ZENSTAR

Quality Tooling Redefined

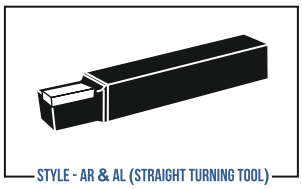
CATALOGUE - 2023

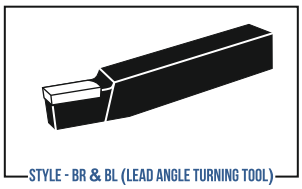
CARBIDE TIPPED BRAZED TOOLS

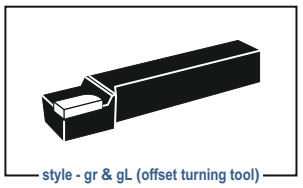
MAKE IN INDIA

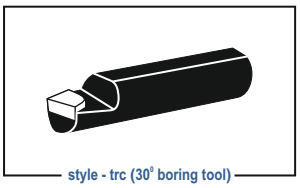
ZENSTAR
Quality Tooling Redefined

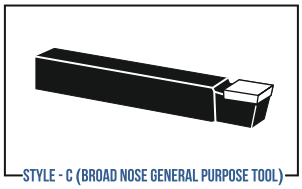
STANDARD BRAZED TOOLS FOR EXPORT ANSI B94.5-1974

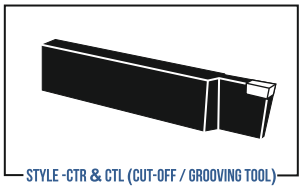

STYLE - AR & AL (STRAIGHT TURNING TOOL)

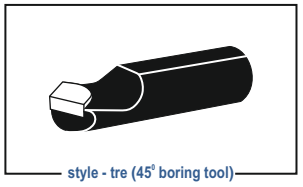

STYLE - BR & BL (LEAD ANGLE TURNING TOOL)

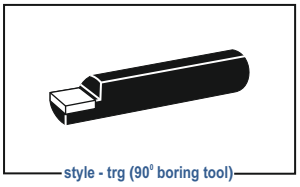

style - gr & gL (offset turning tool)

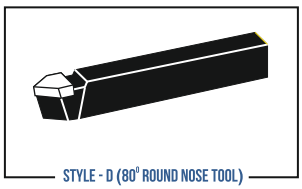

style - trc (30° boring tool)

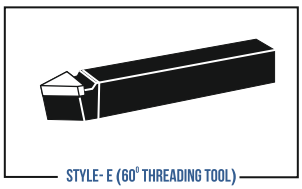

STYLE - C (BROAD NOSE GENERAL PURPOSE TOOL)

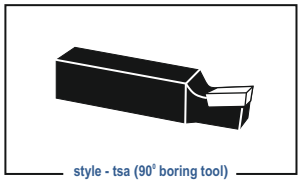

STYLE -CTR & CTL (CUT-OFF / GROOVING TOOL)

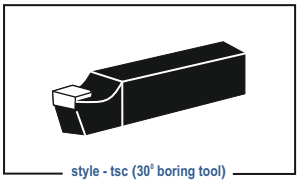

style - tre (45° boring tool)

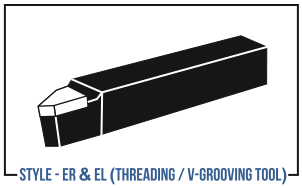

style - trg (90° boring tool)

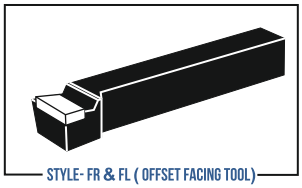

STYLE - D (80° ROUND NOSE TOOL)

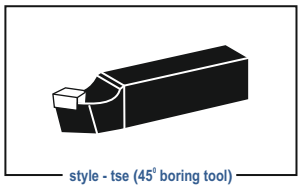

STYLE- E (60° THREADING TOOL)

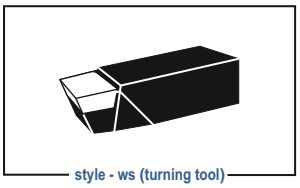

style - tsa (90° boring tool)


style - tsc (30° boring tool)


STYLE - ER & EL (THREADING / V-GROOVING TOOL)


STYLE- FR & FL (OFFSET FACING TOOL)


style - tse (45° boring tool)


style - ws (turning tool)

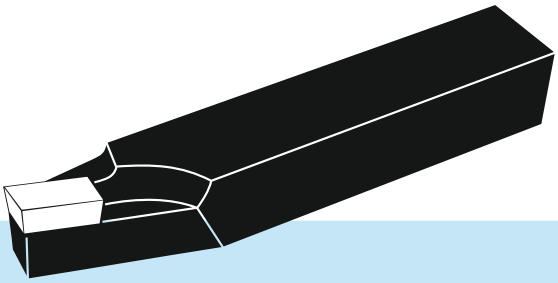
AVAILABILITY CHART			
SIZE	RIGHT HAND	LEFT HAND	NEUTRAL
ISO 1	✓	✓	
ISO 2	✓	✓	
ISO 3	✓	✓	
ISO 4			✓
ISO 5	✓	✓	
ISO 6	✓	✓	
ISO 7	✓	✓	
ISO 8	✓	✓	
ISO 9	✓	✓	
113			✓
115	✓	✓	

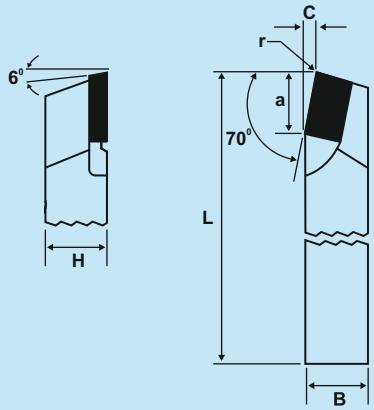
AVAILABILITY CHART			
SIZE	RIGHT HAND	LEFT HAND	NEUTRAL
116	✓	✓	
122			✓
140	✓	✓	
141	✓	✓	
142	✓	✓	
163			✓
165	✓	✓	
166	✓	✓	
IND 2	✓	✓	
V PROFILE			✓

NOTES

- WE ALSO MANUFACTURE SPECIAL PRODUCTS AS PER YOUR REQUIREMENTS & DRAWINGS
- ANY PRODUCT DIMENSIONAL VARIABILITY MAY OCCUR DUE TO VARIATION IN RAW MATERIAL

ISO 1 STRAIGHT TURNING TOOL

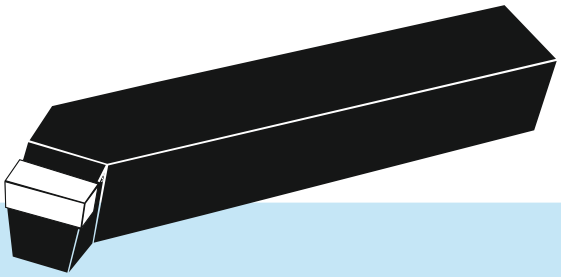


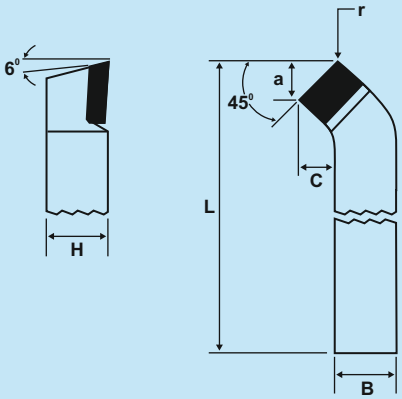


ISO1

Right Hand Style.

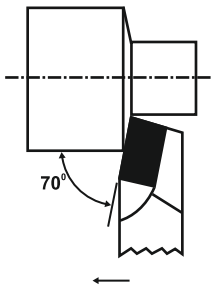
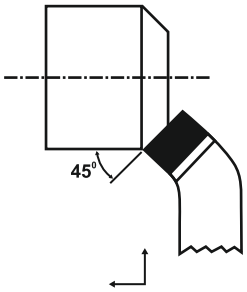
ISO 2 CRANKED TURNING & FASCING TOOL



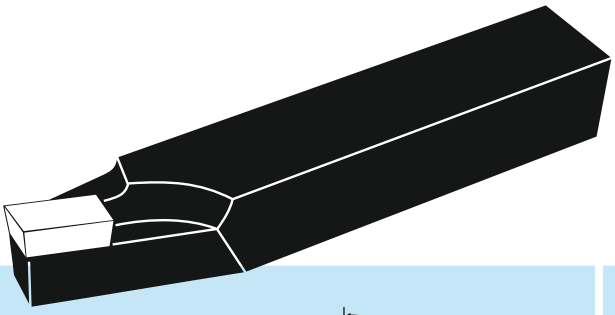


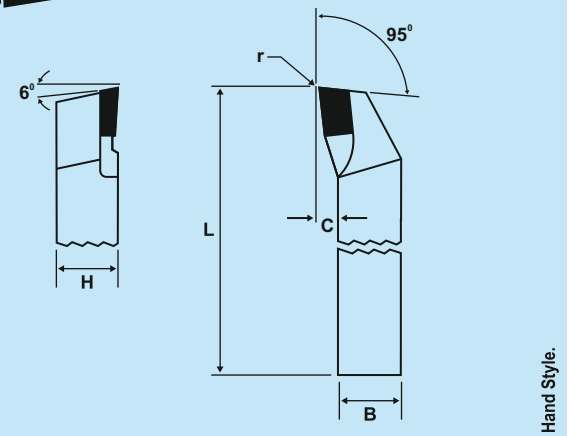
ISO2

Right Hand Style.

Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip
		Height	Breadth	Length	Crank	a	Radius	
70^0  Rake angle : 10^0 Angle of inclination 4^0	ISO 1 RH/LH 1010	10	10	90	4	7.5	0.4	C8
	ISO 1 RH/LH 1212	12	12	100	5	9.4	0.4	C10
	ISO 1 RH/LH 1616	16	16	110	6	11.2	0.4	C12
	ISO 1 RH/LH 2020	20	20	125	8	15.0	0.8	C16
	ISO 1 RH/LH 2525	25	25	140	10	18.8	1.2	C20
	ISO 1 RH/LH 3232	32	32	170	12	23.5	1.2	C25
	ISO 1 RH/LH 4040	40	40	200	16	30.0	1.6	C32
	ISO 1 RH/LH 1610	16	10	110	4	9.4	0.4	C10
	ISO 1 RH/LH 2012	20	12	125	5	11.2	0.4	C12
	ISO 1 RH/LH 2516	25	16	140	6	15.0	0.8	C16
	ISO 1 RH/LH 3220	32	20	170	8	18.8	1.2	C20
	ISO 1 RH/LH 4025	40	25	200	10	23.5	1.2	C25
	ISO 1 RH/LH 5032	50	32	240	12	30.0	1.6	C32
45^0  Rake angle : 10^0 Angle of inclination 0^0	ISO 2 RH/LH 1010	10	10	90	6	5.6	0.4	C8
	ISO 2 RH/LH 1212	12	12	100	7	7.0	0.4	C10
	ISO 2 RH/LH 1616	16	16	110	8	8.5	0.4	C12
	ISO 2 RH/LH 2020	20	20	125	10	11.3	0.8	C16
	ISO 2 RH/LH 2525	25	25	140	12	14.1	1.2	C20
	ISO 2 RH/LH 3232	32	32	170	14	17.6	1.2	C25
	ISO 2 RH/LH 4040	40	40	200	18	22.6	1.6	C32
	ISO 2 RH/LH 1610	16	10	110	7	7.0	0.4	C10
	ISO 2 RH/LH 2012	20	12	125	8	8.5	0.4	C12
	ISO 2 RH/LH 2516	25	16	140	10	11.3	0.8	C16
	ISO 2 RH/LH 3220	32	20	170	12	14.1	1.2	C20
	ISO 2 RH/LH 4025	40	25	200	14	17.6	1.2	C25
	ISO 2 RH/LH 5032	50	32	240	18	22.6	1.6	C32

ISO 3 CRANCKED TURNING AND FACING TOOL

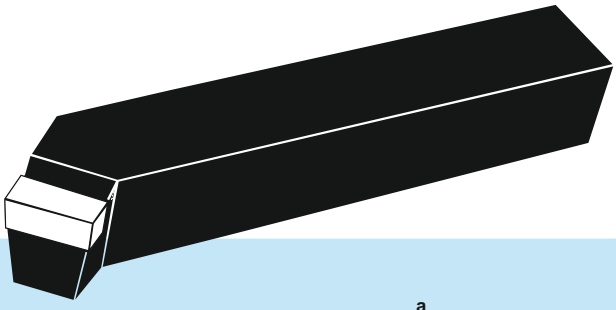


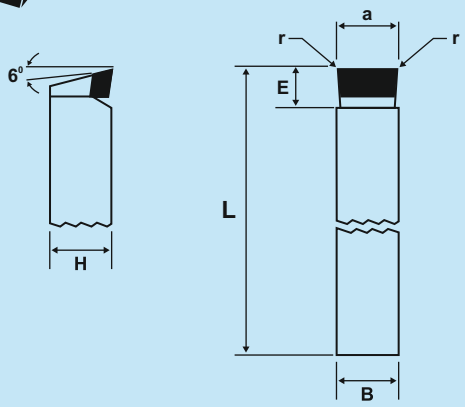


Right Hand Style.

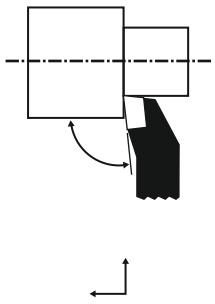
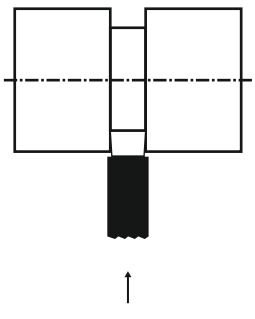
ISO3

ISO 4 RECESSING TOOL

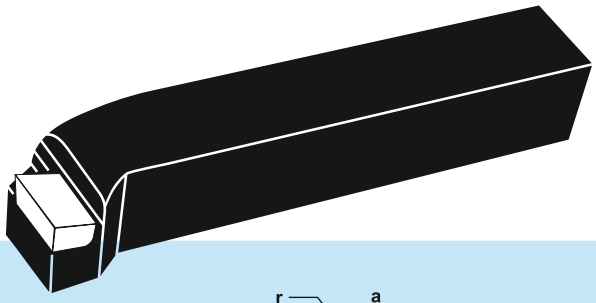


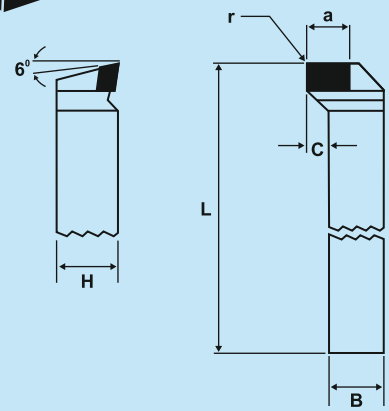


ISO4

Entering angle Feed Direction	Tool Code	Dimensions in mm							Tip
		Height	Breadth	Length	Crank	E	a	Radius	
95°  Rake angle : 10° Angle of inclination 0°	ISO 3 RH/ LH 1010	10	10	90	5	---	---	0.4	C8
	ISO 3 RH/ LH 1212	12	12	100	6	---	---	0.4	C10
	ISO 3 RH/ LH 1616	16	16	110	8	---	---	0.4	C12
	ISO 3 RH/ LH 2020	20	20	125	10	---	---	0.8	C16
	ISO 3 RH/ LH 2525	25	25	140	12	---	---	1.2	C20
	ISO 3 RH/ LH 3232	32	32	170	14	---	---	1.2	C25
	ISO 3 RH/ LH 4040	40	40	200	20	---	---	1.6	C32
	ISO 3 RH/ LH 1610	16	10	110	5	---	---	0.4	C10
	ISO 3 RH/ LH 2012	20	12	125	6	---	---	0.4	C12
	ISO 3 RH/ LH 2516	25	16	140	8	---	---	0.4	C16
	ISO 3 RH/ LH 3220	32	20	170	10	---	---	0.8	C20
	ISO 3 RH/ LH 4025	40	25	200	12	---	---	1.2	C25
	ISO 3 RH/ LH 5032	50	32	240	14	---	---	1.2	C32
 Rake angle : 10° Angle of inclination 0°	ISO 4 1010	10	10	90	---	10	10	0.4	C10
	ISO 4 1212	12	12	100	---	12	12	0.4	C12
	ISO 4 1616	16	16	110	---	16	16	0.8	C16
	ISO 4 2020	20	20	125	---	20	20	1.2	C20
	ISO 4 2525	25	25	140	---	25	25	1.2	C25
	ISO 4 3232	32	32	170	---	32	32	1.6	C32
	ISO 4 4040	40	40	200	---	40	40	2.0	C40
	ISO 4 1610	16	10	110	---	16	10	0.4	C10
	ISO 4 2012	20	12	125	---	20	12	0.4	C12
	ISO 4 2516	25	16	140	---	25	16	0.8	C16
	ISO 4 3220	32	20	170	---	32	20	1.2	C20
	ISO 4 4025	40	25	200	---	40	25	1.2	C25
	ISO 4 5032	50	32	240	---	50	32	1.6	C32

ISO 5 CRANCKED FACING TOOL

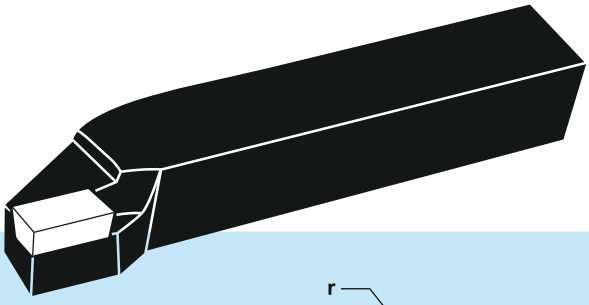


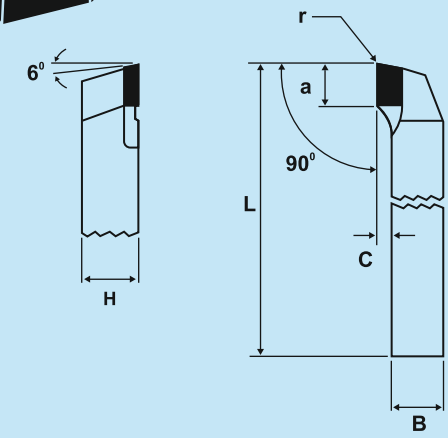


ISO5

Right Hand Style.

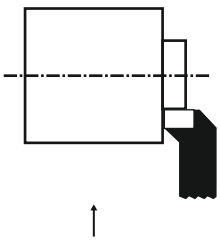
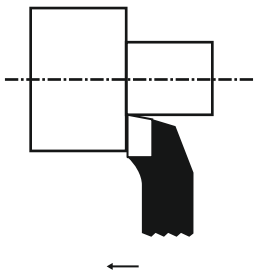
ISO 6 CRANCKED KNIFE TOOL



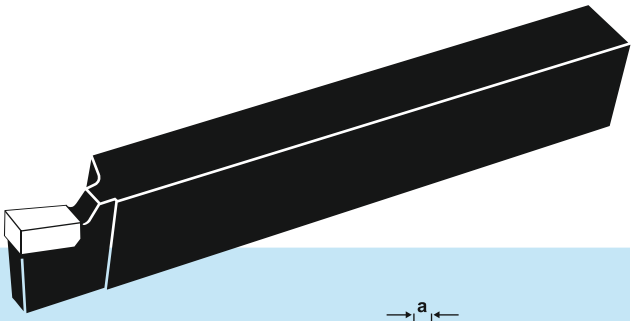


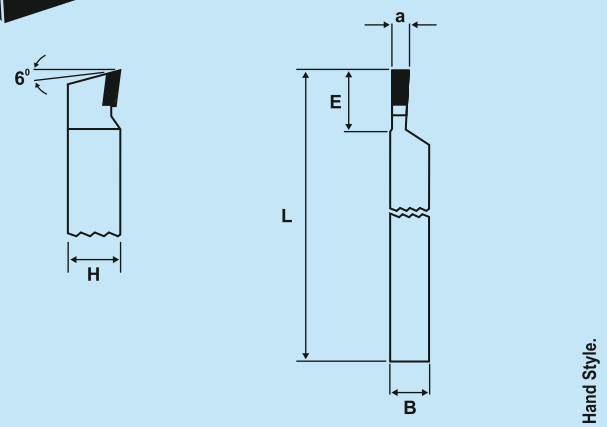
ISO6

Right Hand Style.

Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip
		Height	Breadth	Length	Crank	a	Radius	
90°  Rake angle : 10° Angle of inclination 0°	ISO 5 RH / LH 1010	10	10	90	5	8	0.4	C8
	ISO 5 RH / LH 1212	12	12	100	6	10	0.4	C10
	ISO 5 RH / LH 1616	16	16	110	8	12	0.4	C12
	ISO 5 RH / LH 2020	20	20	125	10	16	0.8	C16
	ISO 5 RH / LH 2525	25	25	140	12	20	1.2	C20
	ISO 5 RH / LH 3232	32	32	170	16	25	1.2	C25
	ISO 5 RH / LH 4040	40	40	200	20	32	1.6	C32
	ISO 5 RH / LH 1610	16	10	110	6	10	0.4	C10
	ISO 5 RH / LH 2012	20	12	125	8	12	0.4	C12
	ISO 5 RH / LH 2516	25	16	140	10	16	0.8	C16
	ISO 5 RH / LH 3220	32	20	170	12	20	1.2	C20
	ISO 5 RH / LH 4025	40	25	200	16	25	1.2	C25
	ISO 5 RH / LH 5032	50	32	240	20	32	1.6	C32
90°  Rake angle : 10° Angle of inclination 0°	ISO 6 RH / LH 1010	10	10	90	4	8	0.4	C8
	ISO 6 RH / LH 1212	12	12	100	5	10	0.4	C10
	ISO 6 RH / LH 1616	16	16	110	6	12	0.4	C12
	ISO 6 RH / LH 2020	20	20	125	8	16	0.8	C16
	ISO 6 RH / LH 2525	25	25	140	10	20	1.2	C20
	ISO 6 RH / LH 3232	32	32	170	12	25	1.2	C25
	ISO 6 RH / LH 4040	40	40	200	14	32	1.6	C32
	ISO 6 RH / LH 1610	16	10	110	5	10	0.4	C10
	ISO 6 RH / LH 2012	20	12	125	6	12	0.4	C12
	ISO 6 RH / LH 2516	25	16	140	8	12	0.8	C16
	ISO 6 RH / LH 3220	32	20	170	10	20	1.2	C20
	ISO 6 RH / LH 4025	40	25	200	12	25	1.2	C25
	ISO 6 RH / LH 5032	50	32	240	14	32	1.6	C32

ISO 7 PARTING TOOL

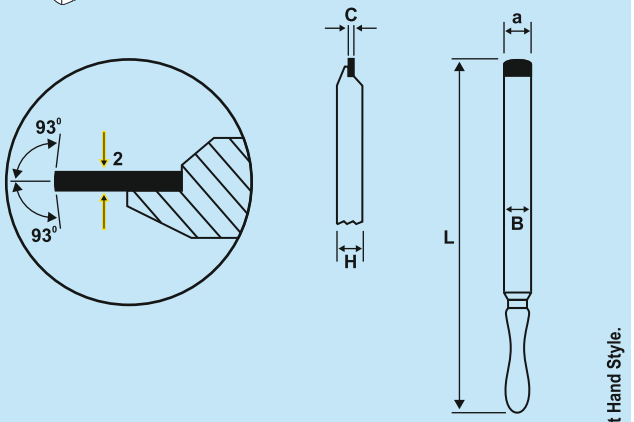




ISO7

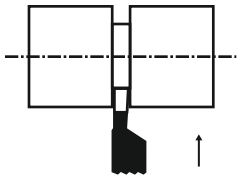
Right Hand Style.

620 SCRAPER



620 SCRAPER

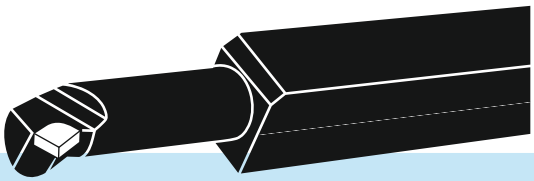
Right Hand Style.

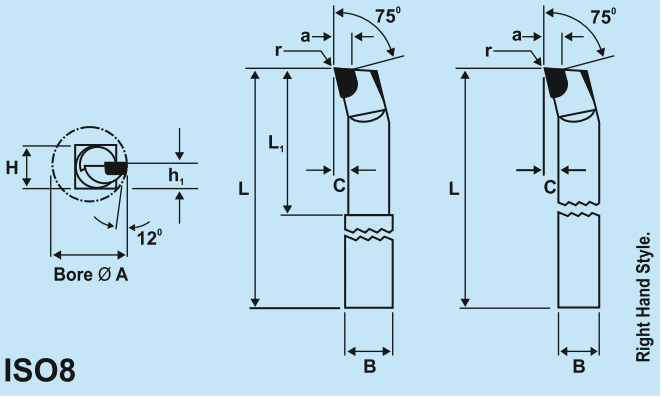
Entering angle Feed Direction	Tool Code	Dimensions in mm					Tip
		Height	Breadth	Length	E	a	
 Rake angle : 10° Angle of inclination 0°	ISO 7 RH /LH 1006	10	06	90	12	3	D3
	ISO 7 RH /LH 1208	12	08	100	12	3	D3
	ISO 7 RH /LH 1610	16	10	110	14	4	D4
	ISO 7 RH /LH 2012	20	12	125	16	5	D5
	ISO 7 RH /LH 2516	25	16	140	20	6	D6
	ISO 7 RH /LH 3220	32	20	170	25	8	D8
	ISO 7 RH /LH 4025	40	25	200	32	10	D10
	ISO 7 RH /LH 5032	50	32	240	40	12	D12

Tool Code	Dimensions in mm						Tip
	Height	Breadth	Length	Crank	a	Radius	
620-1315	4.5	15	320	2	15	200	AC15
620-1320	5	20	360	2	20	200	AC20
620-1325	5	25	400	2	25	300	AC25
620-1330	5	30	465	2	30	300	AC30

Precision beats power

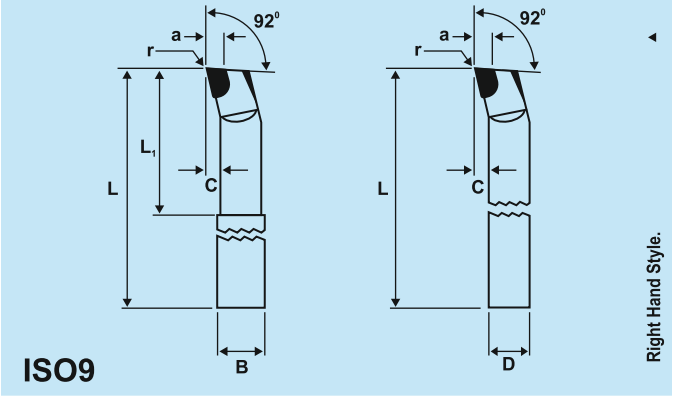
ISO 8 BORING TOOL



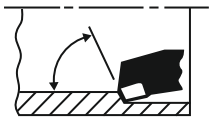
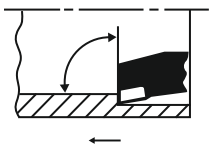


ISO8

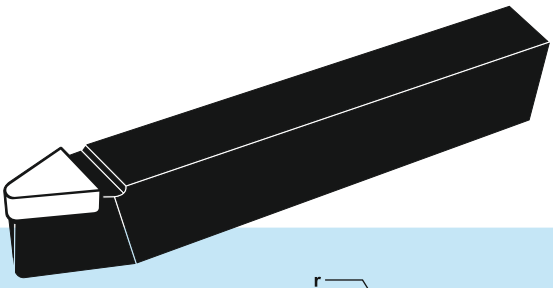
ISO 9 BORING AND FACING TOOL

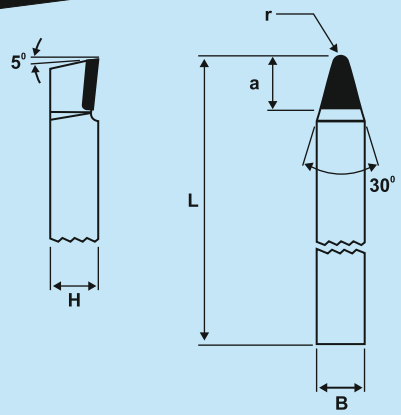


ISO9

Entering angle Feed Direction	Tool Code	Dimensions in mm							Tip
		H/B/D	Height$_1$	Length	Length$_1$	a	r	Ø A min	
75°  Rake angle : 10° Angle of inclination 0°	ISO8 RH 0808	8	5.9	125	40	3.8	0.4	14	A6
	ISO8 RH 1010	10	7.5	150	50	3.8	0.4	18	A6
	ISO8 RH 1212	12	9.1	180	63	4.8	0.4	21	A8
	ISO8 RH 1616	16	12.3	210	80	5.8	0.4	27	A10
	ISO8 RH 2020	20	15.5	250	100	7.7	0.8	34	A12
	ISO8 RH 2525	25	19.5	300	125	9.6	0.8	43	A16
	ISO8 RH 3232	32	25.1	355	160	11.6	0.4	52	A20
	ISO8 RH 08	8	5.9	125	----	3.8	0.4	14	A6
	ISO8 RH 10	10	7.5	150	----	3.8	0.4	18	A6
	ISO8 RH 12	12	9.1	180	----	4.8	0.4	21	A8
	ISO8 RH 16	16	12.3	210	----	5.8	0.4	27	A10
	ISO8 RH 20	20	15.5	250	----	7.7	0.8	34	A12
	ISO8 RH 25	25	19.5	300	----	9.6	0.8	43	A16
	ISO8 RH 32	32	25.1	355	----	11.6	0.4	52	A20
92°  Rake angle : 10° Angle of inclination 0°	ISO9 RH 0808	8	5.9	125	40	3.5	0.4	14	A6
	ISO9 RH 1010	10	7.5	150	50	3.5	0.4	18	A6
	ISO9 RH 1212	12	9.1	180	63	4.4	0.4	21	A8
	ISO9 RH 1616	16	12.3	210	80	5.3	0.4	27	A10
	ISO9 RH 2020	20	15.5	250	100	7.1	0.8	34	A12
	ISO9 RH 2525	25	19.5	300	125	8.9	0.8	43	A16
	ISO9 RH 3232	32	25.1	355	160	10.7	0.4	52	A20
	ISO9 RH 8	8	5.9	125	----	3.5	0.4	14	A6
	ISO9 RH 10	10	7.5	150	----	3.5	0.4	18	A6
	ISO9 RH 12	12	9.1	180	----	4.4	0.4	21	A8
	ISO9 RH 16	16	12.3	210	----	5.3	0.4	27	A10
	ISO9 RH 20	20	15.5	250	----	7.1	0.4	34	A12
	ISO9 RH 25	25	19.5	300	----	8.9	0.8	43	A16
	ISO9 RH 32	32	25.1	355	----	10.7	0.8	52	A20

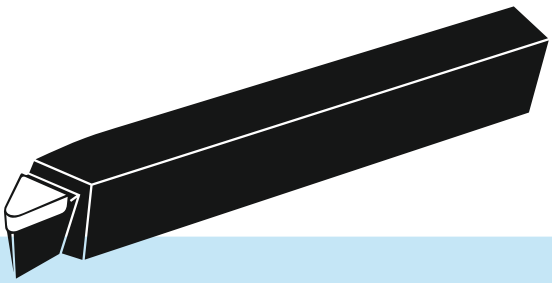
113 STRAIGHT, ROUND NOSE TURNING TOOL

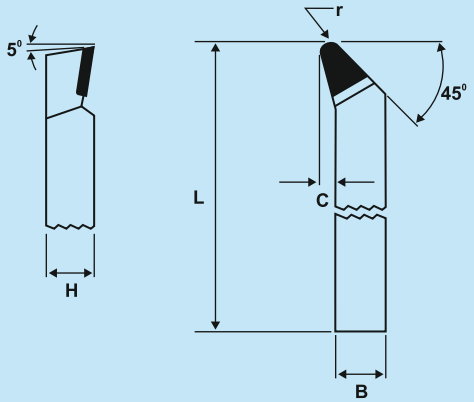




No.113

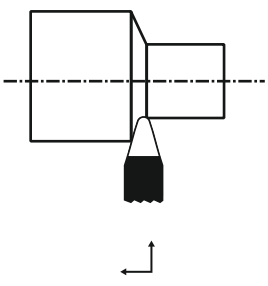
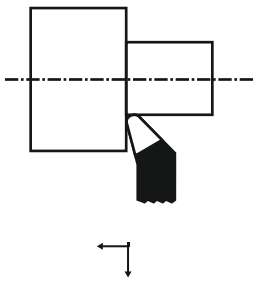
115 CRANKED, ROUND NOSE TURNING TOOL



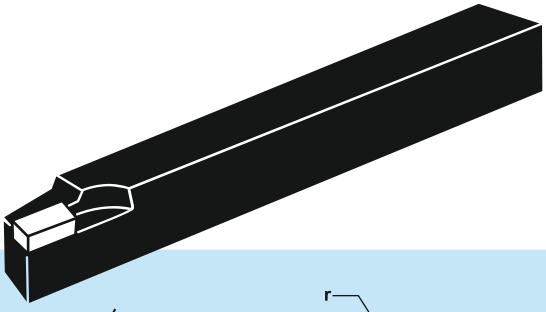


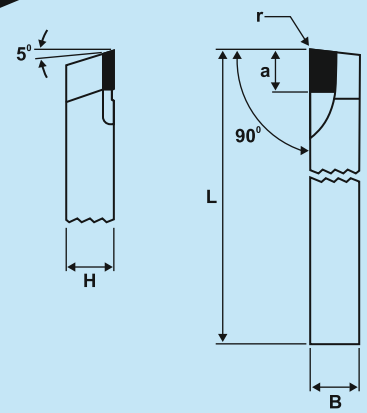
No.115

Right Hand Style.

Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip
		Height	Breadth	Length	Crank	a	Radius	
113  Rake angle : 5° Angle of inclination 0°	113 - 1010	10	10	90	---	12	1.0	G8
	113 - 1212	12	12	100	---	14	1.5	G10
	113 - 1616	16	16	110	---	17	2.5	G12
	113 - 2020	20	20	125	---	20	3.5	G16
	113 - 2525	25	25	140	---	23	4.5	G20
	113 - 3232	32	32	170	---	27	6.0	G25
	113 - 4040	40	40	200	---	32	8.0	G30
	113 - 1610	16	10	110	---	12	1.0	G8
	113 - 2012	20	12	125	---	14	1.5	G10
	113 - 2516	25	16	140	---	17	2.5	G12
	113 - 3220	32	20	170	---	20	3.5	G16
	113 - 4025	40	25	200	---	23	4.5	G20
	113 - 5032	50	32	240	---	27	6.0	G25
 Rake angle : 5° Angle of inclination 0°	RH/LH 115 - 1010	10	10	90	3.0	---	1.0	G8
	RH/LH 115 - 1212	12	12	100	3.5	---	1.5	G10
	RH/LH 115 - 1616	16	16	110	4.5	---	2.5	G12
	RH/LH 115 - 2020	20	20	125	4.8	---	3.5	G16
	RH/LH 115 - 2525	25	25	140	5.5	---	4.5	G20
	RH/LH 115 - 3232	32	32	170	6.3	---	6.0	G25
	RH/LH 115 - 4040	40	40	200	7.0	---	8.0	G30
	RH/LH 115 - 1610	16	10	110	3.0	---	1.0	G8
	RH/LH 115 - 2012	20	12	125	3.5	---	1.5	G10
	RH/LH 115 - 2516	25	16	140	4.5	---	2.5	G12
	RH/LH 115 - 3220	32	20	170	4.8	---	3.5	G16
	RH/LH 115 - 4025	40	25	200	5.5	---	4.5	G20
	RH/LH 115 - 5032	50	32	240	6.3	---	6.0	G25

116 BAR TURNING TOOL

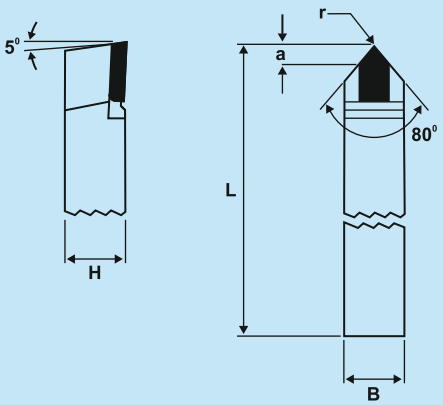




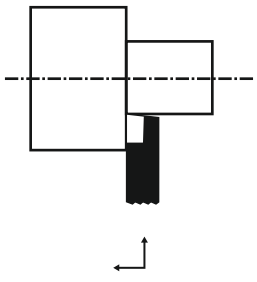
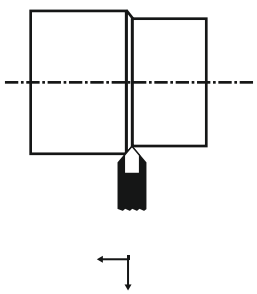
Right Hand Style.

No.116

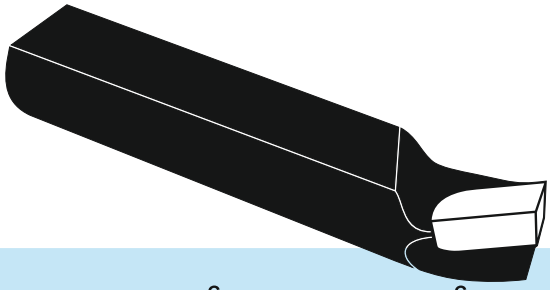
122 STRAIGHT FINISHING TOOL

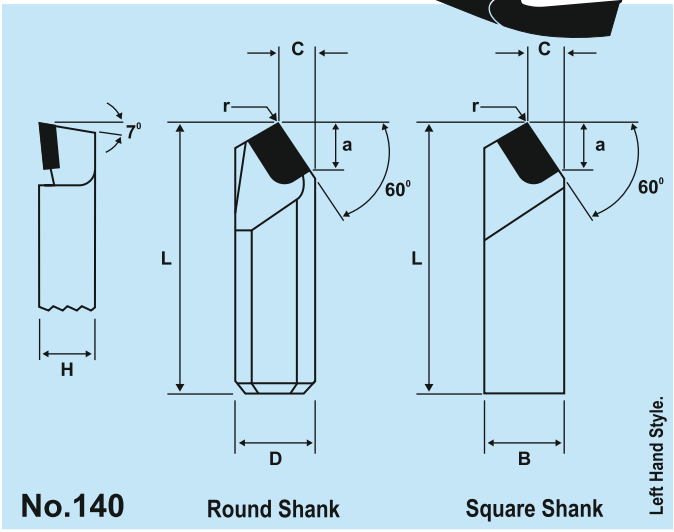


No.122

Entering angle Feed Direction	Tool Code	Dimensions in mm					Tip
		Height	Breadth	Length	a	Radius	
 Rake angle : 10° Angle of inclination 0°	116 RH/LH - 1010	10	10	90	8	0.4	C8
	116 RH/LH - 1212	12	12	100	10	0.4	C10
	116 RH/LH - 1616	16	16	110	12	0.4	C12
	116 RH/LH - 2020	20	20	125	16	0.8	C16
	116 RH/LH - 2525	25	25	140	20	1.2	C20
	116 RH/LH - 3232	32	32	170	25	1.2	C25
	116 RH/LH - 4040	40	40	200	32	1.6	C32
	116 RH/LH - 1610	16	10	110	10	0.4	C10
	116 RH/LH - 2012	20	12	125	12	0.4	C12
	116 RH/LH - 2516	25	16	140	16	0.8	C16
	116 RH/LH - 3220	32	20	170	20	1.2	C20
	116 RH/LH - 4025	40	25	200	25	1.2	C25
	116 RH/LH - 5032	50	32	240	32	1.6	C32
 Rake angle : 10° Angle of inclination 0°	122 - 1010	10	10	90	3.0	0.4	E5
	122 - 1212	12	12	100	3.6	0.4	E6
	122 - 1616	16	16	110	4.8	0.4	E8
	122 - 2020	20	20	125	6.0	0.8	E10
	122 - 2525	25	25	140	7.1	1.2	E12
	122 - 3232	32	32	170	9.5	1.2	E16
	122 - 4040	40	40	200	14.9	1.6	E25
	122 - 1610	16	10	110	3.6	0.4	E6
	122 - 2012	20	12	125	4.8	0.4	E8
	122 - 2516	25	16	140	6.0	0.8	E10
	122 - 3220	32	20	170	7.1	1.2	E12
	122 - 4025	40	25	200	9.5	1.2	E16
	122 - 5032	50	32	240	11.9	1.6	E20

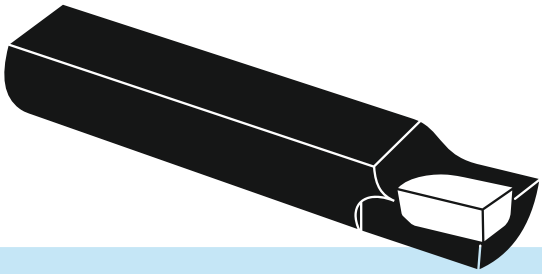
140 BORING TOOL NO.140 (60°)

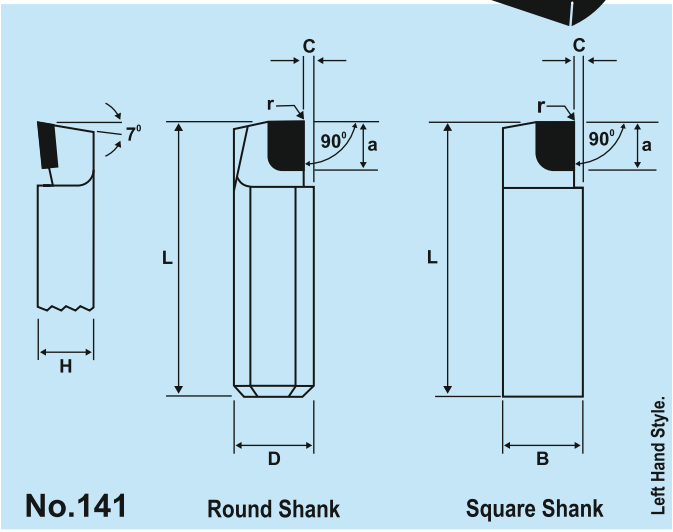




No.140 Round Shank Square Shank

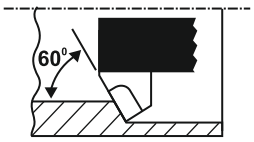
141 BORING TOOL NO.141 (90°)





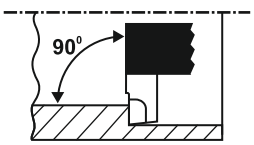
No.141 Round Shank Square Shank

Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip RH/LH
		B/D	Breadth	Length	Crank	a	Radius	
60°	140 RH/LH - Ø 6	6	5.5	20	3.0	6.0	0.3	Solid
	140 RH/LH - Ø 8	8	7.0	24	3.7	6.0	0.3	Solid
	140 RH/LH - Ø 10	10	8.5	50	5.0	6.5	0.4	A8/B8
	140 RH/LH - Ø 12	12	10.5	60	6.0	8.5	0.4	A10/B10
	140 RH/LH - Ø 16	16	14.0	90	8.0	10.0	0.8	A12/B12
	140 RH/LH - Ø 20	20	17.0	120	10.0	13.5	0.8	A16/B16
	140 RH/LH - Ø 25	25	22.0	175	12.5	16.5	0.8	A20/B20
	140 RH/LH - 0606	6	6.0	18	3.0	6.0	0.3	Solid
	140 RH/LH - 0808	8	8.0	24	3.5	6.0	0.3	Solid
	140 RH/LH - 1010	10	10.0	50	4.5	6.5	0.4	A8/B8
	140 RH/LH - 1212	12	12.0	60	5.5	8.5	0.4	A10/B10
	140 RH/LH - 1616	16	16.0	90	7.5	10.0	0.8	A12/B12
	140 RH/LH - 2020	20	20.0	120	9.5	13.5	0.8	A16/B16
	140 RH/LH - 2525	25	25.0	175	11.5	16.5	0.8	A20/B20



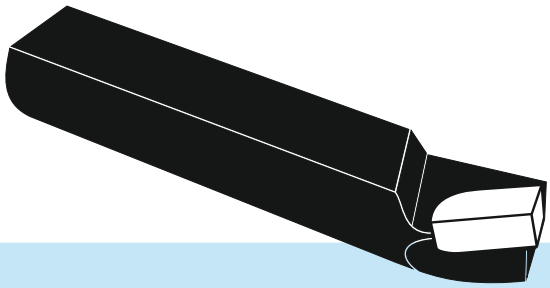
Angle of inclination 5°

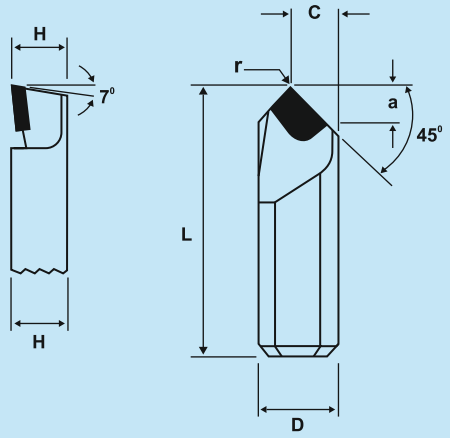
Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip RH/LH
		B/D	Height	Length	Crank	a	Radius	
90°	141 RH/LH - Ø 6	6	5.5	20	1.2	6.0	0.3	Solid
	141 RH/LH - Ø 8	8	7.0	24	1.4	6.0	0.3	Solid
	141 RH/LH - Ø 10	10	8.5	50	0.4	8.0	0.4	A8/B8
	141 RH/LH - Ø 12	12	10.5	60	0.4	10.0	0.4	A10/B10
	141 RH/LH - Ø 16	16	14.0	90	0.4	12.0	0.8	A12/B12
	141 RH/LH - Ø 20	20	17.0	120	0.5	16.0	0.8	A16/B16
	141 RH/LH - Ø 25	25	22.0	175	0.5	20.0	0.8	A20/B20
	141 RH/LH - 0606	6	6.0	18	1.2	6.0	0.3	Solid
	141 RH/LH - 0808	8	8.0	24	1.4	6.0	0.3	Solid
	141 RH/LH - 1010	10	10.0	50	0.4	8.0	0.4	A8/B8
	141 RH/LH - 1212	12	12.0	60	0.4	10.0	0.4	A10/B10
	141 RH/LH - 1616	16	16.0	90	0.4	12.0	0.8	A12/B12
	141 RH/LH - 2020	20	20.0	120	0.5	16.0	0.8	A16/B16
	141 RH/LH - 2525	25	25.0	175	0.5	20.0	0.8	A20/B20



Angle of inclination 5°

142 BORING TOOL

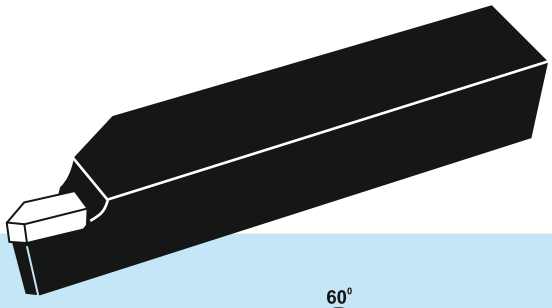


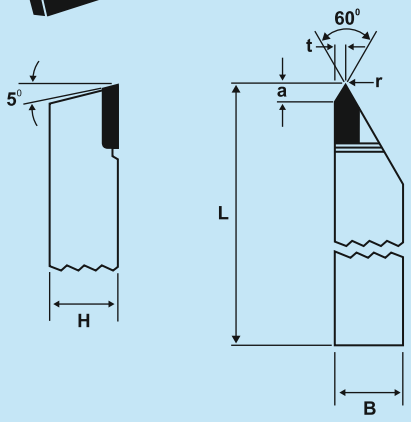


No.142

Left Hand Style.

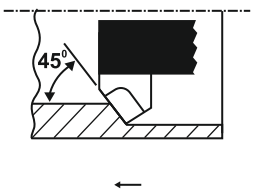
IND 2 EXTERNAL THREADING TOOL





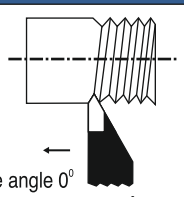
IND2

Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip RH/LH
		B/D	Breadth	Length	Crank	a	Radius	
45°	142 RH/LH - 6	6	5.5	20	3.2	3.0	0.3	Solid
	142 RH/LH - 8	8	7.0	24	5.0	4.0	0.3	Solid
	142 RH/LH - 10	10	8.5	50	6.5	5.5	0.4	A8/B8
	142 RH/LH - 12	12	10.5	60	7.5	7.5	0.4	A10/B10
	142 RH/LH - 16	16	14.0	90	9.5	8.5	0.8	A12/B12
	142 RH/LH - 20	20	17.0	120	11.5	11.0	0.8	A16/B16
	142 RH/LH - 25	25	22.0	175	14.5	14.0	0.8	A20/B20
	142 RH/LH - 0606	6	6.0	18	3.2	3.0	0.3	Solid
	142 RH/LH - 0808	8	8.0	24	5.0	4.0	0.3	Solid
	142 RH/LH - 1010	10	10.0	50	6.5	5.5	0.4	A8/B8
	142 RH/LH - 1212	12	12.0	60	7.5	7.5	0.4	A10/B10
	142 RH/LH - 1616	16	16.0	90	9.5	8.5	0.8	A12/B12
	142 RH/LH - 2020	20	20.0	120	11.5	11.0	0.8	A16/B16
	142 RH/LH - 2525	25	25.0	175	14.5	14.0	0.8	A20/B20



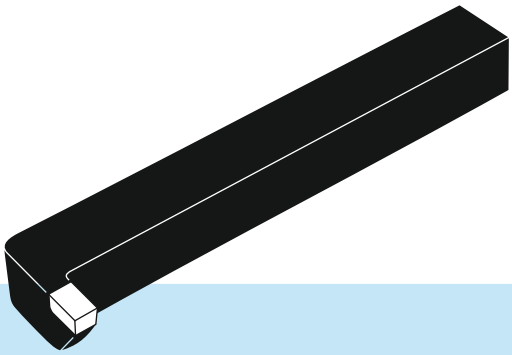
Angle of inclination 5°

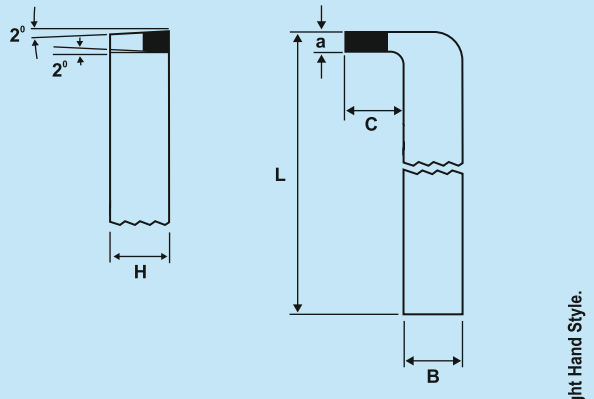
Entering angle Feed Direction	Tool Code	Dimensions in mm									Tip
		H/B	Length	$Length_1$	$Height_1$	a	d	t	Radius	ØA min	
	IND2RH60°2020	20	125	---	---	4.3	---	2.5	0.1	---	FT18



Rake angle 0°
Angle of inclination 0°

156 CRANKED INTERNAL RECESSING TOOL

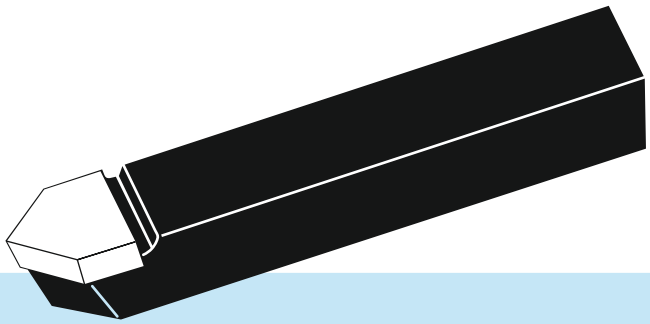


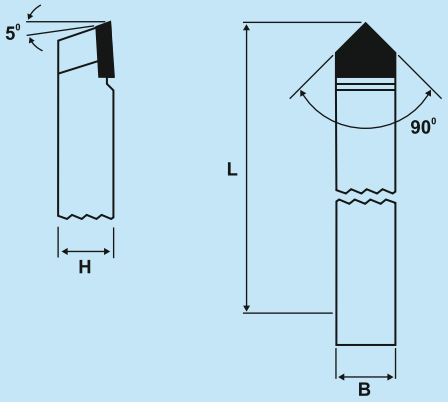


Right Hand Style.

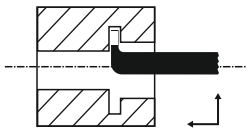
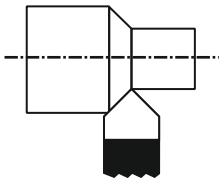
No.156

163 TURNING AND GROOVING TOOL

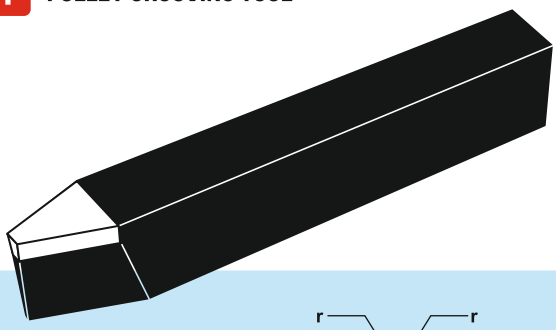


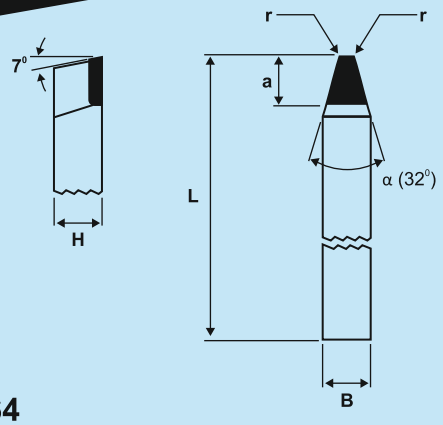


No.163

Entering angle Feed Direction	Tool Code	Dimensions in mm					Tip
		Height	Breadth	Length	Crank	a	
 Rake angle : 0° Angle of inclination 0°	156 RH/LH - 1010	10	10	100	9.0	3	D3
	156 RH/LH - 1212	12	12	110	11.0	4	D4
	156 RH/LH - 1616	16	16	140	14.0	5	D5
	156 RH/LH - 2020	20	20	160	18.0	6	D6
	156 RH/LH - 2525	25	25	200	20.0	8	D8
	156 RH/LH - 3232	32	32	250	28.0	10	D10
	156 RH/LH - 4040	40	40	315	30.0	12	D12
 Rake angle : 0° Angle of inclination 0°	163 - 1010	10	10	90	---	---	F10
	163 - 1212	12	12	100	---	---	F12
	163 - 1616	16	16	110	---	---	F16
	163 - 2020	20	20	125	---	---	F20
	163 - 2525	25	25	140	---	---	F25
	163 - 3232	32	32	170	---	---	F32
	163 - 4040	40	40	200	---	---	F40
	163 - 5050	50	50	240	---	---	F50
	163 - 1610	16	10	110	---	---	F10
	163 - 2012	20	12	125	---	---	F12
	163 - 2516	25	16	140	---	---	F16
	163 - 3220	32	20	170	---	---	F20
	163 - 4025	40	25	200	---	---	F25
	163 - 5032	50	32	240	---	---	F32

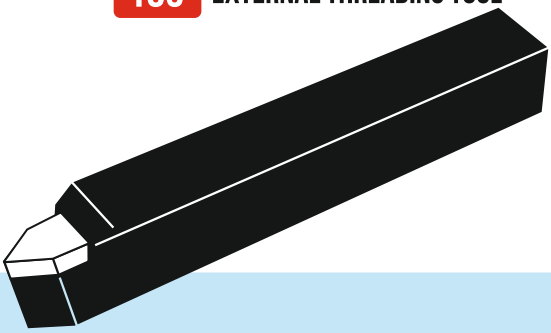
164 PULLEY GROOVING TOOL

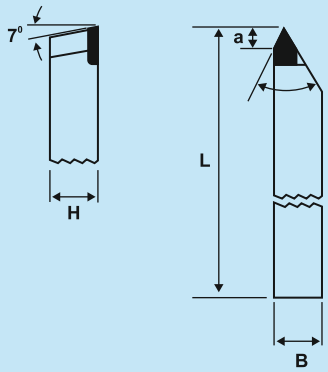




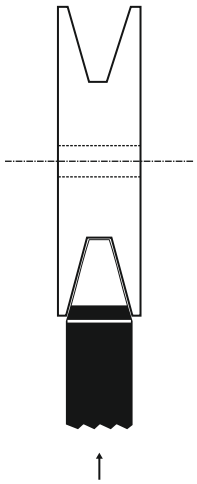
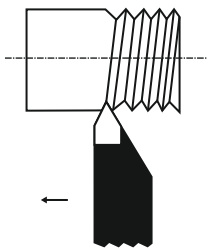
No.164

165 EXTERNAL THREADING TOOL

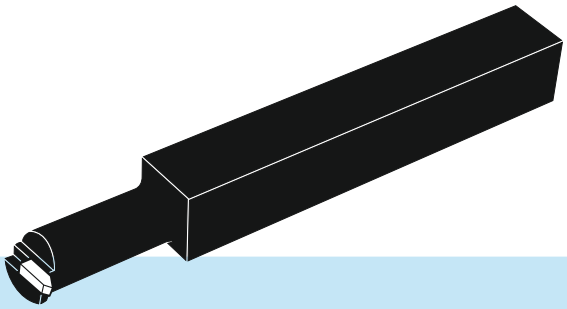


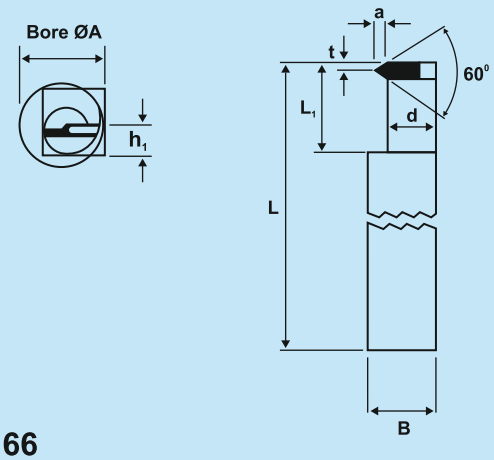


No.165

Entering angle Feed Direction	Tool Code	Dimensions in mm							
		Height	Breadth	Length	N.W.	α	a	VEE Size	Tip
 Rake angle 10° Angle of inclination 0°	164 - 1616	16	16	150	4.9	32°	18	A	CR 16
	164 - 1616	16	16	150	4.6	34°	18	A	CR 16
	164 - 1616	16	16	150	4.3	36°	18	A	CR 16
	164 - 1616	16	16	150	3.9	38°	18	A	CR 16
	164 - 2020	20	20	175	6.5	32°	22	B	CR 20
	164 - 2020	20	20	175	6.0	34°	22	B	CR 20
	164 - 2020	20	20	175	5.5	36°	22	B	CR 20
	164 - 2020	20	20	175	5.1	38°	22	B	CR 20
	164 - 2525	25	25	200	8.5	34°	30	C	CR 25
	164 - 2525	25	25	200	8.0	36°	30	C	CR 25
	164 - 2525	25	25	200	7.4	38°	30	C	CR 25
	164 - 2516	25	16	150	4.9	32°	18	A	CR 16
	164 - 2516	25	16	150	4.6	34°	18	A	CR 16
	164 - 2516	25	16	150	4.3	36°	18	A	CR 16
	164 - 2516	25	16	150	3.9	38°	18	A	CR 16
	164 - 3220	32	20	175	6.5	32°	22	B	CR 20
	164 - 3220	32	20	175	6.0	34°	22	B	CR 20
	164 - 3220	32	20	175	5.5	36°	22	B	CR 20
	164 - 3220	32	20	175	5.1	38°	22	B	CR 20
	164 - 4025	40	25	200	8.5	34°	30	C	CR 25
	164 - 4025	40	25	200	8.0	36°	30	C	CR 25
	164 - 4025	40	25	200	7.4	38°	30	C	CR 25
 Rake angle 0° Angle of inclination 0°	165 - 1010	10	10	90	---	---	5	---	E4
	165 - 1212	12	12	100	---	---	6	---	E5
	165 - 1616	16	16	110	---	---	7	---	E6
	165 - 2020	20	20	125	---	---	8	---	E8
	165 - 2525	25	25	140	---	---	9	---	E10
	165 - 3232	32	32	170	---	---	10	---	E12
	165 - 4040	40	40	200	---	---	11	---	E16
	165 - 1610	16	10	110	---	---	6	---	E5
	165 - 2012	20	12	125	---	---	7	---	E6
	165 - 2516	25	16	140	---	---	8	---	E8
	165 - 3220	32	20	170	---	---	9	---	E10
	165 - 4025	40	25	200	---	---	10	---	E12

166 INTERNAL THREADING TOOL WITH V PROFILE

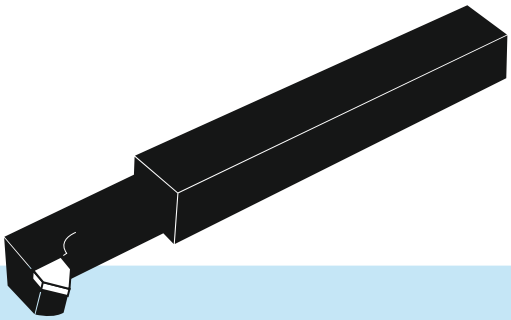


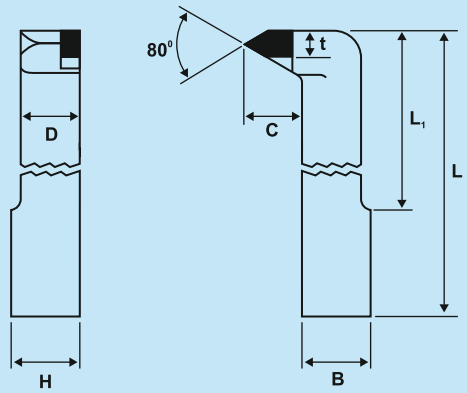


Right Hand Style.

No.166

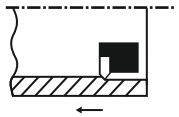
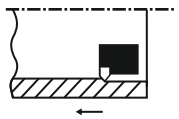
166 INTERNAL THREADING TOOL





Right Hand Style.

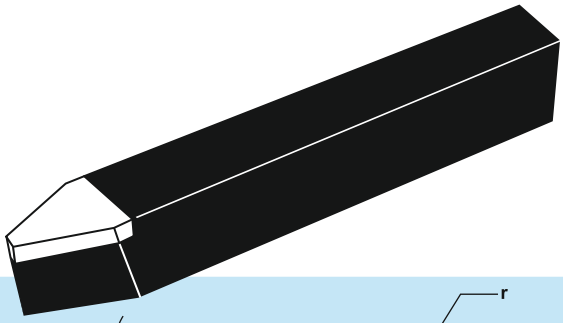
No.166

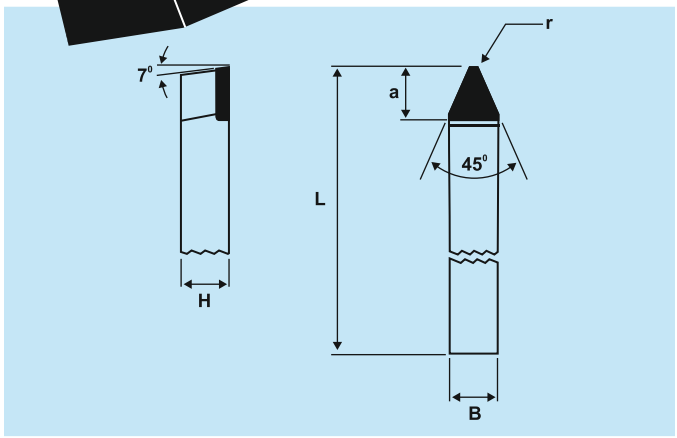
Entering angle Feed Direction	Tool Code	Dimensions in mm									Tip
		H/B	Length	Length$_1$	Height$_1$	a	d	t	C	ØA min	
 Rake angle 0° Angle of inclination 0°	166 RH-11 V	16	140	30	7.8	1.7	10	1.0	---	15	FU12
	166 RH-12 V	20	160	40	9.8	1.7	15	1.0	---	20	FU12
	166 RH-13 V	25	180	50	12.3	2.0	18	1.2	---	25	FU14
	166 RH-14 V	32	200	60	15.7	2.0	21	1.2	---	30	FU14
 Rake angle 0° Angle of inclination 0°	166 RH - 1010	10	100	30	----	5.0	9	2.5	12	24	E4
	166 RH - 1212	12	110	35	----	6.0	11	3.0	14	30	E5
	166 RH - 1616	16	140	45	----	7.0	15	3.5	16	36	E6
	166 RH - 2020	20	160	55	----	8.0	18	4.0	18	45	E8
	166 RH - 2525	25	200	65	----	9.0	22	5.0	20	55	E10
	166 RH - 3232	32	250	75	----	10.0	28	6.0	25	70	E12

Loving me isn't easy

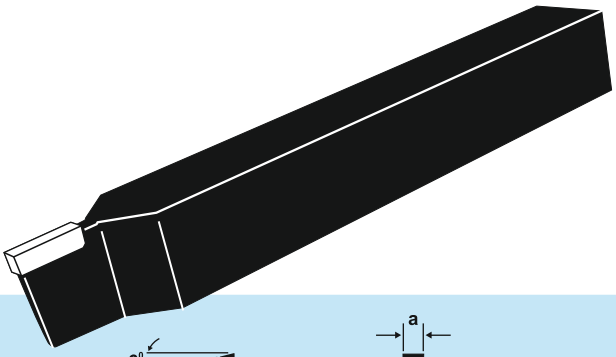
I have sharp edges

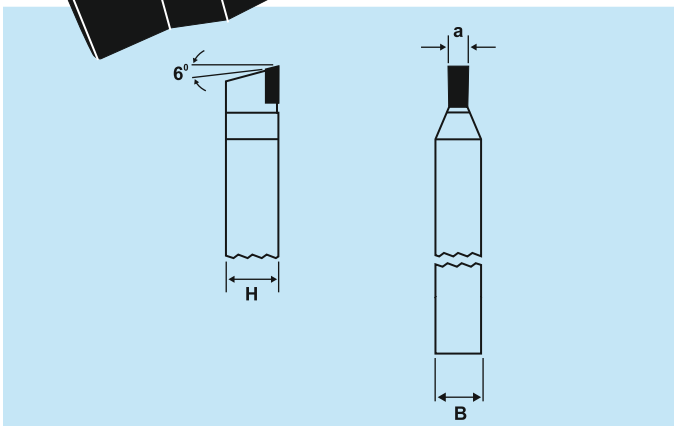
ROLLER GROOVING TOOL

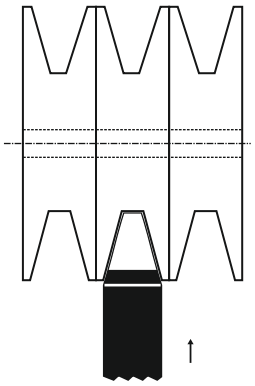
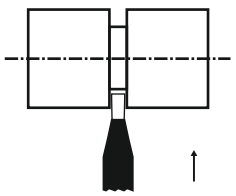




MESSCHEART GROOVING TOOL





Entering angle Feed Direction	Tool Code	Dimensions in mm						Tip Size W x L x T
		Height	Breadth	Length	α	a	Radius	
 Rake angle 10° Angle of inclination 0°	RGT 3232	32	32	300	35°	32	0.8	32 x 45 x 8
	RGT 3232	32	32	300	40°	32	0.8	32 x 40 x 8
	RGT 3232	32	32	300	45°	32	0.8	32 x 40 x 8
	RGT 3232	32	32	300	50°	32	0.8	32 x 40 x 8
	RGT 3232	32	32	300	55°	32	0.8	32 x 40 x 8
	RGT 4040	40	40	300	35°	40	0.8	40 x 50 x 8
	RGT 4040	40	40	300	40°	40	0.8	40 x 50 x 8
	RGT 4040	40	40	300	45°	40	0.8	40 x 50 x 8
	RGT 4040	40	40	300	50°	40	0.8	40 x 50 x 8
	RGT 4040	40	40	300	55°	40	0.8	40 x 50 x 8
	RGT 3225	32	25	300	35°	32	0.8	32 x 45 x 8
	RGT 3225	32	25	300	40°	32	0.8	32 x 40 x 8
	RGT 3225	32	25	300	45°	32	0.8	32 x 40 x 8
	RGT 3225	32	25	300	50°	32	0.8	32 x 40 x 8
	RGT 3225	32	25	300	55°	32	0.8	32 x 40 x 8
 Rake angle : 10° Angle of inclination 0°	MGT 3232	32	32	300	----	6	----	6 x 25 x 6
	MGT 3232	32	32	300	----	8	----	8 x 25 x 8
	MGT 3232	32	32	300	----	10	----	10 x 25 x 10
	MGT 4040	40	40	300	----	6	----	6 x 25 x 6
	MGT 4040	40	40	300	----	8	----	8 x 25 x 8
	MGT 4040	40	40	300	----	10	----	10 x 25 x 10

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