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Certifications & Accreditations



China National Accreditation Service for Conformity Assessment

LABORATORY ACCREDITATION CERTIFICATE

(Registration No. CNAS L10847)

Metrology Laboratory of Qingdao MHC Industrial Supply Co., Inc.

(Legal Entity: Qingdao MHC Industrial Supply Co., Inc.)

No.115, Qiuyang Road, Chengyang Street, Chengyang District, Qingdao, Shandong, China

is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories/CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date: 2024-03-22

Expiry Date: 2030-03-21

Signed on behalf of China National Accreditation Service for Conformity Assessment 张朝华

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA).

The validity of the certificate can be checked on CNAS website at http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml



中国合格评定国家认可委员会

实验室认可证书

（注册号：CNAS L10847）

兹证明：

青岛美克精密机械有限公司计量实验室

（法人：青岛美克精密机械有限公司）

山东省青岛市城阳区城阳街道秋阳路 115 号，266109

符合 ISO/IEC 17025：2017《检测和校准实验室能力的通用要求》（CNAS-CL01《检测和校准实验室能力认可准则》）的要求，具备承担本证书附件所列服务能力，予以认可。

获认可的能力范围见标有相同认可注册号的证书附件。证书附件是本证书组成部分。

生效日期：2024-03-22

截止日期：2030-03-21

中国合格评定国家认可委员会授权人 张朝华

中国合格评定国家认可委员会（CNAS）组织开展认可监督管理并实施（CNACI）指导，负责实施合格评定国家认可制度。CNAS 签署国家互认协议（ILAC）和亚太认可合作组织（APAC）相互认可协议成员。

本证书和附属信可查验www.cnas.org.cn获认可的机构名录查询。



ISO/IEC 17025 认可证书

Name: Metrology Laboratory of Qingdao MHC Industrial Supply Co., Inc.

Address: No.115, Qiuyang Road, Chengyang Street, Chengyang District, Qingdao, Shandong, China

Registration No. CNAS L10847

Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

Effective Date: 2024-04-08 Expiry Date: 2030-03-21

SCHEDULE 5 ACCREDITED CALIBRATION AND MEASUREMENT CAPABILITY SCOPE

Note: The instruments with * represents onsite calibration can be performed.

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	Gauge Blocks	Length	V.R. of Gauge Blocks JJG 146,Geometrical Product Specifications (GPS) — Length standards — Gauge blocks ISO 3650,Geometrical Product Specifications (GPS) — Length standards — Gauge blocks DIN EN ISO 3650	0.5~100mm	U=0.08 μ m+0.8×10^-6n	Except for Coefficient of Linear Thermal Expansion	
				100~1000mm	U=0.1 μ m+1.2×10^-6n		
2	Gage Blocks	Length	GAGE BLOCKS AN AMERICAN NATIONAL STANDARS ASME B89.1.9	0.05~4 in	U=3 μ in+1×10^-6n	Except for Coefficient of Linear Thermal Expansion	
				4~20 in	U=4 μ in+1.1×10^-6n		
3	Plug Gages	Length	Measurement of Plain External Diameters for Use as Master Discs or Cylindrical	0.05~4 in	U=16 μ in+4×10^-6n		

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The scope of the accreditation in Chinese remains the definitive version.



ISO/IEC 17025 认可证书

名称：青岛美克精密机械有限公司计量实验室

地址：山东省青岛市城阳区城阳街道秋阳路 115 号

注册号：CNAS L10847

认可依据：ISO/IEC 17025:2017 以及 CNAS 特定认可要求

生效日期：2024 年 04 月 08 日 截止日期：2030 年 03 月 21 日

附件 5 认可的校准和测量能力范围

注：“测量仪器名称”栏仅显示所申请认可的项目可开展现场检测。

序号	测量仪器名称	被测量	校准规范	测量范围	扩展不确定度（k=2）	说明	生效日期
1	量块	长度	量块检定规程 JJG 146、产品几何技术规范一长度标准一量块 ISO 3650、产品几何技术规范一长度标准一量块 DIN EN ISO 3650	0.5~100mm	U=0.08 μ m+0.8×10^-6n	不包线膨胀系数	2024-04-08
				100~1000mm	U=0.1 μ m+1.2×10^-6n		2024-04-08
2	量块	长度	量块美国国家标准 ASME B89.1.9	0.05~4 in	U=3 μ in+1×10^-6n	不包线膨胀系数	2024-04-08
				4~20 in	U=4 μ in+1.1×10^-6n		2024-04-08
3	量规	长度	特件可对固结成圆柱形基准物的普通外径的测量 ASME B89.1.5	0.05~4 in	U=16 μ in+4×10^-6n		2024-04-08
				4~20 in	U=4 μ in+4×10^-6n		2024-04-08

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ISO/IEC 17025 认可证书

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Plug Gages ASME B89.1.5	0.05~4in	U=0.4 μ in+4×10^-6n		
4	Plug Gages	Length	V.R. of Plain Limit Gauges JJG 343	0.5~100mm	U=0.8 μ m+4×10^-6n		
5	Current Calipers	Length	V. R. of Current Calipers JJG 30	0~300mm	U=0.01mm		
6	Calipers	Length	Caliper ASME B89.1.14	0~6in	U=0.0001in		
				8~12in	U=0.0002in		
				0~200mm	U=3 μ m		
				200~300mm	U=4 μ m		
7	Micrometer	Length	V. R. of Micrometer JJG 21	0~100mm	U=1 μ m		
8	Micrometers	Length	Micrometers ASME B89.1.13	0~2in	U=40 μ in		
				2~4in	U=80 μ in		
				0~50mm	U=1 μ m		
				50~100mm	U=2 μ m		
9	Dial Gauges	Length	V.R.of Dial Gauges JJG 34	0~1mm	U=2 μ m		
				1~2mm	U=3 μ m		
				2~10mm	U=5 μ m		
				10-30mm			
				30-50mm			
10	Dial Indicators （For Linear Measurements）	Length	Dial Indicators （For Linear Measurements） ASME B89.1.10M	0~1/4in	U=0.0002in		

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The scope of the accreditation in Chinese remains the definitive version.



ISO/IEC 17025 认可证书

序号	测量仪器名称	被测量	校准规范	测量范围	扩展不确定度（k=2）	说明	生效日期
4	量规	长度	光滑极限量规检定规程 JJG 343	0.5~100mm	U=0.8 μ m+4×10^-6n		2024-04-08
5	通用卡尺	长度	通用卡尺检定规程 JJG 30	0~300mm	U=0.01mm		2024-04-08
6	卡尺	长度	卡尺美国国家标准 ASME B89.1.14	0~6in	U=0.0001in		2024-04-08
				8~12in	U=0.0002in		2024-04-08
				0~200mm	U=3 μ m		2024-04-08
				200~300mm	U=4 μ m		2024-04-08
7	外径千分尺	长度	千分尺检定规程 JJG 21	0~100mm	U=1 μ m		2024-04-08
8	外径千分尺	长度	千分尺美国国家标准 ASME B89.1.13	0~2in	U=40 μ in		2024-04-08
				2~4in	U=80 μ in		2024-04-08
				0~50mm	U=1 μ m		2024-04-08
				50~100mm	U=2 μ m		2024-04-08
9	指示表	长度	指示表检定规程 JJG 34	0~1mm	U=2 μ m		2024-04-08
				1~2mm	U=3 μ m		2024-04-08

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ISO/IEC 17025 认可证书

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				0~1/4in	U=0.0002in		
				1~2in	U=0.0004in		
				0~1mm	U=2 μ m		
				1~2mm	U=3 μ m		
				2~10mm	U=5 μ m		
				10~30mm	U=7 μ m		
				30~50mm	U=10 μ m		

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The scope of the accreditation in Chinese remains the definitive version.



ISO/IEC 17025 认可证书

序号	测量仪器名称	被测量	校准规范	测量范围	扩展不确定度（k=2）	说明	生效日期
				2~10mm	U=5 μ m		2024-04-08
				10~20mm	U=7 μ m		2024-04-08
				20~50mm	U=10 μ m		2024-04-08
10	指针式指示表（用于线性测量）	长度	指针式指示表（用于线性测量）ASME B89.1.10M	0~1/4in	U=0.0002in		2024-04-08
				1/4~1in	U=0.0003in		2024-04-08
				1~2in	U=0.0004in		2024-04-08
				0~1mm	U=2 μ m		2024-04-08
				1~2mm	U=3 μ m		2024-04-08
				2~10mm	U=5 μ m		2024-04-08
				10~20mm	U=7 μ m		2024-04-08
				30~50mm	U=10 μ m		2024-04-08

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iMGages®

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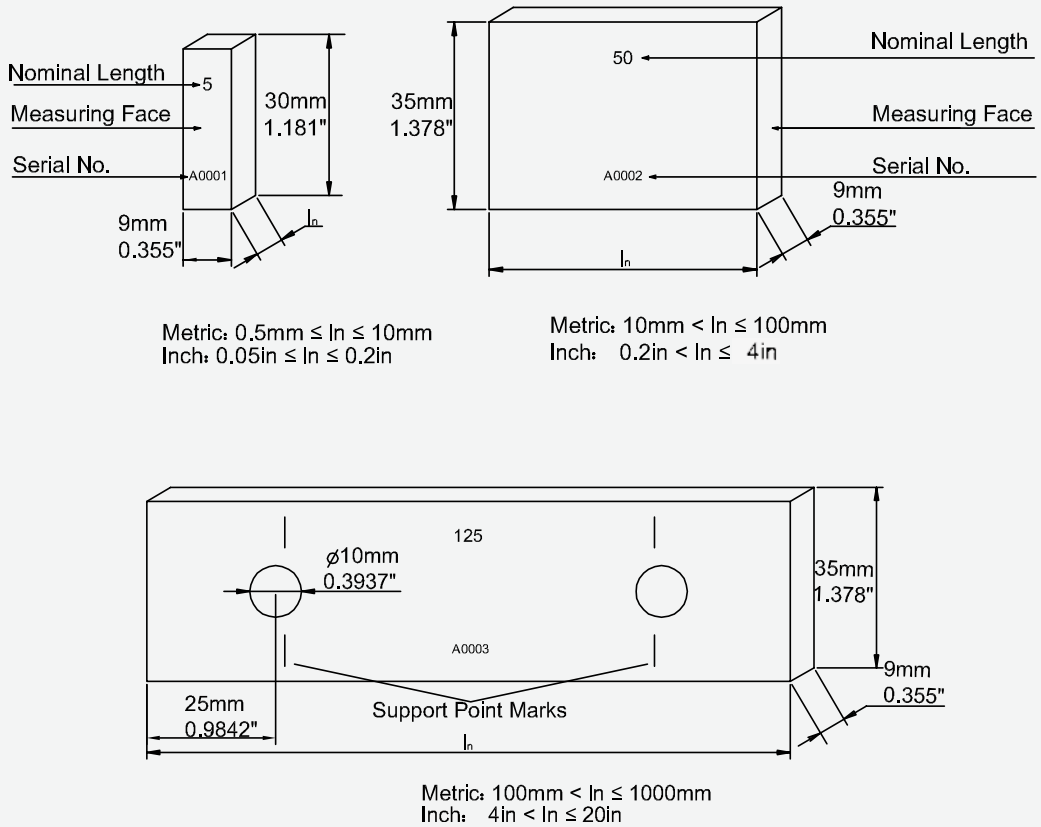
- Imperial sets meet or exceed Fed. Spec. ASME B89.1.9-2023. Metric sets meet or exceed ISO 3650.
- Each set includes a complete certificate of calibration traceable to N.I.S.T. or NIM via an accredited laboratory in accordance with ISO/IEC 17025 showing the deviation of each block.
- Mirror polished surfaces provide superior wringing characteristics. Individual serial numbers on each block, regardless of grade.
- Higher degree of accuracy when used at temperature of 68° F (20° C).
- Customization available upon request.
- *Limit deviation (t_e) and tolerance variation (t_v) are both from nominal length (l_n).*

Inch

Nominal Length Range (ln)	Grade 0		Grade AS-1		Grade AS-2		Economy	
	Limit Deviation $\pm t_e$ (µin)	Tolerance for Variation t_v (µin)	Limit Deviation $\pm t_e$ (µin)	Tolerance for Variation t_v (µin)	Limit Deviation $\pm t_e$ (µin)	Tolerance for Variation t_v (µin)	Limit Deviation $\pm t_e$ (µin)	Tolerance for Variation t_v (µin)
$l_n \leq 0.05$	6	4	12	6	24	12	50	25
$0.05 < l_n \leq 0.40$	5	4	8	6	18	12	50	25
$0.45 < l_n \leq 1$	6	4	12	6	24	12	50	25
$1 < l_n \leq 2$	8	4	16	6	32	12	50	25
$2 < l_n \leq 3$	10	4	20	6	40	14	50	25
$3 < l_n \leq 4$	12	5	24	8	48	14	50	25
$4 < l_n \leq 5$	16	5	32	8	64	16	-	-
$5 < l_n \leq 6$	16	5	32	8	64	16	-	-
$6 < l_n \leq 7$	20	6	40	10	80	16	-	-
$7 < l_n \leq 8$	20	6	40	10	80	16	-	-
$8 < l_n \leq 10$	24	6	48	10	104	18	-	-
$10 < l_n \leq 12$	28	7	56	10	112	20	-	-
$12 < l_n \leq 16$	36	8	72	12	144	20	-	-
$16 < l_n \leq 20$	44	10	88	14	176	24	-	-
$20 < l_n \leq 24$	52	10	104	16	200	28	-	-
$24 < l_n \leq 28$	60	12	120	18	240	28	-	-
$28 < l_n \leq 32$	68	12	136	20	260	32	-	-
$32 < l_n \leq 36$	76	14	152	20	300	36	-	-
$36 < l_n \leq 40$	80	16	168	24	320	40	-	-

Metric

Nominal Length Range (mm)	Grade 0		Grade 1		Grade 2	
	Limit Deviations $\pm t_e$ (µm)	Tolerance for Variation t_v (µm)	Limit Deviations $\pm t_e$ (µm)	Tolerance for Variation t_v (µm)	Limit Deviations $\pm t_e$ (µm)	Tolerance for Variation t_v (µm)
$0.5 \leq l_n \leq 10$	0.12	0.1	0.2	0.16	0.45	0.3
$10 < l_n \leq 25$	0.14	0.1	0.3	0.16	0.6	0.3
$25 < l_n \leq 50$	0.2	0.1	0.4	0.18	0.8	0.3
$50 < l_n \leq 75$	0.25	0.12	0.5	0.18	1	0.35
$75 < l_n \leq 100$	0.3	0.12	0.6	0.2	1.2	0.35
$100 < l_n \leq 150$	0.4	0.14	0.8	0.2	1.6	0.4
$150 < l_n \leq 200$	0.5	0.16	1	0.25	2	0.4
$200 < l_n \leq 250$	0.6	0.16	1.2	0.25	2.4	0.45
$250 < l_n \leq 300$	0.7	0.18	1.4	0.25	2.8	0.5
$300 < l_n \leq 400$	0.9	0.2	1.8	0.3	3.6	0.5
$400 < l_n \leq 500$	1.1	0.25	2.2	0.35	4.4	0.6
$500 < l_n \leq 600$	1.3	0.25	2.6	0.4	5	0.7
$600 < l_n \leq 700$	1.5	0.3	3	0.45	6	0.7
$700 < l_n \leq 800$	1.7	0.3	3.4	0.5	6.5	0.8
$800 < l_n \leq 900$	1.9	0.35	3.8	0.5	7.5	0.9
$900 < l_n \leq 1000$	2	0.4	4.2	0.6	8	1



Gage Block Measurement Reference

Metric Square Gage Block Sets

Total Pieces/ Set	Blocks included in Set			Grade (ISO)	Order No.
	Block Qty.	Size (mm)	Step (mm)		Steel
32	1	1.005	-		
	9	1.01 - 1.09	0.01	**0**	**630-0320**
	9	1.1 - 1.9	0.1	**1**	**630-0321**
	9	1 - 9	1	**2**	**630-0322**
	3	10 - 30	10		
	1	50	-		





Metric Rectangular Gage Block Sets

Total Pieces/ Set	Blocks included in Set			Grade (ISO)	Order No.		
	Block Qty.	Size (mm)	Step (mm)		Steel	Solid Carbide	Ceramic
112	1	1.0005	-				
	9	1.001 - 1.009	0.001	0	630-1120	125-5120	631-1120
	49	1.01 - 1.49	0.01	1	630-1121	125-5121	631-1121
	49	0.5 - 24.5	0.5	2	630-1122	125-5122	631-1122
	4	25 - 100	25				
103	1	1.005	-	0	630-1030	125-5030	631-1030
	49	1.01 - 1.49	0.01	1	630-1031	125-5031	631-1031
	49	0.5 - 24.5	0.5	2	630-1032	125-5032	631-1032
	4	25 - 100	25				
88	1	1.0005	-	0	630-0880	125-4880	631-0880
	9	1.001 - 1.009	0.001	1	630-0881	125-4881	631-0881
	49	1.01 - 1.49	0.01	2	630-0882	125-4882	631-0882
	19	0.5 - 9.5	0.5				
	10	10 - 100	10				
87	9	1.001 - 1.009	0.001	0	630-0870	125-4870	631-0870
	49	1.01 - 1.49	0.01	1	630-0871	125-4871	631-0871
	19	0.5 - 9.5	0.5	2	630-0872	125-4872	631-0872
	16	10	10				
83	1	1.005	-				
	49	1.01 - 1.49	0.01	0	630-0830	125-4830	631-0830
	4	1.6 - 1.9	0.1	1	630-0831	125-4831	631-0831
	19	0.5 - 9.5	0.5	2	630-0832	125-4832	631-0832
	10	10 - 100	10				
76	1	1.005	-	0	630-0760	125-4760	631-0760
	49	1.01 - 1.49	0.01	1	630-0761	125-4761	631-0761
	19	0.5	0.1	2	630-0762	125-4762	631-0762
	5	10 - 50	10				
	2	75 - 100	25				
47	1	1.005	-				
	9	1.01 - 1.09	0.01	0	630-0474	125-4474	631-0470
	9	1.1 - 1.9	0.1	1	630-0475	125-4475	631-0471
	24	1 - 24	1	2	630-0476	125-4476	631-0472
	4	25 - 100	25				
47	1	1.005	-				
	20	1.01 - 1.20	0.01	0	630-0470	125-4470	631-0474
	7	1.3 - 1.9	0.1	1	630-0471	125-4471	631-0475
	9	1 - 9	1	2	630-0472	125-4472	631-0476
	10	10 - 100	10				
46	9	1.001 - 1.009	0.001				
	9	1.01 - 1.09	0.01	0	630-0460	125-4460	631-0460
	9	1.1 - 1.9	0.1	1	630-0461	125-4461	631-0461
	9	1 - 9	1	2	630-0462	125-4462	631-0462
	10	10 - 100	10				
38	1	1.005	-				
	9	1.01 - 1.09	0.01	0	630-0380	125-4380	631-0380
	9	1.1 - 1.9	0.1	1	630-0381	125-4381	631-0381
	9	1 - 9	1	2	630-0382	125-4382	631-0382
	10	10 - 100	10				
32	1	1.005	-				
	9	1.01 - 1.09	0.01	0	630-0320	125-4320	631-0320
	9	1.1 - 1.9	0.1	1	630-0321	125-4321	631-0321
	9	1 - 9	1	2	630-0322	125-4322	631-0322
	3	10 - 30	10				
	1	50	-				





Inch Rectangular Gage Block Sets

Total Pieces/ Set	Blocks included in Set			Grade (ASME)	Order No.		
	Block Qty.	Size (in)	Step (in)		Steel	Solid Carbide	Ceramic
81	9	0.1001 - 0.1009	0.0001	0	630-4110	125-0812	631-0812
	49	0.101 - 0.149	0.001	AS-1	630-4113	125-0813	631-0813
	19	0.050 - 0.950	0.05	AS-2	630-4114	125-0814	631-0814
	4	1 - 4	1	Economy	630-4115	125-0815	631-0815
36	1	0.05	-				
	9	0.1001 - 0.1009	0.0001	0	630-4100	125-0362	631-0362
	9	0.101 - 0.109	0.001	AS-1	630-4103	125-0363	631-0363
	9	0.110 - 0.190	0.01	AS-2	630-4104	125-0364	631-0364
	5	0.100 - 0.500	0.1	Economy	630-4105	125-0365	631-0365
	3	1, 2, 4	-				



Inch Square Gage Block Sets

Total Pieces/ Set	Blocks included in Set			Grade (ASME)	Order No.
	Block Qty.	Size (in)	Step (in)		Steel
81	9	0.1001 - 0.1009	0.0001	0	630-4120
	49	0.101 - 0.149	0.001	AS-1	630-4123
	19	0.050 - 0.950	0.05	Economy	630-4125
	4	1 - 4	1		
36	1	0.05	-		
	9	0.1001 - 0.1009	0.0001	0	630-4126
	9	0.101 - 0.109	0.001	AS-1	630-4127
	9	0.110 - 0.190	0.01	Economy	630-4128
	5	0.100 - 0.500	0.1		
	3	1, 2, 4	-		



Large Size Gage Block Sets



Metric

Total Pieces/Set	Sizes (mm)	Grade (ISO)	Order No.
8	25, 50, 75, 100, 125, 150, 175, 200	0	630-8200
		1	630-8201
		2	630-8202
8	125, 150, 175, 200, 250, 300, 400, 500	0	630-8000
		1	630-8001
		2	630-8002
5	600, 700, 800, 900, 1000	0	630-8400
		1	630-8401
		2	630-8402

Inch

Total Pieces/Set	Sizes (in)	Grade (ASME)	Order No.
8	5, 6, 7, 8, 10, 12, 16, 20	0	630-8100
		AS-1	630-8101
		AS-2	630-8102

Rectangular Gage Block Accessories

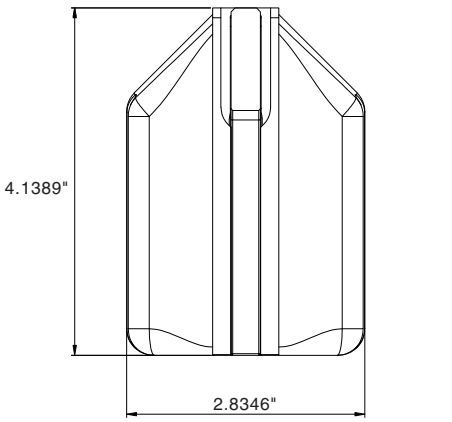
- Made of the same steel as gage blocks, hardened and finished to meet ASME B89.1.9-2023.
- Available individually or in a complete set.
- Quality & surface finish are unsurpassed.
- Accessories made with gage block accuracy.



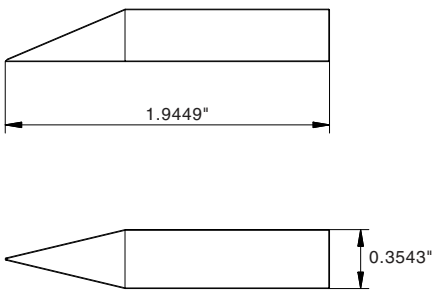


Ref	Type	Specification	Qty.	Order No.	Set Order No.	
					631-2914	631-2927
A.	Base Block	Base Size: 4" x 2-3/4" x 1-3/8" Accuracy: ±0.0002" Height	1	**631-2802**		*
B.	Scriber Point	Length: 1.950" Accuracy: Flatness per 2" = 0.00002"	1	**631-2500**		*
C.	Center Point	Length: 2.0000" Accuracy: Concentricity = ±0.0004"	1	**631-2600**		*
D.	Points	Length: 2.050" Accuracy: Concentricity = ±0.0002"	2	**631-2601**		*
E.	Cylindrical Jaws	Radius (R1): 0.100" Length (L1): 1.580" Accuracy: Radius ±0.00003", Pair ±0.00004"	2	**631-2311**	*	*
		Radius (R1): 0.200" Length (L1): 1.965" Accuracy: Radius ±0.00003", Pair ±0.00004"	2	**631-2312**	*	*
		Radius (R1): 0.250" Length (L1): 2.366" Accuracy: Radius ±0.00003", Pair ±0.00004"	2	**631-2313**	*	*
		Radius (R2): 0.500" Length (L2): 2.945" Accuracy: Radius ±0.00003", Pair ±0.00004"	2	**631-2314**	*	*
		Radius (R2): 0.750" Length (L2): 4.920" Accuracy: Radius ±0.00003", Pair ±0.00004"	2	**631-2315**		*
F.	Flat Jaw	Height: 0.750" Length: 6" Accuracy: Parallelism = 0.00004"	2	**631-2320**		*
G.	Jaw with Reference Jaw Lines	Height: 0.394" Length: 1.970" Ref Line (etched on block): 0.0625" Accuracy: Reference Line to Measuring Surface, ±0.0002"	2	**631-2330**		*
H.	Jaw with Beveled Ends	Height: 0.750" Length: 4" Accuracy: Flatness per 2" = 0.00002"	2	**631-2331**	*	*
		Height: 0.750" Length: 6" Accuracy: Flatness per 2" = 0.00002"	2	**631-2332**	*	*
I.	Holders	Capacity: 2.250" / 50 mm Length: 4.175" Accuracy: Flatness per 2" = 0.00002"	1	**631-2050**	*	*
		Capacity: 4.000" / 100 mm Length: 6.5" Accuracy: Flatness per 2"= 0.00002"	1	**631-2100**		*
		Capacity: 6.000" / 150 mm Length: 8.5" Accuracy: Flatness per 2" = 0.00002"	1	**631-2150**	*	*
		Capacity: 10.000" / 250 mm Length: 12" Accuracy: Flatness per 2" = 0.00002"	1	**631-2220**		*
		Capacity: 16.000" / 400 mm Accuracy: Flatness per 2" = 0.00002"	1	**631-2240**		
	Set				**14-pc Rectangular Gage Block Accessory Set with Wooden Case**	**27-pc Rectangular Gage Block Accessory Set with Wooden Case**

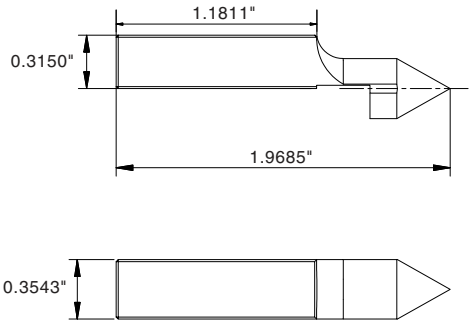




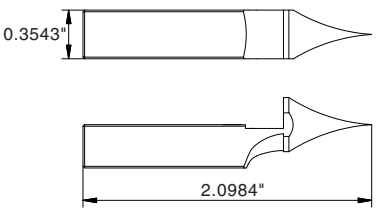
Base Block (A)



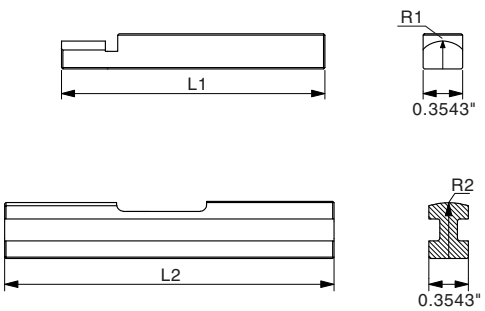
Scriber Point (B)



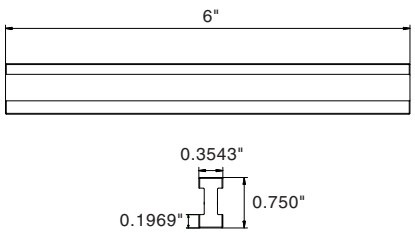
Center Point (C)



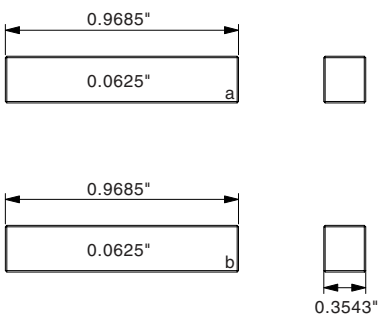
Points (D)



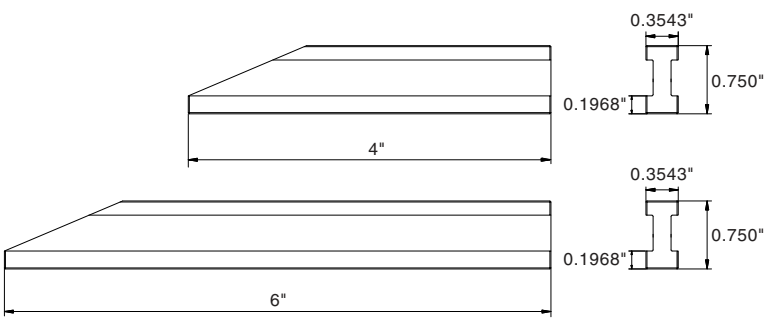
Cylindrical Jaws (E)



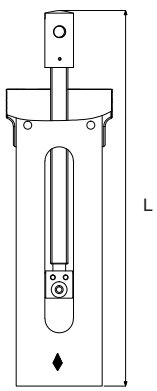
Flat Jaw (F)



Jaw with Reference Jaw Lines (G)



Jaw with Beveled Ends (H)



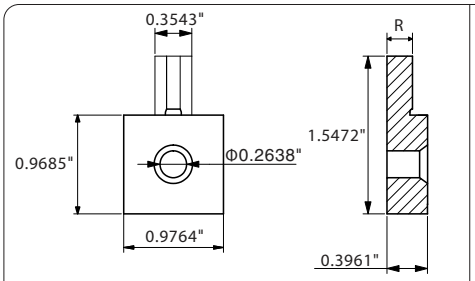
Holders (I)

Square Gage Block Accessories

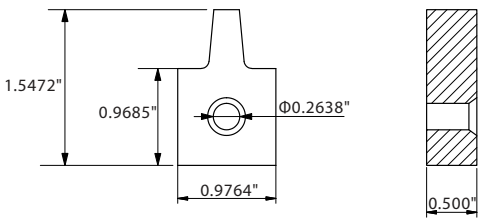
- Made of the same steel as gage blocks, hardened and finished to meet ASME B89.1.9-2023.
- Available individually or in a complete set.
- Quality & surface finish are unsurpassed.
- Accessories made with gage block accuracy.



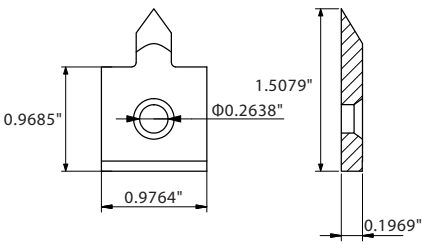
Ref	Type	Specification	Qty.	Order No.
A.	Half-round Jaws	Radius: 0.125"	2	**631-2002**
		Radius: 0.250"	2	**631-2004**
B.	Straight Jaws	Thickness: 0.500"	2	**631-2006**
C.	Scriber Point	0.976" x 1.508"	1	**631-2008**
D.	Center Point	0.976" x 1.535"	1	**631-2010**
E.	Base Block	Thickness: 0.500"	1	**631-2012**
F.	Knurled Screws	M4 x 0.492"	2	**631-2014**
G.	Studs	M4 x 0.622"	2	**631-2016**
H.	Flat Head Screws	Long - M4 x 1.201"	2	**631-2018**
		Short - M4 x 0.610"	2	**631-2020**
I.	Slotted Nuts	M4 x 0.610"	2	**631-2022**
J.	Tie Rod Solid	Length: 3/4"	1	**631-2024**
		Length: 1-1/2"	1	**631-2026**
		Length: 2-1/4"	1	**631-2028**
		Length: 3"	1	**631-2030**
K.	Tie Rod Long Adjustable	Length: 4-1/2"	1	**631-2032**
		Length: 6"	1	**631-2034**
	25-pc Square Gage Block Accessories with Wooden Case	-	-	**631-2000**



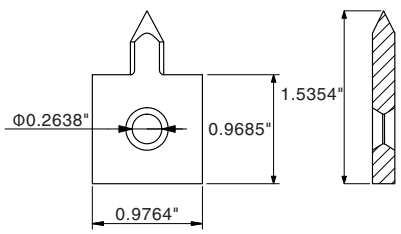
Half-round Jaws (A)



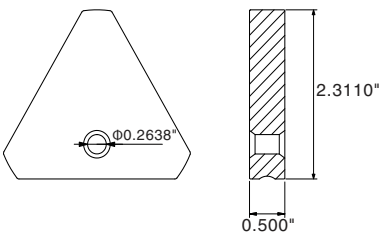
Straight Jaws (B)



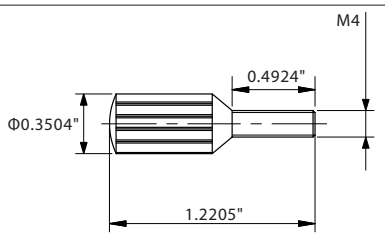
Scriber Point (C)



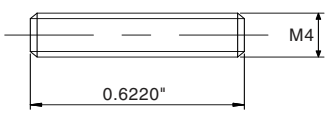
Center Point (D)



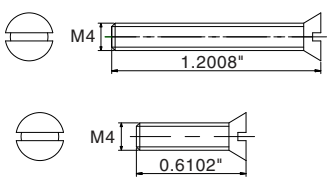
Base Block (E)



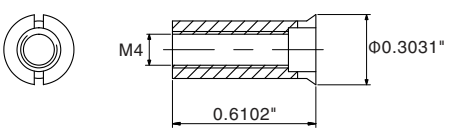
Knurled Screws (F)



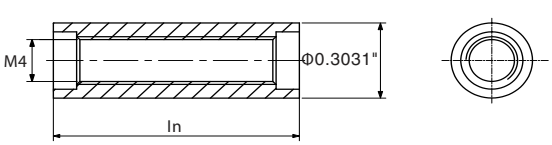
Studs (G)



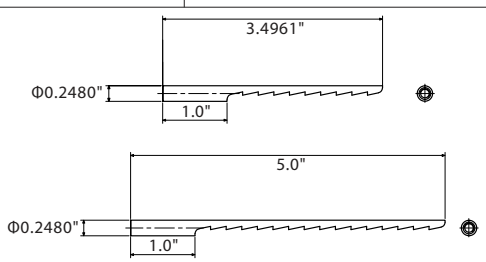
Flat Head Screws (H)



Slotted Nuts (I)



Tie Rod Solid (J)



Tie Rod Long Adjustable (K)

Large Gage Block Holder for CMM

- Made of aluminum.
- Gage blocks not included.





Compatible Combinations		Order No.
Height (mm)	Length (mm)	
235, 355, 475	500, 600, 700, 850, 1000	**6100-1751**

Large Gage Block Connector

- Couples gage blocks together to increase lengths.
- Used with gage blocks for gaging both workpieces and fixtures.
- Used for gage blocks with connection holes.



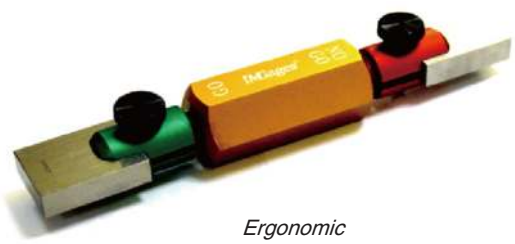
Order No.
631-2809

Gage Block Handle

- Made of oxidized aluminum.
- Can be used with GO and NO-GO.
- Small form factor version can be used for both pin gages and gage blocks.
- Large form factor version includes comfortable and ergonomically designed handle for gage blocks.



Small Form-Factor



Ergonomic



Type	Order No.
Small Form-Factor	**616-8013**
Ergonomic	**616-8014**

Space Blocks

Space Block Set

- 36 piece set.
- Made of hardened and lapped tool steel with HRC 58-60.
- Each block clearly marked for size.
- Set includes a certificate showing individual deviation of each block.
- 4 connecting screws included to make any desired length.





Diameter (in)	Accuracy (in)	Thread Size (in)	Order No.
3/4"	±0.00010	1/4"-28	**630-4050**
3/4"	±0.00010	M6	**630-4051**
3/4"	±0.00005	1/4"-28	**630-4055**

Pin Gage Library

- HRC ≥ 60.
- Each pin is laser marked with size.
- All corners are deburred with minimal edge break.
- Great for checking locations, measuring hole sizes, checking distances between holes, setting micrometers and measuring hole depths.
- GO and NO-GO gaging.
- Significant savings when ordering a complete set.
- Each set includes a certificate of accuracy calibrated to ASME B89.1.5-1998 (R2024).





990 Piece Set (Inch)

Drawer No.	Qty. of Pins	Range (in)	Order No.	
			Plus	Minus
1	240	0.011 - 0.250	616-8196	616-8177
2	250	0.251 - 0.500		
3	125	0.501 - 0.625		
4	125	0.626 - 0.750		
5	82	0.751 - 0.832		
6	84	0.833 - 0.916		
7	84	0.917 - 1.000		

Inch Sets:

- Uniform 2" overall length.
- Surface roughness Ra ≤ 10 µin.
- Roundness ≤ 0.0001".
- Inspected to tolerance of plus or minus 0.0002".
- Incremental steps of 0.001".
- Drawer 1 pins stored in tubes; drawer 2–7 pins are slotted in without tubes.
- Set includes 8pcs handle set.





951 Piece Set (Metric)

Drawer No.	Qty. of Pins	Range (mm)	Order No.
1	151	0.50 - 2.00	616-6350
2	200	2.01 - 4.00	
3	200	4.01 - 6.00	
4	200	6.01 - 8.00	
5	200	8.01 - 10.00	

1151 Piece Set (Metric)

Drawer No.	Qty. of Pins	Range (mm)	Order No.
1	151	0.50 - 2.00	616-6351
2	200	2.01 - 4.00	
3	200	4.01 - 6.00	
4	200	6.01 - 8.00	
5	200	8.01 - 10.00	
6	100	10.01 - 11.00	
7	100	11.01 - 12.00	

Metric Sets:

- Uniform 50.8 mm overall length.
- Surface roughness Ra ≤ 0.2 µm.
- Roundness ≤ 2 µm.
- Inspected to tolerance of ±0.002 mm.
- Incremental steps of 0.01 mm.
- All pins in drawers are stored in tubes.
- Set includes 3pcs handle set.





Inch Pin Gage Sets

- HRC ≥ 60.
- Pins ≥ 0.061" are laser marked with size and all sizes printed on storage case.
- Uniform 2" overall length.
- Surface roughness Ra ≤ 10 µin.
- Roundness ≤ 0.0001".
- Inspected to tolerance of plus or minus 0.0002".
- Incremental steps of 0.001".
- Set includes a certificate of accuracy calibrated to ASME B89.1.5-1998 (R2024) where indicated.



Economy Inch Set (without handle)



Class ZZ Set (with handle)

Economy Inch Set - 0.0002" Tolerance, Without Handles or Certification

Set Name	Range (in)	Piece/ Set	Order No.	
			Steel (Plus)	Steel (Minus)
M0 +/-	0.0110 - 0.0600	50	**616-8100**	**616-8101**
M0.5 +/-	0.0115 - 0.0605	50	**616-8102**	**616-8103**
M1 +/-	0.0610 - 0.2500	190	**616-8110**	**616-8111**
M1.5 +/-	0.0615 - 0.2505	190	**616-8112**	**616-8113**
M2 +/-	0.2510 - 0.5000	250	**616-8120**	**616-8121**
M2.5 +/-	0.2515 - 0.5005	250	**616-8122**	**616-8123**
M3 +/-	0.5010 - 0.6250	125	**616-8130**	**616-8131**
M4 +/-	0.6260 - 0.7500	125	**616-8140**	**616-8141**
M5 +/-	0.7510 - 0.8320	82	**616-8150**	**616-8151**
M6 +/-	0.8330 - 0.9160	84	**616-8160**	**616-8161**
M7 +/-	0.9170 - 1.0000	84	**616-8170**	**616-8171**



Class ZZ Set - 0.0002" Tolerance, With Premium Handle & Certification

Set Name	Range (in)	Piece/Set	Order No.			
			Steel (Plus)	Steel (Minus)	Black Coated (Plus)	Black Coated (Minus)
M0 +/-	0.0110 - 0.0600	50	**616-8200**	**616-8201**	**616-9300**	**616-9301**
M0.5 +/-	0.0115 - 0.0605	50	**616-8202**	**616-8203**	**616-9302**	**616-9303**
M0&1 +/-	0.0110 - 0.2500	240	**616-8282**	**616-8283**	**616-9382**	**616-9383**
M0.5&1.5 +/-	0.0115 - 0.2505	240	**616-8284**	**616-8285**	**616-9384**	**616-9385**
M1 +/-	0.0610 - 0.2500	190	**616-8210**	**616-8211**	**616-9310**	**616-9311**
M1.5 +/-	0.0615 - 0.2505	190	**616-8212**	**616-8213**	**616-9312**	**616-9313**
M2 +/-	0.2510 - 0.5000	250	**616-8220**	**616-8221**	**616-9320**	**616-9321**
M2.5 +/-	0.2515 - 0.5005	250	**616-8222**	**616-8223**	**616-9322**	**616-9323**
M3 +/-	0.5010 - 0.6250	125	**616-8230**	**616-8231**	**616-9330**	**616-9331**
M4 +/-	0.6260 - 0.7500	125	**616-8240**	**616-8241**	**616-9340**	**616-9341**
M5 +/-	0.7510 - 0.8320	82	**616-8250**	**616-8251**	**616-9350**	**616-9351**
M6 +/-	0.8330 - 0.9160	84	**616-8260**	**616-8261**	**616-9360**	**616-9361**
M7 +/-	0.9170 - 1.0000	84	**616-8270**	**616-8271**	**616-9370**	**616-9371**



Metric Pin Gage Sets

- Steel: HRC ≥ 60. Ceramic: HRC 90-92.
- Sizes marked on containers when supplied. For container-less sets, pins ≥1.50 mm are laser-marked and all sizes are printed on the storage case.
- Steel: Uniform 50.8 mm overall length. Ceramic: Uniform 50.00 mm overall length.
- Surface roughness Ra ≤ 0.2 µm.
- Roundness ≤ 2 µm.
- Inspected to tolerance of ±0.002 mm.
- Incremental steps of 0.01 mm.
- Each set includes a certificate of accuracy calibrated to ASME B89.1.5-1998 (R2024).



Metric Set - Plastic Case, White Tubes & Handle

Range (mm)	Piece/Set	Order No.			
		Steel		Ceramic	
		±0.001 mm	±0.002 mm	±0.001 mm	±0.002 mm
0.50 - 1.00	51	617-6051	616-6201	-	-
1.00 - 2.00	101	617-6102	616-6202	619-7202	619-6202
2.00 - 3.00	101	617-6103	616-6203	619-7203	619-6203
3.00 - 4.00	101	617-6104	616-6204	619-7204	619-6204
4.00 - 5.00	101	617-6105	616-6205	619-7205	619-6205
5.00 - 6.00	101	617-6106	616-6206	619-7206	619-6206
6.00 - 7.00	101	617-6107	616-6207	619-7207	619-6207
7.00 - 8.00	101	617-6108	616-6208	619-7208	619-6208
8.00 - 9.00	101	617-6109	616-6209	619-7209	619-6209
9.00 - 10.00	101	617-6111	616-6211	619-7211	619-6211
10.00 - 11.00	101	-	616-6212	-	-
11.00 - 12.00	101	-	616-6213	-	-
12.00 - 13.00	101	-	616-6214	-	-
13.00 - 14.00	101	-	616-6215	-	-
14.00 - 15.00	101	-	616-6216	-	-
15.00 - 16.00	101	-	616-6217	-	-
16.00 - 17.00	101	-	616-6218	-	-
17.00 - 18.00	101	-	616-6219	-	-
18.00 - 19.00	101	-	616-6220	-	-
19.00 - 20.00	101	-	616-6221	-	-



Metric Set

Class ZZ Set - 0.005 mm Tolerance, With Premium Handle & Certification

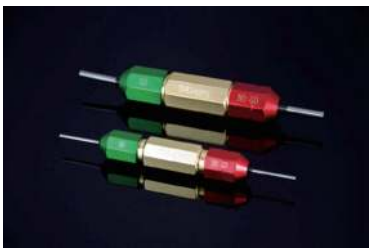
Range (mm)	Piece/Set	Order No.			
		Steel (Plus)	Steel (Minus)	Black Coated (Plus)	Black Coated (Minus)
0.20 - 1.28	55	616-4201	616-4301	616-9401	616-9131
0.21 - 1.29	55	616-4202	616-4302	616-9402	616-9132
1.30 - 4.98	185	616-4203	616-4303	616-9403	616-9133
1.31 - 4.99	185	616-4204	616-4304	616-9404	616-9134
5.00 - 9.98	250	616-4205	616-4305	616-9405	616-9135
5.01 - 9.99	250	616-4206	616-4306	616-9406	616-9136
10.00 - 13.98	200	616-4207	616-4307	616-9407	616-9137
10.01 - 13.99	200	616-4208	616-4308	616-9408	616-9138
14.00 - 16.48	125	616-4209	616-4309	616-9409	616-9139
14.01 - 16.49	125	616-4210	616-4310	616-9410	616-9140
16.50 - 18.98	125	616-4211	616-4311	616-9411	616-9141
16.51 - 18.99	125	616-4212	616-4312	616-9412	616-9142
19.00 - 20.98	100	616-4213	616-4313	616-9413	616-9143
19.01 - 20.99	100	616-4214	616-4314	616-9414	616-9144
21.00 - 22.48	75	616-4215	616-4315	616-9415	616-9145
21.01 - 22.49	75	616-4216	616-4316	616-9416	616-9146
22.50 - 23.98	75	616-4217	616-4317	616-9417	616-9147
22.51 - 23.99	75	616-4218	616-4318	616-9418	616-9148
24.00 - 25.48	75	616-4219	616-4319	616-9419	616-9149
24.01 - 25.49	75	616-4220	616-4320	616-9420	616-9150



Class ZZ Set

Pin Gage Handles

- Each imperial set corresponds to one handle; 8 handles cover all imperial sizes.
- 8 sizes of collets that are each spring adjusting with self-centering design.
- Aluminum handles with plastic collets to protect pin gages.
- Color coded handle for GO/NO-GO checking.
- Powder coated handle body.
- Each handle supports two free collets.





Length (mm)	Across-flat (mm)	Weight (g)	Sizes Covered (in)	Sizes Covered (mm)	Individual Order No.	Set Order Number	
						616-9009	616-9008
112	11	20	0.011 - 0.060 (M0)	0.30 - 1.50	**616-9000**	*	*
131	24	100	0.061 - 0.250 (M1)	1.20 - 6.50	**616-9001**	*	*
158	32	140	0.251 - 0.500 (M2)	5.00 - 14.00	**616-9002**	*	*
153	37	190	0.501 - 0.625 (M3)	12.00 - 16.50	**616-9003**		*
153	37	190	0.626 - 0.750 (M4)	14.00 - 19.50	**616-9004**		*
156	40	200	0.751 - 0.832 (M5)	18.00 - 22.00	**616-9005**		*
156	40	200	0.833 - 0.916 (M6)	20.00 - 24.50	**616-9006**		*
156	40	200	0.917 - 1.000 (M7)	22.50 - 25.48	**616-9007**		*

Extra Range Pin Gage Handles

- Made from aluminum to protect pin gages.
- Compact single handle with extended clamping range.
- GO and NO-GO clearly marked.



Length (in)	Width (in)	Height (in)	Weight (g)	Measurement Range		Order No.
				Min	Max	
4.375	0.500	0.750	59	**0.020" / 0.5 mm**	**0.500" / 13 mm**	**616-8011**
4.375	0.500	0.750	75	**0.500" / 13 mm**	**0.750" / 20 mm**	**616-8015**

Centering Indicators

- Provides a simple method of centering workpieces or fixtures on horizontal or vertical machines, on external or internal diameters, including applications on NC/CNC, EDM and other hard to turn spindles.
- Face of the indicator remains stationary in any desired viewing position while the machine spindle rotates, allowing the operator to use both hands to accurately position the machine table.
- Operates at any angle from vertical to horizontal without adjustment - No walking around the machine; no mirrors; no awkward positioning.
- Dial Reading Range: 0 - 50.
- Max Recommended Speed: 800 RPM.





Inch

Length (in)	Shank (in)	Diameter (in)	Feeler Ball Diameter (in)	Axis Offset Measuring Range (in)	Locating Accuracy (in)	Capacity Range (in)		Order No.
						Internal	External	
6-7/8	3/8	7/8	1/8	0.25	Within 0.0002 of true center	5.32 - 12	0 - 12	**607-4904I**

Metric

Length (mm)	Shank (mm)	Diameter (mm)	Feeler Ball Diameter (mm)	Axis Offset Measuring Range (mm)	Locating Accuracy (mm)	Capacity Range (mm)		Order No.
						Internal	External	
175	10	20	3	6	Within 0.005 of true center	135 - 300	0 - 300	**607-4905I**

Adjustable Magnetic Base Centering Indicator Retaining Arm

- Adjustable retaining arm used as a positive stop for centering indicators - no separate stop block required.
- Magnetic foot attaches to any ferrous surface; slotted arm provides a wide range of adjustment.
- M4 thumbscrew locks the arm in position or can be left slightly loose to allow sliding as the spindle moves.
- Magnetic foot rotates up to park on the tool holder for safe, convenient storage when not in use.
- Centering indicator sold separately.





Order No.
607-0226

Waterproof Dial Indicator Set - IP54

- IP54 shock-resistant dial indicator featuring a white dial, lightweight aluminum housing, and standard lug-back for easy mounting.
- ISO 17025 calibration certificate available separately on request.



Range (in)	Graduation (in)	Order No.
1	0.001	**605-40206**

Dial Indicator Sets

- Ideal for comparing parts to a master, measuring runout, verifying machine tool feed distance, and checking machine table level.
- Set includes an ISO 17025 calibration certificate.





Inch

Range (in)	Graduation (in)	Order No.
0.25	0.0010	**605-40306**
0.5	0.0010	**605-40506**
1	0.0010	**605-40706**
1	0.0005	**605-40716**
1	0.0010	**605-40806**
2	0.0010	**605-42056**

Metric

Range (mm)	Graduation (mm)	Order No.
5	0.01	**605-41306**
10	0.01	**605-41516**
25	0.01	**605-41616**

Spindle Square

- Spindle square speeds up tramming by letting you square your milling machine head to the table in a single pass using two dial indicators.
- Can also be used with a sine bar or sine plate to set precise head angles for angular machining operations.
- Inch set includes two 0" - 1/4" dial gages. Metric set includes two 0 mm - 10 mm dial gages.



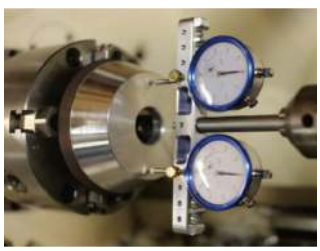
Inch

Center Distance (in)	Shank (in)	Order No.
2.5 and 4.5	3/8	**605-0225**

Metric

Center Distance (mm)	Shank (mm)	Order No.
72 and 125	8	**605-0226**

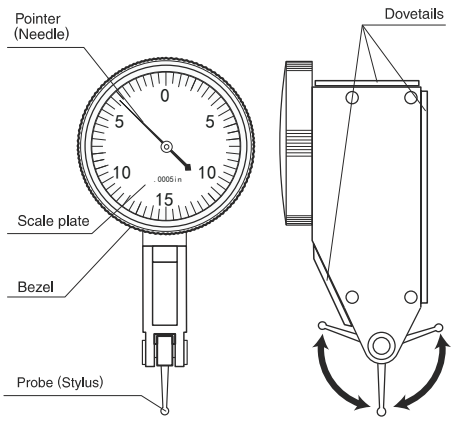




Test Indicator and Accessory Combo Kit

- Set includes a large size dial test indicator with 1-1/4" white face and standard 0-10-0 layout.
- Accessories include an axial support, height gage bar with clamp, universal holder, adaptor sleeve, contact point case, and contact point wrench.
- Supplied with a custom foam insert in a hard plastic case.
- Includes ISO 17025 certificate of calibration.



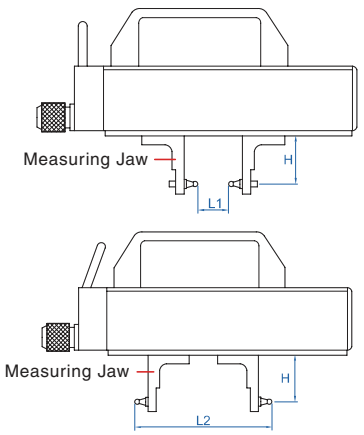


Range (in)	Graduation (in)	Order No.
0.03	0.0005	**605-47076**

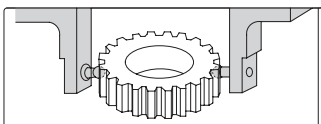
Comparison Gages

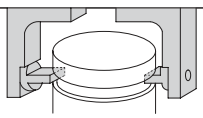
- Designed for quick and high-precision comparison of whether dimensions of workpieces meet specified standards.
- 8 mm total stylus travel for easy setting to master.
- Indicator and grade 1 gage block available as optional accessories.
- Measurement dimensions can be customized.

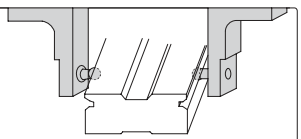


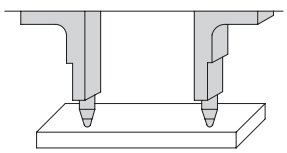


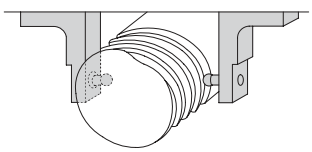
Measure External Diameter (L1)	Measure Internal Diameter (L2)	Height (H)	Accuracy	Repeatability	Order No.
0 mm - 90 mm / 0" - 3.5"	90 mm - 180 mm / 3.5" - 7"	45 mm / 1.8"	±5 µm	±1 µm	**605-4026**


Measure over-pin diameter of gears

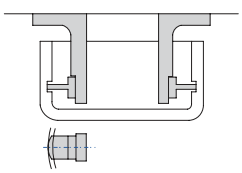

Measure external groove diameter

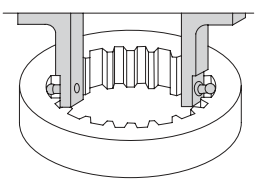

Measure distance of V-slot grooves

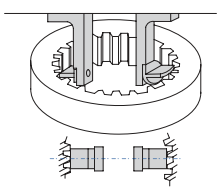

Measure distance between two holes

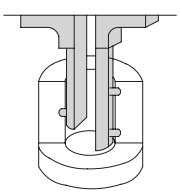

Two-point measurement of ball screws

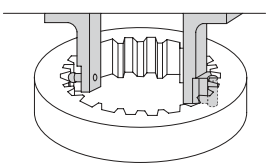
Internal Diameter Measurement Application


Measure internal groove diameter


Measure major diameter at the missing teeth of internal spline


Measure minor diameter of internal odd teeth


Three-point measurement of ball splines and ball nuts


Ball/cylinder points measurement of internal spline over-pin diameter

Customizable Points


Shallow Hole Point


Ball Point


Cylindrical Point of Gear


Ball Point


Cylindrical Point for Gear


Flat Point


External Groove Point


Shell Type Point

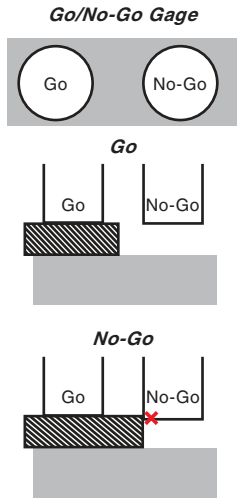

Internal Groove Point


External Thread Minor Diameter Point

Adjustable Limit Snap Gage

- C-frame adjustable limit snap gage for rapid GO/NO-GO inspection of external diameters.
- Fully stabilized cast iron frame with one-piece rectangular anvil and two adjustable square anvils, all manufactured from hardened, lapped tool steel for long service life and consistent repeatability.
- Large gauging surfaces ensure high measuring capability and repeatability.
- Both GO and NO-GO limits set in a single tool for fast pass/fail inspection.



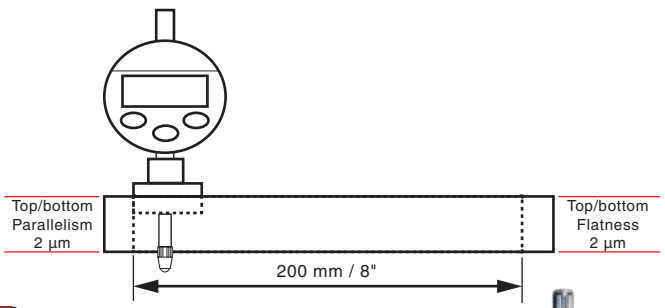


This simple form of test is quick and generally accurate due to its simplicity

Range	Order No.
0 mm - 13 mm / 0" - 1/2"	**605-4027**
13 mm - 25 mm / 1/2" - 1"	**605-4028**

Straightness / Flatness Gage

- Flatness gage for inspecting workpiece flatness.
- Zero the digital indicator, then slide the rail across the workpiece — flatness deviation is displayed directly on the digital indicator.
- Digital indicator resolution: 0.001 mm / 0.00005"





Range	Straightness Measurement Accuracy	Granite Top/Bottom Parallelism	Granite Top/ Bottom Flatness	Order No.
200 mm / 8"	3 µm	2 µm	1.5 µm	**135-0061**

Perpendicularity Tester

- Designed for direct measurement of perpendicularity and straightness on a precision granite surface plate.
- Sliding carriage travels smoothly along a hardened steel column (HRC 65) for consistent, repeatable readings.
- Cast iron base provides stable, vibration-resistant seating.
- Suitable for shop floor inspection, CNC machining support, receiving inspection, and general industrial measurement.
- Supplied in a premium fitted aluminum case. Dial indicator not included.



Inch

Range (in)	Accuracy (in)	Indicator Stem Diameter (in)	Order No.
0 - 12	0.00012	3/8	**625-8613**
0 - 24	0.00020	3/8	**625-8614**

Metric

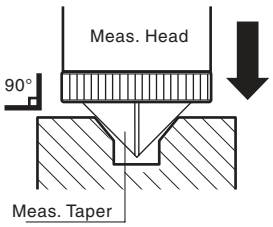
Range (mm)	Accuracy (mm)	Indicator Stem Diameter (mm)	Order No.
0 - 300	0.003	8	**625-8611**
0 - 600	0.005	8	**625-8612**

Countersink Chamfer Gages

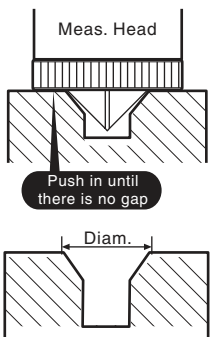
- Directly measures the top (major) diameter of chamfers, countersinks, center drill holes, and tapered holes — no setting master or lookup chart required.
- Spring-loaded, conically ground 3-blade gaging plunger seats automatically at the correct depth; simply press into the chamfer and read directly.
- Available in mechanical (dial) and electronic (digital) models; electronic models offer selectable inch/mm readout.
- Zero by pressing the base against the included zero setting block or any flat ground surface and adjusting to zero.











※ Zero point is set at factory, but we recommend periodic adjustment as required.

Inch

Type	Angle Range	Diameter Range (in)	Accuracy (in)	Order No.
ID Mechanical	0 - 90°	0 - 1/2	±0.001	**605-5418**
	0 - 90°	0 - 1	±0.001	**605-5419**
	0 - 90°	1 - 2	±0.001	**605-5420**
	0 - 127°	0 - 1/2	±0.002	**605-5422**
	0 - 127°	0 - 1	±0.002	**605-5423**
	0 - 127°	1 - 2	±0.002	**605-5424**
ID Electronic	0 - 90°	0 - 1/2	±0.001	**605-5402**
	0 - 90°	0 - 1	±0.001	**605-5403**
	0 - 90°	1 - 2	±0.001	**605-5404**
	0 - 127°	0 - 1/2	±0.002	**605-5414**
	0 - 127°	0 - 1	±0.002	**605-5406**
	0 - 127°	1 - 2	±0.002	**605-5407**

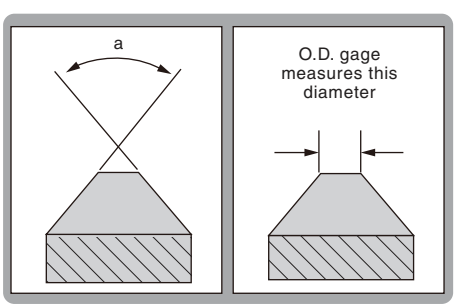
Metric

Type	Angle Range	Diameter Range (mm)	Accuracy (mm)	Order No.
ID Electronic	0 - 90°	0 - 25	±0.02	**605-5403**
	0 - 90°	20 - 40	±0.02	**605-5433**
	0 - 127°	0 - 25	±0.05	**605-5406**
	0 - 127°	20 - 40	±0.05	**605-5435**

External Chamfer Gages

- Directly measures the minimum (minor) diameter of external chamfers — no setting master or lookup chart required.
- Spring-loaded, conically ground 3-blade gaging plunger self-centers on the chamfer; simply press onto the feature and read directly.
- Available in mechanical (dial) and electronic (digital) models; electronic models offer selectable inch/mm readout.





Inch

Type	Angle Range	Diameter Range (in)	Accuracy (in)	Order No.
OD Mechanical	0 - 90°	1/8 - 1	±0.0010	**605-5427**
	0 - 90°	1 - 2	±0.0010	**605-5428**
	0 - 127°	1/8 - 1	±0.0020	**605-5431**
	0 - 127°	1 - 2	±0.0020	**605-5432**
OD Electronic	0 - 90°	1/8 - 1	±0.0005	**605-5410**
	0 - 90°	1 - 2	±0.0005	**605-5411**
	0 - 127°	1/8 - 1	±0.0009	**605-5415**
	0 - 127°	1 - 2	±0.0009	**605-5416**

Metric

Type	Angle Range	Diameter Range (mm)	Accuracy (mm)	Order No.
OD Electronic	0 - 90°	3 - 25	±0.01	**605-5410**
	0 - 90°	20 - 40	±0.02	**605-5434**
	0 - 127°	3 - 25	±0.02	**605-5415**
	0 - 127°	20 - 40	±0.02	**605-5436**

Nut and Bolt Thread Checker

- Identifies thread size of nuts and bolts in seconds: Simply thread the fastener onto the matching gage to confirm size.
- Color-coded gages for instant identification: blue for inch (UNC/UNF), red for metric; sizes laser-etched on both faces of each gage.
- Individual gages housed in a custom foam-lined case for fast access: no cable-style string to unspool when checking a single size.
- Three ways to read size: laser-etched on the gage, printed on the foam insert, and on the case chart/label.
- Covers 23 inch and 20 metric thread sizes; available as a combined 43-piece set or as separate inch and metric sets.



43-piece



23-piece



20-piece

Pieces/Set	Thread Sizes Included	Order No.
20-piece metric set	M3-0.5, M4-0.7, M5-0.8, M6-1.0, M8-1.0, M8-1.25, M10-1.0, M10-1.25, M10-1.5, M12-1.25, M12-1.5, M12-1.75, M14-1.5, M14-2.0, M16-1.5, M16-2.0, M20-1.5, M20-2.5, M24-2.0, M24-3.0	**615-6392**
23-piece inch set	1-12, 1-8, 3/4-16, 3/4-10, 5/8-18, 5/8-11, 9/16-18, 9/16-12, 1/2-20, 1/2-13, 7/16-20, 7/16-14, 3/8-24, 3/8-16, 5/16-24, 5/16-18, 1/4-28, 1/4-20, 10-32, 10-24, 8-32, 6-40, 6-32	**615-6393**
43-piece mixed inch/metric set	All metric threads and inch threads from above	**615-6394**





Setting Masters & Standards

Planer and Shaper Gage

- Includes 1" and 3" extension posts for extended reach applications.
- Provides a quick, accurate method for setting tool heights on planers, shapers, and milling machines, eliminating the need for trial cuts.
- Set to any desired height using a micrometer, surface gage, or caliper; bring the cutting tool into contact with the gage to establish a precise starting point.
- Built-in precision level ensures the gage is correctly positioned on the work surface for reliable, repeatable readings.
- Platform features additional tapped holes to accommodate a dial indicator post or other accessories for expanded versatility.
- Also suitable for leveling large plates, use with sine bars, and as a height reference in conjunction with surface gages and dial indicators.



Length (in)	Width (in)	Height Range (in)	Order No.
5	3/4	1/4 - 6-1/4	**600-0049**

Precision Chrome Steel Gage Ball Set

- Used to calculate angle (a) and diameter (D) of countersinks, tapers, and bores by measuring ball engagement depth and height. Eliminates the need for specialized angle gages.
- Balls are ground and lapped from chrome steel, hardened to HRC 63, for exceptional wear resistance and long service life.
- Certified to Grade 24 accuracy (ISO 3290).
- Each set includes one pair of each size (two balls per diameter) for two-point measurement applications such as countersink and taper angle calculations.
- Supplied in a fitted carrying case for organized storage and easy field use.



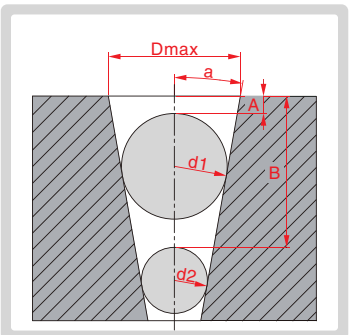
Inch

Pieces/Set	Size Range (in)	Grade (ISO)	Order No.
52	1/8 - 1	24	**614-6400**

Metric

Pieces/Set	Size Range (mm)	Grade (ISO)	Order No.
50	1 - 25	24	**614-6500**





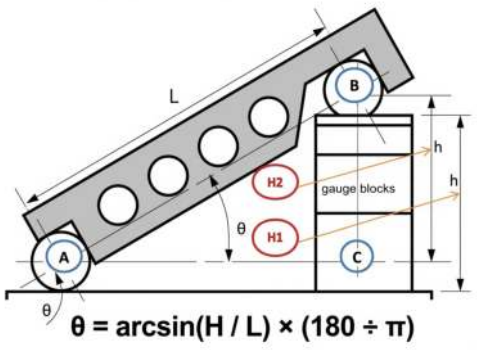
Calculate angle (a) and diameter (Dmax) according to the ball diameter (d1, d2), height (A) and depth (B)

EZ-Sine Bar Set

- Simplifies angle setup by eliminating trigonometric calculations: Simply select the pre-calculated riser block for the desired angle and place it under the sine bar roll.
- 5" hardened and precision ground sine bar; 1" body with top surface parallel to bottom within 0.0002".
- Each riser ground to an exact constant within 0.001".
- Supplied in a fitted carrying case; compatible with surface plates, milling machine tables, and other flat reference surfaces.



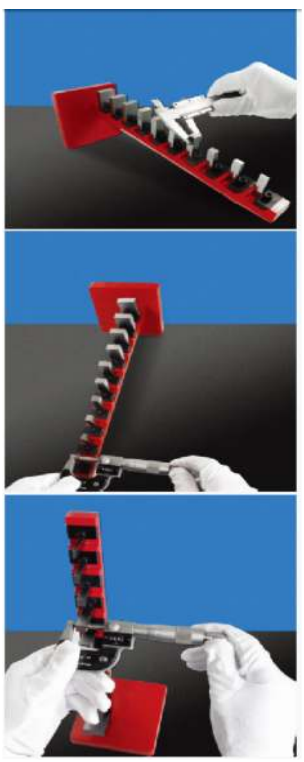




Total Risers/Set	Risers Included in Set			Taper-Per-Foot Risers Included in Set		Order No.
	Qty.	Size (degrees)	Increments (degrees)	Qty.	Size (in)	
18	1	1/2	-	1	1/4	647-9513
	15	1-15	1	1	1/2	

Micrometer & Caliper Setting Master Kit

- Grade 0 steel gage block sets for calibrating and setting calipers, micrometers, and other measuring instruments directly in the shop.
- Each set includes a certificate of calibration to ISO/IEC 17025 - no separate standards lab visit required.
- Each set includes one optical flat for checking measuring face flatness and parallelism.
- Supplied in a fitted case with a hex wrench for gage block handling.



Inch

Total Pieces/ Set	Blocks Included in Set		Optical Flats Included in Set		Grade (ASTM)	Order No.
	Block Qty.	Size (in)	Optical Flat Qty.	Size (in)		Steel
10	9	0.0625, 0.1000, 0.1250, 0.2000, 0.2500, 0.3000, 0.5000, 1.0000, 2.0000	1	Diameter: 1 Thickness: 0.5125 Flatness: 0.000004 Parallelism: 0.00002	0	612-9200

Metric

Total Pieces/ Set	Blocks Included in Set		Optical Flats Included in Set		Grade (ASTM)	Order No.
	Block Qty.	Size (mm)	Qty.	Size (mm)		Steel
11	10	2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25.0	1	Diameter: 30 Thickness: 12 Flatness: 0.0001 Parallelism: 0.0005	0	612-9204





Micrometer & Caliper Checking Set

- Precision gage block sets for checking and verifying the full range of micrometer spindle positions. No separate standards or reference instruments required.
- Each gage block is serialized and supplied with a certificate of individual deviation traceable to NIST/ISO 3650.
- Supplied in a fitted wooden case.



Inch

Total Pieces/Set	Blocks Included in Set		Optical Flats Included in Set		Grade (ASTM)	Order No.	
	Block Qty.	Size (in)	Optical Flat Qty.	Size (in)		Steel	Ceramic
12	10	0.105, 0.210, 0.315, 0.420, 0.500, 0.605, 0.710, 0.815, 0.920, 1.000	2	Diameter: 1 Thickness: 0.5125 Flatness: 0.000004 Parallelism: 0.00002	0	9100-9159	9100-9324
					1	9100-9160	9100-9325
11	10	0.105, 0.210, 0.315, 0.420, 0.500, 0.605, 0.710, 0.815, 0.920, 1.000	1	Diameter: 1 Thickness: 0.5125 Flatness: 0.000004 Parallelism: 0.00002	0	9100-9166	9100-9322
					1	9100-9167	9100-9323
11	9	0.0625, 0.100, 0.125, 0.200, 0.250, 0.300, 0.500, 1.000, 2.000	2	Diameter: 1 Thickness: 0.5125 Flatness: 0.000004 Parallelism: 0.00002	0	9100-9162	9100-9337
					1	9100-9163	9100-9338
					2	9100-9164	9100-9339
10	9	0.0625, 0.100, 0.125, 0.200, 0.250, 0.300, 0.500, 1.000, 2.000	1	Diameter: 1 Thickness: 0.5125 Flatness: 0.000004 Parallelism: 0.00002	0	9100-9156	9100-9334
					1	9100-9157	9100-9335
					2	9100-9158	9100-9336
9	9	0.0625, 0.100, 0.125, 0.200, 0.250, 0.300, 0.500, 1.000, 2.000	-	-	0	9100-9153	9100-9330
					1	9100-9154	9100-9331
					2	9100-9155	9100-9332
8	8	1, 2, 3, 4, 5, 6, 7, 8	-	-	0	9100-9168	9100-9326
					1	9100-9169	9100-9327

Metric

Total Pieces/Set	Blocks Included in Set		Optical Flats Included in Set		Grade (ISO/DIN/JIS)	Order No.	
	Block Qty.	Size (mm)	Optical Flat Qty.	Size (mm)		Steel	Ceramic
14	13	2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25.0, 50.0, 75.0, 100	1	Diameter: 30 Thickness: 12 Flatness: 0.0001 Parallelism: 0.0005	0	9100-9170	9100-9350
					1	9100-9179	9100-9351
11	10	2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25.0	1	Diameter: 30 Thickness: 12 Flatness: 0.0001 Parallelism: 0.0005	0	9100-9171	9100-9356
					1	9100-9172	9100-9357
					2	9100-9173	9100-9358
10	9	1.00, 1.25, 1.50, 2, 3, 5, 10, 15, 20	1	Diameter: 30 Thickness: 12 Flatness: 0.0001 Parallelism: 0.0005	0	9100-9177	9100-9352
					1	9100-9178	9100-9353
					2	-	9100-9354
8	8	25, 50, 75, 100, 125, 150, 175, 200	-	-	0	9100-9174	9100-9365
					1	9100-9175	9100-9366
					2	9100-9176	9100-9367

Bore Gage Setting Master Kit

- Precision gage block sets for checking and verifying the full range of micrometer spindle positions. No separate standards or reference instruments required.
- Each gage block is serialized and supplied with a certificate of individual deviation traceable to NIST/ISO 3650.
- Supplied in a fitted plastic or aluminum case.

Notes:

1. Before use, clean all excess preservative from gage blocks and flat jaws to ensure accurate contact.
2. Hold the bore gage vertical while rocking as tilting to either side may cause a false reading. After initial setting, sweep the bore at least once to confirm a repeatable measurement.
3. When storing, apply a light coat of preservative to the gage blocks and base anvil to prevent corrosion.



Aluminum Case



Plastic Case

Inch

Total Pieces/Set	Internal Capacity (in)	Tolerances (in)	Grade	Certificate of Calibration	Container	Order No.
36	0 - 6	±0.00005	Economy	NIST	Plastic	612-9110
					Aluminum	612-9120

Metric

Total Pieces/Set	Internal Capacity (mm)	Tolerances (µm)	Grade	Certificate of Calibration	Container	Order No.
33	0 - 150	±1.2	2	NIM	Plastic	612-9111
					Aluminum	612-9121

A - Fine adjust knob
B - Pressure bar
C - Stand
D - Fastening knob
E - Supporting anvil
F - Base
G - Supporting plate
H - Gage block

Assembly Instructions:



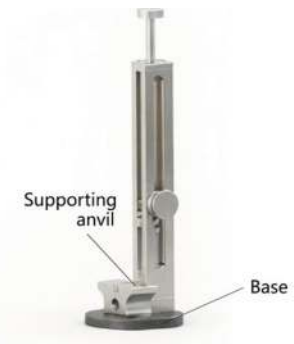
1. Connect the base and the supporting anvil.



2. Please note that this side is in the front.



3. Connect the supporting anvil and the stand.

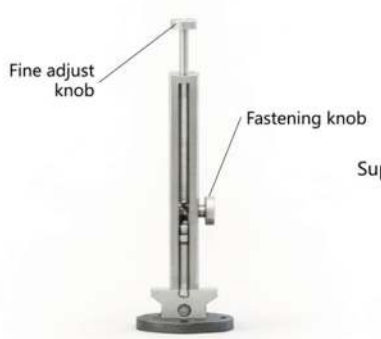


4. Complete assembly.

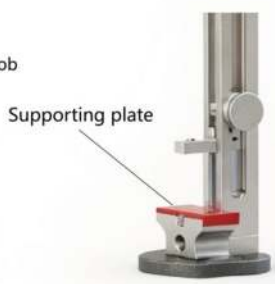
Operating Instructions:



1. Load the flat jaws and the suitable gage blocks for the required dimension.



2. Tighten the fastening knob, then push the pressure bar to the bottom. Hand tighten the fine adjustment knob to compress the flat jaws.



2.1. Load the supporting plate if the capacity of the workpiece is over 1.4" / 35 mm.



3. Insert the cylinder bore gage into the bore gage setting master kit, and while rocking the bore gage up and down, determine the reversal point of the bore gage. Set the indication as "0" at this reversal point.

Precision Sine Vises



- High-quality alloy steel construction, fully hardened and precision ground for long-term accuracy.
- Provides a tolerance of 0.005 mm / 0.0002" for both parallelism and squareness when setting and inspecting work at an angle.
- Ideal for grinding, inspection, and precision machining where accurate angular positioning is required.
- Works with gage blocks or angle blocks to generate precise compound angles.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Vise Length (in)	Order No.
2	1	2-1/2	5-3/8	**1428-9520**
3	1-1/4	3-3/4	7-1/2	**1428-9530**
4	1-5/8	5	10	**1428-9540**

Precision Toolmakers Vises



- Made from high-carbon steel (HRC 58-62) that is hardened, tempered and precision ground to ensure long-term dimensional stability.
- Guaranteed square and parallel within 0.005 mm / 0.0002" in any mounting orientation.
- Can be used on base, side, or end surfaces, making it suitable for grinding, EDM, inspection, and light machining of small parts.
- V-grooved jaw design securely holds both flat and round workpieces for detailed toolroom operations.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Vise Length (in)	Order No.
2	1	3	5-1/2	**1428-9220**
3	1-3/8	4	7-1/2	**1428-9230**
4	1-7/8	5	9-3/4	**1428-9240**

Precision Vises



- Rigid body with ground dovetail slide and hardened, ground jaws deliver consistent clamping accuracy for general precision work.
- Clamping slots and a 3/8" mounting hole in the base allow flexible fixturing to plates, angle plates, and machine tables.
- Jaw faces are square and parallel to the base within 0.005 mm / 0.0002", suitable for grinding, milling, and inspection setups.
- Detachable jaw plates can be reversed or replaced, extending vise life and allowing alternate jaw configurations.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
2	1	2-1/2	5.0	**1428-9020**
2-1/2	1-1/4	3-1/2	8.8	**1428-9025**
3	1-1/4	4	24.3	**1428-9030**

Precision Milling Machine Vise



- Heavy-duty ductile iron body provides excellent rigidity and vibration damping for milling and drilling operations.
- Stationary jaw is bolted from the top, reducing stress in the body and minimizing jaw lift under heavy clamping loads.
- Hardened vise bed and jaw plates maintain parallelism and squareness over years of service.
- Sealed bearing screw design improves clamping efficiency, protects internal components, and extends bearing life.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
4	1-1/4	5	33.1	**1428-7264**
6	1-1/2	9	75.6	**1428-7268**
8	2	10-1/2	146.4	**1428-7280**

Compact Modular Precision Milling Machine Vise

- One-piece body and stationary jaw design increases rigidity while reducing overall weight and footprint on the machine table.
- Lock-down style moving jaw applies downward clamping force to prevent workpiece lift during heavy cuts.
- Precision-ground bed and jaw surfaces maintain high parallelism and squareness for CNC and manual milling applications.
- Through-holes in the base provide side-by-side mounting and flexible fixturing options on mills and machining centers.



Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
4	1-1/4	4	33.1	**1428-7284**
6	1-1/2	6	66.1	**1428-7286**
8	2	8	114.6	**1428-7288**

Machine Vise with Prismatic Jaws



- Cast-iron machine vise with prismatic jaws for securely holding both round and flat stock on drill stands, bench stands, and small milling machines.
- Horizontal V-groove in the jaws centers round workpieces quickly for accurate drilling and light machining.
- Compact design is ideal for general-purpose shop use where quick clamping and reliable alignment are required.

Jaw Width (mm)	Jaw Depth (mm)	Jaw Opening (mm)	Weight (kg)	Order No.
125	50	100	9	**428-8435**

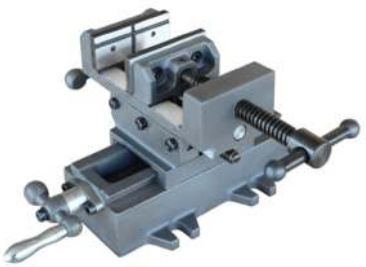
Manual Drilling Machine Vise

- General-purpose drilling vise for clamping and securing components on drill presses and drilling machines.
- Sturdy cast body with fixed base and screw-actuated moving jaw provides dependable clamping in maintenance and fabrication shops.
- Simple, economical design suited to repetitive drilling, tapping, and reaming operations on small and medium parts.



Jaw Width (mm)	Jaw Depth (mm)	Jaw Opening (mm)	Weight (kg)	Order No.
60	25	70	3.2	**428-8431**
100	32	130	11.7	**428-8432**
120	40	160	18.0	**428-8433**
150	40	200	23.8	**428-8434**

Heavy-Duty Cross Vises



- Cross-slide drill press vises provide X- and Y-axis travel for accurate positioning and hole patterns without moving the workpiece.
- Robust cast-iron construction with precision feed screws ensures smooth longitudinal and cross movement under load.
- Ideal for drilling, light milling, and slotting operations on parts that require precise hole location or multiple operations in one setup.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
3	1-1/16	3-1/4	17.2	**5428-8313**
4	1-3/8	4	22.0	**5428-8314**
5	1-1/2	5	42.0	**5428-8315**
6	1-9/16	6	62.0	**5428-8316**
8	2	8	79.5	**5428-8318**

Cradle Style Angle Vises



- Cradle-style angle vise allows the workpiece to be set and locked at any angle from 0° to 90° relative to the machine table, with scale graduated in 1° increments for fine angle settings.
- Positive pin stops at common angles (0°, 15°, 30°, 45°, 60°, 75°, 90°) provide fast, repeatable setups for angled drilling and tapping.
- Hardened, ground jaws square to base within 0.002" and rigid cradle design deliver secure clamping for angular operations on drill presses and light mills.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
3	1-1/8	3	13	**5428-7204**
4	1-1/2	4	20	**5428-7203**

Low-Profile Drill Press Vises



- Low-profile body maximizes vertical working room on drill press tables, ideal where quill travel is limited.
- Base incorporates 1/2" shoulder slots or clamping slots for quick positioning and secure mounting on most drill press tables.
- Hardened, replaceable jaws with V-grooves hold round or flat workpieces for drilling, tapping, and reaming.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
3	1-1/8	3	10	**5428-8461**
4	1-1/2	4	15	**5428-8462**
6	2	6	34	**5428-8464**
8	2	8	54	**5428-8465**

Industrial Drill Press Vises



- Heavy-duty drill press vises machined on all four sides for versatile mounting on base, side, or end.
- Gray cast-iron body with precision-ground fixed jaw and removable steel jaw plates provides solid, vibration-resistant clamping.
- Designed for production drilling and tapping where repeatable positioning and high clamping force are required.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Overall Length (in)	Weight (lb)	Order No.
4	1-1/2	4	7-5/16	9	**5428-7406**
6	2	6	11-15/16	24	**5428-7407**

Industrial Angle Vises



- Industrial angle vises feature a tilting body up to 90° and swivel base that together allow the jaws to be set to almost any compound angle.
- Angle hinge is graduated in 1° increments, with base and bed ground parallel and jaw faces square within close tolerances for accurate setups.
- Mounts via two 5/8" keyways and bolt slots for quick, repeatable location on standard machine tables.
- Suited for drilling, tapping, reaming, milling, and grinding tasks that require frequent, precise angle changes on the machine.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Weight (lb)	Order No.
4	1-1/2	4	37	**5428-7201**
6	2	6	86	**5428-7202**

Quick Release Drill Press Vises



- Quick-action drill press vises with rack-and-pinion or cam mechanism for rapid jaw opening and closing in production drilling applications.
- Precision-ground guide surfaces and lead screw provide smooth clamping and reliable alignment of the workpiece.
- Replaceable, hardened jaw plates are precision ground flat for long and accurate service life and can be customized to suit specific holding requirements.

Jaw Width (in)	Jaw Depth (in)	Jaw Opening (in)	Height (in)	Base Length (in)	Base Width (in)	Weight (lb)	Order No.
3	1-1/16	3	2-3/4	7-1/4	5-3/8	9	**5428-8503**
4	1-3/8	4	3-9/16	11-3/16	5-3/4	19	**5428-8504**
6	1-5/8	6	4-5/16	14-5/8	9-3/16	34	**5428-8506**
8	1-5/8	8	4-1/2	18-1/2	11-3/8	59	**5428-8508**

Aluminum Soft Prism-Face Vise Jaws with Magnet

- Aluminum soft jaws with prism-face profile provide secure, non-marring grip on a wide range of shapes and materials.
- Jaw face incorporates a 120° horizontal V-groove and a vertical V-groove for holding round work and for accurate marking-out or center punching.
- Built-in circular permanent magnets hold the jaw caps firmly to the vise while protecting both the vise jaws and workpiece during light tapping and threading operations.

Size	Order No.
3.0" / 76 mm	**427-0088**
4.0" / 101 mm	**427-0089**
4.5" / 114 mm	**427-0090**
5.0" / 127 mm	**427-0091**
6.0" / 152 mm	**427-0092**
6.5" / 165 mm	**427-0093**
8.0" / 203 mm	**427-0094**





Aluminum Soft Vise Jaws with Magnet

- With built-in circular permanent magnets.
- Designed to protect both the vise jaws and the workpiece from marring and distortion during any clamping application.
- Grooves ensure tight holding of different shapes of work pieces.
- Aluminum alloy design includes straight grooves to compensate for the unevenness of the workpiece.

Size	Order No.
4" / 101 mm	**427-0040**
5" / 127 mm	**427-0050**
6" / 152 mm	**427-0060**
8" / 203 mm	**427-0080**





Aluminum Soft Rubber-Face Vise Jaws with Magnet

- Aluminum jaw caps with synthetic rubber facing conform to the workpiece and provide a high-friction, non-slip grip while protecting the surface.
- Ideal for holding finished, coated, or delicate components where standard steel jaws would scratch or deform the material.
- Built-in circular permanent magnets secure the jaw covers to the vise, allowing fast setup and removal as needed.

Size	Order No.
3.0" / 76 mm	**427-0081**
4.0" / 101 mm	**427-0082**
4.5" / 114 mm	**427-0083**
5.0" / 127 mm	**427-0084**
6.0" / 152 mm	**427-0085**
6.5" / 165 mm	**427-0086**
8.0" / 203 mm	**427-0087**





Aluminum / Steel Soft Jaws

- Aluminum machinable vise jaws (set of 2) sized to fit common precision milling vises.
- Easily machined for drill or mill features to create custom pockets or locating surfaces tailored to the workpiece.
- Lightweight, reusable design protects finished parts and helps shorten setup times on repeat jobs.



Size (in)	Order No.	
	Steel	Aluminum
4-1/8 x 1-1/2 x 1	**428-1062**	**428-1061**
4-1/8 x 1-3/4 x 3/4	**428-1064**	**428-1063**
6-1/8 x 2 x 1	**428-1066**	**428-1065**
6-1/8 x 2 x 1-1/2	**428-1068**	**428-1067**
6-1/8 x 2 x 2	-	**428-1069**
8-1/8 x 2-1/2 x 1	-	**428-1070**
8-1/8 x 2-1/2 x 1-1/4	-	**428-1071**
8 x 2-1/2 x 1-1/4	-	**428-1072**
3 x 1 x 1/2	-	**428-1073**
6 x 4 x 3/4	-	**428-1074**
6 x 2 x 3/4	-	**428-1075**
6 x 3 x 2	-	**428-1076**
5-1/8 x 1-1/2 x 3/4	-	**428-1077**
12 x 2-1/2 x 1-1/4	-	**428-1078**
6 x 2 x 2	-	**428-1079**
6 x 4 x 2	-	**428-1080**
6 x 3 x 3/4	-	**428-1081**
4 x 1-1/4 x 5/8	-	**428-1082**
4 x 1-1/2 x 3/4	-	**428-1083**
6 x 2-1/2 x 1	-	**428-1084**
6 x 3 x 1	-	**428-1085**
6 x 3 x 1-1/2	-	**428-1086**
4 x 1-1/4 x 5/8	-	**428-1087**
5-1/8 x 1-1/2 x 3/4	-	**428-1088**
6 x 2 x 3/4	-	**428-1089**
8-1/8 x 2-1/4 x 1-1/8	-	**428-1090**

Quickie Vise Handles

- Quick-action replacement handle with bearing bushing lets you open and close the vise smoothly with minimal effort.
- Magnetic hanger and included locking bolt allow the handle to be parked conveniently on the machine and secured to the vise when in use.
- Anodized handle fits common milling vises, providing a durable, ergonomic upgrade to standard vise cranks.

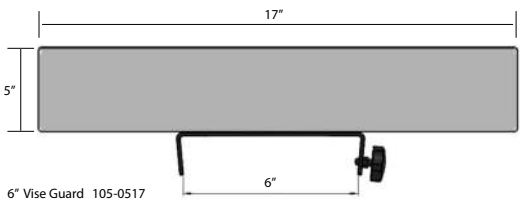




Holes	Fits vises with hex size	Order No.
1	3/4" hex	**209-9023**
2	3/4" hex	**209-9024**
2	5/8" hex	**209-9025**

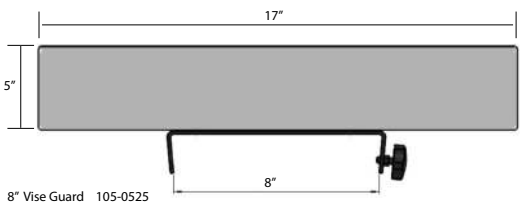
Vise Guard

- Drop-on vise-mounted guard fits the end of most standard vises and flips down quickly using a heavy-duty hinge.
- High-strength, shatter-resistant polycarbonate shield deflects chips and coolant down and away from the operator while maintaining a clear view of the work.
- Simple clamp-on design adjusts and locks in place with a knob, making it easy to add point-of-operation protection to existing machine setups.



6″ Vise Guard 105-0517





8″ Vise Guard 105-0525



Width (in)	Depth (in)	Thickness (in)	Mount Width (in)	Order No.
17	5	3/16	8" vise	**105-0525**
17	5	3/16	6" vise	**105-0517**



5C Collet Chuck Fixtures

- 5C collet fixtures for holding round, hex, and square 5C collets on lathes, grinders, and other equipment where compact, high-precision workholding is required.
- Hardened and ground body with scroll-and-pinion actuation provides strong, concentric clamping over the full 5C collet range.
- Available in plain-back and D1-4 camlock styles for mounting to common spindle noses or adapter plates.
- Compatible with round (1 mm - 28 mm / 1/32" - 1-1/8"), square (3 mm - 19 mm / 1/8" - 3/4"), and hex (3 mm - 22 mm / 1/8" - 7/8") 5C collets (sold separately).

Mount	Fixture Dimension			Order No.
	D (mm)	d (mm)	L (mm)	
Plain-back	126	95	107.2	**235-6083**
D1-4 camlock	126	95	107.2	**235-6086**



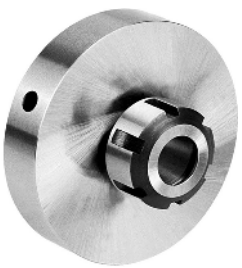
Order No. 235-6083



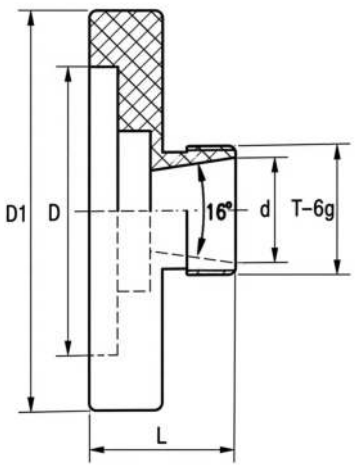
Order No. 235-6086

ER Collet Chuck Fixtures-Straight

- Plain-back ER collet fixtures designed to mount on your choice of backplate for use on a lathe, or as bolt-down fixtures on a milling table.
- Accept standard ER collets to grip a wide range of tool and workpiece diameters with strong, uniform clamping.
- Hardened and precision ground for good runout and surface finish in drilling, reaming, and light milling applications.



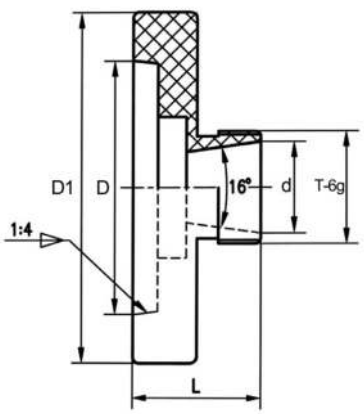
D (mm)	D1 (mm)	d (mm)	T (mm)	L (mm)	Compatible Collet Size	Order No.
22	45	16	M22x1.5	25	ER16	**235-7001**
72	100	25	M32x1.5	36	ER25	**235-7002**
52	162	25	M32x1.5	36	ER25	**235-7003**
62	100	25	M32x1.5	40	ER25	**235-7009**
100	132	32	M40x1.5	34	ER32	**235-7004**
95	86	32	M40x1.5	42	ER32	**235-7010**
72	100	32	M40x1.5	42	ER32	**235-7006**
95	125	32	M40x1.5	42	ER32	**235-7011**
100	132	32	M40x1.5	42	ER32	**235-7008**
130	160	32	M40x1.5	42	ER32	**235-7013**
132	163	32	M40x1.5	42	ER32	**235-7012**



ER Collet Chuck Fixtures-Taper

- ER collet chuck with integral taper shank for direct mounting in a compatible machine spindle or toolholder, eliminating the need for a separate backplate.
- Uses standard ER collets (ER25) to hold round-shank tools or small workpieces for lathe, milling, or stationary clamping setups.
- Hardened and ground for improved runout performance and secure clamping at typical manual machine speeds.



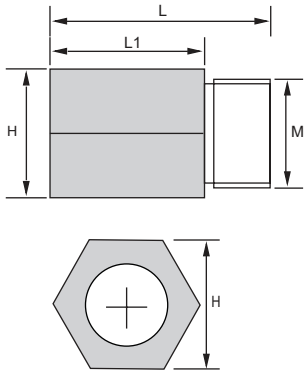


D (mm)	D1 (mm)	d (mm)	T (mm)	L (mm)	Compatible Collet Size	Order No.
53.975	102	25	M32x1.5	40	ER25	**235-7014**

ER Collet Blocks

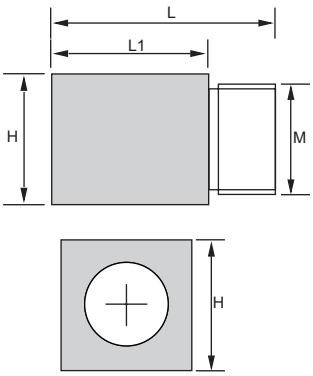
- Hardened tool steel hex collet block, ground to 0.0005" flatness, squareness, and parallelism for accurate indexing on mills and CNC machines.
- Uses standard ER collets (ER nut included); through-hole allows long parts to pass completely through for machining.
- Available in either hex or square form - Quickly index round, square, or hex workpieces in fixed angular steps (60° with the hex body, 90° with the square body) for milling flats or drilling cross-holes on CNC and manual machines.
- ER collets sold separately.

Hex



Collet Block Type	L (mm)	L1 (mm)	H (mm)	M (mm)	Compatible Collet Size	Order No.
Hex	60	42	30	M32x1.5	ER25	**235-7060**
	60	40	40	M40x1.5	ER32	**235-7062**
	70	49	44.45	M50x1.5	ER40	**235-7064**
Square	60	42	30	M32x1.5	ER25	**235-7061**
	60	40	40	M40x1.5	ER32	**235-7063**
	70	49	44.45	M50x1.5	ER40	**235-7065**

Square





ER-25/32/40 Hex Collet Block



ER-25/32/40 Square Collet Block



Flexible Form-Adapting Clamping System

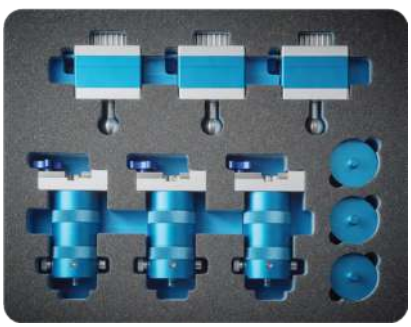
- Modular clamping system uses densely packed, individually movable pins that adapt to the workpiece contour, creating a custom “nest” in seconds without dedicated fixtures.
- Includes square and circular pin blocks plus a pressure plate assembly; together they support flat, contoured, and irregular parts for holding, forming, and repeat positioning.
- Universal joint columns provide multi-angle adjustment with horizontal and vertical stroke, allowing the pin modules or pressure plate to be aligned and locked in place on inclined, curved, or stepped setups.
- Pressure plate assembly clamps pins and workpiece simultaneously to prevent movement under load, then releases to let the pins spring back to their original position for the next part.
- Robust aluminum column and base construction with stainless pin fields deliver stable clamping while protecting delicate or thin-walled components from point loads and deformation.
- Ideal for flexible fixturing in quality control, low-volume production, prototyping, and CMM/inspection, where frequent changeovers make conventional custom fixtures too slow or expensive.
- Each system comes with three sets of the square, circular and pressure plate assembly components.

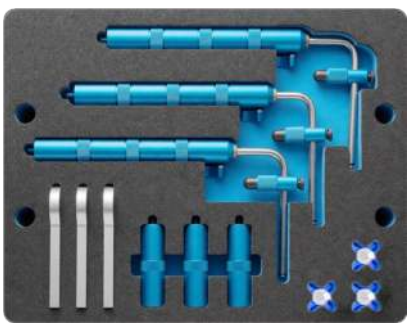




Each pin operates independently, conforming precisely to the contour of the workpiece. The pin matrix self-adapts to any geometry, enabling accurate support of complex or irregular part profiles.

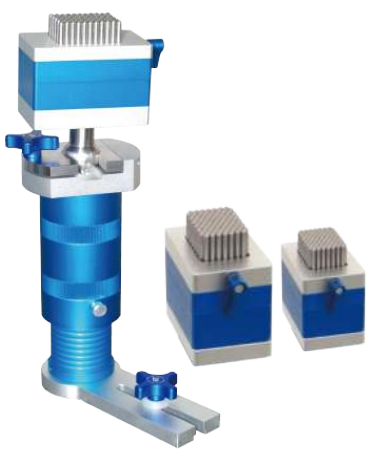
Component	Horizontal Adjustment (mm)	Vertical Height (mm)	Modular Height Extension (mm)	Order No.
Square Clamp	0 - 150	135 - 195	60 (per column)	**150-5306**
Circular Clamp	0 - 150	260 - 420	30 / 50 / 100	
Pressure Plate Assembly	0 - 150	260 - 420	30 / 50 / 100	







Position the workpiece onto the pin bed to conform the pins to the part's surface geometry. Once the desired form is achieved, tighten the locking bolt to securely fix all pins in place, maintaining the exact surface profile for repeatable fixturing.



Flexible Form-Adapting Clamping System - Square



Flexible Form-Adapting Clamping System - Circular



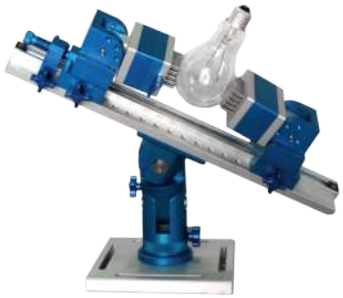
Pressure Plate Assembly



Once the pin matrix has captured the workpiece profile, the fixture is ready for precision positioning, supporting, and clamping operations. When the fixture is no longer needed, simply release the locking bolt and the pins spring back to their neutral position.

Flexible Form-Adapting Clamping System - Type B

- B Type configuration adds a long travel column and multi-pivot head to support universal spatial adjustment, so the form-adapting pin block can be brought to the optimal working or measuring position over a wide clamping range.
- Intended for clamping and/or supporting small to medium-sized workpieces in metrology, light assembly, haptic testing, and laser marking, especially where delicate surfaces and intricate contours must be held securely without damage while enabling fast, repeatable changeovers.





Clamping Range (mm)	Size (mm)	Square Pin Size (mm)	Pin Diameter (mm)	Pin Stroke (mm)	Order No.
0 - 120	460 x 80 x 330	44 x 32	4	15	**150-5405**

Flexible Form-Adapting Clamping System - Type C

- C Type configuration features a tilting bridge that provides up to 180° of adjustment in both horizontal and vertical directions, allowing the pin block to be oriented precisely to inclined, vertical, or inverted work surfaces.
- Well suited for small to medium-sized parts that require angled viewing or access during metrology, light assembly, or laser marking, while still offering gentle, contour-true support for delicate and filigree geometries with high changeover efficiency.



Clamping Range (mm)	Size (mm)	Square Pin Size (mm)	Pin Diameter (mm)	Pin Stroke (mm)	Order No.
0 - 100	200 x 40 x 190	21 x 24	2.5	14	**150-5407**

Flexible Form-Adapting Clamping System - Type D

- D Type configuration combines a compact column with a spherical pivot head for universal angular adjustment in a small footprint, making it ideal where space is limited or where the clamping point must be positioned within tightly packed fixtures.
- Designed for smaller workpieces that still demand precise, contour-conforming support (such as fine mechanical parts, medical components, or detailed test samples) while maintaining the same high efficiency in workpiece changeover as the larger systems.

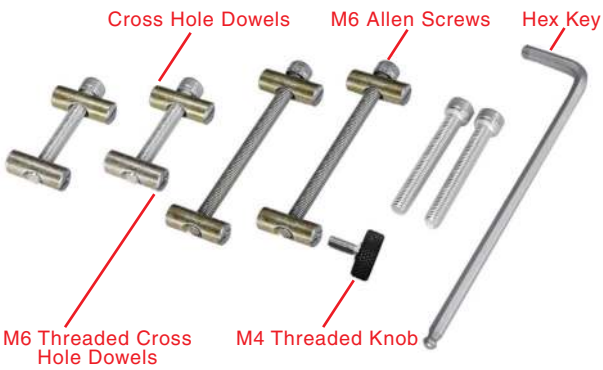


Clamping Range (mm)	Size (mm)	Square Pin Size (mm)	Pin Diameter (mm)	Pin Stroke (mm)	Order No.
0 - 35	100 x 100 x 153	27 x 17	3	16	**150-5406**

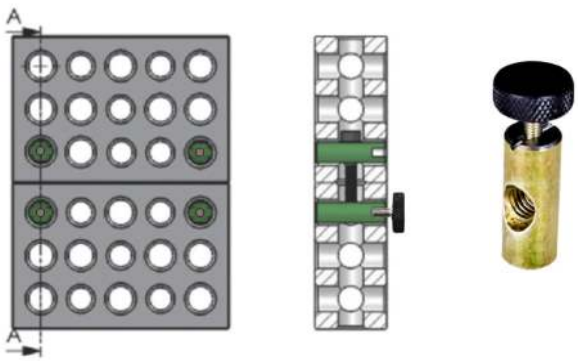
1-2-3 Blocks Attachment Hardware Kit

- Complete setup kit combines two matched pairs of hardened, precision-ground 1-2-3 blocks with a dedicated attachment hardware set, allowing blocks to be rigidly joined together and function as 2-4-6 style blocks in a lightweight 4.5 lb package.
- Blocks are ground on all six faces with squareness and parallelism within 0.0001" per inch; 3/8" through holes are patterned for mounting, conversion into angle plates, and use as reference stops in inspection or production setups.
- Hardware kit includes threaded and through-hole dowels, M6 Allen screws in multiple lengths, and an M4 knob and hex key; all hardware nests inside the block holes so joined faces remain flush, with no exposed bolt heads to interfere with clamping or measurement.
- Supplied in a fitted storage case that keeps blocks and hardware organized for fast, repeatable setups on mills, drill presses, surface plates, and inspection fixtures.



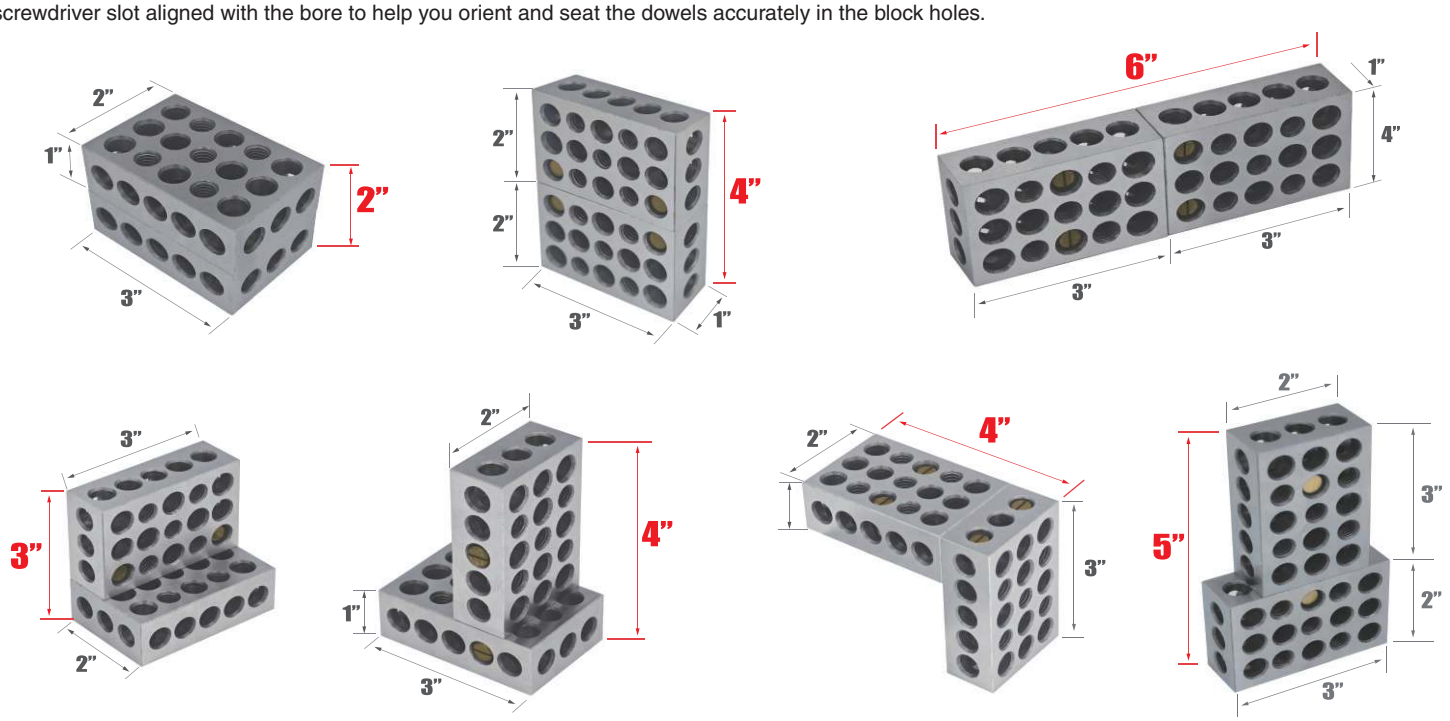


Pieces/Set	Pieces included in Set		Order No.
	Qty.	Pieces	
16	4	9 mm Cross Hole Dowels	630-4044
	4	9 mm M6 Threaded Cross Hole Dowels	
	4	M6 x 30 mm Allen Screws	
	2	M6 x 70 mm Allen Screws	
	1	Hex Key	
	1	M4 Threaded Knob	
20	4	1" x 2" x 3" Blocks	630-4043
	4	9 mm Cross Hole Dowels	
	4	9 mm M6 Threaded Cross Hole Dowels	
	4	M6 x 30 mm Allen Screws	
	2	M6 x 70 mm Allen Screws	
	1	Hex Key	
	1	M4 Threaded Knob	



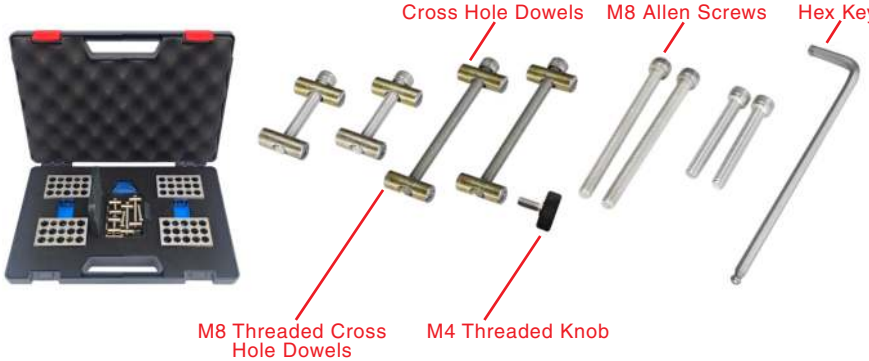
Using this hardware allows two blocks to be attached to each other in literally every possible configuration

To join two blocks, insert a through-hole dowel into a hole in the first block and pass a screw through the dowel. Insert a threaded dowel with the M4 knob into the matching hole in the second block, then tighten the screw into the threaded dowel to clamp the blocks together. Each dowel has a straight screwdriver slot aligned with the bore to help you orient and seat the dowels accurately in the block holes.

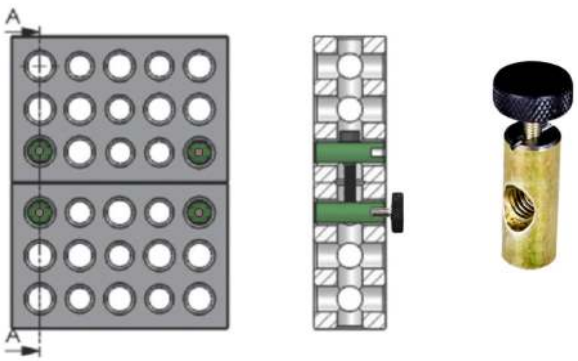


2-4-6 Blocks Attachment Hardware Kit

- Complete setup kit combines two matched pairs of hardened, precision-ground 2-4-6 blocks with a dedicated attachment hardware set, allowing blocks to be rigidly joined together and function as 8-10-12 style blocks in a single 37 lb package.
- Blocks are ground on all six faces with squareness and parallelism within 0.0001" per inch; 5/8" through holes are patterned for mounting, conversion into angle plates, and use as reference stops in inspection or production setups.
- Hardware kit includes threaded and through-hole dowels, M8 Allen screws in multiple lengths, and an M4 knob and hex key; all hardware nests inside the block holes so joined faces remain flush, with no exposed bolt heads to interfere with clamping or measurement.
- Supplied in a fitted storage case that keeps blocks and hardware organized for fast, repeatable setups on mills, drill presses, surface plates, and inspection fixtures.

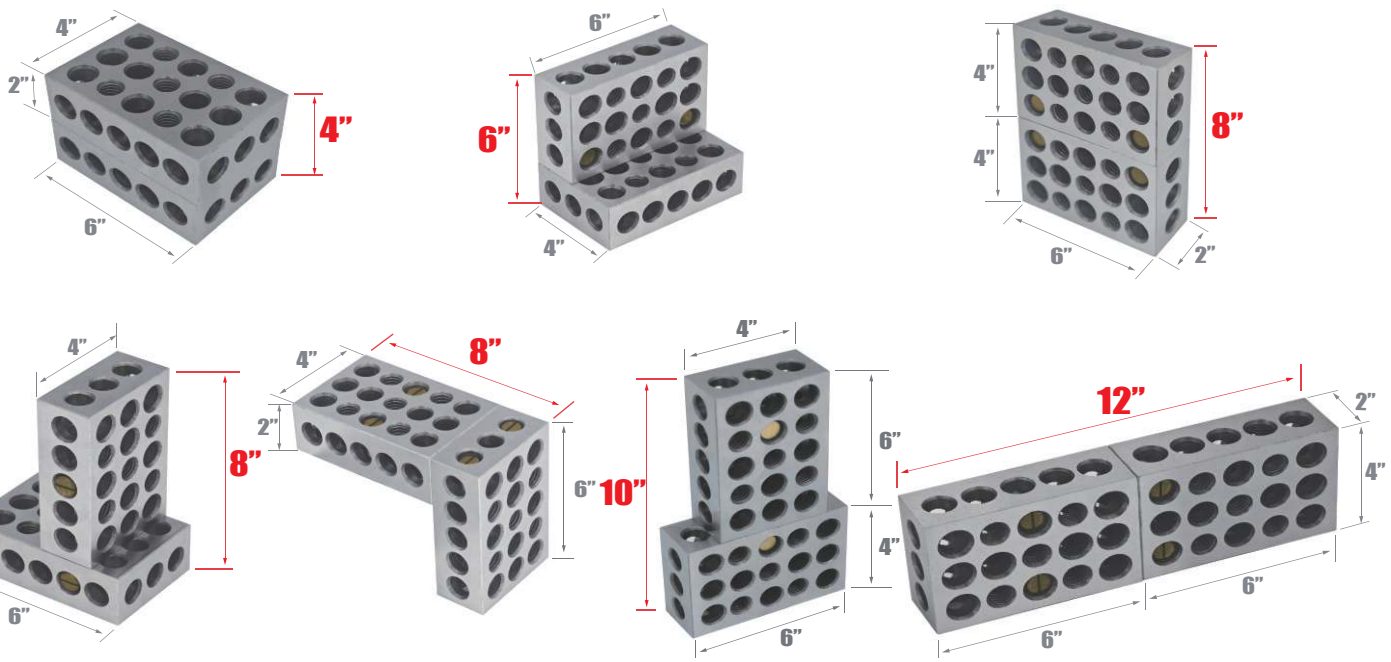


Pieces/Set	Pieces included in Set		Order No.
	Qty.	Pieces	
18	4	12 mm Cross Hole Dowels	630-4049
	4	12 mm M8 Threaded Cross Hole Dowels	
	4	M8 x 60 mm Allen Screws	
	4	M8 x 110 mm Allen Screws	
	1	Hex Key	
	1	M4 Threaded Knob	
22	4	2" x 4" x 6" Blocks	630-4040
	4	12 mm Cross Hole Dowels	
	4	12 mm M8 Threaded Cross Hole Dowels	
	4	M8 x 60 mm Allen Screws	
	4	M8 x 110 mm Allen Screws	
	1	Hex Key	
	1	M4 Threaded Knob	



Using this hardware allows two blocks to be attached to each other in literally every possible configuration

To join two blocks, insert a through-hole dowel into a hole in the first block and pass a screw through the dowel. Insert a threaded dowel with the M4 knob into the matching hole in the second block, then tighten the screw into the threaded dowel to clamp the blocks together. Each dowel has a straight screwdriver slot aligned with the bore to help you orient and seat the dowels accurately in the block holes.

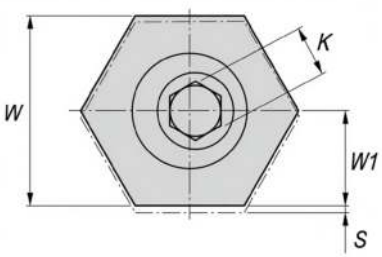


Fixture Clamps

- Low-profile cam-action fixture clamps provide fast, strong side clamping from a single tapped hole, leaving the top of the workpiece clear for machining.
- Each clamp consists of a hardened steel socket cap screw with offset cam head and a brass hexagonal washer, delivering reliable down and side force while minimizing fixture cost and setup time.
- Compact design is ideal for securing parts on linear guide rails, pallets, and custom fixtures where multiple parts must be clamped in a confined space.



Thread Size (in)	Distance (in)	Order No.
8-32	0.150	**0064-25796**
10-32	0.250	**0064-25876**
1/4-20	0.308	**0064-25956**
5/16-18	0.400	**0064-26036**
5/16-24	0.400	**0064-26116**
3/8-16	0.400	**0064-26296**
1/2-13	0.500	**0064-26376**
5/8-11	0.590	**0064-26456**





5 Axis Milling Stop

- Fully articulating 5-axis work stop mounts via T-nut in 16 mm table slots and positions the stop rod in any direction through 360° rotation, so workpieces can be repeatably located without repositioning the fixture.
- The 1/4" stop rod is user-modifiable — cut shorter, swapped out, or extended with standard bar stock to suit any workpiece height or reach requirement.
- Locking lever secures all axes simultaneously and can be positioned at 360° to avoid interference with the spindle, workpiece, or vise hardware.





T-Slot (in)	Order No.
5/8	**209-9009**
7/16	**209-9011**

Super Wee-Vee Block Set

- Matched pair of hardened, precision ground chrome steel miniature vee-blocks accurate to 0.0002"; two block sizes (A and B) cover a combined capacity range for holding small, miniature, and intricate cylindrical parts.
- Each block includes a corresponding bridge clamp; five upper prisms in three sizes provide additional clamping configurations for very small diameter parts.
- Suitable for grinding, indexing, drilling, milling, EDM, and optical comparator inspection setups; complete set supplied in an attractive fitted plastic case.



Pieces/Set	Pieces Included in Set			Order No.
	Qty.	Pieces	Description (in)	
11	2	Vee Blocks	2-3/4 L x 1-3/4 W x 1-7/16 H; V-capacity 1-1/2	**420-3029**
	2	Wee Blocks	Size A: 0.03" - 5/32" Size B: 0.05" - 9/32"	
	2	Bridge Clamps	Size A Size B	
	5	Upper Prisms	2x 1/8 2x 5/32 1x 3/16	





Heavy-Duty Thread Table Cart

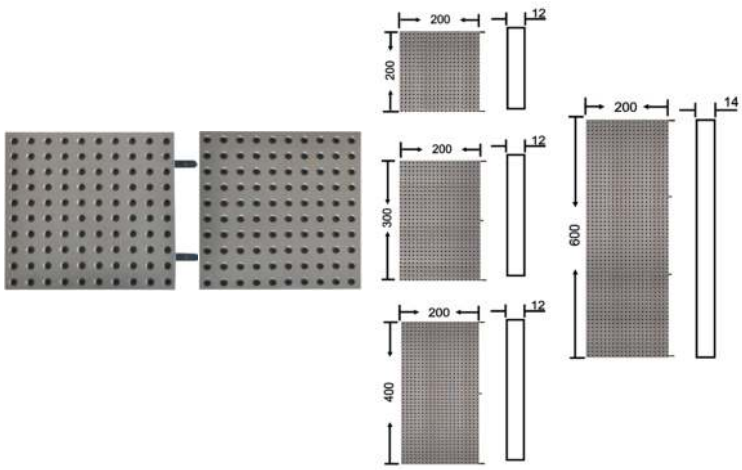
- Rigid breadboard-style instrument table in multiple configurations, with a precision grid of threaded inserts for mounting laser trackers, articulating arms, and laser projectors.
- Universal mounting rings and fixture kit are included and the table is compatible with magnetic bases, providing flexible instrument positioning without additional adapter hardware.



Granite Size (in)	Metric Thread Size	Inch Thread Size	Order No.
24 x 36	M6	-	**150-3139**
24 x 36	M8	-	**150-3140**
28 x 48	M6	-	**150-3142**
28 x 48	M8	-	**150-3143**

CMM Aluminum Fixture Plates

- Precision-ground aluminum base plates with M8 threaded holes on a 20 mm grid pattern, providing a versatile staging area for building repeatable CMM inspection fixtures for parts of any shape or size.
- Hard-coat anodized surface resists wear and scratching while keeping the plate lightweight; plates can be mounted directly to the CMM surface plate using step blocks, toe clamps, or by drilling through to the CMM inserts.
- Also available in nylon material for applications where aluminum contact may damage sensitive workpiece surfaces.

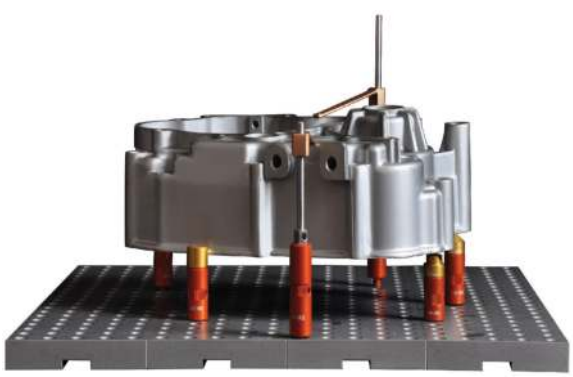


Length (mm)	Width (mm)	Thickness (mm)	Order No.
200	200	12	**6100-1919**
300	200	12	**6100-1920**
400	200	12	**6100-1921**
600	200	14	**6100-1922**

CMM Universal Fixture Set

- Comprehensive modular fixturing kit that combines a hard-coat anodized aluminum base plate with a full assortment of M8 thread components, allowing fast construction of custom fixtures for complex and irregular workpiece geometries without dedicated tooling.
- All components work together in optimized combinations to accommodate a wide variety of part shapes and sizes, enabling repeatable positioning across multiple inspection setups; supplied in a fitted waterproof hard case for protected storage and transport.







(CMM Universal Fixture Set - continued)

108 Pieces

Component	Specification	Qty.	Set Order No.
Standoff	16 mm x 30 mm	2	150-5205
	16 mm x 50 mm	2	
	20 mm x 30 mm	2	
	20 mm x 50 mm	2	
Adjustable Standoff (Screw Jack Assembly)	16 mm x 45 mm x 60 mm	2	
	20 mm x 45 mm x 60 mm	2	
Lifting Column	60 mm x 30 mm x 400 mm	2	
Spring Clip	12 mm x 50 mm	2	
	12 mm x 5 mm x 50 mm	2	
Spring Clip Post	6 mm x 60 mm	2	
	6 mm x 100 mm	2	
Horizontal Toggle Clamp	-	1	
Manual Hold-Down Toggle Clamp	-	1	
Double-End Stud	M8 x 75 mm	4	
	M8 x 100 mm	4	
	M8 x 125 mm	4	
	M8 x 150 mm	4	
Coupling Nut	15 mm x 24 mm x M8	4	
	20 mm x M8	6	
Tapped Base - Vertical	12 mm x 22 mm x 118 mm	2	
Tapped Base - Level	12 mm x 22 mm x 110 mm	2	
Adjustable Swivel Support	45°	2	
Single Clamp	10 mm x 22 mm x 118 mm	2	
	10 mm x 22 mm x 78 mm	2	
Adjustable Positioner	10 mm x 20 mm x 78 mm	3	
M8 Thumb Screw	M8 x 20 mm	4	
M8 Screw	M8 x 20 mm	6	
Profiling Tip	A Tip - Aluminum	2	
	A Tip - Nylon	2	
	B Tip - Aluminum	2	
	B Tip - Nylon	2	
	C Tip - Aluminum	2	
	C Tip - Nylon	2	
	D Tip - Aluminum	2	
	D Tip - Nylon	2	
	E Tip - Aluminum	2	
	E Tip - Nylon	2	
	F Tip - Aluminum	2	
	F Tip - Nylon	2	
	G Tip - Aluminum	2	
	G Tip - Nylon	2	
CMM Fixture Plates	12 mm x 400 mm x 400 mm (M8)	1	
Dust Blower	-	1	
WD-40	-	1	
Key	3.8 mm x 70 mm	1	
Hex Key	M2.5	1	
	M5	1	
	M6	1	

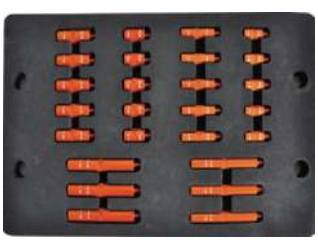
106 Pieces

Component	Specification	Qty.	Set Order No.
Standoff	16 mm x 30 mm	5	150-5201
	16 mm x 50 mm	5	
	16 mm x 100 mm	3	
	20 mm x 30 mm	5	
	20 mm x 50 mm	5	
	20 mm x 100 mm	3	
Adjustable Standoff (Screw Jack Assembly)	16 mm x 45 mm x 60 mm	2	
	20 mm x 45 mm x 60 mm	2	
Horizontal Spring Clamp	-	2	
Horizontal Screw Clamp	-	2	
Magnetic Standoff	20 mm x 25 mm	3	
Pin Standoff	20 mm x 25 mm	2	
Spring Pusher Clamp Standoff	20 mm x 25 mm	1	
Adjustable Swivel Support	45°	2	
Extended Vee-Block	M8	2	
Stationary Vee-Block	M8	2	
Spring Clip	12 mm x 50 mm	2	
	12 mm x 5 mm x 50 mm	2	
Spring Clip Post	6 mm x 60 mm	2	
	6 mm x 100 mm	2	
Adjustable Positioner	10 mm x 20 mm x 78 mm	3	
Lifting Column	30 mm x 30 mm x 25 mm	2	
M8 Thumb Screw	M8 x 20 mm	6	
M8 Screw	M8 x 20 mm	6	
Profiling Tip	A Tip - Aluminum	2	
	A Tip - Nylon	2	
	B Tip - Aluminum	2	
	B Tip - Nylon	2	
	C Tip - Aluminum	2	
	C Tip - Nylon	2	
	D Tip - Aluminum	2	
	D Tip - Nylon	2	
	E Tip - Aluminum	2	
	E Tip - Nylon	2	
	F Tip - Aluminum	2	
	F Tip - Nylon	2	
	G Tip - Aluminum	2	
	G Tip - Nylon	2	
CMM Fixture Plates	12 mm x 400 mm x 400 mm (M8)	1	
Dust Blower	-	1	
WD-40	-	1	
Key	3.8 mm x 70 mm	1	
Hex Key	M2.5	1	
	M5	1	
	M6	1	







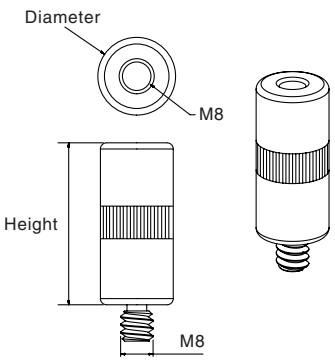



Standoff

- Anodized aluminum standoffs precisely raise, position, or support workpieces and fixture components at fixed heights for CMM, vision, and multi-sensor inspection setups.
- M8 thread base with through-hole design supports stacking of multiple connections for flexible fixture building.

Height (mm)	Diameter (mm)	Order No.
30	16	**6100-10018**
50	16	**6100-10028**
100	16	**6100-10038**
30	20	**6100-10048**
50	20	**6100-10058**
100	20	**6100-10068**



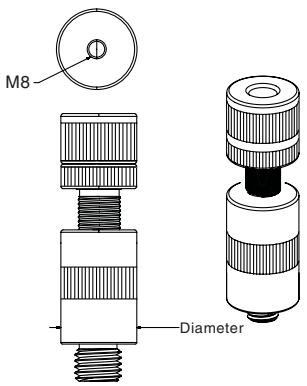


Adjustable Standoff (Screw Jack Assembly)

- Variable-height screw jack standoff uses M8 base and M6 adjustment thread to extend reach, ideal for holding components at precise but non-standard heights without custom fabrication.
- Anodized aluminum construction; available in multiple stowed/extended length configurations and customizable as made-to-order.

Diameter (mm)	Stowed Length (mm)	Extended Length (mm)	Order No.
16	45	60	**6100-20018**
16	60	80	**6100-20028**
20	45	60	**6100-20038**
20	60	80	**6100-20048**



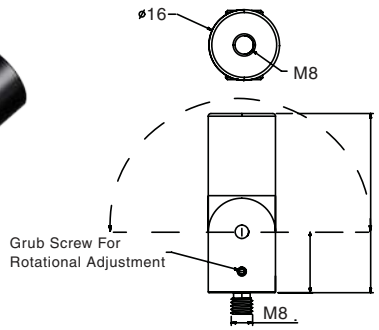


Adjustable Pivot Joint

- Anodized aluminum pivot joint adjusts up to 90° to position fixture components at any angle, enabling secure fixturing of inclined or angled workpieces on CMMs, gauging systems, and vision machines.

Thread Size	Adjustable Angle	Order No.
M8	90°	**6100-2010**



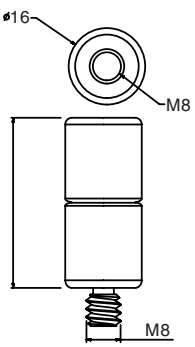


360° Swivel Joint

- Full 360° rotating joint connects to fixture columns and standoffs via M8 thread, allowing fixture components to be swung and locked in any horizontal orientation for maximum configuration flexibility.
- Compatible with CMMs, vision systems, and multi-sensor machines; custom lengths available.

Thread Size	Adjustable Angle	Order No.
M8	360°	**6100-1011**



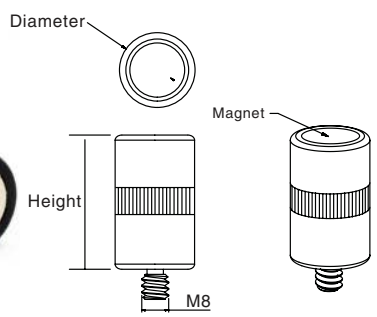


Magnetic Standoff

- AlNiCo magnet standoff affixes directly to steel or iron workpieces, holding parts securely during CMM probing without clamps or fasteners; anodize-treated aluminum body with M8 thread base.
- Recommended for CMMs, gauging systems, and vision machines; available in white (non-marking) configurations for delicate or finished surfaces.

Height (mm)	Magnetic Distance (mm)	Diameter (mm)	Order No.
35	15	20	**6100-70018**

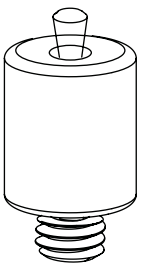




Spring Pusher Clamp Standoff

- Anodized aluminum standoff clamp designed for fixturing small parts in tight or compact spaces, applying constant spring-loaded lateral pressure to hold parts against locating surfaces without tension clamps.
- M8 thread base; suitable for profile clamping on contoured and irregular parts in CMM, gauging, vision, and multi-sensor setups.



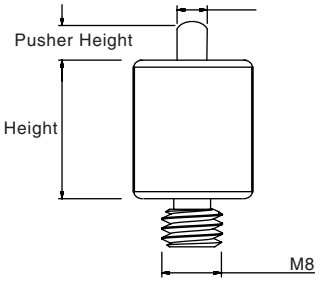


Height (mm)	Diameter (mm)	Pusher Diameter (mm)	Pusher Height (mm)	Order No.
32	20	5	7	**6100-80028**

Pin Standoff

- Anodized aluminum pin standoff provides a fixed point-of-rest and side stop for locating and elevating parts during CMM and inspection operations.
- M8 thread base; compact cylindrical body suits tight fixture layouts where both vertical support and lateral registration are required.

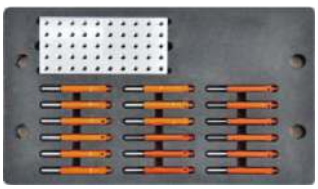




Height (mm)	Diameter (mm)	Pusher Diameter (mm)	Pusher Height (mm)	Order No.
32	20	5	7	**6100-80018**

Spring Standoff

- Spring-loaded standoff conforms to irregular workpiece geometry by allowing each pin to compress independently, providing stable multi-point support on contoured, curved, or uneven part surfaces.
- Ideal for CMM fixtures where conventional rigid standoffs would rock or stress irregular parts.





Order No.
6100-2801

CMM Contour Support Tips (A through G)

- Interchangeable M8 tips in seven profiles (A–G) for resting or locating cylindrical, spherical, flat, and contoured parts at a single precise contact point on standoffs or fixture columns.
- Available in aluminum or nylon for each profile; nylon tips protect delicate or finished surfaces while aluminum suits general-purpose fixturing on CMMs, vision systems, and multi-sensor machines.
- Custom color selection available on request.

Tip Name	Order No.	
	Aluminum	Nylon
A Tip	**100-27016**	**100-27018**
B Tip	**100-27026**	**100-27028**
C Tip	**100-27036**	**100-27038**
D Tip	**100-27046**	**100-27048**
E Tip	**100-27056**	**100-27058**
F Tip	**100-27066**	**100-27068**
G Tip	**100-27076**	**100-27078**



A Tip *B Tip* *C Tip* *D Tip* *E Tip* *F Tip* *G Tip*

Adjustable Swivel Support

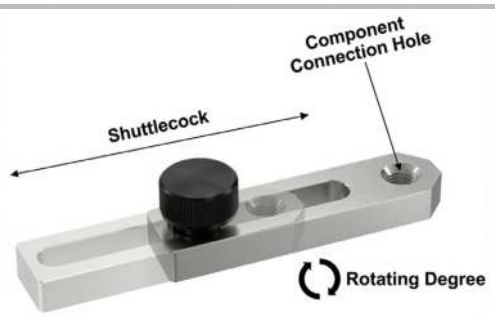
- Anodized aluminum positioner swivels 180° from vertical and locks via a centered M8 tapped top, allowing fixture components to be held and probed at any angle for CMM, gauging, and vision applications.



Order No.
6100-9001

Adjustable Positioner

- Anodized aluminum shuttlecock-style sliding positioner allows fixture components to be placed at any position along the plate's length, with a rotating degree feature providing additional angular flexibility for non-standard hole locations.
- M8 threaded knurled knob locks the sliding carriage firmly in place once the component connection hole is aligned to the desired position; customizable as made-to-order.



Thickness (mm)	Width (mm)	Length (mm)	Order No.
10	20	78	**6100-80038**

Horizontal Toggle Clamp



- Low-profile horizontal toggle clamp with M8 thread base, designed for small working areas where maximum loading and unloading ease is required.
- Compact footprint and horizontal handle action suit tight CMM and inspection fixtures where vertical clearance is limited.

Order No.
6100-6001

Manual Hold-Down Toggle Clamp



- Vertical hold-down toggle clamp with adjustable padded tip holds parts securely for CMM probing; adjustable base allows repositioning to suit different part sizes and locations.

Order No.
6100-2201

Horizontal Spring Clamp



- Spring-loaded pusher clamp with M8 thread that exerts constant, low-force lateral pressure to push and hold a part against a support structure, locating surface, or into a corner.
- Ideal for CMM and inspection fixtures where delicate parts cannot tolerate the rigid clamping forces of toggle or screw clamps.

Order No.
6100-4001

Horizontal Screw Clamp



- Screw-actuated pusher clamp with M8 thread that uses a thumbscrew to advance or retract the tip, providing precise, adjustable lateral pressure to seat parts against a support structure.
- Offers more controlled, repeatable force than a spring plunger for parts that require a specific contact pressure during CMM probing.

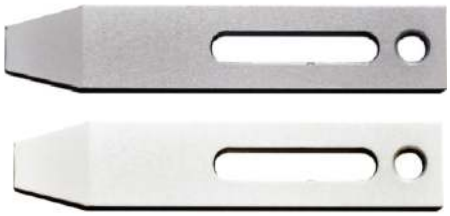
Order No.
6100-5001

Single Clamp

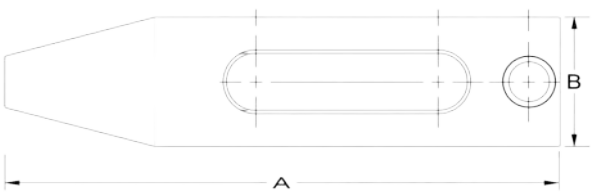


- Available in aluminum or nylon, this low-profile slotted strap clamp is designed for flexible part hold-down on CMM and inspection fixtures.
- The elongated slot allows the clamp to be positioned at any point along the bolt path, accommodating flexible hole placement without needing to reposition the fixture stud.
- The nylon version protects finished or soft workpiece surfaces by preventing metal-to-metal contact at the clamping point.

Length (A) (mm)	Width (B) (mm)	Thickness (C) (mm)	Order No.	
			Aluminum	Nylon
118	22	10	**6100-17016**	**6100-17018**
78	22	10	**6100-17026**	**6100-17028**



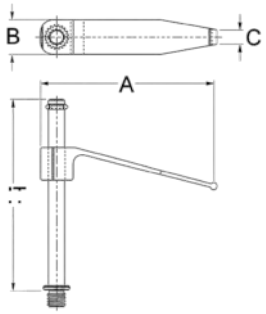




Spring Clip

- Lightweight anodized aluminum cantilever clip for light-pressure clamping of thin or delicate parts at a small contact point; must be used with a spring clip post.





Length (A) (mm)	Base Width (B) (mm)	Tip Width (C) (mm)	Order No.
65	12	4	**6100-1201**
65	12	6	**6100-1301**

Spring Clip Post

- M8 thread steel post that mounts to the fixture plate and accepts spring clips for light-pressure part clamping.





Height (mm)	Order No.
60	**6100-1401**
100	**6100-1402**

Tapped Base Column

- Anodized aluminum tower designed to affix large components vertically on CMM and inspection fixtures; can be rotated and locked to any orientation for maximum setup flexibility.
- Multiple M8-tapped connection points along the column allow other fixture components (clamps, positioners, and rest pads) to be mounted at various heights.
- Customization available as made-to-order.



Operational height		Order No.
Max (mm)	Min (mm)	
400	30	**6100-30028**

Tapped Base Plate

- Available in a vertical and level (horizontal) configuration, this anodized aluminum tapped base plate mounts to the Tapped Base Column to extend its connection surface.
- M8-threaded holes allow direct attachment of clamps, standoffs, and positioners, enabling multi-function fixture setups from a single column.





Type	Thickness (mm)	Width (mm)	Length (mm)	Order No.
Vertical	12	22	118	**6100-3101**
Level	12	22	110	**6100-3201**
Wide Width	10	60	70	**6100-3301**

Lifting Column

- Anodized aluminum single-axis lifting column designed for use with the Tapped Base; the clamp can be locked at any position within the operational height range.
- Large-capacity height range accommodates large or tall workpieces. M8 thread ensures full compatibility with standard CMM fixture components.





Operational height		Order No.
Max (mm)	Min (mm)	
400	30	**6100-30018**

Double-End Stud

- Double-ended M8 threaded aluminum stud for clamping and fixture setup; compatible with T-nuts, flanged nuts, strap clamps, and other M8 fixture components.

Length (mm)	Order No.	
	Aluminum	Nylon
50	6100-24016	6100-24018
75	6100-24026	6100-24028
100	6100-24036	6100-24038
125	6100-24046	6100-24048
150	6100-24056	6100-24058
175	6100-24066	6100-24068
200	6100-24076	6100-24078



Coupling Nut

- Anodized aluminum M8 knurled cap used to terminate or link fixture stud connections; the locking cap's anti-vibration properties prevent loosening during CMM operation and repeated fixture use.
- Available in two versions: a flat locking cap (6100-26018) and a raised link cap (6100-25018), allowing the stud to be either capped off or extended to connect additional fixture components.

Type	Order No.
Flat Locking Cap	6100-26018
Raised Link Cap	6100-25018



Flat Locking Cap



Raised Link Cap

CMM Vee Blocks

Extended Vee-Block

- Anodized aluminum vee-block with adjustable jaw for supporting and locating cylindrical workpieces at variable diameters; can be rotated and locked to any orientation.
- Recommended for use with CMMs, gauging systems, and vision and multi-sensor machines.

Order No.
6100-1901



Stationary Vee-Block

- Anodized aluminum fixed vee-block with 90° angle providing self-centering, two-point contact for stable, repeatable location of cylindrical and tubular parts during inspection or probing.

Order No.
6100-1902



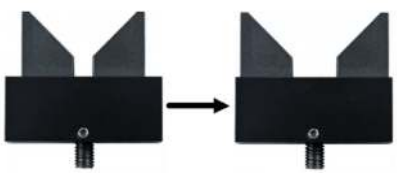


Adjustable Vee-Block

- Anodized aluminum vee-block with an adjustable locking jaw that accommodates a wide range of cylindrical part diameters in a single fixture.
- Adjust jaw position and lock in place to maintain consistent part location across multiple setups.

Order No.
6100-1903



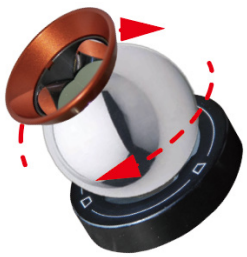


Adjustable Jaw

Spherically Mounted Retroreflectors (SMRs)

- Three-piece hollow-core SMR with isolation core for added stability and durability; protected large glass optic performs like a solid SMR for drop, pickup, and measure-on applications.
- Flared wide-angle ring increases entry angle for improved tracking performance; stainless steel 440C ball ensures consistent, precise seating in nests and tooling.
- Laser-marked serial number and logo on each unit for traceability; compatible with all OEM laser trackers.
- Ball material: Stainless steel 440C
- Ball roundness: 0.0001" (0.0025 mm) max
- Mirror material options: Aluminum or glass



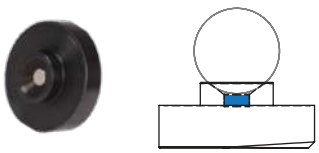
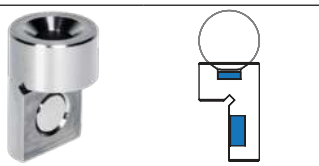



Diameter	Center Accuracy	Tracking Distance	Order No.
1.5" / 38.1 mm	±0.0005" / 0.0127 mm	≥ 50 m	**100-8040**
1.5" / 38.1 mm	±0.0003" / 0.0076 mm	≥ 50 m	**100-8041**
1.5" / 38.1 mm	±0.0001" / 0.0025 mm	≥ 50 m	**100-8042**
0.5" / 12.7 mm	±0.0005" / 0.0127 mm	≥ 50 m	**100-8043**
0.5" / 12.7 mm	±0.0003" / 0.0076 mm	≥ 50 m	**100-8044**
0.5" / 12.7 mm	±0.0001" / 0.0025 mm	≥ 50 m	**100-8045**

Laser Tracker Target Holders

- Laser tracker tooling accessories for securely holding and transporting SMR reflectors during large-scale dimensional measurement.
- Material options include 1144 steel or stainless steel magnet construction.

= Magnet

Type	Description	Compatible Reflector Size (in)	Order No.
	The Magnetic Adapters in this series offer all the features of our 0.5", 0.875", and 1.5" TH Series in a dowel mount, plus magnets added to the bottom surface of the adapter. These magnets provide additional holding force when the cylindrical base of the adapter is placed into a matching hole in ferrous material.	**0.500**	**100-8046**
		0.875	**100-8047**
		1.500	**100-8048**
	The Magnetic Adapters in this series offer all the features of our 0.5", 0.875", and 1.5" TH Series in a screw mount, plus magnets on the bottom surface. These magnets provide additional holding force when the threaded base of the adapter is screwed into a matching threaded hole in ferrous material.	**0.500**	**100-8049**
		0.875	**100-8050**
		1.500	**100-8051**
	The Magnetic Adapters in this series offer all the features of our 0.5", 0.875", and 1.5" TH Series. Additionally, this model has a semi-circular (half-round) groove on the bottom with magnets embedded inside. These magnets provide additional holding force when the groove is seated on a round ferrous surface.	**0.500**	**100-8052**
		0.875	**100-8053**
		1.500	**100-8054**
	The 0.5", 0.875" and 1.5" THDN, or drift nest (sometimes called a "hockey puck"), provides a temporary, magnetic SMR adapter in almost any location and on almost any surface. The back of this adapter is flat.	**0.500**	**100-8055**
		0.875	**100-8056**
		1.500	**100-8057**
	The 0.5", 0.875" and 1.5" THNDN is a drift nest with a negative viewing angle all the way around. It will allow you to tip the SMR down to achieve a viewing angle as low as -21°. The 0.5", 0.875" and 1.5" THNDN provides axial rotation of the SMR through 360°. A chamfer on the bottom side of this adapter provides a relief for any fillets or various strange things happening at the junction between the surfaces of the object being measured.	**0.500**	**100-8058**
		0.875	**100-8059**
		1.500	**100-8060**
	The 0.5", 0.875" and 1.5" magnetic adapters feature two additional magnets, one on each mounting surface. These magnets allow the adapter to be firmly attached to the outside corner of any ferrous surface, enabling hands-free operation. Suitable for all 0.5", 0.875" and 1.5" SMRs.	**0.500**	**100-8061**
		0.875	**100-8062**
		1.500	**100-8063**

Heavy-Duty Stand

- Heavy-duty industrial stand for laser trackers, articulating arms, and laser projectors; features smooth spring-loaded rack adjustment, air-cushioned moving column with free-fall prevention, and foot pedal lock.
- 3½"-8 stainless steel universal mount ring; heavy-duty cast base with easy disassembly for shipping.



Adjustable Heavy Duty Stand



Fixed Height Heavy Duty Stand

Adjustable Heavy Duty Stand

Height (in)	Weight (kg)	Order No.
28 - 42	69	**150-3179**
36 - 57	77	**150-3180**
43 - 67	84	**150-3181**

Fixed Height Heavy Duty Stand

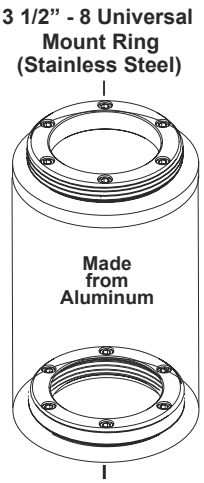
Height (in)	Weight (kg)	Order No.
22	54	**150-3182**
27	58	**150-3183**
32	64	**150-3184**

Aluminum Stand Extension For Portable Mounts

- Aluminum extension columns for laser trackers, articulating arms, and laser projectors; increases instrument height when used with a tripod, stand, or magnetic base.

Mount Ring Size (in)	Height (in)	Order No.
3.5	5	**150-5238**
	10	**150-5239**
	20	**150-5240**
	24	**150-5241**
	36	**150-5242**
4.5	5	**150-52384**
	10	**150-52394**
	20	**150-52404**
	24	**150-52414**
	36	**150-52424**

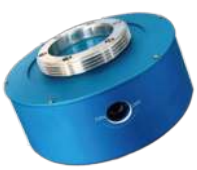


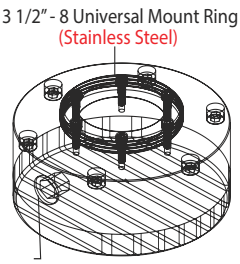


Magnetic Base Mount

- Portable industrial magnetic mount for securing laser trackers, articulating arms, and laser projectors directly to any steel surface, machine table, or fixture plate, eliminating the need for a dedicated stand.
- Features a standard 3½"-8 thread mount ring for universal compatibility with all OEM laser trackers and portable CMM arms.
- On/off actuation with Allen wrench for repositioning between measurement setups.

Diameter	Order No.
6"	**150-5230**
8"	**150-5252**
10"	**150-5253**





On/Off with Allen Wrench (Wrench Provided)

Economy Magnetic Mount

- Portable triangular industrial magnetic mount for securing laser trackers, articulating arms, and laser projectors directly to any steel surface, machine table, or fixture plate, eliminating the need for a dedicated stand.
- Features a standard 3½"-8 thread mount ring for universal compatibility with all OEM laser trackers and portable CMM arms.
- On/off actuation allows quick repositioning between measurement setups.

Order No.
150-5231



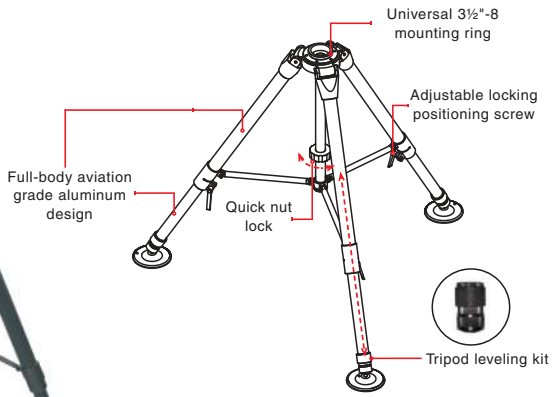


Economy Portable Tripod

- Full-body aviation-grade aluminum tripod for laser trackers, articulating arms, and laser projectors.
- Features black oxide surface treatment, 3½”-8 universal mount ring, quick nut lock, and optional leveling kit.

Height (mm)	Weight (kg)	Order No.
750 - 1280	14	**150-5307**





Heavy-Duty Portable Tripod with Universal ATC Stand Fixture

- Full-body aviation-grade aluminum tripod for laser trackers, articulating arms, and laser projectors; height adjusted via quick-action levers with vacuum slow-descent leg structure for controlled lowering.
- Features black oxide surface treatment, 3½”-8 universal mount ring, quick nut lock, and optional leveling kit.
- Includes Universal ATC Stand Fixture.

Height (mm)	Weight (kg)	Order No.
750 - 1230	16.80	**150-5257**



Heavy-Duty Arch Bridge Portable Tripod

- Arch bridge structured aluminum and carbon alloy tripod for laser trackers, articulating arms, and laser projectors; vacuum-cushioned legs prevent free fall during height adjustment.
- 3½”-8 thread mount.

Height (mm)	Weight (kg)	Order No.
983 - 1352	22.13	**150-5254**
800 - 1300	23.80	**150-5255**
1300 - 2000	25.00	**150-5256**



Heavy-Duty Portable Tripod - Fixed Height

- Fixed-height aluminum tripod for laser trackers, articulating arms, and laser projectors; height set via quick-action levers with telescoping legs.
- Black oxide surface treatment with 3½”-8 thread mount and 3 mounting hooks.

Height (mm)	Weight (kg)	Order No.
595 - 1000	16.50	**150-5233**





Heavy-Duty Economy Portable Tripod

- Lightweight all-aluminum portable tripod for laser trackers, articulating arms, and laser projectors; height adjusted via quick-action levers on telescoping legs.

Height (mm)	Weight (kg)	Order No.
1020 - 1915	14.38	**150-5259**



Heavy-Duty Universal ATC Stand Fixture

- Universal stand fixture for AT Controllers; compatible with AT Controller models 576871, 576368, and ATS Controller 576981; includes reusable Velcro strap (0.52 m).

Order No.
150-5264





Aluminum Adjustable Stand Extension For Portable Mounts

- Handwheel-operated lifting column extension for increasing instrument height on tripods, stands, and magnetic mounts; features a locking lift and quick-locking handle.
- 3½"-8 thread mount.

Height (mm)	Weight (kg)	Order No.
280 - 380	5.9	**150-5265**
375 - 575	8.3	**150-5266**



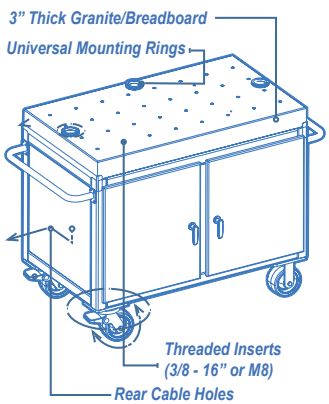


Rolling Granite Cart

- Heavy-duty rolling granite cart with thick precision granite surface plate and enclosed steel cabinet base on heavy-duty casters, designed for shop-floor deployment of laser trackers, articulating arms, and laser projectors.
- Granite surface includes threaded inserts (M8 or 3/8-16) and universal mounting rings, providing a stable, vibration-resistant platform compatible with all standard instrument mounting systems.
- Rear cable holes allow clean instrument cable routing.

Granite Size (in)	Mounting Rings	Order No.
24 x 36 x 3	2 pcs	**150-3154**
28 x 48 x 4	3 pcs	**150-3155**





Mini Pneumatic Chamfering Machine

- Compact air-powered chamfering machine with double tungsten carbide cutter heads for deburring and edge chamfering on molds, machined parts, and castings; suitable for straight edges, inner and outer round holes, keyways, and irregular contours.
- Low-profile design accesses the narrowest and shallowest spaces where bench-mounted or larger pneumatic tools cannot reach.
- Handles a wide range of materials including aluminum, non-ferrous metals, mild steel, and stainless steel; consistent chamfer results with minimal setup.

Order No.
125-1305





1/4" Straight Air Composite Die Grinder - 27,000 RPM

- High-speed 1/4" straight-body air composite die grinder at 27,000 RPM; composite and magnesium alloy construction provides maximum power with leading vibration reduction for extended use.

Order No.
125-1301





Speed control valve



Safety throttle lever

1/4" Right Angle Air Composite Die Grinder - 20,000 RPM

- 1/4" right-angle air composite die grinder at 20,000 RPM; composite body delivers maximum motor power with leading vibration reduction for work in restricted or angled spaces.

Order No.
125-1302





Speed control valve



Safety throttle lever

1/8" & 3/32" Straight Air Pencil Die Grinder - 70,000 RPM

- Compact 1/8" & 3/32" straight air pencil die grinder at 70,000 RPM for precision deburring, engraving, and finishing in tight spaces; features a speed control valve and safety throttle lever.
- Length 8", includes 1/8" and 3/32" collets.

Order No.
125-1303



Punches

Portable Transfer Punch Set

- 36-piece 1/2"–1" transfer punch set with 3 master punches and 33 color-coded individually sized sleeves, each laser-etched for easy identification.
- Punch tips hardened HRC 48–55.

Pieces/Set	Pieces Included in Set		Size Range (in)	Step (in)	Order No.
	Qty.	Pieces			
36	3	Master Punches	0.5 - 1	1/64	**830-40331**
	33	Sleeves			

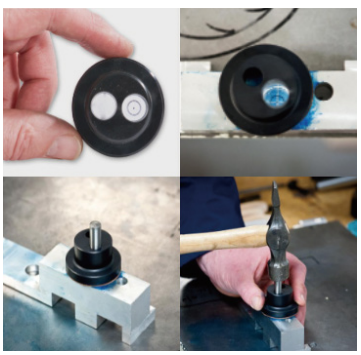


On-Mark Optical Center Punch

- Optical center punch with 9x acrylic magnifying lens for precise hole center marking; replace the lens with the center punch to accurately mark the workpiece.
- Used for marking, punching, staking, and riveting.

Order No.
935-2766





Heavy-Duty H-Roller Support Stand

- Cast iron and steel roller support stand with a horizontal head and chrome ball bearing roller for smooth, low-friction material handling.
- Supports bar stock, sheet metal, beams, and other flat material; single wide roller accommodates material wider than the roller head itself.

Width (in)	Height Range (in)	Roller Size (in)	Load Capacity (lb)	Order No.
16.25	23.25 - 38.00	2 x 14	2000	**150-3020**



Heavy-Duty V-Roller Support Stand

- Cast iron and steel roller support stand with a V-head and chrome ball bearing rollers for supporting round stock during cutting, machining, or assembly operations.
- Ideal for bar stock, pipe, tube, and conduit; dual V-rollers provide stable, self-centering support across a wide range of round material diameters.

Width (in)	Height Range (in)	Roller Size (in)	Load Capacity (lb)	Order No.
14	23 - 38	2 x 5	2000	**150-3025**



Heavy-Duty Pedestal Stand

- Heavy-duty cast iron pedestal stand for bench grinders; pre-drilled table top allows easy installation of most standard bench grinders and positions the machine at a comfortable working height.

Mounting Plate Length (in)	Mounting Plate Width (in)	Overall Height (in)	Load Capacity (lb)	Order No.
14-1/2	11-3/8	32-5/8	2000	**150-3022**





Roller Table

- All-steel welded roller table with nine ball bearing rollers for effortless material transfer between workstations; four independently adjustable legs accommodate uneven floor surfaces.
- Rubber no-slip foot pads and ratcheting lever knobs lock each leg securely in place.

Table Size (in)	Height Range (in)	Load Capacity (lb)	Order No.
15 x 65	24 - 44	500	**5150-3080**



Arbor Presses

- Cast iron arbor presses for riveting, pressing, squeezing, punching, flattening, and bearing installation or removal; removable rotating machined anvil with 4-slot design accommodates workpieces of varying size and shape.
- Steel ram with large-toothed rack driven by machine pinion; 3-piece punch set included.



Without speed wheel



With speed wheel

Force (Ton)	Speed Wheel	Order No.
0.5	Not Included	**805-10055**
2	Not Included	**805-10205**
3	Not Included	**805-10305**
4	Not Included	**805-10405**
1	Included	**805-10105**

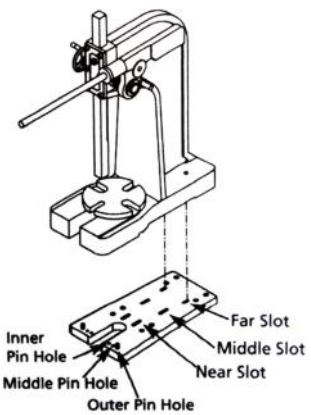


Pinion
3-pc punch set included

3-Ton Arbor Ratcheting Press

- Ratcheting arbor press with counterweight for rapid handle return and side-mounted handwheel for quick ram advance; rotating 4-slot table provides versatile workpiece support.
- Ideal for broaching and pressing large items requiring consistent, controlled force; 3-piece punch set included.





Force (Ton)	Swing (in)	Table Work Surface (in)	Anvil Diameter Work Area (in)	Slot Width Range (in)	Max Work Height (in)	Press Height (in)	Press Width (in)	Press Depth (in)	Base Size (in)	Order No.
3	13.25	8 x 5 x 10	7.8125	1 - 2	17.5	28	10	22.25	10 x 21.25	**805-11305**

Arbor Press Stand

- Heavy-duty arbor press stand with slotted base to accommodate long parts that need to extend below the press table; compatible with 0.5 to 3-ton arbor presses.



Work Area (in)	Press Height (in)	Press Width (in)	Press Depth (in)	Base Size (in)	Order No.
22.25	35.8125	11.8	22.25	11.8125 - 22.25	**805-11315**

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High Precision Gage Block Manufacturing

For calibration purposes and to determine the actual size to the closest millionth of an inch/mm, each gage block must carry its own serial number. Please note all iMGages gage blocks are serialized regardless of the grade classification. A Certificate of Accuracy, traceable to the NIST/NIM is furnished with each iMGages gage block set and individual block.

Inch Gage Blocks

The declaration of the measuring results is made in compliance with ASME B89.1.9-2023. The length indications are valid for a reference temperature of 20°C and for the measuring properties of the gage blocks shown during the calibration procedure.

Metric Gage Blocks

The declaration of the measuring results is made in compliance with DIN EN ISO 3650, February 1999. The length indications are valid for a reference temperature of 20°C and for the measuring properties of the gage blocks shown during the calibration procedure.

Gage Block Testing Laboratory

The laboratory and equipment for testing gage blocks are accredited to ISO/IEC 17025.

iMGages® iMachines

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