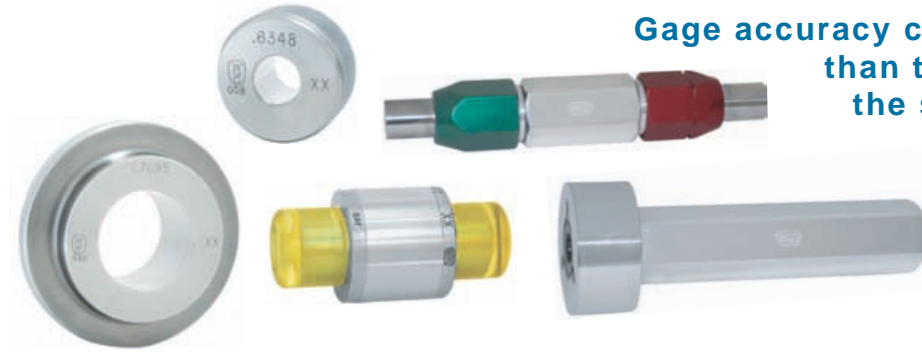
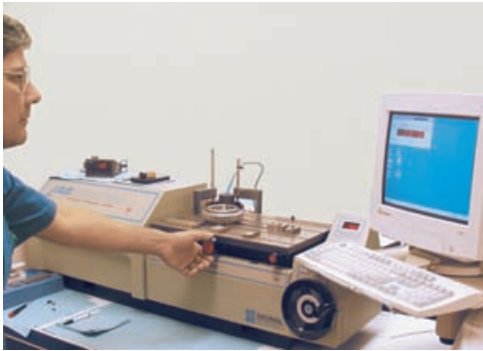


Setting Masters for Internal & External Diameters



Gage accuracy can be no better than the precision of the standards used for calibration.



Western's master gages are fabricated from heat treated and stabilized chrome alloy steel blanks conforming to American Gage Design standard A.N.S.I. B47.1. After heat treat and stabilization cycles, these gages are custom finished by grinding and lapping to the precise dimensions specified. Final calibration is done in a temperature controlled gage calibration lab using electronic comparator instruments and laboratory grade reference standards.



Gaging accuracy. Good quality control practice calls for specification of masters with tolerances less than 10% of the workpiece tolerances (5% is considered ideal); and for periodic recalibration of the gage. Recalibration intervals are up to the user to establish depending on amount of usage, the accuracies required, and the calibration history of the gage. One year intervals are generally recommended as a starting point for moderate usages.



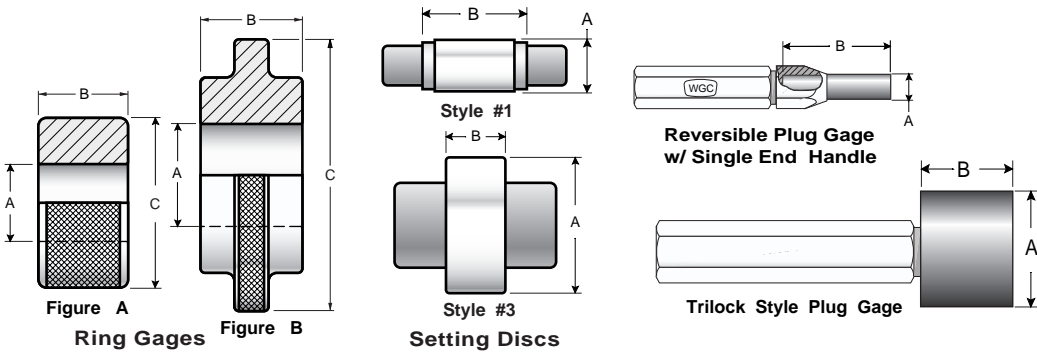
Inspection reports.

Western Gage's setting masters are calibrated by transfer measurement with standards traceable to the National Institute of Standards and Technology (N.I.S.T.). Gage calibrations are done in Western Gage's temperature-controlled gage lab using test methods and equipment conforming to ISO/IEC 17025, ANSI/NCCL-Z540-1-1994. Long form Certificates of Calibration are supplied with all master gages.

CERTIFICATE OF CALIBRATION						
WESTERN GAGE CORPORATION 3346th Linda Camarillo, California		Customer 93012		Cust Code ACME		Avg Manufacturing 41.92
Cert No. 33319-01						
Instrument Used Federal 136B-3			Instrument S/N 176		Calibration Procedure WGC-905	
Applicable Standard ANSI/ASME B89.1.0M			Ref Block Set / Cal. DMGC-198 / 09-01-01			
Remarks						
DESCRIPTION		SIZE	CLASS	TOLERANCE	STATUS	Deviation from Marked Size (µm)
MASTER RING, CHROME, SP						
A-8337941	1.7500	X	Bilateral	±.00040	NEW RESULT RECEIPTED	1.25 -20 -25
MASTER RING, CHROME, SP						
A-8337942	1.2500	X	Bilateral	±.00030	NEW RESULT RECEIPTED	1.00 -10 -10
The above measurements were taken under environmental conditions of 30 - 55 % relative humidity and 68±0.5°F (20±0.5°C). Gages are calibrated with standards that are certified accurate and traceable to the National Institute of Standards and Technology. Calibration and maintenance of the equipment and reference standards used in this inspection conforms to ANSI/NCCL Z540-1-1994 and ISO/IEC 17025.						
Uncertainty of Measurement 6 micrometers			NIST No. 831/259564		Inspector Cert Date	
This certificate may not be reproduced, except in full, without the express written approval of Western Gage Corporation. The recalibration interval for items calibrated on this certificate is to be determined by the user.						
LIMITED WARRANTY This certificate shows data obtained by a qualified technician under carefully controlled conditions. In rare instances, operator error or misreading of the gage or certificate may occur. Any gage manufactured by Western Gage and not conforming to the certified size and class tolerance, allowing for the established measurement uncertainty, will be resorted or replaced at no charge, if returned to Western Gage facility within 90 days of shipment. No liability for consequential damages or other costs related to a nonconforming or mismarked gage is expressed or implied by this certificate.						

Setting Master Dimensional Data

See page 27 for order codes



Ring Gage Masters				
Diameter A above - incl.	Dia. C	Dim. B	Gage Blank #	Figure
.040 - .060	.94	.19	00**	A
.060 - .070	.94	.25	sp**	A
.070 - .230	.94	.37	0**	A
.230 - .365	1.13	.56	1	A
.365 - .510	1.38	.75	2	A
.510 - .825	1.75	.94	3	A
.825 - 1.135	2.13	1.13	4	A
1.135 - 1.510	2.50	1.31	5	A
1.510 - 2.010	4.00	1.50	6	B
2.010 - 2.510	4.50	1.50	7	B
2.510 - 3.010	5.00	1.50	8	B
3.010 - 3.510	5.50	1.50	9	B
3.510 - 4.010	6.38	1.50	10	B
4.010 - 4.760	7.25	1.50	11	B
4.760 - 5.510	8.25	1.50	12	B
5.510 - 6.260	9.25	1.50	13	B
6.260 - 7.010	10.30	1.50	14	B
7.010 - 7.760	11.30	1.50	15	B
7.760 - 8.510	12.30	1.50	16	B
8.510 - 9.100	13.30	1.50	17	B

** In these sizes, Western provides a blank that is thicker than the A.N.S.I. standard for more reliable gage mastering.

Set Disc Masters		
Diameter A above - incl.	Dim B	Gage Style
.150 - .230	1.19"	1
.230 - .365	1.31"	1
.365 - .510	1.44"	1
.510 - .825	1.56"	1
.825 - 1.135	1.69"	1
1.135 - 1.510	1.94"	1
1.510 - 2.510	.88"	3
2.510 - 8.010	1.00"	3

Master Setting Plugs		
Diameter A above - incl.	Dim B	Gage Style
.060 - .825	2.00"	Reversible
.825 - .947	1.25"	Trilock
.947 - 1.135	1.37"	Trilock
1.135 - 1.510	1.50"	Trilock
1.510 - 2.010	.88"	Trilock
2.010 - 3.510	1.00"	Trilock
3.510 - 8.010	1.00"	Trilock

AMERICAN GAGE DESIGN TOLERANCES					
Size above -incl. inch / mm	Tolerance - inch / μ m				
	XXX	XX	X	Y	Z
.029 - .825	.00001	.00002	.00004	.00007	.00010
.74 - 20.96	.25	.51	1.02	1.78	2.54
.825 - 1.510	.000015	.00003	.00006	.00009	.00012
20.96 - 38.35	.38	.76	1.52	2.29	3.05
1.510 - 2.510	.00002	.00004	.00008	.00012	.0001
38.35 - 63.75	.51	1.02	2.03	3.05	4.06
2.510 - 4.510	.000025	.00005	.00010	.00015	.0002
63.75 - 114.55	.64	1.27	2.54	3.81	5.08
4.510 - 6.510	.000033	.000065	.00013	.00019	.00025
114.55 - 163.35	.83	1.65	3.30	4.83	6.35
6.510 - 9.010	.00004	.00008	.00016	.00024	.00032
163.35 - 228.85	1.02	2.03	4.06	6.10	8.13

Bilateral / Unilateral Tolerances □
 A.G.D. classes define the total tolerance zone for the gage. Master gages are made with the A.G.D. class tolerance split equally (bilaterally). Go and NoGo fixed limit gages for functional testing of workpieces are normally unilaterally toleranced into the tolerance zone of the part. Thus, "Go Rings" and "No-Go Plug" gages are unilaterally minus toleranced. "No-Go Rings" and "Go Plug" gages are unilaterally plus toleranced. For example, a .5000" master ring gage, with a class "XX" tolerance (.00002") is finished to a diametrical tolerance of \pm .00001". Ordered as a No-Go ring gage, the .5000" ring would be finished to $+.00002"/.00000"$ diametrical tolerance.