

PORTABLE HONES AND ACCESSORIES

FOR INDUSTRIAL APPLICATIONS



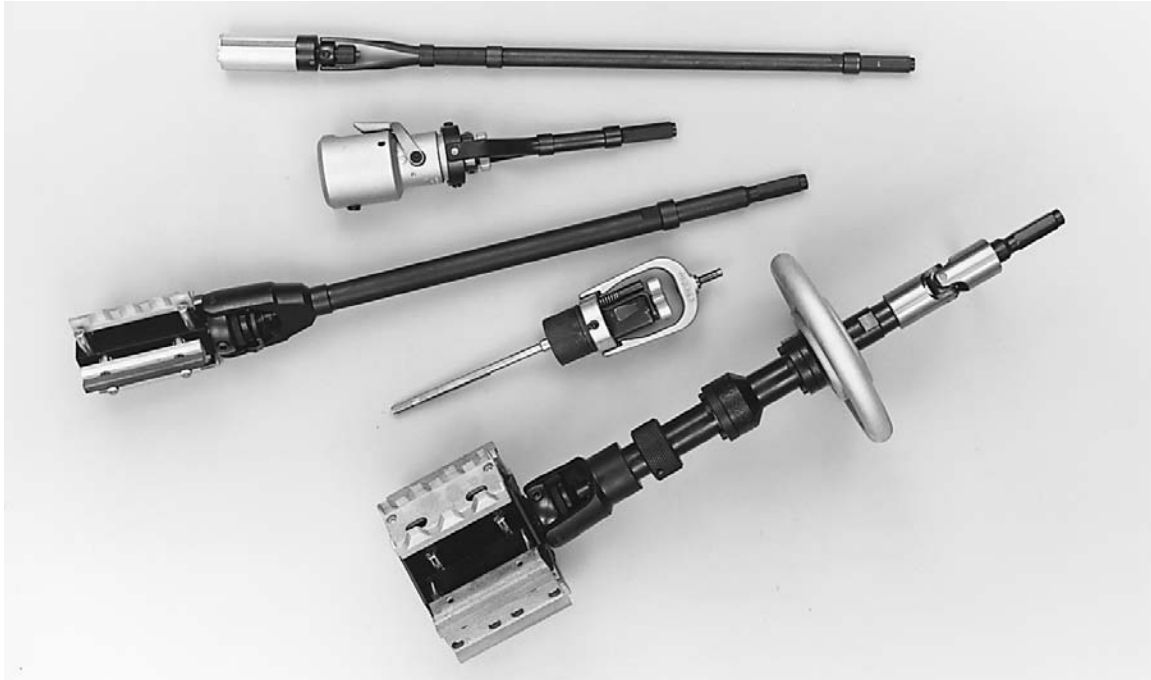
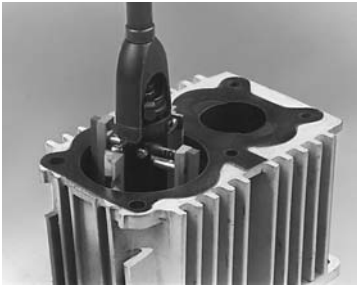
Where Performance Starts

Table of Contents

	<i>Page</i>
SNJ-10	2
SN-75	3-4
SNR-185	3-4
JN-95	5-6
JNR-210	5-6
Portable Hones & Accessories	7
AN-112	8
AN-815.....	9
ANR-275	10
GNH	11
GNR	12
Piloted Portable Hones	13
Recommended Stone Sets.....	14
Stones for AN, ANR, GNH & GNR	15
PHT Plateau Honing Tools	16
Honing Oils	16
How to Select Power Source.....	16
Surface Finish	17

Sunnen Portable Hones

For Bore Diameters
4,70 mm – 1524 mm
.185" – 60"



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

Corrects undersize, taper, out-of-round, barrel or bell-mouth 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.

*Refer to pages 136-137 for portable tooling to hone diameters from 4,7 mm - 31,75 mm (.185" - 1.250")

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 the following pages.

SNJ-10 Portable Hone

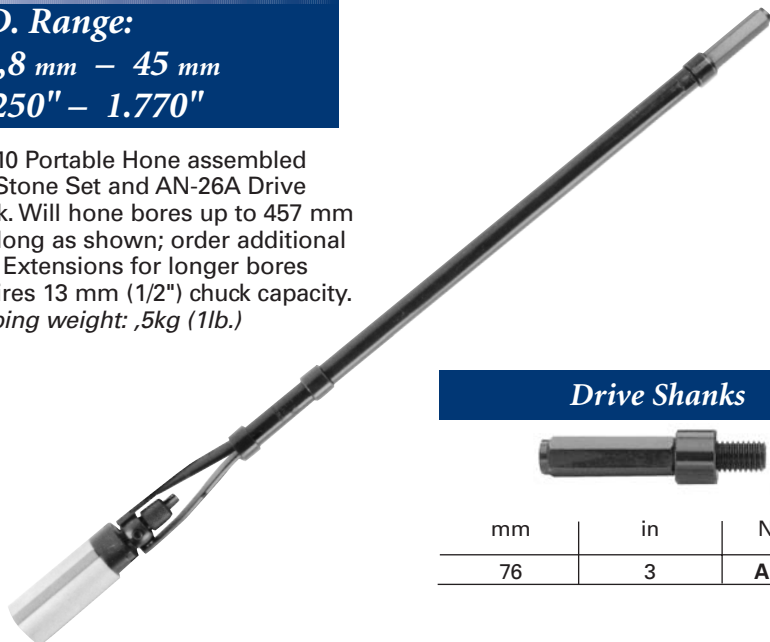
Hand Feed

I.D. Range:

31,8 mm – 45 mm

1,250" – 1.770"

SNJ-10 Portable Hone 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. Shipping weight: .5kg (1lb.)



How To Order

Specify SNJ-10 Basic Hone (includes 76 mm (3") Drive Shank and one Universal Joint).

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 below.

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

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. Made from special abrasive impregnated filament. For additional information contact your local Sunnen Field Engineer or call Customer Service toll-free in St. Louis

For Diameter Range		Abrasive Sets
mm	in	(320 Grit)
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"
	Aluminum Oxide		
150	SNJ1-A43 SNJ1-A45 SNJ1-A47	SNJ2-A43 SNJ2-A45 SNJ2-A47	SNJ3-A43 SNJ3-A45 SNJ3-A47
150 280 400	Silicon Carbide		
	SNJ1-J45	SNJ2-J45	SNJ3-J45
	SNJ1-J63	SNJ2-J63	SNJ3-J63
400	SNJ1-J85 SNJ1-J87	SNJ2-J85 SNJ2-J87	SNJ3-J85 SNJ3-J87

** Call Sunnen Products Customer Service Department for recommendations on honing carbide, ceramic or glass.

Additional stones available 2 weeks after receipt of order.

Accessories

AN-70 Universal Joint

AN-80 Quick Coupler

See page 124

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.

*1st choice

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

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

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
Deburring: rough holes, all materials					
	SNJ1-A47	SNJ2-A47	SNJ3-A47	—	—
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

How To Order

Specify SN-75 Basic Hone (includes 76 mm (3") Drive Shank, 305mm (12") Extension and one Universal Joint).

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 124.

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

I.D. Range:

44 mm – 51 mm

1.750" – 2"

SN-75 Portable Hone 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. Shipping weight: 1,4kg (3 lb.)

SNR-185 Portable Hone

Remote-Feed Midget Hone

How To Order

Specify SN-185 Remote-Feed Midget Hone (includes 76 mm (3") Drive Shank; and two Universal Joints).

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 124.

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.

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

* Supplied with hone.

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

I.D. Range:

44mm – 51mm

1.750" – 2"

SNR-185 Remote-Feed Midget Hone 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. Shipping weight: 3,6kg (8 lbs.)

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
Shipping weight: ,34kg (.75 lb.)

AN-80 Quick Coupler

AN-87 Replacement Yoke Adapter

AN-79A Replacement Coupler Sleeve



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.
Shipping weight: ,45kg (1 lb.)

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. Made from special abrasive impregnated filament. For additional information contact your local Sunnen Field Engineer or call Customer Service toll-free in St. Louis

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.

** Call Sunnen Products Customer Service Department for recommendations on honing carbide, ceramic or glass.

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

Recommended Stones Sets

Material	Stone Sets* (2 Stones & 2 Guides) For General Purpose Honing	Approximate Ra Surface Finish	
		µm	µin
Deburring: rough holes, all materials			
	S18-A47	—	—
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-J45	0,50	20
Steel, Hardened**	S18-J43	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

Available Stones

		Grit Size						
		70	80	150	220	280	400	500 600
Hard-----Soft	Aluminum Oxide		(S18-A23)	(S18-A41) S18-A43 S18-A45 S18-A47 (S18-A48) S18-A49	(S18-A55) (S18-A57)	S18-A63 S18-A65 S18-A67		
Hard--Soft	Silicon Carbide	(S18-J11) S18-J13 S18-J15 S18-J17 (S18-J19)		S18-J43 S18-J45 S18-J47 S18-J49	(S18-J55) (S18-J57)	S18-J63 S18-J65 S18-J67 S18-J69	S18-J83 S18-J85 S18-J87	S18-J95 (S18-J97)
								(S18-C05)

Stones in parentheses available 2 weeks after receipt of order.

Superabrasive Stone Sets for Portable Hones

Metal Bond Diamond and Borazon/CBN Stone Sets

Use to increase stock removal rates or abrasive life when compared to A or J stones, resin or vitrified diamond and Borazon/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 two roughing guides. Select the L12 metal bond superabrasive stone desired from the stone selection guide found on page 39. Master Holders available 4 weeks after receipt of order. Stone sets available 1 week after receipt of order.

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	NR83 Resin Bond
DV-87	—
DV-07	—

Ex: S18-NR53
Available 1-2 weeks after receipt of order.

JN-95 Portable Hone

Hand Feed

How To Order

Specify JN-95 Basic Hone (includes 76 mm (3") Drive Shank, 305 mm (12") Extension, and one Universal Joint).

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 126.

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

I.D. Range:

51 mm – 66 mm

2" – 2.600"

JN-95 Portable Hone 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. Shipping weight: 1,4kg (3 lbs.)



JNR-210

Remote-Feed-Junior Hone

How To Order

Specify JNR-210 Remote -Feed Junior Hone.

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 126.

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.

Drive Shanks



mm	in	Part Number
76	3	AN-26A*

*Supplied with hone.

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

I.D. Range:

51 mm – 66 mm

2" – 2.600"

JNR-210 Remote-Feed Junior Hone as 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. Shipping weight: 3,6kg (8.5 lbs.)



JN-95/JNR-210

Accessories and Stone Sets

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

Shipping weight: ,34kg (.75 lb.)

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.

Shipping weight: ,45kg (1 lb.)

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. Made from special abrasive impregnated filament. For additional information contact your local Sunnen Field Engineer or call Customer Service toll-free in St. Louis

For Diameter mm	Range in	Abrasive Sets (320 Grit)
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

* 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.

** Call Sunnen Products Customer Service Department for recommendations on honing carbide, ceramic or glass.

Available Stones

Grit Size

Aluminum Oxide	H-----S	80	(T20-A23) T20-A25 (T20-A27)	(U22-A23) U22-A25 (U22-A27)	(V24-A23) V24-A25 (V24-A27)
			(T20-A41) T20-A43 T20-A45 T20-A47 (T20-A48) (T20-A49)	(U22-A41) U22-A43 U22-A45 U22-A47 (U22-A48) U22-A49	(V24-A41) V24-A43 V24-A45 V24-A47 (V24-A48) (V24-A49)
			(T20-A55) (T20-A57) (T20-A59)	(U22-A55)	(V24-A55)
			T20-A63 T20-A65 T20-A67	U22-A63 U22-A65 U22-A67	V24-A63 V24-A65 V24-A67
			(T20-A79)		
Silicon Carbide	H-----S	70	T20-J11 T20-J13 T20-J15 T20-J17 (T20-J19)	(U22-J11) U22-J13 U22-J15 U22-J17 (U22-J19)	(V24-J11) V24-J13 V24-J15 V24-J17 (V24-J19)
			T20-J43 T20-J45 T20-J47 T20-J49	U22-J43 U22-J45 U22-J47 (U22-J49)	V24-J43 V24-J45 V24-J47 (V24-J49)
			(T20-J55) (T20-J57) (T20-J59)	(U22-J55)	(V24-J55)
			T20-J63 T20-J65 T20-J67	U22-J63 U22-J65 U22-J67 (U22-J69)	V24-J63 V24-J65 V24-J67 (V24-J69)
			T20-J83 T20-J85 T20-J87 (T20-J89)	U22-J83 U22-J85 U22-J87	V24-J83 V24-J85 V24-J87
		500	(T20-J93) T20-J95 (T20-J97)	(U22-J93) U22-J95 (U22-J97)	(V24-J93) (V24-J95) (V24-J97)
			(T20-C05)	(U22-C05)	(V24-C05)

Stones in parentheses available 2 weeks after receipt of order.

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
Deburring: rough holes, all materials					
	T20-A47	U22-A47	V24-A47	—	—
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

Superabrasive Stone Sets Repair Parts

Superabrasive Stone Sets for Portable Hones

Metal Bond Diamond and Borazon/CBN Stone Sets

Use to increase stock removal rates or abrasive life when compared to A or J stones, resin or vitrified diamond and Borazon/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	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 L16 superabrasive stones and two roughing guides. Select the L16 metal bond superabrasive stone desired from the stone selection guide found on page 39. *Master Holders available 4 weeks after receipt of order. Stone sets available 1 week after receipt of order.*

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.

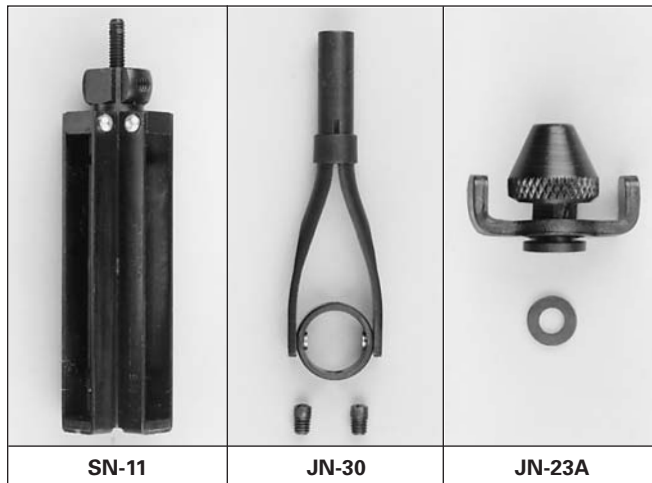
Diamond Stone	Borazon Stone
DV-47	NR53 Resin Bond
DV-57	NR83 Resin Bond
DV-87	—
DV-07	—

Ex: T20-NR53

Available 1-2 weeks after receipt of order.

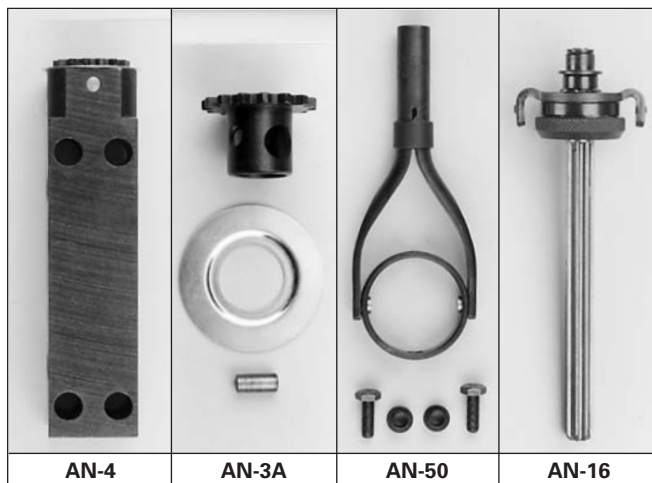
Portable Hones and Accessories

SN-75 Portable Hone



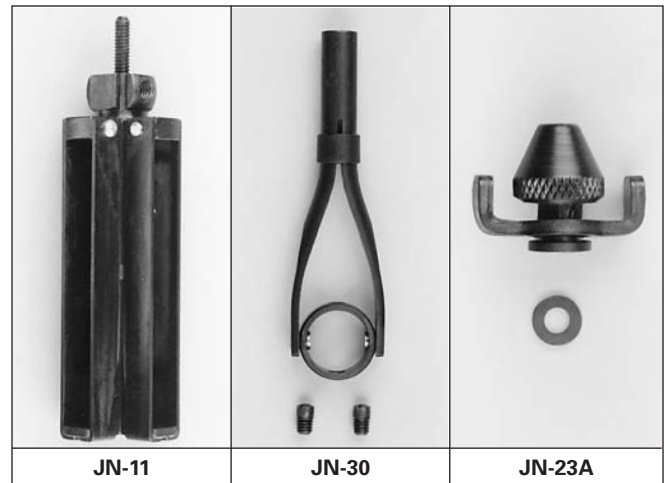
SN-11 Hone Body
JN-30 Universal Joint Complete
JN-23A Adjusting Nut and Washer

AN-112 Portable Hones



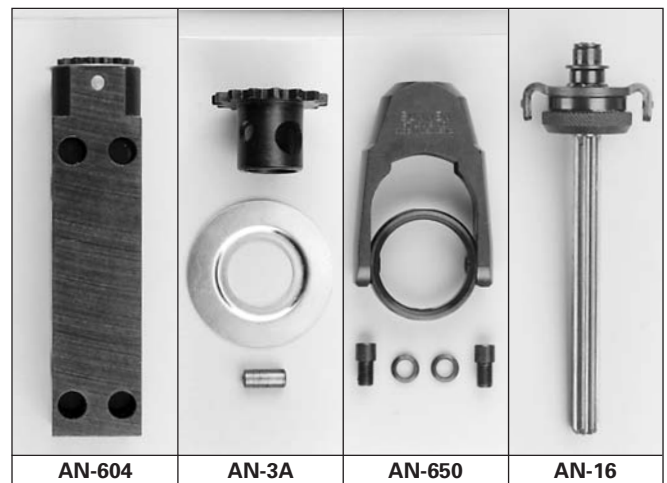
AN-4 Hone Body
AN-50 Universal Joint Complete
AN-16 Center Pinion Adjustment
AN-3A Body Gear

SN-95 Portable Hone



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

AN-815 Portable Hone



AN-650 Hone Body
AN-604 Universal Joint Complete
AN-16 Adjusting Nut and Washer
AN-3A Body Gear Set

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 assembled with Stone Set, 76mm (3") Drive Shank and 305mm (12") Shaft Extension. 102mm (4") stone length. Requires 13mm (1/2") chuck capacity. Shipping weight: 1,8kg (4 lbs.)



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 Sets		Guideless and Keyway Stone Sets			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 page 135 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.

Shipping weight: ,34kg (.75 lb.)



Master Holder Sets

Stone

Stones



Single Length Master Holder



Double Length Master Holder

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-80 Quick Coupler

AN-87 Replacement Yoke Adapter

AN-79A Replacement Coupler Sleeve



Provides instant coupling or uncoupling of hone from drive motor.

Shipping weight: ,45kg. (1 lb.)

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 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.

Shipping weight: 2,3kg (5 lbs.)

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 Sets		Guideless and Keyway Stone Sets			Single Length	Double Length			
mm	in	mm	in						
64-140	2.5-5.5	64-142	2.5-5.6	AN-815	None	None	None	See tables on page 135 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-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. For heavy-duty or production work see pages 130 or 131.

** 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†

† 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

* Furnished with 76 mm (3") Drive Shank and 305 mm (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-670 Universal Joint



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

Shipping weight: ,7kg (1.5 lb.)

Master Holder Sets

Stone



Single Length Master Holder

Stones



Double Length Master Holder

Stone Support



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.

AN-85 Quick Coupler

Provides instant coupling or uncoupling of hone from drive motor.

Shipping weight: ,45kg (1 lb.)



ANR-275 Wide Range Hone

Remote Feed– For Heavy-Duty Production Honing
–to be used in a machine or honing rig

I.D. Range:

64 mm – 533 mm

2.5"–21"

ANR-275 Portable Hone assembled with Stone Support, Single Length Master Holder Set, Stone Set and 76 mm (3") Drive Shank. 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.

Shipping weight: 5,2 kg (11.5 lbs.)



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 Sets		Guideless and Keyway Stone Sets			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 page 135 for portable hone stone sets.	For holes longer than 229mm (29") 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. For heavy-duty or production work see pages 130 or 131.

** 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

* 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).

Accessories

AN-85 Quick Coupler

Provides instant coupling or uncoupling of hone from drive motor.

Shipping weight: ,45kg (1 lb.)



Master Holder Sets

Stone

Stones

Stone Support



Single Length Master Holder



Double Length Master Holder



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.

GNH Giant Portable Hone

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



I.D. Range:
254 mm – 1524 mm
10"–60"

GNH-1510 Hand-Feed Giant Hone 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 page 134 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).

Hand-Feed Giant Hones

Diameter Range		Part Number	Shipping Weight	
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	†	†

† Call Customer Service for weight information.

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

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 1200 by bore diameter in inches.

EX: $1200 \div 10 = 120$ (RPM).

Or, divide 3000 by bore diameter in mm.

EX: $30000 \div 254 = 118$ (RPM).

Available 4 weeks after receipt or order.

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"



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.



GNR-1010 Remote-Feed Giant Hone 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 page 134 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: $1200 \div 10 = 120$ (RPM).

Or, divide 3000 by bore diameter in mm.

EX: $3000 \div 254 = 118$ (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 Weight		
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*	†	†	

* Available from stock, except for GNR-3610, GNR-4410, and GNR-5210 which can be shipped four weeks after receipt of order.

† Call Customer Service for weight information.

Additional Hone Heads

Diameter to be Honed		Part Number for Giant Hone Head**	Shipping Weight	
mm	inches		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*	†	†

* Available from stock, except for GNR-3625, GNR-4425, and GNR-5225 which can be shipped four weeks after receipt of order.

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

† Call Customer Service for weight information.

GNR-920 Weight: 9,3kg (20.5 lbs.)

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 Weight	
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 124 for stone selection. Stone sets, stone supports and master holder sets used with the AN-815-A40X Piloted Portable Hone are found on page 129.

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 Check 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)

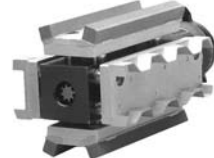
Shipment: The AN-815-A40X with 610 mm (24") pilot bar is available from stock. SN-75-887X and JN-95-887X can be shipped approximately four weeks after receipt of an order. All Piloted Portable Hones are furnished with a 610 mm (24") pilot bar. *Other length pilot bars are available for shipment approximately 4 weeks after receipt of an order.*

SN-75-887X Shipping Weight: 2,8 kg. (6 lbs.)

JN-95-887X Shipping Weight: 2,8 kg. (6 lbs.)

AN-815-A40X Shipping Weight: 4,6 kg. (10 lbs.)

Recommended Stones

For Holes Without Keyways										For Holes With Keyways					
Hole Diameters															
		General Purpose Stone Sets (2 Stones and 2 Guides)				Guideless Stone Sets				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")	Approx. R _a Surface Finish µm µin	
Deburring: rough holes, all materials															
		G25-A47	M27-A47	N37-A47	W47-A47	GG25-A47	MM33-A47	NN40-A47	WW51-A47	GY25-A47	MY33-A47	NY40-A47	WY51-A47	—	—
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-J63	M27-J63	N37-J63	W47-J63	GG25-J63	MM33-J63	NN40-J63	WW51-J63	GY25-J63	MY33-J63	NY40-J63	WY51-J63	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		G25-DV47	M27-DV47	N37-DV47	W47-DV47	—	—	—	—	—	—	—	—	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		G25-DV57	M27-DV57	N37-DV57	W47-DV57	—	—	—	—	—	—	—	—	1.00	40
Glass		G25-DV57	M27-DV57	N37-DV57	W47-DV57	—	—	—	—	—	—	—	—	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-A43	M27-A43	N37-A43	W47-A43	GG25-A43	MM33-A43	NN40-A43	WW51-A43	GY25-A43	MY33-A43	NY40-A43	WY51-A43	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		G25-DV87	M27-DV87	N37-DV87	W47-DV87	—	—	—	—	—	—	—	—	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		G25-DV87	M27-DV87	N37-DV87	W47-DV87	—	—	—	—	—	—	—	—	0.50	20
Glass		G25-DV87	M27-DV87	N37-DV87	W47-DV87	—	—	—	—	—	—	—	—	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 Borazon/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 Vitrified Diamond or Borazon/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.

Master Holder Number	Stone Set Number	Diameter Range mm	Diameter Range 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	4.1-6.5

The ____ in the stone set number is for the metal bond abrasive code. This stone set consists of two L16 superabrasive stones and two roughing guides. Select the L16 metal bond superabrasive stone desired from the stone selection guide found on page 39. Master Holders available 4 weeks after receipt of order. Stone sets available 1 week after receipt of order.

Vitrified Bond Diamond and Resin Borazon/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	Borazon Stone
DV-47	NR53 Resin Bond
DV-57	NR83 Resin Bond
DV-87	—
DV-07	—

The following stone sets are available from stock: G25-DV57, G25-NR53, M27-DV57, M27-NR53, N37-DV57, N37-NR53, W47-DV57, W47-NR53. All other stone sets available 2 weeks after receipt of order.

Stones for AN, ANR, GNH, GNR Honing Units

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.

Stones in parentheses available 2 weeks after receipt of order.

Grit Size	General Purpose				Guideless				Keyway 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")†	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")†
Aluminum Oxide Stones												
80	(G25-A23)	M27-A23	N37-A23	W47-A23	GG25-A23	MM33-A23	NN40-A23	VW51-A23	(GY25-A23)	(MY33-A23)	(NY40-A23)	(WY51-A23)
	(G25-A25)	(M27-A24)	(N37-A24)	(W47-A24)		(MM33-A24)	(NN40-A24)	(VW51-A24)		(MY33-A24)	(NY40-A24)	(WY51-A24)
	(G25-A27)	M27-A25	N37-A25	W47-A25	GG25-A25	MM33-A25	NN40-A25	VW51-A25	(GY25-A25)	(MY33-A25)	(NY40-A25)	(WY51-A25)
150		(M27-A26)	(N37-A26)	(W47-A26)		(MM33-A26)	(NN40-A26)	(VW51-A26)		(MY33-A26)	(NY40-A26)	(WY51-A26)
		M27-A27	N37-A27	W47-A27	GG25-A27	MM33-A27	NN40-A27	VW51-A27	(GY25-A27)	(MY33-A27)	(NY40-A27)	(WY51-A27)
		(M27-A28)	(N37-A28)	(W47-A28)		(MM33-A28)	(NN40-A28)	(VW51-A28)		(MY33-A28)	(NY40-A28)	(WY51-A28)
220												
280												
320												
500												
Silicon Carbide Stones												
70	(G25-J11)	M27-J11	N37-J11	W47-J11	GG25-J11	MM33-J11	NN40-J11	VW51-J11	(GY25-J11)	(MY33-J11)	(NY40-J11)	(WY51-J11)
	G25-J13	M27-J13	N37-J13	W47-J13	GG25-J13	MM33-J13	NN40-J13	VW51-J13	(GY25-J13)	(MY33-J13)	(NY40-J13)	(WY51-J13)
		(M27-J14)	(N37-J14)	(W47-J14)		(MM33-J14)	(NN40-J14)	(VW51-J14)		(MY33-J14)	(NY40-J14)	(WY51-J14)
150		M27-J15	N37-J15	W47-J15	GG25-J15	MM33-J15	NN40-J15	VW51-J15	(GY25-J15)	(MY33-J15)	(NY40-J15)	(WY51-J15)
		(M27-J16)	(N37-J16)	(W47-J16)		(MM33-J16)	(NN40-J16)	(VW51-J16)		(MY33-J16)	(NY40-J16)	(WY51-J16)
		M27-J17	N37-J17	W47-J17	GG25-J17	MM33-J17	NN40-J17	VW51-J17	(GY25-J17)	(MY33-J17)	(NY40-J17)	(WY51-J17)
200		(M27-J18)	(N37-J18)	(W47-J18)		(MM33-J18)	(NN40-J18)	(VW51-J18)		(MY33-J18)	(NY40-J18)	(WY51-J18)
		M27-J19	N37-J19	W47-J19	GG25-J19	MM33-J19	NN40-J19	VW51-J19	(GY25-J19)	(MY33-J19)	(NY40-J19)	(WY51-J19)
280												
400												
500												
600												

†These stones require Master Holder Sets.

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
114-183	4.5-7.2	W47-XB25*	W51-XB25

* Available from finished good stock.

All others available on special order basis.

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. Made from special abrasive impregnated filament. For additional information contact your local Sunnen Field Engineer or call Customer Service toll-free in St. Louis

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	GY-PHT-732
96,0-118,9	3.78-4.68	MM-PHT-731	MY-PHT-731
113,8-154,4	4.48-6.08	NN-PHT-731	NY-PHT-731
126,5-1524,0	4.98-60.0	WW-PHT-731	WY-PHT-731

Sunnen Honing Oil is part of the Sunnen Honing System.

A continuous and generous supply of Sunnen Honing Oil assures accurate, fast honing and the desired finish on all materials. Never use machine oil, kerosene, cutting fluids, etc.

Consistent results cannot be expected unless full strength Sunnen Honing Oil is used.

If pumping the oil is not practical, use a brush or oil can and apply the oil generously and frequently onto the stones and work.

- MB-30™ Honing Oil
- LT9X Honing Oil Concentrate
- MAN-C Honing Oil Concentrate
- MAN-863 Honing Oil
- KG3X Sulfur Free Honing Oil
- MAN-852 Honing Oil
- "SF" Superfinishing Oil (X-SF-1006)
- SCC-405 Honing Coolant Concentrate

(Refer to Sunnen's honing oil brochure X-SP-5063.)

Chuck Size Capacities Required

SN-75, SNR-185, JN-95, JNR-210, AN-112	13 mm (1/2 in.)
AN-815 and ANR-275 Bore sizes to 5 in. (127 mm)	16 mm (5/8 in.)
AN-815 and ANR-275 Bore sizes from 5 to 15 in. (127 to 381 mm)	19 mm (3/4 in.)
AN-815 and ANR-275 Bore sizes over 15 in. (381 mm)	25 mm (1 in.)
GNR-1010, GNR-1510, GNR-2010, GNR-2810	28 mm (1-1/8 in.)

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 or by dividing 30,000 by the bore diameter in millimeters . . . for example:

- Inches: $1200 \div 6 \text{ in.} = 200 \text{ RPM}$
- Millimeters: $30,000 \div 150 \text{ mm} = 200 \text{ RPM}$

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.

Surface Finish

Approximate Surface Finish in Micrometers (µm) Ra

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/Borazon	—	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/Borazon	—	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

Approximate Surface Finish in Microinches (µin) Ra

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/Borazon	—	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/Borazon	—	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	—	27	—	12	2	—
Carbide	Diamond	—	—	30	20	—	—	7	—	3	—
Ceramic	Diamond	—	—	50	40	—	—	20	—	15	10
Glass	Diamond	—	—	95	70	—	—	30	—	15	8

* 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

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.

Microinch to Micrometer:

Microinch ÷ 40 = Micrometer.

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

Surface Finish in Micrometers (µm) Ra

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

Surface Finish in Microinches (µin) Ra

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

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