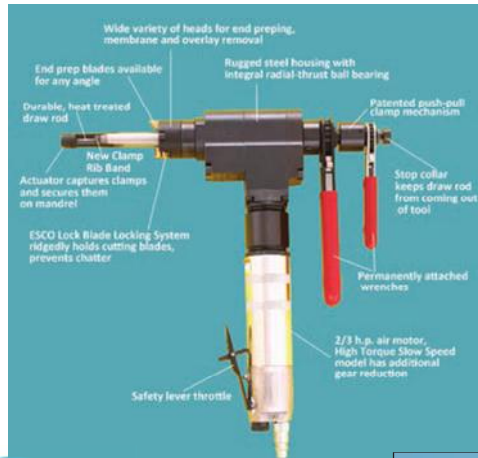


"Ground" MILLHOG®

Right Angle I,D, Clamping End Prep Tool
0.5" I.D. to 2.25" O.D.
12.7 mm I. D. to 57.15 mm O. D.

Key Features

- Patented push-pull clamping and release system
- Self-centering torque-free operation
- Permanently attached clamps and wrenches
- Rigidly mounts to tube I.D., easy to release
- Sealed construction allows use in any orientation
- Produces a smooth, continuous chip
- Compact, low-maintenance end prep tool
- Performs any angle of bevel
- Steel housing with integral radial-thrust ball bearing
- Chatter-free cutter blade locking design
- Uses TiN coated cutter blades



High Performance End-Prep Tool Features Easy Clamp and Release Operation

The Esco "Ground" MILLHOG® is a right angle, I.D.clamping end prep tool for small diameter boiler tubes and pipes. Featuring a push-pull clamp and release mechanism with permanently attached clamps and wrenches, this self-centering tool performs any angle of bevel and produces a smooth continuous chip. Eliminating the possibility of loose parts falling down the tubes, this high performance tool utilizes the EscoLock wedge-style blade lock system and TiN coated blades for chatter-free beveling.

Available in three styles;
Standard
Air Clamp
High Torque Slow Speed



The new improved G Series Retention Band for G-01A, G-02A & G-03A Clamp Ribs is captured within the Clamp Ribs, is extremely durable, will not slip off and is unaffected by repetitive cycling.



The patented push-pull I.D. clamping system makes disengaging the tool from the tube as easy as clamping it and the blades are securely held in place by the EscoLock blade lock system to provide smooth, chatter-free operation.

Standard



Ground Standard Kit includes:

Gear Head, 2/3 Pneumatic HP Motor, Draw Rod, .625in Mandrel (.500in Mandrel may be substituted; consult factory), Hose with couplings, dirt stopper and oiler, Carrying Case & Foam, and Operating Instructions.

The Standard Ground is only 1.5in wide and is ideal for end prepping all boiler tube materials and accessing single tubes in a boiler tube waterwall. It can also be equipped with a membrane removal head for removing membrane from boiler tubes.

Air Clamp



Ground Air Clamp Kit includes:

Gear Head, 2/3 Pneumatic HP Motor, Air Clamp, Draw Rod Assembly, .625in Mandrel (.500in Mandrel may be substituted; consult factory), Hose with couplings, dirt stopper and oiler, and Carrying Case.

The Ground Air Clamp instantly clamps and releases the tool from the tube or pipe i.d. This simple innovation is easy to use, increases production and minimizes operator fatigue by eliminating the tedious and time consuming task of manual clamping.

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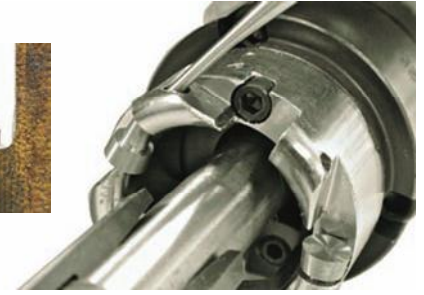
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High Torque Slow Speed



The Ground High Torque has an additional gear reduction that reduces the rpm and doubles the torque at the cutting edge of the Insert and Blade. This Combination is ideal for removing Membrane as well as Overlay from boiler tubes from .875in o.d. to 1.25in o.d.



MRB-8 inserts do not use screws, are easily removed and rotated to utilize the 360 deg cutting edge.

Ground High Torque Slow Speed Kit Includes:

Gear Head, 2/3 HP High Torque Motor with dual gear reduction, Draw Rod, .625in Mandrel (.500in Mandrel may be substituted; consult factory), Hose with couplings, dirt stopper and oiler, Carrying Case & Foam, and Operating Instructions.

Ground Clamp Rib Selector and corresponding spares

Mandrel, Draw Rod, Actuator, Retention Band and Springs

Clamp Rib Set	I.D. Range				Mandrel		Draw Rod	Actuator	Roll Pin	Retention	
	in	mm	Part #	Size	Band	Spring					
G-01A	.500	.655	12.7	16.6	G-204	.500"	G-18A	G-17A	G-15A	G-14E	
G-02A	.625	.780	15.9	19.8	G-20	.625"	G-18	G-16	G-15	G-14F	
G-03A	.750	.905	19.1	22.9	G-20	.625"	G-18	G-17	G-15	G-14F	
G-04	.875	1.030	22.3	26.1	G-20	.625"	G-18	G-17	G-15		G-14
G-05	1.00	1.155	25.4	29.3	G-20	.625"	G-18	G-17	G-15		G-14
G-06	1.125	1.280	28.6	32.5	G-20	.625"	G-18	G-17	G-15		G-14
G-07	1.250	1.405	31.8	35.6	G-20	.625"	G-18	G-17	G-15		G-14
G-08	1.375	1.530	35.0	38.8	G-20	.625"	G-18	G-17	G-15		G-14
G-09	1.500	1.655	38.1	42.0	G-20	.625"	G-18	G-17	G-15		G-14
G-10	1.625	1.780	41.3	45.2	G-20	.625"	G-18	G-17	G-15		G-14
G-11	1.750	1.905	44.5	48.3	G-20	.625"	G-18	G-17	G-15		G-14
G-12	1.875	2.030	47.7	51.5	G-20	.625"	G-18	G-17	G-15		G-14
G-13	2.000	2.155	51.0	54.7	G-20	.625"	G-18	G-17	G-15		G-14



MRB-8 tapered inserts are used on the patented ESCO Overlay and Membrane removal heads. They are easily installed and are not held by screws that can break.

Specifications: Ground Millhog

Working Range	1/2" (12.7 mm) I.D. to 2-1/4" (57.15 mm) O.D."
Motor, pneumatic	2/3 h.p. (.497 kw)
Air Pressure	90 psi (6.2 bar)
Air Volume	25 cfm (708 lt/min)
Speed	
Standard & Air Clamp	200 RPM
High Torque Slow Speed	100 RPM
Minimum Clearance	
Standard at cutterhead	1-1/2" (38.1 mm)
Air Clamp at cylinder	3-5/8" (92.1 mm)
High Torque Slow Speed at membrane or overlay head	1-7/8" (47.6 mm)
Head Length	
Standard	14" (355.6 mm)
Air Clamp	16" (406.4 mm)
High Torque Slow Speed	14" (355.6 mm)
Working weight	
Standard	9.0 lbs (4.1 kg)
Air Clamp	11 lbs (5.0 kg)
High Torque Slow Speed	9.5 lbs (4.31 kg)
Shipping Weight	
Standard	40 lbs (18.2 kg)
Air Clamp	55 lbs (25 kg)
High Torque Slow Speed	42 lbs
Shipping Dimensions	
Standard	20" x 18" x 5" (508 mm x 457 mm 127 mm)
Air Clamp	24" x 20" x 7" (610 mm x 508 mm x 178 mm)
High Torque Slow Speed	20" x 18" x 5" (508 mm x 457 mm 127 mm)

Manufacturer reserves the right to change specifications without notice.

Cutterhead Blade Lock and Screws

Cutterhead		Mandrel		Blade Lock		Lock Screw	
Part #	Size	Part #	Size	Part #	Per Head	Part #	Per Lock
G-206	1.500	G-204	.500"	G-22	2	G-21	1
G-23	1.500	G-20	.625"	G-22	2	G-21	1
G-24	2.000	G-20	.625"	G-22A	2	G-21	1
G-25	2.250	G-20	.625"	G-22	4	G-21	1

Membrane Removal Heads

Membrane Head		Base Head	Inserts	
Size	Part #	Part#	Part #	Qty
.875	MO-100	GB-100	MRB-8	3
1.000	MO-101	GB-101	MRB-8	4
1.125	MO-102	GB-102	MRB-8	4
1.187	MO-103	GB-103	MRB-8	4
1.250	MO-104	GB-102	MRB-8	4

For the Ground Std and Ground High Torque Slow Speed.

Overlay Removal Heads

Overlay Head		Base Head	Inserts	
Size	Part #	Part#	Part #	Qty
.875	MO-200	GB-100	MRB-8	3
1.000	MO-201	GB-101	MRB-8	4
1.125	MO-202	GB-102	MRB-8	4
1.187	MO-203	GB-103	MRB-8	4
1.250	MO-204	GB-102	MRB-8	4

For Ground High Torque Slow Speed.