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Introduction

Since 1991, Ward Industries has been a trusted leader in the manufacturing and supply of sheet metal products for commercial and industrial HVAC applications. In 2002, Hart & Cooley, Inc. acquired Ward to add to their comprehensive offering of HVAC products and to expand Ward’s business across the United States and Canada.

Ward Industries’ main product line centers on high quality duct connectors for rectangular and round/oval sheet metal ductwork, and includes various styles of access doors and much more. In addition to the J and H flange connector systems, Ward Industries offers spiral and oval duct connectors, slips & drive, and vane & rail. Corner systems are available to match almost any flange style.

We’ve added the QuicKorner™, a new corner engineered to work in insertion machines for easy connection of TDF or TDC roll-formed flanges.

Today, Ward Industries continues to lead the industry with an intense customer focus. By understanding needs and creating value added products, Ward Industries can help increase profitability and create winning results.
Flange

- Available in specialty metals
- Provides a large butyl-filled integrated sealant pocket to ensure proper sealing
- Offers a metal shoulder to protect gasket
- Available in 10’ and 20’ lengths
- Recommended for 14-gauge through 26-gauge ductwork

Model FLG J
- J-rated Flange
- 20-gauge galvanized steel
- Meets SMACNA rigidity Class J for transverse joints (steel)
- Meets SMACNA rigidity Class H for transverse joints (aluminum)

Model FLG H
- H-rated Flange
- 22-gauge galvanized steel
- Meets SMACNA rigidity Class H for transverse joints (steel)
Corner and QuicKorner™

- Formed galvanized steel
- Available in specialty metals to match flange material
- QuicKorner for use in both single and double head auto insertion machines (available in GA & AL only).

Model CNR J
- J Flange Corner
- Nuts and bolts included (galvanized)

Model CNR H
- H Flange Corner
- Nuts and bolts included (galvanized)

Model CNR QF
- TDF Flange Corner
- Use with TDF

Model CNR QF
- TDF Flange Corner
- Use with TDF

Model CNR TF
- TDF Flange Corner
- Use with TDF-formed flange

Model CNR TC
- TDC Flange Corner
- Use with TDC-formed flange

Model CNR QC
- TDC Flange Corner
- Use with TDC

Cleat

- Formed galvanized steel
- Available in specialty metals to match flange material
- Available in 10’ or 6” lengths
- Available in .070” thick extruded PVC for breakaway connections (6” only)

Model CLT W
- W Cleat
- Use with Ward J and H flange, as well as TDC-formed flange

Model CLT F
- F Cleat
- Use with TDF-formed flange
Butyl Gasket

- Provides a nondrying, permanently flexible gasket
- Adheres to a variety of clean, dry surfaces
- Contains high percentage of virgin butyl rubber to enhance its sealing and aging characteristics
- Formulated to retain handling properties through a wide temperature range
- Will not crack or separate while being applied at low temperatures

Model GSK-BT Butyl Tape Gasket
- Product is 3/16" x 5/8" and is available in 25' and 30' rolls

Model GSK-BP Butyl Patch Gasket
- Product is 3/16" thick, and is available in 1" x 2" and 2" x 3" patch sizes

Neoprene Tape Gasket

- Closed-cell foam comprised of neoprene, PVC, and nitrile
- Has good chemical resistance and is flame-rated
- Product is 5/16" x 3/4" and is available in 50' rolls

Model GSK-NT
**Slip**
- Roll-formed galvanized steel
- Available in specialty metals
- Available in 5' and 10' lengths

**Model SLS**
- Standing slip
- Available in 1/2" in 24-gauge and 26-gauge
- Available in 1" in 20-gauge through 26-gauge

**Drive**
- Roll-formed galvanized steel
- Available in specialty metals
- Available in 5' and 10' lengths

**Model SLF**
- Flat slip
- Available in 22-gauge through 26-gauge

**Model DRS**
- Standing drive
- Available in 24-gauge and 26-gauge
- Available in 1" height

**Model DRF**
- Flat drive
- Available in 22-gauge through 26-gauge
Trapeze Hanger
• Roll-formed galvanized steel
• Slotted holes 2-1/4" on center
• Available in both 16-gauge and 18-gauge
• Available in 10’ and 20’ lengths
• Inexpensive, yet strong alternative to standard strut systems
• Compatible with multiple clamp and component items
• Use Trapeze Washer (TZW) and Threaded Rod for a complete system (sold separately)

Threaded Rod
• Zinc-plated threaded rod
• Available in standard thread diameters ranging from 1/4" to 7/8"
• Available in 6’, 10’ or 12’ lengths
• Use with Trapeze Hanger and Washer for a complete hanging system (sold separately)

Hanger Strap
• Galvanized steel
• Available in 16-gauge through 24-gauge
• Available in 200’ rolls or 10’ flat blanks
• Great multipurpose product for hanging ductwork
• Use with Strap Buckle for quick and easy installation

Strap Buckle
• Ideal for hanging round duct
• Hanger strap is bent into the strap buckle and suspended with threaded rod
Angle Iron

- Roll-formed galvanized steel
- Slotted and punched holes 4" on center
- Available in 14-, 16- and 18-gauge
- Available in 12' lengths
- Great multipurpose product

Model AGS - slotted  
Model AGP - punched  
Model AGX - solid
Vane and Rail

- Roll-formed galvanized steel
- Available in 10’ lengths
- Custom lengths available
- Double-wall turning vane and turning rail designs in accordance to SMACNA guidelines

Model VNN
- Roll-formed 24-gauge galvanized steel (4”)
- Roll-formed 26-gauge galvanized steel (2”)

Model RAL
- Roll-formed 22-gauge galvanized steel (2” and 4”)
- Provides extra wide margin for easy fastening
- Rail stacks to minimize storage and shipping requirements
- Self-aligning tabs for easy vane installation

Quick Rail™

Model FRI RAL Quick Rail™
- Roll-formed 22-gauge galvanized steel (2” Rail Only)
- Eliminates the tedious process of bending each vane to secure it to the rail
- Two tabs instead of one
- Eliminates loose connections that can cause annoying rattle over time
- Self-aligning tabs for easy vane installation
- Self-centers vanes onto rails
- Holds the vanes tangent to the airstream eliminating trailing edges

Quick Rail™ eliminates extra assembly steps
Flexible Connector

- Roll-formed galvanized steel and fabric
- Available in specialty metals
- Available in both commercial and residential grades
- Available with two different styles of seam wraps
- Available in 100' rolls
- All fabrics rated to 10" S.P.
- Absorbs sound and vibration to prevent from transmitting throughout system

<table>
<thead>
<tr>
<th>Grade</th>
<th>Composition</th>
<th>Gauge</th>
<th>Metal</th>
<th>Fabric*</th>
<th>Wrap</th>
</tr>
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<tbody>
<tr>
<td>TDC/TDF Commercial</td>
<td>4&quot; Metal 4&quot; Fabric 4&quot; Metal</td>
<td>24</td>
<td>Galvanized</td>
<td>All Types</td>
<td>Double</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Galvanized</td>
<td>Aluminum Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>3&quot; Metal 3&quot; Fabric 3&quot; Metal</td>
<td>24</td>
<td>Galvanized</td>
<td>All Types</td>
<td>Double</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Galvanized</td>
<td>Aluminum Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td>2.75&quot; Metal 4&quot; Fabric 2.75&quot; Metal</td>
<td>28</td>
<td>Galvanized</td>
<td>Neoprene Viney</td>
<td>Standard</td>
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<tr>
<td>Residential</td>
<td>1.75&quot; Metal 3&quot; Fabric 1.75&quot; Metal</td>
<td>28</td>
<td>Galvanized</td>
<td>Neoprene Viney</td>
<td>Standard</td>
</tr>
</tbody>
</table>

*The proper fabric can be easily selected by using our Flexible Connector Fabric Chart (see pg. 26) after careful consideration of the installation requirements, such as, pressure of the system, temperature range, indoor and outdoor installation, proximity to chemicals or fumes and approvals required.

Keating Koupling™

- Formed 20-gauge galvanized steel
- Available in specialty metals
- Provides a large, butyl-filled, integrated sealant pocket to ensure proper sealing
- Available for both round and flat oval duct
- Available in sizes ranging from 10" to 36"
- Provides a connection that is virtually airtight up to 16" S.P.
- Provides a smooth, clean appearance for exposed installation
Compression Duct Door

- Formed galvanized steel
- Available in specialty metals
- Available in sizes 8" x 4", 10" x 6" and 16" x 12"
- Available for both flat and round duct
- Self-adhesive template included for proper installation

Model DSA
for Single-Wall Duct
- Formed 20-gauge galvanized steel
- Utilizes closed-cell neoprene gasket to ensure proper sealing requirements
- Pressure tested to over 20" WG

Model DSA DW
for Double-Wall Duct
- Formed 20-gauge galvanized steel
- Utilizes closed-cell neoprene gasket to ensure proper sealing requirements
- Increased bolt length allows door to encompass double wall or insulated duct
- Pressure tested to over 20" WG

Model DSA HT
for High-Temperature Duct
- Formed 16-gauge black iron
- Utilizes ceramic rope gasket
- For applications up to 2000°F

Spin-In Access Doors

- Formed 22-gauge galvanized steel frame
- Formed 24-gauge galvanized steel door
- Fiberglass encapsulated in 1" thick door, providing an estimated R-value of 3
- Utilizes closed-cell neoprene gasket
- Available in sizes from 8" to 24" diameter
- Tested to 20" S.P. with minimal leakage
Square Access Doors

- Formed 22-gauge galvanized steel frame
- Formed 24-gauge galvanized steel door
- Fiberglass encapsulated 1" thick door
- Preformed dovetail tabs allow for easy and quick installation
- Available in sizes from 6" x 6" to 24" x 24"
- Available in both styles for high pressure applications

Model DCM
Square Cammed Door
- Provides an estimated R-value of 3
- Utilizes open-cell polyester foam gasket
- Dual-cam design offers complete removal of door for accessing duct
- Tested to 4.5" S.P. with minimal leakage

Model DCM-HP
Square Cammed Door
- Provides an estimated R-value of 3
- Utilizes closed-cell neoprene foam gasket
- Multi-cam design offers complete removal of door for accessing duct
- Tested to 10" S.P. with minimal leaking

Model DHG
Square Hinged Door
- Provides an estimated R-value of 3
- Utilizes open-cell polyester foam gasket
- Full-length hinge allows door to pivot out of the way for easy access to the duct
- Tested to 4.5" S.P. with minimal leakage

Model DHG-HP
Square Hinged Door
- Provides an estimated R-value of 3
- Utilizes closed-cell neoprene foam gasket
- Full-length hinge allows door to pivot out of the way for easy access to the duct
- Tested to 10" S.P. with minimal leaking
Rod Lock

- Zinc-plated grade 5 bolt
- Zinc-plated washer with neoprene gasket
- Zinc-plated nut with spring steel seat plates
- Available in both 1/2” and 3/4” sizes
- Use with standard conduit to provide quick and easy installation of tie rods
- Use for both joint and center tie rods
- Pull-tested to over 1,900 lbs.
- Use rod lock tool for easy installation (sold separately)

Model RL

Weld Pins

- Available in 1/2”, 3/4”, 1”, 1-1/2” and 2” sizes
- Available in both cupped and flat head
- Compatible with most weld machines used to apply pins up to 2” in length

Model WP CH

Stik-Pins

- No tools needed for the application of hangers to sheet metal.
- Insulation may be installed immediately because of positive adhesion of hanger to metal.
- Application of hanger is clean, fast and simple with no toxic fumes.
- Available in copper plated, 12 gauge (.106 dia.) material
Hardware and Tools

Crimper
- Installs Ward TDC corners in TDC-formed flange
- Installs Ward TDF corners in TDF-formed flange
- Forms hem, presses to crimp, and secures the corner in the flange

Model CRIMPER

Rod Lock Install Tool
- Installs Rod Lock nuts quickly and accurately in conduit

Model RODLOCK

Cleat Install Tool
- Installs finishing cleat quickly and easily

Model CLEAT
<table>
<thead>
<tr>
<th>Industry Standard High Velocity</th>
<th>General Purpose Low/Med Velocity</th>
<th>Ideal Outdoor High Velocity</th>
<th>All Weather High Velocity</th>
<th>Superior Weathering High Temperatures</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEOPRENE (Neoprene/Fiberglass)</td>
<td>VINYL (PVC/Nylon Polyester)</td>
<td>HYPALON (Polyester/Fiberglass)</td>
<td>EPDM (Polyester)</td>
<td>SILICONE (Silicone/Fiberglass)</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td><strong>Applications</strong></td>
<td><strong>Description</strong></td>
<td><strong>Applications</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>A heavy glass fabric, coated on both sides with neoprene. The glass fabric is non-combustible, and the coating is fire retardant, and has no glow time or char length. It is waterproof, airtight, and gasoline and grease resistant.</td>
<td>Can be used in practically every type of HVAC system. Because of its chemical resistance, it can be used in kitchen and fume hoods. It is absolutely waterproof and airtight, and is ideal for high pressure systems and outdoor applications.</td>
<td>A heavy glass fabric, coated on both sides with white Hypalon (CPSE) a synthetic rubber. Fabric is non-combustible and the coating is flameproof. It has excellent weathering quality and is waterproof. Resistant to ozone, acids, alkalies, gasoline and grease.</td>
<td>A polyester fabric with a heavy coating on both sides of EPDM Aftight and watertight fabric has outstanding resistance to weathering, ultraviolet radiation, ozone and is not affected by mildew.</td>
<td>A very heavy glass fabric, coated on both sides with silicone. Silver in color, flameproof, and has excellent resistance to many chemicals and weathering. Designed for high temperature applications.</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td><strong>Weaving</strong></td>
<td><strong>Fabric Selection</strong></td>
<td><strong>Fabric Selection</strong></td>
<td><strong>Fabric Selection</strong></td>
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<tr>
<td><strong>Weight</strong></td>
<td><strong>Range</strong></td>
<td><strong>Weight</strong></td>
<td><strong>Weight</strong></td>
<td><strong>Weight</strong></td>
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<tr>
<td>ASTM D 751-73 29 oz/sq yd +/- 1.5</td>
<td>-40 F to 240 F continuous</td>
<td>ASTM D 751-73 23 oz/sq yd +/- 1.5</td>
<td>ASTM D 751-73 34 oz/sq yd +/- 1.5</td>
<td>ASTM D 751-73 34 oz/sq yd +/- 1.5</td>
</tr>
<tr>
<td><strong>Tensile Strength</strong></td>
<td><strong>Range</strong></td>
<td><strong>Tensile Strength</strong></td>
<td><strong>Range</strong></td>
<td><strong>Range</strong></td>
</tr>
<tr>
<td>ASTM D 751-73 475 lbs warp x 375 lbs fill</td>
<td>-40 F to 240 F continuous</td>
<td>ASTM D 751-73 225 lbs warp x 250 lbs fill</td>
<td>ASTM D 751-73 200 lbs warp x 200 lbs fill</td>
<td>ASTM D 751-73 610 lbs warp x 512 lbs fill</td>
</tr>
<tr>
<td><strong>Fire Resistance</strong></td>
<td><strong>Range</strong></td>
<td><strong>Fire Resistance</strong></td>
<td><strong>Range</strong></td>
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<td><strong>Temperature Range</strong></td>
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<td><strong>Temperature Range</strong></td>
<td><strong>Range</strong></td>
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<tr>
<td>ASTM D 2136 and D 573 -40 F to 200 F continuous</td>
<td>-40 F to 180 F continuous 200 F intermittent</td>
<td>ASTM D 2136 and D 573 -40 F to 240 F continuous 250 F intermittent</td>
<td>ASTM D 2136 and D 573 -45 F to 200 F continuous 240 F intermittent</td>
<td>ASTM D 2136 and D 573 -67 F to 500 F continuous 600 F intermittent</td>
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<tr>
<td><strong>Tear Strength</strong></td>
<td><strong>Range</strong></td>
<td><strong>Tear Strength</strong></td>
<td><strong>Range</strong></td>
<td><strong>Range</strong></td>
</tr>
<tr>
<td>ASTM D 751-73 25 lbs warp x 20 lbs fill</td>
<td>-40 F to 180 F continuous 200 F intermittent</td>
<td>ASTM D 751-73 20 lbs warp x 15 lbs fill</td>
<td>ASTM D 751-73 80 lbs warp x 80 lbs fill</td>
<td>ASTM D 751-73 60 lbs warp x 25 lbs fill</td>
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<tr>
<td><strong>Waterproof Qualities</strong></td>
<td><strong>Range</strong></td>
<td><strong>Waterproof Qualities</strong></td>
<td><strong>Range</strong></td>
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<tr>
<td><strong>Thickness</strong></td>
<td><strong>Range</strong></td>
<td><strong>Thickness</strong></td>
<td><strong>Range</strong></td>
<td><strong>Range</strong></td>
</tr>
<tr>
<td>ASTM 751-73 .025&quot;</td>
<td>-40 F to 180 F continuous 200 F intermittent</td>
<td>ASTM 751-73 .025&quot;</td>
<td>ASTM 751-73 .020&quot;</td>
<td>ASTM 751-73 .036&quot;</td>
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<tr>
<td><strong>Pressure Rating</strong></td>
<td><strong>Range</strong></td>
<td><strong>Pressure Rating</strong></td>
<td><strong>Range</strong></td>
<td><strong>Range</strong></td>
</tr>
<tr>
<td>All grades rated to 10&quot; SP</td>
<td>-40 F to 180 F continuous 200 F intermittent</td>
<td>All grades rated to 10&quot; SP</td>
<td>All grades rated to 10&quot; SP</td>
<td>All grades rated to 10&quot; SP</td>
</tr>
<tr>
<td><strong>Chemical Resistance</strong></td>
<td><strong>Range</strong></td>
<td><strong>Chemical Resistance</strong></td>
<td><strong>Range</strong></td>
<td><strong>Range</strong></td>
</tr>
<tr>
<td>ASTM D 1149 Resistant to acids, alkalies, gasoline and grease.</td>
<td>-40 F to 180 F continuous 200 F intermittent</td>
<td>ASTM D 1149 Resistant to ozone, acids, alkalies, gasoline and grease.</td>
<td>ASTM D 1149 Outstanding resistance to weathering, ultraviolet radiation, ozone and is not affected by mildew.</td>
<td>ASTM D 1149 Excellent resistance to acids and alkalies. Adversely affected by gasoline, toluene, acetone and grease.</td>
</tr>
</tbody>
</table>

**Fabric Selection Chart**

**NEOPRENE (Neoprene/Fiberglass) Description**

A heavy glass fabric, coated on both sides with neoprene. The glass fabric is non-combustible, and the coating is fire retardant, and has no glow time or char length. It is waterproof, airtight, and gasoline and grease resistant.

**Applications**

Can be used in practically every type of HVAC system. Because of its chemical resistance, it can be used in kitchen and fume hoods. It is absolutely waterproof and airtight, and is ideal for high pressure systems and outdoor applications.

**Chemical Resistance**

Resistant to acids, alkalies, gasoline and grease.

**Pressure Rating**

All grades rated to 10" SP

**Appendix**

Can be used in practically every type of installation within its temperature range. Low in cost and easy to work with. It has extremely high abrasion, tear and cut resistance, is rot, fungus and UV resistant. Dielectric and thermally weldable.
Notes