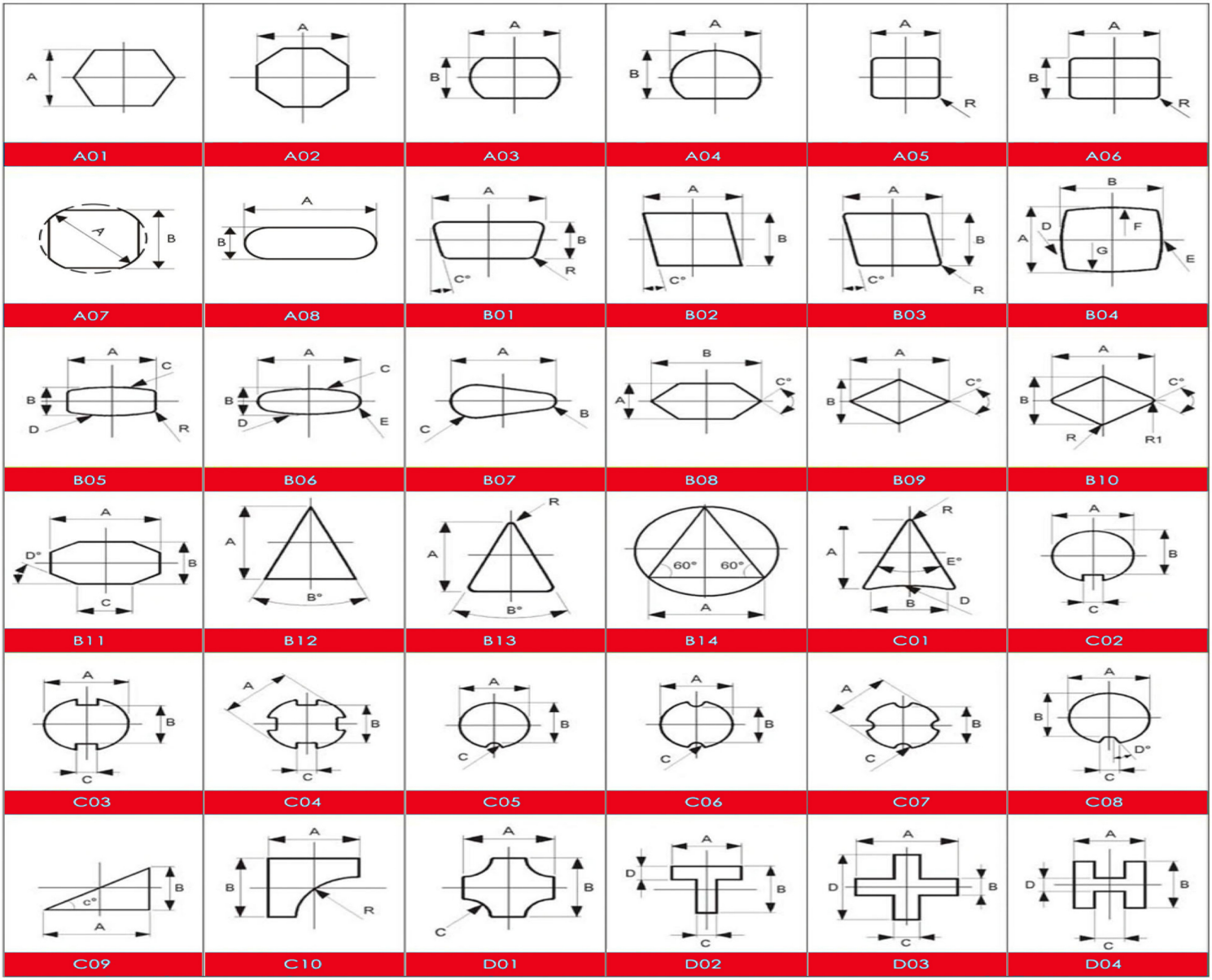
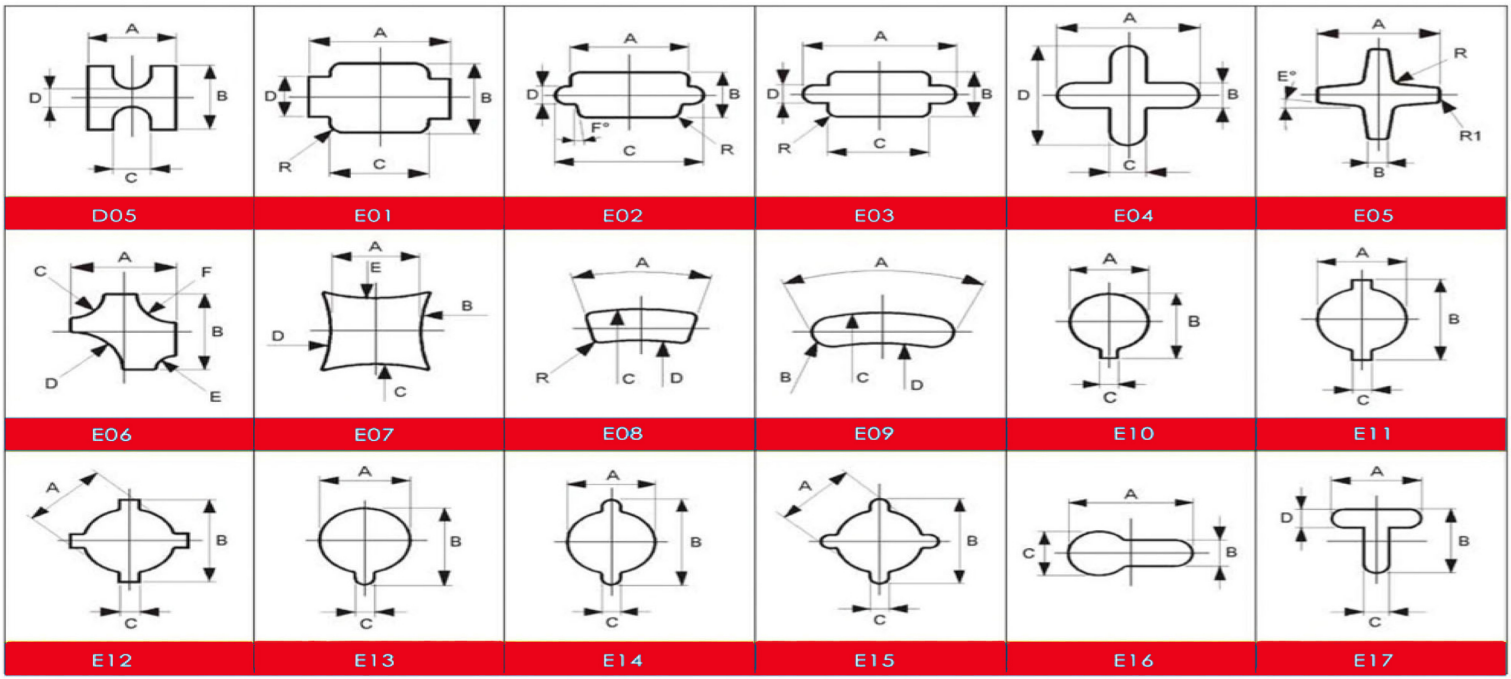
Special Shapes



Special Shapes & Die clearence



1 Table of recommended die clearance(reference values)

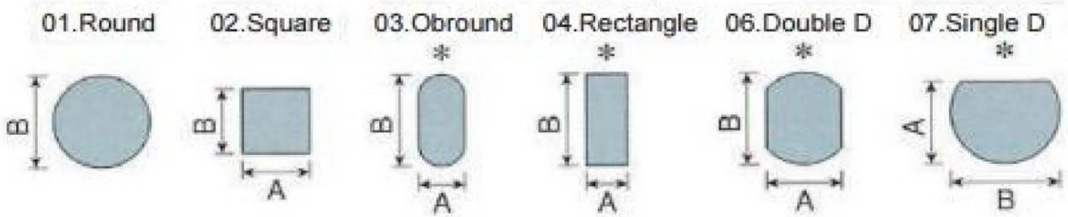
NCT drive type	Material type / thickness	0.8	1.0	1.5	2.0	2.5	3.0	3.2	3.5	4.0	4.5	5.0	5.5	6.0
Hydraulic	Cold-rolled mild steel	0.15-0.2	0.2-0.25	0.30-0.38	0.40-0.50	0.50-0.63	0.60-0.75	0.64-0.80	0.70-0.88	0.80-1.00	0.90-1.13	1.00-1.25	1.10-1.38	1.20-1.50
	Aluminum	0.15-0.16	0.15-0.20	0.23-0.30	0.30-0.40	0.38-0.50	0.45-0.60	0.48-0.64	0.53-0.70	0.60-0.80	0.68-0.90	0.75-1.00	0.83-1.10	0.90-1.20
	Stainless steel	0.20-0.24	0.25-0.30	0.38-0.45	0.50-0.60	0.53-0.75	0.75-0.90	0.80-0.96	0.88-1.05	1.00-1.20	1.13-1.35	-	-	-
Mechanical	Cold-rolled mild steel	0.15	0.15-0.18	0.18-0.27	0.24-0.36	0.30-0.45	0.36-0.54	0.38-0.58	0.42-0.63	0.48-0.72	0.54-0.81	0.60-0.90	0.66-0.99	0.72-1.08
	Aluminum	0.15	0.15-0.16	0.15-0.24	0.20-0.32	0.25-0.40	0.30-0.48	0.32-0.51	0.35-0.56	0.40-0.64	0.45-0.72	0.50-0.80	0.55-0.88	0.60-0.96
	Stainless steel	0.15-0.18	0.15-0.22	0.21-0.33	0.28-0.44	0.35-0.55	0.42-0.66	0.45-0.70	0.49-0.77	0.56-0.88	0.63-0.99	-	-	-

Calculation Of Punching on Different Shapes

❷ Shape ,size and key angle

●Shape reference point of standard tooling

Dimension A = Short-side dimension Dimension B = Long-side dimension



❸ Punch force calculation method

$$P = A \times \tau \times t \div 1000$$

- P: Punching force (kN)
- A: Cut contour length (mm)
- τ: Tensile strength (N / mm²)
- t: Material thickness (mm)

Material type	Tensile strengthτ[N/mm2]
Mild steel	400
Aluminium	200
Stainless steel	600

●Tonnage calculation examples

Ex1. Mild steel 2.3t Φ23.5

$$\text{Required tonnage} = \frac{\Phi 23.5 \times 3.14 \times 400 \times 2.3}{1000} = 67.9\text{kN}$$