

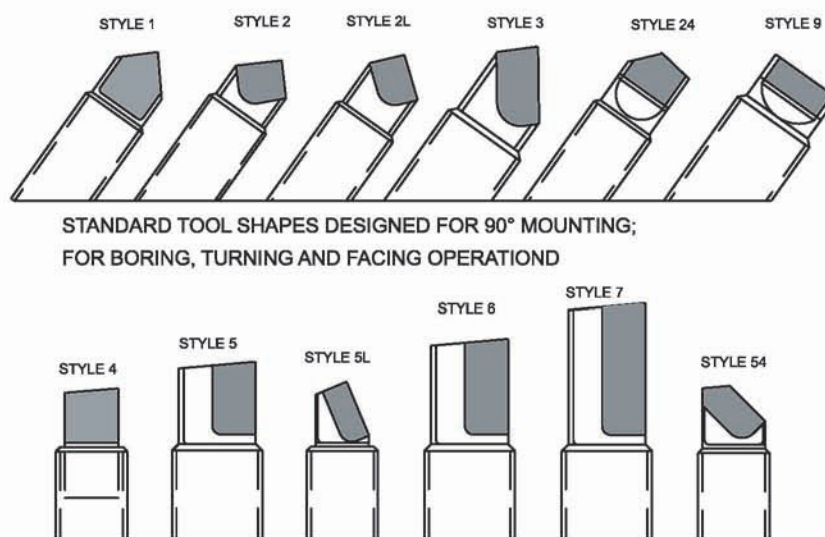
Standard Microbore cartridges in a wide range of sizes are available in the comprehensive range of tool shapes illustrated. Standard Microbore cartridges are normally furnished with zero top rake; however, cartridges having 12° top rake are also available for machining aluminium and other light alloys. Microbore cartridges having non-standard dimensions, carbide grade, and tool point radius, are designed and manufactured to suit customer requirements.



MICROBORE

STANDARD CARTRIDGE TOOL SHAPES

STANDARD TOOL SHAPES DESIGNED FOR ANGULAR MOUNTING;
FOR BORING, TURNING AND FACING OPERATIONS



Style 1&4, Solid Carbide: For high production application; removes a moderate depth of chip; entire solid carbide tool point can be replaced when mutilated.

Style 2&5, Carbide Tipped: For the majority of rough and finishing applications; removes a relatively heavy chip; greater resistance to shock is offered by the steel support of the carbide insert.

Style 2L & 5L. Carbide Tipped: Similar to style 2 except that it has 15 deg. leading edge when mounted in bar. Recommended for through boring when a heavy chip is being removed.

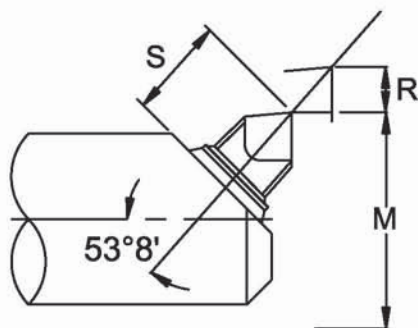
Style 1&4, Solid Carbide: For high production application; removes a moderate depth of chip; entire solid carbide tool point can be replaced when mutilated.

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SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES



53°8' Mounting
style 1, 2, 2L, 3 & 24

S-Dial position for maximum rigidity and adjustment

M-Minimum Bore

R-Range

Same tool geometry applies for left hand cartridges

Cartridge styles shown are also furnished with 12° top rake for cutting Aluminium and Magnesium.

L-Length

T-Tool point offset

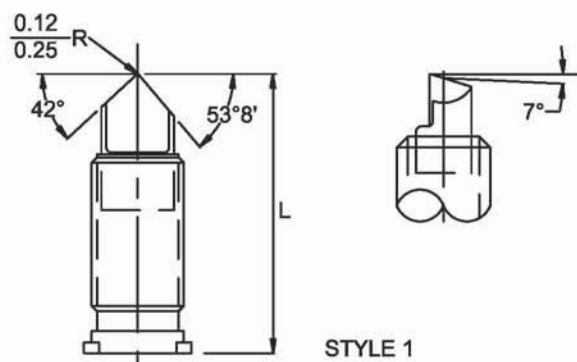
W-Effective face

H-Height above centre line



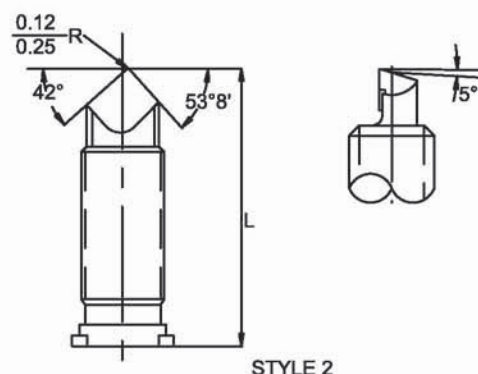
Style 1-Solid Carbide insert cartridges for angular mounting

CART SIZE	CART NO.	M	R	L	DIAL GRADS
2	M2A1	21	4.4	19.8	40
	M2B1	18.7	2	16.7	40
3	M3A1	26.2	6.4	25.4	40
	M3B1	23	3.2	21.4	40
5	M5A1	41.3	10.3	39.7	40
	M5B1	35.7	5.6	33.3	40



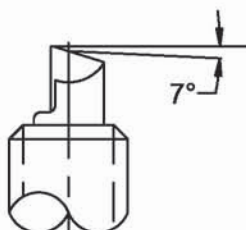
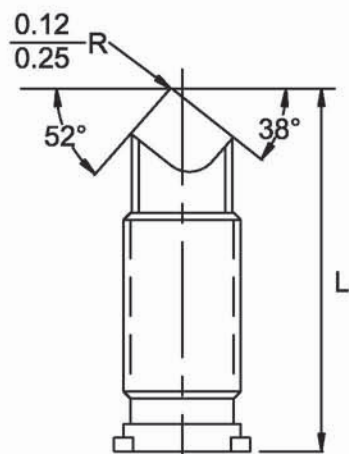
CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A2	16	3.2	14.3	40
	M1B2	13.3	1.2	11.5	40
2	M2A2	21	4.4	19.8	40
	M2B2	18.7	2	16.7	40
3	M3A2	26.2	6.4	25.4	40
	M3B2	23	3.2	21.4	40
5	M5A2	41.3	10.3	39.7	40
	M5B2	35.7	5.6	33.3	40
7	M7A2	58.7	12.7	55.6	80
	M7B2	53.2	7.9	49.2	80
10	M10A2	78.6	22.2	76.2	80
	M10B2	68.3	12.7	63.5	80

Style 2-0deg. Lead angle cartridge for angular mounting



SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES

Style 2L-15° lead angle cartridges for angular mounting

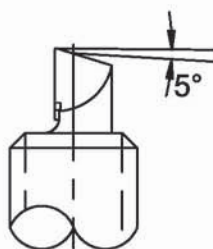
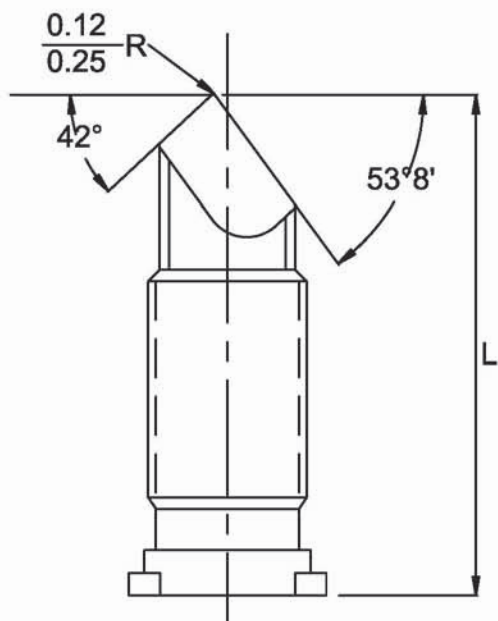


STYLE 2L



CART SIZE	CART NO.	M	R	L	DIAL GRADS
2	M2A2L	21	4.4	19.8	40
	M2B2L	18.7	2	16.7	40
3	M3A2L	27.8	6.4	25.4	40
	M3B2L	24.6	3.2	21.4	40
5	M5A2L	43.7	10.3	39.7	40
	M5B2L	38.1	5.6	33.3	40
7	M7A2L	61.1	12.7	55.6	80
	M7B2L	55.6	7.9	49.2	80
10	M10A2L	81.8	22.2	76.2	80
	M10B2L	71.4	12.7	63.5	80

Style 3 - Long tip cartridges for angular mounting

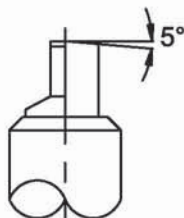
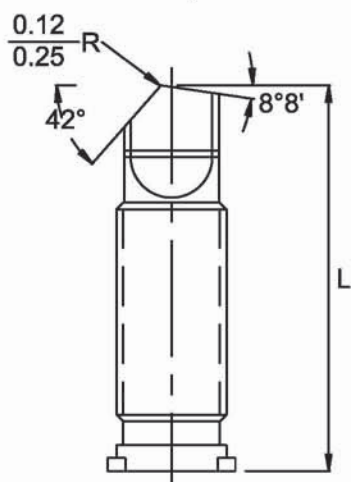


STYLE 3

CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A3	17.5	3.2	15.1	40
	M1B3	14.9	1.2	12.3	40
2	M2A3	23	4.4	21.4	40
	M2B3	20.6	2	18.3	40
3	M3A3	29.4	6.4	27	40
	M3B3	26.2	3.2	23	40
5	M5A3	46	10.3	42.9	40
	M5B3	40.5	5.6	36.5	40
7	M7A3	62.7	12.7	58.7	80
	M7B3	57.9	7.9	52.4	80
10	M10A3	86.5	22.2	82.6	80
	M10B3	76.2	12.7	69.9	80

SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES

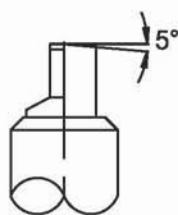
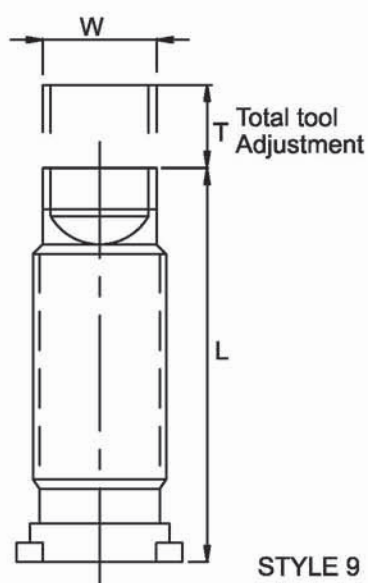
Style 24-45° Chamfering cartridges for angular mounting



STYLE 24

CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A24	16.7	3.2	14.3	40
	M1B24	14.3	1.2	11.5	40
2	M2A24	21	4.4	19.8	40
	M2B24	18.7	2	16.7	40
3	M3A24	27	6.4	25.4	40
	M3B24	23.8	3.2	21.4	40
5	M5A24	42.9	10.3	39.7	40
	M5B24	38.1	5.6	33.3	40
7	M7A24	60.3	12.7	55.6	80
	M7B24	54.8	7.9	49.2	80
10	M10A24	80.2	22.2	76.2	80
	M10B24	69.9	12.7	63.5	80

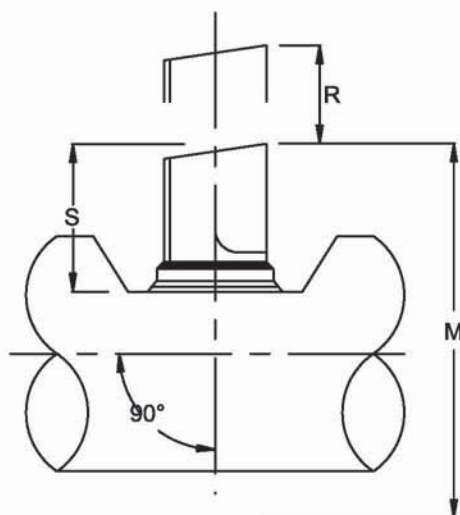
Style 9- cartridges for mounting at angle to suit application



STYLE 9

CART SIZE	CART NO.	T	W	L	DIAL GRADS
1	M1A9	4	3.2	14.3	TO SUIT MOUNTING ANGLE
	M1B9	1.6	3.2	11.3	
2	M2A9	5.6	4	19.1	
	M2B9	2.4	4	15.9	
3	M3A9	7.9	5.6	23.8	
	M3B9	4	5.6	19.8	
5	M5A9	13.5	8.7	38.1	
	M5B9	7.1	8.7	31.8	
7	M7A9	16.7	15.1	52.4	
	M7B9	10.3	15.1	46	
10	M10A9	28.6	20.6	76	
	M10B9	15.9	20.6	60.3	

SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES



90° MOUNTING

STYLE 4,5,5L,6,7&54

S - Dial Position for maximum Rigidity and adjustment

M - Minimum Bore

R - Range

L - Length

T - Tool point offset

W - Effective Face

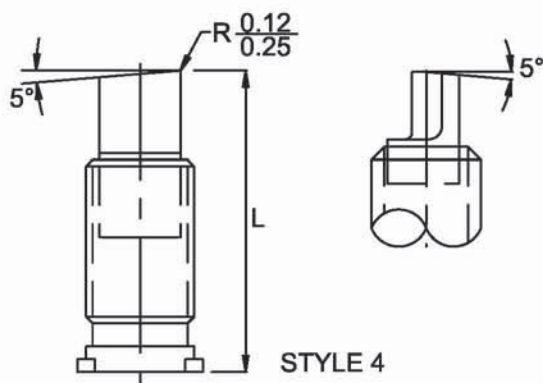
H - Height above centre line



Same tool geometry applies for left hand cartridges

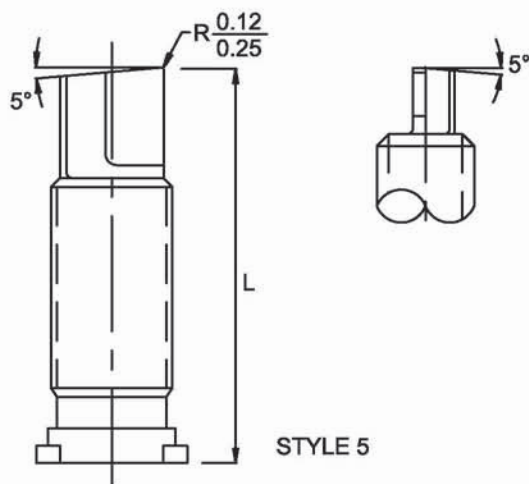
Cartridge styles shown are also furnished with 12° top rake for cutting Aluminium and Magnesium

Style4-Solid Carbide insert Cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
2	M2A4	24.2	5.6	19.8	50
	M2B4	21	2.4	16.7	50
3	M3A4	31	7.9	25.4	50
	M3B4	27	4	21.4	50
5	M5A4	48.4	13.5	39.7	50
	M5B4	42.1	7.1	33.3	50

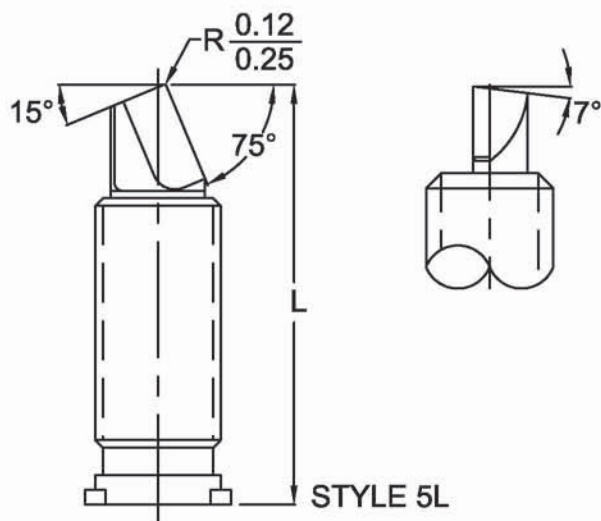
Style 5-0° lead angle cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A5	18.3	4	14.3	50
	M1B5	15.1	1.6	11.5	50
2	M2A5	24.2	5.6	19.8	50
	M2B5	21	2.4	16.7	50
3	M3A5	31	7.9	25.4	50
	M3B5	27	4	21.4	50
5	M5A5	48.4	13.5	39.7	50
	M5B5	42.1	7.1	33.3	50
7	M7A5	66.7	16.7	55.6	100
	M7B5	60.3	10.3	49.2	100
10	M10A5	88.9	28.6	76.2	100
	M10B5	76.2	15.9	63.5	100

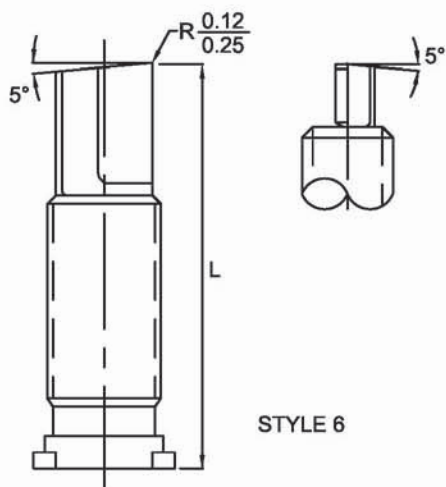
SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES

Style 5L-15° lead angle cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
2	M2A5L	24.2	5.6	19.8	50
	M2B5L	21	2.4	16.7	50
3	M3A5L	31	7.9	25.4	50
	M3B5L	27	4	21.4	50
5	M5A5L	48.4	13.5	39.7	50
	M5B5L	42.1	7.1	33.3	50
7	M7A5L	66.7	16.7	55.6	100
	M7B5L	60.3	10.3	49.2	100
10	M10A5L	88.9	28.6	76.2	100
	M10B5L	76.2	15.9	63.5	100

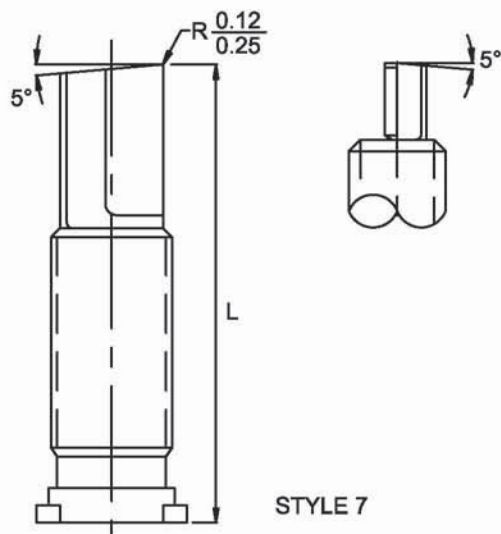
Style-6 long tip cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
2	M2A6	26.2	5.6	21.8	50
	M2B6	23	2.4	18.7	50
3	M3A6	33.3	7.9	27.8	50
	M3B6	29.4	4	23.8	50
5	M5A6	51.6	13.5	42.9	50
	M5B6	45.2	7.1	36.5	50
7	M7A6	76.2	16.7	65.9	100
	M7B6	69.9	10.3	59.5	100
10	M10A6	96.8	28.6	84.1	100
	M10B6	84.1	15.9	71.4	100

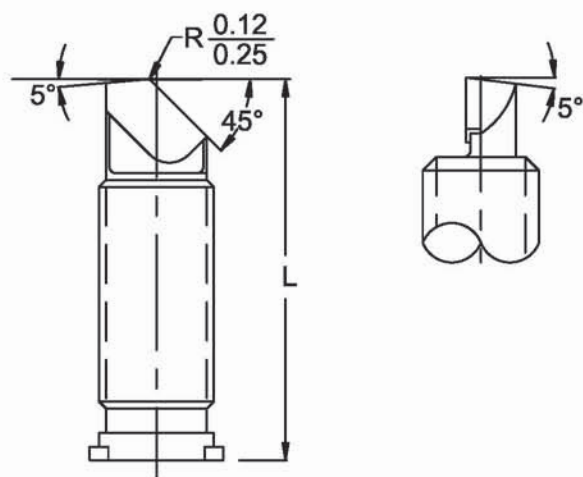
SPECIFICATIONS FOR MICROBORE BRAZED CARTRIDGES

Style 7-Extra long tip cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
3	M3A7	37.3	7.9	31.8	50
	M3B7	33.3	4	27.8	50
5	M5A7	57.9	13.5	49.2	50
	M5B7	51.6	7.1	42.9	50
7	M7A7	82.6	16.7	72.2	100
	M7B7	76.2	10.3	65.9	100
10	M10A7	106.4	28.6	93.7	100
	M10B7	93.7	15.9	81	100

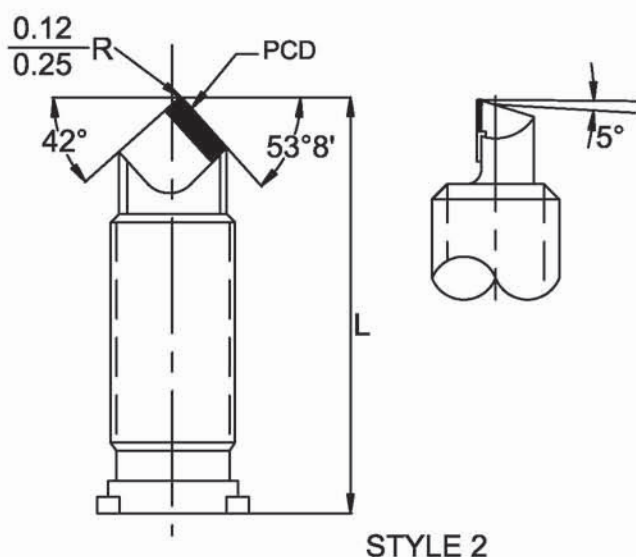
Style 54-45° Chamfering cartridges for 90° mounting



CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A54	18.3	4	14.3	50
	M1B54	15.1	1.6	11.5	50
2	M2A54	24.2	5.6	19.8	50
	M2B54	21	2.4	16.7	50
3	M3A54	31	7.9	25.4	50
	M3B54	27	4	21.4	50
5	M5A54	48.4	13.5	39.7	50
	M5B54	42.1	7.1	33.3	50
7	M7A54	66.7	16.7	55.6	100
	M7B54	60.3	10.3	49.2	100
10	M10A54	88.9	28.6	76.2	100
	M10B54	76.2	15.9	63.5	100

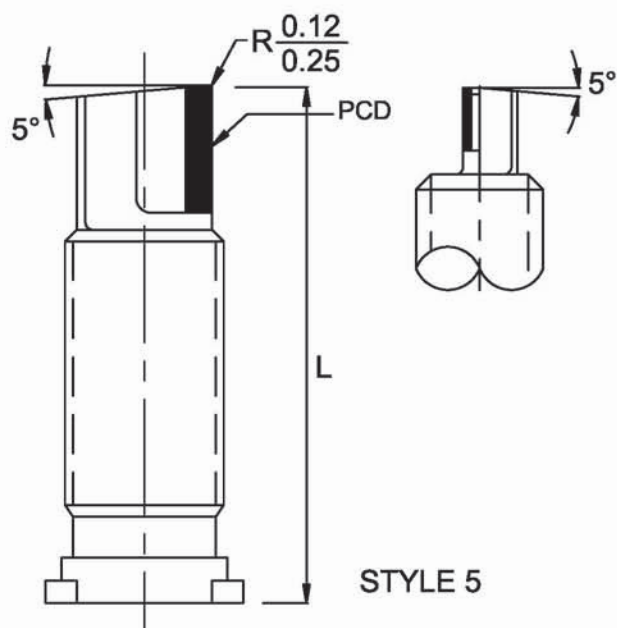
SPECIFICATIONS FOR MICROBORE (PCD) CARTRIDGES

Style 2-0° lead angle cartridge for angular mounting



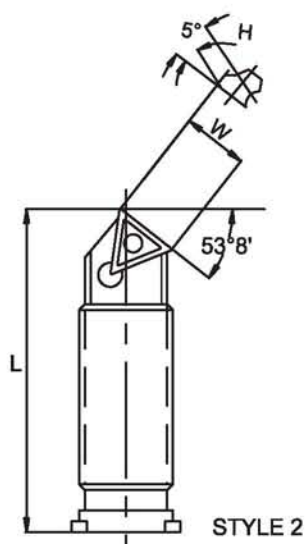
CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A2	16	3.2	14.3	40
	M1B2	13.3	1.2	11.5	40
2	M2A2	21	4.4	19.8	40
	M2B2	18.7	2	16.7	40
3	M3A2	26.2	6.4	25.4	40
	M3B2	23	3.2	21.4	40
5	M5A2	41.3	10.3	39.7	40
	M5B2	35.7	5.6	33.3	40
7	M7A2	58.7	12.7	55.6	80
	M7B2	53.2	7.9	49.2	80
10	M10A2	78.6	22.2	76.2	80
	M10B2	68.3	12.7	63.5	80

Style 5-0° lead angle cartridges for 90° mounting

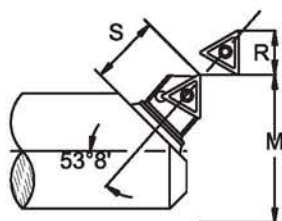


CART SIZE	CART NO.	M	R	L	DIAL GRADS
1	M1A5	18.3	4	14.3	50
	M1B5	15.1	1.6	11.5	50
2	M2A5	24.2	5.6	19.8	50
	M2B5	21	2.4	16.7	50
3	M3A5	31	7.9	25.4	50
	M3B5	27	4	21.4	50
5	M5A5	48.4	13.5	39.7	50
	M5B5	42.1	7.1	33.3	50
7	M7A5	66.7	16.7	55.6	100
	M7B5	60.3	10.3	49.2	100
10	M10A5	88.9	28.6	76.2	100
	M10B5	76.2	15.9	63.5	100

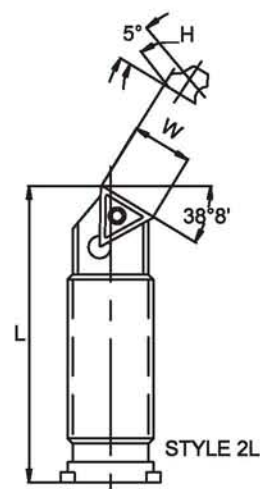
ANGULAR MOUNTED SCREW - ON TYPE CARTRIDGES WITH ISO INSERTS



STYLE 2



M-Minimum Bore
R-Range
L-Length
Dimension taken to sharp point
W-Cutting edge length
H-Height above centre line
S-Ideal setting position giving tool maximum rigidity



STYLE 2L

STYLE 2

CART SIZE	CART NO.	M	R	S	L	W	H	DIAL GRADS
5	M5AS2P TC-11	42.9	10.3	15.4	39.2	11	2.4	40
	M5BS2P TC-11	37.3	5.6	15.4	32.8			

STYLE 2L

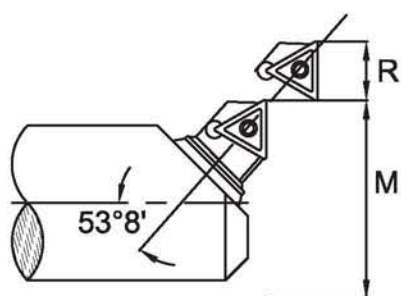
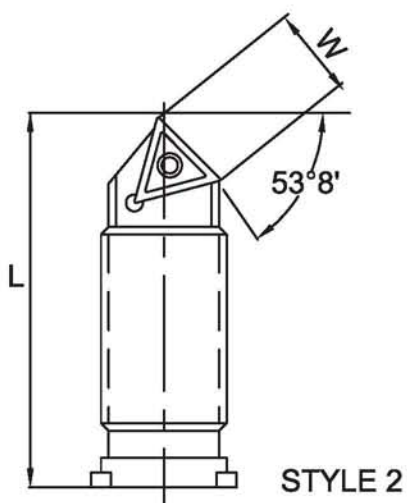
CART SIZE	CART NO.	M	R	S	L	W	H	DIAL GRADS
5	M5AS2LP TC-11	43.7	10.3	15.9	40	11	2.4	40
	M5BS2LP TC-11	38.1	5.6	15.9	33.8			

SPARES DETAILS FOR INDEXABLE SCREW ON TOOLS WITH ISO INSERTS

MICROBORE CARTRIDGE			INSERT DATA			INSERT HOLDING SCREW	TORX KEY
SIZE	LENGTH	TYPE	INSERT NO.	INSCRIBED	TIP RAD II		
5	A	S	TCMT 110204	6.35	0.4	Ø2.5X0.45	T 8
	B						

Note: 1. We can suit ISO insert any make like SANDVIK, SECO, WIDIA, KORLOY, MITSUBISHI, ISCAR, TAEGUTEC, PLANSEE TIZIT, KYOCERA etc.,

ANGULAR MOUNTED SCREW - ON TYPE CARTRIDGES WITH ISO INSERTS



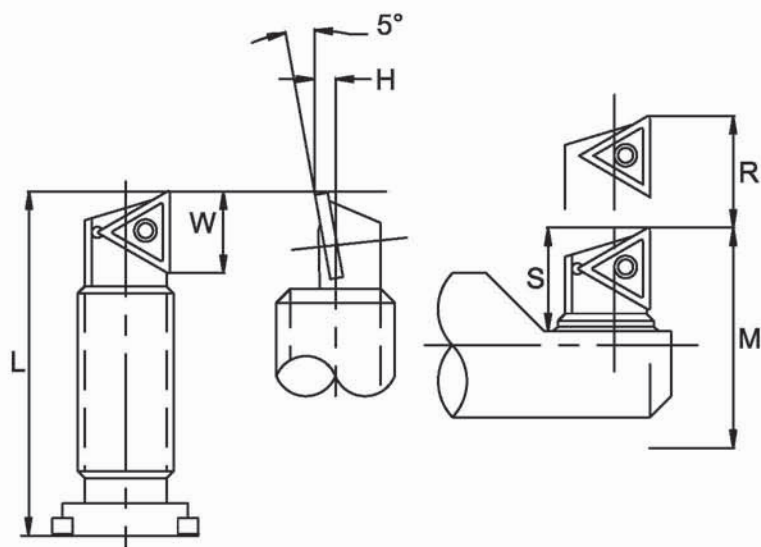
M - Minimum Bore
R - Range
L - Length
W - Effective Width

CART NO.	M	R	L	W	DIAL GRADS
M3 A2 T	26.2	6.4	25.4	6.25	40
M3 B2 T	23	3.2	21.4		
M5 A2 T	42.9	10.3	39.7	10	
M5 B2 T	37.3	5.6	33.3		
M7 A2 T	58.7	12.7	56.1	14.5	80
M7 B2 T	53.2	7.9	49.6		
M10 A2 T	78.6	22.2	76.2	14.5	
M10 B2 T	68.3	12.7	63.5		

INSERT NO	INSERT HOLDING SCREW	TORX KEY	CARTRIDGE SIZE
TCMT-06T104	Ø 2.0 X 0.40	T 6	M3&M5
TCMT-110204	Ø 2.5 X 0.45	T 8	
TCMT-16T304	Ø 3.5 X 0.60	T 15	M7&M10

Note: We can suit ISO insert any make like
SANDVIK, SECO, WIDIA, KORLOY, MITSUBISHI, ISCAR, TAEGUTEC, PLANSEE TIZIT, KYOCERA etc.,

STRAIGHT MOUNTED SCREW-ON TYPE CARTRIDGE



STYLE 5



STYLE 5

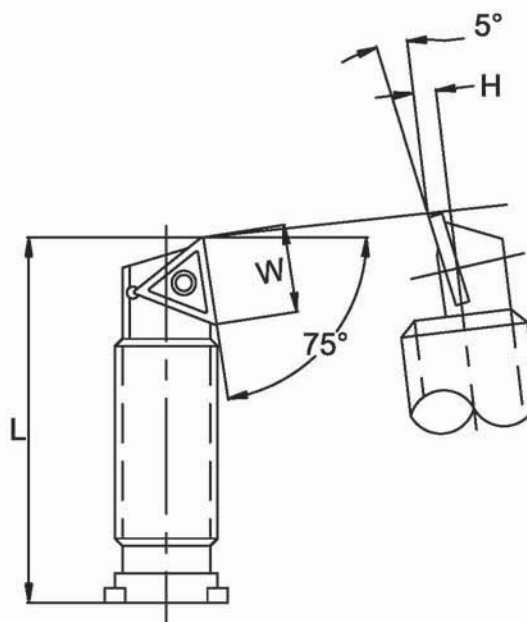
CART SIZE	CART NO.	M	R	S	L	W	H	DIAL GRADS
5	M5AS5P TC-11	48.4	13.5	15.9	39.7	11	2.4	50
	M5BS5P TC-11	42.1	7.1	15.9	33.3			

STYLE 5L

CART SIZE	CART NO.	M	R	S	L	W	H	DIAL GRADS
5	M5AS5LP TC-11	48.4	13.5	15.1	38.9	11	2.4	50
	M5BS5LP TC-11	42.1	7.1	15.1	32.5			

SPARE DETAILS FOR SCREW ON TYPE CARTRIDGE WITH ISO INSERTS

MICROBORE CARTRIDGE			INSERT DATA	INSERT HOLDING SCREW	TORX KEY
SIZE	LENGTH	TYPE	INSERT NO.		
5	A	S	TCMT 110204	Ø 2.5X0.45	T 8
	B				

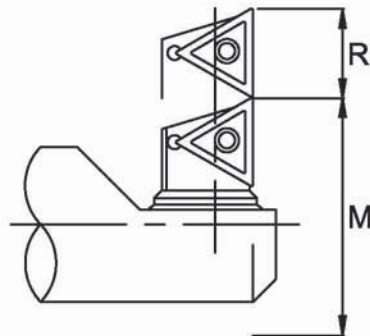
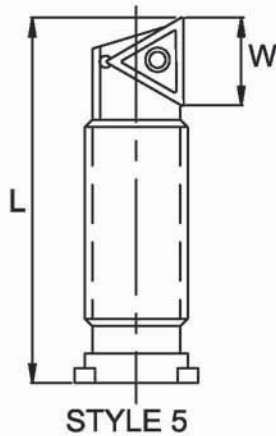


STYLE 5L

Note: We can suit ISO insert any make like
SANDVIK, SECO, WIDIA, KORLOY, MITSUBISHI, ISCAR, TAEGUTEC, PLANSEE TIZIT, KYOCERA etc.,



STRAIGHT MOUNTED SCREW-ON TYPE CARTRIDGE



M - Minimum Bore

R - Range

L - Length

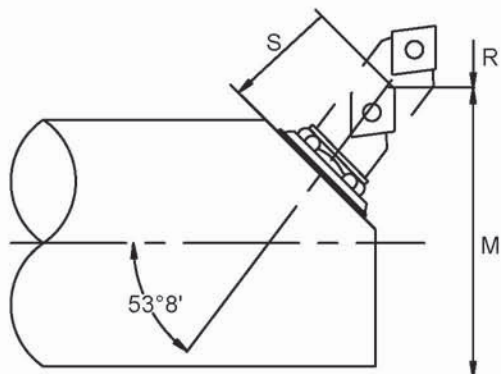
W - Effective Face

CART NO.	M	R	L	W	DIAL GRADS
M3 A5 T	31	7.9	25.4	6.25	50
M3 B5 T	27	4	21.4		
M5 A5 T	48.4	13.5	39.7	10	
M5 B5 T	42.1	7.1	33.3		
M7 A5 T	66.7	16.7	56.1	14.5	100
M7 B5 T	60.3	10.3	49.6		
M10 A5 T	88.9	28.6	76.2	14.5	
M10 B5 T	76.2	15.9	63.5		

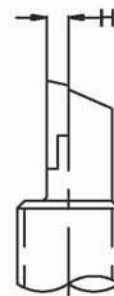
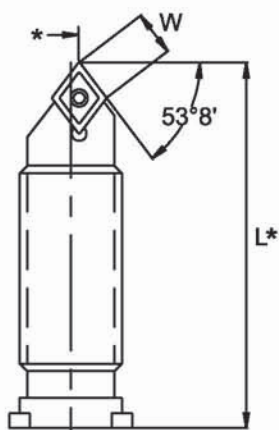
INSERT NO	INSERT HOLDING SCREW	TORX KEY	CARTRIDGE SIZE
TCMT-06T104	Ø 2.0 X 0.40	T 6	M3&M5
TCMT-110204	Ø 2.5 X 0.45	T 8	
TCMT-160408	Ø 3.5 X 0.60	T 15	M7&M10

Note: We can suit ISO insert any make like
SANDVIK, SECO, WIDIA, KORLOY, MITSUBISHI, ISCAR, TAEGUTEC, PLANSEE TIZIT, KYOCERA etc.,

ANGULAR MOUNTED SCREW - ON TYPE CARTRIDGES - STYLE 2



S - Dial Position for maximum Rigidity and adjustment
M - Minimum Bore
R - Range
L - Length
W - Effective Face
H - Height above center line



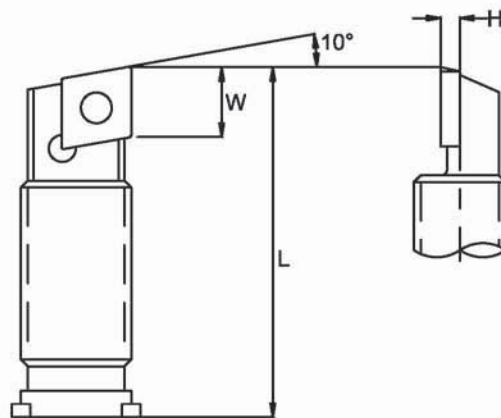
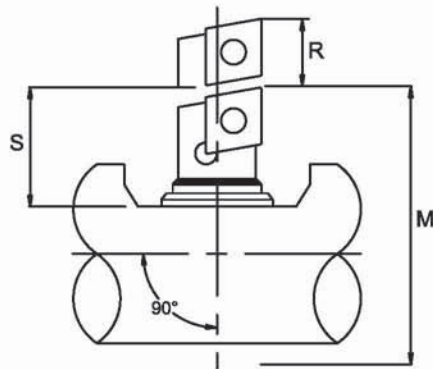
* To Sharp point of insert.

CART NO.	M	R	S	L	W	H	DIAL GRADS
M2 A2 CO4	21.0	4.4	8.7	19.8	4.3	1.2	40
M2 B2 CO4	18.7	2.0		16.7			
M3A2CO6	26.2	6.4	11.9	25.4	6.4	1.6	
M3B2CO6	23.0	3.2		21.4			
M5A2CO6	41.3	10.3	15.9	39.7		2.4	
M5B2CO6	35.7	5.6		33.3			
M7A2CO9	58.7	12.7	25.4	55.6	9.5	3.2	80
M7B2CO9	53.2	7.9		49.2			
M10A2CO9	78.6	22.2	31.8	76.2		4.8	
M10B2CO9	68.3	12.7		63.5			

INSERT NO	INSERT HOLDING SCREW	TORX KEY	CARTRIDGE SIZE
CCGT-04T004 (MITSUBISHI,KYOCERA) CPGT-04T004(WIDIA)	Ø 2.0 X 0.40	T 6	M2
CCMT-060204	Ø 2.5 X 0.45	T 8	M3&M5
CCMT-090304	Ø 3.5 X 0.60	T 15	M7&M10

Note: We can suit ISO insert any make like
SANDVIK, SECO, WIDIA, KORLOY, MITSUBISHI, ISCAR, TAEGUTEC, PLANSEE TIZIT,
KYOCERA etc.,

STRAIGHT MOUNTED SCREW - ON TYPE CARTRIDGES



S - Dial Position for maximum
Rigidity and adjustment
M - Minimum Bore
R - Range
L - Length
W - Effective Face
H - Height above centre line

CART NO.	M	R	S	L	W	H	DIAL GRADS
M3A5C06	31	7.9	11.1	25.4	6.4	1.6	50
M3B5C06	27	4		21.4		2.4	
M5A5C06	48.4	13.5	15.9	39.7	9.5	3.2	
M5B5C06	42.1	7.1		33.3		4.8	
M7A5C09	66.7	16.7	25.4	55.6	9.5	3.2	100
M7B5C09	60.3	10.3	31.8	49.2		4.8	
M10A5C09	88.9	28.6		76.2			
M10B5C09	76.2	15.9		63.5			

INSERT NO	INSERT HOLDING SCREW	TORX KEY	CARTRIDGE SIZE
CCMT-060204	Ø 2.5 X 0.45	T 8	M3&M5
CCMT-090304	Ø 3.5 X 0.60	T 15	M7&M10



MICROBORE CARTRIDGES SPARES RE-ORDERING INFORMATION

CARTRIDGE SIZE		M1	M2	M3	M5	M7	M10
DIAL	ANGULAR MOUNTING	D14	D24	D34	D54	D78	D108
	SQUARE MOUNTING	D15	D25	D35	D55	D710	D1010

COMMON FOR ANGULAR AND SQUARE MOUNTING METRIC

CARTRIDGE SIZE		1	2	3	5	7	10
LOCK SCREW	A	M308	M312	M416	M625	M1030	M1250
	B	M306	M310	M412	M620	M1025	M1235
WASHER		NOT REQ	M20	M30	M50	M70	M100
HEXAGONAL KEY		M200	M200	M250	M400	M600	M800
TORX SCREW		NOT REQ	S200	S250	S250	S350	S350
TORX KEY		NOT REQ	T6	T8	T8	T15	T15
WRENCH		S100	S200	S300	S500	S700	S1000

NOTE : *Part Number for std. Screw length given. Other length available on request inform screw length.

CARBIDE DATA

Microbore cartridges are available in different carbide grades so that cartridges having the most suitable grade of carbide can be selected for performing a particular type of operation. The following chart shows MTS carbide identification letters With ISO identification numbers and indicates the general field of application for each of the carbide grades.

CAST IRON,BRASS,NON-METALLIC MATERIALS

Application	MTS Identification	ISO Identification
General purpose machining-Cast iron, Non-ferrous materials and non-metallic materials	F	K20
Precision machining,finishing and roughing-grey iron, chilled iron, non-ferrous alloys and non-metallic materials.	*A	K10
Roughing and finishing-grey iron, malleable iron, steel and cast steel.	*J	M10

STEEL AND STEEL ALLOYS

General purpose machining-steel and steel casting	G	P30
Light to medium roughing-steel and steel castings at moderate cutting speeds.	*E	P20
Precision machining,finishing and light roughing-steel and steel castings at high cutting speeds.	*B	P10

*Non-stock grade MOQ 20 Nos.

ALUMINIUM,ALUMINIUM ALLOYS & MAGNESIUM

(12 Positive top rake cartridges)

General purpose operations	F	K20
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