

# 5400 Series Low Air Inclusion Refrigerant



Eaton 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
- Guardian Seal™ plating for excellent corrosion resistance

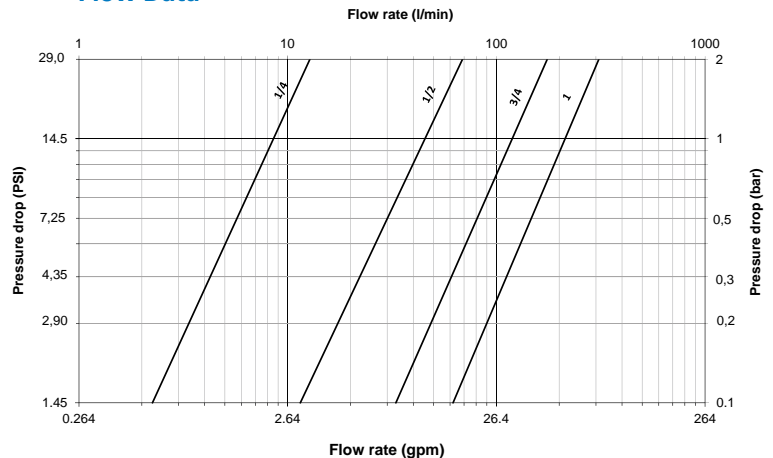
## Physical Characteristics

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)	Female Half (psi)	(bar)	(psi)		(lpm)	(gpm)		
1/4	207	3,000	621	9,000	172	2,500	52	750	28	8	2	.10	.05
1/2	121	1,750	359	5,200	121	1,750	52	750	28	53	14	.10	.10
3/4	48	700	145	2,100	48	700	45	650	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

## Flow Data



Air flow rate at 100 PSI (6,89 bar) Inlet Pressure

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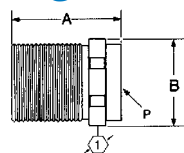


Figure 1

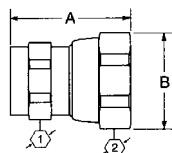


Figure 2

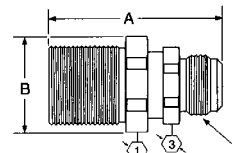


Figure 3

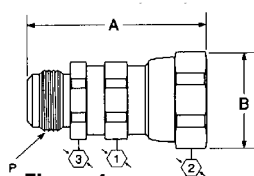


Figure 4

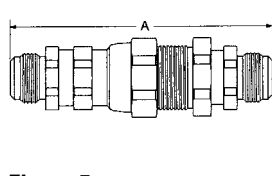


Figure 5

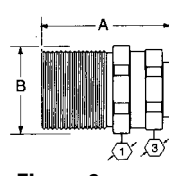


Figure 6

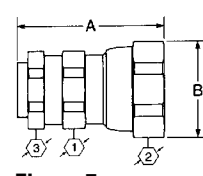


Figure 7

## 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	¼	No Adapter	1	27.4	(1.08)	21.1	(.83)	19	(.75)	-	-	-	-
5400-S5-4	Female	¼	No Adapter	2	28.7	(1.13)	21.1	(.83)	16.0	(.63)	19	(.75)	-	-
5400-S2-8	Male	½	No Adapter	1	34.8	(1.37)	32.0	(1.26)	29.0	(1.14)	-	-	-	-
5400-S5-8	Female	½	No Adapter	2	40.6	(1.60)	33.0	(1.30)	26.0	(1.02)	30.0	(1.18)	-	-
5400-S2-12	Male	¾	No Adapter	1	44.2	(1.74)	46.4	(1.83)	41.0	(1.61)	-	-	-	-
5400-S5-12	Female	¾	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) (Dimensional reference only)

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)	mm	(in)
*Couplings must be ordered by components as shown on page 147.							mm	(in)	mm	(in)	mm	(in)	mm	(in)		
5410-S17-4-4*	Male	¼	7/16	7/16-20	SAE 37° (JIC)	3	47.8	(1.88)	21.1	(.83)	19	(.75)	-	-	16.0	(.63)
5410-S14-4-4*	Female	¼	7/16	7/16-20	SAE 37° (JIC)	4	49.0	(1.93)	21.1	(.83)	16.0	(.63)	19	(.75)	15.7	(.62)
5410-4-4*	Complete	¼	7/16	7/16-20	SAE 37° (JIC)	5	89.9	(3.54)	-	-	-	-	-	-	-	
5410-S17-6-4*	Male	¼	9/16	9/16-18	SAE 37° (JIC)	3	48.0	(1.89)	21.1	(.83)	19	(.75)	-	-	16.0	(.63)
5410-S14-6-4*	Female	¼	9/16	9/16-18	SAE 37° (JIC)	4	49.3	(1.94)	21.1	(.83)	16.0	(.63)	19	(.75)	15.7	(.62)
5410-6-4*	Complete	¼	9/16	9/16-18	SAE 37° (JIC)	5	90.4	(3.56)	-	-	-	-	-	-	-	
5410-S17-6-8*	Male	¼	9/16	9/16-18	SAE 37° (JIC)	3	55.4	(2.18)	31.8	(1.25)	29	(1.14)	-	-	25.4	(1.00)
5410-S14-6-8*	Female	½	9/16	9/16-18	SAE 37° (JIC)	4	61.7	(2.43)	33.3	(1.31)	26	(1.02)	30	(1.18)	25.4	(1.00)
5410-6-8*	Complete	½	9/16	9/16-18	SAE 37° (JIC)	5	107.4	(4.23)	-	-	-	-	-	-	-	
5410-S17-8-8*	Male	½	¾	¾-16	SAE 37° (JIC)	3	57.9	(2.28)	31.8	(1.25)	29	(1.14)	-	-	25.4	(1.00)
5410-S14-8-8*	Female	½	¾	¾-16	SAE 37° (JIC)	4	64.3	(2.53)	33.3	(1.31)	26	(1.02)	30	(1.18)	25.4	(1.00)
5410-8-8*	Complete	½	¾	¾-16	SAE 37° (JIC)	5	112.8	(4.44)	-	-	-	-	-	-	-	
5410-S17-10-12*	Male	¾	7/8	7/8-14	SAE 37° (JIC)	3	69.9	(2.75)	46.5	(1.83)	41	(1.62)	-	-	35.1	(1.38)
5410-S14-10-12*	Female	¾	7/8	7/8-14	SAE 37° (JIC)	4	80.3	(3.16)	45.7	(1.80)	35	(1.38)	41	(1.62)	35.1	(1.38)
5410-10-12*	Complete	¾	7/8	7/8-14	SAE 37° (JIC)	5	135.4	(5.33)	-	-	-	-	-	-	-	
5410-S17-12-12*	Male	¾	1 1/16	1 1/16-12	SAE 37° (JIC)	3	72.6	(2.86)	46.5	(1.83)	41	(1.62)	-	-	35.1	(1.38)
5410-S14-12-12*	Female	¾	1 1/16	1 1/16-12	SAE 37° (JIC)	4	83.1	(3.27)	45.7	(1.80)	35	(1.38)	41	(1.62)	35.1	(1.38)
5410-12-12*	Complete	¾	1 1/16	1 1/16-12	SAE 37° (JIC)	5	140.7	(5.54)	-	-	-	-	-	-	-	
5410-S17-16-16*	Male	1	1 5/16	1 5/16-12	SAE 37° (JIC)	3	75.9	(2.99)	53.3	(2.10)	48	(1.89)	-	-	44.5	(1.75)
5410-S14-16-16*	Female	1	1 5/16	1 5/16-12	SAE 37° (JIC)	4	89.7	(3.53)	56.9	(2.24)	45	(1.77)	50	(1.97)	44.5	(1.75)
5410-16-16*	Complete	1	1 5/16	1 5/16-12	SAE 37° (JIC)	5	149.6	(5.89)	-	-	-	-	-	-	-	

Above items must be ordered at the component level - see page 148.

# 5400 Series Low Air Inclusion Refrigerant

## Dimensions – Braze Tubing Adapter (Dimensional reference only)

Part Number Neoprene	Coupling Type	Body Size	Tube O.D. Size	Type	Fig.	Dimensions									
						A		B		Hex ①		Hex ②		Hex ③	
*Couplings must be ordered by components as shown on page 147.						mm	(in)	mm	(in)	mm	(in)	mm	(in)	mm	(in)
5401-S17-4-4*	Male	¼	¼	Braze Tubing Adapter	6	38.6	(1.52)	21.1	(.83)	19	(.75)	-	-	16.0	(.63)
5401-S14-4-4*	Female	¼	¼	Braze Tubing Adapter	7	39.9	(1.57)	21.1	(.83)	16.0	(.63)	19	(.75)	16.0	(.63)
5401-S17-6-4*	Male	¼	¾	Braze Tubing Adapter	6	38.6	(1.52)	21.1	(.83)	19	(.75)	-	-	16.0	(.63)
5401-S14-6-4*	Female	¼	¾	Braze Tubing Adapter	7	39.9	(1.57)	21.1	(.83)	16.0	(.63)	19	(.75)	16.0	(.63)
5410-S17-6-8*	Male	½	¾	Braze Tubing Adapter	6	44.5	(1.75)	33.3	(1.31)	29	(1.14)	-	-	25.4	(1.00)
5401-S14-6-8*	Female	½	¾	Braze Tubing Adapter	7	50.8	(2.00)	33.3	(1.31)	26	(1.02)	30	(1.18)	25.4	(1.00)
5401-S17-8-8*	Male	½	½	Braze Tubing Adapter	6	44.5	(1.75)	33.3	(1.31)	29	(1.14)	-	-	25.4	(1.00)
5401-S14-8-8*	Female	½	½	Braze Tubing Adapter	7	50.8	(2.00)	33.3	(1.31)	26	(1.02)	30	(1.18)	25.4	(1.00)
5401-S17-10-12*	Male	¾	⅝	Braze Tubing Adapter	6	62.7	(2.47)	45.7	(1.80)	41	(1.62)	-	-	35.1	(1.38)
5401-S14-10-12*	Female	¾	⅝	Braze Tubing Adapter	7	73.2	(2.88)	45.7	(1.80)	35	(1.38)	41	(1.62)	35.1	(1.38)
5401-S17-12-12*	Male	¾	¾	Braze Tubing Adapter	6	62.7	(2.47)	45.7	(1.80)	41	(1.62)	-	-	35.1	(1.38)
5401-S14-12-12*	Female	¾	¾	Braze Tubing Adapter	7	73.2	(2.88)	45.7	(1.80)	35	(1.38)	41	(1.62)	35.1	(1.38)
5401-S17-16-16*	Male	1	1	Braze Tubing Adapter	6	71.1	(2.80)	56.9	(2.24)	48	(1.89)	-	-	44.5	(1.75)
5401-S14-16-16*	Female	1	1	Braze Tubing Adapter	7	84.8	(3.34)	56.9	(2.24)	45	(1.77)	50	(1.97)	44.5	(1.75)

## Dust Caps and Dust Plugs

Dust Cap with Gasket	Dust Plug with Gasket	Body Size
5400-S6-4	5400-S8-4	¼
5400-S6-8	5400-S8-8	½
5400-S6-12	5400-S8-12	¾
5400-S6-16	5400-S8-16	1

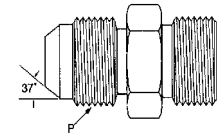
Dust Cap      Dust Plug



## Adapter SAE 37° (JIC)

O-Ring	Brass	Steel	Body Size	Thread	Tube O.D. Size
22546-12	202220-4-4B	202220-4-4S	¼	7/16-20	¼
22546-12	202220-6-4B	202220-6-4S	¼	9/16-18	¾
22546-17	-	202220-6-8S	½	9/16-18	¾
22546-17	202220-8-8B	202220-8-8S	½	¾-16	½
22546-23	-	202220-10-12S	¾	7/8-14	⅝
22546-23	-	202220-12-12S	¾	1 1/16-12	¾
22546-28	-	202220-16-16S	¾	1 3/16-12	1

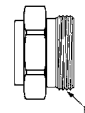
Adapter SAE 37° (JIC)



## Adapter – Braze

O-Ring	Brass	Steel	Body Size	Thread	Tube O.D. Size
22546-12	202208-4-4B	-	¼	½-20	¼
22546-17	202208-4-8B	-	½	7/8-20	¼
22546-12	202208-6-4B	-	¼	½-20	¾
22546-17	202208-6-8B	-	½	7/8-20	¾
22546-17	202208-8-8B	-	½	7/8-20	½
22546-17	202208-10-8B	202208-10-8S	½	7/8-20	⅝
22546-23	202208-10-12B	202208-10-12S	¾	1 ¼-18	⅝
22546-23	202208-12-12B	-	¾	1 ¼-18	¾
22546-23	202208-14-12B	-	¾	1 ¼-18	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 ⅛
22546-28	202208-20-16B	-	1	1 19/32-20	1 3/16
22546-28	202208-22-16B	-	1	1 19/32-20	1 ¼

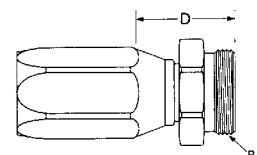
Adapter – Braze  
(O-Ring Required)



## Hose Fitting SAE 100R5†

O-Ring	Fitting Assembly	Body Size	Hose Size	Thread	Dimensions D	
					mm	(in)
22546-12	487-4-4S	¼	-4	½-20	23.4	(.92)
22546-12	487-4-6S	¼	-6	½-20	24.4	(.96)
22546-17	487-8-6S	½	-6	7/8-20	24.4	(.96)
22546-17	487-8-8S	½	-8	7/8-20	26.9	(1.06)
22546-23	487-12-10S	¾	-10	1 ¼-18	27.2	(1.07)
22546-23	487-12-12S	¾	-12	1 ¼-18	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.



# 5400 Series Low Air Inclusion Refrigerant

For assemblies, order by components as shown by base number and dash (-) size below. Example, if a 5401-S14-10-12 is required, order as components, (1) 5400-S5-12, (1) 202208-10-12B Adapter and (1) 22546-23 O-Ring.

Assembly Part Number	5400-S2 Male Half	Quantity	5400-S5 Female Half	Quantity	202208-Brass Braze-On Adapter	Quantity	202220-Steel 37° SAE Adapter	Quantity	22546 O-Ring	Quantity
5401-S14-10-12			-12	1	-10 -12B	1			-23	1
5401-S14-10-8			-8	1	-10 -8B				-17	1
5401-S14-12-12			-12	1	-12 -12B	1			-23	1
5401-S14-16-16			-16	1	-16 -16B	1			-28	1
5401-S14-4-4			-4	1	-4 -4B	1			-12	1
5401-S14-6-4			-4	1	-6 -4B	1			-12	1
5401-S14-6-8			-8	1	-6 -8B	1			-17	1
5401-S14-8-8			-8	1	-8 -8B	1			-17	1
5401-S17-10-12	-12	1			-10 -12B	1			-23	1
5401-S17-10-8	-8	1			-10 -8B	1			-17	1
5401-S17-12-12	-12	1			-12 -12	1			-23	1
5401-S17-14-16	-16	1			-16 -16	1			-28	1
5401-S17-4-4	-4	1			-4 -4B	1			-17	1
5401-S17-6-4	-4	1			-6 -4B	1			-12	1
5401-S17-6-8	-8	1			-6 -8B	1			-17	1
5401-S17-8-8	-8	1			-8 -8B	1			-17	1
5410-12-12	-12	1	-12	1			-12 -12S	2	-23	2
5410-16-16	-16	1	-16	1			-16 -16S	2	-28	2
5410-4-4	-4	1	-4	1			-4 -4S	2	-12	2
5410-6-8	-8	1	-8	1			-6 -8S	2	-17	2
5410-8-8	-8	1	-8	1			-8 -8S	2	-17	2
5410-S14-10-12			-12	1			-10 -12S	1	-23	1
5410-S14-12-12			-12	1			-12 -12S	1	-23	1
5410-S14-16-16			-16	1			-16 -16S	1	-28	1
5410-S14-4-4			-4	1			-4 -4S	1	-12	1
5410-S14-6-4			-4	1			-6 -4S	1	-12	1
5410-S14-6-8			-8	1			-6 -8S	1	-17	1
5410-S14-8-8			-8	1			-8 -8S	1	-17	1
5410-S17-10-12	-12	1					-10 -12S	1	-23	1
5410-S17-12-12	-12	1					-12 -12S	1	-23	1
5410-S17-16-16	-16	1					-16 -16S	1	-28	1
5410-S17-4-4	-4	1					-4 -4S	1	-12	1
5410-S17-6-4	-4	1					-6 -4S	1	-12	1
5410-S17-6-8	-8	1					-6 -8S	1	-17	1
5410-S17-8-8	-8	1					-8 -8S	1	-17	1



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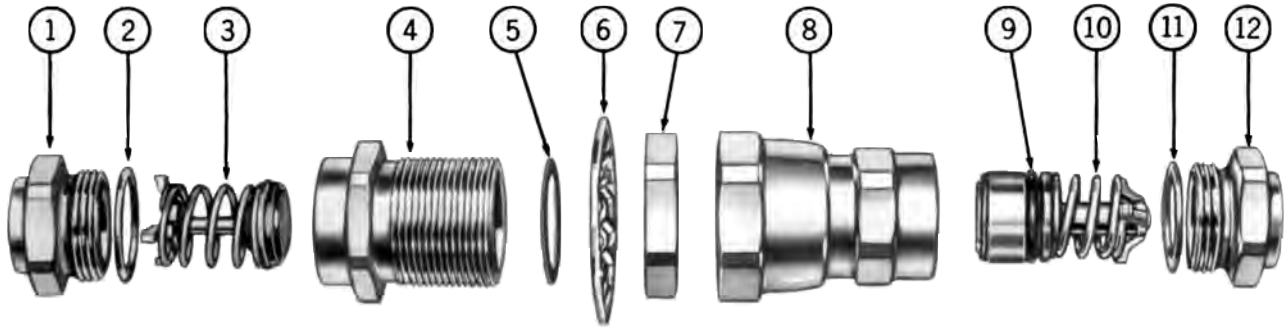


NOTE: All technical information shown is correct at time of print and may be subject to change without notice. For specific applications, please consult Guyson Technical Sales Department.

FS 28046  
E-MEQD-CC002-E4

# 5400 Series Low Air Inclusion Refrigerant

## Assembly Instructions/Component Part Numbers



### Typical Male Coupling Half (S2)

#### 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" with respect to adapter ① or torque per table value.  
S5 Half—Oil O-Ring ④ liberally with system fluid. Insert valve and sleeve assembly 10 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" with respect to adapter ② or torque per table value.
- Coupling Connection—Lubricate gasket seal ⑤ on 5400-S2 half with system fluid. Thread union nut ⑧ on 5400-S2 half. Tighten union nut to torque values shown in table. Be sure S2 and S5 bodies do not rotate during connection.

### Typical Female Coupling Half (S5)

#### Bulkhead Mounting—S2 Half

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	Lock Washer Not Used
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.

### 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"	Line Ref.
<b>Typical Male Half</b>						
1	Tubing Adapter	202208-* -4	202208-* -8	202208-* -12	202208-* -16	2
2	O-Ring	22546-12	22546-17	22546-23	22546-28	3
3	Poppet Valve Assembly	5400-S20-4	5400-S20-8	5400-S20-12	5400-S20-16	4
4	Body	5400-17-4S	5400-17-8S	5400-17-12S	5400-17-16S	5
5	Gasket Seal	22008-4	22008-8	22008-12	22008-16	6
6	Lock Washer	5400-54-4S	5400-54-8S	5400-54-12S	5400-54-16S	7
7	Jam Nut	5400-53-4S	5400-53-8S	5400-53-12S	5400-53-16S	8
<b>Typical Female Half</b>						
8	Union Nut and Body Assembly	5400-S16-4	5400-S16-8	5400-S16-12	5400-S16-16	10
9	O-Ring	FF91178-10	FF91178-112	FF91178-116	FF91178-214	11
10	Valve and Sleeve Assembly	5400-S19-4	5400-S19-8	5400-S19-12	5400-S19-16	12
11	O-Ring	22546-12	22546-17	22546-23	22546-28	13
12	Tubing Adapter	202208-* -4	202208-* -8	202208-* -12	202208-* -16	14

\*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.