

OWNER'S MANUAL

ALTANIUM MULTISHOT™

Fully-servo driven rotary platen

Issue: v0 – December 2025

Document No.: 13990853

HUSKY®

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1 PROPRIETARY AND CONFIDENTIAL

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2 SCOPE

The target audience of this document is the personnel who will be operating and maintaining the Altanium Multishot™ Manufacturing Altanium Multishot™-Rotary Platen.

Read this manual entirely and understand the system before operating the related Rotary Platen equipment.

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3 SAFETY

WHEN OPERATED INCORRECTLY THIS DEVICE HAS THE CAPABILITY TO CAUSE DEATH OR SERIOUS INJURY, OR ECONOMIC LOSS TO THE MOLDING EQUIPMENT OR MOLD

THIS MANUAL USES THE FOLLOWING CONVENTIONS TO ALERT YOU FOR SPECIFIC AREAS OF CONCERN.

TO ALERT AREAS WHERE POTENTIALLY HAZARDOUS SITUATIONS WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY, THIS SYMBOL APPEARS WITH ADDITIONAL INFORMATION RELATED TO THE HAZARD.



TO ALERT AREAS WHERE A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY OR ECONOMIC LOSS, THIS SYMBOL APPEARS WITH ADDITIONAL INFORMATION RELATED TO THE HAZARD



This rotary platen relies on your injection IMM's safety devices and interlock circuits to prevent rotation when any of the gates are opened, or when the mold, or cores are in an incorrect position.



Danger! Failure to follow these recommendations may cause damage or injury. We recommend you frequently test the function of these devices and circuits.

3.1 TEST SAFETY GATES

With the press in manual mode and with its front gate open, attempt to rotate the Rotary Platen. If the Rotary Platen moves, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

Some press manufacturers will provide an E-Stop condition to the EM67 interface when the back gate is open. With the press in manual mode and the pump running, open the back gate. If the manufacturer provides an E-Stop condition, the Altanium Multishot™ Rotary Platen control should also get an E-stop fault and all motion of the Altanium Multishot™ unit should be disabled. If this does not occur, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

3.2 TEST PLATEN ROTATION SAFETIES

With the press in manual mode and the rotary platen not in either one of its two positions, CW or CCW, attempt to close the clamp. If the clamp closes, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

3.3 TEST EJECTOR FORWARD SAFETIES

With the press in manual mode, and the rotary platen not in either one of its two positions, CW or CCW, attempt to extend the ejectors. If the ejectors extend, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

Your injection IMM controls the timing between the rotary platen, cores, and ejectors. When placing the unit in automatic operation you must verify these actions occur when you intend them to. If you are new to using rotary platens, we recommend you verify the set-up with the ejector rods removed and the cores in a safe position. Follow this procedure until you have tested each of the possible platen/ejector/core permutations available on your machine.

THE ALTANIUM MULTISHOT™ MANUFACTURING GROUP ACCEPTS NO RESPONSIBILITY FOR INJURY OR DAMAGE CAUSED BY FAILURE TO FOLLOW RECOMMENDATIONS OR FOR IMPROPER USE.

3.4 SHUTDOWN PROCEDURE

Place the press in manual and rotate the Rotary platen to either the CW or CCW position. Press the emergency stop button on the Rotary platen controller, then turn the main disconnect switch off. If you are going to perform a mold change do not forget to make sure the Rotary Platen is in position to insert the “Side Lock

3.5 LOCK OUT TAG OUT

Local Lock Out Tag Out procedures should always be the primary procedure followed to ensure a safe working environment is maintained. The Altanium Multishot™ system has a single electric power source lock out device on the electric cabinet door. Be aware that when the main disconnect switch is turned off the incoming power to the main disconnect switch could still have power going to it. If you need to service the main disconnect switch, be sure to lock out the incoming power source to the main disconnect switch.



The Altanium Multishot™ machine is also equipped with a pneumatic manifold for the lock pin assembly, there will be a lock out mechanism on the air prep supply manifold.



4 UTILITIES

4.1 ELECTRICITY

Refer to the electrical schematics provided with the machine. If the electrical schematics are missing, please contact Altanium Multishot™ and request a copy. Have the unit serial number available for example “106001-01” so that we may give you the correct schematics for your equipment.

4.2 COMPRESSED AIR

The Altanium Multishot™ unit does have air control for the lock pin assembly which can consume up to 10 SCFM at 90 PSI. The pneumatic load is intermittent, not continuous.

4.3 COMMUNICATIONS

The Altanium Multishot™ injection unit communicates with the target injection molding machine via the EM67 Standard Robot/Injection Molding Machine Electrical Interface. This system coordinates the cycles of the connected devices to ensure proper sequencing. The operator interface communicates with the controller via Ethernet/ IP.

5 SYSTEM DESCRIPTION

The Altanium Multishot™ Manufacturing Group servo motor driven rotary platen consists of the following components:

5.1 ROTARY PLATEN

The rotary platen is equipped with tapped holes for mold mounting. All of the connections for the water and air are quick couplers on the rotary platen surface. The entire surface of the platen in contact with the base assembly has been specially coated to function as an excellent bearing surface. A lock pin assembly is used to hold the disk in position after a successful rotation cycle is completed.

5.2 SERVO MOTOR DRIVE

The rotation of the platen is generated by a servo motor mounted to the unit's base. The shaft of the motor is attached to a pinion gear, which mates with teeth machined into the perimeter of the rotary platen. Positional feedback is provided via an additional absolute encoder which is incorporated into ring gear of the platen. Two additional proximity switches are also employed under the rotary platen to verify that the platen has stopped in one of its two valid positions before allowing press clamp motion.

5.3 CONTROLS CABINET AND HMI

5.3.1 STANDALONE ROTARY PLATEN

If the Rotary Platen is a stand-alone unit it will have an electrical control cabinet and HMI to control the interface and servo control for operating the Rotary Platen. The operations for controlling the Standalone Rotary Platen are explained in this manual.

5.3.2 INTEGRATED ROTARY PLATEN

When the Rotary Platen is an integrated control, the interface and servo control will be included with the electrical control cabinet of the Altanium Multishot™ Injection unit. The operations for controlling the Integrated Rotary Platen will be done from the Injection unit HMI and are explained in the Altanium Multishot™ Injection Unit manual (refer to the injection unit manual for platen operation). If this manual is missing contact Altanium Multishot™ Service.

6 USER LOGIN

System parameters that affect the move setup configuration are protected from unauthorized changes by utilizing password protection. In order to modify these parameters, the user must first enter a valid security level pass code. There are three levels of security in the HMI. They are “Operator” which has a code of “000”, “Setup” which has a code of “111”, and “Tech” which has a code of “222”. After entering the correct pass code, a data entry screen will appear

7 INSTALLATION

7.1 INSTALL THE ROTARY PLATEN ASSEMBLY TO THE IMM

Open the IMM to its full open position and maximum mold height. The Rotary Platen typically has 2 locating positions, mounting the platen with the motor at the top or bottom locations (12 o'clock or 6 o'clock). The platen could also be mounted at the 3 o'clock or 9 o'clock positions as well if required. There will be either a 4.000" or 5.00" locating ring in the center as well as a locating puck using one of the existing drilled and tapped holes in the moving platen. This location can be verified by checking the mechanical print shipped with the platen.



ALL MOUNTING THROUGH BOLT HOLES ARE ACCESSIBLE WHEN THE PLATEN IS ROTATED TO THE ZERO OR 180-DEGREE CORRECT POSITION.



WARNING! DO NOT OPERATE THE ROTARY PLATEN UNDER POWER UNTIL IT HAS BEEN PROPERLY SECURED TO THE IMM'S PLATENS.

Install two eyebolts in the tapped holes adjacent to the servo motor, then carefully lift the rotary platen assembly up using suitable chains or slings.



**MAKE SURE THE UNIT IS SECURELY SUSPENDED AND STABLE WHILE IT IS STILL LOW TO THE GROUND.
DO NOT PROCEED WITH THE INSTALLATION IN AN UNSAFE MANNER.**



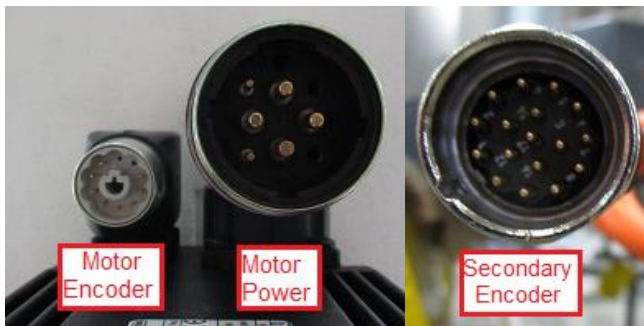
WHEN LIFTING THE ROTARY PLATEN ASSEMBLY DO NOT ALLOW THE ENCODER OR ANY ELECTRICAL CABLES TO BECOME DAMAGED

Rotate the rotary platen assembly 90° so it will clear the tie bars and lower it into position. Rotate the rotary platen assembly 90° back and place the rotary coupling through the hole in the movable platen of the IMM.

Fasten the rotary platen assembly to the IMM platen using socket head cap screws which should have been included with the rotary platen. It may be necessary to remove the stainless-steel covers on the outside of the platen to access some of the mounting hole locations. Be sure that when tightening bolts that are located within the rotating disc area that they do not protrude beyond the counter bores in the base plate. If they do there may be an issue with the tapped holes in the IMM stationary platen or the bolts could be too long. Torque the bolts the IMM standard for mold installation.

7.1.1 ATTACH POWER AND FEEDBACK CABLES TO SERVO MOTOR.

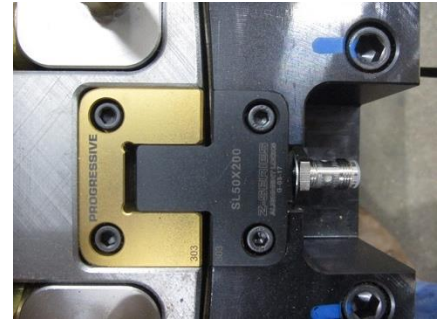
Make sure the power is OFF on the drive electrical cabinet. Verify power is remove before connecting/disconnection cable to the motor. Turning off main power disconnect is described in 6.3 Electrical.



DO NOT DISCONNECT CABLES WITH POWER ON! FOLLOW PROPER SHUT-DOWN PROCEDURE AND POWER OFF BEFORE REMOVING ANY CABLES.

7.1.2 INSTALL MOLD TO ROTARY PLATEN

When installing or removing a mold it is important to make sure the side lock is installed. There is only one location that this can be installed which may require the platen being rotated to this position so that it can be installed.



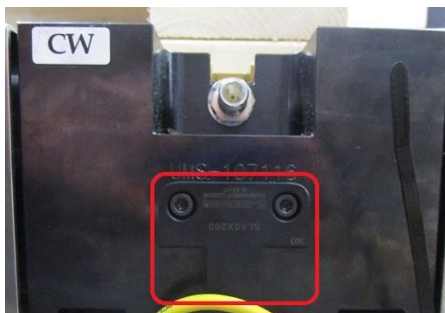
THE SIDE LOCK ABSORBS THE TORQUE REACTION THAT OCCURS AS THE MOLD MOUNTING BOLTS ARE INSTALLED. DO NOT SECURE A MOLD TO THE ROTARY PLATEN WITH THE SIDE LOCKS REMOVED.

Mount the mold to the rotary platen. Molds used with the rotary platen need be secured to the platen's surface using through bolts rather than clamps.



THE FACE OF THE ROTARY PLATEN IS EQUIPPED WITH EITHER CONE LOCKING DEVICES OR CUSTOM CUSTOMER SPECIFIC LOCATORS TO LOCATE THE MOVABLE MOLD HALF IN THE PROPER LOCATION.

It is very important that the mold is first attached to the Rotary Platen and then attached to the IMM Stationary Platen. This is done to ensure alignment of the mold. If you first attach to the IMM Stationary Platen and then to the Rotary Platen it is possible that the alignment of the mold when it is rotated can be slightly off causing premature wear on the mold or possible mold damage.



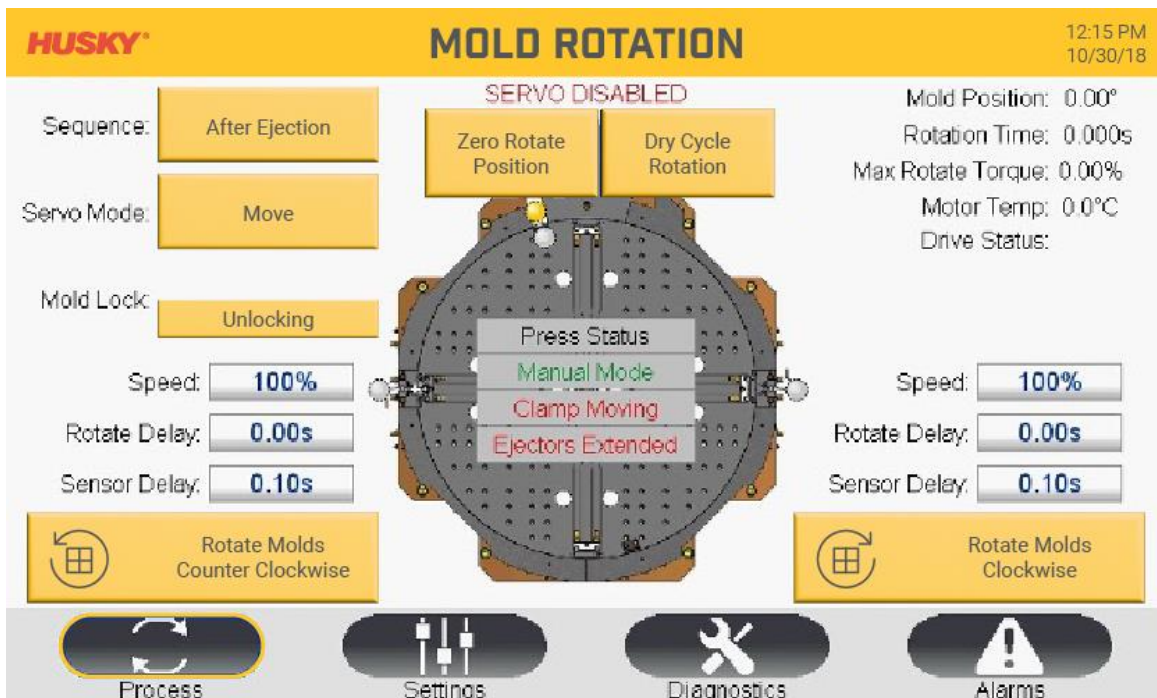
Remove the side locks and place them in the Side Lock Storage Location, as pictured.

8 MOLD ROTATION

8.1 SEQUENCE

Sequence: 

To navigate to the Mold Rotation screen, press the “Process” button on the footer menu. The Sequence button toggles between the available mold rotation sequences when pressed. The available selections are “MOLD ROTATION IS OFF”, “ROTATE BEFORE EJECTION” and “ROTATE AFTER EJECTION”.



8.2 SERVO MODE

Servo Mode: 

There are two different Servo Mode functions available. The normal operating mode is “MOVE”, in this mode if all the safeties are met to rotate the mold when the rotate button is momentarily pushed the lock pin will retract, the disk will rotate to position and the lock pin will engage.

If the “JOG” mode is selected the lock pin will automatically retract. The disk in this mode will only rotate while the rotate button is pushed. The “JOG” mode is intended to be used as a set up mode to rotate the disk if there is the concern of a mechanical interference. It is suggested to rotate the disk ensuring any mechanical interference is not present. Once this has been determined select the “MOVE” mode, press the rotate button and the disk will complete the rotation by automatically moving to either +180 or -180 degrees, and then

engage the lock pin. Attempting to get the disk into the exact zero- or 180-degree position using the “JOG” mode is very difficult but, the “MOVE” mode will do it automatically.

8.3 MOLD LOCK

Mold Lock:



The Mold Lock is only used with Electric Servo controlled platens. When the button is Blue it can be touched to manually unlock or lock the lock pin, when the button is grey the motion is not allowed. This is also a status indicator for the lock pin. It will display if the lock pin is locked, unlocked or faulted.

8.4 SETTINGS & SETPOINTS

8.4.1 SPEED

Speed: 100%

Inside the CCW and CW Rotation function blocks there is a Speed setting. Touching the numeric value next to Speed will allow the value to be changed. The size, and weight of the mold, will determine if the mold can be rotated at 100% speed. Use caution in adjusting this setting not to cause damage to the rotary platen or mold.

8.4.2 PRESSURE

Pressure: 100

Inside the CCW and CW Rotation function blocks there is a Pressure setting. The pressure setting option is only visible with a hydraulically controlled rotary platen. Touching the numeric value next to Pressure will allow the value to be changed. This setting will help to tune the mold rotation time along with the Speed setting. The size and weight will determine the amount of pressure that can be used, it may not be possible to use 100% pressure. Use caution in adjusting this setting not to cause damage to the rotary platen or mold.

8.4.3 SENSOR DELAY

Sensor Delay: 0.2 sec

This setting is to allow a little time for the rotate control to acknowledge the CCW and CW proximity switches.

With a hydraulic platen it will hold the platen in position with pressure on it to ensure it is in position until the timer has timed out.

8.5 CONTROL & FEEDBACK

8.5.1 ROTATE MOLD COUNTER-CLOCKWISE/ CLOCKWISE BUTTONS



These are manual function buttons and will be blue when it is possible to move the function and grey if the motion is not allowed. There is a LED indicator in the button that will illuminate green when the platen is in position and the proximity sensor is made.

8.5.2 MOLD POSITION

Mold Position: 180.0

Displays the current position of the Rotary Platen

8.5.3 ROTATION TIME

Rotation Time: 0.00 s

Displays the amount of time it takes to make a rotation cycle.

8.5.4 MOLD ROTATE MAX TORQUE

Mold Rotate Max Torque: 0.00%

Displays the max torque that was present during the mold rotate cycle

8.5.5 MOLD ROTATE MOTOR TEMP

Mold Rotate Motor Temp: 0.0°C

Displays the temperature of the electric servo motor that controls the mold rotation.

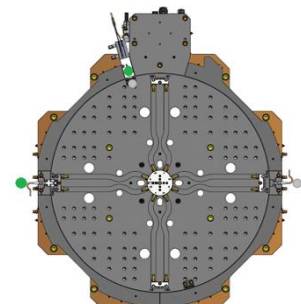
8.5.6 DRIVE STATUS

Drive Status:

Displays the current status that the drive is in

8.5.7 INDICATOR STATUS

The rotary platen has a proximity sensor for the CCW/ CW position verification. There are LED indicators at the 9 O'clock position and 3 O'clock positions on the screen that will illuminate when CCW or CW indicators are made. There is also LED indicators at the top of the platen that will display if the lock pin locked or unlocked proximity switches are made.



8.5.8 ZERO ROTATE POSITION



This button is only visible if the Rotary Platen is within tolerances for the position of the rotating disk that would allow it to be re-zeroed. Touching this button will zero the position of the encoder in the software.

8.5.9 DRY CYCLE ROTATION



In manual mode if all required safeties are present. This function when enabled will automatically rotate the mold back and forth or continually based on how the platen is set up to function without having to actually touch one of the rotate push buttons to initiate the move.



ENABLING THIS FUNCTION WILL INITIATE THE PLATEN TO ROTATE WITHOUT MANUALLY TOUCHING EITHER ONE OF THE MOLD ROTATE PUSH BUTTONS. SERIOUS DAMAGE OR BODILY HARM CAN OCCUR IF THERE IS SOME TYPE OF MECHANICAL INTERFERENCE WHEN ENABLING THIS FUNCTION.

8.6 SAFETY

The rotary platen relies on the injection molding machine's safety devices and interlock circuits to prevent rotation when any of the gates are opened, or when the mold, ejectors, or cores are in an incorrect position. It is recommended to frequently test the function of these devices and circuits.

8.6.1 TEST FRONT GATE SAFETIES

With the press in manual mode and with its front gate open, attempt to rotate the platen. If the platen rotates, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

8.6.2 TEST REAR GATE SAFETIES

With the press in manual mode open the back gate, attempt to rotate the platen. If the platen rotates, immediately find the cause and correct it. If the IMM goes into E-stop, the Altanium Multishot™ unit must also E-stop. If this does not occur, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

8.6.3 TEST CLAMP CLOSING SAFETIES

With the press in manual mode and the rotary platen not in either one of its home positions, attempt to close the clamp. If the clamp closes, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

8.6.4 TEST PLATEN ROTATION SAFETIES

With the press in manual mode and the clamp full open, the ejector rods removed and ejectors forward, attempt to rotate the rotary platen. If the rotary platen turns, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

8.6.5 TEST EJECTOR FORWARD SAFETIES

With the press in manual mode, the ejector rods removed, and the rotary platen not in either one of its home positions, attempt to extend the ejectors. If the ejectors extend, immediately find the cause and correct it. Do not operate the machine until corrective actions have been verified.

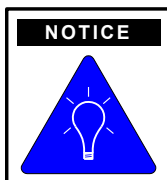


YOUR INJECTION MOLDING MACHINE CONTROLS THE TIMING BETWEEN THE ROTARY PLATEN, CORES, AND EJECTORS. WHEN PLACING THE UNIT IN AUTOMATIC OPERATION YOU MUST VERIFY THESE ACTIONS OCCUR WHEN YOU INTEND THEM TO. IF YOU ARE NEW TO USING ROTARY PLATENS, WE RECOMMEND YOU VERIFY THE SET-UP WITH THE EJECTOR RODS REMOVED AND THE CORES IN A SAFE POSITION. FOLLOW THIS PROCEDURE UNTIL YOU HAVE TESTED EACH OF THE POSSIBLE TABLE/EJECTOR/CORE PERMUTATIONS AVAILABLE ON YOUR MACHINE.

A convenient place to monitor the status of the signals on the press's EM67 Interface are the I/O monitoring screens in the Altanium Multishot™ operator interface.

Operation

The Rotary Platen has two modes of operation, After Ejection and Before Ejection. The choice of which mode to use is dependent upon the molding cycle in use, i.e. where and how is the part to be removed, how does the mold shutoff between first and second shot, which shot is first shot, etc. The selection of After Ejection or Before Ejection is done from the operator interface's rotary table screen.



OPERATION OF THE ROTARY PLATEN DIFFERS FROM CONVENTIONAL CORE SEQUENCES BECAUSE THE ROTARY PLATEN ALTERNATES DIRECTION. A TRADITIONAL CORE SEQUENCE WILL ALWAYS BE IN ONE POSITION OR THE OTHER (PULLED OR SET) BEFORE

ALLOWING THE SEQUENCE TO CONTINUE. THE ROTARY PLATEN ALLOWS THE SEQUENCE TO CONTINUE WHEN IT IS IN EITHER POSITION (CLOCKWISE OR COUNTERCLOCKWISE). THE CONTROLLER LOGIC MUST REMEMBER AND DISTINGUISH BETWEEN THE TWO POSITIONS AND PERFORM THE CORRECT FUNCTION WHEN THE ROTARY PLATEN IS IN EITHER POSITION.

8.7 EXAMPLE SEQUENCES

8.7.1 TRADITIONAL CORE SEQUENCE:

1. Clamp opens
2. Cores pull
3. Ejectors forward then retract
4. Cores set
5. Clamp close

8.7.2 ROTATE AFTER EJECTION SEQUENCE:

1. From a mold full open position, with the ejectors back and the platen counter-clockwise, the clamp closes.
2. The injection cycle progresses normally from injection through screw rotation, then the clamp opens.
3. At clamp full open the ejectors are driven forward to their set-point position, then they retract.
4. When the ejectors are fully retracted the clamp is inhibited from closing and the platen rotates clockwise.
5. When the platen is fully clockwise, the clamp is permitted to close.
6. The next time the clamp opens and the ejectors cycle, the platen will rotate counterclockwise.

8.7.3 ROTATE BEFORE EJECTION SEQUENCE:

From a mold full open position, with the ejectors back and the platen counter-clockwise, the clamp closes.

The injection cycle progresses normally from injection through screw rotation, then the clamp opens.

At clamp full open the ejectors are inhibited from extending and the platen rotates clockwise.

When the platen is fully clockwise, the ejectors are permitted to extend and then retract.

When the ejectors are fully retracted, the clamp is permitted to close.

The next time the clamp opens, the platen will rotate counterclockwise.

Note that due to the platen's operating mechanism, the Process Tech needs to determine not only which sequence is correct, but also which way the platen is required to rotate.

The Rotate after Ejection Sequence may be slightly modified for jobs that require operation in semi-automatic mode, where the parts are held captive on the ejector pins while they are extended. In this type of sequence, cycling the operator gate is required to retract the ejectors before the platen rotates. Note that the EM67 Robot Interface does not distinguish between operations in the semi-automatic mode vs. full automatic; hence, the device controlling the rotary platen must inhibit ejector retraction until the operator gate has cycled.



PLATEN ROTATION IS ALWAYS INHIBITED IN EVERY MACHINE OPERATING MODE UNLESS THE FRONT AND REAR GATES ARE CLOSED, THE EJECTORS ARE FULLY RETRACTED, AND THE CLAMP IS FULL OPEN.



IN MULTI-STROKE EJECTOR JOBS, PERMISSION TO ROTATE (I.E. THE EM67 EJECTOR RETRACTED SIGNAL) CANNOT BE GIVEN UNTIL ALL EJECTOR STROKES ARE COMPLETED.

8.8 POWER ON

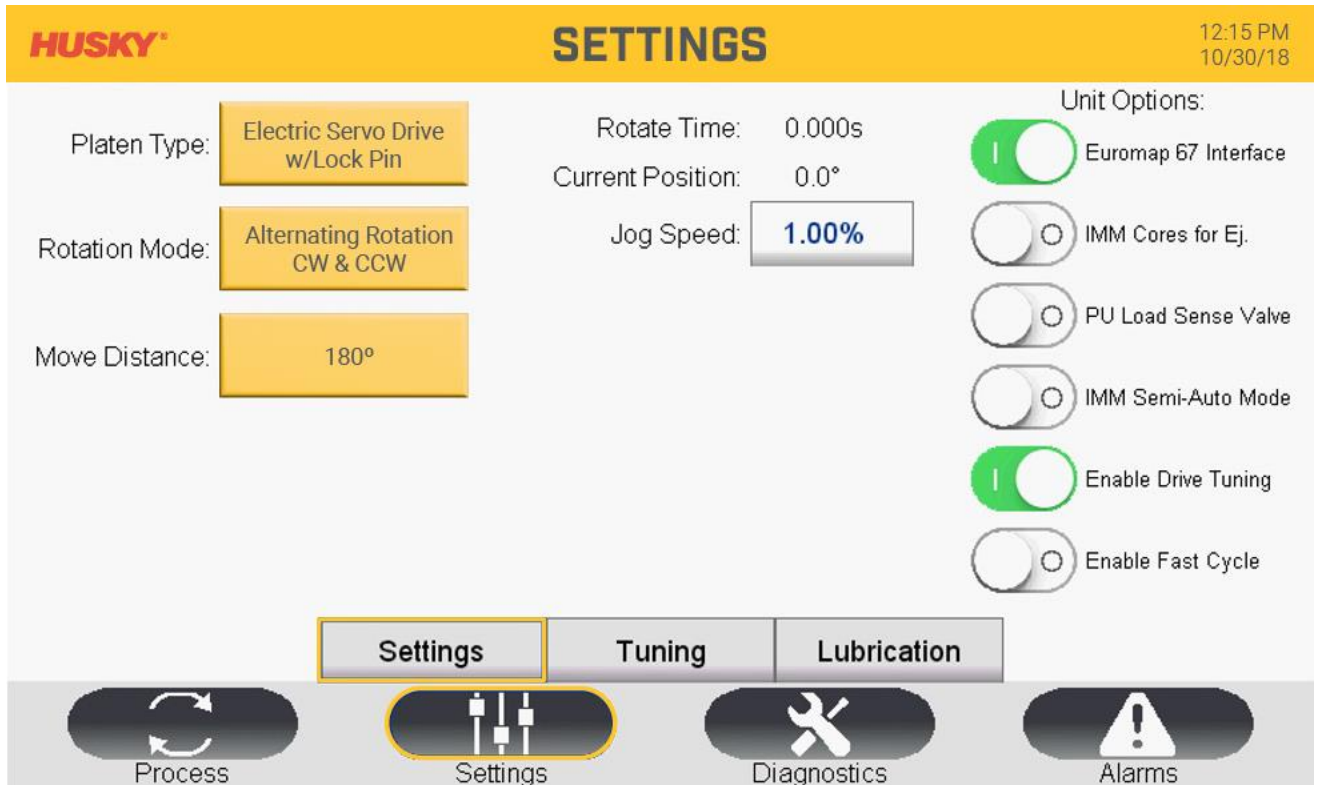
To operate the Rotary Platen in either a Manual or Semi/Automatic Mode the Green "Power On" button on the HMI pendant must be illuminated. For the "Power On" to be illuminated all E-Stops (IMM, Altanium Multishot™ unit and Robot) must not be activated. Press the momentary "Power On" button to enable the Main Contactor and illuminate the "Power On" light.



THE IMM'S EMERGENCY STOP CIRCUITS ARE IN SERIES WITH THE ROTARY PLATEN'S MASTER CONTROL RELAY. IF THE PRESS E-STOP CIRCUIT IS NOT INTACT, THE ROTARY PLATEN CANNOT BE POWERED UP.

9 SETTINGS SCREEN

The Settings screen allows the user to setup the operation mode of the rotary platen.



9.1 PLATEN TYPE

The “Platen Type” button is used to setup the appropriate style of rotary platen. The “Rotation Mode” button is used to select how the rotary platen system interfaces with the injection machine. This has been factory set and should not be changed.

9.2 ROTATION MODE

To change rotation from CW to CCW you must be logged in with “222”. Press the Alternating CW/CCW button to display desired rotation direction. Pressing button will select between Alternating CW/CCW (rotating back and forth 0-180-0 degrees) and Continuous CW/CCW (rotating always in one direction 0-180-360 degrees).

9.3 MOVE DISTANCE

CHANGING OF THIS VALUE SHOULD ONLY BE DONE BY AN ALTANIUM MULTISHOT™ TECHNICIAN, ALTERING THIS VALUE CAN CAUSE SEVERE MOLD OR MACHINE DAMAGE OR EVEN PERSONAL INJURY.

9.4 ROTATION TIME

Displays the amount of time it takes to make 1 rotational move.

9.5 CURRENT POSITION

Displays the current position of the servo drives encoder. At the end of a successful move, and when the drive receives a mold closed signal from the press, the encoder's count value is zeroed or homed.

9.6 JOG SPEED

This is where you can select the desired speed of rotation in the JOG Mode.

9.7 UNIT OPTIONS

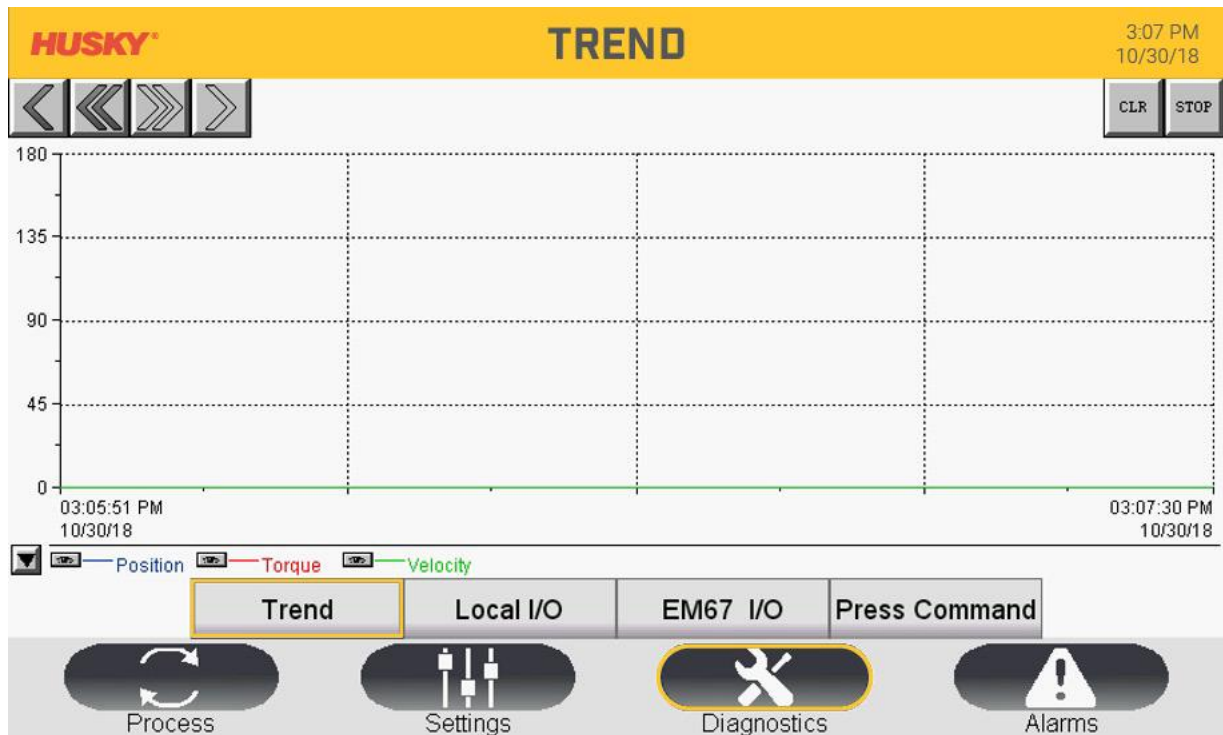
The selections of these items should only be altered by an Altanium Multishot™ Technician. If the status of these are changed it can cause the machine to have operational problems that cannot be reversed.

10 DIAGNOSTICS

This button navigates to screens that monitor the status of the inputs and outputs connected to C1, C2 plugs, other available I/O screens and a Trend screen.

10.1 TREND

This screen can monitor the position, torque and velocity of the mold rotate servo control



10.2 LOCAL I/O

Local I/O screen displays the status of any available I/O that is controlled or monitored by the Altanium Multishot™ rotary servo control.

HUSKY LOCAL I/O 12:16 PM 10/30/18

Digital Inputs	Local Slot 1	Digital Outputs
UMS E-Stop Ok 0	0	Drive Mold Area Clear
IMM E-Stop Ok 1	1	Spare
Safety Gates Closed 2	2	PU Oil Cooler Solenoid
Mold Locked Limit 3	3	Lock/Wedge Air Solenoid
Mold Unlocked Limit 4	4	Spare
Mold CCW Limit 5	5	Spare
Mold CW Limit 6	6	Spare
PU Oil Level Ok 7	7	Spare
IMM Clamp Full Open 8	8	Spare
IMM Clamp Full Closed 9	9	Spare
IMM Clamp Mid Open 10	10	Spare
IMM Ejectors Retracted 11	11	Spare
IMM Ejectors Extended 12	12	Grease Pump Enable
IMM Auto Mode 13	13	Drive Enabled
IMM Part Reject 14	14	Mold In Position
Hydraulic Pump Running 15	15	Drive Faulted

Local Slot 2 - Digital Outputs
0 Permit Clamp Close
1 Operate Without Robot
2 Permit Ejectors Retract
3 Permit Ejectors Extend

Local Slot 3 - Digital Outputs
0 Clamp Full Closed
1 Clamp Full Open
2 Clamp Mid Open Position
3 IMM Auto Mode

Local Slot 4 - Digital Inputs
Robot E-Stop Ok 0
Robot Mold Area Clear 1
Robot Permit Clamp Close 2
Operate Without Robot 3
Robot Permit Ej. Retract 4
Robot Permit Ej. Extend 5
Grease Low Level 6
Grease Cycle Complete 7

Current Position: 0.0°

OFF ON Trend Local I/O EM67 I/O Press Command

Process Settings Diagnostics Alarms

10.3 EM67 I/O SCREEN

This screen displays the status of the inputs and outputs connected to C1 and C2 connectors which are either terminated via dummy plugs or connected to the IMM and robot EM67 Electrical Interfaces.

HUSKY **EUROMAP I/O - EM67** 12:17 PM 10/30/18

Signals from C1 - IMM		Signals to	
Reject Part	ZA5	A4	Reserved
Clamp Full Close	ZA6	A5	Reserved
Clamp Full Open	ZA7	A6	Permit Clamp Close
Clamp Mid Open	ZA8	A7	Permit Clamp Full Open
IMM in Auto	ZB2	A8	Reserved
Ejectors Retracted	ZB3	B2	Operate Without Robot
Ejectors Extended	ZB4	B3	Permit Ejectors Retract
Core 1 Position 1 (Set)	ZB5	B4	Permit Ejectors Extend
Core 1 Position 2 (Pulled)	ZB6	B5	Permit Core 1 Position 1
Core 2 Position 1 (Set)	ZB7	B6	Permit Core 1 Position 2
Core 2 Position 2 (Pulled)	ZB8	B7	Permit Core 2 Position 1
IMM E-Stop Ok Ch1	ZC1	B8	Permit Core 2 Position 2
IMM E-Stop Ok Ch2	ZC2	C1	UMS/Robot E-Stops Ok Ch1
IMM Gates Closed Ch1	ZC3	C2	UMS/Robot E-Stops Ok Ch2
IMM Gates Closed Ch2	ZC4	C3	Permit Clamp Motion

Signals to C2 - Robot		Signals from	
Reject Part	ZA5	A4	Reserved
Clamp Full Close	ZA6	A5	Reserved
Clamp Full Open	ZA7	A6	Permit Clamp Close
Clamp Mid Open	ZA8	A7	Permit Clamp Full Open
IMM in Auto	ZB2	A8	Reserved
Ejectors Retracted	ZB3	B2	Operate Without Robot
Ejectors Extended	ZB4	B3	Permit Ejectors Retract
Core 1 Position 1 (Set)	ZB5	B4	Permit Ejectors Extend
Core 1 Position 2 (Pulled)	ZB6	B5	Permit Core 1 Position 1
Core 2 Position 1 (Set)	ZB7	B6	Permit Core 1 Position 2
Core 2 Position 2 (Pulled)	ZB8	B7	Permit Core 2 Position 1
IMM/UMS E-Stops Ok Ch1	ZC1	B8	Permit Core 2 Position 2
IMM/UMS E-Stops Ok Ch2	ZC2	C1	Robot E-Stop Ok Ch1
IMM/UMS Gates Closed Ch1	ZC3	C2	Robot E-Stop Ok Ch2
IMM/UMS Gates Closed Ch2	ZC4	C3	Permit Clamp Motion

OFF ON Trend Local I/O **EM67 I/O** Press Command

Process Settings Diagnostics Alarms

10.3.1 ROTARY PLATEN TO PRESS INTERFACE

The rotary platen interfaces to the injection molding machine through designated pins on the EM67 interface. Please refer to the EM67 UMS-Robot-IMM pinout schematic provided. When the Rotary Platen is connected to and controlled by the Altanium Multishot™ add on injection unit, all the interfacing is incorporated for you in the controller. If the Rotary Platen is a standalone unit (not operated by the Altanium Multishot™ Injection unit) it will have its own electrical control system.

The Rotary Platen must be inhibited from rotation when the front or rear gates are open, when the press clamp is not at full open, or the ejectors are not fully retracted.

The rotary platen must inhibit clamp and ejector motion when it is not in the full clockwise or counterclockwise position. If your Rotary Platen is operated by an Altanium Multishot™ Injection Unit, all permissions are built into the controller. Please refer to the UMS Injection Unit's owner's manual for additional information.

10.4 PRESS COMMAND SCREEN

If the Mold Rotate control has custom software to integrate motion between the IMM and Mold Rotate control the required signals will be available to monitor on this screen.

The screenshot displays the 'PRESS COMMANDS' screen in the HUSKY control interface. The top header is yellow with the HUSKY logo on the left, the title 'PRESS COMMANDS' in the center, and the time '12:18 PM' and date '10/30/18' on the right. The main content area is divided into two columns: 'Inputs from IMM' and 'Outputs to IMM'. Each column contains five status indicators, each with a grey rectangular box to its right. The 'Inputs from IMM' indicators are: Move/Jog CW, Move/Jog CCW, Move/Jog Mode, Eject After Mold Rotation, and Reset Drive Fault. The 'Outputs to IMM' indicators are: Mold Clockwise, Mold Counter Clockwise, Drive Enabled, Mold In Position, and Drive Faulted. At the bottom, there is a navigation bar with four buttons: 'Trend', 'Local I/O', 'EM67 I/O', and 'Press Command'. Below these buttons are four larger icons: a circular arrow for 'Process', a plug and socket for 'Settings', a wrench and screwdriver for 'Diagnostics', and a warning triangle for 'Alarms'. The 'Press Command' button and its corresponding icon are highlighted with a yellow border.

Inputs from IMM	Outputs to IMM
Move/Jog CW	Mold Clockwise
Move/Jog CCW	Mold Counter Clockwise
Move/Jog Mode	Drive Enabled
Eject After Mold Rotation	Mold In Position
Reset Drive Fault	Drive Faulted

Navigation Bar: Trend | Local I/O | EM67 I/O | **Press Command**

Process | Settings | **Diagnostics** | Alarms

11 LUBE SETUP

11.1 AUTO LUBE

If the platen is equipped with an Auto Lube the button next to AUTO LUBE will be illuminated green. If the platen was not equipped with this option and it is desired, contact Altanium Multishot™ Service.

11.2 IMM CYCLE SETPOINT

Determines the frequency of when the Auto Lube pump will operate. The system will count the rotation cycles. When setpoint value is achieved, the control will operate the Auto lube pump. This value is factory set and should ONLY be adjusted if you contact Altanium Multishot™ Mfg. Service before doing so.

11.3 IMM CYCLE COUNT

Displays the current count value of Auto cycles.

11.4 GREASE CYCLE TIMEOUT

The Auto Lube manifold on the rotary platen has a “Lube Completed” sensor in it. If the Auto Lube does not complete a full lube cycle within this preset time value and activate the “Lube Completed” sensor, an alarm will be generated.

11.5 TEST GREASE PUMP

When this button is pressed the lube pump will manually operate and perform 1 Auto Lube cycle.

Inputs/ Outputs: This allows you to monitor the cycle completed switch, lube level and the pump output.

12.1.5 CONFIRM ALL

Touching this button will reset all current alarms on the list that are not currently active.

12.2 ALARM COUNT

Displays the complete of available alarms under the heading Message. Under the heading Cnt. displays the numeric value of how many times that alarm has been active. For example, the first 2 alarms on the list have occurred 1 time each and the rest of the alarms on the list have never been active.

Cnt	Message
1	Safeties Not Satisfied - Manual Motions Inhibited
1	Safeties Not Satisfied - Mold Rotation Inhibited
1	Mold Rotate Position Error
0	Mold Rotate Position Error - Exceeded Limit
0	Mold Lock - Failed - Both Limit Switches Activated
0	Mold Lock - Failed to Unlock
0	Mold Lock - Failed to Lock
0	Communication Loss - Panel IO
0	Grease Cycle Failed to Complete - Time Limit Exceeded
0	Grease Level Low
0	Mold Rotate Drive Faulted
0	Communication Loss - Mold Rotate Drive
0	Communication Loss - Pump Drive
0	PLC Low Battery

Line Up Line Down Reset Count Clear All

History Count

Process Settings Diagnostics Alarms

12.2.1 LINE UP/DOWN

The Line Up/Down function buttons will cursor up and down to specific alarms. Use this function to cursor over an alarm to be reset.

12.2.2 RESET COUNT

Reset Count will reset the alarm count on the alarm that has the cursor around it only. It will not reset any of the other alarm counts.

12.2.3 CLEAR ALL

When the Clear All button is touched it will clear the alarm count on all the alarms displayed.

13 TROUBLESHOOTING

13.1 OVERVIEW

Troubleshooting the rotary platen is similar to troubleshooting any other machine, in other words there are always symptoms and causes. The fastest way to find and repair the root cause of any failure is to have a thorough understanding of how the machine acts when it is functioning properly. This will help identify the problem area or system, and then find the cause.

The machine operators are also an excellent source of information. During the course of the day, they can detect when a machine is not functioning properly by the sounds it makes and by subtle changes in the cycle. The first step in troubleshooting is to ask the operator if he or she has any information about the problem.

The next step during the troubleshooting process is to identify whether the problem is mechanical or electrical in nature. There will be occasions where it may be difficult to ascertain the root cause, but in general, the symptom will be most apparent in one of these systems.

The two most difficult problems to correct are when there is more than one failure, or when the failure occurs intermittently. In each case, a technician may spend hours looking for clues with poor results. There is no substitute for an experienced technician when it comes to these two problems. This manual cannot provide answers to every problem that may arise in the usage of the rotary platen. A brief overview of general principles and concepts used in troubleshooting all machines is provided. When possible, specific examples that apply to the rotary platen will be given.

13.2 MECHANICAL

In general, mechanical failures are the easiest to find, and therefore, the fastest to repair. The frame of the rotary platen is quite robust and should not provide many opportunities for repair. The gears and bearings will provide excellent service if they are not exposed to contaminants and are lubricated regularly. Check that the ejectors are not preventing platen rotation before investigating other possible causes.

13.3 ELECTRICAL

If problems are suspected in the electrical system of the rotary platen, the first step is to verify that the servo motor control panel power is turned on. The green “power on” indicator lamp must be on.

If the Rotary platen controller is powered up, but still does not function correctly, the connections from the IMM to the controller should be checked for proper function. The signals from the press to the Rotary platen controller when used in a press-controlled mode are; rotate CW, rotate CCW, Jog CW, and Jog CCW. The signals from the Rotary platen controller to the press when used in a press-controlled mode are in CW position, in CCW position, Rotary platen Enabled, and Rotary platen in Position.

If the connections between the press and the Rotary platen controller are intact and functioning properly, the next step is to verify the connections between the controller, motor, and encoder

Verify that the encoder plug connection is tight at the encoder housing. Inspect the encoder cable for wear or damage.

Inspect the servo motor cable for wear or damage.

If there is any evidence of wear or damage to any of these items, contact Altanium Multishot™ Manufacturing for replacement information.

13.4 SERVO FAULT

In the event of a servo motor fault, a Fault Code is provided to help diagnosis the problem on the front of the on the front of the servo drive. This publication has been included on the USB drive provided with the equipment that has copies of the manual, prints and BOM. It is also available online at www.boschrexroth-us.com. It is also available from Altanium Multishot™ Service.



THE IMM'S EMERGENCY STOP CIRCUITS ARE IN SERIES WITH THE ROTARY PLATEN'S MASTER CONTROL RELAY. IF THE PRESS E-STOP CIRCUIT IS NOT INTACT, THE ROTARY PLATEN CANNOT BE POWERED UP.

MAINTENANCE

13.5 LUBRICATION

All of the bearings and surfaces requiring lubrication will be lubricated via zerk fittings (unless equipped with an Auto Lube system). Refer to the Grease Diagram provided with the unit for specific greasing location and frequency. Generally, the Lock Wedge, Idler Gear Box, Main Bearing, and Base Plate should be greased weekly; the Cam Followers should be greased monthly.



PROPER LUBRICATION OF YOUR ROTARY PLATEN WILL DRAMATICALLY INCREASE ITS SERVICE LIFE.

The main bearing and base plate quadrant grease system is equipped with a drain port to assist in proper lubrication. Pump grease into the zerk fitting labeled “center bearing” until fresh grease begins to come out of the drain port. This helps ensure that grease has reached all of the areas that need it.



A PREMIUM GRADE NLGI GRADE 2 GREASE MEETING ASTM D 4950 SERVICE CLASSIFICATION GC-LB FOR ALL MACHINE LUBRICATION GREASE IS RECOMMENDED, SUCH AS THERMAL-LUBE BRAND POLYON® SYNTHESIZED TEFLON® XL-845, LUBRIPLATE FGL-2 FOR FOOD GRADE APPLICATIONS, OR EQUIVALENT PREMIUM GREASE. A PREMIUM GREASE WILL PROVIDE BETTER WATER PROTECTION, LARGER TEMPERATURE RANGE AND WILL ENSURE A LONG SERVICE LIFE.



EVEN IF THE PLATEN IS EQUIPPED WITH AN AUTO LUBE SYSTEM THE 4 BASE PLATE LUBE POINTS SHOULD BE MANUALLY LUBRICATED EVERY 3 MONTHS. TO DO THIS YOU WILL NEED TO REMOVE THE AUTO LUBE LINES AND FITTING. INSTALL A GREASE ZURK AND PUMP 8-14 OZ OF GREASE INTO EACH LOCATION WITH THE MOLD INSTALLED AND CLAMP TONNAGE APPLIED.

13.6 SEALS

The seals used in the rotary coupling are specially selected and custom made to provide long life under hostile conditions. A daily inspection for leakage be performed, and any leak, no matter how small, be repaired as soon as possible.



ALL PROCESS WATER PASSING THROUGH THE UNION MUST BE FROM A CLOSED LOOP SYSTEM, BE FILTERED USING 10-MICRON FILTERS, AND BE CHEMICALLY TREATED TO PREVENT SCALING, CORROSION, AND BIOLOGICAL ACTIVITY.



CONTINUED OPERATION AFTER LEAK DETECTION WILL CAUSE EXTREMELY ACCELERATED WEAR IN CRITICAL COMPONENTS AND LEAD TO EXTENDED DOWNTIME.

The seals are installed using special tools to prevent damage during installation. It is suggested to have a complete set of seals and the installation tools in inventory. Please contact Husky Technologies™ for additional information.



ORDINARY O-RINGS OR QUAD-RINGS WILL NOT PERFORM SATISFACTORILY AND MUST NOT BE USED IN PLACE OF THE STOCK SEALS UNDER ANY CIRCUMSTANCES.

13.7 ANNUAL INSPECTION

The rotary platen will need to be completely disassembled, cleaned, inspected, adjusted, and possibly re-sealed annually. Please contact Husky Technologies™ to arrange this service if you are uncomfortable performing this delicate work yourself.