TEFPASS® Ductwork

Stainless Steel Corrosive Exhaust and Fume Duct

with ETFE fluoropolymer coating

FM APPROVED

上品綜合工業股份有限公司
ALLIED SUPREME CORP.
4th FL., NO. 12, MING-TSU E. RD., TAIPEI, TAIWAN, R. O. C
Tel:+886-2-25976222 Fax:+886-2-25955626

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COMPANY INTRODUCTION

Allied Supreme Corp. was established since 1981. In the early stage, we devoted ourselves into fluorocarbon coating application. Through R & D development and being agent of leading brands of worldwide, we have expanded our product range to fluorocarbon sheet, flexible hose, heat exchanger, Teflon lined pipe, fitting and Teflon coated conveyor belt and valves.

As the semi-conductor industry leads the great demand of quality fluorocarbon product, Allied Supreme Corp. has developed the PFA tube, fittings, PTFE lined EL tank and ETFE coated Ductwork to meet the requirement. We also built the clean room class 1000 for high purity process.

In 2001, our TEFPASS® ductwork – corrosive exhaust fume system was approved by Factory Mutual Research 4922.

Allied Supreme Corp. will continue R&D efforts to offer customers the safest and the most quality product.

The TEFPASS® System

TEFPASS® corrosive exhaust fume system is designed to deal with both flammable and non-flammable corrosive and toxic stream exhaust without the use of sprinklers.

TEFPASS® is the composite of highly corrosive resistance of ETFE bonded to the toughness of stainless steel. With the excellent chemical resistance, TEFPASS® provides the high impact strength, abrasion resistance and performance over a wide range of temperature from - 150℉ to +300℉. (-66°C to +149°C)

TEFPASS® exhaust fume duct is approved by Factory Mutual 4922 and meet ASTM E84 requirement for smoke and flame generation. Thus, TEFPASS® offer users the most reliable and cost effective corrosive exhaust and fume duct from clean room.

The Innovation of Exhaust Fume System

The challenge

With the development of semi conductor industry, there is a great demand of exhaust fume system from clean room operation for the fireproof and cost effectiveness to avoid unscheduled operation interruption by fire.

Due to the low cost and good chemical resistance, most ductwork in many countries is constructed out of PVC, PP, FRP and POLYCARBONATE. …etc. However, owing to the undesirable flame process and smoke generation rates during the fire, these materials are not allowed to use in non-sprinkler application.

The solution

- TEFPASS® offers the best solution to fume exhaust problems.
- TEFPASS® meet the Factory Mutual requirement for fume exhaust.
- With ETFE coating, TEFPASS® offers an extremely chemical resistance and continuous operating temperature.
- TEFPASS® is most cost-effective as it can be used in the non-sprinkler application.
- TEFPASS® provides the toughness stainless steel to ensure integrity through fire disasters or chemical spills.
- TEFPASS® is easy to install.
- TEFPASS® is Computer Aid Designed duct system.

Benefits

The Excellent Corrosion Resistance

Comparing with PVC, PP and FRP, TEFPASS® has the super chemical resistance. The surface of ETFE is an ultimate tough and abrasion resistance material, it is virtually unaffected by all industrial chemical. Aflon ETFE can resists to alkalis, halogens, inorganic compounds and strong mineral acids.

The Superior Reliability

TEFPASS® is made of the toughness stainless steel that ensure the users defend against any damage from water, leaks, impact damage and aggressive chemical spills; even in the event of fire, TEFPASS® pipe & fitting will not burn, melt or collapse. It can protect the invaluable tooling and adjacent production area.

The Simplest Installation

TEFPASS® standard pipe and fitting are available in any size. With the modular component designing system, TEFPASS® does not require many cutting and grinding at site. TEFPASS® can be custom designed to meet any special needs. Installation of TEFPASS® is easy and simple. It does not require grinding, sanding or welding for assembly at the site.

The Most Cost Effectiveness

TEFPASS® is the most corrosive exhaust fume system as it has been approved by Factory Mutual for use in smoke vapor systems without sprinklers. To use the TEFPASS® can eliminate the expense of buying, maintaining and installing sprinklers facilities. TEFPASS® is easily to clean and decontamination. It does not have the leakage problems. TEFPASS® can reduce the cost of insurance and loss of unscheduled interruption by fire.

Quality Assurance

Ductwork

- The exterior metal material is 304 or 316 Stainless Steel.
- Before coating, the stainless steel substrate is checked to ensure complete welds and proper surface treatment.
- Coating material is ETFE fluoropolymer thermoplastic resin.
- The thickness of coating is on an average of 250 μ.
- The pin hole test performance conducted by a DC spark tester at 2.5 KV/250 μ to ensure a pin hole free protective coating.

Codes and Standards

- TEFPASS® passes Factory Mutual Corporation clean room materials flammability test class 4910.
- TEFPASS® is approved by Factory Mutual research Corporation standard 4922.
- TEFPASS® meets ASTM E-84 Test.
- TEFPASS® meets SMACNA standard.

Products

- ETFE fluoropolymer coated on stainless steel ductwork.
- Fully expanded 100% PTFE gasket materials.

Repair

- ETFE can be repaired for field damage by hot air gun.

TEFPASS® Design Standard

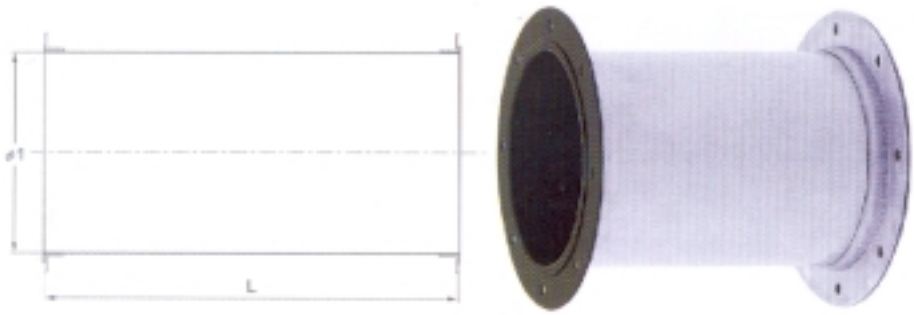
Material : 304 or 316 Stainless Steel for all ducts and fittings.
Interior Coating: ETFE fluoropolymer electrostatic powder coating.
Angle Flange : Stainless steel 304 fabricated in accordance with SMACNA Industrial Duct Construction Standards.
Gasket Material : Fully expanded 100% PTFE gasket material.
Classification : Standard fitting dimensions are as per SMACNA Industrial Duct Construction Standards. Special fittings can be offered on request.
Adapter : Custom designed taps and flange adapters are available to join TEFPASS® to existing systems.

TEFPASS® Standard Components

Our standard common fitting are listed as follows:

- STRAIGHT PIPE
- 90° ELBOW 5 GORE
- 60° ELBOW 3 GORE
- 45° ELBOW 3 GORE
- 30° ELBOW 2 GORE
- 90° PRESSED ELBOW
- 45° PRESSED ELBOW
- CONCENTRIC REDUCER
- END CAP
- CROSS
- SQUARE TO ROUND TRANSITIONS
- STRAIGHT TEE
- 45° TEE
- BOOT TEE
- OFFSET
- BALANCE DAMPER
- CUSTOM MADE

STRAIGHT PIPE

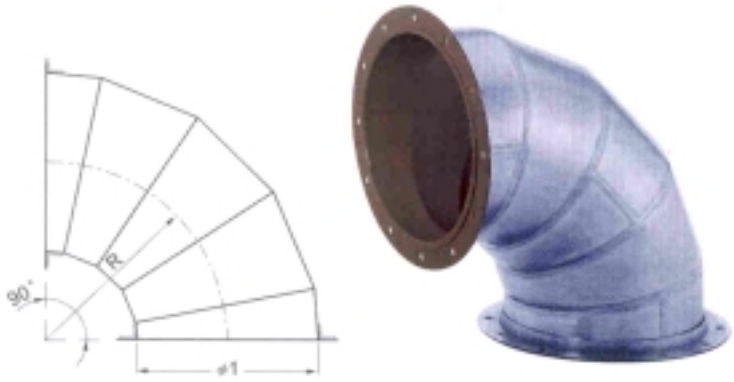


Article No.	§ 1 Diameter (mm)	L Length (mm)	T Thickness (mm)
SD-0100	100	1200	1.0 (or customer's request)
SD-0150	150	1200	1.0 (or customer's request)
SD-0200	200	1200	1.0 (or customer's request)
SD-0250	250	1200	1.0 (or customer's request)
SD-0300	300	1200	1.0 (or customer's request)
SD-0350	350	1200	1.0 (or customer's request)
SD-0400	400	1200	1.0 (or customer's request)
SD-0450	450	1200	1.2 (or customer's request)
SD-0500	500	1200 / 2400	1.2 (or customer's request)
SD-0550	550	1200 / 2400	1.2 (or customer's request)
SD-0600	600	1200 / 2400	1.2 (or customer's request)
SD-0650	650	1200 / 2400	1.2 (or customer's request)
SD-0700	700	1200 / 2400	1.2 (or customer's request)
SD-0750	750	1200 / 2400	1.5 (or customer's request)
SD-0800	800	1200 / 2400	1.5 (or customer's request)
SD-0850	850	1200 / 2400	1.5 (or customer's request)
SD-0900	900	1200 / 2400	1.5 (or customer's request)
SD-0950	950	1200 / 2400	1.5 (or customer's request)
SD-1000	1000	1200 / 2400	2.0 (or customer's request)
SD-1100	1100	1200 / 2400	2.0 (or customer's request)
SD-1200	1200	1200 / 2400	2.0 (or customer's request)
SD-1300	1300	1200 / 2400	2.0 (or customer's request)
SD-1400	1400	1200 / 2400	2.0 (or customer's request)
SD-1500	1500	1200 / 2400	2.5 (or customer's request)
SD-1600	1600	1200 / 2400	2.5 (or customer's request)
SD-1700	1700	1200 / 2400	2.5 (or customer's request)
SD-1800	1800	1200 / 2400	2.5 (or customer's request)
SD-1900	1900	1200 / 2400	2.5 (or customer's request)
SD-2000	2000	1200 / 2400	2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

90° ELBOW (5 GORE)

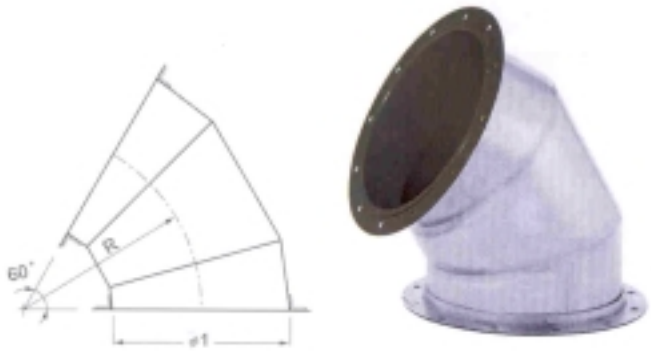


Article No.	ϕ 1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E90-0250	250				1.0 (or customer's request)
E90-0300	300				1.0 (or customer's request)
E90-0350	350				1.0 (or customer's request)
E90-0400	400				1.0 (or customer's request)
E90-0450	450				1.2 (or customer's request)
E90-0500	500				1.2 (or customer's request)
E90-0550	550				1.2 (or customer's request)
E90-0600	600				1.2 (or customer's request)
E90-0650	650				1.2 (or customer's request)
E90-0700	700				1.2 (or customer's request)
E90-0750	750				1.5 (or customer's request)
E90-0800	800		**R= ϕ 1**		1.5 (or customer's request)
E90-0850	850	**90°**	**or**	**5 pc.**	1.5 (or customer's request)
E90-0900	900		**R=1.5 x ϕ 1**		1.5 (or customer's request)
E90-0950	950				1.5 (or customer's request)
E90-1000	1000				2.0 (or customer's request)
E90-1100	1100				2.0 (or customer's request)
E90-1200	1200				2.0 (or customer's request)
E90-1300	1300				2.0 (or customer's request)
E90-1400	1400				2.0 (or customer's request)
E90-1500	1500				2.5 (or customer's request)
E90-1600	1600				2.5 (or customer's request)
E90-1700	1700				2.5 (or customer's request)
E90-1800	1800				2.5 (or customer's request)
E90-1900	1900				2.5 (or customer's request)
E90-2000	2000				2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg).
And it also can be changed as customer’s request.

60° ELBOW (3 GORE)

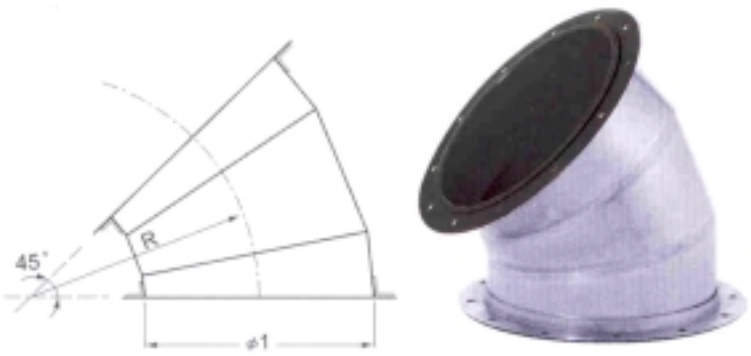


Article No.	ϕ1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E60-0100	100				1.0 (or customer's request)
E60-0150	150				1.0 (or customer's request)
E60-0200	200				1.0 (or customer's request)
E60-0250	250				1.0 (or customer's request)
E60-0300	300				1.0 (or customer's request)
E60-0350	350				1.0 (or customer's request)
E60-0400	400				1.0 (or customer's request)
E60-0450	450				1.2 (or customer's request)
E60-0500	500				1.2 (or customer's request)
E60-0550	550				1.2 (or customer's request)
E60-0600	600				1.2 (or customer's request)
E60-0650	650				1.2 (or customer's request)
E60-0700	700		**R= ϕ1**		1.2 (or customer's request)
E60-0750	750	**60°**	**Or R=**	**3 pc.**	1.5 (or customer's request)
E60-0800	800		**1.5 x ϕ1**		1.5 (or customer's request)
E60-0850	850				1.5 (or customer's request)
E60-0900	900				1.5 (or customer's request)
E60-0950	950				1.5 (or customer's request)
E60-1000	1000				2.0 (or customer's request)
E60-1100	1100				2.0 (or customer's request)
E60-1200	1200				2.0 (or customer's request)
E60-1300	1300				2.0 (or customer's request)
E60-1400	1400				2.0 (or customer's request)
E60-1500	1500				2.5 (or customer's request)
E60-1600	1600				2.5 (or customer's request)
E60-1700	1700				2.5 (or customer's request)
E60-1800	1800				2.5 (or customer's request)
E60-1900	1900				2.5 (or customer's request)
E60-2000	2000				2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

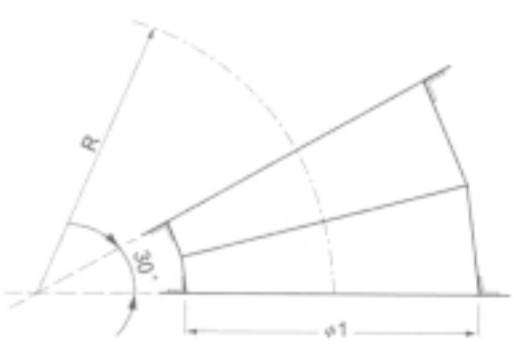
45° ELBOW 3 GORE



Article No.	ϕ 1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E45-0250	250				1.0 (or customer's request)
E45-0300	300				1.0 (or customer's request)
E45-0350	350				1.0 (or customer's request)
E45-0400	400				1.0 (or customer's request)
E45-0450	450				1.2 (or customer's request)
E45-0500	500				1.2 (or customer's request)
E45-0550	550				1.2 (or customer's request)
E45-0600	600				1.2 (or customer's request)
E45-0650	650				1.2 (or customer's request)
E45-0700	700				1.2 (or customer's request)
E45-0750	750				1.5 (or customer's request)
E45-0800	800		**R= ϕ 1**		1.5 (or customer's request)
E45-0850	850	**45°**	**Or R=**	**3 pc.**	1.5 (or customer's request)
E45-0900	900		**1.5 x ϕ 1**		1.5 (or customer's request)
E45-0950	950				1.5 (or customer's request)
E45-1000	1000				2.0 (or customer's request)
E45-1100	1100				2.0 (or customer's request)
E45-1200	1200				2.0 (or customer's request)
E45-1300	1300				2.0 (or customer's request)
E45-1400	1400				2.0 (or customer's request)
E45-1500	1500				2.5 (or customer's request)
E45-1600	1600				2.5 (or customer's request)
E45-1700	1700				2.5 (or customer's request)
E45-1800	1800				2.5 (or customer's request)
E45-1900	1900				2.5 (or customer's request)
E45-2000	2000				2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.
*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

30° ELBOW (2 GORE)

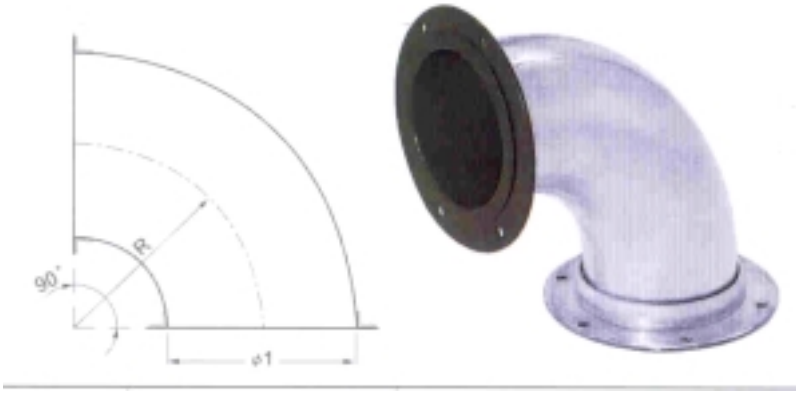


Article No.	ϕ 1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E30-0100	100				1.0 (or customer's request)
E30-0150	150				1.0 (or customer's request)
E30-0200	200				1.0 (or customer's request)
E30-0250	250				1.0 (or customer's request)
E30-0300	300				1.0 (or customer's request)
E30-0350	350				1.0 (or customer's request)
E30-0400	400				1.0 (or customer's request)
E30-0450	450				1.2 (or customer's request)
E30-0500	500				1.2 (or customer's request)
E30-0550	550				1.2 (or customer's request)
E30-0600	600				1.2 (or customer's request)
E30-0650	650				1.2 (or customer's request)
E30-0700	700		**R= ϕ 1**		1.2 (or customer's request)
E30-0750	750	**30°**	**Or R=**	**2 pc.**	1.5 (or customer's request)
E30-0800	800		**1.5 x ϕ 1**		1.5 (or customer's request)
E30-0850	850				1.5 (or customer's request)
E30-0900	900				1.5 (or customer's request)
E30-0950	950				1.5 (or customer's request)
E30-1000	1000				2.0 (or customer's request)
E30-1100	1100				2.0 (or customer's request)
E30-1200	1200				2.0 (or customer's request)
E30-1300	1300				2.0 (or customer's request)
E30-1400	1400				2.0 (or customer's request)
E30-1500	1500				2.5 (or customer's request)
E30-1600	1600				2.5 (or customer's request)
E30-1700	1700				2.5 (or customer's request)
E30-1800	1800				2.5 (or customer's request)
E30-1900	1900				2.5 (or customer's request)
E30-2000	2000				2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

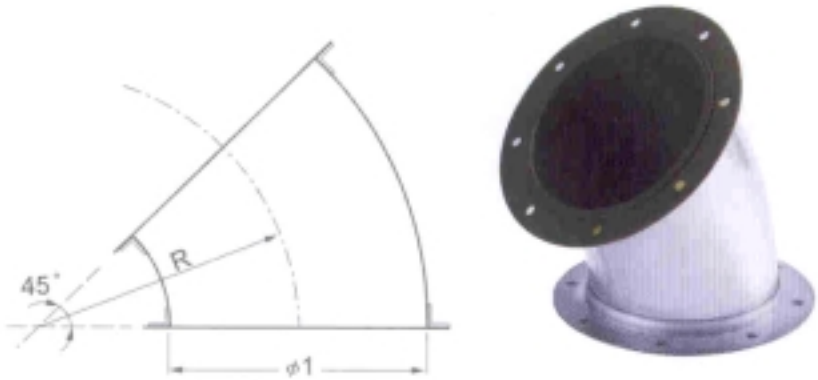
*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

90° PRESSED ELBOW



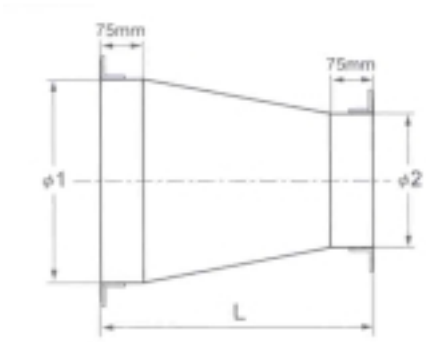
Article No.	ϕ 1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E90-0100	100	90°	R= ϕ 1 or R=1.5 x ϕ 1	2 pc. Pressed	1.0
E90-0150	150				1.0
E90-0200	200				1.0

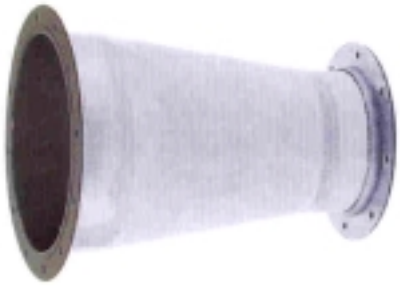
45° PRESSED ELBOW



Article No.	ϕ 1 Diameter (mm)	Degree (°)	R Radius (mm)	Gore (pc.)	T Thickness (mm)
E45-0100	100	45°	R= ϕ 1 or R=1.5 x ϕ 1	2 pc. Pressed	1.0
E45-0150	150				1.0
E45-0200	200				1.0

CONCENTRIC REDUCER



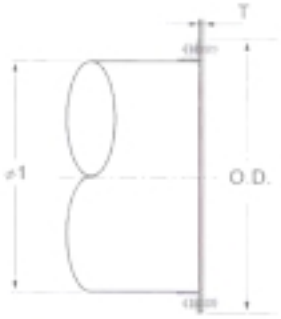


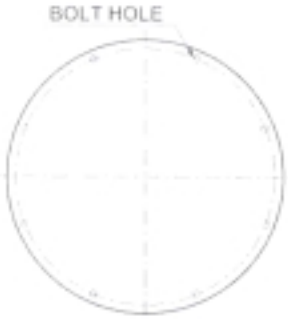
Article No.	ϕ 1 Diameter (mm)	ϕ 2 Diameter (mm)	L Length (mm)	T Thickness (mm)
RE-0100	100	Smaller than ϕ 1	Customer's request	1.0 (or customer's request)
RE-0150	150			1.0 (or customer's request)
RE-0200	200			1.0 (or customer's request)
RE-0250	250			1.0 (or customer's request)
RE-0300	300			1.0 (or customer's request)
RE-0350	350			1.0 (or customer's request)
RE-0400	400			1.0 (or customer's request)
RE-0450	450			1.2 (or customer's request)
RE-0500	500			1.2 (or customer's request)
RE-0550	550			1.2 (or customer's request)
RE-0600	600			1.2 (or customer's request)
RE-0650	650			1.2 (or customer's request)
RE-0700	700			1.2 (or customer's request)
RE-0750	750			1.5 (or customer's request)
RE-0800	800			1.5 (or customer's request)
RE-0850	850			1.5 (or customer's request)
RE-0900	900			1.5 (or customer's request)
RE-0950	950			1.5 (or customer's request)
RE-1000	1000			2.0 (or customer's request)
RE-1100	1100			2.0 (or customer's request)
RE-1200	1200			2.0 (or customer's request)
RE-1300	1300			2.0 (or customer's request)
RE-1400	1400			2.0 (or customer's request)
RE-1500	1500			2.5 (or customer's request)
RE-1600	1600			2.5 (or customer's request)
RE-1700	1700			2.5 (or customer's request)
RE-1800	1800			2.5 (or customer's request)
RE-1900	1900			2.5 (or customer's request)
RE-2000	2000			2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg) . And it also can be changed as customer's request.

END CAP

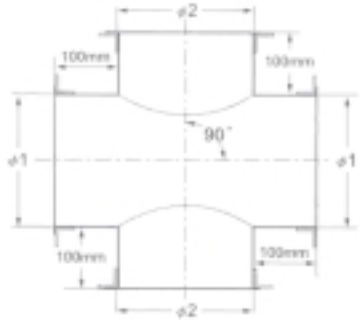




Article No.	δ 1 Diameter (mm)	O.D. Outside Diameter (mm)	Strengthening (Tie Bar)	T Thickness (mm)
EC-0100	100	153	No Strengthening	3.0
EC-0150	150	228		3.0
EC-0200	200	278		3.0
EC-0250	250	328		3.0
EC-0300	300	378		3.0
EC-0350	350	428		3.0
EC-0400	400	478		3.0
EC-0450	450	528		3.0
EC-0500	500	578		3.0
EC-0550	550	628		3.0
EC-0600	600	678		3.0
EC-0650	650	728	Strengthening With Cross Tie Bar	3.0
EC-0700	700	778		3.0
EC-0750	750	828		3.0
EC-0800	800	878		3.0
EC-0850	850	928		3.0
EC-0900	900	978		3.0
EC-0950	950	1028		3.0
EC-1000	1000	1078		3.0
EC-1100	1100	1178	Strengthening With 2 x Cross Tie Bar	3.0
EC-1200	1200	1278		3.0
EC-1300	1300	1378		3.0
EC-1400	1400	1478		3.0
EC-1500	1500	1578		3.0
EC-1600	1600	1703	Strengthening With 2 x 2 Cross Tie Bar	3.0
EC-1700	1700	1803		3.0
EC-1800	1800	1903		3.0
EC-1900	1900	2003		3.0
EC-2000	2000	2103		3.0

Note:*Duct diameter over 2000mm is available on request.
*Hole numbers & sizes follow the angle flanges.

CROSS

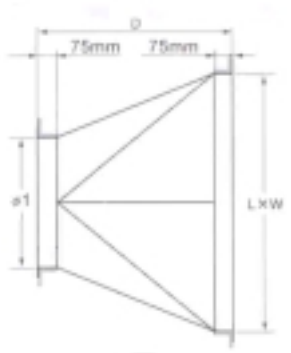


Article No.	ϕ1 . ϕ1' Diameter (mm)	ϕ2 . ϕ2' Diameter (mm)	L Length (mm)	T Thickness (mm)
CR-0100-0100	100	100	Customer's request	1.0 (or customer's request)
CR-0150-0150	150	150		1.0 (or customer's request)
CR-0200-0200	200	200		1.0 (or customer's request)
CR-0250-0250	250	250		1.0 (or customer's request)
CR-0300-0300	300	300		1.0 (or customer's request)
CR-0350-0350	350	350		1.0 (or customer's request)
CR-0400-0400	400	400		1.0 (or customer's request)
CR-0450-0450	450	450		1.2 (or customer's request)
CR-0500-0500	500	500		1.2 (or customer's request)
CR-0550-0550	550	550		1.2 (or customer's request)
CR-0600-0600	600	600		1.2 (or customer's request)
CR-0650-0650	650	650		1.2 (or customer's request)
CR-0700-0700	700	700		1.2 (or customer's request)
CR-0750-0750	750	750		1.5 (or customer's request)
CR-0800-0800	800	800		1.5 (or customer's request)
CR-0850-0850	850	850		1.5 (or customer's request)
CR-0900-0900	900	900		1.5 (or customer's request)
CR-0950-0950	950	950		1.5 (or customer's request)
CR-1000-1000	1000	1000		2.0 (or customer's request)
CR-1100-1100	1100	1100		2.0 (or customer's request)
CR-1200-1200	1200	1200		2.0 (or customer's request)
CR-1300-1300	1300	1300		2.0 (or customer's request)
CR-1400-1400	1400	1400		2.0 (or customer's request)
CR-1500-1500	1500	1500		2.5 (or customer's request)
CR-1600-1600	1600	1600		2.5 (or customer's request)
CR-1700-1700	1700	1700		2.5 (or customer's request)
CR-1800-1800	1800	1800		2.5 (or customer's request)
CR-1900-1900	1900	1900		2.5 (or customer's request)
CR-2000-2000	2000	2000		2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

SQUARE TO ROUND

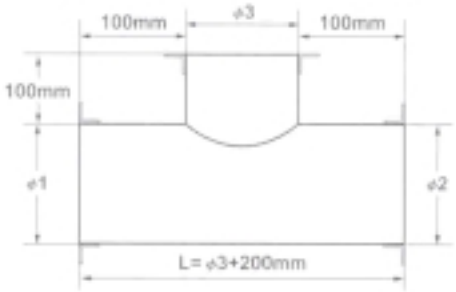


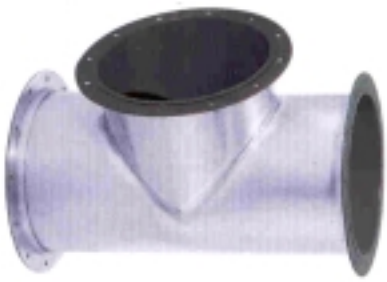
Article No.	ϕ 1 Diameter (mm)	L x W Length x (mm)	D Depth (mm)	T Thickness (mm)
STR-0100	100	Customer's request	Customer's request	1.0 (or customer's request)
STR-0150	150			1.0 (or customer's request)
STR-0200	200			1.0 (or customer's request)
STR-0250	250			1.0 (or customer's request)
STR-0300	300			1.0 (or customer's request)
STR-0350	350			1.0 (or customer's request)
STR-0400	400			1.0 (or customer's request)
STR-0450	450			1.2 (or customer's request)
STR-0500	500			1.2 (or customer's request)
STR-0550	550			1.2 (or customer's request)
STR-0600	600			1.2 (or customer's request)
STR-0650	650			1.2 (or customer's request)
STR-0700	700			1.2 (or customer's request)
STR-0750	750			1.5 (or customer's request)
STR-0800	800			1.5 (or customer's request)
STR-0850	850			1.5 (or customer's request)
STR-0900	900			1.5 (or customer's request)
STR-0950	950			1.5 (or customer's request)
STR-1000	1000			2.0 (or customer's request)
STR-1100	1100			2.0 (or customer's request)
STR-1200	1200			2.0 (or customer's request)
STR-1300	1300			2.0 (or customer's request)
STR-1400	1400			2.0 (or customer's request)
STR-1500	1500			2.5 (or customer's request)
STR-1600	1600			2.5 (or customer's request)
STR-1700	1700			2.5 (or customer's request)
STR-1800	1800			2.5 (or customer's request)
STR-1900	1900			2.5 (or customer's request)
STR-2000	2000			2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

STRAIGHT TEE



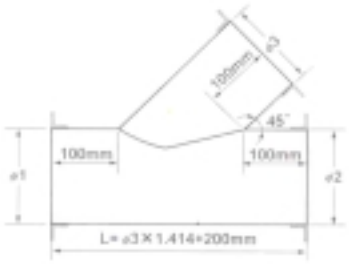


Article No.	ϕ1 . ϕ2 Diameter (mm)	ϕ3 Diameter (mm)	L Length (mm)	T Thickness (mm)
ST-0100-0100	100	100	300	1.0 (or customer's request)
ST-0150-0150	150	150	350	1.0 (or customer's request)
ST-0200-0200	200	200	400	1.0 (or customer's request)
ST-0250-0250	250	250	450	1.0 (or customer's request)
ST-0300-0300	300	300	500	1.0 (or customer's request)
ST-0350-0350	350	350	550	1.0 (or customer's request)
ST-0400-0400	400	400	600	1.0 (or customer's request)
ST-0450-0450	450	450	650	1.2 (or customer's request)
ST-0500-0500	500	500	700	1.2 (or customer's request)
ST-0550-0550	550	550	750	1.2 (or customer's request)
ST-0600-0600	600	600	800	1.2 (or customer's request)
ST-0650-0650	650	650	850	1.2 (or customer's request)
ST-0700-0700	700	700	900	1.2 (or customer's request)
ST-0750-0750	750	750	950	1.5 (or customer's request)
ST-0800-0800	800	800	1000	1.5 (or customer's request)
ST-0850-0850	850	850	1050	1.5 (or customer's request)
ST-0900-0900	900	900	1100	1.5 (or customer's request)
ST-0950-0950	950	950	1150	1.5 (or customer's request)
ST-1000-1000	1000	1000	1200	2.0 (or customer's request)
ST-1100-1100	1100	1100	1300	2.0 (or customer's request)
ST-1200-1200	1200	1200	1400	2.0 (or customer's request)
ST-1300-1300	1300	1300	1500	2.0 (or customer's request)
ST-1400-1400	1400	1400	1600	2.0 (or customer's request)
ST-1500-1500	1500	1500	1700	2.5 (or customer's request)
ST-1600-1600	1600	1600	1800	2.5 (or customer's request)
ST-1700-1700	1700	1700	1900	2.5 (or customer's request)
ST-1800-1800	1800	1800	2000	2.5 (or customer's request)
ST-1900-1900	1900	1900	2100	2.5 (or customer's request)
ST-2000-2000	2000	2000	2200	2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

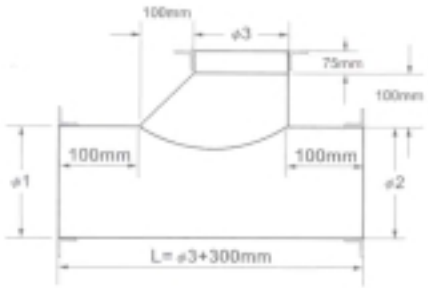
45° TEE



Article No.	§1, §2 Diameter (mm)	§3 Diameter (mm)	L Length (mm)	T Thickness (mm)
45T-0100-0100	100	100	341	1.0 (or customer's request)
45T-0150-0150	150	150	412	1.0 (or customer's request)
45T-0200-0200	200	200	483	1.0 (or customer's request)
45T-0250-0250	250	250	554	1.0 (or customer's request)
45T-0300-0300	300	300	624	1.0 (or customer's request)
45T-0350-0350	350	350	695	1.0 (or customer's request)
45T-0400-0400	400	400	766	1.0 (or customer's request)
45T-0450-0450	450	450	836	1.2 (or customer's request)
45T-0500-0500	500	500	907	1.2 (or customer's request)
45T-0550-0550	550	550	978	1.2 (or customer's request)
45T-0600-0600	600	600	1048	1.2 (or customer's request)
45T-0650-0650	650	650	1119	1.2 (or customer's request)
45T-0700-0700	700	700	1190	1.2 (or customer's request)
45T-0750-0750	750	750	1261	1.5 (or customer's request)
45T-0800-0800	800	800	1331	1.5 (or customer's request)
45T-0850-0850	850	850	1402	1.5 (or customer's request)
45T-0900-0900	900	900	1473	1.5 (or customer's request)
45T-0950-0950	950	950	1543	1.5 (or customer's request)
45T-1000-1000	1000	1000	1614	2.0 (or customer's request)
45T-1100-1100	1100	1100	1755	2.0 (or customer's request)
45T-1200-1200	1200	1200	1897	2.0 (or customer's request)
45T-1300-1300	1300	1300	2038	2.0 (or customer's request)
45T-1400-1400	1400	1400	2180	2.0 (or customer's request)
45T-1500-1500	1500	1500	2321	2.5 (or customer's request)
45T-1600-1600	1600	1600	2462	2.5 (or customer's request)
45T-1700-1700	1700	1700	2604	2.5 (or customer's request)
45T-1800-1800	1800	1800	2745	2.5 (or customer's request)
45T-1900-1900	1900	1900	2887	2.5 (or customer's request)
45T-2000-2000	2000	2000	3028	2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.
*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

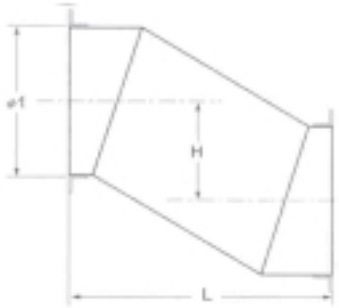
BOOT TEE



Article No.	§1, §2 Diameter (mm)	§3 Diameter (mm)	L Length (mm)	T Thickness (mm)
BT-0100-0100	100	100	400	1.0 (or customer's request)
BT-0150-0150	150	150	450	1.0 (or customer's request)
BT-0200-0200	200	200	500	1.0 (or customer's request)
BT-0250-0250	250	250	550	1.0 (or customer's request)
BT-0300-0300	300	300	600	1.0 (or customer's request)
BT-0350-0350	350	350	650	1.0 (or customer's request)
BT-0400-0400	400	400	700	1.0 (or customer's request)
BT-0450-0450	450	450	750	1.2 (or customer's request)
BT-0500-0500	500	500	800	1.2 (or customer's request)
BT-0550-0550	550	550	850	1.2 (or customer's request)
BT-0600-0600	600	600	900	1.2 (or customer's request)
BT-0650-0650	650	650	950	1.2 (or customer's request)
BT-0700-0700	700	700	1000	1.2 (or customer's request)
BT-0750-0750	750	750	1050	1.5 (or customer's request)
BT-0800-0800	800	800	1100	1.5 (or customer's request)
BT-0850-0850	850	850	1150	1.5 (or customer's request)
BT-0900-0900	900	900	1200	1.5 (or customer's request)
BT-0950-0950	950	950	1250	1.5 (or customer's request)
BT-1000-1000	1000	1000	1300	2.0 (or customer's request)
BT-1100-1100	1100	1100	1400	2.0 (or customer's request)
BT-1200-1200	1200	1200	1500	2.0 (or customer's request)
BT-1300-1300	1300	1300	1600	2.0 (or customer's request)
BT-1400-1400	1400	1400	1700	2.0 (or customer's request)
BT-1500-1500	1500	1500	1800	2.5 (or customer's request)
BT-1600-1600	1600	1600	1900	2.5 (or customer's request)
BT-1700-1700	1700	1700	2000	2.5 (or customer's request)
BT-1800-1800	1800	1800	2100	2.5 (or customer's request)
BT-1900-1900	1900	1900	2200	2.5 (or customer's request)
BT-2000-2000	2000	2000	2300	2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.
*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

OFFSET

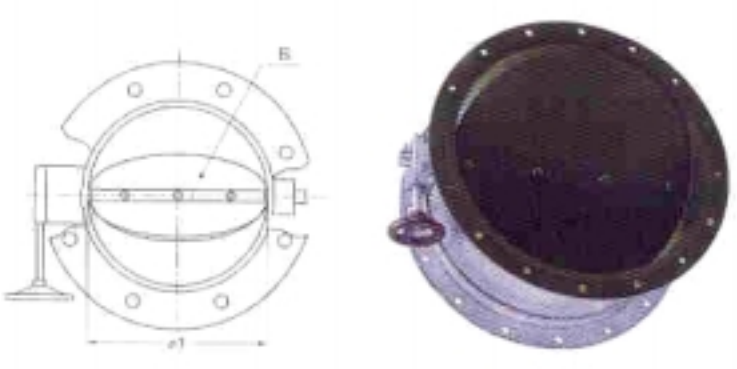


Article No.	ϕ1 Diameter (mm)	H Height (mm)	L Length (mm)	T Thickness (mm)
OS-0100	100	Customer's request	Customer's request	1.0 (or customer's request)
OS-0150	150			1.0 (or customer's request)
OS-0200	200			1.0 (or customer's request)
OS-0250	250			1.0 (or customer's request)
OS-0300	300			1.0 (or customer's request)
OS-0350	350			1.0 (or customer's request)
OS-0400	400			1.0 (or customer's request)
OS-0450	450			1.2 (or customer's request)
OS-0500	500			1.2 (or customer's request)
OS-0550	550			1.2 (or customer's request)
OS-0600	600			1.2 (or customer's request)
OS-0650	650			1.2 (or customer's request)
OS-0700	700			1.2 (or customer's request)
OS-0750	750			1.5 (or customer's request)
OS-0800	800			1.5 (or customer's request)
OS-0850	850			1.5 (or customer's request)
OS-0900	900			1.5 (or customer's request)
OS-0950	950			1.5 (or customer's request)
OS-1000	1000			2.0 (or customer's request)
OS-1100	1100			2.0 (or customer's request)
OS-1200	1200			2.0 (or customer's request)
OS-1300	1300			2.0 (or customer's request)
OS-1400	1400			2.0 (or customer's request)
OS-1500	1500			2.5 (or customer's request)
OS-1600	1600			2.5 (or customer's request)
OS-1700	1700			2.5 (or customer's request)
OS-1800	1800			2.5 (or customer's request)
OS-1900	1900			2.5 (or customer's request)
OS-2000	2000			2.5 (or customer's request)

Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

BALANCE DAMPER



Article No.	ϕ 1 Diameter (mm)	L Length (mm)	B Blade Thickness (mm)	Handle or Gear Box	T Thickness (mm)
VD-0100	100	150	1.5		1.0 (or customer's request)
VD-0150	150	150	1.5		1.0 (or customer's request)
VD-0200	200	150	1.5	**Handle**	1.0 (or customer's request)
VD-0250	250	224	1.5		1.0 (or customer's request)
VD-0300	300	224	1.5		1.0 (or customer's request)
VD-0350	350	224	1.5		1.0 (or customer's request)
VD-0400	400	224	2.0		1.0 (or customer's request)
VD-0450	450	224	2.0		1.2 (or customer's request)
VD-0500	500	224	2.0		1.2 (or customer's request)
VD-0550	550	224	2.0		1.2 (or customer's request)
VD-0600	600	224	2.0		1.2 (or customer's request)
VD-0650	650	224	2.0		1.2 (or customer's request)
VD-0700	700	250	3.0		1.2 (or customer's request)
VD-0750	750	250	3.0		1.5 (or customer's request)
VD-0800	800	250	3.0		1.5 (or customer's request)
VD-0850	850	250	3.0		1.5 (or customer's request)
VD-0900	900	250	4.0	**Gear Box**	1.5 (or customer's request)
VD-0950	950	250	4.0		1.5 (or customer's request)
VD-1000	1000	250	4.0		2.0 (or customer's request)
VD-1100	1100	250	5.0		2.0 (or customer's request)
VD-1200	1200	250	5.0		2.0 (or customer's request)
VD-1300	1300	250	5.0		2.0 (or customer's request)
VD-1400	1400	250	5.0		2.0 (or customer's request)
VD-1500	1500	250	5.0		2.5 (or customer's request)
VD-1600	1600	250	6.0		2.5 (or customer's request)
VD-1700	1700	250	6.0		2.5 (or customer's request)
VD-1800	1800	250	6.0		2.5 (or customer's request)
VD-1900	1900	250	6.0		2.5 (or customer's request)
VD-2000	2000	250	6.0		2.5 (or customer's request)

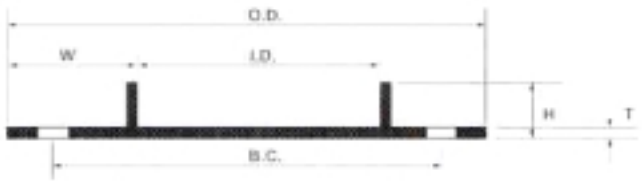
Note:*Duct diameter over 2000mm is available on request.

*Duct thickness is built on SMACNA "Round Industrial Duct Construction Standards" Classes 1 and 5 at pressure -2500 pa (-10 in. wg). And it also can be changed as customer's request.

TEFPASS® Duct & Flange Dimension Guide

The detailed specification of gauge, angle flange and bolt are listed as follows:

Duct Diameter		Duct Thickness.	ANGLE FLANGE DIMENSIONS						BOLT	
			I.D.	O.D.	Thick.	Width	Height	B.C.D..	Hole Size	Number
(in.)	(mm.)	(mm.)	(mm.)	(mm.)	(mm.)	(mm.)	(mm.)	(mm.)	(mm.)	(Nos.)
4	100	1.0	103	153	3.0	25	20	134	7.5	6
6	150	1.0	153	228	3.0	37.5	20	194	11.0	6
8	200	1.0	203	278	3.0	37.5	20	244	11.0	8
10	250	1.0	253	328	3.0	37.5	20	294	11.0	8
12	300	1.0	303	378	3.0	37.5	20	344	11.0	12
14	350	1.0	353	428	3.0	37.5	20	394	11.0	12
16	400	1.0	403	478	3.0	37.5	37.5	444	11.0	16
18	450	1.0	453	528	3.0	37.5	37.5	494	11.0	16
20	500	1.0	503	578	3.0	37.5	37.5	544	11.0	20
22	550	1.0	553	628	3.0	37.5	37.5	594	11.0	20
24	600	1.0	603	678	3.0	37.5	37.5	644	11.0	20
26	650	1.0	653	728	3.0	37.5	37.5	694	11.0	24
28	700	1.2	703	778	3.0	37.5	37.5	744	11.0	24
30	750	1.2	753	828	3.0	37.5	37.5	794	11.0	28
32	800	1.2	803	878	3.0	37.5	37.5	844	11.0	28
34	850	1.2	853	928	3.0	37.5	37.5	894	11.0	32
36	900	1.2	903	978	3.0	37.5	37.5	944	11.0	32
38	950	1.2	953	1028	3.0	37.5	37.5	994	11.0	36
40	1000	1.5	1003	1078	4.0	37.5	37.5	1044	11.0	36
42	1050	1.5	1053	1128	4.0	37.5	37.5	1094	11.0	40
44	1100	1.5	1103	1178	4.0	37.5	37.5	1144	11.0	40
46	1150	1.5	1153	1228	4.0	37.5	37.5	1194	11.0	44
48	1200	1.5	1203	1278	4.0	37.5	37.5	1244	11.0	44
50	1250	2.0	1253	1328	4.0	37.5	37.5	1294	11.0	48
52	1300	2.0	1303	1378	4.0	37.5	37.5	1344	11.0	48
54	1350	2.0	1353	1428	4.0	37.5	37.5	1394	11.0	52
56	1400	2.0	1403	1478	4.0	37.5	37.5	1444	11.0	52
58	1450	2.0	1453	1528	4.0	37.5	37.5	1494	11.0	56
60	1500	2.0	1503	1578	4.0	37.5	37.5	1544	11.0	56
70	1750	2.0	1753	1853	5.0	50	50	1810	13.5	68
80	2000	2.0	2003	2103	5.0	50	50	2060	13.5	74



O.D.: Outside Diameter
I.D. : Inside Diameter
B.C.: Bolt Circle Diameter
H : Angle Height
T : Angle Thickness
W : Flange Width

Bolt size to be 1/4” for duct size Φ100mm, 3/8” for sizeΦ150 mm to Φ350mm, and 1/2” for duct size Φ400mm and up. (All bolts are stainless steel)

Chemical Properties of ETFE coating

ETFE coating is stable against most chemicals and has excellent chemical resistance. Table 1 shows the effect of various chemicals on ETFE coating. Other than being affected, to a certain degree, by strong oxidizing acids such as concentrated nitric acid, etc., organic amines, and sulfuric acid, at high temperature, ETFE coating shows excellent chemical resistance to other inorganic acids and bases and organic solvents.

Table 1. Chemical Resistance of ETFE coating

Chemical Categories	Chemical		Temp.(°C)	Days	Retention(%)	
					Elong.	Wt, Gain
Inorganic	Conc. Hydrochloric acid	35%	100	10	100	0.0
Acids	Sulfuric acid	78%	121	10	100	0.1
		98%	121	10	100	0.0
	Oleum		25	10	96	1.3
	Nitric acid	25%	100	14	100	-
		60%	120	10	100	0.7
		70%	60	60	100	-
		70%	120	7	10	-
	Fuming nitric acid		25	10	92	0.6
	Hydrofluoric acid		25	7	95	0.1
	Phosphoric acid	30%	100	10	97	- 0.4
		85%	121	10	92	0.4
	Chromic acid	50%	100	10	98	0.3
Alkalis	Sodium hydroxide	10%	120	10	97	0.0
		50%	120	10	100	-0.3
	Potassium	20%	100	7	100	0
	Ammonium hydroxide	15%	66	7	98	0.1

Chemical Categories	Chemical	Temp.(°C)	Days	Retention(%) Elong.	Wt, Gain
Other Inorganic Compounds	Chlorine	90	10	94	-
		120	7	85	7.0
		150	10	41 (Strength)	-
	Bromine	60	7	100	0.1
	Hydrogen peroxide	25	7	98	0
	Water	100	7	100	0
	Phosphorus trichloride	75	7	99	-
	Phosphorus oxychloride	100	7	99	-
	Silicon tetrachloride	55	7	100	-
	Sulfuric chloride	70	7	100	6.0
	Carbon disulfide	100	30	98	1.0
	Ferric chloride 25%	70	7	100	6.0
Amines	Aniline	25	11	98	0.1
		120	30	82	1.6
	N-methylaniline	120	30	100	0
	N-butylamine	78	7	93	5.0
	N-dibutylamine	120	30	99	0
		159	7	72	-
	N-tributylamine	120	30	95	-
	Pyridine	116	11	100	3.8
	Ethylenediamine	25	11	100	-
		117	11	96	2.0
	Triethylamine	90	11	90	1.5
	Dimethylacetamide	25	11	100	0.4
		120	11	95	2.7
	Dimethylacetamide	121	7	98	3.6
Aromatic compounds	Phenol	100	11	100	0.3
		120	11	67	0.9
	Benzaldehyde	120	11	94	2.3
	Chlorobenzene	25	11	87	0.4
		120	11	98	3.6
	Nitrobenzene	25	11	98	0.2
		120	11	96	3.0
	Benzene	80	11	95	2.6
	Toluene	111	11	100	2.6
	Xylene	120	11	88	2.5
	Cresol	120	11	80	1.7
Chlorine compounds	Chloroform	25	11	100	1.6
		61	11	80	1.7

Chemical Categories	Chemical	Temp.(°C)	Days	Retention (%)	
				Elong.	Wt, Gain
	Carbon disulfide	25	11	100	0.1
		77	11	80	5.0
	Methylene chloride	40	11	100	3.9
	Trichloroethylene	87	11	100	4.8
	Perchloroethylene	77	11	100	5.5
	Ethylene dichloride	84	11	88	3.8
	Freon 113	47	11	-	3.8
	Epichlorohydrin	117	11	78	3.7
	Benzoyl chloride	120	30	100	0
Ethers	Propylene oxide	25	11	82	3.2
	Tetrahydrofuran	25	11	98	2.3
		66	11	92	4.2
	Dioxane	105	11	86	6.0
	Ethylether	25	11	87	1.0
	Cellosolve	121	11	88	1.3
Ketones	Acetone	25	11	97	2.3
		56	11	93	2.5
	Methylethylketone	25	11	100	1.6
		80	11	100	3.1
	Methylisobutylketone	25	11	-	0.3
		116	11	100	3.3
	Acetophenone	121	11	80	2.5
	Cyclohexanone	121	11	72	5.2
Organic acid	Glacial acetic acid	25	11	87	0.7
		118	11	80	2.2
	Oxalic acid	120	11	100	0.1
	Citric acids	120	11	87	0.1
	Stearic acid	120	11	83	0.1
	Formic acid	100	11	100	0.1
	Glycolic acid	120	11	98	0
	Chloroacetic acid	100	11	100	0.6
	Trichloroacetic acid	100	11	84	2.5
	Phthalic acid	120	11	100	0.1
	Lactic acid	119	11	98	0.1
Ester	Ethyl acetate	25	11	100	2.3
		77	11	100	3.4
	Butyl acetate	120	11	88	3.5
	Dimethyl phthalate	25	11	87	0.4

Chemical Categories	Chemical	Temp.(°C)	Days	Retention(%)	
				Elong.	Wt, Gain
Alcohols	Methanol	65	11	93	0.3
	Ethanol	78	11	98	0.6
	Cyclohexanol	120	11	88	1.2
	Benzyl alcohol	120	11	92	0.8
	Propyl alcohol	97	11	93	0.7
	Diacetone alcohol	120	11	91	2.8
Other hydrocarbones	Hexane	69	11	84	1.1
	Skidroll 500B	120	11	100	0.6
	Mineral oil ASTM No. 3	120	11	96	0.2
	Octane	120	11	98	0.2
	Octene	120	11	99	1.1
	Cyclohexane	81	11	94	1.4
	Decalin	120	7	95	-
	Dimethylsufoxide	120	11	89	1.3
	Acetonitrile	82	11	93	1.5

INSTRUCTIONS FOR ASSEMBLING ETFE COATED DUCT FUME

1. Flange covers should not be removed until flanges are ready to be bolted into position or sealing faces may become damages or distorted. If covers are removed for inspection, they should be replaced immediately.

2. In order to avoid the damage and pinhole on the surface, the installation engineers should be careful while moving the duct fume.

3. ETFE coated duct fume must use soft pure PTFE Gasket (Polytop seal) when connecting flange. Gasket specifications were shown in the table 3

4. Threads must be clean and well lubricated. And washers should be used to ensure correct torque. Bolt should be tightened alternately and evenly, following the sequence shown in the Table 2.

5. If a flange leak occurs and the bolts of the leaking side have been properly tightened, they should not be tightened further or permanent damage to the sealing face may result. Instead, the bolts on the opposite side should be loosened a half turn at a time and then the bolts on the leaking side should be tightened by the same amount. If the leak persists, the gasket should be changed.

6. If leakage occurs after the system has been cycled in an elevated temperature, it should be cool down to ambient temperature, to have a further inspection and maintenance.

7. No welding, brazing, soldering or flame cutting which can permanently damage duct coated layer should be done close to the metal housings unless adequate precautions are taken to prevent exposure to excessive heat.

Table 2. Bolts tightened method

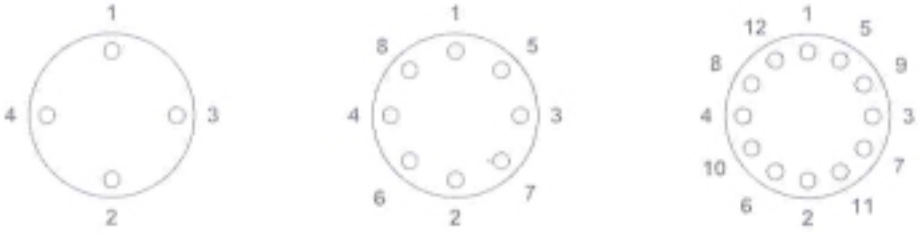


Table 3. Specification of PTFE Gasket (Polytop seal)

Duct (Dia.)	Code No.	Width of gasket	Min. Torque	
1”Φ ~ 5”Φ	TS-100-3	1/8” (3mm)	75 kg/cm²	1050 psi
6”Φ ~ 11”Φ	TS-100-5	3/16” (5mm)	100 kg/cm²	1400 psi
12”Φ ~ 24”Φ	TS-100-6	1/4” (7mm)	125 kg/cm²	1750 psi
Up 25”Φ	TS-100-9	3/8” (10mm)	125 kg/cm²	1750 psi