

MERIDIAN

EQUIPMENT, INC.



Outside Diameter
Mount Facing Machine

Specialized Portable Machining Equipment

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Disclosure

MERIDIAN EQUIPMENT INC. provides the following information in good faith as a guideline to the operator. MERIDIAN EQUIPMENT INC. does not guarantee that the information or procedures contained in this manual will be correct for all possible applications. The contents of this manual are subject to revision without notice.

Do not make any modifications to the MERIDIAN EQUIPMENT INC. equipment. Modifications made without MERIDIAN EQUIPMENT INC's. written permission may void the warranty as well as increase the risk of serious injury.

About Meridian Equipment, Inc.

MERIDIAN EQUIPMENT INC. has experience in the design, development, and manufacture of portable machine tools. All tools are designed to meet the highest quality, safety, and performance standards, and are backed by a company committed to service and integrity. Our factory trained service technicians are available for on-site operation training. We provide custom engineering and modifications to our standard products for our customers' special applications.

Contact Information

Please contact us for more information or to schedule a Meridian Equipment, Inc. representative to visit your facility.

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Serial Number

Be sure to include this serial number in all correspondence regarding your Outside Diameter Mount Facing Machine.

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Safety Precautions



Read this manual and understand the operating procedures BEFORE attempting any machine operations. Failure to follow all instructions listed below may result in serious personal injury and/or damage to equipment.

- Wear protective clothing, including safety glasses and steel-toe boots.
- Keep loose clothing or long hair away from machine operations.
- Keep work area and machine clean and free of debris.
- Support the work piece for the total machine weight.
- Before connecting the energy source to the machine, ensure that all components are tightly secured.
- During actual operation of the machine, do not touch or rest any part of your body on or near any moving parts or sharp edges.
- Disconnect any potential energy sources before mounting, dismounting or moving the machine.



When using rotating head cutting equipment, all basic safety precautions should always be followed to reduce the risk of personal injury.

- Pneumatic tools should always be installed and used in accordance with A.N.S.I. B186.1 “Safety Code For Portable Air Tools.”
- Operate this tool at 90 p.s.i.g. (6.2 bar) maximum air pressure at the air inlet of the tool.
- Disconnect the air supply from the tool before removing or installing any bit, socket or device attached to the tool before performing maintenance procedures.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep hands, clothing, jewelry and long hair away from the rotating end of tool.
- Never exceed the rated r.p.m. of the tool.
- Always keep the safety line attached to the machine to eliminate the possibility of dropping the machine.

Overview

The Meridian Equipment, Inc. outside diameter mounted facing machine is designed to perform surfacing, facing, beveling, and counterboring.

The various interchangeable fixed and adjustable jaws allow for the greatest range and diversity in mounting, and adjusting the machine for the best possible machining results. Backside attachment is possible for machining both sides of a work piece.

The standard and optional drives and compounds, in conjunction with the adjustable and fixed jaws, ensure fast, accurate and trouble-free operation.

Machine Specifications

Specification	Reference
Physical Dimensions	Refer to page 12 for machine dimensions, weight, shipping dimensions, shipping weight and mounting block information.
Energy Requirements	Pneumatic, electric, or hydraulic
Tooling	Please contact your Meridian Equipment, Inc. sales representative for tooling requirements.

Standard Components

Specification	Reference	Description
Frame	Page 14	The frame is a welded steel assembly to which all other components are attached. The frame is a rigid structure designed to handle the linear and rotational forces generated during shipping, handling, setup and the machining process. Distortion of the frame by forces other than those it is designed to handle will drastically shorten the life of the product.

Ring	Page 14	The ring accepts the torsional forces developed by the drive assembly and transfers this energy to the cross bar and ultimately to the work piece. The ring assembly with its counter-weighted design provides smooth chatter free operation.
Cross Bar	Page 14	The cross bar assembly transfers the rotational energy from the ring to the compound and machine tool. Its rigid design allows for very precise placement and control of the cutting tool.
Jaws	Page 14	Jaws are of 2 varieties, fixed and adjustable. The adjustable jaws allow for straightforward and precise preliminary alignment of the machine to the work piece. The fixed mounting jaws provide outstanding holding strength once the machine is in position.
Drive System	Page 14	The standard drive system is composed of pneumatic motor, drive sheaves, belts and belt tensioners. Smooth operation of the machine begins with an exceptional drive system. Special drive sheave placement allows more power to be transmitted to the belts with much less chance of slippage. This results in faster, smoother cuts, with less drive system wear.
Compound	Page 14 Page 20	The compound allows movement of the tool holder and tool in 3 dimensions.
Tool Holder	Page 14 Page 20	The tool holder supplied with your machine provides the versatility needed for most machining jobs.
Rotating Lifting Eyes	Page 14	Rotating lifting eyes provide maximum flexibility and safety in the mounting and set up operations.

Lubricator	Page 22	The lubricator and associated hoses provide air regulation and lubrication to the pneumatic drive motors. Never operate your machine without an air caddy between the air supply and the motor.
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Optional Accessory Components

See your Meridian Equipment, Inc. sales representative for further information about the following items.

Specification	Description
Jaws	Both fixed and adjustable jaws are offered in 16" length to augment the capacity of your machine.
Extended Compounds	Extended compounds are available to enhance your ability to perform diverse machining tasks.
Drive Units	Hydraulic and Electric drive units are available. Please contact our office for more details.
Tool Holders	Tool holders may be substituted to give your machine more flexibility.
Back Side Attachment	Backside attachment allows machining of front and back-side of work piece.
Transport Rack	Transport racks serve a dual purpose. Besides providing a safe and secure method of handling and transport, they also provide the optimum way to store your machine without fear of distortion and damage.
Tool Kits	Tool kits specifically designed for your machine.

Set Up and Operation _____

Machine Set Up

The following explains the steps to set up your Meridian Outside Diameter Mount Facing Machine. Complete all steps using safe work practices. It is important to use properly inspected and maintained lifting equipment. See pages 12-13 for machine specifications.



TO SET UP THE OUTSIDE DIAMETER MOUNT FACING MACHINE

1. Determine the workpiece diameter.
2. Adjust the machine jaws (according to workpiece diameter) to allow machine jaws to capture the work piece.



Do not remove support rigging until machine is completely secured by all fixed and adjustable jaws. It is important to isolate equipment while indicating. Do NOT hammer on the machine. Doing so will invalidate Meridian Outside Diameter Mount Facing Machine warranty.

3. Position the machine onto workpiece. Use the adjustable jaws, only, while positioning.
4. Adjust the machine parallel to the workpiece. Measure from the workpiece to the top of the rotating ring at the jaw locations, to get within range of the adjustable jaws.
5. Use indicators mounted 180° apart on the rotating ring. Zero the indicators positioned over one set of adjustable jaws, and then rotate ring 180°. While monitoring the indicators you may adjust the machine using the adjustable jaws. Make sure they are both moving in the appropriate direction evenly. Move to the adjustable jaws that are 90° from the first set. Repeat this process until you have achieved the desired alignment.
6. Once you have achieved final alignment to the work piece, lock the machine into place, using the fixed jaws.



Be careful not to overtighten.

7. After all machine jaws have been tightened, verify alignment before you operate the machine. Check alignment periodically during machine operation

Machine Operation

Setting The Cutting Tool



Use appropriate cutting oil considering work piece material and tooling.



TO SET THE CUTTING TOOL

1. Select the appropriate tooling for the workpiece and task.
2. Fasten the tool to the tool holder.
3. Using an indicator, determine the high point on the work surface. Position the tool over this high point.
4. Using the compound, acquire touch off with the cutting tool to the work piece high point to establish “0”.
5. Using the cross slide, move the cutting tool off of the work piece.
6. Using the dial indicator, dial the cutting tool to desired cut.

Making The Cut



TO MAKE THE CUT

1. Turn on the power source to the equipment.
2. For each rotation of ring, dial the cross slide adjustment knob the appropriate amount to obtain the required surface finish (1/4 turn, 1/2 turn, 3/4 turn, full turn, etc.).
3. Repeat the above steps until you achieve desired results.

Removing The Machine



Clean removed material and remove sharp edges from work piece using proper PPE and caution.



TO REMOVE THE MACHINE

1. Disconnect the energy source from the machine and remove cutting tool.
2. Secure the machine with the appropriate lifting device before loosening any jaws.
3. Loosen all fixed and adjustable jaws, and then remove the machine.

Maintenance

General



Use EXTREME caution when working around or near moving parts

- Before each use clean and inspect entire machine
- During each use minimize debris and liquids from roller and belt area.
- After each use thoroughly clean and inspect the entire machine

Belts

Adjusting the belts

1. Remove the belt guard.
2. Using a ¼ hex key tighten or loosen the Take Up Roller's adjustment screw to achieve desired belt tension
3. Re-Install belt guard.

Replacing the belts

1. Remove the driver (i.e. air motor)
2. Remove the belt guard
3. Loosen the Take Up Slide Plate Mounting Screws.
4. Loosen the Take Up Roller adjustment screws evenly until belts become loose.
5. Remove the Drive End Cover Plate
6. With the drive system exposed remove the belts one at a time.
7. Clean the ring's belt groove thoroughly leave dry & oil free.
8. Install new belts in the same order in which they were removed.
9. With all new belts installed and Take Up Rollers Loosened install the Drive End Cover Plate and secure.
10. Adjust Take Up Rollers evenly until desired belt tension is achieved.
11. Tighten the Take Up Slide Plate Mounting Screws.

Rollers



*Adjusting the Rollers requires the machine to be running. Use **EXTREME** caution when working around or near moving parts*



WHEN DOES A ROLLER NEED TO BE ADJUSTED?

A ROLLER SHOULD BE ADJUSTED WHEN IT IS MAKING INTERMITTANT CONTACT AND DOES NOT ROLL 100% DURING ONE REVOLUTION OF THE RING

Adjusting Rollers

1. With the machine running at a low RPM place the roller adjustment socket tool on the hex head cam adjustment. **BE AWARE OF THE CROSS ARM & COMPOUND WITH EVERY REVOLUTION.**
2. Insert the hex key T-handle through the socket tool to the Roller mounting screw.
3. Holding the socket tool firmly, slightly loosen the Roller mounting screw using the hex key T-handle.
4. Turn the roller cam adjustment clockwise until the roller just makes contact with the ring.
5. Tighten the Roller mounting screw with the T-handle.

Replacing Rollers

1. Remove the guards if needed.
2. Place the roller adjustment socket tool on the hex head cam adjustment.
3. Insert the hex key T-handle through the socket tool to the Roller mounting screw.
4. Holding the socket tool firmly, slightly loosen the Roller mounting screw using the hex key T-handle and remove roller assembly.
5. Clean mounting area for Rollers.
6. Install new roller assembly.
7. Reference “Adjusting Rollers”

Mounting Blocks

General

1. Using the adjustment Screw operate the block to its full extension.
2. Clean and lubricate with light oil.

Compound

1. Clean and lubricate with light oil.

Troubleshooting _____

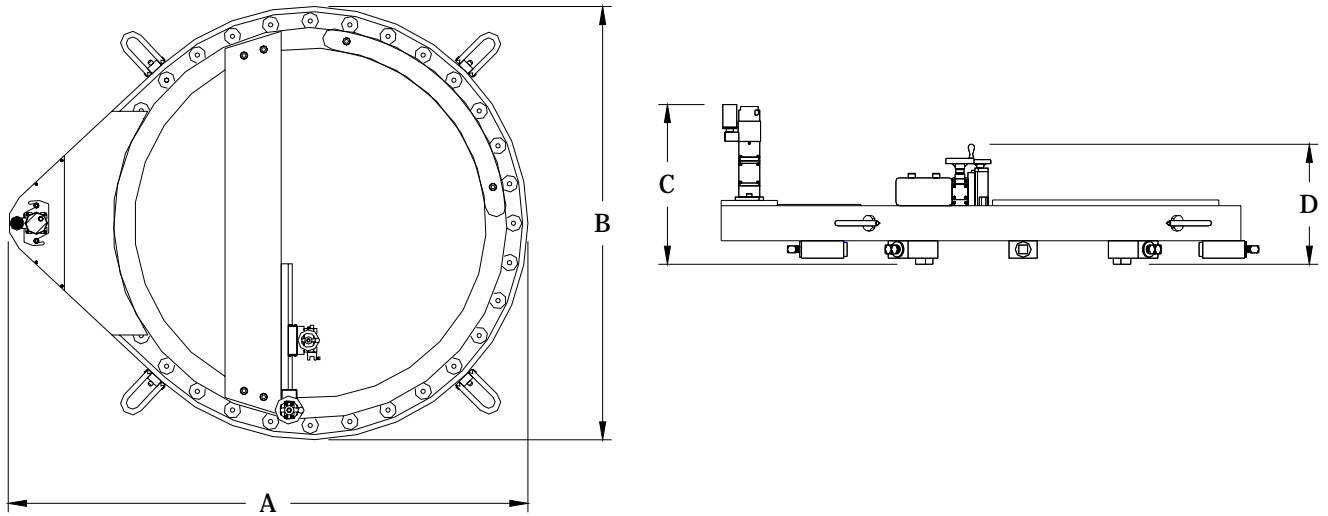


*Do not use a hammer on this machine.
Always use an air caddy with regulator and lubricator.
Check belt tension and wear every 3 hours of use.*

Problem	Possible Solution
Machine turns slow	<ul style="list-style-type: none">• Energy source insufficient• Improper set up
Belt is slipping	<ul style="list-style-type: none">• Belt needs tension adjustment• Belt contamination. Belt should be dry at all times
Finish is not what I want	<ul style="list-style-type: none">• Tooling improper or worn• Feed/speed
Chatter on work surface	<ul style="list-style-type: none">• Way's on compound need adjustment• Tooling improper or worn

Machine Specifications

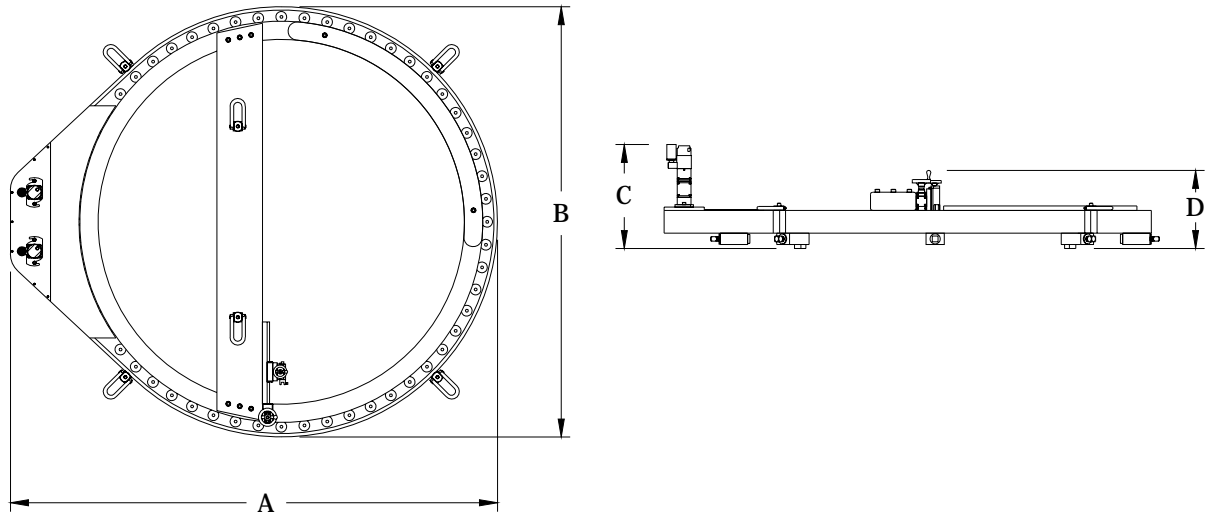
20" to 70"



Specifications

Model	A	B	C	D	Weight	Shipping Dimensions L x W x H	Shipping Weight	Jaws Fixed/Adj.
ODM 20"	39"	32"	22.875"	17"	600 lb	40" x 40" x 24"	700 lb	0 / 4
ODM 30"	49"	42"	22.875"	17"	950 lb	50" x 50" x 24"	1050 lb	0 / 4
ODM 40"	64"	52"	22.875"	17"	1250 lb	60" x 60" x 24"	1350 lb	0 / 4
ODM 50"	74"	62"	22.875"	17"	1450 lb	70" x 70" x 24"	1550 lb	4 / 4
ODM 60"	84"	72"	22.875"	17"	1650 lb	80" x 80" x 24"	1850 lb	4 / 4
ODM 70"	94"	82"	22.875"	17"	1850 lb	90" x 90" x 24"	2050 lb	4 / 4

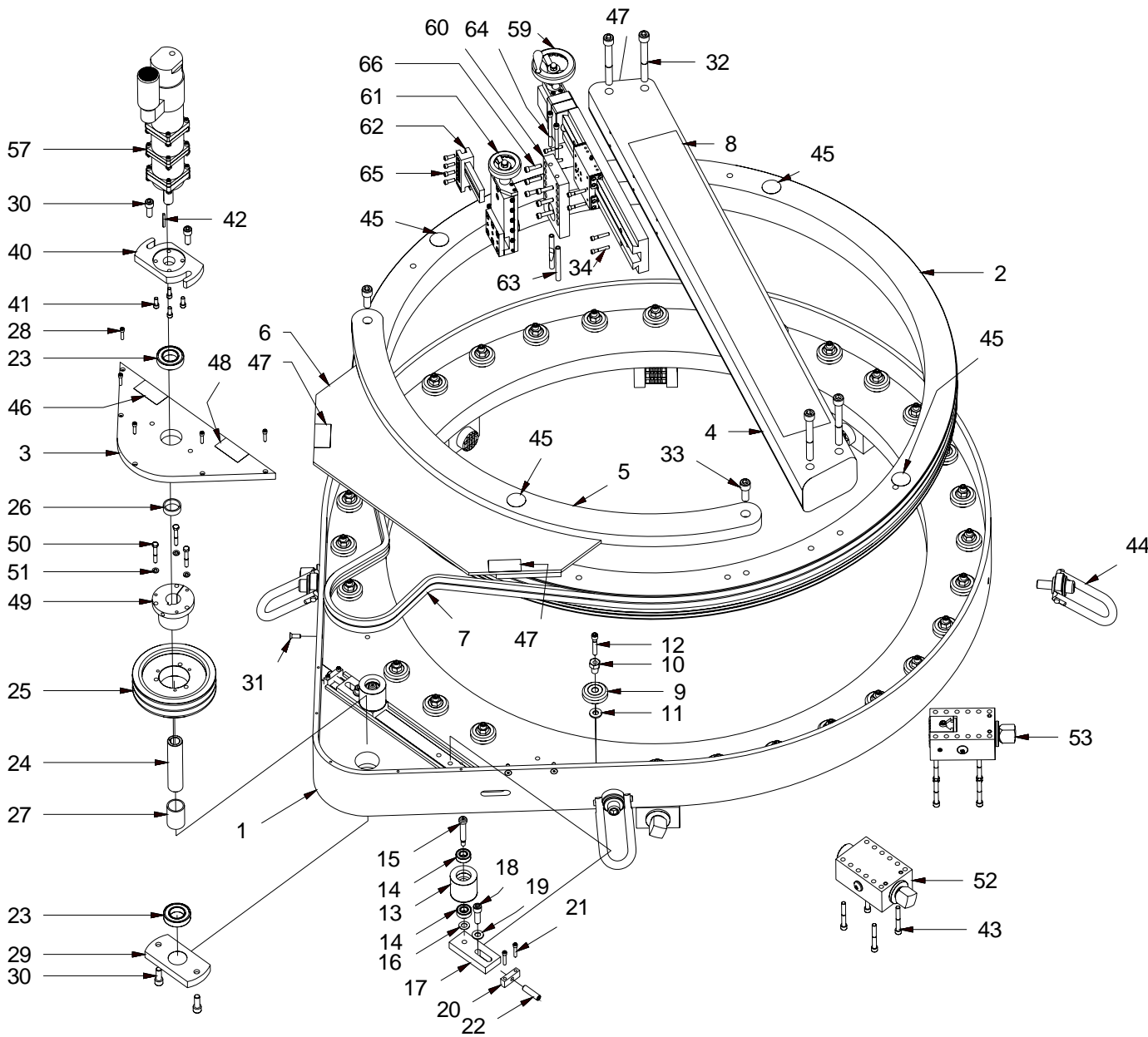
80" to 120"



Specifications

Model	A	B	C	D	Weight	Shipping Dimensions L x W x H	Shipping Weight	Jaws Fixed/Adj.
ODM 80"	106.5"	94.5"	22.875"	17"	3200 lb	126" x 90" x 90"	4200 lb	12 / 4
ODM 90"	116.5"	104.5"	22.875"	17"	3500 lb	126" x 90" x 90"	4500 lb	12 / 4
ODM 100"	126.5"	114.5"	22.875"	17"	3800 lb	126.5" x 90" x 90"	4800 lb	12 / 4
ODM 110"	136.5"	124.5"	22.875"	17"	4100 lb	136.5" x 90" x 92"	5100 lb	12 / 4
ODM 120"	146.5"	134.5"	22.875"	17"	4400 lb	146.5" x 90" x 102"	5400 lb	12 / 4

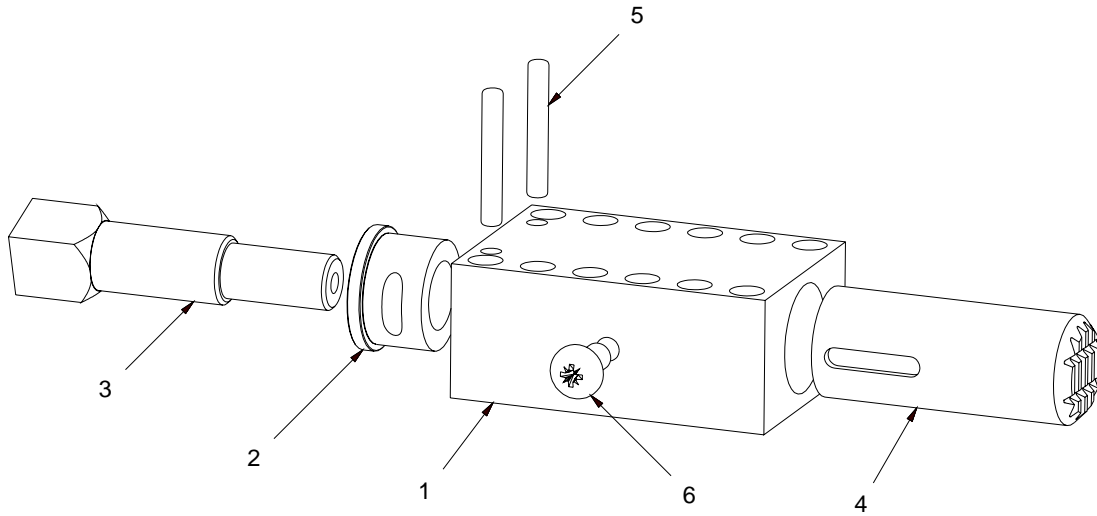
ODM 50



Parts List

ITEM	PART #	DESCRIPTION	QTY
1	1-050-001	ODM 50 Frame	1
2	1-050-002	ODM 50 Ring	1
3	1-050-003	ODM 50 Drive Cover Plate	1
4	1-050-004	ODM 50 Cross Arm	1
5	1-050-005	ODM 50 Counterweight	1
6	1-050-006	ODM 50 Guard	1
7	1-050-007	ODM 50 Belt	2
8	1-050-008	Meridian 50 Decal *Doc. 1-000-009	1
9	1-250-001	Roller W4	30
10	1-250-002	Roller Bushing	30
11	1-250-003	Roller Washer 3/8" x 1/8"	30
12	1-250-004	Roller Mounting 3/8" - 16 x 2" UNC socket head cap screw	30
13	1-250-006	Take Up Roller 2 1/2" 40" - 120"	2
14	1-250-008	Take Up Roller Bearing / Stationary / Adjustable	4
15	1-250-009	Take Up Roller 1/2" x 3/4" UNC socket head cap screw w/ 5/8" x 1 3/4" shoulder	2
16	1-250-010	Take Up Roller Washer 1/2" x .030"	2
17	1-250-012	Take Up Slide Plate 40" - 120"	2
18	1-250-014	Take Up Slide Plate Mounting 1/2" - 13 x 1 1/2" UNC socket head cap screw 40" - 120"	2
19	1-250-015	Take Up Slide Plate Screw Washer 1/2" x 3/16" 40" - 120"	2
20	1-250-017	Take Up Screw Block 40" - 120"	2
21	1-250-018	Hexagon Socket Head Cap Screw	4
22	1-250-019	Take Up 1/2" - 13 x 2" UNC socket set screw	2
23	1-250-020	Drive Pulley Bearing	2
24	1-250-021	Drive Shaft 10"-90"	1
25	1-250-023	Drive Pulley 40" - 120"	1
26	1-250-027	Drive Pulley Spacer Upper 40" - 120"	1
27	1-250-028	Drive Pulley Spacer Lower 40" - 120"	1
28	1-250-029	Drive Cover Plate Mounting 1/4" - 20 x 1" UNC socket head cap screw	5
29	1-250-030	Drive Bottom Cover Plate	1
30	1-250-031	Drive Motor Mounting / Drive Bottom Cover Plate Mounting 1/2" - 13 x 1 1/4" UNC SHCS	4
31	1-250-032	Guard Mounting 5/16" - 18 x 1" UNC flat head socket cap screw	4
32	1-250-033	Cross Arm Mounting 5/8" - 11 x 5" UNC socket head cap screw	4
33	1-250-034	Counter Weight Mounting 5/8" - 11 x 1 1/2" UNC socket head cap screw	2
34	1-250-035	Crossslide Mounting 1/4" - 20 x 1 1/2" UNC socket head cap screw	6
35	1-250-036	Drop Plate	1
36	1-250-037	Drop Plate Mounting 5/16" - 18 x 1 1/8" UNC socket head cap screw	6
37	1-250-038	Locking Pin	2
38	1-250-039	Locking Pin Take up 5/16" - 18 x 3 3/4" UNC socket head cap screw	2
39	1-250-040	Standard Tool Holder 1/4" - 20 x 3/4" UNC socket head cap screw	4
40	1-250-041	Drive Motor Mounting Plate	1
41	1-250-042	Drive Motor Mounting Plate 5/16" - 24 x 3/4" UNF socket head cap screw	4
42	1-250-044	Drive Motor Key 3/16" x 1 1/2"	1
43	1-250-045	Jaw Mounting 3/8" - 16 x 2 3/4" UNC socket head cap screw	32
44	1-250-046	Swivel Lifting Eye 10" - 90"	4
45	1-250-047	No Hammer Decal *Doc. 1-000-001	4
46	1-250-048	Do Not Operate Without Guards Decal *Doc. 1-000-002	1
47	1-250-049	Pinch Point Decal *Doc. 1-000-003	3
48	1-250-050	Eye Protection Required Decal *Doc. 1-000-004	1
49	1-250-059	Drive Pulley Hub	1
50	1-250-060	Drive Pulley 5/16" - 18 x 2" UNC Hex head cap screw	3
51	1-250-061	Drive Pulley Hub 5/16" Lock Washer	3
52	1-500-000	Standard Fixed Jaw *Doc. 1-000-106	4
53	1-525-000	Standard Adjustable Jaw *Doc. 1-000-107	4
54	1-600-000	Standard Compound Assembly *Doc1-000-105	1
55	1-625-000	Standard Tool Holder	1
56	1-650-000	Standard Crossslide *Doc 1-000-110	1
57	1-725-000	Pneumatic Drive Motor *Doc. 1-000-111	1

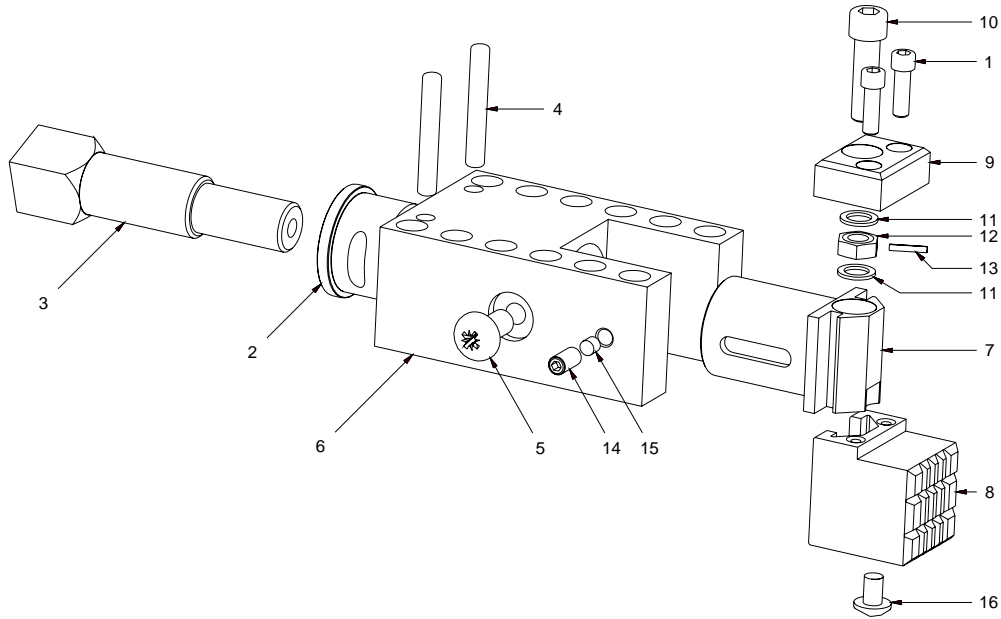
Standard Fixed Jaw



Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	1-500-001	Standard Fixed Block	1
2	1-500-002	Bushing	1
3	1-500-003	Standard Adjusting Screw	1
4	1-500-004	Cylinder	1
5	1-500-005	Dowell	2
6	1-500-006	Anti-rotation Machine Screw	1

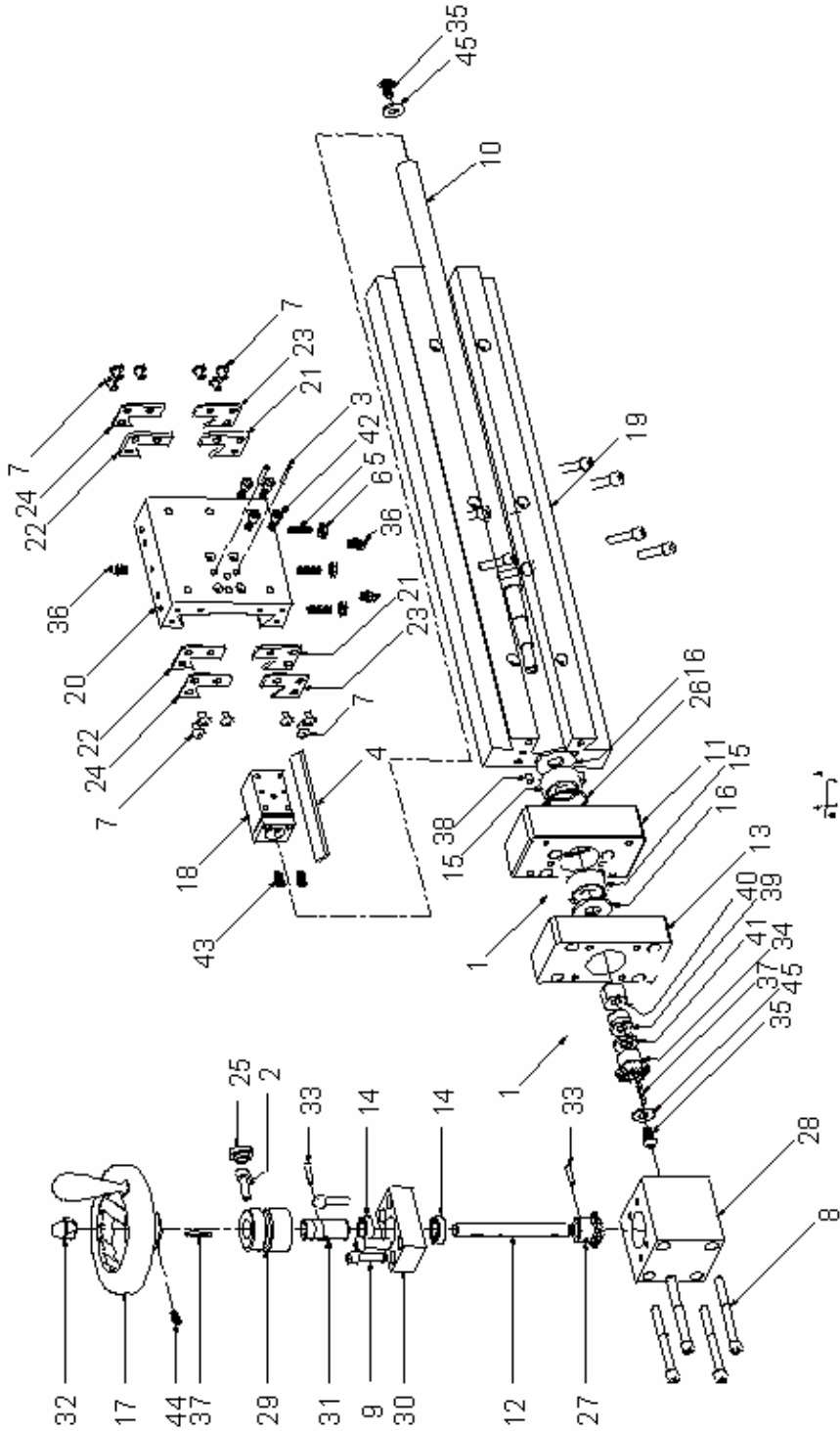
Standard Adjustable Jaw



Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	1-252-005	Thrust Plate Mounting Screw 5/16" - 18 x 3/4" UNC	2
2	1-500-002	Bushing	1
3	1-500-003	Standard Adjusting Screw	1
4	1-500-005	Dowell	2
5	1-500-006	Anti-rotation Machine Screw	1
6	1-525-001	Block	1
7	1-525-002	Male Dovetail Cylinder	1
8	1-525-003	Female Dovetail Block	1
9	1-525-004	Thrust Plate	1
10	1-525-006	Lead Screw	1
11	1-525-007	Thrust Washer	2
12	1-525-008	Lead Screw Nut	1
13	1-525-009	1/8" Roll Pin	1
14	1-525-010	Lock Socket Set Screw 3/8" - 24 x 1/2" UNC	1
15	1-525-011	Lock Screw Pad	1
16	1-525-012	Limit Pan Head Machine Screw 5/16" - 18 x 1/2" UNC	1

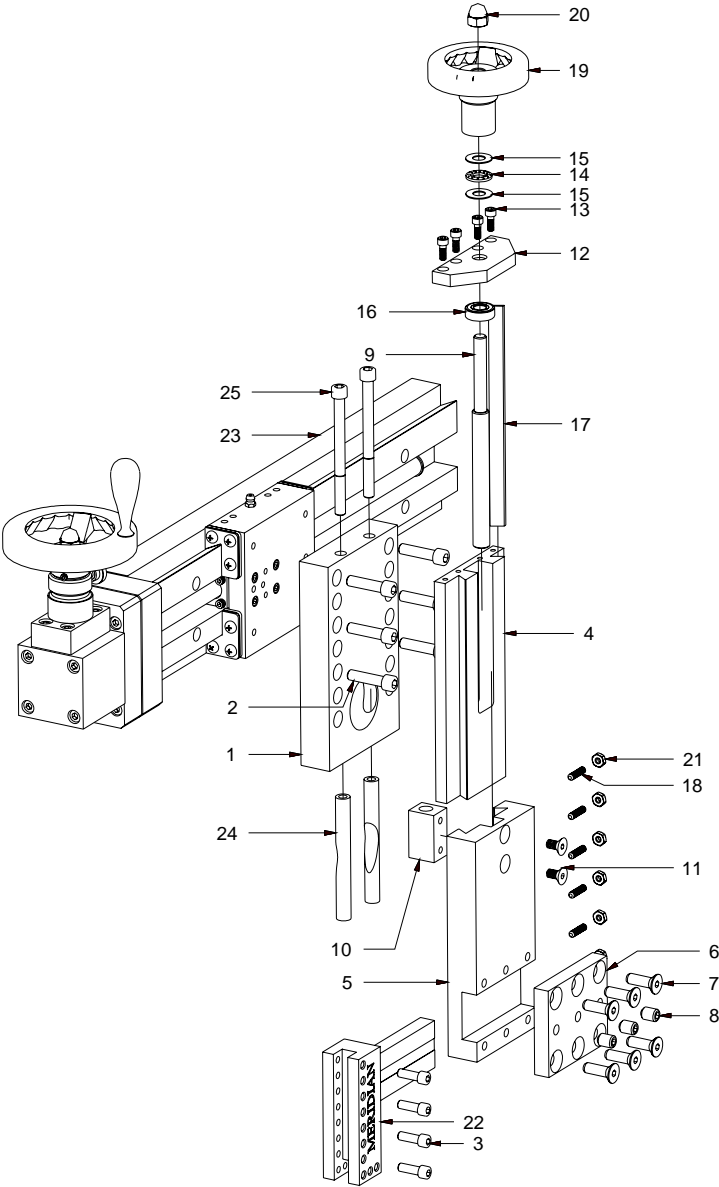
Crossslide



Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	1-250-029	1/4" - 20 x 1" UNC socket head cap screw	8
2	1-250-040	1/4" - 20 x 3/4" UNC socket head cap screw	1
3	1-525-009	1/8" Dowell Pin	2
4	1-600-014	Brass Gib	1
5	1-600-015	1/4" - 20 X 7/8" UNC Lg. Set Screw	3
6	1-600-018	1/4" - 20 UNC Gib Set Screw Nut	3
7	1-650-002	#10 x 3/8" Lg Button Head Screw	12
8	1-650-003	1/4" -20 x 2-1/2" UNC Lg. Socket Head Cap Screw	4
9	1-650-005	1/4" - 20 - 7/8" Socket Head Cap Screw	4
10	1-650-007	Leadscrew 5/8" - 10 Acme, RAF (PN#016588-15490)	1
11	1-650-008	Leadscrew Bracket DS4, RAF (PN#016588-15491)	1
12	1-650-010	Drive Mandrel (PN#016588-15493)	1
13	1-650-011	Spacer, DS4, RAF (PN#016588-15494)	1
14	1-650-012	Ball Bearing (PN#BE-0-10-001-0)	2
15	1-650-013	A2047 Cone, A2126 Cup (PN#BE-0-05-089, 090-0)	2
16	1-650-014	Dust Shield (PN# C-04-00-001-A)	2
17	1-650-015	Handwheel (PN# C-04-56-001-A)	1
18	1-650-017	Leadscrew Nut, DS4 (PN# D-04-14-001-A)	1
19	1-650-018	DS4 Base (PN# D-04-20-R018-6)	1
20	1-650-019	DS4 Saddle w/o Turcite (PN# D-04-30-R004-U)	1
21	1-650-020	DS10 Way Wiper RH (PN# D-04-97-001-3)	2
22	1-650-021	DS10 Way Wiper LH (PN# D-04-97-002-3)	2
23	1-650-022	DS10 Way Wiper Cover RH (PN# D-04-97-003-3)	2
24	1-650-023	DS10 Way Wiper Cover LH (PN# D-04-97-004-3)	2
25	1-650-024	Thumb Screw (PN# HC-0-03-013-0)	1
26	1-650-027	Retaining Ring	1
27	1-650-029	Bevel Gear (PN# SS-4-80-103-6) w/roll pin	1
28	1-650-030	Gear Housing (PN# SS-4-81-101-6)	1
29	1-650-031	Graduated Collar (PN# TS-6-77-102-6)	1
30	1-650-032	Mandrel Bearing Bracket (PN# SS-4-04-108-6)	1
31	1-650-033	Thrust Sleeve (PN# SS-6-62-102-6)	1
32	1-650-034	3/8" - 24 Acorn Nut (PN# TL-0-11-008-0)	1
33	1-650-036	1/8" x 5/8" Roll Pin	2
34	1-650-037	Bevel Gear w/ Key way	1
35	1-650-038	1/4" - 20 X 1/2" UNC Pan Head Socket Screw	2
36	1-650-039	Grease Nipple Straight	3
37	1-650-041	Mandrel Key	2
38	1-650-042	Lead Screw Bracket Dowell	2
39	1-650-043	Lead Screw Jam Nut	1
40	1-650-044	Lead Screw Nut	1
41	1-650-045	Lead Screw Washer	1
42	1-650-046	Lead Screw Nut SHCS #10-24 X 1/2"	4
43	1-650-047	Lead Screw Nut Set Screw 1/4"-20 X 1/2"UNC	2
44	1-650-048	#10 24 X 1/2" UNC Set Screw	1
45	1-650-049	1/4" HD Washer	2

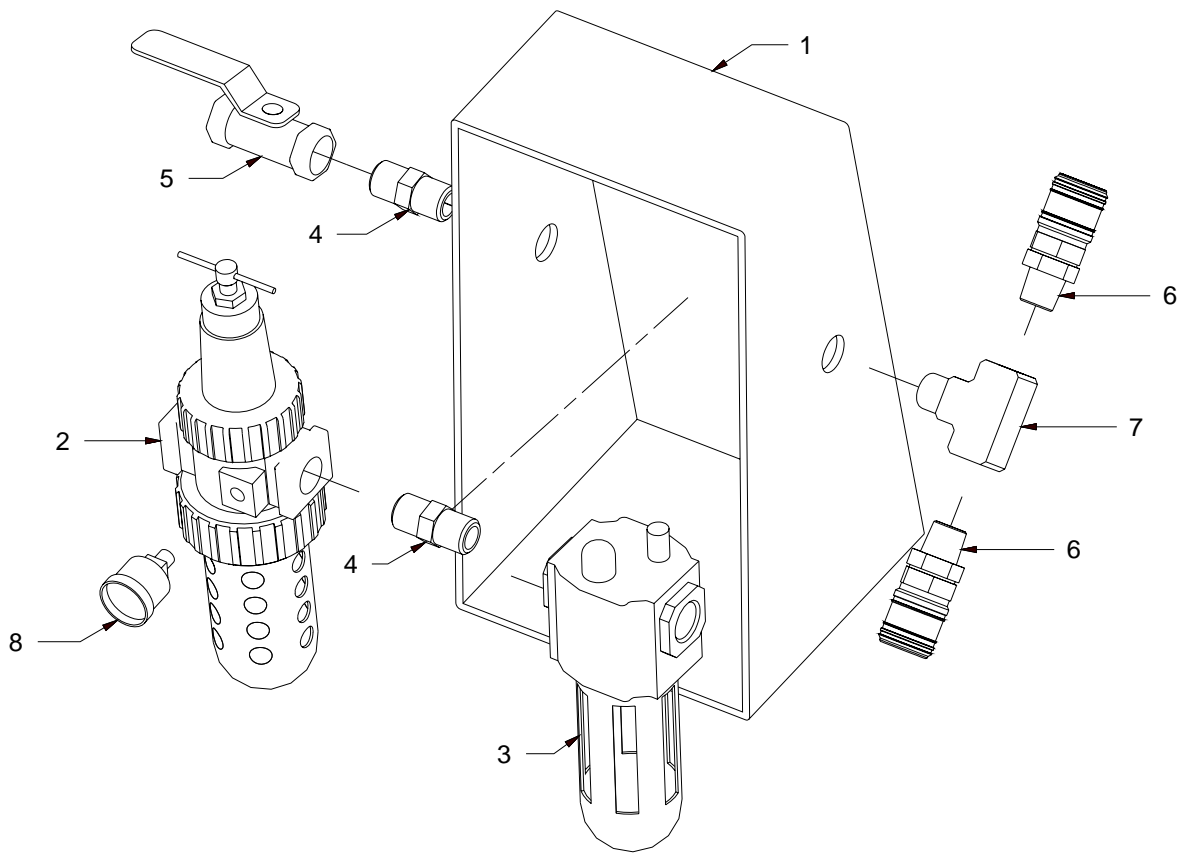
Crossslide, Drop Plate, Compound



Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	1-250-036	Drop Plate	1
2	1-250-037	Drop Plate Mounting 5/16" - 18 x 1 1/8" UNC Socket Head Cap Screw	6
3	1-250-040	Standard Tool Holder 1/4" - 20 x 3/4" UNC socket head cap screw	4
4	1-600-001	Back Plate	1
5	1-600-002	Front Plate	1
6	1-600-003	Cover Plate	1
7	1-600-004	Cover Plate Screw	6
8	1-600-005	Cover Plate Set Screw	3
9	1-600-006	Feed Screw	1
10	1-600-007	Feed Nut	1
11	1-600-008	Feed Nut Screw	2
12	1-600-009	Thrust Plate	1
13	1-600-010	Thrust Plate Screw	4
14	1-600-011	Thrust Bearing	1
15	1-600-012	Thrust Washer	2
16	1-600-013	Feed Screw Bearing	1
17	1-600-014	Brass Gib	1
18	1-600-015	Gib Screw	6
19	1-600-016	Handle	1
20	1-600-017	Handle Nut	2
21	1-600-018	Gib Screw Nut	6
22	1-625-000	Standard Tool Holder	1
23	1-650-000	Standard Cross slide Doc* 1-000-110	1
24	1-250-038	Locking Pin	2
25	1-250-039	Locking Pin Take up 5/16" - 18 x 3 3/4" UNC socket head cap screw	2

Lubricator



Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	1-250-075	Lubricator Frame	1
2	1-250-076	Filter/Regulator	1
3	1-250-077	Oiler	1
4	1-250-078	1/2" Close Nipple	2
5	1-250-079	1/2" Female Ball Valve	1
6	1-250-080	Female 3/8" Quick disconnect 1/2" male pipe	2
7	1-250-083	1/2"-1/2"-1/2" Tee	1
8	1-250-084	Gauge 0-120	1