

FRAME CLIPS

MATERIAL: Spring Steel*

FINISH: Zinc Plate, Bake and Black Dichromate

FC



FC – with barbs

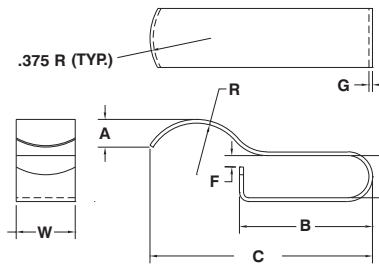


Figure 1

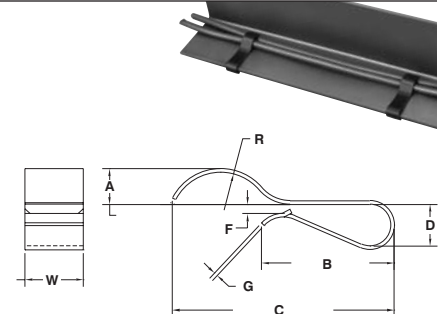


Figure 2

Part Number	Figure	R	A	B	C	D	F	G	W	Use On Metal Thickness	
										±.031	±.031
FC-1032	1	.250	.187	.703	1.062	.156	.046	.032	.500	.074	.156
FC-2032	1	.375	.250	.937	1.625	.186	.062	.032	.500	.120	.175
FC-3032	1	.375	.218	.890	1.562	.344	.125	.032	.500	.175	.312
FC-4042	2	.312	.250	1.000	1.531	.187	.100	.042	.500	.074	.187
FC-5042	2	.375	.406	1.062	1.812	.312	.141	.042	.500	.134	.312

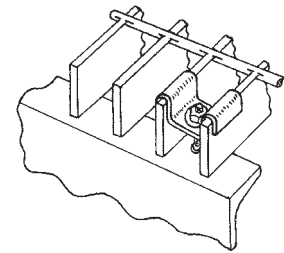
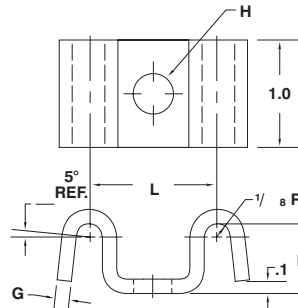
*C-1050 Ann. Spring Steel Heat Treated to Blue Spring Temper.

SADDLE CLIPS For Anchoring Grating

For welded steel and pressure-locked aluminum or steel grating having bearing bars at 15/16" (.937) and 1-3/16" (1.188) centers. May be used on installations where grating is subject to frequent removal. Steel clips used on aluminum should be galvanized or zinc plated.

Bolt holes may be distorted by forming, but .281" diameter pin will pass through .312" hole, and .328" diameter pin will pass through .343" hole.

SC



Part Number	Material	Finish	Gage	L	H	B
				Center To Center	Bolt Hole Diameter	Base To Top Of Radius
SC-2074	C.R.Steel	None (Plain)	.074	.937	.312	.500
SC-2074-H1	C.R.Steel	Galvanized	.074			
SC-2074-Z1	C.R. Steel	Commercial Zinc Plate	.074			
SC-2074-AL	Aluminum 3003-H14	None (Plain)	.080			
SC-2074-SS	Stainless Steel	None (Plain)	.075			
SC-1074	HRP&O Steel	None (Plain)	.074	1.188	.343	.625
SC-1074-H1	HRP&O Steel	Galvanized	.074			
SC-1074-Z1	HRP&O Steel	Commercial Zinc Plate	.074			
SC-1074-AL	Aluminum 3003-H14	None (Plain)	.080			
SC-1074-SS	Stainless Steel	None (Plain)	.075			
SC-1104	HRP&O Steel	None (Plain)	.104	1.188	.343	.625
SC-1104-H1	HRP&O Steel	Galvanized	.104			
SC-1104-Z1	HRP&O Steel	Commercial Zinc Plate	.104			
SC-1104-AL	Aluminum 3003-H14	None (Plain)	.100			
SC-1104-SS	Stainless Steel	None (Plain)	.105			

CONTROL CABLE CLIPS For Casing and Bowden Wire

Side Mount

MATERIAL: Spring Steel*
FINISH: Zinc Plate, Bake and Clear Chromate

Figure	Part Number	D Tubing Diameter	A Cable Diameter
1	SW-1206	3/4	3/16 - 7/32
1	SW-1210	3/4	5/16
1	SW-1406	7/8	3/16 - 7/32
1	SW-1412	7/8	3/8
1	SW-1606	1	3/16 - 7/32
1	SW-2006	1-1/4	3/16 - 7/32
2	MW-1408	7/8	1/4

*C-1050 Ann. Spring Steel Heat Treated to Blue Spring Temper.

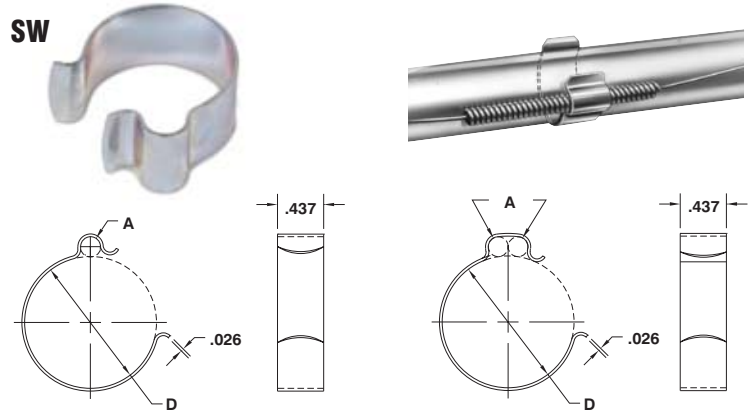


Figure 1 - "SW"

Figure 2 - "MW"

Center Mount

MATERIAL: Spring Steel*
FINISH: Zinc Plate, Bake and Clear Chromate

Figure	Part Number	D Tubing Diameter	A Cable Diameter
3	BW-1206	3/4	3/16 - 7/32
3	BW-1208	3/4	1/4
3	BW-1406	7/8	3/16 - 7/32
3	BW-1408	7/8	1/4
3	BW-1409	7/8	1/4
3	BW-1606	1	3/16 - 7/32
3	BW-1610	1	5/16
3	BW-1810	1-1/8	5/16

*C-1050 Ann. Spring Steel Heat Treated to Blue Spring Temper.

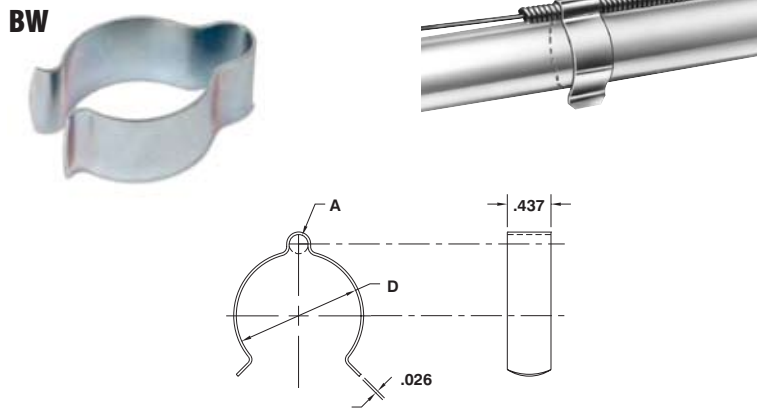
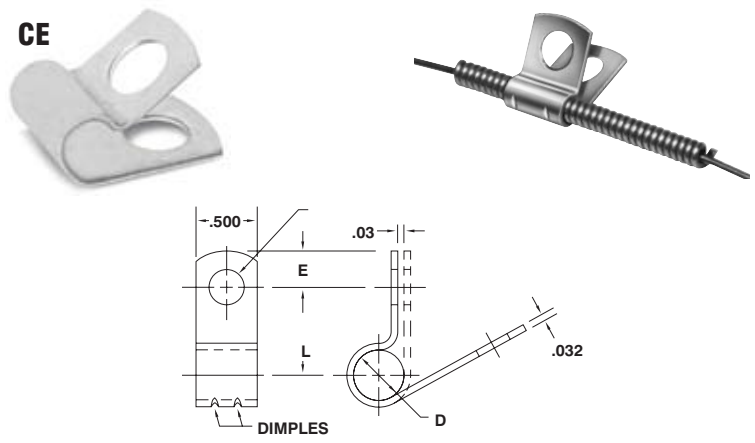


Figure 3 - "BW"

Engine and Deck Mount

MATERIAL: HD Galv Steel, Chem-Treated G90,
 Per ASTM A653/A653M

Part Number	D Cable Diameter	H Diameter Of Holes	L Center To Center	E Hole Center To End
		±.005	±.031	±.015
CE-0613	3/16	.203	.375	.218
CE-0618	3/16	.281	.375	.250
CE-0713	7/32	.203	.375	.218
CE-0718	7/32	.281	.375	.250
CE-0813	1/4	.203	.437	.218
CE-0818	1/4	.281	.437	.250

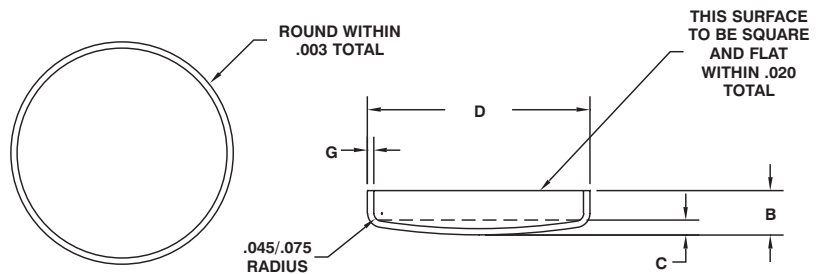


CARBON STEEL EXPANSION PLUGS Cup Type – Concave Bottom

MATERIAL: HRP&O or CR Steel, CQ

FINISH: None (Plain), Zinc Plated

PC



Part Number	Nominal Diameter	D Outside Diameter	B Overall Height	C Crown Height	G Steel Thickness	Recommended Hole Diameter
PC-0375	3/8	.385 - .387	.168 - .208	.049 - .075	.042	.379 - .381
PC-0437	7/16	.447 - .449	.168 - .208	.049 - .075	.042	.440 - .442
PC-0500	1/2	.510 - .512	.230 - .270	.049 - .075	.042	.504 - .506
PC-0562	9/16	.572 - .574	.230 - .270	.049 - .075	.042	.566 - .568
PC-0625	5/8	.635 - .637	.230 - .270	.049 - .075	.042	.629 - .631
PC-0687	11/16	.697 - .699	.230 - .270	.049 - .075	.042	.691 - .693
PC-0750	3/4	.760 - .762	.230 - .270	.057 - .083	.048	.754 - .756
PC-0812	13/16	.823 - .825	.230 - .270	.057 - .083	.048	.817 - .819
PC-0875	7/8	.885 - .887	.230 - .270	.057 - .083	.048	.879 - .881
PC-1000	1	1.010 - 1.012	.290 - .330	.067 - .103	.048	1.002 - 1.005
PC-1062	1-1/16	1.072 - 1.074	.355 - .395	.067 - .103	.048	1.064 - 1.067
PC-1125	1-1/8	1.135 - 1.137	.290 - .330	.067 - .103	.048	1.127 - 1.130
PC-1250	1-1/4	1.260 - 1.262	.290 - .330	.067 - .103	.048	1.252 - 1.255
PC-1375	1-3/8	1.386 - 1.388	.290 - .330	.077 - .113	.060	1.378 - 1.381
PC-1500	1-1/2	1.506 - 1.508	.290 - .330	.077 - .113	.060	1.497 - 1.500
PC-1625	1-5/8	1.640 - 1.642	.340 - .380	.077 - .113	.060	1.631 - 1.634
PD-1625	1-5/8	1.639 - 1.642	.573 - .613	.077 - .113	.060	1.631 - 1.634
PC-1750	1-3/4	1.760 - 1.762	.340 - .380	.077 - .113	.060	1.751 - 1.754
PC-1875	1-7/8	1.885 - 1.887	.340 - .380	.077 - .113	.060	1.876 - 1.879
PC-2000	2	2.010 - 2.012	.340 - .380	.097 - .153	.060	2.001 - 2.004
PD-2000	2	2.010 - 2.012	.420 - .440	.097 - .153	.060	2.001 - 2.004
PC-2500	2-1/2	2.513 - 2.518	.380 - .440	.111 - .167	.060	2.500 - 2.504
PC-2750	2-3/4	2.760 - 2.763	.380 - .440	.111 - .167	.074	2.750 - 2.754
PC-3000	3	3.010 - 3.013	.480 - .540	.111 - .167	.074	3.000 - 3.004

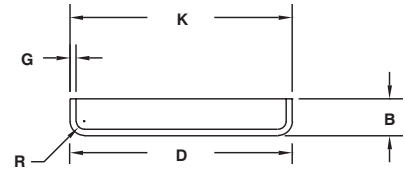
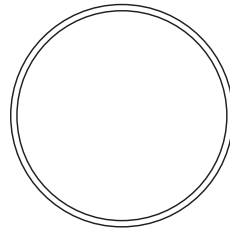
These parts can be furnished from brass, aluminum, galvanized steel and stainless steel. Tolerances will vary slightly from those shown for carbon steel.

CARBON STEEL EXPANSION PLUGS Cup Type – Flat Bottom, Tapered Walls

MATERIAL: HRP&O or CR Steel, CQ

FINISH: None (Plain), Zinc Plated

PF



Part Number	Nominal Diameter	D Diameter Closed End	K Diameter Open End	B Height ±.020	G Gage	R Inside Radius
PF-0375	3/8	.375 - .381	.383 - .386	.218	.032	.03
PF-0500	1/2	.500 - .502	.508 - .511	.250	.032	.03
PF-0750	3/4	.753 - .756	.760 - .763	.375	.060	.03
PF-0875	7/8	.875 - .877	.877 - .880	.406	.032	.03
PF-1001	1	1.003 - 1.005	1.009 - 1.011	.312	.060	.03
PF-1250	1-1/4	1.255 - 1.257	1.261 - 1.263	.343	.060	.03
PF-2000	2	1.992 - 1.997	2.010 - 2.017	.437	.083	.06
PF-2125	2-1/8	2.127 - 2.129	2.133 - 2.138	.437	.083	.06
PF-2375	2-3/8	2.382 - 2.386	2.382 - 2.386	.281	.032	.03
PF-2501	2-1/2	2.506 - 2.512	2.510 - 2.520	.656	.060	.06
PF-2750	2-3/4	2.752 - 2.754	2.762 - 2.767	.500	.083	.06
PF-3001	3	2.997 - 3.000	3.010 - 3.015	.500	.074	.06

These parts can be furnished from brass, aluminum and galvanized steel. Tolerances will vary slightly from those shown for carbon steel.

Core Hole Preparation and Insertion of Cup-type Core Hole Plugs

KMC produces a full line of concave-bottom ("PC") plugs, and flat-bottom tapered-wall ("PF") plugs. The "PC" seals by pressure exerted by the concave bottom against the walls of the plug, much in the same manner as a Belleville washer. The "PF" seals by compression of the tapered walls against the core hole. Although hole preparation is the same for both, each requires a different method of insertion.

HOLE PREPARATION Inside core hole finish should not exceed 100 micro inches. Eccentricity of the hole should not be greater than .002" for plugs under 1", nor more than .003" for plugs over 1" diameter. With properly prepared holes, plugs can be installed without a sealant. A small amount of lubricant, such as light machine oil with 5% white lead, is desirable to prevent galling.

A 30° x .03" minimum chamfer should be machined on the core hole entry to facilitate plug entry. A .25" minimum radius is preferable to a chamfer, but is seldom used because of tooling cost.

Plugs should be driven square to the hole with the open end approximately .03" below the tangent point of the entry relief. The shoulder on the driver should be bottomed on the casting to control squareness and proper depth. If the surface of the casting is rough or irregular, it should be faced. Plugs should not touch bottom in a counterbored hole.

DRIVING THE PLUG Concave bottom (PC) plugs should be driven on the **inside bottom radius** and **NOT** from the top rim of the cup. The driving arbor should be .015/.025" smaller than the inside diameter of the plug, and have a contact radius of .062", with a flat bottom to prevent contact with the concave bottom to avoid deforming this surface.

Flat bottom, tapered walls (PF) plugs should be driven from the rim and not on the bottom. The end of the driving tool should be .015/.025" smaller than the inside diameter of the plug, and should not touch the bottom of the plug. The depth in the hole can be controlled from the face of the casting by a shoulder on the driver.

