



TIME

HAILEYBURY SUDBURY TIMMINS VAL D'OR SASKATOON

MANUFACTURING

CUSTOM FABRICATION

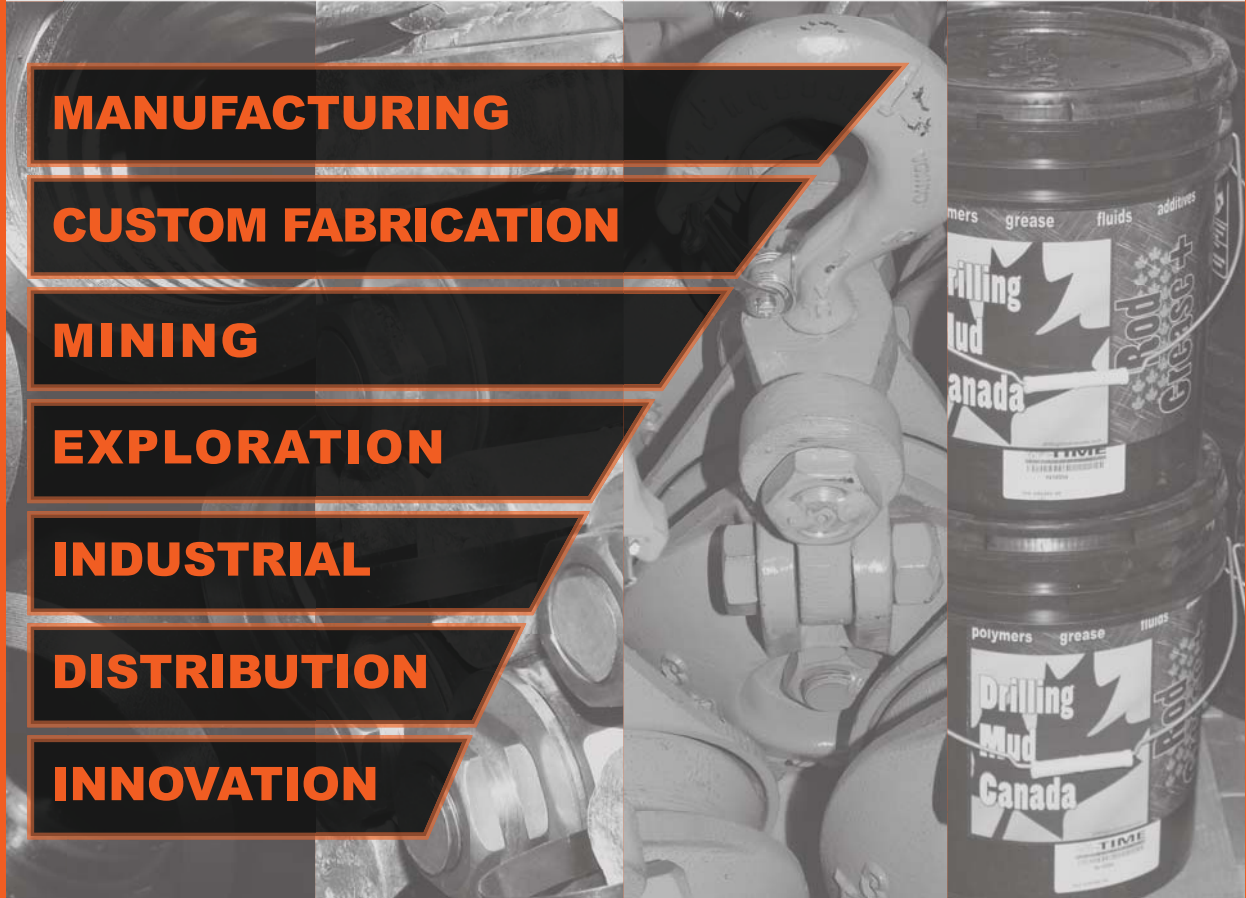
MINING

EXPLORATION

INDUSTRIAL

DISTRIBUTION

INNOVATION



Master Index

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Master Index

Mining General



Item	Page Location
Sheave Blocks	MG2
Barriers - Safety Gates and Fencing	MG3
CAB Products	MG4
	MG5
Industrial Tool Bags	MG6
Ridgid Wrenches	MG7
GRUVLOCK Connections	MG7
Muck Scoop	MG8
Miners Wrench	MG8
Lasers and Measurement tools	MG8-9
Strap, Poly Rope, and Twine	MG10
Header Manifolds and Blow Tubes	MG11
Lighting	MG11-12
Rebar Pushers	MG13
Boot Cleaner	MG13
Wheel Chocks	MG13
Burlap and Rags	MG14
Marking Paint	MG14

Drilling Fluids



Item	Page Location
Viscosifiers	DF2-6
Greases	DF7-12
Degreaser	DF13-14
Lubricants	DF15-18
Lost Circulation & Fluid Loss Control	DF19-24
Specialty Products	DF25-30
Foams and Detergents	DF31-32
Commercial Chemicals	DF33-34
Accessories	DF35
Core Drilling Cross Reference	DF36

Master Index

Blasting



Item	Page Location
Depth Gauge	BD2
Woven Strapping	BD2
Blasting Wire	BD3
Blasting Wire Hanger	BD3
CAB Blasting Hooks	BD3
Drill Hole Marker Plugs	BD4
Powder Plugs	BD5
Stemming Plugs	BD5-6
Loading Bags	BD6
ATEK Powder Plug	BD7
Anti-Static Blasting Tube	BD7
Polyethylene (HDPE) Pipe	BD8
Muck Scoop	BD8
Barriers - Safety Gates and Fencing	BD9
Blast Hole Liners	BD10
Caution and Danger Tape	BD10
Alignment Laser	BD11
Marking Paint	BD11
Vinegar Gas Bags	BD12

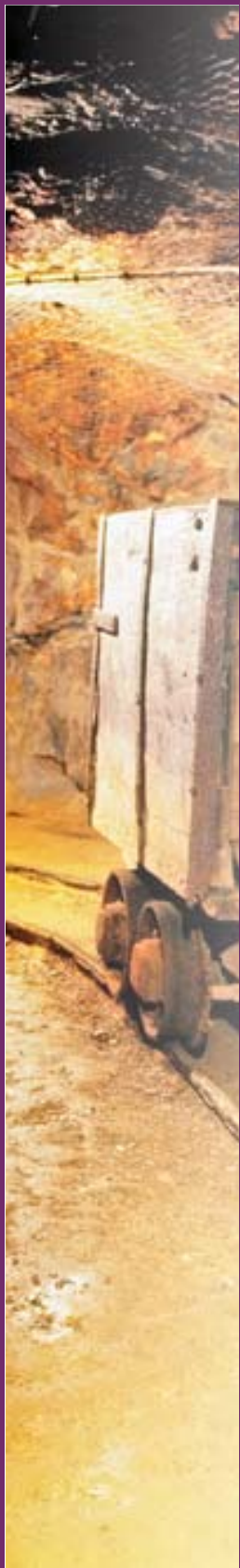
Dust Control



Item	Page Location
Atomizers	BD13
Spray Nozzles	BD13
Water Hose Nozzles	BD13
Misters	BD14
Sprinkler	BD15
Potassium Acetate Deicer	BD15

Master Index

Fluid & Air Transfer




Item	Page Location
Air/Water Hose	FA2
TIME Hose Asm	FA2
EPDM Multi-purpose Drill Hose	FA3
Whipcheck Hose Restraints	FA3
Whipsock Hose Restraints	FA3
Suction and Discharge Hose	FA4
Layflat Hose	FA5
Anti-Static Blasting Tube	FA6
Foot Valves and Strainers	FA7
Air/Water Hose Fittings	FA8-12
Punch-Lok	FA12
Cam and Groove Fittings	FA13
High Pressure Clamp Fittings	FA14-17
Long Shank Brass	FA17
GRUVLOCK	FA17
Relief Valves	FA18-19
Mortrol Valves	FA20
Ball Valves	FA21-23
Misters	FA24
Atomizers	FA25
Spray Nozzles	FA25
Water Hose Nozzles	FA25
Air Movers	FA26
Sprinkler	FA26
Header Manifolds	FA27
Potassium Acetate Deicer	FA27
Ventilation Closer	FA28
Blow Tubes	FA28
Lubricator	FA28
Black Iron Pipe Fittings	FA29-33
Gates Hydraulics	FA34
Pneumatic Cylinders and Valves	FA35

Master Index

Plugs

	Item	Page Location
	VK Grout Plugs	PL2
	Margo Plugs	PL3
	Drill Hole Plugs	PL4
	Van Ruth Plugs	PL5-6
	Displacement Plugs	PL6
	High Pressure Drill Hole Plug	PL6
	Graphite Plugs	PL7
	Bypass Wedge Plugs	PL7
	Wooden Wedge Plug	PL7
	Special High Volume Plug	PL7
	Drill Hole Marker Plugs	PL8
	Powder Plugs	PL9
	ATEK Powder Plug	PL9
	Stemming Plug	PL9
	Vinegar Gas Bags	PL11

Pumps

	Item	Page Location
	FMC Bean Pumps	PU2-9
	Pratissoli Water Pumps	PU10-11
	NOMAD Diaphragm Pumps	PU12-19
	Pump Asm - Air/Diesel/Hydraulic	PU20-28
	Ground Stabilizing Tank Pump	PU29
	Foot Valves and Strainers	PU30
	Air/Water Hose	PU31
	Custom Pump Cart	PU30
	Relief Valves	PU32-33
	FMC Pump Specifications	PU36

Master Index

Industrial



Item	Page Location
Boots	ID2
Paint	ID3
Strapping, Poly Rope and Twine	ID3
Gloves	ID4
Environmental Control and Clean Up	ID5
Fall Protection	ID6
First Aid	ID7
Head Protection	ID8
Lighting	ID9
Bosch Rexroth	ID10
Barriers - Safety Gates and Fencing	ID11
Gates Hydraulics	ID12
Pneumatic Cylinders and Valves	ID13
YESS Grader Board System	ID14
Tools- Professional Grade	ID15-16
Tools- Contractor Grade	ID17
Tools- Economy Grade	ID18
Hoisting and Lifting	ID19
Hose and Fittings	ID20-21
Storage Solutions - Weatherguard	ID22

Drilling Wedges



Item	Page Location
Retrievable Wedge Asm (BNHP)	WE2,4,6,8
Retrievable Reamer Asm (BNHP)	WE3,5,7,9
Bypass Wedge (BNHP)	WE10
Subs and Adapters	WE11-13

Master Index

Drilling and Exploration Products



Item	Page Location
Core Barrels	DE1-2
TIME Latch Head Asm	DE3-4
Spring Latch Head Asm	DE5-6
Overshots	DE8-9
Quad-Latch	DE10-11
Quad Latch Head Asm	DE12-13
Quad-Latch Overshots	DE14
Hoisting Plugs	DE14
Water Swivels	DE15
Hydraulic Rod Wrench	DE20
Tube Wrenches	DE20
Wireline Recovery Tool	DE20
Cable Crimping	DE21
Ridgid Pipe Wrenches	DE21
Casing Clamps	DE22
Recovery Tools	DE22
Casing Cutters	DE23
Inner Tube Pliers	DE23
Outer Tube Clamp	DE24
Drill Anchor Bolts	DE24
Graphite and Displacement Plugs	DE25
Poly Rope and Twine	DE25
Core Blocks	DE26
Casing Caps	DE26
Burlap and Rags	DE27
Filament Tape	DE27
Wireline Cable	DE28-29
Subs and Adapters	DE30-32
Sludge Collector	DE33
Waterline Heater	DE34

Master Index

Blasting - BD##	Industrial - ID##
Drilling & Exploration - DE##	Mining General - MG##
Drilling Fluids - DF##	Plugs - PL##
Dust Control - BD##	Pumps - PU##
Fluid & Air Transfer - FA##	Wedges - WE##

A

Accessories	DF35
Air Movers	FA26
Air/Water Hose	FA2
Air/Water Hose	PU31
Air/Water Hose Fittings	FA8-12
Alignment Laser	BD11
Anti-Static Blasting Tube	BD7
Anti-Static Blasting Tube	FA6
ATEK Powder Plug	BD7
ATEK Powder Plug	PL9
Atomizers	BD13
Atomizers	FA25

B

B - Retrievable Reamer Assembly	WE3
B - Retrievable Wedge Assembly	WE2
B Bypass Wedge	WE10
Ball Valves	FA21-23
Barriers - Safety Gates and Fencing	BD9
Barriers - Safety Gates and Fencing	ID11
Barriers - Safety Gates and Fencing	MG3
Black Iron Pipe Fittings	FA29-33
Blast Hole Liners	BD10
Blasting Wire	BD3
Blasting Wire Hanger	BD3
Blow Tubes	MG11
Blow Tubes	FA28
Boot Cleaner	MG13
Boots	ID2
Bosch Rexroth	ID10
Burlap	DE27
Burlap and Rags	MG14
Bypass Wedge Plugs	PL7

C

CAB Blasting Hooks	BD3
CAB Products	MG4
Cable Crimping	DE21
Cam and Groove Fittings	FA13
Casing Caps	DE26
Casing Clamps	DE22
Casing Cutters	DE23
Caution and Danger Tape	BD10
Commercial Chemicals	DF33-34
Compact Plus Water Swivel	DE16
Compact Water Swivel	DE17
Conventional Water Swivels	DE15
Core Barrel B W/L	DE1-2
Core Barrel H W/L	DE1-2
Core Barrel N W/L	DE1-2
Core Barrel N2 W/L	DE1-2
Core Blocks	DE26
Custom Pump Cart	PU30

D

Degreaser	DF13-14
Depth Gauge	BD2
Displacement Plugs	PL6
Displacement Plugs	DE25
Drill Anchor Bolts	DE24
Drill Hole Marker Plugs	BD4
Drill Hole Marker Plugs	PL8
Drill Hole Plugs	PL4

E

Environmental Control and Clean Up	ID5
EPDM Multi-purpose Drill Hose	FA3

F

Fall Protection	ID6
Filament Tape	DE27
First Aid	ID7
FMC E0413 Pump	PU2-3
FMC L09 - 420 Pump	PU4-5
FMC L11 - 470 Pump	PU8-9
FMC Pump Specifications	PU36
FMC W11 - 435 Pump	PU6-7

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Master Index

Foams and Detergents	DF31-32
Foot Valves and Strainers	FA7
Foot Valves and Strainers	PU30
G	
Gates Hydraulics	FA34
Gates Hydraulics	ID12
Gloves	ID4
Graphite Plugs	PL7
Graphite Plugs	DE25
Greases	DF7-12
Ground Stabilizing Tank Pump	PU29
GRUVLOCK	MG7
GRUVLOCK	FA17
H	
H - Retrievable Reamer Assembly	WE7
H - Retrievable Wedge Assembly	WE6
H Bypass Wedge	WE10
Head Assembly B Q/L	DE12-13
Head Assembly H Q/L	DE12-13
Head Assembly N Q/L	DE12-13
Head Assembly Spring Latch B W/L	DE5-6
Head Assembly Spring Latch H W/L	DE5-6
Head Assembly Spring Latch N W/L	DE5-6
Head Assembly Spring Latch N2 W/L	DE5-6
Head Assembly TIME Latch B W/L	DE3-4
Head Assembly TIME Latch H W/L	DE3-4
Head Assembly TIME Latch N W/L	DE3-4
Head Assembly TIME Latch N2 W/L	DE3-4
Head Protection	ID8
Header Manifolds	MG11
Header Manifolds	FA27
High Pressure Clamp Fittings	FA14-17
High Pressure Drill Hole Plug	PL6
Hoisting and Lifting	ID19
Hoisting Plugs	DE14
	MG5
Hose and Fittings	ID20-21
Hydraulic Rod Wrench	DE20

I, J, K	
Industrial Tool Bags	MG6
Inner Tube Pliers	DE23
L	
Lasers and Levels	MG8-9
Layflat Hose	FA5
Lighting	MG11-12
Lighting	ID9
Loading Bags	BD6
Long Shank Brass	FA17
Lost Circulation & Fluid Loss Control	DF19-24
Lubricants	DF15-18
Lubricator	FA28
M	
Margo Plugs	PL3
Marking Paint	MG15
Marking Paint	BD11
Miners Wrench	MG8
Misters	BD14
Misters	FA24
Mortrol Valves	FA20
Muck Scoop	MG8
Muck Scoop	BD8
N	
N - Retrievable Reamer Assembly	WE5
N - Retrievable Wedge Assembly	WE4
N Bypass Wedge	WE10
NOMAD NTG25	PU12-13
NOMAD NTG40	PU14-15
NOMAD NTG50	PU16-17
NOMAD NTG80	PU18-19
O	
Outer Tube Clamp	DE24
Overshots	DE8-9
P	
P - Retrievable Reamer Assembly	WE9
P - Retrievable Wedge Assembly	WE8
P Bypass Wedge	WE10

Master Index

Paint	ID3	Strap, Poly Rope and Twine	ID3
Pneumatic Cylinders and Valves	FA35	Subs and Adapters	WE11-13
Pneumatic Cylinders and Valves	ID13	Subs and Adapters	DE30-32
Poly Rope and Twine	DE25	Suction and Discharge Hose	FA4
Polyethylene (HDPE) Pipe	BD8	T	
Potassium Acetate Deicer	BD15	TIME Hose Assemblies	FA2
Potassium Acetate Deicer	FA27	Tools - Contractor Grade	ID17
Powder Plugs	BD5	Tools - Economy Grade	ID18
Powder Plugs	PL9	Tools - Professional Grade	ID15-16
Prattisoli Water Pumps	PU10-11	Tube Wrenches	DE20
Pump Assemblies - Air / Diesel / Hydraulic	PU20-28	U	
Punch-Lok	FA12	Underground Water Swivel	DE19
Q		Universal Water Swivel	DE18
Quad-Latch	DE10-11	Van Ruth Plugs	PL5-6
Quad-Latch Overshots	DE14	V	
R		Ventilation Closer	FA28
Rags	DE27	Vinegar Gas Bags	BD12
Rebar Pushers	MG13	Vinegar Gas Bags	PL11
Recovery Tools	DE22	Viscosifiers	DF2-6
Relief Valves	FA18-19	VK Grout Plugs	PL2
Relief Valves	PU32-33	W, X	
Ridgid Pipe Wrenches	DE21	Water Hose Nozzles	BD13
Ridgid Wrenches	MG7	Water Hose Nozzles	FA25
S		Waterline Heater	DE34
Sheave Blocks	MG2	Wheel Chocks	MG13
Sludge Collector	DE33	Whipcheck Hose Restraints	FA3
Special High Volume Plug	PL7	Whipsock Hose Restraints	FA3
Specialty Products	DF25-30	Wireline Cable	DE28-29
Spray Nozzles	BD13	Wireline Recovery Tool	DE20
Spray Nozzles	FA25	Wooden Wedge Plug	PL7
Sprinkler	BD15	Woven Strapping	BD2
Sprinkler	FA26	Y, Z	
Stemming Plug	PL9	YESS Grader Board System	ID14
Stemming Plugs	BD5-6		
Storage Solutions - Weatherguard	ID22		
Strap, Poly Rope, and Twine	MG10		

Master Index



Letter from the President

TIME is committed to total customer service. We strive to keep this promise in many ways.

Total service means manufacturing to industry standards. TIME Manufacturing and Fabrication Division produces quality products, such as drill wedges, safety and grout plugs, pump Asm, rod wrenches and custom tooling and equipment.

Total service means manufacturing to your specifications. Our shop personnel have long experience at custom machining and design engineering for the mining and drilling industry.

Total service means sourcing for the products you need at prices that are competitive and fair. We distribute only the best names in the industry such as FMC, Ridgid Tools, Gray Tools, Bestolife, Ambex, Gates Hydraulics, among others.

Total service means listening to our customers and working with them to develop new solutions, products, and innovations to make their jobs safer and more cost effective.

Our commitment to customers has resulted in innovations, new products and important changes. In recent years we have worked with our customers to develop an underground compressed air conservation system, an underground long-hole production drill, a hydraulic rod wrench, a biodegradable rod grease, and an improved camp heater to meet industry standards.

Our people are committed to help find solutions to your problems. We would be pleased to discuss how we can help you raise your production and save money.

TIME's capabilities are limited only by our customers' requirements.

*Peter R. Henderson
President*



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Mining General - Sheave Blocks

Sheave Blocks

TIME QUICK OPENING

Manufactured by TIME, the TLB series of sheave blocks are built for hard service under tough underground mining conditions.

To be used only in **straight pull** applications.

Features:

- Safety hook releases by turning hook or block through 90°. Hook key holds lock together. No loose parts like toggle pins to get lost.
- Wide throat opening to pass square knots or splices in wire rope.
- Wheel is deeply recessed into side frames to prevent rope fouling.
- Blocks are fitted with sealed high load capacity ball bearings. Dust seals next to bearing increase protection.
- Two bottom shroud bolts ensure rigidity of side frames.

6" Sheave Blocks

- Ductile castings, side frames and wheels.

8" Sheave Blocks

- Medium manganese alloy side frames, heat treated for maximum wear.
- Magnetic qualities.
- Requires no lubrication - sealed ball bearings with extra dust shields



Product Number	Sheave Block	Weight in lbs Hook	Maximum Rope Diameter	Capacity
TLB-6H	6"	20	3/8"	6,000 lbs.
TLB-8H	8"	37	5/8"	8,000 lbs.



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PAGE: MG2



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Mining General - Barriers

Safety Gate

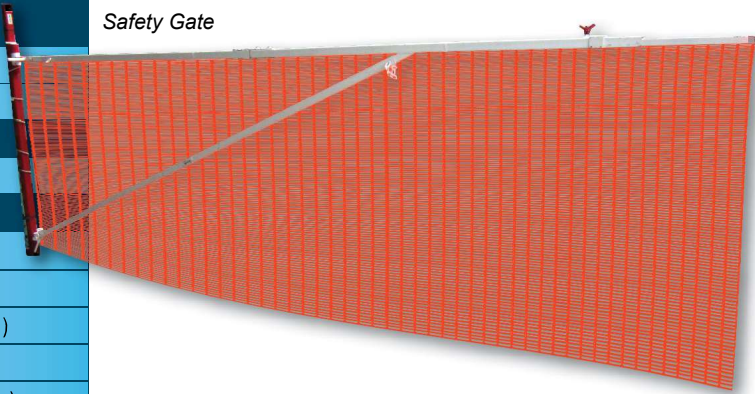
The gate is used to minimize risks of human falls in openings and is used to control access in hazardous areas.

Features:

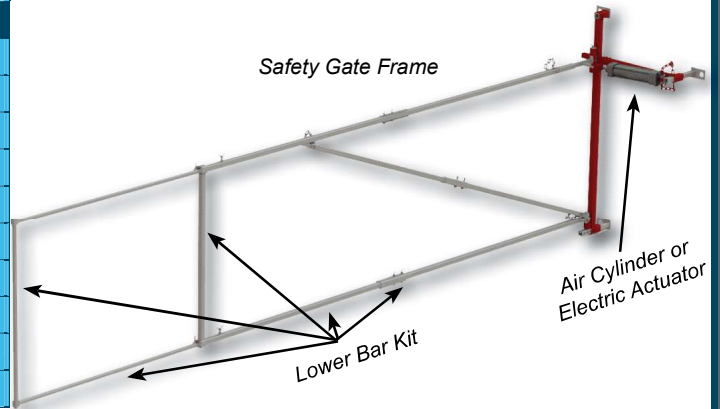
- Reversible – can be installed left or right and be opened in the front or rear
- Simple installation and use
- Fast installation and removal times
- Can be operated remotely from vehicles
- Adjustable to all types of rock walls and locations
- Telescoping mechanism allows for widths of 12' – 18'
- Available in Single bar, or with the addition of the Lower Bar kit, depending on the application

Product No.	Description
Gate Assembly Options	
47-10	Safety Gate With Air Cylinder
47-10-ACT	Safety Gate With Electric Actuator
Add-ons	
47-11-34	Lower Bar Kit
Operating Options	
47-11-28	Manual Air Control Valve Assembly
47-300ASM	Remote Control ASM, Radio (Air)
47-300-ACT	Remote Control ASM, Radio (Elect Act.)
47-200	Infrared Remote Control ASM (Air)
47-200-ACT	Infrared Remote Control ASM (Elect Act.)
Replacement Components	
47-11-03	Air Cylinder
47-11-37	Electric Actuator, 24v
47-11-18	Fence Kit
47-11-31	Square Tubing Kit
47-11-33	Wall Support Kit
47-301	Radio Hand Held Remote
47-201	Infrared Hand Held Remote
47-202	Magnetic Base For 47-201
47-203	Rechargeable Battery Pack
47-OF-01	Barrier Fence 4'x150' Full Roll

Safety Gate



Safety Gate Frame



Customization available, contact us for a quote.

Barrier Fencing

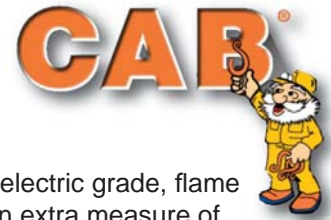
Product No.	Description
BFCT 504 XY	Barrier Fence 4'x50' with Caution Tape



Mining General - CAB Products

CAB Products

Proudly servicing the Mining Industry for over 40 years, CAB products are widely recognized for their high quality and excellent design. CAB Hangers greatly improve safety and help cut operating costs by supporting and organizing pipe, tubing and all types of cables.



For added safety and protection, all hangers are insulated with a heavy coating of high dielectric grade, flame retardant plastisol in the carrier sector of the hanger. The bright orange colour provides an extra measure of safety and has been a trademark of CAB quality over the years.

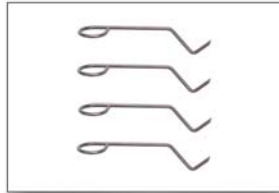
CAB also manufactures a wide variety of high visibility reflective products that greatly improve marking, identification and safety in mines. To provide a complete mine colour code identification system, CAB offers a line of high visibility reflective tubes, streamers and markers in eleven brilliant retroreflective colours.



Blasting Wire Hooks



Bosserman Clips



Brattice Hangers



Cable Clips and Latchbacks



Cable Pullers



Cable Rings



Conveyor Hangers



Heavy Duty J-Hooks



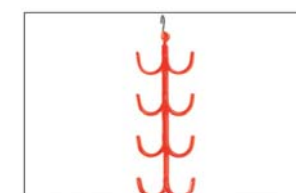
Heavy Duty Round-Stock Hangers



High Visibility Reflectors / Markers



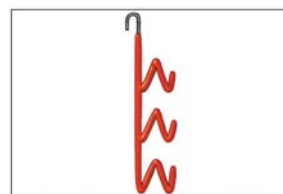
Leaky Feeder Hux Hangers



Longwall Hangers



Rope Hangers



Telewire Hooks

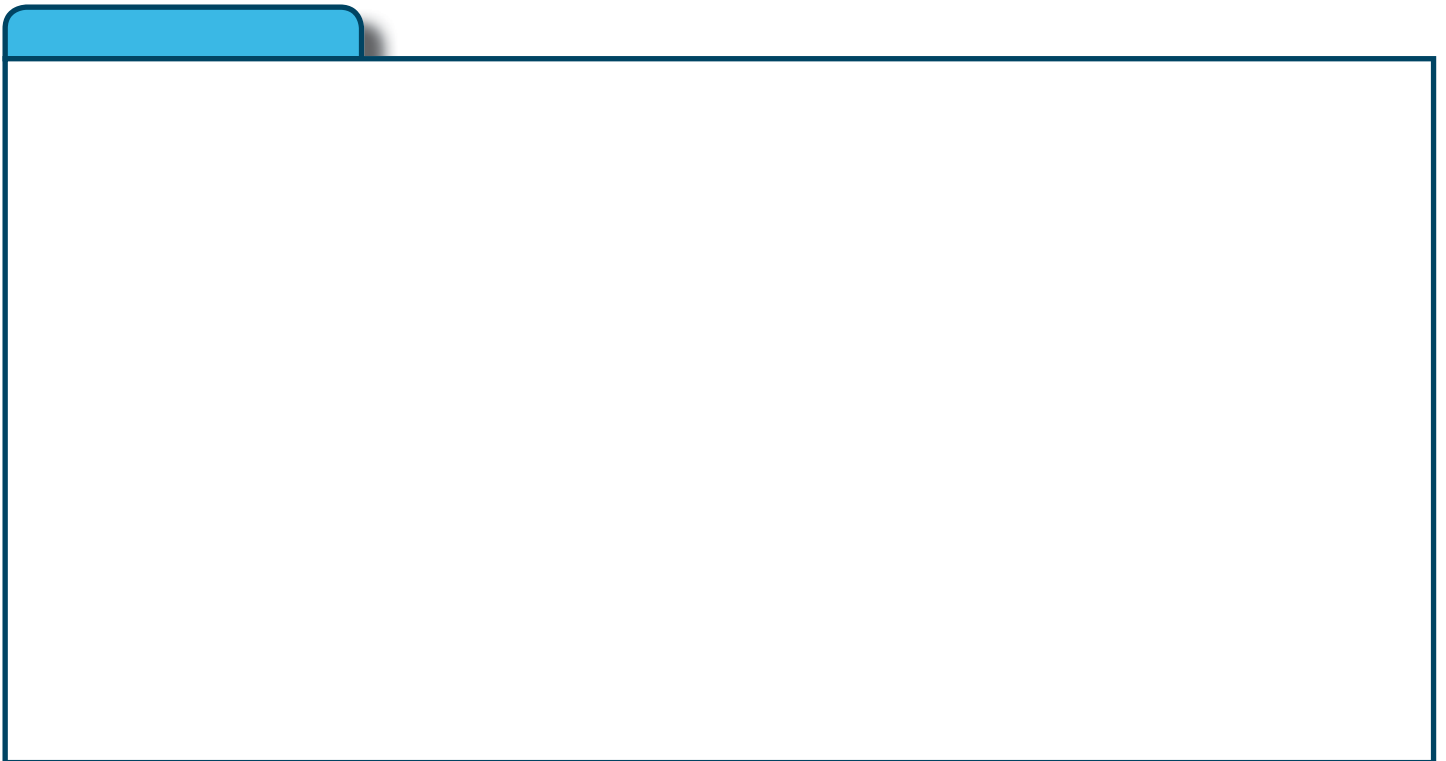


U-Hangers



Vent Tube Hangers





Mining General - Bags

Industrial Tool Bags



Industrial Tool Bag Specifications:

Colour	Black and Orange
Content	100% polyvinyl Chloride with polyester scrim
Denier	1000 X 1000
Thread count	18 X 18 Thread inch square
Weight	18oz
Cold Crack	-40°C
Tear strength	90 x 70 lbf.
Mullen Hydro static	300 psi

Part Numbers	Description	Size
171205	Industrial tool bag	16" x 10" x 6"
171206	Industrial tool bag	19" x 11.5" x 7"

Mesh Powder Bag



Powder Bag Specifications:

Colour	Blue Mesh
Weight	9 ounce
Strap	2"

Part Numbers	Description	Size
16167	Blue mesh powder bag	16" x 16" x 7"



RIDGID

RIDGID®

Why do so many professionals choose RIDGID® tools? The answer is simple...trust. Millions of RIDGID tools go to work every day in plants, on construction sites and in countless other harsh environments.

These tools operate in extremes of heat and cold, withstand dirt and mud, and perform reliably day in and day out. RIDGID tools are known the world over as industry-leading products that allow professionals like you to complete jobs more quickly and reliably.



GRUVLOK®

Gruvlok has a broad range of grooved products, plain end product, valving, pipe preparation tools, and various accessories.

Gruvlok couplings for grooved end pipe are available in nominal pipe sizes 1" through 30" and in metric sizes. The variety of coupling designs provides a universal means for the connection of pipe, fittings, and pipe system components. The wide assortment of Gruvlok couplings and gaskets permits selection of the most suitable combination for a specific application, thus providing the most versatile and economical pipe installation.



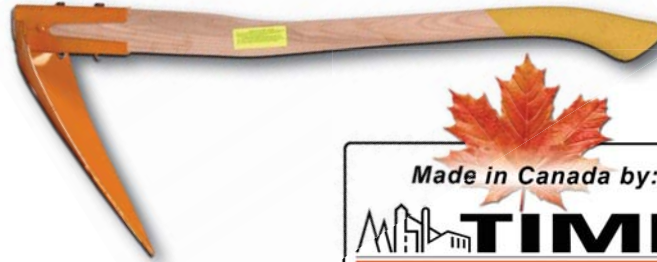
Mining General

Muck Scoop Assembly

Manufactured by TIME

Features:

- Hardwood handle replaceable
- Safety grip
- Steel blade



Product Number	Description
109-09	Muck Scoop Assembly

Wrenches

Miner's Wrenches

Features:

- Chrome-plated
- Same size as a crescent 12" wrench
- Opens up to the size of a 15" wrench

Speed Wrench

- Double Socket Type / Reinforced Style Speed Wrench

Product Number	Description
103-06	Rs-12-H Miners Wrench
103-00	RS-12 Wrench
36-33-102	Holder Wrench Miners
104-00	7/8" x 11/16" Speed Wrench
104-01	7/8" x 1-1/16" Speed Wrench

Miner's Wrench



Speed Wrench

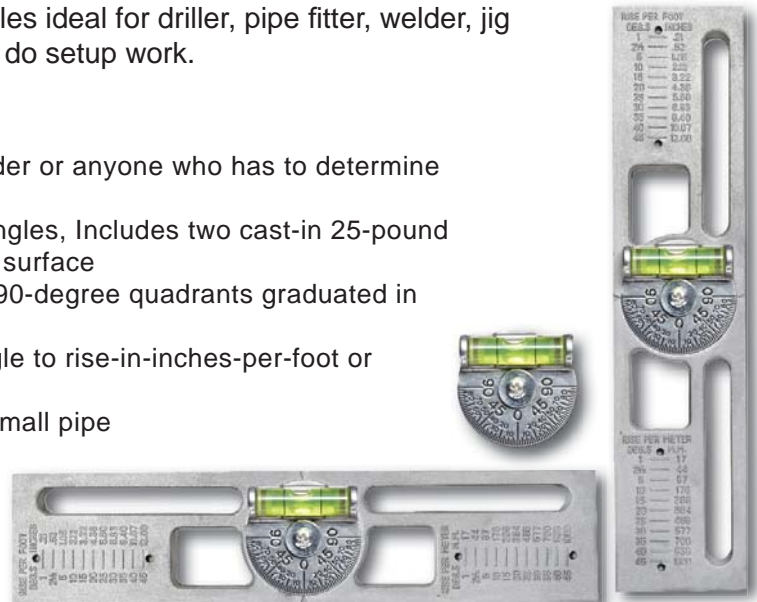
Pro-Mag Level

A lightweight, easy to use tool for determining angles ideal for driller, pipe fitter, welder, jig builder or anyone who has to determine angles or do setup work.

Product Features

- Unit is ideal for driller, pipe fitter, welder, jig builder or anyone who has to determine angles or do setup work
- A lightweight, easy to use tool for determining angles, Includes two cast-in 25-pound pull magnets that hold securely to any magnetic surface
- Unit has a 360-degree adjustable DSL with two 90-degree quadrants graduated in 2-1/2-degree increments
- Cast in are tables used to convert degree-of angle to rise-in-inches-per-foot or millimeters-per-meter
- A groove on the bottom edge permits use on a small pipe

Product Number	Description
36-19-267P	Pro-Mag #8 Level
36-19-268P	#8 Replacement Dial



Mining General - Measuring Tools

Measuring Tools

DUAL BEAM ALIGNMENT LASER

Features:

- 2-eye visible laser beams shoot in opposite directions; align two points from middle
- Extend alignment accuracy by using one beam as a tacking point; halves the actual working distance
- Magnetic base clamps to metal equipment
- Hard anodized means superior abrasion resistance
- Weather sealed with o-rings
- Includes precision "Glow in the Dark" 5 minute of arc level vial; accurate 1/8" at 100 ft.

Accessories available for L202:

- Beam Bender for 90° layouts
- Beam Spreader for plumb and horizontal level line
- Mounting Collar (required with Beam Bender and Spreader)
- Leveling Adapter Plates for tripod mounting
- Support Bracket for pulley alignments



Magnetic Digital Angle Gauge

Accurately indicates bevel angle

- 4 x 90° range
- 0.1° error rate
- ±0.1° repetition rate

Comes with a convenient carry pouch and with 3 AAA batteries



Empire Magnetic Protractor

The Empire Level magnetic Polycast protractor has an easy to read dial with adjustable angle pointer. Built in angle pitch calculator in back. Magnetic base and back. Transfer angles to within 1-degree.

Part Number	Description
431-50	Dual Beam Alignment Laser
36-19-265E	Angle Finder c/w magnetic base
32-1039	Magnetic Digital Angle Gauge



Mining General - Strap / Rope / Twine

Strap

- **Multiple Uses** - Bundling, bailing, securing loads, anchoring, etc. Polywoven strapping can be used to replace steel and wire strapping in many applications.
- **Safe** - Safe to vehicles, machinery and/or product. Safe to handle. No protective clothing necessary; no sharp edges or splinters. No potential hazards involving off-cuts. No danger of injury when cutting strapping under tension.
- **Cost Efficient** - Requires no expensive machinery. Reusable, therefore reducing waste. Machinery repair costs eliminated. Save on labour.
- **Easy Handling** - Light and easy to handle. Easily disposed.
- **Recovery** - Elongation is approximately 8% and has a 90% recovery. Strapping expands and contracts while maintaining its tension on the bundle. If a bundle is dropped, the strapping will not break due to its flexibility.
- **Resistant to** - Ultraviolet rays...Acids...High and low temperatures... Water...Rust—thereby leaving no marks on product.
- **Tensioning** - Hand-held tool and wire buckles produce tensioning. Complete line of strapping tools for different requirements. Tool repair service available



Strapping			
Product Number	Size	Minimum Break Strength	Foot per Coil
STR-40PBS	½"	660 lbs	1,500'

Buckles and Tools		
Product Number	Size	Description
10001	½"	C4 Buckle (1000 bx) plain
10310		Heavy duty tensioner for straps up to 1 1/2" (38 mm).

Poly Rope / Twine



Product Number	Size
328-0120	Rope Poly 1/4" X 1300'
328-0160	Rope Poly 3/8" X 600'
328-0180	Rope Poly 1/2" X 335'
328-0200	Rope Poly 3/4" X 125'
47-1101	Twine Orange 9000'
TWINE	Twine Blue 12000'



Mining General - Manifold / Blow Tubes

TIME Header Manifolds



TIME header manifolds are designed and manufactured in various configurations, to allow air/water control in a number of mining applications. To be used in conjunction with the TIME ball valve.

** Can be manufactured to custom specifications **

Product Number	Size
525-06	Header Manifold 2" female NPT one end with 4 X 1" female NPT
525-08	Header Manifold 2" grooved one end with 5 X 1" female NPT
525-09	Header Manifold 2" grooved one end with 3 X 1" female NPT
525-10	Header Manifold 2" grooved both ends with 3 X 1" male NPT
525-11	Header Manifold 2" grooved both ends with 3 X 1" female NPT
525-12	Header Manifold 2" grooved both ends with 4 X 1" male NPT

Blow Tubes



Blow Tubes

- Available in copper, steel and aluminum
- Available in different lengths and I.D.

Product Number	Size
221-07BT	Blow Tube Copper 1/2" x 12'
221-07BT10C	Blow Tube Copper 1/2" x 10'
221-07BT10S	Blow Tube Steel 1/2" x 10'
221-08BT	Blow Tube Copper 3/4" x 12'
47-1012	Blow Tube Aluminum 1-1/2" x 6'
47-1012X2	Blow Tube Aluminum 2" x 6'
47-1012X3/4	Blow Tube Aluminum 3/4" x 8'

Guardian Hardhat Light



The Guardian is the lightest, brightest, toughest light in its class. This light, unlike its competitors, is visible from all sides (omni-directional) and extremely impact resistant. In addition, the Guardian is very lightweight and will not restrict movement. The product comes with a variety of attachments that can be fastened to either the user or to the equipment.

Product Number	Size
47-50002	Guardian Hardhat Light



Mining General

Miner's Light



The Cordless Light produces more than 4000 lux, and continuous lighting time is more than 15 hours.

The Miner's Cap Lamps are the newest design in cap lamps, both cordless and corded. They use a high intensity LED light and a rechargeable battery. The cordless light, particular importance in mine environments, has an innovative safety feature that displays battery life, as well as time and serial number.

- Safe
- Efficient
- Environmentally Friendly
- Portable
- Reliable
- Economical



The Corded Light produces more than 15000 lux, and continuous lighting time is more than 15 hours.



Part Number	Description
47-1200-001	Miner Cap Lamp /Battery
47-1055	Miner Cap Lamp Cordless
DCR-1	Charges 96 cap lamps simultaneously
DCR-2	Charges 48 cap lamps simultaneously

LED Tunnel Light



CSA Approved LED Tunnel Light For Mine safety in stairwells & low ceiling areas

This newly developed LED tunnel light is especially suitable for the mining industry. Its soft, bright, diffuse light is ideal for difficult to light areas such as stairwells and maintenance areas with low ceilings. Its tough housing stands up to rugged mine environments.

Application

- Grizzly Ore Pass
- Loading Pockets
- Mine Drifts
- Galloways

Specifications:

- Size: 231mm x 164mm x 118mm
- Input voltage: AC110-230V or DC24V
- Total initial output lumens; 3000 lumens.
- Beam angle: 160° in runnel direction, 120° in wall direction
- Lifetime: +50,000 hours

Features:

- Illuminates underground passage uniformly—no spotlight effect
- Solid stainless steel housing and bulletproof polycarbonate lens
- Explosion-proof and shock resistant
- Waterproof
- Dust-proof
- Corrosion-proof
-

Benefits

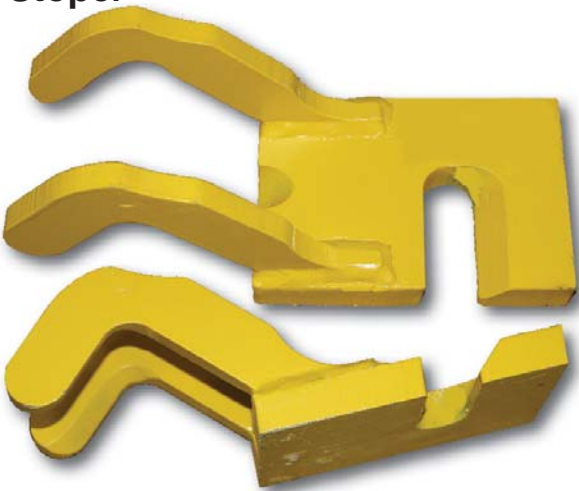
- Consumes minimal power(30W, 0.9 Amps)
- Virtually maintenance free
- Soft light, very good for working
- Easy to mount and maintain
- Longer life span(approximately 5 years)
- Lower maintenance cost
- Minimal heat generated

Part Number	Description
47-DMTAC-30	Tunnel Light 30W/3000L

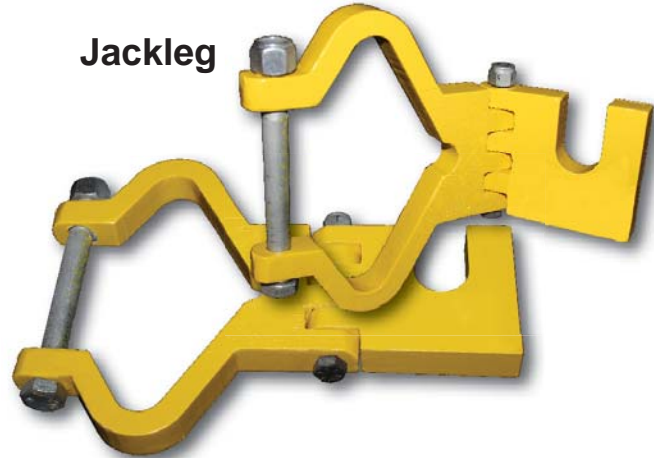


Rebar Pusher

Stoper



Jackleg

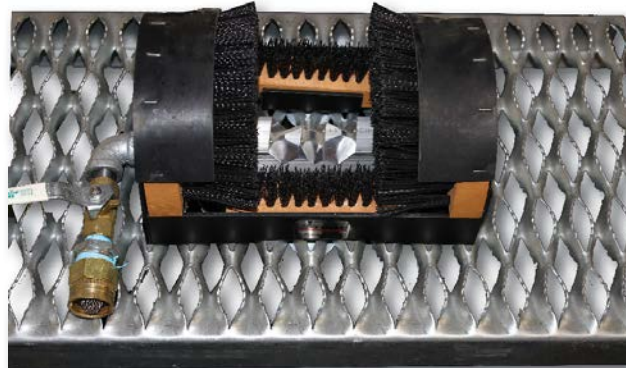


We have two models of a Rebar Pusher. They are used to push rebar into resin.

Part Number	Description
47-0451	Rebar Pusher - Stoper
47-0452	Rebar Pusher - Jackleg

Boot Cleaner

Part Number	Description
44-17ACM1	Boot Cleaner



Wheel Chocks



Front



Side



Part Number	Description
WC-7	7" Rubber Wheel Chock
WCAL-8	8" Aluminum Wheel Chock
WCAL-10	10" Aluminum Wheel Chock



Mining General

Burlap Bags / Squares



Part Number	Description
18X28	Burlap - 18" X 28" 70z Bag
28X40	Burlap - 28" X 40" 100z Bag
10X10	Burlap - 10"X10" 100z Square

T-Shirt Rags

T-Shirt Rags are perfect for a variety of applications. The rags are cut from recycled, cotton t-shirts.



Part Number	Description
80001999	25 lbs bag T-Shirt Rags Mixed

Marking Paint

Features:

- Sprays in upright position
- Low odour
- Non-clogging
- Fast drying

Paint Extension Gun 10'

Product Number	Description
3141LF	Marking Paint Yellow
3244A	Marking Paint Red
3247	Marking Paint White
3145FL	Marking Paint Green
3143LF	Marking Paint Orange
3246	Marking Paint Black
3144SL	Marking Paint Florescent Orange
6242	Marking Paint Dark Blue
47-1075	Paint Extension Gun 10'





Letter from the President

TIME is committed to total customer service. We strive to keep this promise in many ways.

Total service means manufacturing to industry standards. TIME Manufacturing and Fabrication Division produces quality products, such as drill wedges, safety and grout plugs, pump assemblies, rod wrenches and custom tooling and equipment.

Total service means manufacturing to your specifications. Our shop personnel have long experience at custom machining and design engineering for the mining and drilling industry.

Total service means sourcing for the products you need at prices that are competitive and fair. We distribute only the best names in the industry such as FMC, Ridgid Tools, Gray Tools, Bestolife, Ambex, Gates Hydraulics, among others.

Total service means listening to our customers and working with them to develop new solutions, products, and innovations to make their jobs safer and more cost effective.

Our commitment to customers has resulted in innovations, new products and important changes. In recent years we have worked with our customers to develop an underground compressed air conservation system, an underground long-hole production drill, a hydraulic rod wrench, a biodegradable rod grease, and an improved camp heater to meet industry standards.

Our people are committed to help find solutions to your problems. We would be pleased to discuss how we can help you raise your production and save money.

TIME's capabilities are limited only by our customers' requirements.

*Peter R. Henderson
President*



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PAGE: MG15

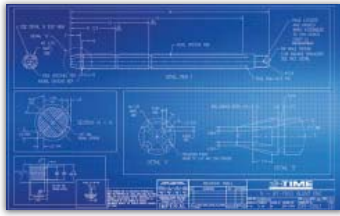


www.time ltd.ca

Manufacturing and Fabrication

Design and Innovation

The TIME team takes pride in providing customers with quality products and the absolute best service with a personal touch.



Not only does TIME distribute a number of quality product lines, we also manufacture a number of our own core products. In conjunction with our fabrication and machining capabilities, we have a team that has well over 250 years of experience in the mining, diamond drilling, and various industrial sectors. With the technical knowhow, we offer design capabilities specifically focused on new product development, innovative design, and problem solving.

We can manufacture to your requirements, or provide complete design and drafting expertise in-house.

RESPONDING TO CUSTOMER NEEDS

Our mandate is to exceed our customer's expectations.
Peter R. Henderson, President

MACHINING

TIME Limited's machining shop uses a combination of heavy duty, big and small bore lathes, CNC milling machines, CNC lathes and conventional lathes.



Here are some of our featured equipment and capabilities:



Hurco TM-18 Heavy Duty Lathe

- a. Bar Capacity: 6.4 inch bar capacity
- b. Turning Diameter: 25 inch max
- c. Turning Length: 39.4 inch max
- d. Travel: 17x, 40z inch
- e. Quick Change air collect chuck system



Nakamura-Tome WT300MMYS

- a. 9-axis, 2 turret multitasking machining
- b. Bar Capacity: 65mm (I) and 102mm (r)
- c. Turning diameter: 270mm max turning
- d. Turning length: 780mm max
- e. Quick Change air collect chuck system
- f. Chip Blaster GV2.40 high pressure coolant system

Other Machines include:
CNC lathes such as ROMI M27 heavy duty big bore lathe and ROMI M20 small bore lathe, as well as a host of conventional lathes.

- a. 3-axis milling machine
- b. Travel: 50 x 26 x 24 inch
- c. Table Size: 59 x 26 inch
- d. Tool Capacity: 30 CAT 50
- e. Magnetic Material Holder

CNC milling machines such as MAZ Federal VMX4020FX mill, and FIRST LC-185v-B milling machine, as well as a host of conventional milling machines



Our Newest Toys!



TIME OFFICES

We supply mine-grade products, manufacture quality products, offer design, fabrication and custom machining, as well as sourcing. We are your one-stop shop for industrial needs.

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FABRICATION

TIME Limited's welding and fabrication shop has full capabilities for custom work. Our shop includes a large plasma table, capable of cutting material up to 8' X 20', 2 10,000 lbs SMH Overhead Cranes, an AKBEND ASM-S 17 roller and a brand new, iBend CNC Hydraulic Press Brake.



Our welding shop is certified by the Canadian Welding Bureau annually.



www.timeltd.ca



Serving the Mining Industry Since 1971

Manufacturing and Fabrication



Our brand new, State of the art, 40,000 Sq. ft. Manufacturing, Fabrication and Warehousing facility

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STOCKING WAREHOUSE



TIME Limited's philosophy is to stock what our customers need. If we don't have it, and you need it on a regular basis, just ask and we will do our best to add it to our ever-growing warehouse.

We carry everything from Health and Safety to Hand tools, mining and diamond drilling products, TIME branded hoses and Gates fittings.



TIME Limited also fixes or makes your hydraulic hoses while you wait.



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PAGE: MG16



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Drilling Fluid Products

DF - Drilling Fluid Products



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PAGE: DF1



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Drilling Fluids - Viscosifiers

Hi Yield Bentonite



Product Number: 9410017

Applications

Hi Yield Bentonite is used to rapidly build mud viscosity and provide superior hole cleaning, as well as to help control lost circulation, formation sloughing and promote hole stability in unconsolidated formations. Typical uses are in:

- Potable-water wells
- Mineral exploration (coring and rotary drilling)
- Horizontal directional drilling; construction and gel-foam air drilling operations

Advantages

- 93% passing through 200 mesh grind specification ensures rapid hydration with limited mixing equipment
- Yields more quickly than API-standard bentonite; increased penetration rates due to lower solids content than standard API bentonite systems; non-toxic and proven suitable for use in drilling potable water wells.
- Transportation and storage costs are reduced due to lower treatment requirements a compared to API bentonite

HI YIELD BENTONITE is a premier ultra fine grind bentonite blended with special extenders, producing a product that will yield more than twice as much viscosity as API Wyoming bentonite. Hi Yield Bentonite is an easily mixed bentonite for freshwater and extended bentonite systems.

Typical Physical Properties

Physical appearance	Light tan/ gray-green powder
Specific gravity	2.3 – 2.5
Approximate yield	210 bbl/ton

Packaging and Storage

Hi Yield Bentonite is supplied in 50 lb/22.7 kg, multi wall bags at 70 bags per pallet. Store in a dry location (slip hazard when wet) and minimize dust (use dustless systems for handling, storage and cleanup).

Typical Amounts of Hi Yield Bentonite Added to Freshwater			
Drilling Application/Desired Results	lb/100 gal	lb/bbl	Kg/m3
Normal drilling	15 - 25	6 - 11	15 - 30
In gravel or other poorly consolidated formation	25 - 40	12 - 18	35 - 50
Lost-circulation control	35 - 45	15 - 20	40 - 45
Added to freshwater mud to improved hole-cleaning properties, increase hole stability and develop filter cakes	5 - 10	2 - 5	6 - 14



Drilling Fluids - Viscosifiers

CORE Warrior dry

Application

Core Warrior dry is a high molecular-weight dry polymer designed for cuttings encapsulation and shale stabilization. It is frequently used in core drilling applications as a general polymer product that acts as a viscosifier, friction reducer, flocculant and provides some fluid loss control. It is also formulated for easy mixing and is extremely beneficial for core drilling applications where good mixing equipment is not available.



Product Number
9410056

CORE Warrior dry is a high molecular-weight polymer designed for cuttings encapsulation and shale stabilization developed for use in low solids to weighted muds in fresh and salt make-up water.

CORE Warrior dry acts as a viscosifier, friction reducer, and flocculant.

CORE Warrior dry mixes in just minutes, with full hydration in under 5 minutes. That is compared to 20-30 minutes for standard dry polymers. CORE Warrior dry ensures the contractor has confidence his polymer fluid is ready to drill with in under 5 minutes. That means no product is wasted and no need to clean unhydrated polymer from the tank bottom.

Method of Addition

Mix CORE Warrior dry slowly into the active mud system to prevent "fish eyes" or pre-mix at higher concentrations in a separate pit or chemical barrel, then blend into the active mud system.

For sweeps, mix CORE Warrior dry directly in the active system at the suction pit or pre-mix a high concentration in a separate pit and wait for the polymer to fully yield before pumping.

Advantages

- Rapidly hydrates
- Excellent cutting encapsulation
- Enhances the removal of drill solids
- Improves shale stabilization
- Can be used in fresh to saline water

Typical Physical Properties

Physical appearance	White, granular powder
Specific gravity	1.25 – 1.40
pH (1% solution)	7.7
Activity	> 90%
Nature of charge	Anionic

Recommended Dosage: 0.75 - 1.5 litres per 1000 litres of water

Packaging and Storage

CORE Warrior dry is supplied in 5 gal/18.9 L pails.



Drilling Fluids - Viscosifiers

DD-2000



Product Number: 420-06

Application:

Due to the nature of the product, it should only be used on drills where proper mixing equipment is available in order to obtain proper viscosity yield. When mixed properly, DD 2000 is one of the finest and most economical viscosifiers available. DD 2000 can be used in conjunction with all Matex drilling fluid products.

Description:

DD 2000 is an environmentally safe, very high molecular weight, powdered viscosifier that can be used in either fresh or brine water. It can be used in the diamond, rotary, or percussive drilling. DD 2000 increases viscosity and imparts excellent viscosity yield. It is a superior product in overburden, sand, and gravel areas.

Dosage:

The recommended dosage of DD 2000 is from 0.5 to 2.0 pounds per 100 gallons (0.7-2.4 kg/1000 liters) of water.

Handling:

No special precautions are necessary. Contact with skin and eyes should be avoided.

Shipping and Storage:

DD 2000 is shipped in either 5 gallon (20 liter) pails or 55 pound boxes (25 kg), 25-1 kg bags/box. DD 2000 can be stored either indoors or outdoors, but must be kept dry prior to use



Drilling Fluids - Viscosifiers

Drill Liquid



Product Number: 9410013

Applications

- *Drill Liquid polymer systems.* Drill Liquid provides excellent cuttings encapsulation and improved wellbore stability. Typical concentrations of Drill Liquid are 0.75 to 3 lb/bbl (2.1 to 8.5 kg/m³). It is also effective in KCl or NaCl enhanced fluids.
- *Clear-water fluids.* Drill Liquid may be used in clear-water, solids-free drilling fluids. It increases viscosity and removes solids by flocculation. It also provides cuttings encapsulation and improved wellbore stability
- *Low-Solids, Non-Dispersed (LSND).* In reduced-bentonite fluids, Drill Liquid acts as a bentonite extender to increase viscosity, flocculates drill solids for more efficient removal, encapsulates cuttings and improves wellbore stability.
- *Weighted muds.* Drill Liquid can be used in weighted fluids for cuttings encapsulation and improved wellbore stability.
- *Drill Liquid sweeps.* Viscous sweeps are effective for periodic hole cleaning.

Advantages

- Provides excellent cuttings encapsulation and limits cuttings dispersion
- Provides improved shale stabilization
- Enhances the removal of drill solids
- Mixes and yields easily
- Aids in preventing balling on the bit, stabilizers and bottom-hole assemblies by coating and lubricating solids

DRILL LIQUID polymer is a high-molecular-weight, anionic liquid designed to provide cuttings encapsulation and shale stabilization. Drill Liquid also acts as a viscosifier, friction reducer and flocculant. Drill Liquid can be used in both fresh and saline make up water.

Method of Addition

Drill Liquid may be mixed directly into the active mud system or premixed at higher concentrations in a separate pit or chemical barrel and added as needed to the active system. A small, steady stream of Drill Liquid injected into the flow line will provide selective flocculation of drill solids. Sweeps may be accomplished by mixing the polymer directly in the active system at the suction pit or by pouring small quantities (1 to 2 cups) directly into the drill string during connections.

Typical Physical Properties

Physical appearance	Cream colored, opaque liquid
Odor	Slightly hydrocarbon
Viscosity (typical)	~ 500 cP
Specific gravity	1.07 – 1.10
pH (1% Solution)	8.0 – 9.0
Flash point	>200° F (93.3° C) (PMCC)
Pour point	-20°F/-28.9°C

Packaging and Storage

Drill Liquid is supplied in 5 gal/18.9 L plastic pails.

Approximate Amounts of Drill Liquid Added to Drilling Fluid Systems			
Drilling Application	qt/100 gal	pints/bbl	L/m ³
Fresh water Stabilizes water-sensitive formation	1.00	1.00	2.50
Reduces torque and pump pressure, and increases hole stability	1.50	1.25	3.75
Low-Solids, Non-Dispersed (LSND)	0.50	0.50	1.25
3% KCl drilling system	2.00	1.75	5.00
Injection liquid in air/foam applications	0.50-1.00	0.50-1.00	1.25-2.50



Drilling Fluids - Viscosifiers

Liquid Mud Plus



Product Number
9410012

Applications

- **Viscosity** - Liquid Mud Plus viscosifies rapidly and exhibits excellent hole-cleaning characteristics under low shear rates. It allows for easy solids deposition in settling pits when used in core drilling.
- **Shale Stabilization/Inhibition** - Liquid Mud Plus, alone or in conjunction with KCl or substitutes, is used to stabilize active shales by encapsulating the drilled cuttings and inhibiting formation swelling.
- **Foam Enhancement** - Liquid Mud Plus creates thicker, stronger drill foams improving the fluid's cuttings-carrying capacity and resisting water inflows.
- **Flocculant** - Liquid Mud Plus acts as a flocculant at .01-.05 ppb (.03-0.14 kg/m).

Advantages

- Concentrated polymer content
- Stabilizes clay, shale and mudstone formations
- Compatible with most drilling fluids additives
- Excellent all-round lubricant
- Can be used with foam to help stabilize loose formations and improve cuttings carrying
- Longer shelf life than other liquid polymers
- Improves core recovery

LIQUID MUD PLUS is a 50 % active synthetic polymer developed for use in freshwater and saltwater base drilling fluids. It is a unique dispersion grade liquid PHPA that resists freeze/thaw degradation and phase separation.

Typical Physical Properties

Physical appearance	White liquid dispersion
Odor	Slightly hydrocarbon
Viscosity (typical)	200 – 500 cP
Specific gravity	1.06–1.08
pH (1% Solution)	16.5 –7.5
Flash point	248°F/120°C

Packaging and Storage

Liquid Mud Plus is supplied in 5 gal/18.9 L pails.

Approximate Amounts of Liquid Mud Plus Added to Drilling Fluid Systems

Drilling Application	qt/100 gal	pints/bbl	L/m3
Fresh water Stabilizes water-sensitive formation	0.60	0.60	1.50
Reduces torque and pump pressure, and increases hole stability	1.00	0.75	2.25
Low-Solids, Non-Dispersed (LSND)	0.30	0.30	0.75
3% KCl drilling system	1.20	1.00	3.00
Injection liquid in air/foam applications	0.30-0.60	0.30-0.60	0.75-1.50



Drilling Fluids - Grease

Rod Grease Plus (+)



Product Number
9410054(NB)

Application

Rod Grease Plus (+) is applied to the outside of the drill pipe prior to putting it into the hole. It is ready to go directly out of the pail.

Advantages

- Drilling efficiencies increases
- Great adhesion under most conditions
- Resistant to hard, saline water
- Thermally stable, extreme pressure resistance
- Can be applied to wet surfaces
- Reduces wear
- Reduces vibration and rotational torque
- Improves productivity
- Protects metal surfaces.

ROD GREASE PLUS (+) is the heavyweight of our rod greases. It is a super tacky and a super heavy duty rod grease designed to provide a superb coating of diamond drill rods in the most extreme and demanding surface or underground drilling applications. The super tacky texture guarantees maximum grease adherence and coating of the drill rods. This heavy duty, super tacky grease coat provides unmatched resistance to water washout and centrifugal separation. Rod Grease Plus prevents rod chattering or binding while in the hole and is fortified with excellent rust preventative additives to keep rods in premier condition while in storage. Also features excellent extreme pressure properties and load carrying ability.

Packaging and Storage

Rod Grease Plus (+) is supplied in 5 gal/18.9 L pails with or without liner bags.

NLGI ASTM TEST	ROD GREASE +
NLGI Grade	3
Cone Penetration @ 77°F, Worked 60 Strokes	220-250
Thickener Type	BARIUM COMPLEX
Thickener Content, %	25-40
Dropping Point, °F	400 MIN.
Base Oil Viscosity Sus @ 40°C	490-540
Sus @ 100°C	55-65
Viscosity Index	75
Color	TAN
Appearance	FIBROUS
Flash Point, °F.	350
Pour Point, °F.	20



Drilling Fluids - Grease

BIO Rod Grease



Product Number
9410062

Barium free BIO Rod Grease is a biodegradable, heavy duty, fibrous & tacky diamond drill rod grease that easily replaces traditional hydrocarbon-based drill rod greases.

Advantages

- Superior resistance to water washing and centrifugal separation
- Corrosion, wear and oxidation resistance
- Applies on wet drill pipe

Applications:

- BIO Rod Grease is very tenacious and is recommended for underground or surface applications.
- BIO Rod Grease is compatible with all types of drilling fluid systems.
- BIO Rod Grease is also very effective in dry hole conditions without fluid returns.

BIO Rod Grease is an aluminum complex drill rod grease utilizing a specialty thickener, heavy duty natural base oils, tacky additives and a patented specialty manufacturing processes. This results in outstanding thick, strong, and tacky diamond drill rod grease allowing for long lasting rod lubrication.

Drilling costs are reduced using BIO Rod Grease because re-greasing intervals are minimized due to the long lasting rod lubrication. BIO Rod Grease can be used with confidence in any location but especially where environmental compliance for all drilling additives is required.

Packaging and Storage

BIO Rod Grease is supplied in 5 gal/18.9 L pails.

TYPICAL PROPERTIES

Physical appearance Brownish yellow	1.50%
Texture Long fiber-tacky	550°F
Dropping Point, ASTM D 2265, °F 485	3
Water Washout, ASTM D 1264, @ 79°C (175°F) % loss 1.5	620



BESTOLIFE ZN50



Applications

- Tool joints
- Drill collars
- Drilling and coring bits

Advantages

- Meets all applicable API and IADC standards
- Available in 40%, 50%, 60% formulas

Product #	Product Name	Size
420-60	ZN 50	10 lbs
420-601	ZN 50	40 lbs

ZN 50 is a zinc based thread compound made with finely powdered metallic zinc. It contains 50% zinc as well as H₂S and oxidation inhibitors.

Typical Physical Properties

Physical appearance	gray
Penetration	290 – 310 (ASTM D 217)
Weight/gallon	15.0 lbs/gal
Dropping point	385°F/196°C (min)
Flash point	350°F/177°C (typ)
Brushable to	10°F/-12°C
Service rating	350°F/177°C
Torque factor	1.0 (per API RP 7A1)

Packaging and Storage

ZN 50 is supplied in 10 lbs and 40 lbs plastic pails.



Drilling Fluids - Grease

BESTOLIFE "4010"[®] NM



Product Number
420-118

Applications

- Rotary collars

Advantages

- Low environmental impact
- Superior downhole galling resistance
- Applies easily in extreme conditions

Typical Physical Properties

Physical appearance	grey
Penetration	300 – 330 (ASTM D217)
Weight/gallon	10.4 lbs/gal
Dropping point	550°F/288°C
Flash point	396°F/202°C
Brushable to	-40°F/-40°C
Torque factor	1.0 (per API RP 7A1)
Salt spray	1500 hrs. min. (ASTM B117)

BESTOLIFE "4010"[®] NM is the fourth generation of the highly successful Bestolife family of compounds designed to address the environmental concerns related to the use of thread compounds for rotary shouldered and premium connections. "4010" NM was especially developed for the ecologically sensitive areas of the world, such as the North Sea, Nova Scotia, Newfoundland, the South Atlantic, Alaska, and Sakhalin Island.

Bestolife "4010"[®] NM combines the excellent low temperature application properties of Bestolife 3010[®] ULTRA with superior downhole galling resistance and enhanced ecotoxicological properties to provide the ideal drill-string solution for all rotary shouldered (drill pipe/tool joints/drill collars) and many proprietary premium self-sealing casing/tubing connection applications, irrespective of offshore drilling location.

Bestolife 4010[®] NM has the ability to prevent galling of contact surfaces (including non-magnetic materials) under high bearing loads and to form a continuous gasket between the shoulders of a rotary connection during make-up. This is achieved through the innovative combination of graphite and other non-toxic materials, which interact to form a seal when compressed between seals, threads, and shoulders during make-up to provide performance properties which are equal to the very best heavy metal compounds. The gasket-like seal prevents connection wash-out, even under high internal fluid pressures and the combined loading of directional drilling, to provide maximum protection in the toughest conditions. Also effective for use on slides, jacking systems, cantilever type rigs and assemblies.

Bestolife 4010[®] NM applies easily to cold wet connections exposed to seawater in ambient temperatures as low as -40°F/-40°C and yet provides optimum protection in the deepest, hottest holes. Will provide lubrication and protection to 600°F/316°C and the solids will protect to 1000°F/538°C.

Packaging and Storage

Bestolife "4010"[®] NM is supplied in 30 lbs plastic pails.



Copper Supreme Special Blend®



Applications

- Tool joints
- Drill collars
- Drilling and coring bits

Advantages

- Meets all applicable API and IADC standards
- Available in 40%, 50%, 60% formulas

COPPER SUPREME SPECIAL BLEND® was developed to address environmental restrictions and exposure concerns associated with lead and zinc based thread compounds. It contains copper flake combined with a proprietary blend of amorphous and synthetic graphites, along with oxidation and H₂S inhibitors, in a high temperature base grease.

Typical Physical Properties

Physical appearance	dark copper
Penetration	300 – 320 (ASTM D 217)
Weight/gallon	10.2 lbs/gal
Dropping point	500°F/260°C (min)
Flash point	385°F/196°C (typ)
Brushable to	15°F/-9°C
Service rating	600°F/316°C
Torque factor	1.1 (per API RP 7A1)

Packaging and Storage

Copper Supreme Special Blend is supplied in 30 lbs plastic pails.



Drilling Fluids - Grease

BESTOLIFE "3010"® ULTRA



Product Number
420-55

Applications

- Rotary collars
- Effective for use on open gear jackup legs

Advantages

- Low environmental impact

Typical Physical Properties

Physical appearance	black
Penetration	320 – 350
Weight/gallon	10.4 lbs/gal
Dropping point	310°F/154°C
Flash point	330°F/166°C
Brushable to	-49°F/-45°C
Torque factor	1.0 (per API RP 7A1)

BESTOLIFE "3010"® ULTRA was developed to address environmental concerns related to the use of thread compounds for rotary shouldered connections that contain high levels of heavy metals, such as lead, copper and zinc. It is a development of the proven Bestolife "3000"® formulation with enhanced low temperature application properties designed for use in the coldest, wettest operating conditions, such as encountered in the North Sea, Nova Scotia, Newfoundland, the South Atlantic, Alaska and Sakhalin Island.

Bestolife "3010"® ULTRA has the ability to prevent galling of contact surfaces (including non-magnetic materials) under high bearing loads and to form a continuous gasket between the shoulders of a rotary connection during make-up. This is achieved through the innovative combination of a variety of amorphous and synthetic graphite based materials, as first used in "3000"®, interacting to form a seal when compressed between the shoulders during make-up to provide performance properties equal to the very best heavy metals compounds. This gasket like seal prevents connection wash-out, even under high internal fluid pressures and the combine loading of directional drilling, to provide maximum protection in the toughest conditions.

Bestolife 3010® ULTRA applies easily to cold wet connections exposed to seawater in ambient temperatures as low as -49° F/ -45° C and yet provides optimum protection in the deepest, hottest holes. The grease in Bestolife 3010® ULTRA will provide lubrication and protection to 400° F/ 204° C and the solids will protect to 1000° F/538° C.

Packaging and Storage

Bestolife "3010"® ULTRA is supplied in 35 lbs plastic pails.



Drilling Fluids - Degreaser

Purple Degreaser



Product Number: 49-19

Applications

Purple Degreaser is used in the mining industry as a core release lubricant. In general use it has excellent performance as a cleaner or degreaser and can be diluted with water as needed for the required application.

Advantages

- Petroleum Solvent Free
- Citrus Solvent Free
- Bio-Degradable Surfactants (OECD Test 310b)

TIME's PURPLE CLEANER / DEGREASER - BIODEGRADABLE

A very effective concentrated degreaser and all purpose cleaner for most hard surfaces made of steel, aluminum, porcelain, rubber, vinyl, glass and more. Dilute with water to desired strength.

Typical Physical Properties

Physical Appearance	purple clear liquid
Specific Gravity	1.024
pH	12.0 – 13.0
Solubility in Water	yes

Packaging and Storage

Purple Degreaser is supplied in 20 L jug.



Drilling Fluids - Degreaser

ECO Citrus Degreaser



Product Number: 49-17

Applications

Eco Citrus Degreaser is used in the mining industry as a core release lubricant. In general use it has excellent performance as a cleaner or degreaser and can be diluted with water as needed for the required application.

Advantages

- 100% butyl free
- Approved for use in food plants by the Canadian Food Inspection Agency

TIME's ECO CITRUS DEGREASER is a concentrated degreaser that is 100% butyl free, petroleum free, containing biodegradable surfactants. Fresh citrus scent.

Typical Physical Properties

Physical Appearance	orange clear liquid
Specific Gravity	1.024
pH	12.0 – 13.0
Solubility in Water	yes

Packaging and Storage

Eco Citrus Degreaser is supplied in 4 L bottle, 20 L pail and 200 L drums.



Drilling Fluids - Lubricants

Linseed Soap



Product Number
420-31

Applications

Linseed Soap is a very effective environmentally friendly lubricant principally found in mining and drilling operations as a core release lubricator. It has wide acceptance in fresh water environments as a non-toxic, biodegradable replacement for petroleum based lubricants in certain applications.

Advantages

- Phosphate free and biodegradable; it is an organic linseed oil-based product
- Handles more easily than its alternative, a slimy watery product.
- Rinses easily from samples as it is fully water soluble
- Considered to be a superb mould release agent for rubber and fiberglass
- Because it is biodegradable spills and disposal present no problems

TIME's Linseed Soap is manufactured in a unique paste consistency which is ideal for use in the mining industry. It is an amber coloured opaque paste that consists of potassium salts of saturated and unsaturated fatty acids.

Safety Precautions

Spills of Linseed Soap are extremely slippery. Spills must be cleaned up immediately, especially on hard surfaces, to prevent skidding of personnel or equipment.

Typical Physical Properties

Physical appearance	amber opaque paste
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Packaging and Storage

Linseed Soap is supplied in 11 kg and 23 kg pails.



Drilling Fluids - Lubricants

Torqueless



Product Number: 420-15

The Environmentally friendly drilling product for reducing hole torque, limiting wear and rusting of the rods while extending the product life of the drill bit.

- TORQUELESS is not just another soluble lube, it pays its way.
- TORQUELESS has produced both bit-life and penetration rate increases during operations.
- TORQUELESS is based on an environmentally safe technology which has proven to be effective in lubricating down-hole consumables for over a decade.
- TORQUELESS is non-sheening when accidentally introduced into a water course.
- TORQUELESS inhibits swelling of clay like materials such as saponites, talcs & kimberlites.
- TORQUELESS is extremely effective for lubricating both down-hole hammers and protecting against drill pipe wear during horizontal drilling (eliminating the need for rock drill oil.)
- TORQUELESS protects drill rod wear when bending your rods.
- TORQUELESS increases tool joint life by reducing torque in the hole.
- TORQUELESS will enhance the effectiveness of powdered mud systems (bentonites, polymers or pac's). Combined with the appropriate fluids and mixing systems, Torqueless HDD will reduce stuck drill rods and lost casing in squeezing ground conditions
- TORQUELESS will enhance head and rail life. When tripping pipes the product coats the rails not covering them with granules.
- TORQUELESS will add longevity to rod threads.
- TORQUELESS will strip rust off your tooling.
- TORQUELESS enhances and protects directional mud motors.
- TORQUELESS keeps in hole tools lubricated and cool.

SUGGESTED DOSAGE: 1 liter of product per 1000 liters of water (1 quart – 250 gallons)



Drilling Fluids - Lubricants

Torque-Ease



Product Number
9410041

Applications

Improved lubricity results in torque and drag reduction allowing faster, deeper and highly deviated drilling. It is effective in lateral drilling operations such as Horizontal Directional Drilling (HDD) and in mining coring operations where rate of penetration improvements and hole stability are required.

Advantages

- Improves lubricity
- Easily disperses in WBM
- Does not affect mud rheology
- Improves API filtration properties
- Compatible in arctic drilling conditions and is thermally stable to + 300°F.

TORQUE EASE is an ecologically friendly drilling fluid lubricant and shale control additive for water based mud systems. It is based on oleo chemicals, which are derived from natural oils and fats, and is therefore 100% biodegradable.

Method of Addition

- Torque Ease can be added at 0.5–1.0 % by volume for torque and drag reduction.
- Torque Ease can be added at 0.5-2.0% by volume for shale control.
- Torque Ease can be spotted in its concentrated form across a zone where drill pipe is stuck. Sufficient soaking time should be allowed while tension and torque is applied to free rod.

Typical Physical Properties

Form	Dark liquid
Specific gravity	0.900
pH in water	6 – 7
Solubility in water	Highly dispersible

Packaging and Storage

Torque Ease is supplied in 5 gal/18.9 L pails.



Drilling Fluids - Lubricants

Premium Lube



Product Number
9410004

Applications

Premium Lube additive mixes instantly and is not affected by water quality. To develop rod protection and reduce torque after drilling has started, consideration must be given to the number of rods and amount of fluid in the hole.

Advantages

- Reduces torque
- Prevents rust and scale
- Environmentally safe
- Increases penetration rates
- Extends bit and mud motor life
- Increases mud motor efficiency
- Reduces wear on rods and equipment
- Maximizes rig potential and steering control
- Enhances the effectiveness of powdered drilling fluid additives

TIME Premium Lube is based on technology designed to minimize environmental impact. Our Premium Lube reduces the amount of torque and drag, therefore the operator can use the drill rig to its maximum potential because steering control is precise and thrusts and pulls are at a minimum.

Typical Physical Properties

Appearance	Liquid
Odour	Slight
pH	6 - 9 (50 g/l in water)
Solubility in water	Yes
Specific Gravity	1.0-1.05

Packaging and Storage

TIME PREMIUM LUBE is supplied in 5 gal/18.9 L pails and 55 gal drums. Store in a well-ventilated area away from sources of heat or ignition.



Lost Circulation & Fluid Loss Control

PAC Mud



Product Number:
9410019

Product Number:
9410052

Applications

Pac Mud controls fluid loss and provides viscosity in freshwater, seawater, KCl and salt muds. It forms a thin, resilient, low permeability filter cake which minimizes the potential for differential sticking and the invasion of filtrate and mud solids into permeable formations.

Advantages

- Effective in low concentrations for controlling fluid loss and building viscosity
- Encapsulates shale particles to inhibit swelling and dispersion
- Resists bacterial attack, requiring no biocides or preservatives
- Functions over a wide range of salinity, hardness and pH levels
- Applicable in all water-base fluids, ranging from low-solids, non-dispersed polymer systems to high-density, dispersed systems.

PAC MUD polyanionic cellulose is a high-quality, water-soluble polymer designed to control fluid loss and increase viscosity in water-based muds.

Method of Addition

Pac Mud is effective in low concentrations, with the normal fluid-loss treatment ranging from 0.25 to 1 lb/bbl (0.71 to 2.85 kg/m).

Pac Mud should be added slowly at the hopper or mixing system to prevent clumping or “fish eyes”.

Typical Physical Properties

Physical appearance	White free-flowing powder
Specific gravity	1.5 – 1.6
pH (1% solution)	6.5 – 8.0

Packaging and Storage

Pac Mud (9410019) is packaged in 50 lb/22.7 kg multi-walled bags.

Pac Mud (9410052) is packaged in a 28.7 lb/13kg pail.



Lost Circulation & Fluid Loss Control

TROL LV



Product Number
9410045

Applications

Trol LV controls fluid loss in freshwater, seawater, KCl and salt muds. It forms a thin, resilient, impermeable filter cake which minimizes the potential for differential sticking and the invasion of filtrate and mud solids into permeable formations. It is effective in low concentrations, with the normal fluid-loss treatment ranging from 0.75 to 2 lb/bbl (2 to 6 kg/m³). In saltwater systems, higher concentrations are required for encapsulation, with normal concentrations ranging from 1 to 3 lb/bbl (2.85 to 8.6 kg/ m³).

Advantages

- Economical alternative to low viscosity PAC and CMC
- Easily mixed
- Effective in low concentrations for controlling fluid loss without viscosity increases
- Encapsulates shale particles to inhibit swelling and dispersion
- Resists bacterial attack, requiring no biocides or preservatives
- Applicable in most water-based mud systems
- Environmentally acceptable

TROL LV modified starch is a high quality, easily mixed dry product designed to control fluid loss without contributing to an increase in viscosity.

Applications (cont'd)

Trol LV generates less viscosity than regular PAC products. The viscosity generated will depend on the solids concentration, salinity and makeup-water chemistry.

Trol LV is an anionic starch which will encapsulate exposed clay and shale drill cuttings and the borehole walls. This protective polymer "envelope" inhibits the dispersion of shale cuttings and restricts fluid interactions with exposed shale.

Method of Addition

Trol LV can be added at the hopper, as required. It mixes quickly in most mixing systems and provides necessary fluid properties in a short time.

Typical Physical Properties

Physical appearance	White free-flowing powder
Specific gravity	1.5 – 1.6
pH (1% solution)	6.5 – 8.0

Packaging and Storage

Trol LV is packaged in 50 lb/22.7 kg bags and 5 gallon pails. Store in a cool, dry location.



Lost Circulation & Fluid Loss Control

TROL HV



Product Number: 9410007

Applications

Trol HV controls fluid loss and provides viscosity in freshwater, seawater, KCl and salt muds. It forms a thin, resilient, low-permeability filter cake which minimizes the potential for differential sticking and the invasion of filtrate and mud solids into permeable formations. It is effective in low concentrations, with the normal fluid-loss treatment ranging from 0.25 to 1 lb/bbl (0.71 to 2.85 kg/m³).

TIME Trol HV may also be used by itself where bentonite-based drilling fluids are prohibited.

Advantages

- Effective in low concentrations for controlling fluid loss without viscosity increases
- Encapsulates shale particles to inhibit swelling and dispersion
- Functions over a wide range of salinity, hardness and pH levels
- Applicable in all water-based systems
- Environmentally acceptable

TROL HV is a combination of high quality, water-soluble bio polymers designed to control fluid loss and increase viscosity in water-based muds. Trol HV provides immediate viscosity and fluid loss control in both fresh and saline waters.

Method of Addition

Trol HV should be added slowly, as required, at the mixing hopper for best results as required. As it is biodegradable, bacterial control (biocide) should be implemented if the fluid will be re-used for long periods. A higher pH environment does slow bacterial degradation. Maintain a pH of at least 8.5 with 0.2 lb/bbl (0.6 kg/m³) soda ash for best results.

Typical Physical Properties

Physical appearance	White free-flowing powder
Specific gravity	1.5 – 1.6
pH (1% solution)	6.5 – 8.0

Packaging and Storage

Trol HV is supplied in 25 lb/11.4 kg multi-wall bags and 25 lb pails.

Store in a dry, well-ventilated area away from incompatibles or sources of heat or ignition.



Lost Circulation & Fluid Loss Control

Swell Mud



Product Number
9410025

Applications

Swell Mud is a lost circulation material used to seal fractures. It can also be spotted in caving zones to consolidate loose formations. After placing TIME Swell Mud pills, pull up above the problem zone to prevent stuck rod. Hydration occurs in 20 to 30 minutes. Circulate with mud and LCM to fill the voids between the spotted pill.

Advantages

- Swell Mud can be hydrated prior to spotting.
- Due to its swelling capacity and particle size distribution, Swell Mud will accumulate in a variety of fracture sizes.

SWELL MUD is a swelling copolymer utilized in lost circulation that can expand up to 500 times its volume in freshwater.

Method of Addition

Mix Swell Mud in water or drilling fluid; with or without LCM. Add 1 to 3 lb (0.5 to 1.5 kg) per 5 gal (20 L) of water or mud in a pail for smaller pills or 4-5 pails for larger pills of 50 barrel (8000 L). Do not hydrate longer than 5 minutes before spotting. The core tube should be removed before spotting in coring applications. Repeat as necessary to stop lost circulation.

Typical Physical Properties

Physical appearance	White powder
Specific gravity	0.8 – 1.0
Solubility	Swells on contact with water

Packaging and Storage

Swell Mud is supplied in 5 gal/18.9 L pails.

Store in a dry location away from sources of heat or ignition.



Magma Fiber



Product Number: 9410005

Applications

Magma Fiber can be mixed in low concentrations directly into the active system for seepage losses or in higher concentrations in loss circulation “pills”. It can be mixed with any drilling fluid additives and works well with other lost circulation materials.

Advantages

- Effectively bridges across loss zones
- Can be pumped through mud motors
- Acid-soluble
- Non-toxic

MAGMA FIBER is a specially formulated acid-soluble mineral fiber. The coarse, long, flexible fiber helps to regain circulation losses by bridging and plugging off voids, fractures and highly permeable formations.

Method of Addition

Magma Fiber is most effective when added from the top of the mud tank or pill tank into high agitation. It can also be added through the hopper but is a slower process. It has been used in concentrations of ½ bag per 30 minutes for ongoing seepage, to concentrations of 5.5 – 16 lb/ bbl (15-45 kg/m3) for seepage/partial or total losses.

Typical Physical Properties

Physical appearance	white-gray fiber
Specific gravity	2.6
Solubility	insoluble

Packaging and Storage

Magma Fiber is packaged in 30 lb/14 kg paper sacks.



Lost Circulation & Fluid Loss Control

Bentonite Coated Pellets 3/8"



Applications

Bentonite Coated Pellets 3/8" have the ability to absorb water at 8-12 times their volume. They should be added, as directed, and depending on hole diameter and depth. Pellets should be allowed to hydrate for at least 2-3 hours (depending on water quality).

Advantages

- Clean, dust-free and easy to handle
- Non-toxic and non-polluting
- No mixing required; thus eliminates the need for large and expensive grouting units and reduces labor costs
- Does not disintegrate upon swelling; seals are tough but flexible and do not crack when subjected to movement

Product Number
9410042

BENTONITE COATED PELLETS 3/8" is a clean, virtually odorless and easy to handle bentonite pellet which combines the high quality yield of western bentonite with a biodegradable non-sticking coating. The coating allows the pellets to be poured through standing water without sticking together.

Method of Addition

Hole Diameter	2 inch	3 inch	4 inch	5 inch	6 inch	7 inch	8 inch
Lb pellet/ft of seal	1.75	4	7	11	16	22	28

NOTE: These are dry weights and volumes.

In use, the swelling of the pellets will increase the length of the seal (depending on hole condition).

Typical Physical Properties

Physical appearance	Gray pellets
Specific gravity	2.6

Packaging

Bentonite Coated Pellets 3/8 " are packaged in 50 lb/22.68 kg pails, 36 pails per pallet.



Drilling Fluids - Specialty Products

Sand Samurai



Product Number: 9410070

Applications

Sand Samurai is used when drilling in unconsolidated sand and silt. Sand Samurai consolidates loose formations allowing for efficient installation of casing. It is also effective at increasing core recovery by reducing the opportunity for caving sand and silt and wash out. Sand Samurai may be used at 1 – 2 lb/bbl (3-6 kg/m³) depending on hole diameter and severity of caving sand and silt.

Advantages

- Unique polymer blend designed to quickly hydrate and consolidate troublesome geology
- Effective when encountering clay seams by encapsulating drilled cuttings and reducing swelling/sticking of formation clays
- Enhances the removal of drill solids
- Maintains hole stability while drilling to install surface casing

Sand Samurai is a specialty blend of synthetic polymers specifically designed for drilling through unconsolidated sand and silt. It also provides cuttings encapsulation and shale stabilization. Sand Samurai acts as a viscosifier, friction reducer and fluid loss control additive.

Method of Addition

Sand Samurai should be added slowly at the hopper or mixing tank and allowed to hydrate for 10 – 15 minutes.

Typical Physical Properties

Physical appearance	white to off-white powder
Specific gravity	1.4 – 1.6
pH (3% solution)	6.5 – 7.5

Packaging and Storage

Sand Samurai is supplied in 5 gal/18.9 L pails.



Drilling Fluids - Specialty Products

Drill Thinner



Product Number: 9410026

Applications

Drill Thinner is primarily used to prevent bit balling, mud rings and to control drilling fluid viscosity. It also breaks down reactive clays that have caused stuck pipe.

Advantages

- Drill Thinner disperses clays and quickly penetrates sticky clays that may cause stuck tools
- Works quickly to alleviate hole problems and reduce costly pulling times or lost pipe.

DRILL THINNER is a phosphate-free, thermally-stable thinner and dispersing agent. It acts quickly to break up mud rings and clay deposits on the bottom-hole assembly (BGA). Drill Thinner is also very effective at controlling drilling fluid viscosity in water-based drilling fluids

Method of Addition

- Bit balling/mud rings: ½ quart (1/2 L) per 300 gal (1,135 L) of fluid up to ½ to 1 ½ gal (1.9 to 5.7 L) per 300 gal (1,135 L) of fluid. May also be added in 1 quart (1 L) increments on connections.
- Thinning: Slowly add Drill Thinner to the mud system as needed to reduce viscosity

Typical Physical Properties

Physical appearance	pale yellow liquid
Specific gravity	1.3
pH as supplied	7.0 – 7.5

Packaging and Storage

Drill Thinner is packaged in 5 gal/18.9 L pails.



Drilling Fluids - Specialty Products

Liquid Gilsonite



Product Number: 9410037

Applications

Liquid Gilsonite is formulated to be used in most water-base systems and is therefore extremely effective in lignosulfonate, potassium and PHPA polymer mud systems. The readily dispersible nature of the product allows high concentrations to be added easily to the mud system.

Advantages

- Improved wellbore stability and shale inhibition and lubricity
- Improved high-temperature filtration control
- Reduced bit balling, even in clays
- Reduced filter-cake buildup in depleted sands
- Excellent environmental acceptability.

LIQUID GILSONITE is an environmentally acceptable liquid gilsonite dispersion which has been formulated for water-based drilling fluids as a shale stabilizer/lubricant. It can also be used when drilling through other unconsolidated formations. LIQUID GILSONITE seals the micro-fractures and stabilizes the formation while reducing the dynamic fluid loss.

Method of Addition

An initial treatment of 2 – 5% by volume (7-17.5 lb/bbl) is recommended to achieve optimum results. It can be added at the hopper or directly to the tanks.

Typical Physical Properties

Physical Appearance	Viscous black liquid
Active content	40%
Specific gravity	1.03-1.3 @ 25/25C PMCC
Temp stability	Stable Storage @ -5°C to +40°C
Pour point	0°C
Flash point	>100°C

Packaging and Storage

Liquid Gilsonite is supplied in 5 gal/18.9 L pails, 55 gal drums, or 275 gal IBC tote tank.



Drilling Fluids - Specialty Products

Xan Gum



Product Number: 9410040

Applications

The primary function of Xan Gum is to increase viscosity for cuttings transport and suspension. Xan Gum will perform effectively in all water-base fluids, from highly weighted to low-solid systems. This includes freshwater, seawater, salt and heavy brine systems.

Shear-thinning fluids containing Xan Gum have low effective viscosities at the high shear rates encountered inside the drill string and at the bit. This low effective viscosity for minimal pressure losses and standpipe pressures allows optimized hydraulics and maximized rates of penetration. Conversely, at the low shear rates experienced in the annulus, Xan Gum enables the drilling fluid to have a high effective viscosity for adequately cleaning the well and suspended cuttings.

Advantages

Xan Gum is a highly effective low shear rate viscosifier for improved hydraulics and power at the bit for maximum penetration rates.

XAN GUM is a biopolymer used for increasing viscosity in water-based systems. Small additions provide viscosity and weight-material suspension for all water-based mud systems. Xan Gum has the unique ability to produce a fluid that is highly shear-thinning (LSRV).

Method of Addition

Xan Gum should be added slowly through the hopper to prevent lumping and minimize water. It should be added at the rate of approximately 2 lb (0.91 kg) every 2 min. The time required for the product to yield its ultimate viscosity depends on salinity, temperature and shear.

The amount of Xan Gum required will depend upon the desired viscosity. Normal concentrations range from 0.25 to 2 lb/bbl (0.71 to 5.7 kg/m³) for most mud systems. Special fluids and difficult hole-cleaning conditions may require higher concentrations up to 4 lb/bbl (11.4 kg/m³).

Typical Physical Properties

Physical appearance	cream to tan powder
Specific gravity	1.5
Bulk density	50 lb/ft ³ (800kg/m ³)

Packaging and Storage

Xan Gum is packaged in 25 lb/11.3 kg bags.

Store in a well-ventilated area away from sources of heat or ignition.



Drilling Fluids - Specialty Products

Tank Pump

Steel or aluminum, the tank pump is designed to be permanently mounted on a drill. The pumping unit is comprised of a 20 litre steel or aluminum tank to which a pump is attached which injects product using a regulator and needle valve. A hydraulic hose is attached to the needle valve which is mounted on the rock drill line on the drill. A solenoid switch may be

attached to the drill to regulate the flow of product. A 3/8" red air hose with quick connect couplings is connected to the drill to provide air for the pump.



Product Number:
420-27S Steel tank
420-51A Aluminum tank

Tank Pump with Haskel Pump

The Haskel pump is used where high psi output is required. The air drive of the pump requires a minimum pressure of 25 psi (1.72 bar) to actuate the air cycling valve spool. However, 40 psi is the recommended minimum for long term reliable operation. Maximum air drive pressure is 125 psi (8.6 bar). Pump output is 8800 psi.



Product Number:
420-51AHP

Frac Ease



Product Number: 420-02

- Used with hydraulic and pneumatic percussive long-hole drills and down-the-hole hammers underground.
- Conditions the hole to help prevent hole sloughing and caving, thus reducing redrills.
- Allows blast-holes to be fully loaded which helps to optimize blasting operations.
- Eliminates grinding of cuttings by immediately removing them from the bits' face and lifting them to the surface.
- Extends bit life through unique lubricating components.
- Can increase rod or tube life 30% – 50% by eliminating down-hole torque.
- Significantly reduces the amount of water required to lift cuttings.
- Reduces maintenance costs normally associated with wear and tear on drill.
- Does not separate.



Drilling Fluids - Specialty Products

Ambex Anchoring Capsules



Product #	Product Name	Size
420-25	AMBEX AACT™ anchoring capsules	25mm/1"x300mm/ 12" ; 42 capsules per bag
420-25B	Cement Fondu® (Calcium Aluminate Cement)	25kg bag
420-25C	Cement Fondu® (Calcium Aluminate Cement)	94 lb. bag

Advantages

- Simple and economical
- Easy to install
- No product mixing on site
- No special tools and equipment required
- High early strengths
- Can be installed in cold weather at -17°C (0°F)
- Stable water/cement ratio
- No toxic emanation or fumes
- Environmentally friendly
- Does not contain calcium chloride
- Can be used underwater

AMBEX AACT™ anchoring capsules are a cementitious non-shrink grout. In loose form the grout is known in the mining industry as "Ciment Fondu®" and is used to grout plugs for exploratory holes. Encapsulated in a water permeable wrapping, Ambex AACT™ anchoring capsules are filled with a dry pre-mixed cement grout. Once the grout capsule is saturated in water it becomes a fast setting thixotropic grout, easily inserted in the anchoring hole. Ambex AACT™ contains a mix of calcium aluminate cement, screened sand and selected additives.

Packaging and Storage

See above chart for packaging. Store in a dry area where there is no humidity or freezing. Shelf life up to 2 years if well protected.

Technical Information

Water/Cement Ratio	0.32 / 0.32
Net Weight: AAC-25	±240 g / ±0.5 lbs
Density (dry)	1.5-1.7 g/cm ³ / 93.6-106.1 lbs/ft ³
Compressive strength (28 days)	48.2 MPa / 6990 psi
Creep Test	Exceeds requirements
Soaking time	1 to 2 min
Working time 20° C / 68° F	10 min
Initial setting time	6 min
Final setting time	26 min
Expansion	0.05%
Freeze-thaw resistance	100%

Tests performed by independent laboratories.



Drilling Fluids - Foam & Detergents

Drill Foam



Product Number: 9410047

Applications

Drill Foam is used as a foaming agent in air-drilling applications and can be used for dust suppression, mist, foam and stiff-foam drilling.

Advantages

- Produces stable, consistent foam in all types of water
- Environmentally acceptable and biodegradable
- Improves hole cleaning and penetration rates
- Biodegrades in 28 days using the OECD-301D test

DRILL FOAM is a water-soluble, biodegradable foaming agent. Drill Foam has the ability to foam in fresh, brackish or salty waters. It will not contaminate streams or groundwater and presents no disposal problems.

Method of Addition

- For dust suppression or bit balling in damp formations: Mix 1/3 to 3/4 pints (0.2 to 0.4L) per 50 gal (189 L) of water
- For mist drilling with moderate amounts of water intrusion: mix 1.5 to 3 pints (0.5 to 1.5 L) per 50 gal (189 L) of water
- For foam drilling with excessive amounts of water intrusion: Mix 6 pints (2.9 L) per 50 gal (189 L) of water
- For slug drilling: 1/3 pint (0.2L) in 2 gal (7.6 L) of water
- Stiff foams: To obtain desired viscosity, mix TIME Drill Liquid or Liquid Mud Plus in injection tank to 32 sec/qt and stir in 3/4 gal (3L) of Drill Foam.

Typical Physical Properties

Physical appearance	Amber Solution
Specific gravity	1.053
pH (1% solution)	6.5 – 7.5

Packaging and Storage

Drill Foam is packaged in 5 gal/18.9 L buckets.

Store in a well-ventilated area away from sources of heat or ignition



Drilling Fluids - Foam & Detergents

Detergent Plus



Product Number: 9410011

Applications

Detergent Plus can be used in almost any water base drilling fluid. It is used primarily in surface and intermediate sections during drilling to minimize bit and BHA balling and mud rings.

Detergent Plus reduces torque and drag. Treatments range from 0.1 to 0.2 lb/bbl (0.29 to 0.57 kg/m³) under normal drilling conditions. In severe gumbo shale areas, 4 to 6 lb/bbl (11.4 to 17.1 kg/m³) of DETERGENT PLUS are recommended to minimize bit and BHA balling. It is effective in all water base systems including freshwater, brackish water, seawater and saturated saltwater fluids.

Advantages

- Minimizes bit and BHA balling
- Improves water-wetting action on all solids and reduces the sticking tendency of reactive shale cuttings
- Functions as an emulsifier, reducing the viscosity of oil-contaminated fluids

DETERGENT PLUS drilling detergent is a liquid blend of specialty surfactants designed to reduce the surface tension of water base mud systems and reduce the sticking tendency of reactive shale and clays.

Method of Addition

Detergent Plus can be added as recommended to the active system or directly in the drill pipe at connections.

Typical Physical Properties

Physical Appearance	Pink Liquid
pH	7.5 to 8.5
Solubility	100%
Specific Gravity	1.0-1.02
Freezing Point	32°F/0°C

Packaging and Storage

Detergent Plus is supplied in 5 gal/18.9 L pails.



Drilling Fluids - Commercial Chemicals

Soda Ash



Product Number: 9410009

Advantages

- Widely available
- Economical
- Increases pH
- Effectively removes calcium in most drilling fluids
- Effective flocculant for spud muds

SODA ASH is used to reduce soluble calcium in water-base drilling muds. It is also used to increase pH and to flocculate spud muds. Soda ash is the common name for sodium carbonate (Na_2CO_3). It is a weak base which is soluble in water and dissociates into sodium (Na) and carbonate (CO_3) ions in solution.

Typical Physical Properties

Physical appearance	white powder
Specific gravity	2.51
pH	11.4

Packaging and Storage

Soda ash is supplied in 50 lb paper sacks.



Drilling Fluids - Accessories

Mud Test Kit - Basic



Our Mud Test Kit includes a standard mud balance, marsh funnel, and cup. It also provides ample room for equipment and extra chemicals that just don't seem to fit in conventional testing equipment kits.

Product Number: 9411000

Mud Balance

The mud balance is the instrument generally used to determine the accurate measurement of mud weight within 1/10 lb/gal or 1/2 lb/cu ft.

Features:

- Break resistant construction
- Plastic carrying case

Product Number: 420-106



Consists of 7 parts:

1. base
2. graduated arm and cup
3. lid
4. knife edge
5. rider
6. built-in spirit level
7. counterweight



Mud Test Equipment

MARSH FUNNEL - PN: 420-28

The Marsh Funnel is used for routine viscosity determinations and flow properties of drilling mud. The Marsh Funnel is made of rugged, break resistant gray plastic that also resists temperature change deformation. Volumetric accuracy is assured. The plastic handle provides insulation to help protect hands during testing. A metal orifice ensures accurate readings.



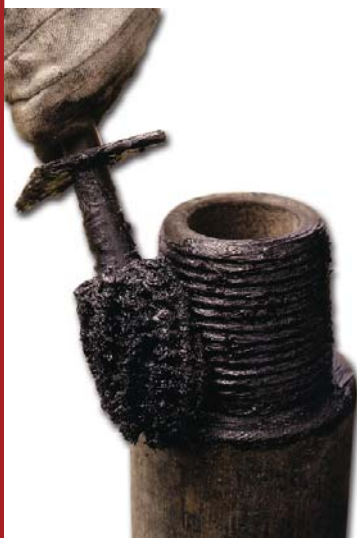
VIS CUP - PN:420-29

The Vis Cup is designed specifically for use with the Marsh Funnel. It is made of high impact plastic.



pH strips PN: 420-124

pH is critical to optimizing your drilling fluids. pH should be checked with pH strips on a regular basis or when your water source changes.



Dope Brush

- Dope brushes come with plastic guards on handle.
- Size 2 (available in other sizes)
- 12 / case

Product Number: 36-05-001



Drilling Fluids

CORE DRILLING CROSS REFERENCE

Description	DRILLING MUD CANADA	MI-SWACO	BARIOD	AMC	CANAMARA	MATEX
pH Control	Soda Ash	Soda Ash	Soda Ash	Soda Ash	Soda Ash	Soda Ash
High yield sodium bentonite	Hi Yield Bentonite	Max-Gel	Quick Gel	n/c	Extra Hi Yeild	n/c
Fine grind high yield sodium bentonite	Gel Xtra	n/c	Quick Gel Gold	Aus-Gel Xtra	n/c	n/c
Premium grade foamer	Drill Foam	Platinum Foam	Barafoam	Super Foam Xtra	n/c	DD Foamer L
Bentonite pellets, 3/8"	Coated Pellets	Kwik Plug Med	Hole Plug	Bentonite Chips	Enviroplug Med	n/c
Bentonite pellets, fine granular	n/c	Kwik Plug Fine	Casing Seal	Granulated Bentonite	Enviroplug #8	n/c
Liquid polymer - 30% active	Drill Liquid	Poly Plus Liquid	EZ Mud	Liqui-Pol	WDS 120 L	DD 955
Liquid polymer - 50% active	Liquid Mud Plus	Poly Plus 2000	EZ Mud D-50	LP 2000	Ultra VIS II	Ultra Vis
Dry polymer - readily dispersible	Dry Mud RD	Poly Plus RD	Poly Bore	CR 650 RD	Poly Pro	n/c
Dry polymer	Core Warrior Dry	Poly Plus	n/c	CR 650	550X	DD 2000
Water soluble cellulose polymer	PAC Mud	Platinum Pac R	Pac R	AMC Pac R	Pro Pac	Mapac
Lubricant	Torque Ease	Rod Ease	EP Mud Lube	Penetrol Xtra	Torqmaster	Torqueless
Water soluble lubricant	Premium Lube	Platinum Lube	EP Mud Lube	n/c	n/c	Bit Cool
Water swellable dry polymer	Swell Mud	PolySwell	Diamond Seal	Aus-Plug	G-Stop	DD Expand
Acid soluble lost circulation material	Magma Fiber	Magma Fiber	N Seal	n/c	Magma Fiber	n/c
Core lubricant	Linseed Soap	Tube Lube	n/c	Linseed Soap	Linseed Soap	n/c
Rod grease	Rod Grease Plus	Rod Coat B 700	n/c	Xtra Tacky Grease	Big Bear	n/c
Rod grease - enviro. friendly	ECO Rod Grease	Platinum Rod Coat	n/c	Enviro Grease	n/a	n/c
Thread grease	ZN-50	Thread Bond Z	n/a	Thread Grease DRTG	Kopr Kote	n/c
Thread grease - enviro. friendly	4010NM	n/c	n/c	n/c	n/c	n/c
Enviromentally safe hammer lubricant	n/c	Hammer ES	n/c	Enviro Lube	n/c	RDO 302 ES
Detergent	Detergent Plus	Platinum DD	Con Detergent	Aus-Det	Drilling Detergent L	n/c
Liquid thinning polymer	Drill Thinner	Ring Free	AquaClear PFD	Liqui-Sperse	Thinz-It	DD 605 L
Stabilizing sand formations	Sand Samurai	n/c	n/c	n/c	n/c	Sand Mud
Gel strength and suspension	Xan Gum	Super Vis	No Sag	Xan-Bore	Pro Yeild	n/c
Fluid loss control additive	DMC Trol	n/c	Quik Trol	Aus-Trol	n/c	n/c

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North America 1-800-669-3542
International +1-705-647-8138

PAGE: DF36



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Blasting - Gauge & Strap

Depth Gauge

Developed for seismographic measuring, these tough fiberglass tapes are used by a variety of industries to measure depth. Attach any weight to the snap ring and lower to measure depth. The depth gauges are incredibly durable, flexible and lightweight with graduations printed on both sides.



FEATURES

- Numbers are graduated from the weighted end of the tape strap.
- Tough, flexible and lightweight with graduations printed on both sides.
- White with black and red markings.
- Coating: Clear Coat.
- Tensile Strength: 100kg / 200 lbs.

PART NUMBER	LENGTH	WIDTH	UNITS	BLADE MATERIAL
47-DG15M	15 m	1/4 in.	m, dm, cm	fiberglass
47-DG30M	30 m	1/4 in.	m, dm, cm	fiberglass

Accessories

PART NUMBER	DESCRIPTION
47-3508	Lead weight, 8 OZ tear drop

Strapping

- **Multiple Uses** - Bundling, bailing, securing loads, anchoring, etc. Polywoven strapping can be used to replace steel and wire strapping in many applications.
- **Safe** - Safe to vehicles, machinery and/or product. Safe to handle. No protective clothing necessary; no sharp edges or splinters. No potential hazards involving off-cuts. No danger of injury when cutting strapping under tension.
- **Cost Efficient** - Requires no expensive machinery. Reusable, therefore reducing waste. Machinery repair costs eliminated. Save on labour.
- **Easy Handling** - Light and easy to handle. Easily disposed.
- **Recovery** - Elongation is approximately 8% and has a 90% recovery. Strapping expands and contracts while maintaining its tension on the bundle. If a bundle is dropped, the strapping will not break due to its flexibility.
- **Resistant to** - Ultraviolet rays...Acids...High and low temperatures... Water...Rust—thereby leaving no marks on product.
- **Tensioning** - Hand-held tool and wire buckles produce tensioning. Complete line of strapping tools for different requirements. Tool repair service available



Strapping			
Product Number	Size	Minimum Break Strength	Foot per Coil
STR-40PBS	½"	660 lbs	1,500'
10650	½"	1,047 lbs	1,500'

Buckles and Tools		
Product Number	Size	Description
10001	½"	C4 Buckle (1000 bx) plain
10310		Heavy duty tensioner for straps up to 1 1/2" (38 mm).



Blasting - Wire and Hangers

Blasting Wire

Our industry standard blasting wires and cables are available in a wide range of constructions, sizes, colors, and lengths, all customized to fit any particular use.

These wires are designed, engineered, produced, packaged and shipped to fill the needs of all electric and electronic blasting systems.



Technical Information				Insulation	
Copper Conductor					
AWG	Diameter		Resistance		
	(in)	(mm)	(Ω/km)	(Ω/kft)	(mΩ/m)
14	0.0641	1.628	8.286	2.525	
16	0.0508	1.291	13.17	4.016	
18	0.0403	1.024	20.95	6.385	
19	0.0359	0.912	26.42	8.051	
20	0.032	0.812	33.31	10.15	
22	0.0253	0.644	52.96	16.14	
23.5	0.0236	0.600	66.79	20.36	
24	0.0201	0.511	84.22	25.67	
26	0.0159	0.405	133.9	40.81	

- PVC - lower cost and higher flexibility. Lower abrasion resistance and elongation. Temperature tolerance: -2°C to 60°C.
- HDPE* - more resistant to abrasion and stable dielectric constant over all frequencies. Temperature tolerance: -20°C to 80°C.
- PP* - highly resistant to abrasion and higher elongation. Temperature tolerance: -20°C to 80°C.
- MDPE* - medium resistance to abrasion and fair elongation. Temperature tolerance: -20°C to 80°C.

* Anti-static additives available

- Copper clad steel or aluminum
- Galvanized steel



Part Number	Description
47-600 Series	Simplex
47-610 Series	Duplex
47-620 Series	Detonator Wire
47-630 Series	Twisted Pair
47-640 Series	Leading Cable

Blasting Wire Hanger

Features:

- End fits onto standard re-bar
- Clip securely holds blasting wire off the ground, out of water and away from any conducting surface.



Part Number	Size
47-1061	Standard

CAB Blasting Wire Hooks

CAB Blasting Wire Hooks are designed to safely isolate blasting or other wiring from the roof, electrical cables or structure. A 1" (25mm) diameter 540° bottom loop securely retains wires in carrier. The 1/2" (13mm) top spiral loop design prevents dislodging of hanger after installation.

Part Number	Description
CAB6130	4" (102mm) long, 100/box, 9 lbs. (4.1kg)
CAB4801	6" (152mm) long, 100/box, 11 lbs. (5.0kg)
CAB205	12" (305mm) long, 50/box, 7 lbs. (3.2kg)
CAB199	18" (457mm) long, 100/box, 18 lbs. (8.2kg)



Blasting - Plugs

Drill Hole Marker Plugs

Why HI-VIS Yellow? HI-VIS Yellow is associated with safety. It is seen on caution signs, construction equipment, guardrails, and safety clothing.

- HI-VIS Yellow complies with standard safety rules.
- HI-VIS Yellow will keep the original brightness for a long time. The time depends on the exposure level of UV. Under normal outdoor conditions it will last for minimal 4-5 years.
- HI-VIS Yellow is easier to see in the dark.

Drill hole marker plugs are offered in a range of sizes to accommodate drill holes of ½" to 18". They are light, will not freeze and can be reused. They will not be damaged or moved when run over by heavy machinery.



EXCLUSIVE

Product No.	Product No.	Model #	Qty/ Case	Wt/ Case	Open End	Length/ Depth	Rim	Bottom End, Closed	Indentation: Half-Rnd. Diam.	Wall Thickness
41-00	41-00-HV	Model #1	200	12 lbs.	2"	6"	½"	½"	5/16"	.0625"
41-01	41-01-HV	Model #1-A	100	9 lbs.	2 ½"	4"	½"	1 ¾"	5/16"	.0625"
41-02	41-02-HV	Model #2	100	20 lbs.	3 ½"	8"	½"	2"	5/16"	.0800"
41-06	41-06-HV	Model #4	100	27 lbs.	4.7"	8"	⅝"	2 ½"	5/16"	.0800"
41-03	41-03-HV	Model #6	50	25 lbs.	6"	10"	¾"	3"	5/16"	.0800"
41-04	41-04-HV	Model #9	20	20 lbs.	9"	11"	1"	5 ⅝"	5/16"	.0900"
41-08	41-08-HV	Model # 10	30	20 lbs.	11"	11"	1 ¼"	5 ⅝"	5/16"	.0900"
41-05	41-05-HV	Model #13	*BULK*	3 lbs. Ea.	13"	16"	1 ¼"	9 ½"	5/16"	.0900"
41-07	41-07-HV	Model #18	*BULK*	5 lbs. Ea.	18"	12"	1 ½"	10"	5/16"	.0900"

BULK - Sold in any quantity requested

EXCLUSIVE



6 Plug, cap and casing

9 Plug, cap and casing



Drill Hole marker plug, cap and casing are all designed in conjunction, to ensure a safe and proper fit.



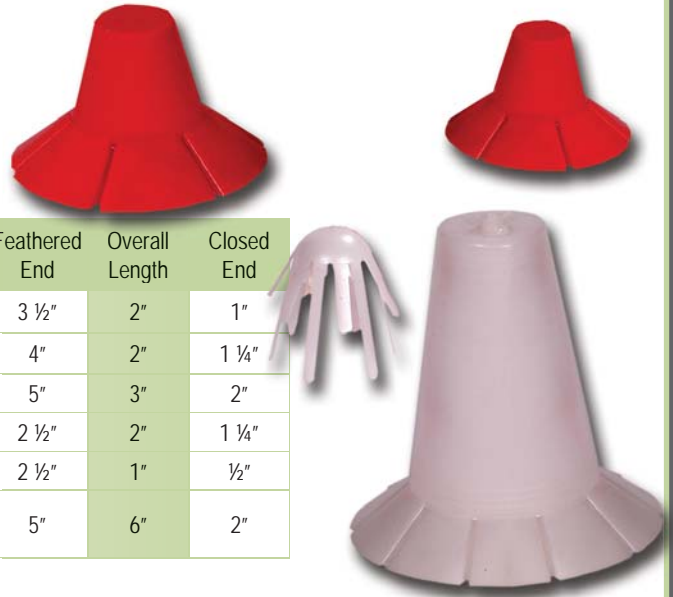
Product Number	Description	Quantity per Box
41-03-PCHV	HI-VIS # 6 PLUG & CAP KIT	20 Plugs and Caps
47-1084	HDPE - POLYETHYLENE PIPE FOR # 6 TIME HI-VIS PLUG & CAP	25 10' lengths / bundle 3 bundle min. purchase
41-04-PCHV	HI-VIS # 9 PLUG & CAP KIT	8 Plugs and Caps
47-1111-04 (4') 47-1111-06 (6') 47-1111-08 (8') 47-1111-10 (10')	** EXCLUSIVE** HDPE - POLYETHYLENE PIPE FOR # 9 TIME HI-VIS PLUG & CAP	Available 4',6',8',10' lengths 200 pcs min. purchase



Powder Plugs

PILGRIM HAT POWDER PLUGS

Red plastic pilgrim hat powder plugs and white expansion plugs are used to secure the charge in rising drill holes.



Product No.	Description	Qty/ Case	Wt/ Case	Feathered End	Overall Length	Closed End
40-00	Red Pilgrim Hat Powder Plug	1,000	25 lbs.	3 ½"	2"	1"
40-01	Red 2" Powder Plug	650	25 lbs.	4"	2"	1 ¼"
40-02	Red 3" Powder Plug	270	25 lbs.	5"	3"	2"
40-06	White Expansion (Birdie) Plug	720	11 lbs.	2 ½"	2"	1 ¼"
40-07	Red Powder Plug	1,000	15 lbs.	2 ½"	1"	½"
40-12	Red 3" Extended Powder Plug (shown in white)	150	21 lbs	5"	6"	2"



Blasting - Hose

Stemming Plugs



A cost effective way to quickly and easily seal the blast hole. They can also be used to create air pockets for in pre-split operations.

Product Number	Size
47-1050-08	Stemming Plug 8"
47-1050-13	Stemming Plug 13"

Loading Bags

Loading Bags for Underground Blasting

Underground loading bags for blasting were developed to assist the positioning of booster (s) to proper location while loading with loading hose.

Features:

- Easy to work with during loading procedures
- Pliable to irregular hole size
- Double stitched in heavy pushed areas

Benefits:

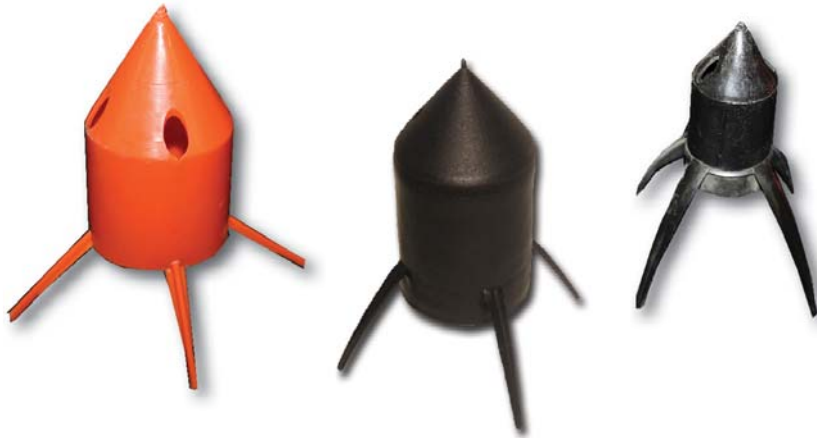
- Reduce loading time
- Available for multiple hole sizes from 2-1/4" to 6"
- Easy to install and remove if necessary during loading
- Can also be used to hold powder at desired depth using StrapRite to secure

Product No.	Description	Qty/Case
47-UIb2.5	Bag, Loading 2.5"Hole	250
47-UIb3	Bag, Loading 3"Hole	250
47-UIb3.5	Bag, Loading 3.5"Hole	250
47-UIb4.5	Bag, Loading 4.5"Hole	250
47-UIb5	Bag, Loading 5"Hole	250



Blasting - Loading Bags

ATEK Powder Plug



Product No.	Description
40-08	#4 ATEK Powder Plug (2-1/4" Drive Point)
40-10	#5 ATEK Powder Plug (2" Drive Point)
40-11	#6 ATEK Powder Plug (1" Drive Point)

Anti-Static Loading Hose

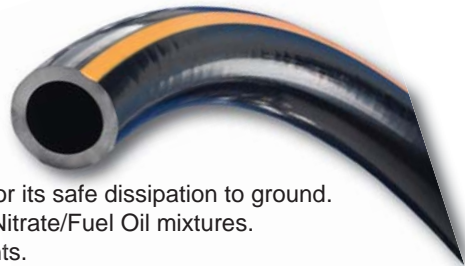
A specially formulated anti-static PVC hose for the loading of ammonium nitrate/fuel oil blasting agents used in the mining and construction industries.

Construction:

Specially-formulated anti-static PVC compound.

Features:

- Conductivity – effectively limits build-up of static electricity; provides path for its safe dissipation to ground.
- Bleeds off static charges built up during pneumatic loading of Ammonium Nitrate/Fuel Oil mixtures.
- Sufficient resistance – guards blasting circuit against stray electrical currents.
- Wear resistance – smooth interior and exterior surfaces, combined with tough material formulation, provide good wear resistance.
- Self-extinguishing characteristics.
- Excellent flexibility – sufficiently flexible to handle easily, yet rigid enough to reach upwards into collars of steeply-inclined holes.
- Easily identifiable – co-extruded continuous orange stripe makes tubing visible in underground lighting.
- Embossed branding – provides lasting identification.
- Packaged for ease of handling and shipping.



Applications:

- Bulk unloading of ammonium nitrate/fuel oil blasting agents in small diameter holes.
- Successfully used for years with Orica's blast hole chargers, intermediate loaders and the Penberthy Anoloader.
- Mining and construction site blasting.

Series No.	Size Code	Inside Diameter		Approx. O.D.		Max. W.P.		Approx. Mass per 100 ft. (lbs.)	Approx. Mass per 100 m (kg.)	Length/Coil	
		Inches	mm	Inches	mm	PSI	MPa			ft.	m
221-35	10	5/8	16	55/64	22	120	0.83	17.5	25	200	61
221-3534	12	3/4	19	1 1/16	27	120	0.83	28	40	200	61
221-351	16	1	25	1 21/64	34	120	0.83	38	55	300	91
221-35114	20	1 1/4	32	1 5/8	41	120	0.83	55	78	100	30

Service Temperature Range: -30°F (-35°C) to +150°F (+65°C)

NOTE: A new coil of hose can have its pliancy restored by the application of heat before it is placed in service underground. This will facilitate handling and its attachment to pneumatic loading equipment. Steam or very hot water passed through the coiled tubing will remove the "set" from the new tubing and allow it to be straightened easily. The tubing should then be left to cool in the straight position.



Blasting - Pipe

Polyethylene (HDPE) Pipe

High density polyethylene plastic pipe (HDPE) delivers exceptional value, unwavering reliability and remarkable advantages over conventional types of piping. HDPE is the safest pipe on the market. Polyethylene pipe is totally inert, unlike PVC and ABS which release toxic fumes on contact with fire. **Used as drill hole casing in mining applications.**

Features:

- Available in straight length, coils, or spools
- Available in diameters of up to 8"
- Comes in black or gray
- Can be customized to any wall thickness
- Available not pressure rated for drill hole casing
- Available with bell ends. No couplings required.
- Pipe : 1/2" - 2" at 75 PSI and 100 PSI is available in CSA and non-CSA

Benefits:

- Long term service life
- Highly resistant to corrosion, abrasion and chemicals
- Softer and more pliable than ABS and PVC pipes
- UV protection allows HDPE to be stored in outside open areas
- Is less likely to crack or splinter in cold conditions
- Significant overall cost savings compared to conventional pipes



Product No.	Description
47-1002	HDPE Polypipe 1-1/4" x 100' Utility
47-1010	HDPE Polypipe 1-1/4" x 300' Utility
47-1062	HDPE Polypipe Clear 1" x 32"
221-252U	HDPE Polypipe 2" x 200' Utility
108-47	HDPE Casing Pipe 3"OD x 2.75"ID x 10'
47-1003	HDPE Casing Pipe 5.375"OD x 4.9"ID x 10'
47-1007	HDPE Casing Pipe 3.5"OD x 3.36"ID x 10'
47-1081	HDPE Casing Pipe 1.83"OD x 1.71"ID x 10'
47-1082	HDPE Casing Pipe 2.75"OD x 2.50"ID x 10'
47-1083	HDPE Casing Pipe 2.35"OD x 2.00"ID x 10'
47-1084	HDPE Casing Pipe 6"OD x 5.82"ID x 10'
47-1085	HDPE Casing Pipe 2.375"OD x 2"ID x 100'
47-1086	HDPE Casing Pipe 2.75"OD x 2.50"ID x 100'
47-1111-04	HDPE Casing Pipe 9" x 4'
47-1111-06	HDPE Casing Pipe 9" x 6'
47-1111-08	HDPE Casing Pipe 9" x 8'
47-1111-10	HDPE Casing Pipe 9" x 10'

Muck Scoop Assembly

Manufactured by TIME

Features:

- Hardwood handle replaceable
- Safety grip
- Steel blade



Product Number	Description
109-09	Muckscoop Assembly



North America 1-800-669-3542

International +1-705-647-8138

PAGE: BD8



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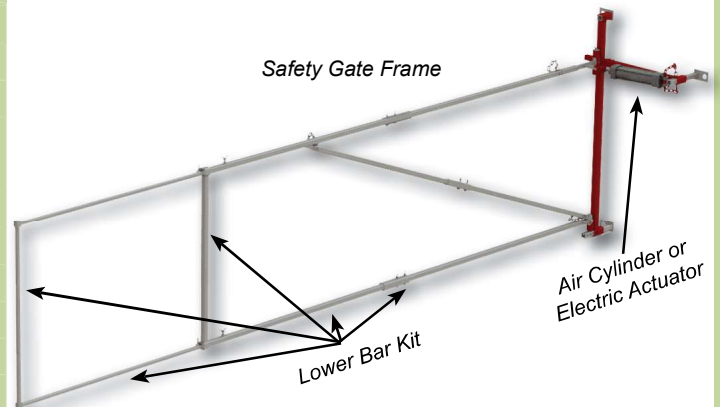
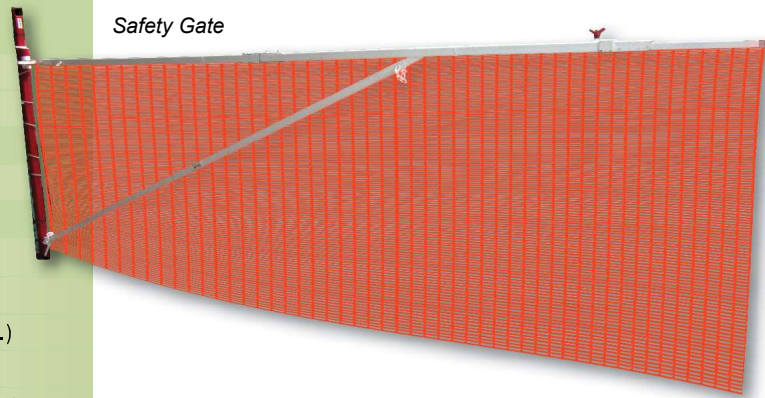
Safety Gate

The gate is used to minimize risks of human falls in openings and is used to control access in hazardous areas.

Features:

- Reversible – can be installed left or right and be opened in the front or rear
- Simple installation and use
- Fast installation and removal times
- Can be operated remotely from vehicles
- Adjustable to all types of rock walls and locations
- Telescoping mechanism allows for widths of 12' – 18'
- Available in Single bar, or with the addition of the Lower Bar kit, depending on the application

Product No.	Description
Gate Assembly Options	
47-10	Safety Gate With Air Cylinder
47-10-ACT	Safety Gate With Electric Actuator
Add-ons	
47-11-34	Lower Bar Kit
Operating Options	
47-11-28	Manual Air Control Valve Assembly
47-300ASM	Remote Control ASM, Radio (Air)
47-300-ACT	Remote Control ASM, Radio (Elect Act.)
47-200	Infrared Remote Control ASM (Air)
47-200-ACT	Infrared Remote Control ASM (Elect Act.)
Replacement Components	
47-11-03	Air Cylinder
47-11-37	Electric Actuator, 24v
47-11-18	Fence Kit
47-11-31	Square Tubing Kit
47-11-33	Wall Support Kit
47-301	Radio Hand Held Remote
47-201	Infrared Hand Held Remote
47-202	Magnetic Base For 47-201
47-203	Rechargeable Battery Pack
47-OF-01	Barrier Fence 4'x150' Full Roll



Customization available, contact us for a quote.

Barrier Fencing

Product No.	Description
BFCT 504 XY	Barrier Fence 4'x50' with Caution Tape



Blasting - Hole Liners

BLAST HOLE LINERS

TIME blast hole liners are manufactured to withstand the rigors of site installation.

For best results either with straight ANFO or blends we recommend adequate priming. Tests run over the years have shown that large high velocity boosters give the best results. Small cast boosters, even 1 pound, can literally get lost in a large diameter hole due to contamination or a poor truck mix.

Blast Hole Liners can help, along with the proper product and adequate priming, to reduce the production of noxious gasses (NOx). Blast Hole Liners prevent migration of explosives from the hole due to cracks, water infiltration or other hole imperfections. This can be especially helpful in front row holes that have back break.

Blast Hole Liners offer significant safety and cost benefits:

- Proven using 100% ANFO in the most difficult conditions
- Significant cost savings and increased blast efficiencies associated with using ANFO versus blends
- Reduction or elimination of NOx smoke
- Reliability in mining operations where performance is essential
- Assurance regarding safety and product quality

** Contact us about a custom stand*



Product Number	Description
47-01-0003	Blast hole Liner 3" x 1000' roll
47-01-0004	Blast hole Liner 4" x 1000' roll
47-01-0006	Blast hole Liner 6" x 1000' roll
47-01-0008	Blast hole Liner 8" x 1000' roll
47-01-0010	Blast hole Liner 10" x 500' roll
47-01-0011	Blast hole Liner 11" x 500' roll
47-01-0012	Blast hole Liner 12" x 500' roll
47-SSTD-3 (or -4 to -12, just match the size of the Blast Hole Liner)	Blast hole Liner Tripod

Various Safety Tape

CAUTION TAPE

- Highly visible, strong and long lasting caution tape.
- 3.5 ml. yellow polypropylene tape.
- 3" x 1000'

DANGER TAPE

- Red tape
- 3" x 300'

DANGER DO NOT ENTER TAPE

- Red barricade tape provide warnings of physical hazards or dangerous situations.
- 3" x 1000'
- Packaged in a dispenser box.



Product No.	Description	Size of Roll
5466729	Hi Visibility Yellow CAUTION Tape	3" X 1000'
5466765	Red DANGER Tape	3" X 300'
85-99	Red Barricade DANGER DO NOT ENTER Tape - In Dispenser box	3" X 1000'



Lasers

TIME supplies high quality lasers of exceptional accuracy. Our lasers are made in the US to the highest specifications and valued by our mining customers for their solid construction, accuracy and ease of use.

Additional lasers and accessories are available. Please contact us for more information.

DUAL BEAM ALIGNMENT LASER

Features:

- 2-eye visible laser beams shoot in opposite directions; align two points from middle
- Extend alignment accuracy by using one beam as a tacking point; halves the actual working distance
- Magnetic base clamps to metal equipment
- Hard anodized means superior abrasion resistance
- Weather sealed with o-rings
- Includes precision "Glow in the Dark" 5 minute of arc level vial; accurate 1/8" at 100 ft.

Accessories available for L202:

- Beam Bender for 90° layouts
- Beam Spreader for plumb and horizontal level line
- Mounting Collar (required with Beam Bender and Spreader)
- Leveling Adapter Plates for tripod mounting
- Support Bracket for pulley alignments

Product Number	Description
431-50	Model L202



Marking Paint

Features:

- Sprays in upright position
- Low odour
- Non-clogging
- Fast drying

Paint Extension Gun 10'

Product Number	Description
3141LF	Marking Paint Yellow
3244A	Marking Paint Red
3247	Marking Paint White
3145FL	Marking Paint Green
3143LF	Marking Paint Orange
3246	Marking Paint Black
3144SL	Marking Paint Florescent Orange
6242	Marking Paint Dark Blue
47-1075	Paint Extension Gun 10'



Blasting - Vinegar Gas Bags

Vinegar Gas Bags

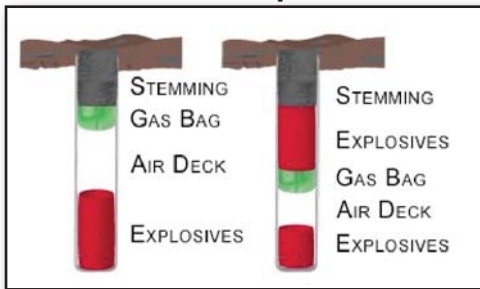


The Stemlock Gas Bag® is a self inflating borehole plug that is used to block or seal a hole at any depth.

- For 3" to 16" diameter holes.
- No air compressor, bags self inflate chemically.
- No leakage, Gas Bag is sealed
- No heat produced during inflation
- Ingredients are not carcinogenic.
- Substantial savings, up to 35% in explosives costs can be made by using the Gas Bag for air column blasting techniques.

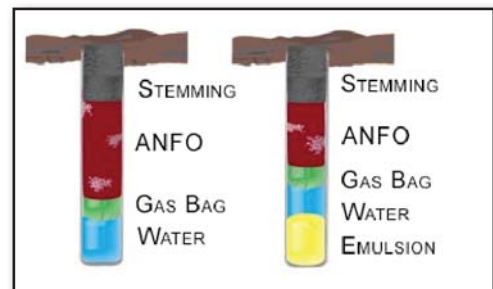
Uses

Use Less Explosives



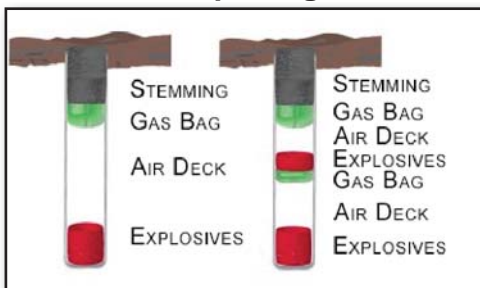
Save 15% to 35% of the total explosive load and still have excellent dig-ability. It's possible to reduce vibration and noise in addition to cost savings.

Substitute ANFO for Emulsion Blends



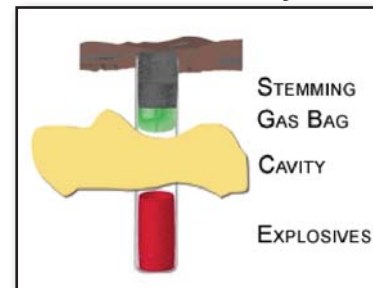
If your holes have only a few feet of water, try dropping a Gas Bag on the water to seal off the hole. Add a little stemming and use ANFO instead of waterproof explosives. Generally you can use this system up to 6 times the borehole diameter of water.

Pre-splitting



Hole spacing should be 15 to 24 times the borehole diameter in inches depending on the local geology. If the hole is over 50 feet deep, two or more charges should be used for better explosive distribution. Usually about 60% of the total charge should be in the bottom. Charge weights should range between 3% to 10% of the total charge in a normal production hole. Holes should be stemmed for noise reduction.

With a Cavity



Block a void or cavity that the drilled hole has penetrated. Plug exploration holes.

Product Number	Description
47-1024	GAS BAG 4" VINEGAR
47-1025	GAS BAG 6" VINEGAR
47-1026	GAS BAG 8" VINEGAR
47-1033	GAS BAG 9" VINEGAR



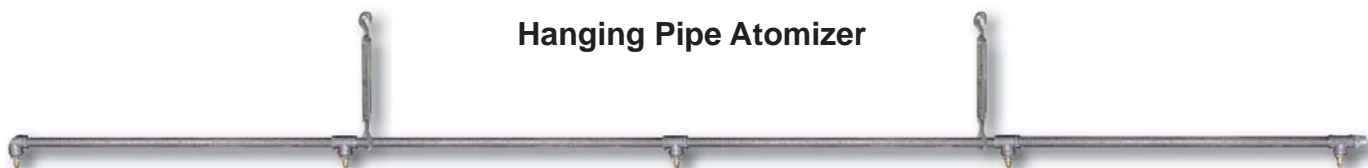
Dust Control - Atomizers & Fire Nozzles

Atomizer

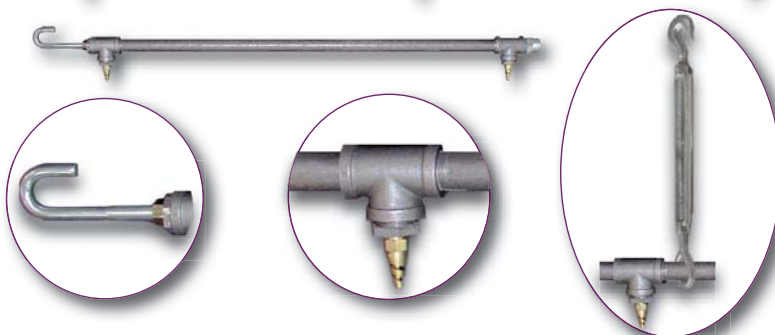


Product Number	Description
VICAT1	1" ATOMIZER ASSEMBLY

Hanging Pipe Atomizer



Product Number	Description
47-1004	8'6" Hanging Pipe Atomizer (3 port)
47-1006	3' Hanging Pipe Atomizer (2 port)
47-1009	12' Hanging Pipe Atomizer (5 port)
47-1031-2	12" Hanging Pipe Atomizer (1 port)
Custom Design Available upon request	



Nozzles



Product Number	Description
TF6W	1/4" Brass #6 Nozzle
TF8W	1/4" Brass #8 Nozzle
Other Nozzles Available upon request	

Fire Nozzles

Class A & B Fire Nozzles

- IPT Thread
- 1" or 1½" Adjustable Fog/Stream/Shut-off
- High impact POLYCARBONATE NOZZLES
- Max rated flow 78 gpm at 100 PSI
- Molded in Red

Product Number	Size	Description
10IPT	1"	For Class A B fires
22-06	1-1/2"	For Class A, B fires



Dust Control - Mister

Misters

PROPTEC ROTARY MISTER

The Proptec Rotary Mister consistently produces perfectly sized droplets that travel far down mine drifts and encapsulates airborne dust before falling. It sequesters dust without eroding mine ramps, drifts and travel ways. It reduced water consumption by over 80% to reduce both water and energy for significant cost savings.

The Proptec Rotary Mister was the improved result of early research at Michigan State University. Designed by an experienced engineering team, the Proptec Rotary Mister can be used in a vast range of applications that require reliable, robust atomization of liquids. These atomizers operate with any type of water without clogging. Proptec Rotary Mister effectively controls all types of dust including hazardous & explosive types found in mines. It and performs with high reliability and low maintenance even in extreme conditions. The Proptec Rotary Mister represents "State of the Art" in dust control technology.

MINE TESTED IN SUDBURY, ON CANADA

The Proptec Rotary Mister has been tested at a mine in Sudbury, Ontario, at locations where dust is a problem — in mine drifts and travel ways, at shotcrete transfer points and hoppers, at a crusher station, at rock dumping sites and in raise bore applications. Available air powered, electric, or hydraulic.

Features:

- easy to install
- two settings: low, 1 gpm, high, 3 gpm
- maintenance-free
- will not clog

Benefits:

- washes mine air clean of dust
- cools and refreshes mine air with billions of active droplets
- efficiently utilizes water at reduced volumes conserving water & energy
- will not erode ramps or drifts
- can knock down any dust.

FLR (filter, lubricator, regulator) Assembly included in each unit.

Product Number	Description
PT2A-XM100	Proptec Air Rotary Mister Assembly
PT2E-XM200	Proptec Electric Rotary Mister Assembly
PT10AS01HBSB	Proptec Hydraulic Rotary Mister Assembly
47-2016	Portable Proptec Air Rotary Mister



Dust Control - Sprinklers / Deicer

Impact Sprinkler

65PJADJ-TNT

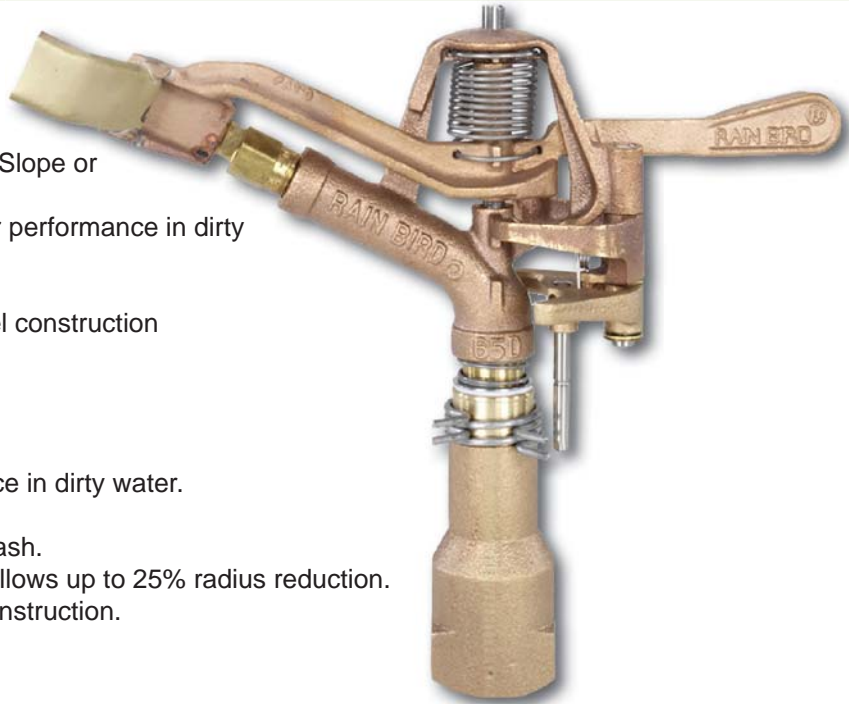
Performance

1" (26/34) Riser-Mounted Impact Head Used for Slope or Large, Non-Turf-Area Applications

- Flexibility – Straight-through flow for superior performance in dirty water
- Reliability – Proven impact drive
- Durability – Rugged brass and stainless steel construction

Features

- Proven impact drive.
- Long-wearing TNT bearing.
- Straight-through flow for superior performance in dirty water.
- Full-circle or adjustable arc 20° to 340°.
- Precision Jet tube (PJ™) minimizes side splash.
- Stainless steel distance control diffuser pin allows up to 25% radius reduction.
- Rugged brass, bronze and stainless steel construction.
- FP trip for full- or part-circle operation.



Product Number	Size	Description
65PJADJTNT	1"	SPRINKLER RAIN BIRD

Potassium Acetate Liquid Deicer

Potassium Acetate represents a significant improvement on liquid de-icing fluids. Potassium Acetate is clear, odorless, and is an easy-handling solution. The unique features and benefits of Potassium Acetate make it an ideal alternative to conventional ice melt applications:

Environmentally Friendly

- non-toxic and non-hazardous to plant and animal life
- non-damaging to most surfaces including concrete, metals, wood, gutters, lawns, and vegetation
- has a very low biological oxygen demand (BOD*) rate and contains no phosphates or urea.

High Performance Liquid Ice Melt

- works longer and better than magnesium chloride, calcium chloride, and traditional rock salts!
- improved wetting and spreading
- fluid sticks to the surface and lasts longer between applications
- rapid drying - making treated surfaces available for use in less time



* The lower the BOD rate, the quicker it decomposes into environmentally safe components. Chloride-based de-icers (calcium and magnesium chloride) accumulate in the environment as harmful salts which can be damaging to plant and animal life - including fish.



TIME Products

MINING

HOSE & HOSE FITTINGS

Chicago Couplings
Hose - air, water & hydraulic
Minsup Fittings
Hansen Couplings
Punch-Lok Clamps
TIME Hose Fittings
Whipchek Hose Anchors
Lubricators



LIGHTING

Dual beam & alignment lasers
Airturbo Lamp
LED Mine Strobe Light (MSHA)
Miner's Cap Lamp
Tunnel Lamp
LED Flood Lights



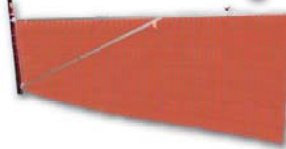
MINING PLUGS

Anchor Bolts
Displacement Plugs
Margo Plugs
Drill Hole Plugs
Stemming Plugs
Van Ruth Plugs
VK Grout Plugs



BARRIER PROTECTION

Safety Gate
Barrier Fencing
Complete Remote Systems



DRILLING

PERCUSSIVE TOOLS

Tapered Equipment
Drifting & Tunneling
Bench & Long Hole
Shanks



DIAMOND DRILL TOOLS, FLUIDS & POLYMERS

Core Barrels
Water Equipment
Wedging Tools
Recovery Tools
Hoisting Equipment
Bestlife Lubricants
Ambex Anchoring Capsules
Drilling Fluids
Linseed Soap
Rod Grease
Citrus Degreaser



BLAST HOLE PRODUCTS

PVC & Polyethylene Pipe
Anti-Static Loading Hose
Loading Bags
Depth Gauges
Drill Hole Marker Plugs
Hi-Vis Drill Hole Marker Plugs
Birdie Plugs
Powder Plugs
Blasting Wire
CAB Wire Hangers



VALVES

Brass Ball Valves
Brass Water Valves
Butterfly Valves
Gate Valves
Mine Header Valves
Mortrol Valves
Relief Valves




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INDUSTRIAL

PUMPS & PARTS

FMC (Bean) Pumps & parts
FMC (Bean) Pump Assemblies
Prattisoli KF Series pumps
NOMAD Diaphragm Pumps



ENVIRONMENT - HEALTH - SAFETY

CSA approved Miner's Boots
Safety Glasses, Goggles, Visors
Hand, Head & Hearing Protection
Harnesses & Lanyards
Sorbent Mats, Rolls, Socks, Booms & Pillows
Spill Kits



JOBSITE STORAGE EQUIPMENT

Tough and ultra-secure:
Storage chests & cabinets
Work benches
Field stations



MINING SUPPLIES

Atomizer Bars - 3' and 12'
Black Iron Fittings & Nipples
COXREEL Safety Reels
Hand Tools
Mine Hooks - H & S
Mining Header Manifolds
Muck Scoops
Proptec Rotary Mister
RIDGID Pipe Wrenches
RIDGID Threading Machines
Strapping - CARISTRAP, STRAPRITE



HOISTING & LIFTING

Chain
Loadbinders
Poly Rope
Shackles & hooks
Sheave Blocks - 6" & 8"
Wire Rope



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PAGE: BD16



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Fluid & Air Transfer - Air Hose

Air Hose



MINE AIR/WATER HOSE

For mining, construction and industrial use where 400 PSI service is required. Mandrel built.

- Yellow cover - weather, cut & abrasion resistant synthetic rubber
- Smooth black, oil mist resistant, synthetic rubber tube
- Reinforced with multiple layers of high tensile, spiraled synthetic wound yarn
- Temperature range: -40°C to +82°C (-40°F to +180°F)
- Sizes: ½" – 4" I.D.
- Standard length - 50' (other lengths available)

Product Number	I.D. inches	O.D. inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
46-MH-050-050	0.5	0.95	400	0.31
46-MH-075-050	0.75	1.26	400	0.41
46-MH-100-050	1	1.54	400	0.61
46-MH-125-050	1.25	1.89	400	0.81
46-MH-150-050	1.5	2.12	400	0.91
46-MH-200-050	2	2.63	400	1.2
46-MH-300-050	3	3.7	400	2.37
46-MH-400-050	4	4.8	400	3.3

WIRE REINFORCED AIR HOSE

- High pressure air service to mining, construction & industrial use
- Yellow cover with red stripe
- Cut & gouge resistant synthetic rubber
- Reinforced with layers of high tensile steel wire
- Temperature Range: -40°C to +85°C
- Sizes: ½" – 4" I.D..
- Standard length - 50' (other lengths available)

Product Number	I.D. inches	O.D. inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
46-MHWR-050-050	0.5	0.8	600	0.44
46-MHWR-075-050	0.75	1.14	600	0.54
46-MHWR-100-050	1	1.3	600	0.68
46-MHWR-125-050	1.25	1.66	600	0.83
46-MHWR-150-050	1.5	2.05	600	1.12
46-MHWR-200-050	2	2.63	600	1.58
46-MHWR-250-050	2.5	3.27	450	2.4
46-MHWR-300-050	3	3.78	450	2.86
46-MHWR-400-050	4	4.8	450	4.13

TIME Hose Assemblies



Product Number	Size
46MH050050QL	Hose Asm, 1/2" x 50' 400 PSI w/ TIME Quick Lock Ends
46MH100050QL	Hose Asm, 1" x 50' 400 PSI w/ TIME Quick Lock Ends
46MH150050QL	Hose Asm, 1-1/2" x 50' 400 PSI w/ TIME Quick Lock Ends
46MH200050QL	Hose Asm, 2" x 50' 400 PSI w/ TIME Quick Lock Ends
46MH050050SN	Hose Asm, 1/2" x 50' 400 PSI w/ TIME Stem and Nut Ends
46MH100050SN	Hose Asm, 1" x 50' 400 PSI w/ TIME Stem and Nut Ends
46MH150050SN	Hose Asm, 1-1/2" x 50' 400 PSI w/ TIME Stem and Nut Ends
46MH200050SN	Hose Asm, 2" x 50' 400 PSI w/ TIME Stem and Nut Ends
46MH200050GRV	Hose Asm, 2" x 50' 400 PSI w/ TIME Grooved Ends



North America 1-800-669-3542

International +1-705-647-8138

PAGE: FA2



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Fluid & Air Transfer - Drill Hose

Drill Hose

EPDM MULTI-PURPOSE HOSE

Air, water, agricultural spray solutions and other diluted chemicals. Good resistance to heat, weathering and vegetable oils.

- Smooth red cover; black EPDM tube
- Oil mist resistant
- Reinforced with layers of high tensile polyester yarn
- Temperature range: -40°C to +93°C



Product Number	I.D. Inches	O.D. Inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
46-DH-100-100	1	1.37	200	0.51
Product Number	Description			
46DH100100UN	Hose asm 1"x100 w/universal ends			
46DH100100LS	Hose asm 1"x100 w/brass long shanks			

Hose Anchor

HOSE ANCHOR by WHIPCHEK®

These strong steel cables prevent hose whip in the event of accidental separation of coupling or clamp device.

WHIPCHEK® reaches across the hose fittings to provide stand-by safety for any type of hose. Spring loaded loops in the cable ends open easily to pass over the couplings, for firm grip on hose (see illustration). Thoroughly tested with years of service.

Must be installed in the extended position (no slack).

Highly resistant to rust and corrosion. No tools needed; easy to install and remove.

Product Number	Description
221-04	1/8" cable for 1/2" - 1-1/4" incl. hose size, 20-1/2" long
221-05	1/4" cable for 1-1/2" to 3" hose size, 38-1/4" long
22104STAINLESS	Whipcheck SS 1/2" to 1-1/4" Hose, 22" LG
22105STAINLESS	Whipcheck SS 1/4" to 3" Hose, 36" LG



Whipsock Hose Restraints

Whip socks are used to restrain high pressure hoses. The whip sock has a unique design that prevents the very real and unpredictable whipping of a high pressure hose during a failure. The real genius behind these new designs is the woven steel that grips and tightens over a large area of the hose as it suppresses and confines the hose that has ruptured.

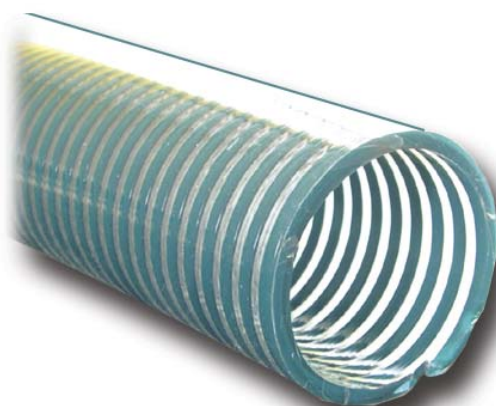
The whip sock is just one more way for a company to make a potentially dangerous workspace much safer for employees. The whip sock is also one more way to prevent a good deal of damage to adjacent equipment if there were to be a high pressure breakdown.

Product Number	Description
HR40-50MM	Whipsock Hose Restraints 1-1/4" Hose
HR50-60MM	Whipsock Hose Restraints 1-1/2" Hose
HR60-70MM	Whipsock Hose Restraints 2" Hose
HR70-85MM	Whipsock Hose Restraints 2-1/2" Hose
HR85-100MM	Whipsock Hose Restraints 3" Hose



Fluid & Air Transfer - Hose

Suction & Discharge



RUBBER WATER SUCTION & DISCHARGE

- Smooth black synthetic rubber
- Abrasion resistant
- Textile reinforced with heavy wire
- Temperature range: -32°C to +82°C

HEAVY DUTY

A heavy duty rubber suction hose for construction quarries & general use.

Suitable for full vacuum.

Product Number	I.D. inches	O.D. inches	Bend Radius Inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
46-RSD-100	1	1.38	8	100	0.53
46-RSD-125	1-1/4	1.73	10	100	0.75
46-RSD-150	1-1/2	1.97	12	100	0.87
46-RSD-200	2	2.45	16	100	1.12
46-RSD-300	3	3.50	27	100	1.84
46-RSD-400	4	4.59	36	75	3.43
46-RSD-500	5	5.61	45	75	4.81
46-RSD-600	6	6.61	54	75	4.92

PVC SUCTION & DISCHARGE

- Smooth clear PVC
- Excellent weather and abrasion resistance
- Temperature range: -20°C to +70°C

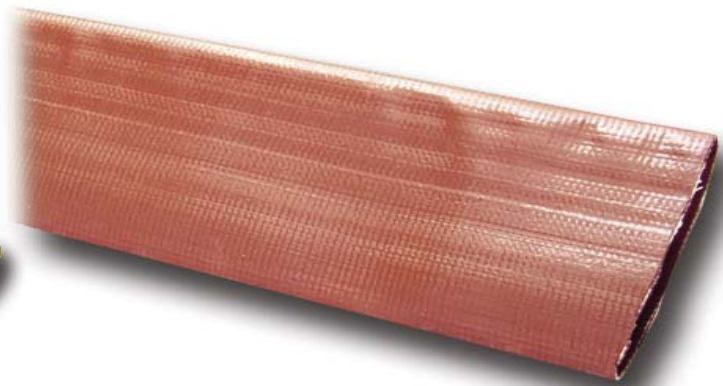
HEAVY DUTY

For construction pumps, septic tank and marine pump out service, mining & quarry use. Suitable for full vacuum. PVC is resistant to some chemicals, acids and alkalis. Reinforced with green PVC helix.

Product Number	I.D. inches	O.D. inches	Vacuum Rating	Bend Radius Inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
46-PSD-100	1	1.26	28	3	85	0.26
46-PSD-125	1-1/4	1.56	28	4	85	0.35
46-PSD-150	1-1/2	1.83	28	5	70	0.48
46-PSD-200	2	2.32	28	7	65	0.66
46-PSD-250	2-1/2	2.87	28	8	65	0.87
46-PSD-300	3	3.43	28	10	65	1.24
46-PSD-400	4	4.50	28	15	55	1.85



Layflat Hoses



RUBBER LAYFLAT AIR HOSE

An economical EPDM multi-purpose hose used in construction, marine and industrial applications.

- Yellow nitrile tube
- Reinforced with circular woven 100% polyester yarn
- Resistant to abrasion, oil and weathering
- Temperature Range: -30°C to +100°C

Product Number	I.D. Inches	O.D. inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
221-153	3/4	0.98	300	0.20
221-225	1	1.24	300	0.20
221-161	1-1/2	1.74	300	0.25
221-100	2	2.28	300	0.35
221-154	3	3.40	250	0.52
221-155	4	4.29	200	0.57

PVC LAYFLAT HOSE

Hose folds flat for ease of coiling and handling. Designed for use where higher working pressures are required.

- Brown PVC impregnation tube and cover
- Reinforced with woven high tensile synthetic yarn
- Temperature range: -21°C to +54°C

Product Number	I.D. Inches	O.D. Inches	Max W.P. PSI	Approx Wt. Per ft. lbs.
227-17	1-1/2	1.64	120	0.22
227-05	2	2.14	115	0.29
227-13	3	3.17	100	0.43
227-14	4	4.18	100	0.60
227-06	6	6.18	80	1.01



Fluid & Air Transfer - Hose

Anti-Static Loading Hose

A specially formulated anti-static PVC loading for the loading of ammonium nitrate/fuel oil blasting agents used in the mining and construction industries.

Construction:

Specially-formulated anti-static PVC compound.

Features:

- Conductivity – effectively limits build-up of static electricity; provides path for its safe dissipation to ground.
- Bleeds off static charges built up during pneumatic loading of Ammonium Nitrate/Fuel Oil mixtures.
- Sufficient resistance – guards blasting circuit against stray electrical currents.
- Wear resistance – smooth interior and exterior surfaces, combined with tough material formulation, provide good wear resistance.
- Self-extinguishing characteristics.
- Excellent flexibility – sufficiently flexible to handle easily, yet rigid enough to reach upwards into collars of steeply-inclined holes.
- Easily identifiable – co-extruded continuous orange stripe makes tubing visible in underground lighting.
- Embossed branding – provides lasting identification.
- Packaged for ease of handling and shipping.



Applications:

- Bulk unloading of ammonium nitrate/fuel oil blasting agents in small diameter holes.
- Successfully used for years with Orica's blast hole chargers, intermediate loaders and the Penberthy Anoloader.
- Mining and construction site blasting.

Series No.	Size Code	Inside Diameter		Approx. O.D.		Max. W.P.		Approx. Mass per 100 ft. (lbs.)	Approx. Mass per 100 m (kg.)	Length/Coil	
		Inches	mm	Inches	mm	PSI	MPa			ft.	m
221-35	10	0.63	16	0.859375	22	120	0.83	17.5	25	200	61
221-3534	12	0.75	19	1.06	27	120	0.83	28	40	200	61
221-351	16	1	25	1.33	34	120	0.83	38	55	300	91
221-35114	20	1.25	32	1.63	41	120	0.83	55	78	100	30

Service Temperature Range: -30°F (-35°C) to +150°F (+65°C)

NOTE: A new coil of tubing can have its pliancy restored by the application of heat before it is placed in service underground. This will facilitate handling and its attachment to pneumatic loading equipment. Steam or very hot water passed through the coiled tubing will remove the "set" from the new tubing and allow it to be straightened easily. The tubing should then be left to cool in the straight position.



Rubber Hose Strainer



Heavy Duty Suction Hose Assembly - 2", 3" or 4" X 25' complete with grooved end. Made of heavy duty 6 ply non-wired hose, to ensure the hose will keep its shape, resist abrasion and will not crush.

Product Number	Size
DP69225	2"
DP69325	3"
DP69425	4"

Foot Valves & Strainers



Basket Strainer Without Valves

Round hole basket strainers are made from zinc plated metal. Strainers are used to allow adequate flow without allowing debris that may harm the pump. Non valved.

Product Number	Size
960-03	1-1/2"
960-05	2"
960-09	2-1/2"
960-06	3"
960-10	4"



Foot Valve and Strainer

Foot valves and strainers are made from cast iron and have a leather or rubber flapper that closes to prevent the pump from losing its prime. Ideal for suction pumps using control floats.

Product Number	Size
962-00	1-1/2"
962-01	2"
962-02	2-1/2"
962-03	3"
962-04	4"



Fluid & Air Transfer - Couplings/Fittings

TIME Water & Air Hose Fittings

Recommendation for a safe working environment:

Correct identification of the hose inside diameter and correct measurement of the hose outside diameter are critical to the proper and safe operation of the hose assembly. Be careful to match the size of the fittings and clamps to the size of the hose they are to be used with. Improperly sized components lead to leaks and coupling "blow offs".



Mining Stems and Nuts



Product Number	Description	Size
200-00	Hose Stem	1/2" x 1/2"
200-01	Hose Stem	1/2" x 1"
200-02	Hose Stem	3/4" x 1"
200-03	Hose Stem	1" x 1"
200-04	Hose Stem	1-1/4" x 1-1/4"
200-05	Hose Stem	1-1/2" x 5-1/4"
200-06	Hose Stem - XL	1-1/2" x 7"
200-07	Hose Stem	2" x 5-1/2"
200-08	Hose Stem - XL	2" x 8"
201-00	Hose Nut	1/2"
201-01	Hose Nut	1"
201-02	Hose Nut	1-1/4"
201-03	Hose Nut	1-1/2"
201-06	Hose Nut	2"

Hose Joiners



Product Number	Description	Size
202-00	Hose Joiners	1/2"
202-01	Hose Joiners - XL	1/2" x 4 1/2"
202-04	Hose Joiners	3/4"
202-02	Hose Joiners	1"
202-03	Hose Joiners - XL	1" x 6-1/2"
202-05	Hose Joiners	1-1/4" x 5"
202-06	Hose Joiners - XL	1-1/4" x 8"
202-07	Hose Joiners	1-1/2" x 5 3/8"
202-08	Hose Joiners - XL	1-1/2" x 8-3/4"
202-09	Hose Joiners	2" x 5-3/4"
202-10	Hose Joiners - XL	2" x 8-3/4"
202-27	Hose Joiners	3" x 6 5/8"
202-26	Hose Joiners	4" x 8 3/4"
202-15	Hose Joiners	6" x 10"



Fluid & Air Transfer - Couplings/Fittings

TIME Water & Air Hose Fittings

Hose Stem to NPT	
Product Number	Size
207-14	1/2"
207-15	3/4"
207-00	1"
207-09	1-1/4"
207-02	1-1/2"
207-26	2"
207-03	2-1/2"
207-04	3"
207-05	4"



Hose Stem Grooved	
Product Number	Size
207-01	2"
207-16	2" Long
207-11	3"
207-10	4"
207-35	4" Long
207-30	6"



Heavy Duty Pipe Nipples

Threaded & Chamfered both ends	
Product Number	Size
205-01	1" X 3"
205-03	1-1/4" X 4"
205-04	1-1/2" X 4"
205-06	2" X 5"

Threaded to Groove	
Product Number	Size
205-02	1" X 3"
207-160	2" X 4"
207-25	3" X 4"
207-44	4" X 4"



Mining Spuds - Male/Female

Product Number	Description	Size
204-06	Air Hose Spuds	1"M x 1/4"F
204-05	Air Hose Spuds	1"M x 3/8"F
204-02	Air Hose Spuds	1"M x 1/2"F
204-01	Air Hose Spuds	1"M x 3/4"F
204-00	Air Hose Spuds	1"M x 1"F
204-09	Air Hose Spuds	1-1/4"M x 1"F
204-10	Air Hose Spuds	1-1/4"M x 1-1/4"F
204-08	Air Hose Spuds	1-1/2"M x 1"F
204-07	Air Hose Spuds	1-1/2"M x 1-1/4"F
204-12	Spud Screen	



Mining Spuds - Male/Male

Product Number	Description	Size
204-03	Water Valve Union Spuds	1/2"M x 3/8"M
204-04	Water Valve Union Spuds	1/2"M x 1/2"M
203-00	Water Goose Neck Spuds	1"M x 3/8"M
203-01	Water Goose Neck Spuds	1"M x 1/2"M
203-02	Spud Screen	



Fluid & Air Transfer - Quick Lock

Quick Lock Fittings



The Quick Lock coupling is a multi-purpose coupling for the construction and mining industries to handle air and water.

The name says it all, Quick Lock, connections are made with ease, speed and safety while maintaining a very economical system.

Specifications:

- Available in 3/8" through 2"
- Body: Carbon Steel
- Bellow seal: Buna-Nitrile
- Working pressure: 500 PSI

Bellow Seal

The seal is made of Buna-Nitrile which is more resistant to oil and acids than natural rubber. It is a pressure seal that allows easy coupling and creates a gasket seal upon introduction of line pressure.

Benefits:

- Reduced leakage
- No special tool to remove the seal
- 100% Interchangeable with existing fittings

Safety pins are required as a safety precaution.



Product Number	Description
QLSEAL-1	Seal Quick Lock 1/2" To 1-1/4"
QLSEAL-2	Seal Quick Lock 1-1/2" To 2"

Product Number	Description
11/001/00	Locking Pin

Quick Lock ADP Female	
Product Number	Description
QL038F	ADP Quick Lock 3/8" NPT/F
QL050F	ADP Quick Lock 1/2" NPT/F
QL075F	ADP Quick Lock 3/4" NPT/F
QL100F	ADP Quick Lock 1" NPT/F
QL150F	ADP Quick Lock 1-1/2" NPT/F
QL200F	ADP Quick Lock 2" NPT/F
QL200X1F	ADP Quick Lock 2"X1" NPT/F
Quick Lock ADP Male	
Product Number	Description
QL038M	ADP Quick Lock 3/8" NPT/M
QL050M	ADP Quick Lock 1/2" NPT/M
QL075M	ADP Quick Lock 3/4" NPT/M
QL100M	ADP Quick Lock 1" NPT/M
QL150M	ADP Quick Lock 1-1/2" NPT/M
QL200M	ADP Quick Lock 2" NPT/M
Quick Lock Stem	
Product Number	Description
QL050HS	Stem Quick Lock 1/2"
QL100HS	Stem Quick Lock 1"
QL150HS	Stem Quick Lock 1-1/2"
QL200HS	Stem Quick Lock 2"



Fluid & Air Transfer - Couplings/Fittings

Universal Hose Fittings

Universal Quick Acting Hose Ends - Malleable Iron



Product Number	Size	Lugs
211-37	3/8"	2
211-01	1/2"	2
211-04	3/4"	2
211-07	1"	2
211-34	1-1/4"	4
211-36	2"	4

Universal Rubber Washer



Product Number	Size
211-10	3/8" - 1"
211-41	1-1/4" - 2"

Universal Locking Pin



Product Number	Description
11/001/00	Locking Pin

Universal Quick Acting Female and Male NPT Ends Malleable Iron



Female Ends

Product Number	Size	Lugs
211-00	3/8"	2
211-03	1/2"	2
211-06	3/4"	2
211-09	1"	2
211-11	1-1/4"	4
211-33	2"	4

Male Ends

Product Number	Size	Lugs
211-38	3/8"	2
211-02	1/2"	2
211-05	3/4"	2
211-08	1"	2
211-39	1-1/4"	4
211-40	2"	4



Fluid & Air Transfer

Quick Connect Fittings



Product Number	Description
91-18	Plug 1" MNPT Steel
91-17	Plug 1" MNPT Brass
91-14	Plug 3/4" MNPT Steel
90-21	Socket 1" MNPT Brass
90-22	Socket 1" FNPT Brass
90-17	Socket 3/4" MNPT Brass
90-18	Socket 3/4" FNPT Brass



Punch-Lok

PUNCH-LOK CLAMPS

Punch-Lok clamps are available in a variety of materials to suit your needs.

- high strength galvanized carbon steel clamps – satisfy nearly all requirements
- stainless steel clamps – recommended for use in corrosive situations

HIGH-STRENGTH GALVANIZED & STAINLESS STEEL CLAMPS CHART

Also available: open-clamps, and related tools.

Galv. Product #	S.S. Product #	Item	Clamp I.D.	Band Width	Clamps per Std. Carton	Shipping Weight Lbs/ Carton
232-01	233-09	P-4	1"	5/8"	100	8.8
232-02	233-12	P-5	1-1/4"	5/8"	100	9.1
232-03	233-00	P-6	1-1/2"	5/8"	100	10.6
232-04	233-07	P-7	1-3/4"	5/8"	100	11.2
232-05	233-08	P-8	2"	5/8"	100	11.4
232-07	233-13	P-9	2-1/4"	5/8"	100	11.8
232-06	233-04	P-10	2-1/2"	5/8"	50	6.1
232-18	233-06	P-11	2-3/4"	5/8"	50	6.6
232-09	233-01	P-12	3"	5/8"	50	8.0
232-10	233-05	P-14	3-1/2"	5/8"	50	8.4
232-11	233-02	P-16	4"	5/8"	25	5.2
232-12	233-14	P-18	4-1/2"	5/8"	25	5.8
232-13	233-10	P-20	5"	5/8"	25	6.2
232-14	233-03	P-24	6"	5/8"	25	6.8
232-19	233-11	P-28	7"	5/8"	50	13.8



To order clamps:

1. Insert fitting into hose.
2. Measure the outside diameter of the hose.
3. Select the clamp with the next larger inside diameter clamp.

PUNCH-LOK CLAMPING TOOL

Designed for fast, economical application of punch-type clamps.

Weight: 1-1/2 lbs



Product Number	Description
229-00	Punch-Lok Tool



Fluid & Air Transfer - Couplings

Aluminum Cam & Groove Couplings

Aluminum cam type couplers are the most popular couplers in the industry for transfer of water and other non-corrosive fluids. Available in sizes from 1" to 6".

Specification

- Body: 365 aluminum
- Arms: SS302
- Ring & Pins: Plated Steel
- Made to MIL spec A-A-59326

Notes

* Not for use with compressed air

Also available in Stainless Steel

Size	Part A	Part B	Part C	Part D	Part E	Part F	Part DC	Part DP
1"	219-02	219-124	219-24	219-34	219-46	219-65	219-74	219-76
1-1/4"	219-571	219-203	219-202	219-35	219-572	219-57	219-134	219-135
1-1/2"	219-04	219-15	219-25	219-36	219-47	219-58	219-69	219-78
2"	219-05	219-16	219-26	219-37	219-48	219-59	219-70	219-80
2-1/2"	219-110	219-125	219-56	219-127	219-18	219-60	219-71	219-136
3"	219-07	219-17	219-28	219-39	219-50	219-61	219-72	219-81
4"	219-08	219-128	219-29	219-120	219-51	219-62	219-73	219-82
6"	219-54	219-116	219-53	219-21	219-126	219-22	219-83	219-84

Maximum Pressure Rating PSI For Cam & Groove Couplings

Size	Aluminum/Brass	Stainless	Polypropylene
1	250	250	125
1-1/4	250	250	100
1-1/2	250	250	100
2	250	250	100
2-1/2	150	150	N/A
3	125	200	75
4	100	100	75
6	75	100	N/A

Male Adapter / Female NPT



Part "A"

Female Coupler / Male NPT



Part "B"

Female Coupler / Hose Shank



Part "C"

Female Coupler / Female NPT



Part "D"

Male Adapter / Hose Shank



Part "E"

Male Adapter / Male NPT



Part "F"

Dust Cap



Part "DC"

Dust Plug

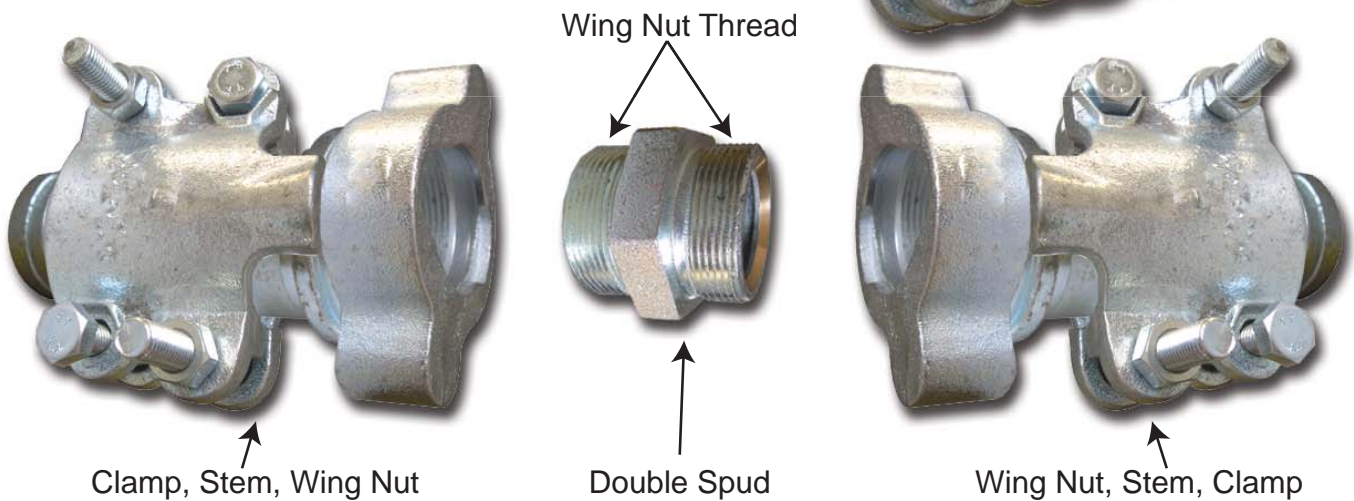
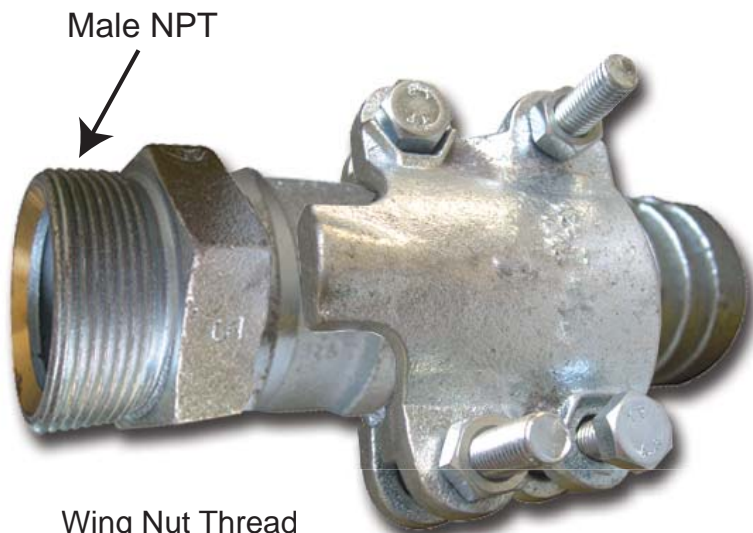
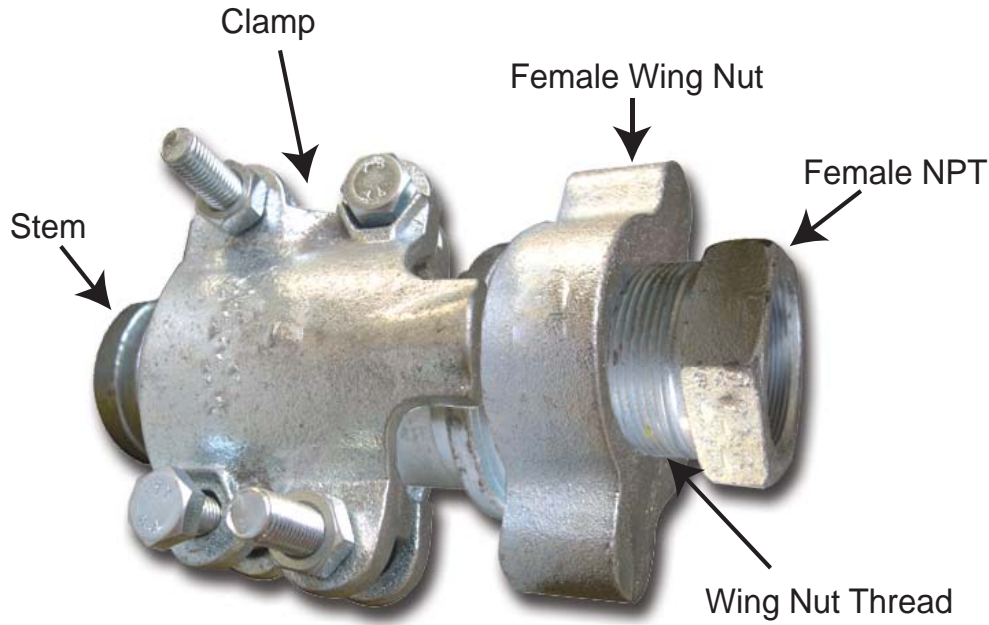


Part "DP"



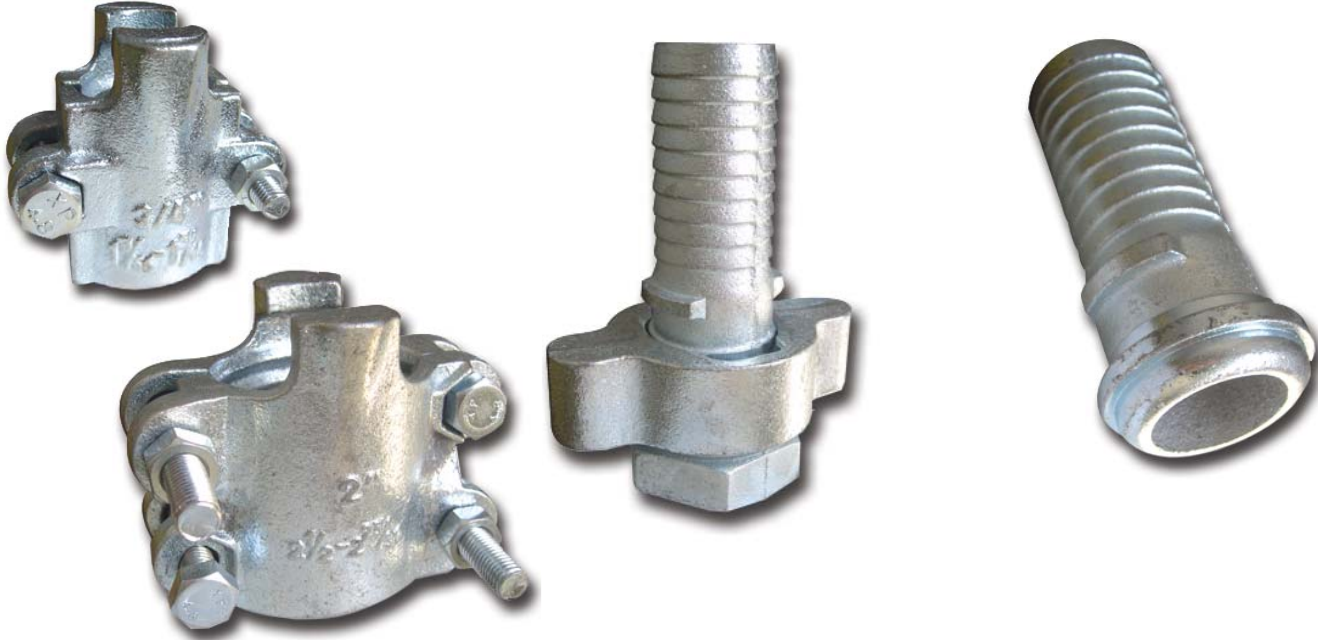
Fluid & Air Transfer - Couplings/Fittings

High Pressure Clamp Fitting Assemblies



Fluid & Air Transfer - High Pressure

High Pressure Clamp Fittings



High Pressure Clamps 2-Bolt Clamps

Product Number	Hose I.D.	Hose O.D.	
		From	To
214-13	1/2"	60/64"	1-4/64"
214-12	3/4"	1-12/64"	1-20/64"

High Pressure Clamps 4-Bolt Clamps

Product Number	Hose I.D.	Hose O.D.	
		From	To
214-11	1"	1-32/64"	1-44/64"
214-07	1-1/4"	2-4/64"	2-16/64"
214-08	1-1/2"	2-12/64"	2-24/64"
214-00	2"	2-32/64"	2-50/64"
214-15	2-1/2"	3-32/64"	3-60/64"
214-10	3"	3-52/64"	4-4/64"
214-02	4"	4-40/64"	5"

High Pressure Female Spud Couplings C/W Clamps

Product Number	Size
215-10	1/2"
215-06	3/4"
215-11	1"
215-12	1-1/4"
215-13	1-1/2"
215-14	2"
215-15	3"
215-16	4"

High Pressure Female Stem

Product Number	Size
215-20	1/2"
215-21	3/4"
215-01	1"
215-02	1-1/4"
215-03	1-1/2"
215-04	2"
215-08	3"
215-00	4"



Fluid & Air Transfer - High Pressure

High Pressure Clamp Fittings



High Pressure Male Stem

Product Number	Size
215-22	1/2"
215-23	3/4"
215-24	1"
215-25	1-1/4"
215-26	1-1/2"
215-05	2"
215-09	3"
215-27	4"



High Pressure Double Spuds

Product Number	Size
217-15	1/2"
217-16	3/4"
217-17	1"
217-18	1-1/4"
217-19	1-1/2"
217-04	2"
217-14	3"



High Pressure Female Spud - Wing Nut Thread X NPT

Product Number	Size
217-20	1/2"
217-21	3/4"
217-07	1"
217-06	1-1/4"
217-00	1-1/2"
217-02	2"
217-08	3"
217-03	4"



High Pressure Male Spud

Product Number	Size
217-22	1/2"
217-23	3/4"
217-24	1"
217-25	1-1/4"
217-10	1-1/2"
217-01	2"
217-09	3"
217-26	4"



High Pressure Wing Nut

Product Number	Size
216-04	1/2"
216-05	3/4"
216-00	1"
216-06	1-1/4"
216-01	1-1/2"
216-02	2"
216-07	3"
216-03	4"



Long Shank - Brass



**Machined Brass
NPSM**

**Long Shank
Female Component**

Product Number	Size
211-1F	1"



**Long Shank
Male Component**

Product Number	Size
211-1M	1"



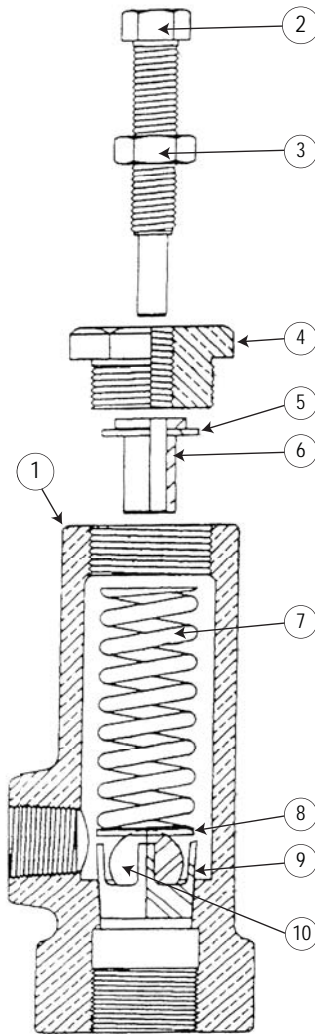
Gruvlok has a broad range of grooved products, plain end product, valving, pipe preparation tools, and various accessories.

Gruvlok couplings for grooved end pipe are available in nominal pipe sizes 1" through 30" and in metric sizes. The variety of coupling designs provides a universal means for the connection of pipe, fittings, and pipe system components. The wide assortment of Gruvlok couplings and gaskets permits selection of the most suitable combination for a specific application, thus providing the most versatile and economical pipe installation.



Fluid & Air Transfer - Relief Valve

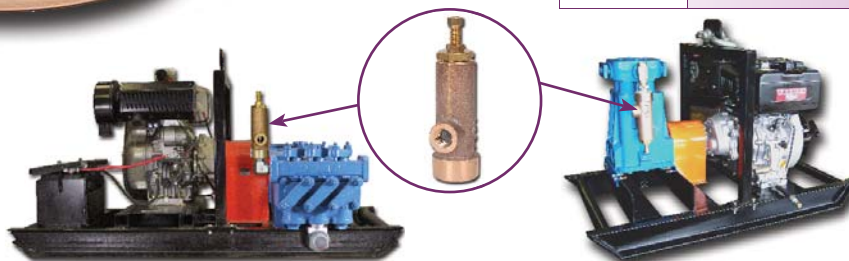
TL Relief Valve



The TLRV TIME Ltd. Relief Valve is manufactured and assembled in Northern Ontario. This compact and robust valve has been tested to a recommended maximum hydrostatic pressure of 1200 PSI.

Dimensions: 8.5" high x 3" wide
 Outlet Port: 3/4"
 Inlet Port: 1"

Item	Description	Part #
	Relief Valve – Complete Assembly	210-01
1	Relief Valve body – Bare Machined	210-02
2	Adjustment screw	210-03
3	Locking nut	210-04
4	Plug	210-05
5	Spring guide washer – top	210-06
6	Spring guide	210-07
7	Compression spring	210-08
8	Spring guide washer – bottom (not shown)	210-06
9	Stainless steel valve seat	210-10
10	15/16" stainless steel ball	1187738



Relief Valve possible uses



Other Valves



1-1/4" Relief/Regulator Valve

- 75 GPM Capacity
- 50-2000 PSI Pressure Range
- Port Size: 1-1/4 Inch NPT
- 3 Ports
- SST Valve Seat

Repair Kit

Includes:

- packing
- o-ring
- set screw
- plunger cup
- valve seat
- valve

Part #	Description
1285315	1-1/4" Relief Valve
5256492	Repair Kit



3/4" 700 PSI Brass Relief Valve

Piston-Type Pressure Relief/Regulating Valve.

Brass, 3/4" Inlet & Pipe Connection, 700 psi max.

Bypasses excess liquid. Adjustable to maintain control of line pressure at any pressure within the valve's operating range. Selected pressure setting firmly held in place by locknut. Extra large valve passages to handle large flows.

Part #
32-681534700



Fluid & Air Transfer - Valves

Mortrol Valve



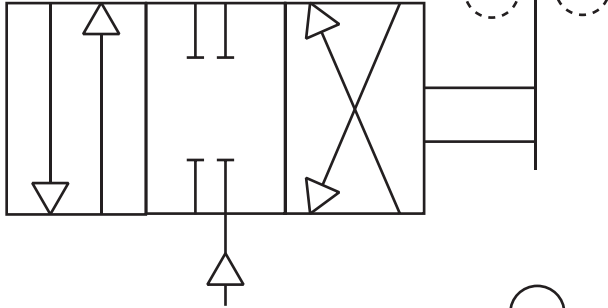
MORTROL VALVE

3 & 4 way – 250 PSI Service

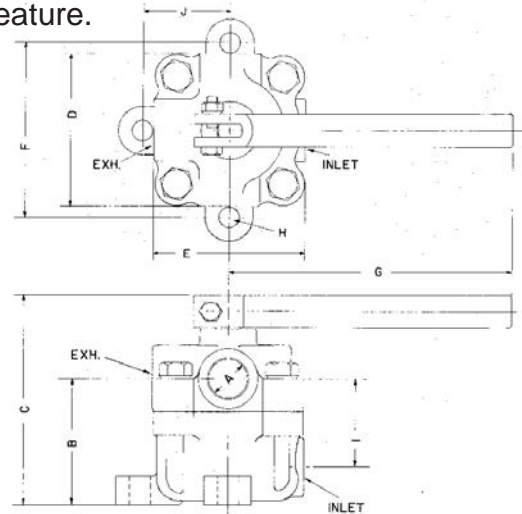
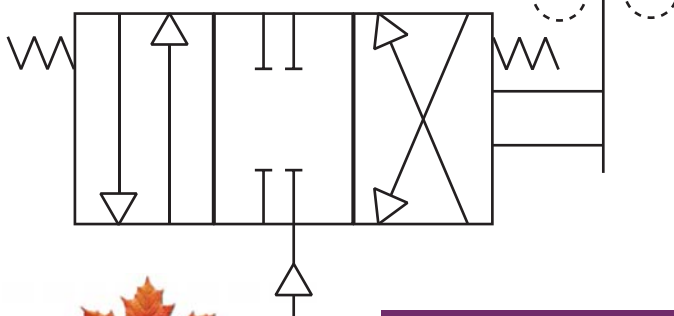
No other operating valves have all of these features:

- Pack-less construction – no valve packing to replace; no maintenance or service costs
- Fast or throttling action as desired
- No air or pressure loss through valve leakage wear-proof disc and seat
- Shielded sealing surfaces
- Line-pressure seals valve at all times
- 85% full pipe area through valve
- Position of handle indicates direction of flow
- Can be converted to a 3-way valve by plugging one hole
- Lockout safety feature.

Flow Diagrams
Standard



With Spring Return



Product Number	Size	Valve Type
300-00	1/2"	Standard
300-01	1/2"	Spring return to normal
302-00	3/4"	Standard
302-01	3/4"	Spring return to normal
304-00	1"	Standard
304-01	1"	Spring return to normal



Pipe Size										Weight in Lbs.
A	B	C	D	E	F	G	H	I	J	
1/2"	2-9/16"	4-1/8"	3-1/8"	3-5/16"	3-3/4"	5-3/4"	7/16"	1-13/16"	1-7/8"	6
3/4"	3-5/16"	5-7/16"	4-1/16"	4-1/8"	4-5/8"	7-1/2"	17/32"	2-5/16"	2-5/16"	11
1"	3-9/16"	5-3/4"	5"	5-1/8"	5-3/8"	8-1/2"	9/16"	2-5/8"	2-11/16"	16



North America 1-800-669-3542

International +1-705-647-8138

PAGE: FA20



www.timeltd.ca

Valves

STAINLESS STEEL BALL VALVES

Features

- Full port / 2-piece body
- NPT ends to ANSI B1.20.1
- Blowout-proof stem
- Adjustable packing nut
- Locking lever handle
- Actuator mounting pad
- Floating ball
- P-T 450° F @ 100 PSI



1000 PSI Product Number	2000 PSI Product Number	Size
46-10-025	46-12-025	1/4"
46-10-038	46-12-038	3/8"
46-10-050	46-12-050	1/2"
46-10-075	46-12-075	3/4"
46-10-100	46-12-100	1"
46-10-125	46-12-125	1-1/4"
46-10-150	46-12-150	1-1/2"
46-10-200	46-12-200	2"
46-10-300	* 46-12-300	3"
46-10-400	* 46-12-400	4"

* NOTE: 46-12-300/400 are rated at 1500 PSI

BRASS BALL VALVES

Features

- Full port / 2-piece body
- Blowout-proof stem
- Adjustable packing gland
- Chrome plated ball
- Class 150 WSP, 600 WOG
- ANSI B1.20.1 NPT
- CRN number available on request
- Markings to MSS-SP25
- CAN / CGA 3, 16, 9.1-M97, CR91-002
- ANSI / ASME Z21.15, 16.33, US REQ 3-88
- CSA Approved
- Locking Handle

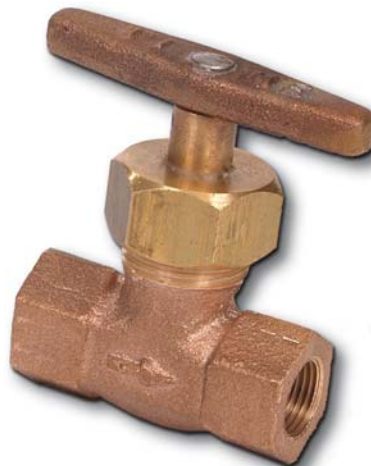


Product Number	Size
46-01-025	1/4"
46-01-038	3/8"
46-01-050	1/2"
46-01-075	3/4"
46-01-100	1"
46-01-125	1-1/4"
46-01-150	1-1/2"
46-01-200	2"
46-01-300	3"
46-01-400	4"

BRASS WATER VALVE

Features:

- Ruggedly built for severe mine service
- Bronze body and extra heavy brass stem
- Teflon valve seat gives longer service
- PTFE Stem Packing
- Female pipe thread - 3/8" NPT



Product Number	Size
206-00	3/8"



Fluid & Air Transfer - TIME Ball Valve

TIME SG Iron Ball Valves



Manufactured for use in a rugged, underground, mine environment.

Key Benefits of TIME's Full Flow Lockable Ball Valve:

- Rugged SG Iron Cast body
- Full Flow valve - prevents turbulent flows / restrictions
- 316 Stainless Steel Ball - minimizes corrosion
- Floating Ball Design - creates a positive seal on the ball seat when valve is closed
- NPT Threads
- Spindle & Thrust washer & nut - made from 316 Stainless Steel to minimize corrosion.
- PTFE Spindle Seals & Ball Seats - perfect for use in an underground environment, designed to not be affected by harsh mediums. They also do not crack, swell or breakdown.
- 90 degree quarter turn Lever Handle
- Sizes range from 1/2" up to 2"

Safety Features:

- Lockable handle in both the on and off positions
- Tamper-proof design
 - The locking portion of the valve is built in to the handle and the body, not an add-on
 - incorporates a spring pin in the nut of the handle to prevent removal.

Product Number	Size
MVLH-1/2PF	Valve 1/2" Female NPT
MVLH-1PF-1PF	Valve 1" Female NPT
MVLH-1-1/2PF	Valve 1-1/2" Female NPT
MVLH-2PF	Valve 2" Female NPT
MVLH-2VC-1PF	Valve 2" Grooved to 1" Female NPT (Header Valve)



TIME SG Iron Ball Valves

3rd Party Testing results:

Hydrostatic Pressure Test of Ball Valves
for TIME Limited

Page 2 of 3
Report No. 13-06-C0161

EXOVA

1.0 INTRODUCTION

This report contains the results from the hydrostatic pressure test on two (2) ball valves for TIME Limited.

The received test samples were assigned with Exova's sample numbers and cross referenced to TIME Limited's sample description as listed:

<u>Exova Sample No.</u>	<u>Description</u>
13-06-C0161-1 & 2	1" NPTF Full Flow Ball Valve, Sample # 1 & 2

2.0 TEST EQUIPMENT

- Haskel Hydrostatic Booster 20 kip, S/N 0912-0446
- Pressure Gauge 20,000 psi range, MII # B01161, Ref.
- Pressure Transducer 10,000 psi range, MII # B07476, Calibrated
- National Instrument PCI-6071, DAQ-Labview, MII # B07402, Calibrated

3.0 TEST PROCEDURE

The hydrostatic pressure test was conducted in accordance with the client's instructions as briefly outlined as follows:

- The hydrostatic pressure test was conducted at ambient room condition.
- Each valve was connected to a hydrostatic pressure intensifier then filled with water and freed of entrapped air before the pressure test was conducted.
- The pressure was gradually applied until failure occurred to obtain the burst pressure.
- The test sample was visually inspected for any evidence of leakage or signs of structural deformation during the pressure test and documented any mode of failures.

4.0 RESULTS

The hydrostatic pressure test results of two 1" NPTF Full Flow Ball Valves are summarized in Table 1 below. Photographs of test set-up and failure modes are presented in Appendix A, Figures 1A to 3A.

Table 1: Hydrostatic Test Results

Sample #	Burst Pressure (psi)	Comments
13-06-C0161-1	6,753	Body fractured.
13-06-C0161-2	6,613	Body fractured.

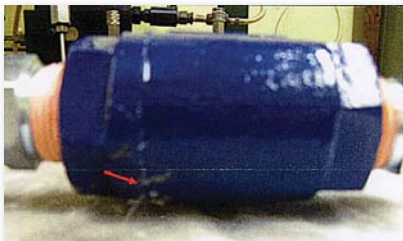


Figure 2A: Failure mode of Sample# 13-06-C0161-1, Body fractured at 6,753 psi.



Figure 3A: Failure mode of Sample# 13-06-C0161-2, Body fractured at 6,613 psi.



Fluid & Air Transfer - Misters

Misters

PROPTEC ROTARY MISTER

The Proptec Rotary Mister consistently produces perfectly sized droplets that travel far down mine drifts and encapsulates airborne dust before falling. It sequesters dust without eroding mine ramps, drifts and travel ways. It reduced water consumption by over 80% to reduce both water and energy for significant cost savings.

The Proptec Rotary Mister was the improved result of early research at Michigan State University. Designed by an experienced engineering team, the Proptec Rotary Mister can be used in a vast range of applications that require reliable, robust atomization of liquids. These atomizers operate with any type of water without clogging. Proptec Rotary Mister effectively controls all types of dust including hazardous & explosive types found in mines. It and performs with high reliability and low maintenance even in extreme conditions.

The Proptec Rotary Mister represents "State of the Art" in dust control technology.

MINE TESTED IN SUDBURY, ON CANADA

The Proptec Rotary Mister has been tested at a mine in Sudbury, Ontario, at locations where dust is a problem — in mine drifts and travel ways, at shotcrete transfer points and hoppers, at a crusher station, at rock dumping sites and in raise bore applications.

Available air powered, electric, or hydraulic.

Features:

- easy to install
- two settings: low, 1 gpm, high, 3 gpm
- maintenance-free
- will not clog

Benefits:

- washes mine air clean of dust
- cools and refreshes mine air with billions of active droplets
- efficiently utilizes water at reduced volumes conserving water & energy
- will not erode ramps or drifts
- can knock down any dust.

FLR (filter, lubricator, regulator) Assembly included in each unit.

Product Number	Description
PT2A-XM100	Proptec Air Rotary Mister Assembly
PT2E-XM200	Proptec Electric Rotary Mister Assembly
PT10AS01HBSB	Proptec Hydraulic Rotary Mister Assembly
47-2016	Portable Proptec Air Rotary Mister



Fluid & Air Transfer - Atomizers

Atomizers

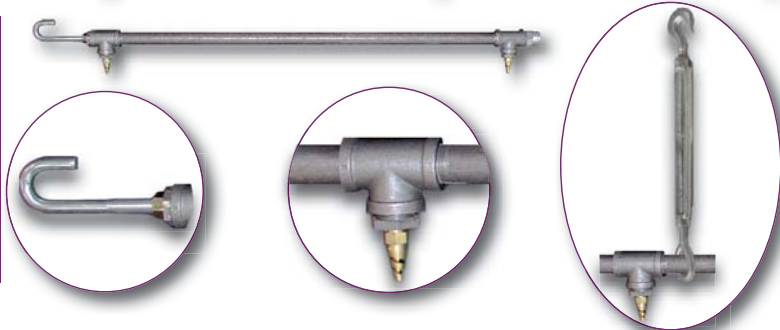


Product Number	Description
VICAT1	1" ATOMIZER ASSEMBLY

Hanging Pipe Atomizer



Product Number	Description
47-1004	8'6" Hanging Pipe Atomizer (3 port)
47-1006	3' Hanging Pipe Atomizer (2 port)
47-1009	12' Hanging Pipe Atomizer (5 port)
47-1031-2	12" Hanging Pipe Atomizer (1 port)
Custom Design Available upon request	



Nozzles



Product Number	Description
TF6W	1/4" Brass #6 Nozzle
TF8W	1/4" Brass #8 Nozzle
Other Nozzles Available upon request	

Fire Nozzles

Class A & B Fire Nozzles

- IPT Thread
- 1" or 1½" Adjustable Fog/Stream/Shut-off
- High impact POLYCARBONATE NOZZLES
- Max rated flow 78 gpm at 100 PSI
- Molded in Red

Product Number	Size	Description
10IPT	1"	For Class A B fires
22-06	1-1/2"	For Class A, B fires



Fluid & Air Transfer - Air Movers

Air Movers

Air Movers, or air horns, are used wherever there is a need to disperse fumes, move air into confined spaces, cool men working in elevated temperature conditions, or cool machinery or products with a blast of directed air. Common applications are found in refineries, chemical plants, utilities and cogeneration units, metal fabrication plants, paper and pulp plants, shipyards, the marine industry, the steel industry and the underground mining industry.

The air movers have been tested at an independent laboratory. The listed free flow ratings are based on tests to AMCA Standard 210. Under identical testing situations, The air movers exceeded all the air flow ratings of competitively manufactured air movers.

Features of the Air Movers

- No moving parts.
- Used for venting hazardous areas.
- Maintenance is minimal.
- Can be used as a blower or exhauster.
- Operates on compressed air or steam.
- Connection for ground wire.
- Tested at an independent laboratory to AMCA Standard 210, equaling or exceeding the air flow of competitively manufactured air movers!



Part No	Description	Inside Dia. of Base	Overall Length	Outside Dia. of Base	Dia. at top of Horn	NPT Size	Bolt Circle Dia.	Base Slot Dia.	Weight
TEX-TX-3AMS	3" Air Mover - Short	3"	16.75"	7.31"	7"	1/2"	6.56"	0.4"	5.5 lbs
TEX-TX-3AM	3" Air Mover	3"	30.5"	7.31"	7"	1/2"	6.56"	0.4"	8.5 lbs
TEX-TX-6AM	6" Air Mover	6"	44.25"	11.25"	12.5"	1"	10.5"	0.4"	22.3 lbs
TEX-TX-8AM	8" Air Mover with Metal Horn	8"	46.06"	14.37"	14.25"	1"	13.62"	0.5"	36 lbs
TEX-TX-10AM	10" Air Mover with Metal Horn	10"	48"	17"	15.75"	1"	15.5"	1"	42.1 lbs

65PJADJ-TNT

Impact Sprinkler

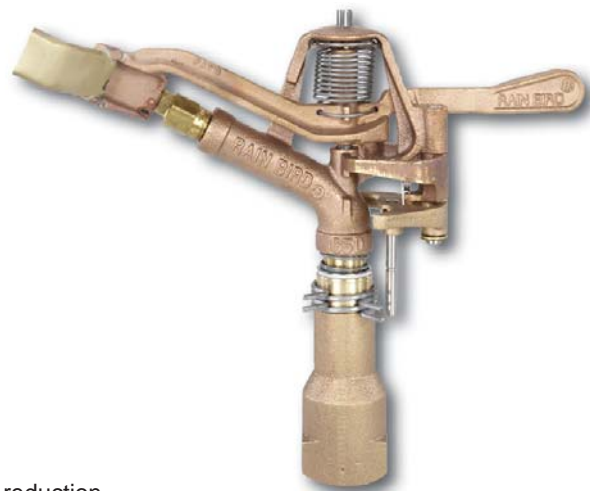
Performance

1" (26/34) Riser-Mounted Impact Head Used for Slope or Large, Non-Turf-Area Applications

- Flexibility – Straight-through flow for superior performance in dirty water
- Reliability – Proven impact drive
- Durability – Rugged brass and stainless steel construction

Features

- Proven impact drive.
- Long-wearing TNT bearing.
- Straight-through flow for superior performance in dirty water.
- Full-circle or adjustable arc 20° to 340°.
- Precision Jet tube (PJ™) minimizes side splash.
- Stainless steel distance control diffuser pin allows up to 25% radius reduction.
- Rugged brass, bronze and stainless steel construction.
- FP trip for full- or part-circle operation.



Product Number	Size	Description
65PJADJTNT	1"	SPRINKLER RAIN BIRD



Fluid & Air Transfer - Header Manifold

TIME Header Manifolds



TIME header manifolds are designed and manufactured in various configurations, to allow air/water control in a number of mining applications. To be used in conjunction with the TIME ball valve.

**** Can be manufactured to custom specifications ****

Product Number	Size
525-06	Header Manifold 2" female NPT one end with 4 X 1" female NPT
525-08	Header Manifold 2" grooved one end with 5 X 1" female NPT
525-09	Header Manifold 2" grooved one end with 3 X 1" female NPT
525-10	Header Manifold 2" grooved both ends with 3 X 1" male NPT
525-11	Header Manifold 2" grooved both ends with 3 X 1" female NPT
525-12	Header Manifold 2" grooved both ends with 4 X 1" male NPT

Potassium Acetate Liquid Deicer

Potassium Acetate represents a significant improvement on liquid de-icing fluids. Potassium Acetate is clear, odorless, and is an easy-handling solution. The unique features and benefits of Potassium Acetate make it an ideal alternative to conventional ice melt applications:

Environmentally Friendly

- non-toxic and non-hazardous to plant and animal life
- non-damaging to most surfaces including concrete, metals, wood, gutters, lawns, and vegetation
- has a very low biological oxygen demand (BOD*) rate and contains no phosphates or urea.

High Performance Liquid Ice Melt

- works longer and better than magnesium chloride, calcium chloride, and traditional rock salts!
- improved wetting and spreading
- fluid sticks to the surface and lasts longer between applications
- rapid drying - making treated surfaces available for use in less time



* The lower the BOD rate, the quicker it decomposes into environmentally safe components. Chloride-based de-icers (calcium and magnesium chloride) accumulate in the environment as harmful salts which can be damaging to plant and animal life - including fish.

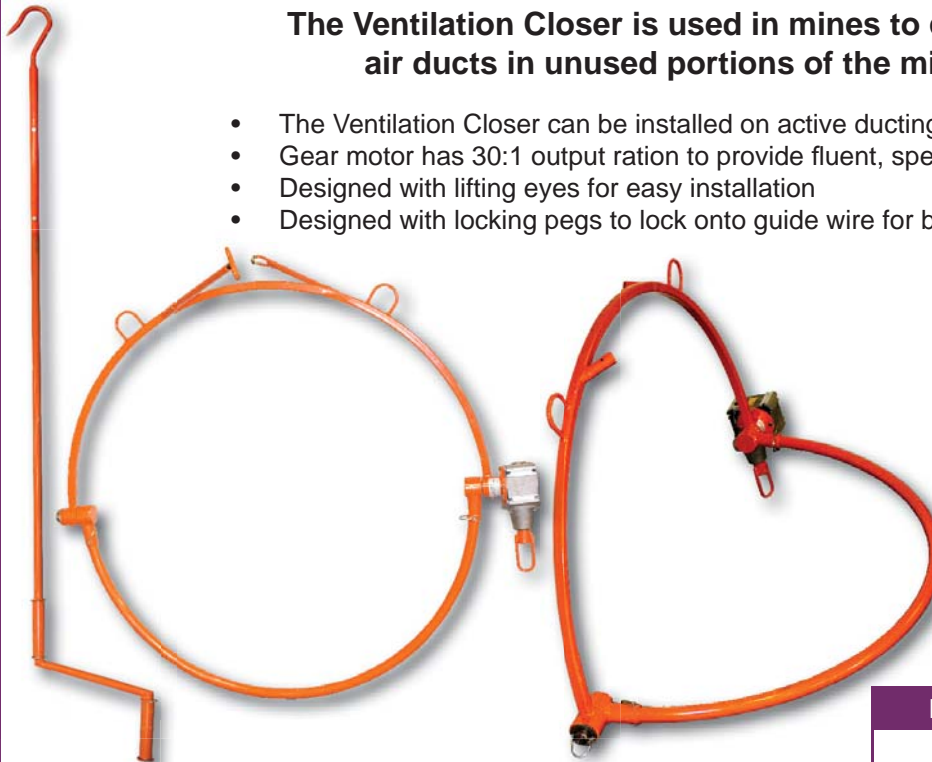


Fluid & Air Transfer

Ventilation Closer

The Ventilation Closer is used in mines to close off air ducts in unused portions of the mine.

- The Ventilation Closer can be installed on active ducting
- Gear motor has 30:1 output ration to provide fluent, speedy opening and closing
- Designed with lifting eyes for easy installation
- Designed with locking pegs to lock onto guide wire for better security



Installed Ventilation Closer



Product Number	Description
47-1015	Ventilation Closer



Blow Tubes

- Available in copper, steel and aluminum
- Available in different lengths and I.D.

Product Number	Size
221-07BT	Blow Tube Copper 1/2" x 12'
221-07BT10C	Blow Tube Copper 1/2" x 10'
221-07BT10S	Blow Tube Steel 1/2" x 10'
221-08BT	Blow Tube Copper 3/4" x 12'
47-1012	Blow Tube Aluminum 1-1/2" x 6'
47-1012X2	Blow Tube Aluminum 2" x 6'
47-1012X3/4	Blow Tube Aluminum 3/4" x 8'



Lubricator is designed for use with rock drill oil or rock drill grease

- Wide throat filler
- Replaceable pipe bushings
- One piece rugged malleable steel
- Weighted sipper
- Straight-through bore design

Product Number	Description
111-00	Lubricator

Lubricator Specifications	
Max Working Pressure	250 psi.
Oil Capacity	1½ pint
Maximum Volume	75-450 cfm
Weight	11.5 lb
Pipe Thread	1¼ inch
Bushing Size	1¼" X 1" and 1¼" X ¾"
Service	Handheld Drills, Small Hoists



Fluid & Air Transfer - Black Iron

Black Iron Pipe Fittings



Bushing, male to female

Product Number	Size	Product Number	Size
BI-110-BA	1/4" to 1/8"	BI-110-KE	1-1/2" to 3/4"
BI-110-CA	3/8" to 1/8"	BI-110-KH	1-1/2" to 1"
BI-110-CB	3/8" to 1/4"	BI-110-KJ	1-1/2" to 1-1/4"
BI-110-DA	1/2" to 1/8"	BI-110-MD	2" to 1/2"
BI-110-DB	1/2" to 1/4"	BI-110-ME	2" to 3/4"
BI-110-DC	1/2" to 3/8"	BI-110-MH	2" to 1"
BI-110-EB	3/4" to 1/4"	BI-110-MJ	2" to 1-1/4"
BI-110-EC	3/4" to 3/8"	BI-110-MK	2" to 1-1/2"
BI-110-ED	3/4" to 1/2"	BI-110-NH	2-1/2" to 1"
BI-110-HB	1/4" to 1"	BI-110-NJ	2-1/2" to 1-1/4"
BI-110-HC	1" to 3/8"	BI-110-NK	2-1/2" to 1-1/2"
BI-110-HD	1" to 1/2"	BI-110-NM	2-1/2" to 2"
BI-110-HE	1" to 3/4"	BI-110-PM	3" to 2"
BI-110-JC	1-1/4" to 3/8"	BI-110-PN	3" to 2-1/2"
BI-110-JD	1-1/4" to 1/2"	BI-110-SM	4" to 2"
BI-110-JE	1-1/4" to 3/4"	BI-110-SN	4" to 2-1/2"
BI-110-JH	1" to 1-1/4"	BI-110-SP	4" to 3"
BI-110-KD	1-1/2" to 1/2"		

Long Nipple

Product Number	Size	Product Number	Size
BI-113-A2	1/8" x 2"	BI-113-E2	3/4" x 2"
BI-113-A3	1/8" x 3"	BI-113-E3	3/4" x 3"
BI-113-A4	1/8" x 4"	BI-113-E4	3/4" x 4"
BI-113-A6	1/8" x 6"	BI-113-E6	3/4" x 6"
BI-113-B1.5	1/4" x 1-1/2"	BI-113-H2	1" x 2"
BI-113-B2	1/4" x 2"	BI-113-H3	1" x 3"
BI-113-B3	1/4" x 3"	BI-113-H4	1" x 4"
BI-113-B4	1/4" x 4"	BI-113-H6	1" x 6"
BI-113-B5	1/4" x 5"	BI-113-J2	1-1/4" x 2"
BI-113-B6	1/4" x 6"	BI-113-J3	1-1/4" x 3"
BI-113-C2	3/8" x 2"	BI-113-K2	1-1/2" x 2"
BI-113-C4	3/8" x 4"	BI-113-K3	1-1/2" x 3"
BI-113-C6	3/8" x 6"	BI-113-K4	1-1/2" x 4"
BI-113-D1.5	1/2" x 1-1/2"	BI-113-K6	1-1/2" x 6"
BI-113-D3	1/2" x 3"	BI-113-M2.5	2" x 2-1/2"
BI-113-D4	1/2" x 4"	BI-113-M3	2" x 3"
BI-113-D6	1/2" x 6"	BI-113-M4	2" x 4"
BI-113-E1.5	3/4" x 1-1/2"	BI-113-M6	2" x 6"

All of our Black Iron fittings are North American Made.
TIME Ltd. will supply the Canadian Registration Numbers (CRN) upon request.



Fluid & Air Transfer - Black Iron

Black Iron Pipe Fittings



Reducing Coupling

Product Number	Size
BI-119-BA	1/4" to 1/8"
BI-119-CA	3/8" to 1/8"
BI-119-DB	1/2" to 1/4"
BI-119-DC	1/4" to 3/8"
BI-119-EA	3/4" to 1/8"
BI-119-EB	3/4" to 1/4"
BI-119-EC	3/4" to 3/8"
BI-119-ED	3/4" to 1/2"
BI-119-HB	1" to 1/4"
BI-119-HC	1" to 3/8"
BI-119-HD	1" to 1/2"
BI-119-HE	1" to 3/4"
BI-119-JH	1-1/4" to 1"
BI-119-KH	1-1/2" to 1"
BI-119-MH	2" to 1"
BI-119-MJ	2" to 1-1/4"
BI-119-MK	2" to 1-1/2"

Tee

Product Number	Size
BI-101-A	1/8"
BI-101-B	1/4"
BI-101-C	3/8"
BI-101-D	1/2"
BI-101-E	3/4"
BI-101-H	1"
BI-101-J	1-1/4"
BI-101-K	1-1/2"
BI-101-M	2"
BI-101-N	2-1/2"
BI-101-P	3"
BI-101-S	4"

Cross

Product Number	Size
BI-102-A	1/8"
BI-102-B	1/4"
BI-102-C	3/8"
BI-102-D	1/2"
BI-102-E	3/4"
BI-102-H	1"
BI-102-J	1-1/4"
BI-102-K	1-1/2"
BI-102-M	2"
BI-102-N	2-1/2"
BI-102-P	3"
BI-102-S	4"



Black Iron Pipe Fittings



Plug

Product Number	Size
BI-109-A	1/8"
BI-109-B	1/4"
BI-109-C	3/8"
BI-109-D	1/2"
BI-109-E	3/4"
BI-109-H	1"
BI-109-J	1-1/4"
BI-109-K	1-1/2"
BI-109-M	2"
BI-109-N	2-1/2"
BI-109-P	3"
BI-109-S	4"

Coupling

Product Number	Size
BI-103-A	1/8"
BI-103-B	1/4"
BI-103-C	3/8"
BI-103-D	1/2"
BI-103-E	3/4"
BI-103-H	1"
BI-103-J	1-1/4"
BI-103-K	1-1/2"
BI-103-M	2"
BI-103-N	2-1/2"
BI-103-P	3"
BI-103-S	4"

Short Nipple

Product Number	Size
BI-112-A	1/8"
BI-112-B	1/4"
BI-112-C	3/8"
BI-112-D	1/2"
BI-112-E	3/4"
BI-112-H	1"
BI-112-J	1-1/4"
BI-112-K	1-1/2"
BI-112-M	2"
BI-112-N	2-1/2"
BI-112-P	3"
BI-112-S	4"



Fluid & Air Transfer - Black Iron

Black Iron Pipe Fittings



45° Elbow

Product Number	Size
BI-105-A	1/8"
BI-105-B	1/4"
BI-105-C	3/8"
BI-105-D	1/2"
BI-105-E	3/4"
BI-105-H	1"
BI-105-J	1-1/4"
BI-105-K	1-1/2"
BI-105-M	2"
BI-105-N	2-1/2"
BI-105-P	3"
BI-105-S	4"

Union

Product Number	Size
BI-104-A	1/8"
BI-104-B	1/4"
BI-104-C	3/8"
BI-104-D	1/2"
BI-104-E	3/4"
BI-104-H	1"
BI-104-J	1-1/4"
BI-104-K	1-1/2"
BI-104-M	2"
BI-104-N	2-1/2"
BI-104-P	3"
BI-104-S	4"

45° Street Elbow

Product Number	Size
BI-124-A	1/8"
BI-124-B	1/4"
BI-124-C	3/8"
BI-124-D	1/2"
BI-124-E	3/4"
BI-124-H	1"
BI-124-J	1-1/4"
BI-124-K	1-1/2"
BI-124-M	2"
BI-124-N	2-1/2"
BI-124-P	3"
BI-124-S	4"



Fluid & Air Transfer - Black Iron

Black Iron Pipe Fittings



Cap

Product Number	Size
BI-108-A	1/8"
BI-108-B	1/4"
BI-108-C	3/8"
BI-108-D	1/2"
BI-108-E	3/4"
BI-108-H	1"
BI-108-J	1-1/4"
BI-108-K	1-1/2"
BI-108-M	2"
BI-108-N	2-1/2"
BI-108-P	3"
BI-108-S	4"

90° Elbow

Product Number	Size
BI-100-A	1/8"
BI-100-B	1/4"
BI-100-C	3/8"
BI-100-D	1/2"
BI-100-E	3/4"
BI-100-H	1"
BI-100-J	1-1/4"
BI-100-K	1-1/2"
BI-100-M	2"
BI-100-N	2-1/2"
BI-100-P	3"
BI-100-S	4"

90° Street Elbow

Product Number	Size
BI-116-A	1/8"
BI-116-B	1/4"
BI-116-C	3/8"
BI-116-D	1/2"
BI-116-E	3/4"
BI-116-H	1"
BI-116-J	1-1/4"
BI-116-K	1-1/2"
BI-116-M	2"
BI-116-N	2-1/2"
BI-116-P	3"
BI-116-S	4"



Fluid & Air Transfer - Hydraulics

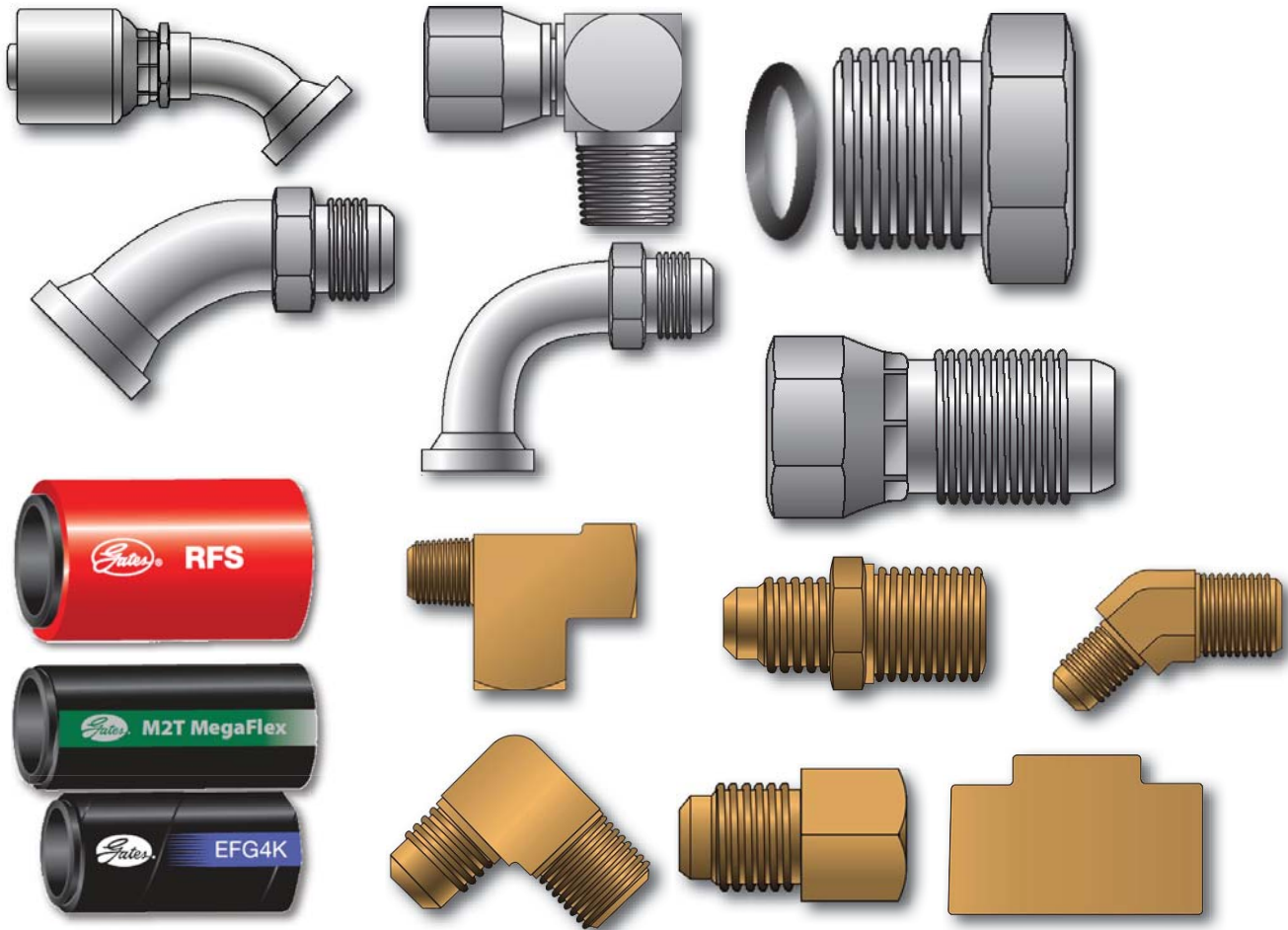
Hydraulics



HOSE, COUPLINGS + EQUIPMENT

TIME Limited is a full line distributor of hydraulic couplings and hose for Gates Hydraulics.

Please call us for product information or visit the Gates website at www.gates.com.



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www.timeltd.ca

Fluid & Air Transfer - Pneumatics

Pneumatics

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Hansen Couplings
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Dual beam & alignment lasers
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Miner's Cap Lamp
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Margo Plugs
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Van Ruth Plugs
VK Grout Plugs



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Blasting Wire
CAB Wire Hangers



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Brass Ball Valves
Brass Water Valves
Butterfly Valves
Gate Valves
Mine Header Valves
Mortrol Valves
Relief Valves




www.timeltd.ca

INDUSTRIAL

PUMPS & PARTS

FMC (Bean) Pumps & parts
FMC (Bean) Pump Assemblies
Prattisoli KF Series pumps
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ENVIRONMENT - HEALTH - SAFETY

CSA approved Miner's Boots
Safety Glasses, Goggles, Visors
Hand, Head & Hearing Protection
Harnesses & Lanyards
Sorbent Mats, Rolls, Socks, Booms & Pillows
Spill Kits



JOBSITE STORAGE EQUIPMENT

Tough and ultra-secure:
Storage chests & cabinets
Work benches
Field stations



MINING SUPPLIES

Atomizer Bars - 3' and 12'
Black Iron Fittings & Nipples
COXREEL Safety Reels
Hand Tools
Mine Hooks - H & S
Mining Header Manifolds
Muck Scoops
Proptec Rotary Myster
RIDGID Pipe Wrenches
RIDGID Threading Machines
Strapping - CARISTRAP, STRAPRITE



HOISTING & LIFTING

Chain
Loadbinders
Poly Rope
Shackles & hooks
Sheave Blocks - 6" & 8"
Wire Rope



The screenshot shows the TIME website interface. At the top, there are social media icons for Facebook, Twitter, and LinkedIn. The main header features the TIME logo and the text "8AM - 5PM EST (HEURE DE 8h À 17h (HNE), 705-647-8138". Below the header is a navigation menu with buttons for "Manufacturing & Fabrication", "Resources", "Services", "Demander une soumission", and "Catalogue de produits". A large banner in the center of the page reads "Brand New Website" and "Tout Nouveau Site Web" with the URL "www.timeltd.ca" prominently displayed.

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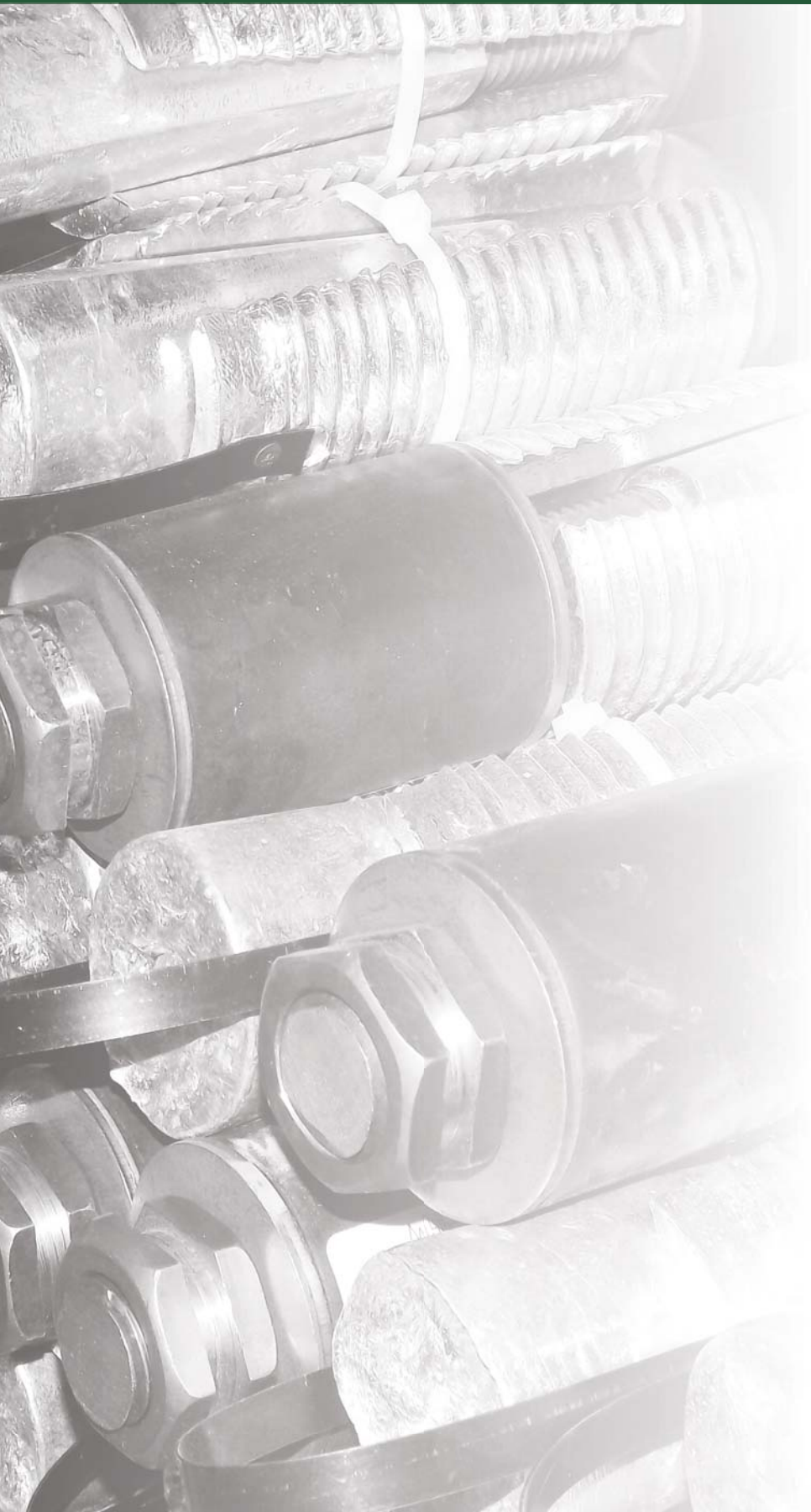


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PAGE: FA36



www.timeltd.ca



Plugs - VK Grout Plugs

VK Grout Plugs

VK Grout Plugs are constructed of zinc and rubber with mild steel pipe in the centre. This allows the grout plug to be drilled out. The VK grout plug can be adapted to drill rods by a left hand pipe thread which allows them to be removed after cementing. **Custom sizes available.**



VK Grout Plug

Includes a built-in check valve which seals pressure in the hole making it ideal for grouting.

Components:

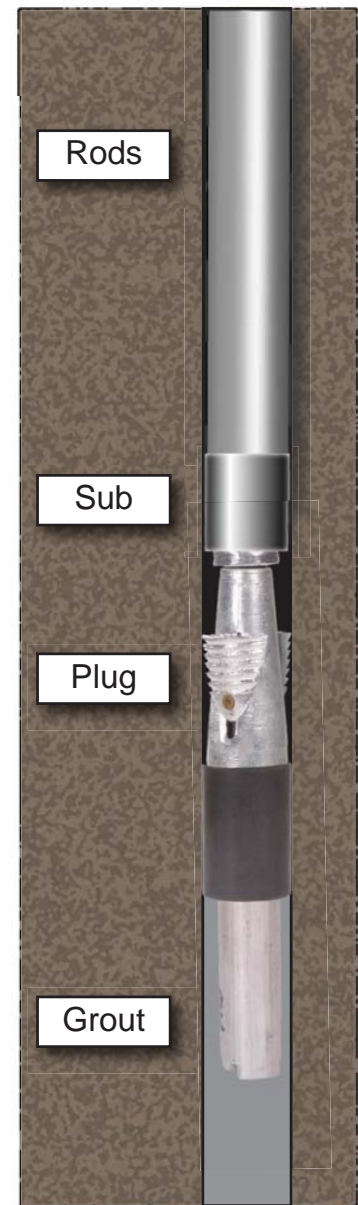
- Left hand pipe thread
- Wedges
- Rubber seal
- Aluminum tube
- Plastic check ball

Adapters for left hand plugs

Product Number	Size
427-00	A W/L
427-01	B W/L
427-02	N W/L
427-03	H W/L
427-031	HWT

LEFT HAND PIPE THREAD

Product Number	Model Number	Size	Pipe Size	Length In.
423-16	VKA150L	1 ½" E	½"	13"
423-24	VKA175L	1 ¾"	½"	13"
423-32	VKA187L	1 57/64" A	½"	13"
423-40	VKA200L	2"	½"	13"
423-48	VKA212L	2 1/8"	½"	17"
423-56	VKA225L	2 ¼"	1"	17"
423-63	VKA238L	2 23/64" B	1"	17"
423-70	VKA250L	2 ½"	1"	17"
423-77	VKA275L	2 ¾"	1 ¼"	21"
423-84	VKA300L	2 63/64" N	1 ¼"	21"
423-91	VKA350L	3 ½"	1 ¼"	21"
423-98	VKA375L	3 25/32" H	1 ¼"	21"
423-119	VKA483L	4 53/64" P	2"	21"



Plugs - Margo Type

Margo Type

MARGO TYPE PLUGS

The Margo type plugs are manufactured in various diameters and lengths.

It is mechanically operated from outside the hole, and is generally used for controlling water flow or various gases from drill holes. The plug is inserted into the collar of the hole and the rubbers are expanded by simply tightening the nut.

A valve (as shown) may be screwed onto the protruding end of the plug to control the flow of water or gas.

Margo Accessories



Margo Support Plate

Product Number	Size
422-600	For 1/2" pipe
422-601	For 1" pipe
422-602	For 2" pipe

Brass Ball Valves

Product Number	Size
46-01-050	1/2"
46-01-100	1"
46-01-200	2"

Margo Adapters

Product Number	Size
422-B W/L	B
422-N W/L	N
422-H W/L	H
422-P W/L	P



Margo Notes

- Accessories are sold separately.

Pictured with Valve installed



Ref Number	Hole Diameter	Pipe Size	Product Number - determined by length									
			18"	24"	36"	48"	60"	72"	84"	96"	108"	120"
M-112	1-1/4"	1/2"	422-00	422-01	422-02	422-03	422-04	422-05	422-06	422-07	422-08	422-09
M-125	1-3/8"	1/2"	422-10	422-11	422-12	422-13	422-14	422-15	422-16	422-17	422-18	422-19
M-137	1-1/2" EX	1/2"	422-20	422-21	422-22	422-23	422-24	422-25	422-26	422-27	422-28	422-29
M-162	1-3/4"	1/2"	422-30	422-31	422-32	422-33	422-34	422-35	422-36	422-37	422-38	422-39
M-175	1-7/8" A	1/2"	422-40	422-41	422-42	422-43	422-44	422-45	422-46	422-47	422-48	422-49
M-187	2"	1/2"	422-50	422-51	422-52	422-53	422-54	422-55	422-56	422-57	422-58	422-59
M-200	2-1/8"	1/2"	422-60	422-61	422-62	422-63	422-64	422-65	422-66	422-67	422-68	422-69
M-212	2-1/4"	1"	422-70	422-71	422-72	422-73	422-74	422-75	422-76	422-77	422-78	422-79
M-225	2-3/8" B	1"	422-80	422-81	422-82	422-83	422-84	422-85	422-86	422-87	422-88	422-89
M-237	2-1/2"	1"	422-90	422-91	422-92	422-93	422-94	422-95	422-96	422-97	422-98	422-99
M-262	2-3/4"	1"	422-208	422-100	422-101	422-102	422-103	422-104	422-105	422-106	422-107	422-108
M-287	3" N	1"		422-109	422-110	422-111	422-112	422-113	422-114	422-115	422-116	422-117
M-337	3-1/2"	2"		422-118	422-119	422-120	422-121	422-122	422-123	422-124	422-125	422-126
M-350	3-3/4" H	2"		422-127	422-128	422-129	422-130	422-132	422-133	422-206	422-134	422-135
M-375	3-7/8"	2"		422-300	422-301	422-302	422-303	422-304	422-305	422-306	422-307	422-308
M-387	4"	2"		422-136	422-137	422-138	422-139	422-140	422-141	422-142	422-143	422-144
M-437	4-1/2"	2"		422-145	422-146	422-147	422-148	422-149	422-150	422-151	422-152	422-153
M-450	4-3/4" P	2"		422-154	422-155	422-156	422-157	422-158	422-159	422-160	422-161	422-162
M-462	4-7/8"	2"		422-163	422-164	422-165	422-166	422-167	422-168	422-169	422-170	422-171
M-487	5"	2"		422-172	422-173	422-174	422-175	422-176	422-177	422-178	422-179	422-180
M-537	5-1/2"	2"		422-230	422-231	422-232	422-233	422-234	422-235	422-236	422-237	422-238
M-587	6"	2"		422-240	422-241	422-242	422-243	422-244	422-245	422-246	422-247	422-248



Plugs - Drill Hole Plugs

Plugs



TIME DRILL HOLE PLUGS

Manufactured in Haileybury, Ontario Canada, TIME's Drill hole plugs are primarily used to plug a diamond drill hole.

TIME Drill Hole plugs are designed to be installed at the required depth in the hole.

The Slotted nut(along with the adapter) is used to hold the plug in place while descending the hole to the required depth, offering more control.

The adapter can be used on both standard and slotted Nut style Drill Hole Plugs.

TIME's Drill Hole plugs are made of rubber, zinc and mild steel. It can be drilled out if required.

Ask us about our specialized plug for corrosive environments.

Product Number	Product Reference	Drill Hole Size	SN Adapter
428-00	P-125	1-1/4" XRP	
428-01	P-138	1-3/8"	
428-02	P-150	1-1/2" EX	
428-03	P-175	1 3/4"	
428-29	P-187	1-7/8" A	427-05
428-05	P-200	2"	
428-06	P-212	2-1/8"	
428-27	P-238	2-3/8" B	427-04
428-26	P-300	3" N	427-06
428-28	P-387	3-3/4" H	427-07

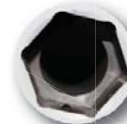
TIME HOLE PLUG HAND TOOL

TIME's hole plug hand tool, is designed to install drill holes plugs to depth without the need of a diamond drill and rods. The hand tool allows 5' extensions to be added, so that the plug can be lowered down the hole to the required depth.



Product Number	Description
427-30	Hole Plug Hand Tool - 5'
427-31	Hole Plug Hand Tool Extension - 5'
427-32	Hole Plug Hand Tool Socket 5/8" Nut
427-33	Hole Plug Hand Tool 1" Nut
427-34	Hole Plug Hand Tool 1-3/4" Nut

Adapter



Top View



Side View



Van Ruth

VAN RUTH CEMENTING AND WEDGING PLUG

Applications:

- Used for wedging in off bottom situations such as branch holes;
- Most effective as bridge plugs for spot cementing sections of holes;
- Prevent dilution of cement by drilling fluids.

Cementing and Wedging Plugs are also used in some wedging applications and where holes are making water.

Installation procedure:

The Cementing and Wedging Plug is pumped down an open rod line to the required location. Spring loaded slips grab wall of hole upon leaving rod line; taper on plug locks in slips. A high pressure reading indicates plug has set correctly.

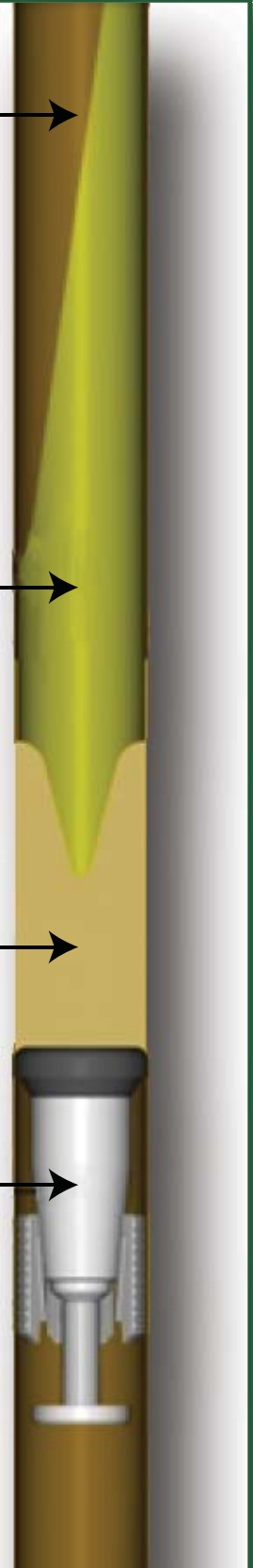


Drill Hole →

Wedge →

Wooden Plug →

CW Plug →



Product Number	Size
409-00	A
409-01	B
409-02	H
409-03	N
409-06	P



Plugs - Van Ruth HUP Series

Van Ruth - Hold Up Plug

The Van Ruth Hold Up Plug have applications for both surface and underground use and are designed as a safety feature against water or tooling existing the drill rod. The plug is particularly effective as a safety feature when drilling an up hole in an underground environment, such as allowing an operator to safely pull rods when there is a problem in the hole, such as a stuck inner tube.



Instructions for Use:

- Insert the plug into the drill string
- Use the water pump to pump the plug upward or downward in the drill string
- Plug will lock itself in the drill string when it reaches an obstruction in the hole

Product Number	Size
409-09	AW/L VR ROD HUP
409-10	BW/L VR ROD HUP
409-19	BW/L-TK VR ROD HUP
409-11	NW/L VR ROD HUP
409-15	HW/L VR ROD HUP
409-30	PW/L VR ROD HUP



DISPLACEMENT PLUG / WIPER PLUG

Displacement plugs are used in diamond drill rods and casings for cleaning the inside of the rods.

Features:

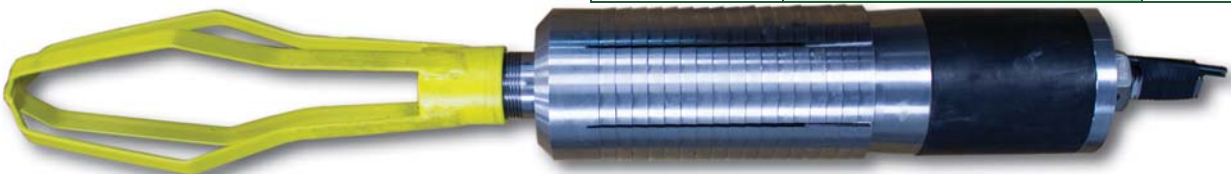
- made of soft natural rubber
- commonly used for cleaning the inside of drilling rod during cementing or grouting operations

Product Number	Size
413-00	A
413-01	B
413-02	H
413-03	N
413-04	P

HP HOLE PLUG W / Rubber

The HP Hole plug is designed to be installed in holes with pressure build-up. The HP Hole plug can be safely installed to depth to allow cementing over top.

Product Number	Description	Adapter
595-06WR	BW/L HOLE PLUG W/RUBBER	595-07
596-06WR	NW/L HOLE PLUG W/RUBBER	596-07
597-06WR	HW/L HOLE PLUG W/RUBBER	597-07
598-06WR	PW/L HOLE PLUG W/RUBBER	598-07



Various Plugs

GRAPHITE PLUGS

Graphite Plugs are used with drill rods.

INSTRUCTIONS

- Insert plug into drill bit before lowering rods to ensure no debris enters drill rods and rods travel smoothly to the bottom of the hole.
- Graphite plug is easily drilled out once the rods are at the bottom of the hole

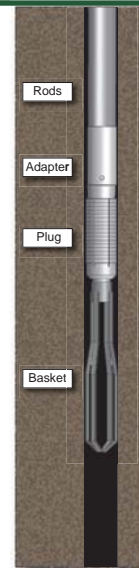
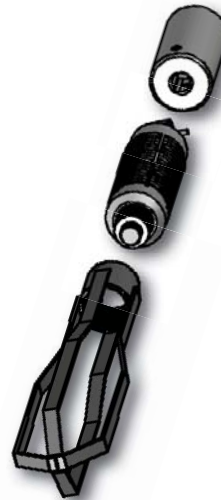


Product Number	Size
GRAPHITE AWL	A
GRAPHITE ATK	ATK
GRAPHITE BWL	B
GRAPHITE BTK	BTK
GRAPHITE NWL	N
GRAPHITE NTK	NTK
GRAPHITE N-2	N2
GRAPHITE N-3	N3
GRAPHITE HWL	H
GRAPHITE PWL	P

STEEL WEDGE PLUGS

Commonly referred to as a "Bradley Plug", it consists of a Steel Basket, a Wedge Plug with pin and a Rod Box to Wedge plug adapter.

Product Description	B	N	H	P
Steel Plug Basket	595-05	596-05	597-05	598-05
Wedge Plug with Pin	595-06	596-06	597-06	598-06
Rod Box to Wedge Plug Adapter	595-07	596-07	597-07	598-07



WOODEN PLUGS



Wooden Plugs are used with bypass wedges. They are used to fill the hole before you continue on.

Product Number	Size
595-03	B
596-03	N
597-03	H

Special High Volume Plug

Product Number	Size
92-4000	'N'



Plugs - Marker Plugs

Drill Hole Marker Plugs

Why HI-VIS Yellow? HI-VIS Yellow is associated with safety. It is seen on caution signs, construction equipment, guardrails, and safety clothing.

- HI-VIS Yellow complies with standard safety rules.
- HI-VIS Yellow will keep the original brightness for a long time. The time depends on the exposure level of UV. Under normal outdoor conditions it will last for minimal 4-5 years.
- HI-VIS Yellow is easier to see in the dark.

Drill hole marker plugs are offered in a range of sizes to accommodate drill holes of ½" to 18". They are light, will not freeze and can be reused. They will not be damaged or moved when run over by heavy machinery.



Product No.		Model #	Qty/ Case	Wt/ Case	Open End	Length/ Depth	Rim	Bottom End, Closed	Indentation: Half-Rnd. Diam.	Wall Thickness
Standard	Hi Vis									
41-00	41-00-HV	Model #1	200	12 lbs.	2"	6"	½"	½"	5/16"	.0625"
41-01	41-01-HV	Model #1-A	100	9 lbs.	2 ½"	4"	½"	1 ¾"	5/16"	.0625"
41-02	41-02-HV	Model #2	100	20 lbs.	3 ½"	8"	½"	2"	5/16"	.0800"
41-06	41-06-HV	Model #4	100	27 lbs.	4.7"	8"	⅝"	2 ½"	5/16"	.0800"
41-03	41-03-HV	Model #6	50	25 lbs.	6"	10"	¾"	3"	5/16"	.0800"
41-04	41-04-HV	Model #9	20	20 lbs.	9"	11"	1"	5 ⅝"	5/16"	.0900"
41-08	41-08-HV	Model # 10	30	20 lbs.	11"	11"	1 ¼"	5 ⅝"	5/16"	.0900"
41-05	41-05-HV	Model #13	*BULK*	3 lbs. Ea.	13"	16"	1 ¼"	9 ½"	5/16"	.0900"
41-07	41-07-HV	Model #18	*BULK*	5 lbs. Ea.	18"	12"	1 ½"	10"	5/16"	.0900"

BULK - Sold in any quantity requested

EXCLUSIVE



6 Plug, cap and casing

9 Plug, cap and casing



Drill Hole marker plug, cap and casing are all designed in conjunction, to ensure a safe and proper fit.



Product Number	Description	Quantity per Box
41-03-PCHV	HI-VIS # 6 PLUG & CAP KIT	20 Plugs and Caps
47-1084	HDPE - POLYETHYLENE PIPE FOR # 6 TIME HI-VIS PLUG & CAP	25 10' lengths / bundle 3 bundle min. purchase
41-04-PCHV	HI-VIS # 9 PLUG & CAP KIT	8 Plugs and Caps
47-1111-04 (4') 47-1111-06 (6') 47-1111-08 (8') 47-1111-10 (10')	** EXCLUSIVE ** HDPE - POLYETHYLENE PIPE FOR # 9 TIME HI-VIS PLUG & CAP	Available 4', 6', 8', 10' lengths 200 pcs min. purchase



Plugs - Powder, Stemming

Powder Plugs

Pilgrim Hat Powder Plugs

Red plastic pilgrim hat powder plugs and white expansion plugs are used to secure the charge in rising drill holes.



Product No.	Description	Qty/ Case	Wt/ Case	Feathered End	Overall Length	Closed End
40-00	Red 1 5/8" Powder Plug	1,000	25 lbs.	3 1/2"	2"	1"
40-01	Red 2" Powder Plug	650	25 lbs.	4"	2"	1 1/4"
40-02	Red 3" Powder Plug	270	25 lbs.	5"	3"	2"
40-06	White Expansion (Birdie) Plug	720	11 lbs.	2 1/2"	2"	1 1/4"
40-07	Red Powder Plug	1,000	15 lbs.	2 1/2"	1"	1/2"
40-12	Red 3" Extended Powder Plug (shown in white)	150	21 lbs	5"	6"	2"

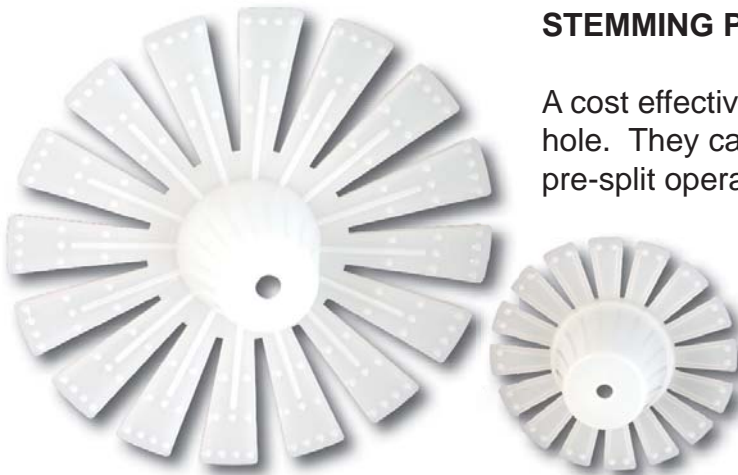
ATEK Powder Plug



Product No.	Description
40-08	#4 ATEK Powder Plug (2-1/4" Drive Point)
40-10	#5 ATEK Powder Plug (2" Drive Point)
40-11	#6 ATEK Powder Plug (1" Drive Point)



STEMMING PLUGS



A cost effective way to quickly and easily seal the blast hole. They can also be used to create air pockets for in pre-split operations.

Product Number	Size
47-1050-08	Stemming Plug 8"
47-1050-13	Stemming Plug 13"



Plugs - Vinegar Gas Bags

Vinegar Gas Bags

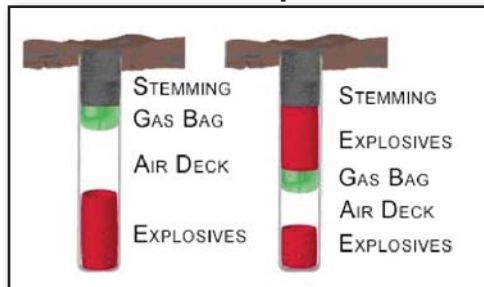


The Stemlock Gas Bag® is a self inflating borehole plug that is used to block or seal a hole at any depth.

- For 3" to 16" diameter holes.
- No air compressor, bags self inflate chemically.
- No leakage, Gas Bag is sealed
- No heat produced during inflation
- Ingredients are not carcinogenic.
- Substantial savings, up to 35% in explosives costs can be made by using the Gas Bag for air column blasting techniques.

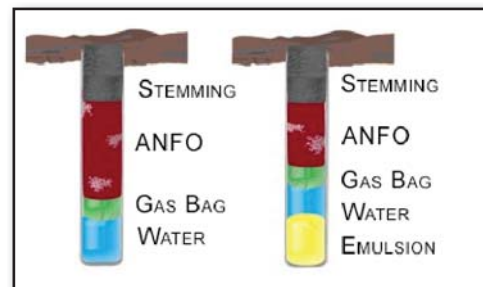
Uses

Use Less Explosives



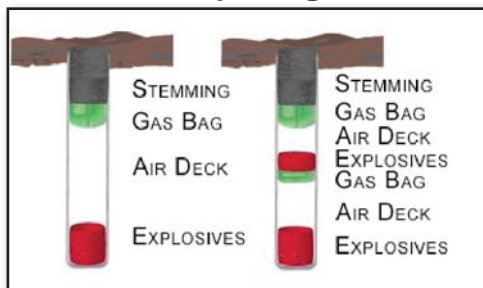
Save 15% to 35% of the total explosive load and still have excellent dig-ability. It's possible to reduce vibration and noise in addition to cost savings.

Substitute ANFO for Emulsion Blends



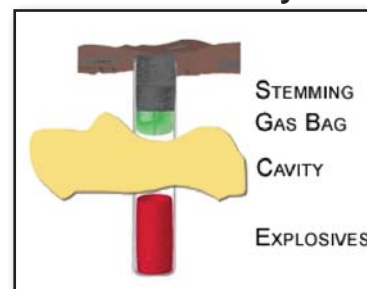
If your holes have only a few feet of water, try dropping a Gas Bag on the water to seal off the hole. Add a little stemming and use ANFO instead of waterproof explosives. Generally you can use this system up to 6 times the borehole diameter of water.

Pre-splitting



Hole spacing should be 15 to 24 times the borehole diameter in inches depending on the local geology. If the hole is over 50 feet deep, two or more charges should be used for better explosive distribution. Usually about 60% of the total charge should be in the bottom. Charge weights should range between 3% to 10% of the total charge in a normal production hole. Holes should be stemmed for noise reduction.

With a Cavity



Block a void or cavity that the drilled hole has penetrated. Plug exploration holes.

Product Number	Description
47-1024	GAS BAG 4" VINEGAR
47-1025	GAS BAG 6" VINEGAR
47-1026	GAS BAG 8" VINEGAR
47-1033	GAS BAG 9" VINEGAR



Plugs - TIME Products

MINING

HOSE & HOSE FITTINGS

Chicago Couplings
Hose - air, water & hydraulic
Minsup Fittings
Hansen Couplings
Punch-Lok Clamps
TIME Hose Fittings
Whipchek Hose Anchors
Lubricators



LIGHTING

Dual beam & alignment lasers
Airturbo Lamp
LED Mine Strobe Light (MSHA)
Miner's Cap Lamp
Tunnel Lamp
LED Flood Lights



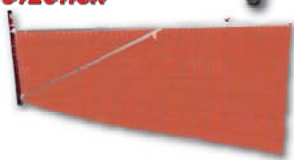
MINING PLUGS

Anchor Bolts
Displacement Plugs
Margo Plugs
Drill Hole Plugs
Stemming Plugs
Van Ruth Plugs
VK Grout Plugs



BARRIER PROTECTION

Safety Gate
Barrier Fencing
Complete Remote Systems



DRILLING

PERCUSSIVE TOOLS

Tapered Equipment
Drifting & Tunneling
Bench & Long Hole
Shanks



DIAMOND DRILL TOOLS, FLUIDS & POLYMERS

Core Barrels
Water Equipment
Wedging Tools
Recovery Tools
Hoisting Equipment
Bestlife Lubricants
Ambex Anchoring Capsules
Drilling Fluids
Linseed Soap
Rod Grease
Citrus Degreaser



BLAST HOLE PRODUCTS

PVC & Polyethylene Pipe
Anti-Static Loading Hose
Loading Bags
Depth Gauges
Drill Hole Marker Plugs
Hi-Vis Drill Hole Marker Plugs
Birdie Plugs
Powder Plugs
Blasting Wire
CAB Wire Hangers



VALVES

Brass Ball Valves
Brass Water Valves
Butterfly Valves
Gate Valves
Mine Header Valves
Mortrol Valves
Relief Valves




www.timeltd.ca

INDUSTRIAL

PUMPS & PARTS

FMC (Bean) Pumps & parts
FMC (Bean) Pump Assemblies
Prattisoli KF Series pumps
NOMAD Diaphragm Pumps



ENVIRONMENT - HEALTH - SAFETY

CSA approved Miner's Boots
Safety Glasses, Goggles, Visors
Hand, Head & Hearing Protection
Harnesses & Lanyards
Sorbent Mats, Rolls, Socks, Booms & Pillows
Spill Kits



JOBSITE STORAGE EQUIPMENT

Tough and ultra-secure:
Storage chests & cabinets
Work benches
Field stations



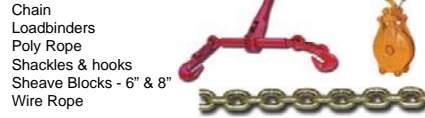
MINING SUPPLIES

Atomizer Bars - 3' and 12'
Black Iron Fittings & Nipples
COXREEL Safety Reels
Hand Tools
Mine Hooks - H & S
Mining Header Manifolds
Muck Scoops
Proptec Rotary Mister
RIDGID Pipe Wrenches
RIDGID Threading Machines
Strapping - CARISTRAP, STRAPRITE



HOISTING & LIFTING

Chain
Loadbinders
Poly Rope
Shackles & hooks
Sheave Blocks - 6" & 8"
Wire Rope



The screenshot shows the TIME website interface. At the top, there are social media icons for Facebook, Twitter, and LinkedIn. Below that is the TIME logo and a search bar. A navigation menu includes 'Manufacturing & Fabrication', 'Resources', 'Services', 'Demander une soumission', and 'Catalogue de produits'. A large banner in the center reads 'Brand New Website' and 'Tout Nouveau Site Web' with the URL 'www.timeltd.ca' prominently displayed. The background of the banner features a close-up image of a gear.

rev 032017-en



North America 1-800-669-3542
International +1-705-647-8138

PAGE: PL12



www.timeltd.ca

TIME Ltd. carries a wide variety of pumps, from piston and plungers to diaphragm.

TIME Ltd. is a stocking authorized distributor of *FMC Technologies, Pratissoli and NOMAD pumps.*

In-Stock Pumps

TIME Ltd. stocks and reorders the following pumps:

- FMC Technologies: E0413C, L0918BCD and W1122BCD
- Pratissoli: KF Series Model 28, 30, 36, 40
- NOMAD: NTG25, NTG40, NTG50, NTG80

Repair and Rebuild

TIME Ltd. stock parts and kits to rebuild and repair all of our pumps as well as most other pumps out there.

Assemblies

TIME Ltd. has created pump assemblies using diesel motors, air-powered motors and hydraulic motors. The assemblies are used in various applications above ground, below ground and all places in between.

FMC Technologies

Pratissoli

NOMAD
PUMPS • PARTS • PASSION

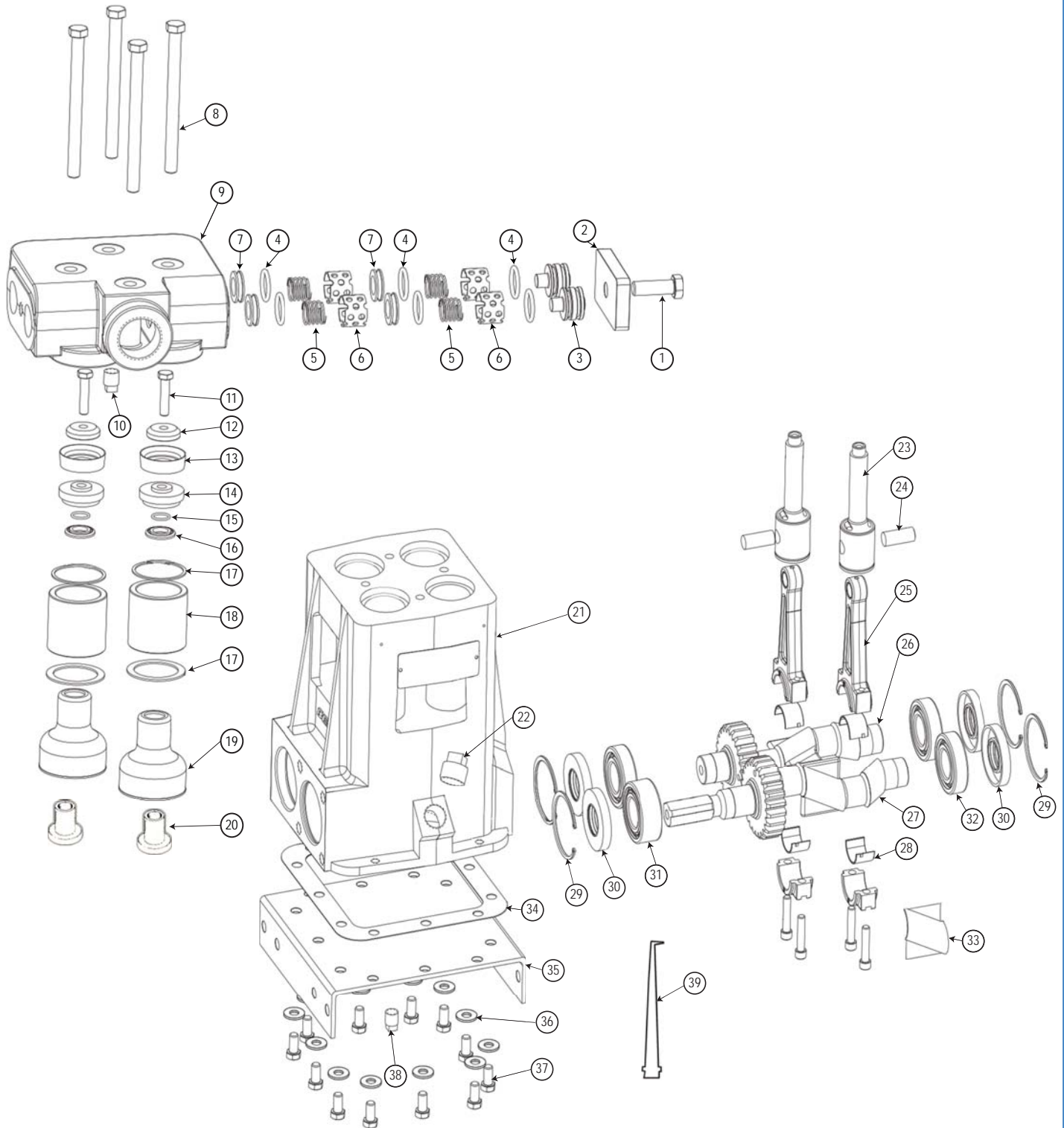
North America 1-800-669-3542

International +1-705-647-8138

PAGE: PU1

PUMPS - FMC water pumps

E0413 Parts Diagram



Performance Table FMC E0413

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				390 RPM	400 RPM	425RPM	450RPM	575 RPM
E0413	1.625	0.036	600	14.01	14.36	15.26	16.16	20.65



FMC - E0413
PN: 39-160-03



Item	Part Name	Qty	Part #
1	Hex Cap Screw 1/2"-13 x 1 1/2" (plated steel)	2	39-1100064
2	Clamp, Valve Cover (steel)	2	39-1255887
3	Valve Cover (steel)	4	39-1219614
4	"O" Ring	12	568-213-90
5	Valve cage (SS)	8	39-1219610
6	Valve Disc & Spring ASM (SS)	8	39-5253499
7	Seat, Valve (SS)	8	39-5260142
8	Cap screw, 3/8"-16 x 5"	4	39-1101262
9	Valve Chamber (cast iron)	1	39-1247208
10	Pipe Plug, 1/4" galv.	1	39-1109987
11	Cap screw, 5/16"-18 x 1 1/2" (SS)	4	39-1284516
12	Packing Washer	4	39-5257986
13	Packing	4	39-5257807
14	Packing holder	4	39-1282557
15	"O" Ring	4	568-015-90
16	Washer, Umbrella	4	39-1269388
17	Gasket Cylinder	8	39-A91684
18	Cylinder, ceramic	4	39-1241364
19	Umbrella	4	39-1279148
20	Sleeve, Crosshead	4	39-1218743
21	Case, Pump (cast iron)	1	39-1273545
22	Plug, oil fill (3/4" pipe)	2	39-1105060
23	Crosshead (cast iron)	4	39-1216823
24	Wrist pin	4	39-1219650
25	Conn. Rod ASM	4	39-P509546
26	Crankshaft ASM, Driven	1	39-P509560
27	Crankshaft ASM, Drive	1	39-P510882
28	Bearing Insert, Conn Rod (pair)	4	39-P510834
29	Snap Ring (N5000-244)	4	39-1118553
30	Seal, Oil	4	39-1101095
31	Bearing (N.D. 5206)	1	39-1104508
32	Bearing (N.D. 1206)	3	39-1104444
33	Oil Slinger	2	39-P500359
34	Gasket, Pump Base	1	39-1273559
35	Mounting Base, Pump	1	39-1280633
36	Wave Lock Washer, 3/8", S'proof	12	39-1177455
37	Cap screw, 3/8" - 16 x 3/4"	12	39-1100008
38	Magnetic Drain Plug, 1/4" pipe	1	39-1101305
39	Valve Seat Remover	1	39-1250638

Specifications:

- Standard Suction Size: 1.25" NPT
- Standard Discharge Size: 0.75" NPT
- Pump Weight (Average): 80 lbs

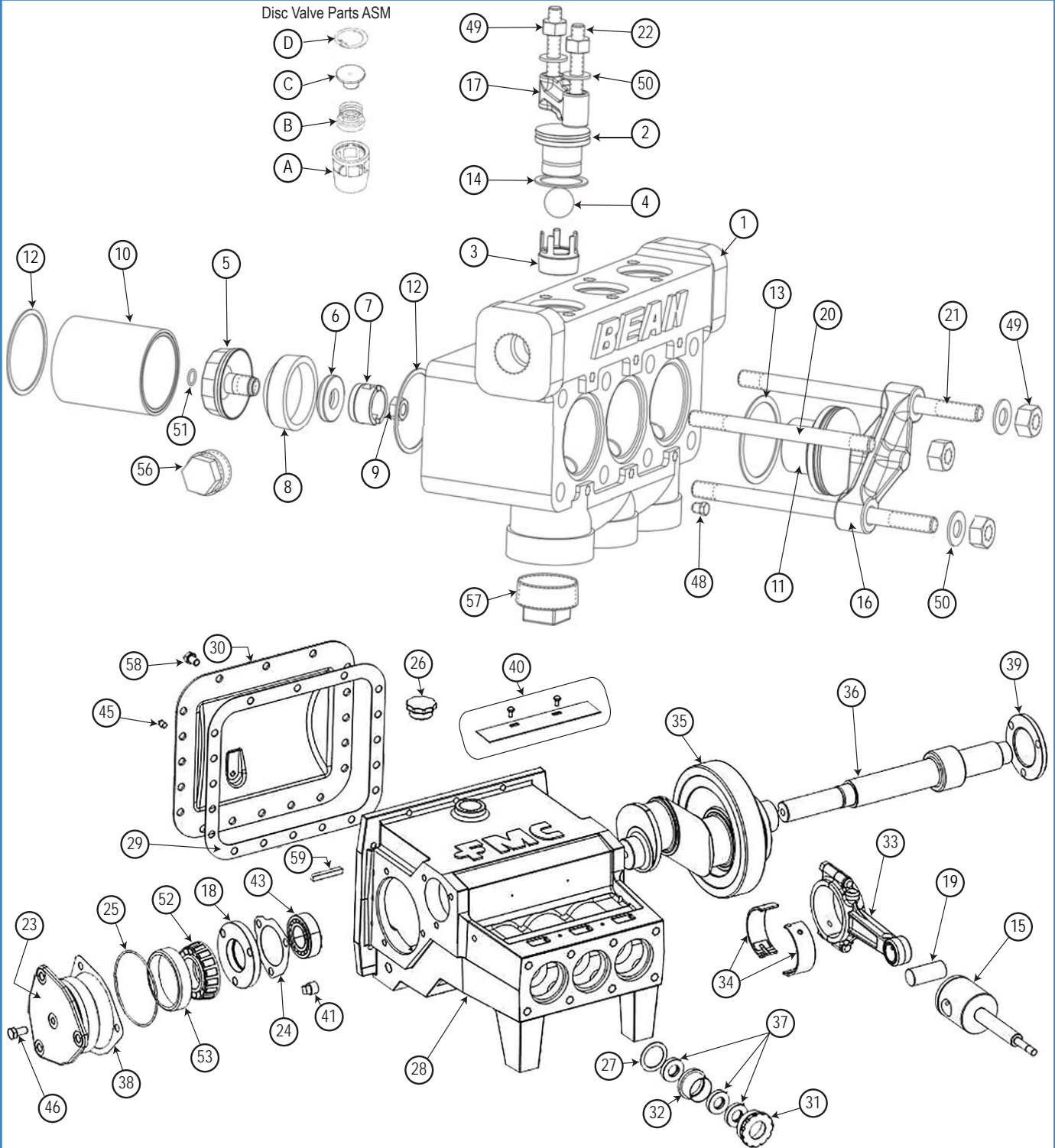
Features:

- Fluid end material of ductile iron
- Nitrided crankshaft resists corrosion
- Designed for easy, economical maintenance
- Cast iron pump case
- Special raised seat valves and hardened valve chamber available for abrasives



PUMPS - FMC water pumps

L09-420 Parts Diagram



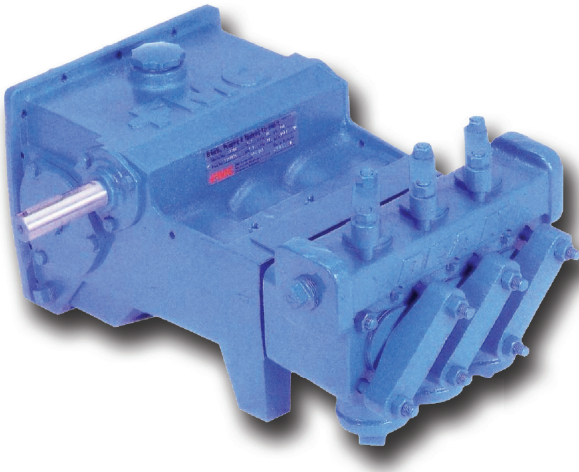
Performance Table FMC L09-420

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	625 RPM	700 RPM	750 RPM	890 RPM
L0918	2.750	0.0589	700	11.3	20.2	22.6	24.2	28.7



PUMPS - FMC L0918BCD

FMC L09-420
PN: 39-160-00



Specifications:

- Standard Suction Size: 1.50" NPT
- Standard Discharge Size: 1.00" NPT
- Pump Weight (Average): 200 lbs

Features:

- Fluid end material of cast iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds

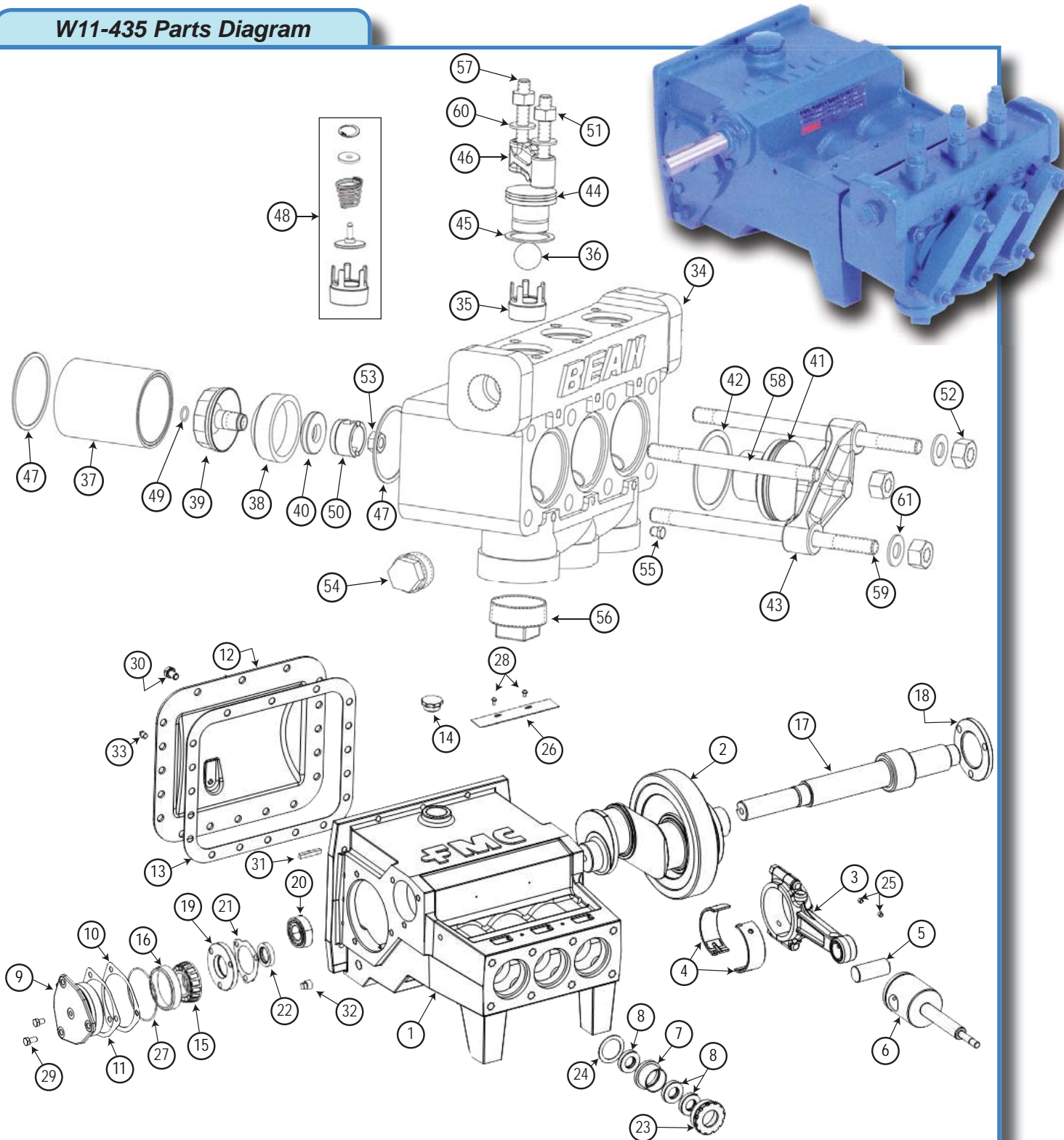
Item	Description	Qty	Part #.	Item	Description	Qty	Part #.	
1	Valve Chamber	1	39-1255266	31	Packing Nut	3	39-1283600	
2	Valve Cover	3	39-A5003M	32	Packing Nut Sleeve	3	39-1283601	
3	Valve Seat	6	39-1225327FMB	33	Connecting Rod	3	39-18710	
	Valve Seat Heavy Duty	6	39-1225327HD					
4	15/16" SS Ball	6	39-1187738	34	Rod Bearing (Pair)	3	39-P510831	
	7/8" SS Ball	6	39-1101418	35	Crankshaft & Gear ASM	1	39-1279071	
5	Packing Holder	3	39-8495	36	Pinion Shaft	1	39-1265098	
6	Packing Washer	3	39-1207289	37	Rod Seal	9	39-1283603	
7	Plunger Nut	3	39-A5016	38	Shim	5	39-1252594	
8	Packing - Abrasive	3	39-5260052	39	Bearing Cap	1	39-1225769	
				40	Cover Plate ASM	1	39-1214260	
9	Hex Nut ½ - 13 SS	3	39-8309	41	Lube Fitting	3	GF610	
10	Porcelain Cylinder	3	39-A5034M	42	Set Screw 5/16 - 18 x ½	3	39-1103470	
	Ceramic Cylinder	3	39-1272060	43	Ball Bearing	2	39-1104444	
11	Cylinder Head Cover	3	39-A5002M	44*	Seal Holder	3	39-1281655	
12	Gasket Cylinder (Copper)	3	39-1280024	45	HHCS 3/8 - 16 x ½	14	0608B55ZG5	
	Gasket Cylinder (Fibre)	3	39-1280024F					
13	Gasket Cyl. Cover(Copper)	3	39-1280025	46	HHCS 3/8 - 16 x ¾	12	39-1100068	
	Gasket Cyl. Cover(Fibre)	3	39-1280025F					
14	Gasket Valve Cover(Copper)	3	39-1280026	47	HHCS ½ - 13 x ¾	2	0812BHH1G5	
	Gasket Valve Cover(Fibre)	3	39-1280026F					
15	Crosshead & Rod	3	39-1250876	48	Plug, ½	2	39-1187048	
16	Clamp Cylinder Head	3	39-1271415	49	Hex Nut ½ -13	14	39-1121511	
17	Clamp Valve Cover	3	39-1271716	50	Lock Washer	3	39-1100243	
18	Bearing Cap	1	39-A5005	51	"O" Ring	3	568-014-90	
19	Pin	3	39-A5006	52	Cone Bearing	2	39-1101242	
20	Stud Cylinder	2	39-A5009	53	Cup Bearing	2	39-1177287	
21	Cylinder Cover Stud	6	39-A5011	54*	Bushing, Connecting Rod	3	39-A5046	
22	Valve Clamp Stud	6	39-A5012	55*	Bolt, Connecting Rod	6	39-18743	
23	Bearing Housing	2	39-1279064	56	Plug 1" Pipe	1	BI-109-H	
24	Gasket	2	39-A5026	57	Plug 1 - ½ Pipe	2	BI-109-K	
25	Gasket	2	39-A5025	58	Petcock 1/8 NPT	1	39-1187039	
26	Oil Cap	1	39-A5054	59	Key	1	39-1187577	
27	Gasket	3	39-1283602	60	Disc Valve Parts ASM	1	39-1256641	
28	Pump Case	1	39-5260537	included in 60	A	Seat Valve	1	39-1245786
29	Gasket - Cover	1	39-1279065		B	Disc & Spring ASM	1	39-1250400
30	Back Cover	1	39-1279063		C	Valve Seat	1	39-5260958
					D	Snap Ring	1	39-1251822

* Parts 44, 54 & 55 are not illustrated



PUMPS - FMC water pumps

W11-435 Parts Diagram



Performance Table FMC W11-435

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	500 RPM	635 RPM	750 RPM	900 RPM
W1122	2.750	0.0589	1,000	20.6	29.5	37.4	44.2	53.0



PUMPS - FMC W1122BCD

FMC
W11-435
PN: 39-160-04

Specifications:

- Standard Suction Size: 2.00" NPT
- Standard Discharge Size: 1.25" NPT
- Pump Weight (Average): 425 lbs

Features:

- Fluid end material of ductile iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds

Item	Description	Qty	Part #	Item	Description	Qty	Part #
1	Pump Case	1	39-5257698	38	Cylinder Packing, Abrasive	3	39-5260221
2	Crankshaft & Gear	1	39-1285094	39	Packing Holder	3	39-A91663
3	Connecting Rod	3	39-5266814	40	Packing Washer	3	39-1216753
3A	Bushing, Connecting Rod	3	39-9226	41	Cylinder Cover	3	39-1285112M
3B	Bolt Connecting Rod	6	39-18744	42	Gasket Cylinder Cover - Fiber	3	39-1279674
3C	Nut 1/2 - 20 elas. stop	6	39-1101270		Gasket Cylinder Cover - Copper	3	39-1247390
4	Rod Bearing (Pair)	3	39-P514965	43	Cylinder Cover Clamp	3	39-A80392
5	Wrist Pin	3	39-A91014	44	Valve Cover	3	39-1285113
6	Crosshead ASM	3	39-1252939	45	Gasket Valve Cover - Fiber	3	39-1279675
8	Rod Seal	9	39-1177489		Gasket Valve Cover - Copper	3	39-1247388
9	Bearing Housing	2	39-1248369	46	Valve Cover Clamp	3	39-A80391
10	Gasket	2	39-A91675	47	Gasket Cylinder - Fiber	6	39-1279676
11	Shim	6	39-1252595		Gasket Cylinder - Copper	6	39-1247389
14	Oil Cap	1	39-A5054	48 *	Valve Disc ASM	6	39-1278104
15	Bearing Cone 2.25 Id X 1.1875 Lg	2	39-1177473	48 A	Seat, Valve	6	39-1278054
16	Bearing Cup 4.4375 Od X 1.1875 Lg	2	39-1177474	48 B	Valve	6	39-1283374
17	Pinion Shaft	1	39-P511596	48 C	Spring	6	39-1283377
	Pinion Shaft (double sided)	1	39-P513120	48 D	Washer	6	39-1283376
18	Pinion Cap	1	39-P508916	48 E	Retaining Ring	6	39-1101229
19	Pinion Bearing Cap (Used with Oil Seal 5257339)	1	39-5257338	49	"O" Ring	3	568-014-90
21	Gasket	2	39-A91674	50	Plunger Nut 3/4-16 Unf	3	39-A5016
22	Oil Seal (for Pinion Bearing Cap 5257338)	1	39-5257339	51	Hex Nut 1/2-13 Unc-2B	6	08NHZGR5
23	Packing Nut	3	39-1266323	52	Hex Nut 5/8-11 Unc-2B	8	10NHZ
26	Inspection Plate	1	39-5260567	53	Nut, Hex 1/2-13 Unc	3	39-8309
28	Cap Screw, Hx Hd, 1/4-20 Unc2A X 0.5 Lg	2	0408BHHZG5	54	Plug; 1-1/4"	1	BI-109-J
30	Cap Screw, Hx Hd, 1/2-13 Unc2A X 0.75 Lg	20	0812BHH1G5	55	Pipe Plug; Hex Head 1/8-27 Npt	6	39-P501267
32	Pipe Plug Sq Hd 1/2 Npt Carbon Steel	2	39-1187048	56	Square Head Plug	2	39-1105121
34	Valve Chamber	1	39-1284777	57	Stud 1/2-13Unc-2A X 3.5 Long	6	39-A5076
35	Ball Seat	6	39-1284740	58	Stud 5/8-11 Unc-2A X 7.88 Long	2	39-A91672
36	Ball, 1-1/8 Dia	6	39-1101419	59	Stud 5/8-11 Unc-2A X 10.5 Long	6	39-1279602
37	Cylinder-Ceramic	3	39-1267586				
	Cylinder-Porcelain	3	39-A91664CLM				

18 Hole Back Cover Parts

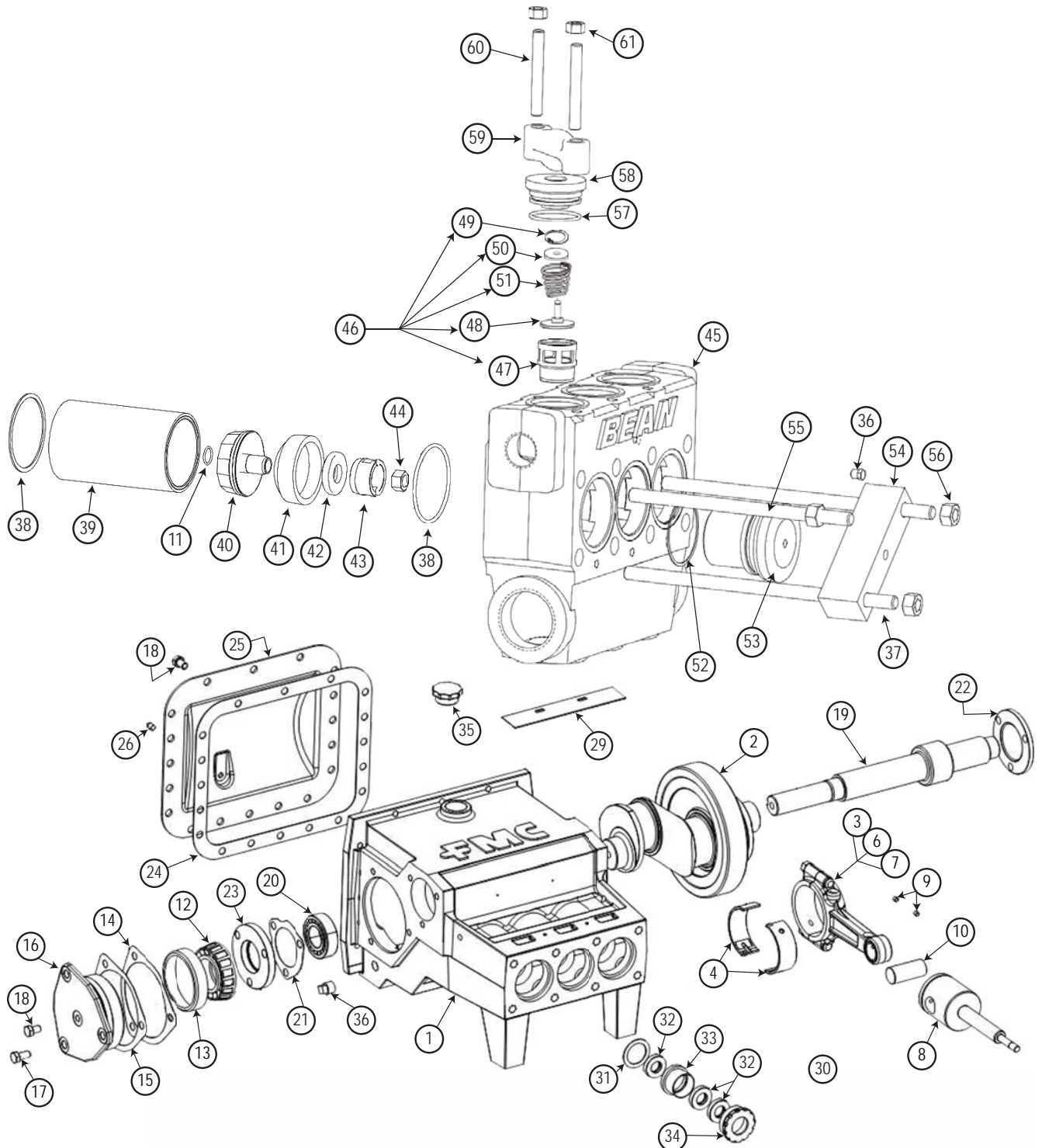
16 Hole Back Cover Parts (pre 2014)

7	Sleeve, Packing Nut	3	39-3268369	7	Sleeve, Packing nut	3	39-1266365
12	Back Cover - 18 Hole	1	39-P508969	12	Back Cover - 16 Hole	1	39-1250332
13	Back Cover Gasket - 18 Hole	1	39-P508966	13	Back Cover Gasket - 16 Hole	1	39-A91676
20	Bearing, Spherical Roller	2	39-P511746	20	Ball Bearing	2	39-1272558
24	Gasket	3	39-3268418	24	Gasket	3	39-19510
25	Set Screw	6	39-1103470	25	Set Screw 5-16-18x 5/16	6	39-1182554
27	"O" Ring	2	568-252-90	29	Capscrew, hex head 1/2 -13 x 1-1/4	12	0420BHHZG5
29	Cap Screw, Hx Hd, 1/2-13 Unc2A X 1.0 Lg	12	0416BHHZG5	33	Petcock	1	39-1187039
31	Key 3/8" Sq X 2 1/2" Long	1	39-1104349	NS	Lube Fitting, 1/8 C/Z	3	39-1100759
33	Pipe Plug Sq Hd 1/8 Npt Hd Polyethylene	1	BI-109-A	58	Stud 5/8-11 Unc-2A X 7.88 Long	2	39-A91672
60	Washer, Flat 1/2 Type A	6	14208NG52	59	Stud 5/8-11 Unc-2A X 10.5 Long	6	39-1279602
61	Washer, Flat 5/8 Type A	6	1023WF02				
NS	Pipe Plug Sq Hd 1-1/4 Npt Hd Polyethylene	1	BI-109-J				



PUMPS - FMC water pumps

L11-470 Parts Diagram



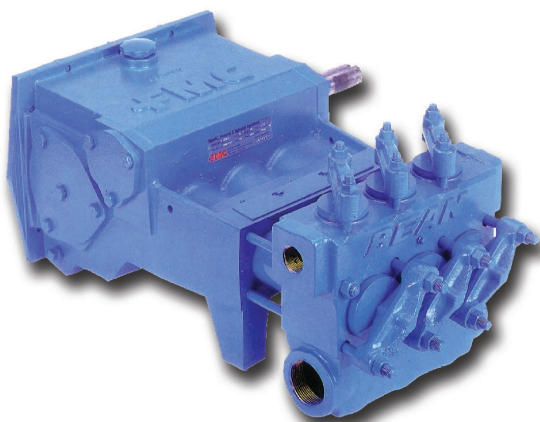
Performance Table FMC L11-470

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				360 RPM	690 RPM	900 RPM	1050 RPM	1275 RPM
L1122	2.750	0.0589	1,000	21.2	40.7	53.0	61.9	75.1



PUMPS - FMC L1122D

FMC - L11-470
PN: 39-160-08



Specifications:

- Standard Suction Size: 2.50" NPT
- Standard Discharge Size: 1.25" NPT
- Pump Weight (Average): 460 lbs

Features:

- Fluid end material of ductile iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds

Item	Description	Qty	Part #	Item	Description	Qty	Part #
1	Pump Case	1	39-5257698	38	Gasket Cyl., Fiber	6	39-1279676
2	Crankshaft	1	39-1285094		Gasket Cyl., Copper	6	39-1247389
3	Connecting Rod	3	39-5266814	39	Cyl., Ceramic	3	39-1267586
4	Bearing Insert	3	39-P514965		Cyl., Porcelain	3	39-A91664CLM
5	Bushing, Connecting Rod	3	39-92226	40	Cup	3	39-A91663
6	Bolt Connecting Rod	6	39-18744	41	Cyl. Packing, Abrasive	3	39-5260221
7	Nut ½ - 20 elas. stop	6	39-1101270	42	Washer	3	39-1216753
8	Crosshead & Rod ASM	3	39-1252939	43	Nut, Plunger	3	39-A5016
9	Set Screw 5-16-18x 5/16	6	39-1182554	44	Nut, Special	3	39-8309
10	Wrist Pin	3	39-A91014	45	Valve Chamber	1	39-5257262
11	"O" Ring	3	568-014-90	46	Disc Valve ASM	6	39-5255419
12	Cone, Bearing	2	39-1177473	47*	Seat, Valve	6	39-5253514
13	Cup Bearing	2	39-1177474	48*	Valve	6	39-5260847
14	Gasket	2	39-A91675	49*	Retaining Ring	6	39-320153
15	Shim	A/R	39-1252595	50*	Washer	6	39-5260848
16	Housing, Crankshaft Bearing	2	39-1248369	51*	Spring	6	39-1283377
17	Capscrew, hex ½ -13 x 1 ^{1/4}	12	0420BHHZG5	52	Cyl. Head "O" Ring	3	568-233-90
18	Capscrew, hex ½ -13 x ¾	18	0812BHH1G5	53	Cyl. Cover	3	39-1283531
19	Pinion Shaft	1	39-P511596	54	Clamp Cyl. Head	3	39-A80392
	Pinion Shaft (double sided)	1	39-P513120	55	Stud, 5/8 x 9-1/2	2	39-1248349
20	Ball Bearing	2	39-1272558	56	Nut, hex 5/8 -11	8	10NHZ
21	Gasket	2	39-A91674	57	Valve Cover "O" Ring	3	568-227-90
22	Pinion Cap	1	39-P508916	58	Valve Cover	3	39-1283530
23	Cap, Pinion Bearing	1	39-1266789	59	Clamp, Valve Cover	3	39-1247716
24	Gasket, Cover	1	39-A91676	60	Stud, ½ x 4	6	39-1248372
25	Cover, Plate	1	39-1250332	61	Nut, Hex ½ - 13	6	08NHZGR5
26	Petcock	1	39-1187039				
29	Inspection Plate	1	39-5260567				
30	Lube Fitting, 1/8 C/Z	3	39-1100759				
31	Washer, Packing	3	39-19510				
32	Rod Seal	6	39-1177489				
33	Sleeve, Packing nut	3	39-1266365				
34	Packing Nut	3	39-1266323				
35	Cap, Oil	1	39-A5054				
36	Plug, ½ pipe, magnetic	2	39-1187048				
37	Stud, long 5/8 x 12-1/4	6	39-5251859				

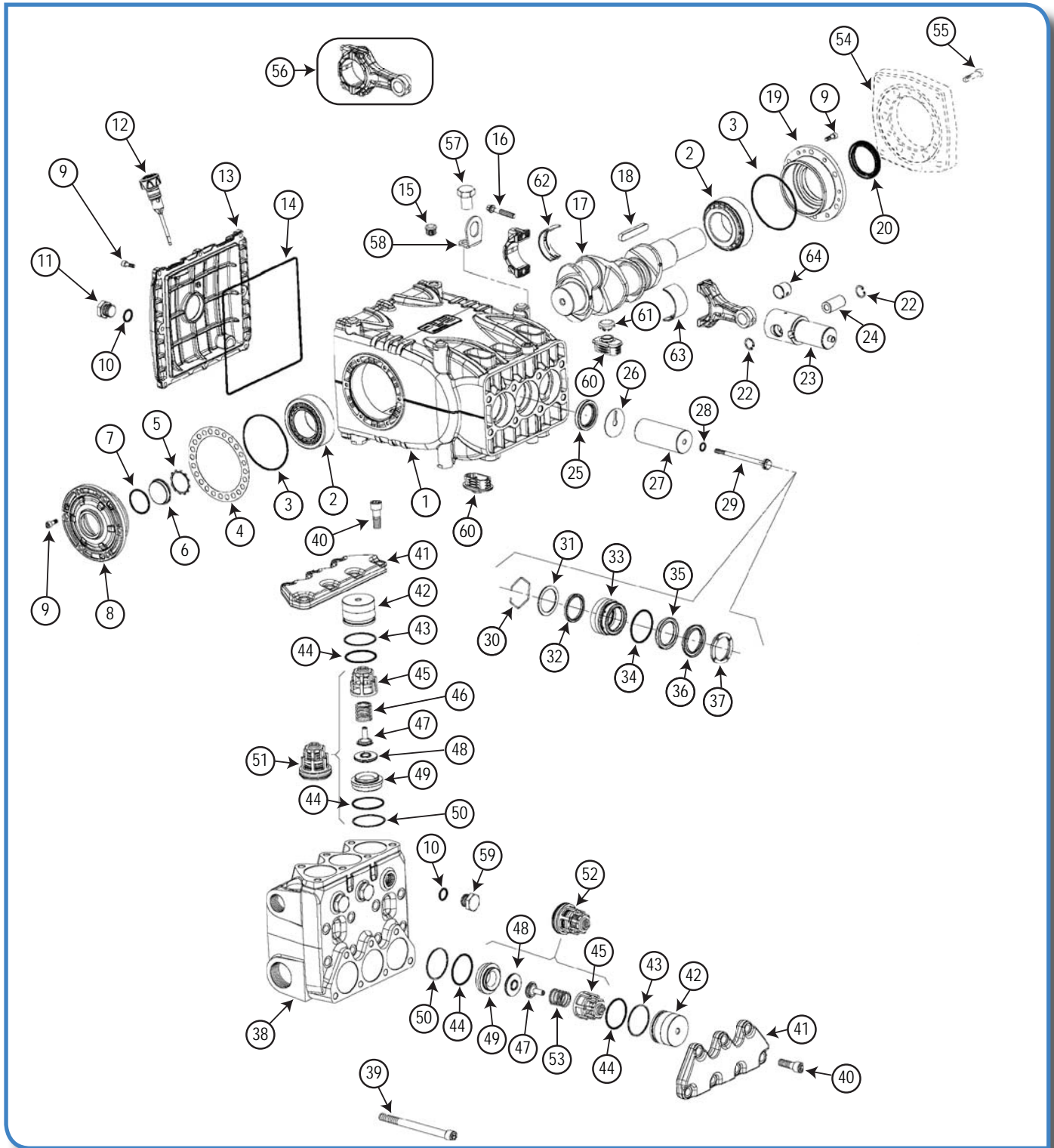
* Items 47 thru 51 are parts included in item 46



PUMPS - Pratissoli water pumps

Pratissoli KF Series

The Pratissoli range of triplex pumps, developed in more than 50 years of activity in the field, counts over 60 different models including flow rates up to 420 liters per minute, pressures up to 1500 bar, and powers up to 150 HP. All models are designed and produced to stand the toughest working conditions.



Pratissoli KF Series

**KF 40
PN-160-17**



For other models, please contact us.

Construction

- Triplex high pressure plunger pump, four versions in one
- Symmetrical crankcase for easy "left to right" conversion
- Single P.T.O. shaft, d. 40
- Plunger seal design: HP seal + LH seal with cooling chamber in low pressure
- Long life Suction/Delivery in line valves with spherical profile
- Splash lubrication

Material Quality

- Patent pending pump body in die cast aluminum
- Nickel-treated stainless steel head
- Conical shaft bearings
- Aluminum alloy connecting rods
- Forged steel crankshaft
- Crankshaft sealings in viton
- Guide pistons in surface treated cast iron
- Full ceramic plungers
- Stainless steel valves

REPAIR KITS FOR KF40

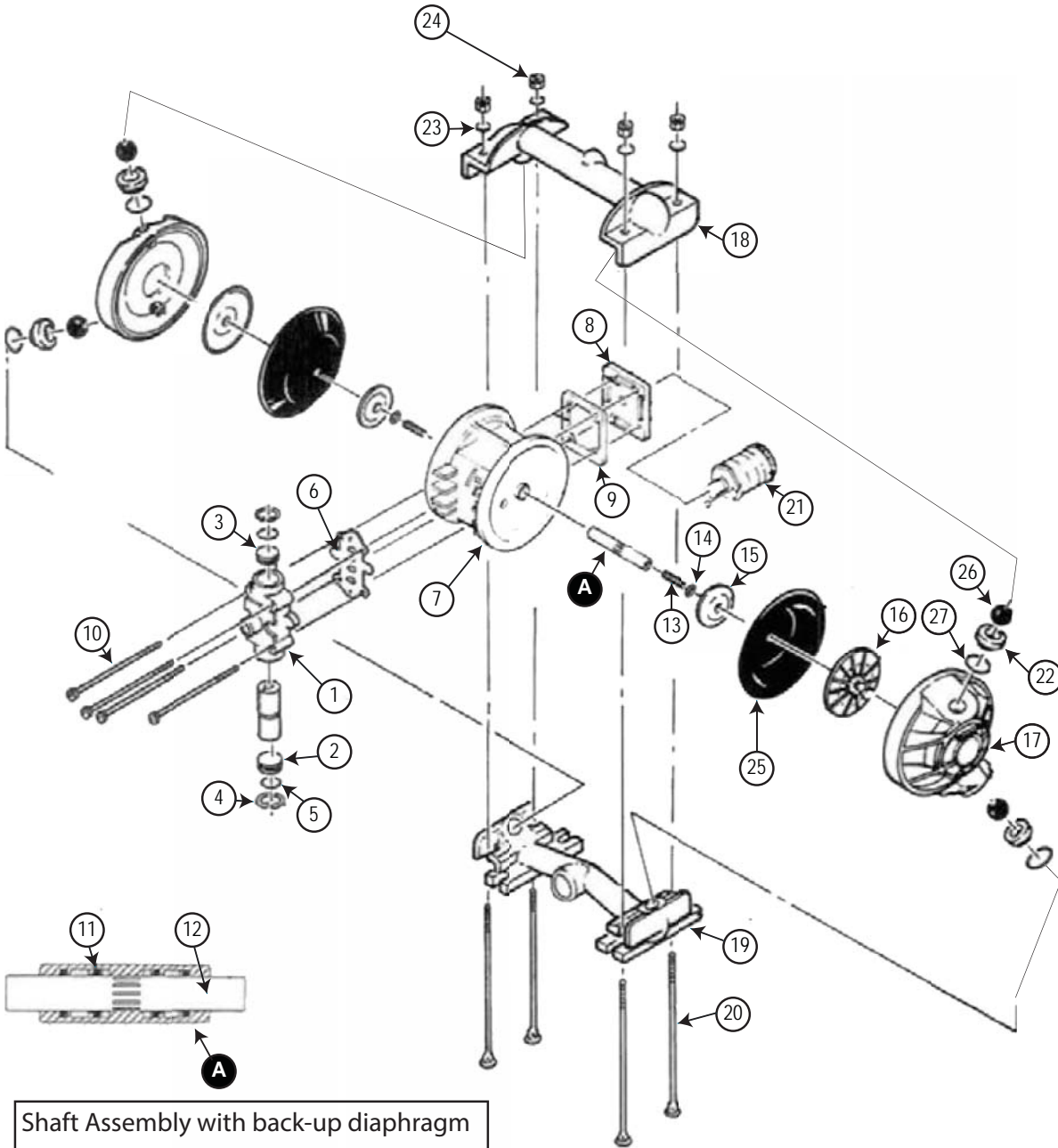
A	Plunger packing kit	KIT2020IPR		
B	Suction valves kit	KIT2012IPR		
C	Outlet valves kit	KIT2013IPR		
D	Complete seals kit	KIT2021IPR		
E	Conrod bushing kit	KIT2135IPR (STD)	KIT2154IPR(+.25)	KIT2155IPR (+.50)

Item	Part Number	Description	Kit	Qty	Item	Part Number	Description	Kit	Qty
1	71010022	Crankcase		1	90277400	Restop Ring Ø 30	A-D		3
2	91859000	Tapered Roller Bearing 33210/Q		2	90281800	Restop Ring Ø 36	A-D		3
3	90391800	O-Ring Ø 94,92x2,62 (3375)	D	2	90283800	Restop Ring Ø 40	A-D		3
4	71220081	Shim		1	90275800	Packing Ø 28 H.P.	A-D		3
	71220381	Shim		1	90277000	Packing Ø 30 H.P.	A-D		3
5	90075600	Retaining Ring ZJ45	D	1	90282000	Packing Ø 36 H.P.	A-D		3
6	70211801	Sight Glass, Oil Level		1	90283200	Packing Ø 40 H.P.	A-D		3
7	90387700	O-Ring Ø 39,34x2,62 (3156)	D	1	70100351	Head Ring Ø 28	D		3
8	71150122	Crankshaft End Cap		1	70100451	Head Ring Ø 30	D		3
9	99186700	Screw M6x18 UNI5931 Z.		20	71100251	Head Ring Ø 36	D		3
10	90384100	O-Ring Ø 17,13x2,62 (3068)	D	4	71100351	Head Ring Ø 40	D		3
11	98218300	Plug G 1/2" x13 - NICKEL		1	71121036	Pump Head Ø 28-30			1
12	98212000	Dip Stick		1	71125036	Pump Head Ø 28-30 - NPT			1
13	71160022	Crankcase Cover		1	71121136	Pump Head Ø 36			1
14	90400000	O-Ring Ø 215x3	D	1	71125136	Pump Head Ø 36 - NPT			1
15	98206000	Dust Plug Ø 15		4	71121236	Pump Head Ø 40			1
16	99313800	Connecting Rod Bolt		6	71125236	Pump Head Ø 40 - NPT			1
17	71020035	Crankshaft		1	99448000	Screw M12x150 UNI5931			8
18	91500000	Drive Key		1	99429500	Screw M12x35 UNI5931			14
19	71150022	Crankshaft End Cap PTO		1	71210136	Valve Cover Plate			2
20	90170000	Crankshaft Oil Seal Ø 50x65x8 - VITON	D	1	71211170	Valve Plug			6
22	90060600	Retaining Ring Ø 20 UNI7437		6	90525000	Anti-extrusion Ring Ø 50,9x55x1,5	D		6
23	71050015	Plunger Guide		3	90388900	O-Ring Ø 48,89x2,62 (3193)	D		12
24	97743000	Wrist Pin Ø 20x38		3	36204551	Valve Cage			6
25	90167800	Plunger Oil Seal Ø 38x52x7	D	3	94755000	Spring Ø 25,2x26			3
26	96714000	Flinger Washer Ø 10x50x1		3	36208651	Valve Guide			6
27	71040309	Plunger Ø 30		3	36208502	Valve Poppet			6
	71040409	Plunger Ø 36		3	36204156	Valve Seat			6
	71040509	Plunger Ø 40		3	90524000	Anti-extrusion Ring Ø 49,5x54x1,5	D		6
	71040609	Plunger Ø 28		3	36713701	Delivery Valve ASM	C		3
28	90367100	O-Ring Ø 11x2 (11020) - 90Sh.	D	3	36713601	Inlet Valve ASM	B		3
29	71219566	Plunger Bolt		3	94754000	Spring Ø 24,7x27			3
30	90079700	Retaining Ring Ø 52 UNI7437		3	10067720	Hydraulic Flange			1
31	71217670	Packing Washer Ø 28		3	99309900	Screw M8x35 UNI5931 Z.			6
	71217770	Packing Washer Ø 30		3	71030701	Connecting Rod Complete			3
	71218070	Packing Washer Ø 36		3	99512000	Screw M16x1,5x25 UNI5740 8.8 Z.			1
	71218270	Packing Washer Ø 40		3	71223074	Lifting Point			1
32	90275000	Packing Ø 28 L.P.	A-D	3	98218100	Plug G 1/2" x13 - SS			3
	90276000	Packing Ø 30 L.P.	A-D	3	71225851	Plunger Plug			6
	90280000	Packing Ø 36 L.P.	A-D	3	71225951	Dust Cap			3
	90283000	Packing Ø 40 L.P.	A-D	3	90924300	Connecting Rod Bushing - Inf.	E		3
33	71215670	Packing Support Ø 28		3	90924400	Connecting Rod Bushing +0.25- Inf.	E		3
	71215370	Packing Support Ø 30		3	90924500	Connecting Rod Bushing +0.50 - Inf.	E		3
	71215470	Packing Support Ø 36		3	90924000	Connecting Rod Bushing - Sup.	E		3
	71215570	Packing Support Ø 40		3	90924100	Connecting Rod Bushing +0.25 - Sup.	E		3
34	90389100	O-Ring Ø 52,07x2,62	A-D	3	90924200	Connecting Rod Bushing Ila +0.5-0Sup.	E		3
35	90275500	Restop Ring Ø 28	A-D	3	90911000	Wrist Pin Bushing			3

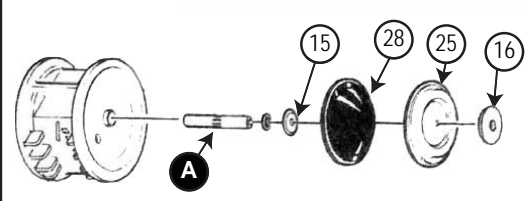


PUMPS - NOMAD Diaphragm pumps

NTG25 Parts Diagram



Shaft Assembly with back-up diaphragm



PUMPS - NOMAD NTG25



NTG25 1" Aluminum Diaphragm Pump Assemblies

Part Number	Description
25-2693	Includes Neoprene Diaphragm, Valve Ball and Valve Seat
25-2696	Includes Buna Diaphragm, Valve Ball and Valve Seat
25-2697	Includes Nordel Diaphragm, Valve Ball and Valve Seat
25-26964	Includes Hytrel Diaphragm, Valve Ball and Valve Seat
25-2698	Includes Viton Diaphragm, Valve Ball and Valve Seat
25-2699	Includes Santoprene Diaphragm, Valve Ball and Valve Seat
25-2691	Includes PTFE Diaphragm, Valve Ball and Valve Seat

Air Inlet 6 mm (1/4")
 Inlet 25 mm (1")
 Outlet 19 mm (3/4")
 Suction Lift 5.18 m Dry (17')
 9.45 m Wet (31')
 Max. Flow Rate 132 lpm (35 gpm)
 Max. Size Solids 3.2 mm (1/8")
 Height 279 mm (11.0")
 Width 267 mm (10.5")
 Depth 185 mm (7.3")

H2O flow rates listed

Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

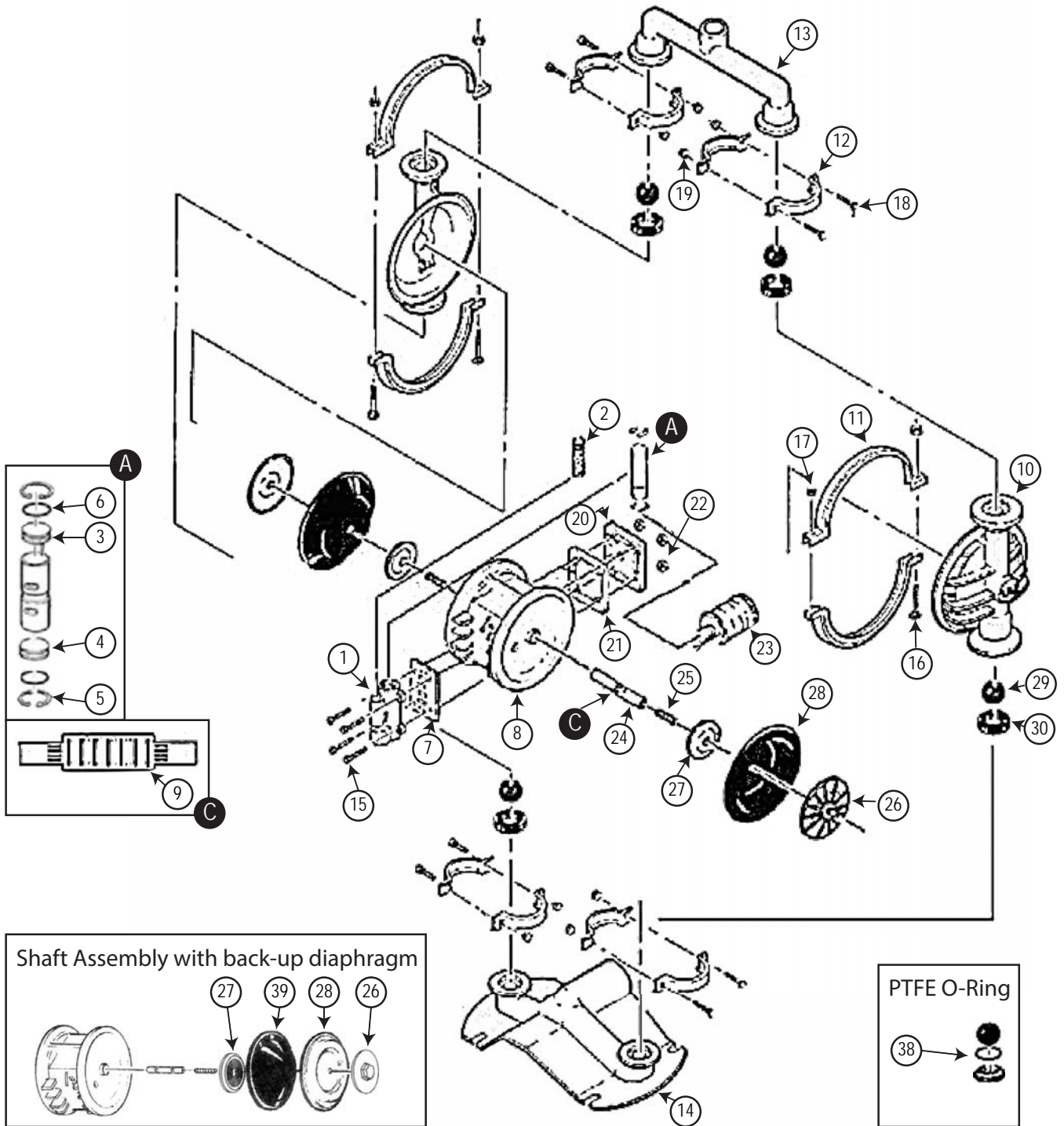
PTFE Diaphragms: reduce flow by 25%

Item	Description	Qty	Part Number
1	Air Valve ASM	1	N02-2000-07
	Air Valve ASM Gold	1	N02-2012-07
2	Air Valve End Cap w/out Guide (Bottom)	1	N02-2331-23
3	Air Valve End Cap w/ Guide (Top)	1	N02-2301-23
4	Air Valve Snap Ring	2	N02-2650-03
5	Air Valve Cap O-ring	2	N02320052200
6	Air Valve Gasket	1	N02-2600-52
7	Center Section	1	N02315120225
8	Muffler Plate	1	N02-3180-20
9	Muffler Plate Gasket	1	N02350052500
10	Air Valve Cap Screw 1/4" - 20 x 2"	4	N02-6000-08
10a	Hex Head Nut 1/4" -20 (Not Shown)	4	N02-6400-08
11	Center Block TRACKER™ Seal	4	N02321077225
12	Shaft	1	N0238200307
13	Shaft Stud	2	N02-6150-08
14	Disc Spring	2	N02-6802-08
15	Inner Piston	2	N02-3750-01
16	Outer Piston	2	N02-4601-01
17	Liquid Chamber	2	N02-5000-01
18	Discharge Manifold	1	N02-5020-01
19	Inlet Manifold	1	N02-5080-01
20	Manifold Bolt 3/6" -16 x 8-1/2"	4	N02-6080-08
21	Muffler	1	N02-3510-99
22	Valve Seat - Aluminum	4	N02-1120-01
23	Manifold Bolt Washer	4	N02-6720-08
24	Manifold Bolt Nut 3/8" - 16	4	N02-6430-08
25	Diaphragm - Neoprene	2	N02-1010-51
	Diaphragm - Buna	2	N02-1010-52
	Diaphragm - Viton ®	2	N02-1010-53
	Diaphragm - Nordel ®	2	N02-1010-54
	Diaphragm - PTFE	2	N02-1010-55
	Diaphragm - Hytrel ®	2	N02-1010-56
	Diaphragm - Santoprene ®	2	N02-1010-58
	Valve Ball - Neoprene	4	N02-1080-51
26	Valve Ball - Buna	4	N02-1080-52
	Valve Ball - Viton ®	4	N02-1080-53
	Valve Ball - Nordel ®	4	N02-1080-54
	Valve Ball - PTFE	4	N02-1080-55
	Valve Ball - Hytrel ®	4	N02-1080-56
	Valve Ball - Santoprene ®	4	N02-1080-58
	Valve Seat O-ring - Neoprene	4	N02-1200-51
	Valve Seat O-ring - Buna	4	N02-1200-52
27	Valve Seat O-ring - Viton ®	4	N02-1200-53
	Valve Seat O-ring - Nordel ®	4	N02-1200-54
	Valve Seat O-ring - PTFE	4	N02-1200-55
	Valve Seat O-ring - Hytrel ®	4	N02-1200-56
	Valve Seat O-ring - Santoprene ®	4	N02-1200-58
28	Back-up Diaphragm - PTFE / BUNA	2	N02-1060-52
	Back-up Diaphragm - Hytrel ®	2	N02-1060-56



PUMPS - NOMAD Diaphragm pumps

NTG40 Parts Diagram



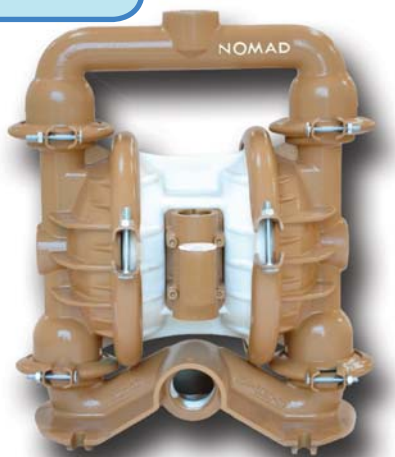
Shaft Assembly with back-up diaphragm

PTFE O-Ring



PUMPS - NOMAD NTG40

NTG40



NTG40 1-1/2" Aluminum Diaphragm Pump Assemblies

Part Number	Description
40-2693	Includes Neoprene Diaphragm, Valve Ball and Valve Seat
40-2696	Includes Buna Diaphragm, Valve Ball and Valve Seat
40-2697	Includes Nordel Diaphragm, Valve Ball and Valve Seat
40-26964	Includes Hytrel Diaphragm, Valve Ball and Valve Seat
40-2698	Includes Viton Diaphragm, Valve Ball and Valve Seat
40-2699	Includes Santoprene Diaphragm, Valve Ball and Valve Seat
40-2691	Includes PTFE Diaphragm, Valve Ball and Valve Seat

Air Inlet 13 mm (1/2")
 Inlet 38 mm (1-1/2")
 Outlet..... 32 mm (1-1/4")
 Suction Lift..... 5.49 m Dry (18')
 8.53 m Wet (28')
 Max. Flow Rate 288 lpm (76 gpm)
 Max. Size Solids 4.8 mm (3/16")
 Height 442 mm (17.4")
 Width 391 mm (15.4")
 Depth 285 mm (11.2")
 Est. Ship Weight Aluminum 17 kg (38 lbs)

H2O flow rates listed

Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

PTFE Diaphragms: reduce flow by 25%

Item	Description	Qty	Part #	Item	Description	Qty	Part #
1	Air Valve ASM	1	N04-2000-07	26	Outer Piston	2	N04-4552-01
	Air Valve ASM Gold	1	N04-2012-07		Outer Piston PTFE	2	N04-4600-01
2	Air Valve Screen	1	N04-2500-07	27	Inner Piston	2	N04-3700-01
3	Air Valve End Cap w/ Guide (Top)	1	N04-2300-23		Inner Piston PTFE	2	N04-3750-01
4	Air Valve End Cap w/out Guide (Bottom)	1	N04-2330-23	28	Diaphragm Neoprene	2	N04-1010-51
5	Air Valve Snap Ring	2	N04-2650-03		Diaphragm Buna	2	N04-1010-52
6	Air Valve Cap O-ring	2	N04-2390-52	29	Diaphragm Viton®	2	N04-1010-53
7	Air Valve Gasket	1	N04-2600-52		Diaphragm Nordel®	2	N04-1010-54
8	Center Section	1	N04315020225	30	Diaphragm PTFE	2	N04-1010-55
9	Center Block TRACKER™ Seal	7	N04321077225		Diaphragm Hytrel®	2	N04-1010-56
10	Liquid Chamber	2	N04-5000-01	31	Diaphragm Santoprene®	2	N04-1010-58
11	Clamp Band (Lg)	2	N04-7330-08		Valve Ball Neoprene	4	N04-1080-51
12	Clamp Band (Sm)	4	N04-7100-08	32	Valve Ball Buna	4	N04-1080-52
13	Discharge Manifold	1	N04-5020-01		Valve Ball Viton®	4	N04-1080-53
14	Inlet Manifold	1	N04-5080-01	33	Valve Ball Nordel®	4	N04-1080-54
15	Air Valve Cap Screw 1/4" - 20 x 2"	4	N04-6000-08		Valve Ball PTFE	4	N04-1080-55
16	Large Clamp Band Bolt 5/16"	4	N04-6070-08	34	Valve Ball Hytrel®	4	N04-1080-56
17	Large Hex Nut 5/16" - 18	4	N04-6420-08		Valve Ball Santoprene®	4	N04-1080-58
18	Small Clamp Band Bolt 1/4" -20 x 1-3/4"	8	N04-6050-08	35	Valve Seat Neoprene	4	N04-1120-51
19	Small Hex Nut 1/4" - 20	8	N04-6400-08		Valve Seat Buna	4	N04-1120-52
20	Muffler Plate	1	N04-3180-20	36	Valve Seat Viton®	4	N04-1120-53
21	Muffler Plate Gasket	1	N04-3500-52		Valve Sea Nordel®	4	N04-1120-54
22	Air Valve Hex Nut 1/4"-20	4	N04-6400-08	37	Valve Seat PTFE	4	N04-1120-55
23	Muffler	1	N04-3510-99		Valve Seat Hytrel®	4	N04-1120-56
24	Shaft	1	N0438000307	38	Valve Seat Santoprene®	4	N04-1120-58
	Shaft - PTFE	1	N0438200307		PTFE Valve Seat O-Ring	4	N04-1200-55
25	Shaft Stud	2	N04-6150-08	39	Back-up Diaphragm	2	N04-1060-52
	Shaft Stud - PTFE	2	N04-6152-08				



North America 1-800-669-3542
 International +1-705-647-8138

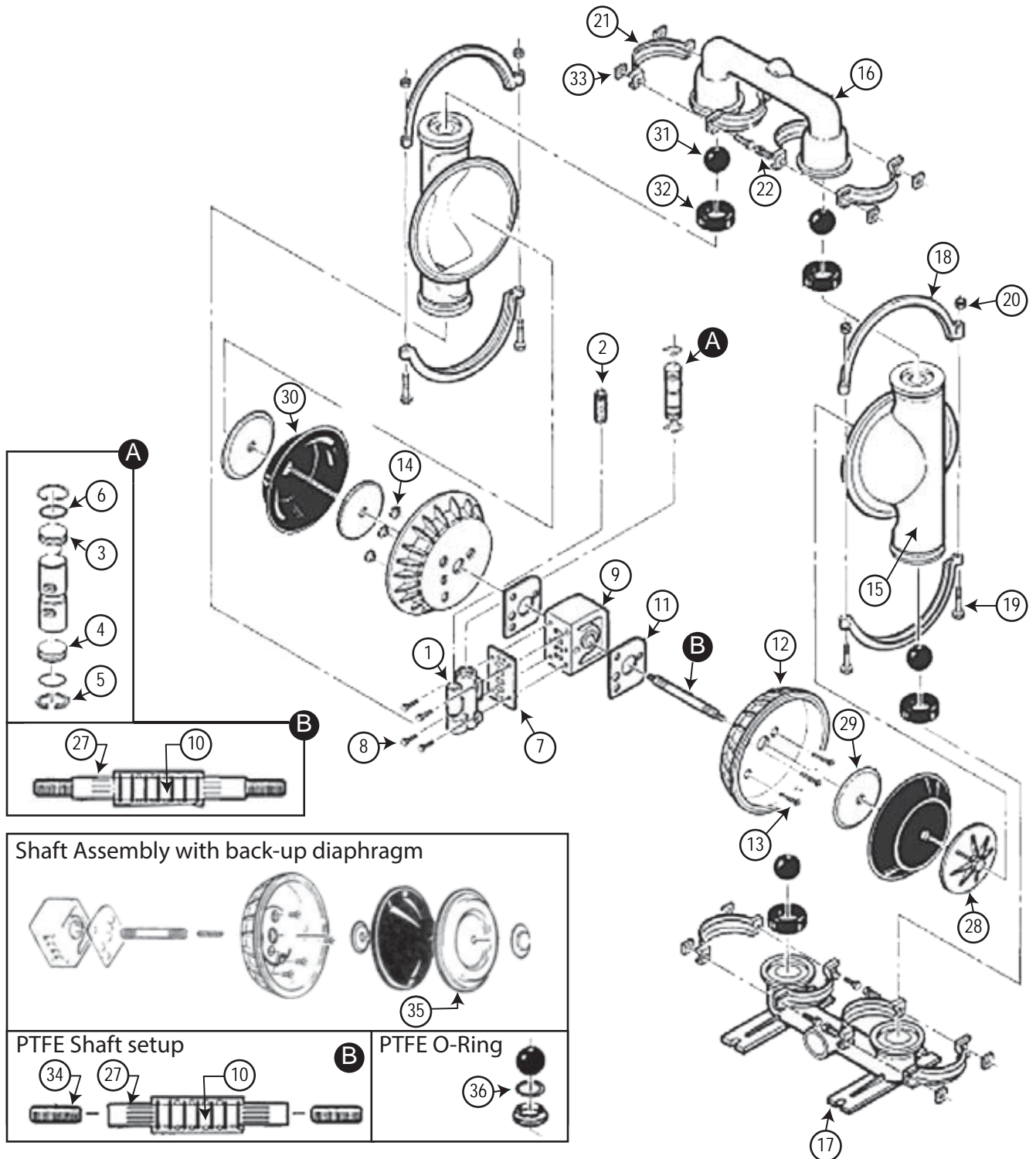
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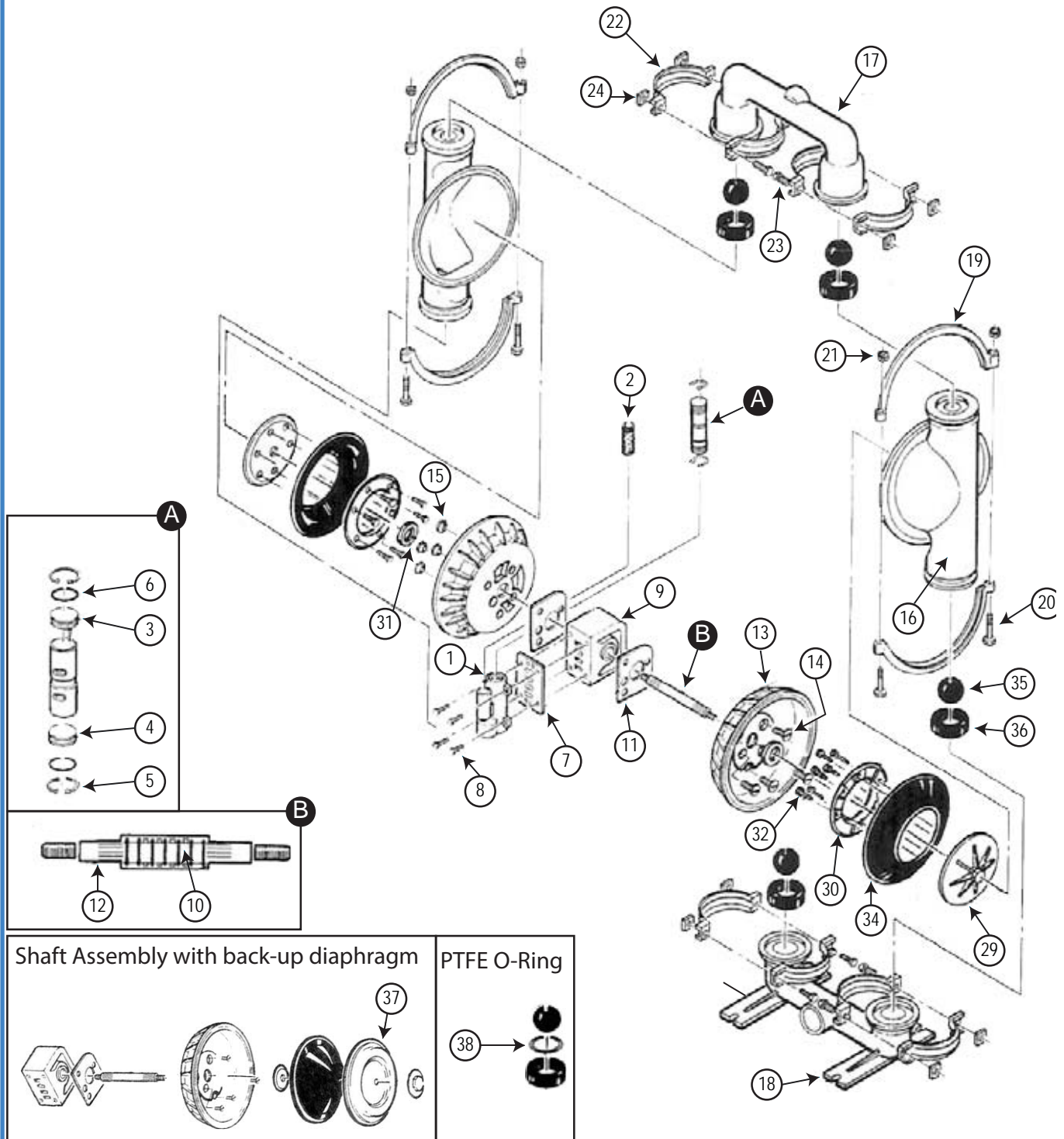
PUMPS - NOMAD Diaphragm pumps

NTG50 Parts Diagram



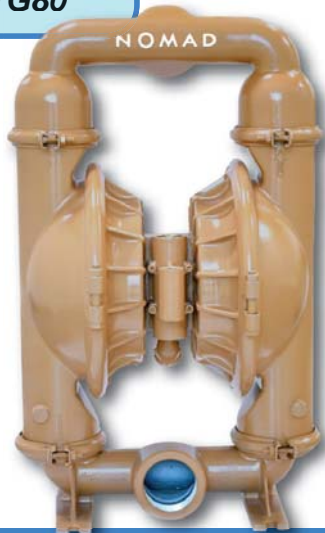
PUMPS - NOMAD Diaphragm pumps

NTG80 Parts Diagram



PUMPS - NOMAD NTG80

NTG80



NTG80 3" Aluminum Diaphragm Pump Assemblies

Part Number Description

Part Number	Description
80-2693	Includes Neoprene Diaphragm, Valve Ball and Valve Seat
80-2696	Includes Buna Diaphragm, Valve Ball and Valve Seat
80-2697	Includes Nordel Diaphragm, Valve Ball and Valve Seat
80-26964	Includes Hytrel Diaphragm, Valve Ball and Valve Seat
80-2698	Includes Viton Diaphragm, Valve Ball and Valve Seat
80-2699	Includes Santoprene Diaphragm, Valve Ball and Valve Seat
80-2691	Includes PTFE Diaphragm, Valve Ball and Valve Seat

Air Inlet	19 mm (3/4")
Inlet	76 mm (3")
Outlet	76 mm (3")
Suction Lift	5.5 m Dry (18')
	9.45 m Wet (31')
Max. Flow Rate	878 lpm (232 gpm)
Max. Size Solids	10 mm (3/8")
Height	810 mm (31.9")
Width	432 mm (17.0")
Depth	279 mm (11.0")

H2O flow rates listed

Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

PTFE Diaphragms: reduce flow by 25%

Item	Description	Qty	Part Number	Item	Description	Qty	Part Number
1	Air Valve ASM	1	N15-2000-07	29	Outer Piston	2	N15-4550-01
	Air Valve ASM Gold	1	N15-2012-07				N15-4600-03
2	Air Valve Screen	1	N08-2500-07	30	Inner Piston	2	N15-3700-01
3	Air Valve End Cap w/ Guide (Top)	1	N15-2300-23				N15-3750-01
4	Air Valve End Cap w/out Guide (Bottom)	1	N15-2330-23	31	Inner Piston Back-up Washer	2	N15-6850-08
5	Air Valve Snap Ring	2	N15-2650-03	32	Piston ASM Bolt 2 3/8" - 16 x 1 1/2"	12	N15-6130-08
6	Air Valve Cap O-ring	2	N15-2390-52	33	Washer, Flat (Not Shown)	12	N15-6720-08
7	Air Valve Gasket	1	N15-2600-52	34	Diaphragm Neoprene	2	N15-1010-51
8	Air Valve Screw 5/16" - 18 x 2 1/4"	4	N15-6000-08		Diaphragm - Buna	2	N15-1010-52
9	Center Block	1	N15310001225		Diaphragm Viton	2	N15-1010-53
10	Center Block TRACKER™ Seal	7	N15321077225		Diaphragm Nordel	2	N15-1010-54
11	Block Gasket	2	N15-3520-52		Diaphragm PTFE	2	N15-1010-55
12	Shaft	1	N1538000307		Diaphragm Hytrel	2	N15-1010-56
13	Air Chamber	2	N15-3650-01		Diaphragm Santoprene	2	N15-1010-58
14	Air Chamber Screw 3/8" - 16 x 4"	4	N15-6200-08		Valve Ball Neoprene	4	N15-1080-51
15	Air Chamber Cone Nut 3/8" - 16	4	N15-6550-08		Valve Ball Buna	4	N15-1080-52
16	Liquid Chamber	2	N15-5000-01		Valve Ball Viton	4	N15-1080-53
17	Discharge Manifold	1	N15-5020-01	35	Valve Ball Nordel	4	N15-1080-54
18	Inlet Manifold	1	N15-5080-01		Valve Ball PTFE	4	N15-1080-55
19	Large Clamp Band ASM	2	N15-7300-08		Valve Ball Hytrel	4	N15-1080-56
20	Large Carriage Bolt 1/2" - 13 x 3 1/2"	4	N15-6120-08		Valve Ball Santoprene ®	4	N15-1080-58
21	Large Hex Nut 1/2" -13	4	N15-6420-08	36	Valve Seat - Neoprene	4	N15-1120-51
22	Small Clamp Band ASM	4	N15-7100-08		Valve Seat - Buna	4	N15-1120-52
23	Small Carriage Bolt 3/8" - 16 x 2"	8	N15-6050-08		Valve Seat - Viton ®	4	N15-1120-53
24	Small Hex Nut 3/8" -16	8	N15-6450-08		Valve Seat - Nordel ®	4	N15-1120-54
25	Muffler (Not Shown)	1	N15-3510-99		Valve Seat - PTFE	4	N15-1120-55
26	Check Ball (Not Shown)	1	N15-1450-51		Valve Seat - Hytrel ®	4	N15-1120-56
27	Check Body (Not Shown)	1	N15-3550-01		Valve Seat - Santoprene	4	N15-1120-58
28	Pipe Nipple (Not Shown)	1	N15-7420-08		37	Back-up Diaphragm	2
				38	PTFE Valve Seat O-Ring	4	N15-1200-55



PUMPS - CUSTOM E0413 ASM

Globe Air Motor FMC E0413 ASM

Consists of FMC E0413 pump, Globe VA10C Nema Air Motor, SEW Eurodrive RX77 4.04:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Air Motor

PERFORMANCE V10 12.8 HP/9.5 kW REVERSIBLE

- Simple & inexpensive variable speed and torque control with flow control valve and/or pressure regulator.
- Intrinsically safe for explosion proof environments.
- Can be stalled indefinitely under load. They will not over heat or burn out.
- Instantly reversible, operated with a simple control valve.
- Controllable over a wide speed range.
- Resistant to warm, dirty and damp conditions.
- Air motors are compact and light weight compared to equivalent electric motors.

Gear Reducer

SEW Eurodrive RX77

Single Stage, Foot mounted, Helical gear motor
4.04 to 1 ratio

Pump

FMC E0413

See info on E0413 pump page

Specifications:

- Standard Suction Size: 1.25" NPT
- Standard Discharge Size: 0.75" NPT
- Pump Weight (Average): 80 lbs

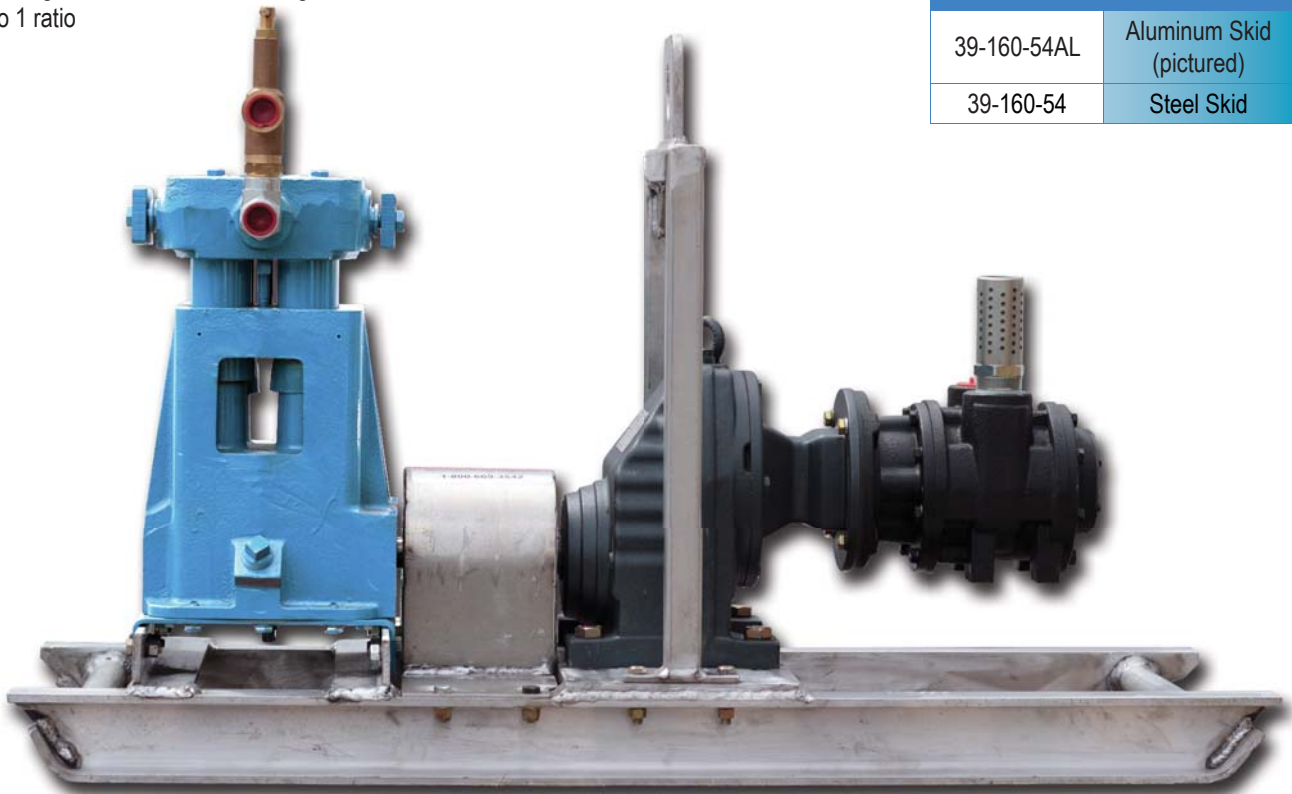
Features:

- Fluid end material of ductile iron
- Nitrided crankshaft resists corrosion
- Designed for easy, economical maintenance
- Cast iron pump case
- Special raised seat valves and hardened valve chamber available for abrasives



Globe VA10C NEMA

Motor Type	Air
Max Power:	12.8 HP/9.5kW
Torque at Max Power:	37Nm
Stall Torque:	44Nm
Min. Start Torque:	34Nm
Max Speed:	2400rpm
Mounting	Nema
Configuration:	



Part Number	Description
39-160-54AL	Aluminum Skid (pictured)
39-160-54	Steel Skid

Performance Table FMC E0413

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				390 RPM	400 RPM	425RPM	450RPM	575 RPM
E0413	1.625	0.036	600	14.01	14.36	15.26	16.16	20.65



PUMPS - CUSTOM E0413 ASM

Yanmar 9hp Diesel FMC E0413 ASM

Consists of FMC E0413 pump, 9HP Yanmar diesel engine, Noram 6:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Diesel Engine

YANMAR Model: L100V

- EPA's strict Tier 4 standards
- Low Vibration & Low Noise
- Compact, Diesel Injection Engine
- Quick and Easy Start

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC E0413

See info on E0413 pump page

Specifications:

- Standard Suction Size: 1.25" NPT
- Standard Discharge Size: 0.75" NPT
- Pump Weight (Average): 80 lbs

Features:

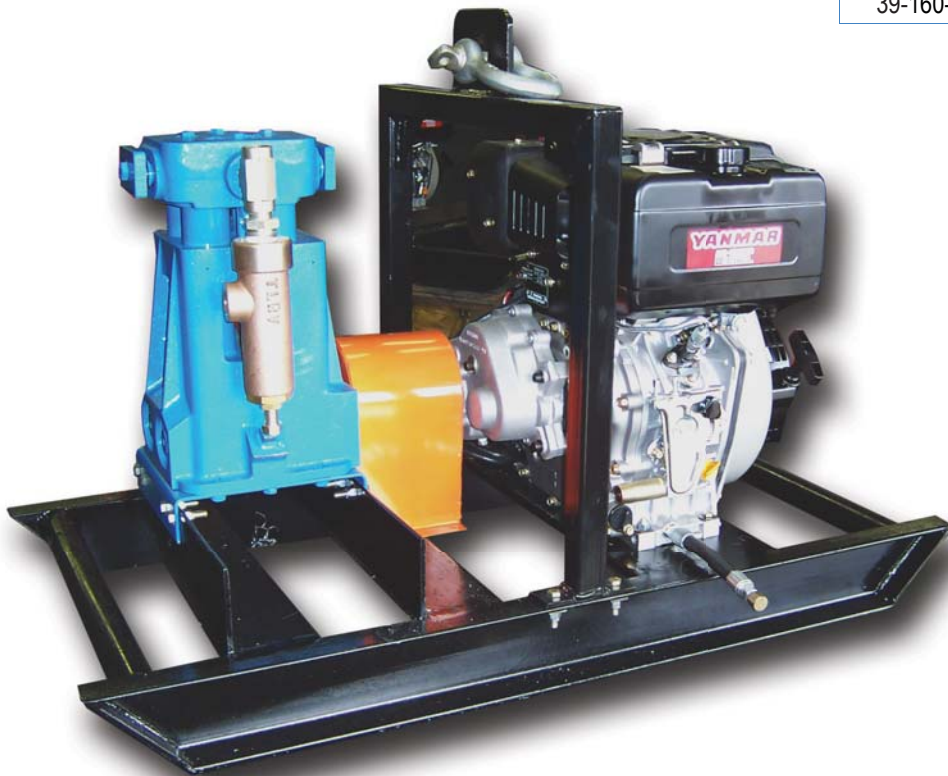
- Fluid end material of ductile iron
- Nitrided crankshaft resists corrosion
- Designed for easy, economical maintenance
- Cast iron pump case
- Special raised seat valves and hardened valve chamber available for abrasives



YANMAR Model: L100V

Engine:	Type Air Cooled 4 cycle Vertical Cylinder Diesel
Fuel:	Diesel
Number of Cylinders:	1
Total Displacement:	435 cc
Rated Speed:	3600 rpm
Net Intermittent:	9.1 Hp [6.8kW] /3600rpm
Net Continuous HP:	8.3hp [6.2kW] /3600rpm

Part Number	Description
39-160-43	Steel Skid



Performance Table FMC E0413

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				390 RPM	400 RPM	425RPM	450RPM	575 RPM
E0413	1.625	0.036	600	14.01	14.36	15.26	16.16	20.65



PUMPS - CUSTOM E0413 ASM

White Hydraulic FMC E0413 ASM

Consists of FMC E0413 pump, White Drive Products HB 300 Series Motor, Noram 6:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Hydraulic Motor

Features and Benefits

- Forced Drive Link Lubrication reduces wear and promotes longer life from motor.
- Heavy-Duty Drive Link is up to 30% stronger than competitive designs for longer life.
- Three-Zone Orbiting Valve precisely meters oil to produce exceptional volumetric efficiency.
- Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.
- Standard Case Drain increases shaft seal life by reducing pressure on seal.

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC E0413

See info on E0413 pump page

Specifications:

- Standard Suction Size: 1.25" NPT
- Standard Discharge Size: 0.75" NPT
- Pump Weight (Average): 80 lbs

Features:

- Fluid end material of ductile iron
- Nitrided crankshaft resists corrosion
- Designed for easy, economical maintenance
- Cast iron pump case
- Special raised seat valves and hardened valve chamber available for abrasives

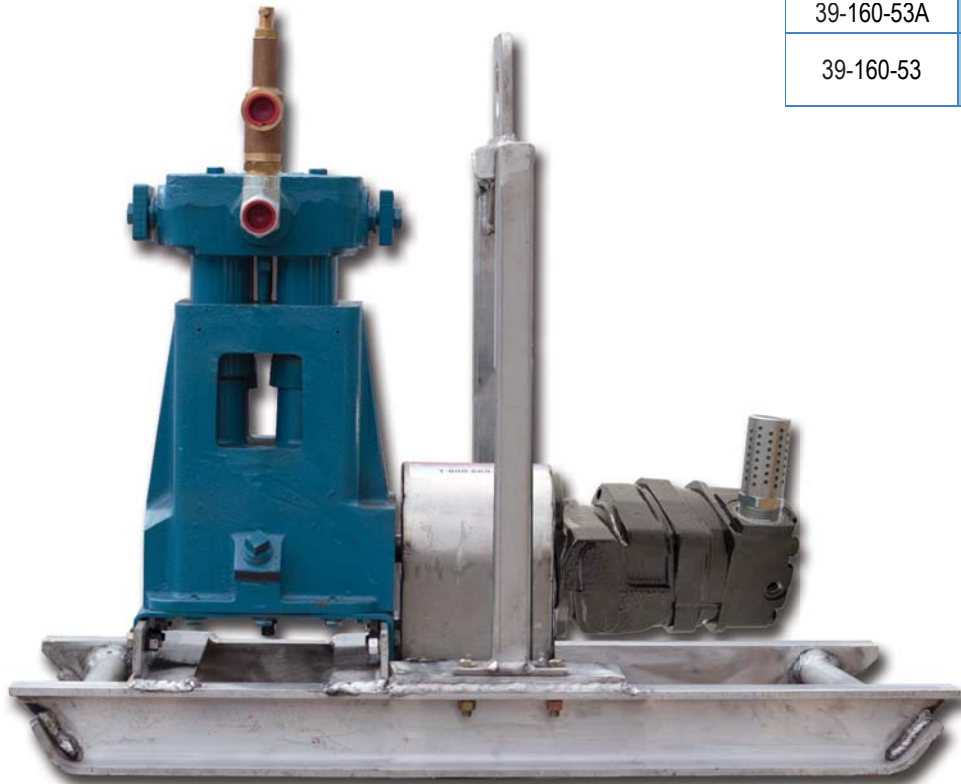


White Drive Products HB MOTORS / 300 Series

Displacements: 3.2-24.9 cid (52-409 cc)
Max Speed: 800 rpm
Max Flow: 20 gpm (76 lpm)
Max Torque: 8,400 lb-in (94.6 daNm)
Max Pressure: 3,000 psi (207 bar)

Part Number	Description
-------------	-------------

39-160-53A	Aluminum Skid
39-160-53	Steel Skid (not shown)



Performance Table FMC E0413

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				390 RPM	400 RPM	425RPM	450RPM	575 RPM
E0413	1.625	0.036	600	14.01	14.36	15.26	16.16	20.65



PUMPS - CUSTOM L09-420 ASM

Globe Air Motor FMC L09-420 ASM

Consists of FMC L09-420 pump, Globe VA10C Nema Air Motor, SEW Eurodrive RX77 4.04:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Air Motor

PERFORMANCE V10 12.8 HP/9.5 kW REVERSIBLE

- Simple & inexpensive variable speed and torque control with flow control valve and/or pressure regulator.
- Intrinsically safe for explosion proof environments.
- Can be stalled indefinitely under load. They will not over heat or burn out.
- Instantly reversible, operated with a simple control valve.
- Controllable over a wide speed range.
- Resistant to warm, dirty and damp conditions.
- Air motors are compact and light weight compared to equivalent electric motors.

Gear Reducer

SEW Eurodrive RX77

Single Stage, Foot mounted, Helical gear motor
4.04 to 1 ratio

Pump

FMC L09-420

See info on L09 pump page

Specifications:

- Standard Suction Size: 1.50" NPT
- Standard Discharge Size: 1.00" NPT
- Pump Weight (Average): 200 lbs

Features:

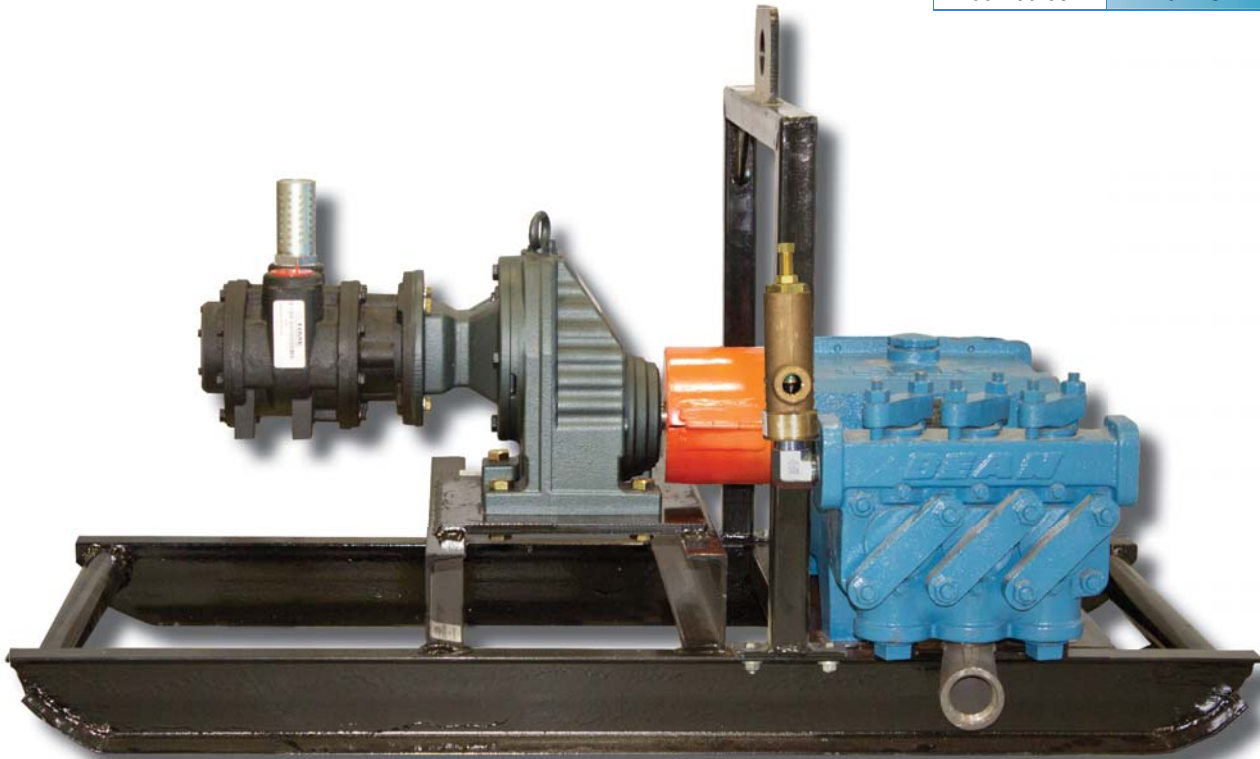
- Fluid end material of cast iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



Globe VA10C NEMA

Motor Type	Air
Max Power:	12.8 HP/9.5kW
Torque at Max Power:	37Nm
Stall Torque:	44Nm
Min. Start Torque:	34Nm
Max Speed:	2400rpm
Mounting	Nema
Configuration:	

Part Number	Description
39-160-65	Steel Skid



Performance Table FMC L09-420

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	625 RPM	700 RPM	750 RPM	890 RPM
L0918	2.750	0.0589	700	11.3	20.2	22.6	24.2	28.7



PUMPS - CUSTOM L09-420 ASM

Yanmar 9HP Diesel FMC L09-420 ASM

Consists of FMC L09-420 Bean pump, 9HP Yanmar diesel engine, Noram 6:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Diesel Engine

YANMAR Model: L100V

- Epa's strict tier 4 standards
- Low vibration & low noise
- Compact, diesel injection engine
- Quick and easy start

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC L09-420

See info on L09 pump page

Specifications:

- Standard Suction Size: 1.50" NPT
- Standard Discharge Size: 1.00" NPT
- Pump Weight (Average): 200 lbs

Features:

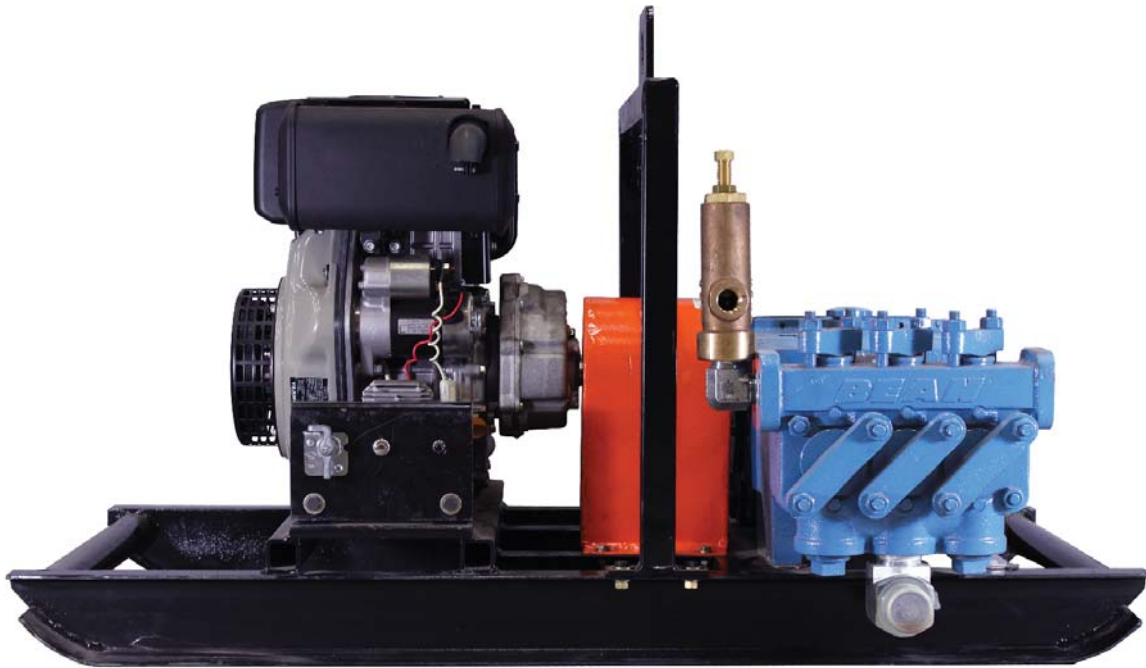
- Fluid end material of cast iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



YANMAR Model: L100V

Engine:	Type Air Cooled 4 cycle Vertical Cylinder Diesel
Fuel:	
Number of Cylinders:	1
Total Displacement:	435 cc
Rated Speed:	3600 rpm
Net Intermittent:	9.1 Hp [6.8kW] /3600rpm
Net Continuous HP:	8.3hp [6.2kW] /3600rpm

Part Number	Description
39-160-19	Steel Skid



Performance Table FMC L09-420

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	625 RPM	700 RPM	750 RPM	890 RPM
L0918	2.750	0.0589	700	11.3	20.2	22.6	24.2	28.7



PUMPS - CUSTOM L09-420 ASM

Kubota 9.5HP Diesel FMC L09 ASM

Consists of FMC L09-420 Bean pump, 9.5HP Kubota diesel engine with electric start, Noram 6:1 gear reducer, 12V Deep Cell Battery, skid frame, lifting bracket, relief valve, and guards.

Diesel Engine

Kubota Model OC95-E3

- EPA's strict Tier 4 standards
- Durable Power
- Clean and Quiet Power
- Electric Start

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC L09-420

See info on L09 pump page

Specifications:

- Standard Suction Size: 1.50" NPT
- Standard Discharge Size: 1.00" NPT
- Pump Weight (Average): 200 lbs

Features:

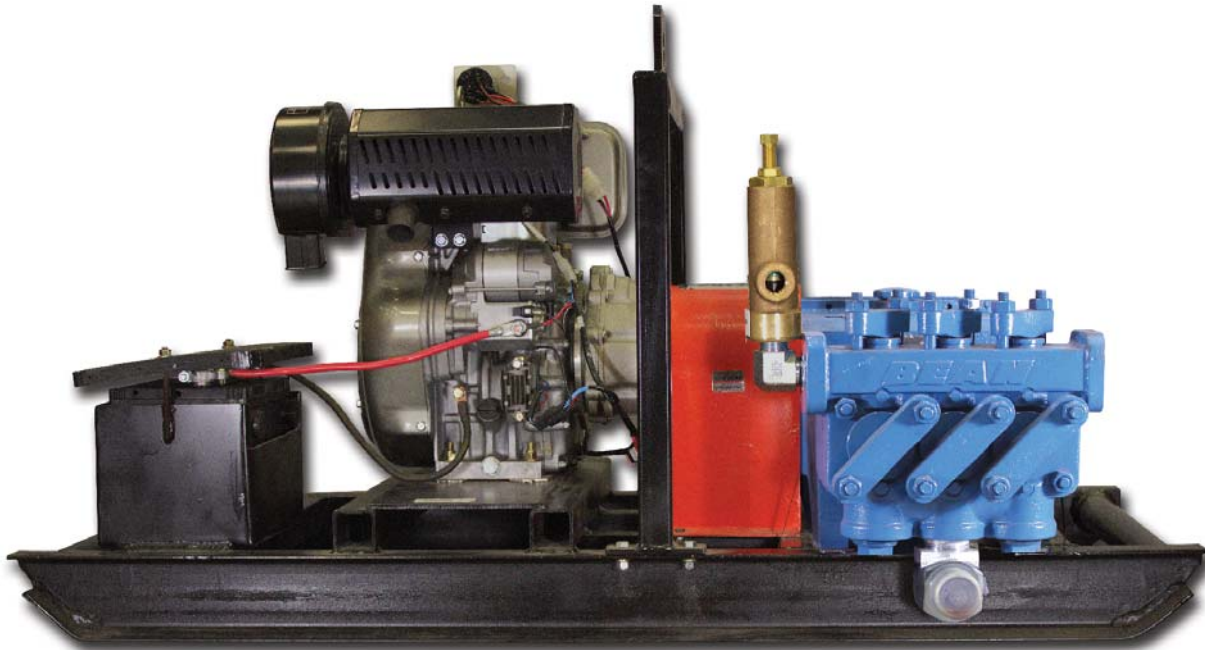
- Fluid end material of cast iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



Kubota Model OC95-E3

Emission Regulation Tier 4
Type 4-cycle Oil-air cooled Diesel
Number of Cylinders 1
Displacement 0.416 (25.39)
Maximum Speed 3600 rpm
Output Net Intermittent - kW: 7.0
HP: 9.4
PS: 9.5

Part Number	Description
39-160-19KBTA	Steel Skid



Performance Table FMC L09-420

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	625 RPM	700 RPM	750 RPM	890 RPM
L0918	2.750	0.0589	700	11.3	20.2	22.6	24.2	28.7



PUMPS - CUSTOM L09-420 ASM

White Hydraulic FMC L09 ASM

Consists of FMC L09-420 Bean pump, White Drive Products HB 300 Series Motor, Noram 6:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Hydraulic Motor

Features and Benefits

- Forced Drive Link Lubrication reduces wear and promotes longer life from motor.
- Heavy-Duty Drive Link is up to 30% stronger than
- Competitive designs for longer life.
- Three-Zone Orbiting Valve precisely meters oil to produce exceptional volumetric efficiency.
- Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.
- Standard Case Drain increases shaft seal life by reducing pressure on seal.

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC L09-420

See info on L09 pump page

Specifications:

- Standard Suction Size: 1.50" NPT
- Standard Discharge Size: 1.00" NPT
- Pump Weight (Average): 200 lbs

Features:

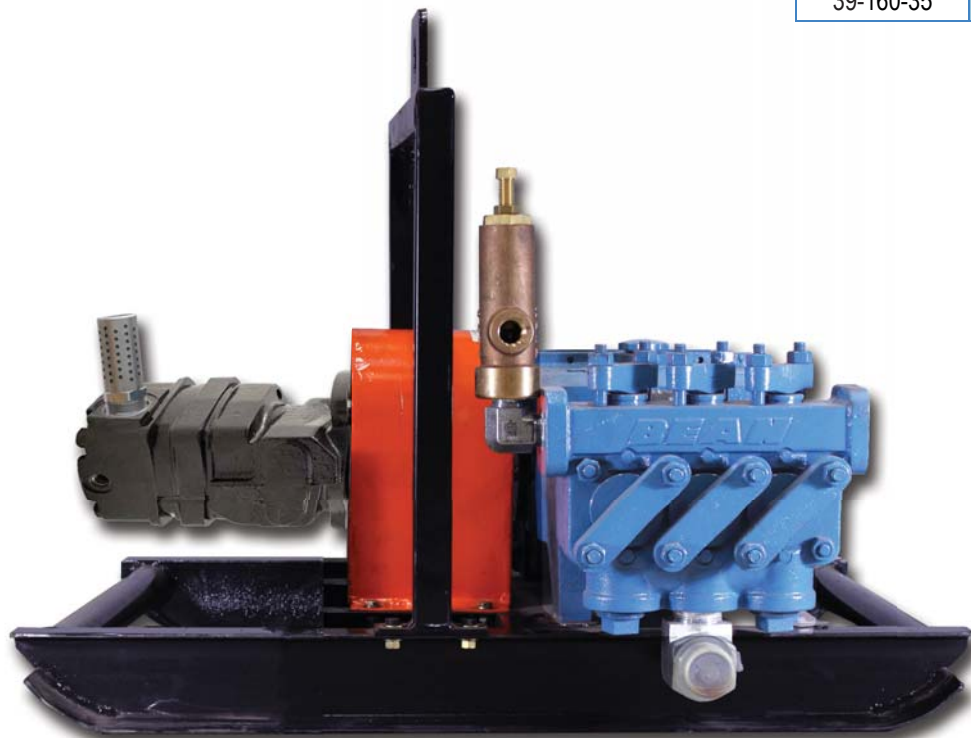
- Fluid end material of cast iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



White Drive Products HB MOTORS / 300 Series

Displacements: 3.2-24.9 cid (52-409 cc)
Max Speed: 800 rpm
Max Flow: 20 gpm (76 lpm)
Max Torque: 8,400 lb-in (94.6 daNm)
Max Pressure: 3,000 psi (207 bar)

Part Number	Description
39-160-35	Steel Skid



Performance Table FMC L09-420

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	625 RPM	700 RPM	750 RPM	890 RPM
L0918	2.750	0.0589	700	11.3	20.2	22.6	24.2	28.7



PUMPS - CUSTOM W11-435 ASM

Kubota 32.8HP Diesel FMC W11-435 ASM

Consists of FMC W11-435 Bean pump, 32.8HP Kubota turbo diesel engine with electric start, NEWAGE Driveline Solutions 3.07:1 transmission, skid frame with forklift channels, lifting bracket, relief valve, and guards.

ASM certified for fly moves with an ASM weight of 1,119 lbs.

Diesel Engine

Kubota 05 Series D1105-T

- Turbocharged engine
- complies with EPA Interim Tier 4 emissions regulations
- complies with EU Stage IIIA requirements
- closed breather system
- Kubota's original E-TVCS (Three Vortex Combustion System) has been improved. The airflow, combustion chamber and piston recess were optimized to provide a 50% lower particulate matter (PM) level

Pump

FMC W11-435

See info on W11 pump page

Specifications:

- Standard Suction Size: 2.00" NPT
- Standard Discharge Size: 1.25" NPT
- Pump Weight (Average): 425 lbs

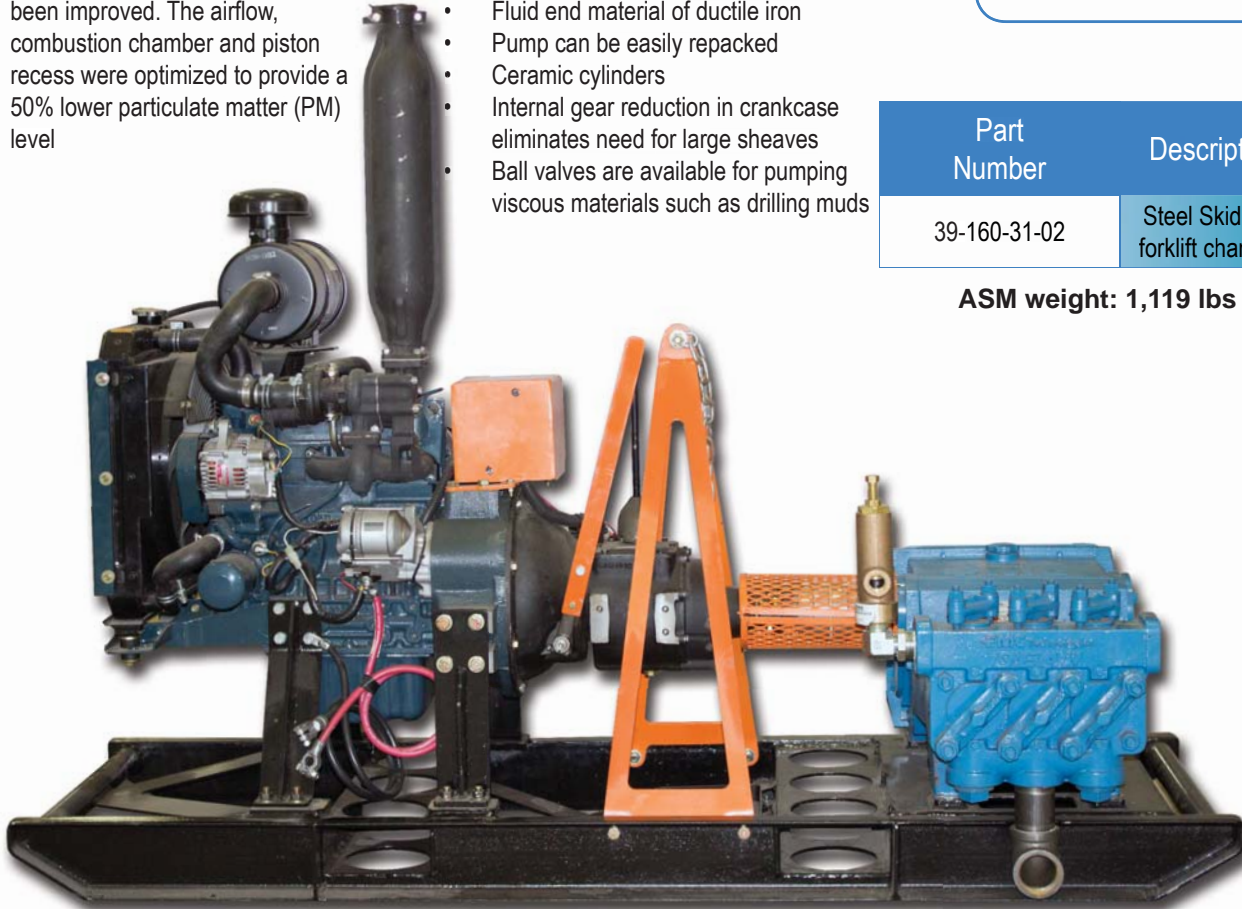
Features:

- Fluid end material of ductile iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



Kubota 05 Series D1105-T

Emission Regulation: Tier 4
 Type: Vertical 4-cycle liquid cooled Diesel
 Number of Cylinders: 3
 Displacement: 1.123(68.53) L (cu.in)
 Maximum Speed 300 rpm
 Output Net Intermittent - kW: 24.5
 HP: 32.8
 PS: 33.3



Part Number	Description
39-160-31-02	Steel Skid with forklift channels

ASM weight: 1,119 lbs

Performance Table FMC W11-435

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	500 RPM	635 RPM	750 RPM	900 RPM
W1122	2.750	0.0589	1,000	20.6	29.5	37.4	44.2	53.0



PUMPS - CUSTOM W11-435 ASM

White Hydraulic FMC W11-435 ASM

Consists of FMC W11-435 Bean pump, White Drive Products HB 300 Series Motor, Noram 6:1 gear reducer, skid frame, lifting bracket, relief valve, and guards.

Hydraulic Motor

Features and Benefits

- Forced Drive Link Lubrication reduces wear and promotes longer life from motor.
- Heavy-Duty Drive Link is up to 30% stronger than competitive designs for longer life.
- Three-Zone Orbiting Valve precisely meters oil to produce exceptional volumetric efficiency.
- Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.
- Standard Case Drain increases shaft seal life by reducing pressure on seal.

Gear Reducer

NORAM's 6:1 Reduction Gearbox for one inch crankshaft engines

Pump

FMC W11-435

See info on W11 pump page

Specifications:

- Standard Suction Size: 2.00" NPT
- Standard Discharge Size: 1.25" NPT
- Pump Weight (Average): 425 lbs

Features:

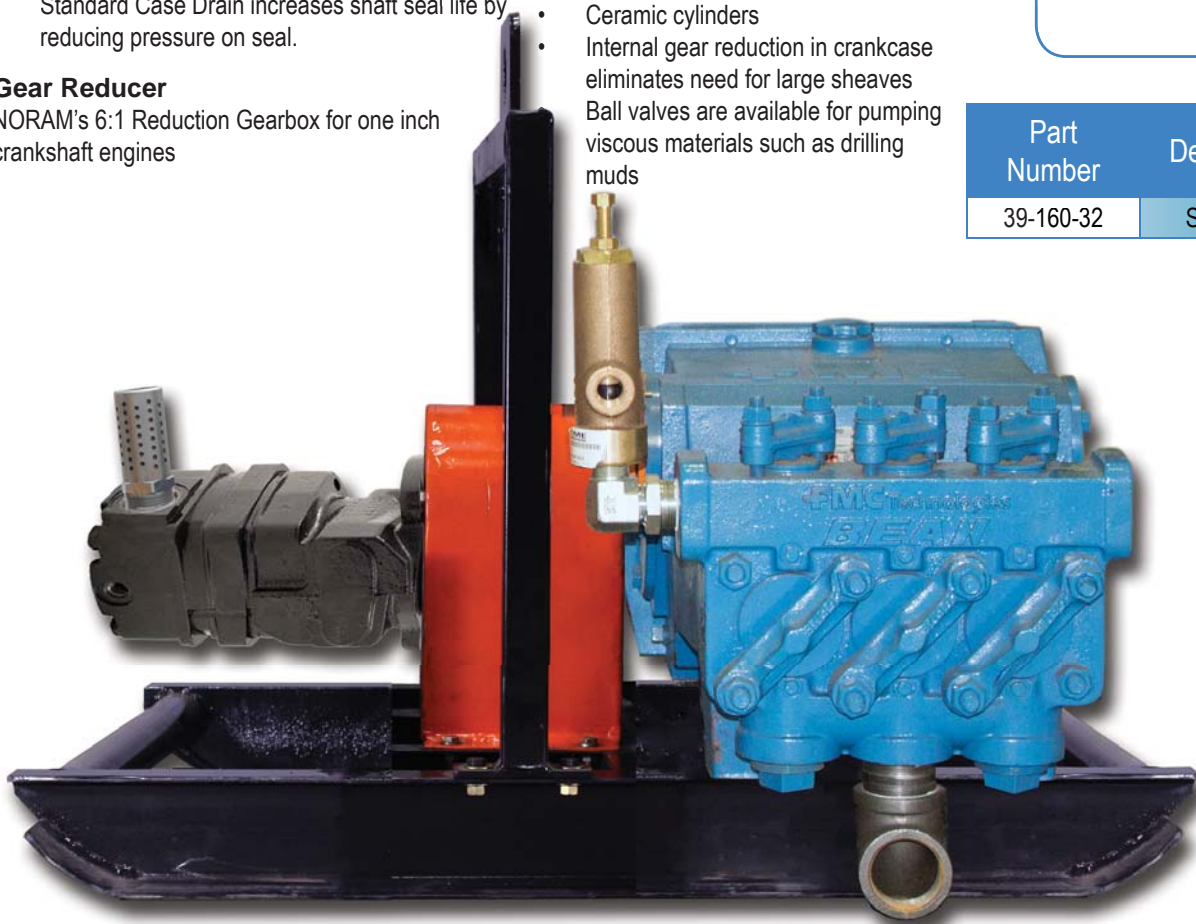
- Fluid end material of ductile iron
- Pump can be easily repacked
- Ceramic cylinders
- Internal gear reduction in crankcase eliminates need for large sheaves
- Ball valves are available for pumping viscous materials such as drilling muds



**White Drive Products
HB MOTORS / 300 Series**

Displacements: 3.2-24.9 cid (52-409 cc)
Max Speed: 800 rpm
Max Flow: 20 gpm (76 lpm)
Max Torque: 8,400 lb-in (94,6 daNm)
Max Pressure: 3,000 psi (207 bar)

Part Number	Description
39-160-32	Steel Skid



Performance Table FMC W11-435

Pump Model	Piston Diameter (in)	Displacement (GAL/REV)	Max Pressure (PSI)	Pump Capacity (GPM) @ Input Speed (RPM)				
				350 RPM	500 RPM	635 RPM	750 RPM	900 RPM
W1122	2.750	0.0589	1,000	20.6	29.5	37.4	44.2	53.0



PUMPS - Ground Stabilizing Units

Tank Pump

Steel or aluminum, the tank pump is designed to be permanently mounted on a drill. The pumping unit is comprised of a 20 litre steel or aluminum tank to which a pump is attached which injects product using a regulator and needle valve. A hydraulic hose is attached to the needle valve which is mounted on the rock drill line on the drill.

A solenoid switch may be attached to the drill to regulate the flow of product.

A 3/8" air hose with quick connect couplings is connected to the drill to provide air for the pump.

The pumping unit is uniquely configured to be used with Frac Ease to stabilize drill holes. The pumping unit allows for a constant flow of product into the water line and can be regulated for ground conditions.

Part #	Description
420-27S	Tank Pump steel tank
420-51A	Tank Pump aluminum tank
420-02	Frac Ease



Tank with Haskel Pump



The Haskel pump is used where high psi output is required. The air drive of the pump requires a minimum pressure of 25 psi (1.72 bar) to actuate the air cycling valve spool. However, 40 psi is the recommended minimum for long term reliable operation. Maximum air drive pressure is 125 psi (8.6 bar).

Pump output is 8800 psi.

Part #	Description
420-51AHP	Tank Pump with Haskel pump and aluminum tank



PUMPS - Accessories

Rubber Hose Strainer



Heavy Duty Suction Hose ASM - 2", 3" or 4" X 25' complete with grooved end. Made of heavy duty 6 ply non-wired hose, to ensure the hose will keep its shape, resist abrasion and will not crush.

Product Number	Size
DP69225	2"
DP69325	3"
DP69425	4"

Foot Valves & Strainers



Basket Strainer Without Valves

Round hole basket strainers are made from zinc plated metal. Strainers are used to allow adequate flow without allowing debris that may harm the pump. Non valved.

Product Number	Size
960-03	1-1/2"
960-05	2"
960-09	2-1/2"
960-06	3"
960-07	4"



Foot Valve and Strainer

Foot valves and strainers are made from cast iron and have a leather or rubber flapper that closes to prevent the pump from losing its prime. Ideal for suction pumps using control floats.

Product Number	Size
962-00	1-1/2"
962-01	2"
962-02	2-1/2"
962-03	3"
962-04	4"



Water Hose

MINE AIR/WATER HOSE

For mining, construction and industrial use where 400 PSI service is required. Mandrel built.

- Yellow cover with black stripe
- Reinforced with multiple layers of spiraled synthetic yarn
- Oil mist resistant
- Temperature range: -40°C to +85°C
- Sizes: ½" – 4" I.D.
- Standard length - 50' (other lengths available)



Custom Pump Cart



This cart was custom designed for a customer that needed to move the three inch Nomad pump NT80 with a weight of 100 lbs from one location to another.

We can create a custom cart or sled to move any of our pumps.

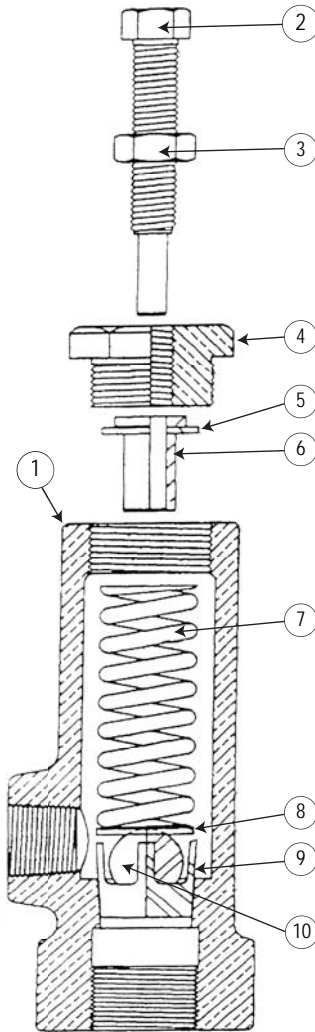
Please call us with your specifications.

Product Number	Description
NT 80 CART	Steel Pump Cart for Nomad NT 80 pump
Custom Carts and Sleds available	



PUMPS - Valves

TL Relief Valve



The TLRV TIME Ltd. Relief Valve is manufactured and assembled in Northern Ontario. This compact and robust valve has been tested to a recommended maximum hydrostatic pressure of 1200 PSI.

Dimensions: 8.5" high x 3" wide
 Outlet Port: 3/4"
 Inlet Port: 1"

Item	Description	Part #
	Relief Valve – Complete ASM	210-01
1	Relief Valve body – Bare Machined	210-02
2	Adjustment screw	210-03
3	Locking nut	210-04
4	Plug	210-05
5	Spring guide washer – top	210-06
6	Spring guide	210-07
7	Compression spring	210-08
8	Spring guide washer – bottom (not shown)	210-06
9	Stainless steel valve seat	210-10
10	15/16" stainless steel ball	1187738



Other Valves



1-1/4" Relief/Regulator Valve

- 75 GPM Capacity
- 50-2000 PSI Pressure Range
- Port Size: 1-1/4 Inch NPT
- 3 Ports
- SST Valve Seat

Repair Kit

Includes:

- packing
- o-ring
- set screw
- plunger cup
- valve seat
- valve

Part #	Description
39-1285315	1-1/4" Relief Valve
39-5256492	Repair Kit



3/4" 700 PSI Brass Relief Valve

Piston-Type Pressure Relief/Regulating Valve.

Brass, 3/4" Inlet & Pipe Connection, 700 psi max.

Bypasses excess liquid. Adjustable to maintain control of line pressure at any pressure within the valve's operating range. Selected pressure setting firmly held in place by locknut. Extra large valve passages to handle large flows.

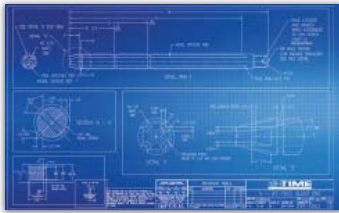
Part #
32-681534700



Manufacturing and Fabrication

Design and Innovation

The TIME team takes pride in providing customers with quality products and the absolute best service with a personal touch.



Not only does TIME distribute a number of quality product lines, we also manufacture a number of our own core products. In conjunction with our fabrication and machining capabilities, we have a team that has well over 250 years of experience in the mining, diamond drilling, and various industrial sectors. With the technical knowhow, we offer design capabilities specifically focused on new product development, innovative design, and problem solving.

We can manufacture to your requirements, or provide complete design and drafting expertise in-house.

RESPONDING TO CUSTOMER NEEDS

Our mandate is to exceed our customer's expectations.
Peter R. Henderson, President

MACHINING

TIME Limited's machining shop uses a combination of heavy duty, big and small bore lathes, CNC milling machines, CNC lathes and conventional lathes.



Here are some of our featured equipment and capabilities:



Hurco TM-18 Heavy Duty Lathe
a. Bar Capacity: 6.4 inch bar capacity
b. Turning Diameter: 25 inch max
c. Turning Length: 39.4 inch max
d. Travel: 17x, 40z inch
e. Quick Change air collect chuck system



Nakamura-Tome WT300MMYS
a. 9-axis, 2 turret multitasking machining
b. Bar Capacity: 65mm (l) and 102mm (r)
c. Turning diameter: 270mm max turning
d. Turning length: 780mm max
e. Quick Change air collect chuck system
f. Chip Blaster GV2-40 high pressure coolant system



Hurco VMX50 Milling Machine
a. 3-axis milling machine
b. Travel: 50 x 26 x 24 inch
c. Table Size: 59 x 26 inch
d. Tool Capacity: 30 CAT 50
e. Magnetic Material Holder

Other Machines include:
CNC lathes such as ROMI M27 heavy duty big bore lathe and ROMI M20 small bore lathe, as well as a host of conventional lathes.

CNC milling machines such as MAZAK Fadal VMX4020FX mill, and FIRST LC-185v-B milling machine, as well as a host of conventional milling machines



Our Newest Toys!



TIME OFFICES

We supply mine-grade products, manufacture quality products, offer design, fabrication and custom machining, as well as sourcing. We are your one-stop shop for industrial needs.

Head Office

Haileybury **Sudbury**
Tel: 705-647-8138 Tel: 705-524-8903
Fax: 705-647-9800 Fax: 705-524-9140

Val d'Or

Timmins
Tél: 819-874-8138 Tel: 705-268-8128
Fax: 819-874-8139 Fax: 705-268-5122

info@timeltd.ca www.timeltd.ca

FABRICATION

TIME Limited's welding and fabrication shop has full capabilities for custom work. Our shop includes a large plasma table, capable of cutting material up to 8' X 20', 2 10,000 lbs SMH Overhead Cranes, an AKBEND ASM-S 17 roller and a brand new, iBend CNC Hydraulic Press Brake.



Our welding shop is certified by the Canadian Welding Bureau annually.



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Serving the Mining Industry Since 1971

Manufacturing and Fabrication



Our brand new, State of the art, 40,000 Sq. ft. Manufacturing, Fabrication and Warehousing facility

705-647-8138

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STOCKING WAREHOUSE



TIME Limited's philosophy is to stock what our customers need. If we don't have it, and you need it on a regular basis, just ask and we will do our best to add it to our ever-growing warehouse.

We carry everything from Health and Safety to Hand tools, mining and diamond drilling products, TIME branded hoses and Gates fittings.



TIME Limited also fixes or makes your hydraulic hoses while you wait.



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PAGE: PU34



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Letter from the President

TIME is committed to total customer service. We strive to keep this promise in many ways.

Total service means manufacturing to industry standards. TIME Manufacturing and Fabrication Division produces quality products, such as drill wedges, safety and grout plugs, pump assemblies, rod wrenches and custom tooling and equipment.

Total service means manufacturing to your specifications. Our shop personnel have long experience at custom machining and design engineering for the mining and drilling industry.

Total service means sourcing for the products you need at prices that are competitive and fair. We distribute only the best names in the industry such as FMC, Ridgid Tools, Gray Tools, Bestolife, Ambex, Gates Hydraulics, among others.

Total service means listening to our customers and working with them to develop new solutions, products, and innovations to make their jobs safer and more cost effective.

Our commitment to customers has resulted in innovations, new products and important changes. In recent years we have worked with our customers to develop an underground compressed air conservation system, an underground long-hole production drill, a hydraulic rod wrench, a biodegradable rod grease, and an improved camp heater to meet industry standards.

Our people are committed to help find solutions to your problems. We would be pleased to discuss how we can help you raise your production and save money.

TIME's capabilities are limited only by our customers' requirements.

*Peter R. Henderson
President*



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PAGE: PU35



PUMPS - Specifications

All Pumps Master Performance chart

FMC PISTON PUMPS

Model	GPM	Max Pressure	R.P.M.	Line Size		Lubrication
				Suction	Discharge	
A0309C	3	400	475	3/8" NPT	3/8" NPT	#2 grease & SAE 30
A0410C	5.3	750	500	1" NPT	3/4" NPT	1 qt SAE 30
A0411C	6.4	600	500	1" NPT	3/4" NPT	1 qt SAE 30
A0413C	9	550	500	1" NPT	3/4" NPT	1 qt SAE 30
I0410C	5.3	750	500	1" NPT	3/4" NPT	1 qt SAE 30
I0411C	6.4	600	500	1" NPT	3/4" NPT	1 qt SAE 30
I0413C	9	550	500	1" NPT	3/4" NPT	1 qt SAE 30
E0410C	8.3	750	515	1 1/2" NPT	3/4" NPT	1 qt SAE 30
E0411C	10	700	515	1 1/2" NPT	3/4" NPT	1 qt SAE 30
E0413C	14	600	515	1 1/2" NPT	3/4" NPT	1 qt SAE 30
L0614	22	1000	475	1 1/2" NPT	1" NPT	2 qt SAE 30
L0618	35	700	475	1 1/2" NPT	1" NPT	2 qt SAE 30
L0914B	12	1000	616	1 1/2" NPT	1" NPT	3 qt SAE 30
L0914D	17	1000	872	1 1/2" NPT	1" NPT	3 qt SAE 30
L0914B-CD	12	1000	616	1 1/2" NPT	1" NPT	3 qt SAE 30
L0918D	28	700	870	1 1/2" NPT	1" NPT	3 qt SAE 30
L0918B	20	700	621	1 1/2" NPT	1" NPT	3 qt SAE 30
L0918B-CD	20	700	621	1 1/2" NPT	1" NPT	3 qt SAE 30
W1118D	35	1000	890	2" NPT	1 1/4" NPT	4 qt SAE 30
W1118B	25	1000	635	2" NPT	1 1/4" NPT	4 qt SAE 30
W1122D	50	1000	850	2" NPT	1 1/4" NPT	4 qt SAE 30
W1122B	37	1000	628	2" NPT	1 1/4" NPT	4 qt SAE 30
W1122B-CD	37	1000	628	2" NPT	1 1/4" NPT	4 qt SAE 30
L1118D	50	1200	1270	2 1/2" NPT	1 1/4" NPT	4 qt SAE 30
L1118B	27	1200	686	2 1/2" NPT	1 1/4" NPT	4 qt SAE 30
L1122D	75	1000	1270	2 1/2" NPT	1 1/4" NPT	4 qt SAE 30
L1122B	40	1000	679	2 1/2" NPT	1 1/4" NPT	4 qt SAE 30

FMC PLUNGER PUMPS

Model	GPM	Max Pressure	R.P.M.	Line Size		Lubrication
				Suction	Discharge	
M0406	5.2	1250	600	1/2" NPT	1/2" NPT	1 pt SAE 30
M0606	5.1	5000	600	1-1/2" NPT	1" NPT	2 qt SAE 30
M0608	9.2	3400	600	1-1/2" NPT	1" NPT	2 qt SAE 30
M0610	14.3	2200	600	1-1/2" NPT	1" NPT	2 qt SAE 30
M0612	20.6	1500	300	1-1/2" NPT	1" NPT	2 qt SAE 30
M0810	19	3620	600	2 1/2" NPT	1 1/2" NPT	1 1/2" gal SAE 30
M0812	27.5	2520	600	2 1/2" NPT	1 1/2" NPT	1 1/2" gal SAE 30
M0814	37.5	1850	600	2 1/2" NPT	1 1/2" NPT	1 1/2" gal SAE 30
M0816	49	1420	600	2 1/2" NPT	1 1/2" NPT	1 1/2" gal SAE 30
M0818	62	1120	600	2 1/2" NPT	1 1/2" NPT	1 1/2" gal SAE 30
M1212	34.5	3400	500	3" NPT	1 1/2" NPT	3 gal SAE 30
M1214	46.5	2500	500	3" NPT	1 1/2" NPT	3 gal SAE 30
M1216	61	1900	500	3" NPT	1 1/2" NPT	3 gal SAE 30
M1218	77	1500	500	3" NPT	1 1/2" NPT	3 gal SAE 30
M1220	96	1250	500	3" NPT	2" NPT	3 gal SAE 30
M1222	115	1000	500	3" NPT	2" NPT	3 gal SAE 30
M1224	137.5	850	500	3" NPT	2" NPT	3 gal SAE 30
JB1S	100	100	3400	2" NPT	2" NPT	SAE 30
JB2S	100	200	3400	2" NPT	2" NPT	SAE 30

Pratissoli Pumps

Model	Volume		Pressure		R.P.M.	Required		Weight	Dimensions mm
	l/min	US-gpm	bar	psi		hp	kW		
KF 28	92	24.4	210	3045	1000	50	37	71	526x367x253
KF 30	106	28	200	2900	1000	55	40	71	526x367x253
KF 36	122	32.2	160	2320	800	50	37	71	526x367x253
	137	36.2	140	2050	900	50	37	71	526x367x253
	153	40	130	1900	1000	52	38.2	71	526x367x253
KF 40	170	45	110	1600	900	49	36.1	71	526x367x253

rev 032017en



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PAGE: PU36



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Industrial - Boots

ID - Industrial



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PAINT

Features:

- Sprays in upright position
- Low odour
- Non-clogging
- Fast drying

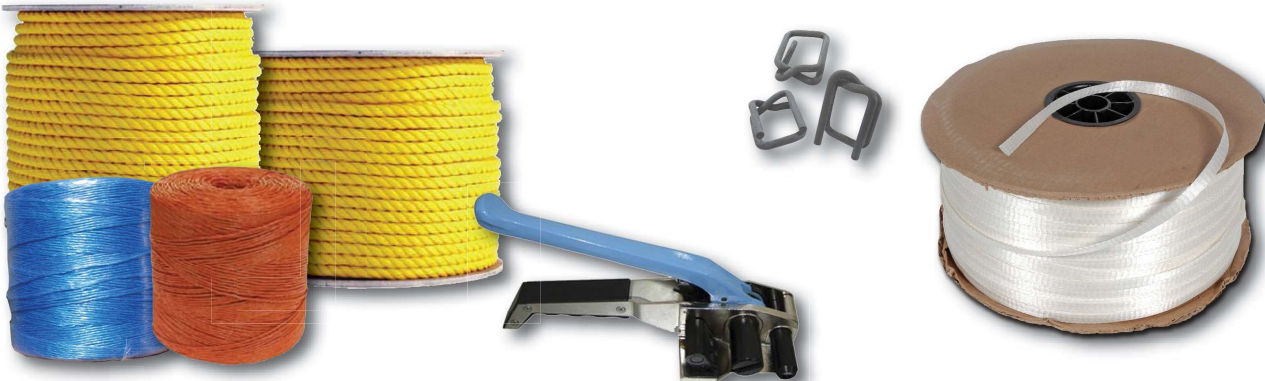
Paint Extension Gun 10'



Product Number	Description
3141LF	Marking Paint Yellow
3244A	Marking Paint Red
3247	Marking Paint White
3145FL	Marking Paint Green
3143LF	Marking Paint Orange
3246	Marking Paint Black
3144SL	Marking Paint Florescent Orange
6242	Marking Paint Dark Blue
47-1075	Paint Extension Gun 10'

STRAPPING - Strapright, Poly Rope and Twine

- **Multiple Uses** - Bundling, bailing, securing loads, anchoring, etc. Polywoven strapping can be used to replace steel and wire strapping in many applications.
- **Safe** - to vehicles, machinery and/or product. Safe to handle. No protective clothing necessary; no sharp edges or splinters. No potential hazards involving off-cuts. No danger of injury when cutting strapping under tension.
- **Cost Efficient** - Requires no expensive machinery. Reusable, therefore reducing waste. Machinery repair costs eliminated. Save on labour.
- **Easy Handling** - Light and easy to handle. Easily disposed.
- **Recovery** - Elongation is approximately 8% and has a 90% recovery. Strapping expands and contracts while maintaining its tension on the bundle. If a bundle is dropped, the strapping will not break due to its flexibility.
- **Resistant to** - Ultraviolet rays...Acids...High and low temperatures...Water...Rust—thereby leaving no marks on product.
- **Tensioning** - Hand-held tool and wire buckles produce tensioning. Complete line of strapping tools for different requirements. Tool repair service available



Industrial - Gloves

Ansell



Marigold[®]
Industrial



Our warehouses carry a complete line of high-tech sorbent products for every situation.



Industrial - Fall Protection



Class A



Class P



Class E



Class L



Class D





Industrial - Head Protection



We carry all the top manufacturers in Head Protection.
Face Shields and Glasses, Welding helmets, Mining and
Construction helmets, In- and Over-Ear Hearing protection.



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PAGE: ID8



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LED Industrial lighting, Air lights, Wobble lights, Safety lights and Mining Cap lights. If you are looking for something else, we will gladly source it for you.



Rexroth

Bosch Group

Bosch Rexroth. The Drive & Control Company.

Economical, precise, safe, and energy efficient: drive and control technology from Bosch Rexroth moves machines and systems of any size. The company bundles global application experience in the market segments of Mobile Applications, Machinery Applications and Engineering, and Factory Automation to develop innovative components as well as tailored system solutions and services. Bosch Rexroth offers its customers hydraulics, electric drives and controls, gear technology, and linear motion and assembly technology all from one source.



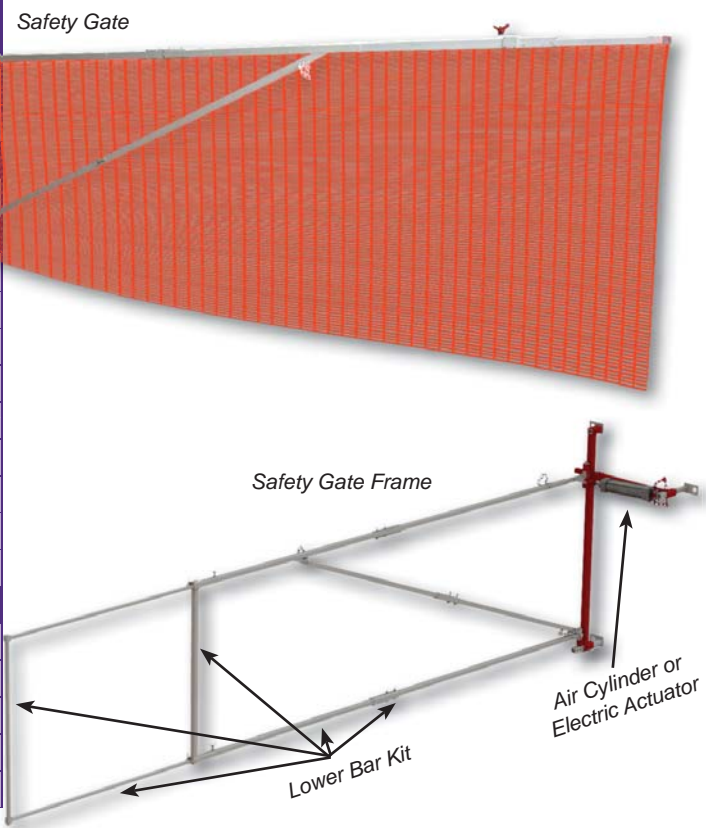
Safety Gate

The gate is used to minimize risks of human falls in openings and is used to control access in hazardous areas.

Features:

- Reversible – can be installed left or right and be opened in the front or rear
- Simple installation and use
- Fast installation and removal times
- Can be operated remotely from vehicles
- Adjustable to all types of rock walls and locations
- Telescoping mechanism allows for widths of 12' – 18'
- Available in Single bar, or with the addition of the Lower Bar kit, depending on the application

Product No.	Description
Gate Assembly Options	
47-10	Safety Gate With Air Cylinder
47-10-ACT	Safety Gate With Electric Actuator
Add-ons	
47-11-34	Lower Bar Kit
Operating Options	
47-11-28	Air Control Assembly
47-100	Remote Control Receiver, Radio
47-100-ACT	Remote Control Receiver, Radio (Elect Act.)
47-101	Hand Held Remote Only, Radio
47-200	Infrared Remote Control System
47-200-ACT	Infrared Remote Control System (Elect Act.)
47-201	Hand Held Transmitter Only
47-202	Magnetic Base For 47-201
47-203	Rechargeable Battery Pack
Replacement Components	
47-11-03	Air Cylinder
47-11-18	Fence Kit
47-11-31	Square Tubing Kit
47-11-33	Wall Support Kit
47-11-37	Electric Actuator For Gate, 24v



Barrier Fencing

Product No.	Description
BFCT 504 XY	Barrier Fence 4'x50' with Caution Tape
47-OF-01	Barrier Fence 4'x150'



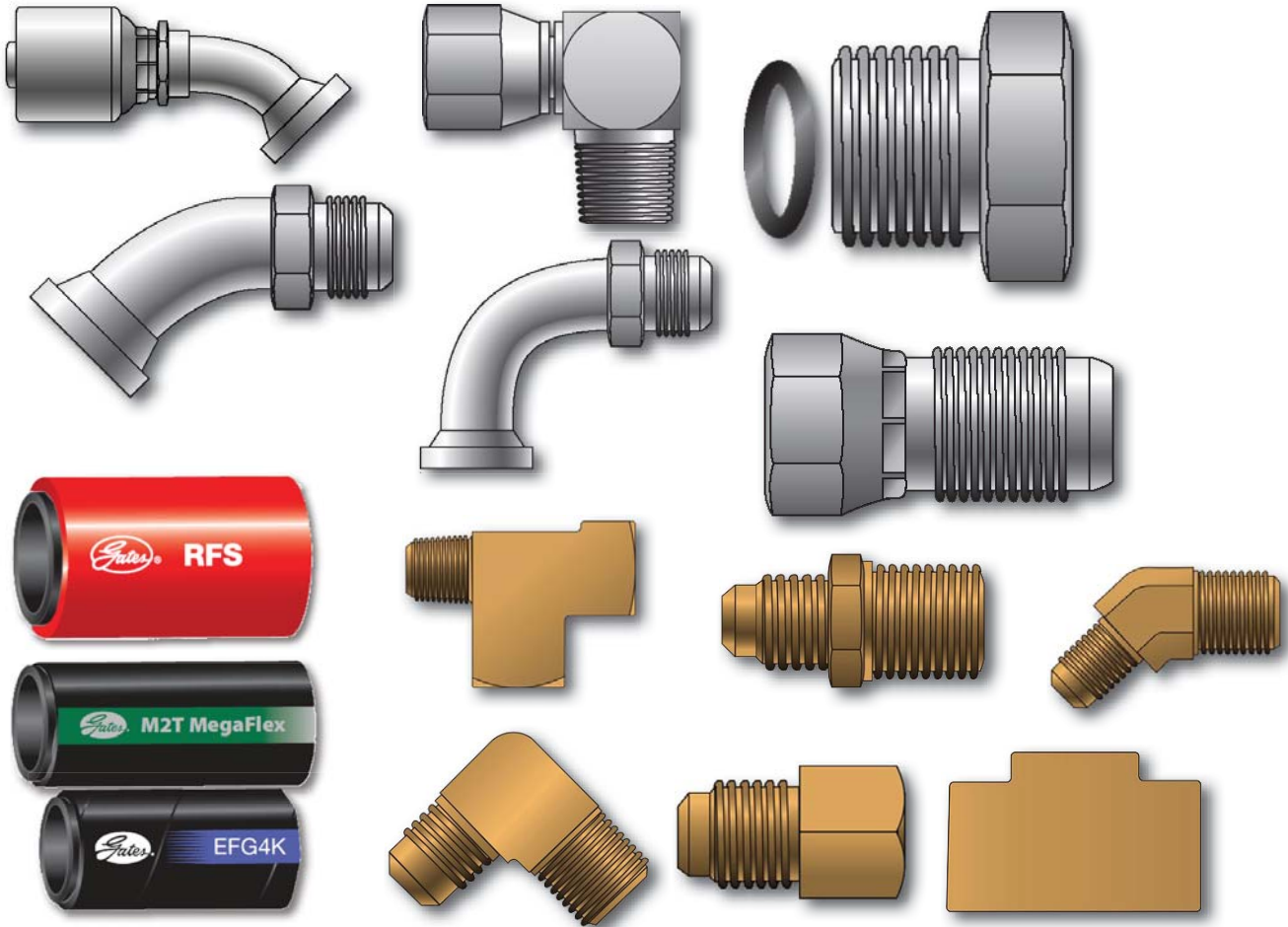
Industrial - Gates Hydraulics



HOSE, COUPLINGS + EQUIPMENT

TIME Limited is a full line distributor of hydraulic couplings and hose for Gates Hydraulics.

Please call us for product information or visit the Gates website at www.gates.com.



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PAGE: ID12



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TIME Limited is a distributor of a complete range of pneumatic components.

Please call us for product information or visit the website below to view the extensive line of pneumatic products.



Norgren packs 85 years of experience into quality solutions that will help you lower operational costs, reduce warranty expenses, create efficient systems and increase uptime.

<http://www.norgren.com/usa>



NUMATICS®

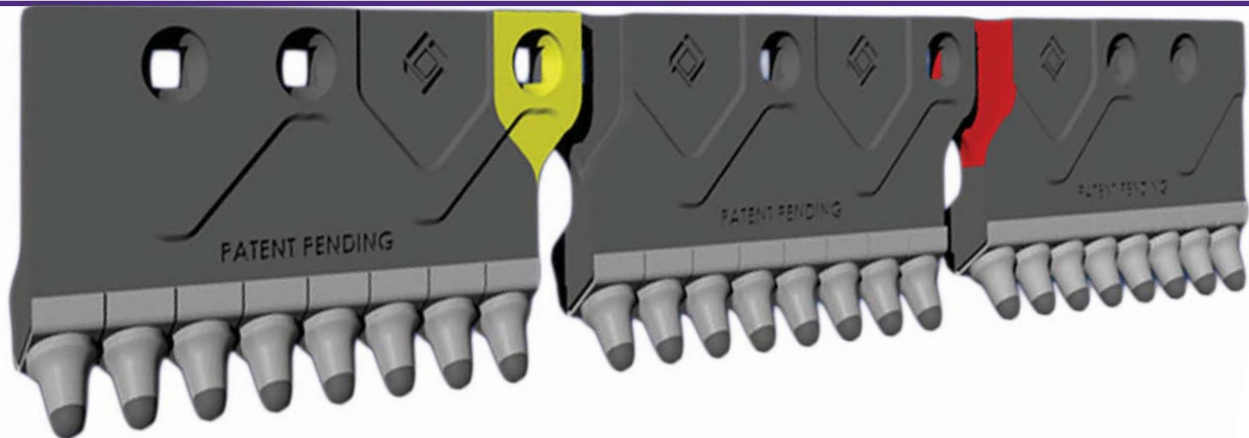
Numatics Incorporated is a leading manufacturer of pneumatics and motion control products. <http://www.numatics.com/>



Spoton Corp. is an integrated design and manufacturing company specializing in the development, production and servicing of hydraulic, pneumatic cylinders and pneumatic valves using the quality materials and state-of-the-art manufacturing.



Industrial - YESS Roadway Maintenance System



A revolutionary sectioned based grading system to improve safety, reduce downtime and reduce wear. Better productivity, reduced operating costs.

The YESS™ System's 1 ft continuously overlapping panels improve handling, safety and reduce downtime. Changing grader boards is now a 1-man operation.

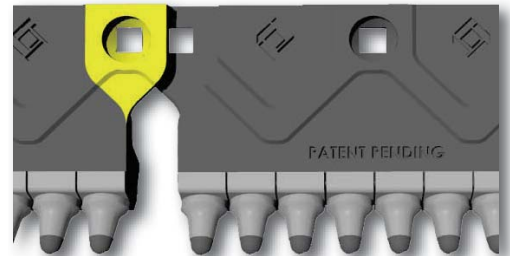
Designed for gravel roads, oil treated roads, ice and snow removal and asphalt planing.

1. **SAFETY & HANDLING:** YESS™ System boards weigh approx. 40 lbs as compared to 120 lbs for a conventional 3 ft section.

Benefits:

- Changing boards is now a 1-man operation.
- Operator can carry replacement in cab.
- Easy fix for local board damage.

2. **SYSTEM STRENGTH:** Continuous overlapping eliminates weakness caused by unsupported joints.



3. **REDUCED WEAR:** The YESS™ System's shield retainer clip protects the front face and heel of the tool carrier. Additionally, the YESS™ System utilizes a harder material with improved wear properties.



4. **DEAD BEDDING:** New design creates dead bedding of material.

5. **EASY ONE-STEP INSTALLATION:** The shield retainer clip compresses the tool's spring clip until installation and improves tool retention on uneven roads.

6. **CAST IRON** - Stronger than steel and wears better than steel



RIDGID®

Why do so many professionals choose RIDGID® tools? The answer is simple...trust. Millions of RIDGID tools go to work every day in plants, on construction sites and in countless other harsh environments.

These tools operate in extremes of heat and cold, withstand dirt and mud, and perform reliably day in and day out. RIDGID tools are known the world over as industry-leading products that allow professionals like you to complete jobs more quickly and reliably.



Industrial - Professional Grade



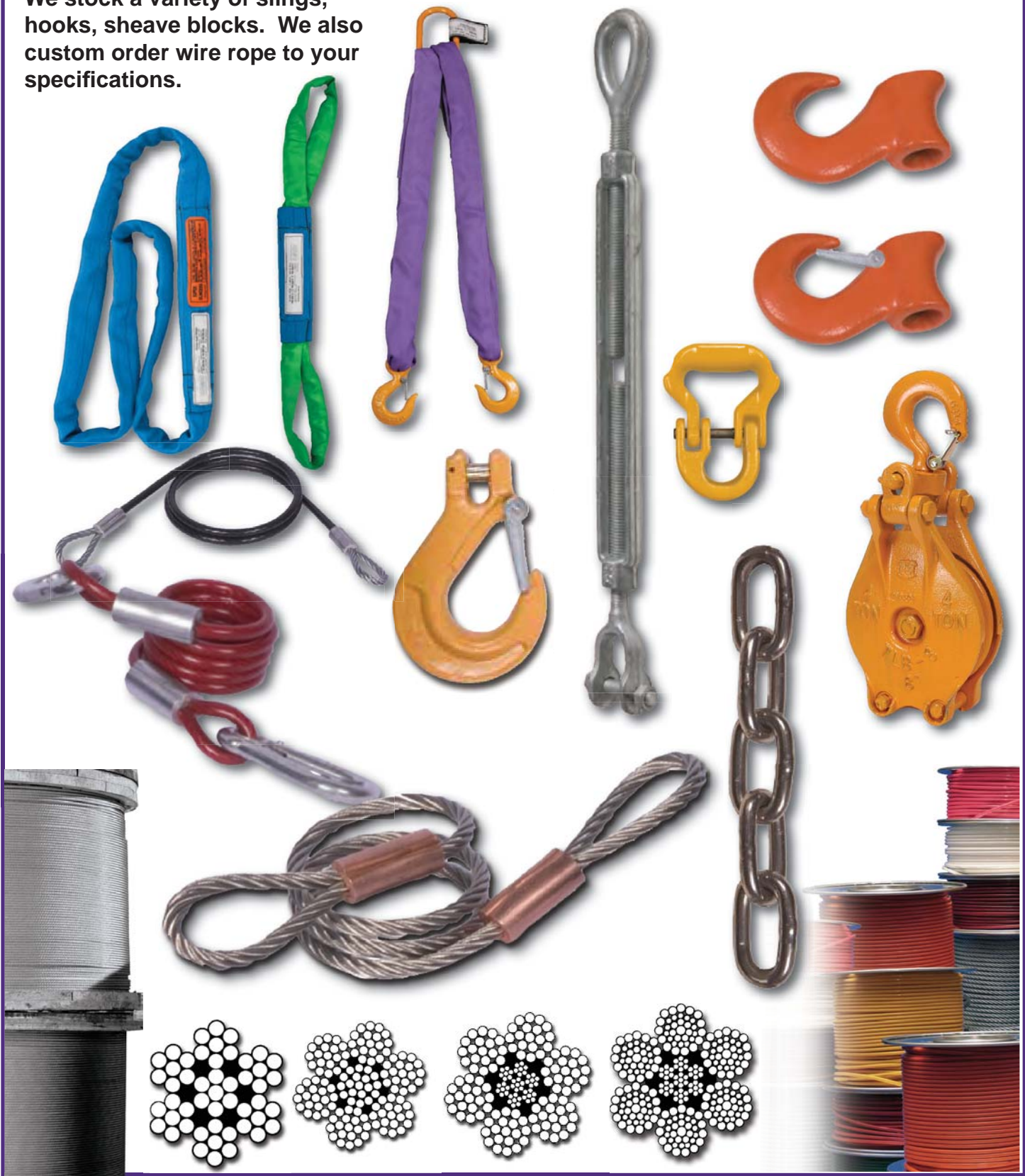


Industrial - Economy Grade



Industrial - Hoisting & Lifting

We stock a variety of slings, hooks, sheave blocks. We also custom order wire rope to your specifications.



Industrial - Hoses



Industrial - Hose Fittings

Our warehouses are stocked with most sizes and varieties of hose fittings.





TRUCK TOOL BOXES SHOULD LAST

Designed and built utilizing the latest technologies and toughest materials to provide the most complete selection of high-quality storage equipment available.

Rolling up with WEATHER GUARD® Professional Truck Boxes in your vehicle commands instant respect. You're a serious professional and you want the world to know it. Fortunately, we offer many ways for you to express your credibility. Your choices will depend on how you work and how much free space you need in your truck bed. WEATHER GUARD® Professional Truck Boxes cover all the bases, from the classic, rugged Saddle Box to the Cross Box, Pork Chop Box and space-saving Lo-Side and Hi-Side Boxes, WEATHER GUARD® Professional Truck Equipment means business.





Letter from the President

TIME is committed to total customer service. We strive to keep this promise in many ways.

Total service means manufacturing to industry standards. TIME Manufacturing and Fabrication Division produces quality products, such as drill wedges, safety and grout plugs, pump assemblies, rod wrenches and custom tooling and equipment.

Total service means manufacturing to your specifications. Our shop personnel have long experience at custom machining and design engineering for the mining and drilling industry.

Total service means sourcing for the products you need at prices that are competitive and fair. We distribute only the best names in the industry such as FMC, Ridgid Tools, Gray Tools, Bestolife, Ambex, Gates Hydraulics, among others.

Total service means listening to our customers and working with them to develop new solutions, products, and innovations to make their jobs safer and more cost effective.

Our commitment to customers has resulted in innovations, new products and important changes. In recent years we have worked with our customers to develop an underground compressed air conservation system, an underground long-hole production drill, a hydraulic rod wrench, a biodegradable rod grease, and an improved camp heater to meet industry standards.

Our people are committed to help find solutions to your problems. We would be pleased to discuss how we can help you raise your production and save money.

TIME's capabilities are limited only by our customers' requirements.

*Peter R. Henderson
President*



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PAGE ID23

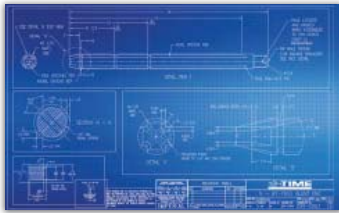


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Manufacturing and Fabrication

Design and Innovation

The TIME team takes pride in providing customers with quality products and the absolute best service with a personal touch.



Not only does TIME distribute a number of quality product lines, we also manufacture a number of our own core products. In conjunction with our fabrication and machining capabilities, we have a team that has well over 250 years of experience in the mining, diamond drilling, and various industrial sectors. With the technical knowhow, we offer design capabilities specifically focused on new product development, innovative design, and problem solving.

We can manufacture to your requirements, or provide complete design and drafting expertise in-house.

RESPONDING TO CUSTOMER NEEDS

Our mandate is to exceed our customer's expectations.
Peter R. Henderson, President

MACHINING

TIME Limited's machining shop uses a combination of heavy duty, big and small bore lathes, CNC milling machines, CNC lathes and conventional lathes.



Here are some of our featured equipment and capabilities:



Hurco TM-18 Heavy Duty Lathe
a. Bar Capacity: 6.4 inch bar capacity
b. Turning Diameter: 25 inch max
c. Turning Length: 39.4 inch max
d. Travel: 17x, 40z inch
e. Quick Change air collect chuck system



Nakamura-Tome WT300MMYS
a. 9-axis, 2 turret multitasking machining
b. Bar Capacity: 65mm (Ø) and 102mm (r)
c. Turning diameter: 270mm max turning
d. Turning length: 780mm max
e. Quick Change air collect chuck system
f. Chip Blaster GV2-40 high pressure coolant system



Hurco VMX50 Milling Machine
a. 3-axis milling machine
b. Travel: 50 x 26 x 24 inch
c. Table Size: 59 x 26 inch
d. Tool Capacity: 30 CAT 50
e. Magnetic Material Holder

Other Machines include:
CNC lathes such as ROMI M27 heavy duty big bore lathe and ROMI M20 small bore lathe, as well as a host of conventional lathes.

CNC milling machines such as MAZ Federal VMX4020FX mill, and FIRST LC-185v-B milling machine, as well as a host of conventional milling machines



Our Newest Toys!



TIME OFFICES

We supply mine-grade products, manufacture quality products, offer design, fabrication and custom machining, as well as sourcing. We are your one-stop shop for industrial needs.

Head Office

Haileybury **Sudbury**
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Fax: 705-647-9800 Fax: 705-524-9140

Val d'Or

Timmins
Tél: 819-874-8138 Tel: 705-268-8128
Fax: 819-874-8139 Fax: 705-268-5122

info@timeltd.ca www.timeltd.ca

FABRICATION

TIME Limited's welding and fabrication shop has full capabilities for custom work. Our shop includes a large plasma table, capable of cutting material up to 8' X 20', 2 10,000 lbs SMH Overhead Cranes, an AKBEND ASM-S 17 roller and a brand new, iBend CNC Hydraulic Press Brake.



Our welding shop is certified by the Canadian Welding Bureau annually.



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Serving the Mining Industry Since 1971

Manufacturing and Fabrication



Our brand new, State of the art, 40,000 Sq. ft. Manufacturing, Fabrication and Warehousing facility

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STOCKING WAREHOUSE



TIME Limited's philosophy is to stock what our customers need. If we don't have it, and you need it on a regular basis, just ask and we will do our best to add it to our ever-growing warehouse.

We carry everything from Health and Safety to Hand tools, mining and diamond drilling products, TIME branded hoses and Gates fittings.



TIME Limited also fixes or makes your hydraulic hoses while you wait.



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PAGE: ID24



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Drilling Wedges

WE - Drilling Wedges



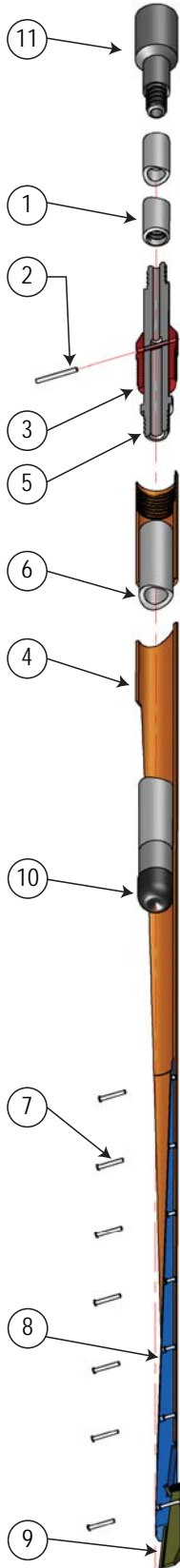
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PAGE: WE1



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Drilling Wedges - B Retrievable

Assembly Diagram B - Retrievable Wedge



B - Retrievable Wedge Assembly Full Assembly Part / 90-10-300 (Items 1 through 9)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use retrievable Wedges?

- Ideal for drill holes that need multiple wedge deflections
- Can be used directly off the bottom of the drill hole
- No steel is left at the bottom of the hole
- Reusable

Before you use the assembly, ensure the bottom of the hole is flat by using the Solid Spindle Assembly and Dressing bit (not shown).

B Solid Spindle Assembly	625-51
B Inner Tube Dressing Bit	627-15

Using a Retrievable Wedge

- Lower wedge to the bottom of the hole
- Shear the pin on the locking wedge
- Shear the pin on the retrieving coupling
- Drill the concave bit passed the wedge blade
- Remove the entire wedge assembly by pulling the rods

To ensure the wedge assembly drills in the correct hole and follows the wedge deflection, drillers should not be overly cautious. It is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. If the penetration rate is too slow the bit will tend to have a milling effect on the wedge increasing the possibility of drilling it out and not gaining the required amount of deflection.

Item	Qty	Description / Material	Size/Pt. No
1	1	10' EW Drill Rod (less coupling)	91-10-110
2	1	Shear Pin, 5" Common Nail	625-49
3	1	Wedge Housing Collar	594-05
4	1	Wedge Housing	594-07
5	1	Retrieving Coupling	594-06
6	1	6' AW Drill Rod (less coupling)	91-10-206
7	7	Shear Pin, 4" Common Nail	625-50
8	1	Wedge Blade	594-15
9	1	Locking Wedge	594-16

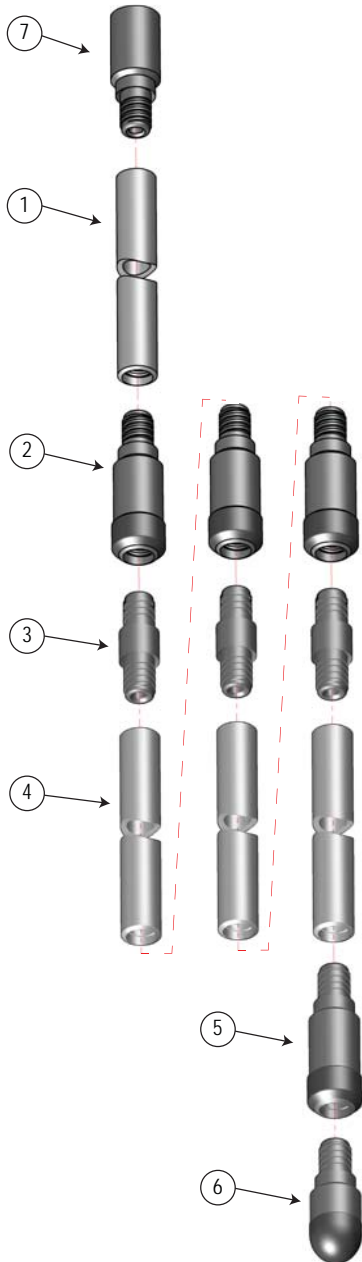
The following items are not included in the assembly, but are supplied by TIME

10	1	AWC Concave Bit	627-11
11A	1	Sub, BWL Rod Box to EW Rod Pin	93-55-300
11B	1	Sub, BT Rod Box to EW Rod Pin	93-55-310



Drilling Reamer - B Retrievable

Assembly Diagram B - Retrievable Reamer



B - Retrievable Reamer Assembly Full Assembly Part / 90-11-300 (Items 1 through 6)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use a reamer assembly?

- Ensures a smooth transition from the parent hole to the wedge deflection
- Ensures a smooth deflection in the drill hole
- Ensures hole is at the proper gauge diameter to continue coring
- Reusable

Using a Retrievable Reamer

To ensure the reamer assembly functions properly, it is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. Additional bit pressure may be required to force the bull-nose bit and reamer assembly into the new hole.

Item	Qty	Description / Material	Size/Pt. No
1	1	5' AW Drill Rod (less coupling)	91-10-205
2	3	BAWC Reaming Bit	627-10
3	3	AW Rod Coupling	91-10-219
4	3	2' AW Drill Rod (less coupling)	91-10-202
5	1	BAWC Reaming Shell	627-12
6	1	BAWC Ball Bit	627-13

The following items are not included in the assembly, but are supplied by TIME

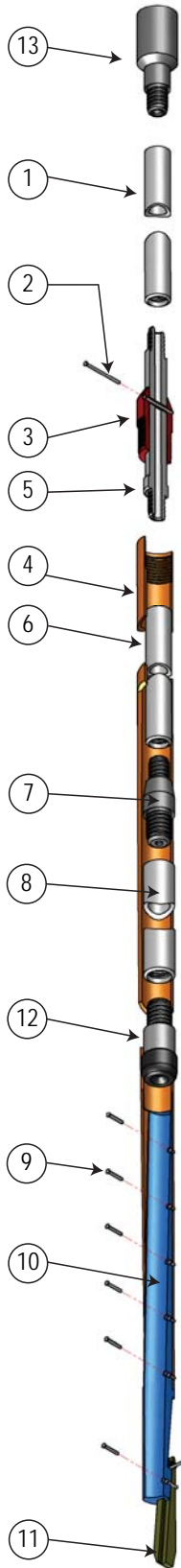
7A	1	Sub, BWL Rod Box to AW Rod Pin	93-55-301
7B	1	Sub, BT Rod Box to AW Rod Pin	93-55-311

Please Note: TIME will make adapters to fit your thread specifications



Drilling Wedges - N Retrievable

Assembly Diagram N - Retrievable Wedge



N - Retrievable Wedge Assembly

Full Assembly Part / 90-10-400 (Items 1 through 11)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with Stainless steel and 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use retrievable Wedges?

- Ideal for drill holes that need multiple wedge deflections
- Can be used directly off the bottom of the drill hole
- No steel is left at the bottom of the hole
- Reusable

Before you use the assembly, ensure the bottom of the hole is flat by using the Solid Spindle Assembly and Dressing bit (not shown).

N Solid Spindle Assembly	625-52
N Inner Tube Dressing Bit	627-14

Using a Retrievable Wedge

- Lower wedge to the bottom of the hole
- Shear the pin on the locking wedge
- Shear the pin on the retrieving coupling
- Drill the concave bit passed the wedge blade
- Remove the entire wedge assembly by pulling the rods

To ensure the wedge assembly drills in the correct hole and follows the wedge deflection, drillers should not be overly cautious. It is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. If the penetration rate is too slow the bit will tend to have a milling effect on the wedge increasing the possibility of drilling it out and not gaining the required amount of deflection.

Item	Qty	Description / Material	Size/Pt. No
1	1	10' AW Drill Rod (less coupling)	91-10-210
2	1	Shear Pin, 5" Common Nail	625-49
3	1	Wedge Housing Collar	625-08
4	1	Wedge Housing	625-11
5	1	Retrieving Coupling	625-09
6	1	4' AW Drill Rod (less coupling)	91-10-204
7	1	Tapered Sub	625-07
8	1	1' BW Drill Rod (less coupling)	91-10-301
9	6	Shear Pin, 4" Common Nail	625-50
10	1	Wedge Blade	625-14
11	1	Locking Wedge	625-15

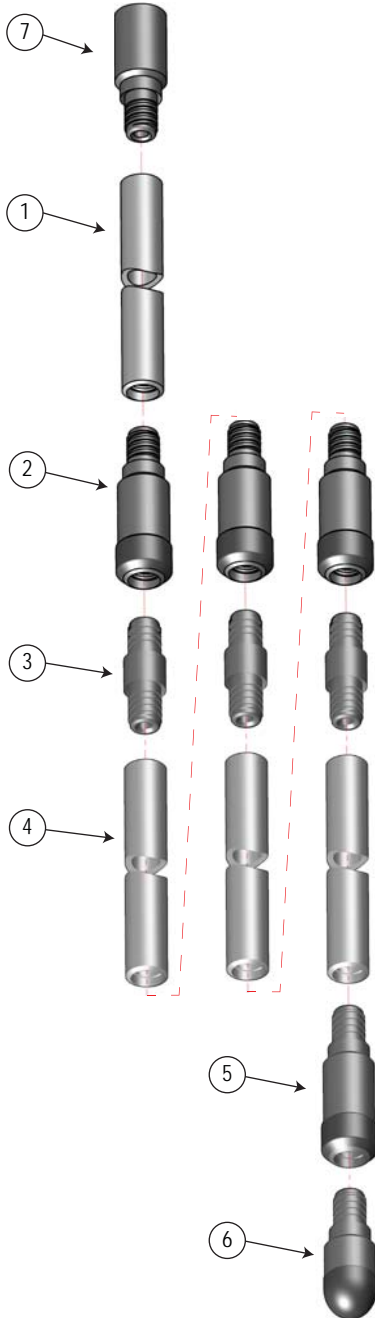
The following items are not included in the assembly, but are supplied by TIME

12	1	BWC Concave Bit	627-00
13A	1	Sub, NWL Rod Box to AW Rod Pin	93-55-401
13B	1	Sub, NT Rod Box to AW Rod Pin	93-55-411



Drilling Reamer - N Retrievable

Assembly Diagram N - Retrievable Reamer



N - Retrievable Reamer Assembly Full Assembly Part / 90-11-400 (Items 1 through 6)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use a reamer assembly?

- Ensures a smooth transition from the parent hole to the wedge deflection
- Ensures a smooth deflection in the drill hole
- Ensures hole is at the proper gauge diameter to continue coring
- Reusable

Using a Retrievable Reamer

To ensure the reamer assembly functions properly, it is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. Additional bit pressure may be required to force the bull-nose bit and reamer assembly into the new hole.

Item	Qty	Description / Material	Size/Pt. No
1	1	5' BW Drill Rod (less coupling)	91-10-305
2	3	NBWC Reaming Bit	627-02
3	3	BW Rod Coupling	91-10-319
4	3	2' BW Drill Rod (less coupling)	91-10-302
5	1	NBWC Reaming Shell	627-03
6	1	NBWC Ball Bit	627-01

The following items are not included in the assembly, but are supplied by TIME

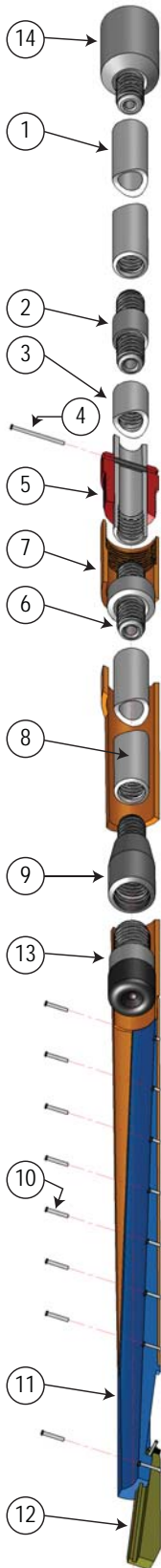
7A	1	Sub, NWL Rod Box to BW Rod Pin	93-55-402
7B	1	Sub, NT Rod Box to BW Rod Pin	93-55-412

Please Note: TIME will make adapters to fit your thread specifications



Drilling Wedges - H Retrievable

Assembly Diagram
H - Retrievable Wedge



H - Retrievable Wedge Assembly

Full Assembly Part / 90-10-500 (Items 1 through 12)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use retrievable Wedges?

- Ideal for drill holes that need multiple wedge deflections
- Can be used directly off the bottom of the drill hole
- No steel is left at the bottom of the hole
- Reusable

Before you use the assembly, ensure the bottom of the hole is flat by using the Solid Spindle Assembly and Dressing bit (not shown).

H Solid Spindle Assembly	629-14
H Inner Tube Dressing Bit	627-16

Using a Retrievable Wedge

- Lower wedge to the bottom of the hole
- Shear the pin on the locking wedge
- Shear the pin on the retrieving coupling
- Drill the concave bit passed the wedge blade
- Remove the entire wedge assembly by pulling the rods

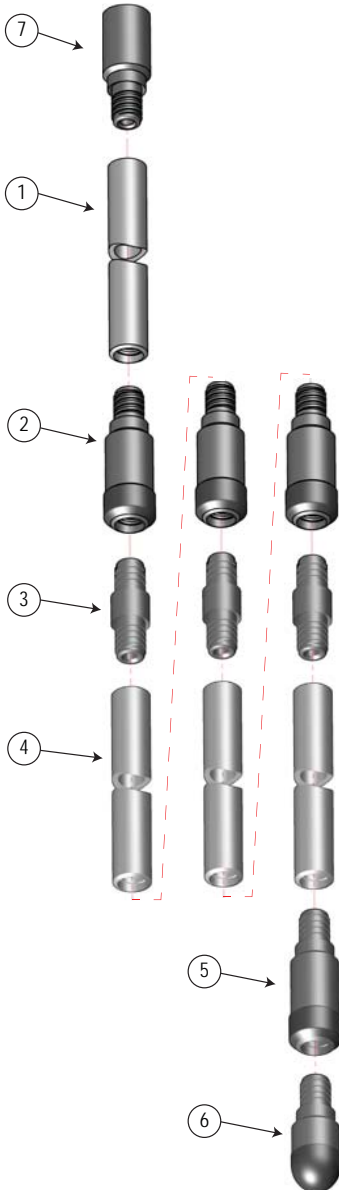
To ensure the wedge assembly drills in the correct hole and follows the wedge deflection, drillers should not be overly cautious. It is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. If the penetration rate is too slow the bit will tend to have a milling effect on the wedge increasing the possibility of drilling it out and not gaining the required amount of deflection.

Item	Qty	Description / Material	Size/Pt. No
1	1	10' BW Drill Rod (less coupling)	91-10-310
2	1	BW Rod Coupling	91-10-319
3	1	Wedging Barrel (2ft BW Rod)	629-07
4	1	Shear Pin, 5" Common Nail	625-49
5	1	Wedge Housing Collar	629-04
6	1	Retrieving Coupling	629-08
7	1	Wedge Housing	629-03
8	1	5' BW Drill Rod (less coupling)	91-10-305
9	1	Tapered Sub	629-09
10	8	Shear Pin, 4" Common Nail	625-50
11	1	Wedge Blade	629-00
12	1	Locking Wedge	629-01
The following items are not included in the assembly, but are supplied by TIME			
13	1	NWC Concave Bit	629-13
14A	1	Sub, HWL Rod Box to BW Rod Pin	93-55-502
14B	1	Sub, HT Rod Box to BW Rod Pin	93-55-512



Drilling Reamer - H Retrievable

Assembly Diagram H - Retrievable Reamer



H - Retrievable Reamer Assembly Full Assembly Part / 90-11-500 (Items 1 through 6)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use a reamer assembly?

- Ensures a smooth transition from the parent hole to the wedge deflection
- Ensures a smooth deflection in the drill hole
- Ensures hole is at the proper gauge diameter to continue coring
- Reusable

Using a Retrievable Reamer

To ensure the reamer assembly functions properly, it is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices. Additional bit pressure may be required to force the bull-nose bit and reamer assembly into the new hole.

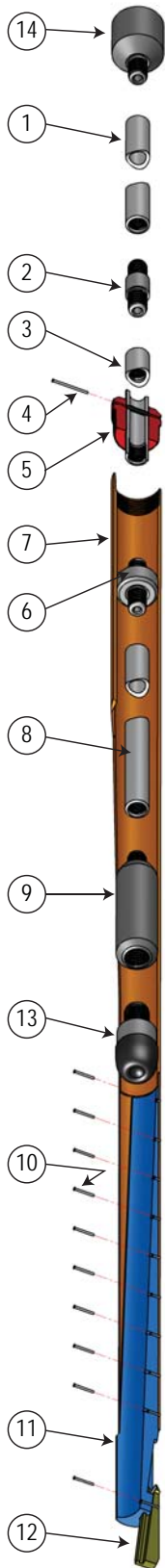
Item	Qty	Description / Material	Size/Pt. No
1	1	5' NW Drill Rod (less coupling)	91-10-405
2	3	HNWC Reaming Bit	629-12
3	3	NW Rod Coupling	91-10-419LG
4	3	2' NW Drill Rod (less coupling)	91-10-402
5	1	HNWC Reaming Shell	629-11
6	1	HNWC Ball Bit	629-10
The following items are not included in the assembly, but are supplied by TIME			
7A	1	Sub, HWL Rod Box to NW Rod Pin	93-55-503
7B	1	Sub, HT Rod Box to NW Rod Pin	93-55-513

Please Note: TIME will make adapters to fit your thread specifications



Drilling Wedges - P Retrievable

Assembly Diagram P - Retrievable Wedge



P - Retrievable Wedge Assembly Full Assembly Part / 90-10-600 (Items 1 through 12)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use retrievable Wedges?

- Ideal for drill holes that need multiple wedge deflections
- Can be used directly off the bottom of the drill hole
- No steel is left at the bottom of the hole
- Reusable

Before you use the assembly, ensure the bottom of the hole is flat by using the Solid Spindle Assembly and Dressing bit (not shown).

P Solid Spindle Assembly	630-14
P Inner Tube Dressing Bit	627-17

Using a Retrievable Wedge

- Lower wedge to the bottom of the hole
- Shear the pin on the locking wedge
- Shear the pin on the retrieving coupling
- Drill the concave bit passed the wedge blade
- Remove the entire wedge assembly by pulling the rods

To ensure the wedge assembly drills in the correct hole and follows the wedge deflection, drillers should not be overly cautious. It is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices according to ground conditions. If the penetration rate is too slow the bit will tend to have a milling effect on the wedge increasing the possibility of drilling it out and not gaining the required amount of deflection.

Item	Qty	Description / Material	Size/Pt. No
1	1	10' BW Drill Rod (less coupling)	91-10-310
2	1	BW Rod Coupling	91-10-319
3	1	Wedging Barrel	629-07
4	1	Shear Pin, 5" Common Nail	625-49
5	1	Wedge Housing Collar	630-04
6	1	Retrieving Coupling	630-08
7	1	Wedge Housing	630-03
8	1	5' BW Drill Rod (less coupling)	91-10-305
9	1	Tapered Sub	630-09
10	10	Shear Pin, 4" Common Nail	625-50
11	1	Wedge Blade	630-00
12	1	Locking Wedge	630-01

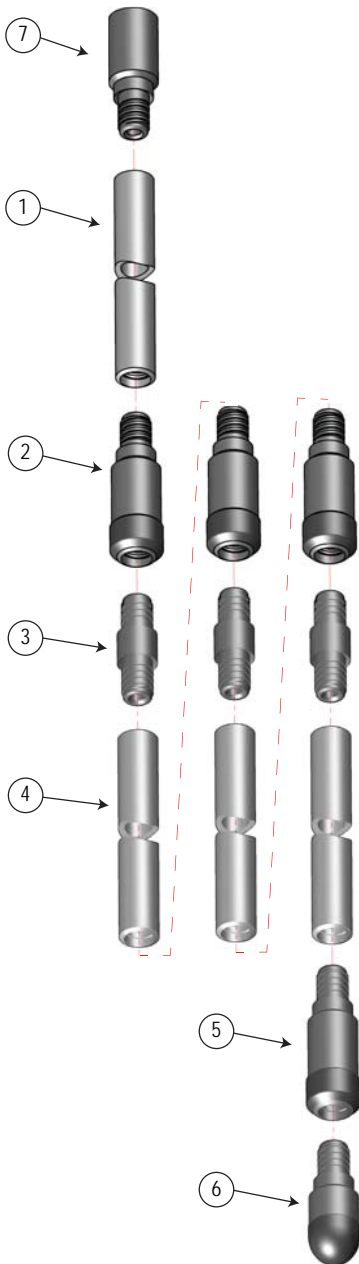
The following items are not included in the assembly, but are supplied by TIME

13	1	HWC Concave Bit	630-13
14	1	Sub, HWT Rod Box to BW Rod Pin	93-55-612



Drilling Reamer - P Retrievable

Assembly Diagram P - Retrievable Reamer



P - Retrievable Reamer Assembly Full Assembly Part / 90-11-600 (Items 1 through 6)

TIME Limited's Retrievable Wedge assemblies are manufactured in Canada with 4140 steel, a heat treated, stress relieved material, to ensure the best quality product.

Why do we use a reamer assembly?

- Ensures a smooth transition from the parent hole to the wedge deflection
- Ensures a smooth deflection in the drill hole
- Ensures hole is at the proper gauge diameter to continue coring
- Reusable

Using a Retrievable Reamer

To ensure the reamer assembly functions properly, it is recommended that the penetration rate and rotation speed be as fast as possible whilst operating within smooth drilling practices. Additional bit pressure may be required to force the bull-nose bit and reamer assembly into the new hole.

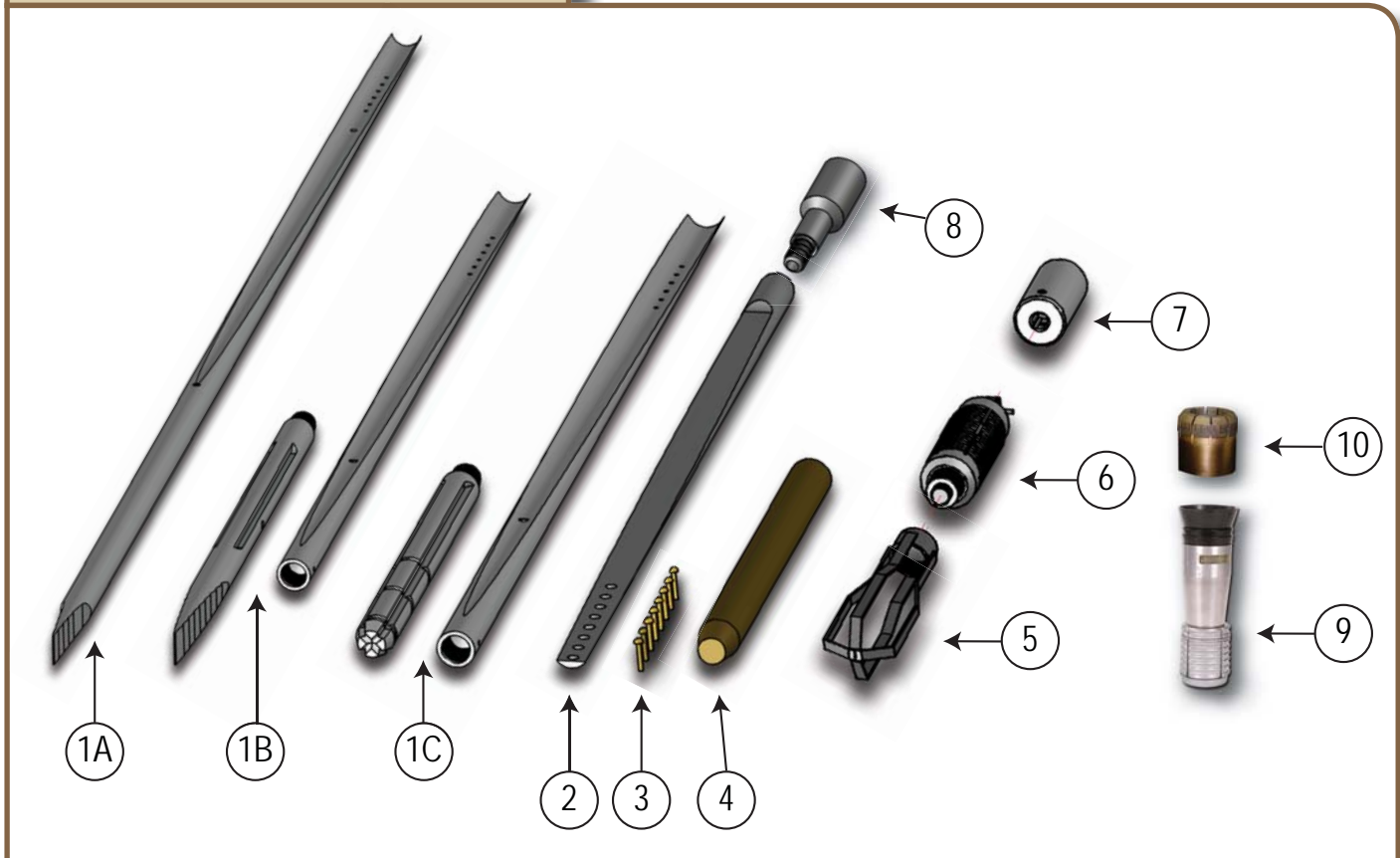
Item	Qty	Description / Material	Size/Pt. No
1	1	5' NW Drill Rod (less coupling)	91-10-405
2	3	PNWC Reaming Bit	630-11
3	3	NW Rod Coupling	91-10-419
4	3	2' NW Drill Rod (less coupling)	91-10-402
5	1	PNWC Reaming Shell	630-10
6	1	PNWC Ball Bit	630-12
The following items are not included in the assembly, but are supplied by TIME			
7	1	Sub, HWT Rod Box to NW Rod Pin	93-55-613

Please Note: TIME will make adapters to fit your thread specifications



Bypass Wedges & Parts

Bypass Wedges & Parts



Number	Description	Product Number			
		"B"	"N"	"H"	"P"
Bypass Wedge Assemblies (Items 1-7)		90-09-300	90-09-400	90-09-500	90-09-600
1A	Bypass Chisel Wedge	595-00	596-00	597-00	598-00
1B	Bypass 2 Piece Chisel Wedge	595-00MAXE	596-00MAXE	597-00MAXE	598-00MAXE
1C	Bypass 2 Piece Blunt Wedge	595-00MGV	596-00MGV	597-00MGV	598-00MGV
2	Wedge Dropper	595-01	596-01	597-01	598-01
3	Copper Rivets, 5/16 X 2"	92-1008	92-1008	92-1008	92-1008
4	Wooden Plug	595-03	596-03	597-03	598-03
5	Steel Plug Basket	595-05	596-05	597-05	598-05
6	Wedge Plug with Pin	595-06	596-06	597-06	598-06
7	Rod Box to Wedge Plug Adapter	595-07	596-07	597-07	598-07
Items Not Included in Assembly - Supplied by TIME					
8	Wedge Dropper Adapter	93-55-302	93-55-403	93-55-503	93-55-613
9	Van Ruth Plug	409-01	409-03	409-02	409-04
10	Tapered Wedge Bit	PLT-WDG-B	PLT-WDG-N	PLT-WDG-H	PLT-WDG-P
11	Resin Epoxy	420-121			

When ordering TIME Limited's Bypass Wedge assemblies, you will need to choose either Wedge 1A, 1B, or 1C. You will need 1 each of items 2, 3, 4 and 8. Then you need to choose plug option 'A' (items 5, 6, 7) or plug option 'B' (item 9).



Drilling Wedges - Subs

Sub, Water Swivel & Hoisting Plug



Part Number	Description
93-51-200	SUB EW R/P TO BW/L R/P
93-51-201	SUB AW R/P TO BW/L R/P
93-51-202	SUB AW R/P TO NW/L R/P
93-51-203	SUB AW R/P TO HW/L R/P
93-51-204	SUB AW R/P TO HWT R/P
93-51-211	SUB AW R/P TO BT R/P
93-51-212	SUB AW R/P TO NT R/P
93-51-214	SUB AW R/P TO HT R/P
93-51-215	SUB AW R/P TO HM R/P
93-51-301	SUB BW R/P TO BW/L R/P
93-51-302	SUB BW R/P TO NW/L R/P
93-51-303	SUB BW R/P TO HW/L R/P
93-51-304	SUB BW R/P TO HWT R/P
93-51-310	SUB BW R/P TO BT R/P
93-51-311	SUB BW R/P TO NT R/P
93-51-312	SUB BW R/P TO NM R/P
93-51-313	SUB BW R/P TO HT R/P
93-51-401	SUB NW R/P TO NW/L R/P
93-51-402	SUB NW R/P TO HW/L R/P
93-51-411	SUB NW R/P TO NT R/P
93-51-413	SUB NW R/P TO HT R/P

Sub, Wedging and Fishing Tools



Part Number	Description
93-55-300	SUB BW/L R/B TO EW R/P
93-55-301	SUB BW/L R/B TO AW R/P
93-55-302	SUB BW/L R/B TO BW R/P
93-55-315	SUB BW/L R/B TO AX R/P
93-55-310	SUB BT R/B TO EW R/P
93-55-311	SUB BT R/B TO AW R/P
93-55-312	SUB BT R/B TO BW R/P
93-55-401	SUB NW/L R/B TO AW R/P
93-55-401LG	SUB NW/L R/B TO AW R/P LRG BOR
93-55-402	SUB NW/L R/B TO BW R/P
93-55-402LG	SUB NW/L R/B TO BW R/P LRG BOR
93-55-403	SUB NW/L R/B TO NW R/P
93-55-417	SUB NW/L R/B TO NX R/P
93-55-411	SUB NT R/B TO AW R/P
93-55-412	SUB NT R/B TO BW R/P
93-55-413	SUB NT R/B TO NW R/P
93-55-501	SUB HW/L R/B TO AW R/P
93-55-502	SUB HW/L R/B TO BW R/P
93-55-503	SUB HW/L R/B TO NW R/P
93-55-511	SUB HT R/B TO AW R/P
93-55-512	SUB HT R/B TO BW R/P
93-55-513	SUB HT R/B TO NW R/P
93-55-611	SUB HWT R/B TO AW R/P
93-55-612	SUB HWT R/B TO BW R/P
93-55-613	SUB HWT R/B TO NW R/P

** R/B = Rod Box R/P = Rod Pin **



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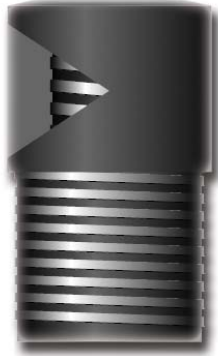
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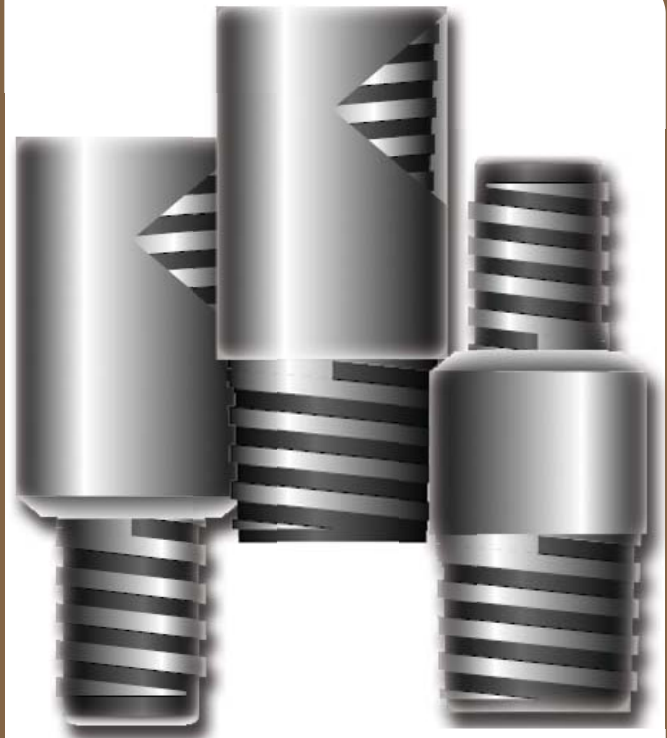
Drilling Wedges - Sub Parts

Sub, Casing



Part Number	Description
93-56-300	SUB BW/L R/B TO AW CSG/P
93-56-301	SUB BW/L R/B TO BW CSG/P
93-56-302	SUB BW/L R/B TO NW CSG/P
93-56-310	SUB BT R/B TO AW CSG/P
93-56-311	SUB BT R/B TO BW CSG/P
93-56-312	SUB BT R/B TO NW CSG/P
93-56-320	SUB BW CSG/B TO N BIT-THRD/P
93-56-321	SUB BW CSG/B TO NW/L R/P
93-56-322	SUB BW CSG/B TO NTW R/P
93-56-400	SUB NW/L R/B TO BW CSG/P
93-56-401	SUB NW/L R/B TO NW CSG/P
93-56-402	SUB NW/L R/B TO HWT CSG/P
93-56-410	SUB NT R/B TO BW CSG/P
93-56-411	SUB NT R/B TO NW CSG/P
93-56-412	SUB NT R/B TO HWT CSG/P
93-56-420	SUB NW CSG/B TO H BIT-THRD/P
93-56-421	SUB NW CSG/B TO HW/L R/P
93-56-422	SUB NW CSG/B TO HWT CSG/P
93-56-500	SUB HW/L R/B TO NW CSG/P
93-56-501	SUB HW/L R/B TO HWT CSG/P
93-56-502	SUB HW/L R/B TO PWT CSG/P
93-56-510	SUB HT R/B TO NW CSG/P
93-56-511	SUB HT R/B TO HWT CSG/P
93-56-512	SUB HT R/B TO PWT CSG/P
93-56-601	SUB HWT CSG/B TO PWT CSG/P
93-56-620	SUB HWT CSG/B TO PWL/BIT THRD
93-56-621	SUB PWT CSG/B TO PW CSG/P
93-56-622	SUB PW CSG/B TO PWT CSG/P

Sub, Rod



Part Number	Description
93-52-100	SUB EX R/B TO EW R/P
93-52-101	SUB EX R/B TO EW R/B
93-52-200	SUB AW R/B TO EW R/P
93-52-201	SUB AW R/B TO BW R/P
93-52-202	SUB AW R/B TO AX R/P
93-52-210	SUB AX R/B TO AW R/P
93-52-300	SUB BW R/B TO AW R/P
93-52-301	SUB BW R/B TO NW R/P
93-52-400	SUB NW R/B TO BW R/P
93-52-410	SUB NX R/B TO BW R/P
93-52-412	SUB NT R/B TO NW/L R/P
93-53-100	SUB EW R/P TO EW R/P
93-53-200	SUB AW R/P TO AW R/P
93-53-201	SUB AW R/P TO BW R/P
93-53-210LG	SUB AX R/P TO AW R/P LRG BORE
93-53-300	SUB BW R/P TO BW R/P
93-53-301	SUB BW R/P TO NW R/P
93-53-400	SUB NW R/P TO NW R/P
93-53-410	SUB NX R/P TO BW R/P

** R/B = Rod Box R/P = Rod Pin **



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PAGE: WE12



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Drilling Wedges - Rods/Couplings

Conventional Rods and Couplings Parts Lists

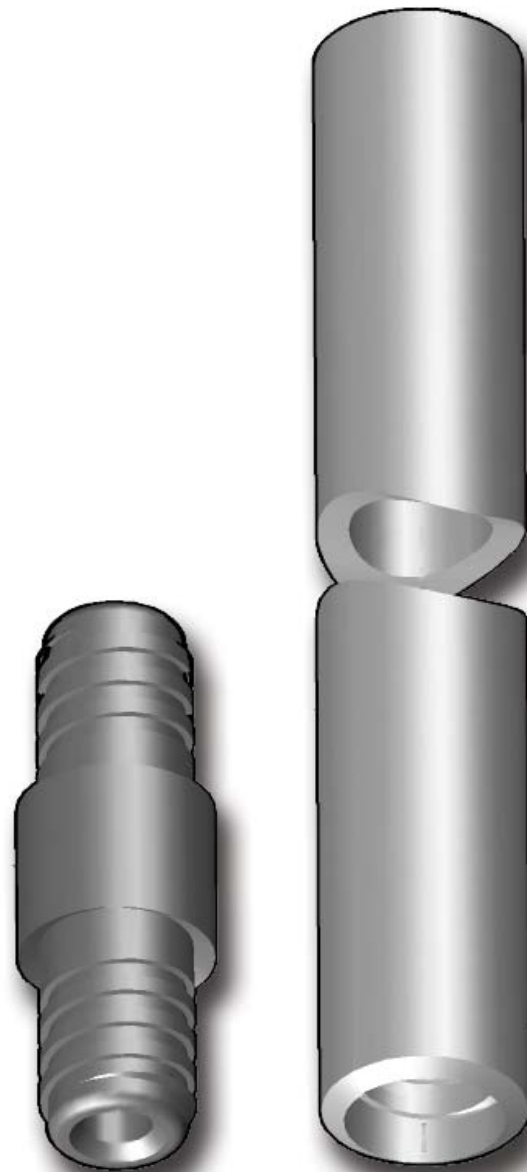
Conventional Rods

Part Number	Description
91-10-102	ROD EW 2'
91-10-105	ROD EW 5'
91-10-110	ROD EW 10'
91-10-201	ROD AW 1'
91-10-202	ROD AW 2'
91-10-204	ROD AW 4'
91-10-205	ROD AW 5'
91-10-206	ROD AW 6'
91-10-210	ROD AW 10'
91-10-211	ROD AW 11'4"
91-10-212	ROD AW 12'
91-10-202X	ROD AX 2'
91-10-204X	ROD AX 4'
91-10-205X	ROD AX 5'
91-10-210X	ROD AX 10'
91-10-211X	ROD AX 11'4"
91-10-301	ROD BW 1'
91-10-302	ROD BW 2'
91-10-305	ROD BW 5'
91-10-310	ROD BW 10'
91-10-401	ROD NW 1'
91-10-402	ROD NW 2'
91-10-405	ROD NW 5'
91-10-410	ROD NW 10'

Rod Couplings

Part Number	Description
91-10-119	EW ROD CPLG
91-10-219	AW ROD CPLG
91-10-219LG	AW ROD CPLG LARGE BORE
91-10-219X	AX ROD CPLG LARGE BORE
91-10-319	BW ROD CPLG
91-10-319LG	BW ROD CPLG LARGE BORE
91-10-419	NW ROD CPLG
91-10-419LG	NW ROD CPLG LARGE BORE

Conventional Rods and Couplings Pictures



Rod Description

Rods are available in various lengths (from 1' - 12') and thread profiles.

If you don't see the thread profile you are looking for, we have it, please contact us at **1-800-669-3542** or email info@timeltd.ca.



Manufacturing and Fabrication

Design and Innovation

The TIME team takes pride in providing customers with quality products and the absolute best service with a personal touch.



Not only does TIME distribute a number of quality product lines, we also manufacture a number of our own core products. In conjunction with our fabrication and machining capabilities, we have a team that has well over 250 years of experience in the mining, diamond drilling, and various industrial sectors. With the technical knowhow, we offer design capabilities specifically focused on new product development, innovative design, and problem solving.

We can manufacture to your requirements, or provide complete design and drafting expertise in-house.

RESPONDING TO CUSTOMER NEEDS

Our mandate is to exceed our customer's expectations.
Peter R. Henderson, President

MACHINING

TIME Limited's machining shop uses a combination of heavy duty, big and small bore lathes, CNC milling machines, CNC lathes and conventional lathes.



Here are some of our featured equipment and capabilities:



Hurco TM-18 Heavy Duty Lathe
a. Bar Capacity: 6.4 inch bar capacity
b. Turning Diameter: 25 inch max
c. Turning Length: 39.4 inch max
d. Travel: 17x, 40z inch
e. Quick Change air collect chuck system



Nakamura-Tome WT300MMYS
a. 9-axis, 2 turret multitasking machining
b. Bar Capacity: 65mm (l) and 102mm (r)
c. Turning diameter: 270mm max turning
d. Turning length: 780mm max
e. Quick Change air collect chuck system
f. Chip Blaster GV2-40 high pressure coolant system



Hurco VMX50 Milling Machine
a. 3-axis milling machine
b. Travel: 50 x 26 x 24 inch
c. Table Size: 59 x 26 inch
d. Tool Capacity: 30 CAT 50
e. Magnetic Material Holder

Other Machines include:
CNC lathes such as ROMI M27 heavy duty big bore lathe and ROMI M20 small bore lathe, as well as a host of conventional lathes.

CNC milling machines such as MAG Federal VMC4020FX mill, and FIRST LC-185v-B milling machine, as well as a host of conventional milling machines



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Fax: 819-874-8139 Fax: 705-268-5122

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FABRICATION

TIME Limited's welding and fabrication shop has full capabilities for custom work. Our shop includes a large plasma table, capable of cutting material up to 8' X 20', 2 10,000 lbs SMH Overhead Cranes, an AKBEND ASM-S 17 roller and a brand new, iBend CNC Hydraulic Press Brake.



Our welding shop is certified by the Canadian Welding Bureau annually.



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Our brand new, State of the art, 40,000 Sq. ft. Manufacturing, Fabrication and Warehousing facility

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STOCKING WAREHOUSE



TIME Limited's philosophy is to stock what our customers need. If we don't have it, and you need it on a regular basis, just ask and we will do our best to add it to our ever-growing warehouse.

We carry everything from Health and Safety to Hand tools, mining and diamond drilling products, TIME branded hoses and Gates fittings.



TIME Limited also fixes or makes your hydraulic hoses while you wait.



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PAGE: WE 14



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Letter From The President



Letter from the President

TIME is committed to total customer service. We strive to keep this promise in many ways.

Total service means manufacturing to industry standards. TIME Manufacturing and Fabrication Division produces quality products, such as drill wedges, safety and grout plugs, pump assemblies, rod wrenches and custom tooling and equipment.

Total service means manufacturing to your specifications. Our shop personnel have long experience at custom machining and design engineering for the mining and drilling industry.

Total service means sourcing for the products you need at prices that are competitive and fair. We distribute only the best names in the industry such as FMC, Ridgid Tools, Gray Tools, Bestolife, Ambex, Gates Hydraulics, among others.

Total service means listening to our customers and working with them to develop new solutions, products, and innovations to make their jobs safer and more cost effective.

Our commitment to customers has resulted in innovations, new products and important changes. In recent years we have worked with our customers to develop an underground compressed air conservation system, an underground long-hole production drill, a hydraulic rod wrench, a biodegradable rod grease, and an improved camp heater to meet industry standards.

Our people are committed to help find solutions to your problems. We would be pleased to discuss how we can help you raise your production and save money.

TIME's capabilities are limited only by our customers' requirements.

*Peter R. Henderson
President*



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PAGE: WE15



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Drilling Wedges

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Minsup Fittings
Hansen Couplings
Punch-Lok Clamps
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Whipchek Hose Anchors
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Brass Ball Valves
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Gate Valves
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Mortrol Valves
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FMC (Bean) Pumps & parts
FMC (Bean) Pump Assemblies
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PAGE: WE16

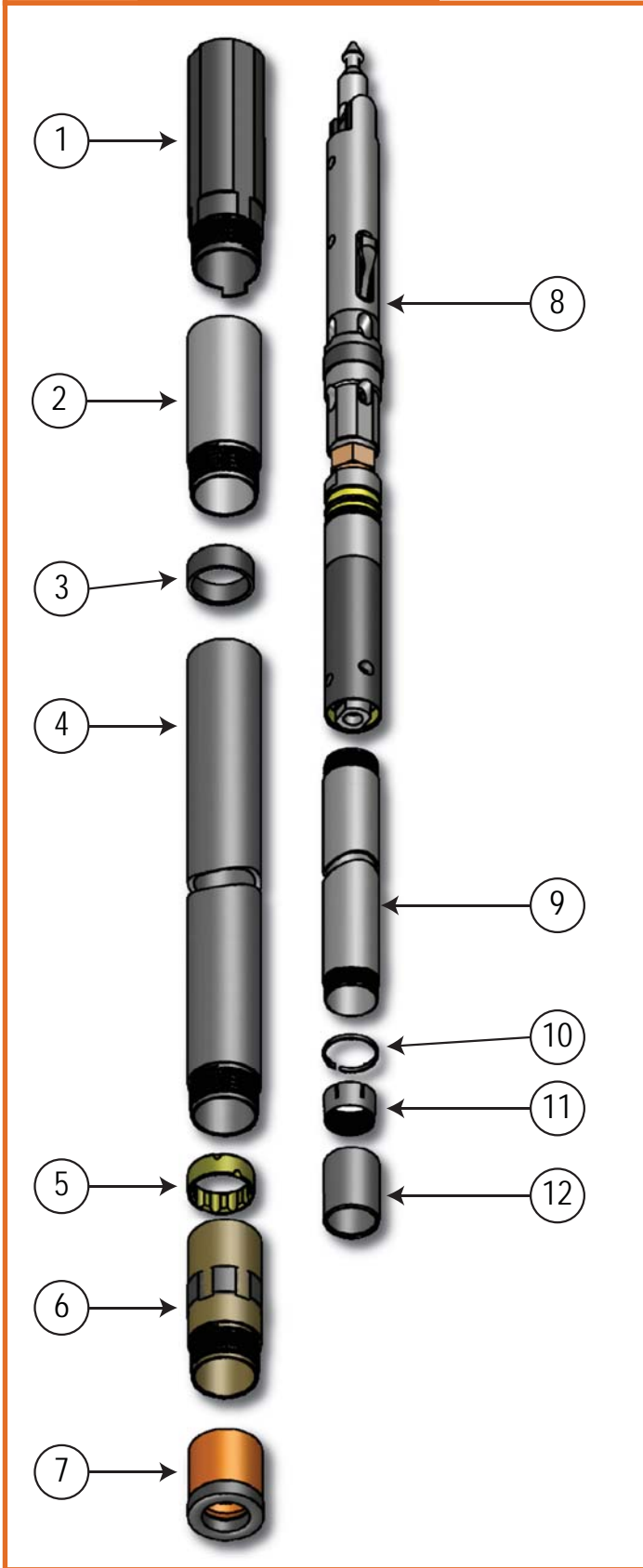


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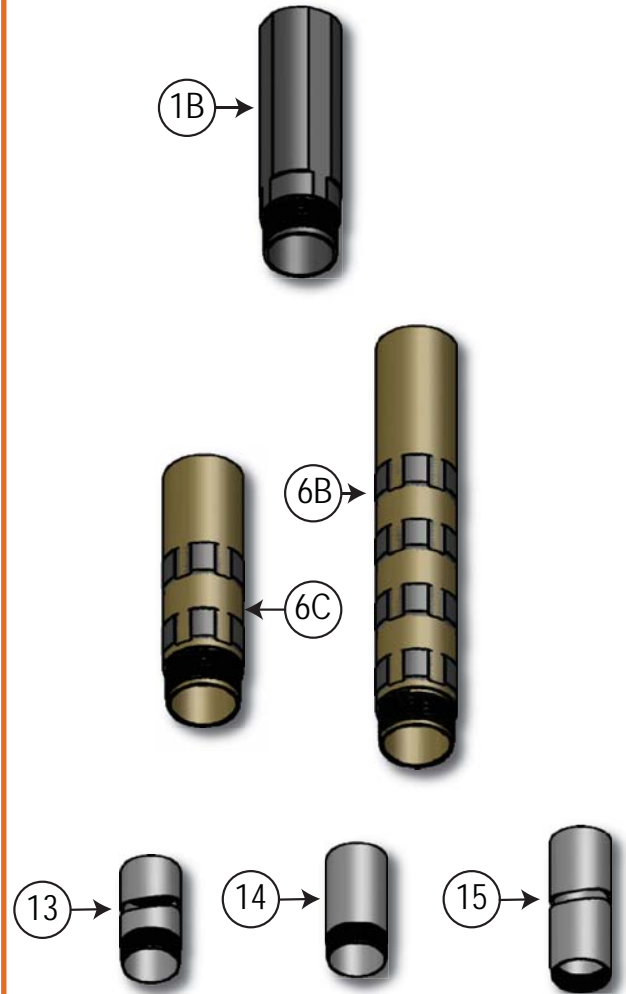


Drilling & Exploration - Core Barrels

Core Barrel



Core Barrel Accessories



Drilling & Exploration - Core Barrels

Core Barrel



Item	Description	Part Numbers for Each Size				
		B W/L	N W/L	N2 W/L	H W/L	
	Assembly	90-02-310-TL	90-02-410-TL	90-27-410-TL	90-02-510-TL	
1	Locking Coupling Tanged	90-21-334C	90-21-434	90-21-434	90-21-534	
2	Adapter Coupling	90-21-335	90-21-435	90-21-435	90-21-535	
	Adapter Coupling F/H	90-21-335H	90-21-435H		90-21-535H	
3	Landing Ring	90-21-336	90-21-436	90-27-436	90-21-536	
4	Outer Tube	3m	90-21-350	90-21-450	90-21-450	90-21-550
		1.5m	90-21-345	90-21-445	90-21-445	90-21-545
5	Inner Tube Stabilizer	90-21-339	90-21-439	90-27-439	90-21-539	
6	Standard Shell	**	**	**	**	
7	Bit	**	**	**	**	
8	Head Assembly	90-20-302-TL	90-20-402-TL	90-27-402-TL	90-20-502-TL	
9	Inner Tube	3m	90-21-330	90-21-430	90-27-430	90-21-530
		1.5m	90-21-325	90-21-425	90-27-425	90-21-525
10	Stop Ring	90-21-332	90-21-432	90-27-432	90-21-532	
11	Core Lifter	Slotted	90-21-333	90-21-433	90-27-433	90-21-533
		Broached	90-21-333B	90-21-433B	90-27-433B	90-21-533B
		Diamond Coated	90-21-333BDC	90-21-433BDC	90-27-433BDC	90-21-533BDC
		Basket	90-21-333BKT	90-21-433BKT	90-27-433BKT	90-21-533BKT
		Smooth	90-21-333S	90-21-433S	90-27-433S	90-21-533S
12	Core Lifter Case	90-21-331	90-21-431	90-27-431	90-21-531	

Accessories

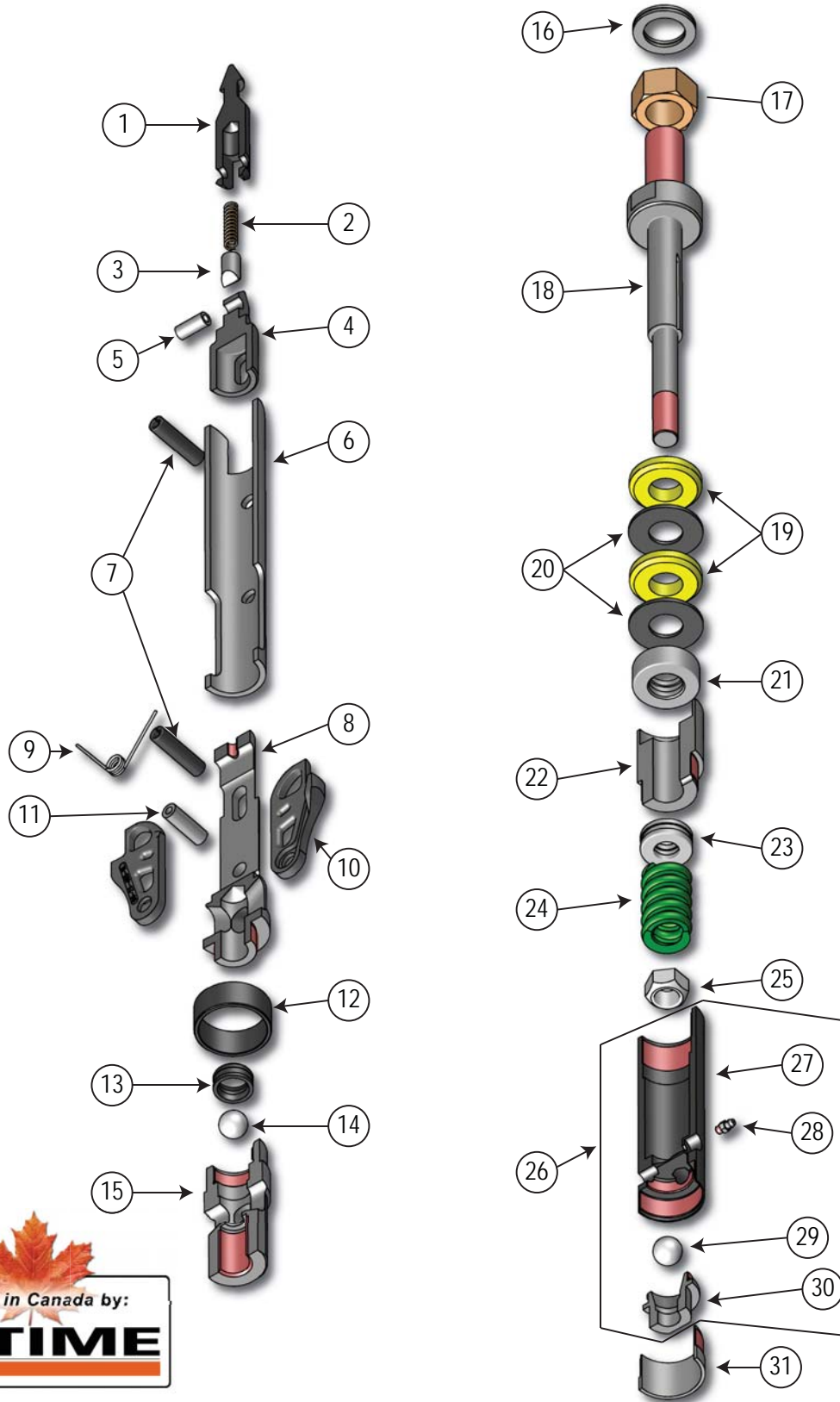
1B	Locking Coupling Tanged	F/H	90-21-334H	90-21-434H	90-21-434H	90-21-534H
		Carbide		90-21-434C		90-21-534C
6B	Double Length Shell		**	**	**	**
6C	Long Shell		**	**	**	**
13	Extension, Inner Tube, Double Length Shell		90-21-393	90-21-493	90-21-493	90-21-593
14	Extension, Inner Tube, Long Shell		90-21-392	90-21-492	90-21-492	90-21-592
15	Coupling - Inner Tube		90-21-391	90-21-491	90-21-491	90-21-591

** Multiple choices, please see accessories section below.



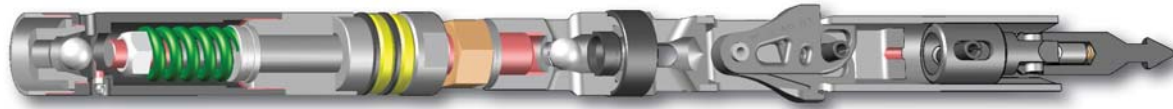
Drilling & Exploration - Core Barrels

Core Barrel - TIME Latch Head Assembly



Drilling & Exploration - Core Barrels

Core Barrel - TIME Latch Head Assembly



Item	Description	Part Numbers for Each Size			
		B	N	N2	H
	Assembly	90-20-302-TL	90-20-402-TL	90-27-402-TL	90-20-502-TL
1	Spearhead Point	90-22-301	90-22-301	90-22-301	90-22-301
2	Spring, Compression	90-22-302	90-22-302	90-22-302	90-22-302
3	Detent Plunger	90-22-303	90-22-303	90-22-303	90-22-303
4	Base, Spearhead	90-22-304	90-22-404	90-22-404	90-22-504
5	Pin, Spiral	90-22-305	90-22-305	90-22-305	90-22-305
6	Latch Retracting Case	90-22-306	90-22-406	90-22-406	90-22-506
7	Pin, Spring	90-21-303	90-21-403	90-21-403	90-21-503
8	Latch Body, Upper	90-21-309-1	90-21-409-1	90-21-409-1	90-21-509-1
9	Latch Spring	90-21-304-TL	90-21-404-TL	90-21-404-TL	90-21-404-TL
10	Latch	90-21-305-TL	90-21-405-TL	90-21-405-TL	90-21-505-TL
11	Pin, Spiral, Latch Pivot	90-21-306	90-21-406	90-21-406	239-317
12	Landing Shoulder	90-21-309-2	90-21-409-2	90-27-409	90-21-509-2
13	Bushing, Landing Indicator	90-29-380	90-29-380	90-29-380	90-29-380
14	Ball, Landing Indicator	90-21-421	90-21-421	90-21-421	90-21-421
15	Latch Body, Lower	90-21-309-3	90-21-409-3	90-21-409-3	90-21-509-3
16	Lockwasher	14WL-NL	18WL-NL	18WL-NL	20WL-NL
17	Jam Nut	14NHZG5	18NHZG5	18NHZG5	20NHZG5
18	Spindle	90-21-311	90-21-411	90-21-411	90-21-511
19	Shut Off Valve	90-21-312-U	90-21-412-U	90-21-412-U	90-21-512-U
20	Washer	90-21-313	90-21-413	90-21-413	90-21-513
21	Bearing, Spindle, Upper	90-21-314	90-21-414	90-21-414	90-21-514
22	Bushing, Spindle	90-21-315	90-21-415	90-21-415	90-21-515
23	Bearing, Spindle, Lower	90-21-314	90-21-424	90-21-424	90-21-414
24	Spring, Compression	90-21-316	90-21-416	90-21-416	90-21-516
25	Lock Nut	10NSZG5	12NSZG5	12NSZG5	16NSZG5
26	Assembly, Inner Tube Cap (includes 27-30)	90-21-319	90-21-419	90-27-419	90-21-519
27	Cap, Inner Tube Body	90-21-320	90-21-420	90-27-420	90-21-520
28	Grease Fitting	90-29-020	90-29-020	90-29-020	90-29-020
29	Ball	90-21-321	90-21-421	90-21-421	90-21-521
30	Check Valve Body	90-21-323	90-21-423	90-21-423	90-21-523
31	Protector, Inner Tube Cap	90-21-360	90-21-460	90-21-460	90-21-560

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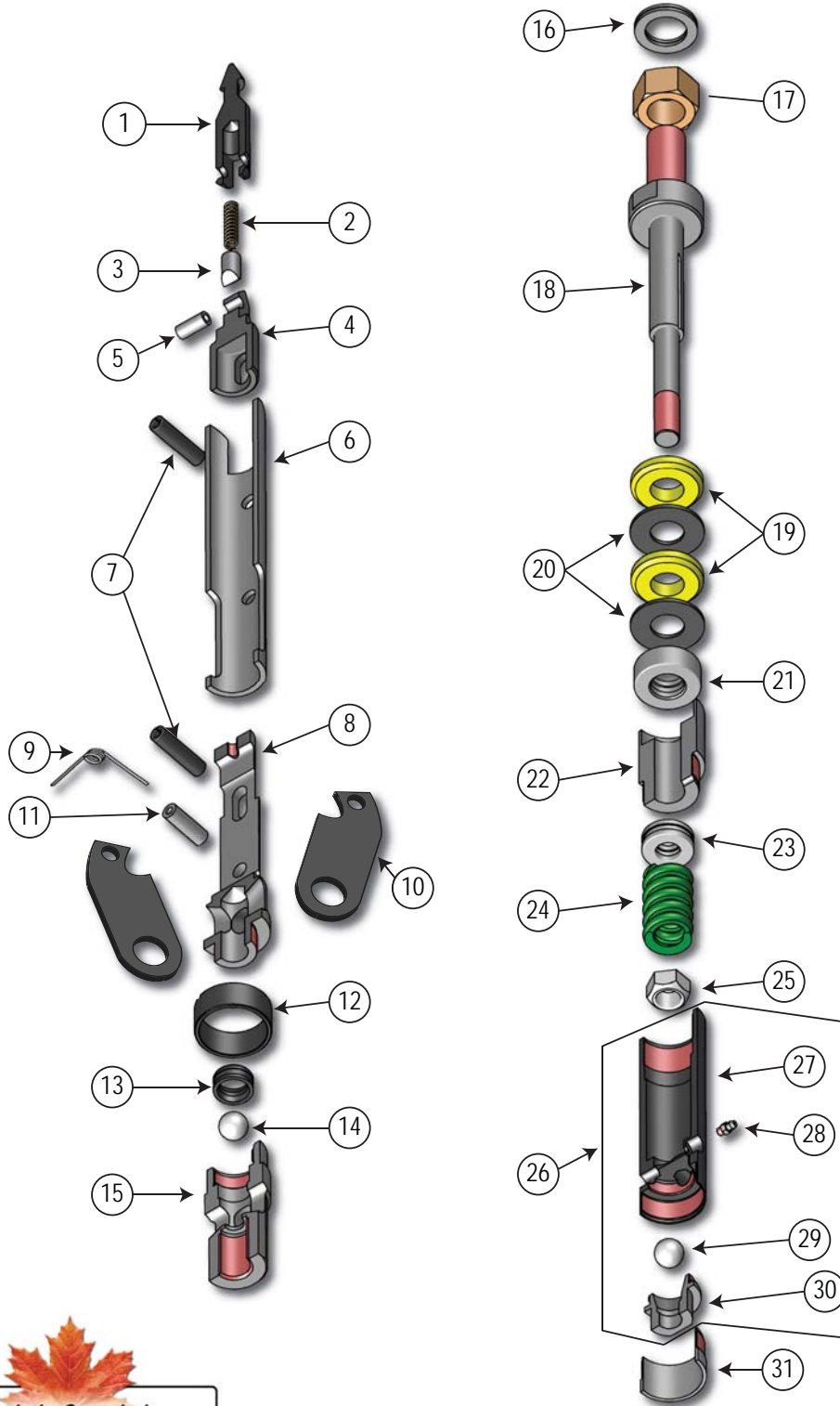
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Drilling & Exploration - Core Barrels

Core Barrel - Spring Latch Head Assembly



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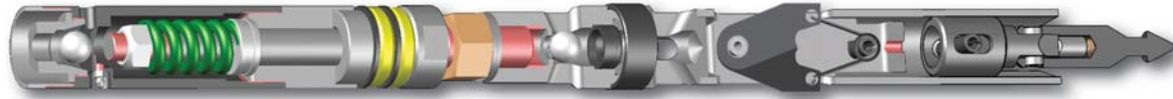
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Drilling & Exploration - Core Barrels

Core Barrel - Spring Latch Head Assembly



Item	Description	Part Numbers for Each Size			
		B	N	N2	H
	Assembly	90-20-302	90-20-402	90-27-402	90-21-502
1	Spearhead Point	90-22-301	90-22-301	90-22-301	90-22-301
2	Spring, Compression	90-22-302	90-22-302	90-22-302	90-22-302
3	Detent Plunger	90-22-303	90-22-303	90-22-303	90-22-303
4	Base, Spearhead	90-22-304	90-22-404	90-22-404	90-22-504
5	Pin, Spirol	90-22-305	90-22-305	90-22-305	90-22-305
6	Latch Retracting Case	90-22-306-SL	90-22-406-SL	90-22-406-SL	90-22-506-SL
7	Pin, Spring	476-072B	476-085	476-085	90-21-503
8	Latch Body, Upper	90-29-309-1	90-29-409-1	90-29-409-1	90-29-509-1
9	Latch Spring	90-21-304	90-21-404	90-21-404	90-21-404
10	Latch	90-21-305	90-21-405	90-21-405	90-21-505
11	Pin, Spirol, Latch Pivot	476-072A	90-21-406	90-21-406	476-085
12	Landing Shoulder	90-29-309-2	90-29-409-2	90-27-409	90-29-509-2
13	Bushing, Landing Indicator	90-29-380	90-29-380	90-29-380	90-29-380
14	Ball, Landing Indicator	90-21-421	90-21-421	90-21-421	90-21-421
15	Latch Body, Lower	90-29-309-3	90-29-409-3	90-29-409-3	90-29-509-3
16	Lockwasher	14WL-NL	18WL-NL	18WL-NL	20WL-NL
17	Jam Nut	14NHZG5	18NHZG5	18NHZG5	20NHZG5
18	Spindle	90-21-311	90-21-411	90-21-411	90-21-511
19	Shut Off Valve	90-21-312-U	90-21-412-U	90-21-412-U	90-21-512-U
20	Washer	90-21-313	90-21-413	90-21-413	90-21-513
21	Bearing, Spindle, Upper	90-21-314	90-21-414	90-21-414	90-21-514
22	Bushing, Spindle	90-21-315	90-21-415	90-21-415	90-21-515
23	Bearing, Spindle, Lower	90-21-314	90-21-424	90-21-424	90-21-514
24	Spring, Compression	90-21-316	90-21-416	90-21-416	90-21-516
25	Lock Nut	10NSZG5	12NSZG5	12NSZG5	16NSZG5
26	Assembly, Inner Tube Cap (includes 27-30)	90-21-319	90-21-419	90-27-419	90-21-519
27	Cap, Inner Tube Body	90-21-320	90-21-420	90-27-420	90-21-520
28	Grease Fitting	90-29-020	90-29-020	90-29-020	90-29-020
29	Ball	90-21-321	90-21-421	90-21-421	90-21-421
30	Check Valve Body	90-21-323	90-21-423	90-21-423	90-21-523
31	Protector, Inner Tube Cap	90-21-360	90-21-460	90-21-460	90-21-560

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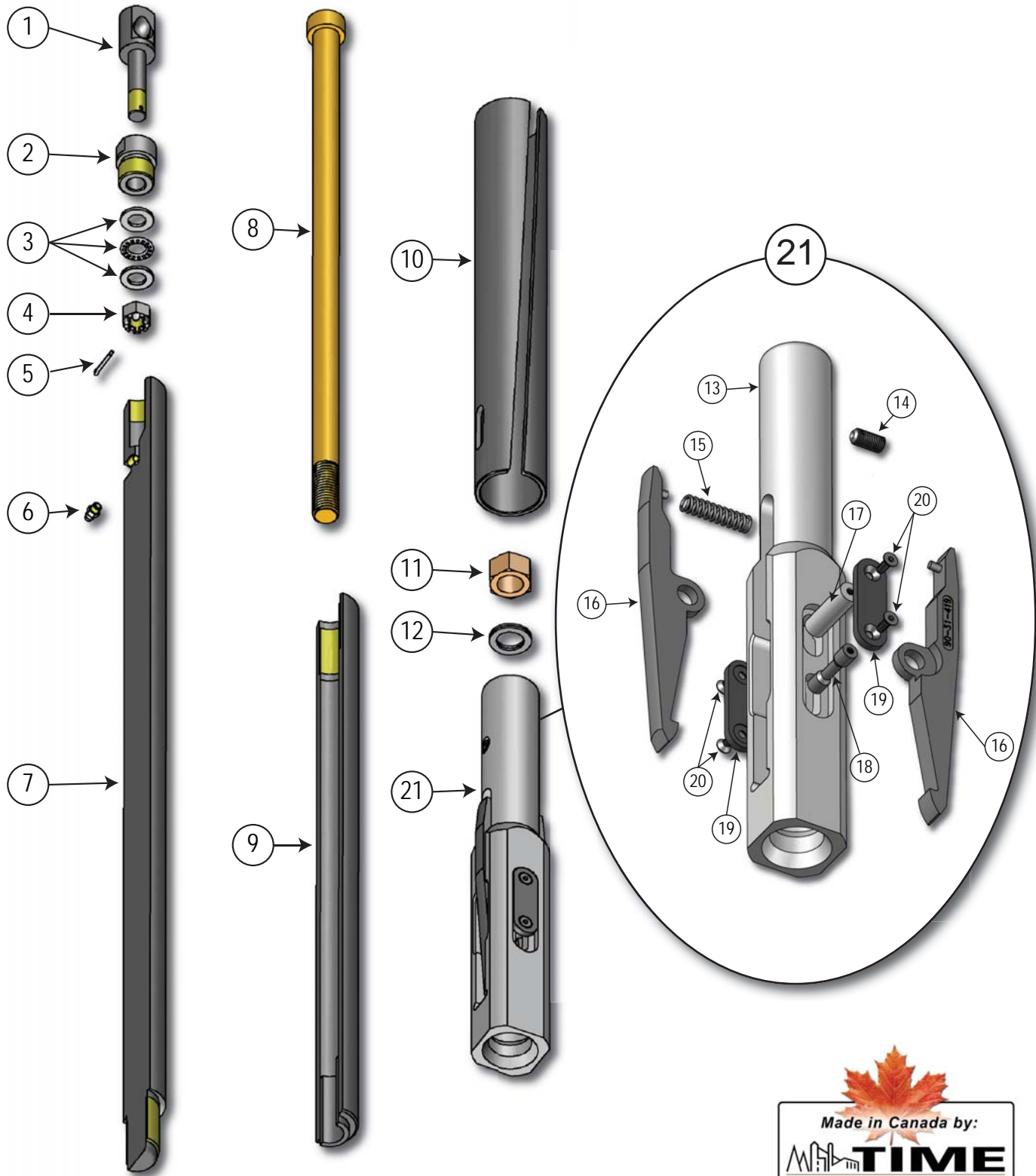
PAGE: DE7



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Drilling & Exploration - Core Barrels

Overshot



Drilling & Exploration - Core Barrels

Overshot



Item	Description	Part Numbers for Each Size			
		B	N	H	P
	Overshot Assembly	90-32-300-TL	90-32-400-TL	90-32-500-TL	90-32-600-TL
1	Cable Swivel Eye Bolt	90-31-201	90-31-201	90-31-201	90-31-201
2	Cable Swivel Collar	90-31-202	90-31-202	90-31-202	90-31-202
3	Thrust Bearing	90-31-204	90-31-204	90-31-204	90-31-204
4	Castle Nut	90-31-205	90-31-205	90-31-205	90-31-205
5	Cotter Pin	90-31-206	90-31-206	90-31-206	90-31-206
6	Grease Fitting	90-29-020	90-29-020	90-29-020	90-29-020
7	Cable Swivel Body	90-32-407	90-32-407	90-32-407	90-32-407
8	Jar Staff	90-32-412	90-32-412	90-32-412	90-32-412
9	Jar Tube	90-32-421	90-32-421	90-32-421	90-32-421
10	Locking Sleeve	90-31-411	90-31-411	90-31-411	90-31-411
11	Hex Nut	90-31-408	90-31-408	90-31-408	90-31-408
12	Lock Washer	90-31-408-LW	90-31-408-LW	90-31-408-LW	90-31-408-LW
13	Overshot Head Body	90-32-315-TL	90-32-415-TL	90-32-515-TL	90-32-615-TL
14	Set Screw	90-31-314	90-31-314	90-31-314	90-31-314
15	Compression Spring	90-31-316	90-31-316	90-31-316	90-31-316
16	Lifting Dog	90-31-419-TL	90-31-419-TL	90-31-419-TL	90-31-419-TL
17	Pivot Pin	90-32-417-TL	90-32-417-TL	90-32-417-TL	90-32-417-TL
18	Sway Pin	90-32-418-TL	90-32-418-TL	90-32-418-TL	90-32-418-TL
19	Pin Link	90-32-499	90-32-499	90-32-499	90-32-499
20	Cap Screw	90-32-498	90-32-498	90-32-498	90-32-498
21	Overshot Head Assembly	90-32-397	90-32-497	90-32-597	90-32-697



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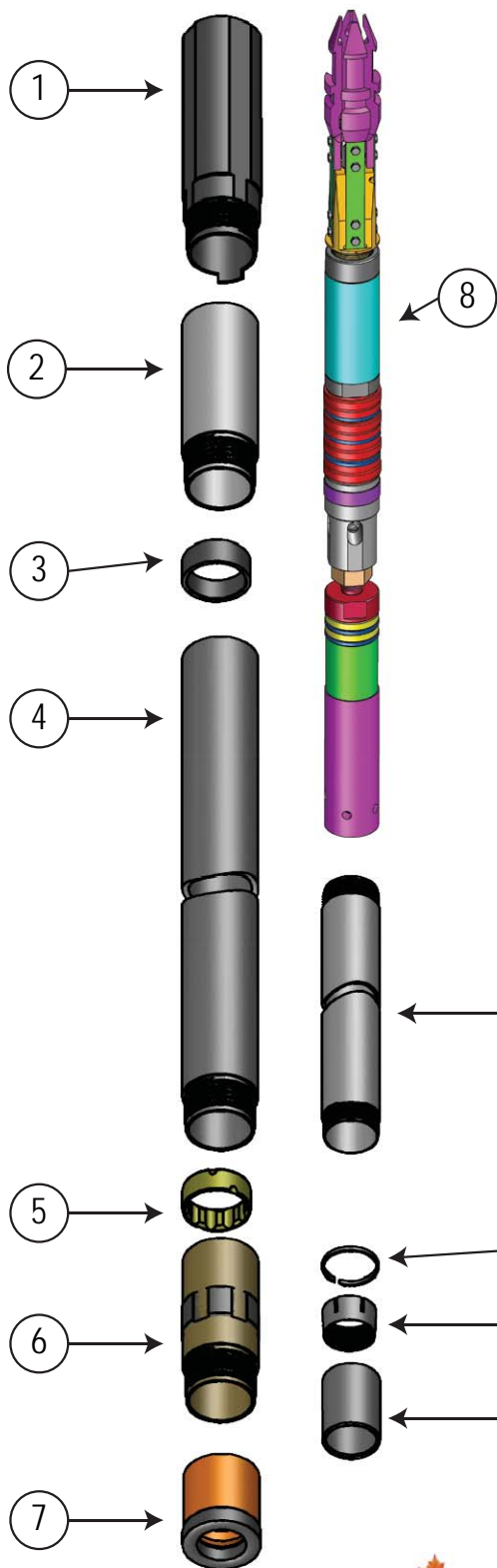
PAGE: DE9



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Drilling & Exploration - Q/L Core Barrels

Quad Latch Core Barrel



Quad-Latch Head Assembly features and benefits:

1. Greater latching strength
2. Ideal for drilling in sand and dry conditions
3. Ideal for drilling in back pressure
4. More latching surface to reduce the chance of miss-latches

8 The Quad-Latch head assembly features four (4) fingers used to lock the inner barrel into drilling position. The four finger latching system of the Quad-Latch head assembly provides positive latching with 60% more latching surfaces than other latching systems in the market. This larger latch area and rugged construction allow the assembly to withstand greater force from back-pressure in the hole and impact blows.

The Quad-Latch head assembly is designed with fewer moving parts than other wireline systems, making it ideal for drilling in sandy, abrasive formations and dry conditions. This design features a large open area that is less likely to "sand up around the overshot latching area", while at the same time allowing for greater flow of drill fluid during drilling operations.

The overshot tool functions without "external triggering hardware". The overshot features a step type mechanism to retrieve the inner barrel from the drilling position. The four Quad-Latch fingers cannot be released until the overshot tool compresses them for inner barrel recover, thus, ultimately reducing the chances of a miss-latch.

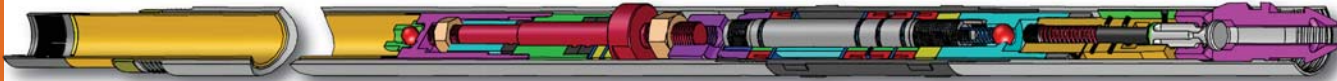
Usage guidelines:

1. Quad Latch must be loaded with a loading sleeve to avoid damaging the lips seals.
2. Close fingers when loading Quad Latch head assembly in the hole. This stops the piston from pushing downward, which prohibits the water flow through the head assembly. Thus forcing the water to flow on to the lip seals.
3. When Quad-latch is latched in the locking coupling the fingers open allowing the water pressure to push the piston downward. This opens up the water ways allowing water to flow through the inside of the head assembly down to the bit.
4. When you turn the water off the piston springs back allowing the fingers to squeeze together and receive the overshot
5. The quad latch is also features a an shaft and locking nut adapter which allows for greater adjustment over conventional head assemblies to the length of your head and inner tube assembly. This ensures your inner tube is positioned tightly to the bit and you have the best opportunity for full core recovery.



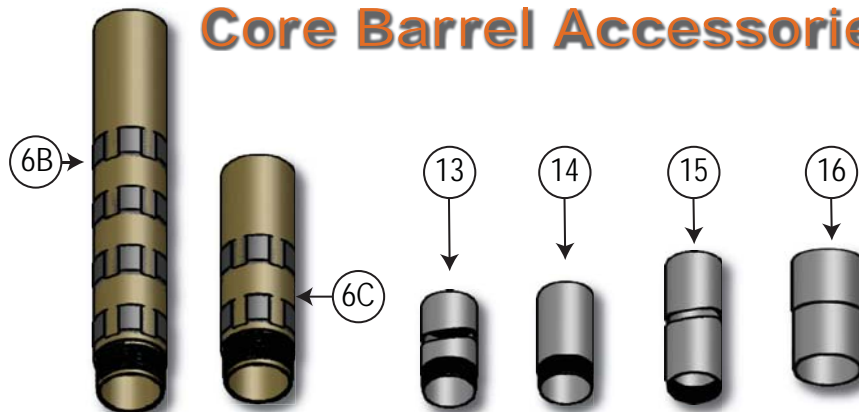
Drilling & Exploration - Q/L Core Barrels

Quad Latch Core Barrel



Item	Description	Part Numbers for Each Size			
		B	N	H	
	Assembly	92-45-300	92-45-400	92-45-500	
1	Locking Coupling	92-45-335	92-45-435	92-45-535	
2	Adapter Coupling	N/A	N/A	92-44-516	
3	Landing Ring	90-21-336	90-21-436	90-21-536	
4	Outer Tube	3m	90-21-350	90-21-450	90-21-550
		1.5m	90-21-345	90-21-445	90-21-545
5	Inner Tube Stabilizer	90-21-339	90-21-439	90-21-539	
6	Standard Shell	**	**	**	
7	Bit	**	**	**	
8	Head Assembly	92-45-302	92-45-402	92-45-502	
9	Inner Tube	3m	90-21-330	90-21-430	90-21-530
		1.5m	90-21-325	90-21-425	90-21-525
10	Stop Ring	90-21-332	90-21-432	90-21-532	
11	Core Lifter	Slotted	90-21-333	90-21-433	90-21-533
		Broached	90-21-333B	90-21-433B	90-21-533B
12	Core Lifter Case	90-21-331	90-21-431	90-21-531	
Accessories					
6B	Double Length Shell	**	**	**	
6C	Long Shell	**	**	**	
13	Extension, Inner Tube, Double Length Shell	90-21-393	90-21-493	90-21-593	
14	Extension, Inner Tube, Long Shell	90-21-392	90-21-492	90-21-592	
15	Coupling - Inner Tube	90-21-391	90-21-491	90-21-591	
16	Loading Sleeve	90-32-395	90-32-495	90-32-595	

Core Barrel Accessories



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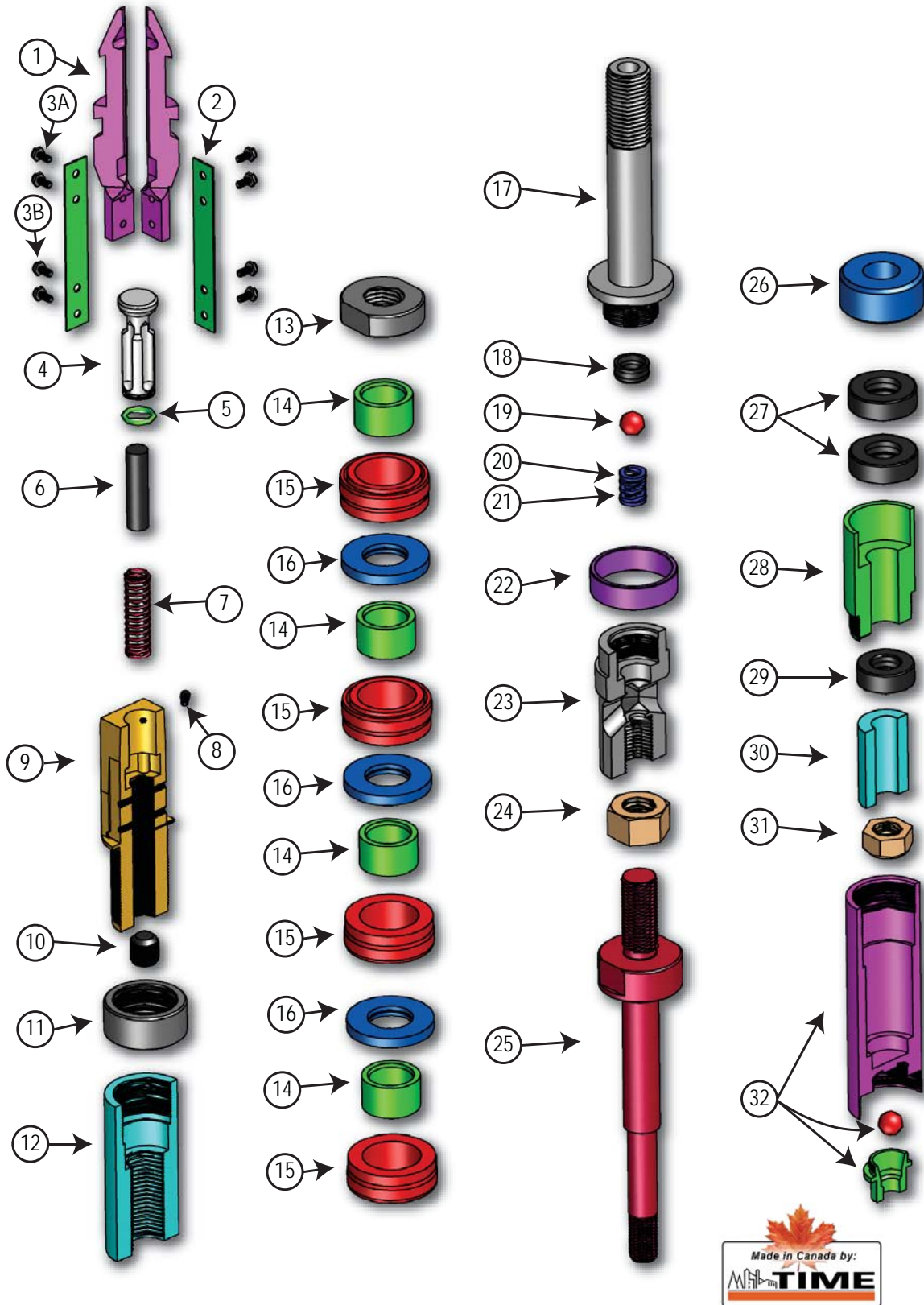
PAGE: DE11



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Drilling & Exploration - Q/L Head Assy

Quad Latch Head Assembly



Drilling & Exploration - Q/L Head Assy

Quad Latch Head Assembly



Item	Description	Part Numbers for Each Size		
		B	N	H
	Head Assembly	92-45-302	92-45-402	92-45-502
1	Quad Latch Finger	92-44-301	92-44-401	92-44-501
2	Leaf Spring	92-44-305	92-44-405	92-44-505
3A	Cap Screw - Finger to Spring	92-44-326	92-44-526	92-44-526
3A	Cap Screw - Spring to Body	92-44-326B	92-44-526	92-44-526
4	Piston	92-44-302	92-44-402	92-44-502
5	O-Ring	N/A	568-117-90	568-119-90
6	Push Rod	92-44-306	92-44-406	92-44-506
7	Compression Spring	92-44-318	92-44-418	92-44-518
8	Stop Screw	92-44-504	92-44-404	92-44-504
9	Head Base	92-44-303	92-45-403	92-44-503
10	Set Screw	92-44-327	92-44-427	92-44-527
11	Lock Nut, Adapter	92-44-307	92-45-407	92-44-507
12	Adapter, Base Shaft	92-45-308	92-45-408	92-45-508
13	Lock Nut, Shaft	92-45-309	92-45-409	92-45-509
14	Spacer, Pump-In Seal	N/A	92-45-410	92-44-510
15	Seal, Pump-In	90-29-353	92-44-453	92-44-553
16	Washer, Thrust	92-45-311	92-45-411	92-45-511
17	Shaft, Pump-In	92-45-313	92-45-413	92-45-513
18	Bushing	90-29-380	90-29-381	90-29-381
19	Ball, Water Retention	90-21-421	90-21-421	90-21-421
20	Spring, Water Retention, Green, Light	N/A	90-29-382	90-29-382
21	Spring, Water Retention, Blue, Medium	N/A	90-29-383	90-29-383
22	Landing Shoulder	90-21-309-2	90-21-409-2	90-21-509-2
23	Latch Body, Lower	90-21-309-3	90-21-409-3	90-21-509-3
24	Jam Nut	14NHZG5	18NHZG5	20NHZG5
25	Spindle	90-21-311	90-21-411	90-21-511
26	Spacer, Valve Replacement	92-45-314	92-45-414	92-45-514
27	Bearing, Spindle, Upper	90-21-314	90-21-414	90-21-514
28	Bushing, Spindle	90-21-315	90-21-415	90-21-515
29	Bearing, Hanger	90-21-314	90-21-424	90-21-414
30	Spacer, Spring Replacement	92-45-318	92-45-418	92-45-518
31	Lock Nut	10NSZG5	12NSZG5	16NSZG
32	Assembly, Inner Tube Cap	90-21-319	90-21-419	90-21-519

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PAGE: DE13



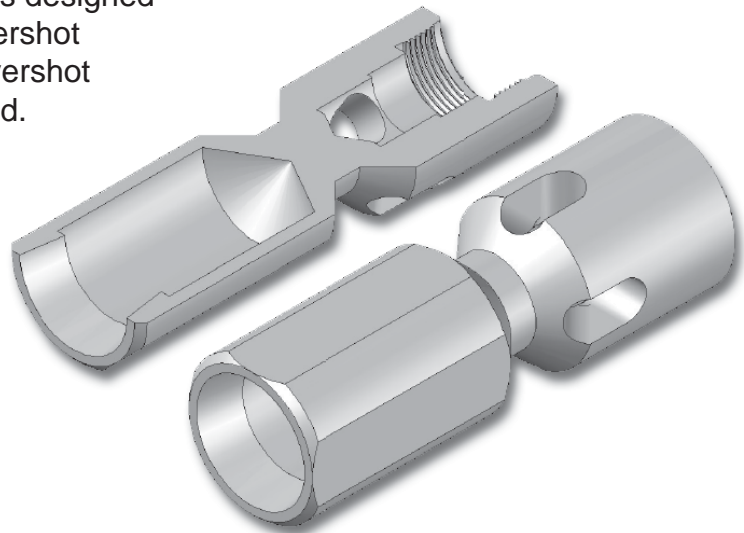
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Drilling & Exploration

Quad Latch (Q/L) Overshot Head

The Quad Latch (Q/L) Overshot Head is designed to be compatible with other existing overshot designs. Simply remove the existing overshot head, and install the Q/L Overshot Head.

No additional parts required



Description	Part Number
Quad Latch Overshot B	92-46-301
Quad Latch Overshot N	92-46-401
Quad Latch Overshot H	92-46-501

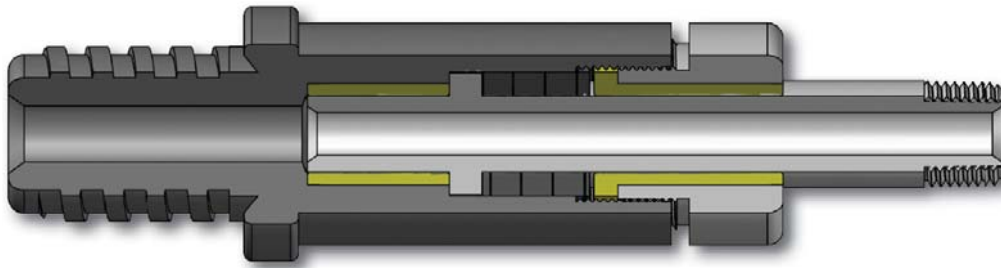
Hoisting Plugs

Description	Part Number
Hoisting Plug Assembly AW R/B Assembly Max. 6,000lbs	93-00-200
Hoisting Plug Assembly NW R/B Assembly Max. 13,000lbs	93-00-400
Hoisting Plug Assembly NW R/B Assembly Max. 30,000lbs	93-00-450



Drilling & Exploration - Water Swivel

Conventional Water Swivel



Full Assembly Conventional Water Swivel

Size	Part Number
EW	439-02
AW	439-04
AW/L	440-19
BW/L	440-20
NW/L	440-18
HW/L	440-22

Parts

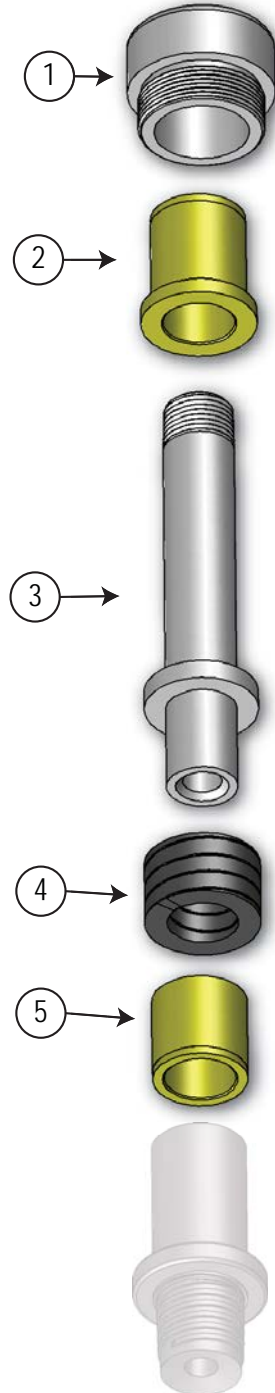
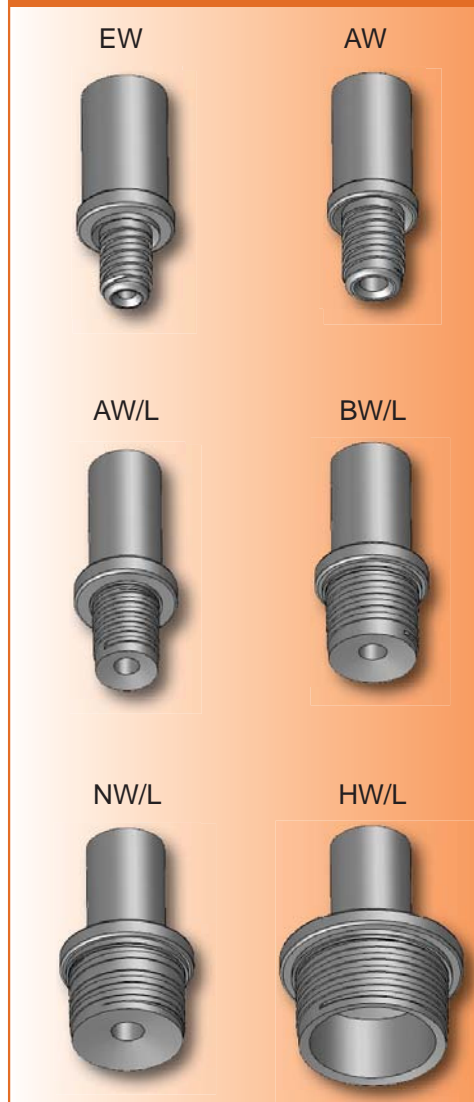
Item	Description	Part Number
1	Nut, Packing	440-13
2	Bushing, Upper	440-12
3	Spindle	440-10
4	Packing	440-21
5	Bushing, Lower	440-11

440-26 Repair kit

Qty	Description
1	Nut, Packing
1	Bushing, Upper
1ft	Packing
1	Bushing, Lower



Available in these rod threads

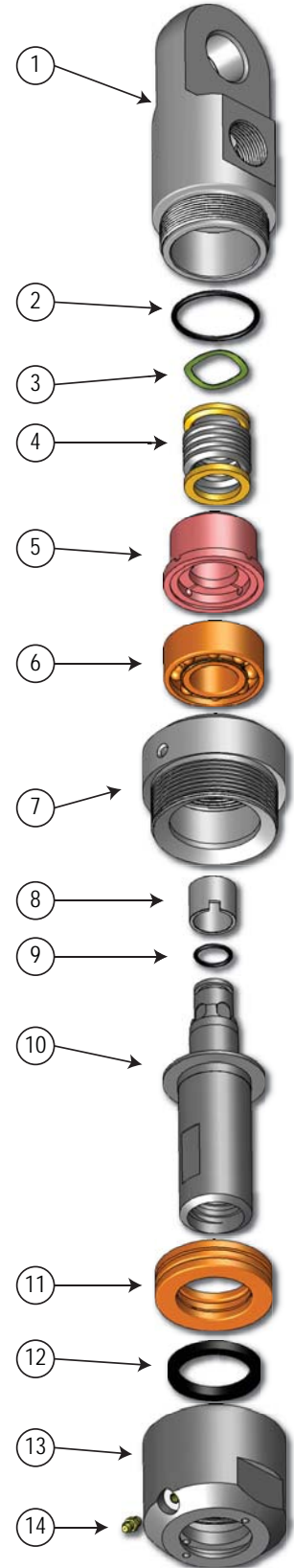
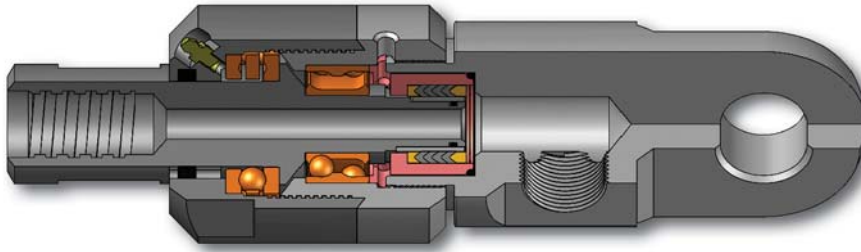


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Drilling & Exploration - Water Swivel

Compact Plus Water Swivel



Item	Description	Part Number
Full Assembly Compact Plus Water Swivel		
	• AW Rod Box	92-13-100
	• Rotating Capacity: 10,000 lbs/4,540 kg	
	• Static Capacity: 20,000 lbs/9,000 kg	
Repair Kit (see below)		92-13-150
1	Cap, Swivel	92-12-101
2	O-Ring	568-225-90
3	Spring, Wave Washer	92-12-111
4	Assembly, Packing (Copper)	92-12-150
5	Housing, Packing	92-12-104
6	Bearing, Angular Contact	92-12-114
7	Body, Upper	92-13-103
8	Sleeve, Wear	92-13-105
9	O-Ring	568-116-90
10	Spindle	92-13-106
11	Bearing, Thrust	92-13-115
12	Gasket, Felt	92-12-113
13	Body, Lower	92-13-110
14	Grease Fitting	90-29-020

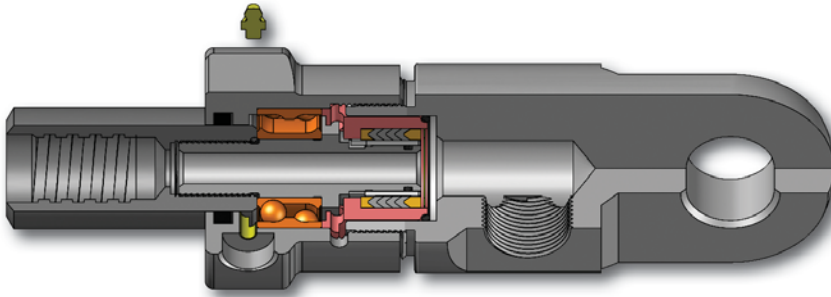
** 92-13-150 Repair Kit Includes **

Qty	Description
3 Sets	O-Rings
2	Spring, Wave Washers
2	Assembly, Packing
2	Sleeve, Wear
1	Bearing, Angular Contact
2	Gasket, Felt
1	Bearing, Thrust

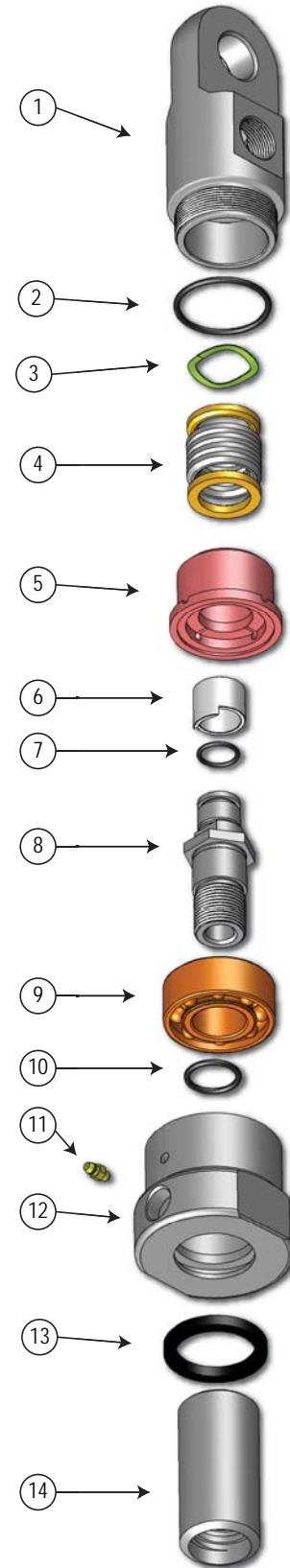


Drilling & Exploration - Water Swivel

Compact Water Swivel



Item	Description	Part Number
Full Assembly Compact Water Swivel		
	• AW Rod Box	92-12-100
	• Rotating Capacity: 500 lbs/227 kg	
	• Static Capacity: 5,000 lbs/2,270 kg	
Repair Kit (see below)		92-11-200
1	Cap, Swivel	92-12-101
2	O-Ring	568-225-90
3	Spring, Wave Washer	92-12-111
4	Assembly, Packing (Copper)	92-12-150
5	Housing, Packing	92-12-104
6	Sleeve, Wear	92-12-105
7	O-Ring	568-116-90
8	Spindle	92-12-106
9	Bearing, Angular Contact	92-12-114
10	O-Ring	568-120-90
11	Grease Fitting	90-29-020
12	Body, Lower	92-11-110
13	Gasket, Felt	92-12-113
14	Extension, AW Rod Box	92-12-123



** 92-11-200 Repair Kit Includes **

Qty	Description
3 Sets	O-Rings
2	Spring, Wave Washers
2	Assembly, Packing
2	Sleeve, Wear
1	Bearing, Angular Contact
2	Gasket, Felt

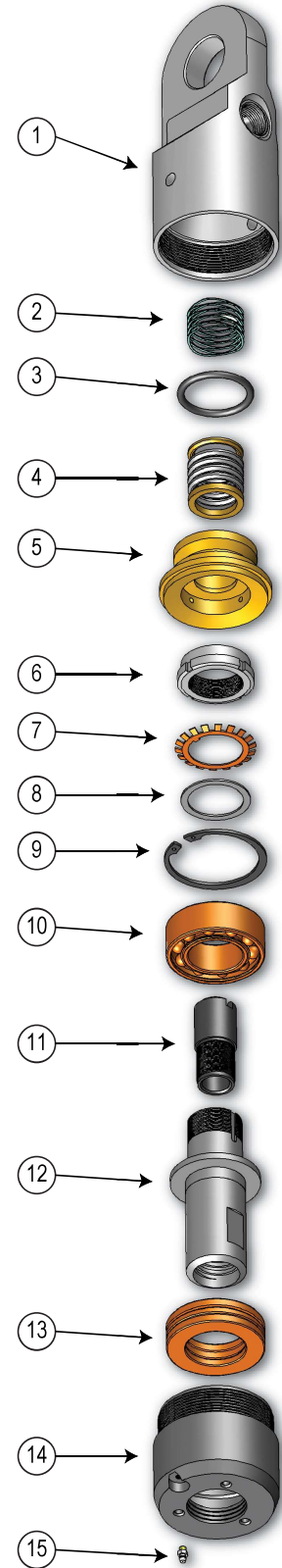
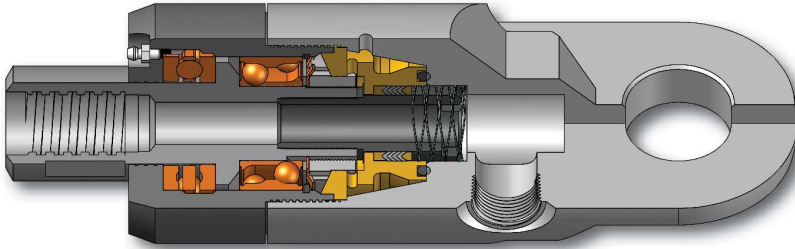


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Drilling & Exploration - Water Swivel

Standard Duty Water Swivel



Item	Description	Part Number
Full Assembly Standard Duty Water Swivel		
	<ul style="list-style-type: none"> BW Rod Box Rotating Capacity: 11,000 lbs/5,000 kg Static Capacity: 25,000 lbs/11,400 kg 	92-15-100
Repair Kit (see below)		92-15-150
1	Cap, Swivel	92-15-101
2	Spring, Compression	92-15-112
3	O-Ring	568-407-90
4	V Packing Set	92-15-117B
5	Housing, Packing	92-15-104
6	Nut, Spindle	92-15-108
7	Lockwasher	92-15-116
8	Spacer	92-15-109
9	Retaining Ring	92-15-117
10	Bearing, Angular Contact	92-15-114
11	Extension, Upper, Spindle	92-15-107
12	Spindle	92-15-106
13	Bearing, Thrust	92-15-115
14	Body, Lower	92-15-110
15	Grease Fitting	90-29-020

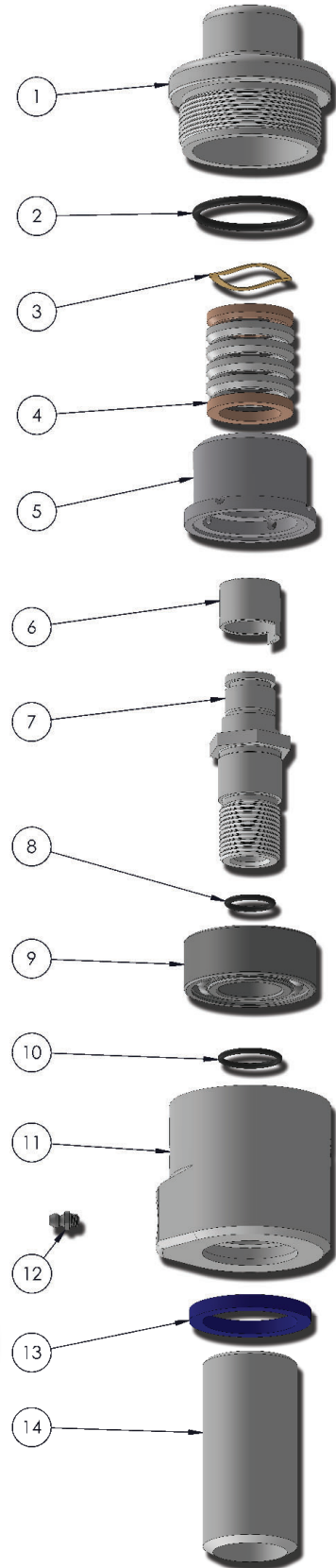
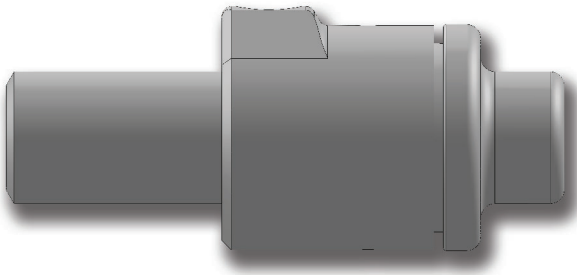
** 92-15-150 Repair Kit Includes **

Qty	Description
1	O-Ring
1	V Packing Set
1	Retaining Ring
1	Lockwasher
1	Extension, Upper, Spindle
1	Bearing, Angular Contact
1	Bearing, Thrust



Drilling & Exploration - Water Swivel

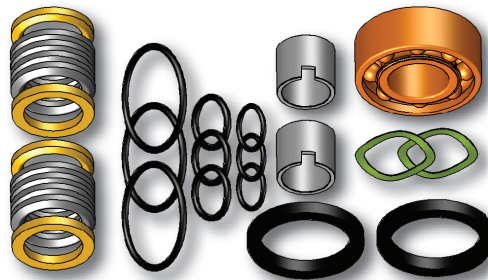
Underground Water Swivel



Item	Description	Part Number
Full Assembly Underground Water Swivel		
	• AW Rod Box	92-11-100
Repair Kit (see below)		92-11-200
1	Cap, Swivel, Single Inlet	92-11-101-02
2	O-Ring	568-225-90
3	Spring, Wave Washer	92-12-111
4	Assembly, Packing (Copper)	92-12-150
5	Housing, Packing	92-12-104
6	Sleeve, Wear	92-12-105
7	Spindle	92-12-106
8	O-Ring	568-116-90
9	Bearing, Angular Contact	92-12-114
10	O-Ring	568-120-90
11	Body, Lower	92-11-110
12	Grease Fitting	90-29-020
13	Gasket, Felt	92-12-113
14	Spindle Extension	92-12-123

** 92-11-200 Repair Kit Includes **

Qty	Description
3 Sets	O-Rings
2	Spring, Wave Washers
2	Assembly, Packing
2	Sleeve, Wear
1	Bearing, Angular Contact
2	Gasket, Felt



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PAGE: DE21



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Drilling & Exploration - Core Barrels Tools

Tools

Inner Tube Wrench	
Description	Part Numbers
WRENCH, A INNER TUBE	92-21-260
WRENCH, B INNER TUBE	92-21-360
WRENCH, N INNER TUBE	92-21-460
WRENCH, N2 INNER TUBE	92-27-460
WRENCH, N INNER TUBE CARBIDE	92-21-460CBD
WRENCH, H I/T & N O/T	92-21-560
WRENCH, P INNER TUBE	92-21-660

Outer Tube Wrench	
Description	Part Numbers
WRENCH, A OUTER TUBE	92-21-261
WRENCH, B OUTER TUBE	92-21-361
WRENCH, N O/T & H I/T	92-21-560
WRENCH, H OUTER TUBE	92-21-561
WRENCH, P OUTER TUBE	92-21-661



When breakage of wireline has happened in the hole, The Wireline (W/L) cable Recovery tool is used to fish out the broken wireline cable.

Features:

- Cable fisher housing is connected to the inner tube, after removal of the core lifter case, and is lowered with the inner tube assembly and overshot.
- Reduces instances of having to pull the rods, and complications which occur when broken wireline cable has to be cut while pulling the rods.
- Reduces amount of scrap wireline cable through recovery.

Wireline Recovery Tool	
Description	Part Numbers
CABLE FISHER BW/L	92-21-399
CABLE FISHER NW/L	92-21-499
CABLE FISHER HW/L	92-21-599
CABLE FISHER PW/L	92-21-699



Drilling & Exploration - Core Barrels Tools

Tools



Description	Part Numbers
Hand Swager 1/16" - 3/16" Cable Crimping Tool	BHSC-600
Oval Sleeve 3/16" - Copper	66-43

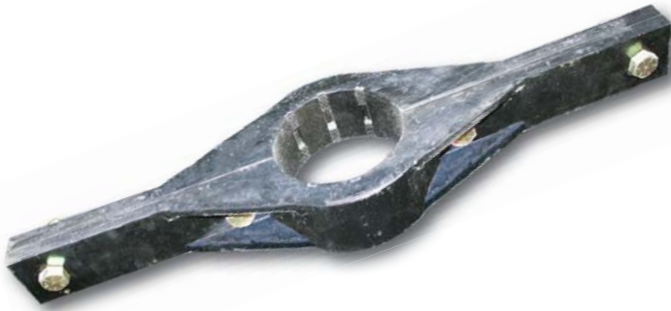


Description	Part Numbers
Ridgid 8" Pipe Wrench	31005
Ridgid Wrench 10 Hd	31010R
Ridgid 12" Pipe Wrench	31015
Ridgid 14" Pipe Wrench	31020
Ridgid 18" Pipe Wrench	31025
Ridgid 24" Pipe Wrench	31030
Ridgid 36" Pipe Wrench	31035
Ridgid 48" Pipe Wrench	31040
Ridgid 60" Pipe Wrench	31045
Ridgid 14" Aluminum Wrench	31095
Ridgid 18" Aluminum Wrench	31100
Ridgid 824 Aluminum Wrench	31105
Ridgid 836 Aluminum Wrench	31110
Ridgid 48" Aluminum Pipe Wrench	31115
Ridgid 18" Hook Jaws	31670
Ridgid 18" Heel Jaw W/Pin	31675
Ridgid 18" Flat Coil Spring	31680
Ridgid 18" Nut	31685
Ridgid 24" Hook Jaws	31695
Ridgid 24" Heel Jaw W/Pin	31700
Ridgid 24" Flat Coil Springs	31705
Ridgid 24" Nut	31710
Ridgid 24" Pin Only	31715
Ridgid 36" Hook Jaw	31720
Ridgid 36" Heel Jaw W/Pin	31725
Ridgid 36" Flat Coil Springs	31730
Ridgid 48" Hook Jaw	31745
Ridgid 48" Heel Jaw C/W Pin	31750
Ridgid 48" Wrench Nut	31760
Jaw, Hook 60" Wrench	31770
60" Ridgid Heel Jaw & Pin	31775



Drilling & Exploration - Core Barrels Tools

Casing Clamps



Casing Clamps

DESCRIPTION	PART #
AW Casing Clamps	108-54
BW Casing Clamps	108-61
NW Casing Clamps	108-60
HW Casing Clamps	108-58
PW Casing Clamps	108-59

Recovery Tools

TAPS *

DESCRIPTION	PART #
TAP, BW/L ROD BW/L R/B	92-31-350
TAP, NW/L ROD NW/L R/B	92-31-450
TAP, HW/L ROD HW/L R/B	92-31-550
TAP, HWT/HW CSG HWT CSG/B	92-31-650

*NO ADAPTERS NEEDED



FULL GRIP TAP **

DESCRIPTION	PART #
TAP, BW/L F/G AW R/B	92-31-351
TAP, NW/L F/G BW R/B	92-31-451
TAP, HW/L F/G NW R/B	92-31-551
TAP, HWT/HW CSG NW R/B	92-31-651

THIN WALL (KERF) FULL GRIP TAP **

TAP, ATW F/G EW R/B	92-31-252
TAP, BTW F/G AW R/B	92-31-352
TAP, NTW F/G BW R/B	92-31-452
TAP, HTW F/G NW R/B	92-31-552

**ADAPTERS NEEDED

SPEAR AND GRAPPLE

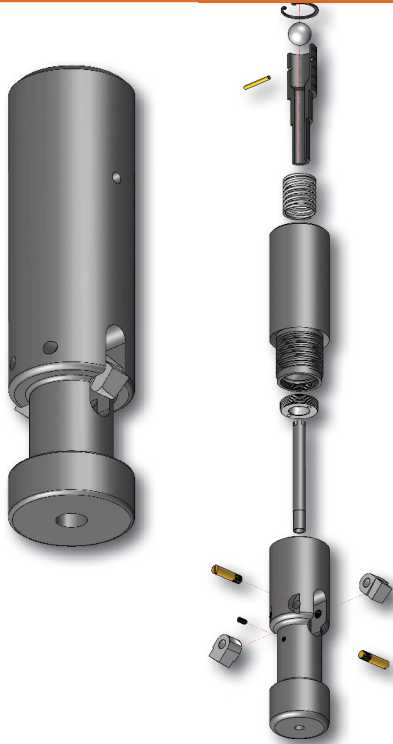
DESCRIPTION	PART #
SPEAR AND GRAPPLE BW/L AW R/P	92-31-399
GRAPPLE BW/L	92-31-398
SPEAR AND GRAPPLE NW/L AW R/P	92-31-499
GRAPPLE NW/L	92-31-498
SPEAR AND GRAPPLE HW/L BW R/P	92-31-599
GRAPPLE HW/L	92-31-598
SPEAR AND GRAPPLE PW/L NW R/P	92-31-699
GRAPPLE PW/L	92-31-698

**ADAPTERS NEEDED



Drilling & Exploration - Core Barrels Tools

Casing Cutters



Description	Part Numbers for Each Size			
	BW CSG	NW CSG	HW CSG	PW CSG
CASING CUTTER ASM	92-10-350	92-10-450	92-10-550	92-10-650
BODY	92-10-351	92-10-451	92-10-551	92-10-551
LUG	92-10-352	92-10-452	92-10-552	92-10-652
CUTTER PIN	92-10-354	92-10-454	92-10-554	92-10-554
WATER TUBE	92-10-355	92-10-455	N/A	N/A
SPRING REST	92-10-356	92-10-456	N/A	N/A
PLUNGER CASE	92-10-357	92-10-457	N/A	93-56-522
SPRING	92-10-358	92-10-458	92-10-458	92-10-458
PLUNGER	92-10-359	92-10-459	92-10-459	92-10-459
PIN	92-10-360	92-10-460	92-10-460	92-10-460
BALL	39-1187738	39-1101419	39-1101419	39-1101419
RETAINING RING	92-10-362	92-10-462	92-10-462	92-10-462
SET SCREW	04004SSCP	04004SSCP	N/A	N/A

This tool is designed with a one-direction bearing system, allowing for the support of inner tubes at the collar of the rods. The standard design will hold the inner tube in the puller to prevent it from dropping down the hole. The design with the spear point, provides the ability to attach the overshot to it, in turn allowing for the extended inner tube to be pulled out of the rods.

Inner Tube Puller

Description	Part Number
With Spear - BW/L	92-20-399
With Spear - NW/L	92-20-499
With Spear - HW/L	92-20-599
With Spear - PW/L	92-20-699
No Spear - BW/L	92-20-398
No Spear - NW/L	92-20-498
No Spear - HW/L	92-20-598
No Spear - PW/L	92-20-698



This tool is designed to firmly grip and support the inner tube, allowing for the removal of extended inner tubes.

Inner Tube Pliers

Part Number	Description
92-1006	Pliers Inner Tube



Drilling & Exploration

Outer Tube Clamp

Product Number	Size
92-21-370	B
92-21-470	N
92-21-570	H
92-21-670	P



Drill Anchor Bolts

Standard and Wedge Style Anchor Bolts

Anchor bolts are designed to secure the diamond drill to the rock face, eliminating side to side movement of the drill.

Benefits:

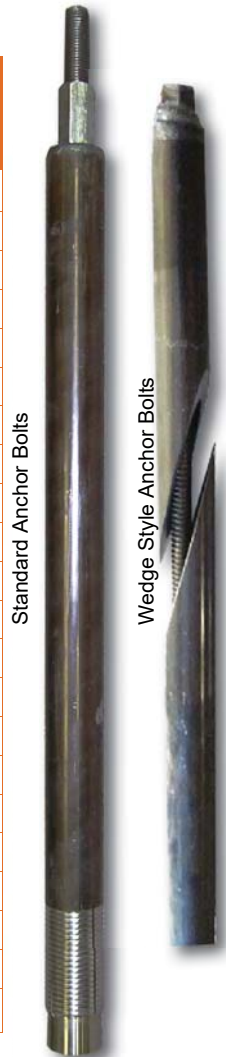
- No special tools required
- Reusable

Installation:

- For each anchor bolt a hole is drilled some degrees off from the intended drill hole.
- The anchor bolt is secured into the rock in this hole.
- The drill is then secured to the anchor bolt, ensuring a stable drill.

Standard Anchor Bolts		
Product Number	Length	Hole Size
83-05	36"	A
83-06	42"	A
83-07	66"	A
83-17	84"	A
83-09	96"	A
83-16	120"	A
83-30	36"	B
83-31	48"	B
83-32	66"	B
83-53	72"	N
83-54	96"	N

Wedge Style Anchor Bolts		
Product Number	Length	Hole Size
83-18	36"	A
83-36	42"	A
83-19	48"	A
83-33	60"	A
83-20	72"	A
83-37	96"	A
83-21	36"	B
83-38	42"	B
83-22	48"	B
83-34	60"	B
83-23	72"	B
83-39	96"	B
83-40	36"	N
83-41	48"	N
83-42	60"	N
83-43	72"	N
83-44	96"	N
83-45	36"	H
83-46	48"	H
83-47	60"	H
83-48	72"	H
83-49	96"	H



Various Plugs

GRAPHITE PLUGS

Graphite Plugs are used with drill rods.

INSTRUCTIONS

- Insert plug into drill bit before lowering rods to ensure no debris enters drill rods and rods travel smoothly to the bottom of the hole.
- Graphite plug is easily drilled out once the rods are at the bottom of the hole



Product Number	Size
GRAPHITE AWL	A
GRAPHITE ATK	ATK
GRAPHITE BWL	B
GRAPHITE BTK	BTK
GRAPHITE NWL	N
GRAPHITE NTK	NTK
GRAPHITE N-2	N2
GRAPHITE N-3	N3
GRAPHITE HWL	H
GRAPHITE PWL	P



DISPLACEMENT PLUG / WIPER PLUG

Displacement plugs are used in diamond drill rods and casings for cleaning the inside of the rods.

Features:

- made of soft natural rubber
- commonly used for cleaning the inside of drilling rod during cementing or grouting operations

Product Number	Size
413-00	A
413-01	B
413-02	H
413-03	N
413-04	P

Poly Rope / Twine



Product Number	Size
328-0120	ROPE POLY 1/4" X 1300'
328-0160	ROPE POLY 3/8" X 600'
328-0180	ROPE POLY 1/2" X 335'
328-0200	ROPE POLY 3/4" X 125'
47-1101	TWINE ORANGE 9000'
TWINE	TWINE BLUE 12000'

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Drilling & Exploration

Core Blocks



Product Number	Description
92-1500	CORE BLOCKS 2000/BAG

Casing Caps



Product Number	Description
108-06	BW CASING CAP
108-06-BOX	BW CASING CAP (BOX THREAD)
108-06-NT	BW CASING CAP (NO THREAD)
108-07	AW CASING CAP
108-08	NW CASING CAP
108-08-BOX	NW CASING CAP (BOX THREAD)
108-08-NT	NW CASING CAP (NO THREAD)
108-48	HW CASING CAP
108-49	PW CASING CAP
108-50	HWT CASING CAP
108-57	PWT CASING CAP



Drilling & Exploration

Burlap - Bags / Square



Part Number	Description
18X28	BURLAP - 18" X 28" 7oz BAG
28X40	BURLAP - 28" X 40" 10oz BAG
10X10	BURLAP - 10"X10" 10oz SQUARE

Rags



T-Shirt Rags

T-Shirt Rags are perfect for a variety of applications. The rags are cut from recycled, cotton t-shirts.

Part Number	Description
80001999	25 lbs bag T-SHIRT RAGS MIXED

Filament Tape



Product Number	Size
37918	TAPE FILAMENT 24MMx55M

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PAGE: DE27

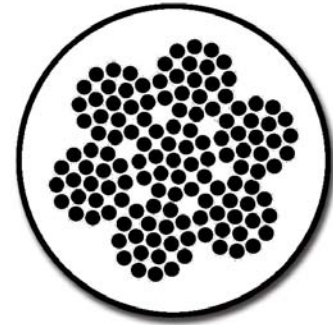
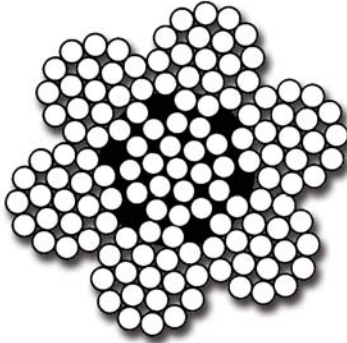
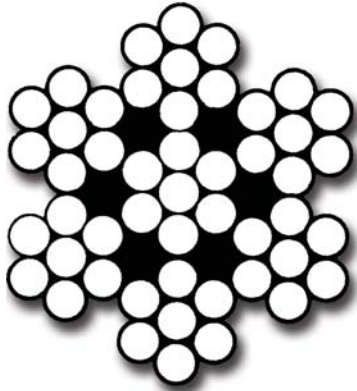


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Drilling & Exploration - Wireline

7 x 7 & 7 x 19 Cable

Wire rope orders are customized to your requirements. Contact us directly for price and delivery.



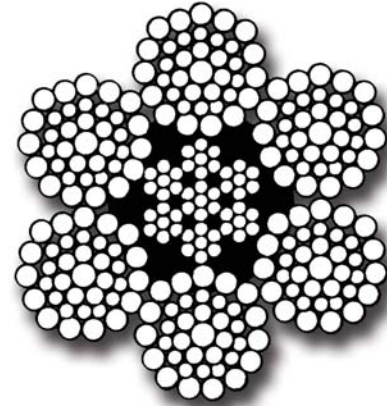
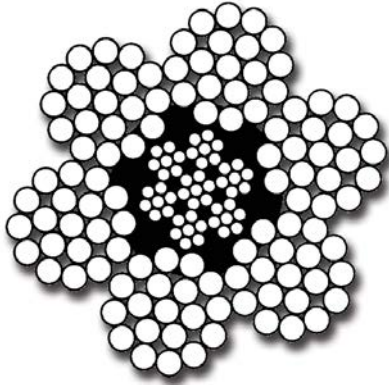
A general all purpose cable available galvanized, in stainless steel and PVC coated.

7 x 7 & 7 x 19 Galvanized Cable				7 x 7 & 7 x 19 Stainless Steel				7 x 7 & 7 x 19 PVC Coated Cable				
Rope Diam. (In.)	Typical Wire Rope Construction	Break Strength (Lbs.)	Approx. Weight (Lbs./100')	Rope Diam. (In.)	Typical Wire Rope Construction	Break Strength (Lbs.)	Approx. Weight (Lbs./100')	Diameter Inside	Diameter Outside	Typical Wire Rope Construction	Break Strength (Lbs.)	Approx. Weight (Lbs./100')
1/16	7 x 7	480	0.75	1/16	7 x 7	480	0.75	1/16	3/32	7 x 7	480	0.99
3/32	7 x 7	920	1.60	3/32	7 x 7	920	1.60	3/32	1/8	7 x 7	920	1.94
1/8	7 x 7	1700	2.85	1/8	7 x 7	1700	2.85	3/32	3/16	7 x 7	920	1.94
1/8	7 x 19	2000	2.90	5/32	7 x 19	2800	4.50	1/8	5/32	7 x 7	1700	3.28
5/32	7 x 19	2800	4.50	3/16	7 x 19	4200	6.50	1/8	3/16	7 x 19	3000	3.86
3/16	7 x 19	4200	6.50	1/4	7 x 19	7000	11.00	3/16	1/4	7 x 19	4200	9.58
1/4	7 x 19	7000	11.00	5/16	7 x 19	9800	17.30	1/4	5/16	7 x 19	7000	14.86
5/16	7 x 19	9800	17.30	3/8	7 x 19	14400	24.60	5/16	3/8	7 x 19	9800	19.42
3/8	7 x 19	14400	24.60					3/8	1/2	7 x 19	14400	29.70



6X19 & 6X36

Wire rope orders are customized to your requirements. Contact us directly for price and delivery.



6 x 19 Class Wire Rope

The 6 x 19 classification of wire rope is the most widely used. It has good flexibility and wear resistance. It can be suited to the specific needs of diverse kinds of machinery and equipment. Common applications include wire rope slings, boom pendants, winch lines, and hoist ropes.

Class 6 x 19 wire ropes are **not** rotation resistant; do **NOT** attach a swivel as the rope will unlay itself.

Larger diameters are available on request.

Fiber Core is available on request.

Specifications:

Strands: 6	Lay: Regular
Wires/Strand: 15 to 26	Compaction: N/A
Core: IWRC	Finish: Bright
Standard Grade: EIPS	

6 x 19 IWRC EIPS Wire Rope			
Rope Diam. (In.)	Typical Construction	Break Strength (Lbs.)	Approx. Weight (Lbs./100')
3/8	6 x 19	7.55	0.26
7/16	6 x 19	10.20	0.35
1/2	6 x 25	13.30	0.46
9/16	6 x 25	16.80	0.59
5/8	6 x 25	20.60	0.72
3/4	6 x 25	29.40	1.04
7/8	6 x 25	39.80	1.42
1	6 x 25	51.70	1.85
1 1/8	6 x 25	65.00	2.34
1 1/4	6 x 25	79.90	2.89
1 3/8	6 x 25	96.00	3.50
1 1/2	6 x 25	114.00	4.16

6 x 36 Class Wire Rope

The 6 x 36 class of wire rope is characterized by the relatively large number of wires used in each strand. Ropes of the class are among the most flexible available due to the greater number of wires per strand. However their resistance to abrasion is less than ropes in the 6 x 19 class. Common applications include North American overhead cranes and large diameter wire rope slings.

Larger diameters are available on request.

Fiber Core is available on request.

Class 6 x 19 wire ropes are **not** rotation resistant; do **not** attach a swivel as the rope will unlay itself

Specifications:

Strands: 6	Lay: Regular
Wires/Strand: 27 to 49	Compaction: N/A
Core: IWRC	Finish: Bright
Standard Grade: EIPS	

6 x 36 IWRC EIPS Wire Rope			Approx. Weight (Lbs./100')
Rope Diam. (In.)	Typical Construction	Break Strength(Lbs.)	
1/4	6 x 31	3.40	0.12
5/16	6 x 31	5.27	0.18
3/8	6 x 33	7.55	0.26
7/16	6 x 33	10.20	0.35
1/2	6 x 36	13.30	0.46
9/16	6 x 36	16.80	0.59
5/8	6 x 36	20.60	0.72
3/4	6 x 36	29.40	1.04
7/8	6 x 36	39.80	1.42
1	6 x 36	51.70	1.85
1-1/8	6 x 36	65.00	2.34
1-1/4	6 x 36	79.90	2.89
1-3/8	6 x 36	96.00	3.50
1-1/2	6 x 36	114.00	4.16

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Drilling & Exploration - Subs

Sub, Water Swivel & Hoisting Plug



Part Number	Description
-------------	-------------

93-51-200	SUB EW R/P TO BW/L R/P
93-51-201	SUB AW R/P TO BW/L R/P
93-51-202	SUB AW R/P TO NW/L R/P
93-51-203	SUB AW R/P TO HW/L R/P
93-51-204	SUB AW R/P TO HWT R/P
93-51-211	SUB AW R/P TO BT R/P
93-51-212	SUB AW R/P TO NT R/P
93-51-214	SUB AW R/P TO HT R/P
93-51-215	SUB AW R/P TO HM R/P
93-51-301	SUB BW R/P TO BW/L R/P
93-51-302	SUB BW R/P TO NW/L R/P
93-51-303	SUB BW R/P TO HW/L R/P
93-51-304	SUB BW R/P TO HWT R/P
93-51-310	SUB BW R/P TO BT R/P
93-51-311	SUB BW R/P TO NT R/P
93-51-312	SUB BW R/P TO NM R/P
93-51-313	SUB BW R/P TO HT R/P
93-51-401	SUB NW R/P TO NW/L R/P
93-51-402	SUB NW R/P TO HW/L R/P
93-51-411	SUB NW R/P TO NT R/P
93-51-413	SUB NW R/P TO HT R/P

Sub, Wedging and Fishing Tools



Part Number	Description
-------------	-------------

93-55-300	SUB BW/L R/B TO EW R/P
93-55-301	SUB BW/L R/B TO AW R/P
93-55-302	SUB BW/L R/B TO BW R/P
93-55-315	SUB BW/L R/B TO AX R/P
93-55-310	SUB BT R/B TO EW R/P
93-55-311	SUB BT R/B TO AW R/P
93-55-312	SUB BT R/B TO BW R/P
93-55-401	SUB NW/L R/B TO AW R/P
93-55-401LG	SUB NW/L R/B TO AW R/P LRG BOR
93-55-402	SUB NW/L R/B TO BW R/P
93-55-402LG	SUB NW/L R/B TO BW R/P LRG BOR
93-55-403	SUB NW/L R/B TO NW R/P
93-55-417	SUB NW/L R/B TO NX R/P
93-55-411	SUB NT R/B TO AW R/P
93-55-412	SUB NT R/B TO BW R/P
93-55-413	SUB NT R/B TO NW R/P
93-55-501	SUB HW/L R/B TO AW R/P
93-55-502	SUB HW/L R/B TO BW R/P
93-55-503	SUB HW/L R/B TO NW R/P
93-55-511	SUB HT R/B TO AW R/P
93-55-512	SUB HT R/B TO BW R/P
93-55-513	SUB HT R/B TO NW R/P
93-55-611	SUB HWT R/B TO AW R/P
93-55-612	SUB HWT R/B TO BW R/P
93-55-613	SUB HWT R/B TO NW R/P



Drilling & Exploration - Sub Parts

Sub, Casing



Part Number

Description

93-56-300	SUB BW/L R/B TO AW CSG/P
93-56-301	SUB BW/L R/B TO BW CSG/P
93-56-302	SUB BW/L R/B TO NW CSG/P
93-56-310	SUB BT R/B TO AW CSG/P
93-56-311	SUB BT R/B TO BW CSG/P
93-56-312	SUB BT R/B TO NW CSG/P
93-56-320	SUB BW CSG/B TO N BIT-THRD/P
93-56-321	SUB BW CSG/B TO NW/L R/P
93-56-322	SUB BW CSG/B TO NTW R/P
93-56-400	SUB NW/L R/B TO BW CSG/P
93-56-401	SUB NW/L R/B TO NW CSG/P
93-56-402	SUB NW/L R/B TO HWT CSG/P
93-56-410	SUB NT R/B TO BW CSG/P
93-56-411	SUB NT R/B TO NW CSG/P
93-56-412	SUB NT R/B TO HWT CSG/P
93-56-420	SUB NW CSG/B TO H BIT-THRD/P
93-56-421	SUB NW CSG/B TO HW/L R/P
93-56-422	SUB NW CSG/B TO HWT CSG/P
93-56-500	SUB HW/L R/B TO NW CSG/P
93-56-501	SUB HW/L R/B TO HWT CSG/P
93-56-502	SUB HW/L R/B TO PWT CSG/P
93-56-510	SUB HT R/B TO NW CSG/P
93-56-511	SUB HT R/B TO HWT CSG/P
93-56-512	SUB HT R/B TO PWT CSG/P
93-56-601	SUB HWT CSG/B TO PWT CSG/P
93-56-620	SUB HWT CSG/B TO PWL/BIT THRD
93-56-621	SUB PWT CSG/B TO PW CSG/P
93-56-622	SUB PW CSG/B TO PWT CSG/P

Sub, Rod



Part Number

Description

93-52-100	SUB EX R/B TO EW R/P
93-52-101	SUB EX R/B TO EW R/B
93-52-200	SUB AW R/B TO EW R/P
93-52-201	SUB AW R/B TO BW R/P
93-52-202	SUB AW R/B TO AX R/P
93-52-210	SUB AX R/B TO AW R/P
93-52-300	SUB BW R/B TO AW R/P
93-52-301	SUB BW R/B TO NW R/P
93-52-400	SUB NW R/B TO BW R/P
93-52-410	SUB NX R/B TO BW R/P
93-52-412	SUB NT R/B TO NW/L R/P
93-53-100	SUB EW R/P TO EW R/P
93-53-200	SUB AW R/P TO AW R/P
93-53-201	SUB AW R/P TO BW R/P
93-53-210LG	SUB AX R/P TO AW R/P LRG BORE
93-53-300	SUB BW R/P TO BW R/P
93-53-301	SUB BW R/P TO NW R/P
93-53-400	SUB NW R/P TO NW R/P
93-53-410	SUB NX R/P TO BW R/P

** R/B = Rod Box R/P = Rod Pin **

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PAGE: DE31



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Drilling & Exploration - Rods/Couplings

Conventional Rods and Couplings Parts Lists

Conventional Rods

Part Number **Description**

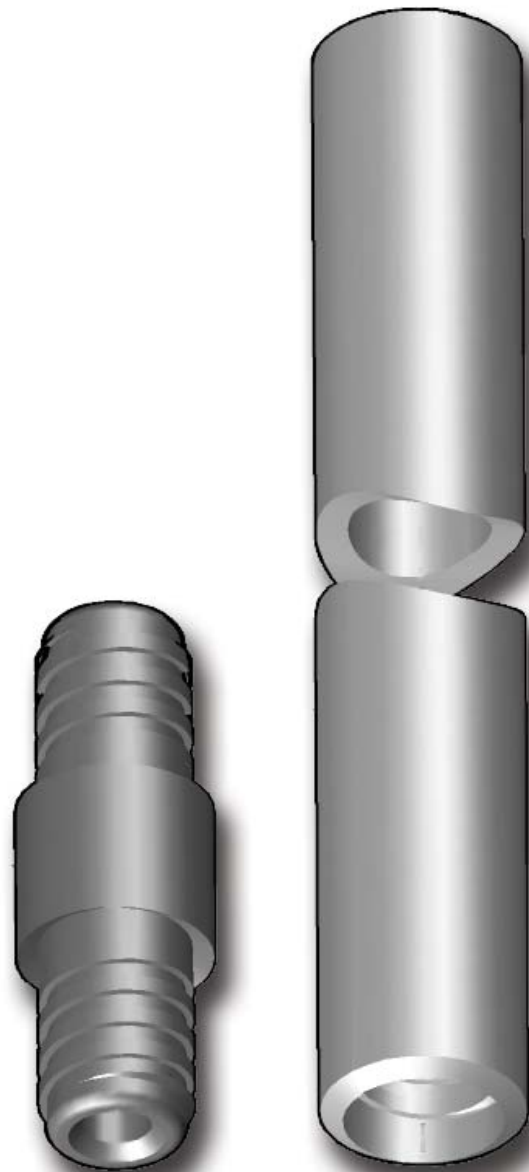
91-10-102	ROD EW 2'
91-10-105	ROD EW 5'
91-10-110	ROD EW 10'
91-10-201	ROD AW 1'
91-10-202	ROD AW 2'
91-10-204	ROD AW 4'
91-10-205	ROD AW 5'
91-10-206	ROD AW 6'
91-10-210	ROD AW 10'
91-10-211	ROD AW 11'4"
91-10-212	ROD AW 12'
91-10-202X	ROD AX 2'
91-10-204X	ROD AX 4'
91-10-205X	ROD AX 5'
91-10-210X	ROD AX 10'
91-10-211X	ROD AX 11'4"
91-10-301	ROD BW 1'
91-10-302	ROD BW 2'
91-10-305	ROD BW 5'
91-10-310	ROD BW 10'
91-10-401	ROD NW 1'
91-10-402	ROD NW 2'
91-10-405	ROD NW 5'
91-10-410	ROD NW 10'

Rod Couplings

Part Number **Description**

91-10-119	EW ROD CPLG
91-10-219	AW ROD CPLG
91-10-219LG	AW ROD CPLG LARGE BORE
91-10-219X	AX ROD CPLG LARGE BORE
91-10-319	BW ROD CPLG
91-10-319LG	BW ROD CPLG LARGE BORE
91-10-419	NW ROD CPLG
91-10-419LG	NW ROD CPLG LARGE BORE

Conventional Rods and Couplings Pictures



Rod Description

Rods are available in various lengths (from 1' - 12') and thread profiles.

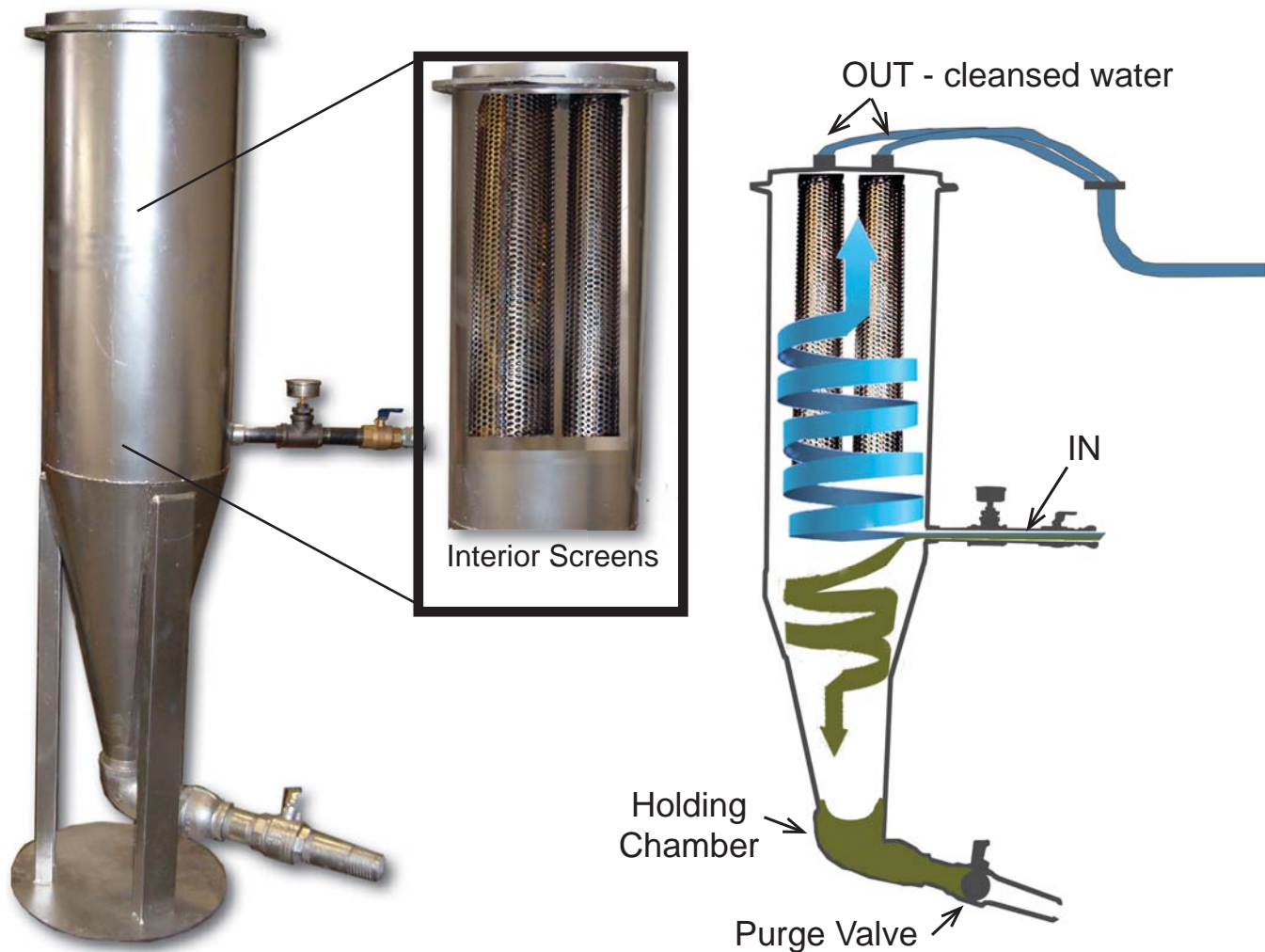
If you don't see the thread profile you are looking for, we have it, please contact us at **1-800-669-3542** or email **info@timeltd.ca**.



Drilling & Exploration - Sludge Collector

Sludge Collector

Sludge Collectors are devices that utilize centrifugal forces and low pressure caused by spinning motion to separate materials of differing density, size, and shape. They are popular because they are simple and inexpensive to operate, require little maintenance and contain no moving parts.



Working Principle: Contaminated water passes through the separator in a high velocity circular motion. Centrifugal force slings the particulates, sand, debris, and sludge outward to the collectors wall and downward. Gravitational force pulls the sludge downward into the solids holding chamber. Cleansed water then rises through the vortex locator and returns back to the system.

The Sludge Collector has no slotted baffles, moving parts or filter media to cause unnecessary pressure loss. No maintenance is required; however periodic opening of the purge valve is necessary to dispose of unwanted sludge.

Description	Part Number
Sludge Collector	92-1007

North America 1-800-669-3542
International +1-705-647-8138

PAGE: DE33



www.time ltd.ca

Drilling & Exploration

Waterline Heater

WATERLINE HEATER

Waterline Heaters come fully assembled and are available in two styles: propane or diesel oil.

Features:

- heavy duty construction
- horizontal water tank heater
- sleigh-mounted
- heat exchanger for high efficiency
- tested to 100 PSI water pressure
- light - easily transported and installed
- fully insulated housing

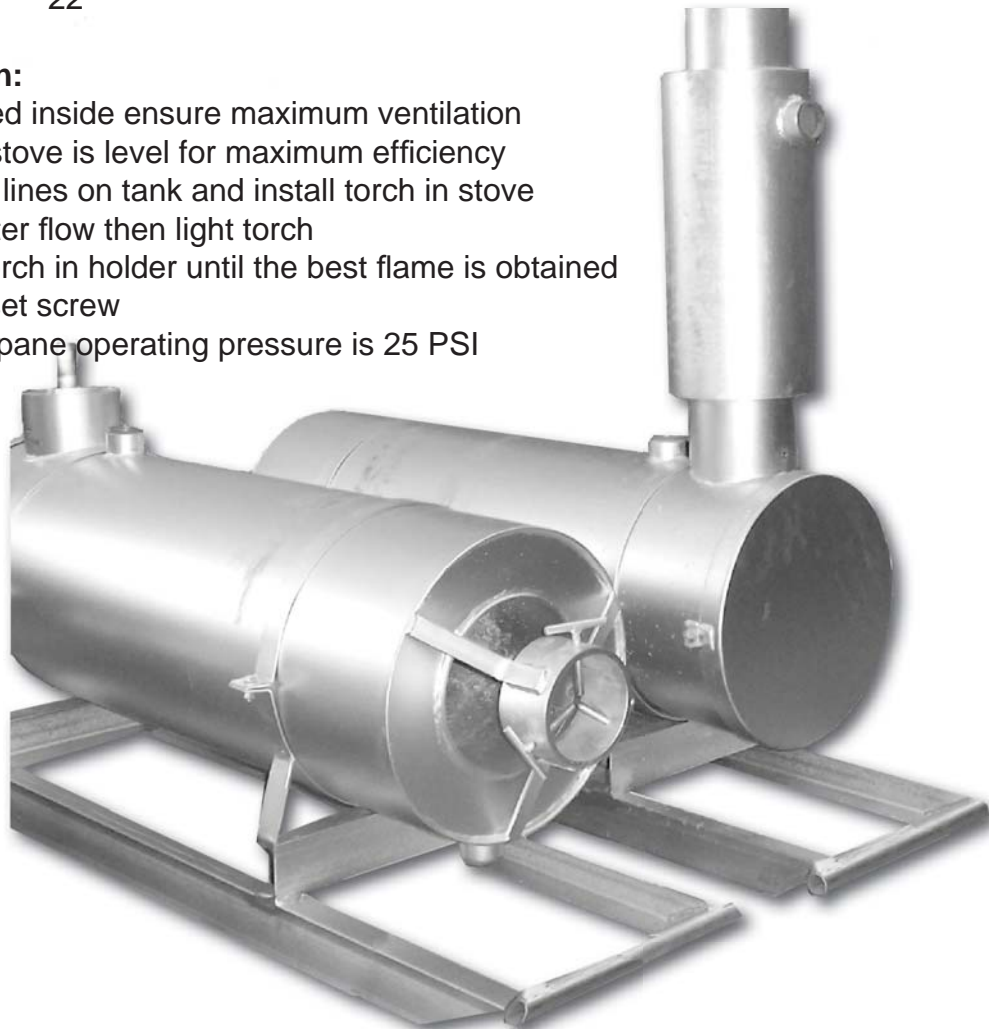
Specifications:

- Weight: 190 lbs/ 86 Kg
- Length: 47"
- Height: 27"
- Width: 22"

Easy Installation:

- if installed inside ensure maximum ventilation
- ensure stove is level for maximum efficiency
- hook up lines on tank and install torch in stove
- start water flow then light torch
- adjust torch in holder until the best flame is obtained
- tighten set screw
- best propane operating pressure is 25 PSI

Description	Part Numbers
Propane powered Waterline Heater	13009
Diesel powered Waterline Heater	13015
Tiger Torch Regulator	GR330
Tiger Torch with thermo couple	FT15-500SV

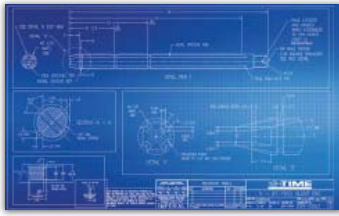




Manufacturing and Fabrication

Design and Innovation

The TIME team takes pride in providing customers with quality products and the absolute best service with a personal touch.



Not only does TIME distribute a number of quality product lines, we also manufacture a number of our own core products. In conjunction with our fabrication and machining capabilities, we have a team that has well over 250 years of experience in the mining, diamond drilling, and various industrial sectors. With the technical knowhow, we offer design capabilities specifically focused on new product development, innovative design, and problem solving.

We can manufacture to your requirements, or provide complete design and drafting expertise in-house.

RESPONDING TO CUSTOMER NEEDS

Our mandate is to exceed our customer's expectations.
Peter R. Henderson, President

MACHINING

TIME Limited's machining shop uses a combination of heavy duty, big and small bore lathes, CNC milling machines, CNC lathes and conventional lathes.



Here are some of our featured equipment and capabilities:



Hurco TM-18 Heavy Duty Lathe

- a. Bar Capacity: 6.4 inch bar capacity
- b. Turning Diameter: 25 inch max
- c. Turning Length: 39.4 inch max
- d. Travel: 17x, 40z inch
- e. Quick Change air collect chuck system



Hurco VMX50 Milling Machine

- a. 3-axis milling machine
- b. Travel: 50 x 26 x 24 inch
- c. Table Size: 59 x 26 inch
- d. Tool Capacity: 30 CAT 50
- e. Magnetic Material Holder



Nakamura-Tome WT300MMYS

- a. 9-axis, 2 turret multitasking machining
- b. Bar Capacity: 65mm (l) and 102mm (r)
- c. Turning diameter: 270mm max turning
- d. Turning length: 780mm max
- e. Quick Change air collect chuck system
- f. Chip Blaster GV2.40 high pressure coolant system

Other Machines include: CNC lathes such as ROMI M27 heavy duty big bore lathe and ROMI M20 small bore lathe, as well as a host of conventional lathes.

CNC milling machines such as MAZAK Fadal VMX4020FX mill, and FIRST LC-185v-B milling machine, as well as a host of conventional milling machines

Our Newest Toys!



TIME OFFICES

We supply mine-grade products, manufacture quality products, offer design, fabrication and custom machining, as well as sourcing. We are your one-stop shop for industrial needs.

Head Office

Haileybury Tel: 705-647-8138 Fax: 705-647-9800

Val d'Or Tél: 819-874-8138 Fax: 819-874-8139

Sudbury Tel: 705-524-8903 Fax: 705-524-9140

Timmins Tel: 705-268-8128 Fax: 705-268-5122

info@timeltd.ca www.timeltd.ca

FABRICATION

TIME Limited's welding and fabrication shop has full capabilities for custom work. Our shop includes a large plasma table, capable of cutting material up to 8' X 20', 2 10,000 lbs SMH Overhead Cranes, an AKBEND ASM-S 17 roller and a brand new, iBend CNC Hydraulic Press Brake.



Our welding shop is certified by the Canadian Welding Bureau annually.



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Serving the Mining Industry Since 1971

Manufacturing and Fabrication



Our brand new, State of the art, 40,000 Sq. ft. Manufacturing, Fabrication and Warehousing facility

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STOCKING WAREHOUSE



TIME Limited's philosophy is to stock what our customers need. If we don't have it, and you need it on a regular basis, just ask and we will do our best to add it to our ever-growing warehouse.

We carry everything from Health and Safety to Hand tools, mining and diamond drilling products, TIME branded hoses and Gates fittings.



TIME Limited also fixes or makes your hydraulic hoses while you wait.



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International +1-705-647-8138

PAGE: DE36



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