

ENGINEERING
TOMORROW



Operator's Manual

Danfoss FT1312

Hose Proof Test Stand



Safety Instructions

WARNING

Danfoss fitting tolerances are engineered to match Danfoss hose tolerances. The use of Danfoss fittings on hose supplied by other manufacturers and/or the use of Danfoss hose with fittings supplied by other manufacturers may result in the production of unreliable and unsafe hose assemblies and is neither recommended nor authorized by Danfoss:

Failure to follow Danfoss process and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.

The user must exercise extreme care when operating any Danfoss assembly equipment with powered moving components. Safety glasses must be worn at all times when using any Danfoss assembly equipment.

Read and understand the owners and operators manual before attempting to operate any equipment.

Danfoss hereby disclaims any obligation or liability (including incidental and consequential damages) arising from breach of contract, warranty, or tort (under negligence or strict liability, theories) should Danfoss hose, fittings or assembly equipment be used with the hose, fittings or assembly equipment supplied by another manufacturer or in the event that product instructions for each specified hose assembly are not followed.

CAUTION

All hoses must be dried after testing! Tested hose assemblies can be dried by blowing out with dry shop air. Any water remaining in the tested hose assembly following proof test operation may cause rust on the inside of fittings or may not be compatible with the system using the hose assembly.

Introduction

The Danfoss FT1312 Proof Test Stand is a self-contained, easy to use machine for hydrostatic testing of Danfoss hose assemblies. It is designed to test using tap water as the test medium. Air pressure drives the pump which pressurizes the water in hose lines to desired test pressures.

The power unit on the FT1312 Hose Proof Stand operates on the simple principle of a pressure magnification through differential areas in which an air operated piston drives a smaller piston providing fluid flow at high pressure. An air regulator provides the means of adjusting hydrostatic test pressure.

SPECIFICATIONS

Dimensions	79" wide x 36" deep x 53" high
Weight	550 lbs.
Test Fluid	Tap Water
Air Requirements	70-100 psi clean dry shop air
Test Pressure	20,000 psi maximum
Tooling	Standard Industrial Adapters

Installation

The tester should be installed on a solid floor capable of holding 750 pounds. An area 9.5 feet by 6 feet should be allocated for the machine and working area.

Remove the clear plastic air lubricator bowl (adjacent to the air pressure regulator on the pump assembly) and fill it three quarters full with SAE 30 nondetergent oil.

Connect a tap water supply line to the 1/2" pipe port of the water shutoff valve located on the water pumping unit.

Connect a compressed air supply line to the male air coupling attached to the air pressure regulator on the water pumping unit.

NOTE: For optimum performance, the air compressor should be capable of supplying 100 psi at a rate of 20 cubic feet per minute.

Pressure side of pump so pump can prime itself. Running the pump dry will damage the hydraulic piston and cylinder.

Screw down the pressure regulator slowly until pump starts (pump should start flow at 10 - 15 psi air. Increase air pressure to 40 - 45 psi and allow pump to run, purging the air from the system.

CAUTION: Where the pump will be connected to a source of air greater than 150 psi, a pop-off type safety valve set to relieve pressure at 150 psi maximum is required in the air line to protect the pump.

Operating Instructions

PREFILLING

1. Close the air shut-off valve. Adjust the air regulator to zero pressure by turning the valve handle on top of the regulator in a counterclockwise direction until no turning resistance is felt.
2. Open the cabinet of the tester and place the hose assembly to be tested on the aluminum rack of the tester.
3. Connect the umbilical hose assembly to the hose assembly to be tested using the appropriate adapter combination. Umbilical hose has a -8 JIC swivel fitting on its terminal end.
4. Ensure that the high pressure dump valve is completely closed.
5. Open the water shut-off valve and fill the assembly allowing the tap water to force the air from the hose assembly through the non-capped end.
6. When the sample is completely filled, shut off the water and cap or plug the open end of the hose assembly.

PRESSURIZING

1. Close the cabinet and latch both clasps securely. DO NOT ATTEMPT TO PRESSURE TEST THE HOSE ASSEMBLY WITH THE CABINET DOOR OPEN OR WITH THE LATCHES NOT SECURE.
2. Reopen the water shut-off valve to supply ample water to the pumping unit during pressurization.
3. Open the air shut-off valve.
4. While monitoring the test pressure gauge, adjust the air regulator valve clockwise allowing the pumping action to begin. Steadily increase air pressure until the test pressure is approaching, then back off the air pressure until the pumping slows greatly. When the test pressure is reached, back off the air pressure just enough to stop the pumping action.
5. The test assembly should remain pressurized at the proof test pressure for one minute. During this time the assembly should be observed through the transparent Lexan lid. Pinhole leaks or seeping fittings may not be immediately apparent, so careful observation is important.
6. Once the test pressure has been obtained, tighten the locknut on the regulator. Subsequent assemblies can be pressurized to the test pressure by merely opening the air shut-off valve on the pump. The air regulator will only require readjusting when a new test pressure is required.

TEST PRESSURE RELEASE

1. Close the air shut-off valve on the water pump.
2. Close the water shut-off valve located on the water pump.
3. Open the high pressure dump valve to release the water pressure in the test sample.

REMOVING THE ASSEMBLY

1. WAIT UNTIL ALL PRESSURE IS REMOVED FROM THE SAMPLE! This will be indicated by zero pressure indicated on the pressure gauge and no water draining from the pressure discharge port in the tester.
2. Open the cabinet and remove the umbilical hose and test tooling from the tested assembly.
3. Drain the remaining water from the tested assembly. It is recommended that all hose assemblies be blown dry with compressed air.

Maintenance

Normal maintenance requires periodic refilling of the lubricator on the water pump and cleaning the see-through lid with clean, soapy water. Do not use petroleum or chemical solvents on the see-through lid. Use only mild detergent.

Troubleshooting

PROBLEM	SOLUTION
Test pressure not attainable during operation	<ol style="list-style-type: none">1. Check all connections of tooling and hose assemblies for leaks.2. Check high pressure dump valve is closed.3. Bleed air from test sample.
Power unit not functioning when air regulator adjusted.	<ol style="list-style-type: none">1. Supply air not connected or air shut-off valve not open.

Adapter Selection Chart

Adapters listed below are standard Danfoss adapters.

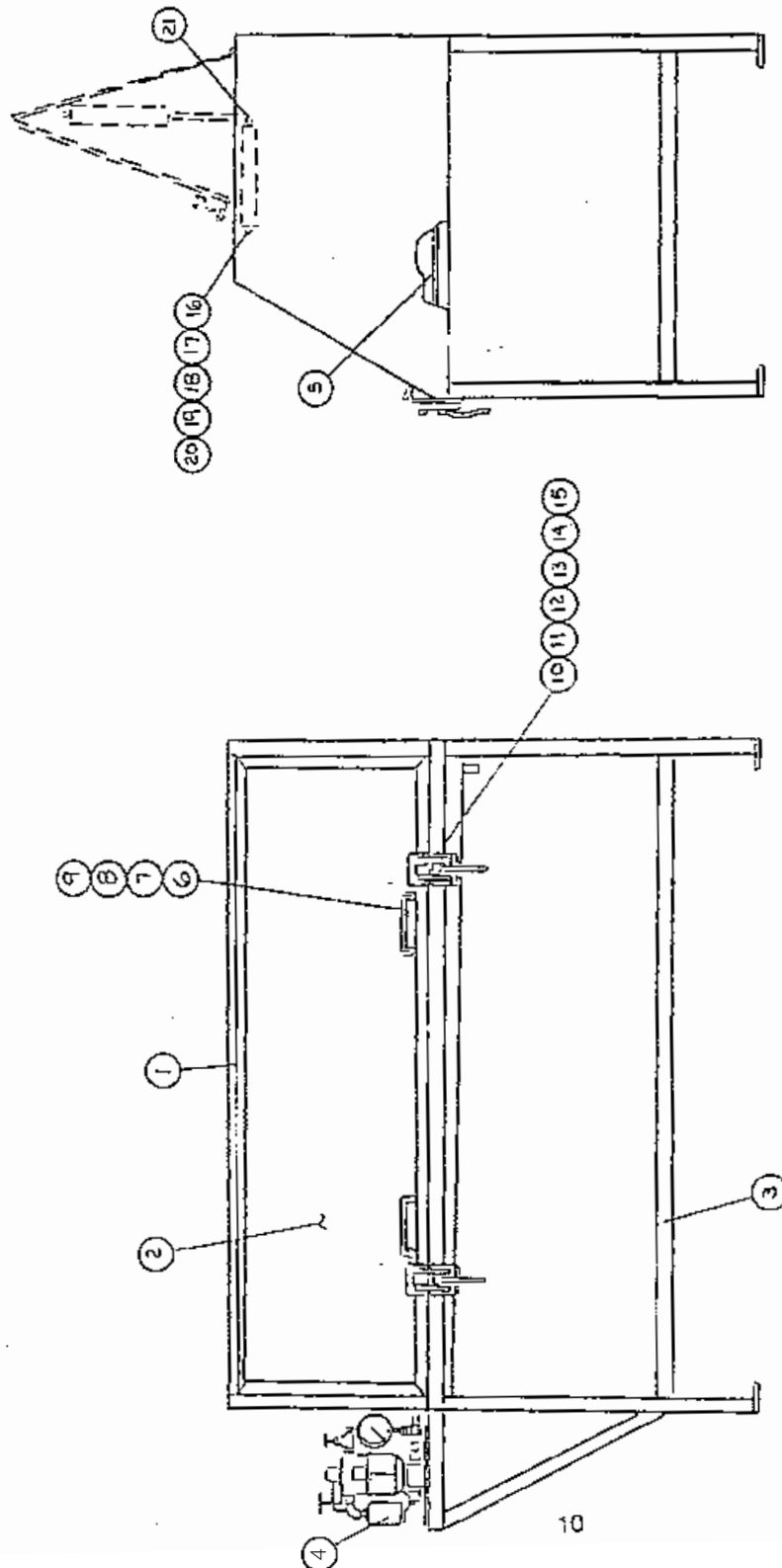
Hose Fitting Style and Size	Fitting Adapter Part Number	Pressure Port Adapter Part Number	Plug or Cap Part Number
SAE 37° (JIC) Swivel			
- 4	2027-8-4S		900599-4
- 5	2022-4-5S	2021-4-8S	900599-5
- 6	2027-8-6S		900599-6
- 8	2027-8-6S		900599-8
- 10	2027-10-8S		900599-10
- 12	2027-12-8S		900599-12
- 16	2027-16-12S	2022-12-8S	900599-16
- 20	2021-16-20S	2040-12-16S & 2022-12-8S	900599-20
- 24	2021-16-24S	2040-12-16S & 2022-12-8S	900599-24
- 32	2021-16-32S	2040-12-16S & 2022-12-8S	900599-32
SAE 45° Swivel			
- 4	2000-6-4B	2081-12-6S & 2022-5-8S	900599-4
- 5	2000-6-5B	2081-12-6S & 2022-12-8S	900599-5
- 6	2000-6-6B	2081-12-6S & 2022-12-8S	2001-6-6B & 2082-6S
- 8	2000-12-8B	2022-12-8S	900599-8
- 10	2000-12-10B	2022-12-8S	900599-10
- 12	2000-12-12B	2022-12-8S	2001-8-12B & 2082-8S
Male Pipe			
- 4	2081-8-2S	2022-8-8S	2046-2-2S & 2082-2S
- 5	2081-8-4S	2022-8-8S	2046-4-4S & 2082-4S
- 6	2081-8-6S	2022-8-8S	2046-6-6S & 2082-6S
- 8	2081-12-8S	2022-8-8S	2046-8-8S & 2082-8S
- 12	2040-12-12S	2040-8-12S & 2022-8-8S	2046-12-12S & 2082-12S
- 16	2040-12-16S		2046-16-16S & 2082-16S
- 20	2040-16-20S	2040-12-16S & 2022-8-8S	2046-20-20S & 2082-20S
- 24	2040-20-24S	2040-12-16S & 2040-16-20S & 2022-8-8S	2046-24-24S & 2082-24S
- 32	2040-24-32S	2040-12-16S & 2040-16-20S & 2040-20-24S & 2022-8-8S	2046-32-32S & 2082-32S

Adapters are available for other hose fittings styles. Contact Danfoss

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ORS			
	Fitting Adapter	Pressure Port	Plug or Cap
- 4	FF2031T0404S	2022-4-8S	FF9767-04S
- 6	FF2031T0604S	2022-4-8S	FF9767-06S
- 8	FF2031T0806S	2022-6-8S	FF9767-08S
- 10	FF2031T1008S	2022-8-8S	FF9767-10S
- 12	FF2031T1208S	2022-8-8S	FF9767-12S
- 16	FF2031T1612S	2022-12-8S	FF9767-16S
- 20	FF2031T2016S	2040-12-16S & 2022-12-8S	FF9767-20S
- 24	FF2031T2424S	2040-20-24S, 2040-16-20S, 2040-12-16S & 2022-18-8S	FF9767-24S

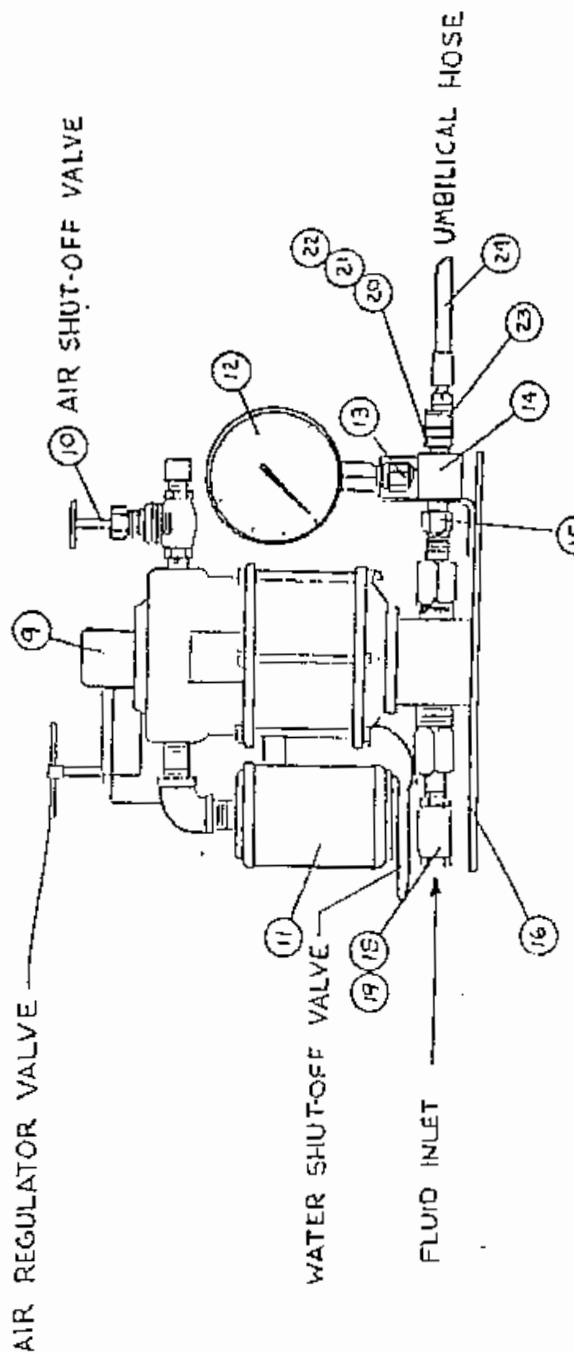
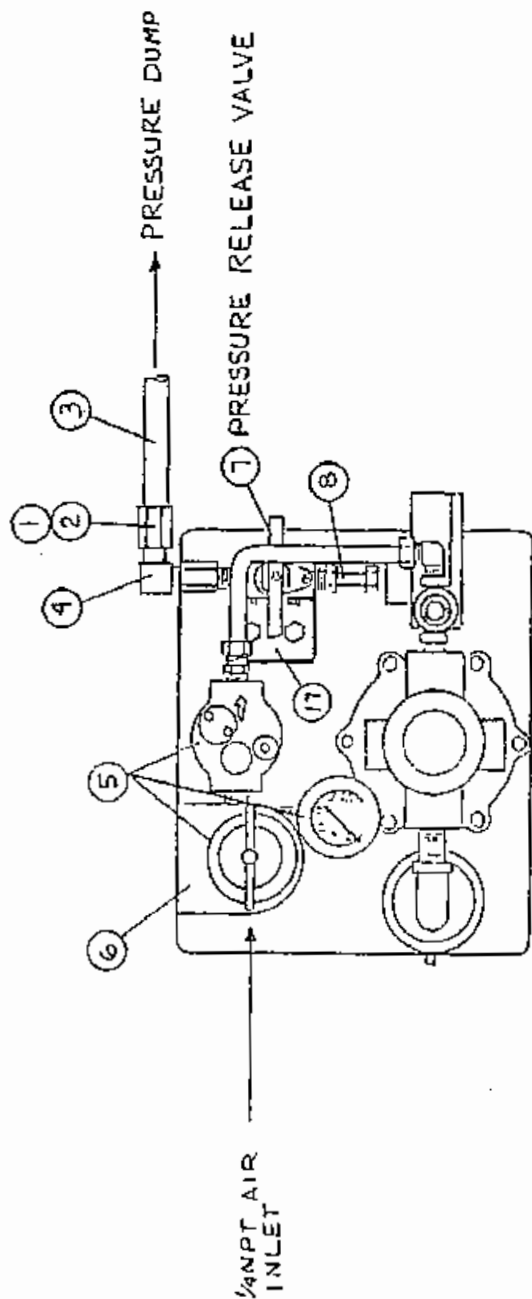
FT1312 Hose Proof Test Stand



FT1312 Parts List

Detail Number	Part Number	Description	Number Required
1	FT1312-2-2	Top Lid Assembly	1
2	FT1312-2-3	Front Lid Assembly	1
3	FT1312-2-4	Cabinet Assembly	1
4	FT1312-2-5	Power Unit	1
5	FT1312-3-5	Grate	1
6	FT1312-3-6	Handle	2
7	FT1312-3-7	#10-24 x .88 Flat Hd Soc Cap Screw Stainless Steel	8
8	FT1312-3-8	Handle backing Plate	2
9	FT1312-3-9	#10-24 Stainless Steel Jam Nut	8
10	FT1312-3-10	Clamp	2
11	FT1312-3-11	Latch Plate	2
12	FT1312-3-12	Latch Plate Mounting Pad	2
13	FT1312-3-13	3/8-16 UNC x .75 Soc Hd Cap Screw	16
14	FT1312-3-14	1 /4-20 UNC x 1.00 Soc Hd Cap Screw Stainless Steel	8
15	FT1312-3-15	1 /4" Flat Stainless Steel Wasile1	4
16	FT1312-3-16	Gas Spring	2
17	FT1312-3-17	Lid, Gas Spring Bracket	2
18	FT1312-3-18	Gas Spring Bracket Mounting Plate	2
19	FT1312-3-19	1/-20 x 1.00 Flat Hd Soc Cap Screw	4
20	FT1312-3-20	1/4-20 Stainless Steel Nut	4
21	FT1312-3-21	10MM Ball Stud	2

FT1312 Power Unit



FT1312 Power Unit

Detail Number	Part Number	Description	1Number Required
1	FF9605-04S	Ferrule	1
2	FC2875-048	Nut	1
3	FT1312-2-5-3	Steel Tubing .25 OD x .35 Wall x 5.00	1
4	2024-4-48	Elbow Adapter	1
5	FT1312-2-5-5	FRL Assembly	1
6	FT1312-2-5-6	Bracket	1
7	FT1312-2-5-7	Valve H.P.	1
8	FT1312-2-5-8	Nipple Assembly	1
9	FT1312-2-5-9	Pump	1
10	FT1312-2-5-10	Air Valve Shut Off	1
11	FT1312-2-5-11	Muffler, 3/8 NPT	1
12	FT1312-2-5-12	Gauge	1
13	FT1312-2-5-13	Snubber	1
14	FT1312-2-5-14	Manifold	1
15	FT1312-2-5-15	Nipple	1
16	FT1312-2-5-16	Base Plate	1
17	FT1312-2-5-17	Bracket	2
18	2083-8-6S	Pipe Nipple	1
19	FT1312-2-5-19	Valve	1
20	2083-6-48	Pipe Nipple	1
21	FD69-1001-06-08	Coupling, Female Half	1
22	FD69-1002-06-08	Coupling, Male Half	1
23	2021-6-8S	Adapter	1
24	FA7082HHH0600	Hose Assembly	1

FT1312 Hose Proof Test Stand

The FT1312 hose proof test stand is designed for easy and economical hydrostatic testing of hydraulic hose assemblies.

Proof testing at twice the recommended working pressure is an easy nondestructive way to test hose assembly reliability before it leaves the shop.

Practical and self-contained, the FT1312 machine has an air driven power unit that can develop a maximum of 22,000 psi hydraulic pressure using 100psi clean, dry shop air. The power unit (FT1312-2-5) can be ordered separately.

Two types of tooling are available for proof testing with the FT1312 machine. Standard Danfoss adapters may be used with any Danfoss hose assembly. Special proof test adapters with O-Ring seals are available for internal skive crimp hose assemblies. Proof test adapters must be ordered separately.



FEATURES

- Designed to use tap water, eliminating the need for a special test fluid.
- Compact power unit is air driven.
- Tests assemblies up to 2 inches inside diameter, 6-spiral wire.
- Cabinet construction withstands hose assembly failures and functions as a reservoir.
- Air regulator and gauge provide easy pressure adjustment and monitoring.
- Tough transparent Lexan lid resists impact resulting from assembly failure.

SPECIFICATIONS

Dimensions	79 inches wide x 36 inches deep x 53 inches high
Weight	550 pounds
Test Fluid	Tap water
Pump	Air driven hydraulic
Air Requirements	70-100psi clean, dry shop air
Pressure Capabilities	Variable: to 15,250 psi with 70 psi clean, dry shop air, to 22,000 psi maximum with 100 psi clean, dry shop air
Tooling	Standard adapters or special O-Ring seal proof test adapters

POWER UNIT

The power unit of the FT1312 tester is a compact, economical air driven hydraulic pump. It will provide sufficient hydraulic pressure to proof test any Danfoss hose assembly.

The pump operates on a simple principle of pressure magnification through use of differential areas in which a relatively large air operated piston drives a smaller piston to provide fluid flow at high pressures.



FT1312 Standard Adapter Selection Chart

Hose Fitting Style and Size	Fitting Adapter Part Number	Pressure Port Adapter Part Number	Plug or Cap Part Number
SAE 37° (JIC) Swivel			
- 4	2027-8-4S	-	900599-4
- 5	2021-6-5S	2021-4-8S	900599-5
- 6	2027-8-6S	-	900599-6
- 8	2027-8-8S	-	900599-8
- 10	2027-10-8S	-	900599-10
- 12	2027-8-12S	-	900599-12
- 16	2021-12-16S	2022-12-8S	900599-16
- 20	2021-16-20S	2040-12-16S & 2022-12-8S	900599-20
- 24	2021-16-24S	2040-12-16S & 2022-12-8S	900599-24
- 32	2021-16-32S	2040-12-16S & 2022-12-8S	900599-32
SAE 45° Swivel			
- 4	2000-6-4B	2081-12-6S & 2022-12-8S	900599-4
- 5	2000-6-5B	2081-12-6S & 2022-12-8S	900599-5
- 6	2000-6-6B	2022-12-6S & 2081-12-6S	2001-6-6B & 2082-6S
- 8	2000-12-8B	2022-12-8S	900599-8
- 10	2000-12-10B	2022-12-8S	900599-10
- 12	2000-12-12B	2022-12-8S	2001-8-12B & 2082-8S

Hose Fitting Style and Size	Fitting Adapter Part Number	Pressure Port Adapter Part Number	Plug or Cap Part Number
Male Pipe			
- 2	2081-8-2S	2022-8-8S	2046-2-2S & 2082-2S
- 4	2081-8-4S	2022-8-8S	2046-4-4S & 2082-4S
- 6	2081-8-6S	2022-8-8S	2046-6-6S & 2082-6S
- 8	2081-12-8S	2022-8-8S	2046-8-8S & 2082-8S
- 12	-	2040-8-12S & 2022-8-8S	2046-12-12S & 2082-12S
- 16	2040-12-16S	-	2046-16-16S & 2082-16S
- 20	2040-16-20S	2040-12-16S	2046-20-20S & 2082-20S
- 24	2040-20-24S	2040-12-16S & 2040-16-20S & 2022-8-8S	2046-24-24S & 2082-24S
- 32	2040-24-32S	2040-12-16S & 2040-16-20S & 2040-20-24S & 2022-8-8S	2046-32-32S & 2082-32S

*Adapters are available for other hose fittings styles.

**Pressure port adapter not required.

FT1312 Special O-Ring Seal Proof Test Adapters

Proof Test Tooling *	Fitting Dash Size/Style
FT1236-1-1	-12 Code 61 Split Flange
FT1236-1-2	-16 Code 61 Split Flange
FT1236-1-3	-20 Code 61 Split Flange
FT1236-1-4	-24 Code 61 Split Flange
FT1236-1-5	-32 Code 61 Split Flange
FT1236-1-6	-12 Code 62 Split Flange
FT1236-1-7	-16 Code 62 Split Flange
FT1236-1-8	-20 Code 62 Split Flange
FT1236-1-9	-24 Code 62 Split Flange
FT1236-1-10	-32 Code 62 Split Flange
FT1236-1-11	-12 37° JIC Swivel
FT1236-1-12	-16 37° JIC Swivel
FT1236-1-13	-20 37° JIC Swivel
FT1236-1-14	-24 37° JIC Swivel

Proof Test Tooling *	Fitting Dash Size/Style
FT1236-1-15	-32 37° JIC Swivel
FT1236-1-16	-12 Male NPTF
FT1236-1-17	-16 Male NPTF
FT1236-1-18	-20 Male NPTF
FT1236-1-19	-24 Male NPTF
FT1236-1-20	-32 Male NPTF
FT1236-1-21	-12 JIC Male Flare
FT1236-1-22	-16 JIC Male Flare
FT1236-1-23	-20 JIC Male Flare
FT1236-1-24	-24 JIC Male Flare
FT1236-1-25	-32 JIC Male Flare

*Two adapters are required per hose assembly to be tested.

CAUTION: High pressure water can be dangerous. Read all Operating and Safety Instructions in Owner's Manual before attempting to operate.

About Danfoss Power Solutions FC

Danfoss hoses, fittings, and tooling provide the ultimate fluid conveyance solutions for a variety of equipment and applications around the world. We proudly engineer to support a sustainable future for tomorrow.

To learn more please visit: <http://www.danfoss.com/en/about-danfoss/our-businesses/power-solutions>

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