

# TCE-ERCO

MODEL HD

## FORMING & FLANGING MACHINE



***ELIMINATES***  
expensive dies  
in edge-flanging  
and forming

***INCLUDES***  
infinite radius and  
angle control



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# TCE-ERCO MODEL HD FORMER AND FLANGER

The TCE-Erco Model HD Sheet Metal Former and Flanger has the ability to form a flange or edge of certain heights and shapes on most kinds and thicknesses of sheet metals. The minimum radius of the curved edge and maximum height of the formed flange is limited only by the material thickness and flange height, as shown in the accompanying tables.

## TYPICAL APPLICATIONS



## APPLICATIONS:

- Form plain, return bend, offset, flared, large radius and half-round flanges on curved and straight edges of sheet metal, etc.
- Flange external edges on circular discs and internal edges when the radius of the inside curved edge or hole is not less than 6".
- Form external flanges on ends of cylinders and crowned sheet metal having 4" and larger radii curves, and internal flanges on 5" and larger radii.
- Perform work on soft or semi-hard steel, soft or semi-soft brass, copper, soft aluminum, heat treated aluminum alloys and monel metal where hand work is too costly and production does not justify expensive power press or die equipment.

For forming or flanging edges of sheet metal where contour is irregular, the TCE-Erco Model HD utilizes the oscillation of a short brake tool against a hold-down tool at variable strokes per minute. A hand wheel on the front of the machine controls the total angle of this motion.

The metal passes through the working head in one or more stages, depending upon the shape. A small part of the sheet is brought up at each up-stroke of the brake head to produce smooth, well formed edges. The narrow working surface enables the forming of small radii and complicated shapes without leaving wrinkled flanges.

The rapidly oscillating brake head speeds the operation. After each up-stroke the work is quickly released for hand feeding through the machine. It is held down and released automatically.

## OPERATION

The TCE-Erco Model HD Former and Flanger is a self-contained unit with the operating mechanism and drive motor placed below the work level. A flat table supports the sheet metal and passes it through the working head. The hold-down tool, brake plate tool and anvil are mounted on a

solid frame. The hold-down tool performs three functions:

1) To grip the work on the anvil during the brake head stroke.

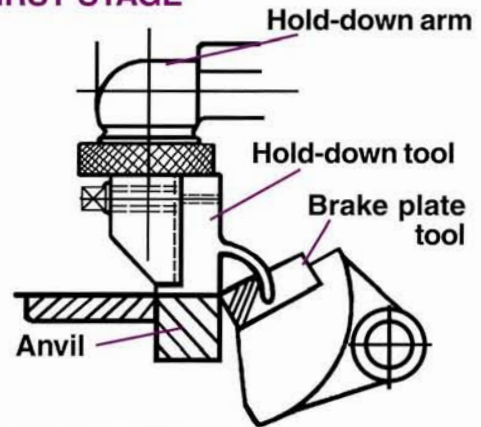
2) To serve as a form against which the flange is finished.

3) To provide a guide for the edge of the sheet.

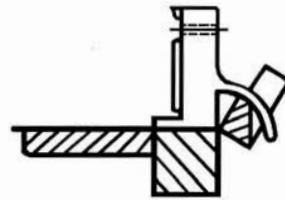
A set screw in the hold-down arm secures the hold-down tool. The hold-down dog pivots in the frame to allow adjustments relative to the brake plate tool and anvil. A cam activates the hold-down dog, allowing the tool a small up and down motion, which grips and releases the work in synchronism with the brake head oscillation. The brake plate tool bends the flange up and finishes it against the hold-down tool. The brake plate tool is attached to the brake head, which oscillates in tracks in the frame up to a 95° angle in an axis coinciding with the inner edge of the anvil. A hand wheel in front of the machine adjusts the mechanism to the degree of angle or bend desired to conform to the face angle of the hold-down tool (see illustration). The anvil, attached to the machine frame and flush to the top surface of the table, provides support against which the hold-down tool operates. Concave, convex or special shaped anvils are used for different types of work. A quick-release hand lever allows for raising of the hold-down arm for removal of the finished work and tool changeover.

## OPERATION

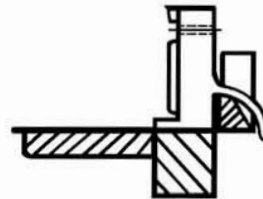
### FIRST STAGE



### SECOND STAGE



### THIRD STAGE



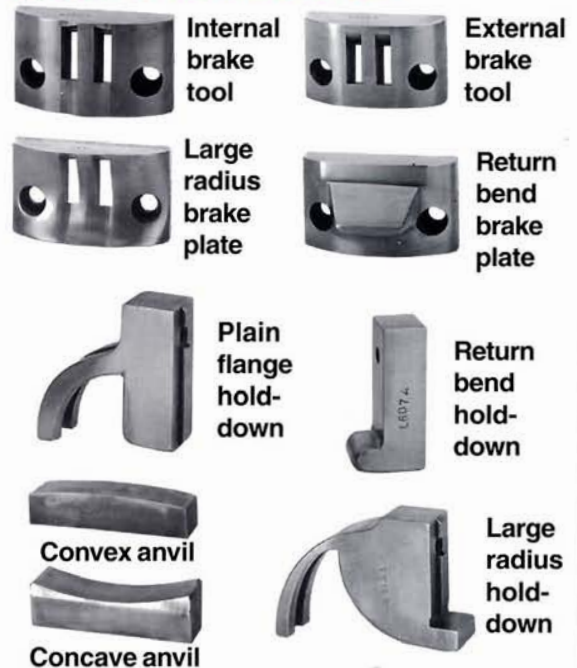
## SPECIFICATIONS & ACCESSORIES

### MODEL HD SHEET METAL FORMER AND FLANGER



Maximum height of flange (see capacity tables) .....	1 7/8"
Strokes per minute (with switch for 2 set speeds) .....	variable
Height: top of table to floor .....	36"
Table surface area .....	36" x 20"
Overall height .....	48"
Motor .....	2 HP
Net weight (approximate) .....	1175 lbs.
Shipping weight (approximate)	
Domestic (crated) .....	1300 lbs.
Export (boxed) .....	1475 lbs.
Measurements (boxed for export)	
53" L x 42" W x 54" H .....	70 cubic ft.

### TOOLS & ACCESSORIES



These tables give minimum bend radii for various thicknesses and kinds of metal within the machine's capacity. They also tabulate maximum and minimum metal thickness capacities, and minimum radii of curved edges of sheet metal on which 90° flanges can be formed. Flange heights are specified for use with the minimum bend radius for the thickness and kind of material.

When the bend radius is increased, a somewhat higher

flange can be formed on the same radius of a curved edge, or a slightly smaller curve radius is possible with the same flange height. Total distance from beginning of bend to edge of sheet or top of flange cannot exceed  $1 \frac{7}{8}$ ", which is the maximum height of brake-head tools.

These tables also provide a basis for determining capacity on other types of flanging and forming operations involving shrinking or stretching of metal to a greater or lesser degree.

**ALUMINUM ALLOY-2024-0**  
Formed before heat treatment

**ALUMINUM ALLOY-2024-T3**

MINIMUM RADI OF CURVED EDGES  
IN DIFFERENT FLANGE HEIGHTS

HEIGHT OF CURVED FLANGE	Min. thick-ness	Min. bend radii	Min. curve radii	Max. thick-ness	Min. bend radii	Min. curve radii	Min. thick-ness	Min. bend radii	Min. curve radii	Max. thick-ness	Min. bend radii	Min. curve radii
1/4"	.020"	1/32"	3"	.051"	1/16"	4"	.020"	1/16"	6"	.040"	5/32"	6"
5/16"	.020"	1/32"	3"	.064"	1/16"	5"	.020"	1/16"	7"	.040"	5/32"	7"
3/8"	.032"	1/32"	4"	.072"	3/32"	6"	.031"	3/32"	8"	.051"	3/16"	9"
7/16"	.032"	1/32"	5"	.081"	3/32"	7 1/2"	.031"	3/32"	9"	.051"	3/16"	11"
1/2"	.032"	1/32"	6"	.091"	1/8"	9"	.031"	3/32"	10"	.064"	1/4"	13"
9/16"	.032"	1/32"	8"	.102"	1/8"	10 1/2"	.031"	3/32"	13"	.064"	1/4"	16"
5/8"	.032"	1/32"	9"	.125"	1/8"	12"	.031"	3/32"	17"	.064"	1/4"	19"
3/4"	.040"	1/32"	11"	.125"	3/16"	15"	.040"	1/8"	24"	.064"	1/4"	25"
7/8"	.040"	1/16"	13"	.156"	3/16"	17"	.040"	1/8"	30"	.064"	1/4"	27"
1"	.040"	1/16"	16"	.188"	1/4"	19"	.040"	1/8"	32"	.064"	1/4"	34"
1 1/8"	.062"	1/16"	19"	.188"	1/4"	22"	.064"	1/4"	36"	.064"	1/4"	36"
1 1/4"	.062"	1/16"	22"	.188"	1/4"	25"	.064"	1/4"	38"	.064"	1/4"	38"
1 3/8"	.091"	1/8"	25"	.188"	1/4"	27"	.064"	1/4"	44"	.064"	1/4"	44"
1 1/2"	.091"	1/8"	28"	.188"	1/4"	35"	.064"	1/4"	46"	.064"	1/4"	46"

**MILD SHEET METAL-Low carbon**  
MONEL SHEETS- Annealed

**STAINLESS STEEL**  
Type 302 OR 309

MINIMUM RADI OF CURVED EDGES  
IN DIFFERENT FLANGE HEIGHTS

HEIGHT OF CURVED FLANGE	Min. thick-ness	Min. bend radii	Min. curve radii	Max. thick-ness	Min. bend radii	Min. curve radii	Min. thick-ness	Min. bend radii	Min. curve radii	Max. thick-ness	Min. bend radii	Min. curve radii
1/4"	.025"	1/32"	3"	.050"	1/16"	3"	.025"	3/64"	3"	.050"	1/16"	6"
5/16"	.031"	1/32"	3"	.062"	3/32"	3 1/2"	.031"	3/64"	4"	.062"	5/64"	7 1/2"
3/8"	.031"	1/32"	3"	.070"	3/32"	4"	.031"	3/64"	5"	.062"	5/64"	9"
7/16"	.031"	1/32"	4"	.087"	3/32"	7"	.031"	3/64"	6"	.078"	5/64"	10 1/2"
1/2"	.031"	1/32"	5"	.099"	1/8"	8"	.031"	3/64"	8"	.078"	5/64"	12"
9/16"	.049"	3/64"	7"	.109"	1/8"	10"	.049"	1/16"	7"	.078"	5/64"	13"
5/8"	.049"	3/64"	8"	.109"	1/8"	11"	.049"	1/16"	8"	.078"	5/64"	15"
3/4"	.049"	3/64"	11"	.109"	1/8"	14"	.049"	1/16"	12"	.078"	5/64"	19"
7/8"	.062"	1/16"	13"	.109"	1/8"	17"	.049"	1/16"	16"	.078"	5/64"	21"
1"	.062"	1/16"	16"	.109"	1/8"	20"	.049"	1/16"	19"	.078"	5/64"	23"
1 1/8"	.062"	1/16"	19"	.109"	1/8"	23"	.062"	5/64"	23"	.078"	5/64"	25"
1 1/4"	.062"	1/16"	24"	.109"	1/8"	26"	.062"	5/64"	25"	.078"	5/64"	28"
1 3/8"	.062"	1/16"	27"	.109"	1/8"	29"	.062"	5/64"	28"	.078"	5/64"	32"
1 1/2"	.062"	1/16"	31"	.109"	1/8"	32"	.062"	5/64"	32"	.078"	5/64"	38"

MINIMUM RADI BEND RADI  
IN DIFFERENT METAL THICKNESSES

METAL THICKNESS	2024-0 ALUMINUM Formed before heat treatment	2024-T3 ALUMINUM & SIMILAR ALLOYS	MILD STEEL Low carbon MONEL SHEETS Annealed	STAINLESS STEEL Type 302 or 309
.020 - .029"	1/32"	1/16"	1/32"	1/32"
.030 - .039"	1/32"	3/32"	1/32"	3/64"
.040 - .049"	1/16"	1/8"	1/16"	1/16"
.050 - .059"	1/16"	3/16"	1/16"	1/16"
.060 - .069"	1/16"	1/4"	3/32"	5/64"
.070 - .079"	3/32"	--	3/32"	5/64"
.080 - .089"	3/32"	--	3/32"	--
.090 - .099"	1/8"	--	1/8"	--
.100 - .109"	1/8"	--	1/8"	--
.110 - .119"	1/8"	--	--	--
.120 - .199"	1/8"	--	--	--
.130 - .139"	5/32"	--	--	--
.140 - .149"	3/16"	--	--	--
.150 - .159"	3/16"	--	--	--
.160 - .169"	7/32"	--	--	--
.170 - .179"	7/32"	--	--	--
.180 - .189"	1/4"	--	--	--