	Part No.		DN	Inches	mm	mm	mm
HAG171	-	3/4" FERRULE HELIX 4+2SW	20	3/4	45,0	34,0	71,5

HAH 6SWHX

Carbon Steel	AISI 316L part no	Description	Hose size		C	D	L
Part No.	Part No.		DN	Inches	mm	mm	mm
HAH131	-	5/16" FERRULE HELIX 6SWHX	8	5/16	29,2	22,5	66,5

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	Description	Cone °	Insert tail ID mm	Thread F	Hose size		Hose compatibility						
part no.	part no.					DN	inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH
HBA12G	-	1/4" F-BSPP A 1/8"	24-60	2,0	1/4"-19 GAS	3	1/8	202B	-	-	-	-	-	-
HBB120	-	1/4" F-BSPP B/A 5/32"	24-60	2,5	1/4"-19 GAS	4	5/32	2020	2030	-	-	-	-	-
HBC120	-	1/4" F-BSPP C 5/32"	24-60	1,8	1/4"-19 GAS	4	5/32	-	-	2040	-	-	-	-
HBA121	-	1/4" F-BSPP A 3/16"	24-60	3,0	1/4"-19 GAS	5	3/16	2021	-	-	-	-	-	-
HBC121	HBC821	1/4" F-BSPP C 3/16"	24-60	2,5	1/4"-19 GAS	5	3/16	-	-	2041	-	-	-	-
-	HBF821	1/4" F-BSPP F/E 3/16"	24-60	2,4	1/4"-19 GAS	5	3/16	-	-	-	-	-	2061	2161
HBB122	HBB822	1/4" F-BSPP B/A 1/4"	24-60	4,0	1/4"-19 GAS	6	1/4	2022	2032	-	-	-	-	-
HBC122	HBC822	1/4" F-BSPP C 1/4"	24-60	3,5	1/4"-19 GAS	6	1/4	-	-	2042	-	-	-	-
HBA143	-	3/8" F-BSPP A 5/16"	24-60	5,5	3/8"-19 GAS	8	5/16	2023	-	-	-	-	-	-
HBC143	HBC843	3/8" F-BSPP C/B 5/16"	24-60	4,5	3/8"-19 GAS	8	5/16	-	2033	2043	-	-	-	-
HBB154	HBB854	1/2" F-BSPP B/A 3/8"	24-60	6,5	1/2"-14 GAS	10	3/8	2024	2034	-	-	-	-	-
HBE154	HBE854	1/2" F-BSPP E/C 3/8"	24-60	5,5	1/2"-14 GAS	10	3/8	-	-	2044	-	-	2064	-
HBA155	HBA855	1/2" F-BSPP A 1/2"	24-60	8,5	1/2"-14 GAS	12	1/2	2025	-	-	-	-	-	-
HBD155	HBD855	1/2" F-BSPP D/C/B 1/2"	24-60	7,5	1/2"-14 GAS	12	1/2	-	2035	2045	2145	-	-	-
HBG187	-	1" F-BSPP G/C/B/A 3/4"	60	13,0	1"-11 GAS	20	3/4	-	2037	2047	-	2057	-	-

HP BSPP

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HPB120	-	1/4" M-BSPP B/A 5/32"	2,5	1/4"-19 GAS	DN4	5/32"	2020	2030	-	-	-	-
HPC100	-	1/8" M-BSPP C 5/32"	1,8	1/8"-28 GAS	DN4	5/32"	-	-	2040	-	-	-
HPA121	-	1/4" M-BSPP A 3/16"	3,0	1/4"-19 GAS	DN5	3/16"	2021	-	-	-	-	-
HPC121	HPC821	1/4" M-BSPP C 3/16"	2,5	1/4"-19 GAS	DN5	3/16"	-	-	2041	-	-	-
HPB102	-	1/8" M-BSPP B/A 1/4"	4,0	1/8"-28 GAS	DN6	1/4"	2022	2032	-	-	-	-
HPB122	-	1/4" M-BSPP B/A 1/4"	4,0	1/4"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-
HPB142	-	3/8" M-BSPP B/A 1/4"	4,0	3/8"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-
HPC122	-	1/4" M-BSPP C 1/4"	3,5	1/4"-19 GAS	DN6	1/4"	-	-	2042	-	-	-
HPA123	-	1/4" M-BSPP A 5/16"	5,5	1/4"-19 GAS	DN8	5/16"	2023	-	-	-	-	-
HPA143	-	3/8" M-BSPP A 5/16"	5,5	3/8"-19 GAS	DN8	5/16"	2023	-	-	-	-	-
HPC123	-	1/4" M-BSPP C/B 5/16"	4,5	1/4"-19 GAS	DN8	5/16"	-	2033	2043	-	-	-
HPC143	-	3/8" M-BSPP C/B 5/16"	4,5	3/8"-19 GAS	DN8	5/16"	-	2033	2043	-	-	-
HPB144	-	3/8" M-BSPP B/A 3/8"	6,5	3/8"-19 GAS	DN10	3/8"	2024	2034	-	-	-	-
HPC144	-	3/8" M-BSPP C 3/8"	5,5	3/8"-19 GAS	DN10	3/8"	-	-	2044	-	-	-

HC Metric 24°/60°

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HCA131	-	14X1.5 F-MET24-60 A 3/16"	3,0	M14X1,5	DN5	3/16"	2021	-	-	-	-	-
HCC131	-	14X1.5 F-MET24-60 C 3/16"	2,5	M14X1,5	DN5	3/16"	-	-	2041	-	-	-
-	HCF831	14X1.5 F-MET24-60 F/E 3/16"	2,4	M14X1,5	DN5	3/16"	-	-	-	-	2061	2161
HCB132	-	14X1.5 F-MET24-60 B/A 1/4"	4,0	M14X1,5	DN6	1/4"	2022	2032	-	-	-	-
HCB142	HCB842	16X1.5 F-MET24-60 B/A 1/4"	4,0	M16X1,5	DN6	1/4"	2022	2032	-	-	-	-

HD DKOS

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility							
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH	6SWHX
HDB180	-	24X1.5 F-DKOS B/A 5/32"	2,5	M24x1,5	DN4	5/32"	2020	2030	-	-	-	-	-	-
HDA181	-	24X1.5 F-DKOS A 3/16"	3,0	M24x1,5	DN5	3/16"	2021	-	-	-	-	-	-	-
HDC161	-	20X1.5 F-DKOS C 3/16"	2,5	M20X1,5	DN5	3/16"	-	-	2041	-	-	-	-	-
HDB152	-	18X1.5 F-DKOS B/A 1/4"	4,0	M18X1,5	DN6	1/4"	2022	2032	-	-	-	-	-	-
HDB172	-	22X1.5 F-DKOS B/A 1/4"	4,0	M22X1,5	DN6	1/4"	2022	2032	-	-	-	-	-	-
HDB182	-	24X1.5 F-DKOS B/A 1/4"	4,0	M24x1,5	DN6	1/4"	2022	2032	-	-	-	-	-	-
HDC152	-	18X1.5 F-DKOS C 1/4"	3,5	M18X1,5	DN6	1/4"	-	-	2042	-	-	-	-	-
HDA163	-	20X1.5 F-DKOS A 5/16"	5,5	M20X1,5	DN8	5/16"	2023	-	-	-	-	-	-	-
HDA183	-	24X1.5 F-DKOS A 5/16"	5,5	M24x1,5	DN8	5/16"	2023	-	-	-	-	-	-	-
HDB163	-	20X1.5 F-DKOS B 5/16"	4,5	M20X1,5	DN8	5/16"	-	2033	-	-	-	-	-	-
HDC173	-	22X1.5 F-DKOS C/B 5/16"	4,5	M22X1,5	DN8	5/16"	-	2033	2043	-	-	-	-	-
HDC183	HDC883	24X1.5 F-DKOS C/B 5/16"	4,5	M24x1,5	DN8	5/16"	-	2033	2043	-	-	-	-	-
HDF183	HDF883	24X1.5 F-DKOS F/E 5/16"	4,5	M24x1,5	DN8	5/16"	-	-	-	-	-	2063	2163	
-	HDI883	24X1.5 F-DKOS I/H 5/16"	4,5	M24x1,5	DN8	5/16"	-	-	-	-	-	-	-	2263
HDB174	-	22X1.5 F-DKOS B/A 3/8"	6,5	M22X1,5	DN10	3/8"	2024	2034	-	-	-	-	-	-
HDB184	-	24X1.5 F-DKOS B/A 3/8"	6,5	M24x1,5	DN10	3/8"	2024	2034	-	-	-	-	-	-
-	HDE874	22X1.5 F-DKOS E/C 3/8"	5,5	M22X1,5	DN10	3/8"	-	-	2044	-	-	2064	-	-
HDE184	HDE884	24X1.5 F-DKOS E/C 3/8"	5,5	M24x1,5	DN10	3/8"	-	-	2044	-	-	2064	-	-
HDA175	-	22X1.5 F-DKOS A 1/2"	8,5	M22X1,5	DN12	1/2"	2025	-	-	-	-	-	-	-
HDA185	HDA885	24X1.5 F-DKOS A 1/2"	8,5	M24x1,5	DN12	1/2"	2025	-	-	-	-	-	-	-
HDB175	-	22X1.5 F-DKOS B 1/2"	7,5	M22X1,5	DN12	1/2"	-	2035	-	-	-	-	-	-
HDD185	HDD885	24X1.5 F-DKOS D/C/B 1/2"	7,5	M24x1,5	DN12	1/2"	-	2035	2045	2145	-	-	-	-
HDF185	HDF885	24X1.5 F-DKOS F/E 1/2"	7,5	M24x1,5	DN12	1/2"	-	-	-	-	-	2065	2165	-
HDE1G7	-	36X2 F-DKOS E/G/C/A 3/4"	13,0	M36X2	DN20	3/4"	2027	2037	2047	-	2057	2067	-	-
-	HDE8H8	42X2 F-DKOS E/C 1"	17,5	M42X2	DN25	1"	-	-	2048	-	-	2068	-	-

HE JIC

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility						
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH
-	HEB8B2	9/16" F-JIC B/A 1/4"	4,0	9/16"-18 UNF	DN6	1/4"	2022	2032	-	-	-	-	-
-	HEC8B2	9/16" F-JIC C 1/4"	3,5	9/16"-18 UNF	DN6	1/4"	-	-	2042	-	-	-	-
HEA1B3	HEA8B3	9/16" F-JIC A 5/16"	5,5	9/16"-18 UNF	DN8	5/16"	2023	-	-	-	-	-	-
-	HEC873	3/4" F-JIC C/B 5/16"	4,5	3/4"-16 UNF	DN8	5/16"	-	2033	2043	-	-	-	-
HEB174	HEB874	3/4" F-JIC B/A 3/8"	6,5	3/4"-16 UNF	DN10	3/8"	2024	2034	-	-	-	-	-
HEC174	HEC874	3/4" F-JIC C 3/8"	5,5	3/4"-16 UNF	DN10	3/8"	-	-	2044	-	-	-	-
-	HEG8F7	1+5/16" F-JIC G/C/B/A 3/4"	13,0	1+5/16"-12 UN	DN20	3/4"	-	2037	2047	-	2057	-	-
-	HEC8F8	1+5/16" F-JIC C 1"	17,5	1+5/16"-12 UN	DN25	1"	-	-	2048	-	-	-	-

HH NPT

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HHB122	-	1/4" F-NPT B/A 1/4"	4,0	1/4"-18 NPTF	DN6	1/4"	2022	2032	-	-	-	-

HW NPT No Hexagon

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HWA1QG	-	1/16" M-NPT A 1/8" NO HEX	2,0	1/16"-27 NPTF	DN3	1/8"	202B	-	-	-	-	-
HWB122	-	1/4" M-NPT B/A 1/4" NO HEX	4,0	1/4"-18 NPTF	DN6	1/4"	2022	2032	-	-	-	-

HI NPT

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility						
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH
HIB100	-	1/8" M-NPT B/A 5/32"	2,5	1/8"-27 NPTF	DN4	5/32"	2020	2030	-	-	-	-	-
HIB120	-	1/4" M-NPT B/A 5/32"	2,5	1/4"-18 NPTF	DN4	5/32"	2020	2030	-	-	-	-	-
HIB1Q0	-	1/16" M-NPT B/A 5/32"	2,5	1/16"-27 NPTF	DN4	5/32"	2020	2030	-	-	-	-	-
HIC100	-	1/8" M-NPT C 5/32"	1,8	1/8"-27 NPTF	DN4	5/32"	-	-	2040	-	-	-	-
HIA101	-	1/8" M-NPT A 3/16"	3,0	1/8"-27 NPTF	DN5	3/16"	2021	-	-	-	-	-	-
HIA121	-	1/4" M-NPT A 3/16"	3,0	1/4"-18 NPTF	DN5	3/16"	2021	-	-	-	-	-	-
HIC121	-	1/4" M-NPT C 3/16"	2,5	1/4"-18 NPTF	DN5	3/16"	-	-	2041	-	-	-	-
HIB102	-	1/8" M-NPT B/A 1/4"	4,0	1/8"-27 NPTF	DN6	1/4"	2022	2032	-	-	-	-	-
HIB122	HIB822	1/4" M-NPT B/A 1/4"	4,0	1/4"-18 NPTF	DN6	1/4"	2022	2032	-	-	-	-	-
HIB142	-	3/8" M-NPT B/A 1/4"	4,0	3/8"-18 NPTF	DN6	1/4"	2022	2032	-	-	-	-	-
HIC122	-	1/4" M-NPT C 1/4"	3,5	1/4"-18 NPTF	DN6	1/4"	-	-	2042	-	-	-	-
HIA123	-	1/4" M-NPT A 5/16"	5,5	1/4"-18 NPTF	DN8	5/16"	2023	-	-	-	-	-	-
HIA143	-	3/8" M-NPT A 5/16"	5,5	3/8"-18 NPTF	DN8	5/16"	2023	-	-	-	-	-	-
HIC123	-	1/4" M-NPT C/B 5/16"	4,5	1/4"-18 NPTF	DN8	5/16"	-	2033	2043	-	-	-	-
HIC143	-	3/8" M-NPT C/B 5/16"	4,5	3/8"-18 NPTF	DN8	5/16"	-	2033	2043	-	-	-	-
HIB144	HIB844	3/8" M-NPT B/A 3/8"	6,5	3/8"-18 NPTF	DN10	3/8"	2024	2034	-	-	-	-	-
-	HIB854	1/2" M-NPT B/A 3/8"	6,5	1/2"-14 NPTF	DN10	3/8"	2024	2034	-	-	-	-	-
HIA155	HIA855	1/2" M-NPT A 1/2"	8,5	1/2"-14 NPTF	DN12	1/2"	2025	-	-	-	-	-	-
HIB155	HIB855	1/2" M-NPT B 1/2"	7,5	1/2"-14 NPTF	DN12	1/2"	-	2035	-	-	-	-	-
HIG177	-	3/4" M-NPT G/C/B 3/4"	13,0	3/4"-14 NPT	DN20	3/4"	-	2037	2047	-	2057	-	-
HIG187	HIG887	1" M-NPT G/C/B 3/4"	13,0	1"-11,5 NPTF	DN20	3/4"	-	2037	2047	-	2057	-	-
-	HIC888	1" M-NPT C 1"	17,5	1"-11,5 NPTF	DN25	1"	-	-	2048	-	-	-	-

HF Type-M

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility							
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH	6SWHX
HFB1B0	-	9/16" F-TYPE M B/A 5/32"	2,5	9/16"-18 UNF	DN4	5/32"	2020	2030	-	-	-	-	-	-
-	HFE8B0	9/16" F-TYPE M E/C 5/32"	1,8	9/16"-18 UNF	DN4	5/32"	-	-	2040	-	-	2060	-	-
HFA1B1	-	9/16" F-TYPE M A 3/16"	3,0	9/16"-18 UNF	DN5	3/16"	2021	-	-	-	-	-	-	-
HFC1B1	HFC8B1	9/16" F-TYPE M C 3/16"	2,5	9/16"-18 UNF	DN5	3/16"	-	-	2041	-	-	-	-	-
-	HFF8B1	9/16" F-TYPE M F/E 3/16"	2,4	9/16"-18 UNF	DN5	3/16"	-	-	-	-	-	2061	2161	
HFB1B2	HFB8B2	9/16" F-TYPE M B/A 1/4"	4,0	9/16"-18 UNF	DN6	1/4"	2022	2032	-	-	-	-	-	-
HFC1B2	HFC8B2	9/16" F-TYPE M C 1/4"	3,5	9/16"-18 UNF	DN6	1/4"	-	-	2042	-	-	-	-	-
-	HFF8B2	9/16" F-TYPE M F 1/4"	3,0	9/16"-18 UNF	DN6	1/4"	-	-	-	-	-	-	2162	-
-	HFA873	3/4" F-TYPE M A 5/16"	5,5	3/4"-16 UNF	DN8	5/16"	2023	-	-	-	-	-	-	-
HFC173	HFC873	3/4" F-TYPE M C/B 5/16"	4,5	3/4"-16 UNF	DN8	5/16"	-	2033	2043	-	-	-	-	-
HFF173	HFF873	3/4" F-TYPE M F/E 5/16"	4,5	3/4"-16 UNF	DN8	5/16"	-	-	-	-	-	2063	2163	-
-	HFI873	3/4" F-TYPE M I/H 5/16"	4,5	3/4"-16 UNF	DN8	5/16"	-	-	-	-	-	-	-	2263
-	HFF8C3	7/8" F-TYPE M F/E 5/16"	4,5	7/8"-14 UNF	DN8	5/16"	-	-	-	-	-	2063	2163	-
-	HFI8C3	7/8" F-TYPE M I/H 5/16"	4,5	7/8"-14 UNF	DN8	5/16"	-	-	-	-	-	-	-	2263
-	HFB874	3/4" F-TYPE M B/A 3/8"	6,5	3/4"-16 UNF	DN10	3/8"	2024	2034	-	-	-	-	-	-
-	HFC874	3/4" F-TYPE M C 3/8"	5,5	3/4"-16 UNF	DN10	3/8"	-	-	2044	-	-	-	-	-
HFA185	HFA885	1" F-TYPE M A 1/2"	8,5	1"-12 UNF	DN12	1/2"	2025	-	-	-	-	-	-	-
HFD185	HFD885	1" F-TYPE M D/C/B 1/2"	7,5	1"-12 UNF	DN12	1/2"	-	2035	2045	2145	-	-	-	-
HFF185	HFF885	1" F-TYPE M F/E 1/2"	7,5	1"-12 UNF	DN12	1/2"	-	-	-	-	-	2065	2165	-
-	HFE8F7	1+5/16" F-TYPE M E/G/C/B 3/4"	13,0	1+5/16"-12 UN	DN20	3/4"	-	2037	2047	-	2057	2067	-	-
-	HFC8F8	1+5/16" F-TYPE M C 1"	17,5	1+5/16"-12 UN	DN25	1"	-	-	2048	-	-	-	-	-

HL MP

MALE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility							
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH	6SWHX
-	HLF873	3/4" M-MP F/E 5/16"	4,5	3/4"-16 UNF LH	DN8	5/16"	-	-	-	-	-	2063	2163	-
-	HLI873	3/4" M-MP I/H 5/16"	4,5	3/4"-16 UNF LH	DN8	5/16"	-	-	-	-	-	-	-	2263
-	HLA8B5	9/16" M-MP A 1/2"	8,5	9/16"-18 UNF LH	DN12	1/2"	2025	-	-	-	-	-	-	-
-	HLB8B5	9/16" M-MP B 1/2"	7,5	9/16"-18 UNF LH	DN12	1/2"	-	2035	-	-	-	-	-	-
-	HLD875	3/4" M-MP D/C 1/2"	7,5	3/4"-16 UNF LH	DN12	1/2"	-	-	2045	2145	-	-	-	-
-	HLF875	3/4" M-MP F/E 1/2"	7,5	3/4"-16 UNF LH	DN12	1/2"	-	-	-	-	-	2065	2165	-
-	HLE887	1" M-MP G/E/C/B 3/4"	13,0	1"-14 UNS LH	DN20	3/4"	-	2037	2047	-	2057	2067	-	-
-	HLE888	1" M-MP E/C 1"	17,5	1"-14 UNS LH	DN25	1"	-	-	2048	-	-	2068	-	-

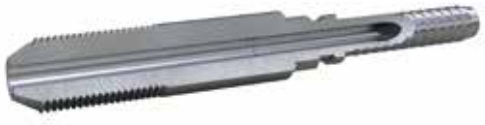
HM HP

MALE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility						
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH	6SWHX
-	HMB820	1/4" M-HP B/A 5/32"	2,5	1/4"-28 UNF LH	DN4	5/32"	2020	2030	-	-	-	-	-
-	HME820	1/4" M-HP E/C 5/32"	1,8	1/4"-28 UNF LH	DN4	5/32"	-	-	2040	-	2060	-	-
-	HME840	3/8" M-HP E/C 5/32"	1,8	3/8"-24 UNF LH	DN4	5/32"	-	-	2040	-	2060	-	-
-	HME8B0	9/16" M-HP E/C 5/32"	1,8	9/16"-18 UNF LH	DN4	5/32"	-	-	2040	-	2060	-	-
HMC121	HMC821	1/4" M-HP C 3/16"	2,5	1/4"-28 UNF LH	DN5	3/16"	-	-	2041	-	-	-	-
-	HMC841	3/8" M-HP C 3/16"	2,5	3/8"-24 UNF LH	DN5	3/16"	-	-	2041	-	-	-	-
-	HMC8B1	9/16" M-HP C 3/16"	2,5	9/16"-18 UNF LH	DN5	3/16"	-	-	2041	-	-	-	-
-	HMF821	1/4" M-HP F/E 3/16"	2,4	1/4"-28 UNF LH	DN5	3/16"	-	-	-	-	2061	2161	-
-	HMF841	3/8" M-HP F/E 3/16"	2,4	3/8"-24 UNF LH	DN5	3/16"	-	-	-	-	2061	2161	-
-	HMF8B1	9/16" M-HP F/E 3/16"	2,4	9/16"-18 UNF LH	DN5	3/16"	-	-	-	-	2061	2161	-
-	HMB8B2	9/16" M-HP B/A 1/4"	4,0	9/16"-18 UNF LH	DN6	1/4"	2022	2032	-	-	-	-	-
-	HMC842	3/8" M-HP C 1/4"	3,5	3/8"-24 UNF LH	DN6	1/4"	-	-	2042	-	-	-	-
-	HMF842	3/8" M-HP F 1/4"	3,0	3/8"-24 UNF LH	DN6	1/4"	-	-	-	-	-	2162	-
-	HMF8B2	9/16" M-HP F 1/4"	3,0	9/16"-18 UNF LH	DN6	1/4"	-	-	-	-	-	2162	-
-	HMC8B3	9/16" M-HP C/B 5/16"	4,5	9/16"-18 UNF LH	DN8	5/16"	-	2033	2043	-	-	-	-
-	HMF843	3/8" M-HP F/E 5/16"	4,5	3/8"-24 UNF LH	DN8	5/16"	-	-	-	-	2063	2163	-
-	HMF8B3	9/16" M-HP F/E 5/16"	4,5	9/16"-18 UNF LH	DN8	5/16"	-	-	-	-	2063	2163	-
-	HMI8B3	9/16" M-HP I 5/16"	4,5	9/16-18 UNF LH	DN8	5/16"	-	-	-	-	-	-	2263
-	HMI843	3/8" M-HP I/H 5/16"	4,5	3/8-24 UNF LH	DN8	5/16"	-	-	-	-	-	-	2263
-	HME8B4	9/16" M-HP E/C 3/8"	5,5	9/16"-18 UNF LH	DN10	3/8"	-	-	2044	-	2064	-	-
-	HMD8B5	9/16" M-HP D/C/B 1/2"	7,5	9/16"-18 UNF LH	DN12	1/2"	-	2035	2045	2145	-	-	-
-	HMF8B5	9/16" M-HP F/E 1/2"	7,5	9/16"-18 UNF LH	DN12	1/2"	-	-	-	-	2065	2165	-

HN HP Metric

MALE



Carbon Steel	Stainless Steel	Description	Insert Tail Id Mm	Thread F	Hose Size		Hose Compatibility						
Part no.	Part no.				DN	inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH	6SWHX
-	HNF831	14X1.5 M-HP MET F/E 3/16"	2,4	M14X1,5 LH	DN5	3/16"	-	-	-	-	2061	2161	-
-	HNF832	14X1.5 M-HP MET F 1/4"	3,0	M14X1,5 LH	DN6	1/4"	-	-	-	-	-	2162	-
-	HNF833	14X1.5 M-HP MET F/E 5/16"	4,5	M14X1,5 LH	DN8	5/16"	-	-	-	-	2063	2163	-
-	HNI833	14X1.5 M-HP MET I/H 5/16"	4,5	M14X1,5 LH	DN8	5/16"	-	-	-	-	-	-	2263

HG HP

FEMALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
-	HGF8B1	9/16" F-HP F/E 3/16"	2,4	9/16"-18 UNF	DN5	3/16"	-	-	-	-	2061	2161

HJ Gas

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HJB100	-	1/8" M-GAS B/A 5/32"	2,5	1/8"-28 GAS	DN4	5/32"	2020	2030	-	-	-	-
HJB120	-	1/4" M-GAS B/A 5/32"	2,5	1/4"-19 GAS	DN4	5/32"	2020	2030	-	-	-	-
HJA101	-	1/8" M-GAS A 3/16"	3,0	1/8"-28 GAS	DN5	3/16"	2021	-	-	-	-	-
HJA121	-	1/4" M-GAS A 3/16"	3,0	1/4"-19 GAS	DN5	3/16"	2021	-	-	-	-	-
HJC123	-	1/4" M-GAS C/B 5/16"	4,5	1/4"-19 GAS	DN8	5/16"	-	2033	2043	-	-	-

HK Metric

MALE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility						
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH
HKA1KG	-	6x1 M-MET A 1/8"	2,0	M6X1	DN3	1/8"	202B	-	-	-	-	-	-
HKB110	-	10X1 M-MET B/A 5/32"	2,5	M10X1	DN4	5/32"	2020	2030	-	-	-	-	-
HKB1I0	-	7X1 M-MET B/A 5/32"	2,5	M7X1	DN4	5/32"	2020	2030	-	-	-	-	-
HKB1J0	-	8X1.25 M-MET B/A 5/32"	2,5	M8x1.25	DN4	5/32"	2020	2030	-	-	-	-	-
HKA111	-	10X1 M-MET A 3/16"	3,0	M10X1	DN5	3/16"	2021	-	-	-	-	-	-
HKA1I1	-	7X1 M-MET A 3/16"	3,0	M7X1	DN5	3/16"	2021	-	-	-	-	-	-

HQ Gas100°

MALE
EXTERNAL CONE

Carbon Steel	Stainless Steel	Description	Insert tail Id mm	Thread f	Hose size		Hose compatibility						
Part no.	Part no.				Dn	Inch	2SW	2+2SW	4SW	4SWH	4+2SW	6SW	6SWH
HQB120	-	1/4" M-GAS100 EC B/A 5/32"	2,5	1/4"-19 GAS	DN4	5/32"	2020	2030	-	-	-	-	-
HQC121	-	1/4" M-GAS100 EC C 3/16"	2,5	1/4"-19 GAS	DN5	3/16"	-	-	2041	-	-	-	-
HQF121	-	1/4" M-GAS100 EC F/E 3/16"	2,4	1/4"-19 GAS	DN5	3/16"	-	-	-	-	-	2061	2161
HQB122	-	1/4" M-GAS100 EC B/A 1/4"	4,0	1/4"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-	-
HQA123	-	1/4" M-GAS100 EC A 5/16"	5,5	1/4"-19 GAS	DN8	5/16"	2023	-	-	-	-	-	-
-	HQC823	1/4" M-GAS100 EC C/B 5/16"	4,5	1/4"-19 GAS	DN8	5/16"	-	2033	2043	-	-	-	-

HR Usit

MALE

Carbon Steel	Stainless Steel	Description	Insert Tail Id Mm	Thread F	Hose Size		Hose Compatibility					
Part no.	Part no.				DN	inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HRB120	-	1/4" M-USIT B/A 5/32"	2,5	1/4"-19 GAS	DN4	5/32"	2020	2030	-	-	-	-
HRC121	-	1/4" M-USIT C 3/16"	2,5	1/4"-19 GAS	DN5	3/16"	-	-	2041	-	-	-
HRB122	-	1/4" M-USIT B/A 1/4"	4,0	1/4"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-
HRB142	-	3/8" M-USIT B/A 1/4"	4,0	3/8"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-

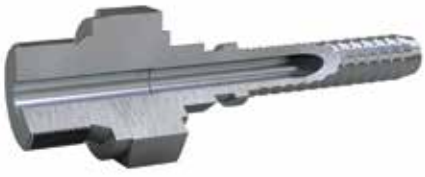
HS Flat Seal

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HSB100	-	1/8" M-FS B/A 5/32"	2,5	1/8"-28 GAS	DN4	5/32"	2020	2030	-	-	-	-
HSA101	-	1/8" M-FS A 3/16"	3,0	1/8"-28 GAS	DN5	3/16"	2021	-	-	-	-	-
HSB122	-	1/4" M-FS B/A 1/4"	4,0	1/4"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-
HSA123	-	1/4" M-FS A 5/16"	5,5	1/4"-19 GAS	DN8	5/16"	2023	-	-	-	-	-
-	HSB823	1/4" M-FS B 5/16"	4,5	1/4"-19 GAS	DN8	5/16"	-	2033	-	-	-	-

HT DIN3852

MALE



Carbon Steel	Stainless Steel	Description	Insert Tail Id Mm	Thread F	Hose Size		Hose Compatibility					
Part no.	Part no.				DN	inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HTB122	-	1/4" M-DIN3852 B/A 1/4"	4,0	1/4"-19 GAS	DN6	1/4"	2022	2032	-	-	-	-
HTA123	-	1/4" M-DIN3852 A 5/16"	5,5	1/4"-19 GAS	DN8	5/16"	2023	-	-	-	-	-
HTA143	-	3/8" M-DIN3852 A 5/16"	5,5	3/8"-19 GAS	DN8	5/16"	2023	-	-	-	-	-
HTC143	-	3/8" M-DIN3852 C/B 5/16"	4,5	3/8"-19 GAS	DN8	5/16"	-	2033	2043	-	-	-
HTB144	-	3/8" M-DIN3852 B/A 3/8"	6,5	3/8"-19 GAS	DN10	3/8"	2024	2034	-	-	-	-

HU Flat Seal Metric

MALE

Carbon Steel	Stainless Steel	Description	Insert tail ID mm	Thread f	Hose size		Hose compatibility					
Part no.	Part no.				DN	Inch	2SW	2+2SW	4SW	4SWH	6SW	6SWH
HUB1I0	-	7x1 M-FS MET B/A 5/32"	2,5	M7x1	DN4	5/32"	2020	2030	-	-	-	-

Accessories

Accessories for ready to install soutions.
Customized hose assemblies 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 19X27
SXD002	Protection Jacket EXTRA 22X29
SXD003	Protection Jacket EXTRA 25X33
SXD004	Protection Jacket EXTRA 30X38
SXD005	Protection Jacket EXTRA 32X42
SXD006	Protection Jacket EXTRA 40X49
SXD007	Protection Jacket EXTRA 45X55
SXD008	Protection Jacket EXTRA 50X60

⚠

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
SRM971	Bend Restrictor ID41	250 mm	2067
SRM981	Bend Restricotor 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 LL

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

SXH Collar

Part No.	Description	Compatible with
SXH800	Collar MP 9/16"-18 UNF LH	SHX810
SXH801	Collar MP 3/4"-16 UNF LH	SHX811
SXH802	Collar MP 1"-14 UNS LH	SXH812
SXH803	Collar Slim HP 9/16-18 UNF LH	SXH853
SXH820	Collar HP 9/16"-18 UNF LH	SXH830 - SXH850
SXH821	Collar HP 3/8"-24 UNF LH	SXH831 - SXH852
SXH822	Collar HP 1/4"-28 UNF LH	SXH832 - SXH851
SXH840	Collar HP M14X1.5 LH	SXH850 - SXH830
SXH841	Collar Slim HP M14X1.5 LH	SXH853
SXH842	Collar HP M18x1.5 LH	SXH854

SXH Gland Nut

Part No.	Description	Compatible with
SXH810	Gland Nut MP 9/16 (ext. thread 13/16-16)	SXH800
SXH811	Gland Nut MP 3/4 (ext. thread 3/4-14)	SXH801
SXH812	Gland Nut MP 1 (ext. thread 1+3/8-12)	SXH802
SXH830	Gland Nut HP 9/16 & HP M14x1.5 (ext. thread 1+1/8-12)	SXH820 - SXH840
SXH831	Gland Nut HP 3/8 (ext. thread 3/4-16)	SHX821
SXH832	Gland Nut HP 1/4 (ext. thread 9/16-18)	SXH822
SXH850	Gland Nut Metric HP 9/16 & HP M14x1.5 (ext. thread M30x2)	SXH840 - SXH820
SXH851	Gland Nut Metric HP 1/4 (ext. thread M16x1,5)	SXH822
SXH852	Gland Nut Metric HP 3/8 (ext. thread M20x1,5)	SXH821
SXH853	Gland Nut Metric HP 9/16 & HP M14x1,5 slim collar (ext. thread M26x1,5)	SXH803 - SXH841
SXH854	Gland Nut HP M18x1.5 - M30x20	SXH842

SXG Stainless Steel Catch Ring

Part No.	Description	Compatible with
SXG001	CATCH RING 9X33	202B - 2020
SXG002	CATCH RING 10X39	2021
SXG003	CATCH RING 13X41	2022 - 2060
SXG004	CATCH RING 14X42	2023 - 2032 - 2042
SXG005	CATCH RING 24.4X48	2025 - 2035 - 2045

Warning Label

Part No.	Description
MR242	WARNING LABEL

Adaptors

A dedicated set of adaptors to connect hose assemblies to test rig with a 9/16" Female HP Port, has been developed to ease the testing process. The latest development aims at reducing the less reliable and time consuming “chain” of connectors, often used to connect hose assembly to a 9/16" Female HP port.

F FS M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9A8IB	7X1 F-FS - 9/16 M-HP	-	-	M7	9/16"HP	73	22

Female Gas100° External cone M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9D82B	1/4 F-GAS100 - 9/16 M-HP	-	-	1/4" GAS	9/16" HP	73	22

M DKOS M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9H8B6	9/16 M-HP - 20X1.5 M-DKOS	-	-	9/16" HP	M20X1.5	53	36
H9H8BF	9/16 M-HP - 30X2 M-DKOS	-	-	9/16" HP	M30X2	57	32
H9H8B7	9/16 M-HP - 22X1.5 M-DKOS	-	-	9/16" HP	M22X1.5	55	30
H9H8B5	9/16 M-HP - 18X1.5 M-DKOS	-	-	9/16" HP	M18X1.5	53	30
H9H8BH	9/16 M-HP - 42X2 M-DKOS	-	-	9/16" HP	M42X2	62	46
H9H8BG	9/16 M-HP - 36X2 M-DKOS	-	-	9/16" HP	M36X2	59	36
H9H8B8	9/16 M-HP - 24X1.5 M-DKOS	-	-	9/16" HP	M24X1.5	55	30
H9F8B6	9/16 F-HP - 20X1.5 M-HP	-	-	9/16" HP	M20X1.5	-	-

SXK Connector

Part No.	Description
SXK001	CONNECTOR M30X2

Male Metric 24°/60° M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9S83B	14X1.5 M-MET 24/60 - M-HP 9/16	-	-	14X1.5	9/16" HP	53	30

Female Metric M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9B81B	10X1 F-MET - 9/16 M-HP	-	-	M10X1	9/16"HP	73	22
H9B8JB	8X1.25 F-MET - 9/16 M-HP			M8	9/16"HP	73	22
H9B8IB	7X1 F-MET - 9/16 M-HP			M7	9/16"HP	73	22
H9B8KB	6X1 F-MET - 9/16 M-HP	-	-	6X1	9/16" HP	73	22

Female Flat Seal M HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9C82B	1/4 F-FS - 9/16 M-HP	-	-	1/4" F-FS	9/16" M-HP	73	22
H9C80B	1/8 F-FS - 9/16 M-HP			1/8" F-FS	9/16" M-HP	73	22

Female/Male HP

Code	Description	MWP		Connections		Length mm	Hex Size
		psi	bar	A	B		
H9E8BB	9/16 F-HP - 9/16 M-HP	-	-	9/16" HP	9/16" HP	91	36

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

Thermoplastic hose installation factors

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.

PRESSURE DROP TABLE

HOSE ID	DN3		1/8"		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

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

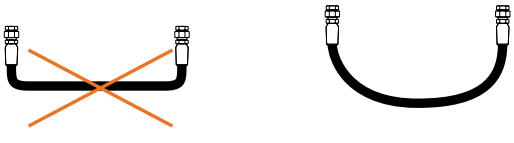
- Grey section of the table refers to velocity < 15 m/s (low drop pressure - recommended)
- Orange section of the table refers to velocity > 15 m/s (high drop pressure - not recommended)

Thermoplastic uhp 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.

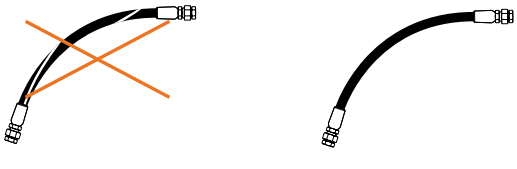
Since hose may change in length under the surge of high pressure, provide sufficient slack for expansion and contraction.



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	Polyester	Polyam-ide	Polyure-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
Butyl Alcohol	-	A	C	A
Calcium Chloride, 5%	A	A	A	-

Chemical product	Polyester	Polyam-ide	Polyure-thane	POM
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
Ethylene Oxide	A	-	C	C
Ferric Chloride Solutions	-	-	A	B
Fluorine	C	C	C	C
Formaldehyde, 40%	B	B	C	A

Chemical product	Polyester	Polyam-ide	Polyure-thane	POM
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
Phenol	C	C	C	C
Phosphoric Acid (10%)	-	-		A
Phosphoric Acid, 50%	-	-		C
Potassium Carbonate, 20%	-	-	-	-
Potassium Carbonate, 20%	-	-	-	-

Chemical product	Polyester	Polyam-ide	Polyure-thane	POM
Potassium Chloride, 90%	-	-	A	A
Potassium Hydroxide, (10%)	B	B	C	A
Potassium Permanganate, 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 for high pressure water jet machines

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.

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.

1.
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.

2.
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.

3.
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.

4.
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.

5.
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.

6.
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:

7.
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.

8.
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.

9.
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.

10.
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.

11.
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.).

12.
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.

13.
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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