

WILLOUGHBY INDUSTRIES ACCESSORY VALVE ASSEMBLY

INSTALLATION AND OPERATION MANUAL

TPLR PART#: 701500 LIGATURE-RESISTANT MIXING VALVE

STANDARD FEATURES

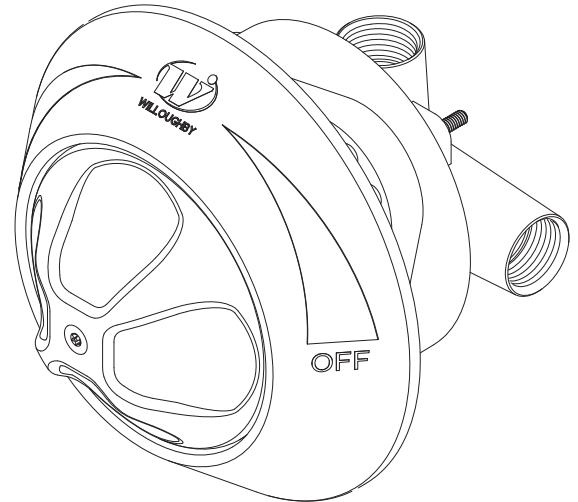
- Willoughby TPLR Ligature-resistant Temp/Pressure-Balancing Mixing Valve is designed to allow shower user to control water flow and adjust temperature for comfort.
- Specifically for mental & behavioral healthcare facility use.
- Recommended operational pressure, 35-70 PSI.

DISASSEMBLY

1. Unscrew the Security Screw and remove the Valve Handle and Handle Insert. (Insert will likely remain in handle).
2. While holding the Mixing Valve Body, unscrew the (2) Security Head Long Screws from the Valve Body.
3. The Dial Plate and Mounting Bracket can now be easily removed.

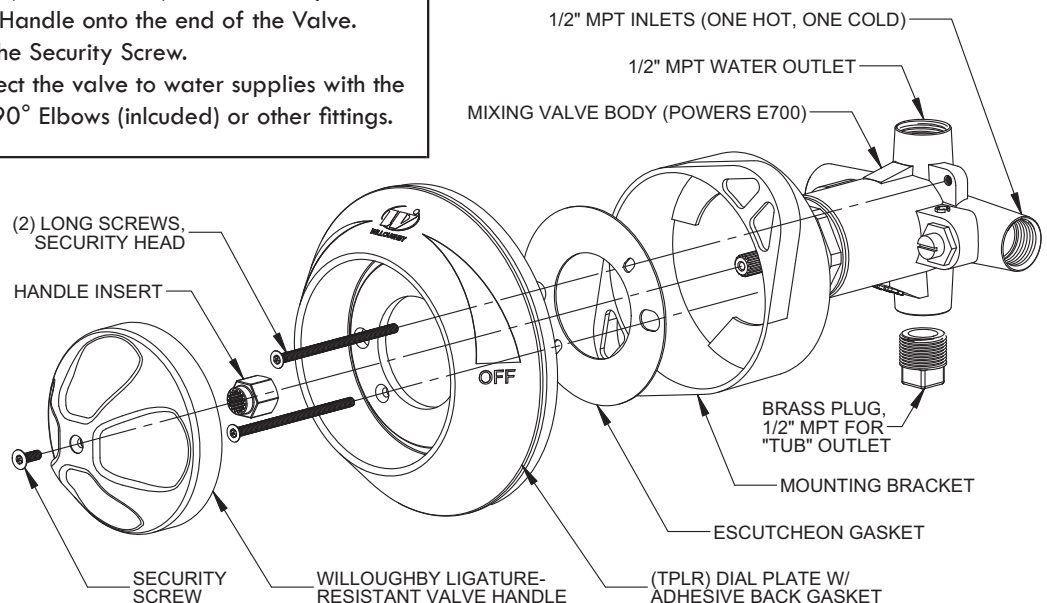
INSTALLATION

1. If not already done, insert Brass Plug into valve body "TUB" outlet.
2. Align Mounting Bracket (if completing a thin-wall installation) and Valve Body with mounting holes from the rear of the fixture.
3. From the User Side, align the Escutcheon Gasket, the Dial Plate, and (2) Security Head Long Screws with the mounting holes.
4. Tighten Screws into the Valve Body tappings.
5. Apply non-permanent Loctite (or alternative) to the Security Screw.
6. Install the Handle Insert and Handle onto the end of the Valve.
7. Body stem, and secure with the Security Screw.
8. After thorough flushing, connect the valve to water supplies with the 1/2" MPT H&C Inlets, using 90° Elbows (included) or other fittings.



OPERATION

- To use (TPLR), rotate the handle counter-clockwise towards ON to start flow.
- Rotate the handle to adjust the shower temperature: counter-clockwise for warmer, clockwise for cooler.
- To turn off water flow, rotate the handle all the way clockwise to OFF.



SEE FOLLOWING PAGE
FOR VALVE DIMENSIONS
AND PART NUMBERS

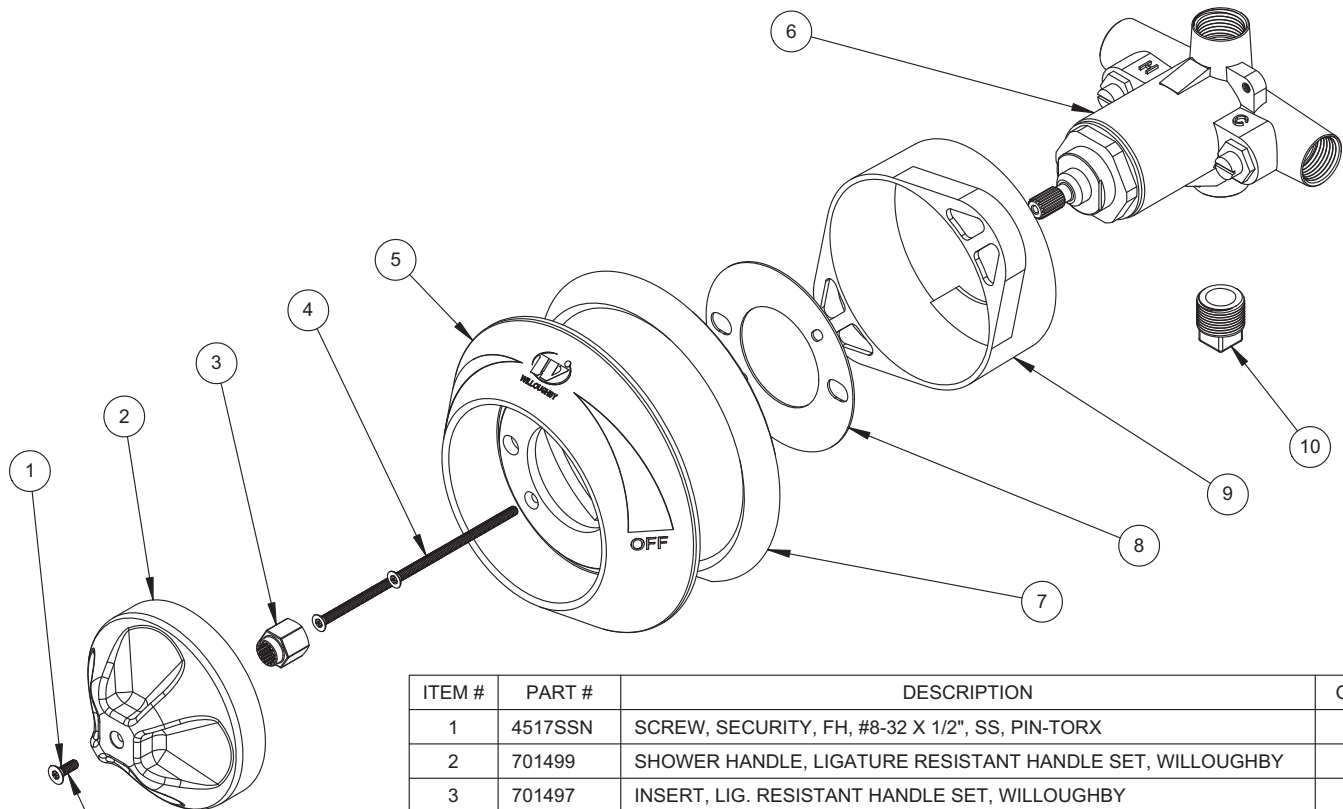
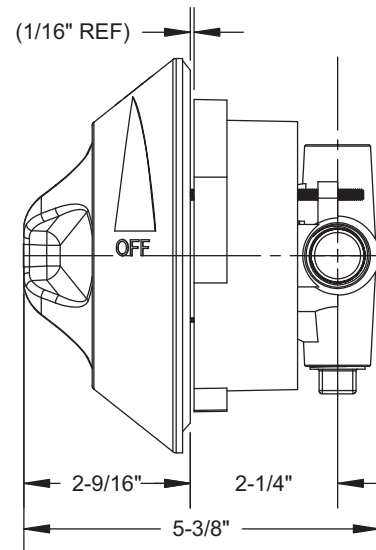
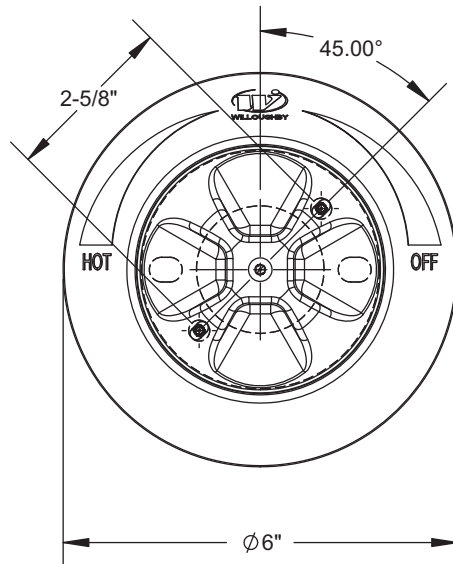


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(TPLR) MIXING VALVE Dimensions & Part Numbers



NOTE: USE NON-PERMANENT LOCTITE ON SECURITY SCREW WHEN INSTALLING HANDLE

ITEM #	PART #	DESCRIPTION	QTY.
1	4517SSN	SCREW, SECURITY, FH, #8-32 X 1/2", SS, PIN-TORX	1
2	701499	SHOWER HANDLE, LIGATURE RESISTANT HANDLE SET, WILLOUGHBY	1
3	701497	INSERT, LIG. RESISTANT HANDLE SET, WILLOUGHBY	1
4	4506SSN	8-32 X 3" SS FH SECURITY SCREW	2
5	701498	DIAL PLATE, LIGATURE RESISTANT HANDLE SET, WILLOUGHBY	1
6	701496	MIXING VALVE, E700 T/P, NPT 1/2" INLETS/OUTLETS	1
7	380058	GASKET, ADHESIVE BACK, NEOPRENE, 1/2" x 1/8"	1
8	320016	GASKET, SHOWER HANDLE ESCUTCHEON	1
9	900-119	MOUNTING BRACKET, THIN WALL	1
10	320260	PLUG, BRASS, 1/2 MPT	1

Technical Instructions

⚠ WARNING



Read this Manual BEFORE using this equipment.
Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.
Keep this Manual for future reference.



e705



e707



e710



Description ■

The Series e700 HydroGuard T/P automatically mixes hot and cold water to deliver blended water within a specified range. Using an advanced thermal actuator, the Series e700 quickly compensates for temperature fluctuations induced by water temperature and pressure changes. In the event of cold water failure, the thermostatic motor virtually shuts off the flow of hot water. HydroGuard T/P meets the most stringent performance criteria for temperature and pressure changes, defined by ASSE 1016 (Type T/P).

Featuring heavy, cast-brass construction and an adjustable brass to brass high limit temperature stop, self-contained

cartridge, corrosion resistant internal component, integral checks, and back to back shallow wall installation capability. All parts of the e700 Series valve are accessible from the front of the valve. All Series e700 valves open in the cold water position to ensure maximum bather safety and comfort.

The accuracy, reliability and water economy of the Series e700 HydroGuard T/P make it preferable for applications that require precise, consistent water control: showers, baths, hospital hydrotherapy and residential areas. All e700 valves meet the Americans with Disabilities Act (ADA).

Specifications ■

Valve Construction: Combination mixing valve, with heavy cast bronze body and brass stem. Concealed adjustable high temperature limit stop. Available with ADA-compliant ABS or metal lever handle.

Connections	1/2" Sweat Inlet/Outlet
Capacity	4 gpm
Maximum Hot Water Supply Temperature	190°F(88°C)
Minimum Hot Water Supply Temperature (Approach Temperature)	10°F (5.5°C) above set point
Maximum Operating Pressure	125 psig (862 kPa)
Temperature Ranges (for +/- 3°F performance)	ASSE 1016 Type T/P: 90 - 110°F (32 - 43°C) ASSE 1016 Type T: 80 - 120°F (27 - 49°C)
High Temperature Limit Stop	Adjustable (factory set at 110°F [43°C])
Maximum Static Pressure	125 psig (862kPa)
Minimum Flow	1.0 gpm (3.781 L/min)
Approved Standards	CSA B125.1, ASME 112.18.1 ASSE 1016 T/P
Listing	ASSE 1016, IAPMO cUPC
Shipping Weight	3.5 lbs. (1.6 kg)

All HydroGuard T/P Series e700 combination mixing valves meet above performance specifications based on typical operating conditions as stated in ASSE 1016 (45 psi pressure differential, hot water supply between 140°-180°F (60°-82°C), cold water supply less than 70°F (21°C).

If your operating conditions vary from those stated in the standard, performance may vary as well. Consult your local sales representative or a Powers factory engineer to discuss your specific application. All Powers thermostatic mixing valves perform to the requirements of standards ASSE 1016 and CSA B125.

Operation ■

Hot and cold water enter respective ports in the valve and mix in a chamber containing an advanced thermal actuator (refer to cutaway view). This actuator controls the position of the plunger and temperature.

Rotating the adjustment handle repositions the plunger in the cartridge assembly to produce the desired temperature. The mixed water passes over the shut-off disc to the outlet. If the hot or cold supply water temperature or pressure changes, the thermal actuator will contract or expand. This movement repositions the plunger to maintain the desired temperature. With the adjustment handle in full clockwise (OFF) position, the shut-off disc closes the mixing chamber from the outlet.

A high temperature limit stop restricts the movement of the control handle. All HydroGuard T/P e700 valves are factory set to deliver tempered water up to 110°F [43°C] with equal supply pressures, with hot water temperature 140°F [60°C], cold water temperature 60°F [15.6°C].

NOTICE

The handle rotation stop must be adjusted by the installer.

⚠ WARNING

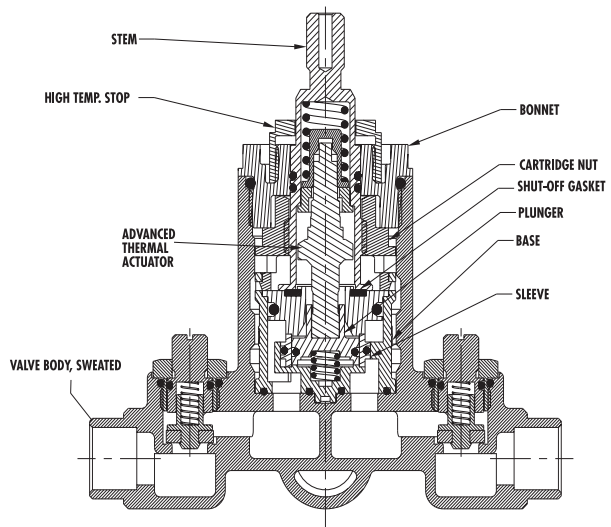
Maximum Temperature Setting/Handle Rotation Stop

The handle rotation setting must be adjusted to limit the distance the user can rotate the handle towards the full hot water position.

⚠ CAUTION

Any repair or modification of the valve may affect the high temperature setting. The maximum temperature setting must be checked by the installer before use.

1. Remove the valve handle and sleeve.
2. Adjust the valve to the desired maximum outlet temperature [110°F (43°C) max]. Screw on the high temp. limit stop until it touches the stem shoulder.
3. Turn the stem clockwise until the water stops.
Open valve to full hot position and verify maximum outlet temperature setting.
4. Place sleeve "O" Ring on the bonnet shoulder.
Slide sleeve over the "O" Ring until it stops.
5. Replace handle.



Reversed Inlets

Valve is factory-set for standard inlets. If reversed inlets are required due to back-to-back installation (Cold water supply on the left and Hot water supply on the right), follow instructions a through d below:

- a. Connect cold inlet to hot port ("H") and hot inlet to cold port ("C").

NOTICE

Do not turn valve upside down. If valve is upside down, water will not flow properly through tub spout or showerhead.

- b. Turn water off with checkstops, remove bonnet and cartridge.
- c. Reinstall cartridge. "H" on the cold side of the valve body and "C" should be on the hot side of the valve body.
- d. Reinstall bonnet with high temperature limit stop on it.

NOTICE

Be certain that valve opens in full cold!

- e. Hot and Cold inlets should be re-identified for reversed inlets to avoid confusion during future maintenance.

Preventive Maintenance ■

⚠ WARNING

Before servicing checkstops or piping, always turn off the upstream water supply.

EVERY 12 MONTHS:

- Open up the checkstops and check for free movement of the poppet. To access the checkstops, remove the handle assembly and trim plate.
- Before servicing the valve, turn off the water supply upstream OR close the checkstops. To close the checkstops, turn the adjustment screw fully clockwise on each checkstop.
- Remove the valve bonnet and rinse all grit and impurities from the cartridges.
- Winterize valves that are used outdoors. Remove and store the internal components and drain all water from the valve.

Safety Requirement - All Models ■

⚠ WARNING

Need for Periodic Inspection: Periodic inspection by a licensed contractor is recommended. Corrosive water conditions, temperatures over 200°F, unauthorized adjustments or repair could render the valve ineffective for service intended. Regular checking and cleaning of thermostat assembly helps to assure maximum life and proper product function. Frequency of cleaning depends upon local water conditions.

Adherence to these guidelines and recommendations promotes safe product use and ensures proper valve performance.

⚠ CAUTION

The high temperature limit stop setting must be adjusted to limit the distance the user can rotate the handle towards the full hot water position.

NOTICE

Position the e700 valve as close as possible to outlet fixture to avoid waste of energy and water.

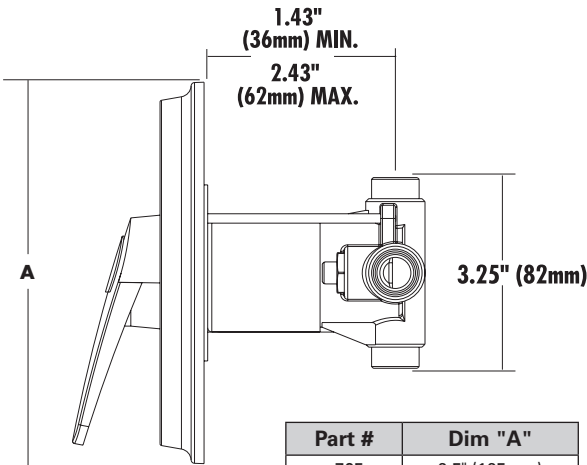
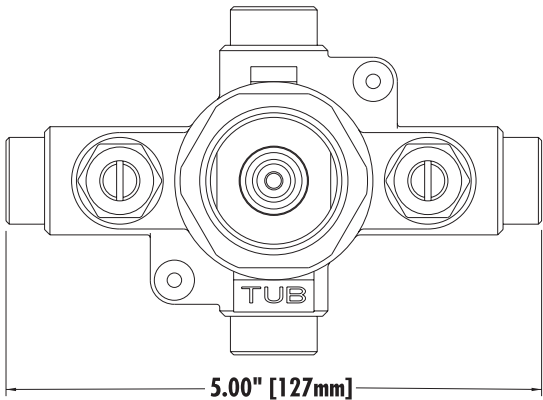
Troubleshooting ■

What to look for if:

- **The maximum temperature cannot be obtained...**
 - a. Lime deposits may have accumulated in the hot water pipes, restricting the hot water supply.
 - b. The hot water supply temperature may be too low.
 - c. The handle rotation setting may be too low. Remove valve handle, and readjust the high temperature limit stop (see page 2).
- **Flow of water is less than desired...**
 - a. The upstream supply valves may not be fully open.
 - b. The inlet supply pressure(s) may be low.
 - c. The showerhead may be clogged. Remove and clean the showerhead.
 - d. The checkstops may be clogged. Refer to Preventive Maintenance section.

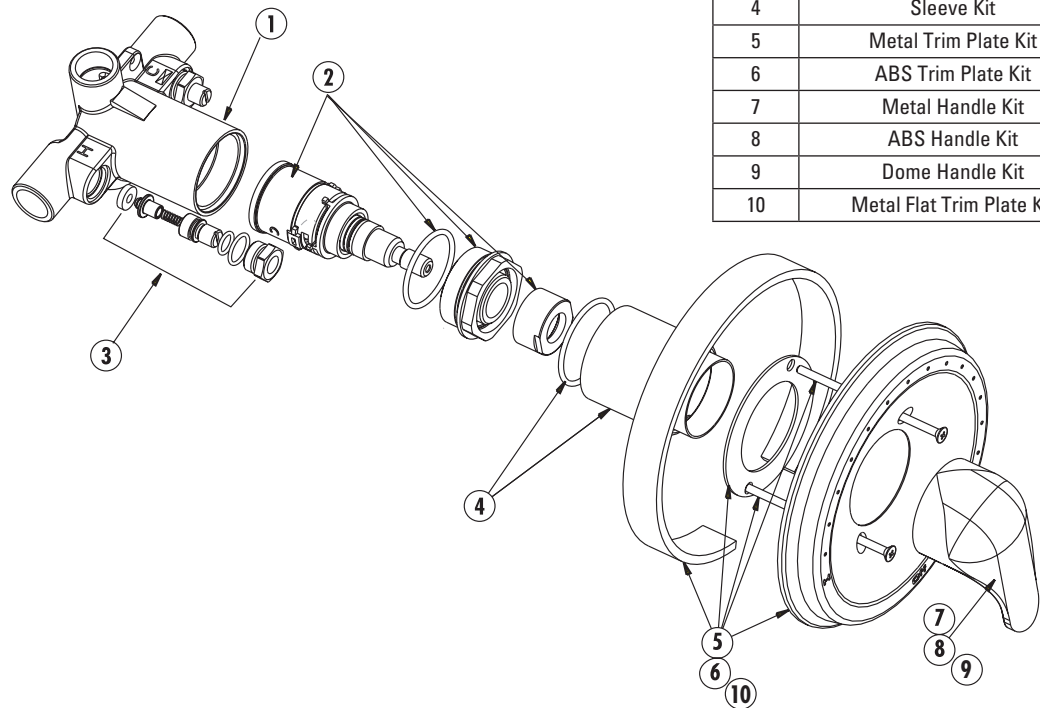
- **The valve opens with hot water flow rather than cold water flow...**
 - a. The inlet water supplies are connected to the wrong ports or cartridge is installed improperly. See section on "Reverse Inlets".
- **The tempered water is too cold, although cartridge has been replaced, OR the hot water temperature is below 115°F...**
 - a. Raise the temperature of the hot water supply.
- **Flow of water is completely shut off...**
 - a. The upstream supply valves may be completely closed.
 - b. The hot or cold water supply pressure may have failed. The e700 valve is designed to close down upon cold water supply pressure failure.
 - c. The checkstops may be closed. Access the checkstops and open by turning the adjustment screw fully counterclockwise.

Dimensional Data ■



Part #	Dim "A"
e705	6.5" (165mm)
e707	8.5" (216mm)
e710	6.5" (165mm)

Exploded View and Parts List - e700 ■



Index	Description	Part #
1	Valve Body	N/A
2	Cartridge Kit	220 060
3	Checkstop Replacement Kit	900 050
4	Sleeve Kit	220 054
5	Metal Trim Plate Kit	220 051
6	ABS Trim Plate Kit	220 053
7	Metal Handle Kit	220 050
8	ABS Handle Kit	220 052
9	Dome Handle Kit	220 079
10	Metal Flat Trim Plate Kit	220 078

Repair Kits ■

Description	Troubleshooting	Repair Kit No.
Cartridge Kit	• Water leaks at valve stem and/or bonnet. • Water leaks at valve shutoff. • Water temperature changes during shower.	220 060
Checkstop Replacement Kit	• Checkstop leaks or will not shut off completely	900 050

Warranty ■

The Seller warrants that the equipment manufactured by it and covered by this order or contract is free from defects in material and workmanship and, without charge, equipment found to be defective in material or workmanship will be repaired, or at Seller's option replaced F.O.B. original point of shipment, if written notice of failure is received by Seller within one (1) year after date of shipment (unless specifically noted elsewhere), provided said equipment has been properly installed, operated in accordance with the Seller's instructions, and provided such defects are not due to abuse or decomposition by chemical or galvanic action. THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, OR REPRESENTATIONS, EXPRESS OF IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. The Seller assumes no responsibility for repairs made on the Seller's equipment unless done by the Seller's authorized personnel, or by written authority from the Seller. The Seller makes no guarantee with respect to material not manufactured by it.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: www.watts.com/prop65

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