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Diagram Abbreviations and Nomenclature

This catalog was designed to include both single wall and double wall nomenclature. It is important to note that the dimensions shown represents single wall or in the case of double wall, free open (inside dimensions only).

It is also important to note, that although some oval fittings are designed to have gasketed round taps, Linx Industries Flat Oval product is inherently nongasketed.

Flat oval major ................................................... \( W_x \)
Flat oval minor ................................................... \( D_x \)

Nominal outside round tap diameter... \( \varnothing d_1, \varnothing d_2, \varnothing d_3, \varnothing d_4 \)

Installed height ............................................... \( H \)
Center line radius .............................................. \( R \)
Center height .................................................... \( I \)
Installed length ............................................... \( L \)
Insertion length (slip dimension) .................. \( e \)
Material thickness (slip dimension) ........... \( t \)
Insulation thickness ........................................ \( i \)

All measurements in inches (in or \( " \)). All angles in degrees (\(^\circ\)).

Elbows
- \( B = \) elbow
- \( M = \) mitered
- \( E = \) easy bend
- \( H = \) hard bend
- \( A = 1.0 \times \) radius

Reducers
- \( R = \) reducer
- \( C = \) round
- \( E = \) eccentric
- \( F = \) female

Transitions
- \( OR = \) rectangular to oval
- \( E = \) eccentric

Saddle Taps
- \( ST = \) saddle tap
- \( B = \) boot tap
- \( V = \) lateral tap

Offset
- \( O = \) offset
- \( E = \) easy bend
- \( H = \) hard bend

Tees/Crosses
- \( T = \) tee
- \( X = \) cross
- \( C = \) round
- \( R = \) reducing body
- \( ST = \) saddle tap
- \( M = \) tap on major axis
- \( BS = \) boot tap
- \( V = \) lateral tap
- \( PS = \) pressed tap
- \( BH = \) bullhead tee

Y-Branches
- \( Y = \) wye branches
- \( R = \) reducing
- \( C = \) round branch

End Caps
- \( E = \) end caps
- \( P = \) duct
- \( F = \) fittings

Couplings
- \( NP = \) duct coupling
- \( MF = \) fitting coupling

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Flat Oval Specification

MATERIAL (* ) not available in pressed construction
- Galvanized steel conforming to ASTM standards A653 and A924
- Stainless steel type 304 conforming to ASTM standard A240*
- Stainless steel type 316 conforming to ASTM standard A240*
- Aluminum T3003*
- Insulation specifications:
  1. Standard inner liner is perforated for pipe and solid for fittings.
  2. Perforated liner will consist of 1/8" perforations on 1/4" staggered centers corresponding to an overall open area of 23%.
  3. Standard 1" thick x 1.0 pound per cubic foot (pcf) density, glass fiber insulation has a maximum conductivity factor (k) of 0.26 BTU-in/hr x ft°F at 75°F mean ambient temperature (R = 3.8).
  4. Available in 1" and 2" insulation thickness. Please call for thicknesses over 2".
  5. Retaining fabric will be 0.008" thick, 15.6 lb/ft³ density non-woven polyester fabric with an air permeability rate of 9.2 ft³/ft²/s.

SURFACE FINISH
- Galvanized steel (galvanized in accordance with SMACNA 2005 Duct Construction Standards).
- Stainless steel type 304 - Mill Finish
- Stainless steel type 316 - #2 Mill Finish
- ProCoat™ (outside only) or ProCoat™ Plus (inside and outside) on duct and/or fittings
  - Standard color = white (additional color options available)
  - Average coating thickness of 4 mils (0.004 inch)
  - Coating to meet or exceed 1,000 hour Salt Spray Test per ASTM B117-97
- Antimicrobial - EPA listed coating containing an antimicrobial compound complies with UL standard - not to exceed flame or smoke developed ratings of 25/50.

THICKNESS
Linx Industries Oval components are constructed from galvanized steel of thickness conforming to latest SMACNA's HVAC Duct Construction Standards for +10" water gauge pressure.

CONNECTIONS
Linx Industries Oval is available with two connection methods: Standard slip-fit or Flanged connections.
- Flanged connections can be factory installed or delivered loose.
- All fittings that are either spot-welded or button punched construction are internally sealed.
- All transitions and divided flow fittings which convert from flat-oval to round 60" diameter or less incorporate Lindab's double-lipped, U-profile, EPDM rubber gaskets as the duct sealing system.
CONSTRUCTION
Duct is of spiral lock seam construction with a mechanically formed seam locking indentation evenly spaced along the spiral seam. All spiral duct 8" diameter and larger incorporates multiple corrugations between spiral seams.

Double wall duct and fittings will consist of a perforated or solid inner liner; 1" thick x 1.0 lb/ft³ (unless otherwise specified) layer of glass fiber insulation and a solid outer pressure shell. When a perforated inner liner is specified, the retaining fabric must be wrapped around the inside diameter, between the perforated inner and the glass fiber insulation. This is to prevent glass fiber tearing and maintains the desired acoustical properties.

Double wall has 1" thick insulation standard and 2" thick insulation available. The outer pressure shell dimensions shall be two times the insulation thickness larger than the inner liner. Inner and outer duct will be of spiral lock seam construction.

Fittings shall be manufactured using one or more of the following construction methods:
- Overlapped edges stitch welded along the entire length of the fitting
- Standing seam gore locked and internally sealed
- Button punched and internally sealed

NOTE: For systems under negative pressure, please refer to the Industrial Catalog or a Linx Industries representative.

JOINT SEALING
All joints must be sealed by the installer during the installation process. The type of sealant used as well as the method and level of application should be as directed by the specification and in accordance with the sealant manufacturer’s published installation instructions.

Fitting Slip Dimension

Standard Linx products are designed with a male/female slip connections. Nongasketed connections have a 2" slip fit connection. For gasketed, or “Safe” connections, refer to the “e” dimension listed in the TOLERANCE chart on page 10 in the Linx Single Wall Catalog. If flanges are utilized, add 3" per flange and the flange thickness to the published length (L) dimension as shown in the product catalog as depicted in the diagram on the right.

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<th>Make-up Length</th>
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## Specification - Sizes

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**PLEASE NOTE**

- The sizes outlined here are available in single and 1" double wall spiral unless noted with an asterisk (*). An asterisk indicates the size is available in single wall only. 2" and 3" double wall is available but not represented in the dimensional chart.

- Pipe can be constructed in any minor/major combination using long seam construction.

- Fittings can be constructed in any minor/major combination under 83" major.

- Pipe and fitting gauge to meet or exceed SMACNA guidelines.

### Formulas

**Flat Oval to Round**

\[ D_e = 1.55 \times \left( \frac{A^{0.625}}{P^{0.250}} \right) \]

**Rectangular to Round**

\[ D_e = 1.3 \times \left( \frac{(a \times b)^{0.625}}{(a + b)^{0.250}} \right) \]

\( D_e \) = Equivalent round diameter (equal pressure loss), in

\( A \) = Cross sectional area, \( \text{in}^2 \)

\( P \) = Flat oval perimeter, in

\( a \) = Rectangular dimension, in

\( b \) = Rectangular dimension, in

Credit: SMACNA HVAC Duct Construction Standards Metal and Flexible (2005), Table 3-15 Flat Oval Duct Gauge, Positive Pressure to 10 iwg.
Acoustical Performance - Net Insertion Loss

Standard 1” thick double wall spiral duct with perforated inner insulation.

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<th>Insulation Thickness (in)</th>
<th>Velocity (fpm)</th>
<th>Octave Band / Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>63</td>
</tr>
<tr>
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<td>0</td>
<td>0.3</td>
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<tr>
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</tr>
<tr>
<td>42</td>
<td>1</td>
<td>3000</td>
<td>0.1</td>
</tr>
</tbody>
</table>

1. The chart represents tests performed by an independent testing laboratory in accordance with ASTM standard E477-96, entitled “Standard Method of Testing Duct Liner Materials and Prefabricated Silencers for Acoustical and Airflow Performance”. Data for test specimens with inside diameters of 6”, 12”, 18”, 24”, 30”, 36” and 42” were recorded for 20’ lengths of duct and then divided to obtain the dB/foot ratings.

2. Insertion loss gains of approximately 0.25 to 0.50 dB/ft in the 4th, 5th, and 6th octave bands were recorded for 24” diameter duct with 2” thick insulation. Gains were negligible in the 1st, 2nd, 3rd, 7th and 8th octave bands.

3. Data recorded for a 30’ section of 24” diameter duct indicates an average gain of 1 dB in the 2nd octave band, 3 dB in the 3rd octave band, 9 dB in the 4th octave band, 1 dB in the 5th octave band, 4 dB in the 6th octave band, 4 dB in the 7th octave band and 3 dB in the 8th octave band. These gains were the average for insertion loss data collected at 0, 1000, 2000 and 3000 fpm with 0.000, 0.006, 0.031, and 0.070 inch water gauge respectively.

4. Data was not collected for duct lengths greater than 30’. However, the results for the 30’ test indicate the insertion loss gains diminish with longer duct lengths. For this reason, the data in the above table should be considered valid only for sections of duct 20’ or less in length. In addition, data was not collected for larger diameter duct. As the test data indicates, insertion loss decreases with increasing duct diameters.

5. The self-generated noise for double wall duct is too low to be measured by ASTM E477-96. The measurements obtained for these ducts are equal to the corresponding single wall duct reference condition or are within +/- 10 dB per ASTM E477-96 section 9.1.2.

6. Reduced breakout noise in double wall pipe with outer diameter 14” and larger is attributed to double corrugation which increases rigidity and minimizes the area of the outer shell that allows sound waves to break out of the system.
Flat Oval Spiral Duct

Description

Flat oval spiral duct. Note: All flat oval spiral duct is constructed with multiple corrugations between the seams.

Dimensions

Available dimensions are listed in table on pages 7-10.

Order Example

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOSR - W/D_{1} - L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOSRI - W_{1}/D_{1} - L - i</td>
</tr>
</tbody>
</table>
Elbows

Description
Mitered 90° easy bend elbow with turning vanes. Available without turning vanes upon request.

Order Example
Single Wall  FOBME - $W_1/D_1$
Double Wall  FOBMEI - $W_1/D_1 - i$

FOBME/FOBMH

Description
Mitered 90° hard bend elbow with turning vanes. Available without turning vanes upon request.

Order Example
Single Wall  FOBMH - $W_1/D_1$
Double Wall  FOBMHI - $W_1/D_1 - i$
## Description

Easy bend elbow with $R = 1.5 \times D_1$

### Dimensions

$\alpha = \text{elbow angle}$

## Description

Easy bend elbow with $R = 1.0 \times D_1$

### Dimensions

$\alpha = \text{elbow angle}$

## Order Example

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>FOBE$\alpha$ - $W_1/D_1$</td>
<td>Easy bend elbow with $R = 1.5 \times D_1$</td>
</tr>
<tr>
<td>Double Wall</td>
<td>FOBEI$\alpha$ - $W_1/D_1 - i$</td>
<td>Easy bend elbow with $R = 1.0 \times D_1$</td>
</tr>
</tbody>
</table>
**Elbows**

**FOBH/FOBHA**

**Description**

Hard bend elbow with $R = 1.5 \times W_1$.
For majors $\geq 46''$, FOBH/I 90° will be constructed of two FOBH/I 45°s.

**Dimensions**

$\alpha = \text{elbow angle}$

**NOTE:**
FOBH majors $\geq 48''$, construction is limited to 60°.
FOBHI majors $\geq 40''$, construction is limited to 60°.

**Order Example**

Single Wall: $\text{FOBH}_\alpha - W_1/D_1$
Double Wall: $\text{FOBH}_\alpha - W_1/D_1 - \ddot{i}$

**Description**

Hard bend elbow with $R = 1.0 \times W_1$.
For majors $\geq 46''$, FOBHA/I 90° will be constructed of two FOBHA/I 45°s.

**Dimensions**

$\alpha = \text{elbow angle}$

**Order Example**

Single Wall: $\text{FOBHA}_\alpha - W_1/D_1$
Double Wall: $\text{FOBHA}_\alpha - W_1/D_1 - \ddot{i}$
Reducers

**FORC/FORCE Reducers**

**Description**
Oval to round concentric reducer.

**Description**
Oval to round eccentric reducer

**Dimensions**
\[ L = [(W_1 - \varnothing d_2) \times 0.5] + 6 \]

**Dimensions**
\[ L = (W_1 - \varnothing d_2) + 6 \]

**Configurations (when looking down from \( W_1 \) to \( \varnothing d_2 \))**:
- FOT = flat on top
- FOB = flat on bottom
- FOL = flat on left
- FOR = flat on right
- FOTR = flat on top right
- FOTL = flat on top left
- FOBR = flat on bottom right
- FOBL = flat on bottom left

**Order Example**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>FORC - ( W / D ) - ( \varnothing d )</td>
</tr>
<tr>
<td>Double Wall</td>
<td>FORCI - ( W / D ) - ( \varnothing d ) - i</td>
</tr>
</tbody>
</table>

**Order Example**

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>FORCE - ( W / D ) - ( \varnothing d ) - Config</td>
</tr>
<tr>
<td>Double Wall</td>
<td>FORCIE - ( W / D ) - ( \varnothing d ) - Config - i</td>
</tr>
</tbody>
</table>
Reducers

FOR/FORE Reducers

Description
Oval to oval eccentric reducer.

Description
Oval to oval concentric reducer.

Dimensions
L = [(W₁ - W₂) x 0.5] + 8

Substitute:
D₁,₂ for W₁,₂ if (D₁ - D₂) > (W₁ - W₂)

Dimensions
L = (W₁ - W₂) + 8

Substitute:
D₁,₂ for W₁,₂ if (D₁ - D₂) > (W₁ - W₂)

Configurations (when looking down from W₁ to W₂):
FOT  = flat on top
FOB  = flat on bottom
FOL  = flat on left
FOR  = flat on right
FOTR = flat on top right
FOTL = flat on top left
FOBR = flat on bottom right
FOBL = flat on bottom left

Order Example
Single Wall  FOR - W₁/D₁ - W₂/D₂
Double Wall  FORI - W₁/D₁ - W₂/D₂ - i

Order Example
Single Wall  FORE - W₁/D₁ - W₂/D₂ - Config
Double Wall  FOREI - W₁/D₁ - W₂/D₂ - Config - i
Oval to oval concentric reducer. Large end: duct size.

Order Example
- Single Wall: FORF - W₁/D₁ - W₂/D₂
- Double Wall: FORFI - W₁/D₁ - W₂/D₂

Dimensions
L = [(W₁ - W₂) x 0.5] + 10

Substitute:
D₁₂ for W₁₂ if (D₁ - D₂) > (W₁ - W₂)

Description
Oval to oval eccentric reducer. Large end: duct size.

Dimensions
L = (W₁ - W₂) + 10

Substitute:
D₁₂ for W₁₂ if (D₁ - D₂) > (W₁ - W₂)

Configurations (when looking down from W₁ to Ød₂):
- FOT = flat on top
- FOB = flat on bottom
- FOL = flat on left
- FOR = flat on right
- FOTR = flat on top right
- FOTL = flat on top left
- FOBR = flat on bottom right
- FOBL = flat on bottom left

Order Example
- Single Wall: FOREF - W₁/D₁ - W₂/D₂ - Config
- Double Wall: FOREFI - W₁/D₁ - W₂/D₂ - Config
### Reducers

#### Description
Oval to round concentric reducer. Large end: duct size.

#### Dimensions
\[ L = [(W_1 - \varnothing d_2) \times 0.5] + 8 \]

#### Order Example
- Single Wall: FORCF - \( W_1/D_1 - \varnothing d_2 \)
- Double Wall: FORCFI - \( W_1/D_1 - \varnothing d_2 \) - Config

### FORCF/FORCEF

#### Description
Oval to round eccentric reducer. Large end: duct size.

#### Dimensions
\[ L = (W_1 - \varnothing d_2) + 8 \]

#### Configurations (when looking down from \( W_1 \) to \( \varnothing d_2 \)):
- FOT = flat on top
- FOB = flat on bottom
- FOL = flat on left
- FOR = flat on right
- FOTR = flat on top right
- FOTL = flat on top left
- FOBR = flat on bottom right
- FOBL = flat on bottom left

#### Order Example
- Single Wall: FORCEF - \( W_1/D_1 - \varnothing d_2 - \text{Config} \)
- Double Wall: FORCEFI - \( W_1/D_1 - \varnothing d_2 - \text{Config} - \text{Config} \)
Transistions

FOROR/FORORE

Description
Rectangular to oval concentric transition. Extended raw ends.

Dimensions
L can be any length as long as taper angle is less than or equal to 45°.

Order Example
- Single Wall FOROR - W₁/D₁ - W₂/D₂ - L
- Double Wall FORORI - W₁/D₁ - W₂/D₂ - L - i

Description
Rectangular to oval eccentric transition.

Dimensions
L can be any length as long as taper angle is less than or equal to 45°.

Configurations (when looking down from W₁ to Ød₂):
- FOT = flat on top
- FOB = flat on bottom
- FOL = flat on left
- FOR = flat on right
- FOTR = flat on top right
- FOTL = flat on top left
- FOBR = flat on bottom right
- FOBL = flat on bottom left

Order Example
- Single Wall FORORE - W₁/D₁ - W₂/D₂ - L - Config
- Double Wall FOROREI - W₁/D₁ - W₂/D₂ - L - Config - i
Transitions

Description
Double wall to single wall transition. \( W_1 \times D_1 \) is the inner diameter of the double wall.

Configurations:
- FORCKMM: both male ends
- FORCKMF: small end male, large end female
- FORCKFM: small end female, large end male
- FORCKFF: both ends female

Order Example
Double Wall FORCK - \( W_1/D_1 \) - Config - i
Saddle Taps

Description

Oval expanded base saddle tap for field installation on the minor axis of flat oval or on round duct.

Oval boot saddle tap for field installation on the minor axis of flat oval or on round duct.

Order Example

Single Wall  FOST - \( W_g/D_s - \Ø D \)

Order Example

Single Wall  FOSBT - \( W_g/D_s - \Ø D \)
Saddle Taps

FOSVT 45

Description

Oval 45° lateral saddle tap for field installation on the minor axis of flat oval or on round duct.

Dimensions

\[ H = 2.5'' \text{(constant)(throat length)} \]

Order Example

Single Wall FOSVT 45 - \( W/D_3 - \varnothing D \)
**Tees/Crossing Tees**

**Description**

Oval tee with round conical concentric taps on minor axis. Taps are centered on fitting body.

**Dimensions**

\[ \phi d_3 \text{ is always greater than or equal to } \phi d_4. \]

\[ L = \phi d_3 + 8 \]

**Order Example**

- Single Wall: FOTCT - \( W_1 / D_1 - \phi d_3 \)
- Double Wall: FOTCTI - \( W_1 / D_1 - \phi d_3 - i \)

---

**FOTCT/FORTCT**

**Description**

Oval reducing tee with round conical concentric taps on minor axis.

**Dimensions**

\[ \phi d_3 \text{ is always greater than or equal to } \phi d_4. \]

\[ L = (\phi d_3 + 8) + [(W_1 - W_2) \times 0.5] + 6 \]

**Order Example**

- Single Wall: FORTCT - \( W_1 / D_1 - W_2 / D_2 - \phi d_3 \)
- Double Wall: FORTCTI - \( W_1 / D_1 - W_2 / D_2 - \phi d_3 - i \)
**Tees/Crossing Tees**

**Description**

Oval crossing tee with round conical concentric taps on minor axis. Tap is centered on fitting body.

**Dimensions**

\( \varnothing d_3 \) is always greater than or equal to \( \varnothing d_4 \).

\[ L = \varnothing d_3 + 8 \]

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOXCT - ( W_1/D_1 ) - ( \varnothing d_3 ) - ( \varnothing d_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOXCTI - ( W_1/D_1 ) - ( \varnothing d_3 ) - ( \varnothing d_4 )</td>
</tr>
</tbody>
</table>

---

**FOXCT/FORXCT**

**Description**

Oval reducing crossing tee with round conical concentric taps on minor axis.

**Dimensions**

\( \varnothing d_3 \) is always greater than or equal to \( \varnothing d_4 \).

\[ L = (\varnothing d_3 + 8) + [(W_1 - W_2) \times 0.5] + 6 \]

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FORXCT - ( W_1/D_1 ) - ( W_2/D_2 ) - ( \varnothing d_3 ) - ( \varnothing d_4 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FORXCTI - ( W_1/D_1 ) - ( W_2/D_2 ) - ( \varnothing d_3 ) - ( \varnothing d_4 )</td>
</tr>
</tbody>
</table>

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Tees/Crossing Tees

![Diagram of Tee](image)

**Description**
Oval tee with oval expanded base concentric tap on minor axis. Tap is centered on fitting body.

**Dimensions**
\[ L = W_3 + 10 \]

**Order Example**
- Single Wall: FOTST - \( W_1/D_1 - W_3/D_3 \)
- Double Wall: FOTSTI - \( W_1/D_1 - W_3/D_3 - i \)

---

FOTST/FORTST

![Diagram of Fitting](image)

**Description**
Oval reducing tee with oval expanded base concentric tap on minor axis.

**Dimensions**
\[ L = (W_3 + 10) + [(W_1 - W_2) \times 0.5] + 6 \]

**Substitute:**
\[ D_{1,2} \text{ for } W_{1,2} \text{ if } (D_1 - D_2) > (W_1 - W_2) \]

**Order Example**
- Single Wall: FORTST - \( W_1/D_1 - W_2/D_2 - W_3/D_3 \)
- Double Wall: FORTSTI - \( W_1/D_1 - W_2/D_2 - W_3/D_3 - i \)
Tees/Crossing Tees

**Description**
Oval crossing tee with oval expanded base concentric taps on minor axis. Taps are centered on fitting body.

**Dimensions**
- \( W_3 \) is always greater than or equal to \( W_4 \).
- \( L = W_3 + 10 \)

**Order Example**
- Single Wall: FOXST - \( W_1/D_1 \) - \( W_2/D_3 \) - \( W_4/D_4 \)
- Double Wall: FOXSTI - \( W_1/D_1 \) - \( W_3/D_3 \) - \( W_4/D_4 \) - \( i \)

FOXST/FORXST

**Description**
Oval reducing tee with oval expanded base concentric taps on minor axis.

**Dimensions**
- \( W_3 \) is always greater than or equal to \( W_4 \).
- \( L = (W_3 + 10) + [(W_1 - W_2) \times 0.5] + 6 \)

**Substitute:**
- \( D_{1,2} \) for \( W_{1,2} \) if \( (D_1 - D_2) > (W_1 - W_2) \)

**Order Example**
- Single Wall: FORXST - \( W_1/D_1 \) - \( W_2/D_2 \) - \( W_3/D_3 \) - \( W_4/D_4 \)
- Double Wall: FORXSTI - \( W_1/D_1 \) - \( W_2/D_2 \) - \( W_3/D_3 \) - \( W_4/D_4 \) - \( i \)

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Tees/Crossing Tees

Description
Oval tee with oval straight tap on major axis. Tap is centered on fitting body.

Dimensions
L = D₃ + 4

Height from fitting body to tap bead = 2”.

Order Example
- Single Wall: FOTM - W₁/D₁ - W₃/D₃
- Double Wall: FOTM - W₁/D₁ - W₃/D₃ - i

FOTM/FORTM

Description
Oval reducing tee with oval straight tap on major axis.

Dimensions
L = (D₃ + 4) + [(W₁ - W₂) x 0.5] + 6

Substitute:
D₁,₂ for W₁,₂ if (D₁ - D₂) > (W₁ - W₂)

Height from fitting body to tap bead = 2”.

Order Example
- Single Wall: FORTM - W₁/D₁ - W₃/D₃
- Double Wall: FORTMI - W₁/D₁ - W₂/D₂ - W₃/D₃ - i
Tees/Crossing Tees

Description
Oval crossing tee with oval straight taps on major axis. Taps are centered on fitting body.

Dimensions
D₃ is always greater than or equal to D₄.
L = D₃ + 4

Order Example
Single Wall  FOXM - W₁/D₁ - W₂/D₃ - W₄/D₄
Double Wall  FOXMI - W₁/D₁ - W₂/D₃ - W₄/D₄ - L - i

FOXM/FORXM

Description
Oval reducing crossing tee with oval straight taps on major axis.

Dimensions
D₃ is always greater than or equal to D₄.
L = (D₃ + 4) + [(D₁ - D₂) x 0.5] + 6

Substitute:
W₁,₂ for D₁,₂ if (W₁ - W₂) > (D₁ - D₂)

Order Example
Single Wall  FORXM - W₁/D₁ - W₂/D₃ - W₄/D₄
Double Wall  FORXMI - W₁/D₁ - W₂/D₃ - W₄/D₄ - i
Tees/Crossing Tees

**Description**

Oval tee with round straight tap on major axis. Tap is centered on fitting body.

**Dimensions**

$L = \varnothing d_3 + 4$

Height from fitting body to tap bead = 2".

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>Double Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOTMC - $W_i/D_1 - \varnothing d_3$</td>
<td>FOTMCI - $W_i/D_1 - \varnothing d_3$</td>
</tr>
</tbody>
</table>

---

FOTMC/FORTMC

**Description**

Oval reducing tee with round straight tap on major axis. Tap is centered on fitting body.

**Dimensions**

$L = (\varnothing d_3 + 4) + [(W_1 - W_2) \times 0.5] + 6$

Substitute:

$D_{1,2}$ for $W_{1,2}$ if $(D_1 - D_2) > (W_1 - W_2)$

Height from fitting body to tap bead = 2".

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>Double Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORTMC - $W_i/D_1 - W_i/D_2 - \varnothing d_3$</td>
<td>FORTMCI - $W_i/D_1 - W_i/D_2 - \varnothing d_3$</td>
</tr>
</tbody>
</table>
Tees/Crossing Tees

Description
Oval crossing tee with round straight taps on major axis. Taps are centered on fitting body.

Dimensions
Ød₃ is always greater than or equal to Ød₄.
L = Ød₃ + 4

Order Example
Single Wall
FOXMC - W₁/D₁ - Ød₃ - Ød₄
Double Wall
FOXMC - W₁/D₁ - Ød₃ - Ød₄ - i

FOXMC/FORXMC

Description
Oval reducing crossing tee with oval straight taps on major axis.

Dimensions
Ød₃ is always greater than or equal to Ød₄.
L = (Ød₃ + 4) + [(D₁ - D₂) x 0.5] + 6

Substitute:
W₁,₂ for D₁,₂ if (W₁ - W₂) > (D₁ - D₂)

Order Example
Single Wall
FORXMC - W₁/D₁ - W₂/D₂ - Ød₃ - Ød₄
Double Wall
FORXMC - W₁/D₁ - W₂/D₂ - Ød₃ - Ød₄ - i
Tees/Crossing Tees

Description

Oval tee with oval straight tap on minor axis. Tap is centered on fitting body.

Dimensions

\[ L = W_3 + 4 \]

Order Example

Single Wall  FOT - \( W_1/D_1 - W_2/D_3 \)
Double Wall  FOTI - \( W_1/D_1 - W_2/D_3 \)

FOT/FORT

Description

Oval reducing tee with oval straight tap on minor axis.

Dimensions

\[ L = (W_3 + 4) + [(W_1 - W_2) \times 0.5] + 6 \]

Substitute:

\( D_{1,2} \) for \( W_{1,2} \) if \( (D_1 - D_2) > (W_1 - W_2) \)

Order Example

Single Wall  FORT - \( W_1/D_1 - W_2/D_3 \)
Double Wall  FORTI - \( W_1/D_1 - W_2/D_3 \)
Tees/Crossing Tees

FOX/ FORX

Description
Oval tee with oval straight taps on minor axis. Taps are centered on fitting body.

Dimensions
\[ W_3 \text{ is always greater than or equal to } W_4. \]
\[ L = W_3 + 4 \]

Description
Oval reducing crossing tee with oval straight taps on minor axis.

Dimensions
\[ W_3 \text{ is always greater than or equal to } W_4. \]
\[ L = (W_3 + 4) + [(W_1 - W_2) \times 0.5] + 6 \]

Substitute:
\[ D_{1,2} \text{ for } W_{1,2} \text{ if } (D_1 - D_2) > (W_1 - W_2) \]

Order Example
- Single Wall FOX - \( W_1/D_1 \) - \( W_2/D_3 \) - \( W_4/D_4 \)
- Double Wall FOXI - \( W_1/D_1 \) - \( W_2/D_3 \) - \( W_4/D_4 \) - \( i \)

Order Example
- Single Wall FORX - \( W_1/D_1 \) - \( W_2/D_3 \) - \( W_4/D_4 \)
- Double Wall FORXI - \( W_1/D_1 \) - \( W_2/D_3 \) - \( W_4/D_4 \) - \( i \)
**Tees/Crossing Tees**

**Description**
Oval tee with round straight tap on minor axis. Tap is centered on fitting body.

**Dimensions**
\[ L = \varnothing d_3 + 4 \]

**Order Example**
- Single Wall: FOTC - W₁/D₁ - \( \varnothing d_3 \)
- Double Wall: FOTCI - W₁/D₁ - \( \varnothing d_3 \) - \( i \)

---

**FOTC/FORTC**

**Description**
Oval reducing tee with round straight tap on minor axis.

**Dimensions**
\[ L = (\varnothing d_3 + 4) + [(W₁ - W₂) \times 0.5] + 6 \]

**Substitute:**
\( D_{1,2} \) for \( W_{1,2} \) if \( (D₁ - D₂) > (W₁ - W₂) \)

**Order Example**
- Single Wall: FORTC - W₁/D₁ - W₂/D₂ - \( \varnothing d_3 \)
- Double Wall: FORTCI - W₁/D₁ - W₂/D₂ - \( \varnothing d_3 \) - \( i \)
Tees/Crossing Tees

Description
Oval crossing tee with round straight taps on minor axis. Taps are centered on fitting body.

Dimensions
\[ \varnothing d_3 \text{ is always greater than or equal to } \varnothing d_4. \]
\[ L = \varnothing d_3 + 4 \]

Order Example
- Single Wall: FOXC - \( W_1/D_1 - \varnothing d_3 - \varnothing d_1 \)
- Double Wall: FOXCI - \( W_1/D_1 - \varnothing d_3 - \varnothing d_4 - \varnothing \)

FOXC/FORXC

Description
Oval reducing crossing tee with round straight taps on minor axis.

Dimensions
\[ \varnothing d_3 \text{ is always greater than or equal to } \varnothing d_4. \]
\[ L = (\varnothing d_3 + 4) + \left[(W_1 - W_2) \times 0.5\right] + 6 \]

Substitute:
\( D_{1,2} \) for \( W_{1,2} \) if \( (D_1 - D_2) > (W_1 - W_2) \)

Order Example
- Single Wall: FORXC - \( W_1/D_1 - W_2/D_2 - \varnothing d_3 - \varnothing d_4 \)
- Double Wall: FORXCI - \( W_1/D_1 - W_2/D_2 - \varnothing d_3 - \varnothing d_4 - \varnothing \)
Tees/Crossing Tees

**Description**
Oval tee with oval boot tap on minor axis.

**Dimensions**
\[ L = W_3 + 10 \]

**Order Example**
- Single Wall: FOTBS - \( W_1/D_1 - W_2/D_2 \)
- Double Wall: FOTBSI - \( W_1/D_1 - W_2/D_2 - W_3/D_3 \)

---

FOTBS/FORTBS

**Description**
Oval reducing tee with oval boot tap on minor axis.

**Dimensions**
\[ L = (W_3 + 10) + [(W_1 - W_2) \times 0.5] + 6 \]

**Substitute:**
\[ D_{1,2} \text{ for } W_{1,2} \text{ if } (D_1 - D_2) > (W_1 - W_2) \]

**Order Example**
- Single Wall: FORTBS - \( W_1/D_1 - W_2/D_2 - W_3/D_3 \)
- Double Wall: FORTBSI - \( W_1/D_1 - W_2/D_2 - W_3/D_3 \)
Tees/Crossing Tees

Description
Oval crossing tee with oval boot taps on minor axis.

Dimensions

\[ W_3 \text{ is always greater than or equal to } W_4. \]
\[ L = W_3 + 10 \]

Order Example

Single Wall  FOXBS - \( W_1/D_1 - W_3/D_3 - W_4/D_4 \)
Double Wall  FOXBSI - \( W_1/D_1 - W_3/D_3 - W_4/D_4 - i \)

FOXBS/FORXBS

Description
Oval crossing reducing tee with oval boot taps on minor axis.

Dimensions

\[ W_3 \text{ is always greater than or equal to } W_4. \]
\[ L = (W_3 + 10) + [(W_1 - W_2) \times 0.5] + 6 \]

Substitute:
\[ D_{1,2} \text{ for } W_{1,2} \text{ if } (D_1 - D_2) > (W_1 - W_2) \]

Order Example

Single Wall  FORXBS - \( W_1/D_1 - W_2/D_2 - W_3/D_3 - W_4/D_4 \)
Double Wall  FORXBSI - \( W_1/D_1 - W_2/D_2 - W_3/D_3 - W_4/D_4 - i \)
Tees/Crossing Tees

Description
Oval tee with round boot tap on minor axis.

Dimensions
L = Ød₃ + 8

Order Example
Single Wall  FOTBSC - W₁/D₁ - Ød₃
Double Wall  FOTBSCI - W₁/D₁ - Ød₃ - i

---

FOTBSC/FORTBSC

Description
Oval reducing tee with round boot tap on minor axis.

Dimensions
L = (Ød₃ + 8) + [(W₁ - W₂) x 0.5] + 6

Substitute:
D₁₂ for W₁₂ if (D₁ - D₂) > (W₁ - W₂)

Order Example
Single Wall  FORTBSC - Wᵢ/Dᵢ - Wᵢ/Dᵢ - Ød₃
Double Wall  FORTBSCI - Wᵢ/Dᵢ - Wᵢ/Dᵢ - Ød₃ - i
Tees/Crossing Tees

**Description**
Oval crossing tee with round boot taps on minor axis.

**Dimensions**
- $\varnothing d_3$ is always greater than or equal to $\varnothing d_4$.
- $L = \varnothing d_3 + 8$

---

**FOXBSC/FORXBSC**

**Description**
Oval reducing crossing tee with round boot taps on minor axis.

**Dimensions**
- $\varnothing d_3$ is always greater than or equal to $\varnothing d_4$.
- $L = (\varnothing d_3 + 8) + [(W_1 - W_2) \times 0.5] + 6$

**Substitute:**
- $D_{1,2}$ for $W_{1,2}$ if $(D_1 - D_2) > (W_1 - W_2)$

---

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOXBSC - $W_1/D_1 - \varnothing d_3 - \varnothing d_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOXBSCL - $W_1/D_1 - \varnothing d_3 - \varnothing d_4$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FORXBSC - $W_1/D_1 - W_2/D_2 - \varnothing d_3 - \varnothing d_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FORXBSC - $W_1/D_1 - W_2/D_2 - \varnothing d_3 - \varnothing d_4$</td>
</tr>
</tbody>
</table>

---

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Tees/Crossing Tees

**Description**

Oval tee with lateral oval tap on minor axis.
Tap is centered on fitting body.

**Dimensions**

Available with $\alpha = 15^\circ, 30^\circ, 45^\circ, 60^\circ$ taps.

$L = [W_3 \times (1/\sin \alpha)] + 4$

$H_3 = 2.5''$ (constant) (throat length)

**Order Example**

- Single Wall: FOTV$\alpha - W_1/D_1 - W_3/D_3$
- Double Wall: FOTV$\alpha - W_1/D_1 - W_2/D_2 - W_3/D_3 - \tilde{i}$

---

FOTV/FORTV

**Description**

Oval reducing tee with lateral oval tap on minor axis.

**Dimensions**

Available with $\alpha = 15^\circ, 30^\circ, 45^\circ, 60^\circ$ taps.

$L = [W_3 \times (1/\sin \alpha)] + 4 + [(W_1 - W_2) \times 0.5] + 6$

$H_3 = 2.5''$ (constant) (throat length)

Substitute:

$D_{1,2}$ for $W_{1,2}$ if $(D_1 - D_2) > (W_1 - W_2)$

**Order Example**

- Single Wall: FORTV$\alpha - W_1/D_1 - W_2/D_2 - W_3/D_3$
- Double Wall: FORTV$\alpha - W_1/D_1 - W_2/D_2 - W_3/D_3 - \tilde{i}$

---

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Tees/Crossing Tees

Description
Oval crossing tee with lateral oval taps on minor axis. Taps are centered on fitting body.

Dimensions
Available with $\alpha = 15^\circ$, $30^\circ$, $45^\circ$, $60^\circ$ taps. $W_3$ is always greater than or equal to $W_4$.
L = $[W_3 \times (1/\sin \alpha)] + 4$
$H_3 = 2.5"$ (constant) (throat length)

Order Example
Single Wall  FOXV$\alpha$ - $W_1/D_1$ - $W_2/D_1$ - $W_3/D_3$ - $W_4/D_4$ - $\cdot$
Double Wall  FOXVI$\alpha$ - $W_1/D_1$ - $W_2/D_1$ - $W_3/D_3$ - $W_4/D_4$ - $\cdot$

FOXV/FORXV

Description
Oval reducing crossing tee with lateral oval taps on minor axis.

Dimensions
Available with $\alpha = 15^\circ$, $30^\circ$, $45^\circ$, $60^\circ$ taps. $W_3$ is always greater than or equal to $W_4$.
L = $[W_3 \times (1/\sin \alpha)] + 4 + [(W_1 - W_2) \times 0.5] + 6$
$H_3 = 2.5"$ (constant) (throat length)

Substitute:
$D_{1,2}$ for $W_{1,2}$ if $(D_1 - D_2) > (W_1 - W_2)$

Order Example
Single Wall  FORXV$\alpha$ - $W_1/D_1$ - $W_2/D_2$ - $W_3/D_3$ - $W_4/D_4$ - $\cdot$
Double Wall  FORXVI$\alpha$ - $W_1/D_1$ - $W_2/D_2$ - $W_3/D_3$ - $W_4/D_4$ - $\cdot$
## Tees/Crossing Tees

### Description
Oval tee with lateral round tap on minor axis. Tap is centered on fitting body.

### Dimensions
Available with $\alpha = 15^\circ$, $30^\circ$, $45^\circ$, $60^\circ$ taps.

$$L = [\varnothing d_3 \times (1/\sin \alpha)] + 4$$

$$H_3 = 2.5''\text{(constant)}\text{(throat length)}$$

---

## FOTVC/FORTVC

### Description
Oval reducing tee with lateral round tap on minor axis. Tap is centered on fitting body.

### Dimensions
Available with $\alpha = 15^\circ$, $30^\circ$, $45^\circ$, $60^\circ$ taps.

$$L = [\varnothing d_3 \times (1/\sin \alpha)] + 4 + [(W_1 - W_2) \times 0.5] + 6$$

$$H_3 = 2.5''\text{(constant)}\text{(throat length)}$$

Substitute:
$D_{1,2}$ for $W_{1,2}$ if $(D_1 - D_2) > (W_1 - W_2)$

---

### Order Example

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOTVC$\alpha$ - $W_1/D_1$ - $\varnothing d_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOTVC$\alpha$ - $W_1/D_1$ - $\varnothing d_3$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FORTVC$\alpha$ - $W_1/D_1$ - $W_2/D_2$ - $\varnothing d_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FORTVC$\alpha$ - $W_1/D_1$ - $W_2/D_2$ - $\varnothing d_3$</td>
</tr>
</tbody>
</table>

---

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Tees/Crossing Tees

Order Example

Single Wall  FOXVC\(\alpha\) - \(W_1/D_1\) - Ød\(_3\) - Ød\(_4\)
Double Wall  FOXVC\(\alpha\) - \(W_1/D_1\) - Ød\(_3\) - Ød\(_4\) - \(i\)

Description

Oval crossing tee with lateral round taps on minor axis. Taps are centered on fitting body.

Dimensions

Available with \(\alpha = 15^\circ, 30^\circ, 45^\circ, 60^\circ\) taps. Ød\(_3\) is always greater than or equal to Ød\(_4\).

\[ L = [Ød_3 \times (1/\sin\alpha)] + 4 \]

\[ H_3 = 2.5^\circ\text{(constant)}\text{(throat length)} \]

FOXVC/FORXVC

Order Example

Single Wall  FORXVC\(\alpha\) - \(W_1/D_1\) - Ød\(_3\) - Ød\(_4\)
Double Wall  FORXVC\(\alpha\) - \(W_1/D_1\) - Ød\(_3\) - Ød\(_4\) - \(i\)

Description

Oval reducing crossing tee with lateral round taps on minor axis.

Dimensions

Available with \(\alpha = 15^\circ, 30^\circ, 45^\circ, 60^\circ\) taps. Ød\(_3\) is always greater than or equal to Ød\(_4\).

\[ L = [W_3 \times (1/\sin\alpha)] + 4 + [(W_1 - W_2) \times 0.5] + 6 \]

\[ H_3 = 2.5^\circ\text{(constant)}\text{(throat length)} \]

Substitute:

\(D_{1,2}\) for \(W_{1,2}\) if \((D_1 - D_2) > (W_1 - W_2)\)
**Tees/Crossing Tees**

**FOTPSC/FORTPSC**

---

**Description**

- **Single Wall FOTPSC**
- **Double Wall FORTPSC**

---

**Dimensions**

- **Single Wall FOTPSC:**
  - \( L = \theta_d + 6 \)
  - Maximum size for \( \theta_d \) is 12”.
  - Maximum size for \( D_1 \) is 24”.

- **Double Wall FORTPSC:**
  - \( L = (\theta_d + 6) + [(W_1 - W_2) \times 0.5] + 6 \)
  - Maximum size for \( \theta_d \) is 12”.
  - Maximum size for \( D_1 \) is 24”.

- **Substitute:**
  - \( D_{1,2} \) for \( W_{1,2} \) if \((D_1 - D_2) > (W_1 - W_2)\)

**Order Example**

- **Single Wall**
  - FOTPSC\(\alpha\) - \( W_1/D_1 - \theta_d \)
- **Double Wall**
  - FOTPSC\(\alpha\) - \( W_1/D_1 - \theta_d \)

---

**Description**

- **Single Wall FOTPSC**
- **Double Wall FORTPSC**

---

**Dimensions**

- **Single Wall FOTPSC:**
  - \( L = \theta_d + 6 \)
  - Maximum size for \( \theta_d \) is 12”.
  - Maximum size for \( D_1 \) is 24”.

- **Double Wall FORTPSC:**
  - \( L = (\theta_d + 6) + [(W_1 - W_2) \times 0.5] + 6 \)
  - Maximum size for \( \theta_d \) is 12”.
  - Maximum size for \( D_1 \) is 24”.

- **Substitute:**
  - \( D_{1,2} \) for \( W_{1,2} \) if \((D_1 - D_2) > (W_1 - W_2)\)

**Order Example**

- **Single Wall**
  - FOTPSC\(\alpha\) - \( W_1/D_1 - W_2/D_2 - \theta_d \)
- **Double Wall**
  - FOTPSC\(\alpha\) - \( W_1/D_1 - W_2/D_2 - \theta_d \)
Tees/Crossing Tees

**Description**

Oval crossing tee with round radiussed pressed taps on minor axis. Taps are centered on fitting body.

**Dimensions**

- \( \frac{D_3}{d_3} \) is always greater than or equal to \( \frac{D_4}{d_4} \).
- \( L = \frac{D_3}{d_3} + 6 \)
- Maximum size for \( D_3 \) is 12”.
- Maximum size for \( D_1 \) is 24”.

**Order Example**

- Single Wall: FOXPSC\( \alpha \) - \( \frac{W_1}{D_1} \) - \( \frac{D_3}{d_3} \) - \( \frac{D_4}{d_4} \)
- Double Wall: FOXPSCI\( \alpha \) - \( \frac{W_1}{D_1} \) - \( \frac{D_3}{d_3} \) - \( \frac{D_4}{d_4} \)

---

**FOXPSC/FORXPSC**

**Description**

Oval reducing crossing tee with round radiussed pressed taps on minor axis.

**Dimensions**

- \( \frac{D_3}{d_3} \) is always greater than or equal to \( \frac{D_4}{d_4} \).
- \( L = (\frac{D_3}{d_3} + 6) \times [(\frac{W_1}{D_1} - \frac{W_2}{D_2}) \times 0.5] + 10 \)
- Maximum size for \( D_3 \) is 12”.
- Maximum size for \( D_1 \) is 24”.

**Substitute:**

- \( D_{1,2} \) for \( W_{1,2} \) if \( (D_1 - D_2) > (W_1 - W_2) \)

**Order Example**

- Single Wall: FORXPSC\( \alpha \) - \( \frac{W_1}{D_1} \) - \( \frac{W_2}{D_2} \) - \( \frac{D_3}{d_3} \) - \( \frac{D_4}{d_4} \)
- Double Wall: FORXPSCI\( \alpha \) - \( \frac{W_1}{D_1} \) - \( \frac{W_2}{D_2} \) - \( \frac{D_3}{d_3} \) - \( \frac{D_4}{d_4} \)
Tees/Crossing Tees

Order Example
- Single Wall: FOBHT - W₁/D₁
- Double Wall: FOBHTI - W₁/D₁ - i

Description
- Diverted flow oval bullhead tee.

Dimensions
- \( L = (0.5)W_1 + 6 \)
- \( X = (0.5)W_1 + 6 \)
- \( I = W_1 \)

FOBHT/FORBHT

Order Example
- Single Wall: FORBHT - W₁/D₁ - W₂/D₂ - W₃/D₃
- Double Wall: FORBHTI - W₁/D₁ - W₂/D₂ - W₃/D₃ - i

Description
- Reducing diverted flow oval bullhead tee.

Dimensions
- \( W_2 \) is always greater than or equal to \( W_3 \).
- \( L_1 = 0.5(W_2) + 6 \)
- \( L_2 = L_1 + [0.5(W_2 - W_3)] \)
- \( X = 0.5(W_2) + 6 \)
- \( Y = X + [0.5(W_2 - W_3)] \)
- \( I = W_2 \)
Tees/Crossing Tees

Description
Diverted flow oval to round bullhead tee.

Dimensions
\( \Phi_d_2 \) is always greater than or equal to \( \Phi_d_3 \).
\[ L_1 = (0.5)\Phi_d_2 + 6 \]
\[ L_2 = L_1 + [0.5(\Phi_d_2 - \Phi_d_3)] \]
\[ X = 0.5(W_1) + 6 \]
\[ Y = X + [0.5(\Phi_d_2 - \Phi_d_3)] \]
\[ I = \Phi_d_2 \]

Order Example
Single Wall FORBHTC - \( W_1/D_1 - \Phi_d_2 - \Phi_d_3 \)
Double Wall FORBHTCI - \( W_1/D_1 - \Phi_d_2 - \Phi_d_3 \)

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Y-branches

Description

45° hard oval wye branch. NOTE: these measurements are valid only for 45° “Y” branch fittings. Call for special angles.

Dimensions

\[ Z = \text{constant} = 0.5" \]
\[ m = (0.207)(W_1) \]
\[ O = 2.828 + 0.354 \times W_1 \]
\[ h = O + m \]

Order Example

- Single Wall: FOY - W_i/D_1
- Double Wall: FOYI - W_i/D_1 - 1

FOY/FORY

Description

45° hard reducing oval wye branch. NOTE: these measurements are valid only for 45° “Y” branch fittings. Call for special angles.

Dimensions

\[ \varnothing_d_2 \text{ must be } \geq \varnothing_d_3 \]
\[ Z = \text{constant} = 0.5" \]
\[ m = (0.207)(W_1) \]
\[ O = 2.828 + 0.354 \times W_1 \]
\[ h = O + m \]

Order Example

- Single Wall: FORY - W_i/D_1 - W_j/D_2 - W_k/D_3
- Double Wall: FORYI - W_i/D_1 - W_j/D_2 - W_k/D_3 - 1
Y-branches

Description

45° oval to round wye branch. NOTE: these measurements are valid only for 45° “Y” branch fittings. Call for special angles.

Dimensions

Ød₂ must be ≥ Ød₃
Z = constant = 0.5”
m = (0.207)(W₁)
O = 2.828 + 0.354 * W₁
h = O + m

Order Example

| Single Wall | FORYC - W₁/D₁ - Ød₂ - Ød₃ |
| Double Wall | FORYCI - W₁/D₁ - Ød₂ - Ød₃ |

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**Offsets**

---

**Description**

*Flat oval hard bend offset.*

**Dimensions**

Do not exceed 45°. Offsets resulting in severe angles may result in airflow restriction and may not be possible.

---

**Description**

*Flat oval easy bend offset.*

**Dimensions**

Do not exceed 45°. Offsets resulting in severe angles may result in airflow restriction and may not be possible.

---

**Order Example**

<table>
<thead>
<tr>
<th>Wall Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>FOOH (-W_1/D_1) - Z - L</td>
<td>Flat oval hard bend offset.</td>
</tr>
<tr>
<td>Double Wall</td>
<td>FOOHI (-W/D_1) - Z - L - i</td>
<td>Flat oval easy bend offset.</td>
</tr>
</tbody>
</table>

---

**Order Example**

<table>
<thead>
<tr>
<th>Wall Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>FOOE (-W_1/D_1) - Z - L</td>
<td>Flat oval hard bend offset.</td>
</tr>
<tr>
<td>Double Wall</td>
<td>FOOEI (-W/D_1) - Z - L - i</td>
<td>Flat oval easy bend offset.</td>
</tr>
</tbody>
</table>
End Caps

Description
Flat oval end cap for duct.

Order Example
Single Wall  FOEP - $W_i/D_i$
Double Wall  FOEPI - $W_i/D_i - L - i$

Description
Flat oval end cap for fittings.

Order Example
Single Wall  FOEF - $W_i/D_i$
Double Wall  FOEFI - $W_i/D_i - L - i$
**Couplings**

**FONP/FOMF**

**Description**
Flat oval duct coupling.

Order Example
- Single Wall: FONP - W₁/Dₐ
- Double Wall: FONPI - W₁/Dₐ - i

**Description**
Flat oval fitting coupling.

Order Example
- Single Wall: FOMF - W₁/Dₐ
- Double Wall: FOMFI - W₁/Dₐ - i
Take-offs

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOIL - W₁/D₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOILI - W₁/D₁ - i</td>
</tr>
</tbody>
</table>

**Description**

Take-off / starting collar.

---

**FOIL/FOILR**

**Order Example**

<table>
<thead>
<tr>
<th>Single Wall</th>
<th>FOILR - W₁/D₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Wall</td>
<td>FOILRI - W₁/D₁ - i</td>
</tr>
</tbody>
</table>

**Description**

Bellmouth take-off. For 1" insulation, max I.D. for minor axis is 30".
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