

Clark-Reliance Equipment Options

DESIGN PRESSURE	WATER COLUMNS	WATER GAGE VALVES	DIRECT READING GAGE	REMOTE READING GAGE	LEVALARM ASSEMBLY
250 PSIG AND UNDER	W0250-FA Float Alarm Type W0250-EA Probe Type Tie Tube Assembly	BG403RS Bronze Valves BG404RS Bronze Valves SG800 Series Steel Valves	'C' or 'S' Type Prismatic FG400 Series Flat Glass Type	EL450 Electro Eye Hye Assembly Magnetic Water Level Gage	EA100 Series Float Type EA100DP Series Dual Function EA101 Series Probe Type
251 PSIG TO 350 PSIG	W0350-FA Float Alarm Type W0350-EA Probe Type Tie Tube Assembly	BG404RS Bronze Valves SG800 Series Steel Valves	'S' Type Prismatic FG400 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL450 Electro Eye Hye Assembly Magnetic Water Level Gage	EA100D Series Float Type EA100DP Series Dual Function EA101 Series Probe Type
351 PSIG TO 450 PSIG	W0450-FA Float Alarm Type W0450-EA Probe Type Tie Tube Assembly	BG404RS Bronze Valves SG800 Series Steel Valves	FG400 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL450 Electro Eye Hye Assembly Magnetic Water Level Gage	EA100S Series Float Type EA100SP Series Dual Function EA101S Series Probe Type
451 PSIG TO 600 PSIG	W0600-FA Float Alarm Type W0600-EA Probe Type Tie Tube Assembly	SG800 Series Steel Valves SG778 Steel Valves with Chain Wheel	FG900 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL1000 Electro Eye Hye Assembly Magnetic Water Level Gage	EA100S Series Float Type EA100SP Series Dual Function EA101S Series Probe Type
601 PSIG TO 900 PSIG	W0900-FA Float Alarm Type W0900-EA Probe Type Tie Tube Assembly	SG800 Series Steel Valves SG778 Steel Valves with Chain Wheel	FG900 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL1000 Electro Eye Hye Assembly Magnetic Water Level Gage	EA100S Series Float Type (800 PSIG Max.) EA100SP Series Dual Function (800 PSIG Max.) EA101S Series Probe Type
901 PSIG TO 1000 PSIG	W1100-EA Probe Type Tie Tube Assembly	SG800 Series Steel Valves SG778 Steel Valves with Chain Wheel	FG1500 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL1000 Electro Eye Hye Assembly	EA101SW Series Probe Type
1001 PSIG TO 1500 PSIG	W1100-EA Probe Type (1100 PSIG Max.) W1250-EA Probe Type (1250 PSIG Max.) W1500-EA Probe Type Tie Tube Assembly	SG800 Series Steel Valves SG778 Steel Valves with Chain Wheel	FG1500 Series Flat Glass Type P3000 Series Simpliport Gage FiberLevel System	EL1800 Electro Eye Hye Assembly-EL1100 Electro Eye Hye Assembly (1100 PSIG Max.) for special applications- Consult Factory	EA101S Series Probe Type
1501 PSIG TO 1800 PSIG	W1800-EA Probe Type Equalizer Tube Assembly	SG777 Steel Valves with Chain Wheel	P3100 Series Simpliport Gage FiberLevel System FG2000 Series Flat Glass Gage	EL1800 Electro Eye Hye Assembly	EA101S Series Probe Type
1801 PSIG TO 2500 PSIG	W2500-EA Probe Type Equalizer Tube Assembly	SG777 Steel Valves with Chain Wheel	P3100 Series Simpliport Gage FiberLevel System FG2000 Series Flat Glass Gage (up to 2000 PSIG Max.)	ELF3000 Electro Eye Hye Assembly	Non Applicable
2501 PSIG TO 3000 PSIG	W3000-EA Probe Type Equalizer Tube Assembly	SG677 Steel Valves with Chain Wheel	P3100 Series Simpliport Gage FiberLevel System	ELF3000 Electro Eye Hye Assembly	Non Applicable

General Information Required To Specify Boiler Trim Equipment

WATER COLUMNS

Cast Iron Water Columns

- A. Dimensions - One of the following is required:**
 - i.) Drawing No. of existing column
 - ii.) Model No. of existing column
 - iii.) All required dimensions if new installation
(S & W centers, alarm variation, N.W.L., etc.)
- B. Connection Size of S & W connections**

Steel Water Columns

- A. Dimensions**
 - i.) S & W centers
 - ii.) Alarm variation
 - iii.) N.W.L. location
 - iv.) Locations of other alarms and trip points (if required)
- B. Size and type of connections**
- C. Figure arrangement required to locate connections**
- D. Design pressure and temperature**

ELECTRO EYE-HYE SYSTEMS

Electrolev Columns

- A. Dimensions**
 - i.) S & W centers
 - ii.) N.W.L. - dimension between N.W.L. and water connection
 - iii.) Distance between water connection and probe #1
 - iv.) Probe variation (distance between probe centers)
 - v.) Water level variation (distance from lowest to highest probe)
- B. Size and type of connections**
- C. Standard or weatherproof housing**
- D. Extra length for lead wires from probes**
- E. Number of probes required**
- F. Design pressure and temperature**

CONTROL UNITS

- A. Type of enclosure - NEMA 1 (indoor), NEMA 4 (outdoor),
NEMA 4X (outdoor, corrosion resistant), NEMA 7 (explosion proof)**
- B. Auxiliary alarm contacts (Standard)**
- C. 4-20 milliampere output signal package**

INDICATORS

- A. Type - Sub-miniature, Miniature, or Standard**
- B. Optional enclosure (weatherproof) for outdoor installations.**

DIRECT-TO-DRUM ASSEMBLY/TIE TUBE ASSEMBLY

- A. S & W centers
- B. Size and type of connections
- C. Type of Water Gage Valves required
- D. Figure arrangement required (line of sight)
- E. N.W.L.
- F. Type of Water Gage required
- G. Design pressure

LEVALARMS

- A. EA100 series
 - i.) Design pressure
 - ii.) Probe required for dual function (EA100P)
- B. EA101 series
 - i.) Design pressure
 - ii.) Number of probes required (1 or 2)
 - iii.) Length of probes
 - iv.) Side connection (if required)
- C. EA15R
 - i.) Centers
 - ii.) Probe lengths - NOTE: The EA15R is always furnished with 2 probes. It can be used for 1 or 2 functions. If 2 functions are required, a common screw is required.

EA17/EA18 RETROPAK ASSEMBLY

- A. Type of flange required for the cap if not retrofitting on a Clark-Reliance unit.
- B. Design pressure or probe type required.
- C. Length of probes. Unit can be furnished with 36" probes for field adjustment.

RELAY CONTROL UNITS

- A. Number of relays required.
- B. Type of enclosure required.

General Information

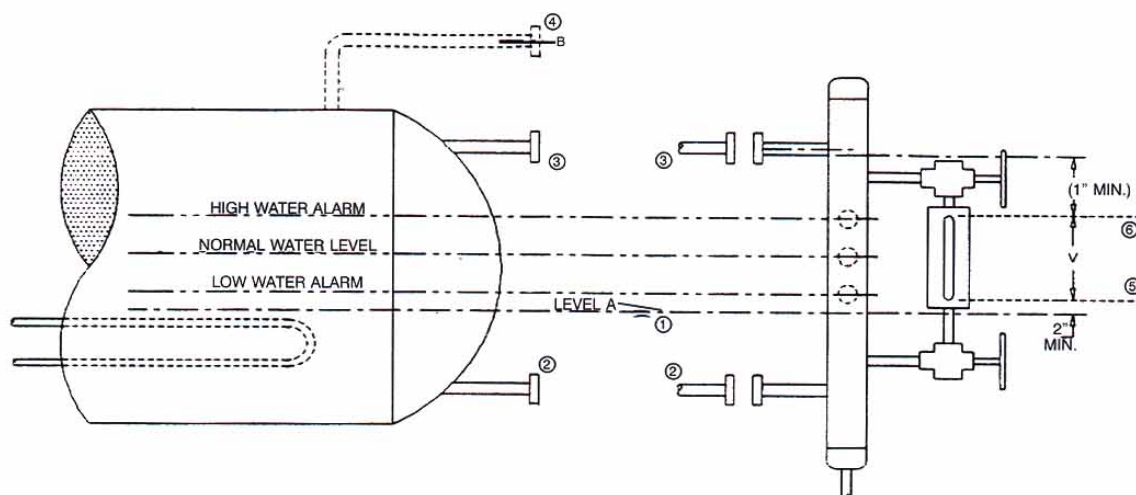
1. When ordering replacement units for existing Water Columns, Electrolevs, Control Units, etc., a drawing number or serial number is required.
2. S & W = Steam and Water connection centers.
3. N.W.L. = Normal Water Level location.

ASME Code References:

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|--|--|---|
| 1. Water Level Indicators (PG-60.1) <ul style="list-style-type: none">a. Gage Requirements (PG-60.1.1)b. Fiber Optic use (PG-60.1.1)c. 3/4" minimum connection size for remote level indicator (PG-60.1.1) | 2. Water Columns (PG-60.2) <ul style="list-style-type: none">a. 1" minimum connection size for water column to boiler (PG-60.2.2) 3. Gage Glass Connections (PG-60.3) <ul style="list-style-type: none">a. Highest visible permissible water level (PG-60.3.2)b. Lowest visible permissible water level (PG-60.3.3) | 4. Gage Cocks are not required (PG-60.4) |
| | | 5. Ball Check Valve Requirements (Appendix A-18) |
| | | 6. 1" Gage overlap requirement (PG-60.1.1) |
| | | 7. Magnetic Water Level Gage as a Remote Level Indicator (ASME Case Interpretation I-89-73 & I-92-96) |

Review of Code Requirements, Water Column Connections and Operations

GOOD PRACTICE IS TO LOCATE ALL ALARMS AND FUEL CUTOUTS WITHIN WATER GAGE GLASS VISIBILITY.



SHUTOFF VALVES BETWEEN DRUM AND COLUMN MUST BE OS&Y, OF THROUGH-FLOW DESIGN AND ORIENTATION, SHOW POSITION AS OPEN OR CLOSED, AND HAVE LOCK- OPEN CAPABILITY.

ASME WATER GAGE REQUIREMENTS

UNDER 400 PSIG

At Least 1 Direct Reading Gage

400 PSIG AND ABOVE

2 Direct Reading Gages Or

1 Direct Reading Gage and 2 Remote Reading Gages

SYSTEM SCHEMATIC DETAIL

- 1. Lowest permissible water level-** at which level there will be no danger of overheating (Level A).
- 2. Water connection for Water Column-** upper edge (2) must be at least 1" below low visibility point of gage glass (5) - must be at least 1" NPS. Line should be level or slope downward from column to drum.
- 3. Steam connection for Water Column-** lower edge (3) must be at least 1" above high visibility point of gage glass - must be at least 1" NPS. Line should slope downward from drum to column.
- 4. Steam connection may come out of top of vessel-** centerline of steam connection on column would be at point marked "B".
- 5. The lowest visible part of water gage glass-** must be at least 2" above the lowest permissible water level (Level A).
- 6. The highest visible part of water gage glass-** must be at least 1" below the center of steam connection.
- 7. Gage Cock connections-** not required. However, if Gage Cocks are used, they shall not be less than 1/2" pipe size and located within gage visibility range "V".
- 8. Transparent gages with multiple sections must have minimum 1" overlap** -tubular or transparent gages that rely on observing the steam-water interface and consist of multiple sections, must have a minimum of 1" overlap of the visible portions.
- 9. Ported Type Water Gages must be fitted with proper illuminator** - to provide visual discrimination between steam and water.
- 10. Magnetic Water Level Gage is considered a Remote (indirect) Level Indicator**

For additional information,
contact your local Clark-Reliance
representative

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NOTE: Clark-Reliance shall not be liable for damages of any kind resulting in part from failure to install its products in accordance with all applicable codes and/or state and local regulations, improper application and/or maintenance.