

# HURCO

TECHNOLOGIES, INC.

OWNERS MANUAL  
FOR

## VALVE STAR



## VALVE STAR EXERCISING SYSTEM

P.O. Box 70 • Harrisburg, SD 57032  
Phone: (605)743-2466 • Fax #: (605)743-2465 • E-mail: info@gethurco.com

VSOM-03-090207

## FORWARD

This manual contains information about the many features of the Hurco Valve Star G3 power head. It also contains operator and safety precautions, maintenance instructions and operating techniques. This manual will assist you in the proper use, daily care, and troubleshooting of your new Valve Star G3 valve exerciser.

In addition to the design and configuration of equipment, hazard control, and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment. Read carefully this entire manual before operating the unit. Spend time becoming acquainted with the units performance features, adjustments, and maintenance schedules. In order to prevent injury and obtain a long and satisfactory life from this equipment the operator must know how to properly operate and maintain the unit. Failure to do so will increase the cost of repairs. Take time to read and understand all necessary information on this unit.

**Model:** \_\_\_\_\_ **Valve Star serial number:** \_\_\_\_\_

If at any time, you have a service problem with your Spin Doctor contact your authorized dealer for correct service and parts needed.

**HURCO DEALER:**

---

---

---

---

**FOR:**

Hurco Technologies Inc.  
409 Enterprise St.  
Harrisburg, SD 57032  
Phone: 605-743-2466  
Fax: 605-743-2465

# **TABLE OF CONTENTS**

<b>I. SAFETY</b>	
Safety Alert Symbol.....	4
<b>II. GENERAL DESCRIPTION OF OPERATION</b>	
Control Panel Component Locations.....	5
Valve Star operating instructions.....	6
American Water Works recommendations.....	7
<b>III. VALVE STAR USERS GUIDE</b>	
Operation .....	8-10
Yellow settings screen.....	8
Green settings screen. ....	8
Location screen.....	9
Video screen.....	9
Miscellaneous screen.....	9
Date and Time screen.....	9
Fields with included values.....	10
Fields that allow entry of new values.....	10
Required Fields.....	10
<b>IV. DATA TRANSFER and SAVING DATA</b>	
Create a work order in Track One for import into Valve Star..	11
Create a work order in Excel for import into Valve Star .....	11
Saving Data to the SD card.....	12
<b>V. TO EXERCISE A VALVE.....</b>	12-13
<b>VI. TO EXERCISE A HYDRANT.....</b>	13-14
<b>VII. FLOW TESTING .....</b>	14
<b>VIII. TO FIRE FLOW TEST – SINGLE HYDRANT METHOD</b>	15
<b>IX. TO FIRE FLOW TEST – REMOTE HYDRANT METHOD</b>	15
<b>X. MAINTENANCE SECTION.....</b>	16
<b>XII. WARRANTY SECTION.....</b>	17-18

# SAFETY

## ANSI Z535 SAFETY SYMBOLS



Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation, which if not avoided, may result in death or serious injury.



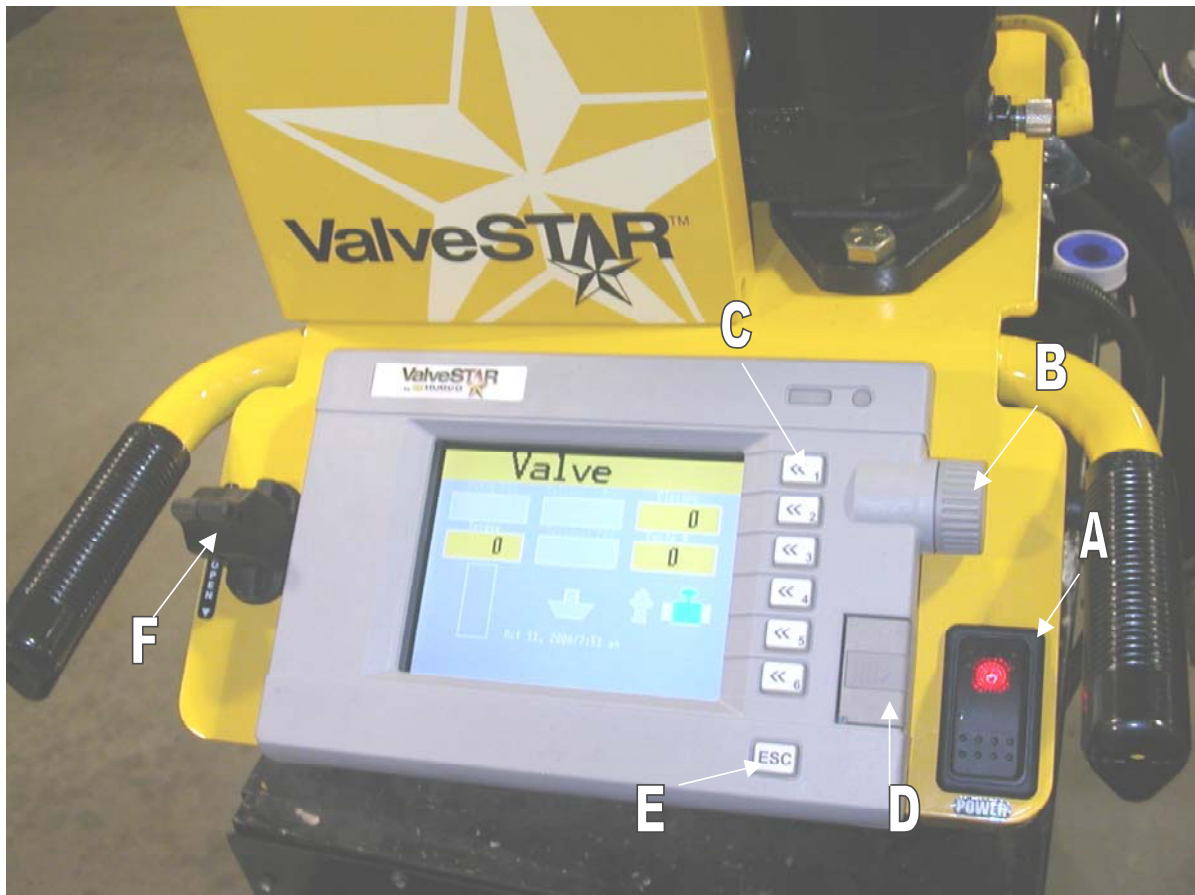
Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury.

The safety information in this manual is denoted by a safety alert symbol.

READ ALL OPERATING MANUALS  
BEFORE OPERATION OF EQUIPMENT

## CONTROL PANEL COMPONENT LOCATIONS

The operator should become familiar with all controls prior to operating the Valve Star.



### CONTROL PANEL

#### A. POWER SWITCH

B. **ROTARY KNOB.** Used to increase torque when operating valve. This knob is also used to click through the fields on each Settings screen and change values.

C. **NUMBER/FUNCTION KEYS.** Used for moving from operation screen to all other screens.

#### D. MEMORY CARD SLOT.

E. **ESCAPE KEY.** Used for moving to miscellaneous screen from current screen. Also used to enter Date and Time screen.

F. **JOY STICK.** Used to operate the valve key to open and close the valve or hydrant.

**NOTE:** In the user guide section of this manual we refer to the numbered keys as “F” keys.

# Valve Star

## Operating Instructions



**Situations may vary; it is impossible to list all Hazards. Stay alert. Be aware. YOU can help or prevent accidents.**

- Before any operation of the Valve Star, be familiar with the locations and functions of the unit's instruments and controls. Being familiar with the machine and its controls will increase efficiency and reduce the possibility of personal injury or damage to the unit. The operator should work slowly and carefully until he feels comfortable with the machine. Speed and skill will be attained much easier if the necessary time is spent to familiarize you with the machine and its operations.
- Always check engine oil level and hydraulic oil level in reservoir prior to starting engine.
- Attach boom hydraulic hoses to the trailer or power pack, making sure they are correctly connected and the quick coupler is in locked position.
- Remove travel lock pins from boom to allow boom to extend and swivel.
- Start power source.
- Insert extension key attaching to valve nut. (Valve manufacturers recommend the first and last turn be done by hand).
- Make initial turn with valve wrench key handle.
- Remove key handle from valve wrench.
- Insert hydraulic motor drive into valve wrench.
- Slowly operate valve lever to begin operation in the required direction to open or close valve.
- Utilizing the revolution counter, completely open (or close) the valve slowing at the required number of revolutions. (Refer to valve chart for average number of revolutions required. This is a guide only. Check valve manufacturers specifications for exact revolutions and maximum torque required). **EXCEEDING SPECIFICATIONS FOR APPLICATION OF TORQUE TO VALVE STEM MAY DAMAGE THE VALVE.**
- Use The American Water Works Association recommended procedures listed below.
- Remove hydraulic motor drive from key and complete the last turn of the operation by hand.
- Retract boom and **insert travel lock pins** for transport.

**AMERICAN WATER WORKS ASSOCIATIONS RECOMMENDED VALVE MAINTENANCE PROCEDURES:**

Operation and maintenance procedures for various types of valves are detailed in manufacturer’s operation manuals and in the appropriate product standards. The following paragraphs provide the guidelines for most situations.

A valve that has not been operated for a number of years needs to be closed by using a series of up and down motions. Crews attempting to close a difficult valve should never use a T-handle and cheater bar to force the valve closed. Exceeding manufacturers recommended torque values to obtain a positive shutoff can cause damage to the valve. Torque-limiting devices are available. Crews should follow these guidelines to close a valve properly:

1. Begin with a steady amount of torque in the direction necessary to close the valve, moving through 5 to 10 rotations.
2. Reverse for two or three rotations.
3. Reverse again and rotate 5 to 10 more turns in the closing direction.
4. Repeat this procedure until full closure is attained.
5. Once the valve is fully closed, it should be opened a few turns so that high-velocity water flowing under the gates can move the remainder of the sediment downstream with more force and clear the bottom part of the valve body for seating.
6. Fully close the valve again.

The reason for this cautious approach is that debris and sediment often build up on the gates, stem, and slides. If this material is compacted while the valve is being closed, the torque required to close the valve continues to build as the material is loaded. If the procedure described above is used, the stem and other parts are “scrubbed” by the series of back-and-forth motions, and water in the system can flush the debris that has broken loose away from the stem gate and slides or guides.

- Slowly operate valve lever to begin operation in the required direction to open or close valve.
- Utilizing the revolution counter, completely open (or close) the valve slowing at the required number of revolutions. (Refer to valve chart for average number of revolutions required) **DO NOT OVER-TORQUE VALVE!**
- Reverse valve direction to complete exercise stopping prior to the last complete turn.
- Remove hydraulic motor drive from key and complete the last turn of the operation by hand.
- Retract boom and **insert locking pins** for transport.

**⚠ WARNING** WARNING! NEVER MOVE UNIT WITHOUT FIRST INSERTING LOCKING PINS SECURING THE BOOM!

**AVERAGE**  
**VALVE REVOLUTIONS\***

<b>VALVE SIZE</b>	<b>2"</b>	<b>2-1/2"</b>	<b>3"</b>	<b>4"</b>	<b>6"</b>	<b>8"</b>	<b>10"</b>
Number of turns to open/close	9	9	10	13	19	26	32
<b>VALVE SIZE</b>	<b>12"</b>	<b>16"</b>	<b>18"</b>	<b>20"</b>	<b>24"</b>	<b>30"</b>	<b>36"</b>
Number of turns to open/close	38	50	56	62	73	*	*

\* Contact your valve supplier for number of turns.

**CAUTION! EXCESS TORQUE CAN DAMAGE VALVE**

# **Valve Star Owners Manual**

## **User Guide**

### **OPERATION**

1. Use the function buttons on the right side of the screen to navigate between the screens.
2. Use the round knob on the right side of the screen to “click” around the fields and the dial function to change or add new data.
3. Use the round knob on the right side of the screen to adjust torque.

**Note:** In this User Guide we identify the number keys on the display as “F” keys.

### **SCREEN SETTINGS**

#### **YELLOW SETTINGS SCREEN**

1. Using the F1 key, navigate to the “Yellow” Settings Screen.
2. Using the dial on the side you can click through the different fields.
3. To change the value in the field, simply rotate the knob, select the value then click to save.
4. In the “Hydrant / Valve ID” field, you can enter a Alpha and Numeric identification number by selecting F6, rotate the knob to select a letter, number or symbol, then click to save each entry. Repeat this process until you have entered the complete ID then press F5 to save and return to the yellow settings screen.
5. When you select either Valve or Hydrant in the “Mode” field, only the appropriate related fields for either valve or hydrant will be illuminated. Only the illuminated field values can be changed.

#### **GREEN SETTINGS SCREEN**

1. Using the F1 key, navigate to the “Green” Settings Screen.
2. Using the dial on the side you can click through the different fields.
3. To change a value in the field, simply rotate the knob, select the value then click to save.
4. In the “Mfg.” field, you can enter a new manufacturer by selecting F6, rotate the knob to select a letter, then click and save each entry. Repeat this process until you have entered a complete name then press F5 to save and return to the green settings screen.
5. In the Operator ID field you can enter a new Operator ID by selecting F6, rotate the knob to select a letter, number or symbol, click to save each entry. Repeat this process until a complete operator ID has been entered then select F5 to save and return to the green settings screen.

## **LOCATION SCREEN**

1. This screen displays GPS information.
2. To add location information, select F6, use the dial to select the location, select F5 to save.
3. Click to the Address field, select F6, dial a number, letter or symbol, click and repeat this process until the address is complete. Select F5 to save and return.
4. Click to the Street field, select F6, dial a number, letter or symbol, click and repeat this process until the street information is complete. Select F5 to save and return.
5. Click to the Cross Street field, select F6, dial a number, letter or symbol, click and repeat until the cross street information is complete. Click F5 to save and return.

## **VIDEO SCREEN**

1. This is an optional screen. The video feature is an option and must be ordered. This screen does not record images; it only works as a viewing screen.

## **MISCELLANEOUS SCREEN**

**By pressing the ESC key, you can short cut to the Miscellaneous Screen when in any other screen.**

1. Use the F3 key to RESET the counter. Press and hold.
2. To ERASE data on the memory card, Press F4. You will get a warning, if you want to continue the erase, Press F4 again and hold.
3. To SAVE valve or hydrant exercising data, Press F5. This needs to be done after every valve or hydrant exercise. WARNING! If you power down prior to saving your data, all data will be lost.
4. To view INFO on the memory card, Press F6.

## **DATE AND TIME SCREEN**

1. To get to this screen, Press the ESC key to move to the Miscellaneous Screen.
2. Press and hold the ESC key again for about 6 seconds.
3. You will now see 3 functions, Valve Star, which will take you back to the settings screen, Configuration, which is use by the factory only and Date and Time.
4. Click to the Date and Time icon and press F6
5. Click on each of the fields; use the dial to change the date and time, then simply hit ESC for 6 seconds to leave the set up.

## SETTINGS SCREENS

Continued

**There are a number of fields that have included values. They are:**

- **Mode** – Yellow Settings Screen – Sets to Valve or Hydrant
- **Actuator Type** – Yellow Settings Screen – Valve Mode
- **Valve Type**– Yellow Settings Screen – Valve Mode
- **Manufacture** – Green Settings Screen – Valve and Hydrant Mode
- **Deficiencies** – Green Settings Screen – Valve and Hydrant Mode
- **Function** – Green Settings Screen - Valve Mode
- **Type of Access** – Green Settings Screen – Valve Mode
- **Hose Monster Size** – Green Settings Screen - Hydrant mode
- **Location** – GPS Location Screen

**There are a number of fields that allow the entry of new values using the F6 key. They are:**

- **Hydrant / Valve ID** – Yellow Settings Screen
- **Manufacture** – Green Settings Screen
- **Operator ID** – Green Settings Screen
- **Address** – GPS Location Screen
- **Street** – GPS Location Screen
- **Cross Street** GPS Location Screen

**All Required fields are in the Yellow Settings Screen. These must be set to operate the valve or hydrant.**

- **Valve / Hydrant ID**
- **Mode**
- **Valve Size**
- **Max Torque**
- **Actuator Type**
- **Max Speed**
- **Valve Type**
- **Max Rev** (This field will automatically populate when the valve size is selected, the Actuator type is “Standard” and the Valve Type is “Gate”. This can always be changed.)
- **Valve Open Left/Right**
- **Hydrant Open Left/Right**

## **Using Valve Star / Track One software to create a work-order for import into Valve Star**

### **When using Valve Star/Track One**

1. The Valve Star/Track One software has a special export to Valve Star function.
2. All selected data when creating work orders will be stored to the SD card.
3. The SD card is inserted into the card slot located under the cover on the right side of the display screen on the Valve Star.
4. Once activated, the operator only needs to select the valve or hydrant to be exercised and all of the appropriate fields will automatically populate in all settings screens. Any of these fields can be changed if necessary. The new data will be updated in Valve Star/Track One.
5. Follow the instructions for exercising a valve or hydrant.

## **Using Microsoft Excel to create a work-order for import into Valve Star**

**All data must be exported to the Valve Star in an Excel format. The format is critical and must be inserted in to your spreadsheet as follows from left to right:**

- a) Valve ID
- b) Mode
- c) Valve Size
- d) Actuator Type
- e) Open L/R
- f) Set Torque
- g) Set Speed
- h) Set Rev
- i) Manufacture
- j) Access
- k) Normal Pos
- l) Active
- m) Hose Monster Size
- n) Bury Depth
- o) Function
- p) Location
- q) Address#
- r) Street
- s) Cross Street

**Now follow items 2 through 5 in “When using Valve Star/Track One”**

## **Saving Data to the SD Card for Export To Excel or Valve Star/Track One**

**Data is stored on the SD card every time you press the F5 key (Save) in the Miscellaneous Screen on the Valve Star. WARNING! If you power down before you save your data, all data will be lost.**

1. Simply remove the SD card and insert into your card reader on your laptop or desktop computer.
2. This data will automatically import into an Excel Spreadsheet for your use as stand alone data or for import into another Access base software program.
3. When using the Valve Star/Track One software program, simply do the “Import” function after opening the software. Instructions for importing data from the Valve Star are included with your Valve Star/Track One software.

### **To Exercise a Valve** **Set “Mode” to Valve (Yellow settings screen)**

1. Go to the Main operating screen. This is the screen with the picture of a valve, hydrant and the Hose Monster.
2. Put the Valve Star on the valve wrench. You should always follow the AWWA recommendations and do the first full turn and last full turn by hand.
3. Engage the Joy Stick to the “Close” position. Nothing will happen.
4. Now dial the control knob clockwise until the valve wrench starts to move. The reason for this careful approach is to help prevent damage to a valve by applying too much torque. Using this method, you will only be using the torque required to operate the valve. (See additional note below)
5. You can operate the valve back and forth if a bad spot is encountered. This will not affect the number of revolutions required to open or close the valve fully.
6. Once you have reached the Set number of revolutions, an alarm will sound and a warning light will come on. The valve wrench will continue to turn until the valve is fully closed.
7. Reverse the direction by pressing the Joy Stick towards the “Open” position. The valve wrench will continue to zero and count a “Cycle”
8. Repeat this for as many “Cycles” as required.
9. When you are done, Press ESC key, Press F5 to Save. You are now ready to move on to the next valve.

**Note:** If you are unsure if the Valve is fully open prior to exercising the valve, simply press the Joy Stick towards the “Open” position until you are sure the valve is fully open. Press the ESC key then Press F3 to reset the counter. Press F1 to return to the Main operation screen and start your valve exercise.

Continued on page 13

## **To Exercise a Valve**

Continued

**Note:** Hurco requires the operator to have hands on control while operating the valve. This approach allows the operator to “feel” the condition of the valve and make a logical decision on how much torque to apply. Allowing automation of this function could potentially damage the valve. For example, if the operator thought he were on a 8” valve but he was really on a 6” valve, automation would have no idea and could potentially “jam” or break the valve stem. This same situation could happen if the operator did not know if the valve were partially open or if the if the valve was an open left or open right valve.

**Hurco recommends the following approach in dealing with problem valves.**

### **Problem Valve continued.**

1. Apply a small mist of a special penetrating fluid with a trace amount of silicone using Hurco’s Slick Stick. This will help loosen the corrosion that occurs where the valve stem exits the valve and the top flange. This fluid simply evaporates and the trace amounts of silicone remain to help keep the valve lubricated. It has been proven that this corrosion requires a tremendous amount of torque to break a valve loose and applying too much torque can damage the valve stem.
2. Once the penetrating fluid has set for a few minutes, start moving the valve wrench back and forth to break the valve stem loose. This can take several back and forth actions to accomplish but will usually do the trick. Patience will pay off when using this approach.
3. If this is unsuccessful and your decision is to “bully” the valve, we suggest not using excessive torque. Excessive torque strains the metals in the valve stem and can cause permanent damage. Using a high torque impact wrench instead will improve your chances of breaking the valve loose. The impact wrench uses very powerful short impact burst to break the valve loose.

**Although the above method is no guarantee that you can repair every problem valve in your system, it will greatly increase your success rate. Just saving one valve could more than pay for the additional equipment needed.**

## **To Exercise a Hydrant**

### **Set “Mode” to Hydrant (Yellow settings screen)**

1. Go to the Main operating screen. This is the screen with the picture of a valve, hydrant and the Hose Monster. This is also the screen that appears on start up.
2. Put the Valve Star with hydrant wrench on the hydrant drive nut. You should always follow the AWWA recommendations and do the first full turn and last full turn by hand.
3. Connect the fire hydrant to the Hose Monster to defuse the flow.
4. Engage the Joy Stick to the “Open” position. Nothing will happen.

Continued on page 14

5. Now dial the control knob clockwise until the hydrant wrench starts to move. The reason for this careful approach is to help prevent damage to a hydrant by applying too much torque. Using this method, you will only be using the torque required to operate the hydrant.
6. You can operate the hydrant back and forth if a bad spot is encountered. This will not affect the number of revolutions required to open or close the hydrant fully.
7. Once you have reached the Set number of revolutions, an alarm will sound and a warning light will come on. The hydrant wrench will continue to turn until the hydrant is fully open.
8. Reverse the direction by pressing the Joy Stick towards the “Close” position. The hydrant wrench will continue to zero and count a “Cycle”
9. Repeat this for as many “Cycles” as required.
10. When you are done, Press ESC key, Press F5 to Save. You are now ready to move on to the next valve.

### **To Flow Test Using the Valve Star** **Set “Mode” to Hydrant (Yellow settings screen)**

1. Use the procedures in “TO EXERCISE A HYDRANT”.
2. Connect the lead from the Hose Monster to the back of the Valve Star cover. These are matched plug-ins and cannot be plugged in wrong.
3. As soon as you start flowing water, the Valve Star will start recording Pitot Pressure, Gallons Per Min and Gallons Used.
4. Press the ESC key for the Miscellaneous Screen and press F5 to save.

**Note:** If you have not purchased the optional electronic pressure recorders, you can still flow test using the Hose Monster with the hand held gauge supplied. This data will need to be recorded manually.

## **To Fire Flow Test Using the Valve Star** **Single Hydrant Method**

**Set “Mode” to Hydrant (Yellow settings screen)**

1. Set the Valve Star on the hydrant to be tested.
2. Put the optional hydrant nozzle cap on a flow nozzle of the hydrant.
3. Connect the electronic lead from the optional hydrant nozzle cap to the back of the Valve Star cover. You cannot plug this in wrong because they have matched plugs.
4. Open the fire hydrant and release the air through the relief valve on the hydrant nozzle cap to allow for an accurate “Static Pressure” reading. Note: you are not flowing water at this time so the Hose Monster should not be connected and all other hydrants caps should be in place.
5. Once the pressure has stabilized, (you can see the pressure on the main operating screen of the Valve Star), Press the F3 key to record the “Static Pressure.”
6. Now turn the fire hydrant off and relieve the pressure with the hydrant nozzle cap relief valve.
7. Now follow the procedures in “To Flow Test Using the Valve Star”
8. Once flow has stabilized, press the F4 key, this will lock the “Pitot Pressure” and the “Residual Pressure” at the exact same time. This simultaneous capture is absolutely necessary to get accurate Fire Flow information. Note: The F4 key will not work unless the “Static Pressure” has been recorded. Neither the F3 key nor the F4 key will work if the sensors are not properly connected.
9. Continue to flush the hydrant as long as necessary. Gallons used will be recorded for your reports.
10. Press the ESC key for the Miscellaneous Screen and press F5 to save.

## **To Fire Flow Test Using the Valve Star** **Remote Hydrant Method**

**Set “Mode” to Hydrant (Yellow settings screen)**

**This feature is not available at this time.**

## **MAINTENANCE SECTION:**

### **Valve Star head.**

- Do not pressure wash head. Clean with household cleaner.
- Visually inspect hydraulic connections.
- Visually inspect all connections and bolts daily.
- Grease pivot shaft weekly or as needed.

# **LIMITED WARRANTY**

## **Limited Warranty – Use, Free from Defects:**

HURCO TECHNOLOGIES, INC. (HURCO) warrants that for the period set forth below, and subject to the conditions expressed, the SPIN DOCTOR unit and components thereof (subject to exclusions stated below), when used in accordance with manufacturer's instructions, shall be free from defects in material or manufacturer's workmanship. This warranty is extended to the original purchaser.

## **Limited Warranty (other than Engine):**

The limited warranty term on the SPIN DOCTOR unit, other than the engine, is for the period of one year from date of purchase or delivery, whichever is later. HURCO does not warrant the engine; the original purchaser will have the benefit of limited warranty provided by the engine's manufacturer.

## **Limited warranty (Boom):**

In addition, the SPIN DOCTOR boom assembly has a lifetime warranty for torque related failure due to defects in material or manufacturer's workmanship, when operated within design specifications (i.e., 0-400 ft. lbs of torque)

## **Other Warranty Exclusions:**

This warranty does not cover any damage or loss to the SPIN DOCTOR or components due to (1) acts of God; (2) operating negligence of the owner or others; (3) damage or loss due to accident or other casualty; or (4) operation beyond design specifications or other failure to follow manufacturer's instructions or recommendations.

### **Limitations of Liability:**

Warranty claim may be made by the original purchaser with written notice to HURCO, proof of compliance with warranty conditions or limitations, and return of the defective part(s) to HURCO. Claimant must follow the specified “return procedures” (see following section). Upon approval of warranty claim, HURCO will provide new, replacement parts or other required components to the claimant, F.O.B. nearest origin, which replacement shall constitute the sold and exclusive remedy under this warranty. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF THE MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED AND SHALL NOT APPLY TO THE GOODS SOLD. IN NO EVENT SHALL WARRANTOR BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE GOOD EXCEPT TO THE EXTENT SET FORTH HEREIN AND TO THE EXTENT EXCLUSION IS PERMITTED BY APPLICABLE LAW. For additional information or assistance, contact the WARRANTOR, which is:

**HURCO TECHNOLOGIES, INC.**  
**Attention: Service Department**  
**409 Enterprise Street**  
**Harrisburg, SD 57032**

### **RETURN PROCEDURES**

**All products must be flushed of any chemical (ref. OSHA Section 0910.1200 (d)(e)(f)(g)(h)), including drained of any gas and oil prior to shipping to Hurco for service or warranty consideration.**

**Be prepared to give Hurco full details of the problem, including the following information:**

1. Model number, serial number, and the date and from whom you purchased the equipment.

Hurco may request additional information. Consult the factory to receive a return material authorization before sending the product. All products returned for warranty work should be sent shipping charges prepaid to:

**HURCO TECHNOLOGIES, INC.**  
**Attention: Service Department**  
**409 Enterprise Street**  
**Harrisburg, SD 57032**

# **NOTES:**