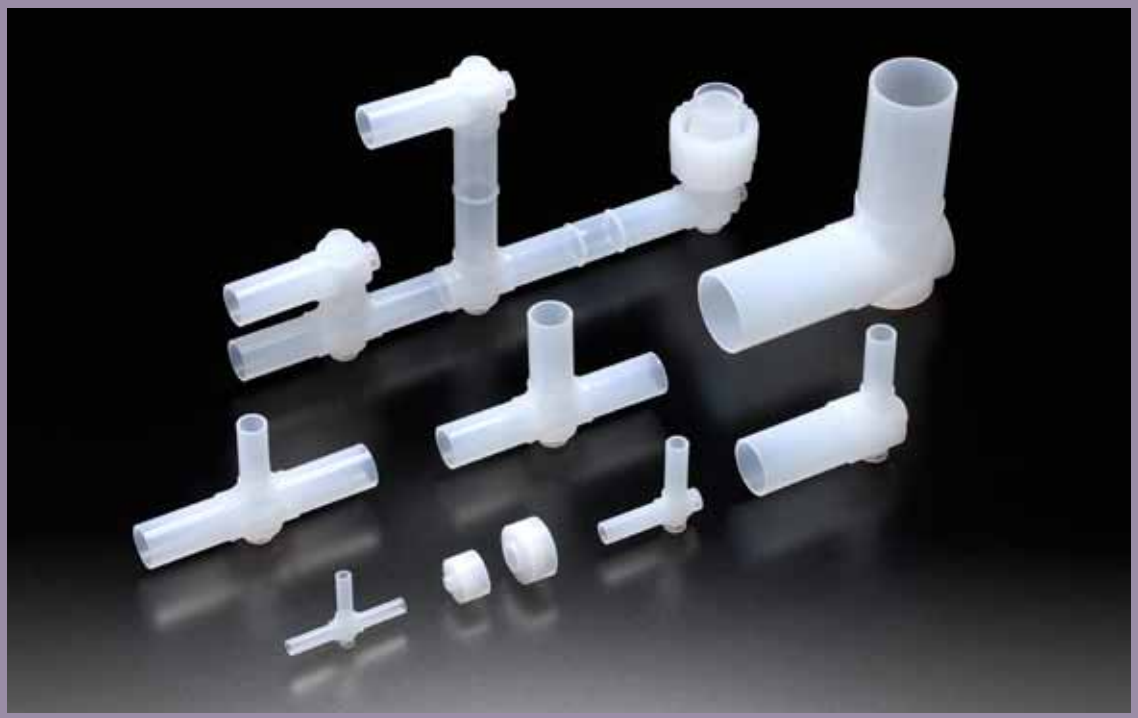
PFA Fittings

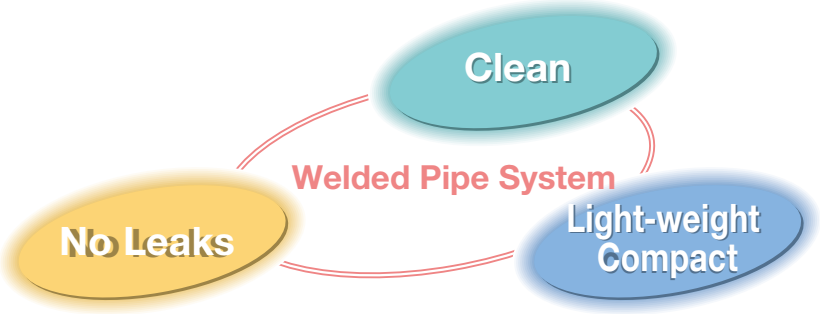
TUBE BONDING FITTING

A welded pipe system that clears high level requirements For a semiconductor production process piping

We answer the high-level requirements for clean, leakproof, lightweight and compact piping for semiconductor fabrication processes with our welded pipe system.



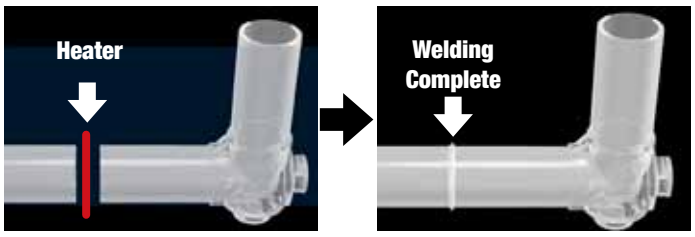
TBN
Fittings for Welding



■ Features

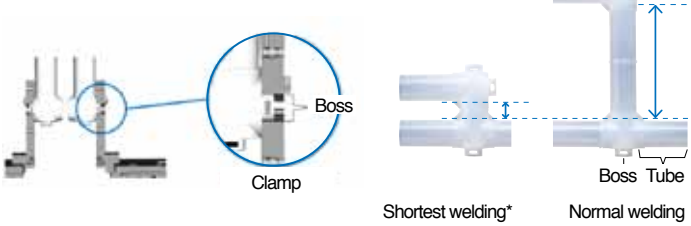
No leak, Clean and Light-weight Compact

◎ Uncompromised sealing performance by butt-welding the fitting and tube end, There is no danger whatsoever of leakage or the need for re-tightening the fitting.
◎ Excellent particle count characteristics is achieved by eliminating moving parts from the fittings.
◎ The welded parts are stronger than the tube, so there will be no breakage or cracking of the welded parts.
◎ The high heat resistance enabled maximum operating temperature of 200℃ , and there won't be any loosening or leakage due to the thermal cycle.
◎ Light weight and compact size save the piping space.



■ Ease of Short tubes welding

◎ The newly provided boss allows you to perform fusion welding on your own even with dimensions without a clamping allowance at the time of fusion welding, so that compact piping can be laid out.
* The shortest cutting jigs and shortest fusion welding clamp jigs for PWM fusion welding machine are required.
* The shortest fusion welding cannot be applied to 1·1/2 because there is no boss.

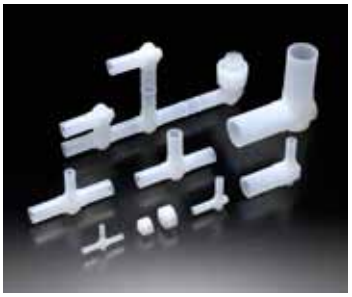


■ Long sleeves for press fittings

◎ Due to the elongated tube portion, sleeve press-fitted type fittings can be directly worked, so that reduction in the working time and compact piping design can be realized.
◎ Since the posture at press-fit time is stabilized by clamping the boss portion with a press-fit jig, sleeves can be easily inserted straight and errors in working can be prevented.
* The press-fit jig should be prepared by customers.

■ TBN Piping Kit

We also offer PFA pipe manifolds consisting of TBN fittings and PFA tubes welded together.
We handle the production of standard kit patterns (arbitrarily designated dimensions) as well as the production of special-order piping kits based on the customer's designated drawings. Please contact the sales representatives for details.



■ Specifications

Material	PFA (perfluoroalkoxy copolymer resin)							
Maximum Operating Temperature	+200℃							
Maximum Operating Pressure	Nominal diameter (inch)	1・1/2	1・1/4	1	3/4	1/2	3/8	1/4
	+20℃ (MPa(G))	0.4	0.6	0.4	0.6	0.9	1.0	1.0
	+200℃ (MPa(G))	0.15	0.26	0.15	0.26	0.39	0.43	0.43

PFA fittings and weld points have higher pressure resistance than that of PFA tubes. The following maximum operating pressures are for reference. Please use these fittings within the pressure rating of the PFA tubes that you use.

■ Product Code Table

Model	Type of Product		Size
TBN	T	-	1 × 1 × 1

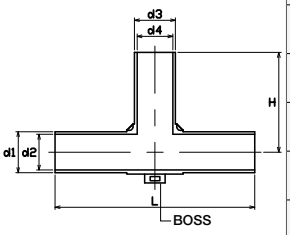
TBN : TBN Fittings
TBRS : TBN Reducing Fittings

T: Tee
L: Elbow
Not shown :
In case of TBRS chosen

Application Tube
Nominal Diameter

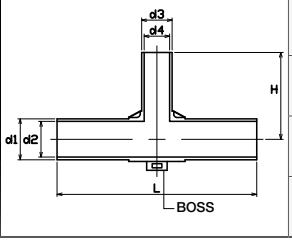
Unit: inch (mm)

■ Tee



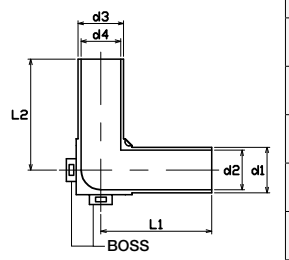
Parts No.	d1	d2	d3	d4	L	H	A	a	BOSS
TBNT-1・1/2×1・1/2×1・1/2	1.50 (38.10)	1.33 (33.70)	1.50 (38.10)	1.33 (33.70)	7.24 (184)	3.62 (92)	1.10 (28)	2.52 (64)	-
TBNT-1・1/4×1・1/4×1・1/4	1.25 (31.80)	1.10 (28.00)	1.25 (31.80)	1.10 (28.00)	5.87 (149)	2.93 (74.5)	0.79 (20)	2.15 (54.5)	ϕ1.25 (ϕ31.80)
TBNT-1×1×1	1.00 (25.40)	0.87 (22.20)	1.00 (25.40)	0.87 (22.20)	4.88 (124)	2.44 (62)	0.69 (17.5)	1.75 (44.5)	ϕ0.50 (ϕ12.70)
TBNT-3/4×3/4×3/4	0.75 (19.05)	0.62 (15.85)	0.75 (19.05)	0.62 (15.85)	4.06 (103)	2.03 (51.5)	0.59 (15)	1.44 (36.5)	ϕ0.50 (ϕ12.70)
TBNT-1/2×1/2×1/2	0.50 (12.70)	0.38 (9.70)	0.50 (12.70)	0.38 (9.70)	3.15 (80)	1.57 (40)	0.39 (10)	1.18 (30)	ϕ0.50 (ϕ12.70)
TBNT-3/8×3/8×3/8	0.37 (9.52)	0.26 (6.52)	0.37 (9.52)	0.26 (6.52)	2.72 (69)	1.36 (34.5)	0.30 (7.5)	1.06 (27)	ϕ0.37 (ϕ9.52)
TBNT-1/4×1/4×1/4	0.25 (6.35)	0.17 (4.35)	0.25 (6.35)	0.17 (4.35)	2.05 (52)	1.02 (26)	0.24 (6)	0.79 (20)	ϕ0.25 (ϕ6.35)

■ Reducing Tee



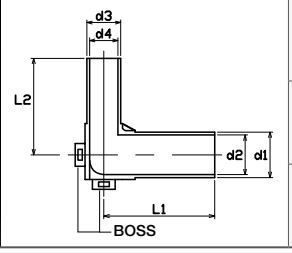
Parts No.	d1	d2	d3	d4	L	H	A	B	a	b	BOSS
TBNT-1・1/4×1×1・1/4	1.25 (31.8)	1.10 (28)	1 (25.4)	0.87 (22.2)	5.87 (149)	2.30 (58.5)	0.79 (20)	0.79 (20)	2.15 (54.5)	1.52 (38.5)	ϕ1.25 (ϕ31.80)
TBNT-1×3/4×1	1.00 (25.40)	0.87 (22.20)	0.75 (19.05)	0.62 (15.85)	4.88 (124)	2.13 (54)	0.69 (17.5)	0.69 (17.5)	1.75 (44.5)	1.44 (36.5)	ϕ0.50 (ϕ12.70)
TBNT-1×1/2×1	1.00 (25.40)	0.87 (22.20)	0.50 (12.70)	0.37 (9.50)	4.88 (124)	1.87 (47.5)	0.69 (17.5)	0.69 (17.5)	1.75 (44.5)	1.18 (30)	ϕ0.50 (ϕ12.70)
TBNT-3/4×1/2×3/4	0.75 (19.05)	0.62 (15.85)	0.50 (12.70)	0.38 (9.70)	4.06 (103)	1.77 (45)	0.59 (15)	0.59 (15)	1.44 (36.5)	1.18 (30)	ϕ0.50 (ϕ12.70)

■ Elbow



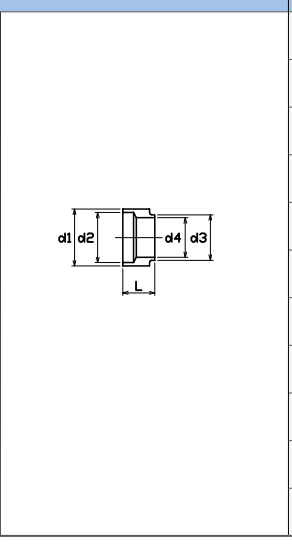
Parts No.	d1	d2	d3	d4	L	A	a	BOSS
TBNL-1・1/2×1・1/2	1.50 (38.10)	1.33 (33.70)	1.50 (38.10)	1.33 (33.70)	3.62 (92)	1.10 (28)	2.52 (64)	-
TBNL-1・1/4×1・1/4	1.25 (31.80)	1.10 (28.00)	1.25 (31.80)	1.10 (28.00)	2.93 (74.5)	0.79 (20)	2.15 (54.5)	ϕ1.25 (ϕ31.80)
TBNL-1×1	1.00 (25.40)	0.87 (22.20)	1.00 (25.40)	0.87 (22.20)	2.44 (62)	0.69 (17.5)	1.75 (44.5)	ϕ0.50 (ϕ12.70)
TBNL-3/4×3/4	0.75 (19.05)	0.62 (15.85)	0.75 (19.05)	0.62 (15.85)	2.03 (51.5)	0.59 (15)	1.44 (36.5)	ϕ0.50 (ϕ12.70)
TBNL-1/2×1/2	0.50 (12.70)	0.38 (9.70)	0.50 (12.70)	0.38 (9.70)	1.57 (40)	0.39 (10)	1.18 (30)	ϕ0.50 (ϕ12.70)
TBNL-3/8×3/8	0.37 (9.52)	0.26 (6.52)	0.37 (9.52)	0.26 (6.52)	1.36 (34.5)	0.30 (7.5)	1.06 (27)	ϕ0.37 (ϕ9.52)
TBNL-1/4×1/4	0.25 (6.35)	0.17 (4.35)	0.25 (6.35)	0.17 (4.35)	1.02 (26)	0.24 (6)	0.79 (20)	ϕ0.25 (ϕ6.35)

■ Reducing Elbow



Parts No.	d1	d2	d3	d4	L1	L2	A	B	a	b	BOSS
TBNL-1×3/4	1.00 (25.40)	0.87 (22.20)	0.75 (19.05)	0.62 (15.85)	2.44 (62)	2.13 (54)	0.69 (17.5)	0.69 (17.5)	1.75 (44.5)	1.44 (36.5)	ϕ0.50 (ϕ12.70)
TBNL-1×1/2	1.00 (25.40)	0.87 (22.20)	0.50 (12.70)	0.37 (9.50)	2.44 (62)	1.87 (47.5)	0.69 (17.5)	0.69 (17.5)	1.75 (44.5)	1.18 (30)	ϕ0.50 (ϕ12.70)
TBNL-3/4×1/2	0.75 (19.05)	0.62 (15.85)	0.50 (12.70)	0.37 (9.50)	2.03 (51.5)	1.77 (45)	0.59 (15)	0.59 (15)	1.44 (36.5)	1.18 (30)	ϕ0.50 (ϕ12.70)

■ Reducer



Parts No.	d1	d2	d3	d4	L	A
TBRS-1・1/4×1	1.25 (31.8)	1.10 (28)	1.00 (25.4)	0.87 (22.2)	0.71 (18)	0.59 (15)
TBRS-1×3/4	1.00 (25.4)	0.87 (22.2)	0.75 (19.05)	0.62 (15.85)	0.59 (15)	0.47 (12)
TBRS-1×1/2	1.00 (25.4)	0.87 (22.2)	0.50 (12.7)	0.38 (9.7)	0.59 (15)	0.47 (12)
TBRS-1×3/8	1.00 (25.4)	0.87 (22.2)	0.37 (9.52)	0.26 (6.52)	0.59 (15)	0.47 (12)
TBRS-1×1/4	1.00 (25.4)	0.87 (22.2)	0.25 (6.35)	0.16 (3.95)	0.59 (15)	0.47 (12)
TBRS-3/4×1/2	0.75 (19.05)	0.62 (15.85)	0.50 (12.7)	0.38 (9.7)	0.59 (15)	0.47 (12)
TBRS-3/4×3/8	0.75 (19.05)	0.62 (15.85)	0.37 (9.52)	0.26 (6.52)	0.59 (15)	0.47 (12)
TBRS-3/4×1/4	0.75 (19.05)	0.62 (15.85)	0.25 (6.35)	0.16 (3.95)	0.59 (15)	0.47 (12)
TBRS-1/2×3/8	0.50 (12.7)	0.38 (9.7)	0.37 (9.52)	0.26 (6.52)	0.59 (15)	0.47 (12)
TBRS-1/2×1/4	0.50 (12.7)	0.38 (9.7)	0.25 (6.35)	0.16 (3.95)	0.59 (15)	0.47 (12)
TBRS-3/8×1/4	0.37 (9.52)	0.26 (6.52)	0.25 (6.35)	0.16 (3.95)	0.59 (15)	0.47 (12)

TBN Welder

● PFA Welding Machine for TBN series
PWM-220

■ Features

◎ Defined concerns from our own experience of welding to implement better design and resolutions.
◎ Consistency of the heater is guaranteed through long period of usage.
◎ Heat of the heater is securely isolated to protect operator's hand.
◎ Ease of operation through our newly designed touch panel guide.

Capability：PFA type tubings, TBN fittings Size: 1/4" to 1·1/2"
Power：AC110/120 ±5V 50/60Hz 500VA
For details please ask to the sales representative.