MOLSON BREWERIES
BARRIE, ONTARIO, CANADA

Operation & Maintenance Manual

for

3 x 6B Milliscreen

Manufactured by

ANDRITZ-Ruthner, Inc.

Job No. : 475-940

MANUFACTURER:

ANDRITZ-Ruthner, Inc.
1010 Commercial Blvd. So.
Arlington, Texas 76017

SPARE PARTS & SERVICE:

Fritz Rabler
Phone: (817) 465-5611
Fax: (817) 472-8589
E-Mail andritz1@airmail.net

SAFETY INSTRUCTIONS

It is the responsibility of the contractor, the installer, and the owner to maintain and operate the equipment supplied by ***ANDRITZ*** in such a manner as to comply with the laws concerning occupational safety and health, as well as with all national, state, and local laws and ordinances. Consult the local safety standard authorities or plant supervisors for a complete listing of these regulations.

Safety must be considered a primary factor in all aspects of equipment installation, operation, and maintenance, at all times. Safety training and equipment maintenance will be covered by authorized ***ANDRITZ*** personnel prior to start-up of the equipment. All operating personnel will be advised of the location and operation of all emergency control devices.

The following safety instructions are basic guidelines, and shall be considered minimum provisions:

- Unobstructed access to controls and emergency stop devices shall be maintained at all times. Sufficient lighting and good housekeeping practices shall be maintained around the equipment at all times.
- All rotating equipment, such as drives, gears, fans, pumps, shafts, couplings, chains, belts, and ropes shall be guarded, as required by the applicable laws and standards. The equipment shall not be operated until all covers and guards are in place.
- If equipment's to be opened for inspection, maintenance, or servicing, the drive motor shall be locked-out and secured against being switched-on again (lockable repair switch, shorting bar, etc.). Operation shall not resume until all covers and safety guards are in place.
- High-voltage and rotating electrical machinery can cause serious or fatal injury. Installation, operation, and maintenance of rotating electrical machinery shall only be performed by qualified personnel.
- Inlet and discharge openings shall remain connected to other equipment to ensure that any dangerous parts of the machinery are not exposed.
- Warning signs shall not be removed. If warning signs become dirty or damaged, they shall be cleaned or replaced immediately.

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1.0 GENERAL INFORMATION

1.1 MACHINE SPECIFICATIONS

3 x 6B MILLISCREEN

OVERALL MEASUREMENTS: (*approximately)

Width: 50" (approx.)
Height: 50"
Length: 120"
Weight: Dry - 2950 lbs Wet - 3660 lbs

STANDARD MATERIALS:

Screening Element	Type 316L ss 0.020" screen opening.
Internal Shower	Type 316L ss 1-1/2" Schedule 40 pipe. Nozzles - 15 Spraying systems Veejet Brass
External Shower	Type 316L ss 1-1/2" Schedule 40 pipe. Nozzles -14 Spraying systems Veejet Brass
Shower Connections	1-1/2 inch mpt
Covers	Type 316L ss 14 Ga.
Inlet Tank Assembly	Type 316L ss 12 Ga.
Base frame	Rugged fabricated 316L ss construction.
Inlet	8" ANSI 150 lb. drilled flange.
Trunnion Assembly	304L ss Mounted trunnion assemblies comprised of special application wheels with 90 durometer polyurethane tread mechanically locked to non-corrosive, moisture resistant, high temperature stainless steel hubs with double lip seals and internal shaft lube riding on full width steel roller bearings and polished wheel shafts.
Drive Unit	Parallel Helical gear driven with 1 HP flange mounted motor, 575 vac., 60 Hz., 3 Phase, SEW Eurodrive type R60DT80N4Z-KS, with an output of 79 RPM. Gear Ratio : 21.41 : 1
Chain	Roller steel chain ISO # S62
Drive Sprocket	Machined cast sprocket ISO # S62.
Screen Sprocket	Cast 316 SST sprocket segments, ISO # S62.

Andritz Ruthner reserves the right to alter the specification and design of products without notice and without incurring obligations.

1.2 RECOMMENDED SPARES

Description	Part #	Qty.
Trunnion Wheel Assemblies	DMM13402	4
Drive Chain	DC-S62	18 ft
Drive Chain Connecting Link	CL-S62	1
Drive Chain Offset Link	OL-S62	1
Drive Sprocket (12 teeth, 1.25" bore)	DMM16943	1
Shower Nozzles	A2890-207-02 (25° spray pattern, internal) A2890-207-01 (65° spray pattern, external)	10 10
Stabilizer Block	DMM16243-04	1

1.3 WARRANTY INFORMATION

Andritz-Ruthner, Inc. Limited Warranty

MATERIAL AND WORKMANSHIP

(a) Seller warrants to Buyer that the Products will be delivered free from defects in material and workmanship. This warranty shall commence upon delivery of the Products and shall expire on the earlier to occur of 12 months from initial operation of the Products and 18 months from delivery thereof (the "Warranty Period"). If during the Warranty Period Buyer discovers a defect in material or workmanship and gives Seller written notice thereof within 10 days of such discovery, Seller will, at its option, either deliver to Buyer, F.O.B., point of shipment, a replacement part or repair the defect in place. Seller will have no warranty obligations under this paragraph 3(a): (I) if Buyer fails to ensure that the Products are operated and maintained in accordance with generally approved industry practice and with Seller's specific written instructions; (ii) if the Products are used in connection with any mixture or substance or operating condition other than that from which they were designed; (iii) if Buyer fails to give Seller such written 10 day notice; (iv) if the Products are repaired by someone other than Seller or have been intentionally or accidentally damaged, or (v) corrosion, erosion, ordinary wear and tear or in respect of any parts which by their nature are exposed to severe wear and tear or are considered expendable.

(b) Seller further warrants to Buyer that at delivery, the Products will be free of any liens or encumbrances. If there are any such liens or encumbrances, Seller will cause them to be discharged promptly after notification from Buyer of their existence.

(c) THE EXPRESS WARRANTIES SELLER MAKES IN THIS PARAGRAPH 3 ARE THE ONLY WARRANTIES IT WILL MAKE. THERE ARE NO OTHER WARRANTIES, WHETHER STATUTORY, ORAL, EXPRESS OR IMPLIED. IN PARTICULAR, THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(d) The remedies provided in paragraphs 3(a) and 3(b) are Buyer's exclusive remedy for breach of warranty.

Remedy:

To report any problems or request for parts, contract our Spare Parts and Service Department at (817) 465-5611 or write to:

Andritz-Ruthner, Inc.
1010 Commercial Blvd. So.
Arlington, Texas 76001

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- Inlet and discharge openings shall remain connected to other equipment to ensure that any dangerous parts of the machinery are not exposed.

- Warning signs shall not be removed. If warning signs become dirty or damaged, they shall be cleaned or replaced immediately.

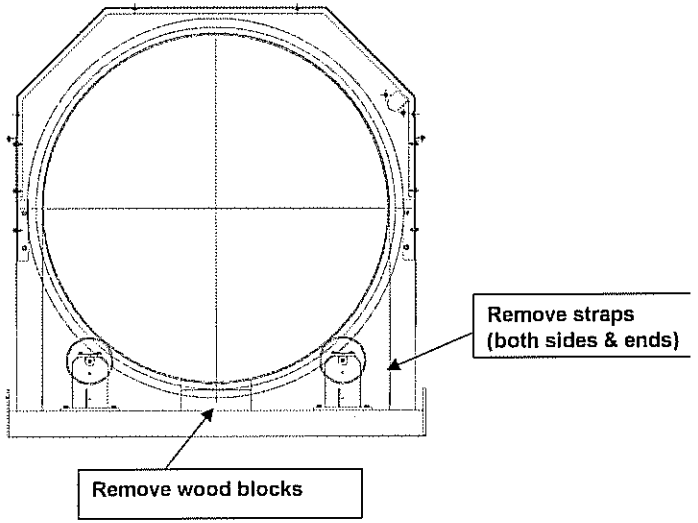
1.5 STORAGE INSTRUCTIONS

If the unit is to be stored for any length of time prior to placing it in service for the first time, it must be stored in a dry, secure environment, preferably covered with a tarp. The chain & sprockets should be checked for proper protection and/or lubrication, monthly during storage. Kosmolene or similar protective coating is recommended for chain & sprocket protection during storage.

If the unit has been in service prior to storage it is recommended that all solid particles be removed from the wedge wire elements. After cleaning the above precautions should be followed.

* WARNING*

The unit is shipped with blocks & tie down straps supporting the drum. Please be sure to remove these items before attempting to start-up machinery!



2.0 DESCRIPTION OF THE MILLISCREEN

2.1 EQUIPMENT FUNCTION

The ***ANDRITZ*** rotary screen is a device designed to remove suspended solids from water and other liquids. It has been designed for use in separating solids from waste water effluents

The total unit is comprised of: an assembly base frame on which a minimum of four trunnions are located that support a rotating screen drum. Internal to the drum is a headbox assembly, spray bar assembly and diverters, located on the inside wall of the drum.

External to the rotating screen drum, is a spray bar assembly, covers, a drive assembly, splash guards and plumbing attachment points.

The drive assembly is comprised of a helical bevel gear motor directly driving a shaft on which is mounted a chain sprocket that in turn drives a larger sprocket attached directly to the back of the screen drum.

The rotating screen drum is of a wedge wire design positioned to maximize the dewatering of the solids.

2.2 PRINCIPLE OF OPERATION

With reference to the illustrations, liquid enters the infeed tank which is designed to smooth out the flow. It then goes through an arc of 90° and is introduced tangentially onto the screen face where it is separated from the solids. Solids gravitate down the screen face, agglomerate and solids are moved axially into the drainage area where further moisture is allowed to drain. The solids are then discharged off the end of the screen into a hopper or conveyor.

2.3 OPERATING CHARACTERISTICS

Drum rotation will be counter clockwise when standing at the discharge end looking through machine at inlet.

Inlet Feed: Maximum Flow 3 X 6B : 400 GPM
Shower water pressure: Minimum of 60 PSI

3.0 INSTALLATION OF THE MILLISCREEN

3.0 INSTALLATION

3.1 Preliminary Inspection

First, inspect the pallet and crate to ensure that there have been no obvious impacts before uncrating. Once the unit is uncrated, inspect all external panels for any obvious damage caused during transit. Inspect the interior and exterior of the wedge wire screen drum.

After removal of blocks and straps used for shipping purposes, the drum may be rotated manually to aid in this inspection process. To rotate the drum manually, you may remove the motor fan cover and rotate the fan assembly.

If their is any damage internally or externally, contact your freight company and ***ANDRITZ*** rotary screen supplier.

Your packing slip will list all the loose and ancillary items supplied with the rotary screen, i.e. spares, stands, tanks or chutes. This packing list should be in the plastic envelope containing this manual. If a packing list is not received, contact your ***ANDRITZ*** representative.

Check that all the items listed in the packing list have been shipped. If there is a discrepancy, contact your receiving department to assure that the items have not already been removed. If a discrepancy still exist, contact your ***ANDRITZ*** representative.

3.2 Lifting Instructions

There are lifting lugs provided on the end plates or frame members of the machine. It is recommended that these lugs be used at all times to lift and move the machine. A spreader bar is required when lifting these machines by these lugs as the housing is not designed to take severe compressive loads during lifting.

Use only suitable straps or chains and spreader bars to lift and move this equipment per local lifting/handling standard regulations and procedures.

3.3 Process and Mechanical Connections

Details of the mounting brackets, hole diameters and centers are shown on the installation drawing. Before moving the unit into its final position, check that the supporting base/structure is level and clean, i.e., free of any foreign objects. Likewise ensure that the underside of the mounting brackets on the screen are clean and free of any foreign matter. Support is required only under the mounting pads.

3.4 Electrical Connections

Use the services of an experienced licensed electrical contractor to connect the power supply to the motor. All electrical services should comply with local electrical codes. The installation of interlocks are recommended. All electrical information and details are contained in the Electrical drawings. Refer to control panel drawings if optional motor or shower controls have been purchased from *ANDRITZ*-Ruthner Inc.

3.5. Water Connections

Refer to the drawing for consumption and recommended pressures for spray systems. Provide water supply lines compatible with the fittings specified. Note that the water is to be supplied to both the inside and outside spray bar. Separate water control valves (by customer) should be installed on each spray bar. Standard shower orifice is 5/64" (.078"). To prevent shower plugging, only clean water should be used. Shower water should be filtered to 300 microns for nozzle protection. Minimum pressure is 60 psig.

4.0 OPERATION OF THE MILLISCREEN

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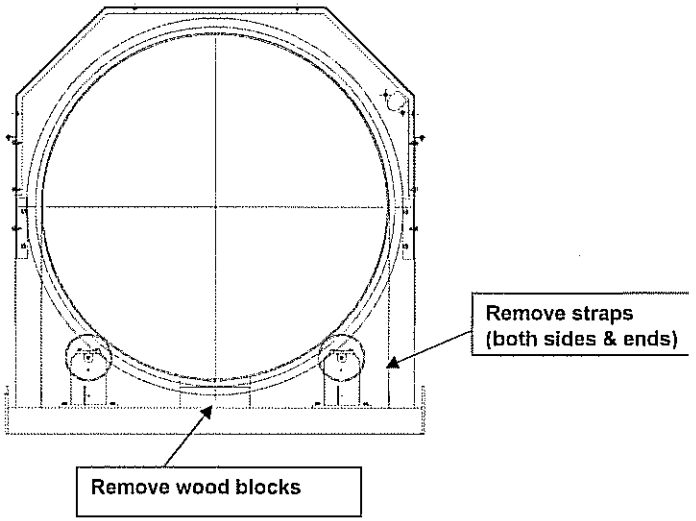


4.1 Start-up Checklist

a) Check that any screen drum support blocks or tie down straps have been removed.

b) Rotate the screen drum 360 degrees to ensure that there is clearance between the nozzles and the screen

c) The trunnion bearings have been lubricated during manufacturing. If an automatic lubricator has been ordered switch it on now. Also refer to lubricator details at the rear of this manual. Make up grease should be Mobil SHC 460 or equivalent.

d) Ensure that all nuts and bolts are tight and secure.

e) Check oil level in the drive gearbox. See drive lubricant guide for fluid requirements.

f) Electrically rotate the drum 360 degrees by jogging. Ensure that the drum is rotating a direction which is opposite to the flow of the water.

g) Flush the showers with filtered water by removing the end caps or opening the spray bar flushing valves if provided. Shower water should be filtered to 300 microns for nozzle protection. Check water pressure at the nozzles against recommendations and/or specifications.

h) Verify the attachment of the inlet feed piping does not induce a load upon the inlet manifold of the machine, as it is not designed to accept these outside loadings. This may require a rubber flex joint (by others) in the inlet plumbing.

i) If a drip type chain lube reservoir was provided, fill it now with a good grade of S.A.E. 30 weight oil such as a Mobil Mobilube or equivalent.

4.2 Start-Up Procedure

Dry run the screen for one hour and check all running gears for satisfactory operation. The drive chain operation should be monitored for alignment. The tensioning has been adjusted at the factory.

The chain lubricator, if provided, should be set to flow at a rate of 1 pint (1/2 liter) every 10 days or approximately one to two drips per minute. If no oiler was provided ensure that the oil is applied sufficiently to keep the chain wet with oil.

DO NOT supply liquid infeed to the screen unless it is running. Remember, flow onto the screen face while not operating can cause the screen to rotate in the opposite direction. This can cause DAMAGE if excessive speeds are achieved and/or the motor is started while rotating in reverse.

4.3 Normal/Routine Operation

**** Start unit per Sequence of Operation in Chapter 7.***

Check for any obvious leaks around the machine, i.e. inlet flange, spray bar inlet connections, discharge tank, solids chute or cover seams. Listen for any unusual vibrations or noises.

In most applications there will be very little free water discharging with the solids. The more difficult applications will have some free water.

If blinding of the screen is occurring, increase the frequency of the internal and external spray bar cycles until effective dewatering/screening is accomplished. Spray bar cycles are the length of time that the spray bars are on for a given period of time.

4.4 Shut Down Procedures

- ***See Chapter 7, Sequence of Operation.***

Basic : Stop the supply of liquid to the screen and allow the solids in the screen to travel to the solids discharge. Insure internal and external showers thoroughly cleaned the screen before stopping the screen rotation.

4.5 Troubleshooting Guide

FAULT	POSSIBLE CAUSE	ACTION TO BE TAKEN
Free liquid is washing out with the discharge	Screen overload	Check the amount of flow being fed to the screen and for correct solids loading
	Screen is blinding	Wash down screen with hot water and check inner and outer surfaces.
	Wrong screen rotation	Verify rotation is Contra to inlet direction.
	Showers are not working or water pressure too low	Check and clean nozzles and verify water source and press.
	Icing due to low temp	De-ice unit and retest.
Drum not rotating	Motor not running	Verify motor operation and power supply.
	Motor runs but gearbox does not turn	Verify gearbox condition.
	Gearbox turns but not screen	Verify driveshaft keys and chain/sprockets condition.
Trunnion not rotating	Bearing failure has caused wheel to seize	Replace bearings or wheel assembly and verify grease system is operational.
	Flat spot on wheel	Replace wheel.
Thrust block worn		Replace block assembly.
Motor hums	Motor starter out	Replace starter.
	Drum locked up	Clear obstruction.
	Gearbox locked up	Replace gearbox.

FAULT	POSSIBLE CAUSE	ACTION TO BE TAKEN
Motor trips breaker	Overload in drum	Solids not clearing.
	Inflow over spec	Reduce to within spec.
	Breaker faulty or wrong size	Replace with now correct size.
Chain comes off or jumps	Sprocket misaligned	Realign sprocket.
	Chain not lubed	Replace and verify lube system.
Severe drum vibration	Trunnion has failed	Replace trunnion assembly.
	Solids loading is off center	Clean solids out of drum.

5.0 MAINTENANCE OF THE MILLISCREEN

5.0 MAINTENANCE OF THE MILLISCREEN (See Chp. 8, Parts Manual, for detailed Assy. Dwgs.)

5.1 Housekeeping

The inlet trough may be periodically drained and flushed every 2 months unless otherwise required to remove accumulated and trapped material. This can be accomplished by running a hose into the discharge end of the trough and injecting fresh flush water while allowing this water to flow out the clean out drain plug located at the bottom end of the trough.

All surfaces of the screen drum should be checked for build up of biological growth or any other material which will effect the hydraulic capacity of the unit. Regular high pressure cleaning should be performed using a hand held high pressure spray washer. Once fully opened the screen is to be operated without flow and the solids discharged. It may be necessary to hose out the screen to remove the accumulated solids.

Should fats or grease be a problem, steam or hot water is recommended. Special or unusual substances should be tested before heat is applied as heat may cause them to coat the screen permanently. Visually check the inside of the screen for any damage or wearing areas.

5.2 Recommended Maintenance Schedule

Before inspection or adjustment, ISOLATE ALL POWER to the motor using standard lockout/tagout procedures.

Check and grease trunnions every 100 hours. If an Auto-Lube system was supplied, check to see that the system is full and operating. Check the trunnion tires for wear every 3 months. Inspect for abrasion, pitting, flat spots or cuts.

Check the spray bars for flow every 100 hours.

Check the drive chain for wear and alignment every 240 hours.

Check the drive gearbox for oil level every 80 hours.

Check that all bolts are secure and tight.

5.3 Replacement of Trunnion Wheels (See Chp. 8, Parts Manual, for detailed Assy. Dwgs.)

a) ENSURE THAT THE MACHINE IS ISOLATED FROM POWER through standard lockout/tagout procedures. Remove the trunnion cover. Using a small scissors type jack, raised the screen drum off the trunnion to be replaced. Loosen and remove the bolts securing the trunnion mount to the frame.

b) Disassemble the trunnion assembly and remove the trunnion wheel.

c) Pack the bearings with Mobilith SHC 460 or equivalent. If new bearings are fitted, pack them after installing them onto the shaft.

d) Install the wheel assembly into the trunnion mount

e) Install the trunnion wheel assembly into the screen assembly and bolt onto the base frame using four 3/8-13 X 1 grade 5 stainless steel bolts, or M10 equivalent. Torque to approximately 24 ft lbs.

f) Lower and remove the scissors jack, resting the screen onto the trunnions and rotate the screen manually 360 degrees while checking alignment.

5.4 Adjustment / Replacement of Drive Chain/Sprocket

(See Chp. 8, Parts Manual, for detailed Assy. Dwgs.)

a) ENSURE THAT THE MACHINE IS ISOLATED FROM POWER through standard lockout/tagout procedures.

b) Rotate the drum manually until the chain connector link is accessible. Install piece of wire tying the chain together loosely so it will not fall off. Remove the connector link to separate the chain. Remove the chain.

c) If the sprocket is worn , Install the new sprocket and bolt in place,

d) Install a new chain and connecting link . Adjust tension on chain by means of jacking bolts on base of drive motor.

5.5 Repair of Drive Assembly

(See Chp. 7 for Drive Information & also Chp. 8 Part Manual for detailed Assy. Dwgs.)

a) ENSURE THAT THE MACHINE IS ISOLATED FROM POWER through standard lockout/tagout procedures.

b) Remove the side cover closest to the drive assembly.

c) Disconnect the chain per Chapter 5.5.

d) Remove the drive sprocket from the drive shaft.

e) Unbolt the drive motor assembly by removing the four bolts from the mounting flange and remove drive motor.

f) Remove the gear reducer from its base.

g) If the drive shaft or the keys are damaged, replace them. For gearbox repair, see Chapter 7.

h) Reinstall the drive reducer.

i) Install the drive sprocket onto the drive shaft and align with a straight edge to the driven sprocket on the screen drum. Lock in place via the set screws.

j) Reinstall drive motor on to gear reducer.

k) Reinstall & tension the chain per Chapter 5.5

5.6 Replacement of Drum

a) ENSURE THAT THE MACHINE IS ISOLATED FROM POWER through standard lockout/tagout procedures.

b) Remove the top covers from both sides of the machine.

c) Remove the side cover from the drive side of the machine.

d) Disconnect the chain and remove it and the chain oiler from the machine.

e) Disconnect the inlet manifold and remove it by pulling it out from the discharge end of the screen. The manifold must be supported at all times as it is removed. DO NOT rest the manifold on the screen as this will damage the screen.

f) Remove the screen by lifting it up vertically by hoist. Care should be taken to prevent damaging the screen. Nylon straps are recommended.

g) Fit a suitable lifting sling to the screen. An approved method is to use a strap to go through the center of the screen and around the front and rear edges and connect together at the top. **A SPREADER BAR MUST BE FITTED TO THIS ARRANGEMENT TO PREVENT COLLAPSING THE SCREEN.** An approved spreader bar would lift at both ends.

h) Gently lift the screen up and swing it out the drive side. (Note: if this side is unavailable due to the installation, the other side may be used.

i) Installation of a screen element is a reversal of this procedure.

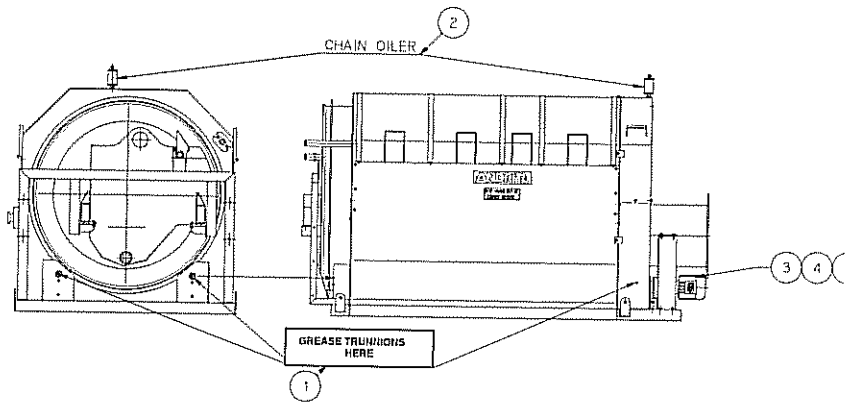
5.7 Lubricant Specification

REFERENCE SYMBOL	MOBIL	SHELL	TEXACO
A - Grease	Mobilith SHC 460	- - - -	- - - -
B - Oil	Mobilgear 630	Shell Morlina 220	Meropa 220
C - Grease	Mobilux EP2		
D - Oil	Mobil S.A.E. 30w	Shell S.A.E. 30w	Havoline S.A.E 30w

5.7.1 Lubrication Schedule

	Frequency	Lubricant
1. Grease bearings	100 hrs	A
2. Fill Chain Oiler	40 hrs	D
3. Check oil level in drive gearbox	80 hrs	B
4. Change oil in drive gearbox	10,000 hours or (1 year)	B
5. Repack bearings in drive gearbox	20,000 hours (2 years)	C

5.7.2 Lubrication Location



MAINTENANCE SUMMARY FORM

EQUIPMENT ITEM: 3 x 6B

MANUFACTURER: *ANDRITZ*-Ruthner, Inc.,

MOTOR NAMEPLATE DATA: Eurodrive DT80, 575 Volt, 3 Phase, 60 Hz, 1 Hp, 1700 RPM,

REDUCER NAMEPLATE DATA: Eurodrive Parallel Helical gear reducer, R60DT80N4Z-KS, Ratio 21.41 : 1

MANUFACTURERS INFORMATION

NAME: *ANDRITZ*-Ruthner, Inc. **TELEPHONE NO.** (800) 433-5161 or (817) 465-5611

ADDRESS: 1010 Commercial Blvd. South, Arlington, Texas 76017

Service or Spare Parts Department - FAX (817) 472-8589

MAINTENANCE REQUIREMENTS

	MAINTENANCE	FREQUENCY	COMMENTS
•	Inspect screen for buildup or damage	8 hrs	
	Clean screen (Steam clean only if needed)	160 hrs	(Steam Clean with external wand type if needed)
•	Visually inspect bearings	8 hrs	
•	Check chain & oiler	8 hrs	
•	Check spray wash system especially nozzles	8 hrs	
•	Fill chain oiling device	80 hrs	Lubricant D
•	Grease Trunnion bearings	2 weeks	Lubricant A
•	Check main drive reducer lubricant level	80 hrs	
•	Change main drive reducer oil	10,000 hrs (1 yr)	Lubricant B
•	Repack main drive motor bearings	20,000 hrs (2 yrs)	Lubricant C

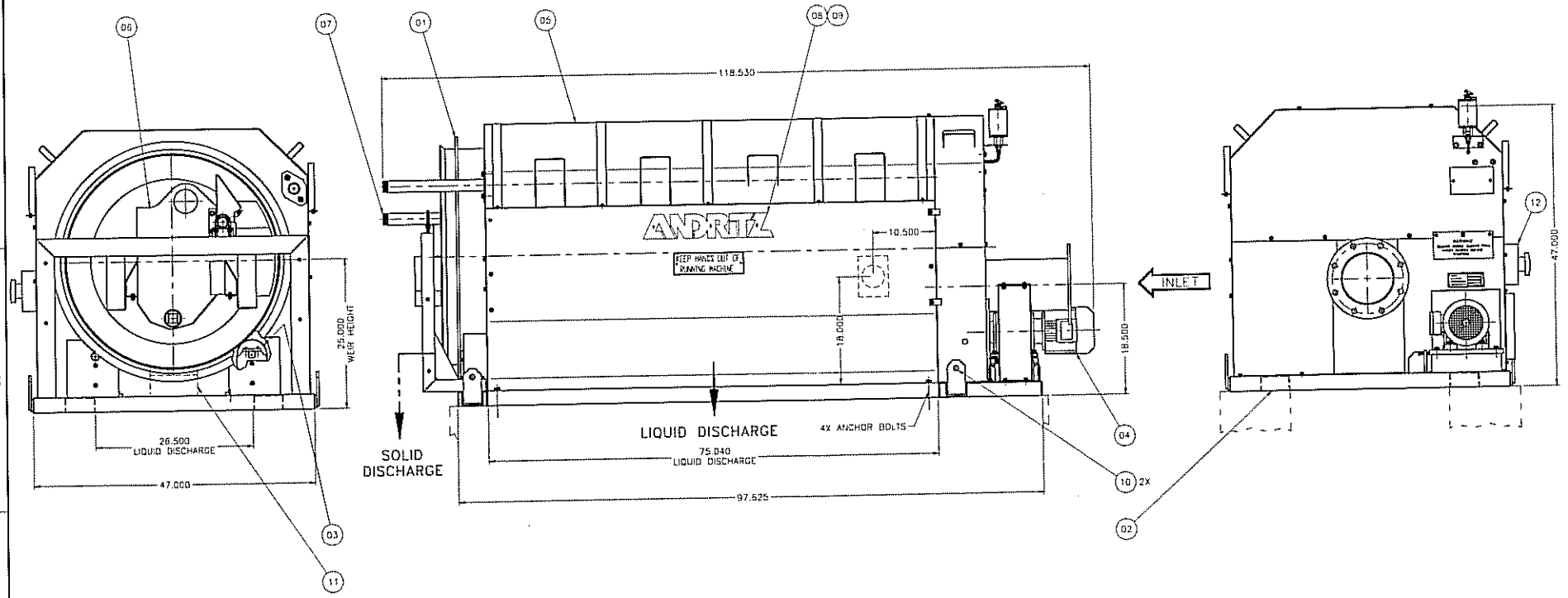
LUBRICANT LIST

REFERENCE SYMBOL	MOBIL
A - Grease	Mobilith SHC 460
B - Oil	Mobilgear 630
C - Grease	Mobilux EP2
D - Oil	Mobil S.A.E. 30w

6.0 DRAWINGS

No	PART No	QTY	DESCRIPTION	MATERIAL
01	DMM16916-03	1	SCREEN ASSY	*
02	DMM16909	1	BASE ASSY	*
03	DMM16937	1	TRUNNION ASSY	*
04	DMM16924	1	DRIVE ASSY	*
05	DMM16926	1	COVER ASSY	*
06	DMM16918	1	TANK ASSY	*
07	DMM16931	1	SHOWER ASSY	*
08	DMM15559	1	TAGGING ASSY	*
09	SEE JOB BOM	1	PAINT SPECS	*
10	DMM16440-3x	2	LUBE ASSY	*
11	DMM16633	1	SHIPPING PREPARATIONS	*
12	*	1	E-STOP	

* SEE JOB BOM FOR MATERIAL



ESTIMATED WEIGHT IN LBS	DRAWN BY: MPU	DATE 01/04/99	ANDRITZ-RUTHNER, INC. 1010 COMMERCIAL BLVD. SOUTH ARLINGTON, TEXAS 76001 PHONE: (817) 465-5611
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	CHECKED BY:	DATE 1/15/99	
FABRICATION TOLERANCES XXX±.042 ANGLES HOLES±.020	APPROVED BY:	DATE	
MACHINING TOLERANCES XXX±.005 ANGLES HOLES±.010	THIRD ANGLE PROJECTION		
MILL FINISH ALL OVER			

TITLE: MOLSON BREWERIES
3 x 6B MILLISCREEN
TOP ASSY

SIZE	DRAWING NUMBER	REV
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SCALE 1/8	FILE M475940-1	SHEET 1 OF 1

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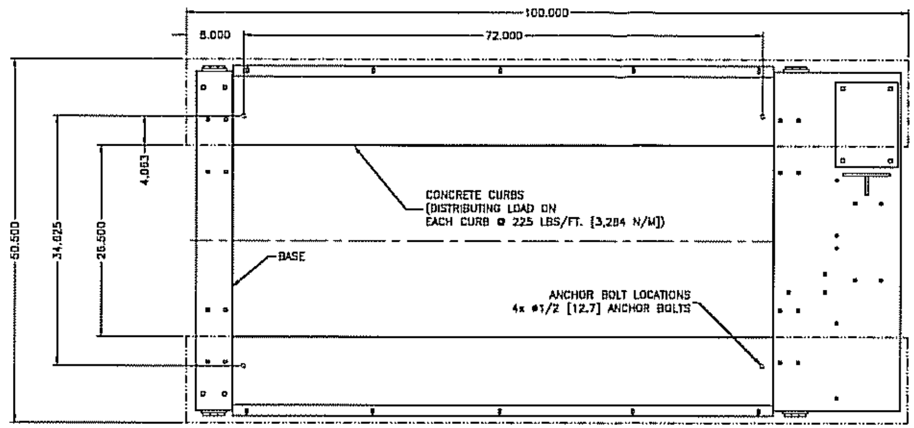
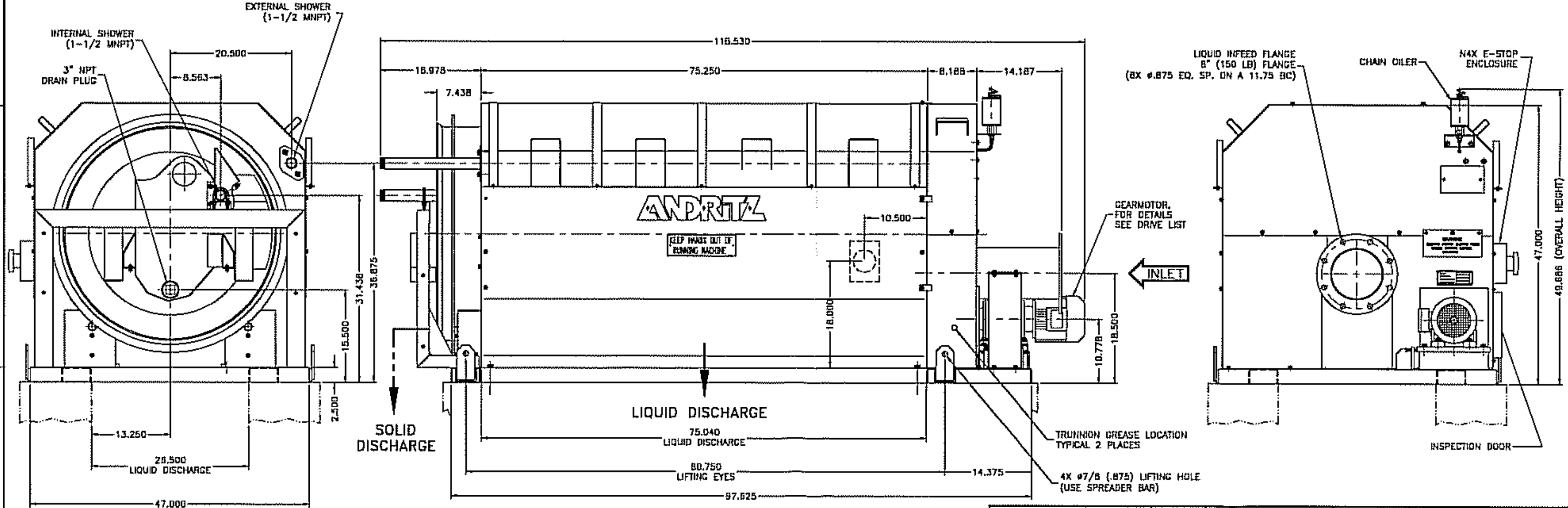


PLAN VIEW
(MILLISCREEN FOOT PRINT)



GENERAL NOTES:

1. FOUNDATION DESIGN AND CONSTRUCTION TO BE FURNISHED BY OTHERS.
2. BASE FRAME TO BE INSTALLED LEVEL IN ALL DIRECTIONS WITHIN 1/16 INCH (1.6mm).
3. UTILITY REQUIREMENTS:
   A. EXTERNAL SHOWER: 18 GPM @ AMBIENT TEMP. AND 60 PSIG.
   B. INTERNAL SHOWER: 20 GPM @ AMBIENT TEMP. AND 60 PSIG.
   C. SHOWER WATER TO BE FILTERED TO 300 MICRONS TO PROTECT NOZZLES.
   D. ELECTRICAL 1 HP, 3 PH, 60 Hz, 575 Vac
4. MACHINE SPECIFICATIONS:
   A. MATERIAL OF CONSTRUCTION: 304 SST
   B. OPERATING SPEED: 13 RPM APPROX.
   C. SCREEN OPENING SIZE: 0.020"
   D. CONNECTING PIPING MUST BE SELF SUPPORTING
   E. USE SPREADER BARS WHEN LIFTING.
   F. REPLACEMENT SCREEN WEIGHT– MAX. : 810 LBS
5. CLEARANCE REQ'D. FOR MAINTENACE: 36" PER SIDE UNLESS OTHERWISE SPECIFIED.
6. DRY WEIGHT OF MACHINE: 2,950 LBS
   WET WEIGHT OF MACHINE: 3,600 LBS
7. INLINE SOFT START CONTROLLER RECOMMENDED FOR DRIVE (ALLEN BRADLEY SMC–2 OR EQUAL). (TO BE FURNISHED BY OTHERS.)
8. N4X EMERGENCY STOP PUSH/PULL BUTTON PROVIDED NEAR MOTOR FOR USE BY OTHERS IN MOTOR CONTROL CIRCUIT.

1010 COMMERCIAL BLVD. SOUTH
ARLINGTON, TEXAS 76017
Phone (817)465-5611
Telefax (817)472-8583

CERTIFIED CORRECT FOR INSTALLATION
BY: KHAI NGUYEN DATE: 1/22/99
PROJECT No. 475-840
THESE DWGS. REFLECT CUSTOMER'S CHANGES AND APPROVAL ON PREVIOUS DWG. TRANSMITTALS

ESTIMATED WEIGHT IN LBS:	DRAWN BY: MPU	DATE 12/31/98
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CHECKED BY:	DATE
FABRICATION TOLERANCES .XXX±.040 ANGLE±1° HOLE±.020	APPROVED BY:	DATE
MACHINING TOLERANCES .XXX±.005 ANGLE±1° HOLE±.020	THIRD ANGLE PROJECTION	
MILL FINISH ALL OVER		

ANDRITZ
ANDRITZ-RUTHNER, INC.
1010 COMMERCIAL BLVD. SOUTH
ARLINGTON, TEXAS 76001
PHONE: (817) 465-5611

TITLE	MOLSON BREWERIES 3 x 68 MILLISCREEN GENERAL LAYOUT		
SIZE D	DRAWING NUMBER M475940		REV 0
SCALE 1/8	FILE M475940	SHEET 1 OF 1	

user:MPU Filename: H:\PROJECT\840\mechdwgs\ M631843.dwg DATE: JAN 04, 1999 Plot Time: 7:58 AM

7.0 DRIVE & ELECTRICAL INFORMATION

DRIVE LIST

MOLSON BREWERIES

471-940

MAIN DRIVE

GEARMOTOR: (BY *ANDRITZ*)

PART NO. DRV-C-1HIL/I-E01

REDUCER:
EURODRIVE PARALLEL HELICAL GEARMOTOR
TYPE R60DT80N4Z-KS
GEAR RATIO. 21.41:1
OUTPUT RPM. 79 BASED ON 1700 INPUT RPM
MOUNTING POSITION B3, CONDUIT BOX 0°, INCH SHAFT 1.250"

MOTOR:
1HP, **575 VAC**, 3 PH, 60HZ, 1700 RPM, 1.15 SERVICE FACTOR, MILL AND CHEMICAL DUTY, 40° C AMBIENT, CONTINUOUS DUTY, NEMA DESIGN B, CLASS F INSULATION, INTEGRAL MOUNT, DT80 FRAME.

Gearmotors and Gear Reducers

OPERATING INSTRUCTIONS

ED 01 805 32 US

GENERAL

These operating instructions are intended to help you install and operate the drive. For trouble free service, proper installation and operation are essential. Additionally, these instructions contain important recommendations on maintenance.

Before shipment every SEW-Eurodrive gear unit is thoroughly tested, checked and properly packed. However, please inspect the drive immediately upon arrival for shortage or transit damage. Note the damage or shortage on the freight bill of lading and file a claim with the carrier. Also, notify SEW-Eurodrive of the shortage or damage.

LUBRICANTS

All gearmotors and gear reducers are supplied with the correct grade and quantity of lubricating oil for the specified mounting position. Exceptions include reducers shipped without input assemblies. The recommended lubricants are found on page 2.

LONG TERM STORAGE

If the drive is not installed immediately, it should be stored in a dry, protected area. If the drive is to be stored for an extended period of time and was not ordered from SEW for long term storage, contact your nearest SEW assembly plant for information on Long Term Storage.

Drives which are used for standby service should be stored as a sealed gearcase.

INSTALLATION OF COMPONENTS ON DRIVE SHAFTS

Do not hammer on the shafts. Hammering can cause brinelling of the reducer's bearings shortening the bearing life. We recommend heating the components to approximately 175°F (when possible) and sliding them on the shaft . This will reduce possible damage to the reducer's bearings.

Table 1. Standard Shaft Tolerances

Diameter (inch)	Solid Shaft Tolerances (inch)	Hollowshaft Tolerance (inch)
1.500 and smaller	+0.0000/-0.0005	+0.0005/-0.0000
Larger than 1.500	+0.000/-0.001	+0.001/-0.000
For metric shafts consult our catalogs		

Shaft couplings should be properly aligned to prevent vibration, coupling wear, and premature failure of the shaft bearings.

To prevent the output shaft and bearings from being subjected to excessive loads, the maximum overhung load, as shown in SEW-Eurodrive catalogs, should not be exceeded. Please consult our engineering department if the load may exceed the recommended figure given or where there are combined radial and axial loads. In such cases, the exact operating conditions must be stated including speed, direction of rotation, position, magnitude and direction of the external radial and axial loads being applied.

SHAFT MOUNTED REDUCERS

SEW-Eurodrive recommends the use of a light coating of Never-Seez® (or equivalent) on the keyed output shaft. The Never-Seez® lubricant may prevent rusting and fretting corrosion between the reducer hollowshaft and the shaft of the driven machine. The lubricant will aid in shaft removal when necessary.

For additional information on shaft mounted reducers, drive shaft configuration and tolerances, ask for SEW-Eurodrive Tech Sheet K-003-01 and current catalogs.

INSTALLATION AND OPERATION

The drive installation site should be selected to ensure:

- Ambient temperatures below 40°C (104°F).
- Unimpeded flow of air to the motor and variable speed units.
- Accessibility to the drain, level and breather plugs.
- Adequate space for removal of brakemotor fanguard for brake adjustment and maintenance.

The drive unit should be mounted on a flat, vibration damping, and torsionally rigid structure. Careful alignment is critical. Mounting to an uneven surface will cause housing distortion. The flatness tolerance of the supporting surface should not exceed:

- For gear units size 80 and smaller — 0.004 inch.
- For gear units above size 80 — 0.008 inch.

For transportation the units are supplied as sealed gearcases, i.e., in place of the breather plug, a plastic capped socket head plug is installed. The breather plug accompanies the unit in a poly bag. After final installation, install the breather plug in place of the plastic capped plug. In addition, the oil level should be checked. Remove the red painted oil level plug. The oil level is correct when the surface of the oil is level with the lowest point of that tapped hole. The exceptions are the units R30/32 and S30/31 which remain sealed in any position.

After installation, the actual mounting position should be confirmed (with accompanying mounting position diagrams) against the mounting position shown on the gear reducer nameplate. The locations of the breather plug and oil level plug must agree with these diagrams for the specified mounting position. Adequate lubrication is only guaranteed if the unit is mounted in the specific nameplated mounting position. See accompanying mounting position diagrams.

Please refer to the Motors and Brakemotors; VARIMOT®; or VARIGEAR® operating instructions for additional information on those units.

MAINTENANCE

Oil levels and oil quality should be checked at regular intervals, determined by usage and the environment. Grease and oil should be changed per the recommendations on page 2.

Check coupling alignment, chain or belt tension, and mounting bolt torque periodically. Keep the drive relatively free of dust and dirt.

SEW EURODRIVE

SOUTHEAST MANUFACTURING & ASSEMBLY CENTER
1295 Old Spartanburg Highway/Lyman SC 29365
(864) 439-7537 Fax: (864) 439-7830

SOUTHWEST ASSEMBLY CENTER
3950 Platinum Way/Dallas TX 75237
(214) 330-4824 Fax: (214) 330-4724

MIDWEST ASSEMBLY CENTER
2001 West Main Street/Troy OH 45373
(937) 335-0036 Fax: (937) 222-4104

EAST COAST ASSEMBLY CENTER
200 High Hill Road/Bridgeport NJ 08014
(609) 467-2277 Fax: (609) 845-3179

WEST COAST ASSEMBLY CENTER
30599 San Antonio Road/Hayward CA 94544
(510) 487-3560 Fax: (510) 487-6381

LUBRICANTS

LUBRICATION SCHEDULE FOR SEW-EURODRIVE GEAR UNITS									
Gear Reducer Type[1]	**Lubrication Type**	**Ambient air temperature range ° F**	**kin viscosity at 40°C (cSt) approx.**	**GULF Oil Co.**	**CHEVRON Oil Co.**	**AMERICAN Oil Co.**	**MOBIL Oil Co.**	**SHELL Oil Co.**	**TEXACO Oil Co.**
R40 - R163 F	Oil	+104 to +32	220	Gulf EP. Lubricant S100	Chevron Non-Leaded Gear Compound 220	Permagear EP220	Mobilgear 630	Shell Omala Oil 220	Meropa 220
K		+77 to +5	155	Gulf EP. Lubricant S60	Chevron Non-Leaded Gear Compound 150	Permagear EP150	Mobilgear 629	Shell Omala Oil 100	Meropa 150
S32	Oil	+140 to +32	430				SHC 634 (Synthetic)		
S42 - S92	Oil	+104 to +32	680	Gulf EP. Lubricant HD 680	Chevron Non-Leaded Gear Compound 680	Permagear EP680	Mobilgear 636	Shell Omala Oil 680	Meropa 680
		+77 to +5	220	Gulf EP. Lubricant HD 220	Chevron Non-Leaded Gear Compound 220	Permagear EP 220	Mobilgear 630	Shell Omala Oil 220	Meropa 220
General	**Synth. Oil**	+176 to +5	Consult Factory For Use of Synthetic Oils						
	Synth. Grease	+200 to -40	Consult Factory For Use of Grease Filled Reducers						
Ball & Roller Bearings	**Grease** Used for normal application Temp. range—20°F to 250°F			Gulfcrown Grease EP. No.2	Chevron Dura-Lith EP2	Amolith Grease No. 2 EP	Mobilux EP2	Alvania Grease R3	Multifak EP2

[1] Applies to all reducers with or without motor and input shaft.

Oil levels and oil quality should be checked at frequent intervals, depending on usage. Oil changes are required at intervals of 10,000 operating hours or every two years, whichever comes first. If a synthetic oil lubricant is used then this period can be extended to 20,000 operating hours or every four years, whichever comes first. In applications where hostile operating conditions exist, such as high humidity, corrosive environment, or large temperature changes, the lubricant should be changed at more frequent intervals.

The gear units R30/32, S30/31, W20 and W30 are supplied with a synthetic oil which is good for the life of the reducer, independent of the mounting position.

Grease packed bearings should be cleaned and regreased every 10,000 hours or 20,000 hours for synthetic grease. Input (high speed) bearings should not be overgreased. They should be filled with grease not to exceed 1/3 of the bearing's free volume. For output bearings and bearings with replaceable grease shields, fill to 2/3 of their free volume.

ATTENTION

When the recommended lubricant is not available, it is permissible to use a lubricant having equivalent characteristics but we do not recommend that lubricants of different brands be mixed. Under no circumstances should synthetic lubricants be mixed with one another, or with one having a mineral base.

LUBRICANTS
Oil Capacities

Parallel Helical Gear Units - "R"

U.S. Gallons/Liters

Gear Unit	Mounting Position									
	B3 [1]	B5 [1]	B5II	B6 [2]	B7 [2]	B8 [2], [3]	V1	V3	V5	V6
RX/RXF61	0.21/0.80	0.11/0.40	0.18/0.70	0.11/0.40	0.13/0.50	0.18/0.70	0.16/0.60	0.13/0.50	0.24/0.90	0.13/0.50
RX/RXF71	0.42/1.6	0.21/0.80	0.37/1.4	0.26/1.0	0.26/1.0	0.42/1.6	0.32/1.2	0.24/0.90	0.53/2.0	0.26/1.0
RX/RXF81	0.66/2.5	0.34/1.3	0.66/2.5	0.42/1.6	0.42/1.6	0.71/2.7	0.58/2.2	0.40/1.5	0.82/3.1	0.48/1.8
RX/RXF101	1.6/6.2	0.92/3.5	1.6/6.0	1.1/4.1	1.0/4.0	2.0/7.7	1.2/4.5	0.95/3.6	2.3/8.5	1.1/4.1
RUF63	—	0.13/0.50	—	—	—	—	0.53/2.0	—	—	—
RUF73	—	0.32/1.2	—	—	—	—	0.98/3.7	—	—	—
RUF83	—	0.69/2.6	—	—	—	—	2.1/8.0	—	—	—
RUF92/93	—	1.1/4.1	—	—	—	—	3.4/13	—	—	—
RUF102/103	—	1.1/4.1	—	—	—	—	5.4/21	—	—	—
RUF132/133	—	2.5/9.5	—	—	—	—	8.3/32	—	—	—
RUF142/143	—	3.3/12.5	—	—	—	—	13/49	—	—	—
RUF152	—	4.2/16	—	—	—	—	16/60	—	—	—
RUF163	—	4.8/18	—	—	—	—	21/80	—	—	—
R/RF32	0.29 gallon									
R/RF40	0.08/0.30	0.08/0.30	—	0.16/0.60	0.18/0.70	0.16/0.60	0.26/1.0	0.26/1.0	0.26/1.0	0.26/1.0
R/RF42/43	0.08/0.30	0.08/0.30	—	0.16/0.60	0.16/0.60	0.16/0.60	0.26/1.0	0.24/0.90	0.29/1.1	0.24/0.90
R/RF60 ★	0.16/0.60	0.16/0.60	—	0.42/1.6	0.40/1.5	0.29/1.1	0.53/2.0	0.50/1.9	0.53/2.0	0.55/2.1
R/RF62/63	0.16/0.60	0.13/0.50	—	0.32/1.2	0.34/1.3	0.29/1.1	0.53/2.0	0.50/1.9	0.58/2.2	0.50/1.9
R/RF70	0.34/1.3	0.32/1.2	—	0.55/2.1	0.61/2.3	0.55/2.1	0.98/3.7	0.92/3.5	0.98/3.7	0.95/3.6
R/RF72/73	0.34/1.3	0.32/1.2	—	0.55/2.1	0.61/2.3	0.55/2.1	0.98/3.7	0.92/3.5	0.98/3.7	0.95/3.6
R/RF80	0.74/2.8	0.69/2.6	—	1.2/4.5	1.3/4.8	1.1/4.1	2.1/8.0	2.0/7.5	2.1/8.0	2.0/7.6
R/RF82/83	0.74/2.8	0.69/2.6	—	1.2/4.5	1.3/4.8	1.1/4.1	2.1/8.0	2.0/7.5	2.1/8.0	2.0/7.6
R/RF92/93	1.3/4.8	1.1/4.3	—	2.0/7.6	2.2/8.3	2.0/7.5	3.4/13	3.3/12	3.6/14	3.4/13
R/RF102/103	1.8/6.7	1.6/1.6	—	3.1/11.0	3.3/13	3.0/11	5.4/21	5.0/19	5.7/22	5.3/20
R/RF132/133	2.7/10	2.5/9.5	—	5.0/19	5.3/20	5.0/19	8.3/32	8.5/32	8.6/33	8.7/33
R/RF142/143	4.0/15	3.3/13	—	7.7/29	8.2/31	7.5/28	13/48	13/50	14/52	14/52
R/RF152	5.2/20	4.2/16	—	12/44	13/50	11/43	16/60	16/60	20/76	21/80
R/RF163	5.7/22	4.8/18	—	13/51	14/52	13/49	21/79	22/82	23/87	23/89

[1] On compound gear units having mounting position B3 or B5, the larger gear unit is to be provided with the oil filling of the B7 mounting position.
[2] On compound gear units having mounting positions B6, B7, or B8 the smaller gear unit is to be provided with the oil filling of the B5 mounting position.
[3] On compound gear units having mounting position B8, consult SEW Engineering for oil capacity of the larger (output) gear unit.

Right Angle Helical-Worm Gear Units - "S"

U.S. Gallons/Liters

Gear Unit[1]	Mounting Position							
	B3, B6I	B3I, B6II	B5	B5I	B5II	B5III	B6, B8I	B8
S31	0.07/0.25	0.07/0.25	0.09/0.34	0.09/0.34	0.09/0.34	0.09/0.34	0.07/0.25	0.07/0.25
S32	0.07/0.25	0.16/0.60	0.11/0.40	0.07/0.25	0.16/0.60	0.14/0.50	0.11/0.40	0.14/0.50
S42	0.05/0.20	0.26/1.0	0.21/0.80	0.11/0.40	0.32/1.2	0.21/0.80	0.29/1.1	0.16/0.60
S52	0.08/0.30	0.40/1.5	0.26/1.0	0.12/0.45	0.45/1.7	0.32/1.2	0.42/1.6	0.29/1.1
S62	0.16/0.60	0.74/2.8	0.61/2.3	0.24/0.90	1.0/4.0	0.61/2.3	0.66/2.5	0.42/1.6
S72	0.29/1.1	1.3/5.0	1.1/4.0	0.40/1.5	2.0/7.4	1.3/4.8	1.4/5.3	0.87/3.3
S82	0.55/2.1	2.6/10	1.7/6.3	0.87/3.3	2.9/11	1.6/6.0	2.9/11	1.6/6.0
S92	1.0/3.8	5.2/20	3.3/13	1.5/5.5	5.9/23	3.6/14	5.4/21	2.9/11

Gear Unit[1]	Mounting Position							
	V1A, V1IB	V1B, VIA	V5, V5I	H1	H2	H3	H4	H5, H6
S31	0.09/0.34	0.09/0.34	0.07/0.25	0.07/0.25	0.07/0.25	0.07/0.25	0.07/0.25	0.07/0.25
S32	0.11/0.40	0.11/0.40	0.11/0.40	0.07/0.25	0.14/0.50	0.16/0.60	0.11/0.40	0.11/0.40
S42	0.21/0.80	0.16/0.60	0.16/0.60	0.11/0.40	0.21/0.80	0.29/1.1	0.20/0.75	0.18/0.70
S52	0.29/1.1	0.21/0.80	0.24/0.90	0.12/0.45	0.29/1.1	0.40/1.5	0.26/1.0	0.24/0.90
S62	0.61/2.3	0.55/2.1	0.42/1.6	0.24/0.90	0.61/2.3	0.92/3.5	0.55/2.1	0.53/2.0
S72	1.2/4.4	1.1/4.0	0.82/3.1	0.40/1.5	1.1/4.0	1.6/6.1	0.92/5.0	0.95/3.6
S82	1.8/6.8	1.5/5.7	1.5/5.6	0.87/3.3	1.5/5.7	2.7/10	1.6/6.0	1.6/6.1
S92	3.1/12	2.8/11	2.8/11	1.5/5.5	3.3/13	5.4/20	3.1/12	3.2/12

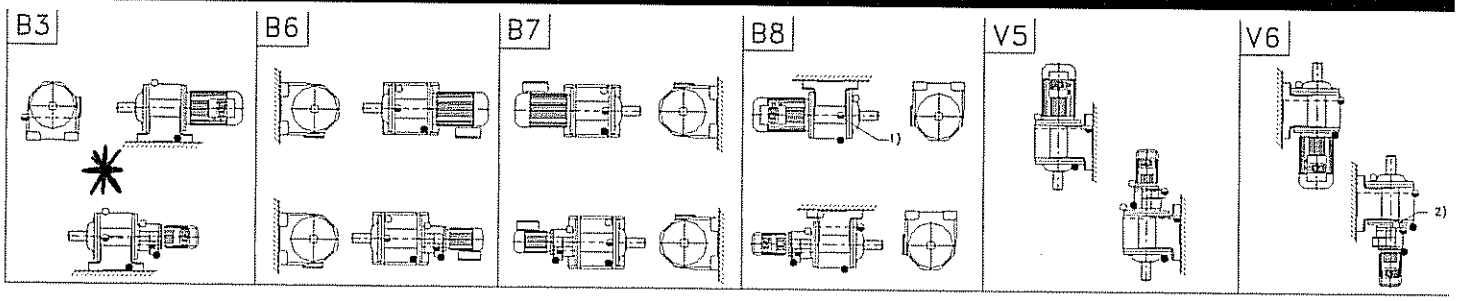
[1] Gear Unit sizes 31 - 92 also applies for SF, SA and SAF.

MOUNTING POSITIONS

For proper lubrication, be sure that the orientation of the gear reducer, as installed, matches the diagram shown for the mounting positions as specified on the gear reducer's nameplate.

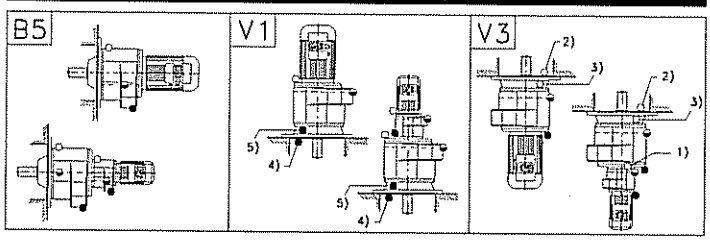
Mounting Surface
Mounting Surface of the Torque Arm
Breather Plug
Oil Level Plug
Oil Drain Plug

R40 - R163, R63R42 - R163R102



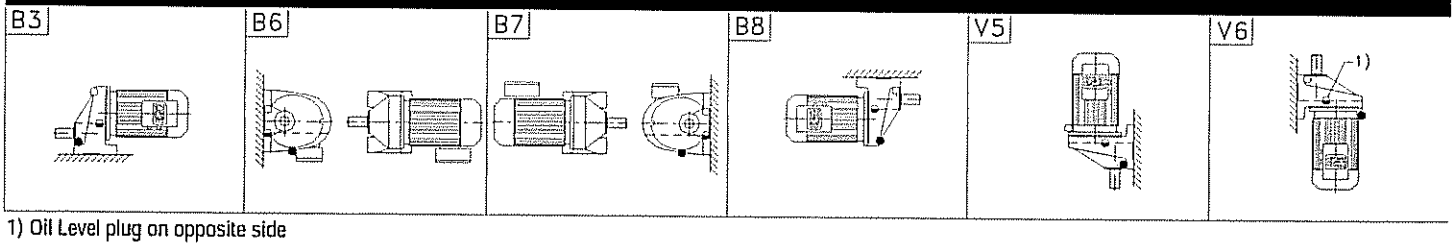
1) Oil Level plug on opposite side for R60, R80
2) Breather plug provided only on R62/63R42/43, R133R82

RF40 - RF163, RF63R42 - RF163R102



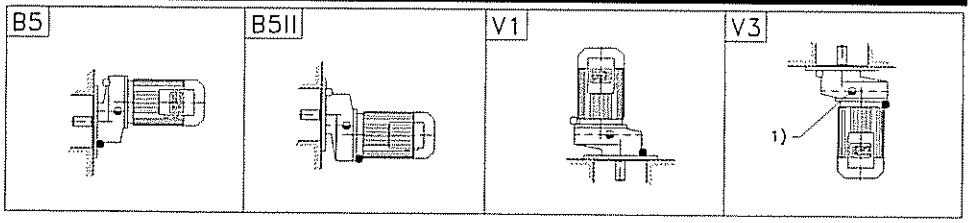
1) Breather plug provided only on RF62/63R42/43, RF133R82
2) Fig. I Flange breather plug
3) Fig. II Flange breather plug
4) Fig. I Flange drain plug
5) Fig. II Flange drain plug

RX61 - RX101



1) Oil Level plug on opposite side

RXF61 - RXF101



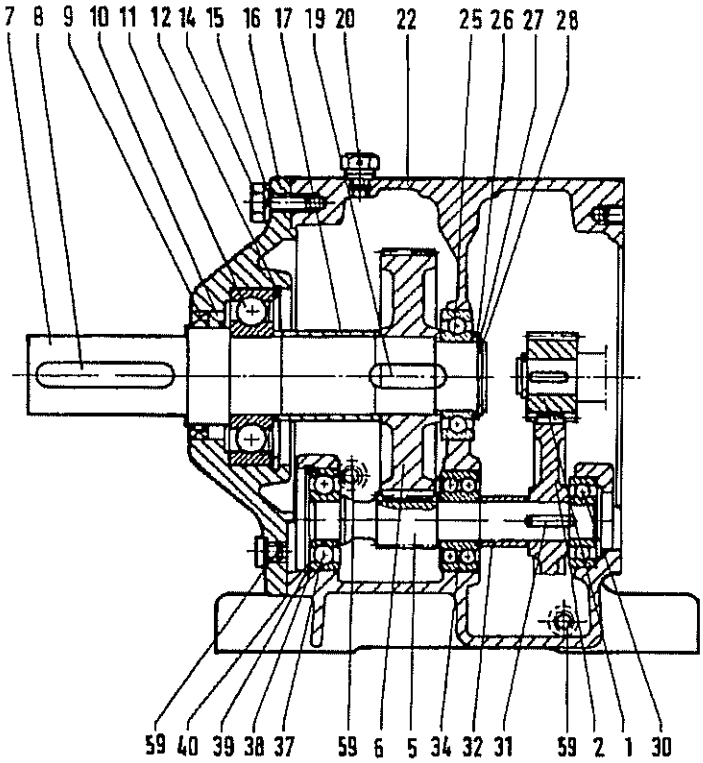
1) Oil Level plug on opposite side

Addendum to Operating Instruction 01 805 32 US, Gearmotors and Gear Reducers, 03/97.

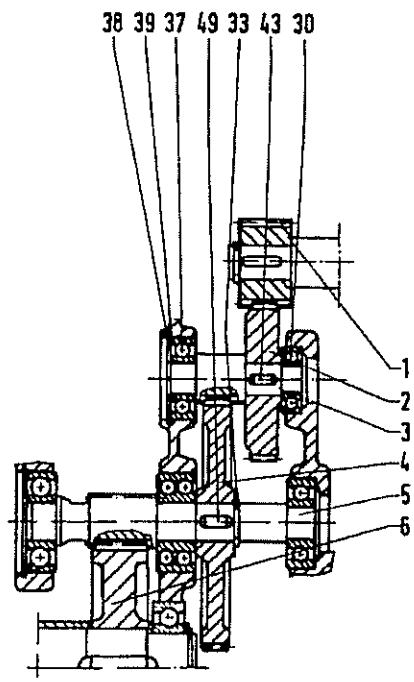
Parallel (Helical) Reducer

R 60A

PARTS LIST
01 251 62 US



2-Gear Stages



3-Gear Stages

When ordering parts, please supply nameplate data with serial number or S.O. number, model number, description of part and part number.
All gears are stamped with a part number.

Ⓢ - Approved sealant for all flanged sealing surfaces without gaskets
X - as required
Shaded items denote recommended spare parts.

Item	Part Name	Description	Part No	Qty
1	Pinion			1
2	Gear			1
3	Pinion Shaft			1
4	Gear			1
5	Pinion Shaft			1
6	Gear			1
7	Output Shaft	1.250 in. Dia.	107 642 6	1
7	Output Shaft	30mm Dia.	101 200 2	1
8	Key 1.250 in. Dia. Shaft	1/4x1/4x1-11/16 in.	92001004	1
8	Key 30mm Dia. Shaft	A8x7x50mm	010 023 4	1
9	Oil Seal	AS35x47x7mm	010 656 9	1
10	Oil Seal	A35x47x7mm	010 622 4	1
11	Ball Bearing	6206-Z-J	010 496 5	1
12	Retaining Ring	62x2mm Internal	010 321 7	1
14	Hex Head Screw	M10x20mm	010 115 X	4
16	Gearcase Cover		101 194 4	1
17	Spacer		101 203 7	1
19	Key	B8x7x28mm	011 486 3	1
20	Breather Plug	M10x1mm	010 466 3	1
22	Gearcase		101 190 1	1

Item	Part Name	Description	Part No	Qty
25	Ball Bearing	6205	010 488 4	1
26	Thrust Washer	S25x35x2mm	010 345 4	1
27	Shim	25x35x0.1mm	010 369 1	X
27	Shim	25x35x0.3mm	010 393 4	X
28	Retaining Ring	25x1.2mm External	010 274 1	1
30	Ball Bearing	6301	010 505 8	2
31	Key-Hardened	B5x5x16mm	011 484 7	1
32	Spacer		101 204 5	1
33	Retaining Ring	17x1mm External	010 269 5	1
34	Ball Bearing	4203	010 551 1	1
37	Ball Bearing	6302	010 506 6	2
38	Shim	30x42x0.1mm	010 385 3	X
38	Shim	30x42x0.3mm	010 409 4	X
39	Retaining Ring	42x1.75mm Internal	010 317 9	2
40	Gasket		101 212 6	1
43	Key	B5x5x12mm	010 050 1	1
49	Key	B5x5x14mm	010 051 X	1
59	Drain Plug	M10x1mm	011 426 X	3
999	Anaerobic Sealant Ⓢ		99999930	1

Motors

OPERATING INSTRUCTIONS

ED 09 793 67 US

General

Every SEW-Eurodrive motor is thoroughly tested, checked, and properly packed prior to shipment. However, please check immediately upon arrival for shortage of parts or transit damage. Note the damage or shortage on the freight bill of lading and file a claim with the carrier. Also, notify SEW-Eurodrive of the shortage or damage.

Installation

For motors mounted integrally to a gear unit, please refer to the Operating Instructions for Gearmotors and Gear Reducers for proper installation of the drive. The drive installation site should be selected to ensure:

- Ambient temperatures below 40°C (104°F).
- Unimpeded flow of air to the motor and variable speed units.
- Accessibility to gear unit, oil plugs.
- Adequate space for the removal of the brakemotor fanguard for brake adjustment and maintenance.

The drive unit should be mounted on a flat, vibration damping, and torsionally rigid structure. The flatness tolerance of the supporting surface should not exceed:

For motor size 180 and smaller — 0.004 inch
For motor size above 180 — 0.008 inch

Do not hammer on the shafts to install couplings, sheaves, etc. Hammering can cause brinelling of the bearings and a reduction in bearing life. We recommend heating the components to approximately 175°F and sliding them on. This will reduce possible damage to the bearings. In addition, there is a metric tapped hole in the center of the motor shaft that can be utilized with a tool to press on or remove the coupling, sheaves, etc.

The motor shaft diameters are metric and have tolerances as listed in the SEW-Eurodrive catalogs. Shaft couplings should be properly aligned to prevent vibration, coupling wear and premature failure of the shaft bearings.

Maximum Parallel Offset — 0.003 inch
Maximum Angular Offset — 0.030°

To prevent the output shaft and bearings from being subjected to excessive loads, the maximum overhung loads, as shown in SEW-Eurodrive catalogs, should not be exceeded. Please consult our engineering department if the load may exceed the recommended figure given or where there are combined radial and axial loads. In such cases, the exact operating conditions must be stated including speed, direction of rotation, position, magnitude and direction of the external radial and axial loads being applied.

Long Term Storage

If the motor must be stored for a long period of time without operating, the motor must be stored in a dry, protected area, and in the mounting position indicated on the unit nameplate.In order to ensure that the motor has not been damaged by moisture after a prolonged storage, the insulation resistance should be checked. An insulation tester with a measurement voltage of at least 500V (e.g. magneto generator) should be used for this purpose. The insulation resistance is sufficient if it has an ohmic value of at least 1000 x V_N (e.g. at V_N = 230VAC: $R_{insul} \geq 230000$ ohms = 0.23M ohms. If the measured value is smaller, the motor should be dried before use (for example, with hot air up to a maximum of 90°C or by resistance heating with an auxiliary AC voltage of 10% of V_N via an isolating transformer). Care should be taken to ensure that the motor is heated with not more than 20% of its rated current and that the rise in temperature is not more than 90°C. The drying procedure can be stopped when the insulation resistance has reached 500000 = 0.5M ohms.

Severe Duty Units

Severe Duty Units are indicated with the letters "-KS" at the end of the motor type on the motor nameplate. Severe Duty units include drain holes in the motor end bells and conduit box at the lowest points allowing condensation to drain out of the motor.

CAUTION! The drain holes are installed for the mounting position listed on the gearbox nameplate. Installing a unit in a mounting position other than what is shown on the nameplate will reposition the condensation drain holes. As a result, the drain holes may not be located at the lowest point and may not allow water to drain. This can cause premature drive failure.

Electrical Connection

The motor must be installed and connected by a qualified electrician who is knowledgeable with the NEC article 430 and local regulations. He must make sure that the voltage and frequency of the electrical supply correspond with the data stamped on the motor nameplate before connecting the motor in accordance with the wiring diagram, which can be found in the terminal box. For brake connections, see the following pages.

At installation the electrician must make sure that the terminal block jumpers are positioned correctly and that all electrical connections including the ground connection are secure. In order to effectively protect the motor from overloads, appropriate motor protection must be provided. Fuses do not always provide adequate motor protection. For motors which are required to operate with a very high start-stop frequency, the overload heater type motor protection is insufficient. It is advisable in such applications to provide the motor with temperature sensors (thermistors) in the windings. Monitor the thermistors by means of an external trip device. In this way, the motor will be fully protected against practically all possible overloads.

When using motors outdoors or in washdown applications the cable entries into the terminal box must be directed downward to prevent water from entering the conduit box. The unused cable entries must be closed off properly.

Lubrication and Maintenance

The motor bearings are sealed and the grease content is adequate for the life of the bearing.

SEW EURODRIVE

SOUTHEAST MANUFACTURING & ASSEMBLY CENTER
1295 Spartanburg Highway/Lyman SC 29365
(864) 439-7537 Fax: (864) 439-7830

SOUTHWEST ASSEMBLY CENTER
3950 Platinum Way/Dallas TX 75237
(214) 330-4824 Fax: (214) 330-4724

MIDWEST ASSEMBLY CENTER
2001 West Main Street/Troy OH 45373
(937) 335-0036 Fax: (937) 222-4104

EAST COAST ASSEMBLY CENTER
200 High Hill Road/Bridgeport NJ 08014
(609) 467-2277 Fax: (609) 845-3179

WEST COAST ASSEMBLY CENTER
30599 San Antonio Road/Hayward CA 94544
(510) 487-3560 Fax: (510) 487-6381

NEMA Design B, Continuous Duty - 40°C Ambient - up to 3300 ft Elevation **Synchronous speed 1800 rpm @ 60Hz**

Frame Size	P_n hp	P_n kW	n_n rpm	I_n Amp 230V	I_n Amp 460V	I_n Amp 575V	I_a/I_n %	T_n lb-in.	T_a/T_n %	T_K/T_n %	Cos φ	η %	Code Letter	J_m lb-ft² *	J_m lb-ft² **	Z_o Starts/hr. BG[2]	Z_o Starts/hr. BGE[3]	T_B lb-in.	Weight lbs. *	Weight lbs. **
DT71K4	0.25	0.18	1700	1.30	0.65	0.52	350	8.95	230	260	0.63	57	H	.00616	.00836	9000	9000	22	13	19
DT71C4	0.33	0.25	1700	1.4	0.7	0.56	400	12.4	230	230	0.70	64	H	.0104	.0125	7800	9000	44	15	22
DT71D4	0.5	0.37	1700	2.15	1.07	0.86	380	18.4	220	230	0.70	62	H	.0104	.0125	5200	9000	44	15	22
DT80K4	0.75	0.55	1700	3.05	1.53	1.22	400	27.4	230	220	0.70	65	H	.0156	.0177	3700	8000	88	22	28
DT80N4	1	0.75	1700	3.9	1.95	1.55	400	37.3	270	270	0.73	66	G	.0207	.0228	2800	7500	88	25	32
DT90S4	1.5	1.1	1700	4.75	2.35	1.88	550	54.7	280	300	0.78	74	H	.0594	.0722	2000	5000	177	35	57
DT90L4	2	1.5	1720	6.0	3.0	2.4	570	73.7	260	280	0.78	80	H	.0789	.0936	1500	3800	177	40	62
DT100LS4	3	2.2	1700	8.6	4.3	3.45	530	110	270	250	0.83	77	G	.101	.114	1000	2700	354	51	73
DT100L4	5	3.7	1680	13.6	6.8	5.4	520	186	250	230	0.85	80	G	.126	.139	800	2000	354	60	82
DV112M4	5.4	4.0	1720	15.2	7.6	6.1	580	197	270	280	0.84	79	H	.233	.262	—	1400	487	84	110
DV132S4	7.5	5.5	1730	19.2	9.6	7.7	680	270	320	310	0.85	85	H	.416	.445	—	1200	664	106	139
DV132M4	10	7.5	1740	26	12.9	10.3	620	364	220	260	0.84	86	H	.665	.769	—	1000	885	146	198
DV132ML4	12.5	9.2	1740	31.5	15.8	12.6	630	447	240	250	0.84	87	H	.783	.887	—	900	1328	165	220
DV160M4	15	11	1740	36.5	18.2	14.5	630	531	240	250	0.85	89	G	.945	1.049	—	700	1328	185	240
DV160L4	20	15	1760	51	25.5	20.5	550	720	220	200	0.82	90	F	2.197	2.449	—	560	1770	326	419
DV180M4	25	18.5	1760	64	32	25.5	570	888	270	220	0.80	91	G	2.660	2.912 3.164[1]	—	450	2655 2655[1]	386	476 485[1]
DV180L4	30	22	1760	74	37	29.5	560	1056	260	210	0.83	90	F	3.064	3.316 3.567[1]	—	400	2655 2655[1]	410	503 512[1]
DV200L4	40	30	1760	96	48	38.5	620	1440	270	230	0.88	89	G	5.558	5.809 6.061[1]	—	330	2655 5310[1]	538	650 659[1]
DV225S4	50	37	1760	117	59	47	620	1780	270	230	0.85	93	G	7.149	7.400 7.652[1]	—	250	2655 5310[1]	653	765 774[1]
DV225M4	60	45	1760	142	71	57	600	2160	290	230	0.88	90	G	8.479	8.730 8.982[1]	—	200	2655 5310[1]	717	831 840[1]

* Without Brake
** With Brake
1) Double Disc Brake
2) Values with BG rectifier (standard for frame size 100L and smaller)
3) Values with BGE rectifier (standard for frame size 112M and larger)

Abbreviations

P_n Rated Power
n_n Full Load Speed
I_n Full Load Current
I_a/I_n Starting Current Ratio (Locked Rotor)
T_n Full Load Torque
T_a/T_n Starting Torque Ratio
T_K/T_n Breakdown Torque Ratio
Cos φ Power Factor
η Motor Efficiency
J_m Motor Inertia
Z_o Permissible no-load starting frequency at 50% ED
T_B Maximum Brake Torque

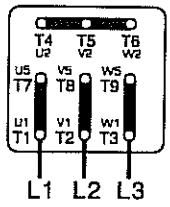
Dual-Voltage Motors
(single-speed)

Frame Size	Low Voltage	High Voltage
DT71 thru DV180	230V - 60Hz	460V - 60Hz
	200V - 50Hz	400V - 50Hz

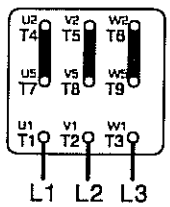
SEW-Eurodrive, Inc. USA — 10939P000004

Single-Speed / Dual-Voltage — Connection Diagram DT79

Low Voltage YY (See Motor Nameplate)



High Voltage Y (See Motor Nameplate)

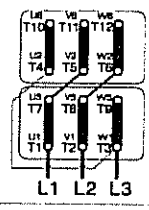


Frame Size	Low Voltage	High Voltage
DV200 thru DV225	230V - 60Hz	460V - 60Hz

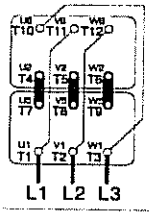
SEW-Eurodrive, Inc. USA — 10939P000007

Single-Speed / Dual-Voltage — Connection Diagram DT72

Low Voltage ΔΔ (See Motor Nameplate)



High Voltage Δ (See Motor Nameplate)

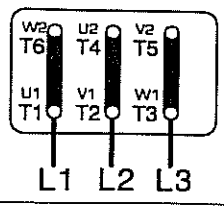


Frame Size	Low Voltage	High Voltage
DT71 thru DV225	200V - 50Hz	346V - 50Hz
	208V - 60Hz	360V - 60Hz
	220V - 50Hz	380V - 50Hz
	230V - 50Hz	400V - 50Hz
	240V - 50Hz	415V - 50Hz
	330V - 60Hz	575V - 60Hz

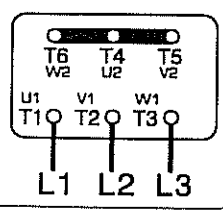
SEW-Eurodrive, Inc. USA — 10939P000001

Single-Speed / Dual-Voltage — Connection Diagram DT13

Low Voltage Δ (See Motor Nameplate)



High Voltage Y (See Motor Nameplate)



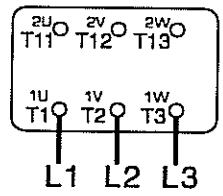
Single-Voltage Motors
(two-speed)

Frame Size
DT71 thru DV225

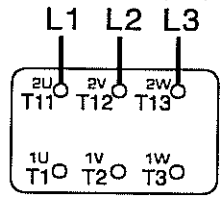
SEW-Eurodrive, Inc. USA — 10939P000011

Two-Speed / Two-Winding — Connection Diagram DT43

Low Speed Y (See Motor Nameplate)



High Speed Y (See Motor Nameplate)

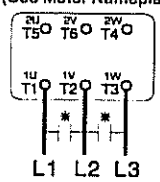


Frame Size
DT71 thru DV132S

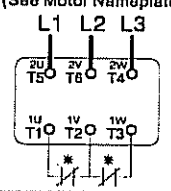
SEW-Eurodrive, Inc. USA — 10939P000009

Two-Speed / Single-Winding — Connection Diagram DT33

Low Speed Δ (See Motor Nameplate)



High Speed YY (See Motor Nameplate)



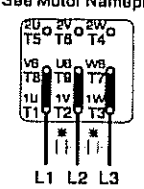
* Customer Supplied Motor Starter Contacts

Frame Size
DV132M thru DV225

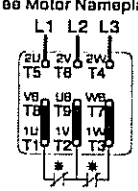
SEW-Eurodrive, Inc. USA — 10939P000010

Two-Speed / Single-Winding — Connection Diagram DT53

Low Speed Δ (See Motor Nameplate)



High Speed YY (See Motor Nameplate)



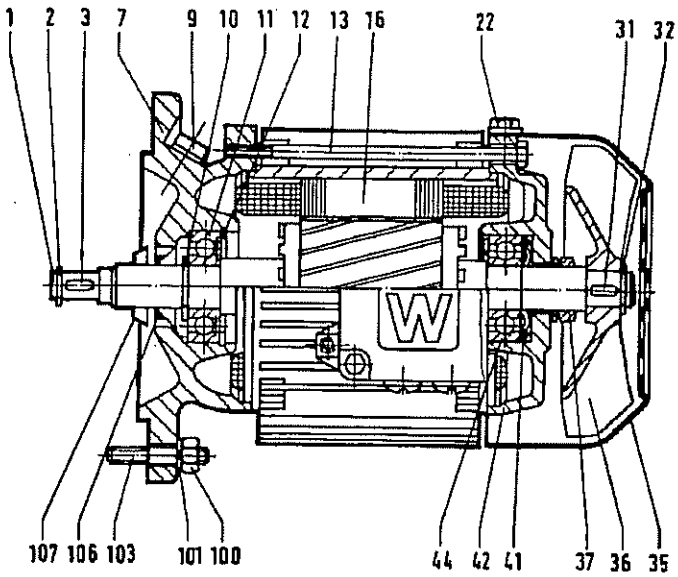
* Customer Supplied Motor Starter Contacts

Motor
DFT71C, D, & K; DFT80K & N
For Mounting to Gear Reducers

PARTS LIST

08 822 687 US

① Size 40-52 (except K47) and S32
② Size 60-67 and K47
③ Size 70-77
④ Size 80-87
⑤ Size 90-97



When ordering parts, please supply nameplate data with serial number or S.O. number, model number, description of part and part number. For terminal box parts, refer to respective parts list.

Shaded items denote recommended spare parts.
Ⓦ - Parts for severe/tropical duty motor feature.

Item	Part Name		Description	Part No	Qty
22	Hex Head Screw		M5x7mm	013 630 1	4
22	Hex Head Screw	Ⓦ	M5x8mm A2	011 853 2	4
22	Washer	Ⓦ	B5.3mm	012 917 8	4
31	Key		A5x5x18mm	010 006 4	1
32	Retaining Ring		15x1mm External	010 267 9	1
35	Fan Guard			135 059 5	1
36	Fan			135 599 6	1
37	V-Ring		V16	011 768 4	1
41	Spring Washer		33x39.1x0.5mm	011 589 4	1
42	B-Side Endshield			135 092 7	1
44	Ball Bearing		6203-2RS-J-C3	017 166 2	1
100	Hex Nut	①	M6mm	012 867 8	4
100	Hex Nut	②	M8mm	010 199 0	4
100	Hex Nut	③	M10mm	010 200 8	4

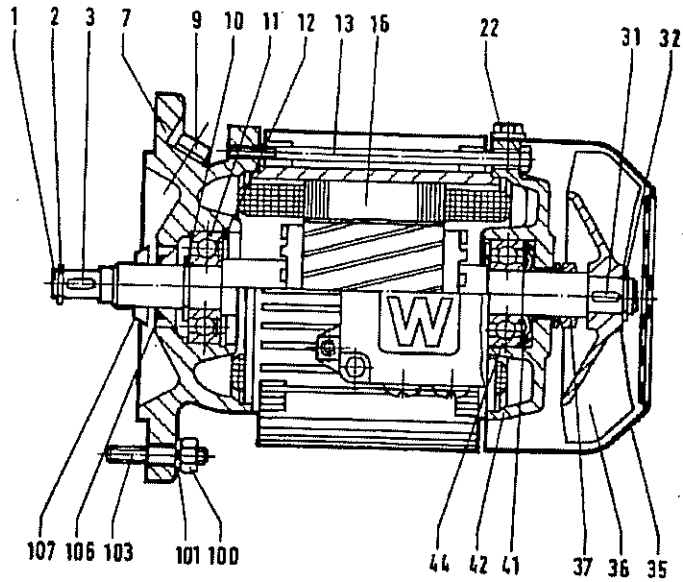
Item	Part Name		Description	Part No	Qty
100	Hex Nut	④⑤	M12mm	010 201 6	4
101	Lockwasher	①	B6mm	010 990 8	4
101	Lockwasher	②	B8mm	010 991 6	4
101	Lockwasher	③	B10mm	010 992 4	4
101	Lockwasher	④⑤	B12mm	010 993 2	4
103	Stud	①	M6x18mm	013 407 4	4
103	Stud	②	M8x20mm	010 074 9	4
103	Stud	③	M10x25mm	010 079 X	4
103	Stud	④⑤	M12x30mm	010 081 1	4
106	Oil Seal		A17x30x7mm	010 606 2	1
107	Oil Slinger		17x32mm	011 660 2	1

Motor
DFT71C, D, & K; DFT80K & N
For Mounting to Gear Reducers

PARTS LIST

08 822 687 US

① Size 40-52 (except K47) and S32
② Size 60-67 and K47
③ Size 70-77
④ Size 80-87
⑤ Size 90-97



When ordering parts, please supply nameplate data with serial number or S.O. number, model number, description of part and part number. For terminal box parts, refer to respective parts list.

Shaded items denote recommended spare parts.
Ⓔ - Parts for severe/tropical duty motor feature.

Item	Part Name		Description	Part No	Qty
1	Rotor		DFT71C,D4	135 116 8	1
1	Rotor		DFT71K4	135 453 1	1
1	Rotor		DFT71D6	135 690 9	1
1	Rotor		DFT71D8/2	135 117 6	1
1	Rotor		DFT80K4	135 457 4	1
1	Rotor		DFT80N4	135 120 6	1
1	Rotor		DFT80K6	135 694 1	1
1	Rotor		DFT80N6	135 692 5	1
1	Rotor		DFT80K8/2	135 458 2	1
1	Rotor		DFT80N8/2	135 121 4	1
2	Retaining Ring	DFT71	SW10x1mm External	011 519 3	1
2	Retaining Ring	DFT80	SW11x1mm External	011 520 7	1
3	Key	DFT71	A2x2x12mm	010 000 5	1
3	Key	DFT80	A3x3x14mm	010 069 2	1

Item	Part Name		Description	Part No	Qty
7	Flange	①	DFT71-80	135 033 1	1
7	Flange	②	DFT71-80	135 035 8	1
7	Flange	③	DFT71-80	135 037 4	1
7	Flange	④	DFT80	135 039 0	1
7	Flange	⑤	DFT80	181 366 8	1
9	Drain Plug	①②	M10x1mm	011 426 X	1
9	Drain Plug	③④	M12x1.5mm	011 430 8	1
9	Drain Plug	⑤	M22x1.5mm	011 431 6	1
10	Retaining Ring		17x1mm Internal	011 460 X	1
11	Ball Bearing		6303-2RS-J-C3	806 980 8	1
12	Retaining Ring		47x1.75mm Internal	010 318 7	1
13	Hex Head Screw	DFT71	M5x115mm	011 868 0	4
13	Hex Head Screw	DFT80	M5x165mm	011 869 9	4
16	Stator Complete				1

Troubleshooting Chart

PROBLEM	CAUSE	REMEDY
Motor Overheats (Check temperature with instrumentation)	Motor not connected for proper supply voltage	Check connection diagram on conduit box cover and correct the wiring.
	Supply voltage varies outside the allowable tolerance causing an undervoltage or overvoltage condition.	Assure correct supply voltage.
	Insufficient cooling air volume due to: a. Low frequency operation on variable frequency drive. b. Obstructed air flow.	Increase air flow: a. Continuous running auxiliary fan. b. Ensure unobstructed air flow.
	Ambient temperature is too high.	Ensure cool air gets to the motor. Ducting may be required.
	Overload at rated voltage. Unit will draw current in excess of nameplate rating and run below rated speed.	Select a larger unit.
	Motor's allowable duty cycle is exceeded (too many starts per hour required).	The problem may or may not be solved with a larger motor. Contact SEW-Eurodrive.
	Single phasing due to break or loose connection in supply line or blown fuse.	Repair supply lines. Replace fuses.
Motor does not run.	Blown fuse.	Determine and correct cause of failure and replace fuse.
	Motor protection device activated.	Reset protective device. Identify and correct cause for device activation.
	Motor protection device faulty or will not reset.	Check protection device for faults.
Motor will not start or starts sluggishly.	Motor not connnected for proper voltage.	Check connection diagram in conduit box cover and correct the wiring.
	Large voltage and/or frequency fluctuation at starting.	Ensure stable power supply.
For reduced voltage starting, motor will not start in Star Connection but will start in Delta connection.	Insufficient torque in Star Connection.	Start motor directly in Delta Connection if possible. Otherwise use a larger motor.
	Faulty contact in Star/Delta starter.	Correct fault condition.
Motor hums and draws high current.	Faulty or defective winding.	Have motor repaired by qualified service shop.
	Rotor dragging.	
Fuses blow or motor overcurrent protection trips immediately.	Short circuit in power supply conductors or in the motor.	Correct the fault condition.
	Motor has ground fault or winding to winding short circuit.	Have motor repaired by qualified service shop.
	Motor improperly connected.	Check connection diagram in conduit box cover and correct the wiring.
Motor runs in wrong direction.	Motor supply leads misconnected.	Switch two supply leads.

SEW-EURODRIVE

issue no. 72

application engineering notes

SUBJECT: Long Term Storage - Gear Reducers

What is Long Term Storage?

Long term storage is the preparation of a gear reducer that will not be operating for an extended period of time before start-up. A gear reducer that is sitting at a construction site lawaiting the completion of a new building, or a gear reducer that is sitting on a shelf as a spare needs to be properly prepared for this period of storage until they are put into service.

Why Long Term Storage?

In a normally operating gear reducer, the oil churns, splashes and provides corrosion protection to the internal metal surfaces through the oil film. In a gear reducer that is not operating, this oil film will drain off the metal surfaces leaving them unprotected. These metal surfaces can corrode (rust) due to the moisture in the air.

How are gear reducers prepared for Long Term Storage?

1. The gear reducers should be stored in a cool, dry environment. Do not store reducers outside, unprotected and exposed to the weather.
2. Reducers are filled with oil to the proper level for the stated mounting position. Then 6.5 ounces of Mobil Oil Corporation product Vaprotec 60032 is added for every gallon of oil in the reducer. This is per factory instructions GFI #21.

What are the benefits of Mobil Vaprotec?

1. Wide temperature range rust protection for steel surfaces in the air spaces which do not come into contact with the oil.
2. Protection of metal surfaces where the oil has drained off leaving only a thin film of oil.
3. Good corrosion protection for non-ferrous metals.
4. Provides corrosion protection for gear reducers that are operated very intermittently.
5. It is not necessary to change the oil prior to putting the gear reducer in service.

How does Vaprotec work?

Vaprotec provides excellent corrosion protection to metal surfaces above the oil level through a "controlled-volatility inhibitor system." By this we mean, the Vaprotec vaporizes in the air space above the oil level. These vapors provide the corrosion protection.

How long does Vaprotec last?

In a properly stored gear reducer with a breather closed off, Vaprotec will provide corrosion protection for up to six months. For gear reducers that are operated intermittently, or an open breather, or for storage longer than six months, it will be necessary to add additional Vaprotec for continual protection.

SEW-EURODRIVE

trouble shooting guidelines

COMPLAINT	WHAT TO LOOK FOR	RECOMMENDATIONS
Oil Leak	Has the breather been installed and/or the closing wire removed from the breather?	Correct
	Is the oil leak at an oil plug?	Replace sealing washer.
	Is the oil leak at the output cover flange? On the 6 series K units, new R units, and the FA units, gaskets are not used.	Tighten the cover bolts. Remove the output cover, clean surfaces, and apply a gasket eliminator sealant and/or gasket.
	Is the oil leak at an input cover?	Remove and replace oil seal. Check oil seal surfaces.
	Is the oil leak at a breather? Gear reducers which are full of oil due to their mounting positions and/or breathers installed near the high speed pinion gear are the most susceptible to oil leaking from the breathers.	Verify oil level is correct. In limited situations replace standard breather with a special breather and/or an external oil chamber.
Noise	RE: Application Engineering Note #41	
	If the noise is same in both directions of rotation, the noise is likely due to bearings.	Verify that the bearings are lubricated. Verify that the bearings on input/output shaft are not excessively loaded, i.e. checks OHL on these shafts. Verify the mounting of the reducer is proper as distortion of the gear reducer can cause bearing noise.
	If the noise is predominant in one direction, noise is likely due to gears.	Verify that the gears are lubricated. Verify mounting of the reducer is proper as distortion of the gear reducer can cause mis-mating of gears therefore, noise. Verify OHL on input/output shafts is within ratings.
	High speeds, low gears ratios, and/or larger units may have a higher noise level than expected.	Check dBA level of noise.

COMPLAINT	WHAT TO LOOK FOR	RECOMMENDATIONS
Shaft Breakage	Check OHL on shafts to verify it is within ratings. Check pitch diameter of sheave/sprocket/gear on shafts and distance from the shoulder of shaft. (RE: Application Engineering Note #70)	Increase shaft diameter. Increase pitch diameter of sheave/sprocket/gear and/or move it closer to the shoulder of the shaft.
Gear housing fracture	Check mounting of gear reducer	Mounting platform must be flat and rigid. Mounting plate thickness should be at least equal to the diameter of the mounting bolts.
Gear reducer housing hot to the touch	Verify gear reducer is sized for load and application	Use proper service factor in selection of gear reducer
	Gear reducer over filled, or under filled with oil	Fill gear reducer with oil to the correct level
	Gear reducer is filled with incorrect type of oil	Fill gear reducer with correct oil
Gear reducer oil is burnt, has a bad smell and may look like axle grease	Gear reducer is overloaded, esp. helical worm units.	Select a gear reducer with a torque capacity for the load
	Incorrect oil	User correct oil type for the gear reducer application
	Insufficient oil	Fill gear reducer with oil to the correct level
	High ambient temperature	Use an oil with a higher temperature range.
Gear teeth breakage	Shock loads	Select a gear reducer with the proper service factor for the load
	Sudden jam-up of the load	Eliminate cause of jam-up and/or install torque overload devices.
Burnout	Overload-motor current draw above nameplate rating	Reduce load and select proper overload protection
	Under voltage - motor has to draw more current to produce the same torque. Torque capability drops off as the square of the ratio of the actual voltage to rated voltage. e.g. operating at 230V rated motor on 200V would result in a torque capability of 75% of original rating.	Provide the correct line voltage and/or provide a motor with the correct voltage rating.
	___ Over voltage (greater than +10%)	Reducer line voltage to rating of motor

COMPLAINT	WHAT TO LOOK FOR	RECOMMENDATIONS
Burnout	Unbalanced line voltage.	Balance line voltage.
	Motor misconnected - e.g. a motor connect for 230V and with a 460V line, verify location of jumpers on motor terminal block.	Reconnect motor.
	Hi-cyclic - permissible number of starts per hour exceeded.	Supply motor with a higher class of insulation and/or a continuous running fan
	Brake malfunction on a brakemotor	Troubleshoot brake
	High ambient temperature in excess of 40°C.	Supply motor with a higher class of insulation and/or derate motor.
Motor will not accelerate load	Under voltage - e.g. operating a 230V motor on a 200V line	Replace motor with one rated for the line voltage.

SEQUENCE OF OPERATION (controls to be supplied by customer)

* *example for reference only!* *CONTROL SYSTEM SEQUENCE OF OPERATION*

STARTUP

1. Turn main disconnect switch to ON position, this provides 460 Vac 3 Phase power to motor circuit and control power transformer.

2. Place system control power selector switch to ON position. This provides control power to alarm circuits and is indicated by green illuminated selector switch light.

3. When system is ready for operation, press system control power start pushbutton, this energizes master control relay which provides control power to solenoid and motor control circuits. System control power start (reset) is indicated by green illuminated pushbutton light. Emergency stop pushbutton on panel will de-energize master control relay causing shutdown of showers and drive instantly. To restart, system control power start pushbutton must be reset again.

4. Place internal shower selector switch in auto position for Milliscreen to cycle shower solenoid on and off dependent on cycle timer setting. In addition, shower can be selected to ON continuous operation or off.

5. Place external shower selector switch in auto position for Milliscreen to cycle external cleaning shower on and off dependent on cycle timer setting. In addition, external shower can be selected to ON continuous operation or OFF.

6. Start Milliscreen drive by pressing start pushbutton.
   - Motor "ON" will be indicated by Green illuminated start pushbutton.

SHUTDOWN

Shutdown should be in reverse order as startup.

1. Stop Milliscreen by pressing STOP pushbutton.
2. Place internal shower selector switch to OFF position.
3. Place external shower selector switch to OFF position.
4. Turn system control power selector switch to OFF position.

ALARM CONTROL

The following conditions will sound horn and illuminate amber indicator light. Shutdown of system components will be same as stated in previous sequence. Alarm silence pushbutton will acknowledge and silence horn, alarm reset will extinguish alarm indicator after condition has been cleared.

- Milliscreen : Motor overload

8.0 PARTS MANUAL

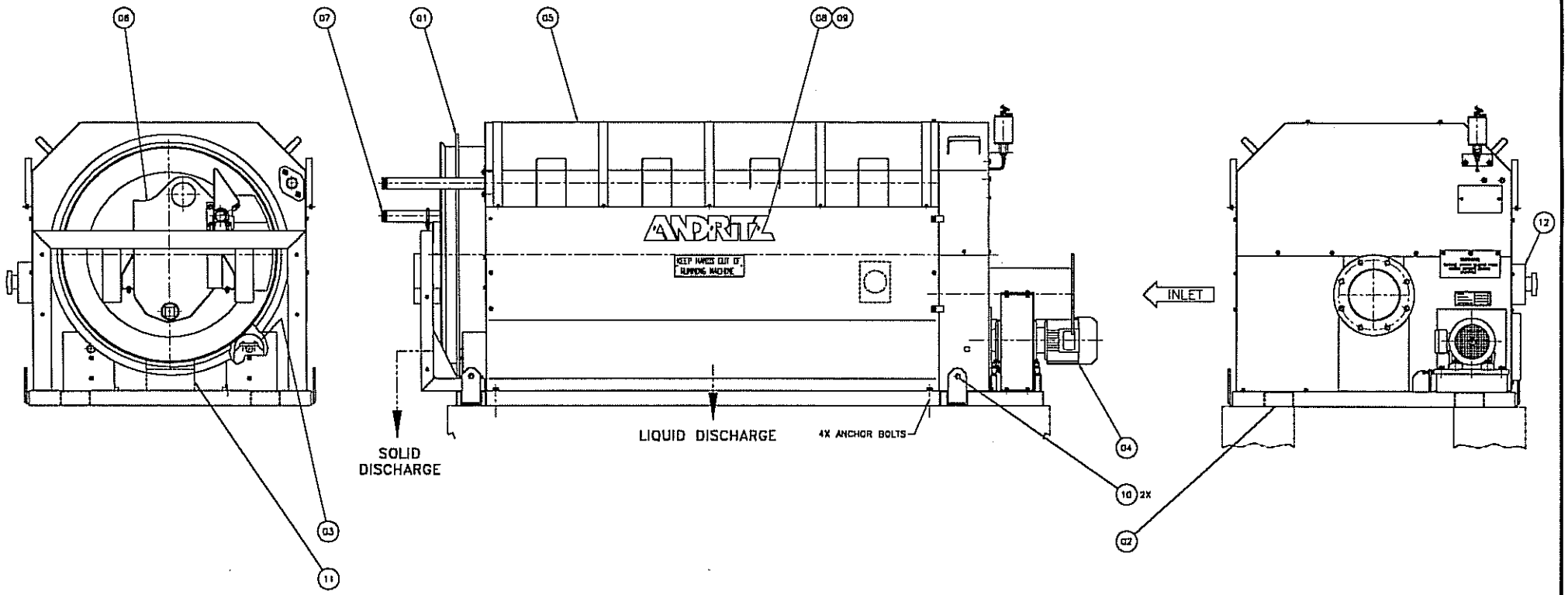
MOLSON BREWERIES
BARRIE, ONTARIO, CANADA

NO. 475-940
3 X 6B MILLISCREEN
PARTS MANUAL

APPROVED BY: KN
4-Feb-99

ANDRITZ-Ruthner, Inc.
1010 Commercial Blvd. S., Arlington, TX 76001
(817) 465-5611 FAX (817) 472-8589

TABLE OF CONTENTS



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ARLINGTON, TEXAS 76001
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TITLE

TOP ASSEMBLY
3 X 6B MILLISCREEN

DRAWING NUMBER

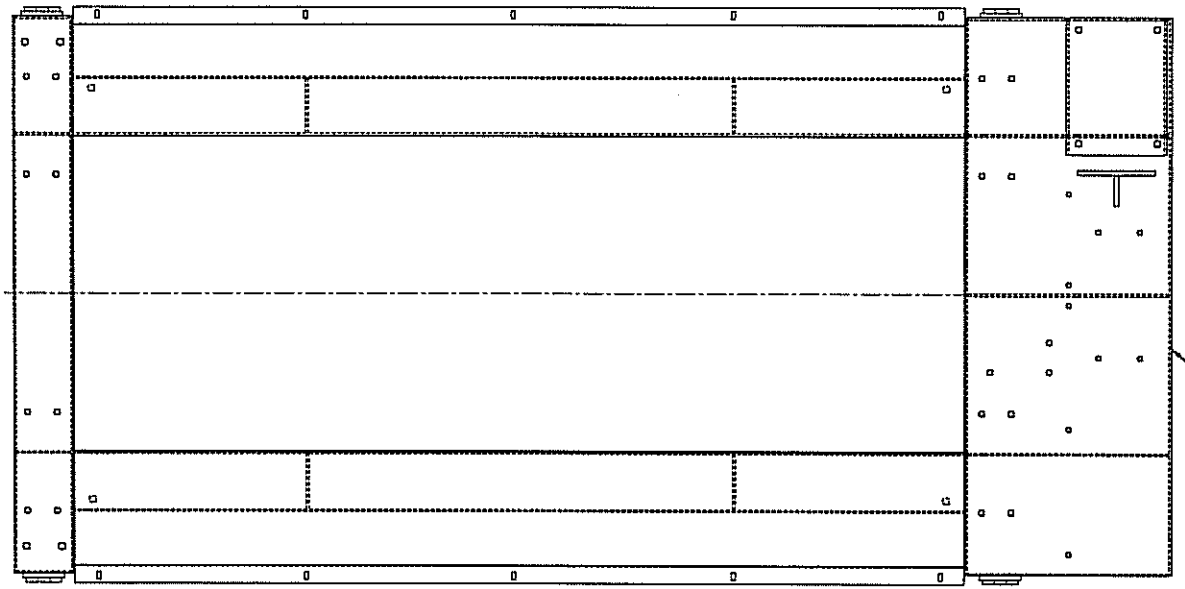
M475940-1

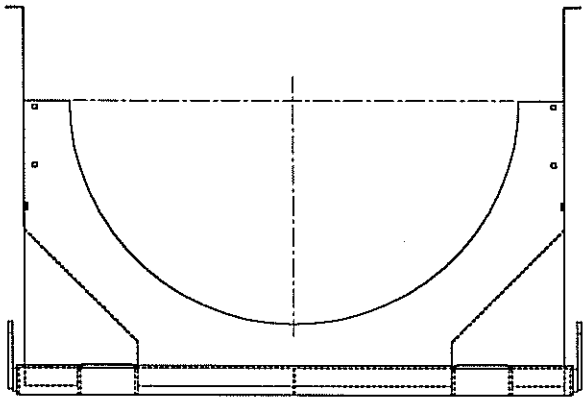
PARTS LIST

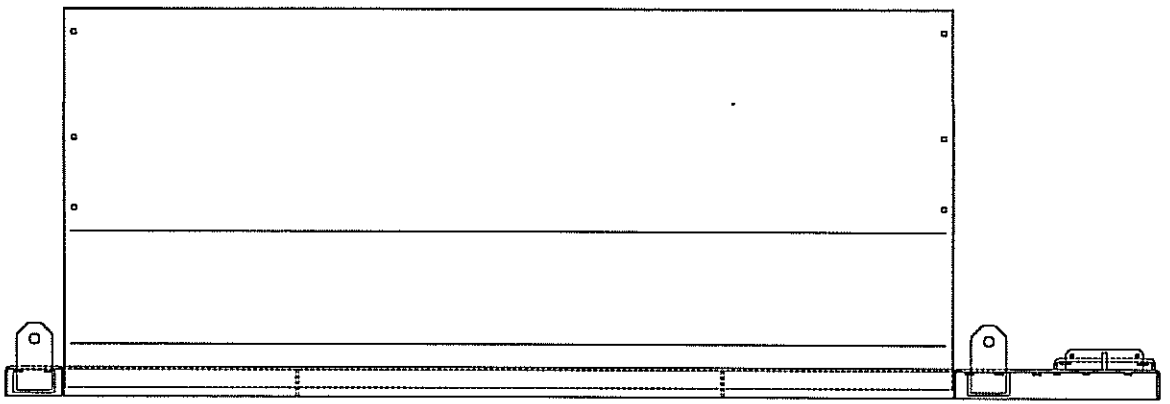
ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	M475940-1	MAIN ASSEMBLY FOR 3 X 6B MILLISCREEN	M475940-1-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			M475940-1-XL	MAIN ASSEMBLY FOR 3 X 6B MILLISCREEN
1	1	EA	DMM16916-03-XL	SCREEN ASSEMBLY
2	1	EA	DMM16909-XL	BASE ASSEMBLY
3	1	EA	DMM16937-XL	TRUNNION ASSEMBLY
4	1	EA	DMM16924-XL	DRIVE ASSEMBLY
5	1	EA	DMM16926-XL	COVER ASSEMBLY
6	1	EA	DMM16918-XL	TANK ASSEMBLY
7	1	EA	DMM16931-XL	SHOWER ASSEMBLY
8	1	EA	DMM15559	TAGGING
9	1	EA		PAINT SPECS
10	2	EA	DMM16440-3X-XL	LUBE ASSEMBLY
11	1	EA	DMM16633	SHIPPING PREPERATIONS
12	1	EA		E-STOP

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/10/99	0				







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TITLE

BASE WELDMENT
3 X 6B MILLISCREEN

DRAWING NUMBER

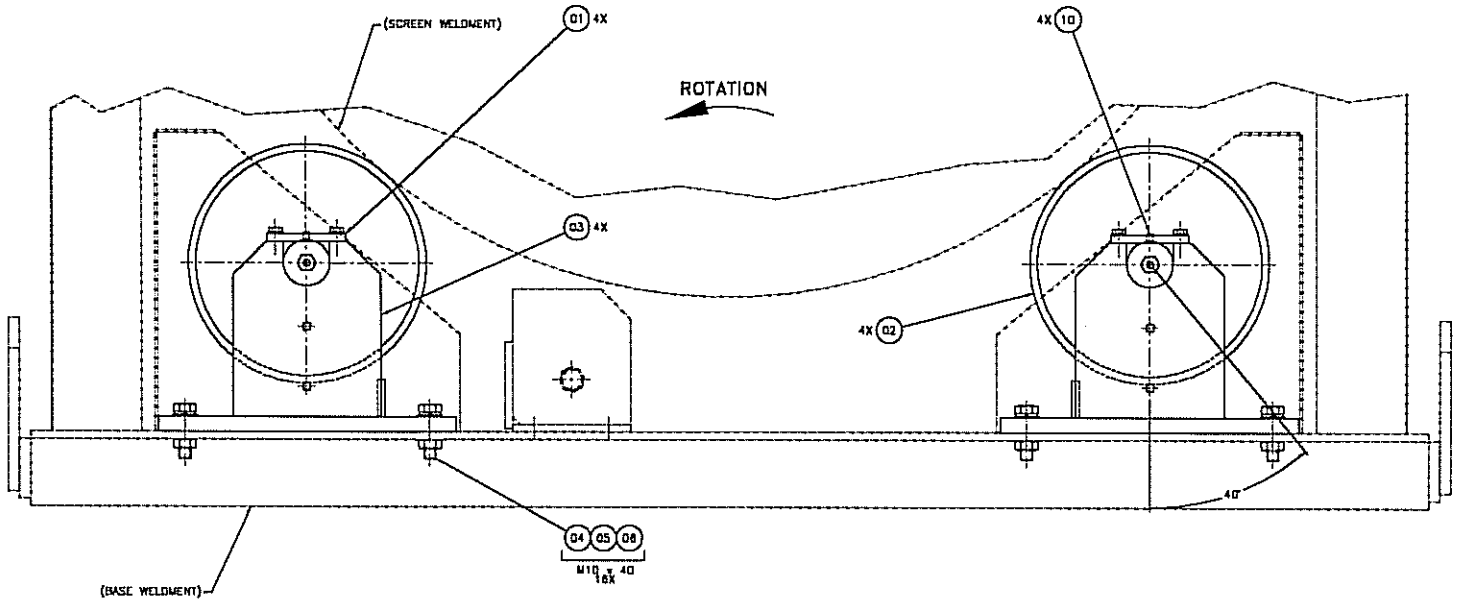
DMM16909

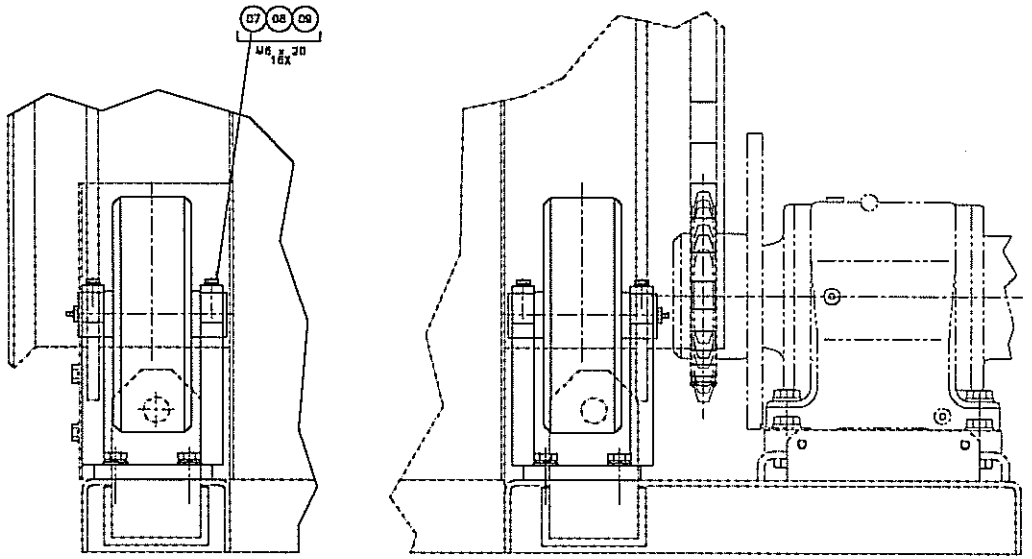
PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16909	BASE WELDMENT 3 X 6B MILLISCREEN	DMM16909-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
1	1	EA	DMM16909-XL	BASE WELDMENT

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/3/99	1	CURRENT W/DWG		TB	KN





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TITLE
TRUNNION INSTALLATION KIT

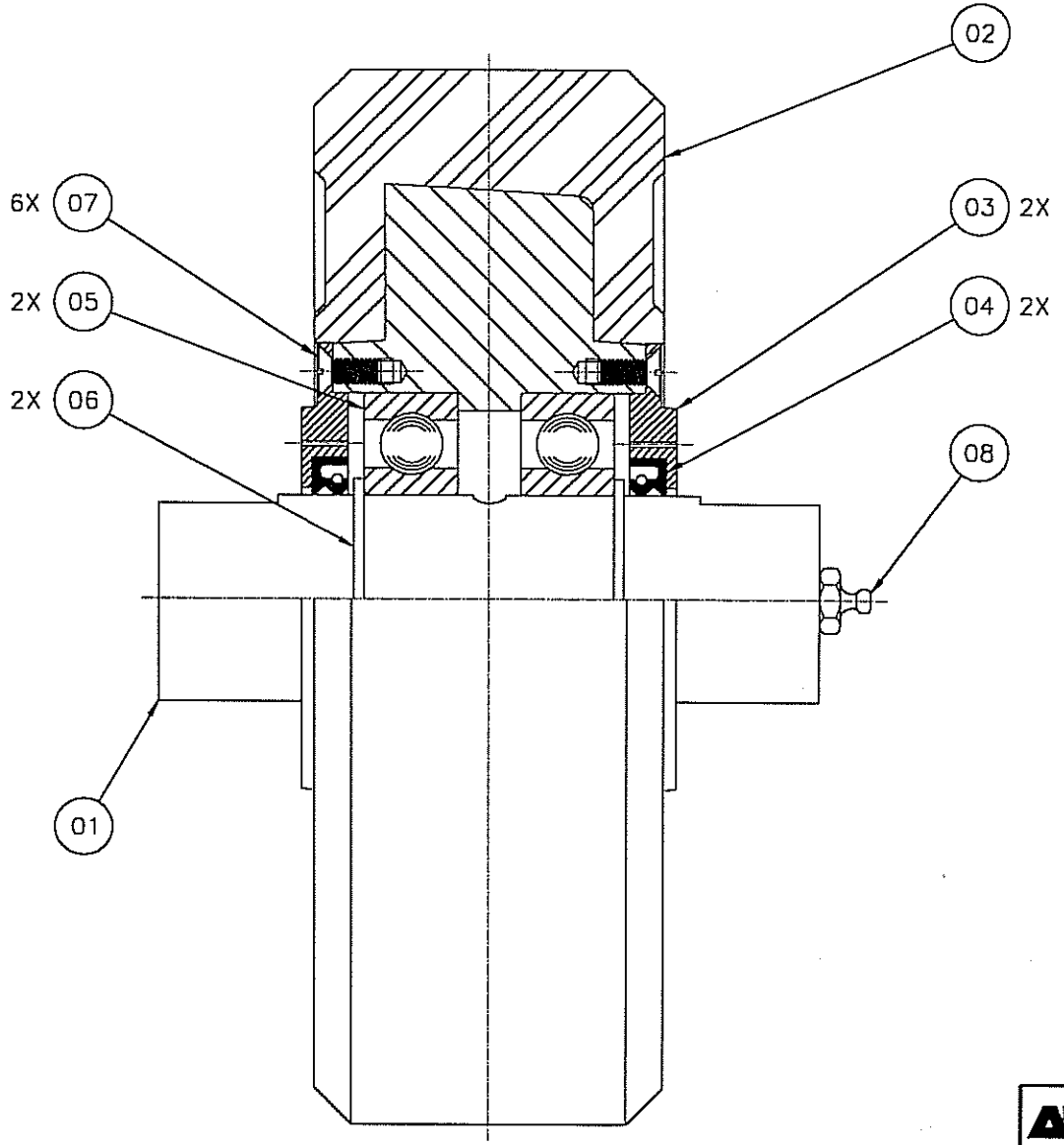
DRAWING NUMBER
DMM16937

PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16937	TRUNNION INSTLN KIT (3 FT SERIES)	DMM16937-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16937-XL	TRUNNION INSTLN KIT (3 FT SERIES)
1	8	EA	DMM16937-01-XL	FLAT BAR, 1/2 X 4 X 3/4
2	4	EA	DMM13402	CONTRA/S WHEEL ASSEMBLY
3	4	EA	DMM16938-XL	TRUNNION MOUNT
4	16	EA	933SXM10X40	HEX BOLT, M10 X 40
5	16	EA	125SXM10	FLATWASHER, M10
6	16	EA	127SXM10	LOCKWASHER, M10
7	16	EA	933SXM06X20	HEX BOLT, M6 X 20
8	16	EA	125SXM06	FLATWASHER, M6
9	16	EA	127SXM06	LOCKWASHER, M6
10	8	EA	916SXM06X08	SET SCREW, M6 X 8 LG

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
10/20/98	0	REL. TO MFG.		TB	KN



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TITLE
WHEEL ASSEMBLY, MILLISCREEN

DRAWING NUMBER
DMM13402

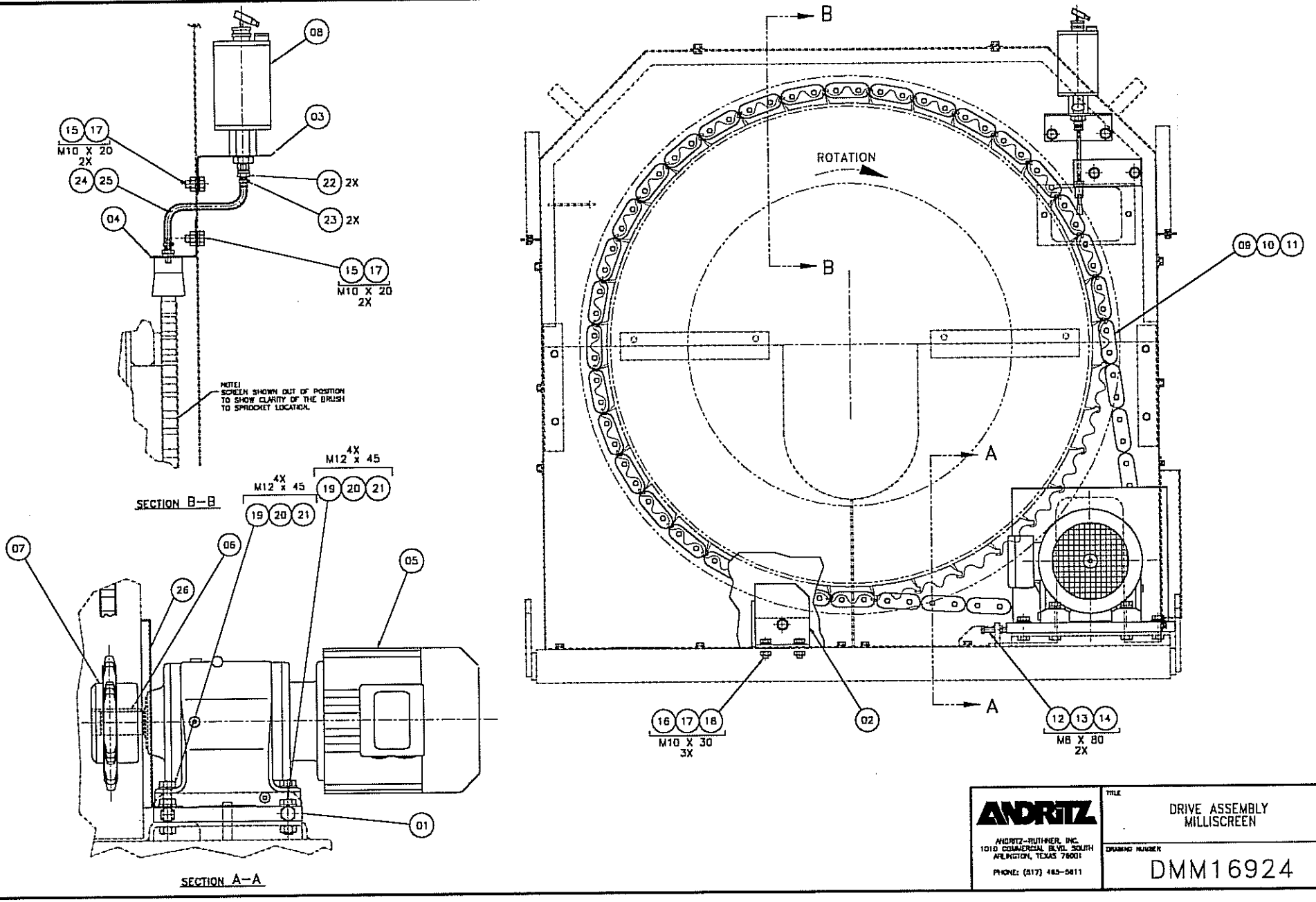
PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM13402	CONTRA / S WHEEL ASSY (QTY.'S FOR 1 WHEEL)	DMM13402

NO.	QTY.	UM	PART NO.	DESCRIPTION
0 *			DMM13402	CONTRA / S WHEEL ASSY
1	1	EA	DMM12723-XL	TRUNNION WHEEL AXLE
2	1	EA	300-123	WHEEL 8" DIA
3	2	EA	300-124	END COVER
4	2	EA	376040X55X8	OIL SEAL, 40mm x 55mm x 8mm
5	2	EA	6208-2RSJ	DEEP GROOVE BALL BEARING
6	2	EA	471-40	SNAP RING EXTERNAL, 40mm
7	6	EA	963SXM05X12	SLOTTED FLAT HD SCR, M5 x 12
8	1	EA	5000	GREASE FITTING

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
10/20/98	3	MADE CURRENT WITH DWG REV. 3		CDM	TB

* RECOMMENDED SPARE PART. SEE PAGE 24



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TITLE

DRIVE ASSEMBLY
MILLISCREEN

DRAWING NUMBER

DMM16924

PARTS LIST

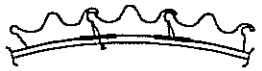
ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16924	DRIVE ASSY	DMM16924-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16924-XL	DRIVE ASSY
1	1	EA	DMM15565-XL	MOTOR MOUNT WELDMENT
2	1	EA	DMM16243-XL	STABILIZER ASSEMBLY
3	1	EA	DMM16131-XL	BRACKET, OILER
4	1	EA	DMM16132-XL	BRACKET, BRUSH
5	1	EA	**	DRIVE, GEARBOX & MOTOR
6	1	EA	KY.25SQX1.5	KEY, 1/4 X 1-5/16
7 *	1	EA	DMM16943	DRIVE SPROCKET
8	1	EA	DC-OILR-12/M	CHAIN OILER, MANUAL BRUSH
9 *	1	EA	DC-S62	ISO-S62 AGRICULTURAL CHAIN, 1.65 PITCH, 13FT LG
10 *	1	EA	CL-S62	CONNECTING LINK
11 *	1	EA	OL-S62	OFFSET LINK
12	2	EA	933SXM08X80	HEX BOLT, M8 X 80
13	2	EA	127SXM08	LOCKWASHER, M8
14	2	EA	934SXM08	HEX NUT, M8
15	4	EA	933SXM10X20	HEX BOLT, M10 X 20
16	3	EA	933SXM10X30	HEX BOLT, M10 X 30
17	7	EA	125SXM10	FLATWASHER, M10
18	3	EA	127SXM10	LOCKWASHER, M10
19	8	EA	933SXM12X45	HEX BOLT, M12 X 45
20	8	EA	125SXM12	FLATWASHER, M12
21	8	EA	127SXM12	LOCKWASHER, M12
22	2	EA	PNH-F-2-2T2HOA5-P01	PARKER TUBE END TO "O" RING
23	2	EA	CLAMP-0950-004	HOSE CLAMP, 1/4" ID
24	1	EA	HOSE0.125PROPYLENE	HOSE, 1/8" ID X 18"
25	1	EA	PNH-T-P68-P01	HOSE, 3/8" ID X 18"
26	1	EA	DMM16612-XL	SPROCKET GUARD

NOTE: FOR SCREEN SPROCKET SEGMENTS, SEE SCREEN WELDMENT.

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/4/99	0	REL. TO MFG.		TB	KN

* RECOMMENDED SPARE PART. SEE PAGE 24.



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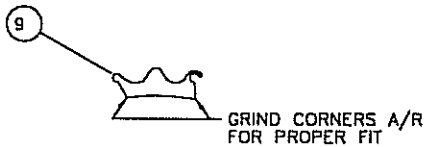

DETAIL C
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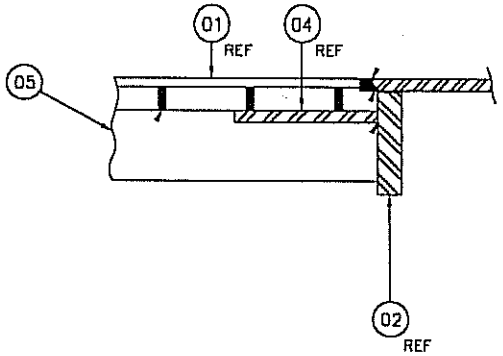

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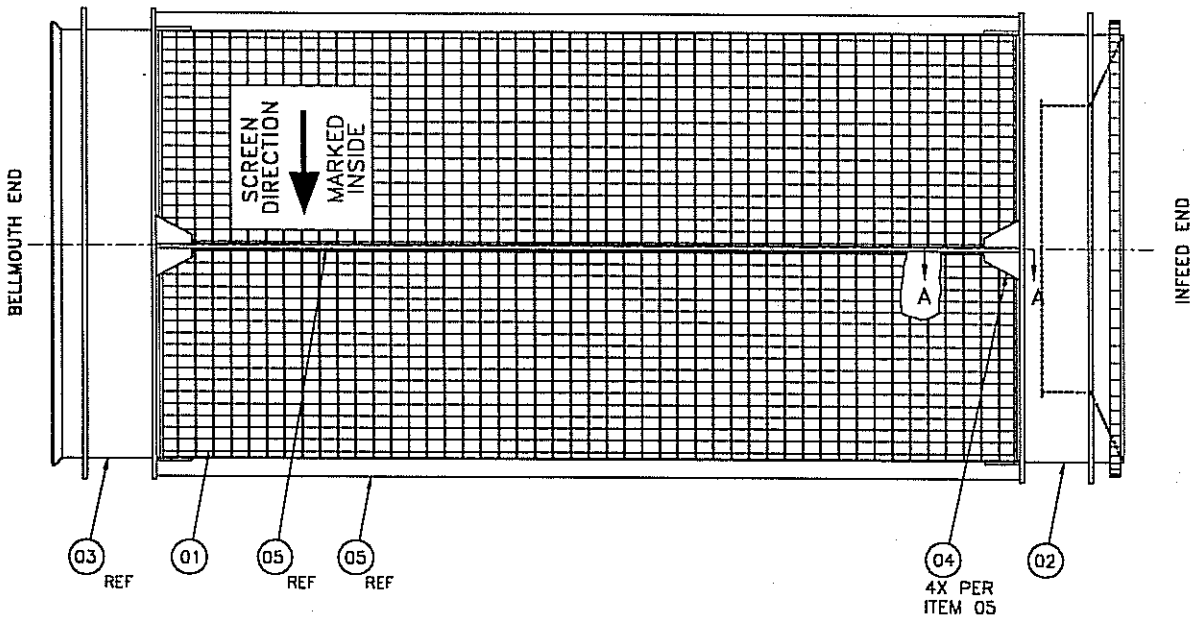

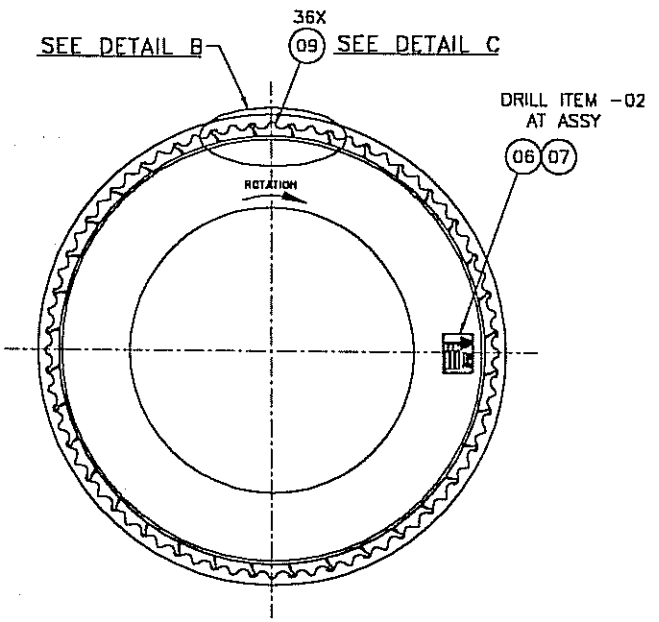

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TITLE
SCREEN WELDMENT
.020" OPENING

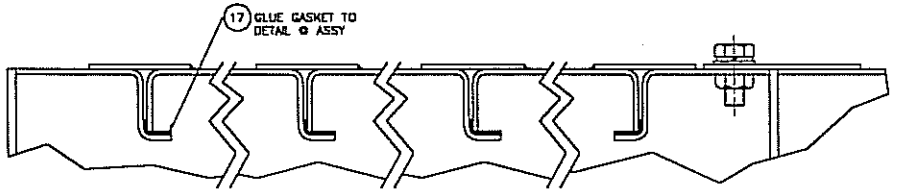
DRAWING NUMBER
DMM16916-03

PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16916	3 X 6B SCREEN WELDMENT (.020" OPENING)	DMM16916-03-TL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16916-03-XL	3 X 6B SCREEN WELDMENT
1	1	EA	DMM13033-36-XL	SCREEN ELEMENT, 3 X 6 X .020" OPENING
2	1	EA	DMM16917-XL	INLET RING
3	1	EA	DMM16034-XL	OUTLET RING
4	16	EA	DMM16008-01-XL	GUSSET
5	4	EA	DMM16009-13-XL	STIFFENER BAR
6	1	EA	DMM12729	MODEL NUMBER PLATE
7	4	EA	RIVET-.13X.25-SS	POP RIVET, 1/8" X 1/4" LG
8	1	EA	DMM16923	***NOT SHOWN FOR CLARITY*** / DIVERTER BLADE
9	36	EA	DMM12817	SPROCKET SEGMENT, S62 CONTRA

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/4/99	0				



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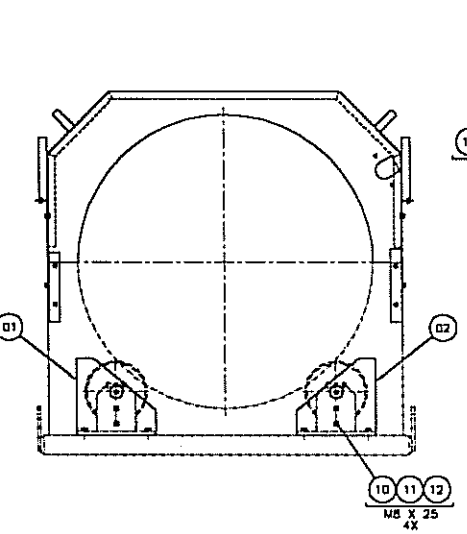

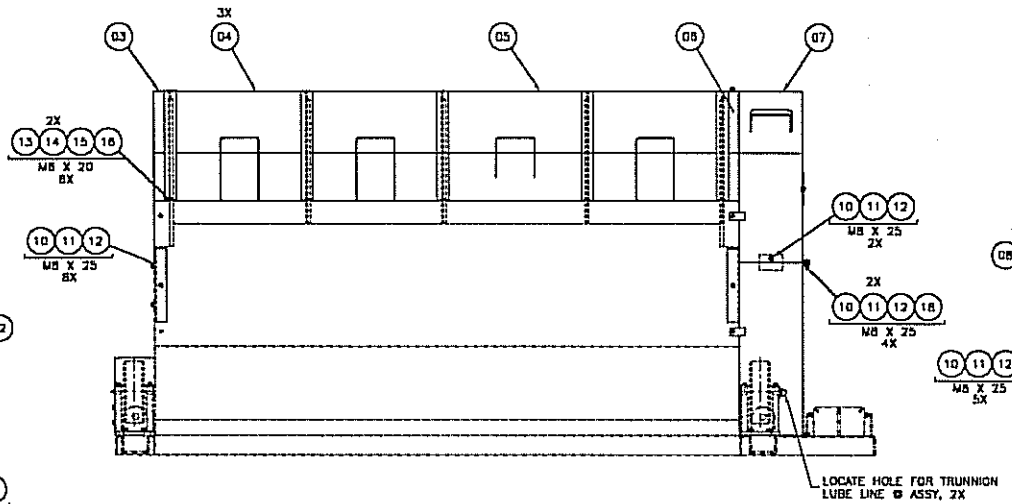

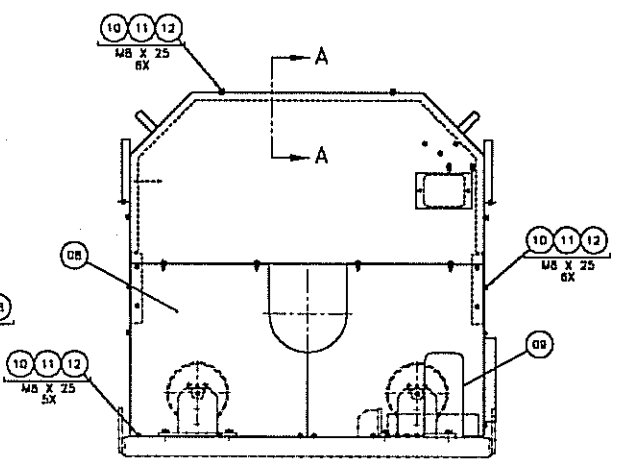

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TITLE
COVER ASSEMBLY
3 X 6 MILLISCREEN

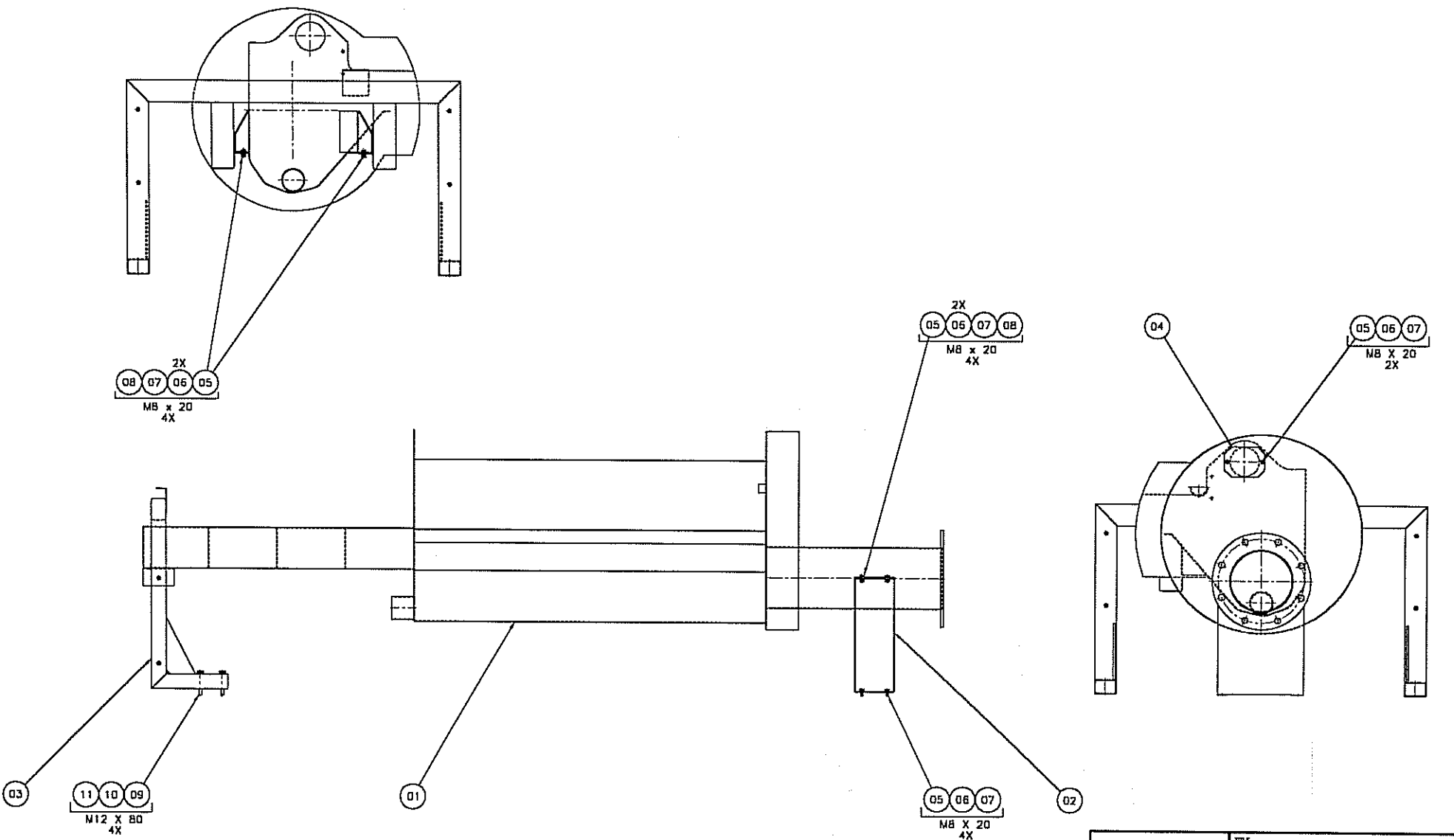
DRAWING NUMBER
DMM16926

PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16926	COVER ASSEMBLY, 3 X 6B MILLISCREEN	DMM16926-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16926-XL	COVER ASSEMBLY, 5 X 5B MILLI
1	1	EA	DMM16941-XL	COVER, TRUNNION, LH
2	1	EA	DMM16942-XL	COVER, TRUNNION, RH
3	1	EA	DMM16250-XL	COVER, DISCHARGE END
4	3	EA	DMM16251-XL	COVER, OUTSIDE
5	1	EA	DMM16927-XL	COVER, CENTER
6	1	EA	DMM16254-XL	COVER, INLET END
7	1	EA	DMM16928-XL	CHAIN GUARD, TOP SECTION
8	1	EA	DMM16929-XL	CHAIN GUARD, LOWER LEFT SECTION
9	1	EA	DMM16930-XL	CHAIN GUARD, LOWER RIGHT SECTION
10	35	EA	933SXM08X25	HEX BOLT, M8 X 25
11	39	EA	125SXM08	FLATWASHER, M8
12	35	EA	127SXM08	LOCKWASHER, M8
13	10	EA	933SXM06X20	HEX BOLT, M6 X 20
14	20	EA	125SXM06	FLATWASHER, M6
15	10	EA	127SXM06	LOCKWASHER, M6
16	10	EA	934SXM06	HEX NUT, M6
17	5O	FT	GASKWHTNIT1/16	GASKET
18	4	EA	934SXM08	HEX NUT, M8

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/4/99	0	REL. TO MFG.		TB	KN



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ARLINGTON, TEXAS 76001
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TITLE

INLET TANK ASSEMBLY
3 X 6B MILLISCREEN

DRAWING NUMBER

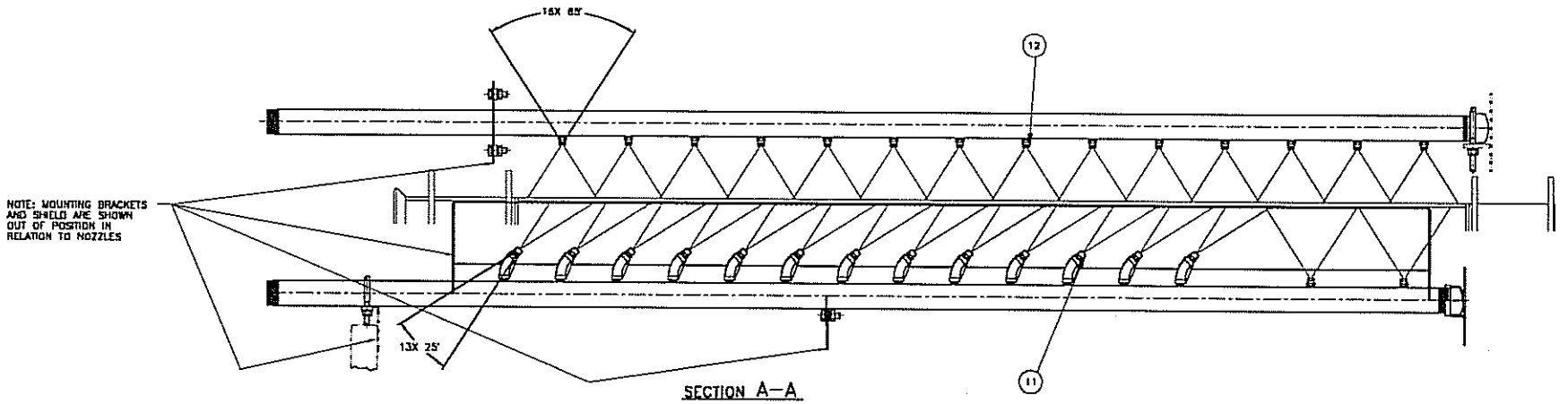
DMM16918

PARTS LIST

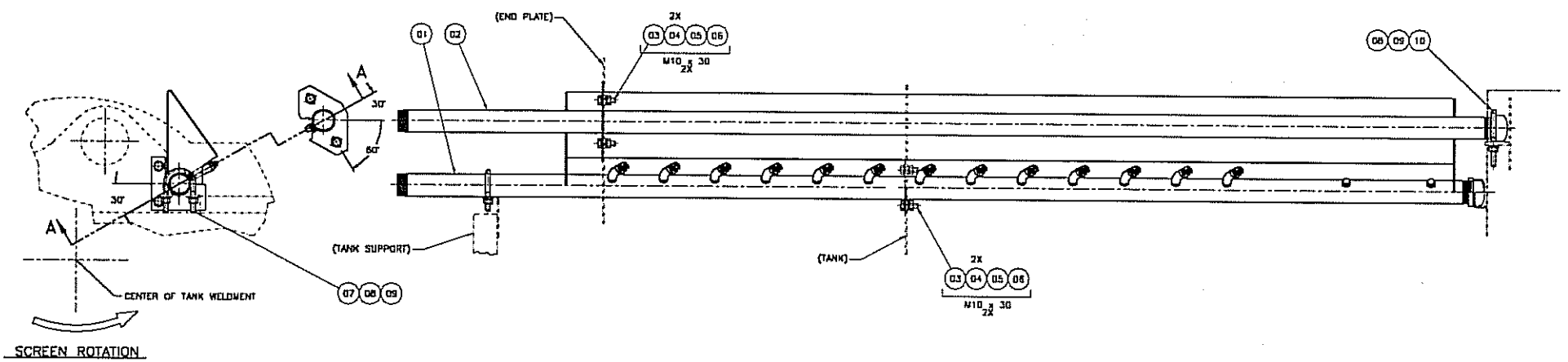
ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16918	INLET TANK ASSY, 3 X 6B MILLI	DMM16918-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16918-XL	INLET TANK ASSY
1	1	EA	DMM16919-XL	TANK WELDMENT
2	1	EA	DMM16922-XL	PEDESTAL WELDMENT
3	1	EA	DMM16908-XL	SUPPORT, TANK
4	1	EA	DMM16194-XL	COVER, LIFTING HOLE
5	14	EA	933SXM08X20	HEX BOLT,M 8 X 20
6	22	EA	125SXM08	FLATWASHER, M8
7	14	EA	127SXM08	LOCKWASHER, M8
8	8	EA	934SXM08	HEX NUT, M8
9	4	EA	933SXM12X80	HEX BOLT, M12 X 80
10	4	EA	125SXM12	FLATWASHER, M12
11	4	EA	127SXM12	LOCKWASHER, M12

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/4/99	0				



SECTION A–A



SCREEN ROTATION

ANDRITZ ANDRITZ-RUTHNER, INC. 1010 COMMERCIAL BLVD. SOUTH ARLINGTON, TEXAS 76001 PHONE: (817) 465-5611	TITLE SHOWER ASSEMBLY DRAWING NUMBER DMM16931

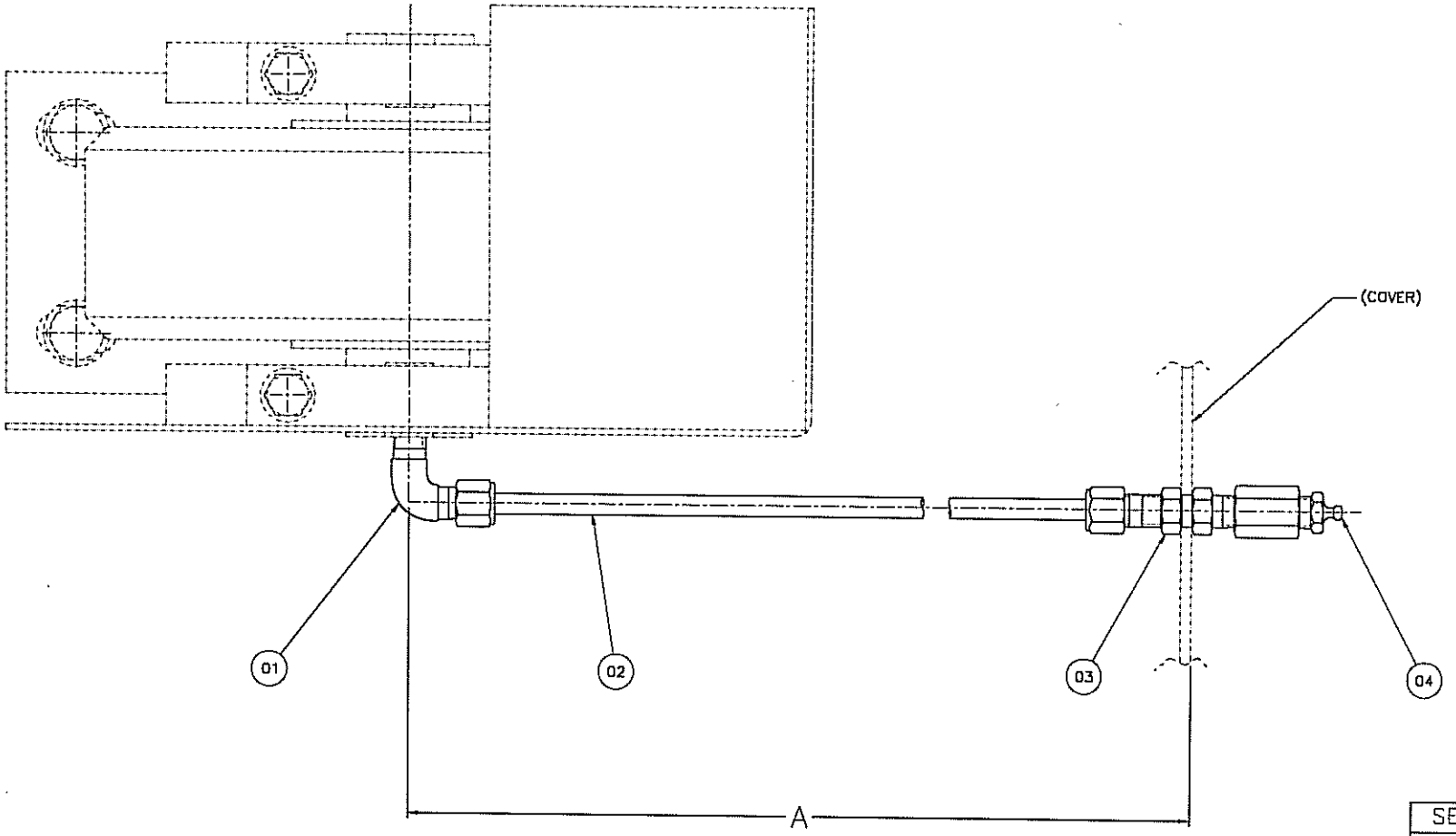
PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16931	SHOWER ASSY,3 X 6B MILLI	DMM16931-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16931-XL	SHOWER ASSY
1	1	EA	DMM16932-XL	INTERNAL SHOWER PIPE
2	1	EA	DMM16933-XL	EXTERNAL SHOWER PIPE
3	4	EA	933SXM10X30	HEX BOLT, M10 X 30
4	8	EA	125SXM10	FLATWASHER, M10
5	4	EA	127SXM10	LOCKWASHER, M10
6	4	EA	934SXM10	HEX NUT, M10
7	1	EA	U-BOLTT1.5S1/4C	PIPE U-BOLT W/NUTS, 1-1/2" STD LENGTH
8	4	EA	18221X1/4	FLATWASHER, 1/4"
9	4	EA	18211X1/4	LOCKWASHER, 1/4"
10	1	EA	U-BOLTT2.0S1/4C	PIPE U-BOLT W/NUTS, 2" STD. LENGTH
11 *	13	EA	A2890-207/02	SPRAY NOZZLE , 25° ANGLE, SS
12 *	16	EA	A2890-207/01	SPRAY NOZZLE , 65° ANGLE, SS

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
2/4/99	0	REL. TO MFG.		TB	KN

* RECOMMENDED SPARE PART. SEE PAGE 24.



SERIES	DIM A
2X	8.500
3X	9.750
4X	11.250
5X	12.750
6-1/2X	15.000

ANDRITZ

ANDRITZ-RUTHNER, INC.
1010 COMMERCIAL BLVD. SOUTH
ARLINGTON, TEXAS 76001
PHONE: (817) 465-5611

TITLE
LOCAL LUBE LINE ASSEMBLY

DRAWING NUMBER
DMM16440

PARTS LIST

ANDRITZ	DRAWING NO.	DESCRIPTION	P/N
	DMM16440	LUBE LINE ASSEMBLY	DMM16440-3X-XL

NO.	QTY.	UM	PART NO.	DESCRIPTION
0			DMM16440-3X-XL	LUBE LINE ASSEMBLY
1	1	EA	PNH-F-S4ME2-S01	MALE 90° ELBOW (1/8" NPT X 1/4 OD TUBE)
2	1	EA	PNH-T-S4X.180-X01	SS TUBE, 1/4" OD
3	1	EA	PNH-F-S4BU2-S01	BULKHEAD MALE CONN. (1/8" NPT X 1/4" OD TUBE)
4	1	EA	5000	LUBE FITTING, STRAIGHT

DATE	REV.	DESCRIPTION	EIR #	CHK.	APP.
10/20/98	0				

MOLSON BREWERIES, BARRIE, ONTARIO, CANADA

3 X 6B MILLISCREEN

DRIVE LIST

JOB # 475-940

GEARMOTOR: (BY ANDRITZ)

PART NO. DRV-C-1HIL/I-E01

EURODRIVE PARALLEL HELICAL GEARMOTOR
TYPE R60DT80N4Z-KS
GEAR RATIO. 21.41 :1
OUTPUT RPM. 79 BASED ON 1700 INPUT RPM
MOUNTING POSITION B3, CONDUIT BOX 0° , INCH SHAFT 1.250"

MOTOR: 1HP, 575VAC, 3 PH., 60HZ., 1700 RPM, 1.15 SERVICE FACTOR, MILL AND CHEMICAL DUTY, 40° C AMBIENT, CONTINUOUS DUTY, NEMA DESIGN B, CLASS F INSULATION, INTEGRAL MOUNT, DT80 FRAME.

RECOMMENDED SPARE PARTS LIST
FOR
3 X 6B MILLISCREEN
MOLSON BREWERIES
BARRIE, ONTARIO, CANADA
JOB NO #475-940

DESCRIPTION		PART NO.	QTY.
			Qty. for 1 machine
Trunnion Wheel Assemblies		DMM13402	4
Drive Chain		DC-S62	18 FT
Drive Chain Connector Links			
(Masterlinks)		CL-S62	1
(OFFSET LINKS)		OL-S62	1
Drive Sprocket (12 teeth, 1.25" bore)		DMM16943	1
Shower Nozzles	65° ANGLE SPRAY PATTERN, SS, INTERNAL	A2890-207/02	10
	25° ANGLE SPRAY PATTERN, SS,EXTERNAL	A2890-207/01	10
Guide Block	(UHMWPE)	DMM16243-04	1