

Busch Precision Tooling

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For Modern Technology

BUSCH PRECISION EQUIPMENT

can help you...

Improve manufacturing efficiency and quality • Reduce costs and increase profits

Worldwide consumer preference for better products and the accompanying development of international quality standards demands meticulous attention to accuracy in all phases of manufacturing.

This catalog describes over 300 standard types and sizes of basic precision equipment designed to:

- ▲ Facilitate layout of tooling
- ▲ Speed production and assembly
- ▲ Simplify and speed inspection
- ▲ Provide quality assurance

In addition to the standard items illustrated in this catalog, we also design and manufacture custom equipment to meet special applications.

We also recondition worn or repair damaged equipment. This can be a wise financial move in that regrinding out-of-tolerance items can be accomplished at considerable savings over replacement cost. Reconditioning will greatly extend the life of your investment and contribute to your profitability. Your inquiries are invited and will receive a prompt response.

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Hartford, WI 53027

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QUALITY ASSURANCE & PRODUCT SATISFACTION

Since 1907, BUSCH has been serving industry's basic precision equipment needs. As a diversified full-service machine center, as well as a

manufacturer of precision equipment, we know and use the products. Every effort is made to provide the highest quality products consistent with cost and material availability. **Each item is carefully inspected and calibrated to insure conformance to specified tolerances and for compliance with all recognized standards.** Inspection and calibration are performed by qualified technicians using appropriate state-of-the-art instrumentation.

Certification of Accuracy is available for any item on request and such certification is traceable to the National Institute of Standards and Technology (NIST). Detailed information on our calibration and inspection procedures and instrumentation can be found on page 19.

For your added assurance, every product carries the BUSCH PRECISION guarantee. If you are not entirely pleased with your purchase, any problem will be resolved to your satisfaction or your purchase price refunded upon return of the product.

Customer satisfaction is more than just words at BUSCH PRECISION; it describes our way of doing business.

We are not satisfied until you are!



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SURFACE FINISHES AVAILABLE

ALUMINUM – CAST IRON – STEEL PRODUCTS

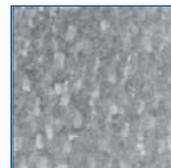
GROUND



A smooth finish of 16 to 32 RMS* produced on state-of-the-art precision surface grinders by skilled technicians. This precision ground finish is most commonly furnished. It is ideal for precision layout, gaging, inspection work and facilitates the use of all types of calibration instruments. This finish provides accuracies in tenths of thousandths (.0001") in flatness, straightness, squareness and parallelism. Super finishes of 8 RMS* or better can be provided at additional cost.

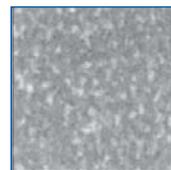
HAND SCRAPED

Achieved by skilled artisans using both power and hand manipulated scraping tools, removing flakes of metal to provide a given number of spotting cavities per square inch. This finish is used on tools used for spotting and checking ways on various machine tools and slides. It is normally furnished in two grades.



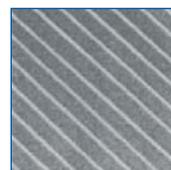
Commercial Fed. Spec. Grade B

Providing 8-11 cavities per square inch with a 10 to 40% bearing.



Fine Fed. Spec. Grade A

Providing 15-18 spotting cavities per square inch with a 20 to 40% bearing.



PLANER

Produced by skilled technicians on planning equipment. It rates 63 RMS* medium commercial finish. This finish is used only on relatively large, awkward or angular shaped items that are difficult to grind and where thousandth accuracies are adequate.

*RMS—A roughness height rating. It is the abbreviation for root mean square and is a measure of surface roughness in terms of the arithmetic average of the squares of the variances in a given surface. (Fed. Spec. Mil. Std. 10A)

SURFACE PLATES – STANDS

1000 SERIES – CAST IRON SURFACE PLATES

The ideal precision reference base for tooling, layout and inspection, BUSCH PRECISION surface plates offer outstanding features:

- ▲ Sturdy, modern design, plus minimal weight for handling ease.
- ▲ Made from quality, close-grained castings, specially heat-treated for stress relief, stability and wear resistance.
- ▲ Available in precision ground or hand scraped finishes in tenths of thousandths accuracies.
- ▲ Can be easily drilled and tapped for special gages and fixtures.
- ▲ Complies with all federal specifications.



Ground Surface Plate

Handles provided with Hand Scraped Finished Surface Plate



STOCK NO	APPROX DIMENSIONS - INCHES				ACCURACY		APPROX WT LBS
	W	L	H	TT*	GROUND	SCRAPED	
1000	3	5	1	.75	.0002	.0002	5
1005	8	12	2.5	.5	.0002	.0002	25
1008	10	15	4	.75	.0002	.0002	55
1010	12	12	4	.75	.00025	.0002	60
1013	12	18	4	.625	.00025	.0002	85
1014	12	24	5	.75	.00025	.0002	130
1022	14	18	5	.75	.00025	.0002	120
1027	16	22	4	.75	.00025	.0002	135
1030	18	18	5	.75	.00025	.0002	140
1031	18	24	6	.75	.00025	.0002	180
1033	18	36	6	1	.0005	.00035	280
1050	24	24	7	.75	.0005	.00035	345
1052	24	36	7	1	.0005	.00035	525
1054	24	48	7	1	.0005	.00035	640
1055	24	60	8	1	.0005	.0004	870
1061	30	36	7	1.25	.0005	.00035	655
1070	36	36	8	1.25	.0005	.00035	900
1071	36	48	8	1.5	.00075	.00035	1250
1072	36	60	9	1.5	.00075	.0004	1500
1074	36	72	9	1.5	.001	.0004	1860
1080	48	48	10	1.5	.001	.0006	1450

*Top Thickness

HEAVY-DUTY STEEL STANDS

For all larger surface plates, these stands are custom designed and fabricated to provide the proper support essential to maintain the precision tolerances required for today's high quality standards. Retaining lips hold the plate securely in place and there are leveling screws in each leg. Stands can be furnished with heavy-duty casters. Orders should specify the exact working height desired – from floor to the top of the surface plate.



Ground Finish Surface Plate on Stationary Stand

LAPPING BENCH PLATES

1200 SERIES – LAPPING PLATES



The finest in precision

lapping equipment, BUSCH PRECISION Lapping Plates are of the same construction as the 1000 Series Surface Plates. Grooves are .078" W x .100" D on .531" centers.

STOCK NO	APPROX SIZE - INCHES			ACCURACY	APPROX WT LBS
	W	L	H		
1200	3	5	1	.00020	5
1205	8	12	2.5	.00020	25
1210	12	12	4	.00025	60
1213	12	18	4	.00025	85
1222	14	18	5	.00025	120
1227	16	22	4	.00025	135
1230	18	18	5	.00025	140
1231	18	24	6	.00025	180
1250	24	24	7	.00050	345
1252	24	36	7	.00050	525
1270	36	36	8	.00050	900

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
1515	12	18	2	60
1528	16	24	2	135
1530	18	18	2	100
1531	18	24	2	150
1550	24	24	3	190
1552	24	36	3	380
1562	30	48	4	600

1500 SERIES – GROUND BENCH PLATES

Top



Adaptable to numerous applications in layout, tooling/inspection work and wherever a convenient flat reference



Bottom

surface is required. Sturdy, ribbed construction provides a rigid, durable surface with minimum weight. Precision ground to an overall surface flatness accuracy of .0005".

1600 SERIES – DUPLEX BENCH PLATES

Feature two faces with strong internal ribbing that provides the strength for use on a work bench or counter top without affecting accuracy. Each surface has a flatness accuracy of .0003".

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
1608G	10	14	2.5	50
1608C	10	14	2.5	50
1608L	10	14	2.5	50



Lapped Face



Ground Face

ANGLE PLATES

2000 SERIES – TOOLMAKERS' KNEES

BUSCH PRECISION Toolmakers' Knees are designed for holding and checking work during layout, machining and inspection operations. Some have finished pads on the inside of each face to facilitate accurate clamping and references. **Finished edges permit side positioning.** Made from heat-treated, close-grained castings. **The knee face is precision ground square to the base within .0002" in 8".** Also available in hand scraped finished. No. 2003 features a slotted base with alignment keys and a T-bolt.



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2001	2.5	4	3	5
2003S	2.5	6	12	15
2005	4	8	21	55
2006*	4.5	5	8	20
2007*	5.5	7	10	25

*Includes double pads

2200 SERIES – INSIDE/OUTSIDE ANGLES

BUSCH PRECISION Inside/Outside Angles are among the most versatile of precision angles. Made from specially heat-treated, quality, close-grained castings. **Angles are rib-less with a machined relief in the interior angle enabling use of all precision ground faces.** The exterior and interior faces are ground square within .0005" in 8" and parallel within .0002" in 8".



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2204	4	4	4	10
2205	5	5	5	15
2212	7.25	8	6	30
2240	10	6	4	20
2242	10	7	10	60
2246	10	9	10	80
2260	14	12	14	140

2400 SERIES – STANDARD ANGLES - SINGLE RIB

BUSCH PRECISION Standard Angles provide convenience and versatility for holding and fixturing applications. Made from specially stress-relieved quality castings, **these standard angles are ground on all sides and edges with the faces only precision ground square within .0002" in 8".**



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2402	3	6	18	30
2404	4	4	4	10
2410	6	6	6	25
2415	6	8	10	50
2430	8	8	8	50
2433*	8	10	5	40
2435	8	10	24	150
2436	8	12	18	110
2439	9	8	16	90
2451	12	12	18	180

*Open-rib construction

2500 SERIES – STANDARD ANGLES - DOUBLE RIB

These angles are similar to the 2400 series, but with two support ribs to facilitate center holding and clamping. These angles are ground on all sides and edges. The faces are precision ground square within .0002" in 8".



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2538	9	7	8	40
2540	10	10	10	75
2550	12	12	12	100

Angle Dimension Sequence
Width = A Length of Base = B Height = C

ANGLE PLATES: SLOTTED AND T-SLOTTED

2700 SERIES – UNIVERSAL RIGHT ANGLES

Probably the most widely used type of precision equipment, BUSCH PRECISION Universal Right Angles are ideal for square and parallel references. Made of specially treated, close-grained quality castings, with all outside surfaces precision finished square and parallel, these angles can be used in any position. Offered in a wide range of sizes, these angles can be carefully fitted to almost any requirement. For special tooling and gaging applications, BUSCH PRECISION Universal Right Angles are often furnished with a hand scraped finish. Ground square and parallel to .0002" in 8".



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2703	3.75	4	5	10
2704	4	4	4	10
2705	4.5	4	5	15
2706	4.5	5	8	15
2707	5.5	7	10	35
2708	5.5	8	10	40
2710	6	6	6	20
2711	6	8	6	35
2712	6	6	10	35
2714	6	6	12	40
2716	6	8	12	45
2718	6	12	18	105
2732	8	9	16	95
2734	8	10	18	115
2736	8	12	24	175
2740	10	10	10	90
2752	12	12	24	260
2753	12	13	20	215
2756	12	18	36	515
2770	18	18	18	315

2800 SERIES – STANDARD ANGLES

Specially designed for checking the squareness of large work mounted on machine tables. BUSCH PRECISION Standard Angles are offered in tall, trim sizes. Made of specially treated close-grained castings, the face and base on these giant angles are precision ground square to .0002" in 8".



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
2818	6	18	36	160
2819	6	20	30	180
2829	6	30	30	240

3500-3800 SERIES – SLOTTED ANGLES

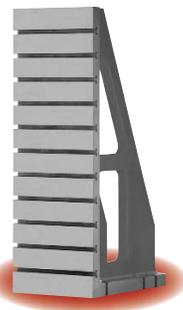
BUSCH PRECISION Slotted Angles provide convenient clamping slots for fast work positioning and machine set-ups and serves as an excellent base for permanent work fixtures. Made of specially quality treated close-grained castings, these angles are ground on all sides and ends with the faces only precision ground square and parallel to .0002" to 8".



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
3505	5	4	5.5	15
3528	8	6	6	25
3538	10	8	12	60
3545	12	5	6	35
3549	12	9	10	75
3550	12	12	12	95
3655	12	18	24	200
3854	12	14	30	300
3872	18	18	36	490
3874	18	24	36	800
3876	18	24	48	950
3886	30	18	36	960

3900 SERIES – T-SLOTTED ANGLES

BUSCH PRECISION T-Slotted Angles feature 1" T-slots on 6" centers providing great flexibility in holding heavy parts in a vertical plane. These angles can be customized with special T-slots and/or tapped holes. Stock #3972 is precision ground on the vertical face and is square to the base within .0002" in 12". The larger 96" angle has a planer finish with an accuracy of .0002" in 12". Both angles are furnished with two heavy-duty swivel hoist rings for controlled handling.

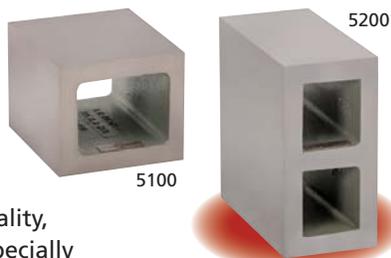


STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
3972	24	36	72	3300
3996	36	48	96	6800

Angle Dimension Sequence
Width = A Length of Base = B Height = C

BOX - CUBE PARALLELS

5100/5200 SERIES BOX PARALLELS



BUSCH PRECISION Box Parallels are made of quality, close-grained castings, specially heat-treated for stability and wear resistance. Widely used for set-ups in machining, layout and inspection, BUSCH PRECISION Box Parallels may be machined for special fixtures. **Precision ground on all exterior surfaces to listed dimensions.** Ground to $\pm .010$ " in size. Parallel and square to $.0002$ " in 8". Can be matched pairs.

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5102	2	2.5	5	10
5104	2	4	18	40
5112	3	3	6	15
5114	3	4	6	20
5116	3	4	10	30
5118	3	6	24	110
5120	4	4	4	15
5122	4	4	6	20
5124	4	4	12	40
5132	5	6	12	65
5140	6	6	6	30
5142	6	6	8	55
5144	6	6	16	85
5145	6	7	8	65
5164	12	12	24	525
5217	3	6	7	30
5224	4	6	6	25
5225	4	6	12	70
5226	4	10	18	150
5234	5	8	12	90
5235	5	10	10	95
5248	6	12	12	125
5249	6	14	16	200
5262	10	12	14	245

5400 SERIES - GIANT CUBE PARALLELS



Made from stability treated, quality, close-grained castings and specially designed for the automotive industry, this series is provided with tapped holes for lifting eyes ideal for heavy-duty applications. Precision ground on all six exterior surfaces, these Giant Cube Parallels can be used for parallel and square references in any position. Tolerances are $\pm .010$ in size, parallel and square to $.0002$ " in 8". Can be matched pairs.

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5412	12	12	12	200
5418	18	18	18	700
5424	24	24	24	1110

5500 SERIES - 3 DIMENSION PARALLEL BLOCKS



Made of alloy steel, hardened to 60 Rockwell C and precision ground on all six sides. These interchangeable blocks provide unlimited versatility in a wide variety of precision set-up and inspection applications.

STOCK NO.	APPROX SIZE - INCHES			SIZE IN.	PARALLEL	SQUARE	APPROX WT LBS
	W	L	H				
5505	1	1.5	3	$\pm .0002$ "	$.0001$ "	$.0002$ "	2
5510	1	2	3	$\pm .0002$ "	$.0001$ "	$.0002$ "	2
5515	1	2.5	3.5	$\pm .0002$ "	$.0001$ "	$.0002$ "	5

5300 SERIES - CUBE PARALLELS



Of similar construction to the 5100 and 5200 Series. BUSCH PRECISION Cube Parallels are **precision ground on all six exterior surfaces to listed dimensions within $\pm .010$ "**; **opposite sides parallel within $.0002$ " in 8"** and **with adjacent sides square to within $.0002$ " in 8"**. The Cube Parallel can also be used as an angle for square references.

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5330	5	5	5	15
5350	8	8	8	35
5360	10	10	10	110

STEEL PARALLELS

5600 SERIES STEEL PARALLELS

BUSCH PRECISION Steel Parallels are a most essential tool for the toolmaker, machinist and inspector. Normally sold and used in pairs, steel parallels are indispensable for setting up and checking work. Made of high quality alloy steel scientifically hardened for stability and wear resistance, BUSCH PRECISION Steel Parallels are precision ground on all four sides. Ground to .0002" in size, parallel to .0001" in 6" and $\pm .020$ " in length.

Special sizes available on request.



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5621	.25	6	.375	1
5622	.25	6	.5	1
5624	.25	6	.625	1
5626	.25	6	.75	1
5628	.25	6	1	1
5632	.375	6	.5	1
5633	.375	6	.625	1
5634	.375	6	.75	1
5636	.375	6	1	1
5641	.5	6	.625	1
5641S	.5	9	.625	1
5642	.5	6	.75	1
5643	.5	9	.75	2
5644	.5	6	1	2
5645	.5	9	1	5
5646	.5	12	1	5
5650	.75	12	1	10

STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5651	.75	9	1.25	5
5653	.75	9	1	10
5654	.75	9	1.5	10
5655	.75	12	1.25	10
5656	1	12	1.25	10
5662	1	12	1.5	15
5663	1	6	2	10
5664	1	12	2	15
5666	1	18	2	25
5667	1.25	12	1.5	15
5668	1.25	12	1.75	15
5669	1.25	12	2	20
5672	1.5	12	2	20
5674	1.5	12	3	35
5675	1.5	18	3	50
5680	2	24	3	85

5800 – PLANER/BORING MACHINE PARALLELS

BUSCH PRECISION Planer and Boring Machine Parallels are popular for setting up larger work on planers, boring mills, radial drills and surface plates. Made of quality, close-grained castings with a strong reinforced rib design, these parallels are specially heat-treated for stability. Ground to $\pm .010$ " in size, square and parallel within .0002" in 8".

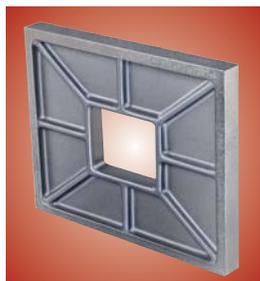


STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
5815	1.5	24	3	25
5824	2	24	4	50
5825	2.5	24	5	55
5836	3	36	6	130
5848	4	36	8	220

SQUARES – V-BLOCKS

7415 UNIVERSAL SQUARE

This unique tool can be used as a square as well as a parallel in any position. Made from specially treated close-grained castings, the BUSCH PRECISION Universal Square is machined on all sides, edges and then hand scraped to a tolerance of .0002" in squareness and parallelism. A fitted wood storage case can be provided at a nominal added charge. Also offered in ground condition.



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
7415	12	15	1.625	35

7500 SERIES – CAST IRON MASTER SQUARE

The BUSCH PRECISION Cast Iron Master Square is ideal for inspecting the horizontal and vertical alignment of machining centers. Made from close-grained cast iron and carefully stress relieved. It is available in precision ground or hand scraped finishes. Ground on all six surfaces with the face and base square.



STOCK NO.	APPROX SIZE - INCHES			ACCURACY	APPROX WT LBS
	W	L	H		
7536G	3	18	36	.0005"	150
7536S	3	18	36	.0002"	150

A7500 SERIES – ALUMINUM MASTER SQUARE

While identical in size to its cast iron counterpart, the BUSCH PRECISION Aluminum Master Square is made with a cast aluminum alloy body and bonded cast iron wear plates on the face and base. By combining the wear qualities of cast iron with cast aluminum alloy, the Aluminum Master Square provides precision accuracy with convenient handling and is available in both precision ground and hand scraped finishes. Ground on all six surfaces with only the face and base square.



For storage and transport, a specially fitted, cushioned case can be provided at additional cost.

STOCK NO.	APPROX SIZE - INCHES			ACCURACY	APPROX WT LBS
	W	L	H		
A7536G	3	18	36	.0005"	45
A7536S	3	18	36	.0002"	45

7800 SERIES CAST IRON V-BLOCKS

Made from specially treated close-grained castings, this V-Block has 5.25" to 12" diameter capacity. Precision ground on all finished surfaces, the sides, top and bottom faces are square within .0003". The V is central, parallel and square within .0003". Normally sold in pairs (size is matched within .0003").



STOCK NO.	APPROX SIZE - INCHES			APPROX WT LBS
	W	L	H	
7810	12	8	8	75

Angle Dimension Sequence
Width = A Length of Base = B Height = C

CAST IRON PARALLEL STRAIGHT EDGES

6100 SERIES – CAST IRON PARALLEL STRAIGHT EDGES

All BUSCH PRECISION straight edges feature the strong I-beam design with precision ground or hand scraped finishes in accuracies within the tolerances indicated below. You can select the most appropriate tool for your leveling or alignment application.

In addition to the wide selection of sizes, **please note the important quality features offered:**

- ▲ Strong I-beam design, cored and ribbed for rigidity and lightness
- ▲ Quality, close-grained castings, specially treated for stability
- ▲ Precision accuracies in tenths of thousandths
- ▲ Precision ground surface finishes of 16 RMS* or better
- ▲ Hand scraped finishes also available

In applications requiring longer length straight edges where convenience in handling is a concern, please check the specifications of our aluminum straight edge series found on page 10.

For storage and transport, specially fitted cases are available at additional cost for all straight edges. See page 12.



STOCK NO.	APPROX SIZE - INCHES			ACCURACY		APPROX WT LBS
	W	L	H	Parallelism	Straightness	
6102	1	24	2	.0002	.0002	10
6103	1.5	36	3	.0002	.0003	25
6104	1.5	48	3	.0002	.0004	35
6105	2	60	4	.0002	.0005	50
6106	2	72	4	.0003	.0006	55

*RMS—A roughness height rating. It is the abbreviation for root mean square and is a measure of surface roughness in terms of the arithmetic average of the squares of the variances in a given surface. (Fed. Spec. Mil. Std. 10A)

STRAIGHT EDGE ACCURACY

The overall accuracy of each straight edge is carefully inspected and calibrated to insure it falls within the tolerance specified. **In use, straightness is dependent upon proper support points for straight edges 60" and longer. Use of these support points minimizes the deflection due to gravity.**

60"	6 - 12"
72"	13 - 20"
96"	20 - 26"
120"	25 - 30"
144"	28 - 35"
168"	34 - 40"

To check the accuracy of a properly supported parallel straight edge, indicate one edge or face in the center; then turn the straight edge over and indicate the opposite edge or face in the same manner. Any gravitational deflection should be identical. By measuring the degree of deflection, proper compensation can be made in any alignment application.

To maintain precision tolerances, straight edges must be handled carefully to avoid shock damage. In storage, they should be stored with full horizontal support. Where possible, they should be hung vertically with proper safeguards.

ALUMINUM PARALLEL STRAIGHT EDGES - SCRAPING MASTERS

A6100 SERIES – ALUMINUM PARALLEL STRAIGHT EDGES

BUSCH PRECISION Aluminum Straight Edges are made to the same tolerances as Cast Iron Straight Edges (in five additional sizes). Starting with a cast aluminum alloy body, this series is specially treated for stress-relief and stability. After pre-machining, the top and bottom faces are fitted with cast iron wear plates which are then bonded to the aluminum body with super strong space-age adhesive. **At less than half the weight of cast iron, these aluminum straight edges combine light weight convenience with the wear qualities of cast iron.** Available in 10 sizes with precision ground or hand scraped finishes with faces parallel and straight within the tolerances indicated.

BUSCH PRECISION Aluminum Straight Edges provide the upmost in accuracy and convenience. For storage and transport, specially fitted, cushioned cases are available at an additional cost. See page 12.



STOCK NO.	APPROX SIZE - INCHES			ACCURACY		APPROX WT LBS
	W	L	H	Parallelism	Straightness	
A6100	1	18	2	.0002	.0002	3
A6103	1.5	36	3	.0002	.0003	20
A6104	1.5	48	3	.0002	.0004	20
A6105	2	60	4	.0002	.0005	30
A6106	2	72	4	.0003	.0006	50
A6108	2	96	4	.0004	.0008	60
A6110	2.5	120	6	.0004	.0010	70
A6112	3	144	8	.0004	.0012	100
A6114	3	168	8	.0004	.0014	175
A6116	3	192	8	.0004	.0016	135



6800 SERIES SCRAPING MASTERS

Cast with high quality iron, stress relieved, precision machined and hand scraped. Used in checking machine ways for flatness and angular accuracy, as well as for marking and scraping of machine ways and other 90° vee surfaces.

STOCK NO.	APPROX SIZE - INCHES			ACCURACY	APPROX WT LBS
	W	L	H	Straightness	
6824M	2.5	24	5.5	.0002	50
6824F	2.5	24	3.5	.0002	45
6848M	2.25	48	5.5	.0004	100
6848F	2.5	48	3.5	.0004	90
6872M	2.25	72	5.5	.0006	150
6872F	2.5	72	3.5	.0006	140



DOVETAIL – ANGLE – MACHINIST STRAIGHT EDGES

6600 SERIES – DOVETAIL STRAIGHT EDGES



BUSCH PRECISION Dovetails Straight Edges are widely used for checking the alignment and scraping in the dovetail surfaces of machine tool ways and slides.

Made from specially treated, close-grained castings, these tools are finish machined and hand scraped to flatness accuracies of .0001 per 12" or better. These "scraping masters" are normally supplied with a standard 45° angle. Other angles can be furnished at a nominal, added charge.

STOCK NO.	APPROX DIM. INCHES				OVERALL HEIGHT	APPROX WT LBS
	L	W	BEV. FACE	BASE HT.		
6618	18	2.875	1.375	1	4.5	20
6624	24	3	1.5	1.125	5.75	30
6630	30	3.25	1.375	1	6.25	40
6636	36	3.875	1.375	1	6.75	55
6648	48	4.25	1.75	1.25	7	85
6660	60	3.5	1.75	1.25	7.5	90
6672	72	4.5	1.75	1.25	8	140
6696	96	4.25	1.5	1.125	12	175

6700 SERIES – ANGLE STRAIGHT EDGES



BUSCH PRECISION

Angle Straight Edges are designed to serve the same function as the Dovetail Straight Edges, checking the alignment and scraping in the dovetail surfaces of machine tool ways and slides. These Angle Straight Edges are also made from stress-relieved, close-grained castings and feature cored finger tip cavities over their entire length for handling. These straight edges are drilled and tapped at each end for eye bolts or handles. Carefully machined and hand scraped, these scraping masters are finished to flatness accuracies of .0001" in 12" or better. Normally furnished with a 45° angle as standard, other angles can be furnished at a nominal, added charge.

STOCK NO.	APPROX. DIM. INCHES				APPROX WT LBS
	L	W	BEV. FACE	BASE HT.	
6706	6	3	2.125	1.5	5
6718	18	3	2.125	1.5	15
6724	24	3	2.125	1.5	20
6730	30	3	2.125	1.5	35
6736	36	3	2.125	1.5	40
6748	48	3.25	2.5	1.75	55
6760	60	3.375	2.375	1.875	70
6772	72	3.75	2.875	2	90



6900 SERIES – MACHINIST STRAIGHT EDGES

A handy steel straight edge designed for checking alignment and flatness. Made of heat treated alloy steel with flame hardened edges. These straight edges are precision ground on 5 surfaces to the overall accuracies shown. One edge is beveled on one side and also has a recessed scale for locating readings. Straight edges 96"-144" long have 3" cross drilled holes for lightening. For storage and transport, a specially fitted, cushioned case can be provided at additional charge.

STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	Parallelism	Straightness	
6903	.5	36	3	.0002	.0003	15
6904	.5	48	3	.0002	.0004	20
6905	.5	60	4	.0002	.0005	35
6906	.5	72	4	.0003	.0006	40
6908	.625	96	5	.0004	.0008	80
6910	.625	120	5	.0004	.0010	120
6912	.625	144	5	.0004	.0012	140

ALUMINUM, CAST IRON & STEEL PRODUCTS

With proper care and handling all BUSCH PRECISION products will provide virtually unlimited service. Please read and follow these care instructions to protect your investment and realize the maximum use and value from your equipment.

ALUMINUM, CAST IRON & STEEL PRODUCTS

CLEANLINESS is vital to insure a long and useful life for all types of precision equipment. It is also extremely critical to achieve accurate calibration readings from your instrumentation. Most important is to keep the precision finished surfaces free from dust, abrasive particles and chips along with the surfaces on which the equipment will be used.

RUST AND CORROSION caused by moisture, humidity and perspiration are a continuing concern for ferrous metals. Perspiration is particularly corrosive because of the salt content. Equipment should be carefully wiped after handling. When not in use it should be lightly oiled or coated with a rust preventative. For extended periods of storage of long-life rust preventative is recommended.

PERIODIC CLEANING of aluminum, cast iron and steel products with a specially formulated metal-cleaner polish is recommended. BUSCH PRECISION Industrial Metal Cleaner with silicone applied several times a year will keep precision surfaces free from corrosion and discoloration. Where corrosion has started, this cleaner-polish will remove it, restore and protect the finish.

CAREFUL HANDLING is also critical to preserving the accuracy of all precision equipment. Even seemingly minor bumps or damage can disturb tolerances measured in tenths. Equipment that has been dropped or otherwise subjected to a sharp blow or shock should be carefully inspected for surface damage and checked to determine if accuracy has been affected.

RECONDITIONING

RECONDITIONING can be an economical approach to equipment that has been damaged or subjected to advanced rust or corrosion. Whenever equipment is basically sound it can usually be restored to like-new condition at approximately one-half the cost of replacement.

CARRYING CASES

Protect and safeguard your precision equipment and its quality assurance with these attractive, durable, travel approved carrying cases. Form-fitting foam rubber cushioned interiors insulate your precision equipment from shock damage. These cases are custom designed and fitted to provide maximum protection in shipment and handling.



CARE PRODUCTS



STOCK NO.	DESCRIPTION	SIZE
PEIMC8	INDUSTRIAL METAL CLEANER	8 oz.
PEIMC32	INDUSTRIAL METAL CLEANER	32 oz.

RECALIBRATION

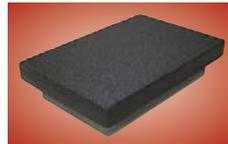
RECALIBRATION is a periodic requirement of all recognized quality assurance programs. All equipment used in close tolerance inspection must be recalibrated periodically in accordance with a prescribed frequency to verify it is performing within the range of specified accuracy. Equipment that fails to pass such accuracy checks can usually be restored to its original specifications at significant savings over replacement. *Your inquiries are invited.*

GRANITE SURFACE PLATES

All surface plate tolerances meet or exceed Fed. Spec. GGG-P-463C and MIL-STD45662A. A certificate of accuracy traceable to the National Institute of Standards and Technology, NIST, is furnished with each plate.

Along with high accuracies, please check the special characteristics that make granite plates a preferred precision reference base:

- ▲ Abrasive resistant
- ▲ Corrosion and rust proof
- ▲ Eye-ease soft, non-glare colors
- ▲ Less responsive to temperature/humidity
- ▲ Non-magnetic
- ▲ Smooth finish kind to gages
- ▲ Unaffected by body heat



Offered in 12 standard sizes, three ledge styles and three accuracy grades, in black, charcoal or pink granite, you can order the ideal combination of specifications to meet your particular inspection need. Inquires for special sizes are invited.

HEAVY DUTY STEEL STANDS



Proper support of granite surface plates is essential to maintain the specified accuracies. All granite plates are finish lapped on three-point support pads and these heavy-duty stands are custom designed to provide the proper three-point support required for each plate.

Stands are constructed for exceptional strength. Legs include leveling screws and leg length is designed to provide a 36" working height to the top of the surface plate unless otherwise specified. Standard finish is machine tool gray.

Special colors and casters are available at additional cost.

B – TOOL ROOM

PLATE SIZE		THICKNESS		WEIGHT		ACCURACY
IN	MM	IN	MM	LB	KG	IN
12 X 18	310 X 450	3	75	70	32	.00020
18 X 24	450 X 600	3	75	130	59	.00026
24 X 24	600 X 600	4	100	230	104	.00028
24 X 36	600 X 900	4	100	340	153	.00034
24 X 48	600 X 1200	6	150	690	311	.00060
36 X 36	900 X 900	5	125	650	293	.00040
36 X 48	900 X 1200	6	150	1100	495	.00060
36 X 60	900 X 1500	6	150	1275	574	.00080
36 X 72	900 X 1800	8	200	2040	918	.00100
48 X 60	1200 X 1500	6	150	1700	765	.00100
48 X 72	1200 X 1800	8	200	2720	1224	.00120
48 X 96	1200 X 2400	10	250	4540	2043	.00160

A – INSPECTION

PLATE SIZE		THICKNESS		WEIGHT		ACCURACY
IN	MM	IN	MM	LB	KG	IN
12 X 18	310 X 450	4	100	90	41	.00010
18 X 24	450 X 600	4	100	175	79	.00013
24 X 24	600 X 600	4	100	230	104	.00014
24 X 36	600 X 900	6	150	520	234	.00017
24 X 48	600 X 1200	6	150	690	311	.00030
36 X 36	900 X 900	6	150	780	351	.00020
36 X 48	900 X 1200	6	150	1100	495	.00030
36 X 60	900 X 1500	8	200	1700	765	.00040
36 X 72	900 X 1800	10	250	2550	1148	.00050
48 X 60	1200 X 1500	8	200	2300	1035	.00050
48 X 72	1200 X 1800	10	250	3400	1530	.00060
48 X 96	1200 X 2400	12	300	5440	2448	.00080

AA – LABORATORY

PLATE SIZE		THICKNESS		WEIGHT		ACCURACY
IN	MM	IN	MM	LB	KG	IN
12 X 18	310 X 450	4	100	90	41	.000050
18 X 24	450 X 600	4	100	175	79	.000065
24 X 24	600 X 600	6	150	275	124	.000070
24 X 36	600 X 900	6	150	520	234	.000085
24 X 48	600 X 1200	8	200	925	416	.00015
36 X 36	900 X 900	6	150	780	351	.00010
36 X 48	900 X 1200	8	200	1360	612	.00015
36 X 60	900 X 1500	10	250	2125	956	.00020
36 X 72	900 X 1800	12	300	3060	1377	.00025
48 X 60	1200 X 1500	10	250	2850	1283	.00025
48 X 72	1200 X 1800	12	300	4080	1836	.00030
48 X 96	1200 X 2400	14	350	6350	2858	.00040

GRANITE ACCESSORIES

Consumer demand for better quality products throughout the expanding global market is placing growing pressure on all manufacturers to implement tighter quality controls. BUSCH PRECISION recommends granite surface plates and accessories for greater accuracies required to comply with more exacting international standards now evolving throughout industry.

Compacted by tremendous geological forces, granite comprises great density and high compressive strength with a Rockwell C hardness of 80 plus. In addition, years of extreme temperature changes have provided complete stress relief. This ideal combination of hardness and stability make it possible to produce and hand lap granite surface plates to precision repeat reading accuracies in three grades:

Grade B Toolroom	—	.000100"
Grade A Inspection	—	.000050"
Grade AA Laboratory	—	.000025"

To protect these tolerances, all granite surface plates are made in thicknesses capable of supporting 100 pounds for each square foot of surface plate area. Also, loaded in the center without deflecting the plate more than one-half the flatness tolerance.

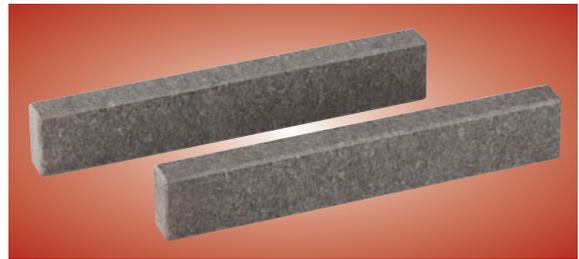
G-2200 SERIES – GRANITE ANGLE PLATES

Precision lapped in laboratory and inspection grades. Granite Angle Plates can be furnished with either two surfaces (base and face) or four surfaces (base, face and both ends) finished.



STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	LAB GRADE	INSP. GRADE	
G-2204	4	4	4	.000025" per 6"	.000050" per 6"	5
G-2210	6	6	6			20
G-2216	6	9	12			50
G-2232	9	9	9			80
G-2250	12	12	12			150

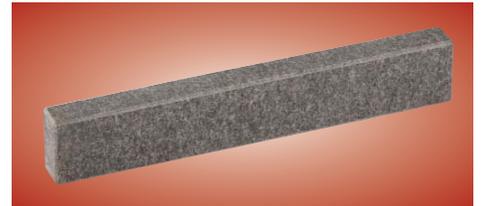
G-5600 SERIES – GRANITE PARALLELS



Precision lapped in matched pairs in laboratory and inspection grades. Granite Parallels can be furnished in matched pairs with either two faces or four faces parallel.

STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LB
	W	L	H	LAB GRADE	INSP. GRADE	
G-5648	.75	6	1	.000025" per 12"	.000050" per 12"	1
G-5664	1	12	2			5
G-5675	1.5	18	3			20
G-5682	2	24	4			40

G-6100 SERIES – GRANITE STRAIGHT EDGES



Precision ground and lapped to laboratory and inspection grades, these straight edges are finished on one narrow surface as standard. Both narrow surfaces can be finished in a straight and parallel plane when required.

STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	LAB GRADE	INSP. GRADE	
G-6102	2	24	4	.000025" per 12"	.000050" per 12"	15
G-6103	2	36	6			30
G-6104	2	48	8			60
G-6105	3	60	10			190
G-6106	3	72	12			270

GRANITE ACCESSORIES

G-7400 SERIES – GRANITE MASTER SQUARES

Precision ground and lapped to laboratory and inspection grades. Granite Master Squares are finished on all four 3" surfaces and one large face. They provide unlimited versatility for a wide variety of inspection applications



STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	LAB GRADE	INSP. GRADE	
G-7412	3	12	12	.000025" per 6"	.000050" per 6"	45
G-7414	3	14	14			65
G-7418	3	18	18			105
G-7424	4	24	24			240
G-7436	6	36	36			810

G-7800 SERIES – GRANITE V-BLOCKS

Precision ground and lapped in matched pairs to laboratory and inspection grades. Granite V-Blocks have nominal 90° V centered and parallel to the bottom with two sides and square to the ends.



STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	LAB GRADE	INSP. GRADE	
G-7803	3	3	3	±.000050" per 6"	±.00010" per 6"	5
G-7804	4	4	4			15
G-7806	6	6	6			40
G-7809	9	9	9			85
G-7812	12	12	12			155

G-7500 SERIES – GRANITE MASTER ANGLES – 2 FACE/3 FACE

Precision ground and lapped to laboratory and inspection grades. Granite Master Angles are the ideal tool for checking squareness.



STOCK NO.	APPROX SIZE – INCHES			ACCURACY		APPROX WT LBS
	W	L	H	LAB GRADE	INSP. GRADE	
G-7509	3	6	9	.000025" per 6"	.000050" per 6"	15
G-7518	3	9	18			40
G-7524	3	18	24			90
G-7536	5	24	36			450

GRANITE PRODUCTS

GRANITE PRODUCTS

are extremely hard and durable but must be handled carefully to avoid chipping and shock damage. While not subject to corrosion, granite products must be kept clean and used on clean surfaces to avoid scratches and wear that can alter the precision tolerances. An alcohol base Precision Surface Plate Cleaner is recommended for regular use in maintaining the cleanliness of surface plates and accessories. The cleaner is packaged in quart and gallon containers.



WHEN NOT IN USE, surface plates and accessories should be covered. Surface plates should not be used for storage. Especially heavy objects can disturb the flatness tolerance. As with all equipment used in close-tolerance quality assurance, granite plates and accessories should be recalibrated periodically to make certain the tolerances have not been disturbed by damaged and wear. This equipment can be reconditioned as well.

CERAMIC ACCESSORIES

For applications demanding extremely precise measurement, BUSCH PRECISION recommends Ceramic Gaging Products.

These laboratory Grade AA products are hand-lapped for flatness, squareness and parallelism of sides in accuracies of .000025" per 6" and 1 arc second. These ultra-precise accessories provide gaging and accuracies that will meet or exceed any quality assurance requirements.

Each product carries a certificate of calibration performed under specified environmental conditions. The certification conforms to MIL-STD 45662 requirements. It also provides documentation traceable to the National Institute of Standards and Technology (NIST).

Please note the special properties of these ceramic products that place them in a quality assurance super-class:

- ▲ 40% lighter than steel
- ▲ 40 times stronger than granite
- ▲ Non-corrosive
- ▲ Outstanding hardness (second only to diamonds)
- ▲ Totally non-porous and inert
- ▲ Twice the rigidity of steel

This unique combination of physical properties give ceramic gaging accessories the stability, durability and wear-resistance providing significant savings in time and money. The precision surfaces retain their accuracy for years, extending calibration frequency cycles and reducing maintenance costs.

For operations demanding ultra-precision inspection, Ceramic Gaging Products provide super-accuracy along with longevity dividends, making them a wise investment in quintessential quality assurance.

MASTER ANGLES – GRADE AA



Rugged and lightweight, these angles are ideal for close tolerance calibration, transferring squareness indications and straight line checks.

STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS
	W	L	H		
102292	2	6	9	3	5
102296	2	9	12	3	5
102300	3	12	18	3	30
102304	3	18	24	3	35
107479	3	18	36	3	50

SURFACE PLATES – GRADE AA

Featuring a modulus of elasticity 4 to 5 times that of granite, these plates are ideally suited to high volume and critical tolerance inspection systems.



STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS	FLATNESS
	W	L	H			
103441	2	6	9	1	10	.000038"
103443	2	9	12	1	20	.000050"
103445	3	12	18	1	40	.000075"
103447	3.8	18	24	1	65	.0001"
103449	3.8	18	36	1	95	.00015"

MASTER SQUARES – GRADE AA

Widely used to calibrate in horizontal or vertical positions, these squares accurately gage straightness, squareness and parallelism.



STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS
	W	L	H		
103432	2	6	6	5	10
103435	2	9	12	5	15
103437	3	12	18	5	35
103439	3	18	24	5	65
118123	3	18	36	5	80

CERAMIC ACCESSORIES

UNIVERSAL RIGHT ANGLES GRADE AA

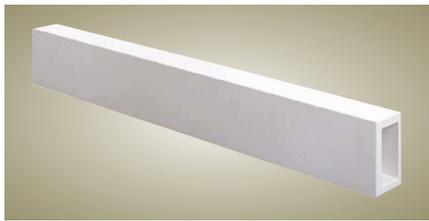
These versatile Universal Angles offer unlimited uses in machining and inspection applications.



STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS
	W	L	H		
102314	6	6	6	6	15
102415	9	9	9	6	30
103416	6	9	12	6	25
103420	9	12	18	6	50
103424	12	12	12	6	50

STRAIGHT EDGES – GRADE AA

Many times more stable than granite, these ceramic straight edges provide super tolerances for indicating straightness, flatness, leveling and positioning applications.



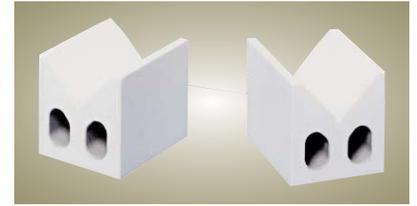
STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS	STRAIGHTNESS
	W	L	H			
102274	1.5	18	3	1	15	.000075"
102276	3	24	5	1	15	.000100"
102278	3	36	5	1	35	.000150"
102280	3	48	8	1	90	.000200"
102282	3	60	8	1	110	.000275"

CERAMIC PRODUCT CARE

Impervious to moisture, ceramics have great abrasive resistance but the surfaces can become soiled. To maintain the pure white appearance of ceramic products, periodic cleaning with a quality household ceramic tile cleaner is recommended.

V-BLOCKS GRADE AA

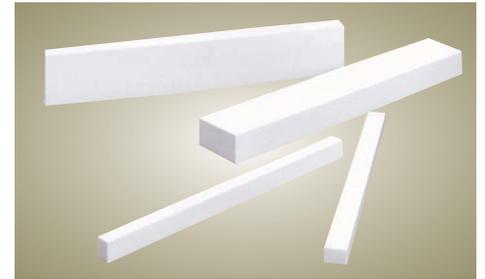
Offered in matched pairs and central within .0001" both perpendicular and parallel, these V-Blocks provide super wear, resistance at point of contact for cylindrical parts.



STOCK NO	APPROX SIZE INCHES			APPROX WT LBS	FLAT/ STRAIGHT	SQUARENESS
	W	L	H			
102310	2.5	2.5	3	2	.000025"	.000025"
102308	4	4	4	20	.000025"	.000025"
102306	6	6	6	20	.000025"	.000025"

PARALLELS GRADE AA

Dimensionally matched in pairs within .0001", the superior wear resistance of these parallels makes the inspection of unique shapes both accurate and repeatable.



STOCK NO	APPROX SIZE INCHES			FACES	APPROX WT LBS	FLAT/ STRAIGHT	PARALLELISM
	W	L	H				
102268	.75	8	1	4	1	.000016"	.000016"
102270	1	12	2	4	5	.000025"	.000025"
102272	1.5	18	3	4	15	.000038"	.000038"

CERAMIC GAGING

ECONOMY CARRYING CASE

Vinyl covered, heavy-duty hinges and clamps, metal corners, and form fitting foam rubber interior.



AIR TRAVEL APPROVED CASE

Heavy plastic covered, wing locks, piano hinge, recessed handles, form-fitting foam rubber interior that includes angle and valance on all edges.

CUSTOM EQUIPMENT/SERVICES

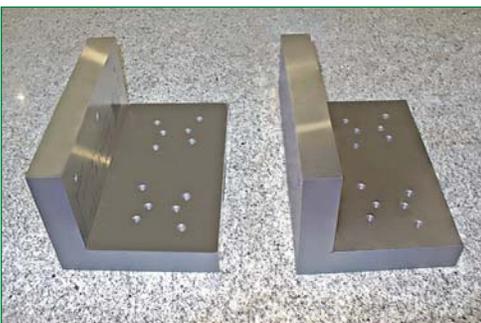
EQUIPMENT



70" Steel Custom Calipers



.375" x 3" x 60" Aluminum Straight Edge with cast iron wear strips



Matched pair of 4" x 4" x 6" hardened and ground steel. 6-sided angle plates with mounting holes



1.75" x 7.875" x 7.875" Box Levels



Three foot Cast Iron I-beam style straight edges, ground, with custom carrying cases. (2.5" x 3" x 36" LG)



6" x 6" x 1" Aluminum Master Square with cast iron clad wear strips

SERVICES

SCRAPING



Power-tool scraping to remove initial flakes of metal



Hand-scraping by a skilled artisan to provide spotting cavities

DRILLING



Custom drilling on a pink granite surface plate

RECONDITION/RECALIBRATION

INSPECTION CERTIFICATION – SATISFACTION

BUSCH PRECISION makes every effort to keep abreast of advances in the latest technological inspection equipment and to use that type best suited to each calibration requirement to insure compliance with applicable standards. **Certification of accuracy traceable to the National Institute of Standards and Technology (NIST) is available for any item on request.**

Inspections are performed by qualified technicians using appropriate state-of-the-art instrumentation and laboratory grade precision accuracy surface plates. With the growth of the global economy and the expanded use of international quality standards, BUSCH PRECISION is determined to keep pace with all the latest quality assurance standards.

In addition, we are dedicated to customer satisfaction. Our goal is to provide the highest quality equipment of its kind, the finest finishes and the greatest accuracies. Your goodwill is our most valuable asset. We want to earn and merit your complete confidence.

Whatever your needs, we stand equipped and qualified to meet them. **We are not satisfied until you are.**



Robert Kranski, Calibration Technician, inspecting a 48" x 96" x 15" thick Laboratory Grade Granite Surface Plates- using our Talyvel 4 Electronic Level System.

Machinists, Robert Behnke and Michael Giloy, inspecting a #6105 2" x 4" x 60" Cast Iron Parallel Straight Edge using appropriate support points on top one of our 36" x 144" x 18" thick Laboratory Grade Granite Surface Plates- using a Brown & Sharpe Micro-Hite Gage with computerized printout.



Peter Gies, skilled Production Engineer, recalibrating a 48" x 96" x 15" Laboratory Grade AA Granite Surface Plates with our Hamar Laser System. This system provides a clear picture of any alignment task, plus documents data in printed form. We verify the most demanding accuracies in flatness, straightness, squareness and parallelism.

FULL SERVICE MACHINE SHOP

- CAD - CAM engineering
- Certified calibration - Quality assurance
- Contract machining - Precision tooling
- Machine alignment
- Machine inspection - Diagnostics
- Machine rebuilding - Upgrading
- Machinery parts - Repairs, Replacement
- On-site service - On-site machining
- Preventive maintenance programs
- Welding, all types, metal - Stress relief



MACHINING

- ▲ CNC Cylindrical Grinding to 12" dia x 8 ft.
- ▲ CNC Horizontal/Vertical Milling Centers
- ▲ CNC Turning to 25" dia x 10 ft.
- ▲ Horizontal Boring/Milling 4,5,7" bars
- ▲ Keyseating/Slotting: all types, sizes
- ▲ Lathes to 40" dia x 26 ft.
- ▲ Precision Surface Grinding to 16 ft.
- ▲ Vertical Turning/Boring to 15 ft. dia



RELATED SERVICES

- ▲ Certified Calibration - Quality Assurance
- ▲ Cryogenic treatment to -180° F
- ▲ Dynamic Balancing - Vibration Analysis
- ▲ Engineering
- ▲ Laser Machine Alignment - Scraping
- ▲ Machine Rebuilding - Upgrading
- ▲ Machinery Inspections - Checks
- ▲ Thermal Assembly
- ▲ Welding - Straightening - Stress Relief



GENERAL SALES INFORMATION

MAILING/SHIPPING ADDRESS

BUSCH PRECISION
709 W. Wisconsin Street
Hartford, Wisconsin 53027

Office Hours: 7:30 a.m. – 5:00 p.m.
Mon. – Fri. Central Time
8:00 a.m. – 12:00 p.m.
Saturday Central Time

Telephone 414-403-7473
Email info@buschprecision.com
Facsimile 414-433-4839
Website www.buschprecision

ORDERS

Most orders are placed by telephone, email or facsimile. Every effort is made to verify the accuracy of all details. **Whenever possible, a written confirmation is recommended to insure your order is properly filled.**

TERMS/SHIPMENTS

Invoice terms are net, 30 days to approved credit. **Non-standard products require payment in full with purchase order before manufacturing begins. All prices are F.O.B. Shipping Point.** In the absence of special instructions, shipments will be made via UPS surface or truck depending on weight. Weights shown in this catalog or in our price list are approximate and may vary.

PACKAGING

All items are carefully packaged and cushioned to protect against damage in transit. This packaging meets or exceeds commercial standards. Export or other special packaging can be furnished at additional cost. All shipments are double checked for exact order quantity. →

→ SHIPPING/DAMAGE CLAIMS

Under ICC regulations, title and ownership pass to the consignee upon delivery to the carrier. It is important, therefore, to carefully inspect the condition of each shipment at time of receipt. Packages damaged by rough handling should be noted on the delivery receipt to document any possible product damage claim. Such claims must be filed by the consignee-owner. Please call if you need assistance.

RETURNS

Please request authorization to return any equipment for credit. For equipment correctly supplied according to customer order, a 20% restocking charge will be made to cover the cost of inspecting and repackaging. If reconditioning is required, the credit will also reflect the net cost of such work. **All equipment returned must be shipped with freight charges prepaid.**

BUYER WARRANTY

All new BUSCH PRECISION EQUIPMENT is warranted free of defects in material and workmanship for a period of one year from invoice date. Any equipment proving defective which was not caused by damage, misuse or improper maintenance will be repaired or replaced at our option. **Please notify us immediately of any problem so that the matter can be promptly resolved and corrective arrangements made. Your satisfaction and goodwill are important to us.**

PRODUCT DESIGN CHANGES

Our corporate policy of striving for excellence requires continuous examination of all products for possible improvements in design and manufacture. We reserve the right to make such improvements in a timely fashion. Design and product changes, therefore, may take place without notice and prior to the publication of a new catalog.



*Comprehensive service
to meet your
unique requirements*

**... whatever your needs,
WE CAN DO IT!**



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