



WHAT IS "CD" STUD WELDING?

Capacitor Discharge (CD) stud welding is generally used to weld smaller diameter fasteners to thin base metals. Since the entire weld cycle is completed in milliseconds, welds can be made without pronounced distortion, burn-through or reverse side discoloration. As long as one end of the fastener is designed for **CD** welding, **CD** studs can be manufactured in almost any shape.



(1)

The fastener is placed against the workpiece. Most CD studs have a special tip which provides precise weld-time control, for consistent, automatic welds.

(2)

The weld gun is activated and stored energy is discharged through the fastener melting the full diameter of its base and a portion of the parent material

(3)

Spring-loading forces the fastener into the molten metal.

(4)

The fastener is held in place as the molten metal solidifies and instantly creates a high quality fusion weld.

www.sunbeltstudwelding.com

Sunbelt Stud Welding, Inc
6381 Windfern Road
Houston, Texas 77040-4915



8-1

1-800-462-9353
713-939-8903
fax 713-939-9013



CD STUDS

Standard CD Studs



Flanged



Non Flanged



Flanged
No Thread



Non Flanged
No Thread



Flanged
Acoustical
Hanger



Flanged
Annular Ring
(Navy)



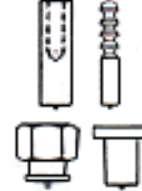
Pin Bi-Metallic



Annular Ring
Bi-Metallic



Notched End
Bi-Metallic



Special Capacitor
Discharge Studs

*Note: This is a standard list of CD studs. CD studs can be made in an endless variety of sizes, shapes and materials to meet your specifications.

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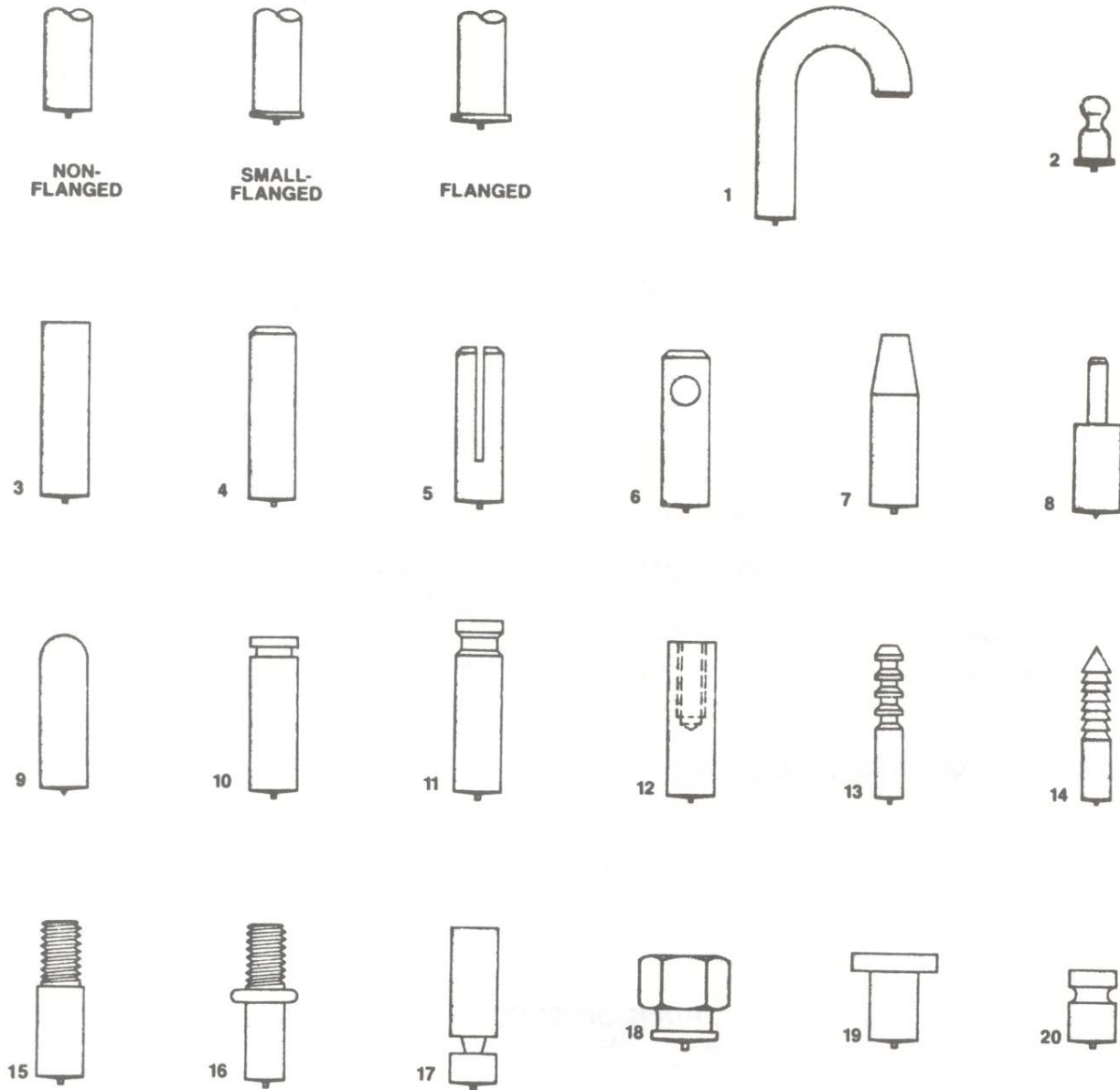


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CD STUDS: SPECIAL CAPACITOR DISCHARGE STUDS

From a .060" diameter no-thread CD stud to a 7/16" hex CD stud, SUNBELT can supply a special CD stud to meet your precision fastening requirements. The illustrations below indicate just a few of the possible configurations in which CD studs can be manufactured. These illustrations, however, do not represent any standard SUNBELT in-stock product line. If you require a special configuration CD stud for your application, please submit a sketch or drawing with dimensions & material requirements to SUNBELT for a quote.



*Other studs available on request.

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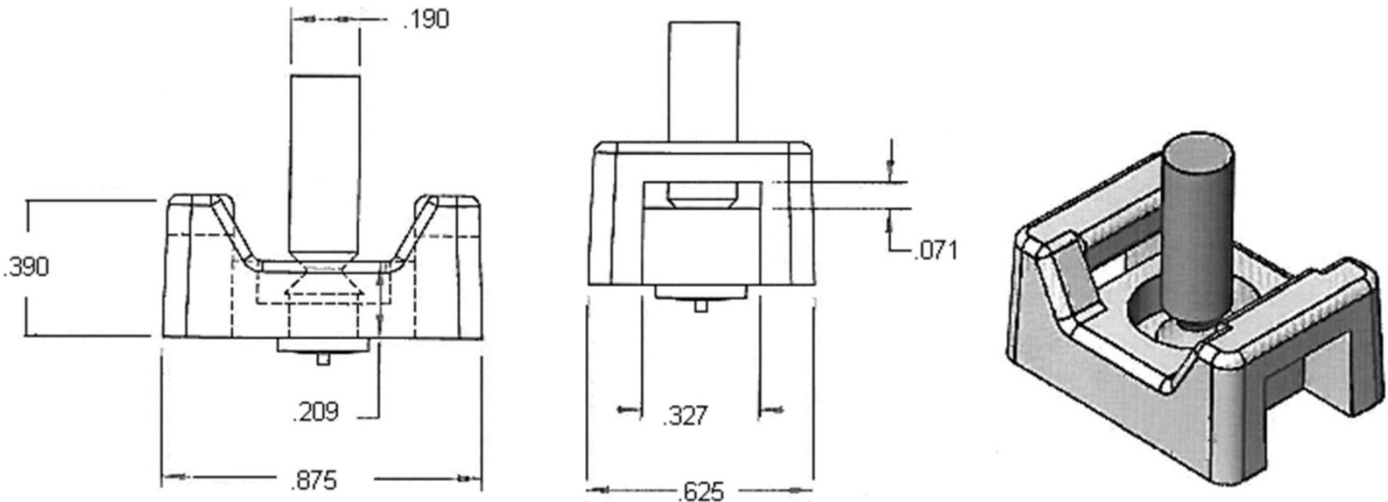
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CD STUDS: WIRE TIE DOWN

To order or specify give:
 Product Code: CD WT Material: Specify



STUD	MATERIAL	ALUMINUM Grade – 5000 Series	STAINLESS STEEL AISI grade 302 HQ
	MECHANICAL PROPERTIES	Tensile..... 45,000 psi (min) Yield..... 25,000 psi (min)	Tensile.....85,000 psi (min.) Yield.....40,000 psi (min.)

SADDLE	MATERIAL	Nylon 6/6
	MECHANICAL PROPERTIES	Call for Details

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WIRE TIE DOWN STUDS MECHANICAL PROPERTIES

Property	ASTM Method	Test Condition	Units	Nylon 6/6
Tensile Strength	D638	+73°F; 50% RH	kpsi	11.2
Elongation at Break	D638	+73°F; 50% RH	%	>=300
Yield Strength	D639	+73°F; 50% RH	kpsi	8.5
Shear Strength	D732	Dry as Molded (DAM)	kpsi	9.6
Deformation Under Load	D621	2,000 psi; +122°F; DAM	%	1.4
IZOD Impact	D256	+73°F; 50% RH	ft lb/in	2.1
Tensile Impact Strength	D1822	+73°F; Long Specimen; DAM	ft lb/in	240
Melting Point	D789	Fisher-Johns	°F	491
Thermal Linear Expansion	D696	DAM	in/in/°F	TBD
Thermal Conductivity	--	DAM Conche-Fitch	BTU-in/h*ft*°F	1.7
Brittleness Temperature	D746	50% RH	°F	-85
Oxygen Index	D2863	DAM	%O	28
Oxygen Index	D2864	50% RH	%O	31
UL Flammability	UL 94	DAM	--	V-2
UL Flammability	UL 95	50% RH	--	V-2

Nylon 6/6 NBS Smoke Generation				
Sample Thickness	UL Flammability	Energy Source	Specific Optical Density	
			At Maximum Smoke Accumulation	At 2 Minutes
1/16"	94 V-2	Radiant (2.5 watts/sq. cm)	13	0
1/8"	94 V-2	Radiant Plus Flaming Gas Jets	26	1

Nylon 6/6 Temperature Index			
Minimum Thickness	Electrical (°C)	Mechanical w/o Impact (°C)	Hot Wire Ignition (sec)
0.028	125	65	11.8
0.058	125	85	15.0

Nylon Wire Tie Mechanical Dimensions			Retaining Stud			
	Inch	mm	Material: 302 HQ SS; Ultimate Tensile 85 KPSI			
Height	0.390	9.90	Size: Equivalent to U.S. #10			
Length	0.875	22.22	CHEMISTRY:			
Width	0.625	15.87	C 0.017	Mo 0.05	Ni 9.54	Co Trace
Slot Height	0.090	2.29	S 0.001	Mn 0.83	Cu 3.07	N PPM 155
Slot Width	0.325	8.26	Cr 17.5	Si 0.32	P 0.024	Fe Remainder

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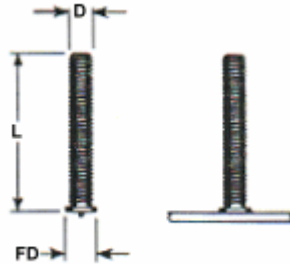


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CD STUDS: FLANGED

To order or specify give:
 Product Code: CD F Diameter: Specify D Length: Specify L Material: Specify



STUD		
D	FD	MIN L
2-56	.156	.250
4-40	.187	.250
6-32	.218	.250
8-32	.250	.250
10-32	.255	.250
10-24	.255	.250
1/4-20	.325	.375
5/16-18	.390	.500
3/8-16	.437	.500

MATERIAL	MILD STEEL C – 0.23% max. P – 0.04% max. Mn – 0.90% max. S – 0.05% max	STAINLESS STEEL AISI grade 302 standard Other grades available upon request
MECHANICAL PROPERTIES	Tensile 60,000 psi (min.) Yield 50,000 psi (min)	Tensile.....85,000 psi (min.) Yield.....40,000 psi (min.)
PLATING	Copper plating is standard	Does not apply to stainless
ANNEALING	Studs are annealed where required	Studs are annealed where required

MATERIAL	ALUMINUM Alloy 1100 & 5000 Series Other alloys available upon request	BRASS Alloy (lead free) 70 – 30 standard. Other alloys available upon request
MECHANICAL PROPERTIES	Values for various alloys available upon request	Tensile.....70,000 psi (min.) Yield.....50,000 psi (min.)

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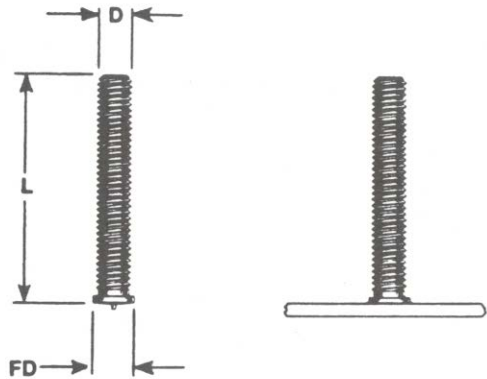
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SMALL FLANGED

To Order or Specify Give:
 Product Code: **CD SF** Diameter: Specify **D** Length: Specify **L** Material: Specify

STUD		
D	FD	MIN L
4-40	.147	.250
6-32	.175	.250
8-32	.200	.250
10-32	.225	.250
10-24	.225	.250
1/4-20	.290	.375
5/16-18	.349	.500



MATERIAL:	LOW CARBON STEEL C – 0.23% Max. P – 0.04% Max Mn – 0.90% Max S – 0.05% Max	STAINLESS STEEL AISI grade – 304/305 std. Other grades available on request.
MECHANICAL PROPERTIES:	Tensile.....60,000 psi (min) Yield.....50,000 psi (min)	Tensile.....85,000 psi (min) Yield.....40,000 psi (min)
PLATING:	Copper plating is standard.	Does not apply to Stainless.
ANNEALING:	Studs are annealed where required.	Studs are annealed where required.

MATERIAL:	ALUMINUM Alloy – 1100 & 5000 series Other alloys available on request.	BRASS Alloy – (lead free) 70-30 std. Other alloys available on request.
MECHANICAL PROPERTIES:	Values for various alloys available on request.	Tensile.....70,000 psi (min) Yield.....50,000 psi (min)

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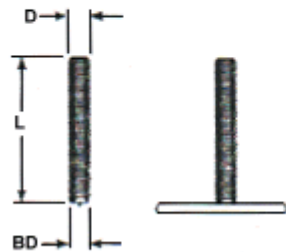
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CD STUDS: NON FLANGED

To order or specify give:
 Product Code: **CD NF** Diameter: Specify **D** Length: Specify **L** Material: Specify



STUD		
D	MAX BD	MIN L
4-40	.115	.250
6-32	.142	.250
8-32	.168	.250
10-32	.194	.250
10-24	.194	.250
1/4-20	.254	.375
5/16-18	.317	.500

MATERIAL	MILD STEEL C - 0.23% max. P - 0.04% max. Mn - 0.90% max. S - 0.05% max.	STAINLESS STEEL AISI grade - 304/305 std. Other grades available upon request.
MECHANICAL PROPERTIES	Tensile 60,000 psi (min.) Yield 50,000 psi (min.)	Tensile..... 85,000 psi (min.) Yield 40,000 psi (min.)
PLATING	Copper plating is standard	Does not apply to Stainless.
ANNEALING	Studs are annealed where required	Studs are annealed where required
MATERIAL	ALUMINUM Alloy 1100 & 5000 Series Other alloys available upon request	BRASS Alloy (lead free) 70 - 30 std. Other alloys available upon request
MECHANICAL PROPERTIES	Values for various alloys available upon request	Tensile..... 70,000 psi (min.) Yield 50,000 psi (min.)

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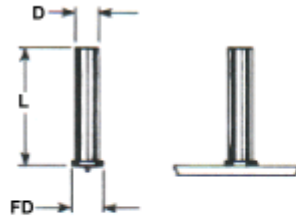


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CD STUDS: FLANGED NO THREAD

To order or specify give:
 Product Code: **CD F-NT** Diameter: Specify **D** Length: Specify **L** Material: Specify



STUD		
D	FD	MIN L
3/32	.174	.250
.115	.203	.250
1/8	.250	.250
.141	.218	.250
5/32	.250	.250
.161	.250	.250
3/16	.281	.250
.217	.312	.250
1/4	.350	.375
.273	.375	.375
5/16	.365	.500

MATERIAL	MILD STEEL C - 0.23% max. P - 0.04% max. Mn - 0.90% max. S - 0.05% max.	STAINLESS STEEL AISI grade - 304/305 std. Other grades available upon request.
MECHANICAL PROPERTIES	Tensile 60,000 psi (min.) Yield 50,000 psi (min.)	Tensile..... 85,000 psi (min.) Yield 40,000 psi (min.)
PLATING	Copper plating is standard	Does not apply to Stainless.
ANNEALING	Studs are annealed where required	Studs are annealed where required
MATERIAL	ALUMINUM Alloy 1100 & 5000 Series Other alloys available upon request	BRASS Alloy (lead free) 70 - 30 std. Other alloys available upon request
MECHANICAL PROPERTIES	Values for various alloys available upon request	Tensile..... 70,000 psi (min.) Yield 50,000 psi (min.)

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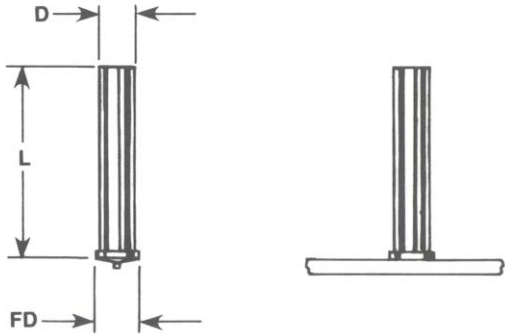
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**CD STUDS: SMALL
FLANGED – NO THREAD**

To Order or Specify:
 Product Code: **CD SF-NT** Diameter: Specify **D** Length: Specify **L** Material: Specify

STUD		
D	FD	MIN L
3/32	.143	.250
.115	.171	.250
1/8	.156	.250
.141	.195	.250
5/32	.221	.250
.161	.221	.250
3/16	.221	.250
.215	.281	.250
1/4	.281	.375
.273	.343	.375
5/16	.343	.500



MATERIAL:	LOW CARBON STEEL C – 0.23% Max. P – 0.04% Max. Mn – 0.90% Max. S – 0.05% Max.	STAINLESS STEEL AISI grade – 302/304/305 std. Other grades available on request.
	MECHANICAL PROPERTIES: Tensile.....60,000 psi (min) Yield.....50,000 psi (min) Elongation.....20% (in 2 inches)	Values for various grades available on request.
PLATING:	Copper plating is standard.	Does not apply to Stainless.
ANNEALING:	Studs are annealed where required.	Studs are annealed where required.

MATERIAL:	ALUMINUM Alloy – 1100 & 5000 series Other alloys available on request.	BRASS Alloy – (lead free) 70-30 std. Other alloys available on request.
	MECHANICAL PROPERTIES:	Values for various alloys available on request.

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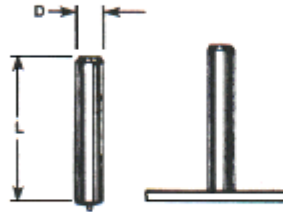
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713-939-8903
 fax **713-939-9013**



CD STUDS: NON FLANGED NO THREAD

To order or specify give:

Product Code: **CD NF-NT** Diameter:Specify **D** Length:Specify **L** Material:Specify



<i>STUD</i>	
D	MIN L
3/32	.250
.115	.250
1/8	.250
.141	.250
5/32	.250
.161	.250
3/16	.250
.217	.250
1/4	.375
.273	.375
5/16	.500

MATERIAL	MILD STEEL C - 0.23% max. P - 0.04% max. Mn - 0.90% max. S - 0.05% max.	STAINLESS STEEL AISI grade - 304/305 std. Other grades available upon request.
MECHANICAL PROPERTIES	Tensile 60,000 psi (min.) Yield 50,000 psi (min.)	Tensile..... 85,000 psi (min.) Yield 40,000 psi (min.)
PLATING	Copper plating is standard	Does not apply to Stainless.
ANNEALING	Studs are annealed where required	Studs are annealed where required
MATERIAL	ALUMINUM Alloy 1100 & 5000 Series Other alloys available upon request	BRASS Alloy (lead free) 70 - 30 std. Other alloys available upon request
MECHANICAL PROPERTIES	Values for various alloys available upon request	Tensile..... 70,000 psi (min.) Yield 50,000 psi (min.)

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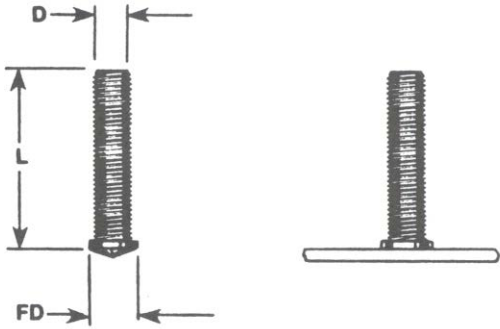
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CD STUDS: DRAWN ARC

To Order or Specify Give:
 Product Code: **CD DA** Diameter: Specify **D** Length: Specify **L** Material: Specify

STUD		
D	FD	MIN L
4-40	.143	.250
6-32	.169	.250
8-32	.195	.250
10-32	.221	.250
10-24	.221	.250
1/4-20	.281	.375



	LOW CARBON STEEL	STAINLESS STEEL
MATERIAL:	C - 0.23% Max. P - 0.04% Max. Mn - 0.90% Max. S - 0.05% Max.	AISI grade - 304/305 std. Other grades available on request
MECHANICAL PROPERTIES:	Tensile.....60,000 psi (min.) Yield.....50,000 psi (min.)	Tensile.....85,000 psi (min.) Yield.....40,000 psi (min.)
PLATING:	Copper plating is standard.	Does not apply to Stainless.
ANNEALING:	Studs are annealed where required.	Studs are annealed where required.

	ALUMINUM	BRASS
MATERIAL:	Alloy - 1100 & 5000 series Other alloys available on request.	Alloy - (lead free) 70-30 std. Other alloys available on request.
MECHANICAL PROPERTIES:	Values for various alloys available on request.	Tensile.....70,000 psi (min.) Yield.....50,000 psi (min.)

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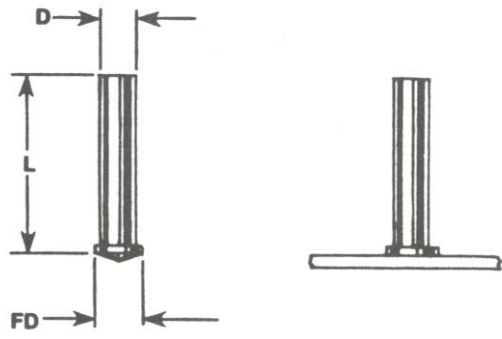
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 fax 713-939-9013



**CD STUDS: DRAWN ARC –
NO THREAD**

To Order or Specify Give:
 Product Code: **CD DA-NT** Diameter: Specify **D** Length: Specify **L** Material: Specify

STUD		
D	FD	MIN L
3/32	.143	.190
.115	.171	.190
1/8	.156	.190
.141	.195	.190
5/32	.221	.190
.161	.221	.190
3/16	.221	.190
.217	.281	.190
1/4	.281	.250



MATERIAL:	LOW CARBON STEEL C – 0.23% Max. P – 0.04% Max. Mn – 0.90% Max. S – 0.05% Max.	STAINLESS STEEL AISI grade – 304/305 std. Other grades available on request.
	MECHANICAL PROPERTIES: Tensile.....60,000 psi (min.) Yield.....50,000 psi (min.)	Tensile.....85,000 psi (min.) Yield.....40,000 psi (min.)
PLATING:	Copper plating is standard.	Does not apply to Stainless.
ANNEALING:	Studs are annealed where required.	Studs are annealed where required.

MATERIAL:	ALUMINUM Alloy – 1100 & 5000 series Other alloys available on request.	BRASS Alloy – (lead free) 70-30 std. Other alloys available on request.
	MECHANICAL PROPERTIES: Values for various alloys available on request.	Tensile.....70,000 psi (min.) Yield.....50,000 psi (min.)

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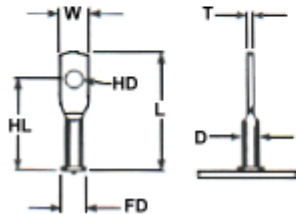


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**CD STUDS: FLANGED
ACOUSTICAL HANGER**

To order or specify give:
 Product Code: **CD F-AH** Diameter:Specify **D** Length:Specify **L** Material:Specify



STUD						
D	L	FD	HD	HL	W	T
.168	1-1/8	.250	.187	7/8	5/16	1/16
.214	1-1/8	.312	.187	7/8	3/8	5/64

MATERIAL	MILD STEEL C - 0.23% max. P - 0.04% max. Mn - 0.90% max. S - 0.05% max.	STAINLESS STEEL AISI grade - 304/305 std. Other grades available upon request.
MECHANICAL PROPERTIES	Tensile 60,000 psi (min.) Yield 50,000 psi (min.)	Tensile..... 85,000 psi (min.) Yield 40,000 psi (min.)
PLATING	Copper plating is standard	Does not apply to Stainless.

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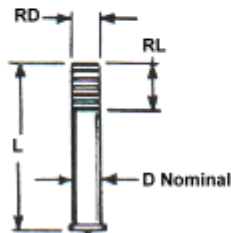
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713-939-8903
 fax 713-939-9013



CD STUDS: FLANGED ANNULAR RING (NAVY)

To order or specify give:

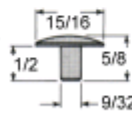
Product Code: **CD F-AR** Diameter: Specify **D** Length: Specify **L** Material: Specify



<i>STUD</i>			
NOM D	MIN L	RD	RL
3/16	3/4	.175	.312

<i>MATERIAL</i>	LOW CARBON STEEL Conforms to MIL-S 24149	STAINLESS STEEL Conforms to MIL-S 24149
<i>MECHANICAL PROPERTIES</i>	Tensile 60,000 psi (min.) Yield 50,000 psi (min.)	Tensile..... 85,000 psi (min.) Yield 40,000 psi (min.)
<i>PLATING</i>	Copper plating is standard	Does not apply to Stainless.

Annular Ring Cap (for annular ring studs)



Cap Part No.
052-297

CAP: Sold separately. Not a component part of stud.

<i>APPLICATION</i>	Designed to permanently lock on to Navy annular ring studs.
<i>MATERIAL</i>	Aluminum
<i>SIZE</i>	For 1/8" or 3/16" diameter studs.

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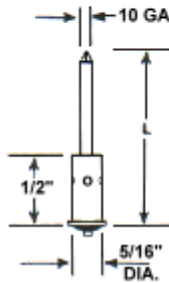
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713-939-8903
fax 713-939-9013



CD STUDS: PIN BI-METALLIC

To order or specify give:

Product Code: **CD BM-P** Length: Specify **L**



MATERIAL	PIN Stainless Steel	BASE Aluminum - (5000 Series)
WASHER	Self-Locking washers are available in a variety of sizes, shapes and materials.	

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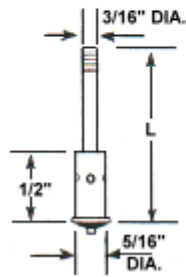
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CD STUDS: ANNULAR RING BI-METALLIC

To order or specify give:

Product Code: CD BM-AR Length: Specify L



MATERIAL	PIN Stainless Steel	BASE Aluminum - (5000 Series)
GAP	The cap for use with this stud is the WCN AR CAP, annular ring cap	

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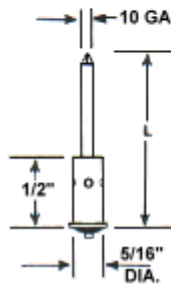
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713-939-8903
fax 713-939-9013



CD STUDS: NOTCHED END BI-METALLIC

To order or specify give:

Product Code: CD BM-NE Length: Specify L



MATERIAL	PIN Stainless Steel	BASE Aluminum - (5000 Series)
WASHER	The washer for use with this stud is the WCN NE KHS, notched and keyhole slotted washer	

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