



ivaflex

HYDRAULIC HOSES

TABLE OF CONTENTS

HOSES

TECHNICAL DATA SAE RECOMMENDED PRACTICE	1 - 2
--	-------

TECHNICAL DATA FLOW CAPACITIES PRESSURE DROP	3 - 4
---	-------

TECHNICAL DATA SERVICE LIFE ROUTING / INSTALLATION	5 - 6
---	-------

TECHNICAL DATA CLEANING, INSPECTION, TESTING, AND STORAGE	7
--	---

TECHNICAL DATA ANALYZING FAILURES	8 - 10
--------------------------------------	--------

HYDRAULIC HOSES (SAE J 517)

SAE 100 R 1 AT R2 AT R 16 R 17	11
---	----

HYDRAULIC HOSES (DIN EN 853 / 857)

DIN EN 853 1 SN 2 SN DIN EN 857 1 SC 2 SC	12
--	----

COMPACT HYDRAULIC HOSES

1 SNK 2 SNK SPC 2 SPC 3 AGROFLEX PILOT	13 14
---	----------

HYDRAULIC HOSES FOR HOT OIL APPLICATIONS

DIN EN 853 1 SN ENT 2 SN ENT	14
---------------------------------	----

MULTISPIRAL HYDRAULIC HOSES

DIN EN 856 4 SP 4 SH FLEXLINE 4000 DIN EN 856 R 12 / SAE 100 R 13 SAE 100 R 15 R 4	15 16
--	----------

HIGH ABRASION RESISTANT HYDRAULIC HOSES

1 SSK SSC SSP SSH	17
----------------------------	----

1-WIRE SN CONSTRUCTIONS

1 SN COMPACT	18
-----------------	----

2-WIRE SN CONSTRUCTIONS

2 SN

2-WIRE COMPACT CONSTRUCTIONS

2 SC 400 BAR LONGLIFE 500 BAR	19
----------------------------------	----

TECHNICAL DATA

SAE RECOMMENDED PRACTICE

Selection, installation and maintenance of hose and assemblies — SAE J1273 November 1991

SAE recommended practice

The following recommendations on selection, installation and maintenance of hose assemblies were established by the S.A.E. in 1991. Please read these general instructions carefully. More detailed information on many of these subjects is covered in this catalog.

1. Scope—Hose (also includes hose assemblies) has a finite life and there are a number of factors which will reduce its life. This recommended practice is intended as a guide to assist system designers and/or users in the selection, installation and maintenance of hose. The designers and users must make a systematic review of each application and then select, install and maintain the hose to fulfill the requirements of the application. The following are general guidelines and are not necessarily a complete list.

WARNING: IMPROPER SELECTION, INSTALLATION OR MAINTENANCE MAY RESULT IN PREMATURE FAILURES, BODILY INJURY OR PROPERTY DAMAGE.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001. J516—Hydraulic Hose Fittings J517—Hydraulic Hose 3. Selection—The following is a list of factors which must be considered before final hose selection can be made.

3.1 Pressure—After determining the system pressure, hose selection must be made so that the recommended maximum operating pressure is equal to or greater than the system pressure. Surge pressures higher than the maximum operating pressure will shorten hose life

and must be taken into account by the hydraulic designer.

3.2 Suction—Hoses used for suction applications must be selected to ensure the hose will withstand the negative pressure of the system.

3.3 Temperature—Care must be taken to ensure that fluid and ambient temperatures, both static and transient, do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds.

3.4 Fluid Compatibility—Hose selection must assure compatibility of the hose tube, cover and fittings with the fluid used. Additional caution must be observed in hose selection for gaseous applications.

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

3.6 Routing—Attention must be given to optimum routing to minimize inherent problems.

3.7 Environment—Care must be taken to insure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions such as ultraviolet light, ozone, salt water, chemicals and air pollutants can cause degradation and premature failure and, therefore, must be considered.

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

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

3.10 Proper End Fitting—Care must be taken to ensure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations substantiated by testing to industry standards such as SAE J517. End fitting components from one manufacturer are usually not compatible with end fitting components supplied by another manufacturer (i.e., using a hose fitting nipple from one manufacturer with a hose socket from another manufacturer). It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper end fitting componentry.

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

3.12 Specifications and Standards—When selecting hose, government, industry and manufacturers' specifications and recommendations must be reviewed as applicable.

3.13 Hose Cleanliness—Hose components vary in cleanliness levels. Care must be taken to ensure that the assemblies selected have an adequate level of cleanliness for the application.

3.14 Electrical Conductivity—Certain applications require that hose be nonconductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Hose and fittings must be chosen with these needs in mind.

4. Installation—After selection of proper hose, the following factors must be considered by the installer.

4.1 Pre-Installation Inspection—Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size and length. In addition, the hose must be examined for cleanliness, I.D. obstructions, blisters, loose cover, or any other visible defects.

4.2 Follow Manufacturers' Assembly Instructions—Hose assemblies may be fabricated by the manufacturer, an agent for or customer of the manufacturer or by the user. Fabrication of permanently attached fittings to hydraulic hose requires specialized assembly equipment. Fieldattachable fittings (screw style and segment clamp style) can usually be assembled without specialized equipment although many manufacturers provide equipment to assist in the operation. SAE J517 hose from one manufacturer is usually not compatible with SAE J516 fittings supplied by another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written assembly instructions or the manufacturers directly before intermixing hose and fittings from two manufacturers. Similarly, assembly equipment from one manufacturer is usually not interchangeable with that of another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper assembly equipment. Always follow the manufacturer's instructions for proper preparation and fabrication of hose assemblies.

4.3 Minimum Bend Radius—Installation at less than minimum bend radius may significantly reduce hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture

TECHNICAL DATA

SAE RECOMMENDED PRACTICE

4.4 Twist Angle and Orientation—

Hose installations must be such that relative motion of machine components produces bending of the hose rather than twisting.

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

4.6 Proper Connection of Ports—

Proper physical installation of the hose requires a correctly installed port connection while insuring that no twist or torque is put into the hose.

4.7 Avoid External Damage—

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

4.8 System Check Out—After completing the installation, all air entrapment must be eliminated and the system pressurized to the maximum system pressure and checked for proper function and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

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

5.1 Hose Storage—Hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials. Storage areas should be relatively cool and dark and free of dust, dirt, dampness and mildew.

5.2 Visual Inspection—Any of the following conditions requires replacement of the hose:

- a) Leaks at fitting or in hose (leaking fluid is a fire hazard)
- (b) Damaged, cut or abraded cover (any reinforcement exposed)
- (c) Kinked, crushed, flattened or twisted hose
- (d) Hard, stiff, heat cracked or charred hose
- (e) Blistered, soft, degraded or loose cover
- (f) Cracked, damaged or badly corroded fittings
- (g) Fitting slippage on hose

5.3 Visual Inspection—The following items must be tightened, repaired or replaced as required:

- (a) Leaking port conditions
- (b) Clamps, guards, shields
- (c) Remove excessive dirt buildup
- (d) System fluid level, fluid type, and any air entrapment

5.4 Functional Test—Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

5.5 Replacement Intervals— Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable down time, damage or injury risk.

TECHNICAL DATA

FLOW CAPACITIES

PRESSURE DROP

Flow capacities of hose assemblies at suggested flow velocities

The chart below is designed and provided as an aid in the determination of the correct hose size.

Example:

At 13 U.S. gallons per minute, what is proper hose size within the suggested velocity range for pressure lines?

Solution:

Locate 13 U.S. gallons per minute in the left hand column and 10 feet per second in the right hand column (the center of the suggested velocity range for pressure lines). Lay a straightedge across the two points. The inside diameter is shown in the center column nearest the straightedge. For suction hose, follow the same procedure except use suggested velocity range for pump inlet lines in the right hand column.

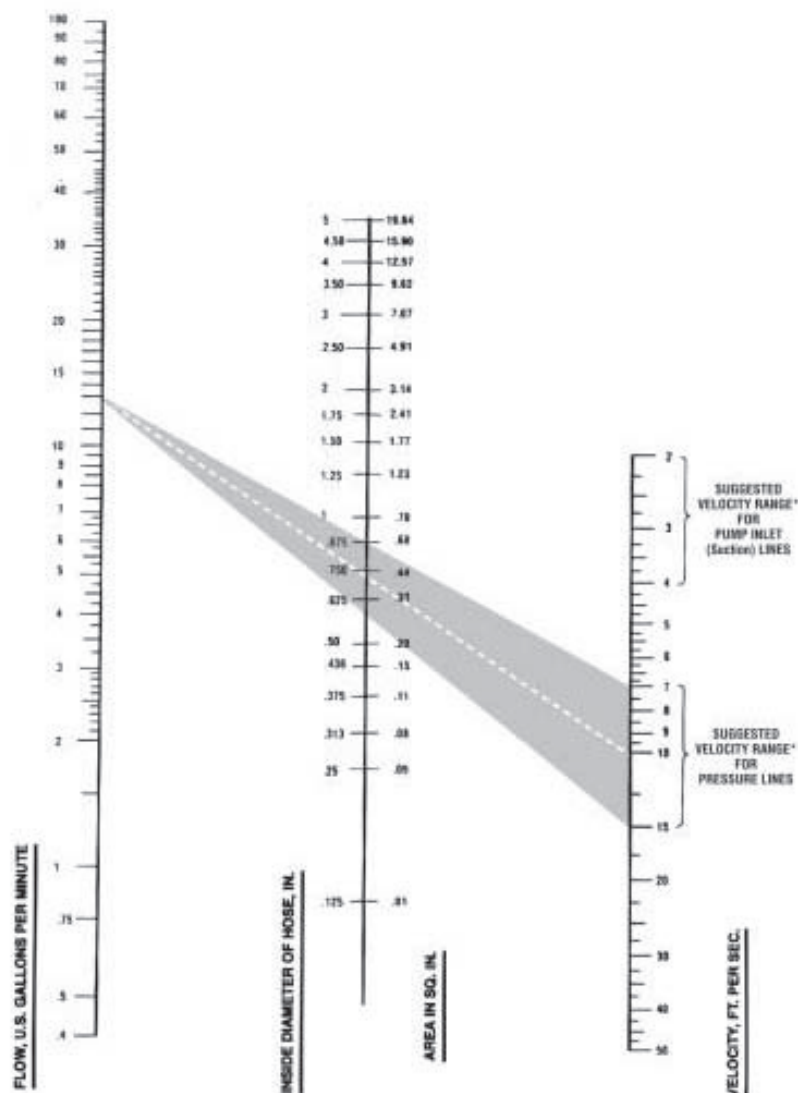
Based on Formula

$$\text{AREA (SQ. IN.)} = \frac{\text{G.P.M.} \times 0.3208}{\text{VELOCITY (FT./SEC.)}}$$

*Suggestions are for oils having a maximum viscosity of 315 S.S.U. at +100°F (+38°C) and operating at temperatures between +65°F and +155°F (+54°C to +69°C). Under certain conditions, velocities in pressure lines can be increased up to 25 feet per second. Contact Eaton with specific information on your application.

To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S.gallons, multiply by 0.2642.



TECHNICAL DATA

FLOW CAPACITIES

PRESSURE DROP

* Pressure drop in psi (pounds per square inch)/gpm (gallons per minute)

for 10 feet of hose (smooth bore) without fittings.

Fluid specification: Specific gravity = .85;

Viscosity = ν = 20 centistokes (C.S.), (20 C.S. = 97 S.S.U.).

Hose pressure drop

Hose Dash Size Æ	-04		-05		-06		-08		-10		-12		-16		-20		-24		-32		-40	-48		
Hose I.D. (inches) ~	.19	.25	.25	.31	.31	.38	.41	.50	.50	.63	.63	.75		.88	1.00	1.13	1.25	1.38	1.50	1.81	2.00	2.38	3.00	
U.S. Gallons per minute	.25	10	3.1	3.1																				
	.50	19	6	6	2.7	2.7																		
	1	40	12	12	5.5	5.5	2.4																	
	2	95	24	24	10	10	4.8	3.5																
	3	185	46	46	17	17	7	5	2.2	2.2														
	4		78	78	29	29	12	8	3	3	1.2	1.2												
	5		120	120	44	44	18	12	4.5	4.5	1.6	1.6	.72											
	8				95	95	39	26	10	10	3.6	3.6	1.4	.60										
	10						59	40	15	15	5.7	5.7	2	1	.55									
	12						80	52	20	20	7.2	7.2	2.6	1.5	.75	.43								
	15							75	30	30	10	10	4.2	2.2	1.2	.67	.38							
	18							107	40	40	15	15	6.3	3	1.5	.70	.55	.35						
	20								49	49	19	19	8	3.4	2	1.1	.65	.43	.27					
	25								72	72	26	26	11	5.5	3	1.6	1	.64	.40	.17				
	30										34	34	14	7	3.6	2.2	1.3	.80	.52	.22	.14			
	35										47	47	19	9.5	5	2.8	1.7	1.1	.70	.27	.18			
	40												25	12	6.5	3.4	2.2	1.4	.90	.38	.24			
	50												36	17	9	5.3	3.3	2	1.3	.54	.35	.15		
	60												50	23	12	7.5	4.4	2.8	1.8	.75	.45	.20		
	70													31	17	9.3	6	3.8	2.4	1	.65	.30		
	80													38	21	12	7.1	4.6	3	1.2	.76	.34	.11	
	90													49	27	15	9	5.9	3.8	1.5	1	.45	.13	
	100														33	19	12	7	4.7	1.9	1.3	.55	.18	
	150															60	36	22	13	8.5	3.4	2.2	1	.33
	200																	36	23	15	6	3.9	1.7	.55
	250																	54	33	22	8.5	5.3	2.5	.75
	300																		45	29	12	7.5	4	1.1
400																			51	21	14	6.5	2.2	
500																				32	20	10	3	
800																						18	5	
1000																							10	

*Pressure drop values listed are typical of many petroleum based hydraulic oils at approximately +100°F (+38°C). Differences in fluids, fluid temperature and viscosity can increase or decrease actual pressure drop compared to the values listed.

To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.

TECHNICAL DATA

SERVICE LIFE

ROUTING /

INSTALLATION

Service life factors

Hose assemblies, like other products, have a finite service life. The actual service life of a given hose assembly in a given application is dependent on many variable factors, including those below.

1. Operating pressure

Eaton Aeroquip hose lines are rated for continuous operation at the maximum operating pressure specified for the hose. Generally, the operating pressure is one fourth the hose minimum burst pressure.

2. Pressure surges

Almost all hydraulic systems develop pressure surges which may exceed relief valve settings. Exposing the hose to surge pressure above the maximum operating pressure will shorten hose life and must be considered. A surge (rapid and transient rise in pressure) will not be indicated on many common pressure gauges but can be measured using electronic measuring devices. In systems where surges are severe, select a hose with a higher maximum operating pressure.

3. Burst pressure

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

4. High pressure

High pressure gaseous systems especially over 250 psi are very hazardous and should be adequately protected from external shock and mechanical or chemical damage. They should also be suitably protected to prevent whiplash action in the event of failure.

5. Operating temperatures

Operating temperatures specified refer to the maximum temperature of the fluid or gas being conveyed. High heat conditions may have an adverse effect on hoses due to degradation of the rubber which will limit hose usefulness and reduce fitting retention. In some cases the fluid being conveyed will slow down this degradation

whereas other fluids may accelerate it. Therefore, the maximum temperature of each hose does not apply to all fluids or gases. Continuous use at maximum temperatures together with maximum pressures should always be avoided. Continuous use at or near the maximum temperature rating will cause a deterioration of physical properties of the tube and cover of most hoses. This deterioration will reduce the service life of the hose.

6. Ambient temperatures

Very high or low ambient (outside of hose) temperatures will affect cover and reinforcement materials, thus reducing the life of the hose. Ambient temperatures in conjunction with internal temperatures are also an important factor. For specific recommendations, please consult Eaton.

7. Bend radius

Recommended minimum bend radii are based on maximum operating pressures with no flexing of the hose. Safe operating pressure decreases when bend radius is reduced below the recommended minimum. Flexing the hose to less than the specified minimum bend radius will reduce hose life.

8. Electrical conductivity

Textile reinforced thermoplastic hoses are available for electrically nonconductive applications. For applications requiring electrical isolation by the hose, Eaton Aeroquip non-conductive hose has a leakage factor of less than 50 microamperes. By SAE J517 standard, this is considered a safe level of conductivity. An orange polyurethane cover identifies Eaton Aeroquip nonconductive hose. This cover is not perforated, in order to prevent moisture from entering the hose and affecting its overall conductivity. For added protection against moisture absorption in transit, Eaton Aeroquip non-conductive hose in bulk is shipped with cap seals on both ends. To maintain minimum levels of conductivity, cap seals must be

placed on Aeroquip nonconductive bulk hose at all times.

9. Chemical resistance

Consider the chemical resistance of the fitting, O-Ring, hose cover and tube stock. Covers are resistant to mildew, cleaning solvents, oils and fuels. See pages 000-000 for chemical resistance of hose tubes, O-Rings and fitting materials.

10. Vacuum service

Maximum negative pressures shown for hoses -16 and larger are suitable only for hose which has suffered no external damage or kinking. If greater negative pressures are required for -16 and larger hoses, the use of an internal support coil is recommended. Vacuum service is not recommended for double wire braid or 4 and 6 spiral wire reinforced hose. If vacuum data is not given for a hose, Eaton does not recommend it for a vacuum application.

11. Phosphate ester

base fluid No petroleum based oils should contact the tube of an EPDM rubber hose, if the hose is recommended only for phosphate ester base hydraulic fluid. Eaton Aeroquip AQP Hose compounds are compatible with many industrial phosphate ester base hydraulic fluids and all straight petroleum based oils.

12. Textile braid (SOCKETLESS™) low pressure hose

This hose is not recommended for impulsing hydraulic applications or permanent piping in residential or commercial buildings.

13. Hose fittings

Eaton manufactures hose fittings to meet applicable SAE standards. It is possible to select a fitting with a connecting end that has a performance rating lower than the hose rating. In selecting hose fittings, please consider the performance rating of the connecting end.

IMPORTANT

Hose assembly inspection

Hose assemblies in service should be inspected frequently for leakage, kinking, corrosion, abrasion or any other signs of wear or damage. Hose assemblies that are worn or damaged should be removed from service and replaced immediately.

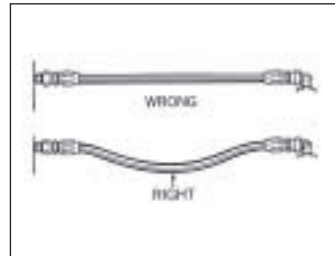
TECHNICAL DATA

SERVICE LIFE

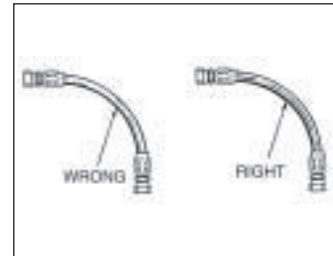
ROUTING /

INSTALLATION

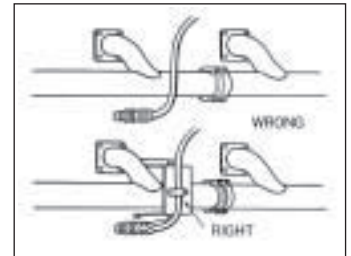
Hose routing and installation



Under pressure, a hose may change in length. Always provide some slack in the hose to allow for this shortening or elongation (However, excessive slack in hose lines may cause poor appearance).

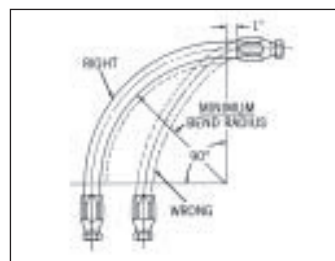


If a hose is installed with a twist in it, operating pressures tend to force it straight. This can loosen the fitting nut. Twisting can cause reinforcement separation and the hose could burst at the point of strain.

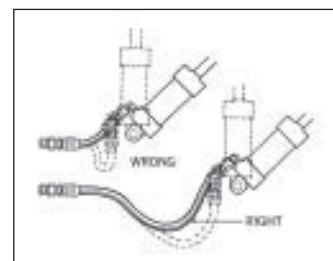


When hose lines pass near an exhaust manifold or other heat source, they should be insulated by a heat resistant boot, firesleeve or a metal baffle. In any application, brackets and clamps keep hoses in place and reduce abrasion.

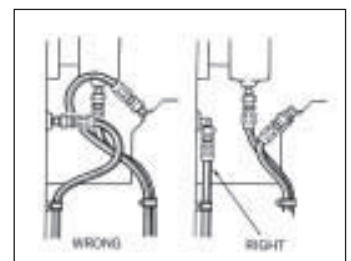
For installations where abrasion to hose cover cannot be prevented with the use of clamps or brackets, a steel protective coil or abrasion resistant sleeve should be placed over the hose.



At bends, provide sufficient hose so that it does not have a bend radius less than its recommended minimum bend radius. Too tight a bend may kink the hose and restrict or stop the fluid flow. In many cases the proper use of adapters and hose fittings can eliminate tight bends or kinks.



In applications where there is considerable vibration or flexing, allow additional hose length. The metal hose fittings, of course, are not flexible, and proper installation protects metal parts from undue stress, and avoids kinks in the hose.



When 90° adapters were used, this assembly became neater-looking and easier to inspect and maintain. It uses less hose, too!

TECHNICAL DATA

CLEANING, INSPECTION, TESTING, AND STORAGE

**Clean****Maintenance**

Hose assemblies in operation should be inspected frequently for leakage, kinking, abrasion, corrosion or any other signs of wear or damage. Worn or damaged hose assemblies should be replaced immediately.

Clean

Clean assembly by blowing out with clean compressed air. Assemblies may be rinsed out with mineral spirits if the tube stock is compatible with oil, otherwise hot water at +150°F max. may be used. Consult Eaton for special cleaning equipment.

Inspect

Examine hose assembly internally for cut or bulged tube, obstructions and cleanliness. For segment style fittings, be sure that the hose butts up against the nipple shoulder; band and retaining ring are properly set and tight, and segments are properly spaced. Check for proper gap between nut and socket or hex and socket. Nuts should swivel freely. Check the layline of the hose to be sure that the assembly is not twisted. Cap the ends of the hose with plastic covers to keep clean.

**Inspect****Proof test (hydrostatic)**

The hose assembly should be hydrostatically tested at twice the recommended working pressure of the hose.

Test pressure should be held for no less than 1 minute and no more than 5 minutes. When test pressure is reached, visually inspect hose assembly for:

- a) Any leaks or signs of weakness.
- b) Any movement of the hose fitting in relation to the hose.
Any of these defects are cause for rejection.

Caution:

Testing should be conducted in approved test stands with adequate guards to protect the operator.

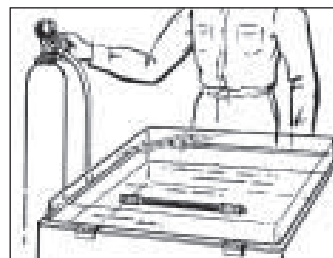
(See Assembly Equipment Section for Eaton Aeroquip Proof Test Stands.)

**Proof test-hydrostatic****Proof test (pneumatic)**

Hose assemblies intended for gas or air service should be tested with air or nitrogen at 100 psi with the assembly immersed in water. Random bubbles may appear over the hose and fitting area when assembly is first pressurized. This should not be construed as a defect. However, if the bubbles persist in forming at a steady rate at any particular point on the hose, the assembly should be rejected.

Caution:

Testing should be conducted in approved test stands with adequate guards to protect the operator.

**Proof test-pneumatic****Storage and handling**

Hose should be stored in a dark, dry atmosphere away from electrical equipment, and the temperature should not exceed +90°F. Storage in the original shipping container is preferred.

TECHNICAL DATA

ANALYZING FAILURES

Everyone in maintenance encounters hose failures. Normally, there is no problem. The hose is replaced and the equipment goes back in operation. Occasionally, the failures come too frequently – the same equipment with the same problems keep popping up. At this point the task is to determine and correct the cause of these repeated failures.

Improper application

Beginning with the most obvious, the most common cause of hose failures – improper application – compare the hose specifications with the requirements of the application.

Pay particular attention to the following areas:

1. The maximum operating pressure of the hose.
2. The recommended temperature range of the hose.
3. Whether the hose is rated for vacuum service.
4. The fluid compatibility of the hose.

Check all of these areas against the requirements of the application. If they don't match up, you need to select another hose. It's a good idea at this point to call on your local hose distributor for assistance in selecting the proper hose. Eaton's distributors, for example, are well equipped to perform this service for you. Distributor personnel attend special training courses in hydraulics and hose application conducted by the company. Or, if your problem is particularly difficult, the distributor can call on the services of Eaton's Field Engineering Staff. The company will send in a hose and hydraulic specialist to study the problem and come up with a solution.

Improper assembly and installation

The second major cause of premature hose failure is improper assembly and installation procedures. This can involve anything from using the wrong fitting on a hose, to poor routing of the hose. Eaton provides excellent training

material that you can use to combat this problem. A little time spent in training your maintenance people could pay big dividends in reduced downtime. You can make use of the material available from Eaton to improve your hose assembly and installation techniques. This material is available free from Eaton, 14615 Lone Oak Road, Eden Prairie, MN 55317. Fax: 952-937-7394.

External damage

External damage can range from abrasion and corrosion, to hose that is crushed by a lift truck. These are problems that can normally be solved simply once the cause is identified. The hose can be re-routed or clamped, or a fire sleeve or abrasion guard can be used. In the case of corrosion, the answer may be as simple as changing to a hose with a more corrosion resistant cover or rerouting the hose to avoid the corrosive element.

Faulty equipment

Too frequent or premature hose failure can be the symptom of a malfunction in your equipment. This is a factor that should be considered since prompt corrective action can sometimes avoid serious and costly equipment breakdown. Reprints of an article on "Troubleshooting Hydraulic Systems," which tells you how to spot problems in a hydraulic system are available from Eaton.

Faulty hose

Occasionally a failure problem will lie in the hose itself. The most likely cause of a faulty rubber hose is old age. Check the lay line on the hose to determine the date of manufacture. (2Q99 means second quarter 1999.) The hose may have exceeded its recommended shelf life. If you suspect that the problem lies in the manufacture of the hose (and don't jump to this conclusion until you have exhausted the other possibilities) contact your distributor. Given effective quality control methods, the odds of a faulty batch of hose being released for sale are extremely small. So make sure that you haven't overlooked some other problem area.

Analyzing failures

A physical examination of the failed hose can often offer a clue to the cause of the failure. Following are 22 symptoms to look for along with the conditions that could cause them:

1. Symptom:

The hose tube is very hard and has cracked.

Cause:



Heat has a tendency to leach the plasticizers out of the tube. This is a material that gives the hose its flexibility or plasticity. Aerated oil causes oxidation to occur in the tube. This reaction of oxygen on a rubber product will cause it to harden. Any combination of oxygen and heat will greatly accelerate the hardening of the hose tube. Cavitation occurring inside the tube would have the same effect.

2. Symptom:

The hose is cracked both externally and internally but the elastomeric materials are soft and flexible at room temperature.

Cause:



The probable reason is intense cold ambient conditions while the hose was flexed. Most standard hoses are rated to -40°F (-40°C). Some AQP hoses are rated at -55°F (-49°C). Military specified hoses are generally rated to -65°F (-54°C). PTFE hose is rated to -100°F (-73°C).

Some Polyon thermoplastic hoses are rated at -65°F (-54°C).

3. Symptom:

The hose has burst and examination of the wire reinforcement after stripping back the cover reveals random broken wires the entire length of the hose.

Cause:



This would indicate a high frequency pressure impulse condition. SAE impulse test requirements for a double wire braid reinforcement are 200,000 cycles at 133% of recommended working pressure. The SAE impulse test requirements for a four spiral wrapped reinforcement (100R-9) are 300,000 cycles at 133% maximum operating and at +200°F (93°C). If the extrapolated impulses in a system amount to over a million in a relatively short time a spiral reinforced hose would be the better choice.

4. Symptom:

The hose has burst, but there is no indication of multiple broken wires the entire length of the hose. The hose may have burst in more than one place.



Cause:

This would indicate that the pressure has exceeded the minimum burst strength of the hose. Either a stronger hose is needed or the hydraulic circuit has a malfunction which is causing unusually high pressure conditions.

TECHNICAL DATA

ANALYZING FAILURES

5. Symptom:

Hose has burst. An examination indicates that the wire braid is rusted and the cover has been cut, abraded or deteriorated badly.



Cause:

The primary function of the cover is to protect the reinforcement. Elements that may destroy or remove the hose covers are:

1. Abrasion
2. Cutting
3. Battery Acid
4. Steam Cleaners
5. Chemical Cleaning Solutions
6. Muriatic Acid (for cement clean-up)
7. Salt Water
8. Heat
9. Extreme Cold

Once the cover protection is gone the wire reinforcement is susceptible to attack from moisture or other corrosive matter.

6. Symptom:

Hose has burst on the outside bend and appears to be elliptical in the bent section. In the case of a pump supply line, the pump is noisy and very hot. The exhaust line on the pump is hard and brittle.

Cause:

Violation of the minimum bend radius is most likely the problem in both cases. Check the minimum bend radius and make sure that the application is within specifications. In the case of the pump supply line partial collapse of the hose is causing the pump to cavitate creating both noise and heat. This is a most serious situation and will result in catastrophic pump failure if not corrected.

7. Symptom:

Hose appears to be flattened out in one or two areas and appears to be kinked. It has burst in this area and also appears to be twisted.



Cause:

Torquing of a hydraulic control hose will tear loose the reinforcement layers and allow the hose to burst through the enlarged gaps between the braided plait of wire strands. Use swivel fittings or joints to be sure there is no twisting force on a hydraulic hose.

8. Symptom:

Hose type has broken loose from the reinforcement and piled up at the end of the hose. In some cases it may protrude from the end of the hose fitting.

Cause:

The probable cause is high vacuum or the wrong hose for vacuum service. No vacuum is recommended for double wire braid, 4 and 6 spiral wire hose unless some sort of internal coil support is used. Even though a hose is rated for vacuum service, if it is kinked, flattened out or bent too sharply this type of failure may occur.

9. Symptom:

Hose has burst about six to eight inches away from the end fitting. The wire braid is rusted. There are no cuts or abrasions of the outer cover.

Cause:

Improper assembly of the hose end fitting allowing moisture to enter around the edge of the fitting socket. The moisture will wick through the reinforcement. The heat generated by the system will drive it out around the fitting area but six to eight inches away it will be entrapped between the inner line and outer cover causing corrosion of the wire reinforcement.

10. Symptom:

There are blisters in the cover of the hose. If one pricks the blisters, oil will be found in them.

Cause:

A minute pin hole in the hose tube is allowing the high pressure oil to seep between it and the cover. Eventually it will form a blister wherever the cover adhesion is weakest. In the case of a screw together reusable fitting insufficient lubrication of the hose and fitting can cause this condition because the dry tube will adhere to the rotating nipple and tear enough to allow seepage. Faulty hose can also cause this condition.

11. Symptom:

Blistering of the hose cover where a gaseous fluid is being used.



Cause:

The high pressure gas is effusing through the hose tube, gathering under the cover and eventually forming a blister wherever the adhesion is weakest. Specially constructed hoses are available for high pressure gaseous applications. Your supplier can advise you on the proper hose to use in these cases.

12. Symptom:

Fitting blew off of the end of the hose.

Cause:

It may be that the wrong fitting has been put on the hose. Recheck manufacturer's specifications and part numbers. In the case of a crimped fitting, the wrong machine setting may have been used resulting in over or undercrimping. The socket of a screw together fitting for multiple wire braided hose may be worn beyond its tolerance. The swaging dies in a swaged hose assembly may be worn beyond the manufacturer's tolerances. The fitting may have been applied im-

properly to the hose. Check manufacturer's instructions. The hose may have been installed without leaving enough slack to compensate for the possible 4% shortening that may occur when the hose is pressurized. This will impose a great force on the fitting. The hose itself may be out of tolerance.

13. Symptom:

The tube of the hose is badly deteriorated with evidences of extreme swelling. In some cases the hose tube may be partially "washed out."



Cause:

Indications are that the hose tube is not compatible with the agent being carried. Even though the agent is normally compatible, the addition of heat can be the catalyst that can cause inner liner deterioration. Consult your hose supplier for a compatibility list or present him with a sample of the fluid being conducted by the hose for analysis. Make sure that the operating temperatures both internal and external do not exceed recommendations.

14. Symptom:

Hose has burst. The hose cover is badly deteriorated and the surface of the rubber is crazed.

Cause:

This could be simply old age. The crazed appearance is the effect of weathering and ozone over a period of time. Try to determine the age of the hose. Some manufacturers print or emboss the cure date on the outside of the hose. As an example, Eaton Aeroquip hose would show "4Q73" which would mean that the hose was manufactured during the fourth quarter (October, November or December) of 1973.

TECHNICAL DATA

ANALYZING FAILURES

15.Symptom:

Hose is leaking at the fitting because of a crack in the metal tube adjacent to the braze on a split flange head.

Cause:

Because the crack is adjacent to the braze and not in the braze, this is a stress failure brought on by a hose that is trying to shorten under pressure and has insufficient slack in it to do so. We have cured dozens of these problems by lengthening the hose assembly or changing the routing to relieve the forces on the fitting.

16.Symptom:

A spiral reinforced hose has burst and literally split open with the wire exploded out and badly entangled.



Cause:

The hose is too short to accommodate the change in length occurring while it is pressurized.

17. Symptom:

Hose is badly flattened out in the burst area. The tube is very hard down stream of the burst but appears normal up stream of the burst.



Cause:

The hose has been kinked either by bending it too sharply or by squashing it in some way so that a major restriction was created. As the velocity of the fluid increases through the restriction the pressure decreases to the vaporization point of the fluid being conveyed. This is commonly called cavitation, and causes heat and rapid oxidation to take place which hardens the tube of the hose down stream

of the restriction.

18.Symptom:

Hose has not burst but it is leaking profusely. A bisection of the hose reveals that the tube has been gouged through to the wire braid for a distance of approximately two inches.

Cause:

This failure would indicate that erosion of the hose tube has taken place. A high velocity needle- like fluid stream being emitted from an orifice and impinging at a single point on the hose tube will hydraulically remove a section of it. Be sure that the hose is not bent close to a port that is orificed. In some cases where high velocities are encountered particles in the fluid can cause considerable erosion in bent sections of the hose assembly.

19.Symptom:

The hose fitting has been pulled out of the hose. The hose has been considerably stretched out in length. This may not be a high pressure application.

Cause:

Insufficient support of the hose. It is very necessary to support very long lengths of hose, especially if they are vertical. The weight of the hose along with the weight of the fluid inside the hose in these cases is being imposed on the hose fitting. This force can be transmitted to a wire rope or chain by clamping the hose to it much like the utilities support bundles of wire from pole to pole. Be sure to leave sufficient slack in the hose between clamps to make up for the possible 4% shortening that could take place when the hose is pressurized.

20.Symptom:

The hose has not burst but it is leaking profusely. An examination of the bisected hose reveals that the tube has burst inwardly.

Cause:

This type of failure is commonly referred to as hose tube blow down. It is usually associated with very low

viscosity fluids such as air, nitrogen, freon and other gases. What happens is that under high pressure conditions the gases will effuse into the pores of the hose tube charging them up like miniature accumulators. If the pressure is very suddenly reduced to zero, the entrapped gases literally explode out of the tube often tearing holes in it. In some hose constructions a second hose tube made from a plastic such as nylon, is inserted into the hose. A small leak will allow the gaseous fluid to seep between the two inner liners and when the pressure is reduced to zero the innermost liner will collapse because of the entrapped pressure around its outer diameter.

21.Symptom:

PTFE hose assembly has collapsed internally in one or more places.

Cause:

One of the most common causes for this is improper handling of the PTFE assembly. PTFE is a thermoplastic material which is not rubber-like. When bent sharply it simply collapses. This type of collapse is localized in one area and is radial. When the PTFE tube is folded longitudinally in one or more places this could be the result of heat (which softens the hose tube) along with vacuum conditions inside of it. Because of the additional tension of the wire braid reinforcement inherent with this type of hose, there is always a radial tension on the tube trying to push it in. Rapid cycling from a very hot agent in the hose to a very cold agent in the hose can produce the same type of failure. Eaton offers an internal support coil that will eliminate this problem.

22.Symptom:

A PTFE hose assembly has developed a pin hole leak or several pin hole leaks.

Cause:

This situation occurs when a petroleum base fluid, with a low viscosity, is flowing at a high velocity. This condition can generate high

voltage due to static electricity. The high voltage is seeking a ground connection and the only ground connection available is the braided stainless steel reinforcement. This causes an electric arc, which penetrates through the PTFE tube as it travels to the reinforcement. Specially constructed PTFE tubes are available that have enough carbon black in them so as to be conductive. They will "drain off" the static electricity.

RIVAFLEX HYDRAULIC HOSES (SAE J 517)



SAE 100 R 1 AT

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
inch	dash	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
1/4	- 04	6,4	11,1	13,4	192	2785	384	770	100	0,20
5/16	- 05	7,9	12,7	15,0	175	2540	350	700	115	0,23
3/8	- 06	9,5	15,1	17,4	157	2280	314	628	125	0,31
1/2	- 08	12,7	18,3	20,6	140	2030	280	560	180	0,38
5/8	- 10	15,9	21,4	23,7	105	1525	210	420	205	0,42
3/4	- 12	19,0	25,4	27,7	87	1260	174	348	240	0,57
1	- 16	25,4	33,3	35,6	70	1015	140	280	300	0,81
1-1/4	- 20	31,8	40,5	43,5	43	625	86	172	420	1,17
1-1/2	- 24	38,1	46,8	50,6	35	510	70	140	500	1,38
2	- 32	50,8	60,2	64,0	26	375	52	104	630	1,85

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀合成橡胶,

如需MSHA外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA cover on request

Temperature range (medium): -40°C to +100°C



SAE 100 R 2 AT

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
inch	dash	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
1/4	- 04	6,4	12,7	15,0	350	5075	700	1400	100	0,30
5/16	- 05	7,9	14,3	16,6	297	4310	594	1188	115	0,36
3/8	- 06	9,5	16,7	19,0	280	4060	560	1120	125	0,49
1/2	- 08	12,7	19,8	22,2	245	3555	490	980	180	0,56
5/8	- 10	15,9	23,0	25,4	192	2785	384	768	205	0,60
3/4	- 12	19,0	27,0	29,3	157	2280	314	628	240	0,83
1	- 16	25,4	34,9	38,1	140	2030	280	560	300	1,22
1-1/4	- 20	31,8	44,5	48,3	113	1640	226	452	420	1,91
1-1/2	- 24	38,1	50,8	54,6	87	1260	174	348	500	2,17
2	- 32	50,8	63,5	67,3	78	1130	156	312	630	2,74

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀合成橡胶,

如需MSHA外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA cover on request

Temperature range (medium): -40°C to +100°C



SAE 100 R 16

标准直径 Nominal ∅	内径 Inside ∅	织丝层直径 Braid ∅	最大外径 max. Outside ∅	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
inch	dash	mm	mm	bar	psi	bar	mm	kg / m		
1/4	- 04	6,4	12,3	14,4	350	5075	700	1400	50	0,26
5/16	- 05	7,9	13,3	15,7	297	4310	594	1188	55	0,31
3/8	- 06	9,5	15,8	18,8	280	4060	560	1120	65	0,40
1/2	- 08	12,7	19,0	21,9	245	3555	490	980	90	0,48
5/8	- 10	15,9	22,4	25,4	192	2785	384	768	100	0,55
3/4	- 12	19,0	26,2	28,9	157	2280	314	628	120	0,71
1	- 16	25,4	34,0	36,5	140	2030	280	560	150	1,00

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶,

如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERRock cover on request

Temperature range (medium): -40°C to +100°C



SAE 100 R 17

标准直径 Nominal Ø	内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
inch	dash	mm	mm	bar	psi	bar	mm	kg / m		
1/4	- 04	6,4	10,5	12,5	210	3045	420	840	50	0,19
5/16	- 05	7,9	12,0	14,3	210	3045	420	840	55	0,22
3/8	- 06	9,5	13,9	16,5	210	3045	420	840	65	0,27
1/2	- 08	12,7	17,6	19,7	210	3045	420	840	90	0,46
5/8	- 10	15,9	21,9	24,0	210	3045	420	840	100	0,57
3/4	- 12	19,0	25,7	28,0	210	3045	420	840	120	0,78
1	- 16	25,4	33,8	36,2	210	3045	420	840	150	1,40

软管结构:

内壁: 耐油合成橡胶

芯材: 至DN12为一层, 从DN16为两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶,

如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: up to 1/2" one, from 5/8" two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERRock cover on request

Temperature range (medium): -40°C to +100°C

RIVAFLEX HYDRAULIC HOSES (DIN EN 853 / 857)



DIN EN 853 1 SN SAE 100 R 1S

标准直径 Nominal Ø	内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	bar	psi	bar	mm	kg / m
5	3/16	4,8	9,5	11,8	250	600	90	0,19
6	1/4	6,4	11,1	13,4	225	540	100	0,21
8	5/16	7,9	12,7	15,0	215	510	115	0,24
10	3/8	9,5	15,1	17,4	180	430	125	0,33
12	1/2	12,7	18,3	20,6	160	385	180	0,41
16	5/8	15,9	21,4	23,7	130	310	200	0,45
19	3/4	19,0	25,4	27,7	105	250	240	0,58
25	1	25,4	33,3	35,6	88	210	300	0,88
31	1-1/4	31,8	40,5	43,5	63	150	420	1,23
38	1-1/2	38,1	46,8	50,6	50	120	500	1,51
51	2	50,8	60,2	64,0	40	96	630	1,97

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



DIN EN 853 2 SN SAE 100 R 2S

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight	
mm	inch	mm	mm	mm	bar	psi	bar	mm	kg / m	
5	3/16	4,8	11,1	13,4	415	6020	990	1650	90	0,31
6	1/4	6,4	12,7	15,0	400	5800	960	1600	100	0,33
8	5/16	7,9	14,3	16,6	350	5075	840	1400	115	0,39
10	3/8	9,5	16,7	19,0	330	4785	790	1320	125	0,50
12	1/2	12,7	19,8	22,2	275	3990	660	1100	180	0,59
16	5/8	15,9	23,0	25,4	250	3625	600	1000	200	0,71
19	3/4	19,0	27,0	29,3	215	3120	515	850	240	0,86
25	1	25,4	34,9	38,1	165	2395	395	650	300	1,28
31	1-1/4	31,8	44,5	48,3	125	1815	300	500	420	2,02
38	1-1/2	38,1	50,8	54,6	90	1305	215	360	500	2,20
51	2	50,8	63,5	67,3	80	1160	190	320	630	2,85

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



DIN EN 857 1 SC

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	最大外径 max. Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	10,2	13,5	225	3265	540	900	75	0,18
8	5/16	7,9	11,5	14,5	215	3120	520	860	85	0,21
10	3/8	9,5	13,6	16,9	180	2610	430	720	90	0,28
12	1/2	12,7	17,0	20,4	160	2320	385	640	130	0,33
16	5/8	15,9	20,4	23,0	130	1885	310	520	150	0,41
19	3/4	19,0	23,8	26,7	105	1525	250	420	180	0,52
25	1	25,4	31,3	34,9	88	1275	210	352	230	0,78

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



DIN EN 857 2 SC

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 max. Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,2	14,2	400	5800	960	1600	75	0,28
8	5/16	7,9	12,7	16,0	350	5075	840	1400	85	0,33
10	3/8	9,5	15,0	18,3	330	4785	790	1320	90	0,42
12	1/2	12,7	18,3	21,5	275	3990	660	1100	130	0,52
16	5/8	15,9	21,4	24,7	250	3625	600	1000	170	0,61
19	3/4	19,0	25,5	28,6	215	3120	515	860	200	0,79
25	1	25,4	33,4	36,6	165	2395	395	660	250	1,10

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)

RIVAFLEX COMPACT HYDRAULIC HOSES



1 SNK

标准直径 Nominal ∅	内径 Inside ∅	织丝层直径 Braid ∅	最大外径 max. Outside ∅	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
inch	dash	mm	mm	mm	bar	psi	bar	mm	kg / m	
1/4	- 04	6,4	12,3	14,4	350	5075	700	1400	50	0,26
5/16	- 05	7,9	13,3	15,7	297	4310	594	1188	55	0,31
3/8	- 06	9,5	15,8	18,8	280	4060	560	1120	65	0,40
1/2	- 08	12,7	19,0	21,9	245	3555	490	980	90	0,48
5/8	- 10	15,9	22,4	25,4	192	2785	384	768	100	0,55
3/4	- 12	19,0	26,2	28,9	157	2280	314	628	120	0,71
1	- 16	25,4	34,0	36,5	140	2030	280	560	150	1,00

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶

如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



2 SNK

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,1	13,4	450	6525	1080	1800	45	0,29
8	5/16	7,9	12,7	15,0	420	6090	1000	1680	60	0,34
10	3/8	9,5	15,1	17,4	385	5585	925	1540	70	0,44
12	1/2	12,7	18,3	20,6	345	5000	830	1380	90	0,54
16	5/8	15,9	21,4	23,7	290	4205	695	1160	130	0,63
19	3/4	19,0	25,4	27,7	280	4060	670	1120	160	0,84
25	1	25,4	33,3	35,6	200	2900	480	800	210	1,14
31	1-1/4	31,8	40,5	43,5	175	2540	420	700	300	1,52

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶

如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



SPC 2

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
10	3/8	9,5	15,5	18,8	425	6165	1020	1700	110	0,50
12	1/2	12,7	19,2	22,0	380	5510	910	1520	130	0,63
16	5/8	15,9	21,6	24,7	350	5075	840	1400	180	0,78
19	3/4	19,0	26,6	29,3	280	4060	670	1120	210	1,00
25	1	25,4	33,8	36,2	230	3335	550	920	240	1,35

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶

如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



SPC 3

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
10	3/8	9,5	17,0	21,4	500	7250	1200	2000	120	0,72
12	1/2	12,7	20,2	24,2	470	6815	1130	1880	160	0,89
16	5/8	15,9	23,8	28,1	410	5945	985	1640	210	1,07
19	3/4	19,0	27,8	31,8	375	5440	900	1500	260	1,32
25	1	25,4	34,9	39,0	310	4500	745	1240	310	1,82

软管结构:

内壁: 耐油合成橡胶

芯材: 三层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶

如需MSHA和SEMPERROCK的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: three high tensile steel wire braids

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA and SEMPERROCK cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)

RIVAFLEX COMPACT HYDRAULIC HOSES



AGROFLEX

标准直径 Nominal ∅	内径 Inside ∅	织丝层直径 Braid ∅	外径 Outside ∅	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight	
mm	inch	mm	mm	bar	psi	bar	bar	mm	kg / m	
6	1/4	6,4	10,5	12,5	210	3045	420	840	45	0,19
8	5/16	7,9	12,0	14,3	210	3045	420	840	50	0,22
10	3/8	9,5	13,9	16,5	210	3045	420	840	60	0,27
12	1/2	12,7	17,6	19,7	210	3045	420	840	85	0,46

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀的耐油合成橡胶

温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber

Temperature range (medium): -40°C to +100°C



PILOT

标准直径 Nominal ∅		内径 Inside ∅	织丝层直径 Braid ∅	外径 Outside ∅	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	9,9	11,7	125	1815	250	500	30	0,17
8	5/16	7,9	11,7	13,5	125	1815	250	500	40	0,19
10	3/8	9,5	13,0	14,6	125	1815	250	500	50	0,25
12	1/2	12,7	16,2	18,0	125	1815	250	500	60	0,31

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐磨、抗臭氧和气候腐蚀合成橡胶,

如需MSHA外壳质量请垂询

温度范围(媒体): -40° C 至 +100° C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA cover on request

Temperature range (medium): -40°C to +100°C

RIVAFLEX HYDRAULIC HOSES FOR HOT OIL APPLICATIONS



DIN EN 853 1 SN EHT

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,1	13,4	225	3265	540	900	100	0,21
8	5/16	7,9	12,7	15,0	215	3120	510	850	115	0,24
10	3/8	9,5	15,1	17,4	180	2610	430	720	125	0,33
12	1/2	12,7	18,3	20,6	160	2320	385	640	180	0,41
16	5/8	15,9	21,4	23,7	130	1885	310	520	200	0,45
19	3/4	19,0	25,4	27,7	105	1525	250	420	240	0,58
25	1	25,4	33,3	35,6	88	1275	210	350	300	0,88
31	1-1/4	31,8	40,5	43,5	63	915	150	250	420	1,23
38	1-1/2	38,1	46,8	50,6	50	725	120	200	500	1,51
51	2	50,8	60,2	64,0	40	580	96	160	630	1,97

软管结构:

内壁: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 耐热、耐磨、防臭氧和气候的合成橡胶,

黑色, 得到MSHA许可。

推荐采用的媒体为: 矿物质油和合成油、乙二醇和

聚乙二醇-水-油-乳剂(至100°C)

温度范围(媒体): -40°C 至 +135°C持续温度, 波峰温

度至150°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: heat, abrasion, ozone and weather resistant synthetic rubber, black, MSHA approved

Recommended fluids: mineral and synthetic oils, glycols and poly-

glycols, aqueous oil emulsions (up to 100°C)

Temperature range (medium): -40°C to +135°C constant

temperature, up to 150°C peak temperatures



DIN EN 853 2 SN EHT

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	12,7	15,0	400	5800	960	1600	100	0,33
8	5/16	7,9	14,3	16,6	350	5075	840	1400	115	0,39
10	3/8	9,5	16,7	19,0	330	4785	790	1320	125	0,50
12	1/2	12,7	19,8	22,2	275	3990	660	1100	180	0,59
16	5/8	15,9	23,0	25,4	250	3625	600	1000	200	0,71
19	3/4	19,0	27,0	29,3	215	3120	515	850	240	0,86
25	1	25,4	34,9	38,1	165	2395	395	650	300	1,28
31	1-1/4	31,8	44,5	48,3	125	1815	300	500	420	2,02
38	1-1/2	38,1	50,8	54,6	90	1305	215	360	500	2,23
51	2	50,8	63,5	67,3	80	1160	190	320	630	2,85

软管结构:

内壁: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 耐热、耐磨、防臭氧和气候的合成橡胶,

黑色, 得到MSHA许可。

推荐采用的媒体为: 矿物质油和合成油、乙二醇和

聚乙二醇-水-油-乳剂(至100°C)

温度范围(媒体): -40°C 至 +135°C持续温度, 波峰温

度至150°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braid

Cover: heat, abrasion, ozone and weather resistant synthetic rubber, black, MSHA approved

Recommended fluids: mineral and synthetic oils, glycols and poly-

glycols, aqueous oil emulsions (up to 100°C)

Temperature range (medium): -40°C to +135°C constant

temperature, up to 150°C peak temperatures

RIVAFLEX MULTISPIRAL HYDRAULIC HOSES



DIN EN 856 4 SP

标准直径 Nominal Ø	内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
mm	inch	mm	mm	bar	psi	bar	mm	kg / m		
10	3/8	9,5	17,5	21,4	445	6455	1070	1780	180	0,78
12	1/2	12,7	20,2	24,6	425	6165	1020	1700	230	0,93
16	5/8	15,9	23,8	28,2	350	5075	840	1400	250	1,17
19	3/4	19,0	28,2	32,2	350	5075	840	1400	300	1,48
25	1	25,4	35,3	39,7	280	4060	670	1120	340	2,02
31	1-1/4	31,8	46,0	50,8	210	3045	500	840	460	3,05
38	1-1/2	38,1	52,4	57,2	185	2685	445	740	560	3,52
51	2	50,8	65,3	69,8	165	2395	395	660	660	5,20

软管结构:

内壁: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERRock cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



DIN EN 856 4 SH

标准直径 Nominal Ø	内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
mm	inch	mm	mm	bar	psi	bar	bar	mm	kg / m	
19	3/4	19,0	28,4	32,2	420	6090	1000	1680	280	1,53
25	1	25,4	35,2	38,7	380	5510	910	1520	340	2,06
31	1-1/4	31,8	41,9	45,5	345	5000	830	1380	460	2,46
38	1-1/2	38,1	48,8	53,5	290	4205	695	1160	560	3,35
51	2	50,8	63,2	68,1	250	3625	600	1000	700	4,55

软管结构:

内壁: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +100°C (最高可达+120°C)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERRock cover on request

Temperature range (medium): -40°C to +100°C (+120°C max.)



FLEXLINE 4000

标准直径 Nominal Ø	内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
mm	inch	mm	mm	bar	psi	bar	bar	mm	kg / m	
10	3/8	9,5	17,2	20,3	280	4060	560	1120	65	0,70
12	1/2	12,7	20,7	23,8	280	4060	560	1120	90	0,84
16	5/8	15,9	24,6	27,4	280	4060	560	1120	100	1,10
19	3/4	19,0	27,7	30,7	280	4060	560	1120	120	1,33
25	1	25,4	34,9	38,0	280	4060	560	1120	155	1,85

可减少弯曲半径的高灵活性四层螺旋缠绕型软管

软管结构:

内壁: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +121°C

温度范围(媒体): -40°C 至 +121°C

High flexible multispiral hose with reduced bend radius.

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERRock cover on request

Temperature range (medium): -40°C to +121°C



DIN EN 856 / SAE 100 R 12

标准直径 Nominal Ø	内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
mm	inch	mm	mm	bar	psi	bar	mm	kg / m		
10	3/8	9,5	17,2	20,3	280	4060	560	1120	125	0,70
12	1/2	12,7	20,7	23,8	280	4060	560	1120	180	0,84
16	5/8	15,9	24,6	27,4	280	4060	560	1120	200	1,10
19	3/4	19,0	27,7	30,7	280	4060	560	1120	240	1,33
25	1	25,4	34,9	38,0	280	4060	560	1120	300	1,85
31	1-1/4	31,8	43,9	47,0	210	3045	420	840	420	2,65
38	1-1/2	38,1	50,4	53,5	175	2540	350	700	500	3,20
51	2	50,8	63,7	66,7	175	2540	350	700	630	4,50

软管结构:

内壁: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERRock的外壳质量请垂询

温度范围(媒体): -40°C 至 +121°C

温度范围(媒体): -40°C 至 +121°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERRock cover on request

Temperature range (medium): -40°C to +121°C

RIVAFLEX MULTISPIRAL HYDRAULIC HOSES


DIN EN 856 / SAE 100 R 13

标准直径 Nominal Ø		内径 Inside Ø	螺旋缠绕层直径 Wire Ø	螺旋缠绕层数 Spiral layers	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm		mm	bar	psi	bar	bar	mm	kg / m
19	3/4	19,0	29,2	4	32,0	350	5075	700	1400	240	1,65
25	1	25,4	35,9	4	39,2	350	5075	700	1400	300	2,25
31	1-1/4	31,8	46,8	6	49,8	350	5075	700	1400	420	3,60
38	1-1/2	38,1	54,0	6	57,3	350	5075	700	1400	500	4,75
51	2	50,8	68,4	6	71,9	350	5075	700	1400	630	6,90

软管结构:
内壁: 耐油合成橡胶

芯材: 四层/六层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询
 温度范围(媒体): -40°C 至 +121°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four/six high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERROCK cover on request

Temperature range (medium): -40°C to +121°C


SAE 100 R 15

标准直径 Nominal ∅	内径 Inside ∅	螺旋缠绕层直径 Wire ∅	螺旋缠绕层数 Spiral layers	最大外径 max. Outside ∅	工作压力 Working pressure	检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight		
mm	inch	mm	mm	mm	bar	psi	bar	mm	kg / m		
19	3/4	19,0	32,9	4	36,1	420	6090	840	1680	265	1,50
25	1	25,4	38,9	4	42,9	420	6090	840	1680	330	2,10
31	1-1/4	31,8	48,4	6	51,5	420	6090	840	1680	445	3,60
38	1-1/2	38,1	56,3	6	59,6	420	6090	840	1680	530	5,10

软管结构:
内壁: 耐油合成橡胶

芯材: 四层/六层高强度钢丝螺旋缠绕层

外壳: 耐磨、抗臭氧和气候腐蚀的合成橡胶, 如需MSHA和SEMPERROCK的外壳质量请垂询
 温度范围(媒体): -40°C 至 +121°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four/six high tensile steel wire spiral layers

Cover: abrasion, ozone and weather resistant synthetic rubber, MSHA approved, SEMPERROCK cover on request

Temperature range (medium): -40°C to +121°C

SUCTION HOSES


SAE 100 R 4

标准直径 Nominal ∅	内径 Inside ∅	织丝层直径 Braid ∅	外径 Outside ∅	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	bar	psi	bar	bar	mm	kg / m
19	3/4	19,0	29,0	21	300	41	84	95	0,70
25	1	25,4	35,4	17	250	34	68	125	0,80
31	1 1/4	31,8	41,8	14	200	28	56	160	1,00
38	1 1/2	38,1	49,0	10	140	21	40	200	1,20
51	2	51,0	62,0	7	100	14	28	255	1,50
63	2 1/2	63,5	76,5	4	62	9	17	315	2,20
76	3	76,2	89,2	4	56	8	15	380	2,60
89	3 1/2	89,0	102,0	3	45	6	12	400	3,10
102	4	102,0	116,0	2	35	5	10	510	3,50

软管结构:
内壁: 耐油合成橡胶

芯材: 纺织丝层直径衬垫, 镀锌钢丝螺旋层

外壳: 耐磨、抗臭氧腐蚀、有条件耐油合成橡胶
 温度范围(媒体): -40°C 至 +100°C

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: Textile layers, zinc plated steel wire helix

Cover: abrasion, ozone and limited oil resistant synthetic rubber

Temperature range (medium): -40°C to +100°C

RIVAFLEX HIGH ABRASION RESISTANT HYDRAULIC HOSES



1 SSK

标准直径 Nominal Ø	内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight	
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	10,0	11,8	290	4205	700	1160	40	0,18
8	5/16	7,9	11,6	13,6	250	3625	600	1000	55	0,22
10	3/8	9,5	13,7	16,5	230	3335	550	920	65	0,29
12	1/2	12,7	16,9	19,0	200	2900	480	800	80	0,35
16	5/8	15,9	20,5	22,3	150	2175	360	600	105	0,43
19	3/4	19,0	24,0	26,2	125	1815	300	500	120	0,57
25	1	25,4	31,3	34,0	110	1595	265	440	160	0,82

软管结构:

内径: 耐油合成橡胶

芯材: 单层高强度钢丝编织层

外壳: 双层结构橡胶, 带有UHMPE膜, 获得MSHA许可
温度范围: -40°C 至+100°C, 波峰值可达+120°C (媒体温度)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: one high tensile steel wire braid

Cover: double layer construction - rubber cover with UHMW foil, MSHA approved

Temperature range: -40°C to +100°C, peak temp. 120°C (temp. of the medium)



SSC

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,2	14,2	400	5800	960	1600	75	0,28
8	5/16	7,9	12,7	16,0	375	5440	900	1500	85	0,33
10	3/8	9,5	15,0	18,3	350	5075	840	1400	90	0,42
12	1/2	12,7	18,3	21,5	300	4350	720	1200	130	0,52
16	5/8	15,9	21,4	24,7	275	3990	660	1100	170	0,61
19	3/4	19,0	25,5	28,6	235	3410	565	940	200	0,79
25	1	25,4	33,4	36,6	185	2685	445	740	250	1,10

软管结构:

内径: 耐油合成橡胶

芯材: 两层高强度钢丝编织层

外壳: 双层结构橡胶, 带有UHMPE膜, 获得MSHA许可
温度范围: -40°C 至+100°C, 波峰值可达+120°C (媒体温度)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: double layer construction - rubber cover with UHMW foil, MSHA approved

Temperature range: -40°C to +100°C, peak temp. 120°C (temp. of the medium)



SSP

标准直径 Nominal Ø		内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
10	3/8	9,5	17,5	21,4	445	6455	1070	1780	180	0,78
12	1/2	12,7	20,2	24,6	425	6165	1020	1700	230	0,93
16	5/8	15,9	23,8	28,2	350	5075	840	1400	250	1,17
19	3/4	19,0	28,2	32,2	350	5075	840	1400	300	1,48
25	1	25,4	35,3	39,7	280	4060	670	1120	340	2,02

软管结构:

内径: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 双层结构橡胶, 带有UHMPE膜, 获得MSHA许可
温度范围: -40°C 至+100°C, 波峰值可达+120°C (媒体温度)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four plies of high tensile steel wire

Cover: double layer construction - rubber cover with UHMW foil, MSHA approved

Temperature range: -40°C to +100°C, peak temp. 120°C (temp. of the medium)



SSH

标准直径 Nominal Ø	内径 Inside Ø	螺旋缠绕层直径 Wire Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight	
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
19	3/4	19,0	28,4	32,2	420	6090	1000	1680	280	1,53
25	1	25,4	35,2	38,7	380	5510	910	1520	340	2,06
31	1-1/4	31,8	41,9	45,5	345	5000	830	1380	460	2,46
38	1-1/2	38,1	48,8	53,5	290	4205	695	1160	560	3,35
51	2	50,8	63,2	68,1	250	3625	600	1000	700	4,55

软管结构:

内径: 耐油合成橡胶

芯材: 四层高强度钢丝螺旋缠绕层

外壳: 双层结构橡胶, 带有UHMPE膜, 获得MSHA许可
温度范围: -40°C 至+100°C, 波峰值可达+120°C (媒体温度)

HOSE CONSTRUCTION:

Tube: oil resistant synthetic rubber

Reinforcement: four plies of high tensile steel wire

Cover: double layer construction - rubber cover with UHMW foil, MSHA approved

Temperature range: -40°C to +100°C, peak temp. 120°C (temp. of the medium)

1-WIRE PRESSURE WASHER HOSES

外壳类型

标准形式的外壳为卷绕式(黑色和蓝色)。我们也提供高耐磨的外壳，为Semperjet软管提供带UHMPE膜的外壳(最小订货量为 3000 m)。我们还可以提供其它形式的外壳，需要具备一定的订货量(最小订货量为5000 m)。一般情况下，标准的软管外壳是未经针刺处理的，如有需求我们也可以提供外壳经针刺处理的软管(最小订货量为3000 m)。

颜色

标准为黑色和蓝色，如果需要灰色或其它颜色欢迎垂询。

提供长度

- 10 m 的倍数或根据技术要求，欢迎询价
- 固定长度，切割好，绕成卷，可以直接压合
(可根据客户技术要求定制，欢迎询价)

COVER

Wrapped cover as standard (black and blue). We can also supply high abrasion resistant covers (UHMPE foil) for Semperjet (minimum order 3000-m). Other specifications on request (minimum order 5000-m). Our standard cover is without pin pricking. Pricked cover is possible on request (minimum order 3000-m).

COLOURS

Black and blue as standard, grey and others on request.

LENGTHS

- Multiples of 10 m or according to specification – price on request
- Fixed lengths, cut and coiled, ready for crimp
(customer specification possible – price on request)

1-WIRE SN CONSTRUCTIONS


1 SN

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,1	13,4	250	3120	540	900	100	0,21
8	5/16	7,9	12,7	15,0	220	3120	510	850	115	0,24
10	3/8	9,5	15,1	17,4	220	3120	430	720	125	0,33
12	1/2	12,7	18,3	20,6	220	3120	385	640	180	0,41

1-WIRE COMPACT CONSTRUCTIONS


COMPACT

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	9,8	11,2	150	2100	300	600	40	0,15
6	1/4	6,4	9,8	11,5	210	3000	420	840	35	0,16
6	1/4	6,4	10,0	11,7	250	3625	500	1000	35	0,18
8	5/16	7,9	11,8	13,5	250	3625	500	1000	65	0,21
8	5/16	7,9	12,0	13,5	315	4570	630	1260	65	0,30
10	3/8	9,5	13,6	16,0	250	3625	500	950	75	0,28
10	3/8	9,5	13,8	16,4	280	4000	560	1100	90	0,31
12	1/2	12,7	17	19,0	250	3625	500	840	100	0,33

2-WIRE PRESSURE WASHER HOSES

外壳类型

标准形式的外壳为卷绕式(黑色和蓝色)。我们也提供高耐磨的外壳, 为Semperjet软管提供带UHMPE膜的外壳(最小订货量为3000 m)。我们还可以提供其它形式的外壳, 需要具备一定的订货量(最小订货量为5000 m)。一般情况下, 标准的软管外壳是未经针刺处理的, 如有需求我们也可以提供外壳经针刺处理的软管(最小订货量为3000 m)。

颜色

标准为黑色和蓝色, 如果需要灰色或其它颜色欢迎垂询。

提供长度

-10 m 的倍数或根据技术要求, 欢迎询价
-固定长度, 切割好, 绕成卷, 可以直接压合(可根据客户技术要求定制, 欢迎询价)

COVER

Wrapped cover as standard (black and blue). We can also supply high abrasion resistant covers (UHMPE foil) for Semperjet (minimum order 3000-m).

Other specifications on request (minimum order 5000-m).

Our standard cover is without pin pricking. Pricked cover is possible on request (minimum order 3000-m).

COLOURS

Black and blue as standard, grey and others on request.

LENGTHS

- Multiples of 10 m or according to specification – price on request

- Fixed lengths, cut and coiled, ready for crimp

(customer specification possible – price on request)

2-WIRE SN CONSTRUCTIONS


2 SN

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	12,7	15,0	400	5800	960	1600	100	0,33
8	5/16	7,9	14,3	16,6	400	5800	840	1400	115	0,39
10	3/8	9,5	16,7	19,0	400	5800	790	1320	125	0,50
12	1/2	12,7	19,8	22,2	400	5800	660	1100	180	0,59

2-WIRE COMPACT CONSTRUCTIONS


2 SC 400 BAR

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,2	13,2	400	5800	960	1600	75	0,28
8	5/16	7,9	12,5	14,5	400	5800	840	1400	85	0,33
10	3/8	9,5	14,8	16,8	400	5800	790	1320	90	0,42
12	1/2	12,7	18,0	20,0	400	5800	660	1100	130	0,52


LONGLIFE 500 BAR

标准直径 Nominal Ø		内径 Inside Ø	织丝层直径 Braid Ø	外径 Outside Ø	工作压力 Working pressure		检测压力 Test pressure	爆裂压力 Burst pressure	弯曲半径 Bend radius	重量 Weight
mm	inch	mm	mm	mm	bar	psi	bar	bar	mm	kg / m
6	1/4	6,4	11,2	13,2	500	7250	960	1600	75	0,28
8	5/16	7,9	12,5	14,5	500	7250	960	1600	60	0,34
10	3/8	9,5	15,0	17,0	500	7250	925	1540	70	0,44
12	1/2	12,7	18,3	20,3	500	7250	830	1380	90	0,54



TABLE OF CONTENTS

FERRULE

SS1	FERRULE FOR 1 WIRE SKIVE HOSE	
SS2	FERRULE FOR 2 WIRES SKIVE HOSE	
S737	FERRULE FOR THERMOPLASTIC HOSE	1
SN1	FERRULE FOR 1 WIRE NON-SKIVE HOSE	
SN2	FERRULE FOR 2 WIRES NON-SKIVE HOSE	
SN3	FERRULE FOR 1/2 WIRES NON-SKIVE HOSE	2
MS	FERRULE FOR SAE 100 R12/4SP HOSE	
MS-J	FERRULE FOR SAE 100 R12/4SP HOSE	
ST	FERRULE FOR TEFLON HOSE	3

BSP

S01	BSP FEMALE STRAIGHT 60° CONE	
S02	BSP FEMALE FLAT SEAT	4
S12	BSP MALE PARALLEL 60° CONE	
S15	BSPT MALE 60° CONE	5
S16	NPT MALE	
S26	BSP FEMALE INVERTED	6
S526	90° BSP FEMALE INVERTED ELBOW	
S626	45° BSP FEMALE INVERTED ELBOW	7
S51	90° BSP FEMALE SWEPT ELBOW 60° CONE	
S60	45° BSP FEMALE ELBOW 60° CONE	8
S312	NIKKO MALE INSERT	9

JIC

S05	JIC FEMALE STRAIGHT 74° CONE	
S18	JIC MALE 74° CONE	10
S19	JIC MALE BULKHEAD 74° CONE	
S20	UNF O'RING BOSS MALE	11
S55	90° JIC FEMALE SWEPT ELBOW 74° CONE	
S64	45° JIC FEMALE SWEPT ELBOW 74° CONE	12

FLANGE

S23	SAE STRAIGHT FLANGE 3000 PSI / CODE 61	
S623	SAE STRAIGHT FLANGE 6000 PSI / CODE 62	13
S923	SAE STRAIGHT CATERPILLAR FLANGE	
S59	90° SAE FLANGE 3000 PSI / CODE 61	14
S59L	90° SAE FLANGE 3000 PSI / CODE 61	15
S659	90° SAE FLANGE 6000 PSI / CODE 62	
S959	90° SAE CATERPILLAR FLANGE	16
S62	22.5° SAE FLANGE 3000 PSI / CODE 61	
S662	22.5° SAE FLANGE 6000 PSI / CODE 62	17
S962	22.5° SAE CATERPILLAR FLANGE	
S63	30° SAE FLANGE 3000 PSI / CODE 61	18
S663	30° SAE FLANGE 6000 PSI / CODE 62	
S963	30° SAE CATERPILLAR FLANGE	19
S66	60° SAE FLANGE 3000 PSI / CODE 61	
S666	60° SAE FLANGE 6000 PSI / CODE 62	20
S966	60° SAE CATERPILLAR FLANGE	
S67	67.5° SAE FLANGE 3000 PSI / CODE 61	21

TABLE OF CONTENTS

S667	67.5° SAE FLANGE 6000 PSI / CODE 62	
S967	67.5° SAE CATERPILLAR FLANGE	22
S68	45° SAE FLANGE 3000 PSI / CODE 61	
S668	45° SAE FLANGE 6000 PSI / CODE 62	23
S968	45° SAE CATERPILLAR FLANGE	24
SF3	SAE SPLIT FLANGE CLAMPS 3000 PSI / CODE 61	
SF6	SAE SPLIT FLANGE CLAMPS 6000 PSI / CODE 62	25

METRIC

S801	METRIC FEMALE STRAIGHT 60° CONE	
S802	METRIC FEMALE STRAIGHT FLAT SEAT	26
S803	METRIC FEMALE STRAIGHT O'RING LIGHT DUTY 24° CONE (DKO-L)	
S804	METRIC FEMALE STRAIGHT O'RING HEAVY DUTY 24° CONE (DKO-S)	27
S805	METRIC FEMALE STRAIGHT O'RING FRENCH TYPE 24° CONE	
S810	METRIC MALE STRAIGHT FLAT SEAT TYPE	28
S811	METRIC MALE STRAIGHT 60° CONE	
S813	METRIC MALE STRAIGHT 24° CONE (DKO-L)	29
S814	METRIC MALE STRAIGHT 24° CONE HEAVY DUTY (DKO-S)	
S815	METRIC MALE STRAIGHT 24° CONE FRENCH TYPE	30
S818	METRIC MALE STRAIGHT 90° CONE	
S819	METRIC MALE STRAIGHT BULKHEAD	31
S851	90° METRIC FEMALE SWEPT ELBOW 60° CONE	
S853	90° METRIC FEMALE O'RING SWEPT ELBOW 24° CONE (DKO-L)	32
S854	90° METRIC FEMALE O'RING SWEPT ELBOW HEAVY DUTY 24° CONE (DKO-S)	
S855	90° METRIC FEMALE O'RING SWEPT ELBOW FRENCH TYPE 24° CONE	33
S861	45° METRIC FEMALE SWEPT ELBOW 60° CONE	
S863	45° METRIC FEMALE O'RING SWEPT ELBOW 24° CONE (DKO-L)	34
S864	45° METRIC FEMALE O'RING SWEPT ELBOW HEAVY DUTY 24° CONE (DKO-S)	
S865	45° METRIC FEMALE O'RING SWEPT ELBOW FRENCH TYPE 24° CONE	35
S870	JAPANESE METRIC FEMALE STRAIGHT 60° CONE	
S875	90° JAPANESE METRIC FEMALE SWEPT ELBOW 60° CONE	36
S876	45° JAPANESE METRIC FEMALE SWEPT ELBOW 60° CONE	
S880	METRIC MALE WITH O'RING GROOVE	37

ORFS

S702	ORFS FEMALE	
S712	ORFS MALE	38
S752	90° ORFS FEMALE	
S672	45° ORFS MALE	39

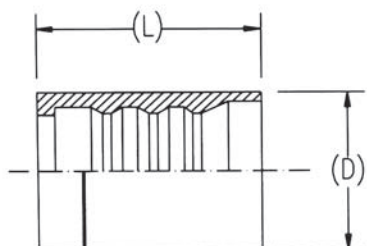
OTHERS

S03	SAE FEMALE STRAIGHT 90° CONE	
S09	SAE FLARE MALE 90° CONE	40
S53	90° SAE FEMALE SWEPT ELBOW 90° CONE	
S27	TOYOTA FORKLIFT	41
S96	LIFE SAVER	
S893	METRIC STANDPIPE STRAIGHT	42

RIVAFLEX SWAGED FITTINGS

FERRULE FOR 1 WIRE SKIVE HOSE

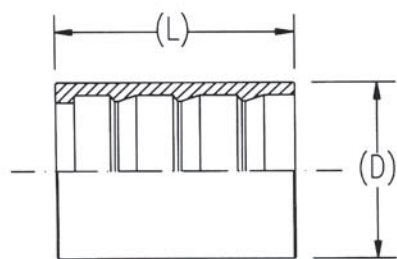
SS1



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	04	17.5	29			
06	06	24	31			
08	08	26	34			
10	10	30	37.2			
12	12	38	52			
16	16	41	50			
20	20	54	62			
24	24	61	70			

FERRULE FOR 2 WIRES SKIVE HOSE

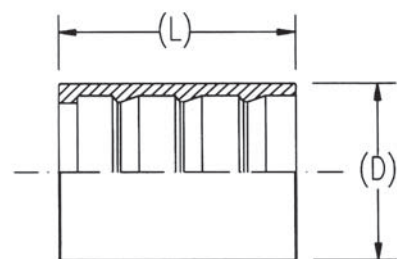
SS2



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	19	29			
06	3/8	24	31			
08	1/2	28.4	34			
10	5/8	32	37			
12	3/4	36	43			
16	1	44	52			
20	1 1/4	56	62			
24	1 1/2	62	70			
32	2	75	80			

FERRULE FOR THERMOPLASTIC HOSE

S737

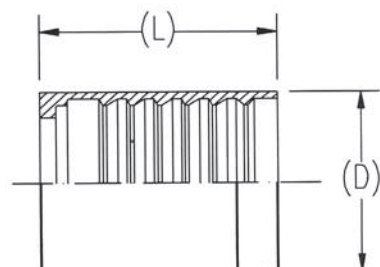


Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	17	29			
06	3/8	21	31			
08	1/2	26	34			
10	5/8	28.5	36			
12	3/4	34.5	40			
16	1	40	50			
20	1 1/4	48	57			

RIVAFLEX SWAGED FITTINGS

FERRULE FOR 1 WIRE NON-SKIVE HOSE

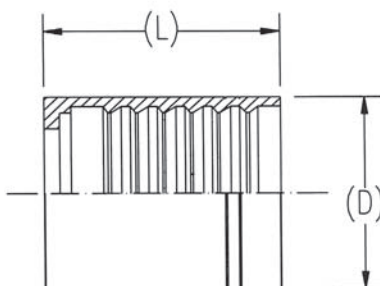
SN1



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	19	29			
05	5/16	22	30			
06	3/8	24	31			
08	1/2	26	34			
10	5/8	30	37			
12	3/4	35	43			
16	1	43	52			
20	1 1/4	54	62			
24	1 1/2	62	70			
32	2	75	80			

FERRULE FOR 2 WIRES NON-SKIVE HOSE

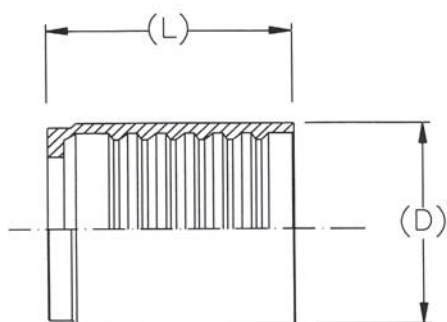
SN2



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	21	29			
05	5/16	23	31			
06	3/8	26	31			
08	1/2	28.5	34			
10	5/8	32	37			
12	3/4	36	43			
16	1	46	52			
20	1 1/4	57	62			
24	1 1/2	64	70			
32	2	78	80			

FERRULE FOR 1/2 WIRES NON-SKIVE HOSE

SN3

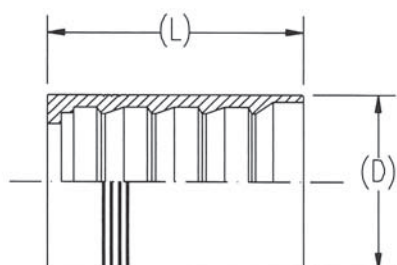


Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	22	29			
06	3/8	26	31			
08	1/2	28.5	34			
10	5/8	32	37			
12	3/4	36	43			
16	1	46	52			
20	1 1/4	57	60			
24	1 1/2	64	70			
32	2	78	80			

RIVAFLEX SWAGED FITTINGS

FERRULE FOR SAE 100 R12/4SP HOSE

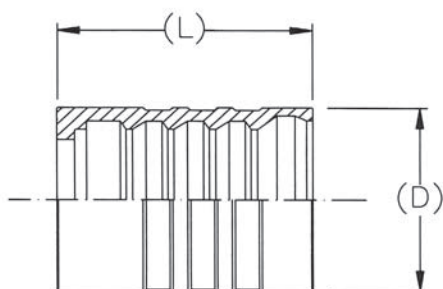
MS



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	21	32			
06	3/8	26	34			
08	1/2	30	38			
10	5/8	34	43			
12	3/4	38	53			
16	1	46	63.5			
20	1 1/4	56	73			
24	1 1/2	64	80			
32	2	80	94			

FERRULE FOR SAE 100 R12/4SP HOSE

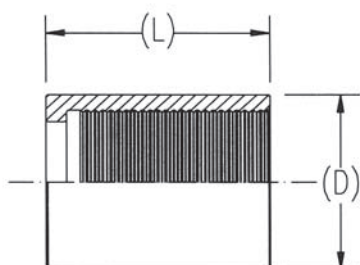
MS-J



Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
06	3/8	26	34			
08	1/2	30	38			
10	5/8	34	43			
12	3/4	38	43			
16	1	46	59			
20	1 1/4	56	63			
24	1 1/2	64	73			
32	2	80	83			

FERRULE FOR TEFLON HOSE

ST

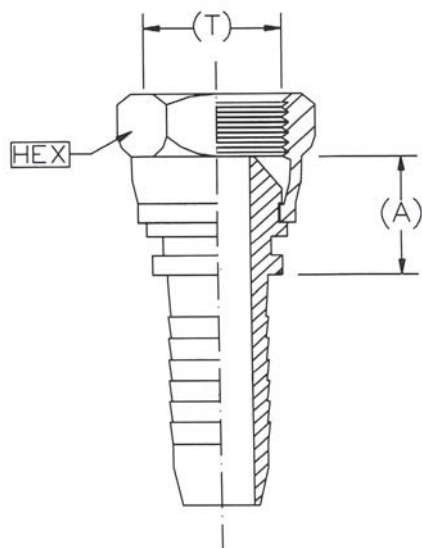


Part Ref. Size	Hose (inch.)	Dimensions (mm)				
		D	L			
04	1/4	12.7	22			
05	5/16	14	24			
06	3/8	15.9	25			
08	1/2	19	26			
10	5/8	23	27			
12	3/4	26	30			
16	1	34	35			

RIVAFLEX SWAGED FITTINGS

BSP FEMALE STRAIGHT 60° CONE

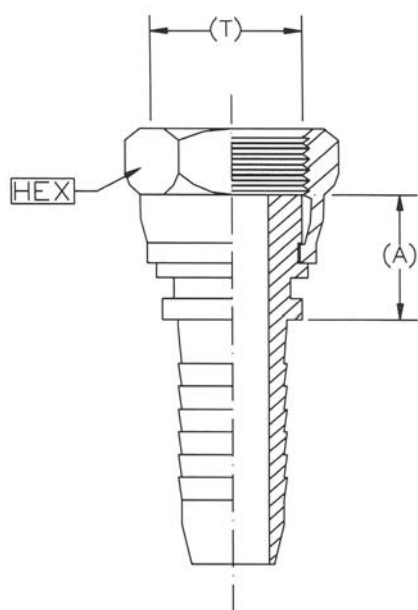
S01



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX 1	HEX 2
- 02 - 04	1/4	1/8 - 28	21		14	
- 04 - 04	1/4	1/4 - 19	21		19	
- 04 - 05	5/16	1/4 - 19	21		19	
- 04 - 06	3/8	1/4 - 19	22		19	
- 06 - 04	1/4	3/8 - 19	25		22	
- 06 - 05	5/16	3/8 - 19	25		22	
- 06 - 06	3/8	3/8 - 19	23		22	
- 06 - 08	1/2	3/8 - 19	23		22	
- 08 - 06	3/8	1/2 - 14	23		27	
- 08 - 08	1/2	1/2 - 14	24		27	
- 10 - 08	1/2	5/8 - 14	25		30	
- 10 - 10	5/8	5/8 - 14	25		30	
- 12 - 08	1/2	3/4 - 14	28		32	
- 12 - 10	5/8	3/4 - 14	26		32	
- 12 - 12	3/4	3/4 - 14	27		32	
- 12 - 12HD	3/4	3/4 - 14	36		35	27
- 12 - 12HDD	3/4	3/4 - 14	36		35	
- 16 - 12	3/4	1 - 11	30		38	
- 16 - 16	1	1 - 11	30		41	
- 16 - 16HD	1	1 - 11	38		41	36
- 16 - 16DD	1	1 - 11	38		41	
- 20 - 16	1	1 1/4 - 11	33		50	
- 20 - 20	1 1/4	1 1/4 - 11	31		50	
- 24 - 20	1 1/4	1 1/2 - 11	34		56	
- 24 - 24	1 1/2	1 1/2 - 11	34		56	
- 32 - 32	2	2 - 11	40		70	

BSP FEMALE FLAT SEAT

S02

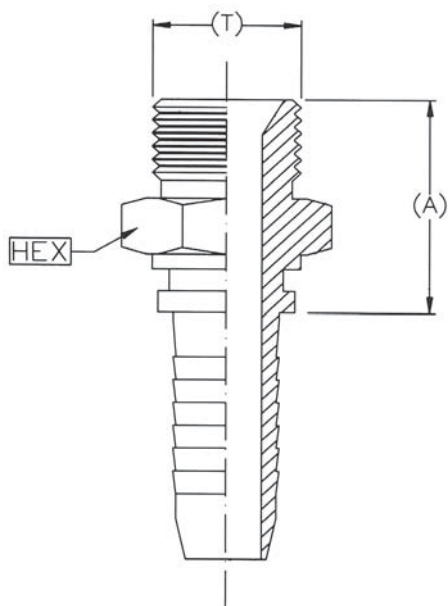


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	1/4 - 19	15		19	
- 06 - 04	1/4	3/8 - 19	18		22	
- 06 - 06	3/8	3/8 - 19	16		22	
- 08 - 06	3/8	1/2 - 14	21		27	
- 08 - 08	1/2	1/2 - 14	21		27	
- 12 - 10	5/8	3/4 - 14	23		32	
- 12 - 12	3/4	3/4 - 14	24		32	
- 16 - 16	1	1 - 11	25		41	
- 20 - 20	1 1/4	1 1/4 - 11	27		50	

RIVAFLEX SWAGED FITTINGS

BSP MALE PARALLEL 60° CONE

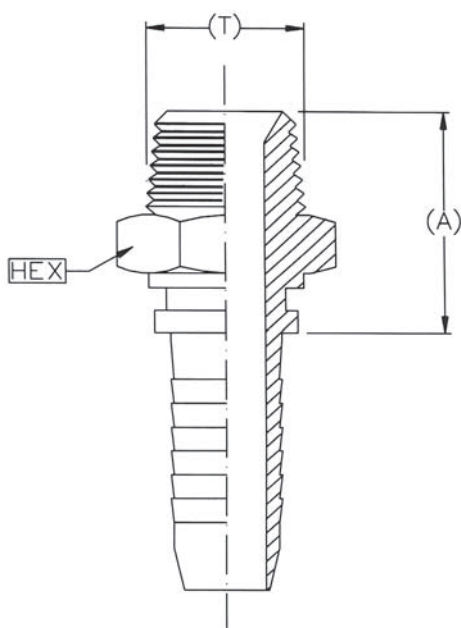
S12



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	1/4 - 19	29		14	
- 04 - 05	5/16	1/4 - 19	29		14	
- 06 - 04	1/4	3/8 - 19	32		17	
- 06 - 05	5/16	3/8 - 19	33		17	
- 06 - 06	3/8	3/8 - 19	33		17	
- 08 - 06	3/8	1/2 - 14	35		27	
- 08 - 08	1/2	1/2 - 14	36		27	
- 10 - 08	1/2	5/8 - 14	38		30	
- 10 - 10	5/8	5/8 - 14	38		30	
- 12 - 08	1/2	3/4 - 14	39		32	
- 12 - 10	5/8	3/4 - 14	39		32	
- 12 - 12	3/4	3/4 - 14	40		32	
- 16 - 16	1	1 - 11	43		41	
- 20 - 20	1 1/4	1 1/4 - 11	47		50	
- 24 - 24	1 1/2	1 1/2 - 11	49		55	
- 16 - 16	1	1 - 11	27		41	
- 20 - 16	1	1 1/4 - 11	33		50	
- 24 - 20	1 1/4	1 1/2 - 11	34		55	
- 32 - 32	2	2 - 11	50		70	

BSPT MALE 60° CONE

S15

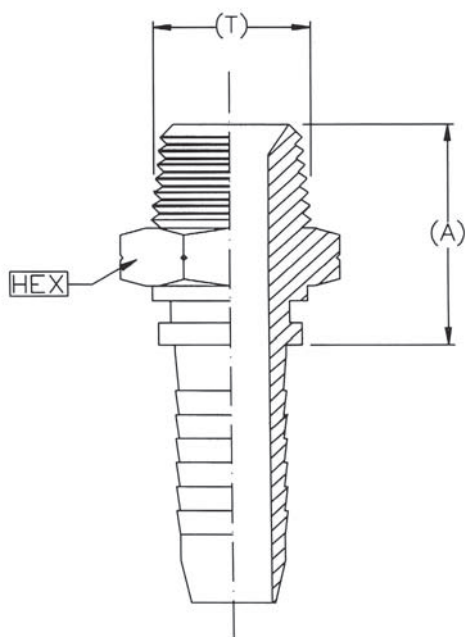


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 02 - 04	1/4	1/8 - 28	23		13	
- 04 - 04	1/4	1/4 - 19	31		14	
- 04 - 06	3/8	1/4 - 19	31		14	
- 06 - 04	1/4	3/8 - 19	33		17	
- 06 - 06	3/8	3/8 - 19	33		17	
- 06 - 08	1/2	3/8 - 19	31		17	
- 08 - 06	3/8	1/2 - 14	37		22	
- 08 - 08	1/2	1/2 - 14	37		22	
- 10 - 08	1/2	5/8 - 14	39		24	
- 10 - 10	5/8	5/8 - 14	39		24	
- 12 - 10	5/8	3/4 - 14	39		27	
- 12 - 12	3/4	3/4 - 14	40		27	
- 16 - 12	3/4	1 - 11	46		36	
- 16 - 16	1	1 - 11	46		36	
- 20 - 16	1	1 1/4 - 11	48		46	
- 20 - 20	1 1/4	1 1/4 - 11	48		46	
- 24 - 20	1 1/4	1 1/2 - 11	49		50	
- 24 - 24	1 1/2	1 1/2 - 11	49		50	
- 32 - 32	2	2 - 11	55		65	

RIVAFLEX SWAGED FITTINGS

NPT MALE

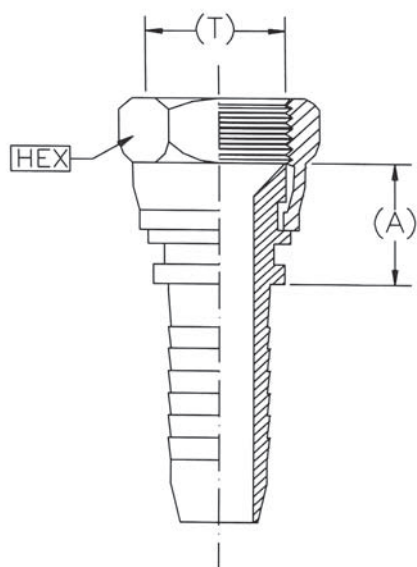
S16



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 02 - 04	1/4	1/8 - 27	23		13	
- 04 - 04	1/4	1/4 - 18	31		17	
- 04 - 06	3/8	1/4 - 18	31		17	
- 06 - 04	1/4	3/8 - 18	33		19	
- 06 - 06	3/8	3/8 - 18	33		19	
- 06 - 08	1/2	3/8 - 18	31		19	
- 08 - 06	3/8	1/2 - 14	37		22	
- 08 - 08	1/2	1/2 - 14	37		22	
- 10 - 08	1/2	5/8 - 14	39		24	
- 10 - 10	5/8	5/8 - 14	39		24	
- 12 - 10	5/8	3/4 - 14	39		27	
- 12 - 12	3/4	3/4 - 14	40		27	
- 16 - 12	3/4	1 - 11.5	46		36	
- 16 - 16	1	1 - 11.5	46		36	
- 20 - 16	1	1 1/4 - 11.5	48		46	
- 20 - 20	1 1/4	1 1/4 - 11.5	48		46	
- 24 - 20	1 1/4	1 1/2 - 11.5	49		50	
- 24 - 24	1 1/2	1 1/2 - 11.5	49		50	
- 32 - 32	2	2 - 11.5	55		65	

BSP FEMALE INVERTED

S26

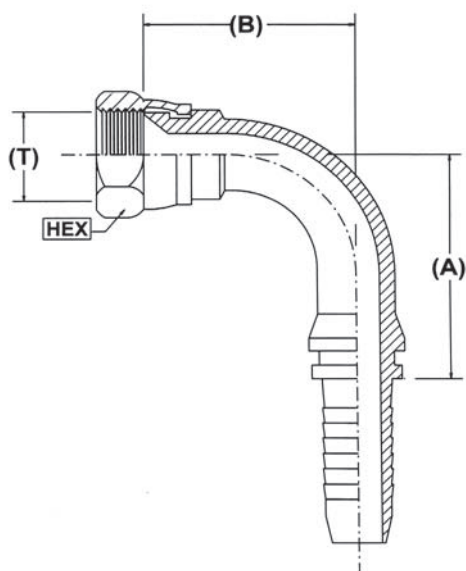


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX 1	HEX 2
- 02 - 04	1/4	1/8 - 28	18		14	
- 04 - 04	1/4	1/4 - 19	18		19	
- 04 - 06	3/8	1/4 - 19	18		19	
- 06 - 04	1/4	3/8 - 19	19		22	
- 06 - 06	3/8	3/8 - 19	19		22	
- 06 - 08	1/2	3/8 - 19	19		22	
- 08 - 06	3/8	1/2 - 14	20		27	
- 08 - 08	1/2	1/2 - 14	20		27	
- 10 - 10	5/8	5/8 - 14	22		30	
- 12 - 08	1/2	3/4 - 14	22		32	
- 12 - 10	5/8	3/4 - 14	23		32	
- 12 - 12	3/4	3/4 - 14	24		32	
- 12 - 12HD	3/4	3/4 - 14	33		32	32
- 16 - 12	3/4	1 - 11	24		41	
- 16 - 16	1	1 - 11	24		41	
- 16 - 16HD	1	1 - 11	35		41	41
- 20 - 20	1 1/4	1 1/4 - 11	27		50	
- 24 - 24	1 1/2	1 1/2 - 11	28		55	
- 32 - 32	2	2 - 11	31		70	

RIVAFLEX SWAGED FITTINGS

90° BSP FEMALE SWEPT ELBOW 60° CONE

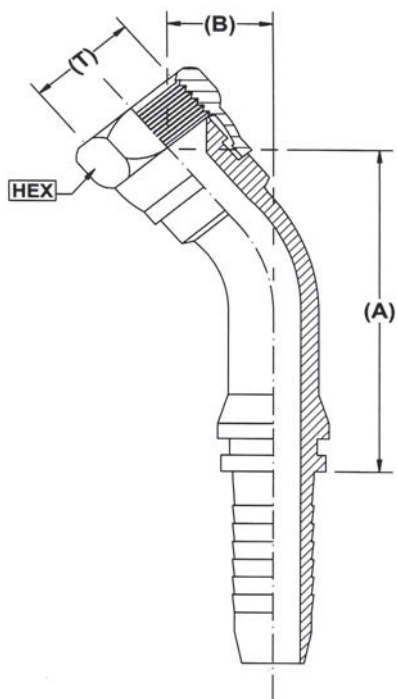
S51



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 02 - 04	1/4	1/8 - 28	32	29	14	
- 04 - 04	1/4	1/4 - 19	32	29	19	
- 04 - 05	5/16	1/4 - 19	33	29	19	
- 06 - 04	1/4	3/8 - 19	32	31	22	
- 06 - 05	5/16	3/8 - 19	33	37	22	
- 06 - 06	3/8	3/8 - 19	35	36	22	
- 08 - 06	3/8	1/2 - 14	35	38	27	
- 08 - 08	1/2	1/2 - 14	45	40	27	
- 10 - 08	1/2	5/8 - 14	45	40	30	
- 10 - 10	5/8	5/8 - 14	54	52	30	
- 12 - 10	5/8	3/4 - 14	54	52	32	
- 12 - 12	3/4	3/4 - 14	65	57	32	
- 16 - 12	3/4	1 - 11	65	57	38	
- 16 - 16	1	1 - 11	75	68	41	
- 20 - 16	1	1 1/4 - 11	75	68	50	
- 20 - 20	1 1/4	1 1/4 - 11	100	88	50	
- 24 - 20	1 1/4	1 1/2 - 11	100	88	60	
- 24 - 24	1 1/2	1 1/2 - 11	114	98	55	
- 32 - 32	2	2 - 12	132	124	70	

45° BSP FEMALE ELBOW 60° CONE

S60

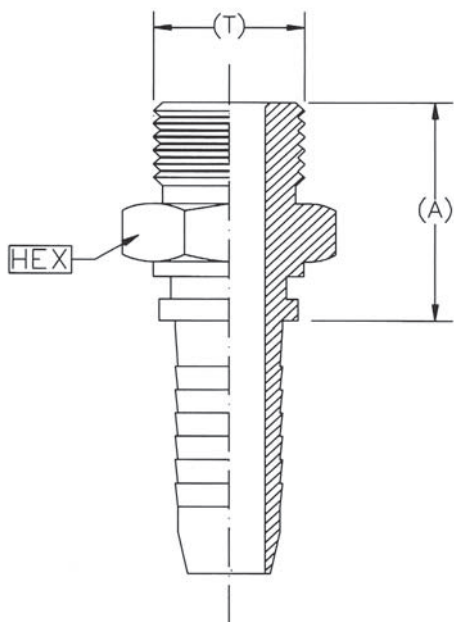


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 02 - 04	1/4	1/8 - 28	38	18	14	
- 04 - 04	1/4	1/4 - 19	38	18	19	
- 04 - 05	5/16	1/4 - 19	38	18	19	
- 06 - 04	1/4	3/8 - 19	39	20	22	
- 06 - 05	5/16	3/8 - 19	39	20	22	
- 06 - 06	3/8	3/8 - 19	47	20	22	
- 08 - 06	3/8	1/2 - 14	48	20	27	
- 08 - 08	1/2	1/2 - 14	56	22	27	
- 10 - 08	1/2	5/8 - 14	57	22	30	
- 10 - 10	5/8	5/8 - 14	70	28	30	
- 12 - 10	5/8	3/4 - 14	72	28	32	
- 12 - 12	3/4	3/4 - 14	74	32	32	
- 16 - 12	3/4	1 - 11	74	34	41	
- 16 - 16	1	1 - 11	101	34	41	
- 20 - 16	1	1 1/4 - 11	104	34	50	
- 20 - 20	1 1/4	1 1/4 - 11	110	40	50	
- 24 - 20	1 1/2	1 1/2 - 11	113	40	60	
- 24 - 24	1 1/2	1 1/2 - 11	129	46	55	
- 32 - 32	2	2 - 12	135	53	70	

RIVAFLEX SWAGED FITTINGS

NIKKO MALE INSERT

S312

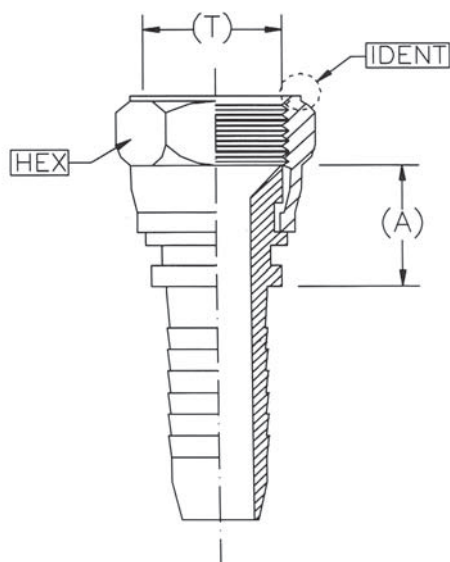


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	1/4 - 19	28		19	
- 06 - 04	1/4	3/8 - 19	31		22	
- 06 - 06	3/8	3/8 - 19	32		22	
- 08 - 06	3/8	1/2 - 14	35		26	
- 08 - 08	1/2	1/2 - 14	35		26	
- 12 - 10	5/8	3/4 - 14	40		32	
- 12 - 12	3/4	3/4 - 14	40		32	
- 16 - 12	3/4	1 - 11	45		41	
- 16 - 16	1	1 - 11	45		41	
- 20 - 16	1	1 1/4 - 11	45		50	
- 20 - 20	1 1/4	1 1/4 - 11	45		50	
- 24 - 20	1 1/4	1 1/2 - 11	46		57	

RIVAFLEX SWAGED FITTINGS

JIC FEMALE STRAIGHT 74° CONE

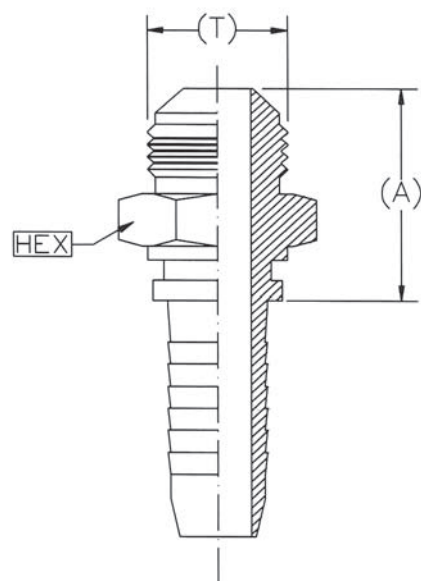
S05



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX 1	HEX 2
- 07 - 04	1/4	7/16 - 20	17		15	
- 08 - 04	1/4	1/2 - 20	17		17	
- 09 - 04	1/4	9/16 - 18	19		19	
- 09 - 06	3/8	9/16 - 18	19		19	
- 12 - 06	3/8	3/4 - 16	20		24	
- 12 - 06HD	3/8	3/4 - 16	26		24	19
- 12 - 08	1/2	3/4 - 16	21		24	
- 14 - 08	1/2	7/8 - 14	22		27	
- 14 - 10	5/8	7/8 - 14	22		27	
- 17 - 08	1/2	1 1/16 - 12	22		32	
- 17 - 10	5/8	1 1/16 - 12	23		32	
- 17 - 12	3/4	1 1/16 - 12	23		32	
- 17 - 12HD	3/4	1 1/16 - 12	31		32	27
- 19 - 12	3/4	1 3/16 - 12	26		36	
- 21 - 21	3/4	1 5/16 - 12	29		41	
- 21 - 16	1	1 5/16 - 12	26		41	
- 21 - 16HD	1	1 5/16 - 12	34		41	32
- 26 - 20	1 1/4	1 5/8 - 12	29		50	
- 30 - 20	1 1/4	1 7/8 - 12	32		55	
- 30 - 24	1 1/2	1 7/8 - 12	31		56	
- 40 - 32	2	2 1/2 - 12	36		75	

JIC MALE 74° CONE

S18

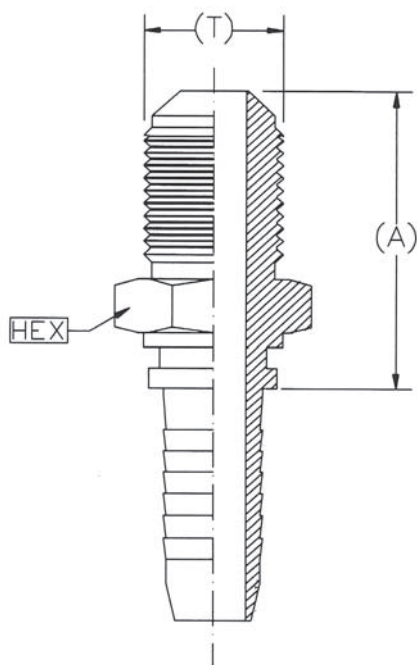


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 07 - 04	1/4	7/16 - 20	28		14	
- 08 - 04	1/4	1/2 - 20	28		14	
- 09 - 04	1/4	9/16 - 18	28		17	
- 09 - 06	3/8	9/16 - 18	31		17	
- 12 - 06	3/8	3/4 - 16	36		19	
- 12 - 08	1/2	3/4 - 16	34		19	
- 14 - 08	1/2	7/8 - 14	38		22	
- 14 - 10	5/8	7/8 - 14	35		22	
- 17 - 08	1/2	1 1/16 - 12	42		27	
- 17 - 10	5/8	1 1/16 - 12	42		27	
- 17 - 12	3/4	1 1/16 - 12	43		27	
- 19 - 12	3/4	1 3/16 - 12	43		32	
- 21 - 21	3/4	1 5/16 - 12	46		36	
- 21 - 16	1	1 5/16 - 12	46		36	
- 26 - 20	1 1/4	1 5/8 - 12	48		44	
- 30 - 20	1 1/4	1 7/8 - 12	55		50	
- 30 - 24	1 1/2	1 7/8 - 12	50		50	
- 40 - 32	2	2 1/2 - 12	56		65	

RIVAFLEX SWAGED FITTINGS

JIC MALE BULKHEAD 74° CONE

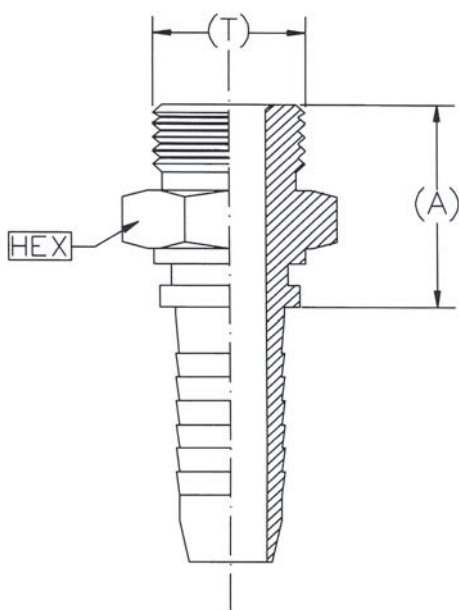
S19



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 07 - 04	1/4	7/16 - 20	46		14	
- 08 - 04	1/4	1/2 - 20	47		14	
- 09 - 04	1/4	9/16 - 18	48		17	
- 09 - 06	3/8	9/16 - 18	50		17	
- 10 - 06	3/8	5/8 - 18	51		19	
- 12 - 08	1/2	3/4 - 16	56		19	
- 14 - 08	1/2	7/8 - 14	56		22	
- 14 - 10	5/8	7/8 - 14	56		22	
- 17 - 08	1/2	1 1/16 - 12	61		27	
- 17 - 10	5/8	1 1/16 - 12	61		27	
- 17 - 12	3/4	1 1/16 - 12	62		27	
- 21 - 12	3/4	1 5/16 - 12	63		36	

UNF O'RING BOSS MALE

S20

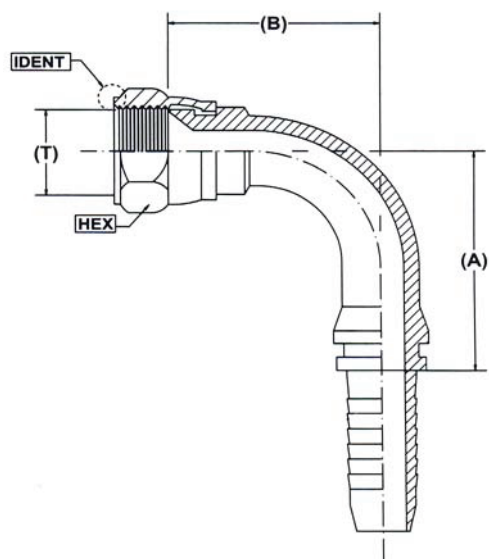


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 07 - 04	1/4	7/16 - 20	27		14	
- 08 - 04	1/4	1/2 - 20	27		17	
- 09 - 04	1/4	9/16 - 18	28		17	
- 09 - 06	3/8	9/16 - 18	29		17	
- 12 - 06	3/8	3/4 - 16	38		22	
- 12 - 08	1/2	3/4 - 16	39		22	
- 14 - 06	3/8	7/8 - 14	32		27	
- 14 - 08	1/2	7/8 - 14	33		27	
- 14 - 10	5/8	7/8 - 14	33		27	
- 17 - 08	1/2	1 1/16 - 12	36		32	
- 17 - 10	5/8	1 1/16 - 12	36		32	
- 17 - 12	3/4	1 1/16 - 12	37		32	
- 19 - 12	3/4	1 3/16 - 12	37		36	
- 21 - 12	3/4	1 5/16 - 12	40		38	
- 21 - 16	1	1 5/16 - 12	41		38	

RIVAFLEX SWAGED FITTINGS

90° JIC FEMALE SWEPT ELBOW 74° CONE

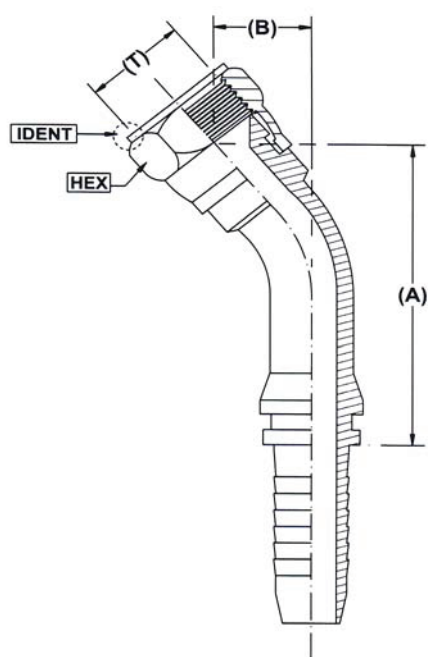
S55



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 07 - 04	1/4	7/16 - 20	32	26	15	
- 08 - 04	1/4	1/2 - 20	32	26	17	
- 09 - 04	1/4	9/16 - 18	32	26	19	
- 09 - 06	3/8	9/16 - 18	34	36	19	
- 12 - 06	3/8	3/4 - 16	34	34	24	
- 12 - 08	1/2	3/4 - 16	45	38	24	
- 14 - 08	1/2	7/8 - 14	45	38	27	
- 14 - 10	5/8	7/8 - 14	54	50	27	
- 17 - 10	5/8	1 1/16 - 12	54	52	32	
- 17 - 12	3/4	1 1/16 - 12	65	55	32	
- 19 - 12	3/4	1 3/16 - 12	65	55	36	
- 21 - 12	3/4	1 5/16 - 12	65	56	41	
- 21 - 16	1	1 5/16 - 12	75	66	41	
- 26 - 20	1 1/4	1 5/8 - 12	110	86	50	
- 30 - 20	1 1/4	1 7/8 - 12	114	96	55	
- 30 - 24	1 1/2	1 7/8 - 12	114	96	56	
- 40 - 32	2	2 1/2 - 12	133	122	75	

45° JIC FEMALE SWEPT ELBOW 74° CONE

S64



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 07 - 04	1/4	7/16 - 20	38	18	15	
- 08 - 04	1/4	1/2 - 20	38	18	17	
- 09 - 04	1/4	9/16 - 18	38	18	19	
- 09 - 06	3/8	9/16 - 18	47	20	19	
- 12 - 06	3/8	3/4 - 16	47	20	24	
- 12 - 08	1/2	3/4 - 16	56	22	24	
- 14 - 08	1/2	7/8 - 14	56	22	27	
- 14 - 10	5/8	7/8 - 14	70	28	27	
- 17 - 10	5/8	1 1/16 - 12	70	28	32	
- 17 - 12	3/4	1 1/16 - 12	74	32	32	
- 19 - 12	3/4	1 3/16 - 12	74	32	36	
- 21 - 12	3/4	1 5/16 - 12	74	32	41	
- 21 - 16	1	1 5/16 - 12	101	34	41	
- 26 - 16	1	1 5/8 - 12	104	34	50	
- 26 - 20	1 1/4	1 5/8 - 12	113	40	50	
- 30 - 20	1 1/4	1 7/8 - 12	113	40	55	
- 30 - 24	1 1/2	1 7/8 - 12	129	46	56	
- 40 - 32	2	2 1/2 - 12	136	52	75	

SAE STRAIGHT FLANGE 3000 PSI / CODE 61

[illegible][illegible]

SAE STRAIGHT CATERPILLAR FLANGE

Technical drawing of a tapered roller bearing cross-section. The drawing shows the internal structure of the bearing, including the outer ring, inner ring, rollers, and cage. Key dimensions are labeled: (D) for the outer diameter, (T) for the total width, (A) for the axial distance from the outer ring to the cage, and O-RING for the oil seal.

[illegible]

Technical drawing of a bent pipe assembly. The drawing shows a cross-section of the pipe and its connection to a flange. Key dimensions are labeled as follows:

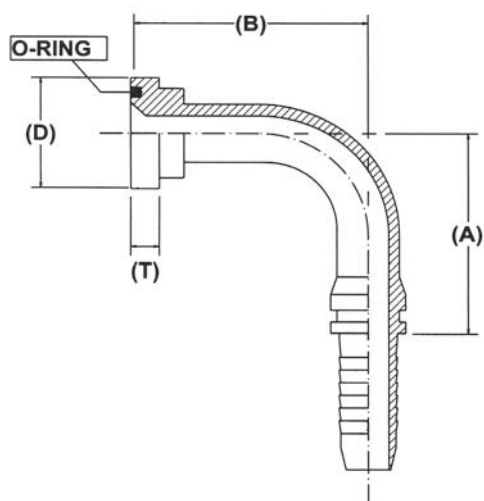
- (A): Total height of the assembly.
- (B): Horizontal distance from the centerline of the pipe to the centerline of the flange.
- (C): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (D): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (E): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (F): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (G): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (H): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (I): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (J): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (K): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (L): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (M): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (N): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (O): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (P): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (Q): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (R): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (S): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (T): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (U): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (V): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (W): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (X): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (Y): Vertical distance from the centerline of the pipe to the centerline of the flange.
- (Z): Vertical distance from the centerline of the pipe to the centerline of the flange.

[illegible]

RIVAFLEX SWAGED FITTINGS

90° SAE FLANGE 3000 PSI / CODE 61

S59 L



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)				
			A	B	HEX	D	T
-08-08 2 1/2	1/2		55	63		30.1	6.7
-08-08 3	1/2		55	75		30.1	6.7
-08-08 4	1/2		55	100		30.1	6.7
-08-08 5	1/2		55	125		30.1	6.7
-08-12 4	3/4		60	100		30.1	6.7
-08-12 5	3/4		60	125		30.1	6.7
-08-12 6	3/4		60	150		30.1	6.7
-12-12 3	3/4		66	75		38.1	6.7
-12-12 4	3/4		66	100		38.1	6.7
-12-12 5	3/4		66	125		38.1	6.7
-12-12 6	3/4		66	150		38.1	6.7
-16-16 4	1		80	100		44.5	8.1
-16-16 5	1		80	125		44.5	8.1
-20-20 4	1 1/4		100	100		50.8	8.1
-20-20 5	1 1/4		100	125		50.8	8.1
-24-24 6	1 1/2		110	150		60.3	8.1

90° SAE FLANGE 6000 PSI / CODE 62

Technical drawing of a 90-degree elbow joint. The drawing shows a cross-section of the elbow with various dimensions labeled. The dimensions are: (A) - Overall height of the elbow, (B) - Overall width of the elbow, (C) - Thickness of the elbow wall, (D) - Thickness of the elbow wall at the bend, (E) - Thickness of the elbow wall at the end, (F) - Thickness of the elbow wall at the end, (G) - Thickness of the elbow wall at the end, (H) - Thickness of the elbow wall at the end, (I) - Thickness of the elbow wall at the end, (J) - Thickness of the elbow wall at the end, (K) - Thickness of the elbow wall at the end, (L) - Thickness of the elbow wall at the end, (M) - Thickness of the elbow wall at the end, (N) - Thickness of the elbow wall at the end, (O) - Thickness of the elbow wall at the end, (P) - Thickness of the elbow wall at the end, (Q) - Thickness of the elbow wall at the end, (R) - Thickness of the elbow wall at the end, (S) - Thickness of the elbow wall at the end, (T) - Thickness of the elbow wall at the end, (U) - Thickness of the elbow wall at the end, (V) - Thickness of the elbow wall at the end, (W) - Thickness of the elbow wall at the end, (X) - Thickness of the elbow wall at the end, (Y) - Thickness of the elbow wall at the end, (Z) - Thickness of the elbow wall at the end.

[illegible]

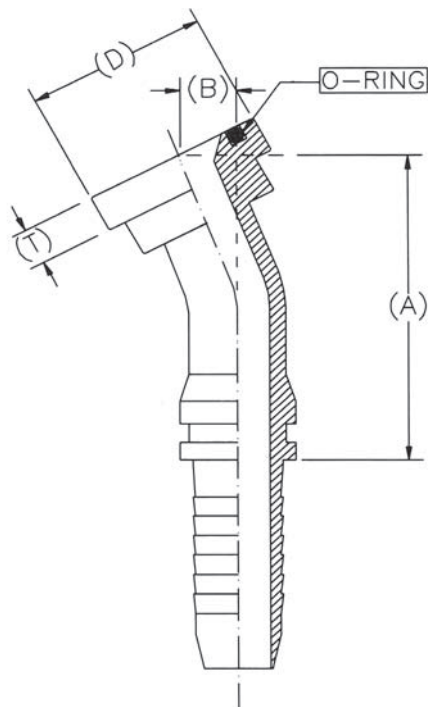
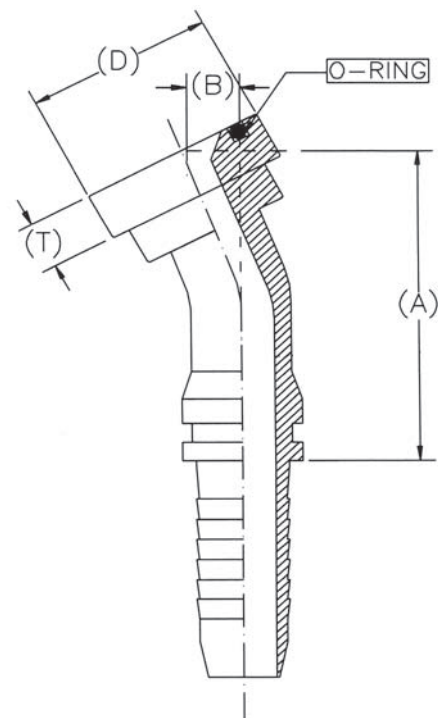
Technical drawing of a 90-degree elbow fitting. The drawing shows a cross-section of the fitting, which is L-shaped. The dimensions are labeled as follows:

- (A): The vertical distance from the centerline of the horizontal pipe to the centerline of the vertical pipe.
- (B): The horizontal distance from the centerline of the horizontal pipe to the centerline of the vertical pipe.
- (C): The thickness of the fitting wall.
- (D): The diameter of the O-ring seal.
- (T): The thickness of the O-ring seal.

The O-ring is shown as a small circle with the label "O-RING" pointing to it. The fitting is shown in a cross-section view, with the internal structure of the elbow visible.

[illegible]

22.5° SAE FLANGE 3000 PSI / CODE 61

[illegible][illegible]

30° SAE FLANGE 6000 PSI / CODE 62

A technical drawing of a mechanical component, likely a valve or actuator, shown in a cross-sectional view. The component has a long, tapered body with a series of horizontal steps or flanges near the base. The top part of the component is angled. Dimensions are indicated by arrows and labels: (A) is the total height of the component, (B) is the width of the top flange, (D) is the diameter of the top flange, and (T) is the thickness of the top flange. An O-RING is shown as a shaded circle on the top flange, with a label 'O-RING' pointing to it.

[illegible]

Technical drawing of a mechanical component, likely a pump or valve assembly, showing dimensions (A), (B), (C), and (D). The component features a curved section and a threaded section. A label 'O-RING' points to a specific feature on the curved section.

[illegible]

60° SAE CATERPILLAR FLANGE

Technical drawing of a bent pipe assembly. The drawing shows a cross-section of the pipe with a bend. Dimensions are indicated as follows:

- (A): Total length of the pipe assembly.
- (B): Length of the straight section of the pipe.
- (C): Radius of the bend.
- (D): Length of the section of the pipe that is bent.
- (E): Length of the section of the pipe that is straight after the bend.

[illegible]

Technical drawing of a bent pipe assembly. The drawing shows a cross-section of the pipe with a flange and a gasket. The dimensions are labeled as follows:

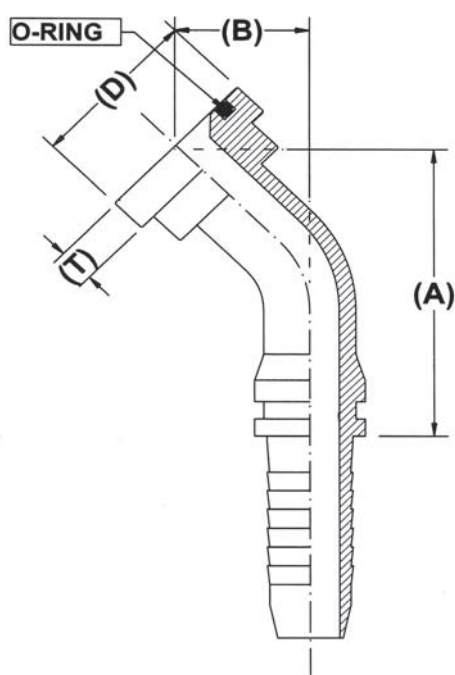
- (A)**: The vertical distance from the centerline of the pipe to the centerline of the flange.
- (B)**: The horizontal distance from the centerline of the pipe to the centerline of the flange.
- (b)**: The thickness of the pipe wall.
- (t)**: The thickness of the flange.
- O-RING**: A label pointing to a seal on the pipe.

[illegible]

RIVAFLEX SWAGED FITTINGS

45° SAE FLANGE 3000 PSI / CODE 61

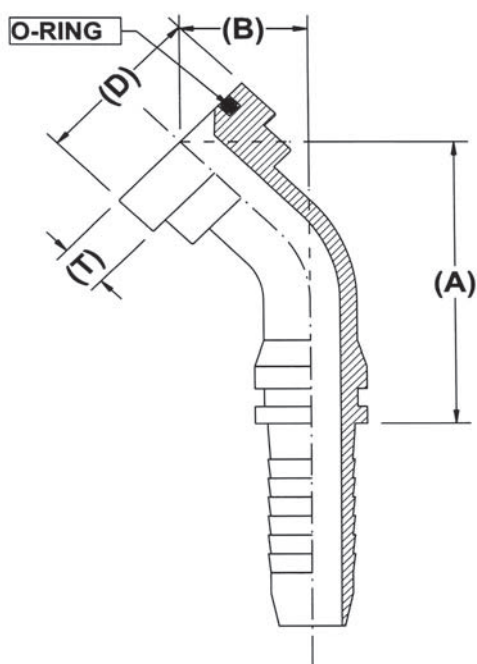
S68



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)				
			A	B	HEX	D	T
- 08 - 08	1/2		55	21		30.3	6.7
- 12 - 08	1/2		55	21		38.1	6.7
- 12 - 12	3/4		72	23		38.1	6.7
- 16 - 12	3/4		72	23		44.5	8.1
- 16 - 16	1		77	26		44.5	8.1
- 20 - 16	1		77	26		50.8	8.1
- 20 - 20	1 1/4		100	36		50.8	8.1
- 24 - 20	1 1/4		100	36		60.3	8.1
- 24 - 24	1 1/2		114	46		60.3	8.1
- 12 - 12 L	3/4		109	53		38.1	6.7

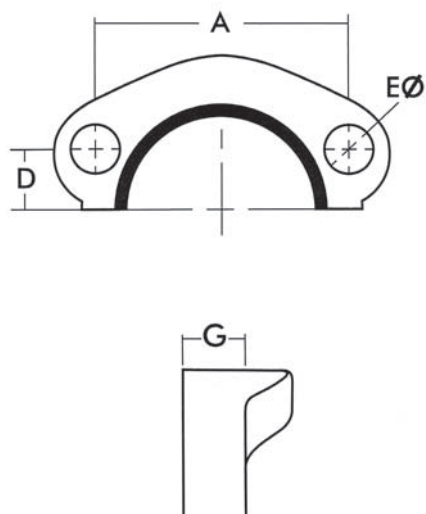
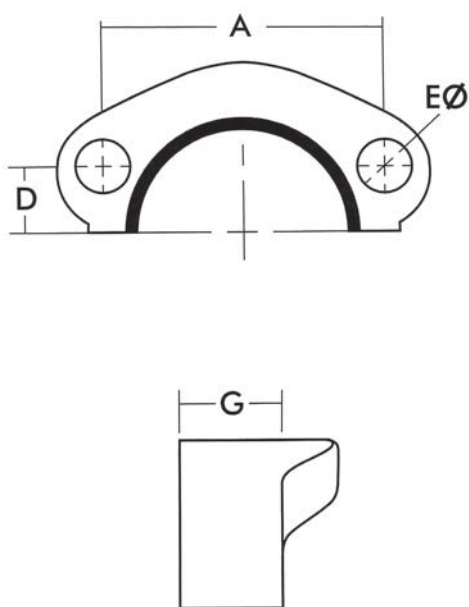
45° SAE FLANGE 6000 PSI / CODE 62

S668



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)				
			A	B	HEX	D	T
- 12 - 12	3/4		72	23		41.3	8.9
- 16 - 12	3/4		72	23		47.6	9.6
- 16 - 16	1		77	26		47.6	9.6
- 20 - 16	1		77	26		54	10.3
- 20 - 20	1 1/4		100	36		54	10.3
- 24 - 20	1 1/4		100	36		63.5	12.6
- 24 - 24	1 1/2		114	46		63.5	12.6

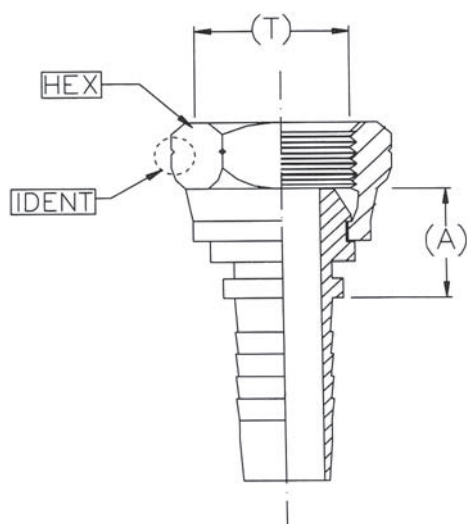
SAE SPLIT FLANGE CLAMPS 3000 PSI / CODE 61

[illegible][illegible]

RIVAFLEX SWAGED FITTINGS

METRIC FEMALE STRAIGHT 60° CONE

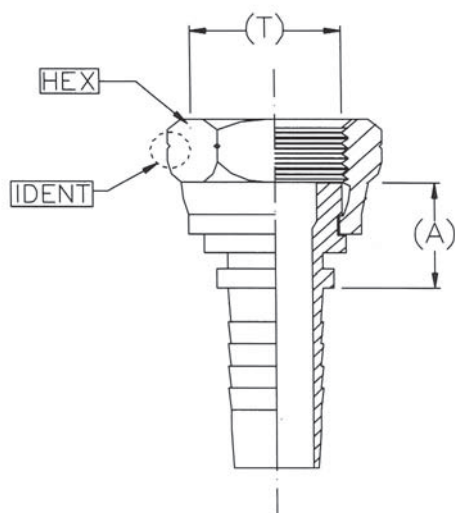
S801



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 12 - 04	1/4	12 x 1.5	20		17	
- 14 - 04	1/4	14 x 1.5	21		19	
- 14 - 06	3/8	14 x 1.5	20		19	
- 16 - 05	5/16	16 x 1.5	20		22	
- 16 - 06	3/8	16 x 1.5	24		22	
- 18 - 06	3/8	18 x 1.5	26		24	
- 20 - 06	3/8	20 x 1.5	26		27	
- 20 - 08	1/2	20 x 1.5	25		27	
- 22 - 06	3/8	22 x 1.5	24		27	
- 22 - 08	1/2	22 x 1.5	28		27	
- 24 - 06	3/8	24 x 1.5	26		30	
- 24 - 08	1/2	24 x 1.5	28		30	
- 26 - 10	5/8	26 x 1.5	28		32	
- 27 - 10	5/8	27 x 1.5	26		32	
- 30 - 10	5/8	30 x 1.5	29		36	
- 30 - 12	3/4	30 x 1.5	27		36	
- 36 - 16	1	36 x 1.5	30		41	

METRIC FEMALE STRAIGHT FLAT SEAT

S802

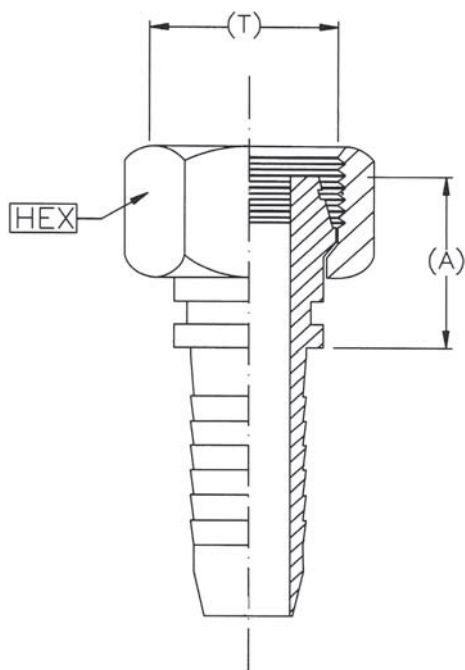


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 14 - 04	1/4	14 x 1.5	17		19	
- 16 - 05	5/16	16 x 1.5	29		22	
- 16 - 06	3/8	16 x 1.5	20		22	
- 18 - 06	3/8	18 x 1.5	18		24	
- 20 - 04	1/4	20 x 1.5	17		24	
- 20 - 06	3/8	20 x 1.5	20		27	
- 22 - 08	1/2	22 x 1.5	21		27	
- 24 - 08	1/2	24 x 1.5	23		30	
- 26 - 08	1/2	26 x 1.5	23		32	
- 26 - 10	5/8	26 x 1.5	23		32	
- 27 - 10	5/8	27 x 1.5	23		32	
- 30 - 12	3/4	30 x 1.5	25		36	

RIVAFLEX SWAGED FITTINGS

METRIC FEMALE STRAIGHT O'RING LIGHT DUTY 24° CONE (DKO-L)

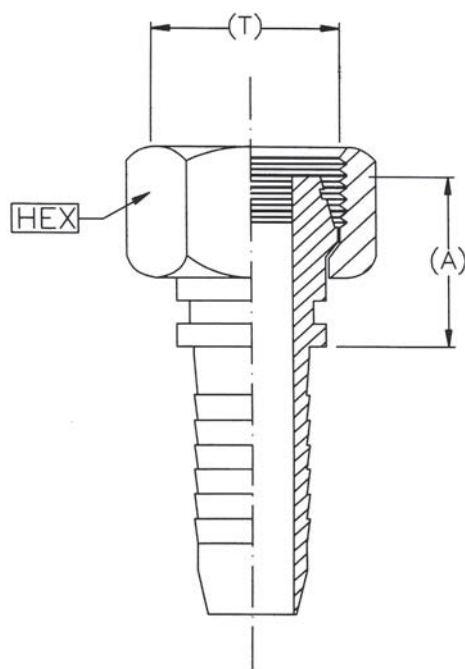
S803



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 12 - 04	1/4	12 x 1.5	22		17	
- 14 - 06	3/8	14 x 1.5	22		19	
- 16 - 04	1/4	16 x 1.5	21		22	
- 16 - 06	3/8	16 x 1.5	24		24	
- 18 - 06	3/8	18 x 1.5	24		24	
- 18 - 08	1/2	18 x 1.5	22		24	
- 20 - 06	3/8	20 x 1.5	24		24	
- 22 - 06	3/8	22 x 1.5	28		27	
- 22 - 08	1/2	22 x 1.5	25		27	
- 26 - 08	1/2	26 x 1.5	29		32	
- 26 - 10	5/8	26 x 1.5	29		32	
- 30 - 10	5/8	30 x 2.0	30		36	
- 30 - 12	3/4	30 x 2.0	31		36	
- 36 - 12	3/4	36 x 2.0	34		41	
- 36 - 16	1	36 x 2.0	35		41	
- 45 - 16	1	45 x 2.0	39		53	
- 45 - 20	1 1/4	45 x 2.0	40		53	
- 52 - 24	1 1/2	52 x 2	39		60	

METRIC FEMALE STRAIGHT O'RING HEAVY DUTY 24° CONE (DKO-S)

S804

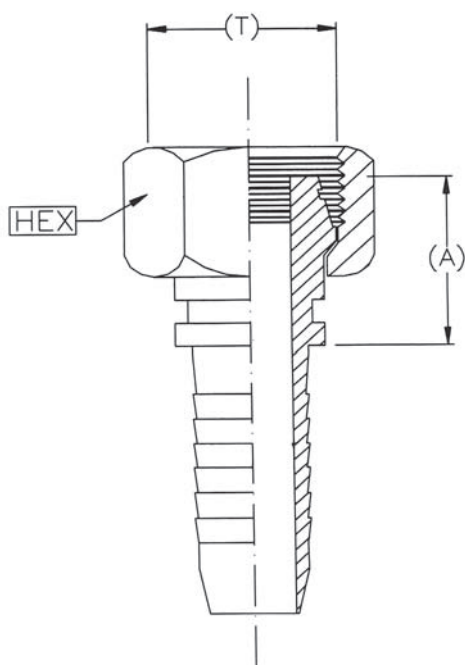


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 14 - 04	1/4	14 x 1.5	21		19	
- 16 - 06	1/4	16 x 1.5	21		22	
- 18 - 06	3/8	18 x 1.5	24		22	
- 20 - 05	5/16	20 x 1.5	27		24	
- 20 - 06	3/8	20 x 1.5	25		24	
- 22 - 06	3/8	22 x 1.5	28		27	
- 22 - 08	1/2	22 x 1.5	25		27	
- 24 - 08	1/2	24 x 1.5	27		30	
- 24 - 10	5/8	24 x 1.5	32		30	
- 30 - 10	5/8	30 x 2.0	30		36	
- 30 - 12	3/4	30 x 2.0	30		36	
- 36 - 12	3/4	36 x 2.0	34		46	
- 36 - 16	1	36 x 2.0	35		46	
- 42 - 16	1	42 x 2.0	38		50	
- 52 - 20	1 1/4	52 x 2.0	46		60	
- 52 - 24	1 1/2	52 x 2.0	39		60	

RIVAFLEX SWAGED FITTINGS

METRIC FEMALE STRAIGHT O'RING FRENCH TYPE 24° CONE

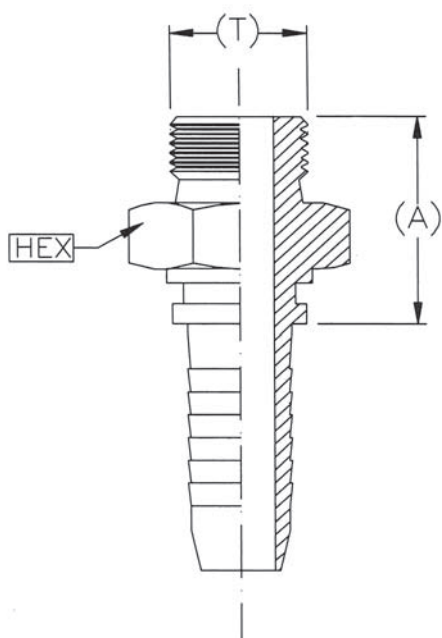
S805



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 26 - 08	1/2	26 x 1.5	31		32	
- 26 - 10	5/8	26 x 1.5	36		32	
- 28 - 12	3/4	28 x 1.5	33		35	
- 30 - 10	5/8	30 x 1.5	32		36	
- 30 - 12	3/4	30 x 1.5	32		36	
- 34 - 12	3/4	34 x 1.5	32		41	
- 36 - 12	3/4	36 x 1.5	34		41	
- 36 - 16	1	36 x 1.5	34		41	
- 40 - 16	1	40 x 1.5	35		46	
- 42 - 16	1	42 x 1.5	39		46	
- 45 - 16	1	45 x 1.5	39		55	

METRIC MALE STRAIGHT FLAT SEAT TYPE

S810



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 10 - 04	1/4	10 x 1.0	27		16	
- 10 - 04	1/4	10 x 1.25	27		16	
- 10 - 04	1/4	10 x 1.5	27		16	
- 12 - 04	1/4	12 x 1.0	26		16	
- 12 - 04	1/4	12 x 1.5	26		16	
- 14 - 04	1/4	14 x 1.5	28		19	
- 16 - 06	3/8	16 x 1.5	30		22	
- 18 - 04	1/4	18 x 1.5	37		19	
- 20 - 04	1/4	20 x 1.5	37		22	
- 20 - 06	3/8	20 x 1.5	38		22	
- 22 - 08	1/2	22 x 1.5	32		27	

METRIC MALE STRAIGHT 60° CONE

Technical drawing of a bolt and nut assembly. The bolt is shown in cross-section with a hexagonal head. The nut is shown in cross-section with a hexagonal body. The drawing includes dimension lines for (T) and (A), and a label 'HEX' pointing to the hexagonal head of the bolt.

[illegible]

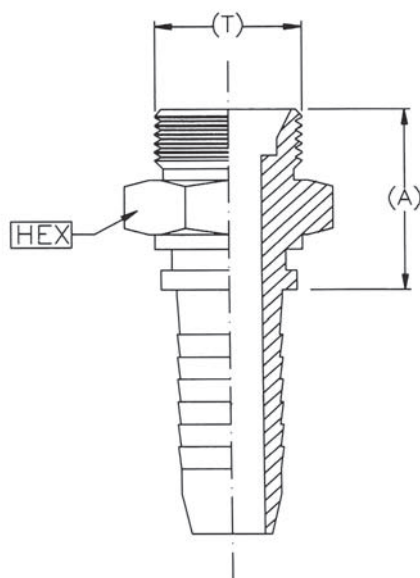
Technical drawing of a hex head screw. The drawing shows a side view of the screw with a hexagonal head. The head is labeled "HEX". The length of the head is dimensioned as (T). The length of the threaded portion is dimensioned as (A). The drawing includes a cross-section line through the center of the screw.

[illegible]

RIVAFLEX SWAGED FITTINGS

METRIC MALE STRAIGHT 24° CONE HEAVY DUTY (DKO-S)

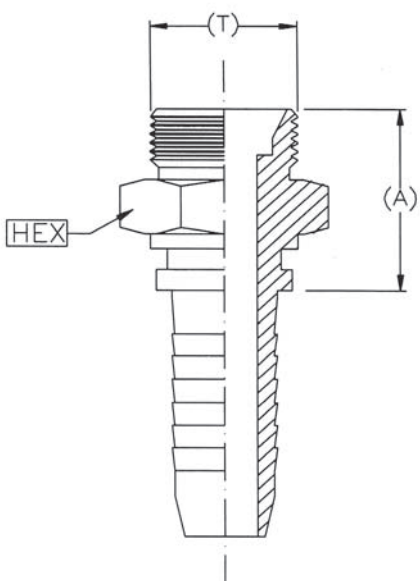
S814



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 14 - 04	1/4	18 x 1.5	28		14	
- 16 - 04	1/4	16 x 1.5	28		17	
- 18 - 04	1/4	18 x 1.5	27		19	
- 18 - 06	3/8	18 x 1.5	30		19	
- 20 - 06	3/8	20 x 1.5	32		22	
- 22 - 06	3/8	22 x 1.5	31		24	
- 22 - 08	1/2	22 x 1.5	33		24	
- 24 - 08	1/2	24 x 1.5	35		27	
- 30 - 10	5/8	30 x 2.0	36		32	
- 30 - 12	3/4	30 x 2.0	37		32	
- 36 - 12	3/4	36 x 2.0	41		38	
- 36 - 16	1	36 x 2.0	41		38	
- 42 - 16	1	42 x 2.0	43		46	
- 52 - 20	1 1/4	52 x 2.0	46		55	
- 52 - 24	1 1/2	52 x 2.0	49		55	

METRIC MALE STRAIGHT 24° CONE FRENCH TYPE

S815

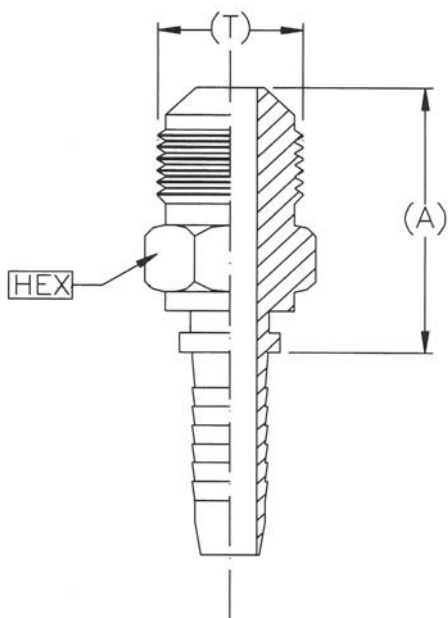


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 28 - 12	3/4	28 x 1.5	36		32	
- 30 - 10	5/8	30 x 1.5	35		32	
- 30 - 12	3/4	30 x 1.5	35		32	
- 34 - 12	3/4	34 x 1.5	40		35	
- 36 - 12	3/4	36 x 1.5	40		38	
- 36 - 16	1	36 x 1.5	40		38	
- 40 - 16	1	40 x 1.5	41		41	
- 45 - 16	1	45 x 1.5	41		46	
- 48 - 20	1 1/4	48 x 1.5	42		50	

RIVAFLEX SWAGED FITTINGS

METRIC MALE STRAIGHT 90° CONE

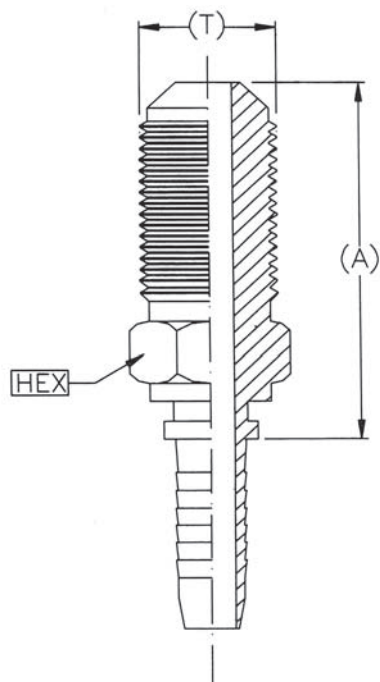
S818



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 12 - 04	1/4	12 x 1.0	31		12.7	
- 12 - 04	1/4	12 x 1.5	31		12.7	
- 14 - 04	1/4	14 x 1.5	33		14	
- 14 - 06	3/8	14 x 1.5	29		14	
- 16 - 06	3/8	16 x 1.5	34		17	
- 18 - 06	3/8	18 x 1.5	34		19	
- 18 - 08	1/2	18 x 1.5	34		19	
- 20 - 06	3/8	20 x 1.5	37		22	
- 20 - 08	1/2	20 x 1.5	36		22	
- 22 - 08	1/2	22 x 1.5	38		24	
- 24 - 08	1/2	24 x 1.5	38		26	
- 24 - 10	5/8	24 x 1.5	42		26	

METRIC MALE STRAIGHT BULKHEAD

S819



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 10 - 04	1/4	10 x 1.0	41		14	
- 12 - 04	1/4	12 x 1.0	44		14	
- 12 - 04	1/4	12 x 1.5	48		14	
- 14 - 04	1/4	14 x 1.5	49		17	
- 14 - 06	3/8	14 x 1.5	47		17	
- 16 - 06	3/8	16 x 1.5	52		19	
- 16 - 08	1/2	16 x 1.5	57		19	
- 18 - 06	3/8	18 x 1.5	52		22	
- 20 - 06	3/8	20 x 1.5	58		22	
- 20 - 08	1/2	20 x 1.5	59		22	
- 22 - 08	1/2	22 x 1.5	59		24	

90° METRIC FEMALE SWEPT ELBOW 60° CONE

A technical drawing of a bent metal rod. The rod is bent at a 90-degree angle. Dimension (A) is the vertical height of the bent section. Dimension (B) is the horizontal distance from the center of the bend to the end of the rod. Dimension (T) is the thickness of the rod. The label 'HEX' points to a hexagonal section of the rod. The label 'IDENT' points to a circular feature on the rod.

[illegible]

A technical drawing of a curved metal component, likely a part of a mechanical assembly. The drawing shows a cross-section of the component, which is bent at a 90-degree angle. The component has a hexagonal base labeled "HEX" and a curved arm. An "O-RING" is shown seated in a groove on the hexagonal base. Dimension lines indicate the following measurements:

- (A): The vertical height of the curved arm from the base.
- (B): The horizontal distance from the center of the hexagonal base to the end of the curved arm.
- (T): The thickness of the hexagonal base.

Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)				
			A	B	HEX		
- 12 - 04	1/4	12 x 1.5	32	27	17		
- 14 - 04	1/4	14 x 1.5	32	27	19		
- 16 - 04	1/4	16 x 1.5	32	28	22		
- 16 - 05	5/16	16 x 1.5	32	28	22		
- 18 - 04	1/4	18 x 1.5	35	39	24		
- 18 - 06	3/8	18 x 1.5	35	39	24		
- 18 - 08	1/2	18 x 1.5	38	39	24		
- 20 - 06	3/8	20 x 1.5	35	39	24		
- 22 - 06	3/8	22 x 1.5	35	47	27		
- 22 - 08	1/2	22 x 1.5	45	42	27		
- 26 - 06	3/8	26 x 1.5	35	51	32		
- 26 - 08	1/2	26 x 1.5	45	44	32		
- 26 - 10	5/8	26 x 1.5	54	54	32		
- 27 - 10	5/8	27 x 1.5	50	54	32		
- 30 - 10	5/8	30 x 2.0	54	54	36		
- 30 - 12	3/4	30 x 2.0	65	58	36		
- 36 - 12	3/4	36 x 2.0	65	69	41		
- 36 - 16	1	36 x 2.0	75	72	41		
- 45 - 20	1 1/4	45 x 2.0	100	92	52		

90° METRIC FEMALE O'RING SWEPT ELBOW HEAVY DUTY 24° CONE (DKO-S)

A technical cross-sectional drawing of a 90-degree elbow fitting. The drawing shows the internal structure of the fitting, including a central passage and a flange at the end. Key dimensions are indicated: (A) is the overall height of the fitting, (B) is the length of the main body, and (T) is the thickness of the flange. Labels include 'O-RING' pointing to a seal on the flange and 'HEX' pointing to a hexagonal feature on the flange.

[illegible]

Technical drawing of a 90-degree elbow fitting. The drawing shows a cross-section of the fitting, which has a hexagonal base labeled "HEX" and a curved arm. An "O-RING" is shown at the joint. Dimension lines indicate the following measurements:

- (A): The vertical height of the fitting from the base to the top of the curved arm.
- (B): The horizontal distance from the center of the hexagonal base to the center of the curved arm.
- (T): The thickness of the hexagonal base.

[illegible]

45° METRIC FEMALE SWEPT ELBOW 60° CONE

Technical drawing of a curved metal component, likely a part of a mechanical assembly. The drawing shows a cross-section of the component, which is curved. Key dimensions and labels are indicated:

- (A)**: Dimension indicating the length of the curved section.
- (B)**: Dimension indicating the width of the curved section.
- (T)**: Dimension indicating the thickness of the curved section.
- HEX**: Label indicating a hexagonal feature.
- IDENT**: Label indicating an identification feature.

[illegible]

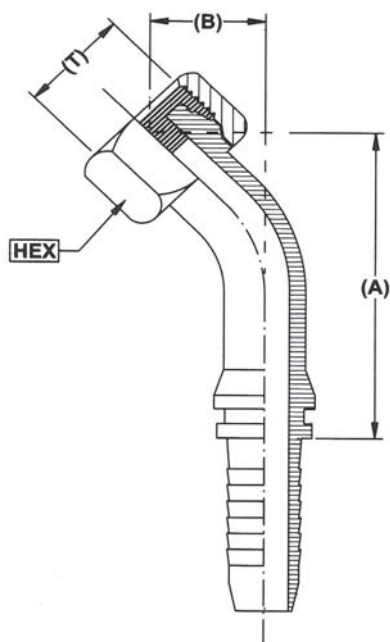
Technical drawing of a curved blade. The drawing shows a side view of the blade with a curved profile. Dimension (A) indicates the total length of the blade. Dimension (B) indicates the width of the blade at the base. A label 'HEX' points to a hexagonal feature on the blade's body.

[illegible]

RIVAFLEX SWAGED FITTINGS

45° METRIC FEMALE O'RING SWEPT ELBOW HEAVY DUTY 24° CONE (DKO-S)

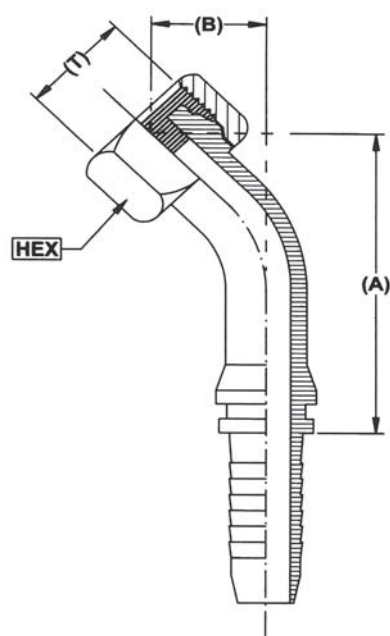
S864



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 14 - 04	1/4	14 x 1.5	38	18	19	
- 16 - 04	1/4	16 x 1.5	38	18	22	
- 18 - 06	3/8	18 x 1.5	47	20	22	
- 20 - 06	3/8	20 x 1.5	47	20	24	
- 20 - 08	1/2	20 x 1.5	57	20	24	
- 22 - 08	1/2	22 x 1.5	56	22	27	
- 24 - 08	1/2	24 x 1.5	56	22	30	
- 30 - 10	5/8	30 x 2.0	70	28	36	
- 30 - 12	3/4	30 x 2.0	70	32	36	
- 36 - 12	3/4	36 x 2.0	72	32	46	
- 36 - 16	1	36 x 2.0	101	34	46	
- 42 - 16	1	42 x 2.0	101	34	50	
- 52 - 16	1	52 x 2.0	110	40	60	
- 52 - 20	1 1/4	52 x 2.0			60	

45° METRIC FEMALE O'RING SWEPT ELBOW FRENCH TYPE 24° CONE

S865

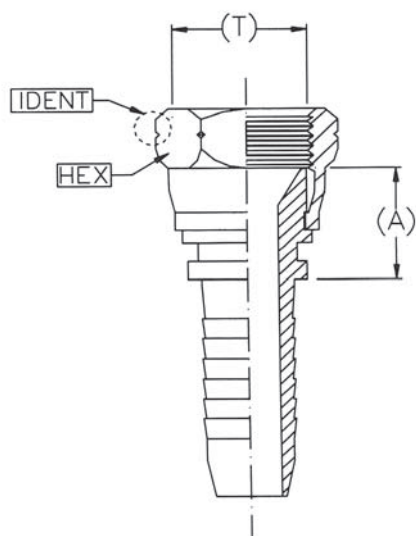


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 28 - 12	3/4	28 x 1.5	70	32	35	
- 30 - 10	5/8	30 x 1.5	70	28	36	
- 30 - 12	3/4	30 x 1.5	70	32	36	
- 34 - 12	3/4	34 x 1.5	70	32	41	
- 36 - 12	3/4	36 x 1.5	72	32	41	
- 36 - 16	1	36 x 1.5	101	34	41	
- 45 - 16	1	45 x 1.5	101	34	55	

RIVAFLEX SWAGED FITTINGS

JAPANESE METRIC FEMALE STRAIGHT 60° CONE

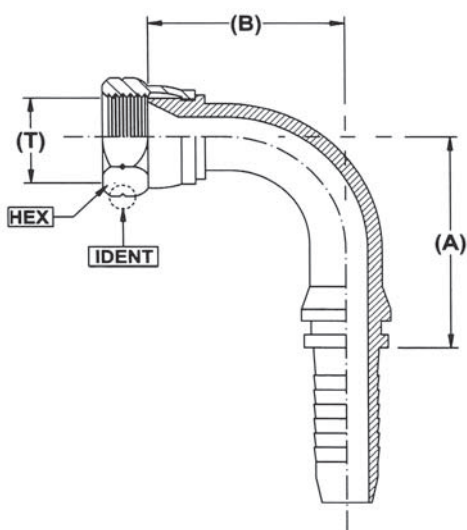
S870



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 10 - 04	1/4	10 x 1.0	17		17	
- 12 - 04	1/4	12 x 1.0	17		17	
- 12 - 04	1/4	12 x 1.5	17		17	
- 14 - 04	1/4	14 x 1.5	18		19	
- 16 - 04	1/4	16 x 1.5	17		22	
- 16 - 06	3/8	16 x 1.5	19		22	
- 18 - 04	1/4	18 x 1.5	18		24	
- 18 - 06	3/8	18 x 1.5	19		24	
- 20 - 08	1/2	20 x 1.5	20		27	
- 20 - 06	3/8	20 x 1.5	20		27	
- 22 - 08	1/2	22 x 1.5	21		27	
- 24 - 08	1/2	24 x 1.5	22		32	
- 24 - 10	5/8	24 x 1.5	22		32	
- 30 - 12	3/4	30 x 1.5	23		36	
- 33 - 12	3/4	33 x 1.5	24		41	
- 33 - 16	1	33 x 1.5	25		41	
- 42 - 20	1 1/4	42 x 1.5	29		55	

90° JAPANESE METRIC FEMALE SWEEP ELBOW 60° CONE

S875

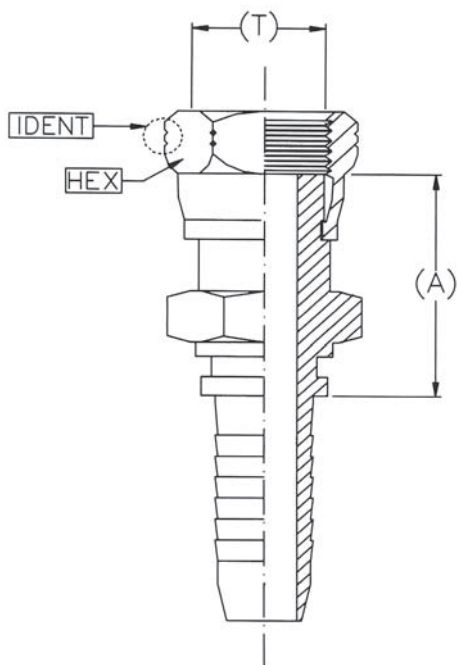


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 12 - 04	1/4	12 x 1.0	32	24	17	
- 12 - 04	1/4	12 x 1.5	32	24	17	
- 14 - 04	1/4	14 x 1.5	32	24	19	
- 14 - 06	3/8	14 x 1.5	32	34	19	
- 16 - 06	3/8	16 x 1.5	34	40	22	
- 18 - 06	3/8	18 x 1.5	34	40	24	
- 20 - 06	3/8	20 x 1.5	34	40	27	
- 20 - 08	1/2	20 x 1.5	45	46	27	
- 22 - 08	1/2	22 x 1.5	45	46	27	
- 24 - 08	1/2	24 x 1.5	45	46	32	
- 24 - 10	5/8	24 x 1.5	56	59	30	
- 30 - 12	3/4	30 x 1.5		55	36	
- 33 - 16	1	33 x 1.5	75	66	41	

RIVAFLEX SWAGED FITTINGS

ORFS FEMALE

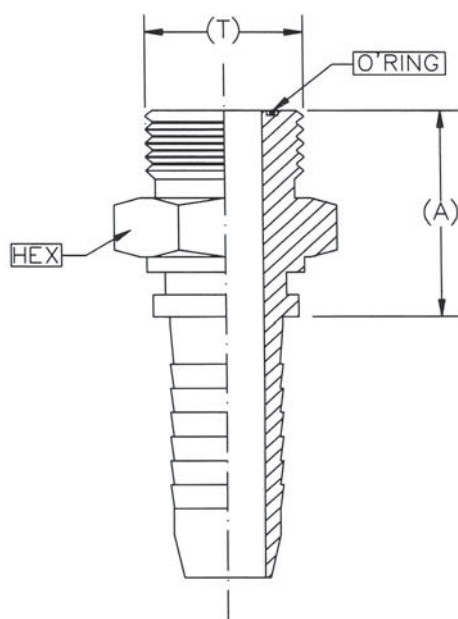
S702



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	9/16 - 18	32		19	
- 04 - 06	3/8	9/16 - 18	32		19	
- 06 - 04	1/4	11/16 - 16	31		22	
- 06 - 06	3/8	11/16 - 16	34		22	
- 06 - 08	1/2	11/16 - 16	35		22	
- 08 - 06	3/8	1 13/16 - 16	35		27	
- 08 - 08	1/2	13/16 - 16	35		27	
- 08 - 10	5/8	1 13/16 - 16	36		27	
- 10 - 10	5/8	1 - 14	42		30	
- 12 - 10	5/8	1 13/16 - 12	46		35	
- 12 - 12	3/4	1 3/16 - 12	47		35	
- 16 - 12	3/4	1 7/16 - 12	46		41	
- 16 - 16	1	1 7/16 - 12	51		41	
- 20 - 20	1 1/4	1 11/16 - 12	56		50	
- 24 - 20	1 1/4	1 7/16 - 12	46		41	
- 24 - 24	1 1/2	2 - 12	54		60	

ORFS MALE

S712

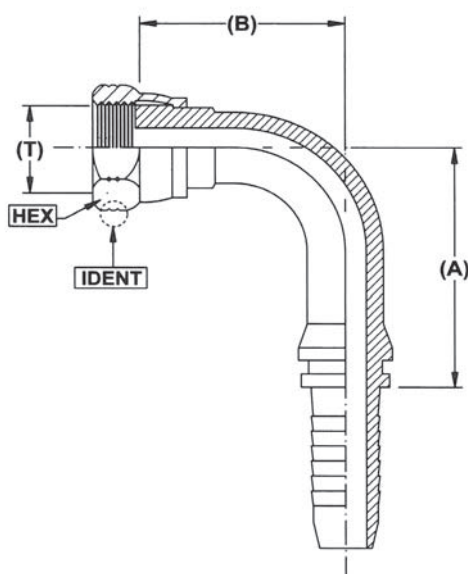


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	9/16 - 18	26		17	
- 06 - 06	3/8	11/16 - 16	30		19	
- 08 - 08	1/2	13/16 - 16	32		22	
- 10 - 10	5/8	1 - 14	35		27	
- 12 - 12	3/4	1 3/16 - 12	37		32	
- 16 - 16	1	1 7/16 - 12	39		41	
- 20 - 20	1 1/4	1 11/16 - 12	44		46	
- 24 - 24	1 1/2	2 - 12	45		54	

RIVAFLEX SWAGED FITTINGS

90° ORFS FEMALE

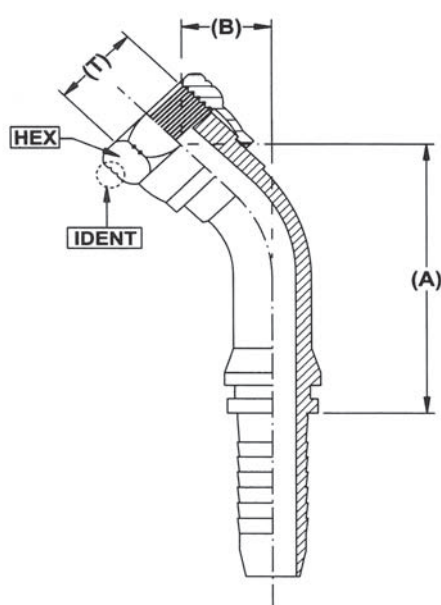
S752



Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	9/16 - 18	32	30	19	
- 06 - 06	3/8	11/16 - 16	38	32	22	
- 08 - 06	3/8	11/16 - 12	35	40	27	
- 08 - 08	1/2	13/16 - 16	45	40	27	
- 10 - 08	1/2	13/16 - 12	55	55	30	
- 10 - 10	5/8	1 - 14	55	55	30	
- 12 - 10	5/8	1 3/16 - 12	70	62	35	
- 12 - 12	3/4	1 3/16 - 12	70	62	35	
- 16 - 12	3/4	1 7/16 - 12	70	65	41	
- 16 - 16	1	1 7/16 - 12	84	70	41	
- 20 - 16	1	1 11/16 - 12	84	72	50	
- 20 - 20	1 1/4	1 11/16 - 12	98	86	50	
- 06 - 06 L	3/8	11/16 - 16	38	76	22	
- 08 - 08 L	1/2	13/16 - 14	45	90	27	
- 12 - 12 L	3/4	1 3/16 - 12	70	100	35	
- 16 - 16 L	1	1 7/16 - 12	84	100	41	
- 20 - 20 L	1 1/4	1 11/16 - 12	98	125	50	
- 12 - 12 L	3/4	1 3/16 - 12	70	125	35	

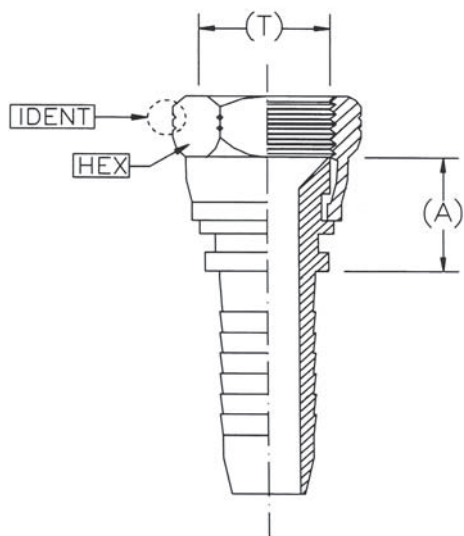
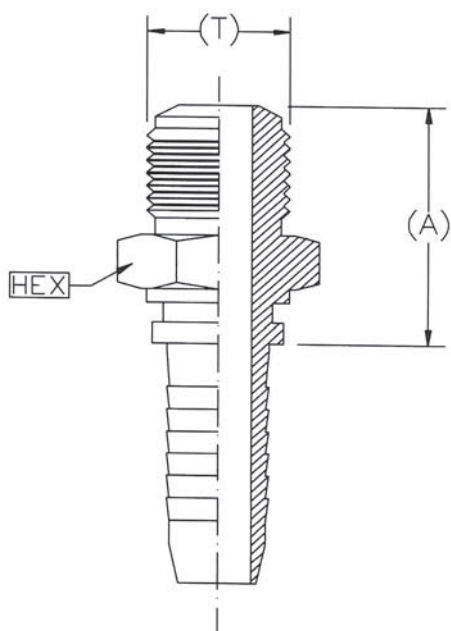
45° ORFS MALE

S762

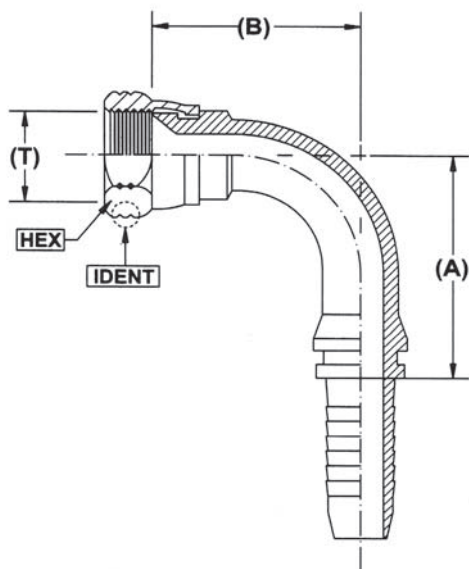
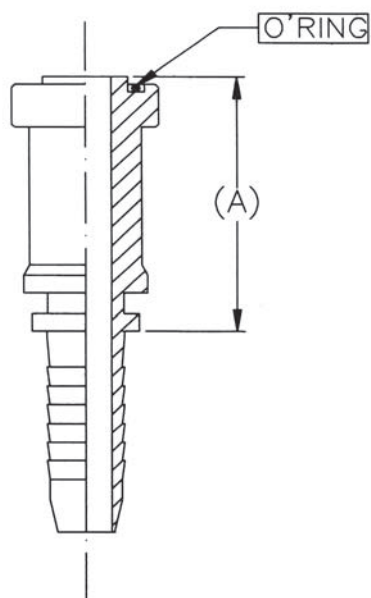


Part Ref. Size	Hose (inch.)	Thread	Dimensions (mm)			
			A	B	HEX	
- 04 - 04	1/4	9/16 - 18	44	18	19	
- 06 - 04	1/4	11/16 - 16	48	21	22	
- 06 - 06	3/8	11/16 - 16	48	21	22	
- 08 - 06	3/8	13/16 - 16	48	21	27	
- 08 - 08	1/2	13/16 - 16	50	22	27	
- 10 - 08	1/2	1 - 14	50	22	30	
- 10 - 10	5/8	1 - 14	64	27	30	
- 12 - 12	3/4	1 3/16 - 12	80	28	35	
- 16 - 16	1	1 7/16 - 12	85	30	41	
- 20 - 20	1 1/4	1 11/16 - 12	100	38	50	

SAE FEMALE STRAIGHT 90° CONE

[illegible][illegible]

90° SAE FEMALE SWEPT ELBOW 90° CONE

[illegible][illegible]

LIFE SAVER

[illegible][illegible]