

# 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
- The thread-to-connect design allows connection and disconnection under residual pressure of 17 bar
- Lock washer and jam nut standard for optional bulkhead mounting
- Standard seal material: Neoprene
- Dura-Kote™ plating for excellent corrosion resistance

Agency approval: UL Mark, file number: SA16088

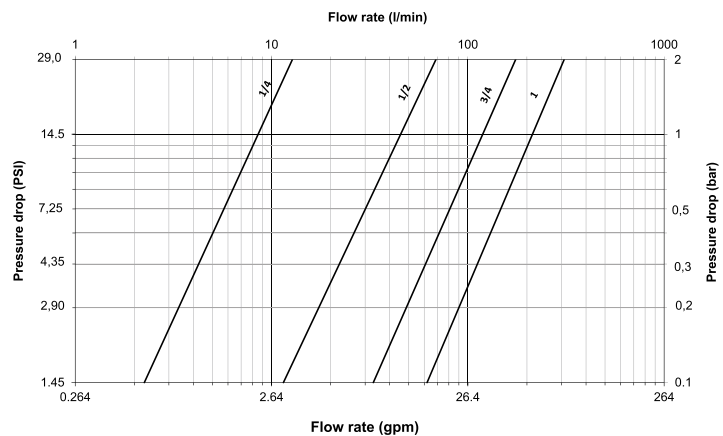
### Physical Characteristics

Coupling Size	Max. Operating Pressure Connected		Min. Burst Pressure Connected		Max. Operating Pressure Disconnected				Vacuum Connected Only	Rated Flow		Air Inclusion cc. max.	Fluid Loss cc. max.
	(bar)	(psi)	(bar)	(psi)	Male Half	Female Half		(in./Hg)		(lpm)	(gpm)		
1/4	207	3,000	621	9,000	172	2,500	52	754	28	8	2	.10	.05
1/2	121	1,750	359	5,200	121	1,750	52	754	28	53	14	.10	.10
3/4	48	700	145	2,100	48	700	45	652	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

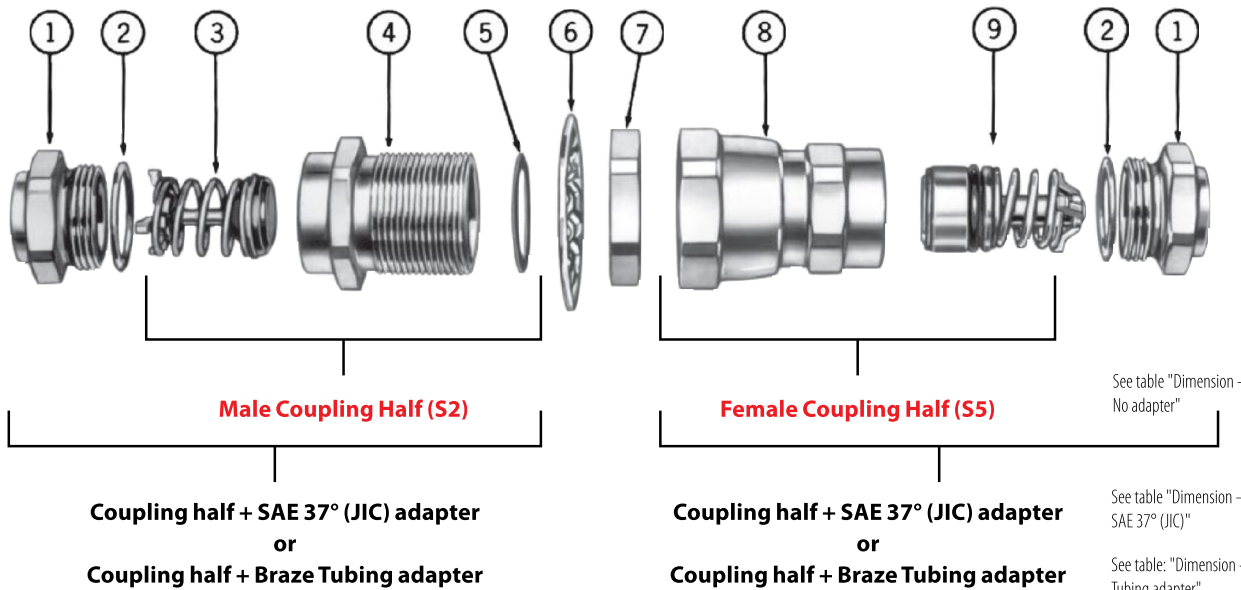
### Flow Data



Hydraulic Oil viscosity: 30 Cst at 40°C / 104°F

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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 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	5400-S19-X
Hose fitting SAE 100R5	487-Y-XS								

Note 1: Replace "X", "Y" 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 ①. 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 ⑨ 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".
- 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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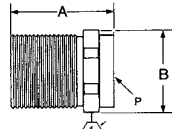


Figure 1

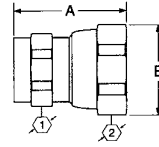


Figure 2

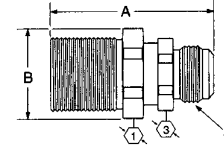


Figure 3

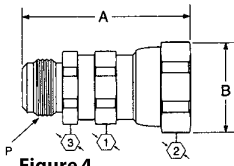


Figure 4

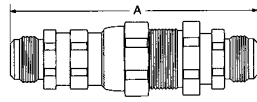


Figure 5

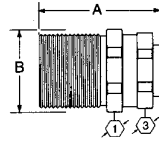


Figure 6

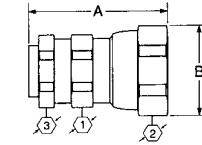


Figure 7

### Dimensions – No Adapter

Part Number Neoprene	Coupling Type	Body Size	Type	Fig.	Dimensions		Hex ①	Hex ②	Hex ③			
					A	B						
					(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)
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)
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)
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)

### Dimensions – SAE 37° (JIC)

Part Number Buna-N	Coupling Type	Body Size	Port Size	Thread	Type	Fig.	Dimensions		Hex ①	Hex ②	Hex ③					
							A	B								
							(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

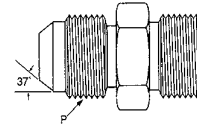
Dust Cap      Dust Plug



### 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	1	1 5/16-12	1

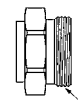
Adapter SAE 37° (JIC)



### 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

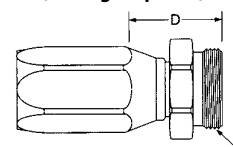
Adapter – Braze  
(O-Ring Required)



### 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"
<b>Typical Male Half</b>					
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
<b>Typical Female Half</b>					
8	Union Nut and Body Assembly	5400-S16-4	5400-S16-8	5400-S16-12	5400-S16-16
9	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.