RENUKA TOOLS®

MICRO BORE UNITS

MAKE IN INDIA

Redefining Cutting Technology

www.renukatools.in

Renuka Tools - Your Preferred Choice For Precision Metal Cutting Tools

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 plant come with a Zoller and / or Haimer 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 manufacture products such as:

- Micro Bore Units / Fine Boring Units
- Adjustable Boring Tools
- Turning Tools
- Eccentric Boring Tools
- Boring Kit
- Anti-vibration Boring Tools
- Milling Cutters
- Spot Face Cutters
- Chamfer Tools
- Special Adaptors

Why Us - What Differentiates us from Competition

- **We use the best-in-class technology in our state-of-the-art manufacturing facility.**
- **We ensure best quality products adhering to global standards.**
- **We provide a QC Report along with our tools to certify the quality of the product, which is accepted world-wide.**
- **We ensure shortest lead times in manufacturing.**
- **All of the above is ensured at lowest possible price.**

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).

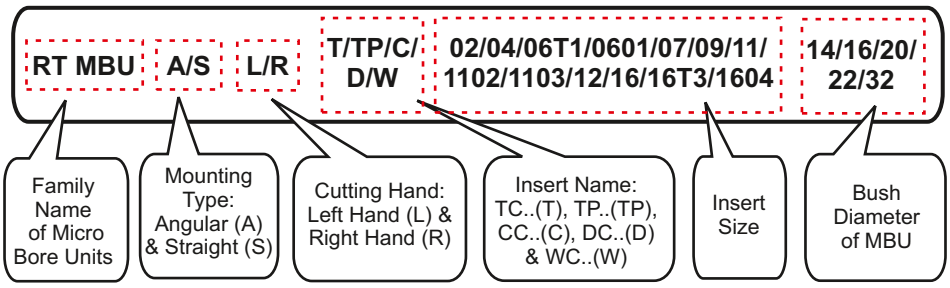
Micro Bore Units

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) radially.
- 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 practically "Zero" Backlash.
- Minimum diameter for finish boring is 20mm.
- Adjustment can be done directly while the tool is on the machine, thus reducing downtime or setting time.
- Standard products (80 variants) available for ID boring, back boring, OD turning and undercut machining applications.
- Directly interchangeable with R/L148C or T-Max U fine boring unit or equivalent.

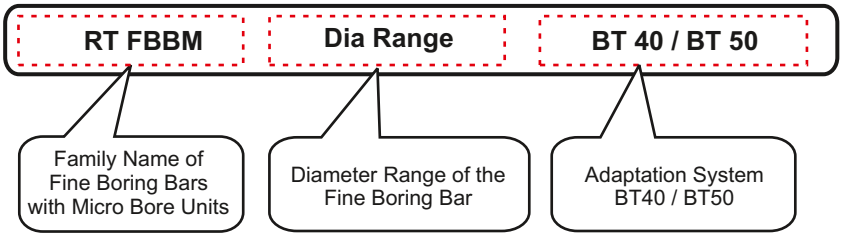
SAMPLE IMAGE

Nomenclature Code Key For Ordering MBU



Ordering Example:
1 piece
RTMBU ALT09 20

Nomenclature Code Key For Ordering Fine Boring Bar with MBU



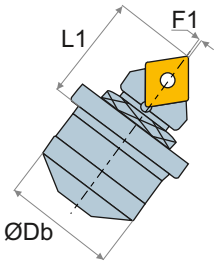
Ordering Example:
1 piece
RTFBBM 20-22 BT 40

For more details of our standard offerings of Fine Boring Bars with MBU, please refer to our website (www.renukatools.in). Separate catalogue is available for the same.

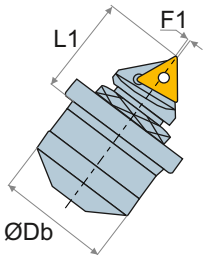
Micro Bore Units - Standard Product Range

MBU - Angular Mounting Type

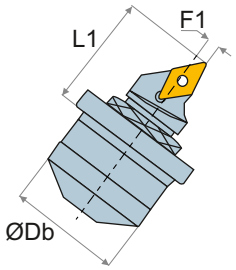
CC..TYPE



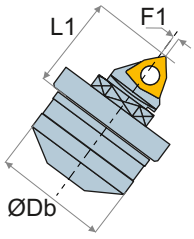
TC../TP..TYPE



DC..TYPE



WC..TYPE



SAMPLE IMAGE

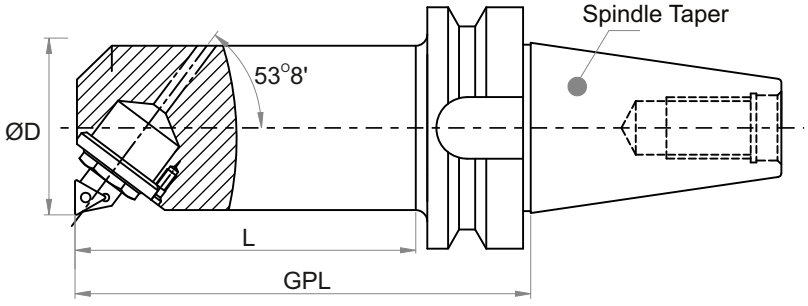
All Left - Hand variants shown above.
All dimensions are in mm.

Sr. No	Item Code		Insert	D_b	L1	F1	D_{min}	Mounting Screw	Insert Screw	Torx / Allen Key	Spanner
	LH	RH									
1	RT MBU ALW 02 14	RT MBU ARW 02 14	WC..0201..	14	11.5	1.00	20.0	RTMS14	M2.0	T6/T8	RTS14
2	RT MBU ALC 04 14	RT MBU ARC 04 14	CC..04T0..	14	11.5	1.00	20.0	RTMS14	M2.0	T6/T8	RTS14
3	RT MBU ALT 06T1 14	RT MBU ART 06T1 14	TC..06T1..	14	11.5	0.20	20.0	RTMS14	M2.0	T6/T8	RTS14
4	RT MBU ALT 0601 14	RT MBU ART 0601 14	TC..0601..	14	11.5	0.20	20.0	RTMS14	M2.0	T6/T8	RTS14
5	RT MBU ALC 06 16	RT MBU ARC 06 16	CC..0602..	16	14.3	0.45	25.9	RTMS16	M2.5	T8/T10	RTS16
6	RT MBU ALT 06T1 16	RT MBU ART 06T1 16	TC..06T1..	16	14.3	0.20	25.4	RTMS16	M2.0	T6/T10	RTS16
7	RT MBU ALT 0601 16	RT MBU ART 0601 16	TC..0601..	16	14.3	0.20	25.4	RTMS16	M2.0	T6/T10	RTS16
8	RT MBU ALC 09 20	RT MBU ARC 09 20	CC..09T3..	20	19.1	1.00	33.1	RTMS20	M3.5	T15/T10	RTS20
9	RT MBU ALT 09 20	RT MBU ART 09 20	TC..0902..	20	19.1	1.00	33.1	RTMS20	M2.2	T7/T10	RTS20
10	RT MBU ALTP 09 20	RT MBU ARTP 09 20	TP..0902..	20	19.1	1.00	33.1	RTMS20	M2.5	T8/T10	RTS20
11	RT MBU ALD 07 20	RT MBU ARD 07 20	DC..0702..	20	19.1	1.00	33.1	RTMS20	M2.5	T8/T10	RTS20
12	RT MBU ALC 09 22	RT MBU ARC 09 22	CC..09T3..	22	23.0	1.10	42.6	RTMS22	M3.5	T15	RTS22
13	RT MBU ALT 1102 22	RT MBU ART 1102 22	TC..1102..	22	23.0	1.10	42.6	RTMS22	M2.5	T8/T15	RTS22
14	RT MBU ALT 1103 22	RT MBU ART 1103 22	TC..1103..	22	23.0	1.10	42.6	RTMS22	M2.5	T8/T15	RTS22
15	RT MBU ALTP 11 22	RT MBU ARTP 11 22	TP..1103..	22	23.0	1.10	42.6	RTMS22	M3.0	T10/T15	RTS22
16	RT MBU ALD 07 22	RT MBU ARD 07 22	DC..0702..	22	25.0	2.30	42.6	RTMS22	M2.5	T8/T15	RTS22
17	RT MBU ALC 12 32	RT MBU ARC 12 32	CC..1204..	32	33.3	1.00	60.6	RTMS32	M4.5	T20/3MM	RTS32
18	RT MBU ALT 16 32	RT MBU ART 16 32	TC..16T3..	32	33.3	1.20	60.6	RTMS32	M3.5	T15/3MM	RTS32
19	RT MBU ALTP 16T3 32	RT MBU ARTP 16T3 32	TP..16T3..	32	33.3	1.20	60.6	RTMS32	M3.5	T15/3MM	RTS32
20	RT MBU ALTP 1604 32	RT MBU ARTP 1604 32	TP..1604..	32	33.3	1.20	60.6	RTMS32	M4.0	T15/3MM	RTS32

Notes:

- Micro Bore Units are delivered with all required spares such as insert screw, mounting screws, spanner, torx keys & allen 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.
- Minimum diameter (Dmin) calculated based on 0.4mm insert nose radius.
- MBU variants with DC..0702.. inserts are especially 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.
- For RH Cutting hand tool, use the LH MBU Variants and vice versa. Thus generally for ID boring applications, you should choose LH MBU variants, while for OD turning or Back boring applications, you should choose RH MBU variants.

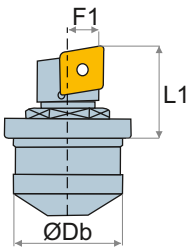
Illustration to show angular mounting of MBU on a finish boring bar



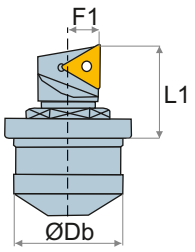
Micro Bore Units - Standard Product Range

MBU - Straight Mounting Type

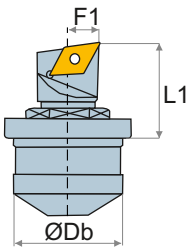
CC..TYPE



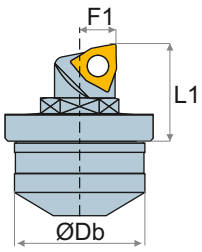
TC../TP..TYPE



DC..TYPE



WC..TYPE



SAMPLE IMAGE

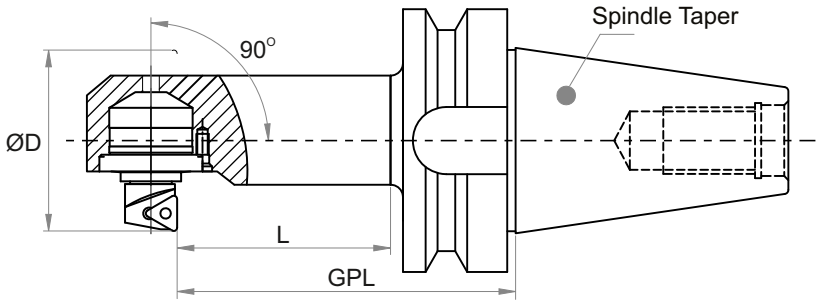
All Left - Hand variants shown above.
All dimensions are in mm.

Sr. No	Item Code		Insert	D_b	L1	F1	D_{min}	Mounting Screw	Insert Screw	Torx / Allen Key	Spanner
	LH	RH									
1	RT MBU SLW 02 14	RT MBU SRW 02 14	WC..0201..	14	11.0	4.1	22.0	RTMS14	M2.0	T6/T8	RTS14
2	RT MBU SLC 04 14	RT MBU SRC 04 14	CC..04T0..	14	11.0	4.1	22.0	RTMS14	M2.0	T6/T8	RTS14
3	RT MBU SLT 06T1 14	RT MBU SRT 06T1 14	TC..06T1..	14	11.0	4.1	22.0	RTMS14	M2.0	T6/T8	RTS14
4	RT MBU SLT 0601 14	RT MBU SRT 0601 14	TC..0601..	14	11.0	4.1	22.0	RTMS14	M2.0	T6/T8	RTS14
5	RT MBU SLC 06 16	RT MBU SRC 06 16	CC..0602..	16	13.3	5.1	27.6	RTMS16	M2.5	T8/T10	RTS16
6	RT MBU SLT 06T1 16	RT MBU SRT 06T1 16	TC..06T1..	16	13.3	4.1	27.1	RTMS16	M2.0	T6/T10	RTS16
7	RT MBU SLT 0601 16	RT MBU SRT 0601 16	TC..0601..	16	13.3	4.1	27.1	RTMS16	M2.0	T6/T10	RTS16
8	RT MBU SLC 09 20	RT MBU SRC 09 20	CC..09T3..	20	18.3	7.2	37.1	RTMS20	M3.5	T15/T10	RTS20
9	RT MBU SLT 09 20	RT MBU SRT 09 20	TC..0902..	20	18.3	6.3	37.1	RTMS20	M2.2	T7/T10	RTS20
10	RT MBU SLTP 09 20	RT MBU SRTP 09 20	TP..0902..	20	18.3	6.3	37.1	RTMS20	M2.5	T8/T10	RTS20
11	RT MBU SLD 07 20	RT MBU SRD 07 20	DC..0702..	20	18.3	6.3	37.1	RTMS20	M2.5	T8/T10	RTS20
12	RT MBU SLC 09 22	RT MBU SRC 09 22	CC..09T3..	22	22.1	7.2	49.1	RTMS22	M3.5	T15	RTS22
13	RT MBU SLT 1102 22	RT MBU SRT 1102 22	TC..1102..	22	22.1	7.2	49.1	RTMS22	M2.5	T8/T15	RTS22
14	RT MBU SLT 1103 22	RT MBU SRT 1103 22	TC..1103..	22	22.1	7.2	49.1	RTMS22	M2.5	T8/T15	RTS22
15	RT MBU SLTP 11 22	RT MBU SRTP 11 22	TP..1103..	22	22.1	7.2	49.1	RTMS22	M3.0	T10/T15	RTS22
16	RT MBU SLD 07 22	RT MBU SRD 07 22	DC..0702..	22	22.1	7.2	49.1	RTMS22	M2.5	T8/T15	RTS22
17	RT MBU SLC 12 32	RT MBU SRC 12 32	CC..1204..	32	32.0	10.3	69.6	RTMS32	M4.5	T20/3MM	RTS32
18	RT MBU SLT 16 32	RT MBU SRT 16 32	TC..16T3..	32	32.0	10.3	69.6	RTMS32	M3.5	T15/3MM	RTS32
19	RT MBU SLTP 16T3 32	RT MBU SRTP 16T3 32	TP..16T3..	32	32.0	10.3	69.6	RTMS32	M3.5	T15/3MM	RTS32
20	RT MBU SLTP 1604 32	RT MBU SRTP 1604 32	TP..1604..	32	32.0	10.3	69.6	RTMS32	M4.0	T15/3MM	RTS32

Notes:

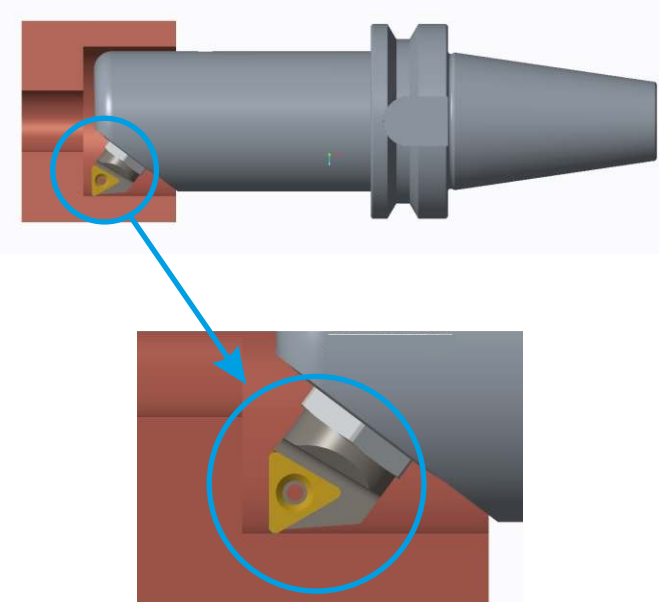
- Micro Bore Units are delivered with all required spares such as insert screw, mounting screws, spanner, torx keys & allen keys.
- Inserts are not included with Micro Bore Units.
- Spares sold separately as well and can be ordered as per the ordering code shown in above table.
- Minimum diameter (Dmin) calculated based on 0.4mm insert nose radius.
- MBU variants with DC..0702.. inserts are especially 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.
- For RH Cutting hand tool, use the LH MBU Variants and vice versa. Thus generally for ID boring applications, you should choose LH MBU variants, while for OD turning or Back boring applications, you should choose RH MBU variants.

Illustration to show straight mounting of MBU on a finish boring bar



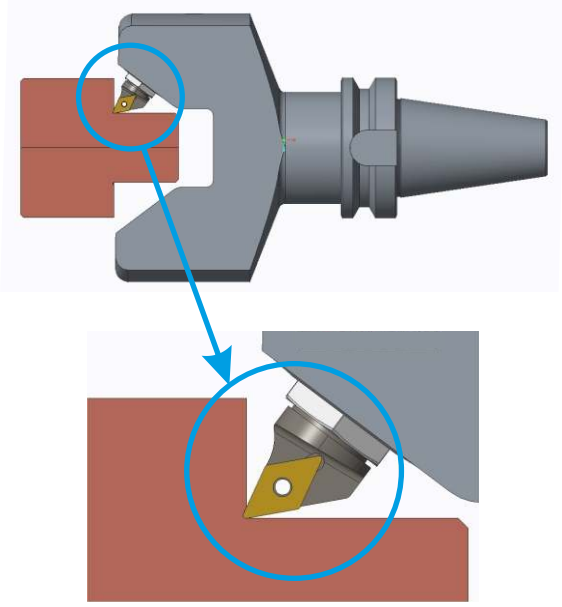
Illustrative Applications of Fine Boring using Micro Bore Units

ID Boring (Angular Mounting)



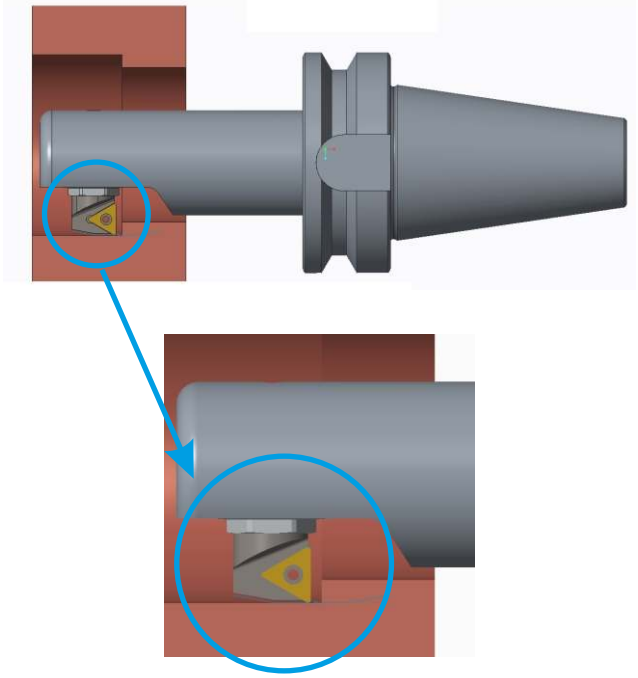
- Minimum Diameter ØD = Ø20.0mm

OD Turning & Undercut



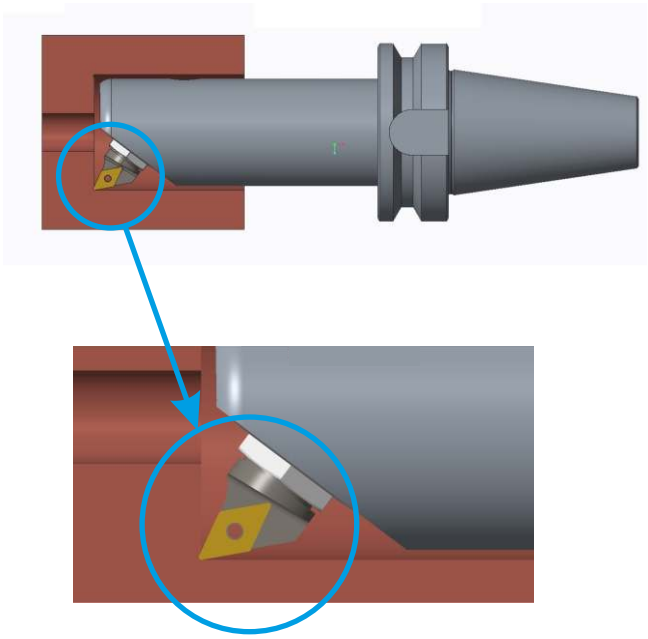
- Minimum Diameter ØD = Ø12.0mm

Back Boring (Straight Mounting)



- Minimum Diameter ØD = Ø22.0mm

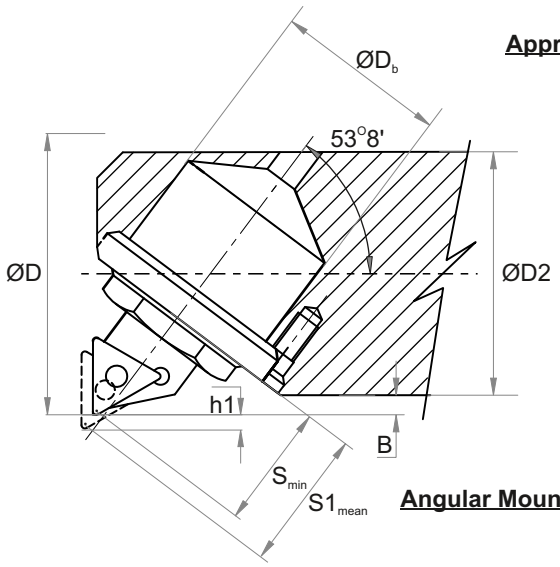
ID Boring & Undercut



- Minimum Diameter ØD = Ø33.1mm

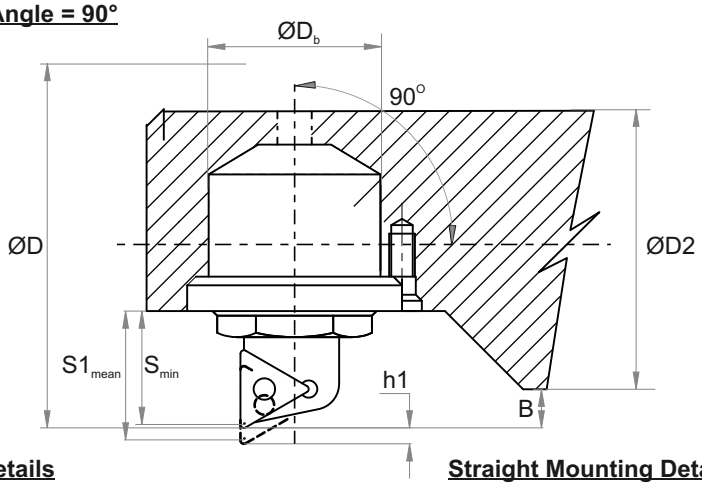
- Standard range for Fine Boring Tools for ID boring application (RH Cutting hand) are available.
- For RH Cutting Hand Tool, use the LH variant of MBU and vice versa.
- Please refer to catalogue of “Fine Boring Tools with Micro Bore Units”.
- Catalogue is available for download on www.renukatools.in

Working Dimensions for Micro Bore Units



Angular Mounting Details

Approach Angle = 90°



Straight Mounting Details

MBU - Angular Mounting Type

All dimensions are in mm.

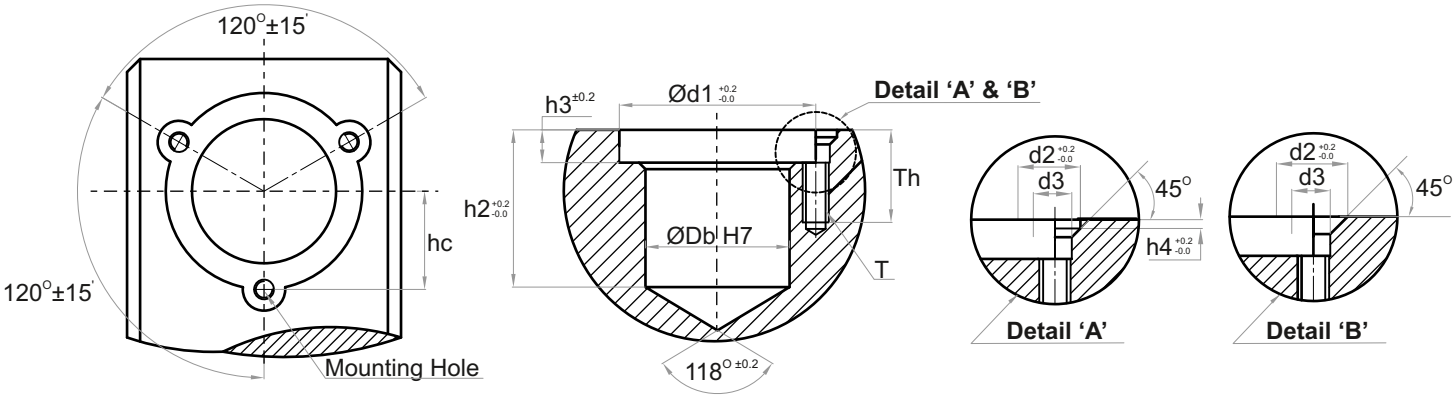
D_b	RT MBU Item Code	Insert	D_{min}	D2	B_{min}	$h1_{max}$	S_{min}	$S1_{mean}$	-ve Range (Radial)	+ve Range (Radial)
14	AL/RW 02 14; AL/RC 04 14 AL/RT 06T1 14; AL/RT 0601 14	WC.. 020104; CC.. 04T004 TC.. 06T104; TC.. 060104	20.0	19.0	0.40	1.5	8.3	8.425	0.10	1.40
16	AL/RC 06 16	CC.. 060204	25.9	23.0	1.05	2.0	10.7	11.200	0.40	1.60
16	AL/RT 06T1 16; AL/RT 0601 16	TC.. 06T104; TC.. 060104	25.4	23.0	0.80	2.0	10.6	11.100	0.40	1.60
20	AL/RC 09 20; AL/RT 09 20 AL/RTP 09 20; AL/RD 07 20	CC.. 09T304; TC.. 090204 TP.. 090204; DC.. 070204	33.1	30.0	0.95	2.8	14.5	15.250	0.60	2.20
22	AL/RC 09 22; AL/RT 1102 22 AL/RT 1103 22; AL/RTP 11 22 AL/RD 07 22	CC.. 09T304; TC.. 110204 TC.. 110304; TP.. 110304 DC.. 070204	42.6	39.6	0.90	4.8	17.2	17.950	0.60	4.20
32	AL/RC 12 32; AL/RT 16 32 AL/RTP 16T3 32; AL/RTP 1604 32	CC..120404; TC.. 16T304 TP.. 16T304; TP.. 160404	60.6	56.6	1.40	8.0	26.2	26.950	0.60	7.40

MBU - Straight Mounting Type

All dimensions are in mm.

D_b	RT MBU Item Code	Insert	D_{min}	D2	B_{min}	$h1_{max}$	S_{min}	$S1_{mean}$	-ve Range (Radial)	+ve Range (Radial)
14	SL/RW 02 14; SL/RC 04 14 SL/RT 06T1 14; SL/RT 0601 14	WC.. 020104; CC.. 04T004 TC.. 06T104; TC.. 060104	22.0	20.5	0.50	2.0	7.8	8.05	0.25	1.75
16	SL/RC 06 16	CC.. 060204	27.6	25.5	0.65	2.5	9.6	10.00	0.40	2.10
16	SL/RT 06T1 16; SL/RT 0601 16	TC.. 06T104; TC.. 060104	27.1	25.0	0.65	2.5	9.0	9.40	0.40	2.10
20	SL/RC 09 20; SL/RT 09 20 SL/RTP 09 20; SL/RD 07 20	CC.. 09T304; TC.. 090204 TP.. 090204; DC.. 070204	37.1	34.5	0.80	3.5	13.6	14.10	0.50	3.00
22	SL/RC 09 22; SL/RT 1102 22 SL/RT 1103 22; SL/RTP 11 22 SL/RD 07 22	CC.. 09T304; TC.. 110204 TC.. 110304; TP.. 110304 DC.. 070204	49.1	46.5	0.80	6.0	16.4	16.90	0.50	5.50
32	SL/RC 12 32; SL/RT 16 32 SL/RTP 16T3 32; SL/RTP 1604 32	CC..120404; TC.. 16T304 TP.. 16T304; TP.. 160404	69.6	67.0	0.80	10.0	25.0	25.50	0.50	9.50

Mounting Dimensions for Micro Bore Units



All dimensions are in mm.

Detail	Sr. No	D_b H7	d1	d2	d3	h2	h3	h4	Th	hc	T
A	1	14.0	16.0	3.7	2.7	9.3	2.8	1.2	8.0	8.65 ±0.02	M2.5
	2	16.0	19.0	4.6	3.2	11.5	2.8	1.6	9.0	9.65 ±0.02	M3.0
	3	20.0	25.0	4.6	3.2	15.5	4.0	1.6	9.0	12.50 ±0.05	M3.0
	4	22.0	30.0	6.5	4.3	24.0	5.0	1.8	13.0	15.40 ±0.05	M4.0
B	5	32.0	46.0	11.9	5.4	33.0	6.3	-	16.0	23.00 ±0.05	M5.0

Notes:

- Mounting details mentioned in the above table depend on the bush diameter (Db) of the Micro Bore Unit.
- In case of Straight mounting type MBU, the above mounting details are suitable for LH variants of MBU, while they will be mirrored for mounting RH type variants of MBU. But in case of Angular Mounting, the mounting details will be same for LH or RH type of MBU.
- Please refer to tables on page no. 4 & 5 to find the Bush Diameter (Db) of your selected Micro Bore Unit.

Customized Micro Bore Units

- **Customized Micro Bore Unit designed and manufactured at Renuka Tools® for grooving application.**
- **Customized boring bar also designed and manufactured at Renuka Tools® for this special application.**

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 (Pic.1).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.

Pic 1

- 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 (Pic.2). 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 (Pic.3). This will help the user to quickly adjust after initial trial of tool.

Pic 2

- See if the desired results are 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. One entire division movement of the inner MBU scale will give you 20 microns on diameter (i.e. 10 microns radially). Now use the vernier scale for fine 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).

Zoomed View
Pic 3.2

Zoomed View
Pic 3.1

Pic 3

- Maximum diameter adjustment can be checked from the rear end of the spanner (Pic.4). Do not exceed the maximum limit as it may cause permanent damage to the unit.

Pic 4

- For more details, refer to our YouTube Channel - **https://www.youtube.com/@renukatools**

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. Do not try to open / dismantle the assembly.

MADE IN INDIA

OUR OTHER STANDARD PRODUCTS

ECCENTRIC FINE BORING TOOLS

BCA BORING BARS & FINISH BORING CARTRIDGES

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

RENUKA TOOLS®

Version 24.1

Gala No.10 & 11, Suvarna Laghu Udyog Yojana,
Near Truck Terminus, MIDC, Waluj,
Aurangabad - 431136, Maharashtra, India.

Mobile : (91) 9987224487
Telephone : (91) 240-2952040 | (91)9423118885/86
Email : anandmulay@renukatools.in
info@renukatools.in
sales@renukatools.in
Website : www.renukatools.in