

LUFKIN

STANDARD
OF
ACCURACY

LUFKIN

PRECISION TOOLS

STANDARD
OF
ACCURACY

CATALOG NO. 8

THE LUFKIN RULE CO., SAGINAW, MICH., U. S. A.

ROSE TOOLS, INC.

LUFKIN

PRECISION TOOLS



CATALOG No. 8

THE LUFKIN RULE COMPANY

Established 1869

Plant and Executive Offices:

1730 Hess Street, Saginaw, Michigan

Branch Office and Warehouse:

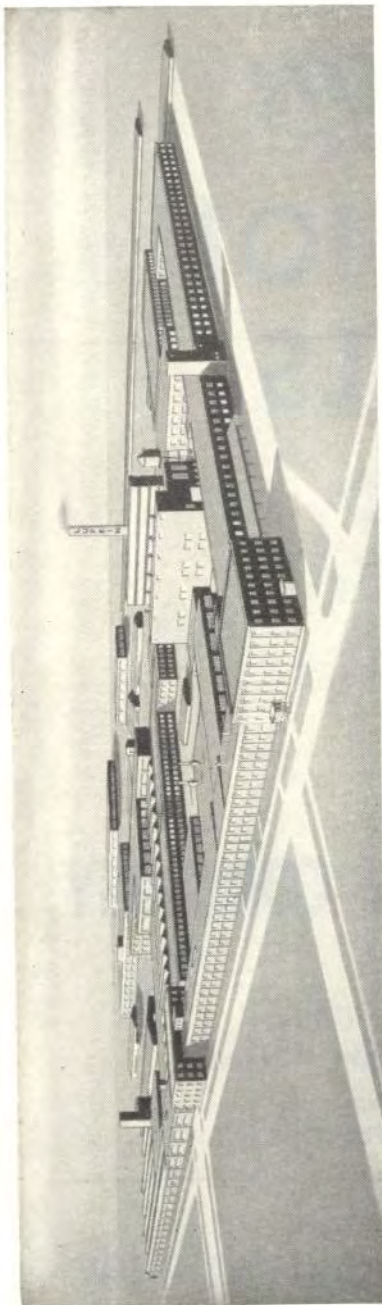
132-138 Lafayette Street, New York, N.Y.

Canadian Office and Plant:

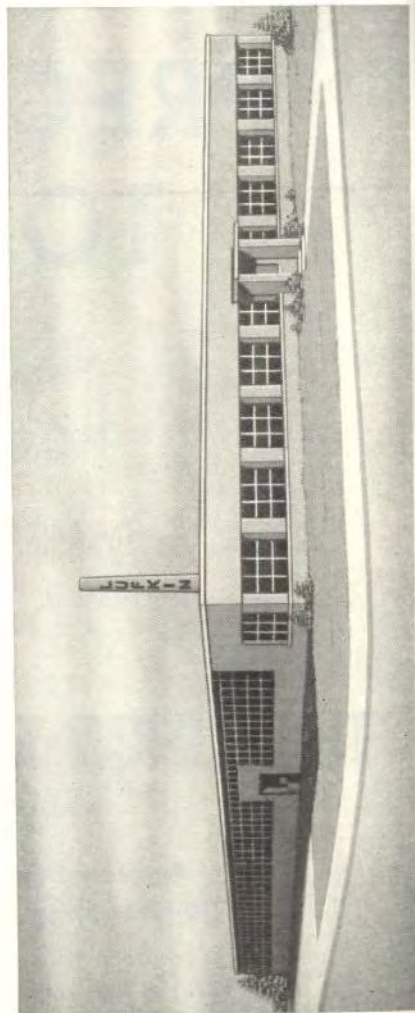
THE LUFKIN RULE CO. OF CANADA LIMITED

Barrie, Ontario

ROSE TOOLS, INC.



Plant of The Lufkin Rule Co., Saginaw, Michigan, U.S.A.



Plant of The Lufkin Rule Co. of Canada, Ltd., Barrie, Ontario

Printed in U.S.A.

LUFKIN

INTRODUCTION

PRECISION TOOL CATALOG NO. 8

LUFKIN PRECISION TOOLS are the product of a separate division of our plant. The entire facilities of engineering, manufacturing, designing and inspection are devoted exclusively to measuring devices. Many years of experience and skill in fine toolmaking are incorporated in every Lufkin tool. Constant inspection is maintained with the most modern equipment and methods starting with the raw material through every phase of manufacture to the finished tool. Only highest quality materials are used and every tool is built to an exacting precision standard.

In the development of many of its products Lufkin has been the pioneer. Today, as through its whole history, Lufkin is the leader in noteworthy improvements in the industry. Lufkin products have worldwide distribution and are recognized as "The Standard of Accuracy" in the field of measuring.

GENERAL INFORMATION

ORDERING

When ordering, please specify complete stock number and name of item. Stocks of Lufkin Precision Tools are carried by industrial supply distributors and hardware and tool stores. All users are urged to purchase their requirements from these sources.

PRICES

Prices are shown in separate price list and are subject to change without notice.

GENERAL CATALOG

Lufkin General catalog No. 14 covers Measuring Tapes, Tape-Rules, Folding Rules, and other miscellaneous rules, etc., as well as Precision Tools. It will be sent on request to those interested in the complete line.

REPAIRS

A repair department staffed by competent mechanics is maintained for the repair of all Lufkin products. This service is available at reasonable cost. When goods are returned for repair, a letter or covering order giving full information as to what is desired should be mailed at the time goods are shipped. The shipping container should be plainly marked with the sender's name and address.

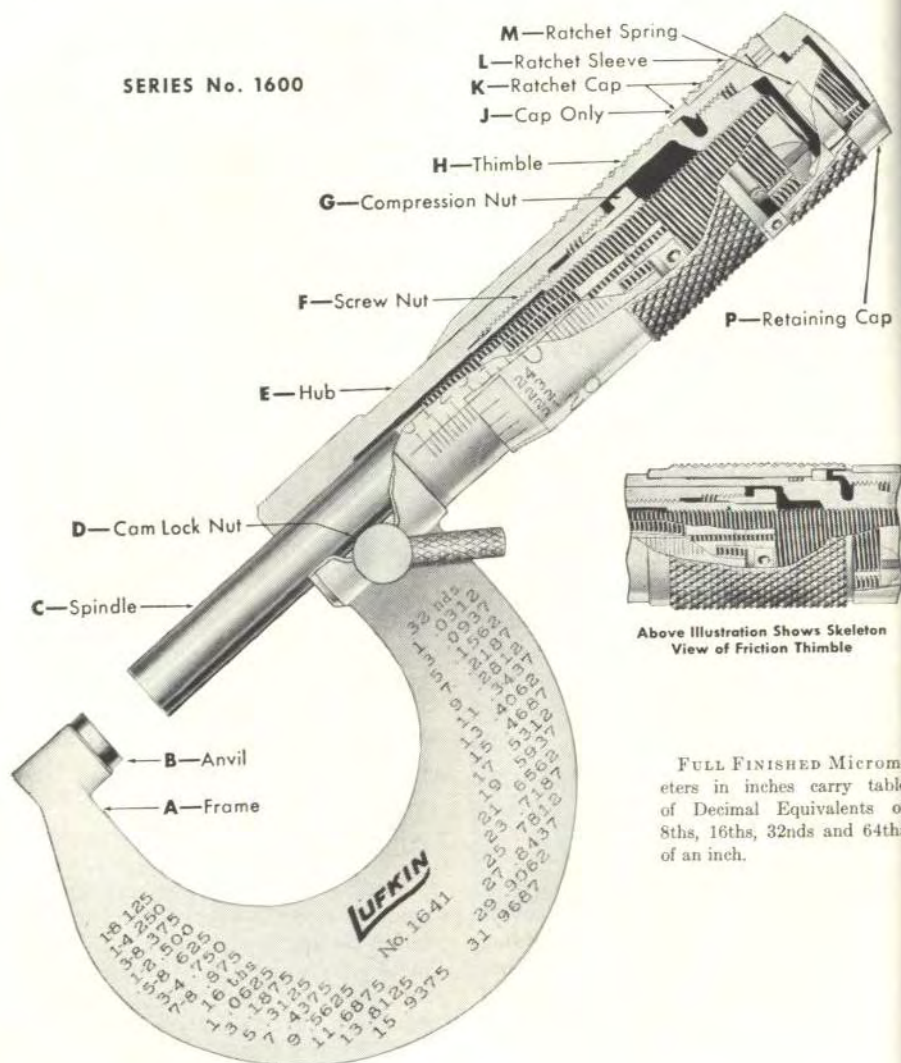
GUARANTY

Lufkin products are guaranteed against defects in workmanship and material. If any product is found unsatisfactory it may be returned to the factory for inspection and disposition. Any item found to be defective in workmanship or material will be replaced.

SKELETON VIEW

Lufkin Chrome Clad Full Finished Micrometers

SERIES No. 1600



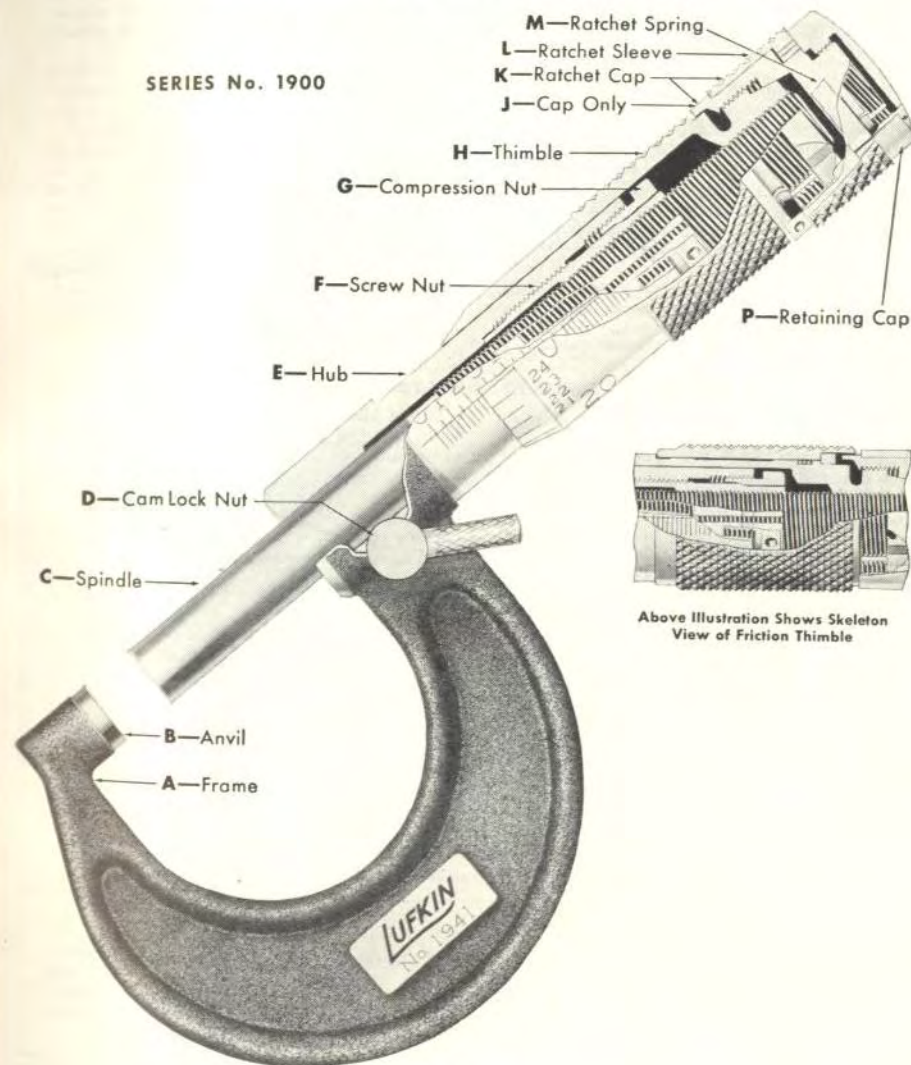
Above Illustration Shows Skeleton
View of Friction Thimble

FULL FINISHED Micrometers in inches carry table of Decimal Equivalents of 8ths, 16ths, 32nds and 64ths of an inch.

SKELETON VIEW

Lufkin Chrome Clad Enameled, Heavy, Ribbed Frame Micrometers

SERIES No. 1900



Above Illustration Shows Skeleton
View of Friction Thimble

Valuable Features of Lufkin Chrome Clad Micrometers

Lufkin Chrome Clad Non-Glare Satin Finish Micrometers have black filled graduations and figures. Finish has non-glare quality for easier reading in bright or poor light. Wear and rust-resistant.

Extra Large Diameter Thimble has wider space between graduations for more accurate reading. Extra large figures, longer graduation lines on bevel of thimble are easier to read and reduce chance of error.

Micro-Lap Finish on Anvil and Spindle Face for highest degree measuring accuracy. Mirror smooth.

Hardened One-Piece Spindle with Ground Threads. Uniformly hardened entire length. Threads precision ground for greater accuracy, smoother action, longer life.

Rapid Reading Graduations on Thimble, each thousandth clearly numbered, with every five thousandth having extra large figures. Faster, easier reading.

Ratchet Enclosed in Cap. New style with same function as old style extended ratchet, but reduces overall length of micrometer, giving tool better balance and "feel". Ratchet is used to apply equal

pressure in taking measurements. New style ratchet cap is easier to use since ratchet is closer to fingers. Measurements are consistent and uniform.

Friction Thimble is similar to ratchet, but ratchet click is eliminated. Friction mechanism is part of thimble so using micrometer with one hand is easier and handier. Designed to apply consistent contact pressure for uniform readings.

Positive Action Cam Lock Nut: The spindle is securely held with a flick of the thumb. Cam provides more holding surface with no distortion of the spindle. Conveniently located and easier to use.

Adjustment Ease. Simple, fast adjustment of Lufkin Outside Micrometer compensates for wear on anvil and spindle faces. Reading line keeps its original position directly in line of vision regardless of number of times faces may have to be ground and lapped.

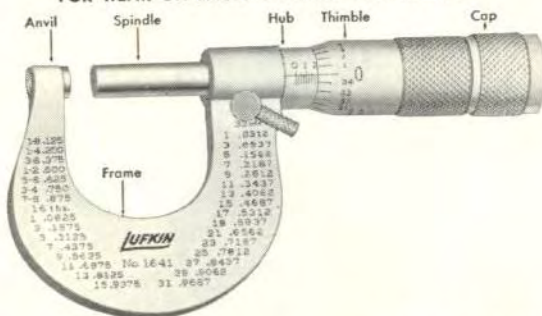
Quality. Many years of experience in fine tool-making are incorporated in every Lufkin tool. Constant inspection is maintained through every phase of manufacture and most modern methods and equipment used. Every tool built to exacting precision standard—The Standard of Accuracy.

LUFKIN OUTSIDE MICROMETERS ARE EASIEST TO ADJUST FOR WEAR ON ANVIL AND SPINDLE FACES

Three parts, one-piece spindle, thimble and cap enter into adjustment for wear on anvil and spindle faces. Threaded portion of spindle engages screw nut. Thimble is screwed to spindle. Chuck is formed on end of thimble. Tightening cap locks thimble chuck to spindle firmly, for most secure setting. As cap does not touch spindle, it will not change setting.

Lufkin Micrometers always retain excellent features. Reading line keeps its original position, directly in line of vision regardless of number of adjustments needed to correct for wear on anvil and spindle faces. Thimble does not cover measurement lines on hub either after simply adjusting for wear or grinding and lapping made necessary by wear, thus avoiding error in reading.

DIRECTIONS FOR ADJUSTING ALL LUFKIN OUTSIDE MICROMETERS FOR WEAR ON FACES OF ANVIL AND SPINDLE



Loosen cap, which locks spindle and thimble together. Wrench is supplied for this.

Next grip spindle and turn thimble counter-clockwise about one-quarter turn. Release grip on spindle and bring contact faces together. Turn thimble

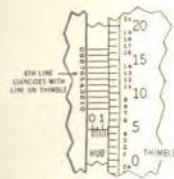
clockwise till zero line on hub and on thimble match exactly. Grip spindle carefully; turn it away from anvil. Hold thimble only and replace cap securely.

Tension on spindle thread: to change, adjust nut on end of hub with wrench supplied.

Directions for Reading Lufkin Micrometers



Reading to .154



Reading to .1546

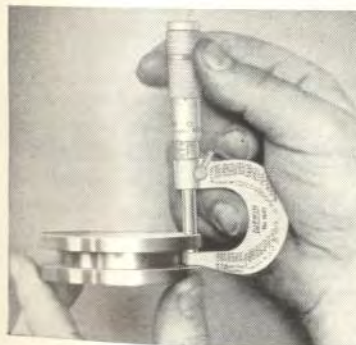
To Read a Measurement to One Thousandth of an Inch: Read first the total of thousandths indicated by the lines on the hub, each line representing 25, as .025, .050, .075, .100, .125, etc. To this add intermediate thousandths, reading directly off thimble, where each one, 1 to 24, is numbered.

Example per Cut to Left: Hub reading total is .150
Thimble reading is .004
Total Measurement is .154 inch

To Read a Measurement to One Ten-Thousandth of an Inch: Measurements to ten-thousandths inch are obtained by using vernier graduations, a series of divisions on hub of our Micrometer. Per cut to right, hub bears ten of these division lines occupying same space as nine divisions on thimble, and numbered 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

To reading on hub add reading on thimble, as detailed above, this giving total of full thousandths. To that add reading of that line on vernier which coincides with line on thimble. If that be the line numbered 4, it means .0004, i. e., 4/10,000ths inch.

Example: Cut to the right shows total measurement .1546 inch. This is the grand total of 150 thousandths indicated on hub, plus 4 thousandths indicated on sleeve, plus 6 ten-thousandths indicated on vernier.



View A



View B

LUFKIN MICROMETERS

Measure in Small Clearances and to Depths Indicated Below

Micrometer Size, Inches	VIEW A		VIEW B	
	Clearance Inches	Permits Measuring to Depth Inches	Clearance Inches	Permits Measuring to Depth Inches
1/2	1/4	15/64	13/32	5/8
1	5/16	9/32	17/32	15/16
2	3/8	9/32	19/32	1 1/8

Carbide Tipped Chrome Clad Micrometers

½-Inch • Full Finished Tapered Frame



No. CT1640

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .195 inch.

Anvil end of micrometer can be inserted into a ¼-inch opening to a depth of 15/64 inch; a 13/32-inch

opening will permit measuring to a depth of 5/8 inch.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Positive action lock nut.

Easy to adjust.

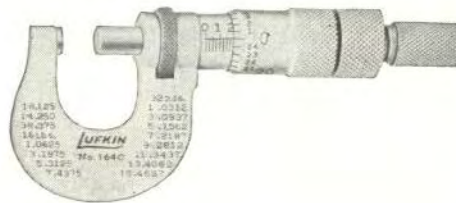
Range Inches	Measures by 1,000ths Inch	Measures by 10,000ths Inch	Equipment
	No.	No.	
0 to 1/2	CT1610	CT1610V	Plain
0 to 1/2	CT1630	CT1630V	With Ratchet Stop
0 to 1/2	CT1640	CT1640V	With Lock Nut and Ratchet Stop

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

½-Inch • Full Finished Tapered Frame



No. 1640

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .195 inch.

Anvil end of micrometer can be inserted into a ¼-inch opening to a depth of 15/64 inch; a 13/32-inch

opening will permit measuring to a depth of 5/8 inch.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Positive action lock nut.

Easy to adjust.

Range Inches	Measures by 1,000ths Inch No.	Measures by 10,000ths Inch No.	Metric Measures by 100ths Mm.		Equipment
			Range Mm.	No.	
0 to 1/2	1610	1610V	0 to 13	1640M	Plain
0 to 1/2	1630	1630V			With Ratchet Stop
0 to 1/2	1640	1640V			With Lock Nut and Ratchet Stop

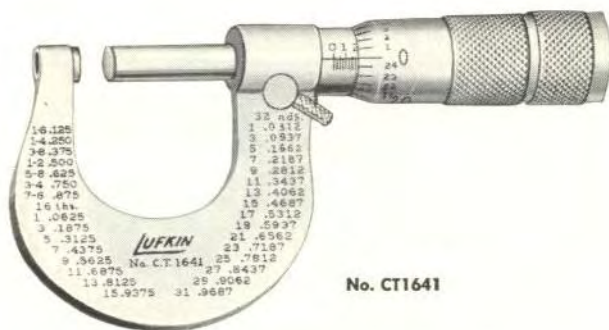
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

1-Inch • Full Finished Tapered Frame



No. CT1641

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .250 inch.

Anvil end of micrometer can be inserted into a $\frac{5}{16}$ -

inch opening to a depth of $\frac{3}{32}$ inch; a $\frac{17}{32}$ -inch opening will permit measuring to a depth of $\frac{15}{16}$ inch.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Push lined case can be supplied when ordered.

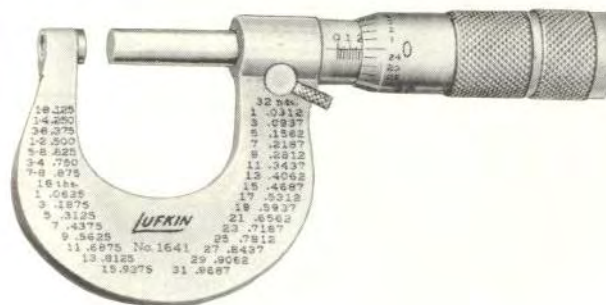
Range Inches	Measures by 1,000ths Inch	Measures by 10,000ths Inch	Equipment
	No.	No.	
0 to 1	CT1611	CT1611V	Plain
0 to 1	CT1621	CT1621V	With Lock Nut
0 to 1	CT1641	CT1641V	With Ratchet Cap and Lock Nut
0 to 1	CT1651	CT1651V	With Friction Thimble
0 to 1	CT1661	CT1661V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

1-Inch • Full Finished Tapered Frame



No. 1641

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .250 inch.

Anvil end of micrometer can be inserted into a $\frac{5}{16}$ -

inch opening to a depth of $\frac{3}{32}$ inch; a $\frac{17}{32}$ -inch opening will permit measuring to a depth of $\frac{15}{16}$ inch.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Push lined case can be supplied when ordered.

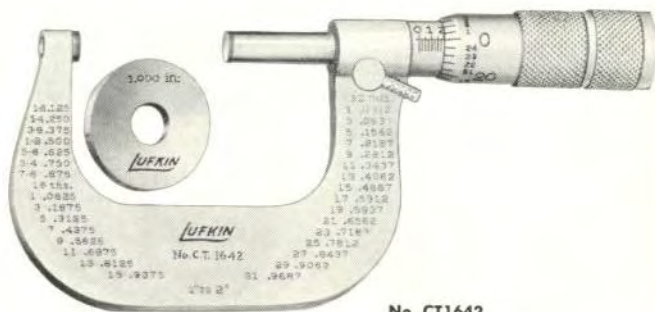
Range Inches	Measures by 1,000ths Inch	Measures by 10,000ths Inch	Metric Measures by 100ths Mm.		Equipment
	No.	No.	Range Mm.	No.	
0 to 1	1611	1611V	.....	.....	Plain
0 to 1	1621	1621V	.....	.....	With Lock Nut
0 to 1	1641	1641V	0 to 25	1641M	With Ratchet Cap and Lock Nut
0 to 1	1651	1651V	.....	.....	With Friction Thimble
0 to 1	1661	1661V	.....	.....	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

2 Inch • Full Finished Tapered Frame



No. CT1642

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .250 inch.

Anvil end of micrometer can be inserted into $\frac{3}{16}$ -inch opening to a depth of $\frac{3}{32}$ inch; $\frac{1}{32}$ -inch

opening will permit measuring to a depth of $\frac{1}{4}$ inches.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Furnished with 1-inch standard.

Plush lined case supplied when ordered.

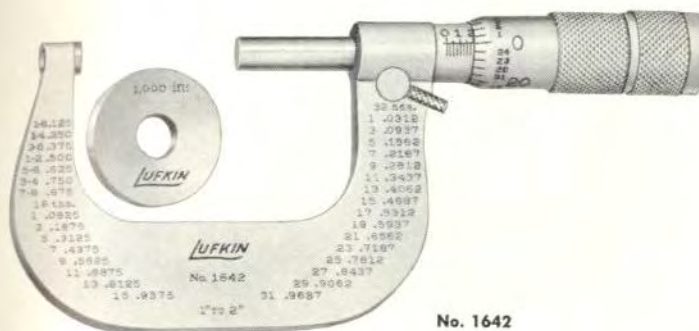
Range Inches	Measures by 1,000ths Inch	Measures by 10,000ths Inch	Equipment
	No.	No.	
1 to 2	CT1612	CT1612V	Plain
1 to 2	CT1622	CT1622V	With Lock Nut
1 to 2	CT1642	CT1642V	With Ratchet Cap and Lock Nut
1 to 2	CT1662	CT1662V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

2 Inch • Full Finished Tapered Frame



No. 1642

A valuable feature of this micrometer is the improved tapered frame. Measurements can be taken in places inaccessible to many other micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Diameter spindle, .250 inch.

Anvil end of micrometer can be inserted into $\frac{3}{16}$ -inch opening to a depth of $\frac{3}{32}$ inch; $\frac{1}{32}$ -inch

opening will permit measuring to a depth of $\frac{1}{4}$ inches.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Furnished with 1-inch standard.

Plush lined case supplied when ordered.

Range Inches	Measures by 1,000ths Inch	Measures by 10,000ths Inch	Metric Measures by 100ths Mm.		Equipment
	No.	No.	Range Mm.	No.	
1 to 2	1612	1612V	.....	.....	Plain
1 to 2	1622	1622V	.....	.....	With Lock Nut
1 to 2	1642	1642V	25 to 50	1642M	With Ratchet Cap and Lock Nut
1 to 2	1662	1662V	.....	.....	With Friction Thimble and Lock Nut

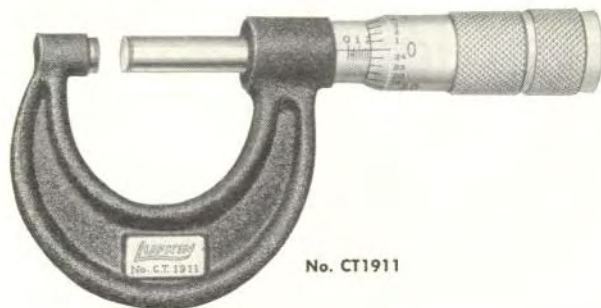
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. CT1911

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

Designed for production work. Accurate, strong, durable and built to withstand hard usage. Choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Plush lined cases for the 1 and 2-inch micrometers and finished wood cases for the 3-inch micrometers are available when ordered; see page 39. A 1-inch standard can be supplied for the 2-inch micrometer and a 2-inch standard for the 3-inch micrometer when ordered.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 0 to 1 Inch	Range 1 to 2 Inches	Range 2 to 3 Inches	Range 0 to 1 Inch	Range 1 to 2 Inches	Range 2 to 3 Inches	
No.	No.	No.	No.	No.	No.	
CT1911	CT1912	CT1913	CT1911V	CT1912V	CT1913V	Plain
CT1921	CT1922	CT1923	CT1921V	CT1922V	CT1923V	With Lock Nut
CT1931	CT1932	CT1933	CT1931V	CT1932V	CT1933V	With Ratchet Cap
CT1941	CT1942	CT1943	CT1941V	CT1942V	CT1943V	With Lock Nut and Ratchet Cap
CT1951	CT1952	CT1953	CT1951V	CT1952V	CT1953V	With Friction Thimble
CT1961	CT1962	CT1963	CT1961V	CT1962V	CT1963V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. 1911

A tool designed for production work. It is accurate, strong, durable and built to withstand hard usage. It is also the choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270-inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Plush lined cases for the 1 and 2-inch micrometers and finished wood cases for the 3-inch micrometers are available when ordered; see page 39. A 1-inch standard can be supplied for the 2-inch micrometer and a 2-inch standard for the 3-inch micrometer when ordered.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 0 to 1 Inch	Range 1 to 2 Inches	Range 2 to 3 Inches	Range 0 to 1 Inch	Range 1 to 2 Inches	Range 2 to 3 Inches	
No.	No.	No.	No.	No.	No.	
1911	1912	1913	1911V	1912V	1913V	Plain
1921	1922	1923	1921V	1922V	1923V	With Lock Nut
1931	1932	1933	1931V	1932V	1933V	With Ratchet Cap
1941	1942	1943	1941V	1942V	1943V	With Lock Nut and Ratchet Cap
1951	1952	1953	1951V	1952V	1953V	With Friction Thimble
1961	1962	1963	1961V	1962V	1963V	With Friction Thimble and Lock Nut

Note: Can be supplied in Metric in plain pattern only at no additional cost; add suffix "M" to No.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. CT1914

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

Designed for production work. Accurate, strong, durable and built to withstand hard usage. Choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Finished wood case available when ordered.

A 3-inch standard can be supplied for the 4-inch micrometer, a 4-inch standard for the 5-inch micrometer and a 5-inch standard for the 6-inch micrometer when ordered.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 3 to 4 Inches No.	Range 4 to 5 Inches No.	Range 5 to 6 Inches No.	Range 3 to 4 Inches No.	Range 4 to 5 Inches No.	Range 5 to 6 Inches No.	
CT1914	CT1915	CT1916	CT1914V	CT1915V	CT1916V	Plain
CT1924	CT1925	CT1926	CT1924V	CT1925V	CT1926V	With Lock Nut
CT1944	CT1945	CT1946	CT1944V	CT1945V	CT1946V	With Lock Nut and Ratchet Cap
CT1964	CT1965	CT1966	CT1964V	CT1965V	CT1966V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. 1914

A tool designed for production work. It is accurate, strong, durable and built to withstand hard usage. It is also the choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Finished wood case available when ordered.

A 3-inch standard can be supplied for the 4-inch micrometer, a 4-inch standard for the 5-inch micrometer and a 5-inch standard for the 6-inch micrometer when ordered.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 3 to 4 Inches No.	Range 4 to 5 Inches No.	Range 5 to 6 Inches No.	Range 3 to 4 Inches No.	Range 4 to 5 Inches No.	Range 5 to 6 Inches No.	
1914	1915	1916	1914V	1915V	1916V	Plain
1924	1925	1926	1924V	1925V	1926V	With Lock Nut
1944	1945	1946	1944V	1945V	1946V	With Lock Nut and Ratchet Cap
1964	1965	1966	1964V	1965V	1966V	With Friction Thimble and Lock Nut

Note: Can be furnished in Metric in plain pattern only at no additional cost; add suffix "M" to No.

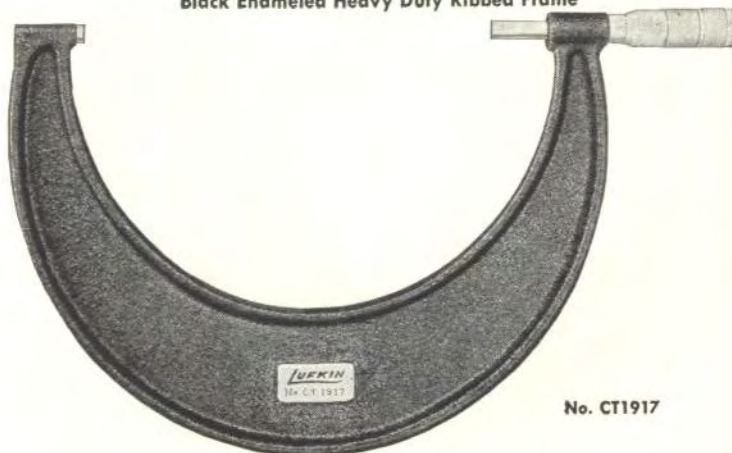
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. CT1917

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

Designed for production work. Accurate, strong, durable and built to withstand hard usage. Choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Individually packed in finished wood case.

A 6-inch standard can be supplied for the 7-inch micrometer, a 7-inch standard for the 8-inch micrometer and an 8-inch standard for the 9-inch micrometer when ordered.

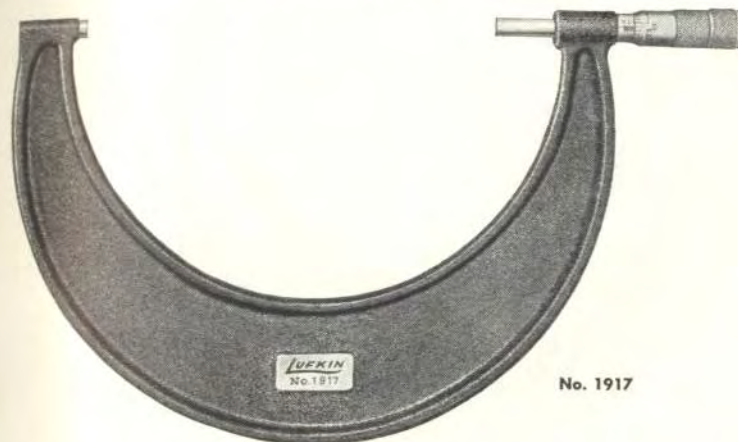
Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 6 to 7 Inches No.	Range 7 to 8 Inches No.	Range 8 to 9 Inches No.	Range 6 to 7 Inches No.	Range 7 to 8 Inches No.	Range 8 to 9 Inches No.	
CT1917	CT1918	CT1919	CT1917V	CT1918V	CT1919V	Plain
CT1927	CT1928	CT1929	CT1927V	CT1928V	CT1929V	With Lock Nut
CT1947	CT1948	CT1949	CT1947V	CT1948V	CT1949V	With Lock Nut and Ratchet Cap
CT1967	CT1968	CT1969	CT1967V	CT1968V	CT1969V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. 1917

A tool designed for production work. It is accurate, strong, durable and built to withstand hard usage. It is also the choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Individually packed in finished wood case.

A 6-inch standard can be supplied for the 7-inch micrometer, a 7-inch standard for the 8-inch micrometer and an 8-inch standard for the 9-inch micrometer when ordered.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 6 to 7 Inches No.	Range 7 to 8 Inches No.	Range 8 to 9 Inches No.	Range 6 to 7 Inches No.	Range 7 to 8 Inches No.	Range 8 to 9 Inches No.	
1917	1918	1919	1917V	1918V	1919V	Plain
1927	1928	1929	1927V	1928V	1929V	With Lock Nut
1947	1948	1949	1947V	1948V	1949V	With Lock Nut and Ratchet Cap
1967	1968	1969	1967V	1968V	1969V	With Friction Thimble and Lock Nut

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbide Tipped Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. CT191-10

Micrometer with tungsten carbide tipped anvil and spindle face is recommended for use where severe abrasive conditions exist. Carbide has exceptional hardness and resistance to abrasion.

Designed for production work. Accurate, strong, durable and built to withstand hard usage. Choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Individually packed in finished wood case.

A 9-inch standard can be supplied for the 10-inch micrometer, a 10-inch standard for the 11-inch micrometer and a 11-inch standard for the 12-inch micrometer.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 9 to 10 Inches No.	Range 10 to 11 Inches No.	Range 11 to 12 Inches No.	Range 9 to 10 Inches No.	Range 10 to 11 Inches No.	Range 11 to 12 Inches No.	
No.	No.	No.	No.	No.	No.	
CT191-10	CT191-11	CT191-12	CT191-10V	CT191-11V	CT191-12V	Plain
CT192-10	CT192-11	CT192-12	CT192-10V	CT192-11V	CT192-12V	With Lock Nut
CT194-10	CT194-11	CT194-12	CT194-10V	CT194-11V	CT194-12V	With Lock Nut & Ratchet Cap
CT196-10	CT196-11	CT196-12	CT196-10V	CT196-11V	CT196-12V	With Friction Thimble & Lock Nut

Packing: One in a box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

Black Enameled Heavy Duty Ribbed Frame



No. 191-10

A tool designed for production work. It is accurate, strong, durable and built to withstand hard usage. It is also the choice of many students and vocational schools.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action cam lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Individually packed in finished wood case.

A 9-inch standard can be supplied for the 10-inch micrometer, a 10-inch standard for the 11-inch micrometer and a 11-inch standard for the 12-inch micrometer.

Measures by 1,000ths Inch			Measures by 10,000ths Inch			Equipment
Range 9 to 10 Inches No.	Range 10 to 11 Inches No.	Range 11 to 12 Inches No.	Range 9 to 10 Inches No.	Range 10 to 11 Inches No.	Range 11 to 12 Inches No.	
No.	No.	No.	No.	No.	No.	
191-10	191-11	191-12	191-10V	191-11V	191-12V	Plain
192-10	192-11	192-12	192-10V	192-11V	192-12V	With Lock Nut
194-10	194-11	194-12	194-10V	194-11V	194-12V	With Lock Nut & Ratchet Cap
196-10	196-11	196-12	196-10V	196-11V	196-12V	With Friction Thimble and Lock Nut

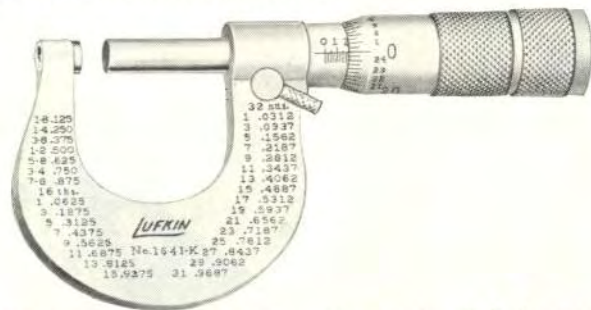
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

No. 1641K Chrome Clad Micrometers

1-Inch • With Half Thousandths Divisions • Full Finished Tapered Frame



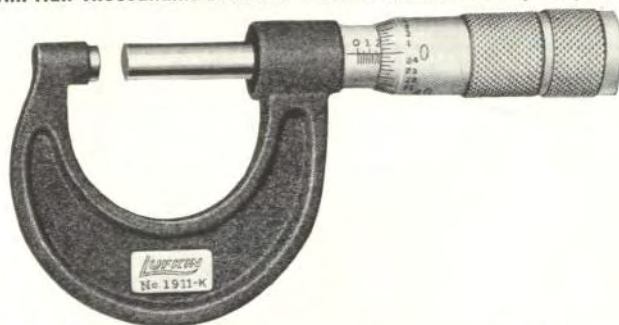
Micrometers with half thousandths divisions are preferred by some mechanics who desire to obtain finer readings without having to use a vernier. This

micrometer has all the features of the full finished tapered frame micrometers described on previous pages.

No. 1641K, Micrometer with Half Thousandths Divisions, with Cam Lock Nut and Ratchet Cap.
No. 1641KV, Micrometer with Half Thousandths Divisions, with Cam Lock Nut and Ratchet Cap.
Measures to 10,000th inch.

No. 1911K Chrome Clad Micrometers

1-Inch • With Half Thousandths Divisions • Black Enameled Heavy Duty Ribbed Frame



Micrometer with half thousandths divisions are preferred by some mechanics who desire to obtain finer readings without having to use a vernier.

This micrometer has all the features of the enameled heavy duty ribbed frame micrometers described on pages following.

No. 1911K, Micrometer, Plain, with Half Thousandths Divisions.

No. 1941KV, Micrometer with Half Thousandths Divisions, with Cam Lock Nut and Ratchet Cap.
Measures to 10,000th inch.

Note: Micrometers with half thousandths divisions can be furnished in other sizes.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometers

Black Enameled Medium Weight Ribbed Frame



No. 1841

A very popular tool with mechanics who prefer a medium weight enameled frame micrometer. A feature of this tool is the square throat which permits measuring to greater depth on flat pieces.

These micrometers have the same smooth action, high degree of accuracy and improved adjustment features as our full finished type. Sturdy frame is cross ribbed as well as ribbed on all edges.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.
Diameter spindle, .250 inch.

Micro-lap finish on anvil and spindle ends.
Positive action lock nut.

Non-slip finish on frame; easier to hold.

A 1-inch standard can be supplied for the 2-inch micrometer and a 2-inch standard for the 3-inch micrometer when ordered.

Measures by 1,000ths Inch			
Range 0 to 1 Inch No.	Range 1 to 2 Inches No.	Range 2 to 3 Inches No.	Equipment
1811	1812	1813	Plain
1841	1842	1843	With Lock Nut and Ratchet Stop
Measures by 10,000ths Inch			
1811V	1812V	1813V	Plain
1841V	1842V	1843V	With Lock Nut and Ratchet Stop

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Stainless Steel Micrometer Calipers

(Patented)

Black Enameled Heavy Duty Ribbed Frame



No. S1911

A strong and durable tool designed for production work. Hub and thimble are stainless steel, a valuable asset in certain industries and climatic conditions. Lufkin stainless steel micrometers will not rust or stain, assuring long life and dependable service. This smooth working micrometer has the easiest method of adjustment.

Rapid reading graduations on thimble.

Thimble and hub of stainless steel.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra service.

Micro-lap finish on anvil and spindle ends.

Non-slip finish on frame; easier to hold.

Measures by 1,000ths Inch

Range 0 to 1 Inch No.	Range 1 to 2 Inches No.	Range 2 to 3 Inches No.	Range 3 to 4 Inches No.	Range 4 to 5 Inches No.	Range 5 to 6 Inches No.	Equipment
S1911	S1912	.....	.....	.....	.....	Plain
S1921	S1922	S1923	S1924	S1925	S1926	With Lock Nut

Measures by 1,000ths Inch

Range 6 to 7 No.	Range 7 to 8 No.	Range 8 to 9 No.	Range 9 to 10 No.	Range 10 to 11 No.	Range 11 to 12 No.	Equipment
S1927	S1928	S1929	S192-10	S192-11	S192-12	With Lock Nut

Note: Ratchet stop can be furnished on above micrometers. Above micrometers can be furnished for measuring to 10,000ths of an inch on 1" through 6" sizes only. Specify by suffix "V" as "S1911V" etc.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometer Sets in Wood Cases



No. 191A

The cases are solidly constructed of choice hardwood. They are well finished and have hinged cover and clasp. Wood cases accommodate and protect the micrometers when not in use and guard against any of the set or the standards being mislaid or lost.

Standards supplied with all sets unless otherwise specified.

Set of Three Micrometers—Range, 0 to 3 Inch

Black Enameled, Medium Weight, Ribbed Frame				Black Enameled, Heavy Duty, Ribbed Frame				Equipment
Set No.	Micrometer Nos.			Set No.	Micrometer Nos.			
	1-Inch	2-Inch	3-Inch		1-Inch	2-Inch	3-Inch	
181A	1811	1812	1813	191A	1911	1912	1913	Plain
.....	.....	.....	.....	192A	1921	1922	1923	With Lock Nut
.....	.....	.....	.....	193A	1931	1932	1933	With Ratchet Cap*
184A	1841	1842	1843	194A	1941	1942	1943	With Lock Nut & Ratchet Cap
.....	.....	.....	.....	196A	1961	1962	1963	With Friction Thimble & Lock Nut

*1800 series micrometers have ratchet stop.

Notes: Micrometers measuring to 10,000ths of an inch can be supplied at extra cost; add suffix "V" to No., such as 181V-A.

Carbide tipped measuring faces can be supplied at extra cost; add prefix "CT" to No.

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Chrome Clad Micrometer Sets in Wood Cases



The cases are solidly constructed of choice hardwood. They are well finished and have hinged cover and clasp. Wood cases accommodate and protect the micrometers when not in use and guard against any of the set or the standards being mislaid or lost.

Standards supplied with all sets unless otherwise specified.

No. 191C

Set of 4 Micrometers—Range, 0 to 4 Inch—Black Enameled, Heavy Duty, Ribbed Frame

Set No.	Micrometer Nos.				Equipment
	1-Inch	2-Inch	3-Inch	4-Inch	
191B	1911	1912	1913	1914	Plain
192B	1921	1922	1923	1924	With Lock Nut
194B	1941	1942	1943	1944	With Lock Nut & Ratchet Cap
196B	1961	1962	1963	1964	With Friction Thimble & Lock Nut

Set of 6 Micrometers—Range, 0 to 6 Inch—Black Enameled, Heavy Duty, Ribbed Frame

Set No.	Micrometer Nos.						Equipment
	1-Inch	2-Inch	3-Inch	4-Inch	5-Inch	6-Inch	
191C	1911	1912	1913	1914	1915	1916	Plain
192C	1921	1922	1923	1924	1925	1926	With Lock Nut
194C	1941	1942	1943	1944	1945	1946	With Lock Nut & Ratchet Cap
196C	1961	1962	1963	1964	1965	1966	With Friction Thimble & Lock Nut

Notes: Micrometers measuring to 10,000ths of an inch can be supplied at extra cost; add suffix "V" to No. such as 191V-B.

Can be supplied in Metric at no additional cost; add suffix "M" to No., such as 191M-A.

Can be supplied with carbide tipped measuring faces at extra cost; add prefix "CT" to No.

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometer Sets in Wood Cases

The cases are solidly constructed of choice hardwood. They are well finished and are equipped with a hinged cover and a good lock. Wood cases give good protection to the tools when not in use. A separate rack is furnished for the standards.

Standards supplied with all sets unless otherwise specified.

Notes: Micrometers measuring to 10,000ths of an inch can be supplied at extra cost; add suffix "V" to No., such as 191V-E.

Can be supplied in Metric at no additional cost; add suffix "M" to No., such as 191M-E.

Can be supplied with carbide tipped measuring faces at extra cost; add prefix "CT" to No.



No. 191D

Set of Six Micrometers—Range, 6 to 12 Inch

Size Micrometer Inches	Set No.			
	191D, Plain	192D, with Lock Nut	194D, with Ratchet Cap & Lock Nut	196D, with Friction Thimble & Lock Nut
7	1917	1927	1947	1967
8	1918	1928	1948	1968
9	1919	1929	1949	1969
10	191-10	192-10	194-10	196-10
11	191-11	192-11	194-11	196-11
12	191-12	192-12	194-12	196-12

Set of 12 Micrometers—Range, 0 to 12 Inch

Size Micrometer Inches	Set No.			
	191E, Plain	192E, with Lock Nut	194E, with Ratchet Cap & Lock Nut	196E, with Friction Thimble & Lock Nut
1	1911	1921	1941	1961
2	1912	1922	1942	1962
3	1913	1923	1943	1963
4	1914	1924	1944	1964
5	1915	1925	1945	1965
6	1916	1926	1946	1966
7	1917	1927	1947	1967
8	1918	1928	1948	1968
9	1919	1929	1949	1969
10	191-10	192-10	194-10	196-10
11	191-11	192-11	194-11	196-11
12	191-12	192-12	194-12	196-12

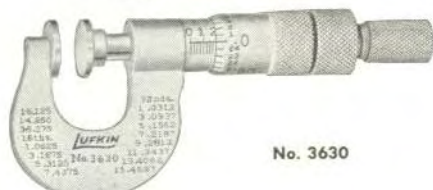
Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Chrome Clad Paper Gage Micrometers

Full Finished Frame



No. 3630

Used in measuring the thickness of paper, sheet rubber, cardboard and other soft materials. Furnished with anvil and spindle faces $\frac{3}{16}$ inch in diameter so that accurate measurements can be taken without compressing the article measured.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Easy to adjust.

Finger ring can be furnished; please specify.

Range Inches	No.	Measures by	Equipment
0 to $\frac{3}{8}$	3610	1,000ths of an Inch	Plain
0 to $\frac{3}{4}$	3630	1,000ths of an Inch	With Ratchet Stop

Packing: One in a Box.

Chrome Clad Tubing Micrometers

$\frac{1}{2}$ -Inch • Full Finished Tapered Frame



No. 2630

For accurately measuring thickness of tubing, etc., in range from 0 to $\frac{1}{2}$ inch. Will measure tubing down to $\frac{5}{16}$ -inch inside diameter. For measuring by thousandths of an inch.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Spindle diameter, .195 inch.

Spindle end is flat and anvil end is rounded permitting contact at only one point on the inside of tube, giving exact thickness.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on spindle end.

Easy to adjust.

No. 2610, Tubing Micrometer, Plain.

No. 2630, Tubing Micrometer, with Ratchet Stop.

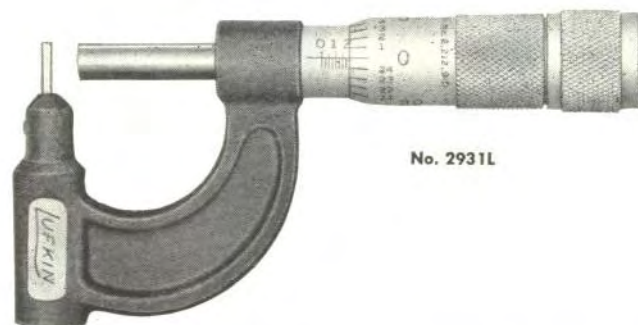
Note: Can be supplied in Metric, 0 to 13 mm. at no additional cost.

FOR PRICES SEE PRICE LIST

Chrome Clad Hole Locating and Tubing Micrometer

$\frac{3}{32}$ " I.D. and Larger

Black Enamelled Heavy Duty Ribbed Frame



No. 2931L

Determining the wall thickness of small diameter tubing; gaging distance of a hole from the edge; and checking slots and grooves are some of the many uses of the LUFKIN Hole Locating and Tubing Micrometer.

It has a rigidly supported, small diameter (.089 inch) anvil mounted at a right angle to the spindle in a special half frame. The hardened anvil is small enough to enter a $\frac{3}{32}$ -inch I.D. hole or slot. Held with a set screw, the anvil can be easily and quickly replaced in case of wear or breakage.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on spindle end.

Ratchet stop enclosed in cap; easier to use.

Easy to adjust.

Non-slip finish on frame; easier to hold.

Measures to 1,000ths Inch		
Number	Description	Range
2911L	Plain	0 to 1"
2931L	With Ratchet Cap	0 to 1"

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Chrome Clad Deep Throat Micrometers

Black Enameled Heavy Duty Ribbed Frame



Designed especially for gaging the thickness of metal sheets and plates, and for other applications requiring a micrometer with a deep throat. Deep throat permits measurements up to $3\frac{1}{4}$ inches from the edge of the work.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Large diameter spindle .270 inch for extra wear.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Easy to adjust.

Non-slip finish on frame; easier to hold.

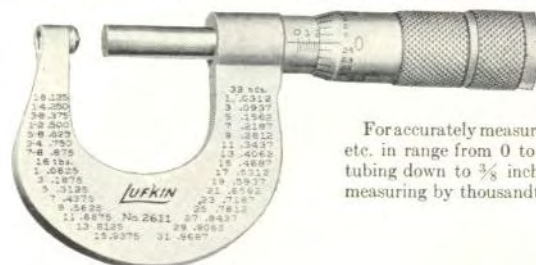
Number	Range	Description
3911	0 to 1 inch	Plain
3931	0 to 1 inch	With Ratchet Cap

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Chrome Clad Tubing Micrometers

1-Inch
Full Finished
Tapered
Frame



No. 2611

For accurately measuring thickness of tubing, etc. in range from 0 to 1 inch. Will measure tubing down to $\frac{3}{8}$ inch inside diameter. For measuring by thousandths of an inch.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground thread.

Spindle diameter, .250 inch.

Spindle end is flat and anvil end is rounded permitting contact at only one point on the inside of the tube, giving exact thickness.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on spindle end.

Ratchet stop enclosed in cap; easier to use.

Easy to adjust.

No. 2611, Tubing Micrometer, Plain.

No. 2631, Tubing Micrometer, with Ratchet Cap.

No. 2651, Tubing Micrometer, with Friction Thimble.

Chrome Clad Tubing Micrometers

1-Inch
Black
Enameled
Heavy Duty
Ribbed Frame



No. 2911

For accurately measuring thickness of tubing, etc. in range from 0 to 1 inch. Will measure tubing down to $\frac{1}{2}$ inch inside diameter. For measuring by thousandths of an inch.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground threads.

Spindle diameter, .270 inch.

Spindle end is flat and anvil end is rounded permitting contact at only one point on the inside of the tube, giving exact thickness.

Micro-lap finish on spindle end.

Ratchet stop enclosed in cap; easier to use.

Easy to adjust.

Non-slip finish on frame; easier to hold.

No. 2911, Tubing Micrometer, Plain.

No. 2931, Tubing Micrometer, with Ratchet Cap.

No. 2951, Tubing Micrometer, with Friction Thimble.

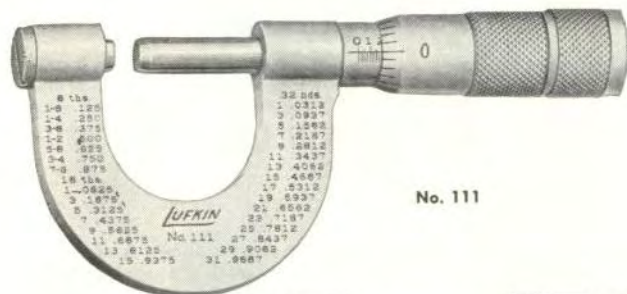
Note: Can be supplied in Metric, 0 to 25 mm. at no additional cost.

Packing: One in a Box.

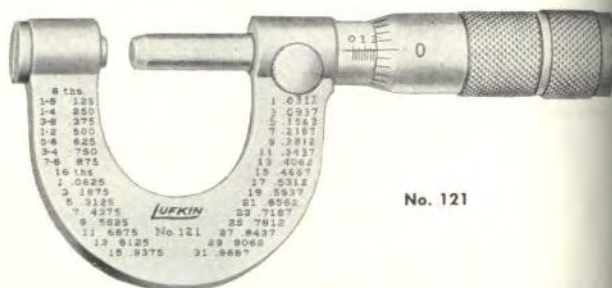
ROSE TOOLS & INC. PRICE LIST

Chrome Clad Millmens Micrometers

1-Inch • Full Finished Frame



No. 111



No. 121

Specifically designed for rapid gaging of hot or cold metals. For measuring by thousandths of an inch. Range, 0 to 1 inch.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground threads.

Spindle diameter, .270 inch.

Long bevel on anvil and spindle permits easy access to the work.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Screw nut will not loosen from effects of heat

Easy to adjust.

Adjustment of micrometer is fast, simple and positive. To adjust the anvil, remove the anvil lock screw at outer end of frame with a screwdriver. Turn spindle to zero. Turn anvil adjusting screw until anvil makes contact with the spindle. Replace anvil lock screw. This screw locks the anvil in proper position as well as serving as a protective cap. In addition to the anvil adjustment the micrometer has the same spindle adjustment as our standard outside micrometers.

No. 111, Millmens Micrometer, Plain.

No. 121, Millmens Micrometer, with Thumb Screw Lock Nut.

Note: Can be supplied with carbide tipped measuring faces at extra cost; add prefix "CT" to No.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

No. 121H Chrome Clad Millmens Micrometer with Handle for Gaging Hot Metals

1-Inch • Full Finished Frame



Specifically designed for rapid gaging of hot metals. For measuring by thousandths of an inch. Range, 0 to 1 inch.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground threads.

Spindle diameter, .270 inch.

Long bevel on anvil and spindle permits easy access to the work.

Table of decimal equivalents of 8ths, 16ths, 32nds and 64ths is marked on the frame.

Micro-lap finish on anvil and spindle ends.

Screw nut will not loosen from effects of heat.

Wing head lock nut is easier to grasp and lock and is easily released even with gloved hand.

Easy to adjust.

Ample size hardwood handle is securely fastened.

Adjustment of micrometer is fast, simple and positive. To adjust anvil, remove the anvil lock screw at outer end of the frame with a screwdriver. Turn spindle to zero. Turn anvil adjusting screw until anvil makes contact with spindle. Replace anvil lock screw. This screw locks the anvil in proper position as well as serving as a protective cap. In addition to the anvil adjustment this micrometer has same spindle adjustment as our standard outside micrometers.

No. 121H, Millmens Micrometer with Handle for Gaging Hot Metals.

Note: Can be supplied with carbide tipped measuring face at extra cost; add prefix "CT" to No.

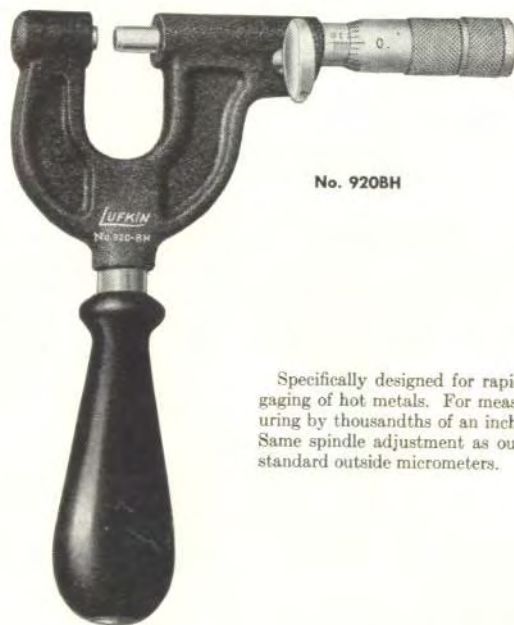
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Chrome Clad Millmens Micrometers with Handle for Gaging Hot Metals

Extra Heavy Duty Ribbed Frame



No. 920BH

Specifically designed for rapid gaging of hot metals. For measuring by thousandths of an inch. Same spindle adjustment as our standard outside micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground threads.

Spindle diameter, .270 inch.

Long bevel on anvil and spindle permits easy access to the work.

Micro-lap finish on anvil and spindle ends.

Screw nut will not loosen from effects of heat.

Wing head lock nut is easier to grasp and lock and easily released even with gloved hand.

Easy to adjust.

Ample size hardwood handle is securely fastened.

No. 920BH, Millmens Micrometer. Range, 0 to $\frac{1}{2}$ Inch.

No. 921BH, Millmens Micrometer. Range, 0 to 1 Inch.

Medium Weight Enameled Ribbed Frame

No. 822H, Millmens Micrometer. Range, 1 to 2 Inches.

Note: Can be supplied with carbide tipped measuring faces at extra cost; add prefix "CT" to No.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

No. 1942 $\frac{1}{2}$ Chrome Clad Crankshaft Micrometer

Heavy Duty Rigid Ribbed Frame



A custom designed micrometer for crankshaft measuring by thousandths of an inch.

Graduations are on the under side of the hub, plainly visible for accurate measurements without removing micrometer from the work. This micrometer has the same smooth action and improved adjustment features as other Lufkin micrometers. Extended anvil and special length give good depth clearance.

Finished wood case for this micrometer is furnished only when ordered.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Non-slip finish on frame; easier to hold.

No. 1942 $\frac{1}{2}$, Crankshaft Micrometer with Lock Nut and Ratchet Cap. Range: $1\frac{1}{2}$ to $2\frac{1}{2}$ Inches.

2-Inch Standard. (Supplied Only When Ordered).

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action lock nut.

Easy to adjust.

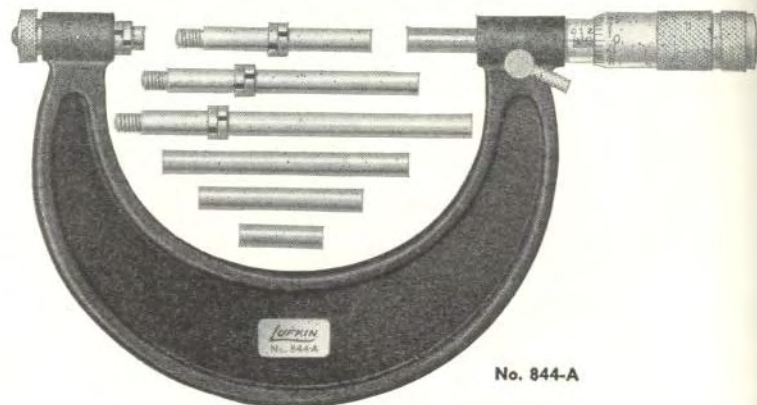
Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

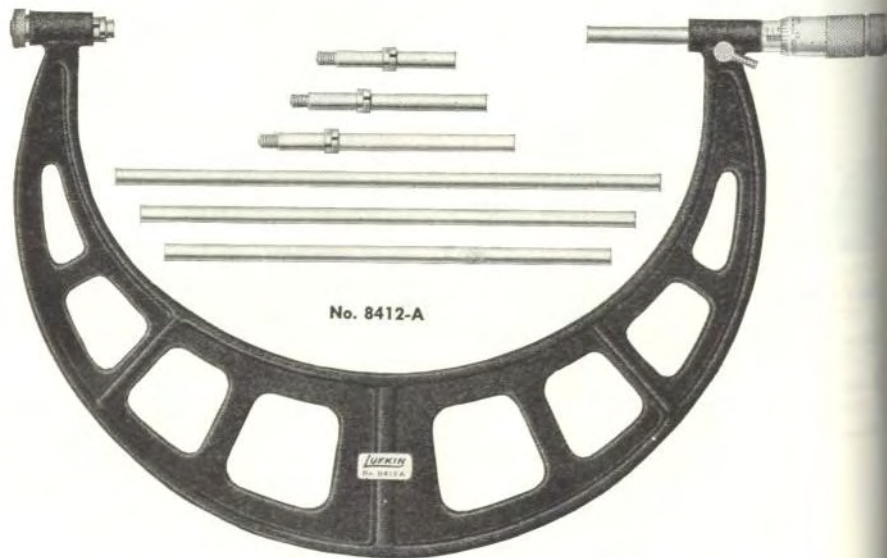
Chrome Clad Micrometers With Interchangeable Anvils

(Patented)

Heavy Duty Ribbed Frame



No. 844-A



No. 8412-A

Chrome Clad Micrometers with Interchangeable Anvils

(Patented)

Black Heavy Duty Ribbed Frame

Lufkin Micrometers with interchangeable anvils are popular in many auto and machine shops. Each micrometer is supplied with a set of readily interchangeable anvils permitting a wide range of measure. The anvils are accurately and securely held in place by a knurled nut at the outer end of the anvil and an adjusting nut at the base of the anvil. The frame used on micrometers through 9-inch is of "I" bar construction, rigid and sturdy. The 9 to 12-inch range have sturdy, perforated, rigid ribbed frames. This micrometer has the same smooth action and adjustment features as other Lufkin micrometers.

Standards are supplied with micrometers.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads. Spindle diameter, .270 inch.

Micro-lap finish on anvil and spindle ends.

Ratchet stop enclosed in cap; easier to use.

Positive action lock nut.

Easy to adjust.

Non-slip finish on frame; easier to hold.

For Measuring by 1,000ths Inch

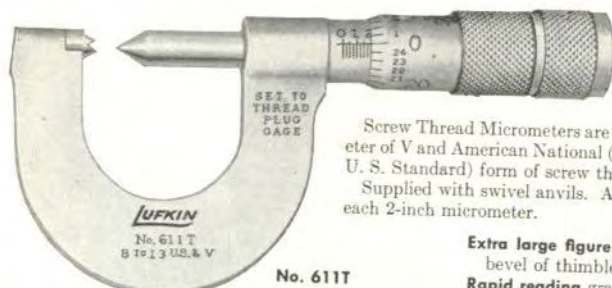
Range 0 to 4 Inch No.	Range 2 to 6 Inches No.	Range 6 to 9 Inches No.	Range 9 to 12 Inches No.	Range 6 to 12 Inches No.	Equipment
844A	846A	849A	8412A	8412AX	With Lock Nut & Ratchet Cap

Packing: One in a Hinged Wooden Box, with Clasp.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Chrome Clad Screw Thread Micrometers With Swivel Anvils



Full Finished Frame

Screw Thread Micrometers are used for measuring the pitch diameter of V and American National (American National formerly called U. S. Standard) form of screw threads.

Supplied with swivel anvils. A 1-inch standard is furnished with each 2-inch micrometer.

Extra large figures and longer graduation lines on bevel of thimble.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Spindle and anvil ends are shaped to conform to the standard angle of threads for which they are selected.

Easy to adjust.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

For Measuring by 1,000ths Inch			
1-Inch Capacity		2-Inch Capacity	
No.	Range of Threads per Inch	No.	Range of Threads per Inch
611T 8-13	8-13	612T 4½-7	4½-7
611T 14-20	14-20	612T 8-13	8-13
611T 22-30	22-30	612T 14-20	14-20
611T 32-40	32-40	612T 22-30	22-30

Always specify range of threads in addition to stock number just as underscored.

Chrome Clad Thread Comparator Micrometers

(Patented)

Heavy Duty Rigid Ribbed Frame



No. 1911C

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

No. 1911C, Plain. Range: 0 to 1 Inch.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

This is a micrometer of many uses. It is suited for making quick comparisons in cutting screw threads, for measuring web, thickness of drills and taps and for measuring in small grooves and recesses where a regular micrometer cannot be used. For measuring by thousandths of an inch.

Anvil and spindle faces are conical, points about ¼-inch flat rather than sharp. Micrometer is set at zero when anvil and spindle are in contact. This smooth working micrometer has the easiest method of adjustment.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads.

Easy to adjust.

No. 1912C, Plain. Range: 1 to 2 Inches.

Chrome Clad Micrometer Heads

½-Inch



No. 010

Lufkin Micrometer Heads are readily attached to machine tools, special gages, etc., where micrometer accuracy is required. Have same improved adjustment features as other outside Lufkin micrometers. When the half-inch micrometer head is set at zero, the spindle extends ⅝ inch. When desired heads can be furnished with ¾ in. spindle extension at no extra charge. The length of the lower end of the hub or clamping surface is ⅝ inch and the diameter is .3755 inch. These heads can be furnished with Carbide Tips.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Rapid reading graduations on thimble.

Hardened one-piece spindle with ground threads. Spindle diameter, .195 inch.

Micro-lap finish on spindle end. **Easy to adjust.**

For Measuring by 1,000ths Inch		For Measuring by 10,000ths Inch		Equipment
Range, In.	No.	Range, In.	No.	
0 to ½	010	0 to ½	010V	Plain
0 to ½	030	0 to ½	030V	With Ratchet Stop
0 to ½	010	0 to ½	010V	Stainless Steel—Plain

Chrome Clad Micrometer Heads

1-Inch



No. 011

These Lufkin Micrometer Heads are readily attached to machine tools, special gages, etc., where micrometer accuracy is required. They are smooth working with an easy method of adjustment. When the 1-inch micrometer head is set at zero, the spindle extends 1½ inches. The length of the lower end of the hub or clamping surface is ¾ in.; the diameter is .3755 in. These heads can be furnished with Carbide Tips.

Easy to read. Chrome Clad non-glare satin finish with black filled graduations and figures.

Extra large diameter thimble with wider spaces between graduations.

Extra large figures and longer graduation lines on bevel of thimble.

Hardened one-piece spindle with ground threads. Spindle diameter, .250 inch.

Micro-lap finish on spindle end.

Ratchet stop enclosed in cap; easy to use.

Positive action lock nut.

Easy to adjust.

For Measuring by 1,000ths Inch		For Measuring by 10,000ths Inch		Equipment
Range, In.	No.	Range, In.	No.	
0 to 1	011	0 to 1	011V	Plain
0 to 1	021	0 to 1	021V	With Lock Nut
0 to 1	031	0 to 1	031V	With Ratchet Cap
0 to 1	041	0 to 1	041V	With Lock Nut and Ratchet Cap
0 to 1	011	0 to 1	011V	Stainless Steel—Plain

Chrome Clad Metric Micrometer Heads 13 Mm. and 25 Mm.

Same general description as those described above except graduated in Metric.

When the 13 mm. micrometer head is set at zero, the spindle extends 14.3 mm. The length of the lower end of the hub or clamping surface is 10 mm. and the

diameter is 9.5 mm. Spindle diameter, .195 inch.

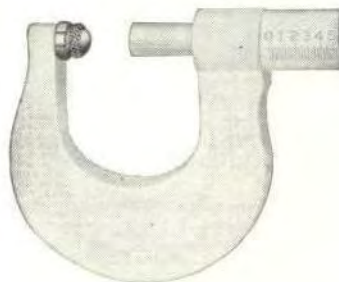
When the 25 mm. micrometer head is set at zero the spindle extends 27 mm. The length of the lower end of the hub or clamping surface is 19 mm. and the diameter is 9.5 mm. Spindle diameter, .250 inch.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Ball Attachments for Micrometers

Fit Anvil or Spindle



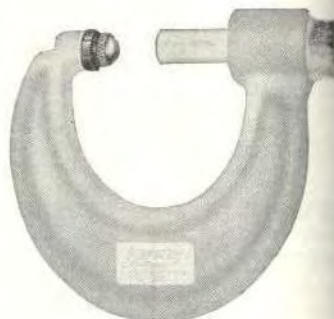
No. 16

Your regular micrometer can have added utility. Using a ball attachment with your regular micrometer, it can be used for measuring tubing walls and other rounded surfaces.

Lufkin ball attachments are easily applied to anvil or spindle or two balls can be used together.

Each ball fits freely in its retainer insuring contact with anvil or spindle.

Balls are .200-inch diameter, necessitating subtracting .200-inch from reading for each ball used.

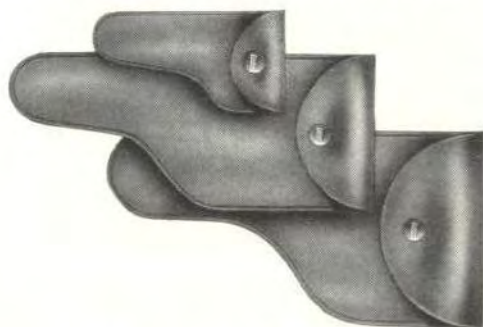


No. 19

The ball diameter, .200-inch, is an outstanding feature because it is a simple even numbered figure to subtract.

No.	For Micrometer Series	Fits Anvil or Spindle Diameter, Inches	No. in Box
16	1600	.250	6
19	1900	.270	6

Flexible Cases for Micrometers



These cases are light and flexible. Suitable for pocket use as well as protecting tool from scratches and other damage resulting from contact with other tools. Equipped with snap fastener.

Size Case Inches	For Micrometer Series	No. in Box
1/2	1800	1
1	1600, 1800 and 1900	1
2	1600, 1800 and 1900	1

FOR PRICES SEE PRICE LIST

Plush-Lined Leather Cases for Micrometers



A rigid, fine appearing case affording best protection for micrometers because dust, dirt and grit are excluded. Also protects tool from scratches and other damage resulting from contact with other tools.

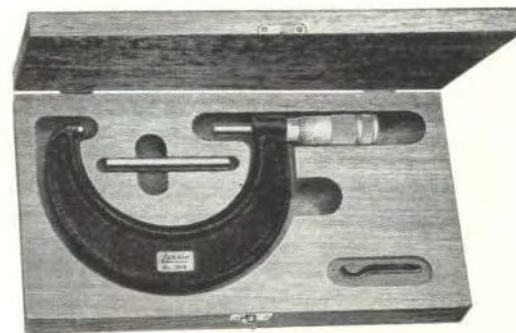
These fitted cases are solidly constructed with square edges and rounded corners. Lined with black plush. Outside covered with black, seal-grain genuine leather.

Cover is hinged and has slide clasp.

No. 91, Plush Lined Case for One-Inch Micrometers.

No. 92, Plush Lined Case for Two-Inch Micrometers.

Finished Wood Cases for Larger Size Micrometers



A well finished, substantial case made of choice hardwood. They have a hinged cover and clasp.

Wood Case for Three-Inch Micrometers.

Wood Case for Four-Inch Micrometers.

Wood Case for Five-Inch Micrometers.

Wood Case for Six-Inch Micrometers.

Wood Case for Seven-Inch Micrometers.

Longer tool life can be expected if the tool is properly protected from dust and grit.

Wood Case for Eight-Inch Micrometers.

Wood Case for Nine-Inch Micrometers.

Wood Case for Ten-Inch Micrometers.

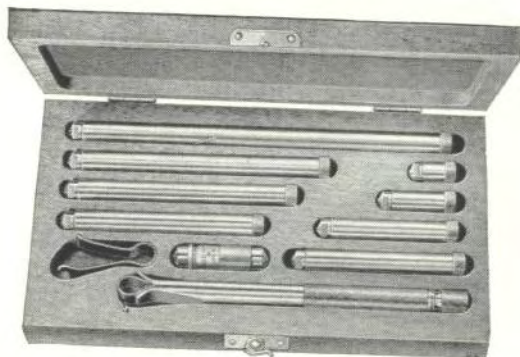
Wood Case for Eleven-Inch Micrometers.

Wood Case for Twelve-Inch Micrometers.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Series 680 Chrome Clad Tubular Inside Micrometers



Using Inside Micrometer No. 681D, Built Up with Extension Rod at Both Ends

Note that the micrometer head is in centered position where it is easiest to get proper feel and to adjust micrometer to size, and that reading point is directly in the line of vision, where it is easy to see and read.

Series 680 Chrome Clad Tubular Inside Micrometers



Lufkins finest line of Inside Micrometers. Rigid tubular construction, yet light in weight. Made of precision ground tubing rather than a solid rod. Measuring rods can be added to either or both ends of micrometer head. This feature permits the micrometer head to be in a centered position at all times. The head being centered and in line of vision, allows the mechanic to get a more sensitive feel and a more precise measurement.

Micrometer head has Chrome Clad non-glare satin finish.

Rapid reading graduations on thimble (each thousandth numbered).

Spindle threads hardened and ground.

Anvil ends precision ground and hardened.

Adjustable extension rods are readily attached to head by removing hardened end cap (or anvil) of head with the friction wrench which is supplied. Each rod is marked with its length and adjusted

for accurate measure and can be adjusted for wear. Simply slip the friction wrench over graduated sleeve and rotate it in either direction in the thimble until the zero line coincides with reading on hub. As this would affect the measurement when extension rods are used, each rod is individually adjustable, by means of a hardened and ground plug at one end, which can be turned either into or out of the rod. A tension screw nut at end of screw is provided for adjusting tension on threads.

Measures by 1,000ths Inch				Measures by 100ths Mm.			
No.	Range Inches	No. of Measuring Rods	Screw Movement Inches	No.	Range Mm.	No. of Measuring Rods	Screw Movement Inches
*680A	1 1/2-8	5	1 1/2	*680A-M	40-200	6	13
*680B	1 1/2-12	8	1 1/2	*680B-M	40-300	8	13
*681C	4-24	7	1	*681C-M	100-600	7	25
*681D	4-32	8	1	*681D-M	100-800	8	25
*681K	4-40	10	1	*681K-M	100-1000	10	25
*6801D	1 1/2-32	10	1/2 & 1 (2 Heads)	*6801D-M	40-800	10	13 & 25 (2 Heads)

*Furnished with handle to help maintain perfect balance essential to accuracy; may be attached anywhere along the head or the extension rods.
 †With lock nut. ‡With lock nut on 1-inch head.
 §With lock nut on 25 mm. head.

Note: Micrometers with range beyond 40 inches can be supplied. Prices on request.

Packing: One in a Nicely Finished Wood Box.

No. 9A Height Gage Attachments

(Patented)

Used in conjunction with No. 680 series micrometers. Useful on jigs, fixtures and in machine construction work; suitable also for use in lining up shafting, etc.

Well proportioned, accurately grooved and hardened. Knurled chuck firmly holds inside micrometer rod in place. Hole extends entirely through, permitting micrometer rod to rest directly on any surface from which measurement is being taken, an essential feature when working on cylindrical objects. Mottled finish.

Packing: One in a Box.

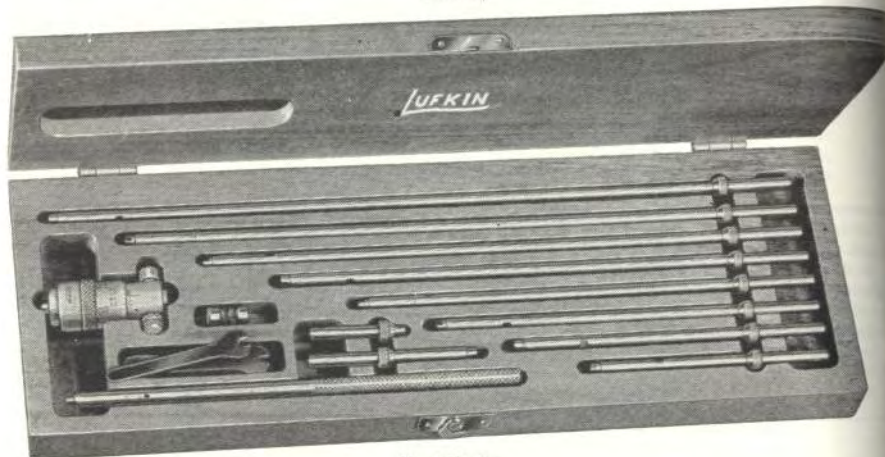


No. 9A, Showing Application with Micrometer

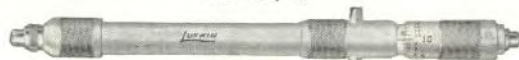
FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Series 80 Chrome Clad Inside Micrometers—Solid Rods

(Patented)



No. 80B, Set



No. 81C, Head

Accurate and suitable for many purposes, these Inside Micrometers, though not possessing the features and refinements of our No. 680 Series, are popular with mechanics.

Micrometer head has Chrome Clad non-glare satin finish. **Rapid reading** graduations on thimble (each thousandth numbered). **Spindle threads** and **Contact points** hardened and ground.

Extension rods and collars are used to obtain the range. Each rod is marked with the range of the micrometer when used with that rod. For example; using the 3 to 4-inch rod, the movement allows measurements from 3 to 3½ inches, adding ½-inch collar increases the range with the same rod from 3½ to 4 inches. Use of collars applies to all extension rods. The zero mark on head, collar and rod should be in alignment in assembling the tool for use. When assembled, the shoulder

on the rod fits firmly against the head or collar. Provision is made for adjusting tension and taking up wear on the screw. Contact points of the rods are adjustable for maintaining their individual lengths by means of wrenches furnished with each set.

Handle can be furnished for 80A, 80B and 81D sets. Handle can be inserted in the head by removing the knurled screw opposite the knurled and grooved extension rod lock screw. Handle supplied only when ordered.

Fitted cases are available for all sets; supplied only when ordered.

Measures by 1,000ths Inch

No.	Range Inches	No. of Rods	Rod Diam. Inches	Movement of Screw Inches	Description
80A	2 to 8	6	5/32	1/2	Complete with Solid Rods and 1/2-Inch Collar.
80B	2 to 12	10	5/32	1/2	
81C	8 to 32	4	3/16	1	
81D	2 to 32	10	5/32 & 5/16	1/2 & 1	Complete with Tubular Rods and One 1-Inch and Two 2-Inch Collars. Consists of Micrometers sets 80A and 81C.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Precision End Measuring Rods



Head



Rod

Lufkin End Measuring Rods serve as an accurate and dependable means for obtaining spacings and table setting locations on jig boring mills and other precision machine work. They are made from select high quality steel, lapped to very close tolerance. Contact surfaces are hardened. Greater accuracy is assured because Lufkin precision end measuring rods are manufactured under controlled conditions, temperature and other factors remaining constant.

Micrometer heads have Chrome Clad satin finish for easier reading. Each thousandth is numbered for rapid and accurate reading. Two heads are furnished with each standard set, one with red identifying ring, one with black identifying ring. Micrometer heads have 1-inch movement of the screw.

Has hardened and ground threads.

The raised supporting sections of the rods are 5/8-

inch in diameter to fit properly in the groove of the machine bed. They are accurately ground parallel to the axis of the measuring faces. The contact faces of the rods are precision ground and lapped parallel to each other. Rods have chrome clad satin finish.

Precision end measuring heads and rods can be furnished individually or in sets.

Furnished with fitted wood case.

All Sets Contain Two Heads with Lock Nut; One with Red Identifying Ring; One with Black Identifying Ring															
Graduations to 10,000ths Inch; Head Range 4 to 5 Inches									Graduations to 100ths Millimeter; Head Range 100 to 125 Mm.						
Set No.	Number of Rods								Set No.	Number of Rods					
	1-In.	2-In.	3-In.	4-In.	5-In.	6-In.	12-In.	15-In.		20-Mm.	40-Mm.	60-Mm.	100-Mm.	200-Mm.	300-Mm.
981A	2	2	2	2	2	-	-	1	981AM	2	2	2	2	2	2
981B	2	2	2	-	-	2	2	-	981BM	2	2	2	2	2	3
981C	2	2	2	-	-	2	3	-							

Extra Heads and Rods

Extra Heads Only			Extra Rods Only		
No.	Measurement		No.	Measurement	Length
981	Inches		981	Inches	1, 2, 3, 4, 5, 6, 7, 8, 10, 12 or 15-Inch
981M	Metric		981M	Metric	20, 25, 40, 50, 60, 75, 100, 125, 150, 175, 200 or 300 Millimeter

Note: Sets other than listed can be supplied; information and prices on application.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Chrome Clad Micrometer Depth Gages

(Patented)

1-Inch Movement



No. 513

Head has Chrome Clad non-glare satin finish.

Rapid reading graduations on thimble (each thousandth numbered).

Threads are hardened and ground.

Lock nut engages the rod at any point, holding the reading.

Measures by 1,000ths Inch								
3-Inch Base			4-Inch Base			5-Inch Base		
No.	Range	No. of Rods	No.	Range	No. of Rods	No.	Range	No. of Rods
*513	0 to 3 Inch	3	*514	0 to 3 Inch	3	*515	0 to 3 Inch	3
†513RS	0 to 3 Inch	3	†514RS	0 to 3 Inch	3	†515RS	0 to 3 Inch	3
*513 0 to 6	0 to 6 Inch	6	*514 0 to 6	0 to 6 Inch	6	*515 0 to 6	0 to 6 Inch	6
†513RS 0 to 6	0 to 6 Inch	6	†514RS 0 to 6	0 to 6 Inch	6	†515RS 0 to 6	0 to 6 Inch	6
Measures by 100ths Mm.								
*513M	0 to 75 Mm.	3	*515M	0 to 75 Mm.	3			

*With lock nut. †With lock nut and ratchet cap. Above sets can also be furnished with rods ground to a $\frac{1}{32}$ inch radius at no extra charge.

Extra Rods

Extra rods are available in 0 to 1, 1 to 2, 2 to 3, 3 to 4, 4 to 5, 5 to 6, 6 to 7, 7 to 8 and 8 to 9-inch ranges.

When ordering rods only, the finest degree of accuracy is assured by returning the gage to the factory for fitting.

Packing: One Gage with Rods in Hinged Wood Box with Clasp.

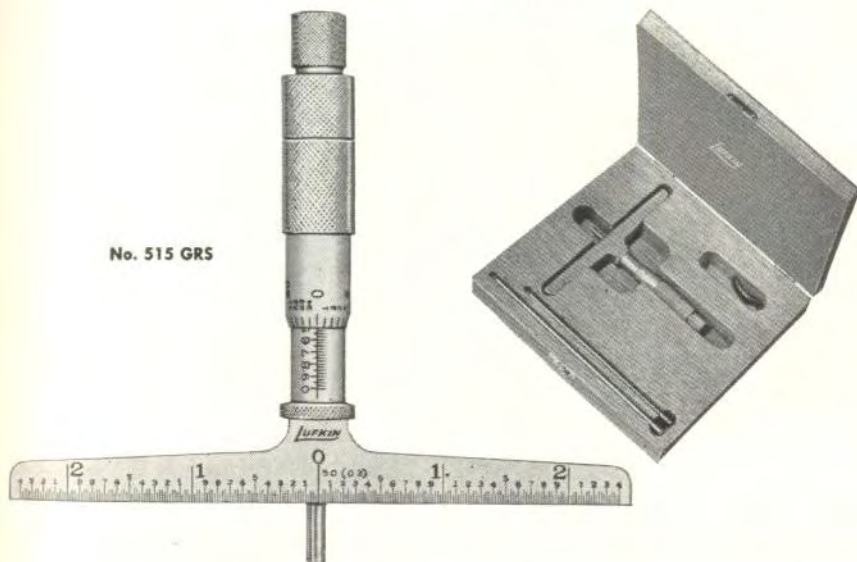
Available also without wood case.

FOR PRICES SEE PRICE LIST

Chrome Clad Micrometer Depth Gages

Graduated Base 1-Inch Movement

No. 515 GRS



Measures the depth of holes, slots, projections, etc. with micrometer accuracy.

Base is graduated on one side to permit taking measurements in various locations at a specified distance from the edge of the work. Graduations are in 50ths (.020) and extend 2.4 inches both sides of zero located in the exact center of base.

The base, 5 inches long by $\frac{15}{32}$ inch wide, is oblong with knurled top surface for firm holding. Base is hardened and ground.

The micrometer head has a Chrome Clad non-glare satin finish. Graduations on the thimble are rapid reading (each thousandth is numbered). Hard-

ened and ground threads.

The rods, approximately $\frac{5}{32}$ inch in diameter are centerless ground and have hardened and lapped measuring ends. Rods are inserted through hole in screw and securely fastened by knurled cap. Each rod has means of individual length adjustment.

Number	Range	No. of Rods	Description
515G	0 to 3 inch	3	With Lock Nut
515GRS	0 to 3 inch	3	With Lock Nut and Ratchet
515G	0 to 6 inch	6	With Lock Nut
515GRS	0 to 6 inch	6	With Lock Nut and Ratchet

NOTE: Sets can also be furnished with rods ground to a $\frac{3}{32}$ inch radius at no extra charge.

Extra Rods

Extra rods are available in any of the following ranges: 0-1", 1"-2", 2"-3", 3"-4", 4"-5", 5"-6", 6"-7", 7"-8", 8"-9". When ordering rods only, return gage to factory for accurate fitting.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Memorandum

Chrome Clad Micrometer Depth Gages

(Patented)

1-Inch Movement • 2-Inch Base



No. 212

This gage is especially suitable for measuring with micrometer accuracy depths of very small holes, slots, etc. and for use in small places.

To permit use in small openings and in confined locations, the diameter of the measuring rods of this gage is $\frac{3}{32}$ inch, length of oblong base is 2 inches, and its width $\frac{1}{4}$ inch.

Three rods are furnished with this gage, giving measurements from 0 to 3 inches by thousandths of an inch. The rods are inserted through a hole in the screw and are securely fastened by the knurled cap. To compensate for wear, each rod is equipped with an adjusting nut to maintain its length. The end of each rod is hardened and lapped. Rods are centerless ground. Base is hardened and ground, and its form assures firm hold.

Head has Chrome Clad non-glare satin finish.

Rapid reading graduation on thimble (each thousandth numbered).

Lock nut engages the rod at any point, holding the reading.

No. 212, Micrometer Depth Gage.

No. 212RS, Micrometer Depth Gage, with Ratchet Stop.

Packing: One Gage with Rods in Hinged Wood Box with Clasp.

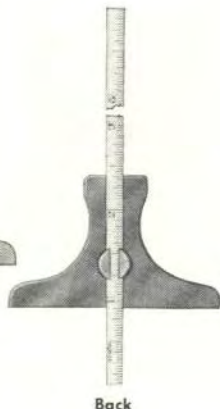
Depth Gages

Case Hardened Steel Heads • Tempered Steel Blades

No. 510

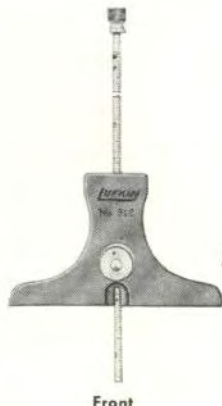


Front



Back

No. 512



Front



Back

Blades are tempered steel, machine divided, fitted in slot of head. They can be securely clamped at any point by means of knurled nut and tension spring. Removable for use separately as scales.

Our gages with round rod have that rod graduated. This is a valuable feature, making unnecessary the use of an additional rule.

Steel heads are case hardened, well finished and fit the hand nicely. Give good range, being $2\frac{1}{2}$ -inches wide and $\frac{1}{8}$ -inch thick. They are deeply notched on one side, making reading of measurement easy.

No.	Size	Type Depth Gage	Markings
510	6 Inch	With Narrow, $\frac{3}{16}$ -Inch, Spring Tempered Rule	Rule Marked One Side 32nds, Other Side 64ths Inch (Rule No. 2310)
512	6 Inch	With Round, Graduated Rod (Rod While Round is Graduated, a Distinctive Feature)	Rod Is Tempered, $1/10$ -Inch in Diameter, Permitting Access in Small Holes. Rod Is Graduated 4 Inches to 32nds. Measurement Is Arrived at without the Additional Use of a Rule, Making this the Ideal Tool of its Kind
510M	15-Centimeter	With 5 Mm. Wide Spring Tempered Rule	Rule is Marked One Side Millimeters, Other Side $\frac{1}{2}$ Mm. (Rule No. 2300M)
512M	15-Centimeter	With Round Graduated Rod	Rod Is Tempered Approximately $2\frac{1}{2}$ Millimeters in Diameter, Gives Access to Small Holes. Rod Is Graduated 10 Centimeters to Millimeters. Measurement Is Arrived at without the Additional Use of a Rule

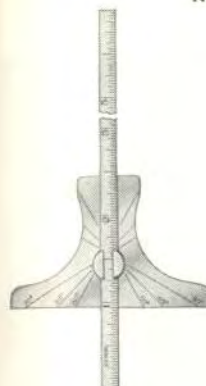
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Depth Gages

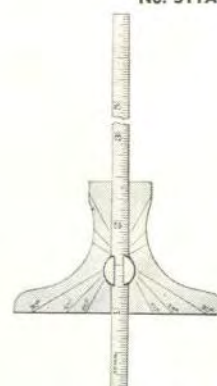
Combination Depth Gage and Hook Rule
Case Hardened Steel Heads • Tempered Steel Blades

No. 511



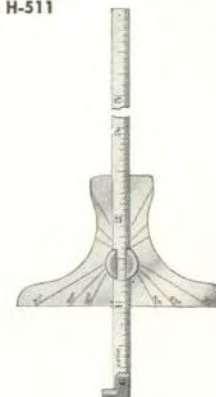
Back

No. 511A



Back

No. H-511



Back

These depth gages have degree lines on head, to which the blade, or rule, can be set, serving as a protractor for some kinds of work.

Blades are tempered steel, machine divided, fitted in slot of head. Blades can be securely clamped at any length by means of knurled nut and tension spring. All blades are removable for use separately as scales.

Steel heads, case hardened, well finished and fit the hand nicely. Heads give good range, being $2\frac{1}{2}$ -inches wide and $\frac{1}{8}$ -inch thick. They are deeply notched on one side, making reading of measurement easy. No. 511A and H511A are furnished with a narrow blade and a round graduated rod. The rod is $\frac{1}{10}$ inch in diameter permitting easy access into small holes.

No. H-511 blade has hook, making a convenient tool for certain kinds of caliper work. When used as a depth gage, remove hook by simply giving eccentric stud a half turn.

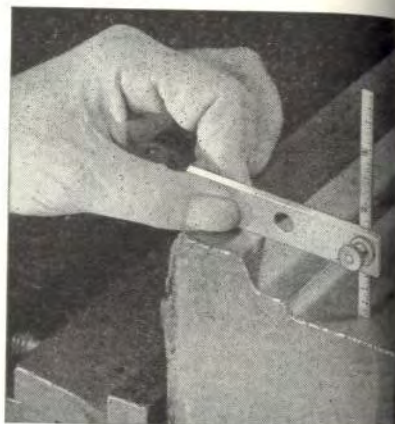
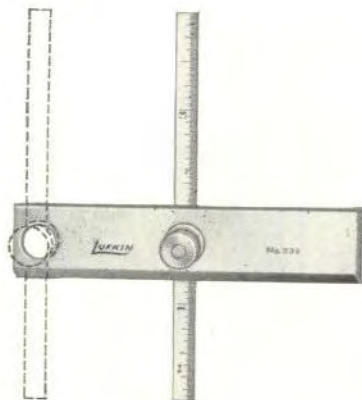
No.	Size	Type Depth Gage	Markings
511	6-Inch	With Narrow, $\frac{3}{16}$ -Inch, Spring Tempered Rule	Rule Marked One Side 32nds, Other Side 64ths Inch (Rule No. 2310) One Side of Head Is Marked, Both Right and Left, with 30, 45 and 60 Degree Lines
H-511	6-Inch with Hook Rule	With $\frac{3}{16}$ -Inch Wide Spring Tempered Rule with Hook	With Degree Lines on Head, as Described Above. Rule Marked One Side 32nds, Other Side 64ths Inch. (Rule No. H-2310)
511A	6-Inch	With Narrow, $\frac{3}{16}$ -Inch, Spring Tempered Rule and Round Graduated Rod	Rule Marked One Side 32nds, Other Side 64ths Inch (Rule No. 2310) One Side of Head Is Marked, Both Right and Left, with 30, 45 and 60 Degree Lines. Rod is Graduated 4 Inches to 32nds Inch
H-511A	6-Inch with Hook Rule	With $\frac{3}{16}$ -Inch Wide Spring Tempered Rule with Hook and Round Graduated Rod	With Degree Lines on Head, as Described Above. Rule Marked One Side 32nds, Other Side 64ths Inch. (Rule No. H-2310) Rod is Graduated 4 Inches to 32nds Inch

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Depth Gages

With Graduated Steel Rule
Designed for Spanning Wider Openings



These depth gages have bases $3\frac{1}{2}$, 6 and 10-inches wide, a range to cover practically all requirements. All bases have gaging positions at center and at end, making them more suitable to taking difficult measurements. Measuring edge of base is beveled, giving line contact with work surface.

Blade (rule) fits in head slots and can be clamped securely at any length by knurled nut and tension spring. Made entirely of tempered steel. The flat blades are $\frac{3}{16}$ -inch wide and are machine divided. One side graduated to 32nds, the other side to 64ths, (rule No. 2310). The rule is removed readily for use separately as a scale.

No.	With Base Inches	With Rule Inches
509A	$3\frac{1}{2}$	4
509B	$3\frac{1}{2}$	6
509C	6	4
509D	6	6
509E	10	6

Notes: Rule No. 2311 graduated in 64ths and 100ths can be used in place of No. 2310.
Metric, No. 509 Series Depth Gages can be furnished with Metric Rule No. 2300M.

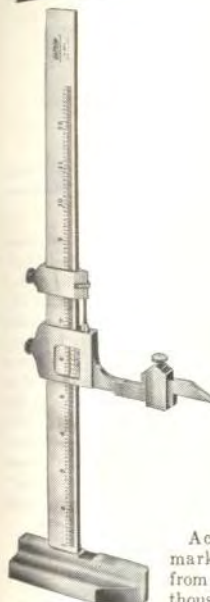
Prices same as gages with corresponding length rule in inches.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Series No. 800 Vernier Height Gage

Balanced Design of Base and Bar
Sturdy Construction
Long Bar Provides Full Measuring Capacity
Larger Numerals, Fine Clear Markings, All Black Filled
Extra Long Arm on Sliding Jaw
Base and Sliding Jaw Have Top and Bottom Surfaces Hardened, Ground and Lapped



Indicator Adaptor

Accurately measures and marks off vertical distances from a plane surface. Reads to thousandths of inches by means

of a Vernier on sliding jaw.

Graduations are machine cut, fine, and black filled.

Top and bottom surfaces of sliding jaw are hardened, ground and lapped enabling scriber to be set either on top or bottom surface of sliding jaw arm. Sliding jaw has an extra long arm which permits scriber to be clamped in underside position and sliding jaw lowered to its lowest measuring position. The bottom of the base is ground and lapped.

Bars of the 18 and 24-inch gages are channeled on both sides. Channels are finished in enamel. All other surfaces are bright.

Depth gage attachments can be attached to straight scriber. Attachment for 12-inch gage will enter holes not less than $\frac{3}{16}$ in. in diam. to a depth of $5\frac{1}{2}$ in. Attachment for 18 and 24-in. gage will enter holes not less than $\frac{1}{4}$ in. in diam. to a depth of 8 in.

Offset scriber for 12-in. gage is 3 in. long overall and has a $1\frac{1}{2}$ -in. offset. It extends the range to $\frac{3}{16}$ in.



Offset Scriber



Depth Gage Attachment

below bottom surface of base when clamped to top surface of sliding jaw. When clamped to bottom surface of sliding jaw, range is extended to 1 in. below bottom surface of base. When clamped in top position of sliding jaw, 1,500 in. must be subtracted from Vernier reading. Offset scriber for 18 and 24-in. gage is 4 in. long overall and has a 2-in. offset. It extends the range to $\frac{3}{16}$ in. below bottom surface of base when clamped to top surface of sliding jaw. When clamped to bottom surface of sliding jaw, range is extended to $1\frac{1}{2}$ in. below bottom surface of base. When clamped in top position of sliding jaw, 2,000 in. must be subtracted from Vernier reading.

Furnished with straight scriber and with case unless otherwise specified.

Size Inches	Bar Inches	Base Inches
12	$\frac{1}{8} \times \frac{3}{16} \times 14\frac{1}{16}$	$3\frac{3}{4} \times 1\frac{1}{2} \times \frac{1}{16}$
18	$1\frac{1}{4} \times \frac{1}{4} \times 21\frac{1}{16}$	$5\frac{1}{4} \times 2\frac{1}{4} \times \frac{1}{16}$
24	$1\frac{1}{4} \times \frac{1}{4} \times 27\frac{1}{16}$	$7 \times 3 \times 1\frac{1}{16}$

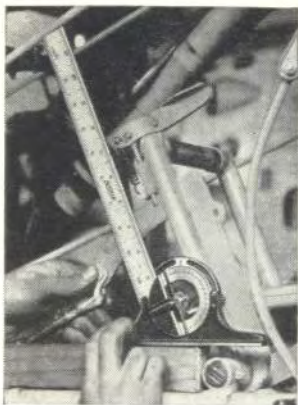
No.	Gage Height, Inches	Description	No.	Gage Height, Inches	Description
800	12, 18 or 24	Gage Only	800G	18 or 24	Offset Scriber
800A	12, 18 or 24	Gage with Depth Gage	800H	12	Indicator Adaptor
800B	12, 18 or 24	Gage with Offset Scriber	800J	12	Straight Scriber
800C	12, 18 or 24	Gage with Depth Gage and Offset Scriber	CT800J	12	Carbide Tipped Scriber
800D	12	Depth Gage Attachment	800K	18 or 24	Straight Scriber
800E	18 or 24	Depth Gage Attachment	CT800K	18 or 24	Carbide Tipped Scriber
800F	12	Offset Scriber	800K-6	18 or 24	Straight Scriber, 6" Long
			800K-10	18 or 24	Straight Scriber, 10" Long

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Combination Squares • Bevel Protractors



Combination Sets

General Description

These tools consist of an accurately machine divided, tempered steel rule (or blade), on which slide the square head (or stock), the center head and the protractor head, furnished singly or as a set.

All ground faces and the enameled parts of all heads are exceptionally well finished. Square heads have square and miter faces and all, except the 4-inch and No. 135, are equipped with level glass and scriber. All protractor heads have level. All heads can be accurately, quickly and securely set at any point along the blade, and readily removed so blade can be used separately as a rule and square head as a level. Arms of our center heads are ground to equal length and have ends uniformly machined to give accurate result on large as well as small diameters. The revolving turret of our protractor heads has degrees numbered from 0 to 90 to left and to right of center. Those protractor heads which have shoulder extending from only one side of blade are known either as "single," "plain," or "not reversible"; those with shoulder extending from both sides, as "double" or "reversible". Our reversible protractor heads readily can be converted to single type.

We Offer Combination Squares and Sets of Two Kinds

With Square and Center Heads Drop Forged and Hardened
With Cast Heads Not Hardened

In the design and manufacture of Lufkin Combination Squares first consideration is given to accuracy and to insure continued accuracy. A well balanced fine appearing tool.

All Lufkin Combination Squares are equipped with patented bolt which permits reversing the blade in the head without removing the nut. Hardened heads are so marked.

Combination Square Sets are made up by adding parts to the basic square. For example: The No. 635 Combination Set is made up of the No. 35C Square and Center Head plus a No. 06 Protractor Head, etc.

A Combination Set Has Perhaps More Applications in Use Than Any Other Hand Tool Made for Mechanics

These uses are so many and so varied that this tool is almost indispensable to all mechanics in metal working, machinists, pattern makers, and others.

It is an ideal tool for transferring exact measurements and laying out work; is well suited also for leveling surfaces one with another, for measuring and squaring in mortices, etc. It serves as a handy gage in many places where micrometer accuracy is not required. We list below but a few of its many applications.

Try and Miter Squares • With Adjustable Length Blade

(Take the Place of a Whole Set of Common Squares)

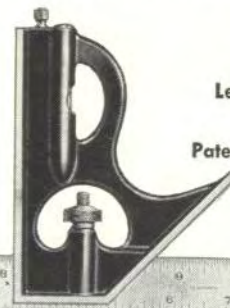
Height Gage
Bevel Protractor

Level
Steel Scale

Depth Gage
Marking Gage

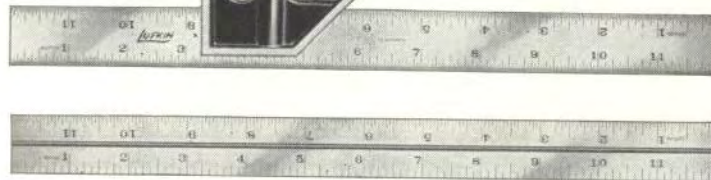
Plumb
Scribe

Combination Squares



Blade with Square Head Only
Level in Square Head (4-Inch Excepted)
Tempered Blade

Patented Bolt Permits Reversing Blade in the Head without Removing Nut



Showing Reverse Side of Blade

With Drop Forged and Hardened Head No.	With Cast Head No.	Length	Graduations
35	25	{ 4, 6, 9, 12, 18, 24 In. }	No. 4 (8ths, 16ths, 32nds, 64ths In.)
35-7	25-7		No. 7 (16ths, 32nds, 64ths, 100ths, In.)
35-4R	25-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
35-7R	25-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
35-16R	25-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
35ME	25ME	{ 10, 15, 20, 30, 50, 60 Cm. }	Metric and English; One Side $\frac{1}{2}$ Millimeters and 32nds Inch; Other Side Millimeters and 64ths Inch

When ordering specify Catalog No. and length.

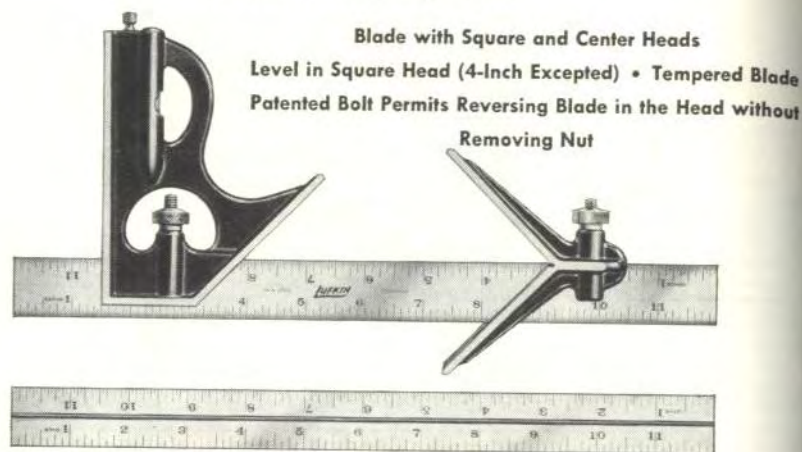
Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
4	$\frac{5}{8}$	12	1
6	$\frac{3}{4}$	18	1
9	$\frac{7}{8}$	24	1

Note: For general description of Combination Squares, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Combination Squares



Showing Reverse Side of Blade

With Drop Forged and Hardened Heads No.	With Cast Heads No.	Length	Graduations
35C	25C	{ 4, 6, 9, 12, 18, 24 In. }	No. 4 (8ths, 16ths, 32nds, 64ths In.); No. 7 (16ths, 32nds, 64ths, 100ths In.)
35C-7	25C-7		
35C-4R	25C-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
35C-7R	25C-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
35C-16R	25C-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
35CME	25CME	{ 10, 15, 20, 30, 50, 60 Cm. }	Metric and English; One Side ½ Millimeters and 32nds Inch; Other Side Millimeters and 64ths Inch

When ordering specify catalog No. and length.

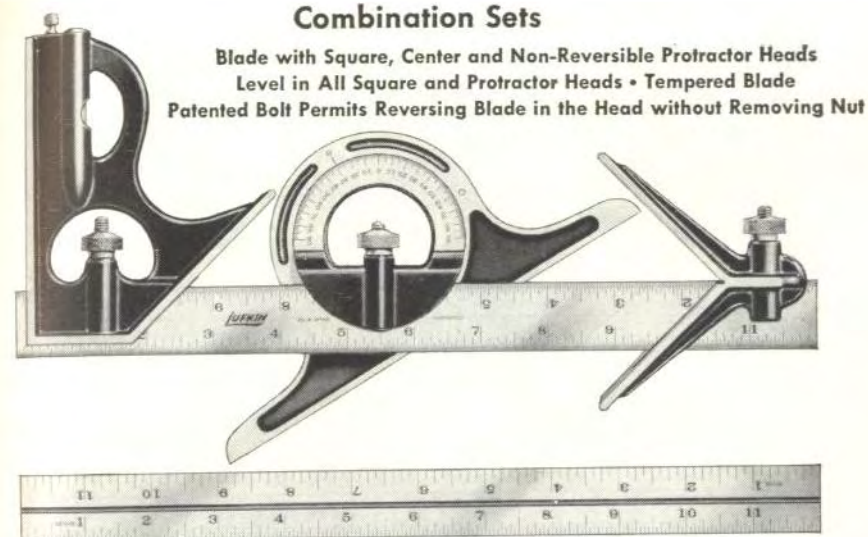
Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
4	5/8	12	1
6	3/4	18	1
9	7/8	24	1

Note: For general description of Combination Squares, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Combination Sets



Showing Reverse Side of Blade

With Square and Center Heads Drop Forged and Hardened No.	With Cast Heads No.	Length	Graduations
535	525	{ 9, 12, 18, 24 In. }	No. 4 (8ths, 16ths, 32nds, 64ths In.); No. 7 (16ths, 32nds, 64ths, 100ths In.)
535-7	525-7		
535-4R	525-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
535-7R	525-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
535-16R	525-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
535ME	525ME	{ 20, 30, 50, 60 Cm. }	Metric and English; One Side ½ Millimeters and 32nds; Other Side Millimeters and 64ths Inch

When ordering, specify catalog No. and length.

Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
9	7/8	18	1
12	1	24	1

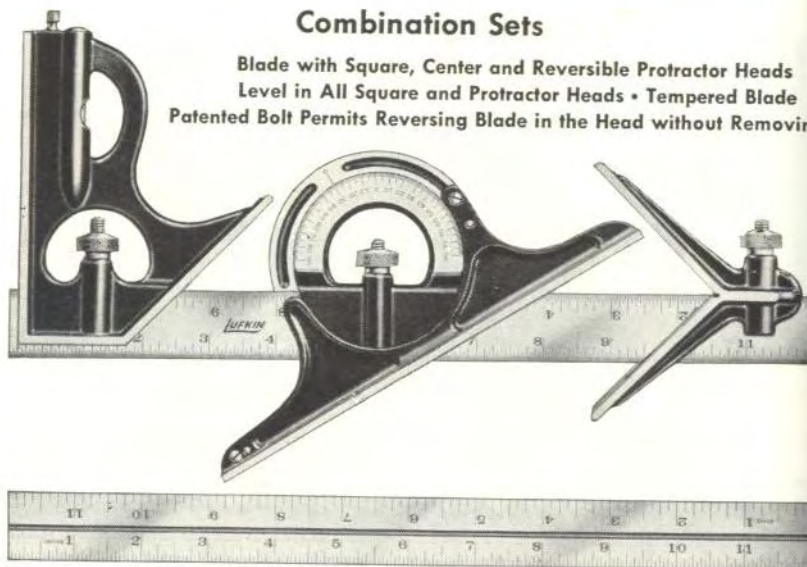
Note: For general description of Combination Squares, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Combination Sets

Blade with Square, Center and Reversible Protractor Heads
Level in All Square and Protractor Heads • Tempered Blade
Patented Bolt Permits Reversing Blade in the Head without Removing Nut



Showing Reverse Side of Blade

With Square and Center Heads Drop Forged and Hardened No.	With Cast Heads No.	Length	Graduations
635	625	{ 9, 12, 18, 24 In. }	No. 4 (8ths, 16ths, 32nds, 64ths In.)
635-7	625-7		No. 7 (16ths, 32nds, 64ths, 100ths In.)
635-4R	625-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
635-7R	625-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
635-16R	625-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths and 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
635ME	625ME	{ 20, 30, 50, 60 Cm. }	Metric and English; One Side 1/2 Millimeters and 32nds; Other Side Millimeters and 64ths Inch

When ordering, specify catalog No. and length.

Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
9	3/8	18	1
12	1	24	1

Note: For general description of Combination Squares, see page 50.

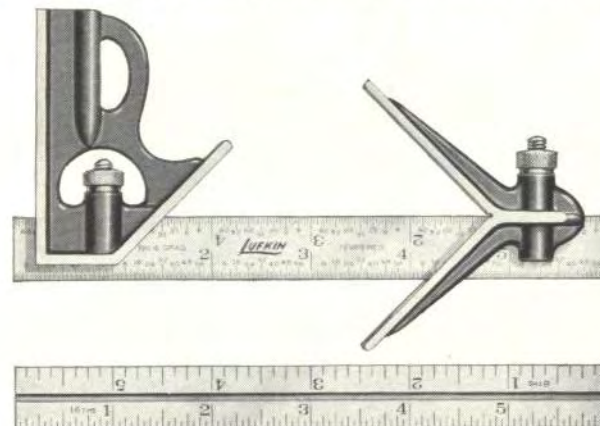
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Combination Squares

(Junior Size)

Blade with Square Head Only or Blade with Square and Center Heads
All Heads Drop Forged and Hardened • Tempered Steel Blade
Patented Bolt Permits Reversing Blade in the Head without Removing Nut



Showing Reverse Side of Blade

Lufkin "Junior" Combination Squares are a quality tool designed for the tool, die and pattern maker.

They are smaller in size and lighter in weight, but of the same general pattern as our Nos. 35 and 35C. The blade is narrower, 5/8 inch, and the square and center heads are smaller.

A distinctive feature of value is rapid reading graduations. No. 4 graduations divided 8ths, 16ths, 32nds and 64ths inch; 64ths numbered every 8th division and 32nds numbered every 4th division. No. 7 graduations divided 16th, 32nd, 64th and 100th inch; 32nds numbered every 4th division, 64ths numbered every 8th division, 100ths numbered every 10th division.

Made only with 6-inch blade.

No.	Description
135	Blade with Square Head only. No. 4 Graduation. Rapid Reading.
135-7R	Blade with Square Head only. No. 7 Graduation. Rapid Reading
135C	Blade with Square and Center Heads. No. 4 Graduation. Rapid Reading
135C-7R	Blade with Square and Center Heads. No. 7 Graduation. Rapid Reading
	Blades Only for above (specify graduation)

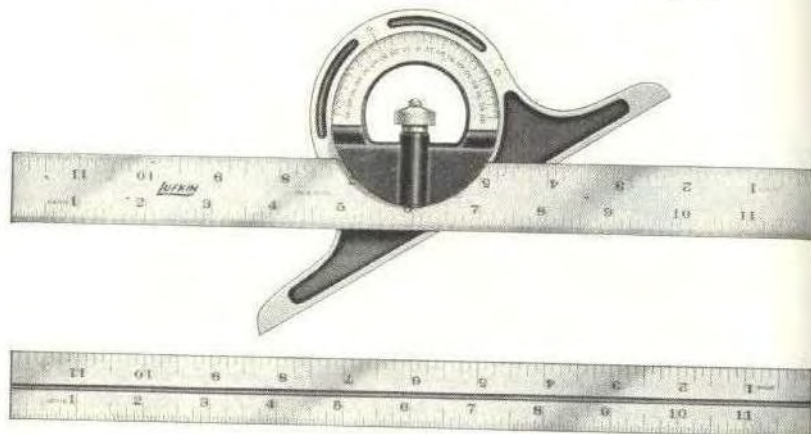
Note: For general description of Combination Squares, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Bevel Protractors

Blade with Non-Reversible Protractor Head Only • Single Head
Has Shoulder on One Side of Blade • Tempered Blade • Patented
Bolt Permits Reversing Blade in the Head without Removing Nut



Showing Reverse Side of Blade

No.	Length	Graduations
5	9, 12, 18, 24 In.	No. 4 (8ths, 16ths, 32nds and 64ths In.)
5-7	24 In.	No. 7 (16ths, 32nds, 64ths and 100ths In.)
5-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
5-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
5-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
SME	20, 30, 50 60 Cm.	Metric and English; One Side $\frac{1}{2}$ Millimeters and 32nds; Other Side Millimeters and 64ths Inch

When ordering, specify catalog No. and length.

Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
9	$\frac{7}{8}$	18	1
12	1	24	1

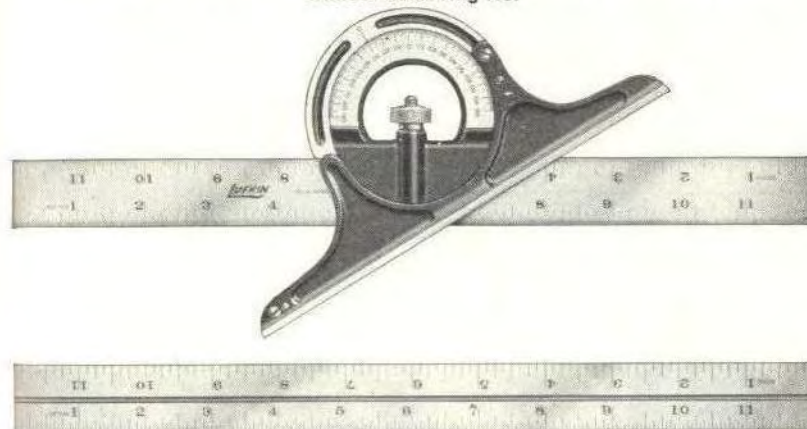
Note: For general description of Bevel Protractors, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Bevel Protractors

Blade with Reversible Protractor Head Only • Double Head
Has Shoulder on Both Sides of Blade • Convertible to Single
Type • Tempered Blade • Patented Bolt Permits Reversing Blade in the Head without Removing Nut



Showing Reverse Side of Blade

No.	Length	Graduations
6	9, 12, 18, 24 In.	No. 4 (8ths, 16ths, 32nds, 64ths In.)
6-7	24 In.	No. 7 (16ths, 32nds, 64ths, 100ths In.)
6-4R	12, 18, 24 In.	No. 4 Rapid Reading (8ths, 16ths, 32nds, 64ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th
6-7R	12, 18, 24 In.	No. 7 Rapid Reading (16ths, 32nds, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 64ths Every 8th; 100ths Every 10th
6-16R	12, 18, 24 In.	No. 16 Rapid Reading (32nds, 50ths, 64ths, 100ths In.); 32nds Numbered Every 4th Division; 50ths Every 5th; 64ths Every 8th; 100ths Every 10th
6ME	20, 30, 50 60 Cm.	Metric and English; One Side $\frac{1}{2}$ Millimeters and 32nds; Other Side Millimeters and 64ths Inch

When ordering, specify catalog No. and length.

Combination Square Blade Widths			
Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
9	$\frac{7}{8}$	18	1
12	1	24	1

Note: For general description of Bevel Protractors, see page 50.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Separate Parts of Combination Squares, Bevel Protractors and Combination Sets

Square, Center and Protractor Heads Only



No. 06, Reversible Protractor Head



Square Head



Bolt with
Nut and
Spring



Center Head

Square and center heads can be furnished cast or hardened. Protractor head can be furnished in No. 06, reversible or No. 05, not reversible.

Scribers only and bolt with nut and spring can also be furnished.

Square and center heads can be furnished for 4, 6, 9, 12, 18 or 24-inch blade length.

When ordering heads, always state length blade on which head is to be used.

- No. 06, Reversible Protractor Head
- No. 05, Non-Reversible Protractor Head
- Square Head
- Center Head
- Scriber Only
- Bolt with Nut and Spring

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Combination Square Blades



Combination Square Blades Only

No.	Length Inches	Graduations, Inches
2504	4, 6, 9, 12, 18, 24, 36	No. 4 (8ths, 16ths, 32nds, 64ths)

Chrome Clad Combination Square Blades Only

No.	Length Inches	Graduations, Inches
C2504	4, 6, 12, 18, 24	No. 4 (8ths, 16ths, 32nds, 64ths)

Stainless Steel Combination Square Blades

No.	Length Inches	Graduations, Inches
S2504	12, 18, 24	No. 4 (8ths, 16ths, 32nds, 64ths)

Metric, Metric and English Combination Square Blades

No.	Length Centimeters	Graduations
2500ME	10, 15, 20, 30, 50, 60	1/2 Mm. and 32nds Inch; Mm. and 64ths Inch
2500M	10, 15, 20, 30, 50, 60	Three Edges in Mm.; One Edge in 1/2 Mm.

Blades With Rapid Reading Graduations

No.	Length Inches	Standard Graduations, Inches	*Rapid Reading Graduations, Inches
2504R	4, 6, 9, 12, 18, 24	No. 4 (8ths, 16ths, 32nds, 64ths)	32nds, 64ths
2506R	4, 6, 12, 18, 24	50th Both Edges of Both Sides	50th
2507R	4, 6, 9, 12, 18, 24, 36	No. 7 (16ths, 32nds, 64ths, 100ths)	32nds, 64ths, 100ths
2516R	6, 12, 18, 24	No. 16 (32nds, 50ths, 64ths, 100ths)	32nds, 50ths, 64ths, 100ths

Chrome Clad Combination Square Blades With Rapid Reading Graduations

No.	Length Inches	Standard Graduations, Inches	*Rapid Reading Graduations, Inches
C2504R	4, 6, 12, 18, 24	No. 4 (8ths, 16ths, 32nds, 64ths)	32nds, 64ths
C2506R	4, 6, 12, 18, 24	No. 6 (50ths)	50ths
C2507R	4, 6, 12, 18, 24	No. 7 (16ths, 32nds, 64ths, 100ths)	32nds, 64ths, 100ths
C2516R	12, 18, 24	No. 16 (32nds, 50ths, 64ths, 100ths)	32nds, 64ths, 50ths, 100ths

Combination Square Blade Widths

Length Inches	Approximate Width, Inches	Length Inches	Approximate Width, Inches
4	5/8	18	1
6	3/4	24	1
9	7/8	36	1
12	1	...	...

Note: For Blades for Nos. 135 and 135C, see page 55.

Packing: Six in a Box.

When Ordering Always Specify Blade Length

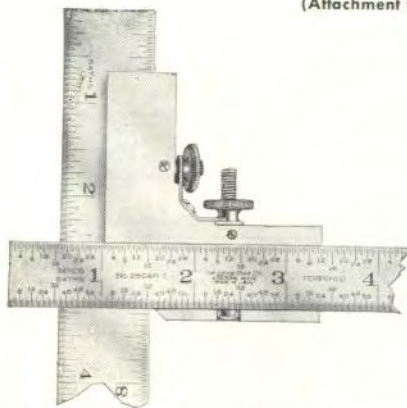
*Rapid Reading Graduations mean subdivisions are numbered: 32nds every 4th division; 50ths every 5th division; 64ths every 8th division; 100ths every 10th division.

FOR PRICES SEE PRICE LIST

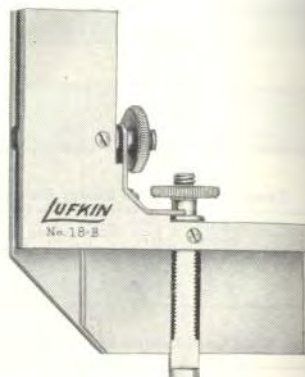
ROSE TOOLS, INC.

Right Angle Rule Clamps

(Attachment for Combination Square)



Clamp Applied to Rule and Blade of Square



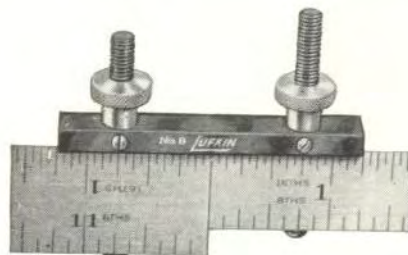
Rule Clamp

Used with Combination Square Blades and Heads these Rule Clamps afford many valuable applications. These Right Angle Rule Clamps will hold firmly at right angles a Combination Square Blade of 12, 18 or 24-inch length, and any regular steel rule not over 1-inch wide. Can also be applied to Thin Steel Squares, such as our No. 139.

A feature is the clip with prongs at each end. These prongs at all times hold both clamp nuts in place. Interference of the two bolts and nuts is eliminated and operations simplified as illustrated above. Thumb nuts are knurled and of good size.

No.	Length of Blade Seats		Body Inches
	Slotted Leg Inches	Open Leg Inches	
18A	17/16	19/16	1 1/2 x 1 3/8 x 1 1/2
18B	2 3/16	2 3/16	2 5/8 x 2 3/16 x 1 1/2

No. 8 Rule Clamps



Packing: Four in a Box.

Used when a measurement greater than the length of any single rule at hand must be accurately taken. This clamp firmly holds two rules end to end, as shown.

As the clamp bolts are independently adjustable by means of knurled thumb nuts, this clamp will join two rules whether they be of same or different width or thickness.

The width capacity is 1 1/4 inches.

This device is in mottled blue finish.

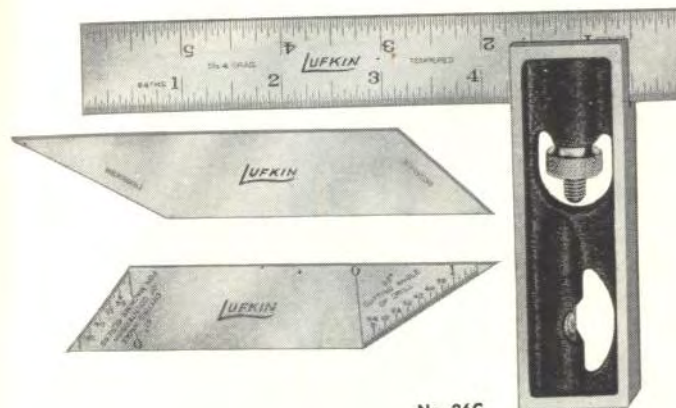
It is popular because tool chests normally will not accommodate longer rules.

No. 8, Rule Clamp.

FOR PRICES SEE PRICE LIST

Double Squares

Tempered Blades



No. 26C

Handy for patternmakers, machinists and toolmakers.

Both faces of head are square; polished and enameled parts are well finished. Blade length adjustable by moving head. Head is securely set at any point by thumb screw. The heads of the 6-inch and 15-centimeter squares have level glass.

The square is furnished in various combinations with following blades:

STANDARD BLADE—in various graduations.

BEVEL BLADE—gives hexagon and octagon angles, and is so marked.

DRILL GRINDING BLADE—converts tool into a good drill grinding gage.

No.	Length	Type Blade	Graduations
*26A	4, 6 In.	With Graduated Blade Only	No. 4 (8ths, 16ths, 32nds, 64ths Inch)
*26B	4, 6 In.	With Graduated and Bevel Blades	
26C	6 In.	With Graduated, Bevel and Drill Grinding Blades	Metric and English; One Side 1/2 Millimeters and 32nds Inch; Other Side Millimeters and 64ths Inch
26A-ME	10, 15 Cm.	With Graduated Blade Only	
26B-ME	10, 15 Cm.	With Graduated and Bevel Blades	Metric Only; Three Edges in Millimeters; One Edge in 1/2 Millimeters
26C-ME	15 Cm.	With Graduated, Bevel and Drill Grinding Blades	
26A-M	10, 15 Cm.	With Graduated Blade Only	
26B-M	10, 15 Cm.	With Graduated and Bevel Blades	
26C-M	15 Cm.	With Graduated, Bevel and Drill Grinding Blades	

*The 6-inch blade of No. 135 shown on page 55 can be used with the head of Nos. 26A and 26B 4-inch.

Note: For Separate parts of Double Squares, see page 62.

For markings and uses of the Drill Grinding Blade, see page 62.

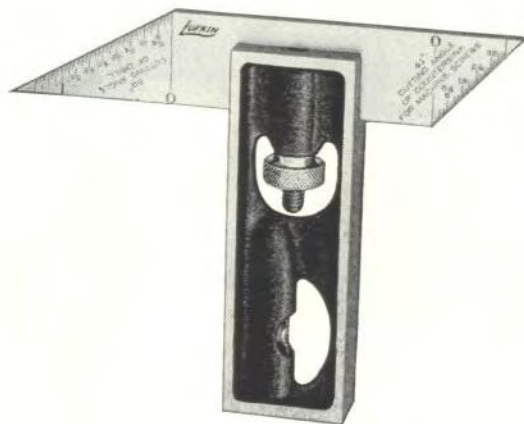
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Drill Grinding Gage

Tempered Blade



An ideal Drill Grinding Gage for readily and accurately test cutting edges of drills and countersinks for proper angle, and point for proper centering. The extra wide face of head, to which drill is held, $\frac{3}{16}$ inch, is a most valuable feature.

The head is that of the 6-inch Double Square. Polished and enameled parts of head are well finished. Slotted blade slides readily in the head and may be securely set by thumb screw.

The bevel of blade at one end is 59 degrees, the cutting angle of drills; and at the other end 41 degrees, the cutting angle of countersinks for

machine screws. The bevel ends are graduated to 64ths inch and have Rapid Reading graduations. The graduations measure at right angles to the face of the head which is parallel with the axis of the drill. Thus the center of drill is directly obtained by reading the graduation, the simplest and most accurate method of centering.

No. 26D, Drill Grinding Gage Complete.

No. 26E, Drill Grinding Blade Only for No. 26D.

Note: No. 26D with addition of Standard Blade and Bevel Blade is No. 26C, see page 61.

Packing: One in a Box.

Separate Parts of Double Squares and Drill Grinding Gage

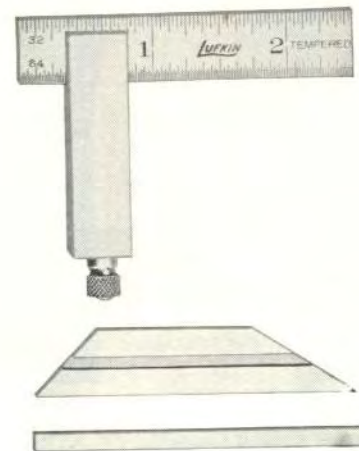
Standard (Graduated) 4 Inch (10 Cm.) Blade.
Standard (Graduated) 6 Inch (15 Cm.) Blade.
Drill Grinding Blade for Head of 6-Inch Square.
Bevel Blade for 4-Inch Square.

Bevel Blade for 6-Inch Square.
Head (or Stock) Only for 4-Inch Square.
Head (or Stock) Only for 6-Inch Square.

FOR PRICES SEE PRICE LIST

Double Steel Squares

With Hardened and Ground Head and Blades



Designed especially for the small work of tool and die makers.

Both faces of head (or stock) are square. All blades slide in head, permitting use in places where a square with fixed blade could not be used. Knurled thumb nut with tension spring serves to lock the blades securely.

This Double Steel Square is furnished in various combinations with the following blades:

STANDARD BLADE—Graduated one side only, upper edge 32nds, lower edge 64ths inch. Length, $2\frac{1}{2}$ inches. Approximately $\frac{1}{2}$ inch wide.

BEVEL BLADE—To determine 30 and 45-degree angles. Not graduated. Length, $2\frac{1}{2}$ inches. Approximately $\frac{1}{2}$ inch wide.

NARROW BLADE—Not graduated. Length $2\frac{1}{2}$ inches. Width, $\frac{1}{8}$ inch. Very handy for squaring small holes.

No. 137A, Square with Standard Blade.

No. 137C, Square Complete, with Standard, Bevel and Narrow Blades.

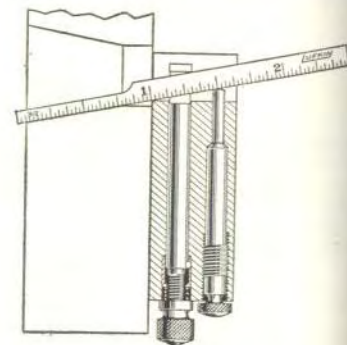
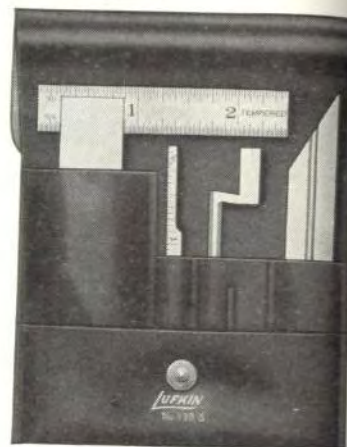
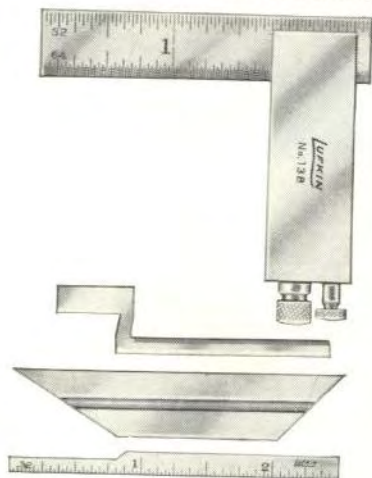
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Diemakers Squares

With Hardened and Ground Head and Blades



A Tool and Die Makers Square so designed that the blades not only slide in the head (or stock), but can be adjusted and set at angles with the head. This is particularly valuable in determining clearance in dies (see sectional view).

Both faces of the head are square. It has two knurled thumb screws. The larger will securely clamp blades in position, either straight or at an angle. The smaller is for setting any of the blades at an angle. To set blade at an angle, loosen the thumb screw which clamps blade, then turn the smaller thumb screw into the head. This action, as illustrated, adjusts blade to desired angle, which is then held by tightening the clamping screw.

This square is furnished in various combinations with the following blades:

STANDARD BLADE—Graduated one side only, upper edge 32nds, lower edge 64ths inch. Length, 2½ inches. Approximately ½ inch wide.

BEVEL BLADE—To determine 30 and 45-degree angles. Not graduated. Length, 2½ inches. Approximately ½ inch wide.

NARROW BLADE—Graduated one side to 32nds inch. Cut away on one end ¾-inch back, making blade size ½ inch by ¼ inch, for use in very small places. Length, 2½ inches. Approximately ¼ inch wide.

OFFSET BLADE—Used in places where it is difficult to sight with the straight blade. The offset

end of blade is approximately ⅛ inch wide and extends from the stock about 1½ inches. Both sides of each edge are beveled, to give a line contact. Not graduated.

No. 138A, Square with Standard Blade.

No. 138C, Square with Standard, Bevel and Narrow Blades.

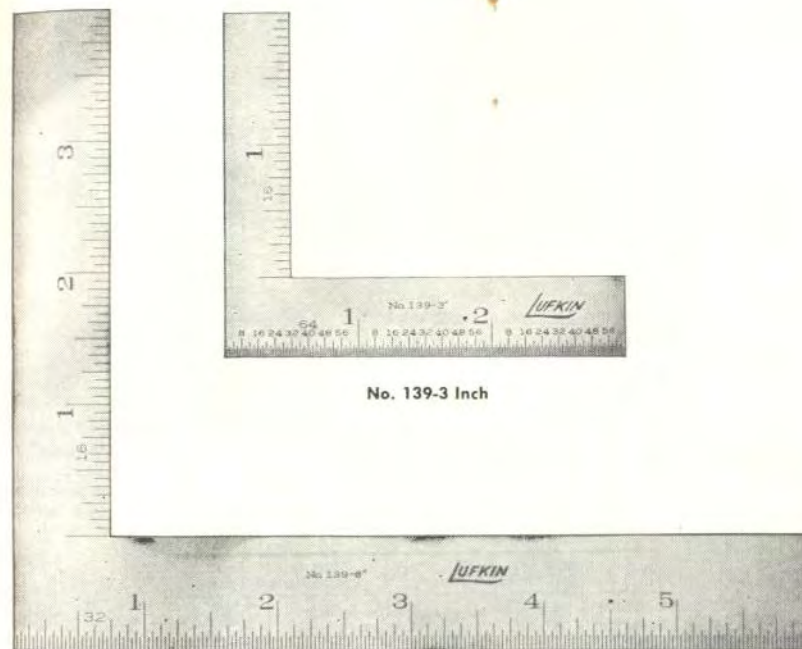
No. 138CX, Square Complete, with Standard Bevel, Narrow and Offset Blades.

No. 138S, Consists of No. 138CX in Fitted Case.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Thin Steel Squares



No. 139-3 Inch

No. 139-6-Inch

Used by draftsmen, pattern makers, tool makers, machinists and others for layout work.

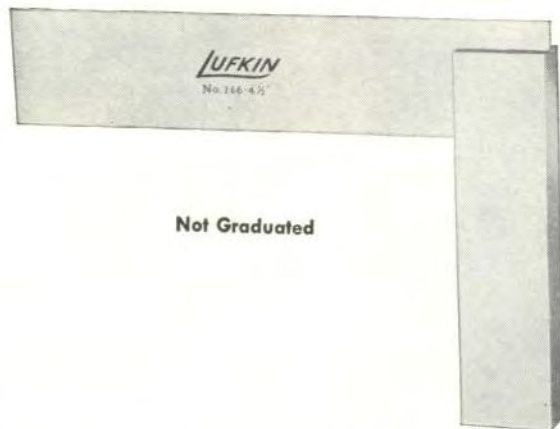
Lufkin thin squares are graduated on one inside edge and one outside edge on both sides.

No.	Size	Graduations	Blade Length Inches	Blade Thickness Inches
139-3 Inch		16ths and 64ths Inch One Side; 32nds and 64ths on Other; Rapid Reading Graduations, 64ths Numbered Every 8th Division	3x2	1/20
139-4 Inch		16ths and 32nds on Both Sides	4x3	1/16
139-6 Inch		16ths and 32nds on Both Sides	6x4	1/16

Packing: Three in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Hardened Solid Steel Squares



Not Graduated

Used as a master square for checking close work. Extreme care is exercised in the manufacture of Lufkin Hardened Steel Squares, your assurance of accuracy.

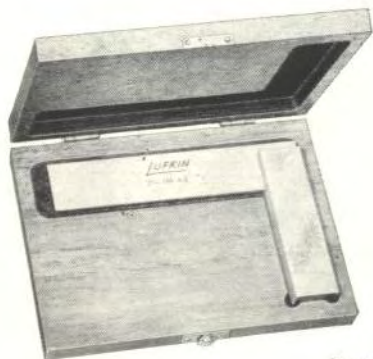
Blade is securely fitted to ground seat of beam.

Both blade and beam are lapped for accuracy. Clearance for burrs or dirt is compensated for by a groove at the inner corner of the beam.

Wood cases are available for protecting these precision squares. They are supplied only when specified.

No.	Size or Length Blade	Length Beam, Inches	No.	Size or Length Blade	Length Beam, Inches
166-1 1/2 Inch		1 1/16	166-6 Inch		4 3/8
166-3 Inch		2 1/16	166-12 Inch		7 1/16
166-4 1/2 Inch		3 1/2			

Wood Cases



Hardened Steel Squares should have the protection of a fitted case. A case well built of choice wood with hinged cover and clasp is supplied only when ordered.

Case for 1 1/2-Inch Square.

Case for 3-Inch Square.

Case for 4 1/2-Inch Square.

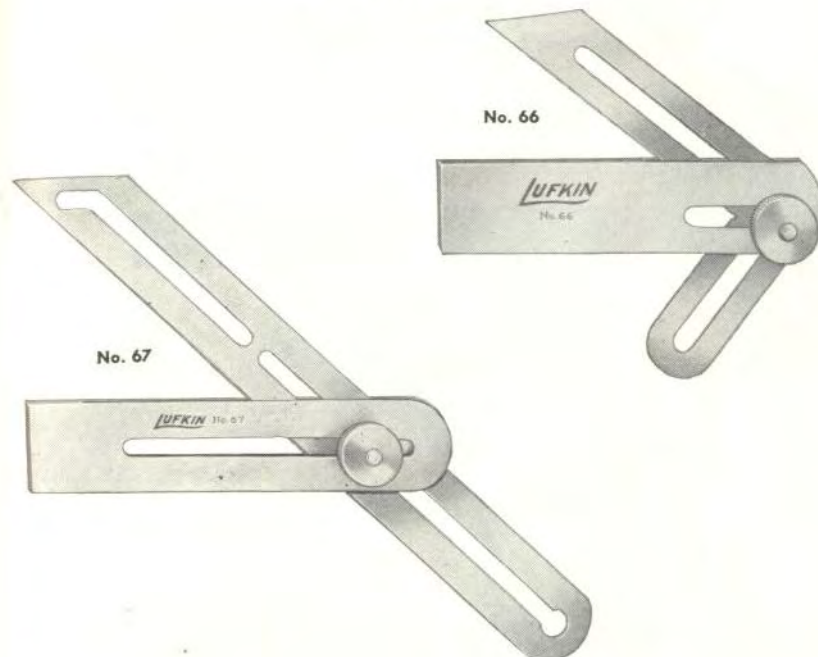
Case for 6-Inch Square.

Case for 12-Inch Square.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Universal Bevels



No. 66

No. 67

A very popular tool, necessary in many classes of work. Blade and stock are so slotted and shaped that any angle may be obtained. Spring provides constant tension and blade can be locked firmly at any angle with the knurled thumb nut. Head of clamping bolt sets in a recess, allowing stock to lie flat on the work. Arm of the blade having beveled end is 3 inches long. Stock is 3 inches long, and, while slotted, is solid on one edge for 1 3/4 inches, forming a rest under the blade against which even thin work may be placed and accurately fitted.

This tool, having both straight and offset slots in blade and long slot in stock, will take adjustments and angles which cannot be obtained with any common bevels. Blade is 6 inches long; stock 3 1/2 inches. Spring provides constant tension and knurled thumb nut locks blade in any desired angle. Head of clamp bolt sets in a recess, allowing stock to lie flat on the work.

No. 66 Universal Bevel.

No. 67, Universal Bevel.

Note: No. 67 Bevel can be used with No. 893 Protractor, listed on page 69.

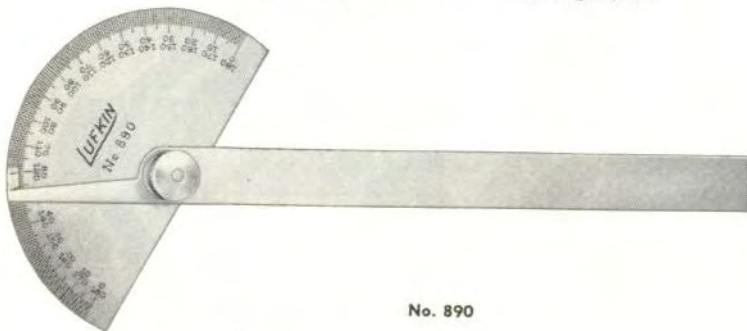
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

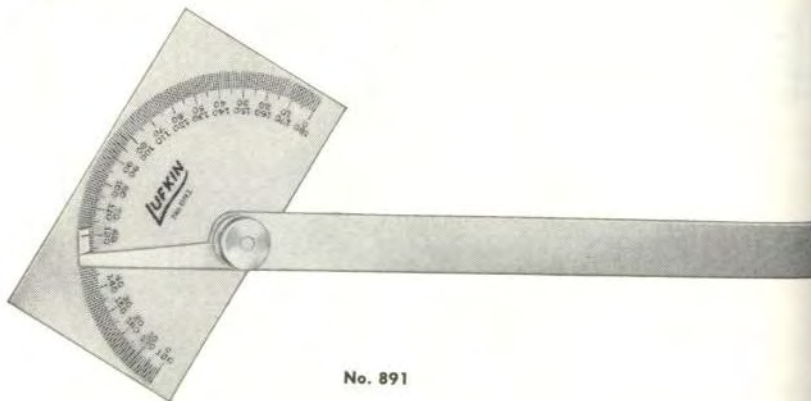
ROSE TOOLS, INC.

Steel Protractors

For Machinists, Draftsmen and Other Mechanics
For Setting Bevels, Transferring Angles, Etc.



No. 890



No. 891

The head is graduated in degrees from 0 to 180, and has two rows of figures reading in opposite directions. The indicating arm of the blade has a line graduation for accurately setting and reading the Protractor. The blade is six inches long and has spring giving constant tension. The blade can be securely set by means of the knurled thumb nut.

No. 890 has semi-circular head with back finished flat.

No. 891 is the same as No. 890 except with rectangular head which gives four working faces.

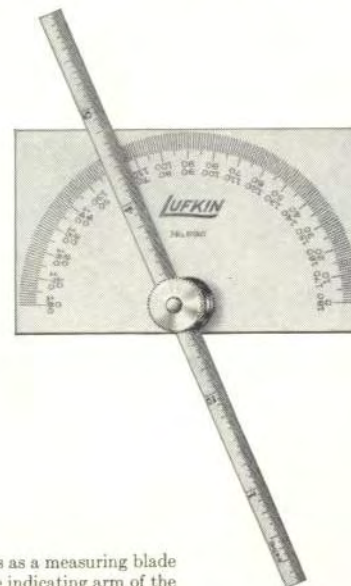
No. 890, Steel Protractor.
No. 891, Steel Protractor.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

No. 892 Steel Protractor and Depth Gage

For Machinists, Draftsmen, Etc.
For Setting Bevels, Transferring Angles and Gaging Depths



The blade of this gage serves as a measuring blade of the depth gage as well as the indicating arm of the protractor. The head is rectangular in shape giving four working faces. Back of head is flat. Head is graduated in degrees from 0 to 180 and has two rows of figures reading in opposite directions. The blade of this Protractor is our regular narrow pattern, machine divided scale No. 2310, six inch, graduated

one side 64ths, other side 32nds inch. The spring clamping device provides constant tension and the knurled thumb nut secures the blade at any angle or at any extended length.

No. 892, Protractor and Depth Gage.

Note: Blade graduated 64ths and 100ths (No. 2311 Rule) furnished with above when specified, without extra charge.



No. 893 Steel Protractor

For Setting Bevels to Any Desired Angle

It is graduated at the edge in degrees from 0 to 180, and has two rows of figures reading in opposite directions. The back of the tool is flat.

No. 893, Steel Protractor.

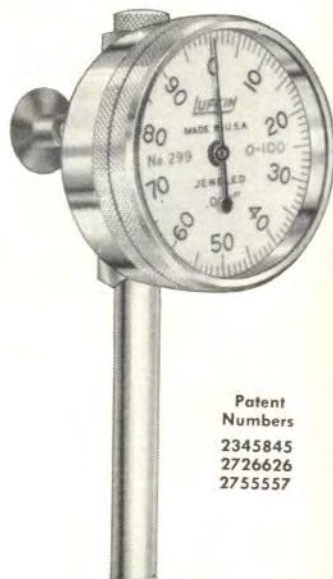
Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

Universal Dial Test Indicators



Series No. 299 Indicator with Hole Attachment Assembled



Series No. 299 Indicator

Patent
Numbers
2345845
2726626
2755557

Simplified design with minimum number of parts—lighter weight.

One-piece base and shank for greater strength.

All working parts mounted on base.

Hole attachment screwed directly into base—no supporting arms needed.

Longer hole attachment reaches into deeper holes.

Hole attachment is directly engaged to indicator shaft.

No. 399A has bezel clamp for adjusting tension or locking in position.

Gage has full .200-inch range, clearly marked, easy to read.

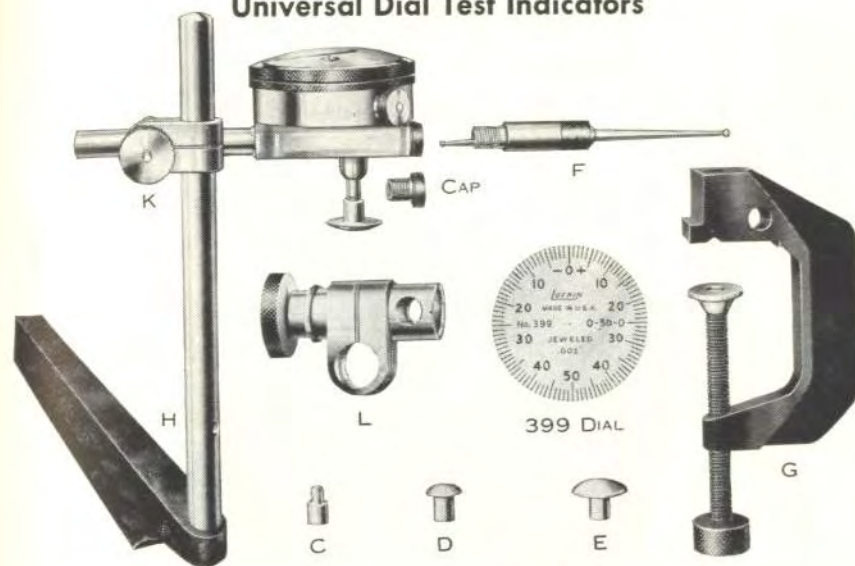
Sensitive plunger, supplied with three contact points.

Jeweled bearing assures greater accuracy—longer life.



Series No. 399 Indicator with Hole Attachment Assembled

Universal Dial Test Indicators



Has a $1\frac{1}{2}$ -inch diameter dial and a contact point attached to a spindle or plunger which extends out of back of case perpendicular to dial. Slightest movement of contact point is indicated on the dial face by the pointer hand.

Entire mechanism is mounted on a bar which forms the base of the indicator and the shank by which it is held. Has jeweled thrust bearing. Simplicity of mechanism excludes customary train of gears.

Outside knurled ring, known as bezel, contains dial and is adjustable so that zero can be set to any position in relation to pointer.

No. 399A reads clockwise from 0 to 50 and from

50 back to zero. The dial has 100 graduations measuring .001 inch each, therefore one revolution of the hand represents .100 inch. The indicator has a range or spindle travel of .200 inch or two revolutions of the hand while the hole attachment has a range of .125 inch. A bezel clamp is provided to either adjust the tension on the bezel or to firmly lock it in position.

No. 299A is the same as No. 399A except it is not equipped with the bezel clamp and the reading on the dial is 0 to 100 instead of 0-50-0.

Attachments are interchangeable for both Nos. 299A and 399A.

With 0 to 100 Dial, No.	With 0-50-0 Dial, No.	Description
299A	*399A	Indicator Complete with Attachments in Fitted Wood Box
299B	*399B	Indicator Only and Three Contact Points, $\frac{3}{16}$, $\frac{3}{8}$ and $\frac{1}{2}$ Inch
299C	399C	$\frac{3}{16}$ -Inch Diameter Contact Point Only
299D	399D	$\frac{3}{8}$ -Inch Diameter Contact Point Only
299E	399E	$\frac{1}{2}$ -Inch Diameter Contact Point Only
299F	399F	Hole Attachment
299G	399G	Clamp $1\frac{1}{4}$ -Inch Capacity, Flat or Round with Spindle
299H	399H	Tool Post Holder Attachment ($\frac{3}{8}$ x $\frac{3}{4}$ x6 Inches) with Upright Spindle
299K	399K	Sleeve Attachment $\frac{1}{4}$ and $\frac{3}{16}$ -Inch Holes
299L	399L	Sleeve Attachment $\frac{1}{4}$ and $\frac{3}{16}$ -Inch Holes (Not Included with Complete Indicator)
299N	399N	Cap
299P	399P	Hole Attachment Reversing Sleeve

*Furnished with bezel clamp.

Packing: One in a Fitted Case.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.



"Miti-Mite" Magnetic Base Tools Universal Dial Test Indicator

With Magnetic Base Holder



No. 2299 Indicator and
Magnetic Holder Set

Now in one complete set—a precision Universal Dial Test Indicator and a Magnetic Base Indicator Holder. A complete range of set-ups for practically every type of indicating can be made from the tools and attachments in this compact, mahogany, fitted case.

THE DIAL INDICATOR may be either the Lufkin No. 299 series with an 0 to 100 dial or the Lufkin No. 399 series with an 0-50-0 dial. The indicator has a range or spindle travel of .200 inch by .001 inch, while the hole attachment has a range of .125 inch. Jeweled bearings. Adjustable bezel and dial. No. 2399 has bezel clamp to adjust tension or lock dial in position. Indicator attachments include 3 contact points, an adjustable spindle clamp, and a hole at-

tachment. A hole attachment reversing sleeve is also included with the No. 2399 set.

THE MAGNETIC BASE HOLDER attaches instantly to any round or flat ferrous surface. The post swivels in a ball joint and locks securely with a turn of the large, knurled nut. A friction joint in the post increases the range of adjustments. A fine adjustment screw permits final, precise settings. Interchangeable posts and an adaptor are included.

No. 2299 0 to 100 Indicator and Magnetic Holder Set

No. 2399 0-50-0 Indicator and Magnetic Holder Set

Packed: One Set in a Fitted Case

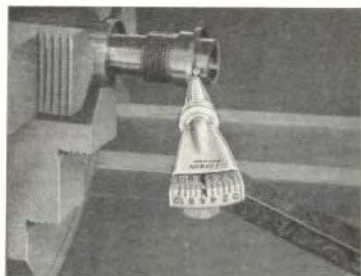
FOR PRICES SEE PRICE LIST

Memorandum

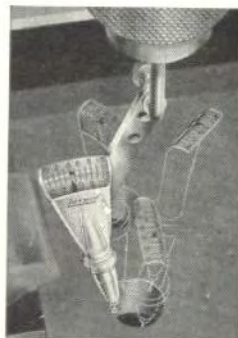
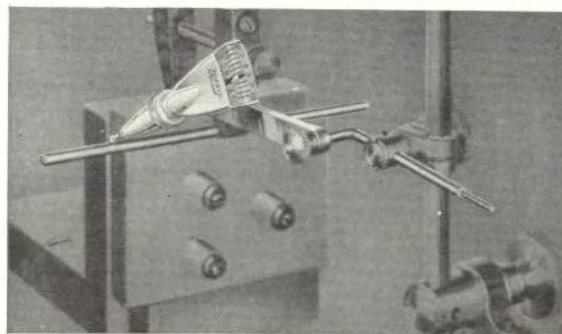
Memorandum

Memorandum

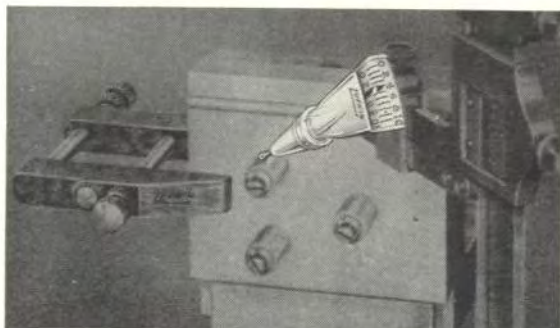
A Few of the Many Uses of This Universal Indicator



Indicating Flange in Lathe

Indicating Hole in Jig Bore,
Milling Machine or Drill Press

In Use with Surface Gage



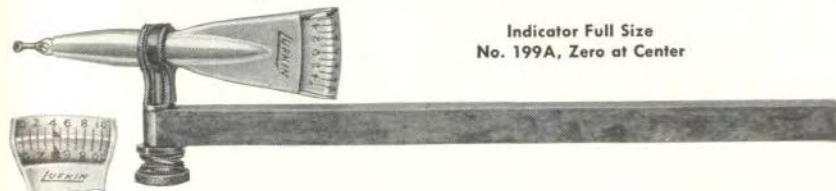
In Use with Height Gage

Universal Indicators

(Patented)

Rotating Head • Positive Lock • Two Reading Faces
Can Be Used and Read in Any Practical Position

Indicator Full Size
No. 199A, Zero at Center



No. 199,
Zero at
Extreme Left



A valuable exclusive feature of this indicator is the location of reading faces, one being on the flat side, the other on the end or top. This end marking often makes reading easier and makes possible reading without a mirror in jig boring, milling machine, drill press and similar work. Reading at end is the convenient way when using indicator with Surface Gage or Vernier Height Gage. In fact, it is the most natural and handy way in many kinds of work.

The indicator, which is one unit, makes a complete revolution on its own center and also on clamping bolt; all locked in position by one thumb nut. The contact point can be set in any position in a half circle and is frictionally held.

As illustrated, a standard bar for general use and a special attachment are furnished with each indicator. The special attachment is used in drill chuck or with surface gage, and affords many other setups. Using its offset arm, this indicator will enter very small holes, contact point being in line with rotating center. Clamping device is a nut, spring and washer held together as one unit. During setup, it frictionally holds the indicator in position.

Contact point and all working parts are hardened. Housing is of tough, rustproof metal; clamp screw and nut are of steel.

Ideal protection for this fine tool is a plush-lined case with spring-hinged cover. Furnished only when ordered.

No.
520K

No.	Item
199	Indicator; Zero at Extreme Left, Reading Left to Right
199A	Indicator; Zero Reading at Center. Reading to the Left and to the Right
520K	Indicator Attachment—Spindle Clamp with $\frac{5}{16}$ -Inch Hole for Surface Gage Rod
....	Special Diameter Contact Points, $\frac{1}{32}$, $\frac{1}{16}$ or $\frac{1}{8}$ -Inch (Specify Size)
....	Plush-Lined Case for No. 199 or 199A

Packing: One in a Box.

FOR PRICES SEE PRICE LIST
ROSE TOOLS, INC.

No. 59 Master Precision Levels

Precision Alignment is Essential to Present Day Production



For machine shops, inspection, millwright departments, tool rooms to accurately set, erect, test machinery and surface plates to avoid wear and prolong life of bearings and spindles.

Accurately ground and graduated vial of 10 second accuracy; one division equals .0005-inch per foot. An auxiliary level to aid setting true horizontal, showing position laterally. Unusually fine threads on adjusting screw for sensitive, accurate adjustment. Level vials set for maximum protection against breakage; once set, tampering is avoided by foolproof adjustment.

Casting thoroughly seasoned, working surface machined and scraped with extreme care. Base casting made of special alloy iron which is less

affected by temperature changes.

Top plate is made of a special non-conductive insulating material.

Non-machined surfaces have durable black crackle finish.

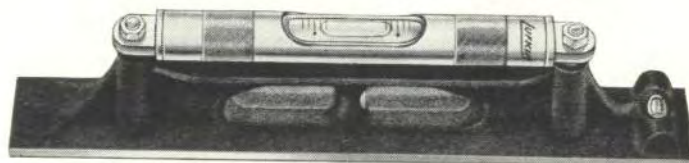
Length, 15 inches. Width, $1\frac{1}{2}$ inches. Height, 3 inches.

Individually packed in felt cushioned, shock resisting wood box with hinged cover.

Weight approximately 6 pounds.

No. 59, Master Precision Level.

Nos. 57 and 58 Machinist Levels



Shallow V in base with clearance cut is preferred by mechanics and machine setters because better surface contact is obtained on various sizes of shafting.

Adjusting level simplified through micrometer type threads (40 threads per inch) on adjusting screw and nuts. Bubble can be positioned gradually for perfect setting.

Main level glass additionally protected by outer metal tube that can be turned to expose level glass or turned to protect it when not in use.

Cross level besides main parallel vial for more accurate reading as level positions true horizontally and parallel. Fine seasoned castings insure strength and rigidity. No. 58 series levels have ground and graduated main vial, 60 second sensitivity with $1/10$ inch graduation to read .0035 inches per foot. Ground glass vials are more sensitive and accurate and are used in the finest surveying instruments. No. 57 series levels have plain vials.

Finished wood box with hinged cover and clasp available for level sizes 12 and 18-inch only.

Size Inches	No. 57 Level Equipped with	No. 58 Level Equipped with
6	Plain Vial and Cross Level	Ground and Graduated Main Vial and Plain Cross Level
8	Plain Vial and Cross Level	Ground and Graduated Main Vial and Plain Cross Level
12	Plain Vial, Plumb and Cross Level	Ground and Graduated Main Vial, Plain Cross Level and Plumb
18	Plain Vial, Double Plumb and Cross Level	Ground and Graduated Main Vial, Plain Cross Level and Double Plumb

Finished wood box only for 12-inch level.

Finished wood box only for 18-inch level.

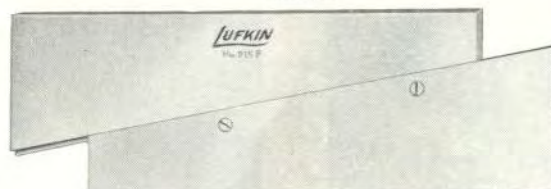
Packing: One in a Carton.

FOR PRICES SEE PRICE LIST

No. 915 Adjustable Parallels



No. 915C



No. 915F



End View

These parallels have many applications in layout, gaging, spacing and checking work by toolmakers and mechanics; often used to determine or check width of slots and openings, also as spacers for locating parts for accurate assembly, and, set to determined size, serve as gages. They are used in a vise for setting work at proper height or angle for

milling machine, shaper and planer; also for leveling work on planer, drill press, etc.

In some cases, they take the place of a number of one-piece parallels. Readily adjusted and locked to micrometer measurement. Screw locks firmly.

Offered individually or in sets in durable fitted cases.



No. 915L Set

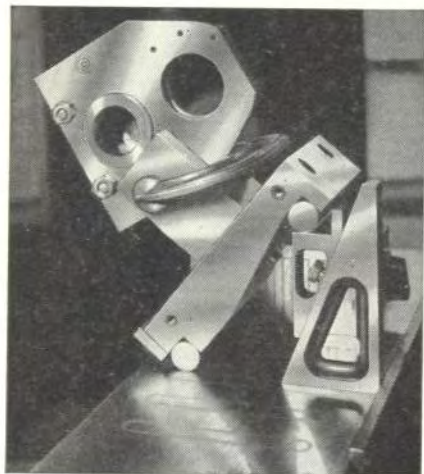
Parallel No.	Range Inches	Length Inches	Thickness Inches	No. Lock Screws	Sets of Adjustable Parallels in Durable Fitted Cases		
					Set No.	Range Inches	Contents
915A	$\frac{3}{8}$ - $\frac{1}{2}$	$1\frac{3}{4}$	$\frac{9}{32}$	1	915L	$\frac{3}{8}$ - $2\frac{1}{4}$	915-A, B, C, D, E, F
915B	$\frac{1}{2}$ - $1\frac{1}{16}$	$2\frac{1}{4}$	$\frac{9}{32}$	1	915M	$\frac{3}{8}$ - $1\frac{5}{16}$	915A, B, C, D
915C	$1\frac{1}{16}$ - $1\frac{5}{16}$	$2\frac{1}{16}$	$\frac{9}{32}$	1			
915D	$1\frac{5}{16}$ - $1\frac{7}{8}$	$3\frac{3}{16}$	$\frac{9}{32}$	2			
915E	$1\frac{7}{8}$ - $1\frac{3}{4}$	$4\frac{3}{16}$	$\frac{9}{32}$	2			
915F	$1\frac{3}{4}$ - $2\frac{1}{4}$	$5\frac{1}{16}$	$\frac{9}{32}$	2			

Packing: One Parallel or One Set in a Box.

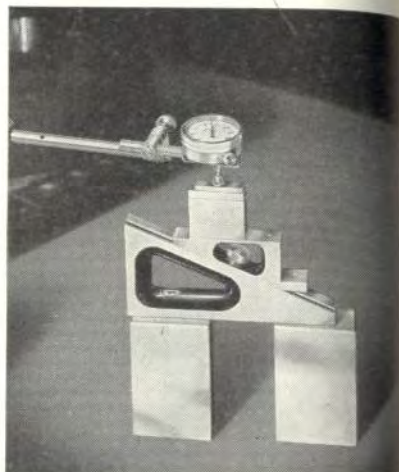
FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

A Few of the Many Uses of No. 900 Master Planer and Shaper Gage



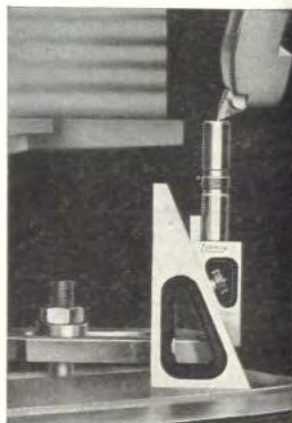
Used in Conjunction with Sine Bar in Grinding Angles



With Gage Blocks for Setting Up Work on a Surface Plate



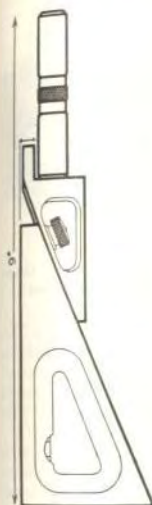
Gage Being Set to Micrometer Accuracy



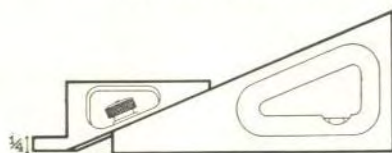
Used to Set Cutting Tool (Note Use of Extension Bar)

No. 900 Master Planer and Shaper Gages

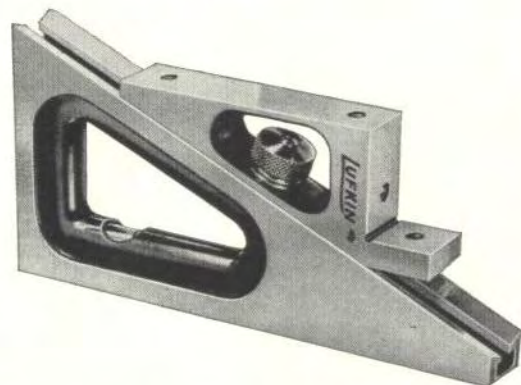
Hardened and Ground



Position of Parts to Get Maximum Range, 9 Inches



Position for Smallest Setting, 1/4-Inch



This is known as a "Master" tool because it is designed and precision built, not only to serve better as a Planer Gage, but to properly handle many jobs for which the ordinary gage is unsuited.

A few of the many applications are: setting cutting tool on planer or shaper, saving time (set gage to size with micrometer, surface gage or caliper); using with gage blocks in building up work on surface plate; using with sine bar in grinding angles; using with indicator for transferring measurements; using as an adjustable parallel (upper face of slide being extra long, and slide and base accurately fitted).

Gage can be used on base, on end, also flat on either side, as both slide and nut are within outside width of base and both sides are ground square with working edges.

Slide and base are accurately fitted. Slot in which slide travels is beveled as well as ground, eliminating side play, assuring accuracy. All measuring surfaces are precision ground.

The 3-inch extension regularly supplied with each gage, makes possible tool settings from 1/4 to 9 inches; without extension the range is 1/4 to 6 1/2 inches. A 1-inch extension that is handy for adding an even inch to the gage can be furnished when ordered.

Base and slide are of drop forged steel, hardened.

Base is 3/8-inch wide, 5 1/8-inches long and fitted with level. Slide has clamp nut securely locking it in position.

A genuine mahogany case in keeping with this fine tool, and the best protection for it, is supplied when ordered.

No. 900, Master Planer & Shaper Gage (Including 3-Inch Extension)
Mahogany Case for above (Supplied only when ordered).
One-inch extension for No. 900 (Supplied only when ordered).

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

No. 901 Master Planer Gage

Big 1" Wide Base—Two Accurate Levels—Range to $10\frac{3}{4}"$



No. 901 Master Planer Gage
with 901D attached

The Lufkin Master Planer Gage is a precision instrument with a full 1" wide base, has greater stability and is easier to work with. In addition to the regular base level, it has an end level for using the gage vertically. Gage can also be used flat on its side, because all nuts and attachments are under 1" O.D. All working surfaces and sides are accurately ground for parallelism and alignment. The step of the slide is a full 1" square, can be used with standard gage blocks. With the offset attachment, this gage can be used down to $5/16"$ below the base.

The Lufkin Master Planer Gage is $5\frac{1}{4}"$ long, with

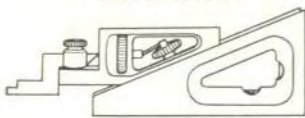
a range from $\frac{3}{8}"$ to $7\frac{3}{4}"$ without attachments. The capacity is increased to $9\frac{3}{4}"$ with the 3" extension and to $10\frac{3}{4}"$ with both extensions. "V" ways and flats are accurately machined and precision ground to positively eliminate side play. The base and slide are hardened steel forgings.

The 3" extension is included with each gage. A fitted mahogany case is also furnished unless otherwise specified. Also available are a 1" extension, a straight scriber, a combination offset attachment and scriber, and the scriber holder. These attachments may be obtained individually or in sets.

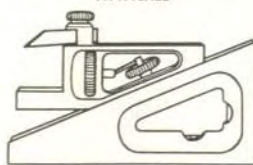
Number	Description
901	1" wide Master Planer Gage with No. 901G 3" extension
901S	Set consisting of No. 901 Master Planer Gage and Nos. 901D, 901E, 901F, 901G attachments
901B	Scriber Holder Attachment Only
901C	Straight Scriber Only
901D	Combination of 901B & 901C
901E	Offset Scriber Only
901F	1" Extension Only
901G	3" Extension Only
901	Mahogany Case Only

NOTE: Cases are furnished with 901 and 901S unless otherwise specified.

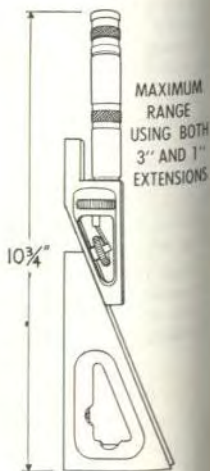
WITH OFFSET ATTACHMENT . . .
USED FOR SETTING IN NARROW
PLACES OR REVERSED AND
USED AS A SCRIBER



WITH STRAIGHT SCRIBER
ATTACHED

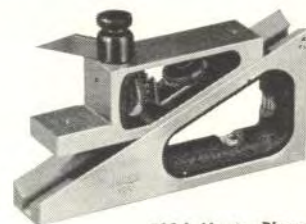


FOR PRICES SEE PRICE LIST



No. 901A Master Planer Gage

Big 1" Wide Base—Rapid Adjustment—Fine Adjustment
Range to $10\frac{3}{4}"$



901A Master Planer Gage
with 901D attached

The all new Lufkin, 1" wide, Master Planer Gage is a versatile, precision instrument. It may be used as a planer gage, or with the No. 901D Scriber and Holder as a surface or height gage. Other uses are for transferring settings with an indicator; as an adjustable parallel; for checking set-ups and layouts; and may be used with gage blocks or a sine bar.

The No. 901A Master Planer Gage has an exclusive rapid adjustment feature that permits quick setting and change of setting with ease. Just loosen the clamping nut, press on the nut and move slide to the desired position. A shoe in the "V" ways holds slide at the setting when the slight pressure is released. By retightening the knurled nut, the slide cannot be accidentally moved.

The No. 901A also has a fine adjustment feature permitting final, precise settings quickly and without tedious and annoying tapping of the slide. By just turning the knurled, fine adjustment nut, the slide will "creep" to the desired position.

These gages are $5\frac{1}{4}"$ long with a range from $\frac{3}{8}"$ to $7\frac{3}{4}"$ without attachments. Capacity is increased to $9\frac{3}{4}"$ with the 3" extension and to $10\frac{3}{4}"$ with both extensions. Gages can also be used $5/16"$ below base

with the offset attachment. Bases are full 1" wide, have greater stability, are easier to work with. Two accurate levels, the regular base level and an end level for using gage vertically. All nuts and attachments are under 1" O.D. permitting use of gage flat on side. Working surfaces and sides are accurately ground for parallelism and alignment. The step on the slide is 1" square, can be used with standard gage blocks. Machined and ground "V" ways and flats positively eliminate side play. Base and slide are hardened steel forgings.

The 3" extension is included with each gage. A fitted mahogany case is also furnished unless otherwise specified. Also available are a 1" extension, a straight scriber, a combination offset attachment and scriber, and the scriber holder. These attachments may be obtained individually or in sets.

Number	Description
901A	1" wide Master Planer Gage with rapid adjustment, fine adjustment and No. 901G 3" extension
901AS	Set, consisting of No. 901A Master Planer Gage and Nos. 901D, 901E, 901F, 901G attachments
901B	Scriber Holder Attachment Only
901C	Straight Scriber Only
901D	Combination of 901B & 901C
901E	Offset Scriber Only
901F	1" Extension Only
901G	3" Extension Only
901	Mahogany Case Only

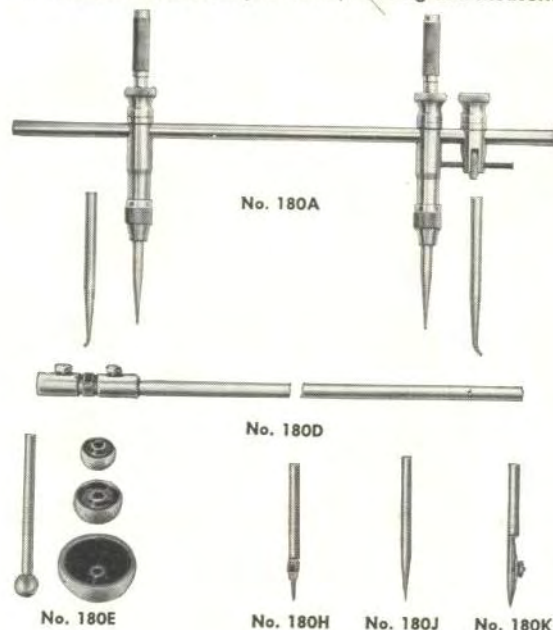
NOTE: Cases are furnished with 901A and 901AS unless otherwise specified.



FOR PRICES SEE PRICE LIST

Steel Beam Trammels

Correctly Designed for Layout Work, Scribing and Measuring



Knurled grips on top of each tram are free turning, making tool more convenient for use.

Scriber points hardened for longer wear.

Top of rigid beam flattened so trams will not turn once set. Trams are held in position by spring friction and will not slide off beam when clamping nuts are loosened.

One tram has fine thread adjusting screw for accurate and fine adjustment of points.

Pair of caliper legs furnished with sets A, B and C. Chuck will accommodate extra attachments listed.

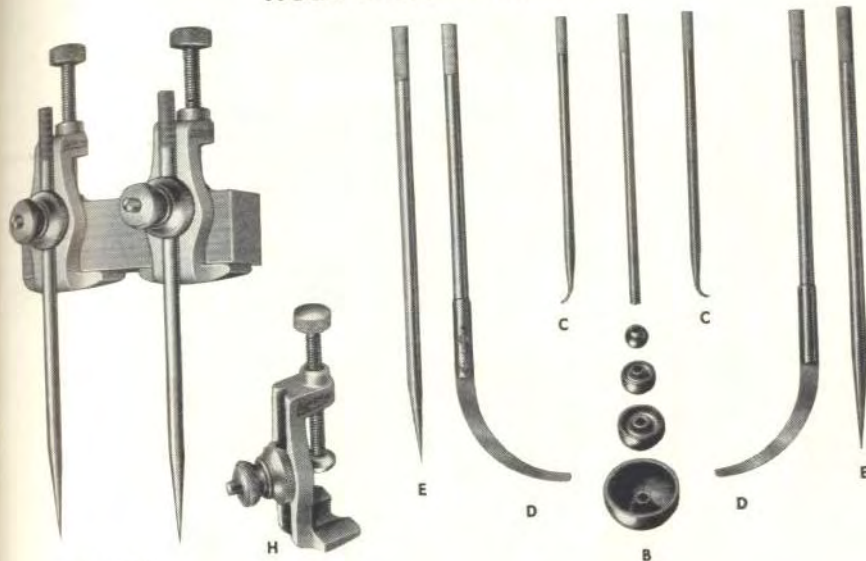
Small chuck accommodates pencil leads as well as hardened steel point. Needle point also hardened. A pen attachment is used by engineers and draftsmen.

Trammels			Extra Parts			
Set No.	Beam Inches	Maximum Diameter of Circle Scribed Inches	No.	Description	No.	Description
180A	10½	18	180D	20-Inch Long Extension Beam with Coupling and Wrench	180F	Extra Caliper Points
180B	14½	26		Ball Points and Holder; Permit Working from Holes to 1½-Inch diameter	180G	Straight Scriber Point
180C	20	36; 72 if Used with No. 180D			180H	Steel Point and Lead Holding Chuck
			180E		180J	Hardened Needle Point
					180K	Pen Attachment for Engineers Draftsmen

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Wood Beam Trammels



Lufkin Wood Beam Trammels can be fastened to beams from 5/8 to 1 3/8 inches wide. As no fitting is required, it can be of any thickness.

Readily adapted to small or large work in layout, scribing, transfer and measuring.

The attachments are easily inserted and firmly held in the trammel head.

The head will accommodate an ordinary lead pencil which can be inserted in place of either of the steel points.

A complete assortment of attachments is available

including short and long divider points, small and large caliper legs and a set of 4 ball points with holder.

One leg of the large caliper is adjustable giving added utility.

The ball points permit scribing a circle from the center of a hole having a diameter of 1½ inches or less.

A beam is not furnished with this trammel as it is common practice for the user to select the length of the beam for his particular use.

No. 179A, Wood Beam Trammels. Includes One Pair of Heads and One Pair of Short Divider Points.

No. 179B, Set of 4 Ball Points and Holder Only.

No. 179C, One Pair of Small Caliper Legs Only.

No. 179D, One Pair of Large Caliper Legs Only.

No. 179E, One Pair of Long 9-Inch Divider Points Only.

No. 179F, Short 6-Inch Divider Point Only.

No. 179G, Trammel Head (One Only).

No. 179H, Complete Set. Consists of 179A, 179B, 179C, 179D, and 179E.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Toolmakers Spring Dividers and Outside and Inside Spring Calipers

Round Leg Pattern • The Finest Type



No. 140



No. 141



No. 142

Preferred by fine mechanics because of their stability and fine proportions.

All torsion on legs and spring is avoided by mounting the adjustment screw central in the legs. Legs are of round stock, finely formed, tapered by swaging.

Parts most subject to wear are hardened. Stiff flat bow spring insures reliability and long life.

Furnished only with solid nut. Nicely finished and most attractive. No. 140 has thumb attachment.

Spring Divider		Outside Spring Caliper		Inside Spring Caliper	
No.	Size	No.	Size	No.	Size
140	2 Inch	141	2 Inch	142	2 Inch
140	3 Inch	141	3 Inch	142	3 Inch
140	4 Inch	141	4 Inch	142	4 Inch
140	5 Inch	141	5 Inch	142	5 Inch
140	6 Inch	141	6 Inch	142	6 Inch

Duplicate Parts of Toolmakers Spring Calipers and Dividers

When Ordering Parts Be Sure to Specify Size and Stock Number of Caliper or Divider

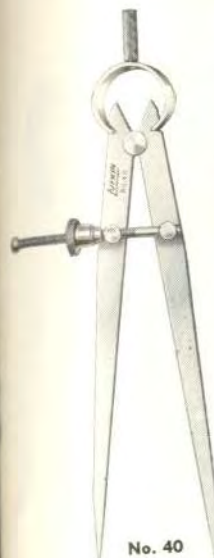
Screw and Ball	Jam Washer	Spring for Nos. 141 and 142
Spring with Thumb Attachment for No. 140	Leg (Plain)	Fulcrum Stud
Nut with Jam Washer	Leg (Bearing Lufkin Name)	

Packing: Two in a Box.

FOR PRICES SEE PRICE LIST

"Banner" Spring Dividers and Outside and Inside Spring Calipers

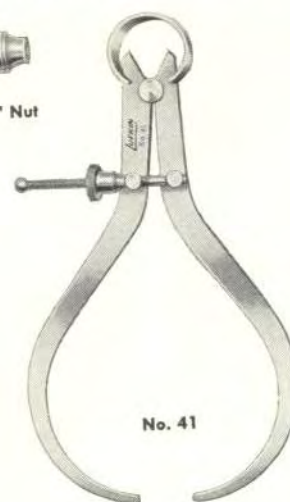
With Solid Nut • With "Quick" Nut



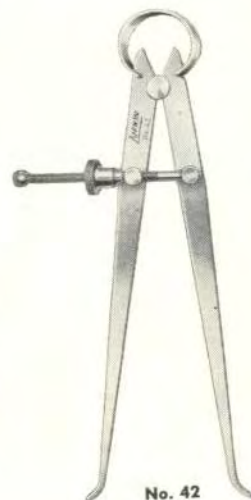
No. 40



"Quick" Nut



No. 41



No. 42

The type most widely used. Nicely proportioned and well finished. Parts most subject to wear are hardened. Stiff flat bow spring insures reliability. Spring dividers have thumb attachment. Offered with Solid Nut or "Quick" Nut. "Quick" Nut for quickly making initial adjustment. The most satis-

factory type and entirely different from others. Not spring operated. Measurement not only quickly obtained but positively held. On release of pressure, nut slides freely over the threads; on slightest leg pressure it grips screw firmly. Deservedly popular.

Spring Divider				Outside Spring Caliper				Inside Spring Caliper			
With Solid Nut		With "Quick" Nut		With Solid Nut		With "Quick" Nut		With Solid Nut		With "Quick" Nut	
No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size
40	3 Inch	50	3 Inch	41	3 Inch	51	3 Inch	42	3 Inch	52	3 Inch
40	4 Inch	50	4 Inch	41	4 Inch	51	4 Inch	42	4 Inch	52	4 Inch
40	6 Inch	50	6 Inch	41	6 Inch	51	6 Inch	42	6 Inch	52	6 Inch
40	8 Inch	50	8 Inch	41	8 Inch	51	8 Inch	42	8 Inch	52	8 Inch
40	10 Inch	50	10 Inch	41	10 Inch	51	10 Inch	42	10 Inch	52	10 Inch
40	12 Inch	50	12 Inch	41	12 Inch	51	12 Inch	42	12 Inch	52	12 Inch

Duplicate Parts of "Banner" Spring Calipers and Dividers

When Ordering Parts Be Sure to Specify Size and Stock Number of Caliper or Divider

Screw and Ball	"Quick" Nut with Jam Washer	Leg (Bearing Lufkin Name)
Spring with Thumb Attachment for Nos. 40 and 50	Jam Washer	Spring for Nos. 41, 51, 42 and 52
Solid Nut with Jam Washer	Leg (Plain)	Fulcrum Stud

Packing: Three in a Box.

FOR PRICES SEE PRICE LIST

Firm Joint and Screw Adjusting Firm Joint Outside and Inside Calipers



No. 11



No. 12



No. 21



No. 22

The distinctive feature of these calipers is the adjustable tension in the joint. This lock screw construction permits the legs to be set and held to any desired tension or friction.

Firm joint is the type of caliper that can be brought to size most quickly.

Sturdily constructed. Nicely proportioned. Well finished. Smooth operating.

Screw Adjusting Firm Joint Calipers provide faster setting for finer measurements.

All sizes listed below are length of legs. Actual capacity is about one-quarter greater than its length.

Firm Joint					Screw Adjusting—Firm Joint				
Outside Caliper		Inside Caliper			Outside Caliper		Inside Caliper		
No.	Size	No.	Size	No. in Box	No.	Size	No.	Size	No. in Box
11	4 Inch	12	4 Inch	6	21	4 Inch	22	4 Inch	3
11	6 Inch	12	6 Inch	6	21	6 Inch	22	6 Inch	3
11	8 Inch	12	8 Inch	3	21	8 Inch	22	8 Inch	3
11	10 Inch	12	10 Inch	3	21	10 Inch	22	10 Inch	3
11	12 Inch	12	12 Inch	3	21	12 Inch	22	12 Inch	3
11	18 Inch	12	18 Inch	2	21	18 Inch	22	18 Inch	2
11	24 Inch	12	24 Inch	*1	21	24 Inch	22	24 Inch	*1
11	30 Inch			*1					
11	36 Inch			*1					

*Furnished in a package.

FOR PRICES SEE PRICE LIST

Firm Joint Hermaphrodite Calipers



No. A17



No. 17

Laying out work, locating centers, etc. are the principal uses of Firm Joint Hermaphrodite Calipers. The distinctive features of these Firm Joint Calipers is the adjustable tension in the joint. This lock screw construction permits the legs to be set and held to any desired tension or friction.

Firm Joint is the type of caliper that can be brought to size quickly.

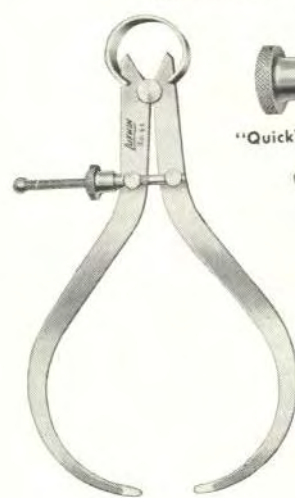
These calipers are of sturdy construction, nicely proportioned, well finished and smoothly operating.

Sizes listed below are length of legs. Actual capacity is about one-quarter greater than this length.

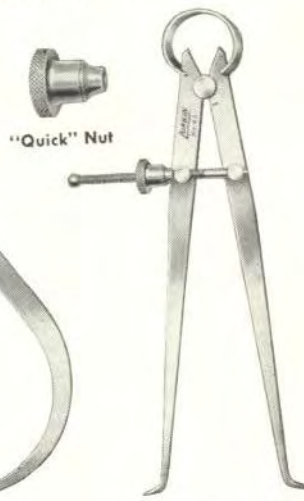
No.	Size	Type Caliper	No.	Size	Type Caliper
A17	4 Inch	With Adjustable Point	17	4 Inch	Plain
A17	6 Inch		17	6 Inch	Plain
A17	8 Inch		17	8 Inch	Plain

Thread Calipers

With Solid Nut • With "Quick" Nut



Nos. 44 and 54



Nos. 45 and 55

Designed for taking measurements of outside and inside screw threads. Points are suitably shaped to work in threads; otherwise these calipers are same as our general purpose "Banner" line. Parts most subject to wear are hardened.

Stiff, flat bow spring insures reliability.

Nicely proportioned and well finished.

Offered with Solid Nut or "Quick" Nut.

"Quick" Nut: Designed for quickly making the initial adjustment. Our "Quick" Nut is by far the most satisfactory one. It is of a type entirely different from others and is not spring operated. With it, measurement is not only quickly obtained but positively held. On release of pressure this nut slides freely over the threads; on slightest leg pressure it grips the screw firmly. Lufkin "Quick" Nut is deservedly popular.

Outside Thread Caliper				Inside Thread Caliper			
With Solid Nut		With "Quick" Nut		With Solid Nut		With "Quick" Nut	
No.	Size	No.	Size	No.	Size	No.	Size
44	4 In.	54	4 In.	45	4 In.	55	4 In.
44	6 In.	54	6 In.	45	6 In.	55	6 In.

Packing: Three in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Carbon Steel Pocket Slide Calipers



No. 453



No. 453, Reverse Side

A finely finished tool made of carbon steel. Suitable for outside and inside calipering. Accurate, machine divided graduations.

For faster and more accurate readings, measurements are read to a line rather than at the face of the jaw. These lines are marked "out" and "in" to indicate both outside and inside measurements. A lock screw holds the slide securely at any desired point and can be operated by the same hand in which the tool is held. A serrated pad on the slide affords easy opening and closing of the jaws. A stop is provided so that the slide cannot be entirely withdrawn.

	On 3-Inch and 7 Cm.	On 5 and 6-Inch and 12 Cm.
Depth of Jaws.....	$1\frac{1}{16}$ Inch (17 Mm.)	$1\frac{1}{16}$ Inch (36 Mm.)
Width of Nibs, Closed.....	$\frac{1}{8}$ Inch (3 Mm.)	$\frac{1}{4}$ Inch (6 Mm.)

No.	Length	Graduations	Calipering Capacities	
			Outside	Inside
453	3 In.	Marked English Only; Slide, 64ths Inch; Stock, 32nds Inch	$2\frac{1}{8}$ In.	$2\frac{1}{4}$ In.
455	5 In.	Marked English Only; Slide, One Edge 32nds Inch, One Edge 64ths Inch; Stock, 32nds Inch	$3\frac{13}{16}$ In.	4 In.
456	6 In.	Marked English Only; Slide, One Edge 32nds Inch, One Edge 64ths Inch; Stock, 32nds Inch	$4\frac{3}{4}$ In.	5 In.
453M	7 Cm.	Marked Metric Only; Slide, $\frac{1}{2}$ Mm.; Stock Mm.	54 Cm.	57 Mm.
455M	12 Cm.	Marked Metric Only; Slide, $\frac{1}{2}$ Mm.; Stock Mm.	97 Cm.	103 Mm.
453EM	3 In. (7 Cm.)	Marked English and Metric; Slide, One Edge 64ths Inch, One Edge $\frac{1}{2}$ Mm.; Stock, 32nds Inch	.....	.....
455EM	5 In. (12 Cm.)	Marked English and Metric; Slide, One Edge 64ths Inch, One Edge $\frac{1}{2}$ Mm.; Stock, 32nds Inch	.....	.....

Plastic Cases for Pocket Slide Calipers in 3, 5, and 6-Inch Sizes; Specify Size.

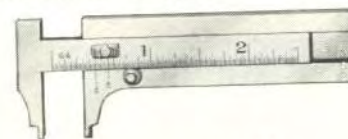
Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Stainless Steel Pocket Slide Calipers



No. 5453



No. 5453, Reverse Side

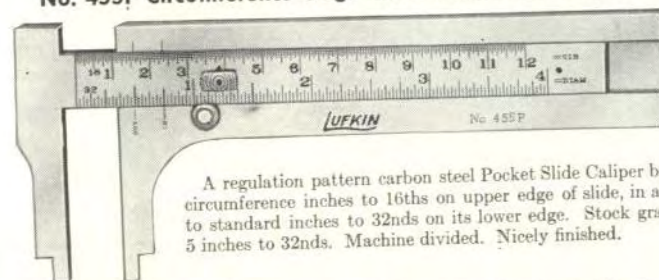
A finely finished tool made of stainless steel. Stainless steel for calipers is very valuable in certain industries and under some climatic conditions as it keeps the reading parts free of stain and rust and prolongs the life of the tool.

For faster and more accurate readings, measurements are read to a line rather than at the face of the jaw. These lines are marked "out" and "in" to indicate both outside and inside measurements. A lock screw holds the slide securely at any desired point and can be operated by the same hand in which the tool is held. A serrated pad on the slide affords easy opening and closing of the jaws. A stop is provided so that the slide cannot be entirely withdrawn.

	On 3-Inch and 7 Cm.	On 5 and 6-Inch and 12 Cm.
Depth of Jaws.....	$1\frac{1}{16}$ Inch (17 Mm.)	$1\frac{1}{16}$ Inch (36 Mm.)
Width of Nibs, Closed.....	$\frac{1}{8}$ Inch (3 Mm.)	$\frac{1}{4}$ Inch (6 Mm.)

No.	Length Inches	Graduations	Calipering Capacities	
			Outside	Inside
5453	3	Marked English Only; Slide, 64ths Inch; Stock, 32nds Inch	$2\frac{1}{8}$	$2\frac{1}{4}$
5455	5	Marked English Only; Slide, One Edge 32nds Inch, One Edge 64ths Inch; Stock, 32nds Inch	$3\frac{13}{16}$	4
5456	6	Marked English Only; Slide, One Edge 32nds Inch, One Edge 64ths Inch; Stock, 32nds Inch	$4\frac{3}{4}$	5

No. 455P Circumference Gage and Pocket Slide Caliper



A regulation pattern carbon steel Pocket Slide Caliper but with circumference inches to 16ths on upper edge of slide, in addition to standard inches to 32nds on its lower edge. Stock graduated 5 inches to 32nds. Machine divided. Nicely finished.

Applied to diameters, outside or inside, circumference as well as diameter can be read directly. All measurements are read to a line rather than at face of jaw, an aid to close and quick reading. Lines are clearly marked "out" and "in". Will caliper up to $2\frac{3}{4}$ -inch diameter, as jaws are $1\frac{1}{16}$ inches deep.

Width of nibs when closed, $\frac{1}{4}$ inch.

A serrated pad on the slide affords easy opening and closing of the jaws. A stop is provided so that the slide cannot be entirely withdrawn.

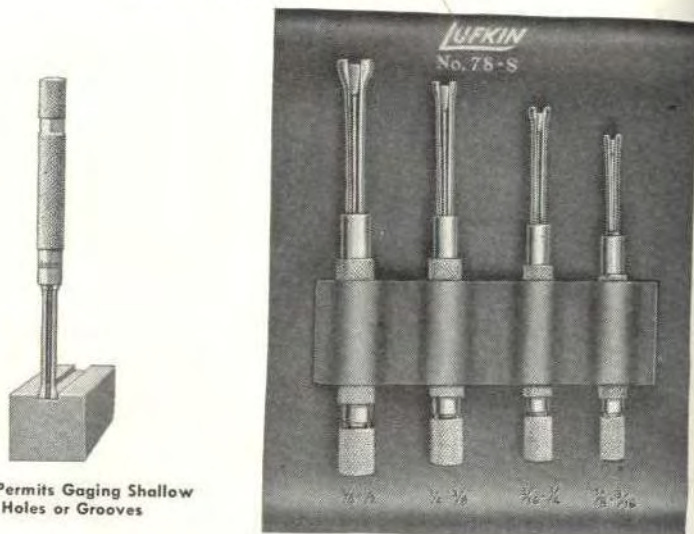
Calipering capacities: outside, $3\frac{13}{16}$ inches; inside, 4 inches of diameter.

No. 455P, 5-Inch Circumference Gage and Pocket Slide Caliper.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

No. 78 Small Hole Gages

Complete Set No. 78S, Range $\frac{1}{16}$ to $\frac{1}{2}$ -Inch

Ideal for measuring diameter of small hole or width of slot or groove that is below the $\frac{1}{16}$ -inch range of Lufkin Telescoping Gages No. 79AA.

The radius of the contact end is always less than that of the hole being measured, thereby making only a two-point contact.

Ball end is flattened off close to center line, which permits gaging holes and shallow recesses.

Provision also is made whereby travel of expanding cone is stopped at both extreme open and closed limits of gage, preventing breakage.

Made of special analysis steel with hardened contact faces. Left hand thread.

Size of handles are in proportion to size of gage, affording proper balance essential to accurate measurement.

To operate, simply insert contact end of proper size gage in hole or groove, turn knurled knob until right "feel" is obtained. Then measure over contact faces with an outside micrometer.

Available individually or as complete set in an attractive and durable fitted case.

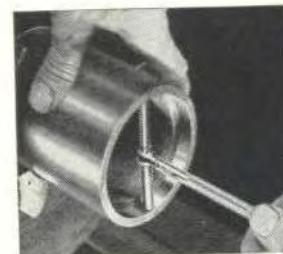
No.	Length Inches	Diameter Range, Inches	No. 78S Set in Fitted Case	
			Contents	Range, Inches
78A	2 $\frac{3}{16}$	$\frac{1}{16}$ to $\frac{1}{8}$ or .125 to .187	Nos. 78A, B, C and D	$\frac{1}{8}$ to $\frac{1}{2}$
78B	3 $\frac{1}{8}$	$\frac{1}{8}$ to $\frac{1}{4}$ or .187 to .250		
78C	3 $\frac{3}{8}$	$\frac{1}{4}$ to $\frac{3}{8}$ or .250 to .375		
78D	3 $\frac{7}{8}$	$\frac{3}{8}$ to $\frac{1}{2}$ or .375 to .500		

Packing: One Gage in a Box; 4 in a Carton.
No. 78S Set, One in a Box.

FOR PRICES SEE PRICE LIST

Telescoping Gages

(Patented)

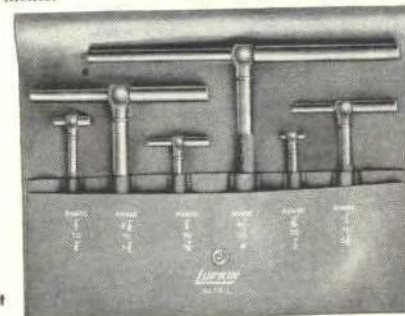


Method of Use: Compress plungers; lock by turning handle screw. Insert gage in hole, release lock; plunger expands to exact size of hole or slot with handle remaining in center. Lock plungers, remove gage, measure with outside micrometer.

Note the Illustration Above, Showing One of the Valuable and Exclusive Features of Lufkin Telescoping Gages. Even though the gage is not fully extended, handle is at center of tool. Perfect balance and feel are retained for quick, accurate measurements.

Handle of Self-Centering Telescoping Gage, pioneered by Lufkin, locks at center of plunger for feel needed for accuracy. Inside size of slots or holes is quickly and accurately obtained; even down to $\frac{1}{16}$ -inch, smaller opening than obtained by any other gage of this type. Measurement of gage down to one thousandth or less found by outside micrometer. Has handle and two plungers, one telescoping into other; both plungers under constant spring tension and locked by slight turn of knurled screw in end of handle. Ends of plungers hardened and ground to radius, giving clearance in smallest opening gage enters. With these features any measurement within capacity of tool can be taken.

No. 79L Set



Gage No.	Range Inches	Sets in Red Fitted Case			
		Set No.	Type	Range Inches	Contents
79AA	$\frac{5}{16}$ - $\frac{1}{2}$	79L 79M	Complete Small	$\frac{5}{16}$ -6 $\frac{5}{16}$ -2 $\frac{1}{8}$	79AA, 79A, 79B, 79C, 79D, 79E 79AA, 79A, 79B, 79C
79A	$\frac{1}{2}$ - $\frac{3}{4}$				
79B	$\frac{3}{4}$ -1 $\frac{1}{4}$				
79C	1 $\frac{1}{4}$ -2 $\frac{1}{8}$				
79D	2 $\frac{1}{8}$ -3 $\frac{1}{2}$				
79E	3 $\frac{1}{2}$ -6				
*79X	2 $\frac{1}{8}$ -4 $\frac{3}{8}$				

*Furnished complete with 10-inch handle.

10-Inch Handle for any of above gages. (Specify stock No. of gage with which handle is used.)

Packing: One Gage or Set in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

No. 77 Radius Gages

(Patented)

Finest Radius or Fillet Gage pioneered by Lufkin; for tool, die, pattern makers, templet layout men, screw machine operators, and other mechanics.

Outstanding features: Each blade or gage is a separate unit for convenient, accurate use on work; has corresponding external and internal forms, the practical combination; accurate, smooth edges. Each steel blade or gage marked prominently with its radius; all gages in set in attractive durable red fitted case for proper protection and simple, easy selection of each.

No. 20 Radius Gage Holders

Length of 4 inches permits gaging in small and out of way places. Knurled locking nut locks blade securely in holder in 30° or 45° slot at any place on blade.



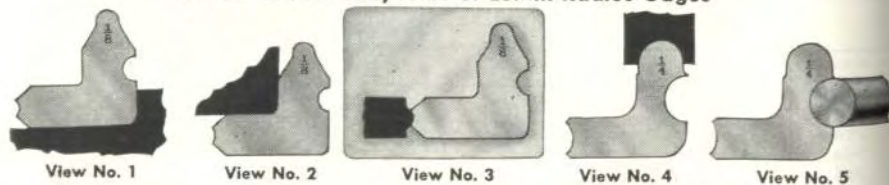
No. 20 Holder

Set No.	No. of Gages	Radii, Inches
77A	16	$\frac{1}{32}$ — $\frac{1}{16}$ by 64ths
77AX	17	$\frac{1}{64}$ — $\frac{1}{16}$ by 64ths and No. 20 Holder
77B	8	$\frac{3}{32}$ — $\frac{1}{2}$ by 32nds
77C	24	$\frac{1}{32}$ — $\frac{1}{16}$ by 64ths; $\frac{9}{32}$ — $\frac{1}{2}$ by 32nds (Set Nos. 77A and 77B Combined)
77CX	25	$\frac{1}{64}$ — $\frac{1}{16}$ by 64ths; $\frac{3}{32}$ — $\frac{1}{2}$ by 32nds (Set Nos. 77AX and 77B Combined) and No. 20 Holder
77D	16	$\frac{1}{32}$ — $\frac{1}{2}$ by 32nds
77E	8	$\frac{3}{16}$ —1 by 16ths
77F	8	$1\frac{1}{16}$ —2, by 8ths
77G	16	$1\frac{1}{16}$ —2, by 16ths

Extra Blades or Gages Only

Available in following sizes: $\frac{1}{64}$ to $\frac{1}{16}$, by 64ths— $\frac{1}{32}$ to $\frac{1}{2}$, by 32nds— $\frac{1}{16}$ to 2, by 16ths
Packing: One Set in a Box.

A Few of the Many Uses of Lufkin Radius Gages



View No. 1: Gage determining radius of inside corners or fillets for $\frac{1}{4}$ or less of a circle. Straight sides at 90° for checking location of radius.

View No. 2: Gage determining radius of outside corners. Also shows whether sides are at 90° and tangent to circle.

View No. 3: Work being checked on a piece of glass; checks any other convex parts, where radius

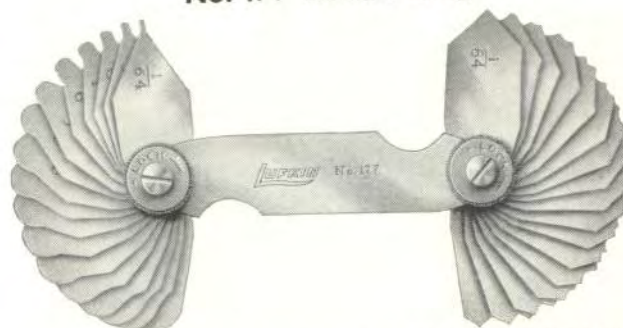
is $\frac{1}{4}$ or more of circle, that have projections which will not permit the use of gage as in Views 2 and 5.

View No. 4: Gage used on concave cutter of $\frac{1}{2}$ or less of circle; usable for checking radius in View No. 1, but will not show relation of radius to sides.

View No. 5: Checks $\frac{1}{2}$ of a circumference.

FOR PRICES SEE PRICE LIST

No. 177 Radius Gage

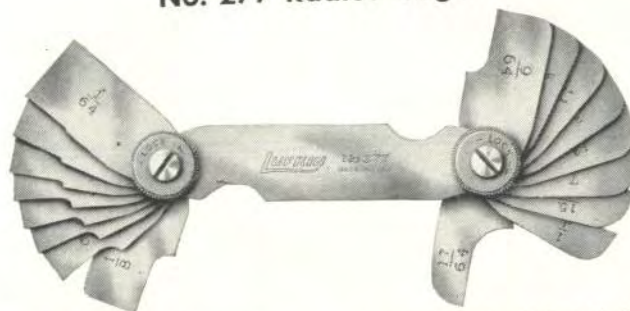


A companion tool to our popular No. 77 series Radius Gage. This gage contains leaves adapted for convex and concave gaging. A very useful tool for pattern makers, die makers, layout men and mechanics. The leaves of Lufkin Radius Gages are correctly designed to give the full and true radius. Each blade is prominently marked with its radius. The case is of ample size to give the leaves full protection. Lufkin Radius Gages are equipped with

a lock which will firmly lock any one leaf in position or all the leaves in the case.

No.	No. of Leaves	Radii, Inches
177	34	$\frac{1}{64}$ through $\frac{1}{16}$ by 64ths
177A	30	$\frac{1}{32}$ through $\frac{1}{4}$ by 64ths
177B	16	$\frac{9}{32}$ through $\frac{1}{2}$ by 32nds

No. 277 Radius Gage



This gage is similar in design to No. 177, but is used for determining radius of fillets, inside and outside corners. A very useful tool for pattern makers, die makers, layout men and mechanics. The leaves of Lufkin Radius Gages are correctly designed to give the full and true radius. Each blade is prominently marked with its radius.

The case is of ample size to give the leaves full protection. Lufkin Radius Gages are equipped

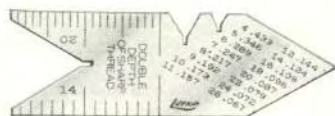
with a lock which will firmly lock any one leaf in position or all the leaves in the case.

No.	No. of Leaves	Radii, Inches
277	17	$\frac{1}{64}$ through $\frac{1}{16}$ by 64ths
277A	16	$\frac{1}{32}$ through $\frac{1}{16}$ by 64ths
277B	8	$\frac{3}{32}$ through $\frac{1}{2}$ by 32nds

Packing: One in a Box; Three in a Carton.

FOR PRICES SEE PRICE LIST

Center Gages



No. 36

Center gages are used in grinding and setting screw cutting tools. The graduations are the most commonly required in determining the number of threads per inch or per centimeter. Lufkin center gages are made of tempered steel approximately $2\frac{1}{4}$ inches long and $1\frac{1}{16}$ inch wide. Internal angles are slotted for clearance.

Nos. 36 and 37 carry table of double depth figures. This is valuable to determine tap drill size for sharp 60 and 55 degree "V" threads. Allowance must be made for the extent to which thread is flattened, it being impractical to tap a perfectly sharp thread.

Nos. 136 and 136½ are heavy Center Gages, ($\frac{1}{8}$ inch thick) especially suitable for accurately checking heavy threads. They are hardened and ground. The added thickness gives greater contact surface, so that alignment can readily be found. These tools are practical and sturdy. No. 136½ Center Gage is used extensively in the oil industry.

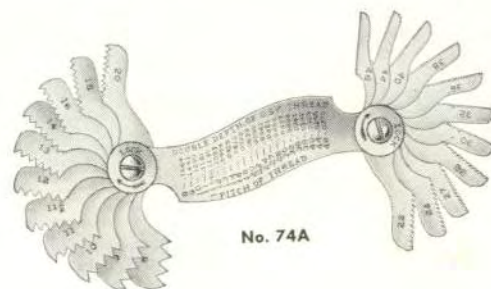
Spring Tempered				
No.	Item	Markings	Thickness Inches	Angle Degrees
*36	Center Gage	14ths, 20ths, 24ths and 32nds Inch	1/25	60
37	Whitworth Standard Center Gage	14ths, 20ths, 24ths and 32nds Inch	1/25	55
36M	Metric Gage	2 Edges Millimeters; 2 Edges ½ Mm.	1/25	60
Hardened and Ground				
*136	Heavy Center Gage	Not Graduated	1/8	60
136½	Heavy Center Gage	Not Graduated	1/8	90

*Has American National Form of thread.

Packing: Six in a Box.

FOR PRICES SEE PRICE LIST

Screw Pitch Gages



No. 74A

A Screw Pitch Gage is used to determine the pitch or number of threads per inch. The blades are cut deeply, with the tops of the teeth flattened. Lufkin Screw Pitch Gages can be used on V and American National or U.S. Standard threads. The blades are correctly designed permitting them to be inserted into a nut as well as obtaining pitches on outside threads on bolts, screws, etc. Each blade is marked with its pitch. Blades fold into compact case. The case is marked to show the double depth of American

National or U.S. Standard thread. To obtain double depth of sharp V threads, for the same pitch, add $\frac{1}{8}$ to the double depth given for American National or U.S. Standard.

Lufkin Screw Pitch Gages are furnished with a lock nut. Using the lock nut permits blades to be locked in desired position as well as locking blades in case. This feature eliminates chances of error and is especially desirable when one pitch is used repeatedly.

$$\text{Formula for V thread} \\ d = D - 1.732'' \\ \cdot N$$

$$\text{Formula for American National} \\ \text{or U. S. Standard thread} \\ d = D - 1.299'' \\ \cdot N$$

No.	No. of Pitches	Pitch
74A	22	8, 9, 10, 11, $11\frac{1}{2}$, 12, 13, 14, 16, 18, 20, 22, 24, 27, 28, 30, 32, 36, 38, 40, 44, 48
74B	24	4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, 7, 8, 9, 10, 11, $11\frac{1}{2}$, 12, 13, 14, 16, 18, 20, 22, 24, 27, 28, 30, 32, 36
74C	28	8, 9, 10, 11, $11\frac{1}{2}$, 12, 13, 14, 16, 18, 20, 22, 24, 27, 28, 30, 32, 36, 38, 40, 44, 48, 50, 56, 60, 64, 72, 80
74D	28	3, $3\frac{1}{4}$, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, 7, 8, 9, 10, 11, $11\frac{1}{2}$, 12, 13, 14, 16, 18, 20, 22, 24, 27, 28, 30, 32, 36, 38

Packing: Three to a Carton.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Thickness Gages

With Tapered Leaves



No. 126T



No. 109T

Thickness Gages (Feeler Gages) are used by toolmakers, machinists and others in jig and fixture work, in making gages, in experimental work and in the manufacturing and servicing of automobiles.

Thickness Gages with tapered leaves are made the same as Thickness Gages with straight leaves, see description on page 93.

Tapered leaves will enter narrower openings. Leaves are 3 in. long, $\frac{1}{2}$ in. wide, tapered to $\frac{1}{4}$ in. width at point.

No.	No. of Leaves	Thickness
126T	26	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 In.
110T	10	.0015, .002, .0025, .003, .004, .006, .008, .010, .012, .015 In.
109T	9	.0015, .002, .003, .004, .006, .008, .010, .012, .015 In.
*109TM	9	.04, .05, .06, .07, .08, .10, .15, .20, .25 Mm.

*Combined thickness, 1 mm. Leaves approximately $7\frac{1}{2}$ cm. long, tapered to $6\frac{1}{2}$ mm.

With Long Tapered Leaves

Thickness Gages (Feeler Gages) with long leaves are desirable in automotive work for finding clearance between piston and cylinder walls. Also used for other work where a longer gage is necessary.

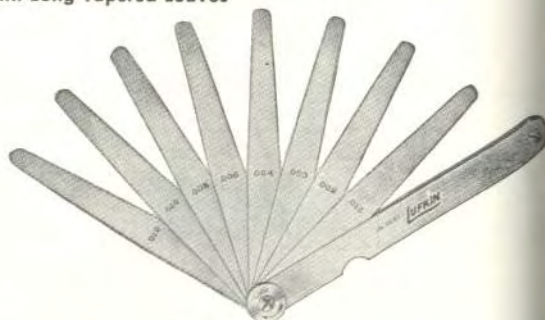
The leaves are made of tempered steel, ground to thickness. Each leaf is individually tested and clearly marked with its thickness. Leaves fold readily into a protective case; can be replaced easily. Tapered leaves are more desirable because they will enter narrower openings.

The lock nut is another outstanding feature. One or more leaves can be locked firmly in any position permitting easier insertions in openings and reducing chances of error. Facilitates using the gage to its full extended length. No. 208T with leaf extended and locked in line with case gives an overall length of 9 in. No.

No. 208T, Thickness Gage with Eight Leaves $4\frac{1}{2}$ Inches Long.

No. 308T, Thickness Gage with Eight Leaves 6 Inches Long.

Packing: One in a Box.



No. 308T

308T with leaf extended and locked in line with case gives an overall length of 12 in. Leaves are $\frac{1}{2}$ in. wide and tapered to $\frac{1}{4}$ in. Thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 inch.

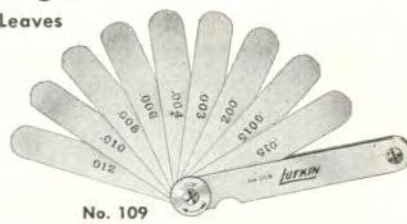
FOR PRICES SEE PRICE LIST

Thickness Gages

With Straight Leaves



No. 126



No. 109

Thickness Gages (Feeler Gages) are used by toolmakers, machinists, etc. in jig and fixture work, making gages, experimental work and in manufacturing and servicing of automobiles.

The leaves of Lufkin Thickness Gages are made of tempered steel, ground to thickness. Each leaf is individually tested and clearly marked with its thickness. The leaves fold readily into a protective case and can be replaced easily. Leaves are 3 inches long and $\frac{1}{2}$ inch wide.

The lock nut is another outstanding feature on these thickness gages. One or more leaves can be locked firmly in any position permitting easier insertions in openings and reducing chances of error. It also facilitates using the gage to its full extended length.

No.	No. of Leaves	Thickness
126	26	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 In.
122	22	.004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 In.
109	9	.0015, .002, .003, .004, .006, .008, .010, .012, .015 In.
*116M	16	.04, .05, .06, .07, .08, .10, .15, .20, .25, .30, .35, .40, .45, .50 Mm. and Two Leaves of 1 Mm. Each
†109M	9	.04, .05, .06, .07, .08, .10, .15, .20, .25 Mm.

*Combined thickness, 5 mm. Leaves approximately 12 mm. wide, $7\frac{1}{2}$ cm. long.

†Combined thickness, 1 mm. Leaves approximately 12 mm. wide, $7\frac{1}{2}$ cm. long.

Packing: One in a Box; Three in a Carton.

No. .06 Thickness Gages

With Straight Leaves



Our popular priced thickness gage. It is extensively used by garage mechanics, car owners, truck and tractor operators in determining clearance of tappets, fitting pistons and adjusting spark gap. Each leaf is clearly marked with its thickness. The six leaves fold readily into a protective case and can be replaced easily. One end of the case has an eyelet for key ring or hanging. Leaves are 3 inches long and $\frac{1}{2}$ inch wide.

Thicknesses: .0015, .002, .003, .004, .006, .015 inch.

No. .06, Thickness Gage with Six Straight Leaves.

Packing: Six in a Box.

Leaves Only for All Thickness Gages

For use as separate pieces or for replacing leaves in gages. When ordering 3-inch leaves, specify thickness 3-Inch Leaves, Straight or Tapered.

and straight or tapered. When ordering $4\frac{1}{2}$ and 6-inch leaves, specify thickness.

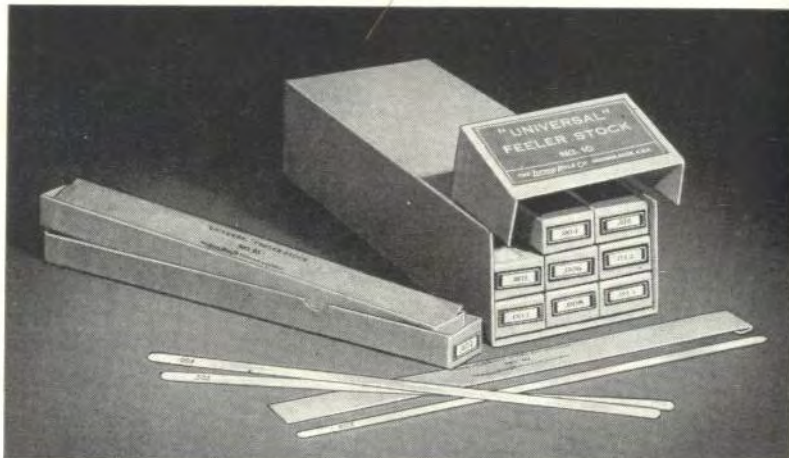
$4\frac{1}{2}$ -Inch Leaves, Tapered Only. 6-Inch Leaves, Tapered Only.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

No. 10 "Universal" Feeler Stock

In 1-Foot Pieces • Clean Stock



This Feeler or Thickness Gage Stock is most extensively used in automobile and other motor work, both manufacturing and servicing. It is employed in determining clearance of tappets, gear play, ring-groove clearance, fitting pistons, adjusting spark gap, etc. Used in experimental work by toolmakers and machinists.

Each piece is marked with its thickness and has ends rounded. This stock is $\frac{1}{2}$ -inch wide and each 1-foot piece is in individual envelope, flat and ready

to hand out. This prevents the waste due to rust and stain from handling and breaking from a coil.

When ordering, specify thickness.

No. 10, "Universal" Feeler Stock.

Available Thicknesses, Inches					
.001	.004	.009	.014	.019	.024
.0015	.005	.010	.015	.020	.025
.002	.006	.011	.016	.021	....
.0025	.007	.012	.017	.022	....
.003	.008	.013	.018	.023	....

Packing: Twelve 1-Foot Pieces of One Thickness in a Box, Each Piece in Individual Envelope.

No. 10 Assortment of Feeler Stock

Includes twelve 1-foot pieces of the nine following thicknesses: .0015, .002, .003, .004, .006, .008, .010, .012, and .015 inch.

Packing: Twelve Pieces in a Box; Nine Boxes in an Open End Carton as Illustrated.

Ground Thickness Gage Stock

This is offered to meet the demand for Ground Thickness Gage Stock only, in long pieces. This stock we supply in any of our standard thicknesses, $\frac{1}{2}$ -inch wide, and in lengths listed below. Each of

these pieces is marked with its thickness.

Always specify ground stock and state thickness and length.

6-Inch Pieces.

12-Inch Pieces.

18-Inch Pieces.

FOR PRICES SEE PRICE LIST

No. 110 "Universal" Feeler Stock

25-Foot Roll in Metal Case • Clean Stock



This stock is used by automobile mechanics in fitting pistons, setting tappets, adjusting spark gap, gear play, etc., and in experimental work by toolmakers and machinists.

Smooth-edged Thickness Gage or Feeler Stock, $\frac{1}{2}$ -inch wide, 25-foot roll, in metal case. This Feeler Stock carries Lufkin name and cutting line each foot, and is prominently marked with its thickness every 6 inches.

The improved metal case protects the stock and is convenient to handle. The thickness is clearly

marked on each metal case. Size of case makes it best to handle and to keep the stock in proper condition. The stock is easily withdrawn and cut to length; the revolving core makes it simple to recoil any unused portion.

When ordering specify thickness.

No. 110, "Universal" Feeler Stock.

Available Thicknesses, Inches					
.001	.004	.009	.014	.019	.024
.0015	.005	.010	.015	.020	.025
.002	.006	.011	.016	.021	....
.0025	.007	.012	.017	.022	....
.003	.008	.013	.018	.023	....

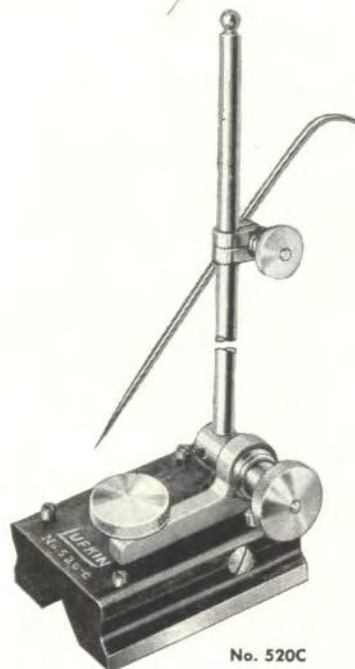
Packing: { 25-Foot Roll in Case in a Box.
.020 or over, Furnished in Cardboard Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Universal Surface Gages

Hardened Base



No. 520C

These superior type standard size Surface Gages have hardened bases.

The spindle is made of hollow steel tubing, light and rigid and will not tip the base when used with attachments. The sleeves on scriber clamp and spindle clamp are keyed so that holes for scriber and spindle are always in alignment. The fine adjustment permits greater range of adjustment than any similar gage. The base has four pins, for use as guides on linear work.

Base is finished in mottled blue, with all measuring faces ground and polished. The bottom and one end

are grooved. Spindle can be set upright, at any angle, or so that scriber can be used below the base. For small work the spindle may be removed and scriber inserted through small hole in the rotating head. After spindle has been clamped in approximate position, the fine adjustment is made with the adjusting screw on rocker arm. This screw works against a stiff spring at the other end.

Bases are $3\frac{1}{4}$ inches long and $2\frac{1}{2}$ inches wide. Length of spindle, as listed, does not include the base.

- No. 520A, Universal Surface Gage with 9-Inch Tubular Spindle.
- No. 520B, Universal Surface Gage with 9 and 12-Inch Tubular Spindles.
- No. 520C, Universal Surface Gage with 12-Inch Tubular Spindle.
- No. 520K, Indicator Attachment for Any of above (A Spindle Clamp with Hole for Holding Indicator).

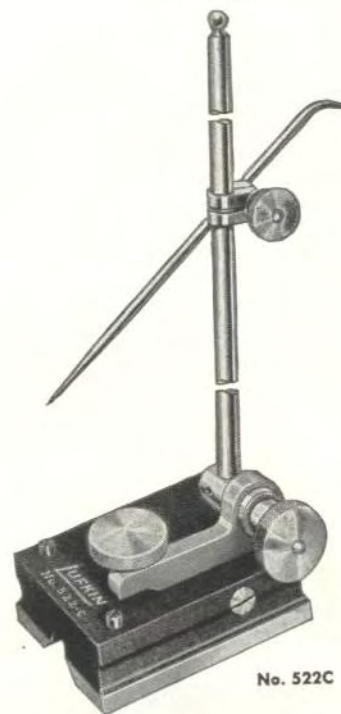
18-Inch Tubular Spindle for Any of above.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Universal Surface Gages

Cast Base



No. 522C

This series of Surface Gages is the same size and same range as the 520 series. They also embody many design and construction improvements. The base has a wrinkle finish, with measuring faces ground and polished. The bottom and one end are grooved, making the gage suitable for use on cylindrical as well as flat surfaces. Base has two gage pins for use as guides on linear work. Spindle can be set upright, at any angle, or so that scriber can be used below the base. For small work the spindle may be

removed and scriber inserted through the small hole in the rotating head.

After the spindle has been clamped in approximate position, the fine adjustment is made with the adjusting screw on the rocker arm. This screw works against a stiff spring and permits a greater range of adjustment than any similar gage.

Bases are $3\frac{1}{4}$ inches long and $2\frac{1}{2}$ inches wide. Length of spindle, as listed, does not include the base.

- No. 522A, Universal Surface Gage with 9-Inch Spindle.
- No. 522B, Universal Surface Gage with 9 and 12-Inch Spindles.
- No. 522C, Universal Surface Gage with 12-Inch Spindle.
- No. 520K, Indicator Attachment for Any above (A Spindle Clamp with Hole for Holding Indicator).

18-Inch Spindle for Any of above.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Toolmakers Universal Surface Gages

Hardened Base

These Surface Gages are nicely proportioned, well built and suitable for small work.

The base is hardened and has all measuring faces ground and polished. Spindle and scriber holes are keyed, keeping them in constant alignment. The base is in mottled blue finish and has two gage pins for use as guides on linear work. The bottom and one end are grooved for cylindrical work. Spindle can be set upright, at any angle or so that scriber can be used below the base.

For small work spindle may be removed and scriber inserted through the small hole in the rotating head. After the spindle has been clamped in approximate position, the fine adjustment is made with the adjusting screw on the rocker arm. This screw works against a stiff spring and permits a greater range of adjustment than any similar gage.

Length of spindle, as listed, does not include the base. Bases are $2\frac{1}{8}$ inches long and $1\frac{1}{2}$ inches wide.

No. 521A, Toolmakers Surface Gage with 4-Inch Spindle.

No. 521B, Toolmakers Surface Gage with 4 and 7-Inch Spindles.

No. 521C, Toolmakers Surface Gage with 7-Inch Spindle.

Packing: One in a Box.

Hold Downs



Lufkin Hold Downs are made of tool steel, hardened and ground. They are designed to securely hold work flat and without distortion in a vise or on a machine bed. Hold downs are used where other methods of clamping are inconvenient and are especially adaptable for holding thin work.

An outstanding feature of Lufkin Hold Downs is that they not only clamp the work securely but

constantly force it downward against the machine bed, because both contact edges are properly tapered and there is a clearance step along entire length of front of the under side. Lufkin Hold Downs are made in five lengths, all are of the same width and thickness, so any of the lengths can be used together on long work.

Width, $\frac{3}{16}$ inch.

No. 902C, Hold Downs, 4 Inches Long.

No. 902D, Hold Downs, 5 Inches Long.

No. 902E, Hold Downs, 6 Inches Long.

Packing: One Pair in a Box.

FOR PRICES SEE PRICE LIST

No. 905 V Blocks and Clamps

Hardened and Ground

Made in pairs and sold in sets for use where an extremely accurate setting is required; holding work for drilling, milling, grinding and other operations, and in layout in connection with surface or angle iron.

A valuable feature is tapped hole through sides; useful particularly when working on an angle plate fastened to lathe face plate or magnetic chuck. Using $\frac{1}{4}$ -20 screw, the block can be fastened securely to angle plate at any angle without using other clamps that would interfere with work in layout, milling, drilling, grinding, etc.

Made of tool steel, hardened and ground.

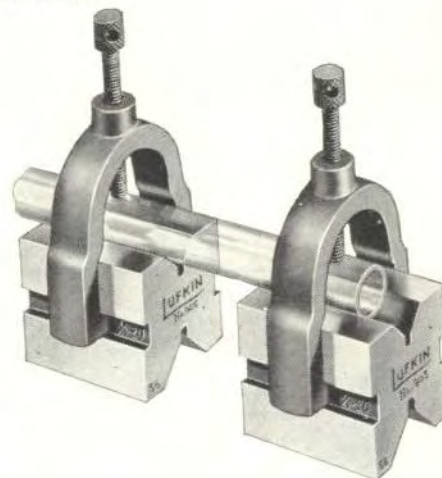
Approximately $1\frac{3}{8}$ -inches long, $1\frac{1}{4}$ -inches square; clamping capacity 1-inch diameter.

V's ground central, parallel and square with ends and sides. Blocks made and numbered in pairs so V grooves in each pair always are in alignment.

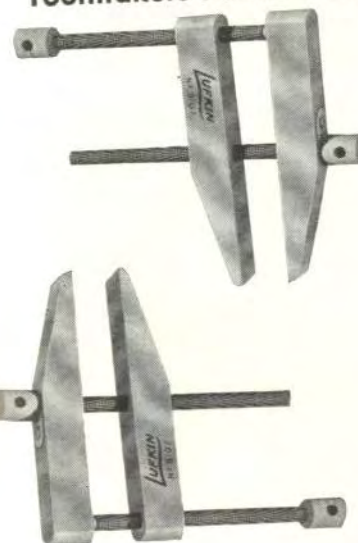
Strong clamps of drop forged steel. Extra clamps only for V blocks available.

No. 905, V Blocks and Clamps (Set of 2).

Packing: One Set in a Box.



Toolmakers Parallel Clamps Case-Hardened Steel



For holding small work together in drilling, tapping, etc. Designed to be strong and rigid and to insure positive hold. Jaw ends rounded to permit clamping under shoulders or in recesses.

One handy feature is clip attachment which prevents sliding of loose jaw on screw. Clip is flat, flush with jaw back, eliminating interference with fingers when opening and closing clamp.

Furnished in pairs.

No.	Clamp- ing Ca- pacity Inches	Length Jaws Inches	No.	Clamp- ing Ca- pacity Inches	Length Jaws Inches
910A	$\frac{3}{4}$	$1\frac{1}{8}$	910D	$2\frac{1}{4}$	3
910B	$1\frac{1}{4}$	2	910E	$2\frac{3}{4}$	4
910C	$1\frac{3}{4}$	$2\frac{1}{2}$	910F	$3\frac{1}{2}$	5

When ordering extra parts: Screws, specify stock number and "full threaded" or "smooth end"; jaws, specify "with tapped holes" or "with holes not tapped", as well as stock number; clips, with clip screw, specify stock number.

Packing: One Pair (2 Clamps) in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.



"Miti-Mite" Magnetic Base Tools

Lufkin Magnetic Base Tools were designed to provide on-the-job convenience. The powerful permanent magnets readily attach themselves to either round or flat steel and iron surfaces. Haphazard clamping is eliminated. Bases have magnetic pull of 50 and 100 pounds. Tool makers, die makers, inspectors, machinists, maintenance and repair men and home craftsmen will find many applications for these tools.



No. 100 Magnetic Base Indicator Holder

This is a precision built unit for holding indicators and other tools. The base is completely shielded and is $1\frac{1}{4}$ inches square. Included with this unit are: one long post, one short post and one adaptor.

Permanent magnet with 50-pound pull.
Ball-and-socket action for positioning.
Accurate; eliminates haphazard clamping.
Magnetic holding is safe, sturdy.
Saves time and effort.

No. 100, Magnetic Base Indicator Holder with Attachments.



No. 101 Magnetic Base Indicator Holder with Fine Adjustment

Same as above except for extra fine adjustment which allows closer setting of dial indicators. Attaches instantly to either round or flat surfaces. Attachments included with this unit: one long post, one short post and one adaptor.

No. 101, Magnetic Base Indicator Holder with Fine Adjustment and Attachments.

Note: For attachments, see page 106.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST



"Miti-Mite" Magnetic Base Tools

No. 150 Heavy Duty Magnetic Base Indicator Holder



No. 150

This precision built unit is designed for heavy duty work. It can be used with most indicators including the lug back type. The base is 4 inches long, $1\frac{1}{4}$ inches wide and $1\frac{5}{8}$ inches high: shielded with non-breakable molded plastic. Attachments included with this unit are: two long posts, one short post and one adaptor.

Permanent magnet with 100-pound pull.
Ball-and-socket action for positioning.
Accurate; eliminates haphazard clamping.
Magnetic holding is safe, sturdy.
Saves time and effort.

Fingertip control magnetic release for repositioning, or removing without jarring indicator.

This Magnetic Base Indicator Holder can be quickly converted to a surface gage by mounting a No. 155 shoe as shown below. Allows use on iron or steel surface plates as well as on glass or marble.

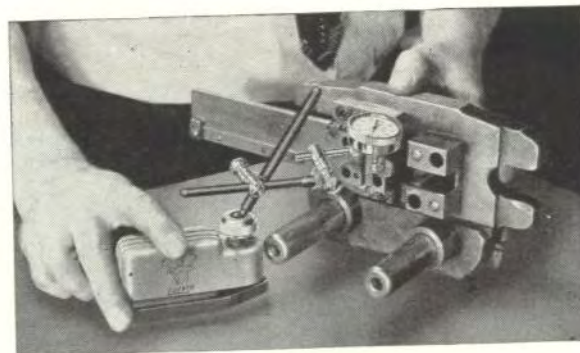
No. 150, Heavy Duty Magnetic Base Indicator Holder with Attachments.

No. 151, Combination of Heavy Duty Magnetic Base Indicator and No. 155 Shoe.

No. 155, Surface Gage Shoe Only.



No. 155 Shoe



Note: For attachments see page 106.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

"Miti-Mite" Magnetic Base Tools

No. 150A Heavy Duty Magnetic Base Indicator Holder
with Fine Adjustment



This unit is precision built, designed for heavy work. Attaches instantly to either round or flat iron and steel surfaces.

The base is 4 inches long, 1 1/4 inches wide and 1 3/8 inches high. It is completely shielded with non-breakable molded plastic. Attachments included with this unit are: two long posts, one short post and one adaptor.

Fine adjustment for finer settings.

Permanent magnet with 100-pound pull.

Ball-and-socket for positioning.

Accurate; eliminates haphazard clamping.

Magnetic holding is safe, sturdy.

Saves time and effort.

Fingertip control magnetic release for repositioning or removing without jarring indicator.

No. 150A, Heavy Duty Magnetic Indicator Holder
with Fine Adjustment and Attachments.

Note: For attachments see page 106.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

"Miti-Mite" Magnetic Base Tools

Surface Gage and Indicator Holder

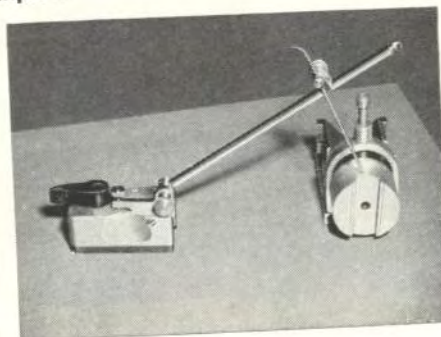
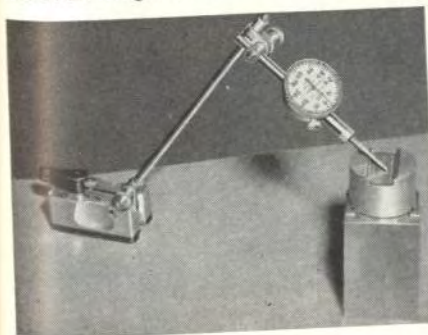


No. 300B

A new design magnetic base surface gage with easy positioning and positive holding. The contact faces of the base are ground and lapped and contain two heavy duty permanent magnets, isolated from the spindle and other parts, to avoid transmission of the magnetic pull. The on-off switch controls the polarity of the magnets, permitting full magnetic pull, full off, or to a partial pull for minor adjustments in position. Rocker arm and fine adjustment screw permits final, precise adjustments. Spindle can be located

in any angle from an upright position to straight down below the base. Spindle and scriber holes are keyed, keeping them in constant alignment. For small work, the scriber can be removed and inserted into the small hole of the rotating head. Base is 1 1/2 inches wide, 2 3/4 inches long. Set includes 4" and 7" spindles, an indicator adaptor, and a sleeve to increase spindle diameter for use with an indicator attachment.

No. 300B Magnetic Base Surface Gage complete



FOR PRICES SEE PRICE LIST



"Miti-Mite" Magnetic Base Tools

Magnetic Base Fluorescent Handi-Lite



No. 350X
with 4X Magnifier

Ideal for industrial laboratories, tool rooms, die shops, bench inspection, surface grinding, precision lathe work, etc.

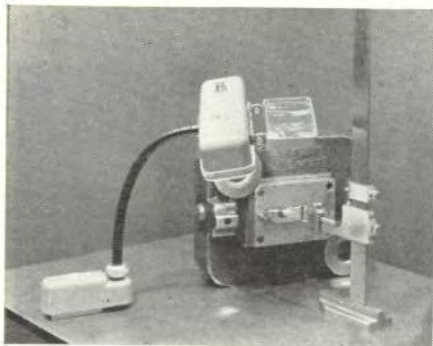
High intensity lighting (500 foot candles at 3" working distance) coupled with a 4-power magnifier. Unit operates at about body temperature, eliminating danger of burns. The two fluorescent lamps, 5" long, are protected by a plastic chip shield. Lights immediately with improved instant-starter switch. The magnifier is securely attached to the lamp and

has a friction adjustment for selective positioning. The heavy duty goose neck is flexible—may be adjusted to desired position. Magnetic base has two heavy duty permanent magnets arranged to attach firmly to both round and flat ferrous surfaces. A fingertip control magnetic release permits changing positions easily. UL approved cord.

350X-4X With 4 Power Magnifier

350X-6X With 6 Power Magnifier

350X-8X With 8 Power Magnifier



FOR PRICES SEE PRICE LIST



"Miti-Mite" Magnetic Base Tools

No. 301B Heavy Duty Surface Gage



A new, large, ruggedly constructed surface gage and indicator holder that has greater range and capacity. Increased base size prevents rocking... larger, stronger magnets permit use with lug back and other heavy indicators and attachments.

The base is machined from a solid block of polished aluminum, with horizontal grooves along each side for easy grip. The two heavy duty magnets recessed into the base are completely isolated from the spindle and other parts to avoid transmission of the magnetic pull to them. Polarity of the magnets is controlled by a king size ON-OFF switch that turns the magnetic pull to full on... full off... or to any intermediate point to make minor adjustments in position. The contact faces of the base are ground and lapped, and have a V-groove down the center, adapting it for use on cylindrical as well as flat surfaces.

A new scriber on this surface gage has a removable, long wearing carbide tip. The scriber rod has chuck end that releases the tip for replacement or for reversing and reinserting to protect the tip from damage when not in use.

Rugged, rocker arm and large diameter fine adjustment screw permit final, precise adjustments. Base is $2\frac{1}{2}$ " wide, $3\frac{3}{4}$ " long. Set includes both 9" and 12" spindles, swivel indicator attachment, indicator holding rod, and scriber with reversible carbide tip. 18" spindle is also available.

No. 301B

Heavy Duty Surface Gage
(Includes 9" & 12" spindles, indicator holding rod, reversible carbide tip scriber)

No. 301-023A

Spindle Clamp
Clamp Rod Assembly

No. 301-024A

No. 301-9

Spindle, 9"

No. 301-12

Spindle, 12"

No. 301-18

Spindle, 18"

No. 301-030A

Scriber, with reversible carbide tip

No. 301-031A1

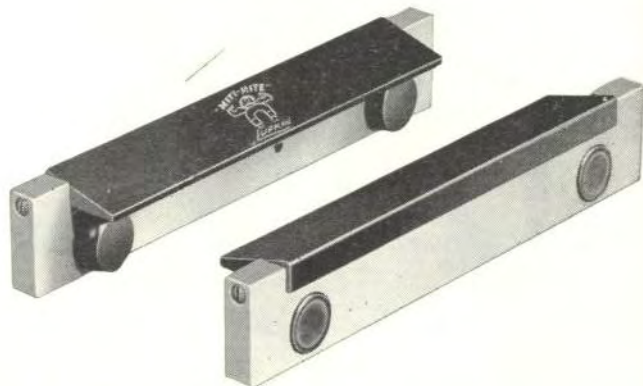
Carbide Scriber Point Only

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

"Miti-Mite" Magnetic Base Tools

No. 903D Magnetic Hold Downs



A new idea in hold downs—faster, easier, more convenient for you to use—a real time saver. Lufkin Magnetic Hold Downs attach instantly to vise jaws in either a horizontal position or at an angle. Once placed in the desired position to hold the work, there is no necessity to hold them further with the hands, shims, blocks, or parallels.

The clamping edge is less than $3/32$ "—will hold very thin work. The back of each Hold Down has a slight taper, which causes the clamping edge to force the work downward as the vise jaws close. A spring beneath each Hold Down keeps it in a horizontal position until this pressure is applied. The downward pressure assures the work will be firmly based when machining surfaces with a planer, shaper, milling machine, etc.

Made of hardened tool steel, Lufkin Magnetic Hold Downs are 5 inches long, swivel mounted in a polished aluminum plate 6 inches long. The plate contains two permanent magnets spaced $3\frac{3}{4}$ inches apart. Each magnet has sufficient magnetic pull to keep the Hold Down in position, even if only one magnet should contact the vise jaw. Can be used in all size vises including small toolmakers clamps.

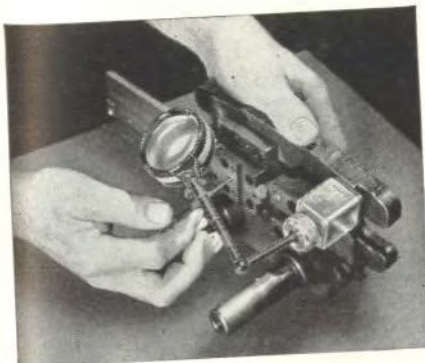
903D "Miti-Mite" Magnetic Hold Downs

Packing: One pair in a box.

FOR PRICES SEE PRICE LIST

"Miti-Mite" Magnetic Base Tools

No. 120 Magnetic Base Four Power Magnifier



An indispensable tool for inspection, precision drilling, assembly, reading fine graduations, etc. The magnetic base readily attaches itself to flat or curved steel and iron surfaces, leaving both hands free to work. The Magnifier has a four power double lens designed to eliminate distortion.

Magnifier only can be used with No. 100 and No. 101 bases.

Permanent magnet with 50-pound pull.

Ball-and-socket action for positioning.

Eliminates haphazard clamping.

Saves time and money.

No. 120, Four Power Magnifier (Complete Unit).

No. 125, Magnifier Only.

Packing: One in a Box.

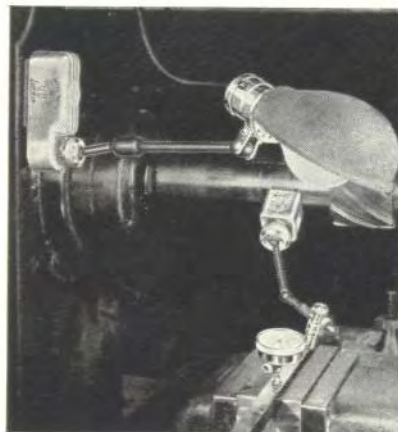
FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.



"Miti-Mite" Magnetic Base Tools

No. 250 Heavy Duty Magnetic Base Portable "Handi-Lite"



Convenient and handy. Used by mechanics, machinists, repairmen, engravers, maintenance men, hobbyists and others. It can also be used as an auxiliary light in the shop and for many repair operations.

Readily attaches itself to flat or curved steel and iron surfaces. The light can be adjusted to any desired angle. The lamp shield is rayon flocked, coated to resist heat and glare.

This unit is equipped with 8 feet of oil resisting, UL approved neoprene cord and molded plug.

Operates on 110 volts.

Permanent magnet with 100-pound pull.

Ball-and-socket action for positioning.

Eliminates haphazard clamping.

Magnetic holding is safe, sturdy.

Saves time and effort.

Standard bulbs up to 100 watts can be used.

Fingertip control magnetic release for positioning of removing without jarring indicator.

Portable and convenient to use.

No. 250, Heavy Duty Portable "Handi-Lite".

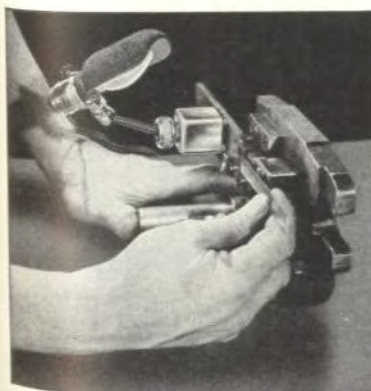
Packing: One in a Box.

FOR PRICES SEE PRICE LIST



"Miti-Mite" Magnetic Base Tools

No. 200 Magnetic Base Portable "Handi-Lite"



A very handy portable light used by mechanics, machinists, repairmen, engravers, maintenance men, refrigerator and radio mechanics, hobbyists and others.

Readily attaches itself to flat or curved steel and iron surfaces. The light can be adjusted to any desired angle. The lamp shield is rayon flocked, coated to resist heat and glare.

Comes equipped with a 6-foot UL approved oil resisting cord. Furnished with two 25-watt bulbs.

Operates on 110 Volts.

Permanent magnet with 50-pound pull.

Ball-and-socket action for positioning.

Eliminates haphazard clamping.

Saves time and effort.

No. 200, Portable "Handi-Lite" with Bulbs.

No. 200-13, 25-Watt Lamps (Carton of 6).

Packing: One in a Box.

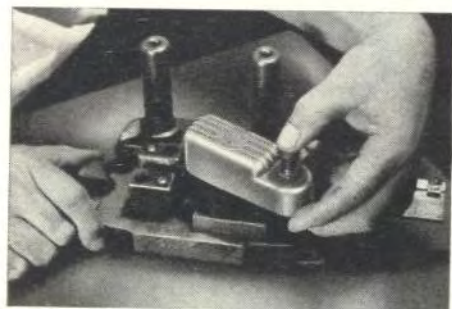
FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.



"Miti-Mite" Magnetic Base Tools

No. 500 Portable Demagnetizer



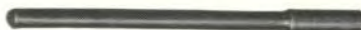
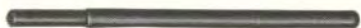
No. 500, Portable Demagnetizer.

Packing: One in a Box.

Posts and Adaptors for Use with "Miti-Mite" Magnetic Base Tools



Attachments for Nos. 100 and 101
Indicator Holders



Attachments for Nos. 150 and 150A
Heavy Duty Indicator Holders



No. 520K
Indicator
Attachment

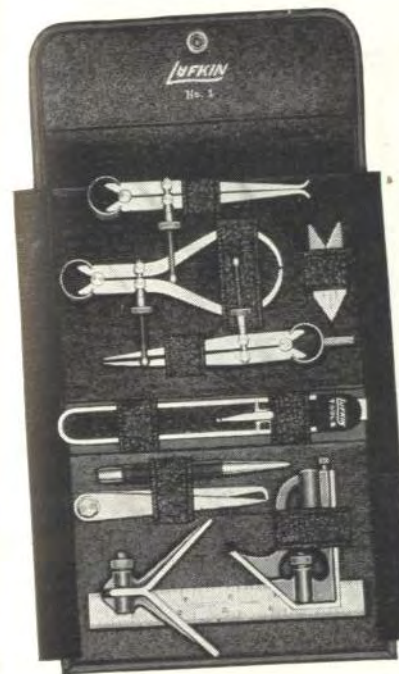


No. 110 Swivel Adaptor
For Use with Dial
Indicators

FOR PRICES SEE PRICE LIST

Tool Set No. 1

For Students, Apprentices and Mechanics



This set includes only those tools that are indispensable to the student or beginner. The set contains only standard tools. It is furnished in a compact folding case convenient to carry to classes or shop.

The tools are identical to those listed in this catalog and the same as those sold to fine mechanics for their regular work. These precision tools may then become a part of the more complete kit or chest of tools which the mechanic will require in his shop work to follow.

The tools are nicely arranged and held in the fitted case, which folds to size $7\frac{1}{4} \times 5\frac{1}{4} \times 1$ -inch. Set complete with case weighs $1\frac{1}{4}$ pounds.

Contents of Set No. 1. One Each of the Following

No.	Description	Illustrated on Page	No.	Description	Illustrated on Page
25C	6-Inch Combination Square (Blade with Square and Center Heads)	52	42	4-Inch "Banner" Inside Spring Caliper	81
2110R	6-Inch Flexible Steel Rule, w/Case	118	17	4-Inch Firm Joint Hermaphrodite Caliper	83
40	4-Inch "Banner" Spring Divider	81	71C	Center Punch	115
41	4-Inch "Banner" Outside Spring Caliper	81	36	Center Gage	90

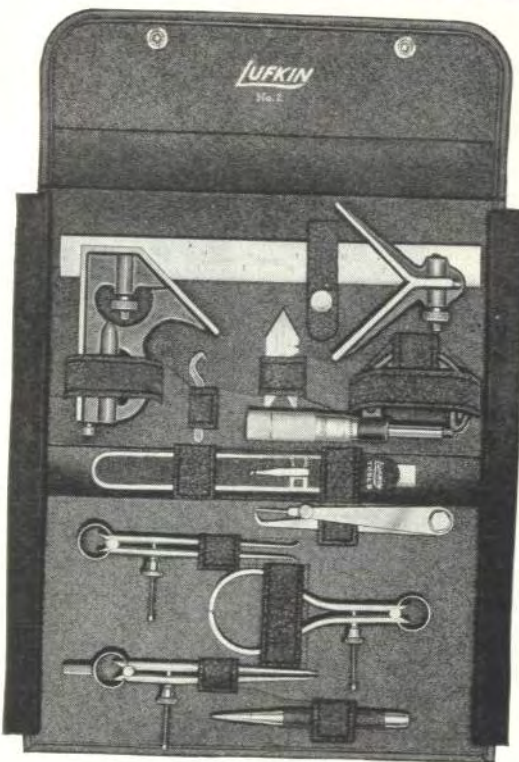
Note: Other complete tool sets for students, see pages 108-109.

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

Tool Set No. 2

For Students, Apprentice Toolmakers and Mechanics



Differs from Set No. 1 as follows: a micrometer is included; combination square is 9 inches instead of 6 inches; calipers and dividers are toolmakers pattern; hermaphrodite calipers have adjustable point.

This set includes only those tools that are indispensable to the student or beginner. The set contains only standard tools. It is furnished in a compact, folding case, convenient to carry to classes or shop.

The tools in this set are identical to those listed in this catalog and are the same as those sold to fine mechanics for their regular work. These precision tools then may become a part of the more complete kit or chest of tools which the mechanic will require in his shop work to follow.

The tools are nicely arranged and held in the fitted case which folds to size 10 $\frac{1}{4}$ x6x1-inch. Set complete with case weighs 2 pounds.

Contents of Set No. 2. One Each of the Following

No.	Description	Illustrated on Page	No.	Description	Illustrated on Page
1911 25C	1-Inch Chrome Clad Micrometer	15	141	4-Inch Toolmakers Outside Spring Caliper	80
	9-Inch Combination Square (Blade with Square and Center Heads)	52	142	4-Inch Toolmakers Inside Spring Caliper	80
2110R 140	6-Inch Flexible Steel Rule, w/Case	118	A17	4-Inch Firm Joint Hermaphrodite Caliper	83
	4-Inch Toolmakers Spring Divider	80	71D	Center Punch	115
			36	Center Gage	90

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

Tool Set No. 3

For Students, Apprentice Toolmakers and Machinists



No. 3 is the most complete set.

No. 3 Tool Set differs from No. 1 Set as follows: A micrometer is included; combination square is 12 inches, the size most used in shops; calipers and dividers are toolmakers pattern; hermaphrodite calipers have adjustable point; the case is of heavier and more durable materials.

No. 3 Tool Set differs from No. 2 Set as follows: No. 3 Tool Set has a 12-inch instead of 9-inch combination square; the case is of heavier and more durable material.

This set includes only those tools that are indispensable to the student or beginner. The set contains only standard tools. It is furnished in a compact folding case, convenient to carry to classes or shop.

The tools in this set are identical to those listed in this catalog and are the same as those sold to fine mechanics for their regular work. These precision tools then may become a part of the more complete kit or chest of tools which the mechanic will require in his shop work to follow.

The tools are nicely arranged and held in the fitted case which folds to size 12 $\frac{3}{4}$ x5x1 $\frac{1}{4}$ inches. Set complete with case weighs 2 $\frac{1}{2}$ pounds.

Contents of Set No. 3. One Each of the Following

No.	Description	Illustrated on Page	No.	Description	Illustrated on Page
1911 25C	1-Inch Chrome Clad Micrometer	15	141	4-Inch Toolmakers Outside Spring Caliper	80
	12-Inch Combination Square (Blade with Square and Center Heads)	52	142	4-Inch Toolmakers Inside Spring Caliper	80
	6-Inch Flexible Steel Rule, w/Case	118	A-17	4-Inch Firm Joint Hermaphrodite Caliper	83
2110R 140	4-Inch Toolmakers Spring Divider	80	71D	Center Punch	115
			36	Center Gage	90

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

Pin Vises



No. 197S, Set



No. 197B

Lufkin Pin Vises are designed for holding small stock, drills, taps, scribers and small files. Dull nickel plated finish prevents glare.

The chuck is beveled both front and back. This feature gives longer bearing surface, a firmer grip, better centering and eliminates wobbling. A smooth bearing surface is provided at the chuck end to insure truer running when used in a collet or chuck. Jaws are hardened. The hole runs through the entire length of the vise permitting use of long rods and chucking at any desired point.

No. 197A, Pin Vise, Capacity, 0 to .055 Inch.

No. 197B, Pin Vise, Capacity, .025 to .075 Inch.

No. 197S, Set of Four Pin Vises in Red Fitted Case as Illustrated.

Contains One Each of Nos. 197A, B, C, and D.

Packings: Nos. 197A, B, C and D Six in a Box.

Set No. 197S One in a Box.

FOR PRICES SEE PRICE LIST

The hole will accommodate stock up to its full stated capacity of the vise. This tool is knurled at convenient locations, affording a firm grip. The knurled handle is smaller in diameter than the chuck permitting the tool to rotate rapidly between thumb and finger. No. 197A Pin Vise has 3 jaws in chuck, other sizes have four.

Pin Vises are available individually or in sets.

No. 197C, Pin Vise, Capacity, .045 to .135 Inch.

No. 197D, Pin Vise, Capacity, .110 to .200 Inch.

Wigglers

With Point, Ball Contact and Disc Contact

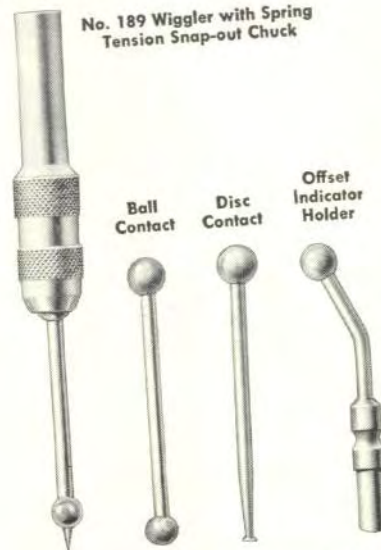


No. 89

Ball Contact



Disc Contact



No. 189 Wiggler with Spring Tension Snap-out Chuck

Ball Contact



Disc Contact



Offset Indicator Holder



Wiggler or Center Finders are essential for all kinds of jig and tool work on jig boring, milling and boring machines and locating working points.

Tension on ball is maintained by a spring. The tension can be varied by an adjusting screw in end of shank. The point can be reversed and inserted in the handle to give the point protection when not in use.

Available for use with the above are a ball contact, disc contact.

The ball contact is useful in locating work in holes, slots, shoulders, etc. It is used by bringing the contact ball against the work and then indexing the work to desired position in alignment with spindle.

Ball diameter .250 inch. The diameter of the disc contact is .100 inch and is used in smaller openings.

Series 189 has a spring tension snap-out chuck. Accessories are easily inserted into the adjustable tension chuck. This chuck permits use of offset indicator which is used in conjunction with a dial indicator for checking surfaces, sweeping holes, checking run-out, alignments and many other jobs in contact machining, layout and other operations.

All attachments are held securely in shank by ball swivel joint that permits adjustment to any desired angle or true center. Shank length, 2 3/8 inches, diameter, 3/8 inch.

Series 89 Wiggler		Series 189 Wiggler	
No.	Item	No.	Item
89	Wiggler Complete with Point, Ball and Disc Contact	189	Complete with Combination Ball and Point, Disc Contact, Indicator Holder
89A	Wiggler with Point Only	189A	Wiggler with Combination Ball and Point
89B	Ball Contact Only	189B	Ball Contact Only
89C	Disc Contact Only	189C	Disc Contact Only
89E	Extra Points Only	189D	Offset Indicator Holder Only
		189E	Extra Combination Ball and Point Only

Packing: One in a Box; Three in a Carton.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Pocket Scribes



Scriber Ready for Use



Point Reversed, Inserted and Locked into Handle

A very handy and convenient tool for all mechanics. Handle is made of steel tubing, nickel plated. It is knurled, affording a good grip. Scriber point is

made of high grade steel, properly tempered for long wear. The point is held rigid and firm in the handle by a knurled chuck. Hexagon head prevents rolling.

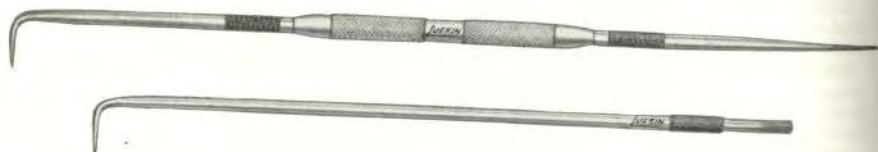
No. 87A, Pocket Scriber; Diameter Handle, $\frac{1}{4}$ Inch; Length Point, $2\frac{3}{8}$ Inches.

No. 87B, Pocket Scriber; Diameter Handle, $\frac{3}{8}$ Inch; Length Point, $2\frac{7}{8}$ Inches.

Points Only for above Scribes (Specify A or B).

Note: Blades of Screw Drivers Nos. 187A and 187B, listed page 113, will fit handles of Pocket Scribes Nos. 87A and 87B. On such Screw Driver Blades only, specify "A" or "B".

Scribers



A high quality Scriber made of fine quality steel, properly tempered for long wear. Portions of points and stock are knurled for firm grip. Stock is ample size so that it can be held easily. Points have threaded ends and can be engaged in either end of

stock. Long bent point is designed for reaching through holes.

Length of scriber: with short bent point, 9 inches; with long bent point, 12 inches.

No. 88A, Scriber with Three Points (One Straight, One Long and One Short Bent).

No. 88B, Scriber with Two Points (One Straight and One Short Bent.)

Extra Points Available for above Scriber: { Straight Point.
Short Bent Point.
Long Bent Point.

Packing: Six in a Box.

FOR PRICES SEE PRICE LIST

Pocket Screw Drivers



Screw Driver Ready for Use



Blade Reversed, Inserted and Locked into Handle

A quality, compact Screw Driver. Handle is made of steel tubing, nickel plated. It is knurled, affording a good grip. Blade is made of high quality steel,

properly shaped and tempered. The blade is firmly locked in the handle by a knurled chuck. Hexagon head prevents rolling.

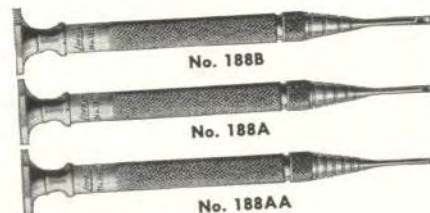
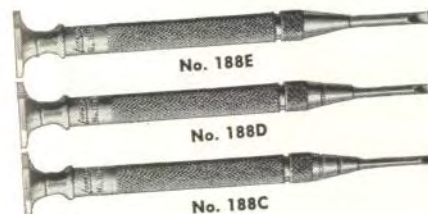
No. 187A, Screw Driver; Diameter Handle, $\frac{1}{4}$ Inch; Length Blade, $2\frac{1}{2}$ Inches.

No. 187B, Screw Driver; Diameter Handle, $\frac{3}{8}$ Inch; Length Blade, 3 Inches.

Blades Only for above Screw Drivers. (Specify A or B).

Note: Points of Scribes Nos. 87A and 87B, listed page 112, will fit handles of Screw Drivers Nos. 187A and 187B. On such Scriber Points Only, Specify "A" or "B".

Jewelers Screw Drivers



Lufkin Jewelers Screw Drivers are designed for use by jewelers, opticians, watch repairmen, in electronic and other fine work.

They are well made of high quality steel tubing, nickel plated $\frac{1}{4}$ inch in diameter. Body and chuck grip are knurled. The head of the screw driver is a swivel that is concaved to fit the finger. It is hex-

agonal in shape to prevent rolling. The blades are securely held in a positive action chuck. All blades are interchangeable. Sizes of blades are designated by grooves at lower end of chuck. Five rings indicate approximate blade width of .025 inch, four rings .040 inch, three rings .055 inch, two rings .070 inch, one ring .080 inch, largest size .100 inch is plain. Available in open sizes and in sets.

No. 188AA, Jewelers Screw Driver; Approximate Width of Blade, .025 Inch.
No. 188A, Jewelers Screw Driver; Approximate Width of Blade, .040 Inch.
No. 188B, Jewelers Screw Driver; Approximate Width of Blade, .055 Inch.
No. 188C, Jewelers Screw Driver; Approximate Width of Blade, .070 Inch.
No. 188D, Jewelers Screw Driver; Approximate Width of Blade, .080 Inch.
No. 188E, Jewelers Screw Driver; Approximate Width of Blade, .100 Inch.
No. 188S, Set of Six Jewelers Screw Drivers in Fitted Vinyl Case.

Extra Blades Only for above Are Available; Specify Size.

Packing: Six in a Box.

Sets: One in Box.

FOR PRICES SEE PRICE LIST

Drive Pin Punches



No. 72S, Set



No. 72

Made of highest quality tool steel. Nicely shaped, hardened and polished. Body knurled to afford good finger grip.

No.	Point Diam. Inches	Punch Length Inches	No. in Box	No.	Point Diam. Inches	Punch Length Inches	No. in Box
72A	$\frac{1}{16}$	$3\frac{3}{8}$	12	72E	$\frac{3}{16}$	$4\frac{1}{8}$	12
72B	$\frac{3}{32}$	$3\frac{1}{2}$	12	72F	$\frac{7}{32}$	$4\frac{3}{8}$	12
72C	$\frac{1}{8}$	$3\frac{3}{4}$	12	72G	$\frac{1}{4}$	$4\frac{5}{8}$	12
72D	$\frac{5}{32}$	4	12	72H	$\frac{5}{16}$	$4\frac{7}{8}$	6
72S	Set of 8 Drive Pin Punches in Fitted Case						3 Sets

Extra Long Drive Pin Punches



No. 172D

Lufkin Drive Pin Punches are made of high grade tool steel, hardened and ground. The body is knurled giving good finger grip. These punches are 8 inches long permitting them to be used on work inaccessible by other types of pin punches. Actual size of punches listed is approximately .005 inch undersize to permit points to enter openings of their indicated size. The knurled portion is $4\frac{1}{2}$ inches long. The drive pin portion is $3\frac{1}{2}$ inches long. The diameter of the knurled portion is as follows: No. 172A, $\frac{7}{16}$ inch; Nos. 172B, 172C and 172D, $\frac{1}{2}$ inch; No. 172E, $\frac{9}{16}$ inch.

- No. 172A, Long Drive Pin Punch, $\frac{1}{8}$ -Inch Point.
 No. 172B, Long Drive Pin Punch, $\frac{3}{16}$ -Inch Point.
 No. 172C, Long Drive Pin Punch, $\frac{1}{4}$ -Inch Point.
 No. 172D, Long Drive Pin Punch, $\frac{5}{16}$ -Inch Point.
 No. 172E, Long Drive Pin Punch, $\frac{3}{8}$ -Inch Point.
 No. 172S, Set of Five Long Drive Pin Punches in Fitted Plastic Case.

Packing: Six in a Box.
 Sets One in a Box.

No. 172S, Set

FOR PRICES SEE PRICE LIST

Center Punches



No. 71E

These Center Punches are made of fine quality tool steel. They are shaped properly and points carefully ground.

These punches are hardened and polished and have body knurled to afford good finger grip.

Available individually or in sets of six in durable fitted case.

No.	Diameter at Top of Tapered Point Inches	Length Inches	No. in Box
71AA	$\frac{1}{16}$	$3\frac{1}{8}$	12
71A	$\frac{3}{64}$	$3\frac{1}{2}$	12
71B	$\frac{1}{8}$	$3\frac{3}{8}$	12
71C	$\frac{3}{16}$	$4\frac{1}{4}$	12
71D	$\frac{1}{4}$	$4\frac{5}{8}$	12
71E	$\frac{5}{16}$	5	6
71S	Set of 6 Punches in Fitted Case		3 Sets



No. 71S, Set

No. 1671A Automatic Center Punches
With Adjustable Stroke

An automatic center punch is almost indispensable for fine work, and handy for all marking because it assures speed as well as accuracy. Use of a hammer is entirely eliminated as this tool is operated with only one hand.

Incorporated in this Center Punch is a mechanism which automatically strikes a uniform blow. More accurate, controlled and uniform impressions are obtained using this punch than by using the hand punch and hammer method.

Marring of the work, slipping and other chances of error are avoided. The Lufkin Center Punch has an unusually wide range of adjustment, ideal for con-

trolling the blow for various metals or other materials.

Force of the blow is regulated by screwing the knurled cap. Turning the cap down, the blow is the heaviest. As it is turned upward the blow decreases. The striking block is released automatically by the downward pressure on the cap. The tension of the spring is constant and when the punch is set at any one point it will give impressions of uniform depth.

Punch is 5 inches long when set for medium stroke and $\frac{1}{2}$ -inch in diameter. The body is knurled and grooved affording a firm hold. All working parts are hardened properly. The point is removed easily for grinding or replacement.

No. 1671A, Automatic Center Punches.
 Extra Points only for above.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

Graduations of Steel Rules

English (Inch) Measure

Below is a detailed listing of combinations of markings which are known by graduation numbers. These graduation numbers are used in conjunction with scales, rules or combination square blades illustrated throughout the catalog.

Rules graduated in Metric and Metric and English are regularly furnished. We also can furnish scales, rules and combination square blades in various other graduations on special orders.

No. 1 Graduation

One Edge: 10-20-50-100ths
One Edge: 12-24-48ths
One Edge: 16-32-64ths
One Edge: 14-28ths

No. 2 Graduation

One Edge: 10-20-50-100ths
One Edge: 12-24-48ths
One Edge: 16-32-64ths
One Edge: 8ths

No. 3 Graduation

One Edge: 32nds
One Edge: 64ths
One Edge: 10ths
One Edge: 50ths

No. 4 Graduation

One Edge: 64ths
One Edge: 32nds
One Edge: 16ths
One Edge: 8ths

No. 5 Graduation

One Edge: 32nds
One Edge: 64ths
One Edge: 10ths
One Edge: 100ths

No. 6 Graduation

One Edge: 10ths
Other Edge: 50ths
Both Sides of Rule

No. 7 Graduation

One Edge: 64ths
One Edge: 32nds
One Edge: 16ths
One Edge: 100ths

No. 10 Graduation

One Edge: 32nds
One Edge: 64ths

No. 11 Graduation

One Edge: 64ths
One Edge: 100ths

No. 12 Graduation

One Edge: 50ths
One Edge: 100ths

No. 16 Graduation

One Edge: 32nds
One Edge: 64ths
One Edge: 50ths
One Edge: 100ths

Rules that have catalog numbers with suffix "R" have "Rapid Reading" graduations. This means that each inch subdivision is numbered as follows: 32nds every 4th division; 64ths every 8th division; 50ths every 5th division; 100ths every 10th division. The Rapid Reading feature is available on rules with the following graduation numbers, 3, 4, 5, 6, 7, 10, 11 and 16. These are listed on pages following.

No. 20S Set of Tempered Steel Rules With Holder



Useful in general tool and die work and wherever measuring must be done in grooves, on narrow shoulders, in recesses, keyways and in places too small for an ordinary rule to enter.

These thin, tempered steel machine divided rules are carefully ground and well finished. Length of holder permits gaging in small and out of the way places.

Blade securely locks in holder in 30° or 45° slot at

any place by means of knurled locking nut. The fitted case containing set No. 20S is 2x4½x¼ inch. Ideal for preventing loss or misplacement of these very small rules and for protecting rules and holder.

No.	Item	Length, Inches	Graduations
20S	Set of Rules with Holder in Red Fitted Case	¼, ⅜, ½ ¾, 1	One Side 32nds, Other Side 64ths
2010	Rules Only; Specify Length as Well as No. 2010 as This Stock Number Applies to Each Rule in the Above Set	¼, ⅜, ½ ¾, 1	One Side 32nds, Other Side 64ths
2012	Rules Only	½, 1	One Side 50ths, Other Side 100ths
20	Holder Only for Above Rules	4	

Packing: One Set in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Full Flexible Steel Rules

Approximate Thickness, 1/64th Inch
Machine Divided

No. 2110

Thin and very flexible, spring tempered. Surfaces, edges and ends are ground. Dark markings are easy to read.

Rapid reading graduations means inch subdivisions numbered as follows: 32nds every 4th division; 64ths every 8th division; 100ths every 10th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
2103R	No. 3 (32nds, 64ths, 10ths, 50ths) Rapid Reading	6	1/2	Single Row of Inch Figures
2105R	No. 5 (32nds, 64ths, 10ths, 100ths) All Lengths Rapid Reading	6, 12 18, 24, 36	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
2106R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	6, 12 18, 24, 36, 48	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
2110	No. 10 (32nds, 64ths) All Lengths Rapid Reading; Marked One Side Only	2, 3, 4, 6, 12 18, 24, 36, 48	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
*2110R	64ths One Side; 32nds Other Side; 16ths on Upper Edge of 32nds Side. All Lengths Rapid Reading	6	1/2	Single Row of Inch Figures
2111R	No. 11 (64ths, 100ths) All Lengths Rapid Reading; Marked One Side Only	6, 12	1/2	Single Row of Inch Figures
2112	No. 12 (50ths, 100ths) Marked One Side Only	6, 12	1/2	Single Row of Inch Figures
2116R	No. 16 (32nds, 64ths, 50ths, 100ths) Rapid Reading	6, 12 18, 24, 36	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures

*Caution: This rule being thin and graduated both sides, should not be bent too sharply. Graduations most used are on lower edge.

Packing: Rules 12 inches or less, Six in a Box; Larger sizes One in a Package.

Rule Cases with Pocket Clip



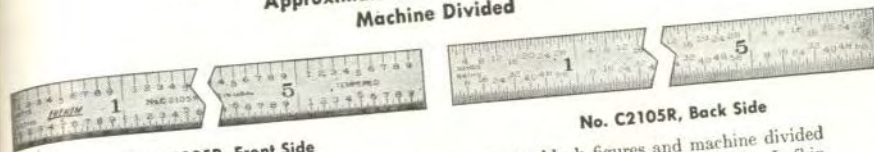
Genuine leather rule cases with metal-bound edges and pocket clip or spring clasp.

Made only for rules 6 inches long. Always specify 1/2 or 3/4-inch width.

Case with Clip (For 6-Inch Rules not over 1/2 Inch Wide).
Case with Clip (For 6-Inch Rules, 3/4 Inch Wide).

FOR PRICES SEE PRICE LIST

Chrome Clad Full Flexible Steel Rules

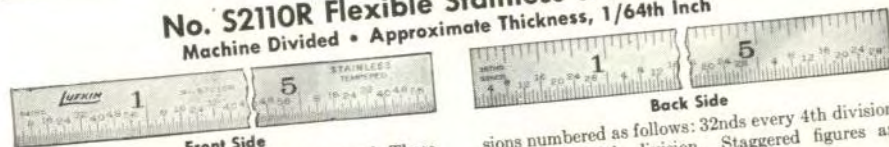
Approximate Thickness, 1/64th Inch
Machine Divided

No. C2105R, Front Side

No. C2105R, Back Side

These rules have a non-glare Chrome Clad finish. Jet black figures and machine divided graduations stand out sharp and clear against the chrome white background. The Lufkin Chrome Clad finish consists of multiple electroplatings that protect and preserve the figures and graduations. It is a hard finish that resists stain, rust and tarnish caused by oils, abrasion, finger marks, moisture and other corrosive agents. The graduations are "Rapid Reading", 64ths numbered every 8th division; 32nds numbered every 4th division. Each rule is marked both sides with the most frequently used graduations on the bottom edge for convenience.

Number	Graduations Inches	Length Inches	Approx. Width Inches	Markings
C2103R	No. 3 (10ths, 32nds, 64ths, 100ths) Rapid Reading	6	1/2	Single Row of Inch Figures
C2105R	No. 5 (32nds, 64ths, 10ths, 100ths) All Lengths Rapid Reading	6, 12 18, 24, 36	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
C2106R	No. 6 (10ths, 50ths) Grad. One Side only. Rapid Reading	6, 12 18, 24	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
C2110	No. 10 (32nds, 64ths) Grad. One Side only. Rapid Reading	6, 12 18, 24	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures
C2110R	No. 10 (64ths One Side, 32nds, 16ths Other Side) Rapid Reading	6	1/2	Single Row of Inch Figures
C2116R	No. 16 (32nds, 64ths, 50ths, 100ths) Rapid Reading	6, 12 18, 24, 36	1/2 3/4	Single Row of Inch Figures Double Row of Inch Figures

No. S2110R Flexible Stainless Steel Rules
Machine Divided • Approximate Thickness, 1/64th Inch

Front Side

Back Side

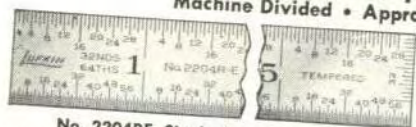
Genuine stainless steel, rust and stain proof. These rules are thin, very flexible and spring tempered. Surfaces, edges and ends are ground. Rapid reading graduations means inch subdivisions numbered as follows: 32nds every 4th division; 64ths every 8th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Edges Read from Same End
S2110R	64ths on Lower Edge One Side; 32nds Lower and 16ths on Upper Edge Other Side. Rapid Reading. Markings Most Used Fall on Lower Edge	6	1/2	Single Row of Inch Figures on Both Sides

Packing: Rules 12 Inches or Less, Six in a Box; Larger Sizes One in a Package.
FOR PRICES SEE PRICE LIST

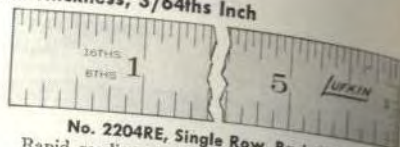
Spring Tempered Steel Rules

Machine Divided • Approximate Thickness, 3/64ths Inch



No. 2204RE, Single Row, Front Side

Rules of this weight are extensively used. They are accurately graduated on both edges of both sides and have clear, dark lines and figures, easy to read. All are edge, surface and end ground.



No. 2204RE, Single Row, Back Side

Rapid reading graduations means inch subdivisions numbered as follows: 32nds every 4th division; 64ths every 8th division; 100ths every 10th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
2204R	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	1	1/2	Single Row of Inch Figures
		2	1/2	Single Row of Inch Figures
		3	1/2	Single Row of Inch Figures
		4	3/4	Single Row of Inch Figures
		6	3/4	Single Row of Inch Figures
2207R	No. 7 (16ths, 32nds, 64ths, 100ths) All Lengths Rapid Reading	9	7/8	Double Row of Inch Figures
		12	1	Double Row of Inch Figures
		18	1 1/4	Double Row of Inch Figures
		24	1 1/4	Double Row of Inch Figures
		36	1 1/4	Double Row of Inch Figures
2201	No. 1 (10ths, 20ths, 50ths, 100ths, 12ths, 24ths, 28ths, 48ths). For Gear Cutting	48	1 1/4	Double Row of Inch Figures
		6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
2202	No. 2 (10ths, 20ths, 50ths, 100ths, 12ths, 24ths, 48ths, 8ths, 16ths, 32nds, 64ths)	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
2204RE	No. 4 (8ths, 16ths, 32nds, 64ths) One End of Each Side Graduated to 32nds. All Lengths Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
2206R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
		18, 24, 36, 48	1 1/4	Double Row of Inch Figures

Beveled Steel Rules

Machine Divided • Approximate Thickness, 3/64ths Inch



Spring tempered rules, accurately graduated. Surfaces, edges and ends are ground. Dark markings

are easy to read. One edge beveled, brings the finest graduations close to the work.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
2224	No. 4 (8ths, 16ths, 32nds, 64ths); 64ths on Beveled Edge	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
2227	No. 7 (16ths, 32nds, 64ths, 100ths); 100ths on Beveled Edge	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures

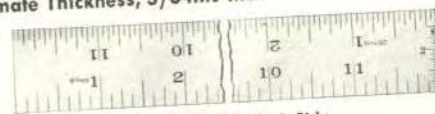
Packing: Rules 12 Inches or Less, Six in a Box; Larger, One in a Package.
FOR PRICES SEE PRICE LIST

Chrome Clad Spring Tempered Steel Rule

Machine Divided • Approximate Thickness, 3/64ths Inch



No. C2204RE, Front Side



No. C2204RE, Back Side

These rules have a non-glare Chrome Clad finish. Jet black figures and machine divided graduations stand out sharp and clear against the chrome white background. The Lufkin Chrome Clad finish consists of multiple electroplatings that protect and preserve the figures and graduations. It is a hard finish that resists stain, rust and tarnish caused by oils, abrasion, finger marks, moisture and other corrosive agents. The graduations are "Rapid Reading", 64ths numbered every 8th division; 32nds numbered every 4th division. Each rule is marked both sides with the most frequently used graduations on the bottom edge for convenience.

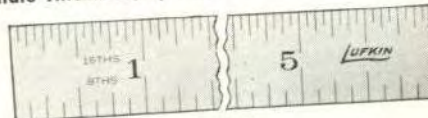
No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
C2204R	No. 4 (8ths, 16ths, 32nds, 64ths) Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
		18, 24	1 1/4	Double Row of Inch Figures
C2204RE	No. 4 (8ths, 16ths, 32nds, 64ths) One End, Each Side Graduated to 32nds. Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
C2206R	No. 6 (10ths, 50ths) Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
C2207R	No. 7 (16ths, 32nds, 64ths, 100ths) Rapid Reading	12	1	Double Row of Inch Figures
		18, 24	1 1/4	Double Row of Inch Figures

No. S2204R Stainless Steel Rules

Machine Divided • Approximate Thickness, 3/64ths Inch



Front Side



Back Side

Genuine stainless steel, rust and stain proof. These rules are spring tempered. Surfaces, edges and ends are ground. Accurately and clearly marked on both edges of both sides.

Rapid reading graduations means inch subdivisions numbered as follows: 32nds every 4th division; 64ths every 8th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
S2204R	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	6	3/4	Single Row of Inch Figures
		12	1	Double Row of Inch Figures
		18, 24, 36, 48	1 1/4	Double Row of Inch Figures

Packing: Rules 12 Inches or Less, Six in a Box; Larger, One in a Package.

FOR PRICES SEE PRICE LIST

Narrow Steel Rules

Machine Divided • Approximate Thickness, 3/64ths Inch

These narrow stiff Rules are spring tempered, 3/16 inch wide and can be readily inserted in small openings. Edge surface and end ground. Accurately

graduated on one edge of each side. Clear, dark lines and figures. These Rules are used as blades in some styles of depth gages.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Edges Read from Same End
2306	No. 6 (50ths)	6, 12	3/16	Single Row of Inch Figures
2310	No. 10 (32nds and 64ths Inch)	4, 6, 9, 12	3/16	Single Row of Inch Figures
2311	No. 11 (64ths and 100ths Inch)	4, 6, 9, 12	3/16	Single Row of Inch Figures

Chrome Clad Narrow Pattern Steel Rule

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Edges Read from Same End
C2306	No. 6 (50ths)	6, 12	3/16	Single Row of Inch Figures
C2310	No. 10 (32nds, 64ths)	6	3/16	Single Row of Inch Figures

Packing: 6 in a Box

Narrow Hook Rule with Removable and Reversible Hook

No.	Graduations Inches	Length Inches	Approx. Width Inches	Approx. Thick. Inches	Markings - Opposite Edges Read from Same End
H2310	No. 10 (32nds and 64ths)	4, 6, 9, 12	3/16	3/4	Single Row of Inch Figures

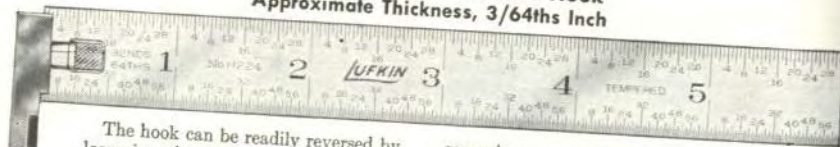
Chrome Clad Narrow Hook Rule

No.	Graduations Inches	Length Inches	Approx. Width Inches	Approx. Thick. Inches	Markings - Opposite Edges Read from Same End
CH2310	No. 10 (32nds and 64ths)	6	3/16	3/4	Single Row of Inch Figures

Packing: 3 in a Box.

Hook Rule with Reversible Hook

Approximate Thickness, 3/64ths Inch



The hook can be readily reversed by loosening the thumb screw until the hook slot clears the rule. This feature permits the hook to be turned to either edge of the rule without

removing any parts. Rapid reading graduations throughout; 64ths every 8th division; 32nds every 4th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Opposite Edges Read from Same End
H224	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	6 9 12	3/4 7/8 1	Single Row of Inch Figures Single Row of Inch Figures Single Row of Inch Figures

Chrome Clad Hook Rule

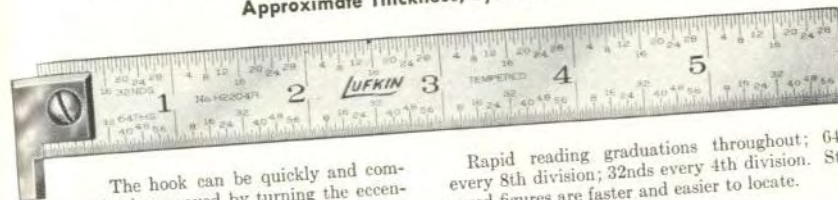
No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Opposite Edges Read from Same End
CH224	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	6 12	3/4 1	Single Row of Inch Figures Single Row of Inch Figures

Packing: 3 in a Box.

FOR PRICES SEE PRICE LIST

Hook Rule with Removable and Reversible Hook

Approximate Thickness, 3/64ths Inch



The hook can be quickly and completely removed by turning the eccentric stud a half turn. It can also be reversed for use on opposite edge. Zero falls at inside end of hook.

Rapid reading graduations throughout; 64ths every 8th division; 32nds every 4th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
H2204R	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	6 9 12 18, 24, 36	3/4 7/8 1 1 1/4	Single Row of Inch Figures Single Row of Inch Figures Single Row of Inch Figures Double Row of Inch Figures

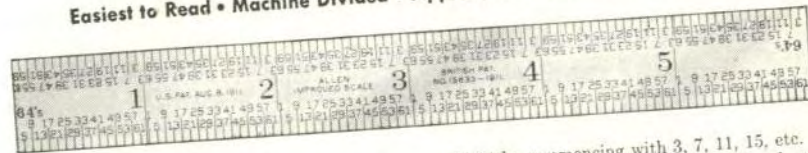
Chrome Clad Hook Rule

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
CH2204	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading	6 12 18, 24	3/4 1 1 1/4	Single Row of Inch Figures Single Row of Inch Figures Double Row of Inch Figures

Packing: 12 Inches and Under, Three in a Box. Others, One in a Package.

"Allen" Improved Semi-Flexible Steel Rules

Easiest to Read • Machine Divided • Approximate Thickness, 1/50th Inch



The numbering and marking of this rule is unique, making it easy to read to 64ths of an inch.

One side carries 64ths graduations only. One edge is marked with the odd 64ths every fourth 64th commencing with number 1 and reading 1, 5, 9, 13, etc., in each inch. The other edge carries the remaining

odd 64ths commencing with 3, 7, 11, 15, etc. Each 64th graduation is numbered for fast and accurate reading. The other side is marked one edge in 16ths, the other edge in 32nds inch for measuring the even 64ths.

Furnished in 6-inch length. Approx. width, 3/4 inch.

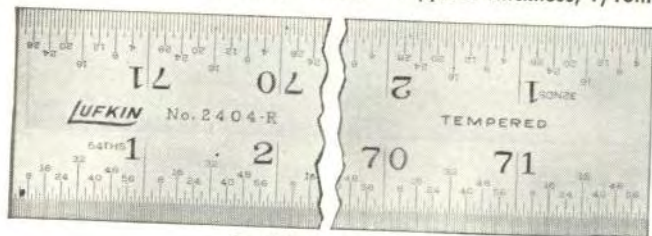
No.	Length Inches	Type of Finish	"Allen" Improved Semi-Flexible Rule "Allen" Improved Semi-Flexible Rule
2608	6	Regular	"Allen" Improved Semi-Flexible Rule
C2608	6	Chrome Clad	"Allen" Improved Semi-Flexible Rule

Packing: Six in a Box.

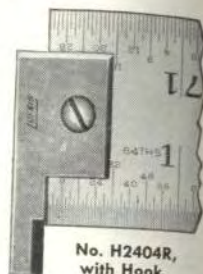
FOR PRICES SEE PRICE LIST.

Heavy Spring Tempered Steel Rules

Machine Divided • Approx. Thickness, 1/10th Inch



No. 2404R, without Hook



No. H2404R, with Hook

A wide, stiff rule, popular in many industries where longer measurements must be precisely taken. Accurately and clearly marked on both edges of both sides. Prominent figures are easy to read. Surfaces, ends and edges are ground.

The hook of No. H2404R rules is made of hardened

steel. It can be quickly and completely removed by turning the eccentric stud a half turn. It can also be reversed for use on opposite edge. Zero falls at inside end of hook.

Rapid Reading graduations; 64ths numbered every 8th dimension; 32nds every 4th dimension.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Opposite Edges Read from Opposite Ends
2404R H2404R	No. 4 (8ths, 16ths, 32nds, 64ths)	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
2403R	No. 3 (32nds, 64ths, 10ths, 50ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
2406R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
2416R	No. 16 (32nds, 64ths, 50ths, 100ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures

Chrome Clad Heavy Spring Tempered Steel Rules

With Chrome Clad Finish

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Opposite Edges Read from Opposite Ends
C2403R	No. 3 (32nds, 64ths, 10ths, 50ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
C2404R CH2404R	No. 4 (8ths, 16ths, 32nds, 64ths)	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
C2406R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures
C2416R	No. 16 (32nds, 64ths, 50ths, 100ths) All Lengths Rapid Reading	24, 36, 48, 60, 72	1½	Double Row of Inch Figures

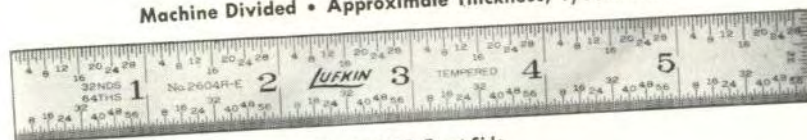
Packing: One in a Package.

Note: Longer Lengths Available on Special Order.

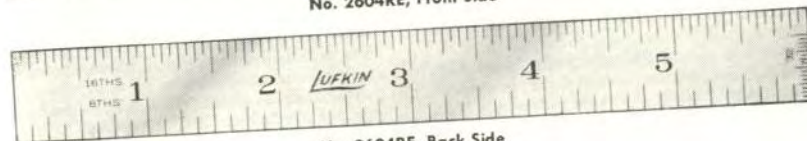
FOR PRICES SEE PRICE LIST.

Semi-Flexible Steel Rules

Machine Divided • Approximate Thickness, 1/50th Inch



No. 2604RE, Front Side



No. 2604RE, Back Side

Semi-Flexible Steel Rules are made for those mechanics who prefer a rule in between the flexible and stiff pattern. Accurately graduated on both edges of both sides with surfaces, ends and edges ground.

Rapid reading graduations means inch subdivisions numbered as follows: 32nds every 4th division; 64ths every 8th division; 100ths every 10th division. Staggered figures are faster and easier to locate.

No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
2603R	No. 3 (32nds, 64ths, 10ths, 50ths) Rapid Reading	6 12, 18, 24	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
2604RE	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading; One End of Each Side Graduated to 32nds	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
2606R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
2607R	No. 7 (16ths, 32nds, 64ths, 100ths) All Lengths Rapid Reading	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures

Chrome Clad Semi-Flexible Steel Rules

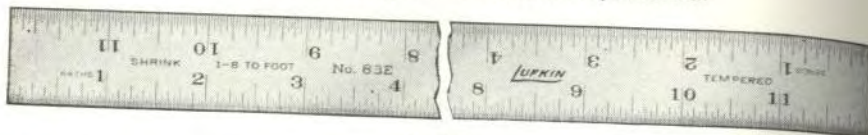
No.	Graduations Inches	Length Inches	Approx. Width Inches	Markings - Single Row Edges Read from Same End; Double Row Opposite Edges Read from Opposite Ends
C2603R	No. 3 (32nds, 64ths, 10ths, 50ths) Rapid Reading	6 12, 18, 24	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
C2604RE	No. 4 (8ths, 16ths, 32nds, 64ths) All Lengths Rapid Reading; One End of Each Side Graduated to 32nds	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
C2606R	No. 6 (10ths, 50ths) All Lengths Rapid Reading	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures
C2607R	No. 7 (16ths, 32nds, 64ths, 100ths) All Lengths Rapid Reading	6 12	¾ 1	Single Row of Inch Figures Double Row of Inch Figures

Packing: Rules 12 Inches or Less, Six in a Box. Larger, One in a Package.

FOR PRICES SEE PRICE LIST.

Steel Shrink Rules

Machine Divided • Approximate Thickness 3/64ths Inch



No. 83E

Graduation No. 4: 8ths, 16ths, 32nds, 64ths shrinkage inch.

Furnished in 12 and 24-inch lengths. Nos. 83E, 83F and 83G are also available in 6-inch lengths.

Graduations allow for shrinkage indicated.

The 6-inch rule has single row of inch figures, both

edges reading from same end; the 12-inch and longer rules have double row of inch figures, opposite edges reading from opposite ends.

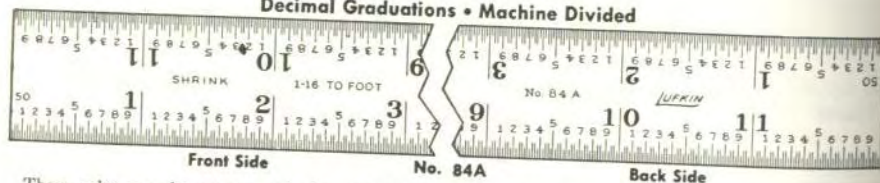
Approximate width: 6-inch rule, 3/4 inch; 12-inch rule, 1 inch; 24-inch rule, 1 1/4 inches.

Always specify length as well as No.

No.	Shrink per Foot	No.	Shrink per Foot	No.	Shrink per Foot
83A	1/16	83G	1/4	83R	5/32
83B	1/12	83H	5/16	83S	7/32
83C	1/10	83J	3/16	83T	9/32
83D	3/32	83K	3/8	83W	11/32
83E	1/8	83L	1/2	83Y	13/32
83F	3/16	83P	9/64	....	..

Steel Shrink Rules

Decimal Graduations • Machine Divided



No. 84A

Furnished in 12 and 24-inch lengths. Has double row of inch figures, opposite edges reading from opposite ends.

Always specify length as well as No.

No.	Shrink per Foot	No.	Shrink per Foot	No.	Shrink per Foot
84A	1/16	84G	1/4	84R	5/32
84B	1/12	84H	5/16	84S	7/32
84C	1/10	84J	3/16	84T	9/32
84D	3/32	84K	3/8	84W	11/32
84E	1/8	84L	1/2	84Y	13/32
84F	3/16	84P	9/64	....	..

Packing: 6 and 12-Inch Rules Six in a Box.

24-Inch Rules One in a Package.

FOR PRICES SEE PRICE LIST

Chrome Clad Steel Shrink Rules

Machine Divided • Approximate Thickness 3/64ths Inch



No. C83E

Graduation No. 4: 8ths, 16ths, 32nds, 64ths shrinkage inch.

Furnished in 12 and 24-inch lengths.

Graduations allow for shrinkage indicated.

Rules have double row of inch figures, opposite

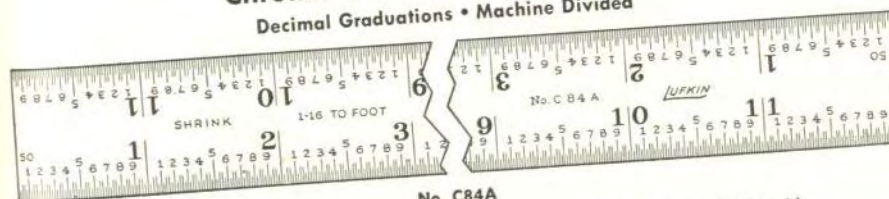
edges reading from opposite ends.
Approximate width: 6-inch rule, 3/4 inch; 12-inch rule, 1 inch; 24-inch rule, 1 1/4 inches.

Always specify length as well as No.

No.	Shrink per Foot	No.	Shrink per Foot	No.	Shrink per Foot
C83A	1/16	C83G	1/4	C83R	5/32
C83B	1/12	C83H	5/16	C83S	7/32
C83C	1/10	C83J	3/16	C83T	9/32
C83D	3/32	C83K	3/8	C83W	11/32
C83E	1/8	C83L	1/2	C83Y	13/32
C83F	3/16	C83P	9/64	....	..

Chrome Clad Steel Shrink Rules

Decimal Graduations • Machine Divided



No. C84A

These rules are the same as the No. 83 Series except with decimal graduations. Rapid reading graduations throughout; 50ths numbered every 5th division; 10ths every division.

Graduation No. 6: 10ths (.10) both edges of one

side; 50ths (.02) both edges of other side.

Furnished in 12 and 24-inch lengths. Has double row of inch figures, opposite edges reading from opposite ends.

Always specify length as well as No.

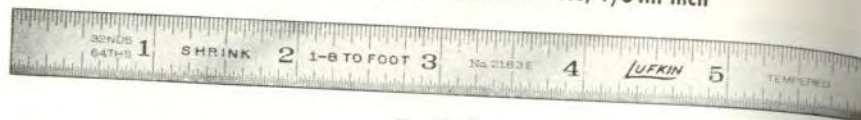
No.	Shrink per Foot	No.	Shrink per Foot	No.	Shrink per Foot
C84A	1/16	C84G	1/4	C84R	5/32
C84B	1/12	C84H	5/16	C84S	7/32
C84C	1/10	C84J	3/16	C84T	9/32
C84D	3/32	C84K	3/8	C84W	11/32
C84E	1/8	C84L	1/2	C84Y	13/32
C84F	3/16	C84P	9/64	....	..

Packing: 6 and 12-Inch Rules Six in a Box.
24-Inch Rules One in a Package.

FOR PRICES SEE PRICE LIST

Flexible Steel Shrink Rules

Machine Divided • Approximate Thickness, 1/64th Inch



No. 2183E

Graduation No. 10: 32nds and 64ths shrinkage inch. Graduated one side only, lower edge 64ths, upper edge 32nds.

Furnished in 6-inch length only. Width, 1/2 inch. Specify length as well as No.

No. 2183E, Flexible Steel Shrink Rule; 1/6-Inch Shrink per Foot.
No. 2183F, Flexible Steel Shrink Rule; 1/16-Inch Shrink per Foot.

Steel Metric Shrink Rules

Graduated three edges in millimeters; one edge 1/2 millimeters.

Furnished in 30-centimeter length. Width, 1 inch. Thickness, 3/64ths inch.

No. 83M, Steel Metric Shrink Rule; Shrinkage of 1 to 100 Mm.
No. 83MM, Steel Metric Shrink Rule; Shrinkage of 2 to 100 Mm.

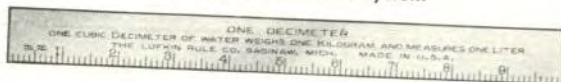
Average Shrinkage of Castings

Table gives the standard shrinkage of different metals, but some consideration must be given to the size and shape of the casting. Thick castings will shrink less under the same conditions, and thinner castings more than standard. The quality of the material and the manner of moulding and cooling will also make a difference in shrinkages.

Metal	Shrinkage per Foot Inches	Metal	Shrinkage per Foot Inches
Cast Iron.....	1/8	Aluminum....	3/16
Malleable Iron..	1/8	Copper.....	3/16
Steel.....	1/4	Lead.....	3/16
Brass.....	3/16	Zinc.....	3/16
Tin.....	1/12	Magnesium...	13/32

No. 99 Decimeter Rule

A Key to the Metric System



Gives a most comprehensive, visual demonstration of metric lengths.

Made of tempered steel, carefully ground. Accurately machine divided one edge, one side in centimeters and millimeters. Carries on both sides in-

teresting facts regarding the metric system.

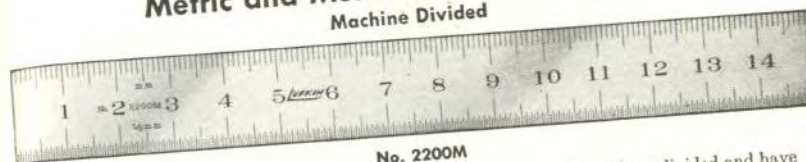
Furnished with metal-bound leather case.

Length, 10 centimeters (1 decimeter). Width, 1 centimeter. Thickness, 1 millimeter.

No. 99, Decimeter Rule with Case.

Packing: Six in a Box.

FOR PRICES SEE PRICE LIST

Metric and Metric-English Steel Rules
Machine Divided

No. 2200M

Made of high grade, spring tempered steel. They are accurately machine divided and have clear, dark, sunken graduation lines and figures, easy to read. They are edge, surface and end ground.

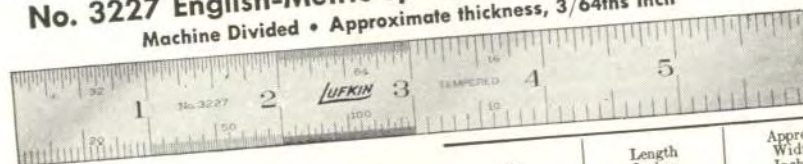
Stiff Spring Tempered Rules			
No.	Graduations	Length	Approx. Width Mm.
2200M	Marked Both Sides, Three Edges in Mm.; One Edge in 1/2 Mm.	5 Cm.	12
		10 Cm.	15
		15 Cm.	18
		20 Cm.	21
2200ME	Marked Both Sides, One Side Mm. and 64ths Inch; One Side 1/2 Mm. and 32nds Inch	30 Cm.	24
		50 Cm., 1 Meter	32

Full Flexible Spring Tempered Rules			
No.	Graduations	Length	Approx. Width Mm.
2100M	Marked One Side Only, Upper Edge Mm.; Lower Edge 1/2 Mm.	10 Cm. 15 Cm.	12
		20 Cm. 30 Cm.	18
2100ME	Marked One Side Only, Upper Edge 1/2 Mm.; Lower Edge 64ths Inch	10 Cm. 15 Cm.	12
		20 Cm. 30 Cm.	18

Narrow Spring Tempered Rules			
No.	Graduations	Length	Approx. Width Mm.
2300M	Marked Both Sides, One Edge, One Side Mm.; Other Side 1/2 Mm.	10 Cm.	5
		15 Cm.	5
2300ME	Marked Both Sides, One Edge, One Side 1/2 Mm.; Other Side 64ths Inch	10 Cm.	5
		15 Cm.	5

Packing: 5, 10, 15, 20 and 30-Cm. Rules Six in a Box.
50 Cm. and 1-Meter Rules One in a Package.

Note: For Hook Rules marked Metric and English specify as No. H2200M and ME or No. H2300M and ME.

No. 3227 English-Metric Spring Tempered Steel Rules
Machine Divided • Approximate thickness, 3/64ths Inch

Marked: One side 16ths, 32nds, 64ths; 10ths, 20ths, 50ths, 100ths inch. Other side, one edge millimeters; other edge 1/2 millimeters.

No.	Length Inches	Approx. Width Inches
3227	6	3/4
	12	1

Packing: Six in a Box.

FOR PRICES SEE PRICE LIST

Mechanics Steel Reference Tables

U.S. STD.	S.A.E.	DECIMAL EQUIVALENTS
1/16	16	.0625
1/8	8	.1250
3/16	48	.1875
1/4	24	.2500
5/16	32	.3125
3/8	24	.3750
7/16	16	.4375
1/2	12	.5000
9/16	8	.5625
5/8	6	.6250
11/16	48	.6875
3/4	24	.7500
13/16	16	.8125
7/8	8	.8750
15/16	48	.9375
1	24	1.0000

No. 97 1/2, Front Side

U.S. STD.	S.A.E.	DECIMAL EQUIVALENTS
1/16	16	.0625
1/8	8	.1250
3/16	48	.1875
1/4	24	.2500
5/16	32	.3125
3/8	24	.3750
7/16	16	.4375
1/2	12	.5000
9/16	8	.5625
5/8	6	.6250
11/16	48	.6875
3/4	24	.7500
13/16	16	.8125
7/8	8	.8750
15/16	48	.9375
1	24	1.0000

No. 98, Front Side

U.S. STD.	S.A.E.	DECIMAL EQUIVALENTS
1/16	16	.0625
1/8	8	.1250
3/16	48	.1875
1/4	24	.2500
5/16	32	.3125
3/8	24	.3750
7/16	16	.4375
1/2	12	.5000
9/16	8	.5625
5/8	6	.6250
11/16	48	.6875
3/4	24	.7500
13/16	16	.8125
7/8	8	.8750
15/16	48	.9375
1	24	1.0000

No. 98, Back Side

These tables are handy for machinists, tool and die makers, in fact anyone making frequent reference to decimal equivalents, tap and drill sizes or wire gages. They are durable and retain their legibility permanently. Can be used as a rule.

Made of semi-flexible, spring tempered steel, 1 1/4 x 6 3/4 inches, with hole for hanging. Accurately ground and graduated with clear dark figures and lines, easy to read. Rapid reading graduations: 64ths numbered every 8th division; 32nds every 4th division.

No. 97 1/2. One side marked with table of U.S., A.S.M.E., S.A.E., and Briggs Pipe Standard machine screw tap and drill sizes, including fractional and numbered sizes. A 6-inch rule graduated to 32nds inch. Other side marked with decimal equivalents of fractions from 1 to 63/64ths. A 6-inch rule graduated to 64ths inch.

No. 98. One side marked with decimal equivalents of fractions from 1 to 63/64ths. A 6-inch rule graduated to 64ths inch. Other side marked with decimal equivalents of wire gages. A 6-inch rule graduated to 32nds inch.

No. 97 1/2, Steel Reference Table and Rule
No. 98, Steel Reference Table and Rule.

Packing: 6 in a Box.

Note: Leather cases furnished at small extra charge.

FOR PRICES SEE PRICE LIST

LUFKIN

GENERAL CATALOG No. 14

Illustrated and described on the following pages are several types of Lufkin Tape-Rules, Steel Tapes and Rules. For information on the complete line of Lufkin Measuring Tapes, Rules, etc., refer to Catalog No. 14, which includes the following and related items:

- STEEL MEASURING TAPES
- WOVEN MEASURING TAPES
- STEEL TAPE RULES
- SPRING JOINT WOOD RULES
- FOLDING ALUMINUM RULES
- BOXWOOD RULES
- MISC. RULES, WOOD, STEEL AND BRASS
- GLASS BOARDS, RULES AND SQUARES
- TAILORS' SQUARES AND RULES
- LUMBER RULES
- BOOT CALKS

Catalog No. 14 also covers the Precision Tools illustrated in this catalog No. 8 and will gladly be sent upon request to those interested in both Precision Tools and Measuring Tapes and Rules.

THE LUFKIN RULE COMPANY

Chrome Clad MEZURALL Tape-Rules

(Patented)

Manually Operated • ½-Inch Wide Blade



The most practical and compact all purpose Tape-Rule for industry, construction or home use.

Easy to read. Jet black markings against Chrome White background. Durable markings are bonded to the steel and recessed below the hard chrome surface.

Surface of line will not chip, peel or crack. Rust resistant.

Self-adjusting end hook assures accurate butt end and hook over measurements as the hook slides to compensate for its thickness.

Attractive case is made of steel, heavily plated. Steel case wears longer and is not easily damaged or broken. Has gloss red, flush inset sideplates.

Blade is stiffened by concave forming and will project unsupported. Blade is manually operated and runs smoothly in and out of case. Balanced construction prevents blade creeping into case when blade is withdrawn. Blade is held in case by a stop catch guarding against end breakage when not in use. Blade is replaceable; no tools necessary.

To take an inside measurement; butt square back edge of case against one side of opening being measured; extend the blade to the other limit; the sliding action of the patented hook assures accurate measuring; add 2 inches to the reading at case opening, case being 2 inches wide.

Markings, One Side Only

Length Feet	Both Edges, Consecutive Inches to 16ths; First 12 Inches of Upper Edge Graduated to 32nds; Graduations Read Left to Right		Feet, 10ths and 100ths of Feet on Upper Edge; Feet, Inches and 16ths on Lower Edge		Millimeters on Upper Edge; Inches to 16ths on Lower Edge		
	Tape-Rule No.	Replace- ment Blade No.	Tape-Rule No.	Replace- ment Blade No.	Length Meters	Inches	
6	C926	RC6	C926D	RC6D	2	78 3/4	C926ME
8	C928	RC8	C928D	RC8D	..	..	..
10	C9210	RC10	C9210D	RC10D	..	..	..
12	C9212	RC12	C9212D	RC12D	..	..	..

Weight per Carton: 6-ft. 1 1/2 lb.; 8-ft. 1 3/4 lb.; 10-ft. 1 3/4 lb. 12-ft. 1 7/8 lb.

Packing: One in a Durable Plastic Utility Box; Six in a Carton.

FOR PRICES SEE PRICE LIST

Chrome Clad Super MEZURALL Tape-Rules

(Patented)

Manually Operated • Heavy Duty 3/4-Inch Wide Blade



The 3/4-inch wide rigid blade was developed primarily for extended overhead measurements and difficult reach-in measurements. It will extend further horizontally and vertically and is handy for taking overhead measurements.

This tape has a diamond indicating mark at each 16-inch interval to assist those in the building trades in spacing of rafters, studding, etc., on 16-inch centers.

Easy to read. Jet black markings against Chrome White background. Durable markings are bonded to the steel and recessed below the hard chrome surface.

Surface of line will not chip, peel or crack. Rust resistant.

Heavy duty self-adjusting end hook assures accurate butt end and hooked over measurements as the hook slides to compensate for its thickness. End hook is long with serrated face, assuring a good grip on hooked over measurements.

Attractive case is made of precision die cast alloy metal. They are much stronger, more durable and lighter in weight than many other types of die castings. Has gloss red, flush inset side plates.

Blade is replaceable; no tools necessary.
To take an inside measurement; butt square back edge of case against one side of opening being measured; extend the blade to the other limit; the sliding action of the patented hook assures accurate measuring; add 2 in. to the reading at case opening, case being 2 in. wide.

Markings, One Side Only

*Upper Edge, Feet, Inches and 16ths with "Instantaneous"
Readings; Lower Edge, Consecutive Inches to 16ths;
Graduations Read from Left to Right

Length Feet	Tape-Rule No.	Replacement Blade No.	Weight per Carton Pounds
10	C9310	RC310	2 1/2
12	C9312	RC312	2 5/8

Packing: One in a Durable Plastic Utility Box; Six in a Display Carton.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

White **MEZURALL** Tape-Rules

(Patented)

Manually Operated • ½-Inch Wide Blade



A practical all purpose Tape-Rule for construction and home use.

Easy to read. Jet black markings against snow white background. Most durable white finish over bonderized tempered steel blade.

Self-adjusting end hook assures accurate butt end and hook over measurements as the hook slides to compensate for its thickness.

Attractive case is made of precision die cast lightweight alloy metal. Has green inset sideplate.

Blade is stiffened by concave forming and will project unsupported. Blade is manually operated and runs smoothly in and out of case. The blade will not creep into case when blade is withdrawn. Blade is replaceable; no tools necessary.

To take an inside measurement: Butt square edge of case against one side of opening being measured; extend the blade to the other limit; the sliding action of the patented hook assures accurate measuring; add 2 inches to the reading at case opening, case being 2 inches wide.

Markings, One Side Only

Length Feet	Both Edges, Consecutive Inches to 16ths; First 12 Inches of Upper Edge Graduated to 32nds		Feet, 10ths and 100ths of Feet on Upper Edge; Feet, Inches and 16ths on Lower Edge		Millimeters on Upper Edge; Inches to 16ths on Lower Edge	
	Tape-Rule No.	Replacement Blade No.	Tape-Rule No.	Replacement Blade No.	Length Meters Inches	Tape-Rule No. Replacement Blade No.
6	W926	RW6	W926D	RW6D	2	78¾ W926ME RW6ME
8	W928	RW8	W928D	RW8D	..	.....
10	W9210	RW10	W9210D	RW10D	..	.....
12	W9212	RW12	W9212D	RW12D	..	.....

Weight per Carton: 6-ft., 1¼ lb.; 8-ft., 1½ lb.; 10-ft., 1¾ lb.; 12-ft., 1⅝ lb.

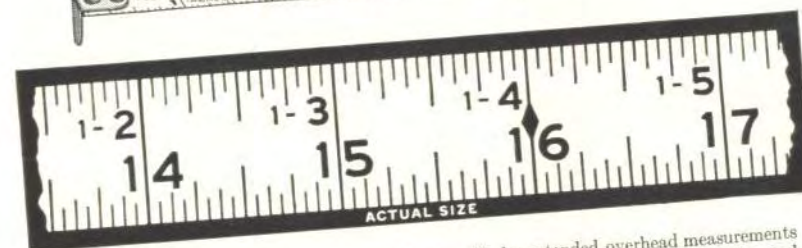
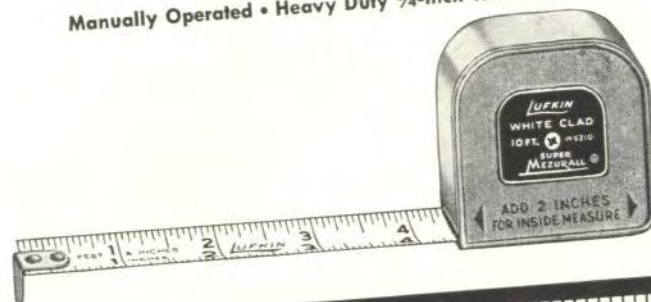
Packing: One in a Durable Plastic Utility Box; Six in a Display Carton.

FOR PRICES SEE PRICE LIST

White Clad Super **MEZURALL** Tape-Rules

(Patented)

Manually Operated • Heavy Duty ¾-Inch Wide Blade



The ¾-inch wide rigid blade was developed primarily for extended overhead measurements and difficult reach-in measurements. It will extend further horizontally and vertically and is handy for taking overhead measurements.

This tape has a diamond indicating mark at each 16-inch interval to assist those in the building trades in spacing of rafters, studding, etc., on 16-inch centers.

Easy to read. Jet black markings against Snow White background. Durable white finish over bonderized tempered steel blade.

Heavy duty self-adjusting end hook assures accurate butt end and hooked over measurements as the hook slides to compensate for its thickness. End hook is long with serrated face, assuring a good grip on hooked over measurements.

Attractive case is made of precision die cast alloy metal. They are much stronger, more durable and lighter in weight than many other types of die castings. Has green flush inset sideplates.

Blade is replaceable; no tools necessary.
To take an inside measurement: butt square back edge of case against one side of opening being measured; extend the blade to the other limit; the sliding action of the patented hook assures accurate measuring; add 2 inches to the reading at case opening, case being 2 inches wide.

Markings, One Side Only

*Upper Edge, Feet, Inches and 16ths with "Instantaneous" Readings; Lower Edge, Consecutive Inches to 16ths; Graduations Read from Left to Right

Length Feet	Tape-Rule No.	Replacement Blade No.	Weight per Carton Pounds
10	W9310	RW310	2½
12	W9312	RW312	2⅝

*Upper edge has each preceding foot number repeated at each inch throughout the tape. The total reading is at the point of measurement. Easy conversion from feet and inches to consecutive inches and vice versa is permitted. The first 12 inches of lower edge is graduated to 32nds.

Packing: One in a Durable Plastic Utility Box; Six in a Display Carton.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

Nickel Plated Tape-Rules



MEZURALL Tape-Rules

(Patented)

Manually Operated • 1/2-Inch Wide Blade

The blade is stiffened by concave forming and will project unsupported. Has jet black markings against nickel plated background. Blade is manually operated and runs smoothly in and out of case. The blade will not creep into case when blade is withdrawn. Blade is easily replaced; no tools necessary.

The self-adjusting end hook assures accurate butt end and hook over measurements as the hook slides to compensate for its thickness.

Attractive case is made of steel, heavily plated. Steel cases wear longer.

Width of case, 2 inches.

Markings, One Side Only

Lgth. Ft.	Tape- Rule No.	Replace- ment Blade No.	Length		Tape- Rule No.	Replace- ment Blade No.
			Meters	In.		
6	926	RN6	2	78 3/4	926ME	RN6ME
8	928	RN8	...	...	...	...
10	9210	RN10	...	...	...	...
12	9212	RN12	...	...	...	...

Weight per Carton: 6-ft., 1 1/2 lb.; 8-ft., 1 5/8 lb.; 10-ft., 1 3/4 lb.; 12-ft., 1 7/8 lb.

Packing: One in a Box; Six in a Carton.

WIZARD Tape-Rules

(Patented)

Manually Operated • 5/8-Inch Wide Blade

Steel blade is stiffened by concave forming, so can be projected unsupported, like a rule, to walls, ceilings or into openings. It will also flex to accurately measure circles, around corners, etc. Blade is nickel plated and has prominent, dark, contrasting lines and figures, easy to read.

Blade is manually withdrawn from and returned to case; works smoothly and remains set at any length withdrawn. It has hook at first end. Handy for measuring within or beyond arm's reach.

Sturdy, metal case is nickel plated; has flat edges. Diam. of 6 and 8-foot cases is 2 inches.

Markings, One Side Only

Lgth.	In. to 16ths, Both Edges; First 6 In. Upper Edge to 32nds		Ft., 10ths & 100ths of Ft. Upper Edge; Ft., In. & 16ths on Lower Edge		Millimeters on Upper Edge; In. to 16ths Lower Edge	
	Tape- Rule No.	Length	Tape- Rule No.	Length	Tape- Rule No.	Length
Ft.	In.	Meters	In.	Meters	In.	Meters
6	72	686	686D	2	78 3/4	686ME
8	96	688	...	...	...	...
10	120	6810	...	...	...	...

Packing: One in a Box; Six in a Carton.
10-Foot Size One in a Box.

FOR PRICES SEE PRICE LIST

(Patented)

Chrome Clad

Tape Rules



Decimal Graduated Tape Rules

10ths and 50ths of an inch

Many industries such as automotive, aircraft, electronics, etc. are standardizing on decimal measuring. In addition to the regular machine divided steel rules (No. 6 graduation), Lufkin now offers a Chrome Clad Mezurall tape rule with decimal graduations. The top edge of the blade is graduated in 10ths (.10) of an inch. The first foot of the lower edge of the blade is graduated in 50ths (.02) of an inch, balance of lower edge is graduated in 10ths. The 50ths graduations are Rapid Reading; each fifth division is numbered for faster and easier reading. Made in accordance with approved American Standard specifications.

Easy to read. Jet black markings against Chrome White background. Durable markings are bonded to the steel and recessed below the hard chrome surface.

Surface of line will not chip, peel or crack. Rust resistant.

Self-adjusting end hook assures accurate butt end and hook over measurements as the hook slides to compensate for its thickness.

Attractive case is made of steel, heavily plated. Steel case wears longer and is not easily damaged or broken. Has gloss red, flush inset sideplates.

Markings, One Side Only

Length Feet	Both edges, consecutive inches to 10ths. First 12 inches of lower edge graduated to 50ths. Graduations read left to right	
	Tape Rule No.	Replacement Blade No.
6	C926X	RC6X
8	C928X	RC8X
10	C9210X	RC10X
12	C9212X	RC12X

Weight per carton: 6-ft. 1 1/2 lb.; 8-ft. 1 5/8 lb.; 10-ft. 1 3/4 lb.; 12-ft. 1 7/8 lb.

Packing: One in a Durable Plastic Utility Box; Six in a Carton.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

"Anchor" Chrome Clad Steel Tapes

(Patented)

DECIMAL GRADUATED

Line $\frac{3}{8}$ -Inch Wide • The Ideal Tape for General Use

Markings Jet Black • Surface Satin Chrome-White • Leather Case



GRADUATED CONSECUTIVE INCHES AND 10THS OF INCHES

Easy to read. Large figures, prominent graduations extending to the very edge; both in sharp color contrast to glare-free satin Chrome Clad surface. An accurate steel tape with "Instantaneous" readings.

Permanent markings. Resist abrasion, heat, etc. Rust and corrosion-resistant, sturdy line. Heavily chrome plated.

Surface of line will not chip, peel or crack. Metal throughout.

Case is durable, practical and attractive. Finest genuine leather, mahogany color, closely hand-stitched over sturdy rust-resistant metal liner. Smoothly operating recessed winding drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

EASY TO READ MARKINGS THAT ARE DURABLE

With Standard Ring



Tape Complete		Replacement Line Only Number
Length	Number	
300"	C210CX	OC210CX
600"	C213CX	OC213CX

Packing: One in a box.

FOR PRICES SEE PRICE LIST

"Anchor" Chrome Clad Steel Tapes

(Patented)

Line $\frac{3}{8}$ -Inch Wide • The Ideal Tape for General Use

Markings Jet Black • Surface Satin Chrome-White • Leather Case



Hook-Ring

Easy to read. Large figures, prominent graduations extending to the very edge; both in sharp color contrast to glare-free satin Chrome Clad surface. An accurate steel tape with "Instantaneous" readings.

Permanent markings. Resist abrasion, heat, etc.

Rust and corrosion-resistant, sturdy line. Heavily chrome plated.

Surface of line will not chip, peel or crack. Metal throughout.

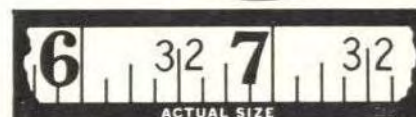
Case is durable, practical and attractive. Finest genuine leather, mahogany color, closely hand-stitched over sturdy rust-resistant metal liner. Smoothly operating recessed winding drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

Hook-Ring: Enables one to measure unassisted; tape suitable also for butt end measuring. Attached, sturdy, 2-pronged, metal hook folds flush against

EASY TO READ MARKINGS THAT ARE DURABLE

With Standard Ring



ring. Friction holds it open or closed. Spurs take firm hold under tension and are easily released.

Marked One Side Only					With Standard Ring			
Length Feet	With Standard Ring			With Hook-Ring	Length		*Marked Metric and English Tape No.	†Marked Feet, 10ths, 100ths and Metric Tape No.
	Feet, Inches and 8ths Tape No.	Feet, 10ths and 100ths Tape No.	Feet, Inches and 16ths Tape No.	Feet, Inches and 8ths Tape No.	Meters	Feet		
25	C210	C210D	C210-16ths	HC210	10	33	C211ME	.....
33	.....	.....	C211-16ths	.....	15	50	C213ME	.....
50	C213	C213D	C213-16ths	HC213	20	66	C214ME	.....
75	C215	C215D	C215-16ths	HC215	25	82	C215ME	.....
100	C216	C216D	C216-16ths	HC216	30	100	C216ME	C216DM

Refills for Tapes (Lines Only, with Ring)								
25	OC210	OC210D	OC210-16ths	OHC210	10	33	OC211ME	.....
33	.....	.....	OC211-16ths	.....	15	50	OC213ME	.....
50	OC213	OC213D	OC213-16ths	OHC213	20	66	OC214ME	.....
75	OC215	OC215D	OC215-16ths	OHC215	25	82	OC215ME	.....
100	OC216	OC216D	OC216-16ths	OHC216	30	100	OC216ME	OC216DM

Approx. wt.: 25-ft., $\frac{3}{4}$ lb.; 33-ft., $\frac{7}{8}$ lb.; 50-ft., $1\frac{1}{16}$ lb.; 75-ft., $1\frac{1}{8}$ lb.; 100-ft., $1\frac{3}{8}$ lb.

*One side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

†One side feet, 10ths and 100ths; other side first decimeter in mm., balance in cm.

Notes: "Anchor" Tapes can be furnished marked consecutive inches to 16ths.

"Anchor" Chrome Clad Tapes $\frac{1}{2}$ inch wide are available.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

ROSE TOOLS, INC.

"Leader" Chrome Clad Steel Tapes

(Patented)

3/8-Inch Wide • The Popular Priced Chrome Clad Tape for General Use

Markings Jet Black • Surface Satin Chrome-White

Durable Maroon Vinyl Covered Case • Replaceable Line



Hook Ring



With Standard Ring

In the "Leader," at its moderate price, we bring within the reach of every tape user the superior features of Chrome Clad Measuring Tapes.

The line is of standard weight.

Easy to read. Accurate. Serviceable. Attractive. "Instantaneous" readings. Large figures, prominent graduations extending to the very edge; both in sharp color contrast to the glare-free surface.

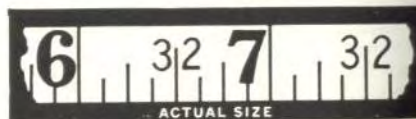
Permanent markings. Strongly resist abrasion, heat, etc.

Rust and corrosion-resistant, sturdy line. Heavily chrome plated.

Surface of line will not chip, peel or crack. Metal throughout.

Case is durable and attractive. Metal lined and covered with maroon-vinyl. Narrow, flat, flush, stainless steel edge band. Liner is of welded steel, rust-resistant coated. Smoothly operating recessed winding drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet



and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

Hook-Ring: Enables one to measure unassisted; tape suitable also for butt end measuring. Attached, sturdy, 2-pronged, metal hook folds flush against ring. Friction holds it open or closed. Spurs take firm hold under tension and are easily released.

Marked One Side Only					With Standard Ring				
Length Feet	With Standard Ring		With Hook-Ring		Length		†Marked Metric and English Tape No.	†Marked Metric and English *Refill No.	
	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths *Refill No.	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths †Refill No.	Meters	Feet			
25	C250	OC250	HC250	OHC250	10	33	C251ME	OC251ME	
33	C251	OC251	HC251	OHC251	15	50	C253ME	OC253ME	
50	C253	OC253	HC253	OHC253	20	66	C254ME	OC254ME	
66	C254	OC254	HC254	OHC254	25	82	C255ME	OC255ME	
75	C255	OC255	HC255	OHC255	30	100	C256ME	OC256ME	
100	C256	OC256	HC256	OHC256					

Approximate weight: 25-ft., 3/4 lb.; 50-ft., 1 1/8 lb.; 66-ft., 1 3/8 lb.; 75-ft., 1 7/8 lb.; 100-ft., 1 13/16 lb.

*Lines only, with standard ring. †Lines only, with hook-ring.

‡One side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

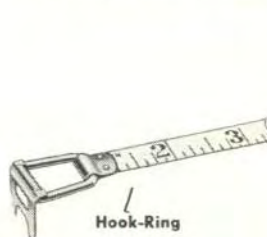
Note: "Leader" Tapes can be furnished marked in Metric only.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

"Banner" White Clad Steel Tapes

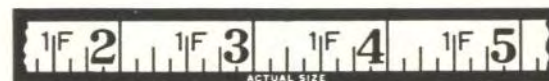
Line 3/8-Inch Wide • Markings Jet Black • Surface Snow White • Vinyl Case



Hook-Ring



With Standard Ring



The ideal general purpose tape for use where severe abrasion is not a problem.

Easy to read. Jet black figures and graduations on snow white surface.

Durable mar-resistant line. Triple baked white modern synthetic finish on bonderized tape steel. The hard smooth surface is easy to keep clean.

Case is durable and attractive. Vinyl covered over

rust-resistant coated steel liner. Folding flush handle is opened by push pin. Plated fittings.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

Length Feet	Marked One Side Only				With Standard Ring			
	With Standard Ring		With Hook-Ring		Length		†Marked Metric and English Tape No.	†Marked Metric and English *Refill No.
	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths *Refill No.	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths †Refill No.	Meters	Feet		
25	W220	OW220	HW220	OHW220	10	33	W221ME	OW221ME
50	W223	OW223	HW223	OHW223	15	50	W223ME	OW223ME
75	W225	OW225	HW225	OHW225	20	66	W224ME	OW224ME
100	W226	OW226	HW226	OHW226	25	82	W225ME	OW225ME
					30	100	W226ME	OW226ME

*Lines only, with standard ring.

†Lines only, with hook-ring.

‡One side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

Approx. wt.: 25-ft., 3/4 lb.; 50-ft., 1 1/8 lb.; 75-ft., 1 7/8 lb.; 100-ft., 1 13/16 lb.

Note: "Banner" Tapes can also be furnished marked in Metric only.

Packing: One in a Practical Plastic Box in Individual Display Carton.

FOR PRICES SEE PRICE LIST

"Royal" Ni-Clad Steel Tapes

Line $\frac{3}{8}$ -Inch Wide • A Low Priced Accurate, Dependable Steel Tape
 Markings Jet Black • Surface Nickel-White • Durable Dark Green Vinyl Covered Case



Folding Hook-Ring



With Standard Ring

The popular priced "Royal" Ni-Clad has brought within the reach of all a steel tape that is accurate and dependable. Nickel plated line, long wearing, rust and corrosion resistant. The durable and easy to read black figures and graduations stand out clearly on the nickel-white background. "Instantaneous" readings.

The case is covered with attractive and durable dark green vinyl and has a narrow, flat and flush stainless steel edge band. Welded metal case liner is rust resistant coated. Smoothly operating recessed drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

This tape is furnished with hook ring or regular

ring. The hook-ring enables one to measure unassisted. Attached, sturdy, 2-pronged metal hook folds flush against ring. Friction holds it open or closed. Spurs take firm hold, grip under tension and are released easily. Tape also is suitable for butt end measuring.

Length Feet	Marked One Side Only				Length		With Standard Ring		With Hook-Ring	
	With Hook-Ring		With Standard Ring		Meters	Feet	†Marked Metric, English Tape No.	†Marked Metric, English *Refill No.	†Marked Metric, English Tape No.	†Marked Metric, English *Refill No.
	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths †Refill No.	Feet, Inches and 8ths Tape No.	Feet, Inches and 8ths *Refill No.						
25	H430	OH430	430	0430	10	33	431ME	0431ME	H431ME	OH431ME
50	H433	OH433	433	0433	15	50	433ME	0433ME	H433ME	OH433ME
75	H435	OH435	435	0435	20	66	434ME	0434ME	H434ME	OH434ME
100	H436	OH436	436	0436	25	82	435ME	0435ME	H435ME	OH435ME
					30	100	436ME	0436ME	H436ME	OH436ME

Approximate weight: 25-ft., $\frac{3}{4}$ -lb.; 50-ft., $1\frac{1}{16}$ lb.; 75-ft., $1\frac{1}{8}$ lb.; 100-ft., $1\frac{1}{4}$ lb.

*Lines only, with standard ring. †Lines only, with hook-ring.

‡One side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

Note: "Royal" Ni-Clad Tapes can be supplied marked Metric only.

Packing: One in a Box.

FOR PRICES SEE PRICE LIST

"Challenge" Nubian (Black) Finish Steel Tapes

Line $\frac{3}{8}$ -Inch Wide
 A Standard, High Grade General Purpose
 Tape • Raised Markings • Leather Case

With
Standard
Ring

Hook-Ring

Raised markings in natural steel over black background, with clear plastic coating. "Instantaneous" readings.

Case of brown, genuine leather, closely hand-stitched over sturdy rust-resistant metal liner.

Smoothly operating recessed winding drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

Hook-Ring: Enables one to measure unassisted; tape suitable also for butt end measuring. Sturdy, 2-pronged metal hook folds flush against ring. Friction holds it open or closed. Spurs take firm hold under tension and are easily released.

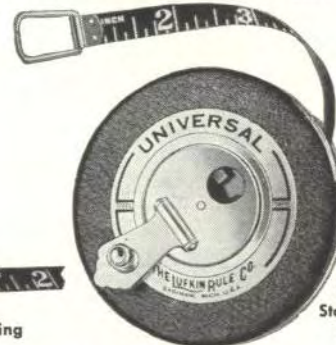
Lgth. Ft.	Marked One Side Only			
	With Standard Ring		With Hook-Ring	
	Ft., In. & 8ths Tape No.	Ft., 10ths & 100ths Tape No.	Ft., In. & 16ths Tape No.	Ft., In. & 8ths Tape No.
25	260	260D	260-16ths	H260
33	...	....	261-16ths	....
50	263	263D	263-16ths	H263
75	265	265D	265-16ths	H265
100	266	266D	266-16ths	H266
150	267	267D	.....	H267

Weight: 25-ft., $\frac{3}{4}$ lb.; 33-ft., $\frac{7}{8}$ lb.; 50-ft., $1\frac{1}{16}$ lb.; 66-ft., $1\frac{1}{8}$ lb.; 75-ft., $1\frac{1}{4}$ lb.; 100-ft., $1\frac{1}{2}$ lb.; 150-ft., $2\frac{1}{4}$ lb.

Packing: One in a Box.

"Universal" Nubian (Black) Finish Steel Tapes

Line $\frac{3}{8}$ -Inch Wide
 A Favorite of Many Mechanics in the
 Building Trades • Raised Markings
 Durable Maroon Vinyl Covered Case

With
Standard
Ring

The line has raised markings in natural steel over black background. "Instantaneous" readings.

Durable and attractive case of maroon vinyl with a flat, flush stainless steel edge band. Case liner is welded steel, rust-resistant coated. Recessed drum with folding flush handle opened by push pin.

Another valuable feature of this tape is the ease of line replacement. The line has a patented rivet and slot fastener that affords a secure and positive fitting. A new line is installed easily in just a few seconds.

Hook-Ring: Enables one to measure unassisted; tape suitable also for butt end measuring. Sturdy, 2-pronged, metal hook folds flush against ring. Friction holds it open or closed. Spurs take firm hold, grip under tension and are easily released.

Length Feet	Marked One Side Only	
	With Standard Ring	With Hook-Ring
	Ft., In. & 8ths Tape No.	Ft., In. & 8ths Tape No.
25	540	H540
33	541	H541
50	543	H543
66	544	H544
75	545	H545
100	546	H546

FOR PRICES SEE PRICE LIST
 ROSE TOOLS, INC.

Aluminum Rules

6-Inch Folds • 9/16-Inch Wide



No. 1206 with Outside Markings

Sections are constructed of durable, lightweight special analysis aluminum alloy. Black filled sunken graduations and large figures are in contrast with natural aluminum surface; easy to read.

Solid brass lock joints.

Joints have a rivet headed over flush embedded washers, securely holding rule to length.

Metal folding hook is compact and sturdy.

With Outside Markings (Numbering Begins on Outside)				With Inside or Flat Markings (Numbering Begins on Inside)			
Rule No.	Length Feet	Markings	Wt., Lb. per Box	Rule No.	Length Feet	Markings	Wt., Lb. per Box
1204	4	Consecutive Inches to 16ths, Both Sides.	13 $\frac{1}{8}$	1206F	6	Consecutive Inches to 16ths, Both Sides. Measurement Lies Close to Work Even When Rule is Partly Open.	13 $\frac{1}{8}$
1206	6		12 $\frac{3}{8}$	*H1206F	6		12 $\frac{3}{8}$
*H1206	6		12 $\frac{3}{8}$	.....	...		....

*This rule has folding hook attached.

Mechanics Folding Steel Rules

Heavy duty, accurate, Folding Rules are made of fine tempered steel, $\frac{3}{4} \times \frac{1}{2}$ inch.

Lock joints. Each joint has two durable stops or snap sockets and a strong rivet with both ends headed over a washer. Each joint is held to length and sections are held rigidly in alignment when open or closed.

The deeply etched markings are in sharp contrast to the polished steel, easy to read and permanent.



Marked Both Sides, Lower Edge Consecutive Inches to 16ths										Marked English and Metric; One Side Consecutive In. to 16ths; Other Side to Mm.									
No.	Length Feet	Sections	No. in Box	Wt. Lb. per Box	No.	Length Feet	Sections	No. in Box	Wt. Lb. per Box	No.	Length	Sections	No. in Box	Wt. Lb. per Box	No.	Length	Sections	No. in Box	Wt. Lb. per Box
1173	3	6-Inch	12	3 $\frac{1}{4}$	1176	6	6-Inch	6	3 $\frac{1}{4}$	1173ME	1 Meter	6-Fold	12	3 $\frac{1}{2}$	1174EM	4 Foot	6-Inch	6	2 $\frac{1}{4}$
1174	4	6-Inch	6	2 $\frac{1}{4}$	1178	8	6-Inch	6	4 $\frac{1}{4}$										

Note: Can be furnished with folding hook; specify by prefixing "H" to stock number, as H1176, etc.

No. 62 One-Piece Long Steel Rules



Substantial tempered steel rules with hole in one end for hanging. Large figures and lines. Heavier than on machine divided rules. Deeply etched and filled in black. Permanent and easy to read.

Specify stock number and length when ordering.

Marked Both Sides, Both Edges; Upper Edge 8ths, Lower Edge 16ths Inch; Opposite Sides Measure from Opposite Ends									
No.	Length Feet	Width Inches	Thickness Inches	Weight Pounds	No.	Length Feet	Width Inches	Thickness Inches	Weight Pounds
62-1 ft.	1	1 $\frac{1}{4}$	$\frac{1}{16}$	$\frac{5}{16}$	62-5 ft.	5	1 $\frac{1}{4}$	$\frac{1}{16}$	13 $\frac{1}{8}$
62-2 ft.	2	1 $\frac{1}{4}$	$\frac{1}{16}$	$\frac{9}{16}$	62-6 ft.	6	1 $\frac{1}{4}$	$\frac{1}{16}$	15 $\frac{1}{8}$
62-3 ft.	3	1 $\frac{1}{4}$	$\frac{1}{16}$	1 $\frac{1}{8}$	62-8 ft.	8	1 $\frac{1}{4}$	$\frac{1}{16}$	2 $\frac{1}{4}$
62-4 ft.	4	1 $\frac{1}{4}$	$\frac{1}{16}$	1 $\frac{5}{8}$	62-10 ft.	10	1 $\frac{1}{4}$	$\frac{1}{16}$	2 $\frac{7}{8}$

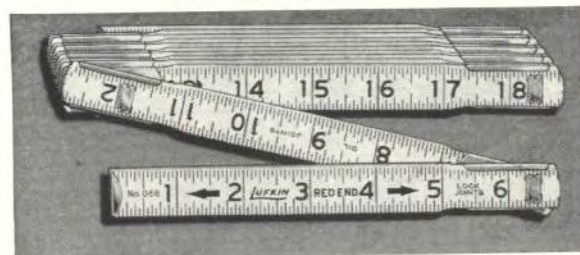
Packing: Aluminum Rules, Three in a Box; One-Piece Long Steel Rules, One in a Package.

FOR PRICES SEE PRICE LIST

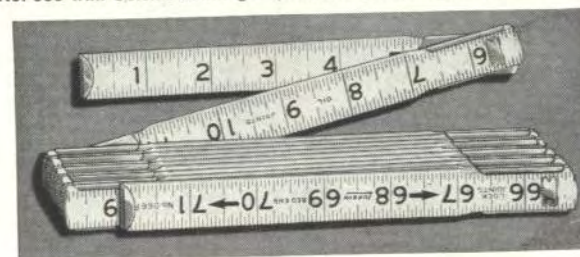
"Red End" Highest Quality Spring Joint Rules

[Reg. U. S. Pat. Off.]

"Red End" is the Name and Color Recognized as the Mark of Superior Wood Rules
6-Inch Folds • $\frac{5}{8}$ -Inch Wide



No. 066 with Outside Markings—(Numbering Begins on Outside of Rule)



No. 066F with Inside Markings—(Numbering Begins on Inside of Rule)

Measurement Lies Close to the Work Even When Rule is Partly Open

Finest hardwood, straight grained, tough and flexible.

Snow white enamel finish, most readable.

Bold face figures and graduations are embedded in the wood and are easy to read.

Double graduations, both edges of both sides are graduated to 16ths.

Clear plastic coating is abrasion and wear resistant; most durable.

Concealed type joints are made of solid brass; rust-proof and smooth working.

Lock joints prevent end play and maintain accuracy.

Strike plates and end caps are of solid brass; prevent wear.

Ends are in bright gloss red, attractive, protective and easy to locate.

With Outside Markings (Numbering Begins on Outside of Rule)					With Inside or Flat Markings (Numbering Begins on Inside of Rule)				
Rule No.	Length Feet	Markings	Weight Pounds per Box		Rule No.	Length Feet	Markings	Weight Pounds per Box	
064	4	Consecutive Inches to 16ths; Both Edges to Both Sides	1 $\frac{1}{8}$		066F	6	Consecutive Inches to 16ths; Both Edges to Both Sides	13 $\frac{1}{8}$	
065	5		1 $\frac{3}{8}$		068F	8		2 $\frac{1}{4}$	
066	6		1 $\frac{3}{4}$						
068	8		2 $\frac{1}{4}$						

Note: Rules with Folding Hook are available. Specify by prefixing "H" to Catalog Number.

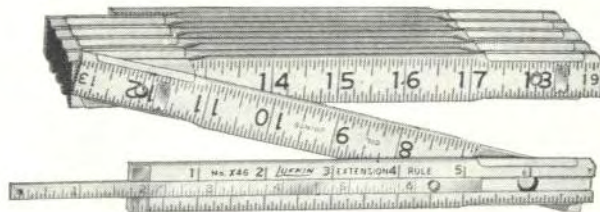
Packing: Six in a Box.

FOR PRICES SEE PRICE LIST

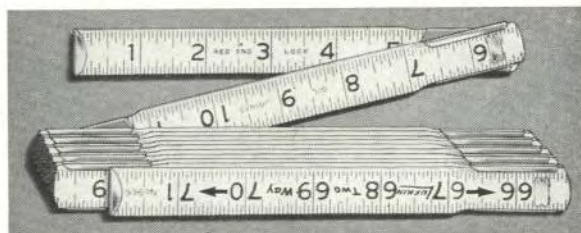
"Red End" Rules

"Red End" is the Name and Color Recognized as the Mark of Superior Wood Rules

6-Inch Folds • 5/8-Inch Wide



No. X46 "Red End" Heavy Duty Extension Rule



No. 966 "Two Way—Red End" Spring Joint Rule

Finest hardwood, straight grained and tough.

Bold face figures and graduations are embedded in the wood and are easy to read.

Double graduations, both edges of both sides are graduated inches to 16ths.

Clear plastic coating is abrasion and wear resistant; most durable.

Strike-plates of solid brass.

Ends are in bright gloss red, attractive, protective and easy to locate.

No. X46 "Red End" Heavy Duty Extension Rule

For inside measuring of openings and for all regular measuring.

Boxwood finish.

Joints are extra heavy brass plated.

Patent double locking joints prevent end play.

Heavy duty spring joints are extra length.

End caps are brass, flush inset and graduated.

Graduated 6-inch brass slide with graduations and figures black filled for easy reading.

No. X46, "Red End" Heavy Duty Extension Rule.

No. HX46, "Red End" Heavy Duty Extension Rule with Folding Hook.

Packing: Six in a Box. Wt. per Box, 2 1/4 Lb.

No. 966 "Two Way—Red End" Spring Joint Rule

(Reg. U.S. Pat. Off.)

Equally handy for measuring left to right and right to left.

Snow white enamel finish, most readable.

Concealed type joints are made of solid brass; rust-proof and smooth working.

Lock joints prevent end play and maintain accuracy.

End caps of solid brass.

No. 966, 6-Foot "Red End" Rule with Two Way Markings.

Note: Folding Hook can be supplied; specify as H966.

Packing: Six in a Box. Wt. per Box, 1 3/4 Lb.

FOR PRICES SEE PRICE LIST

Surveyors or Land Measure

1 Link = 7.92 inches.
1 Rod (or Pole) = 25 links = 16 1/2 feet.
1 Chain = 100 links = 4 rods = 66 feet
1 Furlong = 40 rods = 10 chains = 1/8 mile.

1 Mile = 320 rods = 5,280 feet.
1 Acre = 160 square rods =
43,560 square feet.
1 Square Mile = 640 acres.

The Metric System

MEASURES OF LENGTH

10 millimeters (mm.) = 1 centimeter...cm.
10 centimeters = 1 decimeter.....dm.
10 decimeters = 1 meter.....m.
1 meter = { 39.37 inches.
3.28083 feet.
1.0936 yards.
1 centimeter = .3937 inch.
1 millimeter = (.03937 inch, or
approximately 1/32 inch.
1 kilometer = 0.62137 mile.

10 meters = 1 dekameter.....Dm.
10 dekameters = 1 hektometer.....Hm.
10 hektometers = 1 kilometer.....Km.

1 foot = .3048 meter.
1 inch = { 2.54 centimeters.
25.4 millimeters.

MEASURES OF SURFACE

1 square meter = { 10.764 square feet.
1.196 square yards.
1 square centimeter = .155 square inch.
1 square millimeter = .00155 sq. inch

1 square yard = .836 square meter.
1 square foot = .0929 square meter.
1 square inch = { 6.452 sq. centimeters.
645.2 sq. millimeters.

MEASURES OF VOLUME AND CAPACITY

1 cubic meter = { 35.314 cubic feet.
1.308 cubic yards.
264.2 gallons (231 cubic inches).
1 cubic decimeter = { 61.023 cubic in.
.0353 cubic feet.
1 cubic centimeter = .061 cubic inch.
1 cubic decimeter = { 1 cubic decimeter.
61.023 cubic inches.
.0353 cubic foot.
1 liter = { 1.0567 quarts (U. S.).
26.42 gallon (U. S.).
2.202 lbs. of water at 62° F.

1 cubic yard = .7645 cubic meter.
1 cubic foot = { .02832 cubic meter.
28.317 cubic decimeters.
28.317 liters.
1 cubic in. = 16.383 cubic centimeters.
1 gallon (British) = 4.543 liters.
1 gallon (U. S.) = 3.785 liters.

MEASURES OF WEIGHT

1 gram = 15.432 grains.
1 kilogram = 2.2046 pounds.
1 metric ton = { .9842 ton of 2240 lbs.
19.68 cwt.
2204.6 lbs.

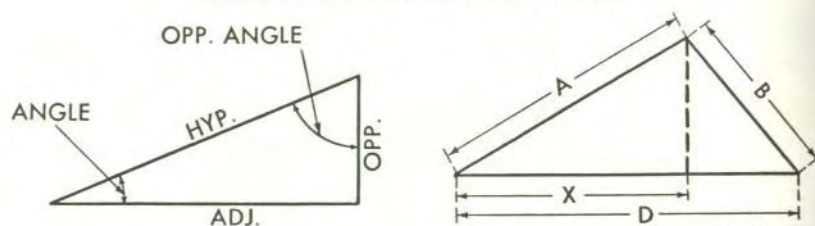
1 grain = .0648 gram.
1 ounce avoirdupois = 28.35 grams.
1 pound = .4536 kilogram.
1 ton of 2240 lbs. = { 1.016 metric ton.
1016 kilograms.

Miscellaneous

1 kilogram per meter = .6720 pounds per foot.
1 gram per square millimeter = 1.422 pounds per square inch.
1 kilogram per square meter = 0.2094 pounds per square foot.
1 kilogram per cubic meter = .0624 pounds per cubic foot.
1 degree centigrade = 1.8 degrees Fahrenheit.
1 pound per foot = 1.488 kilograms per meter.
1 pound per square foot = 4.882 kilograms per square meter.
1 pound per cubic foot = 16.02 kilograms per cubic meter.
1 degree Fahrenheit = .5556 degrees centigrade.
1 Calorie (French Thermal Unit) = 3.968 B. T. U. (British Thermal Unit).
1 Horse Power = { 33,000 foot pounds per minute.
746 Watts.

1 Watt (Unit of Electrical Power) = { .00134 Horse Power.
44.22 foot pounds per minute.
1000 Watts
1 Kilowatt = { 1.34 Horse Power.
44,220 foot pounds per minute.

Table for Solving Right Angled Triangles



$$\text{When A, B \& D Are Given: } X = \frac{D^2 + A^2 - B^2}{2D}$$

Parts Given	PARTS TO BE FOUND				
	Hypotenuse	Adjacent	Opposite	Angle	Opposite Angle
Hypotenuse & Adjacent			$\sqrt{\text{Hyp.}^2 - \text{Adj.}^2}$	$\text{Cos.} = \frac{\text{Adj.}}{\text{Hyp.}}$	$\text{Sin.} = \frac{\text{Opp.}}{\text{Hyp.}}$
Hypotenuse & Opposite		$\sqrt{\text{Hyp.}^2 - \text{Opp.}^2}$		$\text{Sin.} = \frac{\text{Opp.}}{\text{Hyp.}}$	$\text{Cos.} = \frac{\text{Adj.}}{\text{Hyp.}}$
Hypotenuse & Angle		Hyp. x Cos.	Hyp. x Sin.		90°-Angle
Adjacent & Opposite	$\sqrt{\text{Adj.}^2 + \text{Opp.}^2}$			$\text{Tan.} = \frac{\text{Opp.}}{\text{Adj.}}$	$\text{Cot.} = \frac{\text{Adj.}}{\text{Opp.}}$
Adjacent & Angle	$\frac{\text{Adj.}}{\text{Cos.}}$		Adj. x Tan.		90°-Angle
Opposite & Angle	$\frac{\text{Opp.}}{\text{Sin.}}$	Opp. x Cot.			90°-Angle

Useful Rules

To Find Circumference

Multiply Diameter by
3.1416 or
Divide Diameter by
0.3183

To Find Diameter

Multiply Circumference by
0.3183 or
Divide Circumference by
3.1416

To Find Radius

Multiply Circumference by
0.15915
Divide Circumference by
6.28318

To Find Side of an Inscribed Square

Multiply Diameter by
0.7071 or
Multiply Circumference by
0.2251 or
Divide Circumference by
4.4428

To Find Side of an Equal Square

Multiply Diameter by
0.8862 or
Divide Diameter by
1.1284 or
Multiply Circumference by
0.2821 or
Divide Circumference by
3.545

To Find the Area of a Circle

Multiply Circumference by
1/4 of the Diameter or
Multiply the Square of:
Diameter by 0.7854
Circumference by 0.7958
Square of 1/2 Diameter by 3.1416

To Find Surface of a Sphere or Globe

Multiply the Diameter by
the Circumference or
Multiply the Square of Diameter by
3.1416 or
Multiply Four Times the Square of
Radius by 3.1416

Square

A Side Multiplied by:
Diameter of Its
1.4142 = Circumscribing Circle
Circumference of Its
4.443 = Circumscribing Circle
Diameter of an
1.128 = Equal Circle
Circumference of an
3.547 = Equal Circle

To Find the Cubic Inches (Volume)

in a Sphere or Globe
Multiply the Cube
of the Diameter by
.5236

To Convert Temperatures

To Convert Centigrade to Fahrenheit:
Multiply by 9/5 and add 32.
To Convert Fahrenheit to Centigrade:
Subtract 32 and Multiply by 5/9

To Find the Weight of Brass and Copper Sheets, Rods and Bars

Ascertain the Number of Cubic Inches in Piece and Multiply
Same by Weight per Cubic Inch
Aluminum .0924; Brass .2960; Copper .3184; Steel .2816 or
Multiply Length by Breadth (in Feet) and Product by
Weight in Pounds per Square Foot

Decimal Equivalents of 8ths, 16ths, 32nds and 64ths of an inch

8ths	16ths	32nds	64ths
1/8 = .125	1/16 = .0625	1/32 = .03125	1/64 = .015625
1/4 = .250	3/16 = .1875	3/32 = .09375	3/64 = .046875
3/8 = .375	5/16 = .3125	5/32 = .15625	5/64 = .078125
1/2 = .500	7/16 = .4375	7/32 = .21875	7/64 = .109375
5/8 = .625	9/16 = .5625	9/32 = .28125	9/64 = .140625
3/4 = .750	11/16 = .6875	11/32 = .34375	11/64 = .171875
7/8 = .875	13/16 = .8125	13/32 = .40625	13/64 = .203125
	15/16 = .9375	15/32 = .46875	15/64 = .234375
		17/32 = .53125	17/64 = .265625
		19/32 = .59375	19/64 = .296875
		21/32 = .65625	21/64 = .328125
		23/32 = .71875	23/64 = .359375
		25/32 = .78125	25/64 = .390625
		27/32 = .84375	27/64 = .421875
		29/32 = .90625	29/64 = .453125
		31/32 = .96875	31/64 = .484375
			33/64 = .515625
			35/64 = .546875
			37/64 = .578125
			39/64 = .609375
			41/64 = .640625
			43/64 = .671875
			45/64 = .703125
			47/64 = .734375
			49/64 = .765625
			51/64 = .796875
			53/64 = .828125
			55/64 = .859375
			57/64 = .890625
			59/64 = .921875
			61/64 = .953125
			63/64 = .984375

Decimal Equivalents of Millimeters

Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches
.1	.00394	2.3	.09055	4.5	.17716	6.7	.26377	8.9	.35039	11.	.43307	13.1	.51574	15.	.62992
.2	.00787	2.4	.09448	4.6	.18110	6.8	.26771	9.	.35433	11.1	.43700	13.2	.51968	15.5	.64960
.3	.01181	2.5	.09842	4.7	.18503	6.9	.27165	9.1	.35826	11.2	.44094	13.3	.52336	17.	.66929
.4	.01575	2.6	.10236	4.8	.18897	7.	.27559	9.2	.36220	11.3	.44488	13.4	.52755	17.5	.68897
.5	.01968	2.7	.10629	4.9	.19291	7.1	.27952	9.3	.36614	11.4	.44881	13.5	.53149	18.	.70866
.6	.02362	2.8	.11023	5.	.19685	7.2	.28346	9.4	.37007	11.5	.45275	13.6	.53543	18.5	.72854
.7	.02756	2.9	.11417	5.1	.20078	7.3	.28740	9.5	.37401	11.6	.45669	13.7	.53936	19.	.74803
.8	.03149	3.	.11811	5.2	.20472	7.4	.29133	9.6	.37795	11.7	.46062	13.8	.54330	19.5	.76771
.9	.03543	3.1	.12204	5.3	.20866	7.5	.29527	9.7	.38188	11.8	.46456	13.9	.54724	20.	.78740
1.	.03937	3.2	.12598	5.4	.21259	7.6	.29921	9.8	.38582	11.9	.46850	14.	.55118	20.5	.80708
1.1	.04330	3.3	.12992	5.5	.21653	7.7	.30314	9.9	.38976	12.	.47244	14.1	.55511	21.	.82677
1.2	.04724	3.4	.13385	5.6	.22047	7.8	.30708	10.	.39370	12.1	.47637	14.2	.55905	21.5	.84645
1.3	.05118	3.5	.13779	5.7	.22440	7.9	.31102	10.1	.39763	12.2	.48031	14.3	.56299	22.	.86614
1.4	.05512	3.6	.14173	5.8	.22834	8.	.31496	10.2	.40157	12.3	.48425	14.4	.56692	22.5	.88582
1.5	.05905	3.7	.14566	5.9	.23228	8.1	.31889	10.3	.40551	12.4	.48818	14.5	.57086	23.	.90551
1.6	.06299	3.8	.14960	6.	.23622	8.2	.32283	10.4	.40944	12.5	.49212	14.6	.57480	23.5	.92519
1.7	.06692	3.9	.15354	6.1	.24015	8.3	.32677	10.5	.41338	12.6	.49606	14.7	.57873	24.	.94488
1.8	.07086	4.	.15748	6.2	.24409	8.4	.33070	10.6	.41732	12.7	.49999	14.8	.58267	24.5	.96456
1.9	.07480	4.1	.16141	6.3	.24803	8.5	.33464	10.7	.42125	12.8	.50393	14.9	.58661	25.	.98425
2.	.07874	4.2	.16535	6.4	.25196	8.6	.33858	10.8	.42519	12.9	.50787	15.	.59055	25.5	1.00393
2.1	.08267	4.3	.16929	6.5	.25590	8.7	.34251	10.9	.42913	13.	.51181	15.5	.61023	26.	1.02362
2.2	.08661	4.4	.17332	6.6	.25984	8.8	.34645								

Decimal Equivalents of Number Size Drills

No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches
1	0.2280	11	0.1910	21	0.1590	31	0.1200	41	0.0960	51	0.0670	61	0.0390	71	0.0260
2	0.2210	12	0.1890	22	0.1570	32	0.1180	42	0.0935	52	0.0635	62	0.0380	72	0.0250
3	0.2130	13	0.1850	23	0.1540	33	0.1130	43	0.0890	53	0.0595	63	0.0370	73	0.0240
4	0.2090	14	0.1820	24	0.1520	34	0.1110	44	0.0880	54	0.0590	64	0.0360	74	0.0225
5	0.2055	15	0.1800	25	0.1495	35	0.1100	45	0.0820	55	0.0520	65	0.0350	75	0.0210
6	0.2040	16	0.1770	26	0.1470	36	0.1065	46	0.0810	56	0.0465	66	0.0350	76	0.0200
7	0.2010	17	0.1730	27	0.1440	37	0.1040	47	0.0785	57	0.0430	67	0.0320	77	0.0180
8	0.1990	18	0.1695	28	0.1405	38	0.1015	48	0.0760	58	0.0420	68	0.0310	78	0.0160
9	0.1960	19	0.1660	29	0.1360	39	0.0995	49	0.0730	59	0.0410	69	0.0292	79	0.0145
10	0.1935	20	0.1610	30	0.1285	40	0.0980	50	0.0700	60	0.0400	70	0.0280	80	0.0135

Decimal Equivalents of Letter Size Drills

Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches
Z	0.413	W	0.386	T	0.358	Q	0.332	N	0.302	K	0.281	H	0.266	E	0.250
Y	0.404	V	0.377	S	0.348	P	0.323	M	0.295	J	0.277	G	0.261	D	0.246
X	0.397	U	0.368	R	0.339	O	0.316	L	0.290	I	0.272	F	0.257	C	0.242

Basic Screw Thread Dimensions and Tap Drill Sizes of American National Coarse and Fine Thread Series

Screw Size	Threads per Inch		Basic Dimensions in Inches				Commercial Tap Drill Tap Drill to Produce Approx. 75% Full Thread		Body Drill	Decimal Equiv.	Threads per Inch		Basic Dimensions in Inches				Commercial Tap Drill Tap Drill to Produce Approx. 75% Full Thread		
	N C Coarse Thrd. Series	N F Fine Thrd. Series	Major Diam.	Pitch Diam.	Single Depth of Thrd.	Minor or Root Diam.	Screw Size	N C Coarse Thrd. Series			N F Fine Thrd. Series	Major Diam.	Pitch Diam.	Single Depth of Thread	Minor or Root Diam.	Tap Drill	Decimal Eqn.		
	0	1	2	3	4	5	1/16	1/8			1/4	3/8	1/2	5/8	3/4	7/8	1		
0		80	.090	.0519	.00812	.0438	3/4	.0469	52	.0635	7/16	14	--	.4375	.3911	.04639	.3447	U	.3680
1	64		.073	.0629	.01015	.0527	3/4	.0595	47	.0785	7/16	20	.4375	.4050	.03248	.3725	1/16	.3906	
2	56	72	.073	.0640	.00812	.0520	3/4	.0595	47	.0785	1/2	13	--	.5000	.4500	.04996	.4001	3/16	.4219
3	48	64	.086	.0754	.01160	.0628	50	.0700	42	.0935	1/2	20	.5000	.4675	.03248	.4350	3/16	.4531	
4	40	56	.099	.0855	.01353	.0719	47	.0785	37	.1040	9/16	12	--	.5625	.5084	.05413	.4542	1/4	.4844
5	36	48	.109	.0974	.01624	.0795	45	.0820	37	.1040	1	11	--	.5625	.5264	.03608	.4903	1/4	.5156
6	32	44	.112	.0958	.01624	.0795	43	.0890	31	.1200	1 1/4	11	--	.6250	.5660	.05905	.5069	5/16	.5313
8	24	32	.125	.1088	.01924	.0925	42	.0935	31	.1200	1 1/2	18	.6250	.5880	.03608	.5528	3/8	.5781	
10	20	28	.138	.1218	.02300	.1074	38	.1015	29	.1360	3/4	10	--	.6875	.6250	.06495	.6201	1/2	.6500
12	18	24	.147	.1250	.02706	.1161	37	.1040	29	.1360	7/8	16	.7500	.7094	.04059	.6688	1/2	.6875	
1/4	20	28	.164	.1437	.02930	.1234	36	.1065	27	.1440	7/8	9	--	.8750	.8028	.07217	.7307	3/4	.7500
1/2	28	36	.190	.1697	.03600	.1494	33	.1130	27	.1440	1	14	.8750	.8286	.04639	.7822	1 1/8	.8125	
3/4	18	24	.216	.1928	.04320	.1696	29	.1360	18	.1695	1	8	--	1.0000	.9188	.08119	.8376	7/8	.8750
1	16	20	.2500	.2268	.05000	.1969	25	.1495	9	.1960	1 1/4	14	.9375	1.0000	.9536	.04639	.9072	1 1/2	.9375
1 1/4	16	20	.2500	.2268	.05000	.1969	25	.1495	9	.1960	1 1/4	7	--	1.1250	1.0322	.09279	.9394	1 3/4	.9844
1 1/2	16	20	.2500	.2268	.05000	.1969	25	.1495	9	.1960	1 1/2	12	.9375	1.0709	.05413	1.0167	1 5/8	1.0469	
2	16	20	.3125	.2854	.05000	.2036	21	.1590	9	.2110	1 3/4	7	--	1.2500	1.1572	.09279	1.0644	1 7/8	1.1094
2 1/4	16	20	.3125	.2854	.05000	.2036	21	.1590	9	.2110	1 3/4	12	.9375	1.2667	.05413	1.1417	2	1.1719	
2 1/2	16	20	.3125	.2854	.05000	.2036	21	.1590	9	.2110	1 5/8	6	--	1.2500	1.1959	.05413	1.1417	2 1/8	1.2188
3	16	20	.3750	.3344	.04059	.2938	18	.1840	7	.2210	2	12	.9375	1.3209	.05413	1.2667	2 1/4	1.2969	
3 1/4	16	20	.3750	.3344	.04059	.2938	18	.1840	7	.2210	2	16	.9375	1.3917	.10825	1.2835	2 3/8	1.3438	
3 1/2	16	20	.3750	.3344	.04059	.2938	18	.1840	7	.2210	2	20	.9375	1.5000	1.4459	.05413	1.3917	2 1/2	1.4219
4	16	20	.4375	.3911	.04639	.3447	14	.2010	5	.2410	2 1/4	5	--	1.7500	1.6201	.12990	1.4902	1 5/8	1.5625
4 1/4	16	20	.4375	.3911	.04639	.3447	14	.2010	5	.2410	2 1/4	6	--	2.0000	1.8557	.14434	1.7113	1 3/4	1.7813

N C=American National Coarse Thread Series. N F=American National Fine Thread Series.
Pitch Diameter=Major diameter minus single depth of thread.
Single Depth of Thread—.6495÷Number of threads per inch.
Tap Drill: To find the diameter of a tap drill that will allow approximately 75% full thread, subtract the pitch (which is 1÷number of threads per inch) from the major diameter. The result will be the diameter of the drill. Select the drill nearest to this size.

Different Standards for Wire Gages in Use in the United States Dimensions of Sizes in Decimal Parts of an Inch

Number of Wire Gage	American R. & S.	Birmingham or Stub's Wire	Washburn & Moen, Worcester, Mass.	W. & M. Steel Music Wire	S. & W. Co.'s Wire Gage	Imperial Wire Gage	U.S. Standard Gage for Sheet and Plate Iron and Steel	Number of Wire Gage	American R. & S.	Birmingham or Stub's Wire	Washburn & Moen, Worcester, Mass.	W. & M. Steel Music Wire	S. & W. Co.'s Wire Gage	Imperial Wire Gage	U.S. Standard Gage for Sheet and Plate Iron and Steel
00000000				.0083	.....	.....	17	.045257	.058	.0540	.0377	.039	.056	.....	.05625
00000000				.0087	.....	.....	18	.040303	.049	.0475	.0395	.041	.048	.....	.050
00000000				.0095	.004	.....	19	.035849	.042	.0410	.0414	.043	.040	.....	.04375
00000000				.010	.005	.....	20	.031961	.035	.0348	.0343	.045	.036	.....	.0375
00000000				.0107	.....	.....	21	.028462	.032	.03175	.046	.047	.032	.....	.034375
00000000				.011	.006	.....	22	.025347	.028	.0286	.0483	.049	.028	.....	.03125
00000000				.012	.007	.....	23	.022571	.025	.0258	.051	.051	.024	.....	.028125
00000000				.013	.008	.....	24	.0201	.022	.0220	.055	.055	.022	.....	.025
00000000				.014	.009	.....	25	.0179	.020	.0204	.0586	.059	.020	.....	.021875
00000000				.015	.010	.....	26	.01594	.018	.0181	.0626	.063	.018	.....	.01875
00000000				.016	.011	.....	27	.014195	.016	.0173	.0658	.067	.0164	.....	.0171875
00000000				.017	.012	.....	28	.012641	.014	.0162	.072	.071	.0149	.....	.015625
00000000				.018	.013	.....	29	.011257	.013	.0150	.076	.075	.0136	.....	.0140625
00000000				.019	.014	.....	30	.010025	.012	.0140	.080	.080	.0124	.....	.0125
00000000				.020	.015	.....	31	.008928	.010	.0132	.....	.085	.0116	.....	.01015625
00000000				.021	.016	.....	32	.00795	.009	.0128	.....	.090	.0108	.....	.009375
00000000				.022	.017	.....	33	.00708	.008	.0118	.....	.095	.010	.....	.008375
00000000				.023	.018	.....	34	.006304	.007	.0104	.....	.....	.0092	.....	.0078125
00000000				.024	.019	.....	35	.005614	.006	.0095	.....	.....	.0084	.....	.00703125
00000000				.025	.020	.....	36	.00505	.005	.0085	.....	.....	.0076	.....	.00640625
00000000				.026	.021	.....	37	.00453	.....	.....	.....	.....	.0068	.....	.0059375
00000000				.027	.022	.....	38	.00405	.....	.....	.....	.....	.0062	.....	.00546875
00000000				.028	.023	.....	39	.00361	.....	.....	.....	.....	.0056	.....	.00500000
00000000				.029	.024	.....	40	.00319	.....	.....	.....	.....	.0050	.....	.00453125
00000000				.030	.025	.....	41	.00280	.....	.....	.....	.....	.0045	.....	.0040625
00000000				.031	.026	.....	42	.00243	.....	.....	.....	.....	.0040	.....	.00360000
00000000				.032	.027	.....	43	.00209	.....	.....	.....	.....	.0036	.....	.00312500
00000000				.033	.028	.....	44	.00177	.....	.....	.....	.....	.0032	.....	.00265625
00000000				.034	.029	.....	45	.00147	.....	.....	.....	.....	.0028	.....	.00218750
00000000				.035	.030	.....	46	.00119	.....	.....	.....	.....	.0024	.....	.00171875
00000000				.036	.031	.....	47	.00093	.....	.....	.....	.....	.0020	.....	.00125000
00000000				.037	.032	.....	48	.00069	.....	.....	.....	.....	.0016	.....	.00078125
00000000				.038	.033	.....	49	.00046	.....	.....	.....	.....	.0012	.....	.000390625
00000000				.039	.034	.....	50	.00025	.....	.....	.....	.....	.0008	.....	.0001953125

High Temperatures Judged by Color

Colors for Tempering

Degrees Centigrade	Degrees Fahrenheit	Heat Temperatures Judged by Color	Degrees Centigrade	Degrees Fahrenheit	Colors for Tempering
400	752	Red Heat, Visible in the Dark	221.1	430	Very Pale Yellow
474	885	Red Heat, Visible in the Twilight	226.7	440	Light Yellow
525	975	Red Heat, Visible in the Daylight	232.2	450	Pale Straw-Yellow
581	1077	Red Heat, Visible in the Sunlight	237.8	460	Straw-Yellow
700	1292	Dark Red	243.3	470	Deep Straw-Yellow
800	1472	Dull Cherry-Red	248.9	480	Dark Yellow
900	1652	Cherry-Red	254.4	490	Yellow-Brown
1000	1832	Bright Cherry-Red	260.0	500	Brown-Yellow
1100	2012	Orange-Red	265.6	510	Spotted Red-Brown
1200	2192	Orange-Yellow	271.1	520	Brown-Purple
1300	2372	Yellow-White	276.7	530	Light Purple
1400	2552	White Welding Heat	282.2	540	Full Purple
1500	2732	Brilliant White	287.8	550	Dark Purple
1600	2912	Dazzling White (Bluish-White)	293.3	560	Full Blue
			298.9	570	Dark Blue

Thermometer Temperatures

Comparison of Centigrade and Fahrenheit

Let C=No. of Degrees Centigrade; F=No. of Degrees Fahrenheit

Then to convert Centigrade to Fahrenheit: $\frac{9C}{5} + 32 = F$

Fahrenheit to Centigrade: $\frac{5(F-32)}{9} = C$

Absolute Temperature: $-273.1 C = -459.6 F$

Sizes of Tap Drills Briggs Pipe Standard

Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.
1/8-27	R	1/2-14	3/8-22	1 1/4-11 1/2	1 1/8-11	2 1/2-8	2 1/4-8
1/4-18	7/16-24	3/4-14	1 1/8-18	1 1/2-11 1/2	1 3/8-11	3-8	3 1/4-8
3/8-18	1 1/8-18	1-11 1/2	1 1/4-18	2-11 1/2	2 1/8-11	.....	.....

Table of Pitch Diameters

For Whitworth Standard of Screw Threads

Caliper Reading or Pitch Diameter for Whitworth Threads = $D - \frac{.640}{N}$

Diameter Inches D	Threads per Inch N	Caliper Reading or Pitch Diameter $D - \frac{.640}{N}$	Single Depth of Thread $\frac{.640}{N}$	Diameter Inches D	Threads per Inch N	Caliper Reading or Pitch Diameter $D - \frac{.640}{N}$	Single Depth of Thread $\frac{.640}{N}$
.....	48	.....	.0133	.....	24	.....	.0267
.....	46	.....	.0139	.....	22	.....	.0291
.....	44	.....	.0146	.....	20	.....	.0320
.....	42	.....	.0152	.....	18	.....	.0355
.....	40	.....	.0160	.....	16	.....	.0400
.....	38	.....	.0168	.....	14	.....	.0457
.....	36	.....	.0178	.....	12	.....	.0533
.....	34	.....	.0188	.....	11	.....	.0592
.....	32	.....	.0200	.....	10	.....	.0680
.....	30	.....	.0213	.....	9	.....	.0792
.....	28	.....	.0229	.....	8	.....	.0960
.....	26	.....	.0246	.....	7	.....	.1200

Table of Pitch Diameters for Metric Standard of Screw Threads, See Page 154.

Tapers Per Foot and Corresponding Angles

Taper per Foot	INCLUDED ANGLE			ANGLE WITH CENTER LINE			Taper per Foot	INCLUDED ANGLE			ANGLE WITH CENTER LINE			Taper per Foot	INCLUDED ANGLE			ANGLE WITH CENTER LINE		
	Deg.	Min.	Sec.	Deg.	Min.	Sec.		Deg.	Min.	Sec.	Deg.	Min.	Sec.		Deg.	Min.	Sec.	Deg.	Min.	Sec.
1/64	0	4	28	0	2	14	31/32	4	37	20	2	18	40	33/4	17	45	40	8	52	50
1/32	0	8	58	0	4	29	1	4	46	18	2	23	9	37/8	18	20	34	9	16	17
1/16	0	17	54	0	8	57	1 1/16	5	4	12	2	32	6	4	18	55	28	9	27	44
3/32	0	26	52	0	13	26	1 1/8	5	21	44	2	40	52	4 1/8	19	30	18	9	45	9
1/8	0	35	48	0	17	54	1 1/4	5	39	54	2	49	57	4 1/4	20	5	2	10	2	31
5/32	0	44	44	0	22	22	1 1/2	5	57	48	2	58	54	4 3/8	20	39	44	10	19	52
3/16	0	53	44	0	26	52	1 5/16	6	15	38	3	7	49	4 1/2	21	14	2	10	37	1
7/32	1	2	34	0	31	17	1 3/8	6	33	26	3	16	43	4 5/8	21	48	54	10	54	27
1/4	1	11	36	0	35	48	1 7/16	6	51	20	3	25	40	4 3/4	22	23	22	11	11	41
9/32	1	20	30	0	40	15	1 1/2	7	9	10	3	34	35	4 7/8	22	57	48	11	28	54
5/16	1	29	30	0	44	45	1 5/8	7	26	58	3	43	29	5	23	32	12	11	46	6
11/32	1	38	22	0	49	11	1 5/16	8	4	48	3	52	24	5 1/8	24	6	28	12	3	14
3/8	1	47	24	0	53	42	1 11/16	8	2	38	4	1	19	5 1/4	24	40	42	12	20	21
7/16	1	56	24	0	58	12	1 3/4	8	20	26	4	10	13	5 3/8	25	14	48	12	37	24
1/2	2	5	18	1	2	39	1 13/16	8	38	16	4	19	8	5 1/2	25	48	48	12	54	24
5/8	2	14	16	1	7	8	1 11/8	8	56	2	4	28	1	5 3/4	26	22	52	13	11	26
3/4	2	23	10	1	11	35	1 5/8	9	13	50	4	36	55	5 5/8	26	56	46	13	28	23
7/8	2	32	4	1	16	2	2	9	31	36	4	45	48	5 7/8	27	30	34	13	45	17
15/16	2	41	4	1	20	32	2 1/16	10	7	10	5	3	35	6	28	4	2	14	2	1
1	2	50	2	1	25	1	2 1/4	10	42	42	5	21	21	6 1/8	28	37	58	14	18	59
1 1/16	2	59	2	1	29	31	2 3/8	11	18	10	5	39	5	6 1/4	29	11	34	14	35	47
1 1/8	3	7	56	1	33	58	2 1/2	11	53	36	5	56	48	6 3/8	29	45	18	14	52	39
1 1/4	3	16	54	1	38	27	2 5/8	12	29	2	6	14	31	6 1/2	30	18	26	15	9	13
1 1/2	3	25	50	1	42	55	2 3/4	13	4	24	6	32	12	6 5/8	30	51	48	15	25	54
1 3/4	3	34	44	1	47	22	2 7/8	13	39	42	6	49	51	6 3/4	31	25	2	15	42	31
1 5/8	3	43	44	1	51	52	3	14	15	0	7	7	30	6 7/8	31	58	10	15	59	5
1 7/8	3	52	38	1	56	19	3 1/8	14	50	14	7	25	7	7	32	31	12	16	15	36
2	4	1	36	2	0	48	3 1/4	15	25	24	7	42	42	7 1/8	33	4	8	16	32	4
2 1/8	4	10	32	2	5	16	3 1/2	16	0	34	8	0	17	7 1/4	33	36	40	16	48	20
2 1/4	4	19	34	2	9	47	3 3/4	16	35	40	8	17	50	7 3/8	34	9	50	17	4	55
2 1/2	4	28	24	2	14	12	3 5/8	17	10	40	8	35	20							

Standard Lumber Measurement Table

Size Inches	LENGTH IN FEET OF JOISTS, SCANTLING AND TIMBER										Size Inches	LENGTH IN FEET OF JOISTS, SCANTLING AND TIMBER									
	12	14	16	18	20	22	24	26	28	30		12	14	16	18	20	22	24	26	28	30
2x 4	8	9	11	12	13	15	16	17	19	20	4x10	40	47	53	60	67	73	80	87	93	100
2x 6	12	14	16	18	20	22	24	26	28	30	4x12	48	56	64	72	80	88	96	104	112	120
2x 8	16	19	21	24	27	29	32	35	37	40	6x 6	36	42	48	54	60	66	72	78	84	90
2x10	20	23	27	30	33	37	40	43	47	50	6x 8	48	56	64	72	80	88	96	104	112	120
2x12	24	28	32	36	40	44	48	52	56	60	6x10	60	70	80	90	100	110	120	130	140	150
2x14	28	33	37	42	47	51	56	61	65	70	6x12	72	84	96	108	120	132	144	156	168	180
3x 4	12	14	16	18	20	22	24	26	28	30	8x 8	64	75	85	96	107	117	128	139	149	160
3x 6	18	21	24	27	30	33	36	39	42	45	8x10	80	93	107	120	133	147	160	173	187	200
3x 8	24	28	32	36	40	44	48	52	56	60	8x12	96	112	128	144	160	176	192	208	224	240
3x10	30	35	40	45	50	55	60	65	70	75	10x10	100	117	133	150	167	183	200	217	233	250
3x12	36	42	48	54	60	66	72	78	84	90	10x12	120	140	160	180	200	220	240	260	280	300
3x14	42	49	56	63	70	77	84	91	98	105	12x12	144	168	192	216	240	264	288	312	336	360
4x 4	16	19	21	24	27	29	32	35	37	40	12x14	168	196	224	252	280	308	336	364	392	420
4x 6	24	28	32	36	40	44	48	52	56	60	14x14	196	229	261	294	327	359	392	425	457	490
4x 8	32	37	43	48	53	59	64	69	75	80											

Estimated Weights of Lumber

Type	Pounds per Sq. Ft.	Type	Pounds per Sq. Ft.	Type	Pounds per Sq. Ft.	Type	Pounds per Sq. Ft.	Type	Pounds per Sq. Ft.	Type	Pounds per Sq. Ft.
Walnut, Dry 4		Ash, Dry 3 1/4		Hickory, Dry 5		Sycamore, Dry 3 3/4		Basswood, Dry 2 1/2		Whitewood, Dry 2 3/4	
Walnut, Green 5		Ash, Green 4 1/2		Hickory, Green 6 1/4		Sycamore, Green 4 1/2		Basswood, Green 4		Whitewood, Green 4	
Cherry, Dry 3 1/2		Maple, Dry 4 1/2		Oak, Dry 4 1/2		Chesnut, Dry 3 1/2		Butternut, Dry 3			
Cherry, Green 4 1/2		Maple, Green 6		Oak, Green 5 1/4		Chesnut, Green 4 1/2		Butternut, Green 4			

Tapers

Tapers from 1/16 to 1 1/4 Inch per Foot—Amount of Taper for Lengths Up to 24 Inches

Length Tapered, Inches	TAPER PER FOOT									
	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	1	$1\frac{1}{4}$
$\frac{1}{32}$	.0002	.0002	.0003	.0007	.0010	.0013	.0016	.0020	.0026	.0033
$\frac{1}{16}$	.0003	.0005	.0007	.0013	.0020	.0026	.0033	.0039	.0052	.0065
$\frac{1}{8}$	.0007	.0010	.0013	.0026	.0039	.0052	.0065	.0078	.0104	.0130
$\frac{3}{16}$	.0010	.0015	.0020	.0039	.0059	.0078	.0098	.0117	.0156	.0195
$\frac{1}{4}$	.0013	.0020	.0026	.0052	.0078	.0104	.0130	.0156	.0208	.0260
$\frac{5}{16}$	.0016	.0024	.0033	.0065	.0098	.0130	.0163	.0195	.0260	.0326
$\frac{3}{8}$	.0020	.0029	.0039	.0078	.0117	.0156	.0195	.0234	.0312	.0391
$\frac{7}{16}$	.0023	.0034	.0046	.0091	.0137	.0182	.0228	.0273	.0365	.0456
$\frac{1}{2}$	.0026	.0039	.0052	.0104	.0156	.0208	.0260	.0312	.0417	.0521
$\frac{9}{16}$	.0029	.0044	.0059	.0117	.0176	.0234	.0293	.0352	.0469	.0586
$\frac{5}{8}$	.0033	.0049	.0065	.0130	.0195	.0260	.0326	.0391	.0521	.0651
$1\frac{1}{16}$	.0036	.0054	.0072	.0143	.0215	.0286	.0358	.0430	.0573	.0716
$\frac{3}{4}$	.0039	.0059	.0078	.0156	.0234	.0312	.0391	.0469	.0625	.0781
$1\frac{1}{8}$	.0042	.0063	.0085	.0169	.0254	.0339	.0423	.0508	.0677	.0846
$\frac{7}{8}$	.0046	.0068	.0091	.0182	.0273	.0365	.0456	.0547	.0729	.0911
$1\frac{1}{4}$	.0049	.0073	.0098	.0195	.0293	.0391	.0488	.0586	.0781	.0977
1	.0052	.0078	.0104	.0208	.0312	.0417	.0521	.0625	.0833	.1042
2	.0104	.0156	.0208	.0417	.0625	.0833	.1042	.125	.1667	.2083
3	.0156	.0234	.0312	.0625	.0937	.1250	.1562	.1875	.250	.3125
4	.0208	.0312	.0417	.0833	.125	.1667	.2083	.250	.3333	.4167
5	.0260	.0391	.0521	.1042	.1562	.2083	.2604	.3125	.4167	.5208
6	.0312	.0469	.0625	.125	.1875	.250	.3125	.375	.500	.625
7	.0365	.0547	.0729	.1458	.2187	.2917	.3646	.4375	.5833	.7292
8	.0417	.0625	.0833	.1667	.250	.3333	.4167	.500	.6667	.8333
9	.0469	.0703	.0937	.1875	.2812	.375	.4687	.5625	.750	.9375
10	.0521	.0781	.1042	.2083	.3125	.4167	.5208	.625	.8333	1.0417
11	.0573	.0859	.1146	.2292	.3437	.4583	.5729	.6875	.9167	1.1458
12	.0625	.0937	.125	.250	.375	.500	.625	.750	1.000	1.250
13	.0677	.1016	.1354	.2708	.4062	.5417	.6771	.8125	1.0833	1.3542
14	.0729	.1094	.1458	.2917	.4375	.5833	.7292	.875	1.1667	1.4583
15	.0781	.1172	.1562	.3125	.4687	.625	.7812	.9375	1.250	1.5625
16	.0833	.125	.1667	.3333	.500	.6667	.8333	1.000	1.3333	1.6667
17	.0885	.1328	.1771	.3542	.5312	.7083	.8854	1.0625	1.4167	1.7708
18	.0937	.1406	.1875	.3750	.5625	.750	.9375	1.125	1.500	1.875
19	.0990	.1484	.1979	.3958	.5937	.7917	.9896	1.1875	1.5833	1.9792
20	.1042	.1562	.2083	.4167	.625	.8333	1.0417	1.250	1.6667	2.0833
21	.1094	.1641	.2187	.4375	.6562	.875	1.0937	1.3125	1.750	2.1875
22	.1146	.1719	.2292	.4583	.6875	.9167	1.1458	1.375	1.8333	2.2917
23	.1198	.1797	.2396	.4792	.7187	.9583	1.1970	1.4375	1.9167	2.3958
24	.125	.1875	.250	.500	.750	1.000	1.250	1.500	2.000	2.500

Comparison of Log Scale Values

This table gives board foot content of a 16-foot log, of diameters 8 to 48 inches, in the four most extensively used log scales, i. e., Doyle, Scribner, Combination Doyle-Scribner and Decimal C. Decimal C values shown must be multiplied by ten to give footage.

Length of Log 16 Feet Board Feet by Log Scale																			
Diam. In.	Doyle	Scrib- ner	Doyle- Scrib- ner	Deci- mal C	Diam. In.	Doyle	Scrib- ner	Doyle- Scrib- ner	Deci- mal C	Diam. In.	Doyle	Scrib- ner	Doyle- Scrib- ner	Deci- mal C	Diam. In.	Doyle	Scrib- ner	Doyle- Scrib- ner	Deci- mal C
8	16	25	*16	3	19	225	240	*225	24	30	676	657	*657	66	41	1369	1272	1272	127
9	25	36	*25	4	20	256	280	*256	28	31	729	710	*710	71	42	1444	1343	1343	134
10	36	49	*36	6	21	289	304	*289	30	32	784	736	*736	74	43	1521	1396	1396	140
11	49	64	*49	7	22	324	334	*324	33	33	841	784	*784	78	44	1600	1480	1480	148
12	64	79	*64	8	23	361	377	*361	38	34	900	800	*800	80	45	1681	1518	1518	159
13	81	97	*81	10	24	400	404	*400	40	35	961	876	*876	88	46	1764	1587	1587	159
14	100	114	*100	11	25	441	459	*441	46	36	1024	923	*923	92	47	1849	1656	1656	166
15	121	142	*121	14	26	484	500	*484	50	37	1089	1029	*1029	103	48	1936	1728	1728	173
16	144	159	*144	16	27	529	548	*529	55	38	1156	1068	*1068	107	...	...	...	...	...
17	169	185	*169	18	28	576	582	*576	58	39	1225	1120	*1120	112	...	...	...	...	...
18	196	213	*196	21	29	625	609	*609	61	40	1296	1204	*1204	120	...	...	...	...	...

*Regular Doyle values. †Regular Scribner values.

To Set Out a Right Angle with a Chain

Take 40 links for the base, 30 links for the perpendicular and 50 for the hypotenuse

Useful Numbers in Surveying

For Converting		Multiplier	Converse	For Converting		Multiplier	Converse
Feet	into Links	1.515	.66	Feet	into Miles	.0001894	5280
Yards	into Links	4.545	.22	Yards	into Miles	.0005682	1760
Square Feet	into Acres	.0000230	43560	Chains	into Miles	.0125	80
Square Yards	into Acres	.0002066	4840				

Chaining on Slopes

A = Angle of slope with horizon.

L = Length of line chained on the slope.

l = Length of line reduced to the horizontal.

l = L.K. K = cos A.

Table Showing Values of K

A°	K	A°	K	A°	K	A°	K	A°	K	A°	K	A°	K	A°	K
5	.996	9	.988	13	.974	17	.956	21	.934	25	.906	29	.875	33	.839
6	.994	10	.985	14	.970	18	.951	22	.927	26	.899	30	.866	34	.829
7	.992	11	.982	15	.966	19	.945	23	.920	27	.891	31	.857	35	.819
8	.990	12	.978	16	.961	20	.940	24	.913	28	.883	32	.848	36	.809

Reduction of Base Lines to Level of Sea

L = Length of base line measured in feet.

h = Means height of base line above sea level in feet.

c = Correction in feet to be subtracted from the length of the base line.

$$c = \frac{Lh}{20,890,592} \quad (\text{Log } 20,890,592 = 7.3199507)$$

Number of U.S. Gallons in Round Tank for One Foot in Depth

DIAMETER OF TANK		Capacity U.S. Gallons	Cubic Feet and Area Square Feet	DIAMETER OF TANK		Capacity U.S. Gallons	Cubic Feet and Area Square Feet	DIAMETER OF TANK		Capacity U.S. Gallons	Cubic Feet and Area Square Feet
Feet	Inches			Feet	Inches			Feet	Inches		
1	..	5.87	.785	5	3	161.93	21.65	15	6	1411.5	188.69
1	1	6.89	.922	5	4	167.12	22.34	15	9	1457.4	194.83
1	2	8.	1.069	5	5	172.38	23.04	16	..	1504.1	201.06
1	3	9.18	1.227	5	6	177.72	23.76	16	3	1551.4	207.39
1	4	10.44	1.396	5	7	183.15	24.48	16	6	1599.5	213.82
1	5	11.79	1.576	5	8	188.66	25.22	16	9	1648.4	220.35
1	6	13.22	1.767	5	9	194.25	25.97	17	..	1697.9	226.98
1	7	14.73	1.969	5	10	199.92	26.73	17	3	1748.2	233.71
1	8	16.32	2.182	5	11	205.67	27.49	17	6	1799.3	240.53
1	9	17.99	2.405	6	..	211.51	28.27	17	9	1851.1	247.45
1	10	19.75	2.640	6	3	229.50	30.68	18	..	1903.6	254.47
1	11	21.58	2.885	6	6	248.23	33.14	18	3	1956.8	261.59
2	..	23.50	3.142	6	9	267.69	35.78	18	6	2010.8	268.80
2	1	25.50	3.409	7	..	287.88	38.48	18	9	2065.5	276.12
2	2	27.58	3.687	7	3	308.81	41.28	19	..	2120.9	283.53
2	3	29.74	3.976	7	6	330.48	44.18	19	3	2177.1	291.04
2	4	31.99	4.276	7	9	352.88	47.17	19	6	2234	298.65
2	5	34.31	4.587	8	..	376.01	50.27	19	9	2291.7	306.35
2	6	36.72	4.909	8	3	399.88	53.46	20	..	2350.1	314.16
2	7	39.21	5.241	8	6	424.48	56.75	20	3	2409.2	322.06
2	8	41.78	5.585	8	9	449.82	60.13	20	6	2469.1	330.06
2	9	44.43	5.940	9	..	475.89	63.62	20	9	2529.6	338.16
2	10	47.16	6.305	9	3	502.70	67.20	21	..	2591.	346.36
2	11	49.98	6.681	9	6	530.24	70.88	21	3	2653	354.66
3	..	52.88	7.069	9	9	558.51	74.66	21	6	2715.8	363.05
3	1	55.86	7.467	10	..	587.52	78.54	21	9	2779.3	371.54
3	2	58.92	7.876	10	3	617.26	82.52	22	..	2843.6	380.13
3	3	62.06	8.296	10	6	647.74	86.59	22	3	2908.6	388.82
3	4	65.28	8.727	10	9	678.95	90.76	22	6	2974.3	397.61
3	5	68.58	9.168	11	..	710.90	95.03	22	9	3040.8	406.49
3	6	71.97	9.621	11	3	743.58	99.40	23	..	3108.	415.48
3	7	75.44	10.085	11	6	776.99	103.87	23	3	3175.9	424.66
3	8	78.99	10.559	11	9	811.14	108.43	23	6	3244.6	433.74
3	9	82.62	11.045	12	..	846.03	113.10	23	9	3314.	443.01
3	10	86.33	11.541	12	3	881.65	117.86	24	..	3384.1	452.39
3	11	90.13	12.048	12	6	918.	122.72	24	3	3455.	461.86
4	..	94.	12.566	12	9	955.09	127.66	24	6	3526.6	471.44
4	1	97.96	13.095	13	..	992.91	132.72	24	9	3597.9	481.11
4	2	102.	13.635	13	3	1031.5	137.89	25	..	3672.	490.87
4	3	106.12	14.186	13	6	1070.8	143.14	25	3	3745.8	500.74
4	4	110.32	14.748	13	9	1110.8	148.49	25	6	3820.3	510.71
4	5	114.61	15.321	14	..	1151.5	153.94	25	9	3896.6	520.77
4	6	118.97	15.90	14	3	1193.	159.48	26	..	3971.6	530.93
4	7	123.42	16.50	14	6	1235.3	165.13	26	3	4048.4	541.19
4	8	127.95	17.10	14	9	1278.2	170.87	26	6	4125.9	551.55
4	9	132.56	17.72	15	..	1321.9	176.71	26	9	4204.1	562.
4	10	138.25	18.35	15	3	1366.4	182.65				
4	11	142.02	18.99								
5	..	146.88	19.63								
5	1	151.82	20.29								
5	2	156.83	20.97								

To find the capacity of tanks larger than given in the table, set table for tank one-half of the given size, and multiply its capacity by 4, or one of one-third its size and multiply by 9, etc.

Thirty-one and one-half gallons equal one barrel.

To find the capacity of a square tank, find the capacity of a round tank with diameter same as length of side, and divide by .7854. A 10-foot diameter round tank 1 foot high holds 587.52 gallons. A square tank 10x10 feet by 1 foot high equals 587.52 divided by .7854 equals 748 gallons.

Three-Wire Measurement of Pitch Diameter of Screw Threads

Various methods of measuring the pitch diameter of a thread, such as thread micrometers, ball point micrometers and with three wires, are commonly employed. Of the various methods which have been tried, the three-wire method has been found to be the most accurate and satisfactory when properly carried out.

Following Are the Formulas for Use with Screw Thread Micrometer Calipers and the Three-Wire System

For 60° Sharp V and American National Forms
(American National Formerly Called U. S. Standard)

D = Outside Diameter of Screw.

N = Number of Threads per Inch.

P = Pitch of Thread..... = $\frac{1.000}{N}$

S = Single Depth of V Thread..... = $\frac{.8660}{N}$

S = Single Depth of U. S. Std. Thread..... = $\frac{.6495}{N}$

D = Pitch Diameter of Thread..... = $D - S$

WD = Wire Diameter..... = $P \times .57735$

DW = Diameter Over Wire..... = $(D - S) + (.86602 \times P)$

When selecting Wire other than correct size touching on pitch line, it should be the nearest size larger, using the following formula:

$$DW = (WD \times 3) - (P \times .866025) + D.$$

Table of Pitch Diameters
For Metric Standard of Screw Threads

Size mm.	Pitch		Size mm.	Pitch		Size mm.	Pitch		Size mm.	Pitch	
	Intl. Std.	French Std.		Intl. Std.	French Std.		Intl. Std.	French Std.		Intl. Std.	French Std.
2	.45	.50	9	1.25	1.00	20	2.50	2.50	32	....	3.50
3	.55	.50	10	1.50	1.50	22	2.50	2.50	33	3.50	3.50
4	.70	.75	11	1.50	1.50	24	3.00	3.00	34	....	3.50
5	.85	.75	12	1.75	1.50	26	3.00	3.00	36	4.00	4.00
6	1.00	1.00	14	2.00	2.00	27	3.00	....	38	....	4.00
7	1.00	1.00	16	2.00	2.00	28	....	3.00	39	4.00	....
8	1.25	1.00	18	2.50	2.50	30	3.50	3.50	40	....	4.00

Double Depth of Threads

Threads per Inch	Double Depth Whitworth Standard Thread			Threads per Inch	Double Depth U. S. Standard Thread			Threads per Inch	Double Depth Whitworth Standard Thread			Threads per Inch	Double Depth U. S. Standard Thread			Threads per Inch	Double Depth Whitworth Standard Thread			Threads per Inch	Double Depth U. S. Standard Thread		
	Standard	Sharp V	Whitworth		Standard	Sharp V	Whitworth		Standard	Sharp V	Whitworth		Standard	Sharp V	Whitworth		Standard	Sharp V	Whitworth		Standard	Sharp V	Whitworth
2 1/4	0.5774	0.7098	0.5692	9	0.1443	0.1925	0.1423	32	0.0406	0.0541	0.0400	62	0.0209	0.0279	0.0206	124	0.0104	0.0139	0.0102	248	0.0052	0.0069	0.0051
2 3/8	0.5470	0.7293	0.5392	10	0.1299	0.1732	0.1281	34	0.0382	0.0509	0.0377	64	0.0203	0.0271	0.0200	128	0.0101	0.0132	0.0100	256	0.0050	0.0066	0.0050
2 1/2	0.5196	0.6928	0.5123	11	0.1181	0.1575	0.1164	36	0.0361	0.0481	0.0356	66	0.0197	0.0263	0.0194	132	0.0099	0.0129	0.0098	264	0.0049	0.0064	0.0049
2 5/8	0.4949	0.6598	0.4879	12	0.1083	0.1443	0.1067	38	0.0342	0.0456	0.0337	68	0.0191	0.0255	0.0188	136	0.0095	0.0125	0.0094	272	0.0048	0.0062	0.0048
2 3/4	0.4724	0.6298	0.4657	13	0.0999	0.1332	0.0985	40	0.0325	0.0433	0.0320	70	0.0185	0.0248	0.0183	140	0.0093	0.0123	0.0092	280	0.0047	0.0061	0.0047
2 7/8	0.4518	0.6025	0.4454	14	0.0928	0.1257	0.0915	42	0.0309	0.0412	0.0305	72	0.0180	0.0241	0.0178	144	0.0091	0.0121	0.0090	288	0.0046	0.0060	0.0046
3	0.4330	0.5774	0.4269	15	0.0866	0.1155	0.0854	44	0.0295	0.0394	0.0291	74	0.0175	0.0234	0.0173	148	0.0089	0.0119	0.0088	296	0.0045	0.0059	0.0045
3 1/4	0.3997	0.5329	0.3940	16	0.0812	0.1083	0.0800	46	0.0282	0.0377	0.0278	76	0.0171	0.0228	0.0169	152	0.0087	0.0117	0.0086	304	0.0044	0.0058	0.0044
3 1/2	0.3712	0.4949	0.3659	18	0.0722	0.0962	0.0711	48	0.0271	0.0361	0.0267	78	0.0167	0.0222	0.0164	156	0.0085	0.0115	0.0084	312	0.0043	0.0057	0.0043
4	0.3248	0.4300	0.3202	20	0.0650	0.0866	0.0640	50	0.0260	0.0346	0.0256	80	0.0162	0.0217	0.0160	160	0.0083	0.0113	0.0082	320	0.0042	0.0056	0.0042
4 1/2	0.2987	0.3849	0.2946	22	0.0590	0.0787	0.0582	52	0.0250	0.0333	0.0246	82	0.0158	0.0211	0.0156	164	0.0081	0.0111	0.0080	324	0.0041	0.0055	0.0041
5	0.2598	0.3464	0.2561	24	0.0541	0.0722	0.0534	54	0.0241	0.0321	0.0237	84	0.0155	0.0206	0.0152	168	0.0080	0.0110	0.0079	328	0.0040	0.0054	0.0040
5 1/2	0.2362	0.3149	0.2328	26	0.0500	0.0666	0.0493	56	0.0232	0.0309	0.0229	86	0.0151	0.0201	0.0148	172	0.0079	0.0109	0.0078	332	0.0039	0.0053	0.0039
6	0.2165	0.2887	0.2134	27	0.0481	0.0642	0.0474	58	0.0224	0.0299	0.0221	88	0.0148	0.0196	0.0145	176	0.0078	0.0108	0.0077	336	0.0038	0.0052	0.0038
7	0.1856	0.2474	0.1830	28	0.0464	0.0619	0.0457	60	0.0217	0.0289	0.0213	90	0.0144	0.0192	0.0142	180	0.0077	0.0107	0.0076	340	0.0037	0.0051	0.0037
8	0.1624	0.2165	0.1601	30	0.0433	0.0577	0.0427																

Double Depth for U. S. Standard Thread..... = $\frac{1.299}{N}$

Double Depth for Sharp V Thread..... = $\frac{1.732}{N}$

Double Depth for Whitworth Standard Thread..... = $\frac{1.281}{N}$

Weight of Square and Round Bars of Steel

In Pounds Per Lineal Foot

Based on 489.6 Lbs. Per Cubic Foot

For Wrought Iron Deduct 2 Per Cent * For High-Speed Steel add 11 Per Cent

Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long	Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long	Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long	Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long
1/32	.0033	.0026	1 1/4	5.312	4.173	3	30.60	24.03	7	166.6	130.9
1/16	.0133	.0104	1 1/2	5.857	4.600	3 1/8	33.20	26.08	7 1/4	178.7	140.4
3/32	.0531	.0417	1 3/8	6.428	5.019	3 1/4	35.92	28.20	7 1/2	191.3	150.2
1/8	.1195	.0938	1 1/2	7.026	5.518	3 1/2	38.73	30.42	7 3/4	204.2	160.3
9/32	.2123	.1669	1 5/8	7.650	6.008	3 3/4	41.65	32.71	8	217.6	171.0
5/16	.3333	.2608	1 3/4	8.301	6.520	3 7/8	44.68	35.09	8 1/4	231.4	181.8
3/8	.4782	.3756	1 7/8	8.978	7.051	4	47.82	37.56	8 1/2	245.6	193.0
7/16	.6508	.5111	2	9.682	7.604	4 1/8	51.05	40.10	8 3/4	260.3	204.4
1/2	.8500	.6676	2 1/8	10.41	8.178	4 1/4	54.40	42.73	9	275.4	216.3
5/8	1.076	.849	2 1/4	11.17	8.773	4 1/2	57.85	45.47	9 1/4	291.1	228.5
3/4	1.328	1.043	2 3/8	11.95	9.388	4 3/4	61.41	48.24	9 1/2	306.8	241.0
7/8	1.608	1.262	2 1/2	12.76	10.02	5	65.00	51.07	9 3/4	323.2	253.9
1 1/8	1.913	1.502	2 3/4	13.60	10.68	5 1/8	68.65	54.07	10	340.0	267.0
1 1/4	2.245	1.763	2 5/8	14.47	11.35	5 1/4	72.43	57.85	10 1/4	357.2	280.6
1 1/2	2.603	2.044	2 7/8	15.35	12.06	5 1/2	76.31	60.25	10 1/2	374.9	294.4
1 3/8	2.989	2.347	3	16.25	12.76	5 3/4	80.24	62.71	10 3/4	392.9	308.6
1 1/2	3.400	2.670	3 1/8	17.17	13.52	6	84.30	65.24	11	411.4	323.1
1 5/8	3.838	3.014	3 1/4	18.12	14.31	6 1/8	88.43	69.61	11 1/4	430.3	337.9
1 3/4	4.303	3.379	3 1/2	19.10	15.15	6 1/4	92.61	72.07	11 1/2	449.6	353.1
1 7/8	4.795	3.766	3 3/4	20.10	16.03	6 1/2	96.94	74.61	11 3/4	469.4	368.6

To Compute The Weight Of Sheet Steel

Multiply the thickness by 40.8; the result is the weight in pounds per square foot.

Example: A piece of Sheet Steel is .005 inches thick, its weight is .005 x 40.8 = .204 lbs. per square foot.

To Compute The Weight Of Sheet Iron

Multiply the thickness by 40; the result is the weight in pounds per square foot.

Example: A piece of Sheet Iron is .005 inches thick, its weight is .005 x 40 = .200 lbs. per square foot.

Weight of Iron and Steel Sheets

Thickness by Birmingham Gage

No. of Gage	Thickness, Inches	Weight per Sq. Ft.	No. of Gage	Thickness, Inches	Weight per Sq. Ft.
0000	.454	18.16	17	.058	2.32
000	.425	17.00	18	.049	1.96
00	.38	15.20	19	.042	1.68
0	.34	13.60	20	.035	1.40
1	.3	12.00	21	.032	1.28
2	.284	11.36	22	.028	1.12
3	.259	10.36	23	.025	1.00
4	.238	9.52	24	.022	.88
5	.22	8.80	25	.02	.80
6	.203	8.12	26	.018	.72
7	.18	7.20	27	.016	.64
8	.165	6.60	28	.014	.56
9	.148	5.92	29	.013	.52
10	.134	5.36	30	.012	.48
11	.12	4.80	31	.011	.44
12	.109	4.36	32	.009	.36
13	.095	3.80	33	.008	.32
14	.083	3.32	34	.007	.28
15	.072	2.88	35	.005	.20
16	.065	2.60			

Thickness by American (or B. & S.) Gage

No. of Gage	Thickness, Inches	Weight per Sq. Ft.	No. of Gage	Thickness, Inches	Weight per Sq. Ft.
0000	.46	18.40	17	.0453	1.81
000	.4096	16.38	18	.0403	1.61
00	.3648	14.59	19	.0359	1.44
0	.3249	13.00	20	.0320	1.28
1	.2893	11.57	21	.0285	1.14
2	.2576	10.30	22	.0253	1.01
3	.2294	9.18	23	.0226	.904
4	.2043	8.17	24	.0201	.804
5	.1819	7.28	25	.0179	.716
6	.1620	6.48	26	.0159	.636
7	.1443	5.77	27	.0142	.568
8	.1285	5.14	28	.0126	.504
9	.1144	4.58	29	.0113	.452
10	.1019	4.08	30	.0100	.400
11	.0907	3.63	31	.0089	.356
12	.0808	3.23	32	.0080	.320
13	.0720	2.88	33	.0071	.284
14	.0741	2.56	34	.0063	.252
15	.0571	2.28	35	.0056	.224
16	.0508	2.03			

Specific gravity.....Iron 7.7.....Steel 7.854
Weight per

United States Standard Gage For Sheet and Plate Iron and Steel

Number of Gage	Approximate thickness in fractions of an inch	Approximate thickness in decimal part of an inch	Weight per square foot in ounces avoirdupois	Weight per square foot in pounds avoirdupois	Number of Gage	Approximate thickness in fractions of an inch	Approximate thickness in decimal part of an inch	Weight per square foot in ounces avoirdupois	Weight per square foot in pounds avoirdupois
0000000	$\frac{1}{16}$	.5	320	20.00	20	$\frac{3}{16}$	.0375	24	1.50
000000	$\frac{1}{8}$	.46875	300	18.75	21	$\frac{1}{4}$	.034375	22	1.375
00000	$\frac{3}{16}$	.4375	280	17.50	22	$\frac{1}{2}$	.03125	20	1.25
0000	$\frac{1}{2}$	.40625	260	16.25	23	$\frac{3}{4}$	.028125	18	1.125
000	$\frac{3}{4}$	.375	240	15.00	24	$\frac{1}{4}$	.025	16	1
00	$\frac{1}{2}$	.34375	220	13.75	25	$\frac{1}{2}$	.021875	14	.875
0	$\frac{1}{4}$	.3125	200	12.50	26	$\frac{1}{4}$	.01875	12	.75
1	$\frac{1}{8}$	.28125	180	11.25	27	$\frac{1}{4}$	.0171875	11	.6875
2	$\frac{1}{8}$	.265625	170	10.625	28	$\frac{1}{4}$	.015625	10	.625
3	$\frac{1}{8}$	.25	160	10.00	29	$\frac{1}{4}$	.0140625	9	.5625
4	$\frac{1}{8}$	.234375	150	9.375	30	$\frac{1}{4}$	.0125	8	.5
5	$\frac{1}{8}$	.21875	140	8.75	31	$\frac{1}{4}$	.0109375	7	.4375
6	$\frac{1}{8}$	.203125	130	8.125	32	$\frac{1}{4}$	.01015625	6 1/2	.40625
7	$\frac{1}{8}$	.1875	120	7.5	33	$\frac{1}{4}$	.009375	6	.375
8	$\frac{1}{8}$	.171875	110	6.875	34	$\frac{1}{4}$	.00859375	5 1/2	.34375
9	$\frac{1}{8}$	.15625	100	6.25	35	$\frac{1}{4}$	.0078125	5	.3125
10	$\frac{1}{8}$	.140625	90	5.625	36	$\frac{1}{4}$	.00703125	4 1/2	.28125
11	$\frac{1}{8}$	.125	80	5.00	37	$\frac{1}{4}$	.006640625	4 1/4	.265625
12	$\frac{1}{8}$	.109375	70	4.375	38	$\frac{1}{4}$	.00625	4	.25
13	$\frac{1}{8}$	.09375	60	3.75	39	$\frac{1}{4}$	.005859375	3 3/4	.234375
14	$\frac{1}{8}$	.078125	50	3.125	40	$\frac{1}{4}$	.00546875	3 1/2	.21875
15	$\frac{1}{8}$	.0703125	45	2.8125	41	$\frac{1}{4}$	.0052734375	3 1/4	.2109375
16	$\frac{1}{8}$	.0625	40	2.5	42	$\frac{1}{4}$	.005078125	3 1/4	.203125
17	$\frac{1}{8}$	.05625	36	2.25	43	$\frac{1}{4}$	.0048828125	3 1/4	.1953125
18	$\frac{1}{8}$	.05	32	2	44	$\frac{1}{4}$	.0046875	3	.1875
19	$\frac{1}{8}$	.04375	28	1.75					

29° Screw Thread

Acme Standard

The various parts of the 29° screw thread, Acme Standard, are obtained as follows:

$$\text{Width of point of tool for screw or tap thread} = \frac{.3707}{\text{Threads per Inch}} - .0052$$

$$\text{Width of screw or nut thread} = \frac{.3707}{\text{Threads per Inch}}$$

$$\text{Diameter of tap} = \text{Diameter of screw} + .020$$

$$\text{Diameter of tap or screw at root} = \text{Diameter of screw} - \left(\frac{1}{\text{Threads per Inch}} + .020 \right)$$

$$\text{Depth of thread} = \frac{1}{2 \times \text{Threads per Inch}} + .010$$

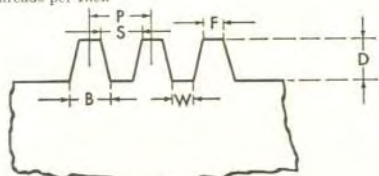


Table of Thread Parts

Threads per Inch	D	F	W	S	B	Threads per Inch	D	F	W	S	B
Depth of Thread	Width of Flat at Top of Tooth	Width of Flat at Bottom of Thread	Width of Space Between Top of Teeth	Width of Tooth at Root	Depth of Thread	Width of Flat at Top of Tooth	Width of Flat at Bottom of Thread	Width of Space Between Top of Teeth	Width of Tooth at Root	Depth of Thread	Width of Flat at Top of Tooth
1	.5100	.3707	.3655	.6293	.6345	5	.1100	.0741	.6689	.1259	.1311
1 1/2	.3851	.2781	.2729	.4721	.4773	6	.0933	.0618	.5566	.1049	.1101
1 1/4	.3433	.2471	.2419	.4196	.4248	7	.0814	.0530	.5078	.0908	.0950
1 3/4	.2967	.2188	.2066	.3596	.3648	8	.0725	.0463	.4611	.0787	.0839
2	.2600	.1854	.1802	.3146	.3198	9	.0656	.0412	.4260	.0699	.0751
2 1/2	.2167	.1483	.1431	.2517	.2569	10	.0600	.0371	.3919	.0629	.0681
3	.1767	.1236	.1184	.2097	.2149	12	.0517	.0309	.3257	.0524	.0576
4	.1350	.0927	.0875	.1573	.1625						

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