



Distributor Training Manual



ABOUT DURO DYNE

Established in 1952, Duro Dyne Corporation has evolved into the leading manufacturer of sheet metal accessories and equipment for the heating, ventilating, and air conditioning industry. Over the span of the last 60+ years, Duro Dyne has expanded its plant locations and now employs over 200 people.

Duro Dyne's extensive research and development program has introduced more new products and processes than any other company in our field. Such things as Flexible Duct Connector, as we know it today, as well as Vane Rail and Blade Kits for multi-blade dampers were originally developed and patented by Duro Dyne Corporation. Other products that have now become standards in the sheet metal fabrication field were developed by Duro Dyne Corporation as well. In the fastening field Duro Dyne introduced the concept of self-drilling sheet metal screws. Quieturn Turning Vanes and Glasline Hardware for fiberglass duct systems all were originated by Duro Dyne.

Due to the increasing number of diverse items in our product line, Duro Dyne found it necessary to divide into the Duro Dyne Supply Division, DuroZone Division, Machinery Division, Duro Dyne Tool Division, Dyn-O-Mate Division, and Dyna-Tite Divisions.

Our Supply Division continues to offer such familiar standards as Flexible Duct Connector, Insulation Fasteners, Screws and Rivets, Adhesives and Sealers, and Air Regulation Hardware. We continue to investigate new and improved solutions for improving shop and field production. Our stainless steel Dyna-Clamps and High Head Screws are the latest innovations from this division.

The DuroZone Division has made dramatic breakthroughs in Zone Control System designs. DuroZone provides cost effective and versatile methods of Zoning for residential and light commercial installation. DuroZone's staff of "in-house" engineers is continually researching the latest technological breakthroughs assuring the best products for today as well as tomorrow.

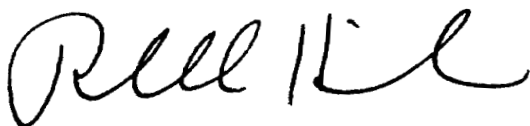
Duro Dyne's Machinery Division is most noteworthy for the tremendous contribution in the field of insulation fastening...from the first hand held Pinspotter to the FGMH Auto Shift Multi-Head Pinspotter System used by some of the largest contracting shops in the world today. In addition to the finest Pinspotting equipment, Duro Dyne's Machinery Division continues to manufacture the finest Insulation Cutting Equipment, Portable Spotwelders, Water Based Adhesive Application System and Turning Vane Fabricating Equipment. Quality and workmanship have always been of prime importance for the manufacturing of our equipment.

The Duro Dyne Tool Division markets the finest quality hand tools for the sheet metal tradesman. In addition to such tools as snips, notchers, crimpers, and seamers, Duro Dyne stocks a full compliment of other tools specifically designed for the HVAC industry. Duro Dyne is constantly testing and evaluating new tools for possible addition into our already extensive hand tool line.

Duro Dyne's quality awareness and marketing expertise coupled with an application proven design has resulted in the introduction of the finest 4-bolt duct connection system, Dyn-O-Mate. This transverse duct connection system allows the Sheet Metal Contractor to erect duct quickly and efficiently.

In the same vein, our Dyna-Tite Division brings the HVAC Industry an innovative hanging device that eliminates the costly need for threaded rod. Another industry first is the Release Pin feature on our Cable Locks which allows for easy adjustments without the use of tools. The Dyna-Tite Division also offers a full range of accessories for virtually any suspension application.

Duro Dyne Corporation does not stop here. We continue to probe areas in which we could be of greater service to our customers and end users. We trust that you will call on us if you have any suggestions as to how we may serve you better.



Randall S. Hinden, President & C.E.O.

TABLE OF CONTENTS

About Duro Dyne Page 2

Introduction Page 4

Flexible Duct Connector Page 5-7

Air Regulation Control Hardware Page 8-9

Adhesives and Sealers.....Page 10-12

Insulation Fasteners..... Page 13-16

Machinery Page 17-18

Tools Page 19

Screws..... Page 20

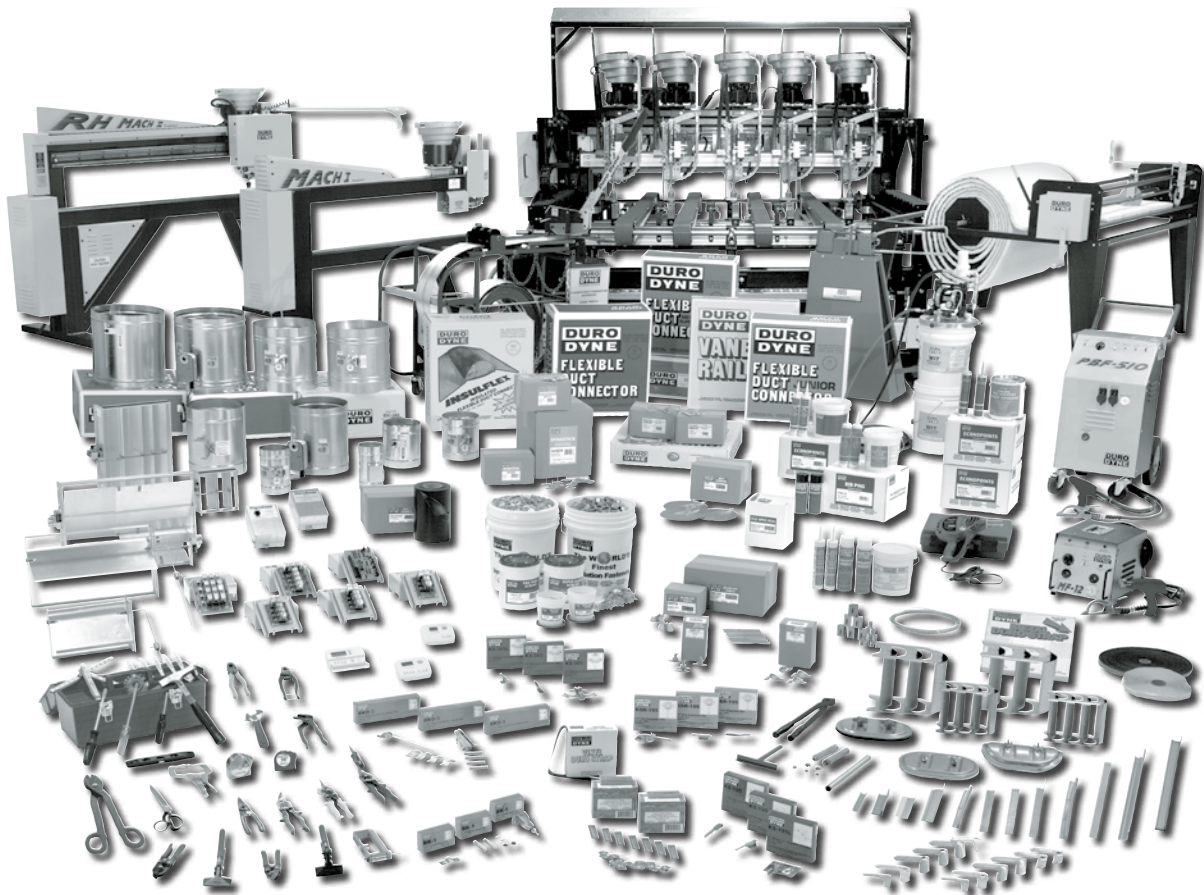
Rivets Page 20

DuroZone® Page 21-24

Dyna-Tite® Page 25-30

Dyn-O-Mate® Page 31-34

Important Note: Products manufactured or marketed by Duro Dyne of Canada may differ slightly from products listed in this booklet or have different product codes.



Duro Dyne Corporation, a trusted name in HVAC accessories for more than 60 years, wants you to be comfortable with our products. When you know a product well, you are confident you can sell it!

A typical light commercial, or industrial duct system will require damper regulators, access doors, interior insulation (which must be glued and fastened with mechanical fasteners), exterior insulation (secured with mechanical fasteners), screws, hanging strap, nylon ties, duct sealer, turning vanes (secured with rail) and flexible duct connector.

During fabrication and installation of the duct, the metal and insulation will need to be sized, cut and trimmed, glued and fastened, hammered and screwed, hung and sealed.

Most duct is fabricated with heavy shears and brakes and/or coil processing equipment. However, fittings and duct must be further refined with holes cut or drilled into them. These other operations require unique hand tools and special cutters for the insulation.

Duro Dyne supplies you with regulator hardware to build and control the dampers, access door, and/or door hardware, insulation cutting equipment, insulation gluing equipment, adhesives, insulation fastener equipment, insulation fasteners, Saber and Pro Point type screws, rivets, various hanging straps, nylon ties, a variety of duct sealers, vane rail, drill bits and, of course, Duro Dyne Flexible Duct Connectors.

We also supply the most complete line of sheet metal hand tools available: tools to cut, measure, bend, hole cut, saw, hammer, etc.

The DuroZone Division of Duro Dyne Corporation supplies residential and light commercial motorized dampers and controls to solve ventilation problems and allow for economical directing of the conditioned air from room to room in homes and offices.

Duro Dyne also supplies the Dyn-O-Mate line of four-bolt connector systems to reinforce and connect, commercial and industrial ductwork. Dyna-Tite cable locks and wire rope are available to facilitate hanging of duct and equipment.

The finest and most complete accessory line of HVAC products available in the world is sold only through Duro Dyne distributors.

FLEXIBLE DUCT CONNECTOR

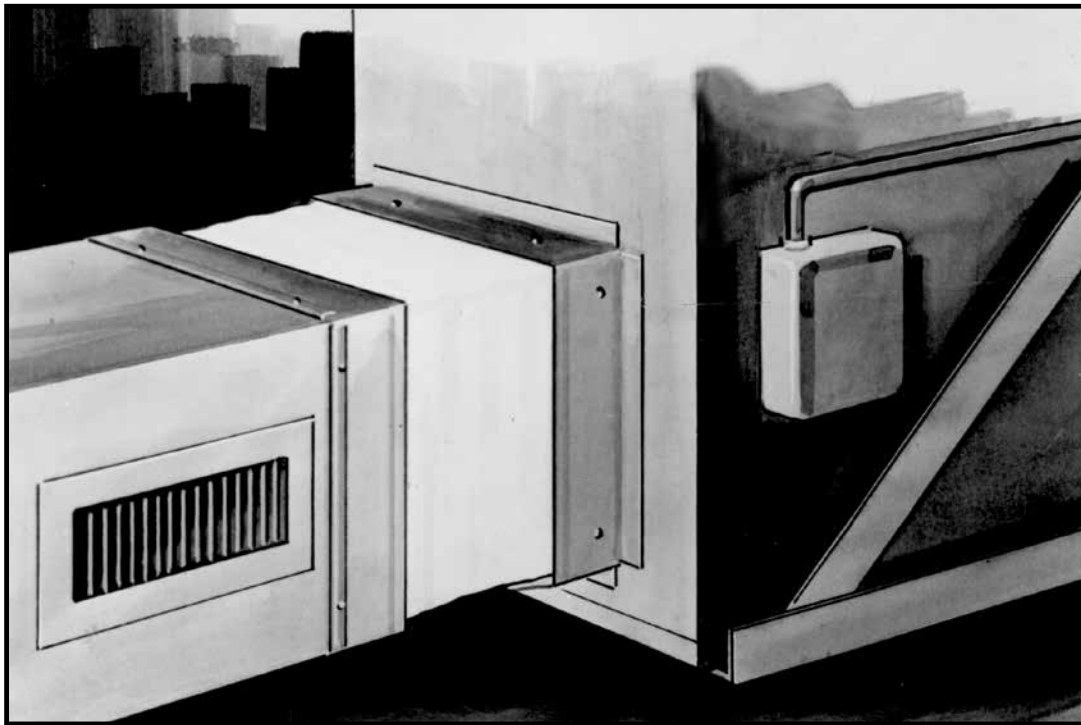
Flexible Duct Connector was designed as a vibration isolator and noise attenuator. In many installations, **Flexible Duct Connector helps relieve noise and duct vibration associated with system "start-ups" or fan turbulence.** Flexible Duct Connector can also make it easier to connect two sections of duct; duct to plenum, duct to fan, etc. The connection may also help join the two pieces when alignment is not perfect.

Duro Dyne manufactures more metal configurations, fabric types, and gauges than any other manufacturer in the market!

Many commercial installations require a connector fabric that is made of Neoprene or its equivalent. Duro Dyne not only offers both a light and heavy Neoprene, but also markets Excelon® - a strong, flame retardant fabric that meets or exceeds Neoprene specifications.

Excelon® is also less expensive than neoprene and is the most widely used Flexible Duct Connector in the world.

- **All Duro Dyne Fabrics are designed to meet NFPA 701 (formerly UL 214.)**
- **All Duro Dyne Fabrics are designed to meet NFPA 90A & 90B.**
- **All Duro Dyne Fabrics are airtight and waterproof.**
- **All Duro Dyne Flexible Duct Connector utilize 24 or 28 gauge (.7 mm or .47 mm) galvanized steel meeting ASTM-A-525 G60.**
- **Standard roll length - 100 ft. (30.48 m)**
- **Flexible Duct Connector is available with 300 series or 316 series stainless steel or aluminum.**
(See chart for availability)
- **The Duro Dyne standard 'single fold' metal to fabric grip has been tested by an independent testing laboratory to withstand a negative pressure of -10" WC and a positive pressure of +17.25" WC with no tearing or visible separation.**
- **Flexible Duct Connector and Vane Rail are manufactured in the United States.**



Typical application of Flexible Duct Connector

DESCRIPTION

All air duct installations for heating, cooling or ventilation are attached to mechanical equipment containing a fan or blower. Vibrations, noises and rattles resulting from operation of the fan or blower are transmitted into the metal ducts which can carry noise throughout the system.

In order to isolate the vibration and noise to the source, an airtight flexible joint, consisting of a fabric which is attached to sheet metal on both edges, must be inserted between the equipment and the ductwork. This vibration isolator is called a "Flexible Duct Connector".



RELATED NFPA 90A & 90B STANDARDS

2-3.2.2 Vibration isolation connectors in duct systems shall be made of an approved flame retardant fabric or shall consist of sleeve joints with packing of approved material, each having a maximum flame spread index of 25 and a maximum smoke developed index of 50. Exception: Approved flame-retardant fabric having a maximum length of 10 in. (45.4 cm) in the direction of airflow-**NFPA No. 90A 1999**

2-1.1.1 Exception No. 3: Vibration isolation connectors in duct systems shall be made of approved flame-retardant fabric or shall consist of sleeve joints with packing of approved noncombustible material. The fabric shall not exceed 10 in. (254 mm) in length in direction of airflow-**NFPA No. 90B 1999**

FABRIC COMPARISONS	Excelon*	Neoprene	Durolon	Insulflex*	Thermafab®	Envirofab	Teflon	Glasseal
UL Classified File #	R4462	R4462	R4462	R4462	R4462	R4462	N/A	R4462
Continuous Temp.	-40°F to 180°F	-40°F to 200°F	-40°F to 250°F	-40°F to 180°F	-65°F to 500°F	-40°F to 200°F	-150°F to 500°F	-40°F - 180°F
Range Color	Black or Spec Chek Orange	Black	White	Black	Grey	Black/White	Grey Outside/ Beige Inside	Grey & Black
Weight Per Square Yard	22	30	26	28 (composite weight)	17	18	16.5	16
Leakage Resistance¹	350	595	250	125	400	350	650	120
Tear Strength²	100/100	12/12	12/12	8/11	50/40	60/80	50/30	8/9
Tensile Strength³	240/220	500/450	225/300	70/70	200/150	200/190	400/300	90/90
Base Fabric	Woven Nylon/ Polyester Blend	Woven Fiberglass	Woven Fiberglass	Polyester	Woven Fiberglass	Polyester	Fiberglass/ Satin Weave	Woven Fiberglass
Coating	Vinyl	Neoprene	Hypalon	Vinyl	Silicon Rubber	Proprietary Vinyl Blend	Teflon	Vinyl
Features	High Tear Strength High Abrasion Resistance	General Purpose	Excellent Ozone and Weathering Resistance Best Overall Acid Resistance	Low Smoke Emission Insulated 3-4-3 Configuration	Very Low Smoke Emission High Temperature Resistant	"Green" 10% Recycled Content UV Reflective Puncture Resistant	High Temperature Resistant High Corrosion Resistance Excellent Chemical Resistance	Resistant to Acids & Chemical Fumes Resistant to Grease & Alkalies Unaffected By Mildew
Codes								
Metal-Fab 3x3x3 Grip Loc	MBX (#10159) MSPX (#10263)	MFN (#10003)	MFD (#10002)	IDC (#10173) *Gauge: 28 + Guard Loc	MFT (#10005)	MEV4-100 (#10301)	MCT333 (#10278)	MGL (#10004)
Super Metal-Fab 3x6x3 Grip Loc	MB6X (#10160) MSP6X (#10265)	MF6N (#10012)	MF6D (#10011)	Not Available	MF6T (#10013)	Not Available	Not Available	MF6G (#10016)
TDC/TDF 4x4x4 Grip Loc	MBX4x4x4 (#10210) MSPX4x4x4 (#10264) MBX4x6x4 (#10214)	MFN4x4x4 (#10211) MFN4x6x4 (#10246)	MFD4x4x4 (#10237) MFD4x6x4 (#10245)	Not Available	Not Available	MEV4x4x4 (#10300)	MCT444 (#10279)	Not Available
Econofab Guard Loc	EBX (#10171)	Not Available	EFD (#10034)	Not Available	EFT (#10037)	Not Available	Not Available	EGL (#10036)
Junior Guard Loc	JBX (#10169)	Not Available	JRD (#10027)	Not Available	JRT (#10030)	JEV-100 (#10302)	Not Available	JGL (#10029)
Fabric Only (100ft. length)	DBX-6 (#10161) DBX-10 (#10162)	DFN-6 (#10043) DFN-10 (#10051)	DFD-6 (#10042) DFD-10 (#10050)	Not Available	DFT-6 (#10045) DFT-10 (#10053)	Not Available	Not Available	DGL-6 (#10044) DGL-10 (#10052)

All Metal-Fab, Super Metal-Fab and TDC/TDF Flexible Duct Connectors are manufactured with 24 gauge galvanized steel.* Other materials are available upon request. Stainless Steel configurations utilize 300 or 316 grade material.

Notes:

1. Leakage resistance as per Federal Test Standard 191 Method #5512. Results in P.S.I. (To convert inches of water multiply P.S.I. x 27.176).
2. Tear strength in tongue pounds as per Federal Test Standard 191 Method #5134.1 (warp/fill).
3. Tensile strength in grab pounds as per Federal Test Standard 191 Method #5100 (warp/fill).
4. Standard Excelon is not LA city approved. Use Excelon-LA when LA city approval is necessary. (See Specification Form Excelon-LA - 203)



The Duro Dyne standard 'single fold' metal to fabric grip has been tested by an independent testing laboratory to withstand a negative pressure of -10" WC and a positive pressure of +17.25" WC with no tearing or visible separation.

FLEXIBLE DUCT CONNECTOR

SUGGESTED SPECIFICATION

Vibration Isolating Flexible Duct Connector For Heating, Cooling & Exhaust Supplies & Returns.

At the inlet and discharge of all air handling equipment (unless otherwise noted) furnish and install vibration isolators. Vibration isolators shall be a coated woven fabric named _____ and shall be "Underwriters Laboratories Classified".

Vibration isolators shall have a tear strength of not less than _____, an abrasion resistance of not less than _____, and a continuous temperature range of _____. Vibration isolators shall be pre-assembled metal to exposed fabric to metal. Fabric and metal shall be joined by means of a double lock seam.

Vibration isolators shall be code _____ (called Flexible Duct Connectors) as manufactured by Duro Dyne Corporation, Bay Shore, N.Y.

SPECIFICATIONS

All Listed Duro Dyne Flexible Duct Connector Fabrics are designed to meet the following specifications:

- MIL-C-20696B Para. 4.4.3. (Oil Resistance).
- MIL-C-20696B Para. 4.4.4. (Hydro Carbon Resistance).
- NFPA 90A Installation of Air Conditioning and Ventilating Systems Para. 2-3.2.2 1999 Edition.
- NFPA 90B Warm air heating and air conditioning systems. Para. 2-1.1.1 exc. no 3 1999 Edition.
- NFPA 701 Standard methods of fire tests for flame propagation of textiles and films.
- California State Fire Marshal Approved.
- Los Angeles City Approved. (See note 1 below)
- Denver City Approved.

All Duro Dyne Flexible Duct Connectors utilize galvanized steel meeting ASTM-A-525 G 60 or better.

Duro Dyne Flexible Duct Connectors are also available with 300 series stainless steel or 3003 aluminum upon request.

Note 1 - Standard Excelon is not LA city approved use Excelon-LA when LA city approval is necessary. (See Specification Form Excelon-LA - 203)

CHEMICAL RESISTANCE

(X = Extremely Resistant)

(~ = Not Recommended)

(O = No Data Available)

Chemical									Chemical								
	Excelon	Neoprene	Durolon	Insulflex	Thermafab	Envirofab	Teflon	Glasseal		Excelon	Neoprene	Durolon	Insulflex	Thermafab	Envirofab	Teflon	Glasseal
Acetic Acid	~	X	X	~	~	~	X	~	Hydrofluoric Acid (100%)	~	X	X	~	~	~	X	~
Aluminum Chloride	X	X	X	X	X	X	X	X	Hydrogen Peroxide	X	~	X	X	X	X	X	X
Aluminum Sulfate	X	X	X	X	X	X	X	X	Hydrogen Sulfide	X	X	X	X	O	X	X	X
Ammonia (Anhyd)	X	X	X	X	X	X	X	X	Lactic Acid	~	X	X	~	O	~	X	~
Ammonium Hydroxide	X	X	X	X	X	X	X	X	Linseed Oil	~	X	X	~	X	~	O	~
Ammonium Sulfate	X	X	X	X	X	X	X	X	Magnesium Chloride	~	X	X	~	~	~	X	~
Barium Sulfide	X	X	X	X	O	X	X	X	Maleic Acid	X	~	X	X	X	X	O	X
Black Sulfate Liquor	X	X	X	X	~	X	X	X	Methyl Alcohol	~	X	X	~	~	~	X	~
Boric Acid	X	X	X	X	X	X	X	X	Methyl Cellosolve	~	X	X	~	~	~	O	~
Butyl Alcohol	~	X	X	~	~	~	X	~	Mineral Oil	X	X	X	X	~	X	X	X
Cadmium Plating Solution	X	~	~	~	O	X	O	X	Naptha	~	~	~	~	X	~	X	~
Calcium Chloride	X	X	X	X	X	X	X	X	Nickel Chloride	X	X	X	X	O	X	X	X
Calcium Hypochlorite	X	~	X	X	O	X	X	X	Nickel Sulfate	X	X	X	X	X	X	X	X
Chlorine Water	X	~	~	X	~	X	O	X	Nitric Acid (40%)	X	~	X	X	~	X	X	X
Chromic Acid	X	~	X	X	O	X	X	X	Oleic Acid	X	~	~	X	~	X	X	X
Chromium Plating Solution	X	O	O	~	O	X	O	X	Oleum	~	~	X	~	O	~	X	~
Citric Acid	X	X	X	X	X	X	X	X	Oxalic Acid	X	X	X	X	X	X	X	X
Copper Chloride	X	X	X	X	O	X	X	X	Phosphoric Acid (85%)	~	X	X	~	X	~	X	~
Copper Sulfate	X	X	X	X	O	X	X	X	Pickling Solution	X	~	X	X	O	X	O	X
Cottonseed Oil	X	X	X	X	X	X	O	X	Potassium Chloride	X	X	X	X	O	X	O	X
Diacetone Alcohol	~	X	X	~	O	~	O	~	Potassium Cyanide	X	X	X	X	O	X	X	X
Disodium Phosphate	X	~	~	X	O	X	O	X	Potassium Dichromate	X	X	X	X	O	X	X	X
Ethyl Alcohol	~	X	X	~	~	~	X	~	Potassium Hydroxide (40%)	X	X	X	~	X	X	X	X
Ethylene Glycol	~	X	X	~	X	~	X	~	Potassium Sulfate	X	X	X	X	O	X	X	X
Ferric Chloride	X	X	X	X	X	X	X	X	Propyl Alcohol	~	X	X	~	~	~	O	~
Ferric Sulfate	X	X	X	X	X	X	X	X	Sodium Chloride	X	X	X	X	X	X	X	X
Fluoboric Acid	X	X	X	~	O	X	O	X	Sodium Hydroxide (40%)	~	X	X	~	X	~	X	~
Formaldehyde (40%)	X	X	X	X	O	X	X	X	Sodium Hypochlorite	~	~	X	~	~	~	X	~
Formic Acid	X	X	X	X	O	X	X	X	Steam	~	X	~	~	O	~	X	~
Glucose	X	X	X	X	X	X	X	X	Sulfur Dioxide (Liquid)	~	X	X	~	X	~	X	~
Glycerine	~	X	X	~	X	~	X	~	Sulfuric Acid (50%)	X	~	X	~	~	X	X	X
Heptane	~	X	X	~	O	~	X	~	Sulfuric Acid (over 50%)	~	~	X	~	~	~	X	~
Hexane	~	X	X	~	O	~	X	~	Tannic Acid	X	X	X	X	O	X	X	X
Hydrobromic Acid (40%)	~	X	X	~	O	~	X	~	Vinegar	X	X	X	X	X	X	X	X
Hydrochloric Acid (conc)	~	X	X	~	~	~	X	~									

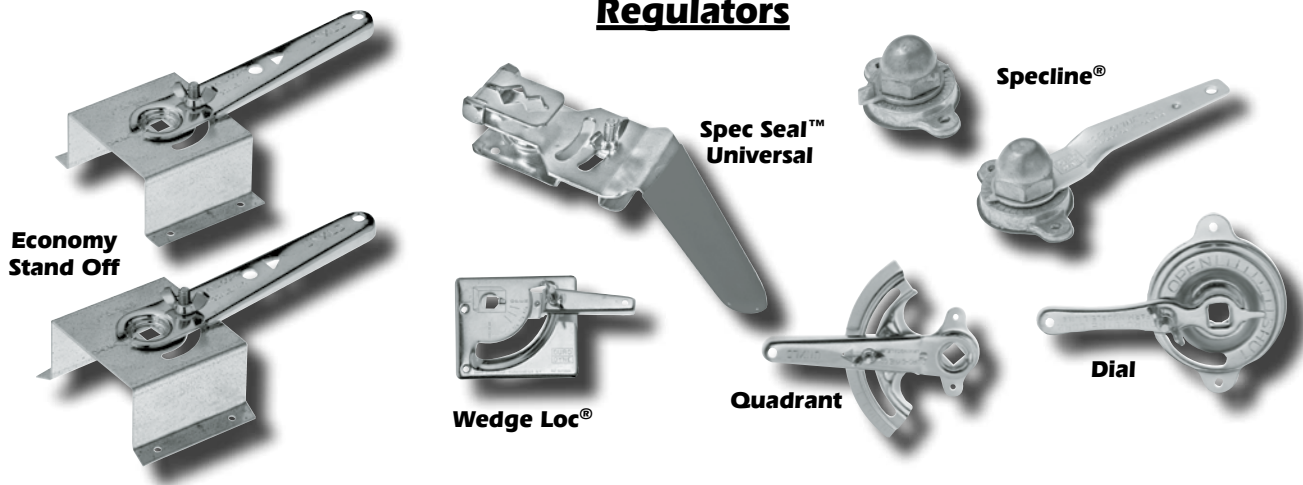
See Duro Dyne's Flexible Duct Connector and Vane Rail Catalog for more specifications.

Duro Dyne Air Regulation Control Hardware is used to assemble, install and operate single and multi-blade volume control dampers. Over the years, many types and styles of dampers have been used in residential, commercial and industrial applications. Duro Dyne has continuously developed new products in order to keep ahead of a changing market. This has resulted in a large product line. However, **most of the hardware items perform one of two functions - they either allow you to attach a handle to a damper or connect two or more damper blades together (in either an opposed or a parallel application). All the regulators contain functionally the same components and all the blade kits contain functionally the same components.** Design and application may dictate different size dampers and different configurations and most of these can be constructed with standard Duro Dyne parts. Some may call for round or square bearings in shaft sizes varying from 1/4" to 1/2". Duro Dyne also stocks access doors and hardware used in the fabrication of access doors, as well as gasketing, nylon and stainless steel duct ties and duct hanging strap. Stainless steel, aluminum or zinc plated steel may be specified, and most of these are available from our standard selection of parts.

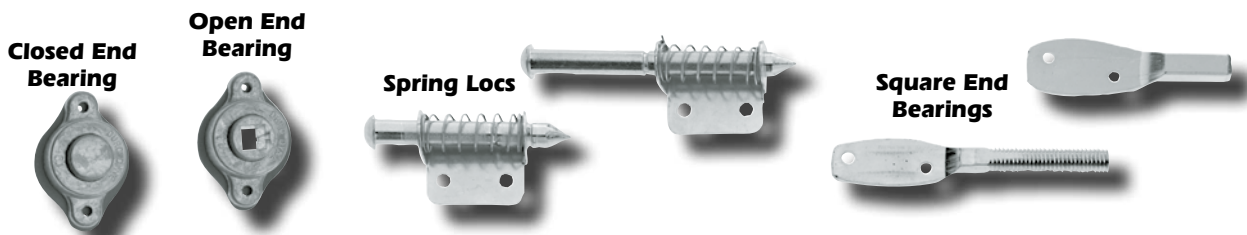
For further information on Duro Dyne Air Regulation and Controls refer to Duro Dyne's Air Regulation Control Equipment Catalog.

Be sure you and your customers have a Duro Dyne Air Regulation Poster showing all of the Air Regulation Control Hardware.

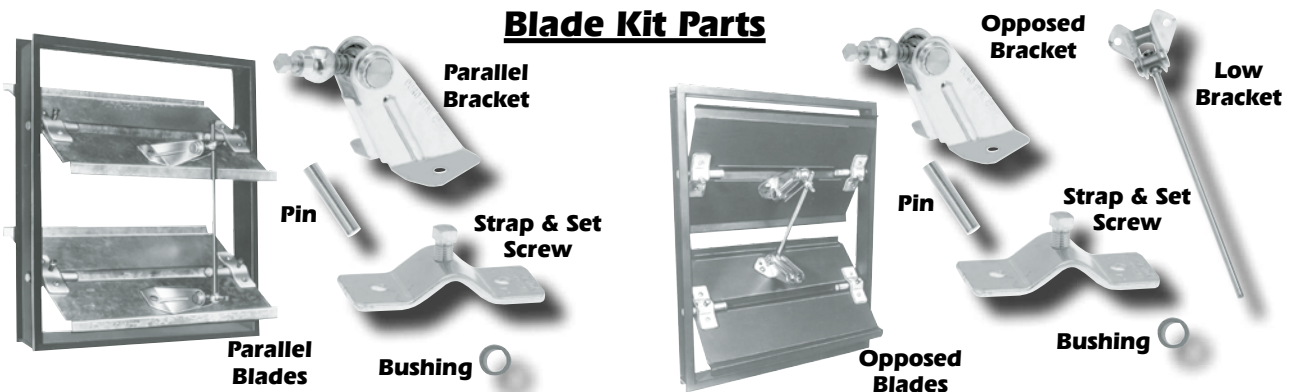
Regulators



End Bearings



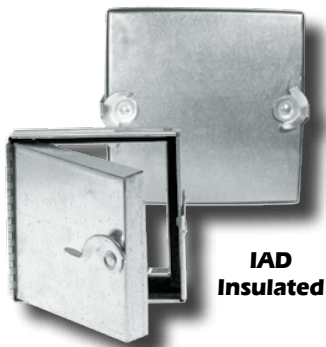
Blade Kit Parts



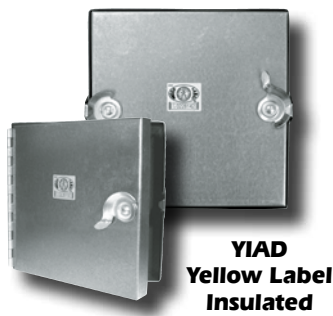
AIR REGULATION

AIR REGULATION

Access Doors



IAD
Insulated



YIAD
Yellow Label
Insulated



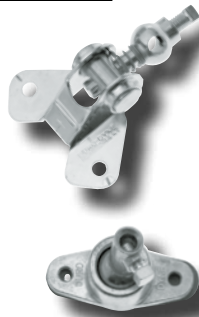
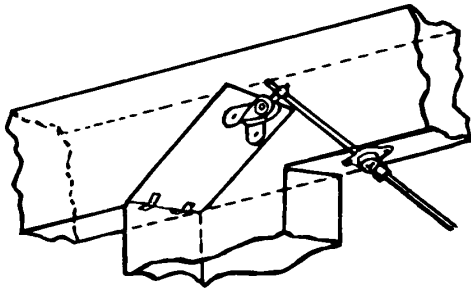
Self-Stick



OSD

For Sandwich Style Access Doors, please see the Dyn-O-Mate® section on Page 32.

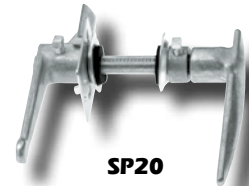
Splitter Damper Hardware



Access Doors Hardware

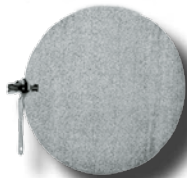


Cam-Lock

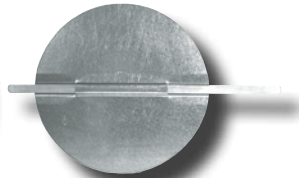


SP20

Jiffy Dampers



JDEH



HDJD



'Rapit™' Damper Regulator

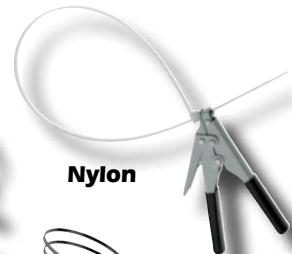


Slide Rapit Extension

Dyn-O-Ties®



**Stainless
Steel**



Nylon



Mini

Dyna-Clamp™



Instrument Test Port



TH-1

Gasketing



Hanging Strap



Duro Dyne offers one of the most complete lines of water based and solvent based adhesives and sealants on the market today. **Per SMACNA standards, when fastening insulation to sheet metal you must first adhere the insulation to the sheet metal with adhesive.**

ADHESIVES

Our most popular adhesive is our water based **WIT**. It can be applied by either brushing or rolling and is fast tacking and non flammable. To be sure that you're getting a good adhesive, check the solid content. This number will assist in determining what percentage of your adhesive or sealer will disappear when dry. The higher the solid content, the more adhesive or sealer you are actually receiving for your dollar. With a solid content of over 57%, Duro Dyne's WIT adhesive will generally cover more square feet of duct work per gallon than other brands. WIT is available in 1 gallon pails, 5 gallon buckets and 55 gallon drums.

Other Water Based Insulation Adhesives available include: **WSA, SSG** and **WIT-LV**, a low viscosity duct liner adhesive.

Solvent based adhesives are slowly being phased out of the industry due to environmental and toxicological reasons. **RPG** is Duro Dyne's single solvent based adhesive for those who continue to use them.

DUCT SEALERS

New regulations and codes have made the selection of the proper duct sealer extremely important. Duro Dyne supplies a range of sealers to meet most requirements and applications.

The International Building code specifies that duct sealers meet UL181 specifications and this code has been adopted in whole or part by many states and municipalities. **DDS 181** is water-based and meets all the requirements of UL181, both A-M (flexible ducting) and B-M (metal ducting) and is one of the few sealers on the market that does. DDS181 is available in cartridges, 1 gallon pails and 5 gallon buckets.

EDS DuroSeal® is a water based duct sealer recommended for medium and high velocity systems. It is UL Classified and available in one gallon pails and cartridges.

SAS and SAS-UL are both water based siliconized duct sealers. The **SAS** line of duct sealers offer an economical sealing solution where code requirements are not an issue. SAS is available in cartridges only and is used primarily in residential applications where UL ratings may not be necessary. **SAS-UL** has been tested to UL Standard 723* and is available in cartridges and 1 gallon pails.

Like solvent based adhesives, solvent based duct sealers are slowly being phased out as water based technology gets better and better. For those requesting a solvent based duct sealer Duro Dyne supplies **SGD**.

For those shops with automatic duct lines, it is possible they have an automatic sealant attachment for the pittsburgh and snaplock seams. For those machines, Duro Dyne has **DLS and DLSN**, two non-sag, permanently flexible, butyl sealants.



***UL723 is a test procedure which results in Flame Spread and Smoke Developed ratings.**

ADHESIVES

ADHESIVE CANISTERS

PAB40 is a web type, high solids, general purpose adhesive which bonds well to a wide variety of substrates, with one side or two side application. This **black liner adhesive can also be used as an effective edge coating**. It has a quick tack, is flexible, non-wrinkling and waterproof. It has **low VOC and no Methylene Chloride (Dichloromethane)**. PAB is also available in a larger canister as **PAB187**.

PAC40 is a web type, high solids, general purpose adhesive which bonds well to a wide variety of substrates, with one side or two side application. It has a quick tack, is flexible, non-wrinkling and waterproof. It has **low VOC and no Methylene Chloride (Dichloromethane)**.

PAW40 is an acrylic water based, pressure sensitive adhesive specially formulated for duct liner applications. PAW40 has an aggressive tack, sprays on white and dries clear. It has **no ODS, no VOC and no Chlorinated Solvents**.

Hose, gun and tips are sold separately. Different tips are available for water based and solvent based adhesives, as well as an edge coating tip for use with PAB40.



DEGALVANIZER, EDGE COATING AND AEROSOL SPRAY ADHESIVES

The Stripper is an effective preventive maintenance system right at your fingertips. It is composed of special ingredients that dissolve galvanized build-up on rollers of forming machines and press dies.

Dyn-O-Coat combines the flexibility of sealants with the quick drying advantage of aerosol to bring you a highly efficient Edge Coating. Dyn-O-Coat dries quickly to a matte black finish to match most perma-coat liners on the market today.

DTWA Web Adhesive spray is a solvent based bonding agent that provides an immediate tack. It is manufactured from non-chlorinated and non-ozone depleting ingredients.

ASA-W Insulation Adhesive is a fast tacking, non-flammable adhesive for bonding insulation material to sheet metal.



ADHESIVE APPLICATORS

Duro Dyne sells applicators for its water based adhesives. For more information, see the Super Sprayfast, Mini Sprayfast and GBAC Roto Bonder in the Machinery section on Page 18 of this brochure.



Super Sprayfast is also available for use with 55 gallon drum.

For further information you may refer to Duro Dyne's Insulation Adhesives and Duct Sealers Catalog.

LEED QUALIFICATIONS

The U.S. Green Building Council promotes the use of environmentally friendly construction products thru its LEED rating system. No other system has produced more questions for the HVAC/R contractor in recent history than “Green Building”. It is hoped that this information sheet will help you navigate through some of the rules and requirements as they apply to products offered by Duro Dyne.

Adhesives & Sealants

A developer can gain 1 point on the rating system under IEQ Credit 4.1: Low Emitting Materials: Adhesives & Sealants for the use of products that comply with the VOC (Volatile Organic Compound) standards.

Question: Do any of Duro Dyne’s Adhesive, Sealants or Mastics Help me qualify for IEQ Credit 4.1: Low Emitting Materials: Adhesives & Sealants?

Answer: Qualified yes. LEED Credit 4.1 only applies to:

- A) Sealers supplied by the manufacturer for field installation.
- B) Adhesives and sealants used on the interior of the building and *applied on-site*.

The Duro Dyne products shown on the table below comply with the South Coast Air Quality Management (SCAQMD) Rule #1168 and VOC table and thus can be used for IEQ Credit 4.1: Low Emitting Materials: Adhesives & Sealants when used as specified above.

Ductliner Adhesives (LEED/SCAQMD Standard= 80 grams/Liter* or less)		Duct Sealants (LEED/SCAQMD Standard= 250grams/Liter* or less)	
WSA	<5 gms./ltr	EDS	54 gms/ltr
WIT	30 gms./ltr	DDS181	22 gms/ltr
WIT-LV	250 gms/ltr	SAS	45 gms/ltr
SSG	< 5 gms./ltr	SASUL	47 gms/ltr
PAW	0 gms./ltr	DLS	248 gms/ltr
PAB	< 30 gms./ltr		
PAC	< 30 gms./ltr		

Recycled Content

A developer can gain 1 point on the rating system under MRC Credit 4.1: Recycled Content for the use of products that contain proportionate recycled content.

Question: Do any of Duro Dyne’s hardware products such as: Air Regulation, Flexible Duct Connector, Insulation Fasteners, Screws, Rivets, Dyna-Tite or Dyn-O-Mate help me qualify for MRC Credit 4.1: Recycled Content?

Answer: No. Under LEED Materials and Resources section for Credit 4 Recycled Content it specifically states: “**Mechanical**, electrical and plumbing components cannot be included in this calculation”. This includes everything associated with the HVAC system and ductwork.

Regional Materials

A developer can gain 1 point on the rating system under MRC Credit 5.1: Regional Material for the use of products that are produced within 500 miles of the construction site.

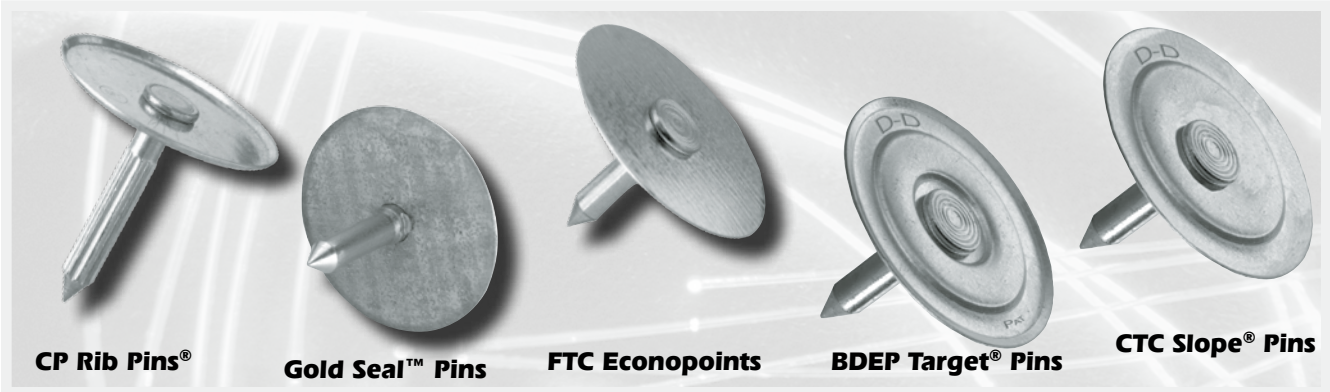
Question: Do any of Duro Dyne’s hardware products such as: Air Regulation, Flexible Duct Connector, Insulation Fasteners, Screws, Rivets, Dyna-Tite or Dyn-O-Mate help me qualify for MRC Credit 5.1: Regional Material ?

Answer: No. Under LEED Materials and Resources section for Credit 5 Recycled Content it specifically states: “**Mechanical**, electrical and plumbing components cannot be included in this calculation”. This includes everything associated with the HVAC system and ductwork.

INSULATION FASTENERS

When liner is placed inside duct work, the movement of air could cause the insulation to delaminate. To prevent this, **SMACNA Specifications call for the use of fasteners in addition to adhesive to secure the liner.** Duro Dyne provides a wide selection of fasteners to enable you to meet this specification. There are two basic types of fasteners that Duro Dyne manufactures: mechanical and welded. Mechanical types include impact driven and adhesive fasteners. Adhesive type fasteners include those that have a self stick base as well as those requiring a non-sag mastic to be applied to the base.

Welded Fasteners form a permanent bond to the sheet metal when welded. There are five types of welded fasteners available:



The fastener is inserted through the liner and put in contact with the metal and welded, all in one step. The best example of this style is Duro Dyne’s exclusive **CP Rib Pin®**. It has a “cupped” head, which provides a smoother compression contour of the liner. The ribbed shaft dissipates heat more quickly than a non-ribbed shaft. Rib Pins form one of the best holds on the market and are available in sizes ranging from 1/2” through 2 1/8”. **Gold Seal™** pins have a special hot melt adhesive on the underside of the washer to adhere the washer to the insulation. Gold Seal Pins are recommended for welding to elastomeric foam insulation and foil backed insulation, and are available in sizes ranging from 1/2”, 3/4”, 1” and 2”. (The adhesive underside of the washer acts as an electrical insulator.) The **FTC** pins are smooth shank nails with a flat washer which is considered a high quality economy weld pin. They are available in sizes ranging from 1/2” through 2 1/8”. **BDEP pins** (Target® Washer Weld Pins) have a patented aerodynamic washer. **CTC Slope® Pins** have a washer with a slightly angled edge. Both washers contact the liner with a beveled edge and promote a smooth contour from the compressed to full thickness of duct liner.

Spotter Pins

The Spotter Pin fastener is welded directly to the ductwork prior to laying the insulation. When the liner is positioned on the duct, it is then pierced by the pin and secured with the appropriate washer. Duro Dyne provides two different styles and gauges of nails in this “pin” style.

The PN Spotter Pin is a 14 gauge weld pin available in sizes ranging from 3/4” through 2 1/2”.



The LN Spotter Pin is a 16 gauge weld pin available in sizes ranging from 3/4” through 5 1/2”.

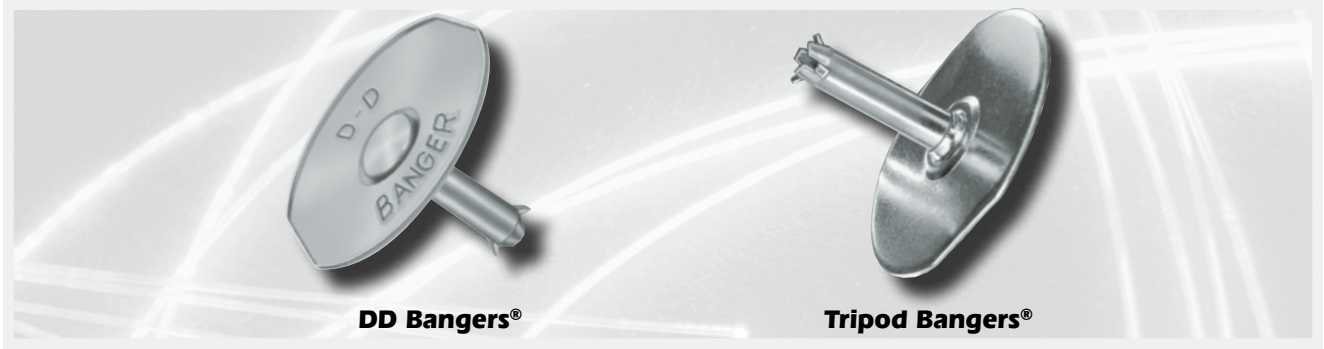
PN and LN Spotter Pins may be applied by Duro Dyne’s LF insulation fastening machine, which can be found on Page 18.



INSULATION FASTENERS

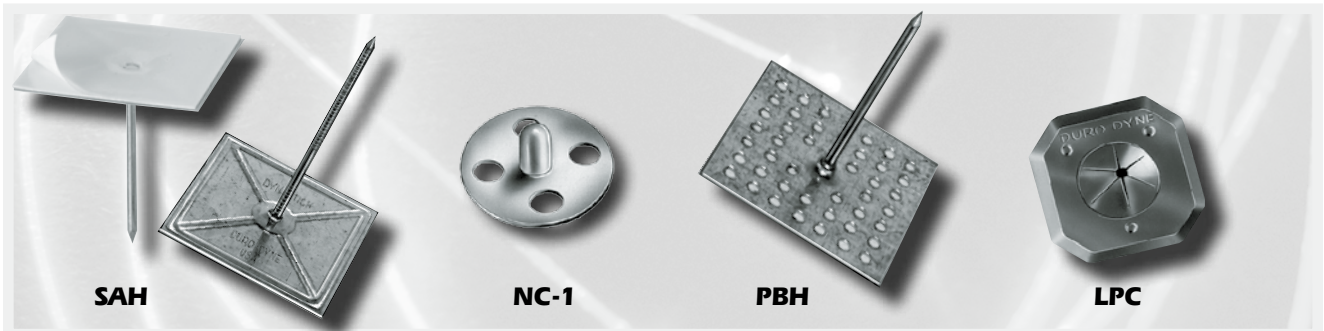
Impact Driven Fasteners (such as Bangers and Tripod Bangers) attach themselves mechanically to the duct work by “biting” into the sheet metal.

Duro Dyne Bangers® and Tripod Bangers® are installed by “banging” the fastener through the liner with a hammer, at which time the “jaws” at the end of the shaft will penetrate the metal and lock securely within the thickness of the metal. (A hardened steel plate is used to back up the ductwork at the point of impact). Exclusive to Duro Dyne are Tripod Bangers. Tripod Bangers have three jaws to form a much more stable attachment than the traditional “two winged” competitive fastener. Tripod Bangers are available in sizes from 1/2” to 1 1/8” (for use with 1-1/2” liner). **All Bangers may be installed with a DHH Hammer.**

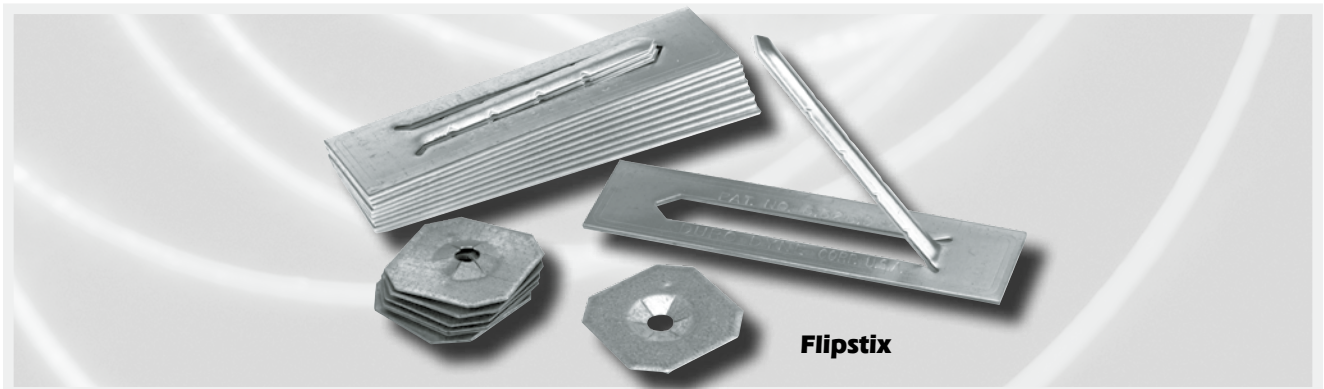


Adhesive Hangers are secured to the ductwork with adhesive material on the base of the fastener. There are two types of Dynastick adhesive hangers.

Our most popular **Dynastick® Self Adhesive Hanger** is called the **SAH**. To install it, peel the contact paper off the hanger’s base and firmly press the base of the hanger to the sheet metal. Impale the insulation over the hanger’s nail and slip on the hold down washer. Also available are the **PBH** hangers which are perforated, allowing it to be adhered to the ductwork using Duro Dyne **PBA** adhesive.



Exclusive to Duro Dyne are **Flipstix®**. **Flipstix** are a self adhesive hanger with a nail which folds up from the base of the fastener. One size handles all insulation thicknesses up to 2”.



For further information on all the available insulation fasteners, see the Insulation Fasteners Submittal Form.

INSULATION FASTENERS

When liner is placed inside air conditioning or heating duct work, the movement of air could cause the insulation to delaminate. To prevent this, SMACNA Specifications call for the use of fasteners in addition to adhesive to secure the liner.

The fasteners may be of three types:

- A. **ADHESIVE:** This fastener is bonded to the ductwork with an appropriate adhesive material and allowed to set up. After sufficient drying time the liner is impaled on the pin and a washer added to retain the liner.
- B. **MECHANICAL:** This type of fastener mechanically attaches itself to the duct work. The most popular style is a hardened nail with an attached washer. This fastener is impact driven through the liner and forms a positive mechanical grip with the metal.
- C. **WELD:** This fastener forms a permanent bond to the duct work by becoming part of it as in any weld. Two styles are currently in use. The first fastener is a mechanical fastener which is driven through the liner and welded to the duct work underneath. The second fastener is a pin which is welded to the duct work prior to the insulation. The liner is then impaled (much like the adhesive fastener) over the pin and secured by a washer.

SPECIFICATIONS

All Duro Dyne Insulation Fasteners are designed to meet SMACNA HVAC Duct Construction Standard for Mechanical Fasteners. All steel used in Duro Dyne Insulation Fasteners meets ASTM-A591.

All dimensions used in pin length are from bottom of head or base of fastener.

ALL PINS AND WASHERS ARE ZINC PLATED CRS UNLESS OTHERWISE STATED.

- WELDED FASTENERS -

SSP Gold Seal Pins

Pin: .130 Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015" - .017"
 Washer Adhesive: Petaflex Pressure Sensitive Adhesive



Item#	Bulk#	Code/Bulk Code	Nominal Length		Use
			Before Setting	After Setting	
■ 26197	26297	SSP12/SSPB12	.365	.365	1/2" insulation
■ 26194	26294	SSP34/SSPB34	.531	.531	1" 1-2# density
■ 26195	26295	SSP100/SSPB100	.781	.781	1" 2-3# density
■ 26196	26296	SSP200/SSPB200	1.78	1.78	2" insulation
■ 26198	26298	SSP38/SSPB38	.250	.250	3/8" insulation
■ 26199	26293	SSP1F/SSPB1F	.905	.905	1" Foam Insulation
■ n/a	26300	SSPB150	1.365	1.365	1.5" insulation
■ n/a	26299	SSPB118	1.000	1.000	2.3# density

CP Rib Pins

Pin: .15" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015" - .017"



Item#	Bulk#	Code/Bulk Code	Nominal Length		Use
			Before Setting	After Setting	
■ 26023	26028	CP12/CPB12	.365	.365	1/2" insulation
■ 26024	26029	CP34/CPB34	.531	.531	1" 1-2# density
■ 26025	26030	CP100/CPB100	.781	.781	1" 2-3# density
■ 26032	26035	CP118/CPB118	1.000	1.000	1" 3# + density
■ 26026	26031	CP150/CPB150	1.365	1.365	1 1/2" insulation
■ 26027	26038	CP200/CPB200	1.781	1.781	2" insulation
■ 26140	26132	CP218/CPB218	2.00	2.00	2" insulation

- MECHANICAL FASTENERS -

TBG Tripod Bangers

Pin: .136" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015"



Item#	Bulk#	Code/Bulk Code	Approx. Length		Use
			Before Setting	After Setting	
■ 26129	26133	TBG12/TBGB12	.475	.375	1/2" insulation
■ 26130	26134	TBG100/TBGB100	.625	.525	1" 1-2# density
■ 26135	26136	TBG10H/TBGB10H	.750	.650	1" 3# density
■ 26138	26137	TBGIVH/TBGBIVH	.900	.800	1" 4-6# density
■ 26181	26183	TBG118/TBGB118	.250	1.150	1 1/2" 1 1/2# density

BGT Bangers

Pin: .136" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015"



Item#	Bulk#	Code/Bulk Code	Approx. Length		Use
			Before Setting	After Setting	
■ 26033	26095	BGT12/BGB12	.475	.375	1/2" insulation
■ 26044	26096	BGT100/BGB100	.625	.525	1" 1-2# density

- SPOTTER PINS -

PN Pins

Pin Diameter: 14 Gauge Galvanized



Item#	Bulk#	Code/Bulk Code	Approx Pin Length		Use
			Before Setting	After Setting	
■ 26001	26005	PN34/PNB34	.75	.75	1/2" insulation
■ 26002	26006	PN114/PNB114	1.25	1.25	1" insulation
■ 26003	26007	PN200/PNB200	2.0	2.0	1 1/2" - 2" insulation
■ 26004	26008	PN250/PNB250	2.5	2.5	2" - 3" insulation

LN Pins

Pin Diameter: 16 Gauge Galvanized



Item#	Bulk#	Code/Bulk Code	Approx Pin Length		Use
			Before Setting	After Setting	
■ 26149	26153	LN34/LNB34	.75	.75	1/2" insulation
■ 26148	26154	LN150/LNB150	1.5	1.5	1" insulation
■ 26147	26155	LN250/LNB250	2.5	2.5	1 1/2" - 2" insulation
■ 26150	n/a	LN350	3.5	3.5	2" - 3" insulation
■ 26151	n/a	LN450	4.5	4.5	3" - 4" insulation
■ 26152	n/a	LN550	5.5	5.5	4" - 5" insulation

FTC Econo Pins

Pin: .130" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015" - .017"



Item#	Code	Nominal Length		Use
		Before Setting	After Setting	
■ 26072	FTC12	.365	.365	1/2" insulation
■ 26073	FTC34	.531	.531	1" 1-2# density
■ 26074	FTC100	.781	.781	1" 2-3# density
■ 26131	FTC118	1.000	1.000	1" 3# density
■ 26226	FTC150	1.365	1.365	1 1/2" insulation
■ 26227	FTC200	1.781	1.781	2" insulation

BDEP Aerodynamic Target Washer Weld Pins

Pin: .130" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015" - .017"



Item#	Code	Nominal Length		Use
		Before Setting	After Setting	
■ 26220	BDEP12	.365	.365	1/2" insulation
■ 26221	BDEP34	.531	.531	1" 1-2# density
■ 26222	BDEP100	.781	.781	1" 2-3# density
■ 26217	BDEP118	1.000	1.000	1" 3# density
■ 26218	BDEP150	1.365	1.365	1 1/2" insulation
■ 26219	BDEP200	1.781	1.781	2" insulation
■ 26216	BDEP218	2.00	2.00	2" insulation

CTC Sloped Washer Weld Pins

Pin: .130" Diameter
 Washer: Diameter - 1.0"
 Thickness: - .015" - .017"



Item#	Code	Nominal Length		Use
		Before Setting	After Setting	
■ 26228	CTC12	.365	.365	1/2" insulation
■ 26229	CTC34	.531	.531	1" 1-2# density
■ 26230	CTC100	.781	.781	1" 2-3# density
■ 26231	CTC118	1.000	1.000	1" 3# density
■ 26232	CTC150	1.365	1.365	1 1/2" insulation
■ 26233	CTC200	1.781	1.781	2" insulation

- ADHESIVE FASTENERS -

SAH

Self Adhesive Hangers

Pin: min. 12 Gauge Zinc Plated

Base dimension: 2" x 2" galvanized 28 Gauge steel

Adhesive: Polyethylene foam impregnated with rubber based adhesive.



Item#	Bulk#	Code/Bulk Code	Approx Length	Use
26067	26036	SAH34/SAHB34	.75	1/2" insulation
26068	26037	SAH114/SAHB114	1.25	1" insulation
26069	26040	SAH134/SAHB134	1.75	1 1/2" - 1 1/2# density
26070	26041	SAH200/SAHB200	2.00	1 1/2" - 2# + density
26071	26047	SAH250/SAHB250	2.5	2" insulation
n/a	26126	SAH350/SAHB350	3.5	3" insulation

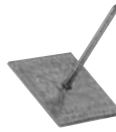
STIK-TAC™

Self Adhesive Hangers

Pin: min. 12 Gauge Zinc Chromate

Base dimension: 1 3/8" x 1 3/8" galvanized 28 Gauge steel

Adhesive: Polyethylene foam impregnated with rubber based adhesive.



Item#	Code	Approx Length	Use
26192	STK134B	1.75	1 1/2" - 1 1/2# density
26193	STK250B	2.5	2" insulation

Flip-Stix

Self Adhesive Hangers

Galvanized - 24 Gauge

Aluminum - .032 nominal Type 5052-H34

Stainless Steel - 24 Gauge Type 301

Adhesive: Polyethylene foam impregnated with rubber base adhesive.



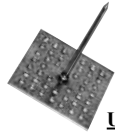
Item#	Code	Approx Length	Use
26055	FSG-250 Galvanized	2.5	1/2" to 2" insulation
26056	FSA-250 Aluminum	2.5	1/2" to 2" insulation
26057	FSS-250 Stainless Steel	2.5	1/2" to 2" insulation
26061	FSG-E Galvanized Extension	5.752	1/2" to 5" insulation
26062	FSA-E Aluminum Extension	5.75	2 1/2" to 5" insulation
26063	FSS-E Stainless Steel Extension	5.75	2 1/2" to 5" insulation

PBH

Perforated Base Adhesive Hangers

Pin: min. 12 Gauge Zinc Plated

Base dimension: 2" x 2" 28 Gauge Galvanized.



Item#	Bulk#	Code/Bulk Code	Approx Length	Use
26075	26097	PBH34/PBHB34	.75	1/2" insulation
26076	26098	PBH114/PBHB114	1.25	1" insulation
26077	26099	PBH134/PBHB134	1.75	1 1/2" - 1 1/2# density
26078	26100	PBH200/PBHB200	2.00	1 1/2" - 2# + density
26079	26101	PBH250/PBHB250	2.5	2" insulation
n/a	26128	n/a/PBHB350	3.5	3" insulation



- WASHERS FOR SPOTTER PINS -



Item#	Bulk#	Code/Bulk Code	Area
26017	26019	PC1/PCB1 - for use w/PN (30 gauge galvanized)	1 1/4" x 1 1/4"
26145	26146	LC1/LCB1 - for use w/LN (30 gauge galvanized)	1 1/4" x 1 1/4"
26141	26142	LC2/LCB2 - for use w/LN (30 gauge galvanized)	1 1/4" x 1 1/4"
26021	26022	NC1/NCB1 - for use w/PN (nylon)	1 3/16" dia.
26161	26162	NC2/NCB2 - for use w/LN (nylon)	1 3/16" dia.
26115	n/a	LPC - for use w/SAH & PBH	1 1/4" x 1 1/4"
26020	n/a	NC3 - for use w/SAH & PBH	1 3/16" x 1 3/16"
26051	n/a	FSW-A for use w/Flipstix	1 1/4" x 1 1/4"
26050	n/a	FSW-G for use w/Flipstix	1 1/4" x 1 1/4"
26052	n/a	FSW-S for use w/Flipstix	1 1/4" x 1 1/4"

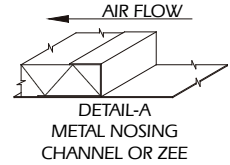
SUGGESTED SPECIFICATIONS

All duct liner shall be secured to the duct work in accordance with SMACNA HVAC Duct Construction Standards. Fasteners shall be _____ (mechanical, adhesive, weld) type Fastener Code _____ as manufactured by Duro Dyne Corporation, Bay Shore, N.Y. Washers, when necessary, shall be either of the steel type 30 gauge galvanized Code PC-1/LC-1/LPC-1/FSW or of the nylon type Code NC-1/NC-2 as manufactured by Duro Dyne Corporation, Bay Shore, N.Y.

INSULATION FASTENERS

DUCT LINER INSTALLATION

METAL NOSING MUST BE USED WHEREVER LINER IS PRECEDED BY UNLINED METAL; OTHERWISE WHEN VELOCITY EXCEEDS 4000 FPM (20.3 MPS) USE METAL NOSING ON EVERY LEADING EDGE. NOSING MAY BE FORMED ON DUCT OR BE CHANNEL OR ZEE ATTACHED BY SCREWS, RIVETS OR WELDS.

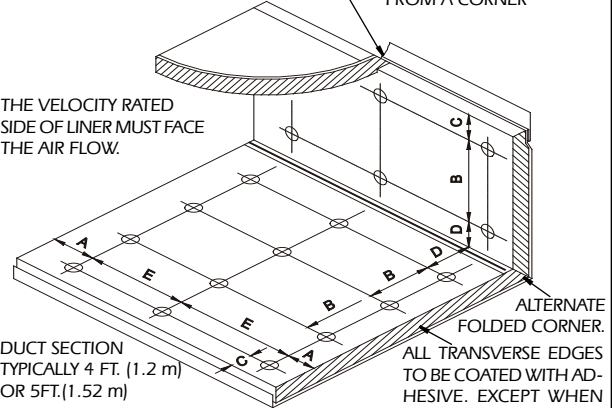


INTERIOR WIDTH OF 8"(200 mm) AND LESS DOES NOT REQUIRE PINS

PLACE PINS 3" (76 mm) ALONG EACH SIDE OF A BUTTED LONGITUDINAL LINER SEAM THAT IS AWAY FROM A CORNER

LAPPED AND BUTTED CORNER.

THE VELOCITY RATED SIDE OF LINER MUST FACE THE AIR FLOW.



DUCT SECTION TYPICALLY 4 FT. (1.2 m) OR 5FT. (1.52 m)

MAXIMUM SPACING FOR FASTENERS. ACTUAL INTERVALS ARE APPROXIMATE

"A" PIN ROW MAY BE OMITTED WHEN METAL NOSING IS USED. "E" THEN STARTS FROM THE NOSING.

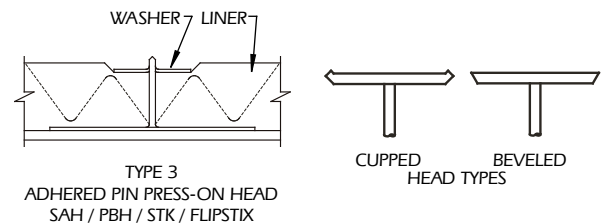
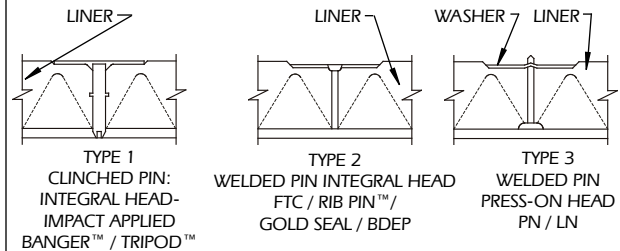
ALTERNATE FOLDED CORNER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. EXCEPT WHEN NOSING IS PRESENT.

LINER ADHERED TO THE DUCT WITH 90% MIN. AREA COVERAGE OF ADHESIVE

Velocity*	Dimensions				
	A	B	C	D	E
0-2500 FPM (0-12.7 MPS)	3" (76.2)	12" (305)	4" (102)	6" (152)	18" (457)
2501-6000 FPM (12.7-30.5 MPS)	3" (76.2)	6" (152)	4" (102)	6" (152)	16" (406)

*UNLESS A LOWER LEVEL IS SET BY MANUFACTURER OR LISTING AGENCY

LINER FASTENERS



INSTALLED PINS AND WASHERS SHALL NOT COMPRESS LINER MORE THAN THE CORRECT LENGTH SPECIFIED FOR THE LINER THICKNESS USED.

MACHINERY

Duro Dyne sells a complete line of duct fabrication machinery for fastening pins to sheet metal, applying adhesives or sealants to sheet metal, cutting insulation to required sizes and spot welding two pieces of metal.

The machines listed below are only an abbreviated list of available machines and their specifications. For further selections and specifications, refer to your Duro Dyne's Source For Insulation Fastening (Machinery Catalog)..



MF12 Compact Pinspotter®

- Welds 22 gauge and lighter
- Welds FTC, BDEP, SSP, CTC and CP style pins 1/2 to 2 inches long
- Can weld PN and LN style pins up to 2-1/2 inches long using TP2 and TPL2 tip
- Has 6 foot ground cable and 8 foot gun cable
- Recommended for light to medium duty

PBF510 Pinspotter®

- Welds 18 gauge and lighter
- Welds FTC, BDEP, SSP, CTC and CP style pins, 1/2 to 2 inches long
- Can weld PN and LN style pins up to 2-1/2 inches long using TP2 and TPL2 tip
- Has two power taps for greater weld control
- Has 8 foot ground and 16 foot gun cable
- Recommended for medium production duty



FG Mach I and II Bulk Feed Pinspotter®

- Mach I welds 18 gauge and lighter
- Mach II with more powerful transformer welds 16 gauge and lighter
- Automatic feed and drive speeds up production
- Welds FTC, BDEP, SSP, CTC and CP style Pins from 1/2 inch to 2 inches long
- Optional special Bowl required for 2 inch pins
- Recommended for heavy production work

RH Mach II Rolling Head Pinspotter®

- Welds 16 gauge and lighter
- Automatic feed and drive
- Moving head minimizes material handling
- Welds FTC, BDEP, SSP, CTC and CP style Pins from 1/2 inch to 2 inches long
- Optional special Bowl required for 2 inch pins
- Recommended for heavy production work



Super Sprayfast

GBAC

PLS

Super Sprayfast 5 and Super Sprayfast 55

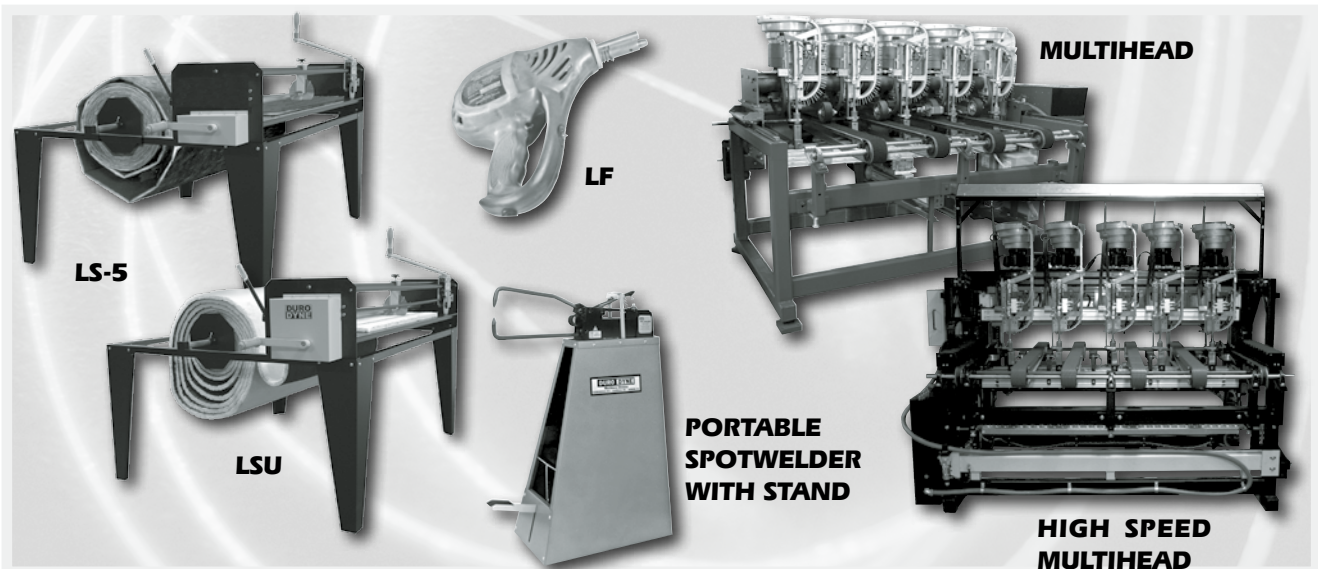
- For use with all Duro Dyne water based adhesives.
- Use with 5 gallon pails or 55 gallon drums.
- Recommended for medium production work.

Roto-Bonder (GBAC)

- For use with Duro Dyne WIT or WSA water based adhesives.
- Full adhesive coverage on liner up to 2" thick and 5' wide.
- Runs 50 linear feet per minute.
- Recommended for heavy production work.

Power Liner Sizer (PLS)

- Cuts liner up to 2" thick and 5' wide.
- Runs approximately 40 lineal feet per minute.
- A control module enables repeat cuts without re-measuring.
- Recommended for medium to heavy production work.



LS-5

LSU

LF

PORTABLE SPOTWELDER WITH STAND

MULTIHEAD

HIGH SPEED MULTIHEAD

Liner Sizer (LS-5)

- Cuts fiberglass liner up to 2" thick and 5' wide.
- Full manual operation.
- Recommended for all types of production work.

Universal Liner Sizer (LSU)

- Cuts fiberglass liner up to 2" thick and 5' wide.
- Full manual operation.
- Designed to cut material such as rubber and cotton as well as fiberglass.

LF 1000 / 2000

- Light weight and portable
- Available in 110V or 220V
- Welds PN and LN pins to ductwork up to 22 gauge

Portable Spotwelder

- Light weight
- Built-in Solid State Timer
- Quickly converts to stationary unit with stand

Multihead Pinspotter®

- Production Line Pinspotter for Coil Lines
- Installs a row of multiple fasteners upon each activation
- Available for 5 foot or 6 foot long duct
- Installs welded insulation fasteners for 1/2" through 2" thick duct liner
- Welds FTC, BDEP, SSP, CP, or CTC weld pins
- **High Speed Multihead is capable of welding up to 2 inch pins on 16 gauge material as close as 6 inch centers at speeds of 50+ feet per minute.**

For further information you may refer to Duro Dyne's Source For Insulation Fastening (Machinery) Catalog.

TOOLS

Duro Dyne sells a complete line of tools for the HVAC Industry.

Aviation Snips, Shears, Crimpers, Notchers, Seamers, Metal Edge Turners, Tape Measures, Rules, Gages, Screwdrivers, Nutdrivers, Wrenches, Pliers, Locking Pliers, Hammers, Files, Saw Blades, Torches, Soldering Irons, Duct Stretchers Aluminum Snips, Hole Cutters along with many other items to make the HVAC Contractor's job easier as well as more efficient.

Duro Dyne hand tools have a lifetime warranty against manufacturing defects.

Duro Dyne hand tools have a convenient ordering method which allows them to be ordered with Duro Dyne supplies or DuroZone products to assist with meeting Duro Dyne freight minimums.



For further information you may refer to Duro Dyne's Tool Catalog.

SCREWS

Duro Dyne is the originator and leader in the industry for the self drilling sheet metal screw. Today we know them as the Duro Dyne **Super Saber® Screw** and **Pro Point® Screw**. Super Saber Screws contain a very sharp “fine cut” machine threaded point that pierces and threads light to medium gauge metals upon contact. Pro Point Screws have a precision formed drill point that drills and threads heavy gauge metals. Both the Super Saber and Pro Point screws are now available with a **Higher Head** that stay in the chuck with ease.



Both the Super Saber Screw and the Pro Point Screw have an undercut head to draw the material being fastened to the head of the screw, which will prevent excess wear and tear on drill chucks and nutdrivers. In addition, all of Duro Dyne Super Saber Screws have twin leads for easier and better “start up”.

To determine the type of screw and screw size that should be used, follow the steps below:

- 1) Gauge of material that is to be drilled with Stand Head:
 For 24 Gauge and lighter: Super Saber Screw
 22 Gauge and heavier: Pro Point Screw
- 2) Gauge of material that is to be drilled with High Head:
 For 22 Gauge and lighter: High Head Super Saber Screw
 20 Gauge and heavier: High Head Pro Point Screw
- 3) Length of screw needed:
 For Super Sabers, calculate the amount of material that will be pulled together. The length of the screw used should be greater than that total thickness, including gaps.

For Pro Points, also calculate the amount of material that will be pulled together. Be sure that the drill point, as well as the thread length, exceeds the total thickness of the material being pulled together, including gaps.

For further information on screws refer to Duro Dyne’s Self Drilling Screws, Chucks, Rivets & Drill Bits Catalog.

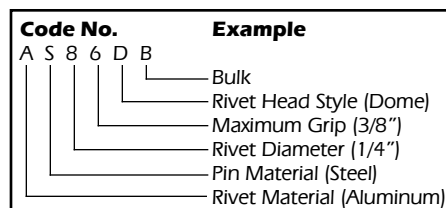
RIVETS

Duro Dyne is also a leading supplier of rivets to the HVAC Industry, with virtually all sizes and styles available in steel, aluminum, copper and stainless steel. **All of Duro Dyne’s rivets are designed to meet IFI #114.** Rivets come packaged in thousand and bulk packs. Special sizes and colors are available upon request.

To install these rivets Duro Dyne manufactures the finest ratchet action rivet tool on the market. Its ratchet action pulls the rivet while keeping the handle opening set for a comfortable grip.

How to translate a rivet’s description:

PART 1	PART 2	PART 3	PART 4	PART 5 & 6
Rivet Material	Pin Material	Rivet Diam. (in 32nds of an inch)	Maximum Grip (in 16ths of an inch)	Rivet Head Style
S=Steel	S=Steel	3 = 3/32"	1 = 1/16"	D=Dome
A=Aluminum	A=Aluminum	4 = 1/8"	2 = 1/8"	C=Countersunk
C=Copper	C=Copper (coated steel)	5 = 5/32"	3 = 3/16"	LF=Large Flange
X=Stainless Steel	X=Stainless Steel	6 = 3/16"	4 = 1/4"	B=Bulk
		8 = 1/4"	5 = 5/16"	
			6 = 3/8"	
			8 = 1/2"	
			10 = 5/8"	



For further information on rivets refer to Duro Dyne’s Self Drilling Screws, Chucks, Rivets & Drill Bits Catalog.

DuroZone is a division of Duro Dyne which manufactures and markets Zone Control Systems and Indoor Air Quality (IAQ) products.

What is Zoning?

Zoning is controlling temperature on an area by area, room by room, floor by floor, etc., basis.

The Benefits of Zoning

Control - Provides for individual temperature levels in different areas of the home.

Comfort - Allows a family member to be comfortable in one area of the home without causing discomfort to people that may be in other areas of the house; for example, turning up the heat in a lower level of the house without overheating the upper levels.

Compensation - Compensates for heat rising and cold air falling, for heat gain or loss caused by large windows from the sun hitting different sides of the building and from high winds.

Energy Savings - Saves the cost of heating or cooling unused portions of the house.

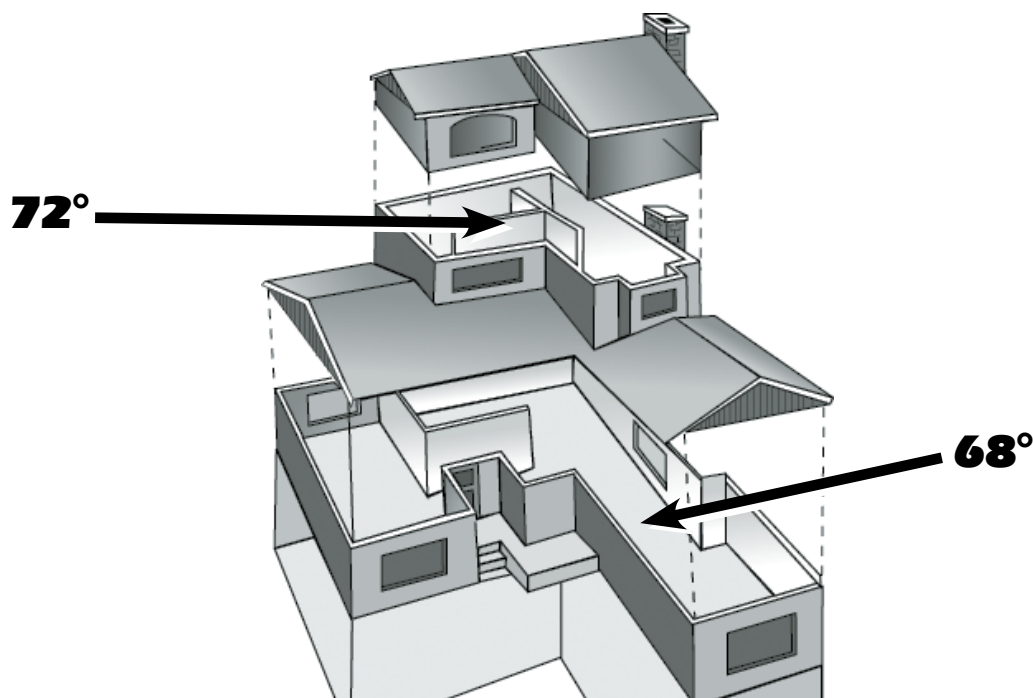
Zoning Provides Comfort... Convenience... Savings!

Why Choose DuroZone?

Simplicity - DuroZone is designed to be used with many makes and models of thermostats and equipment, which makes this product line very flexible. The wiring follows the HVAC standard of W to W, R to R, Y to Y, etc. The damper motors are easily removable.

Quality - DuroZone quality products carry a five year limited warranty from date of installation. The dampers are of the highest quality in the industry. DuroZone products are supported by a technical service department that is available from 8:00 AM until 6:00 PM EST. In addition Duro Dyne territory managers are all qualified to provide field support to DuroZone users.

Economy - DuroZone's ease of installation, reliability, field support and cost, makes it the most economical zoning system to use.



CONTROL PANELS

DuroZone offers a variety of control panels to meet the needs of the residential contractor. DuroZone produces four (4) specific styles of zone control panels.

1) The SMZ-SW panels.

SMZ-SW panels are designed for residential gas/electric or straight electric heating cooling systems. The SMZ-SW panels use 24V-encapsulated relays for the control systems. The relays are a plug in type and completely interchangeable. This interchangeability can aid field diagnostics. Relay technology also makes the SMZ-SW panel versatile and rugged. No need to worry about locating SMZ-SW panels in unconditioned spaces.

The SMZ-SW panels come in 3 distinct models: SMZ2-SW, SMZ3-SW and SMZ4-SW. These models accommodate 2,3 and 4 zones respectively.

SMZ-SW panels are all compatible with both mechanical and battery operated digital and digital programmable thermostats. SMZ-SW panels require the zone 1 thermostat to have a B and O terminal.

2) The SMZ-AC panel.

The SMZ-AC panel has all of the quality characteristics of the SMZ with the additional feature of Auto Change Over capabilities. Using virtually any thermostat that has R, W, Y and G terminals the SMZ-AC will supply either heating or cooling based strictly on the temperature set point of the individual Zone thermostats. The mode (heating or cooling) is prioritized on a "First Call – First Serve" basis. For example, while one zone is calling for cooling another zone can call for heating. Since the first call was for cooling, as soon as all cooling calls are satisfied, the SMZ-AC Panel will switch to heating and satisfy the heat call.

The SMZ-AC panel is great for the areas of the country that experience seasons requiring heat in the morning and cool in the afternoon. The SMZ-AC is a three zone panel.

3) The JTZ-HP panel.

The JTZ-HP panel is a 3-zone panel specifically designed for use with heat pump systems. The JTZ-HP uses the same reliable relay based technology as the SMZ-SW panels but with unique features for heat pump applications.

The JTZ-HP is compatible with many battery operated, hard wired and battery backup thermostats.

Heat pump thermostats are required at all zones. This allows an emergency heat call to be initiated from any Zone. The JTZ-HP has a built in fossil fuel kit. With the flip of one switch the JTZ-HP heat pump panel converts backup heating capability from straight electric to gas furnace.

The JTZ-HP panels can also be chained together to allow expansion beyond 3 zones.

Use of either B or O terminals at the equipment connections makes wiring incredibly simple and the Y1 and Y2 terminals allow the JTZ-HP to be used with 2 stage systems.

4) RED4 Panel

The RED4 is a microprocessor based control panel. The use of microprocessor technology enables DuroZone to pack the RED4 panel with useful features like supply air and outdoor temperature sensors, heating and cooling limit controls, W2 timer, purge control, auto-change over and many other options. RED4 panels should be mounted in a conditioned space.



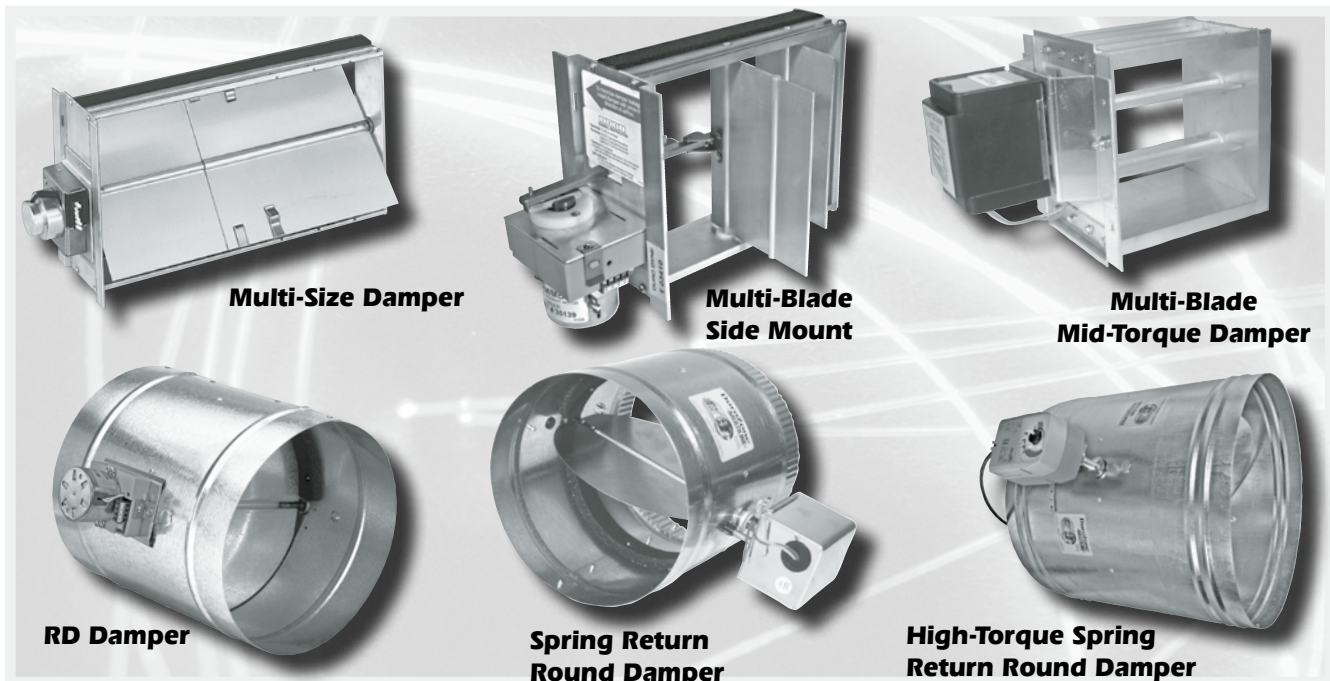
SMZ Control Panels

JTZ Control Panels

RED4 Control Panel

**DUROZONE®
DAMPERS**

Round, Multi-Blade and a DuroZone exclusive - the Multi-Size, which is one damper that can adjust to a variety of sizes. DuroZone also manufactures spring return dampers in round and multisize configuration. **Spring Return Dampers** have reversible motors allowing for quick reconfiguration of the spring action from spring open to spring closed. Round spring return dampers are available with standard or high torque motors. Round standard spring return motors are available in 24 volt or 110 volt.



Retro Fit Dampers have motorized damper blades that are installed into existing 6 inch round duct through a 1 inch wide , 6-3/4 inch long slot. Since the damper blade is inserted into the duct and the motor housing fastened to the outside of the duct, there is no need to alter the duct design or remove a section of the ductwork. The damper motors require a 24 volt power source and just 2 wires. They can be set to either open or close the damper blade when powered and a spring will return the damper blade to its original position when power is removed.

Thermostats - standard and setback for use with our dampers and panels.

Special Controls - such as transformers, delay timers and enthalpy controls for special zoning situations.

Indoor Air Quality (IAQ) - is the hottest topic in the HVAC market today. Open any trade journal and there will be numerous articles on sick building syndrome, VOC levels, second hand smoke, etc. Indoor air quality is everyone's concern and will be a major factor in all future HVAC installations.

DuroZone manufactures various products to address IAQ featuring:

Dyna-Fresh® - an air quality control center to periodically introduce outside air to the indoor environment.

Spring Return Dampers - for use with the **Dyna-Fresh®** or by themselves. Available in both normally closed and normally open versions.



Diffuser Dampers

Even though a system is balanced properly, the air flow required to meet individual comfort needs will vary as often as several times a day. There can also be times when an office or meeting room is unoccupied for long periods of time. In either of these two situations, an easily adjustable damper can solve this problem. **WRCD and RCD dampers** are motorized round dampers that can be quickly and easily adjusted to any position between fully open and fully closed. Both the WRCD and RCD dampers are installed into the ductwork between the lay in diffuser and the supply duct. Although the WRCD and RCD utilize different 24 volt motors, the main difference is the controls that are used with each damper. Both types of dampers are available in diameters of 6 through 12 inches and each motor has an adjustment to allow for minimum air flow even when the damper is set to fully close.

The **WRCD** utilizes a wireless remote with a digital readout to adjust the damper. After some initial programming to synchronize the damper motor with the wireless remote control, the air flow through the WRCD can be adjusted from any location in the room.

The **RCD** can be teamed with either a **Manual Wall Control (MWC)** or an **Occupancy Sensor (OSL)**. The manual wall control is a rotary switch which when turned causes the air flow to change. The occupancy sensor has two air flow settings; one for when the room is occupied and the other when it is vacant. When the lights are turned on the air flow adjusts to the occupied setting and conversely when the lights are off the air flow adjusts to the vacant setting.



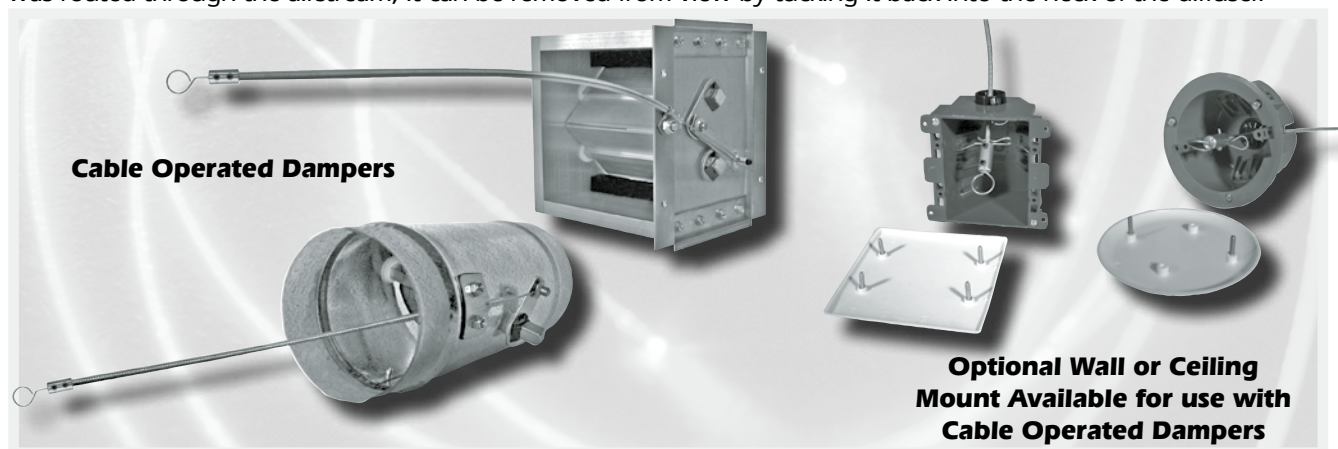
**WRCD Diffuser
Damper and Controls**

**RCD Diffuser
Damper and Controls**

Cable Operated Dampers

Cable operated dampers are a convenient way to balance air flow through the face of a diffuser where access to a balancing damper is difficult or restricted. The dampers can be round or rectangular and are installed upstream of the diffuser. Adjustment cables are available in standard lengths of 3, 5, 8, 10, or 15 foot but can be made in other lengths as well. The dampers can be ordered so that the cables will be in the airstream and accessible from the diffuser grill or so that the cable will be outside the air stream and routed to a convenient location.

Once installed, the air flow is adjusted by pushing or pulling on the core wire in the adjustment cable. This wire is attached to the damper blade and the blade position will change as the wire is moved. Once the damper blade has been adjusted, it is locked by tightening the set screw nearest to the looped end of the core wire. If the control cable was routed through the airstream, it can be removed from view by tucking it back into the neck of the diffuser.



Cable Operated Dampers

**Optional Wall or Ceiling
Mount Available for use with
Cable Operated Dampers**

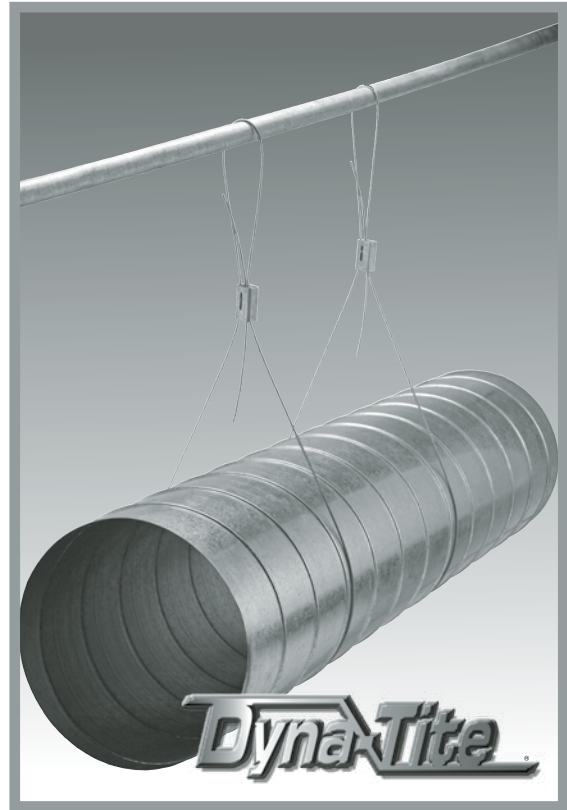
For more information on DuroZone products refer to the DuroZone Trade Catalog and literature sheets.

The methods for hanging sheet metal ductwork have remained unchanged for decades. Duro Dyne has introduced another innovative product to the domestic HVAC industry, The Dyna-Tite cable lock system.

The Dyna-Tite cable lock system gives the HVAC contractors a new labor, time and money saving alternative to the old conventional hanger products.

The benefits of Dyna-Tite are:

- 1) Time and labor savings. When using Dyna-Tite cable locks, duct can be hung up to six (6) times faster than using traditional threaded rod.
- 2) Dyna-Tite can be used to quickly hang a variety of HVAC related products; ductwork, unit heaters, air handlers, exhaust hoods, etc.
- 3) Using Dyna-Tite allows the use of an overhead hanger from a point that is not directly above the product being hung. *Hanging at angles will affect working load limit.
- 4) Storage and transportation for Dyna-Tite products is simple and safe; unlike bundles of hanger strap & threaded rod which can break apart and create a safety hazard.
- 5) Dyna-Tite uses high tensile strength wire rope with incredible load bearing strength that is very small in diameter.



The SMACNA Testing & Research Institute recognizes Dyna-Tite as an acceptable alternative to the hanger systems described in SMACNA HVAC Duct Construction Standards.

The main component of all Dyna-Tite Duct Hanging Systems is the Cable Locking Device. Duro Dyne offers 5 different varieties for a variety of applications. All Dyna-Tite Cable Locks have a working load limit** with a 5:1 safety factor ratio and also feature a easy release pin*** for simple adjustments without the use of tools.

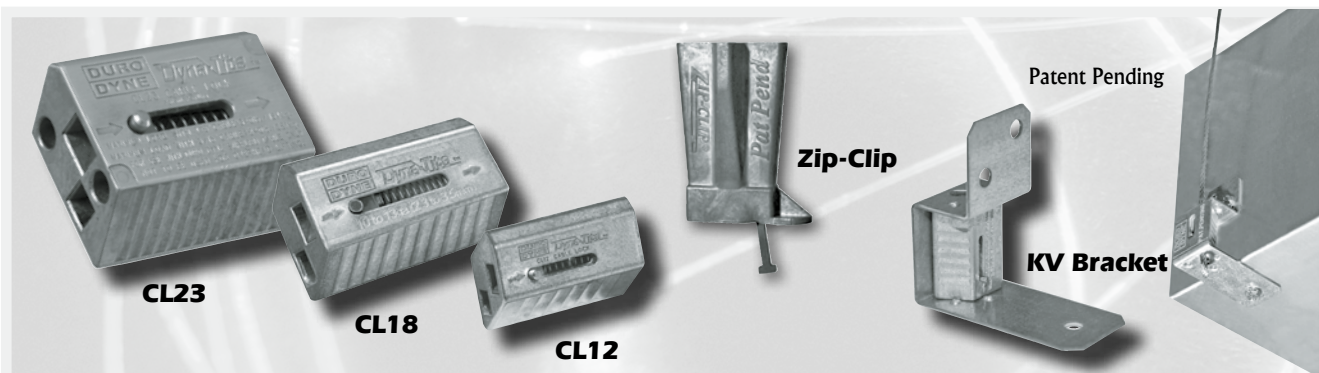
The standard Cable Lock is available in three sizes; the **CL23 Cable Lock** for use with 3/16" or 1/8" wire rope and a working load of 25-640 lbs; the **CL18 Cable Lock** for use with 3/32" or 1/8" wire rope and a working load of 25-225 lbs; and the **CL12 Cable Lock** for use with 3/32" wire rope and a working load of 0-150 lbs.

The final two Cable Locks offered by Duro Dyne are the **KV Bracket** and the **Zip-Clip**. The **KV Bracket** Assembly is ideal for rectangular duct. This assembly enhances the Dyna-Tite suspension system by the addition of an integral bracket to the standard CL12 Cable Lock, which fastens the cable lock to rectangular ductwork with sheet metal screws. The **Zip-Clip Cable Lock** fits securely inside strut and has a working load limit of 220 lbs.

*** Please reference the table 'Effect of Hanging at Angles on Safe Working Loads' in the Dyna-Tite Engineer Manual.**

**** Working load limits of Dyna-Tite Cable Locks depend on the wire rope size utilized.**

***** The load must be removed when utilizing the easy release pin.**



Duro Dyne offers a wide arrange of end fixings in the Dyna-Tite Division. Most end fixings can be purchased as a kit with the appropriate cable lock. Please see the Dyna-Tite Product Catalog for the full offering.

The **Duro Loop Cable Sling** enhances the Dyna-Tite suspension system by the addition of a pre-looped cable end. Once the wire rope is pulled around the anchor point and through the looped end of the cable, it is already secured at one end, saving time at the jobsite.

The **Dyna-Stud®** is a heavy duty grade 5 hex head bolt with one end of a super strong aircraft rated cable attached. The bolt is threaded into the expansion anchor without putting stress on the cable. This makes for a much safer and tighter connection.

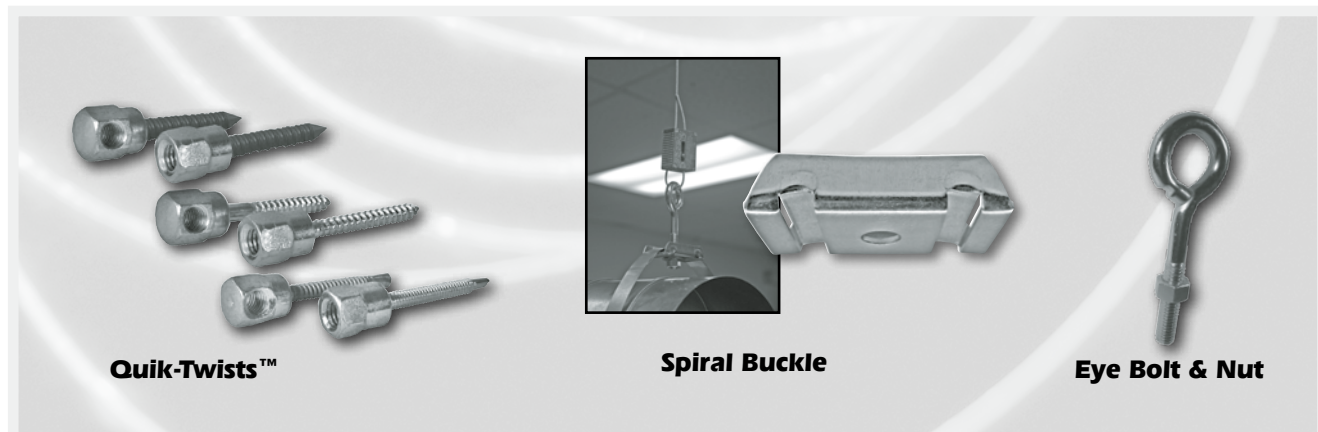
Dyna-Tite **Eyelets** are manufactured of zinc plated cold rolled steel and swaged to the wire rope cable with a hydraulic press. Dyna-Tite Eyelet assemblies are available both in 45 and 90 degree variations and install with a 3/8 in. fastener.



Quik-Twists™ from Duro Dyne are side or vertical mounted fasteners that provide attachment points for steel threaded rods and other assemblies. There are three variations of Quik-Twists; one for penetrating and threading into steel, one for wood, and one for concrete.

The **Spiral Buckle** is a zinc plated 14 gauge device designed to suspend round and oval ductwork from ceiling joists or beams with the use of threaded rod up to 3/8 in. diameter. Simply place 1 in. hanging strap in one side of the buckle then around the material and into the other side of the buckle. When the strap is correctly inserted through the slots, the strap is locked into the buckle by the weight of the duct.

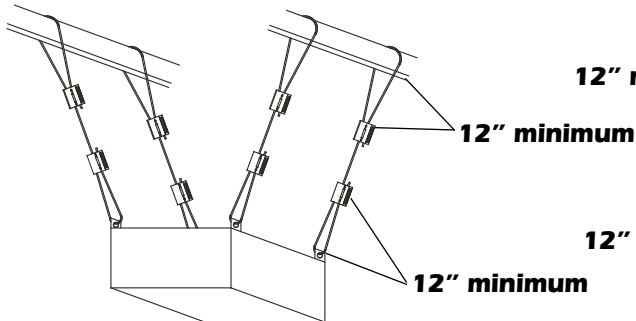
The **Eye Bolt & Nut** is a simple way to provide an anchor point. The eye bolt has a 3/4 in. inside diameter ring to make wire rope attachment easy.



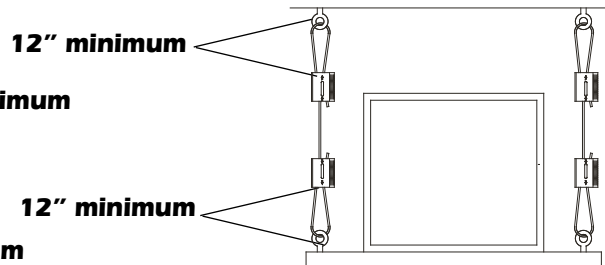
Most Cable Locks and End Fixings are also available as kits. Please contact your local Duro Dyne Territory Manager for your specific needs.

THE DYNA-TITE CABLE LOCK AND WIRE ROPE CAN BE USED FOR SUSPENSION IN A VARIETY OF WAYS TO ACCOMMODATE MOST MECHANICAL & HVAC CONSTRUCTION APPLICATIONS.

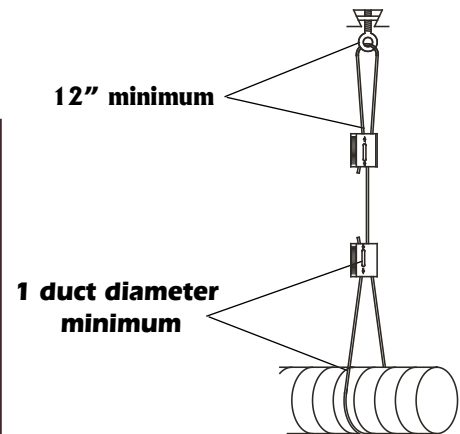
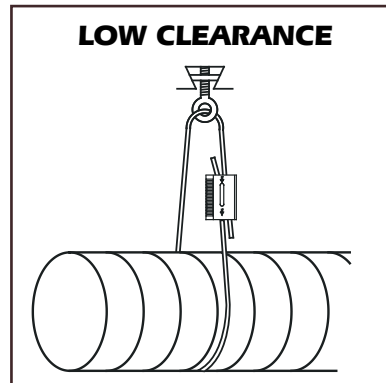
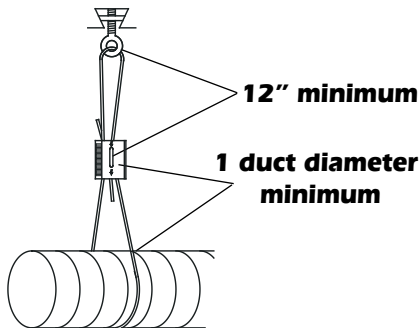
UNIT HANGING



RECTANGULAR DUCT WORK



SPIRAL DUCT WORK



Note: Only the CL23 can be used for this configuration. Other diagrams apply to all size cable locks.

For more information regarding proper ductwork hanging, refer to the Dyna-Tite Cable Lock Specification Forms.

WARNING: It is imperative to ALWAYS confirm the engagement of the cable lock on the wire rope before applying the load. This is best accomplished by pushing the adjustment pin in the opposite direction of the arrows on the cable lock housing and then holding the cable lock and pulling on the cable in the opposite direction of the arrows on the cable lock housing.

The Dyna-Tite assembly must be located no closer than 12 inches to the suspension point. Where the wire rope encircles the duct, the Dyna-Tite must be located the distance of one diameter from the duct wall. In situations where this is not possible, we would recommend that a single sling be made utilizing a single Dyna-Tite.

Do not use for lifting: This product is designed for static load applications only. **Dyna-Tites are designed for 100% engagement of the pawl 100% of the time and to always be under load.** If the load is removed from the Dyna-Tite, even for a short time, the pawl could become disengaged from the cable and slip. Because of this, it is highly recommended that Dyna-Tites installed in open air spaces, such as a gymnasium, where the possibility of the duct being struck, be installed either with a secondary cable restraint or by using Dyna-Tites with the locking screw option to prevent any pawl movement.

To ensure hanging system integrity and safety: Use only Duro Dyne wire rope. Duro Dyne inspects and tests all wire rope it purchases and sells to ensure it meets stringent specifications. Buying rope from other sources that may look like they have the same basic configuration and/or dimensions and specifications, may indeed be substandard.

Please refer to our website for all warnings and installation instructions.

SUGGESTED SPECIFICATION

All ductwork and equipment shall be supported using wire rope cable terminated by Cable Locks. All Cable Locks shall have an Ultimate Breaking Strength (U.B.S.) of at least 5 times the wire rope published Working Load Limit (W.L.L.). All wire rope shall have a U.B.S. of 5 times the published W.L.L. Wire ropes shall be of the size and spaced per manufacturers printed specifications. Wire Rope and Cable Locks shall be as supplied by Duro Dyne Corporation.

SPECIFICATION DATA

- 1) All wire rope supplied by Duro Dyne is statistically tested to minimum breaking strength.
- 2) Dyna-Tite Cable Lock and Wire Rope has been submitted and tested to be an acceptable alternative to the duct hanger systems prescribed in SMACNA HVAC-DCS 2nd edition By SMACNA Testing & Research Institute.
- 3) All Working Load Ratings of Dyna-Tite Cable Locks manufactured by Duro Dyne have been witnessed and verified by Independent Testing Labs.

WIRE ROPE SPECIFICATION CARBON STEEL & GALVANIZED

Galvanized steel wire rope, supplied by Duro Dyne is manufactured to exacting standards and statistically tested to verify the breaking strength. Duro Dyne recommends only using wire rope supplied by Duro Dyne. The chart below outlines the specifications.

Cable Lock Description	Cable Lock Construction	Wire Rope Diameter (Nominal)	Wire Rope Construction	Tolerance	Working Load Limit (W.L.L.)	Minimum Ultimate Breaking Strength (U.B.S.)
CL 12 Cable Lock	Stainless Steel Sintered Steel Zinc Alloy	WC3 Wire Rope 3/32"	7x7 Hot Galvanized	+ .012/ - .006	150 lb.	750 lb.
CL 18 Cable Lock	Stainless Steel Sintered Steel Zinc Alloy	WC3 Wire Rope 3/32"	7x7 Hot Galvanized	+ .012/ - .006	150 lb.	750 lb.
		WC4 Wire Rope 1/8"	7x7 Hot Galvanized	+ .014/ - .007	225 lb.	1250 lb.
CL 23 Cable Lock	Stainless Steel Sintered Steel Zinc Alloy	WC4 Wire Rope 1/8"	7x7 Hot Galvanized	+ .014/ - .007	250 lb.	1250 lb.
		WC6 Wire Rope 3/16"	7x19 Hot Galvanized	+ .018 / - .009	640 lb.	3200 lb.

APPLICABLE SMACNA STANDARD

4.2.11 Hanging System Selection

The selection of a hanging system should not be taken lightly not only because it involves a significant portion of the erection labor, but also because an inadequate hanging system can be disastrous. In any multiple hanging system, the failure of one hanger transfers that load to adjacent hangers. If one of these fail, an even greater load is transferred to the next. The result is a cascading failure in which an entire run of duct might fail.

There are many hanger alternatives, especially in the upper attachments. Besides structural adequacy, the contractor's choice of hanging system must also take into account the particulars of the building structure, the skills of the workmen, the availability of tooling, and the recommendations of the fastener manufacturer. Because of these variables, it is suggested that the hanging system be the contractor's choice, subject to the approval of the mechanical engineer.

Not all Wire Rope is the same. To ensure hanging system integrity, use only Wire Rope supplied by Duro Dyne.

RECOMMENDATIONS AND PRECAUTIONS

- **It is imperative to ALWAYS confirm the engagement of the cable lock on the wire rope before applying the load.** This is best accomplished by pushing the adjustment pin in the opposite direction of the arrows on the cable lock housing and then holding the cable lock and pulling on the cable in the opposite direction of the arrows on the cable lock housing.
- **To ensure hanging system integrity and safety:** Use only Duro Dyne wire rope.
- **To facilitate height adjustment:** Install the object low and adjust it upwards to the desired level.
- **Do not exceed the working load limit (WLL) of the product:** Each product is load rated and incorporates a minimum safety factor of 5:1. This WLL takes into account the specification criteria of the Dyna-Tite Cable Lock and the wire rope.
- **Do not use on coated wire rope:** It is important to maintain the metal to metal contact between the locking pawls in the Dyna-Tite and the wire rope.
- **Do not apply paint or other coating:** to any part of the assembly as these may impair the free movement of the locking pawls inside the Dyna-Tite Cable Lock.
- **Do not apply lubricant:** to any part of the assembly as this will alter the surface nature of the wire rope and attract dirt and debris.
- **Do not use for lifting:** (Under Hook slings) This product is designed for static load applications only.
- **Keep the product clean and free from dirt:** Any dirt should be removed from the product prior to assembly.
- **Inspect periodically:** Upon inspection, discard and replace if worn, distorted, or damaged.
- **Remove damaged wire ends:** Using a designated pair of wire rope cutters prior to inserting into the Dyna-Tite Cable Lock.
- **When installing Duro Dyne Dyna-Tite cable attachments:** to buildings or equipment careful consideration must be made to the attachment method and the material being attached to. It is the responsibility of the installer for the proper selection, installation and appropriateness of the attachment to the job specifications and any codes. Duro Dyne can give general guidance, but any questions regarding this should ultimately be directed to the project engineer of the job.

IMPORTANT: Dyna-Tite Cable Lock and wire rope each have working load limits which may not be equal. Always use the lower of the two working load limits. Wire rope is not included with Dyna-Tite Cable Lock.

SUBJECT: *DYNA-TITE® SUSPENSION SYSTEM*
ACTION: *PROVIDE THIS INFORMATION TO THE INSTALLER*

Section 5.2.11 of the Third edition of HVAC Duct Construction Standards Metal and Flexible states “The selection of a hanging system should not be taken lightly not only because it involves a significant portion of the erection labor, but also because an inadequate hanging system can be disastrous. In any multiple hangar system, the failure of one hangar transfers its load to adjacent hangers. If one of these fails, an even greater load is transferred to the next. The result is a cascading failure in which an entire run of duct might fall.

“There are many hangar alternatives, especially in the upper attachments. Besides structural adequacy, the contractor’s choice of hanging system must also take into account the particulars of the building structure, the skills of the workmen, the availability of tooling and the recommendations of the fastener manufacturer. Because of these variables, it is suggested that the hanging system be the contractor’s choice, subject to the approval of the mechanical engineer”

Duro Dyne has gone to great lengths of engineering, and testing to insure the contractor of a safe and reliable product for supporting ductwork. Installation Instructions and recommendations are supplied both with the product and also are available on our website. We would like to take this opportunity to remind contractors of some important points in those documents and to expound on them.

1. “It is imperative to ALWAYS confirm the engagement of the cable lock on the wire rope before applying the load. This is best accomplished by pushing the adjustment pin in the opposite direction of the arrows on the cable lock housing and then holding the cable lock and pulling on the cable in the opposite direction of the arrows on the cable lock housing.”
2. “The Dyna-Tite assembly must be located no closer than 12 inches to the suspension point. Where the wire rope encircles the duct, the Dyna-Tite must be located the distance of one diameter from the duct wall.” – The purpose of this is to eliminate undue stress on the side walls of the Dyna-Tite enclosure. In situations where this is not possible we would recommend that a single sling be made utilizing a single Dyna-Tite.
3. “Do not use for lifting: This product is designed for static load applications only.” – Dyna-Tites are designed for 100% engagement of the pawl 100% of the time and to always be under load. If the load is removed from the Dyna-Tite, even for a short time, the pawl could become disengaged from the cable and slip.

Because of this – it is highly recommended that Dyna-Tites installed in open air spaces, such as a gymnasium, where the possibility of the duct being struck, be installed either with a secondary cable restraint or by using Dyna-Tites with the locking screw option to prevent any pawl movement.

4. “To ensure hanging system integrity and safety: Use only Duro Dyne wire rope” – Duro Dyne inspects and tests all wire rope it purchases and sells to ensure it meets stringent specifications. Buying rope from other sources that may look like they have the same basic configuration and/or dimensions and specifications, may indeed be sub-standard.

Duro Dyne Territory Managers, Customer Service, and our Engineering team are always available for consultation on any application questions or concerns, however the ultimate decision as to the application in a particular situation lies with the contractor together with the project engineer.

**FOR ANY ADDITIONAL QUESTIONS PLEASE CONTACT:
DURO DYNE TECHNICAL SERVICES AT 1-800-899-3876**



VIA E-MAIL

April 6, 2011

Stephen S. Martin
Product Development Director
Duro Dyne Corporation
81 Spence Street
Bay Shore, NY 11706

Re: Duro Dyne Dyna Tite

Dear Mr. Martin:

The SMACNA Testing & Research Institute (STRI) has completed its engineering review and analysis of the test data submitted by Duro Dyne for Dyna Tite CL12 (KL100), CL18 (KL150) and CL23 (KL200).

The test data was submitted for verification to the SMACNA/ANSI Seismic Restraint Manual – Guidelines for Mechanical Systems, Figure 10-5 and Table 3-2. STRI has determined that the CL12 (K100), CL18 (KL150) and CL23 (KL200) as acceptable alternatives for seismic hanger bracing in strict accordance with the SMACNA/ANSI Seismic Restraint Manual – Guidelines for Mechanical Systems.

STRI is unable to provide verification for FEMA requirements on the CL12 (K100), CL18 (KL150) and CL23 (KL200), as this document is not a SMACNA Standard.

Professionally yours,
SMACNA Testing & Research Institute

A handwritten signature in black ink that reads 'Eli P. Howard, III'.

Eli P. Howard, III
Executive Director

SMACNA TESTING & RESEARCH INSTITUTE
HEADQUARTERS: 4201 LAFAYETTE CENTER DRIVE, CHANTILLY, VIRGINIA 20151-1219
MAILING ADDRESS: P.O. BOX 221230, CHANTILLY, VIRGINIA 20153-1230
PHONE (703) 803-2980 FAX (703) 803-3732
www.smacnatri.org

DYN-O-MATE®

Dyn-O-Mate is a flange type 4-bolt connection system designed to make the transverse joining of duct faster, stronger and more leakage resistant than conventional methods.

Dyn-O-Mate provides installation instructions and construction standards that if followed, provide a transverse connection that meets or exceeds all SMACNA minimum standards for transverse duct connection.

In application **Dyn-O-Mate Flange** is cut to length to make a frame corresponding to the width and height of the rectangular duct. The pieces of Dyn-O-Mate Flange are formed into a frame using **Dyn-O-Mate Corners** and the frame is slipped on to the raw end of the duct. The frames are secured onto the ends of the duct with screws or spot welds. Before connecting, the framed ends of duct together **Dyn-O-Mate Butyl Gasket Tape** is applied to one frame. The framed ends are brought together, bolted at the corners and **Dyn-O-Mate Cleats** are applied along the width and height of the duct. The clips and bolts pull the two pieces of framed duct together compressing the gasket, forming an airtight seal.

Dyn-O-Mate flange is manufactured in three (3) styles:

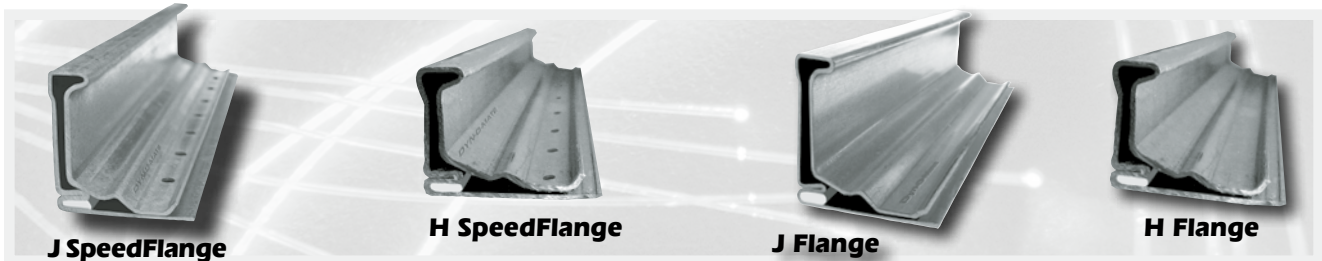
1) SpeedFlange drastically reduces installation time due to the addition of pre-punched drill holes. The pre-punched holes are aligned at 1" centers and allow for the use of any common drill gun eliminating the need for C Clamps or special tools. SpeedFlange, as with our standard flange, has an integrated sealant pocket for a secure air tight fit and is available in J and H sizes.

2) DOM-J Flange for larger commercial medium and high-pressure applications.

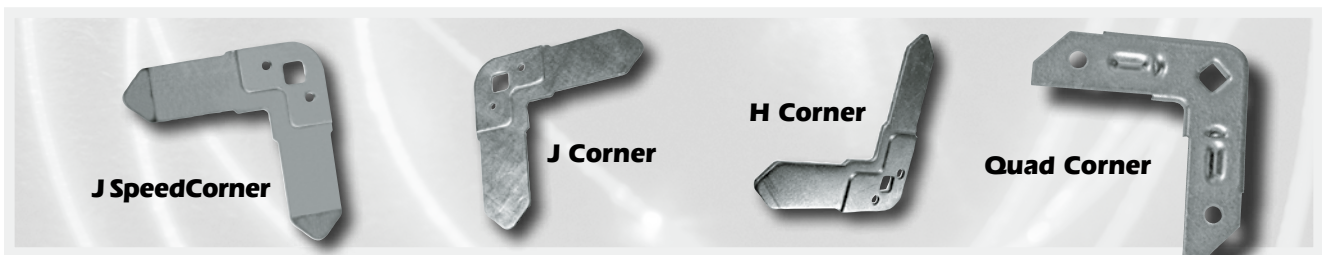
- Manufactured from 20ga steel.
- Manufactured with a sealant filled pocket for an airtight fit.
- Supplied in both 12 and 20 foot lengths.
- Available in Stainless Steel and Aluminum.

3) DOM-H Flange for small low and medium pressure applications.

- Manufactured from 22ga steel.
- Manufactured with a sealant filled pocket for an airtight fit.
- Supplied in both 12 and 20 foot lengths.
- Available in Aluminum and Stainless Steel.



The **J SpeedCorner** has tapered coined corner tips for fast/easy hand insertion in to the flange eliminating the need for a tinner's hammer. The Dyn-O-Mate **Quad Corner** is a versatile corner for use in Dyn-O-Mate J, Ductmate™ 35, CL Ward™ J, Ward Industries™ J, and Hardcast™ flanges. The unique design of this corner results in performance like that expected from heavier gauge, but at a lower cost. Its compatibility with many brands of flange means less confusion or error during assembly as well as lower stocking costs.

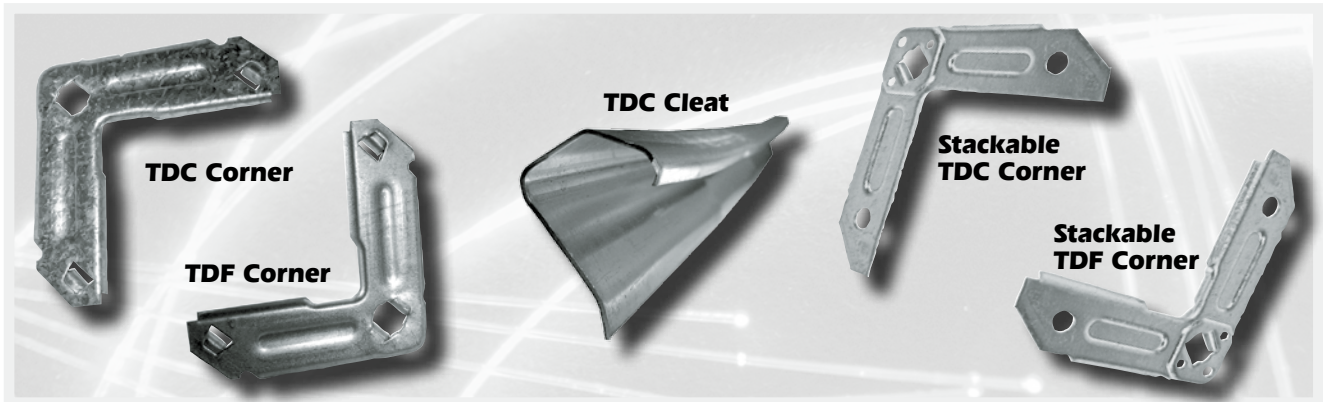


The **Quad Cleat** incorporates embossed "darts" which help the cleat lock firmly onto the flange. It is a universal fastener for use with most commercial size flanges.



*BTL500 is UL Listed

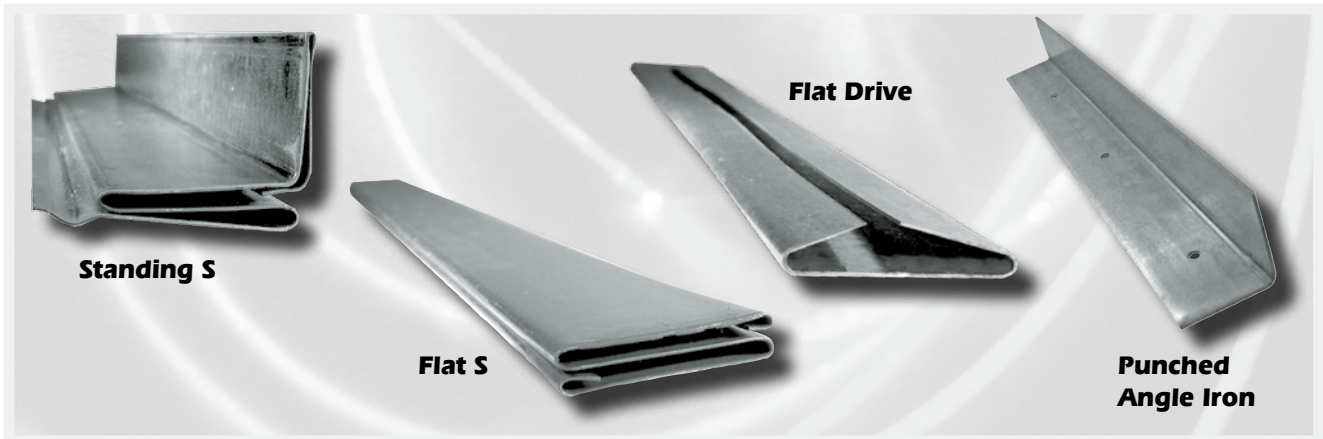
In addition to the flange system the Dyn-O-Mate line includes **TDC and TDF Cleats and Corners** for the two systems that roll form the flange onto the duct. Dyn-O-Mate also provides **Stackable TDC and TDF Corners** for use in the corner insertion machines on the market.



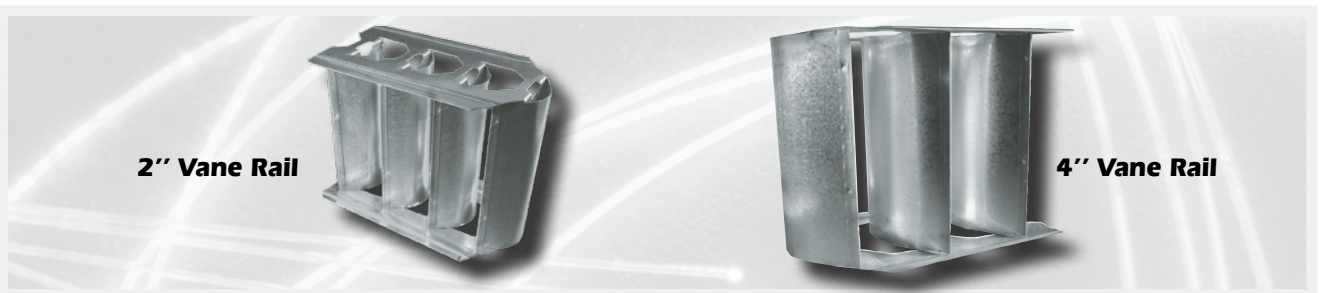
The Dyn-O-Mate line also includes the standard types of duct connecting systems including: **Flat and Standing S, Flat Drive Cleat, Coiled and Flat Steel Hanger Strap** in variety of gauges.

Cut-To-Length Flat S and Flat Drive Cleat offer the convenience of connectors cut to standard sizes ranging from 8" to 36", in intervals of 2". Less on-site work is necessary and there is less product waste.

Used for reinforcement or trapezes for hanging duct, **Punched Angle Iron** is 18 gage galvanized steel with 1/4 inch diameter holes on 6 inch centers on one of the 1-1/2" wide legs.



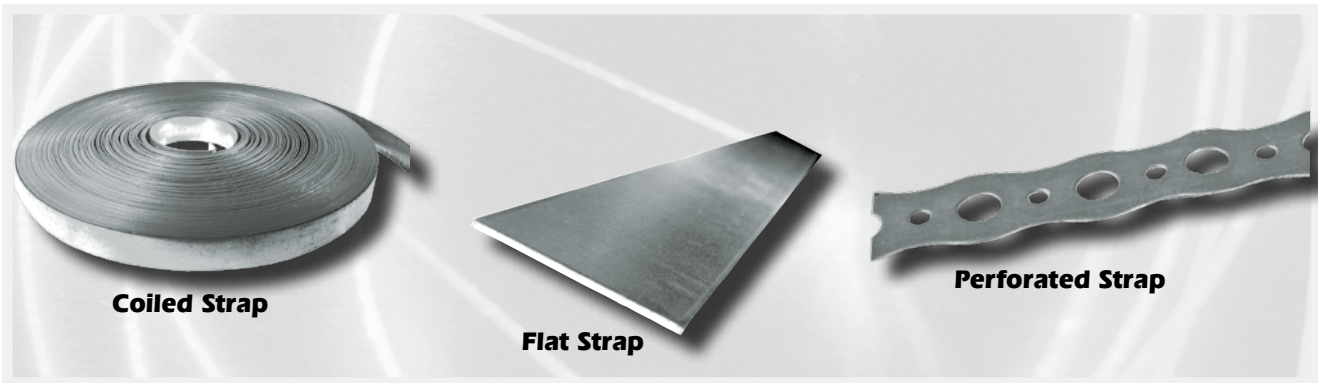
Dyn-O-Mate also provides 2 and 4 inch **Hollow Turning Vane and Rail** designed to redirect the air through elbows and tees in the ductwork without significant loss of air pressure. Assembled Vane & Rail minimizes turbulence in the ductwork. Duro Rail has self aligning tabs for easy vane installation. Specialty metals available upon request.



Dyn-O-Mate also provides a full line of **Locking Nut Access Doors** for round, rectangular, and high temp duct.

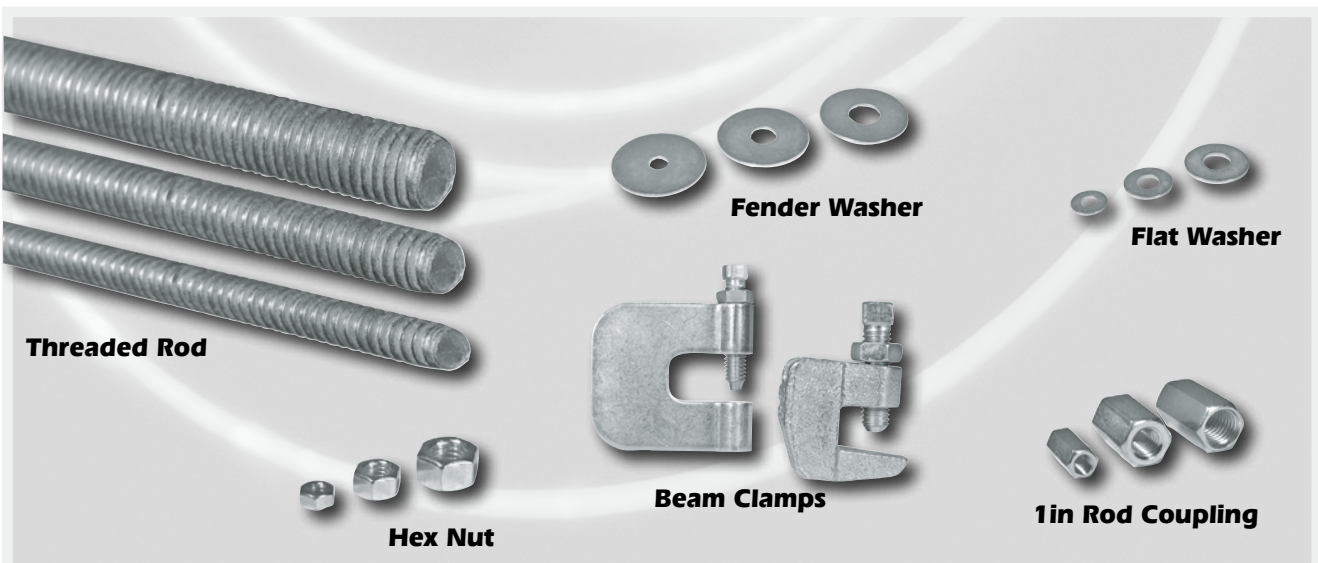


Duro Dyne offers many products for hanging ductwork. **Coiled Duro Strap** is manufactured from 16, 18, 22, 24 and 26 gauge steel and it is convenient to carry and easy to cut without wasting material. **Flat Duro Strap** comes in pre-cut 10ft. lengths and is manufactured from 16, 18, 22, and 24 gauge steel. **Perforated Galvanized Strap** has alternating hole sizes to accommodate sheet metal screws as well as nut & bolt combinations.



Duro Dyne stocks Zinc plated **threaded rod** in five diameters and in lengths of 6 feet, 10 feet and 12 feet. The rod is shipped in sturdy cardboard tubes.

Duro Dyne also offers **Threaded Rod Accessories** which consist of **flat & fender washers, hex nuts, bolts, rod couplers and beam clamps**. These accessories work in conjunction with Duro Dyne Threaded Rod to create a secure system for hanging ductwork and equipment.



DYN-O-MATE TOOLS & ACCESSORIES

The **Vane Dimpler** is a hand operated pliers which is used to create a locking indent on hollow turning vanes. It can be used either before or after the vane is attached to the Duro Dyne vane rail and will produce a firm attachment.

The **Crimper Tool** is used to install the TDC or TDF corner and crimps the flange edge over to hold the corner in place.

The **Deluxe Cleat Tool** pulls the ductwork tight while installing the cleat to the flange of adjoining duct sections.

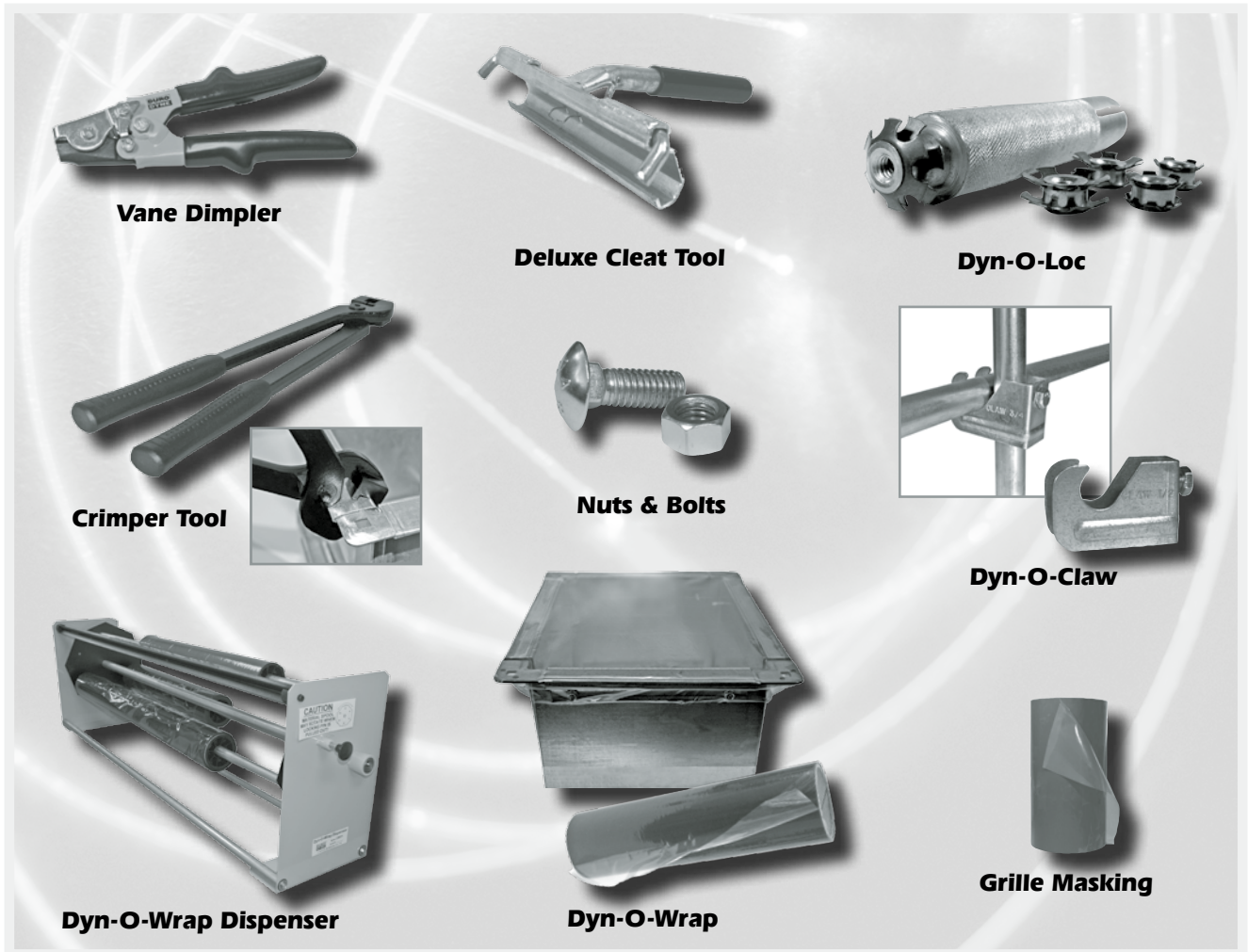
Dyn-O-Wrap is a self-adhesive film which can protect uninstalled duct sections from the intrusion of contaminants. It is available with the adhesive surface on the inside or outside and in 200 foot long rolls 24, 36 or 48 inches wide. **Dyn-O-Wrap Dispenser** Perfect solution for storing and dispensing different sizes and types of Dyn-O-Wrap. It allows for easy application (no awkward maneuvering) and keeps wrap off of the floor to prevent dirt from adhering to the adhesive.

Duro Dyne's **Grille Masking** is a self-adhesive film specially designed as a protective covering for grilles and registers on the jobsite. The 8" width makes it ideal and quick to install on the most common sizes encountered. The Quick Tack adhesive strongly adheres to air devices for many types of testing and yet pulls off easily without leaving residue.

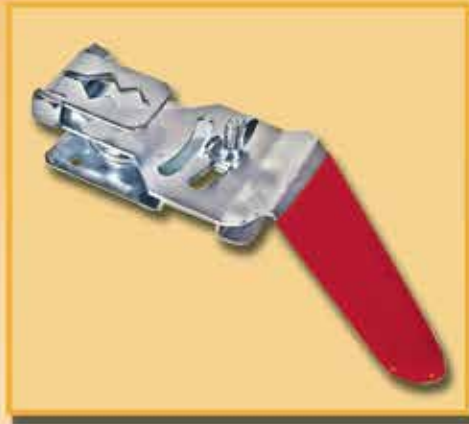
To reinforce metal ductwork, conduit is often placed inside the duct. Special nuts are pressed into the open ends of the conduit so that each end of it can be bolted to the duct. These special nuts are called **Dyn-O-Locs** and they are available for 1/2" and 3/4" conduit. A special **Dyn-O-Loc Tool** is used to insert the nuts into the conduit.

When conduits cross inside the ductwork, they can vibrate with the passing of airflow and create a rattling sound. The **Dyn-O-Claw** is designed to join conduits and eliminate their vibration in the duct. Dyn-O-Claws are easier and faster than other alternatives such as ties or welding.

Duro Dyne also sells the **nuts and bolts** used to attach the flange corners to each other.



**Please Visit Our Website
www.durodyne.com
for the most current product information.**



© Duro Dyne Corp.
Printed in USA 11/13
BB000005

Duro Dyne East Division, Bay Shore, NY	631-249-9000	Fax: 631-249-8346
Duro Dyne Midwest Division, Fairfield, OH	513-870-6000	Fax: 513-870-6005
Duro Dyne West Division, Santa Fe Springs, CA	562-926-1774	Fax: 562-926-5778
Duro Dyne Canada, Lachine, Quebec, Canada	514-422-9760	Fax: 514-636-0328
www.durodyne.com E-mail: durodyne@durodyne.com		