Starrett®

Precision, Quality, Innovation

BAND SAW BLADES

Bi-Metal

Carbide

Carbon

Portaband

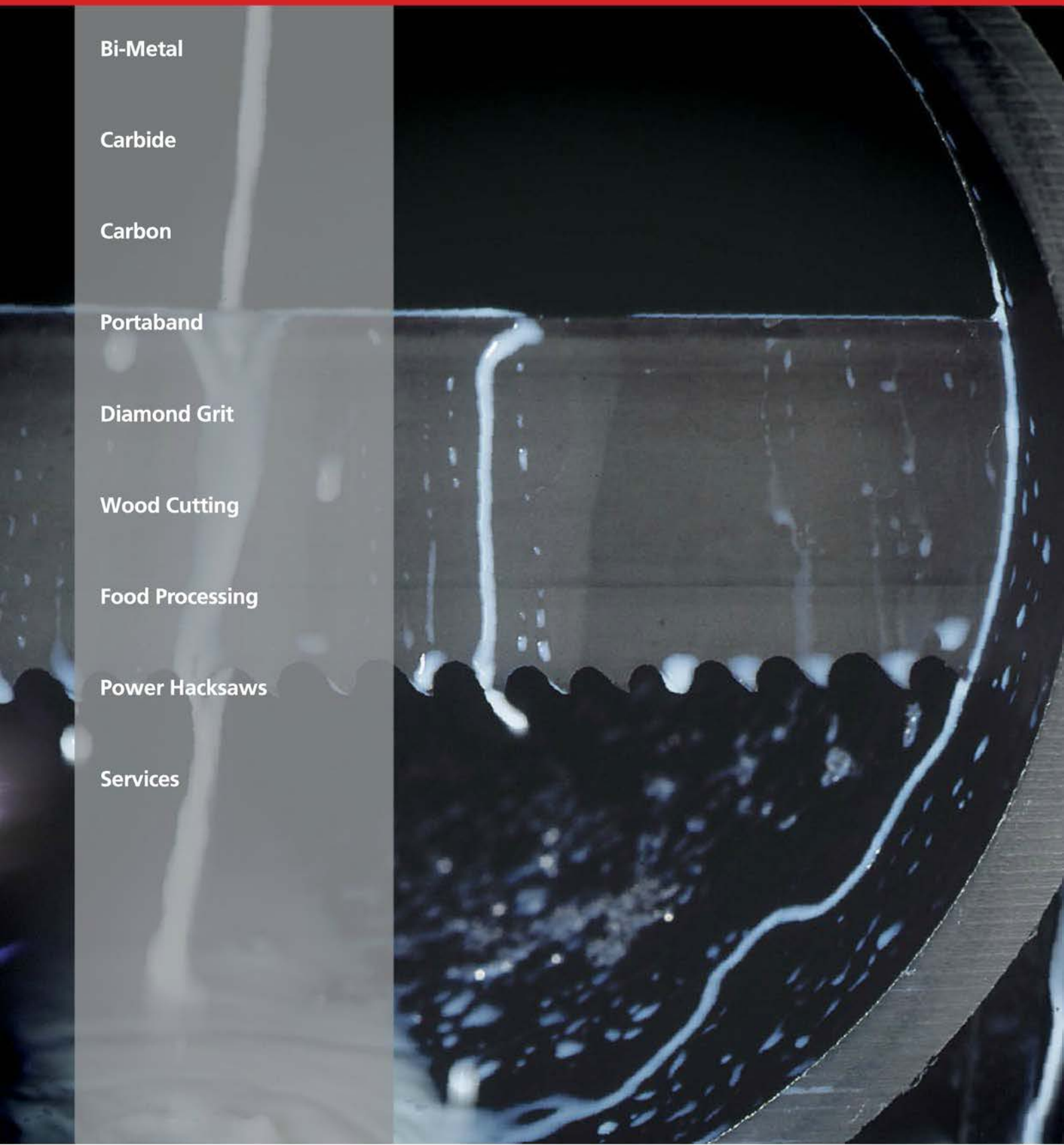
Diamond Grit

Wood Cutting

Food Processing

Power Hacksaws

Services



PRECISION, QUALITY, INNOVATION

For more than 130 years, manufacturers, builders and craftsmen worldwide have depended upon saws and precision tools from The L.S. Starrett Company to ensure the consistent quality of their manufacturing processes.

They know that the Starrett name on saw blades, hand tools and measuring tools means exceptional quality, innovative products and expert technical assistance.

With strict quality control, state-of-the-art equipment and an ongoing commitment to producing products with superior quality, the 5,000 plus products in today's Starrett line continue to be the most accurate, robust and durable tools available.

This catalog features Starrett Band Saw Blades, their applications and characteristics.

BAND SAW BLADES

DIAMOND GRIT

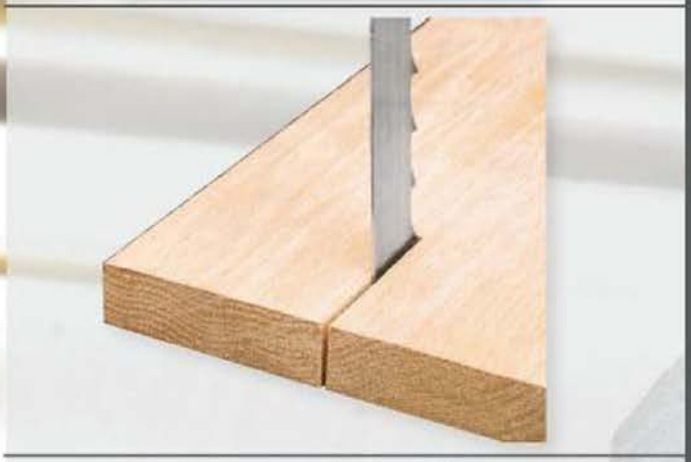
Band saw blade coated with diamond grains is ideal for cutting abrasive materials with precision and excellent finish.

34

CARBON

Suitable for horizontal and vertical machines with manual or gravity fed. A complete line with a wide range of widths, tooth pitches and shapes.

35



WOOD CUTTING

A selection of carbon and bi-metal blades ideal for a variety of wood cutting applications.

41

FOOD PROCESSING

Constructed of the best quality specialty steels, polished and hardened to resist corrosion and contamination. These blades are the ideal choice for accuracy and efficiency at any food processing plant.

45

POWER HACKSAWS

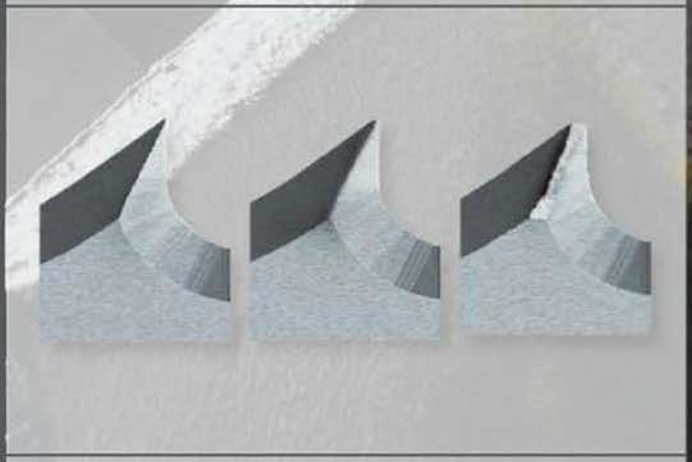
The Bi-Metal or Solid High-Speed Steel (HSS) Power Hacksaw blades are manufactured by Starrett, available in metric and inch.

51

RECOMMENDATIONS

Recommendations to ensure longer life and better blade performance. Break-in and installation instructions.

56



ACCESSORIES

Pocket Laser Tachometer kit with case, Band Saw Blade Tension Gage and Band Saw Blade Alignment Gage.

58

RESOURCES

Find information on the Starrett website, PDF documents, and the new PowerCalc App to get the best performance from your band saw blade.

59

BAND SAW BLADES

FACTORIES AROUND THE WORLD

1-Athol, Massachusetts, USA

2-Laguna Hills, Califórnia, USA

3-Waite Park, Minnesota, USA

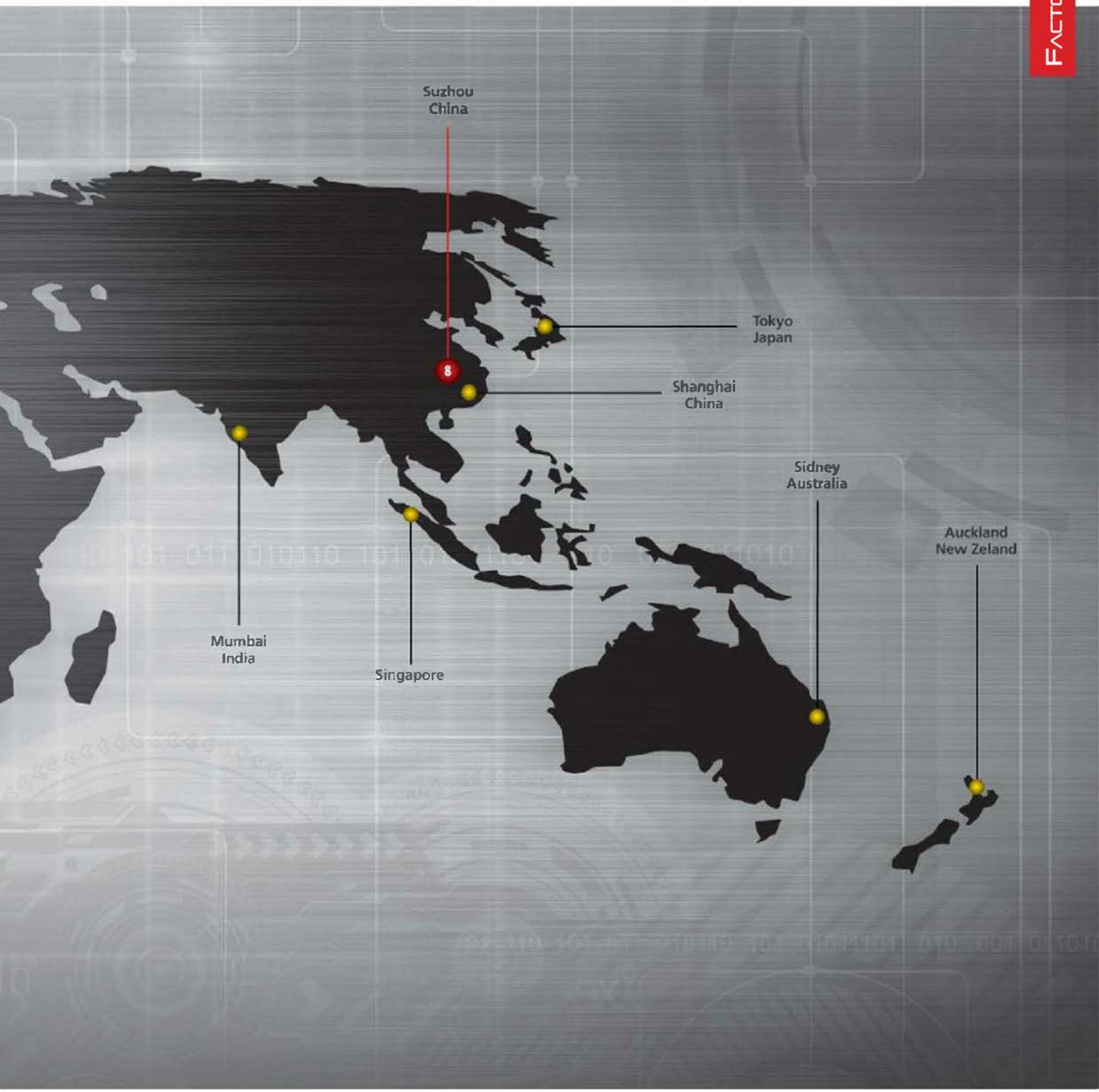
4-Cleveland, Ohio, USA

5-Mount Airy, North Carolina, USA

6-Itu, São Paulo, Brazil

7-Jedburgh, Scotland

8-Suzhou, China



TERMINOLOGY

A-WIDTH
Tip of the cutting edge to the back of the blade.

B-BLADE BODY
Distance between the back of the blade and the gullet.

C-LENGTH
Measurement along the back edge of the blade.

D-THICKNESS
Measurement of the body of the blade.

E-BACK EDGE
Opposite side of the blade from the teeth.

F-TOOTH PITCH
Distance from the tip of one tooth to the next tip.

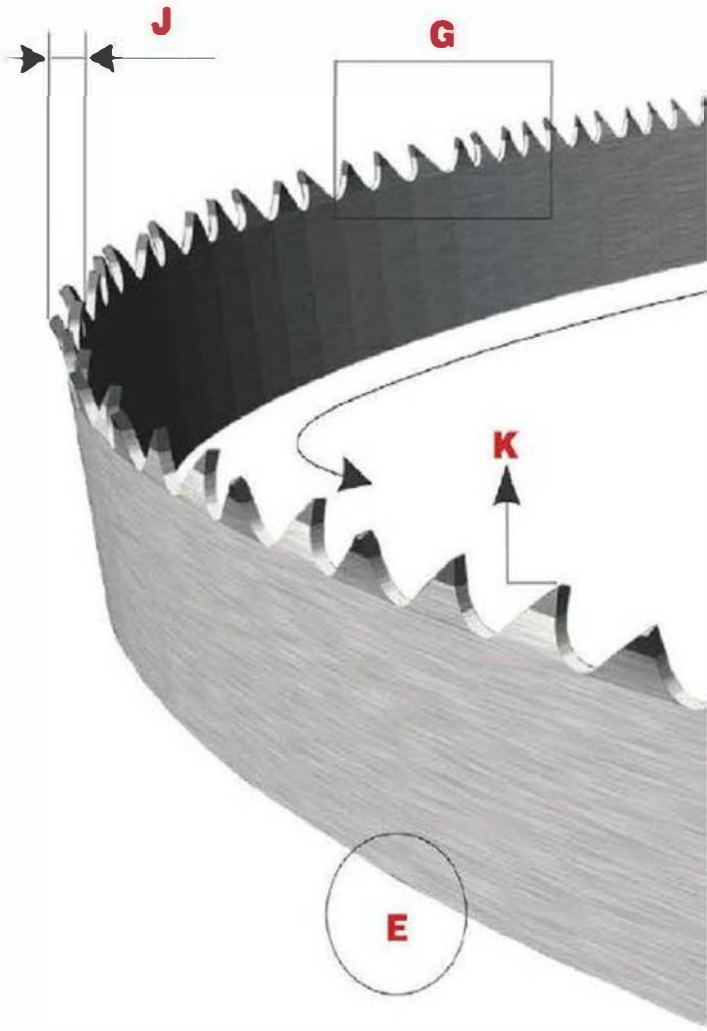
G-TEETH PER INCH / 25MM
Number of teeth (constant pitch) per inch (25.4mm).

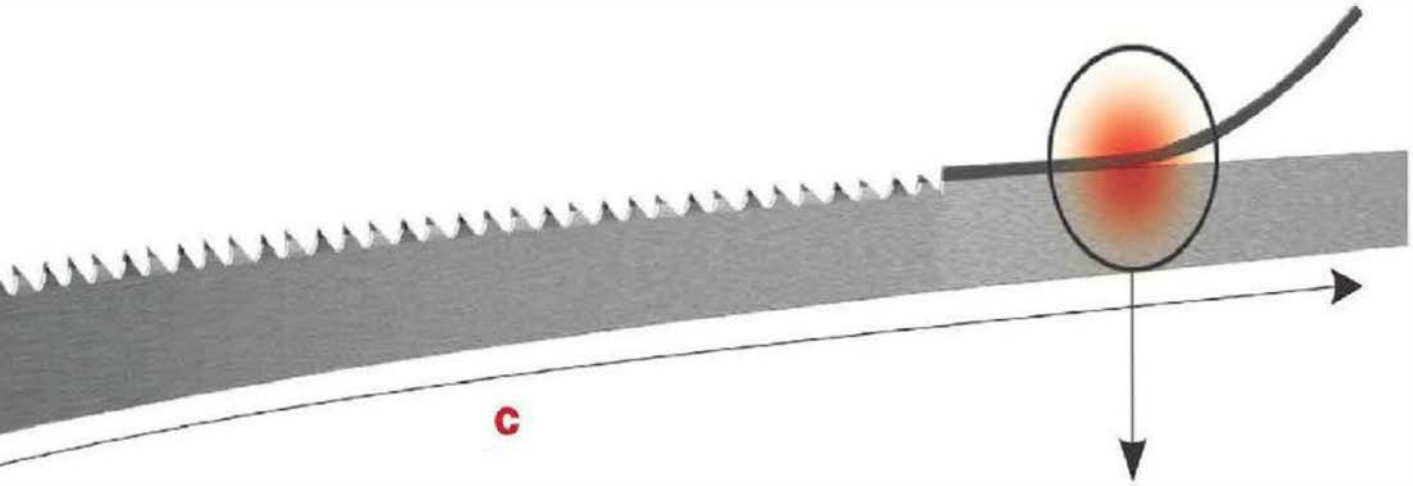
H-GULLET
The curved area between two teeth, where the chips accumulate until being removed.

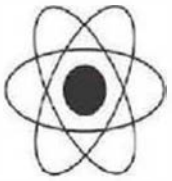
I-TOOTH FACE
Surface of the tooth where the chip is formed. The tooth can have a positive, negative or straight angle. (Rake)

J-TOOTH SET
The side bending of the teeth to allow blade clearance through the cut.

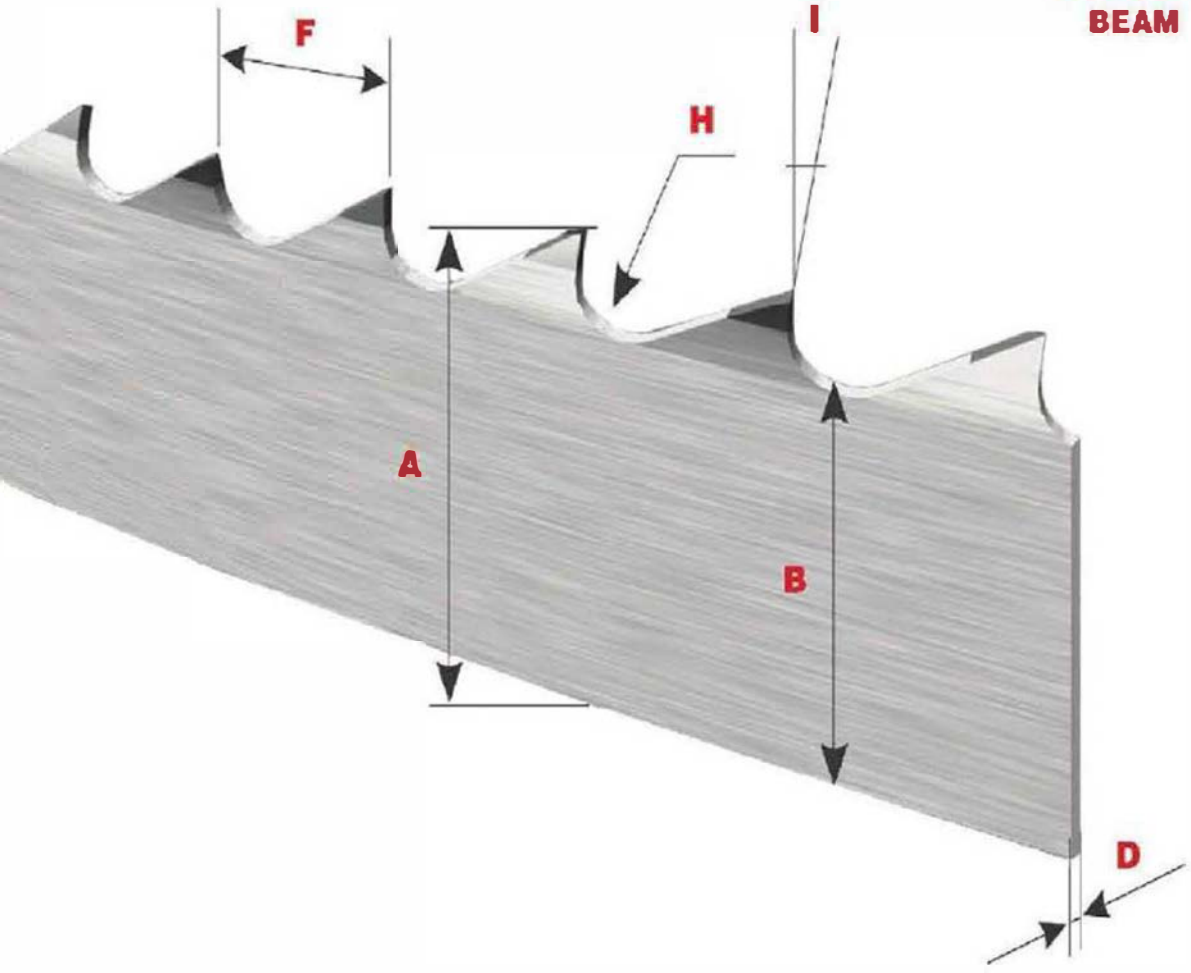
K-BACK ANGLE
Angle formed by the back of the teeth and a parallel line to the tip of the same.







ELECTRON
BEAM



Choosing the Correct Blade

1 Quick Guide

PERFORMANCE ★★★ ★★ ★

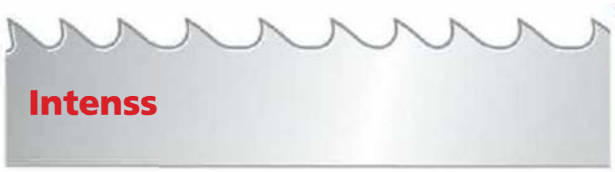
		FERROUS					
		Aluminium	Tubes and Profiles	Carbon Steel	Carbon Steel Alloys	Cast Iron	Copper Alloys
BI-METAL	Primalloy™ NEW Page 18				★★★	★★★	★★★
	Intenss™ PRO-VTH Page 19				★★		
	Intenss™ PRO Page 20	★★	★★	★★★	★★★	★★	★★
	Versatix™ MP Page 21		★★★				
	Powerband M-42 Page 22	★★	★★	★★	★	★★	★
	Intenss™ PRO-DIE Page 23	★★	★★	★★	★★		★
	Univerz™ Page 24	★	★★	★			
CARBIDE	Advanz™ MC7 NEW Page 28	★★		★★★	★★★	★★	★★
	Advanz™ MC5 NEW Page 29	★★★		★★	★★	★★★	★★★
	Advanz™ TS Page 30	★		★★	★★	★	★
	Advanz™ CS** Page 31						
	Advanz™ FS * Page 32	★★★				★★★	★★★
	Advanz™ CG Page 33						
DIAMOND	Advanz™ DG Page 34						
CARBON	Duratec™ SFB NEW Page 36	★	★	★			
	Duratec™ FC Page 38						
	Band Knives Page 39						

*Foundry-Gates and Risers **Induction or Case Hardened

FERROUS						NON-FERROUS	
High Speed Steel	Stainless Steel	Tool Steel - Hot work	Tool Steel- Cold Work	Nickel and Titanium Alloys	Steel with hardness above 45 HRC	Composite materials and abrasives	Foam, Paper, Plastic, and Rubber
							
★★★	★★	★★★	★★★	★★			
★★	★★★	★★	★★	★★★			
★★	★★	★★	★★	★			
★	★★	★	★	★			
★★★	★★★	★★★	★★★	★★★	★★★		
★★	★★	★★	★★	★★	★★		
★	★	★	★	★★	★★		
					★★★		
					★★★	★★★	
						★★★	
							★★★
						★★	
							★★★

Choosing the Correct Blade

2 Tooth Shapes



Contant Pitch: ☐
Variable Pitch: ■ .8-1.3 to 14-18

Primalloy™ / Intenss™ PRO / Intenss™ PRO-DIE / Univerz™

- Positive Rake angle
- Double back angle
- Fast and efficient chip clearance
- Excellent choice for a wide range of cuts

Contant Pitch: ☐
Variable Pitch: ■ 1-2 to 4-6

Intenss™ PRO-VTH

- Variable tooth height providing pulsating action
- Easy penetration
- Ideal for cutting hard and difficult to machine materials

Contant Pitch: ☐
Variable Pitch: ■ 2-3 to 6-10

Versatix™ MP

- Extremely robust, shockproof
- Positive Rake angle
- Ideal for cutting tubes and profiles

Contant Pitch: ■ 6 to 32
Variable Pitch: ■ 8-12 to 14-18

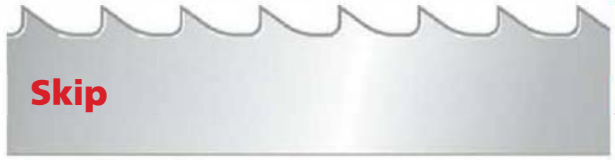
Powerband M-42 / Duratec™ SFB / Duratec™ FC / Univerz™

- Neutral angle
- Shock resistant
- Excellent choice for a wide range of cuts
- Suitable for all types of machines

Contant Pitch: ■ 2 to 6
Variable Pitch: ☐

Duratec™ SFB / Intenss™ PRO-DIE

- Positive Rake angle, extremely aggressive
- Faster cuts
- Suitable for cutting ferrous and non-ferrous metals



Contant Pitch: ■ 3 to 6
Variable Pitch: ☐

Duratec™ SFB

- Neutral angle
- Shock resistant
- Suitable for cutting errous and non-ferrous metals

Contant Pitch: ■ 1 to 3
Variable Pitch: ■ .9-1.1 to 3-4

Advanz™ MC7 / Advanz™ MC5 / Advanz™ TS / Advanz™ CS / Advanz™ FS

- Differential tooth design, accurately ground
- Triple chip tooth geometry
- Faster cuts
- Ideal for cutting hard and difficult to machine materials

Contant Pitch: ■
Variable Pitch: ☐

Advanz™ CG / Advanz™ DG

- Cutting edge coated with grains, continuous or with gullet
- Suitable for cutting abrasive or hardened materials

Choosing the Correct Blade

Tooth

Constant Pitch

All teeth on the blade have uniform spacing, gullet depth and rake angle throughout the full length. Typically for general purpose cutting. Identified by one pitch number.

Variable Pitch

Size of tooth and depth of gullet varies to substantially reduce noise levels and vibrations. Cuts all structurals, tubing and solids smoothly and quickly. Identified by two pitch numbers.

Sets

Raker

A recurring sequence of teeth set left and right, followed by one tooth unset. Frequency of unset teeth on variable pitch blades varies depends on the tooth configurations.

Alternate

A recurring sequence of teeth set alternately left and right.

Wavy

Groups of teeth set to each side of the blade, with varying amounts of set in a controlled pattern.

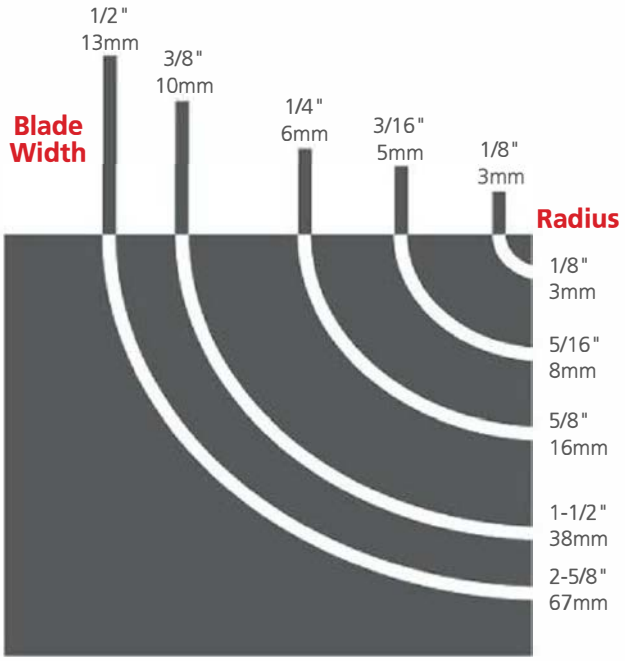
Trapezoid

Special carbide cylinder, welded to an alloy backer, then precision ground with a high/low tooth form.

Choosing the Correct Blade

3 Blade Width

Use the blade width recommended by the machine manufacturer, except for contour cutting in vertical machines when you should use the chart below.



4 Pitch

Pitch is the number of teeth per inch/25mm. Cutting thinner sections requires a finer pitch (more teeth per inch/25mm). Thick sections require coarser pitches (fewer teeth per inch/25mm).

The charts are good guidelines. Because the cross section limits in the chart are broad and overlap, choose a coarser pitch if the speed of cut is most important. (Choose a finer pitch if finish is most important.)

Section to be Cut (Inch)	Constant Pitch (TPI)	Variable Pitch
5/32" to 3/8"	32 or 24	14-18
1/4" to 1/2"	18 or 14	10-14
1/2" to 3/4"	14 or 10	8-12
3/4" to 1"	10 or 8	6-10
1" to 1-1/2"	8 or 6	5-8
1-1/2" to 3-1/2"	6 or 4	4-6
3-1/2" to 7"	4 or 3	3-4
7" to 10"	3	2-3
10" to 16"	–	1.4-2
14" to 20"	1.3	1-2
16" to 32"	1.3	1-1.2
Over 30"	1	.8-1.3 / .9-1.1

For cutting tubes and profiles, use the horizontal line to find the outside diameter (tube) or the largest section (profile). Find the thickness (tube/profile) using the vertical column. With that information, cross them to find the recommended pitch. (chart below).

TUBES AND PROFILES

Wall Thickness	Outside diameter of tube or maximum profile section length (Inch)												
(Inch)	**3/8"**	**3/4"**	**1-5/8"**	**2-3/8"**	**3-1/4"**	**4"**	**4-3/4"**	**6"**	**8"**	**12"**	**16"**	**20"**	**24"**
3/32"	14-18	14-18	10-14	10-14	10-14	10-14	8-12	8-12	8-12	8-12	6-10	6-10	5-8
1/8"	10-14	10-14	10-14	10-14	10-14	8-12	8-12	8-12	6-10	6-10	6-10	5-8	5-8
5/32"		8-12	8-12	8-12	8-12	6-10	6-10	6-10	5-8	5-8	4-6	4-6	4-6
3/16"		6-10	6-10	6-10	6-10	5-8	5-8	5-8	5-8	4-6	4-6	4-6	4-6
1/4"		5-8	5-8	5-8	5-8	5-8	5-8	5-8	4-6	4-6	4-6	4-6	3-4
5/16"			4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	3-4	3-4	3-4
3/8"			4-6	4-6	3-4	3-4	3-4	3-4	3-4	3-4	3-4	2-3	2-3
1/2"				4-6	3-4	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3
5/8"				4-6	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3	2-3
3/4"				4-6	3-4	3-4	3-4	3-4	3-4	2-3	2-3	2-3	2-3
1"					3-4	3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
1-1/4"					3-4	3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
1-5/8"						3-4	3-4	3-4	2-3	2-3	2-3	1.4-2	1.4-2
2"							3-4	3-4	2-3	2-3	1.4-2	1.4-2	1-1.2
2-3/8"									2-3	2-3	1.4-2	1.4-2	1-1.2

Choosing the Correct Blade

5 Blade Length

The blade length varies according to the band saw machine type and specifications. Please find the correct blade length in your band saw machine user manual.

PowerCalc

Starrett PowerCalc Band Saw Selector is a web-based application that runs on any Windows® operating system. PowerCalc selects the best band saw blade for the specified cutting application.

Specify

- Band saw machine being used to make the cut
- Shape and composition of the material to be cut
- Details regarding any bundling of the material
- Whether or not it will be a cooled cut

PowerCalc automatically displays:

- Recommended Starrett saw blade
- Blade break-in information
- Cooling recommendations
- Cutting time and speed recommendations

BI-METAL BAND SAW BLADES

NEW!

Bi-Metal

Primalloy™

Bi-Metal

Features

- Special high-speed steel edge
- Exclusive tooth geometry with positive rake angle
- Extended Life Treatment (EXT)-ensures maximum fatigue life
- Ground teeth

Benefits

High content of Cobalt and Vanadium guarantee:

- High production, longer operating blade life with high quality surface finishing
- Increased wear and heat resistance
- Easy penetration in hard and difficult to machine materials, increasing the blade performance
- Cost-effective over conventional bi-metal blades

Applications

- Tool steel and high speed steel
- Stainless steels
- Nickel and titanium alloys
- Hardened steel
- For machines with hydraulic feed control

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1 x .035	25 x 0.90	3-4/P	99800
1-1/4 x .042	32 x 1.10	2-3/P	99801
		3-4/P	99802
1-1/2 x .050	38 x 1.30	1.4-2/P	99803
		2-3/P	99804
		3-4/P	99805
2 x .063	50 x 1.60	1.4-2/P	99806
		2-3/P	99807
		3-4/P	99808
2-5/8 x .063	67 x 1.60	1-1.2/P	99809
		1.4-2/P	99810
		2-3/P	99811

P = Positive Rake
1" to 2-5/8" sizes available in 150' (45m) coils.
All 150' coils supplied within plus or minus 10% of ordered size.
Furnished in welded bands for all widths, or in random coils for 1" to 1-1/2" widths.

Extended Life Treatment (EXT)

The Starrett Primalloy Band Saw product line applies a proprietary Extended Life Treatment (EXT) to its alloy steel backing material. This process, in addition to controlled blast peening, enhances the fatigue life of the blade. The EXT applied during the peening operation adds increased residual stress into the surface of the blade. Higher stress levels aid in the reduction of fatigue cracks that originate along microscopic grain boundaries. The benefits of extended life treatment are proven with X-Ray Diffraction (XRD) and extensive mechanical fatigue tests. This process will soon be applied to most Starrett bimetal and carbide tip product lines.

Starrett

Bi-Metal

Intenss™ Pro-Vth

Features

- Uniquely designed tooth edge with variable height and set
- Positive rake, ground teeth

Benefits

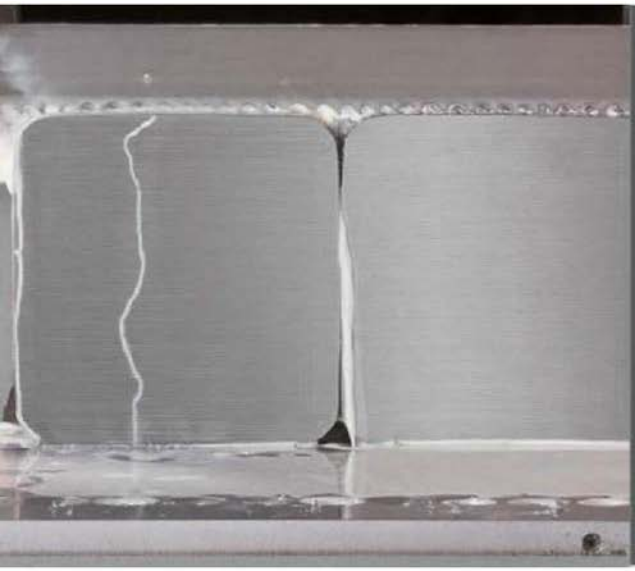
- Easy penetration for faster cuts
- Excellent heat and wear resistance
- Pulsating action allow the teeth to penetrate, resulting in faster cuts

Applications

- Tool steel and high speed steel
- Stainless steels
- Auminum bronze alloys
- For machines with hydraulic feed control
- Ideal for cutting all steels and non-ferrous metals up to 40 HRC

Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
1 x .035	25 x 0.90	2-3P/T	99948*
		3-4P/T	99949*
		4-6P/T	99950*
1-1/4 x .042	32 x 1.10	2-3P/T	99953
		3-4P/T	99954
1-1/2 x .050	38 x 1.30	2-3P/T	99958
		3-4P/T	99959
2 x .063	50 x 1.60	1-1.2P/T	99991
		1.4-2P/T	99967
2-5/8 x .063	67 x 1.60	1.4-2P/T	99969
3.1/8 x .063	79 x 1.60	1-1.2P/T	99993
		1.4-2P/T	99988

P = Positive Rake • T = Tapered Shape
*bi-metal unique® Technology
1" and 1-1/4" sizes available in 250' (76m) coils. 1-1/2" and 2" sizes available in 150' (45m) coils. 2-5/8" and larger available in welded bands only.



1. **Patented process providing 170% more weld contact for superior teeth stripping resistance**
2. **Significantly reduced fracture and breakage**
3. **Multi-edge cutting performance resulting in faster cuts and longer blade life**

bi-metal unique®

Bi-Metal

Intenss™ Pro

bi-metal unique®

Features

- Complete line with a full range of widths and pitches to suit a variety of cutting needs
- Unique tooth geometry provides intense production cutting in ferrous and non-ferrous metals

Benefits

- Faster and straighter cuts
- Improved fatigue and wear resistance

Applications

- Ideal for production cutting across a wide range of metals
- For solids and thick wall tubes

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
3/4 x .035	19 x 0.90	3-4/P	99191*
		4-6/P	99902*
		5-8/P	99903*
		6-10/P	99206*
1 x .035	25 x 0.90	2-3/P	99905*
		3-4/P	99906*
		4-6/P	99907*
		5-8/P	99908*
		6-10/P	99318*
		3/P	99484*
1-1/4 x .042	32 x 1.10	2-3/P	99912
		3-4/P	99913
		4-6/P	99914
		5-8/P	99915
		6-10/P	99500
1-1/2 x .050	38 x 1.30	1-1.2/P	99917
		1-2/P	99919
		1.4-2/P	99921
		2-3/P	99923
		3-4/P	99924
		4-6/P	99926
		5-8/P	99927
2 x .063	50 x 1.30	.8-1.3/P	99928
		1-1.2/P	99929
		1.4-2/P	99931
		2-3/P	99932
		3-4/P	99933
2-5/8 x .063	67 x 1.30	.8-1.3/P	99934
		1-1.2/P	99937
		1.4-2/P	99941
3-1/8 x.063	79 x 1.30	.8-1.3/P	99942
		1-1.2/P	99943
		1-2/P	99945
		1.4-2/P	99947

P = Positive Rake
*bi-metal unique® Technology
Furnished in welded bands for all widths, or in random coils for 3/4" to 1-1/2" widths.
Note: Special products on request.

Bi-Metal

bi-metal unique®

Versatix™ MP

Features

- Special tooth geometry developed for cutting structural materials
- Increased tooth strength

Benefits

- Faster and straighter cuts
- Less tooth breakage
- 2-3 and 3-4 pitches have 8 degree positive rake for faster cutting

Applications

- Tubes and structurals
- Small solids
- Bundles
- For all machines: manual, hydraulic, gravity fed, etc.

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
3/4 x .035	19 x 0.90	4-6/P	99212*
		5-8/P	99211*
		6-10/P	99210*
		8-12/P	99222*
		10-14/P	99234*
1 x .035	25 x 0.90	3-4/P	99343*
		4-6/P	99342*
		5-8/P	99341*
		6-10/P	99340*
		8-12/P	99329*
		10-14/P	99334*
1-1/4 x .042	34 x 1.10	2-3/P	99494
		3-4/P	99495
		4-6/P	99496
		5-8/P	99497
		6-10/P	99498

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
1-1/2 x .050	41 x 1.30	2-3/P	99517
		3-4/P	99518
		4-6/P	99519
		5-8/P	99520
2 x .050	54 x 1.30	2-3/P	99551
		3-4/P	99552
		4-6/P	99553
2 x .063	54 x 1.60	2-3/P	99562
		3-4/P	99563
		4-6/P	99563
2-5/8 x .063	67 x 1.60	2-3/P	99564
		3-4/P	99565

P = Positive Rake
*bi-metal unique® Technology
Furnished in welded bands for all widths, or in random coils for 3/4" to 1-1/2" widths.
Note: Special products on request.

Bi-Metal

bi-metal unique®

Powerband M-42

Features

- Strong tooth geometry
- M42 high speed steel teeth combined with a fatigue resistant backing

Benefits

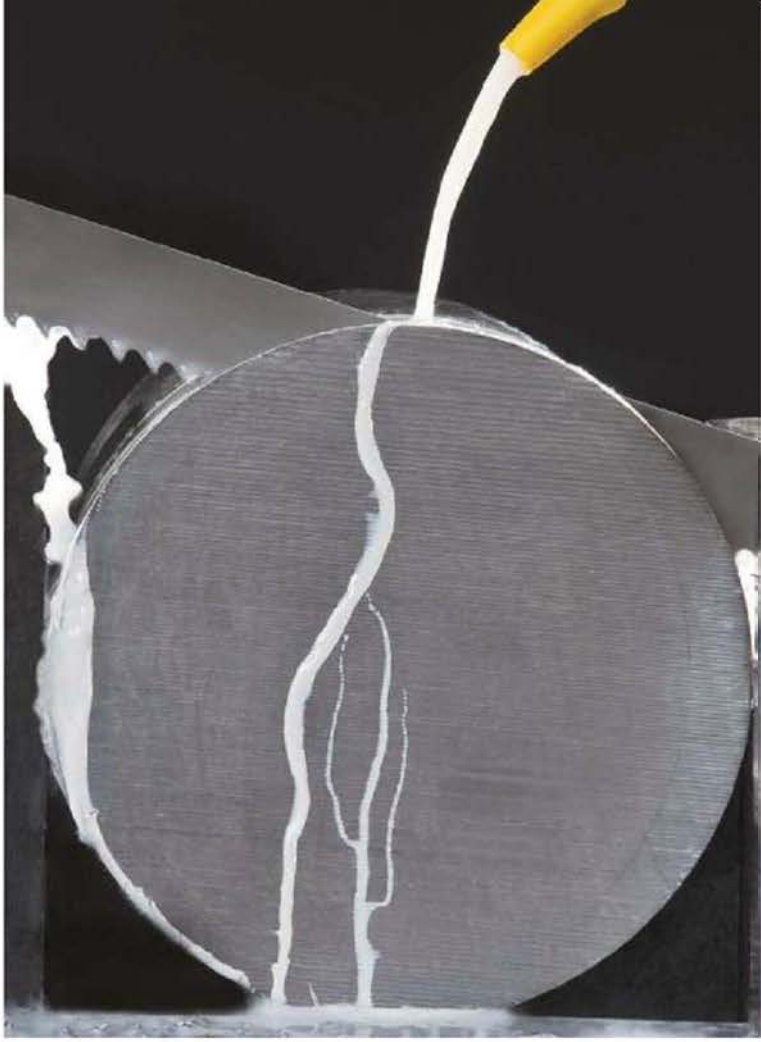
- Ideal for horizontal machines and light duty verticals
- Ideal for toolrooms and maintenance shops

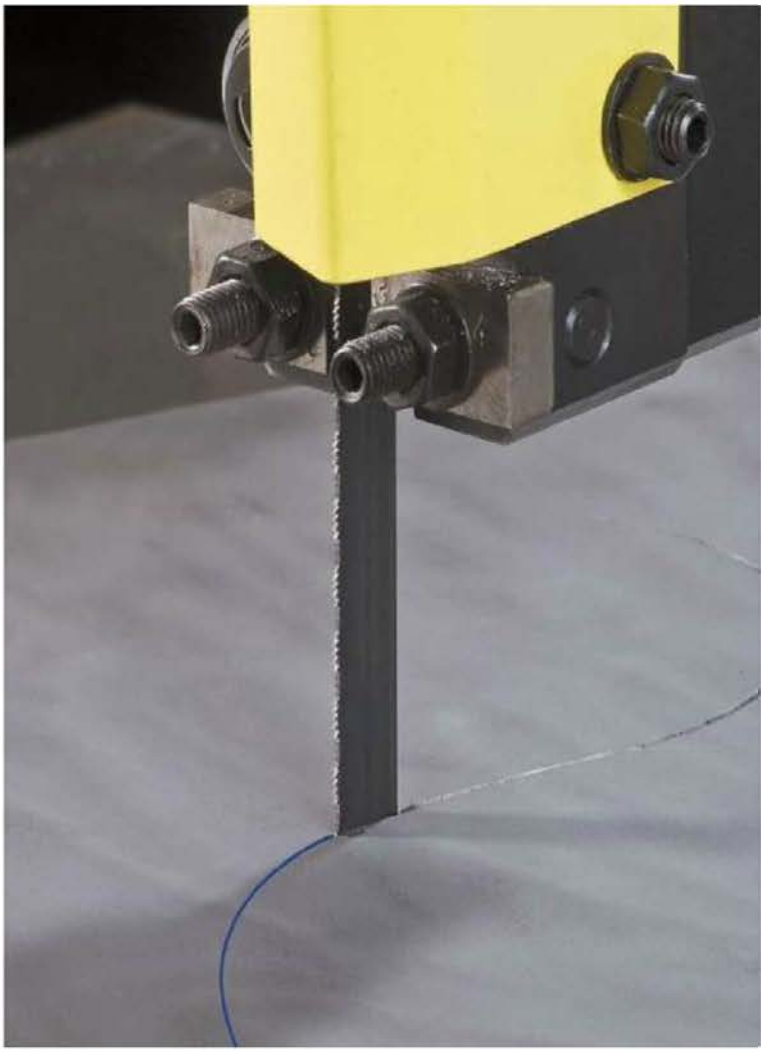
Applications

- Sheets, carbon steel solids and structurals, aluminum, copper, brass, cast iron, alloy steel, stainless steel etc.
- Small and medium solid dimensions

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/2 x .025	13 x 0.65	14/S	99192*
		18/W	99185*
1/2 x .035	13 x 0.90	10/S	99176*
		14/S	99181*
3/4 x .035	19 x 0.90	4-6/S	99195*
		5-8/S	99198*
		14/S	99238*
1 x .035	27 x 0.90	3-4/S	99282*
		4-6/S	99307*
		5-8/S	99297*
		14/S	99109*
1-1/4 x .042	34 x 1.10	2-3/S	99411
		3-4/S	99423
		4-6/S	99430
		5-8/S	99434
1-1/2 x .050	41 x 1.30	3-4/S	99693

S = Straight (Zero) Rake • W = Wavy Set (Zero) rake
*bi-metal unique® Technology
Furnished in welded bands for all widths, or in random coils for 3/4" to 1-1/2" widths.
Note: Special products on request.





Bi-Metal

bi-metal unique®

Intenss™ Pro-Die

Features

- Split Chip Advantage Technology
- Multiple cutting edges-Multi Edge Performance

Benefits

- Technology that allows faster cutting rates for longer blade life
- Cost-effective over conventional carbon steel blades
- Excellent fatigue, abrasion and shock resistance

Applications

- Ideal for contour cutting on vertical machines
- Carbon steel and low alloy steels
- Sheet metal
- Die and Mold steel
- Stainless steel

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/4 x .025	6 x 0.65	10-14/P	99079
		14-18/W	99080
1/4 x .035	6 x 0.90	10-14/P	99078
3/8 x .025	10 x 0.65	8-12/P	99122
		10-14/P	99124
		14-18/W	99125
1/2 x .025	13 x 0.65	6-10/P	99102
		8-12/P	99165
		10-14/P	99186
		14-18/W	99188

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/2 x .025	13 x 0.65	4/P	99143
		6/P	99151
1/2 x .035	13 x 0.90	6-10/P	99154
		8-12/P	99167
		10-14/P	99178
		4/P	99144

P = Positive Rake • W = Wavy Set (Zero) Rake
Furnished in welded bands or in 100' (30m) coils.
All products feature bi-metal® unique technology.
Note: Special products on request.

Portaband

Univerz™

bi-metal unique®

Features

- Split Chip Advantage Technology
- Multiple cutting edges-Multiple Edge Performance
- Blade thickness: 0.020"

Benefits

- Technology that allows faster cutting rates and increased blade life
- More cost-effective than conventional carbon steel blades
- Excellent fatigue, abrasion and shock resistance
- For contour cuts

Applications

- Portable machines
- Vertical machines with reduced wheel diameter
- Ideal for metal workshops, construction and hobbyists
- Steel, iron, aluminum

Length		Width x Thickness		Pitch/Rake	Cat. No.	EDP
Inches	cm	Inches	mm			
Univerz - 3 Bands per Sleeve						
44-7/8	114	1/2 x .020	13 x 0.50	10T	BM10	14600
				14T	BM14	14601
				18T	BM18	14602
				24T	BM24	14603
				10-14/S	BM1014	15708
				14-18/S	BM1418	16088
Univerz - 100 per Box						
44-7/8	114	1/2 x .020	13 x 0.50	10T	BM10B	16948
				14T	BM14B	16949
				18T	BM18B	16950
				24T	BM24B	16951
				10-14/S	BM1014B	16952
				14-18/S	BM1418B	16953
Univerz - 3 Bands per Sleeve						
53-3/4	136.5	1/2 x .020	13 x 0.50	10T	RBM10	14604
				14T	RBM14	14605
				18T	RBM18	14606
				24T	RBM24	14607
				10-14/S	RBM1014	15709
				14-18/S	RBM1418	16089
Advanz™ CG - Carbide Grit - 1 per Box						
44-7/8	114	1/2 x .020	13 x 0.50	Continuous	CG4CM	19954
				Gulleted	CG4GM	19956

S = Straight (Zero) Rake • W = Wavy Set, Zero Rake • P = Positive Rake
All products feature bi-metal® unique technology.

Length		Width x Thickness		Pitch/Rake	Cat. No.	EDP
Feet	cm	Inches	mm			
Portaband Coil Stock - Univerz						
100	3048	1/2 x .020	13 x 0.50	10-14/S	99187-100	15710
				14-18/S	99180-100	16090
				10T	99171-100	14937
				14T	99179-100	14938
				18T	99182-100	14939
				24T	99184-100	14940

S = Straight (Zero) Rake
All products feature bi-metal® unique technology.
Sold in 100' coils.

Technical Assistance

On-Site Technical Support

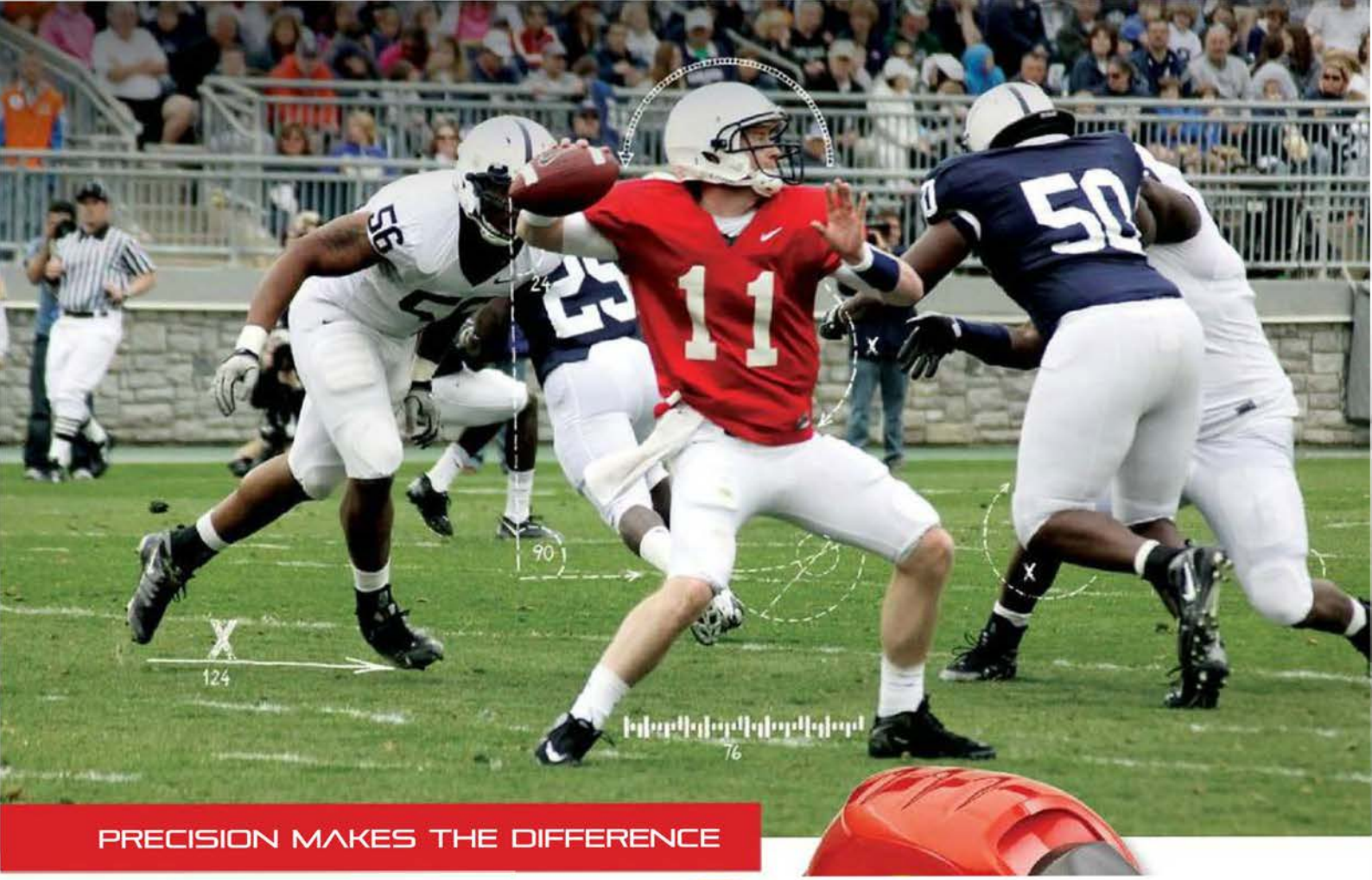
Starrett saw specialists are available to tune up and perform preventative maintenance on your production sawing machine using Starrett Band Saw Blades, at no additional cost.

They fully review machine condition, blade mounting and operation in detail, making adjustments, as required, to help maintain good sawing and long life for both the machine and blades.

Training

Starrett saw specialists can also instruct saw operators on achieving the best performance of blade and machine for your applications.

Contact your Starrett Band Saw distributor about arranging a visit to your workplace by a Starrett saw specialist.

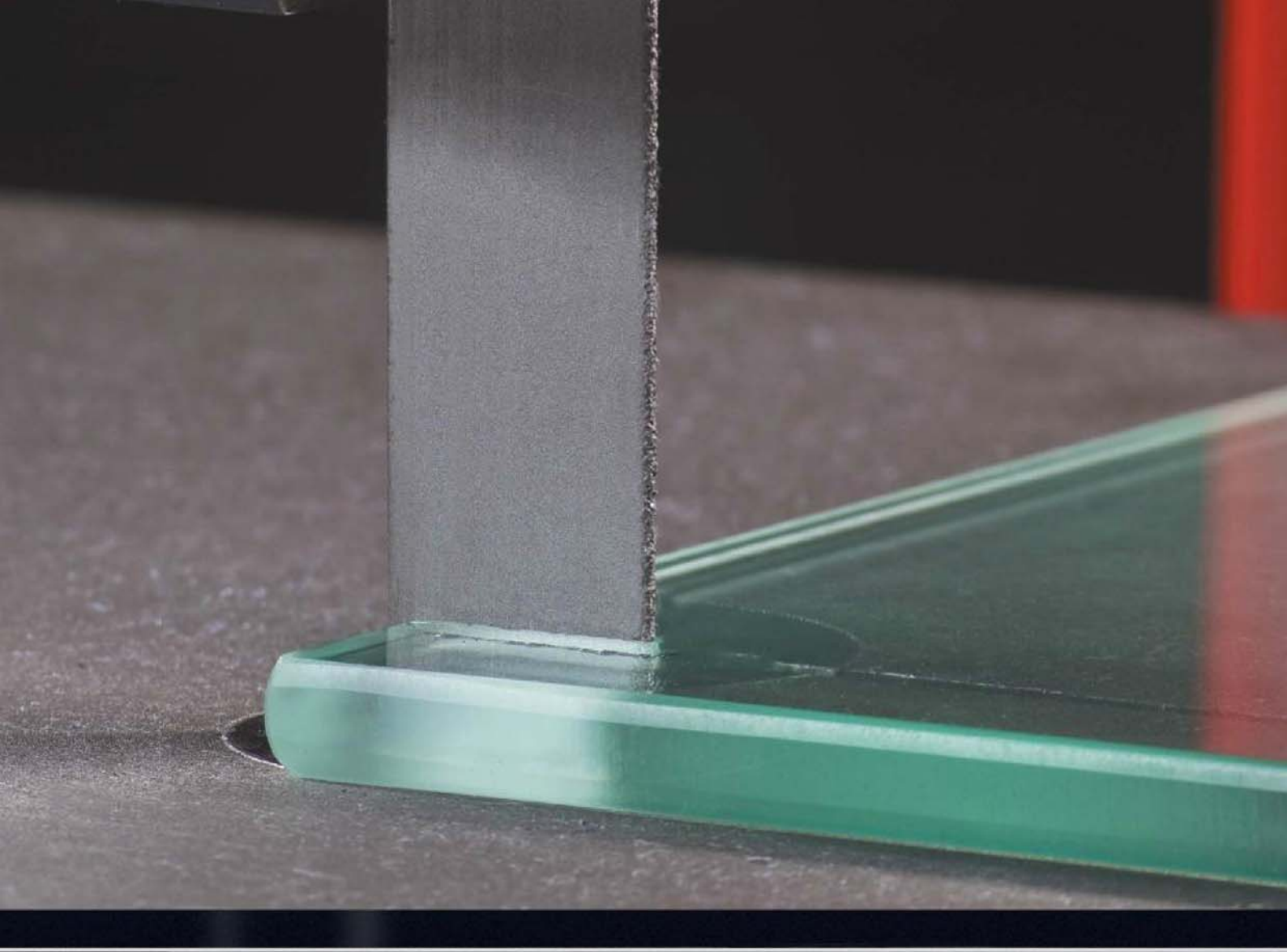


PRECISION MAKES THE DIFFERENCE

Goes the Distance.

Three major product lines to meet our customer's needs w performance and quality.

Starrett®



CARBIDE / DIAMOND GRIT

NEW!

CARBIDE

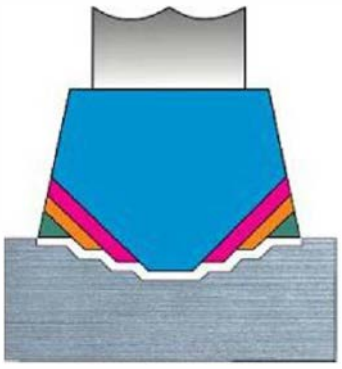
ADVANZ™ MC7

FEATURES

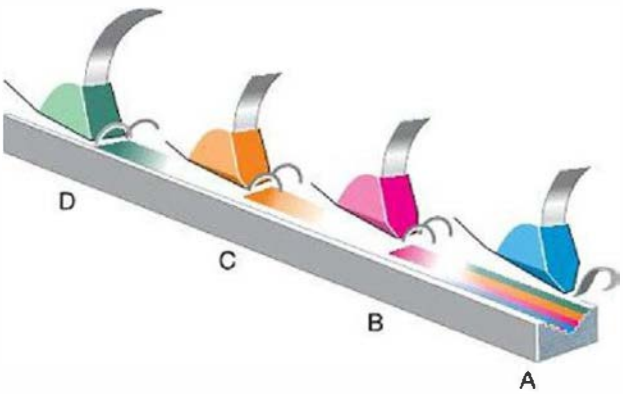
- Exclusive Starrett tooth geometry
- Carbide tipped
- Progressively ground trapezoidal tooth design
- Utilizes a progressive four tooth grind creating seven distinct chips
- Positive rake angle
- Sub micron carbide (HV1600)

BENEFITS

- Cutting ferrous metals
- Higher productivity through reduced cutting time
- Precision cuts - superb surface finish
- Excellent "cost per cut" for production cutting
- Exclusive Starrett edge preparation - minimizes micro chipping
- Less wear compared to conventional triple chip



MC7 (Seven Multiple Chips)



APPLICATIONS

- Difficult to machine steels
- Tool steels, heat-treated steels, stainless materials
- Inconel, nickel alloys
- Titanium

Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
1-1/4 x .042	34 x 1.10	2-3/P	92573
1-1/2 x .050	41 x 1.30	1.4-2/P	92575
		2-3/P	92581
2 x .063	54 x 1.60	1.4-2/P	92578
		2-3/P	92582
2-5/8 x .063	67 x 1.60	.9-1.1/P	92583
		1.4-2/P	92584

P = Positive Rake
Furnished in welded bands.
Note: Special products on request.

Starrett

CARBIDE

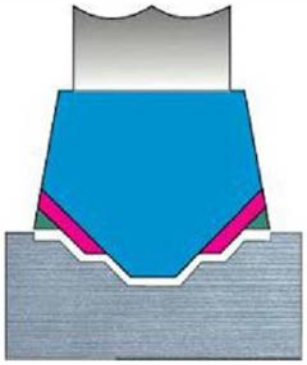
ADVANZ™ MC5

FEATURES

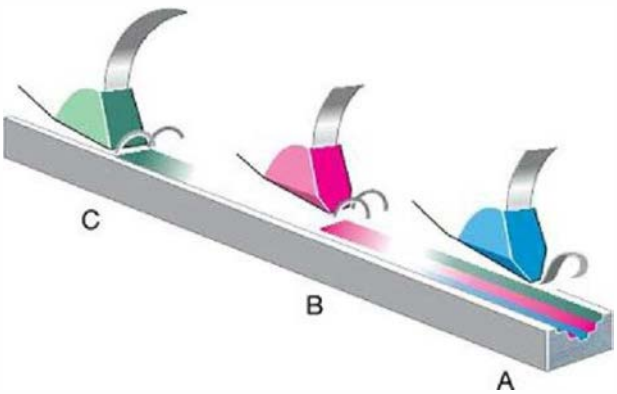
- Exclusive Starrett tooth geometry
- Carbide tipped
- Ground tooth produces 5 chips
- Utilizes a multiple chip grind with a high/low tooth sequence
- Positive rake angle
- Sub micron carbide (HV1600)

BENEFITS

- Ferrous and Non-Ferrous metals and castings
- Higher productivity through reduced cutting time
- Precision cuts - superb surface finish
- Excellent "cost per cut" for production cutting
- Starrett exclusive edge preparation - minimizes micro chipping
- The chip load is spread out over more teeth to facilitate longer life



MC5 (Five Multiple Chips)



APPLICATIONS

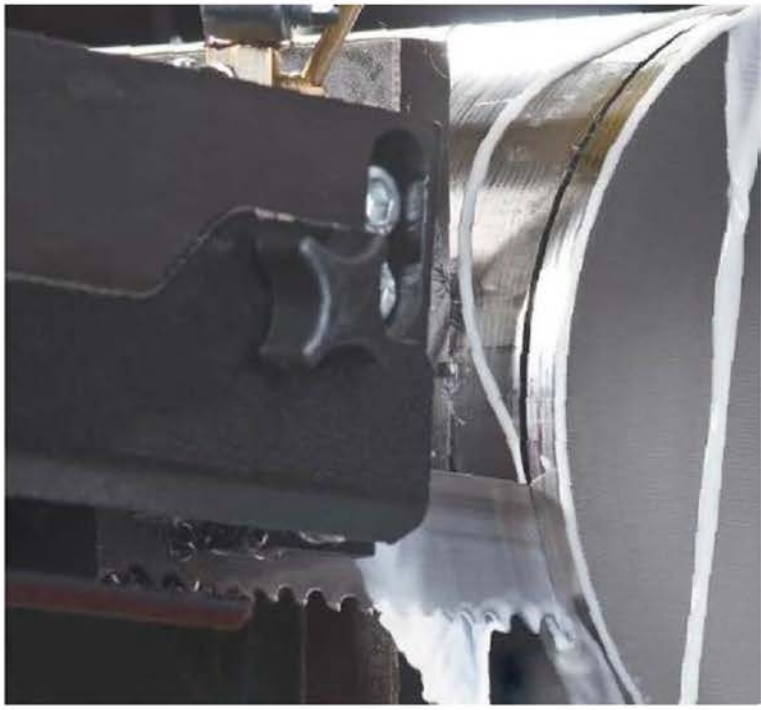
- Low alloy tool steels
- Hot and cold rolled machine steels
- Automotive aluminium casting blocks
- Cast Iron
- Brass
- Bronze
- Copper

Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
1-1/4 x .042	34 x 1.10	2-3/P	92572
1-1/2 x .050	41 x 1.30	1.4-2/P	92574
		2-3/P	92586
2 x .063	54 x 1.60	1.4-2/P	92577
		2-3/P	92580

P = Positive Rake
Furnished in welded bands.
Note: Special products on request.

CARBIDE

ADVANZ™ TS



FEATURES

- Carbide tipped teeth
- Triple chip tooth geometry
- Aggressive Rake angle

BENEFITS

- Ideal for cutting hard materials
- Extreme resistance to wear when cutting difficult to machine steels
- Reduced cutting time - Higher productivity
- Precise cuts producing excellent finish

APPLICATIONS

- High-alloy metals
- Aerospace alloys
- Stainless steel
- Nickel alloys
- Hard and abrasive materials
- For machines with hydraulic feed control

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
3/4 x .035	19 x 0.90	3-4/P	92503
		3/P	92500
1 x .035	27 x 0.90	3-4/P	92509
		3/P	92504
1-1/4 x .042	34 x 1.10	2-3/P	92515
		3-4/P	92517
1-1/4 x .050	34 x 1.30	2-3/P	92522
		3/P	92512
1-1/2 x .050	38 x 1.30	1/P	92526
		1.4-2/P	92521
		2-3/P	92516
		3-4/P	92569
		1/P	92562
		1.3/P	92519

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
1-1/2 x .050	41 x 1.30	3/P	92524
2 x .063	54 x 1.60	1.4-2/P	92559
		2-3/P	92528
		1/P	92527
		1.3/P	92558
2-5/8 x .063	67 x 1.60	.9-1.1/P	92560
		1.4-2/P	92561
		2-3/P	92530
3-1/8 x .063	80 x 1.60	.9-1.1/P	92562
		1.4-2/P	92563
		2-3/P	92532
		1/P	92531

P = Positive Rake
Furnished in welded bands.
Note: Special products on request.

CARBIDE

ADVANZ™ CS

FEATURES

- Carbide tipped teeth
- Triple chip tooth geometry
- Negative Rake angle

BENEFITS

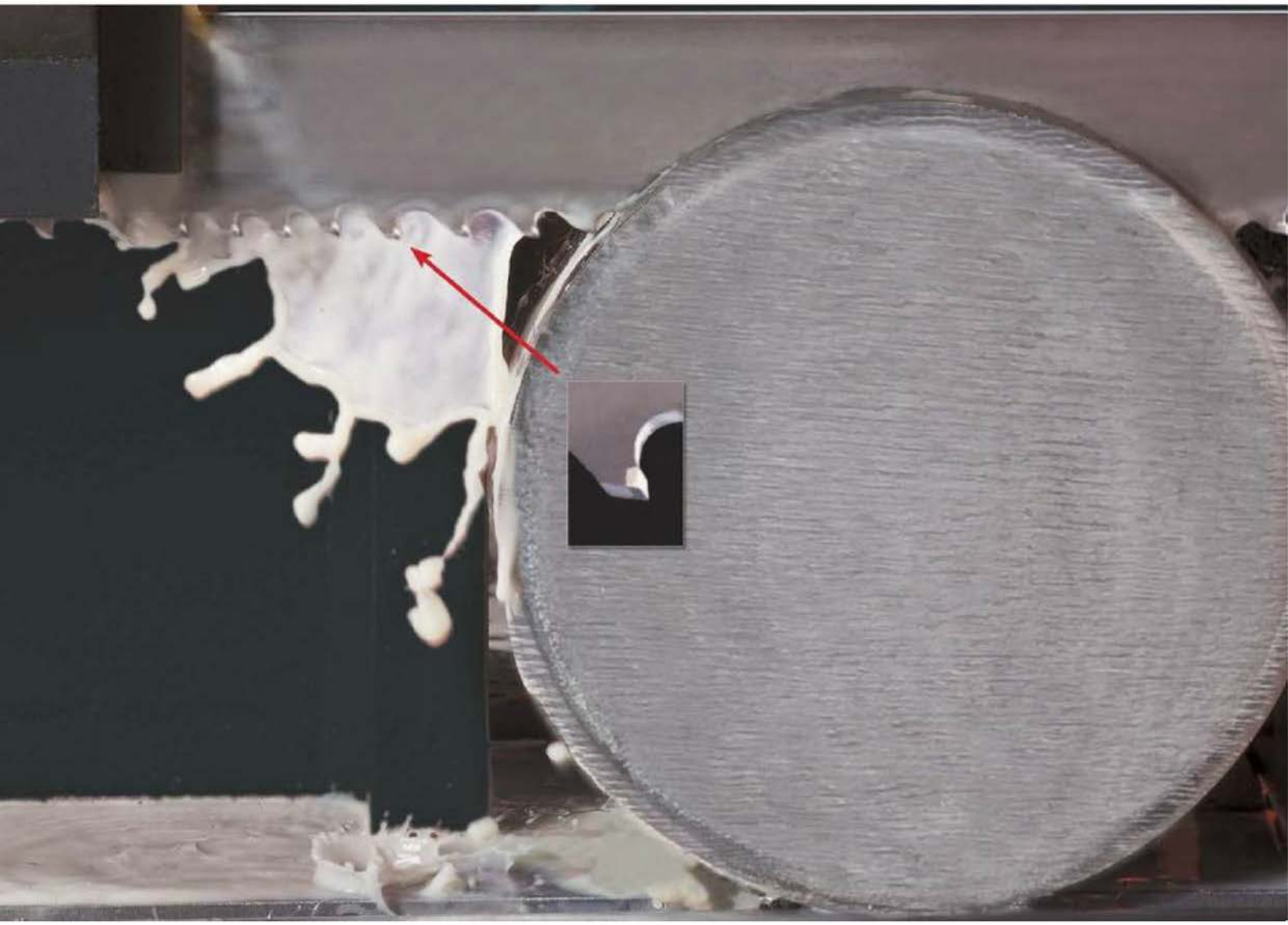
- Ideal for cutting hardened materials
- High resistance to abrasion
- Reduced cutting time - Higher productivity
- Precise cuts produces excellent finish

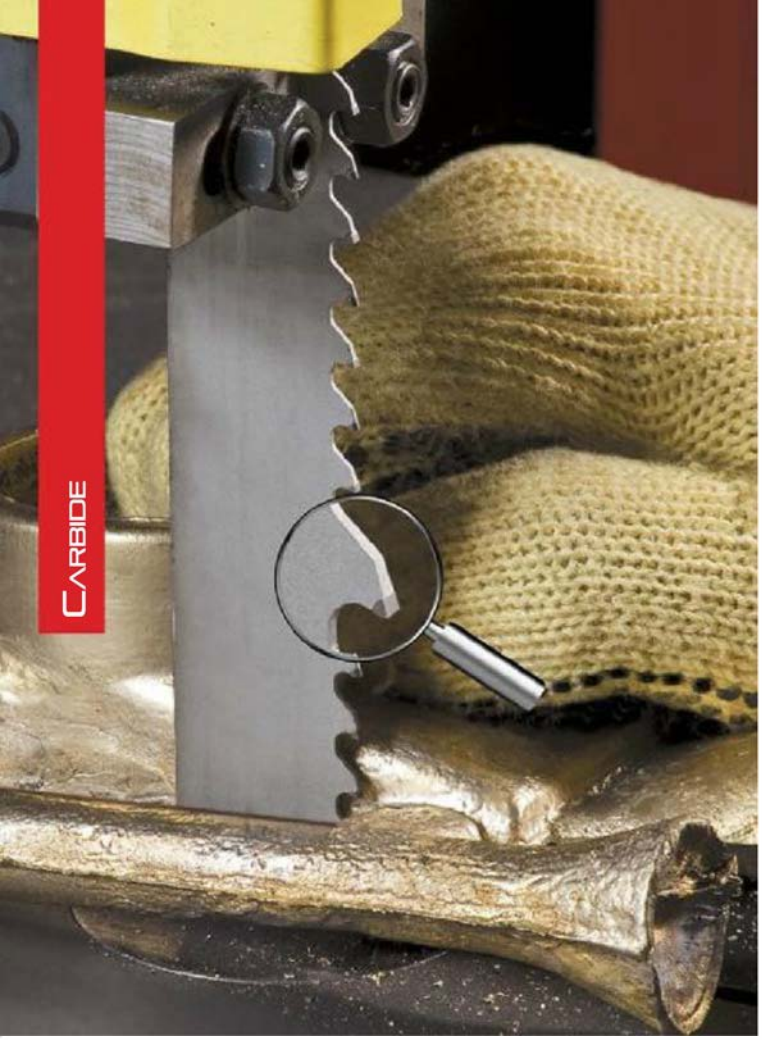
APPLICATIONS

- Case hardened steel
- Steel for shafts and linear guides
- Case hardened materials up to 60 HRC

Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
1 x .035	27 x 0.90	3-4/N	92564
1-1/4 x .042	32 x 1.10	3-4/N	92565
1-1/4 x .050	32 x 1.30	3-4/N	92566
1-1/2 x .050	41 x 1.30	2-3/N	92570
		3-4/N	92576

N = Negative Rake
Furnished in welded bands.
Note: Special products on request.





CARBIDE

ADVANZ™ FS

FEATURES

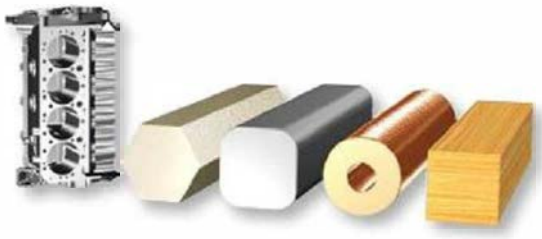
- Carbide tipped teeth
- Triple chip tooth geometry
- Positive Rake angle

BENEFITS

- Ideal for cutting abrasive materials
- Exceptional resistance to fatigue, abrasion and shocks
- Reduced cutting time-Higher productivity
- Precise cuts and excellent finishing

APPLICATIONS

- Abrasive non-ferrous metals
- Cast materials and risers
- Composite materials
- Fiberglass
- Graphite
- Abrasive and hard woods such as Tauari and others
- Robust vertical and horizontal machines



Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
3/4 x .035	19 x 0.90	3/P	92550
1 x .035	27 x 0.90	2-3/P	92507
		3/P	92552
1 x .050	27 x 1.30	2-3/P	92551
		3/P	92553
1-1/4 x .042	34 x 1.10	3/P	92513
1-1/4 x .050	34 x 1.30	3/P	92555
1-1/2 x .050	41 x 1.30	2-3/P	92556

P = Positive Rake
Furnished in welded bands.
Note: Special products on request.

CARBIDE GRIT

ADVANZ™ CG

FEATURES

- With continuous or gulleted cutting edge
- High fatigue resistance

BENEFITS

- Ideal for cutting hard and/or abrasive materials
- Precise cuts and excellent finishing
- Superior durability

APPLICATIONS

- Steel-belted tires
- Composite materials
- Reinforced plastics
- Composite Graphite
- Case-Hardened steels
- Fiberglass

Width x Thickness				
Inches	mm	Form	Grit	Material No.
1/4 x .020	6 x 0.50	Gullet	Fine	95400
		Gullet	Medium	95401
3/8 x .025	10 x 0.65	Gullet	Medium	95403
		Continuous	Medium	95404
		Gullet	Medium/Coarse	95406
1/2 x .020	13 x 0.50	Gullet	Medium	95412
		Gullet	Medium/Coarse	95413
		Continuous	Medium	95414
1/2 x .025	13 x 0.65	Gullet	Medium	95407
		Gullet	Medium/Coarse	95408
		Continuous	Medium	95410
3/4 x .032	19 x 0.80	Gullet	Medium	95416
		Gullet	Medium/Coarse	95417
		Gullet	Coarse	95418
		Continuous	Medium	95419
		Continuous	Coarse	95421
1 x .035	25 x 0.90	Gullet	Medium/Coarse	95422
		Gullet	Coarse	95423
		Continuous	Medium	95425
1 x .042	25 x 1.10	Gullet	Medium/Coarse	95428
		Gullet	Coarse	95429
1-1/4 x .035	32 x 0.90	Gullet	Coarse	95430
		Continuous	Coarse	95431
1-1/4 x .042	32 x 1.10	Gullet	Medium/Coarse	95432

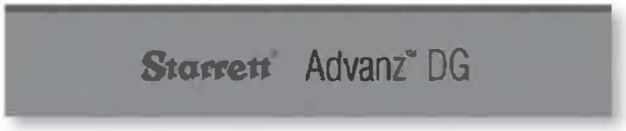
Furnished in welded bands. 100' and 250' coils.
Note: Special products on request.

Length		Width x Thickness				
Inches	cm	Inches	mm	Pitch/Rake	Cat. No.	EDP
Advanz CG - Portabands						
44-7/8	114	1/2 x .020	13 x 0.50	Continuous	CG4CM	19954
				Gulleted	CG4GM	19956

S = Straight (Zero) Rake • W = Wavy Set, Zero Rake • P = Positive Rake
Packaged 1 per box.

Diamond Grit

Advanz™ DG



Features

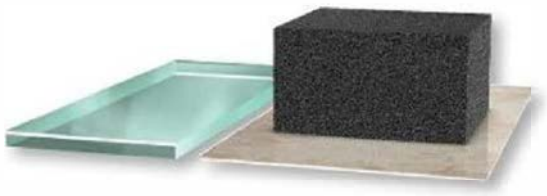
- Cutting edge coated with diamond grains
- Continuous cutting edge
- High strength body

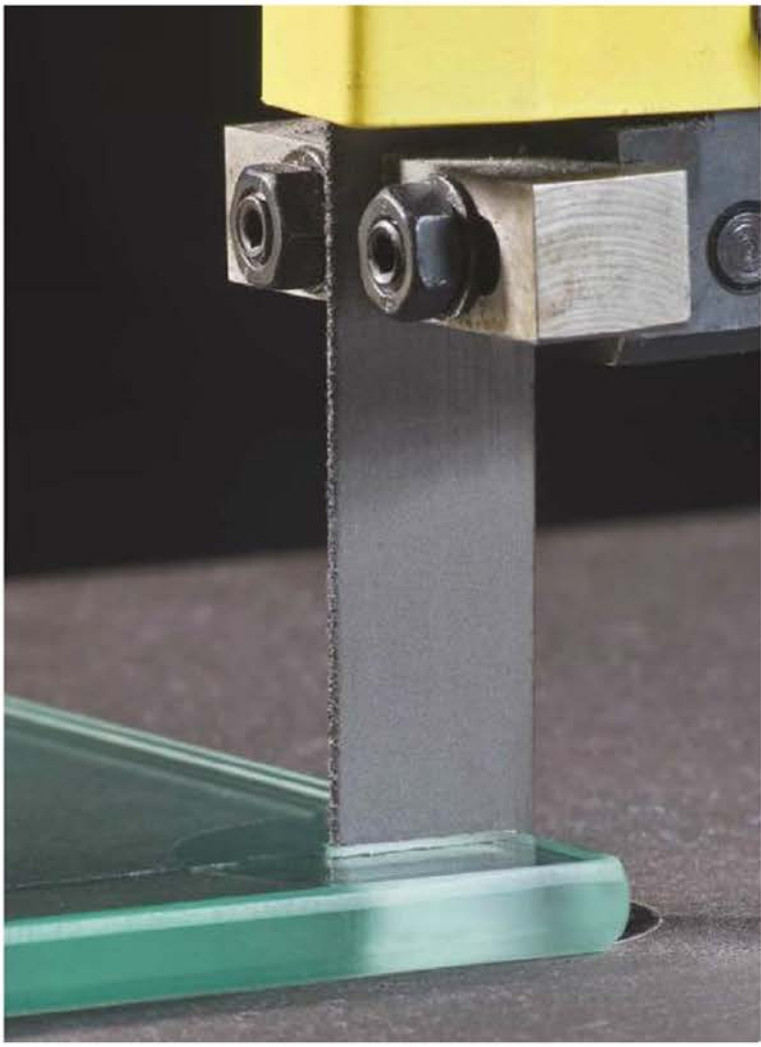
Benefits

- Ideal for cutting abrasive materials that conventional blades cannot cut
- Precise cuts and excellent finishing
- Exceptional durability and fatigue resistance

Applications

- Glass
- Glazed ceramic
- Silicon
- Graphite
- Fiberglass
- Stones
- Pyrex
- Ideal for machines that have high cutting speed





Width x Thickness				
Inches	mm	Form	Grit	Material No.
1/2 x .020	13 x 0.50	Continuous	Medium 60/85 Diamond Grit	95123

Furnished in welded bands.
Note: Special products on request.

CARBON

NEW!

Carbon

Duratec™ SFB

Features

- Made from special high carbon steel
- Flexible back

Benefits

- Contour and straight cutting
- Economical
- Can be welded with "standard" welders

Applications

- Easy-to-machine carbon steel
- Non-ferrous metals
- Composites and plastics
- Plywood and MDF
- Cardboard
- Ideal for light vertical and horizontal machines
- Mechanical workshops, toolroom, carpentry, etc.

Carbon

Starrett

DURATEC™ SFB

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/8 x .025	3 x 0.65	14/S	91050
		18/S	91060
3/16 x .014	5 x 0.35	8/S	91083
3/16 x .025	5 x 0.65	4S/K	91080
		10/S	91090
		14/S	91100
		18/S	91110
		24/W	91111
1/4 x .014	6 x 0.35	14/S	91178
1/4 x .025	6 x 0.65	4/S-K	91120
		4P/HP	91130
		6S/K	91140
		6/S	91151
		6P/HP	91147
		8/S	91152
		10/S	91161
		14/S	91181
		18/W	91190
		24/W	91204
		32/W	91210
3/8 x .025	10 x 0.65	3/S	91221
		3P/LP	91230
		4S/K	10079
		4P/HP	91250
		6S/K	91265
		6/S	91261
		6/HP	91264
		8/S	91271
		10/S	91281
		14/S	91291
		18/W	91300
		24/W	91307
1/2 x .025	13 x 0.65	3P/LP	91330
		4S/K	91340
		4P/HP	91350
		6S/K	91372

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/2 x .025	13 x 0.65	6/S	91361
		6P/HP	91373
		8/S	91374
		10/S	91380
		14/S	91401
		18/W	91420
		24/W	91430
5/8 x .032	16 x 0.80	3S/K	91435
		4S/K	91436
		6S/K	91437
		6/S	91438
		8/S	91440
		10/S	91450
		14/S	91471
3/4 x .032	19 x 0.80	3S/K	91510
		3P/LP	91515
		4S/K	91529
		4/S	91530
		4P/HP	91528
		6/S	91531
		8/S	91550
		10/S	91570
		14/S	91621
		18/W	91622
1 x .035	25 x 0.90	2P/LP	91670
		3S/K	91680
		3P/LP	91689
		4S/K	91695
		4/S	91696
		6/S	91701
		8/S	91720
		10/S	91730
		14/S	91761

S = Straight (Zero) Rake • W = Wavy Set, Zero Rake
SK = Skip Tooth • P = HK Tooth
Furnished in welded bands, 100' (30m) coils or random length.
Note: Special products on request.

CARBON

DURATEC™ FC

FEATURES

- Made of high-carbon steel with high Silicon-content
- Flexible backer for excellent fatigue resistance
- Special set design for increased frictional heat
- Special "air scoop" design teeth
- Fully hardened teeth and tempered back

BENEFITS

- Ideal for cutting materials that conventional blades cannot cut
- High resistance to wear and abrasion
- Teeth specifically designed to bring oxygen into the cut to burn up the material

APPLICATIONS

- Steel-belted radial tires
- Cuts thin, ferrous sections up to 5/8" (16mm)
- Weldments, sheet metal, unconventional shapes
- Vertical machines with speeds up to 15,000 SFPM

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1 x .035	25 x 0.90	8/S	91726
		10/S	91740

S = Straight (Zero) Rake
Furnished in welded bands and 100' (30m) coils.
Note: Special products on request.

Carbon

Band Knives

Features

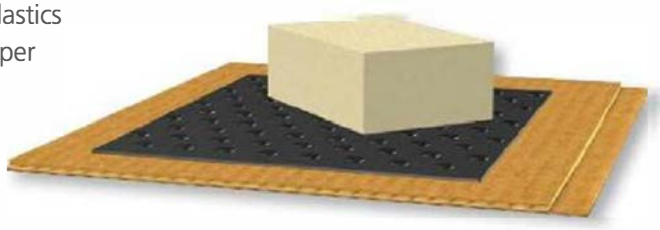
- Available with straight, scallop or wavy tooth cutting edges and a single or double edge bevel
- Made of high-carbon steel and stainless steel
- Razor edge

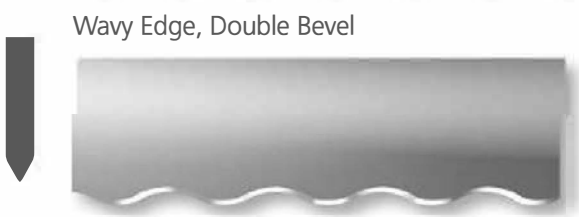
Benefits

- Quick, smooth and precise cuts, with excellent finishing
- Without material waste

Applications

- Foam
- Rubber and soft plastics
- Cardboard and paper
- Cork





Width x Thickness		Edge and Bevel	Material No.
Inches	mm		
3/8 x .022	10 x 0.55	Scallop - Double Bevel	93126
		Scallop - Double Bevel	93590
1/2 x .018	13 x 0.46	Scallop - Double Bevel	93188
1/2 x .022	13 x 0.55	Straight - Single Bevel	93135
		Straight - Double Bevel	93160
		Wavy - Double Bevel	93388
		Scallop - Double Bevel	93189
5/8 x .018	16 x 0.46	Scallop - Double Bevel	93580*
3/4 x .022	19 x 0.55	Straight - Double Bevel	93609
		Wavy - Double Bevel	93715
		Scallop - Double Bevel	93637
		Wavy - Double Bevel	93715
		Scallop - Double Bevel	93637
1 x .025	25 x 0.60	Straight - Double Bevel	93794
		Scallop - Double Bevel	93806
1 x .035	25 x 0.90	Straight - Double Bevel	93796
		Scallop - Double Bevel	93809
		Wavy - Double Bevel	93912

Furnished in welded bands and 100' (30m) coils for 1/4" to 1" widths.
Furnished in welded bands and randon coils for 1-1/2" width.
Note: Special products on request.
*Stainless steel blade.

PRECISION MAKES THE DIFFERENCE

Exceed Your Capabilities.

The Starrett FMS Series incorporates new performance-based capabilities and user-friendly features to help you perform critical force tests with greater accuracy and efficiency.

It can perform all of your basic force measurement tests, as well as more complex multi-stage tests to international standards.

Starrett®

WOOD CUTTING

Wood Cutting

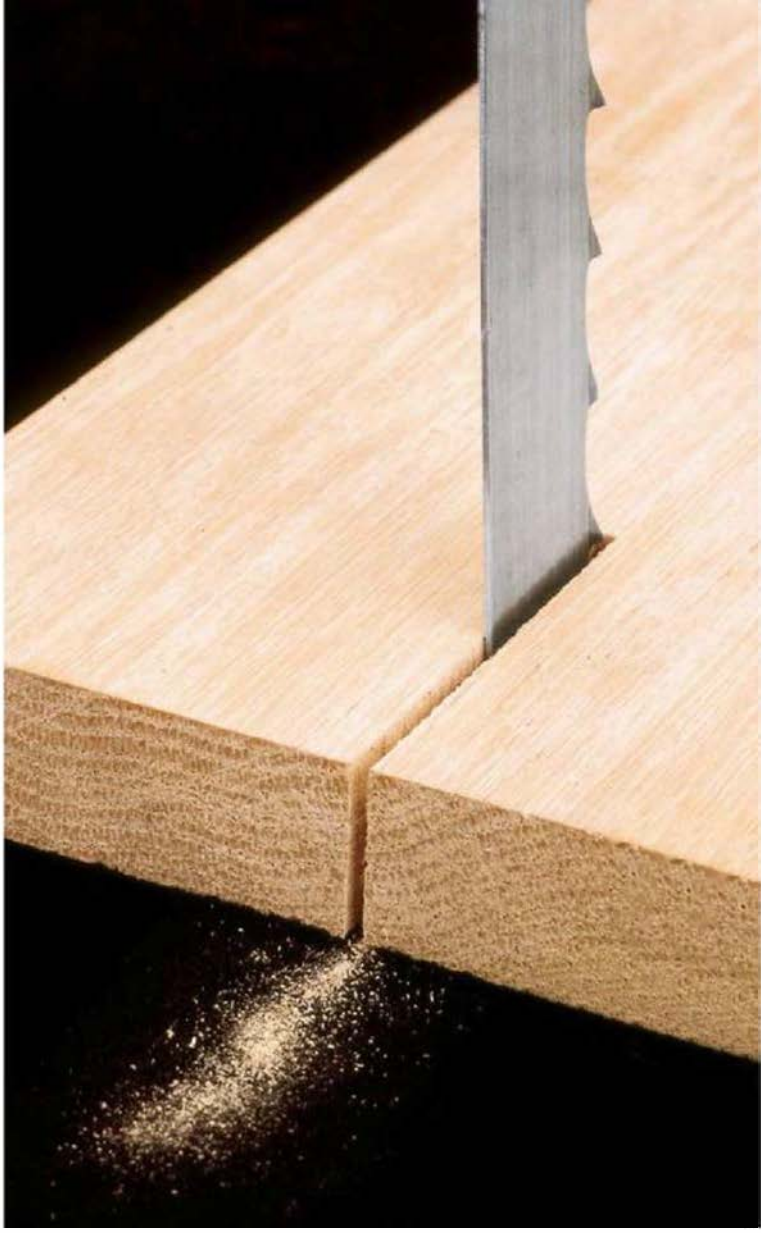
Woodpecker™ Premium

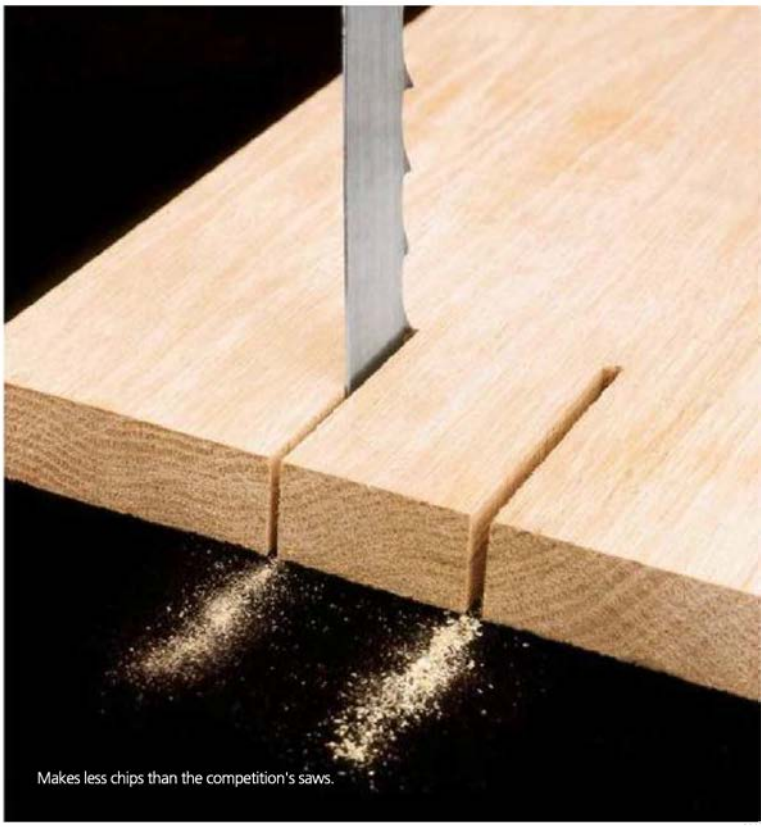
Features

- A selection of blades ideal for a variety of woodworking applications
- Includes blades as thin as .020" for jobs such as contour cutting fine hardwoods to thicker blades for tough tasks including pallet work
- Hardened spring tempered back and ground, precision set teeth with positive tooth angles
- Thin kerf available
- Longer life and faster cutting with less feed
- High production rates and increased yields
- Can be re-sharpened

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1/4 x .020	6.5 x 0.50	4/P	91991
		6S/K	91992
3/8 x .022	10 x 0.55	3/P	91995
		4/P	91996
		6/P	91997
1/2 x .022	13 x 0.55	3/P	92000
		4/P	92001
		6-P	92002
5/8 x .022	16 x 0.55	3/P	92003
		4/P	92004
3/4 x .028	19 x 0.71	3/P	92007
1 x .023	25 x 0.58	3/P	92010
1 x .035	25 x 0.90	1.3/P	92035
		2/P	92036
1-1/4 x .035	32 x 0.90	1.1/P	92042
		1.3/P	92043
1-1/4 x .042	32 x 1.10	1.1/P	92017
		1.3/P	92018
		Variable 5-8/S	92046
1-1/2 x .042	38 x 1.10	1.1/P	92022
2 x .042	50 x 1.10	1.1/P	92026
2-9/16 x .042	65 x1.10	1.1/P	92030

P = Positive Rake
K = Skip Tooth
S = Straight (Zero) Rake





Makes less chips than the competition's saws.

Wood Cutting

Bi-Metal Woodpecker™ Pro

Bi-Metal

Features

- Manufactured from high speed steel M42 containing 8% cobalt
- Specifically designed for all types of hard wood
- Electron beam welded bi-metal construction
- Rockwell tooth hardness C67-69 ensures longer blade life

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
1/4 x .025	6.5 x 0.65	6P/HP	92100
3/8 x .025	10 x 0.90	4/P	92101
1/2 x .025	13 x 0.65	3/P	92102
3/4 x .035	19 x 0.90	3/P	92103
1 x .035	25 x 0.90	2/P	92104
1-1/4 x .035	32 x 0.90	1.1/P	92105
		1.3/P	92106
1-1/4 x .042	32 x 1.10	5-8/S	92107
		1.3/P	92108
		1.1/P	92109
1-1/2 x .050	38 x 1.30	1.1/P	92110
2 x .050	50 x 1.30	1.1/P	92111

P = Positive Rake
HP = High Profile Teeth
S = Straight (Zero) Rake

PRECISION MAKES THE DIFFERENCE

Pure Precision.

Introducing the HDV300 Video-based measurement system. The power of an optical comparator, meets the precision of digital video.

Starrett®

FOOD PROCESSING

Food Processing

MeatKutter™ Premium
MKP

Specifications
- Polished high carbon steel
- Hardened, ground teeth
- Hardened back
- Laser-etched blade for easy identification

Features
- Clean and sanitary operation
- Fast, smooth and clean cuts, with less waste
- Accurate cuts with less effort
- Laser-etched blade identification guarantees product quality and satisfaction

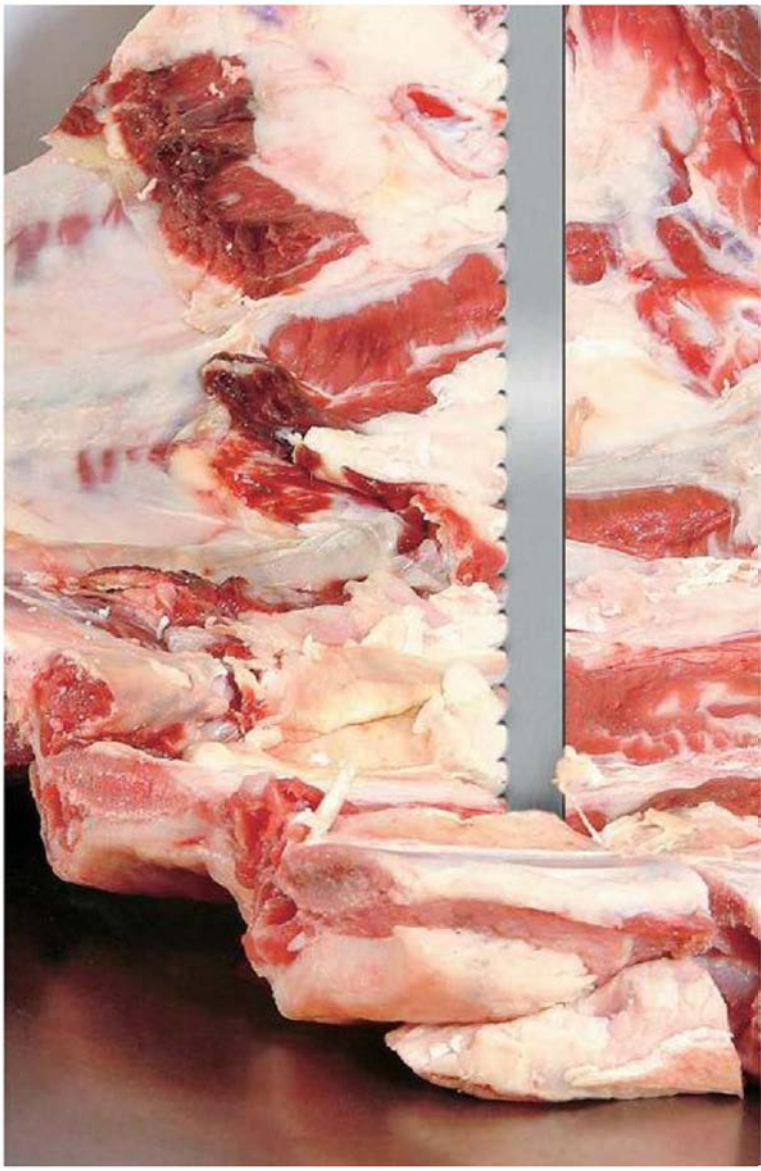
Meat Types
- Fresh meat
- Frozen meat
- Poultry
- Fish

Applications
- Suitable for butcheries, food industry, slaughterhouses, supermarkets

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
1/2 x .022	13 x 0.55	3/H	94310
		4/H	94311
		6/K	94312
5/8 x .018	16 x 0.46	4/H	94314
		6/K	94315
5/8 x .022	16 x 0.55	3/H	94316
		4/H	94317
3/4 x .022	19 x .0.55	3/H	94318
		4/H	94319

H = Hook
K = Skip
Furnished with welded, 100' (30m) coils or random coils.

Starrett Meatkutter™ Premium 5/8 x .018" 5/8 x .022" 16 x 0.46mm X6 OP21221504



Food Processing

Meatkutter™ Stainless
MKS

Specifications
- Stainless steel AISI 420
- Ground teeth
- Laser-etched blade for easy identification

Features
- Rust-proof
- Fast, smooth and clean cuts, with less waste
- Laser-etched blade identification guarantees product quality and satisfaction

Meat Types
- Bone-in or boneless, thawed or frozen
- Poultry
- Fish

Applications
- Suitable for butcheries, food industry, slaughterhouses, supermarkets

Width x Thickness		Pitch/Rake	Material No.
Inches	mm		
5/8 x .018	16 x 0.46	4/H	94321
		6/K	94322

H = Hook
K = Skip
Furnished with welded, 100' (30m) coils or random coils.

Food Processing

CarcassKutter™ Premium
CKP

Specifications
- Polished high carbon steel
- Hardened, ground teeth
- Hardened back
- Laser-etched blade for easy identification

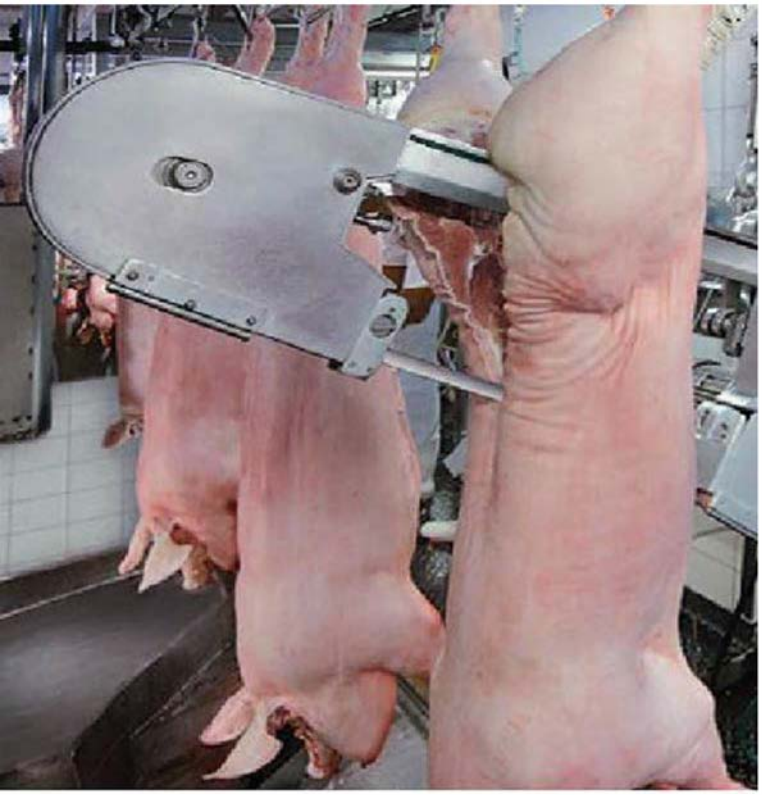
Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
3/4 x .022	19 x 0.55	3/H	94370
		4/H	94371

H = Hook
Furnished welded Individually wrapped or random coils.

Features
- Fast, smooth and clean cuts with less waste
- Accurate cuts with less effort
- Laser-etched blade identification guarantees product quality and satisfaction

Carcass Types
- Animal carcass cuts
- Cattle
- Pigs
- Goats

Applications
- Suitable for frozen meat and slaughter houses
- Cold storage facilities
- Meat packing and processing plants



Food Processing

Meatkutter™ Frozen
MKF

Specifications
- Polished high carbon steel
- Hardened, ground teeth
- Laser-etched blade for easy origin identification and traceability
- Variety of widths and teeth (as shown below)

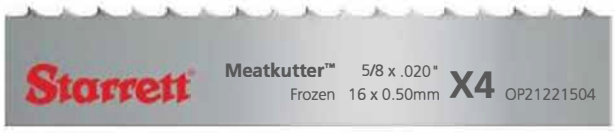
Features
- Minimal meat residue guaranteeing clean and sanitary operation
- Fast, smooth and clean cuts, with less food loss in comparison to conventional blades
- Excellent cutting precision

Meat Types
- Fish
- Frozen meat up to -4˚F (-20˚ C)

Applications
- Meat packing industries

Width x Thickness			
Inches	**mm**	**Pitch/Rake**	**Material No.**
5/8 x .014	16 x 0.35	3/H	94360
5/8 x .020	16 x 0.50	3/H	94361
		4/H	94362
3/4 x .022	19 x 0.55	3/H	94363
1 x .023	27 x 0.60	3/H	94364
1-1/4 x .032	34 x 0.80	2/H	94365
2 x .035	50 x 0.90	1.3/H	94366

H = Hook
Welded blade, 100' (30m), Random length coil



Food Processing

Meatkutter™ Frozen Bi-Metal

MKB

Specifications

- Bi-metal high-speed steel band saw blade
- Hardened teeth and back

Features

- Greater durability compared to conventional blades
- Fast, clean cuts
- Clean, accurate cuts with less waste

Meat Types

- Frozen fish up to -76˚F (-60° C)
- Large fish

Applications

- Suitable for meat packing, portioning and seafood processing

Width x Thickness			
Inches	mm	Pitch/Rake	Material No.
1-1/4 x .035	34 x 0.90	3/H/H	94380

H = Hook
Furnished welded or random coils.

POWER HACKSAWS

Power Hacksaws

Bi-Metal HSS-BS

Cutting Edge of High Speed Steel

Features

- Available in metric and inch
- Hardened and tempered high-speed steel teeth
- Tough alloy steel back resistant to shock and breakage

Applications

- Ideal for all general steel cutting
- Works well in a wide variety of applications, including interrupted cuts

Benefits

- Alloy back resists fatigue under the most adverse conditions

CUTTING CHART FOR POWER HACKSAW BLADES-BS AND RS

Cross Section to be cut	Material Thickness: Up to 3/4" (20mm) Pitch*	From 3/4" to 1-1/2" (From 20mm to 40mm)	From 1-1/2" to 3.1/2" (From 40mm to 90mm)	Above 3.1/2" (Above 90mm)	Bow Speeds in Strokes per minute **
Low-Carbon Steel	14-10	10-6	6-4	4-2.1/2	70-90
Medium Carbon Steel	14-10	10-6	6-4	4-2.1/2	60-80
High Carbon Steel	14-10	10-6	6-4	4-2.1/2	55-70
Carbon Low Alloy Steel	14-10	10-6	6-4	4-2.1/2	65-80
Carbon High Alloy Steel	14-10	10-6	6-4	4-2.1/2	45-60
Easy to machine steel	14-10	10-6	6-4	4-2.1/2	80-100
Tool Steel	14-10	10-6	6-4	4-2.1/2	55 -70
Low-Alloy High Speed Steel	14-10	10-6	6-4	4-2.1/2	50-60
High-Alloy High Speed Steel	14-10	10-6	6-4	4-2.1/2	45-55
Cast Iron Class 20	14-10	10-6	6-4	4-2.1/2	70-80
Cast Iron Class 40	14-10	10-6	6-4	4-2.1/2	65-75
Cast Iron Class 60	14-10	10-6	6-4	4-2.1/2	40 -55
Malleable Cast Iron	14-10	10-6	6-4	4-2.1/2	65-75
Austenitic Cast Iron	14-10	10-6	6-4	4-2.1/2	40-55
Inconel and Monel	14-10	10-6	6-4	4-2.1/2	40-55
Stainless Steels	14-10	10-6	6-4	4-2.1/2	50-60
Copper	14-10	10-6	6-4	4-2.1/2	95-140
Bronze	14-10	10-6	6-4	4-2.1/2	85-105
Brass	14-10	10-6	6-4	4-2.1/2	90-110
Aluminum	14-10	10-6	6-4	4-2.1/2	100-140

*The blade should be tensioned correctly .
*Since you have two options for each thickness range, use a finaer pitch (more teeth per inch) for thinner sections and coarser pitches (fewer teeth per inch) for thick sections.
** For materials with width higher than 3", decrease at least 20% of cutting rates.

Power Hacksaws

Bi-Metal HSS-BS

Cutting Edge of High Speed steel

Cat. No.	Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter	EDP
BS1210-5	12" x 1-1/8" x .050" 300mm x 28mm x 1.25mm	10	8.5mm	40097
BS1214-5		14		40098
BS1410-5	14" x 1-1/8" x .050" 350mm x 28mm x 1.25mm	10		40099
BS1414-5		14		40100
BS1406-6	14" x 1-3/8" x .062" 350mm x 35mm x 1.6mm	6		40101
BS1410-6		10		40102
BS1406-7	14" x 1-5/8" x .075" 350mm x 41mm x 2mm	6	10.75mm	40105
BS1706-6	17" x 1-3/8" x .062" 425mm x 35mm x 1.6mm	6	8.5mm	40113
BS1710-6		10		40114
BS1806-6	18" x 1-3/8" x .062" 450mm x 35mm x 1.6mm	6	10.75mm	40115
BS1810-6		10		40116
BS1804-7	18" x 1-5/8" x .075" 450mm x 41mm x 2mm	4		40118
BS1806-7		6		40119
BS1804-8	18" x 1-7/8" x .088" 450mm x 47mm x 2.25mm	4		40121
BS1806-8		6		40122
BS2104-8	21" x 1-7/8" x .088" 525mm x 47mm x 2.25mm	4		40126
BS2106-8		6		40127
BS2403-0	24" x 2-1/8" x .100" 600mm x 54mm x 2.5mm	3	16.75mm	40131
BS2404-0		4		40132

Blades from 12" (300mm) to 20" (500mm) length packaged and sold 5 blades per plastic tube.
Blades from 21" (525mm) or wider, packaged and sold 1 blade per envelope.

Power Hacksaws

High Speed Steel-RS

High Speed Steel

Features

- Available in metric and inch
- Fully hardened molybdenum high-speed steel

Applications

- Ideal for cutting a wide range of materials

Benefits

- Long wear life and top performance
- Withstands heavier feed pressures providing faster cutting

CUTTING CHART FOR POWER HACKSAW BLADES-BS AND RS

Cross Section to be cut	Material Thickness: Up to 3/4" (20mm) Pitch*	From 3/4" to 1-1/2" (From 20mm to 40mm)	From 1-1/2" to 3-1/2" (From 40mm to 90mm)	Above 3-1/2" (Above 90mm)	Bow Speeds in Strokes per minute **
Low-Carbon Steel	14-10	10-6	6-4	4-2.1/2	70-90
Medium Carbon Steel	14-10	10-6	6-4	4-2.1/2	60-80
High Carbon Steel	14-10	10-6	6-4	4-2.1/2	55-70
Carbon Low Alloy Steel	14-10	10-6	6-4	4-2.1/2	65-80
Carbon High Alloy Steel	14-10	10-6	6-4	4-2.1/2	45-60
Easy to machine steel	14-10	10-6	6-4	4-2.1/2	80-100
Tool Steel	14-10	10-6	6-4	4-2.1/2	55 -70
Low-Alloy High Speed Steel	14-10	10-6	6-4	4-2.1/2	50-60
High-Alloy High Speed Steel	14-10	10-6	6-4	4-2.1/2	45-55
Cast Iron Class 20	14-10	10-6	6-4	4-2.1/2	70-80
Cast Iron Class 40	14-10	10-6	6-4	4-2.1/2	65-75
Cast Iron Class 60	14-10	10-6	6-4	4-2.1/2	40 -55
Malleable Cast Iron	14-10	10-6	6-4	4-2.1/2	65-75
Austenitic Cast Iron	14-10	10-6	6-4	4-2.1/2	40-55
Inconel and Monel	14-10	10-6	6-4	4-2.1/2	40-55
Stainless Steels	14-10	10-6	6-4	4-2.1/2	50-60
Copper	14-10	10-6	6-4	4-2.1/2	95-140
Bronze	14-10	10-6	6-4	4-2.1/2	85-105
Brass	14-10	10-6	6-4	4-2.1/2	90-110
Aluminum	14-10	10-6	6-4	4-2.1/2	100-140

*The blade should be tensioned correctly .
*Since you have two options for each thickness range, use a finer pitch (more teeth per inch) for thinner sections and coarser pitches (fewer teeth per inch) for thick sections.
** For materials with width higher than 3", decrease at least 20% of cutting rates.

Power Hacksaws

High Speed Steel-RS

High Speed Steel

Cat. No.	Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter	EDP
RS1210-5	12" x 1" x .050" 300mm x 25mm x 1.25mm	10	8.5mm	40046
RS1214-5		14		40047
RS1410-5	14" x 1" x .050" 350mm x 25mm x 1.25mm	10		40049
RS1414-5		14		40050
RS1406-6	14" x 1-1/4" x .062" 350mm x 32mm x 1.6mm	6		40051
RS1410-6		10		40052
RS1606-6	16" x 1-1/4" x .062" 400mm x 32mm x 1.25mm	6		40057
RS1610-6		10		40058
RS1706-6	17" x 1-1/4" x .062" 425mm x 32mm x 1.6mm	6		40062
RS1710-6		10		40063
RS1806-6	18" x 1-1/4" x .062" 450mm x 32mm x 1.6mm	6	10.75mm	40064
RS1810-6		10		40065
RS1804-7	18" x 1-1/2" x .075" 450mm x 38mm x 2mm	4		40067
RS1806-7		6		40068
RS1804-8	18" x 1-3/4" x .088" 450mm x 45mm x 2.25mm	4		40070
RS1806-8		6		40071
RS2104-8	21" x 1-3/4" x .088" 450mm x 45mm x 2.25mm	4		40075
RS2106-8		6		40076
RS2404-0	24" x 2" x .100" 600mm x 50mm x 2.5mm	4	11.25mm	40081
RS3004-0	30" x 2-1/2" x .100" 750mm x 63mm x 2.5mm	4	16.75mm	40083

Blades from 12" (300mm) to 20" (500mm) length packaged and sold 5 blades per plastic tube.
Blades from 21" (525mm) or wider, packaged and sold 1 blade per envelope.

Cat. No.	Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter	EDP
Metric High Speed Steel Power Hacksaw Blades (for KASTO and other metric machines)				
RS300-6	12" x 1-1/4" x .075" 300mm x 32mm x 2mm	6	8.5mm	16168
RS300-10		10		16169
RS350-6	14" x 1-1/4" x .075" 50mm x 32mm x 2mm	6		40177
RS350-10		10		40178
RS400-4	16" x 1-1/4" x .075" 400mm x 32mm x 2mm	4		40179
RS400-6		6		40180
RS400-10		10		40181
RS450-4	18" x 1-1/2" x .075" 450mm x 38mm x 2mm	4		40182
RS450-6		6		40183
RS450-10		10		40184
RS500-4	20" x 1-3/4" x .075" 500mm x 45mm x 2mm	4	10.5mm	16170
RS500-6		6		16171
RS500-10		10		16172
RS550-4	22" x 1-3/4" x .075" 550mm x 45mm x 2mm	4		40173
RS550-6		6		40174
RS550-10		10		40185
RS575-4	23" x 2" x .100" 575mm x 50mm x 2.5mm	4		40175
RS575-6		6		40176
RS600-4	24" x 2" x .100" 600mm x 50mm x 2.5mm	4		16173
RS600-6		6		16174
RS650-4	26" x 2-3/16" x .100" 650mm x 55mm x 2.5mm	4		40186
RS650-6		6		40187
RS700-4	28" x 2-3/16" x .100" 700mm x 55mm x 2.5mm	4		40188
RS700-6		6		40189
RS850-4	34" x 2-3/8" x .118" 850mm x 60mm x 3mm	4	12.5mm	16175
RS850-6		6		16176
RS900-2 1/2	36" x 4-1/2" x .138" 900mm x 114mm x 3.5mm	2-1/2 TPI		68716
RS1000-2 1/2	40" x 5" x .138" 1000mm x 126mm x 3.5mm			16177

Blades from 12" (300mm) to 20" (500mm) length packaged and sold 5 blades per plastic tube.
Blades from 21" (525mm) or wider, packaged and sold 1 blade per envelope.

RECOMMENDATIONS

BLADE BREAK-IN

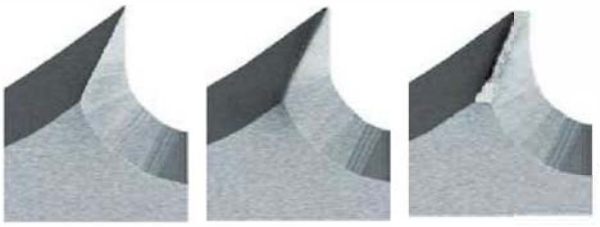
Using the right break-in procedures for a bi-metal blade ensures longer blade life, faster cuts for a longer period of time and consistent performance. Conversely, blade life can be significantly compromised if the proper break-in procedures are not followed.

Softer material such as carbon steel and aluminum:

A. Run the normal surface feet per minute (SFPM).
B. Adjust the feed pressure to 50% the normal cutting rate for 50-100 square inches (323-645 sq.cm).
C. Increase to 100% cutting rate.
D. Avoid vibration.

Harder materials such as nickel-based alloys like inconel, hardened steels, tool steels and stainless steels:

A. Run the normal surface feet per minute (SFPM).
B. Adjust the feed pressure to 75% of the normal cutting rate for 25-75 square inches (161-484 sq.cm).
C. Gradually increase cutting rate to reach 100% after 50 square inches (323 sq.cm) .
D. Avoid vibration.



New blade with razor sharp teeth | Tooth correctly broken in | Tooth incorrectly broken in

Start to cut material at reduced cutting rate

After break-in when the blade has fully entered the work-piece, increase the feed rate over a series of cuts until the recommended cutting rate is achieved

RECOMMENDATIONS

BAND SAW BLADE INSTALLATION GUIDELINES

Always follow the machine manufacturer's instruction and recommendations for blade changes and the safe operation for the band saw machine. Starrett nor its employees shall not be held responsible for the accuracy or completeness of these guidelines.

The general information contained in the guidelines is intended to assist in the proper installation of band saw blades.

Proper blade installation achieves more efficient blade performance.

- Wear gloves when handling band saw blade

- Use eye protection, safety shoes, and hearing protection



FOLLOW THESE INSTRUCTIONS CAREFULLY

- Follow all the safety instructions shown in the band saw machine operator's manual and on the machine labels. Recognize and read safety and warning signs such as Danger, Warning and Caution
- Follow the saw blade installation instructions on the specific make and model of the band saw machine requiring a blade change

BASIC BLADE CHANGE GUIDELINES

- Remove any chips from saw guides and band wheels
- Position chip brush away from saw
- Relieve saw blade tension and remove blade
- Select appropriate blade for cutting application
- Unfold blade properly. Do not throw. Throwing the blade will result in tooth damage that will reduce saw blade performance
- Install blade with saw teeth pointing in proper direction

- Apply appropriate tension to the blade
- Be aware of pinch points and keep hands and clothing clear of rotating blade

- Adjust guide arms to appropriate positions to workpiece
- Adjust blade guides for proper blade support
- Adjust chip brush to fully engage saw blade teeth to ensure proper chip removal



- Check hydraulic fluid levels when applicable
- Ensure appropriate cutting fluid placement and mix ratios as applicable per machine, cutting fluid, and blade manufacturer's recommendations

ACCESSORIES

POCKET LASER TACHOMETER KIT WITH CASE NO. S7793Z

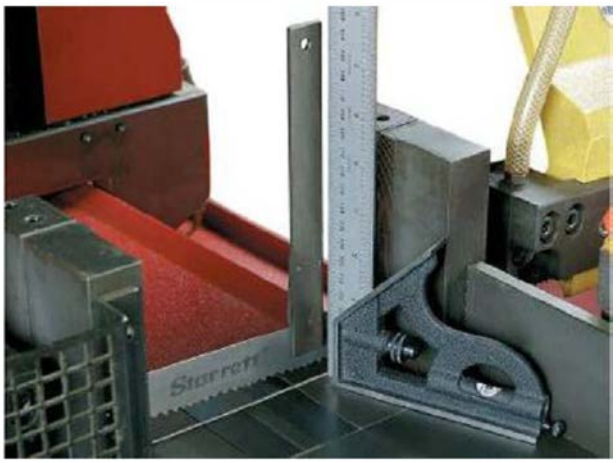
- Powerful tachometer with 32 functions for measurements with or without contact
- From 200.000 RPM (optical measurement) to 20.000 RPM
- Measurement with contact up to 20.000 RPM
- Measurement with contact 2.000 m/min. (linear speed)
- Different measurement units: RPM, cm, inches, feet, yards etc.

SAW TENSION GAGE FOR BAND SAW BLADES NO. 682EMZ

- Check for proper tension in either English or metric
- Graduated in kg/cm² (0 to 4.000) and in pounds/in² (0 to 60.000)
- Supplied in a case with instructions

BAND SAW BLADE ALIGNMENT GAGE NO. PT92925

This gage enables you to make sure your blade is running square to the cut.



Starrett®

Precision, Quality, Innovation

PTA AND HAND TOOLS

- Hole Saws
- Hacksaws
- Jig Saws
- Reciprocating Saws
- Portable Band Saws
- Measuring Tapes
- Utility Knives
- Levels
- Plumb Bobs
- Chalk
- Rules & Squares
- Calipers
- Protractors
- Punches
- Shop Tools
- Lubricant

PRECISION, QUALITY, INNOVATION

For more than 135 years, manufacturers, builders and craftsmen worldwide have depended upon precision tools and saws from The L.S. Starrett Company to ensure the consistent quality of their work.

They know that the Starrett name on a saw blade, hand tool or measuring tool ensures exceptional quality, innovative products and expert technical assistance.

With strict quality control, state-of-the-art equipment and an ongoing commitment to producing superior tools, the thousands of products in today's Starrett line continue to be the most accurate, robust and durable tools available. This catalog features those tools most widely used on a jobsite or in a workshop environment.

Starrett®

HOLE SAWS

Our new line includes the Fast Cut and Deep Cut bi-metal saws, and application-specific hole saws engineered specifically for certain materials, power tools and jobs. A full line of accessories, including Quick-Hitch™ arbors, pilot drills and protective cowls, enables you to optimise each job with safe, cost efficient solutions.

09

HACKSAWS

Hacksaw Safe-Flex® and Grey-Flex® blades and frames, Redstripe® power hack blades, compass and PVC saws to assist you with all of your hand sawing needs.

31

JIG SAWS

Our Unified Shank® jig saws are developed for wood, metal and multi-purpose cutting. The Starrett bi-metal unique® saw technology provides our saws with 170% greater resistance to breakage, cut faster and last longer than other saws. Our Dual Cut® blades are an exclusive saw design to provide burr-free cutting on both sides of the material.

41

RECIPROCATING SAWS

General purpose reciprocating blades provide a comprehensive set of sawing solutions to professional trades people and do-it-yourselfers. Our offering includes pneumatic blades for pallet dismantling, King Cut® rescue and demolition and general purpose blades.

45

PORTABLE BAND SAWS

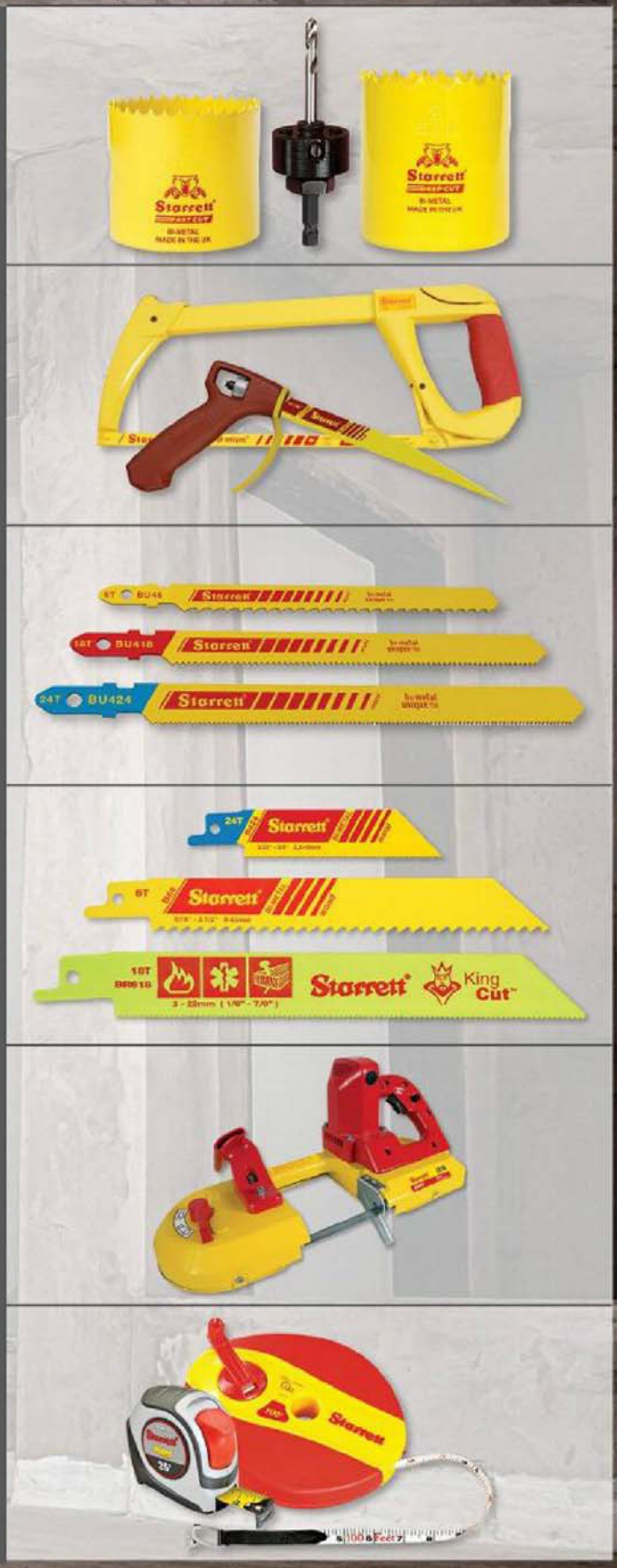
We offer blades for these convenient power tools. Univerz™ are ready to go to work in convenient lengths to fit popular portable machines.

49

MEASURING TAPES

Our measuring tapes and Measure Stix™ are offered in a wide range of styles and sizes. Graduations are available in English and Metric to meet virtually every requirement for accurate tape measurement. Introducing the new series of Starrett, Starrett Exact® and Starrett Exact® Plus.

51



PTA AND HAND TOOLS

UTILITY KNIVES

A whole new line of utility knives to suit the cutting needs of mechanics, carpenters, maintenance workers and do-it-yourselfers. We have the utility knife for your need.

61

LEVELS

A variety of levels are offered in various lengths and styles. Whether you are looking for a wood Master Pro®, aluminum or plastic, they are all accurate and excellent quality. Also introducing the new Starrett, Starrett Exact® and Starrett Exact® Plus.

67

PLUMB BOBS

Steel, solid steel and solid brass for top accuracy in all layout work to provide a low center of gravity and great weight in proportion to their short length and small diameter.

79

CHALK

Our chalk lines are produced with high impact-resistant cases. The chalk line is secured with a stainless steel hook. Meet the new series.

83

RULES AND SQUARES

Our rules and squares are made from fine quality materials and produced to the highest precision standards, making them the most accurate and readable rules on the market. Offered in a practical variety of styles to suit the needs of the individual, whether it be a toolmaker, mechanic, carpenter, or a do-it-yourself homeowner.

87

SLIDE CALIPERS

Our calipers are light, comfortable, easy-to-use, and constructed with features that have made Starrett slide calipers the machinist's first choice for many years.

107

PROTRACTORS

The ProSite® Protractor takes error-prone calculations out of the process of miter cuts. The tool is ideal for carpenters, plumbers and all building trades that require the measuring and transferring of angles.

111

PUNCHES

More than 10 models between automatic center punches with adjustable stroke, center punches with round shanks, with square shanks, for prick punches, square head nail sets, drive pin punches and brass drive pin punches.

117

SHOP TOOLS

A wide variety of gages and precision hand tools designed for delicate shop work of machinists and toolmakers. These tools are the best in the business for accurately scribing lines, transferring measurements and for probing surfaces in inspection and production work.

129

LUBRICANT

Our M1® lubricant is an all purpose lubricant and cleaner all in one. It removes grease and grime, adhesive tar and other hard to remove materials. Deep penetrating lubricant that will not attract dirt, dust or other contaminants as other leading lubricants do. Starrett uses M1® in our manufacturing facilities all over the world. M1 will become the best investment in your shop.

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INDEX

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PTA AND HAND TOOLS

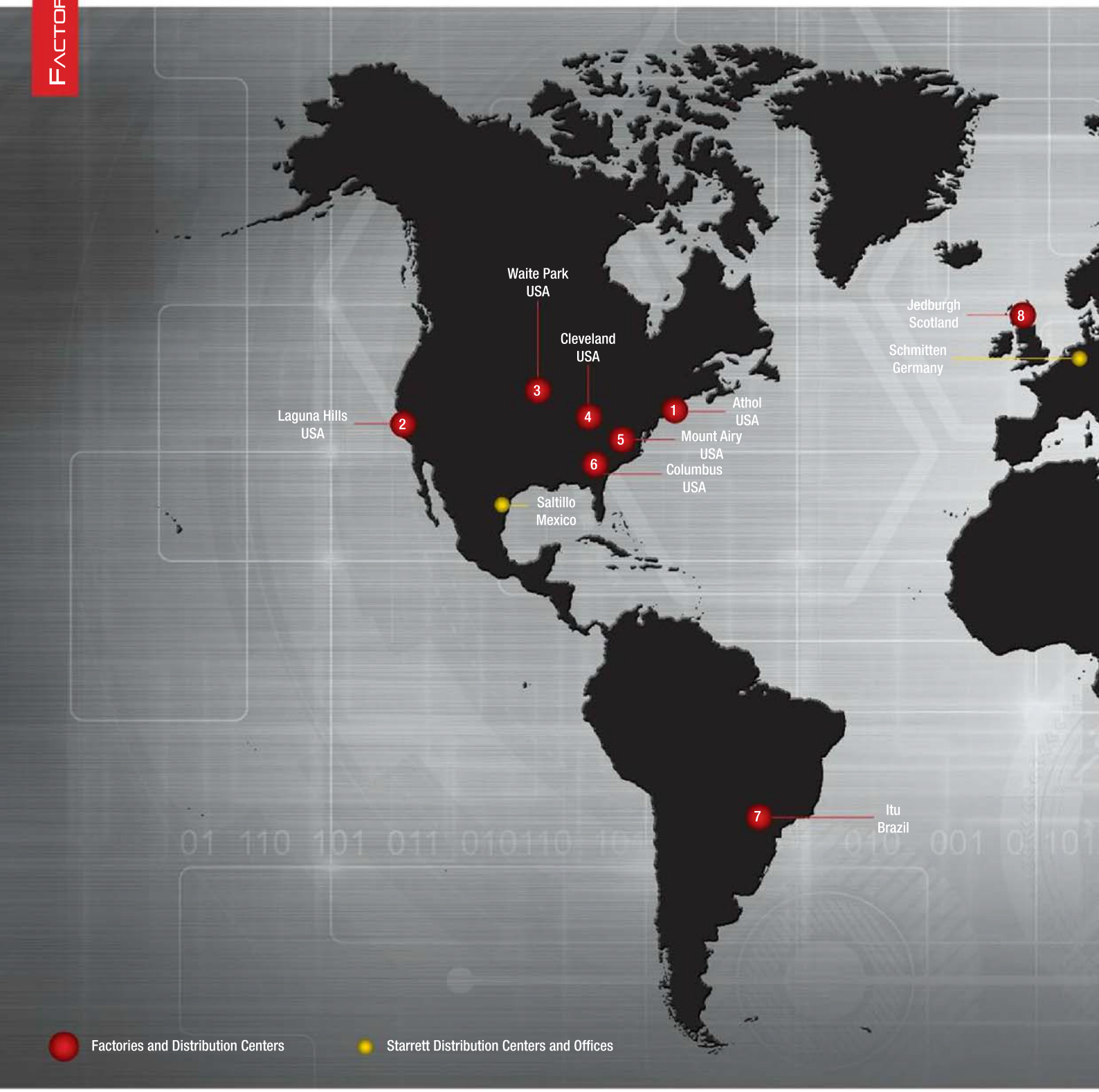
FACTORIES AROUND THE WORLD

1 - Athol, Massachusetts, USA

2 - Laguna Hills, California, USA

3-Waite Park, Minnesota, USA

4-Cleveland, Ohio, USA



Starrett

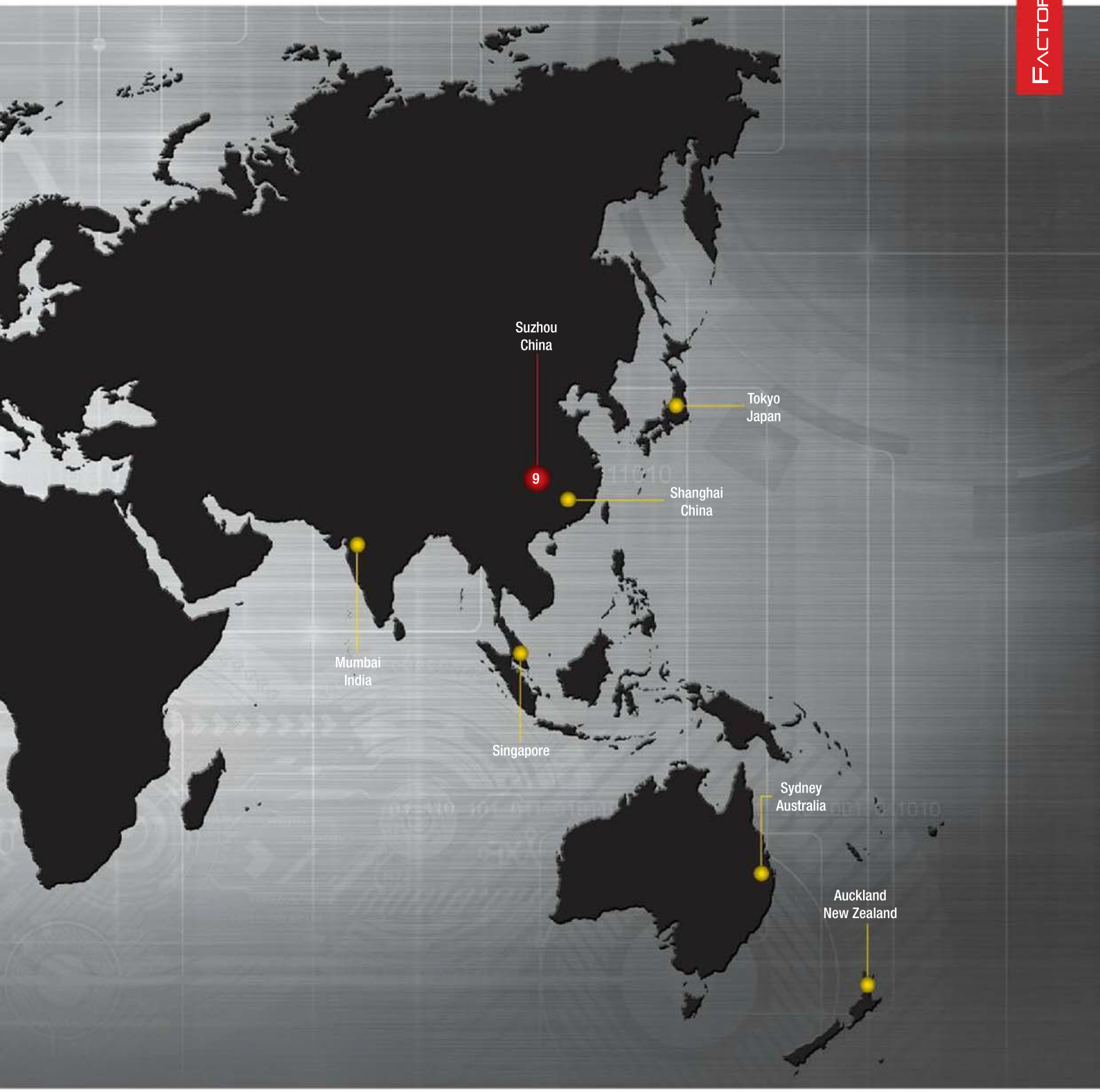
5 - Mount Airy, North Carolina, USA

6 - Columbus, Georgia, USA

7 - Itu, São Paulo, Brazil

8 - Jedburgh, Scotland

9 - Suzhou, China



PRECISION MAKES THE DIFFERENCE

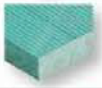
PURE PRECISION.

Introducing the HDV300 Video-based measurement system. The power of an optical comparator, meets the precision of digital video.

Starrett®

HOLE SAWS

HOLE SAW APPLICATION GUIDE

Material Thickness and Application		Bi-Metal Starrett FAST CUT (FCH Line)	Starrett DEEP CUT (DCH Line)	Cordless SmoothCut (CSC Line)
Hole Saw Depth		1-5/8" (41mm)	2" (51mm)	1/2" (13mm)
Recommended Cutting Depths	<3mm	✓		✓
	3 - 13mm		✓	
	>13mm		✓	
Metal Inox (stainless)		★★	★★	★★
Non Ferrous Materials		★★	★★	★★
Cast Iron		★	★	
Wood		★	★	★
Nail Embedded Wood		★	★	
Veneer		★	★	★
MDF				
Plastic		★	★	★
Acrylic		★	★	★
Ceramic				
Porcelain/Glass/Stone				
Fiberglass		★	★	
Formica		★	★	★
Plaster		★	★	★
Suspended Floors (wood)		★	★	
Suspended Floors (composite)				
Brick and Masonry				

CUTTING PERFORMANCE - Excellent ★★ I Satisfactory ★

Starrett

	Tungsten Carbide Tipped			Diamond Tipped/Grit
	Fast Cut Multi-Purpose (MPH Line)	Carbide Tipped (CT Line)	Carbide Tipped Stainless Steel Sheet Metal (SM Line)	Ceramic and Abrasive Material Tile Drill and Hole Saw (D Line)
	2-1/8" (54mm)	1-5/8" (41mm)		Diameter Dependent
	✓	✓		✓
	✓	✓		✓
	✓	✓		✓
		★★		
	★★	★		
		★★		
	★★	★★		
	★★			
	★★			
	★★			
		★		★★
				★★
	★	★★		★★
	★★	★★		
	★★	★★		
		★★		
		★★		
		★		★★

NEW!

BI-METAL

Fast Cut Bi-Metal Hole Saws

The Fast Cut saw combines a new tooth material, with enhanced heat and wear resistance, and a new tooth design, providing a smoother, faster cut on a wide range of materials, when compared against the previous Constant Pitch saw.

Specifically suited to cutting stainless and mild steel sheet, the Fast Cut will also cut through tubes with a wall thickness of up to 1/8" (3mm).

Features

- New tooth material for enhanced heat and wear resistance and greater product life
- Ideal for stainless and mild steel sheet and tubes with wall thickness of up to 1/8" (3mm)
- New 5.5 TPI/25mm tooth form provides a smoother, faster cut in all materials
- Hole saw depth of 1-5/8" (41mm)

Applications		
Hole Saw Depth		1-5/8" (41mm)
Rec. Cutting Depth	<3mm	✓
Metal Inox (stainless)		★★
Non Ferrous Metals		★★
Cast Iron		★
Wood		★
Nail Embedded Wood		★
Veneer		★
Plastic		★
Acrylic		★
Fiberglass		★
Formica		★
Plaster		★
Suspended Floors (wood)		★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

Cat. No.*	EDP	Diameter mm
FCH015M-G	00496	15
FCH020M-G	00502	20
FCH025M-G	00512	25
FCH030M-G	00516	30
FCH035M-G	00523	35
FCH040M-G	00527	40
FCH045M-G	00533	45
FCH050M-G	00536	50
FCH056M-G	00541	56
FCH068M-G	00544	68
FCH075M-G	00545	75
FCH100M-G	00547	100
FCH160M-G	01391	160
FCH168M-G	01392	168
FCH177M-G	01393	177
FCH210M-G	01394	210

Cat. No.	EDP	Diameter in	mm
FCH0096-G	00485	9/16	14
FCH0058-G	00483	5/8	16
FCH1016-G	00548	11/16	17
FCH0034-G	00482	3/4	19
FCH2532-G	00554	25/32	20
FCH1036-G	00549	13/16	21
FCH0078-G	00484	7/8	22
FCH1056-G	00550	15/16	24
FCH0100-G	00486	1	25
FCH0116-G	00489	1-1/16	27
FCH0118-G	00490	1-1/8	29
FCH0136-G	00492	1-3/16	30
FCH0114-G	00488	1-1/4	32
FCH0156-G	00494	1-5/16	33
FCH0138-G	00493	1-3/8	35
FCH0176-G	00497	1-7/16	37
FCH0112-G	00487	1-1/2	38
FCH0196-G	00499	1-9/16	40
FCH0158-G	00495	1-5/8	41
FCH1116-G	00551	1-11/16	43
FCH0134-G	00491	1-3/4	44
FCH1136-G	00552	1-13/16	46
FCH0178-G	00498	1-7/8	48
FCH0200-G	00500	2	51
FCH0216-G	00505	2-1/16	52
FCH0218-G	00506	2-1/8	54
FCH0214-G	00504	2-1/4	57
FCH0256-G	00509	2-5/16	59
FCH0238-G	00508	2-3/8	60
FCH0212-G	00503	2-1/2	64
FCH0296-G	00514	2-9/16	65
FCH0258-G	00511	2-5/8	67
FCH0234-G	00507	2-3/4	70
FCH0278-G	00513	2-7/8	73
FCH0300-G	00515	3	76
FCH0318-G	00519	3-1/8	79
FCH0314-G	00518	3-1/4	83
FCH0338-G	00521	3-3/8	86
FCH0312-G	00517	3-1/2	89
FCH0358-G	00522	3-5/8	92
FCH0334-G	00520	3-3/4	95
FCH0378-G	00525	3-7/8	98
FCH0400-G	00526	4	102
FCH0418-G	00530	4-1/8	105
FCH0414-G	00529	4-1/4	108
FCH0438-G	00532	4-3/8	111
FCH0412-G	00528	4-1/2	114
FCH0434-G	00531	4-3/4	121
FCH0500-G	00535	5	127
FCH0514-G	00540	5-1/4	133
FCH0512-G	00539	5-1/2	140
FCH0600-G	00542	6	152

BI-METAL

Deep Cut Bi-Metal Hole Saws

The Deep Cut saw combines the tried and tested tooth form from the previous Dual Pitch product, with a new tooth material for enhanced heat and wear resistance.

The Deep Cut saw also features an increased hole saw depth of 2" (51mm), and is ideal for cutting metal of more than 3mm thickness, tubes with a wall thickness of greater than 3mm and wood up to 2" (51mm) thick.

Features

- Aggressive material penetration and kerf clearance
- Ideal for solid materials or tubes of a wall thickness greater than 3mm
- 51mm hole saw depth improves cutting performance on tubes, particularly where there is a need to cut through both sides of the tube
- New tooth material for enhanced heat and wear resistance and greater product life
- Hole saw depth of 2" (51mm)

Cat. No.	EDP	Diameter mm
DCH160M-G	00477	160
DCH168M-G	00478	168
DCH177M-G	00479	177
DCH210M-G	00480	210

Cat. No.	EDP	Diameter in	mm
DCH0034-G	00427	3/4	19
DCH2532-G	00481	25/32	20
DCH1036-G	00473	13/16	21
DCH0078-G	00428	7/8	22
DCH1056-G	00474	15/16	24
DCH0100-G	00429	1	25
DCH0116-G	00432	1-1/16	27
DCH0118-G	00433	1-1/8	29
DCH0136-G	00435	1-3/16	30
DCH0114-G	00431	1-1/4	32
DCH0156-G	00437	1-5/16	33
DCH0138-G	00436	1-3/8	35
DCH0176-G	00439	1-7/16	37
DCH0112-G	00430	1-1/2	38
DCH0196-G	00441	1-9/16	40
DCH0158-G	00438	1-5/8	41
DCH1116-G	00475	1-11/16	43
DCH0134-G	00434	1-3/4	44
DCH1136-G	00476	1-13/16	46
DCH0178-G	00440	1-7/8	48
DCH0200-G	00442	2	51
DCH0216-G	00445	2-1/16	52
DCH0218-G	00446	2-1/8	54
DCH0214-G	00444	2-1/4	57
DCH0256-G	00449	2-5/16	59
DCH0238-G	00448	2-3/8	60
DCH0212-G	00443	2-1/2	64
DCH0296-G	00452	2-9/16	65
DCH0258-G	00450	2-5/8	67
DCH068M-G	00472	2-11/16	68
DCH0234-G	00447	2-3/4	70
DCH0278-G	00451	2-7/8	73
DCH0300-G	00453	3	76
DCH0318-G	00456	3-1/8	79
DCH0314-G	00455	3-1/4	83
DCH0338-G	00458	3-3/8	86
DCH0312-G	00454	3-1/2	89
DCH0358-G	00459	3-5/8	92
DCH0334-G	00457	3-3/4	95
DCH0378-G	00460	3-7/8	98
DCH0400-G	00461	4	102
DCH0418-G	00464	4-1/8	105
DCH0414-G	00463	4-1/4	108
DCH0438-G	00466	4-3/8	111
DCH0412-G	00462	4-1/2	114
DCH0434-G	00465	4-3/4	121
DCH0500-G	00467	5	127
DCH0514-G	00469	5-1/4	133
DCH0512-G	00468	5-1/2	140
DCH0600-G	00471	6	152

Applications		
Hole Saw Depth		2" (51mm)
Rec. Cutting Depth	3-13mm	✓
	>13mm	✓
Metal Inox (stainless)		★★
Non Ferrous Metals		★★
Cast Iron		★
Wood		★
Nail Embedded Wood		★
Veneer		★
Plastic		★
Acrylic		★
Fiberglass		★
Formica		★
Plaster		★
Suspended Floors (wood)		★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

BI-METAL

Deep Cut

WITH ARBOR

This line is composed by Deep Cut hole saw blade assembled with arbor and pilot drill, with a new tooth material for enhanced heat and wear resistance. Hole saw depth of 2" (51mm), ideal for cutting metal and wood thicker than 1/8" (3mm).

Features

- Aggressive material penetration and kerf clearance
- Ideal for solid materials or tubes of a wall thickness greater than 1/8" (3mm)
- 2" (51mm) hole saw depth improves cutting performance on tubes, particularly where there is a need to cut through both sides of the tube
- New tooth material for enhanced heat and wear resistance and greater product life

Applications		
Hole Saw Depth		2" (51mm)
Rec. Cutting Depth	3-13mm	✓
	>13mm	✓
Metal Inox (stainless)		★★
Non Ferrous Metals		★★
Cast Iron		★
Wood		★
Nail Embedded Wood		★
Veneer		★
Plastic		★
Acrylic		★
Fiberglass		★
Formica		★
Plaster		★
Suspended Floors (wood)		★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

Cat. No.	EDP	Diameter in	mm
ADCH0034	00893	3/4	19
ADCH1036	00939	13/16	21
ADCH0078	00895	7/8	22
ADCH1056	00940	15/16	24
ADCH0100	00897	1	25
ADCH0116	00900	1-1/16	27
ADCH0118	00901	1-1/8	29
ADCH0136	00903	1-3/16	30
ADCH0114	00899	1-1/4	32
ADCH0156	00905	1-5/16	33
ADCH0138	00904	1-3/8	35
ADCH0176	00907	1-7/16	37
ADCH0112	00898	1-1/2	38
ADCH0196	00909	1-9/16	40
ADCH0158	00906	1-5/8	41
ADCH1116	00941	1-11/16	43
ADCH0134	00902	1-3/4	44
ADCH1136	00942	1-13/16	46
ADCH0178	00908	1-7/8	48
ADCH0200	00910	2	51
ADCH0216	00913	2-1/16	52
ADCH0218	00914	2-1/8	54
ADCH0214	00912	2-1/4	57
ADCH0256	00917	2-5/16	59

Cat. No.	EDP	Diameter in	mm
ADCH0238	00916	2-3/8	60
ADCH0212	00911	2-1/2	64
ADCH0296	00920	2-9/16	65
ADCH0258	00918	2-5/8	67
ADCH0234	00915	2-3/4	70
ADCH0278	00919	2-7/8	73
ADCH0300	00921	3	76
ADCH0318	00924	3-1/8	79
ADCH0314	00923	3-1/4	83
ADCH0338	00926	3-3/8	86
ADCH0312	00922	3-1/2	89
ADCH0358	00927	3-5/8	92
ADCH0334	00925	3-3/4	95
ADCH0378	00928	3-7/8	98
ADCH0400	00929	4	102
ADCH0418	00932	4-1/8	105
ADCH0414	00931	4-1/4	108
ADCH0438	00934	4-3/8	111
ADCH0412	00930	4-1/2	114
ADCH0434	00933	4-3/4	121
ADCH0500	00935	5	127
ADCH0512	00936	5-1/2	140
ADCH0600	00937	6	152

BI-METAL

Cordless SmoothCut

ASSEMBLIES FOR BATTERY OPERATED POWER TOOLS

Complete hole saw assembly including arbor and pilot drill specifically for cordless power tools. Heat resistant HSS, with alloy backing and constant pitch of 8 TPI for mild sheet steel, plasterboard, wood and thin non-metallics. Flared base cap limits cutting depth to 1/2".

Features

- Ideal for cutting stainless, tool and mild steel sheeting plus plasterboard, wood and thin plastics. Complete assembly arbor, pilot drill and ejector spring included.
- Constant pitch teeth provide exceptionally smooth cuts
- 8 TPI (8 teeth/1" [25.4mm])
- Hole saw depth of 1/2" (13mm)

Applications		
Hole Saw Depth		1/2" (13mm)
Rec. Cutting Depth	<3mm	✓
Metal Inox (stainless)		★★
Non Ferrous Metals		★★
Wood		★
Veneer		★
Plastic		★
Acrylic		★
Formica		★
Plaster		★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

Cat. No.	EDP	Diameter in	mm
KCSC16-N	11541	5/8	16
KCSC19-N	11542	3/4	19
KCSC20-N	11543	25/32	20
KCSC22-N	11544	7/8	22
KCSC25-N	11545	1	25
KCSC27-N	11546	1-1/16	27
KCSC29-N	11547	1-1/8	29
KCSC30-N	11548	1-3/16	30
KCSC32-N	11549	1-1/4	32
KCSC35-N	11550	1-3/8	35
KCSC38-N	11551	1-1/2	38
KCSC40-N	00135	1-9/16	40
KCSC51-N	00136	2	51

SPECIAL PURPOSE

Carbide Tipped

TUNGSTEN CARBIDE TIPPED MULTI-PURPOSE

MPH Hole Saws will power through wood, MDF, plastics and plasterboard. Cutting speeds will be up to five times faster than a bi-metal hole saw cutting the same material. For installers, our range of kits provide the perfect solution to all your cutting needs.

Features

- Rapid, heat free stock removal of wood, MDF, plastics, plasterboard and brick up to five times faster than bi-metal hole saws
- Carbide tipped teeth for outstanding cutting performance and product durability
- Smooth cutting with minimal heat build up
- Suitable for use in electric and battery powered tools
- Hole saw depth of 2-1/8" (54mm)
- Special arbors featuring extended length pilot drills are available, alternatively fit the longer A014CE pilot drill to our standard Starrett arbors

Applications		
Hole Saw Depth		2-1/8" (54mm)
Rec. Cutting Depth	<3mm	✓
	3-13mm	✓
	>13mm	✓
Wood		★★
Veneer		★★
MDF		★★
Plastic		★★
Acrylic		★★
Fiberglass		★
Formica		★★
Plaster		★★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

Cat. No.	EDP	Diameter in	Diameter mm
MPH0034	68936	3/4	19
MPH2532	68937	25/32	20
MPH0078	68938	7/8	22
MPH0100	68939	1	25
MPH0116	68940	1-1/16	27
MPH0118	68941	1-1/8	29
MPH0136	68942	1-3/16	30
MPH0114	68943	1-1/4	32
MPH0138	68944	1-3/8	35
MPH0112	68945	1-1/2	38
MPH0196	68946	1-9/16	40
MPH0158	68947	1-5/8	41
MPH0134	68948	1-3/4	44
MPH0178	68949	1-7/8	48
MPH0200	68950	2	51
MPH0218	68951	2-1/8	54
MPH0214	68952	2-1/4	57
MPH0238	68953	2-3/8	60
MPH0212	68954	2-1/2	64
MPH0296	69062	2-9/16	65
MPH0258	68955	2-5/8	67
MPH0234	68956	2-3/4	70
MPH0278	69064	2-7/8	73
MPH0300	68957	3	76
MPH0318	68958	3-1/8	79
MPH0314	68959	3-1/4	83
MPH0338	68960	3-3/8	86
MPH0312	68961	3-1/2	89
MPH0358	68962	3-5/8	92
MPH0334	68963	3-3/4	95
MPH0378	69065	3-7/8	98
MPH0400	68964	4	102
MPH0418	69066	4-1/8	105
MPH0414	68965	4-1/4	108
MPH0456	69067	4-5/16	109
MPH0438	68966	4-3/8	111
MPH0412	68967	4-1/2	114
MPH0458	69068	4-5/8	118
MPH0434	68968	4-3/4	121
MPH0500	68969	5	127
MPH0512	68970	5-1/2	140
MPH0600	68971	6	152
MPH0614	69069	6-1/4	159

Cat. No.*	EDP	Diameter in	Diameter mm
KMPH0034-N	10002	3/4	19
KMPH0078-N	10003	7/8	22
KMPH0100-N	10006	1	25
KMPH0118-N	10023	1-1/8	29
KMPH0114-N	10010	1-1/4	32
KMPH0138-N	10043	1-3/8	35
KMPH0112-N	10009	1-1/2	38
KMPH0158-N	10050	1-5/8	41
KMPH0134-N	10032	1-3/4	44
KMPH0178-N	10052	1-7/8	48
KMPH0200-N	10053	2	51
KMPH0218-N	10077	2-1/8	54
KMPH0214-N	10064	2-1/4	57
KMPH0238-N	10116	2-3/8	60
KMPH0212-N	10054	2-1/2	64
KMPH0258-N	10117	2-5/8	67
KMPH0234-N	10099	2-3/4	70
KMPH0300-N	10120	3	76

***CAT. NO. WITH K**: Clam pack (plastic clamshell packaging)

Starrett

SPECIAL PURPOSE

Carbide Tipped

HIGH PERFORMANCE TRIPLE CHIP TUNGSTEN CARBIDE

CT Hole Saws offer a cost effective solution for cutting nail embedded wood, or virtually any wood and metal combination, reinforced concrete and fibreglass. This saw is particularly suitable where there is a requirement for a high quality surface finish on the entry and exit hole and it also provides a smooth cut when cutting traditional lathe and plaster.

Features

- A cost effective solution for cutting nail embedded wood, any wood and metal combination, reinforced concrete and fibreglass
- Leaves high quality surface finish on entry and exit and provides a smooth cut.
- Tungsten carbide tipped teeth for outstanding cutting performance and product durability
- Suitable for use in electric and battery operated tools
- Hole saw depth of 1-5/8" (41mm)

Applications		
Hole Saw Depth		1-5/8" (41mm)
Rec. Cutting Depth	<3mm	✓
	3-13mm	✓
	>13mm	✓
Cast Iron		★★
Wood		★
Nail Embedded Wood		★★
Veneer		★★
Plastic		★
Acrylic		★
Ceramic		★
Fiberglass		★★
Formica		★★
Plaster		★★
Suspended Floors (composite)		★★
Brick and Masonry		★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

Cat. No.	EDP	Diameter in	Diameter mm
CT034	65614	3/4	19
CT078	65615	7/8	22
CT100	65616	1	25
CT118	65617	1-1/8	29
CT114	65618	1-1/4	32
CT138	65619	1-3/8	35
CT112	65620	1-1/2	38
CT196	66462	1-9/16	40
CT158	65621	1-5/8	41
CT134	65622	1-3/4	44
CT178	65623	1-7/8	48
CT200	65624	2"	51
CT218	65625	2-1/8	54
CT214	65626	2-1/4	57
CT238	65627	2-3/8	60
CT212	65628	2-1/2	64
CT258	65629	2-5/8	67
CT234	65630	2-3/4	70

Cat. No.	EDP	Diameter in	Diameter mm
CT300	65631	3	76
CT318	66948	3-1/8	79
CT314	65632	3-1/4	83
CT338	65633	3-3/8	86
CT312	65634	3-1/2	89
CT358	65635	3-5/8	92
CT334	65636	3-3/4	95
CT378	66949	3-7/8	98
CT400	65637	4	102
CT418	65638	4-1/8	105
CT414	65639	4-1/4	108
CT438	65640	4-3/8	111
CT412	65641	4-1/2	114
CT434	65642	4-3/4	121
CT500	65643	5	127
CT512	65644	5-1/2	140
CT600	65645	6	152

SPECIAL PURPOSE

CARBIDE TIPPED

TUNGSTEN CARBIDE TIPPED STAINLESS STEEL SHEET METAL

Ideal for cutting stainless and high alloy steels, non-ferrous light metals and reinforced fabrics, at a much faster speed than is possible with a bi metal hole saw.

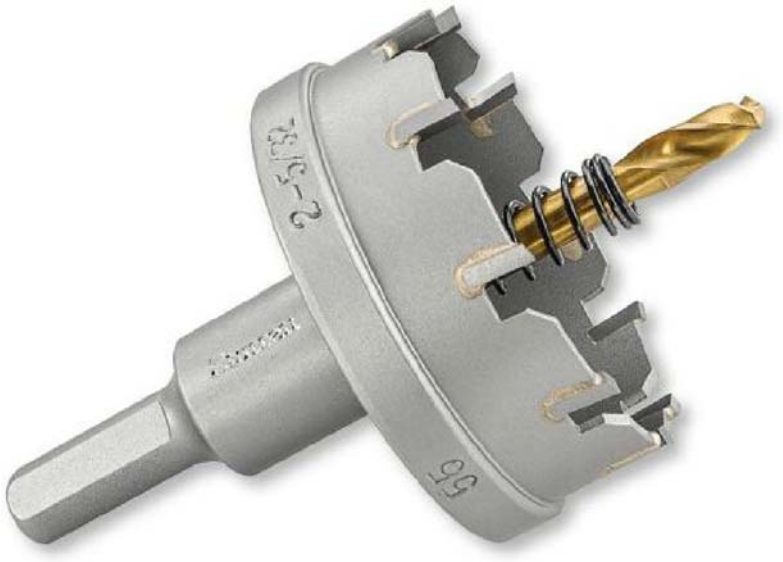
The tough tungsten carbide tipped teeth have a positive cutting angle which provides fast and efficient removal of chips and swarf, recommended cutting depth is 1/2" (13mm).

Applications		
Hole Saw Depth		1/2" (13mm)
Rec. Cutting Depth	<3mm	✓
Metal		
Inox (stainless)		★★
Non Ferrous Metals		★★

CUTTING PERFORMANCE - Excellent ★★ | Satisfactory ★

FEATURES

- Ideal for production cutting, and particularly suitable for use in drills with limited speed control
- Tungsten carbide tipped teeth provide superb product life and cutting performance
- Replacement pilot drills are available
- Complete assembly - there is no requirement to purchase a separate arbor and pilot drill
- Safety stop at the base of the hole saw prevents saw travel beyond the hole saw depth - 1/2" (13mm)
- Recommended cutting depth 1/2" (13mm)



Cat- No.	EDP	Diameter in	mm
SM15	11863	19/32	15
SM16	11864	5/8	16
SM17	11865	11/16	17
SM18	11866	23/32	18
SM19	11867	3/4	19
SM20	11868	25/32	20
SM21	11869	13/16	21
SM22	11870	7/8	22
SM23	11871	29/32	23
SM24	11872	15/16	24
SM25	11873	1	25
SM26	11874	1-1/32	26
SM27	11875	1-1/16	27
SM28	11876	1-3/32	28
SM29	11877	1-1/8	29
SM30	11878	1-3/16	30
SM31	11879	1-7/32	31
SM32	11880	1-1/4	32
SM33	11881	1-5/16	33
SM34	11882	1-11/32	34

Cat- No.	EDP	Diameter in	mm
SM35	11883	1-3/8	35
SM36	11884	1-13/32	36
SM37	11885	1-7/16	37
SM38	11886	1-1/2	38
SM39	11887	1-17/32	39
SM40	11888	1-9/16	40
SM45	11889	1-25/32	45
SM50	11890	1-31/32	50
SM51	11891	2	51
SM55	11892	2-5/32	55
SM60	11893	2-3/8	60
SM65	11894	2-9/16	65
SM70	11895	2-3/4	70
SM75	11896	2-15/16	75
SM80	11897	3-5/32	80
SM85	11898	3-11/32	85
SM90	11899	3-17/32	90
SM95	11900	3-3/4	95
SM100	11901	3-15/16	100

Starrett

DIAMOND

Diamond Tile Drills

High performance hole saws for drilling small diameter holes in many non-metallics. These diamond edge hole saws are produced with a uniform coating of synthetic diamond grit bonded to a durable steel platform. Diamond edge saws produce clean, accurate cuts on brick, glass, ceramic tiles, concrete and stone. This provides exceptional performance at high speeds and effective cutting action.

Features

- Able to cut rapidly through porcelain, glass, ceramics, brick and stone
- Small diameter hole saws are perfect for kitchen and bathroom installations
- Smooth surface finish
- Drive arbor and drill not required
- Maximum cutting depth of 25/32" (20mm)

Cat. No.	EDP	Size in	mm
KD0005-N	12479	3/16	5
KD0006-N	12680	15/64	6
KD00065-N	12697	1/4	6.5
KD0008-N	12700	5/16	8
KD0010-N	12703	3/8	10
KD0012-N	12705	1/2	12

Applications		
Hole Saw Depth		25/32" (20mm)
Rec. Cutting Depth	<3mm	✓
	3-13mm	✓
	>13mm	✓
Ceramic		★★
Porcelain/Glass/Stone		★★
Fiberglass		★★
Brick and Masonry		★★

CUTTING PERFORMANCE - Excellent ★★ I Satisfactory ★

TILE DRILL WATER BOTTLE

Plastic water dispensing bottle to apply coolant to drill bit.

Cat. No.	EDP
WCD01	12366

DIAMOND TILE DRILL GUIDE

Used in place of a pilot bit to eliminate hole saw walking and prevent damage to work surfaces. The guide is manufactured with rubber feet, allowing user to secure it in place without scratching work surface.

Cat. No.	EDP
DTDG01	12365

DIAMOND

Diamond Grit

High performance saws for non-metallics. Synthetic diamond grit bonded over a durable steel platform. Capable of cutting through porcelain, glass, ceramics, brick, stone and concrete these hole saws are the ideal solution in the toughest of cutting situations.

Features

- Small diameter hole saws are perfect for kitchen and bathroom installations
- Smooth surface finish
- Drive arbors with carbide tipped pilot drills available
- Hole saw depth of 1-5/8" (41mm)

Applications		
Hole Saw Depth		1-5/8" (41mm)
Rec. Cutting Depth	<3mm	✓
	3-13mm	✓
	>13mm	✓
Ceramic		★★
Porcelain/Glass/Stone		★★
Fiberglass		★★
Brick and Masonry		★★

Cutting Performance - Excellent ★★ I Satisfactory ★

Cat. No.	EDP	Diameter in	mm
KD0096-N	11569	9/16	14
KD0058-N	11570	5/8	16
KD1016-N	11571	11/16	17
KD0034-N	11572	3/4	19
KD2532-N	01378	25/32	20
KD1036-N	11573	13/16	21
KD0078-N	11574	7/8	22
KD1056-N	11575	15/16	24
KD0100-N	11576	1	25
KD0116-N	11577	1-1/16	27
KD0118-N	11578	1-1/8	29
KD0136-N	12871	1-3/16	30
KD0114-N	12872	1-1/4	32
KD0156-N	01363	1-5/16	33
KD0138-N	12873	1-3/8	35
KD0176-N	01364	1-7/16	37
KD0112-N	12874	1-1/2	38
KD0196-N	01365	1-9/16	40
KD0158-N	12875	1-5/8	41
KD1116-N	01376	1-11/16	43
KD0134-N	12877	1-3/4	44
KD1136-N	01377	1-13/16	46
KD0178-N	12878	1-7/8	48
KD0200-N	12879	2	51
KD0216-N	01366	2-1/16	52

Cat. No.	EDP	Diameter in	mm
KD0218-N	12880	2-1/8	54
KD0214-N	12881	2-1/4	57
KD0256-N	01367	2-5/16	59
KD0238-N	12885	2-3/8	60
KD0212-N	12886	2-1/2	64
KD0296-N	01369	2-9/16	65
KD0258-N	12892	2-5/8	67
KD0234-N	12893	2-3/4	70
KD0278-N	01368	2-7/8	73
KD0300-N	12894	3	76
KD0318-N	01370	3-1/8	79
KD0314-N	12896	3-1/4	83
KD0338-N	12897	3-3/8	86
KD0312-N	12907	3-1/2	89
KD0358-N	01371	3-5/8	92
KD0334-N	12908	3-3/4	95
KD0378-N	01372	3-7/8	98
KD0400-N	12909	4	102
KD0418-N	01373	4-1/8	105
KD0414-N	12915	4-1/4	108
KD0438-N	01374	4-3/8	111
KD0412-N	12916	4-1/2	114
KD0500-N	12917	5	127
KD0512-N	01375	5-1/2	140
KD0600-N	12918	6	152

Starrett

KITS

Offering a comprehensive range of kits to support our hole saw range. Suitable for tradesmen, installation engineers, industry generally and the d-i-y enthusiast, our kits feature a range of saws with sizes selected specifically to suit the relevant application. Packed in sturdy carrying cases, the kits will be an invaluable addition to any toolbox.

FAST CUT BI-METAL HOLE SAW KITS - FCH

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
Plumbers Kits					
KFC07031-N	01235	3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2, 2-1/4	19, 22, 29, 38, 44, 51, 57	Bi-Metal	A1, A10, A7
Electricians Kits					
KFC06041-N	01222	5/8, 25/32, 1, 1-1/4, 1-9/16, 2	16, 20, 25, 32, 40, 51	Bi-Metal	A4, A10, A12, A7
Plumbers and Electricians Kits					
KFC09041-N	01223	3/4, 7/8, 1-1/8, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2	19, 22, 29, 35, 38, 44, 51, 57, 64	Bi-Metal	A1, A2, A5, A7

DEEP CUT BI-METAL HOLE SAW KITS - DCH

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
Plumbers Kits					
KDC06041-N	01234	3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4	19, 22, 29, 38, 44, 57	Bi-Metal	A1E, A2E, A12, A014CE
KDC12061-N	01236	3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4, 2-9/16, 3, 3-1/2, 4, 4-1/4, 4-1/2	19, 22, 29, 38, 44, 57, 65, 76, 89, 102, 108, 114	Bi-Metal	A1E, A2E, A014CE, A5, A12
Electricians Kits					
KDC06042-N	01215	7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2	22, 29, 35, 44, 51, 64	Bi-Metal	A1E, A2E, A12
KDC11041-N	01219	7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2, 3, 3-5/8, 4-1/8, 4-1/2, 4-3/4	22, 29, 35, 44, 51, 64, 76, 92, 105, 114, 121	Bi-Metal	A1, A2, XA014C (2), A12, A7
Industrial Kits					
KDC15061-N	01221	3/4, 7/8, 1-1/8, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2, 3, 3-1/4	19, 22, 29, 35, 38, 44, 51, 57, 64, 76, 83	Bi-Metal	A1E, A4E, A2E, A12, A5
KDC07051-N	01216	3/4, 7/8, 1, 1-1/4, 1-1/2, 1-3/4, 2-1/8	19, 22, 25, 32, 38, 44, 54	Bi-Metal	A1E, A2E, A5, A12
KDC11042-N	01220	3/4, 7/8, 1, 1-1/4, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2, 3	19, 22, 25, 32, 35, 38, 44, 51, 57, 64, 76	Bi-Metal	A1E, A2E, A5
Locksmiths and Doorlock Kits					
KDC06034-N	01214	7/8, 1, 1-1/4, 1-1/2, 1-3/4, 2-1/8	22, 32, 38, 44, 54	Bi-Metal	A1E, A10E, A12
KDC08061-N	01217	3/4, 7/8, 1, 1-3/8, 1-1/2, 1-5/8, 1-3/4, 2-1/8	19, 22, 25, 35, 38, 41, 44, 54	Bi-Metal	A1E, A2E, A014CE (3), A12
General Purpose Kits					
KDC09051-N	01218	3/4, 7/8, 1-1/8, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2	19, 22, 29, 35, 38, 44, 51, 57, 64	Bi-Metal	A1E, A2E, A014CE, A12

CARBIDE TIPPED HOLE SAW KITS - CT

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
Electricians Kits					
KCT06041-N	69924	7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/2	22, 29, 35, 44, 51, 64	Carbide Tipped	XA1, XA2, A12, A7
General Purpose Kits					
KCT090501-N	69971	3/4, 7/8, 1-1/8, 1-3/8, 1-1/2,1-3/4, 2, 2-1/4, 2-1/2	19, 22, 29, 35, 38, 44, 51, 57, 64	Carbide Tipped	XA1, XA2, XA014C, A15, A7

MULTI-PURPOSE HOLE SAW KITS - MPH

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
General Purpose Kits					
KMP03031-N	69972	2-1/8, 2-9/16, 3-5/8	54, 65, 92	MPH Carbide Tipped	A2-E, AX014C (2)

DIAMOND GRIT HOLE SAW KITS - D

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
General Purpose Kits					
KD09041-N	69974	3/4, 7/8, 1-1/8, 1-3/8, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2	19, 22, 29, 35, 38, 44, 51, 57, 64	Diamond Grit	XA1, XA2, XA014C, A15, A7

DIAMOND TILE DRILL KITS

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
General Purpose Kits					
KD2000TD1	12370	3/16, 15/64, 1/4, 5/16, 3/8, 1/2	5, 6, 6.5, 8, 10, 12	Diamond Tile Drills	One knockout pin

MIXED HOLE SAW KITS - BI-METAL, CARBIDE TIPPED AND SMOOTHCUT

Cat. No.	EDP	Hole Saw Sizes in	mm	Material	Arbors and Accessories
Electricians Kits (mixed)					
KMX25061-N	69926	3/4, 7/8, 1-1/8, 1-1/4, 1-3/8, 1-3/4, 2, 2-1/2, 2-11/16, 3, 3-5/8, 4-1/8, 4-1/2, 4-3/4	19, 22, 29, 32, 35, 44, 51, 64, 68, 76, 92, 105, 114, 121	Bi-Metal	A1E, A2E, XA014C (2), A12, A7
		3/4, 7/8, 1-1/8, 1-3/8, 1-3/4, 2, 2-1/4, 2-1/2	19, 22, 29, 35, 44, 51, 57, 64	Carbide	
		3/4, 1-1/8, 1-3/8	19, 29, 35	SmoothCut	

ARBORS AND ACCESSORIES

Ulti-Mate Rapid Release Arbor System

SUPER FAST TOOL FREE CHANGES BETWEEN DIFFERENT DIAMETERS AND TYPES OF HOLE SAW AND EASIER CORE EJECTION!

Ulti-Mate from Starrett offers super fast, tool free changes between different diameters and types of hole saw, without adjustment of the drill chuck. Removal of cores from a hole saw after a cut is also much improved by the rapid release of the hole saw from the arbor.

A3 A3-6 A3-3 A3-4 A3-5 A3-7 A3-8 A014M

Cat. No.	EDP	Description
A3	20974	ULTI-MATE hole saw arbor with pilot drill
A3-6	20987	ULTI-MATE hole saw arbor with pilot drill and one of each of the standard hole saw adapters
A3-3	20977	Three ULTI-MATE hole saw adapters, suitable for hole saws from 9/16" - 1-3/16" (14-30mm)
A3-4	20978	Three ULTI-MATE hole saw adapters, suitable for hole saws from 1-1/4" - 4" (32-102mm)
A3-5	20979	ULTI-MATE hole saw adapter, suitable for heavy duty cutting on large diameter saws (4"/102mm and greater)
A3-7	20988	ULTI-MATE hole saw arbor with pilot drill, 25/32" (20mm) and 1" (25mm) Fast Cut Hole Saws and hole saw adapters
A3-8	20989	ULTI-MATE hole saw arbor with pilot drill, 25/32" (20mm) and 1" (25mm) Deep Cut Hole Saws and hole saw adapters

Using the Ulti-Mate!

ATTACHING A HOLE SAW

Screw the appropriate adapter on to the hole saw and push the hole saw and adapter down the drill (1). When the hole saw and adapter can be pushed no further, turn the hole saw and the collar will click on (2).

LOCKING A HOLE SAW

To lock a hole saw on to the ULTI-MATE, turn the collar on the arbor so that the arrow on the base of the arbor and the arrow on the collar are not aligned. (1). This will then lock the saw and the arbor together, and ensure that the hole saw cannot be accidentally released while drilling.

RELEASING A HOLE SAW

To release the hole saw, align the arrow on the collar and the arrow on the base of the arbor (1) and pull the collar back (2). The saw will then be released. The release is spring loaded so please take care when releasing the saw!

REUSING THE HOLE SAW ADAPTERS

Once the hole saw has come to the end of its useful life, the arbor adapters can be reused, even if intensive use has resulted in the adapters becoming very firmly attached to the hole saw. Place the complete assembly in a vice, using the flats on either side of the arbor to hold the assembly still (1). The used hole saw can then be unscrewed from the adapter using a pair of grips or similar tool.

ARBORS AND ACCESSORIES

Kwik change Arbor System

FAST, TOOL FREE CHANGES BETWEEN DIFFERENT SIZES AND TYPES OF HOLE SAW, PLUS A SIMPLE METHOD OF CORE EJECTION AND HOLE ENLARGEMENT.

The new Kwik Change arbor system from Starrett offers fast, tool free changes between different sizes and types of hole saws, plus a simple method of core ejection and hole enlargement. Suitable for the standard Starrett hole saw range up to 6" (152mm) diameter, Kwik Change will be an invaluable addition for any regular hole saw user.

Cat. No.	EDP	Description
A6	12919	Kwik Change Chuck - Hex Shank
A6-1	12921	Kwik Change Chuck - SDS Shank
A6-2	12923	Kwik Change Arbor for 14-30mm hole saws
A6-3	12925	Kwik Change Arbor for 32-152mm hole saws
A015C	12926	Kwik Change High Speed Steel Pilot Drill
XA015C	12927	Kwik Change Carbide Tipped Pilot Drill

Kwik-Change between hole saws!

Kwik-Change Pilot Drill!

Core Ejection and Hole Enlargement!

Cat. No.	EDP	Description	Kit Contents
Kwik Change Kits - Hex Shank Chuck			
A6-4	12928	Kwik Change Arbor Kit with High Speed Steel Drill	Kwik Change Chuck, A6-2 Arbor (1), A6-3 Arbor (1), A015C Pilot Drill (1)
A6-5	12932	Kwik Change Arbor Kit with Carbide Tipped Drill	Kwik Change Chuck, A6-2 Arbor (1), A6-3 Arbor (1), XA015C Pilot Drill (1)
A6-8	12938	Kwik Change Arbor Kit with Fast Cut hole Saws	Kwik Change Chuck, A6-2 Arbors (2), A6-3 Arbor (1), A015C Pilot Drill (1), 25/32" (20mm) (1), 25mm (1") (25mm) (1) and 1-1/4" (32mm) (1) Fast Cut Bi Metal Hole Saws
A6-10	12941	Kwik Change Arbor Kit with Deep Cut Hole Saws	Kwik Change Chuck, A6-2 Arbors (2), A6-3 Arbor (1), A015C Pilot Drill (1), 25/32" (20mm) (1), 25mm 1" (25mm) (1) and 1-1/4" (32mm) (1) Deep Cut Bi Metal Hole Saws
Kwik Change Chuck - SDS Shank Chuck			
A6-6	12933	Kwik Change Arbor Kit with High Speed Steel Drill	Kwik Change Chuck, A6-2 Arbor (1), A6-3 Arbor (1), A015C Pilot Drill (1)
A6-7	12936	Kwik Change Arbor Kit with Carbide Tipped Drill	Kwik Change Chuck, A6-2 Arbor (1), A6-3 Arbor (1), XA015C Pilot Drill (1)
A6-9	12939	Kwik Change Arbor Kit with Fast Cut hole Saws	Kwik Change Chuck, A6-2 Arbors (2), A6-3 Arbor (1), A015C Pilot Drill (1), 25/32" (20mm) (1), 1" (25mm) (1) and 1-1/4" (32mm) Fast Cut Bi Metal Hole Saws (1)
A6-11	12942	Kwik Change Arbor Kit with Deep Cut Hole Saws	Kwik Change Chuck, A6-2 Arbors (2), A6-3 Arbor (1), A015C Pilot Drill (1), 25/32" (20mm) (1) , 1" (25mm) (1) and 1-1/4" (32mm) (1) Deep Cut Bi Metal Hole Saws

KWIK-CHANGE

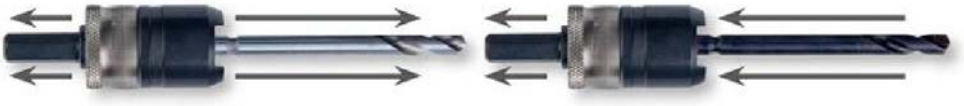
ARBOR

- Attach the arbors to all regularly used hole saws
- Change between different sizes of saw at the push of a button!

Push the button on the arbor and pull the hole saw down the pilot drill. To use a new hole saw, push the button on the arbor and slide the hole saw forward to remove it.

PILOT DRILL

- Pull back the chrome collar on the chuck to change the pilot drill
- No tools required!
- **CAUTION**: Pilot drills may be hot after use



Pull back the collar on the chuck to remove the pilot drill, to insert a new drill pull back the collar on the chuck and insert the new drill.

HOLE ENLARGEMENT

- Attach arbors to hole saws of the same size as the existing hole and the same size as the required hole
- Attach the larger diameter hole saw to the Kwik-Change chuck
- Attach the smaller diameter hole saw to the drill and slide it down inside the larger diameter saw
- Drill the hole. ***This system is recommended for overhead or vertical surfaces only.***

Attach the larger hole saw to the chuck, slide the smaller of the two hole saws inside the larger hole saw and use it as a pilot for the new, larger hole.

CORE EJECTION

- If the core is stuck in the hole saw after drilling a hole, press the arbor button and slide the hole saw and attached arbor off the drill.
- The pilot drill can then be used to push the core out of the saw using the side flutes or the holes in the base of the saw.
- **CAUTION**: Cores may be hot and sharp.

If the core is still stuck in the saw, the pilot drill can be used to push the core out of the saw using the holes in the base of the hole saw.

ARBORS AND ACCESSORIES


A1


A2


A4


A10


A17-38E


A7

High Speed Steel

WITH PILOT DRILL

Arbor suitable for use with Fast Cut (FCH), Carbide Tipped (CT) and Diamond (D) hole saws (Diamond hole saw applications will usually require an arbor with a carbide tipped pilot drill).

Cat. No.	EDP	Fits Hole Saw Diameter in	Fits Hole Saw Diameter mm	Shank Size in	Shank Size mm
A1	55141	9/16 - 1-3/16	14 - 30	11/32 Hex	8.75 Hex
KA1-N*	11553				
A4	55144			1/4 Hex	6.5 Hex
KA4-N*	11555				
A2 - Quick-Hitch	55142	1-1/4 - 8-9/32	32 - 210	7/16 Hex	11 Hex
KA2-N - Quick-Hitch*	11552				
A10 - Quick-Hitch	56615			11/32 Hex	8.75 Hex
KA10-N - Quick-Hitch*	11554				

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

Extended Length

Arbor suitable for use with Deep Cut (DCH) and Multi-Purpose (MPH) hole saws.

Cat. No.	EDP	Fits Hole Saw Diameter in	Fits Hole Saw Diameter mm	Shank Size in	Shank Size mm
A1-E	11925	9/16 - 1-3/16	14 - 30	11/32 Hex	8.75 Hex
KA1-E-N*	11567				
A4-E	11931			1/4-20 Round	6.5 Round
A2-E - Quick-Hitch	11928	1-1/4 - 8-9/32	32 - 210	7/16 Hex	11 Hex
KA2-E-N - Quick-Hitch*	11565				
A10-E - Quick-Hitch	11934			11/32 Hex	8.75 Hex
KA10-E-N - Quick-Hitch*	11566				

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

With Carbide Drill

Cat. No.	EDP	Fits Hole Saw Diameter in	Fits Hole Saw Diameter mm	Shank Size in	Shank Size mm
XA1	56758	9/16 - 1-3/16	14 - 30	11/32 Hex	8.75 Hex
XA2 - Quick-Hitch	56759	1-1/4 - 8-9/32	32 - 210	7/16 Hex	11 Hex
XA10 - Quick-Hitch	56763			11/32 Hex	8.75 Hex

Arbor Adaptor

Allows use of hole saws up to 6" (152mm).

Cat. No.	EDP	Description
A12	63260	Adaptor screws on to arbors with a 1/2"- 20 screw thread and allows use of hole saws up to 152mm (6")
KA12-N*	11558	

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

Locking Arbor

Cat. No.	EDP	Fits Hole Saw Diameter in	Fits Hole Saw Diameter mm	Shank Size in	Shank Size mm
A17-38	17519	1-1/4-8-9/32	32-210	11/32 Hex	8.75 Hex
A17-38E**	11937	1-1/4 - 6-1/4	32 - 159		
KA17-38E-N*	11568				
XA17-38 Carbide Tipped	64199	1-1/2 - 8-9/32	38 - 210		

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)
** With Extended Length HSS Pilot Drill

Ejector Spring

Spring for fitting over pilot drill. Spring pushes core out of hole saw after completion of the cut.

Cat. No.	EDP	Description
A7	55151	Ejector Spring
KA7-N*	11557	

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

Arbor Extension

Cat. No.	EDP	For Support	Fits Chuck Size
A5	55145	A2, A2E	1/2" - 13mm
KA5-N*	11560		
A15	56651	A1, A1E, A10, A10E, A17-38E	3/8" - 9.5mm
KA15-N*	11559		

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

Starrett

ARBORS AND ACCESSORIES

SDS PLUS SHANK

WITH PILOT DRILL

The SDS-plus shank allows the arbors to be used in SDS-plus rotary hammer drills with the hammer action turned off.

A1-1 A2-1

Cat. No.	EDP	Fits Hole Saw Diameter in	Fits Hole Saw Diameter mm	Shank Size in	Shank Size mm
A1-1	60995	9/16-1-3/16	14-30	11/32 Hex	8.75 Hex
A1-1E*	11823				
A2-1	60996	1-1/4-8-9/32	32-210	7/16 Hex	11 Hex
A2-1E*	11824				

*Used for Deep Cut and MPH hole saws

Arbor Pilot Drill

A014CE A014C XA014C SMD6 A014M A015C XA015C

HIGH SPEED STEEL

Cat. No.	EDP	Fits Starrett Arbor Nos.	For Use with Saw Types
A014C	56616	All Arbors	For All Fast Cut Saws
KA014C-N*	11561		
A014CE	11825	This Extended Length Pilot Drill Fits All Starrett Arbors	For All MPH and Deep Cut Saws
KA014CE-N*	11564		

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

CARBIDE TIPPED

Cat. No.	EDP	Fits Starrett Arbor Nos.	For Use with Saw Types
XA014C	56617	All Arbors	For All CT and D Series Saws
KXA014C-N*	11563		
XA015C	12927	Fits Starrett A6 Kwik Change Arbor System	For All CT, MPH and D Series Saws
SMD6	12153	Fits Starrett Tungsten Carbide Tipped Stainless Steel Sheet Metal Hole Saws	For All SM Series Saws

*Cat. No. with K: Clam pack (plastic clamshell packaging)

ARBORS AND ACCESSORIES

"Oops" Arbor

HOLE ENLARGEMENT ARBOR

Replacing the pilot drill, the A19 allows diameters to be enlarged by attaching a saw of the same size to that of the existing hole. This saw then acts as the pilot for the larger diameter saw that is attached to the arbor.

Cat. No.	EDP	Regular Arbor That Fits Outer Hole Saw and Size of Enlarging Diameter	Pilot Hole Saw Diameter that Fits A19 Arbor
A19	66078	A1 13/16 - 1-3/16" (21 - 30mm), A2 or A10 1-1/4 - 6 (32 - 152mm)	9/16 - 5-1/2" (14 - 140mm) Minimum hole enlargement is 3/16" (4.7mm) between pilot hole saw and cutting saw diameter
KA19-N*	11556		

*CAT. NO. WITH K: Clam pack (plastic clamshell packaging)

A19

Starrett

ARBORS AND ACCESSORIES

Core Ejector

A SIMPLE, BUT HIGHLY EFFECTIVE METHOD OF EJECTING THE CORE FROM A HOLE SAW AFTER COMPLETION OF THE CUT

- Select the appropriate size of ejector for the hole saw
- Where it is necessary to assemble the two parts of the core ejector, twist the spring on to the ejector plate until it locks in place
- Twist the spring on the assembled core ejector over the pilot drill until the pilot drill is protruding from the plate
- Drill the hole

NOTE

Using the core ejector will reduce the cutting depth of the saw. The table below lists the recommended optimum maximum material thickness for each type of hole saw. The core ejector will function at greater material thickness than those listed, however its effectiveness will diminish.

Cat. No.	EDP	Fits Hole Saw Diameter in	mm	Description
KA8-1	12293	25/32 - 15/16	20 - 24	Core Ejector, suitable for 20 - 24mm hole saws
KA8-2	12294	1 - 1-1/2	25 - 38	Core Ejector, suitable for 25 - 38mm hole saws
KA8-3	12296	1-9/16 - 2-3/8	40 - 60	Core Ejector, suitable for 40 - 60mm hole saws
KA8-4	12299	2-1/2 - 3-3/8	64 - 86	Core Ejector, suitable for 64 - 86mm hole saws
KA8-5	12301	3-1/2 - 5	89 - 127	Core Ejector, suitable for 89 - 127mm hole saws
KA8-6	12313	5-1/4 - 8-9/32	133 - 210	Core Ejector, suitable for 133 - 210mm hole saws

*Cat. No. with K: Clam pack (plastic clamshell packaging)

CORE EJECTOR CUTTING RECOMMENDATIONS

Hole Saw Product Code	Recommended Maximum Material Thickness
FCH, DCH, CT	7mm
D and MPH	5mm

Assembled core ejector attached to a hole saw.

After the hole has been drilled, the core can clearly be seen at the end of the pilot drill.

NOTE

In some applications it is possible that the core may be ejected from the saw at high speed. Please always use safety goggles and glasses and take extra care if drilling vertically.

ARBORS AND ACCESSORIES

Debris Collector

NO CLEAN UP, NO DRILL DAMAGE, NO DEBRIS SPREAD

Features

- Bowl flexes with minimal pressure as the hole is sawn
- Huge potential time saving - there is no need to mask at risk areas prior to sawing or clean up after sawing
- Keeps dust and other debris out of the motor of the drill
- Suitable for hole saws up to and including 4-3/4" (121mm)

Cat. No.	EDP	Description
DB2	01379	Debris Collector

Steps to Use the Debris Collector

STAGE ONE

Pass the shank of the arbor through the hole at the bottom of the DB2 and attach to the drill in the normal way. Always ensure that the Debris Collector spins freely prior to use.

STAGE TWO

Site the saw for cutting the hole. The Debris Collector can be pulled down to provide a better view of the work area.

STAGE THREE

Drill the hole!

STAGE FOUR

All the dirt and debris from the cut hole is collected inside the Debris Collector!

HACKSAWS

HACKSAW FRAMES

bi-metal unique®

140

CLOSED GRIP - NON ADJUSTABLE

Non adjustable light duty hacksaw frame features a lightweight closed grip frame accepting 12" blades. The blades can be tensioned by a single wing nut in the front of frame.

FEATURES

- 12"(300mm) Starrett bi-metal unique®, high speed steel Safe-Flex hacksaw blade included

Cat. No.	EDP	Description
K140	12184	Non-Adjustable Light Duty Hacksaw Frame, Closed Grip

145

CLOSED GRIP - HIGH TENSION

High tension heavy-duty hacksaw frame with a closed grip features a professional quality high-tension hack saw frame and is easy to use with an efficient adjustment lever.

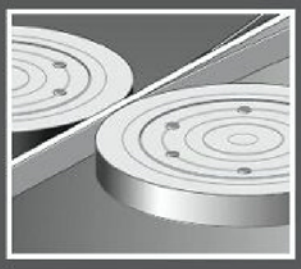
FEATURES

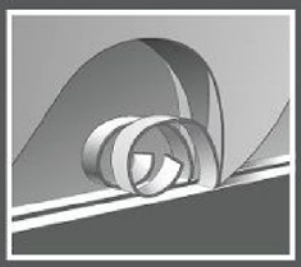
- 12"(300mm) Starrett bi-metal unique®, high speed steel Safe-Flex hacksaw blade included
- The handle is covered by rubber overmold for comfortable grip

Cat. No.	EDP	Description
K145	67818	High-Tension Heavy-Duty Hacksaw Frame, Closed Grip

bi-metal unique®

1. Patented process providing 170% more weld contact for superior teeth stripping resistance
2. Significantly reduced fracture and breakage
3. Multi-edge cutting performance resulting in faster cuts and longer blade life





Starrett®

HACKSAW FRAMES

bi-metal unique®

151

OPEN GRIP – ADJUSTABLE

Adjustable heavy-duty hacksaw frame features an open grip, heavy-duty frame accepting, 10" and 12" blades that can be mounted in any one of four cutting directions. Blades can be tensioned by a single wing nut.

FEATURES

- 12"(300mm) Starrett bi-metal unique®, high speed steel Safe-Flex hacksaw blade included
- The distinctive red handles allow for good visibility in a crowded workplace

Cat. No.	EDP	Description
K151	60133	Adjustable Heavy Duty Hacksaw Frame, Open Grip

152

CLOSED GRIP - ADJUSTABLE

Adjustable heavy-duty hacksaw frame, closed grip. This saw features a versatile, heavy-duty frame accepting, 10" and 12" blades that can be mounted in any one of four cutting directions. Blades can be tensioned by a single wing nut.

FEATURES

- 12" (300mm) Starrett bi-metal unique® high speed steel Safe-Flex hacksaw blade included
- The distinctive red handles allow for good visibility in a crowded workplace

Cat. No.	EDP	Description
K152	60134	Adjustable Heavy-Duty Hacksaw Frame, Closed Grip

NEW!

HACKSAWS

HACKSAW FRAMES

bi-metal unique®

147

BI-METAL COMPASS SAW

The ideal tool for cutting sheetrock and plasterboard featuring a heavy-duty, variable pitch, bi-metal blade to cut most materials and provide an extra-long cutting life.

Features

- Ergonomic handle
- Ideal for working in hard to reach places
- Extra long cutting life
- 9" Starrett bi-metal unique® blade included
- Heavy duty plastic handle for ideal comfort and the best cutting leverage provides easy cutting
- The blade rotates full 360° to easily cut at any angle

Cat. No.	EDP	Description
K147	67193	Compass Saw, Bi-Metal

REPLACEMENT BLADE FOR 147

Features

- Heavy-duty, variable pitch, bi-metal blade cuts most materials and has extra-long cutting life

Cat. No.	EDP	Description
BT91014DT-2	01408	9" replacement blade for 147 compass saw

Starrett®

HACKSAW FRAMES

bi-metal unique

NEW!

K143

PVC SAWS

Used for cutting PVC and ABS materials. Also used for cutting plasterboard, plywood and general-purpose cutting.

FEATURES

- It is shipped with a 12" or 18" blade length
- Featuring cast aluminum handle

Cat. No.	EDP	Description
K143-12	01167	Handle with 12" Blade
148-12	66185	
K143-18	01168	Handle with 18" Blade
148-18	66186	

REPLACEMENT BLADES

An application-specific saw popular with professional contractors and the weekend handyman. It is effective in a wide variety of general purpose applications.

FEATURES

- Used for cutting plasterboard, plywood and general purpose cutting

Cat. No.	EDP	Dimensions in	mm
PVC-12	66187	12	300
PVC-18	66188	18	450

HACKSAW FRAMES

BI-METAL UNIQUE

HIGH SPEED STEEL SAFE-FLEX

bi-metal unique®

These conventional bi-metal hacksaw blades offer a sturdier construction. An excellent choice for demanding off-hand use or light power-assisted machine applications.

2 Blades on card[1]		10-Blade Pack[2]		Single Blade 10 Pack[3]		Dimensions	
Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Length x Width x Thickness	TPI (25mm)
KBS1018-2	40333	KBS1018-10	40339	BS1018	40327	10" x 1/2" x .025" (250 x 13 x 0.65mm)	18
KBS1024-2	40334	KBS1024-10	40340	BS1024	40328		24
KBS1032-2	61503	KBS1032-10	61566	BS1032	40394		32
KBS1218-2	40336	KBS1218-10	40342	BS1218	40330	12" x 1/2" x .025" (300 x 13 x 0.65mm)	18
KBS1224-2	40337	KBS1224-10	40343	BS1224	40331		24
KBS1232-2	40338	KBS1232-10	40344	BS1232	40332		32

[1] Blades affixed on carded mount suitable for display
[2] Packaged in protective tube suitable for display
[3] Sold tape-wrapped in packs of 10

10-Blade Pack[2]		Dimensions	
Cat. No.	EDP	Length x Width x Thickness	TPI (25mm)
BS1214-3	40289	12" x 5/8" x .032" (300 x 16 x 0.80mm)	14
BS1218-3	40290		18

[2] Packaged in protective tube suitable for display

GREY-FLEX

HIGH CARBON STEEL

These all-purpose blades are an economical alternative when cutting mild steel, copper, brass, aluminum and other like materials. The blades feature an all carbon construction with a hardened cutting edge and flexible back.

2 Blades on card[1]		10-Blade Pack[2]		Single Blade 10 Pack[3]		Dimensions	
Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Length x Width x Thickness	TPI (25mm)
KGF1018-2	60135	KGF1018-10	60214	GF1018	40011	10" x 1/2" x .025" (250 x 13 x 0.65mm)	18
KGF1024-2	60136	KGF1024-10	60215	GF1024	40012		24
KGF1032-2	60137	KGF1032-10	60216	GF1032	40013		32
KGF1218-2	60139	KGF1218-10	60218	GF1218	40015	12" x 1/2" x .025" (300 x 13 x 0.65mm)	18
KGF1224-2	60140	KGF1224-10	60219	GF1224	40016		24
KGF1232-2	60141	KGF1232-10	60220	GF1232	40017		32

[1] Blades affixed on carded mount suitable for display
[2] Packaged in protective tube suitable for display
[3] Sold tape-wrapped in packs of 10

Starrett®

HACKSAW BLADES

CARBIDE GRIT

HEAVY DUTY CUTTING

FEATURES

- Durable steel construction with a uniform application of carbide grit bonded to the cutting edge
- An ideal tool for cutting ceramic, fiberglass, plastics, asbestos, glass resins and other abrasive materials that cannot be effectively cut by conventional blades.

Cat. No.	EDP	Dimensions Length x Width x Thickness	Tooth Type
X1258	40204	12" x 5/8" x .032" (300 x 16 x .80mm)	Grit

CARBIDE GRIT ROD SAW

CERAMICS AND FIBERGLASS CUTTING

An ideal tool for cutting ceramics, fiberglass, plastics, asbestos, glass resins or any other abrasive materials that cannot be effectively cut by conventional blades.

FEATURES

- Constructed of a tough steel alloy rod that has been coated by carbide grit
- This unique rod saw blade effectively cuts abrasive materials

Cat. No.	EDP	Dimensions Length x Width x Thickness	Tooth Type
X1200	40203	12" x 3/32" (300 x 2.4mm)	Grit

POWER HACKSAW BLADES

bi-metal unique®

Bi-Metal HSS

HIGH SPEED STEEL TEETH

The bi-metal construction of these power hacksaw blades provides exceptional cutting action in a wide variety of applications. The high speed steel teeth and durable alloy steel backing resist breakage and can handle irregular shaped work pieces and interrupted cuts.

Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter
BS1210-5	40097	12" x 1-1/8" x .050"	10	8.5mm
BS1214-5	40098	(300 x 28 x 1.25mm)	14	
BS1410-5	40099	14" x 1-1/8" x .050"	10	
BS1414-5	40100	(350 x 28 x 1.25mm)	14	
BS1406-6	40101	14" x 1-3/8" x .062"	6	
BS1410-6	40102	(350 x 35 x 1.6mm)	10	
BS1406-7	40105	14" x 1-5/8" x .075" (350 x 41 x 2mm)	6	10.75mm
BS1706-6	40113	17" x 1-3/8" x .062"	6	8.5mm
BS1710-6	40114	425 x 35 x 1.6mm)	10	
BS1806-6	40115	18" x 1-3/8" x .062"	6	10.75mm
BS1810-6	40116	(450 x 35 x 1.6mm)	10	
BS1804-7	40118	18" x 1-5/8" x .075"	4	
BS1806-7	40119	(450 x 41 x 2mm)	6	
BS1804-8	40121	18" x 1-7/8" x .088"	4	
BS1806-8	40122	(450 x 47 x 2.25mm)	6	
BS2104-8	40126	21" x 1-7/8" x .088"	4	
BS2106-8	40127	(525 x 47 x 2.25mm)	6	

Starrett®

HACKSAW HSS POWER

Redstripe HSS

SOLID HIGH SPEED STEEL POWER

bi-metal unique®

The solid, fully hardened molybdenum high speed steel composition of Redstripe power hacksaw blades delivers extended life and efficient cutting action in a broad range of materials. These blades can withstand heavier feed pressures and provide faster cut rates than blades made from composite designs. Redstripe power hacksaw blades will effectively cut tough alloys such as stainless steels.

Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter
RS1210-5	40046	12" x 1" x .050"	10	8.5mm
RS1214-5	40047	(300 x 25 x 1.25mm)	14	
RS1410-5	40049	14" x 1" x .050"	10	
RS1414-5	40050	(350 x 25 x 1.25mm)	14	
RS1406-6	40051	14" x 1-1/4" x .062"	6	
RS1410-6	40052	(350 x 32 x 1.6mm)	10	
RS1606-6	40057	16" x 1-1/4" x .062"	6	
RS1610-6	40058	(400 x 32 x 1.25mm)	10	
RS1706-6	40062	17" x 1-1/4" x .062"	6	
RS1710-6	40063	(425 x 32 x 1.6mm)	10	
RS1806-6	40064	18" x 1-1/4" x .062"	6	10.75mm
RS1810-6	40065	(450 x 32 x 1.6mm)	10	
RS1804-7	40067	18" x 1-1/2" x .075"	4	
RS1806-7	40068	(450 x 38 x 2mm)	6	
RS1804-8	40070	18" x 1-3/4" x .088"	4	
RS1806-8	40071	(450 x 45 x 2.25mm)	6	
RS2104-8	40075	21" x 1-3/4" x .088"	4	
RS2106-8	40076	(450 x 45 x 2.25mm)	6	
RS2404-0	40081	24" x 2" x .100" (600 x 50 x 2.5mm)	4	11.25mm
RS3004-0	40083	30" x 2-1/2" x .100" (750 x 63 x 2.5mm)	4	16.75mm
RS300-6	16168	12" x 1-1/4" x .075"	6	8.5mm
RS300-10	16169	(300 x 32 x 2mm)	10	
RS350-6	40177	14" x 1-1/4" x .075"	6	
RS350-10	40178	(50 x 32 x 2mm)	10	
RS400-4	40179	16" x 1-1/4" x .075" (400 x 32 x 2mm)	4	
RS400-6	40180		6	
RS400-10	40181		10	
RS450-4	40182	18" x 1-1/2" x .075" (450 x 38 x 2mm)	4	
RS450-6	40183		6	
RS450-10	40184		10	

Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (TP/25mm)	Pinhole Diameter
RS500-4	16170	20" x 1-3/4" x .075" (500 x 45 x 2mm)	4	10.5mm
RS500-6	16171		6	
RS500-10	16172		10	
RS550-4	40173	22" x 1-3/4" x .075" (550 x 45 x 2mm)	4	
RS550-6	40174		6	
RS550-10	40185		10	
RS575-4	40175	23" x 2" x .100" (575 x 50 x 2.5mm)	4	
RS575-6	40176		6	
RS600-4	16173	24" x 2" x .100" (600 x 50 x 2.5mm)	4	
RS600-6	16174		6	
RS650-4	40186	26" x 2-3/16" x .100" (650 x 55 x 2.5mm)	4	
RS650-6	40187		6	
RS700-4	40188	28" x 2-3/16" x .100" (700 x 55 x 2.5mm)	4	
RS700-6	40189		6	
RS850-4	16175	34" x 2-3/8" x .118" (850 x 60 x 3mm)	4	12.5mm
RS850-6	16176		6	
RS900-2 1/2	68716	36" x 4-1/2" x .138" (900 x 114 x 3.5mm)	2-1/2 TPI	
RS1000-2 1/2	16177	40" x 5" x .138" (1000 x 126 x 3.5mm)		

PRECISION MAKES THE DIFFERENCE

YOUR NAME DEPENDS ON OURS

The CP505E-12 Electronic Protractor is accurate, versatile and easy to use. It eliminates errors from a variety of jobs including complex crown molding work.

Starrett®

JIG SAWS

JIG SAWS

BI-METAL UNIQUE®

UNIFIED SHANK

Starrett Unified Shank jig saws incorporate the Starrett exclusive bi-metal unique® process technology. Blades made from this process resist breakage, cut faster and last longer than conventional saws. Unified Shank jig saws are available in five-blade packs, twenty-blade packs and in various assortment packs.

	2 Blades per Pack		5 Blades per Pack		20 Blades per Pack		100 Blades per Pack		Dimensions*	TPI		
	Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Length x Width x Thickness	(25mm)	Tooth	Set
WOOD CUTTING	BU36T-2	69707	BU36T	68717	BU36T-20	68733	-	-	3" x 5/16" x .050" (75 x 7.5 x 1.3mm)	6	Ground	Tapered
	BU36-2	69708	BU36	68718	BU36-20	68734	-	-		6	Skip	Alternate
	BU38-2	69711	BU38	68720	BU38-20	68736	-	-		8	Regular	Alternate
	BU310T-2	69712	BU310T	68721	BU310T-20	68737	BU310T-100	68863		10	Ground	Tapered
	BU310DT-2	69713	BU310DT	68722	BU310DT-20	68738	-	-		10	Ground	Tapered, Downstroke Cut
	BU46-2	69709	BU46	68719	BU46-20	68735	BU46-100	68860	4" x 3/8" x .050" (100 x 9.5 x 1.3mm)	6	Skip	Alternate
	BU56-2	69710	BU56	68856	BU56-20	68857	BU56-100	68861	5" x 3/8" x .050" (125 x 9.5 x 1.3mm)	6	Skip	Alternate
MULTI-PURPOSE	BU214-2	69715	BU214	68724	BU214-20	68740	BU214-100	68866	2" x 5/16" x .040" (50 x 7.5 x 1mm)	14	Regular	Wavy
	BU218-2	69717	BU218	68726	BU218-20	68742	BU218-100	68868	2" x 3/8" x .040" (50 x 9.5 x 1mm)	18	Regular	Wavy
	BU214S-2	69716	BU214S	68725	BU214S-20	68741	-	-	2" x 3/16" x .040" (50 x 4.5 x 1mm)	14	Scroll	Wavy
	BU41014-2	69714	BU41014	68723	BU41014-20	68739	-	-	4" x 3/8" x .040" (100 x 9.5 x 1mm)	10-14	Varipitch	Wavy
	BU418-2	69718	BU418	68727	BU418-20	68743	BU418-100	68869		18	Regular	Wavy
METAL CUTTING	BU224-2	69720	BU224	68728	BU224-20	68744	-	-	2" x 5/16" x .040" (50 x 7.5 x 1mm)	24	Regular	Wavy
	BU232-2	69723	BU232	68731	BU232-20	68747	-	-		32	Regular	Wavy
	BU224S-2	69721	BU224S	68729	BU224S-20	68745	-	-	2" x 3/16" x .040" (50 x 4.5 x 1mm)	24	Scroll	Wavy
	BU424-2	69722	BU424	68730	BU424-20	68746	-	-	4" x 3/8" x .040" (100 x 9.5 x 1mm)	24	Regular	Wavy
MULTI-PURPOSE CARBIDE GRIT	BU230X-2	69719	BU230X	68753	BU230X-20	68754	-	-	2" x 5/16" x .040" (50 x 7.5 x 1mm)	Coarse CG	Cont. Grid	-

*Length dimension references tooth bearing section of jig saws. The total length, including blade tang, is approximately 1" longer.

Starrett

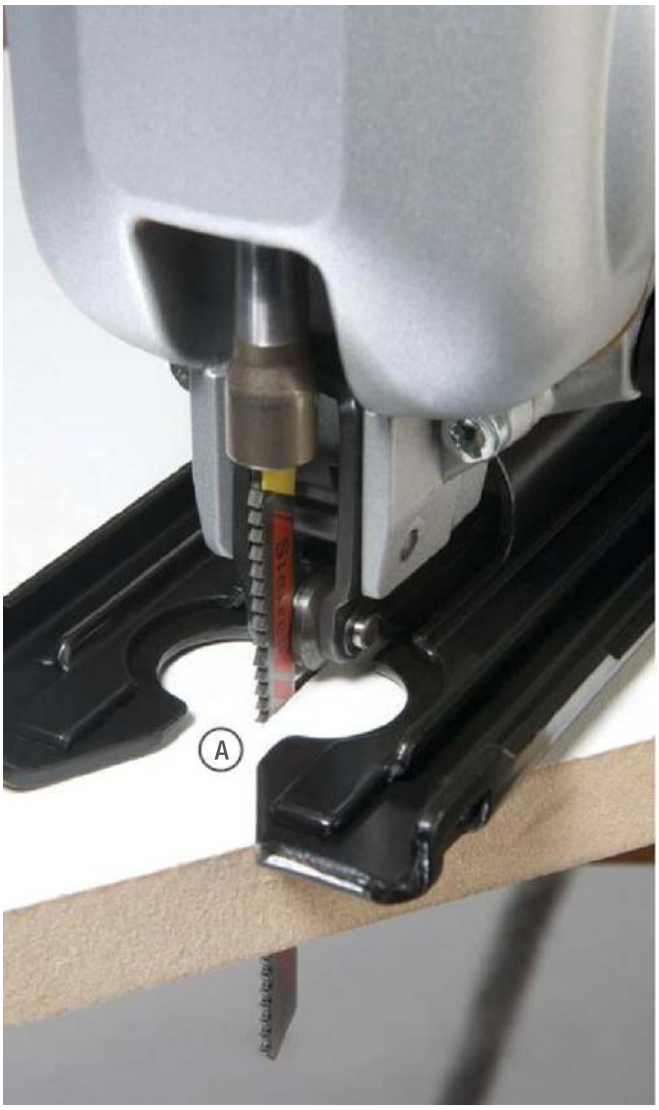
JIG SAWS

DUAL CUT®

UNIFIED SHAK

bi-metal unique

The two new wood-cutting saw designs with teeth in both directions offer a burr-free cut on both sides. Bi-metal unique saw technology provides 170% greater resistance to tooth breakage, longer life and a lower cost per cut than other welding techniques.



2 Blade Pack Cat. No.	EDP	Dimensions* Length x Width x Thickness	Description
BU3DC-2	12484	3" x 5/16" x .060" (75 x 8 x 1.5mm)	3" Dual Cut® Jig Saw Blade
BU2DCS-2	12480	2" x 3/16" x .050" (50 x 5 x 1.3mm)	2" Scroll-Cutting Dual Cut® Jig Saw Blade

*Length dimension references tooth bearing section of jig saws. The total length, including blade tang, is approximately 1" longer.

PERFECT FINISH ON BOTH SIDES! Ⓐ Ⓑ

JIG SAWS

bi-metal unique®

Jig Saw Kits

UNIFIED SHANK JIG SAW BLADE ASSORTMENT PACK

Cat. No.	EDP	Description
BU1	68748	Wood Cutting Assortment Pack: Includes one each: BU36, BU46, BU38, BU310T and BU214S
BU2	68749	Multi-Purpose Assortment Pack: Includes one each: BU46, BU310T, BU214, BU224S and BU232
BU3	68750	Metal Cutting Assortment Pack: Includes one each: BU41014, BU214, BU224, BU224S and BU232
BU4	11974	Unified Shank Assortment Pack: Includes one each: BU36T, BU36, BU46, BU56, BU38 BU310T, BU310DT, BU2DCS, BU3DC, BU41014, BU214, BU214S, BU218, BU418, BU23OX, BU224, BU224S, BU424, BU232
BU6	12568	New Unified Shank Assortment Pack: Includes one each: BU36, BU46, BU310T, BU3DC, BU2DCS, BU41014,BU214, BU214S, BU218, BU418, BU224, BU224S, BU424 and BU232

Starrett®

RECIPROCATING SAWS

RECIPROCATING BLADES

bi-metal unique®

Straight Shape

GENERAL PURPOSE

Fastcut general purpose reciprocating blades provide a comprehensive set of sawing solutions.

2 Blade Packs		5 Blade Packs		20 Blade Packs		50 Blade Packs		Dimensions	
Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Length x Width x Thickness	TPI (25mm)
B414-2	16970	B414-5	15319	B414-20	20104	B414-50	15436	4" x 3/4" x .035" (100 x 19 x 0.90mm)	14
B418-2	16971	B418-5	15320	B418-20	20105	B418-50	15437		18
B424-2	16972	B424-5	15321	B424-20	20106	B424-50	15438		24
B66-2	16976	B66-5	15329	B66-20	20110	B66-50	15440	6" x 3/4" x .035" (152 x 19 x 0.90mm)	6
B610-2	16977	B610-5	15330	B610-20	20111	B610-50	15441		10
B614-2	16978	B614-5	15331	B614-20	20112	B614-50	15442		14
B618-2	16979	B618-5	15332	B618-20	20113	B618-50	15443		18
B624-2	16980	B624-5	15333	B624-20	20114	B624-50	15444		24
B818-2	16991	B818-5	16035	B818-20	20127	B818-50	16047	8" x 3/4" x .035" (203 x 19 x 0.90mm)	18

Tapered Shape

GENERAL PURPOSE

2 Blade Packs		5 Blade Packs		20 Blade Packs		50 Blade Packs		Dimensions	
Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP	Length x Width x Thickness	TPI (25mm)
BT63-2	16984	BT63-5	15338	BT63-20	20118	BT63-50	15445	6" x 3/4" x .050" (152 x 19 x 1.30mm)	3
BT66-2	16985	BT66-5	15339	BT66-20	20119	BT66-50	15446		6
BT6610-2	16989	BT6610-5	15692	BT6610-20	20123	BT6610-50	15693		6-10
BT96-2	17011	BT96-5	16955	BT96-20	20130	BT96-50	17014	9" x 3/4" x .050" (228 x 19 x 1.30mm)	6
BT910-2	17012	BT910-5	17013	BT910-20	20131	BT910-50	17015		10
BT123-2	16999	BT123-5	15351	BT123-20	20138	BT123-50	15452	12" x 3/4" x .050" (300 x 19 x 1.30mm)	3
BT126-2	17000	BT126-5	15352	BT126-20	20139	BT126-50	15453		6
BT12610-2	17002	BT12610-5	15700	BT12610-20	20141	BT12610-50	15701		6-10
BT121014-2	17003	BT121014-5	15704	BT121014-20	20142	BT121014-50	15705		10-14

Starrett®

RECIPROCATING BLADES

bi-metal unique

King Cut

FIRE RESCUE AND DEMOLITION

2 Blade Packs Cat. No.	EDP	5 Blade Packs Cat. No.	EDP	20 Blade Packs Cat. No.	EDP	50 Blade Packs Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (25mm)	Shape
BR618-2	11947	BR618-5	11948	BR618-20	11949	BR618-50	11950	6" x 3/4" x .035" (152 x 19 x 0.90mm)	18	Straight
BR61014-2	11450	BR61014-5	11451	BR61014-20	11452	BR61014-50	11909		10-14	
BTR61014-2	11453	BTR61014-5	11454	BTR61014-20	11455	BTR61014-50	11910	6" x 1" x .063" (152 x 25 x 1.60mm)	10-14	Tapered
BTR6610-2	11456	BTR6610-5	11457	BTR6610-20	11458	BTR6610-50	11911		6-10	
BR818-2	11951	BR818-5	11952	BR818-20	11953	BR818-50	11954	8" x 3/4" x .035" (203 x 19 x 0.90mm)	18	Straight
BR81014-2	11459	BR81014-5	11460	BR81014-20	11461	BR81014-50	11912	8" x 3/4" x .050" (203 x 19 x 1.30mm)	10-14	
BTR81014-2	11462	BTR81014-5	11463	BTR81014-20	11464	BTR81014-50	11913	8" x 1" x .063" (203 x 25 x 1.60mm)	10-14	Tapered
BTR8610-2	11465	BTR8610-5	11466	BTR8610-20	11467	BTR8610-50	11914		6-10	
BR91014-2	11468	BR91014-5	11469	BR91014-20	11470	BR91014-50	11915	9" x 3/4" x .050" (228 x 19 x 1.30mm)	10-14	Straight
BTR91014-2	11471	BTR91014-5	11472	BTR91014-20	11473	BTR91014-50	11916	9" x 1" x .063" (228 x 25 x 1.60mm)	10-14	Tapered
BTR9610-2	11474	BTR9610-5	11475	BTR9610-20	11476	BTR9610-50	11917		6-10	
BR121014-2	11477	BR121014-5	11478	BR121014-20	11479	BR121014-50	11918	12" x 3/4" x .050" (300 x 19 x 1.30mm)	10-14	Straight
BTR121014-2	11480	BTR121014-5	11481	BTR121014-20	11482	BTR121014-50	11919	12" x 1" x .063" (300 x 25 x 1.60mm)	10-14	Tapered
BTR12610-2	11483	BTR12610-5	11484	BTR12610-20	11485	BTR12610-50	11920		6-10	

Special Purpose

SCROLL CUTTING

2 Blade Packs Cat. No.	EDP	5 Blade Packs Cat. No.	EDP	20 Blade Packs Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (25mm)	Shape
SB414-2	11679	SB414-5	11680	SB414-20	11681	4" x 5/16" x .035" (100 x 8 x 0.90mm)	14	Scroll
SB424-2	17009	SB424-5	16032	SB424-20	20146		24	

PLASTER CUTTING

2 Blade Packs Cat. No.	EDP	5 Blade Packs Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (25mm)	Shape
VB66-2	17004	VB66-5	15722	6" x 3/4" x .035" (152 x 19 x 0.90mm)	6V	Straight

CARBIDE CUTTING

Single Blade Packs Cat. No.	EDP	20 Blade Packs Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (25mm)	Shape
XR6-1	15788	XR6-20	20147	6" x 3/4" x .035" (152 x 19 x 0.90mm)	#30 Coarse	Straight

RECIPROCATING BLADES

bi-metal unique®

Pneumatic

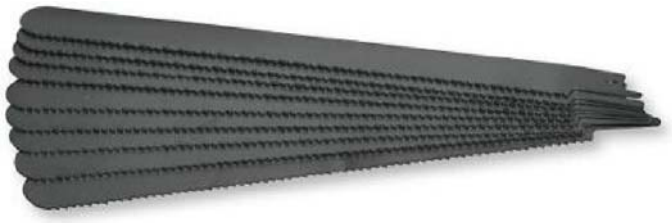
Starrett now offers a line of bi-metal unique® saw blades for pneumatic (or air) reciprocating saws. The line includes three blades for metal and a variable pitch multi-purpose blade for composites, steel sheets and wood.

	5 Blades per Pack Cat. No.	EDP	20 Blades per Pack Cat. No.	EDP	50 Blades per Pack Cat. No.	EDP	Dimensions Length x Width x Thickness	TPI (25mm)
METAL CUTTING	BS226-5	13001	BS226-20	13005	BS226-50	13009	3.5/8" x 1/2" x .025" (92mm x 13mm x .65mm)	32
METAL CUTTING	BS227-5	13002	BS227-20	13006	BS227-50	13010		24
METAL CUTTING	BS228-5	13003	BS228-20	13007	BS228-50	13011		18
MULTI-PURPOSE	BS229-5	13004	BS229-20	13008	BS229-50	13012		14-18

Pallet Dismantling

Thes bi-metal reciprocating blades are ideal for pallet dismantling and comes with a low price tag with no print or paint. Instead, the identifying information is engraved directly on the blade. The rounded tip prevents blade from catching while cutting nails and damaged pallets.

Cat. No.	EDP	Dimensions Length x Width x Thickness
20 Blade Box		
B910P-20	00943	9" x 3/4" x .035" (228 x 19 x 0.89mm)
250 Blade Box		
B910P-250	12285	9" x 3/4" x .035" (228 x 19 x 0.89mm)
B810P-250	13031	8" x 3/4" x .035" (203 x 19 x 0.90mm)



Reciprocating Blade Kit

ASSORTMENT PACK

6" general purpose blade assortment pack.

Cat. No.	EDP	Description
SB6-A	17018	Includes one each of B66, B610, B614, B618, B624

Starrett

PORTABLE BAND SAWS

PORTABAND

Univerz™

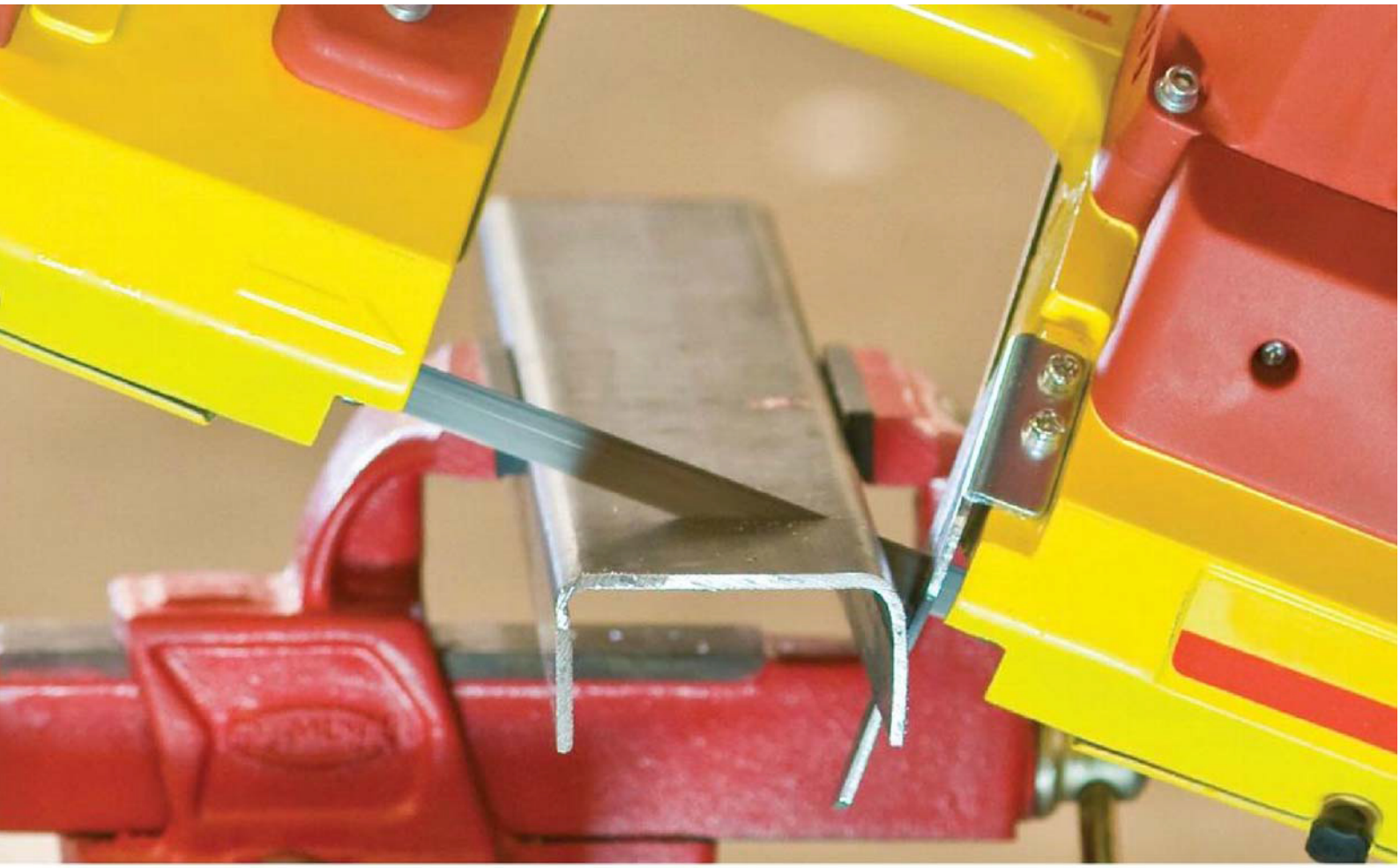
Featuring the Starrett bi-metal unique® technology. The blades are pre-welded, ready-to-use and available in lengths that fit all the popular portable band saw machines.

Features

- Triple tempered M-42 cobalt high speed steel teeth with a fatigue resistant alloy steel backer
- Patented "Twin Tooth" design of the Split-Chip advantage "bi-metal unique®"
- Faster cutting and longer life than ordinary blades
- Available in a variety of tooth pitches

Medium Grit		Medium Coarse Grit		Fits Machine Models	Length	Width x Thickness	Pitch & Rake*
Cat. No.	EDP	Cat. No.	EDP				
BM10	14600	BM10B	16948	Black & Decker, Greenlee, Milwaukee, Ridgid, Rockwell, Porter-Cable, Skil, Unitec	44-7/8" or 3' 8-7/8" (114cm)	1/2" x .020" (13 x 0.50mm)	10/S
BM14	14601	BM14B	16949				14/S
BM18	14602	BM18B	16950				18/W
BM24	14603	BM24B	16951				24/W
BM1014	15708	BM1014B	16952				10-14/P
BM1418	16088	BM1418B	16953				14-18/P

*S = Straight (Zero) Rake I W = Wavy Set, Zero Rake I P = Positive Rake



Starrett

MEASURING TAPES

Graduations and Numbering Styles

Short-Line Tapes

S1 REGULAR ENGLISH

- Graduated in 1/16" on both edges
- Graduated 1/32" for the first foot of 1/2" and 3/4" wide blades only
- Numbered in consecutive inches to 1' and repeat on one edge and consecutive inches on the other edge
- Blades have stud marks every 16" on English lines, and truss center marks every 19.2 inches on 1" wide English lines

S6 METRIC

- Available in 13, 19, and 5mm widths
- Graduated in millimeters and numbered in consecutive centimeters to the end of the tape line

S9 ENGLISH/METRIC

- Available in 1/2", 3/4", and 1" (13, 19, and 25mm) widths
- Lower edge graduated in millimeters and numbered in consecutive centimeters to the end
- Top edge graduated in 16ths of an inch and numered in consecutive inches and numbered at each foot

Long-Line Tapes

L1 ENGLISH

- Graduated in 8ths and numbered one to twelve inches to each foot and repeat, with quick-reading figures

L3 ENGLISH

- Graduated in 16ths and numbered in consecutive inches

L5-100 DIAMETER TAPE

- One side is graduated in 8ths and numbered in feet and inches
- The other side is graduated and numered each diameter inch
- Graduated in 100ths of a diameter inch and numbered each one 10th

L8 METRIC

- Graduated in millimeters and numbered in consecutive centimeters to each meter and repeat

Starrett

MEASURING TAPES

NEW!

STARRETT

Produced of yellow high visibility ABS plastic, these value priced tape measures are easy to locate and difficult to damage. Their ergonomic design provides a comfortable fit in the hand and incorporates industry standard standout and positive blade lock.

FEATURES

- Positive lock holds blade firmly in place
- Steel belt clip

Cat. No.	EDP	Blade Size	Graduation*
KTS12-12-N	30660	1/2" x 12'	English
KTS12-12ME-N	30661	1/2" x 12' (3.5m)	English/Metric
KTS12-3.5M-N	30659	1/2" x 3.5m	Metric
KTS34-16-N	30663	3/4" x 16'	English
KTS34-16ME-N	30664	3/4" x 16' (5m)	English/Metric
KTS34-5M-N	30662	3/4" x 5m	Metric
KTS1-25-N	30665	1" x 25'	English
KTS1-26ME-N	30666	1" x 26' (8m)	English/Metric
KTS1-8M-N	30667	1" x 8m	Metric
KTS1-30-N	30669	1" x 30'	English
KTS1-33-N	30672	1" x 33'	English
KTS1-33ME-N	30673	1" x 33' (10m)	English/Metric

*BLADE GRADUATION STYLE:
English: Graduated in 1/16" | **Metric**: Graduated in Millimeters
English/Metric: Graduated 1/16"and Millimeters

NEW!

Measuring Tapes

MEASURING TAPES

Starrett Exact®

Produced of high impact resistent ABS plastic for extended case life, these tape measures offer overmold for improved grip. Their ergonomic design fits comfortably in the hand and incorporate industry standard standout and improved blade protection.

Features

- Nylon coated blade provides twice the abrasion resistance than other tapes
- High impact resistent ABS plastic case and rubber plastic overmolding
- Includes a steel belt clip

Cat. No.	EDP	Blade Size	Graduation*
KTX12-12-N	30649	1/2" x 12'	English
KTX12-12ME-N	30650	1/2" x 12' (3.5m)	English/Metric
KTX12-3.5M-N	30648	1/2" x 3.5m	Metric
KTX34-16-N	60400	3/4" x 16'	English
KTX34-16ME-N	30652	3/4" x 16' (5m)	English/Metric
KTX34-5M-N	30651	3/4" x 5m	Metric
KTX1-16-N	30653	1" x 16'	English
KTX1-25-N	30654	1" x 25'	English
KTX1-26ME-N	30655	1" x 26' (8m)	English/Metric
KTX1-8M-N	30656	1" x 8m	Metric
KTX1-30-N	30657	1" x 30'	English
KTX1-35-N	30658	1" x 35'	English

*BLADE GRADUATION STYLE:
English: Graduated in 1/16" | **Metric**: Graduated in Millimeters
English/Metric: Graduated 1/16"and Millimeters

Starrett

MEASURING TAPES

STARRETT EXACT® PLUS

High impact resistant PC-ABS plastic for superior case life. These tape measures incorporate heavy overmolding for improved grip.

FEATURES

- Wider blade providing a 9' (2.7m) standout
- Nylon coated blade provides 6X abrasion resistance
- PC-ABS plastic case and heavy overmolding
- Positive lock holds blade firmly in place
- Black anodized steel belt clip

Cat. No.	EDP	Blade Size	Graduation*
KTXP106-16-N	30636	1.06" x 16'	English
KTXP106-16ME-N	30637	1.06" x 16' (5m)	English/Metric
KTXP106-5M-N	30635	1.06" x 5m	Metric
KTXP106-25-N	30638	1.06" x 25'	English
KTXP106-26ME-N	30639	1.06" x 26' (8m)	English/Metric
KTXP106-8M-N	30640	1.06" x 8m	Metric
KTXP106-30-N	30641	1.06" x 30'	English
KTXP106-35-N	30645	1.06" x 35'	English

*BLADE GRADUATION STYLE:
English: Graduated in 1/16" | **Metric**: Graduated in Millimeters
English/Metric: Graduated 1/16"and Millimeters

MEASURE STIX™

Starrett Measure Stix™ are manufactured with high quality precision steel. They have a permanent adhesive backing providing convenient, at-a-glance measurements. Can be mounted on work benches, saw tables, drafting tables, etc.

Features

- High quality precision steel for extended service use
- Sticks to most work surfaces
- Easily cut to size with scissors
- Available in left-to-right or right-to-left

Cat. No.	EDP	Reading	Blade Size	Graduation*
SM44W	63168	English (left-to-right)	1/2" x 4'	S1 (English)
SM44ME	63171		1/2" x 4' (13mm x 1.2m)	S12 (English/Metric)
SM46WRL	66634	English (right-to-left)	1/2" x 6'	S1 (English)
SM412W	63170		1/2" x 12'	
SM412ME	63173		1/2" x 12' (13mm x 4m)	S12 (English/Metric)
SM412WRL	64919	English/Metric (left-to-right)	1/2" x 12'	S1 (English)
SM412WMERL	64920		1/2" x 12' (13mm x 4m)	S12 (English/Metric)
SM66W	63169	English/Metric (right-to-left)	3/4" x 6'	S1 (English)
SM66ME	63172		3/4" x 6' (19mm x 2m)	S12 (English/Metric)

* See tape line illustrations below

KEY CADDY

- Heavy-duty die-cast case with a 21" stainless steel chain and large key ring. Returns keys and other articles automatically.
- Available with regular belt clip.

Cat. No.	EDP	Description
SK1	63135	Key Caddy with regular belt clip

LONG TAPES

STARRETT STEEL BLADE

510 SERIES - CLOSED REEL

The closed reel long tapes are produced with yellow high visibility ABS plastic. These value priced long tape measures are easy to locate and difficult to damage. The steel blade provides a precise measurement of up to 100' (30m). The blade has an uncluttered line and numbering style.

FEATURES

- Produced with easy-to-read graduations
- Includes a folding hook

Cat. No.	EDP	Blade Size	Graduation*
KTS510-50-N	30618	3/8" x 50'	English
KTS510-50ME-N	30619	3/8" x 50' (15m)	English/Metric
KTS510-100-N	30622	3/8" x 100'	English
KTS510-100ME-N	30623	3/8" x 100' (30m)	English/Metric

*BLADE GRADUATION STYLE:
English: Graduated in 1/8"
English/Metric: Graduated 1/8" and Millimeters

STARRETT EXACT® PLUS STEEL BLADE

511 SERIES - CLOSED REEL

This tape features a 4X faster blade retraction. The blade is coated with an silver colored epoxy that allows for easy reading. Nylon coating provides additional blade protection.

FEATURES

- Unique design with rubber plastic overmolded on ABS plastic case
- Rigid steel blade produced with distinctive easy-to-read aluminum colored nylon clad blade
- Folding hook ring with snap for storage

Cat. No.	EDP	Blade Size	Graduation*
KTXP511-100-N	30601	1/2" x 100'	English
KTXP511-100ME-N	30602	1/2" x 100' (30m)	English/Metric
KTXP511-30M-N	30600	1/2" x 30m	Metric

*BLADE GRADUATION STYLE:
English: Graduated in 1/8" | **Metric**: Graduated in Millimeters
English/Metric: Graduated 1/8" and Millimeters

LONG TAPES

Starrett Exact® Steel Blade

530 SERIES - CLOSED REEL

The closed reel steel long tape features a rugged rewind mechanism. Nylon rollers at case opening to reduce blade wear and through sustained field use. Blades are produced with high visibility, easy-to-read graduations.

Features

- Vinyl clad steel case
- Nylon rollers to reduce blade wear
- Easy-to-read graduations
- Folding hook ring

Cat. No.	EDP	Blade Size	Graduation*
530-50	65945	3/8" x 50'	English
530-15CM	65956	3/8" x 15m	Metric Long
530-100	65946	3/8" x 100'	English
530-30CM	65958	3/8" x 30m	Metric
530CI-600	65949	3/8" x 50'	English continuous Inch
530JT-50	65953	3/8" x 50'	English/Diameter

*BLADE GRADUATION STYLE:
English: Graduated in 1/8"
English Continuous: Graduated in 1/16"
Metric: Graduated in Millimeters
Diameter: Graduated in 100ths of a diameter

Replacement Blade

530 SERIES

Cat. No.	EDP	Blade Size	Graduation*
LHY530-100	63295	3/8" x 100'	English
LHY530-15CM	65970	3/8" x 15m	Metric
LHY530-20CM	65971	3/8" x 20m	Metric
LHY530-30CM	65972	3/8" x 30m	Metric
LHY530-50	63294	3/8" x 50'	English
LHY530CI-600	63300	3/8" x 50'	English continuous Inch
LHY530JT-50	65967	3/8" x 50'	English/Diameter
LKY530J-50	65966	3/8" x 50'	English/Diameter

*Blade Graduation Style:
English: Graduated in 1/8"
English Continuous: Graduated in 1/16"
Metric: Graduated in Millimeters
Diameter: Graduated in 100ths of a diameter

LONG TAPES

Starrett Fiberglass Blade

538 SERIES - CLOSED REEL

Closed reel fiberglass long tapes are produced with a unique design with rubber plastic overmolded on ABS plastic case, providing a durable, comfortable, and highly visible measuring tool. Features a 4X faster tape retraction. Graduations are printed on both sides of the tape for user convenience.

Features

- Rubber plastic overmolded on ABS plastic case
- Graduations on both sides of tape
- Folding hook ring with snap for storage

Cat. No.	EDP	Blade Size	Graduation*
KTS538-100-N	30615	1/2" x 100'	English
KTS538-100ME-N	30616	1/2" x 100' (30m)	English/Metric

***BLADE GRADUATION STYLE**:
English: Graduated in 1/8" and 1/100th feet
English/Metric: Graduation in 1/8" and 2 millimeters

LONG TAPES

Starrett Fiberglass Blade

537 SERIES - OPEN REEL

Open reel fiberglass long tapes are produced with steel exit rollers, permitting the user to measure in adverse environments. The extended rewind handle and rotating knob allow the user to quickly retract the tape into the frame after use.

Features

- Long rewind handle with rotating knob
- Easy-grip handle accommodates large hands
- Waterproof ABS frame and case makes cleanup fast and easy

Cat. No.	EDP	Blade Size	Graduation*
KTS537-100-N	30625	1/2" x 100'	English
KTS537-100ME-N	30626	1/2" x 100' (30m)	English/Metric
KTS537-30M-N	30624	1/2" x 30m	Metric
KTS537-100M-N	30632	1/2" x 100m	Metric
KTS537-200-N	30629	1/2" x 200'	English
KTS537-200ME-N	30630	1/2" x 200' (50m)	English/Metric
KTS537-60M-N	30599	1/2" x 60m	Metric
KTS537-300-N	30633	1/2" x 300'	English
KTS537-300ME-N	30634	1/2" x 300' (100m)	English/Metric

*BLADE GRADUATION STYLE:
English: Graduated in 1/8" | **Metric**: Graduated in 2 millimeters
English/Metric: Graduated 1/8" and 2 millimeters

UTILITY KNIVES

NEW!

Utility Knives

UTILITY KNIVES

Starrett

STARRETT

SMALL SIZE - STEEL BODY AUTOMATIC LOCKING

Small utility knife with automatic locking system.

FEATURES

- This utility knife works with 3/8" (9mm) blade (S05R)
- Blade with 13 break-away segments

Cat. No.	EDP	Blade Width	Description
KUS050-N	30744	3/8" (9mm)	Small Steel; Automatic Locking Pocket; Break-Away

SMALL SIZE - SLIDE LOCKING

Small ABS plastic utility knife features a slide locking system.

FEATURES

- This utility knife works with 3/8" (9mm) blade (S05R)
- Blade with 13 break-away segments

Cat. No.	EDP	Blade Width	Description
KUS055-N	30745	3/8" (9mm)	Small Plastic; Slide Locking; Break-away

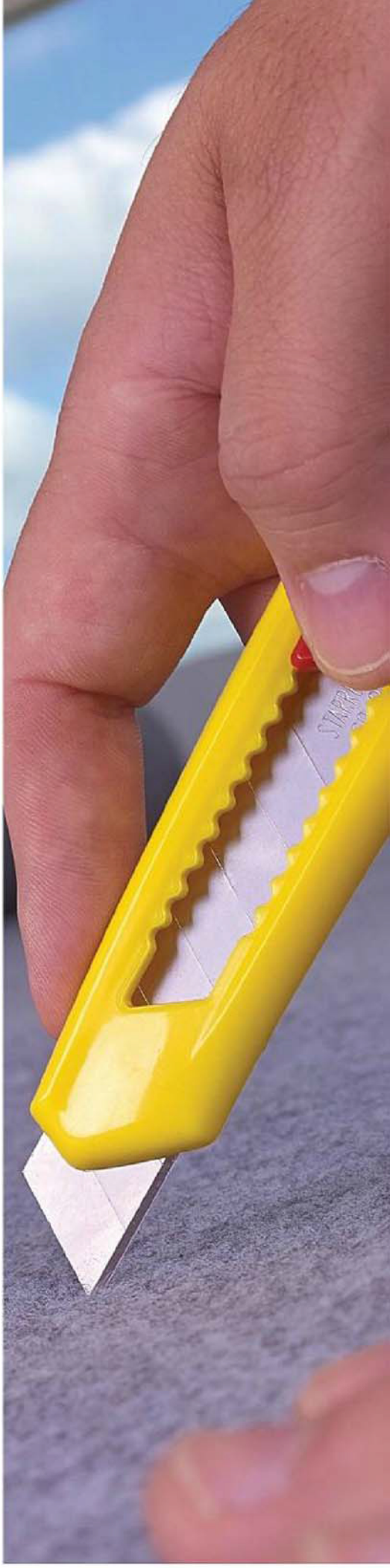
LARGE SIZE - SLIDE LOCKING

Large ABS plastic utility knife with a slide locking system.

FEATURES

- This utility knife works with .710" (18mm) blade (S06R)
- Blade with 8 break-away segments

Cat. No.	EDP	Blade Width	Description
KUS045-N	30743	.710" (18mm)	Large Plastic Slide Locking



Starrett

Starrett®

Precision, **Quality**, Innovation

PRECISION TOOLS

Band Saw Blades

Force **Measurement**

Jobsite & **Workshop Tools**

Laser Measurement

Metrology Equipment

Precision **Granite**

Precision Ground Solutions

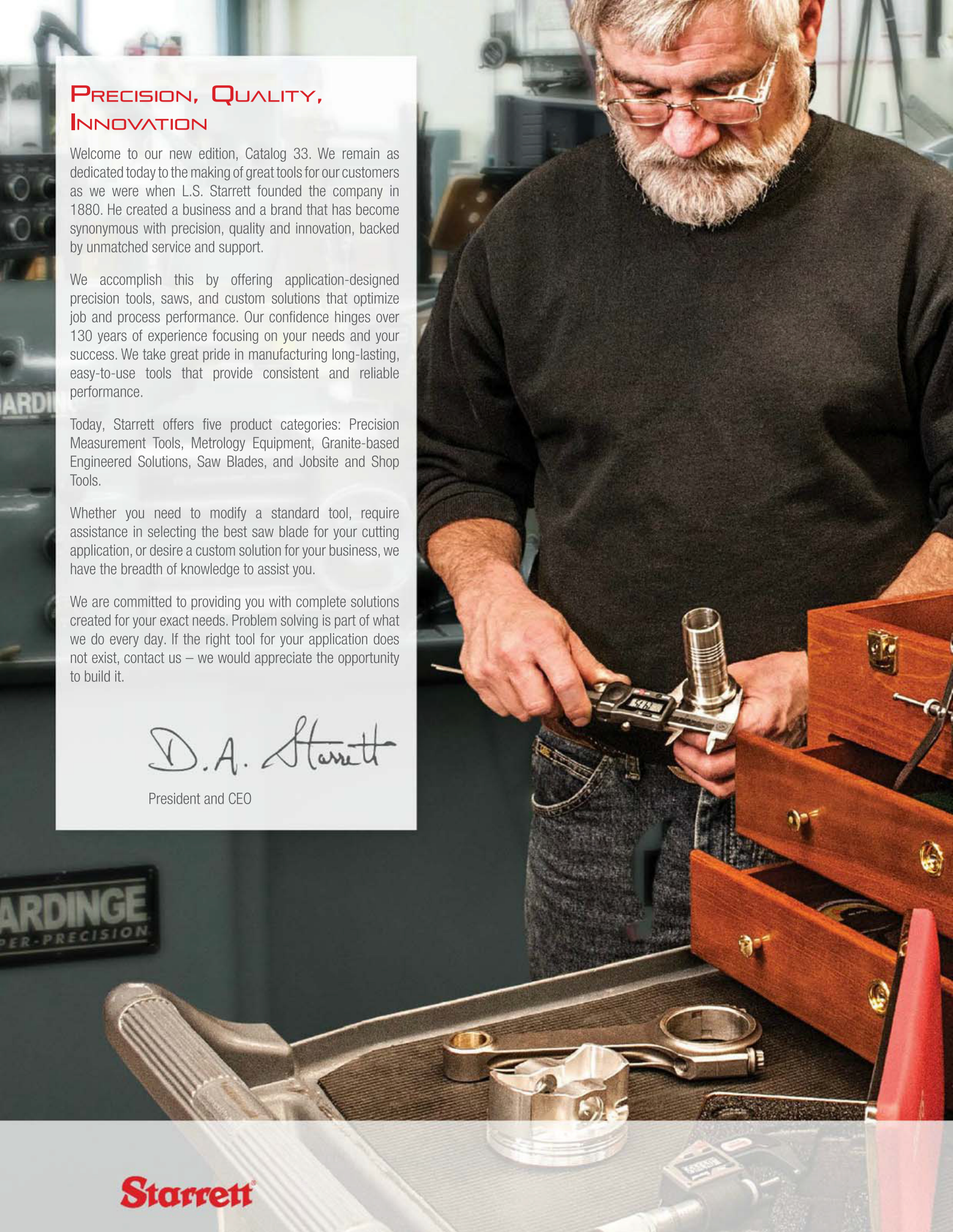
Precision Measuring Tools

PTA & **Hand Tools**

Roundness **Measurement**

Service

Webber Gage Blocks



Precision, Quality, Innovation

Welcome to our new edition, Catalog 33. We remain as dedicated today to the making of great tools for our customers as we were when L.S. Starrett founded the company in 1880. He created a business and a brand that has become synonymous with precision, quality and innovation, backed by unmatched service and support.

We accomplish this by offering application-designed precision tools, saws, and custom solutions that optimize job and process performance. Our confidence hinges over 130 years of experience focusing on your needs and your success. We take great pride in manufacturing long-lasting, easy-to-use tools that provide consistent and reliable performance.

Today, Starrett offers five product categories: Precision Measurement Tools, Metrology Equipment, Granite-based Engineered Solutions, Saw Blades, and Jobsite and Shop Tools.

Whether you need to modify a standard tool, require assistance in selecting the best saw blade for your cutting application, or desire a custom solution for your business, we have the breadth of knowledge to assist you.

We are committed to providing you with complete solutions created for your exact needs. Problem solving is part of what we do every day. If the right tool for your application does not exist, contact us – we would appreciate the opportunity to build it.

D. A. Starrett

President and CEO

Starrett®

MICROMETERS

In the hands of a skilled operator, the precision micrometer is the most accurate hand-held tool available. When close measurements are necessary, the micrometer is the ideal tool for the job because measurement and reading are on the same axis and the anvil end is supported by a strong frame.

19

SLIDE CALIPERS

Our calipers are light, comfortable, easy-to-use, and constructed with features that have made Starrett slide calipers the machinist's first choice for many years.

89

HEIGHT GAGES

Height gages measure the distance from a reference surface, such as a surface plate, to some feature of a part, and can do so with exceptional accuracy. We also offer a comprehensive range of scribes, attachments and accessories for all of your height gaging needs.

107

DEPTH GAGES

We offer a choice of depth products varying in form, complexity, cost and accuracy, from the most accurate depth micrometers (electronic, dial and vernier) to the less complex precise rule gages and combination rule gages.

123

INDICATORS AND GAGES

We offer a variety of each of the major classes: mechanical dial, electronic display, lever style test and back plunger. Indicator requirements are very specific and Starrett offers everything you need: a broad line of each indicator type, an extensive range of accessories to configure and position the gage, and as needed, an indicator-based, custom engineered solution.

133

PRECISION TOOLS

BORE GAGES

Our line of bore gages is extensive, with products available for a broad range of applications. Some are available with interchangeable measuring heads for different diameters or extensions for depth. They can have electronic displays (some with output), micrometer-type vernier scales or a dial (similar to an indicator).

205

TOOL SETS

We offer a selection of tool sets that combine basic tools such as a 0-1" micrometer, 0-6" caliper and a few other fundamental measuring tools in a single set for apprentices or beginners. Some are designed for the requirements of a type of application or are industry-specific.

221

DATA COLLECTION SYSTEMS

DataSure® Wireless Data Collection is a state-of-the-art system for real-time collection and recording of measurement data. From measurement to input, it reduces steps, saves time and can completely eliminate error in the data collection process. We also offer several newer technology products for wire-based data collection, SmartCable for single tools and the 4-Port Gage Multiplexer.

225

GAGE AMPLIFIERS, HARDNESS AND SURFACE TESTERS

We have added to and updated our tester line significantly in recent years. Our bench hardness testers range from relatively simple analog models to electronic versions with broad capabilities. We also offer several portable hardness testers, two new surface roughness testers, an electronic durometer, an ultrasonic thickness gage and a full range of test blocks and accessories.

235

SPECIAL GAGING

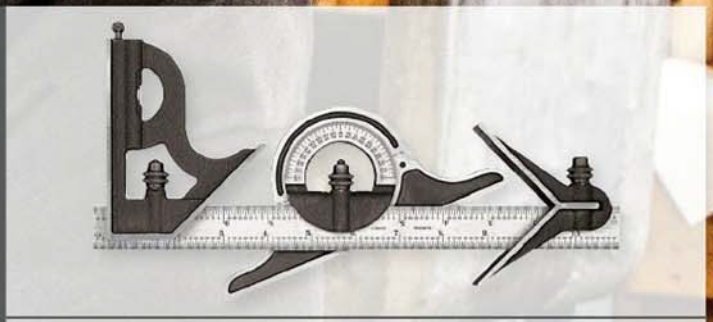
Standing out from other precision tool providers through our willingness to work directly with customers to design and manufacture custom tools for applications that standard products cannot perform. For over 50 years, we have provided solutions to industries including energy, aerospace, automotive, food packaging, high-technology plastics, medical components, and to NASA and other government agencies.

255

SQUARES

Invented by our founder, the combination square was our first product and today, our brand is considered to be the best available. This section offers a range of high quality solid squares, tri-squares specialty products and accessories that is especially broad and deep.

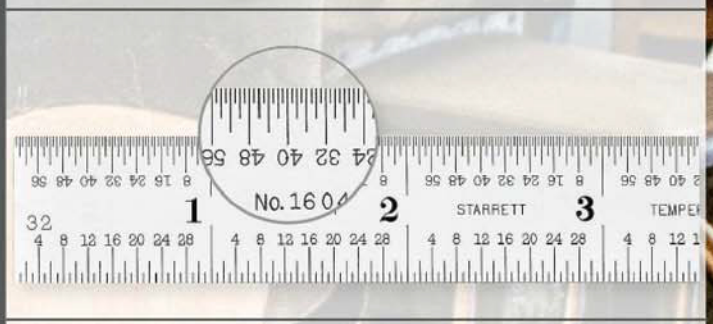
269



PRECISION RULES, STRAIGHT EDGES AND PARALLELS

Our comprehensive line offers a choice of temper, 10 English and 8 metric graduation styles with several width, thickness and length options and a full range of accessories and holders. Straight edges and parallels made with the same care and accuracy as our precision rules are also available.

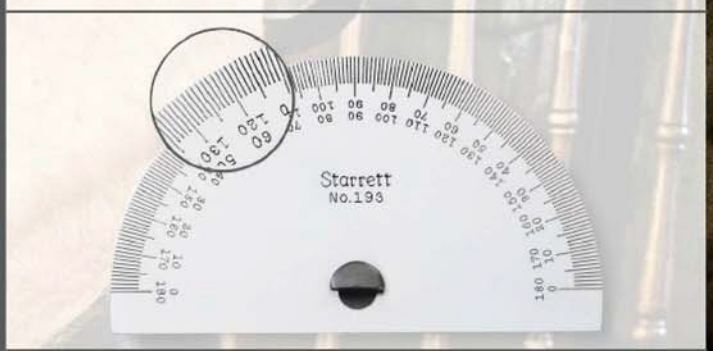
287



PROTRACTORS AND ANGLE MEASUREMENT

We offer a variety of tools with a sharply graduated 180° scales intersected by a movable blade, a bevel protractor, protractor/depth gages and special drill point gage. We also have available an indicator protractor head for use with custom engineered applications.

309



CALIPERS, DIVIDERS AND TRAMMELS

Manufacturing calipers and dividers since about 1890, we continue to build them with the same level of quality today. Even with many more options available today, these tools are still the best choice for many measurement transfer, scribing and other jobs. We also offer trammel heads, divider points and attachments.

315

HOLE AND SLOT GAGES

We offer several varieties of small hole gage sets as well as telescoping gages for larger holes. Our taper gages are inserted into a hole or slot, with the diameter determined by the reading on the tool's etched scale.

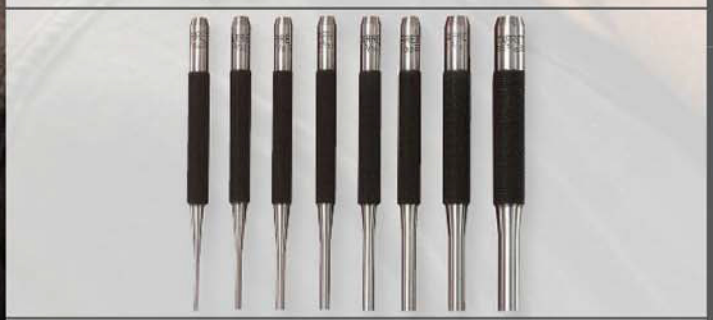
321

PRECISION TOOLS

FIXED GAGE STANDARDS

Fixed Gage Standards include a comprehensive choice of standard gages that quickly check dimensions on a variety of workpieces. They are very useful for in-process and final inspection. Products include pin gages, drill gages, sheet and wire gages, center gages, screw pitch gages, radius gages, ball and diameter gages, angle gages, thickness gages and feeler stock.

327



PRECISION SHOP TOOLS

This section offers quality tools that do not measure, but are needed frequently in manufacturing. Tools such as work positioning tools, scribers, punches, vises and lubricant are an integral part of any shop or manufacturing industry.

343

MACHINISTS' LEVELS

We offer a selection of machinists' levels to suit a variety of precision work typically required in industry. Our machinists' levels are manufactured with ground surfaces designed specifically for machine shop and tool room use.

371

STARRETT-WEBBER GAGE BLOCKS

We offer high-grade steel gage blocks for shop floor use, longer-lasting and non-corroding ceramic blocks. Top-of-the-line croblox® Chromium Carbide, are very stable, non-corrosive and have excellent wringability. A variety of sets are available in square- and rectangular-block versions. We also offer individual replacement blocks and a range of related accessories.

377

GRANITE SURFACE PLATES

Products and services range from standard surface plates and metrology accessories to engineering collaboration for unique solutions and complex assemblies. Our skilled technicians build your product in our state-of-the-art, environmentally controlled manufacturing facility.

411

VISION SYSTEMS

Video-based measurement systems combine high-resolution images, powerful-intuitive software and precision mechanical platforms to deliver superb accuracy and repeatable measurement results for a wide range of precision measurement applications

425

OPTICAL COMPARATORS

Optical comparators provide a time tested, cost effective solution for non-contact measurement. Optical comparators are used for an exceptionally wide range of dimensional inspection and measurement applications.

455

MATERIAL TEST AND FORCE MEASUREMENT

Turnkey system solutions for material testing, force analysis and force measurement. Our systems distinguish themselves from the competition by making it easy to create and perform a test, and manage test results. We offer a full range of test frames, software, load cell sensors, test fixtures and more.

477

LASER MEASUREMENT

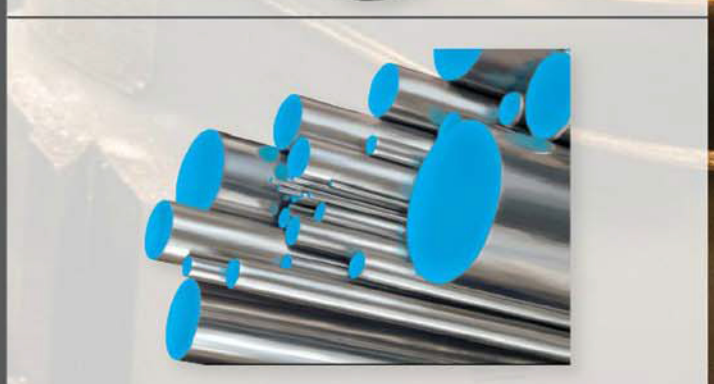
We offer laser-based, non-contact, dimensional measurement systems that are employed on the factory floor for quality monitoring, process control and inspection. Key elements that differentiate our products are: measurement accuracy and precision, system reliability, easy to use software, and effective and courteous training, technical support and service.

493

PRECISION GROUND FLAT STOCK AND DRILL ROD

We stock a full range of sizes in O1, A2, D2, A6, W1 and Low Carbon Steel. Specials can be produced in as little as 5 days at our North Carolina manufacturing facility. Starrett Ground Flat Stock and Drill Rod is of the highest quality, in fact we use it in the production of many of our own Precision Measuring Tools.

513



PRECISION TOOLS

VOCATIONAL AND EDUCATIONAL

Our educational literature is used as a resource in the machinist's shop, the classroom or for the everyday end-user. It ranges from posters that can be hung in the workshop to booklets that explain how to utilize your Starrett tools. Pocket cards and memo pads are also available for those who need precise measurements while on the job or in the classroom.

ABOUT STARRETT



Distinctly American – The Standard of Precision Worldwide

There are some things that are uniquely American – the dreams of freedom and a better life inspired by the sight of the Statue of Liberty, a bald eagle soaring in flight, the awe inspiring majesty of the Lincoln Memorial or the simple pleasure of a minor league baseball game on a warm summer evening.

For those who work with their hands to build or manufacture, using a Starrett tool for a critical measurement is part of the economic vitality so essential to the uniqueness of America.

Today, Starrett tools are manufactured, marketed and used worldwide. With over five generations of practical innovation, exceptional quality and unmatched precision, the Starrett brand remains distinctly American.

A Global Manufacturer for Over Half a Century

Starrett's success as a global manufacturer began in the 1950's with the establishment of facilities in Brazil and the United Kingdom. Today, Starrett has nine manufacturing locations worldwide: Brazil, The U.K., China, and six in the United States.

Most of the products in this catalog are made at a Starrett U.S. facility. The rest are sourced from one of our global locations.

Regardless of the country of origin, the Starrett name is your assurance of unmatched precision and quality. After more than 130 years, Starrett remains "The World's Greatest Toolmaker" – setting the continuing standard of excellence.

Precision

At Starrett, we understand precision. For generations, the precision that we build into our products has allowed our customers to ensure the quality of their products. Precision is something we take very seriously.

Primary Standards

To ensure accuracy, manufacturers must enforce strict quality control processes. This starts with applying primary standards for measurement and inspection. This will ultimately lead to consistent, reliable gaging results.

Precision gage blocks are the primary standards vital to dimensional quality control in the manufacture of interchangeable parts. These blocks are used for calibrating precision measuring tools and for setting numerous comparative type gages.

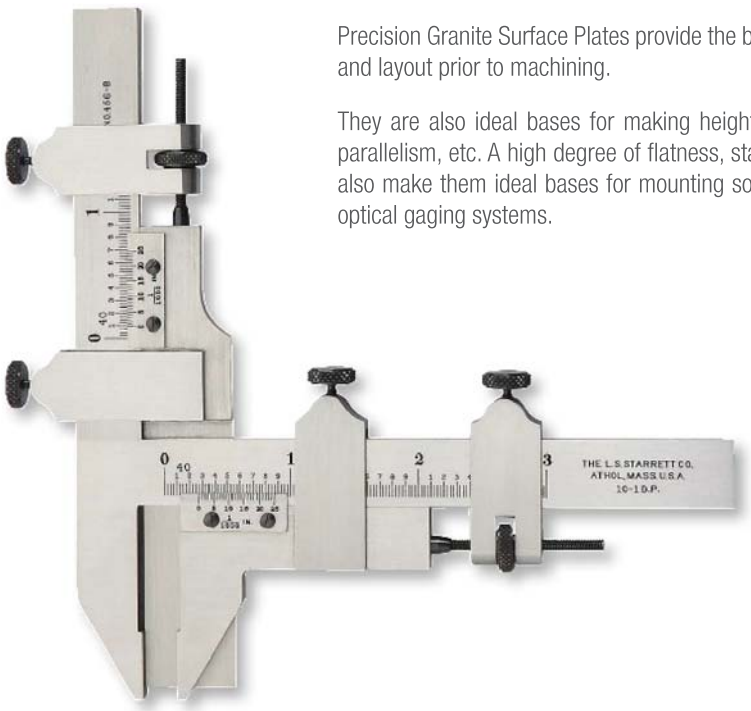
However, even gage blocks are held to their own level of higher standards: Grand Master Blocks.

Accurate Reference Surfaces

Every linear measurement depends on an accurate reference surface from which final dimensions are taken.

Precision Granite Surface Plates provide the best reference plane for work inspection and layout prior to machining.

They are also ideal bases for making height measurements and gaging surfaces, parallelism, etc. A high degree of flatness, stability, overall quality and workmanship also make them ideal bases for mounting sophisticated mechanical, electronic and optical gaging systems.



Accuracy

Starrett precision measuring tool accuracies are based on their traceability through our grand master gage blocks as certified by the National Institute of Standards and Technology (NIST).

Worldwide, no one else has produced the accuracy and stability of Starrett-Webber croblox® Grand Masters.

They were produced in 1955 out of chromium carbide material to an accuracy within one millionth of an inch (.0000254mm) and have been checked periodically by the National Bureau of Standards and the National Institute of Standards and Technology (NIST). They have remained stable over this period.

Quality

Starrett precision measuring products are inspected for accuracy with standards traceable to our grand master gage blocks.

After a period of use, precision measuring tools require regular preventative maintenance, periodic calibration and, sometimes, repair.

Starrett offers calibration services at several of our facilities, each with different emphasis, capabilities and certificates as detailed below.

Calibration and Repair

STARRETT TOOLS AND GAGES – ATHOL, MA

- Calibration of Starrett Precision Tools
- Repair, refurbishing, and rebuilding of your Starrett tools by the same craftsmen who originally made them
- Accredited by A2LA in accordance with ANSI/NCSL Z540-1 and ISO/IEC 17025

Cert. No. 760.01

*STARRETT WEBBER GAGE DIVISION – CLEVELAND, OH

- Accredited calibrations of Linear Gage Blocks, Webber Height Gages and Standard Reference Bars, Angle Gage Blocks, True Squares, Optical Cubes, Optical Polygons and Optical Flats
- Accredited by NVLAP in accordance with ANSI/NCSL Z540-1 and ISO/IEC 17025*
- Calibrations also performed in accordance with ISO 10012-1 and former MIL-STD-45662A

Administered by N.I.S.T.
Lab Code 200038-0

*STARRETT GRANITE DIVISION – WAITE PARK, MN

- Calibration of granite surface plates, granite parallels, granite straight edges, granite tri-squares, granite angle plates and granite squares.
- Surface plate, granite metrology and accessory resurfacing
- Starrett Granite Surface Plates meet or exceed U.S. Federal Specification GGG-P-463c.
- NIST-traceable calibration certificate provided that is ISO/IEC 17025* compliant
- ISO 9001:2000 certified and A2LA accredited per the ISO/IEC 17025* standard

Cert. No. 200.01

STARRETT METROLOGY DIVISION – LAGUNA HILLS, CA

- Factory or field calibration and repairs of Optical Comparator and Vision Systems performed by our factory trained experts
- First generation NIST traceable documentation for all calibration artifacts and standards

*STARRETT CALIBRATION SERVICES™ – DUNCAN, SC

- Fast, economical calibration for all major brands
- Repair of all major brands with parts in stock
- Accredited by A2LA in accordance with ANSI/NCSL Z540-1, and ISO/IEC 17025*

Cert. No. 1387.02

* Accreditations are site-specific and tool-specific. The Scope of Accreditation is available upon request to each location.
Specifications and Certifications are subject to change.

Calibration Certificate

(AVAILABLE BY REQUEST)

The Calibration Certificate includes the information that is on the SLC and the actual readings taken during the calibration of that tool. The certificate includes an environmental control statement, actual before and after data, standards used to perform calibration, applicable NIST test number, and uncertainty statement. The certificate conforms to the requirements of ANSI/NCSL Z540-1, ISO/IEC 17025 and ISO Guide 25.

Standard Letter of Certification (SLC)

The Standard Letter of Certification certifies that the listed tool is a product of The L.S. Starrett Company and meets all applicable federal or manufacturing specifications. It has a unique serial number, tolerance parameter, and traceability to The National Institute of Standards and Technology (NIST).

Many of our tools are available with a redemption card for a Standard Letter of Certification. Their catalog numbers have the letters "W/SLC".

Innovation

New Products

Product and technology innovation has been at the core of The L. S. Starrett Company since our inception. The restless, creative energy of our founder, dedicated to "continuous improvement" long before that phrase came into common usage, is as much a part of our company in the 21st century as it was in the 19th.

The table below lists products we have added to our Precision Tool Catalog since its last printing.

Beyond catalog products, we devote significant resources to developing highly innovative, application-focused solutions, as described on the following pages.

2900-1 and 2900-6
Electronic Indicator

3805B Electronic Durometer

Profile360

FMS1000

3250 Dial
Height Gage

APPLICATION-FOCUSED CUSTOM SOLUTIONS

WHEN YOU HAVE A SPECIAL MEASUREMENT PROBLEM, WE WILL HELP YOU FIND THE SOLUTION.

One way Starrett stands out from other precision tool providers is our willingness to work directly with customers to develop custom tools.

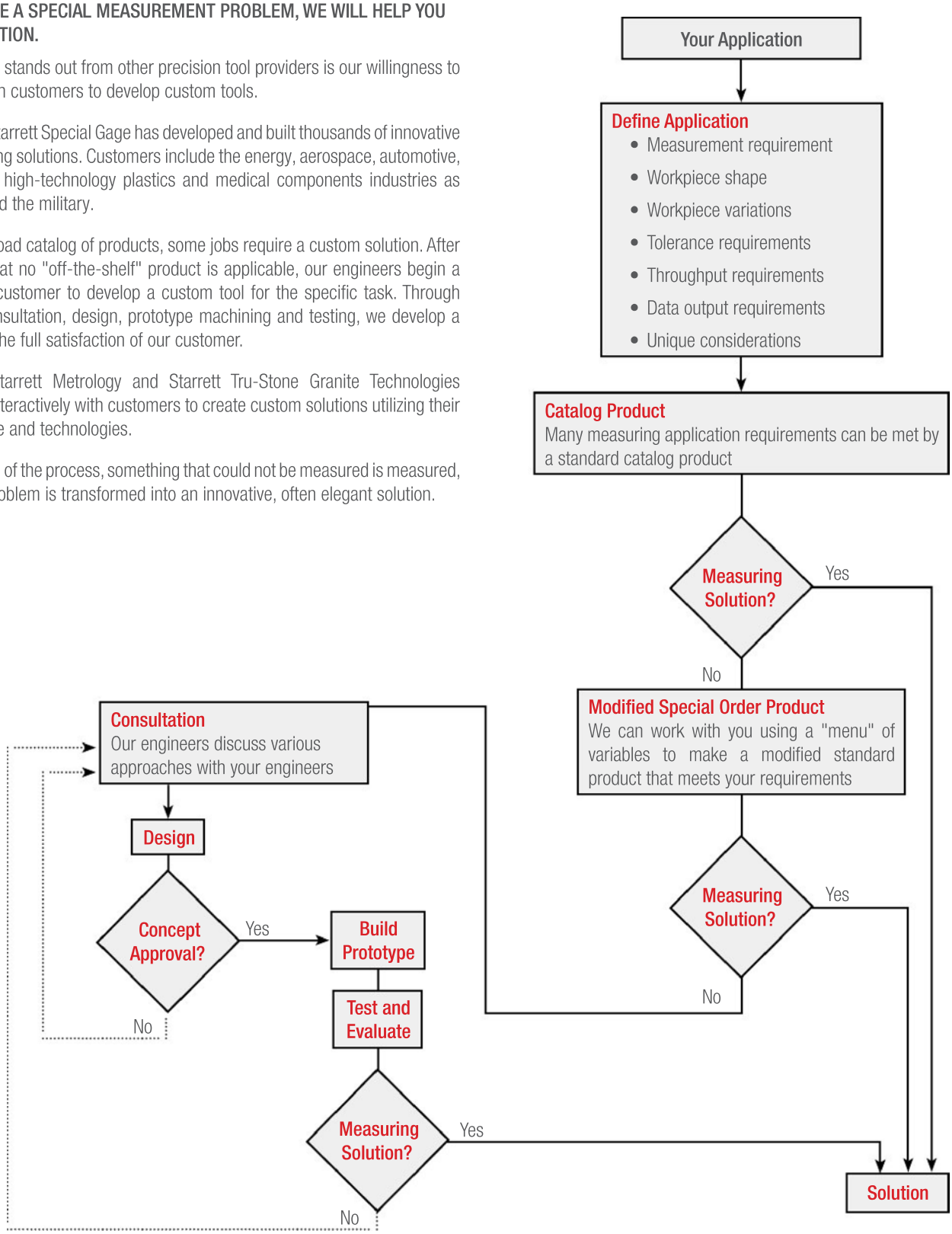
Over 50 years, Starrett Special Gage has developed and built thousands of innovative custom measuring solutions. Customers include the energy, aerospace, automotive, food packaging, high-technology plastics and medical components industries as well as NASA and the military.

Even with our broad catalog of products, some jobs require a custom solution. After we determine that no "off-the-shelf" product is applicable, our engineers begin a dialog with the customer to develop a custom tool for the specific task. Through a process of consultation, design, prototype machining and testing, we develop a specification to the full satisfaction of our customer.

Similarly, the Starrett Metrology and Starrett Tru-Stone Granite Technologies Divisions work interactively with customers to create custom solutions utilizing their specific expertise and technologies.

At the conclusion of the process, something that could not be measured is measured, and a difficult problem is transformed into an innovative, often elegant solution.

THE CUSTOM SOLUTIONS DEVELOPMENT PROCESS



Custom Engineered Solutions

Handheld Tools and Gages

An interactive process between customer and Starrett engineering staffs created a gage that measures the diameter of hot steel flat stock while in the heat treatment process. An accurate measurement takes only two seconds of contact, reducing radiant heat transfer and part spoilage.

Its electronic indicator locks the reading in the display for safe reading and is accurate to within ±.003".

Engineered Metrology Systems

This application was custom developed with vision and touch probe sensors. As is the case with many recent systems, two or even three sensors are part of the custom solution.

The Starrett Metrology Division works closely with customers to find solutions for complex applications on a regular basis. Their expertise is as important to the solution as the excellence of our system hardware.

Custom Gage Fixtures

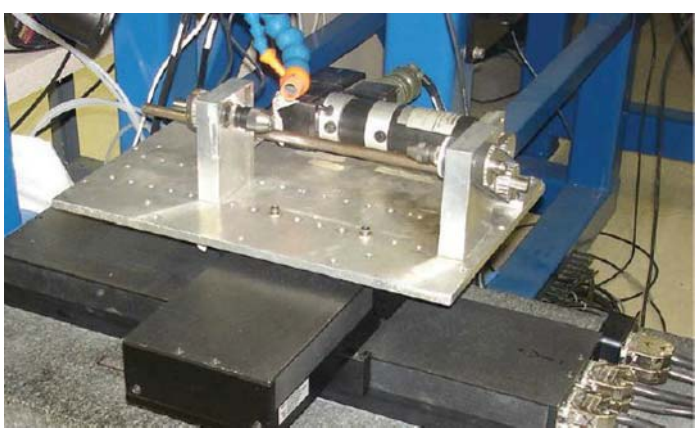
We have worked with many customers to develop a gage to measure a specific food container, some with lids that must fit precisely – not too tight or loose. These containers are a perfect example of something that defies measurement with a standard tool.

The gage below uses pneumatics to withdraw probes for fast, easy and accurate placement and unloading.

Granite-Based Engineered Solutions

A medical devices manufacturer could not reliably measure a moving tube on a complex 7-axis laser micro machining system because of persistent vibration.

After extensive design consultation with our Starrett Granite Division, the vibration-dampening attributes of granite stabilized beam delivery, allowing measurement of the tubes at a molecular level.



General Information

Specifications and Availability

The information and specifications in this catalog were accurate at the time of publication. Specifications and availability of products, however, are subject to change without notice.

Quality Assurance

Starrett tools are made to the highest standard of quality and workmanship. We want every tool in the hands of our customers to be accurate and satisfactory. If any tool is found not to be of Starrett quality, please contact our customer service department to arrange a return of that tool. Any tool proved to be defective in material or workmanship will, at our discretion, be repaired or replaced at no Charge.

Please note that we cannot replace or give credit for tools that have been improperly used, stamped or mutilated, or tools that have been altered or repaired by personnel not authorized by The L.S. Starrett Company. We will be pleased to quote a price to repair such tools.

Accuracy

At the time of manufacture, Starrett precision measuring tools meet or exceed accuracy and performance requirements of national and international standards, and are traceable to the United States National Institute of Standards and Technology.

Starrett Value

No manufacturer's precision tools are guaranteed to work for life, regardless of the use or abuse they receive. It is worthy to note, however, that we at The L.S. Starrett Company regularly service and repair our precision measuring tools that have been passed from generation to generation. You can count on Starrett for full value.

Repair and Calibration

We offer expert repair and calibration services at several of our facilities as noted on previous pages. Please contact the appropriate facility to arrange for these services.

Custom Solutions and Special Orders

As noted, we have built thousands of special tools to meet the unique needs of our customers, and we welcome the opportunity to work with you to meet your special requirements.

How and Where to Order Starrett Products

Starrett tools are sold through authorized distributors. Orders should be placed with a Starrett distributor in your area. Please check our website or contact us for assistance in locating your nearest distributor.

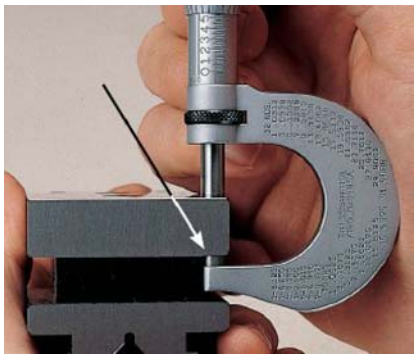
Please note that we do not list distributors for our Metrology Products (Vision Systems and Optical Comparators) due to their technically complex and application-specific nature.

Product Price

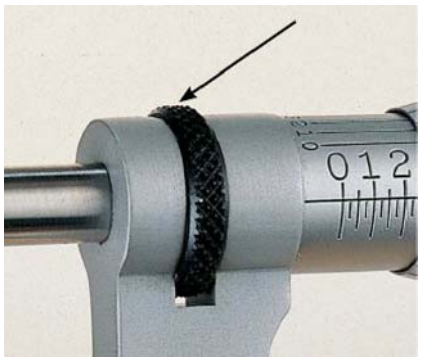
Please contact your distributor for prices of Starrett products. In most cases, we do not quote prices directly to customers. From time to time, we offer promotions with stated prices valid for a defined period. Such promotions are listed on our website and detailed in printed promotional material. If you require help finding a participating distributor, please contact us.

MICROMETERS

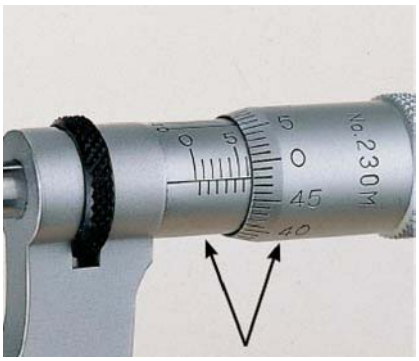
STARRETT RELIABLE PRECISION MICROMETER DESIGN AND MANUFACTURING FEATURES



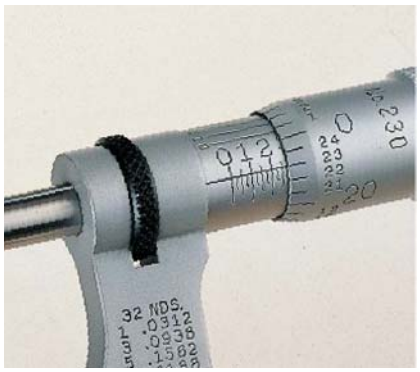
Tapered frame – a Starrett original feature – permits measurements in narrow slots and tight places. Standard with Starrett.



Ring-type lock nut convenient to use. Permits locking of spindle at any reading.



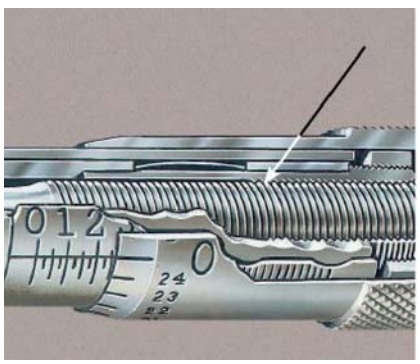
Easy to read with distinct black figures against satin-chrome finish.



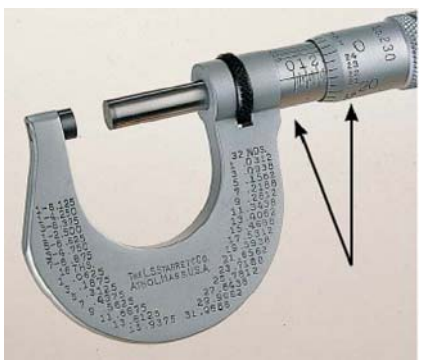
Staggered graduations, advanced design, a Starrett original feature. Quick reading figures on inch reading micrometers. Every graduation numbered for quick, positive identification. Easy to read with distinct black figures against satin-chrome finish.

Friction thimble, smooth uniform pressure independent of "feel."

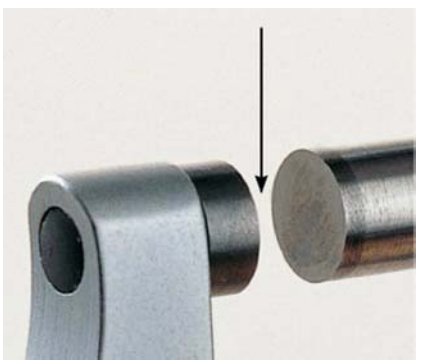
Ratchet stop/speeder for consistent measurements and to speed opening or closing of tool.



Extra Hard Threads with Extreme Lead Accuracy. Special high carbon steel gives harder threads which are hardened, stabilized, and precision ground from the solid to ensure long and accurate life.



Balanced design; plus no-glare satin chrome finish makes the tool easy to hold and read, as well as resistant to stains, corrosion and wear.



Micro-Lapped "Mirror" Finish on the measuring faces – a Starrett original feature that ensures more accurate measurements. Available with carbide faces or hardened, high-carbon steel faces.

Micrometer Quality and Accuracy

Product quality and accuracy cannot be valid unless referenced to a quality and accuracy standard.

All Starrett precision measuring tool standards meet or exceed accuracy and performance specifications of national and international standards and are traceable to the National Institute of Standards and Technology.

The Starrett Company does not rely on statistical sampling inspection. Every precision measuring tool is individually inspected.

All Starrett micrometers have the same accurate heads as outlined in the chart. Inaccuracies because of size can be minimized if the tools are set accurately to standard, and measurements are carried out in a similar position with similar pressure.

Starrett Micrometer Accuracy Standards (Unless Otherwise Noted on the Catalog Page)

Type	Range	Readout	Accuracy
Mechanical	1"	.001"	±.0001"
	1"	.0001"	±.00005"
	25mm	0.01mm	±0.002mm
	25mm	0.001mm	±0.002mm
Electronic	1"	.00005"	±.0001"
	25mm	0.001mm	±0.002mm

Key to Starrett Micrometer Numbering System

Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

How to Adjust Starrett Micrometers

Adjustments to Starrett Micrometers are rarely needed; however, if it becomes necessary, they can be readily adjusted in two easy operations as follows:

1. If any play should develop in the spindle screw threads due to wear of the spindle nut after long use, first back off the thimble, insert the spanner wrench in the slot of the adjusting nut and tighten just enough to eliminate play. Illustration shows how easily this is done.

2. After carefully cleaning all dirt or grit from the measuring faces of anvil and spindle, bring them together and insert the spanner wrench in the small slot of the sleeve. Then turn the sleeve until the line on the sleeve coincides with the zero line on the thimble as shown.

Measuring Tips from Our Experience

- Most obvious to everyone is to keep the work to be measured and the micrometer anvil and spindle faces clean.
- For very fine measurements, the micrometer should be set to zero or to a standard by your "feel", by the friction thimble, or by the ratchet, whichever you will be using.
- The most popular micrometer option has been the ratchet speeder because it does three things well: it speeds opening and closing, it applies uniform pressure from the ratchet, and it allows for using the thimble for individual "feel".
- The speeder is helpful because it takes forty turns to cover the range of a typical English-reading tool and fifty turns to cover the range of a metric-reading tool.
- Large micrometers especially should be set to a standard in the same approximate position in which they will be used, that is, vertical or horizontal, to minimize any frame flexure influence.
- Too much speed in approaching the work will result in an inaccurate measurement.
- If the micrometer has been set to a flat standard, you can get approximately .0001" (0.0025mm) difference when measuring over a round because the same pressure is being applied to a point or line contact.
- Carbide or hardened steel measuring faces are a matter of choice. Carbide wears longer but many craftsmen think they get a better "feel" with highly finished steel measuring surfaces.
- Insulating pads on micrometers are a matter of personal preference. With the Starrett balanced micrometer design, there is no need for insulation. Insulation from hand heat is usually more beneficial on long sections, such as end measuring rods.

How to Read a Starrett Micrometer

Graduated in Thousandths of an Inch

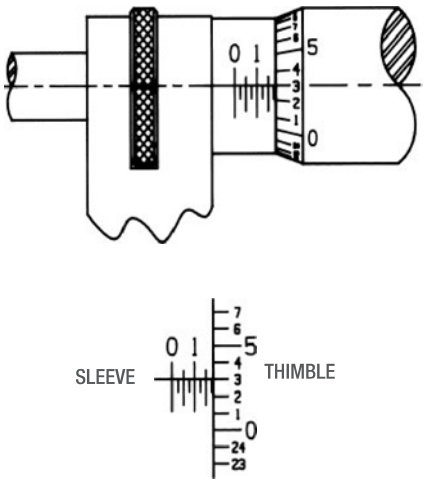
.001"

The pitch of the screw thread on the spindle is 40 threads per inch. One revolution of the thimble advances the spindle face toward or away from the anvil face precisely 1/40" or .025 inches.

The reading line on the sleeve is divided into 40 equal parts by vertical lines that correspond to the number of threads on the spindle. Therefore, each vertical line designates 1/40" or .025 inches. Lines vary in length for easy reading. Every fourth line, which is longer than the others, designates a hundred thousandth. For example: the line marked "1" represents .100" and the line marked "2" represents .200", etc.

The beveled edge of the thimble is divided into 25 equal parts with each line representing .001" and every line numbered consecutively. Rotating the thimble from one of these lines to the next moves the spindle longitudinally 1/25 of .025", or .001". Rotating two divisions represents .002", etc. Twenty-five divisions indicate a complete revolution of .025" or 1/40 of an inch.

To read the micrometer in thousandths, multiply the number of vertical divisions visible on the sleeve by .025", and to this add the number of thousandths indicated by the line on the thimble which coincides with the reading line on the sleeve.



READING .178"

EXAMPLE:

The "1" line on sleeve is visible, representing	.100"
There are 3 additional lines visible, each representing .025"; 3 x .025"	= .075
Line "3" on the thimble coincides with the reading line on the sleeve, each line representing .001"; 3 x .001"	= .003"
The micrometer reading is	178"

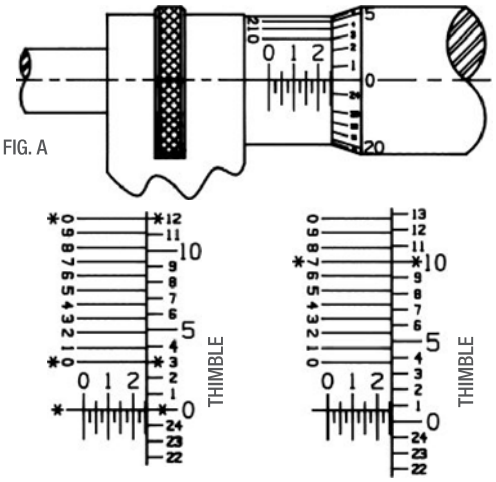
Graduated in Ten-Thousandths of an Inch

.0001"

Starrett micrometers graduated in ten-thousandths of an inch read like micrometers graduated in thousandths, except that an additional reading in ten-thousandths is obtained from a vernier scale on the sleeve.

The vernier consists of ten divisions on the sleeve, which occupy the same space as nine divisions on the thimble (Fig. B). Therefore, the difference between the width of one of the ten spaces on the vernier and one of the nine spaces on the thimble is one-tenth of a division on the thimble, or one ten-thousandth (.0001").

To read a ten-thousandths micrometer, first obtain the thousandths reading, then see which of the lines on the vernier coincides with a line on the thimble. If it is the line marked "1" on the sleeve, add one ten-thousandth, if it is the line marked "2", add two ten-thousandths, etc.



SLEEVE
FIG. B
Reading .2500"

SLEEVE
FIG. C
Reading .2507"

FIGURE C – READING .2507"

The "2" line on sleeve is visible, representing	.200"
There are two additional lines visible,each representing .025"	.050"
The reading line on the sleeve lies between the "0" and "1" on the thimble indicating that a vernier reading must be added	----
The "7" line is the only line on the vernier that coincides with a line on the thimble, representing 7 x .0001"	= .0007"
The micrometer reading is	.2507"

Graduated in Hundredths of a Millimeter

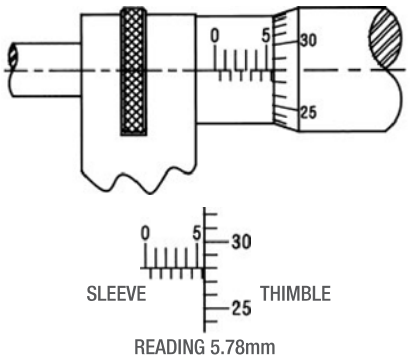
0.01MM

The screw head pitch is one-half millimeter (0.5mm). One revolution of the thimble advances the spindle face toward or away from the anvil face precisely 0.5mm.

The reading line on the sleeve is graduated above the line in millimeters (1.0mm) with every fifth millimeter being numbered. Each millimeter is also divided in half (0.5mm) below the reading line. Two revolutions of the thimble to advances the spindle 1.0mm.

The beveled edge of the thimble is divided into fifty equal parts, with each line representing 0.01mm and every fifth line being numbered. Rotating the thimble from one of these lines to the next moves the spindle longitudinally 0.01mm; rotating two divisions represents 0.02mm, etc.

To read the micrometer, add the number of millimeters and half-millimeters visible on the sleeve to the number of hundredths of a millimeter indicated by the thimble graduation indicated by the reading line.



EXAMPLE:

The 5mm sleeve graduation is visible.....	5.00mm
One additional 0.5mm line is visible on the sleeve.....	0.50mm
Line 28 on the thimble coincides with the reading line on the sleeve, so 28 x 0.01mm.....	= 0.28mm
The micrometer reading is.....	5.78mm

Graduated in Two-Thousandths of a Millimeter

0.002MM

Metric vernier micrometers graduated in 0.002mm are used like those graduated in hundredths of a millimeter (0.01mm), except that an additional reading in two-thousandths of a millimeter (0.002mm) is obtained from a vernier scale on the sleeve.

The vernier consists of five divisions on the sleeve, which occupy the same space as nine divisions on the thimble (Fig. B). Therefore, the difference between the width of one of the five spaces on the vernier and one of the nine spaces on the thimble is one-fifth or two-tenths of a division on the thimble, or two-thousandths (0.002mm).

To read a 0.002mm micrometer, first obtain the hundredth of a millimeter (0.01mm) reading, then see which of the lines on the vernier coincides with a line on the thimble. If it is the line marked "2" add 0.002mm, if it is the line marked "4" add 0.004mm, etc.

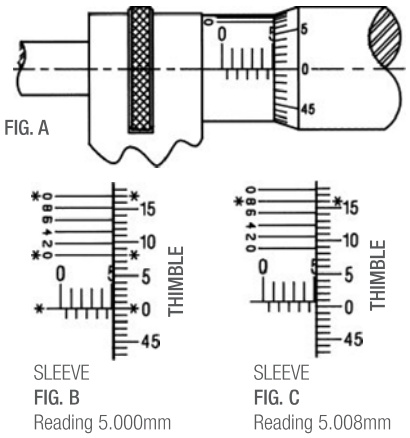


FIGURE C – READING 5.008mm

The 5mm sleeve graduation is visible.....	5.000mm
No additional lines on the sleeve are visible.....	0.000mm
The reading line on the sleeve lies between zero and the first line on the thimble, indicating that a vernier reading must be aded.....	----
Line 8 on the vernier is the only line that coincides with a line on the thimble.....	0.008mm
The micrometer reading is.....	5.008mm

Graduated in One-Thousandth of a Millimeter

0.001MM

Reading a 0.001mm micrometer is exactly like reading a 0.002mm micrometer except that there are ten divisions on the vernier occupying the same space as nine divisions on the thimble (Fig. B). Therefore, the difference between the width of one of the spaces on the vernier and one of the nine spaces on the thimble is one-tenth of a division on the thimble, or one-thousandth (0.001mm).

First obtain the hundredth of a millimeter (0.01mm) reading. Next, see which of the lines on the vernier coincides with a line on the thimble. If it is the first line add

0.001mm to the reading, if it is the second line add 0.002mm, etc. Only every second vernier line is numbered on a 0.001mm reading tool because of space congestion.

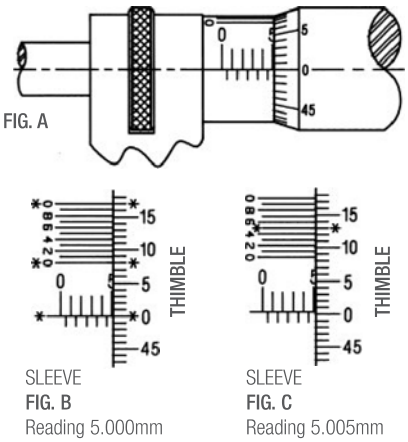


FIGURE C – READING 5.005mm

The 5mm sleeve graduation is visible, representing.....	5.000mm
No additional lines on the sleeve are visible..	0.000mm
The reading line on the sleeve lies between zero and the first line on the thimble, indicating that a vernier reading must be added.....	----
Line 5 on the vernier is the only line that coincides with a line on the thimble.....	0.005mm
The micrometer reading is.....	5.005mm

Electronic Micrometers

795 Electronic Micrometers
(with output)

0-4"/0-100MM

796 Electronic Micrometers
(without output)

0-4"/0-100MM

795 and 796 Electronic Micrometers provide an IP67 level of protection against coolant, water, chips, dirt, dust, and other contaminants in hostile shop environments.

The 795 includes an RS232 output port for data transmission and works well with Starrett DataSure® Wireless Data Collection Systems. The 796 has all of the features of the 795 except that is does not include output.

These full-featured electronic micrometers are built with customary Starrett quality and workmanship.

The family of 795 and 796 Electronic Micrometers are now available with measuring capacities to 4" (100mm).

Features and Specifications

- Large, easy-to-read (.275"/7mm), high-contrast LCD digital readout
- IP67 level of protection against coolant, water, dust and dirt
- Starrett no-glare satin chrome finish on thimble and sleeve
- Balanced, tapered frame for comfortable and accurate measuring
- Extremely hard, and stable one piece spindle, the heart of our accuracy and smooth operating one-piece friction thimble
- Two 3-volt batteries included for more than one year of normal usage
- Automatic OFF after 20 minutes of nonuse
- Inch/millimeter conversion
- Measurement HOLD button
- Ability to zero tool at any position as well as retain and return to the true zero reading of the micrometer
- Resolution: .00005" (0.001mm)
- Accuracies: ±.0001" (±.002mm)
- 795 Micrometers include RS232 output
- Output data to Starrett SPC Plus hardware and software and to PCs
- Works well with Starrett DataSure Wireless Data Collection Systems

795XFL-1 with a DataSure End Node

Starrett

795 Electronic Micrometers with Output						
	Friction Thimble, Spindle Lock, Shell and Thimble Inch Grads.		Ratchet Stop, Lock Nut, Shell and Thimble Inch Grads.		Friction Thimble, Spindle Lock, Shell and Thimble Metric Grads.	
Range	Cat. No.	EDP	Cat. No.	EDP	Cat. No.	EDP
0-1" and 0-25mm	795XFL-1	67827	795XRL-1	69085	795MEXFL-25	69077
1-2" and 25-50mm	795XFL-2	69074	795XRL-2	69086	795MEXFL-50	69078
2-3" and 50-75mm	795XFL-3	69075	795XRL-3	69087	795MEXFL-75	69079
3-4" and 75-100mm	795XFL-4	69076	795XRL-4	69088	795MEXFL-100	69080
796 Electronic Micrometers without output						
0-1" and 0-25mm	796XFL-1	67828	796XRL-1	69089	796MXFL-25	69084
1-2" and 25-50mm	796XFL-2	69081	796XRL-2	69090		
2-3" and 50-75mm	796XFL-3	69082	796XRL-3	69091		
3-4" and 75-100mm	796XFL-4	69083	796XRL-4	69092		
795 Electronic Micrometer Accessories						
1m Shielded Cable to Starrett 795		PT62680-1	62021			
2m Shielded Cable to Starrett 795		PT62680-2	62022			
3m Shielded Cable to Starrett 795		PT62680-3	62023			
Adaptor from PT62680-1, PT62680-2 and PT62680-3 to PC (RS232)		PT61768	66454			
DataSure® End Node		1500-3A-2N	12531			
Two 3-volt Batteries, CR2032		PT99492	65650			

Sets			
Range	Cat. No.	EDP	Description
0-3" and 0-75mm	S795AXFLZ	69910	Electronic Micrometer Set, includes 795XFL-1, 795XFL-2 and 795XFL-3
0-4" and 0-100mm	S795BXFLZ	69911	Electronic Micrometer Set, includes 795XFL-1, 795XFL-2, 795XFL-3 and 795XFL-4
0-3" and 0-75mm	S796AXRLZ	69912	Electronic Micrometer Set, includes 796XRL-1, 796XRL-2 and 796XRL-3
0-4" and 0-100mm	S796BXRLZ	69913	Electronic Micrometer Set, includes 796XRL-1, 796XRL-2, 796XRL-3 and 796XRL-4

All 795 and 796 Micrometers include a protective case. All except 1" and 0-25mm sizes furnished with standards.

Key to Starrett Micrometer Numbering System	
Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

IP67

IP PROTECTION

An IP number is composed of two numbers, the first referring to protection against solid objects and the second against liquids.

First number 6: Totally protected against dust

Second number 7: Protection against submersion in water under standardized conditions of pressure for 30 minutes

All 795 and 796 Micrometers include IP67 protection

ELECTRONIC MICROMETERS

3732 ELECTRONIC MICROMETERS (WITHOUT OUTPUT)

0-6"/0-150MM

The 3732 Electronic Micrometer is a full-featured precision measuring tool built with customary Starrett quality and workmanship. The 3732 includes a large, easy-to-read, high contrast LCD digital readout for clear readings. With its automatic OFF functionality, smooth friction thimble for uniform pressure, and balanced frame design, the 3732 provides comfortable and accurate measuring.

3732 Inch/Metric Micrometers without Output							
		Range		Resolution		Accuracy	
Cat. No.	EDP	Inch	Approx. mm	Inch	mm	Inch	mm
3732XFL-1	12268	0-1"	0-25.4	0.00005	0.001	± 0.0001	± 0.002
3732XFL-2	12269	1-2"	25.4-50.8	0.00005	0.001	± 0.0001	± 0.003
3732XFL-3	12270	2-3"	50.8-76.2				
3732XFL-4	12271	3-4"	76.2-101.6	0.00005	0.001	± 0.00015	± 0.004
3732XFL-5	12272	4-5"	101.6-127	0.0001	0.001	± 0.00015	± 0.004
3732XFL-6	12273	5-6"	127-152.4				
3732 Inch/Metric Micrometer Sets without Output							
S3732BXFLZ	12726	0-1" to 3-4"	0-25.4 to 76.2-101.6	0 to 4 Inch Set of Four Micrometers in metal case			
S3732CXFLZ	12727	0-1" to 5-6"	0-25.4 to 101.6-152.4	0 to 6 Inch Set of Six Micrometers in metal case			
3732 Metric/Inch Micrometers without Output							
Cat. No.	EDP	mm	Approx. Inch	mm	Inch	mm	Inch
3732MEXFL-25	12274	0-25	0-.984	0.001	0.00005	± 0.002	± 0.0001
3732MEXFL-50	12275	25-50	.984-1.968	0.001	0.00005	± 0.003	± 0.0001
3732MEXFL-75	12276	50-75	1.968-2.953				
3732MEXFL-100	12277	75-100	2.953-3.937	0.001	0.00005	± 0.004	± 0.0001
3732MEXFL-125	12278	100-125	3.937-4.921	0.001	0.0001	± 0.004	± 0.0001
3732MEXFL-150	12279	125-150	4.921-5.905				
3732 Micrometer Accessories							
PT99492	65650	CR2032 3-volt battery for 3732 Micrometers					

FEATURES AND SPECIFICATIONS

- Automatic OFF after 30 minutes of nonuse
- .250" (6.35mm) spindle diameter
- No-glare black wrinkle finish on frame
- No-glare satin chrome finish on thimble and sleeve
- Ring-type knurled lock nut for quick and sure locking
- English/Metric models feature inch graduations on shell and thimble
- Metric/English (ME) models have mm graduations on shell and thimble
- Instant inch/millimeter conversion
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Includes one 3-volt battery for over one year of normal usage
- Includes fitted plastic case

3732XFL-4

3732XFL-1

S3732CXFLZ

Starrett

Electronic Micrometers

733 Electronic Micrometers (with output)

0-24"/0-600MM

- Same features as the 3732, plus output jack allows data transmission, either through a traditional wire or by connecting to a Starrett DataSure® Wireless Data Collection System end node
- Wide variety of sizes up to 24" with output

733 Electronic Micrometers with Standard Inch Graduations

Range		Resolution			
Inch	Approx. mm	Inch	mm	Cat. No.	EDP
0 - 1	0 - 25.4	.00005	0.001	733XFL-1	64239
				733XFL-1 W/SLC	66905
1 - 2	25.4 - 50.8	.00005	0.001	733XFLZ-2	64241
2 - 3	50.8 - 76			733XFLZ-3	64242
3 - 4	76 - 101			733XFLZ-4	64243
4 - 5	101 - 127	.0001	0.001	733XFLZ-5	64244
5 - 6	127 - 152			733XFLZ-6	64245
6 - 7	152 - 178	.0001	0.001	733XFLZ-7	64246
7 - 8	178 - 203			733XFLZ-8	64247
8 - 9	203 - 228			733XFLZ-9	64248
9 - 10	228 - 254			733XFLZ-10	64249
10 - 11	254 - 279			733XFLZ-11	64250
11 - 12	279 - 305			733XFLZ-12	64251
12 - 13	305 - 330			733XFLZ-13	64415
13 - 14	330 - 355			733XFLZ-14	64416
14 - 15	355 - 381			733XFLZ-15	64417
15 - 16	381 - 406			733XFLZ-16	64418
16 - 17	406 - 432			733XFLZ-17	64419
17 - 18	432 - 457			733XFLZ-18	64420
18 - 19	457 - 482			733XFLZ-19	64421
19 - 20	482 - 508			733XFLZ-20	64422
20 - 21	508 - 533			733XFLZ-21	64423
21 - 22	533 - 559			733XFLZ-22	64424
22 - 23	559 - 584			733XFLZ-23	64425
23 - 24	584 - 609			733XFLZ-24	64426

All except 1" size furnished with standards.

733 Electronic Micrometers with Standard Millimeter Graduations

Range		Resolution			
mm	Approx. Inch	mm	Inch	Cat. No.	EDP
0 - 25	0 - .984	0.001	.00005	733MEXFL-25	65440
25 - 50	.984 - 1.968	0.001	.00005	733MEXFLZ-50	65441
50 - 75	1.968 - 2.950			733MEXFLZ-75	66079
75 - 100	2.950 - 3.930			733MEXFLZ-100	66080
100 - 125	3.930 - 4.920	0.001	.0001	733MEXFLZ-125	66081
125 - 150	4.920 - 5.900			733MEXFLZ-150	66082
150 - 175	5.900 - 6.890	0.001	.0001	733MEXFLZ-175	66083
175 - 200	6.890 - 7.870			733MEXFLZ-200	66084
200 - 225	7.870 - 8.850			733MEXFLZ-225	66085
225 - 250	8.850 - 9.840			733MEXFLZ-250	66086
250 - 275	9.840 - 10.820			733MEXFLZ-275	66087
275 - 300	10.820 - 11.810			733MEXFLZ-300	66088
300 - 325	11.810 - 12.790			733MEXFLZ-325	66089
325 - 350	12.790 - 13.770			733MEXFLZ-350	66090
350 - 375	13.770 - 14.760			733MEXFLZ-375	66091
375 - 400	14.760 - 15.740			733MEXFLZ-400	66092
400 - 425	15.740 - 16.730			733MEXFLZ-425	66093
425 - 450	16.730 - 17.710			733MEXFLZ-450	66094
450 - 475	17.710 - 18.700			733MEXFLZ-475	66095
475 - 500	18.700 - 19.680			733MEXFLZ-500	66096
500 - 525	19.680 - 20.660			733MEXFLZ-525	66097
525 - 550	20.660 - 21.650			733MEXFLZ-550	66098
550 - 575	21.650 - 22.630			733MEXFLZ-575	66099
575 - 600	22.630 - 23.620			733MEXFLZ-600	66100

All except 1" and 0-25mm sizes furnished with standards.

733 Micrometer with DataSure End Node

733 Electronic Micrometer Accessories

Description	Cat. No.	EDP
Protective case for 733 Micrometers	957	66565
Deluxe padded case for 25mm 733 Micrometers	949	63874
Computer cable to PC	733SCKB	69888
Cable to computer running SPC Data Collection Software	733SCU	69898
Connection to 7612 or 7613 Multiplexier	733SCM	69893
One 3-Volt Battery CR2450 for 733 Micrometers	PT61120	65446

733 Micrometer Specifications

Description	Inch	mm
Resolution through 4" (100mm)	.00005"	0.001mm
Resolution over 4" (100mm)	.0001"	0.001mm
Accuracy*	±.0001"	±0.002mm

* Accuracies above 1" (25mm) are as good as setting to a gage because the mechanical and electronic components are the same on all ranges.

Digital Micrometers

S216 Digital Micrometer Set

0-3"

Set of three digital micrometers – furnished with ratchet stop, lock nut, and standards, in case.

- Set consists of three micrometers: 0-1", 1-2", and 2-3"
- .001" is read directly from the counter
- .0001" is read from the sleeve
- Clear, easily read numbers
- Balanced frame design and extremely hard and stable one-piece spindle

S216 Digital Micrometer Set	
Cat. No.	**EDP**
ST216AXRLZ	66526

216, 216M Digital Micrometers

0-12"/0-300MM

This is the 216 Mechanical Digital Micrometer – simple to use even by the inexperienced. The anvil and spindle are sized at .250" (6.35mm).

Readability Features

- Clear, easily read numbers reduce errors
- No-glare black finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve
- .001" or .01mm is read directly from the counter
- .0001" or .001mm is read from the vernier scale on the micrometer sleeve

Ease-of-Handling Features

- Balanced frame design for comfortable and accurate measuring
- Ring-type knurled lock nut for quick and sure locking
- A choice of smooth friction thimble for uniform pressure on the 1-4" sizes or the combination ratchet and speeder for uniform pressure and quicker adjustment on all sizes
- Gracefully designed tapered frame for use in narrow slots and tight places

Accuracy and Long-Life Features

- Extremely hard and stable one-piece spindle (the heart of our accuracy)

216, 216M Digital Micrometers

216 Digital Micrometers

Graduations	Range	Measuring Faces	Ratchet Stop and Lock Nut Cat. No.	Ratchet Stop and Lock Nut EDP	Friction Thimble and Lock Nut Cat. No.	Friction Thimble and Lock Nut EDP	Plain Cat. No.	Plain EDP
.001"	0-1"	Steel	216RL-1	55953	216FL-1	55954	216P-1	55952
		Carbide	216XRL-1	55955	216XFL-1	55956		
.001"	1-2"	Steel	216RL-2	56153	216FL-2	56257		
	2-3"		216RL-3	56205	216FL-3	56206		
	3-4"		216RL-4	56208	216FL-4	56209		
	4-5"		216RL-5	63470				
	5-6"		216RL-6	63471				
.001"	6-7"	Carbide	216XRL-7	63628				
	7-8"		216XRL-8	63629				
	8-9"		216XRL-9	63630				
	9-10"		216XRL-10	63631				
	10-11"		216XRL-11	63632				
	11-12"		216XRL-12	63633				
.0001"	0-1"	Carbide	T216XRL-1	55959	T216XFL-1	55960		
			T216XRL-1 W/SLC	66904	T216XFL-1 W/SLC	66903		
	1-2"		T216XRL-2	56156	T216XFL-2	56157		
	2-3"		T216XRL-3	63491	T216XFL-3	63634		
	3-4"		T216XRL-4	63492	T216XFL-4	63635		
	4-5"		T216XRL-5	63493				
	5-6"		T216XRL-6	63494				
	6-7"		T216XRL-7	63495				
	7-8"		T216XRL-8	63496				
	8-9"		T216XRL-9	63497				
	9-10"		T216XRL-10	63498				
	10-11"		T216XRL-11	63499				
	11-12"		T216XRL-12	63500				

Cases Only for 216 and 216M Digital Micrometers

Fits Micrometer Range inch	mm	Cat. No.	EDP
0-1"	0-25mm	942	55961
1-2"	25-50mm	216ZZ-2	56171
2-3"	50-75mm	922	55222
3-4"	75-100mm	952	55223
4-5"	100-125mm	953	55224
5-6"	125-150mm	954	55225
6-7"	150-175mm	930	55276
7-8"	175-200mm	931	55277
8-9"	200-225mm	932	55278
9-10"	225-250mm	933	55279
10-11"	250-275mm	934	55280
11-12"	275-300mm	935	55281

216M Digital Micrometers

Graduations	Range	Measuring Faces	Ratchet Stop and Lock Nut Cat. No.	Ratchet Stop and Lock Nut EDP	Friction Thimble and Lock Nut Cat. No.	Friction Thimble and Lock Nut EDP
0.01mm	0-25mm	Carbide	216MXRL-25	55983	216MXFL-25	55984
	25-50mm		216MXRL-50	65602		
	50-75mm		216MXRL-75	65603		
	75-100mm		216MXRL-100	65604		
	100-125mm		216MXRL-125	64351		
	125-150mm		216MXRL-150	64352		
	150-175mm		216MXRL-175	64353		
	175-200mm		216MXRL-200	64354		
	200-225mm		216MXRL-225	64355		
	225-250mm		216MXRL-250	64356		
	250-275mm		216MXRL-275	64357		
	275-300mm		216MXRL-300	64358		
0.001mm	0-25mm	Carbide	V216MXRL-25	56037	V216MXFL-25	56036
	25-50mm		V216MXRL-50	64348		
	50-75mm		V216MXRL-75	64349		
	75-100mm		V216MXRL-100	64350		

Outside Micrometers

232, 232M Outside Micrometers

0-1/2"/0-12.5MM

These micrometers are the 1/2" (13mm) companions of the top-of-the-line 230 Micrometers. The spindle and anvil are sized at .200" (5mm).

Features and Specifications

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch tools
- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment
- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Gracefully designed tapered frame for use in narrow slots and tight places

232 and 232M Outside Micrometers			
Cat. No.	**EDP**	**Range**	**Graduation**
232RL	50953	0-1/2"	.001"
T232RL	50955		.0001"
T232XRL	50968		
232MRL	50954	0-13mm	0.01mm
V232MXRL	64231		0.002mm
Attractive, Protective Case for 232 and 232M Outside Micrometers			
921	55213	Case for 1/2" (13mm) Micrometers	

230, 230M Outside Micrometers

0-1"/0-25MM

This is the jewel of precision micrometers used by skilled workmen worldwide. The spindle and anvil are sized at .235" (6mm) to reach places most micrometers cannot reach.

Features and Specifications

- Same as our 232 Outside Micrometers plus quick-reading figures – every thousandth numbered on inch tools
- Same as our 232 Outside Micrometers with a choice of smooth friction thimble for uniform pressure or the combination ratchet and speeder for uniform pressure and quicker adjustment

230 and 230M Outside Micrometers (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
230P	50932	.001"
230RL	50935	
230FL	50938	
T230RL	50943	.0001"
T230XRL	50944	
T230XRL W/SLC	64401	
T230FL	50946	
T230XFL	50947	
T230XFL W/SLC	66916	
V230MXRL	56017	0.001mm
V230MXFL	56016	
Deluxe Padded Case for 230 and 230M Outside Micrometers		
910	55397	Case for 1" (25mm) Micrometers

Outside Micrometers

2A, 2MA Outside Micrometers with Attachment

0-2"/0-50MM

These micrometers are versions of the 2 and 2M that include an attachment to handle measurements from 0-1" or 0-25mm, thereby extending the total range from 0-2" or 50mm.

Easily and quickly attached to the anvil of the micrometer, it is only necessary to tighten a locking screw to make the conversion. The anvil extension is hardened, ground and lapped. No-glare satin chrome finish.

2 and 2M Outside Micrometers			
Cat. No.	**EDP**	**Range**	**Graduation**
T2XRL T2XFL	50024 50025	1-2"	.0001"
2MXRL V2MXRL	50026 63793	25-50mm	0.01mm 0.001mm
2A and 2MA Outside Micrometer			
2ARL	50027	0-2"	.001"
2MARL	50029	0-50mm	0.01mm
Deluxe Padded Case for 2, 2A, 2M and 2MA Outside Micrometers			
Cat. No.	**EDP**	**Description**	
912	55399	Case for 2" and 50mm Micrometers	

Key to Starrett Micrometer Numbering System	
Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

2, 2M Outside Micrometers

1-2"/25-50MM

These micrometers are the 2" (50mm) companions of the top-of-the-line 230 Micrometer.

The spindle and anvil are sized at .235" (6mm) to reach places other micrometers cannot.

Readability Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch tools

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- A choice of smooth friction thimble for uniform pressure or the combination ratchet and speeder for uniform pressure and quicker adjustment
- Gracefully designed tapered frame for use in narrow slots and tight places

Accuracy and Long-Life Features

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Appropriate 1" or 25mm gage block standard furnished with micrometers

MICROMETERS

231, 231M MICROMETERS WITH INSULATED FRAMES

0-1"/0-25MM

This is a slightly heavier micrometer with thermal insulators mounted on the frame front and rear. This spindle and anvil are sized at .250" (6.35mm).

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- A combination ratchet and speeder for uniform pressure and quicker adjustment on all sizes
- Gracefully designed tapered frame for use in narrow slots and tight places

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

221 HI-PRECISION MICROMETER

0-1"

- Permits direct readings in ten-thousandths of an inch (.0001") without a vernier, plus automatic control of spindle pressure
- Black graduated inner thimble and sleeve reading in thousandths and red graduated outer thimble and sleeve with large, widely spaced graduations which give direct readings in ten-thousandths

READABILITY FEATURES

- Exclusive constant pressure mechanism eliminates "feel" and ensures constant spindle pressure for all readings
- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design for easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Gracefully designed tapered frame for use in narrow slots and tight places

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

231 and 231M Micrometers (0-1" Range)			
Cat. No.	**EDP**	**Range**	**Graduation**
T231XRL	63967	0-1"	.0001"
V231MXRL	63969	0-25mm	0.001mm
Deluxe Padded Case for 231 and 231M Micrometers			
Cat. No.	**EDP**	**Description**	
942	55961	Case for 1" (25mm) Micrometers	

221 Hi-Precision Micrometer (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
T221XL	50754	.0001"
Deluxe Padded Case for 221 Hi-Precision Micrometer		
Cat. No.	**EDP**	**Description**
910	55397	Case for 1" (25mm) Micrometers

Stainless Steel Micrometers

1230, 1230M Stainless Steel Micrometers

0-1"/0-25MM

1212, 1212M Stainless Steel Micrometers

1-2"/25-50MM

This micrometer is made from stainless steel for use under adverse atmospheric and operating conditions.

1230 and 1230M Stainless Steel Micrometers			
Cat. No.	**EDP**	**Range**	**Graduation**
1230XRL	53196	0-1"	.001"
T1230XRL	53197		.0001"
V1230MXRL	64263	0-25mm	0.001mm
1212 and 1212M Stainless Steel Micrometers			
1212XRL	53178	1-2"	.001"
T1212XRL	53179		.0001"
V1212MXRL	64264	25-50mm	0.001mm
Deluxe Padded Cases for 1212 and 1212M Stainless Steel Micrometers			
Cat. No.	**EDP**	**Description**	
910	55397	Case for 1" (25mm) Micrometers	
912	55399	Case for 2" (50mm) Micrometers	

1" and 25mm Models sent in fitted case. 2" and 50mm Models packed one in a box without case.

Readability Features

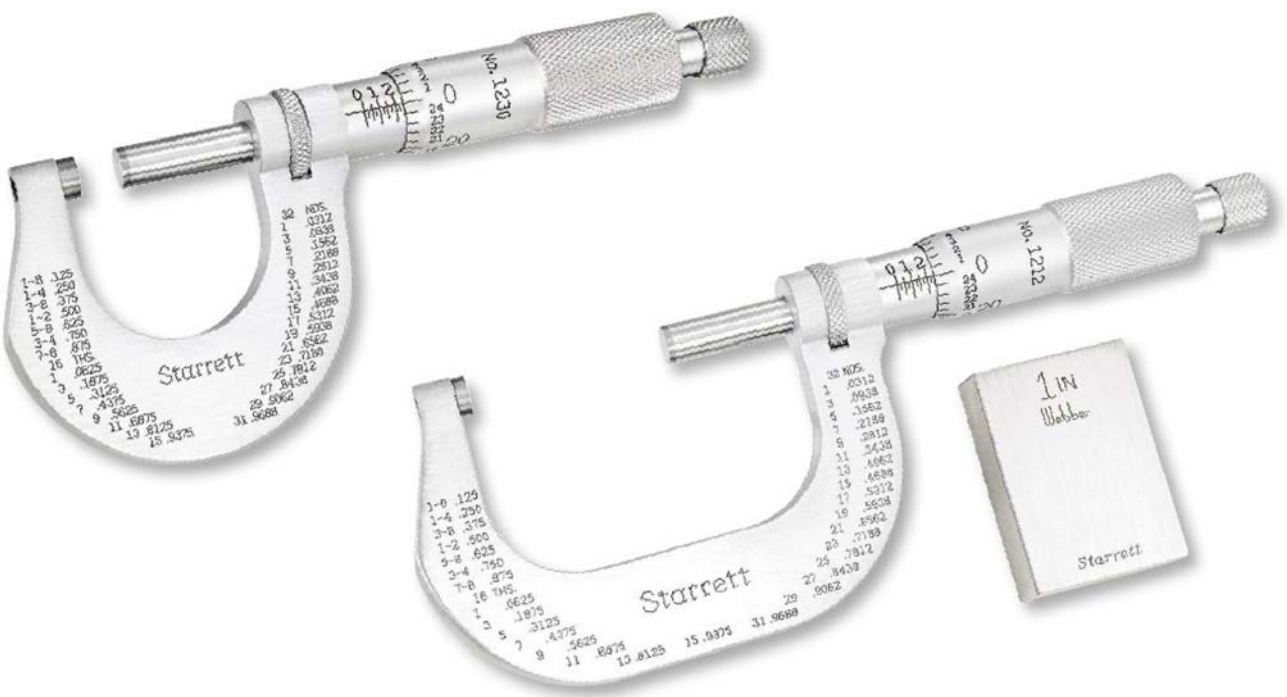
- Satin finish stainless steel – no glare – rust and stain resistant
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch tools

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- The combination ratchet and speeder for uniform pressure and quicker adjustment
- Gracefully designed tapered frame for use in narrow slots and tight places

Accuracy and Long-Life Features

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment
- Gage block standard supplied for 1-2" micrometer



Outside Micrometers

226M Micrometer Sets
ndards in Case

M

recommended for mechanics, automotive service and
s, toolrooms, inspection departments, and wherever
s a wide range of measurements. Furnished in an
ective cases to keep micrometer and standards readily

- For craftsmen who want a precision micrometer with a distinctive Starrett design and finish
- Strong ribbed frame with smooth black enamel finish and polished steel ribs and hub

Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking

Accuracy and Long-Life Features

- Rugged frame ribbed for extra strength
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

226 Outside Micrometers (.001" Graduation)				
	Ratchet Stop and Lock Nut		Standard (extra)	
Range	Cat. No.	EDP	Cat. No.	EDP
0-1"	226RL-1	12209		
1-2"	226RL-2	50820	234B-1	51017
2-3"	226RL-3	50825	234B-2	51019
3-4"	226RL-4	50830	234B-3	51021
4-5"	226RL-5	50835	234B-4	51023
5-6"	226RL-6	50840	234B-5	51025
226 Outside Micrometers, Carbide Faces (.0001" Graduation)				
0-1"	T226XRL-1	12211		
1-2"	T226XRL-2	50903	234B-1	51017
2-3"	T226XRL-3	50904	234B-2	51019
3-4"	T226XRL-4	50905	234B-3	51021
4-5"	T226XRL-5	50906	234B-4	51023
5-6"	T226XRL-6	50907	234B-5	51025
226M Outside Micrometers, Carbide Faces (0.001mm Graduation)				
0-25mm	V226MXRL-25	12212		
25-50mm	V226MXRL-50	64265	234MB-25	51018
50-75mm	V226MXRL-75	64266	234MB-50	51020
75-100mm	V226MXRL-100	64267	234MB-75	51022
100-125mm	V226MXRL-125	64268	234MB-100	51024
125-150mm	V226MXRL-150	64269	234MB-125	51026

Micrometer Cases for 226 and 226M Outside Micrometers		
Description	Cat. No.	EDP
for 1" (25mm)	910	55397
for 2" (50mm)	913	55400
for 3" (75mm)	922	55222
for 4" (100mm)	952	55223
for 5" (125mm)	953	55224
for 6" (150mm)	954	55225

S226 and S226M Micrometer Sets				
Range	Cat. No.	EDP	Graduation	Set Description
0-3"	S226ARLZ	50854	.001"	Includes 1", 2" and 3" Micrometers, Two Standards, Adjusting Wrench
	ST226AXRLZ	56448	.0001"	
0-6"	S226BRLZ	50862	.001"	Includes 1", 2", 3", 4", 5" and 6" Micrometers, Set of Five Standards, Adjusting Wrench
	ST226BXRLZ	56798	.0001"	
0-75mm	SV226MAXRLZ	65237	0.001mm	Includes 25mm, 50mm and 75mm Micrometers, Two Standards, Adjusting Wrench
0-150mm	SV226MBXRLZ	65238	0.001mm	Includes 25mm, 50mm, 75mm, 100mm, 125mm and 150mm Micrometers, Set of Five Standards, Adjusting Wrench

Cases Only for S226 and S226M Micrometer Sets		
Cat. No.	EDP	Description
955	55226	Case for 0-3" and 0-75mm Micrometer Sets
956	55227	Case for 0-6" and 0-150mm Micrometer Sets

Outside Micrometers

436.1 Outside Micrometers

0-6"

These are the most popular precision micrometers used by skilled workmen worldwide. They are accurate, rugged, and easy to use.

The 0-6" and 0-150mm sizes have rugged spindles and anvils at .250" (6.35mm) diameter.

No one in the world has a list of micrometers that caters to individual taste like Starrett. If you don't see what you want please ask for it.

436.1 Outside Micrometers (0-1" Range)		436.1 Outside Micrometers (1-2" Range)		
Cat. No.	**EDP**	**Cat. No.**	**EDP**	**Graduation**
436.1P-1	67990	436.1P-2	68001	.001"
436.1XP-1	67991			
436.1RL-1	67993	436.1RL-2	68002	
436.1XRL-1	67994	436.1XRL-2	68003	
436.1XRL-1 W/SLC	67995			
436.1FL-1	67996	436.1FL-2	68004	
T436.1XP-1	67992			.0001"
T436.1XRL-1	67997	T436.1XRL-2	68005	
T436.1XRL-1 W/SLC	67998	T436.1XRL-2 W/SLC	68006	
T436.1XFL-1	67999	T436.1XFL-2	68007	
T436.1XFL-1 W/SLC	68000	T436.1XFL-2 W/SLC	68008	
436.1 Outside Micrometers (2-3" Range)		**436.1 Outside Micrometers (3-4" Range)**		
436.1P-3	68009			.001"
436.1RL-3	68010	436.1RL-4	68017	
436.1XRL-3	68011	436.1XRL-4	68018	
436.1FL-3	68012			
T436.1XRL-3	68013	T436.1XRL-4	68019	.0001"
T436.1XRL-3 W/SLC	68014	T436.1XRL-4 W/SLC	68020	
T436.1XFL-3	68015	T436.1XFL-4	68021	
T436.1XFL-3 W/SLC	68016	T436.1XFL-4 W/SLC	68022	
436.1 Outside Micrometers (4-5" Range)		**436.1 Outside Micrometers (5-6" Range)**		
436.1RL-5	68023	436.1RL-6	68029	.001"
436.1XRL-5	68024	436.1XRL-6	68030	
T436.1XRL-5	68025	T436.1XRL-6	68031	.0001"
T436.1XRL-5 W/SLC	68026	T436.1XRL-6 W/SLC	68032	
T436.1XFL-5	68027	T436.1XFL-6	68033	
T436.1XFL-5 W/SLC	68028	T436.1XFL-6 W/SLC	68034	

Sent in fitted plastic case.

Features and Specifications

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Balanced frame and thimble design ensure easy handling
- Ring-type knurled lock nut for quick and sure locking
- Smooth friction thimble for uniform pressure, the combination ratchet and speeder for uniform pressure and quicker adjustment, or a plain micrometer that depends on your own "feel"
- Gracefully designed tapered frame for use in narrow slots and tight places
- Rigid steel frame ribbed for extra strength on sizes through 6" (150mm)
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

See following page for listing of Cases and Standards

OUTSIDE MICROMETERS

436 OUTSIDE MICROMETERS

6-24"

Same balanced design as the smaller sizes but proportioned to these larger sizes with .300" (7.6mm) anvil and spindle diameters for ease of use on larger work.

All the same features as the 0-6" and 0-150mm ranges 436.1 Micrometers, except:

- Larger sizes are furnished with combination ratchet and speeder for uniform pressure and quicker adjustment
- Rigid and stable special cast iron frame with perforations for lightness and ribbed for strength and stability

436 Outside Micrometers

Cat. No.	EDP	Range	Graduation
436RL-7	51684	6-7"	.001"
436XRL-7	51698		
T436XRL-7	51702		.0001"
436RL-8	51712	7-8"	.001"
436XRL-8	51726		
T436XRL-8	51730		.0001"
436RL-9	51740	8-9"	.001"
436XRL-9	51754		
T436XRL-9	51758		.0001"
436RL-10	51768	9-10"	.001"
436XRL-10	51782		
T436XRL-10	51786		.0001"
436RL-11	51796	10-11"	.001"
436XRL-11	51810		
T436XRL-11	51814		.0001"
436RL-12	51824	11-12"	.001"
436XRL-12	51838		
T436XRL-12	51842		.0001"
436XRLZ-13	51871	12-13"	.001"
436XRLZ-14	51872	13-14"	
436XRLZ-15	51873	14-15"	
436XRLZ-16	51874	15-16"	
436XRLZ-17	51875	16-17"	
436XRLZ-18	51876	17-18"	
436XRLZ-19	51877	18-19"	
436XRLZ-20	51878	19-20"	
436XRLZ-21	51879	20-21"	
436XRLZ-22	51880	21-22"	
436XRLZ-23	51881	22-23"	
436XRLZ-24	51882	23-24"	

7-12" models sent without case, packed one each to a box.
13-24" models are furnished in a case at no extra charge.

Standards for Inch Micrometers

Cat. No.	EDP	Description
234B-1	51017	1" Standard for 2" Micrometers
234B-2	51019	2" Standard for 3" Micrometers
234B-3	51021	3" Standard for 4" Micrometers
234B-4	51023	4" Standard for 5" Micrometers
234B-5	51025	5" Standard for 6" Micrometers
234B-6	51027	6" Standard for 7" Micrometers
234B-7	51029	7" Standard for 8" Micrometers
234B-8	51031	8" Standard for 9" Micrometers
234B-9	51033	9" Standard for 10" Micrometers
234B-10	51035	10" Standard for 11" Micrometers
234B-11	51037	11" Standard for 12" Micrometers
234B-12	51039	12" Standard for 13" Micrometers
234A-13	50993	13" Standard for 14" Micrometers
234A-14	50995	14" Standard for 15" Micrometers
234A-15	50997	15" Standard for 16" Micrometers
234A-16	50999	16" Standard for 17" Micrometers
234A-17	51001	17" Standard for 18" Micrometers
234A-18	51003	18" Standard for 19" Micrometers
234A-19	51005	19" Standard for 20" Micrometers
234A-20	51007	20" Standard for 21" Micrometers
234A-21	51009	21" Standard for 22" Micrometers
234A-22	51011	22" Standard for 23" Micrometers
234A-23	51013	23" Standard for 24" Micrometers
Holster and Cases for Inch and Millimeter Micrometers		
914	64165	Leather Holster for 1" (25mm) Micrometers
910	55397	Case for 1" (25mm) Micrometers
913	55400	Case for 2" (50mm) Micrometers
922	55222	Case for 3" (75mm) Micrometers
952	55223	Case for 4" (100mm) Micrometers
953	55224	Case for 5" (125mm) Micrometers
954	55225	Case for 6" (150mm) Micrometers
930	55276	Case for 7" (175mm) Micrometers
931	55277	Case for 8" (200mm) Micrometers
932	55278	Case for 9" (225mm) Micrometers
933	55279	Case for 10" (250mm) Micrometers
934	55280	Case for 11" (275mm) Micrometers
935	55281	Case for 12" (300mm) Micrometers

Outside Micrometers

436.1M, 436.2M, 436M Outside Micrometers

0-600MM

Same basic design features as inch models

Standards for Millimeter Micrometers

Cat. No.	EDP	Description
234MB-25	51018	25mm Standard for 50mm Micrometers
234MB-50	51020	50mm Standard for 75mm Micrometers
234MB-75	51022	75mm Standard for 100mm Micrometers
234MB-100	51024	100mm Standard for 125mm Micrometers
234MB-125	51026	125mm Standard for 150mm Micrometers
234MB-150	51028	150mm Standard for 175mm Micrometers
234MB-175	51030	175mm Standard for 200mm Micrometers
234MB-200	51032	200mm Standard for 225mm Micrometers
234MB-225	51034	225mm Standard for 250mm Micrometers
234MB-250	51036	250mm Standard for 275mm Micrometers
234MB-275	51038	275mm Standard for 300mm Micrometers
234MB-300	51040	300mm Standard for 325mm Micrometers
234MA-325	50994	325mm Standard for 350mm Micrometers
234MA-350	50996	350mm Standard for 375mm Micrometers
234MA-375	50998	375mm Standard for 400mm Micrometers
234MA-400	51000	400mm Standard for 425mm Micrometers
234MA-425	51002	425mm Standard for 450mm Micrometers
234MA-450	51004	450mm Standard for 475mm Micrometers
234MA-475	51006	475mm Standard for 500mm Micrometers
234MA-500	51008	500mm Standard for 525mm Micrometers
234MA-525	51010	525mm Standard for 550mm Micrometers
234MA-550	51012	550mm Standard for 575mm Micrometers
234MA-575	51014	575mm Standard for 600mm Micrometers

Holster and Cases for Inch and Millimeter Micrometers

Cat. No.	EDP	Description
914	64165	Leather Holster for 1" (25mm) Micrometers
910	55397	Case for 1" (25mm) Micrometers
913	55400	Case for 2" (50mm) Micrometers
922	55222	Case for 3" (75mm) Micrometers
952	55223	Case for 4" (100mm) Micrometers
953	55224	Case for 5" (125mm) Micrometers
954	55225	Case for 6" (150mm) Micrometers
930	55276	Case for 7" (175mm) Micrometers
931	55277	Case for 8" (200mm) Micrometers
932	55278	Case for 9" (225mm) Micrometers
933	55279	Case for 10" (250mm) Micrometers
934	55280	Case for 11" (275mm) Micrometers
935	55281	Case for 12" (300mm) Micrometers

Key to Starrett Micrometer Numbering System

Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

436.1M & 436M Outside Micrometers

Cat. No.	EDP	Range	Graduation
436.1MP-25	68047	0-25mm	0.01mm
436.1MRL-25	68048		
436.2MXRL-25	12755		
436.1MXFL-25	68050		
V436.2MXRL-25	12766		0.001mm
436.1MRL-50	68052	25-50mm	0.01mm
436.1MXRL-50	68053		
V436.1MXRL-50	68054		0.001mm
436.1MRL-75	68055	50-75mm	0.01mm
436.1MXRL-75	68056		
V436.1MXRL-75	68057		0.001mm
436.1MRL-100	68058	75-100mm	0.01mm
436.1MXRL-100	68059		
V436.1MXRL-100	68060		0.001mm
436.1MRL-125	68061	100-125mm	0.01mm
436.1MXRL-125	68062		
V436.1MXRL-125	68063		0.001mm
436.1MRL-150	68064	125-150mm	0.01mm
436.1MXRL-150	68065		
V436.1MXRL-150	68066		0.001mm
436MXRL-175	51706	150-175mm	0.01mm
436MXRL-200	51734	175-200mm	
436MXRL-225	51762	200-225mm	
436MXRL-250	51790	225-250mm	
436MXRL-275	51818	250-275mm	
436MXRL-300	51846	275-300mm	
436MXRLZ-325	64301	300-325mm	
436MXRLZ-350	64302	325-350mm	
436MXRLZ-375	64303	350-375mm	
436MXRLZ-400	64304	375-400mm	
436MXRLZ-425	64305	400-425mm	
436MXRLZ-450	64306	425-450mm	
436MXRLZ-475	64307	450-475mm	
436MXRLZ-500	64308	475-500mm	
436MXRLZ-525	64309	500-525mm	
436MXRLZ-550	64310	525-550mm	
436MXRLZ-575	64311	550-575mm	
436MXRLZ-600	64312	575-600mm	

25-150mm models sent in fitted plastic case. 175-300mm models sent without case, packed one each to a box. 325-600mm models are furnished in a case at no extra charge.

S436.1, S436 MICROMETER SETS WITH STANDARDS, IN ATTRACTIVE, PROTECTIVE CASES

0-24"

Recommended for mechanics, automotive service and machine shops, toolrooms, inspection departments, and wherever gaging involves a wide range of measurements. All sets come with attractive, protective cases which keep micrometers and standards together, readily accessible.

For further information on each type of micrometer, refer to the listing on the previous pages.

Standards for S436.1 and S436 Micrometer Sets			With SLC*	
Cat. No.	EDP	Description	Cat. No.	EDP
S234C	50852	Set of Two Standards Only		
S234D	51897	Set of Three Standards Only		
S234E	50860	Set of Five Standards Only	S234E W/SLC*	66878
S234G	51929	Set of Eleven Standards Only	S234G W/SLC*	66877
S234F	51917	Set of Six Standards Only	S234F W/SLC*	66879
S234J	64146	Set of Twelve Standards Only		

Cases for S436.1 and S436 Micrometer Sets		
Cat. No.	EDP	Description
955	55226	Case Only for S436A Sets
936	55295	Case Only for S436B Sets
956	55227	Case Only for S436C Sets
938	55298	Case Only for S436E Sets
937	55297	Case Only for S436D Sets
S436FZZ	64339	Case Only for S436F Sets

* Includes redemption card for Standard Letter of Certification (SLC).

S436.1 Micrometer Sets				
Cat. No.	EDP	Range	Graduation	Set Description
S436.1ARLZ	68035	0-3"	.001"	Each Set Includes: 1", 2" and 3" Micrometers, with Two Standards
S436.1AXRLZ	68036			
ST436.1AXRLZ	68037		.0001"	
ST436.1AXFLZ	68038			
S436.1BRLZ	68039	0-4"	.001"	Each Set Includes: 1", 2", 3" and 4" Micrometers, with Three Standards
S436.1BXRLZ	68040			
ST436.1BXRLZ	68041		.0001"	
ST436.1BXFLZ	68042			
S436.1CRLZ	68043	0-6"	.001"	Each Set Includes: 1", 2", 3", 4", 5" and 6" Micrometers, with Five Standards
S436.1CXRLZ	68044			
ST436.1CXRLZ	68045		.0001"	
ST436.1CXFLZ	68046			
S436 Micrometer Sets				
S436ERLZ	51931	0-12"	.001"	Each Set Includes: 1", 2", 3", 4", 5", 6", 7", 8", 9", 10", 11" and 12" Micrometers, with Eleven Standards
S436EXRLZ	52012			
ST436EXRLZ	52030		.0001"	
S436DRLZ	51919	6-12"	.001"	Each Set Includes: 7", 8", 9", 10", 11" and 12" Micrometers, with Six Standards
S436DXRLZ	64463			
ST436DXRLZ	64465		.0001"	
S436FXRLZ	64466	12-24"	.001"	Set Includes: 13", 14", 15", 16", 17", 18", 19", 20", 21", 22", 23" and 24" Micrometers, with Twelve Standards

Box type cases available for sets 0-6", 6-12", 12-24" with 6, 12, or 24 micrometers and flat type cases available for sets 0-3" or 0-4" with 3 or 4 micrometers.

Micrometer Sets

S436.1M, S436M Micrometer Sets with Standards, in Attractive, Protective Cases

0-600MM

Recommended for mechanics, automotive service and machine shops, toolrooms, inspection departments, and wherever gaging involves a wide range of measurements. All sets come with attractive, protective cases which keep micrometers and standards together, readily accessible.

For further information on each type of micrometer, refer to its listing on the previous pages.

S436.1M Micrometer Sets				
Cat. No.	**EDP**	**Range**	**Graduation**	**Set Description**
S436.1MARLZ	68067	0-75mm	0.01mm	Each Set Includes: 25mm, 50mm and 75mm Micrometers, with Two Standards
S436.1MAXRLZ	68068			
SV436.1MAXRLZ	68069		0.001mm	
S436.1MBRLZ	68070	0-100mm	0.01mm	Each Set Includes: 25mm, 50mm, 75mm and 100mm Micrometers with Three Standards
S436.1MBXRLZ	68071			
SV436.1MBXRLZ	68072		0.001mm	
S436.1MCRLZ	68073	0-150mm	0.01mm	Each Set Includes: 25mm, 50mm, 75mm, 100mm, 125mm and 150mm Micrometers, with Five Standards
S436.1MCXRLZ	68074			
SV436.1MCXRLZ	68075		0.001mm	
S436M Micrometer Sets				
S436MEXRLZ	52014	0-300mm	0.01mm	Set Includes: 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275 and 300mm Micrometers, with Eleven Standards
S436MDXRLZ	64461	150-300mm	0.01mm	Set Includes: 175, 200, 225, 250, 275 and 300mm Micrometers, with Six Standards
S436MFXRLZ	64462	300-600mm	0.01mm	Set Includes: 325, 350, 375, 400, 425, 450, 475, 500, 525, 550, 575 and 600mm Micrometers, with Twelve Standards

Box type cases available for sets 0-150mm, 150-300mm, 300-600mm with 6, 12, or 24 micrometers and flat type cases available for sets 0-75mm or 0-100mm with 3 or 4 micrometers.

Standards for S436.1M and S436M Micrometer Sets		
Cat. No.	**EDP**	**Description**
S234MC	51893	Set of Two Standards Only
S234MD	51901	Set of Three Standards Only
S234ME	51913	Set of Five Standards Only
S234MF	51925	Set of Six Standards Only
S234MG	51937	Set of Eleven Standards Only
S234MJ	64467	Set of Twelve Standards Only
Cases for S436.1M and S436M Micrometer Sets		
Cat. No.	**EDP**	**Description**
955	55226	Case Only for S436MA Sets
936	55295	Case Only for S436MB Sets
956	55227	Case Only for S436MC Sets
938	55298	Case Only for S436ME Sets
937	55297	Case Only for S436MD Sets
S436FZZ	64339	Case Only for S436MF Sets

ANVIL MICROMETERS

224, 224M INTERCHANGEABLE ANVIL MICROMETERS

0-24"/0-600MM

Unusual flexibility, plus a wide range of measurement makes the 224 Satin-Chrome Micrometers very popular in machine or automotive repair shops and for all applications requiring a versatile micrometer.

Each micrometer is equipped with a series of easily interchangeable anvils, thus providing the full range in steps of 1" or 25mm with a single micrometer. Suitable wrenches are furnished to make necessary adjustments.

These larger sizes have .300" (7.6mm) anvil and spindle diameters for ease of use on larger work.

224, 224M Interchangeable Anvil Micrometers

Range	Graduation	With Ratchet Stop, Lock Nut, In Case Cat. No.	EDP	234 Standards Furnished
0-4"	.001"	224AARLZ	50770	1", 2", 3"
2-6"		224ARLZ	50772	2", 3", 4", 5"
6-9"		224BRLZ	50774	6", 7", 8"
6-12"		224GRLZ	50776	6", 7", 8", 9", 10", 11"
9-12"		224CRLZ	50778	9", 10", 11"
12-16"		224DRLZ	50780	12", 13", 14", 15"
16-20"		224ERLZ	50782	16", 17", 18", 19"
20-24"		224JRLZ	50784	20", 21", 22", 23"
0-100mm	0.(	224MAARLZ	50771	25, 50, 75mm
50-150mm		224MARLZ	50773	50, 75, 100, 125mm
150-300mm				
300-400mm				
400-500mm				
500-600mm				

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Large thimble diameter with distinct figures

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment

ACCURACY AND LONG-LIFE FEATURES

- Rigid and stable special cast iron frame with appropriate perforations for lightness and ribbed for strength and stability
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy sleeve adjustment

Anvil Micrometers

714, 714M Electronic Interchangeable Anvil Outside Micrometers (with output)

0-24"/0-600MM

This micrometer is the same as our 224 Micrometers except that it has an electronic readout and the following extra features and benefits:

714 Electronic Interchangeable Anvil Micrometers With Standard Inch Graduations on Shell and Thimble

Range		Resolution			
Inch	Approx. mm	Inch	mm	Cat. No.	EDP
0 - 4"	0 - 101mm	.00005"	0.001mm	714AAFLZ	64427
2 - 6"	51 - 152mm			714AFLZ	64428
6 - 9"	152 - 228mm			714BFLZ	64429
6 - 12"	152 - 305mm			714GFLZ	64430
9 - 12"	228 - 305mm	.0001"	0.001mm	714CFLZ	64431
12 - 16"	305 - 406mm			714DFLZ	64432
16 - 20"	406 - 508mm			714EFLZ	64433
20 - 24"	508 - 609mm			714JFLZ	64434

714M Electronic Interchangeable Anvil Micrometers With Standard Millimeter Graduations on Shell and Thimble

Range		Resolution			
mm	Approx. Inch	mm	Inch	Cat. No.	EDP
0 - 100mm	0 - 3.930"	0.001mm	.00005"	714MEAAFLZ	66108
50 - 150mm	1.968 - 5.900"			714MEAFLZ	66109
150 - 300mm	5.900 - 11.810"			714MEGFLZ	66111
300 - 400mm	11.810 - 15.740"	0.001mm	.0001"	714MEDFLZ	66112
400 - 500mm	15.740 - 19.680"			714MEEFLZ	66113
500 - 600mm	19.680 - 23.620"			714MEJFLZ	66110

Cable Information for 714 and 714M Electronic Interchangeable Anvil Micrometers

Part No.	EDP	Description
PT61963	66636	Computer Interface Cable Complete to PC (RS232C)
PT61768	66454	Adaptor from PT22938 Cable to PC (RS232C)
PT22938	64059	Shielded Cable to 761/772 Starrett Modules and PT61768 Adaptor
PT61120	65446	One 3-Volt Battery CR2450

Adjusting wrenches furnished with each tool.
Micrometer furnished in protective case with 234 Standards.

Readability Features

- Large, right-sized, high-contrast LCD digital readout is easy to read and reduces errors
- Resolution – .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Starrett no-glare satin chrome finish on thimble and sleeve

Accuracy and Long-Life Features

- One 3-volt battery furnished for dependable power and over one year's normal usage
- Automatic OFF after 30 minutes of nonuse

Full-Function Action Features

- Instant inch/millimeter conversion
- "ME" millimeter models will turn on in the millimeter mode after installation of a new battery
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- Output data to Starrett SPC Plus hardware and software and to PCs
- Works well with Starrett DataSure® Wireless Data Collection Systems

TUBULAR MICROMETERS

724, 724M TUBULAR BOW TYPE MICROMETERS WITH INTERCHANGEABLE ANVILS

12-60"/300 -1500MM

These micrometers are made for better precision measurement of large outside dimensions. They provide perfect balance, sensitive feel, ease of handling, and less measuring effort due to their advanced tubular design. Frames are built of special steel formed to exacting tubular design specifications and welded by a carefully controlled process. This produces a hollow tubular frame of the lightest weight, extreme rigidity, and standard coefficient of expansion.

Because of the interchangeable anvils, the 724 is well suited for diversified gaging and provides a wide range of measurement in steps of 1 inch or 25mm.

The micrometer head is large and well balanced with .300" (7.6mm) diameter anvil and spindle and with larger bearing surfaces on the threads.

724 Tubular Bow Type Micrometers				
		With Lock Nut, In Case		
Range Inch	Graduation	Cat. No.	EDP	234 Standards Furnished
12-18"	.001"	724LZ-18	52994	12", 13", 14", 15", 16", 17"
18-24"		724LZ-24	52995	18", 19", 20", 21", 22", 23"
24-30"		724LZ-30	52996	25", 27", 29"
30-36"		724LZ-36	52997	31", 33", 35"
36-42"		724LZ-42	52998	37", 39", 41"
42-48"		724LZ-48	52999	43", 45", 47"
48-54"		724LZ-54	53000	49", 51", 53"
54-60"		724LZ-60	53001	55", 57", 59"
724M Tubular Bow Type Micrometers				
300-450mm	0.01mm	724MLZ-450	64318	300, 325, 350, 375, 400, 425mm
450-600mm		724MLZ-600	64319	450, 475, 500, 525, 550, 575mm
600-750mm		724MLZ-750	64320	625, 675, 725mm
750-900mm		724MLZ-900	64321	775, 825, 875mm
900-1050mm		724MLZ-1050	64322	925, 975, 1025mm
1050-1200mm		724MLZ-1200	64323	1075, 1125, 1175mm
1200-1350mm		724MLZ-1350	64324	1225, 1275, 1325mm
1350-1500mm		724MLZ-1500	64325	1375, 1425, 1475mm

Adjusting wrenches furnished with each tool.
Furnished with 234 Standards in attractive, protective case.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Large thimble diameter with distinct figures

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design for easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking

ACCURACY AND LONG-LIFE FEATURES

- Hollow tubular frame design combining lightest possible weight with rigidity
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Standards with insulated grips
- It is recommended that these micrometers be checked with standards in the approximate position (vertical or horizontal) that they will be used. We do not recommend .0001" or 0.001mm readings on these micrometers.Larger sizes, carbide faces and ratchet stop are available on special order.

724LZ-18

Tubular Micrometers

736, 736M Tubular Bow Type Micrometers with Fixed Anvil

12-30"/300-750MM

This micrometer, available on special order, is similar to the 724 Micrometer. All features are identical to the 724, except that it has a fixed anvil, and is furnished in inch and millimeter sizes from 12-30" and 25mm increments from 300-750mm.

Order by catalog number and range through our Special Order Department. Example: 736LZ-28 (this orders a micrometer with a 27-28" range with lock nut and standard, in an attractive, protective case.)

Readability Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Large thimble diameter with distinct figures

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking

Accuracy and Long-Life Features

- Hollow tubular frame design combining lightest possible weight with rigidity
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- 234 Standards furnished with micrometers

Key to Starrett Micrometer Numbering System	
Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

Ultralight "C" Frame Gages

Rigid honeycomb aluminum diameter gage weighs five times less than solid frame gages. Unit shown has interchangeable anvils for 36-42" range. The gage is used as a dial indicator snap gage set to produce nominal dimension, or as an indicating micrometer. The micrometer head with .0001" graduations and the .0005" dial indicator ensure quick, accurate readings.

Ultralights are available from 24-72" (600-1800mm) I.D. or O.D. and can be designed for up to 72" (1800mm) throat depth for thickness measurement.

Micrometer Stands

3206 Outside Micrometer Stand

- This stand converts outside micrometers to a sturdy bench gage for batch inspection of small parts
- Useful as a handy bench vise or assembly fixture
- Gripping surfaces are two nylon pads which are replaceable
- Ball joint construction allows head to be positioned as much as 30° off perpendicular in any direction
- Positive lock on the base
- Base dimension is 6-3/8" long x 3-1/2" wide x 3/4" thick (162mm long x 89mm wide x 19mm thick)
- Tilting head clamping capability is 3/4" (19mm) thick x 1" (25mm) throat depth
- Accommodates all Starrett 1/2" (13mm) and 1" (25mm) outside micrometers, 2 and 2A 2" outside micrometers and 210, 220, 483, 485, 569 special purpose outside micrometers

3206 Outside Micrometer Stand		
Cat. No.	**EDP**	**Description**
3206	68917	Outside Micrometer Stand

Special Function Micrometers

Throughout its history, The L.S. Starrett Company has manufactured a multitude of special hand tools and gages for thousands of customers in many different industries. Illustrated on these first two pages are typical examples of Starrett special toolmaking. The following pages show special function tools that we make as regular items because they are commonly used in industry.

Special toolmaking activities are coordinated under the direction of special order sales engineers who oversee each order from the time it is entered until shipment is made. Complete manufacturing facilities and engineering counsel are available.

Micrometer Head Speeds Gaging

A specially shaped micrometer frame, to access an I.D. on an odd shaped part, is equipped with the Starrett 204 Quick-Adjusting Micrometer Head. This tool greatly increases the speed with which measurements can be taken. Pressing a button on the thimble allows the spindle to slide along its axis to any position within its range. Releasing the button re-engages the spindle threads, and thimble rotation is then used for final size adjustment. The 204 Micrometer Head can be mounted on frames designed to suit your particular applications.

Special 725 Deep Throat Tubular Micrometer

With sliding, interchangeable anvils and locking lever, 7-1/2" (185mm) depth, 0-6" (0-150mm) range.

Special 436 Micrometer with dial indicator head. Range 3-4" (75-100mm). Other ranges also available.

Starrett can manufacture extra large micrometers, like this special 724 Micrometer of tubing type construction, range 72-78" (1800-1950mm), with interchangeable anvils.

Mul-T-Anvil Micrometers

220, 220M Mul-T-Anvil Micrometers

0-2"/0-50MM

This tool was a new development in micrometer design and patent is held by Starrett. This micrometer will handle a wide variety of measurements impossible to obtain with regular micrometers, such as measuring the wall thickness of tubing, cylindrical walls from a hole or slot to an edge, many hard-to-reach locations, and the thickness of screw heads, shoulder lengths, etc.

This micrometer can be furnished with .0001" graduations, but we recommend .001" or 0.01mm for easier and more accurate readings. The Starrett Company, with our years of experience, recommends this because the anvils on this type of tool are not backed up by a frame as in a regular micrometer and could bend slightly.

220 Mul-T-Anvil Micrometers with Round and Flat Anvils and Carbide Faced Spindle					
		Ratchet Stop, Lock Nut		Friction Thimble, Lock Nut	
Range	Graduation	Cat. No.	EDP	Cat. No.	EDP
0-1"	.001"	220XRL-1	66430	220XFL-1	50746
0-25mm	0.01mm	220MXRL-25	65050		
Deluxe Case Only		220ZZ-1	55209		
220M Mul-T-Anvil Micrometers With Round and Flat Anvils, Carbide Faced Spindle and 234B-1" or 234MB-25mm End Measuring Rod or Standard					
1-2"	.001"	220XRL-2	66432	220XFL-2	66433
25-50mm	0.01mm	220MXRL-50	66434		
Deluxe Case Only		220ZZ-2	55210		

V-Anvil only: Order PT13017, EDP 71399
1" and 25mm models sent in fitted case.
2" and 50mm models packed one in a box without case.

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling, better readability
- Ring-type knurled lock nut for quick and sure locking
- A choice of friction thimble or combination ratchet/speeder for uniform pressure
- Interchangeable anvils are rigidly held in the vise type frame and quickly interchanged by a single lock screw adjustment
- Two hardened anvils furnished – round anvil approximately .120" diameter (3mm) and flat anvil approximately .125" (3mm) and .060" (1.5mm) thick
- "V" Anvil for measuring thickness of screw heads and shoulder lengths available separately
- Accommodates special anvils up to 5/16" (8mm) thick
- Can be used as a height gage by removing the vise jaw

Readability Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

Accuracy and Long-Life Features

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment
- Tool is accurate to ± .0002" or ± 0.004mm

Mul-t-Anvil Micrometers

790, 790M Electronic Multi-Anvil Micrometers (with output)

0-1"/0-25MM

Same as our 220 Micrometer with electronic readout.

790 Electronic Multi-Anvil Micrometers with Standard Inch Graduations on Shell and Thimble With Round and Flat Anvils		
Cat. No.	**EDP**	**Description**
790AFL-1	64048	0-1"/0-25mm Range
790M Electronic Multi-Anvil Micrometers with Standard Millimeter Graduations on Shell and Thimble With Round and Flat Anvils		
790MEAFL-25	66071	0-25mm/0-1" Range
Cable Information		
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexier
PT61120	65446	One 3-Volt Battery CR2450

Readability Features

- Large LCD digital readout is easy to read and reduces errors
- Resolution – .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve

Accuracy and Long-Life Features

- One 3-volt battery furnished for over a year of normal usage
- Automatic OFF after 30 minutes of nonuse
- Tool is accurate to ± .0002" or ± 0.004mm

Full-Function Action Features

- Instant inch/millimeter conversion
- "ME" millimeter model will turn on in the millimeter mode after installation of a new battery
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- Output data to Starrett SPC Plus hardware and software and to PCs
- Works well with Starrett DataSure® Wireless Data Collection Systems

Sheet Metal Micrometers

222, 222M Sheet Metal Micrometers

0-1"/0-25MM

These micrometers reach over the edge of sheet metal and take measurements away from the edge toward the center. Also for other gaging jobs where a deep throat micrometer is needed. Rounded anvil on 1" (25mm) size gives a point contact for more accurate gaging; flat anvil is also available. The 1/2" and 13mm micrometers have satin chrome frames; 1" and 25mm micrometer frames have black wrinkle finish.

Cat. No.	EDP	Anvil	Graduation
222 Sheet Metal Micrometers, 2" Throat Depth (0-1/2" Range)			
222RL-1/2	50756	Flat	.001"
222XRL-1/2	50757	Flat	.001"
222 Sheet Metal Micrometers, 6" Throat Depth (0-1" Range)			
222AXR-1	50762	Rounded	.001"
222BXR-1	50763	Flat	.001"
222M Sheet Metal Micrometers, 50mm Throat Depth (0-13mm Range)			
222MRL-13	50758	Flat	0.01mm
222M Sheet Metal Micrometers, 150mm Throat Depth (0-25mm Range)			
222MAXR-25	66435	Rounded	0.01mm
222MBXR-25	66436	Flat	0.01mm
Case for 222 and 222M Sheet Metal Micrometers			
222ZZ-1	55212	Case for 222 Micrometers	

0-1" range and 0-25mm range micrometers sent with rounded anvil unless otherwise ordered.
Packed one in a box without case.

Readability Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on Inch tools

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Ring-type knurled lock nut for quick and sure locking (on 1/2" and 13mm range models)

Accuracy and Long-Life Features

- Rigid one-piece frame of drop forged steel, ribbed for strength and stability
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

222AXR-1

222RL-1/2

Sheet Metal Micrometers

764 Electronic Sheet Metal Micrometers (with output)

0-1"/0-25MM

This micrometer is the same as our 222 Micrometer, except that it has an electronic readout and is available in the 1" (25mm) and 25mm ranges. Rounded anvil gives a point contact for more accurate gaging; flat anvil also available.

764 Electronic Sheet Metal Micrometers, 6" Throat Depth with Standard Inch Graduations on Shell and Thimble		
Cat. No.	**EDP**	**Description**
764AXFL	66445	0-1"/0-25mm Range, Round Anvil
764BXFL	66525	0-1"/0-25mm Range, Flat Anvil
764M Electronic Sheet Metal Micrometers, 150mm Throat Depth with Standard Millimeter Graduations on Shell and Thimble		
764MEAXFL	66446	0-25mm/0-1" Range, Round Anvil
Cable Information for 764 and 764M Electronic Sheet Metal Micrometers		
Part No.	**EDP**	**Description**
PT61963	66636	Computer Interface Cable Complete to PC (RS232C)
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexier

Packed one in a box without case.

Readability Features

- Large, right-sized, high-contrast LCD digital readout is easy to read and reduces errors
- Resolution: .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve

Accuracy and Long-Life Features

- One 3-volt battery furnished for over a year of normal usage
- Automatic OFF after 30 minutes of nonuse

Full-Function Action Features

- Instant inch/millimeter conversion
- "ME" millimeter model will turn on in the millimeter mode after installation of a new battery
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

Key to Starrett Micrometer Numbering System	
Prefixes	
R	Reverse Reading
S	Micrometer Set
T	.0001" Reading
V	0.001mm or 0.002mm Reading, as specified
Suffixes	
F	Friction Thimble
L	Lock Nut
M	Metric
N	Non-Rotating
P	Plain
R	Ratchet Stop
S	Speeder
TN	Threaded Hub and Check Nut
W/SLC	Standard Letter of Certification
X	Micro-lapped Carbide Measuring Faces
Z	With Case
ZZ	Case Only

Tube Micrometers

569, 569M Tube Micrometers

0-1"/0-25MM

For measuring the wall thickness of tubing and other parts with cylindrical walls. Also for measuring from a hole to an edge (note minimum hole sizes in table). Rigid steel "half" frame with smooth black enamel finish. Anvil diameter = 0.185".

Readability Features

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch tools

Ease-of-Handling Features

- Balanced frame and thimble design ensure easy handling and better readability

Accuracy and Long-Life Features

- Rigid steel frame ribbed for strength and stability
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

569 Tube Micrometers (0-1" Range)				
Cat. No.	**EDP**	**Graduation**	**Minimum Hole Size**	**Description**
569AXP	66437	.001"	3/16"	Carbide Faced Spindle
569BXP	66439		3/8"	Carbide Faced Spindle
569M Tube Micrometers (0-25mm Range)				
569MAXP	66438	0.01mm	4.8mm	Carbide Faced Spindle
569MBXP	66440		9.5mm	Carbide Faced Spindle
Deluxe Case for 569 and 569M Tube Micrometers				
Cat. No.	**EDP**	**Description**		
910	55397	Deluxe case only for the 569		

Special anvils also can be furnished, priced on application. Sent in fitted case.

769 Electronic Tube Micrometers (with output)

0-1"/0-25MM

This micrometer is the same as our 569 with an electronic readout and the following additional features and benefits:

Readability Features

- Large LCD digital readout is easy to read and reduces errors
- Resolution: .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve

Accuracy and Long-Life Features

- One 3-volt battery furnished for over a year of normal usage
- Automatic OFF after 30 minutes of nonuse

Full-Function Action Features

- Instant inch/millimeter conversion
- "ME" model turns on in millimeter mode after battery installation
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

769 Electronic Tube Micrometers, Standard Inch Graduations		
Cat. No.	**EDP**	**Description**
769AXFL	66447	0-1"/0-25mm Range, Carbide Faced Spindle
769 Electronic Tube Micrometers, Standard Millimeter Graduations		
769MEAXFL	66448	0-25mm/0-1" Range, Carbide Faced Spindle
Cable Information for 769 Electronic Tube Micrometers		
PT61963	66636	Computer Interface Cable Complete to PC (RS232C)
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexier

CRANKSHAFT MICROMETERS

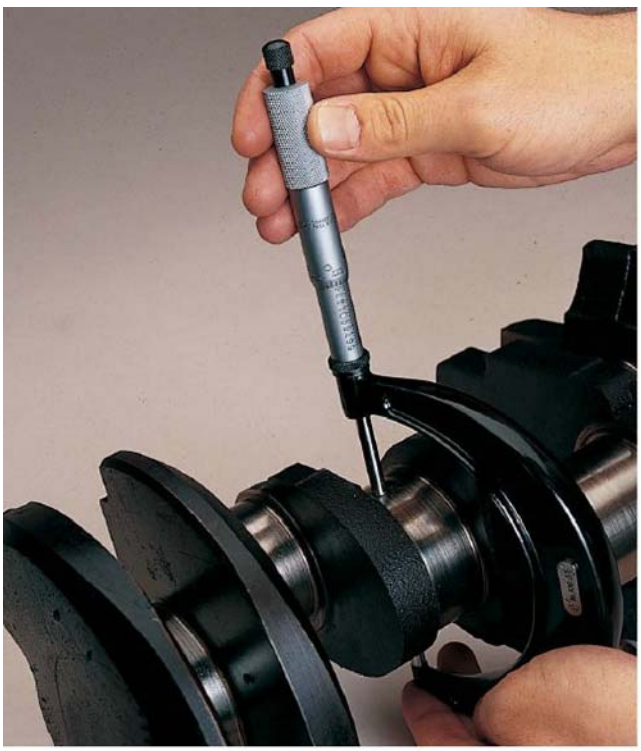
436-3 1/2, 436M-88 AUTOMOTIVE CRANKSHAFT MICROMETERS

1-1/2– 3-1/2"/38-88MM

This micrometer is designed for automotive work and especially for crankshaft measuring. It is also well suited for all other work within its capacity. It measures the diameter of the journal bearing and main bearing of most crankshafts since the micrometer has a range from 1-1/2" (38mm) – 3-1/2" (88mm).

436-3 1/2 Automotive Crankshaft Micrometers (1-1/2 – 3-1/2" Range)		
Cat. No.	**EDP**	**Graduation**
T436RLS-3 1/2	65493	.0001"
436M-88 Automotive Crankshaft Micrometers (38-88mm Range)		
V436MRLS-88	65600	0.002mm
Case for 436-3 1/2 and 436M-88 Automotive Crankshaft Micrometers		
733ZZ-4	66139	Protective Case

Carbide measuring faces available on special order. Specify "X" after catalog number.



READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools
- The reading point is on the under side of the sleeve, plainly visible while measuring. It's a very useful feature when measuring between webs.

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Gracefully designed tapered frame for use in narrow slots and tight places
- 2" (50mm) range
- 2-5/8" (66mm) throat depth

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel, ribbed for extra strength
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Appropriate standard included

MICROMETERS

458, 458M AUTOMOTIVE DISC BRAKE MICROMETERS

.300-2"/7.6-50MM

- Measures depth of wear grooves in disc of brake systems
- 3" (75mm) frame with a 3-1/2" (88mm) depth to allow additional reach
- Flat carbide spindle and a carbide anvil with a 60° point

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design for precise, easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Gracefully designed tapered frame for use in narrow slots and tight places
- 3-1/2" (88mm) throat depth

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece steel frame
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Carbide measuring face on the spindle and carbide "V" anvil
- Quick and easy adjustment

.300-2" Range			
Range	**Graduation**	**Cat. No.**	**EDP**
.300-1.300"	.001"	458AXR	67534
		458AXRS*	67535
1-2"	.001"	458BXR	67536
		458BXRS*	67537
7.6-50mm Range			
7.6-33mm	0.01mm	458MAXR	67538
		458MAXRS**	67539
25-50mm	0.01mm	458MBXR	67540
		458MBXRS**	67541

* with 26852-0 Gage Block Standard.
** with 26853-0 Gage Block Standard.

260, 260M GROOVE MICROMETERS

INCH/MM

Quickly and easily measures widths of internal or external grooves and lands.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

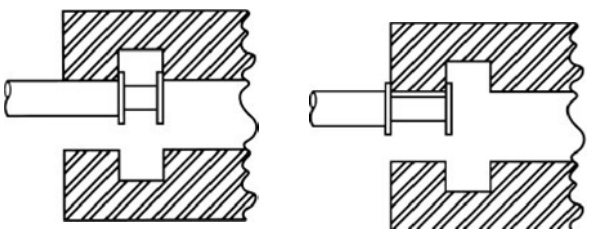
- Balanced design to ensure easy handling and better readability
- Has a reach of 1-5/8" (41mm) maximum hole depth
- Each measuring disc is 9/32" (7mm) diameter and .025" (0.63mm) thick
- Will measure groove widths .050-1.050" (1.27-26.6mm)
- Will measure land widths from 0-1" and 0-25mm

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Hardened, ground, and lapped measuring discs
- Quick and easy adjustment
- This tool is accurate to ±.0004" or ±0.01mm

260 and 260M Groove Micrometer					
Cat. No.	**EDP**	**Graduation**	**Range Groove Widths***	**Land Widths**	**Max. Hole Depth**
260Z	67987	.001"	.050"-1.050"	0-1.000"	1 5/8"
260MZ	67988	0.01mm	1.27-26.27mm	0-25mm	41mm

* Add .050" to 260Z (1.27mm to 260MZ) micrometer reading.



Starrett®

Precision, Quality, Innovation

FORCE AND MATERIAL TESTING

Systems

Test Frames

Load Cell Sensors

Accessories

Application

Services

PRECISION, QUALITY, INNOVATION

For more than 134 years, manufacturers, builders and craftsmen worldwide have depended upon tools from the L.S. Starrett Company to ensure the consistent quality of their manufacturing processes.

They know that the Starrett name on force and material testing, precision hand tools, metrology equipment, hand tools, power tool accessories, saws, laser measurement, and gage blocks means exceptional quality, innovative products and expert technical assistance.

With strict quality control, state-of-the-art equipment and an ongoing commitment to producing products with superior quality, the 5,000 plus products in today's Starrett line continue to be the most accurate, robust and durable tools available.

This catalog features Starrett Force and Material Testing Systems, their applications and characteristics.

Starrett

SYSTEMS

Turnkey system solutions for material testing, force analysis, and force measurement. Our systems distinguish themselves from the competition by making it easy to create and perform a test, and manage test results. Choose from L3, L2Plus, S2, or L2 systems suitable for the production floor environment to the R&D Lab.

9

TEST FRAMES

Material measurement and force measurement test frames available in 500N, 1000N, 2500N, 5kN, 10kN, 30kN, and 50kN.

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LOAD CELL SENSORS

Starrett load sensors are supplied with a NIST-traceable Certificate of Calibration. All sensor types are “plug and play” and are available in ranges from 5N to 50kN.

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FORCE AND MATERIAL TESTING

ACCESSORIES

Starrett offers a full range of test fixtures and grips compatible with all Starrett systems. Add extensometers and splinter shields to round out your measurement and safety needs.

38

APPLICATIONS

We offer a range of software packages suited for a range of applications; test adhesives, plastics, textiles and more following ASTM, ISO, DIN, or TAPPI test methods.

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SERVICES

Onsite or factory calibrations and services are performed by authorized Starrett service technicians to accepted industry standards and methodology.

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PRODUCT LINES

Vision Systems

Starrett vision systems combine high-resolution images with robust, precision mechanical platforms. We offer a full range of systems from video microscopes to large 50 x 36" (1270 x 915mm) platform systems and our Mx digital metrology software.

Granite Surface Plates

Starrett granite surface plates are available in three levels of accuracy: Grade AA (Laboratory), Grade A (Inspection) and Grade B (Tool room). Our Crystal Pink granite has the highest percentage of quartz of any granite so it has the best balance of physical properties, maximum resistance to wear and for deflection under load.

Indicators

Starrett manufactures an array of gages and indicators for exacting measuring applications. We offer test indicators, back plunger indicators, dial indicators, and accessories. We can supply analog and digital indicators, plus special application indicators for your application requirements.

Optical Comparators

Starrett optical comparators are ideal for a wide range of dimensional inspection applications. Starrett offers optical systems from 16-30" (400-750 mm) diameters, horizontal and vertical models.

Height Gages

For simple or complex height measurements, Starrett supplies a range of electronic height gages and accessories, including the DIGI-CHEK system- the world's fastest and most precise height masters.

Laser Measurements

Starrett is a leader in non-contact laser measurement systems such as our Profile 360 system. The system continuously monitors the size and shape of complex profiles to ensure quality and consistency in width, thickness, gap, radius, angle and more.

Bore Gages

Our AccuBore electronic bore indicators is a high-quality, trigger-activated, three-point contact bore gaging system. Starrett can supply a wide range of bore gage systems that ensure a more true alignment.

Webber Gage Blocks

Starrett precision gage blocks are trusted for their accuracy, surface finish, wear resistance and dimensional stability. Our croblox® gage block is the world's premier gage block with industry-leading accuracy and stability.

Precision Tools

Starrett has a comprehensive range of micrometers and calipers that meet or exceed accuracy and performance specifications of national and international standards.

FACTORIES AROUND THE WORLD

1-Athol, Massachusetts, USA

2-Laguna Hills, California, USA

3-Waite Park, Minnesota, USA

4-Cleveland, Ohio, USA

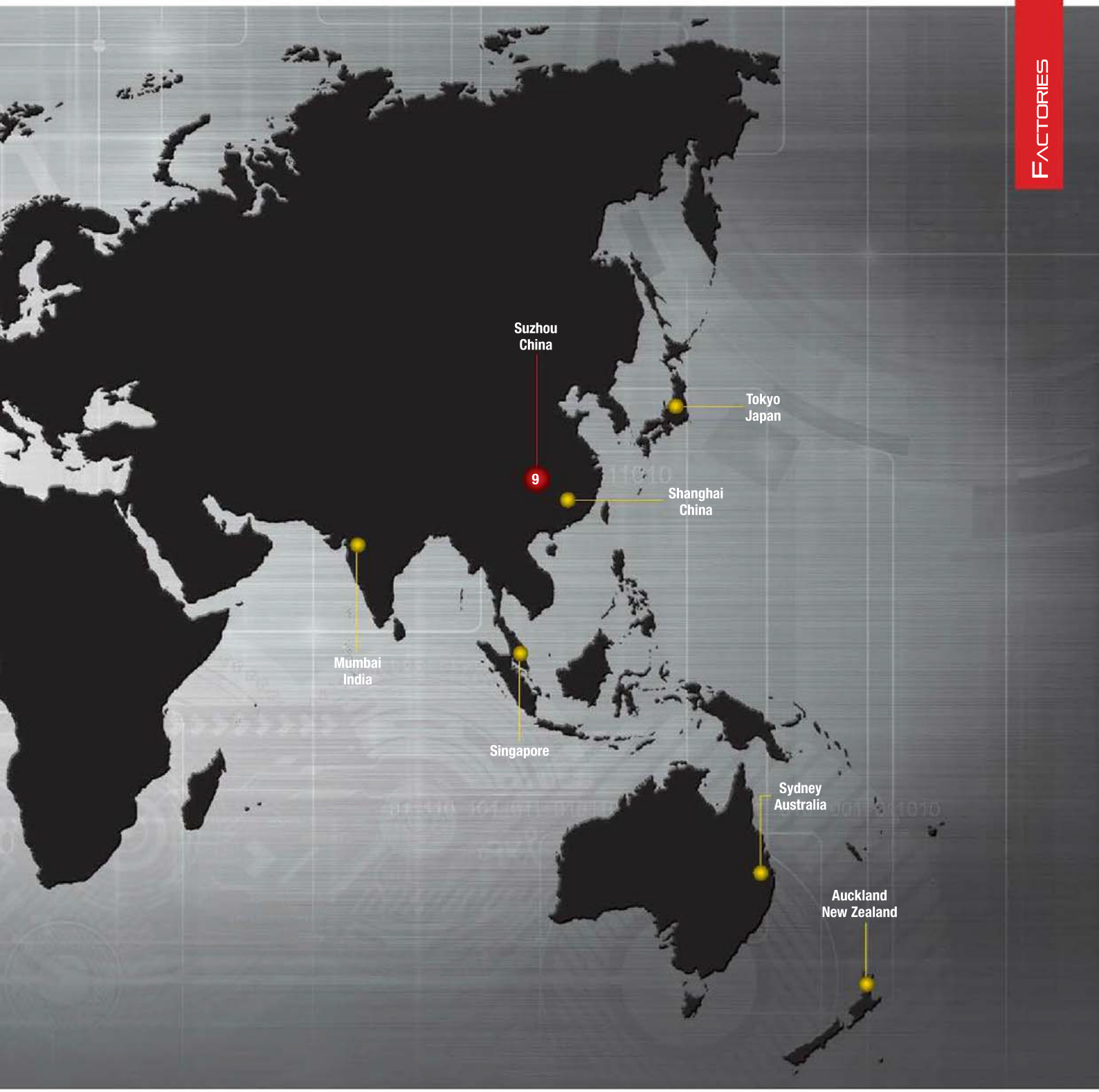
5-Mount Airy, North Carolina, USA

6-Columbus, Georgia, USA

7-Itu, São Paulo, Brazil

8-Jedburgh, Scotland

9-Suzhou, China



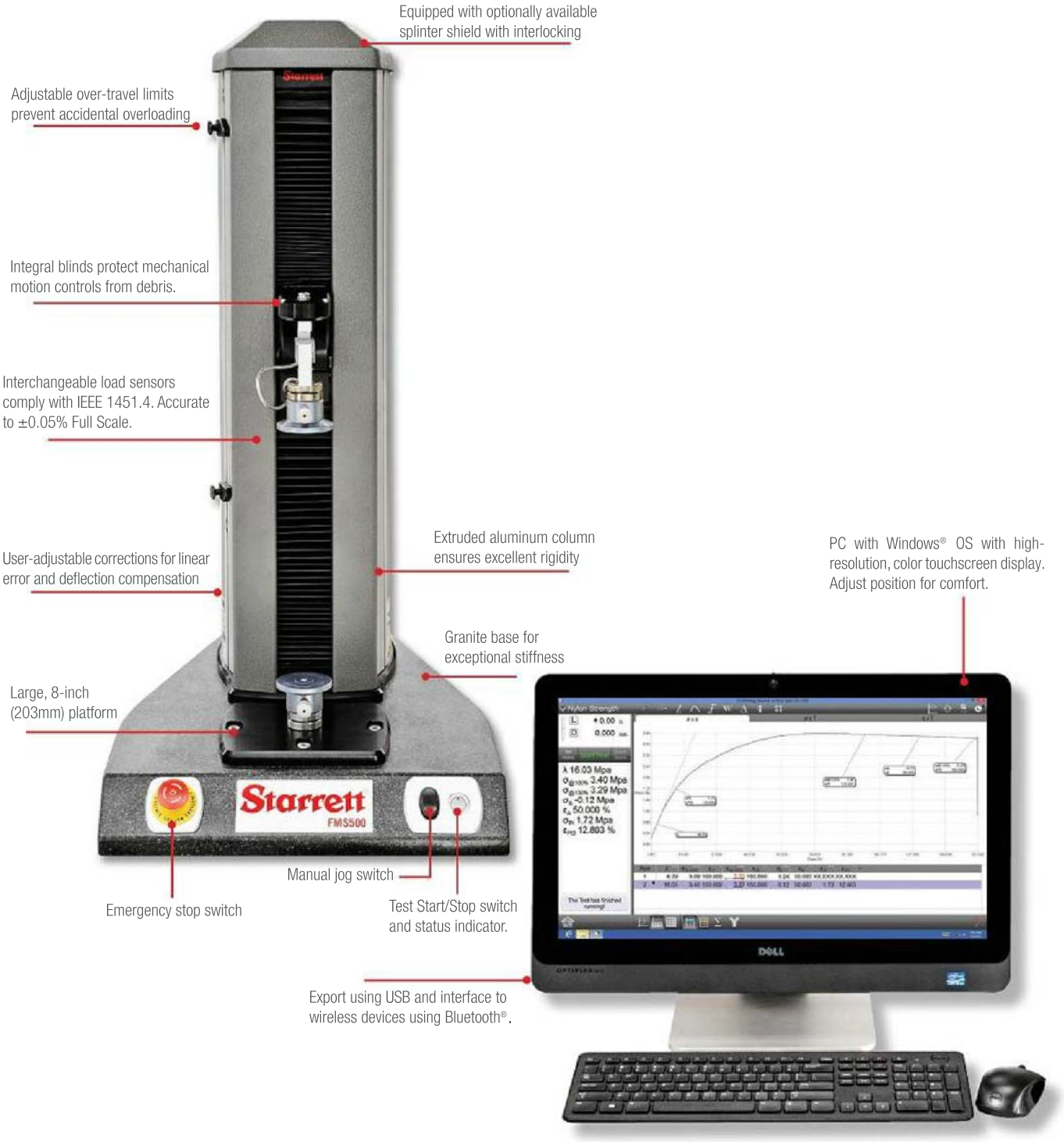
Overview

Starrett Innovation. Precision.

ACCURACY. EASY TO USE.

When you need an easy-to-use measurement system for accurately and precisely determining spring rates, spring constants, spring lengths and other spring characteristics, you can rely on Starrett- a trusted leader in measurement and innovation.

Our simple, fill-in-the-blank test setups let you test and validate your springs in as few as three steps allowing your testing to be performed in seconds. And your test results can be viewed, graphed and reported, including exporting up to 1000 data points per second to a spreadsheet or to your networked quality control software. It's the accuracy, repeatability and simplicity you expect from L. S. Starrett.



SYSTEMS

Systems

L3 Systems

Starrett L3 systems represent a new and easier solution for creating a test; performing a test; analyzing your test results; and managing test data.

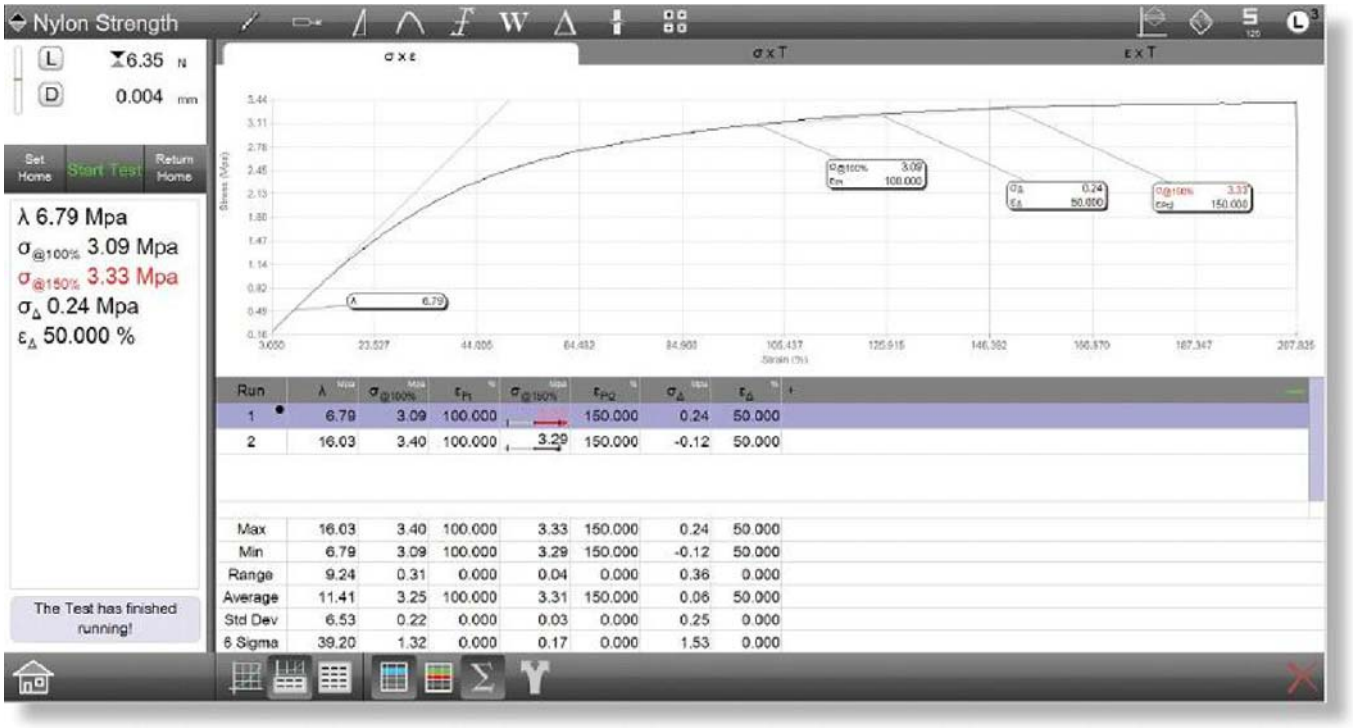
L3 systems meet the requirements of today's research scientist, design engineer, quality manager or technician responsible for material characterization, verification and validation.

Unlike traditional material testing systems that involve programming and having to know exactly what measurements are required before the test, L3 systems employ a simple methodology. You create your test method. Your test method creates your graph. And then you measure on the graph using a set of analysis tools.

You can measure any point and any segment anywhere along the graph. Analyze using stress, strain, load, distance, and time. Your measurements are displayed on your graph and shown in data tables with statistics and tolerances.

Features

- Measure stress, strain, load, elongation, extension, and time results using tension, compression, flexural, cyclic, shear, and friction applications
- Create test setups using internationally accepted testing standards from ASTM, ISO, DIN, TAPPI and more, or create your own custom test methods
- Measure and calculate results graphically:
  - Points
  - Modulus, Slopes and Intercepts
  - Offset Yield
  - Min/Max/Avg
  - Breaks (Rate, %Drop)
  - Peaks and Valleys
  - Deltas
  - Rates
  - Hysteresis
  - Work/Energy
  - and more
- Options for digital and analog I/O and Control Logic



Measure results using SI or Imperial units of measure. Display results in Engineering Notation if needed. Specify resolutions for any unit type.

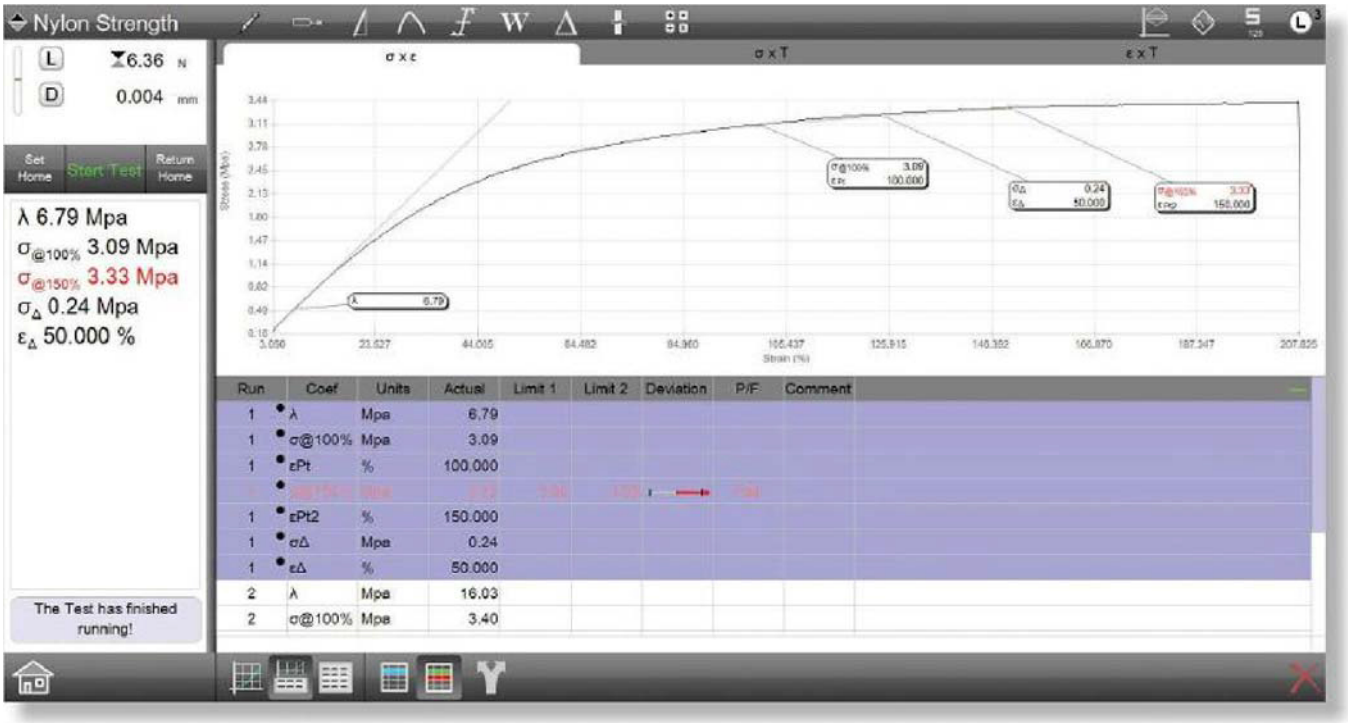
View results on any of these graph formats: Stress vs. Strain, Stress vs. Time, Strain vs. Time, Load vs. Displacement, Load vs. Time, Displacement vs. Time. Display full graphs or split graphs with the data table showing statistics and tolerance values.

(Above) Out-of-tolerance results are displayed in red, including a tendency bargraph in the data table.

Statistics can be displayed and your raw data and results can be exported automatically using the Share function.

Below) The Tolerance view provides more detailed information as to "why" the result is displayed in red.

The operator can add comments about each test run, or use the Extra Coefficients function to display additional information for reporting. Standard reports are included, or export as a .csv file for use with Microsoft® Excel®, Word®, Access or your 3rd-party SPC application.

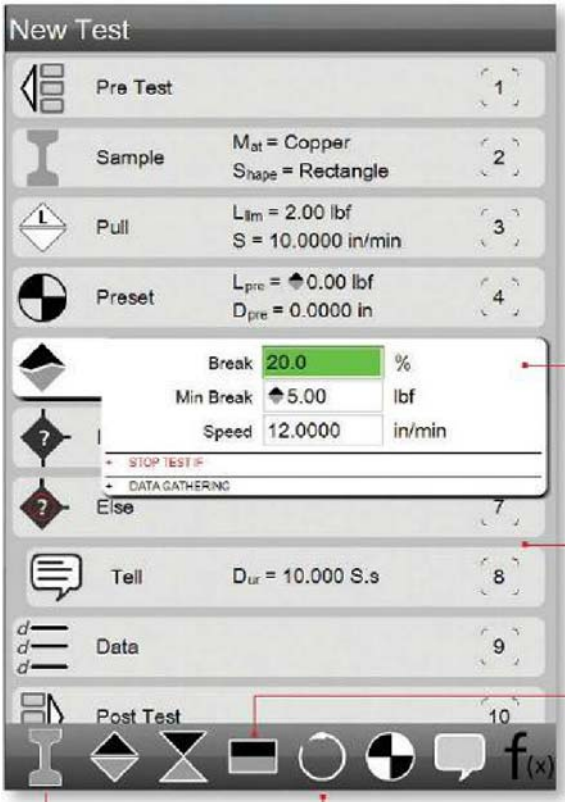


Systems

L3 Systems

Construct simple and complex multi-step test setups. Create your test method to an accepted standard or to your specific testing needs.

Create your test method and then email to other locations so that your testing is always performed in the exact same manner with the same measurements and results.

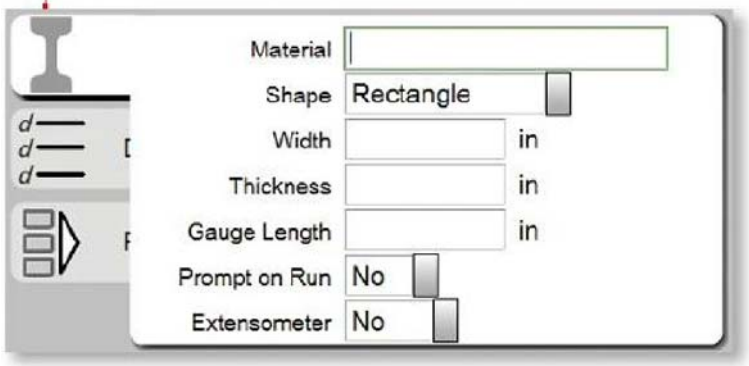


Tensile and Compression steps are used to perform "go to moves". Go to a Limit or Break at a velocity or load rate. You can choose exceptions for any move and decide whether to collect data during the move.

Shown is an operator prompt based on a conditional branching state. If the measured result is "out-of-tolerance", a message is displayed alerting the operator. If the result is within the tolerance range, no message is displayed.

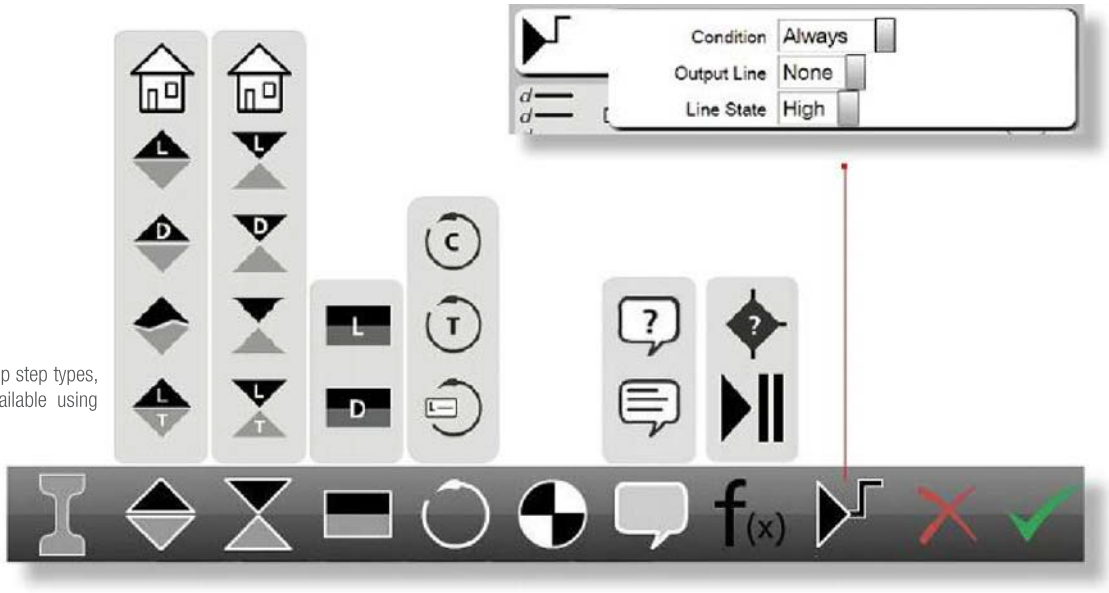
Hold steps are used for creep and relaxation testing. You can hold at a limit for a specified duration up to 24 hours, if necessary.

Cycle based on any of your steps in your test method. You may cycle up to 1000 times or for a duration of up to 24 hours at a sampling rate of 1Hz. Each test may have a maximum of 100,000 data points.



The Sample Definition step lets you name your material, specify the shape and its dimensions. You can enter dimensions digitally using a Starrett micrometer, or caliper.

Shown is the setup dialog for the optional I/O step. It allows you to control and activate external devices such as annunciators through the test frame's digital or analog I/O channels.



Shown are the various test setup step types, including specialized steps available using the optional Automation Builder.

The Slope tool is used to find modulus. Multiple methods are available including automatic, chord, tangent, and best fit.

The Delta tool measures the differences between results. You can find creep by simply choosing this tool and the two points you want to compare.

Use the Annotation tool to add notes to any graph view.

Use the Min/Max/Avg tool to find maximum and minimum values. It can also be used to calculate averages of all data between a segment you specify.

You can compare multiple graphs of your test runs and measure delta and variances between tests at precise points. Ideal for benchmark analysis.

Use the Offset Yield Point tool to measure any data point on any of the three graph views. The point may be implicit or may be derived based on another result. For example, you can find the point at 100mS before the point at 100% strain.

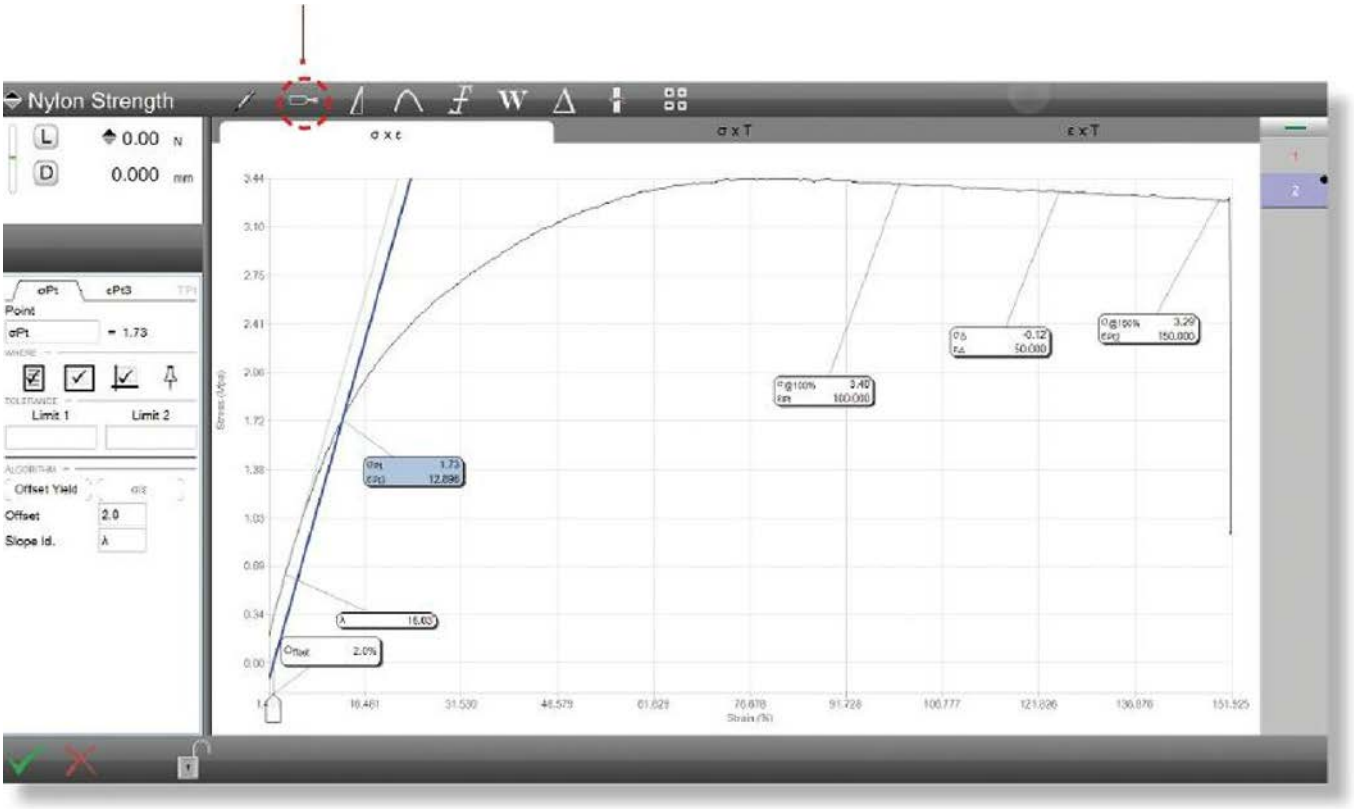
Use the Work tool to determine the energy or resilience from your stress-strain graph.

Use the Formula Builder to create custom expressions and derived results using algebraic, trigonometric and logarithms.

The Peak/Valley tool is ideal for peel and coefficient of friction testing. Measure the maximum, minimum, average and counts of peaks and valleys.

Find break results based on a percentage drop or based on a load rate decrease.

The Offset Yield Point tool is used to measure the yield strength at a 2% strain offset. Shown is modulus at 100% and 150% and the delta between these two measurements.



Systems

L2 Plus Systems

Designed for advanced force measurement and analysis, L2 Plus Systems are optimized for quality and engineering personnel. Test setup is intuitive, efficient and non-compromising.

With L2 Plus systems you not only find the measurement, but you have the information that shows you "why, when and where" the measurement occurs.

Like our L3 systems, L2 Plus measurements and analysis are performed graphically using our Windows® - based, all-in-one computer workstation. Create high resolution graphs based on load, distance, height and time. Then measure any point or segment on your graph using a set of analysis tools.

Features

- Ideal for tension, compression, rate control, flexural, cyclic, shear, and friction applications
- Measure and calculate results graphically:
  - Points
  - Slopes and Intercepts
  - Min/Max/Avg
  - Breaks
  - Peaks & Valleys
  - Deltas
  - Rates
  - Work/Energy
- Create test setups using internationally accepted testing standards from ASTM, ISO, DIN, TAPPI and more, or create your own custom test methods
- Options for digital and analog I/O and Control Logic
- Options for arithmetic, trigonometric and logarithmic calculations
- Use bar code scanning to access test setups

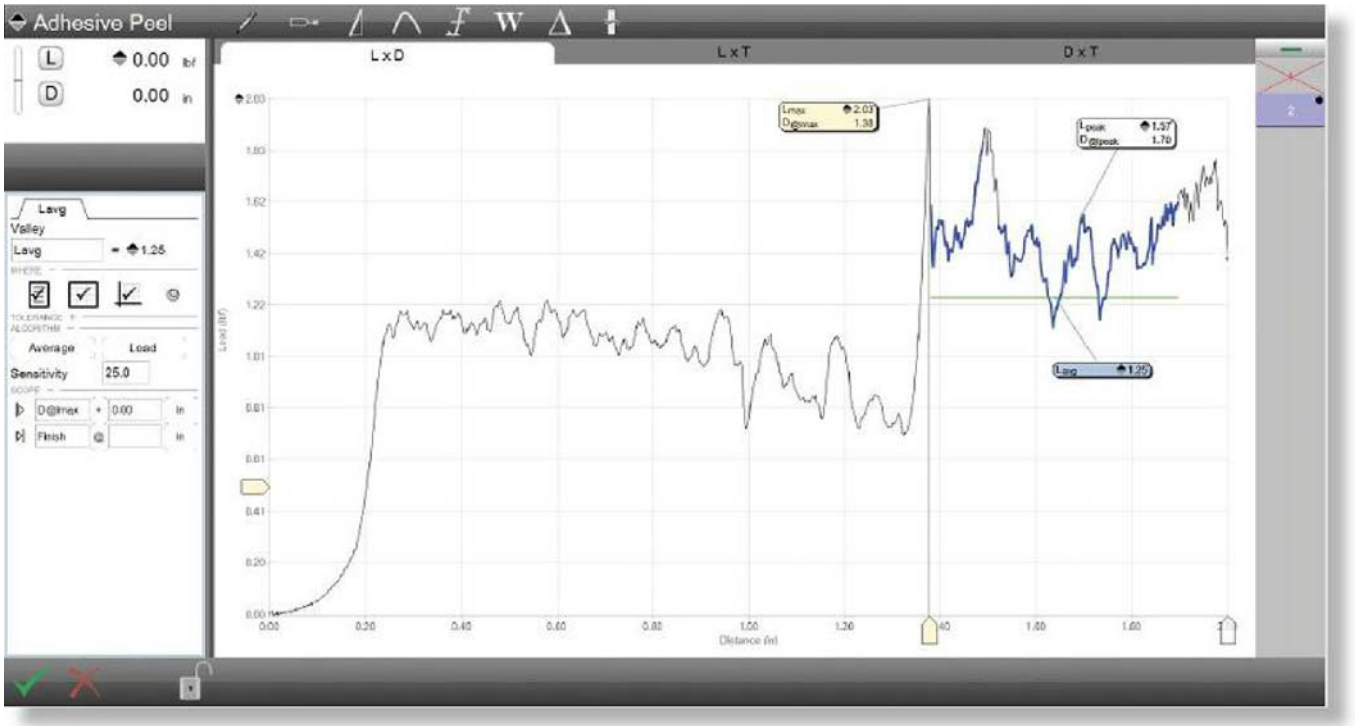
Perform advanced testing methods such as load rate control. Set a target limit then pull/push at a rate using load per time velocity.

Specific algorithms for peak & valley measurements are supported: find peak/valley, find maximum/minimum peak/valley, find averages for peaks/valleys.

Your results can be displayed in markers on your graph, in data tables, or in combinations. Graph types are: Load vs. Distance, Load vs. Time, and Distance vs. Time. Markers can display the load, distance and time to a specific point on the graph.

(Above) Use the Peak/Valley tool to locate the peaks for the entire test duration or for a defined segment within the test. per ASTM F88 Qualify your peaks and valleys using the sensitivity adjustment. Measure average, counts, maximum, minimum and more.

(Below) The load average is calculated for qualified peak values using a load sensitivity of 25%. Adjust for sensitivity using the data definition menu or by using the sensitivity adjustment bar on the y-axis. In this example, the load average is specified at a segment starting at the maximum load point (Lmax).



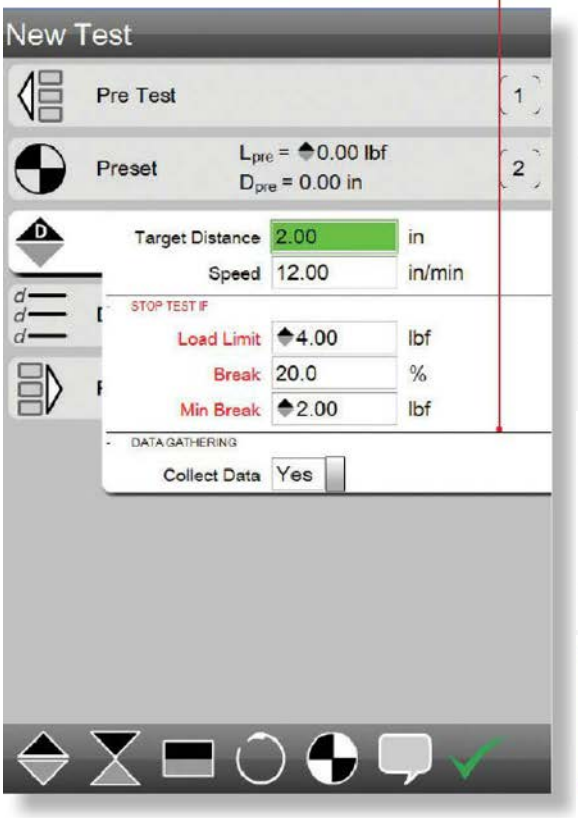
SYSTEMS

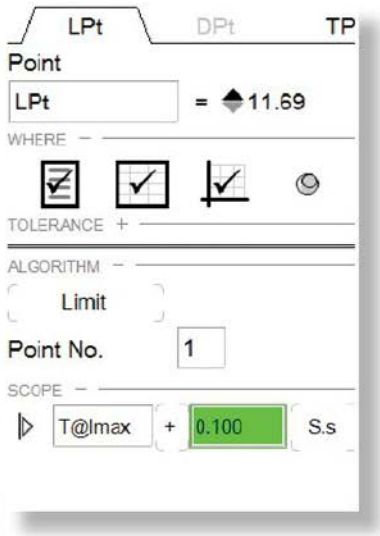
L2 PLUS SYSTEMS

Your test step can include "exceptions" which help with test flow control. If an exception occurs the test run can automatically abort. Your test data may be saved and exported, or you can choose to disregard the test altogether.

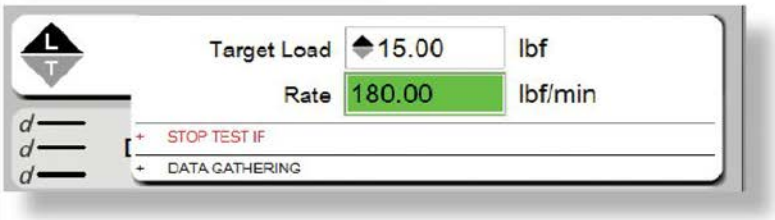
Here the test exceptions are "abort if the Load reaches 4.00lbf, or if the sample breaks after first measuring 2.00lbf".

Two forms of Break analysis are supported: %Drop from Maximum Load and Rate.





Scoping allows you to specify any point or segment of data from your graph for analysis. Measure based on load, distance and time.



System messages and prompts provide operators with alerts during testing. User prompts include ASK and TELL messages:

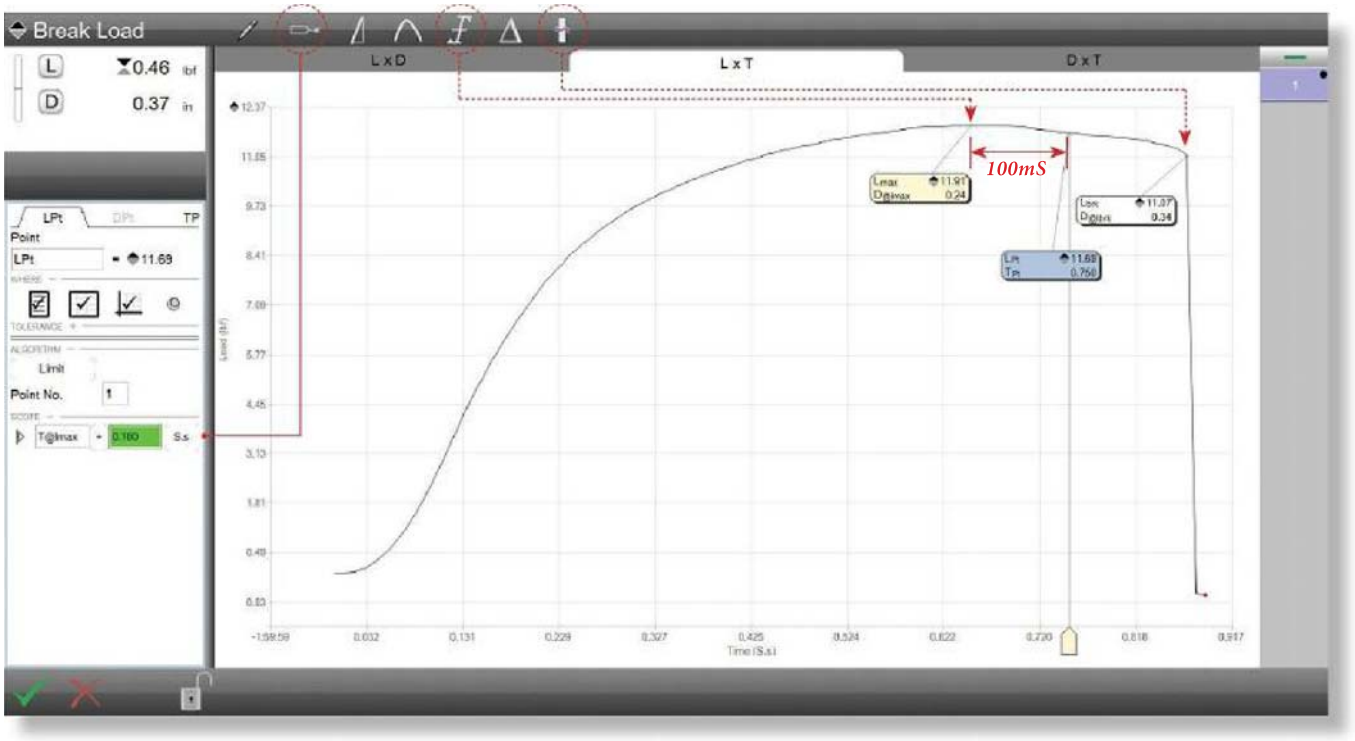
- ASK messages require an operator acknowledgement.
- TELL messages are displayed for a duration or until the operator acknowledges the message.

System messages display in red to alert the operator to alerts and warnings.

A bar code reader can be used to quickly load and launch your test setup. Ideal for busy, high-volume production applications where you are performing many test setups.

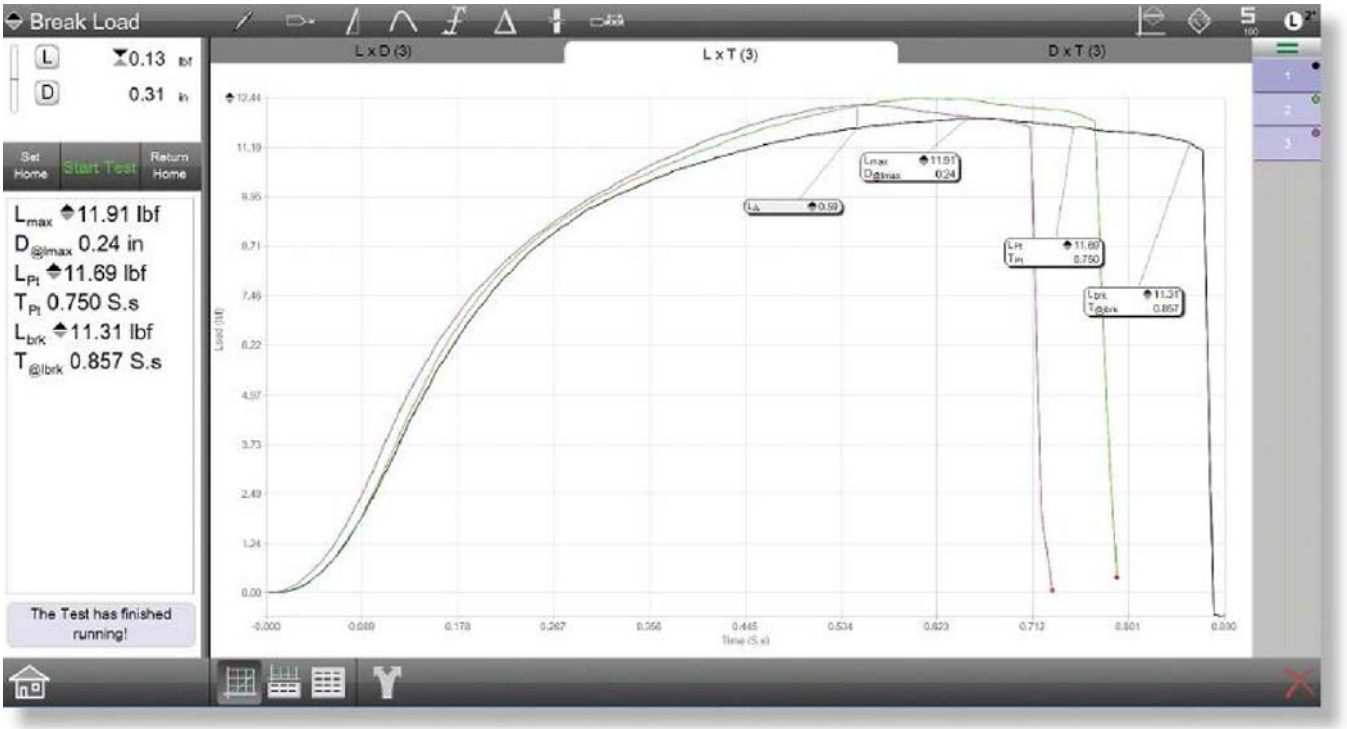
Measure these common results and more using your L2 Plus system:

- Absolute Peak
- Average Value (All Peaks)
- Average Value (Selected Peaks)
- Average Value (All Valleys)
- Average Value (Selected Valleys)
- Average Results (Regions)
- Break (Load)
- Break (Load/Extension Rate)
- Break (% Maximum)
- Coefficient of Friction
- Delta Creep
- Delta Relaxation
- Initial Peak
- Initial Valley
- Hold Preset Point
- Hysteresis Loss
- Slope Intersect
- Total Creep
- Total Relaxation
- User Calculations
- Work/Energy/Resilience



(Above) Anchoring is a scope feature. It allows you to easily measure from an existing result (anchor).

In this example, the load value is found at 100mS after the maximum load (Lmax). In the scoping operation for the point result (Lpt), the Lmax is used as an anchored result. The "+" sign signifies "after" the anchored Lmax. The scope value is specified as time (S.s) and entered as 0.1 second. You can scope on load, distance or time.



(Above) Using the "Multiview" function, you can measure using multiple graphs from your batch. Graph traces are overlaid onto one another and color-coded for identification. In this example, the delta variance is measured between the three test runs. The variance is measured at a point between the graph with the greatest value and the graph with the lowest value. This function can be used for "benchmark comparisons".

Systems

L2 Systems

Whether your application is high-volume in situ production, incoming inspection and validation, or just basic force measurement, the L2 System is an economical and easy-to-use solution.

L2 Systems feature a small footprint making them ideal for lean manufacturing environments. Create test setups in seconds using templates or create complex multi-stage test setups using the L2 Test Builder. No programming experience required.

L2 Systems operate using a Windows®-based tablet PC. Load, distance and time-based results are displayed in a large format for easy interpretation. Graphical representation of each test can be displayed. Data tables display results with tolerance and statistical calculations. Standard reports are included, or export data for use with other applications. System capacities range from 500N (112lbf) to 50kN (11,250lbf).

Features

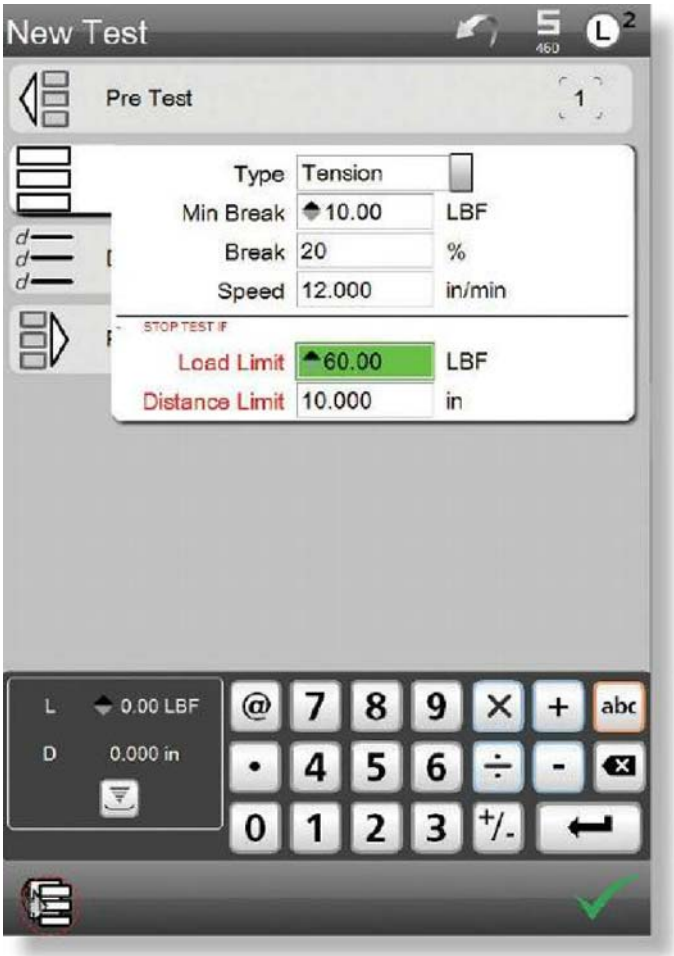
- Ideal for tension, compression, flexural, cyclic, shear, and friction applications
- Create test setups using internationally accepted testing standards from ASTM, ISO, DIN, TAPPI and more, or create your own custom test methods
- Measure and calculate results:
  - Min/Max/Avg
  - Breaks
- Options for digital I/O and Control Logic
- Options for arithmetic calculations

L2 systems can use any FMS, FMD, MMS or MMD test frame. Shown is an L2 system using an FMS-2500 test frame.

The Starrett L2 system features a tablet computer featuring a 10-inch (254mm) color, touchscreen display. The system is WiFi®, Bluetooth® and USB compatible.

Perform common test methods such as determining maximum load, maximum deflection, average loads or how product reacts when a constant load is applied for a specified period of time.

L2 systems can determine break strengths and the sample's characteristics at load and extension limit values and provide you with immediate pass/fail indication.



The L2 system includes test templates- pre-configured test setups for load, distance and break limit testing. These can be used to setup a test in seconds. Simply fill in the blanks and your setup is complete.
Use the Convert to Test Builder function and your test template is converted to a full Test Builder setup.

Use the Test Builder application supplied standard with L2 systems to construct simple and complex test setups. This example shows a contact closure test that also uses the optional Automation Builder and digital I/O. The Test Builder methodology is same across all Lx systems.

SYSTEMS

L2 SYSTEMS

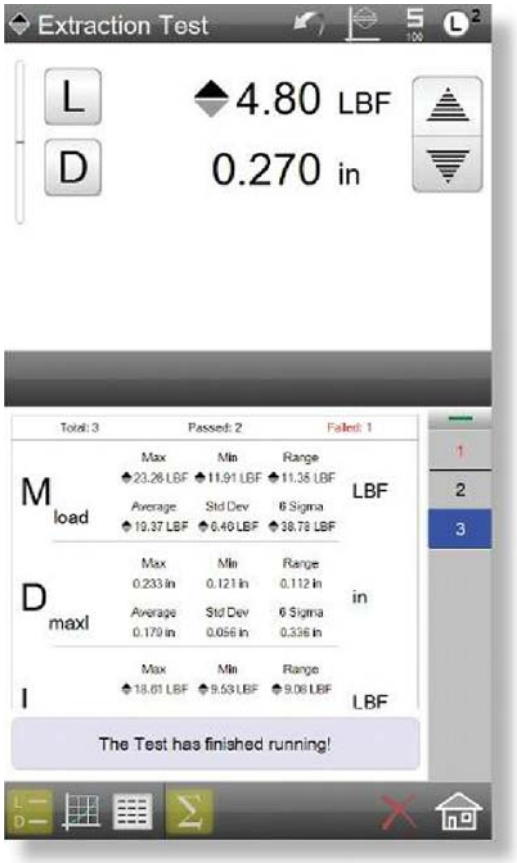
Results, also called coefficients have default names. These can be changed using the Coefficient Settings function. You can rename a coefficient so that it is universally applied to all test setups.

Specialized functions, including deflection compensation or the ability to limit a load cell sensor are features to protect your instrumentation and to minimize operator errors. The Max Load Allowed feature can help prevent accidental load cell overloading.

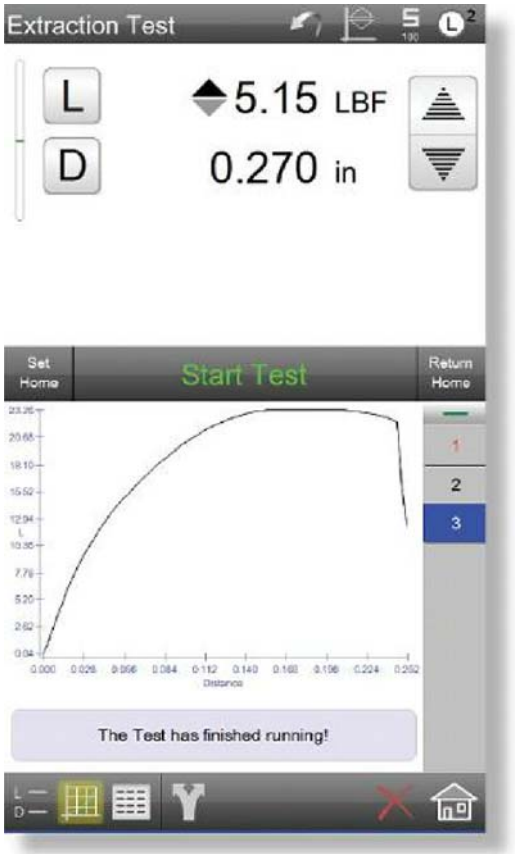
All Lx systems let you map where information is saved or exported to. Using the File Locations setting, you can specify how and where information is sent- automatically or on-demand. Test files, for example, can be created at a central location and then emailed to production facilities. This ensures that all manufacturing cells are using identical testing setups.

All Lx systems can display in multiple languages. A translation utility is included with all Lx systems. This allows custom translation to be performed so that dialect or specialized terms are universally applied to all displays.

The Results view can be configured to display the most critical result in large text.



The Statistics view displays the results and their associated statistical values. The header displays the total, passed and failed test runs. Failed runs display in red.



L2 systems display a graph profile. Unlike the L3 and L2 Plus systems, no measurement can be performed from the graph. Selecting the Graph symbol changes the graph axes. Graphs may be overlaid.

The Tolerance view shows the results and the tolerance limits. Test runs that are "out-of-tolerance" display in red with a tendency bar graph for analysis.

Systems

S2 Systems

When you need an easy-to-use measurement system for accurately and precisely determining spring rates, spring constants, spring lengths and other spring characteristics, Starrett S2 systems are the solution. S2 systems are ideal for high-volume production testing, quality control including incoming inspection verification and validation, and research and design engineering.

S2 systems may be used for compression and extension springs with load ratings up to 11,000 lbf (50 kN, 5000 kgf). Our simple, fill-in-the-blank test setups let you test and validate your springs in as few as three steps allowing your testing to be performed in seconds. And your test results can be viewed, graphed and reported, including the ability to export results or raw data at rates up to 1000Hz.

Test Setup Options

Pre-Test Options

- Units of Measurement
- User Prompts to assist operator during testing
- Spring preconditioning (Scrag and Load Set Hold for duration)

Test Options

- Measure Free Length
- One Point Limit Test (Load or Height)
- Two Point Limit Test (Load and/or Height)
- Exceptions (Abort test if an exception is met)

Data Options

- Spring Constant (One Point)
- Spring Rate (Two Point)
- Date, User, Limit Setpoints

Post-Test Options

- Export Raw Data to a file location (up to 1000 samples/second)
- Export Results (Overwrite or Append data file)

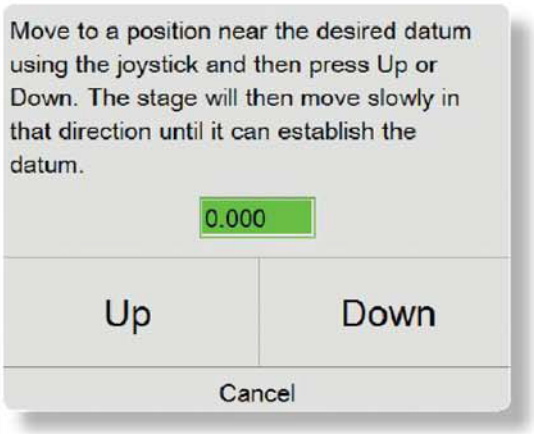
Test Methods

- Spring Constant
- Spring Rate
- Initial Tension
- Free Length
- Load @ Height/Lengths
- Single Point
- Two Point
- Multiple Points
- Height/Length @ Loads
- Scragging and Load Hold Set

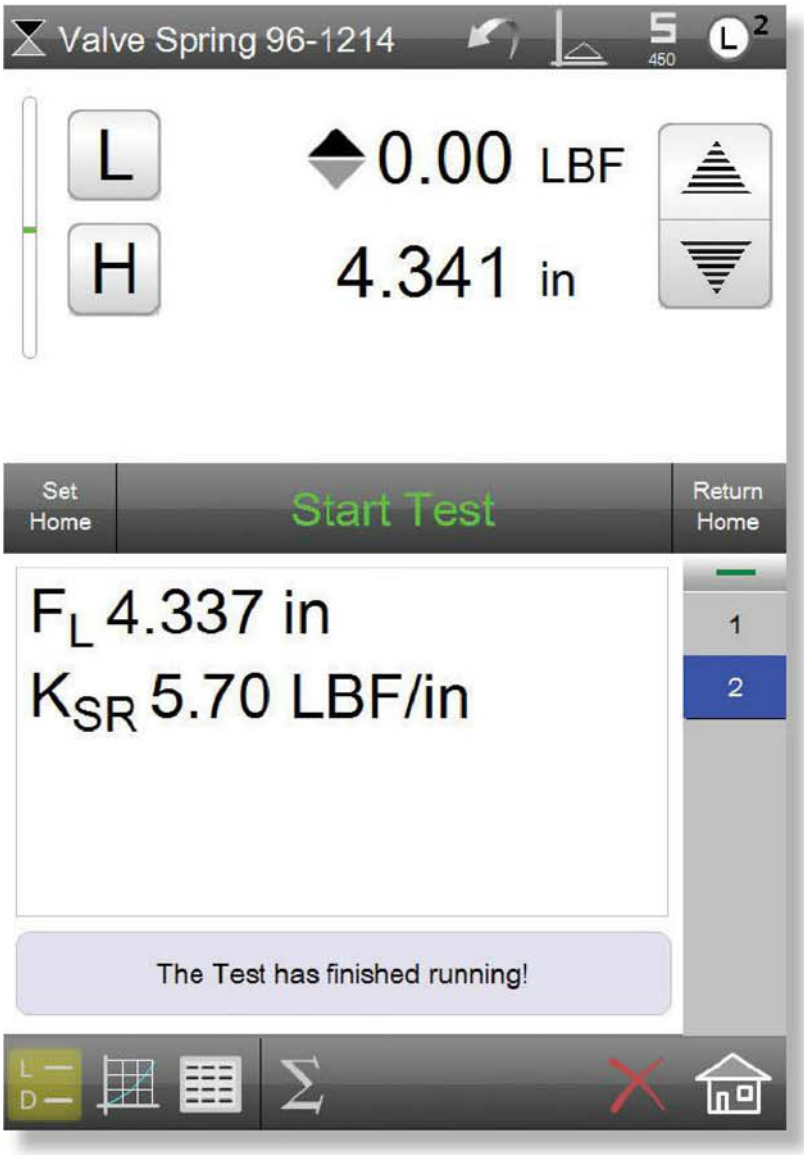
S2 systems can use any FMS, FMD, MMS or MMD test frame. Shown is an S2 system using an FMS-5000 test frame.

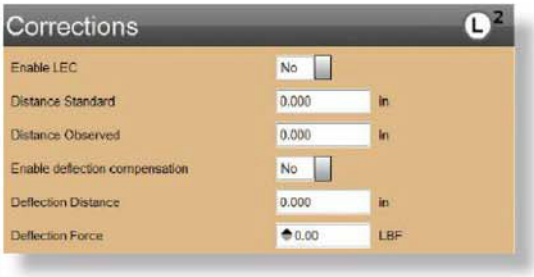
Perform one- and two-point testing to calculate spring constant and spring rate. Calculate free length and initial tension results for compression or extension springs.

Load measurement accuracies to better than 0.1% are achieved using our IEEE 1451.4 compliant load cell sensors. Capacities range from 1N to 50kN (100 gf to 11,250 lbf).



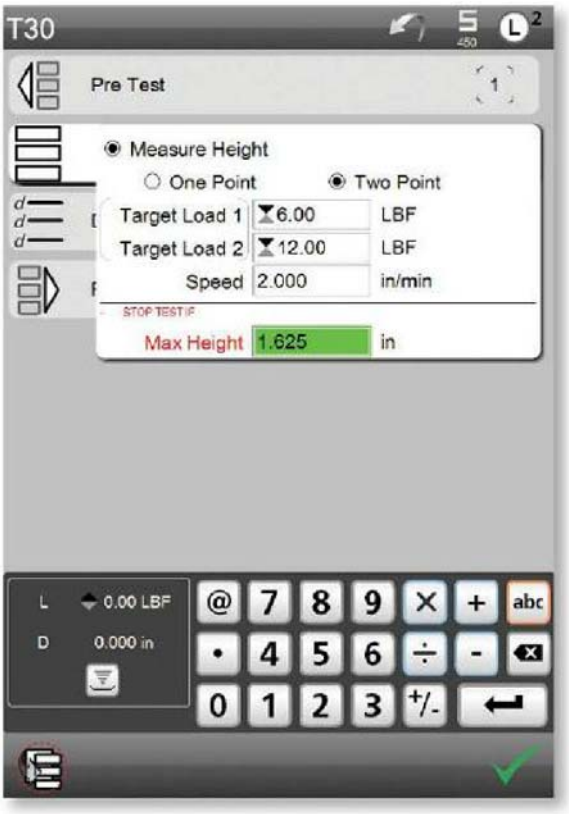
An automatic datuming feature helps to ensure accurate height/ extension/elongation measurements. Heights can be measured to 0.001 inch (0.025 mm).

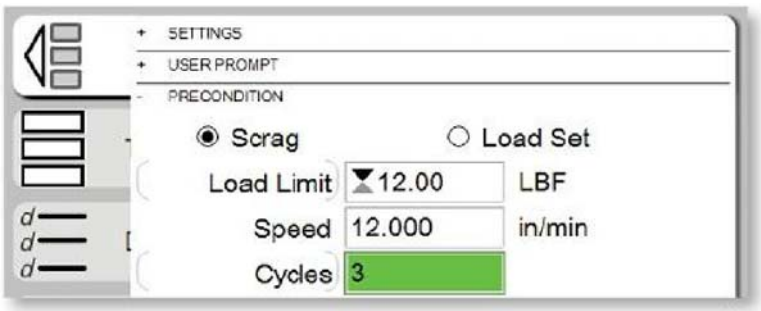


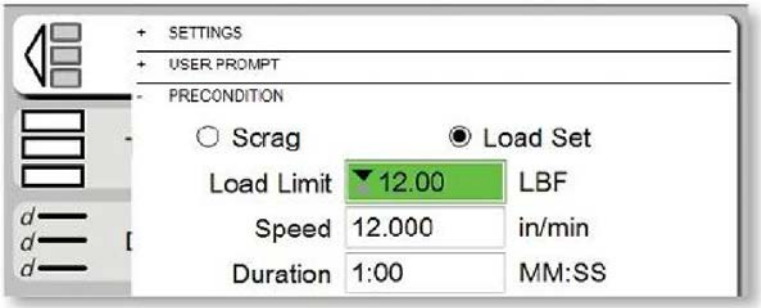


SYSTEMS

S2 SYSTEMS







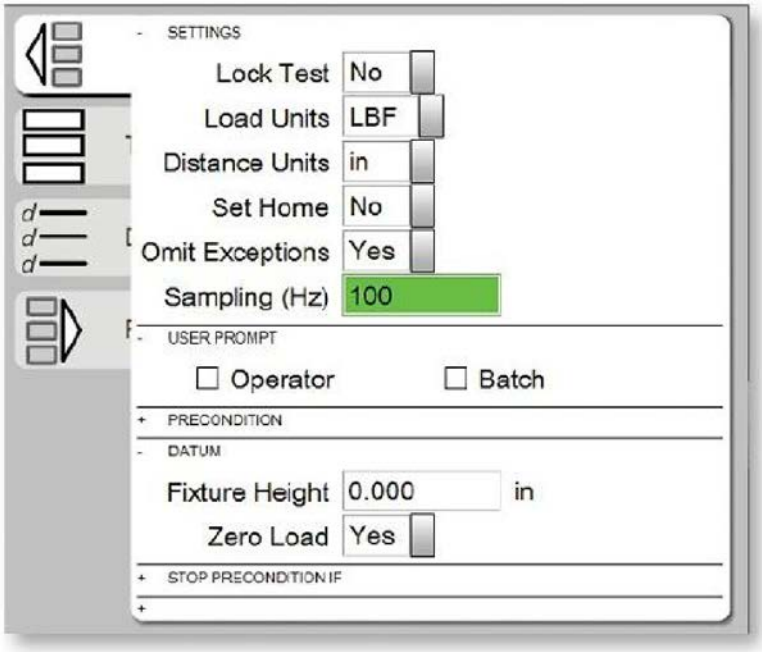
Preconditioning options include scragging and load set.

(Above) You can scrag your spring based on a number of cycles or based on a time duration.

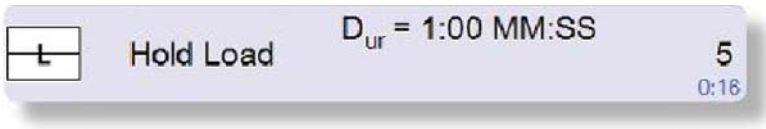
(Below) Your spring may be set solid as a preconditioning prior to your actual test procedure. For example, compress to 12 lbf and hold for 1 minute.

Create compression and extension tests using the test templates supplied standard with your S2 system. Or, use the optional Test Builder application to create sophisticated, multi-point test setups for more advanced spring measurement.

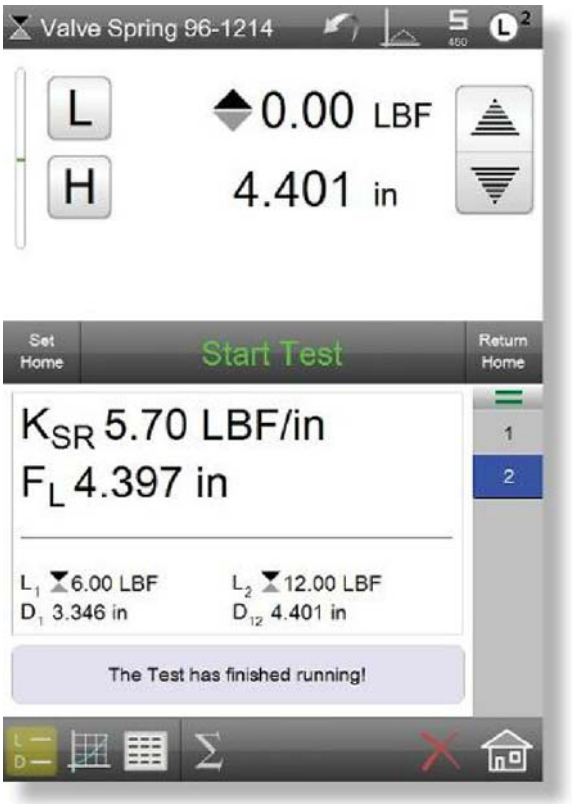
The optional S2 Automation Builder software works with the S2 Test Builder application so you can use conditional branching and digital I/O to interface with ancillary equipment such as annunciators, conveyors and turret loading devices.



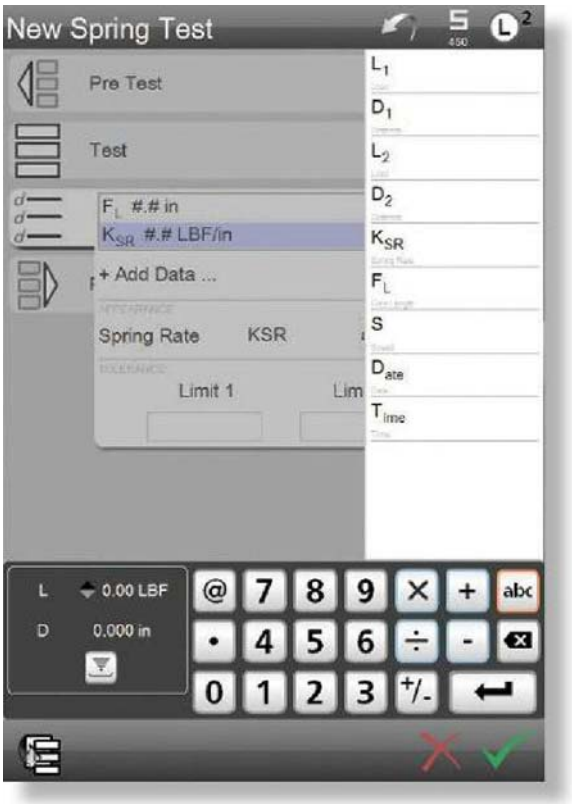
The Pre Test step lets you specify test attributes before you actually begin your testing. Set units of measure, pre-conditioning, user prompts and datum criterion.



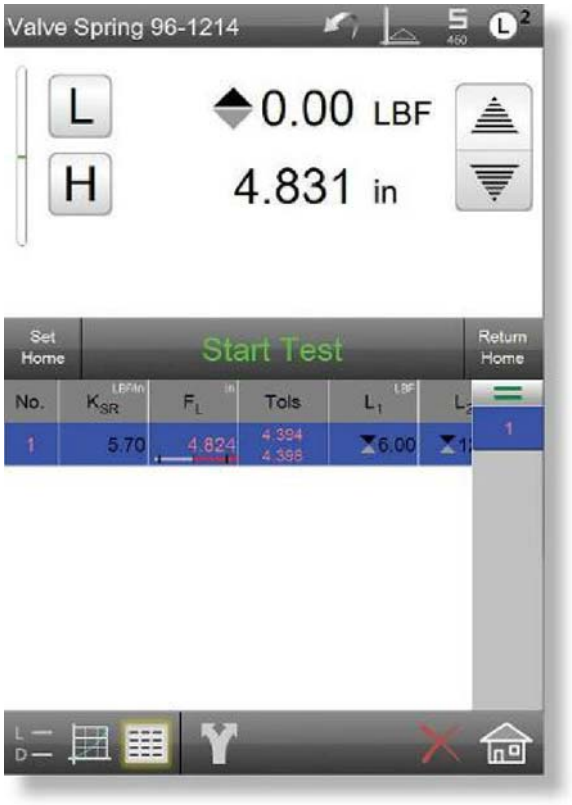
During your test, status messages display providing the operator with immediate feedback of the active step and the step's performance characteristics and current measurement. An LED on the Start/Stop push button on your test frame also indicates and active test condition.



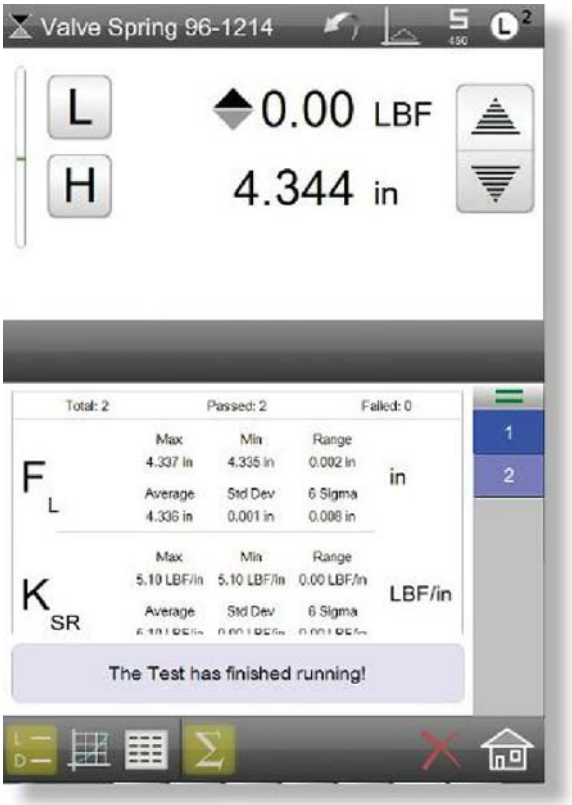
Upon completion of a test, you can display the key characteristics of your spring sample: Spring Rate, Free Length, and the individual measured results at your specified setpoint limits. The above display is for a 2-point compressive spring test.



Using the spring test setup templates, you can select the results you want using the Data step. A list of available standard results are displayed and you select the result you want and how it is to be formatted on your result view.



Like all Lx systems, within your S2 test, you may establish a tolerance on any result. Shown is an "out-of-tolerance" results for free length. The tolerance range is created between 4.394" and 4.398" in this example.

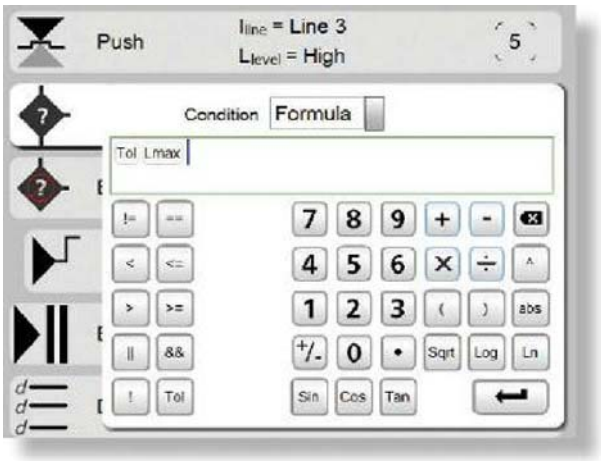


Your S2 software supports basic statistical process control. Individual results reported for your test can be compared statistically. You can view Mean, Min, Standard Deviation and Six Sigma for your selected results. When tolerance limits are used, you can summarize "pass and fail" results.

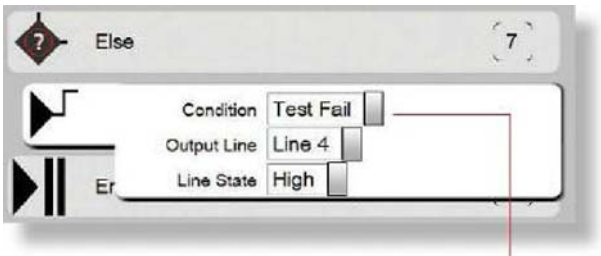
AUTOMATION

Starrett Lx systems can be interfaced with ancillary instrumentation for factory automation applications or where more advanced and complex measurements are necessary.

The optional Automation Builder software packages can be used for interfacing with instrumentation and equipment through digital and analog I/O signals.



(Above) A conditional branching occurs when the Lmax result is out-of-tolerance. This will cause a message to display to the operator and it will cause a signal annunciator to light red for a failed test sample.

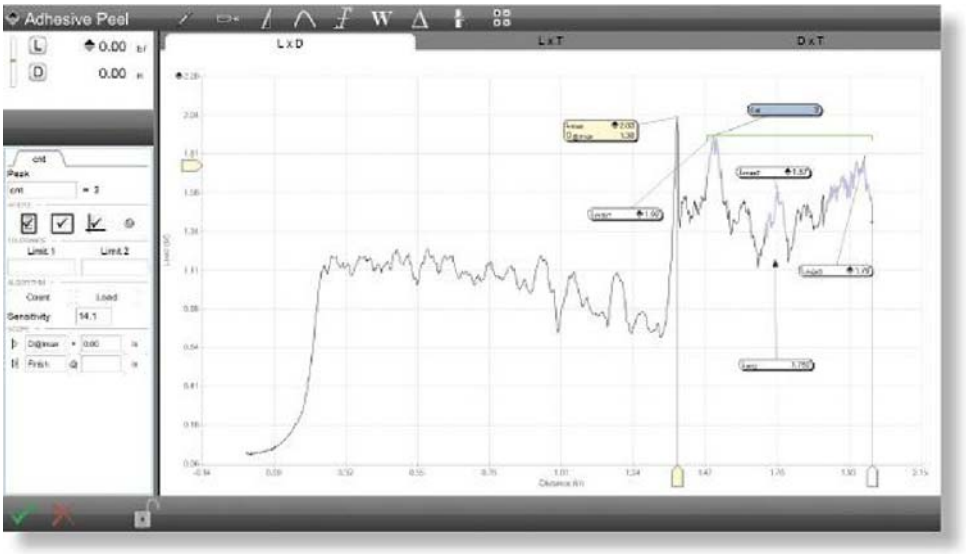


Digital I/O can be used for contact closure testing. You can measure and determine the precise load that caused the "make" or "break" in an electronic component or switch. You may also use conditional logic combined with the digital outputs to light an annunciator based on a tolerance result.

The Automation Builder can also be used to incorporate conditional logic within your test setup. Conditional logic can be used to establish If/Else relationships, including the ability to automatically adjust test setup functionality based on events that occur during a test run.

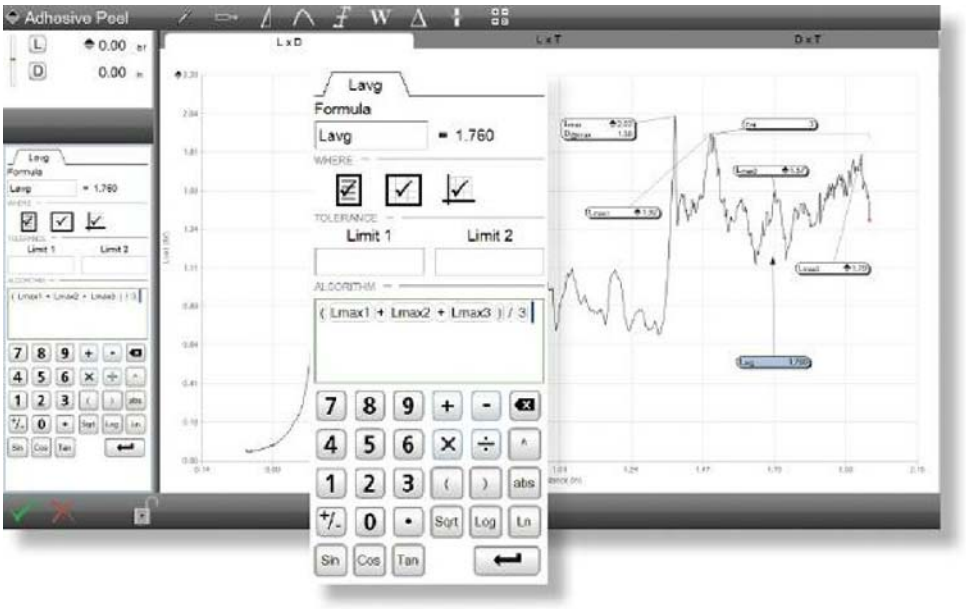
Digital I/O is available on all MMx and FMx test frames. Analog I/O is only available using the MMS or MMD test frames.

The Formula Builder allows you to construct complex, derived results using arithmetic, trigonometric and logarithmic expressions. The Formula Builder is standard in L3 systems and optional for L2 Plus, L2 and S2 systems. The Formula Builder for L2 and S2 systems supports basic arithmetic functions only- add, subtract, multiply and divide.



This example shows a full graph view of an adhesive test. Three peaks are identified based on the sensitivity of 14.1 after the Lmax (maximum peak).

The qualified peaks are highlighted in blue and identified as Lmax1, Lmax2 and Lmax3.



Using the Formula Builder, an expression was created that is an average of the three Lmax values only. The Lavg in this example application does not average all data points, but only the Lmax values.

The formula you create is evaluated real-time. Syntax errors are noted by displaying a red line around the formula input box. If the formula is correct, the line is green.

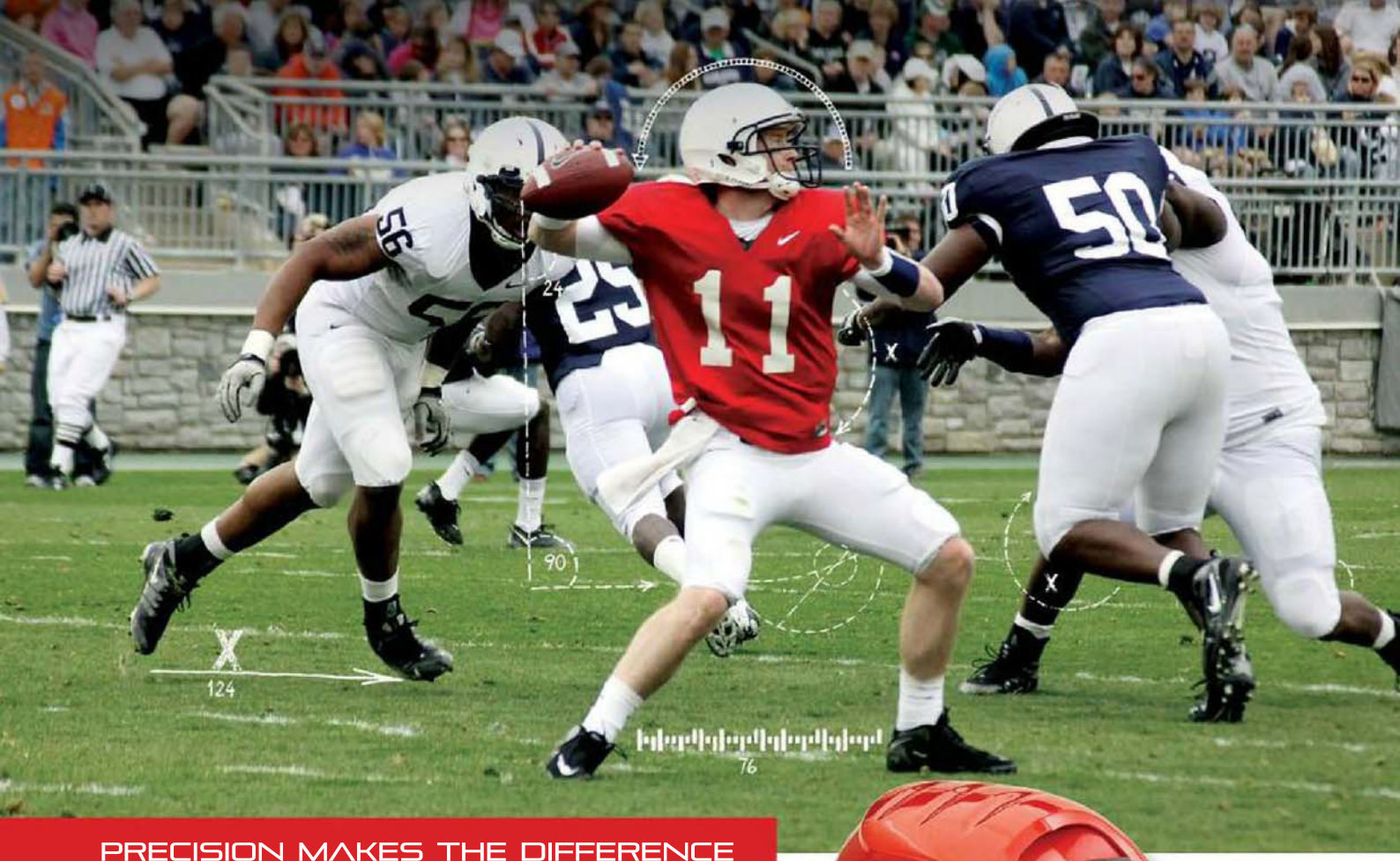
The functions and features available using the optional Automation Builder software are shown in the table.

The Formula Builder is supplied standard on L3 systems only.

Advanced mathematical expressions are not available with the Formula Builder in the L2 and S2 system's optional Automation Builder application.

Automation Builder Software Option				
Measurement Capabilities	**L3**	**L2 Plus**	**L2**	**S2**
Use Digital I/O	❍	❍	❍	❍
Use Analog I/O (requires MMx test frames)	❍	❍		
Use Command and Conditional Logic	❍	❍	❍	❍
Formula Builder				
Create Basic Expressions using Add, Subtract, Multiple and Divide	Std[1]	❍	❍	❍
Create Mathematical Expressions using Algebraic, Trigonometric and Logarithmic functions	Std[1]	❍		

Notes: (1) The Formula Builder function is supplied standard on L3 systems only. The Formula Builder is included in the optional Automation Builder software for L2 Plus, L2 and S2 systems.
Advanced mathematical expressions using algebraic, trigonometric and logarithmic functions are available on L3 and L2 Plus systems only.



PRECISION MAKES THE DIFFERENCE

Goes the Distance.

Three major product lines to meet our customer's needs with performance and quality.

Starrett®

TEST FRAMES

Test Frames

Specifications

MMx Series Material Testing Frames								
Model Number		**MMS-500**	**MMS-1000**	**MMS-2500**	**MMS-5000**	**MMD-10K**	**MMD-30K**	**MMD-50K**
Load Capacity	N	500	1000	2500	5000	10,000	30,000	50,000
	kgf	50	100	250	500	1000	3000	5000
	lbf	112	225	562	1124	2250	6750	11,250
Minimum Speed	mm/min	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	in/min	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004
Maximum Speed	mm/min	1525	1525	1525	1525	1525	1525	752
	in/min	60	60	60	60	60	60	30
Position Control Resolution	µm	0.250	0.250	0.250	0.250	0.05	0.025	0.025
	µin	9.8	9.8	9.8	9.8	1.9	0.9	0.9
Vertical Test Space[1]	mm	559	953	1257	1257	1270	1245	1220
	in	22	37.5	49.5	49.5	50	49	48
Total Crosshead Travel	mm	381	762	1016	1016	1162	1137	1111
	in	15	30	40	40	45.75	44.75	43.75
Throat	mm	100	100	100	100	424	424	424
	in	4	4	4	4	16.7	16.7	16.7
Accuracy Load Measurement		Load Cell Sensor Dependent						
Accuracy Position Measurement[2]		±0.0002 inch (±5 µm)						
Accuracy Strain Measurement		±0.5% of reading down to 1/50 of full scale with ASTM E83 class B or ISO 9513 class 0.5 extensometer						
Accuracy Crosshead Speed		±0.1% of set speed						
Data Sampling	Hz	1 to 2000						
Digital I/O		8 channels @ 1-5V						
Extensometer Connections		2 channels for 0-10V extensometers						
Analog Inputs		1 channel @ ±10V						
Analog Outputs		2 channels @ 0-10V						
Electrical Phase		1						
Power Requirements		100, 120, 220, 230, 240VAC 10%; 47-63Hz Self-identifying				100, 120, 220, 230, 240Vac 10%	Single Phase Voltage (Vac) ±10% 220-240V	Single Phase Voltage (Vac) ±10% 220-240V
Operating Temperature	°C	+10° to +38°C						
	°F	+50° to 100°F						
Storage Temperature	°C	-40° to +66°C						
	°F	-40° to 150°F						
Humidity		+10% to +90%, non-condensing						
Total Height	mm	805	1218	1573	1573	1685	1711	1711
	in	31.7	47.9	61.9	61.9	66.4	67.4	67.4
Total Width	mm	381	381	381	381	787	787	787
	in	15	15	15	15	31	31	31
Total Depth	mm	514	514	514	514	724	724	724
	in	20.3	20.3	20.3	20.3	28.5	28.5	28.5
Weight	kg	61	77	88	88	136	192	225
	lb	135	170	195	195	300	425	500

NOTES

Total vertical space is the distance from the top surface of the base plate to the bottom surface of the crosshead, excluding load cell sensor, test fixtures, and clevis adapter.

Assumes Linear Error Correction and Deflection Compensation has been performed on test frame.

MMS and MMD test frames may be used with extensometers from Reliant Technologies and Epsilon Technology Corporation. Extensometers can be "plug & play" when supplied by the L.S. Starrett Company.

FMx Series Force Measurement Frames								
Model Number		**FMS-500**	**FMS-1000**	**FMS-2500**	**FMS-5000**	**FMD-10K**	**FMD-30K**	**FMD-50K**
Load Capacity	N	500	1000	2500	5000	10,000	30,000	50,000
	kgf	50	100	250	500	1000	3000	5000
	lbf	112	225	562	1124	2250	6750	11,250
Minimum Speed	mm/min	0.05	0.05	0.05	0.05	0.001	0.001	0.001
	in/min	0.002	0.002	0.002	0.002	0.00004	0.00004	0.00004
Maximum Speed	mm/min	1525	1525	1525	1525	1525	1525	752
	in/min	60	60	60	60	60	60	30
Position Control Resolution	µm	0.250	0.250	0.250	0.250	0.05	0.025	0.025
	µin	9.8	9.8	9.8	9.8	1.9	0.9	0.9
Vertical Test Space[1]	mm	559	953	1257	1257	1270	1245	1220
	in	22	37.5	49.5	49.5	50	49	48
Total Crosshead Travel	mm	381	762	1016	1016	1162	1137	1111
	in	15	30	40	40	45.75	44.75	43.75
Throat	mm	100	100	100	100	424	424	424
	in	4	4	4	4	16.7	16.7	16.7
Accuracy Load Measurement		Load Cell Sensor Dependent						
Accuracy Position Measurement[2]		±0.001inch (±20µm)				±0.0002inch (±5µm)		
Accuracy Crosshead Speed		±0.1% of set speed						
Data Sampling	Hz	5 to 1000						
Digital I/O		8 channels @ 1-5V						
Electrical Phase		1						
Power Requirements		100, 120, 220, 230, 240VAC 10%; 47-63Hz Self-identifying				100, 120, 220, 230, 240Vac 10%	Single Phase Voltage (Vac) ±10% 220-240V	Single Phase Voltage (Vac) ±10% 220-240V
Operating Temperature	°C	+10° to +38°C						
	°F	+50° to 100°F						
Storage Temperature	°C	-40° to +66°C						
	°F	-40° to 150°F						
Humidity		+10% to +90%, non-condensing						
Total Height	mm	805	1218	1573	1573	1685	1711	1711
	in	31.7	47.9	61.9	61.9	66.4	67.4	67.4
Total Width	mm	381	381	381	381	787	787	787
	in	15	15	15	15	31	31	31
Total Depth	mm	514	514	514	514	724	724	724
	in	20.3	20.3	20.3	20.3	28.5	28.5	28.5
Weight	kg	61	77	88	88	136	192	225
	lb	135	170	195	195	300	425	500

NOTES

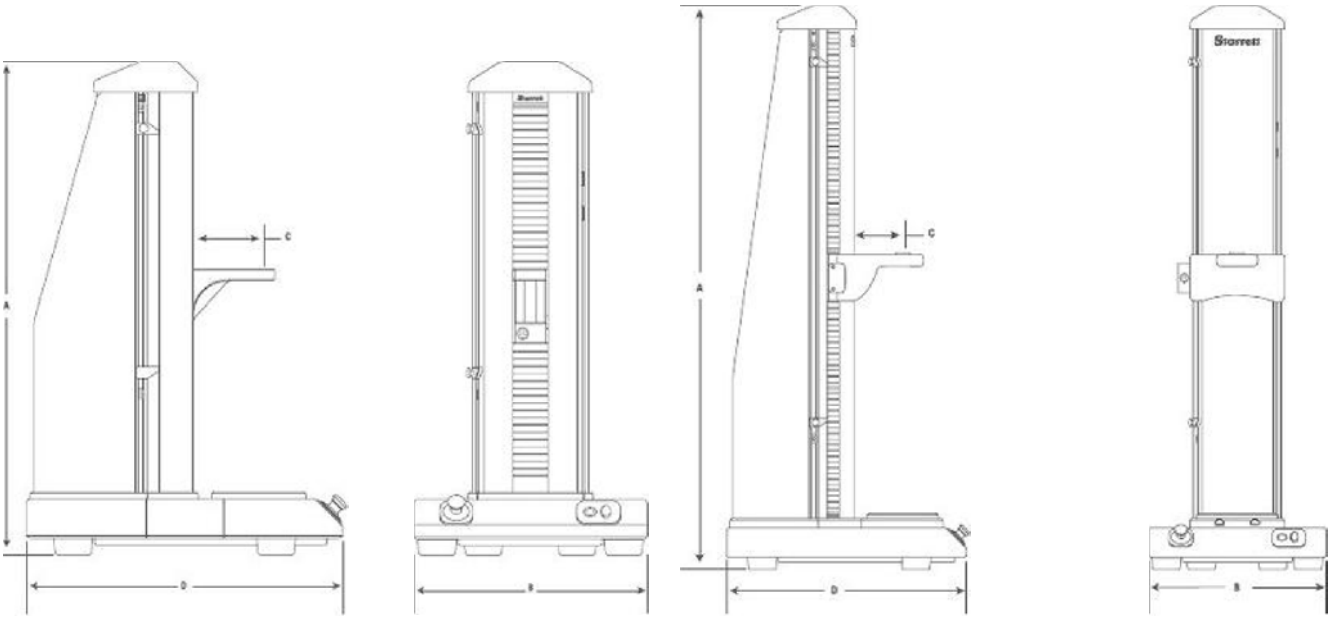
Total vertical space is the distance from the top surface of the base plate to the bottom surface of the crosshead, excluding load cell sensor, test fixtures, and clevis adapter.

Assumes Linear Error Correction and Deflection Compensation has been performed on test frame.

Shown: L2 system with FMS500 test frame with tablet.

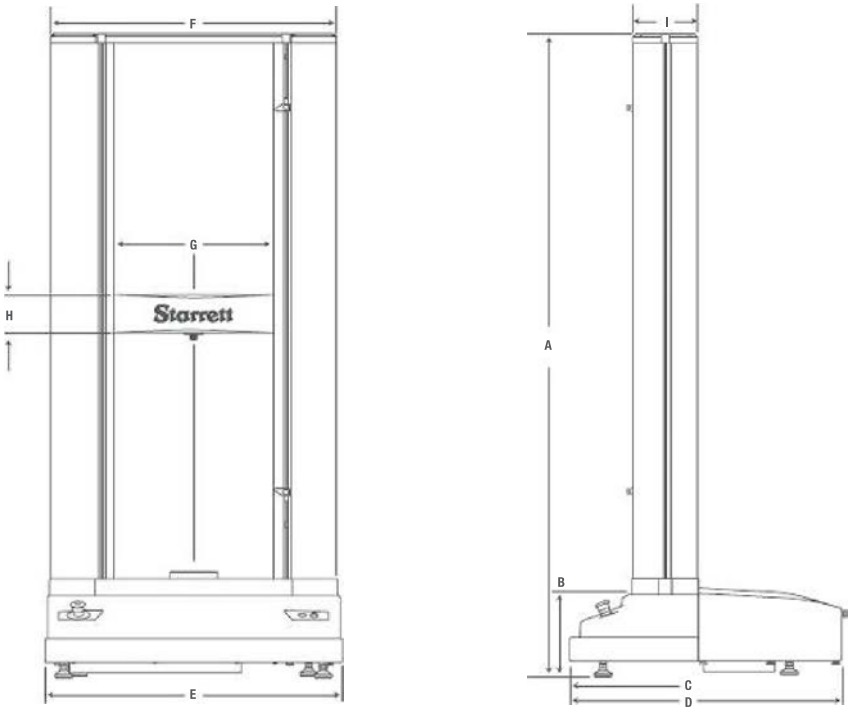
Test Frames

Dimensions



Dimensions				
Single Column Test Frames	**A**	**B**	**C**	**D**
MMS/FMS-500 Test Frame	31.7 in 805mm	15.0 in 381mm	4.2 in 107mm	20.3 in 514mm

Dimensions				
Single Column Test Frames	**A**	**B**	**C**	**D**
MMS/FMS-1000 Test Frame	47.9 in 1218mm	15.0 in 381mm	4.1 in 105mm	20.3 in 514mm
MMS/FMS-2500 Test Frame	61.9 in 1573mm	15.0 in 381mm	4.1 in 105mm	20.3 in 514mm
MMS/FMS-5000 Test Frame	61.9 in 1573mm	15.0 in 381mm	4.1 in 105mm	20.3 in 514mm



Dimensions									
Dual Column Test Frames	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
MMD/FMD-10K Test Frame	66.4 in 1685mm	9.4 in 238mm	10.0 in 254mm	28.5 in 724mm	31.0 in 787mm	29.7 in 754mm	16.7 in 424mm	3.0 in 76mm	6.7 in 170mm
MMD/FMD-30K Test Frame	67.4 in 1711mm	10.4 in 263mm	10.0 in 254mm	28.5 in 724mm	31.0 in 787mm	29.7 in 754mm	16.7 in 424mm	4.0 in 102mm	6.7 in 170mm
MMD/FMD-50K Test Frame	67.4 in 1711mm	10.4 in 263mm	10.0 in 254mm	28.5 in 724mm	31.0 in 787mm	29.7 in 754mm	16.7 in 424mm	5.0 in 127mm	6.7 in 170mm


T8
L
0.35 LBF
D
2.147 in
Start Test
The Test has finished running!


Starrett


DELL

PRECISION MAKES THE DIFFERENCE

Pure Precision.

Introducing the HDV300 Video-based measurement system. The power of an optical comparator, meets the precision of digital video.

Starrett®

LOAD CELL SENSORS

Load Cell Sensors

Starrett offers a full range of precision load cell sensors for material testing, force analysis and force measurement applications. Starrett load cells are compliant with IEEE 1451.4 and meet or exceed ASTM E4, BS 1610, ISO 7500-1 and EN 10002-2.

Measurement accuracies of ±0.05% of reading down to 1/100 of sensor capacity may be achieved. Sensors are supplied with a NIST-traceable Certificate of Calibration. Sensors may be used on L3, L2 Plus, L2 and S2 Systems.

ULC and MLC Load Cell Sensors

Starrett ULC and MLC load cell sensors are full-bridge, temperature compensated,strain gage instruments designed and optimized for material testing applications. These low profile sensors feature high axial stiffness and minimal deflection at full capacity which leads to improved measurement accuracy.

The ULC provides ultimate measurement performance and are supplied with a standard base plate adapter. Available in capacities from 1.5kN to 50kN.

The MLC are general purpose sensors available in capacities from 125N to 50kN.

ULC Series - "Ultra" Low Profile Sensors

	Load Capacity			Safe Overload	Full Scale Deflection		Height[1]		Width		Thread
Model Number	N	KGF	LBF	% Full Scale	mm	inch	mm	inch	mm	inch	mm
ULC-1500	1500	150	337	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H
ULC-2500	2500	250	567	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H
ULC-5K	5000	500	1124	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H
ULC-10K	10,000	1000	2248	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H
ULC-25K	25,000	2500	5620	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H
ULC-50K	50,000	5000	11,250	150	0.05	0.002	63.5	2.5	104.8	4.13	M16 x 2-4H

NOTES

[1] Dimension includes the base adapter. ULC Series sensors are supplied with the base adapter standard.
Load measurement accuracy is ±0.05% of reading down to 1/100 of load cell capacity. Display resolution is 10,000:1.
Starrett recommends on-site verification of accuracy during installation. Sensor calibration should be performed at least annually.

MLC Series - Low Profile Sensors

	Load Capacity			Safe Overload	Full Scale Deflection		Height[1]		Width		Thread
Model Number	N	KGF	LBF	% Full Scale	mm	inch	mm	inch	mm	inch	mm
MLC-125	125	12.5	28	150	0.08	0.003	38.1	1.5	69.8	2.75	M6 x 1-6H
MLC-250	250	25	56	150	0.08	0.003	38.1	1.5	69.8	2.75	M6 x 1-6H
MLC-500	500	50	112	150	0.08	0.003	38.1	1.5	69.8	2.75	M6 x 1-6H
MLC-1000	1000	100	225	150	0.08	0.003	38.1	1.5	69.8	2.75	M6 x 1-6H
MLC-1500	1500	150	337	150	0.03	0.001	63.51	2.51	104.8	4.13	M16 x 2-4H
MLC-2500	2500	250	562	150	0.03	0.001	63.51	2.51	104.8	4.13	M16 x 2-4H
MLC-5K	5000	500	1124	150	0.03	0.001	63.51	2.51	104.8	4.13	M16 x 2-4H
MLC-10K	10,000	1000	2248	150	0.03	0.001	63.51	2.51	104.8	4.13	M16 x 2-4H
MLC-25K	25,000	2500	5620	150	0.05	0.002	63.51	2.51	104.8	4.13	M16 x 2-4H
MLC-50K	50,000	5000	11,250	150	0.05	0.002	63.51	2.51	104.8	4.13	M16 x 2-4H

NOTES

[1] Dimension includes the base adapter. These MLC sensors are supplied with the base adapter standard. Base adapters are recommended for any MLC sensor.
Load measurement accuracy is ±0.05% of reading down to 1/100 of load cell capacity. Display resolution is 10,000:1.
Starrett recommends on-site verification of accuracy during installation. Sensor calibration should be performed at least annually.

Load Cell Sensors

FLC Load Cell Sensors

Three models of s-beam load cell sensors are also available. These are all full bridge, temperature compensated strain gage instruments, designed for force measurement applications, but suitable for some material testing applications.

Premium Models

Ideal for low load applications, these sensors have a safe overload rating of 1000% of the sensor's load capacity.

Sealed Models

These models are suitable for applications in non-laboratory environments where dirt, oil, dust and debris may be present.

Economy Models

When price is an issue, these general purpose load cell sensors are economical and suitable for most general purpose force measurement applications.

FLC-P Series - "Premium" S-beam Sensors

	Load Capacity			Safe Overload	Full Scale Deflection		Height		Width		Thread
Model Number	N	KGF	LBF	% Full Scale	mm	inch	mm	inch	mm	inch	mm
FLC-5P	5	0.5	1	1000	0.4	0.014	63.0	2.48	59.2	2.33	M6 x 1-6H
FLC-10P	10	1	2	1000	0.3	0.012	63.0	2.48	59.2	2.33	M6 x 1-6H
FLC-25P	25	2.5	5	1000	0.3	0.012	63.0	2.48	59.2	2.33	M6 x 1-6H
FLC-50P	50	5	11	1000	0.2	0.009	63.0	2.48	59.2	2.33	M6 x 1-6H
FLC-100P	100	10	22	1000	0.2	0.009	63.0	2.48	59.2	2.33	M6 x 1-6H
FLC-250P	250	25	56	1000	0.2	0.009	63.0	2.48	59.2	2.33	M6 x 1-6H

NOTES

Load measurement accuracy is ±0.1% of load cell capacity. Display resolution is 10,000:1.
Starrett recommends on-site verification of accuracy during installation. Sensor calibration should be performed at least annually.

FLC Series - "Sealed" S-beam Sensors

	Load Capacity			Safe Overload	Full Scale Deflection		Height		Width		Thread
Model Number	N	KGF	LBF	% Full Scale	mm	inch	mm	inch	mm	inch	mm
FLC-500	500	50	112	150	0.10	0.004	63.0	2.5	50.8	2.0	M6 x 1-6H
FLC-1000	1000	100	225	150	0.15	0.006	63.0	2.5	50.8	2.0	M6 x 1-6H
FLC-2000	2000	200	450	150	0.13	0.005	76.2	3.0	50.8	2.0	M12 x 1.75-5H
FLC-2500	2500	250	562	150	0.13	0.005	76.2	3.0	50.8	2.0	M12 x 1.75-5H
FLC-5KN	5000	500	1124	150	0.13	0.005	76.2	3.0	50.8	2.0	M12 x 1.75-5H

NOTES

Load measurement accuracy is ±0.1% of load cell capacity. Display resolution is 10,000:1.
Starrett recommends on-site verification of accuracy during installation. Sensor calibration should be performed at least annually.

FLC-E Series - "Economy" S-beam Sensors

	Load Capacity			Safe Overload	Full Scale Deflection		Height		Width		Thread
Model Number	N	KGF	LBF	% Full Scale	mm	inch	mm	inch	mm	inch	mm
FLC-50E	50	5	11	150	0.08	0.003	63.5	2.5	50.8	2.0	M6 x 1-6H
FLC-100E	100	10	22	150	0.08	0.003	63.5	2.5	50.8	2.0	M6 x 1-6H
FLC-200E	200	20	45	150	0.08	0.003	63.5	2.5	50.8	2.0	M6 x 1-6H
FLC-500E	500	50	112	150	0.10	0.004	63.5	2.5	50.8	2.0	M6 x 1-6H
FLC-1000E	1000	100	225	150	0.15	0.006	63.5	2.5	50.8	2.0	M6 x 1-6H
FLC-2000E	2000	200	450	150	0.15	0.006	76.2	3.0	50.8	2.0	M12 x 1.75-5H
FLC-2500E	2500	250	562	150	0.13	0.005	76.2	3.0	50.8	2.0	M12 x 1.75-5H
FLC-5000E	5000	500	1124	150	0.13	0.005	76.2	3.0	50.8	2.0	M12 x 1.75-5H

NOTES

Load measurement accuracy is ±0.1% of load cell capacity. Display resolution is 10,000:1.
Starrett recommends on-site verification of accuracy during installation. Sensor calibration should be performed at least annually.

Accessories

Test Fixtures, Extensometers, Shields

Test Fixtures

Starrett offers a full range of test fixtures, grips and accessories. Test fixtures are compatible with all Starrett systems and test frames. Starrett can also engineer and supply custom test fixtures to your exact requirements.

Types

- Button Head
- Compression Cages
- Flexural
- Hydraulic
- Peel
- Platens
- Pneumatic
- Ribbon
- Roller
- Scissor
- Shear
- Vice-action
- Wedge-action

Specimen Dies

Dies are available for testing a variety of materials including rubber, plastic, elastomer, fabric, paper, films and more. Dies are engineered to comply with common testing standards including:

- ASTM D-412 (A,B,C,D,F)
- ASTM D-638 (I, II, III, IV, V)
- ISO 34 (A,B)
- BS 6746
- IEC 540

Starrett specimen dies help ensure accurate dimensions for your sample preparations.

Starrett can supply a wide assortment of testing fixtures that comply with international testing standards from ASTM, ISO, DIN, TAPPI and more. We can also supply custom test fixtures for difficult sample shapes.

Extensometry

Starrett offers a full range of contact-type extensometers. Our systems are compatible with Reliant Technologies® and Epsilon® extensometers and feature automatic identification of model and measuring range.

Types

- Axial
- Traverse
- Bi-axial
- Averaging
- Miniature
- Long Gage Length, Small Range
- Long Gage Length
- High Elongation

Splinter Shields

Optional splinter shields are available for both single- and dual column testers. Shields feature electronic interlocks and are constructed of shatter-resistant aerospace acrylic. Shields are normally custom made to your exact requirements.

Starrett MMS and MMD material test frames may be used with extensometers. Starrett L3 systems may use extensometers from Reliant Technologies and Epsilon Technology Corporation.
Extensometers are customized so that they are automatically recognized by the L3 system. Selecting the Extensometer symbol will display key characteristics of the instrument including measuring range.

PRECISION MAKES THE DIFFERENCE

FOR OVER 130 YEARS, WITH INNOVATIVE TECHNOLOGIES.

More than 5,000 products including precision tools, vision systems, force measurement systems, non-contact measurement systems, profile projectors, band saw blades, band saw machines, hand tools and power tools accessories.

Starrett®

APPLICATIONS, SERVICES AND SOFTWARE

APPLICATIONS

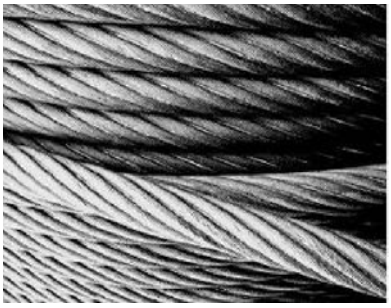
Adhesives

Important characteristics of adhesives, epoxies and materials that are bonded to one another can be measured using peel testing methods. Pressure-sensitive adhesive properties associated with materials such as labels, packaging products and medical wound management products, can be tested using a 180° testing method.

Biomedical

Testing medical devices and materials used in the production of medical devices are critical to ensure compliance to federal regulations. From the testing of latex products, syringes, stents, catheters to packaging products for medical devices, L3 systems can be used to verify and validate material compliance.

Metals

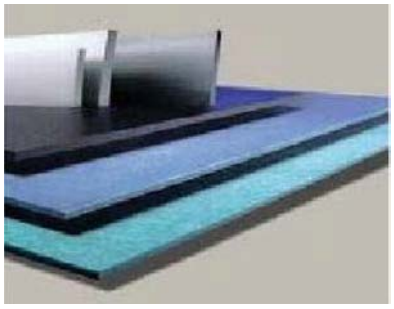


Metals and alloys are tested under varying conditions. Tensile, compressive, shear, flexural and fracturing properties are important characteristics of all metals and alloys. Modulus, brittleness versus ductility, strength at offset yields are used to characterize these products and their ability to satisfy application and life-cycle requirements.

Building Materials

Materials used in building products, including asphalt and cement-based products can be tested to ascertain their strength and suitability under varying environmental conditions. Compressive and shear properties can be determined using L3 systems.

Composites



Composites are made by combining two or more materials- often materials with very different properties. Composites based on polymers continue to evolve and find their way into all kinds of products for aerospace and automotive applications to medical applications. Understanding stress and strain characteristics are critical in evaluation composites and their applicability.

Plastics

The growth of plastics and polymers is exponential. Plastics are used everywhere in consumable materials to life-saving medical devices. Plastic properties are important in validating materials used in the development of products comprised of polymers. Tensile, compression, break/rupture/puncture and flexural testing are important characteristics in classifying plastics.

Ceramics

Ceramic and glass products are increasingly be used in a wide variety of products from cellular phones to fibre-optic cables. Because of their inherent brittleness, assessing their mechanical properties are important considerations, both in their design and application.

Textiles

Fabric, yarn, filaments, cords and cloth are tested for strength and durability. Both natural and synthetic textiles are tested for strength and adhesion, tear strength, seam slippage and break strength.

Rubber/Elastomers

Medical gloves, hoses used in automotive and aerospace products, foam, seals and building products are made from rubber and elastomer products. Compression strength, creep strength, puncture strength and tensile strength are important in assessing their suitability and manufacturability.

Applications

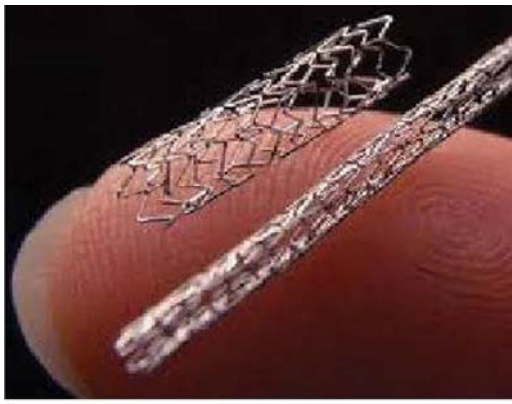
Common Test Method Standards performed using L3 systems

ASTM Test Methods

A370	C469	D1876	D4268	D7136	E23	F2258
A48	C633	D1894	D429	D7137	E290	F2267
A615	C78	D2256	D4632	D7192	E399	F2346
A746	C880	D2261	D5034	D7269	E517	F2412
A938	C99	D2444	D5035	D790	E646	F2458
A996	D256	D2844	D5083	D882	E8	F2477
B557	D1002	D3039	D5250	D885	E813	F2516
C109	D1004	D2043	D5587	D903	E9	F2606
C1550	D1047	D3163	D575	D905	F1306	F382
C1609	D1238	D3364	D5766	E1012	F1614	F384
C165	D1335	D3763	D5930	E119	F1714	F543
C170	D1414	D3822	D6610	E1290	F1717	F606
C192	D143	D3835	D6272	E18	F2063	F88
C297	D1525	D3846	D6319	E1820	F2077	
C31	D1621	D4018	D638	E190	F2079	
C39	D1708	D412	D648	E208	F2255	
C42	D1761	D413	D695	E21	F2256	

ISO Test Methods

10319	13934-2	14879	2062	4587	6603-2	7800
11193-1	13937-2	15630-1	20795-1	527-1	6872	7886-1
11193-2	13937-3	15630-3	20795-2	527-2	6892-1	8067
1133	13937-4	16402	2307	527-3	6892-2	813
11339	14125	17744	2411	527-4	7206-4	8256-A
11343	14126	178	306	527-5	7206-6	8295
11443	14129	179-1	3133	604	7206-8	844
11897	14130	179-2	3183	6238	7438	9073-4
12737	1421	1798	34-1	6383-1	75	
13007-2	148	180	36	6475	75-1	
13934-1	14801	1926	37	6603-1	75-2	



Applications

Starrett Knows Force Analysis and Measurement

Tensile testing

Identifying tensile force characteristics such as peak load is critical in validating a product's safety and application. Whether its consumer products, medical products, packaging materials or fasteners used in the building trades, tensile testing is a fundamental measurement available on all Lx systems.

Shear testing

Shear tests help measure the deformable mechanical properties of cosmetics, plastics, composites, fluids and other samples. Lap shear testing can be used to measure mechanical weld strength or the adhesive strength of epoxies.

Peel testing

Adhesive strength properties are measured to understand the bonding capabilities of coatings and glues on various types of materials- from paper to substrates to building materials. Both 90° and 180° testing can be performed to measure the peak holding strengths under standard test methods such as ASTM F88.

Compressive testing

Compressive loads are important in evaluating packaging designs, such as top load testing. Core sampling of concrete-based products are measured to determine their strength. And springs are analyzed under load to determine spring rate based on free length.

Flexural testing

Flexural strength and material stiffness represent the combined effects of a sample's basic tensile, compressive and shear characteristics. Composites, wood products, paper products can be tested in both 3- and 4-point methods to determine their stiffness and resilience.

Coefficient of friction testing

ASTM D1894 is a common test method for measuring coefficient of friction. Materials such as plastic sheeting can be tested to measure both the static and kinetic frictional characteristics. Other materials, such as flooring products are tested to determine their slip resistance and safety under various environmental conditions.

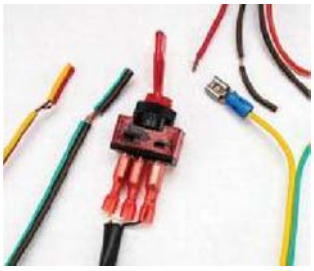
Break, Fracture and Rupture testing

Destructive testing can involve tensile, compressive, shear and other test methods where the product is tested to failure. Often this testing is used to determine the "peak" measurements that occur prior to the break event. Lx system allow you to measure precisely based on stress, strain, load, displacement and time.

Load rate testing

Load rate testing is a more complex testing method compared to testing to a setpoint at a specific velocity. Load rate testing can be used on consumer products, such as children's attire, to measure the pull strength of buttons and their resistance to breaking loads. Here the button is pulled at a rate (lbf/minute) rather than a time velocity (in/min).

Contact closure testing



Using the optional Automation Builder, the "make and break" load for an electrical switch can be measured precisely. Load is applied to the switch and the peak load is measured when the switch closes/opens. This type of application can be tested on keypads, membranes and other materials that utilize a resistance change.

Insertion/Extraction testing

Insertion/extraction testing is performed on electronic components like jacks, medical devices, consumer products, and more. The loads are measured in both directions- tensile and compressive to determine the sample's characterization for the application and for product life-cycle determination.

Creep and Relaxation testing

Foam is a material where its deformation while under an applied load below its yield strength is measured and analyzed. Knowing the material's ability to maintain its specified deformation is important for comfort and longevity in its intended application.

Applications

Packaging Testing

T-Peel
90° Peel
180° Peel
Solder Paste Tackiness
ASTM F1140 - Burst Strength
ASTM D2659 - Top Load
ASTM F88 - Seal Strength
EN 868-5 - Seal Strength Pouches
ASTM C633 -Adhesion Spray Coating
ASTM D1335 - Tuft Binding Floor Covering
ASTM D903 - Adhesive Bond
ASTM D1876 - Peel Resistance
ISO 36 - Rubber Adhesion
ISO 2411 - Adhesion Plastic
ISO 4587 - Lap Shear Strength
ISO 11339 - Flexible Bond Assembly
EN 1465 - Lap Shear Strength
EN 1719 - Tack Measurement
EN 1939 - Peel Adhesion
Component Testing
Compress (Load/Extension)
Compress (Stress/Strain)
Indentation (Load/Extension)
Indentation (Stress/Strain)
Spring Rate
Spring Force
Spring Height

Medical Device Testing

ASTM F88 - Seal Strength
ASTM F382 - Metallic Bone Plates
ASTM F451 - Bone Cement Strength
ASTM F564 - Metallic Bone Staples
ASTM F1828 - Ureteral Stents
ASTM F1839 - Foam Devices
ASTM F1874 - Sutures Bend Test
ASTM F2079 - Stents Tensile Strength
ASTM F2132 - Puncture Resistance
ASTM F2183 - Punch Testing
ASTM F2255 - Lap Shear Testing
ASTM F2256 - Tissue Adhesives
ASTM F2258 - Tissue Adhesives
ASTM F2392 - Burst Strength Sealant
ASTM F2458 - Closure Strength
ASTM F2477 - Stents Strength
ASTM F2502 - Plates and Screws
ASTM F2516 - Tensile Nitinol Wire
ASTM F2606 - Bend Vascular Stent
ASTM D6319 - Medical Gloves
BS EN 455-2 - Medical Gloves
ISO 7886-1 - Hypodermic Syringe
ISO 14879 - Tibial Trays
ISO 11193 - Medical Glove

Compression Test

Tensile Test
Tensile Strength
ASTM D3039 - Tensile Carbon Fiber
ASTM D3846 - Shear Strength
ASTM D7269 - Aramid Cords
ASTM D6484 - Compressive Strength
ASTM D1055 - Flex Resistance
ASTM D3574 - Indention Deflection
ASTM D3574 - Foam Deflection
EN 14509 - Shear Strength
ISO 527-4 - Tensile Isotropic/Orthotropic
ISO 14125 - Flexural Properties
ISO 14126 - In-plane Compression
TAPPI - 404 - Tensile Break Strength
TAPPI 220 - Burst Strength
TAPPI 456 - Wet Paper Strength
TAPPI 457 - Pull to Rupture

Services

Calibration, Field Service, Factory Service

Starrett and our global network of service providers can provide all levels of service for your material test and force measurement systems. We can supply a comprehensive range of calibration and verification services to ensure that your testing meets the requirements of international testing standards. Calibrations can be performed to ASTM E4 for load and ASTM E2658 for displacement or to equivalent standards from ISO, BS, DIN and more. Speed, stress and strain verifications can be performed on-site by technicians accredited to ISO 17025.

Preventative maintenance programs, field and factory repair services are available to ensure that your systems perform to their published specifications.

Starrett can provide factory services including load cell calibrations, test frame repair and reconditioning. All Starrett load cell sensors are supplied with a NIST-traceable Certificate of Calibration.

Specialized services, including system integration with existing instrumentation, or application development for complex testing applications can be supplied by your Starrett representative.

Your Starrett representative can provide on-site training to your personnel to help ensure that your system operates to its published specification. Our training also provides your operators with the knowledge needed to perform your testing in a safe and efficient manner. Our objectives are to help you make your products better through improved resource utilization, increased throughput and optimized efficiency.

Starrett stocks critical spare parts and accessories for quick delivery. Load cell sensors and commonly used test fixtures are readily available.

Field and factory calibrations are performed by authorized Starrett service technicians to accepted industry standards and methodology. All calibrations are NIST-traceable.

Software Capabilities

Lx Systems

Lx System Product Comparisons and Capabilities				
Target Applications	**L3**	**L2 Plus**	**L2**	**S2**
Use for Stress, Strain and Material Testing applications	❍			
Use for Advanced Load, Distance and Force Analysis applications	❍	❍		
Use for Basic Load, Distance and Force Measurement applications	❍	❍	❍	
Use for Advanced Extension and Compression Spring applications	❍	❍		
Use for Basic Extension and Compression Spring applications				❍
User Interface				
All-In-On Computer Workstation, Windows® OS	❍	❍		
Tablet Computer, Windows® OS			❍	❍
Software Applications				
Test Builder	❍	❍	❍	✪
Force Quick Test Templates			❍	
Spring Quick Test Templates				❍
Formula Builder	❍	✪	✪	✪
Automation Builder	✪	✪	✪	✪
Measurement Methodology				
Measure results using the graph	❍	❍		
Measure results using a List of Value menu	❍	❍	❍	❍
Create Test Setups using Graphical Test Methods (No programming)	❍	❍	❍	❑
Create Test Setups using Quick-Test Templates			❍	❍
Test Methods				
Tensile Testing, Load, Distance, Break, Rate	❍	❍	❍	❑
Compression Testing, Load, Distance, Break, Rate	❍	❍	❍	❑
Hold Testing, Load, Distance for Duration or Event	❍	❍	❍	❑
Cyclic Testing for Duration, Count, Loop or Event	❍	❍	❍	❑
Shear Testing	❍	❍		
Flexural Testing	❍	❍		
Peel Testing	❍	❍		
Coefficient of Friction Testing	❍	❍		
Spring Testing	❍	❍		❍
Measurement Capabilities				
Measure Stress, Strain, Elongation, Strengths	❍			
Measure Offset Yield	❍			
Measure Modulus (Elastic, Chord, Tangent)	❍			
Measure Strain and Elongation using Extensometer(s) (requires MMx test frames)	❍			
Measure Energy, Work, Resilience	❍	❍		
Create Mathematical Expressions using Algebraic, Trigonometric and Logarithmic functions	❍	▷		
Create Basic Expressions using Add, Subtract, Multiple and Divide	❍	▷	▷	▷
Use Digital I/O	▷	▷	▷	▷
Use Analog I/O (requires MMx test frames)	▷	▷		
Use Command and Conditional Logic	▷	▷	▷	▷
Measure Load, Distance, Time	❍	❍	❍	❍
Measure Minimum, Maximum and Averages	❍	❍	❍	❍
Measure Slopes and Intersections	❍	❍		
Measure Peaks, Valleys, Counts, Averages	❍	❍		
Measure Break, Rupture	❍	❍	❍	❒
Measure Delta between results within a test	❍	❍	❍	
Measure results within multiple test runs simultaneously (multiview)	❍	❍		
Measure Spring Rate, Spring Constant	❍	❍		❍
Reporting and Exporting Data				
Print using standard reports, graph, batch, tolerance, statistics	❍	❍	❍	❍
Export results/data in .csv for custom reporting	❍	❍	❍	❍
Export results/data in .csv for integration with SPC software	❍	❍	❍	❍
Include tolerances on any result	❍	❍	❍	❍

Software options include the Automation Builder. The L3 Automation Builder features the ability to utilize conditional branching and digital I/O.

(Above) The MMS and MMD test frames make use of our L3 software. These test frames can interface with up to two extensometers. MMS and MMD test frames also feature analog and digital I/O. FMS and FMD test frames support only digital I/O and cannot be used with extensometers.

(Above) L3 systems can interface directly with Starrett measurement tools. For example, you can precisely measure your sample's dimensions for stress and strain using a Starrett micrometer or caliper. The measured value is automatically entered into the "active" Sample Definition step.

❍ = Standard
✪ = Optional
❑ = Requires Test Builder application
▷ = Requires Automation Builder application