
Push to Connect Reliability Test Report

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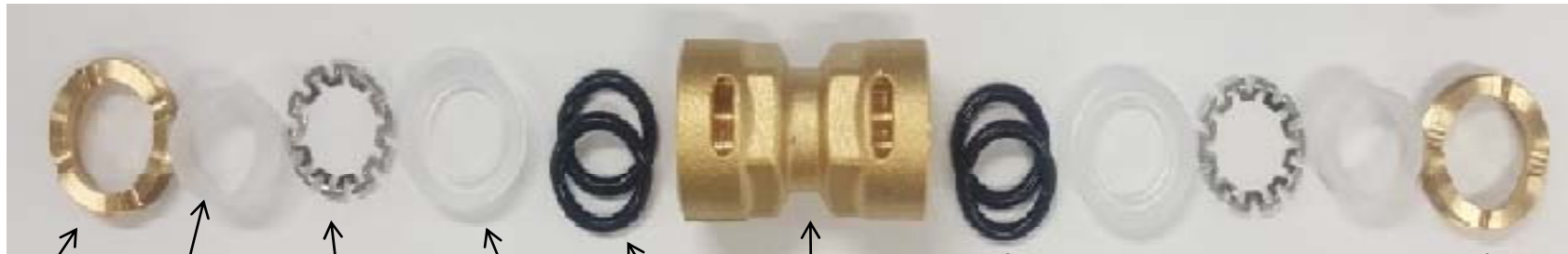
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1. Product Specification

Game Changer

□ Component

- Number of Total Component



① End Cap ② Release ③ Grip Ring ④ Protector ⑤ O Ring ⑥ Body

Same as Left



■ Application

- Copper tube (KS D 5301 – C1220)
- Refrigerant : R-22, R-410A, R-134A
- Maximum Pressure : 653 psig (45bar, 46 kgf/cm²)
- Temperature : - 40°F (-40°C) ~ 248°F(120°C)

■ Feature

- One Touch Push To Connect
- Brazing Free
- Double O ring Sealing Type
- Durable Body

2. Reliability Test

Game Changer

Process	Sample data	Method		Result
Leaking Test	Φ6.35 : 6EA Φ9.52 : 6EA Φ15.88 : 6EA	Applying the pressure (42.8kgf/cm ²) for one(1) minute		Good
Destructive Pressure Test	Φ6.35 : 3EA Φ9.52 : 3EA Φ15.88 : 3EA	Connect a pipe ,SVC V/V and water pressure connector for one(1) minute.		Accept over 214 kgf/cm ²
		High Pressure	21 MPa (214 kgf/cm ²)	
		Low Pressure	12 MPa (122 kgf/cm ²)	
Fatigue Test	Φ6.35 : 3EA Φ9.52 : 3EA Φ15.88 : 3EA	1. Apply the pressure (71 kgf/cm ²) for one(1) minute 2. Repeat each pressure (31 kgf/cm ² ↔ 9 kgf/cm ² , over 0.1s) on 250,000 Cycle 3. Apply the pressure (61 kgf/cm ²) for one(1) minute		Good
Complex Corrosion Test	Φ6.35 : 3EA Φ9.52 : 3EA Φ15.88 : 3EA	Fog Spray for 2 hour (35°C, RH 95%), Dry for 2 hour (70°C, RH 30%), Wet for 2 hour (50°C, RH 95%) 72hr : No Rust 330hr : No leakage and Corrosion		Good
Heating & Cooling Cycle Test	Φ6.35 : 3EA Φ9.52 : 3EA Φ15.88 : 3EA	Connect with SVC V/V on Heating & Cooling Cycle Chamber Test Temperature (1Cycle) : -35°C 1hr, 120°C 1hr Test Pressure : 42kgf/cm ² Test on 40Cycle		Good
O-ring Test	O-ring : 3EA	1. Input the Refrigerants/ Refrigerator oil(30g/100g) into vacuum pressure vessel . 2. Check the changing sample (weight and dimension), Refrigerants/ Refrigerator oil (Color), Oligomer precipitation amount after 14 days on 130 °C		Good

3. SB1 Cooling and Heating Cycle Test

□ Cooling and Heating Cycle

Test Profile

► Test Condition

- Temperature ($20^{\circ}\text{C} \pm 5^{\circ}\text{C}$)
30kg/cm² Charge the nitrogen gas
- Heating and Cooling test 40Cycle
($-35^{\circ}\text{C} \leftrightarrow 120^{\circ}\text{C}$, each 1h => 1Cycle)

[reference] Pressure per Temperature

	Test pressure (kg/cm ²)	
	Cool (-35°C)	Heat (120°C)
#1	30	42
#2	30	42

► Sample

- SB1 Union type 1/4" 6ea

► Passing Standard

- No Leakage(=No Down Pressure)

Test Result

► Test Result

☞ On 40Cycle, No leakage

	Test pressure (kg/cm ²)		Test data
	Cool (-35°C)	Heat (120°C)	
#1	30	42	
#2	30	42	

<Test Picture>



4. UL Certified

Game Changer



GENERAL:

Test results relate only to the items tested.

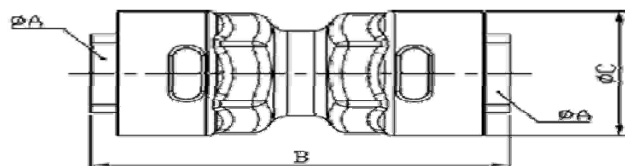
The following tests were conducted.

Strength Test:	UL 207; 12 & 13;04/09
Pressure Test:	C22.2 No. 140.3; 5.11 & 6.1;03/15
Accelerated Aging Test - Electrical Heaters:	UL 250; Section 8.22
Vibration Test:	UL 1963; Section 52.10
Pull Test:	UL 1963; Section 52.11
10-DAY MOIST AMMONIA AIR STRESS CRACKING TEST: (+)	UL 207; 18A.2;04/09

(+) - Tested in UL NBK Lab

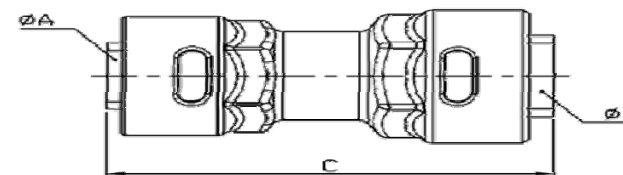
* Appendix (Specification)

Game C hanger



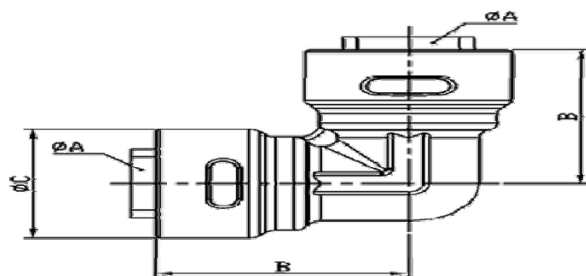
UNION DIMENSION

Size	Tube	Length	O.D
	ØA [mm]	B [mm]	ØC [mm]
1/4	6.35	48.0	20
3/8	9.52	50.0	24
1/2	12.70	54.0	27
5/8	15.88	57.0	30



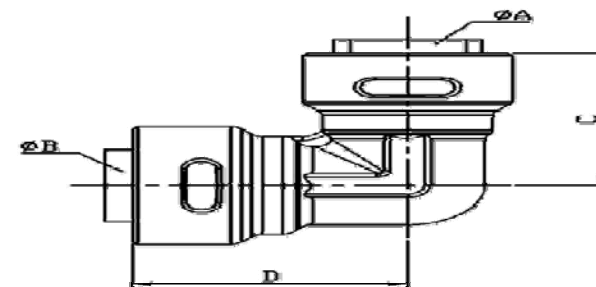
REDUCE UNION DIMENSION

Size	Tube	Length	O.D
	ØA [mm]	ØB [mm]	C [mm]
1/4x3/8	6.35	9.52	50.0
3/8x1/2	9.52	12.70	55.0
1/2x5/8	12.70	15.88	60.0



ELBOW DIMENSION

Size	Tube	Length	O.D
	ØA [mm]	B [mm]	ØC [mm]
1/4	6.35	29.5	20
3/8	9.52	32.0	24
1/2	12.70	36.0	27
5/8	15.88	39.0	30



REDUCE ELBOW DIMENSION

Size	Tube	Tube	Length	Length
	ØA [mm]	ØB [mm]	C [mm]	D [mm]
1/4x3/8	6.35	9.52	26.0	30.0
3/8x1/2	9.52	12.70	30.0	34.0
1/2x5/8	12.70	15.88	34.0	35.5

Liste gaz compatible : R22, R134a, R410a, R507, R600a, R290, R32, R404a, R407a, R407c, R500, R454b, R448a, R449a