WORKSHOP REFERENCE · 05

Turning Insert & Holder Codes

How to read an ISO insert and toolholder code, position by position. Match the holder to the insert and the job.

Turning insert designation

ISO 1832

C	N	M	G	12	04	08	PM
1 Shape	2 Clearance	3 Tolerance	4 Type	5 Edge length	6 Thickness	7 Nose radius	8 Chipbreaker (maker)

1 · INSERT SHAPE

C Rhombic 80°	D Rhombic 55°	E Rhombic 75°	M Rhombic 86°
V Rhombic 35°	S Square 90°	T Triangle 60°	W Trigon 80°
R Round	H Hexagon 120°	O Octagon 135°	P Pentagon 108°
K Parallelogram 55°	A Parallelogram 85°	B Parallelogram 82°	L Rectangle 90°

2 · Clearance angle

Code	Angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	Other

3 · Tolerance class

± mm

Code	IC (d)	Corner (m)	Thick (s)
A	0.025	0.005	0.025
F	0.013	0.005	0.025
C	0.025	0.013	0.025
H	0.013	0.013	0.025
E	0.025	0.025	0.025
G	0.025	0.025	0.13
J	0.05–0.15	0.005	0.025
K	0.05–0.15	0.013	0.025
L	0.05–0.15	0.025	0.025
M	0.05–0.15	0.08–0.20	0.13
N	0.05–0.15	0.08–0.20	0.025
U	0.08–0.25	0.13–0.38	0.13

J to U: IC tolerance grows with insert size. G is ground; M is the common pressed tolerance.

4 · Insert type

fixing hole and chipbreaker

Code	Fixing	Chipbreaker
N	No hole	None
R	No hole	One side
F	No hole	Both sides
A	Cylindrical hole	None
M	Cylindrical hole	One side
G	Cylindrical hole	Both sides
W	Hole, 40–60° countersink one side	None
T	Hole, 40–60° countersink one side	One side
Q	Hole, 40–60° countersink both sides	None
U	Hole, 40–60° countersink both sides	Both sides
B	Hole, 70–90° countersink one side	None
H	Hole, 70–90° countersink one side	One side
C	Hole, 70–90° countersink both sides	None
J	Hole, 70–90° countersink both sides	Both sides
X	Special	—

6 · Thickness

Code	mm
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52

7 · Nose radius

Code	mm
00	Sharp
01	0.1
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
24	2.4
32	3.2
M0	Round, metric

8–9 · Optional

Code	Meaning
F	Sharp edge
E	Honed (rounded)
T	Chamfered (T-land)
S	Chamfered & honed
R	Right hand
L	Left hand
N	Neutral

External toolholder designation

ISO 5608

P	C	L	N	R	25	25	M	12
1 Clamping	2 Insert shape	3 Holder style	4 Clearance	5 Hand	6 Shank height	7 Shank width	8 Length	9 Edge length

1 · Clamping system

Code	Method
C	Top clamp, no hole
M	Top clamp and pin through hole
P	Lever lock through hole
S	Screw through hole
D	Rigid clamp (wedge or double)

3 · Holder style

entering angle κr

Code	κr	Code	κr
A	90°	K	75°
B	75°	L	95°
D	45°	N	63°
E	60°	Q	107.5°
F	90°	S	45°
G	90°	T	60°
H	107.5°	U	93°
J	93°	V	72.5°

Holder style sets the entering angle and whether the tool cuts on the side, the end, or both.

5 · Cutting edge length

code by shape and IC (mm)

IC mm	C	D	S	T	V	W	R
6.35	06	07	06	11	11	04	06
9.525	09	11	09	16	16	06	09
12.7	12	15	12	22	22	08	12
15.875	16	—	15	27	—	—	15
19.05	19	—	19	33	—	—	19
25.4	25	—	25	44	—	—	25

Rhombic, square and triangle codes give the edge length in whole mm, ignoring decimals. Round inserts give the diameter.

8 · Tool length

mm

Code	mm	Code	mm
A	32	M	150
B	40	N	160
C	50	P	170
D	60	Q	180
E	70	R	200
F	80	S	250
G	90	T	300
H	100	U	350
J	110	V	400
K	125	W	450
L	140	Y	500

Reading a holder

Positions 2 and 4 must match the insert. A **PCLNR 2525 M12** takes a C-shape, 0° clearance insert with a 12 mm edge (CNMG 12…), right hand, 25 × 25 mm shank, 150 mm long, 95° entering angle.

Reference values compiled from the cited standards and published manufacturer data. Always confirm against the tool maker's recommendations for your machine, tool and set-up.