NDS Home Page

DRILLING SUPPLY

26041 Newton Circle • Elko, Minnesota 55020 • 952 / 461-3400

TO OUR WELL DRILLING CUSTOMERS:

To serve you better, we've designed this catalog featuring lines of equipment, products and parts specially designed to assist you in getting the job done right and in a timely manner.

We hope this catalog is helpful and will be of benefit to your business.

We appreciate your business and plan to continue the service and products you've come to depend on!

Thank you,

NDS *Staff*

Due to changes in product lines and availability, if may be necessary to make changes in this catalog, When necessary, we will send those changes to you.

ALPHABETICAL INDEX

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3 X 4 MISSION MAGNUM SANDMASTER

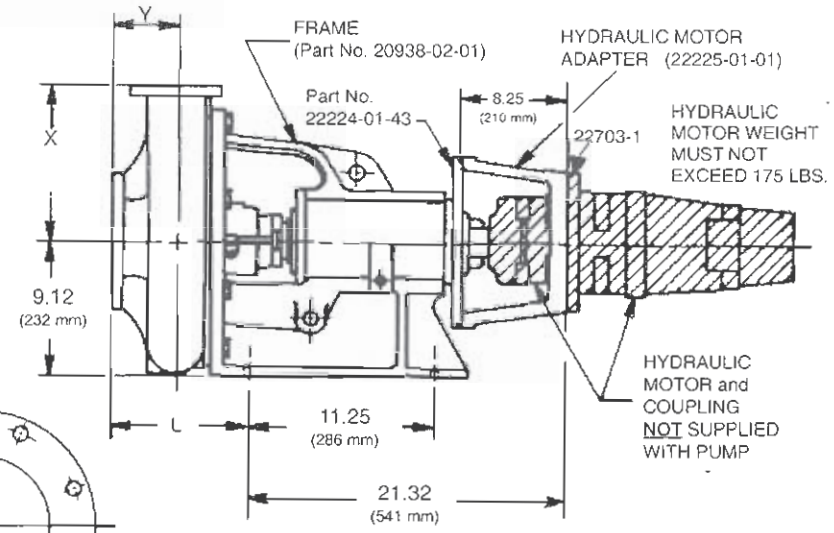
Compact and adaptable

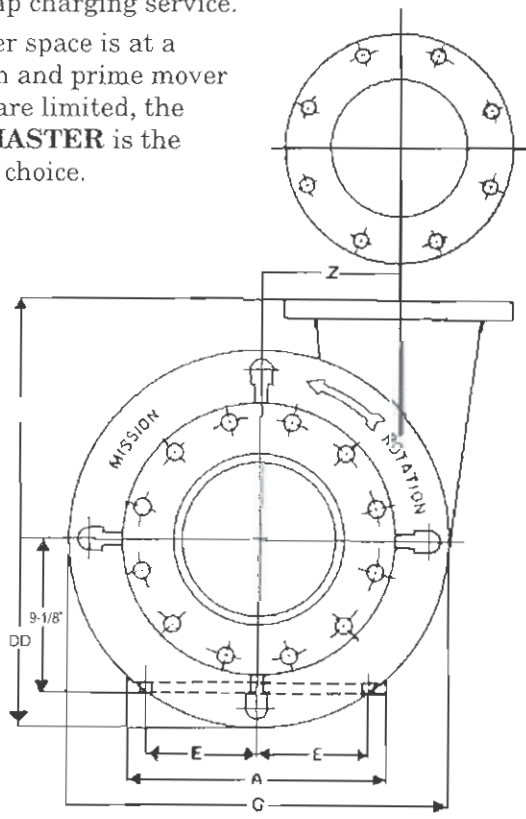
The **SANDMASTER** centrifugal pump includes virtually all the features of the MAGNUM I.

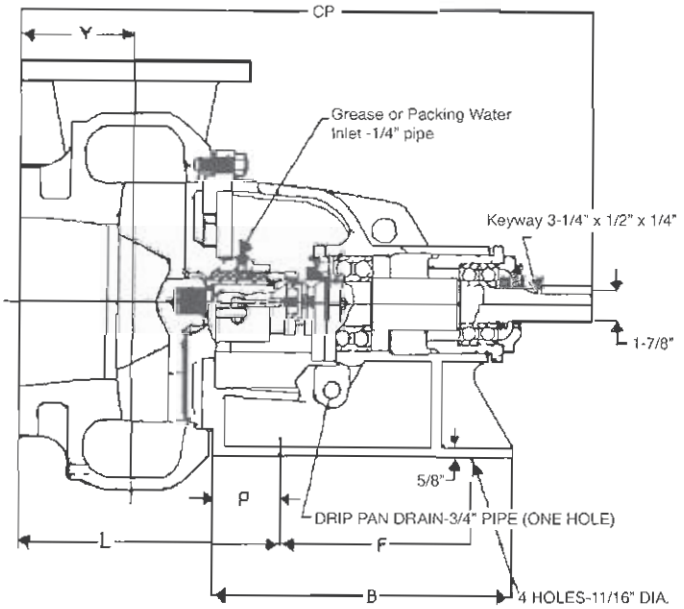
The **SANDMASTER** is more compact in design and can be adapted for hydraulic motor drive (as illustrated in the drawing). These added features make the **SANDMASTER** ideal for use in applications such as oilfield frac trucks. It can be used for blending and pump charging service.

Wherever space is at a premium and prime mover options are limited, the **SANDMASTER** is the pump of choice.

SANDMASTER with a hydraulic motor adapter.







Pump Size	Dimensions In Inches A	B	E	F	G	L	P	X	Y	Z	CP	DD	WT. LBS.
3x2x13	15 1/4	17 3/4	6 9/16	11 1/4	17 7/8	10 7/16	4	10 1/4	3 3/4	7	28 13/16	8 15/16	475
4x3x13	15 1/4	17 3/4	6 9/16	11 1/4	17 7/8	11 1/16	4	10 1/4	4 1/4	6 3/4	29 7/16	8 15/16	491
5x4x14	15 1/4	17 3/4	6 9/16	11 1/4	19	12 7/16	4	11	5	6 1/8	30 13/15	9 1/2	520
6x5x11	15 1/4	17 3/4	6 9/16	11 1/4	17 7/8	13 3/4	4	11	5 3/4	6	32 1/8	8 15/16	550
6x5x14	15 1/4	17 3/4	6 9/16	11 1/4	21	13 3/4	4	11	5 3/4	6	32 1/8	10 1/2	609
8x6x11	15 1/4	17 3/4	6 9/16	11 1/4	20	14 15/16	4	14	6 1/4	8 3/8	33 5/16	10	659
8x6x14	15 1/4	17 3/4	6 9/16	11 1/4	23 9/16	14 15/16	4	14	6 1/4	8 3/8	33 5/16	11 13/16	701
10x8x14	15 1/4	17 3/4	6 9/16	11 1/4	22 3/8	15 3/8	4	14 3/16	6 11/16	8	33 3/4	11 3/16	705

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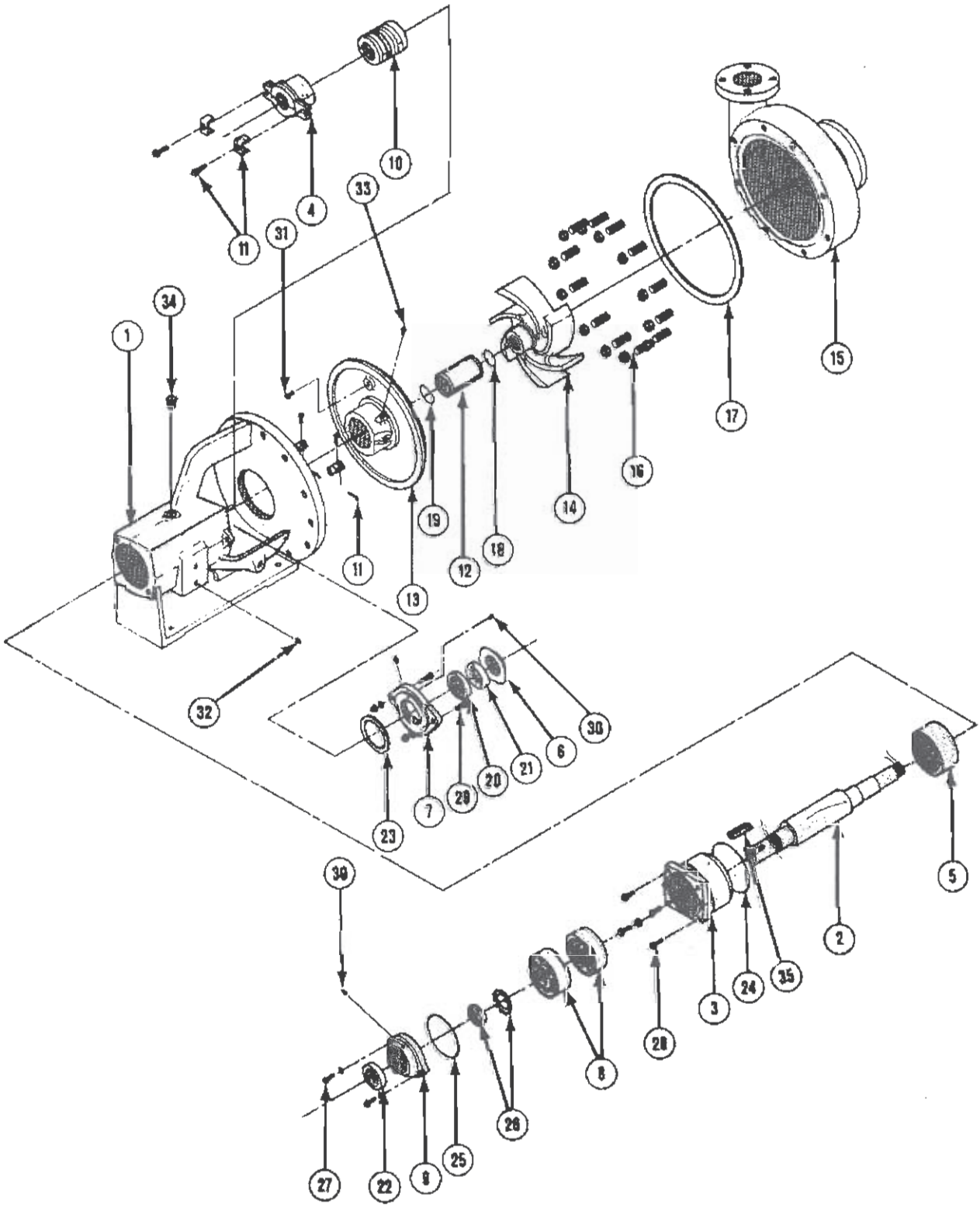
250 SERIES


1
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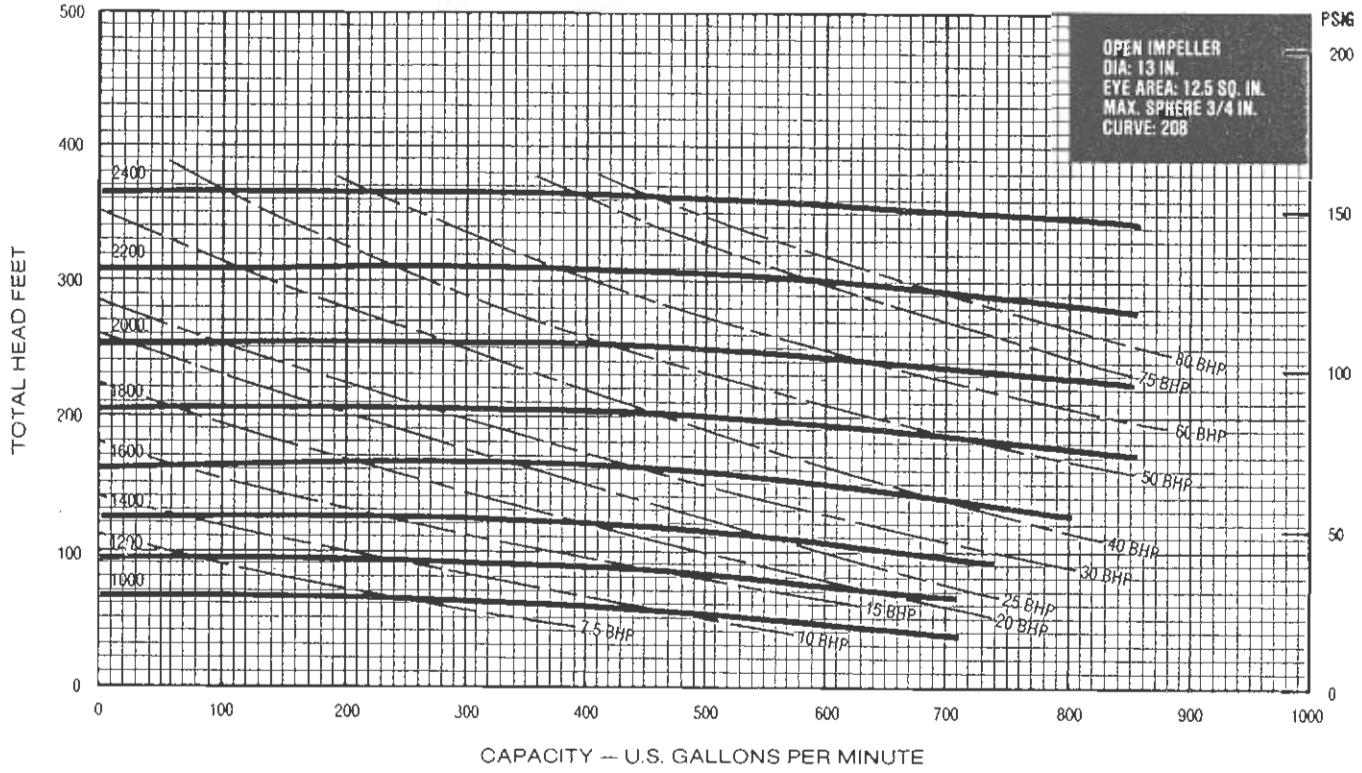
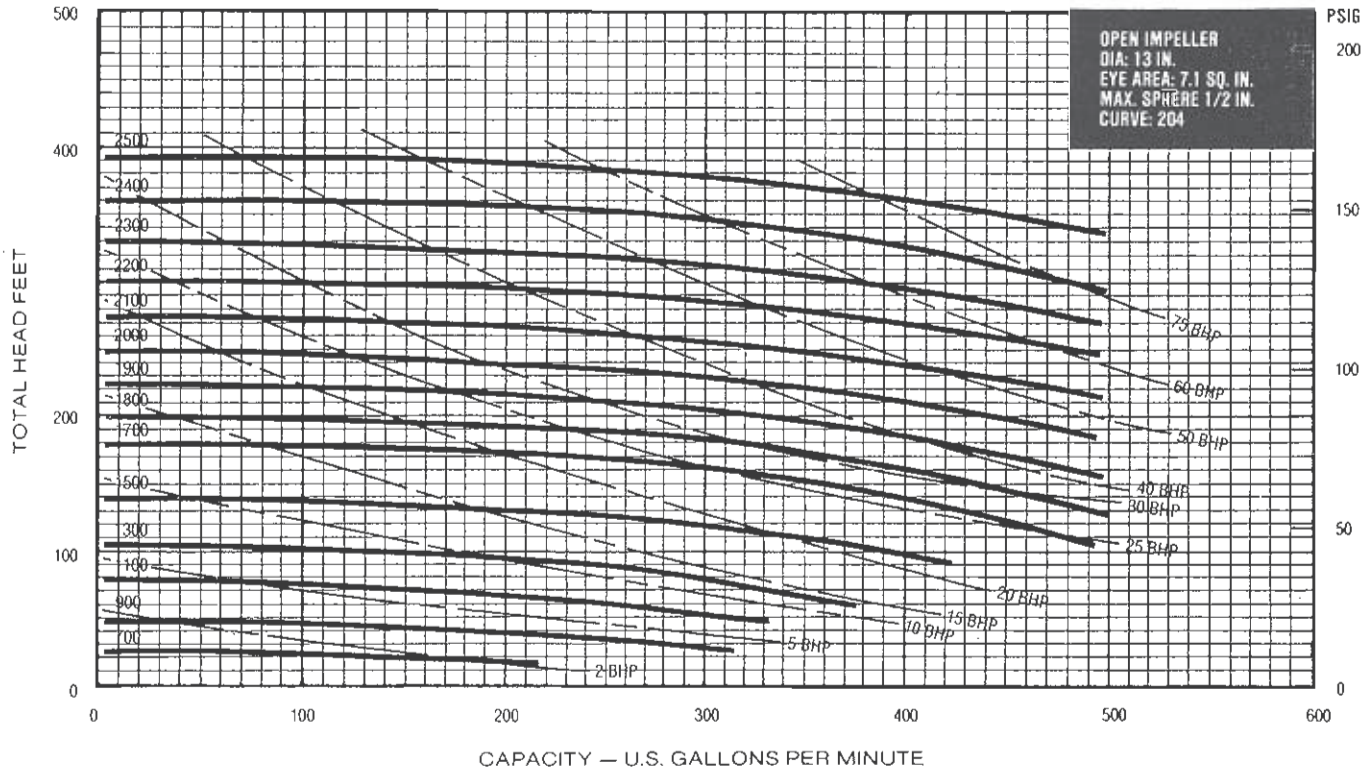
250 SERIES

3 x 4 x 13 1000-2400 RPM



2 x 3 x 13 700-2500 RPM



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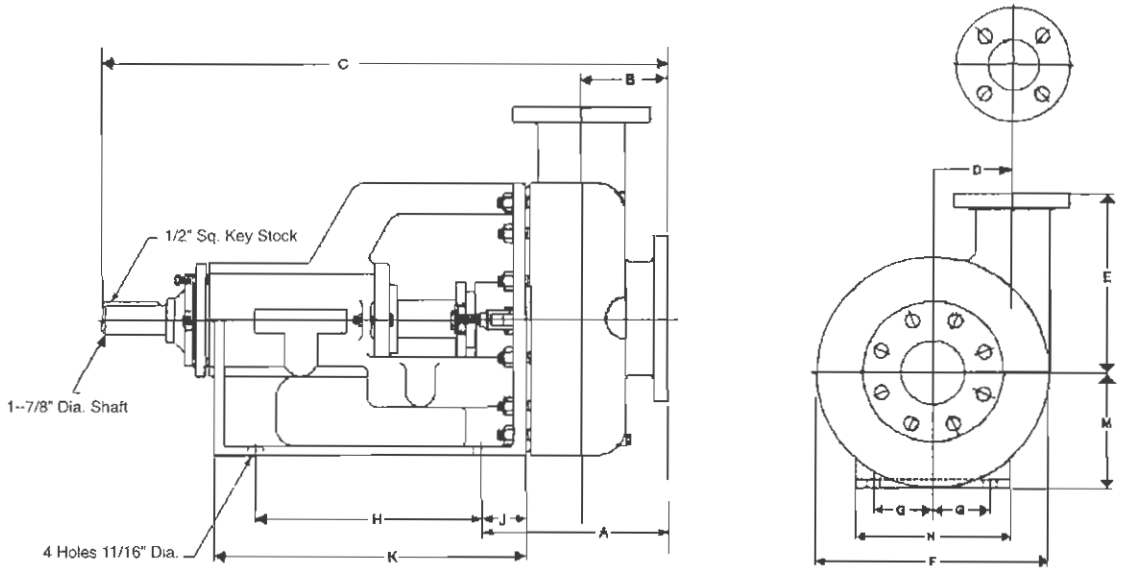
4/2002

250 SERIES
DIMENSIONAL DATA
CENTRIFUGAL PUMP



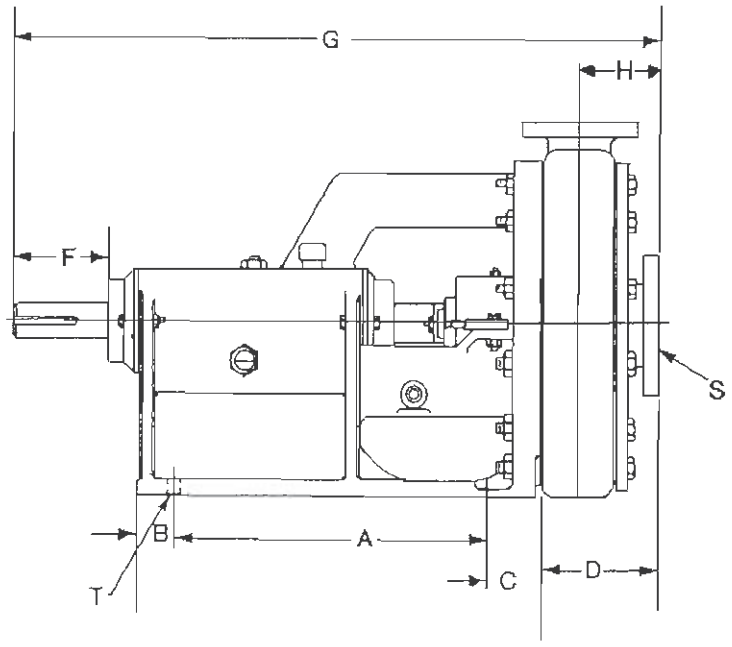
PEDESTAL, HOUSING & INSTALLATION DIMENSIONS

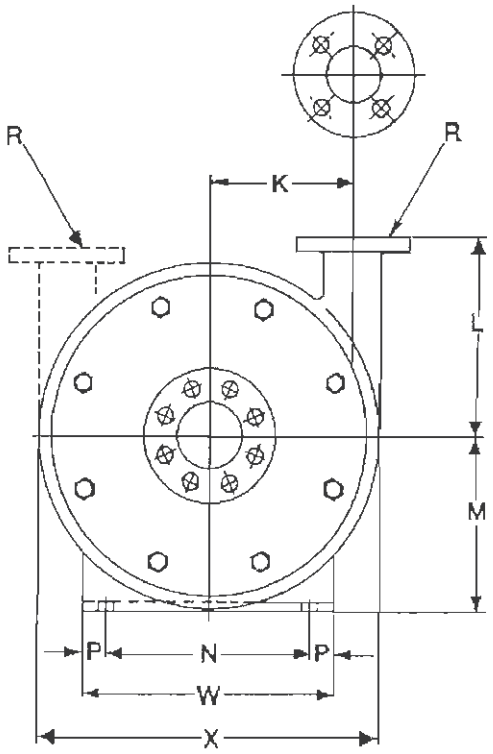
SIZE / DIMENSION	2x3x13	3x4x13	4x5x14	5x6x11	5x6x14	6x8x11	6x8x14
A	8-3/4	9-3/8	10-3/4	12-1/16	12-1/16	13-1/4	13-1/4
B	3-3/4	4-1/4	5	5-3/4	5-3/4	6-3/4	6-3/4
C	33	33-5/8	35	36-3/8	36-3/8	37-1/2	37-1/2
D	7	6-3/4	6-1/8	6	6	8-3/8	8-3/8
E	10-1/4	10-1/4	11	11	11	14	14
F	17-7/8	17-7/8	19	17-7/8	21	20	23
G	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2
H	15-7/16	15-7/16	15-7/16	15-7/16	15-7/16	15-7/16	15-7/16
J	2-5/16	2-5/16	2-5/16	2-5/16	2-5/16	2-5/16	2-5/16
K	19-5/8	19-5/8	19-5/8	19-5/8	19-5/8	19-5/8	19-5/8
M	9	9	9	9	9	9	9
N	9	9	9	9	9	9	9
Max. Impeller Dia.	13	13	14	11	14	11	14
Min. Impeller Dia.	6	6	7	8	10	8	10
Suction Size	3	4	5	6	6	8	8
Discharge Size	2	3	4	5	5	6	6
Weight - Lbs.	430	440	490	520	550	610	630

FLANGE SIZES

FLANGE SIZE	I.D.	O.D.	B.C.	NO. OF HOLES	SIZE OF HOLES	THICKNESS
2	2	6	4-3/4	4	3/4	5/8
3	3	7-1/2	6	4	3/4	3/4
4	4	9	7-1/2	8	3/4	15/16
5	5	10	8-1/2	8	7/8	15/16
6	6	11	9-1/2	8	7/8	1
8	8	13-1/2	11-3/4	8	7/8	1-1/8

178 SERIES
DIMENSIONAL DATA
CENTRIFUGAL PUMP





Pedestal, Housing, & Installation Dimensions

PUMP SIZE	A	B	C	D	F	G	H	K	L	M	N	P	R	S	T	W	X
2x3	16-1/2	1-11/16	2-1/4	6	5	33-1/2	4	7	10-1/4	9	7	1	2	3	(4)-11/16	9	18
3x4	16-1/2	1-11/16	2-1/4	6-3/8	5	34-1/2	4-1/4	7-1/2	10-1/4	9	7	1	3	4	(4)-11/16	9	18
4x5	16-1/2	1-11/16	2-1/4	6-3/8	5	35-3/4	5-1/2	7	11	9	7	1	4	5	(4)-11/16	9	18
5x6	16-1/2	1-11/16	2-1/4	8-3/4	5	36-3/4	5-3/4	6	11	9	7	1	6	8	(4)-11/16	9	18
6x8	16-1/2	1-11/16	2-1/4	10-1/8	5	37-7/8	6-1/4	8-3/8	14-1/4	9	7	1	6	8	(4)-11/16	9	23

FLANGE SIZES

Pump Size	Pump Type (Shaft Dia.)	Discharge Pipe		Suction Pipe	
		SIZE	DRILLING	SIZE	DRILLING
2x3-R & L	1-7/8	2	4 Holes 3/4 Dia. 4-3/4 B.C.	3	4 Holes 3/4 Dia. 6 B.C.
3x4-R & L	1-7/8	3	8 Holes 3/4 Dia. 6 B.C.	4	8 Holes 3/4 Dia. 7-1/2 B.C.
4x5-R & L	1-7/8	4	8 Holes 3/4 Dia. 7-1/2 B.C.	5	8 Holes 7/8 Dia. 8-1/2 B.C.
5x6-R & L	1-7/8	5	8 Holes 7/8 Dia. 8-1/2 B.C.	6	8 Holes 7/8 Dia. 9-1/2 B.C.
6x8- R & L	1-7/8	6	8 Holes 7/8 Dia. 9-1/2 B.C.	8	8 Holes 7/8 Dia. 11-3/4 B.C.

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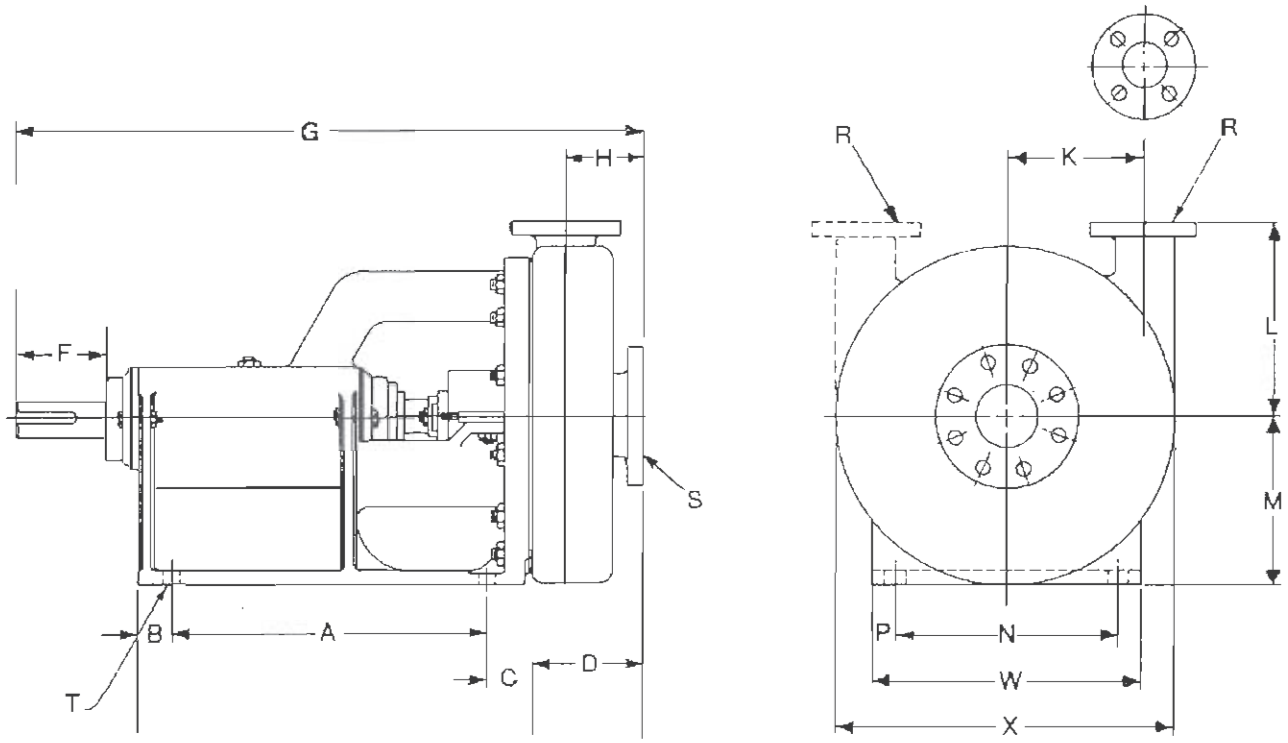
12/00

118 SERIES
DIMENSIONAL DATA
CENTRIFUGAL PUMP



PEDESTAL, HOUSING & INSTALLATION DIMENSIONS

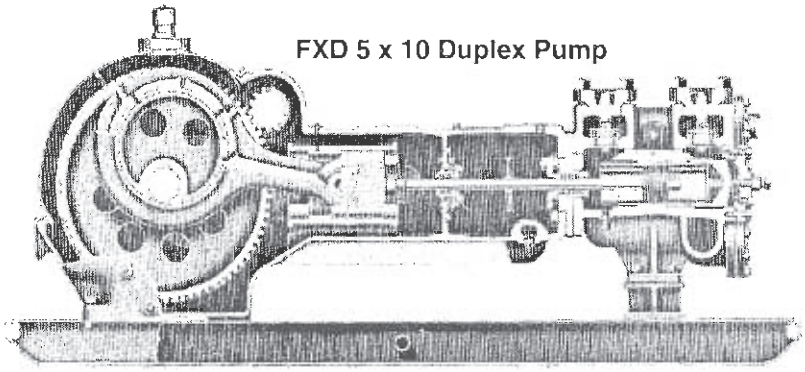
PUMP SIZE	A	B	C	D	F	G	H	K	L	M	N	P	R	S	T	W	X
1x1-1/2 R & L	13	1-7/16	2-3/8	4-1/4	3-5/16	26-1/4	3-1/8	4-7/8	7-1/2	7	4-1/4	7/8	1	1-1/2	(4)-11/16	6	12
1-1/2x2 R & L	13	1-7/16	2-3/8	5	3-5/16	26-3/4	3-1/2	4-5/8	7-11/16	7	4-1/4	7/8	1-1/2	2	(4)-11/16	6	12
2x3 R & L	13	1-7/16	2-3/8	5-1/2	3-5/16	27	3-3/4	5-1/2	7-3/4	7	4-1/4	7/8	2	3	(4)-11/16	6	12
3x4 R & L	13	1-7/16	2-3/8	6-5/8	3-5/16	28-1/2	4-1/4	5	8	7	4-1/4	7/8	3	4	(4)-11/16	6	12-3/4

FLANGE SIZES

PUMP SIZE	PUMP TYPE (Shaft Dia.)	Discharge Pipe		Suction Pipe	
		SIZE	DRILLING	SIZE	DRILLING
1 x 1-1/2	1-1/8	1	4 Holes 5/8 Dia. 3-1/8 B.C.	1-1/2	4 Holes 5/8 Dia. 3-7/8 B.C.
1-1/2 x 2	1-1/8	1-1/2	4 Holes 5/8 Dia. 3-7/8 B.C.	2	4 Holes 3/4 Dia. 4-3/4 B.C.
2 x 3	1-1/8	2	4 Holes 3/4 Dia. 4-3/4 B.C.	3	4 Holes 3/4 Dia. 6 B.C.
3 x 4	1-1/8	3	4 Holes 3/4 Dia. 6 B.C.	4	4 Holes 3/4 Dia. 7-1/2 B.C.

Gardner-Denver FX Duplex Pumps

52 to 487 Gallons Per Minute Displacement



FXD 5 x 10 Duplex Pump

SIZES and RATINGS - FX DUPLEX PUMPS FOR MUD PUMPS AND CEMENT SERVICE

Size Number and Stroke	† Liner Size Diameter		Displacement		Maximum Pressure		Maximum Piston Load		Max Pump RPM	Jack-shaft RPM	Input HP at Maximum Speed	Pipe Sizes				Approximate Weight Without Skid	
												Suction		Disharge			
	In	mm	GPM	BPH	PSI	Kg/cm 2	Lb	Kg				In	mm	In	mm	Lb	Kg
FF-FXF 5" (127 mm)	4-1/2 4 3-1/2 3 2-1/2	114 3 101 6 88.9 76 2 63.5	121 94 4 72.3 52 4 35.6	173 135 103 75 50.9	197 250 326 444 639	13.85 17 58 22.92 31.22 44 93	3140	1424	90	439	16.2 16 2 16.2 15 9 15 6	2-1/2	64	2	51	1475	669
FF-FXG 6" (152 mm)	5 4-1/2 4 3-1/2 3	127.0 114.3 101 6 88.9 76 2	150 121 94 9 71.9 52.0	214 173 136 103 74.3	310 385 492 646 895	21.80 27.07 34 59 45.42 62.93	6122	2777	75	354	32 32 32 32 32	4	102	2	51	2330	1057
FD-FXX 8" (203 mm)	5-1/2 5 4-1/2 4 3-1/2 3	139.7 127 0 114.3 101.6 88.9 76.2	222 182 146 113 84.7 59.9	317 260 209 161 121 85.6	338 409 505 640 836 1136	23.76 28 76 35.51 45.00 58.78 79.87	8036	3645	70	330	51.5 51.1 50.6 49.6 48.6 46.7	4	102	3	76	4775	2166
*FC-FXX 8" (203mm) Divided Fluid End	5 4-1/2 4 3-1/2 3	127.0 114.3 101.6 88.9 76.2	182 146 113 84.7 59 9	260 209 161 121 85.6	409 505 640 836 1136	28.76 35.50 45.00 58.78 79.87	8036	3645	70	330	51.1 50 6 49 6 48.6 46.7	4	102	3	76	5065	2297
FY-FXX 8" (203mm) Divided Fluid End	7-1/2 7-1/4 7 6-3/4 6-1/2 6 5-1/2 5	190 5 184 2 177 8 171 5 165 1 152 4 139 7 127 0	420 391 365 322 313 266 222 182	600 559 521 460 447 380 317 260	182 195 209 217 242 284 338 409	12.80 13 71 14.69 15 26 17 02 19 97 23 76 28 76	8036	3645	70	330	52.4 52.3 52.3 52.2 52 0 51 8 51 5 51 1	6	152	4	102	5925	2688
FD-FXD 10" (254 mm)	5-1/2 5 4-1/2 4 3-1/2 3	139.7 127 0 114.3 101.6 88 9 76 2	257 211 169 131 98 3 69 6	367 301 241 187 140 99.4	475 574 709 897 1171 1500	33 40 40 36 49 85 63.07 82 33 105 47	11,270	5112	65	390	83.8 83 1 82.2 80.6 79.0 71 6	4	102	3	76	6065	2751
*FC-FXD 10" (254mm) Divided Fluid End	5 4-1/2 4 3-1/2 3	127.0 114.3 101 6 88.9 76.2	211 169 131 98 3 69.6	301 241 187 140 99.4	574 709 897 1171 1594	40.36 49.85 63 07 82.32 112.07	11,270	5112	65	390	83.1 82.2 80.6 79.0 76.1	4	102	3	76	6235	2828
FY-FXD 10" (254mm) Divided Fluid End	7-1/2 7-1/4 7 6-3/4 6-1/2 6 5-1/2 5	190.5 184 2 177.8 171.5 165 1 152.4 139 7 127 0	487 454 423 392 364 308 257 211	696 649 604 560 520 440 367 301	255 273 292 315 339 398 475 574	17.93 19.19 20.53 22.15 23.84 27,98 33 40 40.36	11,270	5112	65	390	85.2 85.0 84 8 84 7 84 7 84 1 83.8 83 1	6	152	4	102	7075	3209
FXO-FXO 10" (254mm) Divided Fluid End	5 4-1/2 4 3-1/2	127 0 114.3 101.6 88.9	223 179 138 102	319 256 197 146	772 951 1206 1500	54.28 66.86 84.79 105.47	15,150	6872	70	329	118 2 116.8 114 2 105.0	4	102	3	76	8300	3765
FO-FXO 10" (2545mm) Divided Fluid End	7-1/4 7 6-3/4 6-1/2 6 5-1/2 5	184.2 177.8 171.5 165.1 152.4 139.7 127.0	486 452 419 388 328 273 223	694 648 599 554 469 390 319	367 393 423 457 536 638 772	25 80 27.63 29.74 32.13 37.69 44.86 54.28	15,150	6872	70	329	122.4 121 9 121 6 121.7 120.7 119 5 118.2	6	152	3	76	10500	4763

* Cast steel fluid cylinders tested to 7000 pounds available as extra equipment.
† Fluid cylinder liners and pistons are interchangeable in all sizes in the tables except for FF cylinders fitted with 4-1/2" parts and FD cylinders fitted with 5-1/2" parts.

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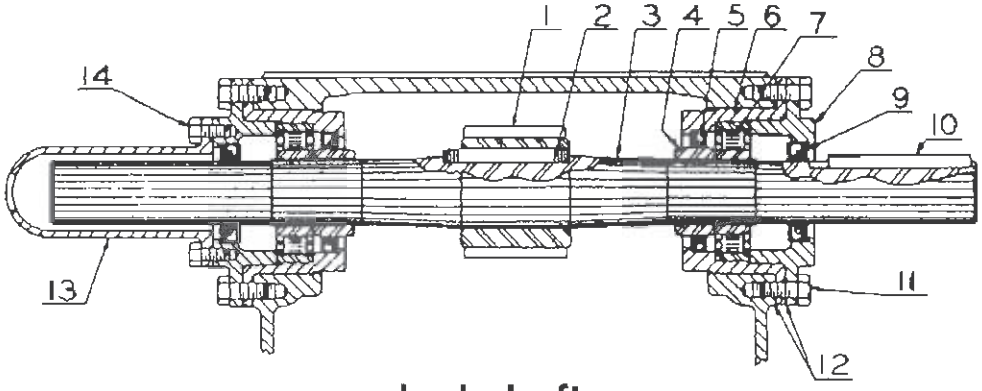
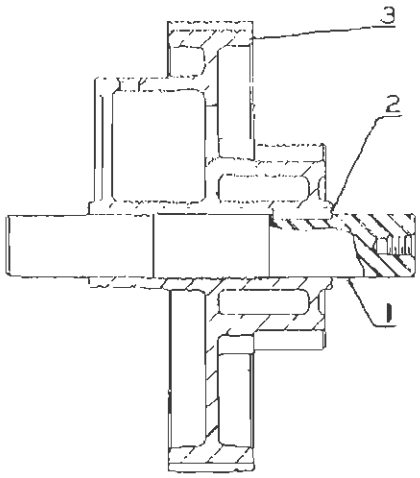
FXG 6" Stroke Duplex Power Pump

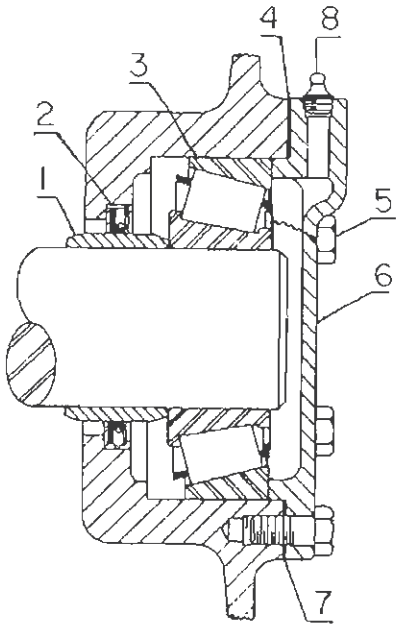


Jackshaft

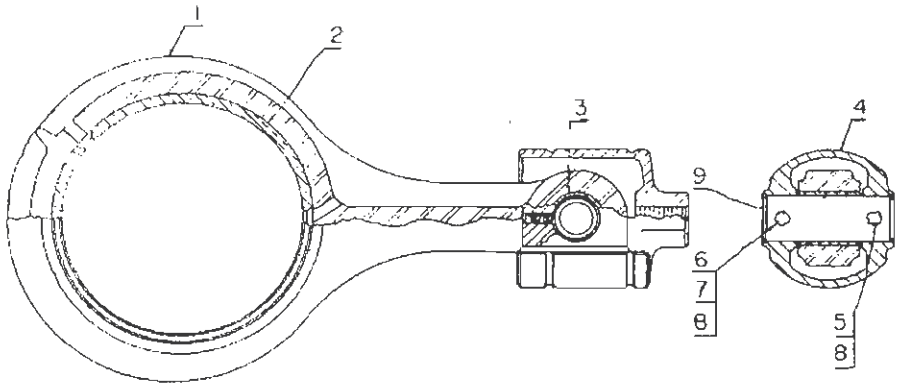


Eccentric Gear & Shaft

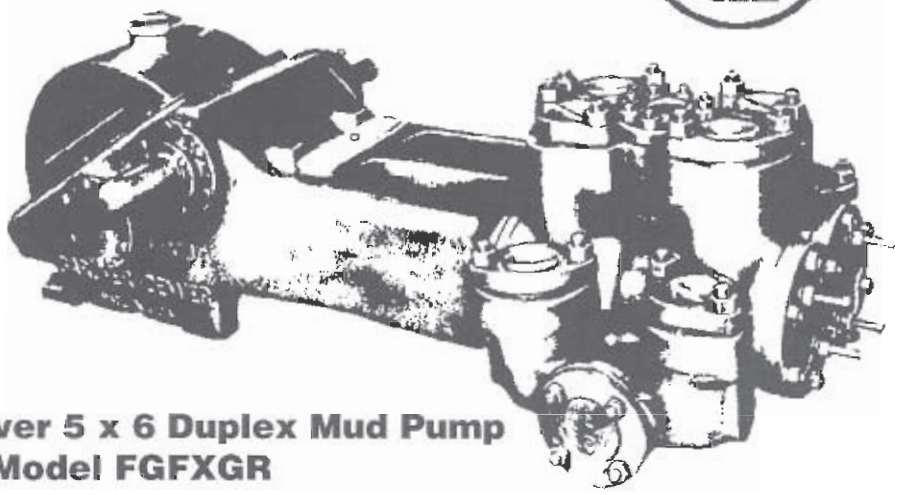
Eccentric Shaft Bearing



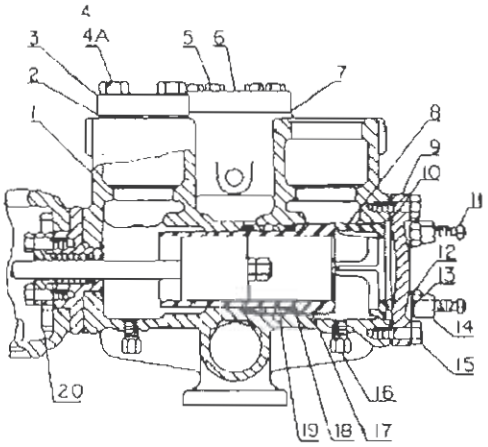
Connecting Rod & Crosshead



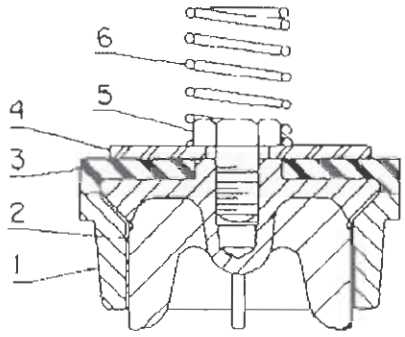
Gardner Denver & George E. Failing Drilling Rig Parts, Mud Pumps & Pump Parts



Gardner Denver 5 x 6 Duplex Mud Pump
Model FGFXGR

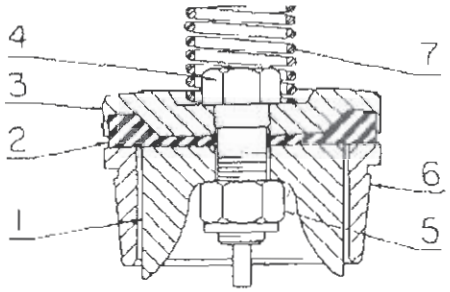


Fluid End



Standard Valve

Gravel Valve



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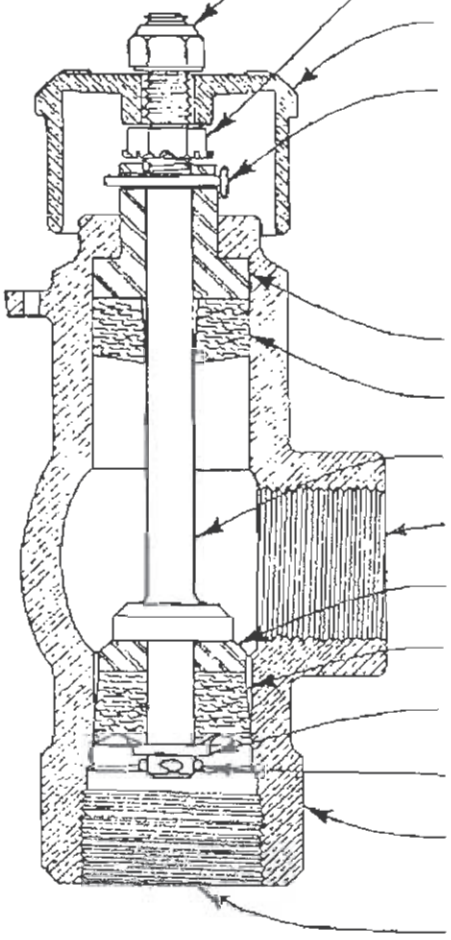
SHEAR RELIEF VALVE



Nut, Elastic Stop
Nut, Castellated
Pin, Cotter
Guard
Nail

16 penny relieves at 1000 lbs.
10 penny relieves at 850 lbs.
8 penny relieves at 600 lbs.
6 penny relieves at 500 lbs.
4 penny relieves at 400 lbs.
3 penny relieves at 250 lbs.

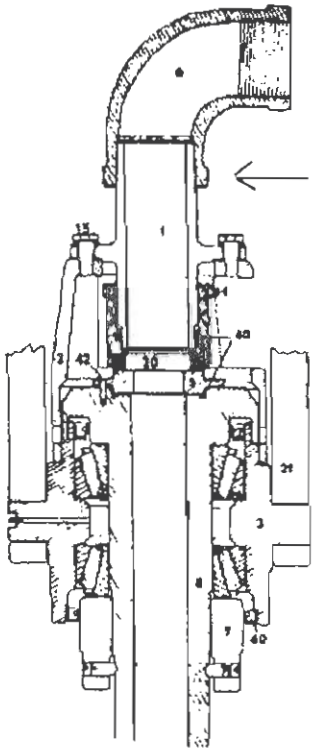
Bushing
Cushion
Stern
1-1/2" pipe thread
Ring
Piston
Washer
Pin, Cotter
Body - Nail sizes on guard
Pressure from line or pump - 2" pipe thread

Type "F" Pressure Gauge

0 — 1,000 PSI

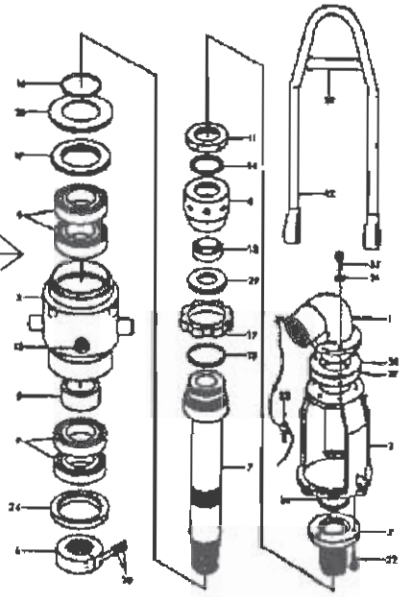
- The self-contained dampening mechanism in this gauge requires no adjustment for changes in pressure range, and gives uniformly steady pressure readings.
- The dial and internal parts are cushioned against line vibrations and the gauge window will not frost in cold weather.
- Ideal for slush pump service, portable core drills and pipe lines.
- Has 2" N.P.T. male bottom connection.

SWIVELS

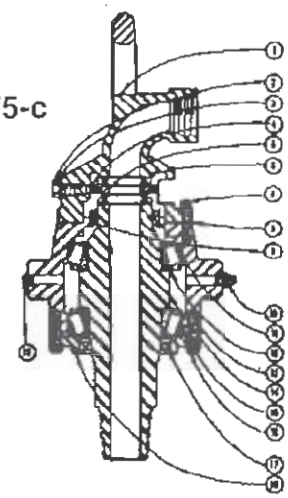


Midway/Little Giant
Water Swivel

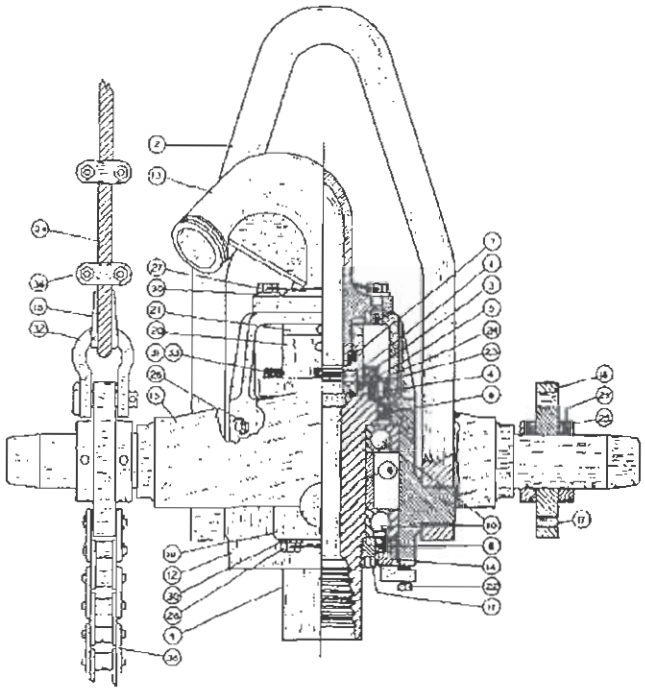
2" Gardner Denver
Single Ring Packing



G. E. Failing
Model S-1275-c
Swivel



SPEED STAR



We specialize in overhaul and repair of water swivels. Give us a call! N.D.S. will help you solve your swivel problems.

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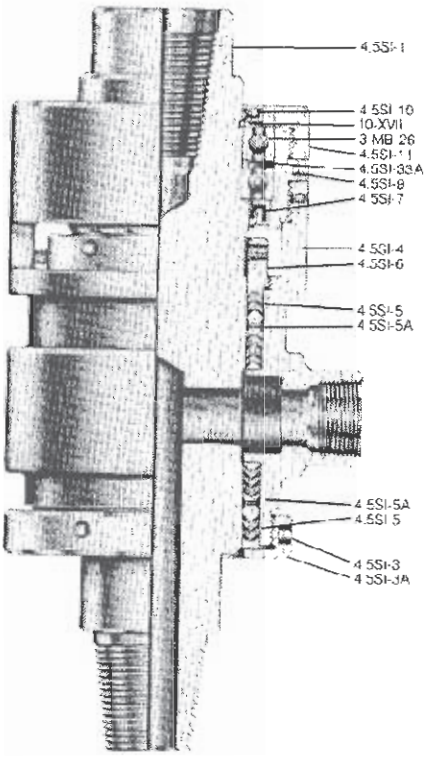
KING OIL TOOLS, INC.

Water Well Swivels ◆ Side Inlet Swivels

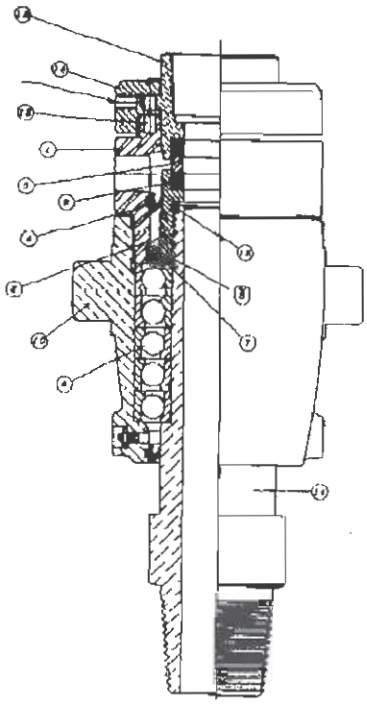
1-J & 2-J Swivels

4.5-SI Side Inlet Swivel

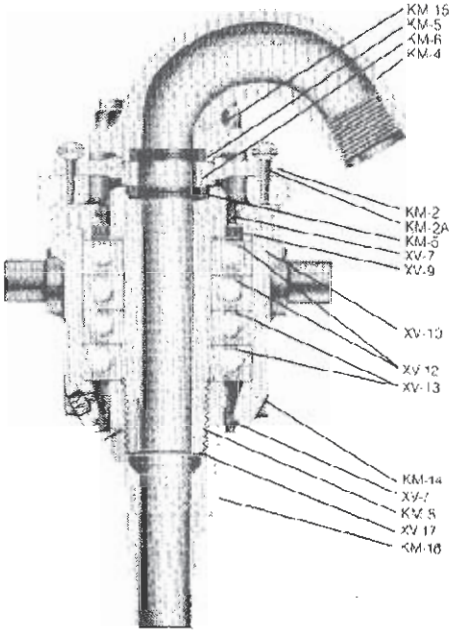


20XVA Swivel

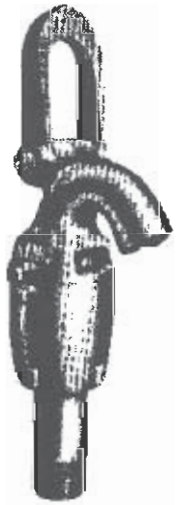
WITH ADJUSTABLE PACKING



2-KM, 10-KM & 15-KM Swivels



10-XV, 15-XV, 20-XV, 30-XV Swivels



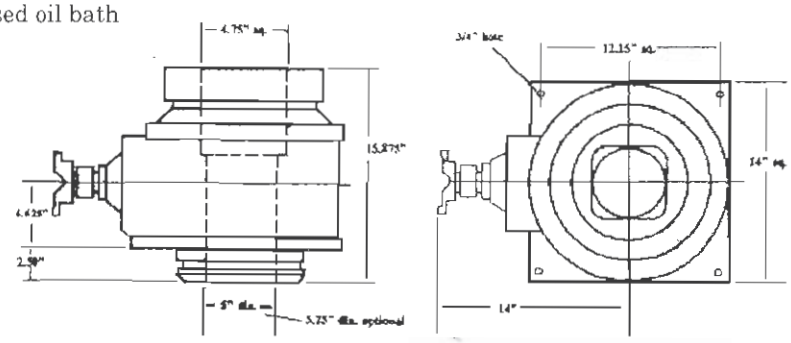
ROTARY TABLES

NDS specializes in rebuilding all makes and sizes of Rotary Tables

Rotary Table Specifications (1000)

Type - Bottom or Top ring gear & pinion, enclosed oil bath
Standard Opening - 5" (5-1/4" optional)
Drive Type - Standard flat nut with 4-3/4" or optional 5-1/4" opening
Gear Ratio - 6.66 to 1
Input Speed - 52 HP at 1700 RPM
Weight - 295 lbs.
Pinion Gear - 6T Spiral bevel
Ring Gear - 40T Spiral bevel
Max Torque - Pinion - 2,900 in. lb.
Ring Gear - 19,400 in. lb.
Pinion Shaft - 1-3/8" Taper/ft.

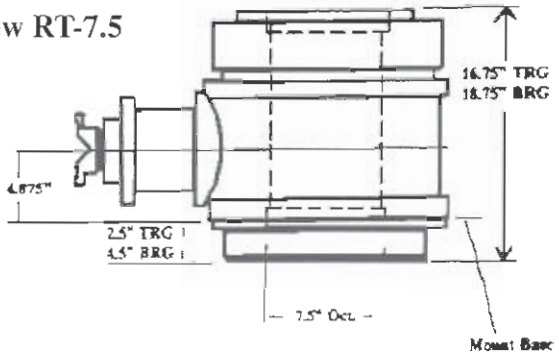
Mayhew 1000 - 603 -A & B



Rotary Table Specifications (2003)

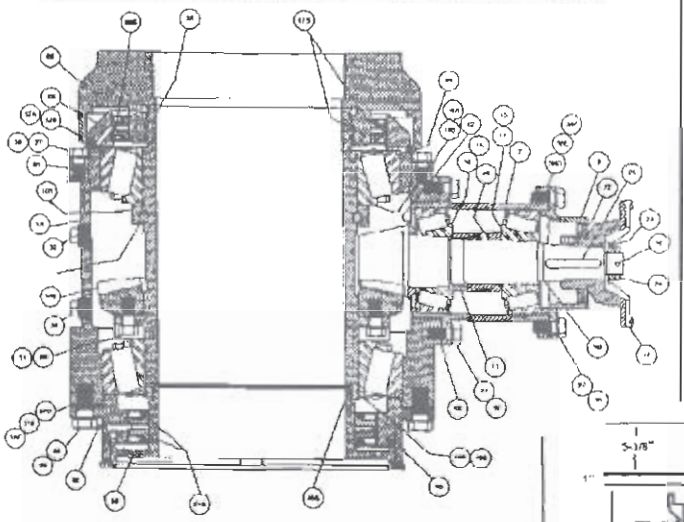
Type - Bottom or Top ring gear & pinion, enclosed oil bath
Standard Opening - 7.5"
Drive Type - 7-1/2" Octagon
Load Capacity @ 50 RPM - 5,220 in. lbs.
Gear Ratio - 5.86 to 1
Weight (less master bushing) - 480 lbs.
Weight (with master bushing) - 538 lbs.
Pinion Gear - 7T Spiral bevel
Ring Gear - 41T Spiral bevel
Pinion Shaft - 1-5/8" Taper/ft.

Mayhew RT-7.5



Rotary Replacement For:

SpeedStar
Midway - Mayhew - Gardner Denver

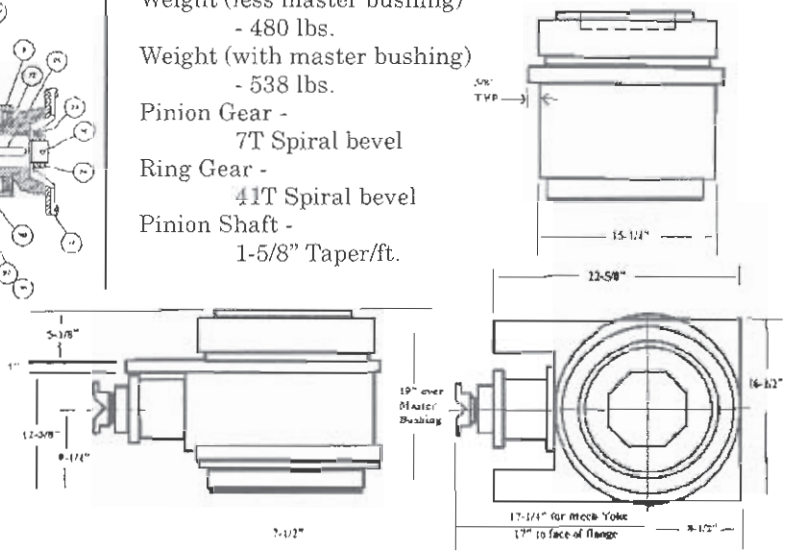


8-1/2" 2003-S Rotary Table Asssembly

Rotary Table Specifications (2003-F)

Mayhew RT-7.5 (Failing interchangeable)

Type - Bottom or Top ring gear & pinion, enclosed oil bath
Standard Opening - 7.5"
Drive Type - 7-1/2" Octagon
Load Capacity @ 50 RPM - 5,220 in. lb.
Gear Ratio - 5.86 to 1
Weight (less master bushing) - 480 lbs.
Weight (with master bushing) - 538 lbs.
Pinion Gear - 7T Spiral bevel
Ring Gear - 41T Spiral bevel
Pinion Shaft - 1-5/8" Taper/ft.



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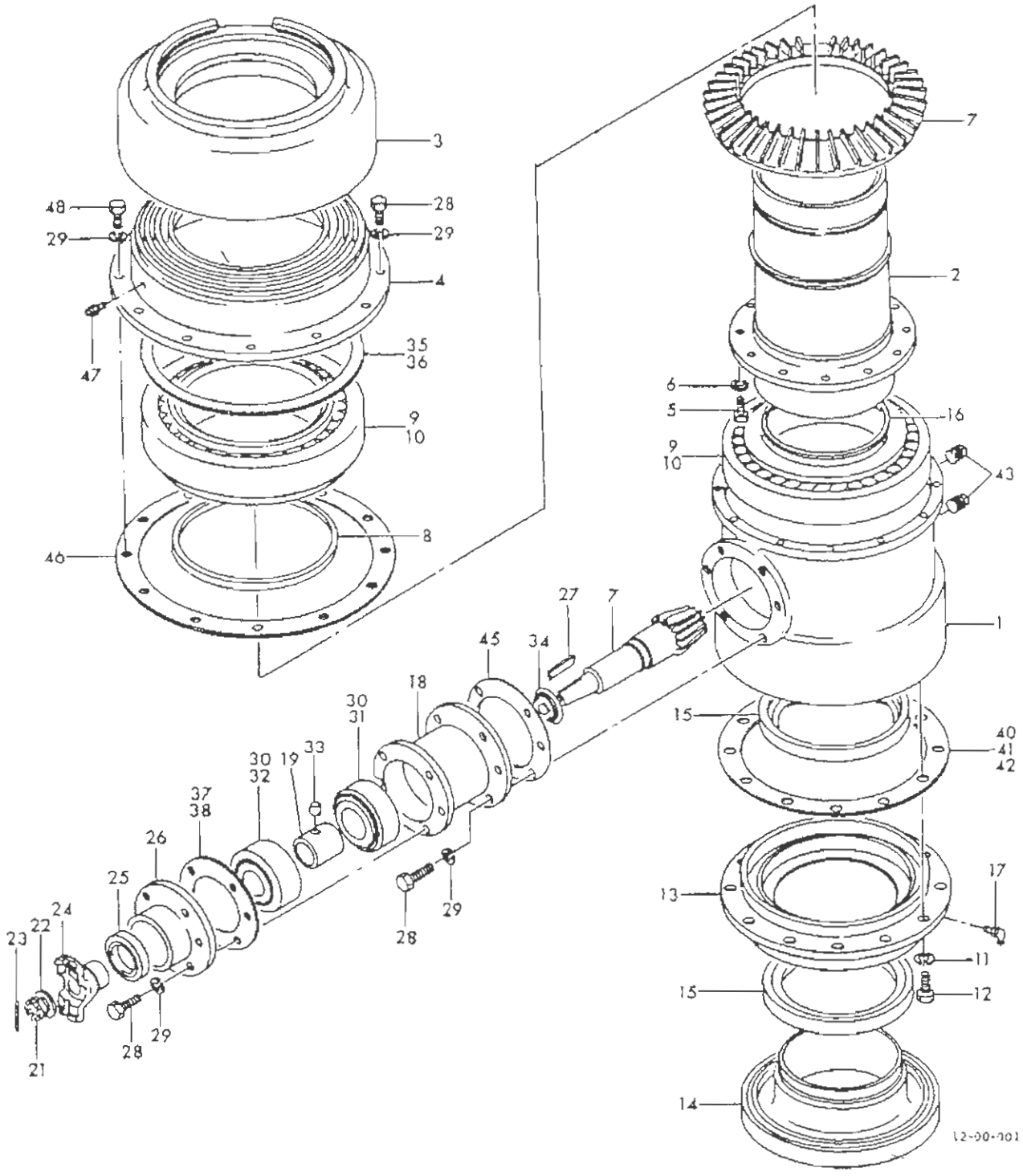
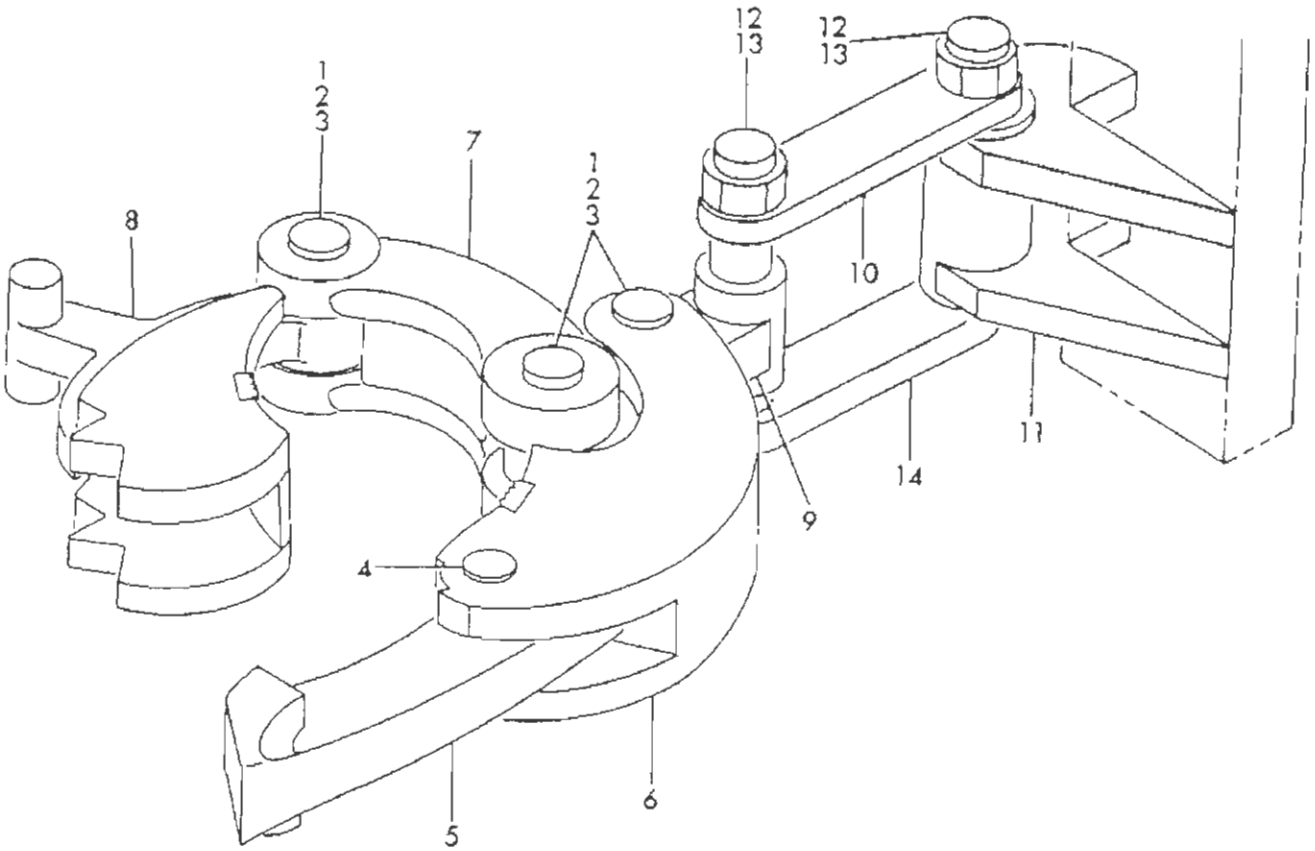
ROTARY ASSEMBLY (7-1/2")



BREAKOUT WRENCH



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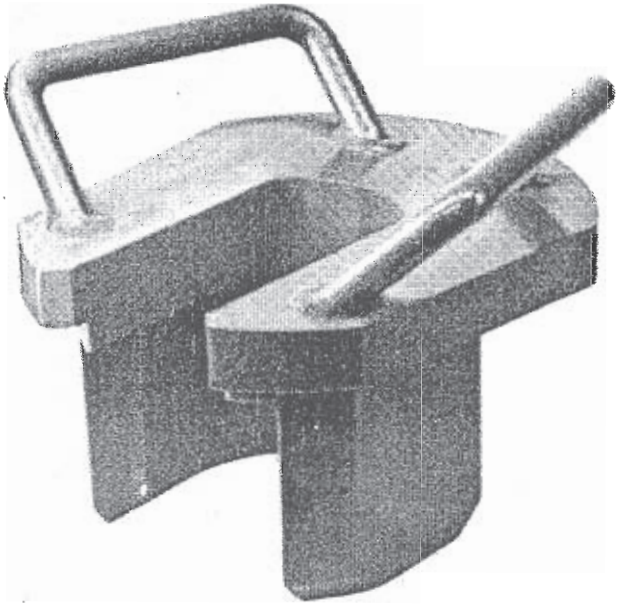
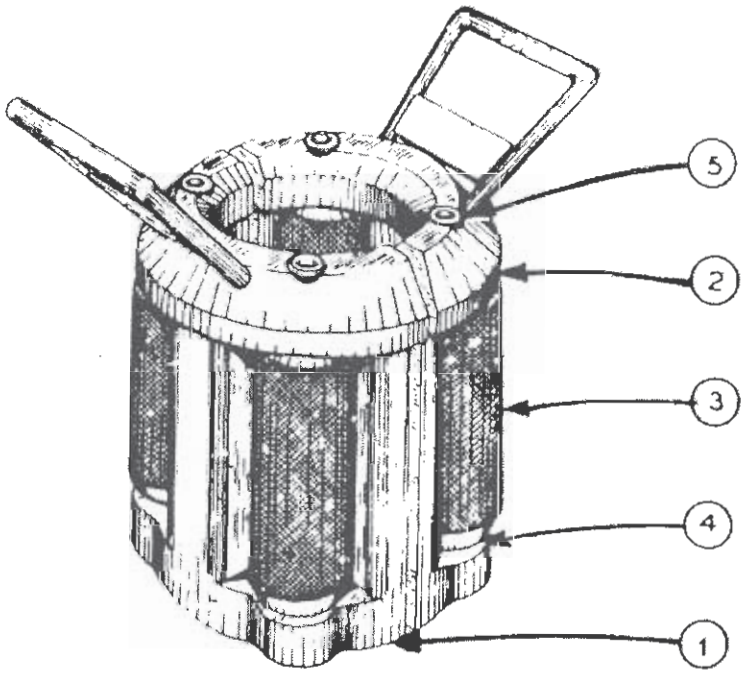
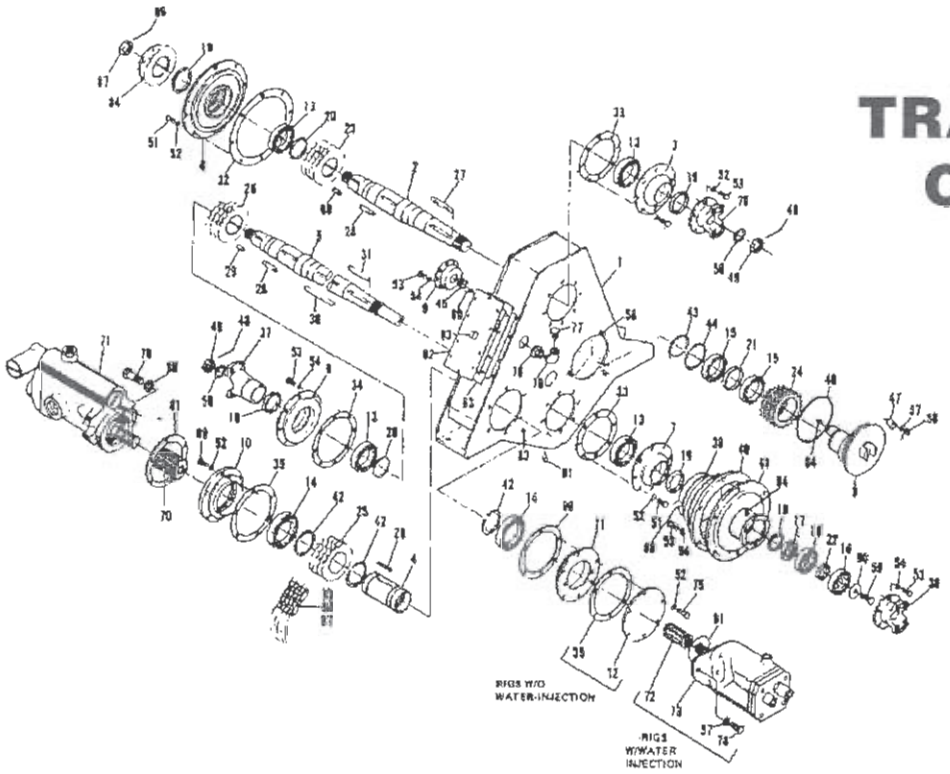
BREAKOUT FORKS



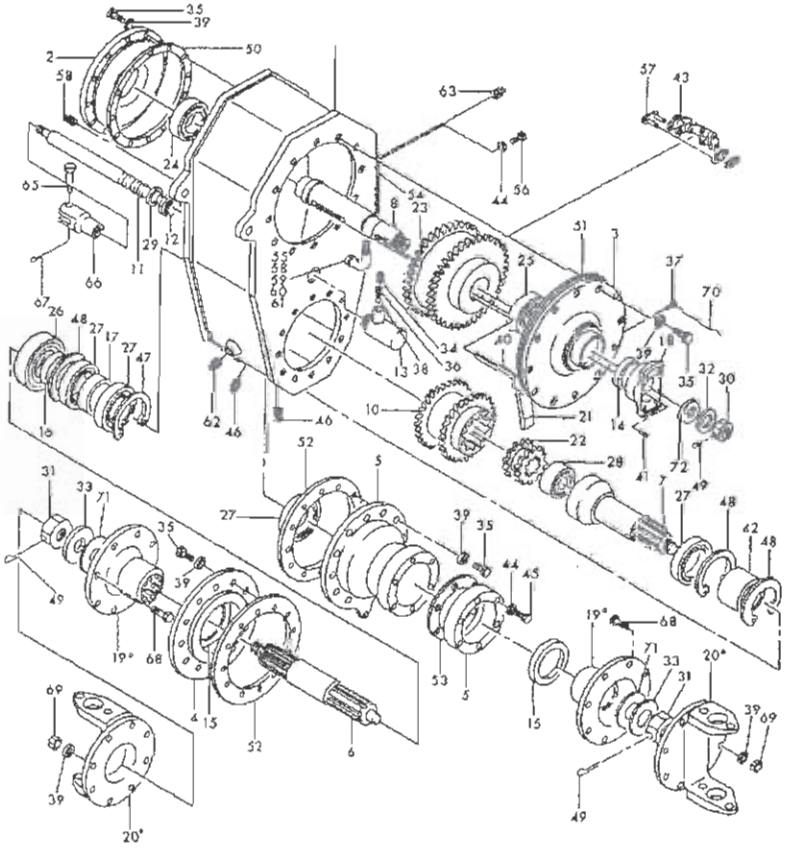
DRILLOUT SLIPS



TRANSFER CASES



POWER TAKE OFFS (PTO)



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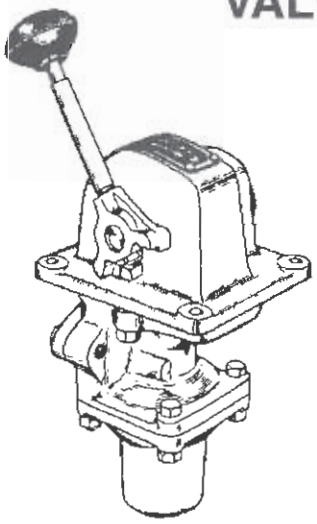
"WABCO CONTROL VALVES"

H-2 CONTROLAIR® VALVE



The **H-2 Type CON-TROLAIR Valve** is a handle operated, 3-way normally closed, open exhaust pressure control valve. There are 3 models of the H-2 Type CON-TROLAIR Valve, identical in operation but differing in handle characteristics:

H-2-X CONTROLAIR Valve — Handle is self returning to minimum pressure position from all positions in the handle travel arc.

H-2-LX CONTROLAIR Valve — Handle latches in the maximum pressure position but is self returning to minimum position from all other positions in the handle travel arc.

H-2-FX CONTROLAIR Valve — Handle is equipped with a friction brake that will hold the handle in any position selected in the handle travel arc.

H-1-A CONTROLAIR® VALVE

The **H-1-A CONTROLAIR Valve** is a pedal actuated 3-way pressure regulating valve that is designed for installations in which its operator is standing or in which part of the valve cannot extend below floor level.

Depressing its pedal increases the outlet pressure. Raising the pedal decreases the outlet pressure. The pedal is self-returning.

This valve is suitable for industrial control and any use where foot operated pressure control is desired.

Approximate weight: 6-1/2 lbs.

H-1 CONTROLAIR® VALVE

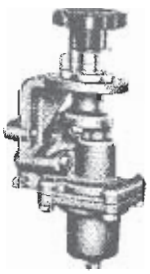
LIGHT PEDAL FORCE

This economical version of the **H-1** operates identically to the standard H-1, but has a considerably lighter pedal force that makes it especially suited for throttle controls. This model also offers an alternative piping arrangement as the valve portion from the H-2 version is utilized. A formed steel pedal with a rubber tread is utilized on this model.

Approximate weight: 6 lbs.

H-4 CONTROLAIR® VALVE

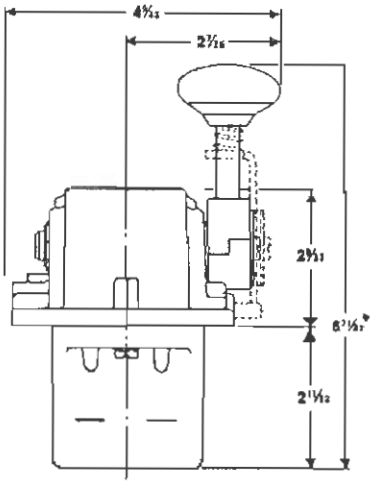
The **H-4 CONTROLAIR Valve** is a knob operated, 3-way pressure regulating valve. Arranged for panel mounting, this valve gives fine, vernier type pressure control in one delivery line. The knob holds in all positions and has adjustable stops to limit maximum and minimum travel.



Clockwise rotation of the knob increases pressure in the standard models. Oppposite knob action is available.

Approximate weight: 5-1/2 lbs.

2HA-2 SHORT CONTROLAIR® VALVE



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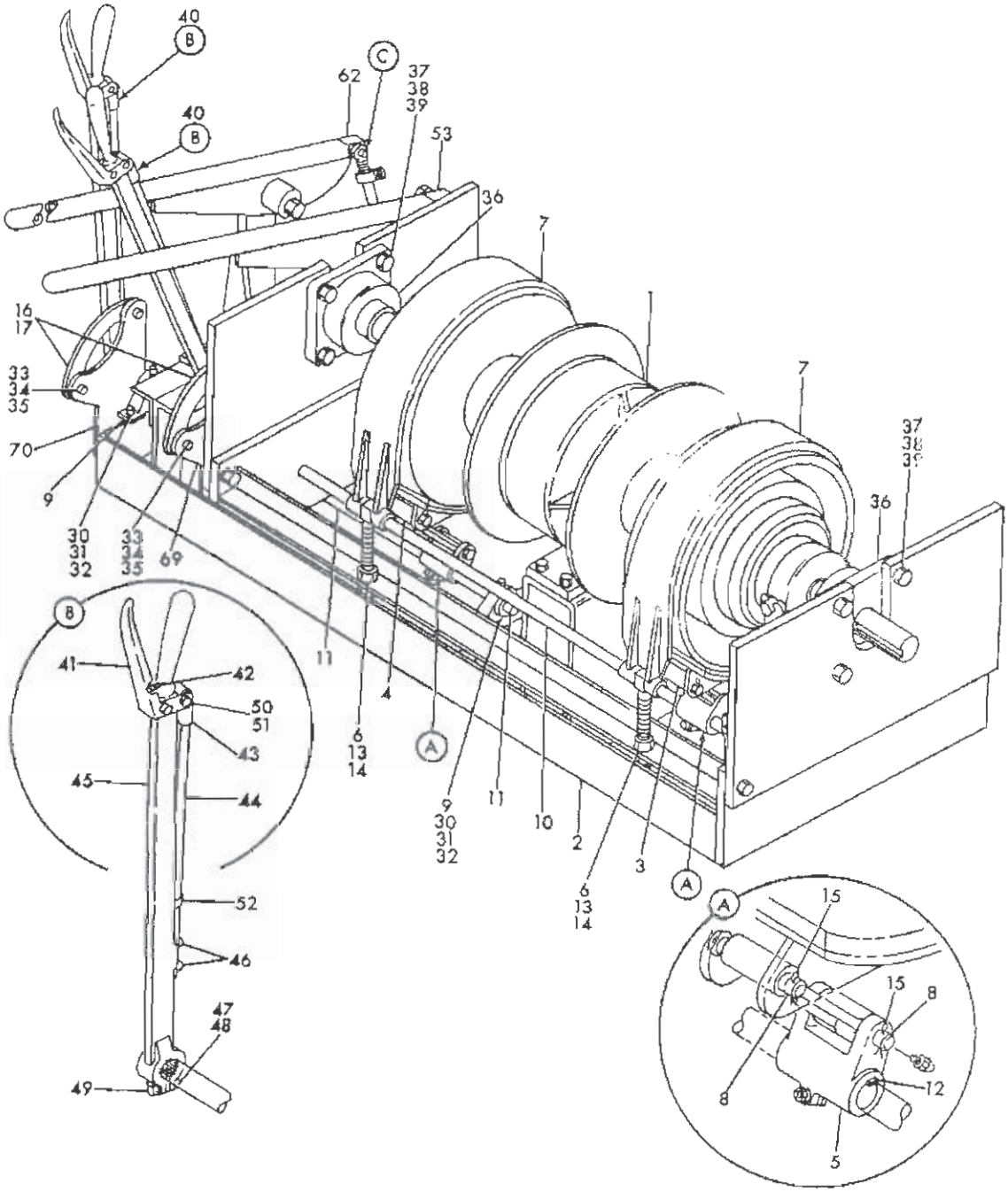
"Drawworks"



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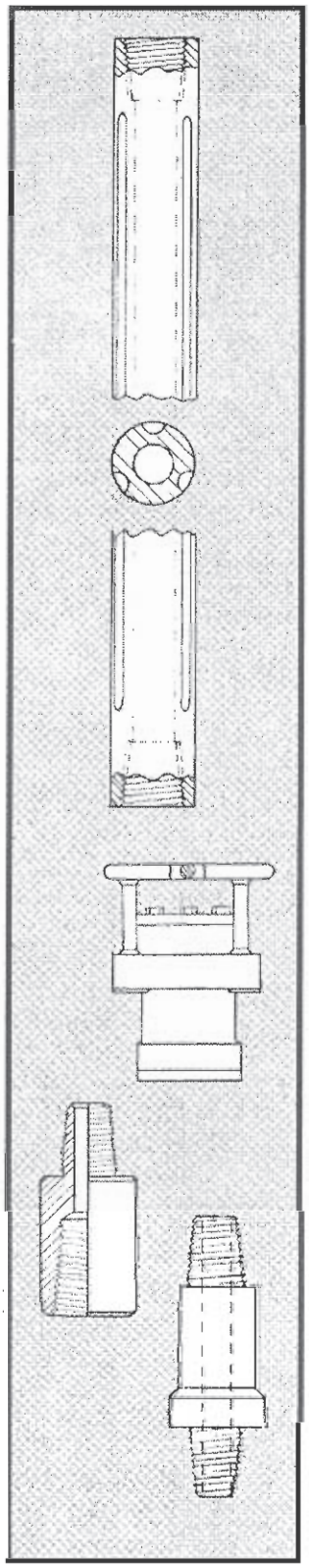
KELLY BARS & BUSHINGS



KELLY BARS

A variety of round fluted kellys are manufactured. The kellys have the following features:

- manufactured from 4140 heat-treated alloy steel
- all kellys are straightened
- any thread combination available including left hand threads
- various sizes and styles are available from stock

To order, specify: Outside diameter, length, number and size of flutes, thread size, type of drill rig, and any inside diameter requirements.

KELLY DRIVE BUSHINGS

Drive bushings for round fluted kellys are manufactured at our facilities. The drive bushings have the following features:

- heat treated to 40 - 45 RC
- hardened keys available in some sizes

To order, specify: Type of rig, size of kelly, number and size of flutes.

KELLY SAVERS & SWIVEL SUBS

Adapters for either end of the kelly are usually available from stock. Their features are as follows:

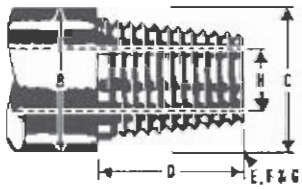
- manufactured from 4140 heat-treated alloy steel
- any thread combination

To order, specify: Outside diameter, length from shoulder to shoulder, thread size, and any inside diameter requirements.

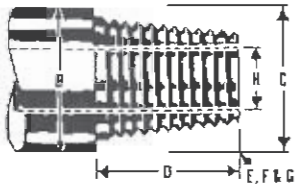
THREAD IDENTIFICATION CHART

Sub and adapters available with any combination of threads.
Special thread adapters manufactured on special order.

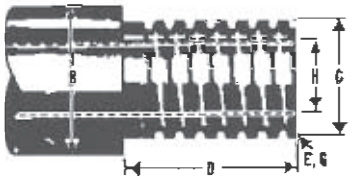
A — Nominal Pipe Size
B — Outside Diameter of Tool Joint
C — Major Thread Diameter or Diameter at Shoulder
D — Length of Pin
E — Threads per Inch
F — Taper per Foot
G — Threaded Form
H — Tool Joint Bore



TOOL JOINT



FLUSH JOINT TAPERED THREAD



FLUSH JOINT STRAIGHT THREAD

Name	A	B	C	D	E	F	G	H
TOOL JOINTS:								
2-3/8" API Regular	2-3/8"	3-1/8"	2-5/8"	3"	5"	3"	60° API	1"
2-7/8" API Regular	2-7/8"	3-3/4"	3"	3-1/2"	5"	3"	60° API	1-1/4"
3-1/2" API Regular	3-1/2"	4-1/4"	3-1/2"	3-3/4"	5"	3"	60° API	1-1/2"
4-1/2" API Regular	4-1/2"	5-1/2"	4-5/8"	4-1/4"	5"	3"	60° API	2-1/4"
2-3/8" API Internal Flush	2-3/8"	3-3/8"	2-7/8"	3"	4"	2"	60° API	1-3/4"
2-7/8" API Internal Flush	2-7/8"	4-1/8"	3-25/64"	3-1/2"	4"	2"	60° API	2-1/8"
3-1/2" API Internal Flush	3-1/2"	4-3/4"	4-1/64"	4"	4"	2"	60° API	2-11/16"
2-3/8" Mayhew Junior	2-3/8"	2-3/4"	2-21/64"	2-1/4"	4"	2"	60° Mod. API	1-1/2"
2-3/8" Mayhew Regular	2-3/8"	3-1/4"	2-35/64"	3"	4"	1-1/2"	60° Mod. API	1-5/8"
2-7/8" Mayhew Full Hole	2-7/8"	3-3/4"	3-3/64"	3-3/8"	4"	1-1/2"	60° Mod. API	2"
2-3/8" Failing Exploration	2-3/8"	3-1/8"	2-1/2"	2-3/4"	4"	2"	60° Mod. API	1-1/2"
2-7/8" Failing Exploration	2-7/8"	3-3/4"	3-1/8"	3-1/4"	4"	2"	60° Mod. API	1-7/8"
2-3/8" Hughes Acme Regular	2-3/8"	3-1/4"	2-19/32"	3"	4"	3-3/8"	29° Acme	1-1/4"
2-7/8" Hughes Acme Regular	2-7/8"	3-3/4"	2-63/64"	3-1/2"	4"	3-3/8"	29° Acme	1-1/4"
3-1/2" Hughes Acme Regular	3-1/2"	4-1/4"	3-17/32"	3-1/2"	4"	3-3/8"	29° Acme	1-3/4"
2-3/8" Winter Weiss	2-3/8"	3-1/4"	2-35/64"	3"	4"	1-1/2"	60° Mod. API	1-1/2"
2-7/8" Winter Weiss	2-7/8"	3-7/16"	2-35/64"	3"	4"	1-1/2"	60° Mod. API	1-1/2"
2-7/8" API Full Hole	2-7/8"	4-1/4"	3-5/8"	3-1/2"	5"	3"	60° Mod. API	2-1/8"
3-1/2" API Full Hole	3-1/2"	4-5/8"	4"	3-3/4"	5"	3"	60° Mod. API	2-7/16"
E-Rod	1-5/16"	1-5/16"	1"	1-1/2"	3"		Sq. Thd.	7/16"
A-Rod	1-5/8"	1-5/8"	1-17/64"	1-3/4"	3"		Sq. Thd.	9/16"
A-W Rod	1-3/4"	1-3/4"	1-3/8"	1-7/8"	3"		Sq. Thd.	5/8"
N-Rod	2-3/8"	2-3/8"	1-7/8"	2-3/8"	4"		Sq. Thd.	1"
NW-Rod	2-5/8"	2-5/8"	2-7/32"	2-3/4"	3"		Sq. Thd.	1-3/8"
N-Rod Failing Type 3-Thd.	2-3/8"	2-3/8"	1-7/8"	2-3/4"	3"		Sq. Thd.	1-1/8"
Tapered Acme N-Rod ELI	2-3/8"	2-3/8"	1-63/64"	2"	4"	2-1/8"	29° Acme	1"

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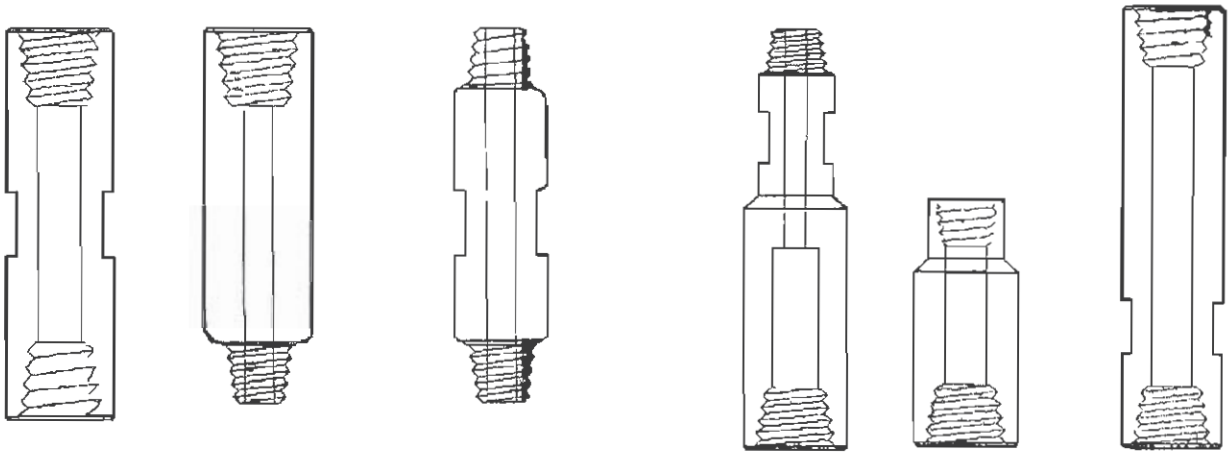
SUBS, STABILIZERS & DRILL ROD

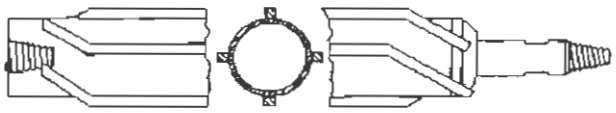
(IN STOCK)



SMOOTH ROTARY STABILIZER

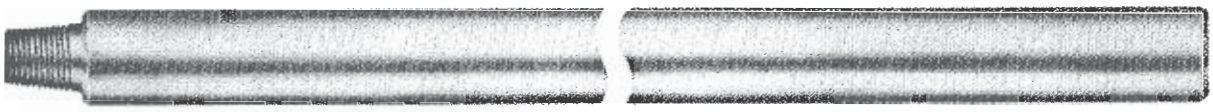
STRAIGHT RIBBED STABILIZER

SMOOTH FLOW THROUGH STABILIZER

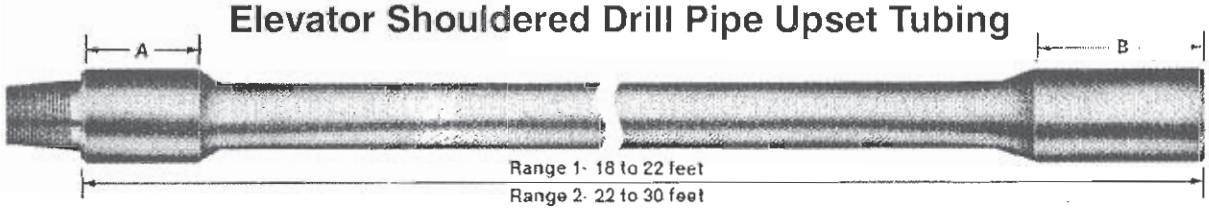


SPIRAL / STRAIGHT RIBBED STABILIZER

FLUSH OD DRILL PIPE

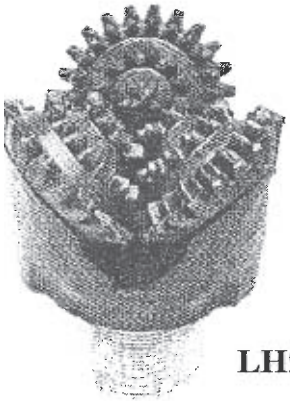


Elevator Shouldered Drill Pipe Upset Tubing

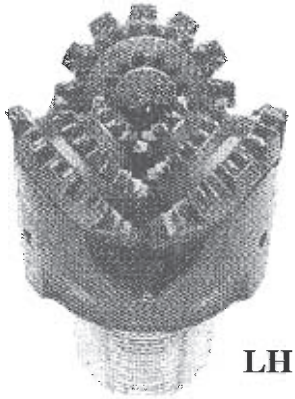


Varel Rock Bits

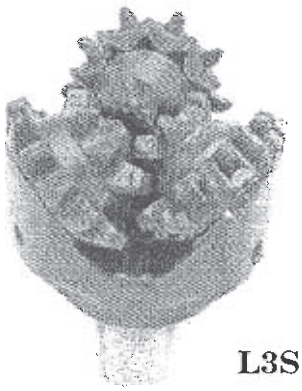
3-CONE STEEL TOOTH ROCK BITS



LH2

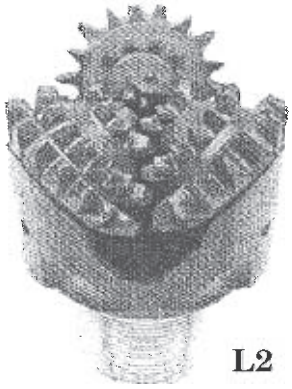


LH1

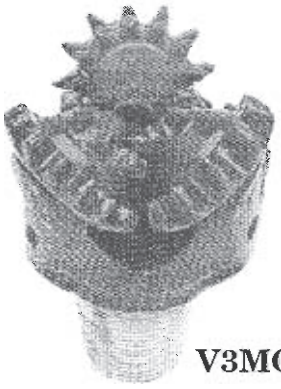


L3S

NEW BITS AVAILABLE 1-7/8" — 26"



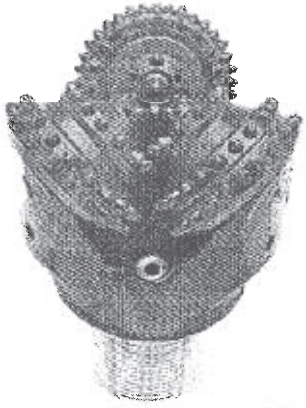
L2



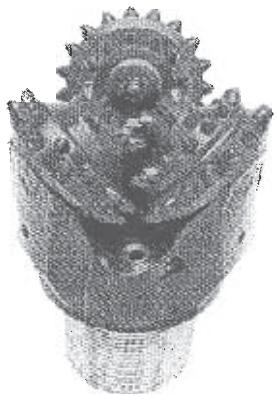
V3MO

ALSO TRICONE RETIP BITS AVAILABLE 4-7/8" — 26"

3-CONE TUNGSTEN CARBIDE INSERT ROCK BITS



QMC7



QMC9

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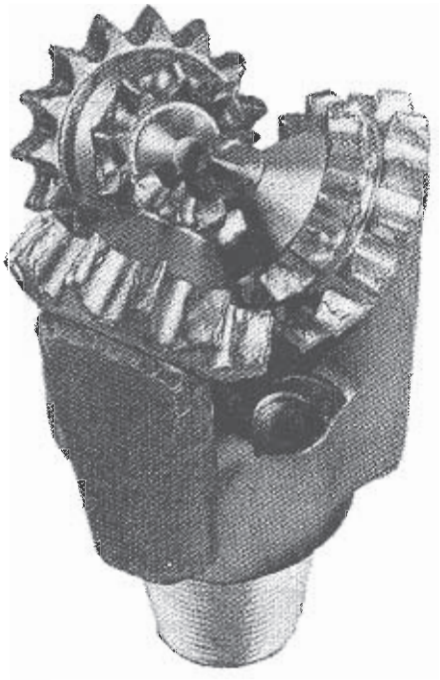
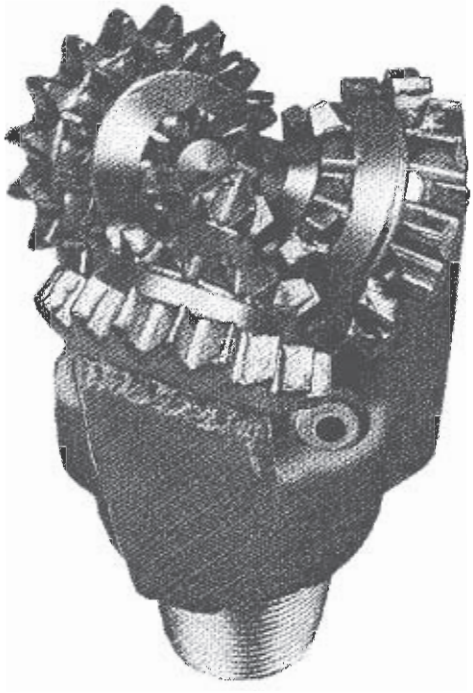
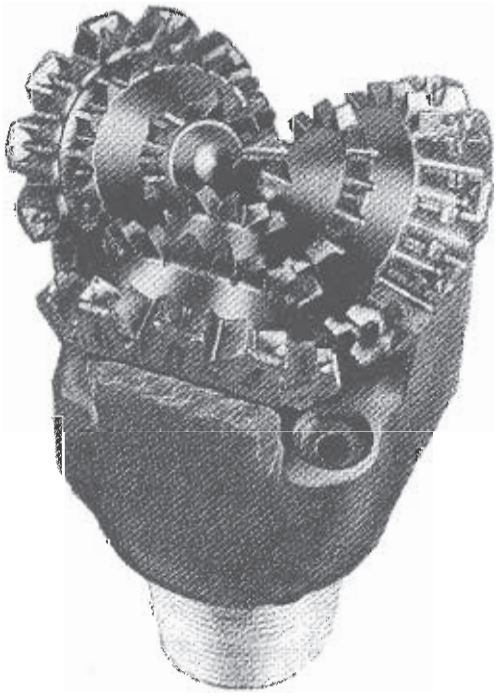
Rotary Drilling Bits
RUSSIAN-MADE



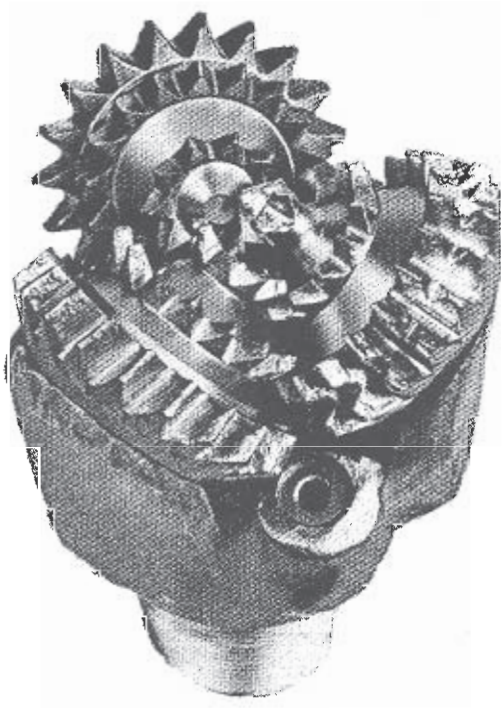
Soft to Medium Soft Formations



Medium Formations



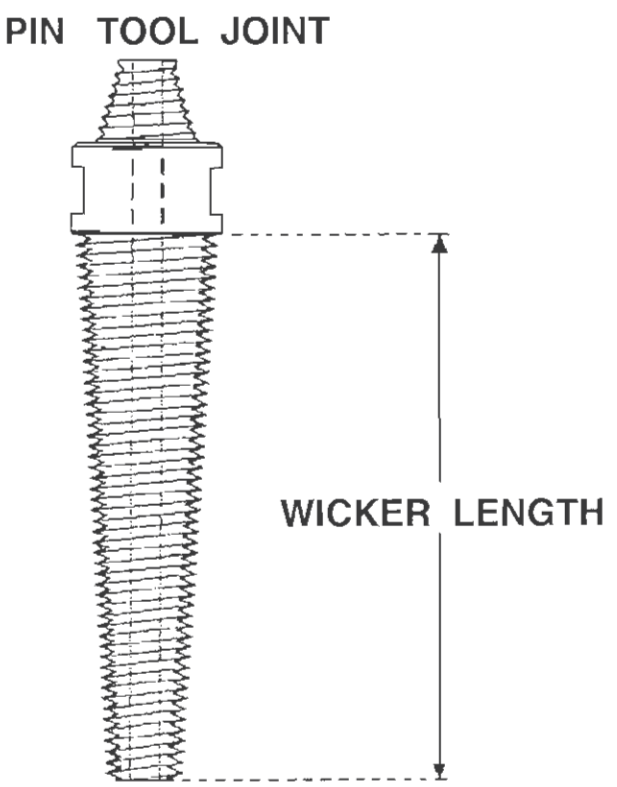
Hard Formations

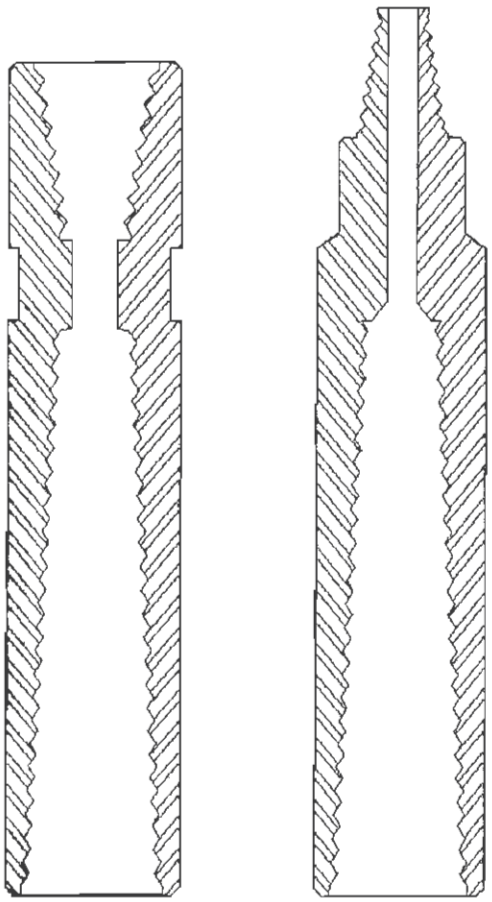


Medium to Medium Hard Formations

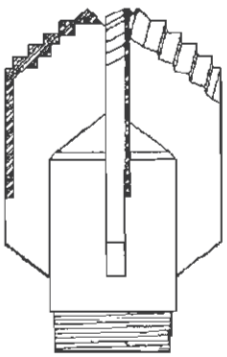
TAPER TAPS & OVERSHOTS

(IN STOCK)

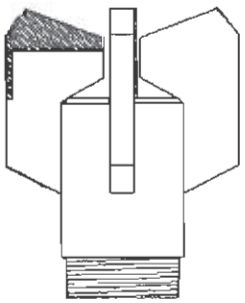




DRAG BITS & CLAW BITS



Step Type



Chevron Type

952 / 461-3400 • 1-800 / 637-1940 • FAX 952 / 461-3403

Replaceable Blade Bits • Series C-600

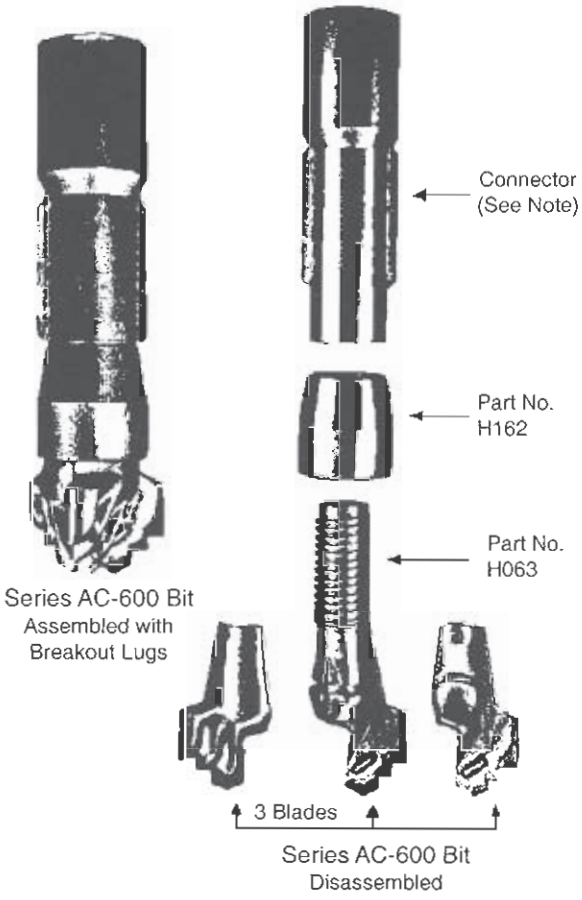
Blade sizes 3-7/8" (98.4mm) through 6-3/4" (171.4mm) for air, water or mud.

The Series AC-600 bit is designed for heavy weight drilling, usually employing the use of 2-3/8" (60.3mm) or 2-7/8 (73mm) tool joint or heavy-duty drill pipe to drill holes from 4-1/4" (108mm) through 5-5/8" (142.9mm). While drilling through shale and other formations of similar strength with 6" (152.4mm) or larger bits using 3-1/2" (88.9mm) and 4-1/2" (114.3mm) drill pipe, it is recommended that Type SH-800 bits be used. The AC-600 bits in sizes 3-7/8" (98.4mm) through 4-1/8" (104.8mm) are for air drilling only.

BODY PARTS — SERIES AC-600

Part Number	Part Name	Approx. Wt. Lbs.	Approx. Wt. Kg.
H063	Bit Shank, 3-Blade	4	1.81
H064	Bit Shank, 4-Blade	4	1.81
H162	Locking Bowl	3.5	1.59
H164	Extra Heavy-Duty Locking Bowl*	3.8	1.72
H361 Not shown	3-Blade Reaming Stabilizer (slip-on, friction-held, no threads). Reamers should conform to bit blade size. (Not to be used when using connectors with breakout lugs)	6	2.72
H262-0002	2-7/8" A.P.I Regular Tool Joint Pin Connector with breakout lugs	16	7.26
H261-0015	2-7/8" Failing Exploration Tool Joint Box Connector with breakout lugs	10	4.54
H261-0013	2-7/8" Mayhew Full-Hole Tool Joint Box Connector with breakout lugs	12	5.44
H261-0012	2-3/8" Mayhew Regular Tool Joint Box Connector with breakout lugs	9.5	4.31
H261-0014	2-3/8" Failing Exploration Tool Joint Box Connector with breakout lugs	9.5	4.31
H261-1614	2-3/8" Failing CFD-1- 16" (406.4mm) length Tool Joint Box Connector with breakout lugs	16	7.26
H261-1314	2-3/8" Failing CFD-2 13" (330.2mm) length Tool Joint Box Connector with breakout lugs	15	6.80
H262-0001	2-3/8" A.P.I. Regular Tool Joint Pin Connector with breakout lugs	9.5	4.31
H261-0016	2-3/8" Hughes Acme Tool Joint Box Connector with breakout lugs	9.5	4.31
H261-0006	2-3/8" A.P.I. Internal Flush Tool Joint Box Connector with breakout lugs	10	4.54
H261-0011	Mayhew Junior Tool Joint Box Connector with breakout lugs	6.5	2.95
H263-0045	3-Thread N-Rod Box Connector (without lugs)	6	2.72
H263-0039	4-Thread N-Rod Box Connector (without lugs)	6	2.72

*Use only with heavy-duty 4-Blade Insert Blades



Series AC-600 Bit Assembled with Breakout Lugs

Series AC-600 Bit Disassembled

WATER WELL PRODUCTS

JET-LUBE Waterwell and Environmental Drilling Products have long been recognized as the industry standard. Whether the products are specialty lubricants, thread compounds and sealants used on drill pipe collars, stabs, subs, wire and cable or those products used on pumps, compressors, potable water connections, etc., **JET-LUBE** products have been "tested tough" on rigs and job sites all over the world for almost half a century.

JET-LUBE has long been a member and active supporter of the NATIONAL GROUND WATER ASSOCIATION and will always endeavor to bring to market only those products which protect our most precious of natural resources — water.

KOPR-KOTE®

Premium Pipe Compound

JET-LUBE's patented, heavy duty, environmentally preferred drill pipe compound provides maximum protection against galling, seizing and downhole makeup under even the most challenging of drilling conditions.

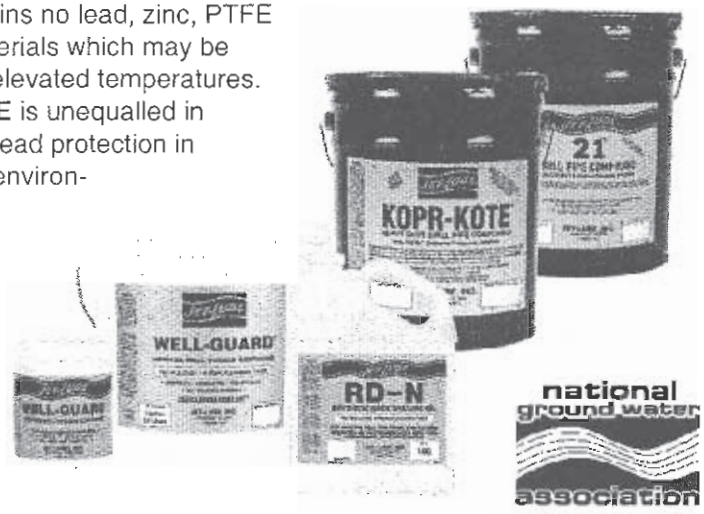
KOPR-KOTE contains copper flake, graphite, **CZ-EX®** (**JET-LUBE**'s extreme pressure-additive) and rust and corrosion inhibitors in a water resistant aluminum complex grease carrier. **KOPR-KOTE** is formulated to prevent excessive circumferential makeup and assure full hydraulic efficiency. **KOPR-KOTE** contains no lead, zinc, PTFE or other materials which may be affected by elevated temperatures. **KOPR-KOTE** is unequalled in providing thread protection in demanding environments.

WELL GUARD®

Monitor Well Drill Compound

High performance thread compound designed for monitor well and environmentally sensitive drilling applications requiring use of a petroleum hydrocarbon-free product. WELL GUARD provides maximum protection against galling, seizing and damage to threads while maintaining the integrity of monitor well and core samplings. Test data on request.

Service Rating: -10° F to 400° F
-23° C to 204° C



JLS® (JET-LUBE SPECIAL)

Drill Pipe Compound

JET-LUBE's most economical drill pipe compound. Designed from the same materials as **KOPR-KOTE** and **JET-LUBE 21** for use in light to medium drilling conditions in sandy formations. Excellent for use where a lighter duty drill pipe compound will provide adequate protection and performance. Lead-free and environmentally safe.

Service Rating: 0° F to 450° F
-18° C to 232° C

JET-LUBE 21®

Drill Pipe Compound

Formulated and blended from the same ingredients as **KOPR-KOTE** specifically for intermediate drilling conditions in softer formations. Environmentally safe, lead-free product can be used throughout the entire drill string "from the swivel to the bit" - on drill collars, tool joints, etc. **JET-LUBE 21** is a medium priced compound and the professional product choice for all intermediate level drilling applications.

Service Rating: 0° F to 450° F
-18° C to 232° C

RD-N™

Rock Drill Oil

Premium synthetic rock drill oil for use in monitor well and environmentally sensitive applications where the use of a petroleum hydrocarbon-free product is necessitated. **RD-N** provides lubrication for all makes of pneumatic tools and prevents premature wear on hammer bits. **RD-N** exceeds all current EPA guidelines. ISO 100/ SAE 30. May be used as a wire rope lubricant or hydraulic oil where petroleum-based products are not permitted. Test results on request.

Available in one and five gallon white, plastic resealable containers.

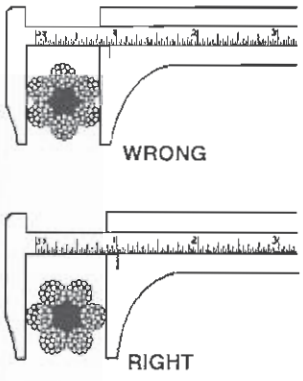
952 / 461-3400 • 1-800 / 637-1940 • FAX 952 / 461-3403

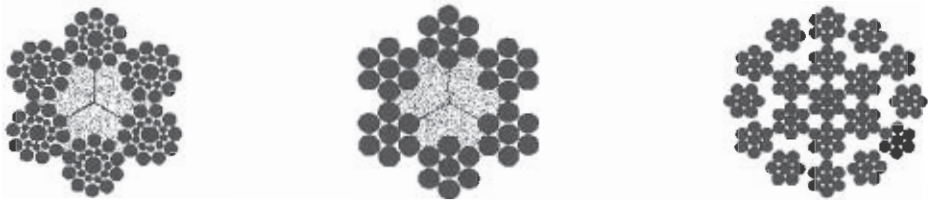
WIRE ROPE

FOR THE WATER WELL AND OIL WELL DRILLER

HOW TO MEASURE WIRE ROPE

Wire rope is usually manufactured slightly larger than the nominal diameter. This is to allow for stretch factors after installation to insure the proper diameter when in use.





6 X 21 CABLE TOOL DRILLING LINE
Left Reg. Lay
Polypropylene Core IPS grade

Size (Diameter)	Breaking Strength (In Tons)	Weight per Ft. (In Pounds)
1/2"	10.7	.42
5/8"	16.7	.66
3/4"	23.8	.95
7/8"	32.2	1.29
1"	41.8	1.68

6 X 7 SANDLINE
(Swabbing Line/Bailing Line)
Bright Finish - Right Reg. Lay
Polypropylene Core IPS grade

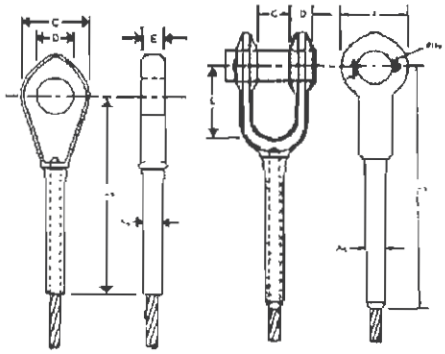
Size (Diameter)	Breaking Strength (In Tons)	Weight per Ft. (In Pounds)
5/16"	4.1	.15
3/8"	5.86	.21
7/16"	7.93	.29
1/2"	10.3	.38
9/16"	13.0	.48
5/8"	15.9	.59

19 X 7 ROTATION RESISTANT
Non-Spin
Independent Wire Rope Core
EIPS grade

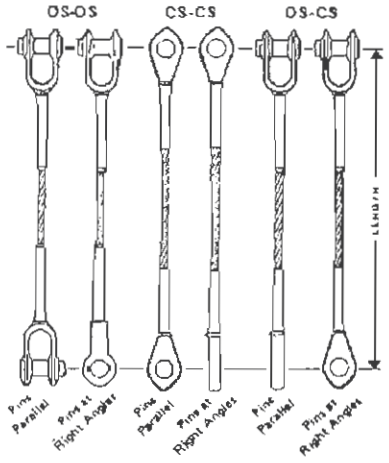
Size (Diameter)	Breaking Strength (In Tons)	Weight per Ft. (In Pounds)
5/16"	4.3	.177
3/8"	6.15	.25
7/16"	8.33	.35
1/2"	10.8	.45
9/16"	13.6	.58
5/8"	16.8	.71
3/4"	24.	1.02
7/8"	32.5	1.39

No. 15 Swaged Socket

In mechanically swaged fittings, high pressure presses and precision dies cause metal of the socket to flow around wires and strands to offer the ultimate in compactness and strength with minimum weight. Material is weldless, drop-forged steel. Normally, only regular lay rope is used. Swaged assemblies are interchangeable with poured sockets up through 2" rope diameters.



Assembly length is measured from centerline of pins for both open and closed sockets.



Rope Dia.	Rated Capacity - Tons* 6 x 19 & 6 x 37 IWRC IPS	XIP
1/4	.588	.69
5/16	.916	1.05
3/8	1.3	1.5
7/16	1.778	2.04
1/2	2.3	2.66
9/16	2.9	3.36
5/8	3.58	4.12
3/4	5.12	5.88
7/8	6.92	7.96
1	8.98	10.34
1-1/8	11.3	13.
1-1/4	13.88	15.98
1-3/8	16.7	19.2
1-1/2	19.78	22.8
1-3/4	26.6	30.6
2	34.4	39.6
2-1/4	43.	49.4
2-1/2	52.4	60.4

OPEN SOCKET

Rope Dia.	C	D	E	F	PIN	A_s	L_s (Approx.)
1/4	11/16	5/16	1-1/2	1-3/8	.688	.438	4-7/16
5/16	13/16	13/32	1-3/4	1-5/8	.812	.688	5-15/16
3/8	13/16	13/32	1-3/4	1-5/8	.812	.688	5-15/16
7/16	1	1/2	2	2	1.00	.875	7-5/8
1/2	1	1/2	2	2	1.00	.875	7-5/8
9/16	1-1/4	5/8	2-1/4	2-1/2	1.19	1.125	9-3/16
5/8	1-1/4	5/8	2-1/4	2-1/2	1.19	1.125	9-3/16
3/4	1-1/2	3/4	2-3/4	3	1.38	1.375	11-1/4
7/8	1-3/4	15/16	3-1/4	3-3/8	1.63	1.50	13-1/8
1	2	1-1/32	3-3/4	4	2.00	1.75	15-1/16
1-1/8	2-1/4	1-3/16	4-1/4	4-1/2	2.25	2.00	16-15/16
1-1/4	2-1/2	1-3/16	4-3/4	5	2.50	2.25	18-5/8
1-3/8	2-1/2	1-5/16	5-1/4	5-1/4	2.50	2.50	20-1/2
1-1/2	3	1-7/16	5-3/4	5-3/4	2.75	2.75	22-5/16
1-3/4	3-1/2	1-11/16	6-3/4	7	3.50	3.00	26
2	4	1-13/16	8	8	3.75	3.50	30-1/8
2-1/4*	4-1/4	2-1/8	6-3/4	8-3/4	4.25	4.00	31-1/4
2-1/2*	4-1/4	2-1/8	6-3/4	8-3/4	4.25	4.40	33-3/8

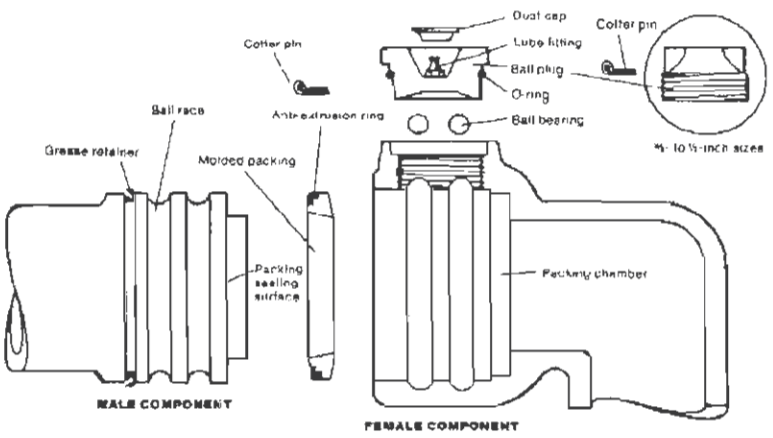
CLOSED SOCKET

Rope Dia.	C	D	E	A_s	L_s (Approx.)
1/4	1-7/16	.750	1/2	.438	3-15/16
5/16	1-11/16	.875	11/16	.688	5-1/8
3/8	1-11/16	.875	11/16	.688	5-1/8
7/16	2	1.063	7/8	.875	6-5/8
1/2	2	1.063	7/8	.875	6-5/8
9/16	2-1/2	1.250	1-1/8	1.125	8-5/16
5/8	2-1/2	1.250	1-1/8	1.125	8-5/16
3/4	3	1.438	1-5/16	1.375	9-15/16
7/8	3-1/2	1.688	1-1/2	1.50	11-5/8
1	4	2.063	1-3/4	1.75	13-3/16
1-1/8	4-1/2	2.313	2	2.00	14-11/16
1-1/4	5	2.563	2-1/4	2.25	16-1/2
1-3/8	5-1/4	2.563	2-1/4	2.50	18-1/8
1-1/2	5-1/2	2.813	2-1/2	2.75	19-9/16
1-3/4	6-3/4	3.563	3	3.00	23
2	7-3/4	3.813	3-1/4	3.50	26-7/16
2-1/4*	8-3/4	4.312	4	4.00	28-1/2
2-1/2*	8-3/4	4.312	4	4.40	30-1/4

Chiksan Original Swivel Joints

High-pressure swivel joints

(in.) Sizes(mm)	End Connections	Style 20 A	Style 20 B	Style 20 C	Style 20 (lb) Wt.(kg)	Style 30 A	Style 30 B	Style 30 C	Style 30 (lb) Wt.(kg)
3/8 — 1/2 10 — 15	Threaded	1 3/16 30	1 27/32 47	3 5/16 84	1 1/2 .7	1 1/4 32	1 15/16 49	2 13/16 71	1 3/4 .8
3/4 — 1 20 — 25	Threaded	1 7/8 48	2 7/16 62	5 3/16 132	2 3/4 1.2	1 3/4 44	2 23/32 69	4 5/8 117	3 3/4 1.7
1 1/4 — 1 1/2 32 — 40	Threaded	2 1/8 54	2 7/8 73	5 15/32 139	4 1.8	2 3/8 60	3 3/16 81	4 23/32 120	5 2.2
2 50	Threaded	2 1/4 57	4 1/8 105	6 21/32 169	10 1/2 4.7	3 3/16 81	4 1/32 102	5 27/32 148	15 6.8
2 1/2 65	Threaded	2 15/16 75	4 1/2 114	8 1/4 210	18 8.1	3 3/4 95	4 7/8 124	7 1/8 181	22 1.0
3 80	Threaded	3 1/8 86	5 13/16 148	9 1/8 232	25 11.3	4 1/2 114	4 5/8 117	9 7/16 240	32 14.4
4 100	Threaded	4 13/16 122	7 1/16 179	9 5/8 244	38 17.1	5 1/4 133	5 9/16 141	10 13/16 275	51 23.0



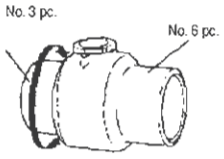
Chiksan Styles and Component Parts

Chiksan swivel joints are available from stock in eight basic styles or configurations. These styles permit 360-degree rotation and movement in one, two or three planes. They can be combined in an unlimited variety of ways to suit practically any installation.

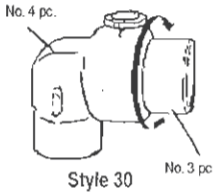
NOTE: Although Chiksan swivel joints can be rotated while under fluid pressure, they are not recommended for services requiring continuous rotary motion.

All Chiksan swivel joints are assembled using two or more standard pieces. Component piece numbers are shown here with the various Chiksan swivel joint styles.

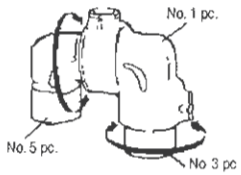
Low-Presssure and High Pressure Swivel Joints



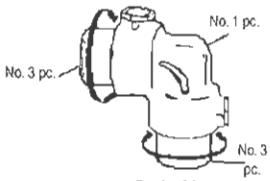
Style 20
Single swivel coupling



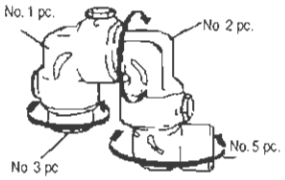
Style 30
Single swivel with one elbow



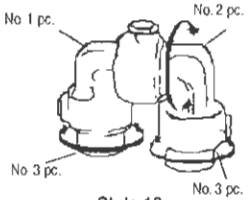
Style 50
Two swivels with two elbows



Style 60
Two swivels with one elbow



Style 80
Three swivels with three elbows



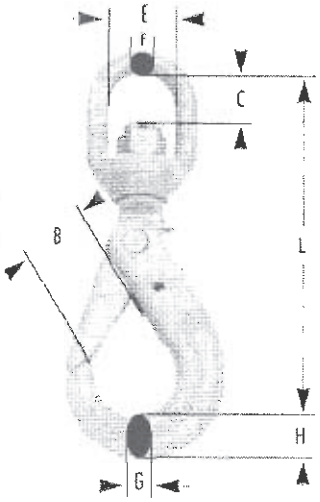
Style 10
Three swivels with two elbows

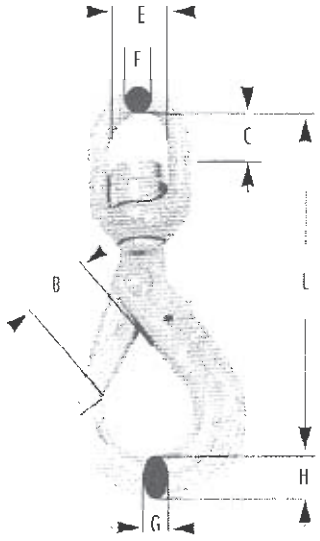
GUNNEBO SAFETY HOOKS

SAFETY HOOKS with BRONZE BUSHINGS (SWIVEL EYE TYPE)

CODE	CHAIN SIZE	WORKING LOAD LIMIT *(LBS)	DIMENSIONS (INCHES) L	B	C	E	F	G	H	WEIGHT EACH (LBS)
BKL-5/6-8	7/32	2,100	5.9	1.1	.91	1.3	.43	.55	.75	1.4
BKL-7/8-8	1/4	3,500	7.2	1.4	1.1	1.4	.47	.67	.91	2.4
BKL-10-8	3/8	7,100	8.6	1.7	1.5	1.7	.59	.99	1.1	4.4
BKL-13-8	1/2	12,000	10.9	2.1	1.7	1.9	.75	1.1	1.5	8.4
BKL-16-8	5/8	18,100	13.2	2.5	2.3	2.4	.87	1.5	1.9	15.0

** Design factor: 4:1 Proof tested and certified.*





SAFETY HOOKS with BALL BEARINGS (SWIVEL EYE TYPE)

CODE	CHAIN SIZE	WORKING LOAD LIMIT *(LBS)	DIMENSIONS (INCHES) L	B	C	E	F	G	H	WEIGHT EACH (LBS)
BKLK-5/6-8	7/32	2,100	5.8	1.1	.87	1.3	.43	.55	.75	1.5
BKLK-7/8-8	1/4	3,500	7.2	1.4	1.1	1.4	.47	.67	.91	2.4
BKLK-10-8	3/8	7,100	8.5	1.7	1.3	1.6	.59	.99	1.1	4.2
BKLK-13-8	1/2	12,000	10.9	2.1	1.6	1.9	.75	1.1	1.5	8.4
BKLK-16-8	5/8	18,100	13.2	2.5	2.0	2.4	.87	1.5	1.9	15.9

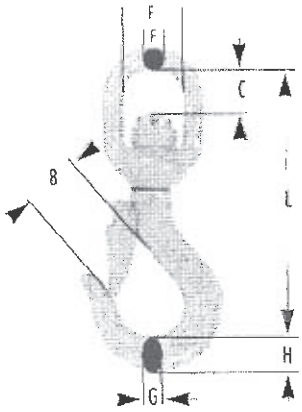
** Design factor: 4:1 Proof tested and certified.*

Alloy Hooks

SWIVEL SLING HOOKS with LATCH & BRONZE BUSHINGS (EYE TYPE)

CODE	CHAIN SIZE	WORKING LOAD LIMIT *(LBS)	DIMENSIONS (INCHES) L	B	G	C	H	E	F	WEIGHT EACH (LBS)
LKN-7/8-8	1/4	3,500	6.1	1.0	.7	1.1	.8	1.4	.5	1.9
LKN-10-8	3/8	7,100	7.4	1.4	.9	1.5	1.1	1.7	.6	3.3
LKN-13-8	1/2	12,000	9.2	1.7	1.1	1.7	1.4	1.9	.7	6.6
LKN-16-8	5/8	18,100	11.0	1.9	1.3	2.3	1.7	2.4	.9	11.2

** Design factor: 4:1 Proof tested and certified.*



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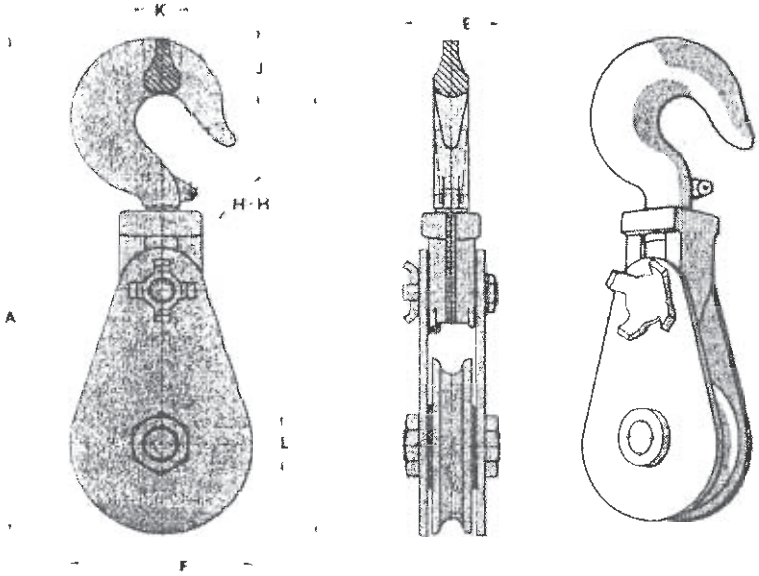
One Sheave Snatch Block with Hook

4 through 30-ton capacities • 4 to 1 design factor • 4 through 24-inch diameters

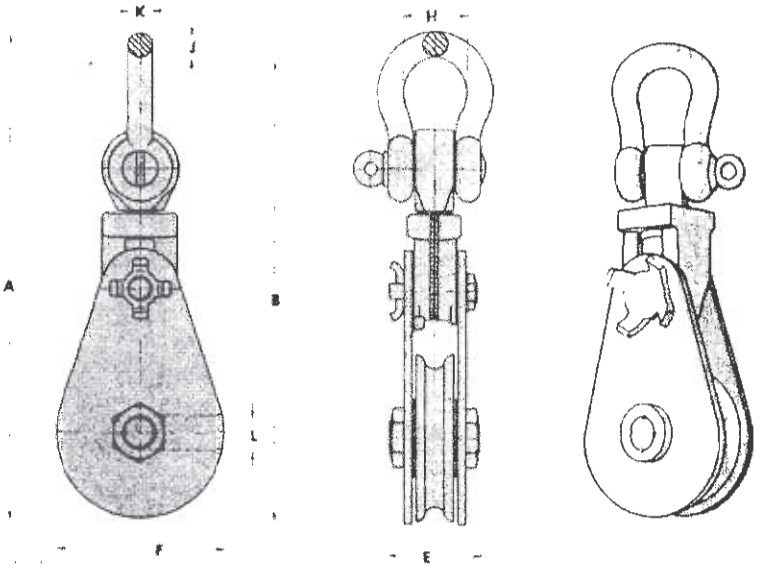


A ..... Overall Length
B ..... Net Length
E ..... Thickness
F ..... Width
H1 ..... Throat Opening - No Latch
H2 ..... Throat Opening - Light Duty
J ..... Hook Thickness
K ..... Hook Width
L ..... Center Pin Dia.
M ..... Sheave Dia.

MODEL NO.	STANDARD WIRE ROPE SIZE	MAXIMUM ALLOW.	WT.	A	B	E	F	H1	H2	J	K	L	M
4-TON 1-SHEAVE SNATCH BLOCKS, WITH HOOK, 4-14 INCHES													
SB4S6BH	3/8-1/2	3/4	18	16.625	14.750	3.281	6.250	1.437	1.250	1.875	1.125	1	6
SB4S6RH	3/8-1/2	3/4	18	16.625	14.750	3.281	6.250	1.437	1.250	1.875	1.125	1	6
SB4S8BH	3/8-1/2	3/4	22	18.625	16.750	3.281	8.250	1.437	1.250	1.875	1.125	1	8
SB4S8RH	3/8-1/2	3/4	22	18.625	16.750	3.281	8.250	1.437	1.250	1.875	1.125	1	8
SB4S10BH	3/8-1/2	3/4	34	20.625	18.750	3.281	10.250	1.437	1.250	1.875	1.125	1.250	10
SB4S10RH	3/8-1/2	3/4	34	20.625	18.750	3.281	10.250	1.437	1.250	1.875	1.125	1.250	10
SB4S12BH	3/8-1/2	7/8	39	22.625	20.750	3.281	12.250	1.437	1.250	1.875	1.125	1.250	12
SB4S12RH	3/8-1/2	7/8	39	22.625	20.750	3.281	12.250	1.437	1.250	1.875	1.125	1.250	12
8-TON 1-SHEAVE SNATCH BLOCKS, WITH HOOK, 6-14 INCHES													
SB8S6BH	5/8-3/4	1	29	19	16.875	3.687	6.250	2	1.750	2.125	1.375	1.500	6
SB8S6RH	5/8-3/4	1	29	19	16.875	3.687	6.250	2	1.750	2.125	1.375	1.500	6
SB8S8BH	5/8-3/4	7/8	32	21	18.875	3.687	8.250	2	1.750	2.125	1.375	1.500	8
SB8S8RH	5/8-3/4	7/8	32	21	18.875	3.687	8.250	2	1.750	2.125	1.375	1.500	8
SB8S10BH	5/8-3/4	3/4	40	23	20.875	3.687	10.250	2	1.750	2.125	1.375	1.500	10
SB8S10RH	5/8-3/4	3/4	40	23	20.875	3.687	10.250	2	1.750	2.125	1.375	1.500	10
SB8S12BH	5/8-3/4	7/8	46	25	22.875	3.687	12.250	2	1.750	2.125	1.375	1.500	12
SB8S12RH	5/8-3/4	7/8	46	25	22.875	3.687	12.250	2	1.750	2.125	1.375	1.500	12
12-TON 1-SHEAVE SNATCH BLOCKS, WITH HOOK, 6-16 INCHES													
SB12S6BH	3/4-7/8	1-1/8	42	20.750	18.125	4.375	6.250	2.500	2.125	2.625	1.625	2	6
SB12S6RH	3/4-7/8	1-1/8	42	20.750	18.125	4.375	6.250	2.500	2.125	2.625	1.625	2	6
SB12S8BH	3/4-7/8	1-1/8	53	22.750	20.125	4.375	8.250	2.500	2.125	2.625	1.625	2	8
SB12S8RH	3/4-7/8	1-1/8	53	22.750	20.125	4.375	8.250	2.500	2.125	2.625	1.625	2	8
SB12S10BH	3/4-7/8	1-1/8	66	24.750	22.125	4.375	10.250	2.500	2.125	2.625	1.625	2	10
SB12S10RH	3/4-7/8	1-1/8	66	24.750	22.125	4.375	10.250	2.500	2.125	2.625	1.625	2	10
SB12S12BH	3/4-7/8	1-1/8	75	26.750	24.125	4.375	12.250	2.500	2.125	2.625	1.625	2	12
SB12S12RH	3/4-7/8	1-1/8	75	26.750	24.125	4.375	12.250	2.500	2.125	2.625	1.625	2	12

One Sheave Snatch Block with Shackle

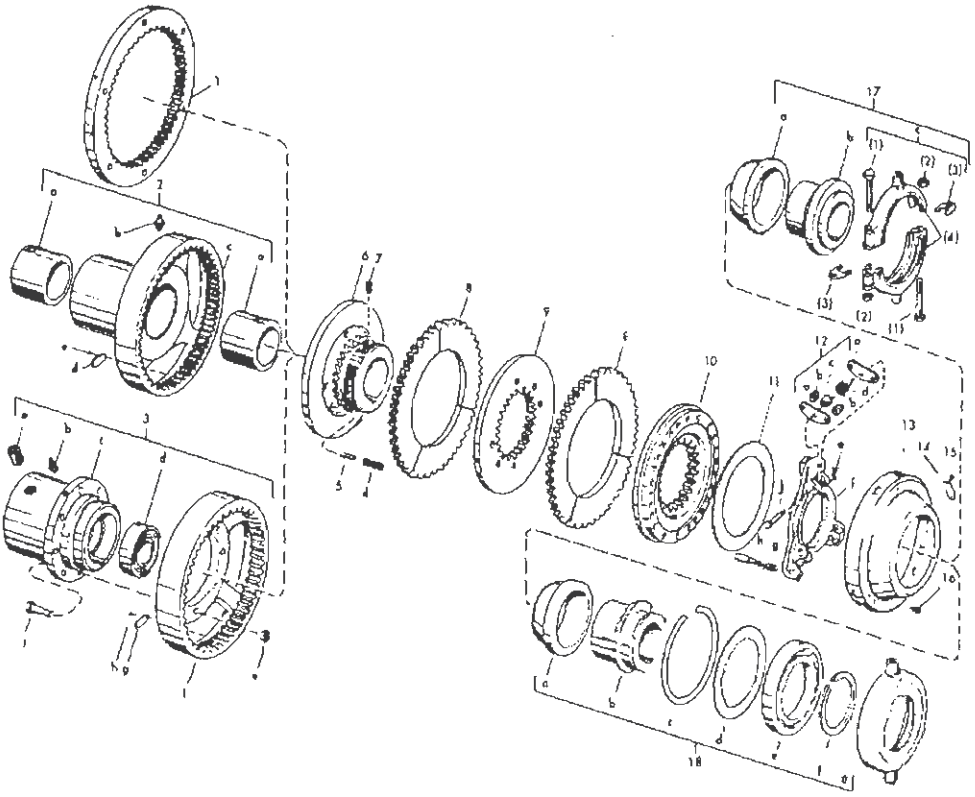
4 through 30-ton capacities • 4 to 1 design factor • 4 through 24-inch diameters



A ..... Overall Length
B ..... Net Length
E ..... Thickness
F ..... Width
H ..... Inside Width of Shackle
J ..... Shackle Thickness
K ..... Shackle Width
L ..... Center Pin Dia.
M ..... Sheave Dia.

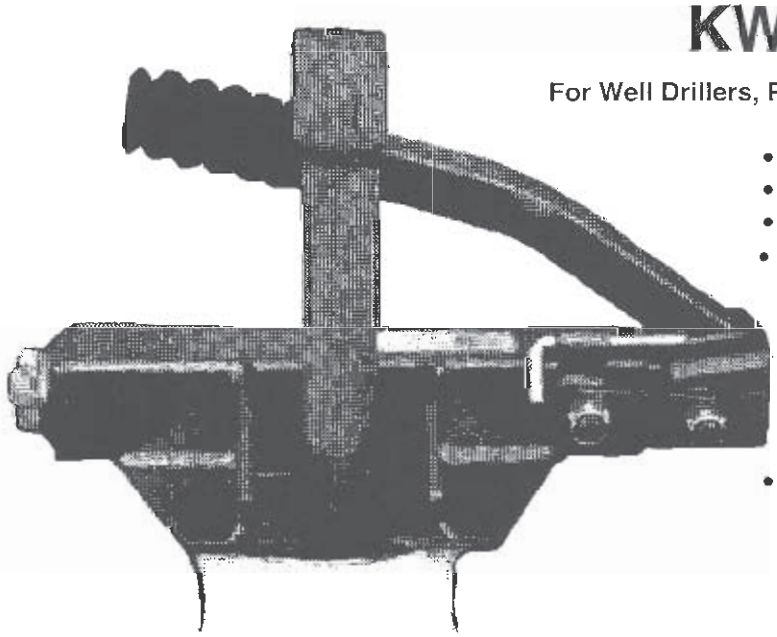
MODEL NO.	STANDARD WIRE ROPE SIZE	MAXIMUM ALLOW.	WT.	A	B	E	F	H	J	K	L	M
4-TON 1-SHEAVE SNATCH BLOCKS, WITH SHACKLE, 4-14 INCHES												
SB4S4BS	3/8-1/2	3/4	15	14.375	13.500	3.281	4.750	2.250	.875	.875	1	4
SB4S4RS	3/8-1/2	3/4	15	14.375	13.500	3.281	4.750	2.250	.875	.875	1	4
SB4S6BS	3/8-1/2	3/4	18	16.500	15.625	3.281	6.250	2.250	.875	.875	1	6
SB4S6RS	3/8-1/2	3/4	18	16.500	15.625	3.281	6.250	2.250	.875	.875	1	6
SB4S8BS	3/8-1/2	3/4	22	18.500	17.625	3.281	8.250	2.250	.875	.875	1	8
SB4S8RS	3/8-1/2	3/4	22	18.500	17.625	3.281	8.250	2.250	.875	.875	1	8
SB4S10BS	3/8-1/2	3/4	34	20.500	19.625	3.281	10.250	2.250	.875	.875	1.250	10
SB4S10RS	3/8-1/2	3/4	34	20.500	19.625	3.281	10.250	2.250	.875	.875	1.250	10
SB4S12BS	3/8-1/2	7/8	39	22.500	21.625	3.281	12.250	2.250	.875	.875	1.250	12
SB4S12RS	3/8-1/2	7/8	39	22.500	21.625	3.281	12.250	2.250	.875	.875	1.250	12
8-TON 1-SHEAVE SNATCH BLOCKS, WITH SHACKLE, 6-14 INCHES												
SB8S6BS	5/8-3/4	1	29	19.250	18.250	3.687	6.250	2.562	1	1	1.500	6
SB8S6RS	5/8-3/4	1	29	19.250	18.250	3.687	6.250	2.562	1	1	1.500	6
SB8S8BS	5/8-3/4	7/8	33	21.250	20.250	3.687	8.250	2.562	1	1	1.500	8
SB8S8RS	5/8-3/4	7/8	33	21.250	20.250	3.687	8.250	2.562	1	1	1.500	8
SB8S10BS	5/8-3/4	3/4	41	23.250	22.250	3.687	10.250	2.562	1	1	1.500	10
SB8S10RS	5/8-3/4	3/4	41	23.250	22.250	3.687	10.250	2.562	1	1	1.500	10
SB8S12BS	5/8-3/4	7/8	46	25.250	24.250	3.687	12.250	2.562	1	1	1.500	12
SB8S12RS	5/8-3/4	7/8	46	25.250	24.250	3.687	12.250	2.562	1	1	1.500	12
12-TON 1-SHEAVE SNATCH BLOCKS, WITH SHACKLE, 6-16 INCHES												
SB12S6BS	3/4-7/8	1-1/8	42	21.250	20	4.375	6.250	3.125	1.250	1.250	2	6
SB12S6RS	3/4-7/8	1-1/8	42	21.250	20	4.375	6.250	3.125	1.250	1.250	2	6
SB12S8BS	3/4-7/8	1-1/8	53	23.250	22	4.375	8.250	3.125	1.250	1.250	2	8
SB12S8RS	3/4-7/8	1-1/8	53	23.250	22	4.375	8.250	3.125	1.250	1.250	2	8
SB12S10BS	3/4-7/8	1-1/8	66	25.250	24	4.375	10.250	3.125	1.250	1.250	2	10
SB12S10RS	3/4-7/8	1-1/8	66	25.250	24	4.375	10.250	3.125	1.250	1.250	2	10
SB12S12BS	3/4-7/8	1-1/8	75	27.250	26	4.375	12.250	3.125	1.250	1.250	2	12
SB12S12RS	3/4-7/8	1-1/8	75	27.250	26	4.375	12.250	3.125	1.250	1.250	2	12

Twin Disc Mechanical Clutch Parts



KWIK KLAMP

For Well Drillers, Pump Installers and Well Servicemen



- All Steel Construction.
- Weight: 12 lbs.
- 5" Wide, 12" Long.
- Hold 1" - 2" Galvanized and Plastic Pipe.
  - Load tested over 4,000 lbs.
  - Wide base for more stable holding on large casing.
  - All adjustments made by 1" sq. thread shaft hidden in front jaw away from water and dirt.
- Serrated jaws made of high carbon tempered steel and replaceable.

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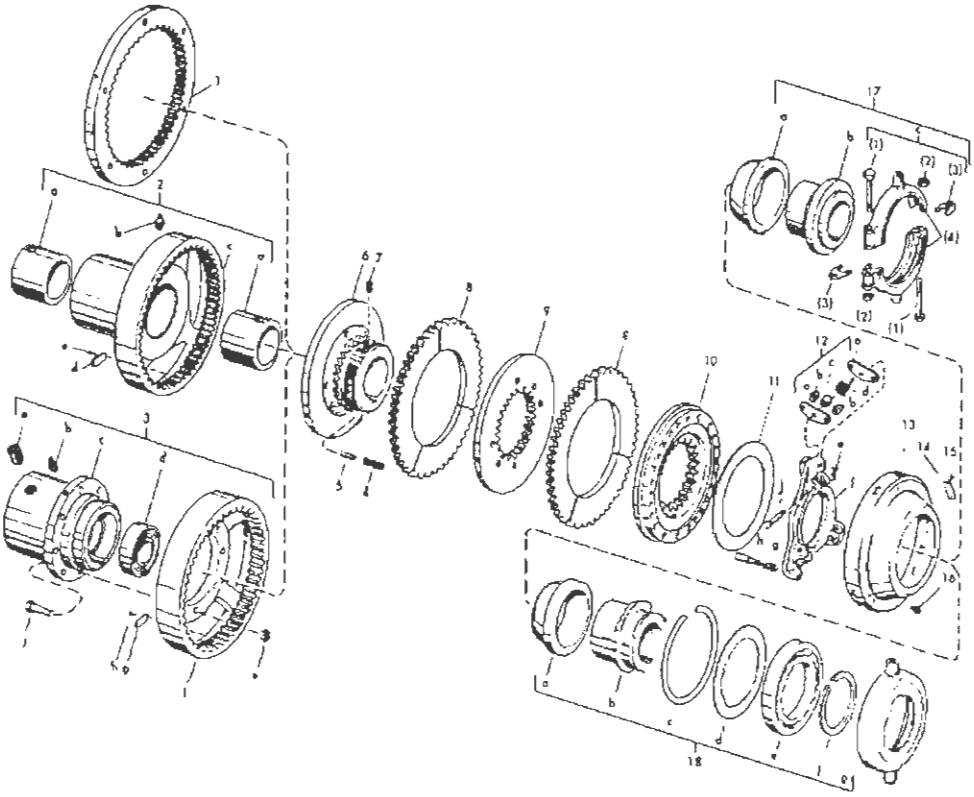
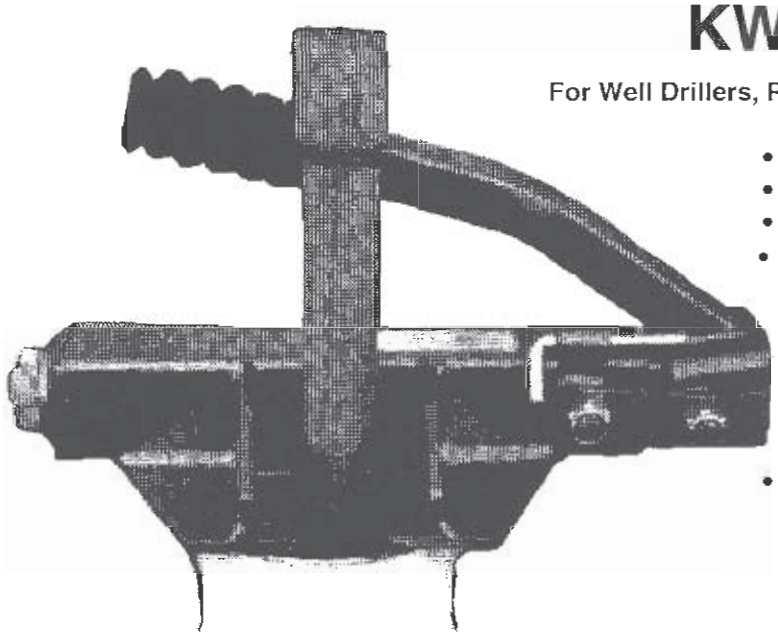
Twin Disc Mechanical Clutch Parts



KWIK KLAMP

For Well Drillers, Pump Installers and Well Servicemen



- All Steel Construction.
- Weight: 12 lbs.
- 5" Wide, 12" Long.
- Hold 1" - 2" Galvanized and Plastic Pipe.
  - Load tested over 4,000 lbs.
  - Wide base for more stable holding on large casing.
  - All adjustments made by 1" sq. thread shaft hidden in front jaw away from water and dirt.
- Serrated jaws made of high carbon tempered steel and replaceable.

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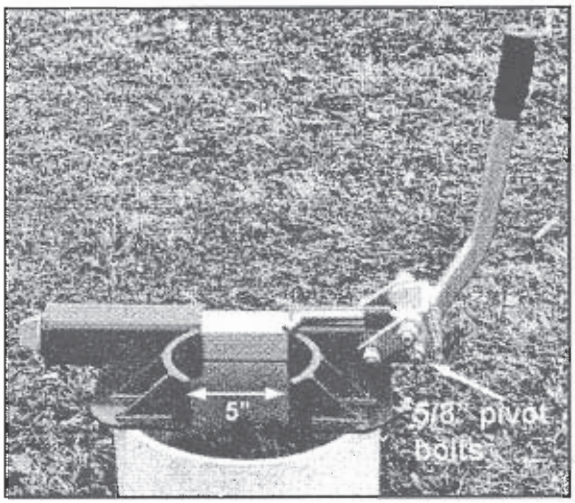
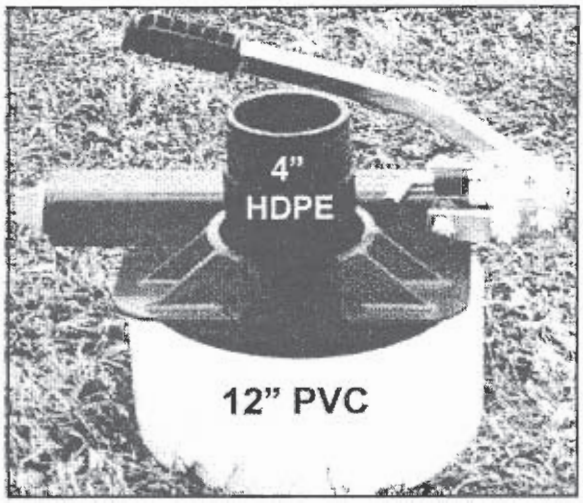
KWIK KLAMP 2

Designed to hold pipe sizes

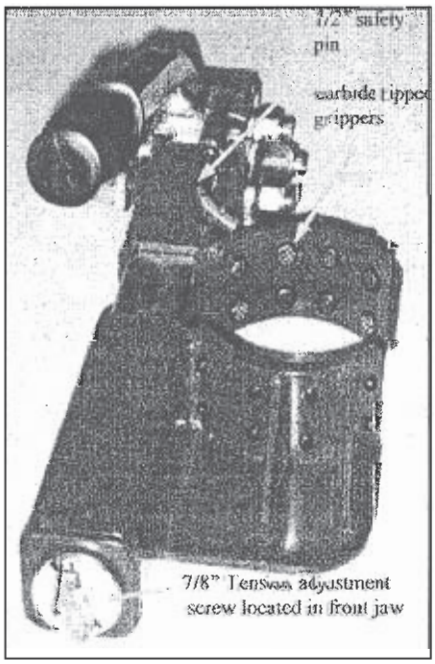
2" • 2-1/2" • 3" • 4"





The all new heavy duty **KWIK KLAMP2** is the drillers' answer for holding the larger pipe sizes 2-1/2", 3" and 4". **KWIK KLAMP2** is basically an enlarged version of our popular **KWIK KLAMP** for pipe sizes 1" through 2" with many of the same features.

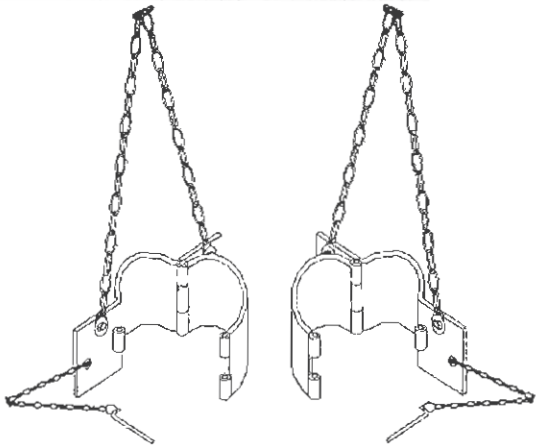
The tool has been used world wide by environmental drillers, pump installers, well servicemen and water well drillers.



- Main body is contructed of 2" and 2-1/2" 1/4" wall steel tube.
- Easy to operate, working on over center locking when downward pressure is applied to a 19" lever handle.
- 1/2" Safety pin used to prevent accidental unclamping.
- **Kwik Klamp2** allows workers to bring pipe or drill joint up to an easy working level.
- The tool weighs only 30 lbs. and is 20" long x 7-1/2" wide.
- Jaws are equipped with 16 carbide tipped grippers.
- Excellent holding capability with load tests done over 7,000 lbs.
- Designed to hold pipes 2", 2-1/2", 3" and 4" PVC, HDPE, Stainless Steel and galvanized steel.
- **KWIK KLAMP** is one of the safest time-saving tools you will ever own.

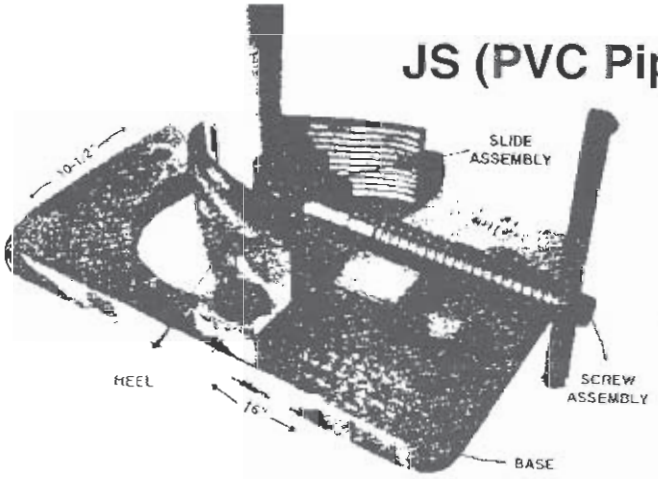
PVC ELEVATORS FOR BELLED END CASING

PART #	PIPE SIZE		WEIGHT	
	Casing Size	Elevator OD	Lbs.	Kgs.
PVCPE200	2"	2-3/8"	15	6.8
PVCPE300	3"	3-1/2"	18	8.2
PVCPE400	4"	4-1/2"	22	10.0
PVCPE412	4-1/2"	5"	22	10.0
PVCPE500	5"	5-1/2"	24	10.9
PVCPE600	6"	6-5/8"	26	11.8
PVCPE614	6-1/4"	6.9"	26	11.8
PVCPE800	8"	8-5/8"	32	14.5
PVCPE1034	10"	10-3/4"	56	25.4
PVCPE1234	12"	12-3/4"	60	27.2
PVCPE1600	16"	16-3/4"	60	27.2



Sold in Sets of Two Pieces
1/4" Steel Construction.
Safer than Ropes or Loop Chains.

JS (PVC Pipe Clamps)



- Three sizes, 1/2"-2", 2"-6", 8"-10"
- Excellent on FLUSH JOINT PIPE
- Strong but lightweight using an aluminum alloy base plate.
- Large opening in base plates allows couplings to pass through
- Tested to 4000 lbs.
- Field Proven, can be used in both the MONITORING and WATER WELL market.

TECHNICAL DATA

MODEL	PIPE SIZES	MAX. OPENING	BASE PLATE	CONSTRUCTION	WT/LB
122JS	1/2" to 2"	3"	7-1/2" x 5-3/4"	Aluminum / Brass	7.00
26JS	2" to 6"	7-1/2"	16" x 10-1/2"	Aluminum / Brass	23.00
810JS	8" to 10"	12"	22-1/2" x 18-1/2"	Aluminum / Brass	66.00

PARTS LIST

PART NAME	NUMBER REQ.	122JS	WT.	26JS	WT.	810JS	WT.
Nut, Adjusting	1	122JS-01	.80	26JS-01	3.10	810JS-01	4.50
Cap Screw, Adj. Nut	2	122JS-01A	.10	26JS-01A	.10	810JS-01A	.10
Screw w/ Handle	1	122JS-02	.35	26JS-02	2.90	810JS-02	8.00
Slide	1	122JS-03	.50	26JS-03	1.40	810JS-03	5.00
Retainer Pin, Slide	2	122JS-03A	.01	26JS-03A	.01	810JS-03A	.01
Set Screw, Slide	2	122JS-03B	.01	26JS-03B	.01	810JS-03B	.01
Heel	1	122JS-04	1.00	26JS-04	3.00	810JS-04	10.00
Cap Screw, Heel	2	122JS-04A	.10	26JS-04A	.10	810JS-04A	.10
Base Plate	1	122JS-05	1.60	26JS-05	11.50	810JS-05	37.00
Slide Assembly	OPTION	122JS-06	1.50	26JS-06	4.00	810JS-06	13.00
Contains: Screw w/ Handle, Slide, Retainer Pins, and Set Screws							

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HEAVY DUTY PIPE ELEVATORS

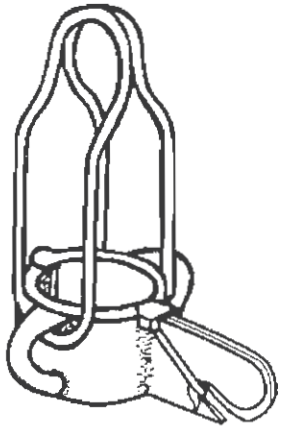
ALL STEEL FABRICATED CONSTRUCTION

A necessary item for the water well driller which as a time saver will pay for itself many times.

- Decrease handling time
- Increase productivity
- Reduce accidents

PERFECT FOR:

Casing Installation
Pulling Pump Column
Setting Well Screen



ID OF PIPE	OD OF PIPE	WEIGHT EA. ELEVATOR
1"	1-5/16"	10#
1-1/4"	1-5/8"	11#
1-1/2"	1-7/8"	12#
2"	2-3/8"	16#
2-1/2"	2-7/8"	17#
3"	3-1/2"	22#
4"	4-1/2"	24#
4-1/2"	5"	24#
5"	5-9/16"	27#
6"	6-5/8"	38#
8"	8-5/8"	83#
10"	10-3/4"	103#
12"	12-3/4"	130#
	14"	139#
	16"	

Sizes 10" and above have removable bails for ease of handling.

Price on Special Sizes Upon Request.

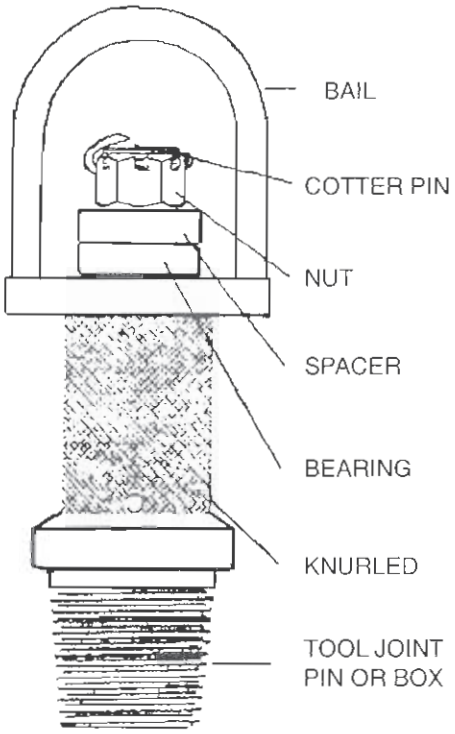
LIGHT DUTY

1"-2" Models

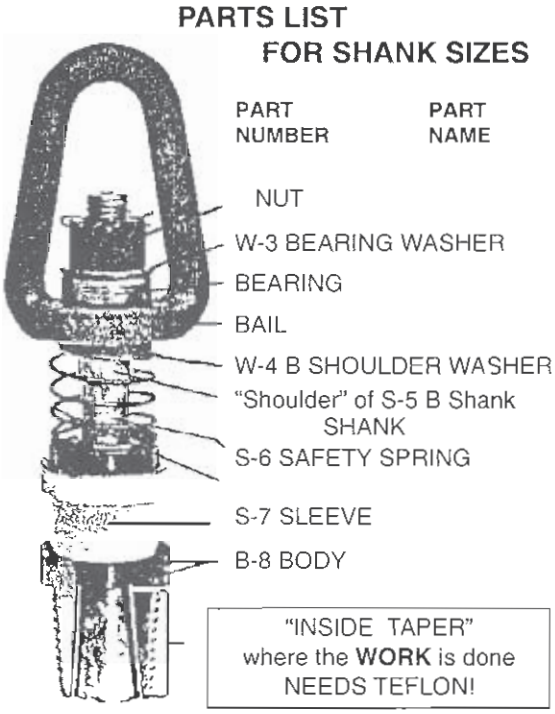
PIPE ELEVATORS

Model No.	Rating SF=4	Pipe Size
910WX	675 lbs.	1"
912WX	645 lbs.	1-1/4"
915WX	650 lbs.	1-1/2"
920WX	900 lbs.	2"

Screw In Type Hoist Plug

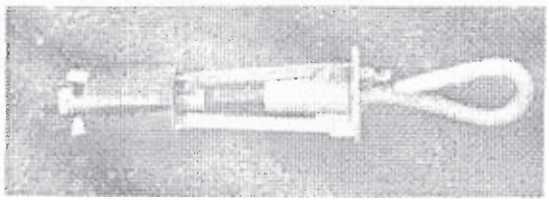


Murphy Fast Plug

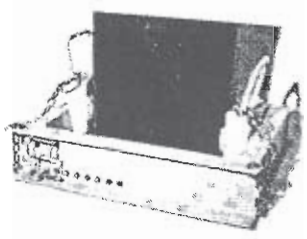


CASING LIFTER

- Quickly elevates horizontal casing from ground or truck.
- Provides perfect vertical alignment for casing coupling or welding.
- Can be installed or released in seconds.
- Holding tension increases as more weight is lifted.
- Positive force locking system prevents accidental release.
- Eliminates the use of clamps and lugs.
- 35-ton holding capacity.



ADJUSTABLE CASING HOLDER/SLIPS



Casing slips are available to meet your specific steel pipe diameter or as an adjustable slip, adjustable 1-1/2" through 8-5/8" OD. All steel welded construction with replaceable alloy dies, the casing slips are used for drill pipe, pump drop pipe or any steel pipe. Please call for quotation and rapid delivery.

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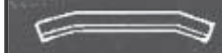
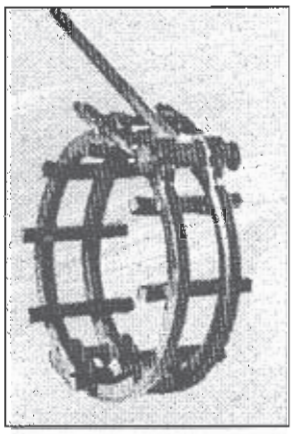
General Pipeline Alignment Clamps

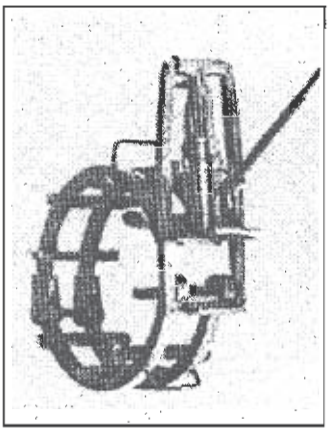
GENERAL STANDARD



FLAT CROSS BARS



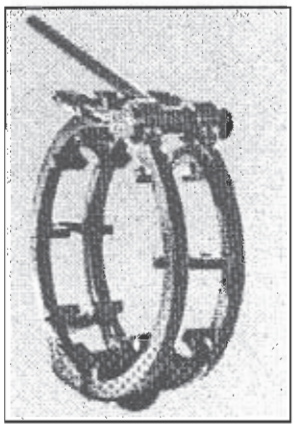
HAND LEVER
Simple, quick, easy to use! Tightens with hand lever! Standard in the industry for over 50 years.



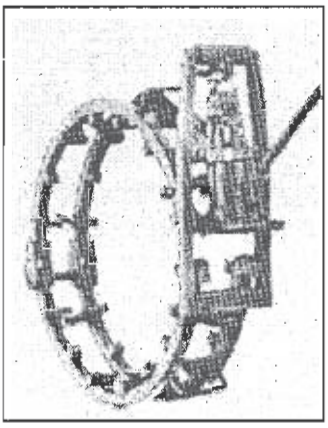
HYDRAULIC
Easy to use. Pulls down tight with a hydraulic jack.

GENERAL NO TACK

ARCHED CROSS BARS



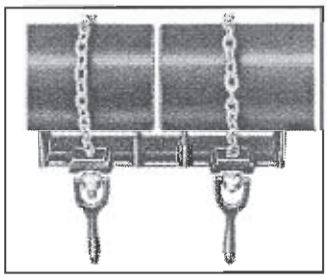
HAND LEVER
Arched cross bar permits full circle welding without moving the clamp. Tightens with hand lever.



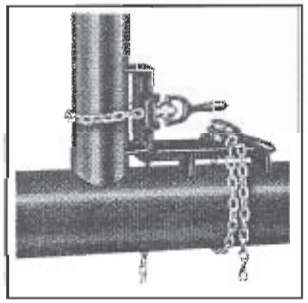
HYDRAULIC
Pulls down tight with a hydraulic jack. Arched cross bar permits full circle welding without moving the clamp.

RIDGID Pipe Welding Vises & Alignment Clamps

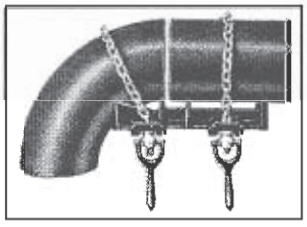
RIDGID



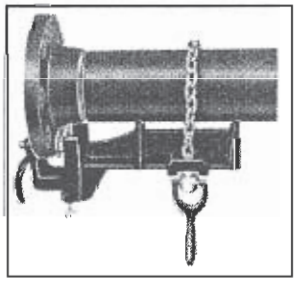
Straight Pipe Welding Vise



Angle Pipe Welding Vise



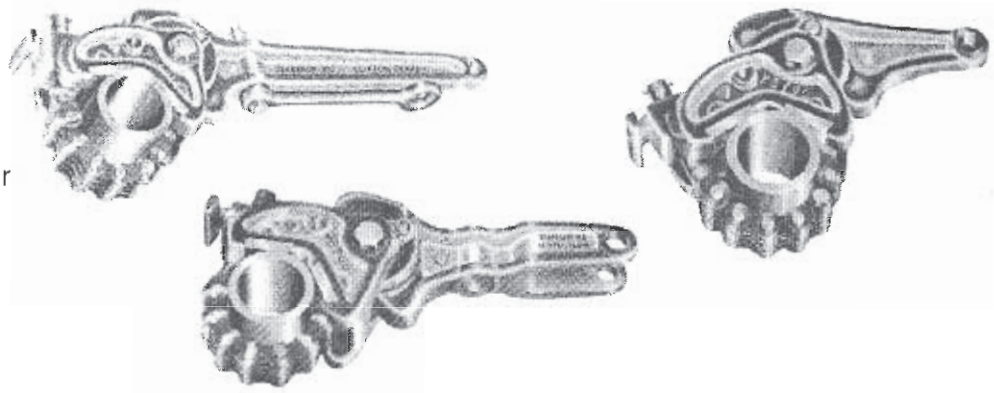
Elbow Pipe Welding Vise



Flange Pipe Welding Vise

PETOL DRILL PIPE TONGS

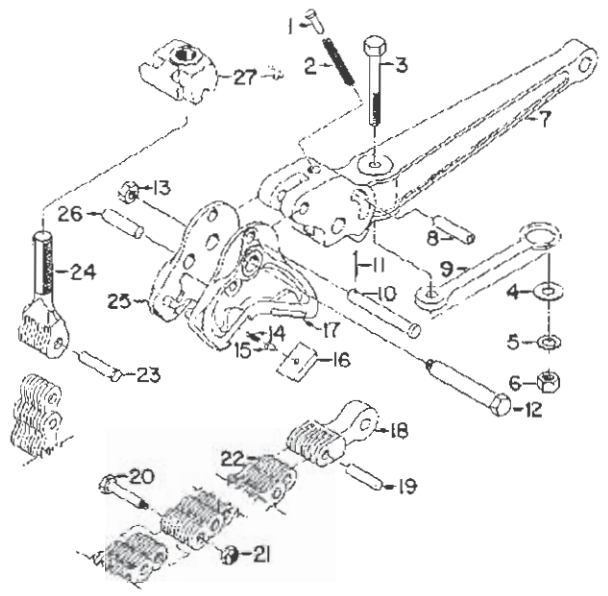
PETOL DRILL PIPE TONGS are designed for making up and breaking out drill pipe, casing and pneumatic drills on light rigs. These tongs are furnished as original equipment by rig manufacturers because of their ease in handling, quick application, and ability to withstand rugged use.



CATALOG NO.	O.D.*	HANDLE LENGTH**	WEIGHT***	WORKING LOAD****
DA2344-L21	2-3/8" - 4-3/4"	21"	31 lbs.	14,000 ft.-lbs.
DA2344-C12	2-3/8" - 4-3/4"	12"	27 lbs.	14,000 ft.-lbs.
DA4174-L08	3/1/4" - 8-1/4"	8"	40 lbs.	18,000 ft.-lbs.
DA4174-L21	3-1/4" - 8-1/4"	21"	48 lbs.	15,000 ft.-lbs.
DA4174-C12	3-1/4" - 8-1/4"	12"	43 lbs.	18,000 ft.-lbs.
DA6184-C10	4-1/2" - 10-3/4"	10"	50 lbs.	32,000 ft.-lbs.
DA6184-L36	4-1/2" - 10-3/4"	36"	74 lbs.	25,000 ft.-lbs.

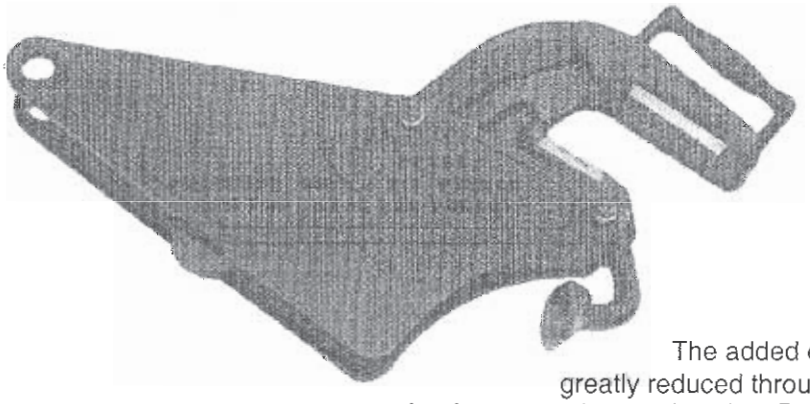
*CHAIN ASSEMBLIES MUST BE ORDERED SEPARATELY. PLEASE SPECIFY REQUIRED O.D.
**CALL FACTORY FOR TORQUE ARM LENGTHS.
***WEIGHTS DO NOT INCLUDE CHAIN.
****WORKING LOAD WILL VARY WITH DIAMETER OF PIPE. CALL FACTORY FOR INFORMATION.

DO NOT EXCEED RATINGS LISTED IN TABLE. SEE SAFETY LABEL 3 ON PAGE 8 AND SAFE PRACTICES AND PROCEDURES MANUAL ON PAGES 1-7 PRIOR TO USE.



KEY NO.	ITEM DESCRIPTION	NO. REQ'D
1	Spring Guide	1
2	Spring	1
3,4,5,6	Hanger Bolt & Nut Assembly	1
7	Handle	1
8	Spring Pin Bushing	1
9	Hanger	1
10, 11	Spring Pin w/Cotter	1
12, 13	Jaw Bolt & Nut	1
14	Insert Key Spring	4
15	Insert Key	4
16	Blank Insert	2
17	Petol Insert (Diamond Point or Knurled)	2
18	Master Link	1
19	Master Link Chain Pin	1
20, 21	Splice Bolt & Nut	as req'd.
22	Special Chain Only	1
23	Chain Screw Pin	1
24	Chain Screw	1
25	Jaw	1
26	Master Link Handle Pin	1
27	Chain Screw Nut	1

PETOL RIG WRENCH



The **PETOL RIG WRENCH** provides a faster and safer method of making up or breaking out drill pipe on water well and blast hole drilling rigs.

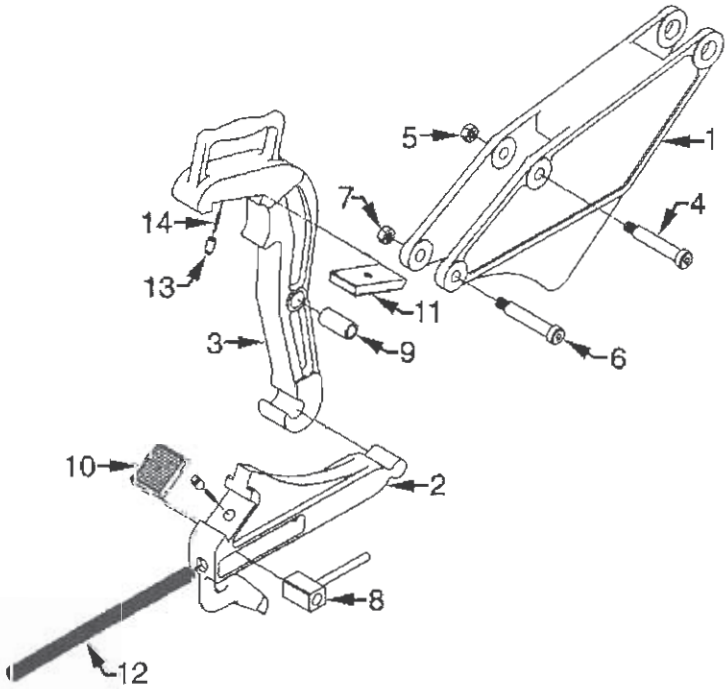
The wrench is self-adjusting and has perfect ratcheting action. Specially designed hand grips enable the operator to apply and remove the wrench with ease.

The added expense of hook jaw and insert breakage is greatly reduced through the PETOL RIG WRENCH's nonjamming feature and rugged design. Because PETOL Inserts are seated in dovetail slots, they will not shear from the wrench during use.

CATALOG NO.	O.D. CAPACITY	GRIPPING WIDTH	TORQUE ARM LENGTH	WEIGHT	WORKING LOAD
PRWA01	3-1/2" — 5"	2.25"	approx. 18"*	53 lbs.	16,000 ft.-lbs.

* TORQUE ARM LENGTH WILL VARY FROM 17.38" TO 19.38" DEPENDING ON PIPE O.D.

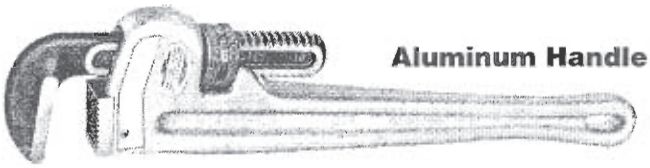
DO NO EXCEED PUBLISHED RATINGS.
DO NOT STRIKE TOOL IN ANY WAY.
FOLLOW OSHA, NATIONAL SAFETY COUNCIL, HAND TOOLS INSTITUTE, ETC. STANDARDS, SAFE PRACTICES & PROCEDURES.



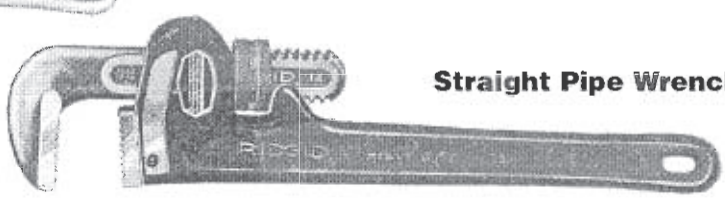
KEY NO.	ITEM DESCRIPTION	NO. REQ'D.
1	HANDLE	1
2	LOWER JAW	1
3	UPPER JAW	1
4,5	UPPER JAW BOLT & NUT	1
6,7	LOWER JAW BOLT & NUT	1
8	LOWER JAW BUSHING	1
9	UPPER JAW BUSHING	1
10	LOWER JAW INSERT	1
11	UPPER JAW INSERT	1
12	SPRING	1
13	INSERT KEY	2
14	INSERT KEY SPRING	2

WRENCHES

SPECIAL PIPE APPLICATIONS



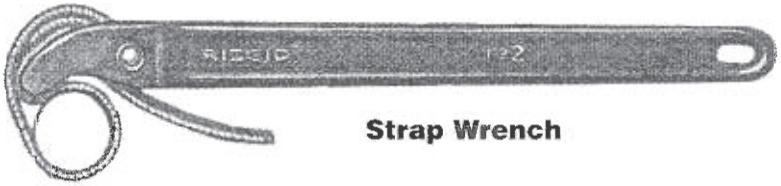
Aluminum Handle Straight Pipe Wrench



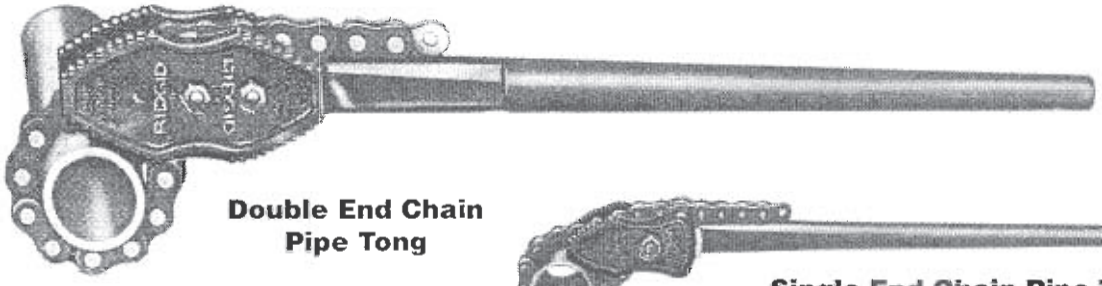
Straight Pipe Wrench

Heavy Duty
Chain Wrench

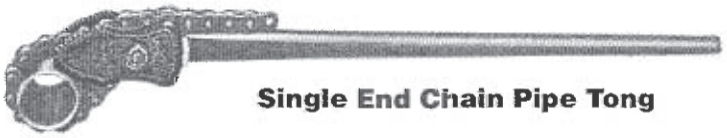
Light Duty
Chain Wrench



Strap Wrench



Double End Chain
Pipe Tong



Single End Chain Pipe Tong

Diamond Wrenches

MODEL #	HANDLE LENGTH	CHAIN LENGTH
CW12	12"	15"
CW15	15"	19"
CW24	24"	23"

Concave Cut Teeth
for improved gripping

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QUICK COUPLINGS

AL-Aluminum
BR-Brass

PART A

PART B

PART C

PART D

PART E

PART F

PLUG

CAP

— "BOSS COUPLINGS" —

GROUND JOINT FEMALE

MALE

MALE / SPUD

CLAMP

NDS
952 / 461-3400

BAROID INDUSTRIAL DRILLING PRODUCTS

● PRIMARY FUNCTION ○ SECONDARY FUNCTION

PRODUCT TRADE NAME	FUNCTION	PRODUCT DESCRIPTION	Viscosifier/Thickener	Thinner/Dispersant	Filtrate Reducer	Surfactant	Lubricant	Suspending Agent	Clay Inhibitor	Weighting Material	Well Dev & Rehab	Air-Foam Drilling	Grouting & Plugging	Pond Sealing	Soil Stabilizing	NSF Certified	Water Wells	Seismic Shot Holes	Minerals Exploration	Horizontal Dir. Drlg.	Drilled Shafts & Fdn.	Monitor Holes	Remediation Well	Fresh Water	Brackish Water	Salt Water	RECOMMENDED TREATMENT
AQUA-CLEAR™ AE	Bacteria slime remover	Liquid blend of acids and acid enhancers									●						●							●			Refer to Product Data Sheet
AQUA-CLEAR™ MGA	Scale remover	Granular acid and additives									●						●							●			Refer to Product Data Sheet
AQUA-CLEAR™ MSR	Sediment/mud/clay remover	Granular phosphate blended with dispersants									●						●							●			Refer to Product Data Sheet
AQUAGEL®	Gellant/viscosifier	Treated sodium montmorillonite (Sodium bentonite-200 mesh)	●		●									●		●	○	○	○	●	●	○		●			20-50 lb/100 gallons
AQUAGEL Gold SEAL®	Gellant/viscosifier	Sodium bentonite (untreated-200 mesh)	●		●									○		●	●	○	○	○	○	●		●			20-50 lb/100 gallons
AQUA-GROUT™/BENSEAL®	Grouting and plugging system	Yield-rate control of sodium bentonite grouting system											●			●	●		●	●		●	●	●			1 bag AQUA-GROUT/40 gallons water/2 bag BENSEAL
AQUAGUARD™	Subsurface grouting material	One-sack sodium bentonite grout (granular-30 mesh)											●				●		●	●		●	●	●			1 sack / 14 gallons water
ATTACK-FOAM™	Fire suppressant foam concentrate	Class A foam concentrate																									Refer to Product Data Sheet
BARAFOAM®	Foaming agent	Biogradable foaming agent										●					●	●	●	○				●			3-8 pints/100 gallons water
BAROFOS®	Thinner and dispersant	Grandular pentasodium tripolyphosphate		●	○						●						●	●	●	●		●		●	●		10-20 lb/100 gallons
BAROID®	Weighting material	Ground barium sulfate								●							○	○	○	○	○	○	○	●	●	●	1-1/2 sacks 100 gal drilling mud to increase density by 1 lb/gal.
BAROID BENTONITE PELLETS	Sealing and plugging agent	Sodium bentonite pellets (untreated-1/4", 3/8", 1/2")											●			●	●		●	●		●	●	●	●		1 pail fills 0.7 ft ^{3}
BENSEAL®	Sealing and plugging agent	Coarse ground, granular sodium bentonite (8 mesh)											●	●	●	●	●		●	●		●	●	●	○		1 sack fills 0 68ft ^{3}
BENSEAL®/EZ-MUD®Slurry	Sealing and plugging system	Polymer treated sodium bentonite grouting system											●			●	●		●	●			●	●	○		1 pint EZ-MUD/30 gal water/1 sack BENSEAL
BIO-BORE™	Horizontal directional drilling fluid concentrate	Clay-free, biogradable drilling fluid	●		●													○	○	●	○		●	●	●	●	20-35 lb/100 gallons
BORE-GEL™	Horizontal boring fluid	One-sack boring fluid system for use in HDD	●		●												●	●	●	●			○	●			2 sacks/300 gallons
CASING SEAL™	Sealing and plugging agent	Random-sized sodium bentonite mixture (8-14 mesh)											●	●	●	●	●		●	●		●	●	●	○		1 sack fills 0 68 ft ^{3}
CON DET®	Wetting agent	Water soluble surfactant blend				●	○		●			○					●	●	●	●	●		●	●	●	●	1-4 quarts/100 gallons
CORE-LUBE™	Diamond core drill rod lubricant	Linseed-based soap					●												●								Coat pipe as necessary
DINOMUL™	Wellbore stabilizing fluid	Aqueous lubricating fluid for torque reduction					●												●	●				●	●	●	1-2 gallons/100 gallons
DRILFOAM®	Foaming agent	Biogradeable foaming agent										●					●	●	●	○				●			3-6 pints/100 gallons
ENVIRO-TORQ®	Drilling fluid lubricant	Liquid lubricant					●												●					●	●	●	1-2 gallons/100 gallons
EZ-MUD®	Borehole stabilizer/viscosifier	PHPA liquid polymer emulsion	●		○		○		●			●				●	●	●	●	●	●		●	●	●	○	1-2 quarts/100 gallons
EZ-MUD® DP	Borehole stabilizer/viscosifier	PHPA dry polymer	●		○		○		●			●				●	●	●	●	●	●		●	●	●	○	1-2 lb/100 gallons
EZ-MUD® PLUS	Viscosifier/borehole stabilizer	PHPA liquid polymer emulsion (high molecular weight)	●		○		○		●			●				●	●	●	●	●	●		●	●	●	○	1 quart/100 gallons
HOLEPLUG®	Sealing and plugging agent	Sized-graded sodium bentonite (3/8", 3/4")											●			●	●	●	●	○		●	○	●	○		1 sack fills 0 7 ft ^{3}
LIQUI-TROL™	Filtration control/viscosifier	Modified natural cellulosic polymer suspension	○		●				●			○					●	●	●	●	○		○	●	○		1-4 quarts/100 gallons
NO-SAG™	Polymeric viscosifier	Biopolymer additive for enhancing carrying capacity of fluid						●	●								●	●	●	●			●	●	●	●	1-2 bags/300 gallons drilling fluid
POLY-BORE™	Borehole stabilizing agent	PHPA dry polymer (high molecular weight)	●		○		○		●			●				●	●	●	●	●	●		●	●	●	○	0.5-1 lb/100 gallons
QUIK-FOAM®	Foaming agent	High expansion, biogradeable liquid surfactant blend										●					●	●	●	○			○	●	●	○	2-4 pints/100 gallons
QUIK-GEL®	High-yield gellant/viscosifier	High-yield treated sodium bentonite	●		●											●	●	●	●	●	●	●		●			15-35 lb/100 gallons
QUIK-GROUT™	Subsurface grouting material	One-sack sodium bentonite grout (granular)											●				●		●	●		●	●	●			1 sack/24 gallons water
QUIK-TROL™	Filtration control/viscosifier	Dry modified cellulosic polymer	○		●				●			○					●	●	●	●	○		○	●	○		1-2 bags/100 gallons
ROD-GUARD™	Vibration dampening lubricant	Lithium-based lighter weight lubricant					●												●					●	●	●	Coat pipe as necessary
VIBRA-GUARD™	Diamond core drill rod lubricant	Bentone-based heavy weight lubricant					●												●					●	●	●	Coat pipe as necessary
VIBRA-LUBE™	Drilling fluid lubricant	Torque reducer					●												●					●	●	●	1-2 quarts/100 gallons
ZEOGEL®	Saltwater gellant/viscosifier	Ground attaplugite clay	●															○	○	●	○	○				●	50-100 lb/100 gallons

12/00

T100 MUD

FOR LOW SOLIDS DRILLING FLUIDS AND AN EXCELLENT GROUTING MIX WITH GRANULAR BENTONITE

— **T100 MUD** is a white, liquid, anionic polymer emulsion which is readily soluble in fresh or brackish water.

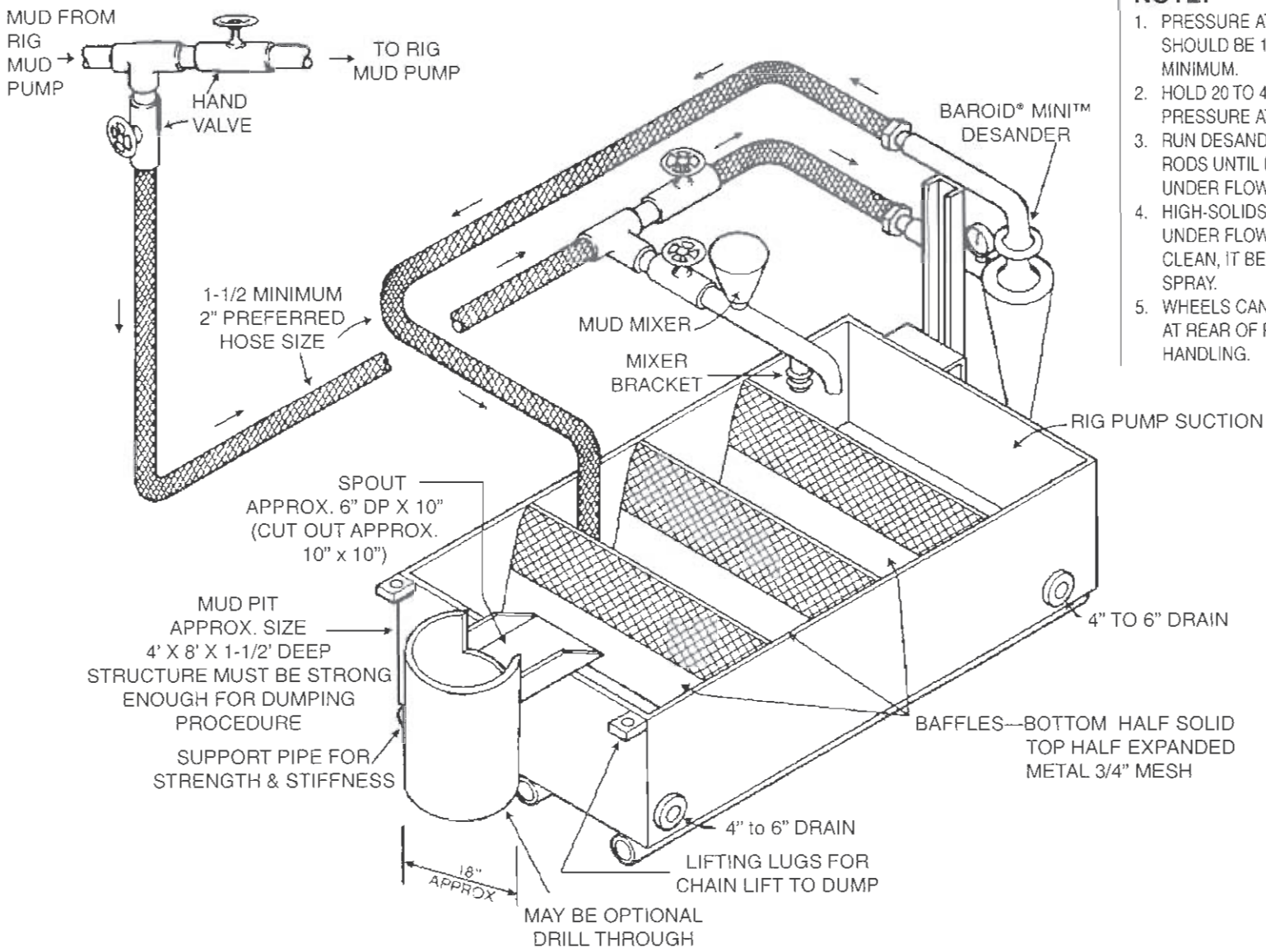
— **T100 MUD** may be used to prepare a solids-free drilling fluid with exceptional hole stabilizing properties, or to improve the properties of bentonite fluids.

ADVANTAGES:

- Mixes and yields rapidly and completely with minimum shear.
- Settles cuttings rapidly in pits.
- Lubricates and reduces drill pipe torque and circulating pressure.
- Rapid and efficient thickener to improve hole cleaning.
- Non-toxic and proven suitable for use in drilling water wells.
- Non-damaging to producing formations and T100 MUD is water-soluble.
- **Breaks down to water viscosity with sodium hypochlorite (Clorox®).**

T100 MUD is very comparable to other leading brands in the water well industry.

MUD TANK WITH BAROID® MINI™ DESANDER



NOTE:

1. PRESSURE AT MUD MIXER SHOULD BE 100 PSI MINIMUM.
2. HOLD 20 TO 45 PSI PRESSURE AT DESANDER.
3. RUN DESANDER BETWEEN RODS UNTIL DESANDER UNDER FLOW CLEANS.
4. HIGH-SOLIDS ROPE AT UNDER FLOW. WHEN CLEAN, IT BECOMES A SPRAY.
5. WHEELS CAN BE ADDED AT REAR OF PIT TO AID HANDLING.

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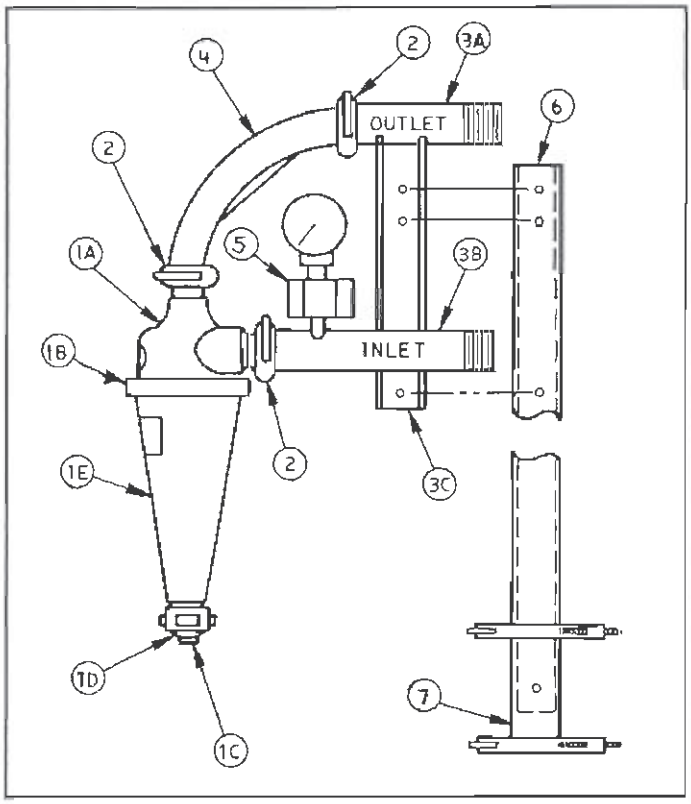


1. Baroid 5" Hydrocyclone Assembly . 188-90
   Includes:
   - 1.A Inlet Section 188-90-2
   - 1.B Retainer Clamp 188-90-4
   - 1.C Adjustable Orifice 188-90-7
   - 1.D Adjusting Nut 188-90-8
   - 1.E Cone Section 188-90-9
2. Victaulic Coupling (3) 188-76-1
3. Desander Manifold Unit..... 188-101-11B
   - A. Grooved Outlet Pipe (2") steel
   - B. Grooved Inlet Pipe (2") steel
   - C. Stand off Bracket
4. Overflow Elbow 188-74-2
5. Pressure Gauge and Protector 37-14

OPTIONAL ACCESSORIES

6. 48" Stand off Bracket..... 188-101-2
7. Mounting Clamp Assembly..... 98-51
8. *25 ft. 2" flexible reinforced hose with swivel pipe ends..... 188-101-4
9. *2" Strainer with foot valve for pump suction..... 188-101-5

*Items not shown

BAROID® MINI™ Desander Assembly

188-102

Description and Parts

The BAROID® MINI™ Desander is a special wear-resistant, long life, plastic, five-inch hydrocyclone assembly with a quick-coupled manifold unit included as standard equipment. Also required is a high quality dependable pressure gauge with protector to prevent drilling mud from entering the gauge.

NOTE: The use of a dependable and accurate pressure gauge is absolutely necessary for proper operation of the cone.

When desired, two or more cones can be used, manifolded in parallel.

Installing the BAROID® MINI™ Desander

To operate the BAROID® MINI™ Desander, a pump is necessary that can deliver up to 90 gal/min* at pressures from 20 to 45 p.s.i.

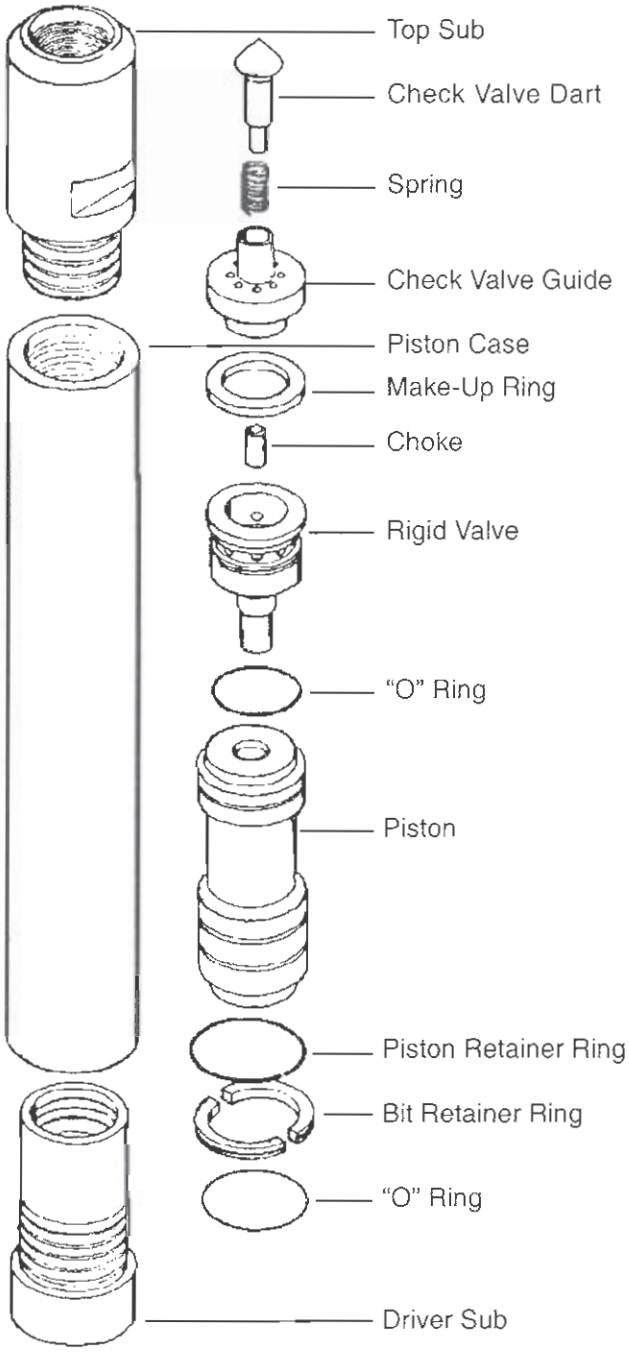
The BAROID MINI Desander can be rigged to use the drilling rig mud pump for intermittent operations or installed on a separate pump for continuous operations. If the drilling rig pump is used, it should be arranged so that during connections and other shut-down periods, the mud is diverted from the standpipe and directed into the BAROID MINI Desander.

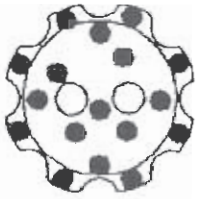
Either steel or earthen (dug) pits can be used. The return flow from the BAROID MINI Desander must be directed upstream from the pump suction. When an earthen pit is used, care must be taken so the discharge does not erode the bottom or the sides of the pit.

*If more than one cone is in use, increase the pump volume accordingly.

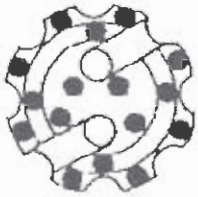
All orders must specify description and order part number for each item.

DOWN HOLE TOOLS - 4" to 17"

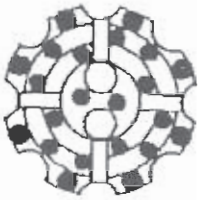




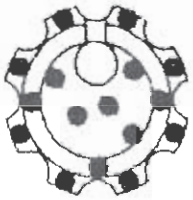
Flat



Concave



Drop Center

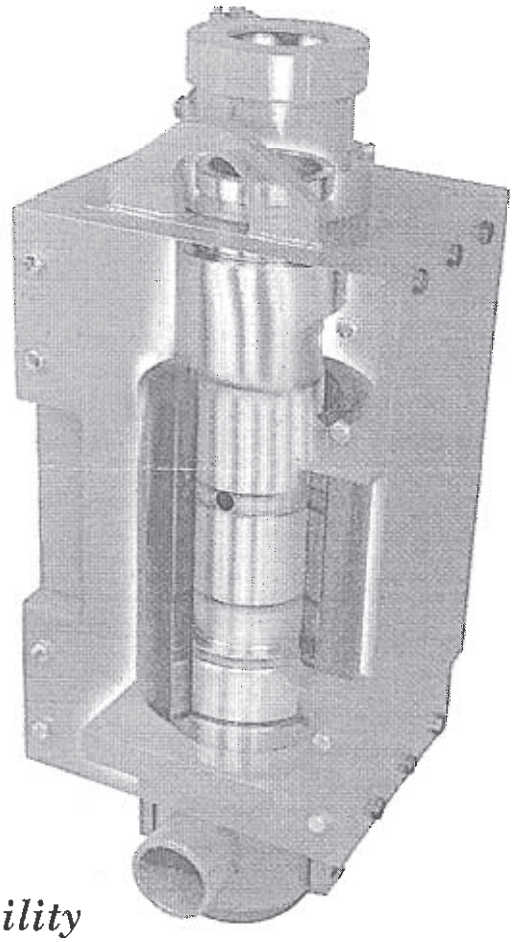


Convex

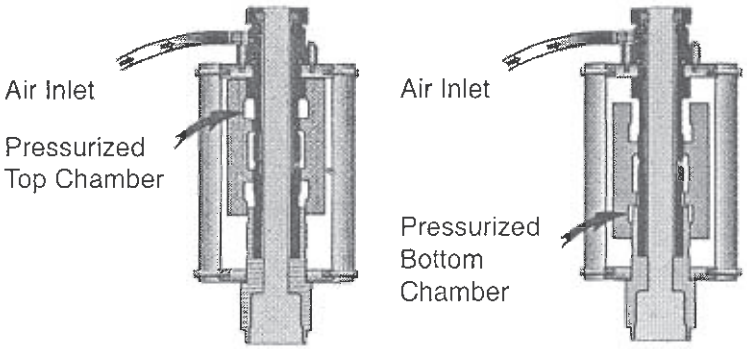
Casing Hammers for Air Rotary Rigs

Midfrequency piston operation for accelerated casing advancement with minimum stress on equipment

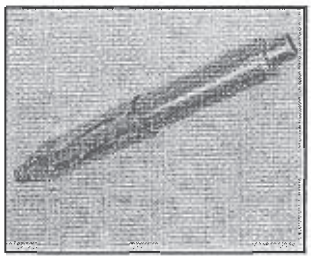
- No moving valves or cylinders
- High grade chrome moly billet steel, heat treated to optimum hardness for impact and wear resistance
- The piston is the only moving part
- Unique 360 degree internal port-timed piston automatically centers on the valve body



Air Flow Diagram

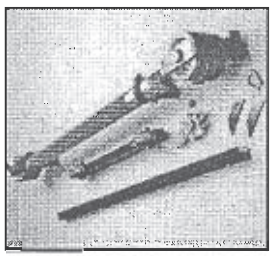


Compare Performance, Price and Reliability



Perforator
Slots in seconds
Pull up to retract blade
Push down to perforate
Tool steel slotting wheel
Fast pneumatic engagement

Extractor Hammers
Exposes well screen
Pull surface seal pipe
Retrieves stuck tooling
Pull & rotate simultaneously
Attaches in line with drill string



Lifting Cylinder
Isolates hammer
Universal design
Simple installation
Keeps winch line free
Speeds make-up time

Drillers' Comments

"...Fires first time, every time and increased our drilling footage by 25% - 30%.

Lynnie Arnott
A & A Drilling
Lopez Island, WA
360 468-2587

"Absolutely the sweetest casing hammer I've ever used. My two hammers never freeze up or give me problems. They let me drive deeper than other hammers I've owned and do not break welds"
Vernon Rank
Water Wells Drilling
Yakima, WA
509 966-7409

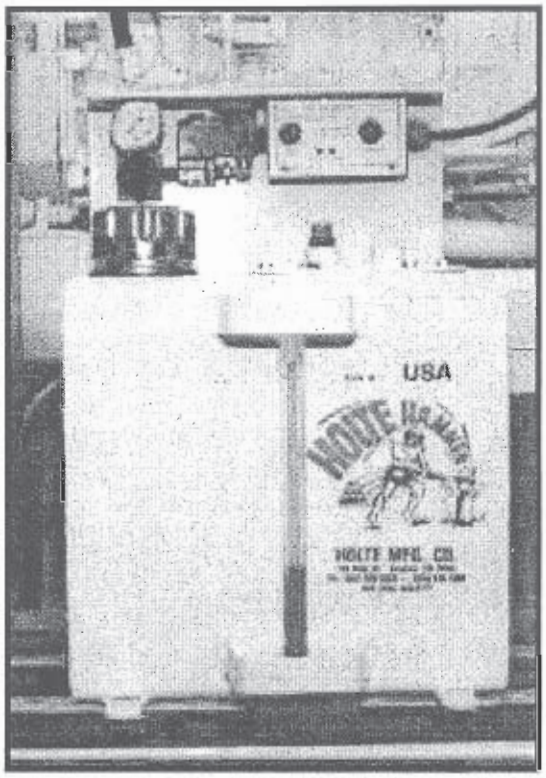
"I can regulate it to hammer as lightly or as hard as I intend ... I have drilled through boulders, tapping gently, as well as drilling 400 feet in gravel formations using 6" steel casing. Maintenance is not a factor, I probably add 1 quart of oil every 2-3 months.
Chet Graham
Graham Drilling, Inc,
Sheridan, MT
406 842-5214

Oiler

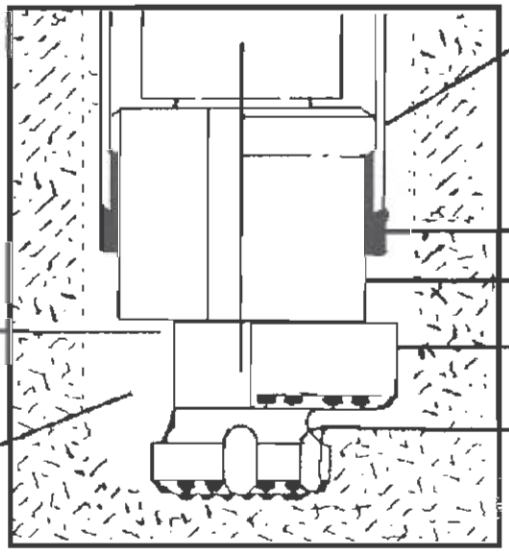
The **Holte Manufacturing Oiler** has a positive displacement pump that is air powered. The air gets to the pump through a solenoid valve. The solenoid valve gets a signal from an electronic timer that has a variable frequency set by the operator. Each pulse from the timer results in 1/2 cubic inch of oil. The pressure ratio between air supplied to the pump and oil coming out of the pump is about 4-1/2 to 1. This enables 100 PSI of air to push 450 PSI of oil. When the electronic signal is off, the pump recharges by means of a return spring in the pump. This simple system is durable and dependable.

A diagram on the face of the 7-1/2 gallon tank tells the operator the recommended amount of oil to use with the air volume he has available. It then shows where to set the knob for the desired amount of oil.

Holte now has barrel pump oilers that can be regulated to pump from one of five gallons per hour and another that can empty the entire barrel in minutes.



UNDERREAMER



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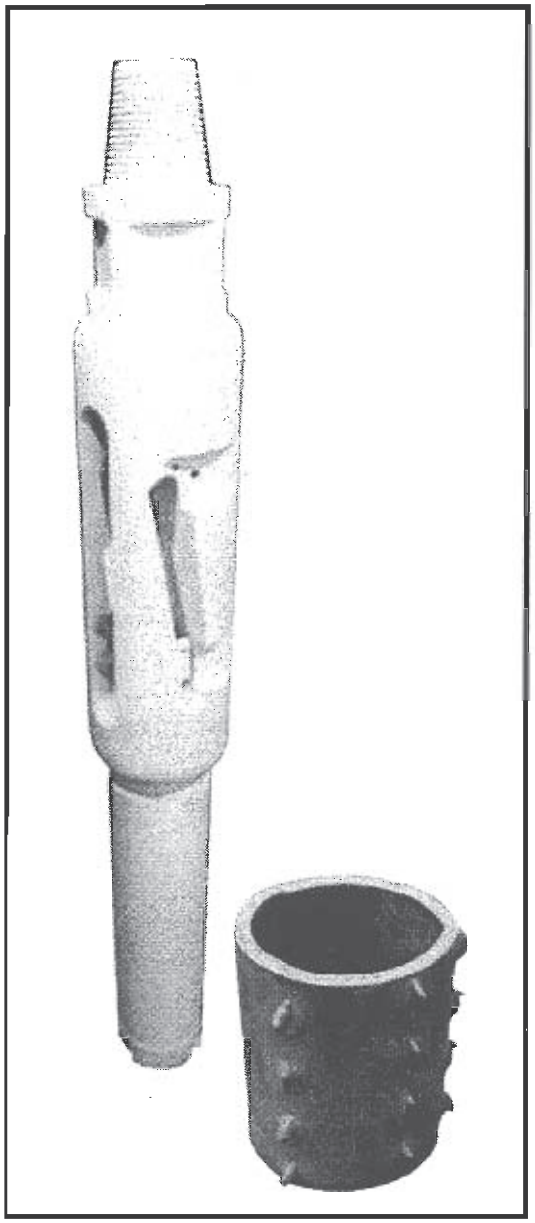


Perforator

The **Holte Manufacturing Tool** effectively perforates the wall of installed steel and PVC well casing. This tool screws to the end of drill pipe and will puncture rows of approximately 1" x 1/10" slots in steel casing having a thick wall up to .450".

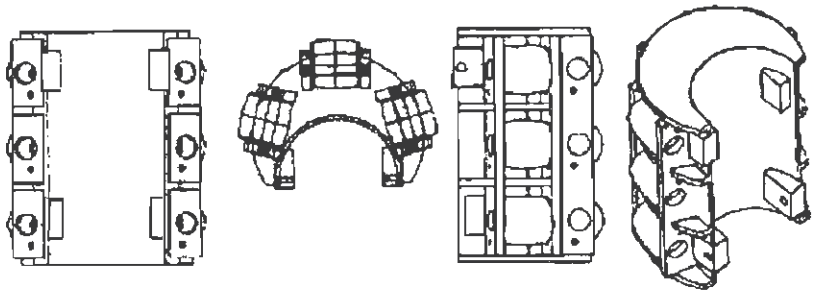
The PVC blade cuts approximately .400" x .050" slots in plastic pipe and are easily interchangeable with the steel cutter blade.

The most popular size is the 6" perforator having an actual diameter of 5.9" and is ready to be used on 6-5/8 O.D. casing with a .280" or .250" wall. When perforating 6" casing with thin wall such as .150", the puncture size can be adjusted by removing the cutter travel stops. By removing the stops, a slightly larger perforation can be made.

What You Can Expect From Holte Perforators

1. New precision machined body. Holte has found that a sound body is necessary to keep axle pins and other internal parts from becoming warped resulting in a short life of the tool. The latest machined hard case body is improved over our old fabricated body which did not stand up well to heavy use and abuse.
2. Quality carbon treated body and internal parts. Holte has been making the best perforators in the drilling industry for 20 years and stocks replacement parts.
3. Adapters for larger size casing are available. Slide shoes adapt a 6" perforator to perforate 8" and 10" casing and roller shoe to 12".
4. 3" and 4" units with adapters to 5" casing, 6" units with adapters through 12", and larger units through 26". Holte will quote a perforator for sizes above 26".

Typical Roller Shoe Adapter



Sonar Water Level Indicators

Non-Intrusive Automatic Surface to Water Level Measurement

SA Electronics, Inc. makes water level measurement a straightforward and efficient process with its acoustic probes, the Models 10A and 30A.

These microprocessor-based instruments are truly "user friendly." The operator simply enters well casing size and minimum distance. From there, these "smart" instruments use sound waves to determine water levels in a matter of seconds. Measurement data is automatically displayed in increments of 1.0 foot or 0.1 meter for Model 10A and in 0.1 foot or 0.1 meter for Model 30A, on a large LCD readout. Using our data software you can record the water levels on a laptop or notebook computer, during a pump test for example, and save the data for later printing and plotting. No wire hang ups or coating problems. These non-intrusive models are excellent for clean well applications and irregular well configurations.

FEATURES:

- Microprocessor based
- Automatic Operation
- Sonar measurement techniques
- Range to 1600 ft/488 m
- Resolution of 1.0 ft./0.1 ft/0.1 m
- Digital output (RS-232)
- Portable
- Battery powered
- LCD readout

BENEFITS:

- Simple operation
- No wire probe hang ups
- Ideal for clean applications
- Lightweight/portable
- Readings available in seconds
- Accurate, reliable performance
- Excellent quality parts and workmanship

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MODELS 10A & 30 A

RANGE

(Determined by clear well casing size)

MODEL 10 reads in steps of 1ft/0.1m

- 2" casing 25 to 400ft/122m
- 4" casing 25 to 800ft/122m
- 8" casing 23 to 1600ft/488m

MODEL 30 reads in steps of 01ft/0.1m

- 2" casing 25 to 400ft/122m
- 4"-8" casing 25 to 800ft/122m

OUTPUTS

- Digital RS-232 for telemetry or computer recording
- Video and synch to drive an oscilloscope display (to "view" the well from 25 ft. to the water surface)

FEATURES

- Quartz crystal time base for stability and accuracy
- Low battery indicator
- Strong, deep drawn, aluminum case with gasket sealed over
- Storage space for sensor

SPECIFICATIONS

- **Operating Temperature:** 32° F - 120°F (0° C - 50° C)
- **Storage Temperature:** 0° F - 120°F (-20°C - 50°C)
- **Accuracy:** ± 0.5ft ± 0.1% of reading for a constant well air temperature of 50°F (10°C)*
- **Weight:** 7.5 lb (3.3 kg) complete
- **Dimensions:** 7.5 x 7 x 11 in (19x18x28 cm)
- **Power Requirements:**
  Internal: 4 alkaline D cell batteries (20-30 hr average life).
  External: 12V car battery or any 12V DC voltage source @ 250 mA average current and 0.5 A peak capability.

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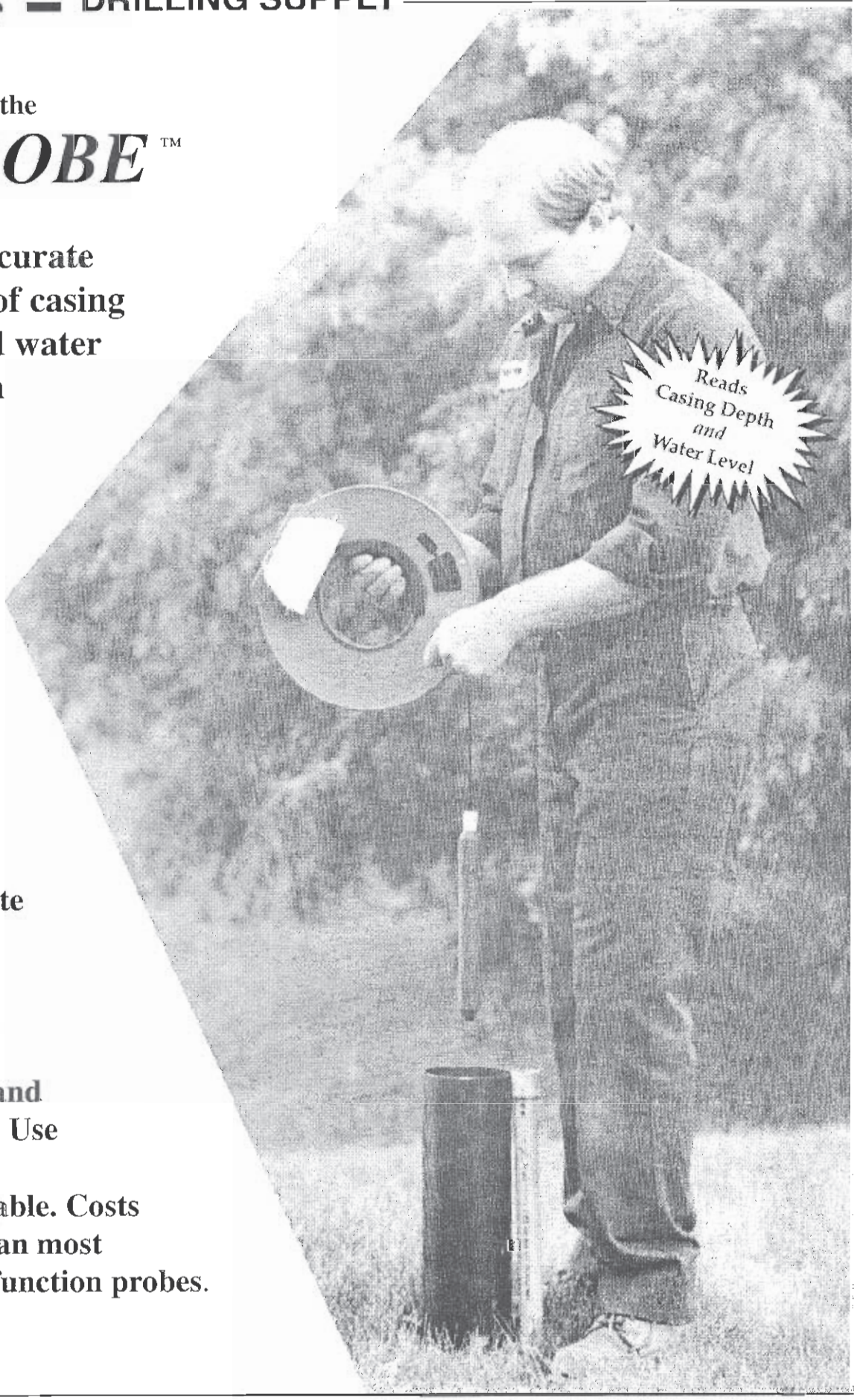
DRILLING SUPPLY

Introducing the

J-PROBE™

Quick, accurate readings of casing depth and water level from one tool.



- **Very Accurate**
- **Built to Last**
- **Quick and Easy to Use**
- **Affordable. Costs less Than most single-function probes.**

12/00

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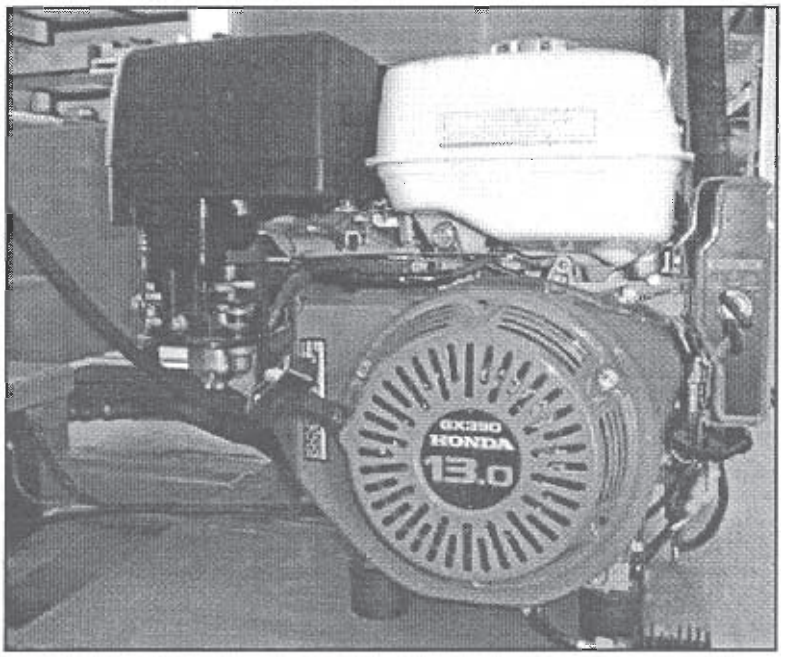
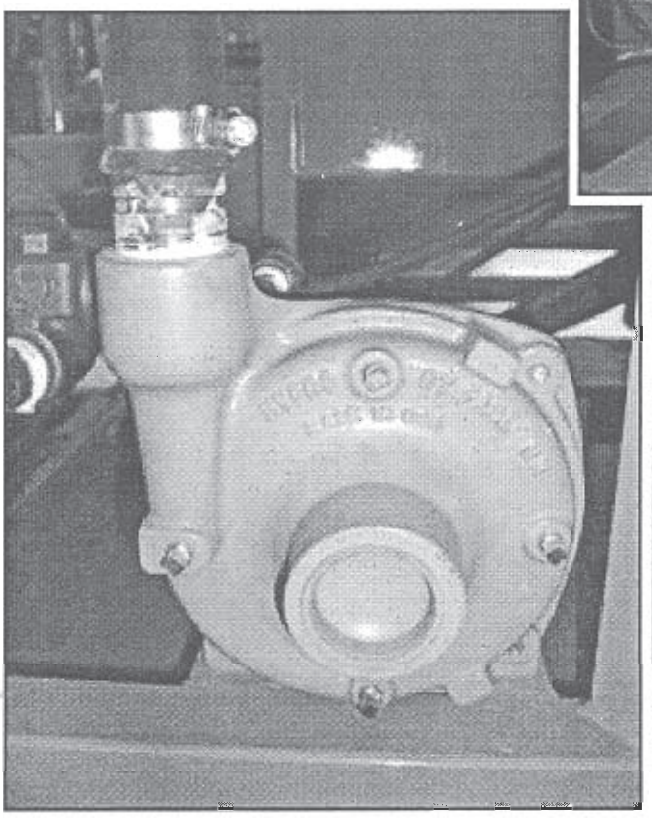
THE GROUT KING

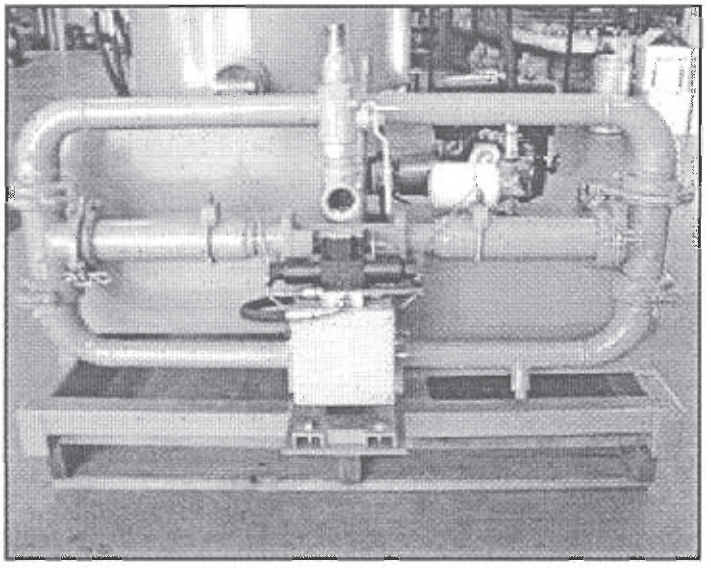
(CUSTOM BUILT GROUT MACHINES)

Reliable
13 HP
Electric Start
Honda Engine





Mixer hopper can be filled in less than 30 seconds with efficient Hypro Pump.



Powerful 20 GPM piston pump delivers pressures up to 300 PSI

(Gear pumps and progressive cavity pumps also available.)

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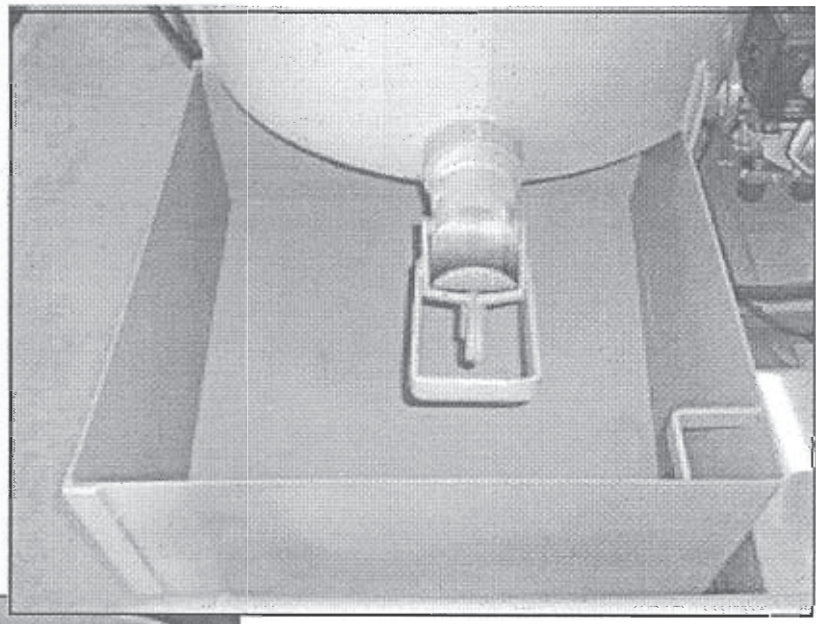
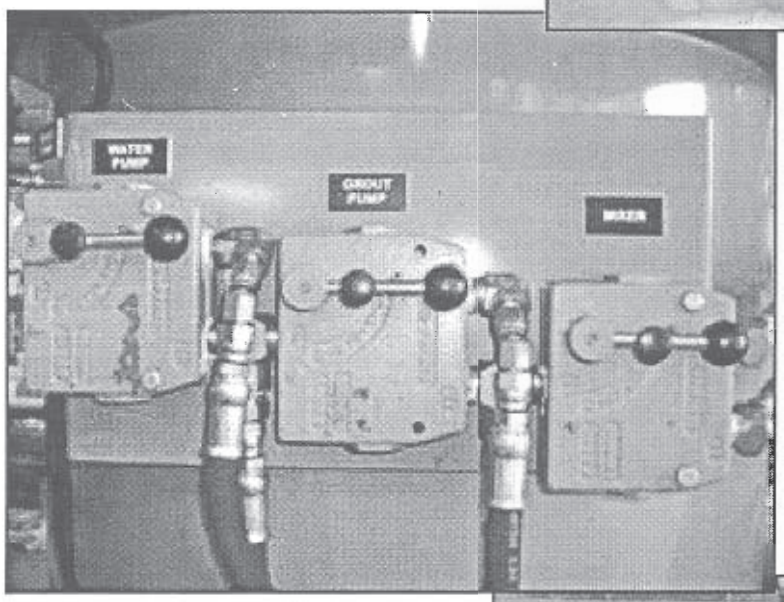
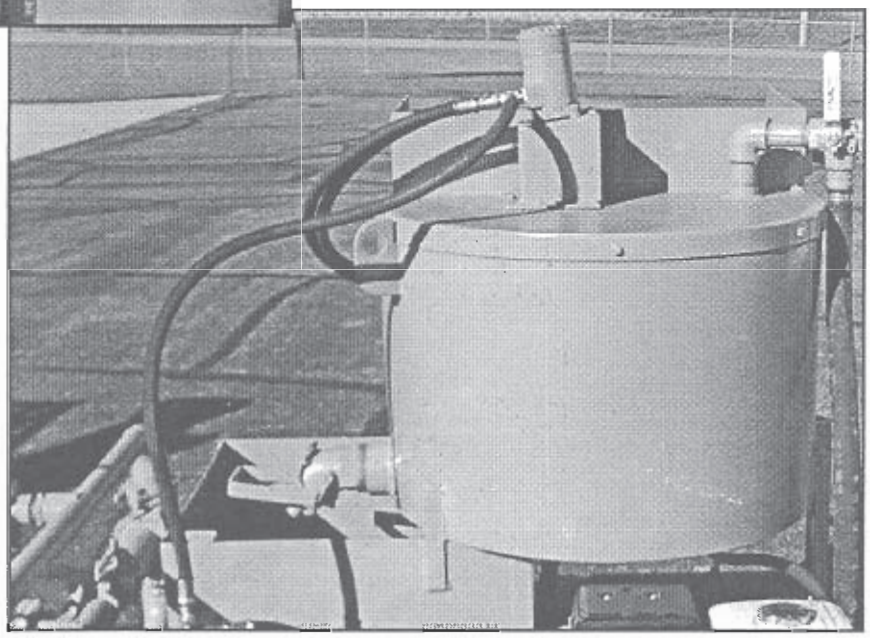
Dump tub hoppers available for a one man, non-stop operation - saving time and money!



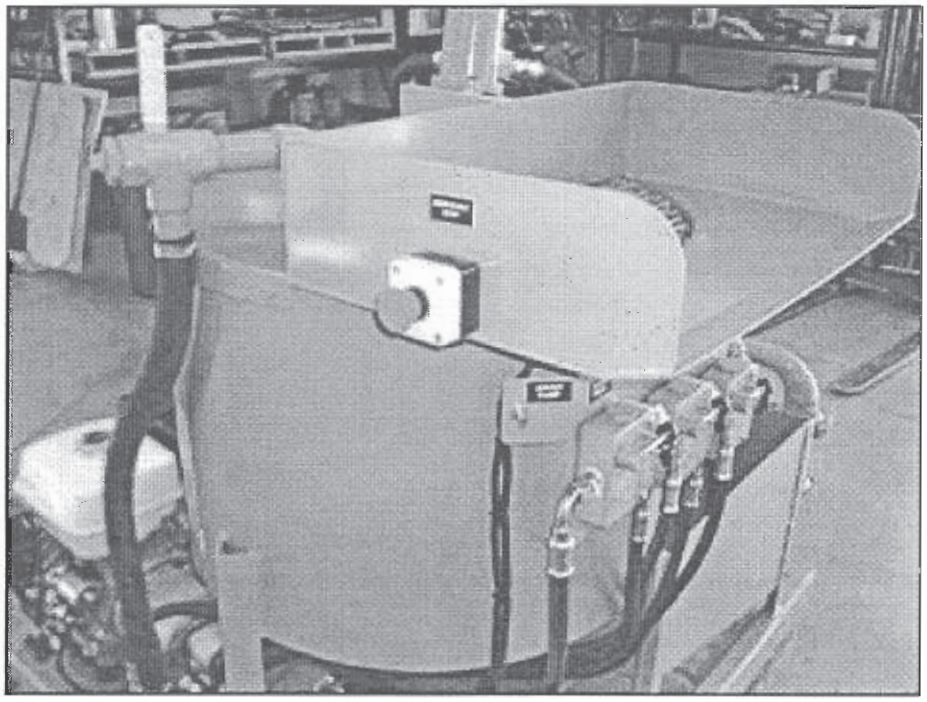


Convenient variable speed controls

75 gallon mixing tank for double batches and tapered cone bottoms available for 2-step grouts.

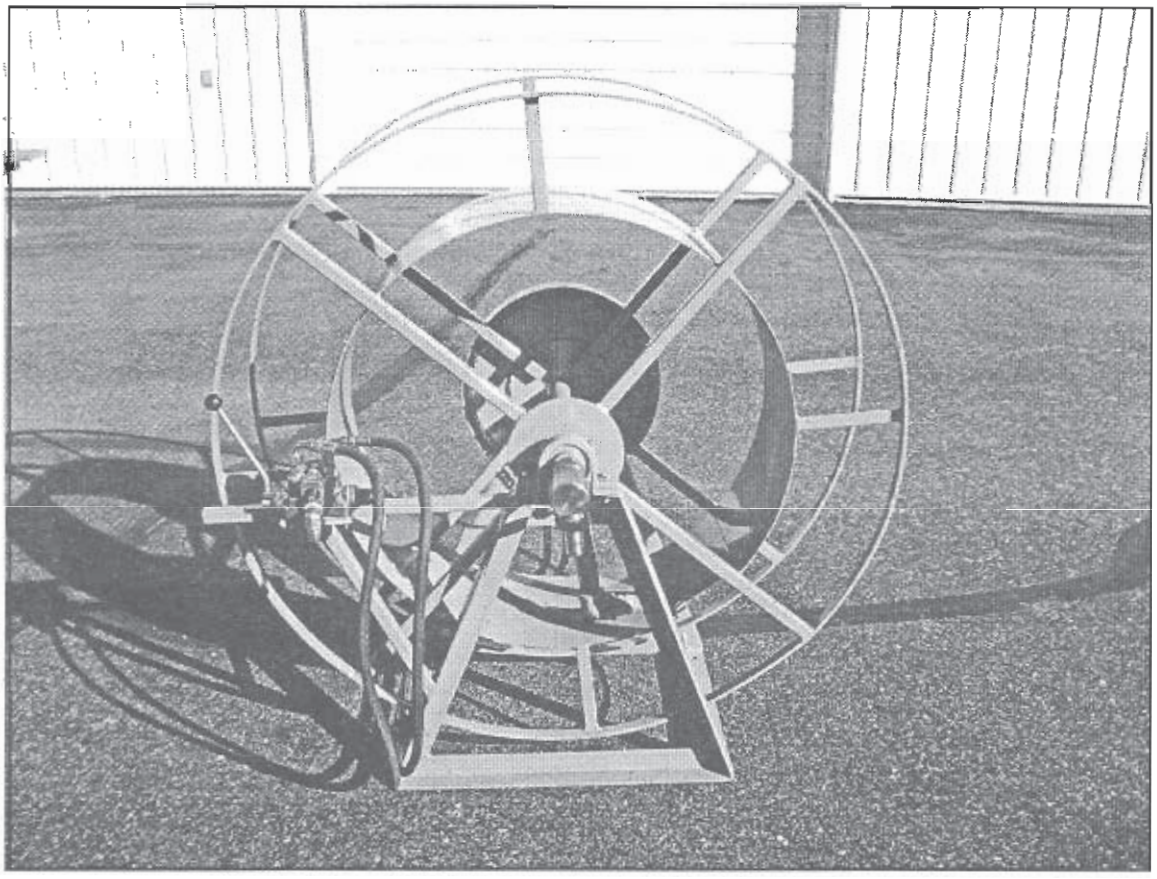


Easy to use waist high sack lifting height



Operational Hose Reels hold 300' of 1" Poly or Plastic pipe

Other size hose reels available also!



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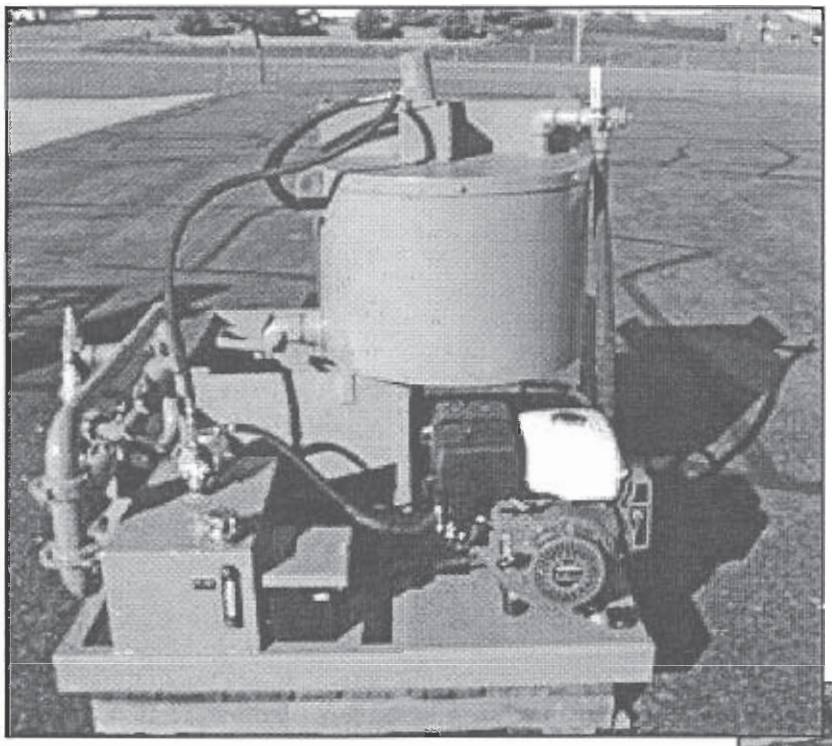
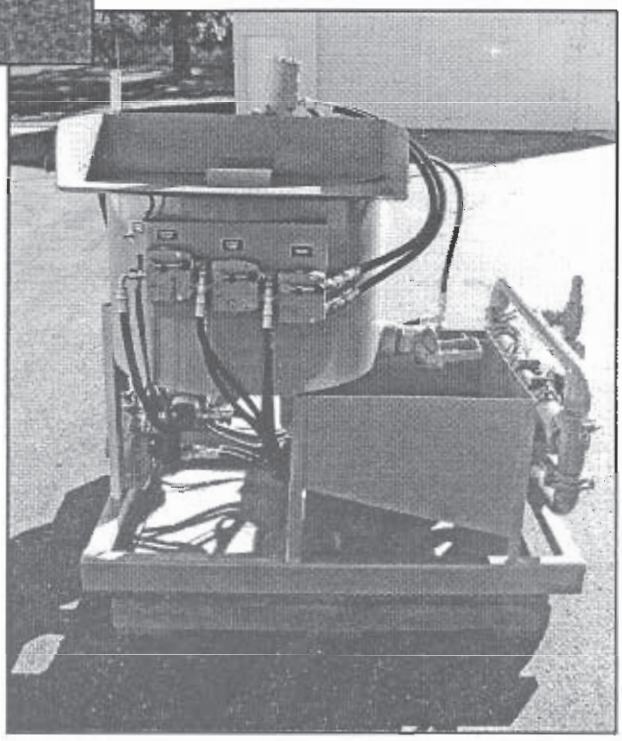


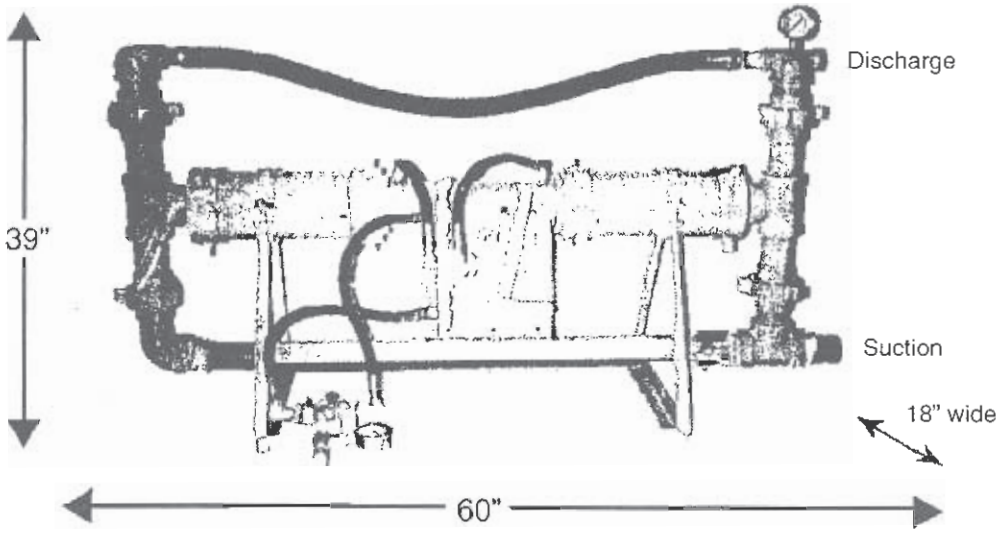
Dimensions of Standard Unit without Dump Tub
48" long x 55" wide x 48" tall

Dimensions of Unit with Dump Tub
60" long x 55" wide x 55" tall



WE WILL *CUSTOM MAKE* THE GROUT MACHINE BEST SUITED FOR YOU!

Hydraulic Driven Grout Pump



PUMP TYPE: Dual acting Plunger Pump, weight 265 lbs., (stand mounted 60" x 39" x 18"). Hammer unions allow you to disassemble entire pump in less than 3 minutes.

HYDRAULICS: 2-1/2" Bore Heat Treated Hydraulic Cylinder, 9" stroke, hydraulic switching valve (no battery or electricity needed).

FLUID END: 5" Replaceable Super Liners and Single Acting Pistons, Self Priming, 2" Suction and 1" Discharge. Easily pumps grout, water, mud or cement. Will produce 45 GPM with hydraulics of 10 GPM. Fluid end has been tested at 800 PSI.

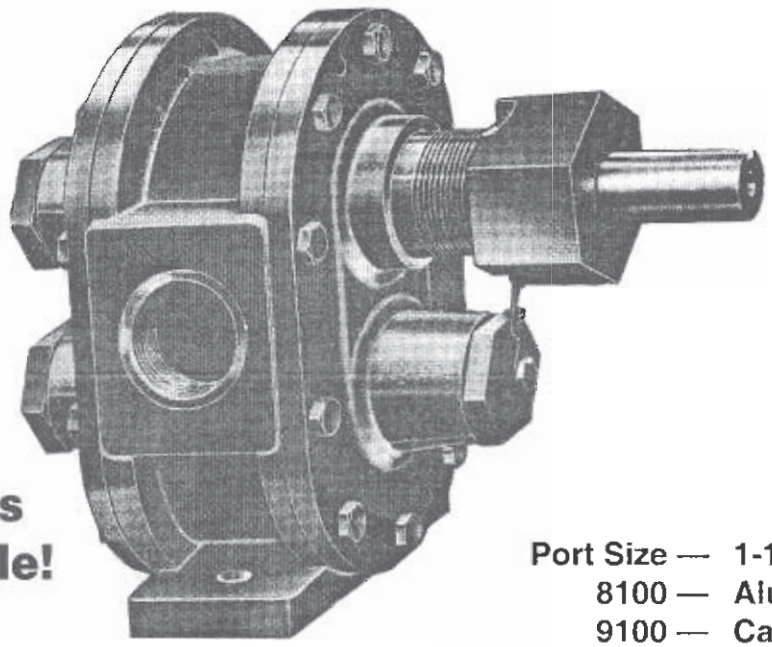
GALLONS PER MINUTE OF HYDRAULIC FLUID TO POWER PUMP

Gallons of Grout per Minute GPM	Gallons of Hydraulic Fluid to Operate Grout Pump GPM
4.8	1
9.6	2
14.4	3
19.2	4
24	5
28.8	6
33.6	7
38.4	8
43.2	9
48	10
52.8	11
57.6	12
62.4	13
67.2	14
72	15
76.8	16
81.6	17
86.4	18
91.2	19
96	20

At Maximum fluid pressure of 312 PSI with Maximum of Hydraulic pressure of 1500 PSI

At Maximum fluid pressure of 625 PSI with Maximum of Hydraulic pressure of 3000 PSI

Bowie Series 8100 - 9100 ROTARY PUMPS



Steel or Rubber Gears Now Available!

Port Size — 1-1/4" - 1-1/2"
8100 — Aluminum bronze
9100 — Cast iron

CONSTRUCTION FEATURES

RUGGED HOUSING:
Series 8100SS
- Aluminum Bronze for Corrosive and Heavy-Duty Applications

Series 9100SS
- Cast Iron Housing for General and Heavy-Duty Applications.

GEARS OR IMPELLERS:
Series 8100SS & 9100SS
- Buna-N/Nitrile for Most Hydrocarbons, Fats, Oils, Greases, Hydraulic Fluids, Water, Chemicals & Solvents
- Brass for High Temperatures, Light Fuels, Water

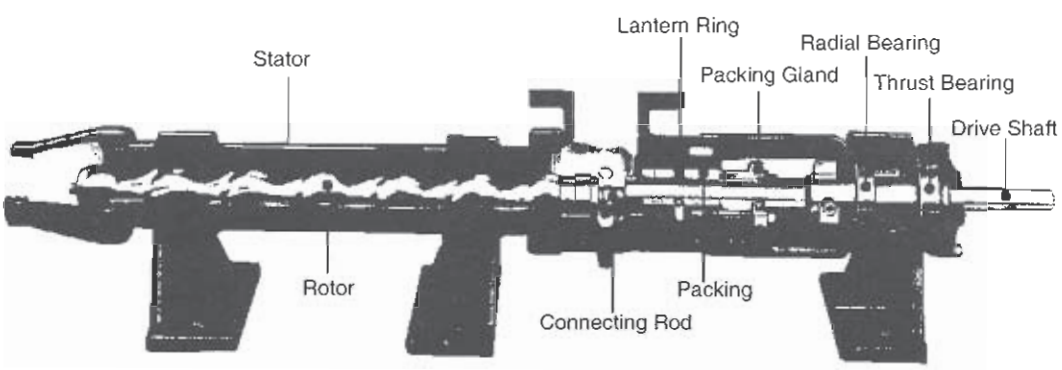
BUSHINGS:
Series 8100SS & 9100SS
- Teflon for Self-Lubricant
- Brass for Oils, Fats, Greases, Corrosive Fluids & Water

SHAFTS:
Series 8100SS & 9100SS
- Stainless Steel for Extra Corrosion Resistance & Durability

MATERIALS OF CONSTRUCTION

		Housing	Gears	Bushings	Shafts
Series 8100SS	Standard	Aluminum-Bronze	Buna-N	Teflon	Stainless Steel
Series 9100SS	Fitted	Cast Iron	Buna-N	Teflon	Stainless Steel

MOYNO® L-FRAME PUMP DESIGN



Positive Displacement

A single rotating element generates positive displacement progressing cavities which deliver predictable, uniform, continuous flow. Head is independent of speed. Slippage is a function of viscosity and pressure and is predictable for all operating conditions.

Non-Pulsating Metered Flow

Discharge is non-pulsating, uniform, predictable, and accurately repeatable for any liquid or slurry being pumped. Capacity is approximately proportional to speed. With a variable speed drive, the pump becomes an accurate control for any process.

Pumps Variable Solids and Abrasives

Moyno pump displacement is practically unaffected by variations in the solids or abrasive content of liquids. Only HP requirements change when long-term changes in solids content are planned.

Silent Running

The rotor turning in a resilient stator generates little noise. Pump noise runs well below 90 dbs. and predominantly in the lower octave bands, well within OSHA standards. The power source will usually be the loudest sound from a Moyno unit.

Steady Capacity Under Wide Variations In NPSH

Moyno pumps perform consistently even under wide fluctuations in suction pressures. For example: A change from a 10' suction lift to a 10' positive suction head would have no effect on pump capacity. Pump capacities are directly related to rpm and not to suction head changes within its operating parameters.

Passes Particles

Particles up to 1 inch in diameter can be handled by the larger Moyno pumps without difficulty. Should a sharp particle become imbedded in the stator, it is passed over by the rotor and the following fluid tends to flush it free.

Reversible

Rotation on Moyno standard industrial pumps is reversible. The pump performs with equal efficiency in either direction. Maximum rated performance is available, if necessary, for back-flushing lines or draining process tanks from their source.

Adaptable

There are Moyno pumps for handling practically anything that will push through a pipe—from free-flowing liquids to abrasive slurries and substances containing relatively large particles. The wide range of materials in which the pumping elements are available assures you of obtaining just the right pump for your own particular application.

High Suction Lift

Moyno pumps handle water up to 28' of suction lift.

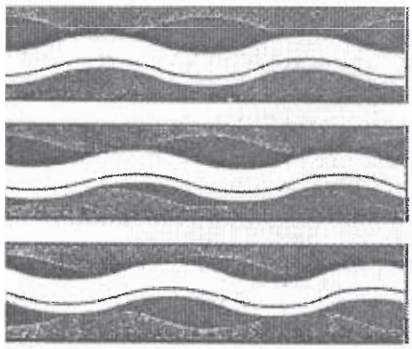
How a Progressing Cavity Pump Works

Although the geometry of its pumping elements may seem somewhat complex, the principle of operation of a progressing cavity pump is deceptively simple.

The key components are the rotor and the stator. The rotor is a single external helix with a round cross-section, precision machined from high strength steel. The stator is a double internal helix molded of a tough, abrasion resistant elastomer, permanently bonded within an alloy steel tube.

As the rotor turns within the stator, cavities are formed which progress from the suction to the discharge end of the pump, conveying the pumped material. The continuous seal between the rotor and the stator helices keeps the fluid moving steadily, at a fixed flow rate proportional to the rotational speed of the pump.

The Moyno progressing cavity pump can be run in either direction, and will operate in any position, with equal efficiency and without modification or accessories.



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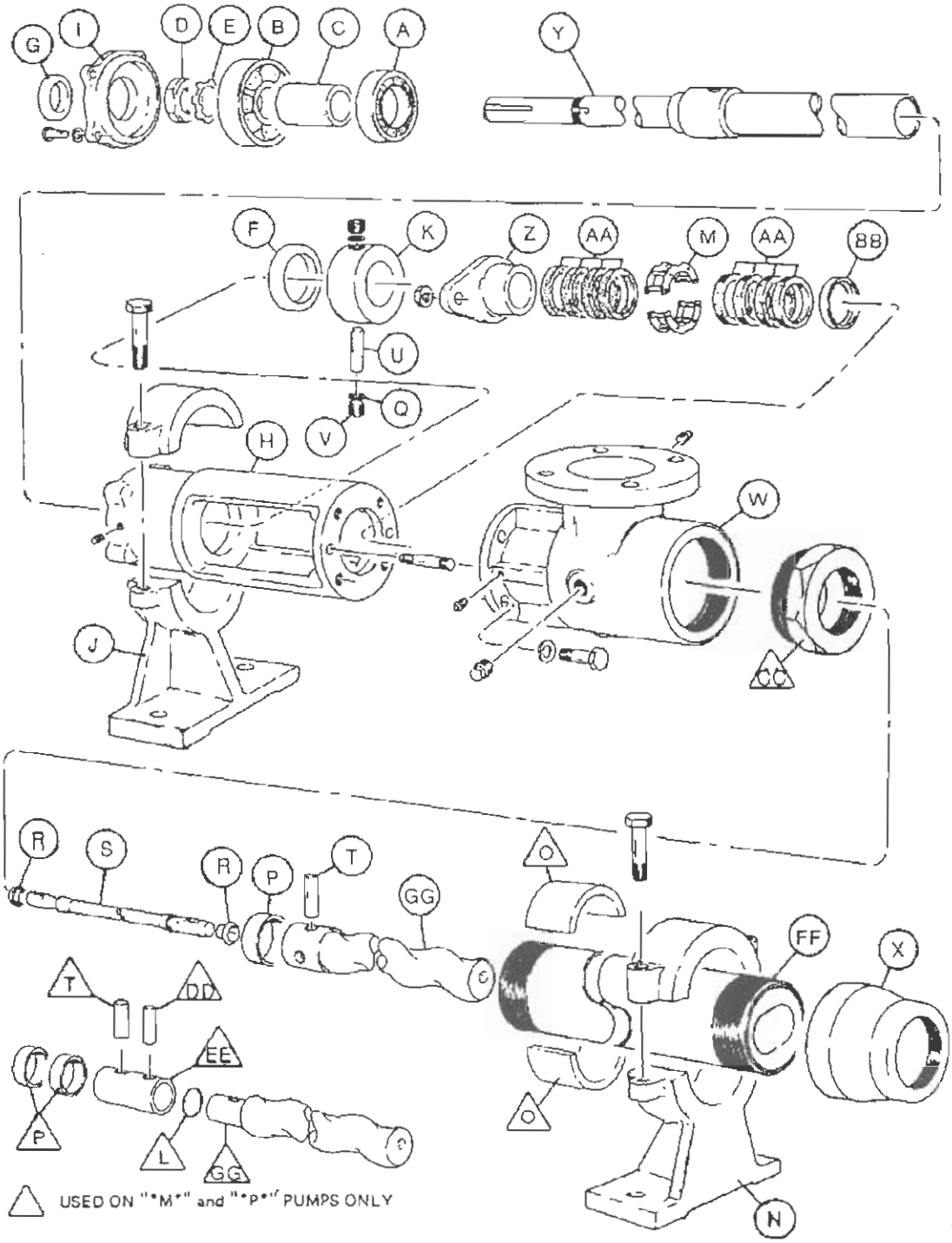
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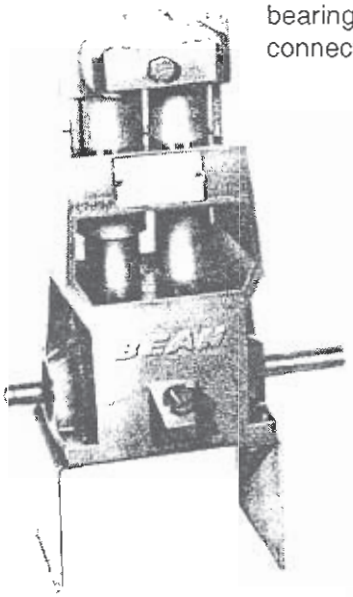
△ USED ON "*M*" and "*P*" PUMPS ONLY

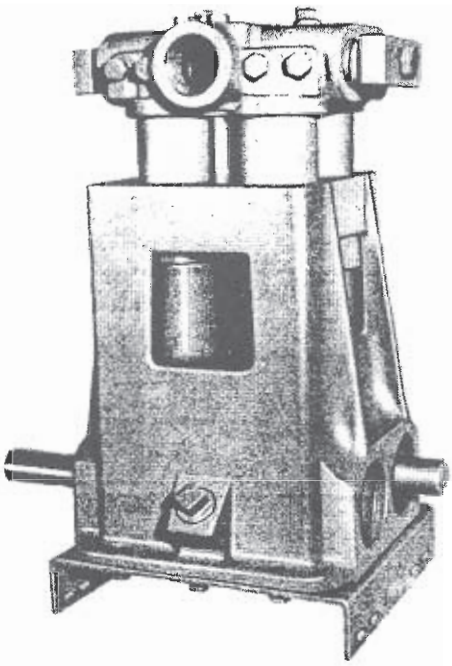
BEAN PUMPS Models A04, E04

SPECIFICATIONS

- Piston — 1-1/4", 1-3/8" & 1-5/8" diameters
- Flows to 19 gpm
- Pressures to 750 psi

Automotive type insert bearings on precision connecting rods





Splash deflectors prevent oil bath contamination from fluid end leakage

SPECIAL FEATURES

- Fluid End Material of Ductile Iron
- Nitrided Crankshaft Resists Corrosion
- Horizontal Model (104) Available
- Designed for Easy, Economical Maintenance
- Cast Iron Pump Case
- Special Raised Seat Valves and Hardened Valve Chamber Available for Abrasives

PERFORMANCE SPECIFICATIONS

PUMP MODEL	DISPLACEMENT		INPUT	RPM	BORE	PSI	VALVE TYPE
	MIN GPM	MAX GPM	MIN	MAX			
A0410C	3.2	5.3	306	500	1-1/4	750	Disc
A0411C	3.9	6.5	306	500	1-3/8	600	Disc
A0413C	5.4	9.0	306	500	1-5/8	550	Disc
I0410C	1.1	5.3	100	500	1-1/4	750	Disc
I0411C	1.3	6.5	100	500	1-3/8	600	Disc
I0413C	1.8	9.0	100	500	1-5/8	550	Disc

DISPLACEMENT PER REVOLUTION

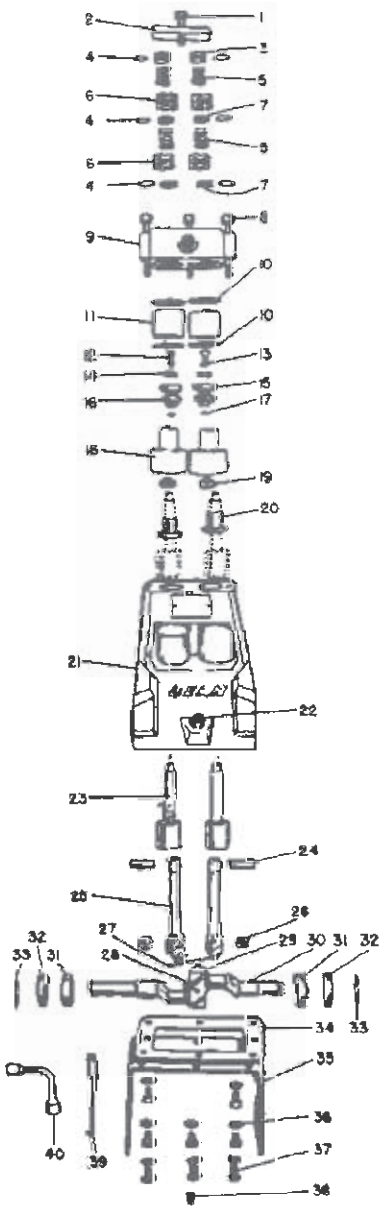
A0410C, I0410C - .0106 Gal. Rev.
A0411C, I0411C - .0129 Gal. Rev.
A0413C, I0413C - .0180 Gal. Rev.

HORSEPOWER

A0410C/I0410C requires 2.7 HP @ 750 PSI, 5.3 GPM
A0411C/I0411C requires 2.7 HP @ 660 PSI, 6.5 GPM
A0413C/I0413C requires 3.4 HP @ 550 PSI, 9.0 GPM

Rig Parts and Supplies

Parts List for Bean A04 Series Duplex Pump



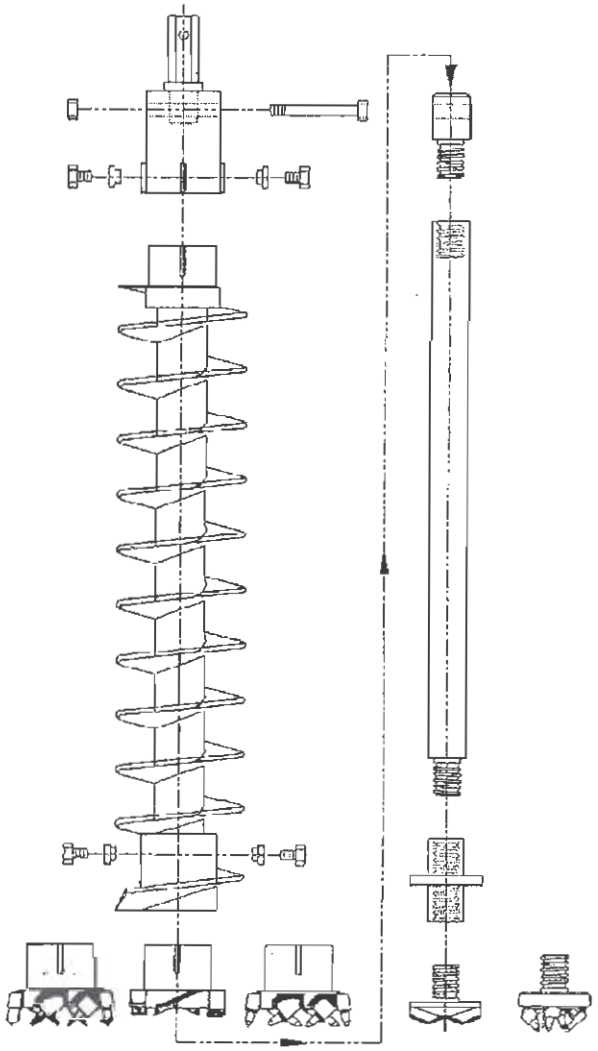
Ref. No.	PART NAME	Qty. Used	Model A0413C Part No.
1	Hex Cap Screw, 1/2" - 13 x 1-1/2" (Plated Steel)	1	1 100 064
2	Clamp, Valve Cover (Steel)	1	1 255 887
3	Valve Cover (Steel)	2	1 219 614
4	"O" Ring, 1-3/16" O.D.	6	1 177 394
5	Spring & Disc	4	5 253 449
6	Valve Cage (Stn. Stl.)	4	1 219 610
7	Valve Seat (Stn. Stl.)	4	1 219 615
8	Hex Cap Screw, 3/8" - 16 x 4-3/4 (Steel)	3	1 101 340
9	Valve Chamber (Cast Iron)	1	1 241 397
10	Gasket, Cylinder	4	A 91 684
10A	Ring Seal	2	
10B	"O" Ring	2	
10C	Gasket	2	A 91 684
11	Cylinder (Ceramic)	2	1 241 364
12	Cap Screw, 5/16" - 18 (Stn. Stl.) Nylok	2	1 284 516
14	Packing Washer	2	5 257 218
15	Packing	2	1 251 925
16	Packing Holder	2	1 282 557
17	"O" Ring, 3/4" O.D.	2	1 101 339
18	Umbrella	2	1 279 148
19	Washer, Umbrella	2	1 269 388
20	Sleeve, Crosshead	2	1 218 743
21	Case, Pump (Cast Iron)	1	1 267 611
22	Pipe Plug, 3/4" (Cast Iron)	1	1 105 060
23	Crosshead (Cast Iron)	2	1 216 823
24	Wrist Pin	2	1 219 650
25	Connecting Rod Assembly	2	1 263 906
26	Bearing Insert, Conn. Rod	4	1 263 739
28	Machine Screw, #10-24 x 1/2"	2	1 101 186
	Speed Nut	1	1 272 419
29	Oil Slinger	1	1 255 285
30	Crankshaft	1	1 244 980
31	Bearing	2	1 177 804
32	Oil Seal	2	1 219 669
33	Snap Ring (5000/206)	2	1 113 528
34	Gasket, Pump Base	1	1 219 606
35	Mounting Base, Pump	1	1 255 297
36	Cup Washer, 3/8"	6	1 177 455
37	Cap Screw, 3/8" - 16 x 3/4"	6	1 100 068
38	Pipe Plug, 1/4" — Galv.	1	1 105 666
39	Valve Seat Remover	1	1 250 638
	NOTE: Valve Chamber Assembly (Contains items 1-9)	1	1 241 402

HOLLOW STEM AUGERS

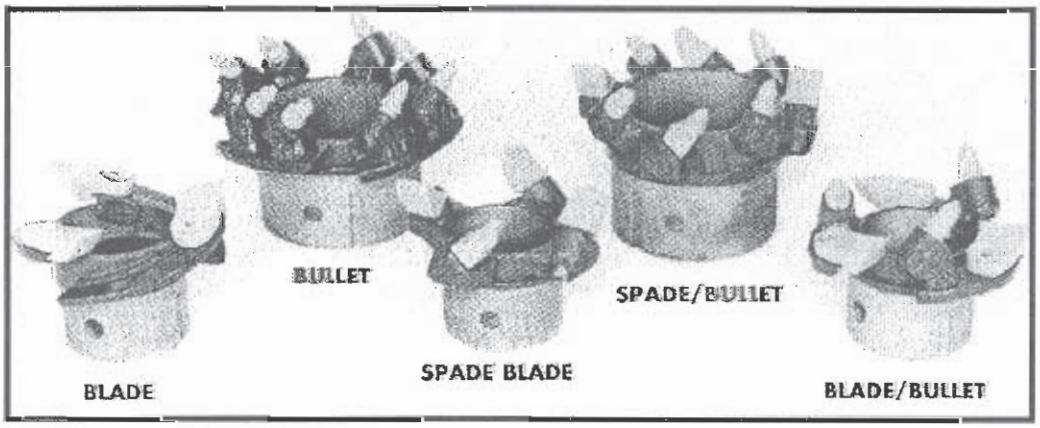
HOLLOW STEM AUGERS are designed for sampling through the center of the auger. For normal drilling the augers are used with a pilot bit and drill rod in the center of the auger. A drive cap is used to drive the auger and the interior drill rod that is locked into the I.D. of the drive cap so that both turn together.

When sampling, the drive cap is removed and the drill string and pilot bit are lifted from the hole. One of the sampling systems is used to extract the specified sample.

The hollow stem auger allows an undisturbed sample to be taken at any depth. Samples can be taken continuously, at intermittent depths or a combination of the two.



HOLLOW STEM CUTTER HEADS



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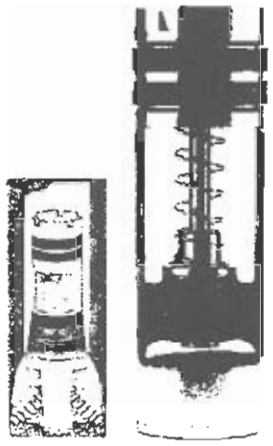
BAKER DRILL PIPE FLOAT VALVES

Baker Drill Pipe Float Valves are designed and manufactured to provide control of fluid or gas flow through the drill string at all times during drilling operations. Baker is the only manufacturer that furnishes a complete line of float valves in two basic models to meet the needs of any drilling situation under a wide range of operating conditions including geothermal applications.

POPPET STYLE VALVE
MODEL F

Baker's MODEL F "Poppet Style Valve" provides positive and instantaneous shut-off against high or low pressure, assuring continuous control of fluid flow during drilling. For normal drilling operations, the durable **MODEL F** is the most economical choice and is available in all sizes.

A fast acting poppet valve opens when the kelly is pulled out of the hole, then closes, eliminating breaking of a wet joint. The poppet style valve also prevents flow back when adding joints and keeps cuttings out of the drill pipe, preventing bit plugging while making connections.



MODEL F

FLAPPER STYLE VALVE
MODEL G — Full Open Valve

Baker MODEL G "Flapper Style Valve" incorporates a specially designed flapper which opens quickly and fully to provide a completely unrestricted bore through the valve. The **MODEL G** is especially good for use with highly abrasive fluids.

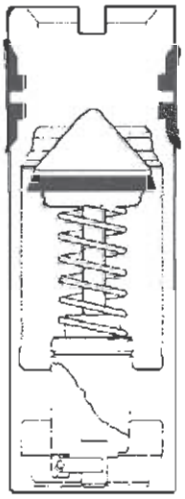
When circulation stops, the flapper closes instantly to prevent cuttings from entering the drill string and plugging the bit. The valve opens when the first joint is raised out of the hole assuring the first joints drain and are not pulled wet. This saves mud and avoids safety hazards and downtime.

MODEL G

The flapper style valve complements primary blowout prevention equipment to provide complete internal pressure control.

MODEL FC

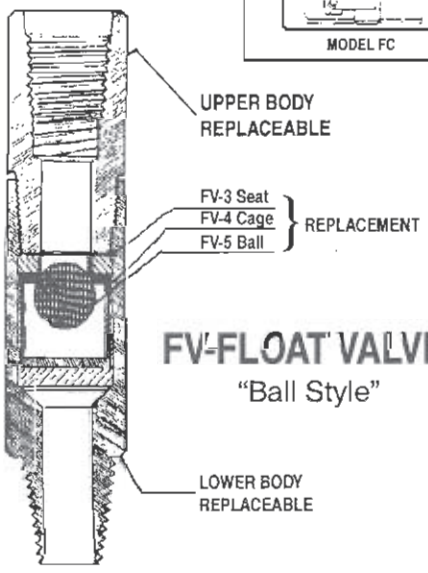
The automatic fill feature on the **Baker MODEL FC** reduces trip time by allowing the drill pipe to fill from the bottom. This prevents possible formation damage. Circulation through the valve automatically releases the poppet for complete closure.

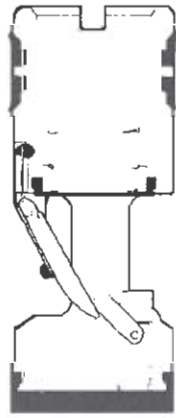


MODEL FC

DRILL PIPE FLOAT SUBS

Drill pipe flat subs can be provided to customer specification.





MODEL GC

MODEL GC — AUTOMATIC FILL

The **MODEL GC** includes the automatic fill feature which allows the drill pipe to fill from the bottom when running in the hole. This prevents the downhole pressure surges that can cause formation damage.

MODEL GV — AIR DRILLING

The **MODEL GB** drill pipe float valve is designed for air drilling only. The flapper is opened by equalizing the pressure across the valve. Escaping air is channeled under the flapper valve, forcing it closed and preventing loss of pressure.

MODEL GA — Differential Pressure Monitoring

A **MODEL GA** drill pipe float valve is identical to the Model G except for a hardened bean orifice in the flapper to provide automatic partial filling of the drill pipe during "running in." This also allows measurement of differential pressure when required. The **MODEL GCA** incorporates the benefits of the automatic fill feature into the Model GA valve.

TOOLS & REPAIR KITS

Baker provides a complete line of tools including float valve pullers, spiders and repair kits. All valves can be repaired on site without special tools. Both metal and rubber repair kits are available for all models and sizes.

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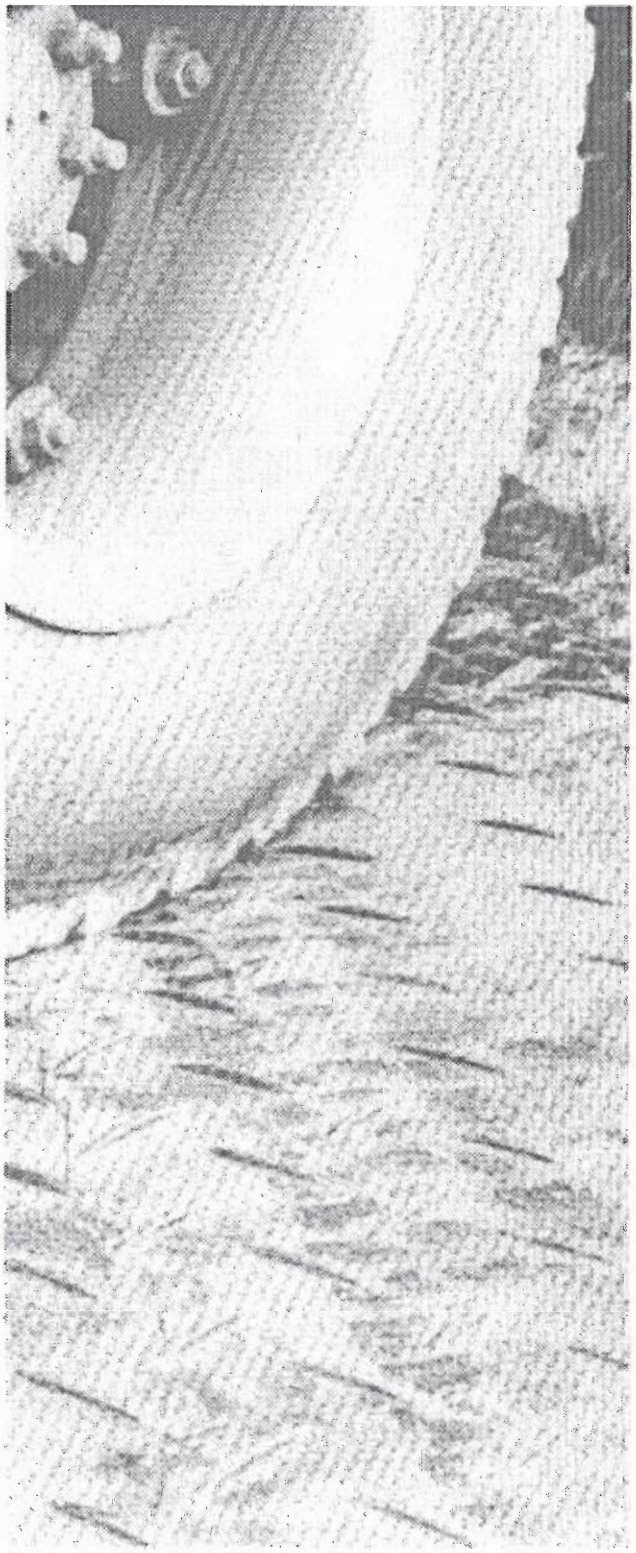

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NEVER GET STUCK AGAIN!

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- Made of 100% super tough polyethylene
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