

TRI-STATE INSTRUMENT SVC, INC

8411 Clinton Park Dr.
FT WAYNE, IN
260-456-4545

CALIBRATION RATE POLICY AND PRICING 2023

Typically, compliance with ISO-900x and IATF 16949 specifications require LONG FORM calibration reports in the following formats.

Format #1 -- Before Adjustment or 'As found' with actual readings
Format #2 -- After Adjustment or 'After Repair' with actual readings or with maximum out-of-tolerance specifications stated on the Compliance Report.

LONG FORM calibration reports include nominal checkpoints or sizes and actual deviation from nominal data or actual size data. This report contains actual readings representing the actual size or accuracy of a gage; this type of a report is not a Compliance report.

The prices quoted in this list are for only one calibration report per gage. If a gage is checked for accuracy, found to be inaccurate, adjusted (by Repair or other means), two sets of calibration readings are necessary. One set of readings listing the 'As found' accuracy is required and a second set of readings listing the 'After Adjustment' accuracy is required. This would require increasing the Calibration prices quoted in this price list.

If 'As Found' and 'After Adjustment' calibration reports are necessary, the cost of the calibration will be 1.5 times the published price or as quoted.

The reason that our prices are for one set of calibration readings is that the gage may not need any adjustment and only one set of readings may be required.

All calibration reports comply with the minimum information requirements of ISO 17025, ANSI/NCSL Z540-1, and IATF-16949. Any additional customer specific requirements would result in additional charges.

**** IMPORTANT ****

There is a \$30.00 minimum charge for all Certification work. This minimum charge applies to invoice total not to individual gages.

NOTE: An '*' beside a group heading means that these items are included in our A2LA Accredited Scope.

We are Accredited to perform 'On-Site' certifications for many of the items contained in our A2LA Scope. Please inquire. All calibrations performed meet the requirements of ISO-900X or IATF-16949.

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CALIBRATION RATES

	PRICES
*ANGLE BLOCKS	
10 or 12pc Sets -----	150.00
2 pc Sets (45 & 60 Deg) -----	50.00
Individual -----	30.00
*ANGLE PLATES: 2 Faces up to 18": ---	100.00
*UNIVERSAL 6 Face up to 18": -----	125.00
*BORE GAGES, DIAL: (Single Head)	
.0005" Grad. Indicator -----	50.00
.0001" Grad. Indicator -----	52.50
*Bore Gages, (Multiple head type)	
526 MTI Series, Diatest, etc -----	50.00
plus \$9.00 per measuring head	
*BOREMATICS/BOREMICS (INGAGE, HOLTEST, ETC.)	
(Prices below include 1 display and 1 head)	
Note: Setting Rings Priced Separately	
.275" TO 4.0" (\$15.00 each addt. head) -----	50.00
4.1" TO 8.0" (\$20.00 each addt. head) -----	70.00
*CALIBRATION MASTERS:	
Mikemasters (0-1", 1-2", 2-3" SET) -----	90.00
Mikemaster - (SINGLE MEMBER) -----	45.00
Surveillance Masters (12" MAX O.D.) -----	25.00/STEP
Kalmaster 6" -----	120.00
Kalmaster 12" -----	185.00
Depthgage Master (6") -----	125.00
(12")-----	200.00
MTI Check Master	
12" -----	150.00
18" -----	200.00
24" -----	250.00
*CALIPERS: DIAL, VERNIER, & DIGITAL	
4" & 6" -----	22.00
8" -----	28.00
12" -----	39.00
18" -----	45.00
24" -----	60.00
36" -----	85.00
40" -----	110.00
48" -----	125.00
60" -----	150.00
72" -----	175.00

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*CHAMFER CHECK GAGE 90 deg. O.D./I.D.--	40.00
Chamfer Chek Rings (Exit Diameter)----	50.00/70.00 2 Sides
*COMBINATION SQUARE SETS	
(Sq.Hd, Protr., Cnt. Hd, & Blade)-	50.00
SQ HEAD OR CENTER HD w/wo BLADE-----	40.00
PROTRACTOR HEAD w/wo BLADE -----	50.00
SQUARES, DOUBLE (LSS 13 Series) -----	50.00
PROTRACTORS (LSS C19, C183, C182, 493-	50.00
*DIAL INDICATOR CALIBRATORS:	
MTI 521 SERIES	
0-.050" -----	200.00
0-.200" -----	290.00
All 0-1" Mechanical Mic Head Type	
(MTI 170 Series, LSS 716 Series) ----	175.00
All 0-1" Digital Mic Head .00005" Res.--	195.00
All 0-2" Digital Mic Head .00005" Res.--	300.00
BOECKELER 0-1" Dig. Mic Head .00001" Res.-	250.00
*GAGE BLOCKS: (Single Center Reading only) (\$35.00 min.)	
(measuring uncertainty is (3.8+.5L)uin) up to 4"	
Price for Gage block sets (9pc and larger)-	3.75ea
Non-set price (individual blocks) -----	12.50ea
*HEIGHT GAGES: DIAL, VERNIER & DIGITAL	
up to 12" -----	50.00
18" -----	60.00
24" -----	70.00
36" -----	85.00
40" -----	125.00
48" -----	145.00
60" -----	160.00
ALL .0001 and .00005" Resolution	
12" -----	100.00
18" -----	125.00
24" -----	155.00
24" MTI LH600 -----	275.00
*HEIGHT MASTER TYPE GAGES:	
Starrett DIGI-CHECK (12")-----	200.00
MTI Heightmaster (12")-----	200.00
B & S HITE-ICATOR (12")-----	200.00
18" Versions of Above -----	250.00
24" Versions of Above -----	300.00
6 & 12" RISER BLOCKS -----	60.00

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*INDICATORS: DIAL (AGD 2 1/2 Revs. Type)	
.001", .0005", .00025" & .0001" Resolution Up to 1" Range (.001")-----	22.00
.00005" & .00002" Resolution -----	35.00
(Hysteresis Calibration for TIR) -----	50.00
*INDICATORS: DIAL LONG RANGE: 2" and Over	
.001 (2") -----	27.50
.001 (3") -----	32.50
.001 (4") -----	42.50
.001 (5") -----	40.00
.0001 (Over .050 to .100) -----	35.00
.0001 (Over .100 to .250) -----	40.00
.0001 (Over .250 to .500) -----	45.00
*INDICATORS: ALL Digital (up to 1.2 Range) --	35.00
*INDICATORS: ALL Digital (up to 2.0 Range) --	40.00
All Digital (above 2.0 range) --	55.00
*INDICATORS: TEST	
.001", .0005", & .0001" Resolution (Dual Direction Calibration) -----	32.50
(Hysteresis Calibration for TIR) -----	50.00
*LEVELS:	
Starrett 97 & 98 Series/ALL .005"/FT. -	40.00
Starrett 199 Master/ALL .0005"/FT -----	60.00
Master Level .0002"/10" -----	85.00
*MICROMETERS: Standard O.D. (All Types)	
1-6" -----	24.00
7-12" -----	30.00
13-18 -----	40.00
19-24 -----	55.00
25 & UP -----	3.00/IN
*MICROMETER, THREAD -----	34.00+10.00/Anvil Set
*MICROMETER (Hi-Accuracy 293-130 MTI)	
0-1" -----	75.00
*MICROMETERS, INDICATING (Etalon, 510 Series MTI)	
0-1" -----	45.00
1-2" -----	50.00
2-3" -----	60.00
3-4" -----	75.00

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*MICROMETERS, INDICATING (523 Series MTI)	
0-1" (0-25mm) -----	33.00
1-2" (25-50mm)-----	35.00
2-3" (50-75mm)-----	40.00
3-4" (75-100mm)-----	50.00
 *MICROMETERS, DEPTH: (As Found pricing)	
0-3 -----	40.00
0-4 -----	45.00
0-6 -----	50.00
0-9 -----	57.00
0-12 -----	65.00
Additional 10.00 per Re-Set Rod	
Certs with Re-Set Rods will be 'As Found' and 'As Left'	
 *MICROMETERS, INSIDE MICS:	
Micrometer Head (and 1 rod) -----	50.00
Additional Rods (each) -----	12.00
(Additional \$10.00 per Re-Set Rod Cert will be 'As Found and 'As Left'	
 Series 145 MTI -----	 30.00
 *INTERCHANGEABLE ANVIL MICROMETERS:	
0-4 -----	55.00
0-6 -----	67.50
Above 6" (Cost of minimum range micrometer plus 11.00 per anvil for each anvil in set.)	
Example 6" to 12" 6-7" mic ---	\$ 29.00
6 anvils ---	<u>66.00</u>
Total --	\$ 95.00 For 6-12" mic
Note: Most mics have standards	
 *BENCH MICROMETERS:	
Pratt & Whitney SUPERMIC -----	275.00
Mitutoyo 162 Series Bench Mic -----	250.00
Starrett 673 Bench Mic (w/Spindle Cert) --	250.00
Starrett 673 WIRE Bench Mic (NO SPINDLE CERT)	125.00
Fowler Mini-Horizontal -----	200.00
 *MICROMETER HEADS: (Regular Type)	
0-1" Mechanical Head -----	50.00
0-2" Mechanical Head -----	90.00
0-1" Digital (.00005" Res) -----	60.00
0-2" Digital (.0001" & .00005" Res.) ----	90.00

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*OPTICAL PARALLELS (Parallelism and Flatness)

Single Parallel -----	40.00
Set of 2 Parallels -----	70.00
Set of 4 Parallels -----	150.00

*STANDARDS, MICROMETER (End)

1-6" -----	15.00 ea.
Above 6"/150mm to 24"-----	10.00+1.00 per inch ea.
25 to 39" -----	10.00+1.50 per inch ea.
40 to 60" -----	70.00 ea.
*STANDARDS, THREAD MIC (1-5") -----	34.00 ea.

*PLUG GAGES, SMOOTH (WIRE, TAPERLOCK, TRI-LOCK): (per member) six sizes reported

.0040 - .020 dia. -----	22.00
.0201 - 2.00 dia. -----	15.00
2.0001 - 4.00 dia.-----	20.00
4.0001 - 8.00 dia -----	35.00
8.0001 -12.00 dia.-----	55.00
XX TOLERANCES over 1.00" -----	add 9.00
XXX MASTERS (Actual Size 5uIN Uncert. Under 1")	44.00

*PIN GAGE SETS (.0001 & .0002 TOLERANCE) (Single Size Reported)

*ALL Manufacturer's Sets (In Case)

To 1.00" Dia. ----- 1.00 per pin

*Misc Loose Pins - UNKNOWN TOLERANCE / NO MARKED SIZE

Checked to +/- .0001/.0002" only ---- 3.00 per pin

*Six Data Points per Member Reported ----- 10.00 per pin

NOTE: THERE IS A \$25.00 MINIMUM CHARGE FOR MISC PINS

NOTE: More Than 500 pins (in sets) ----- .85 per pin

*DELTRONIC DECIMAL CHECK SET:

Under .50" -----	9.50 per pin
Over .5001" -----	13.00 per pin

Note: Four data points per pin Reported

PRESSURE GAGES: 5000 PSI MAX.

UP TO 1500 PSI MAX -----	40.00
1510 - 3000 PSI MAX. -----	45.00
3010 - 5000 PSI MAX. -----	60.00

*PROTRACTORS, Precision (Bevel & Digital)- 60.00

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*RINGS, CYLINDRICAL (Smooth):			
.040 - .1249" -----	45.00		
.125 - 4.00" -----	24.00		
4.0001 - 8.00" -----	50.00		
8.0001 -12.00" -----	70.00		
RULES: (Non-CMM Checked) Compliance ONLY			
6"- 18" -----	25.00		
24"- 40" (600 TO 1000mm) -----	45.00		
Above 40" to 48" (to 1200mm) -----	60.00		
*RULES: (CMM Checked) 3000 mm Maximum		BASE PRICES	
Data Point Certification			
Up to 18" -----	100.00		
24" (600mm) -----	125.00		
36"-48" (1000mm - 1200mm) -----	150.00		
60"/72" (1500mm/2000mm) -----	180.00		
UP TO 3000mm) -----	250.00		
1 Side two sets of readings - BASE TIMES 1.5			
2 Sides 1 set of reading per side -BASE TIMES 1.75			
2 Sides 4 sets of readings (2 sets per side) - BASE TIMES 3.0			
*Rules: (Glass Scales)	INCH	INCH/MM	
2" to 6" -----	150.00	225.00	
8" to 12" -----	225.00	325.00	
13" to 16" -----	275.00	475.00	
17" to 24" -----	400.00	500.00	
*Magnification Checkers (per Mag. Scale)-	75.00		
Prices above for single set of readings			
*ACCURITE OR S-T Stage Calibration Master	275.00		
*S-T 10" Glass Magnification checker	165.00		
*S-T 20" Glass Magnification checker	275.00		
*S-T Ball Checker -----	125.00		
*SINE PLATE, COMPOUND -----	225.00		
*SINE BAR/PLATE (5" OR 10") -----	90.00		
*STRAIGHT EDGE - Up to 36" -----	50.00		
(Single Edge) Above 36" to 72" -----	75.00		
*SQUARES, (Precision)			
To 12" -----	50.00		
13-26" -----	60.00		

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*SQUARES, (Cylindrical)	
6 & 8" -----	75.00
12" -----	85.00
*SURFACE FINISH TEST PIECE (SINGLE PATCH)	50.00
*SURFACE FINISH TEST PIECE (DUAL PATCH)	60.00
(ADDITIONAL PATCHES \$15.00 EACH)	
*Surftest MTI 200/300 Series	
(DOES NOT INCLUDE TESTPIECE) -----	175.00
*Surftest MTI 400 Series	
(DOES NOT INCLUDE TESTPIECE) -----	225.00
*THREAD WIRES	
3 Pc SETS -----(PER PITCH) -----	24.00/Set
3 Pc WIRE SETS (IN HOLDER) (PER PITCH)--	30.00/Set
*THREAD PLUGS - Per Member (55 and 60 deg Thrd)	Long Form
Up to 1 1/2" -----	15.00
Over 1 1/2" To 4" -----	27.50
Over 4" -----	45.00
*THREAD RINGS - Per Ring (Standard Sizes only)	
Up to 1 1/2" -----	17.00
Over 1 1/2 to 4" (w/Customer SET PLUG)	35.00
Over 4" (w/Customer SET PLUG)-----	65.00
Solid Rings over .500" -----	75.00
PLEASE NOTE: On sizes for which a set plug is not in stock or is not furnished with the ring a special tooling charge will be quoted prior to calibration.	
Rings with Customer Setplug - Setplug will be checked for calibration also.	
*TAPERED PIPE THREADS - NPT, NPTF, ETC.	
Up to 2" Sizes (Per Member)	
Pipe Plugs -----	30.00
Pipe Rings -----	35.00
6-Step -----	35.00
Masters -----	QUOTE
*V-BLOCKS:	
Single V Only -----	50.00
Double V -----	75.00

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*MISC TOOLS:

1-2-3 Blocks (1-2-3) -----	33.00/BLK
1-2-3 Blocks (2-4-6) -----	35.00/BLK
201 Series MTI Snap Gage w/ind -----	55.00
270 Starrett Taper Gage -----	45.00
Adjustable Parallels (set of 6) -----	65.00
Blake CO-AX Type Indicator -----	35.00
Ball Type Plug Gage per member -----	22.00
Box Parallels (4 Sides) -----	75.00
Comtor Gage -----	40.00
CMM Reference Sphere (Diameter)-----	60.00
Film Standards -----	10.00ea
Fixed Snap Gage (Parallelism & Size) -	55.00
Groove Mic / Slotmaster -----	65.00
Intertest -----	55.00
Oditest -----	30.00
MuChecker (519-402 analog display) ----	175.00
Each LVDT extra -----	50.00
Radius Gages (26 pc set) -----	130.00
Single Range Digital Display w/Cartridge	
Head - includes Adj. Gaining -----	100.00
Thickness Gages (Per Leaf)-----	3.50
V-Anvil Micrometer 1" and 2" -----	40.00
3" and 4" -----	50.00
above 5" -----	60.00
7218 Mitutoyo Dial/Digital Depth Gage	47.50
7304 Mitutoyo Dial/Digital Thickness Gage	40.00
Gage Blocks 5 to 12 inch -----	30.00 ea

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SURFACE PLATE CALIBRATION AND RESURFACING

The following is the pricing for calibration and resurfacing of all granite surface plates. All plates will be either calibrated or resurfaced to tolerances of overall unilateral flatness and repeat readings as currently specified in Federal Standard GGG-P-463c and all calibration is traceable to the National Institute of Standards and Technology.

Calibration (Traceable to N.I.S.T.) ----- 4.00 sq. ft.

Resurfacing:

AA (Laboratory Grade) ----- 20.00 sq. ft.
A (Inspection Grade) ----- 15.00 sq. ft.
B (Tool Room Grage) ----- 12.00 sq. ft.

Resurfacing includes the Calibration Charges.

MINIMUM CHARGE PER PLATE ----- \$25.00

MINIMUM INVOICE AMOUNT ----- \$125.00*

*Travel charges will apply in addition to the minimum invoice amount depending on your Location ----- Please Inquire.

TRI-STATE INSTRUMENT SVC does NOT do the resurfacing NOR the calibration of the plates. We represent a company that meets our standards of workmanship. The above charges are exactly the same as would be quoted by the company that does the calibration and resurfacing.

Since many times the travel charges are fairly steep, we act as an agent in lining up several different companies that all need their plates surfaced or calibrated at the same time. This way the travel charges may be spread out among different companies thereby saving you money.

Your may send your purchase order to us and we will advise when the next time the resurfacing people will be in the area. Of course it is always possible to have them in for just your plates as well.

On your order please state the number, size, and grades of your plates.

TRI-STATE Does represent several Granite Surface Plate companies offering a complete line of Granite products and we would be happy to quote on any needs that you might have.

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OPTICAL COMPARATOR: CALIBRATION AND CERTIFICATION RATE

PER SERVICE CALL:

BASIC CALIBRATION RATE: \$175.00 MINIMUM CHARGE
ADDITIONAL CALIBRATIONS LABOR RATE: \$130.00 PER HOUR
TRAVEL TIME RATE: \$130.00 PER HOUR (Mileage included)
MINIMUM CHARGE: \$260.00 (Including travel time)

BASIC RATE INCLUDES THE FOLLOWING:

1. External clean-Up of machine necessary to check accuracy only.
2. Minor repairs and adjustments necessary to check accuracy or to enhance function.

NOTE:

Your charge for more extensive repairs, or time consuming calibration or multiple comparators will be will be billed at \$130.00 Per Hour for the TOTAL TIME Spent (including travel time) and the \$260.00 MINIMUM Charge will be waived.

If estimated travel and labor time exceeds 12 hours and an overnight stay is required, expenses for meals and lodging may be charged (at ACTUAL COSTS). If no overnight stay is required, all time OVER 8 Hours will be billed at \$195.00 per hour.

PLEASE NOTE:

WE ARE A2LA ACCREDITED TO PERFORM OPTICAL COMPARATOR CALIBRATIONS ONSITE.

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AT CUSTOMER'S PLANT CALIBRATION

Tri-State Instrument Service, Inc. also will do calibration of your gages at your facility. Not all gages can be checked for accuracy at the customer's facility. These gages include Master gages used to check the accuracy of other production gages (gage blocks, micrometer standards, calibration testers etc.), and gages that require additional masters that are not easily transportable. Such gages are O.D. plug gages, ring gages, thread gages, V-blocks, angle plates, etc. Gages such as height gages can only be certified for accuracy if the surface plate has VERY recently been Certified and it is a Grade A or better plate.

The customer must provide:

1. A clean well lighted work place for the technician to work in.
2. The gages to be checked must already be at that area or a person must be provided to go and get the tools and bring them to that area.

All gages to be certified should be serialized or in some way be uniquely identified.

The in-plant work performed will be to do minor cleaning of gage (enough so that it can be checked for accuracy), minor repairs and adjustments (if needed to check the accuracy), checking the gage accuracy by comparison to a 'Known Size' master or calibration checker which has had the accuracy Certified traceable to the National Institute of Standards and Technology.

Charges for in-plant certification of accuracy are:

- \$115.00 per hour in-plant time
- \$115.00 per hour travel time - portal to portal (includes mileage.)
- \$ 9.00 per tool Long Form Certification (labor to provide finished per tool paperwork)
- \$115.00 Minimum billing per visit not including travel time.

Exact quotations of cost are not entirely possible since there is no set way to predict how bad or how good the customer gages are, how long the technician must 'wait' on gages to be brought to him, and how many questions the technician may have to answer. We have found however that the prices of 'in-plant' certification and 'at Tri-State' certification prices are very close to the same.

If estimated travel and labor time exceeds 12 hours and an overnight stay is required, expenses for meals and lodging may be charged at actual costs. If no overnight stay is required, all time over 8 hours will be billed at \$172.50 per hour.

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Calibration (A2LA Accredited)

Plates 24"x 24" and under -----	\$100.00 ea.
Plates Larger than 24"x 24" up to and including 48"x 48" -----	\$175.00 ea.
Plates Over 48"x 48" -----	Quote

MINIMUM INVOICE AMOUNT ----- 150.00*

*Travel charges will apply in addition to the minimum invoice amount depending on your Location ----- Travel is billed at \$130.00 per hour portal to portal. Estimates of travel time are available.

TRI-STATE INSTRUMENT SVC, Inc. DOES NOT resurface granite plates.

We do represent a company that meets our standards of workmanship. The company that we represent is not an Accredited company. Certification from this company does not meet the minimum requirements of QS-9000. However, combining this company's re-surfacing with our Certification does meet all ISO-900x, iatf-16949, ANSI-Z540-1, ISO-17025, and QS-9000 minimum requirements.

Since, many times the travel charges from the company that does the lapping, can be fairly steep, we act as an agent in lining up several different companies that all need their plates re-surfaced. This way the travel charges may be spread out among different companies thereby saving you money.

If you do not wear you plates very much, but are required to yearly or bi-yearly have the plates calibrated, Tri-State Instrument Svc can come to your plant and calibrate your plates. Arrangements can then be made to have any plates that do not meet your specifications re-lapped at a later date.

On your order, please state the number, size, and grades of your plates.

TRI-STATE INSTRUMENT SVC represents several Granite Surface Plate companies offering a complete line of Granite products and we would be happy to quote on any needs that you might have.