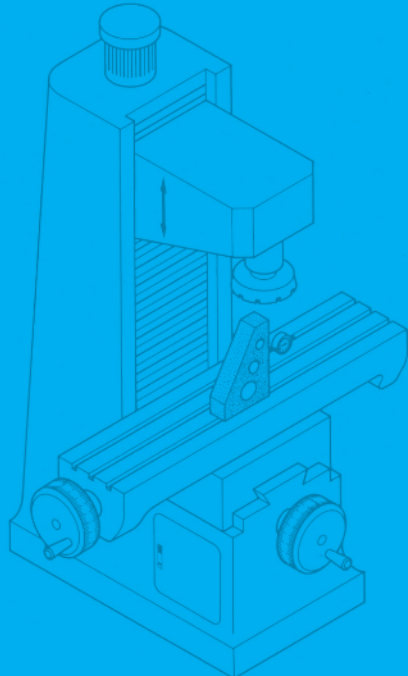
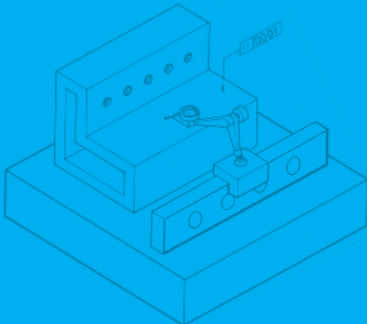
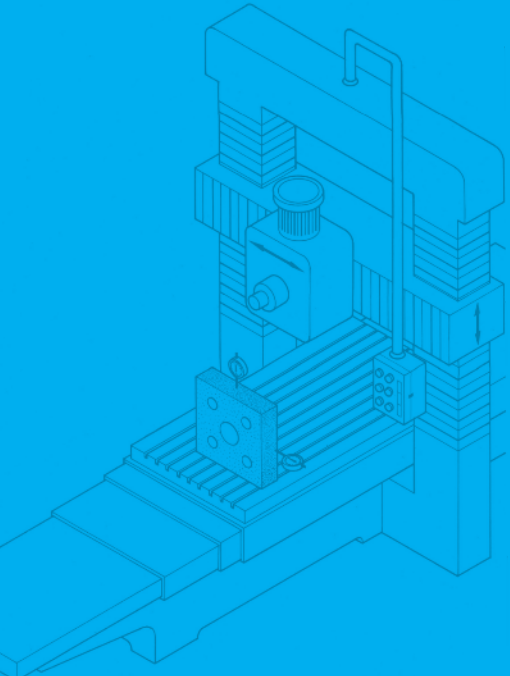
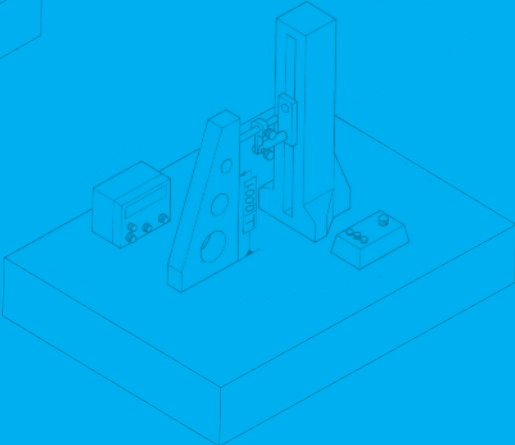
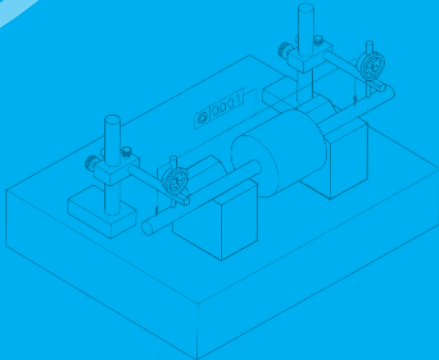
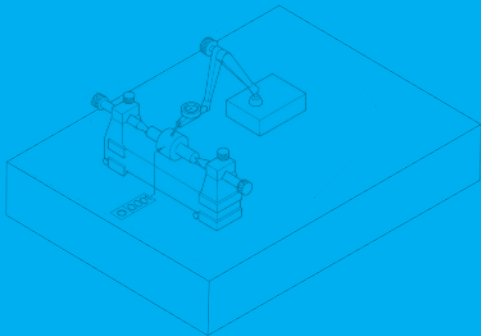


MICRO-FLAT
DATUMS PVT. LTD.

... in pursuit of perfection





Dear Customer,

Ever since we presented our first one page leaflet in 1978 our catalogue size went on increasing as we were adding products in wide ranges to meet the ever increasing needs of Engineering Industry.

We are fortunate to have the on going patronage of our valued customers and we could live up to their expectations and faith reposed in our endeavours.

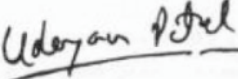
In this twelfth submission of our catalogue, you will find exceptionally wide range of products which meets practically most of the critical requirement in Precision Engineering Industry. Our logo is familiar the world over which signifies what we promise - "The Pursuit of Perfection". We believe, our strength lies in the key factors which our customers value so highly.

- » The Quality / price ratio of our products which shows our concern for customers who work continuously under economic constraints.
- » Our contribution for an increase in Productivity and Reliability.
- » Our customer driven approach to meet any special requirements and urgent deadlines.

We have been backed by the experience and commitments of three generation in this field having the winning combination of Traditional skill, Team Spirit, Advance Technology in manufacturing and finally the state of art Quality Control Equipment and Calibration facilities - in perfect harmony and all under one roof admeasuring 10000 sq. mts.

We trust our being together will add more ZEROS between decimal point and numeral to decimate the tolerance, thereby bringing our world closer.

For MICRO-FLAT DATUMS PVT. LTD.


MANAGING DIRECTOR

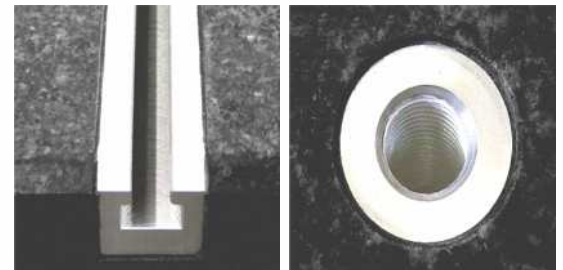
GRANITE SURFACE PLATES

Microflat Granite Surface Plates provide a very accurate reference plane for work inspection and for marking. Their high degree of Flatness, superior physical properties & workmanship make them ideal bases for mounting sophisticated mechanical, electronic and optical gauging systems. The overall flatness specifications of Microflat Granite Surface Plates meet and exceed the requirements set forth by various National and International Standards like IS, DIN, BS, US Federal Specification GGG etc.



SALIENT FEATURES:

- Made from Indian Black Granite having natural grains and lines.
- Top Surface Hand Lapped, Side Faces Polished and Bottom Face Sawn Finish
- Made generally as per IS-7327-2003. Also available conforming to other standards like DIN-876, BS-817, US Federal Specification GGG-P-463-C.
- Calibration: Each Surface Plate provided with Calibration Certificate traceable to National Standards as per ISO 17025
- Cover: Rexine cover provided for top working surface with each Surface Plate
- Other features like Holes, Counter Bored Holes, Metallic Threaded Inserts, Metallic T-Slots, Notch can be provided as per customer requirement.



Metallic T-Slot

Metallic Threaded Insert

Standard Sizes and Flatness Accuracies			
Sizes in mm L x W x T	Flatness as per IS 7237 (µm)		
	Gr-0	Gr-1	Gr-2
250 x 250	3.5	7.0	15.0
400 x 250	4.0	8.0	16.0
400 x 400	4.5	9.0	17.0
630 x 400	5.0	10.0	20.0
630 x 630	5.0	10.0	21.0
1000 x 630	6.0	12.0	24.0
1000 x 1000	7.0	14.0	28.0
1600 x 1000	8.0	16.0	33.0
2000 x 1000	9.5	19.0	38.0
2000 x 1500	10.0	20.0	40.0
2000 x 2000	11.0	22.0	44.0
2500 x 1000	10.5	21.0	42.0
2500 x 1500	11.5	23.0	46.0
2500 x 2000	12.0	24.0	48.0

Other sizes on request

Standard Sizes and Flatness Accuracies			
Sizes in mm L x W x T	Flatness as per IS 7237 (µm)		
	Gr-0	Gr-1	Gr-2
750 x 750	5.5	11.0	22.0
1200 x 800	7.0	14.0	28.0
1200 x 900	7.0	14.0	28.0
1200 x 1200	7.5	15.0	30.0
1500 x 1500	9.0	18.0	36.0
1800 x 1200	9.0	18.0	36.0
3000 x 600	11.5	23.0	46.0
3000 x 1000	12.0	24.0	48.0
3000 x 1500	12.5	25.0	50.0
3000 x 2000	13.0	26.0	52.0
3500 x 2000	14.5	29.0	58.0
4000 x 1000	15.0	30.0	60.0
4000 x 1500	15.5	31.0	62.0
4000 x 2000	16.0	32.0	64.0

Other sizes on request



MICROFLAT CAST IRON SURFACE PLATES

Cast Iron Surface Plates provide a precision reference for spotting, tool making, inspection of parts, and for many types of gauging and marking out operations:



SALIENT FEATURES:

- Made from Grey Iron Casting Conforming to Grade FG-220 of IS 210, casting duly stress relieved.
- Top working surface offered precision hand-scraped finish.
- Made generally as per IS-2285-2003.
- Calibration: Each Surface Plate provided with Calibration Certificate traceable to National Standards as per ISO 17025
- Cover: Rexine cover provided for top working surface with each Surface Plate
- Small Surface Plates up to 630 x 630 mm provided with Mild Steel handles for lifting, larger Surface Plates without handles but provided with cored holes in periphery for lifting mechanically.
- Additional Features like Grid Lines for location, tapped holes, T-Slots etc can also be provided on request.

STANDARD SIZES AND TOLERANCE OF FLATNESS

Sizes in mm (L x B)	Overall Flatness in μm		
	Grade-0	Grade-1	Grade-2
250 x 250	3.5	7.0	15.0
400 x 250	4.0	8.0	16.0
400 x 400	4.5	9.0	17.0
630 x 400	5.0	10.0	20.0
630 x 630	5.0	10.0	21.0
1000 x 630	6.0	12.0	24.0
1000 x 1000	7.0	14.0	28.0
1600 x 1000	8.0	16.0	33.0
2000 x 1000	9.5	19.0	38.0
2000 x 1500	10.0	20.0	40.0
3000 x 1500	-	25.0	50.0
3000 x 2000	-	26.0	52.0

Other sizes on request

MICROFLAT GRANITE SURFACE CLEANER

Special product for cleaning and maintaining granite surfaces. It's special formula avoids stick slip movement and assures ease of sliding workpieces and measuring instruments on the Granite Surface.



STANDS FOR SURFACE PLATES

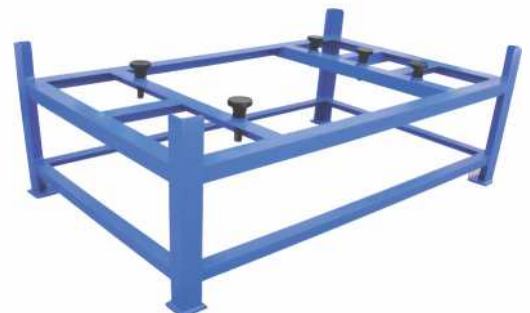
- Stands for Surface Plates are provided with adjustable non rotatable leveling screws.
- Stands can also be offered with Castor Wheels on request
- Stands can also be offered with Vibration Isolation Pads on request.



M.S Fabricated Stand With Cupboard



CI Column Type Stands



M.S Fabricated Stand

MICROFLAT INSPECTION BENCH CENTERS

Bench Centers are used for inspection of Cylindrical Jobs which are held between precision co-axial centers for various parameters like Radial Run-out, Axial Runout, Total Indicated Runout (TIR) etc.

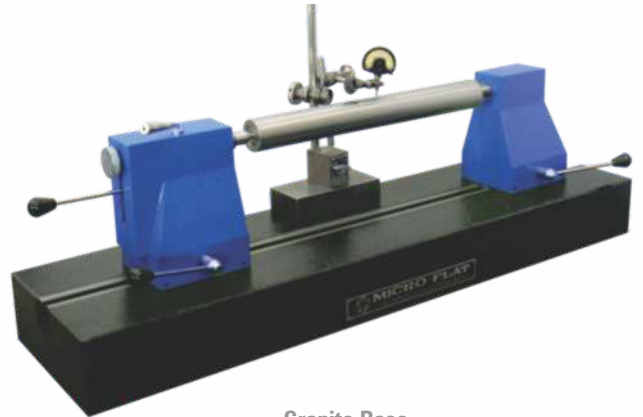
SALIENT FEATURES:

- Made generally conforming to IS-5980-1978
- Available in Cast Iron Base and Granite Base.
- Cast Iron Base and Center Bodies made from close grained Grey Iron Castings of Gr FG-220 of IS-210, duly stress relieved.
- Center Bodies provided with Hardened and Ground Sleeves and Dead Centers having 60 degree nose angle.
- Head Stock having fixed sleeve while Tail Stock provided with retractable sleeve (20 mm sleeve travel) which is spring loaded to ensure uniform pressure on work pieces and easy loading and unloading.
- Axis of Centers are provided Co-Axial in Horizontal as well as Vertical Planes.

A. Standard Horizontal Bench Center



Cast Iron Base



Granite Base

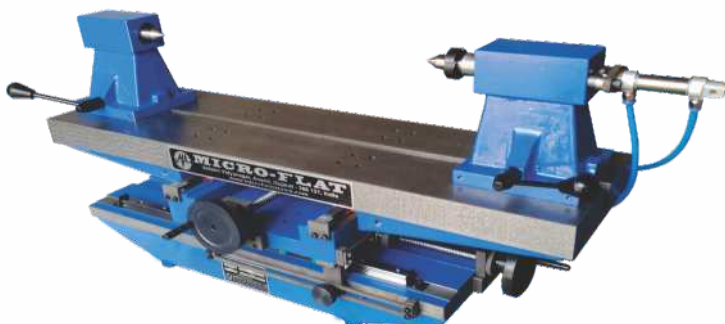
Standard Horizontal Bench Center (Cast Iron Base & Granite Base)

o ABC = Admit Between Center o HC = Height of Center

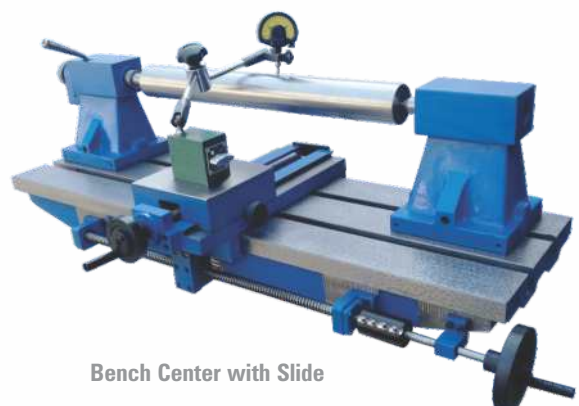
ABC (mm)	HC (mm)	Co-Axiality (μm)	ABC (mm)	HC (mm)	Co-Axiality (μm)
300	125 / 160	15	300	200 / 250 / 300	20
500	125 / 160	15	500	200 / 250 / 300	20
750	125 / 160	20	750	200 / 250 / 300	40
1000	125 / 160	20	1000	200 / 250 / 300	40
1250	125 / 160	20	1250	200 / 250 / 300	40
1500	125 / 160	20	1500	200 / 250 / 300	40
2000	125 / 160	30	2000	200 / 250 / 300	40
2500	125 / 160	30	2500	200 / 250 / 300	40
3000	125 / 160	30	3000	200 / 250 / 300	40

Other sizes on request.

B. Special Bench Centers:



Bench Center with longitudinal & cross movement



Bench Center with Slide

C. Light Duty Horizontal Bench Center

- Light Duty Bench Center is having all features similar to standard horizontal bench centers.
- Light in weight for easy handling.

Light Duty Horizontal Bench Center (Cast Iron Base)		
ABC (mm)	HC (mm)	Co-Axiality (μm)
100	75 / 100 / 125 / 150	10
200	75 / 100 / 125 / 150	10
300	75 / 100 / 125 / 150	15
400	75 / 100 / 125 / 150	15
500	75 / 100 / 125 / 150	15

Other sizes on request.



D. Vertical Bench Center

- Vertical Bench Center is provided with Ball Screw and Guideways for moving the center attachment
- Can be used as Vertically as well as Horizontally.
- Bottom center is fixed while other center provided with spring loaded sleeve
- Provided with fine adjustment knob for movement of sleeve.

Vertical Bench Center with Ball Screw & Guideways		
ABC (mm)	HC (mm)	Co-Axiality (μm)
200	75 / 100 / 125 / 150	10
300	75 / 100 / 125 / 150	10
400	75 / 100 / 125 / 150	15
500	75 / 100 / 125 / 150	15
750	75 / 100 / 125 / 150	15

Other sizes on request.



E. Mini Bench Center - Vertical cum Horizontal

- Light in weight for easy handling.
- Dead Centers aligned in V-Guide.

Mini Bench Center: Vertical cum Horizontal		
ABC (mm)	HC (mm)	Co-Axiality (μm)
250	50 / 75 / 100	10
300	50 / 75 / 100	10
400	50 / 75 / 100	15

Other sizes on request.

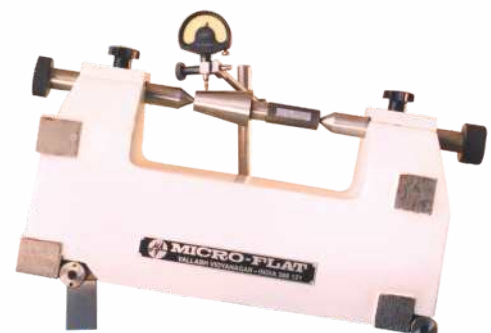


F. Universal Bench Center

For checking Concentricity, Parallelism, Axial Run-out, Taper Angle and Taper form for workpieces held between centers. Sine Rollers allow quick and easy taper Angle and Taper form measurements in conjunction with Gauge Blocks. Can be used horizontally as well as vertically

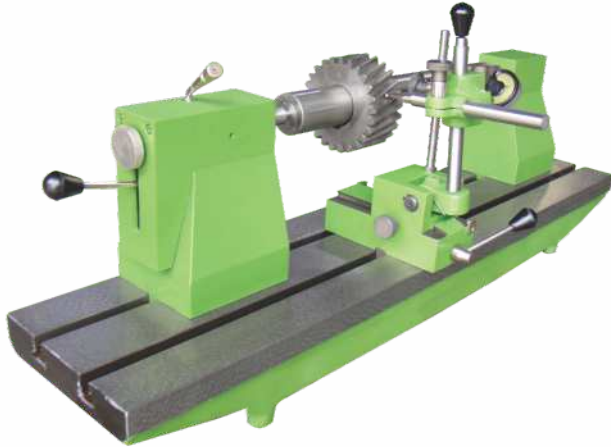
Universal Bench Centers				
ABC (mm)	HC (mm)	Center distance of Sine Rollers (mm)	Co-Axiality of Centers (μm)	Parallelism of Axis (μm)
0 - 200	75	400 ± 0.005	5	5
0 - 300	75	500 ± 0.005	5	5

Other sizes on request



MICROFLAT GEAR PCD RUNOUT CHECKING ATTACHMENT

An economical and versatile fixture to be used along with Inspection Bench Centers for checking PCD of Spur/Helical Gears with reference to the Gear Axis. Provided with a set of 3 suitable hardened and profile ground locking balls to suit the modules between 1.5 to 7 and corresponding diametrical pitches of Gear Spring Loaded bracket holding locking balls is mounted on a slide, which can be locked in any position to suit varying diameters.



MICROFLAT CONCENTRICITY CHECKING ATTACHMENT

This is an ideal attachment, which is to be used along with Bench Centers or T-slotted Surface Plates for checking concentricity of stepped shafts and spindles.

SALIENT FEATURES:

- Consisting of a pair of V-Blocks that are having adjustable height
- Provided with Hardened and Ground Roller pins on V-Blocks for point contact
- Height adjustment of V-Blocks is done using fine pitch screws
- Setting Mandrels for alignment of Axis of 'V's available on request.



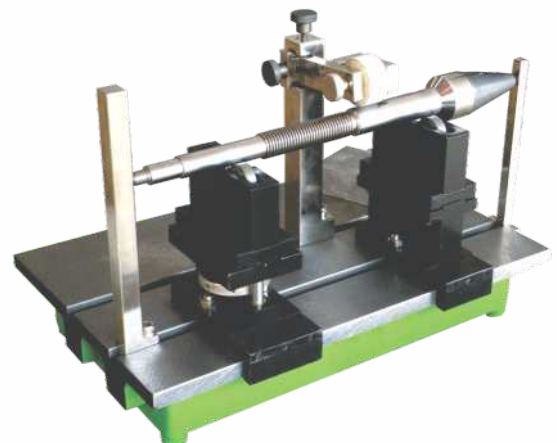
Concentricity Tester with Dovetail Guideways



Concentricity Tester with CI adjustable V-Blocks



Concentricity Tester with Ball Screws & Guideways



Concentricity Tester with Roller Bearing V-Blocks

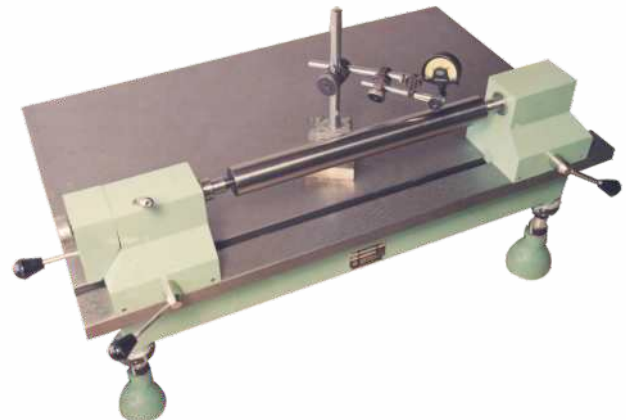


MICROFLAT SURFACE PLATES WITH CENTER ATTACHMENTS

This equipment can be used as a Precision Inspection Bench Center as well as a Surface Plate (two-in-one) with high Grade of accuracy. Material of construction and accuracy parameters as per IS-2285-2003 for Cast Iron Surface Plate, IS-7327-2003 for Granite Surface Plate and IS-5980-78 for Center Attachments.



Granite Surface Plate with Center Attachments



Cast Iron Surface Plate with Center Attachments

Granite & Cast Iron Surface Plates with Center Attachments		
Size of Surface Plate L x B (mm)	Maximum Admit Between Centers (mm)	Height of Centers (mm)
1000 x 630	500	125 / 160 / 200 / 250 / 300
1000 x 1000	500	125 / 160 / 200 / 250 / 300
1200 x 900	700	125 / 160 / 200 / 250 / 300
1600 x 1000	1100	125 / 160 / 200 / 250 / 300
2000 x 1000	1500	125 / 160 / 200 / 250 / 300
3000 x 1000	2500	125 / 160 / 200 / 250 / 300

Other sizes on request

Bench Center Accessories

- Granite Sliding Fixture for mounting dial stand
- Steady Rests for Slander Jobs.
- Additional 'V' aligned and matched on top of Centers
- Pipe Centers for holding hollow jobs
- Carbide Tipped Dead Centers
- Taper and Parallel Test Mandrels
- M.S Fabricated Stand with leveling screws
- Steady Rest for extra long and heavy job
- Special Bench Center Bodies with live spindle
- Pneumatic Sleeve Travel for ease of loading & unloading



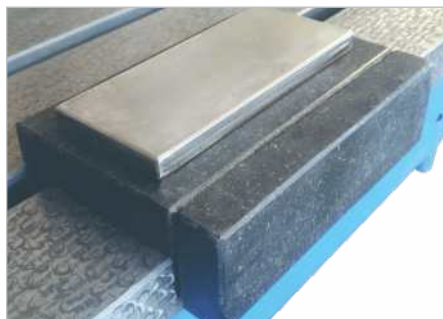
Pipe Center



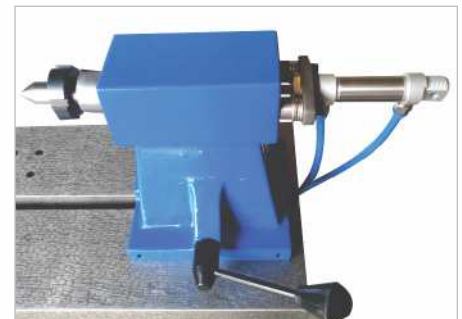
Pipe Center - Blunt Nose



Steady Rest



Granite Sliding Fixture



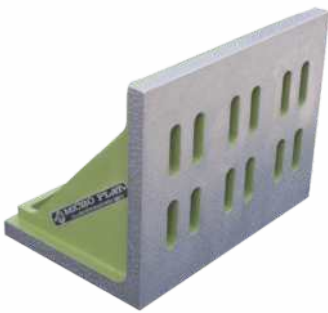
Pneumatic Sleeve Travel

MICROFLAT CAST IRON ANGLE PLATES

They are used for clamping and work holding in vertical position and as vertical reference for layout, machining and inspection. They make an ideal fixture for shaping, planning, milling, grinding, horizontal boring and drilling operation.

SALIENT FEATURES:

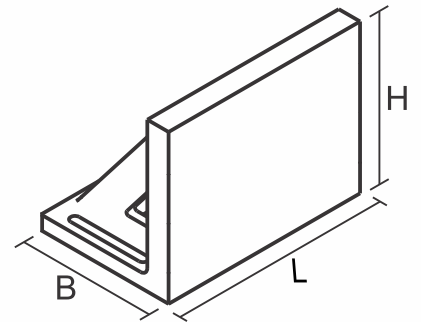
- Made from close grained Grey Iron Castings conforming to Grade FG-220 of IS-210.
- Working surfaces are hand scrapped finish to required grade of accuracy
- **Slotted & Webbed Angle Plate:** having cored slots on both the working faces.
- **T-Slotted Angle Plate:** Vertical face is provided with horizontally machined T-slots & the base/table face having cored slots.
- **Box Angle Plates:** A job can be fixed with one of the faces and rotated in five planes without the need for repositioning or disturbing accuracy. Provided with machined T-slots on one face and cored elongated slots on four opposite faces.
- Box Angle Plates in matched pairs can be offered on request at extra cost.
- Angle Plates and Box Angle Plates are also offered in Precision Grade as per IS-6973-1973 and IS-6985 respectively which are having accuracies almost half to that of IS-2554-1971.



Slotted and Webbed Angle Plate



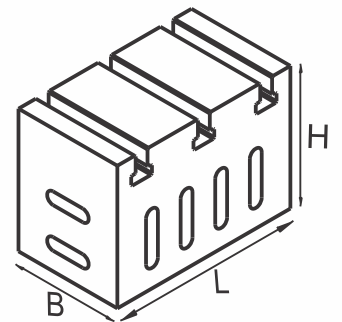
T-Slotted Angle Plate



Large Angle Plate with Cross T-Slots



Box Angle Plate



Cast Iron Angle Plates as per IS-2554-1971

Sizes L x B x H (mm)	Flatness of working faces (μm)		Squareness of working faces over 'H' (μm)		Parallelism of opp. edge faces (μm)		T-Slot Details for T-Slotted Angle Plate (mm)		
	GR-1	GR-2	GR-1	GR-2	GR-1	GR-2	Size	No	Pitch
125 x 75 x 100	5	25	10	50	13	63	10	2	40
175 x 100 x 125	5	25	13	50	15	63	12	2	50
250 x 150 x 175	8	38	15	75	18	88	12	3	50
350 x 200 x 250	8	38	18	75	20	88	14	3	80
450 x 300 x 350	10	50	18	100	20	113	18	3	100
600 x 400 x 450	10	50	20	100	23	113	18	4	100
700 x 420 x 700	-	50	-	140	-	160	18	7	100
600 x 600 x 1000	-	50	-	140	-	160	18	10	100

Other sizes on request

Cast Iron Box Angle Plates as per IS-6232-1971

Sizes L x B x H (mm)	Flatness of working faces (μm)		Squareness of working faces (μm)		Parallelism of working faces (μm)		T-Slot Details (mm)		
	GR-1	GR-2	GR-1	GR-2	GR-1	GR-2	Size	No	Pitch
125 x 75 x 100	5	25	10	50	13	63	12	2	70
175 x 100 x 125	5	25	13	50	15	63	12	3	56
250 x 150 x 175	8	38	15	75	18	88	14	4	65
350 x 200 x 250	8	38	18	75	20	88	18	4	80
450 x 300 x 350	10	50	18	100	20	113	18	5	80
600 x 400 x 450	10	50	20	100	23	113	18	5	100

Other sizes on request

MICROFLAT CAST IRON SWIVEL ANGLE PLATES

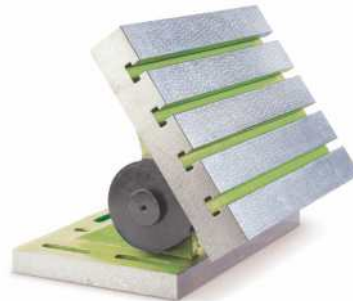
Swivel Angle Plates are used for quick setting of Jobs at desired angle. They are graduated for setting 0-90° & can be easily adjusted manually and locked in adjusted position using two locking nuts. Swivelling face is provided with machined T-Slots. Other face is provided with cored elongated slots for clamping the Angle Plate on the Machine Table.

SALIENT FEATURES:

- Made from close grained Cast Iron Casting conforming to Grade FG-220 of IS-210. Casting duly stress relieved.
- Working faces flat within 0.010 mm per 300 mm and square and parallel within ± 0.04 mm per 300 mm in two extreme positions.
- Edges parallel and square within 0.05 mm per 300 mm
- T-slots parallel to the edges within 0.05 mm per 300 mm.

Size (mm) L x B x H	Details of T-slots		
	Size of T-slot	No. of T-slot	Pitch of T-slot
200 x 150 x 150	14	3	40
300 x 250 x 250	14	4	63
400 x 300 x 300	14	4	63
500 x 400 x 400	14	4	100
600 x 400 x 400	14	4	100

Other sizes on request



MICROFLAT CAST IRON TILTING TABLES

Tilting Table is useful for setting work at angle for machining operations. Table can be tilted up to 45° angle on either side. Graduation on degree scale are provided on end face. Table can be locked at a set position by using locking clamps.

SALIENT FEATURES:

- Made from close grained plain Cast Iron Castings conforming to Grade FG-220 of IS-210. Casting duly stress relieved.
- Table top and base are flat and parallel within 0.05 mm per 300 mm
- T-slots are parallel to the edge of the table and the cylindrical base within 0.05 mm per 300 mm.
- T-slots parallel to the edges within 0.05 mm per 300 mm

Size (mm) L x B x H	Details of T-slots		
	Size of T-slot	No. of T-slot	Pitch of T-slot
300 x 150 x 110	14	3	50
400 x 300 x 200	14	3	100
450 x 225 x 150	14	3	65
500 x 500 x 300	14	4	125
600 x 300 x 200	14	3	100
1000 x 500 x 300	14	4	100

Other sizes on request

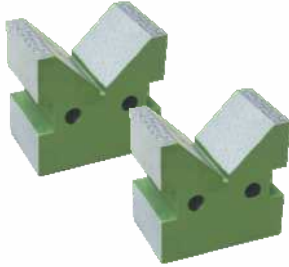


MICROFLAT V-BLOCKS

V-Blocks are widely used in Workshops, Tool Rooms & Standard Rooms for variety of application in Tooling and Inspection purposes such as marking accurate Centers, checking Concentricity, Parallelism, etc.

SALIENT FEATURES:

- Cast Iron V-Blocks made from Grey Iron Castings of Grade FG-220 of IS-210, offered duly hand-scraped finish.
- Steel V-Blocks are made from hardened & ground alloy steel having hardness 55 - 60 HRC.
- Granite V-Blocks made from good quality Granite, working faces offered lapped finish having included Angle $90^{\circ} \pm 5'$
- Clamps offered for Plain V-Blocks (Cast Iron, Steel & Granite V-Blocks) on request.



Cast Iron Plain V-Block



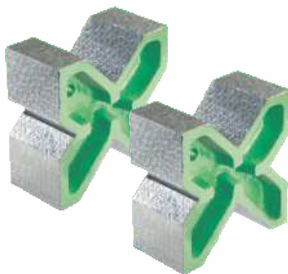
Granite V-Block



Hardened & Ground Steel V-Block

CI, STEEL & GRANITE V-BLOCKS (IS-2949-74)		STEEL V-BLOCKS (IS-2949-1992)	
Size in mm (W x L x H)	Clamping Range (mm)	Size in mm (W x L x H)	Clamping Range (mm)
40 x 50 x 40	5 - 40	40 x 50 x 40	4 - 40
50 x 50 x 50	5 - 50	40 x 75 x 40	6 - 40
50 x 63 x 50	5 - 50	40 x 100 x 40	7 - 40
80 x 63 x 80	7 - 80	50 x 150 x 45	8 - 50
100 x 63 x 100	8 - 100	70 x 200 x 55	10 - 70
140 x 70 x 140	9 - 140	85 x 250 x 65	11 - 85
63 x 80 x 63	7 - 63	100 x 300 x 75	12 - 100
80 x 100 x 80	7 - 80		
200 x 150 x 200	10 - 200		
200 x 200 x 200	10 - 200		

Other sizes on request



Cast Iron Universal V-Block



Cast Iron Elongated V-Block

CAST IRON UNIVERSAL V-BLOCKS (IS-4960-1968)		CAST IRON ELONGATED V-BLOCKS (IS-4960-1968)	
Size in mm (W x L x H)	Clamping Range (mm)	Size in mm (W x L x H)	Clamping Range (mm)
100 x 63 x 100	8 - 100	40 x 100 X 30	5 - 40
160 x 80 x 160	12 - 160	50 x 160 X 35	6 - 50
200 x 100 x 200	16 - 200	63 x 200 X 63	7 - 63
300 x 125 x 300	20 - 300	100 x 300 X 63	8 - 100

Other sizes on request

MAGNETIC V-BLOCKS

- Made from Hardened Alloy Steel Material
- Offered with 3 Magnetic surfaces, i.e. top and bottom face with 90° V-Angle and end surface opposite to switch.



MAGNETIC V-BLOCKS (HARDENED)					
Sizes in mm (W x L x H)	Clamping Range (mm)	Pull capacity (Kgs)	Flatness (µm)	Squareness (µm)	Parallelism (µm)
40 x 40 x 50	3 – 25	25	5	5	5
56 x 75 x 75	5 – 40	75	5	5	5
70 x 100 x 95	5 – 65	100	5	5	5
75 x 150 x 100	5 – 70	125	10	10	10
125 x 200 x 150	10 – 150	175	10	10	10

Other sizes on request

MICROFLAT ROLLER BEARING V-BLOCKS

Used for inspection of Runout & Straightness of heavy cylindrical jobs which can be rotated manually after mounting on Roller Bearings. They are offered as matched pairs having parallelism within 10 µm & included angle of rollers 90°



Size Top L x W (mm)	Size Bottom L x W (mm)	Height (mm)	Range (mm)	Load Capacity (Kg.)
150 x 40	150 x 80	100	Ø 3 - Ø 55	1000
150 x 22	150 x 60	100	Ø 25 - Ø 70	500
230 x 60	230 x 100	150	Ø 70 - Ø 200	1000

MICROFLAT ENGINEERS SPIRIT LEVEL

For checking and leveling of horizontal surfaces, machine tools, machine bases and horizontal shafts.

SALIENT FEATURES:

- Base made of Cast Iron, precision hand-scraped finish.
- Main vial have graduation on each side of the bubbles while cross vial shows lateral position for horizontal setting
- Horizontal Level having prismatic base
- Square Frame Level, having two adjacent faces prismatic & two other faces flat
- Square Frame Spirit Level can be provided with Magnets upon request.

Offered in various sizes and sensitivities as under:

- Horizontal Level (L): 100 mm, 150 mm, 200 mm, 300 mm
- Square Frame Level (LxW mm): 100 x 100, 150 x 150, 200 x 200, 300 x 300
- For longer sizes, spirit levels can be mounted on CI Straight Edges as shown below.
- Special levels for large cylindrical jobs can also be offered on request



Horizontal Spirit Level



Square Frame Spirit Level

Horizontal & Square Frame Level		
Sensitivity (mm/m)	Range in mm/m	
	L = 100 mm	L > 100 mm
0.01	± 0.02	± 0.05
0.02	± 0.04	± 0.1
0.05	± 0.1	± 0.25
0.1	± 0.2	± 0.5



Horizontal Level Mounted on CI Straight Edge

Other sizes on request

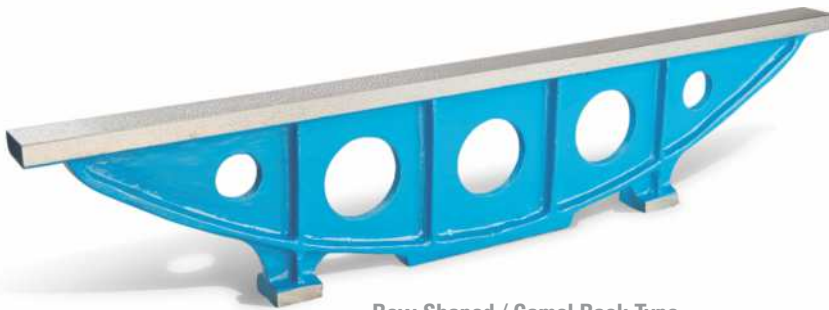
MICROFLAT CAST IRON STRAIGHT EDGES

Cast Iron Straight Edges used for setting up and leveling machinery and for spotting bearing surfaces during hand scrapping operations. Properly supported, they may be used with various indicating devices to check surface flatness of large Machined areas like Machine Tables & Beds, Machine Guideways, etc.

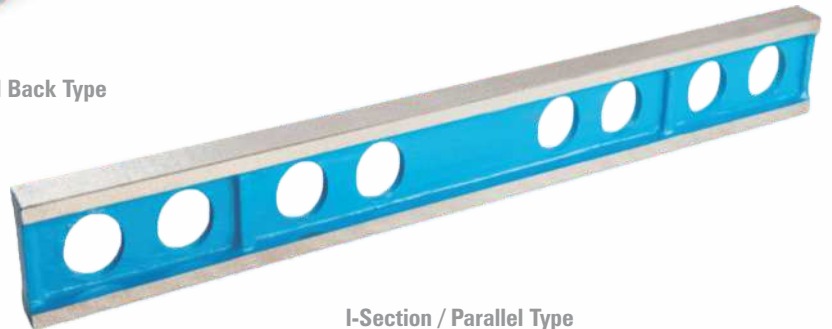
SALIENT FEATURES:

- Made from Grey Iron Casting of grade FG 220 of IS 210,
- Made generally as per IS-5268-1991.
- Working surfaces hand scrapped to desired accuracy
- High spots uniformly distributed. Proportion of bearing area of the working surface within 20% for Gr-0 & Gr-1 & within 10% for Gr-2
- Flatness of side faces: Any 300 mm length flat within 25 µm for Gr 0, Gr-1 and within 50 µm for Gr-2.
- **Squareness of working surfaces wrt side faces:**
Grades-0 and 1: Within 8 µm/25 mm
Grade-2: Within 15 µm/25 mm
- **Parallelism of side faces:**
Gr-0 & Gr-1: Within 30 µm/300 mm & 60 µm over total length
Gr-2: Within 60 µm/300 mm & 120 µm over total length.

A. Cast Iron Bow Shaped & I-Section Type Straight Edge



Bow Shaped / Camel Back Type



I-Section / Parallel Type

Sizes	Camel Back / Bow Type Straight Edge			I-Section / Parallel Type Straight Edge			Flatness & Parallelism		
	Length	Min. width of working face	Min. overall depth	Min. flange thickness	Min. width of working face	Min. overall depth	Min. flange thickness	Gr-0	Gr-1
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(µm)	(µm)	(µm)
300	30	80	10	25	75	8	2	3	6
500	35	130	12	30	75	10	3	5	10
800	40	175	14	30	80	10	3	6	10
1000	45	180	16	35	100	12	5	10	20
1600	55	275	20	50	150	12	6	12	20
2000	65	300	24	50	150	14	10	20	40
3000	90	400	32	55	250	16	15	30	60
4000	100	500	38	60	300	18	20	40	80
5000	100	550	46	65	350	20	25	50	100

Other sizes on request



B. Cast Iron Prismatic / Triangular Straight Edge

They are used for trueing, spotting and reconditioning of dovetail guide-ways of Machine Tools, Slide etc.
Maximum error in specified angle within $\pm 5'$

Length (mm)	Angles & width of working faces (mm)				
	30°	45°	50°	55°	60°
250	50	50	50	45	45
300	50	50	50	45	45
500	70	70	70	60	60
600	70	70	70	60	60
750	90	90	90	80	80
1000	110	110	110	100	100
1250	130	130	130	110	110
1500	160	160	160	130	130
2000	200	200	200	160	160

Other sizes on request



C. Cast Iron 90 Degree V-Type Straight Edge

These are mainly used for inspection of machine guide ways. One side is provided flat and the other side is provided with $90^\circ \pm 5'$

STANDARD SIZES	
Length (mm)	Straightness & Parallelism (μm)
300	3.0
600	5.0
750	6.0
1000	10.0
1500	12.0
2000	20.0

Other sizes on request



MICROFLAT GRANITE STRAIGHT EDGES

- Made from Indian Black Granite.
- Two working faces (L x T) offered duly precision lapped finish to desired accuracy.
- Provided with suitable holes for weight reduction & for lifting

STANDARD SIZES AVAILABLE	
Sizes in mm (L x W x T)	Straightness & Parallelism (μm)
300 x 100 x 50	2
500 x 100 x 50	3
750 x 125 x 75	3
1000 x 150 x 75	5
1600 x 200 x 75	6
2000 x 200 x 75	8
2500 x 200 x 100	12
3000 x 250 x 100	15

Other sizes on request



MICROFLAT ALUMINIUM STRAIGHT EDGES

- Made from solid Aluminum material duly hard anodized. Working surfaces offered precision lapped finish.
- Very light in weight for ease of handling.
- Aluminum Hollow type straight edge having coarser accuracy is also offered on request.



Size in mm (L x W x T)	Straightness (µm)
500 x 80 x 15	7
750 x 80 x 15	9
1000 x 80 x 15	12
1500 x 80 x 15	17
2000 x 80 x 15	22

Other sizes on request

MICROFLAT HARDENED & GROUND STEEL STRAIGHT EDGES

- Steel Straight Edges made generally as per IS-2220-1990
- Made from Alloy Steel, Hardened & Ground.
- Available in I-section and Parallel Type.
- Wooden storing case offered on request



STANDARD SIZES AVAILABLE				
Size in mm L x W x T	Straightness Accuracy (µm)			
	Gr-00	Gr-0	Gr-1	Gr-2
300 x 35 x 8	4	7	12	21
500 x 50 x 8	4	7	12	21
750 x 50 x 8	6	9.5	17	27
1000 x 50 x 8	8	12	21	33
1500 x 70 x 10	-	17	29	46
2000 x 70 x 10	-	22	37	58
2500 x 75 x 15	-	27	46	71
3000 x 85 x 18	-	32	54	83
4000 x 100 x 20	-	42	71	108

Other sizes on request

MICROFLAT KNIFE EDGE STRAIGHT EDGE

- Made from Hardened Alloy Steel
- Hardened and ground to 58 to 60 HRC
- Working faces ground/lapped finish
- Accuracy as per IS-3512-1966



STANDARD SIZES AVAILABLE		
Length (mm)	Width (mm)	Thickness (mm)
50	30	8
75	35	8
100	40	10
150	40	10
200	50	12
250	50	12
300	60	12
500	50	15
600	60	20
750	60	20
1000	60	20

Other sizes on request

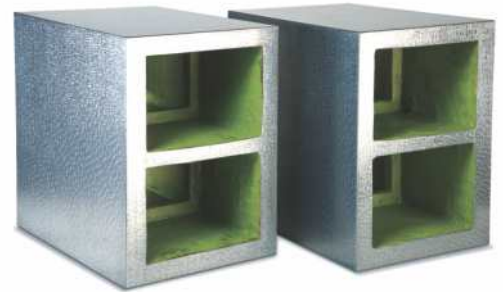


MICROFLAT CAST IRON HOLLOW BOX PARALLEL

Cast Iron Box Parallels are extensively used in machine shops for set up and machining operations, building up height of work-piece on machine tables and for mounting work piece for scribing and inspection.

SALIENT FEATURES:

- Made generally as per IS-4241-1990
- Made from close grained Cast Iron Casting conforming to Grade FG-220 of IS-210. Casting duly stress relieved.
- Working faces offered with hand-scraped finish or ground finish to required tolerances as per IS.
- Parallelism within 0.01 mm/ 100 mm.
- Box Parallels can be offered as matched pairs on request at extra cost.
- Tapped holes/T-slots/slots can be provided on request at extra cost.
- Box Parallels with finer accuracies can be offered than stipulated in the IS on special request at extra cost.



STANDARD SIZES AVAILABLE		
Length (mm)	Width (mm)	Height (mm)
100 x 100 x 100	100	100
150 x 150 x 100	150	100
300 x 200 x 125	200	125
250 x 250 x 250	250	250
350 x 350 x 250	350	250
150 x 150 x 150	150	150
200 x 200 x 200	200	200
300 x 300 x 300	300	300

Other sizes on request



MICROFLAT STEEL PARALLELS

These are used in Machine Shops for set up and machining operations, building up height of work on Machine Tables and for mounting work for scribing and inspection.

SALIENT FEATURES:

- Made generally as per IS-4241-1990
- All the four longitudinal sides offered flat parallel
- Working faces offered duly ground finish
- Steel Parallels offered as matched pairs

STANDARD SIZES AND TOLERANCES FOR GRADE - 1 & 2				
Size in mm (L x W x T)	Parallelism between Working faces (µm)		Matching tolerance (µm)	
	Grade - 1	Grade - 2	Grade - 1	Grade - 2
100 x 10 x 5	4.0	8.0	6.0	12.0
125 x 20 x 10	4.0	8.0	6.0	12.0
150 x 30 x 15	4.0	8.0	6.0	12.0
200 x 40 x 20	4.0	8.0	6.0	12.0
250 x 50 x 25	6.0	12.0	10.0	20.0
300 x 60 x 30	6.0	12.0	10.0	20.0
350 x 80 x 40	-	14.0	-	20.0
400 x 100 x 50	-	16.0	-	25.0

Other sizes on request



MICROFLAT GRANITE PARALLELS

These are used in Machine Shops for set up and Machining operations, building up height of work on Machine Tables and for mounting work for scribing and inspection. Granite Parallels being rust proof are preferred where coolants are used.

STANDARD SIZES AND TOLERANCES		
Size in mm (L x W x T)	Parallelism between Working faces (µm)	Matching tolerance (µm)
100 x 30 x 15	2.0	3.0
100 x 40 x 20	2.0	3.0
100 x 50 x 25	2.0	3.0
150 x 50 x 25	3.0	5.0
150 x 80 x 40	3.0	5.0
150 x 70 x 50	3.0	5.0
200 x 100 x 50	3.0	5.0
300 x 100 x 50	3.0	5.0
400 x 100 x 50	5.0	8.0
500 x 100 x 50	5.0	8.0

Other sizes on request

SALIENT FEATURES:

- Working faces offered duly precision hand-lapped finish
- All the four longitudinal sides offered flat parallel
- Granite Parallels offered in matched pairs



MICROFLAT TEST MANDRELS

- Test Mandrels are mainly used for Machine Tool Acceptance Test
- Test Mandrels are made generally as per IS-2063-2002.
- Made from Heat Treated Alloy Steel, case hardened to 58-60 HRC
- Test Mandrels Metric, SK, BT & other series are also offered.
- Provided with wooden storing case on request at extra cost.

STANDARD SIZES AVAILABLE		
Taper Mandrel	Length of Plain Diameter in mm	Parallel Mandrels (Ø x L in mm)
MT-2 to MT-6	300 / 500	Ø40 x 300/500/600
BT-30 to BT-50	300 / 500	Ø50 x 300/500/600
ISO-30 to ISO-50	300 / 500	Ø60 x 300/500/600
SK-30 to SK-50	300 / 500	Ø80 x 750/900/1000

Other sizes on request



Parallel Mandrel



Taper Mandrel



Special Mandrels

MICROFLAT SQUARE MASTER

Square Master is a user friendly and economical equipment for measuring Squareness. It consists of a very accurate and calibrated Cast Iron Column and a saddle sliding in vertical plane with a provision to hold dial gauges in front and lateral position.

Technical Data of Square Master		
Description	Model-300	Model-500
Travel (mm)	300	500
Squareness	3 µm	5 µm
Straightness	2 µm	3 µm
Lateral Squareness	3 µm	5 µm
Repeatability	± 1 µm	± 1 µm



MICROFLAT MASTER CYLINDERS / CYLINDRICAL SQUARE

They provide most reliable reference standards for checking squareness of vertical axis with reference to horizontal axis.

SALIENT FEATURES:

- Made generally as per IS-6952-1990
- Made from Alloy Steel, heat-treated for stability & wear resistance.
- Periphery precision ground to a fine surface finish.
- Ends are recessed and have lapped finish.
- Magnetic V-Slide for mounting dial gauge offered at extra cost.

Standard & Popular Sizes			
Length (mm)	Diameter Ø (mm)	Squareness (µm)	Flatness of end faces (µm)
300	95 / 85	5.0	2.5
450	120 / 85	7.0	4.0
500	120 / 85	8.0	4.0
600	140 / 85	9.0	5.0
750	150 / 100	11.0	6.0
1000	150	15.0	7.0

Other sizes on request



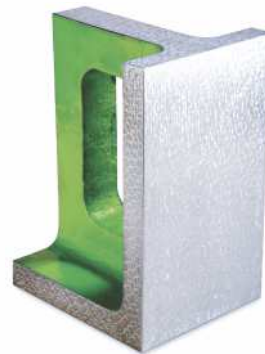
MICROFLAT CAST IRON SQUARE & RIGHT ANGLES

SALIENT FEATURES:

- Made from close grained Grey Iron Castings conforming to Grade FG-220 of IS-210. Casting duly stress relieved.
- Working surfaces and sides offered duly hand-scraped finish
- Triangular Square having two working surfaces provided (H x B & L x B) perpendicular to each other.
- Universal Knee Right Angle having Squareness & Parallelism within 10 microns per 100mm.



Triangular Square



Universal Right Angle

Standard Sizes of Triangular Square	
Sizes in mm (H x L x B)	Accuracy (microns)
300 x 200 x 50	3
400 x 250 x 50	4
500 x 300 x 50	5
600 x 400 x 50	6
800 x 500 x 50	8
1000 x 600 x 50	10

Standard Sizes for Universal Right Angle (L x W x H)	
100 x 100 x 125	100 x 100 x 150
100 x 125 x 150	100 x 125 x 200
125 x 200 x 300	150 x 175 x 250
150 x 200 x 250	150 x 150 x 200
200 x 250 x 300	200 x 250 x 400
250 x 300 x 400	300 x 300 x 600

Other sizes on request

Other sizes on request

MICROFLAT GRANITE SQUARES

Granite Squares provide one of the most reliable squareness inspection reference. Granite Squares are also used for checking squareness of measuring axis in Co-ordinate Measuring Machines and geometrical alignment of Machine Tools.

SALIENT FEATURES:

- Made from Indian Black Granite.
- Offered in 2-Face Finish (H x T & L x T) and 3-Face Finish (H x T, L x T & H x L) .
- Suitable holes are provided for weight reduction and to facilitate lifting and handling.
- Finer accuracies can also be achieved on request at extra cost.
- Wooden storing case is provided on request at extra cost.
- For special applications, other surfaces can also be made flat and square to required tolerance on request at extra cost.

STANDARD SIZES AVAILABLE	
Sizes (H x L x T) (mm)	Squareness (microns)
200 x 125 x 75	2.0
300 x 200 x 75	3.0
400 x 250 x 75	4.0
500 x 300 x 75	5.0
600 x 400 x 75	6.0
1000 x 600 x 100	8.0
1000 x 1000 x 100	10.0

Other sizes on request



MICROFLAT GRANITE 6-FACE MASTER SQUARE / CUBE

These are used mainly for gauging, inspection, squareness testing and for checking three axis geometric accuracies of Machine Tools.



Master Square



Master Cube



Special Purpose Granite Cube

SALIENT FEATURES:

- All individual faces Flat
- All adjacent faces mutually Square
- All opposite faces mutually Parallel
- Provided with suitable holes for lifting and handling.
- Finer accuracies can also be achieved on request at extra cost.

STANDARD SIZES AVAILABLE			
Size (mm) (L x W x T)	Accuracy (µm)		
	Flatness	Squareness	Parallelism
300 x 300 x 50	2	3	3
400 x 400 x 60	3	4	4
500 x 500 x 80	4	5	5
630 x 630 x 80	4	5	5
750 x 750 x 100	4	7	7
1000 x 1000 x 150	5	8	8

Other sizes on request

MICROFLAT CAST IRON MASTER SQUARE / CUBE

These are used mainly for gauging, inspection, squareness testing and for checking three axis geometric accuracies of Machine Tools.

SALIENT FEATURES:

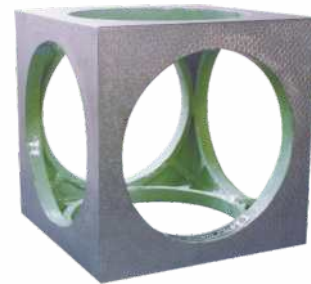
- Made from close grained Grey Iron Castings conforming to grade FG 220 of IS-210.
- All the faces offered duly hand-scraped finish
- Finer accuracies can also be achieved on request at extra cost
- Wooden storing case provided on request at extra cost

STANDARD SIZES AVAILABLE			
Size (mm)	Accuracy (microns)		
(L x W x T)	Flatness	Squareness	Parallelism
300 x 300 x 50	4	6	6
400 x 400 x 50	6	8	8
500 x 500 x 50	8	10	10
600 x 600 x 50	8	10	10
1000 x 1000 x 75	10	12	12
1200 x 1200 x 75	12	15	15

Other sizes on request



Frame Type



Cube Type

MICRO FLAT PRECISION ENGINEER'S SQUARES / TRY SQUARES

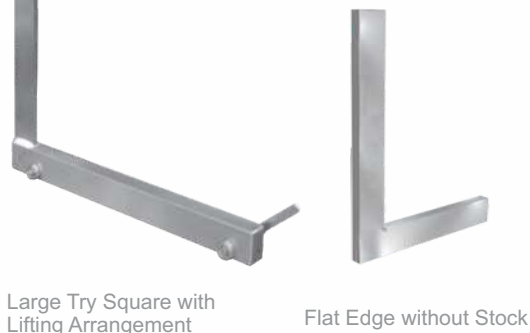
- Made generally as per IS-2103-1980.
- Working edges hardened to 56-58 HRC.
- Larger sizes (above 1200) can be provided with a lifting arrangement.
- Offered with a suitable storing case.

Flat Edge Try Squares with Stock						
Size in mm (L x W x T)	Squareness (µm)			Straightness (µm)		
	Gr-A	Gr-B	Gr-C	Gr-A	Gr-B	Gr-C
150 x 100 x 12	4	8	18	3	4	7
200 x 140 x 15	4	9	20	3	4	8
250 x 165 x 20	5	10	23	3	5	9
300 x 200 x 20	5	11	25	-	5	10
400 x 250 x 25	-	13	30	-	6	12
500 x 300 x 25	-	15	35	-	7	14
750 x 500 x 30	-	20	48	-	10	19
1000 x 750 x 40	-	25	60	-	12	24
1200 x 800 x 50	-	29	70	-	14	28
1500 x 1000 x 50	-	-	85	-	17	34
2000 x 1200 x 60	-	-	110	-	22	44



Flat Edge with Stock

Bevelled Edge



Large Try Square with Lifting Arrangement

Flat Edge without Stock

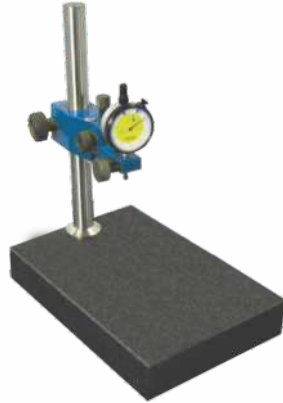
Flat Edge Try Squares without Stock						
Size in mm (L x W x T)	Squareness (µm)			Straightness (µm)		
	Gr-A	Gr-B	Gr-C	Gr-A	Gr-B	Gr-C
150 x 100 x 6	4	8	18	3	4	7
200 x 140 x 7	4	9	20	3	4	8
250 x 165 x 8	5	11	25	3	5	10
300 x 200 x 8	5	11	25	-	5	10
400 x 250 x 10	-	15	30		6	12

Other sizes on request

MICROFLAT COMPARATOR STANDS

SALIENT FEATURES:

- Base made from finely lapped Granite, housing made from Cast Iron and Pillar from Ground Steel.
- Main housing slides over the pillar and can be locked at any position.
- Fine adjustment in Bench Comparators is possible through auxiliary slides where a dial gauge is mounted.
- Bench Comparators have throat depth of 100 mm and accept jobs up to 200 mm, to suit 8 mm thimble for admitting dial gauge.
- Universal Comparators are provided without fine adjustment. Column spiral grooved pillar, mounted symmetrically allows the dial gauge to be positioned over virtually all points on the Base.
- Cast Iron Universal Comparators having hardened and ground serrated platform provided with lapped ground finish with spiral grooved column, pillar mounted symmetrically allows the dial gauge to be positioned over virtually all points on the base.



Granite Bench Comparator



CI Universal Comparator

STANDARD SIZES AVAILABLE

Granite Bench Comparator		Granite Universal Comparator		Cast Iron Base Comparator	
Base size (mm)	Flatness (microns)	Base size (mm)	Flatness (microns)	Base size (mm)	Flatness (microns)
200 x 150 x 50	2	300 x 300 x 50	3	200 x 150	5
250 x 250 x 50	2	400 x 400 x 50	3	250 x 250	5
300 x 200 x 50	3	500 x 500 x 80	4	300 x 200	5
300 x 300 x 50	3	630 x 630 x 80	5	300 x 300	5

Other sizes on request

MICROFLAT SINE BARS

SALIENT FEATURES:

- Made generally as per IS-5359-1987.
- Made from Alloy Steel Hardened & Ground to 55-60 HRC.
- Roller Center distance 100 mm, 200 mm, 300 mm, 400 mm & 500 mm.



PERMISSIBLE DIFFERENCE IN READINGS AT TEST POINTS 1 AND 2

Nominal size L _i (mm)	Max Deviation for setting Angle (µm)		
	15°	30°	45°
100	0.8	1.0	1.3
200	0.7	0.9	1.2
300	0.6	0.8	1.2
400	0.6	0.8	1.1
500	0.5	0.7	1.1

Other sizes on request

MICROFLAT SINE CENTERS

They are used for holding conical objects between Centers for Inspection of parameters like Taper Angle, Run-out.

SALIENT FEATURES:

- Made generally conforming to IS-5979-1981
- Centers attachments are made out of Grey Iron Castings, mounted on a Granite T-Slotted Beam
- Rollers and Dead Centers made from Hardened Alloy Steel
- Centers are mounted on V-support of the Center Body.
- Sine Center mounted on Granite Base Plate of Grade-0 accuracy having a serrated H & G platform for placing slip gauge.

Admit Between Center (mm)	Height of Center (mm)
200	75 / 150
300	75 / 150
400	75 / 150
500	75 / 150

Other sizes on request



MICROFLAT SINE TABLES

Sine Tables are extensively used with the aid of slip gauges for precise checking of tapers and also as a Fixture for Precision Machining and Grinding operation in Machine Shops, Tool Rooms and inspection Shops and Standard Rooms.

SALIENT FEATURES:

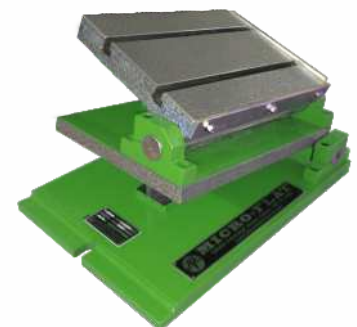
- Single Angle Sine Table made generally as per IS-5939-1970
- Compound Angle Sine Table made generally as per IS-5943-1970
- Base and swiveling face are made from Grey Iron Casting, Gr FG-220 of IS-210.
- Roller and Slip Gauge Platform made from Alloy Steel Hardened and Ground.
- Top surface can be provided with Tapped Holes or T-Slots or Magnetic Chuck



Single Angle (SST)

STANDARD SIZES AVAILABLE			
Model	Table dimension	Base dimension	C.D. of Rollers
SST/CST 01	150 x 100	180 x 150	100
SST/CST 02	200 x 150	230 x 200	150
SST/CST 03	250 x 150	280 x 220	200
SST/CST 04	300 x 200	330 x 250	250
SST/CST 05	400 x 250	430 x 300	300

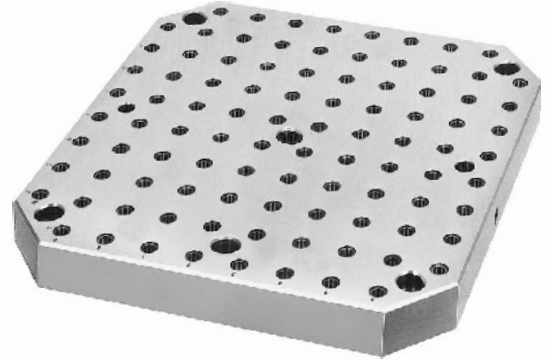
Other sizes on request



Compound Angle (CST)

MICROFLAT CAST IRON CLAMPING PALLETS (SUB-TABLES) FOR CNC MACHINES

C.I Pallet Sub Tables are used on machining centres as ready fixture plates for tooling up. They allow easy, faster and repetitive set up on machine pallet and reduces change over time thereby minimizing loss of operating time. They also help in protecting the surface of machine pallet and can also be used as sub-plates to provide space for work setting.



SALIENT FEATURES:

- Made from close grained Cast Iron Castings conforming to Grade FG-260 of IS-210 having hardness within 180-220BHN.
- Provided with hand-scraped finish for top, bottom and sides faces.
- Provided with T-slots of on top working faces in both the direction or with tapped at suitable pitch.
- Sides are hand-scraped for fixing abutment Plates.
- Counter bored holes provided for clamping with Machine Table.
- Flatness & parallelism within 0.010 mm/300 mm.
- Clamping Pallets as per customer's specification and drawings can also be manufactured.

Model No.	Overall size (mm)	Details of tapped holes		Details of T-slots	
		Size (mm)	Pitch (mm)	Size (mm)	Pitch (mm)
CP400/50H	400 x 400 x 50	16	80	-	-
CP500/50H	500 x 500 x 50	16	100	-	-
CP630/50H	630 x 630 x 50	16	125	-	-
CP800/50H	800 x 800 x 50	16	160	-	-
CP400/75T	400 x 400 x 75	-	-	18	80
CP500/75T	500 x 500 x 75	-	-	18	100
CP630/75T	630 x 630 x 75	-	-	18/22	125
CP800/75T	800 x 800 x 75	-	-	18/22	160

Other sizes on request

MICROFLAT CAST IRON CLAMPING CUBES (TOOLING BLOCKS/TOMB STONE)

Tooling Blocks simultaneously provide multiple faces to hold components accurately in vertical plane for machining on horizontal machining centres. Upon indexing of table a new face with new components is obtained for machining resulting into significant reduction of downtime by elimination of multiple set ups. They can also be used for vertical clamping of components on Horizontal Boring Machines, Milling Machines, Horizontal Jig Mills etc.

SALIENT FEATURES:

- Made from close grained Cast Iron Castings conforming to Grade FG-260 of IS-210 having hardness within 180-220 BHN.
- Provided with hand-scraped finish on all working faces
- Flatness, Squareness and Parallelism within 25 microns per 300 mm
- Pitch tolerance between holes/T-slots within 0.3 mm
- Vertical tenon slots in the Centre can also be provided on request at an extra cost.
- Sides of base are provided with hand-scraped for fixing abutment Plates.
- Counter bored holes provided to Base for clamping with Machine Table.
- Clamping cubes as per customer's specification & drawings can also be Manufactured.



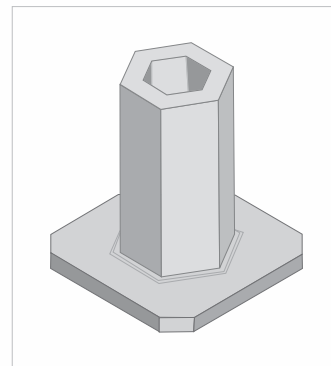
Square with Holes and T-Slots



Rectangular Plain Type



Square with Holes



Hexagonal Type

STANDARD SIZES IN DIFFERENT TYPES

Size of top Block		Size of top Block			
Base dimension in mm (L x W)	Overall height (mm)	4-face (mm)	2-face (mm)	4-face frame (mm)	2-face frame (mm)
400 x 400	450/500	275 x 275	400 x 150	250 x 250	400 x 75
500 x 500	550/600	350 x 350	500 x 200	350 x 350	500 x 75
630 x 630	600/700	450 x 450	630 x 250	450 x 450	630 x 100
800 x 800	700/800	500 x 500	800 x 300	500 x 500	800 x 100

Other sizes on request

MICROFLAT SINGLE SIDED FLAT LAPPING MACHINES

MICROFLAT Lapping Machines are single Plate Machines available in various Models suitable for vast majority of Lapping applications including high stock removal, ultra hard materials, precision work to light band tolerances.



Bench Top Type



Floor Mounting Type



Floor Mounting Type with
Pneumatic Pressure Weights

ADVANTAGES:

- Operationally fast, with high degree of repetitive results with no extra skill.
- Stressing of jobs eliminated as no holding force is required
- Odd shapes and different materials all can be lapped to a fine finish of 0.6 μm CLA and flatness to one light band.
- Variety of materials such as Cast Iron Soft/Hardened Steel, Stainless Steel, Bronze, Aluminum, Carbon, Plastics, Ceramics,
- Tungsten, Silicon, Stellite, Ferrite etc. can be lapped.

TYPICAL APPLICATIONS :

Mechanical seals, Piston Rings, Compressor Components, Pumps & Valves Components, Hydraulic Components, Gauge Blocks, Precision Spacers, Metal Cutting inserts, Bearing Races, Springs, Slitter knives, Fuel Injection Components, Ceramic, Seal & Valve components, Quartz Crystals, Precision Optics, Optical Flats, Metrological/Measuring Instrument components.

SALIENT FEATURES:

- Rigid Steel Construction ensuring rigidity and low vibrations in lapping operation.
- Specially graded Cast Iron Lapping Plates for proper embedding of the abrasive particles to ensure efficient material removal.
- Specially graded Cast Iron Conditioning Rings
- VFD Driven Main Motor for smooth start and stop operation
- Digital Timer for programming cycle time
- Slurry Tank with Slurry Feed Pump and Stirrer Motor for homogeneous mixture of abrasive with lapping vehicle
- Slurry Feed system using cyclic on/off timer for optimum use of slurry



Description	Model-400	Model-450	Model-600	Model-750	Model-850	Model-1000
Dia. of Lap Plate (mm)	400	457	610	750	850	1000
No. of Condi. Rings (mm)	3	3	3	3	3	3
I.D. of Condi. Rings (mm)	140	175	248	315	350	406
O.D. of Condi. Rings (mm)	176	210	286	356	400	457
Height of Condi. Rings (mm)	50	55	84	84	100	102
Lap Plate speed (RPM)	48/60	48/60	48/60	48/60	48/60	48/60
Main Drive (HP)	1	2	2	3	3	5
Pump Motor (HP)	1/8, 3 phase	1/8, 3 phase	1/8, 3 phase	1/8, 3 phase	1/8, 3 phase	1/8, 3 phase
Timer (Sec / Minutes)	0-999	0-999	0-999	0-999	0-999	0-999

Other sizes on request

ADVANTAGES:

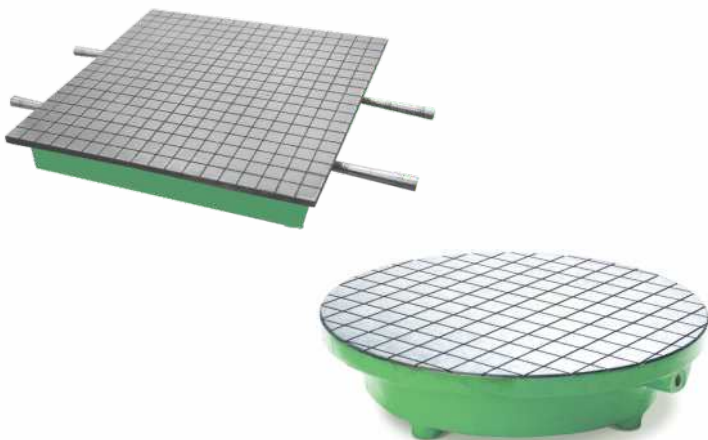
- Cast Iron Hand Lapping Plates
- Lapping Abrasive of various grits and Lapping Vehicle suitable for material to be lapped
- Diamond Lapping Paste
- Straightness Checking Gauge for Lap Plates
- Machine with Polishing Cloth
- Hand Polishing Table

MICROFLAT LAPPING PLATES

Cast Iron Lapping Plates are extensively used for accurate hand-lapping of ferrous and non-ferrous parts to improve flatness of the components under lapping.

SALIENT FEATURES:

- Made from Grey Iron Casting of Grade FG 220 of IS-210
- Offered in Square / Rectangular Type & Round Type
- Top surface provided with suitable grooves.
- Top surface offered duly hand-scraped/lapped finish
- M.S. Handles provided for sizes up to 630 x 630 mm
- Granite Lapping plates are also available.



STANDARD SIZES AND TOLERANCE OF FLATNESS

Square / Rectangular type		Round type	
Size in mm (L x B)	Flatness (microns)	Size in mm (Diameter)	Flatness (microns)
100 x 100	4.0	100	4.0
150 x 150	5.0	150	5.0
160 x 100	6.0	200	5.0
250 x 160	7.0	250	7.0
250 x 250	7.0	300	7.0
400 x 250	8.0	400	9.0
400 x 400	9.0	450	9.0
500 x 500	10.0	500	9.0
630 x 400	10.0	600	10.0
630 x 630	10.0	750	12.0
750 x 750	12.0	900	12.0
900 x 600	12.0	1000	14.0
1000 x 630	12.0	-	-
1000 x 1000	14.0	-	-

Other sizes on request

MONOCHROMATIC CHECK LIGHT

- Monochromatic Check light is required for gauging flatness of finished parts with the help of Optical Flats.
- Red band for high accuracy and blue band for normal accuracy requirements.
- It is essential that surfaces which are to be measured should be made reflective.
- Optical flat which is placed over the surface to be measured, will reflect the light emitted from the source, interference lines appear on the surface in various patterns and their deviation from the straight reference line depicts the extent of out of flatness of surface being measured.



OPTICAL FLATS

Optical Flats are used to inspect flatness of small components by observing fringe patterns on the part to be inspected when held under monochromatic light source. .

SALIENT FEATURES:

- Optical flats are made from BK-7 Grade A fine annealed material
- They are offered in two types i.e. Single sided and Double sided.
- Standard sizes available are 30 Ø, 50 Ø, 75 Ø, 100 Ø, 125 Ø and 150 Ø
- Accuracy offered are $\lambda/4$, $\lambda/6$, $\lambda/10$.
- Optical flats are offered in wooden storing cases.
- Other sizes and special sizes on request.

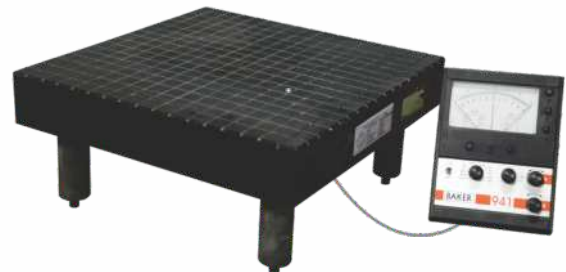


MICROFLAT FLATNESS CHECKING EQUIPMENT

An ideal, convenient and accurate device to check the flatness of small Machined parts, metal stampings, lapped parts, etc. where the conventional method of checking flatness is not feasible. Very simple and precise tool for Standard Room and in process quality checks. Equipment is offered with various sizes of Grade-00 accuracy serrated Granite Plates.

Size of Plate (mm)	Flatness (μm)
300 x 300 x 50	2.6
400 x 400 x 60	2.8
500 x 500 x 80	3.0
630 x 630 x 80	3.2

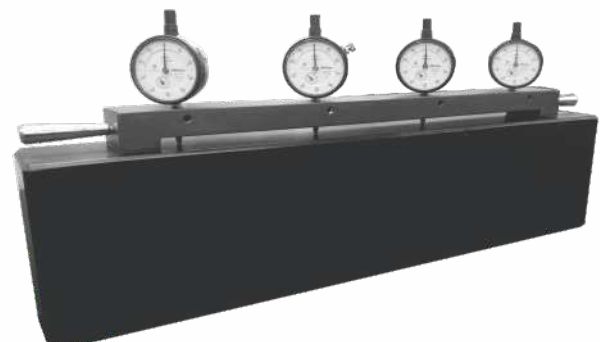
Other sizes on request



MICROFLAT STRAIGHTNESS CHECKING GAUGE

Used for inspection of Straightness of components. Consisting of Aluminum Hard Anodized Gauge with provision for mounting Dial Indicators and a precision Granite Setting Master. Gauge to be set on master and then placed on component under inspection to measure deviation in dial indicator.

- Offered in sizes from 400 mm up to 1000 mm.
- Offered with wooden storing case.

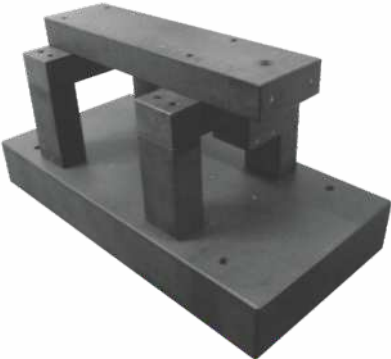


Microflat also undertakes design, development and manufacture of special purpose job holding fixtures, inspection fixtures and other custom built equipment as per customer drawings & specifications.

Special Granite Base Plates



Special Granite Assembly for Measuring Machines



Granite Plate with Holes & Slots



Custom Built Measuring Machines



Length Measuring Machines



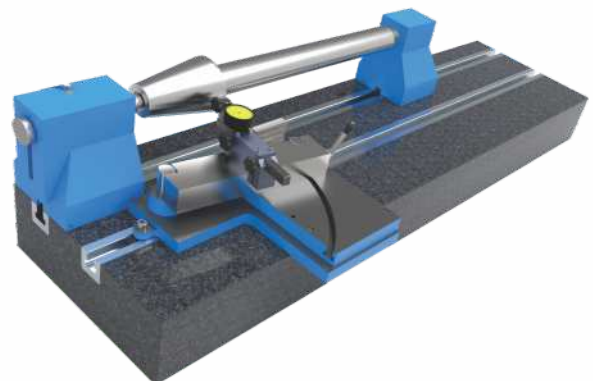
Parallelism Inspection



Taper Measurement



Bench Center with Motorized Centers for Lead Inspection of Shafts



Special Purpose Sine Center

CLIENTELE





Form tolerances

<p>Straightness</p>		<p>Straightness is a condition where an element of a surface or derived median line, is a straight line. A straightness tolerance specifies a tolerance zone within which the considered element of a surface or derived median line must lie. A straightness tolerance is applied in the view where the elements to be controlled are represented by a straight line.</p>	<p>Cylindricity</p>		<p>Cylindricity is a condition of a surface of revolution in which all points of the surface are equidistant from a common axis. A cylindricity tolerance specifies a tolerance zone bounded by two concentric cylinders within which the surface must lie. In the case of cylindricity, unlike that of circularity, the tolerance applies simultaneously to both circular and longitudinal elements of the surface (the entire surface).</p>
<p>Flatness</p>		<p>Flatness is the condition of a surface or derived median plane having all elements in one plane. A flatness tolerance specifies a tolerance zone defined by two parallel planes within which the surface or derived median plane must lie.</p>	<p>Profile of a line</p>		<p>Each line element tolerance zone established by the profile of a line tolerance requirement is two-dimensional (an area) and the tolerance zone is normal to the true profile of the feature at each line element. Uniform, bilateral, unequally disposed, or non-uniform tolerance zones can be applied to profile tolerances.</p>
<p>Roundness</p>		<p>Circularity is a condition of a surface where: A for a feature other than a sphere, all points of the surface intersected by any plane perpendicular to an axis or spine (curved line) are equidistant from that axis or spine by any plane passing through a common center are equidistant from that center. B for a sphere, all points of the surface intersected by any plane passing through a common center are equidistant from that center. A circularity tolerance specifies a tolerance zone bounded by two concentric circles within which each circular element of the surface must lie.</p>	<p>Profile of a surface</p>		<p>The tolerance zone established by the profile of a surface tolerance is three-dimensional (a volume), extending along the length and width (or circumference) of the considered feature or features. Profile of a surface may be applied to parts of any shape, including parts having a constant cross section, parts having a surface of revolution, or parts having a profile tolerance applied all over. Uniform, bilateral, unequally disposed, or non-uniform tolerance zones can be applied to profile tolerances.</p>

Position tolerances

<p>Parallelism</p>		<p>Parallelism is the condition of a surface or feature's center plane, equidistant at all points from a datum plane; or a feature's axis, equidistant along its length from one or more datum planes or datum axis. An orientation tolerance does not control the location of features. An orientation tolerance specifies a zone within which the considered feature, its line elements, its axis, or its center plane must be contained.</p>	<p>Position</p>		<p>Position is the location of one or more features of size relative to one another or to one or more datums. A positional tolerance defines either of the following: A a zone within which the center, axis, or center plane of a feature of size is permitted to vary from a true (theoretically exact) position. B (where specified on an MMC or LMC basis) a boundary, defined as the virtual condition, located at the true (theoretically exact) position, that may not be violated by the surface or surfaces of the considered feature of size. Basic dimensions establish the true position from specified datums and between interrelated features.</p>
<p>Perpendicularity</p>		<p>Perpendicularity is the condition of a surface, feature's center plane, or feature's axis at a right angle to a datum plane or datum axis. An orientation tolerance does not control the location of features. An orientation tolerance specifies a zone within which the considered feature, its line elements, its axis, or its center plane must be contained.</p>	<p>Coaxiality</p>		<p>Coaxiality is that condition where the median points of all diametrically opposed elements of a surface of revolution (or the median points of correspondingly located elements of two or more radially disposed features) are congruent with a datum axis (or center point). A coaxiality tolerance is a cylindrical (or spherical) tolerance zone whose axis (or center point) coincides with the axis (or center point) of the datum feature(s).</p>
<p>Angularity</p>		<p>Angularity is the condition of a surface, feature's center plane, or feature's axis at any specified angle from a datum plane or datum axis. An orientation tolerance does not control the location of features. An orientation tolerance specifies a zone within which the considered feature, its line elements, its axis, or its center plane must be contained.</p>	<p>Symmetry</p>		<p>Symmetry is that condition where the median points of all opposed or correspondingly located elements of two or more feature surfaces are congruent with a datum axis or center plane. Symmetry and concentricity controls are the same concept, except as applied to different part configurations. Symmetry tolerance can only be applied RFS.</p>

Run-out tolerances

<p>Radial run-out</p>		<p>Runout is a tolerance used to control the functional relationship of one or more features to a datum axis established from a datum feature specified at RMB. Circular runout provides control of circular elements of a surface. The tolerance is applied independently at each circular measuring position as the part is rotated the full angular extent of the surface about the simulated datum axis. Where applied to surfaces constructed around a datum axis, circular runout may be used to control the cumulative variations of circularity and coaxiality. When verifying circular runout, the indicator is fixed in a position normal to the tolerated surface.</p>	<p>Axial run-out</p>		<p>Runout is a tolerance used to control the functional relationship of one or more features to a datum axis established from a datum feature specified at RMB. Circular runout provides control of circular elements of a surface. The tolerance is applied independently at each circular measuring position as the part is rotated the full angular extent of the surface about the simulated datum axis. Where applied to surfaces constructed at right angles to the datum axis, circular runout controls circular elements of a plane surface (wobble). When verifying circular runout, the indicator is fixed in a position normal to the tolerated surface.</p>
<p>Total radial run-out</p>		<p>Total runout provides control of all surface elements. The tolerance is applied simultaneously to all circular and profile measuring positions as the part is rotated 360° about the datum axis. Where applied to surfaces, constructed around a datum axis, total runout may be used to control cumulative variations such as circularity, straightness, coaxiality, angularity, taper, and profile of a surface.</p>	<p>Total axial run-out</p>		<p>Total runout provides control of all surface elements. The tolerance is applied simultaneously to all circular and profile measuring positions as the part is rotated 360° about the datum axis. Where applied to surfaces at right angles to a datum axis, total runout controls cumulative variations of perpendicularity (to detect wobble) and flatness (to detect concavity or convexity).</p>

Notes :





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• Due to constant developments, specifications & designs are subject to change.