

1. scope

This standard contains metric and inch auxiliary components for applicable O-Ring Face Seal fittings. Both metric and inch tube sizes are listed. Refer to SAE J1453-3 and ISO 8434-3 for dimensions not shown in this standard.

2. ACRONYMS

ORFS—O-Ring Face Seal

3. RELATED DOCUMENTS**3.1 RELATED STANDARDS**

SAE J1453-3—ORFS Fittings
SAE J514—Hydraulic Tube Fittings
ISO 8434-3—ORFS Fittings
ISO 6149-2—Connections for fluid power and general use
ISO 261—General Purpose Metric Screw Threads
ISO 1179—Connections for general use and fluid power
CNH ENS0150 (87692757)—Fabrication of hydraulic tubes and ports
CNH ENS0360 (87346984)—Corrosion Resistance for Hydraulic Fittings
CNH STPL020 (87692742)—ORFS Hydraulic Fittings – Basic Requirements

3.2 REPLACED STANDARDS

Case L-001—ORFS Fittings (Partial)
Case LM-001—ORFS Fittings (Partial)

4. CROSS REFERENCE

For cross reference listing of company part numbers, go to the [PARTsolutions](#).

5. REQUIREMENTS**5.1 MATERIAL**

Parts shall be made from carbon steel (CST) and meet the requirements in CNH STPL020 (87692742).

5.2 FINISH

The external surfaces and threads of all carbon steel parts shall be zinc plated per CNH ENS0360 (87346984) or coated with a suitable material that passes a 72 hour salt spray test in accordance with ASTM B 117. Braze-on type fittings shall be protected from corrosion by an oil film or other corrosion protection coating but does not need to meet the 72 hour salt spray test requirements.

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Standard Part

O-Ring Face Seal Auxiliary Components

STPL550**87331987**

Rev CC

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5.3 ADDITIONAL PARTS

Fittings supplied per this standard are to include the O-Ring on all ends as applicable.

5.4 PROTECTION

The sealing face and threads of components (both internal and external) must be protected by the manufacturer from nicks and scratches detrimental to their function. All passages must be securely capped or plugged to prevent entrance of dirt or other contaminants prior to assembly and for parts distribution handling and storage. Paper caps and plugs are not permitted.

5.5 BASIC REQUIREMENTS

All fittings supplied per this standard must meet the requirement listed in CNH STPL020 (87692742)—ORFS Hydraulic Fittings Basic Requirements

5.6 TRAPEZOIDAL CROSS-SECTION SEAL (TCS)

All fittings listed in the column "Trapezoidal Seal Fitting Part No." of this standard must be supplied with Trapezoidal Cross-section Seal (TCS) and must meet the requirements listed in CNH STPL020 (87692742), specifically section 7.3.2 ALTERNATE O-RINGS.

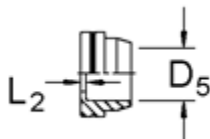
In the description of these parts, TCS will be included to differentiate from standard O-Ring fittings.

Service O-Ring Information for Reference

Tube End Thread Size (ORFS)			
Nominal Inch Tubing Dash Size	Tube Thread UN/UNF-2A	Service Std. O-Ring	Service Trapezoidal Cross-section Seal
-4	9/16-18	9825770	92140695
-6	11/16-16	9993141	92140707
-8	13/16-16	9992298	92140722
-10	1-14	9992069	92140826
-12	1-3/16-12	9991976	92140831
-16	1-7/16-12	9824050	92140835
-20	1-11/16-12	9824051	92140846
-24	2-12	9840589	92141349

O-RING FACE SEAL BRAZE SLEEVE

SAE 520115;
SAE 5201M15; ISO 8434-3 BRSL

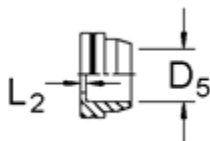


BRAZE SLEEVE (D5 dimension is for silver braze)

Tube OD		Tube Nut (Ref.)	L2±0.15	Metric Tubing		Inch Tubing	
mm	Inch			D5 Drill	Part No.	D5 Drill	Part No.
6	1/4	86639092	1.0	6.15	87644283	6.5	86637677
8	5/16	84052987	1.0	8.15	87644284	8.09	
10	3/8	84052987	1.0	10.15	86642912	9.68	86637678
12	1/2	85802628	1.0	12.15	86642913	12.85	86637689
16	5/8	85802819	1.5	16.15	86642914	16.03	86637690
20	3/4	85802972	1.5	20.18	86642915	19.23	86637691
25	1	86639097	1.5	25.18	86642916	25.58	86637692
30	1-1/4	86639098	1.5	30.20	87530370	31.95	86637693
38	1-1/2	86639099	1.5	38.20	84246774	38.3	86637694

For Tube Nut details, see page 14 O-Ring Face Seal Tube Nut.

O-RING FACE SEAL BRAZE SLEEVE



BRAZE REDUCING SLEEVE (D5 dimension is for silver braze)

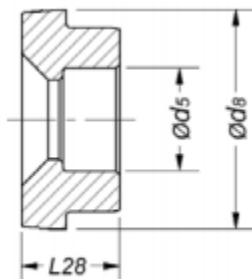
Non Preferred Part Numbers. See Page 5 and 6 for Preferred Part Numbers

Tube Nut (Ref.)	L2	Metric Tubing				Inch Tubing			
		Tube OD mm	ORFS Tube OD	D5	Part No.	Tube OD Inch	ORFS Tube OD	D5	Part No.
84052987	1	6	10	6.15	47512724	1/4	3/8	6.50	
86639092	1	8	6	8.20	47903938				
84052987	1	8	10	8.15	47131569	5/16	3/8	8.08	84480443
85802628	1	6	12	6.15		1/4	1/2	6.50	
85802628	1	8	12	8.15	47745121				
85802628	1	10	12	10.15	47663546	3/8	1/2	9.68	87752088
85802819	1	6	16	6.15		1/4	5/8	6.50	
85802819	1	8	16	8.15	51512437				
85802819	1	10	16	10.15		3/8	5/8	9.68	
85802819	1.50	12	16	12.15	84529663	1/2	5/8	12.85	87016906
85802972	1	6	20	6.15		1/4	3/4	6.50	
85802972	1	8	20	8.15					
85802972	1	10	20	10.15		3/8	3/4	9.68	
85802972	1.50	12	20	12.15	47572950	1/2	3/4	12.85	
85802972	1.50	16	20	16.15	48080668	5/8	3/4	16.03	86637697
86639097	1.50	12	25	12.15		1/2	1	12.85	
86639097	1.50	16	25	16.15		5/8	1	16.03	
86639097	1.50	20	25	20.18	47382001	3/4	1	19.23	84576089
86639098	1.50	28	32	28.18	87608194				
86639098	1.50	28	36	28.18	87644285				
86639098	1.50	32	36	32.18	86642917				
	7.11					1-1/4	1-1/2	32	47512686

For Tube Nut details, see page 14 O-Ring Face Seal Tube Nut.

O-RING FACE SEAL BRAZE SLEEVE

SAE 520115;
ISO 8434-3 BRRDSL
Preferred Part Numbers

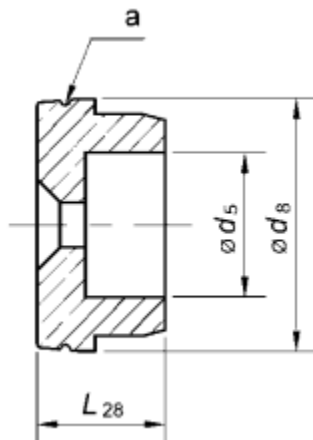


BRAZE REDUCING SLEEVE (D5 dimension is for silver braze)

Tube Nut (Ref.)	L28 mm	Inch Tubing				
		Tube OD Inch	ORFS Tube OD Inch	d5 mm	d8 mm	Part No.
84052987	10.5	1/4	3/8	6.50	15.75	
85802628	12	1/4	1/2	6.50	18.9	
84052987	10.5	5/16	3/8	8.09	15.75	51684227
85802628	12	3/8	1/2	9.68	18.9	51684228
85802819	13.5	1/4	5/8	6.50	23.45	
85802819	13.5	3/8	5/8	9.68	23.45	
85802819	13.5	1/2	5/8	12.85	23.45	51684229
85802972	14.5	1/4	3/4	6.50	27.85	
85802972	14.5	3/8	3/4	9.68	27.85	
85802972	14.5	1/2	3/4	12.85	27.85	
85802972	14.5	5/8	3/4	16.03	27.85	51684286
86639097	15.5	1/2	1	12.85	34.2	
86639097	15.5	5/8	1	16.03	34.2	
86639097	17	3/4	1	19.23	34.2	51684287
86639099	21.082	1	1-1/2	25.654	48.514	92649616

For Tube Nut details, see page 14 O-Ring Face Seal Tube Nut.

O-RING FACE SEAL BRAZE SLEEVE SAE 5201M15; ISO 8434-3 BRRDSL Preferred Part Numbers



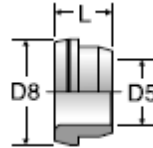
a. Identification groove for metric tube sleeve only

BRAZE REDUCING SLEEVE (D5 dimension is for silver braze)

Tube Nut (Ref.)	L28	Metric Tubing				Part No.
		Tube OD mm	ORFS Tube OD	d5	d8	
84052987	10.5	6	10	6.15	15.75	51684612
86639092		8	6	8.20		51684615
84052987	10.5	8	10	8.15	15.75	51684618
85802628	12	6	12	6.15	18.9	51684619
85802628	12	8	12	8.15	18.9	51684622
85802628	12	10	12	10.15	18.9	51684624
85802819	13.5	6	16	6.15	23.45	
85802819	13.5	8	16	8.15	23.45	51684641
85802819	13.5	10	16	10.15	23.45	91822001
85802819	13.5	12	16	12.15	23.45	51684642
85802972	14.5	6	20	6.15	27.85	
85802972	14.5	8	20	8.15	27.85	
85802972	14.5	10	20	10.15	27.85	90365850
85802972	14.5	12	20	12.15	27.85	51684718
85802972	14.5	16	20	16.15	27.85	51684727
86639097	15.5	12	25	12.15	34.2	90473598
86639097	15.5	16	25	16.15	34.2	90473612
86639097	17	20	25	20.18	34.2	51684730
86639097		20	32	20.18		91715983
86639098		28	32	28.18		51684733
86639098		28	36	28.18		51684736
86639098		32	36	32.18		51684738

For Tube Nut details, see page 14 O-Ring Face Seal Tube Nut.

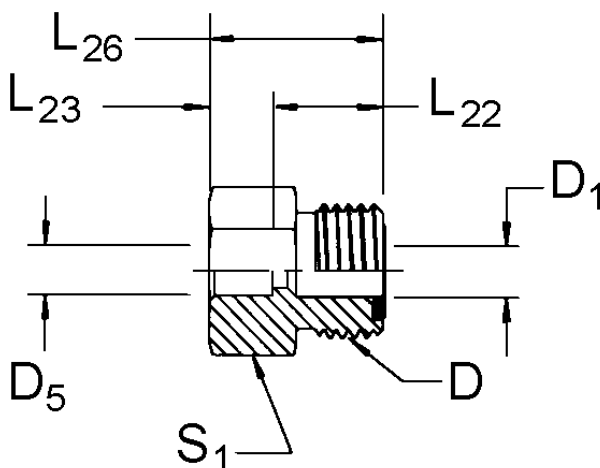
SLEEVE FOR METRIC TUBING ORFS MECHANICALLY ATTACHABLE SLEEVE



Tube Nut (Ref.)	Used w/Fitting Size	D5 Tube Size	D8 Diameter	L	Part Number
86639092	-4	6	12.75	7.5	5184877
84052987	-5	8	15.7	8.5	84052986
84052987	-6	10	16	8.5	87648727
85802628	-8	12	18.9	10.5	85802627
85802819	-10	16	23.4	10.5	85802818
85802972	-12	18	27.8	12	5191988
85802972	-12	20	27.8	12	85802971
86639097	-16	25	34	13.5	87497923
86639098		28	41	13	51517320
86639098	-20	30	40.5	14	87732113
86639098	-20	32	40.5	14	48064053
86639099	-24	38	48.5	14	84156981

For Tube Nut details, see page 14 O-Ring Face Seal Tube Nut.

METRIC O-RING FACE SEAL BRAZE STRAIGHT MALE CONNECTOR SAE 52M0104 / ISO 8434-3 BRS



Metric Tube

Tube OD	D	D1	L22	L23	L26	S1	D5	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
6	9/16-18	5.0	13.5	8.5	22.0	17	6.15	87644286	92870834
8	11/16-16	5.5	14.5	8.5	23.0	19	8.15	87531650	92870843
10	11/16-16	6.5	14.5	8.5	23.0	19	10.15	87742353	92870844
12	13/16-16	9.5	16.0	8.5	24.5	22	12.15	87668379	92870845
16	11/16-16	6.5	14.5	9	23.5	22	16.15	91751837	92870846
16	13/16-16	9.5	16.0	9	25	22	16.15	47550991	92870847
16	1-14	12.5	21.5	8.5	30	27	16.15	5189229	92870850
20	1-3/16-12	15.5	21.0	12.5	33.5	32	20.18	47126664	
25	1-7/16-12	20.5	24.5	14.0	38.5	41	25.18	86639091	92870852
28	1-7/16-12	20.5	24.5	14.0	38.5	41	28.18	90334976	92870854
30	1-11/16-12	26.0	24.5	14.0	38.5	46	30.2	90327710	92870855
38	2-12	32.0	24.5	14.0	38.5	55	38.2		

Inch Tube

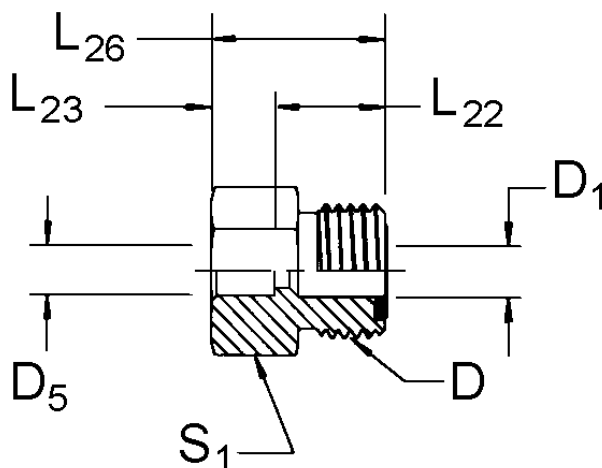
SAE Dash Size	Tube OD	D	D1	L22	L23	L26	S1	D5	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
-4	1/4	9/16-18	5.0	13.5	8.5	22.0	17	6.5		
-5	5/16	11/16-16	6.5	13.5	8.5	22.0	17	8.09		
-6	3/8	11/16-16	6.5	14.5	8.5	23.0	19	9.68	86639086	92870857
-8	1/2	13/16-16	9.5	16.0	8.5	24.5	22	12.85	86639087	92870858
-10	5/8	1-14	12.5	19.0	8.5	27.5	27	16.03	86639088	92870860
-12	3/4	1-3/16-12	15.5	21.0	12.5	33.5	32	19.23	86639089	92870862
-16	1	1-7/16-12	20.5	24.5	14.0	38.5	41	25.58	86639090	92870863
-20	1-1/4	1-11/16-12	26.0	24.5	14.0	38.5	46	31.95	87657974	92870864
-24	1-1/2	2-12	32.0	24.5	14.0	38.5	55	38.30	84173773	92870865

D5 dimension is for silver braze

Part number includes seal ring

For O-Ring or Trapezoidal Cross-section Seal service information refer to chart on page 2.

METRIC O-RING FACE SEAL BRAZE STRAIGHT MALE JUMP CONNECTOR SAE 52M0104 / ISO 8434-3 BRS



Metric Tube

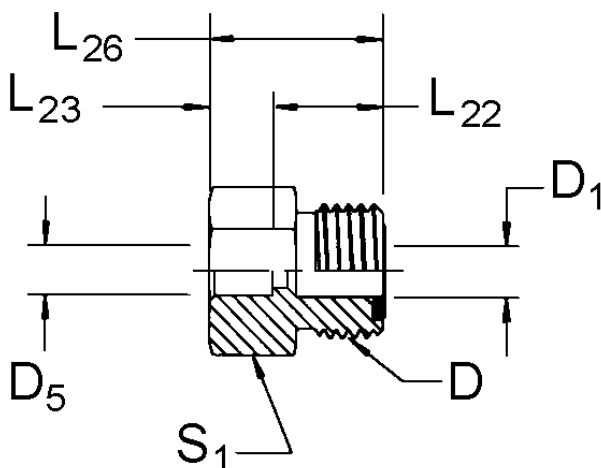
Tube OD ORFS mm	Tube OD Braze mm	D	S1 Hex	L22	L23	L26	D5	D1	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
6	10	9/16-18	17	13.5	8.5	22	10.05	5	51411325	92870867
12	08	13/16-16	22	16	8.5	24.5	8.15	5.5	48074984	92870868
16	20	1-14	27	19	12.5	31.5	20.18	12.5	48197411	92870869
16	25	1-14	32	21	14	35	25.18	12.5	91722284	92870870
20	16	1-3/16-12	32	21.2	12.5	33.7	16.15	12.5	48005122	92870871
25	20	1-7/16-12	41	24.5	12.5	37	20.18	15.5	51545897	92870872

D5 dimension is for silver braze

Part number includes seal ring

For O-Ring or Trapezoidal Cross-section Seal service information refer to chart on page 2.

INCH O-RING FACE SEAL BRAZE STRAIGHT MALE CONNECTOR SAE 520104



Metric Tube

Tube OD	D	D1	L22	L23	L26	S1	D5	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
6	9/16-18	.172	.530	.330	.860	5/8	.242		
8	11/16-16	.264	.570	.330	.900	3/4	.321		
10	11/16-16	.264	.570	.330	.900	3/4	.400		
12	13/16-16	.378	.640	.330	.970	7/8	.478		
16	1-14	.484	.740	.330	1.070	1-1/16	.636		
20	1-3/16-12	.609	.830	.490	1.320	1-1/4	.794	47126664	
25	1-7/16-12	.811	.970	.550	1.520	1-1/2	.991	87530408	92870965
28	1-11/16-12	1.024	.970	.550	1.520	1-3/4	1.109	51644859	92870966
30	1-11/16-12	1.024	.964	.551	1.51	2-1/8	1.188		
32	1-11/16-12	1.024	.970	.550	1.520	1-3/4	1.267		
38	2-12	1.260	.970	.550	1.520	2-1/8	1.503		

Inch Tube

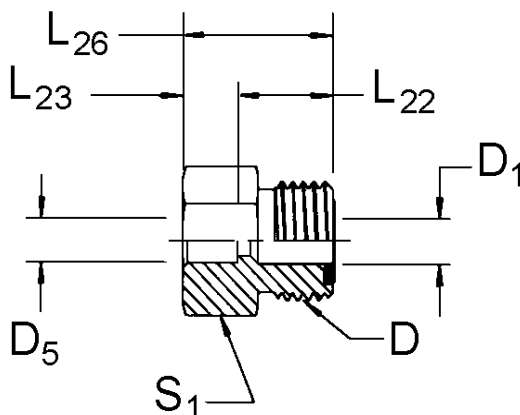
SAE Dash Size	Tube OD	D	D1	L22	L23	L26	S1	D5	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
-4	1/4	9/16-18	.172	.530	.330	.860	5/8	.256	84365546	92870967
-5	5/16	11/16-16	.255	.531	.335	.866	3/4	.318	47692796	92870968
-6	3/8	11/16-16	.264	.570	.330	.900	3/4	.381	86637670	92870969
-8	1/2	13/16-16	.378	.640	.330	.970	7/8	.506	86637671	92870970
-10	5/8	1-14	.484	.740	.330	1.070	1-1/16	.631	86637672	92870971
-12	3/4	1-3/16-12	.609	.830	.490	1.320	1-1/4	.757	86637673	92870972
-16	1	1-7/16-12	.811	.970	.550	1.520	1-1/2	1.007	86637674	92870973
-20	1-1/4	1-11/16-12	1.024	.970	.550	1.520	1-3/4	1.258	87530407	92870975
-24	1-1/2	2-12	1.260	.970	.550	1.520	2-1/8	1.508		

D5 dimension is for silver braze

Part number includes seal ring

For O-Ring or Trapezoidal Cross-section Seal service information refer to chart on page 2.

INCH O-RING FACE SEAL BRAZE STRAIGHT MALE JUMP CONNECTOR SAE 520104



Metric Tube

Tube OD ORFS mm	Tube OD Braze mm	D	S1 Hex	L22	L23	L26	D5	D1	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
6	8	9/16-18	17	13.5	8.5	22	8.15	5	48085028	92870976
6	12	9/16-18	16			22			84345029	92870977
10	8	11/16-16	19	14.5	8.5	23	8.15	6.5		
10	12	11/16-16	19	14.5	8.5	23	12.15	6.5	87329604	92870978
12	10	13/16-16	22	17.1	8.5	25.6	10.15	8.0	47858612	92870980

Inch Tube

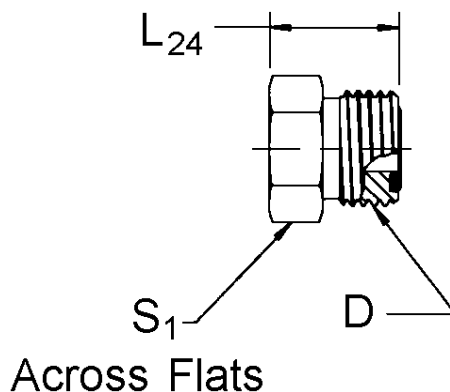
Tube OD ORFS		Tube OD Braze In.	D	S1 Hex	L22	L23	L26	D5	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
SAE Dash Size	Inch									
-4	1/4	3/8	9/16-18	5/8	.530	.330	.860	.381	84535910	92870981
-6	3/8	1/4	11/16-16	5/8	.570	.330	.900	.256	84535911	92870982
-6	3/8	1/2	11/16-16	3/4	.570	.330	.900	.506	84535913	92870983
-8	1/2	3/8	13/16-16	3/4	.640	.330	.970	.381	84535915	92870985
-8	1/2	5/8	13/16-16	7/8	.640	.330	.970	.631	84535916	92870986
-10	5/8	3/4	1-14	1-1/16	.740	.490	1.230	.757	84535918	92870987
-12	3/4	1	1-3/16-12	1-1/4	.830	.490	1.320	1.007	51411322	92870988
-12	3/4	1	1-3/16-12	1-1/2	.830	.550	1.380	1.007	84535919	92870989
-16	1	3/4	1-7/16-12	1-1/2	.970	.490	1.460	.757	84535933	92870990
-16	1	1-1/4	1-7/16-12	1-3/4	.970	.550	1.520	1.258	86637675	92870991
-20	1-1/4	1-1/2	1-11/16-12	2-1/8	.970	.550	1.520	1.508	84533149	92870992

D5 dimension is for silver braze

Part number includes seal ring

For O-Ring or Trapezoidal Cross-section Seal service information refer to chart on page 2.

O-RING FACE SEAL TUBE END PLUG SAE 520109



Metric & Inch

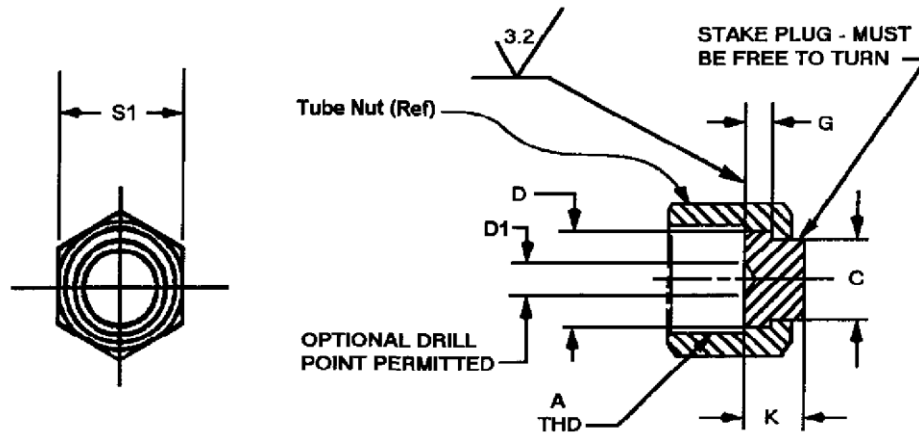
Tube OD			D Thread	L24	S	Std. O-Ring Fitting Part Number	Trapezoidal Seal Fitting Part No.
SAE Dash Size	mm	Inch			Metric Inch	Metric Inch	Metric Inch
-4	6	1/4	9/16-18	16.5	16	84577049	92870993
					5/8		
-5 & -6	8 & 10	5/16 & 3/8	11/16-16	19	19	87737590	92762766
					3/4	9843614	92870994
-8	12	1/2	13/16-16	22	22	9840573	92764446
					7/8		
-10	16	5/8	1-14	26	27	9847692	92870995
					1-1/16		
-12	20	3/4	1-3/16-12	27.5	32	9847693	92767958
					1-1/4		
-16	25	1	1-7/16-12	28	41	9847694	92870996
					1-1/2		
-20	30	1-1/4	1-11/16-12	28	46	9847695	92870997
					1-3/4		
-24	38	1-1/2	2-12	28	55		
					2-1/8		

Part number includes seal ring.

Shaded area represents Inch fittings

For O-Ring or Trapezoidal Cross-section Seal service information refer to chart on page 2.

O-RING FACE SEAL CAP SAE 520112



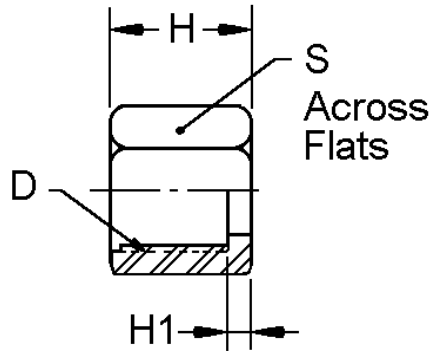
Metric & Inch

Tube OD			A Thread	C Boss Dia.	D Shld'r Dia	D1* Drill Pt. Dia	G Shld'r Width	K Plug Width	S1	Part No.
SAE Dash Size	mm	Inch							Metric	Metric
									Inch	Inch
-4 & -5	6 & 8	1/4 & 5/16	9/16-18	10.2	12.75	4	4	9.0	17	87668376
									11/16	
-6	10	3/8	11/16-16	13.25	15.75	5	4.7	10.5	22	9625546
									13/16	87331950
-8	12	1/2	13/16-16	16.3	18.9	8	5	12.0	24	9840575
									15/16	87331951
-10	16	5/8	1-14	20.75	23.45	10	6	13.5	30	9840576
									1-1/8	47818474
-12	20	3/4	1-3/16-12	23.75	27.85	10	6.5	15.0	36	9847689
									1-3/8	
-16	25	1	1-7/16-12	28.7	34.2	15	7	16.0	41	9847690
									1-5/8	
-20	30	1-1/4	1-11/16-12	35.6	40.55	15	7	16.0	50	9847691
									1-7/8	
-24	38	1-1/2	2-12	43.55	48.5	15	7	16.0	60	9847688
									2-1/4	

Shaded area represents Inch fittings

*D1 drill is optional

O-RING FACE SEAL TUBE NUT

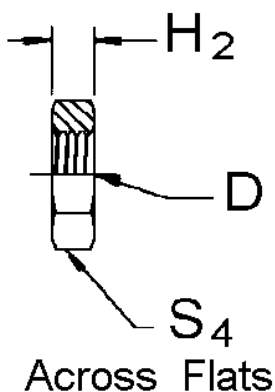


Metric & Inch

Tube OD			D Thread	H	H1 ±0.15	S	Part No.
SAE Dash Size	mm	Inch				Metric	Metric
						Inch	Inch
-4	6	1/4	9/16-18	15	3	17	86639092
						11/16	
-5 & -6	8 & 10	5/16 & 3/8	11/16-16	17	4	22	84052987
						13/16	82981690
-8	12	1/2	13/16-16	20	5	24	85802628
						15/16	86541144
-10	16	5/8	1-14	24	5.5	30	85802819
						1-1/8	86624028
-12	20	3/4	1-3/16-12	26.5	6.5	36	85802972
						1-3/8	87530409
-16	25	1	1-7/16-12	27.5	7	41	86639097
						1-5/8	86541146
-20	30	1-1/4	1-11/16-12	27.5	7	50	86639098
						1-7/8	87530411
-24	38	1-1/2	2-12	27.5	7	60	86639099
						2-1/4	86637676

Shaded area represents Inch fittings

BULKHEAD LOCKNUT



Inch Threads

Tube OD			D	H2	S4 HEX	Part No.
SAE Dash Size	mm	Inch			Metric	Metric
					Inch	Inch
-4	6	1/4	9/16-18	7	22	86639063
					13/16	87381288
-5 & -6	8 & 10	5/16 & 3/8	11/16-16	8	27	87010704
					1	87381287
-8	12	1/2	13/16-16	9	30	86639083
					1-1/8	87381289
-10	16	5/8	1-14	10.5	36	86639085
					1-5/16	87381294
-12	20	3/4	1-3/16-12	10.5	41	86639062
					1-1/2	47603496*
-16	25	1	1-7/16-12	10.5	46	86639084
					1-3/4	48110513
-20	30	1-1/4	1-11/16-12	10.5	50	48061836
					2	87559423
-24	38	1-1/2	2-12	10.5	60	
					2-3/8	87533994

Shaded area represents Inch fittings

* Also shown on STPL110

Metric Threads

Tube OD		D	H2	S4 HEX	Part No.
mm	Inch				
16	5/8	M24x1.5	6	32	5129168