

CGT KROSSGRINDING®

Plated diamond tools

INTRODUCTION

CGT KROSSGRINDING® tools are free-cutting, full contact tools that provide extreme accuracy, excellent stock removal capability and durable diamond grit for long tooling life. These tools provide consistent bore size and unparalleled roundness, holding tolerances to within 0,00025 mm (0.000010 inch). The plated diamond tooling expands during the honing process and provides cutting rates superior to grinding or other bore sizing processes. Tool wear is reduced to a point next to zero per piece, and the process can provide a controlled or even plateau surface finish with a crosshatch pattern similar to that produced by the standard honing process.

APPROXIMATE SURFACE FINISHES

The surface finishes shown in the following chart are approximate. Actual surface finish will vary, depending on your particular operation, type and hardness of material being finished, and tool condition.



HONING UNIT
SELECTION GUIDE

PEDESTAL MACHINES
(ML, EC, MBB, & LBB)

PLATED TOOLING
(KGM & VSS MACHINES)

CYLINDER HONING
(SV-410 & SV-10 MACHINES)

PORTABLE, MP3 & TUBE
HONING ABRASIVES

CUSTOM ABRASIVES
& TOOLING

Approximate Surface Finish

Material	Grit Size											
	D1-70		D3-100		D5-220		D7-320		D8-400		D00-1200	
	µm	µin	µm	µin	µm	µin	µm	µin	µm	µin	µm	µin
Soft Steel	1,17-2,39	46-94	0,69-1,52	27-60	0,36-0,89	14-35	0,25-0,69	10-27	0,15-0,51	6-20	0,05-0,28	2.00-11
Hard Steel	0,51-1,52	20-60	0,30-0,97	12-38	0,18-0,53	7-21	0,13-0,41	5-16	0,08-0,21	3-11	0,02-0,10	.80-4
Aluminum	0,97-2,46	38-97	0,61-1,93	24-76	0,30-1,02	12-40	0,25-0,69	10-27	0,18-0,41	7-16	0,08-0,13	3.00-5
Cast Iron	0,61-2,39	24-94	0,38-1,52	15-60	0,23-0,89	9-35	0,15-0,71	6-28	0,10-0,56	4-22	0,03-0,33	1.30-13
Bronze	0,94-2,84	37-112	0,61-1,80	24-71	0,25-0,99	10-39	0,20-0,71	8-28	0,10-0,53	4-21	0,02-0,20	.80-8
Carbide	0,79-0,97	31-38	0,43-0,61	17-24	0,18-0,36	7-14	0,10-0,28	4-11	0,05-0,18	2-7	0,01-0,03	.25-7
Copper	0,94-2,84	37-112	0,61-1,80	24-71	0,25-0,99	10-39	0,20-0,71	8-28	0,10-0,53	4-21	0,02-0,20	.80-8
Brass	1,07-2,84	42-112	0,61-1,80	24-71	0,28-0,99	11-39	0,23-0,71	9-28	0,13-0,53	5-21	0,03-0,20	1.00-8

Surface Finish in Micrometers - µm and Microinches - µ" Ra

KROSSGRINDING® Tooling and Alignment Bushing

Superabrasive KROSSGRINDING® Tools Selection Guide

How to Use Selection Guide

- Select Diameter Range
- Located Tool Part Number: **CGT 36.- 1125- D***



- Grit Sizes Available
 (See D* in the following Selection Guide):

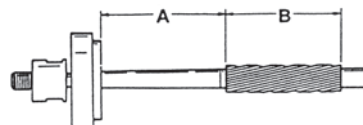
D1 - 70 Grit D7 - 320 Grit
 D3 - 100 Grit D8 - 400 Grit
 D5 - 220 Grit D0 - 600 Grit

Alignment Bushings

For aligning tool with adjustable spindle nose, use Sunnen Runout Indicator Assembly (CGM-4005).

Accurate centering of Sunnen KROSSGRINDING® Tools requires a concentric Alignment Bushing. The ID of the bushing should be the same as the starting diameter of the workpiece.

For workpieces whose starting diameters fall between the diameters listed, the bushing should be honed out to the workpiece starting diameter.



Allow two weeks delivery for CGT Tools

Standard CGT tools are designed to produce bores within 0,005 mm straight and round in uninterrupted bores of abrasive length after sizing a reasonable number of bores to find the optimum operating setup. CGT tools may produce bores within 0,001 mm straight and round with the limited use of a Diamond Conditioning sleeve (DCS). These conditioning sleeves only remove or flatten a fraction of the percentage of the available grits so no great loss of tool life is expected. Results will be dependent on applications. Sunnen will verify tools to produce required straight and round specification on a test bushing for an added charge. There may also be an added one-time charge for tooling if the projected sales of the specific tool is not large enough for Sunnen to absorb the added capital expense.

KROSSGRINDING® Tool/Alignment Bushing Selection Guide

Nominal Size		Diameter Range of Tool		Tool (D*-See How to Use) Part No.	A Shank Length		B Abrasive Length		Alignment Bushing Part No.	Nominal Size		Diameter Range of Tool		Tool (D*-See How to Use) Part No.	A Shank Length		B Abrasive Length		Alignment Bushing Part No.
mm	in	mm	in		mm	in	mm	in		mm	in	mm	in		mm	in	mm	in	
5,54	.218	5,46-5,59	.215-.220	CGT7-218-D*	34,92	1.375	41,3	1.626	CGC-218	8,08	.318	8,00-8,15	.315-.321	CGT10-318-D*	44,45	1.750	47,62	1.875	CGC-315
5,61	.221	5,54-5,66	.218-.223	CGT7-221-D*	34,92	1.375	41,3	1.626	CGC-221	8,15	.321	8,08-8,23	.318-.324	CGT10-321-D*	44,45	1.750	47,62	1.875	CGC-318
5,69	.224	5,61-5,74	.221-.226	CGT7-224-D*	34,92	1.375	41,3	1.626	CGC-224	8,23	.324	8,15-8,31	.321-.327	CGT10-324-D*	44,45	1.750	47,62	1.875	CGC-321
5,77	.227	5,69-5,82	.224-.229	CGT7-227-D*	34,92	1.375	41,3	1.626	CGC-227	8,31	.327	8,23-8,38	.324-.330	CGT10-327-D*	44,45	1.750	47,62	1.875	CGC-324
5,84	.230	5,77-5,89	.227-.232	CGT7-230-D*	34,92	1.375	41,3	1.626	CGC-230	8,38	.330	8,31-8,46	.327-.333	CGT10-330-D*	44,45	1.750	47,62	1.875	CGC-327
5,92	.233	5,84-5,97	.230-.235	CGT7-233-D*	34,92	1.375	41,3	1.626	CGC-233	8,46	.333	8,38-8,53	.330-.336	CGT10-333-D*	44,45	1.750	47,62	1.875	CGC-330
5,99	.236	5,92-6,05	.233-.238	CGT7-236-D*	34,92	1.375	41,3	1.626	CGC-236	8,53	.336	8,46-8,61	.333-.339	CGT10-336-D*	44,45	1.750	47,62	1.875	CGC-333
6,07	.239	5,99-6,12	.236-.241	CGT7-239-D*	34,92	1.375	41,3	1.626	CGC-239	8,61	.339	8,53-8,69	.336-.342	CGT10-339-D*	44,45	1.750	47,62	1.875	CGC-336
6,15	.242	6,07-6,20	.239-.244	CGT7-242-D*	34,92	1.375	41,3	1.626	CGC-242	8,69	.342	8,61-8,76	.339-.345	CGT10-342-D*	44,45	1.750	47,62	1.875	CGC-339
6,22	.245	6,15-6,27	.242-.247	CGT7-245-D*	34,92	1.375	41,3	1.626	CGC-245	8,76	.345	8,69-8,84	.342-.348	CGT10-345-D*	44,45	1.750	47,62	1.875	CGC-342
6,30	.248	6,22-6,35	.245-.250	CGT7-248-D*	34,92	1.375	41,3	1.626	CGC-247	8,84	.348	8,76-8,92	.345-.351	CGT10-348-D*	44,45	1.750	47,62	1.875	CGC-345
6,35	.250	6,27-6,40	.247-.252	CGT8-250-D*	44,45	1.750	44,45	1.750	CGC-247	8,92	.351	8,84-8,99	.348-.354	CGT10-351-D*	44,45	1.750	47,62	1.875	CGC-348
6,43	.253	6,35-6,48	.250-.255	CGT8-253-D*	44,45	1.750	44,45	1.750	CGC-250	8,99	.354	8,92-9,07	.351-.357	CGT10-354-D*	44,45	1.750	47,62	1.875	CGC-351
6,50	.256	6,43-6,55	.253-.258	CGT8-256-D*	44,45	1.750	44,45	1.750	CGC-253	9,07	.357	8,99,9,14	.354-.360	CGT10-357-D*	44,45	1.750	47,62	1.875	CGC-354
6,58	.259	6,50-6,63	.256-.261	CGT8-259-D*	44,45	1.750	44,45	1.750	CGC-256	9,14	.360	9,07-9,22	.357-.363	CGT10-360-D*	44,45	1.750	47,62	1.875	CGC-357
6,65	.262	6,58-6,71	.259-.264	CGT8-262-D*	44,45	1.750	44,45	1.750	CGC-259	9,22	.363	9,14-9,30	.360-.366	CGT10-363-D*	44,45	1.750	47,62	1.875	CGC-360
6,73	.265	6,66-6,78	.262-.267	CGT8-265-D*	44,45	1.750	44,45	1.750	CGC-262	9,30	.366	9,22-9,37	.363-.369	CGT10-366-D*	44,45	1.750	47,62	1.875	CGC-363
6,81	.268	6,73-6,86	.265-.270	CGT8-268-D*	44,45	1.750	44,45	1.750	CGC-265	9,37	.369	9,30-9,45	.366-.372	CGT10-369-D*	44,45	1.750	47,62	1.875	CGC-366
6,88	.271	6,81-6,93	.268-.273	CGT8-271-D*	44,45	1.750	44,45	1.750	CGC-268	9,45	.372	9,37-9,53	.369-.375	CGT10-372-D*	44,45	1.750	47,62	1.875	CGC-369
6,96	.274	6,88-7,01	.271-.276	CGT8-274-D*	44,45	1.750	44,45	1.750	CGC-271	9,53	.375	9,42-9,63	.371-.379	CGT12-375-D*	46,02	1.812	50,80	2.000	CGC-371
7,04	.277	6,96-7,09	.274-.279	CGT8-277-D*	44,45	1.750	44,45	1.750	CGC-274	9,63	.379	9,53-9,73	.375-.383	CGT12-379-D*	46,02	1.812	50,80	2.000	CGC-375
7,11	.280	7,04-7,16	.277-.282	CGT8-280-D*	44,45	1.750	44,45	1.750	CGC-277	9,73	.383	9,63-9,83	.379-.387	CGT12-383-D*	46,02	1.812	50,80	2.000	CGC-379
7,19	.283	7,11-7,24	.280-.285	CGT8-283-D*	44,45	1.750	44,45	1.750	CGC-280	9,83	.387	9,73-9,93	.383-.391	CGT12-387-D*	46,02	1.812	50,80	2.000	CGC-383
7,26	.286	7,19-7,32	.283-.288	CGT8-286-D*	44,45	1.750	44,45	1.750	CGC-283	9,93	.391	9,83-10,03	.387-.395	CGT12-391-D*	46,02	1.812	50,80	2.000	CGC-387
7,34	.289	7,26-7,39	.286-.291	CGT8-289-D*	44,45	1.750	44,45	1.750	CGC-286	10,03	.395	9,93-10,13	.391-.399	CGT12-395-D*	46,02	1.812	50,80	2.000	CGC-391
7,42	.292	7,34-7,47	.289-.294	CGT8-292-D*	44,45	1.750	44,45	1.750	CGC-289	10,13	.399	10,03-10,24	.395-.403	CGT12-399-D*	46,02	1.812	50,80	2.000	CGC-395
7,49	.295	7,42-7,54	.292-.297	CGT8-295-D*	44,45	1.750	44,45	1.750	CGC-292	10,23	.403	10,13-10,34	.399-.407	CGT12-403-D*	46,02	1.812	50,80	2.000	CGC-399
7,57	.298	7,49-7,62	.295-.300	CGT8-298-D*	44,45	1.750	44,45	1.750	CGC-295	10,34	.407	10,24-10,44	.403-.411	CGT12-407-D*	46,02	1.812	50,80	2.000	CGC-403
7,65	.301	7,57-7,70	.298-.303	CGT8-301-D*	44,45	1.750	44,45	1.750	CGC-298	10,46	.412	10,36-10,57	.408-.416	CGT12-412-D*	46,02	1.812	50,80	2.000	CGC-408
7,72	.304	7,65-7,77	.301-.306	CGT8-304-D*	44,45	1.750	44,45	1.750	CGC-301	10,56	.416	10,46-10,67	.412-.420	CGT12-416-D*	46,02	1.812	50,80	2.000	CGC-412
7,80	.307	7,72-7,85	.304-.309	CGT8-307-D*	44,45	1.750	44,45	1.750	CGC-304	10,67	.420	10,57-10,77	.416-.424	CGT12-420-D*	46,02	1.812	50,80	2.000	CGC-416
7,87	.310	7,80-7,93	.307-.312	CGT8-310-D*	44,45	1.750	44,45	1.750	CGC-307	10,77	.424	10,67-10,87	.420-.428	CGT12-424-D*	46,02	1.812	50,80	2.000	CGC-420
7,92	.312	7,85-8,00	.309-.315	CGT10-312-D*	44,45	1.750	47,62	1.875	CGC-309	10,87	.428	10,77-10,97	.424-.432	CGT12-428-D*	46,02	1.812	50,80	2.000	CGC-424
8,00	.315	7,92-8,08	.312-.318	CGT10-315-D*	44,45	1.750	47,62	1.875	CGC-312	10,97	.432	10,87-11,07	.428-.436	CGT12-432-D*	46,02	1.812	50,80	2.000	CGC-428

NOTE: For bore diameter sizes below 5,46 mm (.215") and above 31,50 mm (1.260"), consult your Sunnen Field Engineer.

†NOTE: Not available in D1 (70 Grit).

***NOTE:** See How to Use Selection Guide

HPH

High-Precision Helix Single Stroke Honing® Tools

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INTRODUCTION

The Single Stroke Honing® process is a fast and accurate method of sizing certain bores to final size. With the high-precision helix tool, the efficient process is now available for high production applications. Sunnen's high-production helix tools incorporate an expandable, superabrasive sleeve mounted on a tapered mandrel for precision bore sizing and finishing.

The mandrels and pilots of Sunnen's high-precision helix, Single Stroke Honing® tools are designed for maximum accuracy and fast cycle times. Sunnen stocks a wide variety of high-precision helix tools, ready to ship, for most applications.

It should be pointed out that the Single Stroke Honing® process is limited with respect to the types and volumes of material that can be removed. The size and volume of chips removed must be no more than there is clearance for between the diamond grits on the sleeve. Therefore, the Single Stroke Honing® process is best suited for honing operations that produce a relatively low volume of chips, such as interrupted or short bores, and is most successful in honing cast iron and powdered metals.

HONING HINTS – SELECTION HINTS

Although actual stock removal capability of the grit sizes offered will vary with your particular application, the following table is offered as a starting point. It lists the abrasive grits and the stock removal range found useful on various applications of the Sunnen Single Stroke Honing® Tools in the past.

GRIT SIZE	STOCK REMOVED (Cast Iron)	
D1	.001 - .003 in.	(0,03 - 0,13 mm)
D3	.0005 - .002 in.	(0,01 - 0,05 mm)
D5	.0001 - .001 in.	(0,003 - 0,03 mm)

SURFACE FINISH

The surface finish produced by a particular grit is affected by many variables, such as type of material, material hardness, and tool sharpness. The following table is offered as a guide:

Grit Size	Honing Soft Material		Honing Hard Material	
	Micrometer R _a	Microinch R _a	Micrometer R _a	Microinch R _a
D1	2,29 - 3,56	90 - 140	0,51 - 1,52	20 - 60
D3	1,14 - 2,41	45 - 95	0,25 - 0,64	10 - 25
D5	0,71 - 1,07	28 - 42	0,20 - 0,41	8 - 16

1. Either the part to be honed or the tool itself must be allowed to float.
2. A continuous flow of Sunnen Industrial Honing Oil or Coolant must be provided during the honing operation to flush the chips out of the bore.
3. Honing Speed can vary from 50 to 300 surface feet per minute, based on your particular application and honing process.
4. Feed Rate can vary from 5 to 200 inches per minute, based on your particular application and honing process.
5. Stock Removal should be consistent with the grit size of the sleeve and the surface finish requirements of the bore, based on your particular application and honing process.

TOOL DIMENSIONS

The Sunnen High-Precision Helix Single Stroke Honing® Tools are recommended for use in selected materials, where speed and accuracy are important.

To aid you in adapting your machine(s) for use of the Sunnen Single Stroke Honing® Tool, the following Tool Dimensions Table is provided. Mandrel dimensions may be altered using common metal cutting tools.

HOW TO ORDER

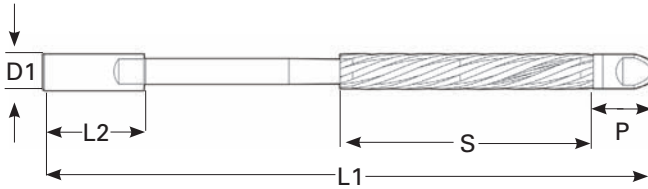
To avoid errors use the Part Numbers and Descriptions given in the Selection Guide.

EXAMPLE

Starting Diameter: .501 in. (12,73 mm)
 Finish Diameter: .502 in. (12,75 mm)
 Material: Cast Iron
 Surface Finish Req: 32 µin Ra (0,8 µm Ra)

- A. Using the tool dimension table, on the following pages to locate the diameter range under which the tool you need will fall.
NOTE: In this example the tool falls into the .499 - .502 in (12,68 - 12,75 mm) diameter range.
- B. To purchase individual components, use the selection guide on the following pages depending on the style mandrel - flat or round - you need. Move horizontally across the table and select the proper Abrasive Sleeve, Pilot, Pilot Foot and Mandrel (items 1 -4).
NOTE: In this example, we will order all components for a complete tool:
 Item 1 - **Abrasive Sleeve** 6HPH500D5
 (We chose D5 - 220 grit)
 Item 2 - **Pilot** 6HPH500P
 Item 3 - **Pilot Foot** 6HPH500F
 Item 4 - **Mandrel** 6HPHD7MR (round chucking shank)
NOTE: If a flat on the mandrel is required (item 4) you would order 6HPHD7MRR9X as shown on page 3.7.
- C. When entering the order for parts:
 1. Use the Item Name used under the Number Columns Headings in the Selection Guide on the following pages. (Items 1-4 used in step B above).
 2. Use the Item Numbers listed under those Columns.

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HOME ABRASIVES

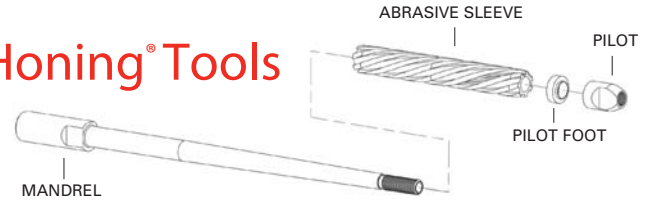
CUSTOM ABRASIVES
& TOOLING

FINISHED DIAMETER TOOL RANGE		L1		L2		D1		S		P	
mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
6,325 - 6,401	.249 - .252	269,9	10.63	66,68	2.625	9,525	0.375	76,2	3	34,925	1.375
6,985 - 7,061	.275 - .278	269,9	10.63	66,68	2.625	9,525	0.375	76,2	3	34,925	1.375
7,912 - 7,988	.3115 - .3145	269,9	10.63	66,68	2.625	9,525	0.375	76,2	3	34,925	1.375
7,976 - 8,052	.314 - .317	269,9	10.63	66,68	2.625	9,525	0.375	76,2	3	34,925	1.375
9,500 - 9,576	.374 - .377	269,9	10.63	66,68	2.625	12,7	0.5	76,2	3	28,575	1.375
9,982 - 10,058	.393 - .396	269,9	10.63	66,68	2.625	12,7	0.5	76,2	3	28,575	1.125
11,100 - 11,176	.437 - .440	269,9	10.63	66,68	2.625	12,7	0.5	76,2	3	28,575	1.125
11,963 - 12,040	.471 - .474	295,3	11.63	66,68	2.625	15,875	0.625	101,6	4	28,575	1.125
12,675 - 12,751	.499 - .502	295,3	11.63	66,68	2.625	15,875	0.625	101,6	4	28,575	1.125
13,462 - 13,538	.530 - .533	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
13,970 - 14,046	.550 - .553	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
14,262 - 14,338	.5615 - .5645	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
14,973 - 15,050	.5895 - .5925	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
15,850 - 15,926	.624 - .627	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
15,977 - 16,053	.629 - .632	295,3	11.63	66,68	2.625	19,05	0.75	101,6	4	28,575	1.125
16,967 - 17,043	.668 - .671	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
17,437 - 17,513	.6865 - .6895	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
17,971 - 18,047	.7075 - .7105	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
18,974 - 19,050	.747 - .750	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
19,025 - 19,101	.749 - .752	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
19,977 - 20,053	.7865 - .7895	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
20,612 - 20,688	.8115 - .8145	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
21,971 - 22,047	.865 - .868	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
22,200 - 22,276	.874 - .877	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
23,978 - 24,054	.944 - .947	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125
24,981 - 25,057	.9835 - .9865	320,7	12.63	66,68	2.625	19,05	0.75	127	5	28,575	1.125

Additional Diameter and Grit Size Available - Contact Customer Service.

HPH

High-Precision Helix Single Stroke Honing® Tools



Round Shank Tool Selection Guide

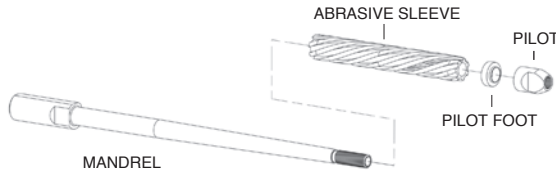
For sizes not listed, contact Sunnen Customer Service

Sunnen High-Precision Helix Single Stroke Honing® Tools Round Shank

Diameter Range 6,35 - 25,0 mm (0.250 - .984 in.)

Nominal Size		Finished Diameter Tool Range		1	2	3	4	5
mm	in	mm	in	Abrasive Sleeve	Pilot	Pilot Foot	Mandrel Round Shank	Sleeve Removal Tool
6,35	0.250	6,325 - 6,401	.249 - .252	2-HPH-250-D1-S 2-HPH-250-D3-S 2-HPH-250-D5-S	2HPH250P	2HPH250F	2HPHD7MR	2HPHRCX
7,0	0.276	6,985 - 7,061	.275 - .278	3-HPH-276-D1-S 3-HPH-276-D3-S 3-HPH-276-D5-S	3HPH276P	3HPH276F	3HPHD7MR	3HPHRCX
7,94	0.313	7,912 - 7,988	.3115 - .3145	3-HPH-313-D1-S 3-HPH-313-D3-S 3-HPH-313-D5-S	3HPH313P	3HPH313F		
8,0	0.315	7,976 - 8,052	.314 - .317	3-HPH-315-D1-S 3-HPH-315-D3-S 3-HPH-315-D5-S	3HPH315P	3HPH315F	4HPHD7MR	4HPHRCX
9,53	0.375	9,500 - 9,576	.374 - .377	4-HPH-375-D1-S 4-HPH-375-D3-S 4-HPH-375-D5-S	4HPH375P	4HPH375F		
10,0	0.394	9,982 - 10,058	.393 - .396	5-HPH-394-D1-S 5-HPH-394-D3-S 5-HPH-394-D5-S	5HPH394P	5HPH394F	5HPHD7MR	5HPHRCX
11,1	0.438	11,100 - 11,176	.437 - .440	5-HPH-438-D1-S 5-HPH-438-D3-S 5-HPH-438-D5-S	5HPH438P	5HPH438F	5HPHD7MR	5HPHRCX
12,0	0.472	11,963 - 12,040	.471 - .474	6-HPH-472-D1-S 6-HPH-472-D3-S 6-HPH-472-D5-S	6HPH472P	6HPH472F	6HPHD7MR	6HPHRCX
12,7	0.500	12,675 - 12,751	.499 - .502	6-HPH-500-D1-S 6-HPH-500-D3-S 6-HPH-500-D5-S	6HPH500P	6HPH500F		
13,49	0.531	13,462 - 13,538	.530 - .533	7-HPH-531-D1-S 7-HPH-531-D3-S 7-HPH-531-D5-S	7HPH531P	7HPH531F	7HPHD7MR	7HPHRCX
14,0	0.551	13,970 - 14,046	.550 - .553	7-HPH-551-D1-S 7-HPH-551-D3-S 7-HPH-551-D5-S	7HPH551P	7HPH551F		
14,29	0.5625	14,262 - 14,338	.5615 - .5645	7-HPH-563-D1-S 7-HPH-563-D3-S 7-HPH-563-D5-S	7HPH563P	7HPH563F	7HPHD7MR	7HPHRCX
15,0	0.591	14,973 - 15,050	.5895 - .5925	7-HPH-591-D1-S 7-HPH-591-D3-S 7-HPH-591-D5-S	7HPH591P	7HPH591F		
15,88	0.625	15,850 - 15,926	.624 - .627	7-HPH-625-D1-S 7-HPH-625-D3-S 7-HPH-625-D5-S	7HPH625P	7HPH625F	8HPHD7MR	8HPHRCX
16,0	0.630	15,977 - 16,053	.629 - .632	7-HPH-630-D1-S 7-HPH-630-D3-S 7-HPH-630-D5-S	7HPH630P	7HPH630F		
17,0	0.669	16,967 - 17,043	.668 - .671	8-HPH-669-D1-S 8-HPH-669-D3-S 8-HPH-669-D5-S	8HPH669P	8HPH669F	8HPHD7MR	8HPHRCX
17,46	0.6875	17,437 - 17,513	.6865 - .6895	8-HPH-688-D1-S 8-HPH-688-D3-S 8-HPH-688-D5-S	8HPH688P	8HPH688F		
18,0	0.709	17,971 - 18,047	.7075 - .7105	8-HPH-709-D1-S 8-HPH-709-D3-S 8-HPH-709-D5-S	8HPH709P	8HPH709F	8HPHD7MR	8HPHRCX
19,0	0.748	18,974 - 19,050	.747 - .750	8-HPH-748-D1-S 8-HPH-748-D3-S 8-HPH-748-D5-S	8HPH748P	8HPH748F		
19,05	0.750	19,025 - 19,101	.749 - .752	8-HPH-750-D1-S 8-HPH-750-D3-S 8-HPH-750-D5-S	8HPH750P	8HPH750F	9HPHD7MR	9HPHRCX
20,0	0.787	19,977 - 20,053	.7865 - .7895	9-HPH-788-D1-S 9-HPH-788-D3-S 9-HPH-788-D5-S	9HPH788P	9HPH788F		
20,64	0.8125	20,612 - 20,688	.8115 - .8145	9-HPH-813-D1-S 9-HPH-813-D3-S 9-HPH-813-D5-S	9HPH813P	9HPH813F	9HPHD7MR	9HPHRCX
22,0	0.866	21,971 - 22,047	.865 - .868	9-HPH-866-D1-S 9-HPH-866-D3-S 9-HPH-866-D5-S	9HPH866P	9HPH866F		
22,23	0.875	22,200 - 22,276	.874 - .877	9-HPH-875-D1-S 9-HPH-875-D3-S 9-HPH-875-D5-S	9HPH875P	9HPH875F	10HPHD7MR	10HPHRCX
24,0	0.945	23,978 - 24,054	.944 - .947	10-HPH-945-D1-S 10-HPH-945-D3-S 10-HPH-945-D5-S	10HPH945P	10HPH945F		
25,0	0.984	24,981 - 25,057	.9835 - .9865	10-HPH-985-D1-S 10-HPH-985-D3-S 10-HPH-985-D5-S	10HPH985P	10HPH985F		

*Adapter Sleeve is necessary for use on Sunnen Multi-Spindle VSS™ systems. Additional Diameter and Grit Size Available - Contact Customer Service.



Flat Shank Tool Selection Guide

For sizes not listed, contact Sunnen Customer Service

Sunnen High-Precision Helix Single Stroke Honing® Tools Flat Shank

Diameter Range 6,35 - 25,0 mm (0.250 - .984 in.)

Nominal Size		Finished Diameter Tool Range		1	2	3	4	5	6
mm	in	mm	in	Abrasive Sleeve	Pilot	Pilot Foot	Mandrel Flat Shank	Adapter Sleeve*	Sleeve Removal Tool
6,35	0.250	6,325 - 6,401	.249 - .252	2-HPH-250-D1-S 2-HPH-250-D3-S 2-HPH-250-D5-S	2HPH250P	2HPH250F	2HPHD7MRR9X		2HPHRCX
7,0	0.276	6,985 - 7,061	.275 - .278	3-HPH-276-D1-S 3-HPH-276-D3-S 3-HPH-276-D5-S	3HPH276P	3HPH276F	3HPHD7MRR9X	HPH23	3HPHRCX
7,94	0.313	7,912 - 7,988	.3115 - .3145	3-HPH-313-D1-S 3-HPH-313-D3-S 3-HPH-313-D5-S	3HPH313P	3HPH313F			
8,0	0.315	7,976 - 8,052	.314 - .317	3-HPH-315-D1-S 3-HPH-315-D3-S 3-HPH-315-D5-S	3HPH315P	3HPH315F	4HPHD7MRR9X	HPH45	4HPHRCX
9,53	0.375	9,500 - 9,576	.374 - .377	4-HPH-375-D1-S 4-HPH-375-D3-S 4-HPH-375-D5-S	4HPH375P	4HPH375F			
10,0	0.394	9,982 - 10,058	.393 - .396	5-HPH-394-D1-S 5-HPH-394-D3-S 5-HPH-394-D5-S	5HPH394P	5HPH394F	5HPHD7MRR9X	HPH6	5HPHRCX
11,1	0.438	11,100 - 11,176	.437 - .440	5-HPH-438-D1-S 5-HPH-438-D3-S 5-HPH-438-D5-S	5HPH438P	5HPH438F	5HPHD7MR		
12,0	0.472	11,963 - 12,040	.471 - .474	6-HPH-472-D1-S 6-HPH-472-D3-S 6-HPH-472-D5-S	6HPH472P	6HPH472F	6HPHD7MRR9X	HPH6	6HPHRCX
12,7	0.500	12,675 - 12,751	.499 - .502	6-HPH-500-D1-S 6-HPH-500-D3-S 6-HPH-500-D5-S	6HPH500P	6HPH500F			
13,49	0.531	13,462 - 13,538	.530 - .533	7-HPH-531-D1-S 7-HPH-531-D3-S 7-HPH-531-D5-S	7HPH531P	7HPH531F	7HPHD7MRR9X	HPH710	7HPHRCX
14,0	0.551	13,970 - 14,046	.550 - .553	7-HPH-551-D1-S 7-HPH-551-D3-S 7-HPH-551-D5-S	7HPH551P	7HPH551F			
14,29	0.5625	14,262 - 14,338	.5615 - .5645	7-HPH-563-D1-S 7-HPH-563-D3-S 7-HPH-563-D5-S	7HPH563P	7HPH563F	7HPHD7MRR9X	HPH710	7HPHRCX
15,0	0.591	14,973 - 15,050	.5895 - .5925	7-HPH-591-D1-S 7-HPH-591-D3-S 7-HPH-591-D5-S	7HPH591P	7HPH591F			
15,88	0.625	15,850 - 15,926	.624 - .627	7-HPH-625-D1-S 7-HPH-625-D3-S 7-HPH-625-D5-S	7HPH625P	7HPH625F	7HPHD7MRR9X	HPH710	7HPHRCX
16,0	0.630	15,977 - 16,053	.629 - .632	7-HPH-630-D1-S 7-HPH-630-D3-S 7-HPH-630-D5-S	7HPH630P	7HPH630F			
17,0	0.669	16,967 - 17,043	.668 - .671	8-HPH-669-D1-S 8-HPH-669-D3-S 8-HPH-669-D5-S	8HPH669P	8HPH669F	8HPHD7MRR9X	HPH710	8HPHRCX
17,46	0.6875	17,437 - 17,513	.6865 - .6895	8-HPH-688-D1-S 8-HPH-688-D3-S 8-HPH-688-D5-S	8HPH688P	8HPH688F			
18,0	0.709	17,971 - 18,047	.7075 - .7105	8-HPH-709-D1-S 8-HPH-709-D3-S 8-HPH-709-D5-S	8HPH709P	8HPH709F	8HPHD7MRR9X	HPH710	8HPHRCX
19,0	0.748	18,974 - 19,050	.747 - .750	8-HPH-748-D1-S 8-HPH-748-D3-S 8-HPH-748-D5-S	8HPH748P	8HPH748F			
19,05	0.750	19,025 - 19,101	.749 - .752	8-HPH-750-D1-S 8-HPH-750-D3-S 8-HPH-750-D5-S	8HPH750P	8HPH750F	9HPHD7MRR9X	HPH710	9HPHRCX
20,0	0.787	19,977 - 20,053	.7865 - .7895	9-HPH-788-D1-S 9-HPH-788-D3-S 9-HPH-788-D5-S	9HPH788P	9HPH788F			
20,64	0.8125	20,612 - 20,688	.8115 - .8145	9-HPH-813-D1-S 9-HPH-813-D3-S 9-HPH-813-D5-S	9HPH813P	9HPH813F	9HPHD7MRR9X	HPH710	9HPHRCX
22,0	0.866	21,971 - 22,047	.865 - .868	9-HPH-866-D1-S 9-HPH-866-D3-S 9-HPH-866-D5-S	9HPH866P	9HPH866F			
22,23	0.875	22,200 - 22,276	.874 - .877	9-HPH-875-D1-S 9-HPH-875-D3-S 9-HPH-875-D5-S	9HPH875P	9HPH875F	10HPHD7MRR9X	HPH710	10HPHRCX
24,0	0.945	23,978 - 24,054	.944 - .947	10-HPH-945-D1-S 10-HPH-945-D3-S 10-HPH-945-D5-S	10HPH945P	10HPH945F			
25,0	0.984	24,981 - 25,057	.9835 - .9865	10-HPH-985-D1-S 10-HPH-985-D3-S 10-HPH-985-D5-S	10HPH985P	10HPH985F	10HPHD7MRR9X		10HPHRCX

HONING UNIT
SELECTION GUIDE
PEDESTAL MACHINES
(ML, EC, MBB, & LBB)
PLATED TOOLING
(KGM & VSS MACHINES)
CYLINDER HONING
(SV-410 & SV-10 MACHINES)
PORTABLE, MP3 & TUBE
HONE ABRASIVES
CUSTOM ABRASIVES
& TOOLING

*Adapter Sleeve is necessary for use on Sunnen Multi-Spindle VSS™ systems. Additional Diameter and Grit Size Available - Contact Customer Service.

Single Stroke Honing®

A-Type Tooling and Accessories

Introduction

Single Stroke Honing®. This process is a fast and accurate method of sizing certain bores to final size. The Sunnen Single Stroke Honing® Tool used is an expandable, superabrasive sleeve mounted on a tapered arbor. The sleeve is expanded to size during setup. The rotating Single Stroke Honing® Tool is pushed through the bore only once. Only periodic expansion adjustments are necessary to compensate for tool wear after initial setup.

It should be pointed out that the Single Stroke Honing® process is limited with respect to the types and volumes of material that can be removed. The size and volume of chips removed must be no more than there is clearance for between the diamond grits on the sleeve. Therefore, the Single Stroke Honing® process is best suited for honing operations that produce a relatively low volume of chips, such as interrupted or short bores, and is most successful in honing cast iron and powdered metals.

Selection Hints

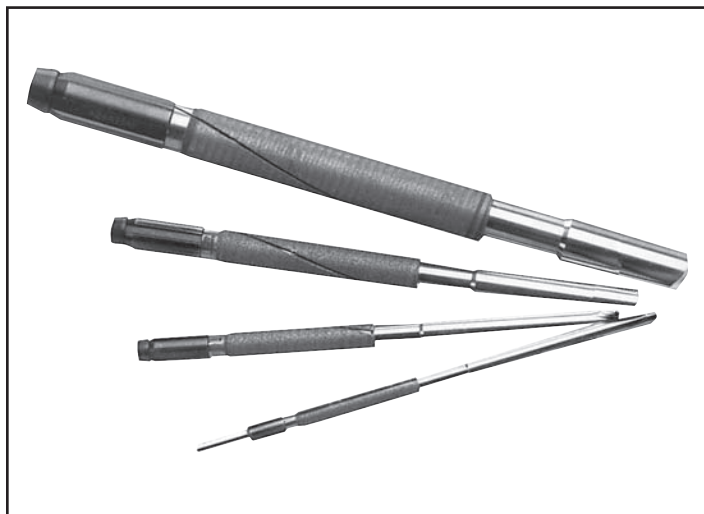
For most Single Stroke Honing® applications D5-220 grit diamond roughing sleeves, and D8-400 grit diamond finishing sleeves, are all that is required. Many of these sleeves are shipped from stock as noted by the (*) asterisk next to the sleeve's part number in the Tables on pages 3.8-3.13. Other grits are available for applications where stock removal and/or surface finish requirements indicate their need.

Although actual stock removal capability of the grit sizes offered will vary with your particular application, the following table is offered as a starting point. It lists the abrasive sleeves and the stock removal range found useful on various applications of the Sunnen Single Stroke Honing® Tools in the past.

Adapter Sleeves for AH, MHS, VSS Machines

Part Number	mm	in
A810S	5,92-9,35	.233-.368
A12S†	9,35-10,90	.368-.429
A14S†	10,90-12,47	.429-.491
A16S†	12,47-14,05	.491-.553
A18S†	14,05-15,57	.553-.613
A20S†	15,57-17,17	.613-.676
A22S†	17,17-18,31	.676-.721
A24S†	18,31-20,29	.721-.799
A26S†	20,29-21,79	.799-.858
A28S†	21,79-23,42	.858-.922
A30S†	23,42-24,92	.922-.981
A32S†	24,92-26,39	.981-1.039

†Special Order - Contact Customer Service.



Surface Finish

The surface finish produced by a particular grit is affected by many variables, such as type of material, material hardness, and tool sharpness. The following Table is offered as a guide.

Grit Size	Honing Soft Material		Honing Hard Material	
	Micrometer R _a	Microinch R _a	Micrometer R _a	Microinch R _a
D1	2,29-3,56	90-140	,51-1,52	20-60
D3	1,14-2,41	45-95	,25-.64	10-25
D5	,71-1,07	28-42	,20-.41	8-16
D7	,51-.89	20-35	,13-.36	5-14
D8	,25-.58	10-23	,08-.25	3-10
D0	,20-.46	8-18	,05-.23	2-9
D00	,15-.33	6-13	,03-.18	1-7

Grit Size	Stock Removed	
	mm	in
D1 (70 Grit Diamond)	0,03-0,13	.001-.005
D3 (100 Grit Diamond)	0,03-0,10	.001-.004
D5 (220 Grit Diamond)	0,01-0,08	.0005-.003
D7 (320 Grit Diamond)	0,01-0,06	.0005-.0025
D8* (400 Grit Diamond)	0,001-0,013	.00005-.0005
D0* (600 Grit Diamond)	0,0006-0,005	.000025-.0002
D00* (1200 Grit Diamond)	0,0006-0,0013	.000025-.00005

*Use rougher grit sleeve or sleeves first to qualify bore.

Single Stroke Honing[®]

A-Type Tooling Selection

Diameter Range:
5,92 mm – 12,47 mm
.233" – .491"

Note: For bore diameter sizes below 5,92 mm (.233") and above 52,20 mm (2.055"), or for special designed high production tools, consult your Sunnen Field Engineer.

Order 1-4 For A Complete Tool

Diameter Range 5,92 mm - 12,47 mm .233" - .491"				1		2		3		4		Replacement Parts for Mandrel Assembly		
Nominal Size mm	in	Diameter Range of Tool		Abrasive Sleeve		Pilot	Mandrel Assembly	Sleeve Adjusting & Removal Tool	Tip	Key	Regulating Screw			
		mm	in	Roughing	Finishing									
6,0	0.235	5,92-6,05	0.233-0.238	A8A235-D5	A8A235-D8	A8A235P	A8AM	A810F†						
	0.240	6,05-6,17	0.238-0.243	A8A240-D5†	A8A240-D8†	A8A240P†								
	0.245	6,17-6,30	0.243-0.248	A8A245-D5	A8A245-D8†	A8A245P†								
	0.250	6,30-6,43	0.248-0.253	A8A250-D1										
	0.250	6,30-6,43	0.248-0.253	A8A250-D3	A8A250-D8	A8A250P								
	0.255	6,43-6,55	0.253-0.258	A8A255-D5†	A8A255-D8†	A8A255P†								
6,5	0.260	6,55-6,68	0.258-0.263	A8A260-D5	A8A260-D8†	A8A260P†								
7,0	0.265	6,68-6,81	0.263-0.268	A8B265-D5†	A8B265-D8†	A8B265P†	A8BM	A810F†						
	0.270	6,81-6,93	0.268-0.273	A8B270-D5†	A8B270-D8†	A8B270P†								
	0.275	6,93-7,06	0.273-0.278	A8B275-D5	A8B275-D8†	A8B275P†								
	0.280	7,06-7,19	0.278-0.283	A8B280-D5†	A8B280-D8†	A8B280P†								
	0.285	7,19-7,32	0.283-0.288	A8B285-D5†	A8B285-D8†	A8B285P†								
7,5	0.290	7,32-7,44	0.288-0.293	A8B290-D5†	A8B290-D8†	A8B290P†								
7,5	0.295	7,44-7,57	0.293-0.298	A8B295-D5	A8B295-D8†	A8B295P†								
8,0	0.300	7,57-7,70	0.298-0.303	A10A300-D5	A10A300-D8†	A10A300P†	A10AM	A810F†						
	0.305	7,70-7,82	0.303-0.308	A10A305-D5†	A10A305-D8†	A10A305P†								
	0.310	7,82-7,95	0.308-0.313	A10A310-D5	A10A310-D8	A10A310P								
	0.315	7,95-8,08	0.313-0.318	A10A315-D1										
	0.315	7,95-8,08	0.313-0.318	A10A315-D3	A10A315-D8	A10A315P								
	0.315	7,95-8,08	0.313-0.318	A10A315-D5	A10A320-D8†	A10A320P†								
	0.320	8,08-8,20	0.318-0.323	A10A320-D5†	A10A325-D8†	A10A325P†								
	0.325	8,20-8,33	0.323-0.328	A10A325-D5†	A10A330-D8†	A10A330P†								
	0.330	8,33-8,46	0.328-0.333	A10A330-D5†	A10A330-D8†	A10A330P†								
8,5	0.335	8,46-8,59	0.333-0.338	A10B335-D5	A10B335-D8†	A10B335P†	A10BM	A810F†						
	0.340	8,59-8,71	0.338-0.343	A10B340-D5	A10B340-D8†	A10B340P†								
	0.345	8,71-8,84	0.343-0.348	A10B345-D5	A10B345-D8	A10B345P†								
	0.350	8,84-8,97	0.348-0.353	A10B350-D5†	A10B350-D8†	A10B350P†								
9,0	0.355	8,97-9,09	0.353-0.358	A10B355-D5	A10B355-D8	A10B355P	A10BM	A810F†						
	0.360	9,09-9,22	0.358-0.363	A10B360-D5†	A10B360-D8†	A10B360P								
	0.365	9,22-9,35	0.363-0.368	A10B365-D5†	A10B365-D8†	A10B365P†								
9,5	0.370	9,35-9,47	0.368-0.373	A12A370-D5	A12A370-D8†	A12A370P	A12AMA	A0375-RC-X†	A12AT	A1212K	A1212R			
	0.375	9,47-9,60	0.373-0.378	A12A375-D1										
	0.375	9,47-9,60	0.373-0.378	A12A375-D5	A12A375-D8	A12A375P								
	0.380	9,60-9,73	0.378-0.383	A12A380-D5	A12A380-D8†	A12A380P†								
	0.385	9,73-9,88	0.383-0.389	A12A385-D5†	A12A385-D8†	A12A385P†								
10,0	0.391	9,88-10,01	0.389-0.394	A12B391-D5	A12B391-D8	A12B391P	A12BMA	A0393-RC-X†	A12BT	A1212K	A1212R			
	0.396	10,01-10,13	0.394-0.399	A12B396-D5	A12B396-D8	A12B396P								
	0.401	10,13-10,26	0.399-0.404	A12B401-D5†	A12B401-D8†	A12B401P†								
	0.406	10,26-10,39	0.404-0.409	A12B406-D5†	A12B406-D8†	A12B406P†								
10,5	0.411	10,39-10,52	0.409-0.414	A12C411-D5†	A12C411-D8†	A12C411P†	A12CMA	A0416-RC-X†	A12CT†	A1212K	A1212R			
	0.416	10,52-10,64	0.414-0.419	A12C416-D5†	A12C416-D8†	A12C416P†								
	0.421	10,64-10,77	0.419-0.424	A12C421-D5	A12C421-D8†	A12C421P†								
	0.426	10,77-10,90	0.424-0.429	A12C426-D5†	A12C426-D8	A12C426P†								
11,0	0.431	10,90-11,05	0.429-0.435	A14A431-D5	A14A431-D8	A14A431P†	A14AMA	A0437-RC-X†	A14AT	A1414K	A1414R			
	0.437	11,05-11,20	0.435-0.441	A14A437-D1										
	0.437	11,05-11,20	0.435-0.441	A14A437-D5	A14A437-D8	A14A437P								
	0.443	11,20-11,38	0.441-0.448	A14A443-D5†	A14A443-D8†	A14A443P†								
	0.450	11,38-11,53	0.448-0.454	A14A450-D5†	A14A450-D8†	A14A450P†								
11,5	0.456	11,53-11,68	0.454-0.460	A14B456-D5	A14B456-D8†	A14B456P†	A14BMA	A0468-RC-X†	A14BT†	A1414K	A1414R			
	0.462	11,68-11,84	0.460-0.466	A14B462-D5†	A14B462-D8†	A14B462P†								
	0.468	11,84-11,99	0.466-0.472	A14B468-D5	A14B468-D8†	A14B468P†								
12,0	0.474	11,99-12,14	0.472-0.478	A14C474-D5	A14C474-D8	A14C474P	A14CMA	A0481-RC-X†	A14CT	A1414K	A1414R			
	0.481	12,14-12,32	0.478-0.485	A14C481-D5†	A14C481-D8†	A14C481P†								
	0.487	12,32-12,47	0.485-0.491	A14C487-D5	A14C487-D8†	A14C487P								

†Special Order - Contact Customer Service.

HONING UNIT
SELECTION GUIDE
PEDESTAL MACHINES
(ML, EC, MBB, & LBB)
PLATED TOOLING
(KGM & VSS MACHINES)
CYLINDER HONING
(SV-410 & SV-10 MACHINES)
PORTABLE MP3 & TUBE
HOME ABRASIVES
CUSTOM ABRASIVES
& TOOLING

Single Stroke Honing®

A-Type Tooling Selection

Diameter Range:
12,47mm – 26,39mm
.491" – 1.039"

Order 1-4 For A Complete Tool

Diameter Range 12,47 mm – 26,39 mm .491" – 1.039"		1		2		3		4		Replacement Parts for Mandrel Assembly		
Nominal Size mm	in	Diameter Range of Tool		Abrasive Sleeve		Pilot	Mandrel Assembly	Sleeve Adjusting & Removal Tool	Tip	Key	Regulating Screw	
		mm	in	Roughing	Finishing							
13,0	0.493	12,47-12,65	0.491-0.498	A16A493-D5	A16A493-D8†	A16A493P†	A16AMA	A0500-RC-X†	A16AT	A1616K	A1618R	
	0.500	12,65-12,83	0.498-0.505	A16A500-D5	A16A500-D8	A16A500P						
	0.507	12,83-13,00	0.505-0.512	A16A507-D5	A16A507-D8	A16A507P†						
	0.514	13,00-13,18	0.512-0.519	A16A514-D5†	A16A514-D8	A16A514P†						
14,0	0.521	13,18-13,34	0.519-0.525	A16B521-D5†	A16B521-D8†	A16B521P†	A16BMA	A0531-RC-X†	A16BT†	A1616K	A1618R	
	0.527	13,34-13,51	0.525-0.532	A16B527-D5	A16B527-D8†	A16B527P†						
	0.534	13,51-13,69	0.532-0.539	A16B534-D5	A16B534-D8†	A16B534P†						
	0.541	13,69-13,87	0.539-0.546	A16B541-D5†	A16B541-D8†	A16B541P†						
0.548	13,87-14,05	0.546-0.553	A16B548-D5	A16B548-D8	A16B548P							
14,5	0.555	14,05-14,22	0.553-0.560	A18A555-D5	A18A555-D8†	A18A555P†	A18AMA	A0562-RC-X†	A18AT†	A1818K	A1618R	
	0.562	14,22-14,43	0.560-0.568	A18A562-D5	A18A562-D8	A18A562P†						
	0.570	14,43-14,61	0.568-0.575	A18A570-D5†	A18A570-D8†	A18A570P†						
	0.578	14,61-14,78	0.575-0.582	A18A578-D5†	A18A578-D8†	A18A578P†						
15,0	0.585	14,78-14,99	0.582-0.590	A18B585-D5†	A18B585-D8†	A18B585P†	A18BMA	A0594-RC-X†	A18BT†	A1818K	A1618R	
	0.593	14,99-15,19	0.590-0.598	A18B593-D5	A18B593-D8	A18B593P†						
	0.601	15,19-15,37	0.598-0.605	A18B601-D5†	A18B601-D8†	A18B601P†						
	0.608	15,37-15,57	0.605-0.613	A18B608-D5	A18B608-D8†	A18B608P†						
16,0	0.616	15,57-15,80	0.613-0.622	A20A616-D5†	A20A616-D8†	A20A616P†	A20AMA	A0625-RC-X†	A20AT	A2022K	A2020R	
	0.625	15,80-16,03	0.622-0.631	A20A625-D5	A20A625-D8	A20A625P						
	0.634	16,03-16,26	0.631-0.640	A20A634-D5†	A20A634-D8†	A20A634P†						
	0.643	16,26-16,48	0.640-0.649	A20A643-D5†	A20A643-D8†	A20A643P†						
17,0	0.652	16,48-16,71	0.649-0.658	A20B652-D5	A20B652-D8†	A20B652P†	A20BMA	A0661-RC-X†	A20BT†	A2022K	A2020R	
	0.661	16,71-16,94	0.658-0.667	A20B661-D5†	A20B661-D8†	A20B661P†						
	0.670	16,94-17,17	0.667-0.676	A20B670-D5	A20B670-D8†	A20B670P†						
	0.679	17,17-17,40	0.676-0.685	A22A679-D5†	A22A679-D8†	A22A679P†						
18,0	0.687	17,40-17,63	0.685-0.694	A22A687-D5	A22A687-D8†	A22A687P†	A22AMA	A0687-RC-X†	A22AT†	A2022K	A2222R	
	0.697	17,63-17,86	0.694-0.703	A22A697-D5†	A22A697-D8†	A22A697P†						
	0.706	17,86-18,08	0.703-0.712	A22A706-D5	A22A706-D8	A22A706P†						
	0.715	18,08-18,31	0.712-0.721	A22A715-D5†	A22A715-D8†	A22A715P†						
18,5	0.724	18,31-18,57	0.721-0.731	A24A724-D5†	A24A724-D8†	A24A724P†	A24AMA	A0734-RC-X†	A24AT†	A2426K	A2428R	
	0.734	18,57-18,82	0.731-0.741	A24A734-D5	A24A734-D8†	A24A734P†						
19,0	0.743	18,82-18,97	0.741-0.747	A24B743-D5†	A24B743-D8†	A24B743P†	A24BMA	A0750-RC-X†	A24BT	A2426K	A2428R	
	0.750	18,97-19,23	0.747-0.757	A24B750-D3								
	0.750	18,97-19,23	0.747-0.757	A24B750-D5	A24B750-D8	A24B750P						
	0.760	19,23-19,51	0.757-0.768	A24B760-D5†	A24B760-D8†	A24B760P†						
0.771	19,51-19,76	0.768-0.778	A24B771-D5†	A24B771-D8†	A24B771P†							
20,0	0.781	19,76-20,04	0.778-0.789	A24C781-D5†	A24C781-D8	A24C781P†	A24CMA	A0787-RC-X†	A24CT†	A2426K	A2428R	
	0.792	20,04-20,29	0.789-0.799	A24C792-D5†	A24C792-D8†	A24C792P†						
21,0	0.802	20,29-20,55	0.799-0.809	A26A802-D5†	A26A802-D8†	A26A802P†	A26AMA	A0812-RC-X†	A26AT†	A2426K	A2428R	
	0.812	20,55-20,80	0.809-0.819	A26A812-D5	A26A812-D8†	A26A812P†						
	0.822	20,80-21,06	0.819-0.829	A26A822-D5†	A26A822-D8†	A26A822P†						
	0.832	21,06-21,31	0.829-0.839	A26A832-D5†	A26A832-D8†	A26A832P†						
21,5	0.842	21,31-21,56	0.839-0.849	A26B842-D5†	A26B842-D8†	A26B842P†	A26BMA	A0852-RC-X†	A26BT†	A2832K	A2428R	
	0.852	21,56-21,79	0.849-0.858	A26B852-D5	A26B852-D8†	A26B852P†						
22,0	0.862	21,79-22,12	0.858-0.871	A28A862-D5	A28A862-D8	A28A862P†	A28AMA	A0875-RC-X†	A28AT	A2832K	A2428R	
	0.875	22,12-22,45	0.871-0.884	A28A875-D5	A28A875-D8	A28A875P†						
	0.888	22,45-22,76	0.884-0.896	A28A888-D5†	A28A888-D8†	A28A888P†						
23,0	0.900	22,76-23,09	0.896-0.909	A28A900-D5†	A28A900-D8†	A28A900P†	A28AMA	A0875-RC-X†	A28AT†	A2832K	A2428R	
	0.913	23,09-23,42	0.909-0.922	A28A913-D5†	A28A913-D8†	A28A913P†						
24,0	0.926	23,42-23,70	0.922-0.933	A30A926-D5	A30A926-D8	A30A926P†	A30AMA	A0937-RC-X†	A30AT	A2832K	A3032A†	
	0.937	23,70-24,00	0.933-0.945	A30A937-D5	A30A937-D8†	A30A937P†						
	0.949	24,00-24,31	0.945-0.957	A30A949-D5	A30A949-D8†	A30A949P†						
	0.961	24,31-24,61	0.957-0.969	A30A961-D5†	A30A961-D8†	A30A961P†						
0.973	24,61-24,92	0.969-0.981	A30A973-D5†	A30A973-D8†	A30A973P†							
25,0	0.986	24,92-25,27	0.981-0.995	A32A986-D5	A32A986-D8	A32A986P†	A32AMA	A1000-RC-X†	A32AT†	A2832K	A3032A†	
	1.000	25,27-25,65	0.995-1.010	A32A1000-D5	A32A1000-D8†	A32A1000P†						
	1.015	25,65-26,01	1.010-1.024	A32A1015-D5†	A32A1015-D8†	A32A1015P†						
	1.029	26,01-26,39	1.024-1.039	A32A1029-D5†	A32A1029-D8†	A32A1029P†						

†Special Order - Contact Customer Service.

Single Stroke Honing®

Non-Standard A-Type Tooling Selection

Diameter Range:
26,39 mm – 37,64 mm
1.039" – 1.482"

Order 1-4 For A Complete Tool††

Diameter Range Non-Standard 3,78 mm - 5,84 mm and 26,39 mm - 37,64 mm .149" - .233" and 1.039" - 1.482"				1	2	3	4	Replacement Parts for Mandrel Assembly			
Nominal Size		Diameter Range of Tool		Abrasive† Sleeve	Pilot	Mandrel* Assembly	Removal Tool	Body	Tip	Key	Regulating Screw
mm	in	mm	in								
27,0	1.044	26,39-26,77	1.039-1.054	LH9X-__-1044S	LH9X-1044P	LH9X-_-1062AMA**	A1062-RC-X	LH9X-_-1062AM	LH9X-1062T	LH9X-1062K	A3032R
	1.059	26,77-27,15	1.054-1.069	LH9X-__-1059S	LH9X-1059P						
	1.074	27,15-27,53	1.069-1.084	LH9X-__-1074S	LH9X-1074P						
	1.089	27,53-27,91	1.084-1.099	LH9X-__-1089S	LH9X-1089P						
28,0	1.104	27,91-28,30	1.099-1.114	LH9X-__-1104S	LH9X-1104P	LH9X-_-1125AMA**	A1125-RC-X	LH9X-_-1125AM	LH9X-1125T	LH9X-1062K	LH9X-1125R
	1.119	28,30-28,68	1.114-1.129	LH9X-__-1119S	LH9X-1119P						
	1.134	28,68-29,06	1.129-1.144	LH9X-__-1134S	LH9X-1134P						
29,0	1.147	29,06-29,39	1.142-1.157	LH9X-__-1147S	LH9X-1147P	LH9X-_-1125AMA**	A1125-RC-X	LH9X-_-1125AM	LH9X-1125T	LH9X-1062K	LH9X-1125R
	1.158	29,39-29,67	1.153-1.168	LH9X-__-1158S	LH9X-1158P						
30,0	1.171	29,62-30,00	1.166-1.181	LH9X-__-1171S	LH9X-1171P	LH9X-_-1188AMA	A1188-RC-X	LH9X-_-1188AM	LH9X-1188T	LH9X-1062K	LH9X-1125R
	1.186	30,00-30,38	1.181-1.196	LH9X-__-1186S	LH9X-1186P						
	1.201	30,38-30,76	1.196-1.211	LH9X-__-1201S	LH9X-1201P						
	1.216	30,76-31,14	1.211-1.226	LH9X-__-1216S	LH9X-1216P						
31,0	1.231	31,14-31,52	1.226-1.241	LH9X-__-1231S	LH9X-1231P	LH9X-_-1250AMA	A1250-RC-X	LH9X-_-1250AM	LH9X-1250T	LH9X-1062K	LH9X-1125R
	1.246	31,52-31,90	1.241-1.256	LH9X-__-1246S	LH9X-1246P						
32,0	1.261	31,90-32,28	1.256-1.271	LH9X-__-1261S	LH9X-1261P	LH9X-_-1250AMA	A1250-RC-X	LH9X-_-1250AM	LH9X-1250T	LH9X-1062K	LH9X-1125R
	1.276	32,28-32,66	1.271-1.286	LH9X-__-1276S	LH9X-1276P						
33,0	1.291	32,66-33,05	1.286-1.301	LH9X-__-1291S	LH9X-1291P	LH9X-_-1312AMA	A1312-RC-X	LH9X-_-1312AM	LH9X-1312T	LH9X-1062K	LH9X-1312R
	1.306	33,05-33,43	1.301-1.316	LH9X-__-1306S	LH9X-1306P						
	1.319	33,38-33,76	1.314-1.329	LH9X-__-1319S	LH9X-1319P						
	1.334	33,76-34,14	1.329-1.344	LH9X-__-1334S	LH9X-1334P						
	1.347	34,09-34,47	1.342-1.357	LH9X-__-1347S	LH9X-1347P						
35,0	1.362	34,47-34,85	1.357-1.372	LH9X-__-1362S	LH9X-1362P	LH9X-_-1375AMA	A1375-RC-X	LH9X-_-1375AM	LH9X-1375T	LH9X-1062K	LH9X-1312R
	1.377	34,85-35,23	1.372-1.387	LH9X-__-1377S	LH9X-1377P						
	1.388	35,13-35,51	1.383-1.398	LH9X-__-1388S	LH9X-1388P						
	1.403	35,51-35,89	1.398-1.413	LH9X-__-1403S	LH9X-1403P						
36,0	1.418	35,89-36,27	1.413-1.428	LH9X-__-1418S	LH9X-1418P	LH9X-_-1438AMA	A1438-RC-X	LH9X-_-1438AM	LH9X-1438T	LH9X-1062K	LH9X-1312R
	1.433	36,27-36,65	1.428-1.443	LH9X-__-1433S	LH9X-1433P						
	1.446	36,60-36,98	1.441-1.456	LH9X-__-1446S	LH9X-1446P						
37,0	1.459	36,93-37,31	1.454-1.469	LH9X-__-1459S	LH9X-1459P	LH9X-_-1438AMA	A1438-RC-X	LH9X-_-1438AM	LH9X-1438T	LH9X-1062K	LH9X-1312R
	1.472	37,26-37,64	1.467-1.482	LH9X-__-1472S	LH9X-1472P						

How to Order

Single Stroke Honing® bore sizing tools are available from 3,78 mm-5,84 mm (.149"-.233") and larger than 26,39 mm (1.039") diameters. Tooling in these size ranges is available on a special order basis requiring a 4-6 week lead time for delivery. Use the tables above to order tools in the 26,39 mm-52,2 mm (1.039"-2.055") diameter range. For 3,78 mm-5,84 mm (.149"-.233") and larger than 52,2 mm (2.055") diameter tooling contact Customer Service Department.

*When ordering LH9X mandrel assembly or mandrel body select an overall length needed from the chart below and enter the corresponding number in the ____.

-1=360,35mm (14.187") -4=512,75mm (20.187")
-2=411,15mm (16.187") -5=563,55mm (22.187")
-3=461,95mm (18.187")

Example: LH9X-3-1625AMA mandrel assembly with 461,95mm (18.187") overall length

NOTE: Overall length increased 1.86" with pilot and tip added.

† Indicate abrasive type and grit size in ____.
Example: LH9X-D5-1044S (220 Grit Diamond).
†† Requires A32S Adapter Sleeves when used on Sunnen "AH" machines.

	Grit Size	Stock Removed	
		mm	in
D1	(70 Grit Diamond)	0,03-0,13	.001-.005
D3	(100 Grit Diamond)	0,03-0,10	.001-.004
D5	(220 Grit Diamond)	0,01-0,08	.0005-.003
D7	(320 Grit Diamond)	0,01-0,06	.0005-.0025
D8†	(400 Grit Diamond)	0,001-0,013	.00005-.0005
D0†	(600 Grit Diamond)	0,0006-0,005	.000025-.0002
D00†	(1200 Grit Diamond)	0,0006-0,0013	.000025-.00005

†Use rougher grit sleeve or sleeves first to qualify bore.

Single Stroke Honing®

A-Type Tooling Selection

Diameter Range Non-Standard:

37,62 mm – 51,82 mm

1.481" – 2.040"

Order 1-4 For A Complete Tool ††

Diameter Range Non-Standard 37,62 mm - 51,82 mm 1.481" - 2.040" and 1.039" - 1.482"		1	2	3	4	Replacement Parts for Mandrel Assembly				
		Abrasive† Sleeve	Pilot	Mandrel* Assembly	Removal Tool	Body	Tip	Key	Regulating Screw	
Nominal Size mm	Diameter Range of Tool in									
1.486	37,62-38,00	1.481-1.496	LH9X-__-1486S	LH9X-1486P						
1.501	38,00-38,38	1.496-1.511	LH9X-__-1501S	LH9X-1501P	LH9X-_-1500AMA	A1500-RC-X	LH9X-_-1500AM	LH9X-1500T	LH9X-1500K	LH9X-1312R
1.516	38,38-38,76	1.511-1.526	LH9X-__-1516S	LH9X-1516P						
1.531	38,76-39,14	1.526-1.541	LH9X-__-1531S	LH9X-1531P						
40,0	39,14-39,52	1.541-1.556	LH9X-__-1546S	LH9X-1546P						
1.561	39,52-39,90	1.556-1.571	LH9X-__-1561S	LH9X-1561P	LH9X-_-1562AMA	A1562-RC-X	LH9X-_-1562AM	LH9X-1562T	LH9X-1500K	LH9X-1312R
1.576	39,90-40,28	1.571-1.586	LH9X-__-1576S	LH9X-1576P						
1.591	40,28-40,67	1.586-1.601	LH9X-__-1591S	LH9X-1591P						
41,0	40,67-41,05	1.601-1.616	LH9X-__-1606S	LH9X-1606P						
1.621	41,05-41,43	1.616-1.631	LH9X-__-1621S	LH9X-1621P	LH9X-_-1625AMA	A1625-RC-X	LH9X-_-1625AM	LH9X-1625T	LH9X-1500K	LH9X-1312R
1.636	41,43-41,81	1.631-1.646	LH9X-__-1636S	LH9X-1636P						
42,0	41,81-42,19	1.646-1.661	LH9X-__-1651S	LH9X-1651P						
43,0	42,19-42,57	1.661-1.676	LH9X-__-1666S	LH9X-1666P						
1.681	42,57-42,95	1.676-1.691	LH9X-__-1681S	LH9X-1681P	LH9X-_-1688AMA	A1688-RC-X	LH9X-_-1688AM	LH9X-1688T	LH9X-1500K	LH9X-1312R
1.696	42,95-43,33	1.691-1.706	LH9X-__-1696S	LH9X-1696P						
1.709	43,28-43,66	1.704-1.719	LH9X-__-1709S	LH9X-1709P						
1.722	43,61-43,99	1.717-1.732	LH9X-__-1722S	LH9X-1722P						
44,0	43,99-44,37	1.732-1.747	LH9X-__-1737S	LH9X-1737P						
1.751	44,35-44,73	1.746-1.761	LH9X-__-1751S	LH9X-1751P	LH9X-_-1750AMA	A1750-RC-X	LH9X-_-1750AM	LH9X-1750T	LH9X-1500K	LH9X-1312R
1.766	44,73-45,11	1.761-1.776	LH9X-__-1766S	LH9X-1766P						
1.781	45,11-45,49	1.776-1.791	LH9X-__-1781S	LH9X-1781P						
46,0	45,49-45,87	1.791-1.806	LH9X-__-1796S	LH9X-1796P						
1.811	45,87-46,25	1.806-1.821	LH9X-__-1811S	LH9X-1811P	LH9X-_-1812AMA	A1812-RC-X	LH9X-_-1812AM	LH9X-1812T	LH9X-1500K	LH9X-1312R
1.826	46,25-46,63	1.821-1.836	LH9X-__-1826S	LH9X-1826P						
1.841	46,63-47,02	1.836-1.851	LH9X-__-1841S	LH9X-1841P						
47,0	47,02-47,40	1.851-1.866	LH9X-__-1856S	LH9X-1856P						
1.871	47,40-47,78	1.866-1.881	LH9X-__-1871S	LH9X-1871P	LH9X-_-1875AMA	A1875-RC-X	LH9X-_-1875AM	LH9X-1875T	LH9X-1500K	LH9X-1312R
48,0	47,78-48,16	1.881-1.896	LH9X-__-1886S	LH9X-1886P						
1.901	48,16-48,54	1.896-1.911	LH9X-__-1901S	LH9X-1901P	LH9X-_-1875AMA	A1875-RC-X	LH9X-_-1875AM	LH9X-1875T	LH9X-1500K	LH9X-1312R
49,0	48,54-48,92	1.911-1.926	LH9X-__-1916S	LH9X-1916P						
1.931	48,92-49,30	1.926-1.941	LH9X-__-1931S	LH9X-1931P						
1.944	49,25-49,63	1.939-1.954	LH9X-__-1944S	LH9X-1944P	LH9X-_-1938AMA	A1938-RC-X	LH9X-_-1938AM	LH9X-1938T	LH9X-1500K	LH9X-1938R
1.959	49,63-50,01	1.954-1.969	LH9X-__-1959S	LH9X-1959P						
50,0	50,01-50,37	1.969-1.983	LH9X-__-1973S	LH9X-1973P						
51,0	50,37-50,75	1.983-1.998	LH9X-__-1988S	LH9X-1988P						
2.000	50,75-51,05	1.998-2.010	LH9X-__-2000S	LH9X-2000P	LH9X-_-2000AMA	A2000-RC-X	LH9X-_-2000AM	LH9X-2000T	LH9X-1500K	LH9X-1938R
2.015	51,05-51,44	2.010-2.025	LH9X-__-2015S	LH9X-2015P						
2.030	51,44-51,82	2.025-2.040	LH9X-__-2030S	LH9X-2030P						
52,0	51,82-2,20	2.040-2.055	LH9X-__-2045S	LH9X-2045P						

Note: For bore diameter sizes below 5,92 mm (.233") and above 52,20 mm (2.055"), or for special designed tools, contact Customer Service.

*When ordering LH9X mandrel assembly or mandrel body select an overall length needed from the chart below and enter the corresponding number in the __.

LH9X tools are special order item. Contact Customer Service.

† Indicate abrasive type and grit size in __.
Example: LH9X-D5-1044S (220 Grit Diamond).

††Requires A32S Adapter Sleeves when used on Sunnen "AH" machines.

Single Stroke Honing[®] Tooling Selection

Tool Dimensions

The Sunnen Single Stroke Honing[®] Tools are recommended for use in selected materials, where speed and accuracy are important. To aid in adapting your machine(s) for use of the Sunnen Single Stroke Honing[®] Tool, the following Tool Dimensions Table is provided. Mandrel dimensions may be altered using common metal cutting tools.

Letters across the top of the table refer to the Lettered Dimensions on Figures A & B.

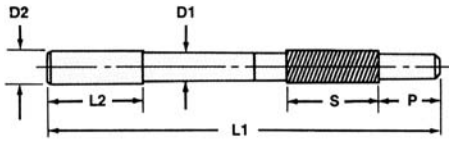


Figure A

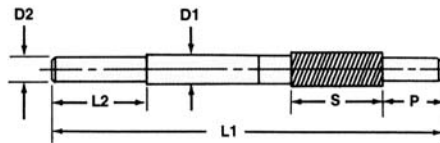


Figure B

NOTE: For bore diameter sizes below 5,92 mm (.233") and above 52,20 mm (2.055"), or for special designed high production tools, consult your Sunnen Field Engineer

Single Stroke Honing[®] Tool Dimensions

Diameter Range [†] of Tool		Series No.	Fig.	L1		L2		D1		D2		S		P	
mm	in			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
05,92-06,68	0.233-0.263	A8A	A	230,17	09.062	34,93	1.375	05,79	0.228	07,54	0.2970	047,63	1.875	29,13	1.147
06,68-07,57	0.263-0.298	A8B	A	230,17	09.062	34,93	1.375	06,55	0.258	07,54	0.2970	047,63	1.875	29,13	1.147
07,57-08,46	0.298-0.333	A10A	A	230,17	09.062	34,93	1.375	07,44	0.293	07,54	0.2970	047,63	1.875	29,13	1.147
08,46-09,35	0.333-0.368	A10B	B	230,17	09.062	34,93	1.375	08,33	0.328	07,54	0.2970	047,63	1.875	29,13	1.147
09,35-09,88	0.368-0.389	A12A	A	304,44	11.986	54,76	2.156	09,25	0.364	09,36	0.3685	057,15	2.250	25,25	0.994
09,88-10,39	0.389-0.409	A12B	B	304,44	11.986	54,76	2.156	09,78	0.385	09,36	0.3685	057,15	2.250	25,25	0.994
10,39-10,90	0.409-0.429	A12C	B	304,44	11.986	54,76	2.156	10,29	0.405	09,36	0.3685	057,15	2.250	25,25	0.994
10,90-11,53	0.429-0.454	A14A	A	337,14	13.273	54,76	2.156	10,79	0.425	10,93	0.4305	066,68	2.625	29,41	1.158
11,53-11,99	0.454-0.472	A14B	B	337,14	13.273	54,76	2.156	11,43	0.450	10,93	0.4305	066,68	2.625	29,41	1.158
11,99-12,47	0.472-0.491	A14C	B	337,14	13.273	54,76	2.156	11,88	0.468	10,93	0.4305	066,68	2.625	29,41	1.158
12,47-13,18	0.491-0.519	A16A	A	362,97	14.187	54,76	2.156	12,36	0.487	12,53	0.4935	076,20	3.000	33,27	1.310
13,18-14,05	0.519-0.553	A16B	B	362,97	14.187	54,76	2.156	13,08	0.515	12,53	0.4935	076,20	3.000	33,27	1.310
14,05-14,78	0.553-0.582	A18A	A	399,69	15.736	54,76	2.156	13,92	0.548	14,08	0.5545	085,73	3.375	36,45	1.435
14,78-15,57	0.582-0.613	A18B	B	399,69	15.736	54,76	2.156	14,66	0.577	14,08	0.5545	085,73	3.375	36,45	1.435
15,57-16,48	0.613-0.649	A20A	A	431,67	16.995	54,76	2.156	15,47	0.609	15,68	0.6175	095,25	3.750	39,90	1.571
16,48-17,17	0.649-0.676	A20B	B	431,67	16.995	54,76	2.156	16,38	0.645	15,68	0.6175	095,25	3.750	39,90	1.571
17,17-18,31	0.676-0.721	A22A	A	463,40	18.244	54,76	2.156	17,04	0.671	17,26	0.6795	104,78	4.125	43,08	1.696
18,31-18,82	0.721-0.741	A24A	A	500,23	19.694	54,76	2.156	18,14	0.714	18,78	0.7395	114,30	4.500	49,83	1.962
18,82-19,76	0.741-0.778	A24B	A	500,23	19.694	54,76	2.156	18,64	0.734	18,78	0.7395	114,30	4.500	49,83	1.962
19,76-20,29	0.778-0.799	A24C	B	500,23	19.694	54,76	2.156	19,58	0.771	18,78	0.7395	114,30	4.500	49,83	1.962
20,29-21,31	0.799-0.839	A26A	A	531,98	20.944	54,76	2.156	20,14	0.793	20,38	0.8025	123,83	4.875	53,01	2.087
21,31-21,79	0.839-0.858	A26B	B	531,98	20.944	54,76	2.156	21,16	0.833	20,38	0.8025	123,83	4.875	53,01	2.087
21,79-23,42	0.858-0.922	A28A	A	560,55	22.069	54,76	2.156	21,64	0.852	21,96	0.8645	133,35	5.250	54,61	2.150
23,42-24,92	0.922-0.981	A30A	A	593,52	23.367	54,76	2.156	23,27	0.916	23,53	0.9265	142,88	5.625	59,06	2.325
24,92-26,39	0.981-1.039	A32A	A	625,25	24.616	54,76	2.156	24,77	0.975	25,11	0.9885	152,40	6.000	62,23	2.450
26,39-27,91	1.039-1.099	LH9X-_-1062	B	*	*	57,15	2.250	26,24	1.033	25,10	0.9885	152,40	6.000	62,23	2.450
27,91-29,67	1.099-1.168	LH9X-_-1125	B	*	*	57,15	2.250	27,76	1.093	25,10	0.9885	152,40	6.000	63,83	2.513
29,62-31,14	1.166-1.226	LH9X-_-1188	B	*	*	57,15	2.250	29,46	1.160	25,10	0.9885	152,40	6.000	63,83	2.513
31,14-32,66	1.226-1.286	LH9X-_-1250	B	*	*	57,15	2.250	30,99	1.220	25,10	0.9885	152,40	6.000	63,83	2.513
32,66-34,47	1.286-1.357	LH9X-_-1312	B	*	*	57,15	2.250	32,51	1.280	31,37	1.2350	152,40	6.000	65,41	2.575
34,47-35,89	1.357-1.413	LH9X-_-1375	B	*	*	57,15	2.250	34,32	1.351	31,37	1.2350	152,40	6.000	65,41	2.575
35,89-37,64	1.413-1.482	LH9X-_-1438	B	*	*	57,15	2.250	35,74	1.407	31,37	1.2350	152,40	6.000	65,41	2.575
37,62-39,14	1.481-1.541	LH9X-_-1500	B	*	*	57,15	2.250	37,47	1.475	31,37	1.2350	152,40	6.000	65,41	2.575
39,14-40,67	1.541-1.601	LH9X-_-1562	B	*	*	57,15	2.250	38,99	1.535	31,37	1.2350	152,40	6.000	65,41	2.575
40,67-42,19	1.601-1.661	LH9X-_-1625	B	*	*	57,15	2.250	40,51	1.595	31,37	1.2350	152,40	6.000	65,41	2.575
42,19-43,99	1.661-1.732	LH9X-_-1688	B	*	*	57,15	2.250	42,04	1.655	31,37	1.2350	152,40	6.000	65,41	2.575
43,99-45,49	1.732-1.791	LH9X-_-1750	B	*	*	57,15	2.250	43,84	1.726	31,37	1.2350	152,40	6.000	65,41	2.575
45,49-47,02	1.791-1.851	LH9X-_-1812	B	*	*	57,15	2.250	45,34	1.785	31,37	1.2350	152,40	6.000	65,41	2.575
47,02-48,54	1.851-1.911	LH9X-_-1875	B	*	*	57,15	2.250	46,86	1.845	31,37	1.2350	152,40	6.000	65,41	2.575
48,54-50,37	1.911-1.983	LH9X-_-1938	B	*	*	57,15	2.250	48,39	1.905	31,37	1.2350	152,40	6.000	67,44	2.655
50,37-52,20	1.983-2.055	LH9X-_-2000	B	*	*	57,15	2.250	50,22	1.977	31,37	1.2350	152,40	6.000	67,44	2.655

[†]Diameter range refers to a group (Series No.) of tools having a common mandrel.

*Refers to pages 3.11-3.13 for overall length dimensions of LH9X Single Stroke Tools.

HONING UNIT
SELECTION GUIDE
PEDESTAL MACHINES
(ML, EC, MBB, & LBB)
PLATED TOOLING
(KGM & VSS MACHINES)
CYLINDER HONING
(SV-410 & SV-10 MACHINES)
PORTABLE MP3 & TUBE
HOME ABRASIVES
CUSTOM ABRASIVES
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Notes

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