

## Features, Adapter Unions

Adapter unions provide female pipe swivel connections for use with male pipe or NPT/NPTF hose ends with a 30 degree female seat. **Caution: For proper sealing, ensure that the mating male end has been machined with the proper 30 degree female seat.** The adapter unions described in this section include female pipe swivel fittings with NPTF (Dryseal) male or female pipe ends and SAE straight thread O-ring stud ends. Pipe thread connections are used in a wide variety of applications and provide reliable metal to metal sealing. Because of the tapered NPTF thread design, pipe thread connections are not recommended for applications that require repeated re-assembly or precise orientation of the fitting after tightening. For these applications, use of the SAE adjustable O-ring stud end is recommended.

## Performance

Where applicable, fittings are designed and qualified to the requirements of SAE J514. Straight thread O-ring stud ends conform to SAE J514 and/or SAE J1926/3/ISO 11926-3.

## Construction

Unless otherwise specified, fittings are machined from carbon steel and may utilize brazed construction for shaped fittings. Standard plating is Zinc with a yellow Dichromate finish per ASTM B633 (Type II SC2) and is rated at 96 hours minimum salt spray resistance.

## Threads

**Straight Threads:** External straight threads conform to the Unified National Class 2A. Maximum diameters of plated external threads may conform to Class 3A maximum diameters after plating.

**NPTF Threads:** Male and female pipe threads conform to the Dryseal American Standard Taper Pipe Thread (SAE J476a, NPTF) Series which will provide pressure tight joints without the use of a lubricant or sealer. Use of these fittings with non-dryseal NPT pipe or hose ends is not recommended for high-pressure applications.

**Note:** Where not functionally objectionable, use of a compatible lubricant/sealant is recommended for either NPT or NPTF threads to minimize the possibility of galling in assembly.

**NPSM Swivels:** Female threads for adapter union swivel nuts conform to the American Standard Straight Pipe Thread (NPSM) Series. These threads mate with either NPT or NPTF Series male threads to provide a mechanical connection between the adapter and mating male end. Sealing is provided by metal to metal contact between the machined 30 degree female seat on the NPT/NPTF male end and the nose of the swivel end. The NPSM swivel threads are not a sealing member.

**Caution: For proper sealing, ensure that the mating male end has been machined with the proper 30 degree female seat.**

## Assembly Information

For assembly instructions, refer to the Technical Data Section for the appropriate fitting end. Also, refer to the Technical Data Section for recommendations regarding tubing pressure ratings, tube flares and hose/tube routing information. Please note the following:

In the design and fabrication of tubing or hose runs for any hydraulic system, precautions should be taken to allow for sufficient adjustment of the hose or tubing so that proper alignment can be attained at the fitting connections. Improper fit-up or misalignment should be corrected before final connections are made. Location of fitting connections should be planned to maximize accessibility. Whenever possible, use a torque wrench to tighten connections to the recommended torque.

## Ordering information

Size of fittings are indicated by dash number relating to sixteenths of an inch for the nominal O.D. of the pipe size used. Example: 1/2 inch pipe = 8/16 or (-8) size.

Order standard fittings from appropriate chart indicating required dash numbers. For example, 1404-8-8 is 1/2" male pipe thread to 1/2" female pipe swivel. Jump size 1404-8-6 is 1/2" male pipe thread to 3/8" female pipe swivel. Pictorial views for each fitting style indicate the correct numbering sequence for fitting ends.

If information is needed for jump sizes not shown, please contact customer service for engineering assistance.



Table JU1. Pressure Ratings for Fittings With NPTF Pipe Threads and Adapter Unions						
Nom. Pipe Size		Thread Size			Working Pressures	
Nom SAE Dash Size	Nom Inch Pipe O.D.	Dryseal Pipe Thread (NPTF <sup>1</sup> ) Male and Female	Straight Pipe Thread (NPSM <sup>2</sup> ) Female Swivels	SAE J1926/3/ ISO 11926-3 O-Ring Port Thread Size (Notes 3&4)	Adapter Unions	
					MPa	psi
-2	1/8	1/8-27	1/8-27	5/16-24 UNF	34.5	5,000
-4	1/4	1/4-18	1/4-18	7/16-20 UNF	34.5	5,000
-6	3/8	3/8-18	3/8-18	9/16-18 UNF	27.6	4,000
-8	1/2	1/2-14	1/2-14	3/4-16 UNF	24.1	3,500
-12	3/4	3/4-14	3/4-14	1-1/16-12 UN	15.5	2,250
-16	1	1-11-1/2	1-11-1/2	1-5/16-12 UN	13.8	2,000
-20	1 1/4	1-1/4-11-1/2	1-1/4-11-1/2	1-5/8-12 UN	11.2	1,625
-24	1 1/2	1-1/2-11-1/2	1-1/2-11-1/2	1-7/8-12 UN	8.6	1,250
-32	2	2-11-1/2	2-11-1/2	2-1/2-12 UN	7.8	1,125

1) Dryseal American Standard Taper Pipe Thread

2) American Standard Straight Pipe Thread for Mechanical Joints

3) Threads per SAE J475 Class 2A ext. Class 2B int. (Ref. ISO-263/ISO-R725)

4) Unified class 2B threads apply to swivel nuts and with minor diameter modified to class 3B limits for locknuts

