

### Tonnage Required to Punch MILD STEEL

Material Thickness	Punch Diameter														
	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
3/32	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8
1/8	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10
3/16		3	4	5	6	7	8	9	9	10	11	12	13	14	15
1/4			5	6	8	9	10	11	13	14	15	16	18	19	20
5/16				8	9	11	13	14	16	17	19	20	22	23	25
3/8					11	13	15	17	19	21	23	24	26	28	30
7/16						15	18	20	22	24	26	28	30	33	35
1/2		Multiply Tonnage by:					20	23	25	28	30	33	35	38	40
9/16		Aluminum x .36						26	28	30	34	36	40	42	45
5/8		Steel - Cold Drawn x 1.20							31	34	38	41	44	47	50
11/16		A36 Steel x 1.20								38	41	44	48	51	55
3/4		Stainless Steel x 1.50									45	49	53	56	60
13/16												53	57	61	65
7/8													61	66	70
15/16		<i>Do NOT punch a smaller diameter hole than the material thickness!</i>											71	75	
1															80

To Obtain Tonnage Required for ROUND Holes:	To Obtain Tonnage Required for SQUARE Holes:
$3.1416 \times \text{DIA. Of Hole} \times \text{Material Thickness} \times 25 = \text{Tons}$ Example: (2" Dia. Round Hole in 1/4" Mild Steel) $3.1416 \times 2.00 \times .250 \times 25 = 39.26 \text{ TONS}$	$\text{Periphery (add 4 sides) of Hole} \times \text{Material Thickness} \times 25 = \text{Tons}$ Example: (2" Square Hole in 1/4" Mild Steel) $(2 + 2 + 2 + 2) \times .250 \times 25 = 50 \text{ TONS}$