Flexdraulic®

Edition: A2009

www.Flexdraulic.com

WELCOME TO THE ENGINEERED AND TESTED HYDRAULIC HOSE AND CRIMP FITTING SYSTEM – 100% BACKED BY INDUSTRY PROS.

In this catalog edition,

you'll find our complete line of one- and two-wire braid hydraulic hoses along with our expansive inventory of "A" Series crimp fittings and hydraulic hose assembly tools and accessories.

Rest assured,

all of our hydraulic hose and crimp fitting combinations have been impulse and burst tested to the highest of international standards. Want proof? We'll give it to you.

With Flexdraulic,

quality is a given, and green is more than just our color. All of our hydraulic hoses are MSHA (Mine Safety and Health Administration) approved* and exceed international standards for ozone and abrasion resistance (see page 9). In addition, our cadmium-free crimp fittings are manufactured environmentally responsibly with human health and safety in mind.

Flexdraulic®

We are constantly adding new products to our variety. To contact us directly, call (888) 382-0262, e-mail to questions@flexdraulic.com or visit us on the web at www.flexdraulic.com.

* In special cases, exceptions may apply.

Contents

Technical Information
Things You Should Know

Hose
Wire Braid Hose

Crimp Fittings
'A' Series - Use With Wire Braid Hose - No Skive

» Contents Continued On Next Page

Protection

Hose And Crimp Fitting Protection

Crimping

Adjustable Crimpers

Cutting

Hose Cutting Machines

Warranty Information

Hose Suitability

Hose resistance to media (substances) used is a key determinant of hose suitability for any application. When a hose appears to display chemical resistance, it does not mean that the original properties of the hose will remain stable or retained for an unlimited time period. Figure 1 on this page shows media suitability values for Flexdraulic synthetic rubber hose.

- The action of chemical media can cause the hose material to expand, contract, be penetrated, and it can promote chemical reactions that affect the properties of both the hose and the medium contained within the hose.
- The progression of the above processes is generally more rapid and violent with greater operating temperature, pressure, flow velocity, duration and frequency of action, hose age and level of impurity in the medium used.

The data in the accompanying resistance chart on this page (and continued on page 5) are, therefore, approximate values which can only be guaranteed over a limited time period.

- The data is based on laboratory tests, which were generally carried out at room temperature, on information extracted from documentation and practical experience. Tests to examine chemical compatibility were not carried out in all cases.
- Specified values apply only at room temperature and within the listed concentration (if applicable), except where temperatures of up to 212° F are acceptable.
- The user is recommended to test hoses at regular time intervals if a certain amount of risk is inherent in their processes.

Media Deviations

In the event that chemical products or product compounds other than those specified are intended for use, please contact your Flexdraulic representative prior to using the hose. The same applies in the event that the condition and composition (ex. concentration and temperature of the media) deviate from supplied data.

We reserve the right to make technical modifications, printing errors and other miscues.

Media Suitability Key	
Suitability Code	**Suitability Level**
A	Unlimited Suitability
B	Limited Suitability
C	No Suitability
X	Contact Flexdraulic Rep.

Synthetic Rubber Hose Media Suitability					
Medium	**Suitability**	**Medium**	**Suitability**	**Medium**	**Suitability**
Acetic acid	C	Butyl diglycol acetate	C	Diethylene glycol	A
Acetic acid ethyl ester	C	Butyl glycol acetate	C	Dimethyl formamide -N,N	C
Acetone	C	Calcium hydroxide	A	Dimethyl sulfoxide	C
Allyl alcohol	A	Calcium hypochlorite, aqueous	C	Dioctyl phthalate	C
Alum, aqueous	A	Calcium nitrate, aqueous	A	Dioctyl sebacate	C
Aluminum acetate, aqueous	A	Carbon disulfide	C	Ethanol	A
Aluminum phosphate, aqueous	A	Carbon tetrachloride	C	Ethyl acetate	C
Aluminum sulfate, aqueous	A	Castor oil	A	Ethyl alcohol	A
Ammonia water 25%	A	Caustic soda solution < 20%	B	Ethyl chloride	C
Ammonia, gaseous	C	Chloric gas dry	C	Ethyl ether	C
Ammonia, liquid	C	Chloric gas wet	C	Ethyl glycol acetate	C
Ammonium diphosphate, aqueous	A	Chlorinated solvents	C	Ethyl methyl ketone	C
Ammonium hydroxide, 25% solution	A	Chlorinated bleaching	C	Ethylen glycol monoethyl ether	A
Ammonium phosphate, aqueous	A	Chlorine water	C	Ethylene chloride	C
Ammonium sulfate, aqueous	A	Chloroacetic acid	C	Ethylene glycol	A
Amyl acetate	C	Chlorethane	C	Ethylene glycol monobuthyl ether	A
Amyl alcohol	A	Chlorosulfonic acid	C	Ethylene glycol monoethylether acetate	C
Benzine	C	Chlorothene	C	Formaldehyde, aqueous	B
Benzine	A	Crude oil, aromatic base	C	Formic acid	C
Bitumen emulsion	A	Cyclohexane	A	Freon	X
Bleaching powder	C	Cyclohexanol	A	Fuel oil S	A
Bleaching solution	C	Cyclohexanone	C	Fuel oils	A
Borax, aqueous	A	Decahydronaphthalene	A	Gasoline	C
Boric acid, aqueous	A	Decalin cis-/trans-	A	Glacial acetic acid	C
Brine	X	Dichloro ethane (1,2)	C	Glycerol	A
Butanol	A	Dichloro ethylene	C	Glycol	A
Butanon (2)	C	Dichloro methane	C	Glycol ethyl ether	A
Butyl alcohol	A	Diesel fuel	A	Glysantin (antifreeze)	A

» Figure 1 (cont. next page)

Synthetic Rubber Hose Media Suitability (Continued)					
Medium	Suitability	Medium	Suitability	Medium	Suitability
Heptane	A	Naphtha	B	Silicone oils	A
Hexane	A	Naphthalene	C	Soda	A
Hydraulic fluids, biodegradable liquids	A	Natural gas	C	Sodium carbonate, aqueous	A
Hydraulic fluids, glycol/water mixture	A	Nitric acid	C	Sodium chloride, solution of	X
Hydraulic fluids mineral oil based	A	Nitric acid, aqueous	C	Sodium hydroxide, solution < 20%	B
Hydraulic fluids, phosphate ester liquids	C	Nitrogen	A	Sodium hypochlorite	C
Hydraulic fluids, water/oil emulsions	A	Nitro benzene	C	Sodium nitrate, aqueous	A
Hydrochloric acid	C	Octane	A	Sodium silicate, aqueous	A
Hydrochloric acid, anhydrous	C	Oxygen	C	Sodium sulfate	A
Hydrogen	C	Paraffine	A	Sulfuric acid	C
Hydrogen chloride anhydrous	C	Paraffine oils	A	Sulfuric acid, aqueous	C
Iron (II) nitrate	A	Pentane	A	Sulfurous acid	C
Iron (II) sulfate	A	Petrol	B	Tar < 212° F (100° C)	B
Iron (III) nitrate	A	Petroleum	A	Tetrachlorethane	C
Iron (III) sulfate	A	Petroleum ether	A	Tetrachlorethylene	C
Isooctane	A	Phenol	C	Tetrachloromethane	C
Isopropanol	A	Phosphoric acid ester	C	Tetrahyrdrofurane	C
Light gasoline	A	Phthalic diethyl ester	C	Tolulene	C
Lime water	A	Picric acid, aqueous	B	Trichloroethane (1,1,1)	C
Linseed oil	A	Potassium aluminum sulfate	A	Trichloroethylene	C
Liquid petrol gas	X	Potassium hydroxide solution < 30%	B	Turpentine	B
Magnesium lye	A	Potassium nitrate, aqueous	A	Varnish	C
Magnesium sulfate, aqueous	A	Potassium sulfate, aqueous	A	Vaseline	A
Methanol	X	Propanediol (1,2)	A	Water glass	A
Methyl alcohol	X	Propanol	A	Water, demineralized	A
Methyl chloride	C	Propyl alcohol	A	Water, distilled	A
Methyl ethyl ketone	C	Propylene glycol	A	White spirit	C
Methylene chloride	C	RME (Rape seed methyl ester)	A	Xylene	C
Monochloromethane	C	Sea water	X	-	-

» Figure 1 (continued)

Warning

» Flexdraulic products are part of an engineered system that must be assembled and used in accordance with Flexdraulic instructions and limitations. Failure to follow Flexdraulic instructions and limitations could lead to premature hose or hose assemblies failures resulting in property damage, serious injury and/or death.

» Flexdraulic's limited warranty shall apply only if the customer uses hose and couplings specifically engineered and manufactured to Flexdraulic process specifications.

» Flexdraulic disclaims any responsibility or liability for any hose assemblies not produced from genuine Flexdraulic hose and couplings, in conformance with Flexdraulic process specifications for each specific hose assembly.

» Flexdraulic does not identify all end users of its products and cannot distribute to these users Flexdraulic product safety and use information. Therefore, we must rely on the sellers and distributors of Flexdraulic products to provide a copy of this warning and precautions to all end users.

» It is not recommended to select or use hose and couplings without reading this warning, specific instruction(s) contained in hose data sheets and other precautions listed.

Protection Against Damage And Other Troubles

Avoid using the hose assembly beyond the scope of its specifications. It may cause serious problems such as an early burst or leakage. For safe application, please pay attention to the information and examples provided in Figure 2 on page 6 and the following instructions:

» Do not touch a pressurized hose or coupling. Should a pressurized hose or coupling break, it may cause severe injuries, such as burn or destruction of your bodily tissues and organs.

» Use appropriate hose protectors when hoses are or may come in contact with other surfaces. To protect hose assemblies from excessive wear caused by sharp objects and abrasive materials, use Flexdraulic protective hose wrap (page 76), Flexdraulic protective hose sleeve (page 77) and/or Flexdraulic hose guards (page 75).

» Do not exceed the maximum working pressure. Use of a hose over its maximum working pressure may lead to hose burst. Follow the maximum working pressure listed in the hose's respective specifications table.

» Do not damage the hose.

» Avoid twisting and pulling of the hose. Should a twisted or pulled hose

be pressurized, the hose and/or coupling may suffer a break. If twisting is unavoidable, use a swivel joint hose coupling.

» Avoid sharp bends in routing hose assemblies. The use of a hose with a sharp bend may cause an early break or other unexpected troubles. Use proper couplings, adapters and/or Flexdraulic protective hose wrap to avoid excessive bending.

» Do not run electric current through hydraulic hoses. Electrifying a hose may lead to a burst of the hose or an electric shock.

» When installing hose assemblies, tighten coupling nuts to the recommended torque.

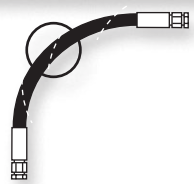
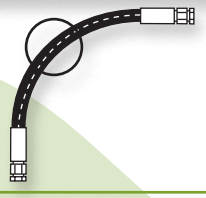
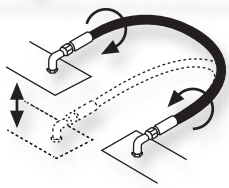
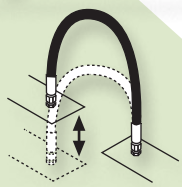
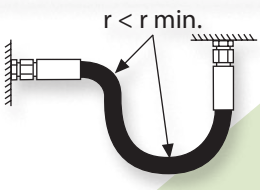
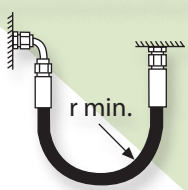
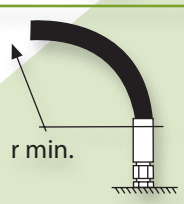
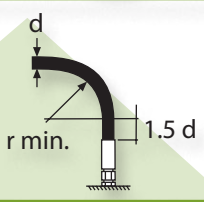
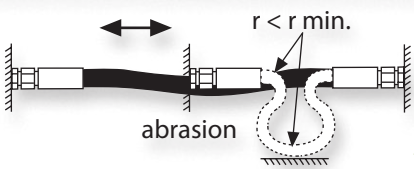
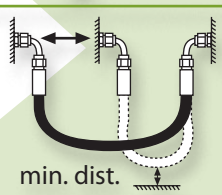
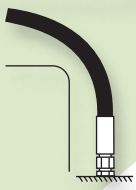
» Use appropriate fluid. The use of inappropriate fluid will deteriorate the inner tube or the reinforcement, which may lead to burst of a hose.

» Do not exceed hose minimum bend radius. When a hose is bent to a radius less than the minimum bend radius, early burst may occur.

» Do not subject a hose to external forces such as excessive impulse. Under excessive external forces, the service life of the hose will decline.

» Do not exceed hose temperature range. Use of a hose over its temperature range will lead to hose

» Figure 2

Incorrect Assembly Installation		Correct Assembly Installation
	Do not twist the assembly during installation. Twisting can be determined by viewing the path of the hose lay line. Where moving parts can cause twisting, make appropriate accommodations for correct installation. Pressure applied to a twisted hose can cause loosening of connections or hose failure.	
		
	Use adapters and elbow couplings in installations to avoid strain caused by exceeding hose assembly minimum bend radius. Do not bend the assembly at a distance less than 1.5 times hose outside diameter (d) to the end point of the ferrule. Correctly installed hose assemblies provide neater and easier installations that are accessible for inspection and maintenance.	
		
		
	Avoid contact with objects that can cause abrasion and other types of damage. On moving applications, pay special attention when specifying hose length to avoid undue tension and abrasion. Use Flexdraulic hose protection products (pages 74–77) for assemblies subject to abrasion.	
		

burst or coupling problems.

- Do not subject a hose to excessive negative pressure. In this condition, the inner tube wall will scrape against itself, which leads to leakage.
- Do not submerse hoses in water or any other liquid. In liquid, the hose undergoes additional external pressure, which will reduce the service life.
- To increase chances of achieving maximum hose service life, follow the minimum exposed hose length (hose length exposed between crimp fittings on shorter assemblies) as prescribed by your Flexdraulic representative.
- Do not attempt to repair a hose.
- Allow for length changes that can occur when assembly is under pressure. Hose assembly length changes of +2% to –4% can occur when pressurized. Therefore, hoses should be installed with curves or slack.
- Allow for hose movement. If hose movement (lengthening and shortening) occurs in your application, allow adequate hose length for amount of travel.

Maintenance Inspection

Proper maintenance of hose is essential to the safe use of hose and related equipment. During the hose assembly process, ensure that none of the following can be found:

- Damage of a hose
- Swelling of a hose
- Exposure of reinforcement
- Transformation (ex. sharp bending)

Storage

- Avoid direct exposure to sunlight (ultraviolet radiation), noxious gasses, oils and chemicals.
- Store in dry place at temperature range of 15° F to 100° F.

Hose Size

Properly sizing hose assemblies for hydraulic systems is fundamental to the design process. Properly sized hoses maintain efficient flow capacities and ensure the safe use of hose and related equipment. Use Figure 3 on this page for assistance.

- Undersized pressure lines produce excessive pressure drop with accompanying system heating and energy loss.
- Oversized hose assemblies, on the other hand, are excessively costly and generally too heavy.
- Undersized suction lines (suction lines not available in this catalog) cause cavitation at the pump inlet.

In selecting hose sizes for hydraulic systems, the following values can be used to achieve minimum pressure drop consistent with hose size:

- Fluid velocity of pressure lines should generally be 15 feet per second or less.
- Shorter pressure lines generally allow

Flow Capacity Nomogram

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

Example:

At 12 GPM, what is the proper hose size within the recommended velocity range for pressure lines?

- To find answer, first locate 12 GPM in the left-hand (flow) scale. Next, locate 25 ft/s in the right-hand (velocity) scale. Use a straight edge to join these two points. At the intersection of the straight edge and the middle scale (inside Ø), -08 is the closest hose inside diameter located above the straight edge, thus designating –08 as the recommended hose inside diameter.
- Other parameters of the installation, such as length of hose assemblies, number of valves, oil viscosity and maximum permissible pressure loss must be taken into account when determining nominal hose diameters.

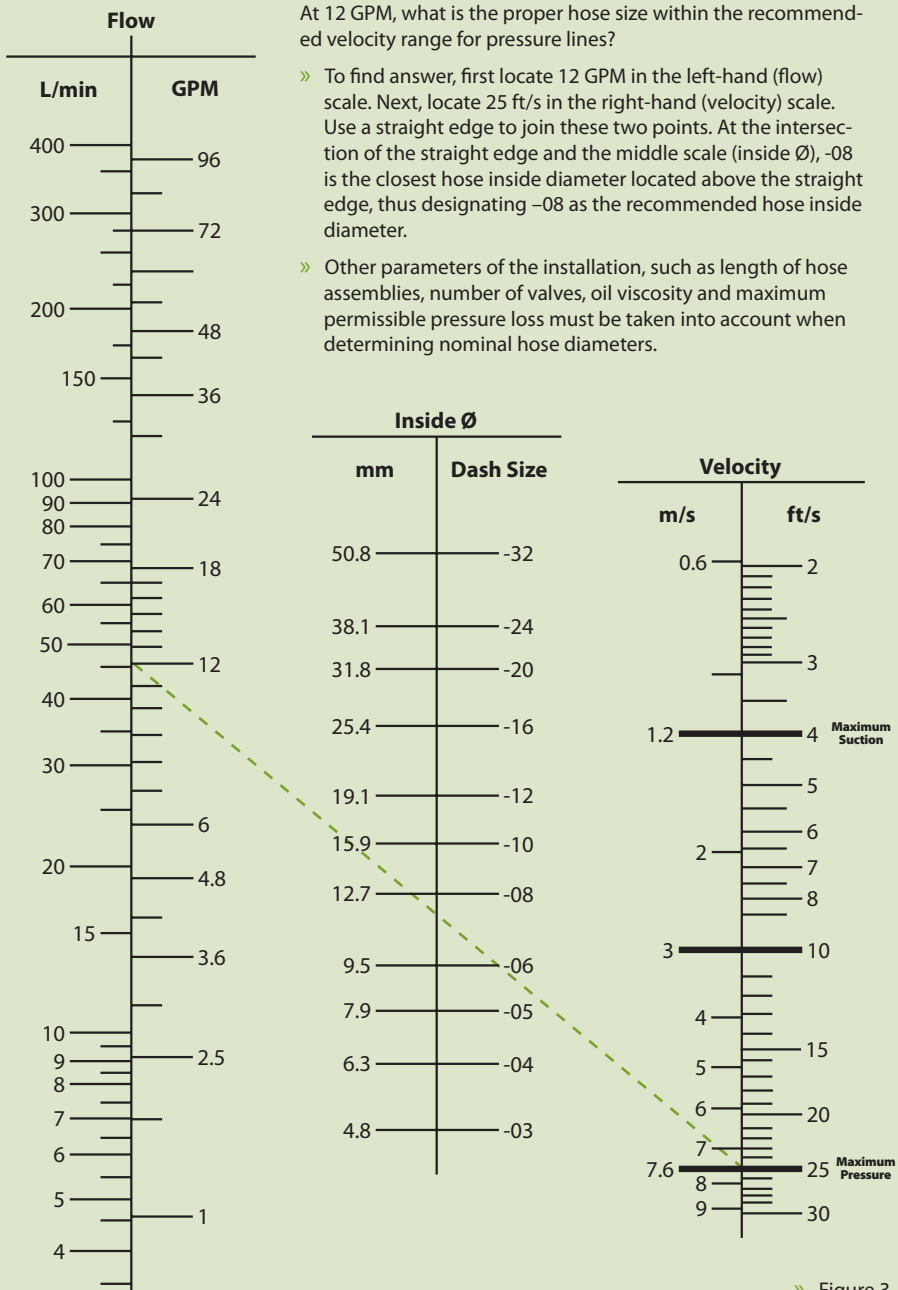


Figure 3

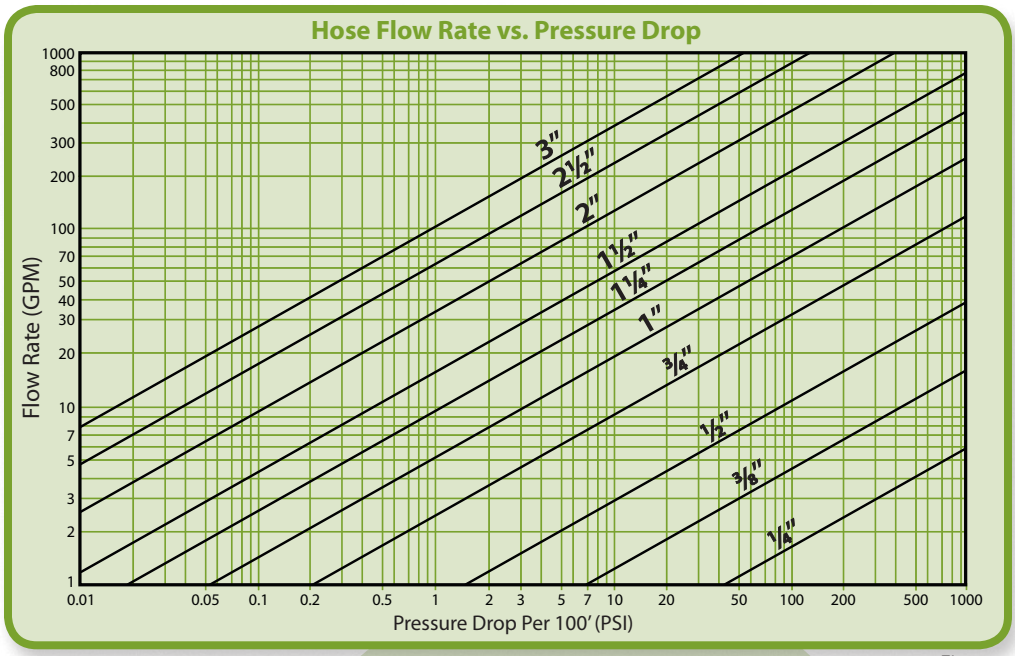
for higher velocities, up to 20 feet per second.

» Fluid velocity of suction lines should generally fall within a 2 to 4 feet per second range.

Pressure Drop And Flow Rate

Figure 4 on this page shows the pressure drop of various sized hoses. The information in Figure 4 is based on hoses of 100-foot lengths with water as the media conveyed.

» For hose lengths other than 100 feet, these values must be corrected. For example, a 100-foot length of ½" hose causes a pressure drop of 100 PSI at a flow rate of 10 GPM. If the hose in question is 50 feet long, the pressure drop derived from Figure 4 must be corrected. This value can be corrected by multiplying the pressure drop value (100 PSI) by the ratio of the hose's actual length compared to the 100-foot length ($^{50}/_{100}$ or 0.5). Therefore, the actual pressure drop caused by a 50-foot length of ½" hose at a flow rate of 10 GPM is 50 PSI (0.5 x 100 PSI = 50 PSI).



» Figure 4

Media	Correction Factor	Media	Correction Factor
Acetic Acid - 100%	0.975	Hydrochloric Acid 31.5%	0.920
Acetic Acid - 70%	0.843	Isobutyl Alcohol	0.745
Ammonia Liquid - 100%	1.290	Isopropyl Alcohol	0.828
Ammonia Liquid - 26%	0.943	Kerosene	0.892
*Asphalt @ 120° F	0.350	Lubricating Oil (Machine Oil)	0.350
Beer	0.990	Lubricating Oil (Automotive)	0.390
Benzene Benzol	1.080	Methyl Alcohol (Methanol) 100%	1.072
Brine Calcium Chloride 25%	0.780	Methyl Alcohol 90%	1.030
Brine Sodium Chloride 25%	0.880	Methyl Alcohol 40%	0.863
Butyl Alcohol	0.783	*Milk	0.990
*Caster Oil	0.270	Motor Oil	0.390
*Pennsylvania Crude Oil @ 100° F	0.780	Napthalene	1.040
*California Crude Oil @ 150° F	0.640	Nitric Acid 95%	1.070
*No. 33 API Crude Oil @ 100° F	0.685	Nitric Acid 60%	0.913
*Texas Crude Oil @ 150° F	0.792	Nonane	1.020
*Mexican Crude Oil @ 150° F	0.287	Octane - n	1.068
Decane	0.975	Olive Oil	0.410
Ethyl Alcohol 100%	0.930	Pentane - n	1.240
Ethyl Alcohol 95%	0.904	Propyl Alcohol	0.828
Ethyl Alcohol 40%	0.807	Rapeseed Oil	0.360
Ethyl Glycol	0.550	Sodium Hydroxide 50%	0.443
Formic Acid	0.940	Soya Bean Oil	0.418
*No. 1 Fuel Oil @ 100° F	0.850	Sperm Oil	0.550
*No. 2 Fuel Oil @ 100° F	0.752	Sugar Solution 20%	0.895
*No. 3 Fuel Oil @ 100° F	0.660	Sugar Solution 40%	0.728
*No. 5 Fuel Oil @ 100° F	0.470	Sugar Solution 60%	0.475
*No. 6 Fuel Oil @ 100° F	0.493	Sulfuric Acid 100%	0.590
*Gasoline Type 1	1.040	Sulfuric Acid 95%	0.593
*Gasoline Type 2	1.110	Sulfuric Acid 60%	0.755
*Gasoline Type 3	1.190	Tolulene	1.092
Glycerin (Glycerol) 100% @ 150° F	0.450	Turpentine	0.900
Glycerin & Water 50%	0.717	Water (Fresh)	1.000
Heptaine - n	1.160	Water (Salt)	1.000
Hexane - n	1.210	Xylene (Xylol)	1.030

These figures are approximate or averages of available values.

» Figure 5

Crimp Fittings And Media Conveyed

In many cases, hose coupling openings are slightly smaller that the hose inside diameter itself. This varies widely from full-flow crimp fittings, which have the same I.D. as the hose, down to as much as ⅛" smaller than the hose I.D.

» Assume a 10-15% higher flow rate than actually measured when determining pressure drop to make concessions for variance in coupling to hose inside diameter.

Figure 4 is based on water as the media conveyed. For other fluids, it is necessary to correct for the difference in specific gravity and viscosity. Figure 5 on this page lists common fluids and their respective correction factors.

» To determine the pressure drop for a specific fluid, first determine the pressure drop from Figure 4. Next, divide the pressure drop derived from Figure 4 by a correction factor found in Figure 5.

» For example, the 50-foot length of ½" hose with water flowing through it had a pressure drop of 50 PSI at a flow rate of 10 GPM. To determine the pressure drop if olive oil is the media conveyed, divide by 0.41. The pressure drop for 50 feet of ½" hose with olive oil as the media conveyed is about 122 PSI (50 / 0.41 = 121.95).

Hose Resistance To Abrasion And Ozone

In the name of longevity of use, safety and value, standards set forth by the International Standards Organization (ISO), German Institute for Standardization (DIN) and European Committee for Standardization (EN) are voluntarily exceeded in the creation of Flexdraulic hose products.

Flexdraulic's MSHA approved hose products are tested for abrasion resistance according to ISO 6945.

» Hydraulic hose failure can often be attributed to external physical damage caused by abrasion. Abrasion caused by hoses rubbing against each other or surrounding surfaces is a common type of hose damage warranting replacement.

» The ISO 6945 test standard tests rubber hoses to determine abrasion resistance of the outer cover. During testing, an abrasive mechanical apparatus repeatedly rubs against the outer cover of a hose specimen until failure occurs. Quality is determined by arriving at a required minimum number of cycles at a specified force, and the amount of cover extraction is weighed.

» Flexdraulic MSHA approved hoses are two and one half times better than other hose products that meet and do not exceed the ISO 6945 standard. The information in Figure 6 on this page clearly shows that Flexdraulic MSHA approved hoses experience less cover loss after the required number of test cycles required in ISO 6945.

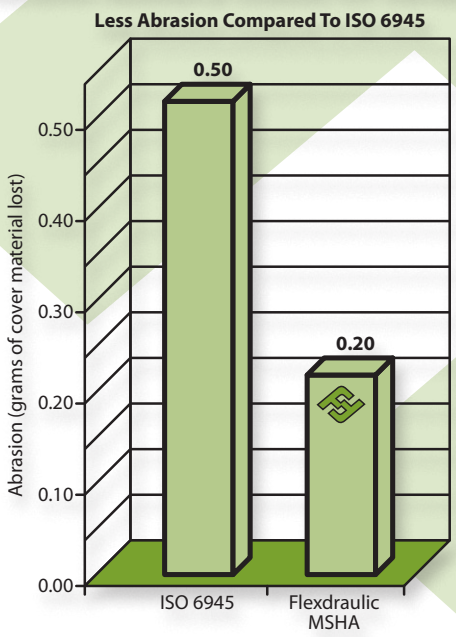
Flexdraulic's MSHA approved hose products are also tested for ozone resistance according to DIN EN 27326.

» Rubber hoses are naturally susceptible to cracking caused by exposure to ozone. Hose cracking grows longer and deeper with time, and the rate of crack growth depends on the load carried by the hose, the radius at which the hose is bent and the concentration of ozone in the atmosphere.

» When hoses are tested in accordance with DIN EN 27326, they must undergo a demanding combination of high ozone levels, high temperature and tight bends. More precisely, hoses are exposed simultaneously to 50 pphm (parts per hundred million) ozone, a temperature of 104° F and are held at minimum bend radius. After 72 hours in these conditions, tested hoses are inspected under two times magnification for cover cracking and deterioration, neither of which are allowed to be visibly present.

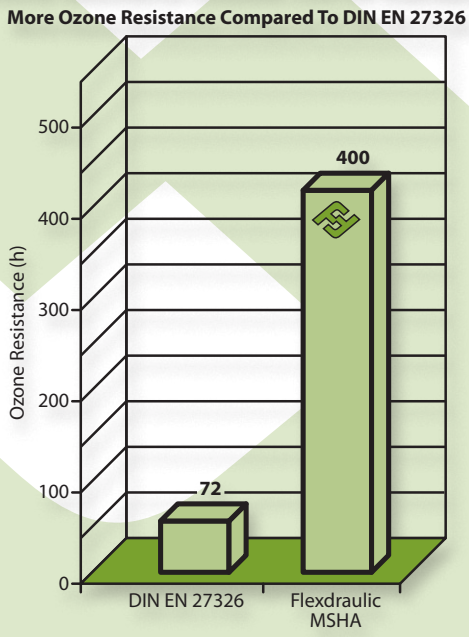
» Flexdraulic MSHA approved hoses are resistant to ozone and are over five and one half times better than other hose products that meet and do not exceed the DIN EN 27326 standard. The information in Figure 7 on this page clearly shows that Flexdraulic MSHA approved hoses resist ozone much more than the DIN EN 27326 standard requires.

Abrasion Resistance Exceeds ISO Standard



» Figure 6

Ozone Resistance Exceeds DIN EN Standard



» Figure 7

Hose Assembly Measurement

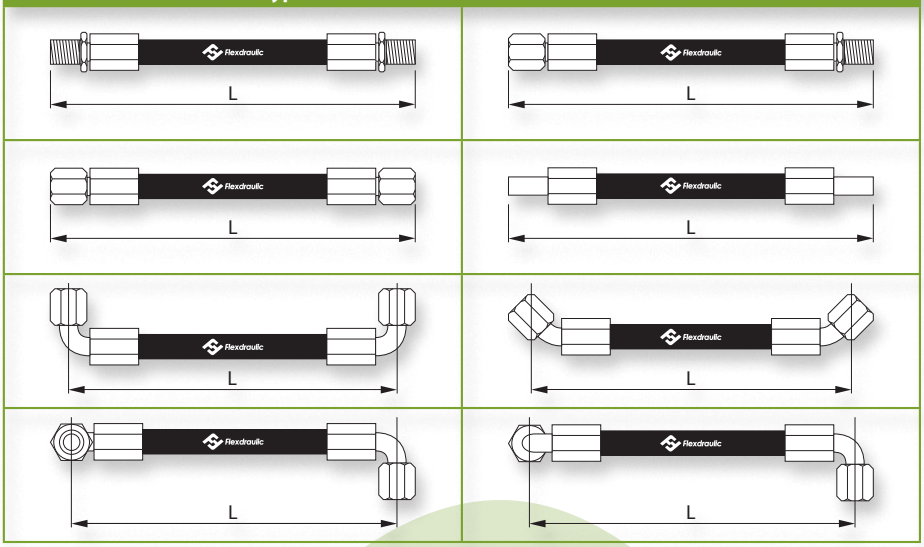
Proper hose measurement and installation can help increase the service life of hose assemblies. Figure 8 on this page displays several examples of typical hose assembly measurement.

- Measure to the end of most straight crimp fittings. Pay special attention when calculating assembly lengths with ORFS (O-Ring Face Seal) straight crimp fittings, which are measured to the sealing surface only.
- Measure to the middle point of the sealing surface for elbow crimp fittings.
- If in doubt about hose assembly measurement, please contact your Flexdraulic representative.

Hose Assembly Identification

When specifying a configuration for any given Flexdraulic hose assembly, the system found in Figure 9 on this page provides an easy-to-understand method for clearly communicating the total makeup of the assembly (excluding crimp fitting angle orientation, if applicable).

Typical Measurements Of Hose Assemblies



» Figure 8

Hose Type Identification

For your convenience and for the sake of simplicity, Flexdraulic hose is called what it actually is. For example, if it's determined that 1SN hydraulic hose is needed for an application, the Flexdraulic hose type is 1SN followed by the hose inside diameter in sixteenths of an inch. In the example provided on the left, number one is the hose type, and number two is the hose inside diameter in sixteenths of an inch (½" = 8/16" = 08).

1SN 08
1 2

Hose Assembly Code Guide

1SN 08 A -106 S66 -012 25
1 2 3 4 5 6 7

The above guide is provided as an aid in clearly communicating the desired makeup of a Flexdraulic hose assembly. Explanations of each part of the assembly code are listed below:

1 Hose Type - The Flexdraulic hose type is listed in this part of the assembly code. In the example provided, 1SN hose is used. If the assembly were to include R17 hose, R17 would be the identifier used in this space instead of 1SN.

2 Hose Size - Hose size is listed in sixteenths of an inch in this portion of the assembly code. In the above example, the assembly code lists half-inch size hose (½" = 8/16" = 08).

3 Crimp Fitting Series - The letter associated with the Flexdraulic crimp fitting series used in the assembly is found in this part of the assembly code. This information can be found on individual crimp fitting catalog pages near the top of each page.

4 Crimp Fitting - One of two crimp fittings needed in the assembly is listed in this part of the assembly code. The crimp fitting referenced in part four is an A08-106. In assembly code sections two and three, the hose size and crimp fitting series have already been noted. Part four is where the remainder of the crimp fitting information is listed (106). Refer to individual crimp fitting catalog pages for this information.

5 Crimp Fitting - Two of two crimp fittings needed in the assembly is listed in this part of the assembly code. The crimp fitting referenced in part five is an A08-S66. In assembly code sections two and three, the hose size and crimp fitting series have already been noted. Part five is where the remainder of the crimp fitting information is listed (S66). Refer to individual crimp fitting catalog pages for this information.

6 Length (Part One) - This portion of the assembly code designates how many whole inches make up the assembly. In the example, there are 12 whole inches.

7 Length (Part Two) - Fractions of an inch are designated by this part of the assembly code. In the provided example, it has already been noted that there are 12 whole inches in the assembly, and part seven indicates that there is one-quarter of an inch (0.25") in addition to the amount of whole inches for a total assembly length of 12¼".

! *Add more information to the Flexdraulic hose assembly code (as seen in this figure) to communicate* ***elbow crimp fitting angle orientation.*** *See page 11 to learn how.*

» Figure 9

Communicating Crimp Fitting Orientation (For Hose Assemblies With Elbows On Both Ends)

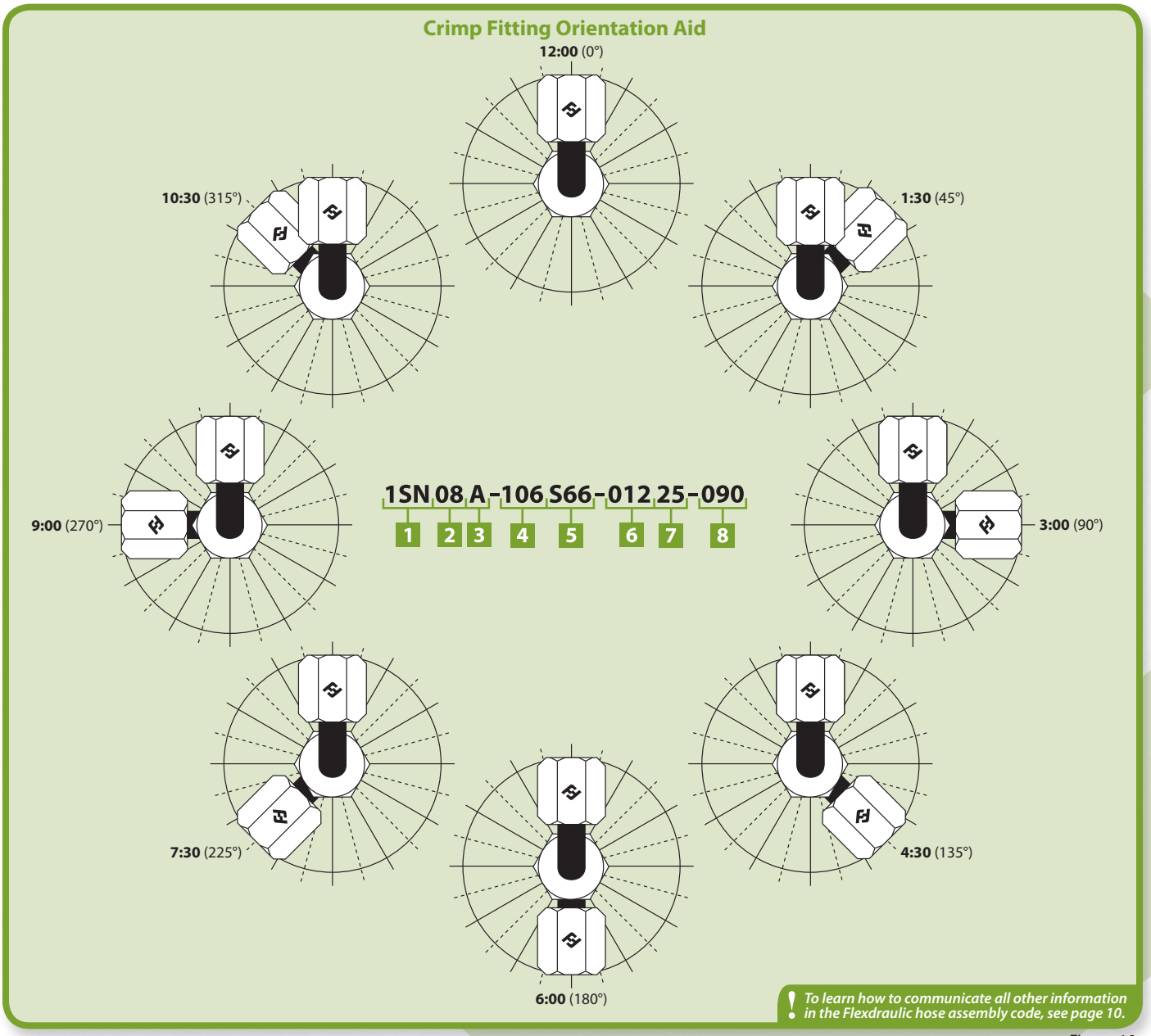
Figure 10 on this page helps you communicate your desired orientation angle (twist) of elbow crimp fittings for hose assemblies that need elbows on both ends. You can communicate crimp fitting orientation with degrees. If you wish, you may use the clock hand positions in Figure 10 as an aid to convert to degrees.

» To determine the relative angle of elbow crimp fittings, look lengthways at the hose assembly with the crimp fitting closest to your body facing upward (12:00 or 0°). Now, specify the angle of rotation (clockwise direction) of the crimp fitting furthest from your body using Figure 10 for guidance.

To communicate the orientation angle of the elbow crimp fitting furthest from your body (with the elbow crimp fitting nearest your body facing upward) in the hose assembly code, use three digits after a dash (as seen in part 8 of the extended hose assembly code located at the center of Figure 10).

» In the example hose assembly code located at the center of Figure 10, the orientation angle for the crimp fitting furthest from your body is 90° (090).

» See information in Figure 9 on page 10 to learn how to communicate all other information in the Flexdraulic hose assembly code.



» Figure 10

Selection Of Hose

Hydraulic hose assemblies are used to transmit forces by means of oil pressure and consist of flexible hydraulic hoses to which fittings are attached at both ends to ensure safe, interlocking connections. Selection of the proper hose is essential to proper operation and the safe use of hose and related equipment.

» The correct choice of hose for an assembly is influenced by many factors, particularly dynamic working pressure, resistance to media handled and operating temperature, both of the media and surrounding conditions.

» Inadequate attention to selection of hose can result in hose leaking, bursting or other failure.

Hose Selection Chart

	1SN *(EXCEEDS SAE 100R1)*	2SN *(EXCEEDS SAE 100R2)*	R16	R17
Usage	General Purpose Hydraulic	General Purpose Hydraulic	General Purpose Hydraulic	General Purpose Hydraulic
Temperature Range	-40° F to 212° F Spikes to 248° F	-40° F to 212° F Spikes to 248° F	-40° F to 212° F	-40° F to 212° F
Inner Tube	Synthetic Rubber	Synthetic Rubber	Synthetic Rubber	Synthetic Rubber
Reinforcement	One Braid	Two Braid	Two Braid	One Braid (¼"-½") Two Braid (⅝"-1")
Outer Cover	MSHA abrasion and weather resistant synthetic rubber	MSHA abrasion and weather resistant synthetic rubber	MSHA abrasion and weather resistant synthetic rubber	MSHA abrasion and weather resistant synthetic rubber
Average Bend Radius (For sizes listed below)	7.51"	7.51"	3.77"	3.77"
Hose Page	Page 13	Page 14	Page 15	Page 16
Crimp Fittings Used With	Flexdraulic 'A' Series (Pages 18–73)	Flexdraulic 'A' Series (Pages 18–73)	Flexdraulic 'A' Series (Pages 18–73)	Flexdraulic 'A' Series (Pages 18–73)

	Maximum Recommended Working Pressure (PSI)			
Inside Ø	**1SN** *(EXCEEDS SAE 100R1)*	**2SN** *(EXCEEDS SAE 100R2)*	**R16**	**R17**
¼"	3,625	5,800	5,075	3,045
⅜"	2,610	4,785	4,060	3,045
½"	2,320	3,990	3,555	3,045
⅝"	1,885	3,625	2,785	3,045
¾"	1,525	3,120	2,280	3,045
1"	1,275	2,395	2,030	3,045

DIN EN 853 1SN MSHA *(EXCEEDS SAE 100R1)*

Construction

- Oil resistant synthetic rubber tube
- One high-tensile wire braid reinforcement
- MSHA approved abrasion, ozone and weather resistant synthetic rubber cover
- Embossed, black lay line

Application

- Transfer of hydraulic oils (both mineral and polyglycol based biological), water and oil & water emulsions

Temperature Range

- Medium temperature range from - 40° F to 212° F with occasional spikes up to 248° F

Hose Type	Inside Ø		Outside Ø	Working Pressure	Burst Pressure	Bend Radius	Weight	Reel Length
	Inch	*Size*	*Inch*	*PSI*	*PSI*	*Inch*	*lbs/ft*	*Feet*
1SN-04	¼″	-04	0.52″	3,265	13,050	3.94″	0.14	500′
1SN-06	⅜″	-06	0.66″	2,610	10,440	4.92″	0.22	500′
1SN-08	½″	-08	0.79″	2,320	9,280	7.09″	0.28	350′
1SN-10	⅝″	-10	0.92″	1,885	7,540	7.87″	0.30	650′
1SN-12	¾″	-12	1.07″	1,525	6,090	9.45″	0.39	500′
1SN-16	1″	-16	1.38″	1,275	5,075	11.81″	0.59	280′

DIN EN 853 2SN MSHA *(EXCEEDS SAE 100R2)*

Construction

- Oil resistant synthetic rubber tube
- Two high-tensile wire braid reinforcements
- MSHA approved abrasion, ozone and weather resistant synthetic rubber cover
- Embossed, black lay line

Application

- Transfer of hydraulic oils (both mineral and polyglycol based biological), water and oil & water emulsions

Temperature Range

- Medium temperature range from -40° F to 212° F with occasional spikes up to 248° F

Hose Type	Inside Ø		Outside Ø	Working Pressure	Burst Pressure	Bend Radius	Weight	Reel Length
	Inch	*Size*	*Inch*	*PSI*	*PSI*	*Inch*	*lbs/ft*	*Feet*
2SN-04	¼″	-04	0.57″	5,800	23,200	3.94″	0.22	500′
2SN-06	⅜″	-06	0.73″	4,785	19,145	4.92″	0.34	450′
2SN-08	½″	-08	0.85″	3,990	15,950	7.09″	0.40	320′
2SN-10	⅝″	-10	0.97″	3,625	14,500	7.87″	0.48	520′
2SN-12	¾″	-12	1.13″	3,120	12,325	9.45″	0.58	400′
2SN-16	1″	-16	1.47″	2,395	9,425	11.81″	0.86	200′

SAE 100 R16 MSHA

Construction

- Oil resistant synthetic rubber tube
- Two high-tensile wire braid reinforcements
- MSHA approved abrasion, ozone and weather resistant synthetic rubber cover
- Embossed, black lay line

Application

- Transfer of hydraulic oils (both mineral and polyglycol based biological), water and oil & water emulsions

Temperature Range

- Medium temperature range from -40° F to 212° F

Hose Type	Inside Ø		Outside Ø	Working Pressure	Burst Pressure	Bend Radius	Weight	Reel Length
	Inch	*Size*	*Inch*	*PSI*	*PSI*	*Inch*	*lbs/ft*	*Feet*
R16-04	¼″	-04	0.54″	5,075	20,305	1.97″	0.17	500′
R16-06	⅜″	-06	0.68″	4,060	16,240	2.56″	0.27	450′
R16-08	½″	-08	0.82″	3,555	14,210	3.54″	0.32	320′
R16-10	⅝″	-10	0.94″	2,785	11,135	3.94″	0.37	520′
R16-12	¾″	-12	1.09″	2,280	9,105	4.72″	0.48	400′
R16-16	1″	-16	1.39″	2,030	8,120	5.91″	0.67	200′

SAE 100 R17 MSHA

Construction

- Oil resistant synthetic rubber tube
- One high-tensile wire braid reinforcement (¼" thru ½")
- Two high-tensile wire braid reinforcements (⅝" thru 1")
- MSHA approved abrasion, ozone and weather resistant synthetic rubber cover
- Embossed, black lay line

Application

- Transfer of hydraulic oils (both mineral and polyglycol based biological), water and oil & water emulsions

Temperature Range

- Medium temperature range from -40° F to 212° F

Hose Type	Inside Ø		Outside Ø	Number Of Braids	Working Pressure	Burst Pressure	Bend Radius	Weight	Reel Length
	Inch	*Size*	*Inch*		*PSI*	*PSI*	*Inch*	*lbs/ft*	*Feet*
R17-04	¼"	-04	0.49"	One	3,045	12,180	1.97"	0.13	500'
R17-06	⅜"	-06	0.63"	One	3,045	12,180	2.56"	0.18	500'
R17-08	½"	-08	0.77"	One	3,045	12,180	3.54"	0.31	350'
R17-10	⅝"	-10	0.94"	Two	3,045	12,180	3.94"	0.38	520'
R17-12	¾"	-12	1.09"	Two	3,045	12,180	4.72"	0.52	400'
R17-16	1"	-16	1.43"	Two	3,045	12,180	5.91"	0.94	200'

Pressure Washer Hose

Construction

- One high-tensile wire braid reinforcement
- Male pipe rigid (⅜") on one end and male pipe live swivel (⅜") on the other
- Bend restrictors on both ends
- Abrasion, ozone and weather resistant synthetic rubber cover
- Embossed, black lay line

Application

- Pressure washers

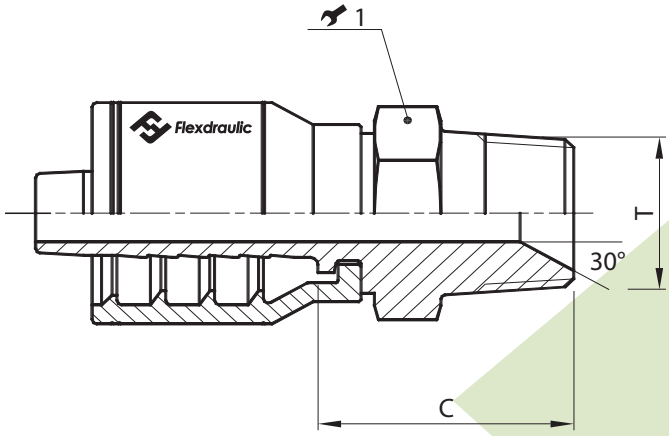
Temperature Range

- Medium temperature range from -40° F to 212° F

Hose Type	Length	Inside Ø		Braid Ø	Outside Ø	Working Pressure	Burst Pressure	Bend Radius	Weight
	Foot	*Inch*	*Size*	*Inch*	*Inch*	*PSI*	*PSI*	*Inch*	*lbs/ft*
PWSH06-50	50'	⅜"	-06	0.55"	0.65"	3,000	12,180	2.56"	0.18
PWSH06-100	100'	⅜"	-06	0.55"	0.65"	3,000	12,180	2.56"	0.18

NPTF

NPTF Male Pipe Rigid
(30° Cone Seat)

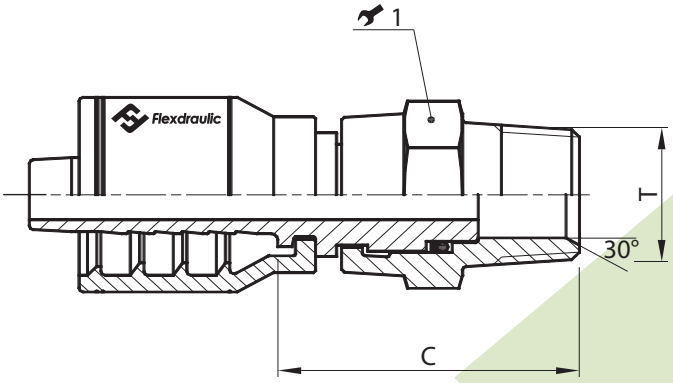


Part #	Hose I.D.		Pipe Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-102	¼″	-04	⅛″ - 27	0.87″	9⁄16″	14
A04-104	¼″	-04	¼″ - 18	1.04″	9⁄16″	14
A04-106	¼″	-04	⅜″ - 18	1.10″	¾″	19
A04-108	¼″	-04	½″ - 14	1.30″	⅞″	22
A06-104	⅜″	-06	¼″ - 18	1.04″	11⁄16″	17
A06-106	⅜″	-06	⅜″ - 18	1.10″	¾″	19
A06-108	⅜″	-06	½″ - 14	1.30″	⅞″	22
A08-106	½″	-08	⅜″ - 18	1.12″	¾″	19
A08-108	½″	-08	½″ - 14	1.32″	⅞″	22
A08-112	½″	-08	¾″ - 14	1.34″	1 1⁄16″	27
A10-108	⅝″	-10	½″ - 14	1.32″	15⁄16″	24
A10-112	⅝″	-10	¾″ - 14	1.61″	1 1⁄16″	27
A12-108	¾″	-12	½″ - 14	1.36″	1 1⁄16″	27
A12-112	¾″	-12	¾″ - 14	1.63″	1 1⁄16″	27
A12-116	¾″	-12	1″ - 11½	1.83″	1 7⁄16″	36
A16-112	1″	-16	¾″ - 14	1.67″	1¼″	32
A16-116	1″	-16	1″ - 11½	1.87″	1 7⁄16″	36

One Piece Bite The Wire

NPTF

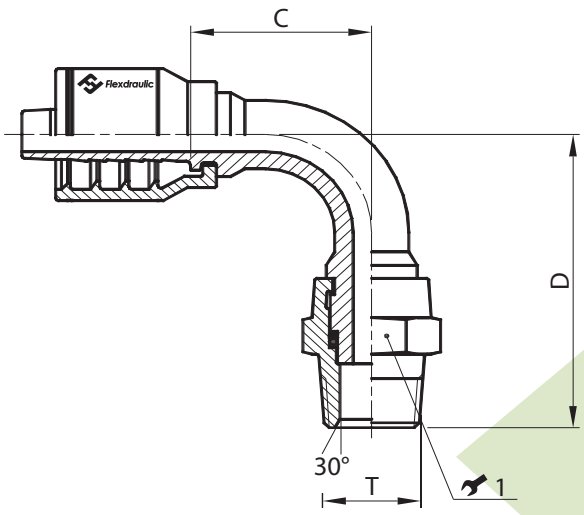
NPTF Male Pipe Swivel
(30° Cone Seat)



Part #	Hose I.D.		Pipe Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-J04	¼″	-04	¼″ - 18	1.44″	11⁄16″	17
A06-J04	⅜″	-06	¼″ - 18	1.32″	11⁄16″	17
A06-J06	⅜″	-06	⅜″ - 18	1.65″	⅞″	22
A06-J08	⅜″	-06	½″ - 14	1.63″	1 1⁄16″	27
A08-J08	½″	-08	½″ - 14	1.65″	1 1⁄16″	27
A12-J12	¾″	-12	¾″ - 14	2.17″	1 7⁄16″	36
A16-J16	1″	-16	1″ - 11½	2.46″	1½″	38

One Piece Bite The Wire

NPTF



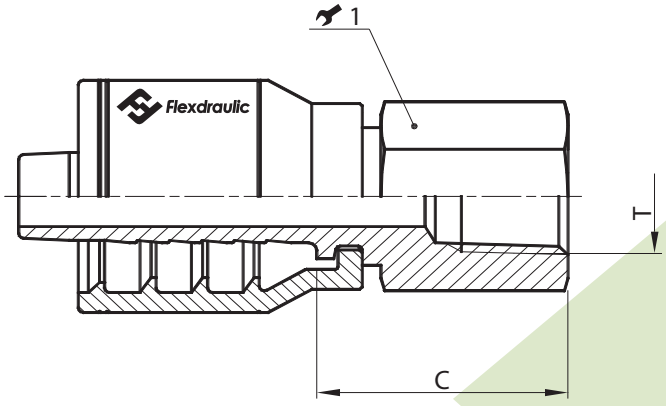
NPTF Male Pipe Swivel - 90° Elbow
(30° Cone Seat)

Part #	Hose I.D.		Pipe Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-M04	¼″	-04	¼″ - 18	1.10″	2.01″	11⁄16″	17
A06-M06	⅜″	-06	⅜″ - 18	1.36″	2.32″	⅞″	22
A08-M08	½″	-08	½″ - 14	1.75″	3.09″	1 1⁄16″	27
A12-M12	¾″	-12	¾″ - 14	2.42″	4.36″	1 7⁄16″	36

One Piece Bite The Wire

NPTF

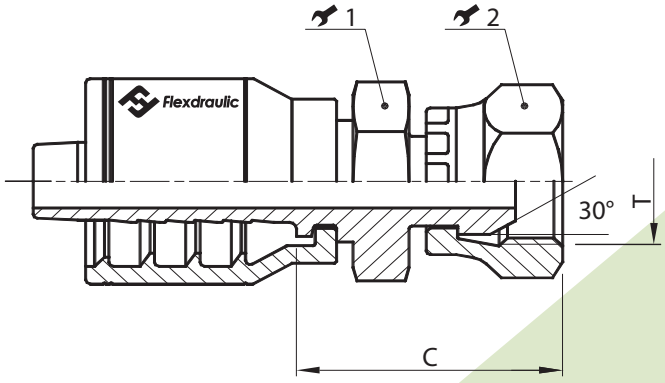
NPTF Female Pipe Rigid



Part #	Hose I.D.		Pipe Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-202	¼″	-04	⅛″ - 27	0.85″	11⁄16″	17
A04-204	¼″	-04	¼″ - 18	1.04″	¾″	19
A06-204	⅜″	-06	¼″ - 18	1.04″	¾″	19
A06-206	⅜″	-06	⅜″ - 18	1.10″	⅞″	22
A06-208	⅜″	-06	½″ - 14	1.30″	1 1⁄16″	27
A08-208	½″	-08	½″ - 14	1.32″	1 1⁄16″	27
A12-212	¾″	-12	¾″ - 14	1.40″	1¼″	32

One Piece Bite The Wire

NPSM *(National Pipe Straight Mechanical)*



NPSM Female Pipe Swivel

(30° Cone Seat)

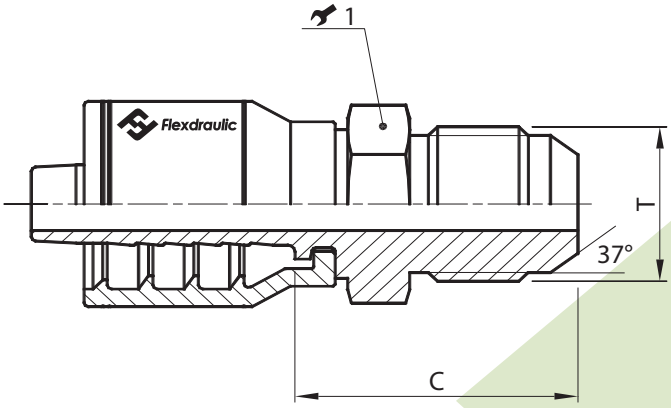
! Connects to male pipe fitting with 30° internal seat

Part #	Hose I.D.		NPSM Thread (T)	Cutoff (C)	Wrench		Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-054	¼″	-04	¼″ -18	1.11″	¾″	19	¾″	19
A06-056	⅜″	-06	⅜″ - 18	1.26″	⅞″	22	⅞″	22
A08-058	½″	-08	½″ - 14	1.41″	⅞″	22	1 1⁄16″	27
A12-062	¾″	-12	¾″ - 14	1.79″	1 1⁄16″	27	1¼″	32

One Piece Bite The Wire

JIC

JIC 37° Male Rigid

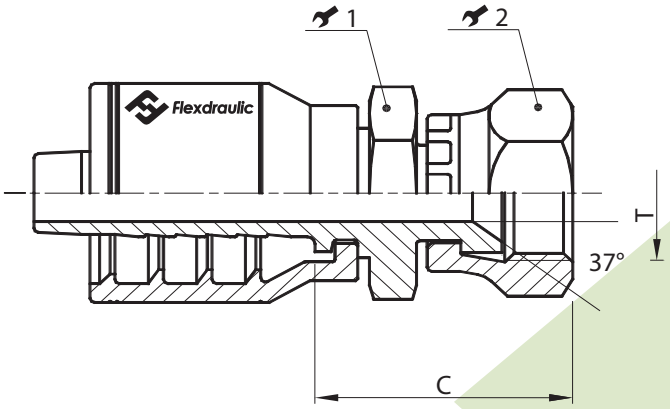


Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-504	¼″	-04	04	7/16″ - 20	1.04″	9/16″	14
A04-505	¼″	-04	05	½″ - 20	1.04″	9/16″	14
A04-506	¼″	-04	06	9/16″ - 18	1.08″	11/16″	17
A06-506	3/8″	-06	06	9/16″ - 18	1.08″	11/16″	17
A06-508	3/8″	-06	08	¾″ - 16	1.19″	¾″	19
A06-510	3/8″	-06	10	⅞″ - 14	1.37″	15/16″	24
A08-506	½″	-08	06	9/16″ - 18	1.10″	¾″	19
A08-508	½″	-08	08	¾″ - 16	1.21″	¾″	19
A08-510	½″	-08	10	⅞″ - 14	1.37″	15/16″	24
A08-512	½″	-08	12	1 1/16″ - 12	1.53″	1 1/16″	27
A10-510	5/8″	-10	10	⅞″ - 14	1.39″	15/16″	24
A10-512	5/8″	-10	12	1 1/16″ - 12	1.53″	1 1/16″	27
A12-510	¾″	-12	10	⅞″ - 14	1.45″	1 1/16″	27
A12-512	¾″	-12	12	1 1/16″ - 12	1.55″	1 1/16″	27
A12-514	¾″	-12	14	1 13/16″ - 12	1.58″	1¼″	32
A12-516	¾″	-12	16	1 5/16″ - 12	1.80″	1 7/16″	36
A16-516	1″	-16	16	1 5/16″ - 12	1.83″	1 7/16″	36
A16-520	1″	-16	20	1⅝″ - 12	2.30″	1 13/16″	46

One Piece Bite The Wire

JIC

JIC 37° Female Swivel

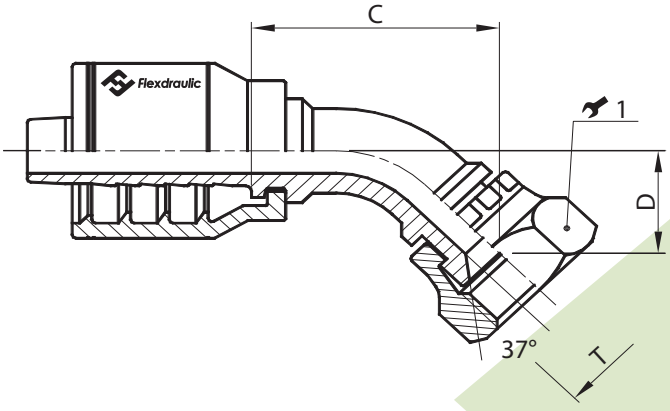


Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Wrench		Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-604	¼″	-04	04	7/16″ - 20	1.15″	9/16″	14	9/16″	-
A04-605	¼″	-04	05	½″ - 20	1.26″	9/16″	14	11/16″	17
A04-606	¼″	-04	06	9/16″ - 18	1.22″	9/16″	14	11/16″	-
A06-604	⅜″	-06	04	7/16″ - 20	1.19″	11/16″	17	9/16″	-
A06-605	⅜″	-06	05	½″ - 20	1.30″	11/16″	17	11/16″	17
A06-606	⅜″	-06	06	9/16″ - 18	1.31″	11/16″	17	11/16″	-
A06-608	⅜″	-06	08	¾″ - 16	1.44″	¾″	19	⅞″	-
A06-610	⅜″	-06	10	⅞″ - 14	1.65″	⅞″	22	1 1/16″	27
A08-606	½″	-08	06	9/16″ - 18	1.33″	¾″	19	11/16″	-
A08-608	½″	-08	08	¾″ - 16	1.42″	¾″	19	⅞″	-
A08-610	½″	-08	10	⅞″ - 14	1.67″	⅞″	22	1 1/16″	27
A08-612	½″	-08	12	1 1/16″ - 12	1.94″	1 1/16″	27	1¼″	32
A10-608	⅝″	-10	08	¾″ - 16	1.50″	⅞″	22	15/16″	24
A10-610	⅝″	-10	10	⅞″ - 14	1.67″	⅞″	22	1 1/16″	27
A10-612	⅝″	-10	12	1 1/16″ - 12	1.94″	1 1/16″	27	1¼″	32
A12-610	¾″	-12	10	⅞″ - 14	1.93″	1 1/16″	27	1 1/16″	27
A12-612	¾″	-12	12	1 1/16″ - 12	1.96″	1 1/16″	27	1¼″	32
A12-614	¾″	-12	14	1 3/16″ - 12	1.79″	1 3/16″	30	1 7/16″	36
A12-616	¾″	-12	16	1 5/16″ - 12	2.05″	1¼″	32	1½″	38
A16-612	1″	-16	12	1 1/16″ - 12	1.92″	1¼″	32	1¼″	32
A16-616	1″	-16	16	1 5/16″ - 12	2.01″	1¼″	32	1½″	38
A16-620	1″	-16	20	1⅝″ - 12	1.80″	No Hex	No Hex	2″	50

One Piece Bite The Wire

JIC

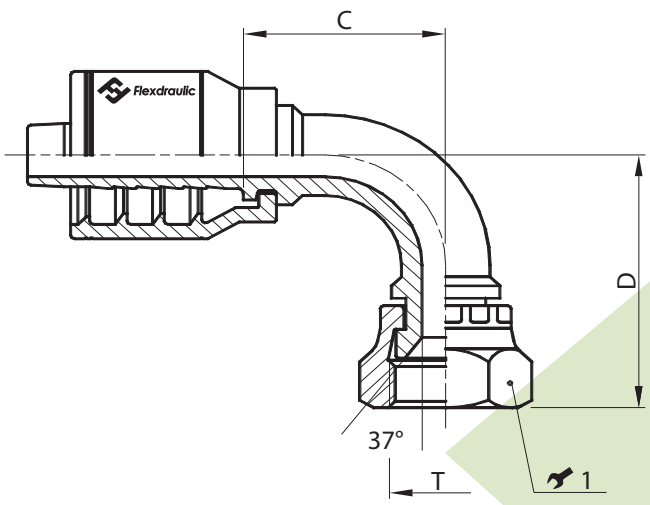
JIC 37° Female Swivel - 45° Elbow



Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-684	¼″	-04	04	7/16″ - 20	1.42″	0.55″	9/16″	-
A04-685	¼″	-04	05	½″ -20	1.63″	0.59″	11/16″	17
A06-686	⅜″	-06	06	9/16″ - 18	1.75″	0.45″	11/16″	-
A06-688	⅜″	-06	08	¾″ - 16	1.36″	0.59″	⅞″	-
A08-688	½″	-08	08	¾″ - 16	1.70″	0.54″	⅞″	-
A08-690	½″	-08	10	⅞″ - 14	2.19″	0.75″	1 1/16″	27
A10-690	⅝″	-10	10	⅞″ - 14	2.46″	0.94″	1 1/16″	27
A10-692	⅝″	-10	12	1 1/16″ - 12	2.38″	1.14″	1¼″	32
A12-692	¾″	-12	12	1 1/16″ - 12	2.76″	1.11″	1¼″	32
A12-696	¾″	-12	16	1 5/16″ - 12	2.64″	1.18″	1½″	38
A16-696	1″	-16	16	1 5/16″ - 12	3.29″	1.26″	1½″	38

One Piece Bite The Wire

JIC

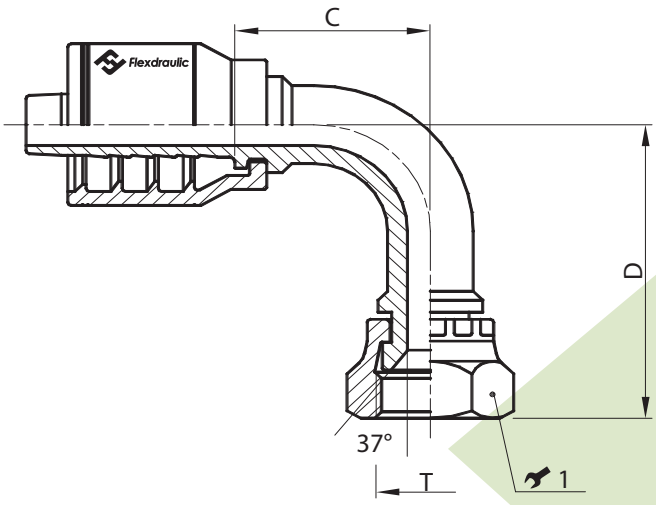


JIC 37° Female Swivel - 90° Elbow

Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-664	1/4"	-04	04	7/16" - 20	1.12"	1.37"	9/16"	-
A04-665	1/4"	-04	05	1/2" - 20	1.14"	1.59"	11/16"	17
A04-666	1/4"	-04	06	9/16" - 18	1.08"	1.45"	11/16"	-
A06-666	3/8"	-06	06	9/16" - 18	1.22"	1.24"	11/16"	-
A06-668	3/8"	-06	08	3/4" - 16	1.24"	1.60"	7/8"	-
A08-668	1/2"	-08	08	3/4" - 16	1.61"	1.60"	7/8"	-
A08-670	1/2"	-08	10	7/8" - 14	1.67"	2.06"	1 1/16"	27
A10-670	5/8"	-10	10	7/8" - 14	1.87"	2.43"	1 1/16"	27
A10-672	5/8"	-10	12	1 1/16" - 12	1.91"	2.41"	1 1/4"	32
A12-672	3/4"	-12	12	1 1/16" - 12	2.42"	2.85"	1 1/4"	32
A16-676	1"	-16	16	1 5/16" - 12	2.81"	3.43"	1 1/2"	38

One Piece Bite The Wire

JIC



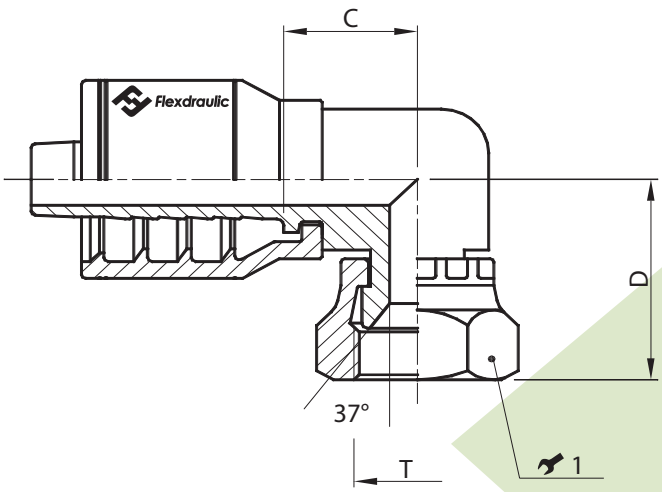
JIC 37° Female Swivel - 90° Elbow
(Long Drop)

Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-644	¼″	-04	04	7/16″ - 20	1.26″	2.14″	9/16″	-
A06-646	3/8″	-06	06	9/16″ - 18	1.40″	2.57″	11/16″	-
A06-648	3/8″	-08	06	¾″ - 16	1.46″	2.86″	⅞″	-
A08-648	½″	-08	08	¾″ - 16	1.87″	2.86″	⅞″	-
A08-650	½″	-08	10	⅞″ - 14	1.91″	3.05″	1 1/16″	27
A12-652	¾″	-12	12	1 1/16″ - 12	2.42″	4.28″	1¼″	32
A16-656	1″	-16	16	1 5/16″ - 12	3.13″	4.96″	1½″	38

One Piece Bite The Wire

JIC

JIC 37° Female Swivel - 90° Compact Elbow

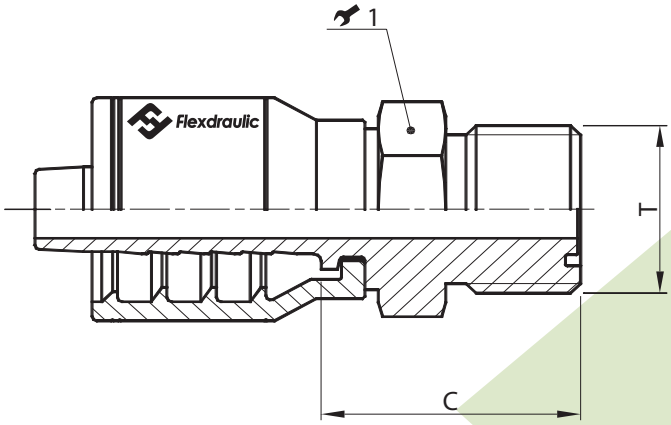


Part #	Hose I.D.		JIC 37° (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-554	1/4"	-04	04	7/16" - 20	0.69"	1.14"	9/16"	-
A04-556	1/4"	-04	06	9/16" - 18	0.69"	1.33"	11/16"	-
A06-556	3/8"	-06	06	9/16" - 18	0.85"	1.33"	11/16"	-
A06-558	3/8"	-06	08	3/4" - 16	0.85"	1.45"	7/8"	-
A08-558	1/2"	-08	08	3/4" - 16	1.00"	1.53"	7/8"	-
A08-560	1/2"	-08	10	7/8" - 14	1.00"	1.61"	1 1/16"	27
A10-560	5/8"	-10	10	7/8" - 14	1.00"	1.61"	1 1/16"	27
A10-562	5/8"	-10	12	1 1/16" - 12	1.00"	1.67"	1 1/4"	32
A12-562	3/4"	-12	12	1 1/16" - 12	1.04"	1.77"	1 1/4"	32
A16-566	1"	-16	16	1 5/16" - 12	1.20"	1.89"	1 1/2"	38

One Piece Bite The Wire

ORFS *(O-Ring Face Seal)*

ORFS Male Rigid



O-Rings Available Separately
(See O-ring table on this page)

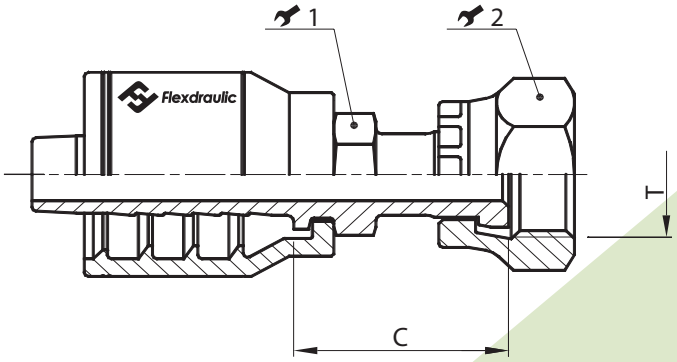
Part #	Hose I.D.		Face Seal (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-E64	¼″	-04	04	9⁄16″ - 18	0.96″	5⁄8″	15
A04-E66	¼″	-04	06	11⁄16″ - 16	1.05″	¾″	19
A06-E66	⅜″	-06	06	11⁄16″ - 16	1.05″	¾″	19
A06-E68	⅜″	-06	08	13⁄16″ - 16	1.15″	⅞″	22
A08-E68	½″	-08	08	13⁄16″ - 16	1.17″	⅞″	22
A08-E70	½″	-08	10	1″ - 14	1.34″	1 1⁄16″	27
A08-E72	½″	-08	12	1 3⁄16″ - 12	1.46″	1¼″	32
A10-E70	5⁄8″	-10	10	1″ - 14	1.24″	1 1⁄16″	27
A10-E72	5⁄8″	-10	12	1 3⁄16″ - 12	1.46″	1¼″	32
A12-E72	¾″	-12	12	1 3⁄16″ - 12	1.48″	1¼″	32
A12-E76	¾″	-12	16	1 7⁄16″ - 12	1.57″	1 5⁄8″	41
A16-E76	1″	-16	16	1 7⁄16″ - 12	1.61″	1 5⁄8″	41

O-Rings For Face Seal Crimp Fittings	
For Face Seal (T) Size	Part #
04	3001190
06	3001290
08	3001490
10	3001690
12	3001890
16	3002190

One Piece Bite The Wire

ORFS *(O-Ring Face Seal)*

ORFS Female Swivel



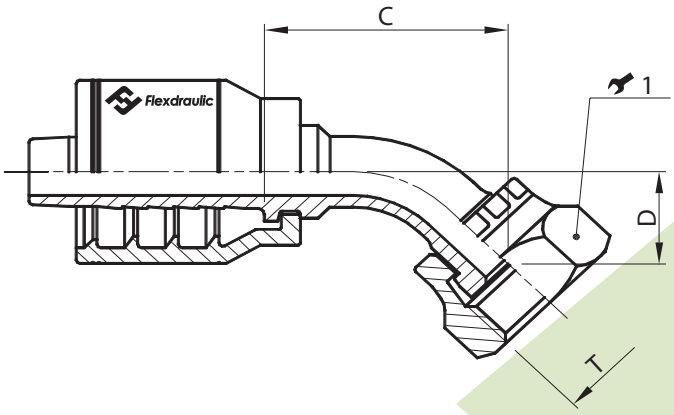
! For ORFS O-rings, see table on page 29

Part #	Hose I.D.		Face Seal (T)		Cutoff (C)	Wrench		Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-S64	¼″	-04	04	9⁄16″ - 18	1.10″	9⁄16″	14	¾″	19
A04-S66	¼″	-04	06	11⁄16″ - 16	1.24″	11⁄16″	17	⅞″	22
A06-S64	⅜″	-06	04	9⁄16″ - 18	1.20″	11⁄16″	17	¾″	19
A06-S66	⅜″	-06	06	11⁄16″ - 16	1.26″	11⁄16″	17	⅞″	22
A06-S68	⅜″	-06	08	13⁄16″ - 16	1.44″	¾″	19	15⁄16″	24
A08-S66	½″	-08	06	11⁄16″ - 16	1.24″	¾″	19	⅞″	22
A08-S68	½″	-08	08	13⁄16″ - 16	1.38″	¾″	19	15⁄16″	24
A08-S70	½″	-08	10	1″ - 14	1.54″	15⁄16″	24	1 3⁄16″	30
A08-S72	½″	-08	12	1 3⁄16″ - 12	1.73″	1 3⁄16″	30	1 7⁄16″	36
A10-S70	⅝″	-10	10	1″ - 14	1.54″	15⁄16″	24	1 3⁄16″	30
A10-S72	⅝″	-10	12	1 3⁄16″ - 12	1.74″	1 3⁄16″	30	1 7⁄16″	36
A12-S70	¾″	-12	10	1″ - 14	1.65″	1 1⁄16″	27	1 3⁄16″	30
A12-S72	¾″	-12	12	1 3⁄16″ - 12	1.76″	1 3⁄16″	30	1 7⁄16″	36
A12-S76	¾″	-12	16	1 7⁄16″ - 12	2.03″	1 7⁄16″	36	1 5⁄8″	41
A16-S76	1″	-16	16	1 7⁄16″ - 12	2.07″	1 7⁄16″	36	1 5⁄8″	41

One Piece Bite The Wire

ORFS *(O-Ring Face Seal)*

ORFS Female Swivel - 45° Elbow



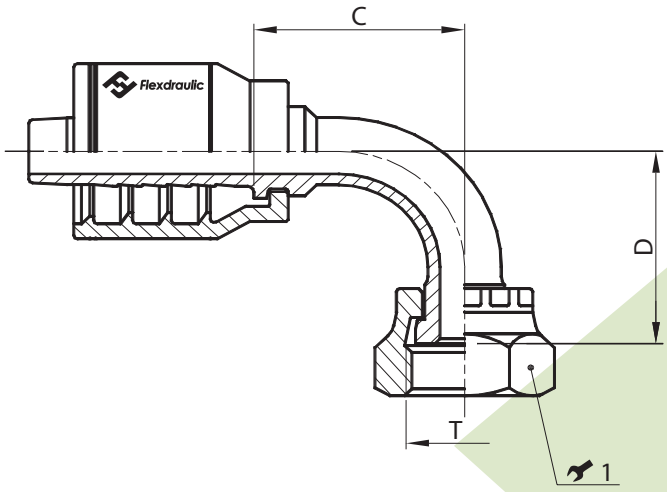
! For ORFS O-rings, see table on page 29

Part #	Hose I.D.		Face Seal (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-L64	1/4"	-04	04	9/16" - 18	1.71"	0.43"	3/4"	19
A04-L66	1/4"	-04	06	11/16" - 16	1.42"	0.59"	7/8"	22
A06-L66	3/8"	-06	06	11/16" - 16	1.87"	0.59"	7/8"	22
A06-L68	3/8"	-06	08	13/16" - 16	1.71"	0.59"	15/16"	24
A08-L68	1/2"	-08	08	13/16" - 16	2.22"	0.55"	15/16"	24
A08-L70	1/2"	-08	10	1" - 14	2.22"	0.83"	1 3/16"	30
A10-L70	5/8"	-10	10	1" - 14	2.22"	0.83"	1 3/16"	30
A10-L72	5/8"	-10	12	1 3/16" - 12	2.48"	0.94"	1 7/16"	36
A12-L72	3/4"	-12	12	1 3/16" - 12	2.52"	0.91"	1 7/16"	36
A12-L76	3/4"	-12	16	1 7/16" - 12	2.66"	1.08"	1 5/8"	41
A16-L76	1"	-16	16	1 7/16" - 12	3.24"	1.22"	1 5/8"	41

One Piece Bite The Wire

ORFS *(O-Ring Face Seal)*

ORFS Female Swivel - 90° Elbow

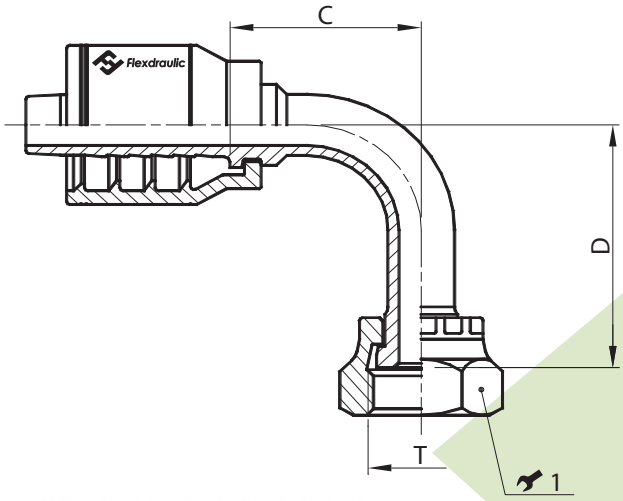


! For ORFS O-rings, see table on page 29

Part #	Hose I.D.		Face Seal (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-A24	¼″	-04	04	9/16″ - 18	1.14″	0.98″	¾″	19
A04-A26	¼″	-04	06	11/16″ - 16	1.06″	1.06″	⅞″	22
A06-A24	⅜″	-06	04	9/16″ - 18	1.16″	0.98″	¾″	19
A06-A26	⅜″	-06	06	11/16″ - 16	1.28″	1.10″	⅞″	22
A06-A28	⅜″	-06	08	13/16″ - 16	1.30″	1.18″	15/16″	24
A08-A26	½″	-08	06	11/16″ - 16	1.56″	1.34″	⅞″	22
A08-A28	½″	-08	08	13/16″ - 16	1.59″	1.18″	15/16″	24
A08-A30	½″	-08	10	1″ - 14	1.73″	1.34″	1 3/16″	30
A08-A32	½″	-08	12	1 3/16″ - 12	1.63″	1.54″	1 7/16″	36
A10-A30	⅝″	-10	10	1″ - 14	2.20″	2.01″	1 3/16″	30
A10-A32	⅝″	-10	12	1 3/16″ - 12	2.22″	2.03″	1 7/16″	36
A12-A32	¾″	-12	12	1 3/16″ - 12	2.34″	2.03″	1 7/16″	36
A12-A36	¾″	-12	16	1 7/16″ - 12	2.34″	2.26″	1 5/8″	41
A16-A36	1″	-16	16	1 7/16″ - 12	2.81″	2.80″	1 5/8″	41

One Piece Bite The Wire

ORFS *(O-Ring Face Seal)*



ORFS Female Swivel - 90° Elbow
(Long Drop)

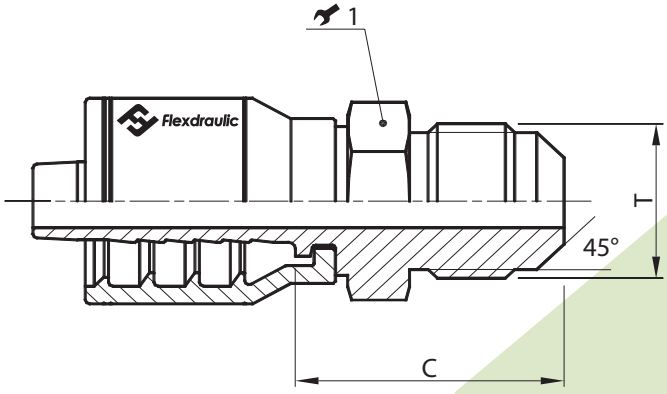
! For ORFS O-rings, see table on page 29

Part #	Hose I.D.		Face Seal (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-A64	1/4″	-04	04	9/16″ - 18	1.14″	1.81″	3/4″	19
A04-A66	1/4″	-04	06	11/16″ - 16	1.14″	2.13″	7/8″	22
A06-A66	3/8″	-06	06	11/16″ - 16	1.28″	2.13″	7/8″	22
A06-A68	3/8″	-06	08	13/16″ - 16	1.30″	2.52″	15/16″	24
A08-A68	1/2″	-08	08	13/16″ - 16	1.63″	2.52″	15/16″	24
A08-A70	1/2″	-08	10	1″ - 14	2.17″	2.76″	1 3/16″	30
A10-A70	5/8″	-10	10	1″ - 14	2.17″	2.76″	1 3/16″	30
A12-A72	3/4″	-12	12	1 3/16″ - 12	2.34″	3.78″	1 7/16″	36
A16-A76	1″	-16	16	1 7/16″ - 12	2.81″	4.49″	1 5/8″	41

One Piece Bite The Wire

SAE

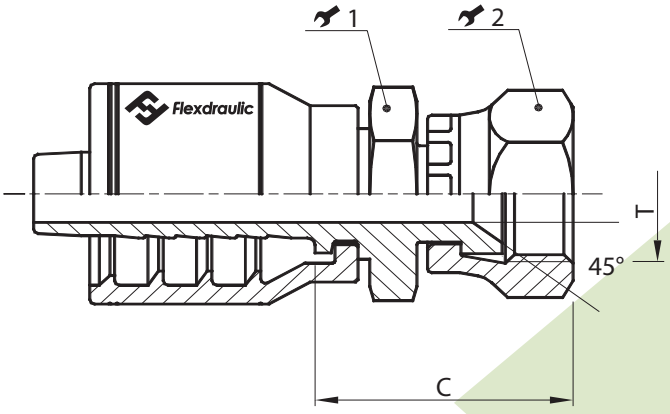
SAE 45° Flare Male Rigid



Part #	Hose I.D.		SAE 45° (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A06-306	3/8"	-06	06	5/8" - 18	1.15"	11/16"	17

SAE

SAE 45° Flare Female Swivel

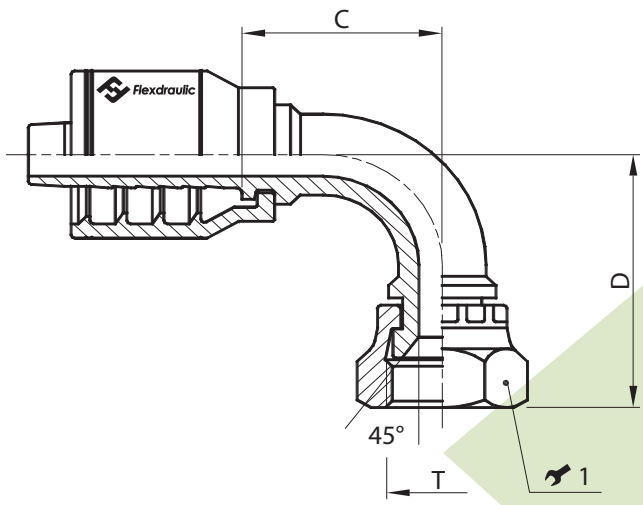


Part #	Hose I.D.		SAE 45° (T)		Cutoff (C)	Wrench		Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-406	¼″	-04	06	⅝″ - 18	1.37″	¾″	19	⅞″	22
A06-406	⅜″	-06	06	⅝″ - 18	1.37″	¾″	19	⅞″	22
A06-408	⅜″	-06	08	¾″ - 16	1.47″	¾″	19	15⁄16″	24
A10-412	⅝″	-10	12	1 1⁄16″ - 14	1.78″	1 1⁄16″	27	1¼″	32
A12-412	¾″	-12	12	1 1⁄16″ - 14	1.80″	1 1⁄16″	27	1¼″	32

One Piece Bite The Wire

SAE

SAE 45° Flare Female Swivel - 90° Elbow

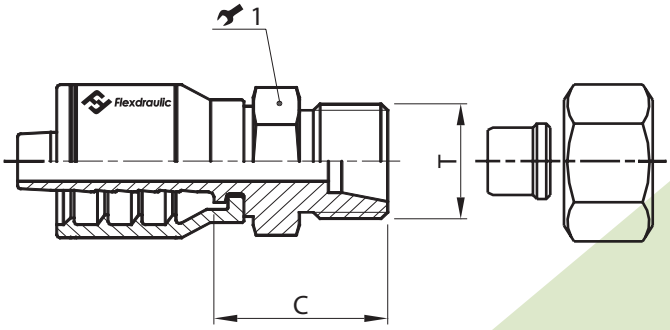


Part #	Hose I.D.		SAE 45° (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A06-466	3/8″	-06	06	5/8″ - 18	1.46″	1.89″	7/8″	22
A12-472	3/4″	-12	12	1 1/16″ - 14	2.42″	2.89″	1 1/4″	32

One Piece Bite The Wire

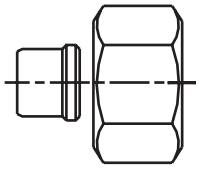
SAE

SAE Flareless Male



Nut & Sleeve Available Separately
(See nut & sleeve table on this page)

Part #	Hose I.D.		Flareless (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-754	1/4"	-04	04	7/16" - 20	0.94"	9/16"	14
A04-755	1/4"	-04	05	1/2" - 20	0.98"	11/16"	17
A06-755	3/8"	-06	05	1/2" - 20	0.98"	11/16"	17
A06-756	3/8"	-06	06	9/16" - 18	1.00"	11/16"	17
A06-758	3/8"	-06	08	3/4" - 16	1.09"	3/4"	19
A08-758	1/2"	-08	08	3/4" - 16	1.11"	3/4"	19
A08-760	1/2"	-08	10	7/8" - 14	1.26"	15/16"	24
A12-762	3/4"	-12	12	1 1/16" - 12	1.38"	1 1/16"	27
A16-766	1"	-16	16	1 5/16" - 12	1.61"	1 7/16"	36

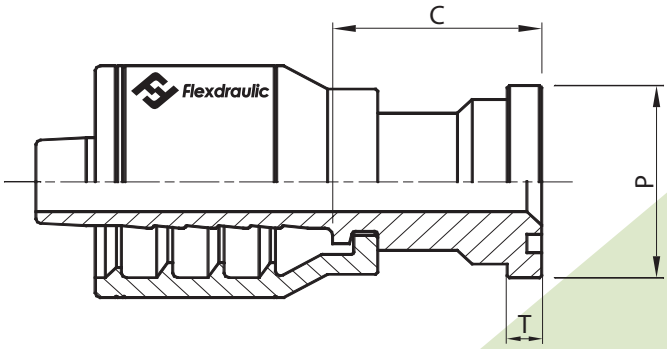


Nuts & Sleeves For SAE Flareless Male		
For Flareless (T) Size	**Nut Part #**	**Sleeve Part #**
04	1483210	1483223
05	1483211	1483224
06	1483212	1483225
08	1483213	1483226
10	1483214	1483202
12	1483215	1483227
16	1483217	1483229

One Piece Bite The Wire

SAE Code 61

SAE Code 61 Flange



O-Ring Available Separately
(See O-ring table on this page)

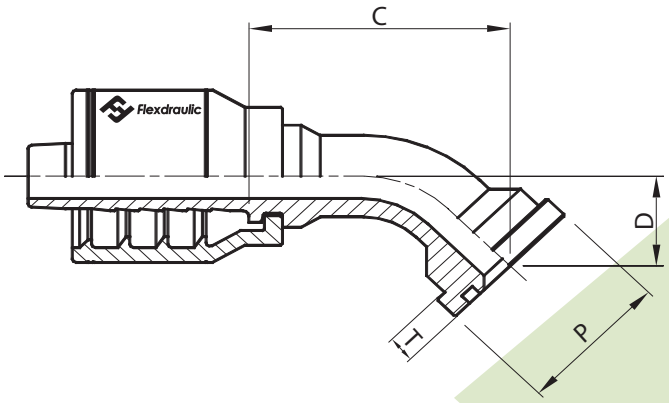
Part #	Hose I.D.		Code 61 Flange		Cutoff (C)	P	T
	Inch	*Size*	*Size*	*Flange*	*Inch*	*Inch*	*Inch*
A08-G08	½″	-08	08	½″	1.50″	1.18″	0.265″
A08-G12	½″	-08	12	¾″	1.54″	1.50″	0.265″
A10-G12	⅝″	-10	12	¾″	1.54″	1.50″	0.265″
A12-G12	¾″	-12	12	¾″	1.56″	1.50″	0.265″
A12-G16	¾″	-12	16	1″	1.81″	1.75″	0.315″
A16-G16	1″	-16	16	1″	1.85″	1.75″	0.315″
A16-G20	1″	-16	20	1¼″	1.85″	2.00″	0.315″

O-Rings For Code 61 Flanges	
For Code 61 Flange Size	Part #
08	3021090
12	3021490
16	3021990
20	3022290

One Piece Bite The Wire

SAE Code 61

SAE Code 61 Flange - 45° Elbow



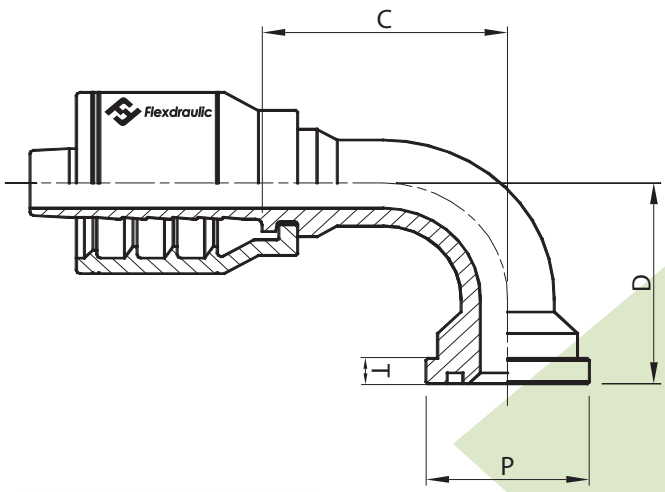
O-Ring Available Separately
(See O-ring table on this page)

Part #	Hose I.D.		Code 61 Flange		Cutoff (C)	Drop (D)	P	T
	Inch	*Size*	*Size*	*Flange*	*Inch*	*Inch*	*Inch*	*Inch*
A08-G41	½″	-08	08	½″	2.17″	0.89″	1.18″	0.265″
A08-G42	½″	-08	12	¾″	2.38″	1.02″	1.50″	0.265″
A10-G42	⅝″	-10	12	¾″	2.48″	1.05″	1.50″	0.265″
A12-G42	¾″	-12	12	¾″	2.70″	1.05″	1.50″	0.265″
A12-G46	¾″	-12	16	1″	2.81″	1.13″	1.75″	0.315″
A16-G46	1″	-16	16	1″	2.91″	1.06″	1.75″	0.315″
A16-G50	1″	-16	20	1¼″	2.98″	1.14″	2.00″	0.315″

O-Rings For Code 61 Flanges	
For Code 61 Flange Size	**Part #**
08	3021090
12	3021490
16	3021990
20	3022290

One Piece Bite The Wire

SAE Code 61



SAE Code 61 Flange - 90° Elbow

O-Ring Available Separately
(See O-ring table on this page)

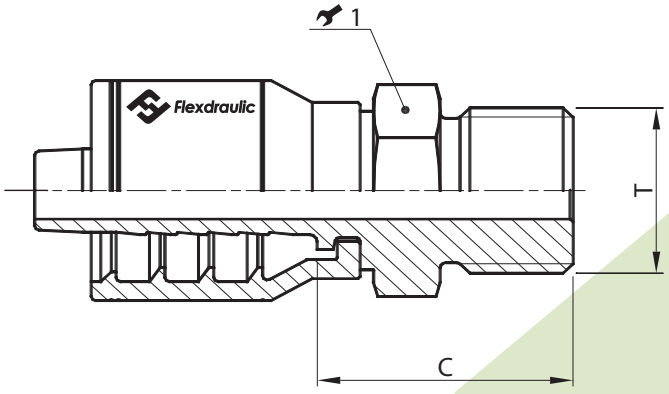
Part #	Hose I.D.		Code 61 Flange		Cutoff (C)	Drop (D)	P	T
	Inch	*Size*	*Size*	*Flange*	*Inch*	*Inch*	*Inch*	*Inch*
A08-G71	½″	-08	08	½″	1.97″	1.77″	1.18″	0.265″
A08-G72	½″	-08	12	¾″	1.95″	1.93″	1.50″	0.265″
A10-G72	⅝″	-10	12	¾″	2.19″	2.17″	1.50″	0.265″
A12-G72	¾″	-12	12	¾″	2.45″	2.22″	1.50″	0.265″
A12-G76	¾″	-12	16	1″	2.40″	2.34″	1.75″	0.315″
A16-G76	1″	-16	16	1″	2.74″	2.40″	1.75″	0.315″
A16-G80	1″	-16	20	1¼″	2.93″	2.68″	2.00″	0.315″

O-Rings For Code 61 Flanges	
For Code 61 Flange Size	**Part #**
08	3021090
12	3021490
16	3021990
20	3022290

One Piece Bite The Wire

ORB *(O-Ring Boss)*

ORB Male Rigid



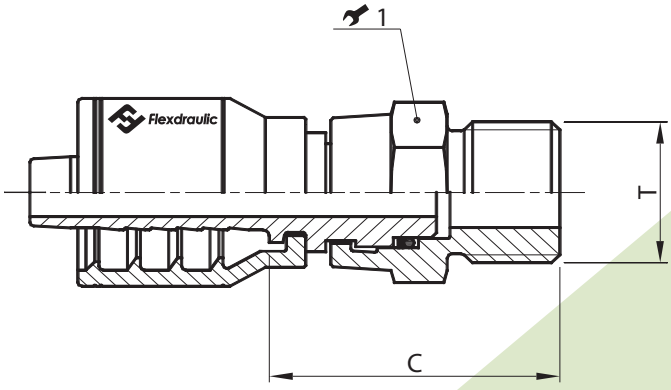
! O-Ring Included

Part #	Hose I.D.		O-Ring Boss (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-P04	¼″	-04	04	7/16″ - 20	0.87″	9/16″	14
A04-P05	¼″	-04	05	½″ - 20	0.93″	11/16″	17
A04-P06	¼″	-04	06	9/16″ - 18	0.96″	11/16″	17
A06-P06	⅜″	-06	06	9/16″ - 18	0.96″	11/16″	17
A06-P08	⅜″	-06	08	¾″ - 16	1.05″	⅞″	22
A08-P08	½″	-08	08	¾″ - 16	1.07″	⅞″	22
A08-P10	½″	-08	10	⅞″ - 14	1.14″	1 1/16″	27
A08-P12	½″	-08	12	1 1/16″ - 12	1.26″	1¼″	32
A10-P10	⅝″	-10	10	⅞″ - 14	1.14″	1 1/16″	27
A10-P12	⅝″	-10	12	1 1/16″ - 12	1.26″	1¼″	32
A12-P12	¾″	-12	12	1 1/16″ - 12	1.28″	1¼″	32
A12-P16	¾″	-12	16	1 5/16″ - 12	1.52″	1 7/16″	36
A16-P16	1″	-16	16	1 5/16″ - 12	1.52″	1½″	38

One Piece Bite The Wire

ORB *(O-Ring Boss)*

ORB Male Swivel

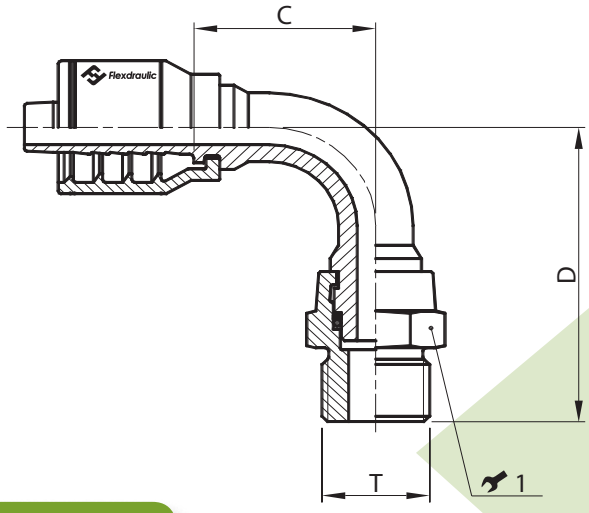


! O-Ring Included

Part #	Hose I.D.		O-Ring Boss (T)		Cutoff (C)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-R04	¼″	-04	04	7/16″ - 20	1.44″	11/16″	17
A04-R06	¼″	-04	06	9/16″ - 18	1.59″	7/8″	22
A06-R06	3/8″	-06	06	9/16″ - 18	1.59″	7/8″	22
A06-R08	3/8″	-06	08	3/4″ - 16	1.87″	1 1/16″	27
A08-R08	½″	-08	08	3/4″ - 16	1.89″	1 1/16″	27
A08-R10	½″	-08	10	7/8″ - 14	2.01″	1 1/16″	27
A12-R12	3/4″	-12	12	1 1/16″ - 12	2.26″	1 7/16″	36

One Piece Bite The Wire

ORB *(O-Ring Boss)*



ORB Male Swivel - 90° Elbow

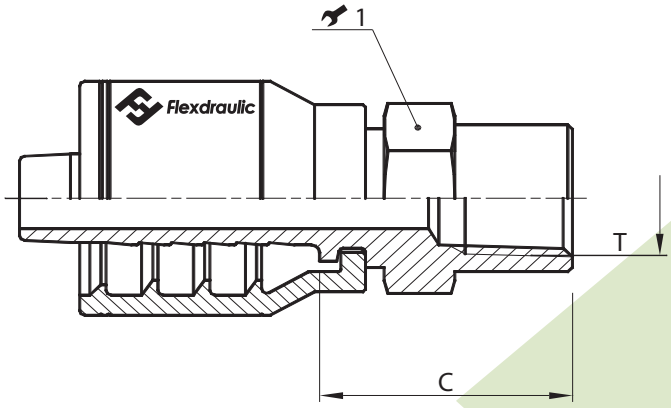
! O-Ring Included

Part #	Hose I.D.		O-Ring Boss (T)		Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*	*Size*	*Thread*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-R64	1/4"	-04	04	7/16" - 20	3.54"	1.89"	11/16"	17
A04-R66	1/4"	-04	06	9/16" - 18	1.10"	2.60"	7/8"	22
A06-R66	3/8"	-06	06	9/16" - 18	1.36"	2.09"	7/8"	22
A06-R68	3/8"	-06	08	3/4" - 16	1.36"	2.50"	1 1/16"	27
A08-R68	1/2"	-08	08	3/4" - 16	1.75"	2.70"	1 1/16"	27
A08-R70	1/2"	-08	10	7/8" - 14	1.75"	2.81"	1 1/16"	27
A12-R72	3/4"	-12	12	1 1/16" - 12	2.42"	4.29"	1 7/16"	36

One Piece Bite The Wire

Grease

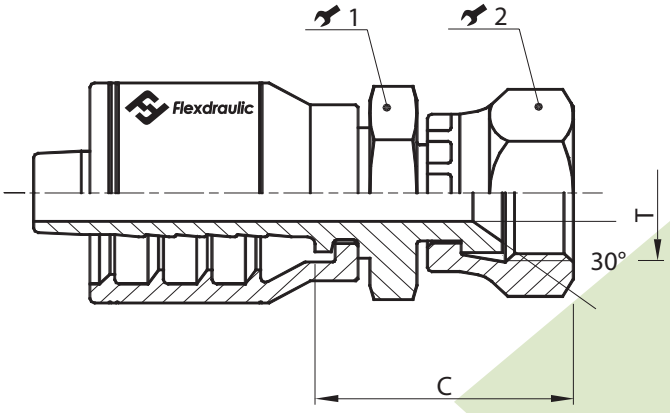
Female Grease Tap



Part #	Hose I.D.		Grease Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-C34	¼"	-04	½" - 27	0.89	11/16"	17

JIS

Toyota Style Female Swivel

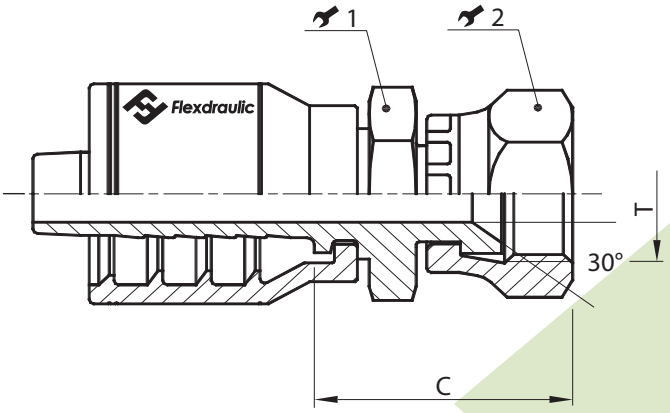


Part #	Hose I.D.		JIS Thread (T)	Cutoff (C)	Wrench		Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-04L	¼″	-04	¼″ - 19	1.14″	¾″	19	¾″	19
A06-06L	⅜″	-06	⅜″ - 19	1.24″	¾″	19	⅞″	22
A08-08L	½″	-08	½″ - 14	1.41″	⅞″	22	1 1⁄16″	27
A12-12L	¾″	-12	¾″ - 14	1.59″	1 3⁄16″	30	1¼″	32
A16-16L	1″	-16	1″ - 11	1.69″	1¼″	32	1½″	38

One Piece Bite The Wire

JIS

Komatsu Style Female Swivel

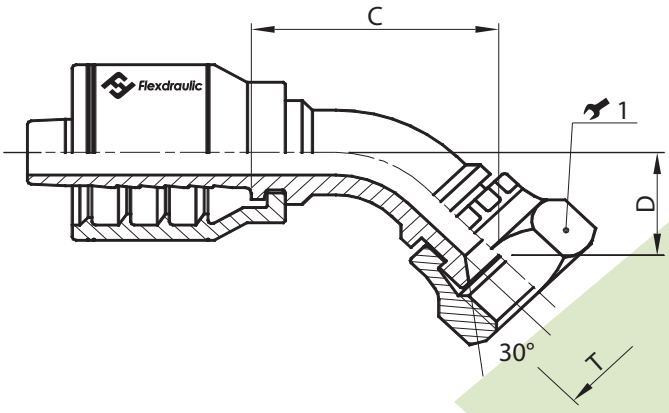


Part #	Hose I.D.		Metric Thread (T)	Cutoff (C)	Wrench		Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*	*2 (Inch)*	*2 (mm)*
A04-12K	¼″	-04	M12 X 1.5	1.23″	9/16″	14	11/16″	17
A04-14K	¼″	-04	M14 X 1.5	1.33″	¾″	19	¾″	19
A06-14K	⅜″	-06	M14 X 1.5	1.37″	¾″	19	¾″	19
A06-16K	⅜″	-06	M16 X 1.5	1.28″	¾″	19	⅞″	22
A06-18K	⅜″	-06	M18 X 1.5	1.39″	¾″	19	15/16″	24
A06-20K	⅜″	-06	M20 X 1.5	1.44″	¾″	19	1 1/16″	27
A06-22K	⅜″	-06	M22 X 1.5	1.55″	¾″	19	1 1/16″	27
A08-22K	½″	-08	M22 X 1.5	1.61″	⅞″	22	1 1/16″	27
A08-24K	½″	-08	M24 X 1.5	1.71″	15/16″	24	1¼″	32
A10-24K	⅝″	-10	M24 X 1.5	1.71″	15/16″	24	1¼″	32
A12-30K	¾″	-12	M30 X 1.5	2.03″	1 3/16″	30	1 7/16″	36
A16-33K	1″	-16	M33 X 1.5	2.19″	1¼″	32	1⅝″	41
A16-36K	1″	-16	M36 X 1.5	2.20″	1⅝″	41	1 13/16″	46

One Piece Bite The Wire

JIS

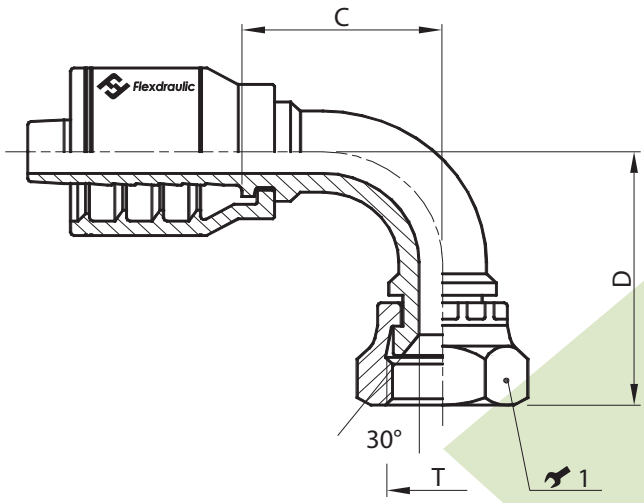
Komatsu Style Female Swivel - 45° Elbow



Part #	Hose I.D.		Metric Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-14X	¼″	-04	M14 X 1.5	1.67″	0.63″	¾″	19
A06-18X	⅜″	-06	M18 X 1.5	2.03″	0.77″	15⁄16″	24
A08-22X	½″	-08	M22 X 1.5	2.13″	0.79″	1 1⁄16″	27
A12-30X	¾″	-12	M30 X 1.5	3.21″	1.11″	1 7⁄16″	36

One Piece Bite The Wire

JIS



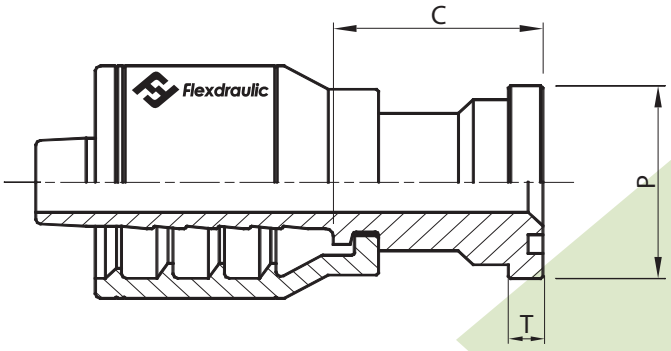
Komatsu Style Female Swivel - 90° Elbow

Part #	Hose I.D.		Metric Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-14W	¼″	-04	M14 X 1.5	1.14″	1.63″	¾″	19
A06-18W	⅜″	-06	M18 X 1.5	1.40″	1.95″	15⁄16″	24
A08-22W	½″	-08	M22 X 1.5	1.87″	2.24″	1 1⁄16″	27
A12-30W	¾″	-12	M30 X 1.5	2.42″	3.03″	1 7⁄16″	36

One Piece Bite The Wire

JIS

Komatsu Style Flange



O-Ring Available Separately
(See O-ring table on this page)

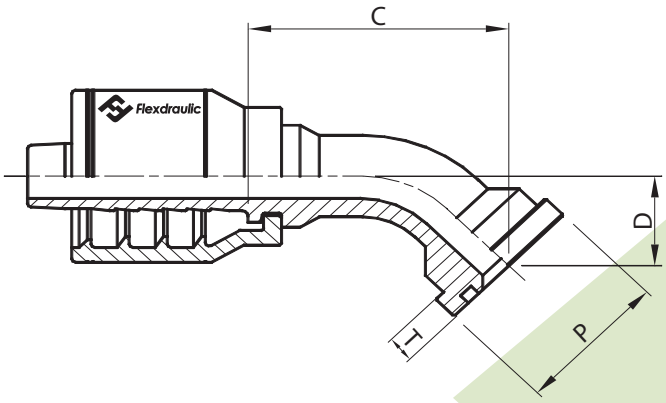
Part #	Hose I.D.		JIS Flange	Cutoff (C)	P	T
	Inch	*Size*	*Size*	*Inch*	*Inch*	*Inch*
A10-G09	5/8″	-10	5/8″	2.56″	1.35″	0.265″

O-Rings For Code 61 Flanges	
For JIS Flange Size	**Part #**
5⁄8″	3605142

One Piece Bite The Wire

JIS

Komatsu Style Flange - 45° Elbow



O-Ring Available Separately
(See O-ring table on this page)

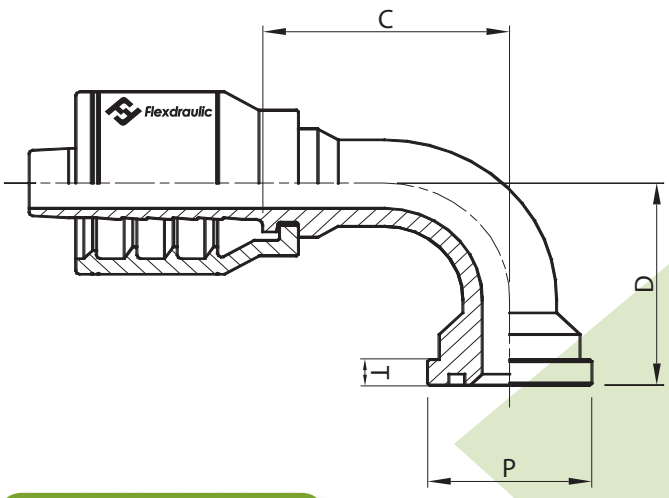
Part #	Hose I.D.		JIS Flange	Cutoff (C)	Drop (D)	P	T
	Inch	*Size*	*Size*	*Inch*	*Inch*	*Inch*	*Inch*
A10-G69	5/8″	-10	5/8″	2.62″	0.98″	1.35″	0.265″

O-Rings For Code 61 Flanges	
For JIS Flange Size	Part #
5⁄8″	3605142

One Piece Bite The Wire

JIS

Komatsu Style Flange - 90° Elbow



O-Ring Available Separately
(See O-ring table on this page)

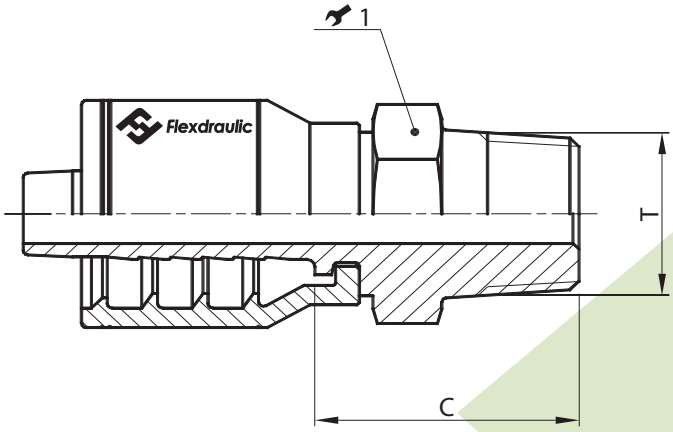
Part #	Hose I.D.		JIS Flange	Cutoff (C)	Drop (D)	P	T
	Inch	*Size*	*Size*	*Inch*	*Inch*	*Inch*	*Inch*
A10-G99	5/8″	-10	5/8″	2.38″	2.17″	1.35″	0.265″

O-Rings For Code 61 Flanges	
For JIS Flange Size	**Part #**
5⁄8″	3605142

One Piece Bite The Wire

BSPT *(British Standard Pipe Tapered)*

BSPT Male Rigid

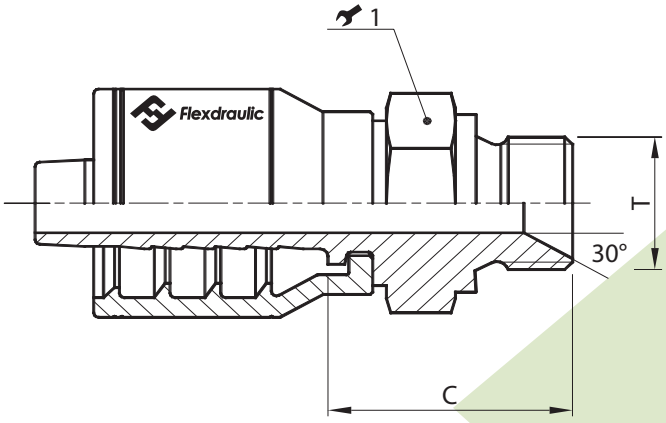


Part #	Hose I.D.		BSPT Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-152	¼″	-04	⅛″ - 28	0.80″	½″	12
A04-154	¼″	-04	¼″ - 19	1.04″	9⁄16″	14
A04-156	¼″	-04	⅜″ - 19	1.14″	¾″	19
A06-154	⅜″	-06	¼″ - 19	0.96″	9⁄16″	14
A06-156	⅜″	-06	⅜″ - 19	1.14″	¾″	19
A06-158	⅜″	-06	½″ - 14	1.26″	⅞″	22
A08-156	½″	-08	⅜″ - 19	1.08″	¾″	19
A08-158	½″	-08	½″ - 14	1.28″	⅞″	22
A08-162	½″	-08	¾″ - 14	1.46″	1 1⁄16″	27
A10-160	⅝″	-10	⅝″ - 14	1.30″	15⁄16″	24
A10-162	⅝″	-10	¾″ - 14	1.65″	1 1⁄16″	27
A12-162	¾″	-12	¾″ - 14	1.67″	1 1⁄16″	27
A16-166	1″	-16	1″ - 11	1.83″	1 7⁄16″	36

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*

BSPP Male Rigid

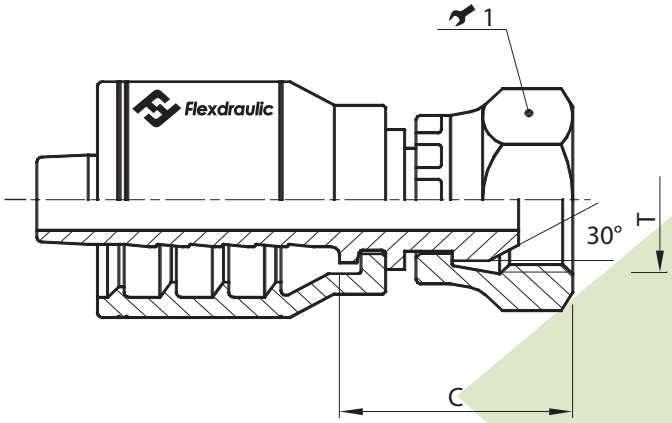


Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-P52	¼″	-04	⅛″ - 28	0.87″	9⁄16″	14
A04-P54	¼″	-04	¼″ - 19	1.04″	¾″	19
A04-P56	¼″	-04	⅜″ - 19	1.10″	⅞″	22
A06-P54	⅜″	-06	¼″ - 19	0.98″	¾″	19
A06-P56	⅜″	-06	⅜″ - 19	1.12″	⅞″	22
A06-P58	⅜″	-06	½″ - 14	1.32″	1 1⁄16″	27
A08-P56	½″	-08	⅜″ - 19	1.10″	⅞″	22
A08-P58	½″	-08	½″ - 14	1.34″	1 1⁄16″	27
A08-P60	½″	-08	⅝″ - 14	1.32″	1 1⁄16″	27
A08-P62	½″	-08	¾″ - 14	1.42″	1¼″	32
A10-P60	⅝″	-10	⅝″ - 14	1.32″	1 3⁄16″	30
A10-P62	⅝″	-10	¾″ - 14	1.42″	1¼″	32
A12-P62	¾″	-12	¾″ - 14	1.56″	1¼″	32
A12-P66	¾″	-12	1″ - 11	1.59″	1⅝″	41
A16-P66	1″	-16	1″ - 11	1.63″	1⅝″	41

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*

BSPP Female Swivel
(30° Cone Seat)



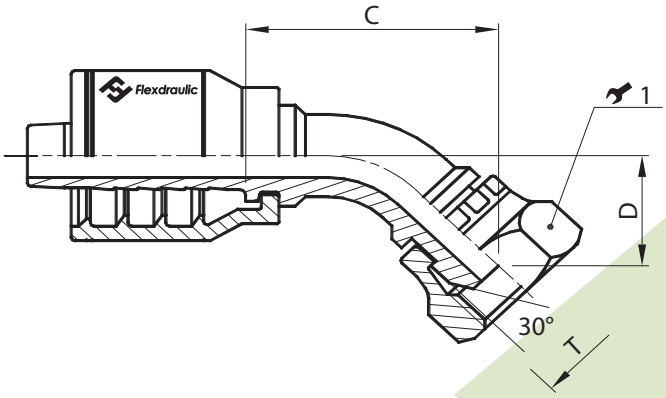
Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A04-352	¼″	-04	⅛″ - 28	1.07″	9⁄16″	14
A04-354	¼″	-04	¼″ - 19	0.86″	¾″	19
A04-356	¼″	-04	⅜″ - 19	0.97″	⅞″	22
A06-356	⅜″	-06	⅜″ - 19	0.97″	⅞″	22
A06-358	⅜″	-06	½″ - 14	1.07″	1 1⁄16″	27
A08-358	½″	-08	½″ - 14	1.09″	1 1⁄16″	27
A08-360	½″	-08	⅝″ - 14	1.10″	1 1⁄16″	27
A10-360	⅝″	-10	⅝″ - 14	1.08″	1 1⁄16″	27
A12-362	¾″	-12	¾″ - 14	1.20″	1¼″	32
A16-366	1″	-16	1″ - 11	1.51″	1½″	38

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*

BSPP Female Swivel - 45° Elbow

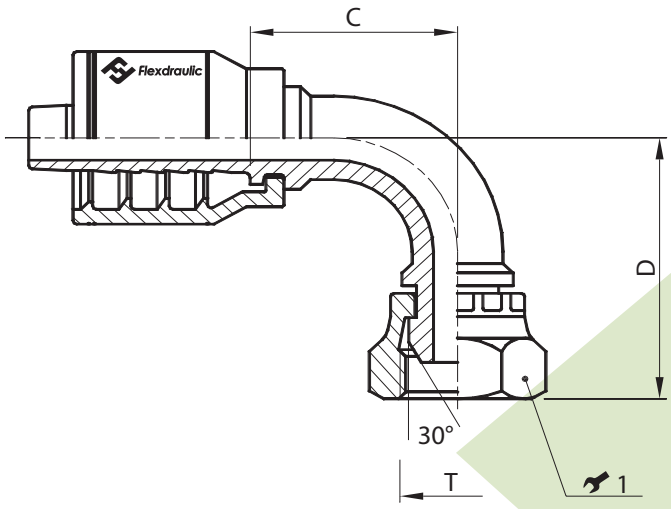
(30° Cone Seat)



Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-44P	¼″	-04	¼″ - 19	1.24″	0.51″	¾″	19
A06-46P	⅜″	-06	⅜″ - 19	1.54″	0.59″	⅞″	22
A08-48P	½″	-08	½″ - 14	1.81″	0.71″	1 1⁄16″	27
A10-50P	⅝″	-10	⅝″ - 14	2.42″	0.90″	1 1⁄16″	27
A12-52P	¾″	-12	¾″ - 14	2.76″	1.11″	1¼″	32
A16-56P	1″	-16	1″ - 11	3.29″	1.26″	1½″	38

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*

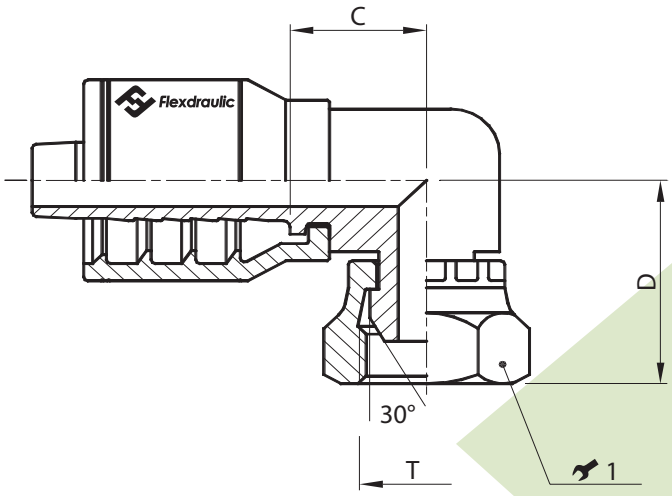


BSPP Female Swivel - 90° Elbow
(30° Cone Seat)

Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-74P	¼″	-04	¼″ - 19	1.08″	1.23″	¾″	19
A06-76P	⅜″	-06	⅜″ - 19	1.28″	1.42″	⅞″	22
A06-78P	⅜″	-06	½″ - 14	1.28″	1.52″	1 1⁄16″	27
A08-78P	½″	-08	½″ - 14	1.54″	1.70″	1 1⁄16″	27
A08-80P	½″	-08	⅝″ - 14	1.83″	2.30″	1 1⁄16″	27
A10-80P	⅝″	-10	⅝″ - 14	1.83″	2.30″	1 1⁄16″	27
A12-82P	¾″	-12	¾″ - 14	2.46″	2.65″	1¼″	32
A16-86P	1″	-16	1″ - 11	2.81″	3.21″	1½″	38

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*



BSPP Female Swivel - 90° Compact Elbow

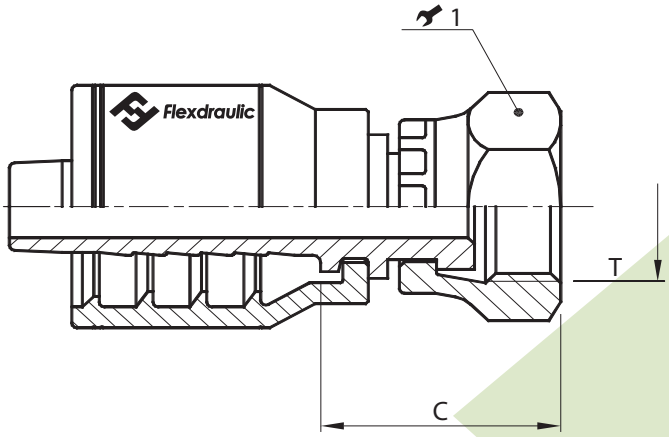
(30° Cone Seat)

Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-74PZ	¼″	-04	¼″ - 19	0.69″	1.19″	¾″	19
A06-76PZ	⅜″	-06	⅜″ - 19	0.85″	1.26″	⅞″	22
A08-78PZ	½″	-08	½″ - 14	1.00″	1.45″	1 1⁄16″	27
A10-80PZ	⅝″	-10	⅝″ - 14	0.89″	1.41″	1⅛″	28
A12-82PZ	¾″	-12	¾″ - 14	1.04″	1.77″	1¼″	32
A16-86PZ	1″	-16	1″ - 11	1.20″	1.77″	1½″	38

One Piece Bite The Wire

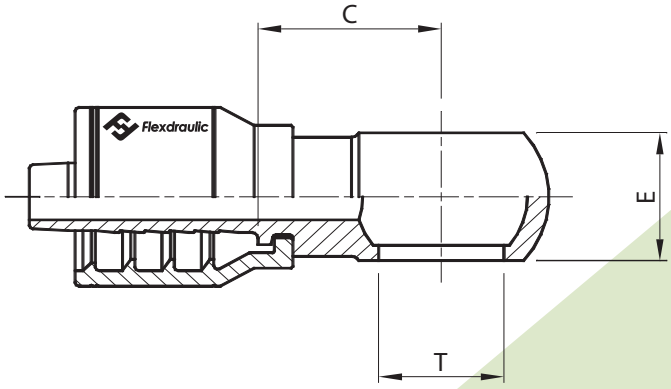
BSPP *(British Standard Pipe Parallel)*

BSPP Flat Face Female Swivel



Part #	Hose I.D.		BSPP Thread (T)	Cutoff (C)	Wrench	
	Inch	*Size*		*Inch*	*1 (Inch)*	*1 (mm)*
A06-06P	⅜″	-06	⅜″ - 19	0.97″	⅞″	22
A06-08P	⅜″	-06	½″ - 14	1.04″	1 1⁄16″	27
A08-08P	½″	-08	½″ - 14	1.06″	1 1⁄16″	27
A12-12P	¾″	-12	¾″ - 14	1.20″	1¼″	32

BSPP *(British Standard Pipe Parallel)*

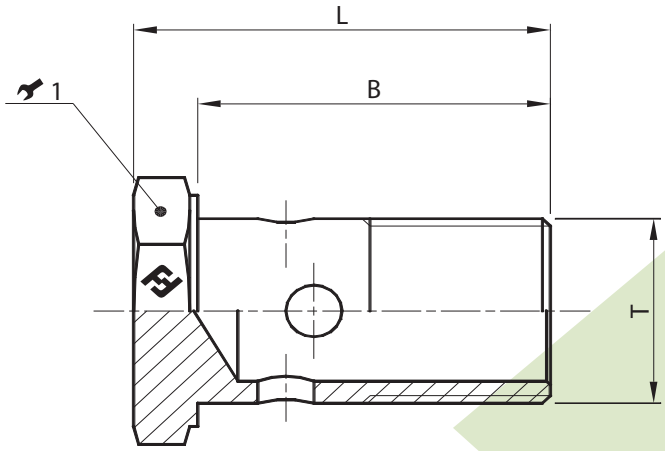


BSPP Banjo
(For Use With BSPP Banjo Bolt - Page 60)

Part #	Hose I.D.		T	Nominal Banjo Bolt Thread Required	C	E
	Inch	*Size*	*Inch*		*Inch*	*Inch*
A04-L02BSP	¼″	-04	0.38″	⅛″ - 28	0.87″	0.39″
A04-L04BSP	¼″	-04	0.52″	¼″ - 19	0.87″	0.55″
A06-L06BSP	⅜″	-06	0.65″	⅜″ - 19	0.94″	0.71″
A08-L08BSP	½″	-08	0.82″	½″ - 14	1.06″	0.87″
A10-L10BSP	⅝″	-10	0.88″	⅝″ - 14	1.10″	0.94″
A12-L12BSP	¾″	-12	1.04″	¾″ - 14	1.44″	1.14″
A16-L16BSP	1″	-16	1.30″	1″ - 11	1.75″	1.46″

One Piece Bite The Wire

BSPP *(British Standard Pipe Parallel)*

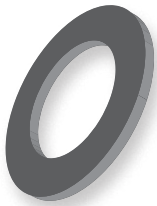


BSPP Banjo Bolt

(For Use With BSPP Banjo - Page 59)

Sealing Washer Available Separately - Two Required Per Banjo Bolt
(See washer table on this page)

Part #	Nominal Banjo Bolt Thread	T *Inch*	L *Inch*	B *Inch*	Wrench *1 (Inch)*	*1 (mm)*
BANJOBSP02	⅛″ - 28	0.38″	0.94″	0.75″	9⁄16″	14
BANJOBSP04	¼″ - 19	0.52″	1.26″	0.98″	¾″	19
BANJOBSP06	⅜″ - 19	0.65″	1.50″	1.22″	⅞″	22
BANJOBSP08	½″ - 14	0.82″	1.81″	1.50″	1 1⁄16″	27
BANJOBSP10	⅝″ - 14	0.88″	1.93″	1.61″	1 3⁄16″	30
BANJOBSP12	¾″ - 14	1.04″	2.20″	1.81″	1¼″	32
BANJOBSP16	1″ - 11	1.30″	2.72″	2.28″	1⅝″	41

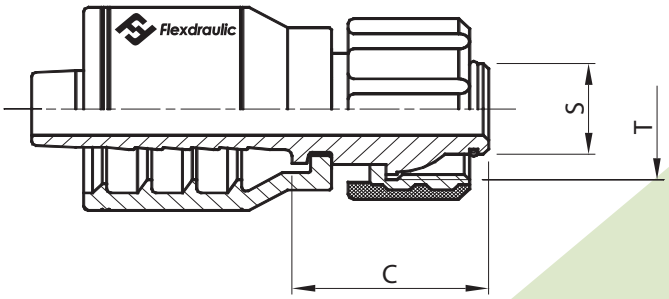


Sealing Washers For BSPP Banjo Bolts	
For Nominal Banjo Bolt Thread	Part #
⅛″	1502402
¼″	1502404
⅜″	1502406
½″	1502408
⅝″	1502410
¾″	1502412
1″	1502416

One Piece Bite The Wire

Pressure Washer

Pressure Washer Female Swivel - Type K

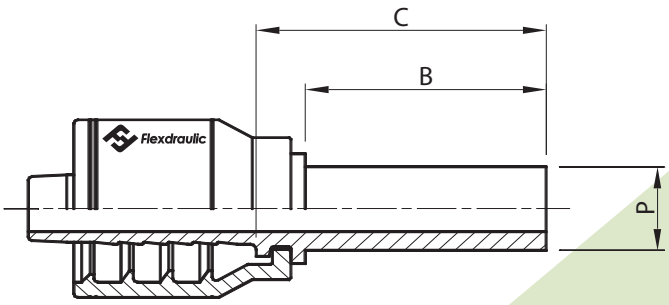


Part #	Hose I.D.		Metric Thread (T)	Cutoff (C)	S
	Inch	*Size*		*Inch*	*Inch*
A04-6PW	¼″	-04	M22 X 1.5	1.22″	0.55″
A06-6PW	⅜″	-06	M22 X 1.5	1.22″	0.55″

One Piece Bite The Wire

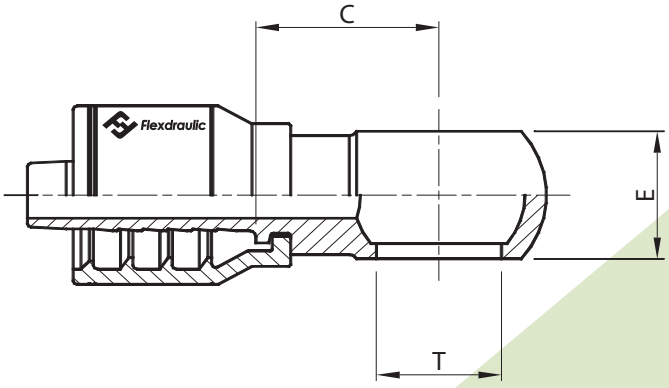
Metric

Metric Standpipe



Part #	Hose I.D.		P	Cutoff (C)	B	
	Inch	*Size*	*mm*	*Inch*	*Inch*	*mm*
A04-36T	¼″	-04	6	1.10″	0.87″	22
A04-38T	¼″	-04	8	1.20″	0.94″	24
A04-40T	¼″	-04	10	1.30″	1.06″	27
A06-40T	⅜″	-06	10	1.20″	0.94″	24
A06-42T	⅜″	-06	12	1.20″	0.94″	24
A08-45T	½″	-08	15	1.30″	1.02″	26
A08-46T	½″	-08	16	1.46″	1.18″	30
A10-48T	⅝″	-10	18	1.34″	1.06″	27
A10-50T	⅝″	-10	20	1.73″	1.46″	37
A12-48T	¾″	-12	18	1.36″	1.06″	27
A12-50T	¾″	-12	20	1.75″	1.46″	37
A12-52T	¾″	-12	22	1.44″	1.14″	29
A12-55T	¾″	-12	25	1.91″	1.61″	41
A16-58T	1″	-16	28	1.56″	1.18″	30
A16-60T	1″	-16	30	2.11″	1.73″	44

Metric



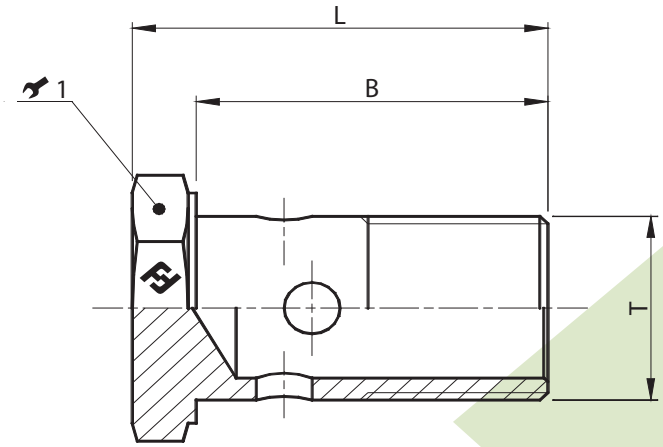
Metric Banjo

(For Use With Metric Banjo Bolt - Page 64)

Part #	Hose I.D.		T	Banjo Bolt Thread Required	Cutoff (C)	E	
	Inch	*Size*	*mm*		*Inch*	*Inch*	*mm*
A04-L10	¼″	-04	10	M10 X 1	0.87″	0.39″	10
A04-L12	¼″	-04	12	M12 X 1.5	0.83″	0.47	12
A06-L14	⅜″	-06	14	M14 X 1.5	0.94″	0.55″	14
A06-L16	⅜″	-06	16	M16 X 1.5	0.94″	0.71″	18
A06-L18	⅜″	-06	18	M18 X 1.5	1.08″	0.79″	20
A08-L18	½″	-08	18	M18 X 1.5	1.11″	0.79″	20
A08-L24	½″	-08	24	M24 X 1.5	1.22″	0.98″	25
A10-L22	⅝″	-10	22	M22 X 1.5	1.10″	0.87″	22

One Piece Bite The Wire

Metric

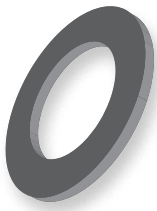


Metric Banjo Bolt

(For Use With Metric Banjo - Page 63)

Sealing Washer Available Separately - Two Required Per Banjo Bolt
(See washer table on this page)

Part #	T (Banjo Bolt Thread)	L		B		Wrench	
		Inch	*mm*	*Inch*	*mm*	*1 (Inch)*	*1 (mm)*
BANJOM10X1	M10 X 1	0.94″	24	0.75″	19	9/16″	14
BANJOM12X1.5	M12 X 1.5	1.10″	28	0.91″	23	11/16″	17
BANJOM14X1.5	M14 X 1.5	1.26″	32	0.98″	25	3/4″	19
BANJOM16X1.5	M16 X 1.5	1.46″	37	1.22″	31	7/8″	22
BANJOM18X1.5	M18 X 1.5	1.73″	44	1.42″	36	15/16″	24
BANJOM22X1.5	M22 X 1.5	1.81″	46	1.50″	38	1 1/16″	27
BANJOM26X1.5	M26 X 1.5	2.20″	56	1.81″	46	1 1/4″	32
BANJOM30X1.5	M30 X 1.5	2.72″	69	2.28″	58	1 1/2″	38

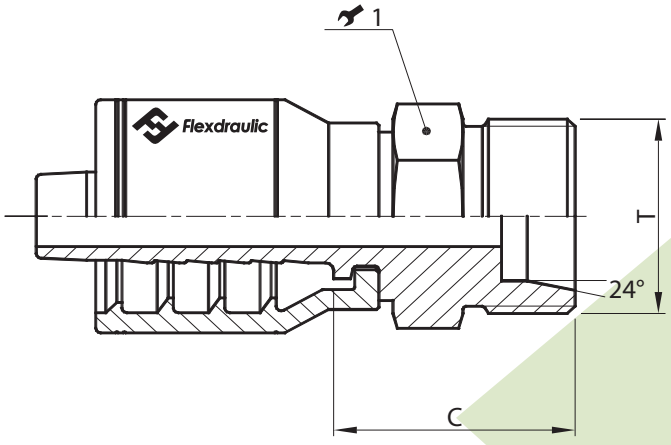


Sealing Washers For Metric Banjo Bolts	
For Metric Banjo Bolt Thread (T)	Part #
M10	1501110
M12	1501112
M14	1501114
M16	1501116
M18	1501118
M22	1501122
M26	1501126
M30	1501130

One Piece Bite The Wire

Metric / DIN

Metric / DIN Light Male Rigid
(24° Cone Seat)

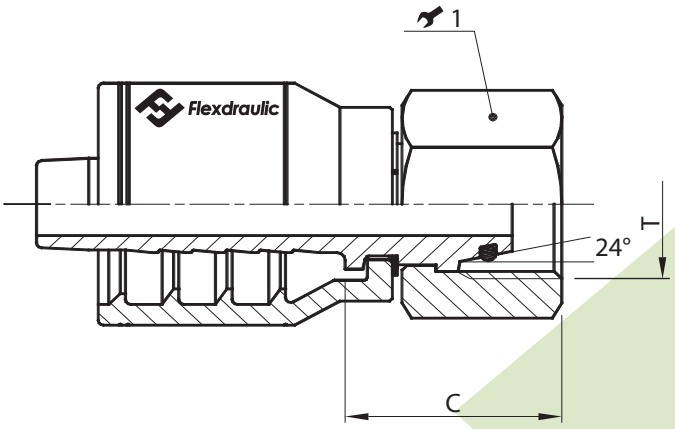


Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-06A	¼″	-04	M12 X 1.5	L6	0.89″	9⁄16″	14
A04-08A	¼″	-04	M14 X 1.5	L8	0.89″	9⁄16″	14
A04-10A	¼″	-04	M16 X 1.5	L10	0.96″	11⁄16″	17
A06-10A	⅜″	-06	M16 X 1.5	L10	0.96″	11⁄16″	17
A06-12A	⅜″	-06	M18 X 1.5	L12	0.98″	¾″	19
A06-15A	⅜″	-06	M22 X 1.5	L15	1.02″	⅞″	22
A08-12A	½″	-08	M18 X 1.5	L12	0.93″	¾″	19
A08-15A	½″	-08	M22 X 1.5	L15	1.04″	⅞″	22
A10-18A	⅝″	-10	M26 X 1.5	L18	1.14″	1 1⁄16″	27
A12-22A	¾″	-12	M30 X 2	L22	1.24″	1 3⁄16″	30
A16-28A	1″	-16	M36 X 2	L28	1.32″	1 7⁄16″	36

One Piece Bite The Wire

Metric / DIN

Metric / DIN Light Female Swivel
(24° Cone Seat)



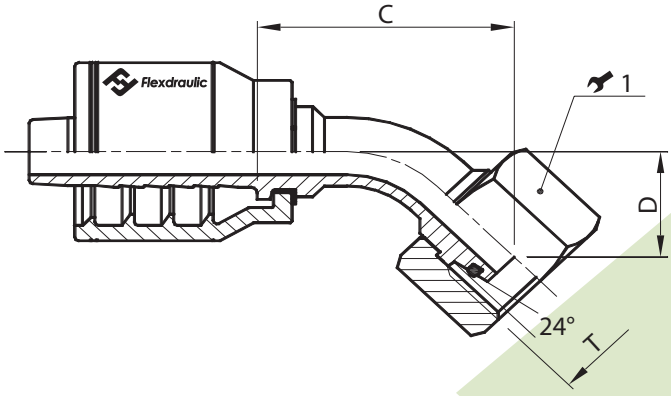
Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-06C	¼″	-04	M12 X 1.5	L6	0.92″	-	16
A04-08C	¼″	-04	M14 X 1.5	L8	1.04″	11/16″	17
A04-10C	¼″	-04	M16 X 1.5	L10	1.10″	¾″	19
A04-12C	¼″	-04	M18 X 1.5	L12	1.08″	⅞″	22
A06-10C	⅜″	-06	M16 X 1.5	L10	1.14″	⅞″	22
A06-12C	⅜″	-06	M18 X 1.5	L12	1.08″	⅞″	22
A06-15C	⅜″	-06	M22 X 1.5	L15	1.18″	1 1/16″	27
A08-15C	½″	-08	M22 X 1.5	L15	1.22″	1 1/16″	27
A08-18C	½″	-08	M26 X 1.5	L18	1.22″	1¼″	32
A10-18C	⅝″	-10	M26 X 1.5	L18	1.22″	1¼″	32
A12-22C	¾″	-12	M30 X 2	L22	1.30″	1 7/16″	36
A16-28C	1″	-16	M36 X 2	L28	1.34″	1⅝″	41

One Piece Bite The Wire

Metric / DIN

Metric / DIN Light Female Swivel - 45 ° Elbow

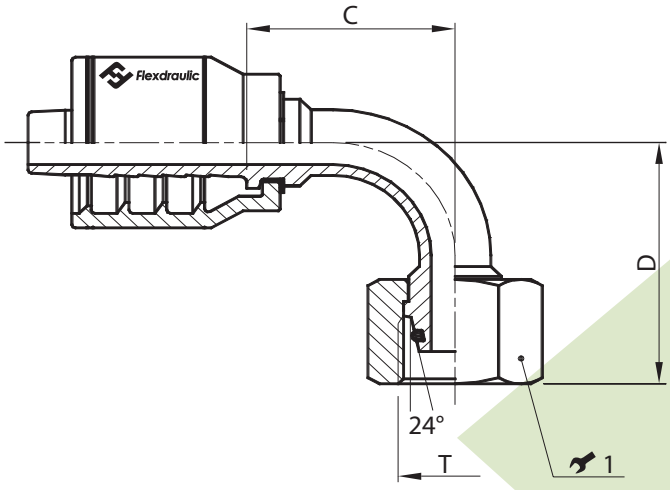
(24° Cone Seat)



Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-06D	¼″	-04	M12 X 1.5	L6	1.52″	0.71″	-	16
A04-08D	¼″	-04	M14 X 1.5	L8	1.56″	0.79″	11/16″	17
A04-10D	¼″	-04	M16 X 1.5	L10	1.54″	0.79″	¾″	19
A04-12D	¼″	-04	M18 X 1.5	L12	1.81″	0.79″	⅞″	22
A06-12D	⅜″	-06	M18 X 1.5	L12	1.83″	0.75″	⅞″	22
A08-15D	½″	-08	M22 X 1.5	L15	2.07″	0.91″	1 1/16″	27
A10-18D	⅝″	-10	M26 X 1.5	L18	2.74″	1.07″	1¼″	32
A12-22D	¾″	-12	M30 X 2	L22	3.07″	1.26″	1 7/16″	36
A16-28D	1″	-16	M36 X 2	L28	3.54″	1.40″	1⅝″	41

One Piece Bite The Wire

Metric / DIN



Metric / DIN Light Female Swivel - 90 ° Elbow

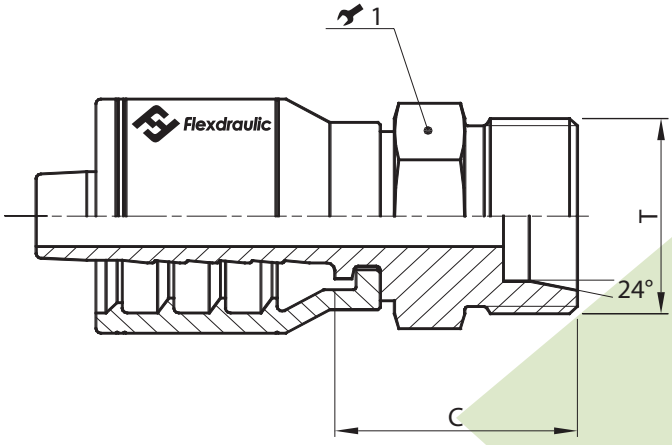
(24° Cone Seat)

Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-56D	¼″	-04	M12 X 1.5	L6	1.08″	1.56″	-	16
A04-58D	¼″	-04	M14 X 1.5	L8	1.16″	1.54″	11⁄16″	17
A04-60D	¼″	-04	M16 X 1.5	L10	1.30″	1.54″	¾″	19
A06-60D	⅜″	-06	M16 X 1.5	L10	2.56″	1.52″	⅞″	22
A06-62D	⅜″	-06	M18 X 1.5	L12	1.26″	1.60″	⅞″	22
A08-65D	½″	-08	M22 X 1.5	L15	1.54″	1.87″	1 1⁄16″	27
A10-68D	⅝″	-10	M26 X 1.5	L18	2.26″	2.28″	1¼″	32
A12-72D	¾″	-12	M30 X 2	L22	2.80″	2.80″	1 7⁄16″	36
A16-78D	1″	-16	M36 X 2	L28	3.07″	3.09	1⅝″	41

One Piece Bite The Wire

Metric / DIN

Metric / DIN Heavy Male Rigid
(24° Cone Seat)

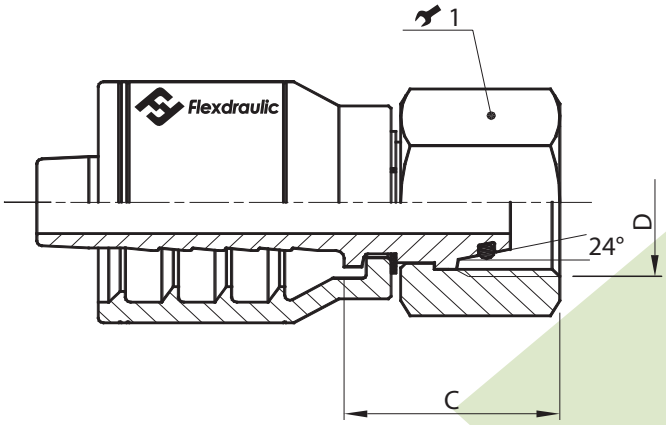


Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-06F	¼″	-04	M14 X 1.5	S6	0.96″	9/16″	14
A04-08F	¼″	-04	M16 X 1.5	S8	1.02″	11/16″	17
A04-10F	¼″	-04	M18 X 1.5	S10	1.02″	¾″	19
A06-10F	⅜″	-06	M18 X 1.5	S10	1.02″	¾″	19
A06-12F	⅜″	-06	M20 X 1.5	S12	1.02″	⅞″	22
A06-14F	⅜″	-06	M22 X 1.5	S14	1.10″	⅞″	22
A06-16F	⅜″	-06	M24 X 1.5	S16	1.10″	15/16″	24
A08-16F	½″	-08	M24 X 1.5	S16	1.12″	15/16″	24
A10-20F	⅝″	-10	M30 X 2	S20	1.30″	1 3/16″	30
A12-20F	¾″	-12	M30 X 2	S20	1.32″	1 3/16″	30
A12-25F	¾″	-12	M36 X 2	S25	1.44″	1 7/16″	36
A16-25F	1″	-16	M36 X 2	S25	1.48″	1 7/16″	36
A16-30F	1″	-16	M42 X 2	S30	1.59″	1 13/16″	46

One Piece Bite The Wire

Metric / DIN

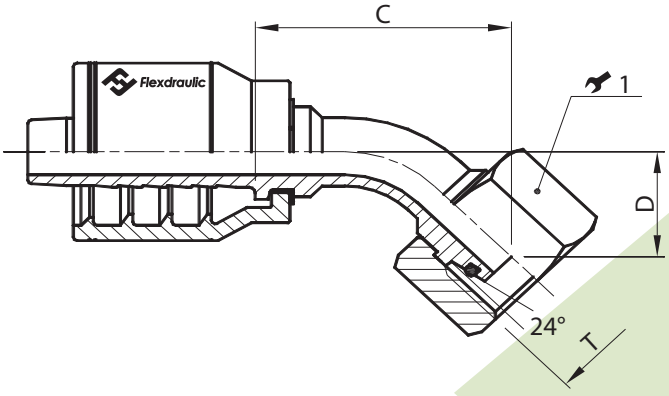
Metric / DIN Heavy Female Swivel
(24° Cone Seat)



Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-56C	¼″	-04	M14 X 1.5	S6	0.97″	11/16″	17
A04-58C	¼″	-04	M16 X 1.5	S8	1.14″	¾″	19
A04-60C	¼″	-04	M18 X 1.5	S10	1.18″	⅞″	22
A06-60C	⅜″	-06	M18 X 1.5	S10	0.95″	⅞″	22
A06-62C	⅜″	-06	M20 X 1.5	S12	1.08″	15/16″	24
A06-64C	⅜″	-06	M22 X 1.5	S14	1.28″	1 1/16″	27
A08-66C	½″	-08	M24 X 1.5	S16	1.38″	1 3/16″	30
A10-70C	⅝″	-10	M30 X 2	S20	1.48″	1 7/16″	36
A12-70C	¾″	-12	M30 X 2	S20	1.50″	1 7/16″	36
A12-75C	¾″	-12	M36 X 2	S25	1.68″	1 13/16″	46
A16-80C	1″	-16	M42 X 2	S30	1.93″	2″	50

One Piece Bite The Wire

Metric / DIN



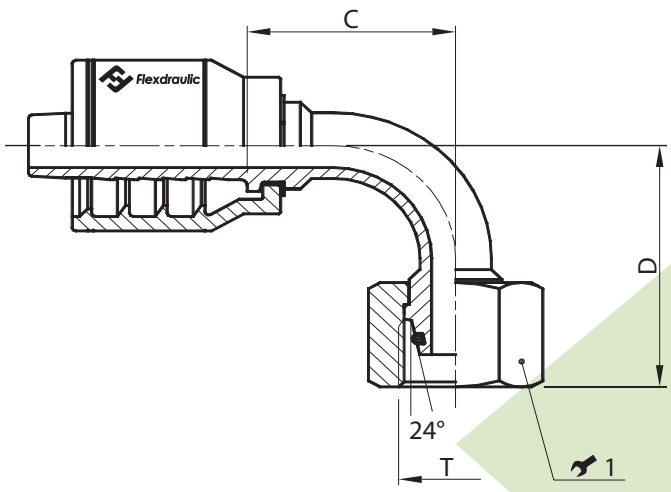
Metric / DIN Heavy Female Swivel - 45° Elbow

(24° Cone Seat)

Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-06E	1/4"	-04	M14 X 1.5	S6	1.59"	0.79"	11/16"	17
A04-08E	1/4"	-04	M16 X 1.5	S8	1.59"	0.65"	3/4"	19
A04-10E	1/4"	-04	M18 X 1.5	S10	1.67"	0.67"	7/8"	22
A06-12E	3/8"	-06	M20 X 1.5	S12	1.81"	0.85"	15/16"	24
A06-14E	3/8"	-06	M22 X 1.5	S14	1.95"	0.92"	1 1/16"	27
A08-16E	1/2"	-08	M24 X 1.5	S16	2.40"	1.02"	1 3/16"	30
A10-20E	5/8"	-10	M30 X 2	S20	2.32"	1.02"	1 7/16"	36
A12-20E	3/4"	-12	M30 X 2	S20	3.11"	1.32"	1 7/16"	36
A12-25E	3/4"	-12	M36 X 2	S25	3.21"	1.36"	1 13/16"	46
A16-25E	1"	-16	M36 X 2	S25	3.48"	1.40"	1 13/16"	46
A16-30E	1"	-16	M42 X 2	S30	3.60"	1.38"	2"	50

One Piece Bite The Wire

Metric / DIN



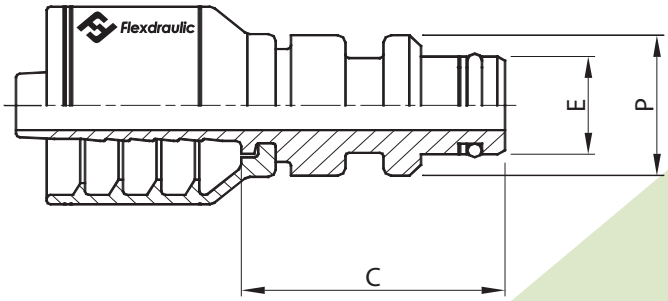
Metric / DIN Heavy Female Swivel - 90° Elbow
(24° Cone Seat)

Part #	Hose I.D.		Metric Thread (T)	Required Tube O.D.	Cutoff (C)	Drop (D)	Wrench	
	Inch	*Size*		*mm*	*Inch*	*Inch*	*1 (Inch)*	*1 (mm)*
A04-56E	¼″	-04	M14 X 1.5	S6	1.08″	1.58″	11/16″	17
A04-58E	¼″	-04	M16 X 1.5	S8	1.12″	1.36″	¾″	19
A04-60E	¼″	-04	M18 X 1.5	S10	1.30″	1.40″	⅞″	22
A06-62E	⅜″	-06	M20 X 1.5	S12	1.46″	1.50″	15/16″	24
A06-64E	⅜″	-06	M22 X 1.5	S14	1.52″	1.97″	1 1/16″	27
A08-66E	½″	-08	M24 X 1.5	S16	1.71″	1.93″	1 3/16″	30
A10-70E	⅝″	-10	M30 X 2	S20	2.05″	2.25″	1 7/16″	36
A12-70E	¾″	-12	M30 X 2	S20	2.56″	2.70″	1 7/16″	36
A12-75E	¾″	-12	M36 X 2	S25	2.85″	2.97″	1 13/16″	46
A16-75E	1″	-16	M36 X 2	S25	3.09″	2.99″	1 13/16″	46
A16-80E	1″	-16	M42 X 2	S30	3.19″	3.27″	2″	50

One Piece Bite The Wire

Staple Lock

Staple Lock Male



! O-Ring & Backup Included - Staple Available Separately

Part #	Hose I.D.		Cutoff (C)	P	E
	Inch	*Size*	*Inch*	*Inch*	*Inch*
A04-04S	¼″	-04	1.40″	0.59″	0.39″
A04-06S	¼″	-04	1.36″	0.78″	0.55″
A06-06S	⅜″	-06	1.36″	0.78″	0.55″
A08-08S	½″	-08	1.18″	0.94″	0.70″
A10-10S	⅝″	-10	1.22″	1.02″	0.82″
A12-12S	¾″	-12	1.40″	1.14″	0.94″
A16-16S	1″	-16	1.71″	1.53″	1.22″

One Piece Bite The Wire

Bend Restrictors

Bend Restrictor Part #	For Hose Type	Bend Restrictor Inside Ø *Inch*
BR0562	1SN-04	0.562″
BR0687	1SN-06	0.687″
BR0812	1SN-08	0.812″
BR0937	1SN-10	0.937″
BR0640	2SN-04	0.640″
BR0750	2SN-06	0.750″
BR0937	2SN-08	0.937″
BR1062	2SN-10	1.062″
BR0562	R16-04	0.562″
BR0750	R16-06	0.750″
BR0937	R16-08	0.937″
BR1062	R16-10	1.062″
BR0562	R17-04	0.562″
BR0687	R17-06	0.687″
BR0812	R17-08	0.812″
BR1062	R17-10	1.062″

Provide Stress Relief For Your Hose Assemblies

» Flexdraulic bend restrictors are engineered to allow for a safe, acceptable degree of bend without compromising the integrity of your hose assemblies. The bend restrictors come in a variety of sizes to accommodate a wide range of hose sizes and fit securely on the ends of hose assemblies at critical hose and fitting connections.

» Bend restrictors are recommended for hose assemblies that experience substantial handling, such as pressure washer, air, oil and hydraulic fluid transfer hose assemblies.

Easy Installation

» First, using the table on this page, select the correct bend restrictor size for your Flexdraulic hose type.

» Next, identify the smaller diameter (tapered) end of the bend restrictor.

» Third, before applying and crimping a crimp fitting to a hose, slide the smaller diameter end of the bend restrictor over the hose.

» Next, apply the crimp fitting on to the hose and crimp.

» Last, slide the bend restrictor over the crimped fitting.

Hose Guards

Protect Your Hoses At Abrasion Contact Points

- Flexdraulic hose guards are durable wear shields made of an abrasion resistant material. Easily attached to almost any size or type of hose, the hose guard prevents up to 90% of all hose failures due to wear at points of contact.
- The hose guard is made of a hydrocarbon resistant material, which is impervious to solvents such as oils, grease and gasoline.
- Guards have an extremely high wear factor and a wide range of operating temperatures (-40° to 430° F).

Easy Installation In Four Steps

- First, locate the suspected problem area on hose.
- Next, place the hose guard over the problem area.
- Third, install zip ties, pulling tightly with pliers.
- Last, cut off zip tie excess leaving the hose safely shielded.

Prevent Future Damage

- Installing the hose guard on new hose assemblies shields the exact point of abrasion from wear when attached to an application. This versatility allows for a fast, simple and effective solution for wear and abrasion problems.
- Guards are not suitable for use as patches for repairs.

Part #	Length (L) *Inch*	Width (W) *Inch*	Distance (U) *Inch*
HG4-YELLOW	4″	1.00″	2.50″
HG4-ORANGE	4″	1.00″	2.50″
HG4-BLACK	4″	1.00″	2.50″
HG6-YELLOW	6″	1.50″	2.88″
HG6-ORANGE	6″	1.50″	2.88″
HG6-BLACK	6″	1.50″	2.88″
HG8-YELLOW	8″	1.63″	3.13″
HG8-ORANGE	8″	1.63″	3.13″
HG8-BLACK	8″	1.63″	3.13″
HG10-YELLOW	10″	2.25″	4.00″
HG10-ORANGE	10″	2.25″	4.00″
HG10-BLACK	10″	2.25″	4.00″
HG12-YELLOW	12″	2.25″	4.63″
HG12-ORANGE	12″	2.25″	4.63″
HG12-BLACK	12″	2.25″	4.63″

Protective Hose Wrap

Protect And Bundle Your Hose Assemblies

» Flexdraulic protective hose wrap is engineered to help you provide maximum protection for your hose assemblies and hose assembly bundles.

» Protective hose wrap is recommended for hose assemblies that are in tough environments where protection from abrasion and crushing is crucial to the prolonged service life of hose assemblies. Made of a specially compounded material, Flexdraulic protective hose wrap is impenetrable to oils and solvents. Also, the protective wrap has a high resistance to ultraviolet radiation and has a wide operating temperature range (-180° F to 250° F).

» Hose wrap installs on hose assemblies during creation, and for hoses already in use, protective hose wrap can be installed without removing hoses.

Part #	Inside Ø *Inch*	Outside Ø *Inch*	Wall Thickness *Inch*	Duty	Length *Feet*
HW0061	0.061″	0.125″	0.032″	Light	100′
HW0170	0.170″	0.250″	0.040″	Light	100′
HW0271	0.271″	0.375″	0.052″	Light	100′
HW0376	0.376″	0.500″	0.062″	Light	100′
HW0500	0.500″	0.670″	0.085″	Heavy	100′
HW0501	0.501″	0.625″	0.062″	Light	100′
HW0626	0.626″	0.750″	0.062″	Light	100′
HW0750	0.750″	0.980″	0.115″	Heavy	100′
HW0870	0.870″	1.000″	0.065″	Light	100′
HW1000	1.000″	1.250″	0.125″	Heavy	100′
HW1250	1.250″	1.510″	0.130″	Heavy	100′
HW1500	1.500″	1.830″	0.165″	Heavy	100′
HW2000	2.000″	2.340″	0.170″	Heavy	50′
HW2500	2.500″	2.930″	0.215″	Heavy	50′
HW3000	3.000″	3.440″	0.220″	Heavy	50′
HW3500	3.500″	4.000″	0.250″	Heavy	50′
HW4000	4.000″	4.530″	0.265″	Heavy	50′
HW6000	6.000″	6.620″	0.310″	Heavy	50′

Uniquely Manufactured For Your Benefit

» Flexdraulic protective hose wrap is manufactured better than other hose wraps. Other hose wraps are extruded flat and then wound into the final product. Flexdraulic protective hose wrap is extruded into a tube shape and then cut spiral. After the tube is cut spiral, it constricts, and the end result is great elastic memory, which means it stays wrapped tighter for a longer period of time.

Easy Installation

» First, calculate the correct cut length. For inside and outside diameter calculations, it is important that you use the information in the product table provided on this page. It may be useful to use the following length formula:

A ÷ B x C x 1.135 = Cut Length

A = Outside Ø of hose or bundle to be wrapped
B = Inside Ø of wrap (see table on left)
C = Length to be wrapped

» Next, make three or four wraps around the hose or bundle by hand.

» Last, after making wraps by hand, insert a screwdriver or pipe into the next open loop, and continue winding around the hose or bundle until finished.

Protective Hose Sleeve

Provide Ultimate Hose And Operator Protection From Abrasion And Hose Failure

» Flexdraulic protective hose sleeve is engineered to help you protect hose assemblies and hose bundles from abrasion, contain oil spillage from pinhole leaks and protect from harmful ultraviolet radiation.

Superior Construction And Safety

» Flexdraulic protective hose sleeve is densely twisted polyide 6 yarn that provides optimum ultraviolet and abrasion protection.

» Tight, smooth surface resists wear.

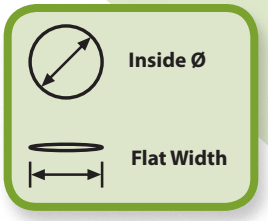
» 50% less bulky than other materials, like Cordura®.

» Tightly woven construction contains and oil spillage from possible hose failure.

Engineered According To International Standards

» Flexdraulic protective hose sleeves conform to line-of-sight operator specifications EN 982, EN 414 and ISO 833, abrasion standard 6945 and conductivity according to ISO 8031.

Part #	Inside Ø *Inch*	Flat Width *Inch*	Roll Length *Foot*
HS067	0.67″	1.18″	300′
HS079	0.79″	1.34″	300′
HS091	0.91″	1.54″	300′
HS098	0.98″	1.65″	300′
HS106	1.06″	1.77″	300′
HS122	1.22″	2.05″	300′
HS142	1.42″	2.24″	300′
HS157	1.57″	2.60″	300′
HS173	1.73″	2.83″	300′
HS185	1.85″	3.03″	300′
HS217	2.17″	3.50″	300′
HS236	2.36″	3.82″	300′
HS287	2.87″	4.65″	300′
HS295	2.95″	4.76″	300′
HS366	3.66″	5.87″	300′
HS494	4.94″	7.75″	300′



Adjustable Crimper Kit With Hand Pump

AC100H
Adjustable Crimper Kit

Hand pump and hose assembly included. Crimper dies available separately (see on page 81).

Crimp Hoses In The Shop Or On The Go With Hand Pump Power

» The Flexdraulic AC100H hand pump hose assembly crimping kit is an ideal crimper solution for small shops where accuracy, precision and ease of adjustment are required, and high-speed production crimping is not essential.

Portable, Precise and Powerful Crimping

» Weighing only 45 pounds with the capacity to crimp up to one-inch, two-wire hose, the AC100H is a truly portable crimper that can be carried to many locations where service is required.

» High-strength aluminum flanges and tubular frame make the AC100H a truly lightweight crimper.

» Inverted die positioning allows great visibility allowing the operator to accurately position crimp fittings before crimping. Also, a removable pusher makes it easy to insert elbows and other special crimp fittings into crimper.

» Micrometer-style adjustments via the sight gauge assure accurate and repeatable crimps and the ability to crimp a wide variety of crimp fittings without the need for special shims or spacers.

» Base mounting holes allow the crimper to be bench or truck mounted if required.

» Included in the kit with the crimper is a 10,000 PSI hand pump, quick disconnect and hose assembly.

Other Information

» One-inch, two-wire hose capacity

» 35 ton integrated cylinder

» 11" x 14" footprint

» Includes 10,000 PSI hand pump, quick disconnects and hose assembly

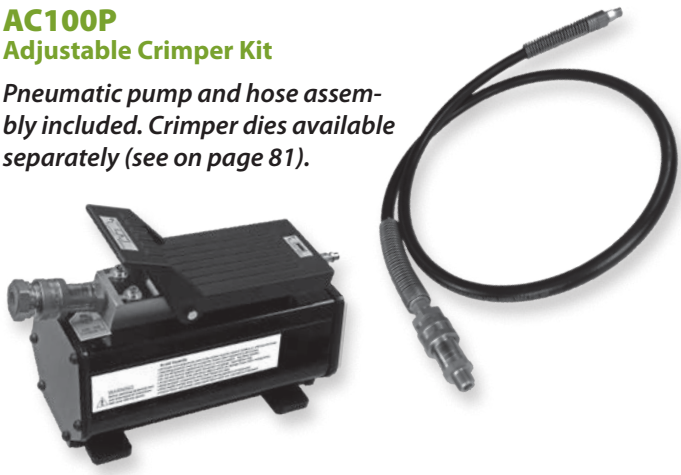
» Flexdraulic crimp specifications for the AC100H are provided separately.

See page 81 for die selection chart.

Adjustable Crimper Kit With Pneumatic Pump

AC100P
Adjustable Crimper Kit

Pneumatic pump and hose assembly included. Crimper dies available separately (see on page 81).



Crimp Hoses In The Shop Or On The Go With Pneumatic Pump Power

» The Flexdraulic AC100P pneumatic pump hose assembly crimping kit is an ideal crimper solution for small shops where accuracy, precision and ease of adjustment are required, and high-speed production crimping is not essential.

Portable, Precise and Powerful Crimping

» Weighing only 45 pounds with the capacity to crimp up to one-inch, two-wire hose, the AC100P is a truly portable crimper that can be carried to many locations where service is required.

» High-strength aluminum flanges and tubular frame make the AC100P a truly lightweight crimper.

» Inverted die positioning allows great visibility allowing the operator to accurately position crimp fittings before crimping. Also, a removable pusher makes it easy to insert elbows and other special crimp fittings.

» Micrometer-style adjustments via the sight gauge assure accurate and repeatable crimps and the ability to crimp a wide variety of crimp fittings without the need for special shims or spacers.

» Base mounting holes allow the crimper to be bench or truck mounted if required.

» Included in the kit with the crimper is a 10,000 PSI pneumatic pump, quick disconnect and hose assembly.

Other Information

» One-inch, two-wire hose capacity

» 35 ton integrated cylinder

» 11" x 14" footprint

» Includes 10,000 PSI pneumatic pump, quick disconnects and hose assembly

» Flexdraulic crimp specifications for the AC100P are provided separately.

See page 81 for die selection chart.

Adjustable Crimper Kit With Electric Pump

AC100E
Adjustable Crimper Kit

Integrated power with automatic shutoff (when crimp setting is reached) included. Crimper dies available separately (see on page 81).

Crimp Hoses In The Shop Or On The Go With Electric Pump Power And Automatic Shutoff

» The Flexdraulic AC100E electric pump hose assembly crimping kit is an ideal crimper solution for small shops where accuracy, precision and ease of adjustment are required, and high-speed production crimping is not essential.

Portable, Precise and Powerful Crimping

» With the capacity to crimp up to one-inch, two-wire hose, the AC100E is a truly portable crimper that can be moved to many locations where service is required.

» Inverted die positioning allows great visibility allowing the operator to accurately position crimp fittings before crimping. Also, a removable pusher makes it easy to insert elbows and other special crimp fittings.

» Micrometer-style adjustments via the sight gauge assure accurate and repeatable crimps and the ability to crimp a wide variety of crimp fittings without the need for special shims or spacers.

» Automatic shutoff shuts the pump down when the micrometer crimp setting is reached.

» Base mounting holes allow the crimper to be bench or truck mounted if required.

» Included in the kit with the crimper is a one-horsepower, 110-volt 10,000 PSI electric pump.

Other Information

» One-inch, two-wire hose capacity

» 35 ton integrated cylinder

» 11" x 14" footprint

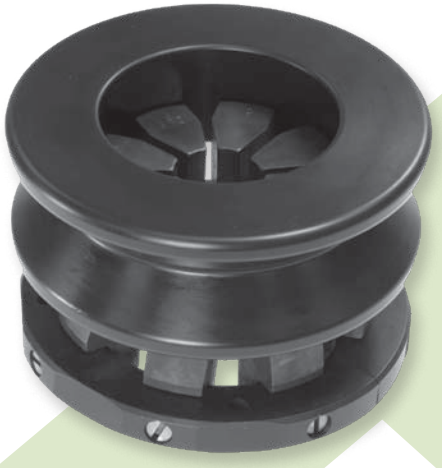
» Includes 10,000 PSI electric pump, quick disconnects and hose assembly

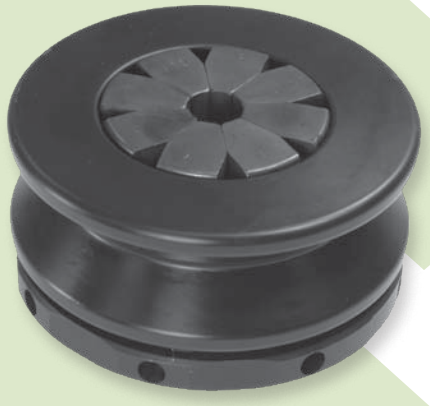
» Includes coupling stop, cylinder retraction stop, quick crimp pusher and automatic shutoff micrometer

» Flexdraulic crimp specifications for the AC100E are provided separately.

See page 81 for die selection chart.

Crimper Die Selection





Use this chart to determine which die(s) you need for your Flexdraulic crimping requirements. Die sizes are listed horizontally across the top of the chart. Hose part numbers are listed vertically on the left of the chart. Die part numbers are located within the chart (where a hose part number and die size intersect).

Hose Type	Die Size								
	14 mm	16 mm	19 mm	22 mm	25 mm	28 mm	31 mm	36 mm	38 mm
1SN-04	1710617	1710611							
1SN-06			1710612						
1SN-08				1710618					
1SN-10					1710619				
1SN-12						1710620	1710621		
1SN-16									1710616
2SN-04		1710611							
2SN-06			1710612						
2SN-08				1710618					
2SN-10					1710619	1710620			
2SN-12							1710621		
2SN-16									1710616
R16-04		1710611							
R16-06			1710612						
R16-08				1710618					
R16-10					1710619	1710620			
R16-12							1710621		
R16-16								1710622	1710616
R17-04	1710617								
R17-06			1710612						
R17-08				1710618					
R17-10					1710619	1710620			
R17-12						1710620	1710621		
R17-16								1710622	1710616

Hose Cutter *(700 Series)*

Part #	Motor		Hose Capacity	Blade Furnished
	HP	*Electric*		
HCT710SP	1.0	Single Phase 115V	1¼" Inside Ø	7" Scalloped
HCT715SP	1.5	Single Phase 115V	1¼" Inside Ø	7" Scalloped
HCT720SP	2.0	Single Phase 230V	1¼" Inside Ø	7" Scalloped

Cut Hydraulic Hose Cleanly And Fast

» The Flexdraulic HCT700 series hose cutting machine assures quick and clean right-angle cuts, eliminating ragged and frayed cut ends, which make hose assembly difficult and are probable causes of premature hose failure.

» The Flexdraulic HCT700 series hose cutting machine is designed to cut single and double wire braid hoses to the sizes noted in the product table on the left.

Engineered Reliability

» Rugged, heavy-duty base mount design assures safety with each and every cut.

» The powerful, industrial-duty NEMA rated electric motor provides steady, reliable cutting power.

» Precision-ground and hardened M2 steel blades provide improved cutting toughness and strength.

Easy To Operate

» Fixed position cutting blade mounted within blade guard provides operator protection.

» An additional spring-loaded inner blade guard is also included for added protection.

» Cutting table comes with adjustable hose pins allowing hose to be pre-bent for less friction when cutting.

» Easy-to-grip handle pushes hose into blade for fast, clean cuts.

Scalloped Cutting Blade Comes Standard

» Scalloped blades are designed to cut single wire braid, multi wire braid and four or six wire braid-reinforced hose.

» Scalloped blades are reversible for extended life and can be sharpened multiple times.

Other Information

» Dimensions: 13"W x 24"L x 17"H

» Weight: 65 lbs.

Hose Cutter *(800 Series)*

Part #	Motor HP	Motor Electric	Hose Capacity	Blade Furnished
HCT815SP	1.5	Single Phase 115V	2" Inside Ø	8" Scalloped
HCT815DC	1.5	12V DC	2" Inside Ø	8" Scalloped
HCT820SP	2.0	Single Phase 230V	2" Inside Ø	8" Scalloped

Cut Hydraulic Hose Cleanly And Fast

» The Flexdraulic HCT800 series hose cutting machine assures quick and clean right-angle cuts, eliminating ragged and frayed cut ends, which make hose assembly difficult and are probable causes of premature hose failure.

» The Flexdraulic HCT800 series hose cutting machine is designed to cut single and double wire braid hoses to the sizes noted in the product table on the left.

Engineered Reliability

» Rugged, heavy-duty base mount design assures safety with each and every cut.

» The powerful, industrial-duty NEMA rated electric motor provides steady, reliable cutting power.

» Precision-ground and hardened M2 steel blades provide improved cutting toughness and strength.

Easy To Operate

» Fixed position cutting blade mounted within blade guard provides operator protection.

» An additional spring-loaded inner blade guard is also included for added protection.

» Cutting table comes with adjustable hose pins allowing hose to be pre-bent for less friction when cutting.

» Easy-to-grip handle pushes hose into blade for fast, clean cuts.

Scalloped Cutting Blade Comes Standard

» Scalloped blades are designed to cut single wire braid, multi wire braid and four or six wire braid-reinforced hose.

» Scalloped blades are reversible for extended life and can be sharpened multiple times.

Other Information

» Dimensions: 13"W x 24"L x 17"H

» Weight: 65 lbs.

Hose Cutter *(900 Series)*

Part #	Motor		Hose Capacity	Blade Furnished
	HP	*Electric*		
HCT930SP	3.0	Single Phase 230V	2" Inside Ø	10" Scalloped
HCT930TP	3.0	Three Phase 230V	2" Inside Ø	10" Scalloped

Cut Hydraulic Hose Cleanly And Fast

» The Flexdraulic HCT900 series hose cutting machine assures quick and clean right-angle cuts, eliminating ragged and frayed cut ends, which make hose assembly difficult and are probable causes of premature hose failure.

» The Flexdraulic HCT900 series hose cutting machine is designed to cut single and multi wire braid hose and also four or six spiral hose to the sizes noted in the product table on the left.

Engineered Reliability

» Rugged, heavy-duty base mount design assures safety with each and every cut.

» The powerful, industrial-duty NEMA rated electric motor provides steady, reliable cutting power.

» Precision-ground and hardened M2 steel blades provide improved cutting toughness and strength.

Easy To Operate

» Fixed position cutting blade mounted within blade guard provides operator protection.

» An additional spring-loaded inner blade guard is also included for added protection.

» Cutting table comes with adjustable hose pins allowing hose to be pre-bent for less friction when cutting.

» Easy-to-grip handle pushes hose into blade for fast, clean cuts.

Scalloped Cutting Blade Comes Standard

» Scalloped blades are designed to cut single wire braid, multi wire braid and four or six wire braid-reinforced hose.

» Scalloped blades are reversible for extended life and can be sharpened multiple times.

Other Information

» Dimensions: 22"W x 42"L x 24"H

» Weight: 215 lbs.

Notes

Warranty

Product Warranty

- Flexdraulic products are backed by a limited warranty for one year after date of purchase. Flexdraulic products are warranted to be free from defects in materials and workmanship when properly installed and maintained. Products covered include those items contained in this catalog.
- If during the warranty period a product is discovered to be defective, the warranted Flexdraulic product will be replaced or the purchaser will be granted a credit for the product claimed to be defective. Flexdraulic's proprietors have sole discretion to determine whether a product was defective.
- This warranty is null and void if the product has been used in the wrong application or has been damaged from accident or willfully destroyed. In addition, this warranty will not apply to Flexdraulic assembly equipment, crimp fittings, hose and/or other Flexdraulic products if the defective product has been used outside of prescribed Flexdraulic process specifications and/or has been used in an assembly made from other than Flexdraulic parts.
- No warranty of merchantability or fitness for a particular purpose or any other warranty, expressed or implied, is made. The foregoing states Flexdraulic's proprietors' entire and exclusive liability and buyer's exclusive remedy for any claim and/or damages in connection with the sale of the products hereunder. In no event shall Flexdraulic's proprietors or any other party associated with the Flexdraulic brand be liable for any special, incidental or consequential damages whatsoever.
- Some states do not allow for the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.
- This warranty gives you specific legal rights. You may also have other legal rights which vary from state to state.

Claim Information:

- To make a warranty claim, contact your Flexdraulic representative for details, e-mail warranty@flexdraulic.com or write to the address listed below:

Flexdraulic Warranty
3727 Westgate Road
Grand Island, NE 68803
USA

Authorized Flexdraulic Dealer

Edition: A2009