RENUKA TOOLS®

FINE BORING 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 Fine Boring Units. For more details of our other standard offerings, please refer to our website (www.renukatools.in).

Fine Boring 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 19mm.
- Adjustment can be done directly while the tool is on the machine, thus reducing downtime or setting time.
- Standard products (88 variants) available for ID boring, back boring, OD turning and undercut machining applications.
- Directly interchangeable with FA & FV fine boring units or equivalent.

SAMPLE IMAGE

Nomenclature Code Key For Ordering FBU

RT FBU	A/S	L/R	T/TP/TN/ C/D	06T1/0601/07/09/11/1102/ 1103/12/16/16T3/1604	11/15/19/ 222/31
Family Name of Fine Boring Units	Mounting Type: Angular (A) & Straight (S)	Cutting Hand: Left Hand (L) & Right Hand (R)	Insert Name: TC..(T), TP..(TP), TN.. (TN), CC..(C) & DC..(D)	Insert Size	Bush Diameter of FBU: 11.11 (11), 15.08 (15), 19.05 (19), 22.225 (222), & 31.75 (31)

Ordering Example:
1 piece
RTFBU ALT09 15

Nomenclature Code Key For Ordering Fine Boring Bar with FBU

RT FBBF	Dia Range	BT 40 / BT 50
Family Name of Fine Boring Bars with Fine Boring Units	Diameter Range of the Fine Boring Bar	Adaptation System BT40 / BT50

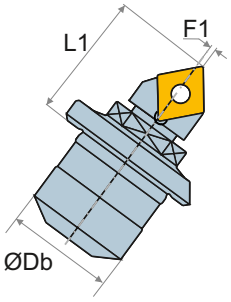
Ordering Example:
1 piece
RTFBBF 19-20.5 BT 40

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

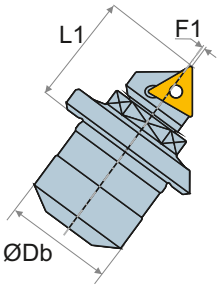
Fine Boring Units - Standard Product Range

FBU - Angular Mounting Type

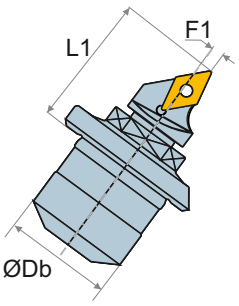
CC..TYPE



TC../TP../TN..TYPE



DC..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 FBU ALT 06T1 11	RT FBU ART 06T1 11	TC..06T1..	11.110	11.70	1.11	19	RTMS11	M2.0	T6/1.5MM	RTS11
2	RT FBU ALT 0601 11	RT FBU ART 0601 11	TC..0601..	11.110	11.70	1.11	19	RTMS11	M2.0	T6/1.5MM	RTS11
3	RT FBU ALC 06 15	RT FBU ARC 06 15	CC..0602..	15.080	14.90	0.46	25	RTMSA15	M2.5	T8/2.0MM	RTS15
4	RT FBU ALT 09 15	RT FBU ART 09 15	TC..0902..	15.080	14.90	0.46	25	RTMSA15	M2.2	T7/2.0MM	RTS15
5	RT FBU ALTP 09 15	RT FBU ARTP 09 15	TP..0902..	15.080	14.90	0.46	25	RTMSA15	M2.5	T8/2.0MM	RTS15
6	RT FBU ALC 09 19	RT FBU ARC 09 19	CC..09T3..	19.050	18.90	0.70	36	RTMS19	M3.5	T15/2.0MM	RTS19
7	RT FBU ALT 1102 19	RT FBU ART 1102 19	TC..1102..	19.050	18.90	0.70	36	RTMS19	M2.5	T8/2.0MM	RTS19
8	RT FBU ALT 1103 19	RT FBU ART 1103 19	TC..1103..	19.050	18.90	0.70	36	RTMS19	M2.5	T8/2.0MM	RTS19
9	RT FBU ALTP 11 19	RT FBU ARTP 11 19	TP..1103..	19.050	18.90	0.70	36	RTMS19	M3.0	T10/2.0MM	RTS19
10	RT FBU ALTN 11 19	RT FBU ARTN 11 19	TN..1103..	19.050	18.90	0.70	36	RTMS19	*	2.5MM/2.0MM	RTS19
11	RT FBU ALD 07 19	RT FBU ARD 07 19	DC..0702..	19.050	18.90	2.30	36	RTMS19	M2.5	T8/2.0MM	RTS19
12	RT FBU ALC 09 222	RT FBU ARC 09 222	CC..09T3..	22.225	23.15	0.80	47	RTMS222	M3.5	T15/2.0MM	RTS222
13	RT FBU ALT 1102 222	RT FBU ART 1102 222	TC..1102..	22.225	23.15	0.54	47	RTMS222	M2.5	T8/2.0MM	RTS222
14	RT FBU ALT 1103 222	RT FBU ART 1103 222	TC..1103..	22.225	23.15	0.54	47	RTMS222	M2.5	T8/2.0MM	RTS222
15	RT FBU ALTP 11 222	RT FBU ARTP 11 222	TP..1103..	22.225	23.15	0.54	47	RTMS222	M3.0	T10/2.0MM	RTS222
16	RT FBU ALTN 11 222	RT FBU ARTN 11 222	TN..1103..	22.225	23.15	0.54	47	RTMS222	*	2.5MM/2.0MM	RTS222
17	RT FBU ALD 07 222	RT FBU ARD 07 222	DC..0702..	22.225	23.15	2.30	47	RTMS222	M2.5	T8/2.0MM	RTS222
18	RT FBU ALC 12 31	RT FBU ARC 12 31	CC..1204..	31.750	34.40	0.86	73	RTMS31	M4.5	T20/3.0MM	RTS31
19	RT FBU ALT 16 31	RT FBU ART 16 31	TC..16T3..	31.750	34.40	0.86	73	RTMS31	M3.5	T15/3.0MM	RTS31
20	RT FBU ALTP 16T3 31	RT FBU ARTP 16T3 31	TP..16T3..	31.750	34.40	0.86	73	RTMS31	M3.5	T15/3.0MM	RTS31
21	RT FBU ALTP 1604 31	RT FBU ARTP 1604 31	TP..1604..	31.750	34.40	0.86	73	RTMS31	M4.0	T15/3.0MM	RTS31
22	RT FBU ALTN 16 31	RT FBU ARTN 16 31	TN..1604..	31.750	34.40	0.86	73	RTMS31	*	3.5MM/3.0MM	RTS31

*Additional Spare Details for TN.. inserts

Sr.No.	Insert	Lever	Lever Screw	Shim	Shim Pin	Allen Key
1	TN.. 1103	TNL11	TNLS11	TNS11	TNSP11	2.5 MM
2	TN.. 1604	TNL16	TNLS16	TNS16	TNSP16	3.5 MM

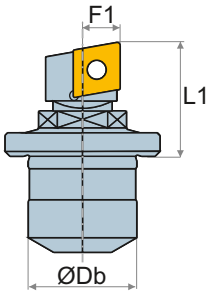
Notes:

- Fine Boring Units are delivered with all required spares such as insert screw, mounting screws, spanner, torx keys & allen keys.
- Inserts are not included with Fine Boring 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.
- FBU variants with DC..0702.. inserts are especially designed for close tolerance undercut applications.
- Maximum recommended material removal is 0.5mm diametrically.
- Customized FBU 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 FBU Variants and vice versa. Thus generally for ID boring applications, you should choose LH FBU variants, while for OD turning or Back boring applications, you should choose RH FBU variants.

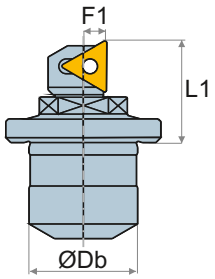
Fine Boring Units - Standard Product Range

FBU - Straight Mounting Type

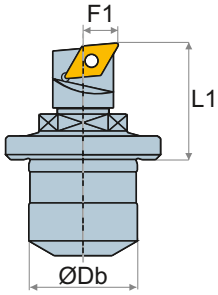
CC..TYPE



TC../TP../TN..TYPE



DC..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 FBU SLT 06T1 11	RT FBU SRT 06T1 11	TC..06T1..	11.110	10.3	2.6	19	RTMS11	M2.0	T6/1.5MM	RTS11
2	RT FBU SLT 0601 11	RT FBU SRT 0601 11	TC..0601..	11.110	10.3	2.6	19	RTMS11	M2.0	T6/1.5MM	RTS11
3	RT FBU SLC 06 15	RT FBU SRC 06 15	CC..0602..	15.080	14.0	3.6	25	RTMSS15	M2.5	T8/2.0MM	RTS15
4	RT FBU SLT 09 15	RT FBU SRT 09 15	TC..0902..	15.080	14.0	3.6	25	RTMSS15	M2.2	T7/2.0MM	RTS15
5	RT FBU SLTP 09 15	RT FBU SRTP 09 15	TP..0902..	15.080	14.0	3.6	25	RTMSS15	M2.5	T8/2.0MM	RTS15
6	RT FBU SLC 09 19	RT FBU SRC 09 19	CC..09T3..	19.050	17.8	4.0	36	RTMS19	M3.5	T15/2.0MM	RTS19
7	RT FBU SLT 1102 19	RT FBU SRT 1102 19	TC..1102..	19.050	17.8	4.0	36	RTMS19	M2.5	T8/2.0MM	RTS19
8	RT FBU SLT 1103 19	RT FBU SRT 1103 19	TC..1103..	19.050	17.8	4.0	36	RTMS19	M2.5	T8/2.0MM	RTS19
9	RT FBU SLTP 11 19	RT FBU SRTP 11 19	TP..1103..	19.050	17.8	4.0	36	RTMS19	M3.0	T10/2.0MM	RTS19
10	RT FBU SLTN 11 19	RT FBU SRTN 11 19	TN..1103..	19.050	17.8	4.0	36	RTMS19	*	2.5MM/2.0MM	RTS19
11	RT FBU SLD 07 19	RT FBU SRD 07 19	DC..0702..	19.050	17.8	4.0	36	RTMS19	M2.5	T8/2.0MM	RTS19
12	RT FBU SLC 09 222	RT FBU SRC 09 222	CC..09T3..	22.225	21.5	4.8	47	RTMS222	M3.5	T15/2.0MM	RTS222
13	RT FBU SLT 1102 222	RT FBU SRT 1102 222	TC..1102..	22.225	21.5	4.8	47	RTMS222	M2.5	T8/2.0MM	RTS222
14	RT FBU SLT 1103 222	RT FBU SRT 1103 222	TC..1103..	22.225	21.5	4.8	47	RTMS222	M2.5	T8/2.0MM	RTS222
15	RT FBU SLTP 11 222	RT FBU SRTP 11 222	TP..1103..	22.225	21.5	4.8	47	RTMS222	M3.0	T10/2.0MM	RTS222
16	RT FBU SLTN 11 222	RT FBU SRTN 11 222	TN..1103..	22.225	21.5	4.8	47	RTMS222	*	2.5MM/2.0MM	RTS222
17	RT FBU SLD 07 222	RT FBU SRD 07 222	DC..0702..	22.225	21.5	4.8	47	RTMS222	M2.5	T8/2.0MM	RTS222
18	RT FBU SLC 12 31	RT FBU SRC 12 31	CC..1204..	31.750	31.4	7.1	73	RTMS31	M4.5	T20/3.0MM	RTS31
19	RT FBU SLT 16 31	RT FBU SRT 16 31	TC..16T3..	31.750	31.4	7.1	73	RTMS31	M3.5	T15/3.0MM	RTS31
20	RT FBU SLTP 16T3 31	RT FBU SRTP 16T3 31	TP..16T3..	31.750	31.4	7.1	73	RTMS31	M3.5	T15/3.0MM	RTS31
21	RT FBU SLTP 1604 31	RT FBU SRTP 1604 31	TP..1604..	31.750	31.4	7.1	73	RTMS31	M4.0	T15/3.0MM	RTS31
22	RT FBU SLTN 16 31	RT FBU SRTN 16 31	TN..1604..	31.750	31.4	7.1	73	RTMS31	*	3.5MM/3.0MM	RTS31

*Additional Spare Details for TN.. inserts

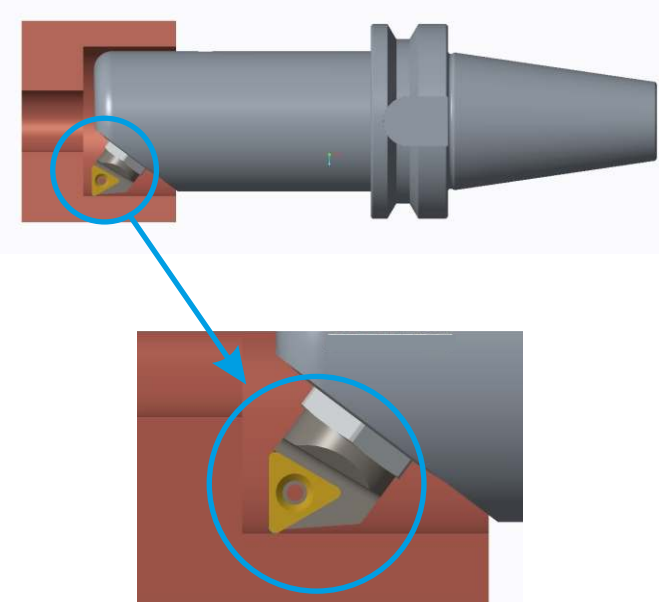
Sr.No.	Insert	Lever	Lever Screw	Shim	Shim Pin	Allen Key
1	TN.. 1103	TNL11	TNLS11	TNS11	TNSP11	2.5 MM
2	TN.. 1604	TNL16	TNLS16	TNS16	TNSP16	3.5 MM

Notes:

- Fine Boring Units are delivered with all required spares such as insert screw, mounting screws, spanner, torx keys & allen keys.
- Inserts are not included with Fine Boring 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.
- FBU variants with DC..0702.. inserts are especially designed for close tolerance undercut applications.
- Maximum recommended material removal is 0.5mm diametrically.
- Customized FBU 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 FBU Variants and vice versa. Thus generally for ID boring applications, you should choose LH FBU variants, while for OD turning or Back boring applications, you should choose RH FBU variants.

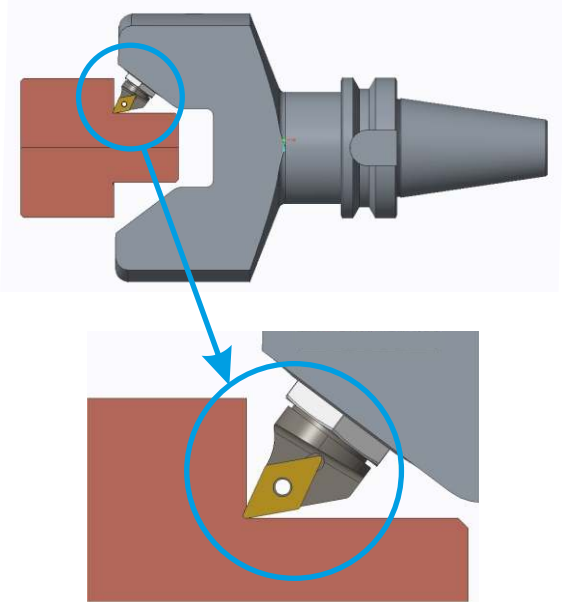
Illustrative Applications of Fine Boring using Fine Boring Units

ID Boring (Angular Mounting)



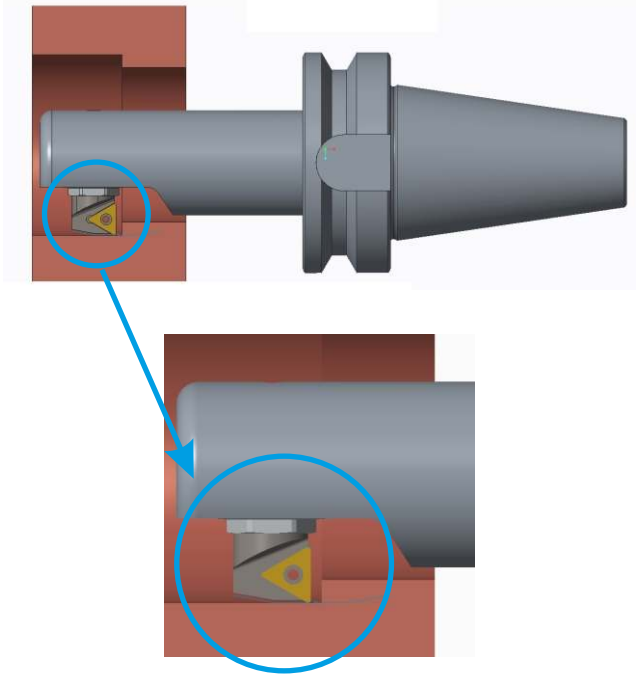
- Minimum Diameter ØD = Ø19.0mm

OD Turning & Undercut



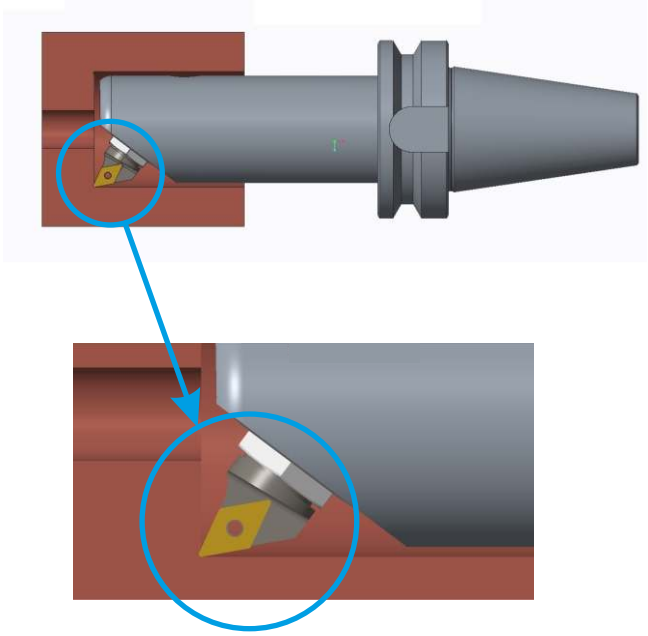
- Minimum Diameter ØD = Ø12.0mm

Back Boring (Straight Mounting)



- Minimum Diameter ØD = Ø19.0mm

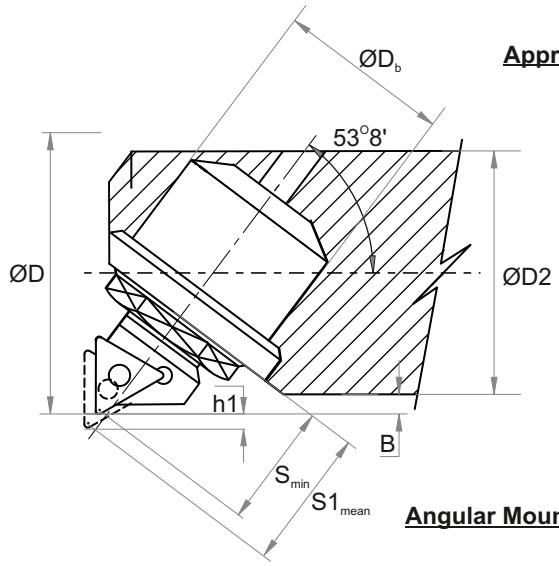
ID Boring & Undercut



- Minimum Diameter ØD = Ø36.0mm

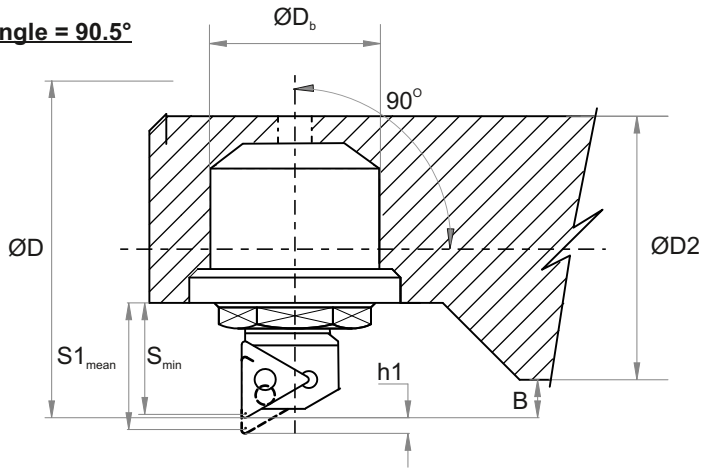
- **Standard range for Fine Boring Tools for ID boring application (RH Cutting hand) are available.**
- **For RH Cutting Hand Tool, use the LH variant of FBU and vice versa.**
- **Please refer to catalogue of "Fine Boring Tools with Fine Boring Units".**
- **Catalogue is available for download on www.renukatools.in**

Working Dimensions for Fine Boring Units



Angular Mounting Details

Approach Angle = 90.5°



Straight Mounting Details

FBU - Angular Mounting Type

All dimensions are in mm.

D_b	RT FBU Item Code	Insert	D_{min}	D2	B_{min}	$h1_{max}$	S_{min}	$S1_{mean}$	-ve Range (Radial)	+ve Range (Radial)
11.110	AL/RT 06T1 11; AL/RT 0601 11	TC..06T104; TC..060104	19.0	17.0	0.840	1.00	8.600	8.80	0.16	0.84
15.080	AL/RC 06 15; AL/RT 09 15 AL/RTP 09 15	CC..060204; TC..090204 TP..090204	25.0	23.0	0.678	1.10	11.325	11.70	0.30	0.80
19.050	AL/RC 09 19; AL/RT 1102 19 AL/RT 1103 19; AL/RTP 11 19 AL/RTN 11 19; AL/RD 07 19	CC..09T304; TC..110204 TC..110304; TP..110304 TN..110304; DC..070204	36.0	34.0	0.598	1.70	14.400	14.90	0.40	1.30
22.225	AL/RC 09 222; AL/RT 1102 222 AL/RT 1103 222; AL/RTP 11 222 AL/RTN 11 222; AL/RD 07 222	CC..09T304; TC..110204 TC..110304; TP..110304 TN..110304; DC..070204	47.0	44.0	1.098	2.70	17.600	18.35	0.60	2.10
31.750	AL/RC 12 31; AL/RT 16 31 AL/RTP 16T3 31; AL/RTP 1604 31 AL/RTN 16 31	CC..120404; TC..16T304 TP..16T304; TP..160404 TN..160404	73.0	70.0	0.776	4.20	27.125	28.00	0.70	3.50

FBU - Straight Mounting Type

All dimensions are in mm.

D_b	RT FBU Item Code	Insert	D_{min}	D2	B_{min}	$h1_{max}$	S_{min}	$S1_{mean}$	-ve Range (Radial)	+ve Range (Radial)
11.110	SL/RT 06T1 11; SL/RT 0601 11	TC..06T104; TC..060104	19.0	17.0	0.80	1.20	7.20	7.40	0.20	1.00
15.080	SL/RC 06 15; SL/RT 09 15 SL/RTP 09 15	CC..060204; TC..090204 TP..090204	25.0	23.0	0.70	1.50	10.50	10.80	0.30	1.20
19.050	SL/RC 09 19; SL/RT 1102 19 SL/RT 1103 19; SL/RTP 11 19 SL/RTN 11 19; SL/RD 07 19	CC..09T304; TC..110204 TC..110304; TP..110304 TN..110304; DC..070204	36.0	34.0	0.40	2.40	13.20	13.80	0.60	1.80
22.225	SL/RC 09 222; SL/RT 1102 222 SL/RT 1103 222; SL/RTP 11 222 SL/RTN 11 222; SL/RD 07 222	CC..09T304; TC..110204 TC..110304; TP..110304 TN..110304; DC..070204	47.0	44.0	0.80	3.60	16.00	16.70	0.70	2.90
31.750	SL/RC 12 31; SL/RT 16 31 SL/RTP 16T3 31; SL/RTP 1604 31 SL/RTN 16 31	CC..120404; TC..16T304 TP..16T304; TP..160404 TN..160404	73.0	70.0	0.50	5.60	24.00	25.00	1.00	4.60

Mounting Dimensions for Fine Boring Units

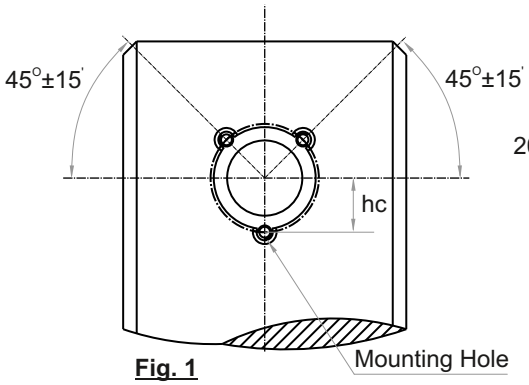


Fig. 1

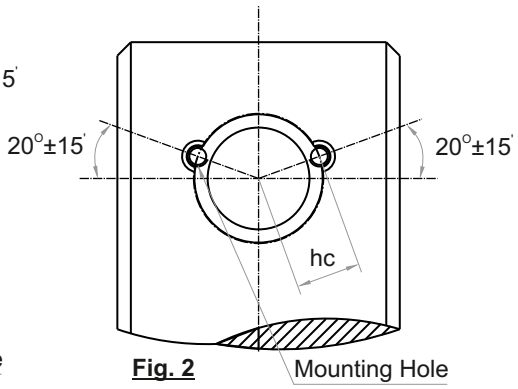


Fig. 2

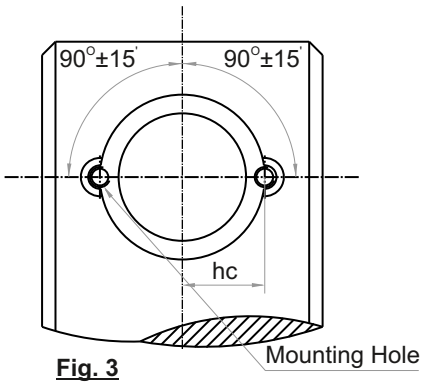


Fig. 3

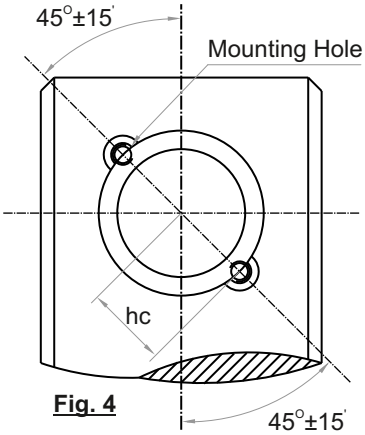
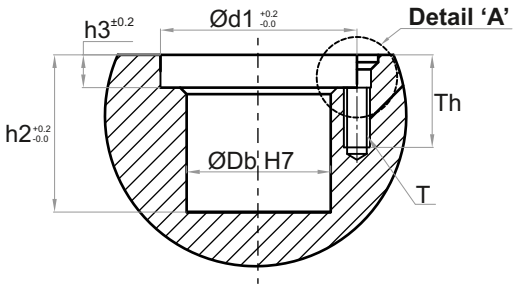
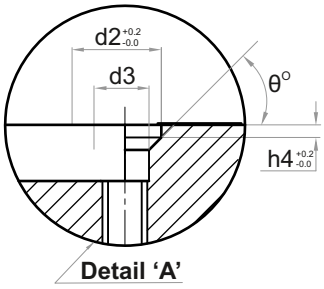


Fig. 4





FBU - Angular Mounting Type

All dimensions are in mm.

Fig.	Sr. No	D_b H7	d1	d2	d3	h2	h3	h4	θ°	Th	hc	T
Fig. 1	1	11.110	15.06	3.50	2.4	11.1	2.7	1.58	45	6.0	8.00 ±0.02	M2.0
Fig. 2	2	15.080	19.05	4.65	3.3	12.4	3.2	1.15	49	8.0	9.58 ±0.02	M3.0
Fig. 3	3	19.050	24.58	5.70	3.5	18.7	4.0	1.30	49	11.0	12.29 ±0.05	M3.0
	4	22.225	31.75	7.20	3.8	24.8	4.8	1.10	49	13.0	15.88 ±0.05	M3.5
	5	31.750	46.02	9.55	5.4	37.8	6.4	1.15	49	17.0	23.01 ±0.05	M5.0

FBU - Straight Mounting Type

All dimensions are in mm.

Fig.	Sr. No	D_b H7	d1	d2	d3	h2	h3	h4	θ°	Th	hc	T
Fig. 4	1	11.110	15.06	3.50	2.4	11.1	2.7	1.58	45	6.0	8.00 ±0.02	M2.0
	2	15.080	20.62	5.80	3.2	12.4	3.2	1.00	49	8.0	10.30 ±0.02	M3.0
	3	19.050	24.58	5.70	3.5	18.7	4.0	1.30	49	11.0	12.29 ±0.05	M3.0
	4	22.225	31.75	7.20	3.8	24.8	4.8	1.10	49	13.0	15.88 ±0.05	M3.5
	5	31.750	46.02	9.55	5.4	37.8	6.4	1.15	49	17.0	23.01 ±0.05	M5.0

Notes:

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

Operating Instructions for Fine Boring Units

- Mount the Fine Boring 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 FBU 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 FBU scale will give you 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).

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 Fine Boring 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® Fine Boring 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.

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