



# Van Keuren



Precision Testing and Measuring Tools



**“...this Catalog is dedicated to those who require precision measurements...”**

**H.L. Van Keuren  
1889-1952**

**V**an Keuren has a long history of innovation in the development and production of very precise, very round and very straight cylinders and ultra flat surfaces.

Today Van Keuren is drawing on its long gaging heritage and expanding its capability to serve you by adding the manufacturing resources and gaging products of THREADS Inc. and HITCO. The expanded resources and additional products allow Van Keuren to improve its gage offering and array of services to you, our gaging customers!

If your product requires precise measurement, inspection and certification, use Van Keuren precision gages and instruments.

If your product reaches for the ultimate in custom fit, challenge Van Keuren to match the requirement.

If your product utilizes gaging that requires periodic inspection and calibration traceable to the NIST, contact Van Keuren.

***Gages are precision measuring tools  
... handle them properly!***

- ***Clean the part before gaging.*** Get rid of dirt, coolant and chips.
- ***Do not force the gage.*** Use reasonably light pressure only.
- ***Protect the gage from damage.*** Nicks and burrs allow inaccurate results.
- ***Keep gages clean and lightly oiled.*** This increases wear life.
- ***Avoid handling gaging surfaces.*** Fingerprints cause rust.

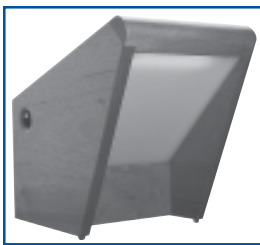
A \$10.00 handling charge is applied if the order does not meet \$25.00 net minimum. • Prices are subject to change without notice. • All prices are FOB factory.

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## MONOCHROMATIC LIGHTS



• C-2 Monochromatic Light

- The correct monochromatic light can increase accuracy in measurement as well as actually improve inspection speed.
- All Van Keuren lights use a helium light source with a light of 23.13 millionth wavelength (587.6 mm).
- Van Keuren supplies monochromatic lights in three styles, made with and two materials – Fine Woods and PVC.
- Used to increase accuracy in measurement

### C & L SERIES LIGHTS List #24-20

Series Description	Size/Weight Information				EDP No.	Price
	Width	Height	Depth	Weight		
<b>C-1 Monochromatic Light</b> Work size up to a full 4" square.	6-1/2"	7-1/2"	9"	7 lbs.	V760100	440.00
<b>C-2 Monochromatic Light (Standard)</b> Work size to over 6" diameter.	12"	11"	11"	16 lbs.	V760101	605.00
<b>C-2 PV Monochromatic Light</b> White high density case for use in a clean room.	12"	11"	11"	16 lbs.	V760102	605.00
<b>C-3 Monochromatic Light</b> Work capacity of over 12".	22"	16-1/2"	18-1/2"	42 lbs.	V760103	990.00
<b>Standard L-1A Monochromatic Light</b> Work size up to 8".	15"	22-1/2"	17"	50 lbs.	V760200	990.00
<b>Standard L-2A Monochromatic Light</b> Work size up to 12".	15"	22-1/2"	17"	50 lbs.	V760201	1,320.00

## REFLEX INTERFERENCE VIEWER



• U-6 Reflex Viewer shown with Optical flat.

- For rapid production inspection with maximum precision on polished or lapped work.
- In the Van Keuren Reflex Viewer, the Optical Flat is secured above the light in a fixed cell; the work is placed on top of the flat and bands noted.
- Keeping the work on top of the flat avoids serious distortion due to the weight of the flat when the work is small or delicate. Work larger than the flat can be inverted and moved across the flat for two or more observations.
- Handling of the optical flat is entirely eliminated and risk of accidental damage or excessive wear is greatly diminished.

### U SERIES LIGHTS List #24-20

Series Description	Size/Weight Information				EDP No.	Price
	Width	Height	Depth	Weight		
<b>U-6 Monochromatic Reflex Interference Viewer</b> For use with 6" flat.	10-1/2"	17"	14"	19 lbs.	V760300	935.00
<b>U-12 Monochromatic Reflex Interference Viewer</b> For use with 12" flat.	24"	48"	24"	46 lbs.	V760302	2,860.00
<b>U-14 Monochromatic Reflex Interference Viewer</b> For use with 14" flat. Larger units available.	30"	48"	31"	80 lbs.	V760303	4,290.00

### HELIUM REPLACEMENT TUBES List #24-20

Series Description	Size	EDP No.	Price
C-1	5" Square	V760500	77.00
C-2	6 Run	V760502	77.00
C-3	10 Run	V760501	88.00
L-1A	10 Run	V760501	88.00
L-2A	10 Run	V760501	88.00
U-6	6 Run	V760502	77.00
U-12	6 Run	V760502	77.00
Small chart (12" x 17") available at no charge.		V980140	—
Large wall chart (38" x 25")		V980139	17.00
Video on optical flats		V980141	27.00

- Van Keuren furnishes optical flats using only the most carefully selected annealed clear fused quartz.
- Fused quartz possesses a very low coefficient of linear expansion and is resistant to abrasion.
- All Van Keuren Optical Flats come furnished in a felt lined fitted case with a certificate of calibration stating the actual flatness directly traceable to the National Institute of Standards & Technology.
- For micro-coating, call customer service for a quote. Micro-coating is applied to the flat to help clarify the image. Generally it is applied to one surface.

**CALIBRATED QUARTZ FLATS** List #24-10

Size Diameter Thick	Working .000004" EDP No.	Price	Master .000002" EDP No.	Price	Reference .000001" EDP No.	Price
<b>SINGLE SURFACE</b>						
1" x 1/2"	V860101	76.00	V860201	78.00	V860301	80.00
2" x 5/8"	V860102	109.00	V860202	114.00	V860302	125.00
3" x 11/16"	V860103	197.00	V860203	208.00	V860303	230.00
4" x 3/4"	V860104	351.00	V860204	461.00	V860304	538.00
5" x 7/8"	V860105	582.00	V860205	615.00	V860305	714.00
6" x 1"	V860106	780.00	V860206	868.00	V860306	1,132.00
8" x 1-5/16"	V860108	1,704.00	V860208	1,858.00	V860308	2,221.00
10" x 1-11/16"	V860110	3,266.00	V860210	3,453.00	V860310	3,695.00
12" x 2"	V860112	4,905.00	V860212	5,466.00	V860312	6,225.00
<b>DOUBLE SURFACE</b>						
1" x 1/2"	V860401	98.00	V860501	102.00	V860601	114.00
2" x 5/8"	V860402	153.00	V860502	164.00	V860602	175.00
3" x 11/16"	V860403	241.00	V860503	263.00	V860603	307.00
4" x 3/4"	V860404	428.00	V860504	505.00	V860604	692.00
5" x 7/8"	V860405	692.00	V860505	813.00	V860605	923.00
6" x 1"	V860406	956.00	V860506	1,099.00	V860606	1,462.00
8" x 1-5/16"	V860408	2,133.00	V860508	2,419.00	V860608	3,079.00
10" x 1-11/16"	V860410	4,025.00	V860510	4,179.00	V860610	4,685.00
12" x 2"	V860412	6,038.00	V860512	6,995.00	V860612	8,128.00



Furnished in fitted felt-lined case. Sizes 14" x 2 1/2", 15" x 2 1/2", 16" x 3" – Price on application, single and double surface. Central hole prices furnished upon request.

**RECONDITIONED OPTICAL FLATS**

- Your worn, scratched and opaque flats can be resurfaced to any desired accuracy, single or double surface, and will be indistinguishable from new flats.
- The reworked flats will be certified, showing traceability to the National Institute of Standards and Technology with the test number and date.
- Substantial savings can be realized on small and large flats in all three accuracies. Consult factory for an estimate.
- Microcoating on rework at full price.

**OPTICAL FLATS PARALLEL SETS**

**OPTICAL FLATS PARALLEL SETS - PARALLEL TO .000004"** List #24-10

Type of Set	Size	EDP No.	Price
Set Op-2A, two parallels	1" x 1/4"	V839900	263.00
Set Op-2AA, two parallels	1" x 1/2"	V839901	263.00
Set Op-2B, two parallels	1-1/4" x 1/2"	V839903	329.00
Set Op-2C, two parallels	1" x 1"	V839905	439.00
Set Op-2AA, metric parallels	25.4mm x 12.7 mm	V839902	263.00

Flats in optical parallel sets differ in thickness by approximately .0125", providing a parallelism check at two spindle positions, each one-half turn apart. For metric micrometers, the difference is 0.25 mm.

**OPTICAL FLATS PARALLEL SETS** List #24-10

Case #1	Working Accuracy .000004"	EDP No.	Price
1-OP2B	Optical Parallels	V830001	1,209.00
1-2" x 5/8"	Double Surface		
1-2" x 5/8"	Single Surface Coated		
1-3" x 11/16"	Double Surface		
1-4" x 3/4"	Single Surface Coated		
Case #2	Master Accuracy .000002"	V830002	1,121.00
1-2" x 5/8"	Double Surface		
1-2" x 5/8"	Single Surface Coated		
1-3" x 11/16"	Double Surface		
1-4" x 3/4"	Single Surface Coated		
Case #3	Reference Accuracy .000001"	V830003	1,495.00
1-2" x 5/8"	Double Surface		
1-2" x 5/8"	Single Surface Coated		
1-3" x 11/16"	Double Surface		
1-5" x 3/4"	Single Surface Coated		

## THREAD MEASURING WIRES

**Quality of Van Keuren Gaging Surfaces** – The gaging or working surface of Van Keuren Thread Measuring Wires is superior to that specified by the most demanding of Federal standards.

The roundness of Van Keuren Thread Measuring Wires is assured by 100% inspection in a specially designed optically lapped precision vee-block having the same angle as the thread to be measured. All Van Keuren measuring wires meet former Federal Specifications GGG-W-366b, which for identity of size, taper and roundness requires a tolerance of .00001" for Grade A Wires.

Identification: Wire sizes are nominal. Calibrated size will show on label with matching constant. In all cases the calibrated wire diameter will be within +/- 10 millionths of the exact size of the wires and within +/- 20 millionths of the nominal best wire diameter (G), as specified for Grade A Wires.

### 60 DEGREE THREADS

List #16-00

(N) Threads Per Inch	(G) Nominal Best Wire Diameter (Inches)	(C) Nominal Constant (Inches)	EDP No.	Price Set of Three
120	.00481	.00721	V701228	72.00
100	.00577	.00865	V701229	72.00
96	.00601	.00901	V701230	72.00
90	.00642	.00962	V701231	72.00
80	.00722	.01083	V701232	72.00
72	.00802	.01203	V701233	72.00
64	.00902	.01353	V701234	72.00
56	.01031	.01546	V701235	72.00
50	.01155	.01732	V701236	72.00
48	.01203	.01804	V701237	44.00
44	.01312	.01968	V701238	44.00
40	.01443	.02165	V701239	44.00
36	.01604	.02406	V701240	44.00
32	.01804	.02706	V701241	44.00
30	.01925	.02887	V701242	44.00
28	.02062	.03093	V701243	44.00
27	.02138	.03208	V701244	44.00
26	.02221	.03331	V701245	44.00
24	.02406	.03608	V701246	44.00
22	.02624	.03936	V701247	44.00
20	.02887	.04330	V701248	44.00
18	.03208	.04811	V701249	44.00
16	.03608	.05413	V701250	44.00
14	.04124	.06186	V701251	44.00
13	.04441	.06662	V701252	44.00
12	.04811	.07217	V701253	44.00
11-1/2	.05020	.07531	V701254	44.00
11	.05249	.07873	V701255	44.00
10	.05774	.08660	V701256	44.00
9	.06415	.09623	V701257	44.00
8	.07217	.10825	V701258	44.00
7-1/2	.07698	.11547	V701259	44.00
7	.08248	.12372	V701260	44.00
6	.09623	.14434	V701261	44.00
5-1/2	.10497	.15746	V701262	72.00
5	.11547	.17321	V701263	72.00
4-1/2	.12830	.19245	V701264	72.00
4	.14434	.21651	V701265	72.00
3-1/2	.16496	.24744	V701225	72.00
3-1/4	.17765	.26647	V701224	72.00
3	.19245	.28868	V701223	72.00
2-3/4	.20995	.31492	V701222	72.00
2-1/2	.23094	.34641	V701221	72.00
2	.28868	.43301	V701220	72.00

Holders are available individually.



• Thread Measuring Wires

## THREAD MEASURING WIRES

These wires are the best sizes for standard 60° inch and metric threads. They may be used with other thread forms or with special pitches, constants for which may be calculated from the formula shown below. They are made from selected high speed steel, are extremely accurate in roundness and straightness and are within .000020" (20 millionths) of exact size.

The formula for determining wire constants for all 60° threads =  $3W - .866025P$ . Where  $W$  = wire size and  $P$  = Pitch (1/T.P.I.)

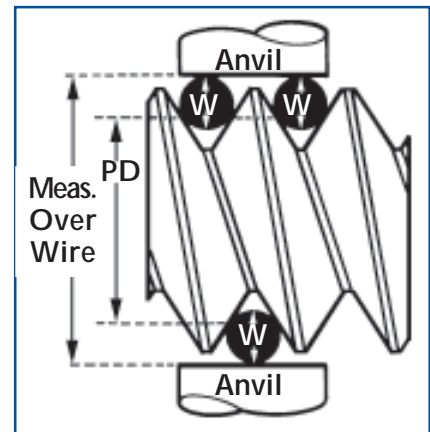
The most accurate and universally recognized method obtaining pitch diameter measurements of thread plug or setting plug gages is by means of using three hardened steel measuring wires laid into opposite sides of the thread, as shown in the diagram. Precise measurements with proper pressures over these wires minus the appropriate constant equals the measured pitch diameter.

FREE Certificate of Calibration accompanies each set upon request.

### 60 DEGREE METRIC THREADS

List #16-00

Pitch 00	Nominal Best Wire Diameter (mm)	Nominal Constant (mm)	EDP No.	Price Set of Three Wires
.20 mm	.1155	.1732	V701304	72.00
.225 mm	.1299	.1949	V701305	72.00
.25 mm	.1443	.2165	V701306	72.00
.30 mm	.1732	.2598	V701307	72.00
.35 mm	.2021	.3031	V701308	72.00
.40 mm	.2309	.3464	V701309	72.00
.45 mm	.2598	.3897	V701310	72.00
.50 mm	.2887	.4330	V701311	72.00
.60 mm	.3464	.5196	V701312	72.00
.70 mm	.4041	.6062	V701313	72.00
.75 mm	.4330	.6495	V701314	44.00
.80 mm	.4619	.6928	V701315	44.00
.90 mm	.5196	.7794	V701316	44.00
1.00 mm	.5774	.8660	V701317	44.00
1.25 mm	.7217	1.0825	V701318	44.00
1.50 mm	.8660	1.2990	V701319	44.00
1.75 mm	1.0104	1.5155	V701320	44.00
2.00 mm	1.1547	1.7321	V701321	44.00
2.50 mm	1.4434	2.1651	V701322	44.00
3.00 mm	1.7321	2.5981	V701323	44.00
3.50 mm	2.0207	3.0311	V701411	44.00
4.00 mm	2.3094	3.4641	V701412	44.00
4.50 mm	2.5981	3.8971	V701413	44.00
5.00 mm	2.8868	4.3301	V701414	72.00
5.50 mm	3.1754	4.7631	V701415	72.00
6.00 mm	3.4641	5.1962	V701416	72.00
7.00 mm	4.0415	6.0622	V701417	72.00
8.00 mm	4.6188	6.9282	V701418	72.00
9.00 mm	5.1962	7.7942	V701419	72.00
10.00 mm	5.7735	8.6603	V701420	72.00



• Wire diagram

#### Formula Values

- E = Pitch Diameter
- W = Diameter of Wire
- Mw = Measurement over wires
- Target Helix Angle =  $\text{Lead} / 3.1416E$
- N = Threads per inch

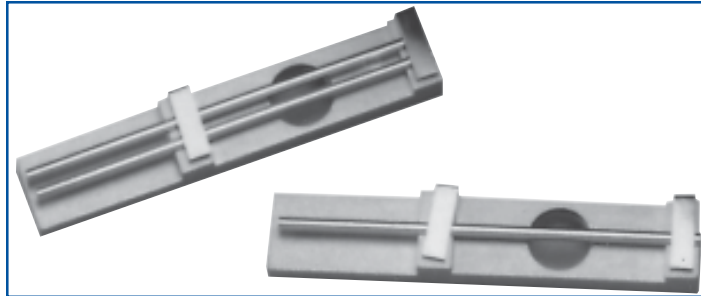
### 3-WIRE THREAD MEASURING SYSTEM

**Wire Holders** – The wire holders are fitted on anvils of the micrometer allowing the single and double measuring wires to accurately position in relation to each other. The extra length of the wire enables them to be adjusted up or down in the holders. This extends the life of the wires substantially. The holders are limited to their rotational movement by the “U” Track and thus are maintained in the ideal position for engaging any lead angle of a thread.

**Measuring Wires** – The measuring wires are certified to meet the following specifications:

Diameter: ±.000020"  
Roundness: ±.000010"  
Surface Finish: 2 Micro Inches

All measuring wires come with a certificate of calibration, which includes the actual wire size and the constant required in determining the pitch diameter.



• Thread measuring wires with holders.

#### 60 DEGREE THREAD 3-WIRE SETS WITH HOLDERS

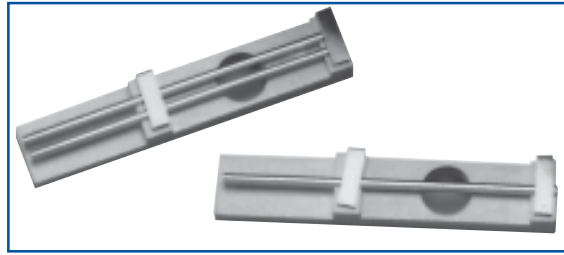
List #16-20H

Threads Per Inch	Nominal Diameter	Holder Only EDP Nos.			Price	Holders w/Wires	
		.250 Anvil	.300 Anvil	.375 Anvil		EDP No.	Set Price
80	.00722	V910325	V910326	V910327	157.00	V730800	219.00
72	.00802	V910319	V910320	V910321	157.00	V730720	219.00
64	.00902	V910313	V910314	V910315	146.00	V730640	208.00
56	.01031	V910306	V910307	V910308	146.00	V730560	208.00
50	.01155	V910303	V910304	V910305	146.00	V730500	208.00
48	.01203	V910296	V910297	V910298	146.00	V730480	208.00
44	.01312	V910293	V910294	V910295	146.00	V730440	208.00
40	.01443	V910290	V910291	V910292	133.00	V730400	167.00
36	.01604	V910283	V910284	V910285	133.00	V730360	167.00
32	.01804	V910280	V910281	V910282	133.00	V730320	167.00
30	.01925	V910277	V910278	V910279	133.00	V730300	167.00
28	.02062	V910268	V910269	V910270	133.00	V730280	167.00
27	.02138	V910265	V910266	V910267	133.00	V730270	167.00
26	.02221	V910262	V910263	V910264	133.00	V730260	167.00
24	.02406	V910259	V910260	V910261	133.00	V730240	167.00
22	.02624	V910256	V910257	V910258	133.00	V730220	167.00
20	.02887	V910253	V910254	V910255	133.00	V730200	167.00
18	.03208	V910244	V910245	V910246	133.00	V730180	167.00
16	.03608	V910241	V910242	V910243	133.00	V730160	167.00
14	.04124	V910238	V910239	V910240	133.00	V730140	167.00
13	.04441	V910235	V910236	V910237	133.00	V730130	167.00
12	.04811	V910232	V910233	V910234	133.00	V730120	167.00
11-1/2	.05020	V910226	V910227	V910228	133.00	V730115	167.00
11	.05249	V910229	V910230	V910231	133.00	V730110	167.00
10	.05774	V910223	V910224	V910225	133.00	V730100	167.00
9	.06415	V910331	V910332	V910333	133.00	V730090	167.00
8	.07217	V910328	V910329	V910330	133.00	V730080	167.00
7	.08248	V910322	V910323	V910324	133.00	V730070	167.00
6	.09623	V910316	V910317	V910318	133.00	V730060	167.00
5	.11547	V910309	V910310	V910311	157.00	V730050	219.00

When ordering, specify "Threads Per Inch" and Anvil Size.



## 3-WIRE THREAD MEASURING SYSTEM



• Thread measuring wires with holders.

### 60 DEGREE METRIC THREAD WIRE SETS WITH HOLDERS List #16-20H

Pitch mm	Best mm	Wire Size Inch Equiv.	Holder Only EDP No.			Price	Holders w/Wires	
			.250" Anvil	.300" Anvil	.375" Anvil		EDP No.	Set Price
.35 mm	.2021	.00796	V910175	V910176	V910177	157.00	V740350	219.00
.40 mm	.2309	.00909	V910184	V910185	V910186	157.00	V740400	219.00
.45 mm	.2598	.01023	V910181	V910182	V910183	146.00	V740450	208.00
.50 mm	.2887	.01137	V910190	V910191	V910192	146.00	V740500	208.00
.55 mm	.3175	.01250	V910187	V910188	V910189	146.00	V740550	208.00
.60 mm	.3464	.01364	V910193	V910194	V910195	146.00	V740600	208.00
.70 mm	.4041	.01591	V910199	V910200	V910201	146.00	V740700	208.00
.75 mm	.4330	.01705	V910196	V910197	V910198	133.00	V740750	167.00
.80 mm	.4619	.01818	V910205	V910206	V910207	133.00	V740800	167.00
.85 mm	.4907	.01932	V910202	V910203	V910204	133.00	V740850	167.00
.90 mm	.5196	.02046	V910208	V910209	V910210	133.00	V740900	167.00
1.00 mm	.5774	.02273	V910211	V910212	V910213	133.00	V741000	167.00
1.25 mm	.7217	.02841	V910214	V910215	V910216	133.00	V741250	167.00
1.50 mm	.8660	.03410	V910217	V910218	V910219	133.00	V741500	167.00
1.75 mm	1.0104	.03978	V910220	V910221	V910222	133.00	V741750	167.00
2.00 mm	1.1547	.04546	V910247	V910248	V910249	133.00	V742000	167.00
2.50 mm	1.4434	.05683	V910250	V910251	V910252	133.00	V742500	167.00
3.00 mm	1.7321	.06819	V910271	V910272	V910273	133.00	V743000	167.00
3.50 mm	2.0270	.07956	V910274	V910275	V910276	133.00	V743500	167.00
4.00 mm	2.3094	.09092	V910286	V910287	V910288	133.00	V744000	167.00

When ordering, specify "Pitch" and Anvil Size.  
Individual Holders available — price on application.

## THREAD MEASURING WIRE SETS

### THREAD MEASURING WIRE SETS List #16-00S

	Wooden Case No Wire Holders		Wooden Case w/ Wire Holders	
	EDP No.	Price	EDP No.	Price
<b>60 Degree Thread Measuring Wires</b>				
Set No. 30 HS*				
30 sizes (5 to 80 TPI), with case	V396890	1,518.00	V396895	5,460.00
Set No. 34 HS				
34 sizes (4 to 80 TPI), with case	V396920	1,803.00	V396925	6,210.00
Set No. 20 HS*				
20 sizes (6 to 36 TPI), with case	V396880	937.00	V396980	3,420.00
Set No. 20 TC				
20 sizes (6 to 36 TPI), with case	V396990	Price on Request	V396995	Price on Request
<b>60 Degree Metric Thread Measuring Wires</b>				
Set No. 30M				
30 sizes (.2 pitch to 10 pitch), with case	V396910	1,871.00	V396915	5,873.00
Set No. 23M				
23 sizes (.3 pitch to 6 pitch), with case	V396900	1,351.00	V396905	4,359.00
<b>29 Degree Acme Best Threads</b>				
Set No. 22AB				
22 sizes (1 to 20 TPI), with case	V397000	1,671.00		N/A**
Set No. 16AB				
16 sizes (3-1/2 to 20 TPI), with case	-	-	V397005	3,592.00



• Wire and holder set

\*7-1/2 & 22 TPI not included in these sets. All sets include Certification of Calibration.

\*\*Not all sizes available.

Cases and vials are available, price on request.



## GRAND MASTER CALIBRATION SETS

Calibrated Van Keuren Master Calibration Sets are supplied in durable corrosion resistant containers in fitted cases and are identified by serial numbers. Come with Certification of Calibration. Grand Master Calibration Sets are not returnable for credit or cancellation.

For information regarding special wire diameters including: Whitworth, British Association, Buttress Threads, 29 degree Acme Flush, 40 degree Worm Flush, and Diametrical Pitch Worms, please refer to Van Keuren Handbook No. 37, see page 11.

### GRAND MASTER CALIBRATION SETS

List #16-00S

One master for each pitch.

	EDP No.	Price
Set No. 20 HSC, 20 sizes (6 to 36 TPI)	V396930	805.00
Set No. 30 HSC, 30 sizes (5 to 80 TPI)	V396950	1,380.00
Set No. 34 HSC, 34 sizes (4 to 80 TPI)	V396970	1,553.00
Set No. 30 MC, 30 sizes (.2 to 10 mm pitch)	V396960	1,610.00
Set No. 23 MC, 23 sizes (.3 to 6 mm pitch)	V396940	1,150.00
Set No. 22 ABC, 22 sizes (1 to 20 TPI)	V397010	1,380.00

Grand Master Calibration Sets are not returnable for credit or cancellation. Certificate of Calibration traceable to the NIST included, all sets.

### SPECIAL THREAD MEASURING WIRES

List #16-10

+/- 20 millionths

Range Above / Including	Price Set of Three
.004 - .005" / .1016 mm - .1270 mm	132.00
.005 - .007" / .1270 mm - .1778 mm	132.00
.007 - .010" / .1778 mm - .2540 mm	99.00
.010 - .135" / .2540 mm - 3.429 mm	99.00
.135 - .260" / 3.429 mm - 6.604 mm	99.00
.260 - .385" / 6.604 mm - 9.779 mm	110.00
.385 - .510" / 9.779 mm - 12.954 mm	110.00
.510 - .635" / 12.954 mm - 16.129 mm	110.00
.635 - .760" / 16.129 mm - 19.304 mm	132.00
.760 - 1.010" / 19.304 mm - 25.654 mm	132.00

### 29 DEGREE ACME BEST THREADS

List #16-00

Threads Per Inch (n)	Diameter Best Size Wire (Inches)	EDP No.	Price Set of Three
1	.51645	V701501	83.00
1-1/3	.38734	V701502	83.00
1-1/2	.34430	V701503	83.00
1-3/4	.29511	V701504	83.00
2	.25823	V701505	83.00
2-1/2	.20658	V701506	83.00
3	.17215	V701507	83.00
3-1/2	.14756	V701508	66.00
4	.12911	V701509	66.00
4-1/2	.11477	V701510	66.00
5	.10329	V701511	66.00
5-1/2	.09390	V701512	66.00
6	.08608	V701513	66.00
7	.07378	V701514	66.00
8	.06456	V701515	66.00
9	.05738	V701516	66.00
10	.05164	V701517	66.00
12	.04304	V701518	66.00
14	.03689	V701519	66.00
16	.03228	V701520	66.00
18	.02869	V701521	66.00
20	.02582	V701522	66.00



All Gear Measuring Wires meet or exceed Former Fed. Spec. GGG-W-366b for Grade AM.G.W.

	EDP No.	Price
<b>Set No. 84*</b> Includes 2 wires each of 84 sizes from 1.92", 1.728", 1.44", and 1.68" series for measuring tooth thickness and checking involute profiles of external and internal gears from 2 to 80 P, complete in fitted case.	V710004	3,987.00
<b>Set No. 71EX*</b> Includes 2 wires each of 71 sizes from 1.92", 1.728", 1.44", and 1.68" series for measuring tooth thickness and checking involute profiles of external gears from 2 to 80 P, complete in fitted case.	V710003	3,299.00
<b>Set No. 48G*</b> Includes 2 wires each of 48 sizes (excluding duplicates) from 1.728", and 1.44" series for measuring external and internal gears from 2 to 80 P, complete in fitted case.	V710005	2,233.00
<b>Set No. 26EX</b> Includes 2 wires each of 26 sizes from 1.728" series for external gears from 2 to 80 P, complete in fitted case.	V710002	1,244.00
<b>Set No. 26IN</b> Includes 2 wires each of 26 sizes from 1.44" series for internal gears from 2 to 80 P, complete in fitted case.	V710006	1,244.00
<b>Set No. 26</b> Includes 2 wires each of 26 sizes from 1.68" alternate series for measurement of external or internal gears from 2 to 80 P, complete in fitted case.	V710007	1,244.00
<b>Set No. 15</b> Includes 2 wires each of 15 sizes from 1.92" series for 2-1/2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 32, 40, 48, and 64 P, external 30 degree splines, in fitted case.	V710000	769.00
<b>Set No. 15IN</b> Includes 2 wires each of 15 sizes from 1.92" series for 2-1/2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 32, 40, 48, and 64 P, with flats for 30 degree internal splines, in fitted case.	V710001	1,269.00
<b>Set No. 9</b> Includes 2 wires each of 9 sizes from 1.92" series for 10, 16, 24, 32, 40, 48, 64, 80, and 128 P, external and internal 45 degree serrated shafts, in fitted case.	V710008	413.00

Prices do not include long-form Certificate of Calibration. Long-form Certifications are available at \$13.00 per pitch.

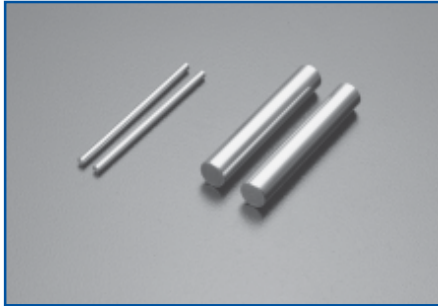
\*To avoid unnecessary duplication and expense, wires of like diameter are interchangeable within the series sets, and not duplicated in sets of No. 84, 71EX, and 48G.

Metric Module Sets are available upon request.

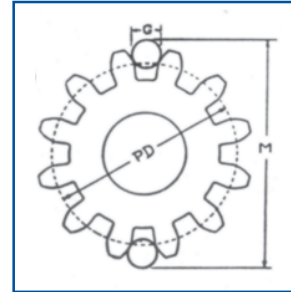


## GEAR MEASURING WIRES

- All Gear Measuring Wires meet or exceed Former Fed. Spec. GGG-W-366b for Grade AM.G.W.
- For three wire sets, add 50%.
- For modifications to Gear Wires, prices furnished upon request.
- For Carbide Gear Wires, prices furnished upon request.
- Metric Module sets available upon request.



• Gear Measuring Wires, two per set



• Wires are lapped to 2 RMS micro inch finish or less and measured to exacting specifications.

GRADE A MASTER GEAR WIRES										List #17-00
P	Wire Diameter for Enlarged Pinions 1.92"		Wire Diameter for External Gears 1.728"		Alternate Series 1.68"		Wire Diameter for Internal Gears 1.44"		Price Set of Two Wires	
	P	EDP No.	P	EDP No.	P	EDP No.	P	EDP No.		
2	.96000	V706030	.86400	V703030	.84000	V704030	.72000	V707030	72.00	
2-1/2	.76800	V706029	.69120	V703029	.67200	V704029	.57600	V707029	72.00	
3	.64000	V706028	.57600	V703028	.56000	V704028	.48000	V707028	72.00	
4	.48000	V706027	.43200	V703027	.42000	V704027	.36000	V707027	72.00	
5	.38400	V706026	.34560	V703026	.33600	V704026	.28800	V707026	50.00	
6	.32000	V706025	.28800	V703025	.28000	V704025	.24000	V707025	50.00	
7	.27428	V706024	.24686	V703024	.24000	V704024	.20571	V707024	50.00	
8	.24000	V706023	.21600	V703023	.21000	V704023	.18000	V707023	39.00	
9	.21333	V706022	.19200	V703022	.18666	V704022	.16000	V707022	39.00	
10	.19200	V706021	.17280	V703021	.16800	V704021	.14400	V707021	39.00	
11	.17454	V706020	.15709	V703020	.15273	V704020	.13091	V707020	39.00	
12	.16000	V706019	.14400	V703019	.14000	V704019	.12000	V707019	39.00	
14	.13714	V706018	.12343	V703018	.12000	V704018	.10286	V707018	39.00	
16	.12000	V706017	.10800	V703017	.10500	V704017	.09000	V707017	39.00	
18	.10667	V706016	.09600	V703016	.09333	V704016	.08000	V707016	39.00	
20	.09600	V706015	.08640	V703015	.08400	V704015	.07200	V707015	39.00	
22	.08727	V706014	.07855	V703014	.07636	V704014	.06545	V707014	39.00	
24	.08000	V706013	.07200	V703013	.07000	V704013	.06000	V707013	39.00	
28	.06857	V706012	.06171	V703012	.06000	V704012	.05143	V707012	39.00	
32	.06000	V706011	.05400	V703011	.05250	V704011	.04500	V707011	39.00	
36	.05333	V706010	.04800	V703010	.04667	V704010	.04000	V707010	39.00	
40	.04800	V706009	.04320	V703009	.04200	V704009	.03600	V707009	39.00	
48	.04000	V706008	.03600	V703008	.03500	V704008	.03000	V707008	39.00	
64	.03000	V706007	.02700	V703007	.02625	V704007	.02250	V707007	39.00	
72	.02667	V706006	.02400	V703006	.02333	V704006	.02000	V707006	39.00	
80	.02400	V706005	.02160	V703005	.02100	V704005	.01800	V707005	39.00	
96	.02000	V706004	.01800	V703004	.01750	V704004	.01500	V707004	39.00	
100	.01920	V706003	.01728	V703003	.01680	V704003	.01440	V707003	39.00	
120	.01600	V706002	.01440	V703002	.01400	V704002	.01200	V707002	61.00	
128	.01500	V706001	.01350	V703001	.01312	V704001	.01125	V707001	61.00	
200	.00960	V706000	.00864	V703000	.00840	V704000	.00720	V707000	61.00	

SPECIAL GEAR MEASURING WIRES  $\pm .000010$ 

List #17-10

Range Above / To	Price Set 2 Wires
.004 - .005" / .1016 mm - .1270 mm	99.00
.005 - .007" / .1270 mm - .1778 mm	99.00
.007 - .010" / .1778 mm - .2540 mm	77.00
.010 - .135" / .2540 mm - 3.429 mm	77.00
.135 - .260" / 3.429 mm - 6.604 mm	77.00
.260 - .385" / 6.604 mm - 9.779 mm	77.00
.385 - .510" / 9.779 mm - 12.954 mm	77.00
.510 - .635" / 12.954 mm - 16.129 mm	77.00
.635 - .760" / 16.129 mm - 19.304 mm	99.00
.760 - 1.010" / 19.304 mm - 25.654 mm	99.00

## FLATTED GEAR WIRES

List #17-00

Pitch	Flattening Price Per Set
2 thru 48	40.00

Price is for flattening each of two wires to 80% of wire diameter.  
 For depth of flat exceeding 20% diameter, a quotation is required.  
 For special gear wires, use price for flattening which is closest to standard diameters.

## VK HANDBOOK #37

VK Handbook #37 has been reproduced in a new loose leaf format. It features over 200 pages of detailed information on wire type plug gages, thread and gear wire measurement, application techniques for optical and monochromatic lights and more. It is the definitive source for the use of fixed gaging techniques.

EDP No.	Price
V980138	\$35.00

## WIRE TYPE REVERSIBLE PLUG GAGES

### HOW TO ORDER

1. Specify quantity, size and tolerance Go (plus), Not Go (minus) or Split (Master).
2. Handles, specify single or double-end handle. If ordered separately, specify pin size.
3. Go, Not Go sizes and tool number permanently marked on the handle at no extra cost.
4. Prices for specials upon request.
5. Quantity discount applies only to same size in same class.
6. Carbide prices available upon request.
7. Unilateral tolerance furnished Go (plus), Not Go (minus) unless otherwise specified.
8. For class XXX plug gages larger than .005", add 100% to class XX prices. For class XXX, sizes smaller than .0041" consult the factory for price and availability.
9. For class tolerance see page 25.



Gages are individually packaged and labeled in moisture protective clear vials. Etching, certificates and fitted cases are available at an additional cost.

• Wire Type Plug Gage

### REVERSIBLE PLAIN PLUG GAGES

List #10-00

Range From — To	Class	Go or Not Go Member's Price Each in Quantities of				Handle Number Price	One Complete D.E. Plug Gage	Length of Member in Inches	Useful Gaging Depth
		1-2	3-5	6-11	12-25				
.0011" - .0015" 0.02794 - 0.0381 mm	XX	Price on Application				1W 9.00		3/4	—
	X	"	"	"	"				
	Y	"	"	"	"				
	Z	"	"	"	"				
.0016" - .0040" 0.04064 - 0.1016 mm	XX	"	"	"	"	1W 9.00	1	—	
	X	"	"	"	"				
	Y	"	"	"	"				
	Z	"	"	"	"				
.0041" - .0050" 0.10414 - 0.127 mm	XX	61.00	59.00	56.00	56.00	1W 9.00	131.00	1-1/4	—
	X	51.00	49.00	47.00	47.00				
	Y	48.00	46.00	44.00	44.00				
	Z	41.00	39.00	37.00	37.00				
.0051" - .0070" 0.12954 - .1778 mm	XX	40.00	38.00	36.00	34.00	1W 9.00	89.00	2	1-1/2
	X	32.00	30.00	28.00	27.00				
	Y	29.00	28.00	26.00	25.00				
	Z	26.00	25.00	24.00	22.00				
.0071" - .0299" 0.18034 - 0.75946 mm	XX	34.00	32.00	30.00	29.00	1W 9.00	77.00	2	1-1/2
	X	25.00	24.00	23.00	21.00				
	Y	23.00	22.00	21.00	20.00				
	Z	21.00	20.00	19.00	18.00				
.0300" - .0749" 0.762 - 1.90246 mm	XX	23.00	22.00	20.00	19.00	1W 9.00	55.00	2	1-1/2
	X	18.00	17.00	16.00	15.00				
	Y	16.00	15.00	14.00	13.00				
	Z	12.00	12.00	11.00	10.00				
.0750" - .1799" 1.905 - 4.56946 mm	XX	24.00	23.00	22.00	20.00	2W 9.00	57.00	2	1-1/2
	X	19.00	18.00	17.00	16.00				
	Y	16.00	15.00	14.00	13.00				
	Z	13.00	13.00	12.00	11.00				
.1800" - .2809" 4.572 - 7.13486 mm	XX	25.00	23.00	22.00	21.00	3W 10.00	60.00	2	1-1/2
	X	20.00	19.00	18.00	17.00				
	Y	17.00	16.00	15.00	14.00				
	Z	14.00	13.00	12.00	11.00				
.2810" - .4059" 7.1374 - 10.30986 mm	XX	25.00	24.00	23.00	21.00	4W 11.00	61.00	2	1-1/2
	X	21.00	20.00	19.00	18.00				
	Y	18.00	17.00	16.00	15.00				
	Z	14.00	13.00	13.00	12.00				
.4060" - .5099" 10.3124 - 12.95146 mm	XX	27.00	26.00	24.00	23.00	5W 12.00	66.00	2	1-1/2
	X	22.00	21.00	20.00	19.00				
	Y	19.00	18.00	17.00	16.00				
	Z	15.00	14.00	13.00	12.00				
.5100" - .6349" 12.954 - 16.12646 mm	XX	29.00	28.00	26.00	25.00	6W 13.00	71.00	2	1-1/2
	X	23.00	22.00	21.00	20.00				
	Y	20.00	18.00	17.00	16.00				
	Z	17.00	17.00	15.00	14.00				
.6350" - .7609" 16.129 - 19.304 mm	XX	31.00	29.00	28.00	26.00	7W 16.00	78.00	2	1-1/2
	X	24.00	23.00	22.00	21.00				
	Y	21.00	20.00	19.00	18.00				
	Z	19.00	18.00	17.00	16.00				
.7610" - 1.000" 19.329 - 25.400 mm	XX	37.00	35.00	33.00	31.00	8W 20.00	94.00	2	1-1/2
	X	32.00	30.00	29.00	27.00				
	Y	28.00	26.00	25.00	23.00				
	Z	25.00	24.00	22.00	21.00				



## WIRE TYPE REVERSIBLE PLUG GAGES - CHROME

### HOW TO ORDER

1. Specify quantity, size and tolerance Go (plus), Not Go (minus) or Split (Master).
2. Handles, specify single or double-end handle. If ordered separately, specify pin size.
3. Go, Not Go sizes and tool number permanently marked on the handle at no extra cost.
4. Prices for specials upon request.
5. Quantity discount applies only to same size in same class.
6. Carbide prices available upon request.
7. Unilateral tolerance furnished Go (plus), Not Go (minus) unless otherwise specified.

Gages are individually packaged and labeled in moisture protective clear vials. Etching, certificates and fitted cases are available at an additional cost.



• Wire Type Plug Gage

REVERSIBLE PLAIN PLUG GAGES - CHROME PLATED									List #11-00
Chrome Plated Range From — To	Class	Go or Not Go Member's Price Each in Quantities of				Handle Number Price	One Complete D.E. Plug Gage	Length of Member in Inches	Useful Gaging Depth
		1-2	3-5	6-11	12-25				
.0100" - .0159" 0.2540 - 0.40386 mm	XX	51.00	48.00	46.00	43.00	1W 9.00	111.00 85.00 79.00 73.00	1-3/4	1-1/4
	X	38.00	36.00	34.00	32.00				
	Y	35.00	33.00	31.00	30.00				
	Z	32.00	30.00	28.00	27.00				
.0160" - .0299" 0.4064 - 0.75946 mm	XX	48.00	45.00	43.00	40.00	1W 9.00	105.00 79.00 75.00 69.00	2	1-1/2
	X	35.00	33.00	32.00	30.00				
	Y	33.00	31.00	29.00	28.00				
	Z	30.00	28.00	27.00	25.00				
.0300" - .0749" 0.762 - 1.90246 mm	XX	30.00	28.00	27.00	25.00	1W 9.00	69.00 55.00 49.00 41.00	2	1-1/2
	X	23.00	22.00	21.00	20.00				
	Y	20.00	19.00	18.00	17.00				
	Z	16.00	15.00	14.00	13.00				
.0750" - .1799" 1.905 - 4.56946 mm	XX	31.00	30.00	28.00	26.00	2W 9.00	71.00 59.00 51.00 43.00	2	1-1/2
	X	25.00	23.00	22.00	21.00				
	Y	21.00	20.00	19.00	18.00				
	Z	17.00	16.00	15.00	14.00				
.1800" - .2809" 4.572 - 7.13486 mm	XX	32.00	30.00	29.00	27.00	3W 10.00	74.00 62.00 54.00 46.00	2	1-1/2
	X	26.00	25.00	23.00	22.00				
	Y	22.00	21.00	20.00	18.00				
	Z	18.00	17.00	16.00	15.00				
.2810" - .4059" 7.13994 - 10.30986 mm	XX	33.00	31.00	30.00	29.00	4W 11.00	77.00 67.00 57.00 49.00	2	1-1/2
	X	28.00	26.00	25.00	23.00				
	Y	23.00	22.00	21.00	19.00				
	Z	19.00	18.00	17.00	16.00				
.4060" - .5099" 10.3124 - 12.95146 mm	XX	35.00	33.00	31.00	30.00	5W 12.00	82.00 70.00 60.00 50.00	2	1-1/2
	X	29.00	27.00	26.00	24.00				
	Y	24.00	23.00	21.00	20.00				
	Z	19.00	18.00	17.00	16.00				
.5100" - .6359" 12.954 - 16.129 mm	XX	38.00	36.00	34.00	32.00	6W 13.00	89.00 73.00 63.00 57.00	2	1-1/2
	X	30.00	28.00	27.00	25.00				
	Y	25.00	24.00	23.00	21.00				
	Z	22.00	21.00	20.00	19.00				
.6360" - .7609" 16.1544 - 19.3268 mm	XX	40.00	38.00	36.00	34.00	7W 16.00	96.00 80.00 70.00 64.00	2	1-1/2
	X	32.00	30.00	28.00	27.00				
	Y	27.00	26.00	24.00	23.00				
	Z	24.00	23.00	22.00	20.00				
.7610" - 1.000" 19.329 - 25.400 mm	XX	48.00	45.00	43.00	40.00	8W 20.00	116.00 104.00 92.00 84.00	2	1-1/2
	X	42.00	40.00	37.00	35.00				
	Y	36.00	34.00	32.00	30.00				
	Z	32.00	31.00	29.00	27.00				

**These gages are furnished in four classes of tolerance.**

**Class XX:** Used where product limits are extremely close or for master gages.

**Class X:** Used where product limits are relatively close, or occasionally for master gages.

**Class Y:** Used where product limits are normal to liberal.

**Class Z:** Used where product limits are quite liberal.



## EXTRA LENGTH WIRE TYPE REVERSIBLE PLUG GAGE

- For Chrome plated members add +30%
- Carbide available upon request, price on application.

### EXTRA LENGTH STEEL REVERSIBLE PLAIN PLUG GAGE MEMBERS

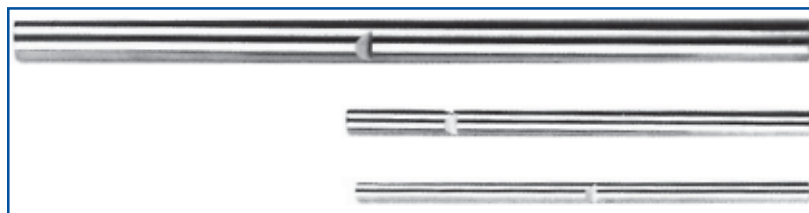
List #15-00

Range From — To	Class	Length			
		3"	4"	5"	6"
.030" - .059" 0.7620 - 1.4986 mm	XX	84.00	127.00	Not Available	
	X	73.00	110.00		
	Y	63.00	94.00		
	Z	61.00	91.00		
.0591" - .100" 1.50114 - 2.5400 mm	XX	69.00	96.00	124.00	151.00
	X	59.00	82.00	105.00	129.00
	Y	49.00	68.00	87.00	107.00
	Z	42.00	58.00	75.00	92.00
.1001" - .180" 2.54254 - 4.5720 mm	XX	63.00	88.00	114.00	139.00
	X	53.00	74.00	95.00	116.00
	Y	45.00	63.00	81.00	99.00
	Z	37.00	52.00	67.00	82.00
.1801" - .250" 4.57454 - 6.3500 mm	XX	65.00	91.00	117.00	142.00
	X	54.00	76.00	98.00	120.00
	Y	46.00	64.00	83.00	101.00
	Z	38.00	54.00	69.00	84.00
.2501" - .365" 6.35255 - 9.2710 mm	XX	66.00	93.00	119.00	145.00
	X	55.00	77.00	99.00	121.00
	Y	46.00	65.00	83.00	102.00
	Z	40.00	56.00	72.00	88.00
.3651" - .510" 9.27355 - 12.9540 mm	XX	68.00	95.00	122.00	149.00
	X	57.00	80.00	103.00	125.00
	Y	48.00	67.00	86.00	105.00
	Z	41.00	57.00	74.00	90.00
.5101" - .635" 12.95656 - 16.1290 mm	XX	75.00	105.00	135.00	165.00
	X	59.00	83.00	106.00	130.00
	Y	53.00	74.00	95.00	117.00
	Z	50.00	70.00	90.00	110.00
.6351" - .760" 16.13157 - 19.3040 mm	XX	80.00	112.00	143.00	175.00
	X	63.00	88.00	113.00	138.00
	Y	57.00	79.00	102.00	124.00
	Z	53.00	75.00	96.00	117.00



## DEPTH NOTCHES

- Available on wires and Taperlock style gage pins
- Depth Steps .093" diameter and above
- Prices for depth steps for pins longer than 1" from end are available upon request.



• Step

### DEPTH NOTCHES

Step Tolerance	1 Member		
	1 Step	2 Steps	4 Steps
.001 and Over	22.00	37.00	68.00
Under .001" to .0005"	26.00	46.00	91.00

## AIR GROOVES

- Add \$13.00 for the first member and \$7.00 for each additional members on the same order.
- Prices for air grooves for pins longer than 2" are available upon request diameters > .030" only

- Double end hex gages to ANSI/ASME B107.17M
- Double end hex gages to ANSI B18.3

**DOUBLE END HEX GAGES to ANSI/ASME B107.17M with HANDLE** List #19-69

Fractional		Fractional		Metric		Metric	
Size	Price	Size	Price	Size	Price	Size	Price
1/8	193.00	1-5/16	281.00	2 mm	222.00	28 mm	255.00
5/32	193.00	1-3/8	309.00	3 mm	222.00	29 mm	255.00
3/16	193.00	1-7/16	340.00	3.2 mm	193.00	30 mm	255.00
13/64	193.00	1-1/2	345.00	4 mm	193.00	31 mm	255.00
7/32	193.00	1-9/16	345.00	5 mm	193.00	32 mm	281.00
15/64	193.00	1-5/8	345.00	5.5 mm	193.00	33 mm	281.00
1/4	193.00	1-11/16	345.00	6 mm	193.00	34 mm	309.00
9/32	201.00	1-3/4	345.00	6.3 mm	193.00	35 mm	309.00
5/16	201.00	1-13/16	398.00	7 mm	201.00	36 mm	340.00
11/32	201.00	1-7/8	398.00	8 mm	201.00	37 mm	345.00
3/8	201.00	1-15/16	398.00	9 mm	201.00	38 mm	345.00
7/16	201.00	2	398.00	10 mm	201.00	39 mm	345.00
1/2	201.00	2-1/16	398.00	11 mm	201.00	40 mm	345.00
9/16	201.00	2-1/8	398.00	12 mm	201.00	41 mm	345.00
19/32	201.00	2-3/16	428.00	13 mm	201.00	42 mm	345.00
5/8	209.00	2-1/4	428.00	14 mm	201.00	43 mm	345.00
21/32	209.00	2-5/16	428.00	15 mm	201.00	44 mm	398.00
11/16	209.00	2-3/8	428.00	16 mm	209.00	45 mm	398.00
3/4	209.00	2-7/16	450.00	17 mm	209.00	46 mm	398.00
25/32	232.00	2-1/2	450.00	18 mm	209.00	47 mm	398.00
13/16	232.00	2-9/16	450.00	19 mm	232.00	48 mm	398.00
7/8	232.00	2-5/8	450.00	20 mm	232.00	49 mm	398.00
15/16	232.00	2-11/16	450.00	21 mm	232.00	50 mm	398.00
1	232.00	2-3/4	518.00	22 mm	232.00	55 mm	428.00
1-1/16	255.00	2-13/16	518.00	23 mm	232.00	60 mm	428.00
1-1/8	255.00	2-7/8	518.00	24 mm	232.00	65 mm	450.00
1-3/16	255.00	2-15/16	518.00	25 mm	232.00	70 mm	518.00
1-1/4	255.00	3	521.00	26 mm	255.00	75 mm	518.00
				27 mm	255.00		

**DOUBLE END HEX GAGES to ANSI B18.3 with HANDLE** List #19-69

Fractional		Metric	
Size	Price	Size	Price
0.028	271.00	0.70 mm	271.00
0.035	255.00	0.90 mm	255.00
0.050	222.00	1.30 mm	222.00
1/16	222.00	1.50 mm	222.00
5/64	222.00	2.00 mm	222.00
3/32	222.00	2.50 mm	222.00
7/64	222.00	3.00 mm	194.00
1/8	194.00	4.00 mm	194.00
9/64	194.00	5.00 mm	194.00
5/32	194.00	6.00 mm	194.00
3/16	194.00	8.00 mm	194.00
7/32	194.00	10.00 mm	202.00
1/4	197.00	12.00 mm	211.00
5/16	202.00	14.00 mm	211.00
3/8	211.00	17.00 mm	231.00
7/16	211.00	19.00 mm	241.00
1/2	211.00	22.00 mm	265.00
9/16	231.00	24.00 mm	288.00
5/8	231.00		
3/4	241.00		
7/8	265.00		
1	288.00		



• Hex Gage

## TAPERLOCK PLUG GAGES

Plug gages are made from steel, carbide or chrome plated steel. Selection criteria for the gage material depends on the number of parts to be gaged, and their abrasiveness.

Dirt, moisture and abuse can reduce the effective life of a plug gage. The Go plug gage determines the ability of a work piece to be assembled by checking the minimum or low limit of the hole being gaged.

The Not Go plug gage checks the maximum or high limit and controls the looseness of fit.

Plug gages are not made to exact dimensions of the part to be gaged. Plug gages are limited to a gage tolerance of 10% of the work piece tolerance.

### HOW TO ORDER

1. Specify quantity.
2. Size and tolerance, Go (plus), Not Go (minus) or Master (Split).
3. Handles, specify single or double-end handle.
4. Marking instructions: specify Go size, Not Go size, and tool number.

### HOW TO PRICE

1. Quantity prices apply to identical units only.
2. Chrome plate, add 30% to unit price.
3. For Class XXX add 100% to Class XX prices.
4. Carbide available upon request, price on application.



• Taperlock Plug Gage

TAPERLOCK PLUG GAGES										List #13-00	
Range Description	Class	Length	Price Each Go Member			Length	Price Each Not Go Member			Handle No.	Price
			1	2-4	5-10		1	2-4	5-10		
.105" to .1499" 2.67 to 3.81 mm	XX		44.00	39.00	37.00		43.00	38.00	36.00	00	8.00
	X	3/8"	34.00	30.00	29.00	7/32"	33.00	30.00	28.00	00	8.00
	Y	9.5 mm	32.00	29.00	27.00	5.6 mm	31.00	28.00	27.00	00	8.00
	Z		30.00	28.00	26.00		29.00	27.00	26.00	00	8.00
.150" to .2299" 3.81 to 5.84 mm	XX		44.00	39.00	37.00		43.00	38.00	36.00	0	8.00
	X	13/32"	34.00	30.00	29.00	9/32"	33.00	30.00	28.00	0	8.00
	Y	10.3 mm	33.00	29.00	27.00	7.1 mm	32.00	28.00	27.00	0	8.00
	Z		31.00	28.00	26.00		30.00	27.00	26.00	0	8.00
.230" to .3649" 5.84 to 9.27 mm	XX		44.00	40.00	37.00		43.00	39.00	36.00	1	8.00
	X	3/4"	34.00	31.00	29.00	5/16"	33.00	30.00	28.00	1	8.00
	Y	19.1 mm	33.00	29.00	28.00	7.9 mm	32.00	29.00	27.00	1	8.00
	Z		31.00	28.00	27.00		30.00	28.00	26.00	1	8.00
.365" to .5099" 9.27 to 12.95 mm	XX		45.00	41.00	38.00		44.00	40.00	37.00	2	8.00
	X	1"	35.00	32.00	30.00	3/8"	34.00	31.00	29.00	2	8.00
	Y	25.4 mm	33.00	30.00	28.00	9.5 mm	33.00	29.00	28.00	2	8.00
	Z		31.00	29.00	27.00		31.00	28.00	27.00	2	8.00
.510" to .8249" 12.95 to 20.96 mm	XX		47.00	43.00	41.00		46.00	42.00	40.00	3	8.00
	X	1-1/4"	37.00	34.00	32.00	1/2"	36.00	33.00	31.00	3	8.00
	Y	31.8 mm	35.00	32.00	30.00	12.7 mm	34.00	31.00	29.00	3	8.00
	Z		34.00	30.00	28.00		33.00	29.00	28.00	3	8.00
.825" to 1.1349" 20.96 to 28.83 mm	XX		49.00	45.00	42.00		48.00	44.00	42.00	4	9.00
	X	1-1/2"	38.00	35.00	33.00	5/8"	37.00	34.00	32.00	4	9.00
	Y	38.1 mm	36.00	33.00	31.00	15.9 mm	35.00	33.00	31.00	4	9.00
	Z		35.00	31.00	30.00		34.00	31.00	29.00	4	9.00
1.135" to 1.510" 28.83 to 38.35 mm	XX		51.00	47.00	44.00		50.00	46.00	43.00	5	9.00
	X	1-5/8"	40.00	35.00	34.00	3/4"	39.00	35.00	33.00	5	9.00
	Y	41.3 mm	38.00	34.00	32.00	19.1 mm	37.00	34.00	32.00	5	9.00
	Z		36.00	33.00	31.00		35.00	32.00	30.00	5	9.00

These gages are furnished in four classes of tolerance.

**Class XX:** Used where product limits are extremely close or for master gages.

**Class X:** Used where product limits are relatively close, or occasionally for master gages.

**Class Y:** Used where product limits are normal to liberal.

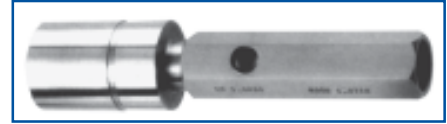
**Class Z:** Used where product limits are quite liberal.

## PROGRESSIVE TAPERLOCK PLUG GAGES

- With a Progressive Taperlock style plug gage you can inspect a part in one operation.
- Both Go and Not Go members are in line as part of the same gage element.
- This inline design makes one step gaging a practical time saver.

### HOW TO ORDER

1. Specify quantity.
2. Sizes and tolerance.
3. Unilateral Tolerance Go plus and Not Go minus
4. Specify handle style Taperlock or Trilock style if appropriate
5. Marking instructions: specify Go size, Not Go size and tool number



• Progressive Taperlock Plug Gage

### HOW TO PRICE

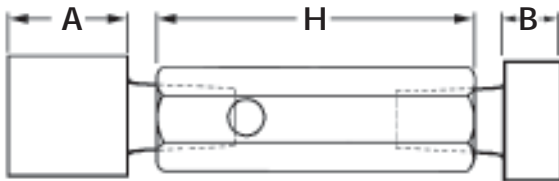
1. Quantity prices apply to identical units.
2. Chrome plated, add +30% to unit price.
3. For Class XXX add 100% to Class XX price.

## STEEL & CHROME PROGRESSIVE TAPERLOCK STYLE List #13-24

Range	Class	AGD Progressive Member			Price In Quantities of			Handle	
		Length	Go	Not Go	1	2-4	5-10	No.	Price
.105" to .1499" 2.67 mm to 3.81 mm	XX				65.00	59.00	56.00	00	8.00
	X	23/32"	3/8"	7/32"	60.00	53.00	50.00	00	8.00
	Y	18.3 mm	9.5 mm	5.6 mm	57.00	51.00	48.00	00	8.00
	Z				53.00	49.00	46.00	00	8.00
.150" to .2299" 3.81 mm to 5.84 mm	XX				63.00	57.00	54.00	0	8.00
	X	13/16"	13/32"	9/32"	57.00	51.00	48.00	0	8.00
	Y	20.6 mm	10.3 mm	7.1 mm	54.00	48.00	46.00	0	8.00
	Z				51.00	46.00	43.00	0	8.00
.230" to .3649" 5.84 mm to 9.27 mm	XX				65.00	59.00	55.00	1	8.00
	X	1-3/16"	3/4"	5/16"	58.00	52.00	49.00	1	8.00
	Y	30.2 mm	19.1 mm	7.9 mm	55.00	49.00	47.00	1	8.00
	Z				52.00	47.00	44.00	1	8.00
.365" to .5099" 9.27 mm to 12.95 mm	XX				67.00	60.00	57.00	2	8.00
	X	1-1/2"	1"	3/8"	59.00	52.00	49.00	2	8.00
	Y	38.1 mm	25.4 mm	9.5 mm	56.00	50.00	47.00	2	8.00
	Z				53.00	48.00	45.00	2	8.00
.510" to .8249" 12.95 mm to 20.96 mm	XX				72.00	64.00	61.00	3	8.00
	X	1-7/8"	1-1/4"	1/2"	62.00	56.00	53.00	3	8.00
	Y	47.6 mm	31.8 mm	12.7 mm	59.00	53.00	50.00	3	8.00
	Z				56.00	50.00	48.00	3	8.00
.825" to 1.1349" 20.96 mm to 28.83 mm	XX				80.00	72.00	68.00	4	9.00
	X	2-1/8"	1-3/8"	5/8"	68.00	61.00	58.00	4	9.00
	Y	54.0 mm	34.9 mm	15.9 mm	65.00	59.00	55.00	4	9.00
	Z				62.00	56.00	52.00	4	9.00
1.135" to 1.509" 28.83 mm to 38.35 mm	XX				91.00	82.00	77.00	5	9.00
	X	2-3/8"	1-1/2"	3/4"	71.00	64.00	60.00	5	9.00
	Y	60.3 mm	38.1 mm	19.1 mm	66.00	60.00	56.00	5	9.00
	Z				63.00	57.00	53.00	5	9.00

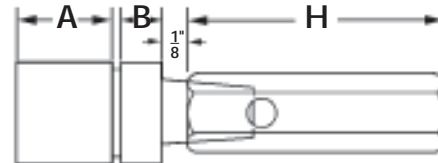
Unilateral tolerance  
Go - plus tolerance  
Not Go - minus tolerance

### General Dimensions



#### Taperlock Style

The shanks on the gaging members are tapered to fit corresponding taper holes in the handles. Worn members may be removed and the handle salvaged for use with new members.



#### Progressive Taperlock Style

Gaging lengths for progressive style may vary from general taperlock dimensions.

## PROGRESSIVE TRILOCK PLUG GAGES

### HOW TO ORDER

1. Specify quantity.
2. Sizes and tolerance.
3. Unilateral Tolerance Go plus and Not Go minus.
4. Specify handle style Taperlock or Trilock style if appropriate.
5. Marking instructions: specify Go size, Not Go size and tool number.

### HOW TO PRICE

1. Quantity prices apply to identical units.
2. Chrome plated, add +30% to unit price.
3. For Class XXX add 100% to Class XX price.



• Progressive Trilock Plug Gage

### STEEL & CHROME PROGRESSIVE TRILOCK STYLE List #13-34

Range	Class	AGD Progressive Member Length			In Quantities of			Handle	
		Go	Member	Not Go	1	2-4	5-10	No.	Price
1.510" to 2.0099" 38.35 mm to 51.05 mm	XX				135.00	122.00	115.00	5-1/2	14.00
	X	2-7/8"	1-7/8"	7/8"	123.00	110.00	105.00	5-1/2	14.00
	Y	73.0 mm	47.6 mm	22.2 mm	117.00	106.00	99.00	5-1/2	14.00
	Z				111.00	100.00	94.00	5-1/2	14.00
2.010" to 2.5099" 51.05 mm to 63.75 mm	XX				166.00	152.00	141.00	6	15.00
	X	3"	2"	7/8"	127.00	114.00	108.00	6	15.00
	Y	76.2 mm	50.8 mm	22.2 mm	121.00	109.00	103.00	6	15.00
	Z				115.00	103.00	98.00	6	15.00
2.510" to 3.0099" 63.75 mm to 76.45 mm	XX				186.00	168.00	159.00	7	16.00
	X	3"	2"	7/8"	143.00	129.00	121.00	7	16.00
	Y	76.2 mm	50.8 mm	22.2 mm	129.00	116.00	109.00	7	16.00
	Z				122.00	110.00	104.00	7	16.00
3.010" to 3.5099" 76.45 mm to 89.15 mm	XX				221.00	199.00	188.00	7	16.00
	X	3"	2"	7/8"	169.00	152.00	143.00	7	16.00
	Y	76.2 mm	50.8 mm	22.2 mm	146.00	132.00	124.00	7	16.00
	Z				139.00	125.00	118.00	7	16.00
3.510" to 4.0099" 89.15 mm to 101.85 mm	XX				258.00	232.00	220.00	7	16.00
	X	3-1/8"	2-1/8"	7/8"	195.00	175.00	166.00	7	16.00
	Y	79.4 mm	54.0 mm	22.2 mm	170.00	153.00	145.00	7	16.00
	Z				161.00	145.00	137.00	7	16.00
4.010" to 4.510" 101.85 mm to 114.55 mm	XX				294.00	265.00	250.00	7	16.00
	X	3-1/8"	2-1/8"	7/8"	221.00	199.00	188.00	7	16.00
	Y	79.4 mm	54.0 mm	22.2 mm	195.00	176.00	166.00	7	16.00
	Z				186.00	167.00	158.00	7	16.00

Unilateral tolerance Go - plus tolerance  
Not Go - minus tolerance

**HOW TO ORDER**

1. Specify quantity.
2. Size and tolerance, Go (Plus), Not Go (Minus) or Master (Split.)
3. Handles: specify single or double-end handle.
4. Marking instructions: specify Go size, Not Go size and tool number.

**HOW TO PRICE**

1. Quantity prices apply to identical units only.
2. Chrome plate, add 30% to unit price.
3. For Class XXX add 100% to Class XX price.



• Trilock Plug Gage

TRILOCK CYLINDRICAL PLUG GAGES											List #14-00
Range Description	Class	Length	Price Each/Go Member in Quantities of			Price Each/Not Go Member in Quantities of				Handle	
			1	2-4	5-10	Length	1	2-4	5-10	Size	Price
.760" to .9469" 19.30mm to 24.05mm	XX		57.00	51.00	48.00	3/4" 19.1 mm	56.00	50.00	47.00	2-1/2	11.00
	X	1-1/4"	44.00	39.00	37.00		43.00	39.00	37.00	2-1/2	11.00
	Y	31.8 mm	42.00	37.00	35.00		41.00	37.00	35.00	2-1/2	11.00
	Z		40.00	35.00	34.00		39.00	35.00	34.00	2-1/2	11.00
.947" to 1.1349" 24.05mm to 28.83mm	XX		59.00	53.00	49.00	3/4" 19.1 mm	57.00	51.00	48.00	3-1/2	11.00
	X	1-3/8"	46.00	41.00	38.00		44.00	40.00	37.00	3-1/2	11.00
	Y	34.9 mm	43.00	39.00	36.00		42.00	38.00	35.00	3-1/2	11.00
	Z		41.00	37.00	35.00		40.00	36.00	34.00	3-1/2	11.00
1.135" to 1.5099" 28.83mm to 38.35mm	XX		59.00	53.00	50.00	3/4" 19.1 mm	58.00	52.00	49.00	4-1/2	12.00
	X	1-1/2"	46.00	41.00	39.00		45.00	40.00	38.00	4-1/2	12.00
	Y	38.1 mm	44.00	39.00	37.00		43.00	38.00	36.00	4-1/2	12.00
	Z		42.00	37.00	35.00		41.00	36.00	35.00	4-1/2	12.00
1.510" to 2.0099" 38.25mm to 51.05mm	XX		78.00	70.00	66.00	7/8" 22.2 mm	75.00	68.00	63.00	5-1/2	14.00
	X	1-7/8"	60.00	54.00	51.00		58.00	52.00	49.00	5-1/2	14.00
	Y	47.6 mm	57.00	51.00	48.00		55.00	49.00	47.00	5-1/2	14.00
	Z		54.00	49.00	46.00		52.00	47.00	44.00	5-1/2	14.00
2.010" to 2.5099" 51.05mm to 63.75mm	XX		85.00	72.00	69.00	7/8" 22.2 mm	76.00	69.00	65.00	6	15.00
	X	2"	62.00	56.00	53.00		59.00	53.00	50.00	6	15.00
	Y	50.8 mm	60.00	53.00	50.00		56.00	50.00	47.00	6	15.00
	Z		57.00	50.00	48.00		53.00	48.00	45.00	6	15.00
2.510" to 3.0099" 63.75mm to 76.45mm	XX		99.00	89.00	84.00	1" 25.4 mm	85.00	77.00	72.00	7	16.00
	X	2"	66.00	60.00	57.00		60.00	54.00	51.00	7	16.00
	Y	50.8 mm	61.00	55.00	52.00		57.00	51.00	48.00	7	16.00
	Z		58.00	52.00	50.00		54.00	49.00	46.00	7	16.00
3.010" to 3.5099" 76.45mm to 89.15mm	XX		158.00	143.00	134.00	1" 25.4 mm	125.00	113.00	107.00	7	16.00
	X	2"	122.00	110.00	104.00		97.00	87.00	91.00	7	16.00
	Y	50.8 mm	117.00	105.00	99.00		92.00	83.00	78.00	7	16.00
	Z		111.00	100.00	94.00		87.40	79.00	74.00	7	16.00
3.510" to 4.0099" 89.15mm to 101.85mm	XX		165.00	148.00	140.00	1" 25.4 mm	128.00	115.00	109.00	7	16.00
	X	2-1/8"	127.00	115.00	109.00		98.00	89.00	84.00	7	16.00
	Y	54.0 mm	121.00	109.00	103.00		94.00	84.00	80.00	7	16.00
	Z		115.00	104.00	98.00		89.00	80.00	76.00	7	16.00
4.010" to 4.5099" 101.85mm to 114.55mm	XX		171.00	153.00	145.00	1" 25.4 mm	131.00	118.00	111.00	7	16.00
	X	2-1/8"	132.00	118.00	111.00		100.00	91.00	85.00	7	16.00
	Y	54.0 mm	125.00	112.00	107.00		96.00	86.00	82.00	7	16.00
	Z		119.00	107.00	101.00		91.00	82.00	78.00	7	16.00
4.510" to 5.0099" 114.55mm to 127.25mm	XX		216.00	195.00	183.00	1" 25.4 mm	146.00	132.00	124.00	7	16.00
	X	2-1/8"	167.00	150.00	142.00		106.00	96.00	90.00	7	16.00
	Y	54.0 mm	159.00	143.00	134.00		100.00	91.00	85.00	7	16.00
	Z		151.00	136.00	128.00		95.00	86.00	81.00	7	16.00
5.010" to 5.5099" 127.25mm to 139.95mm	XX		221.00	199.00	188.00	1" 25.4 mm	170.00	152.00	144.00	7	16.00
	X	2-1/8"	171.00	154.00	146.00		110.00	99.00	94.00	7	16.00
	Y	54.0 mm	162.00	146.00	138.00		103.00	93.00	87.00	7	16.00
	Z		154.00	139.00	131.00		98.00	88.00	83.00	7	16.00
5.510" to 6.0099" 139.95mm to 152.65mm	XX		229.00	207.00	195.00	1" 25.4 mm	191.00	171.00	162.00	7	16.00
	X	2-1/8"	177.00	159.00	150.00		133.00	120.00	113.00	7	16.00
	Y	54.0 mm	169.00	151.00	143.00		124.00	112.00	106.00	7	16.00
	Z		160.00	144.00	136.00		118.00	107.00	100.00	7	16.00
6.010" to 6.5099" 152.65mm to 165.35mm	XX		239.00	215.00	204.00	1" 25.4 mm	208.00	186.00	176.00	7	16.00
	X	2-1/8"	184.00	166.00	157.00		144.00	130.00	122.00	7	16.00
	Y	54.0 mm	176.00	158.00	149.00		135.00	121.00	115.00	7	16.00
	Z		167.00	151.00	142.00		129.00	115.00	109.00	7	16.00
6.510" to 8.0100" 165.35mm to 203.45mm	XX		Price on application			1" 25.4 mm	Price on application			7	16.00
	X	2-1/8"	Price on application				Price on application			7	16.00
	Y	54.0 mm	Price on application				Price on application			7	16.00
	Z		Price on application				Price on application			7	16.00



## MASTER DISKS

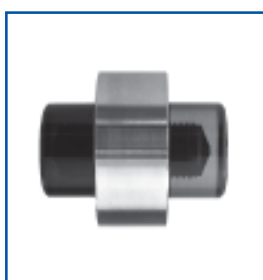
Master Disks are used for setting precision gages, setting comparators & for setting snap gages.

### HOW TO ORDER

1. Specify quantity.
2. Nominal diameter and Style 1 or 3; Style 2 specify two diameters.
3. Y, X, XX tolerance Style 1 and 3 split tolerance, Style 2 Go size minus, Not Go size plus.
4. Material: Steel, Chromed Steel, or Carbide.
5. Specify marking instructions.

### HOW TO PRICE

1. Select desired size range.
2. Determined class required.
3. Select style of master disk and price from appropriate column, steel or chrome.
4. Specify marking instructions.
5. For Class XXX add 100% to Class XX price  
Carbide prices on application.



• Style 3



• Style 2



• Style 1

STEEL • BILATERAL TOLERANCE										List #14-00MD
Size Range	Class	Bilateral Tolerance Style #3			Unilateral Tolerance Style #2			Bilateral Tolerance Style #1		
		Length	Steel	Chrome	Length	Steel	Chrome	Length	Steel	Chrome
.150" to .229" 3.81 mm to 5.84 mm	XX	7/16" 11.1 mm	61.00	79.00	7/8" 22.2 mm	117.00	152.00	7/8" 22.2 mm	70.00	91.00
	X		56.00	73.00		106.00	138.00		63.00	82.00
	Y		53.00	69.00		101.00	131.00		60.00	78.00
	Z		51.00	66.00		96.00	125.00		57.00	74.00
.230" to .364" 5.84 mm to 9.27 mm	XX	1/2" 12.7 mm	62.00	81.00	1" 25.4 mm	118.00	153.00	1" 25.4 mm	71.00	92.00
	X		57.00	74.00		107.00	139.00		64.00	83.00
	Y		54.00	70.00		102.00	133.00		61.00	79.00
	Z		52.00	68.00		97.00	126.00		58.00	75.00
.365" to .509" 9.27 mm to 12.95 mm	XX	9/16" 14.3 mm	63.00	82.00	1-1/8" 28.6 mm	119.00	155.00	1-1/8" 28.6 mm	72.00	94.00
	X		57.00	74.00		109.00	142.00		65.00	85.00
	Y		54.00	70.00		103.00	134.00		61.00	79.00
	Z		52.00	68.00		98.00	127.00		58.00	75.00
.510" to .824" 12.95 mm to 20.96 mm	XX	5/8" 15.9 mm	64.00	83.00	1-1/4" 31.8 mm	121.00	157.00	1-1/4" 31.8 mm	73.00	95.00
	X		58.00	75.00		109.00	142.00		65.00	85.00
	Y		55.00	72.00		104.00	135.00		62.00	81.00
	Z		53.00	69.00		99.00	129.00		59.00	77.00
.825" to 1.134" 20.96 mm to 28.83 mm	XX	11/16" 17.5 mm	69.00	90.00	1-3/8" 34.9 mm	128.00	166.00	1-3/8" 34.9 mm	74.00	96.00
	X		59.00	77.00		111.00	144.00		67.00	87.00
	Y		56.00	73.00		106.00	138.00		64.00	83.00
	Z		54.00	70.00		101.00	131.00		61.00	79.00
1.135" to 1.509" 28.83 mm to 38.35 mm	XX	13/16" 20.6 mm	75.00	98.00	1-5/8" 41.3 mm	142.00	185.00	1-5/8" 41.3 mm	82.00	107.00
	X		60.00	78.00		113.00	147.00		70.00	91.00
	Y		57.00	74.00		108.00	140.00		66.00	86.00
	Z		54.00	70.00		103.00	134.00		63.00	82.00
1.510" to 2.009" 38.35 mm to 51.05 mm	XX	7/8" 22.2 mm	86.00	112.00	2" 50.8 mm	162.00	211.00	1-7/8" 47.6 mm	100.00	130.00
	X		77.00	100.00		146.00	190.00		81.00	105.00
	Y		73.00	95.00		140.00	182.00		77.00	100.00
	Z		70.00	91.00		133.00	173.00		73.00	95.00

continued on next page

STEEL • BILATERAL TOLERANCE (continued)

List #14-00MD

Size Range	Bilateral Tolerance				Unilateral Tolerance			Bilateral Tolerance		
	Class	Length	Style #3		Length	Style #2		Length	Style #1	
			Steel	Chrome		Steel	Chrome		Steel	Chrome
2.010" to 2.509" 51.05 mm to 63.75 mm	XX		100.00	130.00		188.00	244.00		108.00	140.00
	X	7/8"	79.00	103.00	2"	149.00	194.00	2"	91.00	118.00
	Y	22.2 mm	75.00	98.00	50.8 mm	143.00	186.00	50.8 mm	86.00	112.00
	Z		72.00	94.00		136.00	177.00		82.00	107.00
2.510" to 3.009" 63.75 mm to 76.45 mm	XX		114.00	148.00		218.00	283.00		124.00	161.00
	X	1"	95.00	124.00	2-1/4"	181.00	235.00	2"	98.00	127.00
	Y	25.4 mm	90.00	117.00	57.2 mm	171.00	222.00	50.8 mm	94.00	122.00
	Z		86.00	112.00		163.00	212.00		90.00	117.00
3.010" to 3.509" 76.45 mm to 89.15 mm	XX		159.00	207.00		302.00	393.00		191.00	248.00
	X	1"	145.00	189.00	2-1/4"	274.00	356.00	2"	173.00	225.00
	Y	25.4 mm	137.00	178.00	57.2 mm	261.00	339.00	50.8 mm	165.00	215.00
	Z		130.00	169.00		248.00	322.00		157.00	204.00
3.510" to 4.009" 89.15 mm to 101.85 mm	XX		162.00	211.00		307.00	399.00		205.00	267.00
	X	1"	146.00	190.00	2-1/4"	279.00	363.00	2-1/8"	185.00	241.00
	Y	25.4 mm	140.00	182.00	57.2 mm	265.00	345.00	54.0 mm	177.00	230.00
	Z		133.00	173.00		252.00	328.00		168.00	218.00
4.010" to 4.509" 101.85 mm to 114.55 mm	XX		165.00	215.00		313.00	407.00		210.00	273.00
	X	1"	149.00	193.00	2-1/4"	283.00	368.00	2-1/8"	191.00	248.00
	Y	25.4 mm	143.00	186.00	57.2 mm	270.00	351.00	54.0 mm	182.00	237.00
	Z		136.00	177.00		257.00	334.00		173.00	225.00
4.510" to 5.009" 114.55 mm to 127.25 mm	XX		172.00	224.00		327.00	425.00		262.00	341.00
	X	1"	157.00	204.00	2-1/4"	297.00	386.00	2-1/8"	238.00	309.00
	Y	25.4 mm	149.00	194.00	57.2 mm	282.00	367.00	54.0 mm	227.00	295.00
	Z		142.00	185.00		268.00	348.00		216.00	281.00
5.010" to 5.509" 127.25 mm to 139.95 mm	XX		178.00	231.00		344.00	447.00		269.00	350.00
	X	1"	159.00	207.00	2-1/4"	303.00	394.00	2-1/8"	244.00	317.00
	Y	25.4 mm	152.00	198.00	57.2 mm	289.00	376.00	54.0 mm	232.00	302.00
	Z		145.00	189.00		275.00	358.00		221.00	287.00
5.510" to 6.009" 139.95 mm to 152.65 mm	XX		188.00	244.00		368.00	478.00		278.00	361.00
	X	1"	162.00	211.00	2-1/4"	308.00	400.00	2-1/8"	262.00	341.00
	Y	25.4 mm	155.00	202.00	57.2 mm	294.00	382.00	54.0 mm	240.00	312.00
	Z		148.00	192.00		280.00	364.00		228.00	296.00
6.010" to 6.509" 152.65 mm to 165.35 mm	XX		208.00	270.00		403.00	524.00		289.00	376.00
	X	1"	168.00	218.00	2-1/4"	359.00	467.00	2-1/8"	262.00	341.00
	Y	25.4 mm	159.00	207.00	57.2 mm	342.00	445.00	54.0 mm	250.00	325.00
	Z		151.00	196.00		325.00	423.00		238.00	309.00
6.510" to 7.009" 165.35 mm to 178.05 mm	XX		263.00	342.00		500.00	650.00		448.00	582.00
	X	1"	239.00	311.00	2-1/4"	454.00	590.00	2-1/8"	406.00	528.00
	Y	25.4 mm	227.00	295.00	57.2 mm	431.00	560.00	54.0 mm	387.00	503.00
	Z		216.00	281.00		410.00	533.00		368.00	478.00
7.010" to 7.509" 178.05 mm to 190.75 mm	XX		269.00	350.00		510.00	663.00		459.00	597.00
	X	1"	244.00	317.00	2-1/4"	462.00	601.00	2-1/8"	416.00	541.00
	Y	25.4 mm	232.00	302.00	57.2 mm	441.00	573.00	54.0 mm	396.00	515.00
	Z		221.00	287.00		419.00	545.00		377.00	490.00
7.510" to 8.009" 190.75 mm to 203.45 mm	XX		274.00	356.00		520.00	676.00		479.00	623.00
	X	1"	248.00	322.00	2-1/4"	472.00	614.00	2-1/8"	435.00	566.00
	Y	25.4 mm	236.00	307.00	57.2 mm	449.00	584.00	54.0 mm	415.00	540.00
	Z		225.00	293.00		427.00	555.00		395.00	514.00
8.010" - 10.010" 203.45 mm - 254.25 mm	XX		Price on Application			—	—		—	—
	X	1"	"	"	"	—	—		—	—
	Y	25.4 mm	"	"	"	—	—		—	—
	Z		"	"	"	—	—		—	—



## CYLINDRICAL PLAIN RING GAGES

All Van Keuren cylindrical ring gages are made to American Gage Design Standards and are precision lapped for overall accuracy, finish and wearability of the gaging surface.

Selection of gage tolerance should be in relation to the amount of tolerance on the product being gaged. The normal rule of thumb is that the gage tolerance should not exceed 10% of the product tolerance.

These gages are furnished in four classes of tolerance:

**Class XX:** used where product limits are extremely close or for master gages.

**Class X:** used where product limits are relatively close, or occasionally for master gages.

**Class Y:** used where product limits are normal to liberal.

**Class Z:** used where product limits are quite liberal.

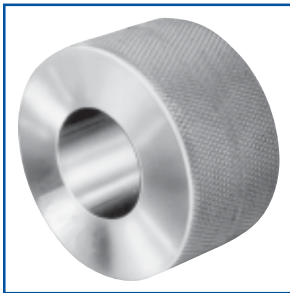
### Application of Tolerances

Unless otherwise specified

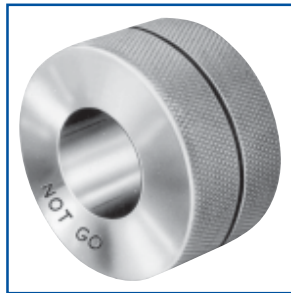
Go = Minus

Not Go = Plus

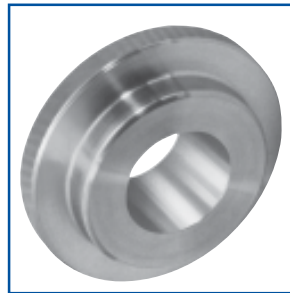
Master = Bilateral (1/2 plus and 1/2 minus)



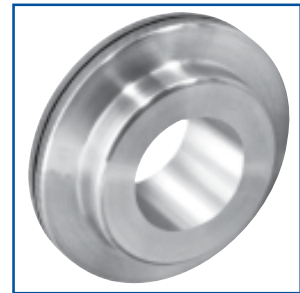
• Ring Gage - Go



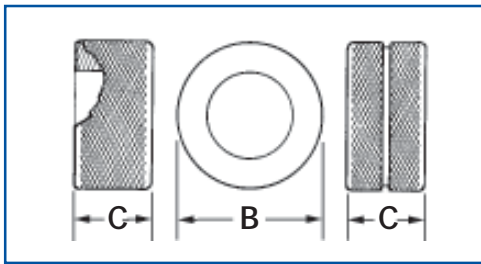
• Ring Gage - Not Go



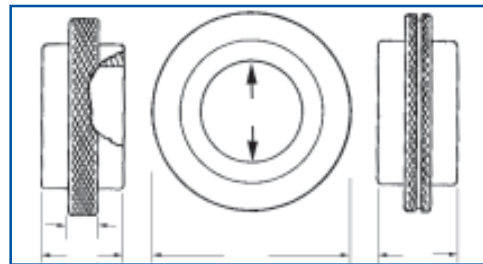
• Ring Gage - Go



• Ring Gage - Not Go



• Furnished in sizes up to and including 1.510 inches. The Not Go ring is identified by the groove around the outside diameter.



• Furnished in sizes above 1.510 inches with a flange to reduce weight and increase rigidity.

Size Ranges		Tolerances (inches)				B Outside Diameter	C Thickness	H Flange Thickness	Blank No.
Inches Above-To	mm Above-To	XX	X	Y	Z				
.059 - .150	1.50 - 3.81	.00002	.00004	.00007	.00010	15/16	3/16	—	00
.150 - .240	3.81 - 6.10	.00002	.00004	.00007	.00010	15/16	3/8	—	0
.240 - .365	6.10 - 9.27	.00002	.00004	.00007	.00010	1-1/8	9/16	—	1
.365 - .510	9.27 - 12.95	.00002	.00004	.00007	.00010	1-3/8	3/4	—	2
.510 - .825	12.95 - 20.96	.00002	.00004	.00007	.00010	1-3/4	15/16	—	3
.825 - 1.135	20.96 - 28.83	.00003	.00006	.00009	.00012	2-1/8	1-1/8	—	4
1.135 - 1.510	28.83 - 38.35	.00003	.00006	.00009	.00012	2-1/2	1-5/16	—	5
1.510 - 2.010	38.35 - 51.05	.00004	.00008	.00012	.00016	4	1-1/2	1/2	6
2.010 - 2.510	51.05 - 63.75	.00004	.00008	.00012	.00016	4-1/2	1-1/2	9/16	7
2.510 - 3.010	63.75 - 76.45	.00005	.00010	.00015	.00020	5	1-1/2	5/8	8
3.010 - 3.510	76.45 - 89.15	.00005	.00010	.00015	.00020	5-1/2	1-1/2	11/16	9
3.510 - 4.010	89.15 - 101.85	.00005	.00010	.00015	.00020	6-3/8	1-1/2	3/4	10
4.010 - 4.510	101.85 - 114.55	.00005	.00010	.00015	.00020	7-1/4	1-1/2	7/8	11
4.510 - 4.760	114.55 - 120.90	.000065	.00013	.00019	.00025	7-1/4	1-1/2	7/8	11

## CYLINDRICAL PLAIN RING GAGES

- Rings above 5.5" will not include tapped holes for ball handles unless specified.
- All rings regardless of size are lapped to size and polished.
- Roundness and taper will not exceed 50% of the applicable gage makers tolerance, non accumulative.
- Gage blanks meet B47.1. Rings are manufactured in accordance with ANSI Spec.B89.1.6

### HOW TO ORDER

1. Specify quantity and Go or Not Go.
2. Specify nominal diameter.
3. Select tolerance class
4. Select material, steel, chromed or carbide.
5. Marking instructions.

### HOW TO PRICE

1. Select desired size
2. Quantity prices apply to identical units only
3. For Class XXX, price on application.

STEEL AND CHROME RING GAGES								List #18-00	
Size	Class	STD. A.G.D. Blank Length O.D.	Steel		Chrome		Carbide		
			1	2-3	1	2-3	1	2	
.070" to .150" 1.78 mm to 3.81 mm	XX		114.00	102.00	—	—	—	—	
	X	#00 Blank	94.00	84.00	—	—	—	—	
	Y	3/16" 15/16"	92.00	83.00	—	—	—	—	
	Z	4.8 mm 23.8 mm	88.00	79.00	—	—	—	—	
.151" to .230" 3.81 mm to 5.84 mm	XX		85.00	77.00	111.00	100.00	147.00	133.00	
	X	#0 Blank	78.00	70.00	101.00	91.00	134.00	121.00	
	Y	3/8" 15/16"	74.00	67.00	97.00	86.00	127.00	115.00	
	Z	9.5 mm 23.8 mm	71.00	64.00	92.00	76.00	121.00	109.00	
.231" to .365" 5.84 mm to 9.27 mm	XX		76.00	68.00	98.00	88.00	127.00	114.00	
	X	#1 Blank	69.00	62.00	89.00	81.00	115.00	104.00	
	Y	9/16" 1 1/8"	65.00	59.00	85.00	76.00	109.00	98.00	
	Z	14.3 mm 28.6 mm	62.00	56.00	81.00	73.00	104.00	93.00	
.366" to .510" 9.27 mm to 12.95 mm	XX		76.00	69.00	99.00	89.00	132.00	119.00	
	X	#2 Blank	70.00	62.00	90.00	81.00	120.00	108.00	
	Y	3/4" 1-3/8"	66.00	60.00	85.00	77.00	114.00	102.00	
	Z	19.1 mm 34.9 mm	63.00	57.00	81.00	73.00	108.00	97.00	
.511" to .825" 12.95 mm to 20.96 mm	XX		79.00	71.00	102.00	92.00	147.00	133.00	
	X	#3 Blank	72.00	64.00	92.00	84.00	134.00	121.00	
	Y	15/16" 1-3/4"	68.00	61.00	88.00	80.00	127.00	114.00	
	Z	23.8 mm 44.4 mm	65.00	58.00	84.00	71.00	121.00	108.00	
.826" to 1.135" 20.96 mm to 28.83 mm	XX		81.00	72.00	105.00	95.00	223.00	201.00	
	X	#4 Blank	73.00	66.00	95.00	85.00	203.00	183.00	
	Y	1-1/8" 2-1/8"	70.00	63.00	91.00	82.00	193.00	173.00	
	Z	28.6 mm 54.0 mm	67.00	60.00	87.00	78.00	184.00	165.00	
1.136" to 1.510" 28.83 mm to 38.35 mm	XX		100.00	90.00	131.00	118.00	262.00	235.00	
	X	#5 Blank	83.00	75.00	109.00	97.00	226.00	203.00	
	Y	1 5/16" 2-1/2"	79.00	72.00	103.00	93.00	211.00	190.00	
	Z	33.3 mm 63.5 mm	75.00	69.00	98.00	89.00	201.00	180.00	
1.511" to 2.010" 38.35 mm to 51.05 mm	XX		115.00	104.00	150.00	134.00	—	—	
	X	#6 Blank	105.00	94.00	135.00	122.00	—	—	
	Y	1-1/2" 4"	99.00	90.00	130.00	117.00	—	—	
	Z	38.1 mm 101.6 mm	94.00	86.00	124.00	111.00	—	—	
2.011" to 2.510" 51.05 mm to 63.75 mm	XX		156.00	140.00	203.00	183.00	—	—	
	X	#7 Blank	130.00	117.00	169.00	152.00	—	—	
	Y	1-1/2" 4-1/2"	118.00	106.00	153.00	137.00	—	—	
	Z	38.1 mm 114.3 mm	112.00	101.00	146.00	130.00	—	—	
2.511" to 3.010" 63.75 mm to 76.45 mm	XX		181.00	162.00	234.00	211.00	—	—	
	X	#8 Blank	151.00	136.00	196.00	177.00	—	—	
	Y	1-1/2" 5"	134.00	121.00	175.00	158.00	—	—	
	Z	38.1 mm 127.0 mm	128.00	115.00	166.00	150.00	—	—	
3.011" to 3.510" 76.45 mm to 89.15 mm	XX		211.00	191.00	275.00	248.00	—	—	
	X	#9 Blank	175.00	158.00	228.00	206.00	—	—	
	Y	1-1/2" 5-1/2"	158.00	142.00	206.00	185.00	—	—	
	Z	38.1 mm 139.7 mm	151.00	135.00	195.00	176.00	—	—	
3.511" to 4.010" 89.15 mm to 101.85 mm	XX		241.00	217.00	313.00	282.00	—	—	
	X	#10 Blank	197.00	177.00	257.00	231.00	—	—	
	Y	1-1/2" 6-3/8"	180.00	161.00	233.00	210.00	—	—	
	Z	38.1 mm 161.9 mm	171.00	153.00	222.00	200.00	—	—	

continued on next page



# CYLINDRICAL PLAIN RING GAGES

STEEL AND CHROME RING GAGES (continued)		List #18-00						
Size	Class	STD. A.G.D. Blank Length O.D.	Steel		Chrome		Carbide	
			1	2-3	1	2-3	1	2
4.011" to 4.760" 101.85 mm to 120.90 mm	XX		276.00	248.00	358.00	323.00	—	—
	X	#11 Blank	230.00	207.00	298.00	269.00	—	—
	Y	1-1/2" 7-1/4"	206.00	185.00	267.00	240.00	—	—
	Z	38.1 mm 184.2 mm	195.00	176.00	253.00	228.00	—	—
4.761" to 5.510" 120.90 mm to 139.95 mm	XX		369.00	332.00	479.00	431.00	—	—
	X	#12 Blank	308.00	277.00	409.00	368.00	—	—
	Y	1-1/2" 8-1/4"	277.00	248.00	359.00	324.00	—	—
	Z	38.1 mm 209.6 mm	263.00	236.00	341.00	308.00	—	—
5.511" to 6.260" 139.95 mm to 159.00 mm	XX		420.00	379.00	548.00	492.00	—	—
	X	#13 Blank	350.00	316.00	456.00	410.00	—	—
	Y	1-1/2" 9-1/4"	317.00	285.00	413.00	370.00	—	—
	Z	38.1 mm 235.0 mm	301.00	271.00	392.00	352.00	—	—
6.261" to 7.010" 159.00 mm to 178.05 mm	XX		513.00	462.00	668.00	601.00	—	—
	X	#14 Blank	466.00	418.00	606.00	545.00	—	—
	Y	1-1/2" 10-1/4"	444.00	399.00	577.00	519.00	—	—
	Z	38.1 mm 260.4 mm	422.00	379.00	548.00	493.00	—	—
7.011" to 7.760" 178.05 mm to 197.10 mm	XX		530.00	478.00	690.00	621.00	—	—
	X	#15 Blank	481.00	434.00	627.00	564.00	—	—
	Y	1-1/2" 11-1/4"	459.00	413.00	596.00	537.00	—	—
	Z	38.1 mm 285.8 mm	436.00	392.00	566.00	510.00	—	—
7.761" to 8.510" 197.10 mm to 216.15 mm	XX		600.00	541.00	781.00	702.00	—	—
	X	#16 Blank	543.00	490.00	706.00	637.00	—	—
	Y	1-1/2" 12-1/4"	518.00	467.00	673.00	606.00	—	—
	Z	38.1 mm 311.2 mm	492.00	443.00	639.00	576.00	—	—
8.511" to 9.260" 216.15 mm to 235.20 mm	XX		674.00	606.00	876.00	787.00	—	—
	X	#17 Blank	611.00	550.00	794.00	713.00	—	—
	Y	1-1/2" 13-1/4"	581.00	523.00	755.00	680.00	—	—
	Z	38.1 mm 336.6 mm	552.00	497.00	717.00	646.00	—	—
9.261" to 10.010" 235.20 mm to 254.25 mm	XX		760.00	683.00	986.00	888.00	—	—
	X	#18 Blank	629.00	567.00	817.00	736.00	—	—
	Y	1-1/2" 14-1/4"	599.00	539.00	779.00	700.00	—	—
	Z	38.1 mm 362.0 mm	569.00	512.00	740.00	665.00	—	—
10.011" to 10.760" 254.25 mm to 273.30 mm	XX		842.00	759.00	1,095.00	986.00	—	—
	X	#19 Blank	709.00	638.00	922.00	830.00	—	—
	Y	1-1/2" 15-1/4"	615.00	553.00	800.00	720.00	—	—
	Z	38.1 mm 387.4 mm	584.00	526.00	760.00	684.00	—	—
10.761" to 11.510" 273.30 mm to 292.35 mm	XX		924.00	832.00	1,202.00	1,081.00	—	—
	X	#20 Blank	776.00	700.00	1,009.00	909.00	—	—
	Y	1-1/2" 16-1/4"	715.00	645.00	932.00	838.00	—	—
	Z	38.1 mm 412.8 mm	680.00	613.00	885.00	796.00	—	—
11.511" to 12.260" 292.35 mm to 311.40 mm	XX		1,006.00	905.00	1,308.00	1,176.00	—	—
	X	#21 Blank	847.00	762.00	1,101.00	990.00	—	—
	Y	1-1/2" 17-1/4"	777.00	701.00	1,011.00	910.00	—	—
	Z	38.1 mm 438.2 mm	738.00	666.00	961.00	864.00	—	—
12.261" to 13.010" 311.40 mm to 330.45 mm	XX		Price on application	—	—	—	—	—
	X	#22 Blank	" " "	—	—	—	—	—
	Y	1-1/2" 18-1/4"	" " "	—	—	—	—	—
	Z	38.1 mm 463.6 mm	" " "	—	—	—	—	—
13.011" to 13.760" 330.45 mm to 349.50 mm	XX		" " "	—	—	—	—	—
	X	#23 Blank	" " "	—	—	—	—	—
	Y	1-1/2" 19-1/4"	" " "	—	—	—	—	—
	Z	38.1 mm 489.0 mm	" " "	—	—	—	—	—
13.761" to 14.510" 349.50 mm to 368.55 mm	XX		" " "	—	—	—	—	—
	X	#24 Blank	" " "	—	—	—	—	—
	Y	1-1/2" 20-1/4"	" " "	—	—	—	—	—
	Z	38.1 mm 514.4 mm	" " "	—	—	—	—	—
14.511" to 15.260" 368.55 mm to 387.60 mm	XX		" " "	—	—	—	—	—
	X	#25 Blank	" " "	—	—	—	—	—
	Y	1-1/2" 21-1/4"	" " "	—	—	—	—	—
	Z	38.1 mm 539.8 mm	" " "	—	—	—	—	—
15.261" to 16.010" 387.60 mm to 406.65 mm	XX		" " "	—	—	—	—	—
	X	#26 Blank	" " "	—	—	—	—	—
	Y	1-1/2" 22-1/4"	" " "	—	—	—	—	—
	Z	38.1 mm 565.2 mm	" " "	—	—	—	—	—

Rings above 5.510 in / 139.95 mm will not be furnished with tapped holes for ball handles unless specified.

All ring gages regardless of class are lapped to size and polished.

Gage blanks meet all requirements of B47.1-1981.

Ring gages are manufactured in accordance with ANSI Specification B89.1.6-1981.

Roundness and taper of all gages will not exceed 50% of the applicable gagemakers size tolerance and are non-accumulative.



## STANDARD GAGEMAKERS TOLERANCE

- Unilateral tolerances furnished
- Go plus, Not Go minus unless otherwise specified for Plug Gages
- Go minus, Not Go plus unless otherwise specified for Ring Gages

SIZE RANGE INCHES							
Above	Up to & Including	Class XXXX	Class XXX	Class XX	Class X	Class Y	Class Z
.020"	.825"	.000005	.000010	.00002	.00004	.00007	.00010
.825"	1.51"	.000008	.000015	.00003	.00006	.00009	.00012
1.510"	2.51"		.000020	.00004	.00008	.00012	.00016
2.510"	4.51"			.00005	.00010	.00015	.00020
4.510"	6.51"			.000065	.00013	.00019	.00025
6.510"	9.01"			.00008	.00016	.00024	.00032

### METRIC EQUIVALENTS

.74 mm	20.96 mm		.00051	.00102	.00178	.00254
20.96 mm	38.35 mm		.00076	.00152	.00229	.00305
38.35 mm	63.75 mm		.00102	.00203	.00305	.00406
63.75 mm	114.55 mm		.00127	.00254	.00381	.00508
114.55 mm	165.35 mm		.00165	.00330	.00483	.00635
165.35 mm	228.85 mm		.00203	.00406	.00610	.00813
228.85 mm	311.40 mm		.00254	.00508	.00762	.01016

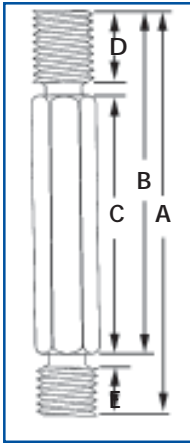
**TABLE OF THREAD PITCH DIAMETER LIMITS**

Nominal Size Threads Per Inch and Series	Thread Ring Gages (External Threads)					Basic P.D.	Thread Plug Gages (Internal Threads)				
	Unified Series			National Series			Unified Series			National Series	
	1A	2A	3A	2	3		1B	2B	3B	2	3
0 (.060)-80 NF	.0514	.0519	.0519	.0519	.0519	.0519	.0519	.0519	.0519	.0519	
	.0496	.0506	.0502	.0506	.0506		.0542	.0536	.0536	.0532	
1 (.073)-64 NC	.0623	.0629	.0629	.0629	.0629	.0629	.0629	.0629	.0629	.0629	
	.0603	.0614	.0610	.0615	.0615		.0655	.0648	.0648	.0643	
1 (.073)-72 NF	.0634	.0640	.0640	.0640	.0640	.0640	.0640	.0640	.0640	.0640	
	.0615	.0626	.0622	.0627	.0627		.0665	.0659	.0658	.0653	
2 (.086)-56 NC	.0738	.0744	.0744	.0744	.0744	.0744	.0744	.0744	.0744	.0744	
	.0717	.0728	.0724	.0729	.0729		.0772	.0765	.0764	.0759	
2 (.086)-64 NF	.0753	.0759	.0759	.0759	.0759	.0759	.0759	.0759	.0759	.0759	
	.0733	.0744	.0740	.0745	.0745		.0786	.0779	.0778	.0773	
3 (.099)-48 NC	.0848	.0855	.0855	.0855	.0855	.0855	.0855	.0855	.0855	.0855	
	.0825	.0838	.0833	.0839	.0839		.0885	.0877	.0877	.0871	
3 (.099)-56 NF	.0867	.0874	.0874	.0874	.0874	.0874	.0874	.0874	.0874	.0874	
	.0845	.0858	.0854	.0859	.0859		.0902	.0895	.0894	.0889	
4 (.112)-40 NC	.0950	.0958	.0958	.0958	.0958	.0958	.0958	.0958	.0958	.0958	
	.0925	.0939	.0934	.0941	.0941		.0991	.0982	.0982	.0975	
4 (.112)-48 NF	.0978	.0985	.0985	.0985	.0985	.0985	.0985	.0985	.0985	.0985	
	.0954	.0967	.0963	.0969	.0969		.1016	.1008	.1007	.1001	
5 (.125)-40 NC	.1080	.1088	.1088	.1088	.1088	.1088	.1088	.1088	.1088	.1088	
	.1054	.1069	.1064	.1071	.1071		.1121	.1113	.1112	.1105	
5 (.125)-44 NF	.1095	.1102	.1102	.1102	.1102	.1102	.1102	.1102	.1102	.1102	
	.1070	.1083	.1079	.1086	.1086		.1134	.1126	.1125	.1118	
6 (.138)-32 NC	.1169	.1177	.1177	.1177	.1177	.1177	.1177	.1177	.1177	.1177	
	.1141	.1156	.1150	.1158	.1158		.1214	.1204	.1204	.1196	
6 (.138)-40 NF	.1210	.1218	.1218	.1218	.1218	.1218	.1218	.1218	.1218	.1218	
	.1184	.1198	.1194	.1201	.1201		.1252	.1243	.1242	.1235	
8 (.164)-32 NC	.1428	.1437	.1437	.1437	.1437	.1437	.1437	.1437	.1437	.1437	
	.1399	.1415	.1410	.1418	.1418		.1475	.1465	.1464	.1456	
8 (.164)-36 NF	.1452	.1460	.1460	.1460	.1460	.1460	.1460	.1460	.1460	.1460	
	.1424	.1439	.1435	.1442	.1442		.1496	.1487	.1485	.1478	
10 (.190)-24 NC	.1619	.1629	.1629	.1629	.1629	.1629	.1629	.1629	.1629	.1629	
	.1586	.1604	.1696	.1605	.1605		.1672	.1661	.1662	.1653	
10 (.190)-32 NF	.1688	.1697	.1697	.1697	.1697	.1697	.1697	.1697	.1697	.1697	
	.1658	.1674	.1670	.1678	.1678		.1736	.1726	.1724	.1716	
12 (.216)-24 NC	.1879	.1889	.1889	.1889	.1889	.1889	.1889	.1889	.1889	.1889	
	.1845	.1863	.1856	.1865	.1865		.1933	.1922	.1922	.1913	
12 (.216)-28 NF	.1918	.1928	.1928	.1928	.1928	.1928	.1928	.1928	.1928	.1928	
	.1886	.1904	.1897	.1906	.1906		.1970	.1959	.1959	.1950	
12 (.216)-32 NEF	.1948	.1957	.1957	.1957	.1957	.1957	.1957	.1957	.1957	.1957	
	.1917	.1933	.1926	.1935	.1935		.1998	.1988	.1988	.1979	
1/4"-20 NC	.2164	.2164	.2175	.2175	.2175	.2175	.2175	.2175	.2175	.2175	
	.2108	.2127	.2147	.2139	.2149		.2248	.2224	.2211	.2211	
1/4"-28 NF	.2258	.2258	.2268	.2268	.2268	.2268	.2268	.2268	.2268	.2268	
	.2208	.2225	.2243	.2237	.2246		.2333	.2311	.2300	.2299	
1/4"-32 NEF	.2287	.2297	.2297	.2297	.2297	.2297	.2297	.2297	.2297	.2297	
	.2255	.2273	.2265	.2275	.2275		.2339	.2328	.2329	.2319	
5/16"-18 NC	.2752	.2752	.2764	.2764	.2764	.2764	.2764	.2764	.2764	.2764	
	.2691	.2712	.2734	.2723	.2734		.2843	.2817	.2803	.2805	
5/16"-24 NF	.2843	.2843	.2854	.2854	.2854	.2854	.2854	.2854	.2854	.2854	
	.2788	.2806	.2827	.2821	.2830		.2925	.2902	.2890	.2887	
5/16"-32 NEF	.2912	.2922	.2922	.2922	.2922	.2922	.2922	.2922	.2922	.2922	
	.2880	.2898	.2889	.2899	.2899		.2964	.2953	.2955	.2945	
3/8"-16 NC	.3331	.3331	.3344	.3344	.3344	.3344	.3344	.3344	.3344	.3344	
	.3266	.3287	.3311	.3299	.3312		.3429	.3401	.3387	.3389	
3/8"-24 NF	.3468	.3468	.3479	.3479	.3479	.3479	.3479	.3479	.3479	.3479	
	.3411	.3430	.3450	.3446	.3455		.3553	.3528	.3516	.3512	
3/8"-32 NEF	.3537	.3547	.3547	.3547	.3547	.3547	.3547	.3547	.3547	.3547	
	.3503	.3522	.3513	.3523	.3523		.3591	.3580	.3581	.3571	
7/16"-14 NC	.3897	.3897	.3911	.3911	.3911	.3911	.3911	.3911	.3911	.3911	
	.3826	.3850	.3876	.3862	.3875		.4003	.3972	.3957	.3960	
7/16"-20 NF	.4037	.4037	.4050	.4050	.4050	.4050	.4050	.4050	.4050	.4050	
	.3975	.3995	.4019	.4014	.4024		.4131	.4104	.4091	.4086	
7/16"-28 NEF	.4132	.4143	.4143	.4143	.4143	.4143	.4143	.4143	.4143	.4143	
	.4096	.4116	.4107	.4118	.4118		.4189	.4178	.4179	.4168	
1/2"-13 NC	.4485	.4485	.4500	.4500	.4500	.4500	.4500	.4500	.4500	.4500	
	.4411	.4435	.4463	.4448	.4463		.4597	.4565	.4548	.4552	
1/2"-20 NF	.4662	.4662	.4675	.4675	.4675	.4675	.4675	.4675	.4675	.4675	
	.4598	.4619	.4643	.4639	.4649		.4759	.4731	.4717	.4711	
1/2"-28 NEF	.4757	.4768	.4768	.4768	.4768	.4768	.4768	.4768	.4768	.4768	
	.4720	.4740	.4731	.4742	.4742		.4816	.4804	.4805	.4794	

**TABLE OF THREAD PITCH DIAMETER LIMITS**

Nominal Size Threads Per Inch and Series	Thread Ring Gages (External Threads)					Basic P.D.	Thread Plug Gages (Internal Threads)				
	Unified Series			National Series			Unified Series			National Series	
	1A	2A	3A	2	3		1B	2B	3B	2	3
9/16" -12 NC	.5068 .4990	.5068 .5016	.5084 .5045	.5084 .5028	.5084 .5044	.5084	.5084 .5186	.5084 .5152	.5084 .5135	.5084 .5140	.5084 .5124
9/16" -18 NF	.5250 .5182	.5250 .5205	.5264 .5230	.5264 .5223	.5264 .5234	.5264	.5264 .5353	.5264 .5323	.5264 .5308	.5264 .5305	.5264 .5294
9/16" -24 NEF		.5342 .5303	.5354 .5325	.5354 .5314	.5354 .5326	.5354		.5354 .5405	.5354 .5392	.5354 .5394	.5354 .5382
5/8" - 11 NC	.5644 .5561	.5644 .5589	.5660 .5619	.5660 .5601	.5660 .5618	.5660	.5660 .5767	.5660 .5732	.5660 .5714	.5660 .5719	.5660 .5702
5/8" - 18 NF	.5875 .5805	.5875 .5828	.5889 .5854	.5889 .5848	.5889 .5859	.5889	.5889 .5980	.5889 .5949	.5889 .5934	.5889 .5930	.5889 .5919
5/8" - 24 NEF		.5967 .5927	.5979 .5949	.5979 .5938	.5979 .5950	.5979		.5979 .6031	.5979 .6018	.5979 .6020	.5979 .6008
11/16" - 24 NEF		.6592 .6552	.6604 .6574	.6604 .6563	.6604 .6575	.6604		.6604 .6656	.6604 .6643	.6604 .6645	.6604 .6633
3/4" - 10 NC	.6832 .6744	.6832 .6773	.6850 .6806	.6850 .6786	.6850 .6805	.6850	.6850 .6965	.6850 .6927	.6850 .6907	.6850 .6914	.6850 .6895
3/4" - 16 NF	.7079 .7004	.7079 .7029	.7094 .7056	.7094 .7049	.7094 .7062	.7094	.7094 .7192	.7094 .7159	.7094 .7143	.7094 .7139	.7094 .7126
3/4" - 20 NEF		.7162 .7118	.7175 .7142	.7175 .7129	.7175 .7143	.7175		.7175 .7232	.7175 .7218	.7175 .7221	.7175 .7207
13/16" - 20 NS		.7787 .7743	.7800 .7767	.7800 .7754	.7800 .7768	.7800		.7800 .7857	.7800 .7843	.7800 .7846	.7800 .7832
7/8" - 9 NC	.8009 .7914	.8009 .7946	.8028 .7981	.8028 .7958	.8028 .7979	.8028	.8028 .8151	.8028 .8110	.8028 .8089	.8028 .8098	.8028 .8077
7/8" - 14 NF	.8270 .8189	.8270 .8216	.8286 .8245	.8286 .8237	.8286 .8250	.8286	.8286 .8392	.8286 .8356	.8286 .8339	.8286 .8335	.8286 .8322
7/8" - 20 NEF		.8412 .8368	.8425 .8392	.8425 .8378	.8425 .8392	.8425		.8425 .8482	.8425 .8468	.8425 .8472	.8425 .8458
15/16" - 20 NS		.9036 .8991	.9050 .9016	.9050 .9003	.9050 .9017	.9050		.9050 .9109	.9050 .9094	.9050 .9097	.9050 .9083
1" -8 NC	.9168 .9067	.9168 .9100	.9188 .9137	.9188 .9112	.9188 .9134	.9188	.9188 .9320	.9188 .9276	.9188 .9254	.9188 .9264	.9188 .9242
1" - 12 UNF	.9441 .9353	.9441 .9382	.9459 .9415	.9459 .9403	.9459 .9419	.9459	.9459 .9573	.9459 .9535	.9459 .9516	.9459 .9515	.9459 .9499
1" - 20 NEF		.9661 .9616	.9675 .9641	.9675 .9627	.9675 .9641	.9675		.9675 .9734	.9675 .9719	.9675 .9723	.9675 .9609
1-1/16" - 18 NS		1.0250 1.0203	1.0264 1.0228	1.0264 1.0213	1.0264 1.0228	1.0264		1.0264 1.0326	1.0264 1.0310	1.0264 1.0315	1.0264 1.0300
1-1/8" - 7 NC	1.0300 1.0191	1.0300 1.0228	1.0322 1.0268	1.0322 1.0237	1.0322 1.0263	1.0322	1.0322 1.0463	1.0322 1.0416	1.0322 1.0393	1.0322 1.0407	1.0322 1.0381
1-1/8" - 12 NF	1.0691 1.0601	1.0691 1.0631	1.0709 1.0664	1.0709 1.0653	1.0709 1.0669	1.0709	1.0709 1.0826	1.0709 1.0787	1.0709 1.0768	1.0709 1.0765	1.0709 1.0749
1-1/8" - 18 NEF		1.0875 1.0828	1.0889 1.0853	1.0889 1.0837	1.0889 1.0853	1.0889		1.0889 1.0951	1.0889 1.0935	1.0889 1.0941	1.0889 1.0925
1-3/16" - 18 NEF		1.1499 1.1450	1.1514 1.1478	1.1514 1.1462	1.1514 1.1478	1.1514		1.1514 1.1577	1.1514 1.1561	1.1514 1.1566	1.1514 1.1550
1-1/4" - 7 NC	1.1550 1.1439	1.1550 1.1476	1.1572 1.1517	1.1572 1.1487	1.1572 1.1513	1.1572	1.1572 1.1716	1.1572 1.1668	1.1572 1.1644	1.1572 1.1657	1.1572 1.1631
1-1/4" - 12 NF	1.1941 1.1849	1.1941 1.1879	1.1959 1.1913	1.1959 1.1903	1.1959 1.1919	1.1959	1.1959 1.2079	1.1959 1.2039	1.1959 1.2019	1.1959 1.2015	1.1959 1.1999
1-1/4" - 18 NEF		1.2124 1.2075	1.2139 1.2103	1.2139 1.2086	1.2139 1.2102	1.2139		1.2139 1.2202	1.2139 1.2186	1.2139 1.2192	1.2139 1.2176
1-5/16" - 18 NEF		1.2749 1.2700	1.2764 1.2728	1.2764 1.2711	1.2764 1.2727	1.2764		1.2764 1.2827	1.2764 1.2811	1.2764 1.2817	1.2764 1.2801
1-3/8" - 6 NC	1.2643 1.2523	1.2643 1.2563	1.2667 1.2607	1.2667 1.2566	1.2667 1.2596	1.2667	1.2667 1.2822	1.2667 1.2771	1.2667 1.2745	1.2667 1.2768	1.2667 1.2738
1-3/8" - 12 NF	1.3190 1.3096	1.3190 1.3127	1.3209 1.3162	1.3209 1.3153	1.3209 1.3169	1.3209	1.3209 1.3332	1.3209 1.3291	1.3209 1.2370	1.3209 1.3265	1.3209 1.3249
1-3/8" - 18 NEF		1.3374 1.3325	1.3389 1.3353	1.3389 1.3335	1.3389 1.3351	1.3389		1.3389 1.3452	1.3389 1.3436	1.3389 1.3443	1.3389 1.3427
1-7/16" - 18 NEF		1.3999 1.3949	1.4014 1.3977	1.4014 1.3960	1.4014 1.3976	1.4014		1.4014 1.4079	1.4014 1.4062	1.4014 1.4068	1.4014 1.4052
1-1/2" - 6 NC	1.3893 1.3772	1.3893 1.3812	1.3917 1.3856	1.3917 1.3816	1.3917 1.3846	1.3917	1.3917 1.4075	1.3917 1.4022	1.3917 1.3996	1.3917 1.4018	1.3917 1.3988
1-1/2" - 12 NF	1.4440 1.4344	1.4440 1.4376	1.4459 1.4411	1.4459 1.4403	1.4459 1.4419	1.4459	1.4459 1.4584	1.4459 1.4542	1.4459 1.4522	1.4459 1.4515	1.4459 1.4499
1-1/2" - 18 NEF		1.4624 1.4574	1.4639 1.4602	1.4639 1.4584	1.4639 1.4601	1.4639		1.4639 1.4704	1.4639 1.4687	1.4639 1.4694	1.4639 1.4677

## TAPERLOCK STEEL THREAD PLUG GAGES



Thread plug gages are made of selected steel, manufactured with the finest equipment available, and meticulously inspected in every thread element. The name Van Keuren is your guarantee of the finest in thread gages.

Standard in "X" tolerance.

Optional color gage handles available upon request — ideal to identify metric versus inch or master versus working gages.

The shanks on the gaging members are tapered to fit corresponding taper holes in the handles. Worn members may be removed and the handles salvaged for use with new members.

Member sizes 0 - 6 have male point in addition to length shown. Chip grooves supplied on Go Members #10 machine screw and larger.

• General Dimensions

Nominal Size		A	B	Length	D	E	Handle	
Inch	mm	Overall	Go Member & Handle	C Handle Only	Go Member	Not Go Member	Hex. Size	No.
0, 1, 2, 3	1.6, 2, 2.5	2-1/2	2-1/32	1-1/2	1/4	3/16	3/16	000
4, 5, 6	3, 3.5	2-31/32	2-13/32	1-3/4	5/16	7/32	1/4	00
8, 10, 12	4, 4.5, 5	3-3/16	2-21/32	2	13/32	9/32	5/16	0
1/4, 5/16	6, 6.3, 7, 8	4-1/16	3-1/2	2-3/4	1/2	5/16	3/8	1
3/8, 7/16, 1/2	10, 12	4-5/8	4	3	3/4	3/8	1/2	2
9/16, 5/8, 3/4	14, 16, 18, 20	5-1/8	4-3/8	3-1/4	7/8	1/2	11/16	3
7/8, 1, 1-1/8	24	5-7/8	4-15/16	3-5/8	1	5/8	7/8	4
1-1/4, 1-3/8, 1-1/2		5-1/2 + D	4-3/8 + D	4	*	3/4	1	5

\*D = 1" for 12 threads per inch and finer; 1-1/4" for threads per inch coarser than 12. EDP numbers and prices on next page.

### CLASS X THREAD GAGE TOLERANCES

Thread per Inch	Tolerance Lead, Inch	Tolerance on Half-Angle of Thread ° ± min.	Tolerance on Major or Minor Diameter		To and Including 1-1/2" Diameter	Tolerance on Pitch Diameter		Above 8" to 12" Diameter
			To and Including 4" Diameter	Above 4" Diameter		Above 1-1/2" to 4" Diameter	Above 4" to 8" Diameter	
80	.0002	0° 30'	.0003	—	.0002	—	—	—
72	.0002	0° 30'	.0003	—	.0002	—	—	—
64	.0002	0° 30'	.0004	—	.0002	—	—	—
56	.0002	0° 30'	.0004	—	.0002	.0003	—	—
48	.0002	0° 30'	.0004	—	.0002	.0003	—	—
40	.0002	0° 20'	.0004	—	.0002	.0003	—	—
36	.0002	0° 20'	.0004	—	.0002	.0003	—	—
32	.0003	0° 15'	.0005	.0007	.0003	.0004	.0005	.0006
28	.0003	0° 15'	.0005	.0007	.0003	.0004	.0005	.0006
27	.0003	0° 15'	.0005	.0007	.0003	.0004	.0005	.0006
24	.0003	0° 15'	.0005	.0007	.0003	.0004	.0005	.0006
20	.0003	0° 15'	.0005	.0007	.0003	.0004	.0005	.0006
18	.0003	0° 10'	.0005	.0007	.0003	.0004	.0005	.0006
16	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
14	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
13	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
12	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
11-1/2	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
11	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
10	.0003	0° 10'	.0006	.0009	.0003	.0004	.0006	.0008
9	.0003	0° 10'	.0007	.0011	.0003	.0004	.0006	.0008
8	.0004	0° 5'	.0007	.0011	.0004	.0005	.0006	.0008
7	.0004	0° 5'	.0007	.0011	.0004	.0005	.0006	.0008
6	.0004	0° 5'	.0008	.0013	.0004	.0005	.0006	.0008
5	.0004	0° 5'	.0008	.0013	—	.0005	.0006	.0008
4-1/2	.0004	0° 5'	.0008	.0013	—	.0005	.0006	.0008
4	.0004	0° 5'	.0009	.0015	—	.0005	.0006	.0008



## TAPERLOCK STEEL THREAD PLUG GAGES

- Machined from the highest quality oil hardened tool steels
- Manufactured on the latest equipment under ideal conditions
- Meticulously inspected in every thread element
- Chip grooves are supplied on all Go members #10 Machine Screw and larger
- Standard in "X" tolerance, standard A.G.D. dimensions
- Special thread plug gages available expedited delivery

### HOW TO ORDER

1. Quantity and type (member only, member with handle or double end with handle).
2. Specify nominal size and threads per inch, Go and/or Not Go.
3. Class of fit 2B, or 3B
4. Handles are not included with single members.
5. If handle is required with a single member, please specify "with handle" at time of order.
6. Special marking instructions if any.
7. For Taperlock members with Chrome add +30%.
8. Special Thread Plug Gages price on application.
9. If Special Pitch diameter limits specify Go and Not Go gages.



• Taperlock Style Work Plug Gage

TAPERLOCK STYLE WORK PLUG GAGES											List #19-00T	
Nominal Size	Go Member			Not Go Member			Double End w/Handle			Handle Only		
	Class 2B or 3B	Class 2B	Class 3B	Class 2B	Class 3B	Class 3B	Class 2B	Class 3B	Price	Size	Price	
	EDP No.	EDP No.	EDP No.	EDP No.	EDP No.	EDP No.	EDP No.	EDP No.				
0 80 UNF	V150100	V160100	V170100	30.00	V150116	V150117	68.00	000	8.00			
1 64 UNC	V150200	V160200	V170200	30.00	V150216	V150217	68.00	000	8.00			
1 72 UNF	V150300	V160300	V170300	30.00	V150316	V150317	68.00	000	8.00			
2 56 UNC	V150400	V160400	V170400	30.00	V150416	V150417	68.00	000	8.00			
2 64 UNF	V150500	V160500	V170500	30.00	V150516	V150517	68.00	000	8.00			
3 48 UNC	V150600	V160600	V170600	27.00	V150616	V150617	62.00	000	8.00			
3 56 UNF	V150700	V160700	V170700	27.00	V150716	V150717	62.00	000	8.00			
4 40 UNC	V150900	V160900	V170900	27.00	V150916	V150917	62.00	00	8.00			
4 48 UNF	V151000	V161000	V171000	27.00	V151016	V151017	62.00	00	8.00			
5 40 UNC	V151100	V161100	V171100	23.00	V151116	V151117	54.00	00	8.00			
5 44 UNF	V151200	V161200	V171200	23.00	V151216	V151217	54.00	00	8.00			
6 32 UNC	V151300	V161300	V171300	23.00	V151316	V151317	54.00	0	8.00			
6 40 UNF	V151400	V161400	V171400	23.00	V151416	V151417	54.00	0	8.00			
8 32 UNC	V151500	V161500	V171500	23.00	V151516	V151517	54.00	0	8.00			
8 36 UNF	V151600	V161600	V171600	23.00	V151616	V151617	54.00	0	8.00			
10 24 UNC	V151700	V161700	V171700	23.00	V151716	V151717	54.00	0	8.00			
10 32 UNF	V151800	V161800	V171800	23.00	V151816	V151817	54.00	0	8.00			
12 24 UNC	V151900	V161900	V171900	23.00	V151916	V151917	54.00	0	8.00			
12 28 UNF	V152000	V162000	V172000	23.00	V152016	V152017	54.00	0	8.00			
12 32 UNEF	V152100	V162100	V172100	31.00	V152116	V152117	70.00	0	8.00			
1/4 20 UNC	V152200	V162200	V172200	20.00	V152216	V152217	48.00	1	8.00			
1/4 28 UNF	V152300	V162300	V172300	20.00	V152316	V152317	48.00	1	8.00			
1/4 32 UNEF	V152400	V162400	V172400	39.00	V152416	V152417	86.00	1	8.00			
5/16 18 UNC	V152500	V162500	V172500	20.00	V152516	V152517	48.00	1	8.00			
5/16 24 UNF	V152600	V162600	V172600	20.00	V152616	V152617	48.00	1	8.00			
5/16 32 UNEF	V152700	V162700	V172700	39.00	V152716	V152717	86.00	1	8.00			
3/8 16 UNC	V152800	V162800	V172800	21.00	V152816	V152817	50.00	2	8.00			
3/8 24 UNF	V152900	V162900	V172900	21.00	V152916	V152917	50.00	2	8.00			
3/8 32 UNEF	V153000	V163000	V173000	45.00	V153016	V153017	98.00	2	8.00			
7/16 14 UNC	V153100	V163100	V173100	21.00	V153116	V153117	50.00	2	8.00			
7/16 20 UNF	V153200	V163200	V173200	21.00	V153216	V153217	50.00	2	8.00			
7/16 28 UNEF	V153300	V163300	V173300	45.00	V153316	V153317	98.00	2	8.00			
1/2 13 UNC	V153400	V163400	V173400	23.00	V153416	V153417	54.00	2	8.00			

continued on next page



# TAPERLOCK STEEL THREAD PLUG GAGES

## TAPERLOCK STYLE WORK PLUG GAGES (continued)

List #19-00T

Nominal Size	Go Member Class 2B or 3B EDP No.	Not Go Member Class 2B EDP No.	Class 3B EDP No.	Price Per Member	Double End w/ Handle			Handle Only	
					Class 2B EDP No.	Class 3B EDP No.	Price	Size	Price
1/2 20 UNF	V153500	V163500	V173500	23.00	V153516	V153517	54.00	2	8.00
1/2 28 UNEF	V153600	V163600	V173600	46.00	V153616	V153617	100.00	2	8.00
9/16 12 UNC	V153700	V163700	V173700	30.00	V153716	V153717	68.00	3	8.00
9/16 18 UNF	V153800	V163800	V173800	30.00	V153816	V153817	68.00	3	8.00
9/16 24 UNEF	V153900	V163900	V173900	52.00	V153916	V153917	112.00	3	8.00
5/8 11 UNC	V154000	V164000	V174000	30.00	V154016	V154017	68.00	3	8.00
5/8 18 UNF	V154100	V164100	V174100	30.00	V154116	V154117	68.00	3	8.00
5/8 24 UNEF	V154200	V164200	V174200	52.00	V154216	V154217	112.00	3	8.00
11/16 24 UNEF	V154300	V164300	V174300	52.00	V154316	V154317	112.00	3	8.00
3/4 10 UNC	V154400	V164400	V174400	33.00	V154416	V154417	74.00	3	8.00
3/4 16 UNF	V154500	V164500	V174500	33.00	V154516	V154517	74.00	3	8.00
3/4 20 UNEF	V154600	V164600	V174600	53.00	V154616	V154617	114.00	3	8.00
13/16 20 UNEF	V154700	V164700	V174700	60.00	V154716	V154717	128.00	3	8.00
7/8 9 UNC	V154800	V164800	V174800	35.00	V154816	V154817	79.00	4	9.00
7/8 14 UNF	V154900	V164900	V174900	35.00	V154916	V154917	79.00	4	9.00
7/8 20 UNEF	V155000	V165000	V175000	60.00	V155016	V155017	129.00	4	9.00
15/16 20 UNEF	V155100	V165100	V175100	61.00	V155116	V155117	131.00	4	9.00
1 8 UNC	V155200	V165200	V175200	42.00	V155216	V155217	93.00	4	9.00
1 12 UNF	V155300	V165300	V175300	42.00	V155316	V155317	93.00	4	9.00
1 14 UNS	V155400	V165400	V175400	42.00	V155416	V155417	93.00	4	9.00
1 20 UNEF	V155500	V165500	V175500	69.00	V155516	V155517	147.00	4	9.00
1-1/16 18 UNEF	V155600	V165600	V175600	71.00	V155616	V155617	151.00	4	9.00
1-1/8 7 UNC	V155700	V165700	V175700	53.00	V155716	V155717	115.00	4	9.00
1-1/8 12 UNF	V155800	V165800	V175800	53.00	V155816	V155817	115.00	4	9.00
1-1/8 18 UNEF	V155900	V165900	V175900	70.00	V155916	V155917	149.00	4	9.00
1-3/16 18 UNEF	V156000	V166000	V176000	75.00	V156016	V156017	159.00	5	9.00
1-1/4 7 UNC	V156100	V166100	V176100	55.00	V156116	V156117	119.00	5	9.00
1-1/4 12 UNF	V156200	V166200	V176200	55.00	V156216	V156217	119.00	5	9.00
1-1/4 18 UNEF	V156300	V166300	V176300	72.00	V156316	V156317	153.00	5	9.00
1-5/16 18 UNEF	V156400	V166400	V176400	82.00	V156416	V156417	173.00	5	9.00
1-3/8 6 UNC	V156500	V166500	V176500	62.00	V156516	V156517	133.00	5	9.00
1-3/8 12 UNF	V156600	V166600	V176600	62.00	V156616	V156617	133.00	5	9.00
1-3/8 18 UNEF	V156700	V166700	V176700	86.00	V156716	V156717	181.00	5	9.00
1-7/16 18 UNEF	V156800	V166800	V176800	89.00	V156816	V156817	187.00	5	9.00
1-1/2 6 UNC	V156900	V166900	V176900	70.00	V156916	V156917	149.00	5	9.00
1-1/2 12 UNF	V157000	V167000	V177000	70.00	V157016	V157017	149.00	5	9.00
1-1/2 18 UNEF	V157100	V167100	V177100	92.00	V157116	V157117	193.00	5	9.00



## TAPERLOCK HSS THREAD PLUG GAGES TiN COATED

From start to finish, TiN coated Taperlock gages stretch your investment in quality. Van Keuren gages feature high quality taper lock thread gages with a titanium nitride coating. TiN gages are first made of HSS Steel with the same care and accuracy all Van Keuren gages display. Then we apply a thin coating of titanium nitride, offering an excellent, uniform hard coating with no loss of substrate hardness or physical distortion. The added hardness and lubricity of the coating gives you:

- Greatly increased gage life - up to 10 times uncoated gages.
- Titanium Nitride (TiN) coated surface hardness is greater than that of the High Speed Steel base gage member.
- Increased corrosion and abrasion resistance due to the inert, hard characteristics of the TiN coating.
- Reduced material build-up due to the added lubricity properties of the TiN coating.
- Gage members are manufactured from selected High Speed Steel and TiN coated for added abrasion resistance and wear life.
- Ideal for severe gaging environments.
- Chip grooves are supplied on all Go members #10 machine screw and larger.



• Taperlock thread plug gage TiN coated.

TiN COATED TAPERLOCK HSS								List #19-00Ti		
Nominal Size	Go Member		Not Go Member		Price	Double End w/Handle			Handle Only	
	2B or 3B EDP No.	Class 2B EDP No.	Class 3B EDP No.	Class 2B EDP No.		Class 3B EDP No.	Price	No.	Price	
2 56 UNC	V450400	V460400	V470400	53.00	V450446	V450447	114.00	000	8.00	
2 64 UNF	V450500	V460500	V470500	53.00	V450546	V450547	114.00	000	8.00	
3 48 UNC	V450600	V460600	V470600	48.00	V450646	V450647	104.00	000	8.00	
3 56 UNF	V450700	V460700	V470700	48.00	V450746	V450747	104.00	000	8.00	
4 40 UNC	V450900	V460900	V470900	46.00	V450946	V450947	100.00	00	8.00	
4 48 UNF	V451000	V461000	V471000	46.00	V451046	V451047	100.00	00	8.00	
5 40 UNC	V451100	V461100	V471100	41.00	V451146	V451147	90.00	00	8.00	
5 44 UNF	V451200	V461200	V471200	41.00	V451246	V451247	90.00	00	8.00	
6 32 UNC	V451300	V461300	V471300	41.00	V451346	V451347	90.00	00	8.00	
6 40 UNF	V451400	V461400	V471400	41.00	V451446	V451447	90.00	00	8.00	
8 32 UNC	V451500	V461500	V471500	41.00	V451546	V451547	90.00	0	8.00	
8 36 UNF	V451600	V461600	V471600	41.00	V451646	V451647	90.00	0	8.00	
10 24 UNC	V451700	V461700	V471700	41.00	V451746	V451747	90.00	0	8.00	
10 32 UNF	V451800	V461800	V471800	41.00	V451846	V451847	90.00	0	8.00	
12 24 UNC	V451900	V461900	V471900	41.00	V451946	V451947	90.00	0	8.00	
12 28 UNF	V452000	V462000	V472000	41.00	V452046	V452047	90.00	0	8.00	
1/4 20 UNC	V452200	V462200	V472200	33.00	V452246	V452247	74.00	1	8.00	
1/4 28 UNF	V452300	V462300	V472300	33.00	V452346	V452347	74.00	1	8.00	
5/16 18 UNC	V452500	V462500	V472500	33.00	V452546	V452547	74.00	1	8.00	
5/16 24 UNF	V452600	V462600	V472600	33.00	V452646	V452647	74.00	1	8.00	
3/8 16 UNC	V452800	V462800	V472800	36.00	V452846	V452847	80.00	1	8.00	
3/8 24 UNF	V452900	V462900	V472900	36.00	V452946	V452947	80.00	2	8.00	
7/16 14 UNC	V453100	V463100	V473100	36.00	V453146	V453147	80.00	2	8.00	
7/16 20 UNF	V453200	V463200	V473200	36.00	V453246	V453247	80.00	2	8.00	
1/2 13 UNC	V453400	V463400	V473400	41.00	V453446	V453447	90.00	2	8.00	
1/2 20 UNF	V453500	V463500	V473500	41.00	V453546	V453547	90.00	2	8.00	
9/16 12 UNC	V453700	V463700	V473700	52.00	V453746	V453747	112.00	3	8.00	
9/16 18 UNF	V453800	V463800	V473800	52.00	V453846	V453847	112.00	3	8.00	
5/8 11 UNC	V454000	V464000	V474000	52.00	V454046	V454047	112.00	3	8.00	
5/8 18 UNF	V454100	V464100	V474100	52.00	V454146	V454147	112.00	3	8.00	
3/4 10 UNC	V454400	V464400	V474400	58.00	V454446	V454447	124.00	3	8.00	
3/4 16 UNF	V454500	V464500	V474500	58.00	V454546	V454547	124.00	3	8.00	

TiN coated metric gages available, price on application.  
When ordering, please use the EDP numbers.

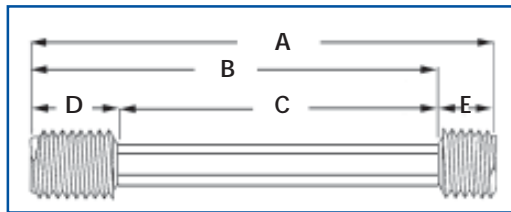
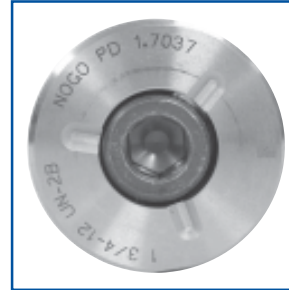


## TRILOCK REVERSIBLE STEEL THREAD PLUG GAGES

- Trilock gages are reversible, doubling gage wear life.
- When worn out at one end, they may be reversed on the specially designed handle and the unused end put to use.
- Available as Class 2B.
- Gage member is held on the handle by means of a socket head cap screw.
- For chrome add +30%.
- For class 3B price on application.
- Standard in Class X tolerance.



• Trilock Reversible Thread Plug Gage



• General Dimensions

Nominal Size	A Overall	B Go Member & Handle	Length C Handle Only	D Go Member	E Not Go Member	Handle	
						Handle Hex Size	No.
7/8	5-3/4	5	4	1	3/4	1/2	2-1/2
1	5-7/8	5-1/8	4	1-1/8	3/4	5/8	3-1/2
1-1/8-7	6-1/8	5-3/8	4	1-3/8	3/4	5/8	3-1/2
1-1/8-12	5-7/8	5-1/8	4	1-1/8	3/4	5/8	3-1/2
1-1/4-7	5-7/8	5-1/2	4	1-1/8	3/4	13/16	4-1/2
1-1/4-12	6	5-1/4	4	1-1/4	3/4	13/16	4-1/2
1-3/8-6, 1-1/2-6	6-1/4	5-1/2	4	1-1/2	3/4	13/16	4-1/2
1-3/8-12, 1-1/2-12	6	5-1/4	4	1-1/4	3/4	13/16	4-1/2

### TRILOCK REVERSIBLE STYLE

List #19-00TRI

Nominal Size	Go Member 2B or 3B EDP No.	Not Go Member Class 2B EDP No.	Price	Double End w/Handle Class 2B		Handle Only	
				EDP No.	Price	No.	Price
7/8 9 UN	V104800	V114800	57.00	V104811	125.00	2-1/2	11.00
7/8 14 UN	V104900	V114900	57.00	V104911	125.00	2-1/2	11.00
1 8 UN	V105200	V115200	63.00	V105211	137.00	3-1/2	11.00
1 12 UN	V105300	V115300	63.00	V105311	137.00	3-1/2	11.00
1-1/8 7 UN	V105700	V115700	76.00	V105711	163.00	3-1/2	11.00
1-1/8 12 UN	V105800	V115800	76.00	V105811	163.00	3-1/2	11.00
1-1/4 7 UN	V106100	V116100	85.00	V106111	182.00	4-1/2	12.00
1-1/4 12 UN	V106200	V116200	85.00	V106211	182.00	4-1/2	12.00
1-3/8 6 UN	V106500	V116500	100.00	V106511	212.00	4-1/2	12.00
1-3/8 12 UN	V106600	V116600	100.00	V106611	212.00	4-1/2	12.00
1-1/2 6 UN	V106900	V116900	116.00	V106911	244.00	4-1/2	12.00
1-1/2 12 UN	V107000	V117000	116.00	V107011	244.00	4-1/2	12.00

Handles are not included with single members. If handles are required for Go or Not Go members, specify "with handle."  
3B Gages are available and priced the same as 2B Gages  
When ordering, please use EDP numbers.

## HELICAL COIL TAPERLOCK STEEL GAGES (STI)

- Standard in Class X Tolerance.
- Handles are not included with single members.
- If handles are required for Go or Not Go members specify "with handle".
- For "W" Tolerance add +33.3%.
- Titanium Nitride coated members available price on application.
- Larger sizes available, price on application.
- Metric prices available, price on application.

### HOW TO ORDER

1. Specify quantity and type (members only, member with handle or double end with handle).
2. Specify nominal diameter and threads per inch Go and/or Not Go.
3. Select class of fit, 2B or 3B.
4. Special marking instructions, if any.
5. If handle is required with a single member, please specify "with handle" at time of order.

### HOW TO PRICE

1. Select desired size and class of fit.
2. For chrome add 30%

HELICAL COIL GAGES (STI)										List #19-00THC
Size	Go Member		Not Go Member		Price	Double End w/Handle			Handle Only	
	2B or 3B	Class 3B	Class 2B	Class 3B		Class 2B	Class 3B	Price	No.	Price
	EDP No.	EDP No.	EDP No.	EDP No.		EDP No.	EDP No.			
2 56 UNC	V550400	V560400	V570400		50.00	V550456	V550457	108.00	00	8.00
4 40 UNC	V550900	V560900	V570900		44.00	V550956	V550957	96.00	00	8.00
6 32 UNC	V551300	V561300	V571300		40.00	V551356	V551357	88.00	0	8.00
8 32 UNC	V551500	V561500	V571500		40.00	V551556	V551557	88.00	0	8.00
10 24 UNC	V551700	V561700	V571700		40.00	V551756	V551757	88.00	0	8.00
10 32 UNF	V551800	V561800	V571800		40.00	V551856	V551857	88.00	0	8.00
1/4 20 UNC	V552200	V562200	V572200		37.00	V552256	V552257	82.00	1	8.00
1/4 28 UNF	V552300	V562300	V572300		37.00	V552356	V552357	82.00	1	8.00
5/16 18 UNC	V552500	V562500	V572500		37.00	V552556	V552557	82.00	2	8.00
5/16 24 UNF	V552600	V562600	V572600		37.00	V552656	V552657	82.00	2	8.00
3/8 16 UNC	V552800	V562800	V572800		40.00	V552856	V552857	88.00	2	8.00
3/8 24 UNF	V552900	V562900	V572900		40.00	V552956	V552957	88.00	2	8.00
7/16 20 UNF	V553200	V563200	V573200		40.00	V553256	V553257	88.00	3	8.00
1/2 13 UNC	V553400	V563400	V573400		41.00	V553456	V553457	90.00	3	8.00
1/2 20 UNF	V553500	V563500	V573500		41.00	V553556	V553557	90.00	3	8.00

When ordering, please use EDP numbers.



## SERVING YOUR GAGING NEEDS

### SYMPTOMS?

- Increasing part scrap costs?
- Increasing thread count?
- Rising quality disputes as to the acceptability of a thread?
- Gages rejecting internal thread, but the tap enters freely?

### SOLUTIONS!

- Time for new thread gages and/or professional recalibration.

### TO PLACE AN ORDER:

Telephone:  
1-800-825-4272  
Fax:  
1-800-879-1450

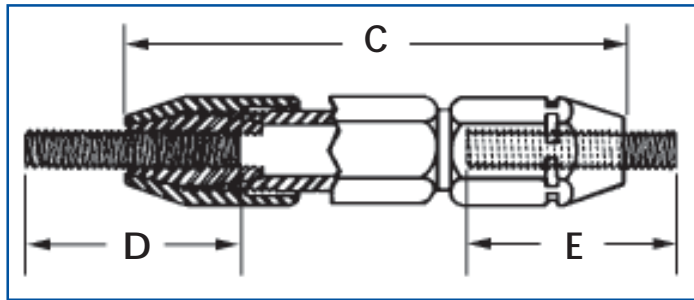


## REVERSIBLE THREAD PLUG GAGES DIMENSIONS

- Reversible thread plug gages are straight and held to size over their entire length, which permits the use of both ends of the gage member.
- When worn at one end the member may be quickly reversed in the specially designed handle.
- Reversal of members in gage handle doubles the effective gaging life.
- Added length of REVERSIBLE gage members allows gaging of greater thread depths.
- Made of selected steels.
- Manufactured with the finest equipments available, inspected in every element.
- Chip grooves on sizes #10 Machine Screw and larger.
- Standard in "X" tolerance.

Reversible thread plug gages are straight and held to size over their entire length, which permits use of both ends. When worn at one end the member may be quickly reversed in the specially designed handle and the unused end put into use, doubling the gaging life.

### General Dimensions



• General Dimensions Reversible Thread Plug Gages

The aluminum handles are made to American Gage Design. The gaging members are securely held by means of bushings compressed when the aluminum nuts are tightened. Handles are not included with single members. If handles are required for Go or Not Go members, specify "with handle." When ordering, please use EDP numbers.

Made of selected steel, manufactured with the finest equipment available and meticulously inspected in every thread element.

Standard in "X" tolerance.

### REVERSIBLE DIMENSIONS

Nominal Size Inch	C Handle Only	Length		Handle	
		D Go Member	E Not Go Member	Hex. Size	No.
0, 1	1-29/32	1/2	1/2	1/4	1W
2,3,4,5	2-15/32	5/8	5/8	3/8	2W
6,8	2-15/32	3/4	3/4	3/8	2W
10,1/4	3-1/8	7/8	7/8	9/16	3W
5/16	3-19/32	1	1	11/16	4W
3/8	3-19/32	1-1/8	1-1/8	13/16	4W
7/16	4-3/16	1-1/4	1-1/4	13/16	5W
1/2	4-3/16	1-3/8	1-3/8	13/16	5W
9/16	4-17/32	1-1/2	1-3/8	15/16	6W
3/4	4-21/32	1-3/4	1-3/4	1-1/16	7W

Chip grooves supplies "Go" members #10 machine screw and larger.

## REVERSIBLE STEEL THREAD PLUG GAGES

### HOW TO ORDER

1. Specify quantity and type (members only, member with handle or double end with handle).
2. Specify nominal diameter and threads per inch Go and/or Not Go.
3. Select class of fit, 2B or 3B.
4. Special marking instructions, if any.
5. If handle is required with a single member, please specify "with handle" at time of order.



• Reversible Style Work Plug Gage

### HOW TO PRICE

1. Select desired size and class of fit.
2. For Chrome add 30%

REVERSIBLE STYLE WORK PLUG GAGES								List #19-00W REV	
Nominal Size			Go Member EDP No.	Not Go Class 2B EDP No.	Price	Double End w/Handle		Handle Only	
						EDP No.	Price	Size	Price
0 80 UNF	V100100	V110100	37.00	V100111	83.00	1W	9.00		
1 64 UNC	V100200	V110200	37.00	V100211	83.00	1W	9.00		
1 72 UNF	V100300	V110300	37.00	V100311	83.00	1W	9.00		
2 56 UNC	V100400	V110400	37.00	V100411	83.00	2W	9.00		
2 64 UNF	V100500	V110500	37.00	V100511	83.00	2W	9.00		
3 48 UNC	V100600	V110600	35.00	V100611	79.00	2W	9.00		
3 56 UNF	V100700	V110700	35.00	V100711	79.00	2W	9.00		
4 40 UNC	V100900	V110900	35.00	V100911	79.00	2W	9.00		
4 48 UNF	V101000	V111000	35.00	V101011	79.00	2W	9.00		
5 40 UNC	V101100	V111100	31.00	V101111	71.00	2W	9.00		
5 44 UNF	V101200	V111200	31.00	V101211	71.00	2W	9.00		
6 32 UNC	V101300	V111300	31.00	V101311	71.00	2W	9.00		
6 40 UNF	V101400	V111400	31.00	V101411	71.00	2W	9.00		
8 32 UNC	V101500	V111500	31.00	V101511	71.00	2W	9.00		
8 36 UNF	V101600	V111600	31.00	V101611	71.00	2W	9.00		
10 24 UNC	V101700	V111700	31.00	V101711	72.00	3W	10.00		
10 32 UNF	V101800	V111800	31.00	V101811	72.00	3W	10.00		
12 24 UNC	V101900	V111900	31.00	V101911	72.00	3W	10.00		
12 28 UNF	V102000	V112000	31.00	V102011	72.00	3W	10.00		
12 32 UNEF	V102100	V112100	46.00	V102111	102.00	3W	10.00		
1/4 20 UNC	V102200	V112200	28.00	V102211	66.00	3W	10.00		
1/4 28 UNF	V102300	V112300	28.00	V102311	66.00	3W	10.00		
1/4 32 UNEF	V102400	V112400	42.00	V102411	94.00	3W	10.00		
5/16 18 UNC	V102500	V112500	28.00	V102511	67.00	4W	11.00		
5/16 24 UNF	V102600	V112600	28.00	V102611	67.00	4W	11.00		
5/16 32 UNEF	V102700	V112700	42.00	V102711	95.00	4W	11.00		
3/8 16 UNC	V102800	V112800	31.00	V102811	73.00	4W	11.00		
3/8 24 UNF	V102900	V112900	31.00	V102911	73.00	4W	11.00		
3/8 32 UNEF	V103000	V113000	46.00	V103011	103.00	4W	11.00		
7/16 14 UNC	V103100	V113100	31.00	V103111	74.00	5W	12.00		
7/16 20 UNF	V103200	V113200	31.00	V103211	74.00	5W	12.00		
7/16 28 UNEF	V103300	V113300	46.00	V103311	104.00	5W	12.00		
1/2 13 UNC	V103400	V113400	31.00	V103411	74.00	5W	12.00		
1/2 20 UNF	V103500	V113500	31.00	V103511	74.00	5W	12.00		
1/2 28 UNEF	V103600	V113600	46.00	V103611	104.00	5W	12.00		
9/16 12 UNC	V103700	V113700	31.00	V103711	75.00	6W	13.00		
9/16 18 UNF	V103800	V113800	31.00	V103811	75.00	6W	13.00		
9/16 24 UNEF	V103900	V113900	46.00	V103911	105.00	6W	13.00		
5/8 11 UNC	V104000	V114000	31.00	V104011	75.00	6W	13.00		
5/8 18 UNF	V104100	V114100	31.00	V104111	75.00	6W	13.00		
5/8 24 UNEF	V104200	V114200	47.00	V104211	107.00	6W	13.00		
11/16 24 UNEF	V104300	V114300	48.00	V104311	112.00	7W	16.00		
3/4 10 UNC	V104400	V114400	40.00	V104411	96.00	7W	16.00		
3/4 16 UNF	V104500	V114500	40.00	V104511	96.00	7W	16.00		
3/4 20 UNEF	V104600	V114600	62.00	V104611	140.00	7W	16.00		

## METRIC STEEL TAPERLOCK THREAD PLUG GAGES

- Standard in 6H Tolerance.
- For Taperlocks with chrome. add +30%.
- Left hand available – price on application.
- Larger sizes available – price on application.
- For complete gage dimensions see page 28.

### HOW TO ORDER

1. Specify quantity.
2. Specify nominal diameter and thread per inch.
3. Special marking instructions, if any.



• Metric Steel Taperlock Thread Plug Gage

### HOW TO PRICE

1. Select desired size.

METRIC TAPERLOCK WORK PLUGS							List #19-00MT	
Metric Size and Pitch	Go Member EDP No.	Not Go Member EDP No.	Price	Double End w / Handle EDP No.	Price	Handle Only No.	Price	
M1.6 X 0.35	V20100901	V20100913	37.00	V20100963	82.00	000	8.00	
M1.8 X 0.35	V20101101	V20101113	37.00	V20101163	82.00	000	8.00	
M2.0 X 0.40	V20101301	V20101313	37.00	V20101363	82.00	000	8.00	
M2.2 X 0.45	V20101501	V20101513	37.00	V20101563	82.00	000	8.00	
M2.5 X 0.45	V227200	V237200	34.00	V227223	76.00	000	8.00	
M3.0 X 0.50	V227300	V237300	34.00	V227323	76.00	00	8.00	
M3.5 X 0.60	V227400	V237400	30.00	V227423	68.00	00	8.00	
M4.0 X 0.70	V227500	V237500	30.00	V227523	68.00	0	8.00	
M4.5 X 0.75	V20102501	V20102513	31.00	V20102563	70.00	0	8.00	
M5.0 X 0.80	V227600	V237600	30.00	V227623	68.00	0	8.00	
M6.0 X 1.00	V227700	V237700	25.00	V227723	58.00	1	8.00	
M7.0 X 1.00	V20103201	V20103213	26.00	V20103263	60.00	1	8.00	
M8.0 X 1.25	V227800	V237800	24.00	V227823	56.00	1	8.00	
M8.0 X 1.00	V20103501	V20103513	24.00	V20103563	56.00	1	8.00	
M10.0 X 1.50	V228000	V238000	26.00	V228023	60.00	2	8.00	
M10.0 X 1.25	V228100	V238100	26.00	V228123	60.00	2	8.00	
M12.0 X 1.75	V228300	V238300	28.00	V228323	64.00	2	8.00	
M12.0 X 1.50	V228400	V238400	28.00	V228423	64.00	2	8.00	
M12.0 X 1.25	V228500	V238500	28.00	V228523	64.00	2	8.00	
M14.0 X 2.00	V228700	V238700	32.00	V228723	72.00	3	8.00	
M14.0 X 1.50	V228800	V238800	32.00	V228823	72.00	3	8.00	
M16.0 X 2.00	V229000	V239000	32.00	V229023	72.00	3	8.00	
M16.0 X 1.50	V229100	V239100	32.00	V229123	72.00	3	8.00	
M17.0 X 1.00	V229200	V239200	34.00	V229223	76.00	3	8.00	
M18.0 X 2.50	V20106201	V20106213	36.00	V20106263	80.00	3	8.00	
M18.0 X 1.50	V229300	V239300	36.00	V229323	80.00	3	8.00	
M20.0 X 2.50	V229400	V239400	41.00	V229423	80.00	3	8.00	
M20.0 X 1.50	V229500	V239500	41.00	V229523	80.00	3	8.00	
M22.0 X 2.50	V20107001	V20107013	41.00	V20107063	103.00	4	9.00	
M22.0 X 1.50	V20107201	V20107213	41.00	V20107263	81.00	4	9.00	
M24.0 X 3.00	V20107401	V20107413	47.00	V20107463	103.00	4	9.00	
M24.0 X 2.00	V20107501	V20107513	47.00	V20107563	103.00	4	9.00	
M27.0 X 3.00	V20108201	V20108213	64.00	V20108263	137.00	4	9.00	
M27.0 X 2.00	V20108301	V20108313	64.00	V20108363	137.00	4	9.00	
M30.0 X 3.50	V20108901	V20108913	77.00	V20108963	163.00	5	9.00	
M30.0 X 2.00	V20109101	V20109113	77.00	V20109163	163.00	5	9.00	
M33.0 X 3.50	V20109601	V20109613	77.00	V20109663	163.00	5	9.00	
M33.0 X 2.00	V20109801	V20109813	77.00	V20109863	163.00	5	9.00	
M36.0 X 4.00	V20110101	V20110113	89.00	V20110163	187.00	5	9.00	
M36.0 X 3.00	V20110201	V20110213	89.00	V20110263	187.00	5	9.00	

## REVERSIBLE METRIC STEEL THREAD PLUGS

- Standard in 6H Tolerance.
- Left hand available, price on application.
- Larger sizes available, price on application.
- For chrome add 30%

### HOW TO ORDER

1. Specify quantity.
2. Specify nominal diameter and thread per inch.
3. Special marking instructions, if any.



• Reversible Metric Steel Thread Plug Gage.

### HOW TO PRICE

1. Select desired size.

REVERSIBLE METRIC THREAD PLUGS						List #19-00H	
Metric Size & Pitch Coarse	Go Member EDP No.	Not Go EDP No.	Price	Double End w/Handle EDP No.	Price	Handle Only No.	Price
M2.5 X 0.45	V207200	V217200	46.00	V207221	101.00	2W	9.00
M3.0 X 0.50	V207300	V217300	43.00	V207321	95.00	2W	9.00
M3.5 X 0.60	V207400	V217400	36.00	V207421	81.00	2W	9.00
M4.0 X 0.70	V207500	V217500	36.00	V207521	81.00	2W	9.00
M5.0 X 0.80	V207600	V217600	36.00	V207621	82.00	3W	10.00
M6.0 X 1.00	V207700	V217700	30.00	V207721	70.00	3W	10.00
M8.0 X 1.25	V207800	V217800	30.00	V207821	71.00	4W	11.00
M8.0 X 1.00	V207900	V217900	30.00	V207921	71.00	4W	11.00
M10.0 X 1.50	V208000	V218000	34.00	V208021	79.00	4W	11.00
M10.0 X 1.25	V208100	V218100	34.00	V208121	79.00	4W	11.00
M12.0 X 1.75	V208300	V218300	34.00	V208321	80.00	5W	12.00
M12.0 X 1.25	V208500	V218500	34.00	V208521	80.00	5W	12.00
M14.0 X 2.00	V208700	V218700	40.00	V208721	93.00	6W	13.00
M14.0 X 1.50	V208800	V218800	40.00	V208821	93.00	6W	13.00
M16.0 X 2.00	V209000	V219000	40.00	V209021	93.00	6W	13.00
M16.0 X 1.50	V209100	V219100	40.00	V209121	93.00	6W	13.00
M18.0 X 1.50	V209300	V219300	46.00	V209321	108.00	7W	16.00

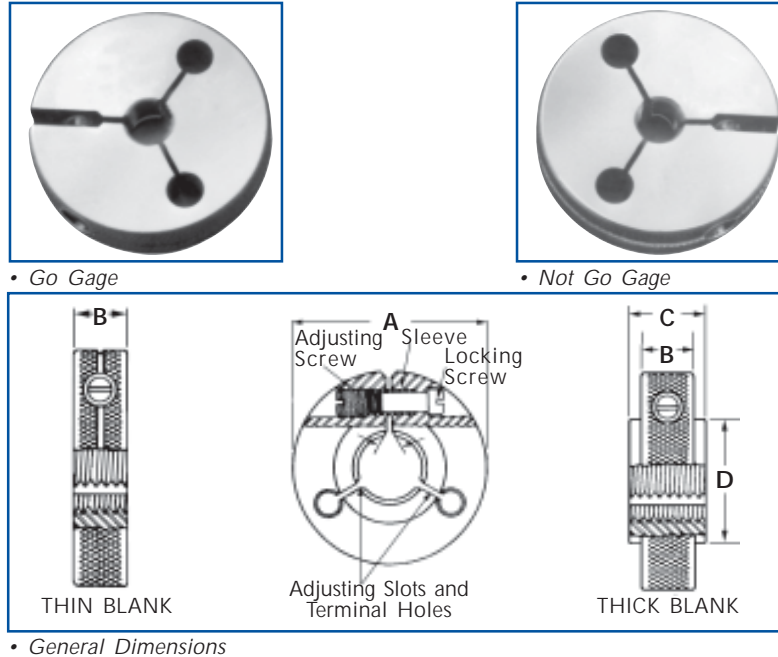
METRIC - INCH PITCH EQUIVALENTS					
Pitch mm	Pitch in Inches	Threads Per Inch	Pitch mm	Pitch in Inches	Threads Per Inch
0.35	.01378	72.57	1.25	.04921	20.32
0.40	.01575	63.50	1.50	.05906	16.93
0.45	.01772	56.44	1.75	.06890	14.51
0.50	.01969	50.80	2.00	.07874	12.70
0.60	.02362	42.33	2.50	.09843	10.16
0.70	.02756	36.29	3.00	.11811	8.46
0.75	.02953	33.87	4.00	.15748	6.35
0.80	.03150	31.75	4.50	.17717	5.64
0.90	.03543	28.22	5.00	.19685	5.08
1.00	.03937	25.40	6.00	.23622	4.23

## THREAD RING GAGE BASIC DIMENSIONS

Van Keuren thread ring gages are made of selected graphite steels, machined and accurately lapped and meticulously inspected in every thread element. They are then set with Van Keuren's first quality Thread Setting Plug gages.

Not Go ring gages are distinguished by the groove around the rim. Setting plug gages should be ordered at the same time as ring gages so they can be mated before shipping.

The pitch diameter of adjustable thread ring gages cannot be taken as a direct measurement. The functional pitch diameter is transferred by the setting to the ring gage. The ring gage setting is unique to the particular setting plug and cannot be expected to be duplicated on any other setting plug without readjustment. The functional pitch diameter of any two given setting plugs both known to be within tolerance specifications could vary by more than 0.0003" from each other. Also, the relative "feel" of the inspector setting the gage plays a major role in the evaluation of this attribute.\*



## THREAD RING GAGES

Nominal Size		Holder and Ring Blank No.	All Blanks A Outside Diameter	Thin Blanks			Thick Blanks Go UNC Only		
Inch	mm			B Thickness	Depth Counterbore	Length Thread	B Thickness Flange	C Thickness Hub	D Diameter Hub
0, 1, 2	1.6, 2	1	1	1/4	5/64	3/32	-	-	-
3, 4, 5, 6	2.5, 3, 3.5	1	1	1/4	3/64	5/32	-	-	-
8, 10, 12	4, 5	1	1	1/4	1/32	3/16	-	-	-
1/4, 5/16	6, 8	2	1.375	11/32	-	-	-	-	-
3/8, 7/16, 1/2	10, 12	3	1.75	7/16	-	-	-	-	-
9/16, 5/8, 3/4	14, 16, 20	4	2-3/16	9/16	-	-	9/16	3/4	1-1/16
7/8, 1, 1-1/8	24	5	2.625	11/16	-	-	11/16	15/16	1-1/2
1-1/4, 1-3/8, 1-1/2	-	6	3.25	3/4	-	-	3/4	1-1/8	1-7/8

## THREAD RING GAGE HOLDERS (OPTIONAL)

List #15-35

Number	Size Range		EDP No.	Price
	Inch	Metric		
1	0 - 12 MS	1.6 - 5mm	V701022	14.00
2	1/4 - 5/16	6 - 8mm	V701023	16.00
3	3/8 - 1/2	10 - 12mm	V701024	18.00
4	9/16 - 3/4	14 - 20mm	V701025	22.00
5	7/8 - 1-1/8	24 mm	V701026	28.00
6	1-1/4 - 1-1/2	-	V701027	34.00

When ordering, please use EDP numbers.

Taken from information printed by American Measuring Tool Manufacturers Association — 1989.



• Thread Ring Gage Holder



• Ring Gage

- Manufactured from selected graphite steels to American Gage Design (AGD Style)
- Machined and accurately lapped for an exacting thread size.
- Meticulously inspected in every element
- Best if purchased with and mated to a setting plug gage at the time of order.
- No Go rings are furnished with an identifying groove around the rim of the gage.
- Optional Thread Ring Gage Holders available, optional.
- Class 2 and Class 3 available on request.

**HOW TO ORDER**

1. Specify nominal diameter, pitch and class of fit 2A, 3A or Basic.
2. Setting Plugs should be ordered at the same time as the corresponding ring gages.
3. Request Ring Gages be set with new Set Plug before shipping.
4. Left hand available – price on application.
5. Larger sizes available – price on application.
6. Specials available, price on application.
7. Chrome available on rings, add +50%.

**RING GAGES List #19-00R**

Nominal Size			Go Ring Gage			Not Go Ring Gage			Holder Only	
			Class 2A EDP No.	Class 3A/Basic EDP No.	Price	Class 2A EDP No.	Class 3A EDP No.	Price	No.	Price
0	80	UNF	V240100	V250100	122.00	V260100	V270100	122.00	1	14.00
1	64	UNC	V240200	V250200	110.00	V260200	V270200	110.00	1	14.00
1	72	UNF	V240300	V250300	110.00	V260300	V270300	110.00	1	14.00
2	56	UNC	V240400	V250400	91.00	V260400	V270400	91.00	1	14.00
2	64	UNF	V240500	V250500	91.00	V260500	V270500	91.00	1	14.00
3	48	UNC	V240600	V250600	91.00	V260600	V270600	91.00	1	14.00
3	56	UNF	V240700	V250700	91.00	V260700	V270700	91.00	1	14.00
4	40	UNC	V240900	V250900	83.00	V260900	V270900	83.00	1	14.00
4	48	UNF	V241000	V251000	83.00	V261000	V271000	83.00	1	14.00
5	40	UNC	V241100	V251100	71.00	V261100	V271100	71.00	1	14.00
5	44	UNF	V241200	V251200	71.00	V261200	V271200	71.00	1	14.00
6	32	UNC	V241300	V251300	72.00	V261300	V271300	72.00	1	14.00
6	40	UNF	V241400	V251400	72.00	V261400	V271400	72.00	1	14.00
8	32	UNC	V241500	V251500	76.00	V261500	V271500	76.00	1	14.00
8	36	UNF	V241600	V251600	76.00	V261600	V271600	76.00	1	14.00
10	24	UNC	V241700	V251700	76.00	V261700	V271700	76.00	1	14.00
10	32	UNF	V241800	V251800	76.00	V261800	V271800	76.00	1	14.00
12	24	UNC	V241900	V251900	76.00	V261900	V271900	76.00	1	14.00
12	28	UNF	V242000	V252000	76.00	V262000	V272000	76.00	1	14.00
12	32	UNEF	V242100	V252100	100.00	V262100	V272100	100.00	1	14.00
1/4	20	UNC	V242200	V252200	67.00	V262200	V272200	67.00	2	16.00
1/4	28	UNF	V242300	V252300	67.00	V262300	V272300	67.00	2	16.00
1/4	32	UNEF	V242400	V252400	89.00	V262400	V272400	89.00	2	16.00
5/16	18	UNC	V242500	V252500	67.00	V262500	V272500	67.00	2	16.00
5/16	24	UNF	V242600	V252600	67.00	V262600	V272600	67.00	2	16.00
5/16	32	UNEF	V242700	V252700	89.00	V262700	V272700	89.00	2	16.00
3/8	16	UNC	V242800	V252800	71.00	V262800	V272800	71.00	3	18.00
3/8	24	UNF	V242900	V252900	71.00	V262900	V272900	71.00	3	18.00
3/8	32	UNEF	V243000	V253000	92.00	V263000	V273000	92.00	3	18.00
7/16	14	UNC	V243100	V253100	71.00	V263100	V273100	71.00	3	18.00
7/16	20	UNF	V243200	V253200	71.00	V263200	V273200	71.00	3	18.00
7/16	28	UNEF	V243300	V253300	92.00	V263300	V273300	92.00	3	18.00
1/2	13	UNC	V243400	V253400	79.00	V263400	V273400	79.00	3	18.00
1/2	20	UNF	V243500	V253500	79.00	V263500	V273500	79.00	3	18.00
1/2	28	UNEF	V243600	V253600	101.00	V263600	V273600	101.00	3	18.00
9/16	12	UNC	V243700	V253700	89.00	V263700	V273700	89.00	4	22.00
9/16	18	UNF	V243800	V253800	89.00	V263800	V273800	89.00	4	22.00
9/16	24	UNEF	V243900	V253900	107.00	V263900	V273900	107.00	4	22.00

continued on next page



# THREAD RING GAGES

## RING GAGES (continued) List #19-00R

Nominal Size			Go Ring Gage			Not Go Ring Gage			Holder Only	
			Class 2A EDP No.	Class 3A/Basic EDP No.	Price	Class 2A EDP No.	Class 3A EDP No.	Price	No.	Price
5/8	11	UNC	V244000	V254000	89.00	V264000	V274000	89.00	4	22.00
5/8	18	UNF	V244100	V254100	89.00	V264100	V274100	89.00	4	22.00
5/8	24	UNEF	V244200	V254200	108.00	V264200	V274200	108.00	4	22.00
11/16	24	UNEF	V244300	V254300	109.00	V264300	V274300	109.00	4	22.00
3/4	10	UNC	V244400	V254400	116.00	V264400	V274400	116.00	4	22.00
3/4	16	UNF	V244500	V254500	116.00	V264500	V274500	116.00	4	22.00
3/4	20	UNEF	V244600	V254600	131.00	V264600	V274600	131.00	4	22.00
13/16	20	UNEF	V244700	V254700	133.00	V264700	V274700	133.00	4	22.00
7/8	9	UNC	V244800	V254800	130.00	V264800	V274800	130.00	5	28.00
7/8	14	UNF	V244900	V254900	130.00	V264900	V274900	130.00	5	28.00
7/8	20	UNEF	V245000	V255000	140.00	V265000	V275000	140.00	5	28.00
15/16	20	UNEF	V245100	V255100	144.00	V265100	V275100	144.00	5	28.00
1	8	UNC	V245200	V255200	155.00	V265200	V275200	155.00	5	28.00
1	12	UNF	V245300	V255300	155.00	V265300	V275300	155.00	5	28.00
1	14	UNS	V245400	V255400	155.00	V265400	V275400	155.00	5	28.00
1	20	UNEF	V245500	V255500	164.00	V265500	V275500	164.00	5	28.00
1-1/16	18	UNEF	V245600	V255600	169.00	V265600	V275600	169.00	5	28.00
1-1/8	7	UNC	V245700	V255700	169.00	V265700	V275700	169.00	5	28.00
1-1/8	12	UNF	V245800	V255800	169.00	V265800	V275800	169.00	5	28.00
1-1/8	18	UNEF	V245900	V255900	180.00	V265900	V275900	180.00	5	28.00
1-3/16	18	UNEF	V246000	V256000	186.00	V266000	V276000	186.00	5	28.00
1-1/4	7	UNC	V246100	V256100	187.00	V266100	V276100	187.00	6	34.00
1-1/4	12	UNF	V246200	V256200	187.00	V266200	V276200	187.00	6	34.00
1-1/4	18	UNEF	V246300	V256300	195.00	V266300	V276300	195.00	6	34.00
1-5/16	18	UNEF	V246400	V256400	201.00	V266400	V276400	201.00	6	34.00
1-3/8	6	UNC	V246500	V256500	207.00	V266500	V276500	207.00	6	34.00
1-3/8	12	UNF	V246600	V256600	207.00	V266600	V276600	207.00	6	34.00
1-3/8	18	UNEF	V246700	V256700	219.00	V266700	V276700	219.00	6	34.00
1-7/16	18	UNEF	V246800	V256800	222.00	V266800	V276800	222.00	6	34.00
1-1/2	6	UNC	V246900	V256900	230.00	V266900	V276900	230.00	6	34.00
1-1/2	12	UNF	V247000	V257000	230.00	V267000	V277000	230.00	6	34.00
1-1/2	18	UNEF	V247100	V257100	239.00	V267100	V277100	239.00	6	34.00



## TRUNCATED THREAD SETTING PLUGS CLASS X, BASIC DIMENSIONS

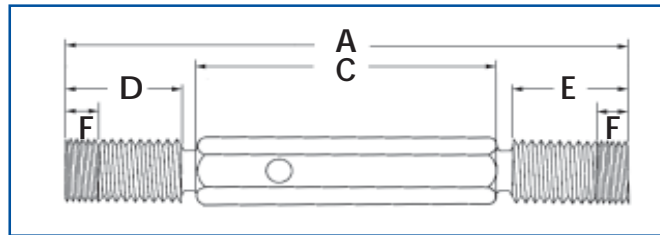
The truncated type thread setting plug gage has a full form threaded portion and a truncated portion. The pitch diameter is constant over the full length. The full form portion checks the pitch diameter and the major diameter clearance. The truncated portion checks pitch diameter and flank angle wear thus assuring the proper setting and control of thread ring gages.

Van Keuren thread setting plug gages are made of selected steel, ground and accurately lapped and meticulously inspected in every thread element. The name Van Keuren is your guarantee of the finest in thread gages.

Standard set plugs are Class X tolerance on pitch diameter while holding "W" tolerance on lead and angles.

The shanks on the gaging members are tapered to fit corresponding tapered holes in the handle. Worn members may be removed and the handle salvaged for use with new members.

Members size 0-6 have male point in addition to length shown.



• General Dimensions Truncated Thread Setting Plug

### THREAD SETTING PLUG GAGE DIMENSIONS

Nominal Size Inch      mm	Handle No.	A Length Overall		C Handle Only	D Go Member		E Not Go Member	F Truncation		
		Thin Ring	Thick Ring		Thin Ring	Thick Ring		Thin Ring	Thick Ring	Not Go
0, 1, 2	000	2-1/4	-	1-1/2	7/32	-	7/32	7/64	-	7/64
3	000	2-9/16	-	1-1/2	3/8	-	3/8	3/16	-	3/16
4, 5, 6	00	2-7/8	-	1-3/4	3/8	-	3/8	3/16	-	3/16
8, 10, 12	0	3-5/16	-	2	13/32	-	13/32	13/64	-	13/64
1/4, 5/16	1	4-3/4	-	2-3/4	3/4	-	3/4	3/8	-	3/8
3/8, 7/16, 1/2	2	5-1/2	-	3	1	-	1	1/2	-	1/2
9/16, 5/8, 3/4	3	6-1/4	6-7/8	3-1/4	1-1/4	1-7/8	1-1/4	5/8	15/16	5/8
7/8, 1, 1-1/8	4	7-1/4	7-7/8	3-5/8	1-1/2	2-1/8	1-1/2	3/4	1-1/16	3/4
1-1/4, 1-3/8, 1-1/2	5	8	8-3/4	4	1-5/8	2-3/8	1-5/8	13/16	1-3/16	13/16

For EDP numbers and prices see next page.

## TRUNCATED THREAD SETTING PLUGS

- Truncated type thread setting plugs have a full form threaded portion and a truncated portion.
- The full form section checks the Pitch Diameter and Major Diameter clearance.
- The Truncated portion checks Pitch Diameter and Flank Angle wear.
- Made from selected steels, ground and accurately lapped.
- Meticulously inspected in every thread element.
- Standard thread setting plugs are Class X tolerance on pitch diameter, while holding W tolerance on lead and angles.
- For class "W" tolerance on pitch diameter add 33.3%.

### HOW TO ORDER

1. Specify Quantity.
2. Specify nominal size, pitch and class of Fit 2A or 3A.
3. Handles are not included with single members. If handles are required for Go or Not Go members specify "with handles" at time of order.
4. Setting Plugs should be ordered at the same time as the corresponding ring gages.
5. Request Ring Gages be set with new Set Plug before shipping.
6. For class W tolerance add 33.3%.
7. Left hand available – price on application.
8. Specials available, price on application.



TRUNCATED SETTING PLUGS											List #19-00S	
Nominal Size			Go Member		Not Go Member		Go - Not Go w/handle				Handle No. Price	
			Class 2A EDP No.	Class 3A/Basic EDP No.	Class 2A EDP No.	Class 3A EDP No.	Price	Class 2A EDP No.	Class 3A EDP No.	Price		
0	80	UNF	V300100	V310100	V320100	V330100	69.00	V300132	V310133	146.00	000	8.00
1	64	UNC	V300200	V310200	V320200	V330200	69.00	V300232	V310233	146.00	000	8.00
1	72	UNF	V300300	V310300	V320300	V330300	69.00	V300332	V310333	146.00	000	8.00
2	56	UNC	V300400	V310400	V320400	V330400	69.00	V300432	V310433	146.00	000	8.00
2	64	UNF	V300500	V310500	V320500	V330500	69.00	V300532	V310533	146.00	000	8.00
3	48	UNC	V300600	V310600	V320600	V330600	64.00	V300632	V310633	136.00	000	8.00
3	56	UNF	V300700	V310700	V320700	V330700	64.00	V300732	V310733	136.00	000	8.00
4	40	UNC	V300900	V310900	V320900	V330900	64.00	V300932	V310933	136.00	00	8.00
4	48	UNF	V301000	V311000	V321000	V331000	64.00	V301032	V311033	136.00	00	8.00
5	40	UNC	V301100	V311100	V321100	V331100	60.00	V301132	V311133	128.00	00	8.00
5	44	UNF	V301200	V311200	V321200	V331200	60.00	V301232	V311233	128.00	00	8.00
6	32	UNC	V301300	V311300	V321300	V331300	60.00	V301332	V311333	128.00	00	8.00
6	40	UNF	V301400	V311400	V321400	V331400	60.00	V301432	V311433	128.00	00	8.00
8	32	UNC	V301500	V311500	V321500	V331500	60.00	V301532	V311533	128.00	0	8.00
8	36	UNF	V301600	V311600	V321600	V331600	60.00	V301632	V311633	128.00	0	8.00
10	24	UNC	V301700	V311700	V321700	V331700	60.00	V301732	V311733	128.00	0	8.00
10	32	UNF	V301800	V311800	V321800	V331800	60.00	V301832	V311833	128.00	0	8.00
12	24	UNC	V301900	V311900	V321900	V331900	64.00	V301932	V311933	136.00	0	8.00
12	28	UNF	V302000	V312000	V322000	V332000	64.00	V302032	V312033	136.00	0	8.00
12	32	UNEF	V302100	V312100	V322100	V332100	77.00	V302132	V312133	162.00	0	8.00
1/4	20	UNC	V302200	V312200	V322200	V332200	55.00	V302232	V312233	118.00	1	8.00
1/4	28	UNF	V302300	V312300	V322300	V332300	55.00	V302332	V312333	118.00	1	8.00
1/4	32	UNEF	V302400	V312400	V322400	V332400	79.00	V302432	V312433	166.00	1	8.00
5/16	18	UNC	V302500	V312500	V322500	V332500	55.00	V302532	V312533	118.00	1	8.00
5/16	24	UNF	V302600	V312600	V322600	V332600	55.00	V302632	V312633	118.00	1	8.00
5/16	32	UNEF	V302700	V312700	V322700	V332700	79.00	V302732	V312733	166.00	1	8.00
3/8	16	UNC	V302800	V312800	V322800	V332800	57.00	V302832	V312833	122.00	2	8.00
3/8	24	UNF	V302900	V312900	V322900	V332900	57.00	V302932	V312933	122.00	2	8.00
3/8	32	UNEF	V303000	V313000	V323000	V333000	92.00	V303032	V313033	192.00	2	8.00
7/16	14	UNC	V303100	V313100	V323100	V333100	61.00	V303132	V313133	130.00	2	8.00
7/16	20	UNF	V303200	V313200	V323200	V333200	61.00	V303232	V313233	130.00	2	8.00
7/16	28	UNEF	V303300	V313300	V323300	V333300	92.00	V303332	V313333	192.00	2	8.00

continued on next page



## TRUNCATED THREAD SETTING PLUGS

### TRUNCATED SETTING PLUGS (continued) List #19-00S

Nominal Size			Go Member		No Go Member			Go - No Go w/handle			Handle	
			Class 2A EDP No.	Class 3A/Basic EDP No.	Class 2A EDP No.	Class 3A EDP No.	Price	Class 2A EDP No.	Class 3A EDP No.	Price	No.	Price
1/2	13	UNC	V303400	V313400	V323400	V333400	62.00	V303432	V313433	132.00	2	8.00
1/2	20	UNF	V303500	V313500	V323500	V333500	62.00	V303532	V313533	132.00	2	8.00
1/2	28	UNEF	V303600	V313600	V323600	V333600	102.00	V303632	V313633	212.00	2	8.00
9/16	12	UNC	V303700	V313700	V323700	V333700	71.00	V303732	V313733	150.00	3	8.00
9/16	18	UNF	V303800	V313800	V323800	V333800	71.00	V303832	V313833	150.00	3	8.00
9/16	24	UNEF	V303900	V313900	V323900	V333900	109.00	V303932	V313933	226.00	3	8.00
5/8	11	UNC	V304000	V314000	V324000	V334000	74.00	V304032	V314033	156.00	3	8.00
5/8	18	UNF	V304100	V314100	V324100	V334100	74.00	V304132	V314133	156.00	3	8.00
5/8	24	UNEF	V304200	V314200	V324200	V334200	110.00	V304232	V314233	228.00	3	8.00
11/16	24	UNEF	V304300	V314300	V324300	V334300	120.00	V304332	V314333	248.00	3	8.00
3/4	10	UNC	V304400	V314400	V324400	V334400	86.00	V304432	V314433	180.00	3	8.00
3/4	16	UNF	V304500	V314500	V324500	V334500	86.00	V304532	V314533	180.00	3	8.00
3/4	20	UNEF	V304600	V314600	V324600	V334600	116.00	V304632	V314633	240.00	3	8.00
13/16	20	UNEF	V304700	V314700	V324700	V334700	123.00	V304732	V314733	254.00	3	8.00
7/8	9	UNC	V304800	V314800	V324800	V334800	101.00	V304832	V314833	211.00	4	9.00
7/8	14	UNF	V304900	V314900	V324900	V334900	101.00	V304932	V314933	211.00	4	9.00
7/8	20	UNEF	V305000	V315000	V325000	V335000	126.00	V305032	V315033	261.00	4	9.00
15/16	20	UNEF	V305100	V315100	V325100	V335100	128.00	V305132	V315133	265.00	4	9.00
1	8	UNC	V305200	V315200	V325200	V335200	116.00	V305232	V315233	241.00	4	9.00
1	12	UNF	V305300	V315300	V325300	V335300	116.00	V305332	V315333	241.00	4	9.00
1	14	UNS	V305400	V315400	V325400	V335400	116.00	V305432	V315433	241.00	4	9.00
1	20	UNEF	V305500	V315500	V325500	V335500	137.00	V305532	V315533	283.00	4	9.00
1-1/16	18	UNEF	V305600	V315600	V325600	V335600	136.00	V305632	V315633	281.00	4	9.00
1-1/8	7	UNC	V305700	V315700	V325700	V335700	136.00	V305732	V315733	281.00	4	9.00
1-1/8	12	UNF	V305800	V315800	V325800	V335800	136.00	V305832	V315833	281.00	4	9.00
1-1/8	18	UNEF	V305900	V315900	V325900	V335900	143.00	V305932	V315933	295.00	4	9.00
1-3/16	18	UNEF	V306000	V316000	V326000	V336000	143.00	V306032	V316033	295.00	5	9.00
1-1/4	7	UNC	V306100	V316100	V326100	V336100	148.00	V306132	V316133	305.00	5	9.00
1-1/4	12	UNF	V306200	V316200	V326200	V336200	148.00	V306232	V316233	305.00	5	9.00
1-1/4	18	UNEF	V306300	V316300	V326300	V336300	167.00	V306332	V316333	343.00	5	9.00
1-5/16	18	UNEF	V306400	V316400	V326400	V336400	170.00	V306432	V316433	349.00	5	9.00
1-3/8	6	UNC	V306500	V316500	V326500	V336500	171.00	V306532	V316533	351.00	5	9.00
1-3/8	12	UNF	V306600	V316600	V326600	V336600	171.00	V306632	V316633	351.00	5	9.00
1-3/8	18	UNEF	V306700	V316700	V326700	V336700	176.00	V306732	V316733	361.00	5	9.00
1-7/16	18	UNEF	V306800	V316800	V326800	V336800	181.00	V306832	V316833	371.00	5	9.00
1-1/2	6	UNC	V306900	V316900	V326900	V336900	183.00	V306932	V316933	375.00	5	9.00
1-1/2	12	UNF	V307000	V317000	V327000	V337000	183.00	V307032	V317033	375.00	5	9.00
1-1/2	18	UNEF	V307100	V317100	V327100	V337100	189.00	V307132	V317133	387.00	5	9.00

The shanks on the gaging members are tapered to fit corresponding tapered holes in the handle.  
Worn members may be removed and the handle salvaged for use with new members.  
Members size 0-6 have male point in addition to length shown.



## METRIC THREAD RING GAGES



• Ring Gage

- Standard in 6g Tolerance.
- Manufactured from selected steels to American Gage Design (AGD Style)
- Machined and accurately lapped for an exacting thread size.
- Meticulously inspected in every element
- Best if purchased with and mated to a setting plug gage at the time of order.
- Not Go rings are furnished with an identifying groove around the rim of the gage.
- Optional Thread Rind Gage Holders available, optional.
- Chrome Plate Rings: Add 50%.
- Left hand available – price on application.
- Larger sizes available – price on application.

### HOW TO ORDER

1. Standard in 6g Tolerance.
2. Setting Plugs should be ordered at the same time as the corresponding ring gages.
3. Ring Gages will be set with new Set Plug before shipping.
4. Chrome available on rings, add +50%.
5. Left hand available – price on application.
6. Larger sizes available – price on application.
7. Specials available, price on application.

## METRIC THREAD RINGS

List #19-00MR

Nominal Size Pitch mm	Go Ring		Not Go Ring		Go-Not Go w/o holder		Holder	
	EDP No.	EDP No.	EDP No.	Price	EDP No.	Price	Size	Price
M1.6 X 0.35	V27100901	V27100913		123.00	V27100963	246.00	1	14.00
M1.8 X 0.35	V27101101	V27101113		123.00	V27101163	246.00	1	14.00
M2.0 X 0.40	V27101301	V27101313		111.00	V27101363	222.00	1	14.00
M2.2 X 0.45	V27101501	V27101513		111.00	V27101563	222.00	1	14.00
M2.5 X 0.45	V367200	V377200		111.00	V367237	222.00	1	14.00
M3.0 X 0.50	V367300	V377300		96.00	V367337	192.00	1	14.00
M3.5 X 0.60	V367400	V377400		96.00	V367437	192.00	1	14.00
M4.0 X 0.70	V367500	V377500		89.00	V367537	178.00	1	14.00
M4.5 X 0.75	V27102501	V27102513		89.00	V27102563	178.00	1	14.00
M5.0 X 0.80	V367600	V377600		89.00	V367637	178.00	1	14.00
M6.0 X 1.00	V367700	V377700		82.00	V367737	164.00	2	16.00
M7.0 X 1.00	V27103201	V27103213		82.00	V27103263	164.00	2	16.00
M8.0 X 1.25	V367800	V377800		82.00	V367837	164.00	2	16.00
M8.0 X 1.00	V367900	V377900		82.00	V367937	164.00	2	16.00
M10.0 X 1.50	V368000	V378000		89.00	V368037	178.00	3	18.00
M10.0 X 1.25	V368100	V378100		89.00	V368137	178.00	3	18.00
M12.0 X 1.75	V368300	V378300		95.00	V368337	190.00	3	18.00
M12.0 X 1.50	V368400	V378400		95.00	V368437	190.00	3	18.00
M12.0 X 1.25	V368500	V378500		106.00	V368537	190.00	3	18.00
M14.0 X 2.00	V368700	V378700		106.00	V368737	212.00	4	22.00
M14.0 X 1.50	V368800	V378800		106.00	V368837	212.00	4	22.00
M16.0 X 2.00	V369000	V379000		106.00	V369037	212.00	4	22.00
M16.0 X 1.50	V369100	V379100		106.00	V369137	212.00	4	22.00
M17.0 X 1.00	V369200	V379200		142.00	V369237	284.00	4	22.00
M18.0 X 2.50	V27106201	V27106213		142.00	V27106263	284.00	4	22.00
M18.0 X 1.50	V369300	V379300		142.00	V369337	284.00	4	22.00
M20.0 X 2.50	V369400	V379400		176.00	V369437	352.00	4	22.00
M20.0 X 1.50	V369500	V379500		176.00	V369537	352.00	4	22.00
M22.0 X 2.50	V27107001	V27107013		180.00	V27107063	360.00	5	28.00
M22.0 X 1.50	V27107201	V27107213		180.00	V27107263	360.00	5	28.00
M24.0 X 3.00	V27107401	V27107413		207.00	V27107463	414.00	5	28.00
M24.0 X 2.00	V27107501	V27107513		207.00	V27107563	414.00	5	28.00
M27.0 X 3.00	V27108201	V27108213		216.00	V27108263	432.00	5	28.00
M27.0 X 2.00	V27108301	V27108313		216.00	V27108363	432.00	5	28.00
M30.0 X 3.50	V27108901	V27108913		219.00	V27108963	438.00	6	34.00
M30.0 X 2.00	V27109101	V27109113		219.00	V27109163	438.00	6	34.00
M33.0 X 3.50	V27109601	V27109613		242.00	V27109663	484.00	6	34.00
M33.0 X 2.00	V27109801	V27109813		242.00	V27109863	484.00	6	34.00
M36.0 X 4.00	V27110101	V27110113		271.00	V27110163	542.00	6	34.00
M36.0 X 3.00	V27110201	V27110213		271.00	V27110263	542.00	6	34.00



- Standard in 6g Tolerance.
- Left hand available – price on application.
- Larger sizes available – price on application.



• Metric Thread Setting Plug

### HOW TO ORDER

1. Standard in 6g Tolerance.
2. Specify Quantity.
3. Handles are not included with single members. If handles are required for Go or Not Go members specify "with handles" at time of order.
4. Setting Plugs should be ordered at the same time as the corresponding ring gages.
5. Request Ring Gages be set with new Set Plug before shipping.
6. For class W tolerance add 33.3%.
7. Left hand available – price on application.
8. Specials available, price on application.
9. When ordering please use EDP numbers

### TRUNCATED SETTINGS PLUGS

List #19-00MS

Metric Size and Pitch	Go Member		Not Go Member		Double End w/Handle		Handle Only	
	EDP No.	EDP No.	EDP No.	EDP No.	EDP No.	Price	No.	Price
M 1.6 X 0.35	V23600901	V23600913	86.00	V23600963	180.00	000	8.00	
M1.8 X 0.35	V23601101	V23601113	86.00	V23601163	180.00	000	8.00	
M2.0 X 0.40	V23601301	V23601313	81.00	V23601363	170.00	000	8.00	
M2.2 X 0.45	V23601501	V23601513	81.00	V23601563	170.00	000	8.00	
M2.5 X 0.45	V387200	V397200	81.00	V387239	170.00	000	8.00	
M3.0 X 0.50	V387300	V397300	79.00	V387339	166.00	00	8.00	
M3.5 X 0.60	V387400	V397400	79.00	V387439	166.00	00	8.00	
M4.0 X 0.70	V387500	V397500	76.00	V387539	160.00	0	8.00	
M4.5 X 0.75	V23602501	V23602513	76.00	V23602563	160.00	0	8.00	
M5.0 X 0.80	V387600	V397600	76.00	V387639	160.00	0	8.00	
M6.0 X 1.00	V387700	V397700	68.00	V387739	144.00	1	8.00	
M7.0 X 1.00	V23603201	V23603213	68.00	V23603263	144.00	1	8.00	
M8.0 X 1.25	V387800	V397800	68.00	V387839	144.00	1	8.00	
M8.0 X 1.00	V387900	V397900	68.00	V387939	144.00	1	8.00	
M10.0 X 1.50	V388000	V398000	73.00	V388039	154.00	2	8.00	
M10.0 X 1.25	V388100	V398100	73.00	V388139	154.00	2	8.00	
M12.0 X 1.75	V388300	V398300	76.00	V388339	160.00	2	8.00	
M12.0 X 1.50	V388400	V398400	76.00	V388439	160.00	2	8.00	
M12.0 X 1.25	V388500	V398500	76.00	V388539	160.00	2	8.00	
M14.0 X 2.00	V388700	V398700	88.00	V388739	184.00	3	8.00	
M14.0 X 1.50	V388800	V398800	88.00	V388839	184.00	3	8.00	
M16.0 X 2.00	V389000	V399000	88.00	V389039	184.00	3	8.00	
M16.0 X 1.50	V389100	V399100	88.00	V389139	184.00	3	8.00	
M17.0 X 1.00	V389200	V399200	98.00	V389239	204.00	3	8.00	
M18.0 X 2.50	V23606201	V23606213	98.00	V23606263	204.00	3	8.00	
M18.0 X 1.50	V389300	V399300	98.00	V389339	204.00	3	8.00	
M20.0 X 2.50	V389400	V399400	98.00	V389439	204.00	3	8.00	
M20.0 X 1.50	V389500	V399500	98.00	V389539	204.00	3	8.00	
M22.0 X 2.50	V23607001	V23607013	137.00	V23607063	283.00	4	9.00	
M22.0 X 1.50	V23607201	V23607213	137.00	V23607263	283.00	4	9.00	
M24.0 X 3.00	V23607401	V23607413	139.00	V23607463	287.00	4	9.00	
M24.0 X 2.00	V23607501	V23607513	139.00	V23607563	287.00	4	9.00	
M27.0 X 3.00	V23608201	V23608213	148.00	V23608263	305.00	4	9.00	
M27.0 X 2.00	V23608301	V23608313	148.00	V23608363	305.00	4	9.00	
M30.0 X 3.50	V23608901	V23608913	152.00	V23608963	313.00	5	9.00	
M30.0 X 2.00	V23609101	V23609113	152.00	V23609163	313.00	5	9.00	
M33.0 X 3.50	V23609601	V23609613	158.00	V23609663	325.00	5	9.00	
M33.0 X 2.00	V23609801	V23609813	158.00	V23609863	325.00	5	9.00	
M36.0 X 4.00	V23610101	V23610113	172.00	V23610163	353.00	5	9.00	
M36.0 X 3.00	V23610201	V23610213	172.00	V23610263	353.00	5	9.00	

## TAPER PIPE GAGES — NPT

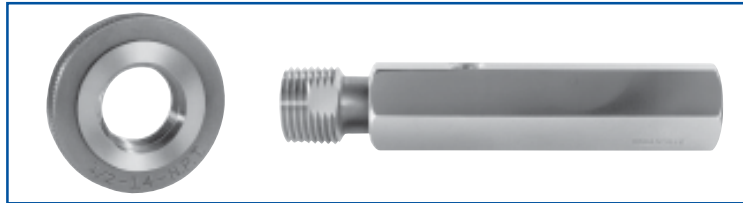
American National Taper Pipe Thread Gages (NPT) are furnished to thread specifications which are in agreement with the National Institute of Standards and Technology American Gage Design dimensions as shown below. Master and reference gages can be furnished on request.

### TAPER PIPE GAGES - NPT

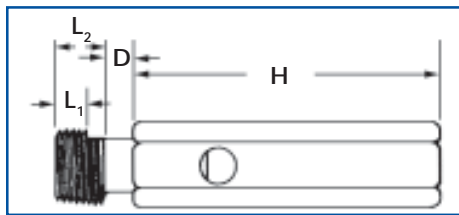
- (NPT) are furnished American National Pipe Thread NPT TAPER PIPE GAGES made to American Gage Dimensions (AGD).
- To thread specifications which are in agreement with National Institute of Standards.
- Larger sizes and ANPT available upon request.

### ADDITIONAL PIPE THREAD GAGES

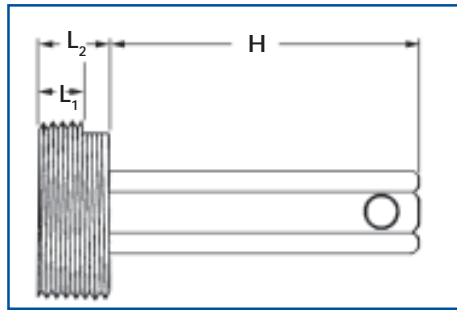
- Straight Pipe: NPSF, NPSL, NPSC, NPSM and other special pipe gages available upon request.



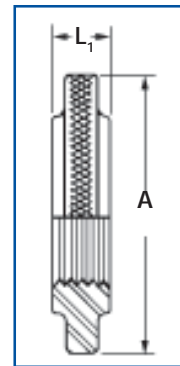
• Taper Pipe Gages  $L_1$  NPT



• Taper Lock Type



• Trilock Type



•  $L_1$  Ring

## TAPER PIPE GAGES - NPT

Nominal Size		Plug Dimensions			D Taper Lock	No.	Handle H		Ring Dimensions			
		Length	Minus Tolerance	Length $L_2$ Min.			Length	Length	Hex	Nominal Size	Thickness $L_1$ Thin	Thickness Plus Tolerance
1/16	27	.1600	.001	.261	1/4	1	2-3/4	3/8	1/16	.1600	.001	1-1/8
1/8	27	.1615	.001	.264	1/4	2	3	1/2	1/8	.1615	.001	1-1/8
1/4	18	.2278	.001	.402	1/4	3	3-1/4	11/16	1/4	.2278	.001	1-3/8
3/8	18	.2400	.001	.408	1/4	3	3-1/4	11/16	3/8	.2400	.001	1-1/2
1/2	14	.3200	.001	.534	5/16	4	3-5/8	7/8	1/2	.3200	.001	1-3/4
3/4	14	.3390	.001	.546	5/16	4	3-5/8	7/8	3/4	.3390	.001	2
1	11-1/2	.4000	.001	.683	3/8	5	4	1	1	.4000	.001	2-1/2
1-1/4	11-1/2	.4200	.001	.707	3/8	5	4	1	1-1/4	.4200	.001	3
1-1/2	11-1/2	.4200	.001	.723	3/8	5	4	1	1-1/2	.4200	.001	3-1/4
2	11-1/2	.4360	.001	.757	3/8	5	4	1	2	.4360	.001	3-3/4
2-1/2	8	.6820	.002	1.138	—	6	5	1-1/8	2-1/2	.6820	.002	4-1/4
3	8	.7660	.002	1.200	—	6	5	1-1/8	3	.7660	.002	5

## $L_1$ SINGLE END PLUG GAGES - NPT

List #19-00TP

## $L_1$ THIN RING GAGES - NPT List #19-00TP

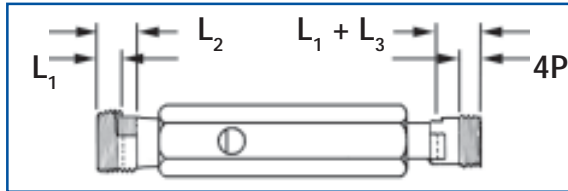
Nominal Size		$L_1$ Plug Gage		$L_1$ Plug Gage w/handle		Handle		Nominal Size		EDP No.	Price
		EDP No.	Price	EDP No.	Price	No.	Price				
1/16	27	V701140	61.00	V7011401	69.00	1	8.00	1/16	27	V701152	113.00
1/8	27	V701141	42.00	V7011411	50.00	2	8.00	1/8	27	V701153	79.00
1/4	18	V701142	48.00	V7011421	56.00	3	8.00	1/4	18	V701154	87.00
3/8	18	V701143	55.00	V7011431	63.00	3	8.00	3/8	18	V701155	100.00
1/2	14	V701144	62.00	V7011441	71.00	4	9.00	1/2	14	V701156	111.00
3/4	14	V701145	70.00	V7011451	79.00	4	9.00	3/4	14	V701157	127.00
1	11-1/2	V701146	79.00	V7011461	88.00	5	9.00	1	11-1/2	V701158	144.00
1-1/4	11-1/2	V701147	87.00	V7011471	96.00	5	9.00	1-1/4	11-1/2	V701159	157.00
1-1/2	11-1/2	V701148	99.00	V7011481	108.00	5	9.00	1-1/2	11-1/2	V701160	187.00
2	11-1/2	V701149	120.00	V7011491	129.00	5	9.00	2	11-1/2	V701161	224.00
2-1/2	8	V701150	144.00	V7011501	159.00	6	15.00	2-1/2	8	V701162	263.00
3	8	V701151	169.00	V7011511	184.00	6	15.00	3	8	V701163	327.00



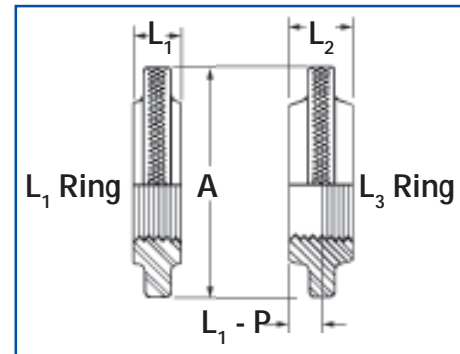
**NPTF (Dryseal) Taper Pipe Gages**

Dryseal pipe threads are generally used in more critical applications than NPT and therefore a greater variety of gages and/or measuring equipment is used to more adequately check size, taper and thread form.

- L1 and L3 Plugs supplied with 1 step as standard.
- L1 = Length of engagement in hand tight make up.
- L2 = Length of effective thread (external).
- L3 = Length of 3 threads beyond L1 for wrench make up.



• Plug Dimensions



• Ring Dimensions

**TAPER PIPE GAGES - NPTF**

Nominal Size	Length Member L <sub>1</sub> and L <sub>3</sub>					
	To Basic Notch	Tol. Minus	Full Length (Min) L <sub>2</sub>	L <sub>1</sub> + L <sub>2</sub>	Tol. Minus	Handle No.
1/16	.1600	.001	.26113	.2711	.001	1
1/8	.1615	.001	.26385	.2726	.001	2
1/4	.2278	.001	.40178	.3945	.001	3
3/8	.2400	.001	.40778	.4067	.001	3
1/2	.3200	.001	.53371	.5343	.001	4
3/4	.3390	.001	.54571	.5533	.001	4
1	.4000	.001	.68278	.6609	.001	5
1-1/4	.4200	.001	.70678	.6809	.001	5
1-1/2	.4200	.001	.72348	.6809	.001	5
2	.4360	.001	.75652	.6969	.001	5
2-1/2	.6820	.002	1.13750	1.0570	.002	6
3	.7660	.002	1.20000	1.1410	.002	6

Nominal Size	Thickness			
	A Outside Diameter	L <sub>1</sub> Thin	L <sub>2</sub> Thick	Tol. Plus
1/16	1-1/8	.1600	.26113	.001
1/8	1-1/8	.1615	.26385	.001
1/4	1-3/8	.2278	.40178	.001
3/8	1-1/2	.2400	.40778	.001
1/2	1-3/4	.3200	.53371	.001
3/4	2	.3390	.54571	.001
1	2-1/2	.4000	.68278	.001
1-1/4	3	.4200	.70678	.001
1-1/2	3-1/4	.4200	.72348	.001
2	3-3/4	.4360	.75652	.001
2-1/2	4-1/4	.6820	1.13750	.002
3	5	.7660	1.20000	.002

**TAPER PIPE GAGES - NPTF** List #19-00TPF

Nominal Size	L <sub>1</sub> Ring Gage member only		L <sub>2</sub> Ring Gage member only		NPTF 6 Step Plug Gage member only			NPTF 6 Step Ring Gage			
	EDP No.	Price	EDP No.	Price	EDP No.	Price	EDP No.	Price	EDP No.	Price	
1/16	27	V701185	119.00	V701192	167.00	V701178	121.00	V7011781	129.00	V701199	199.00
1/8	27	V701186	83.00	V701193	161.00	V701179	121.00	V7011791	129.00	V701200	199.00
1/4	18	V701187	99.00	V701194	167.00	V701180	121.00	V7011801	129.00	V701201	199.00
3/8	18	V701188	105.00	V701195	176.00	V701181	121.00	V7011811	129.00	V701202	199.00
1/2	14	V701189	117.00	V701196	183.00	V701182	121.00	V7011821	129.00	V701203	199.00
3/4	14	V701190	133.00	V701197	201.00	V701183	128.00	V7011831	136.00	V701204	223.00
1	11-1/2	V701191	151.00	V701198	219.00	V701184	139.00	V7011841	148.00	V701205	223.00
1-1/4	11-1/2	V31600801	164.00	V31600804	240.00	V31100807	156.00	V31100857	165.00	V31600807	226.00
1-1/2	11-1/2	V31600901	196.00	V31600904	263.00	V31100907	172.00	V31100957	181.00	V31600907	259.00
2	11-1/2	V31601001	234.00	V31601004	307.00	V31101007	240.00	V31101057	249.00	V31601007	315.00
2-1/2	8	V31601101	275.00	V31601104	369.00	V31101107	362.00	V31101157	374.00	V31601107	377.00
3	8	V31601201	343.00	V31601204	433.00	V31101207	395.00	V31101257	407.00	V31601207	453.00

Nominal Size	L <sub>1</sub> Plug Gage				L <sub>3</sub> Plug Gage				L <sub>1</sub> & L <sub>3</sub>		
	member only		with handle		member only		with handle		Double End w/handle		
	EDP No.	Price	EDP No.	Price	EDP No.	Price	EDP No.	Price	EDP No.	Price	
1/16	27	V701164	81.00	V7011641	89.00	V701171	81.00	V7011711	89.00	V37401	170.00
1/8	27	V701165	57.00	V7011651	65.00	V701172	57.00	V7011721	65.00	V37403	122.00
1/4	18	V701166	68.00	V7011661	76.00	V701173	68.00	V7011731	76.00	V37405	144.00
3/8	18	V701167	81.00	V7011671	89.00	V701174	81.00	V7011741	89.00	V37407	170.00
1/2	14	V701168	92.00	V7011681	100.00	V701175	92.00	V7011751	100.00	V37409	192.00
3/4	14	V701169	102.00	V7011691	110.00	V701176	102.00	V7011761	110.00	V37411	212.00
1	11-1/2	V701170	112.00	V7011701	121.00	V701177	112.00	V7011771	121.00	V37413	233.00
1-1/4	11-1/2	V31100801	127.00	V31100851	136.00	V31100804	127.00	V31100854	136.00	V31100863	263.00
1-1/2	11-1/2	V31100901	144.00	V31100951	153.00	V31100904	144.00	V31100954	153.00	V31100963	297.00
2	11-1/2	V31101001	172.00	V31101051	181.00	V31101004	172.00	V31101054	181.00	V31101063	353.00
2-1/2	8	V31101101	228.00	V31101151	240.00	V31101104	228.00	V31101154	240.00	V31101163	468.00
3	8	V31101201	275.00	V31101251	287.00	V31101204	275.00	V31101254	287.00	V31101263	562.00



## FLEXIBLE HOLE LOCATION GAGES



The Van Keuren flexible hole locations gage is slotted at 90° increments to insure positive location on the threads flank regardless of hole size. Other commonly used location plugs must be inserted so that the shoulder is flush with a locating face, resulting in squareness deviation transferred to centerline measurement.

- For inspection of the location of a threaded hole in a part.
- Due to slotted 90 degree design hole location gage locates positively on flank of parts threaded hole.
- Sizes #10 and smaller or M5 and smaller are of solid construction, with front taper to cover the entire product tolerance.
- For use in determining centerline to centerline distances of threaded holes.

• Flexible Hole Location Gage

### FLEXIBLE HOLE LOCATION GAGES

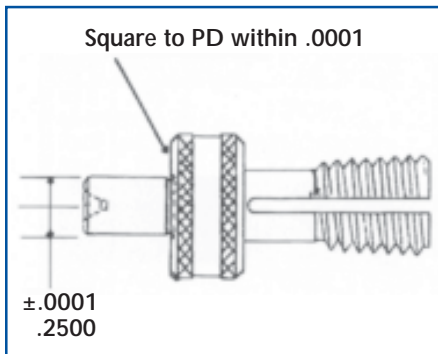
List #19-00HL

#### Metric Measurements

Size	EDP No.	Price
M4 X 0.7	V487500	88.00
M5 X 0.8	V487600	84.00
M6 X 1	V487700	75.00
M8 X 1.25	V487800	75.00
M10 X 1.5	V488000	77.00
M12 X 1.75	V488300	80.00
M12 X 1.25	V488500	84.00

#### Unified / Inch Measurements

Size	Threads Per Inch	EDP	Price
0	80 UNF	V480100	83.00
1	64 UNC	V480200	79.00
1	72 UNF	V480300	79.00
2	56 UNC	V480400	77.00
2	64 UNF	V480500	77.00
3	48 UNC	V480600	74.00
3	56 UNF	V480700	74.00
4	40 UNC	V480900	69.00
4	48 UNF	V481000	69.00
5	40 UNC	V481100	75.00
5	44 UNF	V481200	75.00
6	32 UNC	V481300	76.00
6	40 UNF	V481400	76.00
8	32 UNC	V481500	72.00
8	36 UNF	V481600	72.00
10	24 UNC	V481700	70.00
10	32 UNF	V481800	70.00
12	24 UNC	V481900	69.00
12	28 UNF	V482000	69.00
1/4	20 UNC	V482200	62.00
1/4	28 UNF	V482300	62.00
5/16	18 UNC	V482500	62.00
5/16	24 UNF	V482600	62.00
3/8	16 UNC	V482800	66.00
3/8	24 UNF	V482900	66.00
7/16	14 UNC	V483100	65.00
7/16	20 UNF	V483200	65.00
1/2	13 UNC	V483400	68.00
1/2	20 UNF	V483500	68.00
9/16	12 UNC	V483700	67.00
9/16	18 UNF	V483800	67.00
5/8	11 UNC	V484000	69.00
5/8	18 UNF	V484100	69.00
3/4	10 UNC	V484400	73.00
3/4	16 UNF	V484500	73.00
7/8	9 UNC	V484800	86.00
7/8	14 UNF	V484900	86.00
1	8 UNC	V485200	121.00
1	12 UNF	V485300	121.00



- Adjustable limit Snap Gages.
- Ideal for gaging flat surfaces or parts still on machine centers.
- Go, Not Go type comparative gages.
- Gaging surfaces are ground and lapped.
- Marking discs supplied on all gages.
- Snap Gage holder available upon request.

**PLAIN SNAP GAGES - MODEL SC**

List #19-41

Frame No.	Capacity		EDP No.	Unset Price	Sealed Price
	Inches	mm			
1	0 - 1/4	0 - 6.4	V701092	86.00	101.00
2	1/4 - 1/2	6.4 - 12.7	V701093	88.00	103.00
2A	1/2 - 3/4	12.7 - 19.1	V701094	88.00	103.00
3	3/4 - 1	19.1 - 25.4	V701095	93.00	108.00
3A	1 - 1-1/4	25.4 - 31.8	V701096	93.00	108.00
4	1-1/4 - 1-1/2	31.8 - 38.1	V701097	96.00	111.00
4A	1-1/2 - 1-3/4	38.1 - 44.5	V701098	96.00	111.00
5	1-3/4 - 2	44.5 - 50.8	V701099	97.00	112.00
5A	2 - 2-1/4	50.8 - 57.2	V701100	97.00	112.00
6	2-1/4 - 2-1/2	57.2 - 63.5	V701101	107.00	122.00
6A	2-1/2 - 2-3/4	63.5 - 69.9	V701102	107.00	122.00
7	2-3/4 - 3-1/16	69.9 - 77.8	V701103	113.00	128.00
7A	3-1/16 - 3-7/16	77.8 - 87.3	V701104	113.00	128.00
8	3-7/16 - 3-13/16	87.3 - 96.8	V701105	124.00	139.00
8A	3-13/16 - 4-3/16	96.8 - 106.4	V701106	124.00	139.00
9	4-3/16 - 4-9/16	106.4 - 115.9	V701107	144.00	159.00
9A	4-9/16 - 4-15/16	115.9 - 125.4	V701108	144.00	159.00
10	4-15/16 - 5-5/16	125.4 - 134.9	V701109	170.00	185.00
10A	5-5/16 - 5-11/16	134.9 - 144.5	V701110	170.00	185.00
11	5-11/16 - 6-1/8	144.5 - 155.6	V701111	225.00	240.00
11A	6-1/8 - 6-5/8	155.6 - 168.3	V701112	225.00	240.00
12	6-5/8 - 7-1/8	168.3 - 181.0	V701113	256.00	271.00
12A	7-1/8 - 7-5/8	181.0 - 193.7	V701114	256.00	271.00
13	7-5/8 - 8-1/8	193.7 - 206.4	V701115	282.00	297.00
13A	8-1/8 - 8-5/8	206.4 - 219.1	V701116	282.00	297.00
14	8-5/8 - 9-1/8	219.1 - 231.8	V701117	302.00	317.00
14A	9-1/8 - 9-5/8	231.8 - 244.5	V701118	302.00	317.00
15	9-5/8 - 10-1/8	244.5 - 257.2	V701119	335.00	350.00
15A	10-1/8 - 10-5/8	257.2 - 269.9	V701120	335.00	350.00
16	10-5/8 - 11-1/8	269.9 - 282.6	V701121	359.00	374.00
16A	11-1/8 - 11-5/8	282.6 - 295.3	V701122	359.00	374.00



• Model SC Snap Gage

**PLAIN SNAP GAGES - MODEL SMC**

List #19-41

Frame No.	Capacity		EDP No.	Unset Price	Sealed Price
	Inches	mm			
00	.00 - .195	0 - 5.0	V701136	101.00	116.00
00A	.195 - .385	5.0 - 9.8	V701137	101.00	116.00
0	.385 - .570	9.8 - 14.5	V701138	101.00	116.00
0A	.570 - .760	14.5 - 19.3	V701139	101.00	116.00



• Model SMC Snap Gage

## OUTSIDE MICROMETER MASTERS

- How do you know if your micrometers are in calibration?
- What is the traceability of the piece of size your micrometers were set to?
- Guarantee the accuracy of your hard to control precision hand tools and reduce gaging errors and scrap costs.
- Micrometer Masters, range of sizes on each master permits checking of micrometers from 1" to 12" depending on the Master Gage used.
- Gages are hardened, stabilized, ground and lapped for long wear life and gaging accuracy.
- Gage steps will explore out of parallel anvils on micrometers.
- Convenient for tool crib surveillance of micrometers.
- Micrometer Masters can be calibrated traceable to NIST (optional).

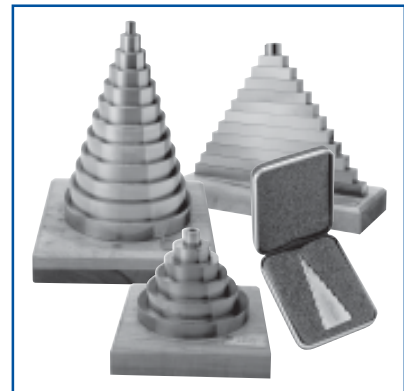
***No tool crib or QC lab should be without Van Keuren masters!***

### SURVEILLANCE MASTERS

List #16-70

Range	EDP No.	Price	for Long Form Certification
0" - 1"	V701266	180.00	65.00
0mm - 25mm	V701266M	180.00	65.00
0" - 3"	V701271	561.00	115.00
0mm - 75mm	V701271M	561.00	115.00
1" - 6"	V701283	386.00	70.00
25mm - 150mm	V701283M	386.00	70.00
1/2" - 6"	V701295	695.00	130.00
12.5mm - 150mm	V701295M	695.00	130.00
1" - 12"	V701324	1241.00	175.00
25mm - 300mm	V701324M	1241.00	175.00

Certifiable to the National Institute of Standards and Technology (optional)  
Accurate to  $\pm .0001"$ .



• Surveillance Masters

### VERNIER CALIPER MASTERS

- Accurately checks outside jaws, inside jaws and parallax of jaws.
- Gages are hardened, stabilized, ground and lapped for long wear life and gaging accuracy.
- Ideal for detecting worn spots in Vernier Caliper Blades.
- Gage has 24 settings for checking over a 12" range.

### VERNIER CALIPER MASTERS

List #16-75

Outside Jaws Range	Inside Jaws Range	EDP No.	Price	for Long Form Certification
1" - 6"	1" - 6"	V701277	386.00	80.00
25mm - 150mm	25mm - 150mm	V701277M	386.00	80.00
1" - 12"	1" - 12"	V701280	1,056.00	170.00
25mm - 300mm	25mm - 300mm	V701280M	1,056.00	170.00

Accurately checks outside jaws, inside jaws, and parallax of jaws.  
Accuracy: 1 - 6"  $\pm .0001"$ , 7 - 12"  $\pm .0002"$



• Vernier Caliper Masters

### DEPTH MICROMETER MASTERS

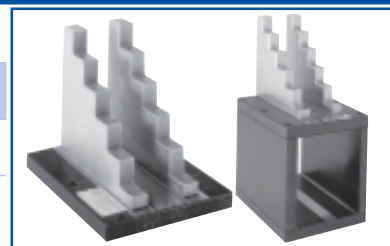
- Accurate to  $\pm .0001"$  up to 5 1/2" and  $\pm .0003"$  up to 11-1/2".
- Gages are hardened, stabilized, ground and lapped for long wear life and gaging accuracy.
- Convenient tool crib surveillance for depth micrometers.
- Optional Master available for checking depth gages longer than the conventional 6" size.

### DEPTH MICROMETER MASTERS

List #16-80

Range	Step Size	EDP No.	Price	for Long Form Certification Add
1/2" - 5 1/2"	1"	V701346	767.00	70.00
12.5mm - 137.5mm	25mm	V701346M	767.00	70.00
1/2" - 11 1/2"	1"	V701350	1,962.00	170.00
12.5mm - 287.5mm	25mm	V701350M	1,962.00	170.00

Accurate to  $\pm .0001"$  up to 5 1/2" and  $\pm .0003"$  up to 11-1/2".



• Depth Micrometer Masters

**Certificate of Conformance** (compliance) This certificate states that a specific gage or set of gages has been inspected by comparison with Master Gages traceable to the National Institute of Standards & Technology and found to be within the required tolerance. This certificate does not give exact size. Certificates of Conformance are available on new gages only. Certificate of Conformance certifies that a gage as listed is within proper tolerances and proper physical condition.

**Calibrations Traceable to NIST**

**Certificate of Calibration** (long form certificate) gives exact size to specified tolerance. Certificates of Calibration are available with new or used gages after inspection. Calibration Certificates show actual gage measurements. Each certificate is numbered to match a number we etch on the gage providing traceability between the gage and the Cert. where gage size permits.

**Thread Rings**, send your set plugs or check with factory to see if set plugs are available. On non-standard ring sizes where the set plug is not in our stock or is not furnished a special tooling charge will apply and cost will be quoted prior to processing.

**CYLINDRICAL RING AND PLUG GAGE REPAIR PROGRAM**

1. Cylindrical gages found to be within salvage limits can be reworked & re-certified.
2. All salvage gages carry a new gage guarantee.
3. Gages to be reworked will be at a charge of 85% of a new single unit gage.
4. Gages for rework & salvage should be returned to the VK Tennessee Factory. Contact Customer Service for return authorization and shipping address.

**SALVAGE OF STANDARD A.G.D. CYLINDRICAL RING AND PLUG GAGES**

Cylindrical gages found to be within salvage limits by our Gage Inspection Department can be reworked by chrome plating. The gages should be forwarded to the factory with a purchase order with the instructions to "rework and/or replace". Van Keuren will inspect the gages and at the factory's option repair or replace. Any used gages replaced under this program become property of Van Keuren. All salvaged gages carry a new gage guarantee. In the event the gages are not worn enough for repair, they will be calibrated and returned with a certificate of calibration.

Charges for this calibration only are shown above under customers gages sent in to be certified. Gages that have to be reworked will be at a charge of 85% of a new gage price.

**SHIPPING ADDRESS FOR INSPECTION AND SALVAGE OF STANDARD A.G.D. CYLINDRICAL RING AND PLUG GAGES:**

Salvage & Rework of Cylindrical Ring Gages:

Van Keuren  
Attn: Gage Recalibration Manager  
130 SCT Drive  
White House, TN 37188

Inspection & Calibration for all gages:

Van Keuren  
Attn: Gage Inspection  
825 Chase Avenue  
Elk Grove Village, IL 60007

**THREAD WIRE & GEAR WIRE PRODUCTS**

	In Service	New
Thread Measuring Wires (set 3)	13.00	13.00
Special TPI	13.00	13.00
Master Thread Wires (1 Master Wire per pitch)	13.00	13.00
Gear Measuring Wires (set 2)	13.00	13.00
Special Pitch, Gears Wires	13.00	13.00

**OPTICAL FLATS**

Price on Application

**THREADED PRODUCTS**

	In Service	New
Thread Plugs up to 1-1/2"	19.00	11.00
Thread Plugs over 1-1/2 to 4"	22.00	16.00
Thread Plugs over 4"	30.00	24.00
Thread Rings up to 1-1/2"	22.00	11.00
Thread Rings over 1-1/2 to 4"	27.00	16.00
Thread Rings over 4"	40.00	34.00

**PLAIN WIRE TYPE PLUGS, DISKS & RINGS**

	In Service	New
Cylindrical Plugs & Disks		
.001 to .010"	24.00	18.00
.010 to 5.511"	16.00	11.00
5.511 to 11"	30.00	24.00
Cylindrical Rings		
.090 to 2"	21.00	11.00
2 to 5-1/2"	30.00	16.00
5-1/2 to 11"	36.00	24.00

Class XXX or 6th place, add 50%. Under .010", add 100%.  
For both metric and inch readings, add 50%.  
Gages over 11" diameter – consult factory for pricing.

**PIPE PRODUCTS LONG FORM CERTIFICATE**

	In Service	New
Pipe Plugs to 2"	30.00	30.00
Pipe Plugs over 2"	35.00	35.00
Pipe Rings to 2"	30.00	30.00
Pipe Rings over 2"	35.00	35.00



## NUMERICAL EDP LISTING

EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page
V100100	37.00	35	V104100	31.00	35	V114400	40.00	35	V152300	20.00	29
V100111	83.00	35	V104111	75.00	35	V114500	40.00	35	V152316	48.00	29
V100200	37.00	35	V104200	47.00	35	V114600	62.00	35	V152317	48.00	29
V100211	83.00	35	V104211	107.00	35	V114800	57.00	32	V152400	39.00	29
V100300	37.00	35	V104300	48.00	35	V114900	57.00	32	V152416	86.00	29
V100311	83.00	35	V104311	112.00	35	V115200	63.00	32	V152417	86.00	29
V100400	37.00	35	V104400	40.00	35	V115300	63.00	32	V152500	20.00	29
V100411	83.00	35	V104411	96.00	35	V115700	76.00	32	V152516	48.00	29
V100500	37.00	35	V104500	40.00	35	V115800	76.00	32	V152517	48.00	29
V100511	83.00	35	V104511	96.00	35	V116100	85.00	32	V152600	20.00	29
V100600	35.00	35	V104600	62.00	35	V116200	85.00	32	V152616	48.00	29
V100611	79.00	35	V104611	140.00	35	V116500	100.00	32	V152617	48.00	29
V100700	35.00	35	V104800	57.00	32	V116600	100.00	32	V152700	39.00	29
V100711	79.00	35	V104811	125.00	32	V116900	116.00	32	V152716	86.00	29
V100900	35.00	35	V104900	57.00	32	V117000	116.00	32	V152717	86.00	29
V100911	79.00	35	V104911	125.00	32	V150100	30.00	29	V152800	21.00	29
V101000	35.00	35	V105200	63.00	32	V150116	68.00	29	V152816	50.00	29
V101011	79.00	35	V105211	137.00	32	V150117	68.00	29	V152817	50.00	29
V101100	31.00	35	V105300	63.00	32	V150200	30.00	29	V152900	21.00	29
V101111	71.00	35	V105311	137.00	32	V150216	68.00	29	V152916	50.00	29
V101200	31.00	35	V105700	76.00	32	V150217	68.00	29	V152917	50.00	29
V101211	71.00	35	V105711	163.00	32	V150300	30.00	29	V153000	45.00	29
V101300	31.00	35	V105800	76.00	32	V150316	68.00	29	V153016	98.00	29
V101311	71.00	35	V105811	163.00	32	V150317	68.00	29	V153017	98.00	29
V101400	31.00	35	V106100	85.00	32	V150400	30.00	29	V153100	21.00	29
V101411	71.00	35	V106111	182.00	32	V150416	68.00	29	V153116	50.00	29
V101500	31.00	35	V106200	85.00	32	V150417	68.00	29	V153117	50.00	29
V101511	71.00	35	V106211	182.00	32	V150500	30.00	29	V153200	21.00	29
V101600	31.00	35	V106500	100.00	32	V150516	68.00	29	V153216	50.00	29
V101611	71.00	35	V106511	212.00	32	V150517	68.00	29	V153217	50.00	29
V101700	31.00	35	V106600	100.00	32	V150600	27.00	29	V153300	45.00	29
V101711	72.00	35	V106611	212.00	32	V150616	62.00	29	V153316	98.00	29
V101800	31.00	35	V106900	116.00	32	V150617	62.00	29	V153317	98.00	29
V101811	72.00	35	V106911	244.00	32	V150700	27.00	29	V153400	23.00	29
V101900	31.00	35	V107000	116.00	32	V150716	62.00	29	V153416	54.00	29
V101911	72.00	35	V107011	244.00	32	V150717	62.00	29	V153417	54.00	29
V102000	31.00	35	V110100	37.00	35	V150900	27.00	29	V153500	23.00	30
V102011	72.00	35	V110200	37.00	35	V150916	62.00	29	V153516	54.00	30
V102100	46.00	35	V110300	37.00	35	V150917	62.00	29	V153517	54.00	30
V102111	102.00	35	V110400	37.00	35	V151000	27.00	29	V153600	46.00	30
V102200	28.00	35	V110500	37.00	35	V151016	62.00	29	V153616	100.00	30
V102211	66.00	35	V110600	35.00	35	V151017	62.00	29	V153617	100.00	30
V102300	28.00	35	V110700	35.00	35	V151100	23.00	29	V153700	30.00	30
V102311	66.00	35	V110900	35.00	35	V151116	54.00	29	V153716	68.00	30
V102400	42.00	35	V111000	35.00	35	V151117	54.00	29	V153717	68.00	30
V102411	94.00	35	V111100	31.00	35	V151200	23.00	29	V153800	30.00	30
V102500	28.00	35	V111200	31.00	35	V151216	54.00	29	V153816	68.00	30
V102511	67.00	35	V111300	31.00	35	V151217	54.00	29	V153817	68.00	30
V102600	28.00	35	V111400	31.00	35	V151300	23.00	29	V153900	52.00	30
V102611	67.00	35	V111500	31.00	35	V151316	54.00	29	V153916	112.00	30
V102700	42.00	35	V111600	31.00	35	V151317	54.00	29	V153917	112.00	30
V102711	95.00	35	V111700	31.00	35	V151400	23.00	29	V154000	30.00	30
V102800	31.00	35	V111800	31.00	35	V151416	54.00	29	V154016	68.00	30
V102811	73.00	35	V111900	31.00	35	V151417	54.00	29	V154017	68.00	30
V102900	31.00	35	V112000	31.00	35	V151500	23.00	29	V154100	30.00	30
V102911	73.00	35	V112100	46.00	35	V151516	54.00	29	V154116	68.00	30
V103000	46.00	35	V112200	28.00	35	V151517	54.00	29	V154117	68.00	30
V103011	103.00	35	V112300	28.00	35	V151600	23.00	29	V154200	52.00	30
V103100	31.00	35	V112400	42.00	35	V151616	54.00	29	V154216	112.00	30
V103111	74.00	35	V112500	28.00	35	V151617	54.00	29	V154217	112.00	30
V103200	31.00	35	V112600	28.00	35	V151700	23.00	29	V154300	52.00	30
V103211	74.00	35	V112700	42.00	35	V151716	54.00	29	V154316	112.00	30
V103300	46.00	35	V112800	31.00	35	V151717	54.00	29	V154317	112.00	30
V103311	104.00	35	V112900	31.00	35	V151800	23.00	29	V154400	33.00	30
V103400	31.00	35	V113000	46.00	35	V151816	54.00	29	V154416	74.00	30
V103411	74.00	35	V113100	31.00	35	V151817	54.00	29	V154417	74.00	30
V103500	31.00	35	V113200	31.00	35	V151900	23.00	29	V154500	33.00	30
V103511	74.00	35	V113300	46.00	35	V151916	54.00	29	V154516	74.00	30
V103600	46.00	35	V113400	31.00	35	V151917	54.00	29	V154517	74.00	30
V103611	104.00	35	V113500	31.00	35	V152000	23.00	29	V154600	53.00	30
V103700	31.00	35	V113600	46.00	35	V152016	54.00	29	V154616	114.00	30
V103711	75.00	35	V113700	31.00	35	V152017	54.00	29	V154617	114.00	30
V103800	31.00	35	V113800	31.00	35	V152100	31.00	29	V154700	60.00	30
V103811	75.00	35	V113900	46.00	35	V152116	70.00	29	V154716	128.00	30
V103900	46.00	35	V114000	31.00	35	V152117	70.00	29	V154717	128.00	30
V103911	105.00	35	V114100	31.00	35	V152200	20.00	29	V154800	35.00	30
V104000	31.00	35	V114200	47.00	35	V152216	48.00	29	V154816	79.00	30
V104011	75.00	35	V114300	48.00	35	V152217	48.00	29	V154817	79.00	30



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EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page
V154900	35.00	30	V161100	23.00	29	V171900	23.00	29	V20107013	41.00	36
V154916	79.00	30	V161200	23.00	29	V172000	23.00	29	V20107063	103.00	36
V154917	79.00	30	V161300	23.00	29	V172100	31.00	29	V20107201	41.00	36
V155000	60.00	30	V161400	23.00	29	V172200	20.00	29	V20107213	41.00	36
V155016	129.00	30	V161500	23.00	29	V172300	20.00	29	V20107263	81.00	36
V155017	129.00	30	V161600	23.00	29	V172400	39.00	29	V20107401	47.00	36
V155100	61.00	30	V161700	23.00	29	V172500	20.00	29	V20107413	47.00	36
V155116	131.00	30	V161800	23.00	29	V172600	20.00	29	V20107463	103.00	36
V155117	131.00	30	V161900	23.00	29	V172700	39.00	29	V20107501	47.00	36
V155200	42.00	30	V162000	23.00	29	V172800	21.00	29	V20107513	47.00	36
V155216	93.00	30	V162100	31.00	29	V172900	21.00	29	V20107563	103.00	36
V155217	93.00	30	V162200	20.00	29	V173000	45.00	29	V20108201	64.00	36
V155300	42.00	30	V162300	20.00	29	V173100	21.00	29	V20108213	64.00	36
V155316	93.00	30	V162400	39.00	29	V173200	21.00	29	V20108263	137.00	36
V155317	93.00	30	V162500	20.00	29	V173300	45.00	29	V20108301	64.00	36
V155400	42.00	30	V162600	20.00	29	V173400	23.00	29	V20108313	64.00	36
V155416	93.00	30	V162700	39.00	29	V173500	23.00	30	V20108363	137.00	36
V155417	93.00	30	V162800	21.00	29	V173600	46.00	30	V20108901	77.00	36
V155500	69.00	30	V162900	21.00	29	V173700	30.00	30	V20108913	77.00	36
V155516	147.00	30	V163000	45.00	29	V173800	30.00	30	V20108963	163.00	36
V155517	147.00	30	V163100	21.00	29	V173900	52.00	30	V20109101	77.00	36
V155600	71.00	30	V163200	21.00	29	V174000	30.00	30	V20109113	77.00	36
V155616	151.00	30	V163300	45.00	29	V174100	30.00	30	V20109163	163.00	36
V155617	151.00	30	V163400	23.00	29	V174200	52.00	30	V20109601	77.00	36
V155700	53.00	30	V163500	23.00	30	V174300	52.00	30	V20109613	77.00	36
V155716	115.00	30	V163600	46.00	30	V174400	33.00	30	V20109663	163.00	36
V155717	115.00	30	V163700	30.00	30	V174500	33.00	30	V20109801	77.00	36
V155800	53.00	30	V163800	30.00	30	V174600	53.00	30	V20109813	77.00	36
V155816	115.00	30	V163900	52.00	30	V174700	60.00	30	V20109863	163.00	36
V155817	115.00	30	V164000	30.00	30	V174800	35.00	30	V20110101	89.00	36
V155900	70.00	30	V164100	30.00	30	V174900	35.00	30	V20110113	89.00	36
V155916	149.00	30	V164200	52.00	30	V175000	60.00	30	V20110163	187.00	36
V155917	149.00	30	V164300	52.00	30	V175100	61.00	30	V20110201	89.00	36
V156000	75.00	30	V164400	33.00	30	V175200	42.00	30	V20110213	89.00	36
V156016	159.00	30	V164500	33.00	30	V175300	42.00	30	V20110263	187.00	36
V156017	159.00	30	V164600	53.00	30	V175400	42.00	30	V207200	46.00	37
V156100	55.00	30	V164700	60.00	30	V175500	69.00	30	V207221	101.00	37
V156116	119.00	30	V164800	35.00	30	V175600	71.00	30	V207300	43.00	37
V156117	119.00	30	V164900	35.00	30	V175700	53.00	30	V207321	95.00	37
V156200	55.00	30	V165000	60.00	30	V175800	53.00	30	V207400	36.00	37
V156216	119.00	30	V165100	61.00	30	V175900	70.00	30	V207421	81.00	37
V156217	119.00	30	V165200	42.00	30	V176000	75.00	30	V207500	36.00	37
V156300	72.00	30	V165300	42.00	30	V176100	55.00	30	V207521	81.00	37
V156316	153.00	30	V165400	42.00	30	V176200	55.00	30	V207600	36.00	37
V156317	153.00	30	V165500	69.00	30	V176300	72.00	30	V207621	82.00	37
V156400	82.00	30	V165600	71.00	30	V176400	82.00	30	V207700	30.00	37
V156416	173.00	30	V165700	53.00	30	V176500	62.00	30	V207721	70.00	37
V156417	173.00	30	V165800	53.00	30	V176600	62.00	30	V207800	30.00	37
V156500	62.00	30	V165900	70.00	30	V176700	86.00	30	V207821	71.00	37
V156516	133.00	30	V166000	75.00	30	V176800	89.00	30	V207900	30.00	37
V156517	133.00	30	V166100	55.00	30	V176900	70.00	30	V207921	71.00	37
V156600	62.00	30	V166200	55.00	30	V177000	70.00	30	V208000	34.00	37
V156616	133.00	30	V166300	72.00	30	V177100	92.00	30	V208021	79.00	37
V156617	133.00	30	V166400	82.00	30	V20100901	37.00	36	V208100	34.00	37
V156700	86.00	30	V166500	62.00	30	V20100913	37.00	36	V208121	79.00	37
V156716	181.00	30	V166600	62.00	30	V20100963	82.00	36	V208300	34.00	37
V156717	181.00	30	V166700	86.00	30	V20101101	37.00	36	V208321	80.00	37
V156800	89.00	30	V166800	89.00	30	V20101113	37.00	36	V208500	34.00	37
V156816	187.00	30	V166900	70.00	30	V20101163	82.00	36	V208521	80.00	37
V156817	187.00	30	V167000	70.00	30	V20101301	37.00	36	V208700	40.00	37
V156900	70.00	30	V167100	92.00	30	V20101313	37.00	36	V208721	93.00	37
V156916	149.00	30	V170100	30.00	29	V20101363	82.00	36	V208800	40.00	37
V156917	149.00	30	V170200	30.00	29	V20101501	37.00	36	V208821	93.00	37
V157000	70.00	30	V170300	30.00	29	V20101513	37.00	36	V209000	40.00	37
V157016	149.00	30	V170400	30.00	29	V20101563	82.00	36	V209021	93.00	37
V157017	149.00	30	V170500	30.00	29	V20102501	31.00	36	V209100	40.00	37
V157100	92.00	30	V170600	27.00	29	V20102513	31.00	36	V209121	93.00	37
V157116	193.00	30	V170700	27.00	29	V20102563	70.00	36	V209300	46.00	37
V157117	193.00	30	V170900	27.00	29	V20103201	26.00	36	V209321	108.00	37
V160100	30.00	29	V171000	27.00	29	V20103213	26.00	36	V217200	46.00	37
V160200	30.00	29	V171100	23.00	29	V20103263	60.00	36	V217300	43.00	37
V160300	30.00	29	V171200	23.00	29	V20103501	24.00	36	V217400	36.00	37
V160400	30.00	29	V171300	23.00	29	V20103513	24.00	36	V217500	36.00	37
V160500	30.00	29	V171400	23.00	29	V20103563	56.00	36	V217600	36.00	37
V160600	27.00	29	V171500	23.00	29	V20106201	36.00	36	V217700	30.00	37
V160700	27.00	29	V171600	23.00	29	V20106213	36.00	36	V217800	30.00	37
V160900	27.00	29	V171700	23.00	29	V20106263	80.00	36	V217900	30.00	37
V161000	27.00	29	V171800	23.00	29	V20107001	41.00	36	V218000	34.00	37



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EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page	EDP No.	Price	Page
V218100	34.00	37	V23607501	139.00	45	V243300	92.00	39	V254200	108.00	40
V218300	34.00	37	V23607513	139.00	45	V243400	79.00	39	V254300	109.00	40
V218500	34.00	37	V23607563	287.00	45	V243500	79.00	39	V254400	116.00	40
V218700	40.00	37	V23608201	148.00	45	V243600	101.00	39	V254500	116.00	40
V218800	40.00	37	V23608213	148.00	45	V243700	89.00	39	V254600	131.00	40
V219000	40.00	37	V23608263	305.00	45	V243800	89.00	39	V254700	133.00	40
V219100	40.00	37	V23608301	148.00	45	V243900	107.00	39	V254800	130.00	40
V219300	46.00	37	V23608313	148.00	45	V244000	89.00	40	V254900	130.00	40
V227200	34.00	36	V23608363	305.00	45	V244100	89.00	40	V255000	140.00	40
V227223	76.00	36	V23608901	152.00	45	V244200	108.00	40	V255100	144.00	40
V227300	34.00	36	V23608913	152.00	45	V244400	116.00	40	V255200	155.00	40
V227323	76.00	36	V23608963	313.00	45	V244500	116.00	40	V255300	155.00	40
V227400	30.00	36	V23609101	152.00	45	V244600	131.00	40	V255400	155.00	40
V227423	68.00	36	V23609113	152.00	45	V244700	133.00	40	V255500	164.00	40
V227500	30.00	36	V23609163	313.00	45	V244800	130.00	40	V255600	169.00	40
V227523	68.00	36	V23609601	158.00	45	V244900	130.00	40	V255700	169.00	40
V227600	30.00	36	V23609613	158.00	45	V245000	140.00	40	V255800	169.00	40
V227623	68.00	36	V23609663	325.00	45	V245100	144.00	40	V255900	180.00	40
V227700	25.00	36	V23609801	158.00	45	V245200	155.00	40	V256000	186.00	40
V227723	58.00	36	V23609813	158.00	45	V245300	155.00	40	V256100	187.00	40
V227800	24.00	36	V23609863	325.00	45	V245400	155.00	40	V256200	187.00	40
V227823	56.00	36	V23610101	172.00	45	V245500	164.00	40	V256300	195.00	40
V228000	26.00	36	V23610113	172.00	45	V245600	169.00	40	V256400	201.00	40
V228023	60.00	36	V23610163	353.00	45	V245700	169.00	40	V256500	207.00	40
V228100	26.00	36	V23610201	172.00	45	V245800	169.00	40	V256600	207.00	40
V228123	60.00	36	V23610213	172.00	45	V245900	180.00	40	V256700	219.00	40
V228300	28.00	36	V23610263	353.00	45	V246000	186.00	40	V256800	222.00	40
V228323	64.00	36	V237200	34.00	36	V246100	187.00	40	V256900	230.00	40
V228400	28.00	36	V237300	34.00	36	V246200	187.00	40	V257000	230.00	40
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V228500	28.00	36	V237500	30.00	36	V246400	201.00	40	V260100	122.00	39
V228523	64.00	36	V237600	30.00	36	V246500	207.00	40	V260200	110.00	39
V228700	32.00	36	V237700	25.00	36	V246600	207.00	40	V260300	110.00	39
V228723	72.00	36	V237800	24.00	36	V246700	219.00	40	V260400	91.00	39
V228800	32.00	36	V238000	26.00	36	V246800	222.00	40	V260500	91.00	39
V228823	72.00	36	V238100	26.00	36	V246900	230.00	40	V260600	91.00	39
V229000	32.00	36	V238300	28.00	36	V247000	230.00	40	V260700	91.00	39
V229023	72.00	36	V238400	28.00	36	V247100	239.00	40	V260900	83.00	39
V229100	32.00	36	V238500	28.00	36	V250100	122.00	39	V261000	83.00	39
V229123	72.00	36	V238700	32.00	36	V250200	110.00	39	V261100	71.00	39
V229200	34.00	36	V238800	32.00	36	V250300	110.00	39	V261200	71.00	39
V229223	76.00	36	V239000	32.00	36	V250400	91.00	39	V261300	72.00	39
V229300	36.00	36	V239100	32.00	36	V250500	91.00	39	V261400	72.00	39
V229323	80.00	36	V239200	34.00	36	V250600	91.00	39	V261500	76.00	39
V229400	41.00	36	V239300	36.00	36	V250700	91.00	39	V261600	76.00	39
V229423	80.00	36	V239400	41.00	36	V250900	83.00	39	V261700	76.00	39
V229500	41.00	36	V239500	41.00	36	V251000	83.00	39	V261800	76.00	39
V229523	80.00	36	V240100	122.00	39	V251100	71.00	39	V261900	76.00	39
V23600901	86.00	45	V240200	110.00	39	V251200	71.00	39	V262000	76.00	39
V23600913	86.00	45	V240300	110.00	39	V251300	72.00	39	V262100	100.00	39
V23600963	180.00	45	V240400	91.00	39	V251400	72.00	39	V262200	67.00	39
V23601101	86.00	45	V240500	91.00	39	V251500	76.00	39	V262300	67.00	39
V23601113	86.00	45	V240600	91.00	39	V251600	76.00	39	V262400	89.00	39
V23601163	180.00	45	V240700	91.00	39	V251700	76.00	39	V262500	67.00	39
V23601301	81.00	45	V240900	83.00	39	V251800	76.00	39	V262600	67.00	39
V23601313	81.00	45	V241000	83.00	39	V251900	76.00	39	V262700	89.00	39
V23601363	170.00	45	V241100	71.00	39	V252000	76.00	39	V262800	71.00	39
V23601501	81.00	45	V241200	71.00	39	V252100	100.00	39	V262900	71.00	39
V23601513	81.00	45	V241300	72.00	39	V252200	67.00	39	V263000	92.00	39
V23601563	170.00	45	V241400	72.00	39	V252300	67.00	39	V263100	71.00	39
V23602501	76.00	45	V241500	76.00	39	V252400	89.00	39	V263200	71.00	39
V23602513	76.00	45	V241600	76.00	39	V252500	67.00	39	V263300	92.00	39
V23602563	160.00	45	V241700	76.00	39	V252600	67.00	39	V263400	79.00	39
V23603201	68.00	45	V241800	76.00	39	V252700	89.00	39	V263500	79.00	39
V23603213	68.00	45	V241900	76.00	39	V252800	71.00	39	V263600	101.00	39
V23603263	144.00	45	V242000	76.00	39	V252900	71.00	39	V263700	89.00	39
V23606201	98.00	45	V242100	100.00	39	V253000	92.00	39	V263800	89.00	39
V23606213	98.00	45	V242200	67.00	39	V253100	71.00	39	V263900	107.00	39
V23606263	204.00	45	V242300	67.00	39	V253200	71.00	39	V264000	89.00	40
V23607001	137.00	45	V242400	89.00	39	V253300	92.00	39	V264100	89.00	40
V23607013	137.00	45	V242500	67.00	39	V253400	79.00	39	V264200	108.00	40
V23607063	283.00	45	V242600	67.00	39	V253500	79.00	39	V264300	109.00	40
V23607201	137.00	45	V242700	89.00	39	V253600	101.00	39	V264400	116.00	40
V23607213	137.00	45	V242800	71.00	39	V253700	89.00	39	V264500	116.00	40
V23607263	283.00	45	V242900	71.00	39	V253800	89.00	39	V264600	131.00	40
V23607401	139.00	45	V243000	92.00	39	V253900	107.00	39	V264700	133.00	40
V23607413	139.00	45	V243100	71.00	39	V254000	89.00	40	V264800	130.00	40
V23607463	287.00	45	V243200	71.00	39	V254100	89.00	40	V264900	130.00	40



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V265100	144.00	40	V27109801	242.00	44	V300500	69.00	42	V304500	86.00	43
V265200	155.00	40	V27109813	242.00	44	V300532	146.00	42	V304532	180.00	43
V265300	155.00	40	V27109863	484.00	44	V300600	64.00	42	V304600	116.00	43
V265400	155.00	40	V2711100	71.00	39	V300632	136.00	42	V304632	240.00	43
V265500	164.00	40	V271110101	271.00	44	V300700	64.00	42	V304700	123.00	43
V265600	169.00	40	V271110113	271.00	44	V300732	136.00	42	V304732	254.00	43
V265700	169.00	40	V271110163	542.00	44	V300900	64.00	42	V304800	101.00	43
V265800	169.00	40	V271110201	271.00	44	V300932	136.00	42	V304832	211.00	43
V265900	180.00	40	V271110213	271.00	44	V301000	64.00	42	V304900	101.00	43
V266000	186.00	40	V271110263	542.00	44	V301032	136.00	42	V304932	211.00	43
V266100	187.00	40	V271200	71.00	39	V301100	60.00	42	V305000	126.00	43
V266200	187.00	40	V271300	72.00	39	V301132	128.00	42	V305032	261.00	43
V266300	195.00	40	V271400	72.00	39	V301200	60.00	42	V305100	128.00	43
V266400	201.00	40	V271500	76.00	39	V301232	128.00	42	V305132	265.00	43
V266500	207.00	40	V271600	76.00	39	V301300	60.00	42	V305200	116.00	43
V266600	207.00	40	V271700	76.00	39	V301332	128.00	42	V305232	241.00	43
V266700	219.00	40	V271800	76.00	39	V301400	60.00	42	V305300	116.00	43
V266800	222.00	40	V271900	76.00	39	V301432	128.00	42	V305332	241.00	43
V266900	230.00	40	V272000	76.00	39	V301500	60.00	42	V305400	116.00	43
V267000	230.00	40	V272100	100.00	39	V301532	128.00	42	V305432	241.00	43
V267100	239.00	40	V272200	67.00	39	V301600	60.00	42	V305500	137.00	43
V270100	122.00	39	V272300	67.00	39	V301632	128.00	42	V305532	283.00	43
V270200	110.00	39	V272400	89.00	39	V301700	60.00	42	V305600	136.00	43
V270300	110.00	39	V272500	67.00	39	V301732	128.00	42	V305632	281.00	43
V270400	91.00	39	V272600	67.00	39	V301800	60.00	42	V305700	136.00	43
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V27100913	123.00	44	V273300	92.00	39	V302132	162.00	42	V306032	295.00	43
V27100963	246.00	44	V273400	79.00	39	V302200	55.00	42	V306100	148.00	43
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V27101113	123.00	44	V273600	101.00	39	V302300	55.00	42	V306200	148.00	43
V27101163	246.00	44	V273700	89.00	39	V302332	118.00	42	V306232	305.00	43
V27101301	111.00	44	V273800	89.00	39	V302400	79.00	42	V306300	167.00	43
V27101313	111.00	44	V273900	107.00	39	V302432	166.00	42	V306332	343.00	43
V27101363	222.00	44	V274000	89.00	40	V302500	55.00	42	V306400	170.00	43
V27101501	111.00	44	V274100	89.00	40	V302532	118.00	42	V306432	349.00	43
V27101513	111.00	44	V274200	108.00	40	V302600	55.00	42	V306500	171.00	43
V27101563	222.00	44	V274300	109.00	40	V302632	118.00	42	V306532	351.00	43
V27102501	89.00	44	V274400	116.00	40	V302700	79.00	42	V306600	171.00	43
V27102513	89.00	44	V274500	116.00	40	V302732	166.00	42	V306632	351.00	43
V27102563	178.00	44	V274600	131.00	40	V302800	57.00	42	V306700	176.00	43
V27103201	82.00	44	V274700	133.00	40	V302832	122.00	42	V306732	361.00	43
V27103213	82.00	44	V274800	130.00	40	V302900	57.00	42	V306800	181.00	43
V27103263	164.00	44	V274900	130.00	40	V302932	122.00	42	V306832	371.00	43
V27106201	142.00	44	V275000	140.00	40	V303000	92.00	42	V306900	183.00	43
V27106213	142.00	44	V275100	144.00	40	V303032	192.00	42	V306932	375.00	43
V27106263	284.00	44	V275200	155.00	40	V303100	61.00	42	V307000	183.00	43
V27107001	180.00	44	V275300	155.00	40	V303132	130.00	42	V307032	375.00	43
V27107013	180.00	44	V275400	155.00	40	V303200	61.00	42	V307100	189.00	43
V27107063	360.00	44	V275500	164.00	40	V303232	130.00	42	V307132	387.00	43
V27107201	180.00	44	V275600	169.00	40	V303300	92.00	42	V310100	69.00	42
V27107213	180.00	44	V275700	169.00	40	V303332	192.00	42	V310133	146.00	42
V27107263	360.00	44	V275800	169.00	40	V303400	62.00	43	V310200	69.00	42
V27107401	207.00	44	V275900	180.00	40	V303432	132.00	43	V310233	146.00	42
V27107413	207.00	44	V276000	186.00	40	V303500	62.00	43	V310300	69.00	42
V27107463	414.00	44	V276100	187.00	40	V303532	132.00	43	V310333	146.00	42
V27107501	207.00	44	V276200	187.00	40	V303600	102.00	43	V310400	69.00	42
V27107513	207.00	44	V276300	195.00	40	V303632	212.00	43	V310433	146.00	42
V27107563	414.00	44	V276400	201.00	40	V303700	71.00	43	V310500	69.00	42
V27108201	216.00	44	V276500	207.00	40	V303732	150.00	43	V310533	146.00	42
V27108213	216.00	44	V276600	207.00	40	V303800	71.00	43	V310600	64.00	42
V27108263	432.00	44	V276700	219.00	40	V303832	150.00	43	V310633	136.00	42
V27108301	216.00	44	V276800	222.00	40	V303900	109.00	43	V310700	64.00	42
V27108313	216.00	44	V276900	230.00	40	V303932	226.00	43	V310733	136.00	42
V27108363	432.00	44	V277000	230.00	40	V304000	74.00	43	V310900	64.00	42
V27108901	219.00	44	V277100	239.00	40	V304032	156.00	43	V310933	136.00	42
V27108913	219.00	44	V300100	69.00	42	V304100	74.00	43	V311000	64.00	42
V27108963	438.00	44	V300132	146.00	42	V304132	156.00	43	V31100801	127.00	47
V27109101	219.00	44	V300200	69.00	42	V304200	110.00	43	V31100804	127.00	47
V27109113	219.00	44	V300232	146.00	42	V304232	228.00	43	V31100807	156.00	47
V27109163	438.00	44	V300300	69.00	42	V304300	120.00	43	V31100851	136.00	47
V27109601	242.00	44	V300332	146.00	42	V304332	248.00	43	V31100854	136.00	47
V27109613	242.00	44	V300400	69.00	42	V304400	86.00	43	V31100857	165.00	47



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V31100904	144.00	47	V313600	102.00	43	V316733	361.00	43	V327100	189.00	43
V31100907	172.00	47	V313633	212.00	43	V316800	181.00	43	V330100	69.00	42
V31100951	153.00	47	V313700	71.00	43	V316833	371.00	43	V330200	69.00	42
V31100954	153.00	47	V313733	150.00	43	V316900	183.00	43	V330300	69.00	42
V31100957	181.00	47	V313800	71.00	43	V316933	375.00	43	V330400	69.00	42
V31100963	297.00	47	V313833	150.00	43	V317000	183.00	43	V330500	69.00	42
V31101001	172.00	47	V313900	109.00	43	V317033	375.00	43	V330600	64.00	42
V31101004	172.00	47	V313933	226.00	43	V317100	189.00	43	V330700	64.00	42
V31101007	240.00	47	V314000	74.00	43	V317133	387.00	43	V330900	64.00	42
V31101051	181.00	47	V314033	156.00	43	V320100	69.00	42	V331000	64.00	42
V31101054	181.00	47	V314100	74.00	43	V320200	69.00	42	V331100	60.00	42
V31101057	249.00	47	V314133	156.00	43	V320300	69.00	42	V331200	60.00	42
V31101063	353.00	47	V314200	110.00	43	V320400	69.00	42	V331300	60.00	42
V31101101	228.00	47	V314233	228.00	43	V320500	69.00	42	V331400	60.00	42
V31101104	228.00	47	V314300	120.00	43	V320600	64.00	42	V331500	60.00	42
V31101107	362.00	47	V314333	248.00	43	V320700	64.00	42	V331600	60.00	42
V31101151	240.00	47	V314400	86.00	43	V320900	64.00	42	V331700	60.00	42
V31101154	240.00	47	V314433	180.00	43	V321000	64.00	42	V331800	60.00	42
V31101157	374.00	47	V314500	86.00	43	V321100	60.00	42	V331900	64.00	42
V31101163	468.00	47	V314533	180.00	43	V321200	60.00	42	V332000	64.00	42
V31101201	275.00	47	V314600	116.00	43	V321300	60.00	42	V332100	77.00	42
V31101204	275.00	47	V314633	240.00	43	V321400	60.00	42	V332200	55.00	42
V31101207	395.00	47	V314700	123.00	43	V321500	60.00	42	V332300	55.00	42
V31101251	287.00	47	V314733	254.00	43	V321600	60.00	42	V332400	79.00	42
V31101254	287.00	47	V314800	101.00	43	V321700	60.00	42	V332500	55.00	42
V31101257	407.00	47	V314833	211.00	43	V321800	60.00	42	V332600	55.00	42
V31101263	562.00	47	V314900	101.00	43	V321900	64.00	42	V332700	79.00	42
V311033	136.00	42	V314933	211.00	43	V322000	64.00	42	V332800	57.00	42
V311100	60.00	42	V315000	126.00	43	V322100	77.00	42	V332900	57.00	42
V311133	128.00	42	V315033	261.00	43	V322200	55.00	42	V333000	92.00	42
V311200	60.00	42	V315100	128.00	43	V322300	55.00	42	V333100	61.00	42
V311233	128.00	42	V315133	265.00	43	V322400	79.00	42	V333200	61.00	42
V311300	60.00	42	V315200	116.00	43	V322500	55.00	42	V333300	92.00	42
V311333	128.00	42	V315233	241.00	43	V322600	55.00	42	V333400	62.00	43
V311400	60.00	42	V315300	116.00	43	V322700	79.00	42	V333500	62.00	43
V311433	128.00	42	V315333	241.00	43	V322800	57.00	42	V333600	102.00	43
V311500	60.00	42	V315400	116.00	43	V322900	57.00	42	V333700	71.00	43
V311533	128.00	42	V315433	241.00	43	V323000	92.00	42	V333800	71.00	43
V311600	60.00	42	V315500	137.00	43	V323100	61.00	42	V333900	109.00	43
V311633	128.00	42	V315533	283.00	43	V323200	61.00	42	V334000	74.00	43
V311700	60.00	42	V315600	136.00	43	V323300	92.00	42	V334100	74.00	43
V311733	128.00	42	V315633	281.00	43	V323400	62.00	43	V334200	110.00	43
V311800	60.00	42	V315700	136.00	43	V323500	62.00	43	V334300	120.00	43
V311833	128.00	42	V315733	281.00	43	V323600	102.00	43	V334400	86.00	43
V311900	64.00	42	V315800	136.00	43	V323700	71.00	43	V334500	86.00	43
V311933	136.00	42	V315833	281.00	43	V323800	71.00	43	V334600	116.00	43
V312000	64.00	42	V315900	143.00	43	V323900	109.00	43	V334700	123.00	43
V312033	136.00	42	V315933	295.00	43	V324000	74.00	43	V334800	101.00	43
V312100	77.00	42	V316000	143.00	43	V324100	74.00	43	V334900	101.00	43
V312133	162.00	42	V31600801	164.00	47	V324200	110.00	43	V335000	126.00	43
V312200	55.00	42	V31600804	240.00	47	V324300	120.00	43	V335100	128.00	43
V312233	118.00	42	V31600807	226.00	47	V324400	86.00	43	V335200	116.00	43
V312300	55.00	42	V31600901	196.00	47	V324500	86.00	43	V335300	116.00	43
V312333	118.00	42	V31600904	263.00	47	V324600	116.00	43	V335400	116.00	43
V312400	79.00	42	V31600907	259.00	47	V324700	123.00	43	V335500	137.00	43
V312433	166.00	42	V31601001	234.00	47	V324800	101.00	43	V335600	136.00	43
V312500	55.00	42	V31601004	307.00	47	V324900	101.00	43	V335700	136.00	43
V312533	118.00	42	V31601007	315.00	47	V325000	126.00	43	V335800	136.00	43
V312600	55.00	42	V31601101	275.00	47	V325100	128.00	43	V335900	143.00	43
V312633	118.00	42	V31601104	369.00	47	V325200	116.00	43	V336000	143.00	43
V312700	79.00	42	V31601107	377.00	47	V325300	116.00	43	V336100	148.00	43
V312733	166.00	42	V31601201	343.00	47	V325400	116.00	43	V336200	148.00	43
V312800	57.00	42	V31601204	433.00	47	V325500	137.00	43	V336300	167.00	43
V312833	122.00	42	V31601207	453.00	47	V325600	136.00	43	V336400	170.00	43
V312900	57.00	42	V316033	295.00	43	V325700	136.00	43	V336500	171.00	43
V312933	122.00	42	V316100	148.00	43	V325800	136.00	43	V336600	171.00	43
V313000	92.00	42	V316133	305.00	43	V325900	143.00	43	V336700	176.00	43
V313033	192.00	42	V316200	148.00	43	V326000	143.00	43	V336800	181.00	43
V313100	61.00	42	V316233	305.00	43	V326100	148.00	43	V336900	183.00	43
V313133	130.00	42	V316300	167.00	43	V326200	148.00	43	V337000	183.00	43
V313200	61.00	42	V316333	343.00	43	V326300	167.00	43	V337100	189.00	43
V313233	130.00	42	V316400	170.00	43	V326400	170.00	43	V367200	111.00	44
V313300	92.00	42	V316433	349.00	43	V326500	171.00	43	V367237	222.00	44
V313333	192.00	42	V316500	171.00	43	V326600	171.00	43	V367300	96.00	44
V313400	62.00	43	V316533	351.00	43	V326700	176.00	43	V367337	192.00	44
V313433	132.00	43	V316600	171.00	43	V326800	181.00	43	V367400	96.00	44



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V367437	192.00	44	V387839	144.00	45	V450647	104.00	31	V454047	112.00	31
V367500	89.00	44	V387900	68.00	45	V450700	48.00	31	V454100	52.00	31
V367537	178.00	44	V387939	144.00	45	V450746	104.00	31	V454146	112.00	31
V367600	89.00	44	V388000	73.00	45	V450747	104.00	31	V454147	112.00	31
V367637	178.00	44	V388039	154.00	45	V450900	46.00	31	V454400	58.00	31
V367700	82.00	44	V388100	73.00	45	V450946	100.00	31	V454446	124.00	31
V367737	164.00	44	V388139	154.00	45	V450947	100.00	31	V454447	124.00	31
V367800	82.00	44	V388300	76.00	45	V451000	46.00	31	V454500	58.00	31
V367837	164.00	44	V388339	160.00	45	V451046	100.00	31	V454546	124.00	31
V367900	82.00	44	V388400	76.00	45	V451047	100.00	31	V454547	124.00	31
V367937	164.00	44	V388439	160.00	45	V451100	41.00	31	V460400	53.00	31
V368000	89.00	44	V388500	76.00	45	V451146	90.00	31	V460500	53.00	31
V368037	178.00	44	V388539	160.00	45	V451147	90.00	31	V460600	48.00	31
V368100	89.00	44	V388700	88.00	45	V451200	41.00	31	V460700	48.00	31
V368137	178.00	44	V388739	184.00	45	V451246	90.00	31	V460900	46.00	31
V368300	95.00	44	V388800	88.00	45	V451247	90.00	31	V461000	46.00	31
V368337	190.00	44	V388839	184.00	45	V451300	41.00	31	V461100	41.00	31
V368400	95.00	44	V389000	88.00	45	V451346	90.00	31	V461200	41.00	31
V368437	190.00	44	V389039	184.00	45	V451347	90.00	31	V461300	41.00	31
V368500	106.00	44	V389100	88.00	45	V451400	41.00	31	V461400	41.00	31
V368537	190.00	44	V389139	184.00	45	V451446	90.00	31	V461500	41.00	31
V368700	106.00	44	V389200	98.00	45	V451447	90.00	31	V461600	41.00	31
V368737	212.00	44	V389239	204.00	45	V451500	41.00	31	V461700	41.00	31
V368800	106.00	44	V389300	98.00	45	V451546	90.00	31	V461800	41.00	31
V368837	212.00	44	V389339	204.00	45	V451547	90.00	31	V461900	41.00	31
V369000	106.00	44	V389400	98.00	45	V451600	41.00	31	V462000	41.00	31
V369037	212.00	44	V389439	204.00	45	V451646	90.00	31	V462200	33.00	31
V369100	106.00	44	V389500	98.00	45	V451647	90.00	31	V462300	33.00	31
V369137	212.00	44	V389539	204.00	45	V451700	41.00	31	V462500	33.00	31
V369200	142.00	44	V396880	937.00	7	V451746	90.00	31	V462600	33.00	31
V369237	284.00	44	V396890	1,518.00	7	V451747	90.00	31	V462800	36.00	31
V369300	142.00	44	V396895	5,460.00	7	V451800	41.00	31	V462900	36.00	31
V369337	284.00	44	V396900	1,351.00	7	V451846	90.00	31	V463100	36.00	31
V369400	176.00	44	V396905	4,359.00	7	V451847	90.00	31	V463200	36.00	31
V369437	352.00	44	V396910	1,871.00	7	V451900	41.00	31	V463400	41.00	31
V369500	176.00	44	V396915	5,873.00	7	V451946	90.00	31	V463500	41.00	31
V369537	352.00	44	V396920	1,803.00	7	V451947	90.00	31	V463700	52.00	31
V37401	170.00	47	V396925	6,210.00	7	V452000	41.00	31	V463800	52.00	31
V37403	122.00	47	V396930	805.00	8	V452046	90.00	31	V464000	52.00	31
V37405	144.00	47	V396940	1,150.00	8	V452047	90.00	31	V464100	52.00	31
V37407	170.00	47	V396950	1,380.00	8	V452200	33.00	31	V464400	58.00	31
V37409	192.00	47	V396960	1,610.00	8	V452246	74.00	31	V464500	58.00	31
V37411	212.00	47	V396970	1,553.00	8	V452247	74.00	31	V470400	53.00	31
V37413	233.00	47	V396980	3,420.00	7	V452300	33.00	31	V470500	53.00	31
V377200	111.00	44	V396990	POA	7	V452346	74.00	31	V470600	48.00	31
V377300	96.00	44	V396995	POA	7	V452347	74.00	31	V470700	48.00	31
V377400	96.00	44	V397000	1,671.00	7	V452500	33.00	31	V470900	46.00	31
V377500	89.00	44	V397005	3,592.00	7	V452546	74.00	31	V471000	46.00	31
V377600	89.00	44	V397010	1,380.00	8	V452547	74.00	31	V471100	41.00	31
V377700	82.00	44	V397200	81.00	45	V452600	33.00	31	V471200	41.00	31
V377800	89.00	44	V397300	79.00	45	V452646	74.00	31	V471300	41.00	31
V377900	82.00	44	V397400	79.00	45	V452647	74.00	31	V471400	41.00	31
V378000	89.00	44	V397500	76.00	45	V452800	36.00	31	V471500	41.00	31
V378100	89.00	44	V397600	76.00	45	V452846	80.00	31	V471600	41.00	31
V378300	95.00	44	V397700	68.00	45	V452847	80.00	31	V471700	41.00	31
V378400	95.00	44	V397800	68.00	45	V452900	36.00	31	V471800	41.00	31
V378500	106.00	44	V397900	68.00	45	V452946	80.00	31	V471900	41.00	31
V378700	106.00	44	V398000	73.00	45	V452947	80.00	31	V472000	41.00	31
V378800	106.00	44	V398100	73.00	45	V453100	36.00	31	V472200	33.00	31
V379000	106.00	44	V398300	76.00	45	V453146	80.00	31	V472300	33.00	31
V379100	106.00	44	V398400	76.00	45	V453147	80.00	31	V472500	33.00	31
V379200	142.00	44	V398500	76.00	45	V453200	36.00	31	V472600	33.00	31
V379300	142.00	44	V398700	88.00	45	V453246	80.00	31	V472800	36.00	31
V379400	176.00	44	V398800	88.00	45	V453247	80.00	31	V472900	36.00	31
V379500	176.00	44	V399000	88.00	45	V453400	41.00	31	V473100	36.00	31
V387200	81.00	45	V399100	88.00	45	V453446	90.00	31	V473200	36.00	31
V387239	170.00	45	V399200	98.00	45	V453447	90.00	31	V473400	41.00	31
V387300	79.00	45	V399300	98.00	45	V453500	41.00	31	V473500	41.00	31
V387339	166.00	45	V399400	98.00	45	V453546	90.00	31	V473700	52.00	31
V387400	79.00	45	V399500	98.00	45	V453547	90.00	31	V473800	52.00	31
V387439	166.00	45	V450400	53.00	31	V453700	52.00	31	V474000	52.00	31
V387500	76.00	45	V450446	114.00	31	V453746	112.00	31	V474100	52.00	31
V387539	160.00	45	V450447	114.00	31	V453747	112.00	31	V474400	58.00	31
V387600	76.00	45	V450500	53.00	31	V453800	52.00	31	V474500	58.00	31
V387639	160.00	45	V450546	114.00	31	V453846	112.00	31	V480100	83.00	48
V387700	68.00	45	V450547	114.00	31	V453847	112.00	31	V480200	79.00	48
V387739	144.00	45	V450600	48.00	31	V454000	52.00	31	V480300	79.00	48
V387800	68.00	45	V450646	104.00	31	V454046	112.00	31	V480400	77.00	48



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V480500	77.00	48	V553200	40.00	33	V701138	Custom	49	V701184	139.00	47
V480600	74.00	48	V553256	88.00	33	V701139	Custom	49	V7011841	148.00	47
V480700	74.00	48	V553257	88.00	33	V701140	61.00	46	V701185	119.00	47
V480900	69.00	48	V553400	41.00	33	V7011401	69.00	46	V701186	83.00	47
V481000	69.00	48	V553456	90.00	33	V701141	42.00	46	V701187	99.00	47
V481100	75.00	48	V553457	90.00	33	V7011411	50.00	46	V701188	105.00	47
V481200	75.00	48	V553500	41.00	33	V701142	48.00	46	V701189	117.00	47
V481300	76.00	48	V553556	90.00	33	V7011421	56.00	46	V701190	133.00	47
V481400	76.00	48	V553557	90.00	33	V701143	55.00	46	V701191	151.00	47
V481500	72.00	48	V560400	50.00	33	V7011431	63.00	46	V701192	167.00	47
V481600	72.00	48	V560900	44.00	33	V701144	62.00	46	V701193	161.00	47
V481700	70.00	48	V561300	40.00	33	V7011441	71.00	46	V701194	167.00	47
V481800	70.00	48	V561500	40.00	33	V701145	70.00	46	V701195	176.00	47
V481900	69.00	48	V561700	40.00	33	V7011451	79.00	46	V701196	183.00	47
V482000	69.00	48	V561800	40.00	33	V701146	79.00	46	V701197	201.00	47
V482200	62.00	48	V562200	37.00	33	V7011461	88.00	46	V701198	219.00	47
V482300	62.00	48	V562300	37.00	33	V701147	87.00	46	V701199	199.00	47
V482500	62.00	48	V562500	37.00	33	V7011471	96.00	46	V701200	199.00	47
V482600	62.00	48	V562600	37.00	33	V701148	99.00	46	V701201	199.00	47
V482800	66.00	48	V562800	40.00	33	V7011481	108.00	46	V701202	199.00	47
V482900	66.00	48	V562900	40.00	33	V701149	120.00	46	V701203	199.00	47
V483100	65.00	48	V563200	40.00	33	V7011491	129.00	46	V701204	223.00	47
V483200	65.00	48	V563400	41.00	33	V701150	144.00	46	V701205	223.00	47
V483400	68.00	48	V563500	41.00	33	V7011501	159.00	46	V701220	72.00	4
V483500	68.00	48	V570400	50.00	33	V701151	169.00	46	V701221	72.00	4
V483700	67.00	48	V570900	44.00	33	V7011511	184.00	46	V701222	72.00	4
V483800	67.00	48	V571300	40.00	33	V701152	113.00	46	V701223	72.00	4
V484000	69.00	48	V571500	40.00	33	V701153	79.00	46	V701224	72.00	4
V484100	69.00	48	V571700	40.00	33	V701154	87.00	46	V701225	72.00	4
V484400	73.00	48	V571800	40.00	33	V701155	100.00	46	V701228	72.00	4
V484500	73.00	48	V572200	37.00	33	V701156	111.00	46	V701229	72.00	4
V484800	86.00	48	V572300	37.00	33	V701157	127.00	46	V701230	72.00	4
V484900	86.00	48	V572500	37.00	33	V701158	144.00	46	V701231	72.00	4
V485200	121.00	48	V572600	37.00	33	V701159	157.00	46	V701232	72.00	4
V485300	121.00	48	V572800	40.00	33	V701160	187.00	46	V701233	72.00	4
V487500	88.00	48	V572900	40.00	33	V701161	224.00	46	V701234	72.00	4
V487600	84.00	48	V573200	40.00	33	V701162	263.00	46	V701235	72.00	4
V487700	75.00	48	V573400	41.00	33	V701163	327.00	46	V701236	72.00	4
V487800	75.00	48	V573500	41.00	33	V701164	81.00	47	V701237	44.00	4
V488000	77.00	48	V701022	14.00	38	V7011641	89.00	47	V701238	44.00	4
V488300	80.00	48	V701023	16.00	38	V701165	57.00	47	V701239	44.00	4
V488500	84.00	48	V701024	18.00	38	V7011651	65.00	47	V701240	44.00	4
V550400	50.00	33	V701025	22.00	38	V701166	68.00	47	V701241	44.00	4
V550456	108.00	33	V701026	28.00	38	V7011661	76.00	47	V701242	44.00	4
V550457	108.00	33	V701027	34.00	38	V701167	81.00	47	V701243	44.00	4
V550900	44.00	33	V701092	Custom	49	V7011671	89.00	47	V701244	44.00	4
V550956	96.00	33	V701093	Custom	49	V701168	92.00	47	V701245	44.00	4
V550957	96.00	33	V701094	Custom	49	V7011681	100.00	47	V701246	44.00	4
V551300	40.00	33	V701095	Custom	49	V701169	102.00	47	V701247	44.00	4
V551356	88.00	33	V701096	Custom	49	V7011691	110.00	47	V701248	44.00	4
V551357	88.00	33	V701097	Custom	49	V701170	112.00	47	V701249	44.00	4
V551500	40.00	33	V701098	Custom	49	V7011701	121.00	47	V701250	44.00	4
V551556	88.00	33	V701099	Custom	49	V701171	81.00	47	V701251	44.00	4
V551557	88.00	33	V701100	Custom	49	V7011711	89.00	47	V701252	44.00	4
V551700	40.00	33	V701101	Custom	49	V701172	57.00	47	V701253	44.00	4
V551756	88.00	33	V701102	Custom	49	V7011721	65.00	47	V701254	44.00	4
V551757	88.00	33	V701103	Custom	49	V701173	68.00	47	V701255	44.00	4
V551800	40.00	33	V701104	Custom	49	V7011731	76.00	47	V701256	44.00	4
V551856	88.00	33	V701105	Custom	49	V701174	81.00	47	V701257	44.00	4
V551857	88.00	33	V701106	Custom	49	V7011741	89.00	47	V701258	44.00	4
V552200	37.00	33	V701107	Custom	49	V701175	92.00	47	V701259	44.00	4
V552256	82.00	33	V701108	Custom	49	V7011751	100.00	47	V701260	44.00	4
V552257	82.00	33	V701109	Custom	49	V701176	102.00	47	V701261	44.00	4
V552300	37.00	33	V701110	Custom	49	V7011761	110.00	47	V701262	72.00	4
V552356	82.00	33	V701111	Custom	49	V701177	112.00	47	V701263	72.00	4
V552357	82.00	33	V701112	Custom	49	V7011771	121.00	47	V701264	72.00	4
V552500	37.00	33	V701113	Custom	49	V701178	121.00	47	V701265	72.00	4
V552556	82.00	33	V701114	Custom	49	V7011781	129.00	47	V701266	180.00	50
V552557	82.00	33	V701115	Custom	49	V701179	121.00	47	V701266M	180.00	50
V552600	37.00	33	V701116	Custom	49	V7011791	129.00	47	V701271	561.00	50
V552656	82.00	33	V701117	Custom	49	V701180	121.00	47	V701271M	561.00	50
V552657	82.00	33	V701118	Custom	49	V7011801	129.00	47	V701277	386.00	50
V552800	40.00	33	V701119	Custom	49	V701181	121.00	47	V701277M	386.00	50
V552856	88.00	33	V701120	Custom	49	V7011811	129.00	47	V701280	1,056.00	50
V552857	88.00	33	V701121	Custom	49	V701182	121.00	47	V701280M	1,056.00	50
V552900	40.00	33	V701122	Custom	49	V7011821	129.00	47	V701283	386.00	50
V552956	88.00	33	V701136	Custom	49	V701183	128.00	47	V701283M	386.00	50
V552957	88.00	33	V701137	Custom	49	V7011831	136.00	47	V701295	695.00	50



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V701295M	695.00	50	V703019	39.00	10	V707004	39.00	10	V741250	167.00	7
V701304	72.00	5	V703020	39.00	10	V707005	39.00	10	V741500	167.00	7
V701305	72.00	5	V703021	39.00	10	V707006	39.00	10	V741750	167.00	7
V701306	72.00	5	V703022	39.00	10	V707007	39.00	10	V742000	167.00	7
V701307	72.00	5	V703023	39.00	10	V707008	39.00	10	V742500	167.00	7
V701308	72.00	5	V703024	50.00	10	V707009	39.00	10	V743000	167.00	7
V701309	72.00	5	V703025	50.00	10	V707010	39.00	10	V743500	167.00	7
V701310	72.00	5	V703026	50.00	10	V707011	39.00	10	V744000	167.00	7
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V701315	44.00	5	V704000	61.00	10	V707016	39.00	10	V760200	990.00	2
V701316	44.00	5	V704001	61.00	10	V707017	39.00	10	V760201	1,320.00	2
V701317	44.00	5	V704002	61.00	10	V707018	39.00	10	V760300	935.00	2
V701318	44.00	5	V704003	39.00	10	V707019	39.00	10	V760302	2,860.00	2
V701319	44.00	5	V704004	39.00	10	V707020	39.00	10	V760303	4,290.00	2
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V701321	44.00	5	V704006	39.00	10	V707022	39.00	10	V760501	88.00	2
V701322	44.00	5	V704007	39.00	10	V707023	39.00	10	V760502	77.00	2
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V701506	83.00	8	V704030	72.00	10	V730110	167.00	6	V860206	868.00	3
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V701512	66.00	8	V706005	39.00	10	V730180	167.00	6	V860303	230.00	3
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V910199	146.00	7	V910277	133.00	6			
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V910250	133.00	7	V980138	35.00	11			
V910251	133.00	7	V980139	17.00	2			



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## Metalcutting Safety (read this before using Van Keuren products)

Modern metalcutting operations involve high energy, high spindle or cutter speeds, and high temperatures and cutting forces. Hot, flying chips may be projected from the workpiece during metalcutting. Although advanced cutting tool materials are designed and manufactured to withstand the high cutting forces and temperatures that normally occur in these operations, they are susceptible to fragmenting in service, particularly if they are subjected to over-stress, severe impact or otherwise abused. Therefore, precautions should be taken to adequately protect workers, observers and equipment against hot, flying chips, fragmented cutting tools, broken workpieces or other similar projectiles. Machines should be fully guarded and personal protective equipment should be used at all times.

When grinding advanced cutting tool materials, a suitable means for collection and disposal of dust, mist or sludge should be provided. Overexposure to dust or mist containing metallic particles can be hazardous to health particularly if exposure continues over an extended period of time and may cause eye, skin and mucous membrane irritation and temporary or permanent respiratory disease. Certain existing pulmonary and skin conditions may be aggravated by exposure to dust or mist. Adequate ventilation, respiratory protection and eye protection should be provided when grinding and workers should avoid breathing of and prolonged skin contact with dust or mist. General Industry Safety

and Health Regulations, Part 1910. U.S. Department of Labor, published in Title 29 of the Code of Federal Regulations should be consulted. Obtain from Van Keuren and read the applicable Material Safety Data Sheet before grinding.

Cutting tools are only one part of the worker-machine-tool system. Many variables exist in machining operations, including the metal removal rate; the workpiece size, shape, strength and rigidity; the chucking and fixturing; the load carrying capability of centers; the cutter and spindle speed and torque limitations; the holder and boring bar overhang; the available power; and the condition of the tooling and the machine. A safe metalcutting operation must take all of these variables, and others, into consideration.

Van Keuren has no control over the end use of its products or the environment into which those products are placed. Van Keuren urges that its customers adhere to the recommended standards of use of their metalcutting machines and tools, and that they follow procedures that ensure safe metalcutting operations. The information included throughout this catalog under the heading "Technical Data" and other recommendations on machining practices referred to herein are only advisory in nature and do not constitute representations or warranties and are not necessarily appropriate for any particular work environment or application.

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EDP NO. VK04006PL Rev.AD06-30

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