



QUICK CONNECT REFRIGERANT FITTINGS

Flame FREE! Tool FREE! Problem FREE!



No Brazing

No Tools

No Nitrogen Purge

No Hot Work Safety Concerns

1/4" - 7/8" Sizes



NATIONAL
REFRIGERATION
PRODUCTS

www.nrproducts.com

Applications

- Refrigerants
- Glycol
- Non-Potable Water

Product Parameters

- **Continuous Operating Temperature**
250° F / 121° C
- **O-Ring Temperature Rating**
-40° F / 250° F
-40° C / 121° C
- **Maximum Rated Pressure (MRP)**
870 PSI / 60 Bar
- **Minimum Burst Pressure**
3600 PSI / 250 Bar
- **Vacuum Pressure Capability**
30 Microns

Approved Refrigerants

» R134a	» R507
» R404A	» R22
» R290	» R410A
» R407A	» R32
» R600a	» R407C

Fitting Materials

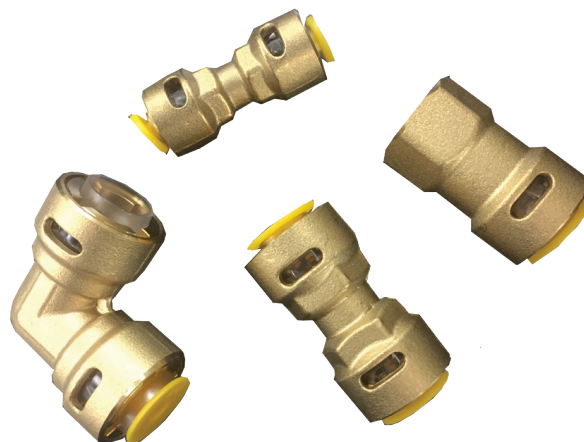
- **Fitting Body**
C3771, PC (Polycarbonate)
- **O-Ring**
CR (Cholorprene Rubber)

Agency Approvals and Certifications

- **UL Listed**
207, SA #44910
SDTW(7)

Warranty

- **5 Year Limited, Contact NRP For Details**



Compatibility

- **Tubing Tolerance**
ASTM B280, UNI EN 12735
- **Approved for Hard & Soft Copper:**
 - Hard Copper (Drawn)
1/4" - 7/8" Type ACR, M, L, K
 - Soft Copper (Annealed)
1/4" - 7/8" Type ACR, L, K

Technical Data

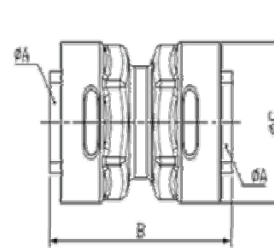
Parameters	Capability
Maximum Rated Pressure (MRP)	870 PSI / 60 BAR
Burst Pressure Rating (Minimum)	3600 PSI / 250 BAR
Vacuum Capacity Rating	30 microns
Continuous Operating Temperature	250° F / 121° C
Vibration Resistance Rating	UL 1963



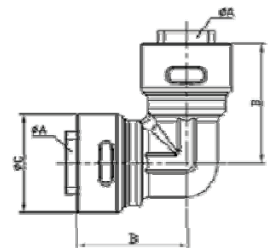
Dimensional Specifications

1/4" - 7/8" – COUPLERS • FLARES • ELBOWS • REDUCERS

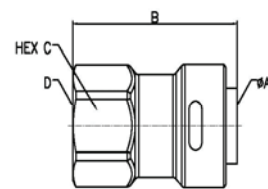
Model Name		Connection	Length	Outer Diameter (HEX)	Connection Thread
		ØA(Inch)	B(Inch)	ØC(Inch)	D(Inch)
COUPLER					
SBC14	1/4"	0.250	1.890	0.787	None
SBC38	3/8"	0.375	1.969	0.945	
SBC12	1/2"	0.500	2.126	1.063	
SBC58	5/8"	0.625	2.244	1.181	
SBC34	3/4"	0.750	2.579	1.457	
SBC78	7/8"	0.875	2.618	1.575	
ELBOW					
SBE14	1/4"	0.250	1.161	0.787	None
SBE38	3/8"	0.375	1.260	0.945	
SBE12	1/2"	0.500	1.417	1.063	
SBE58	5/8"	0.625	1.535	1.181	
SBE34	3/4"	0.750	1.732	1.457	
SBE78	7/8"	0.875	1.772	1.575	
FLARES					
SBF14	1/4"	0.250	1.516	0.669	7/16-20 UNF
SBF38	3/8"	0.375	1.634	0.866	5/8-18 UNF
SBF12	1/2"	0.500	1.831	0.945	3/4-16 UNF
SBF58	5/8"	0.625	2.087	1.063	7/8-14 UNF
45° ELBOWS					
SBE4514	1/4"	0.250	1.024	-	7/16-20 UNF
SBE4538	3/8"	0.375	1.181	-	5/8-18 UNF
SBE4512	1/2"	0.500	1.339	-	3/4-16 UNF
SBE4558	5/8"	0.625	1.398	-	7/8-14 UNF
Model Name		Connection Pipe			Length
		ØA(Inch)	B(Inch)	ØC(Inch)	D(Inch)
REDUCER COUPLINGS					
SBCR3814	1/4"x3/8"	0.250	0.375	1.969	-
SBCR1238	3/8"x1/2"	0.375	0.500	2.165	-
SBCR5812	1/2"x5/8"	0.500	0.625	2.362	-
REDUCER ELBOWS					
SBER3814	1/4"x3/8"	0.250	0.375	1.024	1.181
SBER1238	3/8"x1/2"	0.375	0.500	1.181	1.339
SBER5812	1/2"x5/8"	0.500	0.625	1.339	1.398



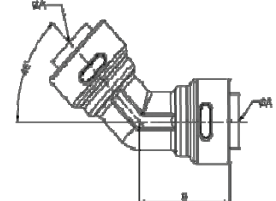
❖ UNION TYPE



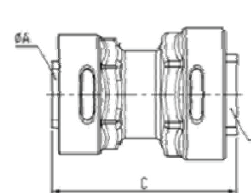
❖ ELBOW TYPE



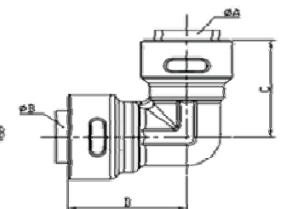
❖ SOCKET FLARE TYPE



❖ 45° ELBOW



❖ REDUCE UNION, ELBOW



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NATIONAL REFRIGERATION PRODUCTS

CONNECTING FITTING

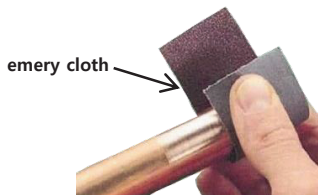
1 Cut the Tube



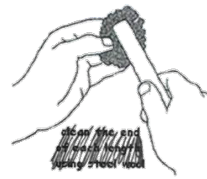
2 De-burr the Tube



3 Sanding/Cleaning the Tube



Copper tube being sanded



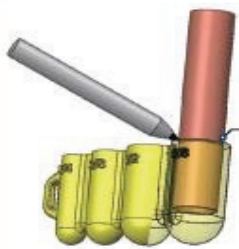
Copper tube being cleaned

INSTALL CAUTION



Insure the tube is clean and not out of round.
It must be free from any defects—dirt, burrs, scratches, etc.

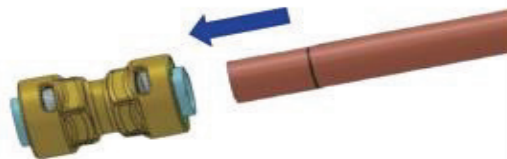
4 Mark the Insertion Depth



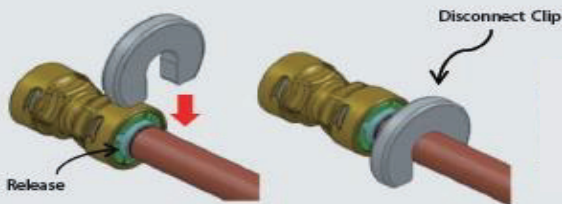
Mark the Line (Push guideline)

Size	Dimensions
1/4"	0.894"
3/8"	0.921"
1/2"	1.004"
5/8"	1.063"

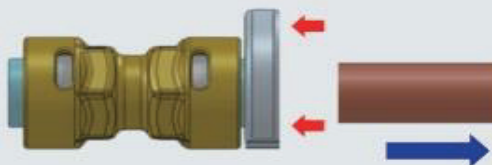
5 Push into Fitting



DISCONNECTING FITTING



Press to release the fitting with the Disconnect Clip



CAUTION



Do not insert fingers in the grip ring inside the fitting.
Immediate emergency medical attention may be required for removal.



Most Frequently Asked Questions (FAQ)

1. What refrigerants are approved for use with SB1 fittings?
R410A R22 R290 R507 R600a
R32 R134a R404A R407A R407C
2. What is the Maximum Working Pressure (MWP)?
870 PSI (60 bar) – couplers/elbows/flares/reducers
670 PSI (45 bar) - tees
3. What is the vacuum capacity rating on the fittings?
30 microns
4. What are the SB1 temperature ratings?
-40° F / 250° F
5. What types of copper can be used with SB1s?
Hard Copper (Drawn) ¼" – 7/8" Type ACR, M, L & K
Soft Copper (Annealed) ¼" – 7/8" Type ACR, L & K
6. Can SB1s be used with aluminum, steel or stainless steel tubing?
No, only copper to copper connections
7. What material are the SB1's o-rings ?
Super Neoprene for long-term compression set / refrigerant/lubricant resistant for long seal life.
8. What is the shelf life of the fittings?
The manufacturer sets the shelf life @ 30+ years
9. Do the fittings need to be insulated after an install?
Yes, just as you would with any other fitting where it would be subject to condensation.
10. What is the #1 cause of problems with the SB1 fittings ?
Not reading/following the installation instructions
11. The SBLM1458 depth gauge only goes up to 5/8" so how do I mark 3/4" & 7/8" tubing?
Part number SBLMDC3478 is a combo tool, combining both a depth gauge and a disconnect tool
12. Do SB1s need to be replaced when retrofitting to a lower GWP refrigerant?
Yes. The compression set of the super neoprene o-rings may be compromised when transitioning from one refrigerant to another. Always install new fittings.
13. Can the fittings be removed and reinstalled on the same spot of tubing?
The fitting can be installed onto the same spot if the tube is properly sanded and cleaned, removing any etch marks, or replace onto a clean section of tubing.
14. Will other SB1 components be available?
Yes, numerous other products currently in design- including but not limited to - long radius elbows, tees, ball valves, sight glasses, filter driers
15. What is the warranty on SB1 fittings?
A 5-year limited warranty policy which is available from NRP upon request.

SB1 Flow/Pressure Loss Coefficient

Size		SB1 90° Elbow			SB1 45° Elbow			SB1 Reduce Elbow			SB1 Reduce Union			SB1 Socket			SB1 Union		
Inch	Inside Dia (mm)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)	Cv	Flow Drop (kPa)	Equivalent Length (Ft)
1/4"	8.00	0.94	0.76	0.39	0.96	0.50	0.26	0.89	1.39	0.71	0.98	0.25	0.13	0.99	0.13	0.06		0.13	0.06
3/8"	10.92		0.56	0.53		0.37	0.35		1.02	0.97		0.19	0.18		0.09	0.09			
1/2"	13.84		0.44	0.67		0.29	0.44		0.81	1.22		0.15	0.22		0.07	0.11			
5/8"	16.91		0.36	0.82		0.24	0.54		0.66	1.50		0.12	0.27		0.06	0.14			
3/4"	19.94		0.31	0.96		0.20	0.64		0.56	1.76		0.10	0.32		0.05	0.16			
7/8"	26.04		0.24	1.26		0.16	0.84		0.43	2.30		0.08	0.42		0.04	0.21		0.04	0.21

Darcy Friction Factor	f	1 - Cv
Density (p)	p	1000
Flow Speed (m/s)	V	2
Pipe Length (m)	L	50
$\Delta p = f \frac{L}{D} \frac{\rho V^2}{2}$		

Flow Coefficient	Hf	1 - Cv
tube Pre-Loss Coefficient	λ	0.02
Gravity acceleration (m/s²)	g	9.8
$H_f = \lambda \cdot \frac{L}{D} \cdot \frac{v^2}{2g} [m]$		

Note.

- This calculation is made in consideration of the general situation.
 - It may vary depending on your environment and conditions.
 - The System Detail value for the formula is assumed
- General values are applied as physical values, and the formula includes tolerance values.
 - As mentioned on the Neutrium page, errors may occur due to definitions such as diameter, internal friction, and fluid viscosity.
- The calculation used two physical formulas.
 - Darcy-Weisbach equation
 - DEFINITION https://neutrium.net/fluid_flow/pressure-loss-in-pipe/

ESSENTECH Quality Assurance Team (2020/03/05)



← **Access Installation Video**
(scan with any smartphone camera)