

MICROBORE

How to adjust Microbore Tools

Microbore is a multipurpose single point cutting tool which can be rapidly and accurately adjusted to precise limits by a proven Micro-meter and vernier principle for Precision Boring, Turning & Facing Operations.

Accurate adjustment of a Microbore tool is achieved by use of a graduated dial and vernier scale, both of which are calibrated to read directly on bore diameter. Referring to Figure 1, a dial movement of one graduation represents 0.02mm on diameter and the vernier scale divides one graduation of the dial into ten parts with a resultant change of 0.002mm on diameter.

IMPORTANT: There is a difference in the dial graduations which must be used on angular and straight mounted tools. The table below shows correct dial graduations to use with the various tools.

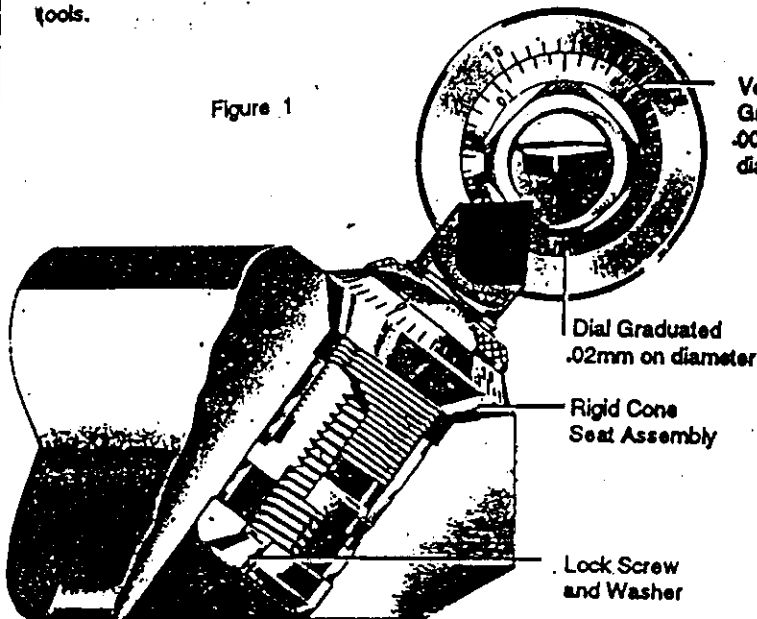


Figure 1

Figure 2

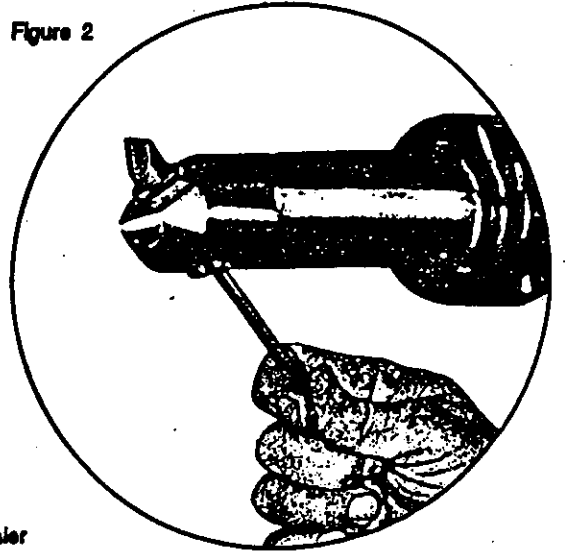


FIGURE 3

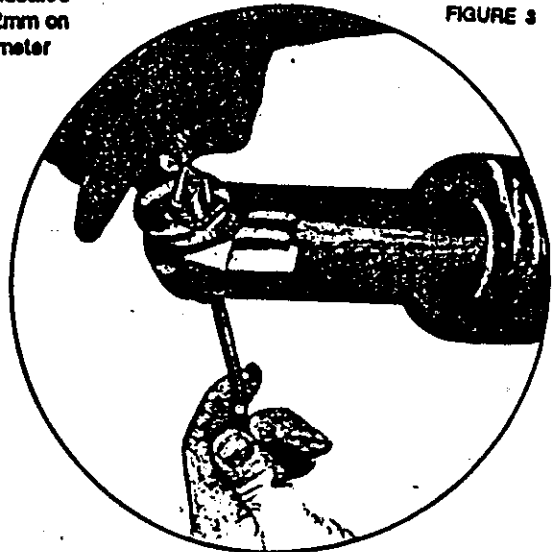
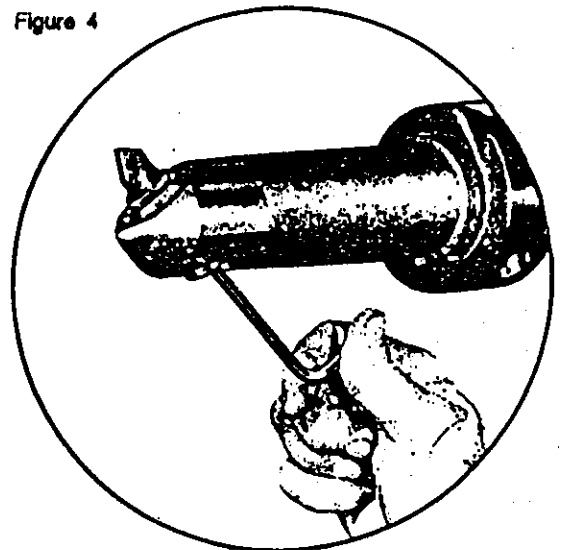


Figure 4



To make an adjustment on any Microbore tool, loosen the lock screw at the back of the Microbore tool, using a hex key as shown in Figure 2.

Move the dial with a dial wrench applied to the flats to make the required adjustment as shown in Figure 3.

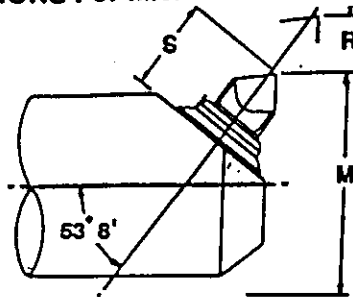
Tighten the lock screw, using the hex key as shown in Figure 4. Only normal finger pressure on the short end of the hex key is required for proper locking of the unit assembly after adjustment to ensure more accurate tool setting.

DIAL GRADUATIONS TO USE WITH MICROBORE TOOLS

Microbore Tool Size	1	2	3	5	7	10
Angular Mounted	40	40	40	40	80	80
Straight Mounted	50	50	50	50	100	100

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SPECIFICATIONS For Microbore Brazed Cartridges



53° 8' Mounting
Style 1, 2, 2L, 3 & 24

NOMENCLATURE

- | | |
|---|------------------------------|
| S - Dial position for maximum rigidity and adjustment | L - Length |
| M - Minimum bore | T - Tool point offset |
| R - Range | 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.

Style I - solid Carbide Insert cartridges

CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
2	M2A1	21.0	4.4	8.7	19.8	0.4	2.0	0.79	40
	M2B1	18.7	2.0	8.7	16.7	0.4	2.0	0.79	40
3	M3A1	26.2	6.4	11.1	25.4	0.8	2.0	0.79	40
	M3B1	23.0	3.2	11.1	21.4	0.8	2.0	0.79	40
5	M5A1	41.3	10.3	15.9	39.7	1.2	3.6	1.60	40
	M5B1	35.7	5.6	15.9	33.3	1.2	3.6	1.60	40

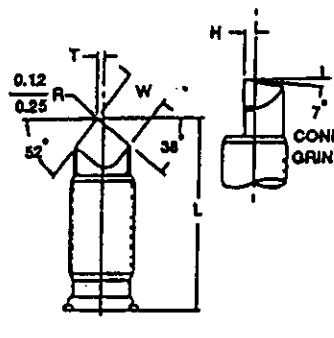
Style 2-0° lead angle cartridges

CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
1	M1A2	16.0	3.2	6.4	14.3	0.4	2.0	0.79	40
	M1B2	13.3	1.2	6.4	11.5	0.4	2.0	0.79	40
2	M2A2	21.0	4.4	8.7	19.8	0.4	2.8	1.19	40
	M2B2	18.7	2.0	8.7	16.7	0.4	2.8	1.19	40
3	M3A2	26.2	6.4	11.1	25.4	0.8	3.2	1.57	40
	M3B2	23.0	3.2	11.1	21.4	0.8	3.2	1.57	40
5	M5A2	41.3	10.3	15.9	39.7	1.2	6.4	2.40	40
	M5B2	35.7	5.6	15.9	33.3	1.2	6.4	2.40	40
7	M7A2	58.7	12.7	25.4	55.6	1.6	15.1	3.18	80
	M7B2	53.2	7.9	25.4	49.2	1.6	15.1	3.18	80
10	M10A2	78.6	22.2	31.8	76.2	0.8	19.1	4.75	80
	M10B2	68.3	12.7	31.8	63.5	0.8	19.1	4.75	80

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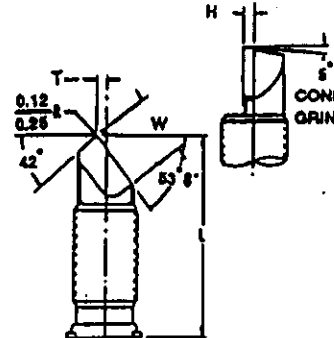
SPECIFICATIONS For Microbore Brazed Cartridges

Style 2L-15° lead angle Cartridges



CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
2	M2A2L	21.0	4.4	8.7	19.8	0.8	4.0	1.19	40
	M2B2L	18.7	2.0	8.7	16.7	0.8	4.0	1.19	40
3	M3A2L	27.8	6.4	11.1	25.4	1.6	5.6	1.57	40
	M3B2L	24.6	3.2	11.1	21.4	1.6	5.6	1.57	40
5	M5A2L	43.7	10.3	15.9	39.7	2.4	9.1	2.4	40
	M5B2L	38.1	5.6	15.9	33.3	2.4	9.1	2.4	40
7	M7A2L	61.1	12.7	25.4	55.6	4.8	15.1	3.18	80
	M7B2L	55.6	7.9	25.4	49.2	4.8	15.1	3.18	80
10	M10A2L	81.8	22.2	31.8	76.2	5.6	19.8	4.75	80
	M10B2L	71.4	12.7	31.8	63.5	5.6	19.8	4.75	80

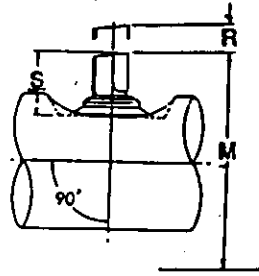
Style 3-Long tip Cartridges



CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
1	M1A3	17.5	3.2	7.1	15.1	0.8	3.6	0.79	40
	M1B3	14.9	1.2	7.1	12.3	0.8	3.6	0.79	40
2	M2A3	23.0	4.4	10.3	21.4	1.2	5.6	1.19	40
	M2B3	20.6	2.0	10.3	18.3	1.2	5.6	1.19	40
3	M3A3	29.4	6.4	12.7	27.0	1.6	7.5	1.57	40
	M3B3	26.2	3.2	12.7	23.0	1.6	7.5	1.57	40
5	M5A3	46.0	10.3	19.1	42.9	2.4	11.9	2.4	40
	M5B3	40.5	5.6	19.1	36.5	2.4	11.9	2.4	40
7	M7A3	62.7	12.7	28.6	58.7	4.8	19.8	3.18	80
	M7B3	57.9	7.9	28.6	52.4	4.8	19.8	3.18	80
10	M10A3	86.5	22.2	38.1	82.6	6.4	27.8	4.75	80
	M10B3	76.2	12.7	38.1	69.9	6.4	27.8	4.75	80

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SPECIFICATIONS For Microbore Brazed Cartridges



90° MOUNTING
STYLE 4, 5, 5L, 6, 7 & 54

NOMENCLATURE

- 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.

Style 4 - Solid Carbide Insert Cartridges

CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
2	M2A4	24.2	5.6	8.7	19.8	1.6	3.2	0.79	50
	M2B4	21.0	2.4	8.7	16.7	1.6	3.2	0.79	50
3	M3A4	31.0	7.9	11.1	25.4	2.0	4.0	0.79	50
	M3B4	27.0	4.0	11.1	21.4	2.0	4.0	0.79	50
5	M5A4	48.4	13.5	15.9	39.7	3.2	6.4	1.60	50
	M5B4	42.1	7.1	15.9	33.3	3.2	6.4	1.60	50

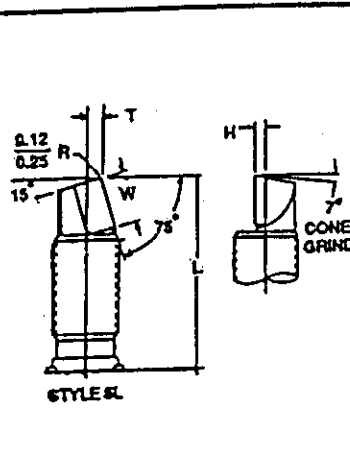
Style 5 - 0° lead angle Cartridges

CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
1	M1A5	18.3	4.0	6.4	14.3	1.6	3.2	0.79	50
	M1B5	15.1	1.6	6.4	11.5	1.6	3.2	0.79	50
2	M2A5	24.2	5.6	8.7	19.8	2.0	4.0	1.19	50
	M2B5	21.0	2.4	8.7	16.7	2.0	4.0	1.19	50
3	M3A5	31.0	7.9	11.1	25.4	2.4	5.6	1.57	50
	M3B5	27.0	4.0	11.1	21.4	2.4	5.6	1.57	50
5	M5A5	48.4	13.5	15.9	39.7	4.0	9.1	2.40	50
	M5B5	42.1	7.1	15.9	33.3	4.0	9.1	2.40	50
7	M7A5	66.7	16.7	25.4	55.6	6.4	15.9	3.18	100
	M7B5	60.3	10.3	25.4	49.2	6.4	15.9	3.18	100
10	M10A5	88.9	28.6	31.8	76.2	9.5	19.1	4.75	100
	M10B5	76.2	15.9	31.8	63.5	9.5	19.1	4.75	100

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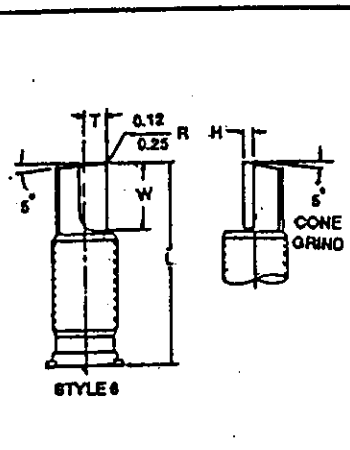
SPECIFICATIONS For Microbore Brazed Cartridges

Style 5L-15° lead angle cartridges



CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
2	M2A5L	24.2	5.6	8.7	19.8	1.2	4.4	1.19	50
	M2B5L	21.0	2.4	8.7	16.7	1.2	4.4	1.19	50
3	M3A5L	31.0	7.9	11.1	25.4	1.2	6.0	1.57	50
	M3B5L	27.0	4.0	11.1	21.4	1.2	6.0	1.57	50
5	M5A5L	48.4	13.5	15.9	39.7	2.8	9.1	2.40	50
	M5B5L	42.1	7.1	15.9	33.3	2.8	9.1	2.40	50
7	M7A5L	66.7	16.7	25.4	55.6	3.6	14.3	3.18	100
	M7B5L	60.3	10.3	25.4	49.2	3.6	14.3	3.18	100
10	M10A5L	88.9	28.6	31.8	76.2	4.8	20.6	4.75	100
	M10B5L	76.2	15.9	31.8	63.5	4.8	20.6	4.75	100

Style 6 - long tip cartridges

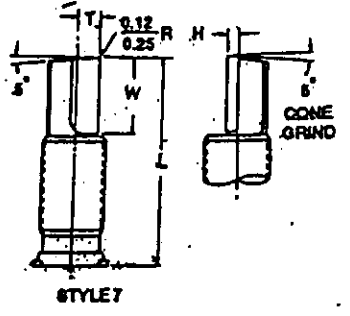


CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADS
2	M2A6	26.2	5.6	11.1	21.8	2.0	6.4	1.19	50
	M2B6	23.0	2.4	11.1	18.7	2.0	6.4	1.19	50
3	M3A6	33.3	7.9	12.7	27.8	2.8	8.3	1.57	50
	M3B6	29.4	4.0	12.7	23.8	2.8	8.3	1.57	50
5	M5A6	51.6	13.5	19.1	42.9	4.8	12.3	2.40	50
	M5B6	45.2	7.1	19.1	36.5	4.8	12.3	2.40	50
7	M7A6	76.2	16.7	35.7	65.9	7.1	25.4	3.18	100
	M7B6	69.9	10.3	35.7	59.5	7.1	25.4	3.18	100
10	M10A6	96.8	28.6	38.1	84.1	9.5	28.6	4.75	100
	M10B6	84.1	15.9	38.1	71.4	9.5	28.6	4.75	100

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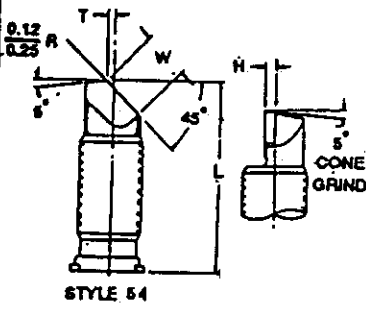
SPECIFICATIONS For Microbore Brazed Cartridges

Style 7 - Extra long tip cartridges



CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
3	JM3A7	37.3	7.9	18.3	31.8	2.8	12.3	1.57	50
	JM3B7	33.3	4.0	18.3	27.8	2.8	12.3	1.57	50
5	JM5A7	57.9	13.5	25.4	49.2	4.8	18.7	3.18	50
	JM5B7	51.6	7.1	25.4	42.9	4.8	18.7	3.18	50
7	JM7A7	82.6	16.7	42.1	72.2	7.1	31.4	3.18	100
	JM7B7	76.2	10.3	42.1	65.9	7.1	31.4	3.18	100
10	JM10A7	106.4	28.6	47.6	93.7	9.5	37.7	4.75	100
	JM10B7	93.7	15.9	47.6	81.0	9.5	37.7	4.75	100

Style 54-45° chamfering cartridges

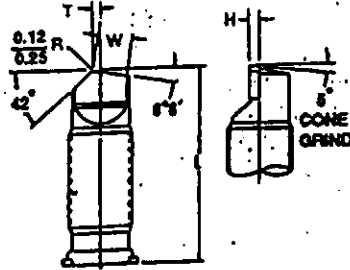


CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
1	JM1A54	18.3	4.0	6.4	14.3	0.4	2.8	0.79	50
	JM1B54	15.1	1.6	6.4	11.5	0.4	2.8	0.79	50
2	JM2A54	24.2	5.6	8.7	19.8	0.8	3.6	1.19	50
	JM2B54	21.0	2.4	8.7	16.7	0.8	3.6	1.19	50
3	JM3A54	31.0	7.9	11.1	25.4	0.8	4.4	1.57	50
	JM3B54	27.0	4.0	11.1	21.4	0.8	4.4	1.57	50
5	JM5A54	48.4	13.5	15.9	39.7	1.6	7.9	2.40	50
	JM5B54	42.1	7.1	15.9	33.3	1.6	7.9	2.40	50
7	JM7A54	66.7	16.7	25.4	55.6	1.6	11.5	3.18	100
	JM7B54	60.3	10.3	25.4	49.2	1.6	11.5	3.18	100
10	JM10A54	88.9	28.6	31.8	76.2	1.6	14.7	4.75	100
	JM10B54	76.2	15.9	31.8	63.5	1.6	14.7	4.75	100

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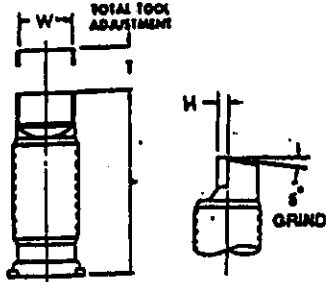
SPECIFICATIONS For Microbore Brazed Cartridges

Style 24 - 45° chamfering Cartridges



CART. SIZE	CART. NO.	M	R	S	L	T	W	H	DIAL GRADE
1	M1A24	16.7	3.2	6.4	14.3	0.4	1.6	0.79	40
	M1B24	14.3	1.2	6.4	11.5	0.4	1.6	0.79	40
2	M2A24	21.0	4.4	8.7	19.8	0.8	2.4	1.19	40
	M2B24	18.7	2.0	8.7	16.7	0.8	2.4	1.19	40
3	M3A24	27.0	6.4	11.1	25.4	0.8	3.2	1.57	40
	M3B24	23.8	3.2	11.1	21.4	0.8	3.2	1.57	40
5	M5A24	42.9	10.3	15.9	39.7	1.6	6.0	2.40	40
	M5B24	38.1	5.6	15.9	33.3	1.6	6.0	2.40	40
7	M7A24	60.3	12.7	25.4	55.6	3.2	9.9	3.18	80
	M7B24	54.8	7.9	25.4	49.2	3.2	9.9	3.18	80
10	M10A24	80.2	22.2	31.8	76.2	3.2	11.9	4.75	80
	M10B24	69.9	12.7	31.8	63.5	3.2	11.9	4.75	80

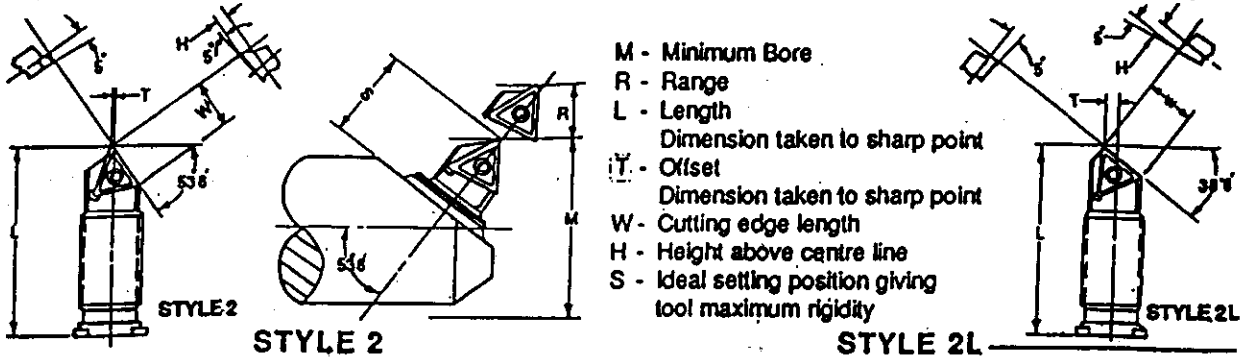
Style 9 - Cartridge



CART. SIZE	CART. NO.	T	S	L	W	H	DIAL GRADE
1	M1A9	4.0	6.4	14.3	3.2	0.79	TO SUIT MOUNTING ANGLE
	M1B9	1.6	6.4	11.5	3.2	0.79	
2	M2A9	5.6	7.9	19.1	4.0	1.19	
	M2B9	2.4	7.9	15.9	4.0	1.19	
3	M3A9	7.9	9.5	23.8	5.6	1.57	
	M3B9	4.0	9.5	19.8	5.6	1.57	
5	M5A9	13.5	14.3	38.1	8.7	2.40	
	M5B9	7.1	14.3	31.8	8.7	2.40	
7	M7A9	16.7	22.2	52.4	15.1	3.18	
	M7B9	10.3	22.2	46.0	15.1	3.18	
10	M10A9	28.6	28.6	73.0	20.6	4.75	
	M10B9	15.9	28.6	60.3	20.6	4.75	

MICROBORE

ANGULAR MOUNTED INDEXABLE SCREW-ON TOOLS WITH ISO INSERTS

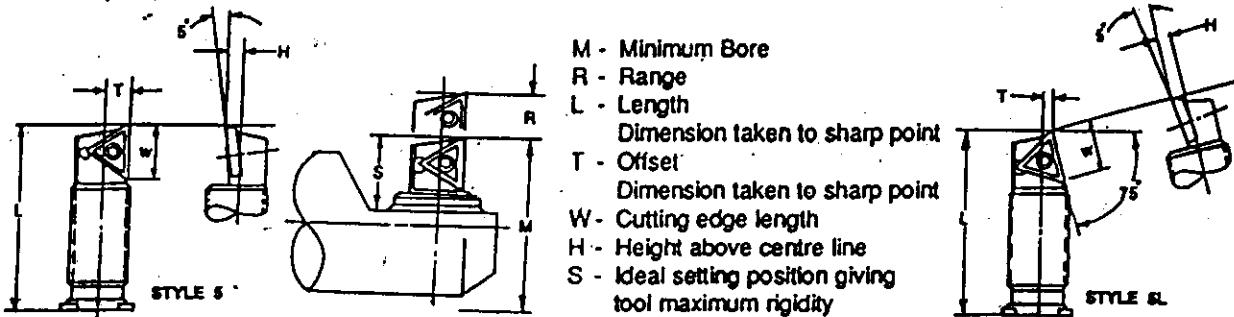


CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
5	MSAS2P TCM-1104	42.9	10.3	15.4	39.2	0.3	11.0	2.4	40
	MSBS2P TCM-1104	57.3	5.8	15.4	32.8				

CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
5	MSAS2LP TCM-1104	43.7	10.3	15.9	40.0	2.2	11.0	2.4	40
	MSBS2LP TCM-1104	38.1	5.8	15.9	33.6				

Note : Right-hand tools shown; same geometry applies for left-hand tools

STRAIGHT MOUNTED INDEXABLE SCREW-ON TOOLS WITH ISO INSERTS



CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
5	MSASSP TCM-1104	48.4	13.5	15.9	39.7	4.0	11.0	2.4	50
	MSBSSP TCM-1104	42.1	7.1	15.9	33.3				

CART SIZE	CART NO.	M	R	S	L	T	W	H	DIAL GRADS
5	MSASSLP TCM-1104	48.4	13.5	15.1	38.9	2.4	11.0	2.4	50
	MSBSSLP TCM-1104	42.1	7.1	15.1	32.5				

Note: Right-hand tools shown; same geometry applies for left-hand tools

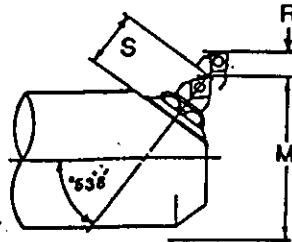
SPARES DETAILS FOR INDEXABLE SCREW ON TOOLS WITH ISO INSERTS

MICROBORE CARTRIDGE			INSERT DATA			INSERT HOLDING SCREW	ALLEN KEY FOR HOLDING SCREW
SIZE	LENGTH	TYPE	INSERT NO	INSCRIBED	TIP RADII		
5	A	S	TCMM 110204	6.35	0.4	73 080 687	73 398 998
	B						

Note : 1) Widia spares are used 2) Inserts are available with Widia

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ANGULAR MOUNTED INDEXABLE SCREW-ON CARTRIDGES. - STYLE 2, 80°



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 center line

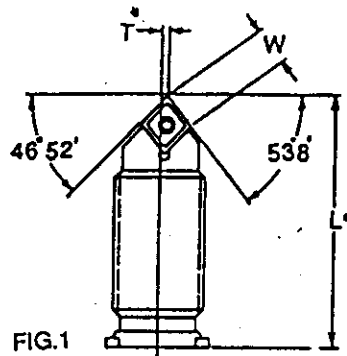


FIG.1

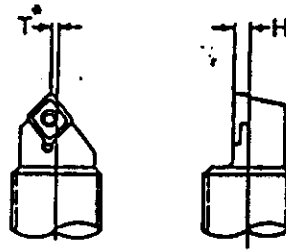


FIG. 2
 * To Sharp point of insert.

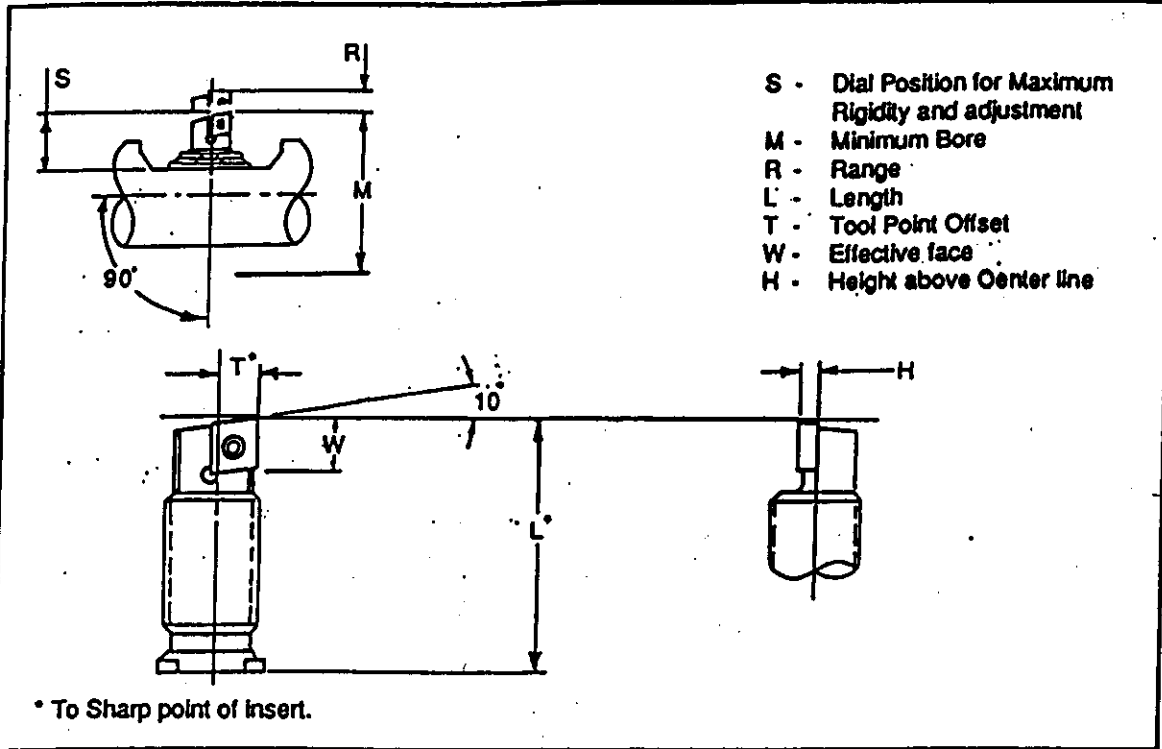
Note :- Right hand tools shown. Same geometry applies for Left hand tools.

FIG NO	CART NO.	M	R	S	L	T	W	H	DIAL GRADS.
1	M3A2CO6	26.2	6.4	11.9	25.4	0.25	6.4	1.6	40
	M3B2CO6	23.0	3.2		21.4			2.4	
	M5A2CO6	41.3	10.3	15.9	39.7				
	M5B2CO6	35.7	5.6		33.3				
2	M7A2CO9	58.7	12.7	25.4	55.6	1.6	9.5	3.2	80
	M7B2CO9	53.2	7.9		49.2			4.8	
	M10A2CO9	78.6	22.2	31.8	76.2				
	M10B2CO9	68.3	12.7		63.5				

INSERT NO. (ISO)	INSERT HOLDING SCR	ALLEN KEY	FOR
CCMM-060204	WIDIA NO. 73 498 588(LH)	WIDIA NO. 73 398 998	#3 & #5 Cartridges
CCMM-090304	WIDIA NO. 73 498 582(LH)	WIDIA NO. 73 398 999	#7 & #10 Cartridges

MICROBORE

STRAIGHT MOUNTED INDEXABLE SCREW-ON CARTRIDGES - STYLE 5, 80°



CART NO.	M	R	S	L	T	W	H	DIAL GRADS
M3A5CO6	31.0	7.9	11.1	25.4	4.0	6.4	1.6	50
M3B5CO6	27.0	4.0		21.4				
M5A5CO6	48.4*	13.5	15.9	39.7	5.5		2.4	
M5B5CO6	42.1	7.1		33.3				
M7A5CO9	66.7	16.7	25.4	55.6	6.4	9.5	3.2	100
M7B5CO9	60.3	10.3		49.2				
M10A5CO9	88.9	28.6	31.8	76.2	9.5		4.8	
M10B5CO9	76.2	15.9		63.5				

Note : Right hand tools shown. Same geometry applies for Left hand tools.

INSERT NO. (ISO)	INSERT HOLDING SCREW	ALLEN KEY	FOR
CCMM-060204	WIDIA NO. 73 498 588 (LH)	WIDIA NO. 73 398 998	#3 & #5
CCMM-090304	WIDIA NO. 73 498 582 (LH)	WIDIA NO. 73 398 999	#7 & #10