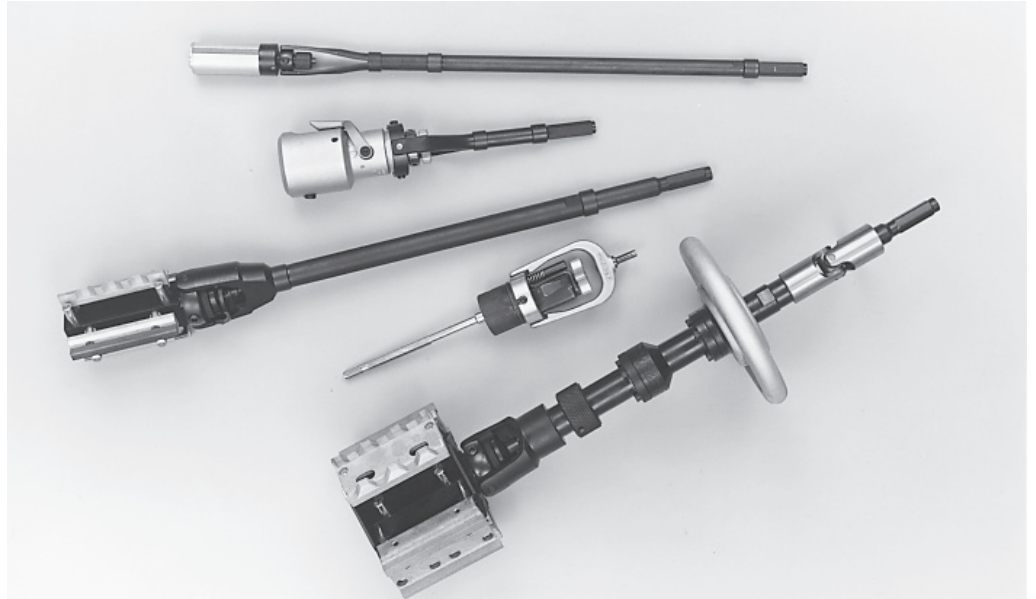
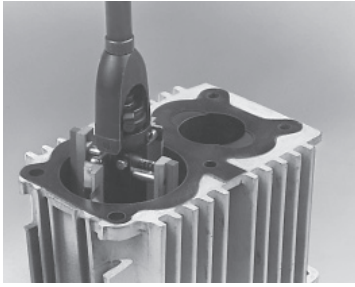


Portable Hones



Fast and efficient for all kinds of bore-sizing work.

Corrects undersize, taper, out-of-round, barrel or bellmouth shape and misalignment to tolerances of .013mm (.0005") in diameters from 31,8-914mm (1.250"-36"). Larger sizes up to 1524mm (60") available on special order. Ideal for honing parts too big or awkward to bring to a machine tool.

What will Sunnen Portable Hones do for you?

- Repair production equipment on the spot with minimum delay
- Repair worn or scuffed air and hydraulic cylinders
- Resize bearings
- Recondition compressors, engines, pumps
- Pull tandem holes into line
- Repair hydraulic valves
- Remove tool marks from cylinders
- Hone I.D.'s for fit during machine assembly
- Clean up assembly or heat-treat distortion
- Correct I.D. errors in reject parts

Sunnen Portable Hones are capable of honing open, shouldered, blind, keyway, splined, tandem, or rifled bores to a uniform surface finish of .08-1.5 micrometer Ra (3-60 microinches Ra) in aluminum, welded, drawn or hardened steel, brass, ceramic, carbide, etc. They can be run in an electric drill, air drill, drill press, or honing rig.

How to select the Power Source for your Sunnen Portable Hone.

Sunnen Portable Hones may be driven by a heavy-duty electric drill, air drill, or drill press. Optimum RPM is calculated by dividing 1200 by the bore diameter in inches... for example: $1200 \div 6 \text{ inches} = 200 \text{ RPM}$; or dividing 30,000 by the bore diameter in millimeters... for example $30,000 \div 150 \text{ millimeters} = 200 \text{ RPM}$.

If the power source is a drill press or other rigid stroking device, make sure your portable hone is equipped with two universal joints to provide full floating action at the honing head.

Remote feed hones should always be used in a rig, either horizontally or vertically.

Choose the Proper Portable Hone for Your Application from pages 1 - 16.

Table of Contents

SNJ-10	1	GNHGiantPortable	10
SN-75.....	2-3	GNR Giant Portable	11
SNR-185	2-3	PilotedPortableHones.....	12
JN-95.....	4-5	RecommendedStones	13
JNR-210	4-5	Stones for AN, ANR, GNH, GNR	14
PortableHones&Accessories.....	6	P-180/P-200 Portable Machine Tooling	15
AN-112.....	7	GGN-150MandrelDriver.....	15
AN-815	8	AdditionalPortableAccessories.....	16
ANR-275.....	9	SurfaceFinish.....	17

SNJ-10 Portable Hone

Hand Feed

I.D. Range:
31,8 mm – 45 mm
1.250" – 1.770"

SNJ-10 Portable Hone shown assembled with Stone Set and AN-26A Drive Shank. Will hone bores up to 457 mm (18") long as shown; order additional Shaft Extensions for longer bores Requires 13 mm (1/2") chuck capacity.

Shaft Extensions

mm	in	Part Number
305	12	AN-241†
610	24	AN-242
1220	48	AN-244

Drive Shanks

mm	in	Part Number
76	3	AN-26A†

† Supplied with hone

How To Order

Specify SNJ-10 Basic Hone (includes 76 mm (3") Drive Shank, 205 mm (12") Extension, Yoke and Hone Head) See I-SNJ-100B for detailed repair parts.

Additional Shaft Extensions may be ordered from table below to make up any practical length. Drive Shank can be used with any combination of Extensions.

See Stone Sets Table at right.

Accessories

AN-70 Universal Joint
AN-80 Quick Coupler
See page 5.2

In some cases, stones other than the RECOMMENDED STONES may hone faster or last longer. For long or repetitive production runs, it may be economical to choose a stone slightly harder or softer, coarser or finer. As a general rule, hard materials require soft stones; soft materials require hard stones.

* 1st choice
** 2nd choice. Use if A45 does not cut.
3rd choice. Use if A43 does not cut.



PHT Plateau Honing Tools

Sunnen's PHT tools are used as a final finishing step, after initial honing to provide a plateau surface on cylinder walls.

For Diameter Range		Abrasive Sets (320 Grit)
mm	in	
38,1-42,9	1.50-1.69	SNJ1-PHT-732
42,4-47,2	1.67-1.86	SNJ2-PHT-732
44,4-49,3	1.75-1.94	SNJ3-PHT-732
48,5-53,3	1.91-2.10	SNJ4-PHT-732
52,8-57,6	2.08-2.27	SNJ5-PHT-732

All Available Stones

Grit Size	31,75-36,50mm 1.250"-1.437"	36,02-40,74mm 1.418"-1.604"	40,13-45,00mm 1.580"-1.770"
	150	Aluminum Oxide	
SNJ1-A43 SNJ1-A45 SNJ1-A47		SNJ2-A43 SNJ2-A45 SNJ2-A47	SNJ3-A43 SNJ3-A45 SNJ3-A47
Silicon Carbide			
150	SNJ1-J45	SNJ2-J45	SNJ3-J17 SNJ3-J45
280	SNJ1-J63	SNJ2-J63	SNJ3-J63
400	SNJ1-J85 SNJ1-J87	SNJ2-J85 SNJ2-J87	SNJ3-J85 SNJ3-J87

Recommended Stones Sets

Material	Stone Sets* (Consists of 3 Stones) For General Purpose Honing			Approximate Ra Surface Finish	
	31,75-36,50mm 1.250"-1.437"	36,02-40,74mm 1.418"-1.604"	40,13-45,00mm 1.580"-1.770"	µm	µin
Fast removal: deburred, bored, ground, reamed holes					
Aluminum, Bronze	SNJ1-J45	SNJ2-J45	SNJ3-J45	2,00	80
Brass, Soft	SNJ1-J63	SNJ2-J63	SNJ3-J63	0,83	33
Carbide	—	—	—	—	—
Cast Iron	SNJ1-J45	SNJ2-J45	SNJ3-J45	0,80	32
Ceramic, Glass	—	—	—	—	—
Steel, Soft	SNJ1-A45	SNJ2-A45	SNJ3-A45	0,88	35
Steel, Hardened*	SNJ1-A45	SNJ2-A45	SNJ3-A45	0,50	20
Steel, Hardened**	SNJ1-A43	SNJ2-A43	SNJ3-A43	0,50	20
Steel, Very Hard***	SNJ1-J63	SNJ2-J63	SNJ3-J63	0,30	12
Fine finishing: previously honed holes					
Aluminum, Bronze	SNJ1-J87	SNJ2-J87	SNJ3-J87	0,38	15
Brass, Soft	SNJ1-J85	SNJ2-J85	SNJ3-J85	0,38	15
Carbide	—	—	—	—	—
Cast Iron	SNJ1-J87	SNJ2-J87	SNJ3-J87	0,15	6
Ceramic, Glass	—	—	—	—	—
Steel, Soft	SNJ1-J87	SNJ2-J87	SNJ3-J87	0,18	7
Steel, Hardened	SNJ1-J85	SNJ2-J85	SNJ3-J85	0,13	5

SN-75 Portable Hone

Hand Feed

I.D. Range:

44 mm – 51 mm

1.750" – 2"

SN-75 Portable Hone shown assembled with Stone Set, Drive Shank, and 305 mm (12") Shaft Extension. 102 mm (4") stone length. Will hone bores up to 533 mm (21") long as shown; order additional Shaft Extensions for longer bores. Requires 13 mm (1/2") chuck capacity.

How To Order

Specify SN-75 Basic Hone, (includes 76 mm (3") Drive Shank, 305mm (12") Extension one Universal Joint and Honehead. See page 6 for repair parts.).

Additional Shaft Extensions may be ordered from table below to make up any practical length. Drive Shank can be used with any combination of Extensions.

See Stone Sets Table on Page at right.

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

Shaft Extensions



mm	in	Part Number
305	12	AN-241*
610	24	AN-242
1220	48	AN-244

* Supplied with hone

SNR-185 Portable Hone

Remote-Feed Midget Hone

I.D. Range:

44mm – 51mm

1.750" – 2"

SNR-185 Remote-Feed Midget Hone shown as supplied, except for Stone Set, which must be ordered separately. Will hone bore lengths up to 279 mm (11") as shown. Additional Shaft Extensions available for honing longer bores. Requires 13 mm (1/2") chuck capacity.

How To Order

Specify SNR-185 Remote-Feed Midget Hone, (includes AN-70 Universal Joint, JNR-110A Upper Feed Assembly, JNR-215A Feed Clutch and SNR-80 Midget Hone Head Assembly). See X-AN-5036 for detailed repair parts.

Shaft Extensions listed in table below may be used alone or combined to make up any practical length. Shaft Extensions are installed between Remote-Feed Unit and Hone Head Assembly.

See Stone Sets Table on Page at right.

Larger diameters from 51-66 mm (2.0"-2.6") can be honed by changing to larger Hone Head Assembly. To order, specify JNR-85 Hone Head Assembly.

Shaft Extensions



mm	in	Part Number
305	12	JNR-441
610	24	JNR-442
914	36	JNR-443
1219	48	JNR-444
1524	60	JNR-445
1829	72	JNR-446

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

* Supplied with hone.

SN-75/SNR-185

Accessories and Stone Sets

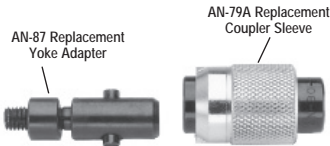
Accessories

AN-70 Universal Joint



Order an additional Universal Joint when using the SN-75 in a drill press or other rigid stroking device. Use in place of Drive Shank AN-26A

AN-80 Quick Coupler



Provides instant coupling or uncoupling of hone from drive motor. Install between Drive Shank and Shaft Extension, or between Drive Shank and Hone Head on short bores.

PHT Plateau Honing Tools

For SN/SNR Hone

Sunnen's PHT tools are used as a final finishing step, after initial honing to provide a plateau surface on cylinder walls.

For Diameter Range		Abrasive Sets (320 Grit)
mm	in	
54,6-60,9	2.15-2.40	SN-PHT-732

In some cases, stones other than the RECOMMENDED STONES above may hone faster or last longer. For long or repetitive production runs, it may be economical to choose a stone slightly harder or softer, coarser or finer. If the stone wears out too fast, use a harder stone; if it does not cut, use a softer stone.

Contact Customer Service for price and availability.

Recommended Stones Sets

Material	Stone Sets* (2 Stones & 2 Guides) For General Purpose Honing	Approximate Ra Surface Finish	
		µm	µin
Fast removal: deburred, bored, ground, reamed holes			
Aluminum, Bronze	S18-J45	2,00	80
Brass, Soft	S18-J63	0,83	33
Carbide	—	—	—
Cast Iron	S18-J45	0,80	32
Ceramic, Glass	—	—	—
Steel, Soft	S18-A45	0,88	35
Steel, Hardened*	S18-A45	0,50	20
Steel, Hardened**	S18-A43	0,50	20
Steel, Very Hard***	S18-J63	0,30	12
Fine finishing: previously honed holes			
Aluminum, Bronze	S18-J87	0,38	15
Brass, Soft	S18-J85	0,38	15
Carbide	—	—	—
Cast Iron	S18-J87	0,15	6
Ceramic, Glass	—	—	—
Steel, Soft	S18-J87	0,18	7
Steel, Hardened	S18-J85	0,13	5

* 1st choice

** 2nd choice.
Use if A45 does not cut.

*** 3rd choice.
Use if A43 does not cut.

Available Stones

	Grit Size							
	70	80	150	220	280	400	500	600
Hard-----Soft	Aluminum Oxide							
		S18-A25	S18-A43 S18-A45 S18-A47	S18-A55 S18-A57	S18-A65 S18-A67			
			S18-A49					
Hard-Soft	Silicon Carbide							
	S18-J15		S18-J43 S18-J45 S18-J47	S18-J55	S18-J63 S18-J65 S18-J67	S18-J85 S18-J87	S18-J95	
	S18-J17							

NOTE: For extremely rough bores use S18-XM51-X735 36 grit resin-bond aluminum oxide.

Superabrasive Stone Sets for Portable Hones

Metal Bond Diamond and CBN Stone Sets

Use to increase stock removal rates or abrasive life when compared to A or J stones, resin or vitrified diamond and CBN stones. First time users of metal bond superabrasive stone sets must order S18-KV1X Master Holder Set. Replacement stone can be ordered without reordering KV1X Master Holders.

Master Holder Number	Stone Set Number	Diameter Range	
		mm	in
S18-KV1X	S18-___XG94	44 - 51	1.75 - 2.00

The ___ in the stone set number is for the metal bond abrasive code. This set consists of two L12 superabrasive stones and (6) SNG6AFG roughing guides. Select the L12 metal bond superabrasive stone desired from the stone selection guide found on page 2.29 of Sunnen Catalog X-SP-5500H. Contact Customer Service for price and availability.

Diamond and Resin CBN Sets

For honing carbide, ceramic, glass and hardened steel. Available in 82.55 mm (3-1/4") or 101.6 mm (4") stone length. For 82.55 (3-1/4") length add -85 to stone number.

Diamond Stone	Borazon Stone
DV-47+	NR53+ Resin Bond
—	—
—	—
DV-07+	—

+ Special Order - Contact Customer Service

JN-95 Portable Hone

Hand Feed

I.D. Range:

51 mm – 66 mm

2" – 2.600"

JN-95 Portable Hone shown assembled with Stone Set, Drive Shank, and 305 mm (12") Shaft Extension. 102 mm (4") stone length. Will hone bores up to 533 mm (21") long as shown; order additional Shaft Extensions for longer bores. Requires 13mm (1/2") chuck capacity.

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

* Supplied with hone

Shaft Extensions



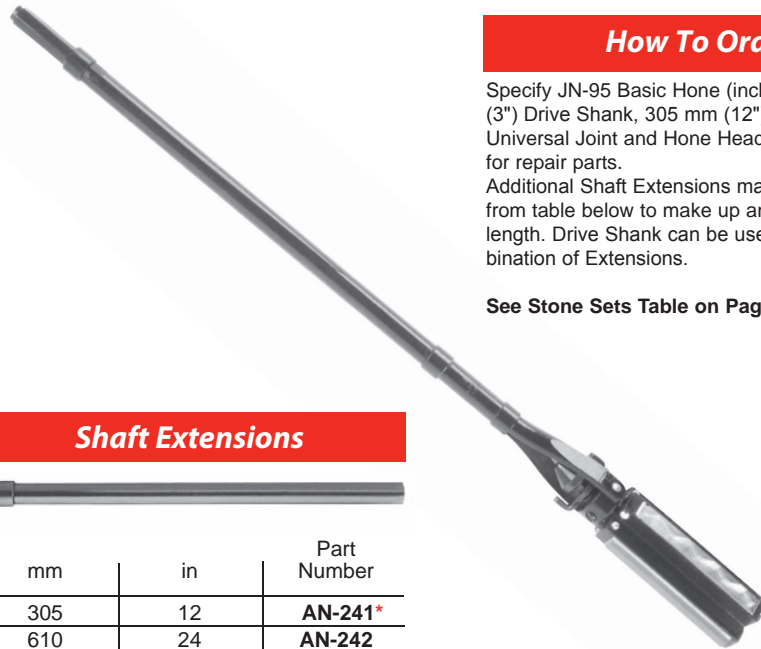
mm	in	Part Number
305	12	AN-241*
610	24	AN-242
1220	48	AN-244

How To Order

Specify JN-95 Basic Hone (includes 76 mm (3") Drive Shank, 305 mm (12") Extension, one Universal Joint and Hone Head). See page 6 for repair parts.

Additional Shaft Extensions may be ordered from table below to make up any practical length. Drive Shank can be used with any combination of Extensions.

See Stone Sets Table on Page at right.



JNR-210

Remote-Feed-Junior Hone

I.D. Range:

51 mm – 66 mm

2" – 2.600"

JNR-210 Remote-Feed Junior Hone as shown supplied, except for Stone Set, which must be ordered separately. Will hone bore lengths up to 305mm (12") as shown. Additional Shaft Extensions available for honing longer bores. Requires 13 mm (1/2") chuck capacity.

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

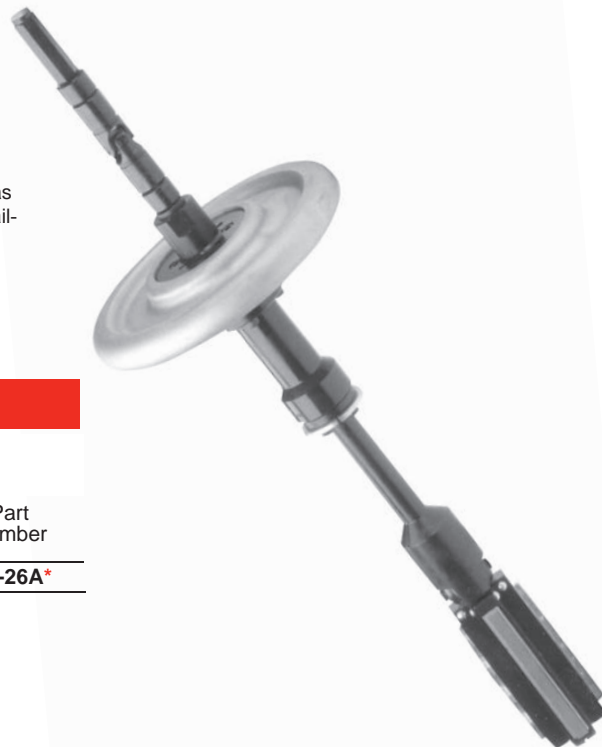
*Supplied with hone.

How To Order

Specify JNR-210 Remote -Feed Junior Hone, (includes AN-70 Universal Joint, JNR-110A Upper Feed Assembly, JNR-215A Feed Clutch and JNR-85 Junior Hone Head Assembly). See X-AN-5036 for detailed repair parts. Shaft Extensions listed in table below may be used alone or combined to make up any practical length. Shaft Extensions are installed between Remote-Feed Unit and Hone Head Assembly.

See Stone Sets Table on Page at right.

Smaller diameters from 44-51 mm (1.750"-2") can be honed by changing to smaller Hone Head Assembly. To order, specify SNR-80 Hone Head Assembly.



Shaft Extensions



mm	in	Part Number
305	12	JNR-441
610	24	JNR-442
914	36	JNR-443
1219	48	JNR-444
1524	60	JNR-445
1829	72	JNR-446

JN-95/JNR-210

Accessories and Stone Sets

Available Stones

Grit Size

Material	Aluminum Oxide			
	80	T20-A25	U22-A25	V24-A25
Silicon Carbide	150	T20-A43 T20-A45 T20-A47	U22-A43 U22-A45 U22-A47	V24-A43 V24-A45 V24-A47
	220	T20-A55		
	280	T20-A65	U22-A65	U24-A65
	70	T20-J11 T20-J17	U22-J11 U20-J17	V24-J11 V24-J17
	150	T20-J43 T20-J45 T20-J47	U22-J43 U22-J45 U22-J47	U24-J43 V24-J45 V24-J47
	220	T20-J55	U22-J55	U24-J55
	280	T20-J63 T20-J65 T20-J67	U22-J63 U22-J65	V24-J63 V24-J65 V24-J67
	400	T20-J85 T20-J87	U22-J85 U22-J87	V24-J85 V24-J87
	600	T20-C05		

PHT Plateau Honing Tools

For JN/JNR Hone

Sunnen's PHT tools are used as a final finishing step, after initial honing to provide a plateau surface on cylinder walls.

For Diameter Range		Abrasive Sets (320 Grit)
mm	in	
60,9-66,0	2.40-2.60	JN0-PHT-732
86,0-71,1	2.60-2.80	JN1-PHT-731
71,1-76,2	2.80-3.00	JN2-PHT-731

NOTE: For extremely rough bores T20-XM51-X735 36 grit resin-bond aluminum oxide stone sets are available.

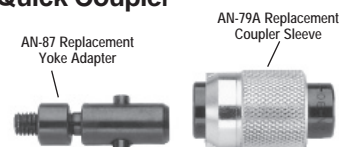
Accessories

AN-70 Universal Joint



Order an additional Universal Joint when using the JN-95 in a drill press or other rigid stroking device. Use in place of Drive Shank AN-26A

AN-80 Quick Coupler



Provides instant coupling or uncoupling of hone from drive motor. Install between Drive Shank and Shaft Extension, or between Drive Shank and Hone Head on short bores.

Recommended Stones Sets

Material	Stone Sets* (2 Stones and 2 Guides) For General Purpose Honing			Approximate Ra Surface Finish	
	51-56mm 2"-2.2"	56-61mm 2.2"-2.4"	61-66mm 2.4"-2.6"	µm	µin
Fast removal: deburred, bored, ground, reamed holes					
Aluminum, Bronze	T20-J45	U22-J45	V24-J45	2,00	80
Brass, Soft	T20-J63	U22-J63	V24-J63	0,83	33
Carbide ⁺	—	—	—	—	—
Cast Iron	T20-J45	U22-J45	V24-J45	0,80	32
Ceramic, Glass ⁺	—	—	—	—	—
Steel, Soft	T20-A45	U22-A45	V24-A45	0,88	35
Steel, Hardened	T20-A45	U22-A45	V24-A45	0,50	20
Steel, Hardened	T20-A43	U22-A43	V24-A43	0,50	20
Steel, Very Hard	T20-J63	U22-J63	V24-J63	0,30	12
Fine finishing: previously honed holes					
Aluminum, Bronze	T20-J87	U22-J87	V24-J87	0,83	15
Brass, Soft	T20-J85	U22-J85	V24-J85	0,38	15
Carbide ⁺	—	—	—	—	—
Cast Iron	T20-J87	U22-J87	V24-J87	0,15	6
Ceramic, Glass ⁺	—	—	—	—	—
Steel, Soft	T20-J87	U22-J87	V24-J87	0,18	7
Steel, Hardened	T20-J85	U22-J85	V24-J85	0,13	5

* In some cases, stones other than those recommended above may hone faster or last longer. For long or repetitive production runs, it may be economical to choose a stone slightly harder or softer, coarser or finer. If the stone wears out too fast, use a harder stone; if it does not cut, use a softer stone.

Superabrasive Stone Sets for Portable Hones

Metal Bond Diamond and CBN Stone Sets

Use to increase stock removal rates or abrasive life when compared to A or J stones, resin or vitrified diamond and CBN stones. First time users of metal bond superabrasive stone sets must order S18-KV1X Master Holder Set. Replacement stone can be ordered without reordering KV1X Master Holders.

⁺ Special Order - Contact Customer Service

Master Holder Number	Stone Set Number	Diameter Range	
		mm	inches
T20-KV1X	T20-___XG94	51 - 56	2.0 - 2.2
U22-KV1X	U22-___XG94	56 - 61	2.2 - 2.4
V24-KV1X	V24-___XG94	61 - 66	2.4 - 2.6

The ___ in the stone set number is for the metal bond abrasive code. This set consists of two L12 superabrasive stones and (6) JN66A7G (T20), JN67A7G (U22) or JN63AFG (V24) roughing guides. Select the L12 metal bond superabrasive stone desired from the stone selection guide found on page 2.29 of Sunnen Catalog X-SP-5500H.

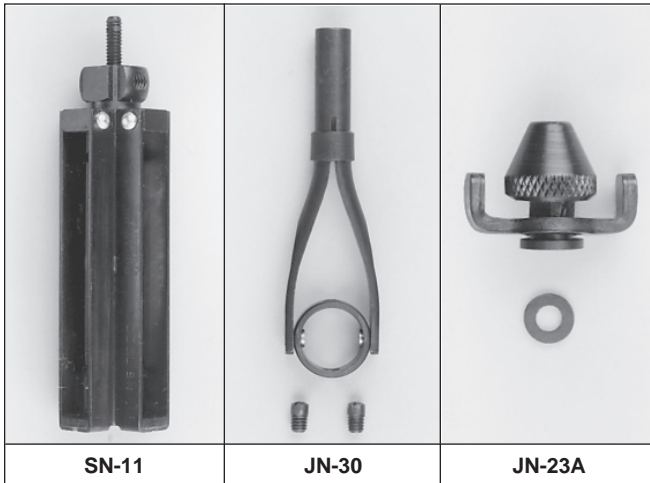
Diamond and Resin Borazon/CBN Sets

For honing carbide, ceramic, glass and hardened steel. Available in 82.55 mm (3 1/4") or 101.6 mm (4") stone length. For 82.55 (3 1/4") length add -85 to stone number.

Diamond Stone	Borazon Stone
DV-47 ⁺	NR53 Resin Bond ⁺
DV-57 ⁺	—
DV-87 ⁺	—
DV-07 ⁺	—

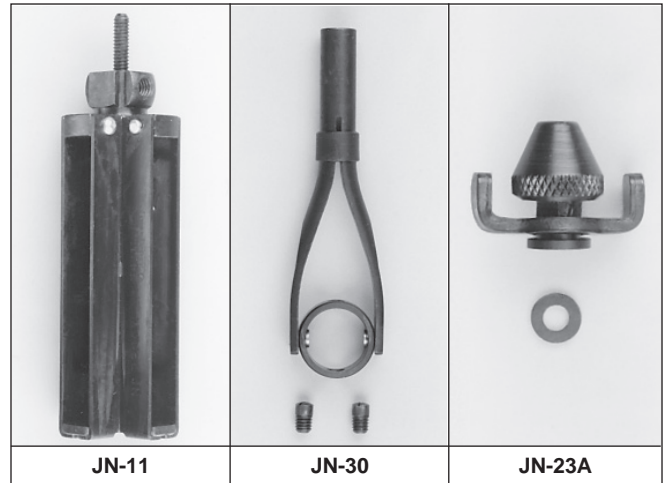
Portable Hones & Repair Parts

SN-75 Portable Hone



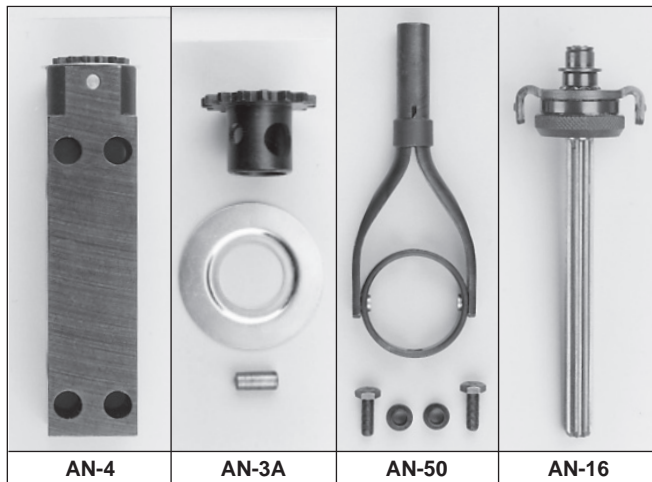
- SN-11 Hone Body
- JN-30 Universal Joint Complete
- JN-23A Adjusting Nut and Washer

JN-95 Portable Hone



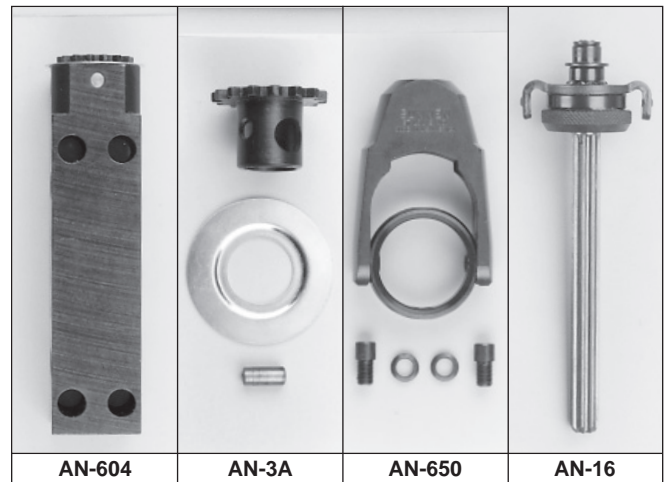
- JN-11 Hone Body
- JN-30 Universal Joint Complete
- JN-23A Adjusting Nut and Washer

AN-112 Portable Hones



- AN-4 Hone Body
- AN-3A Body Gear
- AN-50 Universal Joint Complete
- AN-16 Center Pinion Adjustment

AN-815 Portable Hone



- AN-604 Hone Body
- AN-3A Body Gear Set
- AN-650 Universal Joint Complete
- AN-16 Center Pinion Adjustment

AN-112 Portable Hone

Hand Feed For Occasional Light-Duty Portable Honing

I.D. Range:
64 mm – 178 mm
2.5"–7"

AN-112 Portable Hone shown assembled with Stone Set, (includes 76mm (3") Drive Shank, 305mm (12") Shaft Extension, Universal Joint and Hone Head) shown. 102mm (4") stone length. Requires 13mm (1/2") chuck capacity. See page 6 for repair parts.



Order 1-5 For Complete AN-112 Portable Hone

Diameter Range 64 mm - 178 mm 2.5" - 7"				1 Basic Hone	2 Master Holder Sets		3 Stone Support	4 Stone Set	5 Shaft Extension
General Purpose Stone		Guideless and Keyway			Single Length	Double Length			
mm	in	mm	in						
64-140	2.5-5.5	64-142	2.5-5.6	AN-112	None	None	None	See tables on pages 13 - 14 for portable hone stone sets.	For holes longer than 508mm (20") see table below for shaft extensions.
104-160	4.1-6.3	114-165	4.5-6.5	AN-112	AN-345	None	None		
119-178	4.7-7.0	130-183	5.1-7.2	AN-112	AN-355	AN-855	None		

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

Shaft Extensions



mm	in	Part Number
305	12	AN-241*
610	24	AN-242
1220	48	AN-244

* Furnished with 76mm (3") Drive Shank and 305mm (12") Shaft Extension. Other shanks or extensions may be selected from the table above to make up any practical length (either drive shank can be used with any combination of extensions).

Accessories

AN-70 Universal Joint

Order an additional Universal Joint when using the AN-112 in a drill press or other rigid stroking device. Use in place of Drive Shank.



Master Holder Sets

Stone

Stones

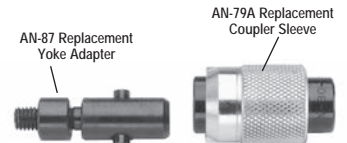


Single Length Master Holder



Double Length Master Holder

AN-80 Quick Coupler



Provides instant coupling or uncoupling of hone from drive motor.

Master Holder Sets, listed in the table above, are used with Type W47, WW51, and WY51 Stone Sets. Double Length Master Holders require two stone sets— use when it is necessary to bridge interruptions in the bore. Each Master Holder Set consists of two holders for stones and two holders for guides.

AN-815 Portable Hone

Hand Feed For Occasional Heavy-Duty Portable Honing

I.D. Range:

64 mm – 533 mm

2.5"–21"

AN-815 Portable Hone (includes 152 mm (6") Drive Shank, 610 mm (24") Shaft Extension, Universal Joint and Hone Head) shown assembled with single length master holder set and stone set. Requires 16 mm (5/8") chuck capacity for 63,5-127 mm (2.5"-5") diameter. Requires 19 mm (3/4") chuck capacity for 127-381 mm (5"-15") diameter. Requires 25,4 mm (1") chuck capacity for larger than 381 mm (15") diameter. See page 6 for repair parts.



Order 1-5 For Complete AN-815 Portable Hone

Diameter Range 64 mm - 533 mm 2.5" - 21"				1 Basic Hone	2 Master Holder Sets		3 Stone Support	4 Stone Set	5 Shaft Extension
General Purpose Stone		Guideless and Keyway			Single Length	Double Length		See tables on pages 13 - 14 for portable hone stone sets.	For holes longer than 508mm (20") see table below for Shaft Extensions.
mm	in	mm	in						
64-140	2.5-5.5	64-142	2.5-5.6	AN-815	None	None	None		
104-160	4.1-6.3	114-165	4.5-6.5	AN-815	AN-345	None	None		
119-178	4.7-7.0	130-183	5.1-7.2	AN-815	AN-355	AN-855	None		
152-229	6.0-9.0	163-234	6.4-9.2	AN-815	AN-365	AN-865	AN-260		
206-305	8.1-12.0	213-310**	8.4-12.2**	AN-815	AN-375	AN-875	AN-280		
279-381	11.0-15.0	284-386**	11.2-15.2**	AN-815	AN-385	AN-885	AN-290		
356-457	14.0-18.0	363-465**	14.3-18.3**	AN-815*	AN-395	AN-895	AN-340		
432-533	17.0-21.0	437-538**	17.2-21.2**	AN-815*	AN-415	AN-915	AN-450		

* For light work only in this diameter range.

** Do not use WW (Guideless) Stone Sets in this range due to lack of stability.

Accessories

AN-670 Universal Joint



Order an additional Universal Joint when using the AN-815 in a drill press or other rigid stroking device.

Drive Shanks



mm	in	Part Number
76	3	AN-608A
152	6	AN-618A†

† Supplied with hone.

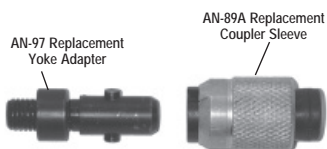
Shaft Extensions



mm	in	Part Number
152	6	AN-840
305	12	AN-841†
610	24	AN-842
1220	48	AN-844

AN-85 Quick Coupler

Provides instant coupling or uncoupling of hone from drive motor.



Master Holder Sets



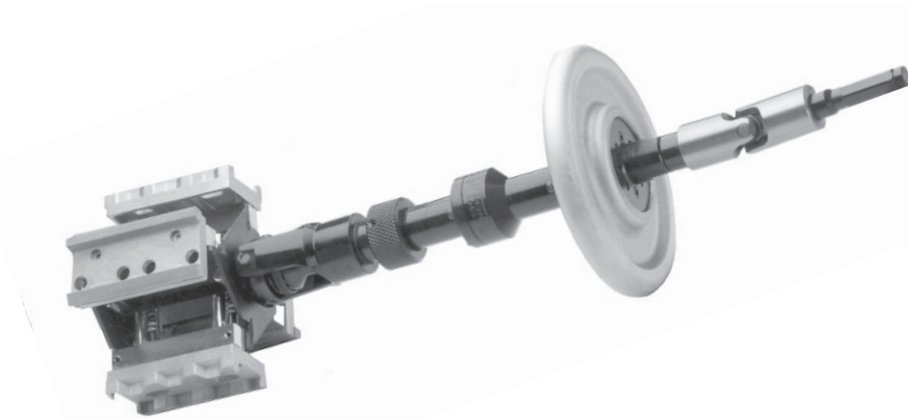
Master Holder Sets, listed in the table above, are used with Type W47, WW51 and WY51 Stone Sets. Double Length Master Holders require two stone sets— use when it is necessary to bridge interruptions in the bore. Each Master Holder Set consists of two holders for stones and two holders for guides.

Stone Supports are required to give rigidity to the hone assembly when honing bores larger than 178 mm (7") diameter.

ANR-275 Wide Range Hone

Remote Feed- Heavy-Duty Production for machine or honing rig

I.D. Range:
64 mm – 533 mm
2.5"–21"



ANR-275 Portable Hone (includes Universal Joint, Upper Feed Assembly, Feed Clutch and Hone Head) shown assembled with Stone Support, Single Length Master Holder Set and Stone Set. 102 mm (4") stone length (203 mm [8"] when two sets of stones are used with Double Length Master Holder Set.) Requires 16 mm (5/8") chuck capacity for 63,5-127 mm (2.5"-5") diameter. Requires 19 mm (3/4") chuck capacity for 127-381 mm (5"-15") diameter. Requires 25,4 mm (1") chuck capacity for larger than 381 mm (15") diameter. See I-ANR-275 for repair parts and operating instructions.

Order 1-5 For Complete ANR-275 Portable Hone

Diameter Range 64 mm - 533 mm 2.5" -21"				1 Basic Hone	2 Master Holder Sets		3 Stone Support	4 Stone Set	5 Shaft Extension
General Purpose Stone		Guideless and Keyway			Single Length	Double Length			
mm	in	mm	in						
64-140	2.5-5.5	64-142	2.5-5.6	ANR-275	None	None	None	See tables on pages 13 - 14 for portable hone stone sets.	For holes longer than 229mm (9") see table below for Shaft Extensions.
104-160	4.1-6.3	114-165	4.5-6.5	ANR-275	AN-345	None	None		
119-178	4.7-7.0	130-183	5.1-7.2	ANR-275	AN-355	AN-855	None		
152-229	6.0-9.0	163-234	6.4-9.2	ANR-275	AN-365	AN-865	AN-260		
206-305	8.1-12.0	213-310**	8.4-12.2**	ANR-275	AN-375	AN-875	AN-280		
279-381	11.0-15.0	284-386**	11.2-15.2**	ANR-275	AN-385	AN-885	AN-290		
356-457	14.0-18.0	363-465**	14.3-18.3**	ANR-275*	AN-395	AN-895	AN-340		
432-533	17.0-21.0	437-538**	17.2-21.2**	ANR-275*	AN-415	AN-915	AN-450		

* For light work only in this diameter range.

** Do not use WW (Guideless) Stone Sets in this range due to lack of stability.

Drive Shanks

mm	in	Part Number
76	3	AN-608A‡
152	6	AN-618A

Shaft Extensions

mm	in	Part Number
235	9.25	ANR-741
483	19.00	ANR-742
1086	42.75	ANR-744
1835	72.25	ANR-746

Accessories

AN-85 Quick Coupler

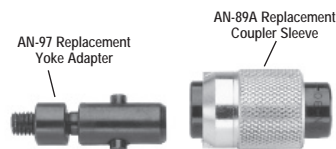
Provides instant coupling or uncoupling of hone from drive motor.

‡ Furnished with 76 mm (3") Drive Shank ANR. Other shanks or extensions may be selected from the table above to make up any practical length (either drive shank can be used with any combination of extensions).

Master Holder Sets



Master Holder Sets, listed in the table at left, are used with Type W47, WW51, and WY51 Stone Sets. Double Length Master Holders require two stone sets—use when it is necessary to bridge interruptions in the bore. Each Master Holder Set consists of two holders for stones and two holders for guides. Stone Supports are required to give rigidity to the hone assembly when honing bores larger than 178 mm (7") diameter.



GNH Giant Portable Hone

Hand Feed- For large diameter/heavy-duty honing above 254mm (10")

I.D. Range:

254 mm – 1524 mm

10"–60"

GNH-1510 Hand-Feed Giant Hone shown assembled with honing stones and drive shank. Order additional shaft extensions for longer bores. All giant hones require 2 sets of W47 or WY51 stones to load the hone. (See Tables on pages 13 - 14 for Stone sets for GNH Hones.)

Drive Source

Drive motors of 2.2-3.7KW (3 to 5 HP) provide adequate torque to turn the hone. These hones may be driven by a rigidly mounted power source such as a radial drill press or a large lathe; 29 mm (1-1/8") chuck capacity is required. A second universal joint, AN-970, is needed between the machine spindle and the drive shaft to allow for full floating action of the head.

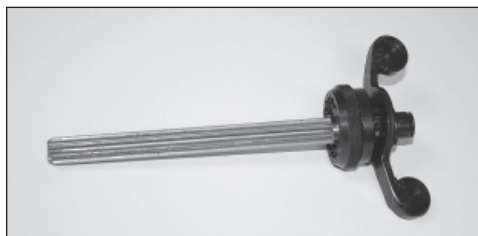
To Order:

Select the correct Giant Hone, drive shaft extension (for bore length 304 mm [12"] or longer and universal joint, if needed).

Drive Shaft Extensions



mm	in	Part Number
152	6	GNH-6+
305	12	GNH-12+
610	24	GNH-24+
915	36	GNH-36+
1220	48	GNH-48+
1524	60	GNH-60+
1830	72	GNH-72+



ANH-16 Hand Feed Pinion Assembly



GNR-918A Drive Shank



Hand-Feed Giant Hones

Diameter Range		Part Number	Shipping	
mm	inches		kg	lbs.
254-381	10-15	GNH-1010	6	13
381-508	15-20	GNH-1510	8,2	18
508-711	20-28	GNH-2010	19	42
711-914	28-36	GNH-2810	31	68
914-1118	36-44	GNH-3610+		
1118-1321	44-52	GNH-4410+		
1321-1524	52-60	GNH-5210+		

* Special Order - Contact Customer Service

Remote Feed Conversion for hand-feed hones:

Hand-Feed Giant Portable Hones may be converted to remote feed operation by ordering the following:

- GNR-920** Remote-Feed Drive Unit
- ANR-210A** Pinion Adjustment Assembly

Drive Shaft Extensions for Remote Feed Hones are listed at right.

Recommended RPM: To establish optimum RPM for your application, divide 1,200 by bore diameter in inches.

EX: 1,200÷10=120(RPM).

Or, divide 30,000 by bore diameter in mm.

EX: 30,000÷254=118(RPM).

GNR Giant Portable Hone

For large diameter work on deep bores, production honing, or parts with limited access
for stone adjustment in diameters larger than 254mm (10")



I.D. Range:
254 mm – 1524 mm
10"–60"

GNR-1010 Remote-Feed Giant Hone shown assembled with honing stones. Will hone bores up to 304mm (12") long as shown. Order additional drive shafts for longer bores. All giant hones require 2 sets of W47 or WY51 stones to load the hone. (See Tables on pages 13 - 14 for Stone sets for GNR Hones.)

The remote feed permits the operator to expand the stones at any time while the honing head is running in the bore, as well as when the hone is stopped. The operator controls the amount of stone expansion and the honing pressure by braking the feed wheel while the hone is turning. The remote feed also permits the operator to quickly retract the stones and remove the hone from the bore when the hone is stopped.

Drive Source

Drive motors of 2.2-3.7KW (3 to 5 HP) provide adequate torque to turn the hone. These hones may be driven by a rigidly mounted power source such as a radial drill press or a large lathe; 29 mm (1-1/8") chuck capacity is required.

Remote-Feed Giant Hones are equipped with two universal joints which allow the honing head to align itself with the workpiece.

Recommended RPM: To establish optimum RPM for your application, divide 1200 by bore diameter in inches.

EX: $1,200 \div 10 = 120$ (RPM).

Or, divide 30,000 by bore diameter in mm.

EX: $30,000 \div 254 = 118$ (RPM).

To Order:

Select the correct Giant Hone, drive shaft extension (for bore length 304 mm [12"] or longer and universal joint, if needed).

Remote-Feed Giant Hones				
Diameter Range		Part Number	Shipping	
mm	in		kg	lbs.
254-381	10-15	GNR-1010	13,2	29.5
381-508	15-20	GNR-1510	15,7	34.5
508-711	20-28	GNR-2010	26,5	58.5
711-914	28-36	GNR-2810	38,4	84.5
914-1118	36-44	GNR-3610*		
1118-1321	44-52	GNR-4410*		
1321-1524	52-60	GNR-5210*		

* Special Order - Contact Customer Service

Additional Hone Heads Extend the Diameter Range

A complete Remote-Feed Giant Hone consists of a GNR-920 Remote-Feed Giant Drive Unit and a Giant Hone Head, as illustrated. The GNR-920 Remote-Feed Giant Drive Unit can be used with other Giant Hone Heads to extend the diameter range. Select additional Hone Heads as needed from the table below.



Additional Hone Heads					
Diameter to be Honed	mm	inches	Part Number for Giant Hone	Shipping	
				kg	lbs.
254-381	10-15		GNR-1025	4,1	9
381-508	15-20		GNR-1525	6,4	14
508-711	20-28		GNR-2025	17,3	38
711-914	28-36		GNR-2825	29,1	64
914-1118	36-44		GNR-3625*		
1118-1321	44-52		GNR-4425*		
1321-1524	52-60		GNR-5225*		

** These Hone Heads can be converted to complete Giant Hones at any time by purchasing GNR-920 Remote-Feed Giant Drive Unit.

* Special Order - Contact Customer Service

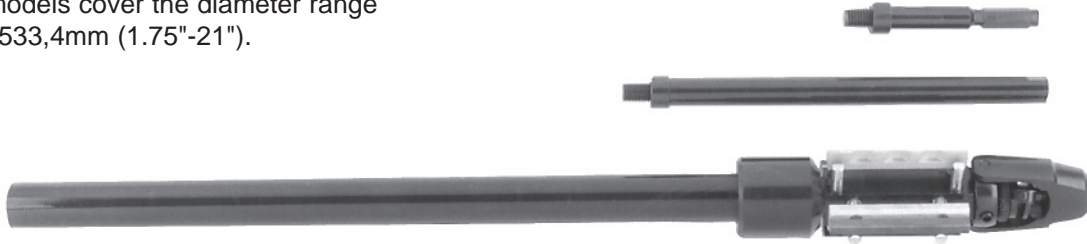
Drive Shaft Extensions

Giant Hones will handle bore lengths up to 305mm (12") without Drive Shaft Extensions. When Extensions are necessary, they can be used one at a time or in multiples, making it possible to hone practically any bore length. All Drive Shaft Extensions are installed between the hone head and the feed wheel as illustrated above. The feed wheel remains outside the bore being honed, accessible for stone expansion.

Drive Shaft Extensions				
Extension Length		Part Number	Shipping	
mm	in		kg	lbs.
152	6	GNR-940	1,4	3
305	12	GNR-941	2,4	5
610	24	GNR-942	4,8	10.5
915	36	GNR-943	6,4	14
1220	48	GNR-944	8,2	18
1525	60	GNR-945	9,6	21
1830	72	GNR-946	10,6	23.25

Piloted Portable Hones

Use to hone one bore in line with another bore on the same axis.
Three models cover the diameter range of 44,5-533,4mm (1.75"-21").



AN-815-A40X Piloted Portable Hone
Diameter Range: 63.5mm-533.4mm (2.50"-21")

The SN-75-887X and JN-95-887X Piloted Portable Hones are furnished with a 25,4 mm (1") diameter pilot bar. The AN-815-A40X is furnished with a 38,1 mm (1-1/2") diameter pilot bar. The pilot bar must be long enough so that it will not stroke out of the pilot bushing during the honing operation.
BE SURE TO SPECIFY PILOT LENGTH BAR on your order.

The pilot bushing is made by the user. It must be made to fit the bore before and after honing. The bushing O.D. should be tapered to fit the bore opposite the bore being honed. The bushing I.D. should be .025 mm (.001") larger than the diameter of the pilot on the hone.

The hone is used first in one bore with the pilot bushing positioned in the other bore. When this bore is finished, the pilot bushing is placed in the honed bore and the hone is entered from the other side to finish the second bore. Both outside ends of the tandem bores must be accessible.

SN-75-887X Piloted Portable Hone, 44,5 mm-50,8 mm (1.75"-2.00") diameter range, includes 76,0 mm (3") drive shaft, 304,8 mm (12") shaft extension, and 25,4 mm (1") diameter pilot bar up to 610 mm (24") long (does not include stone sets).

JN-95-887X Piloted Portable Hone, 50,8 mm-60,0 mm (2.00"-2.60") diameter range, includes 76,0 mm (3") drive shaft, 304,8 mm (12") shaft extension, and 25,4 mm (1") diameter pilot bar up to 610 mm (24") long (does not include stone sets).

Extra length 25,4 mm (1") diameter pilot bar for SN-75-887X or JN-95-887X hones will be supplied at an added price per foot or portion thereof, over the 610 mm (24") furnished with the hone.

AN-815-A40X Piloted Portable Hone, 63,5 mm-533,4 mm (2.50"-21.00") diameter range for light duty use in diameters larger than 381 mm (15"), includes 152,4 mm (6") drive shaft, 304,8 mm (12") shaft extension, and 38,1 mm (1.5") diameter pilot bar up to 610 mm (24") long (does not include stone sets, stone supports or master holder sets).

Extra length 38,1 mm (1.5") diameter pilot bar for AN-815-A40X hone will be supplied at an added price per foot or portion thereof, over the 610 mm (24") furnished with the hone.

The SN-75-887X Piloted Portable Hone uses the same S18 stone sets as the SN-75 Portable Hone. The JN-95-887X Piloted Portable Hone uses the same T20, U22 or V24 stone sets as the JN-95 Portable Hone. See page 5 for stone selection. Stone sets, stone supports and master holder sets used with the AN-815-A40X Piloted Portable Hone are found on page 8.

These hones may be driven by a heavy duty electric or air drill, or used in a drill press. To establish optimum rpm for your application, divide 1200 by the hole diameter in inches. Example: $1200 \div 6" = 200$ (RPM). Or, divide 30000 by bore diameter in mm. Example: $30000 \div 150 \text{ mm} = 200$ (RPM).

Hole Size		Recommended Drill Chuck Size	
mm	in	mm	in
44,45-127,0	1.75-5	15,8	5/8
127,0-381,0	5-15	19,0	3/4
381,0 and up	15 and up	25,4	1

A universal joint is built into each of these piloted portable hones. A second universal joint is required when the driving power is obtained from a drill press, or other rigid stroking device to provide the necessary full floating action at the honing head as shown below:

For Piloted Portable Hone	Order Additional Universal Joint
SN-75-887X	AN-70
JN-95-887X	AN-70
AN-815-A40X	AN-670 (Heavy-Duty)

Recommended Stones

For AN/ANR, GNH/GNR Portable Honers

Hole Diameters	For Holes Without Keyways								For Holes With Keyways				Approx. R _a Surface Finish μm μin	
	General Purpose Stone Sets (2 Stones and 2 Guides)				Guideless Stone Sets (Not recommended for use above 254mm & 10")				Keyway Stone Sets Maximum Keyway Width					
	64 to 69mm (2.5"-2.7")	69 to 104mm (2.7"-4.1")	89 to 140mm (3.5"-5.5")	104 to 1524mm (4.1"-60")†	64 to 84mm (2.5"-3.3")	84 to 107mm (3.3"-4.2")	102 to 142mm (4.0"-5.6")	114 to 1524mm (4.5"-60")†	20.3mm (.8")	22.86mm (.9")	30.48mm (1.2")	35.56mm (1.4")		
Fast removal: deburred, bored, ground, reamed holes														
Aluminum	G25-J45	M27-J45	N37-J45	W47-J45	GG25-J45	MM33-J45	NN40-J45	WW51-J45	GY25-J45	MY33-J45	NY40-J45	WY51-J45	2.00	80
Brass, Soft	G25-J65	M27-J65	N37-J65	W47-J65	GG25-J65	MM33-J65	NN40-J65	WW51-J65	GY25-J65	MY33-J65	NY40-J65	WY51-J65	0.83	33
Bronze	G25-J45	M27-J45	N37-J45	W47-J45	GG25-J45	MM33-J45	NN40-J45	WW51-J45	GY25-J45	MY33-J45	NY40-J45	WY51-J45	2.00	80
Carbide	—	—	—	—	—	—	—	—	—	—	—	—	0.75	30
Cast Iron	G25-J45	M27-J45	N37-J45	W47-J45	GG25-J45	MM33-J45	NN40-J45	WW51-J45	GY25-J45	MY33-J45	NY40-J45	WY51-J45	0.80	32
Ceramic	—	—	—	—	—	—	—	—	—	—	—	—	1.00	40
Glass	—	—	—	—	—	—	—	—	—	—	—	—	1.80	70
Steel, Soft	G25-A45	M27-A45	N37-A45	W47-A45	GG25-A45	MM33-A45	NN40-A45	WW51-A45	GY25-A45	MY33-A45	NY40-A45	WY51-A45	0.88	35
Steel, Hardened*	G25-A45	M27-A45	N37-A45	W47-A45	GG25-A45	MM33-A45	NN40-A45	WW51-A45	GY25-A45	MY33-A45	NY40-A45	WY51-A45	0.50	20
Steel, Very Hard**	G25-NR53	M27-NR53	N37-NR53	W47-NR53	—	—	—	—	—	—	—	—	1.00	40
Fine finishing: previously honed holes														
Aluminum,	G25-J87	M27-J87	N37-J87	W47-J87	GG25-J87	MM33-J87	NN40-J87	WW51-J87	GY25-J87	MY33-J87	NY40-J87	WY51-J87	0.38	15
Brass, Soft	G25-J85	M27-J85	N37-J85	W47-J85	GG25-J85	MM33-J85	NN40-J85	WW51-J85	GY25-J85	MY33-J85	NY40-J85	WY51-J85	0.38	15
Bronze	G25-J87	M27-J87	N37-J87	W47-J87	GG25-J87	MM33-J87	NN40-J87	WW51-J87	GY25-J87	MY33-J87	NY40-J87	WY51-J87	0.38	15
Carbide	—	—	—	—	—	—	—	—	—	—	—	—	0.18	7
Cast Iron	G25-J87	M27-J87	N37-J87	W47-J87	GG25-J87	MM33-J87	NN40-J87	WW51-J87	GY25-J87	MY33-J87	NY40-J87	WY51-J87	0.15	6
Ceramic	—	—	—	—	—	—	—	—	—	—	—	—	0.50	20
Glass	—	—	—	—	—	—	—	—	—	—	—	—	0.75	30
Steel, Soft	G25-J87	M27-J87	N37-J87	W47-J87	GG25-J87	MM33-J87	NN40-J87	WW51-J87	GY25-J87	MY33-J87	NY40-J87	WY51-J87	0.18	7
Steel, Hardened	G25-J85	M27-J85	N37-J85	W47-J85	GG25-J85	MM33-J85	NN40-J85	WW51-J85	GY25-J85	MY33-J85	NY40-J85	WY51-J85	0.13	5

*1st choice

**2nd choice. Use if A43 does not cut.

†These stones require the use of Master Holders.

Superabrasive Stone Sets

Metal Bond Diamond and CBN Stone Sets

Available in G25, M27, N37, and W47 stone sizes. These stones can be used to increase stock removal rates or abrasive life when compared to A or J stones or Resin or Vitriified Diamond or CBN stones. First time users of metal bond superabrasive stone sets must order ____-KB5X (G25-KB5X) Master Holder Set. Replacement stones can be ordered without reordering KB5X Master Holders.

+ Special Order - Contact Customer Service

Master Holder Number	Stone Set Number	Diameter Range	
		mm	in
G25-KB5X	G25-____XG55	64-69	2.5 - 2.7
M27-KB5X	M27-____XG55	69-104	2.7-4.1
N37-KB5X	N37-____XG55	89-140	3.5-5.5
W47-KB5X	W47-____XG55	104-533	4.1-21

The ____ in the stone set number is for the metal bond abrasive code. This stone set consists of two L16 super-abrasive stones and (6) A43CFG (G25), AN43BFG (M27), AN62BFG (N37), or AN341AFG (W47) roughing guides. Select the L16 metal bond superabrasive stone desired from the stone selection guide found on page 2.33 of Sunnen Catalog X-SP-5500H.

Vitriified Bond Diamond and Resin CBN Sets

For honing carbide, ceramic, glass and hardened steel. Available in 82,55 mm (3.25") or 101,6 mm (4") stone length. For 82,55 mm (3.5") length, add -85 to stone number.

Diamond Stone	CBN Stone
DV-47	NR53 Resin Bond
DV-57	NR83 Resin Bond
DV-87	—
DV-07	—

Stones

For AN, ANR, GNH, GNR Honing Units

Grit Size	General Purpose				Guideless				Maximum Keyway Width				
	64 to 69mm (2.5"-2.7")	69 to 104mm (2.7"-4.1")	89 to 140mm (3.5"-5.5")	104 to 1524mm (4.1"-60")	64 to 84mm (2.5"-3.3")	84 to 107mm (3.3"-4.2")	102 to 142mm	114 to 1524mm (4.5"-60")	20,3mm (.8")	22,8mm (.9")	30,4mm (1.2")	36,5mm (1.4")	
	Aluminum Oxide Stones												
	G25	M27	N37	W47†	GG25	MM33	NN40	WW51†	GY25	MY33	NY40	WY51†	
36	H-S			W47-E47 W47-M51	GG25-M51	MM33-M51						WY51-M51	
80	H-S	G25-A23 G25-A25 G25-A27	M27-A23 M27-A25 M27-A27	N37-A23 N37-A25 N37-A27	W47-A23 W47-A25 W47-R25	GG25-A25	MM33-A25	NN40-A25	WW51-A25	GY25-A25	MY33-A25	WY51-A23 WY51-A25	
150	H-S	G25-A43 G25-A45 G25-A45N	M27-A43 M27-A45 M27-A45N	N37-A43 N37-A45 N37-A45N	W47-A27 W47-R27 W47-A43 W47-A45 W47-A45N	GG25-A43 GG25-A45 GG25-A47	MM33-A43 MM33-A45 MM33-A47	NN40-A43 NN40-A45 NN40-A47	WW51-A43 WW51-A45	GY25-A43 GY25-A45 GY25-A47	MY33-A43 MY33-A45 MY33-A47	NY40-A43 NY40-A45 NY40-A47	WY51-A43 WY51-A45 WY51-A47
220	H-S	G25-A47	M27-A47 M27-A49	N37-A47 N37-A49	W47-A47 W47-A49								
280	H-S	G25-A65 G25-A67	M27-A55 M27-A63 M27-A65 M27-A67	N37-A55	W47-A55 W47-A57 W47-A63 W47-A65 W47-A67	GG25-A65	MM33-A65	NN40-A65	WW51-A65	GY25-A65	MY33-A65	NY40-A65	WY51-A65
Silicon Carbide Stones													
	G25	M27	N37	W47†	GG25	MM33	NN40	WW51†	GY25	MY33	NY40	WY51†	
70	H-S	G25-J15 G25-J17	M27-J11 M27-J13 M27-J15 M27-J17	N37-J11 N37-J13 N37-J15 N37-J17	W47-J11 W47-J13 W47-J15 W47-J17 W47-J19	GG25-J15	MM33-J15	NN40-J15	WW51-J15	GY25-J15 GY25-J17	MY33-J15	NY40-J15	WY51-J15 WY51-J17
150	H-S	G25-J45 G25-J47	M27-J43 M27-J45 M27-J47	N37-J43 N37-J45 N37-J47	W47-J43 W47-J45 W47-J47	GG25-J45	MM33-J45	NN40-J45	WW51-J45	GY25-J45 GY25-J47	MY33-J45 MY33-J47	NY40-J45	WY51-J43 WY51-J45 WY51-J47
220	H-S	G25-J55	M27-J55 M27-J57	N37-J55 N37-J57	W47-J55								
280	H-S	G25-J63 G25-J65 G25-J67	M27-J63 M27-J65 M27-J67	N37-J63 N37-J65 N37-J67	W47-J63 W47-J65 W47-J67	GG25-J65	MM33-J63 MM33-J65	NN40-J65	WW51-J65	GY25-J65 GY25-J67	MY33-J65 MY33-J67	NY40-J65	WY51-J65 WY51-J67
400	H-S	G25-J85 G25-J87	M27-J85 M27-J87	N37-J85 N37-J87	W47-J83 W47-J85 W47-J87	GG25-J85 GG25-J87	MM33-J85 MM33-J87	NN40-J85 NN40-J87	WW51-J85 WW51-J87	GY25-J85 GY25-J87	MY33-J85 MY33-J87	NY40-J85 NY40-J87	WY51-J85 WY51-J87
500	H-S	G25-J95	M27-J95	N37-J95	W47-J95 W47-J97	GG25-J95	MM33-J95						
600	H-S	G25-C05	M27-C05	N37-C05	W47-C05	GG25-C05	MM33-C05	NN40-C05	WW51-C05				

†These stones require Master Holder Sets.

In some cases, stones other than the RECOMMENDED STONES may hone faster or last longer. For long or repetitive production runs, it may be economical to choose a stone slightly harder or softer, coarser or finer. If the stone wears out too fast, use a harder stone; if it does not cut, use a softer stone.

Contact Customer Service for price and availability.

Additional Portable Accessories

Teflon-Mounted Hone Holders for Portable Hones

Used to "finish" oil-free air compressor cylinder sleeves. Provides a "slippery" Teflon coating that is compatible with Teflon rider rings. Made from 15% glass filled Teflon and are used on Sunnen Model AN-112, AN-815, and ANR-275 Portable Hones. (Smaller sizes are available for JN/JNR, and SN/SNR Portable Hones on a special order basis. Call Sunnen Products, Customer Service Department for information.)

These Teflon Hones are used following a 400 grit finishing stone. The recommended procedure when using Teflon stones is to use them dry and with light pressure. Eight full passes up and down the cylinder wall is usually sufficient.

Teflon-Mounted Hone Holders Available

Diameter Range		4 Strips		8 Strips	
mm	in				
64-84	2.5-3.3	GG25-XB25*	GY25-XB25*		
84-107	3.3-4.2	MM33-XB25*	MY33-XB25*		
102-142	4.0-5.6	NN40-XB25*	NY40-XB25*		
114-1524,0	4.5-60	W47-XB25*	WY51-XB25*		

* Special Order - Contact Customer Service

PHT Plateau Honing Tools

For AN, ANR, GNH and GNR Hones

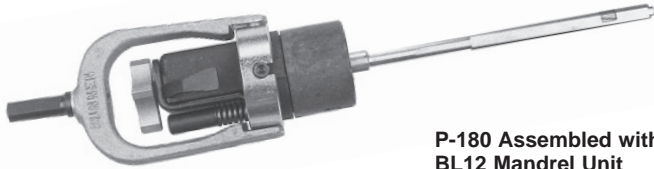
Sunnen's PHT tools are used as a final finishing step, after initial honing to provide a plateau surface on cylinder walls.

For Diameter Range		Abrasive Sets General Purpose 4 Brushes (320 Grit)		Abrasive Sets Production 8 Brushes (320 Grit)	
mm	in				
75,7-96,0	2,98-3,78	GG-PHT-732	GG-PHT-732	GY-PHT-732	GY-PHT-732
96,0-118,9	3,78-4,68	MM-PHT-731	MM-PHT-731	MY-PHT-731	MY-PHT-731
113,8-154,4	4,48-6,08	NN-PHT-731	NN-PHT-731	NY-PHT-731	NY-PHT-731
126,5-1524,0	4,98-60,0	WW-PHT-731	WW-PHT-731	WY-PHT-731	WY-PHT-731

P-180/P-200

Portable Machine Tooling

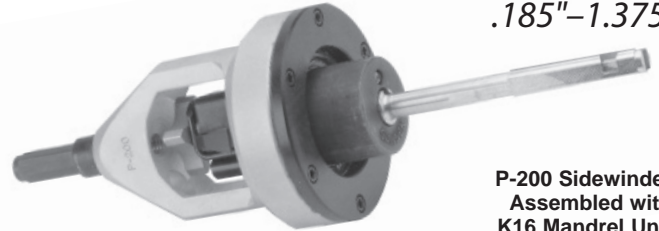
I.D. Range:
4,70 mm – 35 mm
.185"–1.375"



P-180 Assembled with BL12 Mandrel Unit

P-180 Honall®

A portable mandrel driver for sizing and finishing holes in work too bulky or heavy to take to the honing machine. Uses the same mandrels and stones used on Sunnen Honing Machines. The adapters listed below must be used as they are different from the adapters used on Sunnen Machines. A quick-release lever retracts the stone and speeds removal of tool from the work. Power source should be a 10 mm (3/8") chuck capacity drill with approximately 350 RPM. Each Honall® is furnished with 7 mm (1/2") and 10 mm (3/8") solid drive shafts and a 10 mm (3/8") drive shaft with build-in universal joint.



P-200 Sidewinder Assembled with K16 Mandrel Unit

P-200 Sidewinder

Similar to the P-180 Honall®, the P200 Sidewinder floats on ball bearings with no universal joint required. Tool does not whip during honing or when removing tool from hole. Ideally suited for short bore honing. Recommended power source is a drill press, milling machine or any other rigid drive unit with a 13 mm (1/2") chuck capacity.

Ordering Information for P-180 Honall® and P-200 Sidewinder

Refer to Section 2 for selection of items 3, 4 and 5.

Order 1-6 For Complete P-180 or P-200 Unit								
Diameter Range 4.70 mm - 35 mm .185" -1.375"		1 Head and Driver	2 Mandrel Adapter		3 Honing Mandrel <small>When ordering a mandrel in the 4,70-6,22mm (.185"-.245") range add the prefix "S" to the number. SK6-XXXXY. The shank of an SK6 mandrel is 25mm (1") shorter than the shank of s standard K6</small>	4 Truing Sleeve	5 Honing Stones See Stone Tables in Section 2 of Sunnen Catalog X-SP-5500H	6 Honing Oil See Section 11 of Sunnen Catalog X-SP-5500H for the correct Honing Oil for your application.
mm	in		K, BL, AK	Y Mandrels				
4,70-6,22	.185-.245	P-180 or P-200	PSK6-A*	NA	NA	NA		
4,70-6,22	.185-.245		PK6-A	NA	LN-3590A	LN-3590A		
6,22-7,82	.245-.308		PK8-A	PK8-A	LN-3608A	LN-3608A		
7,82-9,40	.308-.370		PK10-A	PK10-A	LN-3608A	LN-3608A		
9,40-12,57	.370-.495		PK12-A	PK12-A	LN-3702A	LN-3658A		
12,57-15,72	.495-.619		PK16-A	PK16-A	LN-3703A	LN-3690A		
15,72-18,90	.619-.744		PK20-A	PK20-A	LN-3704A	LN-3692A		
18,90-19,69	.744-.775		PAK20-A	PAK20-A	LN-3704A	LN-3692A		
19,69-26,19	.775-1.031		PAK20-A	PAK20-A	LN-3704A	LN-3692A		
26,19-31,75	1.031-1.250		PAK20-A	PAK20-A	LN-3704A	NA		
31,75-34,93	1.250-1.375		NA	PAK20-A	NA	NA		

* For PSK style mandrels only.



GGN-150 Assembled with 2H-P28-2500WG

GGN-150

Mandrel Driver

I.D. Range:
19 mm – 98 mm
.744"–3.875"

The GGN-150 is a portable mandrel driver for honing larger bores where the hone must be taken to the work. Uses same honing units as Sunnen Honing Machine. Especially designed for holes 19,05 mm (.75") and larger, where the bore length is at least three times the diameter.

Features include spring-loaded adjustable cutting pressure, easy-to-use stone feed-up control, and quick-release lever to retract stone for removal of honing unit from the work. Includes LN-0116A Eccentric Sleeve. Suggested driving power should be at least a 12,7 mm (.5") heavy-duty drill with a 275-450 RPM range.

How to order

For complete honing tool, order:

- GGN-150 Mandrel Driver (includes one Universal Joint)
- Order complete Honing Unit as would be required if the job were to be done on a Sunnen Honing Machine. (Refer to Section 2 of Sunnen Catalog X-SP-5500H for tooling.)
- If GGN-150 is to be used in a rigid stroking device, order additional Universal Joint AN-70.
- For instant coupling or uncoupling of drive shaft, order Quick Coupler AN-80.

For Portable Use of Machine Tooling

Universal Joint



Included with Remote Feed Portahone but must be ordered separately for Hand-Feed Portahones. Universal Joint is required on a hand-held unit to provide full floating action in a setup where the part and power source are rigidly mounted.

Order as follows:

AN-70

Universal Joint for Remote Feed Portahones with part numbers R_G-P28-1000VA through R_G-P28-1375WC and Hand-Feed Portahone with part numbers P_G-P20-750UA through P_G-P28-1375WC

AN-670

Universal Joint for Remote Feed Portahones with part numbers R_G-P28-1500WD through R_K-P28-5875SD and Hand-Feed Portahones with part numbers P_G-P28-1500WD through P_K-P28-5875SD

Quick Coupler



The quick couplers provide instant coupling or uncoupling of the Portahone and the drive motor – leaves hands free to gage the bore, or insert or remove the Portahone from the work.

Order as follows:

AN-80

Quick Coupler for Remote Feed Portahones with part numbers R_G-P28-1000VA through R_G-P28-1375WC and Hand-Feed Portahones with part numbers P_G-P20-750UA through P_G-P28-1375WC

AN-85

Quick Coupler for Remote Feed Portahones with part numbers R_G-P28-1500WD through R_K-P28-5875SD and Hand-Feed Portahones with part numbers P_G-P28-1500WD through

Driving Power

12,7 mm (1/2") chuck capacity required for Remote Feed Portahones diameter range 25,4 mm (1") through 66,68 mm (2.625") and for Hand-Feed Portahones diameter range 18,90 mm (.744") through 38,10 mm (1.500"). 15,0 mm (5/8") chuck capacity required for Remote Feed Portahones diameter range 66,68 to 152,4 mm (2.625" to 6.000") and for Hand-Feed Portahones diameter range 37,60 to 152,40 mm (1.480" to 6.000").

Open and Blind Hole Conversion

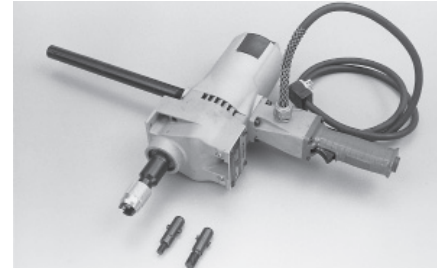
All Portahones 25,4 mm (1") size or larger can be easily converted for blind or open hole work. Call Customer Service Department for details.

AN-1055 Drill Motor Kit (220V, 50Hz)

(Does not come equipped with electrical plug)

AN-1060 Drill Motor Kit (115V, 60Hz)

For Sunnen Portable Equipment and Cylinder Hones



Sunnen Portable Hones may be driven by a wide variety of power units such as air drills, electric drills, hydraulic motors, radial drills, drill presses, etc.

The heavy duty, slow speed electric drill is one of the more popular methods of driving these hones. The AN-1055/1060 Drill Motor Kit is available from Sunnen for honing bores larger than five inches.

Furnished with Sunnen Quick Coupler, which has both AN-97 and AN-87 Yoke Adapters for direct connection to most Sunnen portable honing tools.

This drill motor kit is geared for the lower speeds and, as a result, has high torque. As a safety precaution, some method should be provided to take the honing torque off the operator.

The AN-1055/1060 Drill Motor is suggested for use with the AN-815 Portable Hone in the diameter range of five inches and larger. It may also be used with the AN-815 and other Sunnen Portable Hones for bores smaller than 127 mm (5"). However, better performance is usually obtained in smaller bores by using a drill motor having faster rpm.

AN-1075 Speed Control Unit

(Not available in 50Hz)



Bore sizes of about 203 mm (8") will hone satisfactorily at the 165 rpm full-load speed of the AN-1060 Drill Motor Kit (shown at the top of the page). For larger bores the use of the AN-1075 Speed Control Unit will provide even slower rpm from the drill motor.

The AN-1075 Speed Control Unit maintains approximately constant torque (not constant horsepower) of the drill motor as the speed is reduced. However, electric drill motors are fan cooled and the lower rpm does reduce the flow of cooling air. For this reason, we suggest that any electric drill be operated no slower than one-half of the full-load rpm. Considering this limitation, the AN-1075 Speed Control used with the AN-1060 Drill Motor will operate as slow as 82 rpm and will provide correct rpm for honing diameters as large as 381 mm (15").

Also may be used for speed control of other AC-DC drill motors and motors (brush-type only) where nameplate ampere rating is 15 amps or less.

Technical Data

Stone Code Explanation Chart & Surface Finish Guide

K8	—	A	5	7	Abrasive Types A - Aluminum Oxide C, J - Silicon Carbide DM, DR, DV - Diamond NM, NR - CBN	Grit Size				Hardness	
Series	Abrasive Type	Grit Size	Hardness			1- 70	8- 400	1- Soft			
						2- 80	9- 500	3- 100	0- 600	5- 7- 9- 11- 13- 15- Hard	
						3- 100	0- 600	4- 150	80- 800		
						5- 220	90- 900	6- 280	10- 1000		
						7- 320	00- 1200				

Note: For special abrasive needs, contact your Sunnen Field Engineer.

Approximate Surface Finish in Micrometers (µm) R_a											
Material	Abrasive Type	Grit Size									
		80	100	150	220	280	320	400	500	600	1200
Hard Steel	Aluminum Oxide/ Silicon Carbide	0,65	-	0,50	0,45	0,30	0,25	0,12	0,08	0,03	
	CBN	-	1,40*2,00	1,15	1,00	0,70	-	0,50	-	0,18	0,05
Soft Steel	Aluminum Oxide/ Silicon Carbide	2,00	-	0,90*1,40	0,65	0,50*0,90	0,40	0,18*0,25	0,10*0,20	0,05	
	CBN	-	1,60*2,50	-	1,25*2,00	-	-	0,65	-	0,40	0,12
Cast Iron	Silicon Carbide	2,50	-	0,75*1,00	0,50	0,30	0,25	0,15	0,12	0,08	
	Diamond	-	-	-	2,00	-	-	1,27	-	0,50	0,30
Aluminum, Brass, Bronze	Silicon Carbide	4,30	-	2,00	1,40	0,85	0,70	0,40	0,30	0,05	
Carbide	Diamond	-	-	0,75	0,50	-	-	0,18	-	0,08	0,03
Ceramic	Diamond	-	-	1,27	1,00	-	-	0,50	-	0,40	0,25
Glass	Diamond	-	-	2,40	1,80	-	-	0,75	-	0,40	0,20

Surface Finish Conversions: Millimeter to Inch—To convert one unit of measure to the other use the following formulas.

Micrometer to microinch: Micrometer x 40 = Microinch

Formulas for determining minimum stock removal required on diameter to achieve desired surface finish.

Surface Finish in Micrometers—(µm) R_a

$$\frac{\text{Existing Finish} - \text{Desired Finish}}{100} = \frac{\text{Required Stock Removal}}{100}$$

Example: Existing Finish = 1.25 µm; Desired Finish = 0.25 µm

$$\frac{1.25 - 0.25}{100} = 0.01 \text{ mm}$$

Approximate Surface Finish in Microinches (µ in) R_a											
Material	Abrasive Type	Grit Size									
		80	100	150	220	280	320	400	500	600	1200
Hard Steel	Aluminum Oxide/ Silicon Carbide	25	-	20	18	12	10	5	3	1	
	CBN	-	55*80	45	40	28	-	20	-	7	2
Soft Steel	Aluminum Oxide/ Silicon Carbide	80	-	35*55	25	20*35	16	7*10	4*8	2	
	CBN	-	65*100	-	50*80	-	-	25	-	16	5
Cast Iron	Silicon Carbide	100	-	30*40	20	12	10	6	5	3	
	Diamond	-	-	-	80	-	-	50	-	20	12
Aluminum, Brass, Bronze	Silicon Carbide	170	-	80	55	33	27	16	12	2	
Carbide	Diamond	-	-	30	20	-	-	7	-	3	1
Ceramic	Diamond	-	-	50	40	-	-	20	-	15	10
Glass	Diamond	-	-	95	70	-	-	30	-	15	8

Surface Finish Conversions: Inch to Millimeter—To convert one unit of measure to the other use the following formulas.

Microinch to micrometer: Microinch ÷ 40 = Micrometer

*If two values are shown: the first number is for small parts, honed on machines with one horsepower or less; the second number is for large parts, honed on machines with two or more horsepower.

Formulas for determining minimum stock removal required on diameter to achieve desired surface finish.

Surface Finish in Microinches—(µ") R_a

$$\frac{\text{Existing Finish} - \text{Desired Finish}}{100,000} = \frac{\text{Required Stock Removal}}{100,000}$$

Example: Existing Finish = 50 µm"; Desired Finish = 10 µm"

$$\frac{50 - 10}{100,000} = 0.0004 \text{ inch}$$



A LEGACY OF EXCELLENCE SINCE 1924.

WORLDWIDE

Our global manufacturing, distribution, and sales and service network allows us to deliver quality Sunnen solutions worldwide.

And our state-of-the-art Technical Services Centers allow our technical experts to develop innovative solutions to customer application challenges. The Centers also provide answers for customer questions and training for Sunnen representatives around the world.

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