

Hose & Coupling Reference Guide

- High Pressure Hose & Couplings
- Low & Medium Pressure Hose & Couplings
- Special Application Hose & Couplings

<http://manualplace.com/download/caterpillar-hose-and-coupling-reference-guide>



Third Edition

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Introduction

As system pressures and other demands on today's equipment increase, so does the need for reliable hose and couplings. Why tolerate premature hose and coupling failures when we can help you avoid them with superior hose products and service?

Caterpillar stands alone as the only equipment manufacturer who makes its own hose and coupling products. This catalog includes information on Caterpillar low, medium and high pressure hose and coupling product lines. We have a full stock of replacement products for earthmoving and other applications. That means no more running from one source to another to find the parts you need.

Caterpillar Hose Products Exceed Industry Standards

Cat hose and couplings are designed to work together as a system for problem-free performance, no matter what brand of machine you operate. Testing performance for most products exceeds SAE requirements. Most hoses meet the MSHA flame resistance requirements as well.

XT Hose and Couplings ... Differentiation

Caterpillar's superior hose construction and testing differentiates it from other manufacturers. Caterpillar was the first to design and manufacture high pressure hydraulic hose known throughout the industry as XT hose. XT hose standards far exceed industry standards still today. XT hose is impulse tested to one million cycles - twice the industry requirement - at 133% of working pressure using both new and aged hose.

The differentiation does not stop at the hose. Caterpillar offers reusable couplings for XT hose to help keep your owning and operating costs at a minimum. Caterpillar reusable couplings for XT hose are the last coupling you should ever need.

XT-3 ES Hose

Caterpillar's XT-3 ES hose provides up to 20 times more abrasion resistance than the industry's best rubber-covered hose, due to an exclusive cover formulated and manufactured by Caterpillar. Cat XT-3 ES hose works at half of the SAE bend radius without sacrificing cold flex capability.

Caterpillar® 1956 Hose and Couplings Meet Your Mixed Fleet Needs

(1956 hose (DIN 20023 4SP) and coupling) The product line joins the extensive line of high pressure XT hose components that have set the industry standard for reliability and durability for nearly 30 years.

Caterpillar® Low and Medium Hose and Couplings

Caterpillar manufactures one wire braid (716), two wire braid (294) and hydraulic suction (844) hose and couplings. These too exceed SAE requirements for the best in reliable hose and coupling performance. These hoses are impulse tested in both the unaged and aged condition, up to two and a half times the number of cycles required by SAE, to assure reliable performance.

Caterpillar 716 and 294 hose and couplings also meet DIN 20022 1SN and 20022 2SN standards.

Caterpillar Special Application Hose and Couplings

Caterpillar offers a complete line of thermoplastic, engine / air brake and air conditioning hose and couplings, including a line of reduced outside diameter (O.D.) thermoplastic hose and couplings (2760), used extensively in earthmoving equipment hydraulic pilot lines.

More of Your Equipment Can Be Converted to Cat Hose

With the Cat hose and coupling product line, more systems can be converted to high quality Cat hose and couplings. This is only a short rundown of industries which have found success in their conversions to Cat Hose:

Mining	Pulp and Plywood Mills
Logging	Manufacturing Plants
Petroleum	Agriculture
Railroads	Waste/Refuse
Construction	

Hydraulic System Services

When you need hose repairs, we can provide fast, over-the-counter service by making hose assemblies to your specifications while you wait. Better yet, call ahead and we can have them waiting for you.

If you prefer to make your own assemblies, we can help there, too. We will set you up with the proper tooling and training and even assist with stocking requirements.

Whatever your hydraulic system needs, we have the resources to get your machines up and running quickly with the work done right the first time.

When you need quality hose and couplings, it makes sense to use the best available. You can trust Cat Hose and Couplings for all your needs!

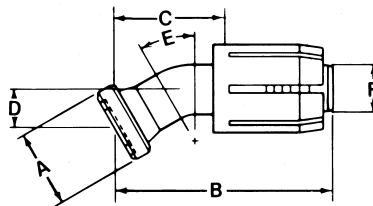
Introduction

Before You Measure Hose and Stem Assemblies, Review This Information

1. Determine what type of hose assembly is to be replaced.
2. Measure the inside diameter of the hose.
3. Measure the angle, actual head size, and length of the stem assemblies.
4. Select the proper stem assembly from the part numbers pages.
 - a. Locate inside diameters for your hose.
 - b. Check the list of actual head sizes and lengths of stem assemblies.
 - c. Locate the desired angle for your stem assembly.
 - d. When all the dimensions agree, locate the part number.
5. Add the cut-off factors for your stem assemblies.
6. Subtract this total length from the overall length of the hose assembly.
7. Cut bulk hose to length needed for hose assembly.
8. Assemble the new hose assembly using sleeves, stems, and armor if needed.

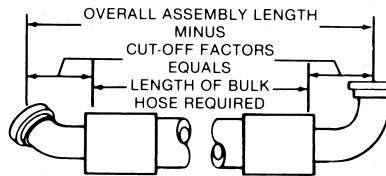
Coupling Dimensions

- A. Actual Head Size
- B. Stem Assembly Length
- C. Cut-Off Factor
- D. Drop Length
- E. Degree of Angle
- F. Hose Inside Diameter

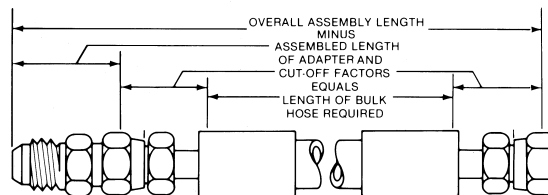


Hose Assembly Measurements

Flange-type Assembly—Subtract the cut-off factors from the overall assembly length to determine the length of bulk hose required.



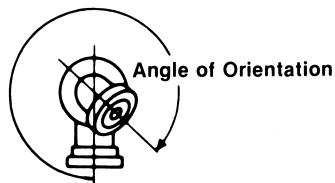
Thread-type Assembly—Subtract the cut-off factors and the assembled length of the adapter from the overall assembly length to determine the bulk hose required.



Assemblies are measured to the centerline of the sealing surface.

Coupling Angle of Orientation

The angle of orientation between the stem assemblies is measured with the far stem assembly vertically downward and viewing the assembly from the near stem assembly end.



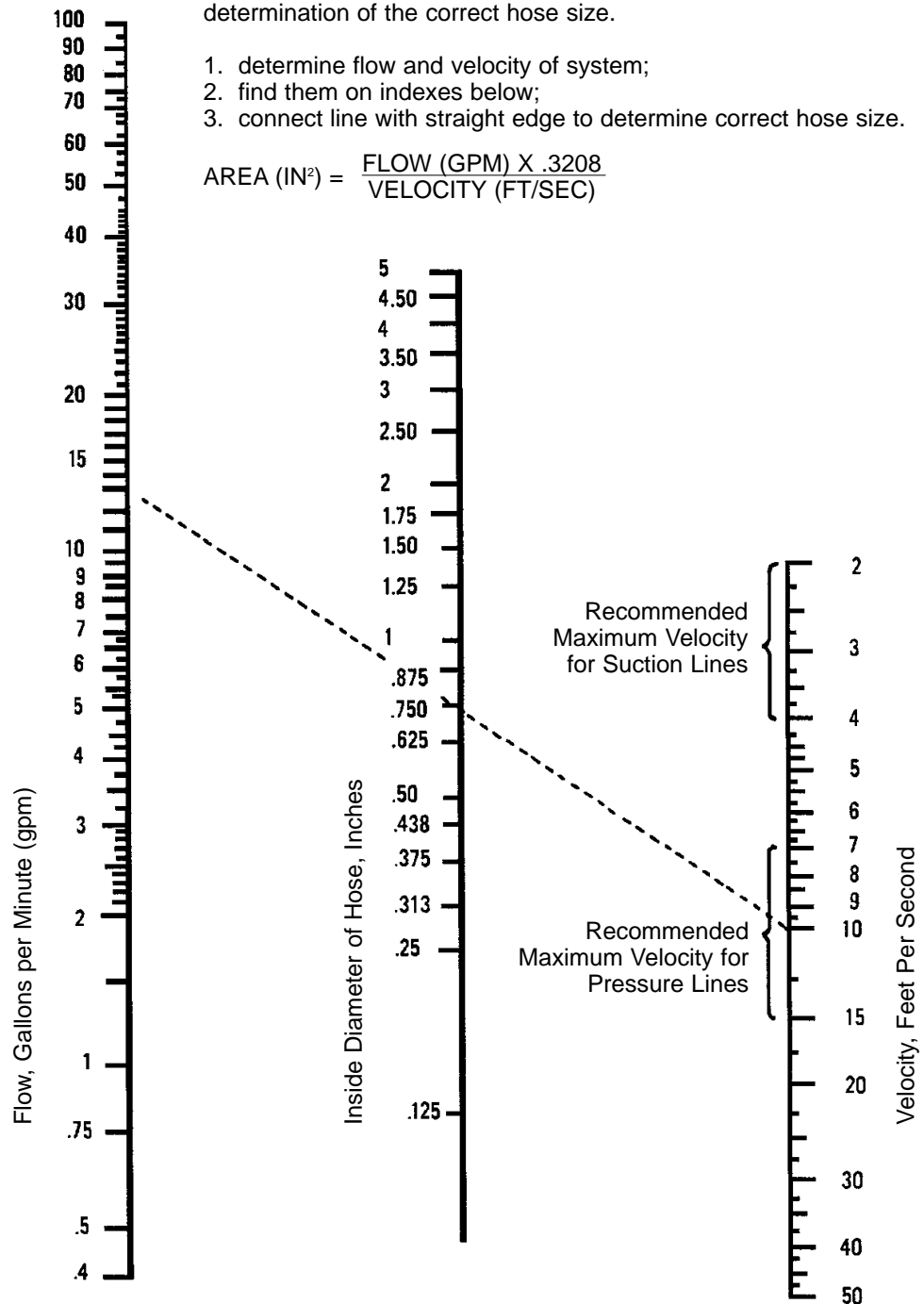
Flow Capacity Nomograph

Flow Capacities of Caterpillar Hose at Recommended Flow Velocities

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

1. determine flow and velocity of system;
2. find them on indexes below;
3. connect line with straight edge to determine correct hose size.

$$\text{AREA (IN}^2\text{)} = \frac{\text{FLOW (GPM)} \times .3208}{\text{VELOCITY (FT/SEC)}}$$



Industry Standard Comparison

SAE 100R1AT vs Cat One-Wire Braid Hose (716)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R1	716	100R1	716	100R1	716
-3	0.188	4.8	3000	—	207	—	20,700	—
-4	0.250	6.4	2750	2750	190	190	19,000	19,000
-5	0.313	7.9	2500	—	172	—	17,200	—
-6	0.375	9.5	2250	2250	155	155	15,500	15,500
-8	0.500	12.7	2000	2000	138	138	13,800	13,800
-10	0.625	15.9	1500	1500	103	103	10,300	10,300
-12	0.750	19.1	1250	1250	86	86	8600	8600
-16	1.000	25.4	1000	1000	69	69	6900	6900
-20	1.250	31.8	625	625	43	43	4300	4300
-24	1.500	38.1	500	500	34	34	3400	3400
-32	2.000	50.8	375	375	26	26	2600	2600

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
-3 to -16	125% of W.P.♦	+212°F (+100°C)	150,000
-20 to -32	100% of W.P.	+212°F (+100°C)	150,000
716			
All Sizes	100% of W.P.	+275°F (+135°C)	250,000#

TEMPERATURE CAPABILITIES

100R1:	-40°F to +212°F (-40°C to +100°C)
716:	-40°F to +275°F (-40°C to +135°C)

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 716 hose is aged at +300°F (+150°C) for 200 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

♦W.P. = Working Pressure

DIN 20022 1SN vs Cat One-Wire Braid Hose (716)

WORKING PRESSURE*

DIN DN SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			20022 1SN	716	20022 1SN	716	20022 1SN	716
5	0.188	4.8	3625	—	250	—	25,000	—
6	0.250	6.4	3263	3263	225	225	22,500	22,500
8	0.313	7.9	3118	—	215	—	21,500	—
10	0.375	9.5	2610	2610	180	180	18,000	18,000
12	0.500	12.7	2320	2320	160	160	16,000	16,000
16	0.625	15.9	1885	1885	130	130	13,000	13,000
20	0.750	19.1	1523	1523	105	105	10,500	10,500
25	1.000	25.4	1276	1276	88	88	8800	8800
32	1.250	31.8	914	914	63	63	6300	6300
40	1.500	38.1	725	725	50	50	5000	5000
50	2.000	50.8	580	580	40	40	4000	4000

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
5 to 25	125% of W.P.♦	+212°F (+100°C)	150,000
32 to 50	100% of W.P.	+212°F (+100°C)	150,000
716			
5 to 25	125% of W.P.	+212°F (+100°C)	150,000#
32 to 50	100% of W.P.	+212°F (+100°C)	150,000#

TEMPERATURE CAPABILITIES

DIN 20022 1SN:	-40°F to +212°F (-40°C to +100°C)
716:	-40°F to +212°F (-40°C to +100°C)

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 716 hose was tested against the DIN 20022 1SN specifications for use in DIN applications.

♦W.P. = Working Pressure

Industry Standard Comparison

SAE 100R2AT[♦] vs Cat Two-Wire Braid Hose (294)

WORKING PRESSURE*									IMPULSE TESTING			
HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)		TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES	
			100R2	294	100R2	294	100R2	294				
-3	0.188	4.8	5000	—	345	—	34,500	—	100R2 All Sizes	133% of W.P.♦	+212°F (+100°C)	200,000
-4	0.250	6.4	5000	5000	345	345	34,500	34,500				
-5	0.313	7.9	4250	4250	293	293	29,300	29,300	All Sizes	133% of W.P.	+212°F (+100°C)	500,000#
-6	0.375	9.5	4000	4000	276	276	27,600	27,600				
-8	0.500	12.7	3500	3500	241	241	24,100	24,100	TEMPERATURE CAPABILITIES			
-10	0.625	15.9	2750	2750	190	190	19,000	19,000				
-12	0.750	19.1	2250	2250	155	155	15,500	15,500	100R2:	-40°F to +212°F	(-40°C to +100°C)	
-16	1.000	25.4	2000	2000	138	138	13,800	13,800	294:	-40°F to +212°F	(-40°C to +100°C)	
-20	1.250	31.8	1625	1625	112	112	11,200	11,200				
-24	1.500	38.1	1250	1250	86	86	8600	8600				
-32	2.000	50.8	1125	1125	78	78	7800	7800				

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 294 hose is aged at +225°F (+107°C) for 150 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

♦W.P. = Working Pressure

♦ AT designates the thinner cover used on no-skive hose.

DIN 20022 2SN vs Cat Two-Wire Braid Hose (294)

WORKING PRESSURE*									IMPULSE TESTING			
DIN DN SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)		TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES	
			20022 2SN	294	20022 2SN	294	20022 2SN	294				
5	0.188	4.8	6018	—	415	—	41,500	—	DIN 20022 2SN All Sizes	133% of W.P.♦	+212°F (+100°C)	200,000
6	0.250	6.4	5800	5800	400	400	40,000	40,000				
8	0.313	7.9	5075	5075	350	350	35,000	35,000	All Sizes	133% of W.P.	+212°F (+100°C)	200,000#
10	0.375	9.5	4785	4785	330	330	33,000	33,000				
12	0.500	12.7	3988	3988	275	275	27,500	27,500	TEMPERATURE CAPABILITIES			
16	0.625	15.9	3625	3625	250	250	25,000	25,000				
20	0.750	19.1	3118	3118	215	215	21,500	21,500	DIN 20022 2SN:	-40°F to +212°F	(-40°C to +100°C)	
25	1.000	25.4	2393	2393	165	165	16,500	16,500	294:	-40°F to +212°F	(-40°C to +100°C)	
32	1.250	31.8	1813	1813	125	125	12,500	12,500				
40	1.500	38.1	1305	1305	90	90	9000	9000				
50	2.000	50.8	1160	1160	80	80	8000	8000				

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 294 hose was tested against the DIN 20022 2SN specifications for use in DIN applications.

♦W.P. = Working Pressure

Industry Standard Comparison

SAE 100R4 vs Cat Hydraulic Suction Hose (844)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R4	844	100R4	844	100R4	844
-3	0.188	4.8	—	—	—	—	—	—
-4	0.250	6.4	—	—	—	—	—	—
-5	0.313	7.9	—	—	—	—	—	—
-6	0.375	9.5	—	—	—	—	—	—
-8	0.500	12.7	—	—	—	—	—	—
-10	0.625	15.9	—	—	—	—	—	—
-12	0.750	19.1	300	300	21	21	2100	2100
-16	1.000	25.4	250	250	17	17	1700	1700
-20	1.250	31.8	200	200	14	14	1400	1400
-24	1.500	38.1	150	150	10	10	1000	1000
-32	2.000	50.8	100	100	7	7	700	700

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R4			
All Sizes	NO IMPULSE TESTING PERFORMED		
844			
All Sizes	NO IMPULSE TESTING PERFORMED		

TEMPERATURE CAPABILITIES

100R4:	-40°F to +212°F	(-40°C to +100°C)
844:	-40°F to +275°F	(-40°C to +135°C)

SAE 100R5 vs Cat One-Wire Braid Hose - Fabric Covered (556)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R5	556	100R5	556	100R5	556
-4	0.188	4.8	3000	3000	207	207	20,700	20,700
-5	0.250	6.4	3000	3000	207	207	20,700	20,700
-6	0.313	7.9	2250	2250	155	155	15,500	15,500
-8	0.406	10.3	2000	2000	138	138	13,800	13,800
-10	0.500	12.7	1750	1750	121	121	12,100	12,100
-12	0.625	15.9	1500	1500	103	103	10,300	10,300
-16	0.875	22.2	800	800	55	55	5500	5500
-20	1.125	28.6	625	625	43	43	4300	4300
-24	1.375	34.9	500	500	34	34	3400	3400
-32	1.813	46.0	350	—	24	—	2400	—

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 556 hose is aged at +275°F (+135°C) for 200 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R5			
-4 to -16	125% of W.P.◆	+212°F (+100°C)	150,000
-20 to -32	100% of W.P.	+212°F (+100°C)	100,000
556			
-4 to -16	125% of W.P.	+250°F (+120°C)	150,000#
-20 to -32	100% of W.P.	+250°F (+120°C)	100,000#

TEMPERATURE CAPABILITIES

100R5:	-40°F to +212°F	(-40°C to +100°C)
556:	-40°F to +250°F	(-40°C to +121°C)

Industry Standard Comparison

SAE 100R7 vs Cat Thermoplastic Hose (1028)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R7	1028	100R7	1028	100R7	1028
-3	0.188	4.8	3000	3000	207	207	20,700	20,700
-4	0.250	6.4	2750	2750	190	190	19,000	19,000
-5	0.313	7.9	2500	2500	172	172	17,200	17,200
-6	0.375	9.5	2250	2250	155	155	15,500	15,500
-8	0.500	12.7	2000	2000	138	138	13,800	13,800
-10	0.625	15.9	1500	—	103	—	10,300	—
-12	0.750	19.1	1250	1250	86	86	8,600	8,600
-16	1.000	25.4	1000	—	69	—	6,900	—
-20	1.250	31.8	—	—	—	—	—	—
-24	1.500	38.1	—	—	—	—	—	—
-32	2.000	50.8	—	—	—	—	—	—

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, 1028 hose is aged at +200°F (+93°C) for 150 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R7			
All Sizes	125% of W.P.◆	+200°F (+93°C)	150,000
1028			
All Sizes	100% of W.P.	+200°F (+93°C)	1,000,000
OR	133% of W.P.	+200°F (+93°C)	150,000#

TEMPERATURE CAPABILITIES

100R7:	-40°F to +200°F (-40°C to +93°C)
1028:	-70°F to +200°F (-56°C to +93°C)

SAE 100R12 vs XT-3 ES Hose (736)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R12	XT-3	100R12	XT-3	100R12	XT-3
-3	0.188	4.8	—	—	—	—	—	—
-4	0.250	6.4	—	—	—	—	—	—
-5	0.313	7.9	—	—	—	—	—	—
-6	0.375	9.5	4000	4000	280	280	28,000	28,000
-8	0.500	12.7	4000	4000	280	280	28,000	28,000
-10	0.625	15.9	—	4000	—	280	—	28,000
-12	0.750	19.1	4000	4000	280	280	28,000	28,000
-16	1.000	25.4	4000	4000	280	280	28,000	28,000
-20	1.250	31.8	3000	3000	210	210	21,000	21,000
-24	1.500	38.1	2500	2500	175	175	17,500	17,500
-32	2.000	50.8	2500	2500	175	175	17,500	17,500

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, XT-3 ES hose is aged at +250°F (+121°C) for 150 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R12			
All Sizes	133% of W.P.◆	+250°F (+121°C)	500,000
XT-3 ES			
All Sizes	133% of W.P.	+250°F (+121°C)	1,000,000#

TEMPERATURE CAPABILITIES

100R12:	-40°F to +250°F (-40°C to +121°C)
XT-3 ES:	-40°F to +250°F (-40°C to +121°C)

BEND RADIUS

100R12:	SAE
XT-3 ES:	1/2 SAE

Industry Standard Comparison

DIN 20023 4SP vs Cat DIN Four-Wire Spiral Hose (1956)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			20023 4SP	1956	20023 4SP	1956	20023 4SP	1956
-3	0.188	4.8	—	—	—	—	—	—
-4	0.250	6.4	—	—	—	—	—	—
-5	0.313	7.9	—	—	—	—	—	—
-6	0.375	9.5	6453	6453	445	445	44,500	44,500
-8	0.500	12.7	6018	6018	415	415	41,500	41,500
-10	0.625	15.9	5075	5075	350	350	35,000	35,000
-12	0.750	19.1	5075	5075	350	350	35,000	35,000
-16	1.000	25.4	4060	4060	280	280	28,000	28,000
-20	1.250	31.8	3045	3045	210	210	21,000	21,000
-24	1.500	38.1	2683	2683	185	185	18,500	18,500
-32	2.000	50.8	2393	2393	165	165	16,500	16,500

*Minimum burst pressure will always be 4X the maximum working pressure.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
DIN 20023 4SP			
All Sizes	133% of W.P.◆	+212°F (+100°C)	400,000
1956			
All Sizes	133% of W.P.	+212°F (+100°C)	400,000

TEMPERATURE CAPABILITIES

DIN 20023 4SP:	-40°F to +212°F (-40°C to +100°C)
1956:	-40°F to +212°F (-40°C to +100°C)

SAE 100R13 vs XT-5 Hose (1036)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R13	XT-5	100R13	XT-5	100R13	XT-5
-3	0.188	4.8	—	—	—	—	—	—
-4	0.250	6.4	—	—	—	—	—	—
-5	0.313	7.9	—	—	—	—	—	—
-6	0.375	9.5	—	—	—	—	—	—
-8	0.500	12.7	—	—	—	—	—	—
-10	0.625	15.9	—	—	—	—	—	—
-12	0.750	19.1	5000	5000	345	345	35,000	35,000
-16	1.000	25.4	5000	5000	345	345	35,000	35,000
-20	1.250	31.8	5000	5000	345	345	35,000	35,000
-24	1.500	38.1	5000	5000	345	345	35,000	35,000
-32	2.000	50.8	—	5000	—	345	—	35,000

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#For this test, XT-5 hose is aged at +250°F (+121°C) for 150 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R13			
All Sizes	120% of W.P.◆	+250°F (+121°C)	500,000
XT-5			
All Sizes	120% of W.P.	+250°F (+121°C)	1,000,000#

TEMPERATURE CAPABILITIES

100R13:	-40°F to +250°F (-40°C to +121°C)
XT-5:	-40°F to +250°F (-40°C to +121°C)

Industry Standard Comparison

SAE J1402 vs Cat Engine and Air Brake Hose (1130)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			J1402	1130	J1402	1130	J1402	1130
-4	0.188	4.8	225	2000	16	138	1600	13,800
-5	0.250	6.4	225	1500	16	103	1600	10,300
-6	0.313	7.9	225	1500	16	103	1600	10,300
-8	0.406	10.3	225	1250	16	86	1600	8,600
-10	0.500	12.7	225	1000	16	69	1600	6,900
-12	0.625	15.9	225	750	16	52	1600	5,200
-16	0.875	22.2	—	400	—	28	—	2,800
-20	1.125	28.6	—	300	—	21	—	2,100
-24	1.375	34.9	—	250	—	17	—	1,700
-32	1.813	46.0	—	—	—	—	—	—

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#Cat 1130 hose passes a severe hot oil circulation test that exposes the hose liner to +300°F oil for 750 hours with no cracking or leakage permitted; SAE J1402 requires no such test.

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
J1402			
All Sizes	NO IMPULSE TESTING PERFORMED		
1130			
All Sizes	NO IMPULSE TESTING PERFORMED#		

TEMPERATURE CAPABILITIES

J1402:	-40°F to +200°F (-40°C to +93°C)
1130:	-40°F to +275°F (-40°C to +135 °C)

SAE J51 Type D vs Cat Air Conditioning Hose (1543)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			J51-D	1543	J51-D	1543	J51-D	1543
-4	0.188	4.8	—	—	—	—	—	—
-5	0.250	6.4	—	—	—	—	—	—
-6	0.313	7.9	450	500	31	34	3100	3400
-8	0.406	10.3	450	500	31	34	3100	3400
-10	0.500	12.7	450	—	31	—	3100	—
-12	0.625	15.9	300	500	31	34	3100	3400
-16	0.875	22.2	—	—	—	—	—	—
-20	1.125	28.6	—	—	—	—	—	—
-24	1.375	34.9	—	—	—	—	—	—
-32	1.813	46.0	—	—	—	—	—	—

*Minimum burst pressure will always be 4X the maximum working pressure for both Caterpillar and SAE standard hose.

#1543 meets SAE standards for type-D hose concerning Freon permeation and moisture ingress. 1543 has a maximum Freon permeation of 5lbs/ft² per year at +300°F (+150°C). 1543 has a maximum moisture ingress of 16 g/100 in² per year. This hose can be used with SAE J2064 R134A refrigerant. Maximum permeation rate is 2 lbs/ft² per year at +176°F (+80°C).

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
J51-D			
All Sizes	NO IMPULSE TESTING PERFORMED		
1543			
All Sizes	NO IMPULSE TESTING PERFORMED#		

TEMPERATURE CAPABILITIES

J51-D:	-22°F to +248°F (-30°C to +120°C)
1543:	-22°F to +257°F (-30°C to +125°C)

Industry Standard Comparison

SAE 100R15 vs. XT-6 Hose (1136)

WORKING PRESSURE*

HOSE DASH SIZE	INNER DIAMETER (in)	INNER DIAMETER (mm)	MAX. WORK. PRESS. (psi)		MAX. WORK. PRESS. (BAR)		MAX. WORK. PRESS. (kPa)	
			100R15	XT-6	100R15	XT-6	100R15	XT-6
-3	0.188	4.8	—	—	—	—	—	—
-4	0.250	6.4	—	—	—	—	—	—
-5	0.313	7.9	—	—	—	—	—	—
-6	0.375	9.5	6000	6000	414	414	42,000	42,000
-8	0.500	12.7	6000	6000	414	414	42,000	42,000
-10	0.625	15.9	—	—	—	—	—	—
-12	0.750	19.1	6000	6000	414	414	42,000	42,000
-16	1.000	25.4	6000	6000	414	414	42,000	42,000
-20	1.250	31.8	6000	6000	414	414	42,000	42,000
-24	1.500	38.1	6000	—	414	—	42,000	—
-32	2.000	50.8	—	—	—	—	—	—

*Minimum burst pressure will always be 4X the maximum working pressure for Caterpillar hose.

#For this test, XT-6 hose is aged at +250°F (+121°C) for 150 hours and -25°F (-32°C) for 18 hours prior to impulse testing. In addition, in the middle and at the end of each impulse test, no leaks are allowed after the oil cools to room temperature and the test machine is restarted. SAE does not require aged samples or room temperature leak checks.

◆W.P. = Working Pressure

IMPULSE TESTING

	TEST PRESSURE	TEST TEMPERATURE	NUMBER OF CYCLES
100R15			
All Sizes	120% of W.P.◆	+250°F (+121°C)	500,000
XT-6			
All Sizes	120% of W.P.	+250°F (+121°C)	1,000,000#

TEMPERATURE CAPABILITIES

100R15:	-40°F to +250°F (-40°C to +121°C)
XT-6:	-40°F to +250°F (-40°C to +121°C)

SAE Comparison / DIN Comparison

Recommended Caterpillar Hose Replacements for SAE Specification Hoses

SAE SPECIFICATION	HOSE CONSTRUCTION	Dash	CATERPILLAR HOSE REPLACEMENTS for the indicated dash size											
			-3	-4	-5	-6	-8	-10	-12	-16	-20	-24	-32	
100R1	1 wire braid		**	716	294	716	716	716	716	716	716	716	716	716
100R2	2 wire braid		**	294	294	294	294	294	294	294	294	294	294	294
100R3	2 fiber braid		**	716	294	716	716	716	716	716	716	*	*	
100R4	Helical wire		*	*	*	*	*	*	844	844	844	844	844	
100R5	1 wire braid		*	556	556	556	556	556	556	556	556	556	**	
100R6	1 fiber braid		**	716	294	716	716	716	*	*	*	*	*	
100R7	Thermoplastic fiber braid	1028	1028	1028	1028	1028	**	1028	**	*	*	*		
100R8	Thermoplastic fiber braid	**	**	*	**	294	294	294	294	*	*	*		
100R9	4 spiral wire	*	*	*	XT-6	XT-3	*	XT-3	XT-3	XT-3	XT-3	XT-3		
100R10	4 spiral wire	**	**	*	**	**	*	XT-5	XT-5	XT-5	XT-5	XT-5		
100R11	6 spiral wire	**	**	*	**	**	*	**	XT-5	XT-5	XT-5	XT-5		
100R12	4 spiral wire	*	*	*	XT-3	XT-3	*	XT-3	XT-3	XT-3	XT-3	XT-3		
100R13	4 or 6 spiral wire	*	*	*	*	*	*	XT-5	XT-5	XT-5	XT-5	XT-5		
100R14	Teflon® lined	**	**	*	**	**	*	**	**	*	*	*		
100R15	6 spiral wire	**	**	**	XT-6	XT-6	**	XT-6	XT-6	XT-6	**	**		

* No SAE specification in this size

** No Caterpillar replacement hose available

DIN 2021, 2022, and 2023 Specifications: Maximum Working Pressure (bar/psi)

DIN SPECIFICATION	HOSE CONSTRUCTION	UNITS	DN Dash	MAXIMUM WORKING PRESSURE (bar/psi) for the indicated DN size/dash size										
				5 -3	6 -4	8 -5	10 -6	12 -8	16 -10	20 -12	25 -16	32 -20	40 -24	50 -32
2021 1TE	1 fiber braid	bar		25	25	20	20	16	16	*	*	*	*	*
		psi		363	363	290	290	232	232	*	*	*	*	*
2021 2TE	2 fiber braid	bar		80	75	68	63	58	50	45	40	*	*	*
		psi		1160	1088	986	914	841	725	653	580	*	*	*
2021 3TE	2 fiber braid	bar		160	145	130	110	93	80	70	55	45	40	33
		psi		2320	2103	1885	1595	1349	1160	1015	798	653	580	479
2022 1ST, 1SN	1 wire braid	bar		250	225	215	180	160	130	105	88	63	50	40
		psi		3625	3263	3118	2610	2320	1885	1523	1276	914	725	580
2022 2ST, 2SN	2 wire braid	bar		415	400	350	330	275	250	215	165	125	90	80
		psi		6018	5800	5075	4785	3988	3625	3118	2393	1813	1305	1160
2023 4SP	4 spiral wire	bar		*	450	*	445	415	350	350	280	210	185	165
		psi		*	6522	*	6453	6018	5075	5075	4060	3045	2683	2393
2023 4SH	4 or 6 spiral wire	bar		*	*	*	*	*	*	420	380	325	290	250
		psi		*	*	*	*	*	*	6090	5510	4713	4205	3625

* No DIN specification in this size

Recommended Caterpillar Hose Replacements for DIN Specification Hoses

DIN SPECIFICATION	HOSE CONSTRUCTION	DN Dash	CATERPILLAR HOSE REPLACEMENTS for the indicated DN size/dash size										
			5 -3	6 -4	8 -5	10 -6	12 -8	16 -10	20 -12	25 -16	32 -20	40 -24	50 -32
2021 1TE	1 fiber braid		1028	716	294	716	716	716	*	*	*	*	*
2021 2TE	2 fiber braid		1028	716	294	716	716	716	716	716	*	*	*
2021 3TE	2 fiber braid		1028	716	294	716	716	716	716	716	716	XT-3	XT-3
2022 1ST, 1SN	1 wire braid	**	716	294	716	716	716	716	716	716	716	716	716
2022 2ST, 2SN	2 wire braid	**	294	294	294	294	294	294	294	294	294	294	294
2023 4SP	4 spiral wire	*	**	*	1956	1956	1956	1956	1956	1956	1956	1956	1956
2023 4SH	4 or 6 spiral wire	*	*	*	*	*	*	*	XT-6	XT-6	XT-5	XT-5	XT-5

* No DIN specification in this size

** No Caterpillar replacement hose available

JIS Comparison

JIS K6349 Specifications: Hose Construction

HOSE CLASS	MAXIMUM WORKING PRESSURE	NOM Dash	HOSE CONSTRUCTION for the indicated hose classes										
			-3	6 -4	-5	9 -6	12 -8	15 -10	19 -12	25 -16	32 -20	38 -24	50 -32
35	35 kg/cm ² 500 psi		*	1 fb	*	1 fb	1 fb	*	1 fb	1 fb	1 wb	1 wb	1 wb
70	70 kg/cm ² 1000 psi		*	1 wb	*	1 wb	1 wb	1 wb	1 wb	1 wb	2 wb	2 wb	2 wb
105	105 kg/cm ² 1500 psi		*	1 wb	*	1 wb	1 wb	1 wb	1 wb	2 wb	2 wb	1 wb 2 sw	1 wb 2 sw
140	140 kg/cm ² 2000 psi		*	1 wb	*	1 wb	1 wb	2 wb	2 wb	2 wb	1 wb 2 sw	1 wb 2 sw	4 sw
175	175 kg/cm ² 2500 psi		*	1 wb	*	2 wb	2 wb	2 wb	2 wb	2 or 3 wb	*	*	*
210	210 kg/cm ² 3000 psi		*	1 wb	*	2 wb	2 wb	2 or 3 wb	3 wb	3 wb	4 sw	4 sw	6 sw
250	250 kg/cm ² 3500 psi		*	2 wb	*	2 wb	2 or 3 wb	3 wb	3 wb	4 sw	6 sw	6 sw	6 sw
280	280 kg/cm ² 4000 psi		*	2 wb	*	3 wb	3 wb	4 sw	4 sw	4 sw	6 sw	6 sw	6 sw
320	320 kg/cm ² 4500 psi		*	*	*	*	4 sw	4 sw	4 sw	6 sw	6 sw	6 sw	6 sw
350	350 kg/cm ² 5000 psi		*	2 wb	*	4 sw	4 sw	4 sw	4 sw	6 sw	6 sw	6 sw	6 sw

* No JIS specification this size

Construction nomenclature: number = layers of reinforcement, f = fiber, w = wire, b = braid, s = spiral
Example: 1 wb hose has 1 layer of wire braided reinforcement

Recommended Caterpillar Hose Replacements for JIS Specification Hoses

HOSE CLASS	MAXIMUM WORKING PRESSURE	NOM Dash	CATERPILLAR HOSE REPLACEMENTS for the indicated nominal size/dash size										
			-3	6 -4	-5	9 -6	12 -8	15 -10	19 -12	25 -16	32 -20	38 -24	50 -32
35	35 kg/cm ² 500 psi		*	716	*	716	716	*	716	716	716	716	294
70	70 kg/cm ² 1000 psi		*	716	*	716	716	716	716	716	294	294	294
105	105 kg/cm ² 1500 psi		*	716	*	716	716	716	294	294	294	XT-3	XT-3
140	140 kg/cm ² 2000 psi		*	716	*	716	716	294	294	294	294	XT-3	XT-3
175	175 kg/cm ² 2500 psi		*	716	*	294	294	294	294	294	*	*	*
210	210 kg/cm ² 3000 psi		*	294	*	294	294	294	294	XT-3	XT-3	XT-5	XT-5
250	250 kg/cm ² 3500 psi		*	294	*	294	294	294	XT-3	XT-3	XT-5	XT-5	XT-5
280	280 kg/cm ² 4000 psi		*	294	*	294	294	XT-3	XT-3	XT-3	XT-5	XT-5	XT-5
320	320 kg/cm ² 4500 psi		*	*	*	*	XT-6	1956	XT-5	XT-5	XT-5	XT-5	XT-5
350	350 kg/cm ² 5000 psi		*	294	*	XT-6	XT-6	1956	XT-5	XT-5	XT-5	XT-5	XT-5

* No JIS specification this size

Working Pressure

Caterpillar Hydraulic Hose Specifications: Maximum Working Pressure (psi, bars, kg/cm²)

CATERPILLAR HOSE	HOSE CONSTRUCTION	UNITS	MAXIMUM WORKING PRESSURE (psi, bar, kg/cm ²) for the indicated dash size/DN size/nominal size											
			Dash DN Nom	-3 5	-4 6	-5 8	-6 10	-8 12	-10 16	-12 20	-16 25	-20 32	-24 40	-32 50
294	2 wire braid	psi	*	5000	4250	4000	3500	2750	2250	2000	1625	1250	1125	
		bar	*	345	293	276	241	190	155	138	112	86	78	
		kg/cm ²	*	350	298	280	245	193	158	140	114	88	79	
716	1 wire braid	psi	*	2750	*	2250	2000	1500	1250	1000	625	500	375	
		bar	*	190	*	155	138	103	86	69	43	34	26	
		kg/cm ²	*	193	*	158	141	105	88	70	44	35	26	
844	Helical wire (Hydraulic suction)	psi	*	*	*	*	*	*	300	250	200	150	100	
		bar	*	*	*	*	*	*	21	17	14	10	7	
		kg/cm ²	*	*	*	*	*	*	21	18	14	11	7	
XT-3	4 spiral wire	psi	*	*	*	4000	4000	4000	4000	4000	3000	2500	2500	
		bar	*	*	*	276	276	276	276	276	207	172	172	
		kg/cm ²	*	*	*	281	281	281	281	281	211	176	176	
1956	4 spiral wire	psi	*	*	*	6453	6018	5075	5075	4060	3045	2683	2393	
		bar	*	*	*	445	415	350	350	280	210	185	165	
		kg/cm ²	*	*	*	454	424	357	357	286	214	189	169	
XT-5	4 or 6 spiral wire	psi	*	*	*	*	*	*	5000	5000	5000	5000	5000	
		bar	*	*	*	*	*	*	345	345	345	345	345	
		kg/cm ²	*	*	*	*	*	*	352	352	352	352	352	
XT-6	6 spiral wire	psi	*	*	*	6000	*	*	6000	6000	6000	*	*	
		bar	*	*	*	414	*	*	414	414	414	*	*	
		kg/cm ²	*	*	*	422	*	*	422	422	422	*	*	

* No Caterpillar hose available in this size

Caterpillar Special Application Hose Specifications: Maximum Working Pressure (psi, bars, kg/cm²)

CATERPILLAR HOSE	HOSE CONSTRUCTION	UNITS	MAXIMUM WORKING PRESSURE (psi, bar, kg/cm ²) for the indicated dash size										
			-3	-4	-5	-6	-8	-10	-12	-16	-20	-24	-32
556	1 wire braid fabric covered	psi	*	3000	3000	2250	2000	1750	1500	800	625	500	*
		bar	*	207	207	155	138	121	103	55	43	34	*
		kg/cm ²	*	211	211	158	141	123	105	56	44	35	*
1130	1 wire braid fabric covered engine/air brake	psi	*	2000	1500	1500	1250	1000	750	400	300	250	*
		bar	*	138	103	103	86	69	52	28	21	17	*
		kg/cm ²	*	141	105	105	88	70	53	28	21	18	*
1543	Thermoplastic, fiber braid air conditioning	psi	*	*	*	500	500	*	500	*	*	*	*
		bar	*	*	*	34	34	*	34	*	*	*	*
		kg/cm ²	*	*	*	35	35	*	35	*	*	*	*
1028	Thermoplastic, fiber braid	psi	3000	2750	2500	2250	2000	*	1250	*	*	*	*
		bar	207	190	172	155	138	*	86	*	*	*	*
		kg/cm ²	211	193	176	158	141	*	88	*	*	*	*
2760	fiber braid, wire braid	psi	*	1500	1500	1500	1500	*	*	*	*	*	*
		bar	*	103	103	103	103	*	*	*	*	*	*
		kg/cm ²	*	105	105	105	105	*	*	*	*	*	*

* No Caterpillar hose available in this size

Fluid Compatability

- A Acceptable
- C Conditional - Under some conditions of temperature and pressure, hose life will be adversely affected. For guidance, consult your Caterpillar dealer hose specialist.
- X Unacceptable
- Testing Recommended

AGENT TO BE CARRIED	HOSE TYPE				AGENT TO BE CARRIED	HOSE TYPE				AGENT TO BE CARRIED	HOSE TYPE			
	1956	294	1028	1130		1956	294	1028	1130		1956	294	1028	1130
	XT-3	556				XT-3	556				XT-3	556		
	XT-5	716	2760		XT-5	716	2760		XT-5	716	2760			
Acetate Acid, Dilute (10%)	X	X	C	A	Brine	X	X	X	X	Ethyl Alcohol	C	A	C	C
Acetic Acid, Glacial	X	—	—	—	Bromine	X	X	—	X	Ethyl Cellulose	X	C	X	X
Acetone	C	X	A	A	Butyl Acetate	X	X	—	—	Ethyl Chloride	C	X	—	X
Acetylene	C	X	—	—	Butyl Alcohol, Butanol	C	A	C	C	Ethylene Dichloride	X	X	X	X
Air	—	A	A	A	Calcium Bisulfite	X	X	X	X	Ethylene Glycol 2150	A	A	A	A
Aluminum Chloride	C	A	A	A	Calcium Chloride	C	A	C	C	Ferric Chloride	X	A	X	X
Aluminum Flouride 20%	C	A	—	—	Calcium Hydroxide	A	A	—	A	Ferric Sulfate	X	A	X	X
Aluminum Sulfate	C	A	—	A	Calcium Hypochlorite	X	X	X	X	Ferrous Salt Solutions	X	—	—	—
Alums	C	A	—	A	Caliche Liquors	A	—	—	A	Formaldehyde	X	X	X	X
Ammonia Gas, Cold	C	—	—	—	Cane Sugar Liquors	—	—	—	A	Formic Acid	X	X	X	X
Ammonia, Liquid (Anhydrous)	X	X	X	X	Carbolic Acid Phenol	X	—	X	X	Freon (see Refrigerant)				
Ammonia, Aqueous	A	—	—	—	Carbon Dioxide	A	A	A	A	Fuel Oil	C	A	A	C
Ammonia, Chloride	X	X	X	X	Carbon Disulfide	X	X	C	C	Furfural	C	X	—	C
Ammonium Hydroxide	C	C	—	C	Carbon Monoxide (Hot)	C	A	C	C	Gasoline	X	C	A	C
Ammonium Nitrate	C	A	—	C	Carbon Tetrachloride	X	X	X	C	Gelatine	A	A	—	—
Ammonium Phosphate	X	A	X	X	Carbonic Acid	X	—	X	X	Glucose	A	A	—	—
Ammonium Sulfate	C	A	—	C	Castor Oil	—	A	A	A	Glue	A	C	C	—
Amyl Acetate	X	X	X	X	Cellosolve Acetate	X	X	X	X	Glycerine, Glycerol	A	A	A	A
Amyl Alcohol	X	—	X	X	China Wood Oil (Tung)	A	—	—	—	Grease, Petroleum	C	A	A	A
Aniline, Aniline Oil	X	X	X	C	Chlorinated Solvents	X	X	X	X	Green Sulfate Liquor	X	X	X	X
Aniline Dyes	X	X	X	X	Chlorine (Dry)	C	X	X	X	Heptane	A	—	—	A
Animal Fats	—	C	C	C	Chlorine (Wet)	X	X	—	—	Hexane	A	—	A	A
Asphalt up to 180° F	X	X	X	X	Chloracetic Acid	X	X	X	X	Hydraulic Fluids and Lubricating Oils				
Barium Chloride	C	A	—	C	Chloroform	X	X	X	X	Straight Petroleum Base	A	A	A	A
Barium Hydroxide	C	A	—	C	Chlorosulphonic Acid	X	X	—	X	Water and Petroleum				
Barium Sulfide	X	X	X	X	Chromic Acid 30%	X	X	X	X	Emulsion (FR)	C	A	A	A
Beer	X	X	X	X	Citric Acid 10%	X	—	X	X	Water and Glycol Solution*	A	A	A	A
Beet Sugar Liquors	—	C	—	—	Coke Oven Gas	C	C	—	A	Straight Phosphate				
Benzene, Benzol	X	X	C	A	Copper Chloride	X	A	X	X	— Ester (FR)	X	X	—	A
Benzine (Petroleum Ether)	—	X	—	A	Copper Sulfate	X	A	X	X	Phosphate — Ester and Petroleum Oil				
Benzine (Petroleum Naphtha)	—	X	—	A	Corn Oil	A	—	—	—	Blend (FR)	—	X	C	A
Black Sulfate Liquor	—	C	—	C	Cottonseed Oil	A	C	—	C	Ester Blend				
Borax	C	C	—	C	Creosote	X	X	X	X	(MIL-L-7808)	X	X	—	A
Boric Acid	X	A	X	X	Crude Oil	X	X	X	X	Silicone Oils	A	—	—	—
Brake Fluid	C	X	—	X	Diesel Oil Light	C	A	A	A	Hydrobromic Acid	X	X	—	
					Dowtherm A and E	—	X	—	C	Hydrochloric Acid	X	X	X	
					Ethers	X	C	C	A	Hydrocyanic Acid	C	X	—	—
					Ethyl Acetate	X	X	—	C	Hydrofluoric Acid, Hot	X	X	X	X
										Hydrogluosilic Acid	X	X	X	X

(cont.)

CAUTION: This chart is meant to offer general guidelines for the use of Cat Hose and Couplings with the substances listed in the chart. Many factors, such as temperature, concentration and length of exposure, are relevant to individual situations. The chart is based on the compatibility of these substances with the couplings and the inner liner of the hose. There may be instances where the outer cover could be adversely affected by substances which would not chemically affect the inner liner. Conversely, some substances which adversely affect the inner liner of Cat Hose may not have a deteriorating effect on the outer cover.

*TO 85° C.

Fluid Compatability

- A Acceptable
- C Conditional - Under some conditions of temperature and pressure, hose life will be adversely affected. For guidance, consult your Caterpillar dealer hose specialist.
- X Unacceptable
- Testing Recommended

AGENT TO BE CARRIED	HOSE TYPE				AGENT TO BE CARRIED	HOSE TYPE				AGENT TO BE CARRIED	HOSE TYPE			
	1956 XT-3	294 556 716	294 556 2760	1130		1956 XT-3	294 556 716	294 556 2760	1130		1956 XT-3	294 556 716	294 556 2760	1130
Hydrogen	C	C	A	X	Oleic Acid	X	C	X	X	Sodium Sulfate	—	A	—	A
Hydrogen Peroxide (Dilute)	X	X	—	A	Oleum Spirits	X	X	X	X	Sodium Thiosulfate "Hypo"	X	X	X	X
Hydrogen Peroxide (Concentrated)	X	X	X	X	Oxalic Acid	C	C	—	C	Soybean Oil	A	A	—	A
Hydrogen Sulfide	X	X	X	X	Oxygen	X	X	X	X	Stannic Chloride	X	X	X	X
Isooctane	—	—	A	C	Ozone	—	X	C	A	Steam —up to 250° F	X	X	X	X
Isopropyl Alcohol	—	C	A	A	Paint	—	X	A	X	Stearic Acid	C	C	—	C
Kerosene	C	—	A	A	Palmitic Acid	X	X	X	X	Sulfur	A	—	A	—
Lacquer	X	X	X	X	Perchlorethylene	X	X	X	C	Sulfur Chloride	C	C	—	C
Lacquer Solvents	X	X	X		Petroleum Oils (see Hydraulic Fluids)	A	A	A	A	Sulfur Dioxide	X	X	X	X
Lactic Acid	X	X	X	X	Phosphoric Acid (Commercial)	X	X	X	X	Sulfur Trioxide	X	X	X	X
Linseed Oil	A	A	A	A	Picric Acid, Molten	X	X	—	X	Sulfuric Acid — 10% Cold	X	—	—	—
LPG	—	C	C	X	Picric Acid, Solution	C	X	—	X	Sulfuric Acid — 10% Hot	X	—	—	—
Lubricating Oils (see Hydraulic Fluids)					Potassium Chloride	X	A	X	X	Sulfuric Acid — 75% Cold	X	—	—	—
Magnesium Chloride	X	A	X	X	Potassium Cyanide	A	A	—	A	Sulfuric Acid — 75% Hot	X	—	—	—
Magnesium Hydroxide	C	C	—	C	Potassium Hydroxide	X	C	—	C	Sulfuric Acid — 95% Cold	X	—	X	X
Magnesium Sulfate	A	A	—	A	Potassium Sulfate	A	A	—	A	Sulfuric Acid — 95% Hot	X	—	—	—
Mercuric Chloride	C	—	—	—	Refrigerant **					Sulfuric Acid — Fuming	X	—	—	X
Mercury	A	A	A	A	Freon 12	C	A	X	X	Tannic Acid	X	C	X	X
Methane	—	C	C	A	Freon13	—	—	—	—	Tar	X	X	X	X
Methyl Alcohol, Methanol	C	A	C	C	Freon 22	—	X	X	X	Tartaric Acid	X	X	X	X
Methyl Chloride, Cold	X	X	X	C	Sea Water	—	C	X	X	Toluene	X	X	C	C
Methyl Methyl Ketone	—	X	C	C	Sewage	—	—	—	C	Trichlorethylene	X	X	X	X
Methyl Isopropyl — Ketone	—	X	A	X	Soap Solution	—	A	A	A	Turpentine	X	X	A	C
Mineral Oil	—	A	A	A	Soda Ash, Sodium Carbonate	—	A	C	A	Varnish	—	X	C	C
Naphtha	C	—	A	A	Sodium Bisulfate	X	A	X	X	Vinegar	—	X	C	A
Naphthalene	X	X	A	A	Sodium Chloride	X	X	X	X	Water	C	C	C	C
Natural Gas	A	A	C	—	Sodium Cyanide	—	—	—	A	Water (over +150° F)	A	C	X	—
Nickel Chloride	X	X	X	X	Sodium Hydroxide 50%	X	X	—	A	Whiskey	—	A	A	—
Nickel Sulfate	X	X	X	X	Sodium Hypochlorite	X	X	X	X	Wine	—	—	—	—
Nitric Acid, Crude	X	X	—	X	Sodium Nitrate	—	C	—	A	Xylene	—	X	C	X
Nitric Acid 10%	X	X	—	X	Sodium Perborate	X	X	X	X	Zinc Chloride	C	C	C	X
Nitric Acid 70%	X	X	X	X	Sodium Peroxide	X	X	X	X	Zinc Sulfate	C	C	—	X
Nitrobenzene	X	X	X	X	Sodium Phosphates	X	X	X	X					
					Sodium Silicate	—	A	—	A					

** Cat 1543 Air Conditioning Hose is Acceptable with Freon-12 and Freon-R134A

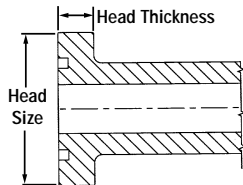
CAUTION: This chart is meant to offer general guidelines for the use of Cat Hose and Couplings with the substances listed in the chart. Many factors, such as temperature, concentration and length of exposure, are relevant to individual situations. The chart is based on the compatibility of these substances with the couplings and the inner liner of the hose. There may be instances where the outer cover could be adversely affected by substances which would not chemically affect the inner liner. Conversely, some substances which adversely affect the inner liner of Cat Hose may not have a deteriorating effect on the outer cover.

Coupling Identification

Thread Guide

THREAD DASH SIZE	NPTF ⁽¹⁾ THREAD SIZE (in-TPI)	JIC 37° THREAD SIZE (in-TPI)	SAE 45° THREAD SIZE (in-TPI)	ORFS ⁽²⁾ THREAD SIZE (in-TPI)	STOR ⁽³⁾ THREAD SIZE (in-TPI)	NPSM ⁽⁴⁾ THREAD SIZE (in-TPI)	SAE INV. ⁽⁵⁾ THREAD SIZE (in-TPI)	BSP ⁽⁶⁾ THREAD SIZE (in-TPI)	GAZ ⁽⁷⁾ THREAD SIZE (dia x pitch)
-2	1/8 - 27	5/16 - 24	5/16 - 24	--	5/16 - 24	1/8 - 27	5/16 - 28	1/8 - 28	--
-3	--	3/8 - 24	3/8 - 24	--	3/8 - 24	--	3/8 - 24	--	--
-4	1/4 - 18	7/16 - 20	7/16 - 20	9/16 - 18	7/16 - 20	1/4 - 18	7/16 - 24	1/4 - 19	--
-5	--	1/2 - 20	1/2 - 20	--	1/2 - 20	--	1/2 - 20	--	--
-6	3/8 - 18	9/16 - 18	5/8 - 18	11/16 - 16	9/16 - 18	3/8 - 18	5/8 - 18	3/8 - 19	M20 x 1.5
-8	1/2 - 14	3/4 - 16	3/4 - 16	13/16 - 16	3/4 - 16	1/2 - 14	3/4 - 18	1/2 - 14	M24 x 1.5
-10	--	7/8 - 14	7/8 - 14	1 - 14	7/8 - 14	--	7/8 - 18	5/8 - 14	M30 x 1.5
-12	3/4 - 14	11/16 - 12	11/16 - 14	13/16 - 12	11/16 - 12	3/4 - 14	11/16 - 16	3/4 - 14	M36 x 1.5
-14	--	13/16 - 12	11/4 - 12	--	13/16 - 12	--	--	--	--
-16	1 - 11 1/2	15/16 - 12	13/8 - 12	17/16 - 12	15/16 - 12	1 - 11 1/2	--	1 - 11	M45 x 1.5
-20	1 1/4 - 11 1/2	15/8 - 12	--	1 11/16 - 12	15/8 - 12	1 1/4 - 11 1/2	--	1 1/4 - 11	M52 x 1.5
-24	1 1/2 - 11 1/2	17/8 - 12	--	2 - 12	17/8 - 12	1 1/2 - 11 1/2	--	1 1/2 - 11	--
-32	2 - 11 1/2	2 1/2 - 12	--	--	2 1/2 - 12	2 - 11 1/2	--	2 - 11	--

- (1) NPTF - NATIONAL PIPE TAPERED FUEL (REF. SAE J476)
 (2) ORFS - O-RING FACE SEAL (REF. SAE J1453)
 (3) STOR - SAE STRAIGHT THREAD O-RING (REF. SAE J514)
 (4) NPSM - NATIONAL PIPE STRAIGHT MECHANICAL
 (5) SAE INV. - SAE INVERTED FLARE (REF. SAE J512)
 (6) BSP - BRITISH STANDARD PIPE
 (7) GAZ - FRENCH METRIC GAZ



Flange Head Guide

FLANGE DASH SIZE	SAE CODE 61*				SAE CODE 62**				Caterpillar			
	HEAD SIZE (in)	HEAD SIZE (mm)	HEAD THKNS (in)	HEAD THKNS (mm)	HEAD SIZE (in)	HEAD SIZE (mm)	HEAD THKNS (in)	HEAD THKNS (mm)	HEAD SIZE (in)	HEAD SIZE (mm)	HEAD THKNS (in)	HEAD THKNS (mm)
-8	1.19	30.2	.265	6.7	1.25	31.8	.305	7.8	--	--	--	--
-12	1.50	38.1	.265	6.7	1.63	41.3	.345	8.8	1.63	41.3	.560	14.2
-16	1.75	44.5	.315	8.0	1.88	47.6	.375	9.5	1.88	47.6	.560	14.2
-20	2.00	50.8	.315	8.0	2.13	54.0	.405	10.3	2.13	54.0	.560	14.2
-24	2.38	60.3	.315	8.0	2.50	63.5	.495	12.6	2.50	63.5	.560	14.2
-32	2.81	71.4	.375	9.5	3.13	79.4	.495	12.6	3.13	79.4	.560	14.2
-40	3.31	84.1	.375	9.5	--	--	--	--	--	--	--	--

* All CODE 61 flange head hose couplings and adapter fittings meet or exceed SAE J518 CODE 61 requirements for hydraulic split flange connections. The CODE 61 flange head design can withstand a maximum operating pressure of 3000 to 5000 psi depending on size.

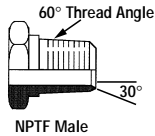
** All couplings having Caterpillar flange heads meet or exceed the performance requirements of SAE J518 CODE 62 specifications for hydraulic split flange connections. The thickness of Caterpillar flange heads is greater than CODE 62 so that special split flanges are required for proper installation. The CODE 62 flange head design can withstand a maximum operating pressure of 6000 psi regardless of size.

Note 1: Reference charts on [pages 165-170](#) for split flange part numbers.

Note 2: SAE CODE 61, DIN Form R, and JIS Type I couplings are interchangeable except for bolt sizes.

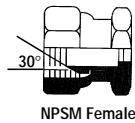
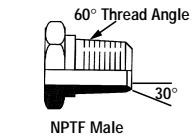
Note 3: SAE CODE 62, DIN for S, and JIS Type II couplings are interchangeable except for bolt sizes

Coupling Identification



Thread Identification Table National Pipe Tapered for Fuels (NPTF)

DASH SIZE (dash)	INCH SIZE (in)	THREAD SIZE (in-TPI)	FEMALE THREAD INSIDE DIAMETER (mm)	FEMALE THREAD (in)	MALE THREAD OUTSIDE DIAMETER (mm)	MALE THREAD (in)
-2	1/8	1/8 - 27	8.7	0.34	10.3	0.41
-4	1/4	1/4 - 18	11.9	0.47	14.3	0.56
-6	3/8	3/8 - 18	15.1	0.59	17.5	0.69
-8	1/2	1/2 - 14	18.3	0.72	21.4	0.84
-12	3/4	3/4 - 14	23.8	0.94	27.0	1.06
-16	1	1 - 11 1/2	30.2	1.19	33.3	1.31
-20	1 1/4	1 1/4 - 11 1/2	38.9	1.53	42.9	1.69
-24	1 1/2	1 1/2 - 11 1/2	44.5	1.75	48.4	1.91
-32	2	2 - 11 1/2	57.2	2.25	60.3	2.38



Thread Identification Table National Pipe Straight Mechanical (NPSM)

DASH SIZE (dash)	INCH SIZE (in)	THREAD SIZE (in-TPI)	FEMALE THREAD INSIDE DIAMETER (mm)	FEMALE THREAD (in)	MALE THREAD OUTSIDE DIAMETER (mm)	MALE THREAD (in)
-2	1/8	1/8 - 27	8.7	0.34	10.3	0.41
-4	1/4	1/4 - 18	11.9	0.47	14.3	0.56
-6	3/8	3/8 - 18	15.9	0.63	17.5	0.69
-8	1/2	1/2 - 14	19.1	0.75	21.4	0.84
-12	3/4	3/4 - 14	24.6	0.97	27.0	1.06
-16	1	1 - 11 1/2	31.0	1.22	33.3	1.31
-20	1 1/4	1 1/4 - 11 1/2	39.7	1.56	42.9	1.69
-24	1 1/2	1 1/2 - 11 1/2	45.2	1.78	48.4	1.91
-32	2	2 - 11 1/2	57.2	2.25	60.3	2.38



Thread Identification Table SAE Straight Thread O-Ring Boss

DASH SIZE (dash)	INCH SIZE (in)	THREAD SIZE (in-TPI)	FEMALE THREAD INSIDE DIAMETER (mm)	FEMALE THREAD (in)	MALE THREAD OUTSIDE DIAMETER (mm)	MALE THREAD (in)
-2	1/8	5/16 - 24	6.9	0.27	7.8	0.31
-3	3/16	3/8 - 24	8.5	0.34	9.4	0.37
-4	1/4	7/16 - 20	9.9	0.39	11.2	0.44
-5	5/16	1/2 - 20	11.5	0.45	12.6	0.49
-6	3/8	9/16 - 18	12.9	0.51	14.1	0.56
-8	1/2	3/4 - 16	17.5	0.69	18.9	0.74
-10	5/8	7/8 - 14	20.5	0.81	22.1	0.87
-12	3/4	1 1/16 - 12	24.9	0.98	26.9	1.06
-14	7/8	1 3/16 - 12	28.1	1.11	30.0	1.18
-16	1	1 5/16 - 12	31.3	1.23	33.1	1.31
-20	1 1/4	1 5/8 - 12	39.2	1.54	41.1	1.62
-24	1 1/2	1 7/8 - 12	45.6	1.79	47.4	1.87
-32	2	2 1/2 - 12	61.4	2.42	63.3	2.49