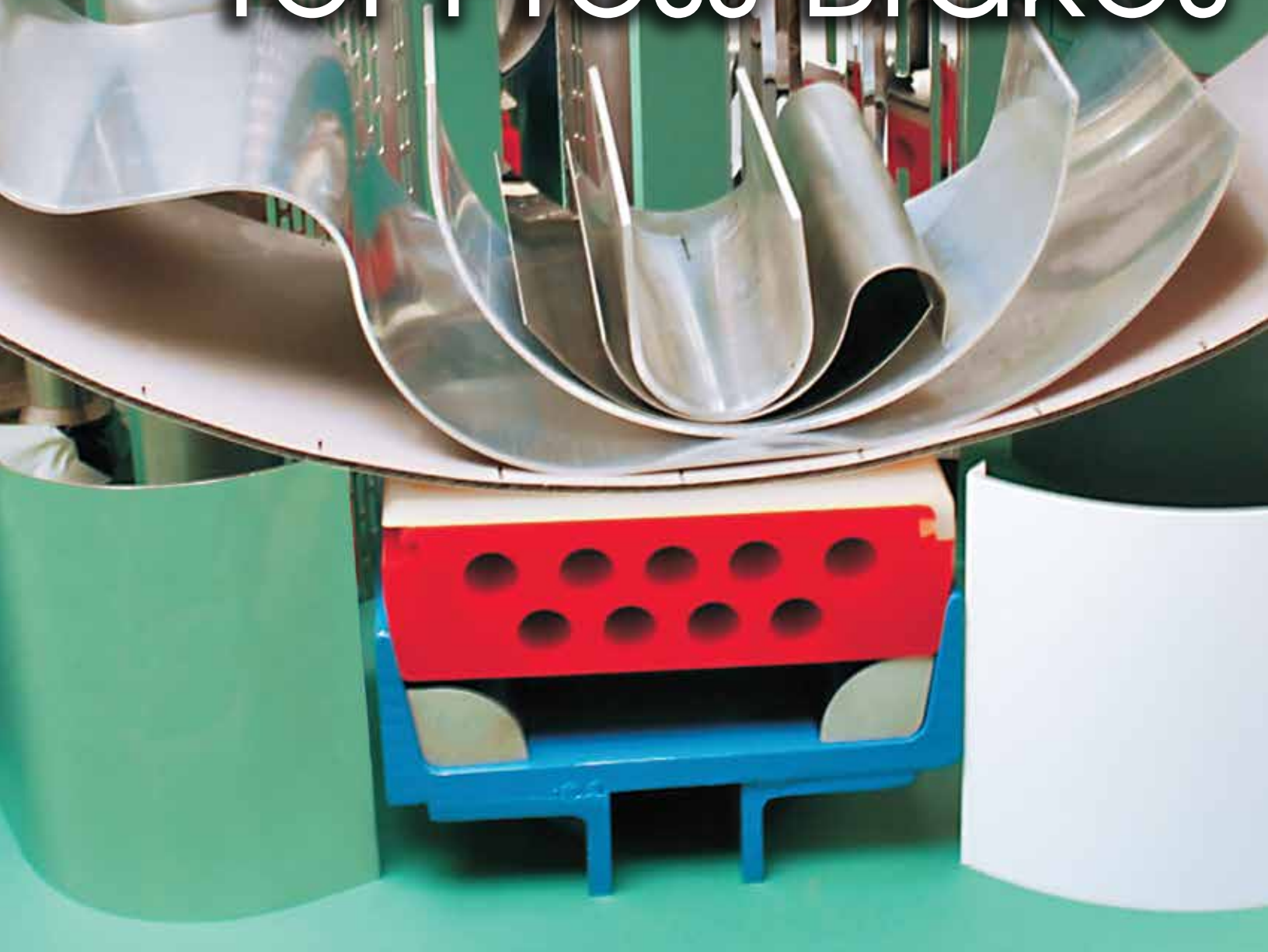




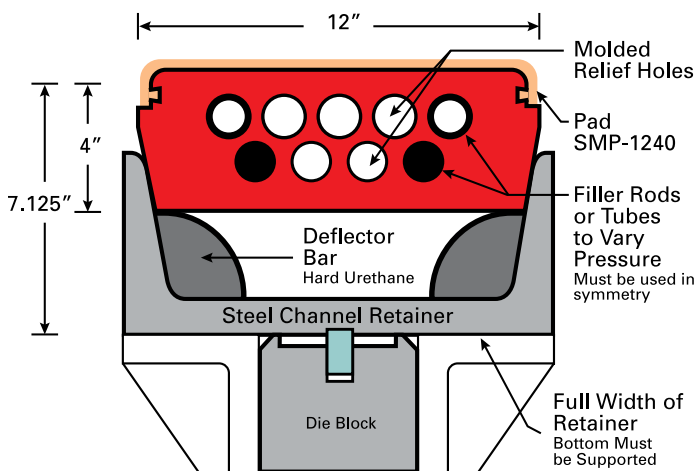
Polyurethane
Products
*The Science of
Radius Forming*

Smart Pad System™ for Press Brakes





To illustrate the versatility of this unique SMART PAD SYSTEM, we are using 5 different punches from 3/4"R (18mm R) to 8"R (200 mm R) to bend 1/8" thick (3mm) polished Aluminum into 5 different radii, using the same bottom die... SMP-1240. There is no other tooling system that can be as versatile and produce such high quality mar-free products. We've designed & built hundreds of punches & dies over the last 30 years.



SMP1240 Smart Pad System™:

Designed to bend any radius from 1" (25mm) to 4" (100mm), 90° in one hit or bump form any radiused shape.

Limitations :

Minimum radius = 1" (25mm), Minimum punch width = 2" (50mm)
Maximum punch width = 8" (200mm)
Maximum depth of punch penetration = 3" (75mm)
Maximum Gauge = 10ga. (3 mm) M.S., 14ga. (2mm) S.S.
(with caution, we have bent 1/4" [6 mm] thick S.S. To 8" R)

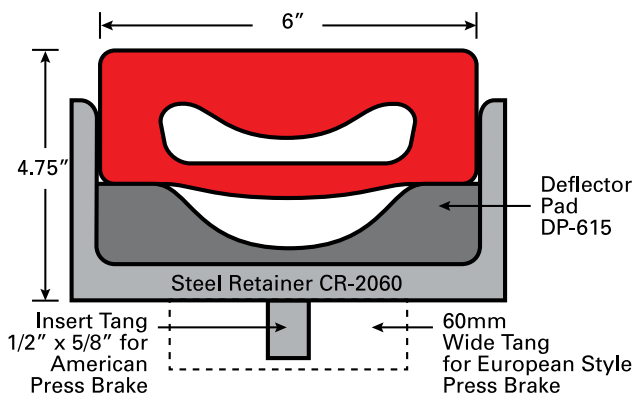
Rad ii & Gauge:

Minimum radius = 1" (25mm), 10 ga. (3mm) M.S.
Maximum radius = 4" (100mm), 10 ga. (3mm) M.S.-90° bend in one hit.

Bump Form:

Any radius without exceeding 3" (75 mm) depth of penetration.
(Minium distance to start of radius bend = 1" (25mm).

Wear pad is made one grade harder than the main pad & is replaceable.



SMP620N Smart Pad System™:

Designed to bend any radius from 1/2"(12mm) to 2"(50mm), 90° in one hit or bump form any radiused shape.

Limitations :

Maximum punch width = 3" (75mm)
Maximum depth of punch penetration = 1-1/4" (32mm)
Minimum radius = 1/2" (12mm)
Minimum punch width = 1-1/2" (38mm)

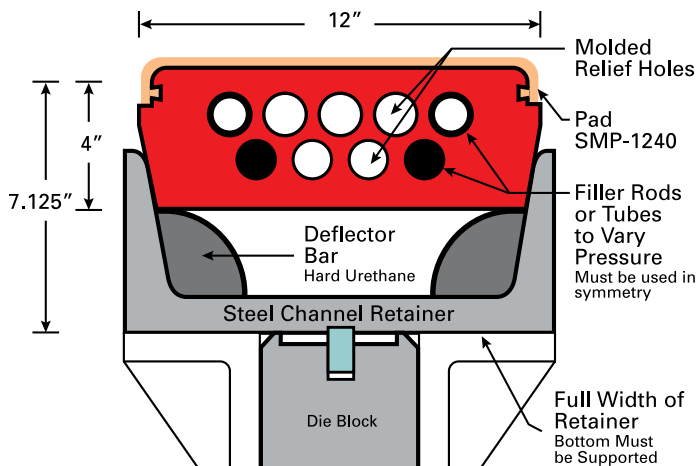
Bending Capacity:

Minimum radius = 1" (25mm), 10 ga. (3mm) M.S.
Minium distance to start of radius bend = 1" (25mm).

Wear pad is made one grade harder than the main pad & is replaceable.



To illustrate the versatility of this unique SMART PAD SYSTEM, we are using 5 different punches from 3/4"R (18mm R) to 8"R (200 mm R) to bend 1/8" thick (3mm) polished Aluminum into 5 different radii, using the same bottom die... SMP-1240. There is no other tooling system that can be as versatile and produce such high quality mar-free products. We've designed & built hundreds of punches & dies over the last 30 years.



	Min R	Min R	Bump Form
SMP 1240	1" R* 90°	4" R* 90°	Any Radius

SMP1240 Smart Pad System™:

Designed to bend any radius from 1" (25mm) to 4" (100mm), 90° in one hit or bump form any radiused shape.

Limitations :

Minimum radius = 1" (25mm), Minimum punch width = 2" (50mm)
 Maximum punch width = 8" (200mm)
 Maximum depth of punch penetration = 3" (75mm)
 Maximum Gauge = 10ga. (3 mm) M.S., 14ga. (2mm) S.S.
 (with caution, we have bent 1/4" [6 mm] thick S.S. To 8" R)

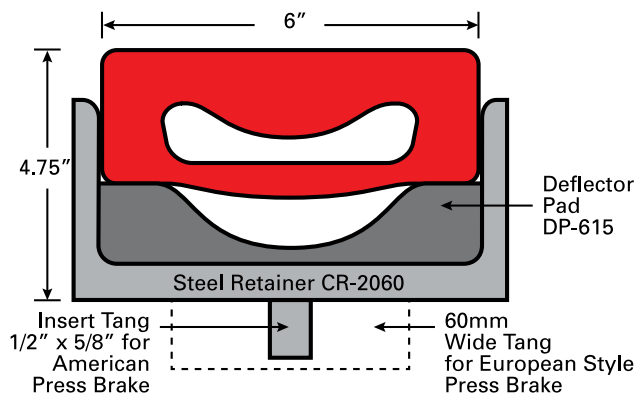
Rad ii & Gauge:

Minimum radius = 1" (25mm), 10 ga. (3mm) M.S.
 Maximum radius = 4" (100mm), 10 ga. (3mm) M.S.-90° bend in one hit.

Bump Form:

Any radius without exceeding 3" (75 mm) depth of penetration.
 (Minium distance to start of radius bend = 1" (25mm).

Wear pad is made one grade harder than the main pad & is replaceable.



	Min R	Min R	Bump Form
SMP 640	1/2" R	2" R	Any Radius

SMP620N Smart Pad System™:

Designed to bend any radius from 1/2"(12mm) to 2"(50mm), 90° in one hit or bump form any radiused shape.

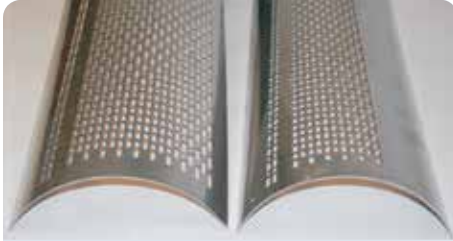
Limitations :

Maximum punch width = 3" (75mm)
 Maximum depth of punch penetration = 1-1/4" (32mm)
 Minimum radius = 1/2" (12mm)
 Minimum punch width = 1-1/2" (38mm)

Bending Capacity:

Minimum radius = 1" (25mm), 10 ga. (3mm) M.S.
 Minium distance to start of radius bend = 1" (25mm).

Wear pad is made one grade harder than the main pad & is replaceable.



Mirror finished stainless steel slotted muffer guards formed without any kinks or markings.



Pre-painted perforated lighting cover radius formed in one hit. Similar to Die shown below.



This stainless steel tubing is formed into a 12"(300 mm) R without any distortion.



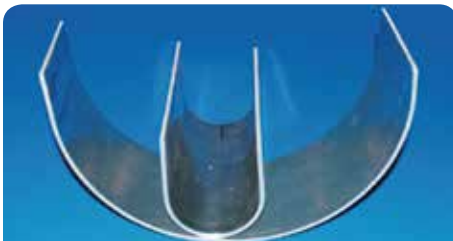
Mirror finish stainless steel trailer front corners. 5" Rad."(125mm) x 90 degrees formed in 2 hits without blend lines. Eliminated start and finishing lines from rolling.



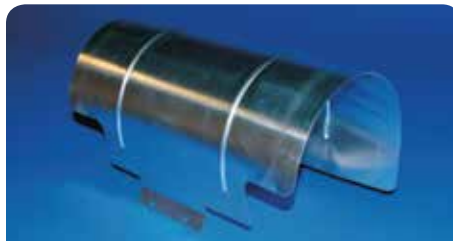
With Planers upto 30' in length we can machine steel punches of any custom shape. Custom tooling is developed on this 400 Ton Press Brake.



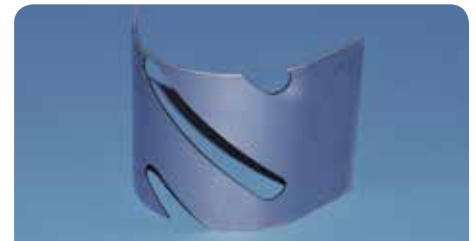
Acclaimed as the "most versatile Radius bending Tooling system in the world", SMP-1240 can bend any radius... from 3/4"(18mm) to 24"(600mm), any Gauge... up to 1/4"(6mm) S.S.



180 degree U-bends of different radii are formed with the same Urethane bottom die, in 3 hits, without any blend lines.



This embossed part is formed to a 180 degree 50 mm radius without flattening the embossing.



This 90 degree bend across a large size cut-out is formed in 10 Ga. (3 mm) thick M.S. in one hit.



Pre-painted Column Covers, 1/4" thick Aluminum, 14 Ft. long, bump-formed to 48" Dia. With no bump lines or surface marks

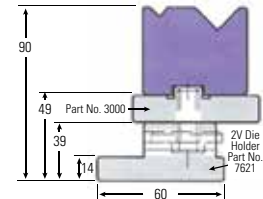
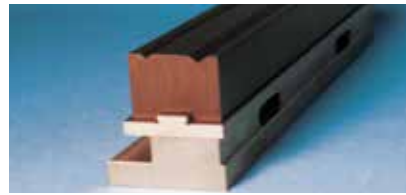


These stainless steel column covers are formed into 180 degrees in 3 hits without any marks.



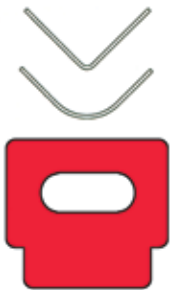
Slotted Stainless steel Muffer guard formed without any kinks or distortions to a perfect radius to the very edge of the sheet, without any surface marks.

- Made of a very hard tooling grade Urethane for SCRATCH-FREE bending of sheet metal
- Just drop onto a Quick Change Die Rail and changing sizes of V-Dies will be a snap, with automatic alignment.
- Turn it around for a different size V-opening or drop in a new die. No need for alignment or shimming.
- Save Time and money in forming pre-finished sheet metal as compared to using plastic film die covers.
- For European Style Machines, the 2-V Die can be used with a quick change rail, mounted on a 2-V Die holder.
- The 2V Dies are designed for Air bending only. The heights are the same as comparable steel V Dies



PART NUMBER	V-OPENINGS (V1/V2) mm	ANGLE OF V DEGREES	WIDTH (w) mm	RADII (R1/R2) mm	HEIGHT (h) mm
7101U	6/10	90	50	0.4/0.6	46
7102U	8/12	90	50	0.5/0.8	45
7104U	14/18	88	60	0.5/0.5	46
7105U	12/20	88	60	0.5/0.5	46
7106U	20/25	88	60	0.8/0.8	45
7321U	8/12	30	60	1.0/1.0	45

Quick Change Urethane Poly-Dies:



POD Type Pads

Designed for Sharp V-Bends, as well as radius V-bends or for bump forming any radius shape of up to 2" R.

EUROPEAN or AMADA STYLE	POD32EL	835 mm long
	POD32ES	415 mm long
AMERICAN STYLE	POD32AL	36" long
	POD32AS	18" long
TRUMPF STYLE	POD32TL	36" long
	POD32TS	18" long



PUD Type Pads

Have a molded U-shaped groove on the top surface, with radius equal to the outside radius of the part being bent. Spring-back allowance must be made in determining the size of the punch. For one-hit U-bends, overbend up to 20° is possible.

EUROPEAN or AMADA STYLE	-25R	6.3mm (1/4")
	PUD32E-38R	9.5mm (3/8")
	PUD32E-50R	12.7mm (1/2")
	PUD32E-75R	19.0mm (3/4")
AMERICAN STYLE	PUD32A-25R	6.3mm (1/4")
	PUD32A-38R	9.5mm (3/8")
	PUD32A-50R	12.7mm (1/2")
	PUD32A-75R	19.0mm (3/4")
TRUMPF STYLE	PUD32T-25R	6.3mm (1/4")
	PUD32T-38R	9.5mm (3/8")
	PUD32T-50R	12.7mm (1/2")
	PUD32T-75R	19.0mm (3/4")



PBN Type Pads

Designed for to form a full 180° bend bull nose bend in 2 hits, without the sheet metal touching the ram. As shown:

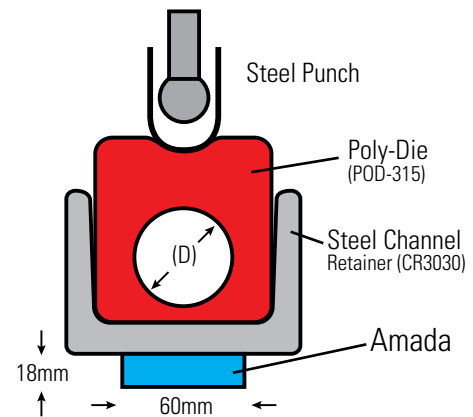
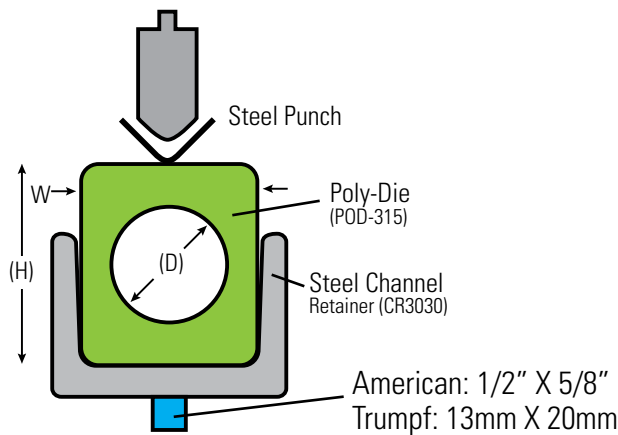
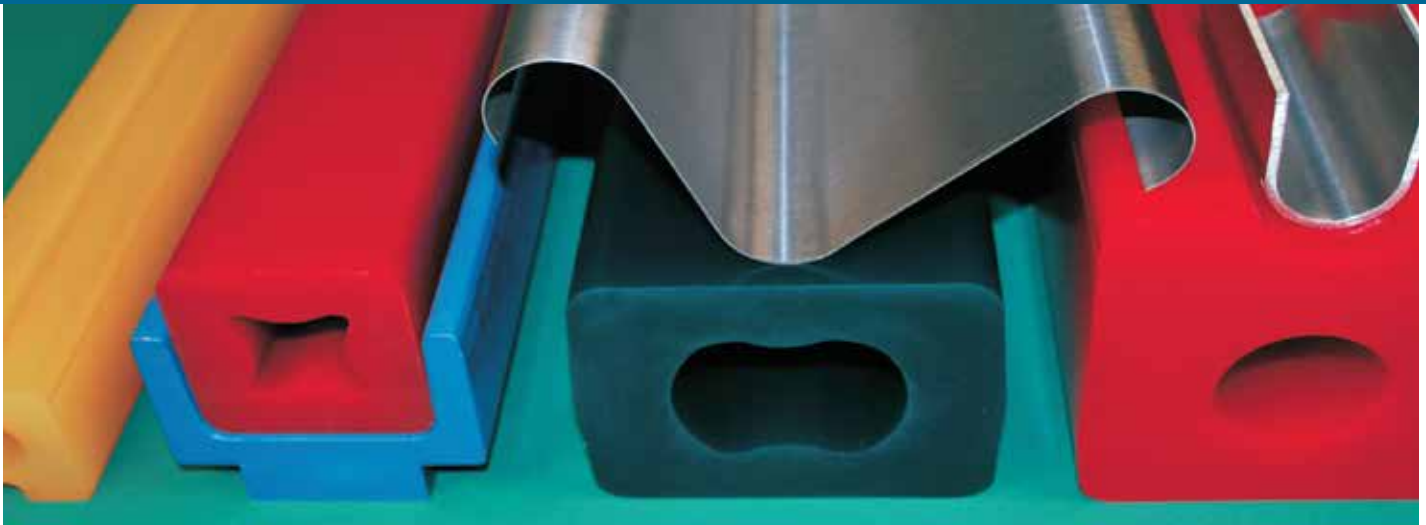
The first hit forms about a 100° arc. By positioning the sheet metal so that there is a 10° overlap between the first hit and the second hit, a perfect blend between the 2 hits is obtained, without any bend lines or die marks. If the sheet metal is too springy it may be necessary to make more than 3 hits to get a 180° bend.

EUROPEAN or AMADA STYLE	PBN32E-75R	3/4" radius
AMERICAN STYLE	PBN32A-75R	3/4" radius
TRUMPF STYLE	PBN32T-75R	3/4" radius

The American Style:
Molded 1/2" wide x 5/8" tang
TRUMPF Style:
13mm x 20mm tang
Standard lengths:
36"(914mm) & 18"(457mm)

The European Style:
Molded 60mm wide tang
Standard lengths:
835mm and 415 mm.





PODs for Radius V-Bends

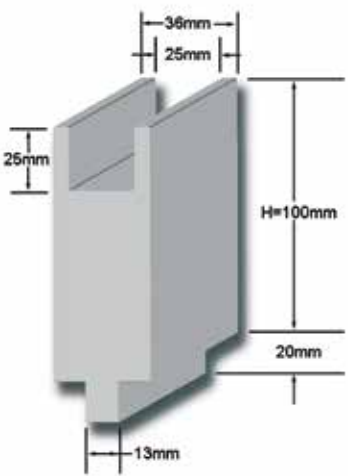
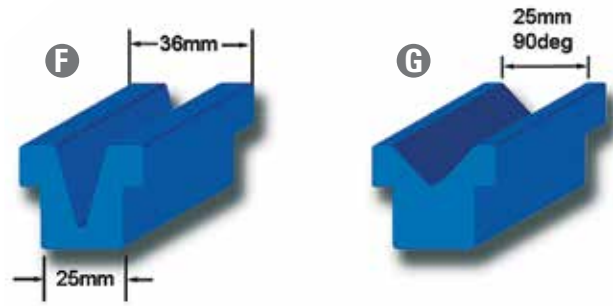
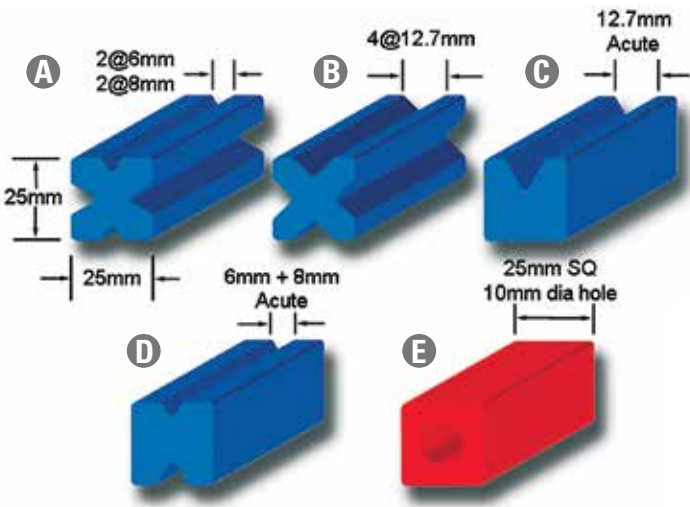
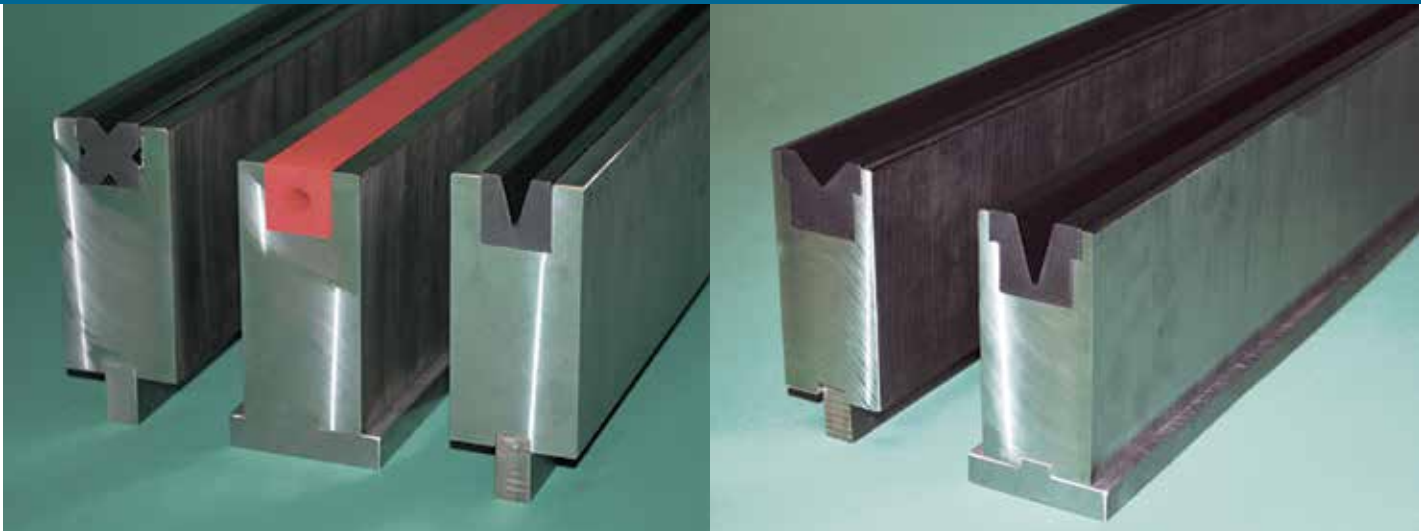
- PODs are square or Rectangular shaped Pads, with a Flat top (2nd & 3rd pads in above photo). Designed for bending sharp or radiused V-bends.
- A molded hole through the full length of the pad provide for stress relief and require lower tonnage.
- PODs are designed to fit in standard ASTM Steel C-Channels, to function as holders or Retainers.

PUDs for Radius U-Bends

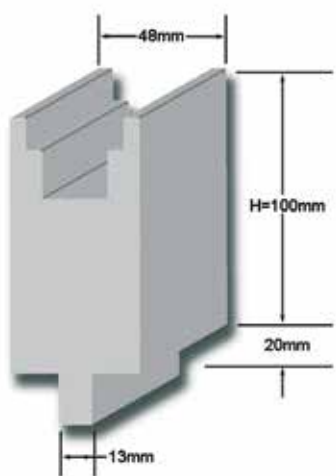
- PUDs are square or Rectangular shaped Pads with a molded U-Shaped top surface to enable 180 degrees U-Bends in one hit.(1st & 4th pads in above photo)
- PUDs are designed to fit in standard ASTM Steel C-Channels, to function as holders or Retainers.

PART NUMBER	PAD WIDTH	PAD HEIGHT	HOLE DIA.	# OF FORMING SURFACES	GAUGE CAP FOR 90-V	SIZE FOR 90-Radius	RETAINER PART #
POD-112	2.25"	2.25"	1.0" dia	4	12 ga.	3/8" R	CR2222
POD-312	3.0"	3.0"	1.25" dia	4	10 ga.	1/2" R	CR3030
POD-315	3.0"	3.0"	1.50" dia	4	12 ga.	5/8" R	CR3030
POD-320	3.0"	3.0"	2.0" dia	4	14 ga.	3/4" R	CR3030
POD-415	5.0"	4.0"	1.50" dia	2	7 ga.	3/4" R	CR4050
POD-420	5.0"	4.0"	2.0" dia	2	10 ga.	1" R	CR3030
POD-430	5.0"	4.0"	3.0" oval	2	12 ga.	1-1/2" R	CR4050
POD-640	6.0"	5.0"	4.0" oval	2	12 ga.	2" R	CR5060
POD-650	6.0"	5.0"	5.0" oval	2	16 ga.	2-1/2" R	CR5060

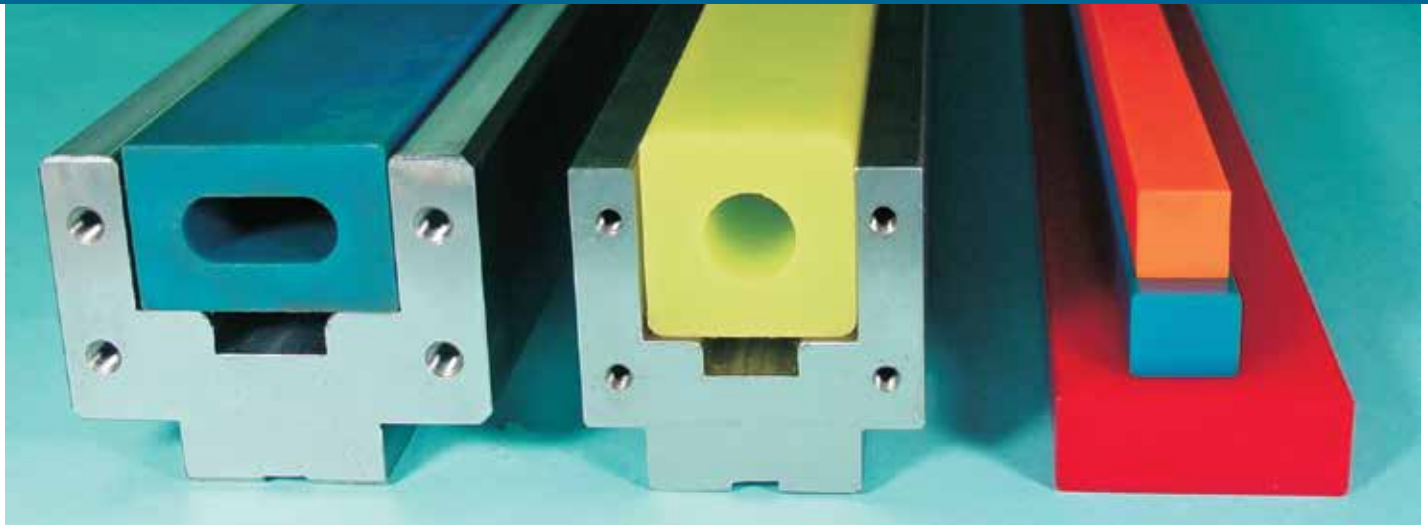
PART NUMBER	PAD WIDTH	PAD HEIGHT	HOLE DIA.	# OF FORMING SURFACES	GAUGE CAP FOR 180-U	SIZE FOR 180-Radius	RETAINER PART #
PUD-0612	2.25"	2.25"	1.0" dia	1	18 ga.	1/16, 1/8" R	CR2222
PUD-1825	2.25"	2.25"	1.25" dia	1	18 ga.	1/16, 1/4" R	CR2222
PUD-112	2.25"	2.25"	1.50" dia	1	16 ga.	3/8" R	CR2222
PUD-312	3.0"	3.0"	1.25" sq	1	16 ga.	1/2" R	CR3030
PUD-415	5.0"	5.0"	1.50" sq	1	14 ga.	3/4" R	CR4050
PUD-420	5.0"	5.0"	2.0" sq	1	14 ga.	1" R	CR4050
PUD-640	6.0"	5.0"	3.0" oval	1	16 ga.	1-1/2" R	CR5060



Urethane Pads				Steel Holder (Retainer)		
PAGE ITEM	PART NUMBER	SIZE W x H	ANGLES DEGREES	PAGE ITEM	PART NUMBER	SIZE W x H
A	FW2538	25 x 25	90	1	SH1010T75	38 x 75mm
B	FW5050	25 x 25	90	2	SH1010T100	38 x 100mm
C	PAC50	25 x 25	90	3	SH1512T100	50 x 100mm
D	PAC2538	25 x 25	90			
E	POD110	25 x 25	-			
F	PT1512AC62	38 x 31	30			
G	PT1512R10	38 x 31	85			



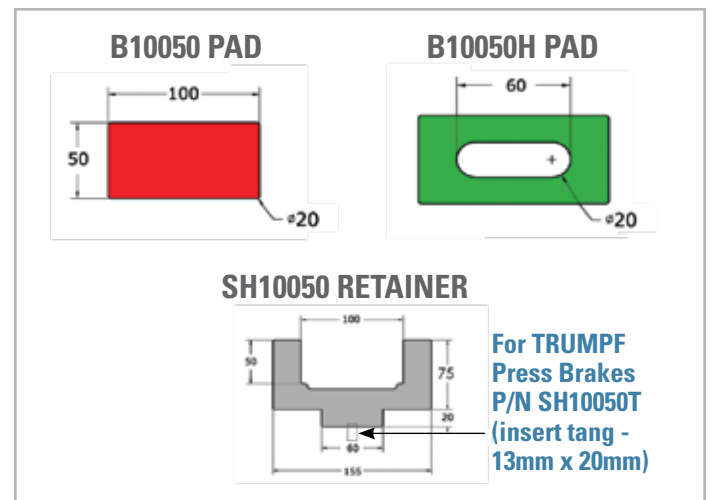
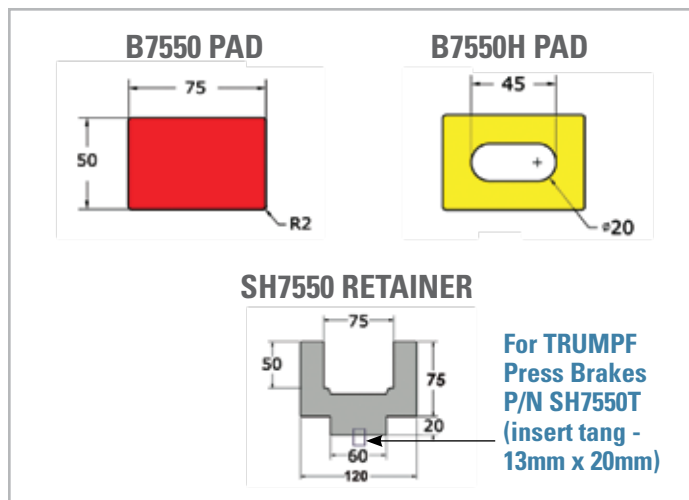
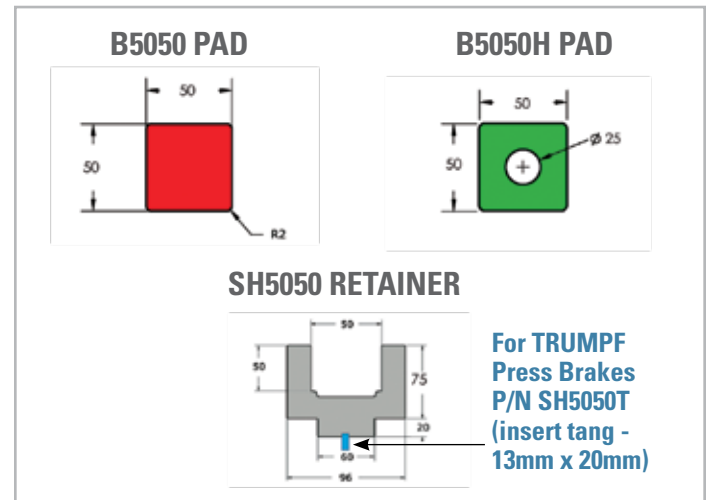
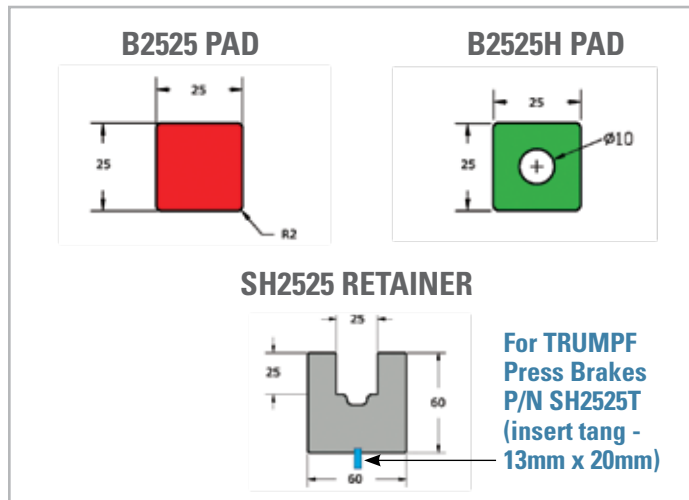
■ Blue color : Molded to shape POLYURETHANE- 75D duro
■ Red color: Flexible forming pad POLYURETHANE -90A duro

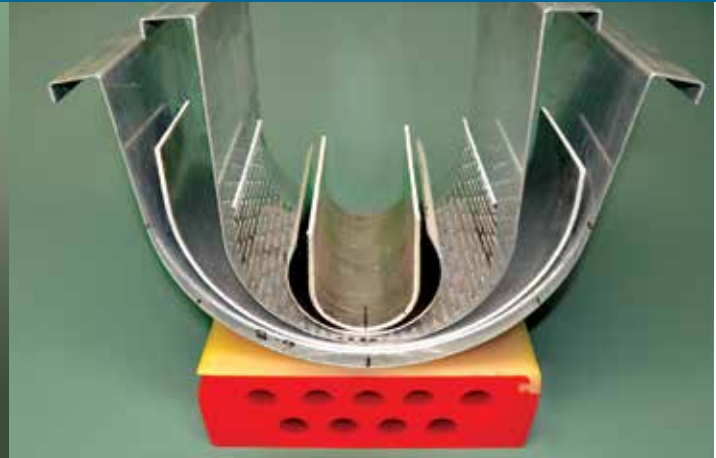
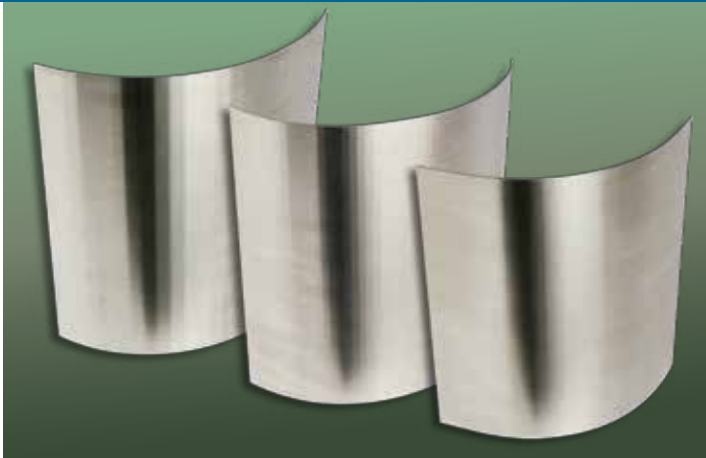


Forming Pads are used for MAR-FREE bending of pre-painted, pre-polished, and coated sheet metal. Color Coded Pads are available in following duro-meters and deflections: RETAINERS are made of steel

95A	Amber	15% deflection	Stainless steel
90A	Red	25% deflection	Mild steel
80A	Green	35% deflection	Aluminum
70A	Blue	40% deflection	Alum & thin M.S.
60A	Yellow	40% deflection	CU & Alum

Available in 835mm & 415mm, Add suffix L for 835mm length, Add suffix S for 415mm length





The part on the left is formed on a CNC Press Brake, with 24 hits bumping every 1/2". This causes noticeable flute lines. If spring-back varies, the part must be redone.

The center part is also formed on a CNC Press Brake, with 48 hits bumping every 1/4". Flute lines are less obvious, but the process takes twice as long as 24 hit process.

The part on the right is formed with our SMART PAD, in 2 hits.

No flute lines, perfect radius, every time.

All of the U-shaped parts in the above photo were formed using the same SMART PAD die. The parts shown vary in gauges up to 1/4" thick. The radii of all of these parts were created using the SMP-1240 SMART PAD. Instead of multiple hits, as is necessary for other systems, these smooth radius parts were formed with different steel punches in only 2 to 3 hits!

Listen to what our clients are saying about SMART PAD SYSTEM™

"Custom Conveyor Corporation designs and builds material handling systems for the Municipal Waste Water market. This type of conveyor uses a U-Trough to house the screw or auger. The old process to make these troughs is to use multiple 5° breaks to create the 180° bend in stainless steel. This method has several major issues:

- Each time the stainless steel comes in contact with the punch and the die it imbeds mild steel into the sheet.
- Stainless steel reacts differently sheet to sheet and within a sheet to produce a distorted trough. The trough has to be manipulated to return to the desired shape.
- The process is operator dependent for quality and productivity.

*We contacted Polyurethane Products Corp. for a solution to our manufacturing process. We described our needs and objectives and they had a solution. We provided test material and they developed the dies and radius punch. We traveled to Polyurethane Products for a demonstration of the process. **In 5 minutes we knew we had the answer to a production bottleneck.***

The new process uses a variety of steel radial punches pressing into a polyurethane bottom die, called the SMART PAD SYSTEM. The small size troughs now require only 3 strokes to accomplish what took 37 strokes before. The additional advantage is that our product now has a smooth rolled appearance, rather than the chatter marks of multiple breaks. This is a great help, as we bend stainless steel up to 1/4" thick. Our productivity has us making the troughs in one quarter the time and our fit up is one hour less per trough because the troughs are perfect.

Using steel radius punches by Press Brake Tooling Corp. and the unique SMART PAD SYSTEM by Polyurethane Products Corp., we were able to have a single source solution for our radius products and greatly improved our productivity."

Custom Conveyor Corporation