



# LEVEL CONTROLS

MECHANICALLY OPERATED



‡®

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|  |                          |
|--|--------------------------|
| <b>DIAPHRAGM BALANCED:</b> . . . . .   | <b>C2:10.1 - C2:10.5</b> |
| APPLICATIONS: Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators.  |                          |
| OPERATING PRESSURE RANGES: 5 psig to 250 psig  |                          |
| <b>PISTON BALANCED:</b> . . . . .  | <b>C2:20.1 - C2:20.3</b> |
| APPLICATIONS: Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators where higher pressures or corrosive conditions may occur. |                          |
| OPERATING PRESSURE RANGES: 10 psig to 285 psig   |                          |
| <b>CAGE &amp; HARD SEAT:</b> . . . . .   | <b>C2:25.1</b>           |
| APPLICATIONS: For use in erosive environment.  |                          |
| OPERATING PRESSURE RANGES: 5 psig to 125 psig  |                          |
| <b>SEVERE SERVICE:</b> . . . . .   | <b>C2:30.1 - C2:30.2</b> |
| APPLICATIONS: Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators. Designed for higher pressures or erosive service.        |                          |
| OPERATING PRESSURE RANGES: 10 psig to 500 psig   |                          |
| <b>MECHANICAL PIOT:</b> . . . . .  | <b>C2:40.1 - C2:40.2</b> |
| APPLICATIONS: Oil and gas separators, water knockouts, and similar equipment where a mechanical to pneumatic interface is required to operate motor valves.                        |                          |
| OPERATING PRESSURE RANGES: 5 psig to 30 psig   |                          |
| <b>BI-STABLE MECHANICAL PIOT:</b> . . . . .  | <b>C2:50.1 - C2:50.2</b> |
| APPLICATIONS: Oil and gas separators, knockouts, treaters and similar equipment where it is necessary to convert a mechanical dump into a wide span, snap, pneumatic signal.       |                          |
| OPERATING PRESSURE RANGES: 0 psig to 30 psig   |                          |
| <b>FLANGED TRUNNION ASSEMBLY:</b> . . . . .  | <b>C2:60.1</b>           |
| APPLICATIONS: Used on oil and gas separators, freewater knockouts (FWKO), horizontal emulsion treaters and similar equipment where a float is desired to monitor fluid level.      |                          |
| OPERATING PRESSURE RANGES: 0 psig to 250 psig  |                          |
| <b>HAMMER UNION TRUNNION ASSEMBLY:</b> . . . . .   | <b>C2:70.1</b>           |
| APPLICATIONS: Used on oil and gas separators, freewater knockouts (FWKO), horizontal emulsion treaters and similar equipment where a float is desired to monitor fluid level.      |                          |
| OPERATING PRESSURE RANGES: 0 psig to 500 psig  |                          |
| <b>TRUNNION ASSEMBLY:</b> . . . . .  | <b>C2:80.1 - C2:80.3</b> |
| APPLICATIONS: Used on oil and gas separators, freewater knockouts (FWKO), horizontal emulsion treaters and similar equipment where a float is desired to monitor fluid level.      |                          |
| OPERATING PRESSURE RANGES: 0 psig to 500 psig  |                          |
| <b>CLOSURES:</b> . . . . .   | <b>C2:90.1</b>           |
| APPLICATIONS: Used as an access opening for pressure vessels.  |                          |
| OPERATING PRESSURE RANGES: 0 psig to 1500 psig   |                          |
| <b>FLOAT &amp; FLOAT ARM OPTIONS:</b> . . . . .  | <b>C2:100.1</b>          |
| APPLICATIONS: For use with Trunnion Assemblies.  |                          |
| MAX OPERATING PRESSURE: 600 psig   |                          |
| <b>FLOW COEFFICIENT</b> . . . . .  | <b>C2:I</b>              |
| <b>VALVE DIMENSIONS</b> . . . . .  | <b>C2:II</b>             |
| <b>VALVE DIMENSIONS</b> . . . . .  | <b>C2:III</b>            |
| <b>TRUNNION DIMENSIONS</b> . . . . .   | <b>C2:IV</b>             |
| <b>SEALS</b> . . . . .   | <b>C2:V</b>              |
| <b>MATERIAL SPECIFICATIONS</b> . . . . .   | <b>C2:VI</b>             |
| <b>TEMPERATURE</b> . . . . .   | <b>C2:VII</b>            |

## CODE BUILDER

## Creating a Kimray Part Number with Options

## Level Controller

Base Part Number from Catalog (Example:CBA) See following pages to select base code

Characteristics such as Flange connection size & type, thru & angled body are inherent in the Base Part Number.

Misc. Options:

**LB** = No Body (Upper Portion only)

Trim Material Options:

**S6** = 316 Stainless steel Trim, Tubing and Fittings)

Seal Options: Nitrile is standard

**HSN** = Highly Saturated Nitrile on all seals (HNBR)

**V** = FKM on all seals

**AF** = Aflas® on all seals

**MN** = Multi-Nylon

Coating

**KC** = Kimcoat (for wear and corrosion resistance)

Certifications

**NC** = NACE certificate

**MTR** = Material Test Report

|  |  |  |  |  |  |   |
|--|--|--|--|--|--|---|
|  |  |  |  |  |  | * |
|--|--|--|--|--|--|---|

Leave blank where no options are desired. Consolidate by removing blanks

Example:

|     |  |    |  |  |    |
|-----|--|----|--|--|----|
| CBA |  | S6 |  |  | NC |
|-----|--|----|--|--|----|

reduces to **CBAS6NC**

## Trunnion Assembly

Base Part Number from Catalog (Example:CCG) See following pages to select base code

Misc. Options:

**L8** = Length 8" Lever

**L12** = Length 12" Lever

**L15** = Length 15" Lever

**L18** = Length 18" Lever

**L24** = Length 24" Lever

**L36** = Length 36" Lever

Trim Material Options:

**S6** = 316 Stainless steel Trim, Tubing and Fittings)

Seal Options: Nitrile is standard

**HSN** = Highly Saturated Nitrile on all seals (HNBR)

**V** = FKM on all seals

**AF** = Aflas® on all seals

Coating

**KC** = Kimcoat (for wear and corrosion resistance)

Certifications

**NC** = NACE certificate

**MTR** = Material Test Report

**SPT** = Static Pressure Test

|  |  |  |  |  |  |   |
|--|--|--|--|--|--|---|
|  |  |  |  |  |  | * |
|--|--|--|--|--|--|---|

Leave blank where no options are desired. Consolidate by removing blanks

Example:

|     |  |    |  |  |    |
|-----|--|----|--|--|----|
| CCG |  | S6 |  |  | NC |
|-----|--|----|--|--|----|

reduces to **CCGS6NC**

\* NOTE: Some options could drastically affect lead times. Contact your local Kimray representative to finalize your product code.

#### APPLICATION:

Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators.

#### FEATURES:

- Balanced, single soft seat
- Teflon packed, rotary stuffing box
- All internal parts easily be removed with valve in line

#### CERTIFICATIONS:

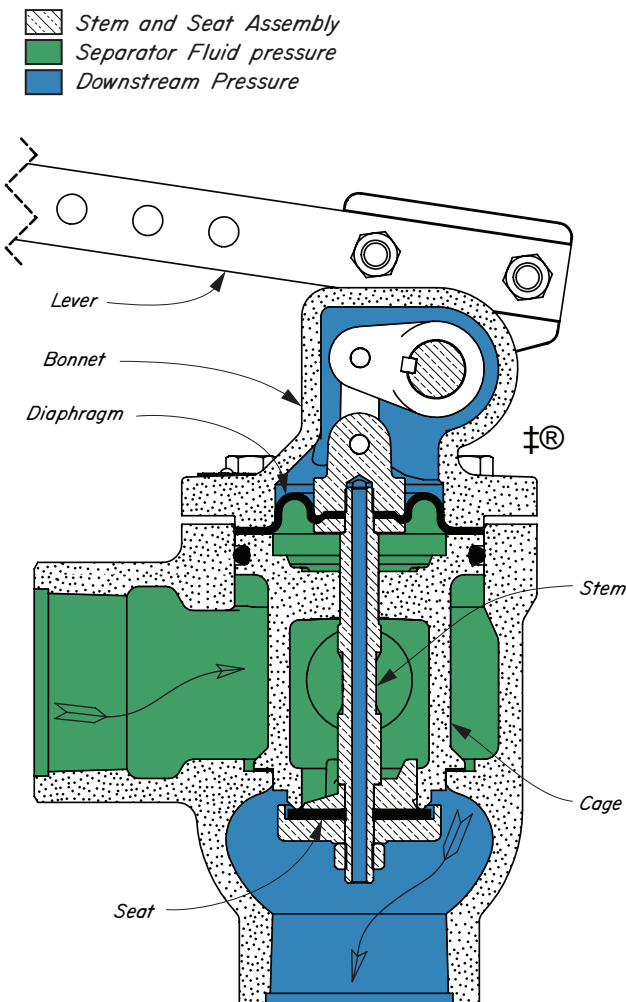
- Canadian Registration Number (CRN):  
0C16234.24567890NTY (Ductile)  
0C15610.24567890NTY (Steel)

#### OPERATION:

The Oil Valve is mechanically operated through a LEVER by a Float in a separator or other vessel to which the valve is connected. The STEM AND SEAT ASSEMBLY is driven through a crank by the LEVER. The area of the DIAPHRAGM is the same as the area of the SEAT so that Separator Fluid Pressure (Green) acting down on the SEAT is cancelled by the upward force of the pressure on the DIAPHRAGM. Downstream Pressure (Blue) is communicated through the hollow STEM to the top side of the DIAPHRAGM. Downstream Pressure (Blue) acting up on the SEAT is cancelled by the downward force of the same pressure on the top side of the DIAPHRAGM. The valve can be operated easily by float since it is unaffected by Separator Fluid Pressure (Green) or Downstream Pressure (Blue). The entire STEM AND SEAT ASSEMBLY with the CAGE can be withdrawn from the valve as a unit by removing the BONNET screws.

#### NOTE:

The Customer is responsible for specifying linkage arm lengths and proper installation of float trunnions, valves and linkage assemblies. The total resulting force generated by the float is a function of the size and density of the float, the specific gravity of the fluid, the lever arm positions and angles and proper installation of the equipment. These criteria at least should be considered when specifying and installing linkage assemblies between vessels and valves.

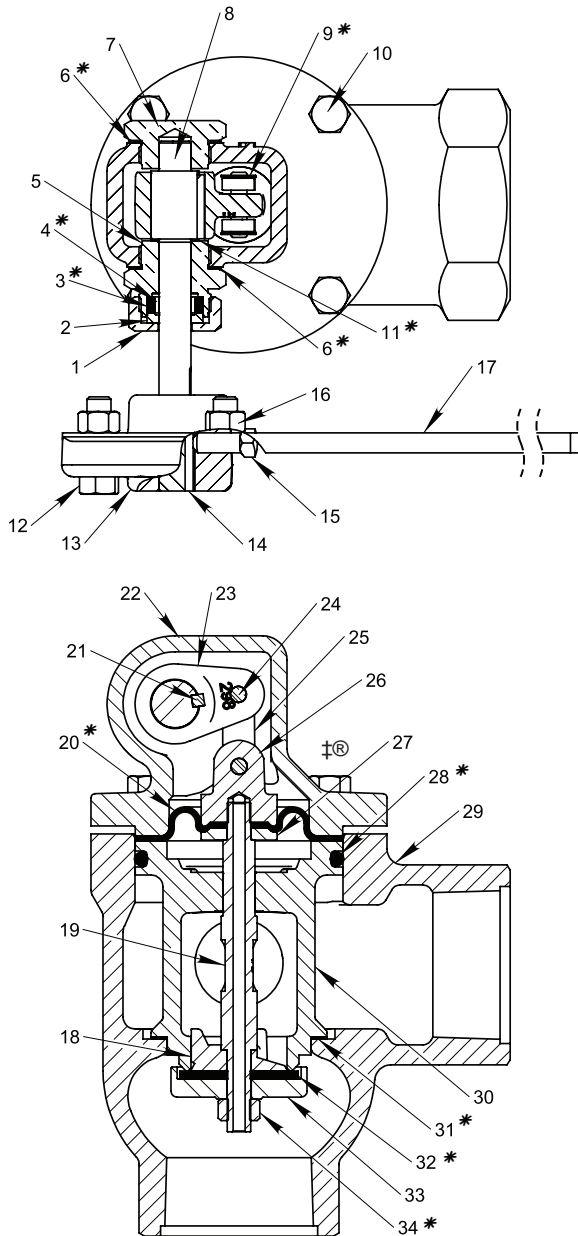


Kimray is an ISO 9001- certified manufacturer.

# MECHANICAL LEVEL CONTROLS

## DIAPHRAGM BALANCED LEVER OPERATED DUCTILE IRON

# KIMRAY INC.®



| ITEM | QTY. | DESCRIPTION     | PART NO. |         |         |
|------|------|-----------------|----------|---------|---------|
|      |      |                 | 2 INCH   | 3 INCH  | 4 INCH  |
| 1    | 1    | NUT             | 345      | 346     | 347     |
| 2    | 1    | FOLLOWER        | 348      | 349     | 350     |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2 | 353 x 2 |
| 4    | 1    | PACKING *       | 354      | 355     | 356     |
| 5    | 1    | STUFFING BOX    | 357      | 358     | 359     |
| 6    | 2    | GASKET *        | 364      | 365     | 366     |
| 7    | 1    | TRUNNION PLUG   | 367      | 368     | 369     |
| 8    | 1    | SHAFT           | 370      | 371     | 372     |
| 9    | 4    | SNAP RING *     | 941      | 975     |         |
| 10   |      | BOLT            | 247 x 4  | 247 x 6 | 247 x 8 |
| 11   | 1    | THRUST WASHER * | 360      | 361     | 362     |
| 12   | 2    | BOLT            | 247      |         |         |
| 13   | 1    | LEVER HUB       | 342      | 343     | 344     |
| 14   | 1    | KEY             | 373      |         | 315     |
| 15   | 1    | SET SCREW       | 341      |         |         |
| 16   | 2    | NUT             | 241      |         |         |
| 17   | 1    | LEVER           | 340      |         |         |
| 18   | 1    | RATIO PLUG      | 332      | 333     | 334     |
| 19   | 1    | STEM            | 326SS6   | 327     | 328     |
| 20   | 1    | DIAPHRAGM *     | 335      | 336     | 4700    |
| 21   | 1    | KEY             | 314      | 315     |         |
| 22   | 1    | BONNET          | 295      | 296     | 297     |
| 23   | 1    | TRUNNION HUB    | 298      | 299     | 300     |
| 24   | 2    | LINK PIN        | 316K     | 317K    |         |
| 25   | 2    | LINK            | 318SS6   | 319SS6  |         |
| 26   | 1    | NUT             | 320      | 321     | 322     |
| 27   | 1    | PLATE           | 323SS6   | 324SS6  | 325SS6  |
| 28   | 1    | O-RING *        | 329      | 330     | 331     |
| 29   | 1    | BODY            |          |         |         |
|      |      | SCREWED ANGLE   | 301      | 2371    | ----    |
|      |      | SCREWED THRU    | 3050     | 3053    | ----    |
|      |      | FLANGED ANGLE   | 1491     | 302     | 303     |
|      |      | FLANGED THRU    | 3051     | 3054    | 3057    |
| 30   | 1    | GROOVED ANGLE   | ----     | 2372    | ----    |
|      |      | CAGE ‡          | 304      | 305     | 306     |
|      |      | GASKET *        | 276      | 277     | 309     |
|      |      | SEAT *          | 310      | 311     | 165     |
|      |      | SEAT DISC       | 312      | 313     | 160     |
| 34   | 1    | LOCK NUT *      | 7329     | 906     |         |

‡ Delrin Cage available on request

### VALVES AVAILABLE:

| PART NO. | BODY <sup>†</sup> CONNECTION | BODY TYPE | MODEL NO. | OPER. PRES. | MAX <sup>††</sup> W.P. | REP. KIT |
|----------|------------------------------|-----------|-----------|-------------|------------------------|----------|
| CAA      | 2" NPT                       | ANGLE     | 212 SOA   | 0-125       | 175                    | REA      |
| CAB      | 2" 150RF                     | ANGLE     | 212 FOA   | 0-125       | 175                    | REA      |
| CAC      | 3" NPT                       | ANGLE     | 312 SOA   | 0-125       | 175                    | REB      |
| CAD      | 3" GRVD.                     | ANGLE     | 312 GOA   | 0-125       | 175                    | REB      |
| CAE      | 3" 150RF                     | ANGLE     | 312 FOA   | 0-125       | 175                    | REB      |
| CAF      | 4" NPT                       | ANGLE     | 412 FOA   | 0-125       | 175                    | REC      |
| CGA      | 2" 150RF                     | THRU      | 212 SOT   | 0-125       | 175                    | REA      |
| CGB      | 2" 150RF                     | THRU      | 212 FOT   | 0-125       | 175                    | REA      |
| CGC      | 3" NPT                       | THRU      | 312 SOT   | 0-125       | 175                    | REB      |
| CGE      | 3" 150RF                     | THRU      | 312 FOT   | 0-125       | 175                    | REB      |
| CGF      | 4" 150RF                     | THRU      | 412 FOT   | 0-125       | 175                    | REC      |

### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

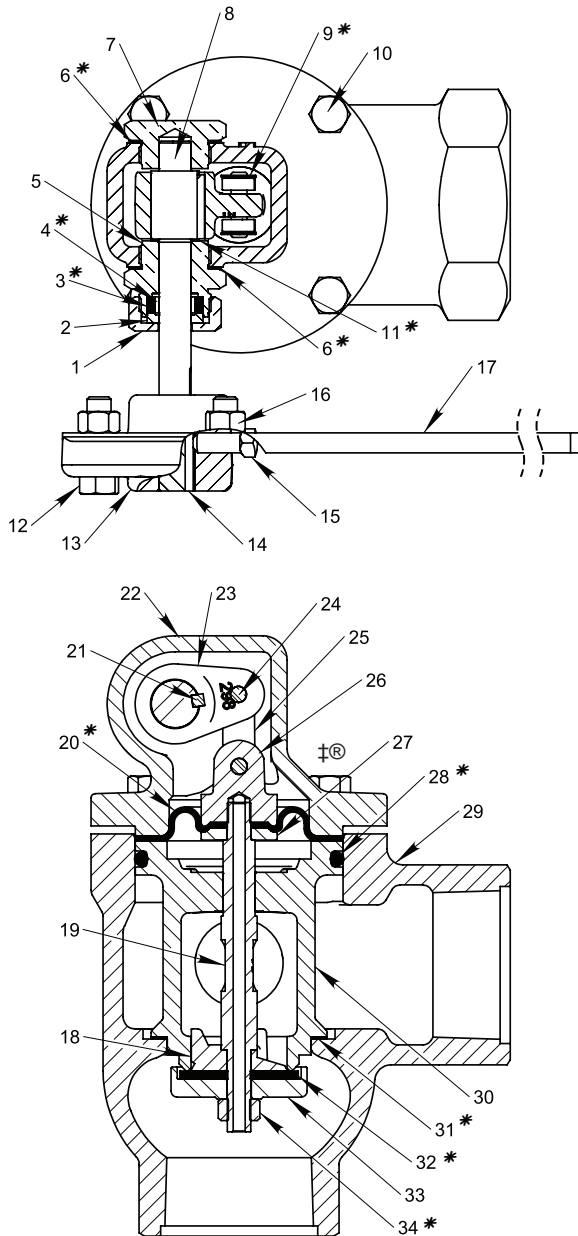
For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

<sup>†</sup> Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

<sup>††</sup> Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

Kimray is an ISO 9001- certified manufacturer.

### DIAPHRAGM BALANCED LEVER OPERATED DUCTILE IRON



| ITEM | QTY. | DESCRIPTION     | PART NO. |         |          |          |
|------|------|-----------------|----------|---------|----------|----------|
|      |      |                 | 2 INCH   | 3 INCH  | 4 INCH   | 6 INCH   |
| 1    | 1    | NUT             | 345      | 346     | 347      | 1778     |
| 2    | 1    | FOLLOWER        | 348      | 349     | 350      | 1785     |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2 | 353 x 2  | 1787 X 2 |
| 4    | 1    | PACKING *       | 354      | 355     | 356      | 1786     |
| 5    | 1    | STUFFING BOX    | 357      | 358     | 359      | 1779     |
| 6    | 2    | GASKET *        | 364      | 365     | 366      | 1789     |
| 7    | 1    | TRUNNION PLUG   | 367      | 368     | 369      | 1777     |
| 8    | 1    | SHAFT           | 370      | 371     | 372      | 1776     |
| 9    | 4    | SNAP RING *     | 941      | 975     |          |          |
| 10   |      | BOLT            | 247 x 4  | 247 x 6 | 1672 x 8 | 81 x 8   |
| 11   | 1    | THRUST WASHER * | 360      | 361     | 362      | 1788     |
| 12   | 2    | BOLT            | 247      |         |          |          |
| 13   | 1    | LEVER HUB       | 342      | 343     | 344      | 1772     |
| 14   | 1    | KEY             | 373      |         | 315      | 1783     |
| 15   | 1    | SET SCREW       | 341      |         |          |          |
| 16   | 2    | NUT             | 241      |         |          |          |
| 17   | 1    | LEVER           | 340      |         |          |          |
| 18   | 1    | RATIO PLUG      | 332      | 333     | 334      | 2348     |
| 19   | 1    | STEM            | 326SS6   | 327     | 328      | 2350SS6  |
| 20   | 1    | DIAPHRAGM *     | 335      | 336     | 4700     | 4315     |
| 21   | 1    | KEY             | 314      | 315     |          | 1791     |
| 22   | 1    | BONNET          | 295      | 296     | 297      | 1767     |
| 23   | 1    | TRUNNION HUB    | 298      | 299     | 300      | 2351     |
| 24   | 2    | LINK PIN        | 316K     | 317K    |          | 1790K    |
| 25   | 2    | LINK            | 318SS6   | 319SS6  |          | 2352SS6  |
| 26   | 1    | NUT             | 320      | 321     | 322      | 2346     |
| 27   | 1    | PLATE           | 323SS6   | 324SS6  | 325SS6   | 2347     |
| 28   | 1    | O-RING *        | 329      | 330     | 331      | 2353     |
| 29   | 1    | BODY            |          |         |          |          |
|      |      | SCREWED ANGLE   | 2384     | 2379    | ----     | ----     |
|      |      | SCREWED THRU    | 3080     | 3086    | ----     | ----     |
|      |      | FLANGED ANGLE   | 2385     | 2382    | 2383     | 2344     |
|      |      | FLANGED THRU    | 3082     | 3087    | 3090     | 3091     |
| 30   | 1    | CAGE ‡          | 304      | 305     | 306      | 2345     |
| 31   | 1    | GASKET *        | 276      | 277     | 309      | 2354     |
| 32   | 1    | SEAT *          | 310HSN   | 311HSN  | 165HSN   | 2356HSN  |
| 33   | 1    | SEAT DISC       | 312      | 313     | 160      | 2349     |
| 34   | 1    | LOCK NUT *      | 7329     | 906     |          | 175      |

‡ Delrin Cage available on request for 2 - 4 inch valves

#### VALVES AVAILABLE:

| PART NO. | BODY <sup>†</sup> CONNECTION | BODY TYPE | MODEL NO. | OPER. PRES. | MAX <sup>††</sup> W.P. | REP. KIT |
|----------|------------------------------|-----------|-----------|-------------|------------------------|----------|
| CBA      | 2" NPT                       | ANGLE     | 225 SOA-D | 0-250       | 300                    | RTJ      |
| CBB      | 2" 150RF                     | ANGLE     | 225 FOA-D | 0-250       | 250                    | RTJ      |
| CBC      | 3" NPT                       | ANGLE     | 312 SOA-D | 0-125       | 250                    | RTK      |
| CBD      | 3" GRVD.                     | ANGLE     | 312 GOA-D | 0-125       | 250                    | RTK      |
| CBE      | 3" 150RF                     | ANGLE     | 312 FOA-D | 0-125       | 250                    | RTK      |
| CBF      | 4" 150RF                     | ANGLE     | 412 SOA-D | 0-125       | 250                    | RTL      |
| CBG      | 6" 150RF                     | ANGLE     | 612 FOA-D | 0-125       | 250                    | RTM      |
| CHA      | 2" NPT                       | THRU      | 212 FOT-D | 0-125       | 300                    | RTJ      |
| CHB      | 2" 150RF                     | THRU      | 212 FOT-D | 0-250       | 250                    | RTJ      |
| CHC      | 3" NPT                       | THRU      | 312 SOT-D | 0-250       | 250                    | RTK      |
| CHE      | 3" 150RF                     | THRU      | 312 FOT-D | 0-125       | 250                    | RTK      |
| CHF      | 4" 150RF                     | THRU      | 412 FOT-D | 0-125       | 250                    | RTL      |
| CHG      | 6" 150RF                     | THRU      | 612 FOT-D | 0-125       | 250                    | RTM      |

Current Revision:  
Page Redesign

‡ Configuration of Mechanical Oil Valve is a trademark of Kimray, Inc.  
www.kimray.com

#### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

<sup>†</sup> Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

<sup>††</sup> Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

Kimray is an ISO 9001- certified manufacturer.

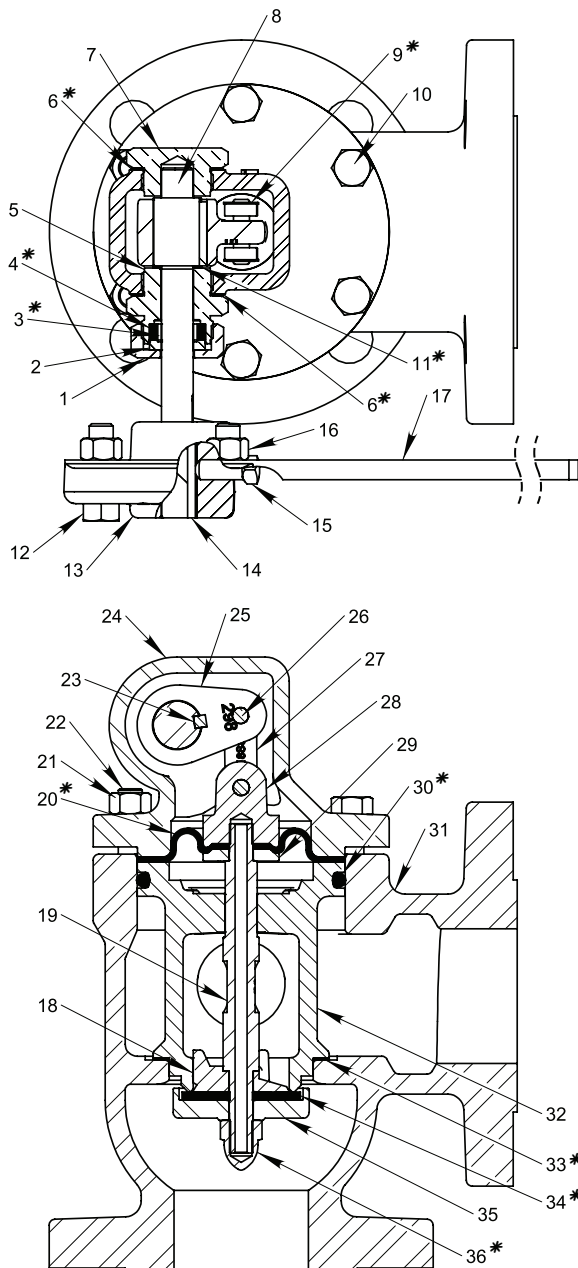
C2:10.3  
Issued 4/16



# MECHANICAL LEVEL CONTROLS

## DIAPHRAGM BALANCED LEVER OPERATED STEEL

# KIMRAY INC.®



| ITEM | QTY. | DESCRIPTION     | PART NO. |          |          |          |
|------|------|-----------------|----------|----------|----------|----------|
|      |      |                 | 2 INCH   | 3 INCH   | 4 INCH   | 6 INCH   |
| 1    | 1    | NUT             | 345      | 346      | 347      | 1778     |
| 2    | 1    | FOLLOWER        | 348      | 349      | 350      | 1785     |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2  | 353 x 2  | 1787 x 2 |
| 4    | 1    | PACKING *       | 354      | 355      | 356      | 1786     |
| 5    | 1    | STUFFING BOX    | 357      | 358      | 359      | 1779     |
| 6    | 2    | GASKET *        | 364      | 365      | 366      | 1789     |
| 7    | 1    | TRUNNION PLUG   | 367      | 368      | 369      | 1777     |
| 8    | 1    | SHAFT           | 370      | 371      | 372      | 1776     |
| 9    | 4    | SNAP RING *     | 941      | 975      |          |          |
| 10   |      | BOLT            | 1672 x 4 | 1672 x 6 | 1672 x 8 | 81 x 8   |
| 11   | 1    | THRUST WASHER * | 360      | 361      | 362      | 1788     |
| 12   | 2    | BOLT            | 247      |          |          |          |
| 13   | 1    | LEVER HUB       | 342      | 343      | 344      | 1772     |
| 14   | 1    | KEY             | 314      |          | 315      | 1783     |
| 15   | 1    | SET SCREW       | 341      |          |          |          |
| 16   | 2    | NUT             | 241      |          |          |          |
| 17   | 1    | LEVER           | 340      |          |          |          |
| 18   | 1    | RATIO PLUG      | 332      | 333      | 334      | 2348     |
| 19   | 1    | STEM            | 326SS6   | 327      | 328      | 2350     |
| 20   | 1    | DIAPHRAGM *     | 335      | 336      | 4700     | 4315     |
| 21   | 2    | NUT             | 5109     | ----     |          |          |
| 22   | 2    | STUD            | 5108     | ----     |          |          |
| 23   | 1    | KEY             | 314      | 315      |          | 1791     |
| 24   | 1    | BONNET          | 7164S    | 4032     | 1716     | 3074     |
| 25   | 1    | TRUNNION HUB    | 298      | 299      | 300      | 2351     |
| 26   | 2    | LINK PIN        | 316SS6K  | 317SS6K  |          | 1790SS6K |
| 27   | 2    | LINK            | 318SS6   | 319SS6   |          | 2352SS6  |
| 28   | 1    | NUT             | 320      | 321      | 322      | 2346     |
| 29   | 1    | PLATE           | 323SS6   | 324SS6   | 325SS6   | 2347     |
| 30   | 1    | O-RING *        | 329      | 330      | 331      | 2353     |
| 31   | 1    | BODY            |          |          |          |          |
|      |      | FLANGED ANGLE   | 4349     | 2471     | 2472     | 3073     |
|      |      | FLANGED THRU    | 3092     | ----     | ----     | ----     |
| 32   | 1    | CAGE ‡          | 304      | 305      | 306      | 2345     |
| 33   | 1    | GASKET *        | 276      | 277      | 309      | 2354     |
| 34   | 1    | SEAT *          | 310HSN   | 311HSN   | 165HSN   | 2356HSN  |
| 35   | 1    | SEAT DISC       | 312      | 2523     | 160      | 2349     |
| 36   | 1    | LOCK NUT *      | 7329     | 906      |          | 175      |

‡ Delrin Cage available on request for 2 - 4 inch valves

### VALVES AVAILABLE:

| PART NO. | BODY CONNECTION | BODY TYPE | MODEL NO. | OPER. PRES. | MAX W.P.†† | REP. KIT |
|----------|-----------------|-----------|-----------|-------------|------------|----------|
| CBM      | 2" 150RF        | ANGLE     | 225 FOA-S | 10-250      | 285        | REA      |
| CBP      | 3" 150RF        | ANGLE     | 312 FOA-S | 10-125      | 285        | REB      |
| CBQ      | 4" 150RF        | ANGLE     | 412 FOA-S | 10-125      | 285        | REC      |
| CBR      | 6" 150RF        | ANGLE     | 612 FOA-S | 10-125      | 285        | RED      |
| CHM      | 2" 150RF        | THRU      | 225 FOT-S | 10-250      | 285        | REA      |

### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

† Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

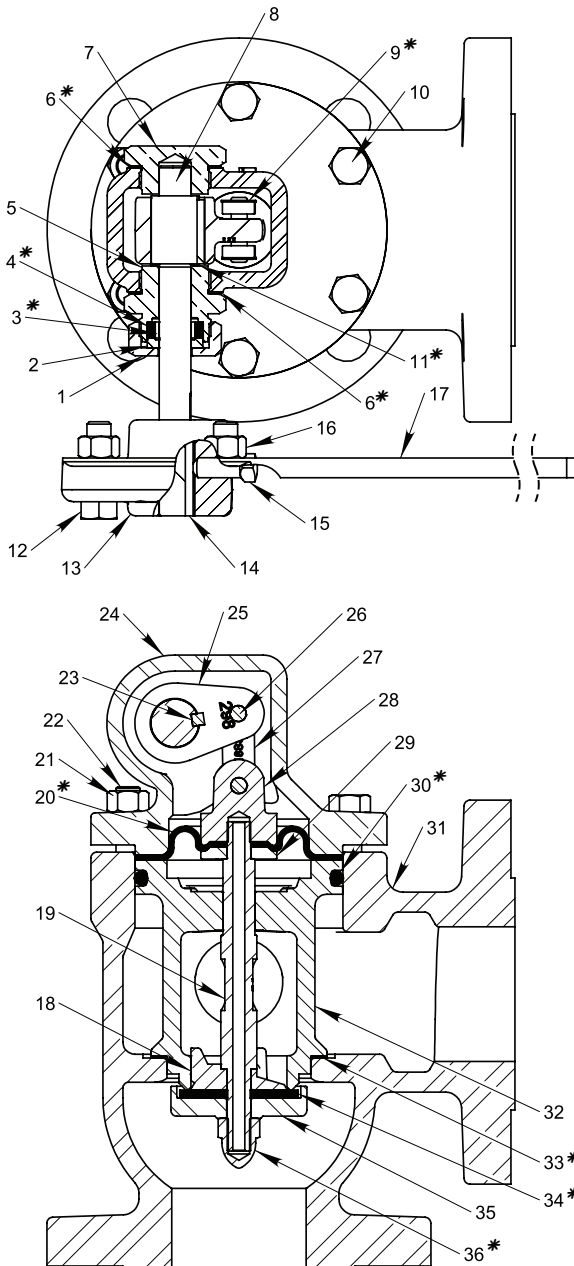
†† Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

NOTE: This valve contains Ductile & Cast Iron wetted parts & Brass Packing Material.

Kimray is an ISO 9001- certified manufacturer.



### DIAPHRAGM BALANCED LEVER OPERATED ALL STEEL, STAINLESS STEEL



| ITEM | QTY. | DESCRIPTION     | PART NO. |          |          |          |
|------|------|-----------------|----------|----------|----------|----------|
|      |      |                 | 2 INCH   | 3 INCH   | 4 INCH   | 6 INCH   |
| 1    | 1    | NUT             | 345SS6   | 346SS6   | 347SS6   | 1778SS6  |
| 2    | 1    | FOLLOWER        | 348SS6   | 349SS6   | 350SS6   | 1785SS6  |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2  | 353 x 2  | 1787 x 2 |
| 4    | 1    | PACKING *       | 354      | 355      | 356      | 1786     |
| 5    | 1    | STUFFING BOX    | 357SS6   | 358SS6   | 359SS6   | 1779SS6  |
| 6    | 2    | GASKET *        | 364      | 365      | 366      | 1789     |
| 7    | 1    | TRUNNION PLUG   | 367SS6   | 368SS6   | 369SS6   | 1777SS6  |
| 8    | 1    | SHAFT           | 370SS6   | 371SS6   | 372SS6   | 1776SS6  |
| 9    | 4    | SNAP RING *     | 941      | 975      |          |          |
| 10   |      | BOLT            | 1672 x 4 | 1672 x 6 | 1672 x 8 | 81 x 8   |
| 11   | 1    | THRUST WASHER * | 360      | 361      | 362      | 1788     |
| 12   | 2    | BOLT            | 247      |          |          |          |
| 13   | 1    | LEVER HUB       | 342      | 343      | 344      | 1772     |
| 14   | 1    | KEY             | 314      |          | 315      | 1783     |
| 15   | 1    | SET SCREW       | 341      |          |          |          |
| 16   | 2    | NUT             | 241      |          |          |          |
| 17   | 1    | LEVER           | 340      |          |          |          |
| 18   | 1    | RATIO PLUG      | 2976SS6  | 2977SS6  | 2978SS6  | 3072SS6  |
| 19   | 1    | STEM            | 326SS6   | 327SS6   | 328SS6   | 2350SS6  |
| 20   | 1    | DIAPHRAGM *     | 335      | 336      | 4700     | 4315     |
| 21   | 2    | NUT             | 5109     | ----     |          |          |
| 22   | 2    | STUD            | 5108     | ----     |          |          |
| 23   | 1    | KEY             | 314SS6   | 315SS6   |          | 1791SS6  |
| 24   | 1    | BONNET          | 7164S    | 4032     | 1716     | 3074     |
| 25   | 1    | TRUNNION HUB    | 2969SS6  | 2970SS6  | 2971SS6  | 2982SS6  |
| 26   | 2    | LINK PIN        | 316SS6K  | 317SS6K  |          | 1790SS6K |
| 27   | 2    | LINK            | 318SS6   | 319SS6   |          | 2352SS6  |
| 28   | 1    | NUT             | 2972S6   | 2973SS6  | 2974SS6  | 2975SS6  |
| 29   | 1    | PLATE           | 323SS6   | 324SS6   | 325SS6   | 4045SS6  |
| 30   | 1    | O-RING *        | 329      | 330      | 331      | 2353     |
| 31   | 1    | BODY            |          |          |          |          |
|      |      | FLANGED ANGLE   | 4349     | 2471     | 2472     | 3073     |
|      |      | FLANGED THRU    | 3092     | ----     | ----     | ----     |
| 32   | 1    | CAGE ‡          | 2966SS6  | 2967SS6  | 2968SS6  | 3071SS6  |
| 33   | 1    | GASKET *        | 276      | 277      | 309      | 2354     |
| 34   | 1    | SEAT *          | 310HSN   | 311HSN   | 165HSN   | 2356HSN  |
| 35   | 1    | SEAT DISC       | 312SS6   | 2523SS6  | 2494SS6  | 3077SS6  |
| 36   | 1    | LOCK NUT *      | 7329     | 174SS6   |          | 175SS6   |

‡ Delrin Cage available on request for 2 - 4 inch valves

#### VALVES AVAILABLE:

| PART NO.          | BODY <sup>†</sup> CONNECTION | BODY TYPE | MODEL NO.   | OPER. PRES. | MAX <sup>††</sup> W.P. | REP. KIT |
|-------------------|------------------------------|-----------|-------------|-------------|------------------------|----------|
| <b>ALL STEEL:</b> |                              |           |             |             |                        |          |
| CJM               | 2" 150RF                     | ANGLE     | 225 FOA-STL | 10-250      | 285                    | REA      |
| CJN               | 3" 150RF                     | ANGLE     | 312 FOA-STL | 10-125      | 285                    | REB      |
| CJO               | 4" 150RF                     | ANGLE     | 412 FOA-STL | 10-125      | 285                    | REC      |
| CJP               | 6" 150RF                     | ANGLE     | 612 FOA-STL | 10-125      | 285                    | RED      |
| CJQ               | 2" 150RF                     | THRU      | 225 FOT-STL | 10-250      | 285                    | REA      |

#### ALL 316 STAINLESS STEEL:

|     |          |       |             |        |     |     |
|-----|----------|-------|-------------|--------|-----|-----|
| CJA | 2" 150RF | ANGLE | 225 FOA-SS6 | 10-250 | 275 | REA |
| CJB | 3" 150RF | ANGLE | 312 FOA-SS6 | 10-125 | 275 | REB |
| CJC | 4" 150RF | ANGLE | 412 FOA-SS6 | 10-125 | 275 | REC |
| CJD | 6" 150RF | ANGLE | 612 FOA-SS6 | 10-125 | 275 | RED |

#### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

<sup>†</sup> Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

<sup>††</sup> Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

Kimray is an ISO 9001- certified manufacturer.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

#### APPLICATIONS:

As oil or water dump valves on separators, treaters, knock-outs, and other similar accumulators where higher pressures may occur

#### FEATURES:

- Balanced, single soft seat
- Teflon packed, rotary stuffing box
- All internal parts easily be removed with valve in line

#### CERTIFICATIONS:




- Canadian Registration Number (CRN):
- 0C16234.24567890NTY (Ductile)
- 0C15610.24567890NTY (Steel)

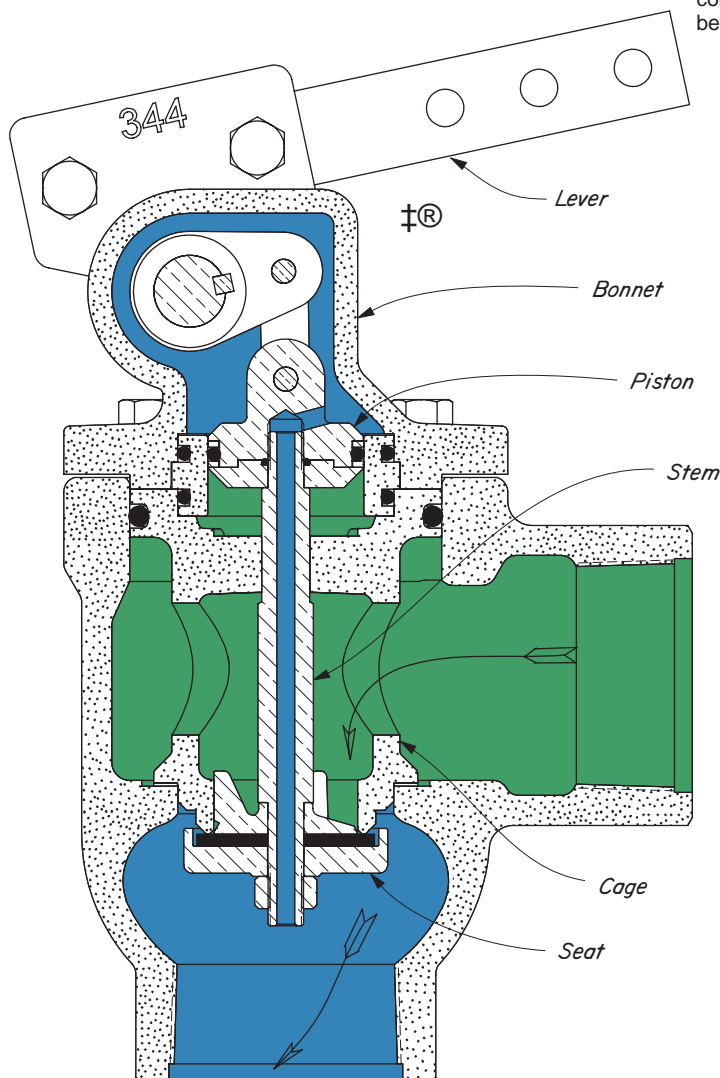
#### OPERATION:

The Oil Valve is mechanically operated through a LEVER by a Float in a separator or other vessel to which the valve is connected. The STEM AND SEAT ASSEMBLY is driven through a crank by the LEVER. The area of the PISTON is the same as the area of the SEAT so that Separator Fluid Pressure (Green) acting down on the SEAT is cancelled by the upward force of the pressure on the PISTON. Downstream Pressure (Blue) is communicated through the hollow STEM to the top side of the PISTON. Downstream Pressure (Blue) acting up on the SEAT is cancelled by the downward force of the same pressure on the top side of the PISTON. The valve can be operated easily by float since it is unaffected by Separator Fluid Pressure (Green) or Downstream Pressure (Blue). The entire STEM AND SEAT ASSEMBLY with the CAGE can be withdrawn from the valve as a unit by removing the BONNET screws.

#### NOTE:

The Customer is responsible for specifying linkage arm lengths and proper installation of float trunnions, valves and linkage assemblies. The total resulting force generated by the float is a function of the size and density of the float, the specific gravity of the fluid, the lever arm positions and angles and proper installation of the equipment. These criteria at least should be considered when specifying and installing linkage assemblies between vessels and valves.

-  Stem and Seat Assembly
-  Separator Fluid Pressure
-  Downstream Pressure

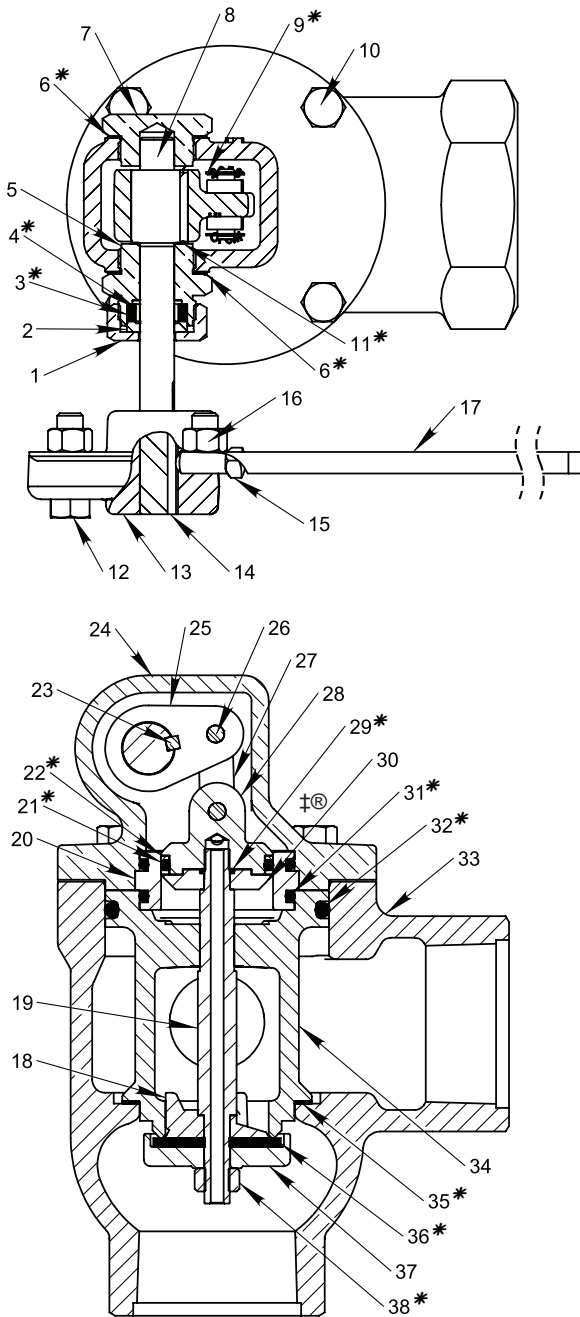


Kimray is an ISO 9001- certified manufacturer.

# MECHANICAL LEVEL CONTROLS

## PISTON BALANCED LEVER OPERATED DUCTILE IRON

# KIMRAY INC.®



### VALVES AVAILABLE:

| PART NO. | BODY CONNECTION | BODY TYPE | MODEL NO.    | OPER. PRES. | MAX W.P. | REP. KIT |
|----------|-----------------|-----------|--------------|-------------|----------|----------|
| CAP      | 2" NPT          | ANGLE     | 250 SOA PB-D | 10-500      | 500      | RNA      |
| CAQ      | 2" 150RF        | ANGLE     | 225 FOA PB-D | 10-250      | 250      | RNA      |
| CAS      | 3" NPT          | ANGLE     | 325 SOA PB-D | 10-250      | 250      | RNB      |
| CAT      | 3" 150RF        | ANGLE     | 318 FOA PB-D | 10-250      | 250      | RNB      |
| CAU      | 3" GRVD.        | ANGLE     | 325 GOA PB-D | 10-250      | 250      | RNB      |
| CAX      | 4" 150RF        | ANGLE     | 418 FOA PB-D | 10-250      | 250      | RNC      |
| CGP      | 2" NPT          | THRU      | 250 SOT PB-D | 10-500      | 500      | RNA      |
| CGQ      | 2" 150RF        | THRU      | 225 FOT PB-D | 10-250      | 250      | RNA      |
| CGS      | 3" NPT          | THRU      | 325 SOT PB-D | 10-250      | 250      | RNB      |
| CGT      | 3" 150RF        | THRU      | 318 FOT PB-D | 10-250      | 250      | RNB      |
| CGX      | 4" 150RF        | THRU      | 418 FOT PB-D | 10-250      | 250      | RNC      |

| ITEM | QTY. | DESCRIPTION     | PART NO. |         |          |
|------|------|-----------------|----------|---------|----------|
|      |      |                 | 2 INCH   | 3 INCH  | 4 INCH   |
| 1    | 1    | NUT             | 345      | 346     | 347      |
| 2    | 1    | FOLLOWER        | 348      | 349     | 350      |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2 | 353 x 2  |
| 4    | 1    | PACKING *       | 354      | 355     | 356      |
| 5    | 1    | STUFFING BOX    | 357      | 358     | 359      |
| 6    | 2    | GASKET *        | 364      | 365     | 366      |
| 7    | 1    | TRUNNION PLUG   | 367      | 368     | 369      |
| 8    | 1    | SHAFT           | 370      | 371     | 372      |
| 9    | 4    | SNAP RING *     | 941      | 975     |          |
| 10   |      | BOLT            | 247 x 4  | 247 x 6 | 1672 x 8 |
| 11   | 1    | THRUST WASHER * | 360      | 361     | 362      |
| 12   | 2    | BOLT            | 247      |         |          |
| 13   | 1    | LEVER HUB       | 342      | 343     | 344      |
| 14   | 1    | KEY             | 373      |         | 315      |
| 15   | 1    | SET SCREW       | 341      |         |          |
| 16   | 2    | NUT             | 241      |         |          |
| 17   | 1    | LEVER           | 340      |         |          |
| 18   | 1    | RATIO PLUG      | 332      | 333     | 334      |
| 19   | 1    | STEM            | 326SS6   | 327     | 328      |
| 20   | 1    | CYLINDER        | 1679     | 1861    | 1865     |
| 21   | 1    | O-RING *        | 808      | 802     | 2083     |
| 22   | 2    | BACK UP *       | 1685     | 1870    | 1871     |
| 23   | 1    | KEY             | 314      | 315     |          |
| 24   | 1    | BONNET          | 2948     | 4264    | 4265     |
| 25   | 1    | TRUNNION HUB    | 298      | 299     | 300      |
| 26   | 2    | LINK PIN        | 316K     | 317K    |          |
| 27   | 2    | LINK            | 318SS6   | 319SS6  |          |
| 28   | 1    | PISTON          | 2950SS6  | 4266S6  | 4267SS6  |
| 29   | 1    | O-RING *        | 265      | 154     |          |
| 30   | 1    | SEAL RETAINER   | 2949     | 1860    | 4268     |
| 31   | 2    | O-RING *        | 774      | 329     | 1872     |
| 32   | 1    | O-RING *        | 329      | 330     | 331      |
| 33   | 1    | BODY            |          |         |          |
|      |      | SCREWED ANGLE   | 2384     | 2379    | -----    |
|      |      | SCREWED THRU    | 3080     | 3086    | -----    |
|      |      | FLANGED ANGLE   | 2385     | 2382    | 2383     |
|      |      | FLANGED THRU    | 3082     | 3087    | 3090     |
|      |      | GROOVED ANGLE   | -----    | 2380    | -----    |
| 34   | 1    | CAGE ‡          | 304      | 305     | 306      |
| 35   | 1    | GASKET *        | 276      | 277     | 309      |
| 36   | 1    | SEAT *          | 310HSN   | 311HSN  | 165HSN   |
| 37   | 1    | SEAT DISC       | 312      | 313     | 160      |
| 38   | 1    | LOCK NUT *      | 7329     | 906     |          |

‡ Delrin Cage available on request for 2 - 4 inch valves

### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

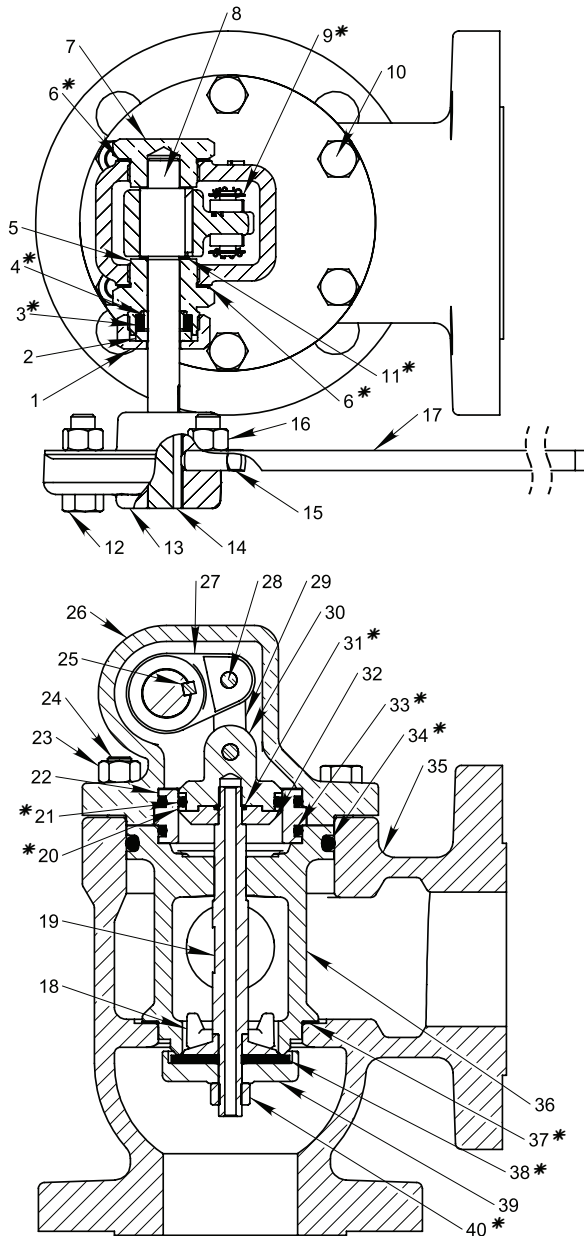
For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

† Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†† Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

Kimray is an ISO 9001- certified manufacturer.

### PISTON BALANCED LEVER OPERATED STEEL



| ITEM | QTY. | DESCRIPTION     | PART NO. |          |          |
|------|------|-----------------|----------|----------|----------|
|      |      |                 | 2 INCH   | 3 INCH   | 4 INCH   |
| 1    | 1    | NUT             | 345      | 346      | 347      |
| 2    | 1    | FOLLOWER        | 348      | 349      | 350      |
| 3    |      | PACKING RING *  | 351 x 1  | 352 x 2  | 353 x 2  |
| 4    | 1    | PACKING *       | 354      | 355      | 356      |
| 5    | 1    | STUFFING BOX    | 357      | 358      | 359      |
| 6    | 2    | GASKET *        | 364      | 365      | 366      |
| 7    | 1    | TRUNNION PLUG   | 367      | 368      | 369      |
| 8    | 1    | SHAFT           | 370      | 371      | 372      |
| 9    | 4    | SNAP RING *     | 941      | 975      |          |
| 10   |      | BOLT            | 1672 x 4 | 1672 x 6 | 1672 x 8 |
| 11   | 1    | THRUST WASHER * | 360      | 361      | 362      |
| 12   | 2    | BOLT            | 247      |          |          |
| 13   | 1    | LEVER HUB       | 342      | 343      | 344      |
| 14   | 1    | KEY             | 373      |          | 315      |
| 15   | 1    | SET SCREW       | 341      |          |          |
| 16   | 2    | NUT             | 241      |          |          |
| 17   | 1    | LEVER           | 340      |          |          |
| 18   | 1    | RATIO PLUG      | 332      | 333      | 334      |
| 19   | 1    | STEM            | 326SS6   | 327      | 328      |
| 20   | 2    | BACK UP *       | 1685     | 1870     | 1871     |
| 21   | 1    | O-RING *        | 808      | 802      | 2083     |
| 22   | 1    | CYLINDER        | 1679     | 1861     | 1865     |
| 23   | 2    | NUT             | 5109     | -----    |          |
| 24   | 2    | STUD            | 5108     | -----    |          |
| 25   | 1    | KEY             | 314      | 315      |          |
| 26   | 1    | BONNET          | 2954     | 4032     | 1716     |
| 27   | 1    | TRUNNION HUB    | 298      | 299      | 300      |
| 28   | 2    | LINK PIN        | 316K     | 317K     |          |
| 29   | 2    | LINK            | 318SS6   | 319SS6   |          |
| 30   | 1    | PISTON          | 2950SS6  | 4266SS6  | 4267SS6  |
| 31   | 1    | O-RING *        | 265      | 154      |          |
| 32   | 1    | SEAL RETAINER   | 2949     | 1860     | 4268     |
| 33   | 2    | O-RING *        | 774      | 329      | 1872     |
| 34   | 1    | O-RING *        | 329      | 330      | 331      |
| 35   | 1    | BODY            |          |          |          |
|      |      | FLANGED ANGLE   | 4349     | 2471     | 2472     |
|      |      | FLANGED THRU    | 3092     | 3094     | -----    |
| 36   | 1    | CAGE ‡          | 304      | 305      | 306      |
| 37   | 1    | GASKET *        | 276      | 277      | 309      |
| 38   | 1    | SEAT *          | 310HSN   | 311HSN   | 165HSN   |
| 39   | 1    | SEAT DISC       | 312      | 313      | 160      |
| 40   | 1    | LOCK NUT *      | 7329     | 906      |          |

‡ Delrin Cage available on request for 2 - 4 inch valves

#### VALVES AVAILABLE:

| PART NO. | BODY CONNECTION | BODY TYPE | MODEL NO.    | OPER. PRES. | MAX W.P. | REP. KIT |
|----------|-----------------|-----------|--------------|-------------|----------|----------|
| CAR      | 2" 150RF        | ANGLE     | 228 FOA PB-S | 10-285      | 285      | RNA      |
| CAW      | 3" 150RF        | ANGLE     | 327 FOA PB-S | 10-285      | 285      | RNB      |
| CAY      | 4" 150RF        | ANGLE     | 427 FOA PB-S | 10-285      | 285      | RNC      |
| CGR      | 2" 150RF        | THRU      | 228 FOT PB-S | 10-285      | 285      | RNA      |
| CAH      | 3" 150RF        | THRU      | 327 FOT PB-S | 10-285      | 285      | RNB      |

**NOTE:** This valve contains Ductile & Cast Iron wetted parts & Brass packing material.

#### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

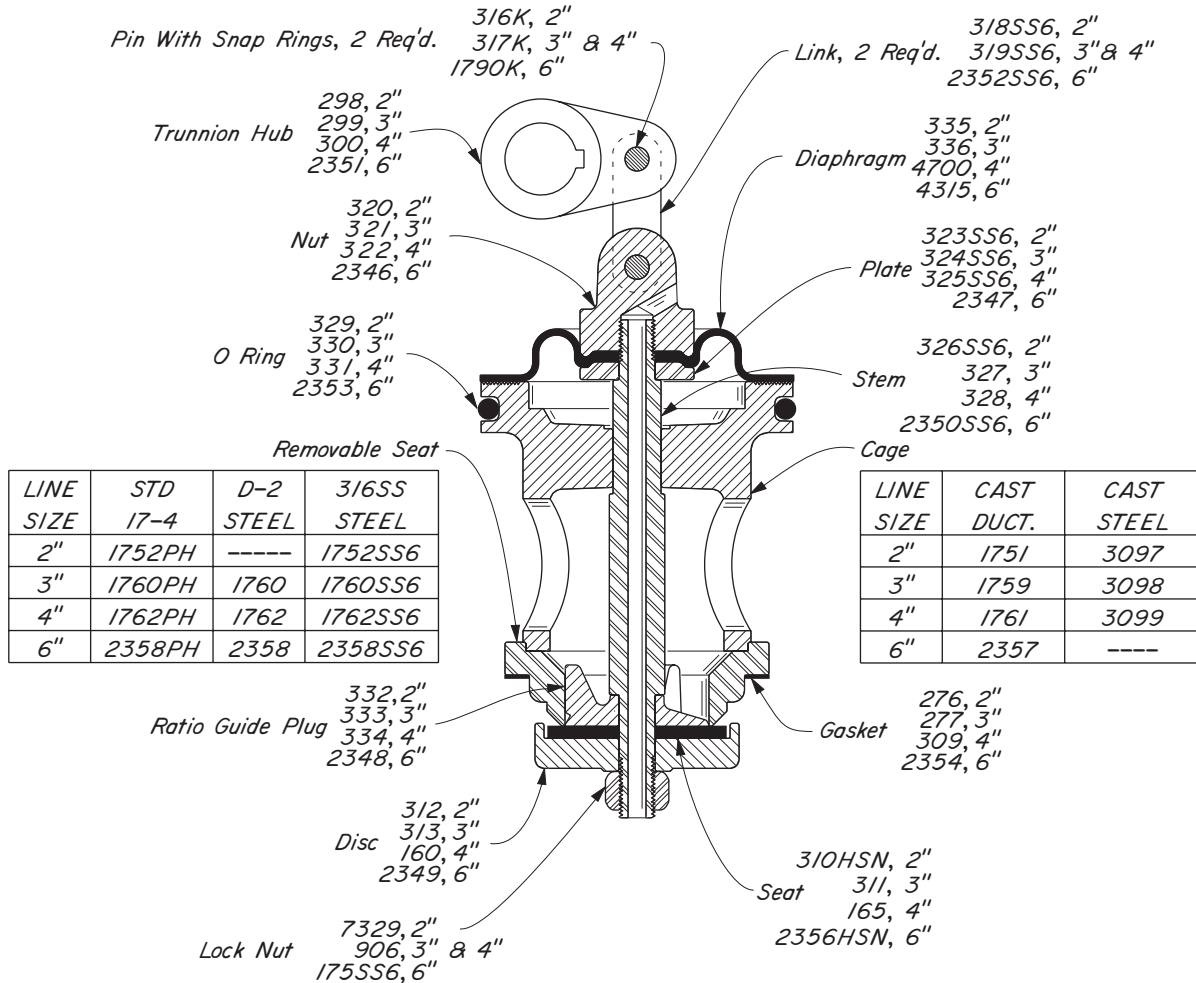
† Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

†† Max W.P. values based on -20°F to 100°F. See page C2:V for temps above 100°F

NOTES:



Kimray is an ISO 9001- certified manufacturer.



#### ASSEMBLIES AVAILABLE:

| PART NO. | LINE SIZE | VALVE TYPE        | VALVE DESCRIPTION |
|----------|-----------|-------------------|-------------------|
| CBS1     | 2"        | DIAPHRAGM BALNCED | 212 S/FOA         |
| CBT1     | 3"        | DIAPHRAGM BALNCED | 312 S/FOA         |
| CBU1     | 4"        | DIAPHRAGM BALNCED | 412 S/FOA         |
| CBV1     | 6"        | DIAPHRAGM BALNCED | 612 FOA           |

#### NOTES:

The numbers of a series assigned to a part indicate different line sizes. For example: Shaft 370-2", 371-3", 372-4".

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V



NOTES:



Kimray is an ISO 9001- certified manufacturer.

#### APPLICATIONS:

As oil or water dump valves on separators, treaters, knock-outs, and other similar liquid accumulators. Designed for high pressure erosive service.

#### FEATURES:

- Class VI shut off
- Teflon packed, rotary stuffing box
- All internal parts can easily be removed with valve in line

#### CERTIFICATIONS:

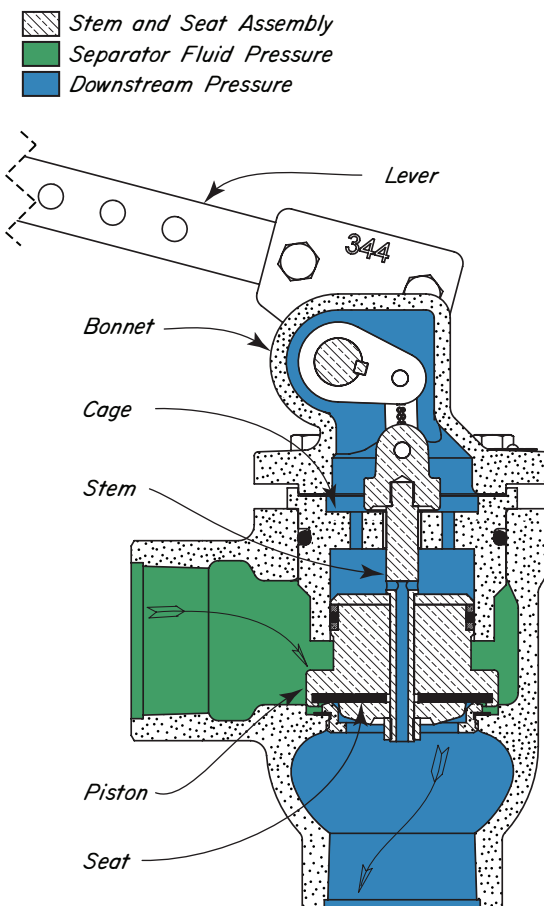
Canadian Registration Number (CRN):  
0C16234.24567890NTY (Ductile)

#### OPERATION:

The Oil Valve is mechanically operated through a LEVER by a float in a separator or other vessel to which the valve is connected. The PISTON ASSEMBLY is driven through a cylinder by the lever assembly. When the lever assembly is lowered, the piston rises off the seat allowing the oil or water in the accumulator to flow thru the valve. The soft seat is attached to the piston assembly and is lifted out of the flow stream when the valve is open. This allows erosive material to bypass the seating surface. When the lever assembly is raised the piston and soft seat come in contact with the hard removable seating insert that is screwed into the valve body and results in class VI shut off. The entire PISTON ASSEMBLY with the cylinder can be withdrawn from the valve as a unit by removing the bonnet screws.

#### NOTE:

The Customer is responsible for specifying linkage arm lengths and proper installation of float trunnions, valves and linkage assemblies. The total resulting force generated by the float is a function of the size and density of the float, the specific gravity of the fluid, the lever arm positions and angles and proper installation of the equipment. These criteria at least should be considered when specifying and installing linkage assemblies between vessels and valves.

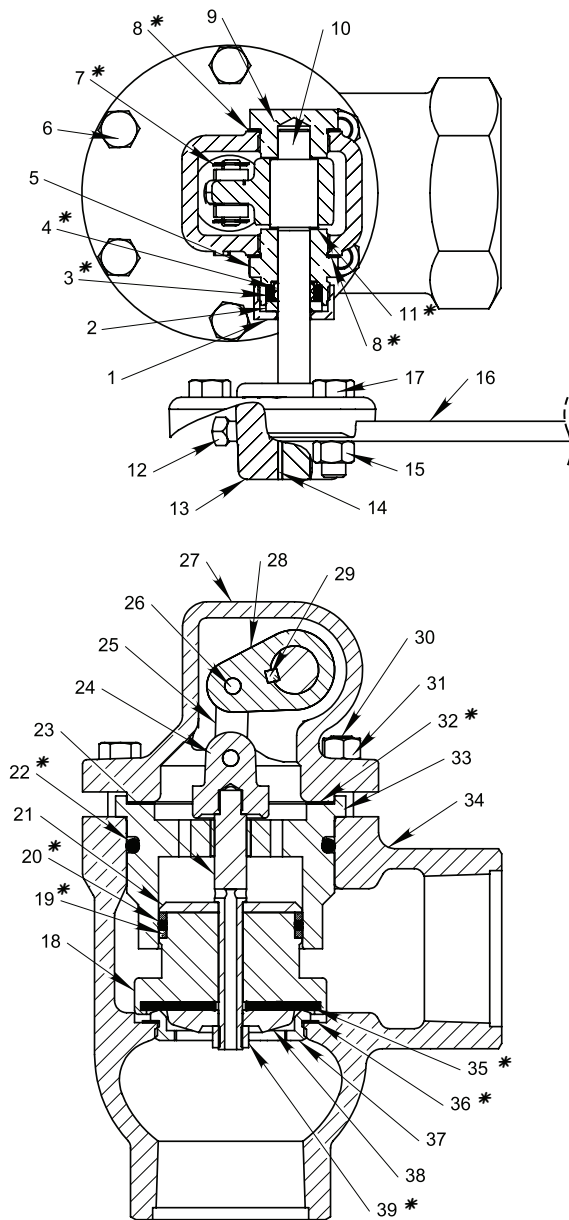


Kimray is an ISO 9001- certified manufacturer.

# MECHANICAL LEVEL CONTROLS

## SEVERE SERVICE LEVER OPERATED DUCTILE IRON

# KIMRAY INC.®



| ITEM | QTY. | DESCRIPTION             | PART NO. |         |
|------|------|-------------------------|----------|---------|
|      |      |                         | 2 INCH   | 3 INCH  |
| 1    | 1    | NUT                     | 345      | 346     |
| 2    | 1    | FOLLOWER                | 348      | 349     |
| 3    | 1    | PACKING RING *          | 351      | 352     |
| 4    | 1    | PACKING *               | 354      | 355     |
| 5    | 1    | STUFFING BOX            | 357      | 358     |
| 6    |      | SCREW                   | 833 x 4  | 833 x 6 |
| 7    | 4    | SNAP RING *             | 941      | 975     |
| 8    | 2    | GASKET *                | 364      | 365     |
| 9    | 1    | PLUG                    | 367      | 368     |
| 10   | 1    | SHAFT                   | 370      | 371     |
| 11   | 1    | THRUST WASHER *         | 360      | 361     |
| 12   | 1    | SET SCREW               | 341      |         |
| 13   | 1    | LEVER HUB               | 342      | 343     |
| 14   | 1    | KEY                     | 373      |         |
| 15   | 2    | NUT                     | 241      |         |
| 16   | 1    | LEVER                   | 340      |         |
| 17   | 2    | SCREW                   | 247      |         |
| 18   | 1    | PISTON                  | 6787     | 7138    |
| 19   | 2    | BACK UP *               | 1458     | 772     |
| 20   | 1    | O RING *                | 774Q     | 329     |
| 21   | 1    | SEAL RETAINER           | 5205     | 5206SS6 |
| 22   | 1    | O RING *                | 329      | 330     |
| 23   | 1    | STEM                    | 6790     | 7142    |
| 24   | 1    | NUT                     | 320      | 321     |
| 25   | 2    | LINK                    | 318SS6   | 319SS6  |
| 26   | 2    | LINK PIN                | 316K     | 317K    |
| 27   | 1    | BONNET                  | 7164     | 296     |
| 28   | 1    | TRUNION HUB             | 298      | 299     |
| 29   | 1    | KEY                     | 314      | 315     |
| 30   | 2    | STUD                    | 5108     | -----   |
| 31   | 2    | NUT                     | 5109     | -----   |
| 32   | 1    | GASKET *                | 5199     | 5223    |
| 33   | 1    | CYLINDER                | 6785     | 7137    |
| 34   | 1    | BODY                    |          |         |
|      |      | NPT ANGLE               | 6786     | 7139    |
|      |      | NPT THRU                | 7163     | -----   |
|      |      | FLANGED ANGLE           | -----    | 7319    |
| 35   | 1    | SEAT *                  | 311HSN   | 165     |
| 36   | 1    | GASKET *                | 276      | 277     |
| 37   | 1    | STANDARD REMOVABLE SEAT | 6789     | 7140    |
|      |      | REDUCED REMOVABLE SEAT  | 7115     | -----   |
| 38   | 1    | STANDARD RATIO PLUG     | 177SS6   | 178     |
|      |      | REDUCED RATIO PLUG      | 4933PH   | -----   |
| 39   | 1    | LOCK NUT *              | 7329     | 906     |

### VALVES AVAILABLE:

| PART NO. | BODY <sup>†</sup> CONNECTION | BODY TYPE | MODEL NO.       | OPER. PRES. | MAX <sup>††</sup> W.P. | REP. KIT |
|----------|------------------------------|-----------|-----------------|-------------|------------------------|----------|
| CAZ      | 2" NPT                       | ANGLE     | 250 SOA-PBT-D   | 10-500      | 500                    | RUV      |
| CAZ5     | 2" NPT                       | ANGLE     | 250 SOA-PBT-D-5 | 10-500      | 500                    | RUV      |
| CGU      | 2" NPT                       | THRU      | 250 SOT-PBT-D   | 10-500      | 500                    | RUV      |
| CVA      | 3" NPT                       | ANGLE     | 350 SOA-PBT-D   | 10-500      | 500                    | RVU      |
| CVB      | 3" 150RF                     | ANGLE     | 325 FOA-PBT-D   | 10-250      | 250                    | RVU      |

### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

<sup>†</sup> Companion flanges, nuts, bolts, and gaskets are furnished at extra cost. Refer to Section "Y" for ordering.

<sup>††</sup> Max W.P. valves based on -20°F to 100°F. See page C2:V for temps above 100°F

Kimray is an ISO 9001- certified manufacturer.

#### APPLICATIONS:

Oil and gas separators, water knockouts, and similar equipment where a mechanical to pneumatic interface is required to operate motor valves.

#### FEATURES:

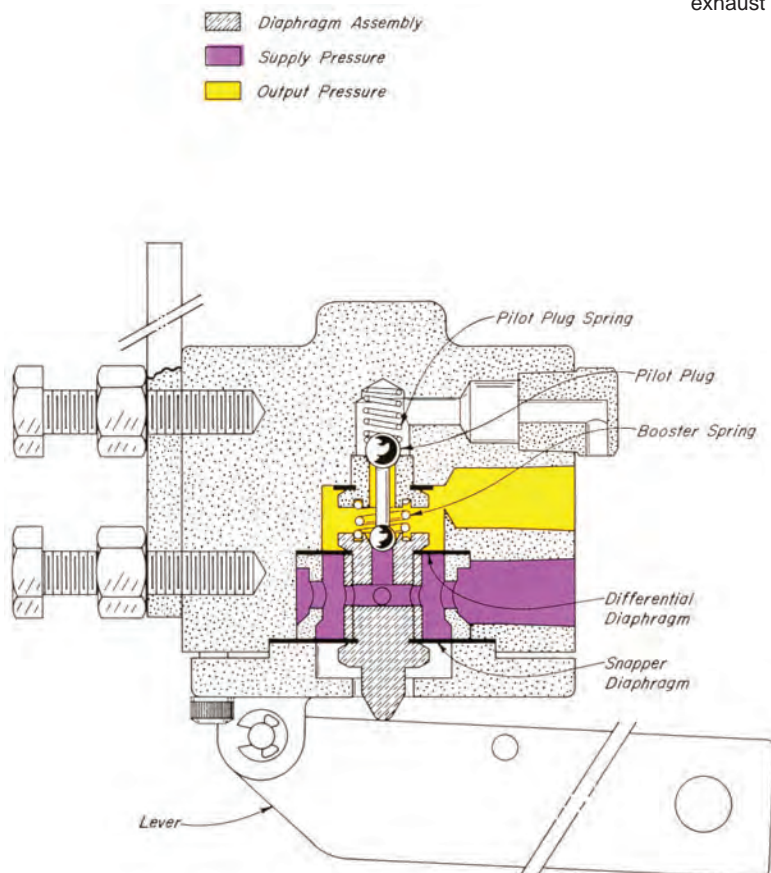
- Direct float operated.
- Snap or throttle action
- Field reversible
- Controls any motor valve requiring up to 30 psig diaphragm pressure.

#### OPERATION:

Assume the Diaphragm Assembly is held in an up position by an outside float arm connected to the pilot LEVER with a turn-buckle. Such an arrangement is shown in the 3 PM installation photograph, lower right-hand corner. The BOOSTER SPRING together with Supply Pressure (Violet), acting on the difference in areas of the SNAPPER and DIFFERENTIAL DIAPHRAGMS, forces the Diaphragm Assembly against the LEVER. With a downward movement of the LEVER the upper seat, which is the pressure vent (Yellow to Atmosphere), closes first. The PILOT PLUG SPRING holds the upper ball against its seat while a further downward movement of the LEVER opens the Supply Pressure inlet (Violet to Yellow). As Output Pressure (Yellow) increases, pressure across the DIFFERENTIAL DIAPHRAGM is reduced, loading the DIAPHRAGM ASSEMBLY in a down direction. The accelerated downward movement of the DIAPHRAGM ASSEMBLY produces a sudden opening of the Supply Pressure inlet (Violet to Yellow).

In order to reverse the above action, the upward force of the LEVER on the Diaphragm Assembly must be greater than the force of the BOOSTER SPRING plus Supply Pressure (Violet) acting on the full area of the SNAPPER DIAPHRAGM. As the Diaphragm Assembly moves up, the Supply Pressure inlet is closed first. The PILOT PLUG SPRING holds the lower ball against its seat while a further upward movement of the LEVER opens the pressure vent (Yellow to Atmosphere). Decreasing Output Pressure (Yellow) accelerates the upward movement of the Diaphragm Assembly to produce a sudden opening of the pressure vent. The sudden changes in Output Pressure (Yellow) caused by movements of the LEVER, snap actuates any motor valve to which it is connected.

For throttling Service, connect Supply Pressure (Violet) to opening marked "THROT" on the pilot body. This will require changing the pivot on the LEVER or reversing the motor valve action. The supply gas connection for snap service becomes the exhaust for throttling service.



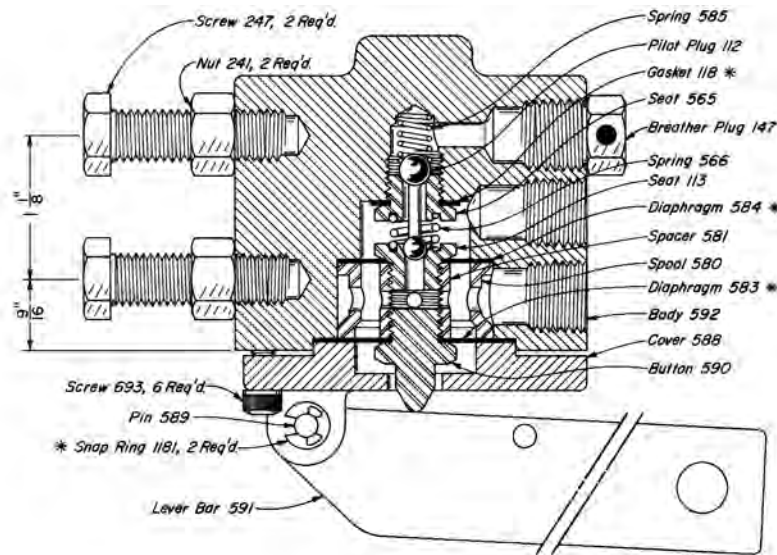
Float operated, 3 PM Pilot mounted on Kimray 8" Float Opening Cover.

Kimray is an ISO 9001- certified manufacturer.

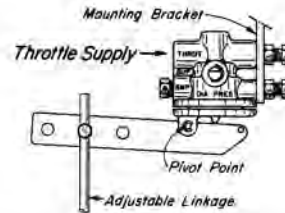
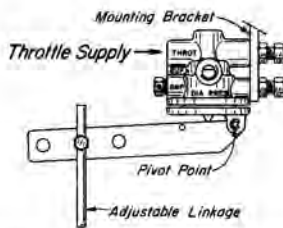
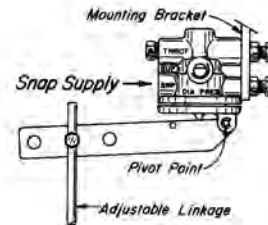
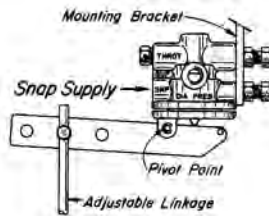
## MECHANICAL LEVEL CONTROLS

### 3 PM MECHANICAL PILOT DUCTILE IRON

# KIMRAY INC.®



### MECHANICAL PILOT INSTALLATION



| ROD MOVEMENT | OUTPUT          |
|--------------|-----------------|
| Up           | Supply Pressure |
| Down         | Vented          |

| ROD MOVEMENT | OUTPUT          |
|--------------|-----------------|
| Up           | Vented          |
| Down         | Supply Pressure |

#### PILOTS AVAILABLE:

| PART NO. | PILOT | SUPPLY PRES. | MAX W.P. | REP. KIT |
|----------|-------|--------------|----------|----------|
| CDA      | 3 PM  | 5-30         | 30       | RMN      |

#### MOUNTING BRACKETS AVAILABLE: Order separately

| FLOAT OPENING | MOUNTING BRACKET |
|---------------|------------------|
| 612 TO        | 903              |
| 812 TO        | 904              |
| 1012 TO       | 681              |
| 50 TOB-D      | 3035             |
| 25 TOB-D      | 3035             |
| 8" HUTA       | 3035             |
| 26 WA/26DM    | 1856             |

#### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

Kimray is an ISO 9001- certified manufacturer.



#### APPLICATIONS:

Oil and gas separators, knockouts, treaters and similar equipment where it is necessary to convert a mechanical dump into a wide span, snap, pneumatic signal.

#### FEATURES:

- Snap action
- Direct or indirect
- Intermittent vent pilot

#### OPERATION:

Assume that when the Supply Pressure (Violet) is applied, Ball 1 is seated, Ball 2 is off the seat and Output is zero.

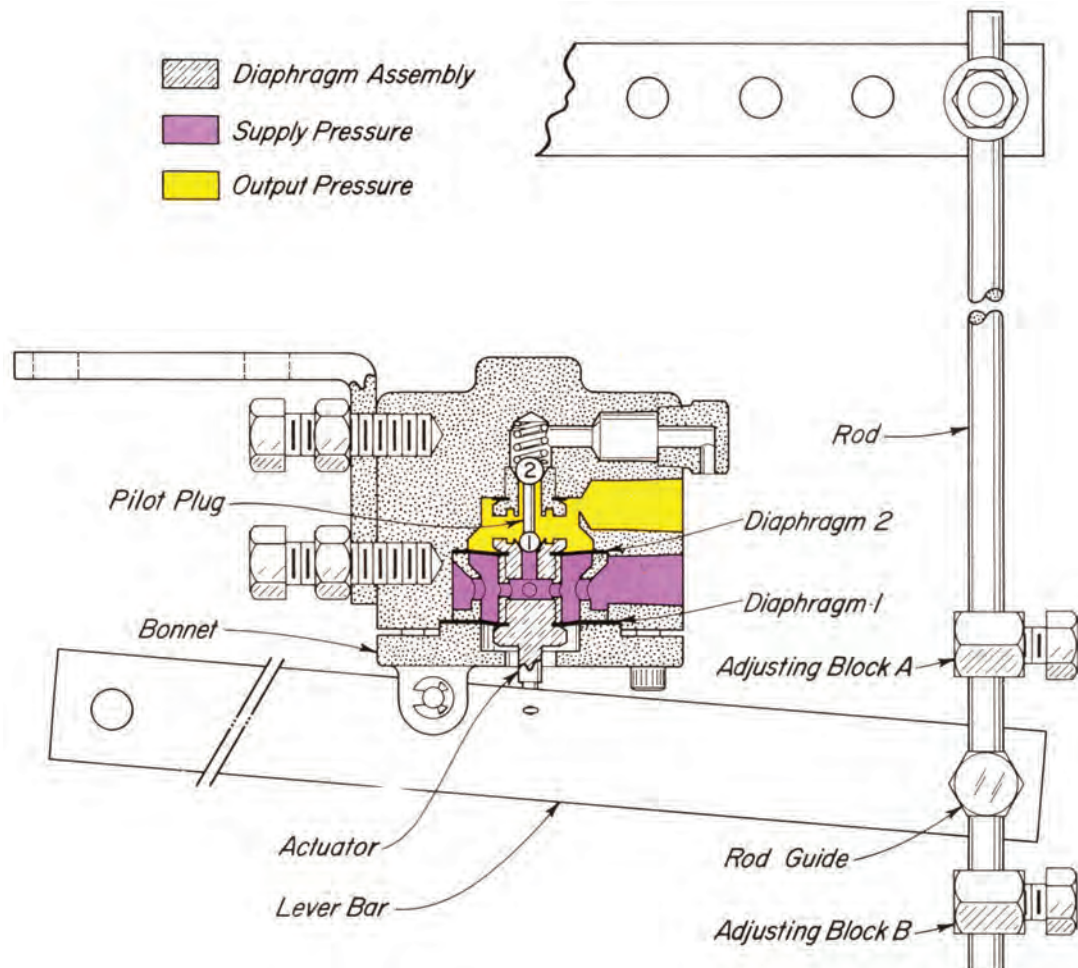
Adjusting Block B is against the Rod Guide.

Output Pressure (Yellow) is vented to atmosphere. Since Diaphragm 2 is larger than Diaphragm 1, the Diaphragm Assembly is held in the up position and the Output Pressure remains vented. When the Rod moves downward and the Adjusting Block A contacts the Rod Guide, the Diaphragm Assembly is forced downward via the Actuator, closing the upper SEAT, Ball 2 and opening the lower SEAT, Ball 1. This causes the Output Signal to rise rapidly and when it equalizes with the Supply (Violet), this pressure holds the Diaphragm Assembly in the downward position.

The Output Signal (Yellow) will remain at Supply Pressure until the force on the Actuator is reversed. When the Rod moves upward and Adjusting Block B contacts the Rod Guide, the Output Signal is again vented to atmosphere.

This operation described above is for connection in the indirect mode; that is, when the Rod moves in an upward direction, the Output Signal is vented. When the Rod moves in a downward direction, the Output Signal is Supply Pressure.

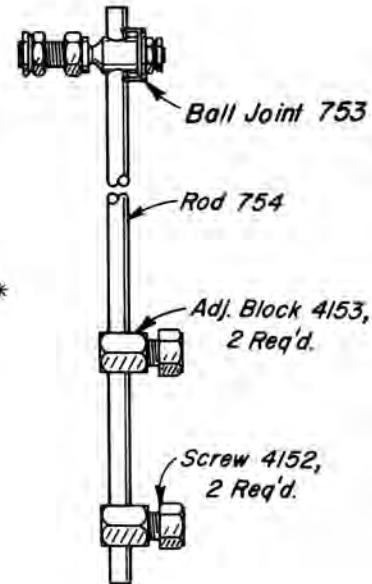
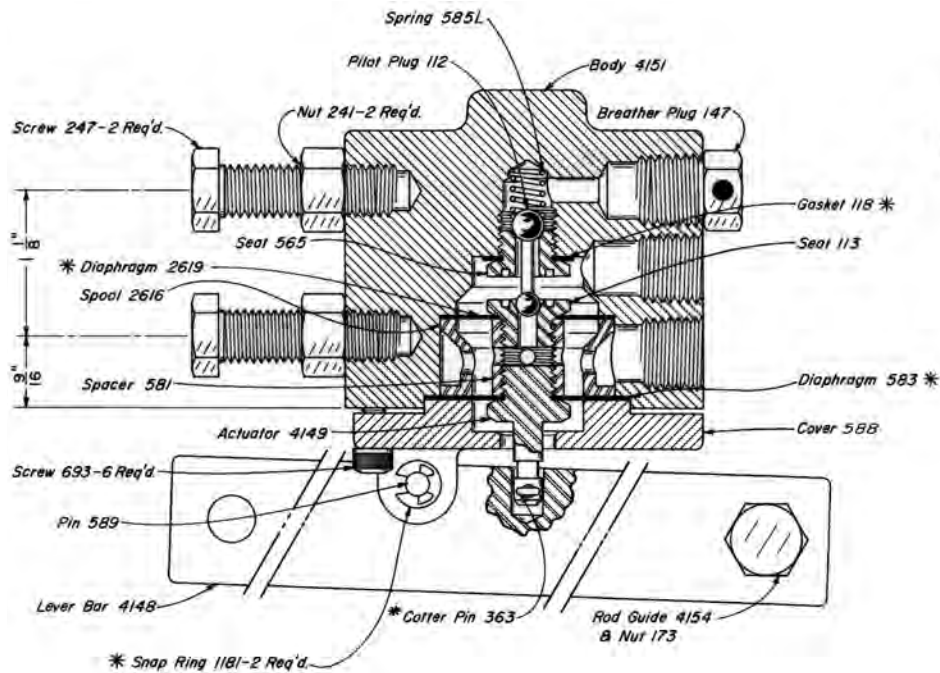
The entire operation can be reversed by rotating the bonnet on the pilot 180 degrees and moving the Rod Guide to the opposite end of the Lever. In this mode, a downward movement of the Rod causes the Output to be vented and an upward movement causes the Output to be Supply Pressure.



## MECHANICAL LEVEL CONTROLS

### 3 PMB BI-STABLE MECHANICAL PILOT DUCTILE IRON

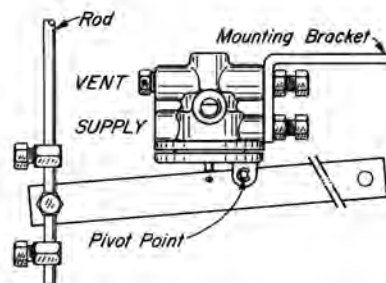
# KIMRAY INC.®



Order TB 7 separately

## MECHANICAL PILOT INSTALLATION

### INDIRECT

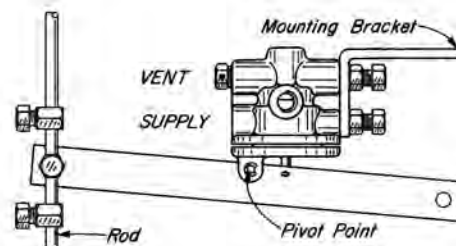


| ROD MOVEMENT | OUTPUT          |
|--------------|-----------------|
| Up           | Vented          |
| Down         | Supply Pressure |

#### PILOTS AVAILABLE:

| PART NO. | PILOT | SUPPLY PRES. | OUTPUT PRES. | MAX W.P. | REP. KIT |
|----------|-------|--------------|--------------|----------|----------|
| CDB      | 3 PMB | 20-30        | 0 or Supply  | 30       | RMK      |

### DIRECT



| ROD MOVEMENT | OUTPUT          |
|--------------|-----------------|
| Up           | Supply Pressure |
| Down         | Vented          |

#### TURNBUCKLE AVAILABLE: Order separately

| CAT. NO. | TURNBUCKLE |
|----------|------------|
| YTE      | TB 7       |

#### MOUNTING BRACKETS AVAILABLE: Order separately

| FLOAT OPERATED CONTROLS | MOUNTING BRACKET |
|-------------------------|------------------|
| 612 TO                  | 1856             |
| 812 TO                  | 3035             |
| 1012 TO                 | 903              |
| 50 TOB-D                | 904              |
| 25 TOB-D                | 681              |

Kimray is an ISO 9001- certified manufacturer.

#### NOTES:

\*These parts are recommended spare parts and are stocked as repair kits.

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V



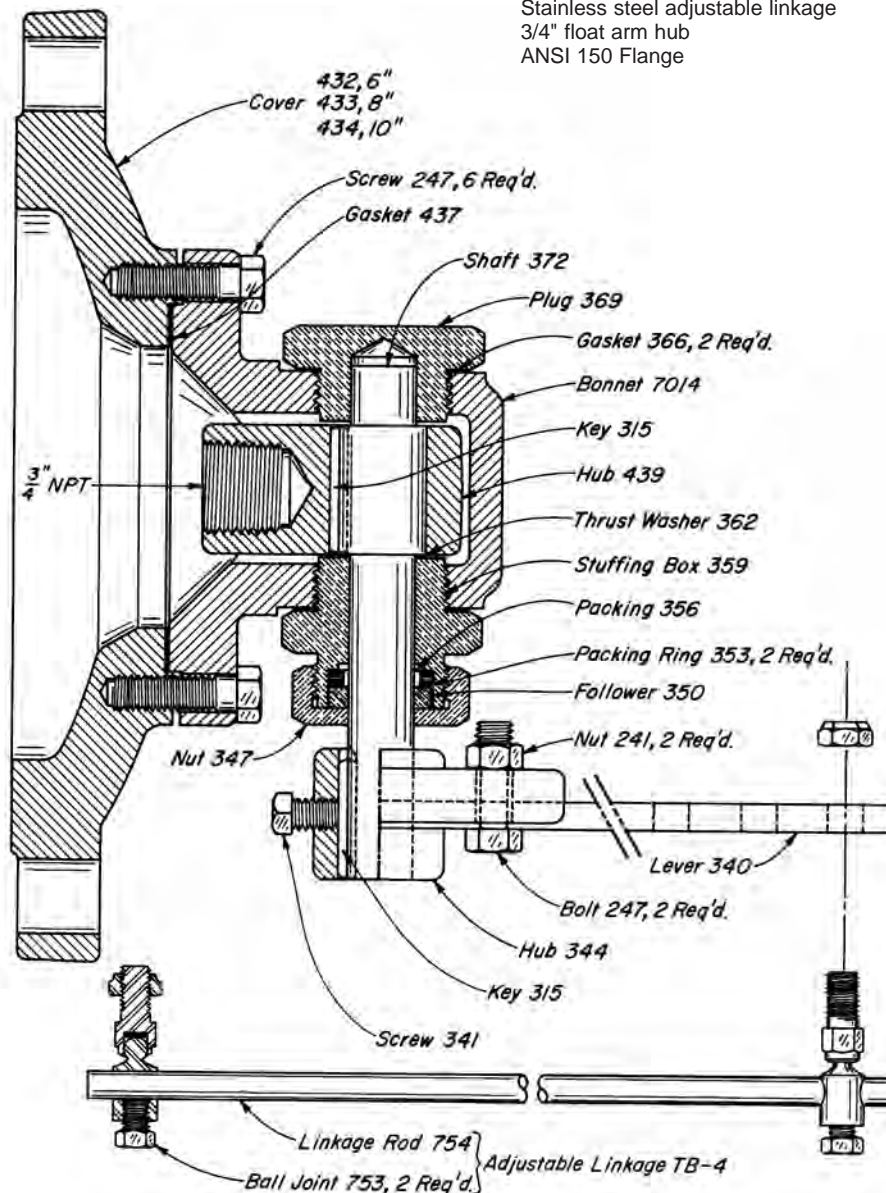
### FLANGED TRUNNION ASSEMBLY DUCTILE IRON

#### APPLICATIONS:

Used on oil and gas separators, freewater knockouts (FWKO), horizontal emulsion treaters and similar equipment where a float is desired to monitor fluid level.

#### FEATURES:

- Teflon packed rotary stuffing box
- 303 Stainless steel shaft
- Removable, bonnet type trunnion assembly
- Stainless steel adjustable linkage
- 3/4" float arm hub
- ANSI 150 Flange



#### TRUNNION ASSEMBLIES AVAILABLE:

| PART NO. | LINE SIZE | MODEL NO. | MAX <sup>††</sup> W.P. |
|----------|-----------|-----------|------------------------|
| CCA      | 6"        | 612 TO-D  | 250                    |
| CCB      | 8"        | 812 TO-D  | 250                    |
| CCC      | 10"       | 1012 TO-D | 250                    |

#### BOLT SETS AVAILABLE:

| PART NO. | LINE SIZE | MODEL NO.              |
|----------|-----------|------------------------|
| YCA      | 6"        | 6 INCH COVER BOLT SE   |
| YCB      | 8"        | 8 INCH COVER BOLT SET  |
| YCC      | 10"       | 10 INCH COVER BOLT SET |

#### NOTES:

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

<sup>††</sup> Max W.P. valves based on -20°F to 100°F. See page C2:V for temps above 100°F

Longer Levers are available, 16", 20", 24", 30" & 36". Specify 340 and length desired, example: 340L16.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

### HAMMER UNION TRUNNION ASSEMBLY DUCTILE IRON

#### APPLICATIONS:

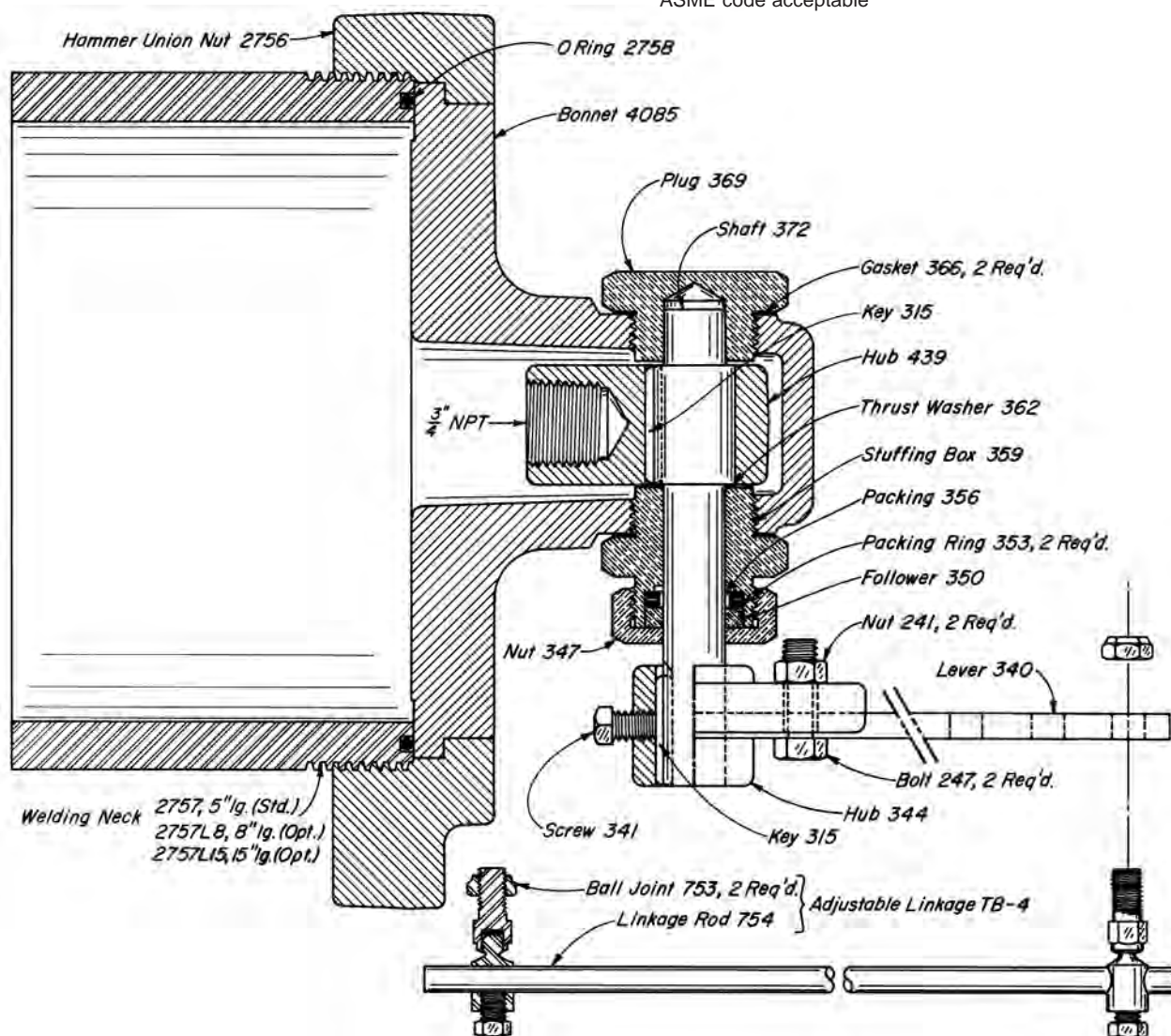
Used on oil and gas separators, freewater knockouts (FWKO), horizontal emulsion treaters and similar equipment where a float is desired to monitor fluid level.

#### CERTIFICATIONS:

Canadian Registration Number (CRN):  
0H13107.2134567890NTY

#### FEATURES:

500 psig W.P.  
SA 106 Grade B pipe  
8" pipe x 5" long weldneck  
8" ACME thread hammer union  
Rotary type stuffing box with leakless, low friction packing  
303 stainless steel shaft  
Removable bonnet type trunnion  
Uses 7" x 12" melon type float  
3/4" N.P.T. float arm hub  
ASME code acceptable



#### TRUNNION ASSEMBLIES AVAILABLE:

| PART NO. | LINE SIZE | MODEL NO. | MAX W.P. |
|----------|-----------|-----------|----------|
| CCT      | 8"        | 850 HUTA  | 500      |

NOTE: Longer Levers are available, 16", 20", 24", 30" & 36".  
Specify 340 and length desired, example: 340L16.

#### NOTES:

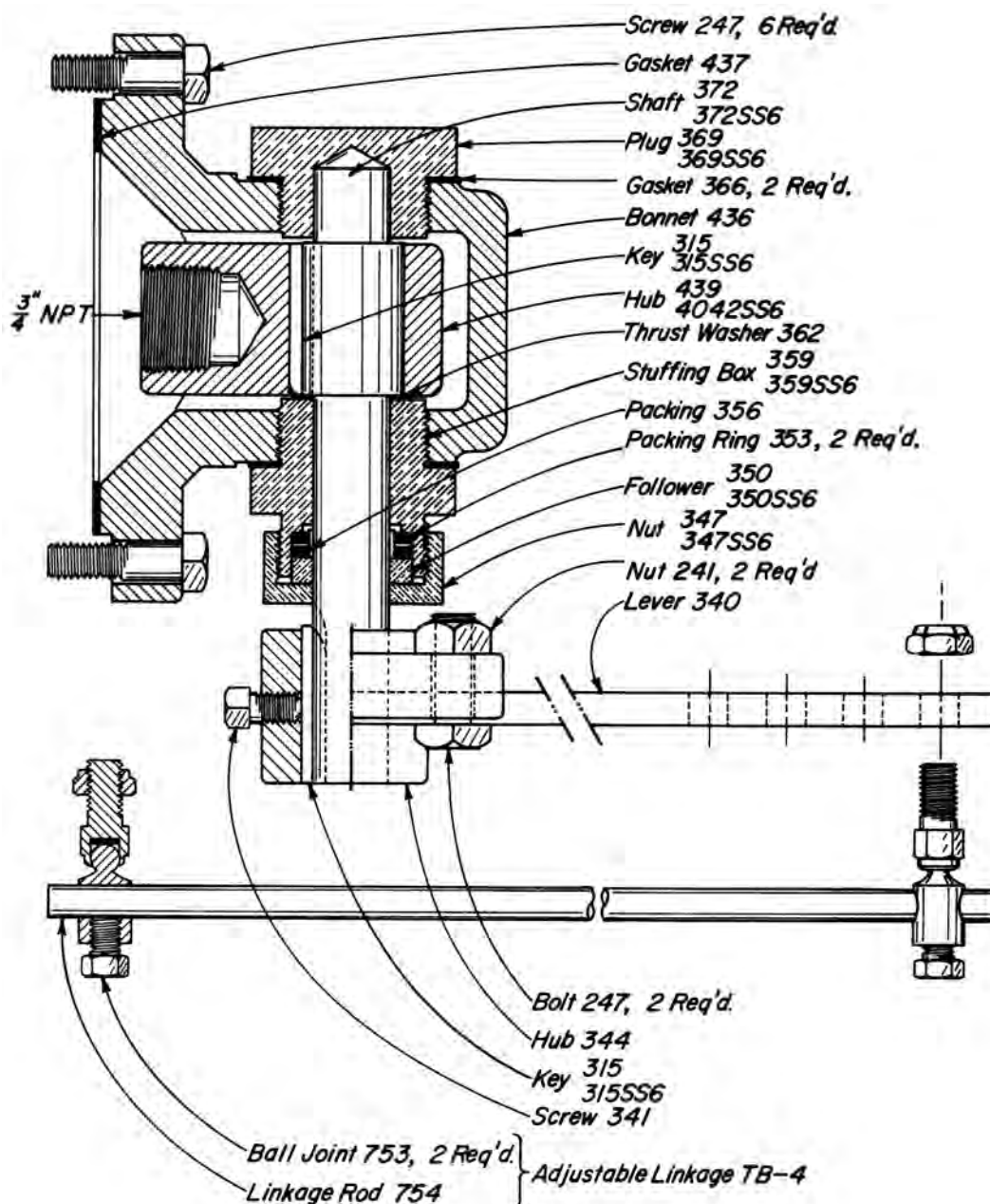
For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

NOTES:



Kimray is an ISO 9001- certified manufacturer.

### TRUNNION ASSEMBLY DUCTILE IRON & 316 STAINLESS STEEL



#### TRUNNION ASSEMBLIES AVAILABLE:

| PART NO. | MODEL NO.   | MAX W.P. |
|----------|-------------|----------|
| CCF      | 25 TOB-D    | 500      |
| CCFS6    | 25 TOB-D-S6 | 500      |

#### NOTES:

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

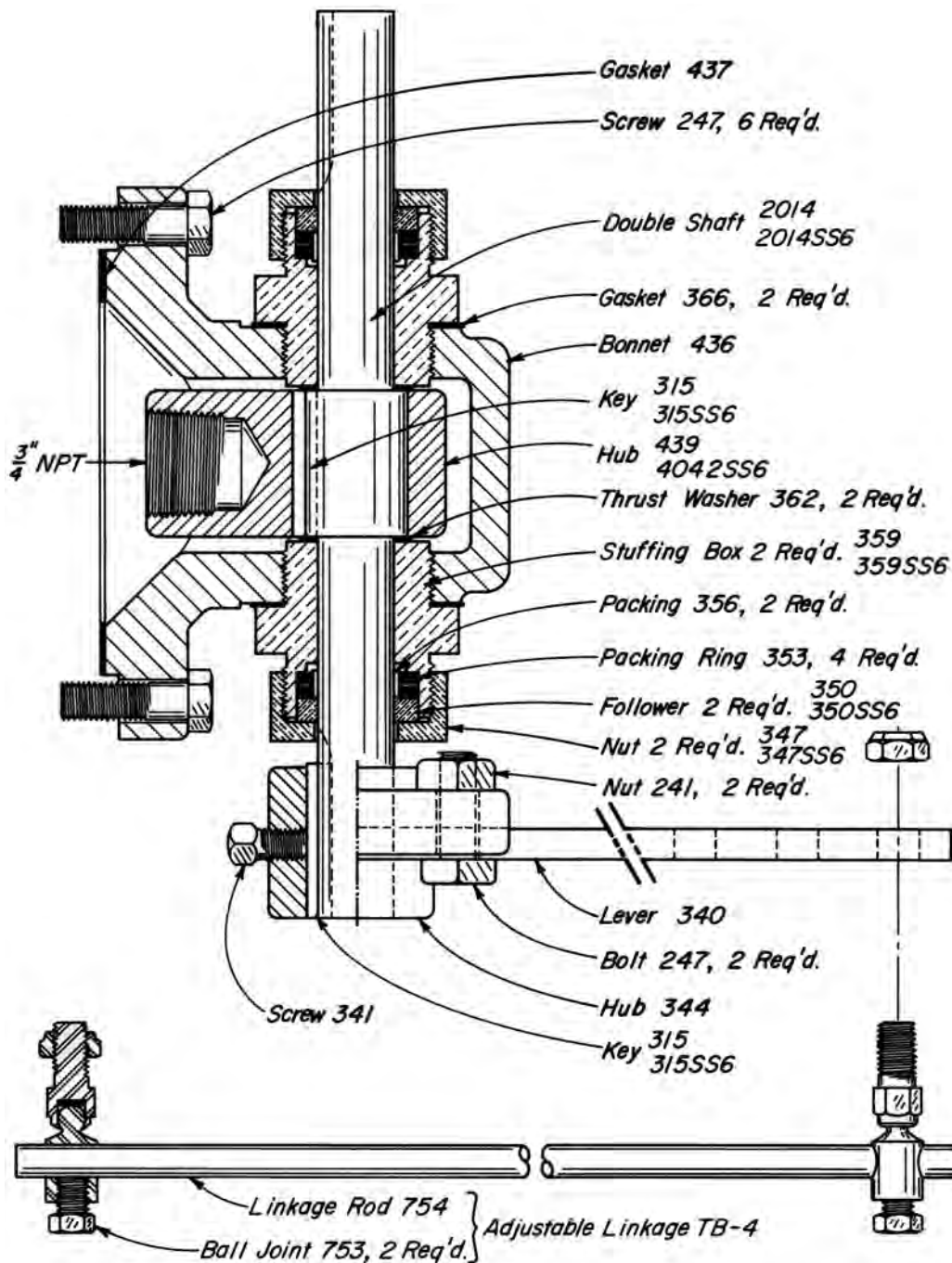
Adapter Plate is available for welding applications, order Part No. 705, 6" OD x 1" Thick.



# MECHANICAL LEVEL CONTROLS

# KIMRAY INC.

TRUNNION ASSEMBLY  
DUCTILE IRON & 316 STAINLESS STEEL



## TRUNNION ASSEMBLIES AVAILABLE:

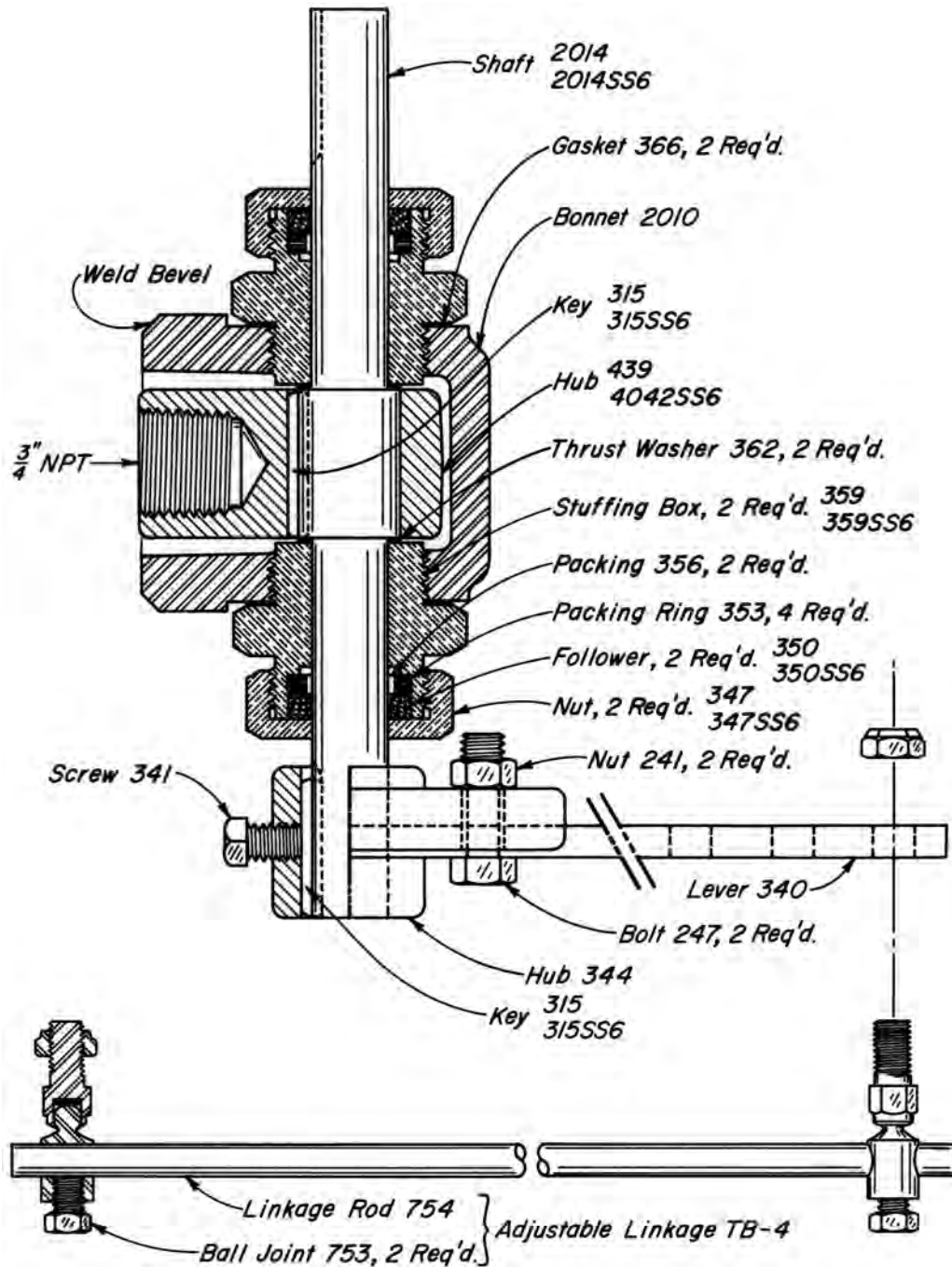
| PART NO. | MODEL NO. | MAX W.P. |
|----------|-----------|----------|
| CCH      | 50 TOB-D  | 500      |
| CCHS6    | 50 TOB-S6 | 500      |

## NOTES:

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V

Adapter Plate is available for welding applications, order Part No. 705, 6" OD x 1" Thick.  
OR  
No. 705SS6, 6" OD x 1" Thick.

Kimray is an ISO 9001- certified manufacturer.



#### TRUNNION ASSEMBLIES AVAILABLE:

| PART NO. | MODEL NO. | MAX W.P. |
|----------|-----------|----------|
| CCG      | 50 TOB-S  | 500      |
| CCGS6    | 50 TOB-S6 | 500      |

#### NOTES:

For standard & optional Seals, Metals, Cv values, Material specifications & Dimensions see Technical Data on pages C2:I - C2:V



NOTES:



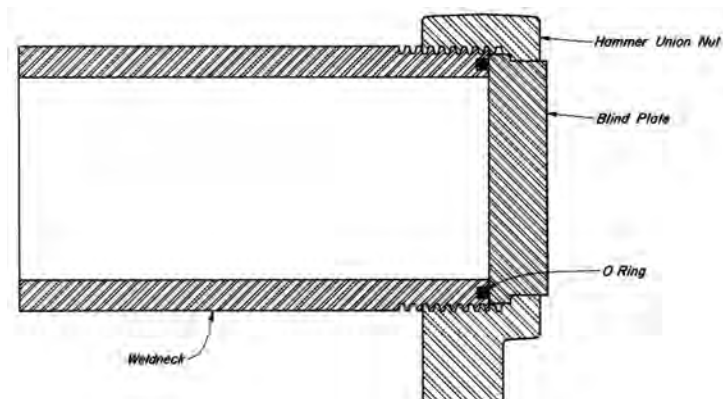
Kimray is an ISO 9001- certified manufacturer.

#### APPLICATIONS:

Used as an access opening for pressure vessels.

#### FEATURES:

- SA-106 Grade B or C pipe
- Heat specifications available for coding purposes
- Standard ACME thread on pipe and Hammer Union Nut for easy access
- O Ring seal (Nitrile)
- Other weldneck lengths available on request



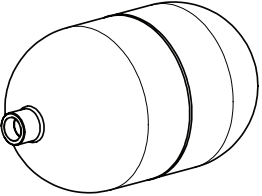
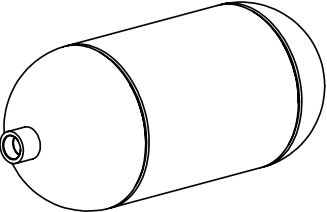
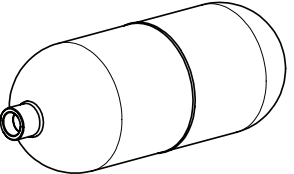
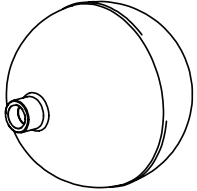
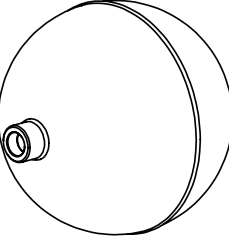

| HAMMER UNION CLOSURES WITH STANDARD ACME THREADS |             |           |           |           |                   |        |             |           |          |
|--|-------------|-----------|-----------|-----------|-------------------|--------|-------------|-----------|----------|
| Cat No.  | Valve       | Pipe Size | Max. W.P. | Weldneck  | Pipe Desc.        | O Ring | Blind Plate | Thickness | H.U. Nut |
| CCI  | 450         | 4"        | 500       | 4237      | 4" Sch 80, 5"     | 4238   | 6653        | 1"        | 2734     |
| CCJL4  | 4150HUC     | 4"        | 1,500     | 4119L4    | 4" Sch 160, 4"    | 2745   | 2735        | 1"        | 2734     |
| CCJL5  | 4150HUC     | 4"        | 1,500     | 4119L5    | 4" Sch 160, 5"    | 2745   | 2735        | 1"        | 2734     |
| CCJL6  | 4150HUC     | 4"        | 1,500     | 4119L6    | 4" Sch 160, 6"    | 2745   | 2735        | 1"        | 2734     |
| CCJL8  | 4150HUC     | 4"        | 1,500     | 4119L8    | 4" Sch 160, 8"    | 2745   | 2735        | 1"        | 2734     |
| CCJL10   | 4150HUC     | 4"        | 1,500     | 4119L10   | 4" Sch 160, 10"   | 2745   | 2735        | 1"        | 2734     |
| CCLL8  | 5150HUC     | 5"        | 1,500     | 2737L8    | 5" Sch 160, 8"    | 1177   | 2738        | 1 1/4"    | 2736     |
| CCLL6  | 5150HUC     | 5"        | 1,500     | 4120      | 5" Sch 160, 6"    | 1177   | 2738        | 1 1/4"    | 2736     |
| CCML6  | 6100HUC     | 6"        | 1,000     | 2760L6    | 6" Sch 160, 6"    | 2764   | 6654        | 1 1/4"    | 2759     |
| CCML8  | 6100HUC     | 6"        | 1,000     | 2760L8    | 6" Sch 160, 8"    | 2764   | 6654        | 1 1/4"    | 2759     |
| CCML10   | 6100HUC     | 6"        | 1,000     | 2760L10   | 6" Sch 160, 10"   | 2764   | 6654        | 1 1/4"    | 2759     |
| CCRL6  | 6150HUC     | 6"        | 1,500     | 2760L6    | 6" Sch 160, 6"    | 2764   | 2761        | 1 1/4"    | 4532     |
| CCRL8  | 6150HUC     | 6"        | 1,500     | 2760L8    | 6" Sch 160, 8"    | 2764   | 2761        | 1 1/4"    | 4532     |
| CCRL10   | 6150HUC     | 6"        | 1,500     | 2760L10   | 6" Sch 160, 10"   | 2764   | 2761        | 1 1/4"    | 4532     |
| CCNL5  | 8100HUC     | 8"        | 1,000     | 2757L5    | 8" Sch 100, 5"    | 2758   | 2927        | 1 1/4"    | 2756     |
| CCNL8  | 8100HUC     | 8"        | 1,000     | 2757L8    | 8" Sch 100, 8"    | 2758   | 2927        | 1 1/4"    | 2756     |
| CDQL5  | 8150HUC     | 8"        | 1,500     | 2757L5    | 8" Sch 100, 5"    | 2758   | 2928        | 1 1/2"    | 3040     |
| CDQL8  | 8150HUC     | 8"        | 1,500     | 2757L8    | 8" Sch 100, 8"    | 2758   | 2928        | 1 1/2"    | 3040     |
| CDQL12   | 8150HUC     | 8"        | 1,500     | 2757L12   | 8" Sch 100, 12"   | 2758   | 2928        | 1 1/2"    | 3040     |
| CDQL15   | 8150HUC     | 8"        | 1,500     | 2757L15   | 8" Sch 100, 15"   | 2758   | 2928        | 1 1/2"    | 3040     |
| CDRL5  | 8150HUC     | 8"        | 1,500     | 6410L5    | 8" Sch 120, 5"    | 2758   | 2928        | 1 1/2"    | 3040     |
| CDRL8  | 8150HUC     | 8"        | 1,500     | 6410L8    | 8" Sch 120, 8"    | 2758   | 2928        | 1 1/2"    | 3040     |
| CDRL12   | 8150HUC     | 8"        | 1,500     | 6410L12   | 8" Sch 120, 12"   | 2758   | 2928        | 1 1/2"    | 3040     |
| HAMMER UNION CLOSURES WITH UNIFIED THREADS       |             |           |           |           |                   |        |             |           |          |
| Cat No.  | Valve       | Pipe Size | Max. W.P. | Weldneck  | Pipe Desc.        | O Ring | Blind Plate | Thickness | H.U. Nut |
| CDKL8  | 4150HUC     | 4"        | 1,500     | 2902      | 4" Sch 160, 8"    | 2745   | 2735        | 1"        | 2901     |
| BLIND PLATES AVAILABLE                           |             |           |           |           |                   |        |             |           |          |
|  | Blind Plate | Pipe Size | Max. W.P. | Thickness | Contains          |        |             |           |          |
|  | 4295        | 4"        | 1,500     | 1"        | 2" NPT            |        |             |           |          |
|  | 4347        | 4"        | 1,500     | 1"        | 1/2" NPT          |        |             |           |          |
|  | 5173        | 4"        | 1,500     | 1"        | 1" NPT            |        |             |           |          |
|  | 5176        | 3"        | 1,500     | 1"        | Yale Union 2" NPT |        |             |           |          |
|  | 5435        | 4"        | 1,500     | 1"        | 9/16"-18 thd      |        |             |           |          |
|  | 6001        | 4"        | 1,500     | 1"        | 1" NPT            |        |             |           |          |
|  | 6653        | 4"        | 500       | 1"        | Plate             |        |             |           |          |
|  | 6889        | 5"        | 1,500     | 1 1/4"    | 2" NPT            |        |             |           |          |
|  | 7071        | 6"        | 1500      | 1 1/4"    | 2" NPT            |        |             |           |          |
|  | 5089        | 8"        | 1,500     | 1 5/8"    | 2" NPT            |        |             |           |          |
|  | 6939        | 8"        | 1,000     | 1 1/4"    | 2" NPT            |        |             |           |          |

Kimray is an ISO 9001- certified manufacturer.

NOTES:



Kimray is an ISO 9001- certified manufacturer.

| Floats for Trunnion Assemblies  |             |                |   |             |                            |                       |
|---|-------------|----------------|---|-------------|----------------------------|-----------------------|
|   | Part Number | Size           | Material  | Weight (oz) | Displacement in Water (oz) | Max. Working Pressure |
|    | 4009S4      | 7in. x 12 in   | 304SS   | 100         | 214.9                      | 600                   |
|   | 4009S6      | 7in. x 12 in   | 316SS   | 100         | 214.9                      | 600                   |
|    | 7143S4      | 7in. x 16 in   | 304SS   | 100         | 305.6                      | 275                   |
|   | 5581S4      | 5 1/2in x 14in | 304SS   | 63          | 166                        | 350                   |
|   | 5581S6      | 5 1/2in x 14in | 316SS   | 63          | 166                        | 350                   |
|  | 2822S4      | 7 3/4in        | 304SS   | 53          | 141                        | 250                   |
|  | 2823S4      | 9 3/4in.       | 306SS   | 108         | 275                        | 250                   |
| Float Arms for Trunnion Assemblies  |             |                |   |             |                            |                       |
|  | 4041        | 12 in.         | All float arms are made of 3/4" NPT Black Pipe. |             |                            |                       |
|   | 4041L14     | 14 in.         |   |             |                            |                       |
|   | 4041L16     | 16 in.         |   |             |                            |                       |
|   | 4041L18     | 18 in.         |   |             |                            |                       |
|   | 4041L24     | 24 in.         |   |             |                            |                       |
|   | 4041L31     | 31 in.         |   |             |                            |                       |

NOTES:



Kimray is an ISO 9001- certified manufacturer.

| Table 1 - Flow Coefficient(Cv) for Mechanical Level Controls |      |       |
|--|------|-------|
| 2" Mechanical Level Control Diaphragm & Piston Balanced      |      |       |
| Trim Size  | Cf   | Cv    |
| 1 1/2 in (38mm)  | 0.79 | 23.3  |
| 3" Mechanical Level Control Diaphragm & Piston Balanced      |      |       |
| Trim Size  | Cf   | Cv    |
| 2 1/4 in (57 mm)   | 0.79 | 43.8  |
| 4" Mechanical Level Control Diaphragm & Piston Balanced      |      |       |
| Trim Size  | Cf   | Cv    |
| 3 in (76 mm)   | 0.79 | 70.1  |
| 6" Mechanical Level Control Diaphragm Balanced               |      |       |
| Trim Size  | Cf   | Cv    |
| 4.88 in (124 mm)   | 0.79 | 277.0 |
| 2" Mechanical Level Control Severe Service                   |      |       |
| Trim Size  | Cf   | Cv    |
| 1 1/2 in (38mm) Reduced                                      | 0.75 | 23.3  |
| 2 in (51 mm) Full Port                                       | 0.75 | 47.0  |
| 3" Mechanical Level Control Severe Service                   |      |       |
| Trim Size  | Cf   | Cv    |
| 3 in (76 mm)   | 0.75 | 89.0  |

Kimray flow equations conform to ANSI/ISA - 75.01.01-2002

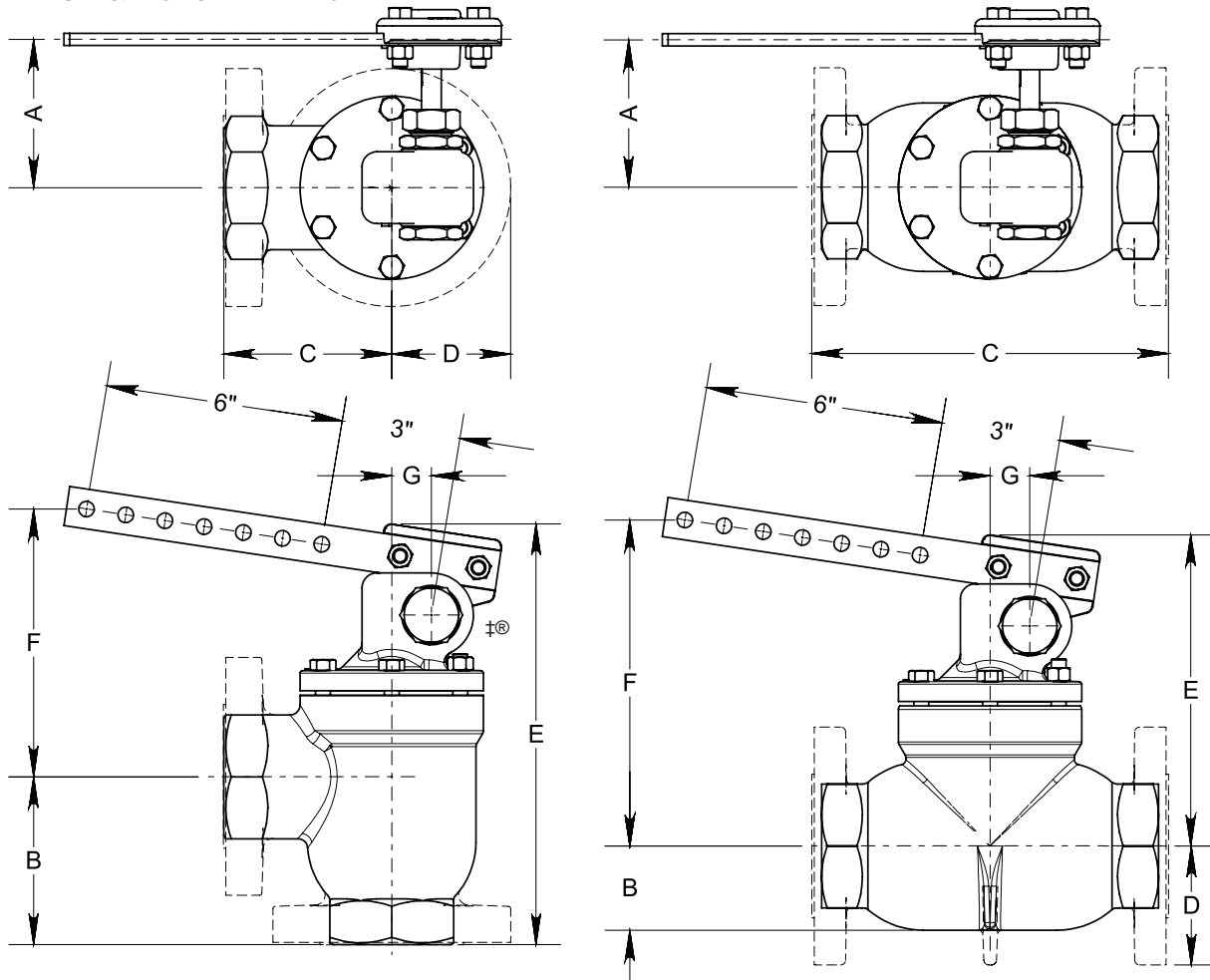
Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

# MECHANICAL LEVEL CONTROLS



## DIMENSIONS

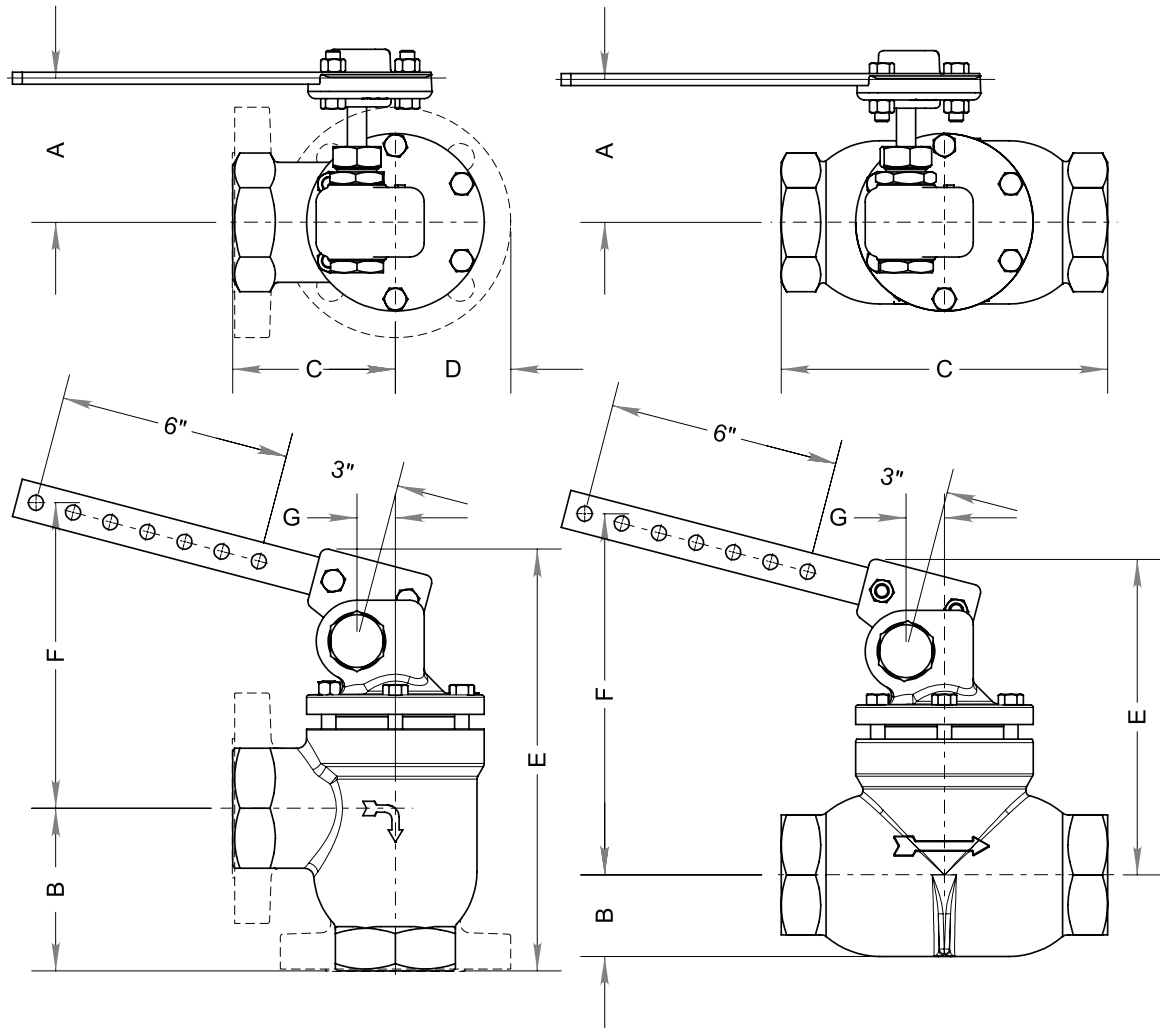
### DIAPHRAGM & PISTON BALANCED



| LINE SIZE | MATERIAL | BODY TYPE & END CONNECTION | A          | B          | C          | D        | E           | F          | G        |
|-----------|----------|----------------------------|------------|------------|------------|----------|-------------|------------|----------|
| 2 in      | DUCTILE  | NPT / ANGLE                | 3 3/4 in   | 4 1/4 in   | 4 1/4 in   | 3 in     | 10 5/8 in   | 6 3/4 in   | 1 in     |
|           |          | NPT / THRU                 | 3 11/16 in | 2 1/8 in   | 8 1/2 in   | 3 in     | 7 7/8 in    | 8 1/4 in   | 1 in     |
|           |          | FLANGED / ANGLE            | 3 3/4 in   | 4 1/4 in   | 4 1/4 in   | 3 in     | 10 5/8 in   | 6 3/4 in   | 1 in     |
|           |          | FLANGED / THRU             | 3 11/16 in | 2 1/8 in   | 9 in       | 3 in     | 7 7/8 in    | 8 1/4 in   | 1 in     |
|           | STEEL    | FLANGED / ANGLE            | 3 3/4 in   | 4 5/16 in  | 4 5/16 in  | 3 in     | 10 7/8 in   | 6 3/4 in   | 1 in     |
|           |          | FLANGED / THRU             | 3 11/16 in | 2 1/8 in   | 9 1/8 in   | 3 in     | 7 7/8 in    | 8 1/4 in   | 1 in     |
| 3 in      | DUCTILE  | NPT / ANGLE                | 3 3/4 in   | 6 1/8 in   | 5 1/2 in   | 3 3/4 in | 13 13/16 in | 7 1/8 in   | 1 3/8 in |
|           |          | NPT / THRU                 | 3 3/4 in   | 2 7/8 in   | 12 in      | 3 3/4 in | 9 9/16 in   | 8 15/16 in | 1 3/8 in |
|           |          | FLANGED / ANGLE            | 3 3/4 in   | 5 1/2 in   | 5 1/2 in   | 3 3/4 in | 13 3/16 in  | 7 1/8 in   | 1 3/8 in |
|           |          | FLANGED / THRU             | 3 3/4 in   | 2 7/8 in   | 12 3/16 in | 3 3/4 in | 9 9/16 in   | 8 15/16 in | 1 3/8 in |
|           | STEEL    | GROOVED / ANGLE            | 3 3/4 in   | 5 1/2 in   | 5 1/2 in   | 3 3/4 in | 13 13/16 in | 7 1/8 in   | 1 3/8 in |
|           |          | FLANGED / ANGLE            | 3 3/4 in   | 5 1/2 in   | 5 1/2 in   | 3 3/4 in | 13 3/8 in   | 8 15/16 in | 1 3/8 in |
| 4 in      | DUCTILE  | FLANGED / ANGLE            | 3 3/4 in   | 6 1/2 in   | 6 1/2 in   | 4 1/2 in | 15 in       | 9 1/4 in   | 1 3/8 in |
|           |          | FLANGED / THRU             | 3 13/16 in | 3 11/16 in | 15 in      | 4 1/2 in | 10 9/16 in  | 11 1/2 in  | 1 3/8 in |
|           | STEEL    | FLANGED / ANGLE            | 3 3/4 in   | 6 1/2 in   | 6 1/2 in   | 4 1/2 in | 15 1/16 in  | 9 1/4 in   | 1 3/8 in |
| 6 in      | DUCTILE  | FLANGED / ANGLE            | 4 1/16 in  | 10 1/4 in  | 7 11/16 in | 5 1/2 in | 21 5/8 in   | 12 5/8 in  | 1 5/8 in |
|           |          | FLANGED / THRU             | 4 1/16 in  | 4 7/8 in   | 22 1/16 in | 5 1/2 in | 14 7/8 in   | 16 1/16 in | 1 5/8 in |
|           | STEEL    | FLANGED / ANGLE            | 4 1/16 in  | 10 1/4 in  | 7 3/4 in   | 5 1/2 in | 21 7/16 in  | 12 5/8 in  | 1 5/8 in |

FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD.





| LINE SIZE | MATERIAL | BODY TYPE & END CONNECTION | A          | B        | C        | D         | E          | F          | G        |
|-----------|----------|----------------------------|------------|----------|----------|-----------|------------|------------|----------|
| 2 in      | DUCTILE  | NPT / ANGLE                | 3 3/4 in   | 4 1/4 in | 4 1/4 in | 2 5/16 in | 11 in      | 7 15/16 in | 1 in     |
|           |          | NPT / THRU                 | 3 11/16 in | 2 1/8 in | 8 1/2 in | 2 5/16 in | 8 3/16 in  | 9 3/8 in   | 1 in     |
| 3 in      | DUCTILE  | NPT / ANGLE                | 3 3/4 in   | 6 1/8 in | 5 1/2 in | 3 1/16 in | 14 1/16 in | 10 1/4 in  | 1 3/8 in |
|           |          | FLANGED / ANGLE            | 3 3/4 in   | 5 1/2 in | 5 1/2 in | 3 3/4 in  | 13 3/16 in | 10 1/4 in  | 1 3/8 in |

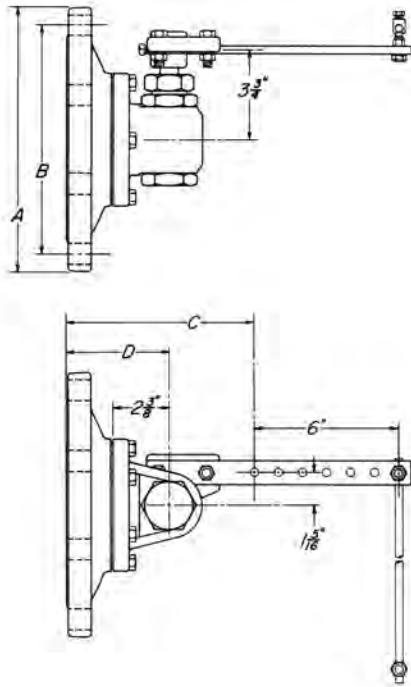
FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD.

# MECHANICAL LEVEL CONTROLS

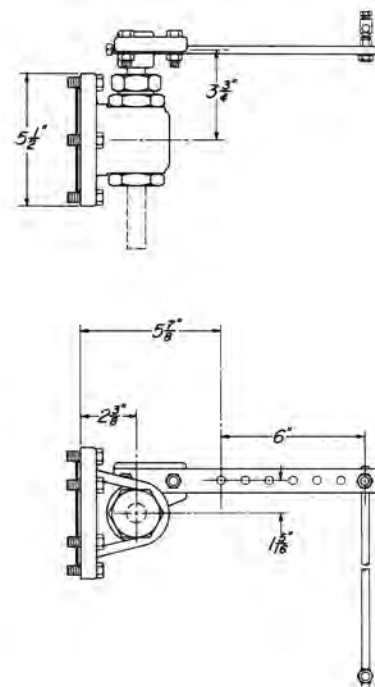
# KIMRAY INC.®

## DIMENSIONS TRUNNION ASSEMBLY

612, 812 & 1012 TO-D



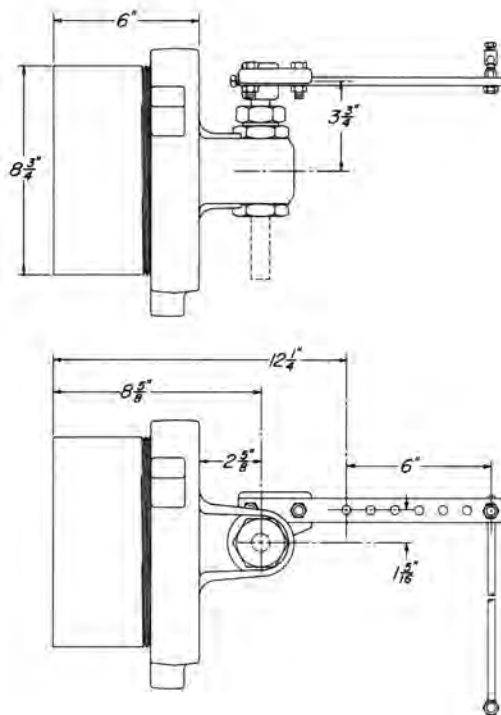
25 TOB



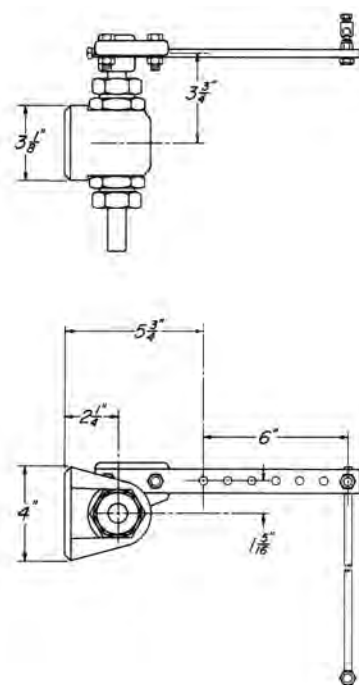
| SIZE | NUMBER   | A         | B         | C        | D        | No. SIZE OF BOLTS |
|------|----------|-----------|-----------|----------|----------|-------------------|
| 6    | 612 TO   | 11 in     | 9 1/2 in  | 7 1/4 in | 4 1/4 in | 8 3/4 x 3 1/2     |
| 8    | 812 TO   | 13 1/2 in | 11 3/4 in | 7 1/4 in | 4 1/4 in | 8 3/4 x 3 1/2     |
| 10   | 6 1/8 in | 16 in     | 14 1/4 in | 7 1/2 in | 4 1/2 in | 12 7/8 x 3 1/2    |

All dimensions are in inches.

HUTA



50 TOB-S

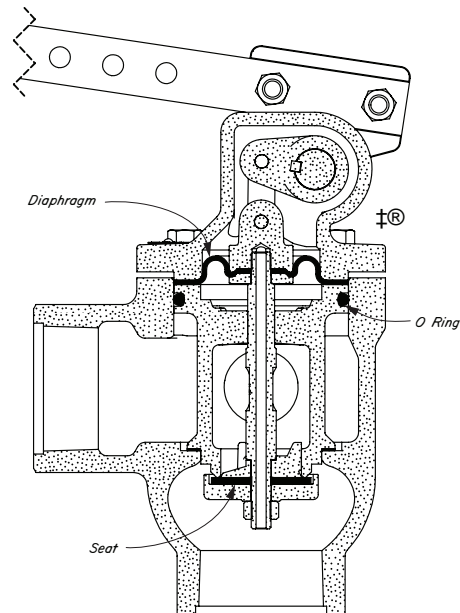
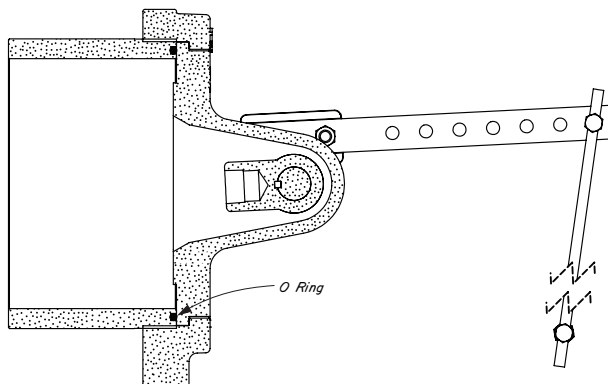


**Table 2 - Seal Options Level Controllers**

| Part      | Standard Material | Optional Material |
|-----------|-------------------|-------------------|
| O-rings   | Nitrile           | FKM, HSN, AFLAS®  |
| Diaphragm | Nitrile           | FKM, HSN, AFLAS®  |

**Table 3 - Seal Options Trunnion Assemblies**

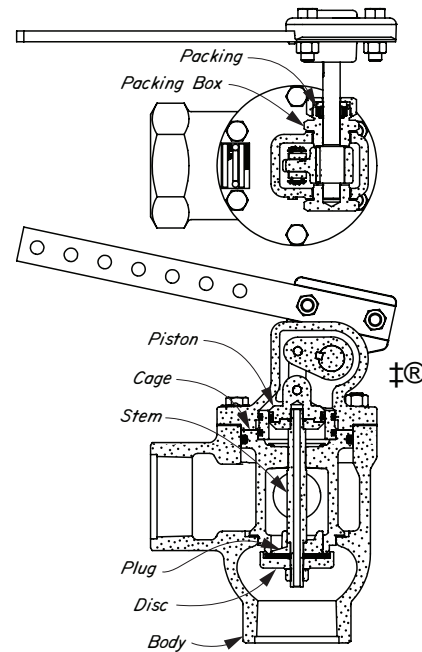
| Part    | Standard Material | Optional Material |
|---------|-------------------|-------------------|
| O-rings | Nitrile           | FKM, HSN, AFLAS®  |



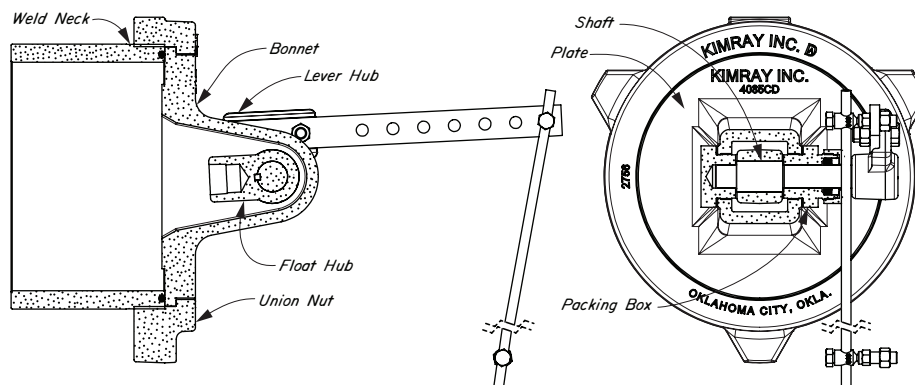
**Table 4 - Seal Specifications**

|  |                  | NITRILE       | HIGHLY SATURATED NITRILE | FKM            | AFLAS®         | POLY-URETHANE  | GYLON          |
|--|------------------|---------------|--------------------------|----------------|----------------|----------------|----------------|
|  | Kimray Suffix    | -             | HSN                      | V              | AF             | P              | GY             |
| Resistance                                   | Abrasion         | G             | G                        | G              | GE             | E              | E              |
|  | Acid             | F             | E                        | E              | E              | P              | E              |
|  | Chemical         | FG            | FG                       | E              | E              | FG             | E              |
|  | Cold             | G             | G                        | PF             | P              | G              | E              |
|  | Flame            | P             | P                        | E              | E              | P              | P              |
|  | Heat             | G             | E                        | E              | E              | F              | E              |
|  | Oil              | E             | E                        | E              | E              | G              | E              |
|  | Ozone            | P             | G                        | E              | E              | E              | E              |
|  | Set              | GE            | GE                       | E              | PF             | F              | P              |
|  | Tear             | FG            | FG                       | F              | PF             | GE             | E              |
|  | Water/Steam      | FG            | E                        | P              | GE             | P              | E              |
|  | Weather          | F             | G                        | E              | E              | E              | E              |
|  | CO2              | FG            | GE                       | PG             | GE             | G              | E              |
|  | H2S              | P             | FG                       | P              | E              | G              | E              |
|  | Methanol         | G             | E                        | PF             | PF             | P              | E              |
| Properties                                   | Dynamic          | GE            | GE                       | GE             | GE             | E              | P              |
|  | Electrical       | F             | F                        | F              | E              | FG             | E              |
|  | Impermeability   | G             | G                        | G              | G              | G              | E              |
|  | Tensile Strength | GE            | E                        | GE             | FG             | E              | E              |
|  | Temp. Range (°F) | -40 to +220°F | -15° to +300°F           | -10° to +350°F | +25° to +450°F | -40° to +220°F | -350 to +500°F |
|  | Temp. Range (°C) | -40 to +105°C | -26° to +149°C           | -23° to +177°C | 0° to +232°C   | -40° to +104°C | -212 to +260°C |
|  | Form             | O,S,D         | O,S,D                    | O,S,D          | O,S,D          | S,D            | S,D            |
| RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT |                  |               |                          |                |                |                |                |

| Table 5 - Level Controller Materials of Construction |                          |                           |
|--|--------------------------|---------------------------|
| Part Description                                     | Standard Material        | Optional Material(s)      |
| Body   | Ductile Iron, ASTM A-395 | ASTM A216 WCB             |
| Stem   | 303S, ASTM A-582         | 316S, ASTM A-213          |
| Plug   | Ductile Iron, ASTM A-395 | ASTM A-316                |
| Cage   | Ductile Iron, ASTM A-395 | ASTM A-316, A-351, Delrin |
| Disc   | Ductile Iron, ASTM A-395 | ASME SA-395, ASTM A-395   |
| Piston   | 316S, ASTM A-351         |                           |
| Packing Box  | Brass                    | ASTM A-316                |
| Packing  | Nitrile                  | HSN, AF, FKM              |

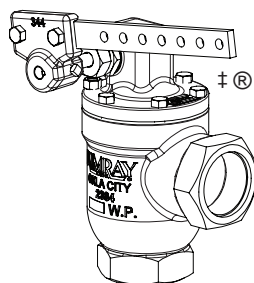


| Table 6 - Trunnion Materials of Construction |  |                         |
|--|--|-------------------------|
| Part Description                             | Standard Material                            | Optional Material(s)    |
| Bonnet                                       | Ductile Iron                                 | ASTM A216 WCB           |
| Plate  | Steel SA - 515 Grade 70 Plate                |                         |
| Packing Box                                  | Brass with Nitrile/Teflon Packing ASTM B-429 | ASTM A-316, ASTM A-479  |
| Shaft  | 303S, ASTM A-582                             | ASTM A-316, ASTM A-479  |
| Float Hub                                    | ASTM A-316                                   | ASME SA-351, ASTM A-351 |
| Union Nut                                    | Ductile Iron                                 | ASTM - A395             |
| Weld Neck                                    | 8 in. Schedule 100 Pipe ASTM A-106 Grade B   |                         |
| Lever Hub                                    | Gray Iron, ASTM A-126-B                      |                         |

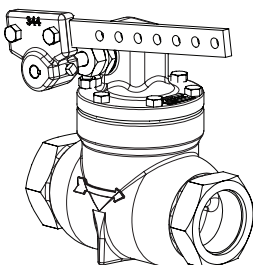


| Table 7 - Material Specification |            |            |                          |                     |                         |                |                      |
|----------------------------------|------------|------------|--------------------------|---------------------|-------------------------|----------------|----------------------|
|                                  | Body       |            |                          | Inner Parts         |                         |                |                      |
|                                  | CAST STEEL | CAST STEEL | CAST 316 STAINLESS STEEL | 316 STAINLESS STEEL | 17-4 PH STAINLESS STEEL | D-2 TOOL STEEL | 440C STAINLESS STEEL |
| Kimray SUFFIX                    | CS         | LCC        | C6                       | S6                  | PH                      | -              |                      |
| ASTM GROUP                       | ASTM A216  | ASTM A352  | ASTM A351                | ASTM A276           | ASTM A564               | ASTM A681      | ASTM A276            |
| GRADE                            | WCB        | LCC        | CF8M                     | 316                 | 630                     | D-2            |                      |
| UNS                              | J03002     | J02505     | J92900                   | S31600              | S17400                  | T30402         | S44004               |
| NACE Compliant                   | Yes        | Yes        | Yes                      | Yes                 | Yes                     | No             |                      |

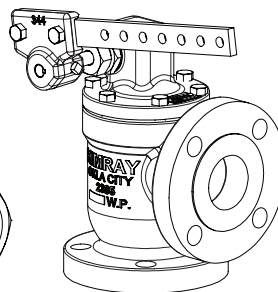
| Table 8 - Temperature vs. Pressure Rating   |                             |
|---|-----------------------------|
| ASTM Class<br>Temperature<br>°F (°C)        | Flange Class                |
|   | 150 RF                      |
|   | Static Test Pressure (psig) |
|   | 450 (31 bar)                |
| Maximum Allowable Non-Shock Pressure (psig) |                             |
| CAST DUCTILE ASTM A-395                     |                             |
|   | Flange Class                |
|   | 150 RF                      |
| -20 to 100 (-28 to 37)                      | 250 (17.2 bar)              |
| 200 (93)                                    | 235 (16.2 bar)              |
| 300 (148)                                   | 215 (14.8 bar)              |
| 400 (204)                                   | 200 (13.7 bar)              |
| 500 (260)                                   | 170 (11.7 bar)              |
| 600 (315)                                   | 140 (9.6 bar)               |
| 650 (343)                                   | 125 (8.6 bar)               |
| 700 (371)                                   |                             |
| CAST STEEL ASTM A-216 - WCB                 |                             |
|   | Flange Class                |
|   | 150 RF                      |
| -20 to 100 (-28 to 37)                      | 285 (20.0 bar)              |
| 200 (93)                                    | 260 (17.9 bar)              |
| 300 (148)                                   | 230 (15.9 bar)              |
| 400 (204)                                   | 200 (13.8 bar)              |
| 500 (260)                                   | 170 (11.7 bar)              |
| 600 (315)                                   | 140 (9.7 bar)               |
| 650 (343)                                   | 125 (8.6 bar)               |
| 700 (371)                                   | 110 (7.6 bar)               |



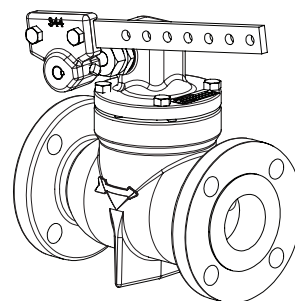
SCREWED ANGLED (NPT)



SCREWED THRU (NPT)



FLANGED ANGLED (150RF)



FLANGED THRU (150RF)

Kimray valves conform to ASME B16.34-2009 for working pressure vs working temperature & ASME B16.5-1996 for flanges and flanged fittings.

NOTES:



Kimray is an ISO 9001- certified manufacturer.