

SUBMITTAL RECORD _____
 JOB _____
 LOCATION _____
 SUBMITTED TO _____
 SUBMITTAL PREPARED BY _____
 APPROVED BY _____
 DATE _____



Submittal Form DDIF Insulation Fastener

DESCRIPTION: 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 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 as per SMACNA HVAC Duct Construction Standards - Third Edition Section S2.11.

All steel used in Duro Dyne Insulation Fasteners meets ASTM-A653.

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

- SPOTTER PINS -

PN Pins

Pin Diameter: 14 Gauge Galvanized



Item#	Bulk#	Code/Bulk Code	Approx Pin Length	Use
26001	26005	PN34/PNB34	.75	1/2" insulation
26002	26006	PN114/PNB114	1.25	1" insulation
26004	n/a	PN250/n/a	2.5	2"- 3" insulation

- WELDED FASTENERS -

SSP Gold Seal Pins

Pin: .130 Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"

Acrylic PSA

Do not store at or above 110 degrees or pins may stick together.



Item#	Bulk#	Code/Bulk Code	Nominal Length After Setting	Use
n/a	26297	n/a/SSPB12	.365	1/2" insulation
26194	26294	SSP34/SSPB34	.531	1" 1-2# density
26195	26295	SSP100/SSPB100	.781	1" 2-3# density
n/a	26293	n/a/SSPB1F	.905	1" Foam Insulation
n/a	26299	n/a/SSPB118	1.000	2-3# density
n/a	26300	n/a/SSPB150	1.365	1-1/2" insulation
26196	26296	SSP200/SSPB200	1.780	2" insulation
n/a	26305	n/a/SSPB250	2.196	2-1/2" insulation
26303	n/a	SSP300/n/a	2.875	3" insulation
26304	n/a	SSP400/n/a	3.875	4" insulation

CWFTC Cupped Washer Weld Pins

Pin: .130" Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"



Item#	Pail#	Code/Pail Code	Nominal Length After Setting	Use
26286	26389	CWFTC12/CWFTC12P	.365	1/2" insulation
26287	26390	CWFTC34/CWFTC34P	.531	1" 1-2# density
26288	26391	CWFTC100/CWFTC100P	.781	1" 2-3# density
26289	26392	CWFTC118/CWFTC118P	1.000	1" 3# density
26290	26393	CWFTC150/CWFTC150P	1.365	1-1/2" insulation
26291	26394	CWFTC200/CWFTC200P	1.781	2" insulation
26292	26395	CWFTC218/CWFTC218P	1.780	2" HD insulation
n/a	26396	n/a/CWFTC250	2.196	2-1/2" insulation
n/a	26397	n/a/CWFTC300	2.875	3" insulation
n/a	26398	n/a/CWFTC400	3.875	4" insulation

CDSSP Capacitor Discharge Gold Seal Pins

Pin: .105 (+/- .005) Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"

Acrylic PSA

Do not store at or above 110 degrees or pins may stick together.



Item#	Bulk#	Code/Bulk Code	Nominal Length After Setting	Use
26376	26382	CDSSP12/CDSSPB12	.365	1/2" insulation
26377	26383	CDSSP34/CDSSPB34	.531	1" 1-2# density
26378	26384	CDSSP100/CDSSPB100	.781	1" 2-3# density
26379	26385	CDSSP118/CDSSPB118	1.000	1" 3# + density
26380	26386	CDSSP150/CDSSPB150	1.365	1-1/2" insulation
26381	26387	CDSSP200/CDSSPB200	1.781	2" insulation

CP Rib Pins®

Pin: .15" Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"



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

FTC Econo-Point Pins

Pin: .130" Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"



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

BDEP Aerodynamic Target® Washer Weld Pins

Pin: .130" Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"



Item#	Bulk#	Code/Bulk Code	Nominal Length After Setting	Use
n/a	26220	n/a/BDEP12	.365	1/2" insulation
n/a	26221	n/a/BDEP34	.531	1" 1-2# density
n/a	26222	n/a/BDEP100	.781	1" 2-3# density
n/a	26217	n/a/BDEP118	1.000	1" 3# density
n/a	26218	n/a/BDEP150	1.365	1-1/2" insulation
n/a	26219	n/a/BDEP200	1.781	2" insulation
n/a	26216	n/a/BDEP218	2.000	2" HD insulation

CTC Sloped® Washer Weld Pins

Pin: .130" Diameter

Washer: Diameter - 1.0"

Thickness: -.015" - .017"



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

- MECHANICAL FASTENERS -

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

- ADHESIVE FASTENERS -

SAH

Self Adhesive Hangers with Washer
Pin: min. 12 Gauge Zinc Plated
Base dimension: 2" x 2" galvanized 28 Gauge steel
Adhesive: Polyethylene double coated foam tape
Shelf Life: 2 years @ 70° and 50% humidity



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	n/a/SAHB350	3.5	3" insulation
n/a	26127	n/a/SAHB450	4.5	4" insulation

FLIP-STIX®

Self Adhesive Hangers with Washer
Galvanized - 24 Gauge
Aluminum - .032 nominal Type 5052-H34
Stainless Steel - 24 Gauge Type 301
Adhesive: Polyethylene double coated foam tape
Shelf Life: 2 years @ 70° and 50% humidity



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

PBH

Perforated Base Adhesive Hangers with Washer
Pin: min. 12 Gauge Zinc Plated
Base dimension: 2" x 2" 28 Gauge Galvanized.



Item#	Bulk#	Code/Bulk Code	Approx Length	Use
n/a	26097	n/a/PBHB34	.75	1/2" insulation
n/a	26098	n/a/PBHB114	1.25	1" insulation
n/a	26099	n/a/PBHB134	1.75	1-1/2"- 1-1/2# density
n/a	26100	n/a/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
n/a	26112	n/a/PBHB450	4.5	4" insulation

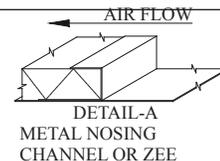
- WASHERS -

Item#	Bulk#	Code/Bulk Code	Area
26017	26019	PC1/PCB1 - for use w/PN (30 gauge galvanized)	1-1/4"x 1-1/4"
26115	26093	LPC-1/LPC-IB - for use w/SAH & PBH	1-1/4"x 1-1/4"
26050	n/a	FSW-G for use w/Flipstix (galvanized)	1-1/4"x 1-1/4"
26052	n/a	FSW-S for use w/Flipstix (stainless)	1-1/4"x 1-1/4"



- DUCT LINER INSTALLATION -

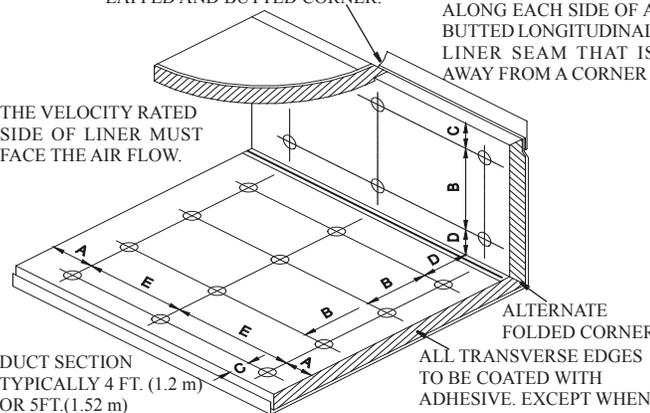
METAL NOSING MUST BE USED WHEREVER LINER IS PRECEDED BY UNLINED METAL; OTHERWISE WHEN VELOCITY EXCEEDS 4000 FPM (20.3 MPS) USE METAL NOSING ON EVERY LEADING EDGE. NOSING MAY BE FORMED ON DUCT OR BE CHANNEL OR ZEE ATTACHED BY SCREWS, RIVETS OR WELDS. INTERIOR WIDTH OF 8"(200 mm) AND LESS DOES NOT REQUIRE PINS



LAPPED AND BUTTED CORNER.

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

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



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

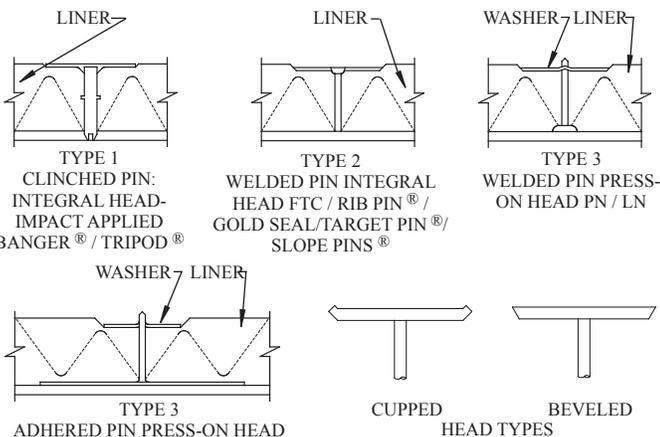
Velocity*	Dimensions				
	A	B	C	D	E
0-2500 FPM (0-12.7 MPS)	3"	12"	4"	6"	18"
2501-6000 FPM (12.7-30.5 MPS)	(76.2)	(305)	(102)	(152)	(457)
	3"	6"	4"	6"	16"
	(76.2)	(152)	(102)	(152)	(406)

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

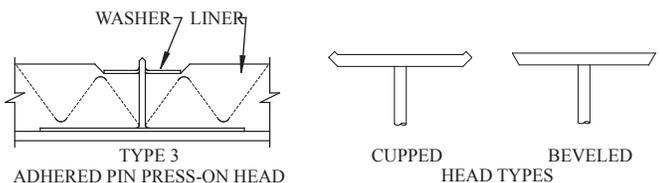
LINER ADHERED TO THE DUCT WITH 90% MIN. AREA COVERAGE OF ADHESIVE

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

- LINER FASTENERS -



TYPE 1 CLINCHED PIN: INTEGRAL HEAD-IMPACT APPLIED BANGER® / TRIPOD®
TYPE 2 WELDED PIN INTEGRAL HEAD FTC / RIB PIN® / GOLD SEAL/TARGET PIN® / SLOPE PINS®
TYPE 3 WELDED PIN PRESS-ON HEAD PN / LN



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

Drawings and installation standards are excerpts from SMACNA HVAC Duct Construction Standards - Third Edition. Page 7.14, section S2.11:

Liners shall also be installed with mechanical fastening devices that:

- Are spaced in accordance with Figure 7-11,
- When installed, are as corrosion resistant as G60 coated galvanized steel,
- Will not adversely affect the fire resistance classification of liner and adhesives,
- Do not damage the liner when applied as recommended by manufacturer,
- Do not cause leakage in the duct,

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 Code _____ as manufactured by Duro Dyne Corporation, Bay Shore, N.Y.