

5400 Series

Low Air Inclusion Refrigerant

Refrigerant Application

Danfoss Hansen 5400 Series low air inclusion product line is designed for air conditioning, refrigerant, gaseous and fluid transfer applications.



Product Features

- Brazed or threaded end connections for versatility of installation on tubing or hose
- Tubular valve construction for low fluid loss and air inclusion
- Thread together design allows connection and disconnection against pressure
- Lock washer and jam nut standard for optional bulkhead mounting
- Standard seal material: Neoprene
- Dura-Kote™ plating for excellent corrosion resistance

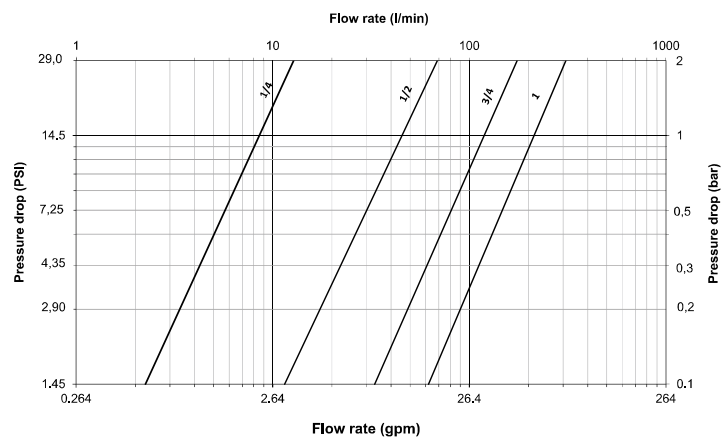
Physical Characteristics

Coupling Size (in)	Max. Operating Pressure Connected		Min. Burst Pressure Connected		Max. Operating Pressure Disconnected				Vacuum Connected Only (in./Hg)	Rated Flow		Air Inclusion cc. max.	Fluid Loss cc. max.
	(bar)	(psi)	(bar)	(psi)	Male Half (bar)	(psi)	Female Half (bar)	(psi)		(lpm)	(gpm)		
1/4	207	3,000	621	9,000	172	2,500	34	500	28	8	2	.10	.05
1/2	121	1,750	359	5,200	121	1,750	28	400	28	53	14	.10	.10
3/4	48	700	145	2,100	55	800	28	400	28	132	35	.30	.10
1	48	700	145	2,100	48	700	21	300	28	284	75	.50	.20

Applications & Markets

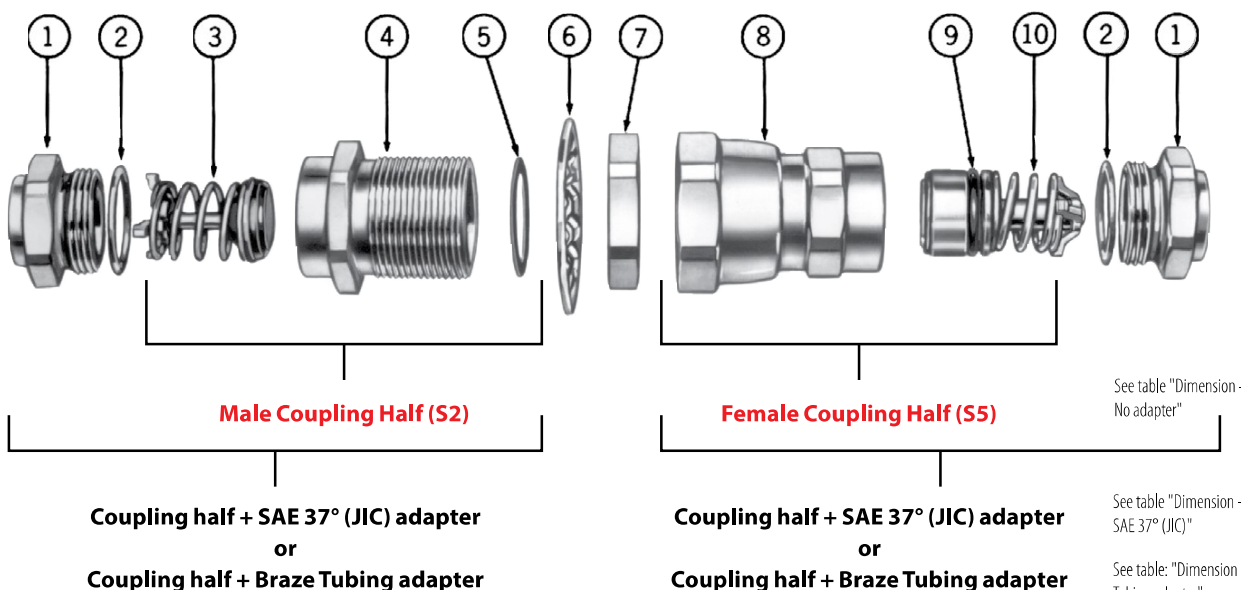
- Mobile air conditioning and refrigerant
- Thermal management

Flow Data



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Item number/adapters	1 Tubing adapter	2 Adapter O-ring	3 Poppet valve assembly	4 Male body	5 Gasket seal	6 Lock washer	7 Jam nut	8 Union nut and female body assembly	9 Piston O-ring	10 Female valve assembly
SAE 37° (JIC)	202208-Y-X									
Braze tubing	202208-Y-XB	22546-Z-X	5400-S20-X	5400-17-XS	22008-X	5400-54-XS	5400-52-XS	5400-S16-X	FF91178-Z†	5400-S19-X
Hose fitting SAE 100R5	487-Y-XS									

Note 1: Replace "X", "Y" and "Z" by size number chosen in below tables.
 Note 2: "B" stands for Brass and "S" stands for Steel material – availability is presented in below tables.

Assembly Instructions

Steps:

- After tubing or hose has been connected to adapters ① and ②, install O-Rings ③ and ④† on adapters. Be sure O-Rings are not twisted.
- Oil O-Rings ③ and ④ liberally with system fluid to prevent them from scuffing and tearing when coupling body is threaded on adapter.
- S2 Half—Lubricate poppet face with system fluid. Insert poppet valve assembly ③ into body ④. Tighten body ④ on adapter ②. After body and adapter make metal-to-metal contact, tighten by rotating body ④ 1/8".
 S5 Half—Oil O-Ring ④† liberally with system fluid. Insert valve and sleeve assembly ⑩ into body ⑧. Tighten body ⑧ on adapter ②. After body and adapter make metal-to-metal contact, tighten by rotating body ⑧ 1/8".
- Coupling Connection—Lubricate gasket seal ⑤ on male half with system fluid. Thread lubricated union nut ⑧ on 5400-S2 half. Tighten union nut to torque values shown in table. Be sure male part and female part bodies do not rotate during connection.

Note: POE refrigeration oil for lubrication is recommended
 Note: Operating temperature: -40°C to 121°C / -104°F to -249,8°F

Bulkhead Mounting—Male half (S2)

Install lock washer ⑥ on S2 half. Insert S2 half through bulkhead, and tighten jam nut ⑦ so that lock washer teeth are fully compressed.

NOTE: Lock washer 6 must be between hex of S2 half and bulkhead.

Maximum Bulkhead Thickness

Body Size	Lock Washer Installed (in)	Lock Washer Not Used (in)
1/4	.206	.256
1/2	.136	.203
3/4	.232	.292
1	.101	.161

Torque Values

Recommended torque values in ft. lbs., are listed below.

Dash Size	Adapter to Body		
	Braze Type or Aluminum	Non-braze Type Steel or Brass	S2 Half to S5 Half
-4	6-8	12-15	10-12
-8	15-20	35-45	35-37
-12	35-40	45-55	45-47
-16	50-60	55-65	65-67

†IMPORTANT: Generous lubrication is required for all gaskets and O-Rings. Use refrigeration oil only when used in refrigerant system.

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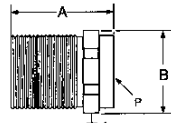


Figure 1

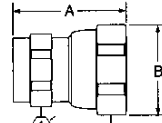


Figure 2

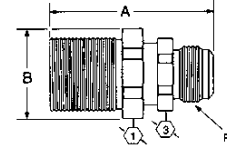


Figure 3

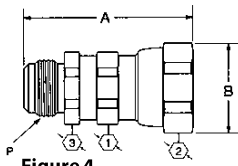


Figure 4

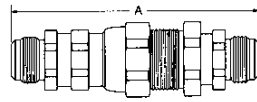


Figure 5

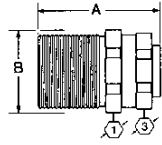


Figure 6

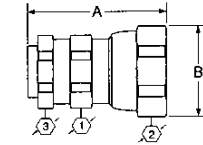


Figure 7

Dimensions – No Adapter

Part Number Neoprene	Coupling Type	Body Size	Type	Fig.	Dimensions		B		Hex ①		Hex ②		Hex ③	
					A									
					(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
5400-S2-4	Male	1/4	No Adapter	1	(27.4)	(1.08)	(21.1)	(.83)	(19.1)	(.75)	-	-	-	-
5400-S5-4	Female	1/4	No Adapter	2	(28.7)	(1.13)	(21.1)	(.83)	(16.0)	(.63)	(19.1)	(.75)	(19.1)	(.75)
5400-S2-8	Male	1/2	No Adapter	1	(34.8)	(1.37)	(32.0)	(1.26)	(29.0)	(1.14)	-	-	-	-
5400-S5-8	Female	1/2	No Adapter	2	(40.6)	(1.60)	(33.0)	(1.30)	(26.0)	(1.02)	(30.0)	(1.18)	(30.0)	(1.18)
5400-S2-12	Male	3/4	No Adapter	1	(44.2)	(1.74)	(46.4)	(1.83)	(41.0)	(1.64)	-	-	-	-
5400-S5-12	Female	3/4	No Adapter	2	(55.1)	(2.17)	(45.0)	(1.77)	(35.0)	(1.38)	(41.0)	(1.61)	(41.0)	(1.61)
5400-S2-16	Male	1	No Adapter	1	(46.5)	(1.83)	(53.0)	(2.10)	(48.0)	(1.89)	-	-	-	-
5400-S5-16	Female	1	No Adapter	2	(61.1)	(2.41)	(56.0)	(2.20)	(45.0)	(1.77)	(50.0)	(1.97)	(50.0)	(1.97)

Dimensions – SAE 37° (JIC)

Part Number Buna-N	Coupling Type	Body Size	Port Size	Thread	Type	Fig.	Dimensions		B		Hex ①		Hex ②		Hex ③	
							A									
							(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
5400 S2-4	Male	1/4	7/16	7/16-20	202220-4-4	3	(47.8)	(1.88)	(21.1)	(.83)	(19.1)	(.75)	-	-	(16.0)	(.63)
5400 S5-4	Female	1/4	7/16	7/16-20	202220-4-4	4	(49.0)	(1.93)	(21.1)	(.83)	(16.0)	(.63)	(19.1)	(.75)	(15.7)	(.62)
5400 S2-4	Male	1/4	9/16	9/16-18	202220-6-8	3	(48.0)	(1.89)	(21.1)	(.83)	(19.1)	(.75)	-	-	(16.0)	(.63)
5400 S5-4	Female	1/4	9/16	9/16-18	202220-6-8	4	(49.3)	(1.94)	(21.1)	(.83)	(16.0)	(.63)	(19.1)	(.75)	(15.7)	(.62)
5400 S2-8	Male	1/2	9/16	9/16-18	202220-6-8	3	(55.4)	(2.18)	(31.8)	(1.25)	(28.7)	(1.13)	-	-	(25.4)	(1.00)
5400 S5-8	Female	1/2	9/16	9/16-18	202220-6-8	4	(61.7)	(2.43)	(33.3)	(1.31)	(25.4)	(1.00)	(30.2)	(1.19)	(25.4)	(1.00)
5400 S2-8	Male	1/2	3/4	3/4-16	202220-8-8	3	(57.9)	(2.28)	(31.8)	(1.25)	(28.7)	(1.13)	-	-	(25.4)	(1.00)
5400 S5-8	Female	1/2	3/4	3/4-16	202220-8-8	4	(64.3)	(2.53)	(33.3)	(1.31)	(25.4)	(1.00)	(30.2)	(1.19)	(25.4)	(1.00)
5400 S2-12	Male	3/4	7/8	7/8-14	202220-10-12	3	(69.9)	(2.75)	(46.5)	(1.83)	(41.4)	(1.63)	-	-	(35.1)	(1.38)
5400 S5-12	Female	3/4	7/8	7/8-14	202220-10-12	4	(80.3)	(3.16)	(45.7)	(1.80)	(35.1)	(1.38)	(41.1)	(1.62)	(35.1)	(1.38)
5400 S2-12	Male	3/4	1 1/16	1 1/16-12	202220-12-12	3	(72.6)	(2.86)	(46.5)	(1.83)	(41.4)	(1.63)	-	-	(35.1)	(1.38)
5400 S5-12	Female	3/4	1 1/16	1 1/16-12	202220-12-12	4	(83.1)	(3.27)	(45.7)	(1.80)	(35.1)	(1.38)	(41.1)	(1.62)	(35.1)	(1.38)
5400 S2-16	Male	1	1 5/16	1 5/16-12	202220-16-16	3	(75.9)	(2.99)	(53.3)	(2.10)	(47.8)	(1.88)	-	-	(44.5)	(1.75)
5400 S5-16	Female	1	1 5/16	1 5/16-12	202220-16-16	4	(89.7)	(3.53)	(56.9)	(2.24)	(44.5)	(1.75)	(50.8)	(2.00)	(44.5)	(1.75)

Note: See Adapter SAE 37° (JIC) table for corresponding O-ring and adapter material

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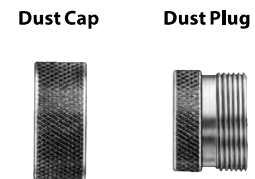
Dimensions – Braze Tubing Adapter

Part Number Neoprene	Coupling Type	Body Size	Tube O.D. Size	Type	Fig.	Dimensions											
						A		B		Hex ①		Hex ②		Hex ③			
						(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)		
5400 S2-4	Male	1/4	1/4	202208-4-4	6	(38.6)	(1.52)	(21.1)	(.83)	(19.1)	(.75)	-	-	(16.0)	(.63)		
5400 S5-4	Female	1/4	1/4	202208-4-4	7	(39.9)	(1.57)	(21.1)	(.83)	(16.0)	(.63)	(19.1)	(.75)	(16.0)	(.63)		
5400 S2-4	Male	1/4	3/8	202208-6-4	6	(38.6)	(1.52)	(21.1)	(.83)	(19.1)	(.75)	-	-	(16.0)	(.63)		
5400 S5-4	Female	1/4	3/8	202208-6-4	7	(39.9)	(1.57)	(21.1)	(.83)	(16.0)	(.63)	(19.1)	(.75)	(16.0)	(.63)		
5400 S2-8	Male	1/2	3/8	202208-6-8	6	(44.5)	(1.75)	(33.3)	(1.31)	(28.7)	(1.13)	-	-	(25.4)	(1.00)		
5400 S5-8	Female	1/2	3/8	202208-6-8	7	(50.8)	(2.00)	(33.3)	(1.31)	(25.4)	(1.00)	(30.2)	(1.19)	(25.4)	(1.00)		
5400 S2-8	Male	1/2	1/2	202208-8-8	6	(44.5)	(1.75)	(33.3)	(1.31)	(28.7)	(1.13)	-	-	(25.4)	(1.00)		
5400 S5-8	Female	1/2	1/2	202208-8-8	7	(50.8)	(2.00)	(33.3)	(1.31)	(25.4)	(1.00)	(30.2)	(1.19)	(25.4)	(1.00)		
5400 S2-12	Male	3/4	5/8	202208-10-12	6	(62.7)	(2.47)	(45.7)	(1.80)	(41.4)	(1.63)	-	-	(35.1)	(1.38)		
5400 S5-12	Female	3/4	5/8	202208-10-12	7	(73.2)	(2.88)	(45.7)	(1.80)	(35.1)	(1.38)	(41.4)	(1.63)	(35.1)	(1.38)		
5400 S2-12	Male	3/4	3/4	202208-12-12	6	(62.7)	(2.47)	(45.7)	(1.80)	(41.4)	(1.63)	-	-	(35.1)	(1.38)		
5400 S5-12	Female	3/4	3/4	202208-12-12	7	(73.2)	(2.88)	(45.7)	(1.80)	(35.1)	(1.38)	(41.4)	(1.63)	(35.1)	(1.38)		
5400 S2-16	Male	1	1	202208-16-16	6	(71.1)	(2.80)	(56.9)	(2.24)	(47.8)	(1.88)	-	-	(44.5)	(1.75)		
5400 S5-16	Female	1	1	202208-16-16	7	(84.8)	(3.34)	(56.9)	(2.24)	(44.5)	(1.75)	(50.8)	(2.00)	(44.5)	(1.75)		

Note: See "Adapter - Braze" table for corresponding O-ring and adapter material

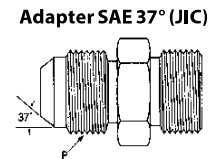
Dust Caps and Dust Plugs

Dust Cap with Gasket	Dust Plug with Gasket	Body Size
5400-S6-4	5400-S8-4	1/4
5400-S6-8	5400-S8-8	1/2
5400-S6-12	5400-S8-12	3/4
5400-S6-16	5400-S8-16	1



Adapter SAE 37° (JIC)

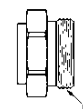
O-Ring	Brass	Steel	Body Size	Thread	Tube O.D. Size
22546-12	202220-4-4B	202220-4-4S	1/4	7/16-20	1/4
22546-12	202220-6-4B	202220-6-4S	1/4	9/16-18	3/8
22546-17	-	202220-6-8S	1/2	9/16-18	3/8
22546-17	202220-8-8B	202220-8-8S	1/2	3/4-16	1/2
22546-23	-	202220-10-12S	3/4	7/8-14	5/8
22546-23	-	202220-12-12S	3/4	1 1/16-12	3/4
22546-28	-	202220-16-16S	3/4	1 3/16-12	1



Adapter – Braze

O-Ring	Brass	Steel	Body Size	Thread	Tube O.D. Size
22546-12	202208-4-4B	-	1/4	1/2-20	1/4
22546-17	202208-4-8B	-	1/2	7/8-20	1/4
22546-12	202208-6-4B	-	1/4	1/2-20	3/8
22546-17	202208-6-8B	-	1/2	7/8-20	3/8
22546-17	202208-8-8B	-	1/2	7/8-20	1/2
22546-17	202208-10-8B	202208-10-8S	1/2	7/8-20	5/8
22546-23	202208-10-12B	202208-10-12S	3/4	1 1/4-18	5/8
22546-23	202208-12-12B	-	3/4	1 1/4-18	3/4
22546-23	202208-14-12B	-	3/4	1 1/4-18	7/8
22546-28	202208-14-16B	-	1	1 19/32-20	7/8
22546-28	202208-16-16B	-	1	1 19/32-20	1
22546-28	202208-18-16B	-	1	1 19/32-20	1 1/8
22546-28	202208-20-16B	-	1	1 19/32-20	1 3/16
22546-28	202208-22-16B	-	1	1 19/32-20	1 1/4

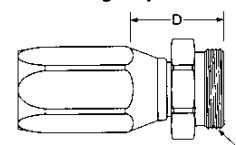
Adapter – Braze (O-Ring Required)



Hose Fitting SAE 100R5†

O-Ring	Fitting Assembly	Body Size	Hose Size	Thread	Dimensions	
					mm	(in)
22546-12	487-4-4S	1/4	-4	1/2-20	23.4	(.92)
22546-12	487-4-6S	1/4	-6	1/2-20	24.4	(.96)
22546-17	487-8-6S	1/2	-6	7/8-20	24.4	(.96)
22546-17	487-8-8S	1/2	-8	7/8-20	26.9	(1.06)
22546-23	487-12-10S	3/4	-10	1 1/4-18	27.2	(1.07)
22546-23	487-12-12S	3/4	-12	1 1/4-18	27.2	(1.07)
22546-28	487-16-16S	1	-16	1 19/32-20	25.7	(1.01)

Hose Fitting SAE 100R5 (O-Ring Required)



†Additional dash styles available.

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Component Part Numbers

Item Number	Dash Size→ O.D. Tube Size→	-4 1/4"-3/8"	-8 1/4"-5/8"	-12 5/8"-7/8"	-16 7/8"-13/8"
Typical Male Half					
1	Tubing Adapter	202208-*4	202208-*8	202208-*12	202208-*16
2	Adapter O-ring	22546-12	22546-17	22546-23	22546-28
3	Poppet Valve Assembly	5400-S20-4	5400-S20-8	5400-S20-12	5400-S20-16
4	Male Body	5400-17-4	5400-17-8	5400-17-12	5400-17-16
5	Gasket Seal	22008-4	22008-8	22008-12	22008-16
6	Lock Washer	5400-54-4S	5400-54-8S	5400-54-12S	5400-54-16S
7	Jam Nut	5400-53-4S	5400-53-8S	5400-53-12S	5400-53-16S
Typical Female Half					
8	Union Nut and Body Assembly	5400-S16-4	5400-S16-8	5400-S16-12	5400-S16-16
9	Piston O-Ring	FF91178-10	FF91178-112	FF91178-116	22546-214
10	Female valve assembly	5400-S19-4	5400-S19-8	5400-S19-12	5400-S19-16
2	Adapter O-Ring	22546-12	22546-17	22546-23	22546-28
1	Tubing Adapter	202208-*4	202208-*8	202208-*12	202208-*16

*Specify O.D. Tubing size of adapter required in 16th of an inch. Example: -4 coupling with 3/8" O.D. tubing is 6/16 or -6. Part number is then 202208-6-4.