Industrial Hose

Hydraulink®

Technical Information

Section 1

Hydraulink Hose and Fittings

PRODUCT SELECTION

GENERAL INFORMATION

An essential step in ensuring that a hydraulic system is safe and delivers optimum performance and service life is selecting the correct fluid conveying components.

Although a lot of the work undertaken in this industry is the replacement of existing components with a duplicate it is still good practice to check the product against the application especially if the service life of the product to be replaced was not acceptable or when fault finding on an existing system.

In some cases a problem with a hose assembly or other fluid conveying products can point to an underlying problem with the system itself or possibly the products have been incorrectly specified originally.

A simple method to assist in remembering the key selection criteria is the anagram:

F.A.C.T.O.R.S.

F = Fluid
A = Application
C = Connections
T = Temperature
O = Operating Pressures
R = Rate(s) of Flow
S = Size

F - ***FLUID***
The materials in the products selected must be compatible with the fluid that is to be conveyed. Compatibility considerations will vary between products depending on the fluid in question.

When checking product fluid compatibility the following should be taken into account;

Hose; where the application requires the use of chemicals or special oils it is advisable to ensure that the cover is also resistant. For gaseous applications it is possible that permeation could occur. Permeation, sometimes referred to as effusion, is the migration of fluid through the pores of the tube polymer resulting in gradual fluid loss. Where permeation occurs it is important to ensure that as well as the hose tube the reinforcement and cover are compatible. When conveying gaseous liquids it is advisable to pin-prick the cover to prevent fluid build-up under the cover causing blistering. Continual build-up of fluid in this blistering could eventually cause the cover to split resulting in potential hazards such as the release of toxic fumes, fire or even explosions.

Couplings & other products; As well ensuring the body material is compatible any seals in hose connectors, positional adaptors, quick release couplings, ball Valves, live swivels etc are also compatible.

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PRODUCT SELECTION

A - *APPLICATION*

When selecting products it is important to check how and where they are going to be used as this will help to assess the likely demands that will be placed on the products.
Some of the aspects to consider are;

- ➢ Is the product going to be installed on mobile equipment or industrial plant?
- ➢ Is the application static or dynamic?
- ➢ Any installation constraints?
- ➢ Any mechanical loadings? Care should be taken not subject products to tension or torsional loads.
- ➢ Will it be subjected to constant impulsing?
- ➢ What fluid lines best suit the application? Flexible or rigid?
  - ❖ Flexible (hose). Hose has advantages such as;
    - *Easier to route around obstacles*
    - *Helps to dampen sound*
    - *Can absorb pressure spikes*
    - *Less prone to damage from vibration or movement*
    - *Generally easier to replace in the field*
  - ❖ Rigid (pipe or tube). Advantages of rigid lines;
    - *Less susceptible to mechanical damage*
    - *Good heat dissipation*
    - *Tube can be bent to tight radii*
    - *Does not breakdown through ageing*
- ➢ If selecting hose consider the following:
  - ❖ Does the cover need to be abrasion resistant?
  - ❖ Does it need to be non-conductive?
  - ❖ Any requirement for the hose to meet any specific Industry specifications? Such as mining, marine, military etc.
  - ❖ O.D of hose if it to run over pulleys (forklift application)
  - ❖ Composition of hose, rubber or thermoplastic? Note; Thermoplastic hose types are excellent for use in the marine and food industries.

Taking the time to get a good overview of the application will help when considering other aspects in the selection process, some of which are interrelated (such as pressure, flow & size).

Some accessory products such as Quick Release Couplings & Ball valves have specific selection requirements that need to be considered. These are discussed in detail in the relevant training modules.

C - *CONNECTIONS*

When replacing an existing hose assembly match the existing end connections with the new ones. If a new assembly is being specified consider what interface (thread/sealing face) type would best suit the application. In most cases the type of connection is determined by the exit thread of the adaptor fitted to the port machined into the component to which the assembly is being fitted.

Confirm what style of hose connection is required (or preferred by the customer), where wire braided hose is being used it is possible to fit either Crimp or Re-usable (field attachable) and in low pressure applications a Push-On.

For 90° hose connections check the configuration required e.g. compact or swept bend style.

Rigid lines: pipe or tube

For pipe the most common connection is the welded type, this can be either a socket or butt weld style. Of these the butt weld should be preferred for high pressure however the socket style is the most commonly used due to the ease of assembly.

For tube there are three main options;

1. Flareless type
2. Flare type
3. Socket weld

T - *TEMPERATURE*

Two aspects of temperature must be considered when selecting products;

1. Fluid temperature; Check capability of product to withstand system fluid temperature, both minimum and maximum. Hydraulic systems can generate heat but this should not be excessive in well designed systems. The most common causes of excessive heat are undersized components or flow restrictions within the system.

2. Ambient temperature;
   The exposure to high or low ambient temperatures should also be considered. Generally there are not many issues associated with this.

   Hose is most likely to affected, some situations where a problem could occur are;
   When an installation requires hose to be run near a hot manifold it may be advisable to use a heat shield or sleeving.

   Where a hose is subjected to a high ambient temperature in conjunction with an elevated fluid temperature the service life may be reduced.

   Hose used in a cold environment, such as hoses on a forklift working in a coolstore, may have exhibit cracking on the cover.

Notes;

1. The viscosity rating of most hydraulic oils is set at a temperature of 40° Celsius.
2. Rubber polymers are affected differently by hot air than hot oil.
3. Rubber stores heat

PRODUCT SELECTION

O - *OPERATING PRESSURES*

Determine maximum system or circuit pressures, this may vary depending on the circuit function. Always take into account the possibility of pressure spikes when establishing the maximum pressures that could be generated in a system.

Remember to look at the application or function, this will help to visualise the possible loadings on the product.

For example, the crowd cylinder circuit on an excavator is more likely to be subjected to spike pressure than the slew circuit.

Always ensure that the product is working within a 4:1 safety factor. That is; the maximum pressure the product will be exposed to is less than 25% of the products minimum burst pressure. Where pressure spikes or impulsing can occur it is good practice, where this is possible, to specify a product that will be working at 75% of its pressure rating for normal system pressure, this will give a safety buffer to absorb spikes.

Note;

Any product fitted between the pump and valve will always be exposed to the highest pressures of the system.

R - *RATES OF FLOW*

There are two areas to look at with regards to fluid flow.

Volume;

This is the amount of fluid that will be flowing through the product in a given time. When selecting product it is best to look at the maximum flow that is to be conveyed. Maximum pump output is a good starting point but consideration should also be given to return flow from the piston side of cylinders, this can be high depending on the bore to annulus ratio of the cylinder.
Volume is usually measured in Gallons (imperial) or Litres (metric) per minute.

Velocity;

This is the speed of the fluid through the product and is directly related to the fluid volume and the product size. Fluid speed is a key factor in determining pressure drops and heat build up in systems.
Velocity is stated as; feet per second (imperial) or metres per second (metric)

S - *SIZE*

The size (flow area) of the product is key part in ensuring the system functions efficiently.
The flow area of the product and the volume of fluid determines the velocity of the fluid in the system. If the fluid velocity is too high then in some cases excessive pressure drop or heat generation can occur.
A Nomograph is the easiest method of determining fluid velocity for any given volume versus product size.

Notes;

The potential service life of products can be significantly reduced if they are constantly operating at maximum limits.
Some areas of the selection process are interrelated however the key to correct product selection is the understanding of the application and what is required of the product.

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

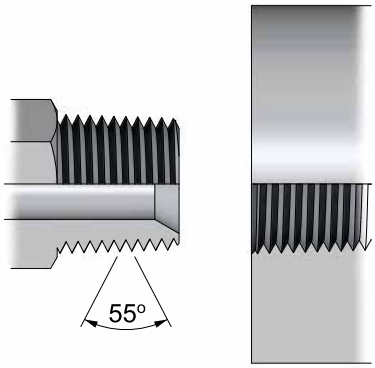
B.S.P.T. - BRITISH STANDARD PIPE TAPER

Taper: 1 in 16 by diameter

Thread Angle: 55°

The BSPT (British Standard Pipe Taper) male is intended to mate with the BSPT female only. Although the taper male will screw into BSP Parallel fixed female sockets, this is not recommended practice where avoidable as a reliable seal cannot be guaranteed.

While many BSPT males are coned 30° and will mate with BSP Parallel swivel nut females, this is not recommended practice as the taper form can deform the parallel thread and reduce the integrity of the seal.



Thread Size & TPI	Male Thread O.D. BSPT*	Female Thread I.D. BSPT
1/8-28	9.7	8.5
1/4-19	13.1	11.4
3/8-19	16.6	14.9
1/2-14	20.9	18.6
5/8-14	22.9	20.6
3/4-14	26.4	24.1
1-11	33.2	30.2
1.1/4-11	41.9	38.9
1.1/2-11	47.8	44.8
2-11	59.6	56.6

**Basic gauge plane diameter at basic gauge depth*

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

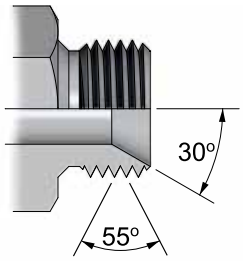
B.S.P.P. - BRITISH STANDARD PIPE PARALLEL

Thread Angle: 55°

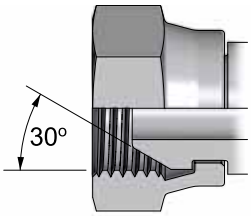
The British Standard Pipe Parallel (BSPP) male is typically coned 30° and will mate with either a BSPP swivel nut female or a BSPP female port.

BSPP female ports are normally spot faced, sealing is by either a soft metal washer, a bonded seal or a captive “O” ring.

In some cases,the port is chamfered to accept an “O” ring seal. (Similar to the U.N.O. style).



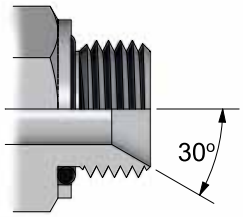
BSPP male



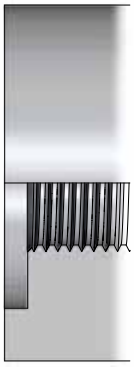
BSPP swivel nut female

Thread Size & TPI	Male Thread O.D. BSPP	Female Thread I.D. BSPP	Torque Settings BSPP nuts
1/8-28	9.7	8.5	12 Nm
1/4-19	13.1	11.4	26 Nm
3/8-19	16.6	14.9	47 Nm
1/2-14	20.9	18.6	79 Nm
5/8-14	22.9	20.6	104 Nm
3/4-14	26.4	24.1	128 Nm
1-11	33.2	30.2	160 Nm
1.1/4-11	41.9	38.9	200 Nm
1.1/2-11	47.8	44.8	270 Nm
2-11	59.6	56.6	350 Nm

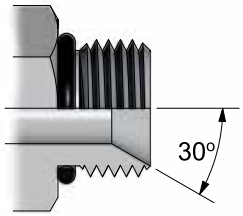
N.B. Torque values are nominal and supplied as a guide only.



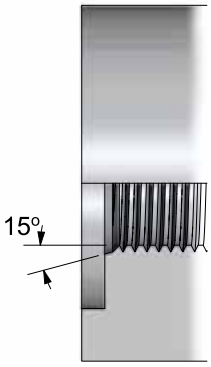
BSPP male with captive o-ring seal



BSPP female port (spot-faced)



BSPP male with o-ring seal



BSPP female port (chamfered)

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

N.P.T. - NATIONAL PIPE THREAD

N.P.T.F.; National Pipe Taper Fuel
N.P.S.M.; National Pipe Straight Mechanical
N.P.S.F.; National Pipe Straight Fuel

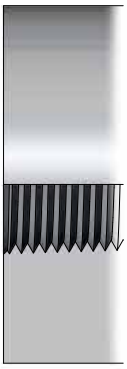
Taper: 1 in 16 by diameter.

Thread Angle: 60°

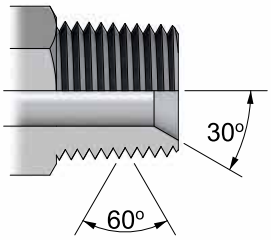
The National Pipe Taper Fuel (NPTF) male is coned 30° and will mate with the NPTF female port (taper), the National Pipe Straight Mechanical (NPSM) female (swivel nut female with 30° sealing cone), or the National Pipe Straight Fuel (NPSF) female port (parallel).

As NPTF is a “dryseal” thread, no sealing medium is required. However a sealing medium can be used to prevent thread galling.

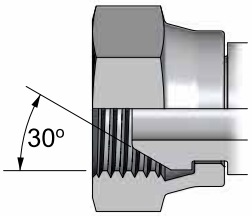
Thread Size & TPI	Male Thread O.D.	Female Thread I.D.	
	NPTF	NPTF	NPSF/SM
1/8-27	10.0	8.6	8.7
1/4-18	13.3	11.2	11.4
3/8-18	16.7	14.7	14.9
1/2-14	20.8	18.2	18.8
3/4-14	26.1	23.5	23.9
1-11.1/2	32.7	29.5	30.2
1.1/4-11.1/2	41.4	38.3	39.1
1.1/2-11.1/2	47.5	44.4	45
2-11.1/2	59.3	56.2	57



NPTF female port (taper)



NPTF male (taper)



NPSM swivel nut female

NPSF female port (parallel)

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

J.I.C / U.N. O-RING THREAD

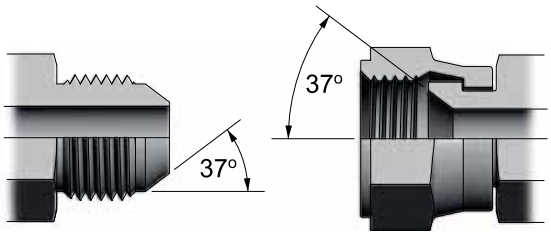
J.I.C. and U.N.“O”-Ring threads are both of the Unified National Form.

J.I.C. refers to the 37° flare type sealing face. The J.I.C. female is usually a swivel nut, but can also be a fixed socket (port) with a 37° sealing face in the base of the socket.

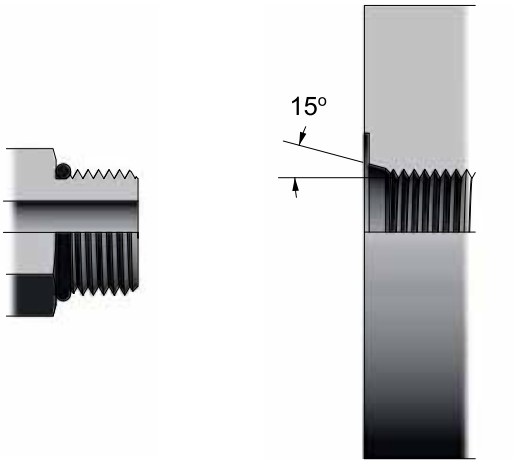
U.N.“O”-Ring refers to the thread type and “O”-Ring for sealing. The female U.N.O port has a chamfer to accept the o-ring.

Thread Size & TPI	Female Thread I.D.	Tube O.D.	Torque Settings JIC	Torque Settings UN"O"
7/16 x 20 UNF	9.8	1/4"	14 Nm	21 Nm
1/2 x 20 UNF	11.5	5/16"	19 Nm	25 Nm
9/16 x 18 UNF	13.0	3/8"	30 Nm	34 Nm
3/4 x 16 UNF	17.4	1/2"	50 Nm	72 Nm
7/8 x 14 UNF	20.3	5/8"	80 Nm	100 Nm
1 1/16 x 12 UN	24.8	3/4"	130 Nm	176 Nm
1 3/16 x 12 UN	28.2	7/8"	140 Nm	220 Nm
1 5/16 x 12 UN	31.2	1"	156 Nm	290 Nm
1 5/8 x 12 UN	39.2	1.1/4"	188 Nm	350 Nm
1 7/8 x 12 UN	45.5	1.1/2"	268 Nm	460 Nm
2 1/2 x 12 UN	61.5	2"	346 Nm	540 Nm

N.B. Torque values are nominal and supplied as a guide only.



JIC male **JIC swivel nut female**



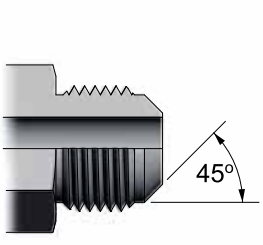
UNO male **UNO female port (chamfered)**

Hydraulink Hose and Fittings

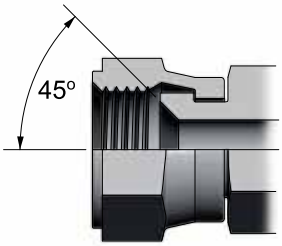
THREAD IDENTIFICATION

S.A.E. - SOCIETY OF AUTOMOTIVE ENGINEERS

This system utilises the U.N. thread series and a 45° flare sealing face. Primarily used in the automotive and refrigeration industries.



SAE male



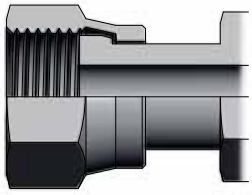
SAE swivel nut female

Thread Size & TPI	Tube O.D.	Female Thread I.D.
7/16-20	1/4"	9.8
1/2-20	5/16"	11.4
5/8-18	3/8"	14.3
11/16-16	7/16"	16
3/4-16	1/ 2"	17.5
7/8-14	5/8"	20.5
1.1/16-14	3/4"	24.8
1.1/4-12	7/8"	30.1
1.3/8-12	1"	33.2

O.R.F.S. - O-RING FACE SEAL

This system uses an “O”-Ring for sealing. The “O”-Ring is housed in the face of the male and is compressed by the face of the female on connection. Connecting threads are U.N. form.

ORFS male



ORFS swivel nut female

Thread Size & TPI	Female Thread I.D.	Tube O.D.	"O"-ring size	Torque Settings *
9/16-18 UNF	12.8	1/4"	5/16x1/16	14-16 Nm
11/16-16 UN	16.0	3/8"	3/8x1/16	24-27 Nm
13/16-16 UN	19.1	1/2"	1/2x1/16	43-47 Nm
1-14 UN	23.5	5/8"	5/8x1/16	60-69 Nm
1.3/16-12UN	26.1	3/4"	3/4x1/16	90-95 Nm
1.7/16-12 UN	34.2	1"	15/16x1/16	125-135 Nm
1.11/16-12 UN	40.6	1.1/4"	1.3/16x1/16	170-190 Nm
2-12 UN	48.0	1.1/2"	1.1/2x1/16	200-225 Nm

N.B. Torque values are nominal and supplied as a guide only.

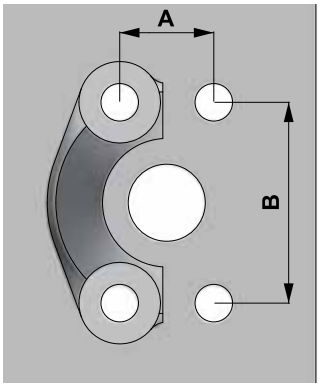
THREAD IDENTIFICATION

S.A.E. O-RING FLANGES (SAE - J518)

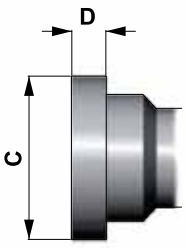
These connections utilise an “O”-Ring for sealing and are widely used for connecting to pump and motor parts as well as end terminations for pipe runs.

The “O”-Ring is housed in the flange head face and seals on a flat face female port, the flange is held in place by two clamp halves (or a one piece clamp) which are secured by four bolts.

SAE flanges are available in two pressure classes: **Standard Series, Code 61**, which goes to 5000 psi (dependent on size), and the **High Pressure Series, Code 62**, which is rated to 6000 psi for all sizes.



SAE flange clamp / port bolt spacing



SAE flange head dimensions

Nominal Flange Size	A (mm)		B (mm)		C (mm)		D (mm)	
	Code 61	Code 62	Code 61	Code 62	Code 61	Code 62	Code 61	Code 62
1/2	17.48	18.24	38.1	40.49	30.18	31.75	6.75	7.75
***5/8**	19.8	-	42.90	–	34.0	–	6.73	–
3/4	22.23	23.80	47.63	50.80	38.10	41.28	6.73	8.76
1	26.19	27.76	52.37	57.15	44.45	47.63	8.0	9.53
1.1/4	30.18	31.75	58.72	66.68	50.80	53.98	8.0	10.29
1.1/2	35.71	36.50	69.85	79.38	60.33	63.50	8.0	12.57
2	42.88	44.45	77.77	96.82	71.42	79.38	9.53	12.57

Nominal Flange Size	Pressure Rating		"O"-ring size		UNC Bolt size		Bolt torque	
	Code 61	Code 62	Code 61 and 62	AS568A number	Code 61	Code 62	Code 61	Code 62
1/2	5000 psi	6000 psi	3/4x1/8	210	5/16x1.1/4	5/16x1.1/4	20-25 Nm	20-25 Nm
3/4	5000 psi	6000 psi	1x1/8	214	3/8x1.1/4	3/8x1.1/2	28-40 Nm	34-45 Nm
1	5000 psi	6000 psi	1.5/16x1/8	219	3/8x1.1/4	7/16x1.3/4	37-48 Nm	56-68 Nm
1.1/4	4000 psi	6000 psi	1.1/2x1/8	222	7/16x1.1/2	1/2x1.3/4	48-62 Nm	85-102 Nm
1.1/2	3000 psi	6000 psi	1.7/8x1/8	225	1/2x1.1/2	5/8x2.1/4	62-79 Nm	158-181 Nm
2	3000 psi	6000 psi	2.1/4x1/8	228	1/2x1.1/2	3/4x2.3/4	73-90 Nm	271-294 Nm

**The 5/8* size flange is not part of the SAE`standard. It is included in the J.I.S. standards and is used by Komatsu and other O.E.M’s.*

N.B. Torque values are nominal and supplied as a guide only

Caterpillar flanges used on XT3 hose are the same as the SAE Code 61, XT5 flanges have the same diameter as the SAE Code 62 but are thicker in the flange head.

French Gaz (Poclain) flanges are completely different to, and will not interchange with the SAE flanges.

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

J.I.S. - JAPANESE INDUSTRIAL STANDARDS

Japanese Industrial Standards (J.I.S.) incorporate B.S.P. and metric threads as well as flanges in their connection standards.

Taper Threads:

Type R; BSPT Male *(Identical to BSP standard)*

Parallel Threads:

Type G; BSPP Male *(Identical to BSP standard)*

Type C; BSPP Swivel Nut Female *(Identical to BSP standard - for thread data please refer to BSPP section)*

Type F; BSPP Swivel Nut Female, 30° Flare Seat

Type M; Metric, Male, 30° Cone

Type MF; Metric, Swivel Nut Female, 30° Flare Seat

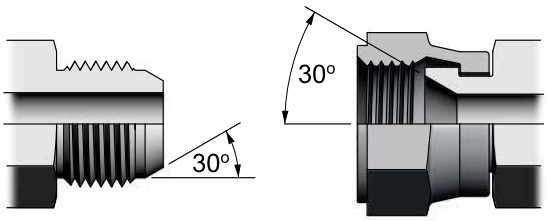
"O"-Ring Flanges:

Type I; Equivalent to Code 61 *(Identical to SAE standard)*

Type II; Equivalent to Code 62 *(Identical to SAE standard)*

THREAD SPECIFICATIONS			
Metric Threads (J.I.S)		Komatsu Threads (Metric)	
14-1.5*	12.5	**14-1.5***	12.5
18-1.5*	16.5	**18-1.5***	16.5
22-1.5*	20.5	**22-1.5***	20.5
27-2.0	25	**24-1.5**	22.5
33-2.0	31	**30-1.5**	28.5
42-2.0	40	**33-1.5**	31.5
50-2.0	48	**36-1.5**	34.5
60-2.0	58	**42-1.5**	40.5

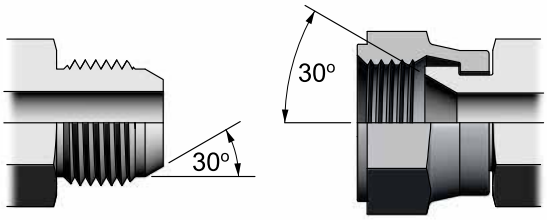
** denotes interchange sizes between JIS and Komatsu.*



Type F JIS male

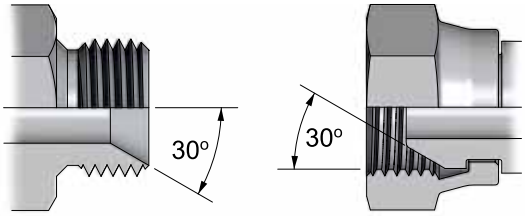
For thread data please refer to BSPP section

Type F JIS swivel nut female



Type MF JIS male

Type MF JIS swivel nut female



Type M JIS male

Type M JIS swivel nut female

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

D.I.N. METRICS 24° CONE SYSTEM

The D.I.N. System allows for the connection of hose assembies and tube in three main pressure series:

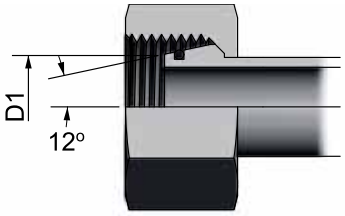
Series LL;	Extra Light, up to 100 bar
Series L;	Light up to 250 bar
Series S;	Heavy up to 640 bar

The pressure ranges are determined by the tube O.D. and the thread size e.g. a 12mm light coupling has an 18mm thread O.D. whereas a 12mm heavy coupling has a 20mm O.D. thread.

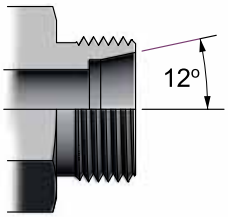
N.B: Rated coupling pressures are subject to the design pressures of the tube or hose being used.

Tubing is connected to the D.I.N. Male by the use of a cutting ring and nut. Hose assemblies can be connected by swivel nut females having either a spherical seal, 24° cone seal (can be fitted with “O”-Ring), or a standpipe with cuttting ring and nut. Hose can also be connected directly to tube by use of a hose tail with the D.I.N. Male form

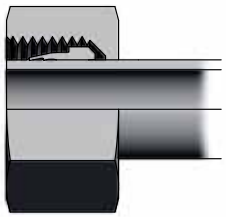
The male form will accept all three female styles shown (right).



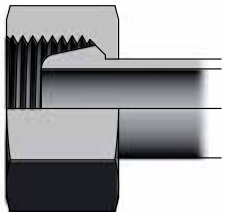
DIN 24° cone female with o-ring



DIN 24° cone male



DIN cutting ring and nut on tube



DIN female swivel nut with spherical seat

THREAD SPECIFICATIONS LIGHT (L) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter D1 (mm)	Tube O.D.(mm)
M12-1.5	10.5	7.2	6
M14-1.5	12.5	9.2	8
M16-1.5	14.5	11.6	10
M18-1.5	16.5	13.8	12
M22-1.5	20.5	16.8	15
M26-1.5	24.5	19.8	18
M30-2.0	28	23.8	22
M36-2.0	34	29.8	28
M45-2.0	43	37.2	35
M52-2.0	50	44.2	42

THREAD SPECIFICATIONS HEAVY (S) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter D1 (mm)	Tube O.D.(mm)
M14-1.5	12.5	7.2	6
M16-1.5	14.5	9.2	8
M18-1.5	16.5	11.6	10
M20-1.5	18.5	13.8	12
M22-1.5	20.5	15.8	14
M24-1.5	22.5	17.8	16
M30-2.0	28	22	20
M36-2.0	34	27	25
M42-2.0	40	32	30
M52-2.0	50	40	38

** N.B. Diameter D1 is nominal and may vary between manufacturers.*

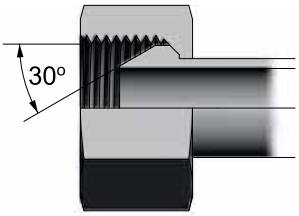
Hydraulink Hose and Fittings

THREAD IDENTIFICATION

D.I.N. METRICS 60° CONE SYSTEM

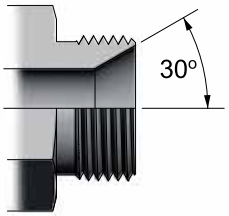
This series utilises a 60° cone seating angle and is used for the connection of hose assemblies and tube. It differs from the 24° series in that the threads are predominately 1.5mm pitch and there is no light or heavy pressure ranges.

The D.I.N. 60° male will accept the universal (spherical seat) female, a 60° coned female and tube fitted with a cutting ring and nut.

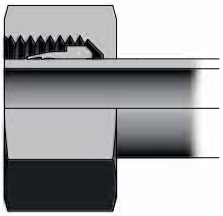


DIN 60° cone female

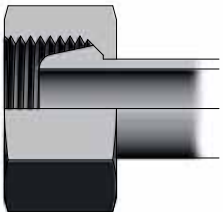
THREAD SPECIFICATIONS		
Thread O.D. & Pitch	Female Thread I.D.	Tube O.D.(mm)
M10-1.0	9.0	5
M12-1.5	10.5	6
M14-1.5	12.5	8
M16-1.5	14.5	10
M18-1.5	16.5	12
M22-1.5	20.5	15
M26-1.5	24.5	18
M30-1.5	28.5	22
M38-1.5	36.5	28
M45-1.5	43.5	35
M52-2.0	56.5	42



DIN 60° cone male



DIN cutiing ring and nut on tube

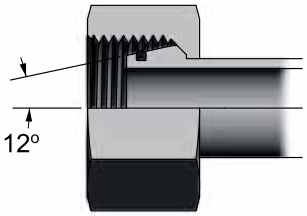


DIN female swivel nut with spherical seat

THREAD IDENTIFICATION

I.S.O. METRICS (INTERNATIONAL STANDARDS ORGANISATION)

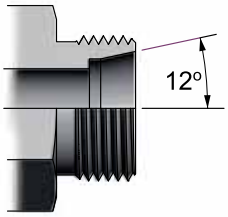
The I.S.O. series of couplings is similar to the D.I.N. light and heavy in function. The male has a 24° included angle sealing cone and a recessed counter bore for locating the tube when used in conjunction with a cutting ring and nut. The male will also accept a swivel nut female with either a cone or a spherical seal.



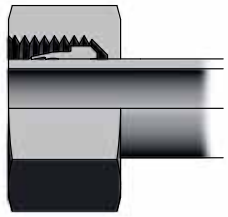
ISO (24° cone) female with o-ring

THREAD SPECIFICATIONS		
Thread O.D. & Pitch	Female Thread I.D.	Tube O.D.(mm)
M12-1.0	11.0	6
M14-1.5*	12.5	8
M16-1.5*	14.5	10
M18-1.5*	16.5	12
M20-1.5	18.5	14
M22-1.5*	20.5	15
M24-1.5**	22.5	16
M27-1.5	25.5	18
M30-1.5	28.5	22
M33-1.5	31.5	25
M36-1.5	34.5	28
M39-1.5	37.5	30
M42-1.5	40.5	32
M45-1.5	43.5	35
M48-1.5	46.5	38
M52-1.5	50.5	40

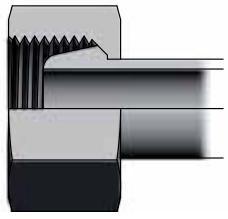
** Interchange with D.I.N. Light*
*** Interchange with D.I.N. Heavy*



ISO (24° cone) male



ISO cutting ring and nut on tube



ISO female swivel nut with spherical seat

Hydraulink Hose and Fittings

THREAD IDENTIFICATION

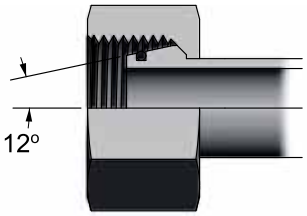
FRENCH METRICS (GAZ & MILLIMETRIQUE SERIES)

The series are similar to the D.I.N. 24° type where the male has a 24° included angle sealing cone and a recessed counterbore for locating the tube.

The male will accept a cutting ring and nut for use with tube or a swivel nut female with either a cone or spherical seal.

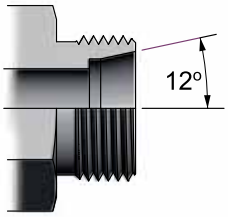
The Gaz and Millimetrique series are identical in all respects except for the O.D. of the tube:

- Gaz series uses fractional number O.D. metric tubing.
- Millimetrique series uses whole number O.D. metric tubing.

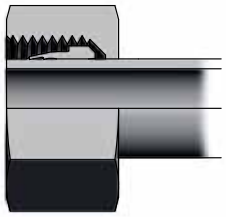


French 24° cone female with o-ring

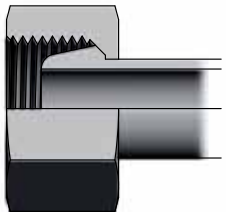
THREAD SPECIFICATIONS LIGHT (L) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter GAZ	Diameter Millimetrique
M12-1.0	11.0	-	6
M14-1.5	12.5	-	8
M16-1.5	14.5	-	10
M18-1.5	16.5	-	12
M20-1.5	18.5	13.25	14
M22-1.5	20.5	-	15
M24-1.5	22.5	16.75	16
M27-1.5	25.5	-	18
M30-1.5	28.5	21.25	22
M33-1.5	31.5	-	25
M36-1.5	34.5	26.75	28
M39-1.5	37.5	-	30
M42-1.5	40.5	-	32
M45-1.5	43.5	33.5	35
M48-1.5	46.5	-	38
M52-1.5	50.5	42.25	40
M54-2.0	52.0	-	45
M58-2.0	56.0	48.25	-



French 24° cone male



Cutting ring and nut on tube



French female swivel nut with spherical seat

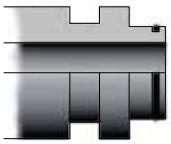
Hydraulink Hose and Fittings

THREAD IDENTIFICATION

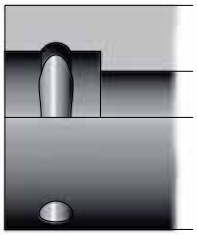
STAPLE-LOK COUPLINGS

Originally designed in Germany for underground mining equipment, the Staple-lok requires no spanners for connection or disconnection. The male and female are pushed together and held with a retaining staple or “U” clip.

Sealing is achieved by the captive “O”-Ring located on the male spigot. The female can either be fixed or swivel type. The coupling is not designed to swivel under pressure.

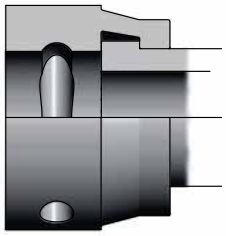


Staple-lok male



Staple-lok fixed female

THREAD SPECIFICATIONS					
Coupling Dash Size	Imperial Size	Male O.D. inch	Male O.D. mm	Female I.D. inch	Female I.D. mm
-4	1/4	0.58	14.8	.59	15.0
-6	3/8	0.78	19.8	.79	20.0
-8	1/2	0.94	23.9	.95	24.1
-12	3/4	1.13	28.8	1.14	29.0
-16	1	1.53	38.9	1.54	39.1
-20	1.1/4	1.80	45.7	1.81	46.0
-24	1.1/2	2.16	54.9	2.17	55.1
-32	2	2.52	64.0	2.53	64.3



Staple-lok swivel female

Staple-lok staple

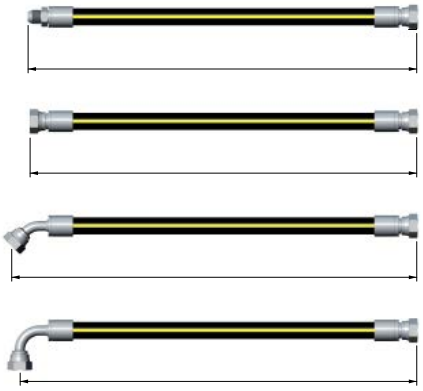
Hydraulink Hose and Fittings

HOSE ASSEMBLY MEASUREMENT

STRAIGHT HOSE ASSEMBLY LENGTH

Overall hose assembly lengths are determined by measuring the centreline length between the coupling end faces for straight couplings, or through the sealing face centreline for angled couplings (examples to right).

Sufficient length allowance should be made to compensate for hose contraction and expansion under operating procedures.



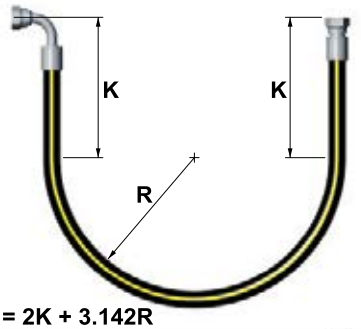
BENT HOSE ASSEMBLY LENGTH

For installations that require a 180° bend in the hose assembly, the overall length can be calculated as follows:

Static Installations

To avoid localised concentration of bending strain on the hose couplings, a free distance (K) of hose should be designed into the length of each assembly. Distance “K” includes length of coupling and adaptor (if used). Dimension “R” should not be less than the manufacturer’s recommended bend radius for the hose used. Refer to chart below for “K” dimensions of hoses with I.D. from 3/16” to 2”.

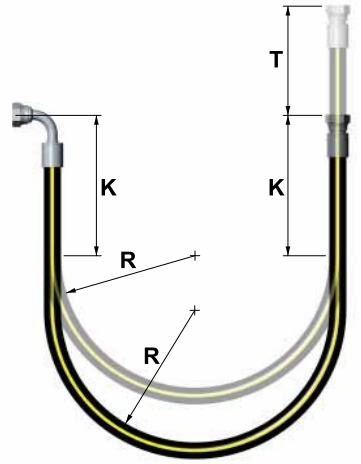
Hose I.D.	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	1.1/4	1.1/2	2
K (mm)	110	130	130	160	180	210	210	260	260	260	310



Length = 2K + 3.142R

Dynamic Installations

When a hose assembly is subjected to relative motion between the two end couplings, additional hose length is required to accomodate the travel distance. In the diagram (right) “T” represents the amount of travel.



Length = 2K + 3.142R + T

Off-Set Angle Measurement

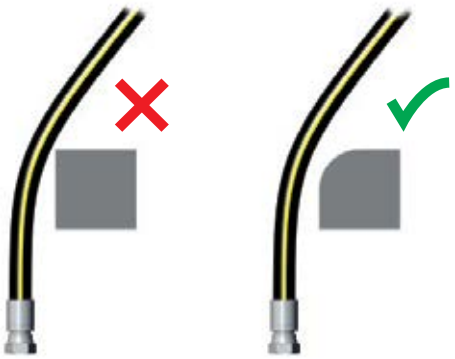
Place hose assembly in line of sight position with coupling furthest away facing upwards. Determine off-set angle by comparing relative position of closest coupling to the far coupling in a clockwise direction.

Hydraulink Hose and Fittings

HOSE INSTALLATION RECOMMENDATIONS

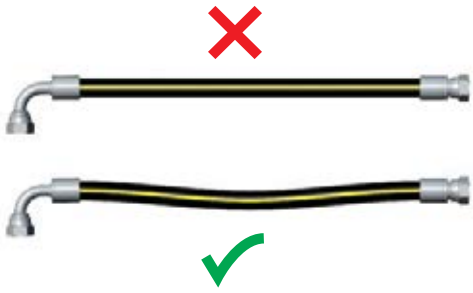
1. Hose Protection
Protect the hose cover from damage such as abrasion, erosion, snagging, and cutting. Where possible, route hose to reduce abrasion from hose rubbing other hose or objects that may abrade it (Fig. 1). Special abrasion-resistant hoses and hose guards are available for additional protection. Special consideration may also need to be given to hose assemblies near heat sources.

Fig. 1



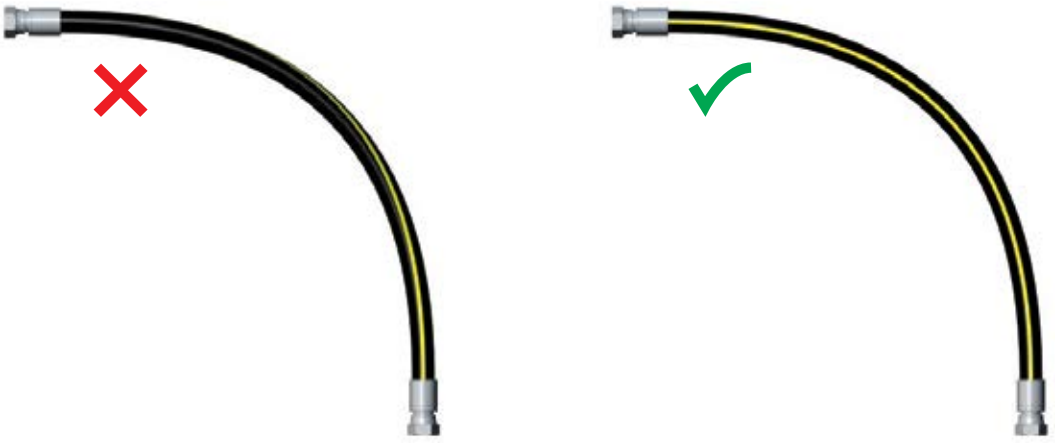
2. Hose And Machine Tolerances
Avoid tension on hose assemblies and adaptors. Design hose to allow for changes in length due to machine motion and tolerances (Fig. 2). Failure to do so may result in seal or assembly failure.

Fig. 2



3. Torsional Twist
Do not transfer torque to hose while installing. This transfer of torque can result in torsional twist, which may result in premature hose assembly failure. Use swivel type couplings or adaptors for ease of alignment as needed to prevent twisting during installation. Use the brand lay-line as a guide to ensure the hose is not pre-loaded with torsional twist when installed (Fig. 3).

Fig. 3



4. Minimum Bend Radius
The minimum bend radius for hose supplied by Hydraulink is detailed in this catalogue. Routing at less than minimum bend radius is not recommended and may reduce hose life.

Prevent sharp bending at the hose/fitting juncture (Fig. 4a). Unnecessary stress at this point may result in leaking, hose rupturing, or the hose assembly blowing apart.

Stress at this point can be minimised by ensuring adequate hose length (Fig. 4b), or by use of angled adaptors and couplings (Fig 4c).

Fig. 4a

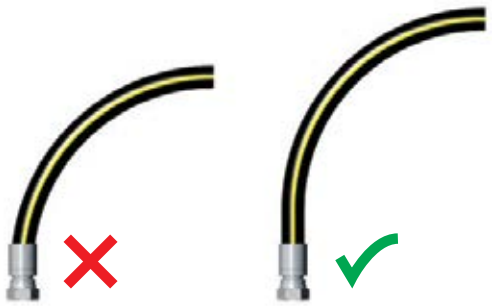


Fig. 4b

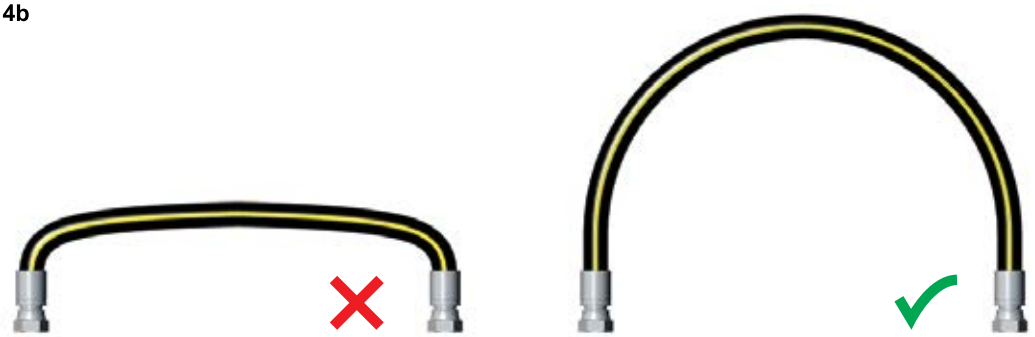


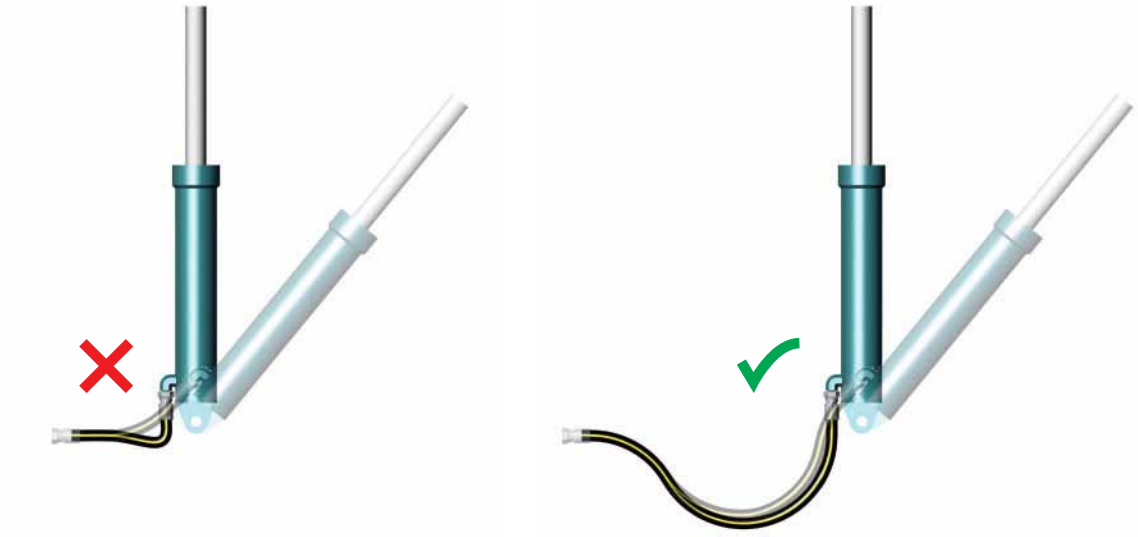
Fig. 4c

5. Hose Length Change
Hydraulic hose can expand longitudinally when pressurised, and this hose length change must be considered when specifying or installing hose assemblies (Fig. 5) When clamping hose lengths, always place clamps to avoid stressing the fitting end.

Fig. 5

6. Relative Movement
When specifying or installing hoses that have movement relative to each other, provide adequate hose length to absorb the required movement and prevent bends occuring that are smaller than the minimum bend radius (Fig. 6a).

Fig. 6a



Quick Release Couplings

Section 15

INFORMATION - QUICK RELEASE COUPLINGS

GENERAL INFORMATION

Quick release couplings are primarily designed to allow quick and easy connection and disconnection of fluid transfer lines. The installation of quick release couplings in fluid power systems can eliminate the need to close valves, recharge and bleed the system as well as minimising fluid loss when a component or attachment is removed or fitted to the system, saving time and resources.

Although the ability for some quick release couplings to rotate and “self-align” reducing mechanical stress on adjoining parts of the system can be a benefit, it must be noted that quick release couplings are not designed for use as constant rotation unions or live swivels. The use of a coupling for such a purpose is not recommended and will void any warranty, or subsequent warranty claim.

Hydraulink supply a wide range of quick release couplings for many applications, and in many configurations of end type. To fulfill the requirements of the application the quick release coupling is being selected for, several questions will need to be considered which may include;

- What functions are required of the coupling?
- What is the fluid flow rate required?
- What is the system working pressure?
- What are the variations in system pressure; how high are the spikes?
- What is the allowable pressure drop at required flow rate?
- Does the coupling need to be connected or disconnected under pressure?
- What fluid or media is being used?
- Is minimum fluid loss or air inclusion critical?
- Does the coupling need to interchange with existing units?

Quick release couplings are typically manufactured in steel and finished with a silver trivalent chromium plating and clear sealant to further increase protection against corrosion, but some series are also available in AISI 316 stainless steel or brass. Please contact Hydraulink for further details of available materials and variants of internal seals.

Hydraulink thread forms and sealing methods are manufactured to the relevant international standards where applicable. All dimensions shown are nominal, and subject to change due to ongoing product development. For critical applications, please contact Hydraulink to confirm dimensions.

Hydraulink Fluid Connectors Ltd. reserves the right to discontinue, or to alter the design and specification of any product listed in this catalogue.

MULTIPURPOSE HOSE

PPDF11

MAXIMUS FC
PVC MULTIPURPOSE

- Conforming Standards: AS 2070
- Temperature: 0°C to +60°C
- Cover: Clear PVC Compound With Red Tracers
- Tube: Clear PVC Compound
- Reinforcement: Fabric Braid
- Applications: Industrial Use Of Air/ Petrol/Kerosene/Oil/Solvents and other uses where a clear tube is required. This hose is very flexible and features a petrol resistant tube with a red tracer in the outer cover to allow easy identification as a petrol line.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PPDF11-006	6	6.3	10.2	200	800	0.10
PPDF11-008	8	7.9	12.4	200	800	0.12
PPDF11-010	10	9.5	15	200	800	0.13
PPDF11-012	12	12.7	17.5	200	800	0.16
PPDF11-016	16	15.9	22	200	800	0.23
PPDF11-019	19	19.1	25.4	200	800	0.30
PPDF11-025	25	25.4	32	200	800	0.49
PPDF11-032	32	32.1	41	175	700	
PPDF11-038	38	38.1	48	175	700	0.82

REMD01

MAXIMUS RED NBR
RUBBER MULTIPURPOSE

- Temperature: -40°C to +93°C
- Cover: Red Non-conductive Nitrile RMA Class C Extruded Compound
- Tube: Black; Extruded Nitrile RMA Class A Rubber Compound
- High Strength Synthetic Cord
- Applications: Recommended For Air/Water/Petroleum Oils/Petrol/Kerosene/Fuel Oil (to +49°C) and Lubricating Oils. Excellent Weather And Ozone Resistance. Non Conductive at 1000 Volts D.C

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
REMD01-006	6	6.3	14	300	1200	0.18
REMD01-008	8	7.9	15	300	1200	0.19
REMD01-010	10	9.5	16	300	1200	0.20
REMD01-012	12	12.7	22	300	1200	0.41
REMD01-016	16	15.9	27	300	1200	0.60
REMD01-019	19	19.1	29	300	1200	0.61
REMD01-025	25	25.4	37	300	1200	0.90
REMD01-032	32	32.1	44	300	1200	1.19
REMD01-038	38	38.1	54	300	1200	1.45
REMD01-051	51	50.8	66	300	1200	1.80

REMD05

MAXIMUS BLACK EPDM
RUBBER MULTIPURPOSE

- Temperature: -40°C to +93°C
- Cover: Black; Extruded EPDM Rubber Compound
- Tube: Black; Extruded EPDM Rubber Compound
- Reinforcement: High Strength Synthetic Cord
- Applications: For air and water applications requiring maximum flexibility. Outstanding resistance to heat and ozone with good cover resistance to vegetable oils.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
REMD05-010	10	9.5	17	200	800	0.25
REMD05-012	12	12.7	21	200	800	0.35
REMD05-019	19	19.1	28	200	800	0.52
REMD05-025	25	25.4	36	200	800	0.80

PREMOFLEX

Premoflex® MULTI-PURPOSE HOSE
TWO YARN SPIRAL REINFORCED INDUSTRIAL HOSE

- Recommended for: Premo Flex is the perfect choice for multiple applications requiring a highly flexible and cost-effective hose with maximum resistance to petroleum oils/kerosene/fuel oil (to 120°F) and lubricating oils (to 212°F). Premo Flex can be used for transferring gasoline or diesel fuels. It is also suitable for air and water applications; It offers excellent weather and ozone resistance and is nonconductive at 1000 volts D.C.
- Temperature range: -40°F to +212°F(-40°C to +100°C) continuous service.
- Tube: Type C (Nitrile). Black. RMA (Class A) high oil resistance.
- Reinforcement: Synthetic high tensile cord.
- Cover: Type C2 (Modified Nitrile). Red (black cover available on special order). All sizes thru 1/2 are perforated. RMA(Class B) medium oil resistance.
-

Part Number	Internal Size (in)	Internal Size (mm)	Internal Diameter - inches	External Diameter - inches	External Diameter - mm	Working Pressure - psi	Working pressure - bar	Min burst pressure - psi	Min burst pressure - bar
PREMOFLEX-06	06	10	3/8	0.66	16.8	250	17	750	52
PREMOFLEX-08	08	12	1/2	0.85	21.6	251	17	750	52
PREMOFLEX-10	10	16	5/8	0.98	24.9	250	17	750	52
PREMOFLEX-12	12	19	3/4	1.15	29.2	252	17	750	52
PREMOFLEX-16	16	25	1	1.47	37.3	250	17	750	52
PREMOFLEX-20	20	32	1.1/4	1.75	44.5	253	17	750	52
PREMOFLEX-24	24	38	1.1/2	2.00	50.8	250	17	750	52

PETROLEUM HOSE

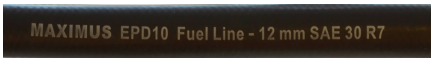
REPD01

MAXIMUS R6 PUSH-ON
RUBBER PUSH-ON - BLACK

- Conforming Standards: SAE J517; SAE 100R6
- Temperature: -40°C to +100°C for air +71°C
- Cover: Black; Smooth Extruded Rubber Compound
- Tube: Black; Smooth Extruded Nitrile Rubber Compound
- Reinforcement: High Strength Synthetic Cord
- Applications: Recommended For Petroleum Based Hydraulics Oils/Water Glycol Antifreeze Solutions/Hot Lubricating Oils/Air. Not recommended for gasoline or diesel fuels. Cover is oil and abrasion resistant.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
REPD01-005	5	4.8	11	525	2100	0.17
REPD01-006	6	6.3	12	425	1680	0.19
REPD01-008	8	7.9	14	425	1680	0.23
REPD01-010	10	9.5	16	425	1680	0.24
REPD01-012	12	12.7	20	425	1680	0.33
REPD01-016	16	15.9	23	425	1680	0.40
REPD01-019	19	19.1	27	315	1280	0.51

REPD10



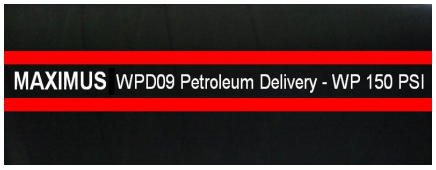
MAXIMUS FUEL LINE & VAPOUR
RUBBER FUEL & VAPOUR

- Conforming standards: SAE J517 and SAE 100R6
- Temperature: -40°C to +100°C for air +71°C
- Cover: Black; Smooth extruded rubber compound
- Tube: Black; Smooth extruded nitrile rubber compound
- Reinforcement: High strength synthetic cord
- Applications: Fuel line and vapour emission for flexible connections between rigid fuel distribution line and the engine and evaporative emission control systems as well as a vent line.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
REPD10-006	6	6.3	13	50	200	0.18
REPD10-008	8	7.9	15	50	200	0.20
REPD10-010	10	9.5	16	50	200	0.21
REPD10-012	12	12.7	20	50	200	0.30

RWPD09

MAXIMUS PETROLEUM DELIVERY
RUBBER FUEL DELIVERY - 150 PSI



- Conforming Standards: AS2683 Type 2; Grade 2; Kind 1
- Temperature: -20°C to +80°C
- Cover: Black; Smooth Wrapped Finish Rubber Compound
- Tube: Black; Rubber Compound
- Reinforcement: High Strength Synthetic Cord Plus Embedded Anti-static Copper Wire
- Applications: Softwall delivery hose for transfer of petroleum products with aromatic content up to 30%. Resistant to abrasion and weather.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWPD09-019	19	19.1	29	150	450	0.53
RWPD09-025	25	25.4	35	150	450	0.64
RWPD09-032	32	32.1	42	150	450	0.80
RWPD09-038	38	38.1	48	150	450	0.95
RWPD09-051	51	50.8	63	150	450	1.54
RWPD09-063	63	63.5	76	150	450	1.93
RWPD09-076	76	76.1	89	150	450	2.55
RWPD09-102	102	101.6	116	150	450	2.38

FUEL LINE

GATES FUEL LINE & TANK VENT
BRAIDED FIBRE REINFORCED RUBBER FUEL HOSE

- Conforming Standards: Exceeds requirements of SAE 30R6 & SAE 30R7
- Temperature -40°C to +125°C
- Cover: NBR/PVC based
- Tube: Nitrile based
- Reinforcement: Synthetic high tensile textile
- Applications: Fuel line applications to provide flexible connections between rigid fuel distribution lines and the engine. Also for use in evaporative emission control systems and as a vent line. CAUTION: Not recommended for fuel injection systems. Gates Fuel line & Tank Vent hose's liner is resistant to oil, gasoline and gasohol. The cover is resistant to fuel, ozone and high temperatures.

Part Number	Size (in)	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	Maximum Suction (mm.Hg)	Min Bend Radius (mm)
27068	1/4	6	12.7	50	610	76
27069	5/16	8	14.2	50	610	76
27070	3/8	10	15.8	50	610	100

MPI/FUEL INJECTION

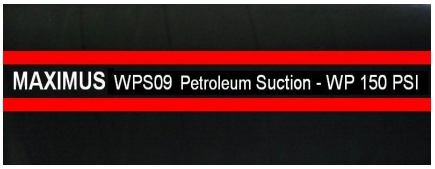
GATES MPI/FUEL INJECTION
BRAIDED FIBRE REINFORCED RUBBER FUEL HOSE

- Conforming Standards: Gates proprietary. Meets SAE 30R9 requirements and CARB CU-06-002 for low permeation
- Temperature -40°C to +135°C constant and +150°C intermittent
- Cover: Oil, heat, ozone and abrasion resistant
- Tube: Flouroelastomer
- Reinforcement: Polyester braid
- Applications: Clamped hose applications on all fuel systems, including fuel injection system. Not designed to replace coupled hose assemblies on fuel injected engines. For use with leaded and unleaded gasoline, diesel fuel and gasoline blends of ethanol, methanol end ethers (up to maximum concentrations allowed by the EPA) and 100% methanol or ethanol and B100 biodiesel, up to 135°C. CAUTION: Do not submerse in gasoline.

Part Number	Size (in)	Hose I.D (mm)	Hose O.D (mm)	WP (psi)
27094	1/4	6	12.7	180
27095	5/16	8	14.2	180
27096	3/8	10	15.9	180

RWPS09

MAXIMUS PETROLEUM SUCTION
RUBBER OIL SUCTION - 150 PSI



- Conforming Standards: AS2683 Type 1; Grade 2; Kind 1
- Temperature: -20°C to +80°C
- Cover: Black; Smooth Wrapped Finish SBR Rubber
- Tube: Black; NBR Rubber Compound
- Reinforcement: High Strength Synthetic Cord Plus Embedded Steel Helix Wire
- Application: Lightweight Suction Hose for the transfer of petroleum products with an aromatic content up to 30%. Resistant to Abrasion And Weather.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWPS09-019	19	19.1	29	150	450	0.60
RWPS09-025	25	25.4	35	150	450	0.85
RWPS09-032	32	32.1	42	150	450	0.96
RWPS09-038	38	38.1	48	150	450	1.10
RWPS09-051	51	50.8	63	150	450	1.86
RWPS09-076	76	76.1	89	150	450	2.92
RWPS09-102	102	101.6	118	150	450	4.78

RCPS-035

TGT PETROPLUS OIL & FUEL SUCTION & DELIVERY HOSE
RUBBER OIL & FUEL SUCTION - 75 PSI

- Temperature: -30°C to +1000°C
- Cover: Black; Convoluted, fire proof and antistatic, cloth impression CR Rubber
- Tube: Black; Smooth NBR Rubber Compound
- Reinforcement: High strength synthetic cord plus embedded steel helix wire with 1 copper wire for hose grounding
- Application: Lightweight Suction Hose for the transfer of petroleum products with an aromatic content up to 50%. Resistant to Abrasion And Weather.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr	Min Bend Radius (mm)
RCPS-035	35	35	N/A	75	225	0.67	95

STEAM

RWSD14

VICTORIA
RUBBER STEAM HOSE

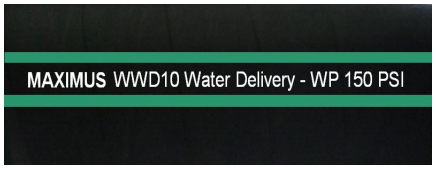
- Temperature: -40°C to +210°C
- Cover: Red; Smooth Wrapped Finish EPDM Rubber Compound
- Tube: Red; EPDM Rubber Compound
- Reinforcement: Piles Of Steel Wire Cord
- Applications: Steel cord hose designed for saturated steam at higher working pressure. Used In Factories; Chemical; Petrochemical and Shipyards. Resistant to weathering and ageing. Cover is pin pricked to prevent separation. Not recommended for steam cleaner.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWSD14-012	12	12.7	25	270	2700	0.49
RWSD14-019	19	19.1	32	270	2700	0.64
RWSD14-025	25	25.4	38	270	2700	0.87

AIR & WATER

RWWD10

MAXIMUS WATER DELIVERY
RUBBER WATER DELIVERY

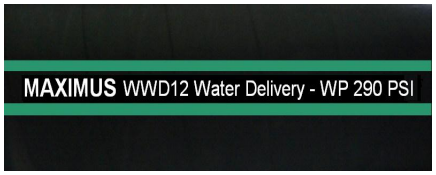


- Temperature: -35°C to +85°C
- Cover: Black; Smooth Wrapped Finish NBR Rubber Compound
- Tube: Black; NBR Rubber Compound
- Reinforcement: High Strength Synthetic Cord
- Applications: A softwall delivery hose suitable for a variety of purposes in many industries; Construction sites; Agriculture and Mines. Weathering and ozone resistant.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWWD10-025	25	25.4	32	150	450	0.62
RWWD10-032	32	32.1	42	150	450	0.88
RWWD10-038	38	38.1	48	150	450	1.42
RWWD10-051	51	50.8	61	150	450	1.46
RWWD10-063	63	63.5	75	150	450	2.59
RWWD10-076	76	76.1	88	150	450	2.49
RWWD10-102	102	101.6	116	150	450	4.02

RWWD12

MAXIMUS HD WATER DELIVERY
RUBBER HD WATER DELIVERY



- Temperature: -20°C to +80°C
- Cover: Black; Smooth Wrapped Finish NBR Rubber Compound
- Tube: Black; NBR Rubber Compound
- Reinforcement: High Strength Synthetic Cord
- Applications: a softwall delivery hose suitable for a variety of purposes in many industries; Construction Sites; Agriculture And Mines. Weathering and Ozone Resistant.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWWD12-038	38	38.1	51	290	870	1.54
RWWD12-051	51	50.8	66	290	870	2.36

RWWD23

ETNA

RUBBER MARINE WET EXHAUST

- Approved By Lloyds; Certificate 99/00169 (EZ)
- Temperature: -30°C to +100°C
- Cover: Black; Corrugated Wrapped Finish Cr Flame Retardant Rubber Compound
- Tube: Black; Cr Rubber Compound
- Reinforcement: High Strength Synthetic Cord Plus Embedded Steel Helix Wire
- Applications: Hardwall Hose specially designed for the marine industry for conveying wet exhaust fumes from the engine intake and bilge exhaust. Also; Due to Unique Sizes; Can Be Used In Industrial Applications.

Part Number	Size	Hose I.D (mm)	Min Bend Radius (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWWD23-025	25	25.4	110	25	75	0.48
RWWD23-032	32	32.1	130	25	75	0.65
RWWD23-038	38	38.1	150	25	75	0.75
RWWD23-045	45	44.5	170	25	75	0.87
RWWD23-051	51	50.8	180	25	75	1.07
RWWD23-063	63	63.5	200	25	75	1.30
RWWD23-076	76	76.1	250	25	75	1.46
RWWD23-090	90	88.9	330	25	75	1.73
RWWD23-102	102	101.6	410	25	75	2.06
RWWD23-127	127	127	560	25	75	2.58
RWWD23-152	152	152.6	680	25	75	3.18

RWWS10

MAXIMUS WATER SUCTION
RUBBER WATER SUCTION

- Temperature: -35°C to +85°C
- Cover: Black; Smooth Wrapped Finish NBR Rubber Compound
- Tube: Black; NBR Rubber Compound
- Reinforcement: High Strength Synthetic Cord Plus Two Steel Helix Wires
- Applications: Heavy Duty Water Suction and Delivery Hose; It handles Sewerage; Mud; Water and is Abrasion/Weathering/Ozone Resistant.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
RWWS10-025	25	25.4	35	150	450	1.00
RWWS10-032	32	32.1	42	150	450	1.11
RWWS10-038	38	38.1	49	150	450	1.42
RWWS10-051	51	50.8	62	150	450	1.95
RWWS10-063	63	63.5	76	150	450	2.59
RWWS10-076	76	76.1	89	150	450	3.38
RWWS10-102	102	101.6	118	150	450	5.56
RWWS10-152	152	152.4	169	150	450	8.69

REWD10

MAXIMUS HOT WASH
RUBBER HOT WASHDOWN

- Temperature: -20°C to 100°C Continuous
- Cover: White; Extruded EPDM Perforated
- Tube: White; Extruded EPDM
- Reinforcement: High Strength Synthetic Cord
- Applications: Softwall washdown hose for use with cold and hot water to 100°C; Paper Mills; Dairies; Food Handling or Processing Plants requiring a non marking cover. Not for use with pure steam.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
REWD10-012	12	12.7	23	200	800	0.43
REWD10-019	19	19.1	32	200	800	0.72
REWD10-025	25	25.4	39	200	800	0.98

PPDW10

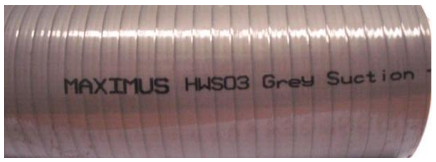
MAXIMUS COLD WASHDOWN
PVC COMPOUND

- Temperature: -10°C to +60°C
- Cover: White; Smooth; PVC Compound; 2 Blue Stripes
- Tube: Black; PVC Compound
- Reinforcement: Fabric Braid
- Applications: General Cold Water Washdown in Parks/Gardens/Dairies/Turf Watering.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PPDW10-019	19	20.5	26.5	145	580	0.40
PPDW10-025	25	25.1	34	145	580	0.58
PPDW10-032	32	32.1	42.5	145	580	0.85
PPDW10-038	38	38.1	49.5	145	580	1.11

PHWS03

MAXIMUS GREY
PVC SUCTION HOSE

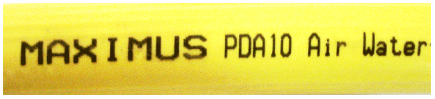


- Temperature: -10°C to +60°C
- Cover: Grey; Slightly Corrugated PVC Compound
- Tube: Grey PVC Compound
- Reinforcement: Anti-shock Rigid PVC Helix
- Applications: A general purpose hose for suction and delivery of waters; Mud; Acid; Latex; Grains and other materials. Can be used in agriculture and industry; Placed on Tank Trucks; Ships; Silos; Offers Resistance to Crushing/Abrasion/Attack From Atmospheric Agents and Most Chemicals.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PHWS03-025	25	25.4	32	120	360	0.37
PHWS03-032	32	32.1	39	120	360	0.51
PHWS03-038	38	38.1	46	120	360	0.67
PHWS03-051	51	50.8	60	100	300	1.02
PHWS03-063	63	63.5	73	95	285	1.44
PHWS03-076	76	76.1	87	85	255	2.22
PHWS03-102	102	101.6	115	80	240	3.03
PHWS03-152	152	152.4	170	60	180	6.45

PPDA10

MAXIMUS YELLOW
PVC AIR HOSE



- Conforming Standards: AS 2554
- Temperature: -10°C to +60°C
- Cover: Yellow; Smooth & Ribbed Abrasion Resistant PVC
- Tube: Black Oil Mist Resistant PVC Compound
- Reinforcement: Fabric Braid
- Applications: General Purpose Air; Water and Diluted Chemicals.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PPDA10-010	10	9.5	16.6	290	1160	0.17
PPDA10-012	12	12.7	19.3	290	1160	0.19
PPDA10-019	19	20.5	29	230	920	0.45
PPDA10-025	25	25.1	34.6	230	920	0.62
PPDA10-038	38	38.1	50.6	230	920	1.56

PPDA12

MAXIMUS BLUE AIR
PVC AIR HOSE

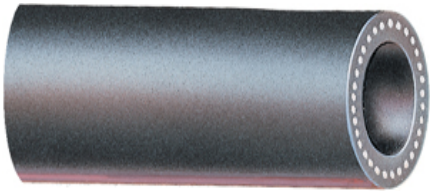
- Temperature: -10°C to +60°C
- Cover: Blue; Smooth & Ribbed PVC
- Tube: Black Oil Mist Resistant PVC
- Reinforcement: Fabric Braid
- Applications: Air; Water and Fluid Transfers at low temperatures.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PPDA12-006	6	6.3	11.5	290	1160	0.13
PPDA12-008	8	7.9	14	290	1160	0.13
PPDA12-010	10	9.5	16.6	290	1160	0.18
PPDA12-012	12	12.7	18.9	290	1160	0.22

AUTOMOTIVE

HEATER HOSE

GATES CHARTER HEATER HOSE
RUBBER HEATER HOSE



- Temperature: -40°C to +125°C
- Good resistance to high temperatures
- Moderate resistance to oil and grease contamination
- Good resistance to non-oil based coolant additives
- Similar to SAE 20R3 Class D-2
- Tested by Gates to assure reliability
- CAUTION: Do not use for fuel or oil transfer applications.

Part Number	Size (in)	Hose I.D (mm)	Hose O.D (mm)	WP (psi)
HEATER HOSE-08	1/2	12.7	19	60
HEATER HOSE-10	5/8	15.9	22	60
HEATER HOSE-12	3/4	19	26	50

AIR BRAKE

GATES AIR BRAKE
EPDM RUBBER AIR BRAKE HOSE

- Conforming Standards: Meets SAE J1402 specification
- Complies with DOT TMVSS 106 requirements
- Temperature -40°C to +100°C
- Cover: EPDM rubber
- Tube: EPDM rubber
- Reinforcement: Four alternating layers of spiralled fibre
- Applications: Truck, Bus and other mobile air brake systems. Can be used as flexible connector between frame and axle. Gates Air Brake Hose is resistant to the damaging effects of ozone and heat, plus harmful grease and oil common to air brake systems. Flexible and kink resistant.

Part Number	Size (in)	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)
28760	3/8	10	19	225	1000
28761	1/2	12	22	225	1000

VACUUM TUBING

GATES VACUUM TUBING

EPDB BASED VACUUM TUBING

- Conforming Standards: Meets SAE J1037, J942B specifications
- Temperature -40°C to +125°C
- Cover: N/A
- Tube: EPDB based
- Reinforcement: N/A
- Applications: Ideal for windscreen washers, and vacuum operated accessories and radiator over flow. Gates Vacuum Tubing is resistant to heat, vacuum and kinking.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	Maximum Suction (mm.Hg)	Min Bend Radius (mm)
27042	4	4	4.8	25	760	40

FOOD

PHFS10

PLUTONE BIO
PVC FOOD S & D HOSE

- Conforming Standards: FDA Title 21 CFR Item 177.2600
- European Directive 10/2011
- Classes A/B/C for Food Contact
- USP Class VI
- Temperature -10°C to +60°C
- Cover: Transparent; Plasticised PVC
- Tube: Transparent; Plasticised PVC
- Reinforcement: Steel Spiral Helix
- Applications: Particularly suited for suction and delivery of liquids and dry materials. Resistant to atmospheric agents and most chemicals.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Weight kg/mtr
PHFS10-010	10	9.5	14.9	100	500	0.15
PHFS10-012	12	12.7	18.1	90	450	0.18
PHFS10-016	16	15.9	21.9	90	450	0.25
PHFS10-019	19	19.1	26.1	75	375	0.35
PHFS10-025	25	25.4	33.4	75	375	0.50
PHFS10-032	32	32.1	40.8	60	300	0.65
PHFS10-038	38	38.1	47.1	60	300	0.80
PHFS10-051	51	50.8	61.8	60	300	1.24
PHFS10-076	76	76.1	91.2	55	275	2.20

MATERIALS HANDLING

MH911022B

LUISIANA SEED DRILL
PVC S & D HOSE

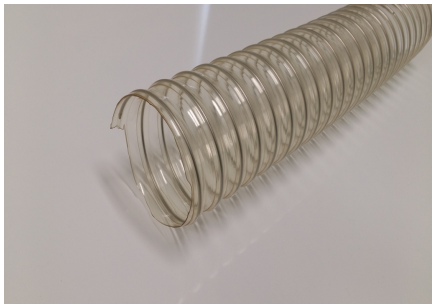
- Temperature: -25°C to +55°C
- Cover: Black, slightly corrugated PVC Compound
- Tube: Black, smooth PVC Compound
- Reinforcement: Anti-shock rigid Grey PVC helix
- Applications: Abrasion Resistant for primary and secondary lines on Air Seeding equipment. Also for delivery and suction of liquids.

Part Number	Size	Hose I.D (mm)	Hose O.D (mm)	WP (psi)	BP (psi)	Vacuum (m h2o)	Weight (kg/m)
MH911022-32B	32	32	39.2	79	261	7	0.46

DUCTING

DUUFS

URAFLEX STANDARD
ESTER-POLYURETHANE

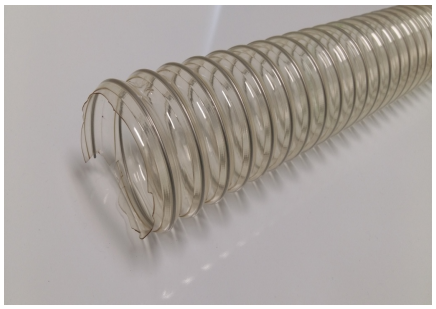


- Temperature: -30°C to +90°C
- Material: Ester-polyurethane
- Colour: Transparent
- Standard Length: 10 metres and up to 15 metres on request.
- Properties: Tight bend radius, extremely flexible, very light weight, high mechanical strength, highly compressible, good mineral oil resistance.
- Applications: Especially suitable for abrasive dust, powders, seed drills, fibres and sawdust. Not suitable in wet humid or moist conditions.

Part Number	Hose I.D (mm)	Min Bend Radius (mm)	Vacuum (bar)	WP (bar)	Weight kg/mtr	Wall Thickness (mm)
DUUFS-038	38	42	.31	.55	.17	.38
DUUFS-040	40	44	.28	.50	.19	.38
DUUFS-051	51	56	.22	.40	.29	.38

DUUFM

URAFLEX MEDIUM
ESTER-POLYURETHANE

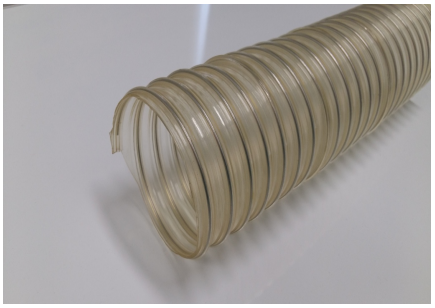


- Temperature: -30°C to +90°C
- Material: Ester-polyurethane
- Colour: Transparent
- Standard Length: 10 metres and up to 15 metres on request.
- Properties: Good flexibility, light weight, high mechanical strength, compressible, good mineral oil resistance.
- Applications: Especially suitable for abrasive dust, powders, CNC extraction, seed drills, vacuum lifting, fibres and sawdust. Not suitable in wet humid or moist conditions.

Part Number	Hose I.D (mm)	Min Bend Radius (mm)	Vacuum (bar)	WP (bar)	Weight kg/mtr	Wall Thickness (mm)
DUUFM-051	51	75	.26	.78	.31	.55
DUUFM-064	64	95	.24	.74	.42	.60
DUUFM-127	127	190	.12	.40	.93	.60
DUUFM-152	152	225	.10	.25	1.12	.60

DUUFH

URAFLEX HEAVY
ESTER-POLYURETHANE



- Temperature: -30°C to +90°C
- Material: Ester-polyurethane
- Colour: Transparent
- Standard Length: 10 metres and up to 15 metres on request.
- Properties: Rugged construction, high mechanical strength, higher vacuum rating, smoother bore, good mineral oil resistance.
- Applications: Especially suitable for abrasive dust, powders, fibres, sawdust, some gravel and granules. Not suitable in wet humid or moist conditions.

Part Number	Hose I.D (mm)	Min Bend Radius (mm)	Vacuum (bar)	WP (bar)	Weight kg/mtr	Wall Thickness (mm)
DUUFH-038	38	160	.44	1.80	.35	.8

DUTAS10

ELASTOFLEX
SANTOPRENE TPE

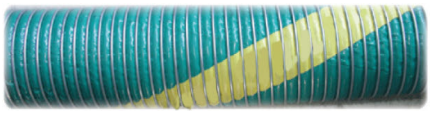
- Temperature: 0°C to +125°C
- Material: Santoprene TPE
- Colour: Black
- Standard Length: 10 metres and up to 15 metres on request.
- Properties: Extremely flexible, very light weight, not suitable in abrasive situations.
- Applications: Especially suitable for suction of gases, fumes and hot air transfer. UV and ozone resistance. Not for automotive use.

Part Number	Hose I.D (mm)	Min Bend Radius (mm)	Vacuum (bar)	WP (bar)	Weight kg/mtr	Wall Thickness (mm)
DUTAS10-032	32	48	.32	.32	.15	.55
DUTAS10-038	38	58	.31	.28	.17	.55
DUTAS10-040	40	60	.28	.26	.19	.55
DUTAS10-057	57	85	.18	.21	.31	.55
DUTAS10-076	76	110	.12	.18	.40	.60
DUTAS10-102	102	150	.085	.15	.50	.60
DUTAS10-127	127	190	.060	.095	.65	.60
DUTAS10-152	152	225	.050	.090	.66	.60

COMPOSITE HOSE

FUELFLEX

CODE 1000 FUEL HOSE



- Application: Designed to meet the required suction and delivery applications of the Petroleum Industry
- Conforming Standards: AS2683 - Type 1: Grade 3: Kind 1
- Construction:Multiple layers of polypropylene fabrics and films. Green with yellow spiral layline. Inner and outer wires are galvanised steel
- Temperature: -20°C to +80°C
- Safety Note: Hoses should be tested at 6 monthly intervals for correct electrical continuity and yearly for hydrostatic pressure performance. Call Hydraulink to arrange for us to visit onsite for testing.

Part Number	Size	Working Pressure (kPa)	Burst Pressure (kPa)	Min Bend Radius (mm)	Vacuum (kPa)	Weight (kg/m)
1000GY-100	100	700	1400	220	100	3.90

PETROFLEX

CODE 1003 FUEL HOSE
LIGHTWEIGHT FUEL HOSE

- Application: Designed to meet the required suction and delivery applications of the Petroleum Industry
- Conforming Standards: AS2683 - Type 2: Grade 3: Kind 1
- Construction:Multiple layers of polypropylene fabrics and films. Yellow with white spiral layline. Lightweight version of Code 1000. Inner wire is aluminium and outer wires are galvanised steel.
- Temperature: -20°C to +80°C
- Safety Note: Hoses should be tested at 6 monthly intervals for correct electrical continuity and yearly for hydrostatic pressure performance. Call Hydraulink to arrange for us to visit onsite for testing.

Part Number	Size	Working Pressure (kPa)	Burst Pressure (kPa)	Min Bend Radius (mm)	Vacuum (kPa)	Weight (kg/m)
1003-080	80	500	1000	125	100	2.20
1003-100	100	500	1000	220	100	2.60

HOSE PROTECTION

HR2

HOSE RESTRAINT
DOUBLE EYE ONE END

- Application: Designed to prevent uncontrolled movement of a pressure hose in the event of coupling disconnection or hose failure
- Construction: Two Ply Galvanised Strand. Alloy Ferrules. Galvanised Thimbles. Heat Shrink Protection. Call Hydraulink for more information.

Part Number	To Fit Hose O.D (mm)	Net Grip Length (mm)	Aggerate Breaking Strength (kg	Ultimate Tensile Strength UTS	Heat Shrink Colour
WS-HR2019	19-28	500	3800	24	White
WS-HR2028	28-40	600	5800	35	Brown
WS-HR2060	60-70	900	10000	62	Blue