

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



Specification Form DDIF Insulation Fastener

- WELDED FASTENERS -

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.

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.

- 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	TBG1VH/TBGB1VH	.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



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

LN Pins

Pin Diameter: 16 Gauge Galvanized



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

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
			After Setting		
■ 26197	26297	SSP12/SSPB12	.365		1/2" insulation
■ 26194	26294	SSP34/SSPB34	.531		1" 1-2# density
■ 26195	26295	SSP100/SSPB100	.781		1" 2-3# density
■ 26196	26296	SSP200/SSPB200	1.78		2" insulation
■ 26198	26298	SSP38/SSPB38	.250		3/8" insulation
■ 26199	26293	SSP1F/SSPB1F	.905		1" Foam Insulation
■ n/a	26300	SSPB150	1.365		1.5" insulation
■ n/a	26299	SSPB118	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
			After Setting		
■ 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
■ 26140	26132	CP218/CPB218	2.00		2" insulation

FTC Econo Pins

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



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

CTC Sloped Washer Weld Pins

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



Item#	Code	Nominal Length		Use
		After Setting		
■ 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

- 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

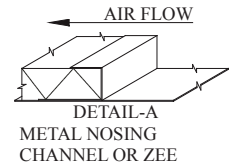
- WASHERS FOR SPOTTER PINS -

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"

- 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.

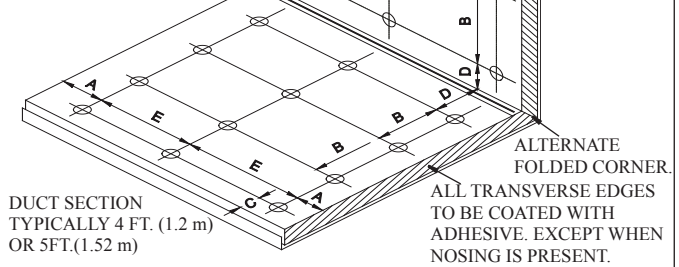
INTERIOR WIDTH OF 8" (200 mm) AND LESS DOES NOT REQUIRE PINS



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.



MAXIMUM SPACING FOR FASTENERS. ACTUAL INTERVALS ARE APPROXIMATE

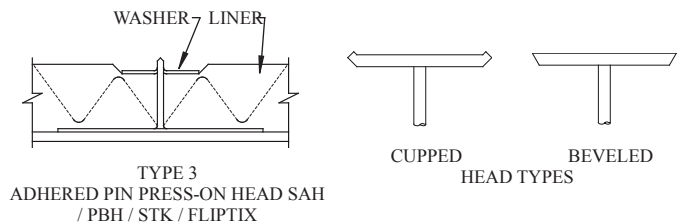
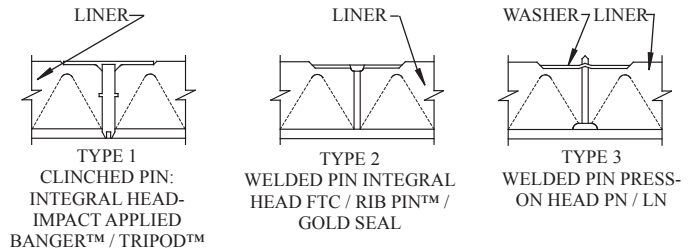
"A" PIN ROW MAY BE OMITTED WHEN METAL NOSING IS USED. "E" THEN STARTS FROM THE NOSING.

Velocity*	Dimensions				
	A	B	C	D	E
0-2500 FPM (0-12.7 MPS)	3" (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)

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-



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

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.

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