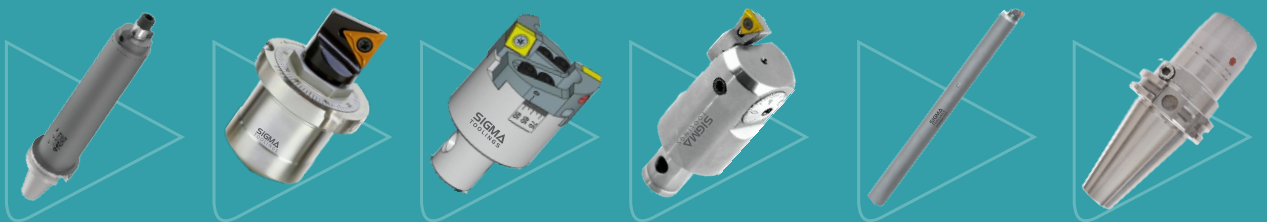


SIGMA
TOOLINGS



Standard Products

Solutions for Boring and Milling Operations



- ▶ **SAMURAI** Rotary Tools
- ▶ Micro Bore Unit (S - Type & M - Type)
- ▶ Rough & Fine Boring Heads
- ▶ **SAMURAI** Stationary Tools
- ▶ Screw & Flag Type Torx Key
- ▶ Precision Hydraulic Expansion Chucks

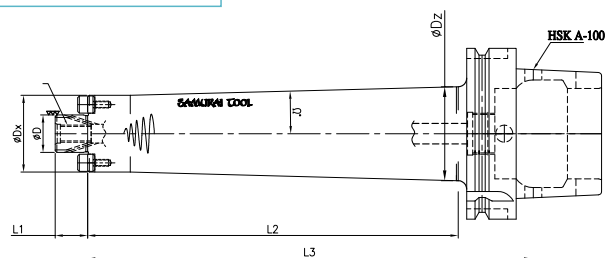
The Samurai series offers anti-vibration tools as well as boring heads. Samurai tools is a flagship product of Sigma Tools. Samurai anti vibration tools, as the name suggests are aimed at reducing vibration generated in machining. Made of high tensile steel, Samurai tools are designed to dampen & absorb vibration. Samurai tools let you increase the number of cutting parameters and achieve close tolerance.



Features

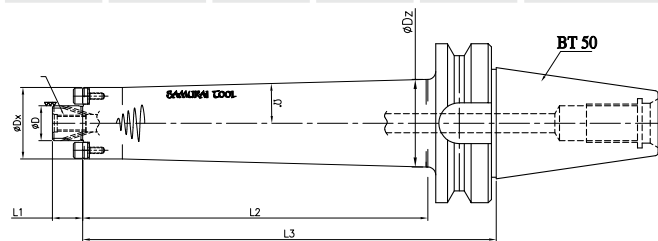
- ▶ Better Surface finish with faster speed.
- ▶ Consistent operation for even above L/D 4.
- ▶ Steady machining and greater rigidity.
- ▶ Dynamic stability in extreme conditions.

Anti-Vibration Milling Adaptor - HSK-A100



ORDER CODE	DIMENSION (mm)							M	L-KEY
	ØD	ØDx	ØDz	Ω°	L1	L2	L3		
ST22-1-2250300	22	50	60	1.5°	19	266	300	M10	L-8
ST22-1-2250370			65	2°		336	370		
ST22-2-2760440	27	60	75	1.5°	21	406	440	M12	L-10
ST22-1-3270440	32	70	85	1.5°	24	406	440	M16	L-14

Anti-Vibration Milling Adaptor - BT50



ORDER CODE	DIMENSION (mm)							M	L-KEY
	ØD	ØDx	ØDz	Ω°	L1	L2	L3		
ST23-1-2245260	22	45	55	1.5°	19	217	260	M10	L-8
ST23-1-2245300			60	2°		257	300		
ST23-2-2250260		50	60	1.5°		217	260		
ST23-2-2250300			65	2°		257	300		
ST23-2-2760360	27	60	75	1.5°	21	317	360	M12	L-10
ST23-2-2760410			367	410					
ST23-1-3270390	32	70	85	1.5°	24	347	390	M16	L-14
ST23-1-3270440						397	440		

Micro Bore Unit

Micro bore units from Sigma toolings offer up to 2-micron accuracy which is perfectly design & suitable for finish boring applications with the help of visible scale fine setting to be done very easily on machine. our unit is having a zero backlash unit & an ultra coating mechanism on the surface gives higher strokes.

Features

- ▶ The least count of MBU is +/- 0.002mm radially.
- ▶ The repeatability of MBU is +/- 0.002mm radially.
- ▶ Extremely economical with extra stock availability.
- ▶ Very easy adjustment from top.



Micro Bore Unit - Angular

	F	L	T	A	09	02	
	FINE	LEFT HAND	INSERT SHAPE	ANGULAR	CUTTING EDGE LENGTH	INSERT THICKNESS	
Code of Angular MBU	ANGULER UNIT CODE & HAND		SUITABLE INSERT	DIMENSION			
	LH	RH		Dh	L1	F1	Dmin
	FLCA-0602	FRCA-0602	CC - - 0602	16	14.3	0.45	25
	FLTA-0902	FRTA-0902	TC - - 0902	20	19.1	1.0	32
	FLTA-1102	FRTA-1102	TC - - 1102	22	23	1.2	42
	FLCA-09T3	FRCA-09T3	CC - - 09T3	22	23	1.2	42
	FLTA-16T3	FRTA-16T3	TC - - 16T3	32	33.3	1.3	55
	FLDA-0702	FRDA-0702	DC - - 0702	20	19.9	1.0	32

Micro Bore Unit - Vertical

	F	R	T	V	09	02	
	FINE	RIGHT HAND	INSERT SHAPE	VERTICAL	CUTTING EDGE LENGTH	INSERT THICKNESS	
Code of Vertical MBU	VERTICAL UNIT CODE & HAND		SUITABLE INSERT	DIMENSION			
	LH	RH		Dh	L1	F1	Dmin
	FLCV-0602	FRCV-0602	CC - - 0602	16	14.3	5.1	27
	FLTV-0902	FRTV-0902	TC - - 0902	20	19.1	6.3	37
	FLTV-1102	FRTV-1102	TC - - 1102	22	23	7.2	49
	FLCV-09T3	FRCV-09T3	CC - - 09T3	22	23	7.2	49
	FLTV-16T3	FRTV-16T3	TC - - 16T3	32	33.3	10.3	67
	FLDV-0702	FRDV-0702	DC - - 0702	20	19.9	6.3	37

Different Types of Micro Bore Unit

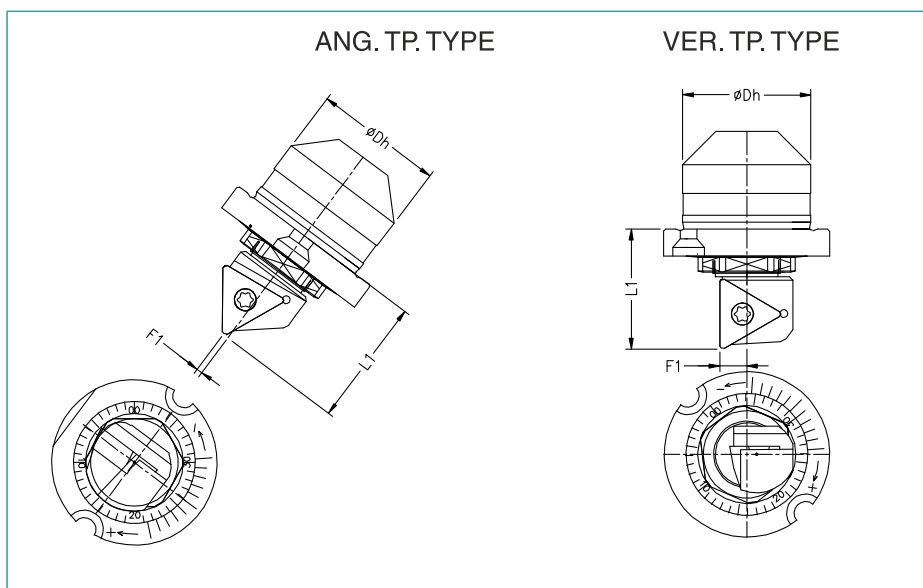


Type of Micro Boring Units

- ▶ Angular C/T/D Type
- ▶ Vertical C/T/D Type

** Note:- Customize Range of MBU is also available

M-Type Micro Boring Unit



M-Type Angular Unit

ENTRY VIEW	UNIT CODE & HAND		SUITABLE INSERT	DIMENSION			
	LH	RH		Dh	L1	F1	Dmin
	M2LTA-1103	M2RTA-1103	TP** 1103	19.05	18.4	0.80	Ø36
	M3LTA-1103	M3RTA-1103	TP** 1103	22.22	22.5	0.65	Ø47
	M4LTA-16T3	M4RTA-16T3	TP** 16T3	31.75	33.50	1.00	Ø73

M-Type Vertical Unit

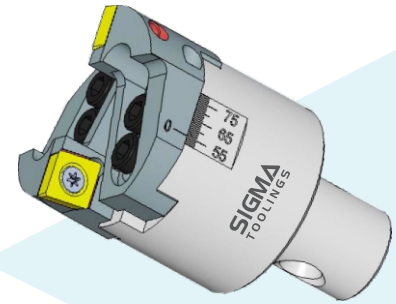
ENTRY VIEW	UNIT CODE & HAND		SUITABLE INSERT	DIMENSION			
	LH	RH		Dh	L1	F1	Dmin
	M2LTV-1103	M2RTV-1103	TP** 1103	19.05	17.80	4.00	Ø36
	M3LTV-1103	M3RTV-1103	TP** 1103	22.22	21.5	4.80	Ø47
	M4LTV-16T3	M4RTV-16T3	TP** 16T3	31.75	31.4	7.1	Ø73

Spare List

UNIT CODE & HAND		SUITABLE INSERT	SPARES FOR UNITS				
LH	RH		INSERT SCREW	TROX	MOUNTING SCREW	ALLEN KEY	SPANNER
M2LTA-1103	M2RTA-1103	TP** 1103	SC1103-M3	T9	SY 3	AK 2	S13
M3LTA-1103	M3RTA-1103				SY 3.5	AK 2	S15
M4LTA-16T3	M4RTA-16T3	TP** 16T3	SC16T3-M4	T15	SY 5	AK 3	S22
M2LTV-1103	M2RTV-1103	TP** 1103	SC1103-M3	T9	SY 3.0	AK 2	S13
M3LTV-1103	M3RTV-1103				SY 3.5	AK 2	S15
M4LTV-16T3	M4RTV-16T3	TP** 16T3	SC16T3-M4	T15	SY 5	AK 3	S22

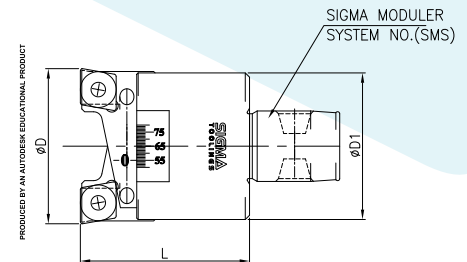
Rough/Semifinish Boring Heads

Sigma Tools offer customized and specialized tools for rough or semi-finished boring requirements. Capable of providing an even and excellent surface finish our range of rough boring heads offers maximum material removal at a faster pace.



Features

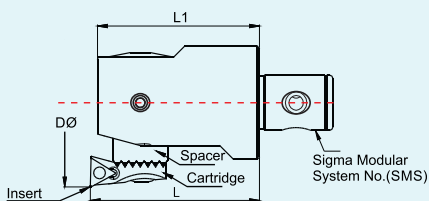
- ▶ Superior rigidity with compact body design.
- ▶ Designed with a good dia/length ratio for better depth.
- ▶ Superior quality boring and best performance.



2-Stepped Rough & Semifinish Boring Head

ORDER CODE	SMS	ØD1	L	ØD	INSERT TYPE	INSERT CLAMPING SCREW
SRBH22-28 S	0	21	40	22-28	CC..0602	CSTB-2.5
SRBH27-35 S	1	23	40	27-35	CC..0602	CSTB-2.5
SRBH34-44 S	2	29	45	34-44	CC..09T3	CSTB-4
SRBH43-55 S	3	37	55	43-55	CC..1204	CSTB-5
SRBH54-76 S	4	48	60	54-76	CC..1204	CSTB-5
SRBH75-105 S	5	60	75	75-105	CC..1204	CSTB-5
SRBH104-150 S	6	80	90	104-150	CC..1204	CSTB-5

Fine Boring Heads



Machining Range
Ø22-200
Least count adjustment 5 micron



ORDERING CODE	SMS NO.	CART-RIDGE	CARTRIDGE SCREW	BORING			KG	TIGHTENING TORQUE
				ØD	L	L1		
SFBH22-28	0	SC0	SM405	22-28	42	38	0.1	10kgf/cm
SFBH27-35	1	SC1	SM406	27-35	42	38	0.12	15kgf/cm
SFBH34-44	2	SC2	SM406	34-44	46	43	0.22	15kgf/cm
SFBH43-55	3	SC3	SM508	43-55	55	53	0.44	25kgf/cm
SFBH54-76	4	SC4	SM608	54-76	60	55	0.8	60kgf/cm
SFBH75-105	5	SC5	SM810	75-105	75	70	1.7	100kgf/cm
SFBH104-150	6	SC6	SM810	104-150	90	85	3.5	100kgf/cm

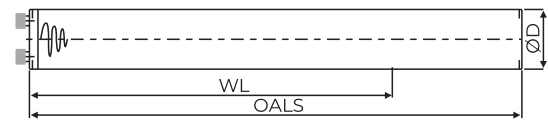
SAMURAI Tools (Stationary)

Sigma has Introduced a special range of boring bars for the application L/D more than-7 called as Anti-Vibration Boring and milling tools (Samurai Tools). It has Auto-tuned damping & piston operated mechanism. It absorbs the vibration, thus provides steady machining.



Features

- ▶ High boring range from L/D-7 to L/D-12.
- ▶ For roughing max depth of cut is 1.5 mm radially.
- ▶ For finishing depth of the cut is 0.25 to 0.3 radially.
- ▶ Each and every tool is tried & well tested in-house.
- ▶ Longer life and assured reliability.

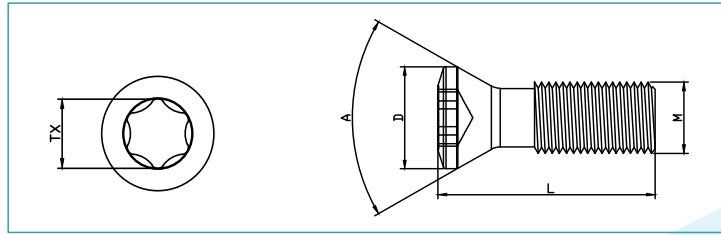


Anti-Vibration Stationary Tools

No.	L/D	ORDER CODE	ØD (mm)	WL	OALS
1	6D	STB-6D-20-200	20	120	200
2	7D	STB-7D-20-235	20	140	235
3	8D	STB-8D-20-250	20	160	250
4	10D	STB-10D-20-300	20	200	300
5	12D	STB-12D-20-340	20	240	340
6	6D	STB-6D-25-250	25	150	250
7	7D	STB-7D-25-275	25	175	275
8	8D	STB-8D-25-300	25	200	300
9	10D	STB-10D-25-350	25	250	350
10	12D	STB-12D-25-400	25	300	400
11	6D	STB-6D-32-300	32	192	300
12	7D	STB-7D-32-325	32	224	325
13	8D	STB-8D-32-350	32	256	350
14	10D	STB-10D-32-420	32	320	420
15	12D	STB-12D-32-480	32	384	480
16	6D	STB-6D-40-350	40	240	350
17	7D	STB-7D-40-385	40	280	385
18	8D	STB-8D-40-420	40	320	420
19	10D	STB-10D-40-530	40	400	530
20	12D	STB-12D-40-580	40	480	580
21	6D	STB-6D-50-400	50	300	400
22	7D	STB-7D-50-450	50	350	450
23	8D	STB-8D-50-510	50	400	510
24	10D	STB-10D-50-668	50	500	668
25	6D	STB-6D-60-450	60	360	450
26	8D	STB-8D-60-620	60	480	620
27	10D	STB-10D-60-808	60	600	808

** Note:- Also available - ØD 80 & 100 with L/D 7 & 10

Screw



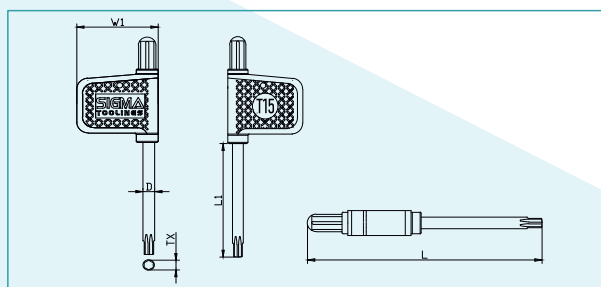
Insert Clamping Screw

SR.NO.	SCREW SIZE (M)	ORDER CODE	TROX (TX)	PITCH (p)	TOTAL LENGTH (L)	HEAD DIA (D)	ANGLE (A)
1	M2.0	402005	T6	0.4	5	2.8	60°
2	M2.2	402206	T7	0.45	6	3	60°
3	M2.5	402506	T8	0.45	6	3.5	45°
4	M3.0	403008	T8	0.5	8	4.3	60°
5	M3.5	403509	T15	0.6	9	5.3	60°
6	M4	404010	T15	0.7	10	5.7	60°
7	M4.5	404510	T20	0.75	10	6.7	60°
8	M5	405012	T20	0.8	12	7	60°

Micro Boring Unit Clamping Screw

SR.NO.	SCREW SIZE (M)	ORDER CODE	TROX (TX)	PITCH (p)	TOTAL LENGTH (L)	HEAD DIA (D)	ANGLE (A)
1	M3.0	403008-M	T9	0.5	8	4.3	60°
2	M4	404011-M	T15	0.7	11	5.7	60°

FLAG TYPE TORX KEY



Flag Type Torx Key

SR.NO.	ORDER NUMBER	TIP SIZE (TX)	SHAFT DIA (D)	SHAFT LENGTH (L1)	HANDLE WIDTH (W1)	TOTAL LENGTH (L)
1	STX06	T6	3.5	46	22.5	80
2	STX07	T7	3.5	46	22.5	80
3	STX08	T8	3.5	46	22.5	80
4	STX09	T9	3.5	46	22.5	80
5	STX10	T10	3.5	46	22.5	80
6	STX15	T15	4.0	42	28	82
7	STX20	T20	4.0	42	28	82

** Note:- Also available - ØD 80 & 100 with L/D 7 & 10

Precision Hydraulic Expansion Chucks

Hydraulic chucks provide **excellent clamping characteristics combined with precise concentricity**. Furthermore, they enable a simple and fast tool change, with the assistance of a special extraction key.

Features

- ▶ Very precision & high technology product.
- ▶ Suitable for Drilling, reaming and Milling operations.
- ▶ Ideal for ductile materials.
- ▶ Maintenance free design & easy to use, along with reduction sleeves (RS Steel).
- ▶ The tool runs true less than 5 micron and 3D, the tool life & machinability increases drastically.
- ▶ Most recommended for Die & Mould making industries & machining precision automobile components.
- ▶ Best operating temperature (20°/40°).

Available in Mountings

- ▶ BT (MAS403) (DIN ISO 7388-2)
- ▶ BT (MAS403) (Face & taper Contact)
- ▶ SK (DIN 69871) (DIN ISO 7388-1)
- ▶ HSK-A (DIN 69893-1)
- ▶ HSK-C (DIN 69893-1)
- ▶ HSK-E (DIN 69893-5)
- ▶ HSK-F (DIN 69893-6)
- ▶ CAT (ANSI-B 5.50)
- ▶ Cylindrical Shank
- ▶ VDI Shank
- ▶ ER Type

Capacity - Heavy Duty

- ▶ HC12S
- ▶ HC20S
- ▶ HC32S

Standard Series from Sizes:

- ▶ H06 TO HC32

Balancing

- ▶ Balanced to 2.5G 25000 RPM.



SIGMA
TOOLINGS

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