

# Butt Weld Fittings

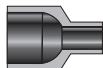
Ultrahigh-Purity, Specially Cleaned Series  
MW, UW and AW Series



# Contents

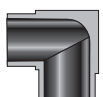
## MW Series (mini butt weld fittings)

Reducing Unions - MRWU



02

90° Union Elbows - MWE



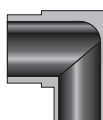
02

Extended Leg 90° Union Elbow - MWEL



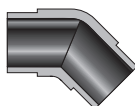
03

Reducing 90° Union Elbows - MRWE



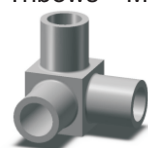
03

45° Union Elbows - MWV



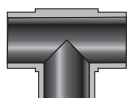
04

Tribows - MWTB



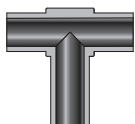
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Union Tees - MWT



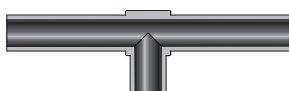
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Extended Branch Leg Union Tees - MWBT



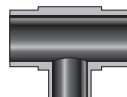
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Extended Run Leg Union Tees - MWRT



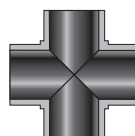
05

Reducing Tees - MRWT



05

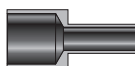
Union Crosses - MWC



06

## UW Series (ultrahigh-purity butt weld fittings)

Reducing Unions - URWU



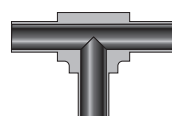
07

Union Elbows - UWE



07

Union Tees - UWT



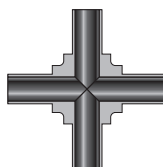
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Reducing Tees - URWT



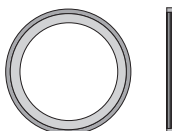
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Union Crosses - UWC



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Weld Rings

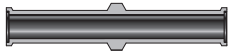


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# Contents

## AW Series (automatic tube butt weld fittings)

Locator Unions - ALWU



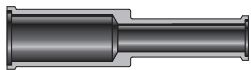
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Unions - AWU



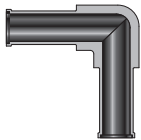
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Reducing Unions - ARWU



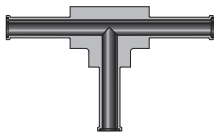
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90° Union Elbows - AWE



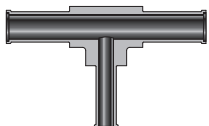
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Union Tees - AWT



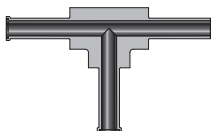
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Reducing Tees - ARWT



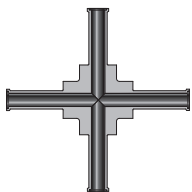
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Manifold Tees - AMWT



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Union Crosses - AWC



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## Features

- ❖ 316, 316L, 316L VAR and 316L VIM-VAR (Vacuum Induction Melting/Vacuum Arc Remelting) stainless steel materials
- ❖ Each fitting is stamped with size, material and heat code

## Materials

Material	Bar Stock	Forging	Designator
316 S.S.	ASTM A479/A276	ASTM A182/A314	316
316L S.S.			316L
316L VAR S.S.	ASTM A479/A276 SEMI F20	—	316LV
316L VIM-VAR S.S.			316LVV

## Working Temperatures

Material	316 316L Bar Stock	316L Forgings
Specification	ASTM A276 A479	ASTM A182
Temperature °F (°C)	Factor	
-20 (-28) to 100 (37)	1.00	1.00
200 (93)	0.86	0.71
300 (93)	0.78	0.63
400 (121)	0.71	0.57
500 (148)	0.66	0.53
600 (176)	0.63	0.50
650 (176)	0.62	0.49
700 (204)	0.60	0.48
750 (232)	0.60	0.47
800 (148)	0.59	0.46
850 (176)	0.58	0.45
900 (204)	0.57	—
950 (232)	0.57	—
1000 (232)	0.56	—

- ❖ Catalog working pressures shown are for temperatures from -20°F to 100°F (-28°C to 37°C). Pressure derating factors for applications at temperatures greater than 100°F (37°C) were determined from this pressure code and are listed in the table left

## Wetted Surface Finish, Cleaning and Packaging

### ❖ Wetted Surface Finish

Standard surface finish is a roughness average of 10 µin. (0.25 µm) Ra

### ❖ Special Cleaning and Packaging

CP-02 special cleaning and packaging, following ASTM G93 level C, add -CP2 as a suffix to the ordering number

Example: **FBW4-MWE-FBW4-316L-CP2**

### ❖ Ultrahigh-purity Process Specification

CP-03 ultrahigh-purity cleaning and packaging, Wetted surfaces are finished to 5 µin. (0.13 µm) Ra.

Example: **FBW4-MWE-FBW4-316L**

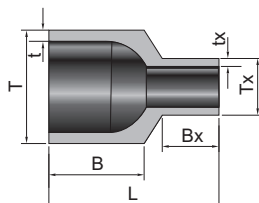
## Ordering Information

- ❖ To order CIR-LOK butt weld fittings, add the material designator to the ordering number

## M Series (mini butt weld fittings)

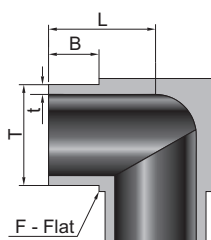
- ❖ Sizes range from 1/8" to 1/2" and 6 mm to 12 mm.
- ❖ Radius junction design with elbows provides smooth flow path.
- ❖ Compact design allows close component spacing.
- ❖ Square, sharp, burrfree tube weld ends enhance alignment, maintain tube wall uniformity, and promoteweld repeatability.

## Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	Bx	
1/4	0.035	1/8	0.028	FBW4-MRWU-FBW2-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	5100 (351)
3/8	0.035	1/4	0.035	FBW6-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MRWU-FBW6-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)

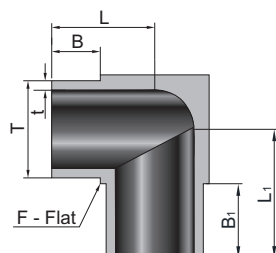
## 90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWE-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWE-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWE-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWE-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

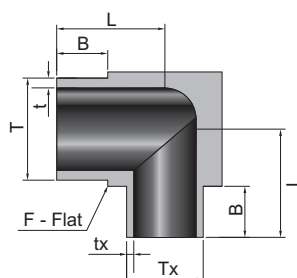
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWE-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWE-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWE-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWE-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

## Extended Leg 90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	L1	F	B	B1	
1/4	0.035	FBW4-MWEL-FBW4-4161-	0.25 (6.4)	0.45 (11.4)	5/16 (7.9)	0.41 (10.4)	0.61 (15.5)	5100 (351)
1/4	0.035	FBW4-MWEL-FBW4-4166-	0.25 (6.4)	0.50 (12.7)	5/16 (7.9)	0.41 (10.4)	0.66 (16.8)	5100 (351)
1/4	0.035	FBW4-MWEL-FBW4-6161-	0.45 (11.4)	0.45 (11.4)	5/16 (7.9)	0.61 (15.5)	0.61 (15.5)	5100 (351)
1/4	0.035	FBW4-MWEL-FBW4-6666-	0.50 (12.7)	0.50 (12.7)	5/16 (7.9)	0.66 (16.8)	0.66 (16.8)	5100 (351)

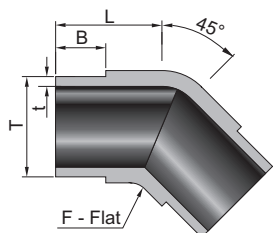
## Reducing 90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	F	
3/8	0.035	1/4	0.035	FBW6-MRWE-FBW4-	0.47 (11.9)	0.25 (6.4)	7/16 (7.9)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MRWE-FBW4-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MRWE-FBW6-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3300 (227)

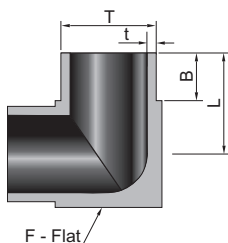
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
					L	B	F	
8	1.0	6	1.0	MBW8-MRWE-MBW6-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	6	1.0	MBW10-MRWE-MBW6-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	6	1.0	MBW12-MRWE-MBW6-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)
12	1.0	8	1.0	MBW12-MRWE-MBW8-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

## 45° Union Elbows

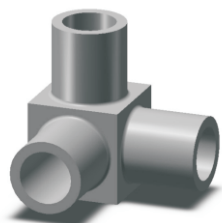


T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-MWV-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWV-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWV-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

## Tribows

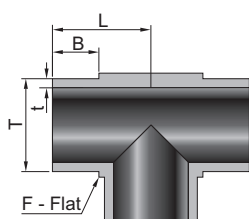


T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-MWTB-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWTB-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWTB-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)



T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWTB-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)

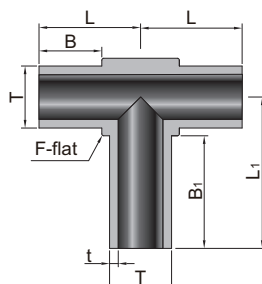
## Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWUT-FBW2-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWUT-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWUT-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWUT-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

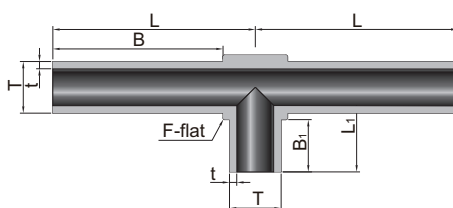
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWUT-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWUT-MBW8-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWUT-MBW10-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWUT-MBW12-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

## Extended Branch Leg Union Tees



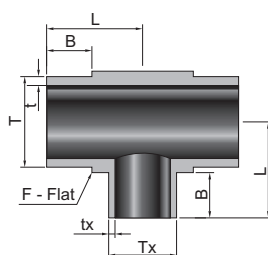
T-Tube O.D. (in.)	Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working pressure psig (bar)
			L	L1	B	B1	F	
1/4	0.035	FBW4-MWBT-FBW4-FBW4-4161-	0.41 (10.4)	0.61 (15.5)	0.25 (6.4)	0.45 (11.4)	5/16 (7.9)	5100 (351)

## Extended Run Leg Union Tees



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working pressure psig (bar)
			L	L1	B	B1	F	
1/4	0.035	FBW4-MWRT-FBW4-FBW4-9841-	0.98 (24.9)	0.41 (10.4)	0.83 (21.1)	0.25 (6.4)	5/16 (7.9)	5100 (351)

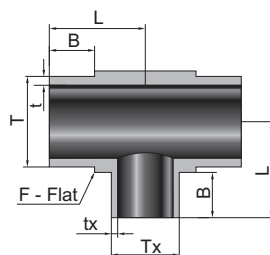
## Reducing Tees



T-Tube O.D. (in.)	T-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	F	
3/8	0.035	1/4	0.035	FBW6-MRWT-FBW6-FBW4-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MRWT-FBW8-FBW4-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MRWT-FBW8-FBW6-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3300 (227)

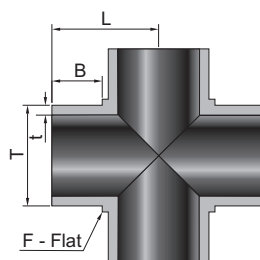


## Reducing Tees



T-Tube O.D. (mm)	T-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm.)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
					L	B	F	
10	1.0	6	1.0	MBW10-MRWT-MBW10-MBW6-	11.9(0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	6	1.0	MBW12-MRWT-MBW12-MBW6-	0.53 (13.5)	6.4 (0.25)	14.3 (9/16)	200 (2902)
12	1.0	8	1.0	MBW12-MRWT-MBW12-MBW8-	0.53 (13.5)	6.4 (0.25)	14.3 (9/16)	200 (2902)

## Union Crosses



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWC-FBW2-FBW2-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWC-FBW4-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWC-FBW6-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWC-FBW8-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

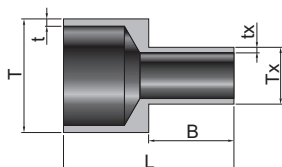
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWC-MBW6-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWC-MBW8-MBW8-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWC-MBW10-MBW10-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWC-MBW12-MBW12-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

## Long Arm Butt Weld Fittings UW Series

- ❖ Sizes range from 1/4" to 1" and 6 mm to 18 mm.
- ❖ Radius junction design with elbows provides smooth flow path.
- ❖ Precisely finished diameter matches tube diameter.



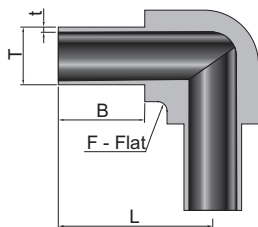
### Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)		Working Pressure psig (bar)
					L	B	
3/8	0.035	1/4	0.035	FBW6-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-URWU-FBW6-	1.50 (38.1)	0.75 (19.1)	3300 (227)
3/4	0.049	1/2	0.049	FBW12-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	1/2	0.049	FBW16-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	3/4	0.049	FBW16-URWU-FBW12-	1.50 (38.1)	0.75 (19.1)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)		Working Pressure bar (psig)
					L	B	
10	1.0	6	1.0	MBW10-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	240 (3483)
10	1.0	8	1.0	MBW10-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	240 (3483)
12	1.0	6	1.0	MBW12-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	8	1.0	MBW12-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	10	1.0	MBW12-URWU-MBW10-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	6	1.5	MBW18-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	12	1.5	MBW18-URWU-MBW12-	38.1 (1.50)	19.1 (0.75)	200 (2902)

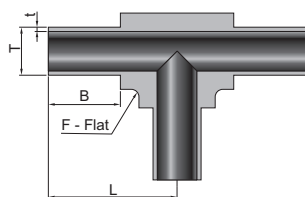
### Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWE-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWE-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWE-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWE-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWE-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWE-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWE-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWE-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWE-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

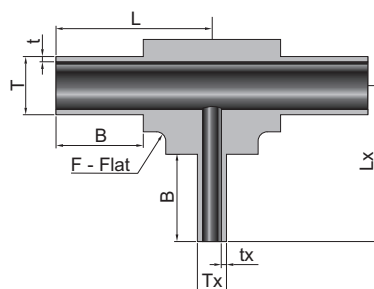
## Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWT-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWT-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWT-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWT-FBW12-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWT-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWT-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWT-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWT-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWT-MBW18-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

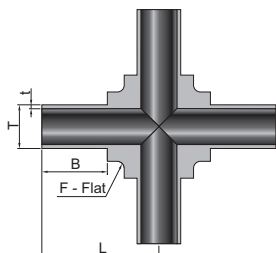
## Reducing Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
					L	Lx	B	F	
3/8	0.035	1/4	0.035	FBW6-URWT-FBW6-FBW4-	1.20 (30.5)	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-URWT-FBW8-FBW4-	1.34 (34.0)	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-URWT-FBW8-FBW6-	1.34 (34.0)	1.35 (34.3)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	1/4	0.035	FBW12-URWT-FBW12-FBW4-	1.46 (37.1)	1.48 (37.6)	0.75 (19.1)	15/16 (23.8)	2400 (165)
3/4	0.049	3/8	0.035	FBW12-URWT-FBW12-FBW6-	1.46 (37.1)	1.35 (34.3)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)				Working Pressure bar (psig)
					L	Lx	B	F	
8	1.0	6	1.0	MBW8-URWT-MBW8-MBW6-	31.3 (1.23)	31.3 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	6	1.0	MBW10-URWT-MBW10-MBW6-	34.0 (1.34)	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
10	1.0	8	1.0	MBW10-URWT-MBW10-MBW8-	34.0 (1.34)	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	6	1.0	MBW12-URWT-MBW12-MBW6-	34.0 (1.34)	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
12	1.0	8	1.0	MBW12-URWT-MBW12-MBW8-	34.0 (1.34)	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)

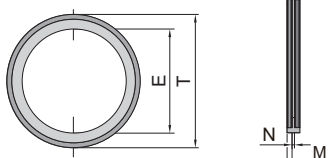
## Union Crosses



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWC-FBW4-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWC-FBW6-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWC-FBW8-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWC-MBW6-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWC-MBW8-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWC-MBW10-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	240 (3483)
12	1.0	MBW12-UWC-MBW12-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	200 (2902)

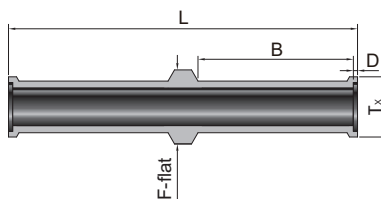
## Weld Rings



T-Tube O.D. (in.)	Ordering Number	Dimension, in. (mm)			
		E	M	N	T
1/4	UWR-4-	0.20 (5.1)	0.02 (0.51)	0.01 (0.25)	0.28 (7.1)
3/8	UWR-6-	0.32 (8.1)	0.02 (0.51)	0.01 (0.25)	0.41 (10.4)
1/2	UWR-8-	0.42 (10.7)	0.02 (0.51)	0.01 (0.25)	0.54 (13.7)

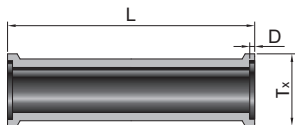
## Automatic Tube Butt Weld Fittings

### Locator Unions



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	T <sub>x</sub>	
1/4	0.035	AFBW4-ALWU-AFBW4-	1.69 (42.9)	0.75 (19.1)	0.02 (0.51)	0.36 (9.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-ALWU-AFBW6-	1.71 (43.4)	0.75 (19.1)	0.03 (0.76)	0.42 (10.7)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-ALWU-AFBW8-	1.73 (43.9)	0.75 (19.1)	0.04 (1.0)	0.60 (15.2)	0.55 (14.0)	3700 (254)

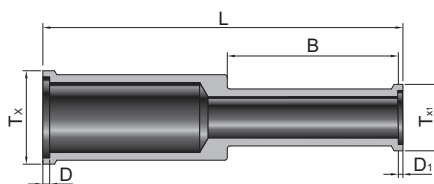
## Unions



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	D	TX	
1/4	0.035	AFBW4-AWU-AFBW4-	1.00 (25.4)	0.02 (0.5)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWU-AFBW6-	1.00 (25.4)	0.03 (0.8)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AWU-AFBW8-	1.00 (25.4)	0.04 (1.0)	0.55 (14.0)	3700 (254)
3/4	0.049	AFBW12-AWU-AFBW12-	1.00 (25.4)	0.04 (1.0)	0.80 (20.3)	2400 (165)
1	0.065	AFBW16-AWU-AFBW16-	1.25 (31.8)	0.04 (1.0)	1.06 (26.9)	2400 (165)

T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	D	TX	
6	1	AMBW6-AWU-AMBW6-	31.8 (1.25)	0.5 (0.02)	6.9 (0.27)	420 (6095)
8	1	AMBW8-AWU-AMBW8-	31.8 (1.25)	0.8 (0.03)	8.9 (0.35)	310(4499)
10	1	AMBW10-AWU-AMBW10-	31.8 (1.25)	0.8 (0.03)	10.9 (0.43)	240(3483)
12	1	AMBW12-AWU-AMBW12-	31.8 (1.25)	1.0 (0.04)	13.2 (0.52)	200(2902)
18	1.5	AMBW16-AWU-AMBW16-	31.8 (1.25)	1.0 (0.04)	19.3 (0.76)	200(2902)

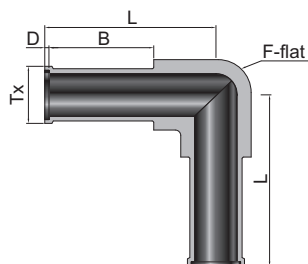
## Reducing Unions



T-Tube O.D. (in.)	Wall (in.)	T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
					L	B	D	D1	TX	TX1	
3/8	0.035	1/4	0.035	AFBW6-ARWU-AFBW6-	1.58 (40.1)	0.75 (19.1)	0.03 (0.8)	0.02 (0.5)	0.41 (10.4)	0.29 (7.4)	3300 (227)
1/2	0.049	1/4	0.035	AFBW8-ARWU-AFBW4-	1.58 (40.1)	0.75 (19.1)	0.04 (1.0)	0.02 (0.5)	0.55 (14.0)	0.29 (7.4)	3700 (254)
1/2	0.049	3/8	0.035	AFBW8-ARWU-AFBW6-	1.58 (40.1)	0.75 (19.1)	0.04 (1.0)	0.03 (0.8)	0.55 (14.0)	0.41 (10.4)	3300 (227)

T-Tube O.D. (mm)	Wall (mm)	T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)						Working Pressure bar (psig)
					L	B	D	D1	TX	TX1	
8	1	6	1	AMBW6-ARWU-AMBW6-	39.9 (1.57)	19.1 (0.75)	0.8 (0.03)	0.5 (0.02)	8.9 (0.35)	6.8 (0.27)	310 (4499)
12	1	6	1	AMBW12-ARWU-AMBW6-	40.1 (1.58)	19.1 (0.75)	1.0 (0.04)	0.5 (0.02)	13.2 (0.52)	6.8 (0.27)	200 (2902)
12	1	8	1	AMBW12-ARWU-AMBW8-	40.4 (1.59)	19.1 (0.75)	1.0 (0.04)	0.8 (0.03)	13.2 (0.52)	8.9 (0.35)	200 (2902)

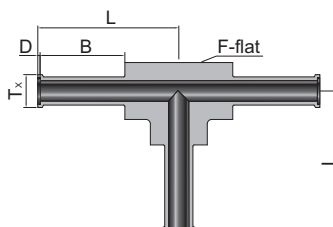
## 90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-AWUE-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (111)	0.29 (7.4)	5100 (351)
3/8	0035	AFBW6-AWUE-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (111)	0.41 (10.4)	3300 (227)
1/2	0049	AFBW8-AWUE-AFBW8-	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (175)	0.55 (14.0)	3700 (254)
3/4	0049	AFBW12-AWUE-AFBW12-	1.50 (38.1)	0.75 (19.1)	0.04 (1.0)	15/16 (238)	0.80 (20.3)	2400 (165)
1	0065	AFBW16-AWUE-AFBW16-	1.89 (48.0)	0.96 (24.4)	0.04 (1.0)	1 1/4 (318)	1.06 (26.9)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	TX	
6	1	AMBW6-AWUE-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	351(5100)
8	1	AMBW8-AWUE-AMBW8-	32.0 (1.26)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	227 (3300)
10	1	AMBW10-AWUE-AMBW10-	34.8 (1.37)	19.1 (0.75)	0.8 (0.03)	17.5 (11/16)	10.9 (0.43)	254 (3700)
12	1	AMBW12-AWUE-AMBW12-	35.1 (1.38)	19.1 (0.75)	1.0 (0.04)	17.5 (11/16)	13.2 (0.52)	199 (2888)
18	1.5	AMBW18-AWUE-AMBW18-	38.6 (1.52)	19.1 (0.75)	1.0 (0.04)	23.8 (15/16)	19.3 (0.76)	206 (2989)

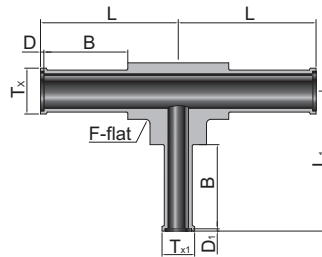
## Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-AWT-AFBW4-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (111)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWT-AFBW6-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (111)	0.41 (10.4)	3300 (227)
1/2	0049	AFBW8-AWT-AFBW8-AFBW8-	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (175)	0.55 (14.0)	3500 (241)
3/4	0049	AFBW12-AWT-AFBW12-AFBW12-	1.50 (38.1)	0.75 (19.1)	0.04 (1.0)	15/16 (238)	0.80 (20.3)	2400(165)
1	0065	AFBW16-AWT-AFBW16-AFBW16-	1.89 (48.0)	0.96 (24.4)	0.04 (1.0)	1 1/4 (318)	1.06 (26.9)	2400(165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	TX	
6	1	AMBW6-AWT-AMBW6-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	454(6589)
8	1	AMBW8-AWT-AMBW8-AMBW8-	32.0 (1.26)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	323 (4687)
10	1	AMBW10-AWT-AMBW10-AMBW10-	34.8 (1.37)	19.1 (0.75)	0.8 (0.03)	17.5 (11/16)	10.9 (0.43)	254 (3686)
12	1	AMBW12-AWT-AMBW12-AMBW12-	35.1 (1.38)	19.1 (0.75)	1.0 (0.04)	17.5 (11/16)	13.2 (0.52)	206 (2989)
18	1.5	AMBW18-AWT-AMBW18-AMBW18-	38.6 (1.52)	19.1 (0.75)	1.0 (0.04)	23.8 (15/16)	19.3 (0.76)	206 (2989)

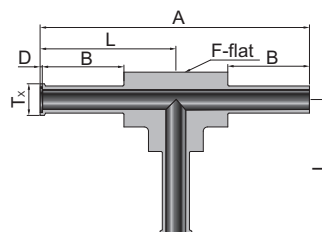
## Reducing Tees



T-Tube O.D. (in.)	Wall (in.)	T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)							Working Pressure psig (bar)	
					L	L1	B	D	D1	Tx	Tx1		F
3/8	0.035	1/4	0.035	AFBW6-ARWT-AFBW6-AFBW4-	1.23(31.2)	1.25(31.8)	0.75(19.1)	0.03(0.8)	0.02(0.5)	0.41(10.4)	0.29(7.4)	7/16(11.1)	3300 (227)
1/2	0.049	1/4	0.035	AFBW8-ARWT-AFBW8-AFBW4-	1.38(35.1)	1.38(35.1)	0.75(19.1)	0.04(1.0)	0.02(0.5)	0.55(14.0)	0.29(7.4)	11/16(17.5)	3700(254)
1/2	0.049	3/8	0.035	AFBW8-ARWT-AFBW8-AFBW6-	1.38(35.1)	1.37(34.8)	0.75(19.1)	0.04(1.0)	0.03(0.8)	0.55(14.0)	0.41(10.4)	11/16(17.5)	3300(227)
3/4	0.049	3/8	0.035	AFBW12-ARWT-AFBW12-AFBW6-	1.50(38.1)	1.50(38.1)	0.75(19.1)	0.04(1.0)	0.03(0.8)	0.80(20.3)	0.41(10.4)	15/16(23.8)	2400(165)
3/4	0.049	1/2	0.049	AFBW12-ARWT-AFBW12-AFBW8-	1.50(38.1)	1.50(38.1)	0.75(19.1)	0.04(1.0)	0.04(1.0)	0.80(20.3)	0.55(14.0)	15/16(23.8)	2400(165)

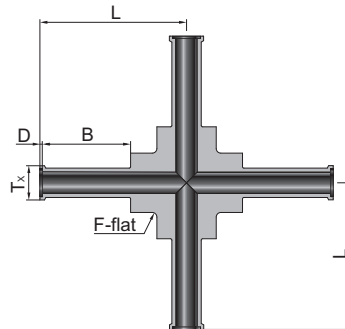
T-Tube O.D. (mm)	Wall (mm)	T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)							Working Pressure bar (psig)	
					L	L1	B	D	D1	Tx	Tx1		F
12	1	6	1	AMBW12-ARWT-AMBW12-AMBW6-	35.1(1.38)	34.5(1.36)	19.1(0.75)	0.5(0.02)	0.5(0.02)	13.2(0.52)	6.9(0.27)	17.5(11/16)	200(2902)

## Manifold Tees



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			A	L	B	D	F	TX	
1/4	0.035	AFBW4-AMWT-FBW4-AFBW4-	2.48 (63.0)	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (11.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AMWT-FBW6-AFBW6-	2.43 (61.7)	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	11/16 (17.5)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AMWT-FBW8-AFBW8-	2.72 (69.1)	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (17.5)	0.55 (14.0)	3700 (254)

## Union Crosses



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	T <sub>x</sub>	
1/4	0.035	AFBW4-AWC-AFBW4-AFBW4-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (111)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWC-AFBW6-AFBW6-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (111)	0.41 (10.4)	3300 (227)
1/2	0049	AFBW8-AWC-AFBW8-AFBW8-AFBW8-	1.35 (34.3)	0.75 (19.1)	0.04 (1.0)	5/8 (175)	0.55 (14.0)	3700(254 )

T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	T <sub>x</sub>	
6	1	AMBW6-AWC-AMBW6-AMBW6-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	420(6095)
8	1	AMBW8-AWC-AMBW8-AMBW8-AMBW8-	31.8 (1.25)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	310(4499)