



# MICRO BORE UNITS



Redefining Cutting Technology

## Company Profile

Renuka Tools was founded in the year 2000 in Aurangabad, India with its vision to be the preferred special cutting tools provider. We now successfully cater to both domestic and international markets with our wide range of solutions. We ensure that we remain nimble and agile by continually investing in technology & R&D to stay ahead of time & keep pace with the changing technology in the industry.

Renuka Tools with its state-of-the-art manufacturing unit manufactures high quality special indexable cutting tools with utmost precision using the latest technology and highly skilled and technical manpower. All cutting tools manufactured at our unit come with a Zoller Report, ensuring that the global export quality standards are met, guaranteeing complete customer satisfaction.

At Renuka Tools, our core expertise is in manufacturing special customized cutting tools. With over 20 years of technical expertise and continual R&D efforts, we also offer standard products such as:

- ▶ Micro Bore Unit
- ▶ Anti-vibration Boring Tools
- ▶ Adjustable Boring Tools
- ▶ Large Diameter Milling Cutters
- ▶ Fine Boring Tools
- ▶ Spot Face Cutters
- ▶ Eccentric Boring Tools
- ▶ Side & Face Milling Cutters
- ▶ Large diameter Boring Tools
- ▶ Chamfer Tools

This catalogue will give you further insights and details about our Micro Bore Units. For more details of our other standard offerings, please refer to our website ([www.renukatools.in](http://www.renukatools.in)).



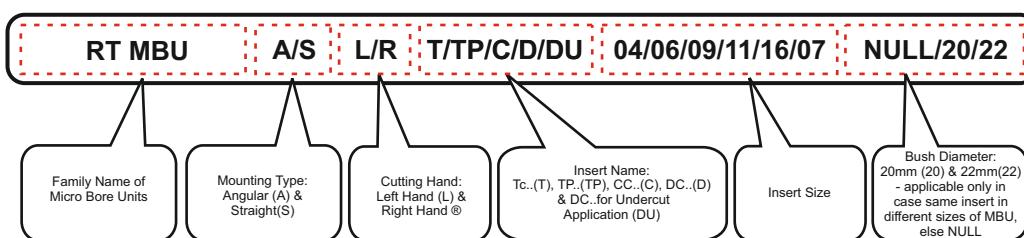
## Facts & Advantages

- ▶ Precision Finish Boring Unit with high accuracy & repeatability.
- ▶ Used for machining close tolerances.
- ▶ Facilitates precision adjustment with least count of 1 micron (0.001mm).
- ▶ Can be mounted in blind holes with provision of adjustment from the top.
- ▶ Self-clamping / Self-locking units i.e. no tightening & loosening of screws involved.
- ▶ Pre-loaded (pre-tensioned) assembly guaranteeing almost zero backlash.
- ▶ Adjustment can be done directly while the tool is on the machine, thus reducing downtime or setting time.
- ▶ Available in a wide range of variants and inserts enabling high degree of flexibility & a variety of precision boring applications.
- ▶ Directly interchangeable in the same tools as R/L148C or T-Max U fine boring unit or equivalent.



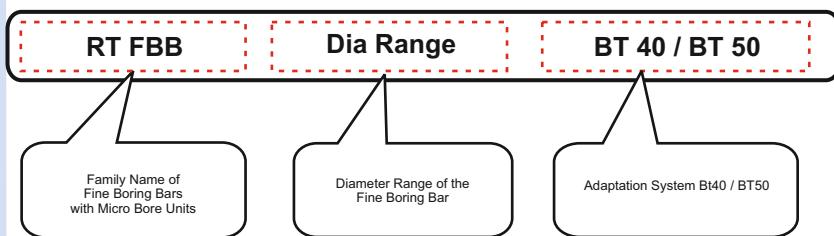
SAMPLE IMAGE

## Nomenclature Code Key For Ordering MBU



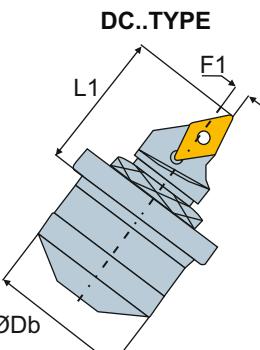
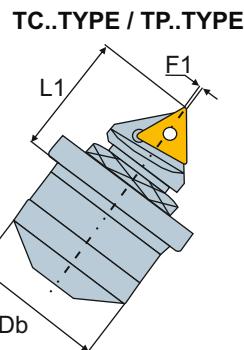
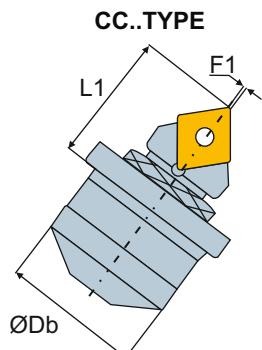
Ordering Example:  
1 piece  
RTMBU ALT09

## Nomenclature Code Key For Ordering Fine Boring Bar with MBU



Ordering Example:  
1 piece  
RTFBB 20-22 BT 40

## MBU - Angular Mounting Type

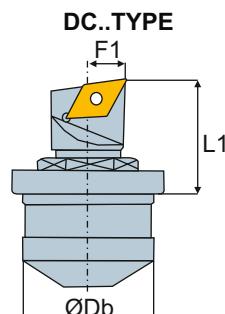
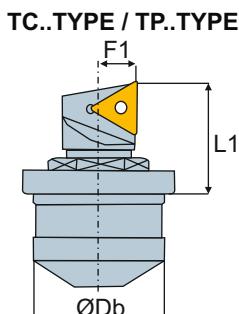
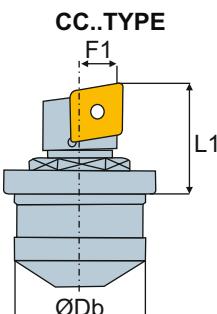


All Left - Hand Variants Shown Above  
All dimensions are in mm.

Sr. No	Item Code		Insert	D <sub>b</sub>	L1	F1	D <sub>min</sub>	Mounting Screw	Insert Screw	Torx	Spanner	Stock
	LH	RH										LH RH
1	RT MBU ALC 04	RT MBU ARC 04	CC..0401..	14	11.5	1.00	20.0	RTMS040000	M2.0	T6/T7	RTS04	★ ◆
2	RT MBU ALC 06	RT MBU ARC 06	CC..0602..	16	14.3	0.45	25.9	RTMS000609	M2.5	T7/T10	RTS06	★ ◆
3	RT MBU ALC 09	RT MBU ARC 09	CC..09T3..	20	19.1	1.00	33.1	RTMS000609	M3.5	T15/T10	RTS09	◆ ◆
4	RT MBU ALD 07	RT MBU ARD 07	DC..0702..	22	25.0	2.30	42.6	RTMS000011	M2.5	T7/T15	RTS11	◆ ◆
5	RT MBU ALT 06	RT MBU ART 06	TC..06T1..	16	14.3	0.20	25.4	RTMS000609	M2.0	T6/T10	RTS06	★ ◆
6	RT MBU ALT 09	RT MBU ART 09	TC..0902..	20	19.1	1.00	33.1	RTMS000609	M2.2	T6/T10	RTS09	★ ◆
7	RT MBU ALT 11	RT MBU ART 11	TC..1102..	22	23.0	1.10	42.6	RTMS000011	M2.5	T7/T15	RTS11	★ ◆
8	RT MBU ALT 16	RT MBU ART 16	TC..16T3..	32	33.3	1.20	60.6	RTMS000016	M3.5	T15	RTS16	★ ◆
9	RT MBU ALTP 09	RT MBU ARTP 09	TP..0902..	20	19.1	1.00	33.1	RTMS000609	M2.5	T7/T10	RTS09	◆ ◆
10	RT MBU ALTP 11	RT MBU ARTP 11	TP..1103..	22	23.0	1.10	42.6	RTMS000011	M3.0	T7/T15	RTS11	◆ ◆
11	RT MBU ALTP 16	RT MBU ARTP 16	TP..16T3..	32	33.3	1.20	60.6	RTMS000016	M3.5	T15	RTS16	◆ ◆

Note: Please refer to the notes mentioned at the end of the page.

## MBU - Straight Mounting Type



All Left - Hand Variants Shown Above  
All dimensions are in mm.

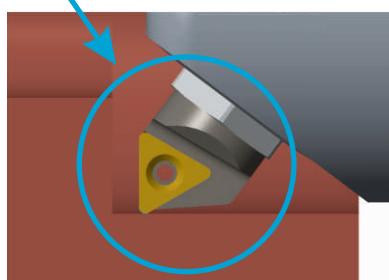
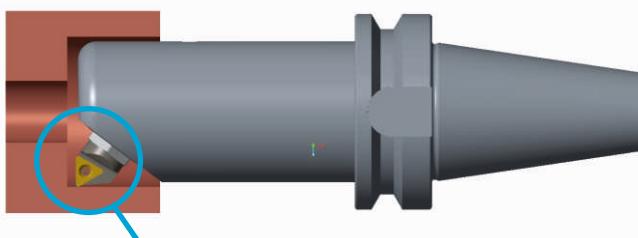
Sr. No	Item Code		Insert	D <sub>b</sub>	L1	F1	D <sub>min</sub>	Mounting Screw	Insert Screw	Torx	Spanner	Stock
	LH	RH										LH RH
1	RT MBU SLC 04	RT MBU SRC 04	CC..0401..	14	11.0	4.1	22.0	RTMS040000	M2.0	T6/T7	RTS04	◆ ★
2	RT MBU SLC 06	RT MBU SRC 06	CC..0602..	16	13.3	5.1	27.6	RTMS000609	M2.5	T7/T10	RTS06	◆ ★
3	RT MBU SLC 09	RT MBU SRC 09	CC..09T3..	20	18.3	7.2	37.1	RTMS000609	M3.5	T15/T10	RTS09	◆ ◆
4	RT MBU SLT 06	RT MBU SRT 06	TC..06T1..	16	13.3	4.1	26.1	RTMS000609	M2.0	T6/T10	RTS06	◆ ★
5	RT MBU SLT 09	RT MBU SRT 09	TC..0902..	20	18.3	6.3	37.1	RTMS000609	M2.2	T6/T10	RTS09	◆ ★
6	RT MBU SLT 11	RT MBU SRT 11	TC..1102..	22	22.1	7.2	49.1	RTMS000011	M2.5	T7/T15	RTS11	◆ ★
7	RT MBU SLT 16	RT MBU SRTC 16	TC..16T3..	32	32	10.3	69.6	RTMS000016	M3.5	T15	RTS16	◆ ◆
8	RT MBU SLTP 09	RT MBU SRTP 09	TP..0902..	20	18.3	6.3	37.1	RTMS000609	M2.5	T6/T10	RTS09	◆ ◆
9	RT MBU SLTP 11	RT MBU SRTP 11	TP..1103..	22	22.1	7.2	49.1	RTMS000011	M3.0	T7/T15	RTS11	◆ ◆
10	RT MBU SLTP16	RT MBU SRTP 16	TP..16T3..	32	32	10.3	69.6	RTMS000016	M3.5	T15	RTS16	◆ ◆
11	RT MBU SLDU 07 20	RT MBU SRDU 07 20	DC..0702..	20	18.3	6.3	37.1	RTMS000609	M2.5	T7/T10	RTS09	◆ ★
12	RT MBU SLDU 07 22	RT MBU SRDU 07 22	DC..0702..	22	22.1	7.2	49.1	RTMS000011	M2.5	T7/T15	RTS11	◆ ★

### Notes:

- Micro Bore Units are delivered with all required spares such as insert screw, mounting screws, spanner & torx keys.
- Inserts are not included with Micro Bore Units.
- Spares sold separately as well and can be ordered as per the ordering code shown in above table.
- In the above table, ★ denotes ready in stock & ◆ denotes lead time of one week.
- Minimum diameter (Dmin) calculated based on 0.4mm insert nose radius.
- MBU variants SL/RDU 07 are specially designed for close tolerance undercut applications.
- Maximum recommended material removal is 0.5mm diametrically.
- Customized MBU for special requirements can also be provided but will be made to order with a lead time of 3-6 weeks.

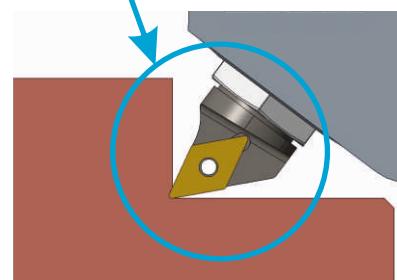
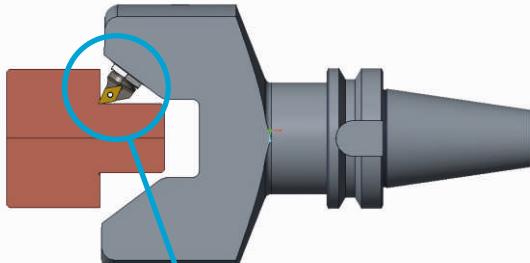
# Illustrative Applications of Fine Boring using Micro Bore Units

## ID Boring



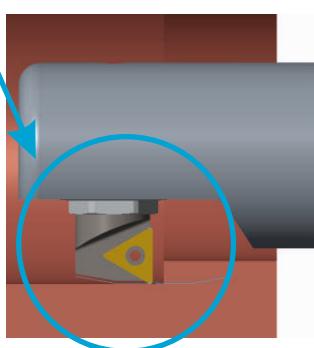
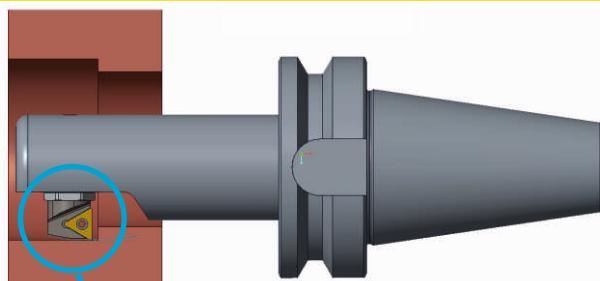
- Minimum Diameter ØD = Ø20.0mm

## OD Turning & Undercut



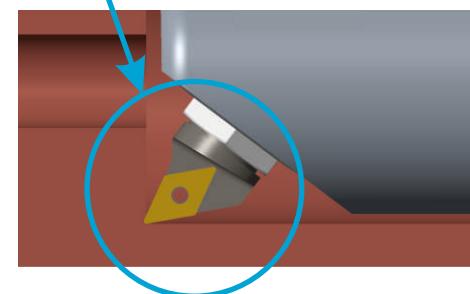
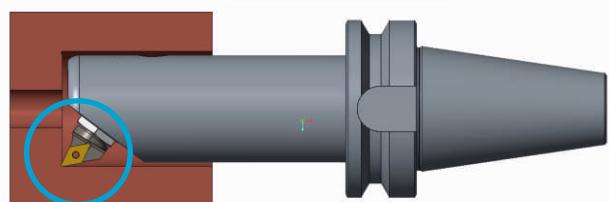
- Minimum Diameter ØD = Ø12.0mm

## Back Boring



- Minimum Diameter ØD = Ø22.0mm

## ID Boring & Undercut

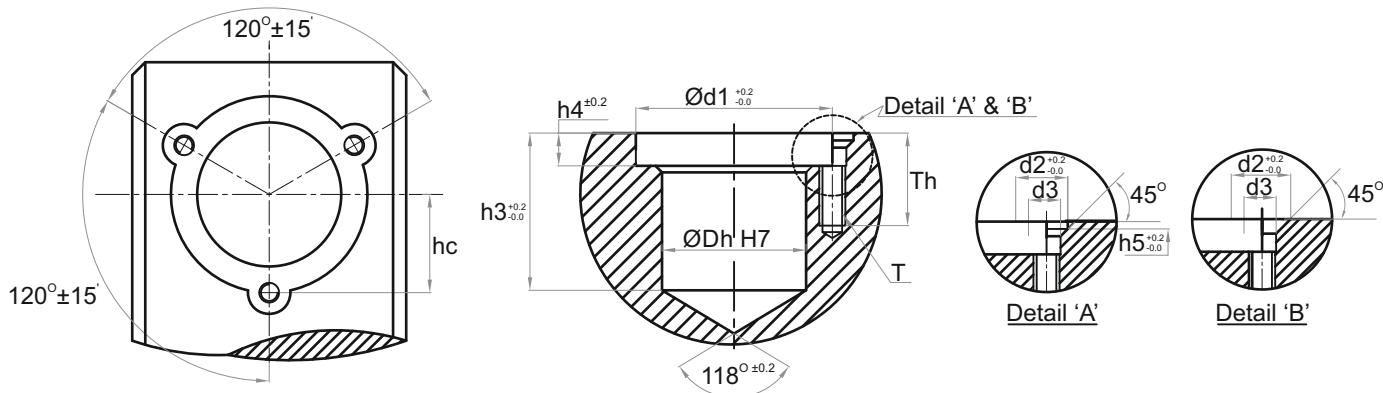


- Minimum Diameter ØD = Ø37.1mm

## Clamping Torque Chart for Mounting Screw & Insert Screw of RT MBU

Sr. no.	Mounting Screw 	Torque (N.m)	Insert Screw 	Torque (N.m)
1	RTMS040000	1.0	M2.0	0.6
2	RTMS000609	2.2	M2.2	0.8
3	RTMS000011	4.0	M2.5	1.0
4	RTMS000016	5.7	M3.5	2.5

# Mounting Dimensions for Micro Bore Units



DETAIL	SR.NO.	INSERT	D <sub>h</sub> H7	d1	d2	d3	h3	h4	h5	Th	hc	T
A	1	CC..0401	14	16	3.7	2.7	9.3	2.8	1.2	8	8.65 ± 0.02	M2.5
	2	CC..0602	16	19	4.6	3.2	11.5	2.8	1.6	9	9.65 ± 0.02	M3.0
	3	CC..09T3	20	25	4.6	3.2	15.5	4.0	1.6	9	12.50 ± 0.05	M3.0
	4	TC..06T1	16	19	4.6	3.2	11.5	2.8	1.6	9	9.65 ± 0.02	M3.0
	5	TC..0902	20	25	4.6	3.2	15.5	4.0	1.6	9	12.50 ± 0.05	M3.0
	6	TC..1102	22	30	6.5	4.3	24.0	5.0	1.8	13	15.40 ± 0.05	M4.0
	7	DC..0702	20	25	4.6	3.2	15.5	4.0	1.6	9	12.50 ± 0.05	M3.0
	8	DC..0702	22	30	6.5	4.3	24.0	5.0	1.8	13	15.40 ± 0.05	M4.0
	9	TP..0902	20	25	4.6	3.2	15.5	4.0	1.6	9	12.50 ± 0.05	M3.0
	10	TP..1103	22	30	6.5	4.3	24.0	5.0	1.8	13	15.40 ± 0.05	M4.0
B	11	TC..16T3	32	46	11.9	5.4	33.0	6.3	*	16	23.00 ± 0.05	M5.0
	12	TP..16T3	32	46	11.9	5.4	33.0	6.3	*	16	23.00 ± 0.05	M5.0

All dimensions are in mm.

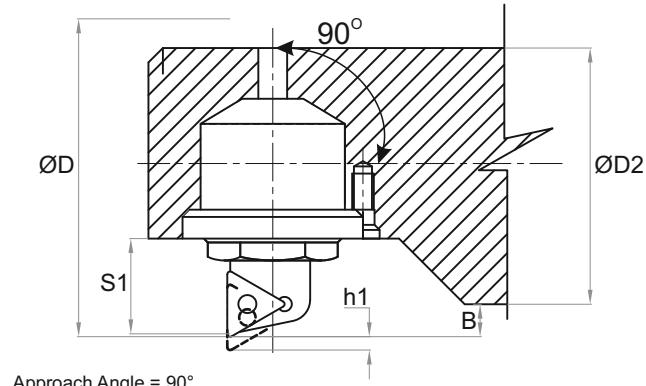
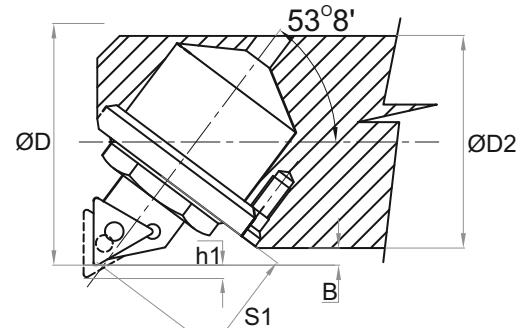
## Working Dimensions for Micro Bore Units

### MBU - Angular Mounting Type

SR. NO.	INSERT	D <sub>min</sub>	D2	B <sub>min</sub>	h1 <sub>max</sub>	S1 <sub>min</sub>
1	CC..040104	20.0	19.0	0.50	1.5	8.3
2	CC..060204	25.9	22.0	1.65	2.0	10.7
3	CC..09T304	33.1	28.5	2.30	2.8	14.7
4	TC..06T104	25.4	22.0	1.45	2.0	10.6
5	TC..090204	33.1	28.5	2.30	2.8	14.5
6	TC..110204	42.6	38.0	2.30	4.8	17.2
7	TC..16T304	60.6	55.0	2.80	8.0	26.2
8	TP..090204	33.1	28.5	2.30	2.8	14.5
9	TP..110304	42.6	38.0	2.30	4.8	17.2
10	TP..16T304	60.6	55.0	2.80	8.0	26.2
11	DC..070204	42.6	38.0	2.30	4.8	19.6

### MBU - Straight Mounting Type

SR. NO.	INSERT	D <sub>min</sub>	D2	B <sub>min</sub>	h1 <sub>max</sub>	S1 <sub>min</sub>
1	CC..040104	22.0	21.0	0.50	2.0	10.3
2	CC..060204	27.6	26.0	0.55	2.5	9.6
3	CC..09T304	37.1	34.5	1.30	3.5	17.5
4	TC..06T104	26.1	25.0	0.50	1.8	9.0
5	TC..090204	37.1	34.5	1.30	3.5	13.6
6	TC..110204	49.1	46.5	1.30	6.0	16.4
7	TC..16T304	69.6	67.0	1.30	10.0	25.0
8	TP..090204	37.1	34.5	1.30	3.5	13.6
10	TP..110304	49.1	46.5	1.30	6.0	16.4
11	TP..16T304	69.6	67.0	1.30	10.0	25.0
12	DC..070204(20)	37.1	34.5	1.30	3.5	13.6
13	DC..070204(22)	49.1	46.5	1.30	6.0	16.4



All dimensions are in mm.

# Operating Instructions for Micro Bore Units

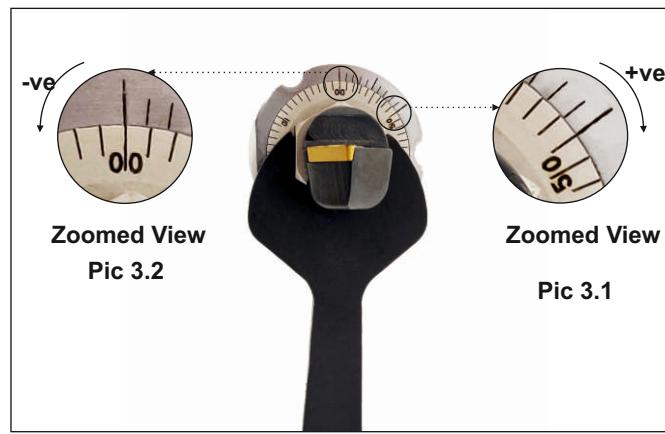
- ▶ Mount the Micro Bore Unit properly in the finish boring tool supplied by Renuka Tools. This can be easily done by simply tightening the mounting screws in a proper manner (Pic1). In case the tool is of any other brand ensure that the manufacturer adheres to the mounting instructions provided by Renuka Tools. Else, it might result in non-efficient working or even tool failure.
- ▶ Set the required diameter before clamping the tool on the machine, ideally on a tool pre-setter, or else with the help of a precise dial indicator (Pic2). During this setting, ensure that any one scale marking on the MBU inner scale coincides exactly with the extreme end marking on the outer vernier scale. This will automatically match some other inner scale marking with the other extreme end of the outer vernier scale (Pic3). This will help the user to quickly adjust after initial trial of tool.
- ▶ See if the desired results obtained by running the tool on the machine. In case of any deviation in the desired results, kindly use the spanner for adjustment. For increasing the diameter, rotate in clockwise direction and for decreasing, rotate in counter-clockwise direction. The least count of the inner MBU scale is 20 microns on diameter (i.e. 10 microns radially). Now use the vernier scale for adjustment. If the diameter reading has to be increased, kindly match the adjacent marking (of left side) with the nearest vernier scale marking. This will result in increase of 2 microns on the diameter (i.e. 1 micron radially) (Pic 3.1 Zoomed). For reduction of diameter, follow the same procedure in the opposite direction (Pic 3.2 Zoomed).
- ▶ Maximum diameter adjustment can be checked from the rear end of the spanner (Pic4). Do not exceed the maximum limit as it may cause permanent damage to the unit.



Pic 1



Pic 2



Zoomed View  
Pic 3.2

Zoomed View  
Pic 3.1



Pic 4

## Precautionary measures while using Micro Bore Units

- ▶ Due to constraints in the assembly tolerances, it is recommended that units, if damaged, are returned to Renuka Tools for assessment/repair in a controlled environment. Commercials for repair can only be determined after detailed assessment of the damaged unit.
- ▶ Renuka Tools Micro Bore Unit cannot be adjusted beyond its range and the maximum range can be checked from the thickness of the end portion of the spanner provided along with the unit. Exceeding the range might result in permanent damage to the unit.
- ▶ Kindly change the mounting screws and insert screws ahead in time to avoid accidents.
- ▶ In case of any observed decrease in accuracy over the time of usage, kindly request Renuka Tools for servicing the unit.



## OUR OTHER STANDARD PRODUCTS

ECCENTRIC FINE BORING TOOLS



BCA BORING BARS



BORING KIT



DUO BORING BARS



## OUR OTHER CUSTOMIZED PRODUCTS

COMBINATION BORING BARS  
ANTI-VIBRATION BORING BARS  
SPECIAL CARTRIDGES



U-DRILLS  
TREPANNING TOOLS



MILLING CUTTERS



TURNING TOOLS



SPECIAL ADAPTORS



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