

# DUMP VALVES

WEIGHT OPERATED

W



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INC.®

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|                                                                                                                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>WEIGHT OPERATED DUMP VALVE:</b> . . . . .                                                                                                                                                                                                                                  | <b>·05:10.1 - 05:10.3</b> |
| APPLICATIONS: As oil or water valve for emulsion treaters, water knockouts and<br>free water knockouts. Can be used for pressure, atmospheric, or vacuum operation.<br>Ideal for discharging salt water to disposal systems.<br>OPERATING PRESSURE RANGES: 0 psig to 125 psig |                           |
| <b>REMOVABLE HARD SEAT:</b> . . . . .                                                                                                                                                                                                                                         | <b>·05:10.4</b>           |
| <b>ORIFICE REDUCER:</b> . . . . .                                                                                                                                                                                                                                             | <b>·05:10.4</b>           |
| <b>DIAPHRAGM BALANCED TRUNNION:</b> . . . . .                                                                                                                                                                                                                                 | <b>·05:20.1</b>           |
| APPLICATIONS: Regulation of inlet pressure to gas compressors. Control of supply or distribution<br>systems pressures.<br>OPERATING PRESSURE RANGES: 0 psig to 125 psig                                                                                                       |                           |
| <b>FLOW COEFFICIENT</b> . . . . .                                                                                                                                                                                                                                             | <b>·05:I</b>              |
| <b>DIMENSIONS</b> . . . . .                                                                                                                                                                                                                                                   | <b>·05:II</b>             |
| <b>SEALS</b> . . . . .                                                                                                                                                                                                                                                        | <b>·05:III</b>            |
| <b>MATERIAL SPECIFICATIONS</b> . . . . .                                                                                                                                                                                                                                      | <b>·05:IV</b>             |

## WEIGHT OPERATED DUMP VALVES



### CODE BUILDER W SERIES

Series:

**W = Weight Operated**

Model:

**LD = Lever / Diaphragm Balanced**

Line Size:

**2 = 2 NPS**

**3 = 3 NPS**

**4 = 4 NPS**

**6 = 6 NPS**

End Connection:

**SA = FNPT (2 NPS only)**

**AR = 150RF**

Shell Material:

**D = Ductile Iron**

**E = Ductile Iron w/Coating**

Service Type:

**S = Standard**

**C = Corrosive**

|   |    |   |    |   |   |  |
|---|----|---|----|---|---|--|
| W | LD | 2 | SA | D | S |  |
|---|----|---|----|---|---|--|

Options: Additional cost and lead times will apply  
If multiple options required input in sequential order  
Leave blank if no options required

- 1 = NACE Certification (Corrosive Option Only)
- 2 = Hydrostatic Test Certification
- 3 = MTR (Shell Components)
- H = HSN Elastomers
- V = FKM Elastomers
- X = Export (Hydrostatic test, MTR & 3.1)

Not all selections available on all products listed.  
See product pages 05:10.1 - 05:10.3 for available options

#### APPLICATIONS:

As oil or water valve for emulsion treaters, water knockouts and free water knockouts. Can be used for pressure, atmospheric, or vacuum operation. Ideal for discharging salt water to disposal systems.

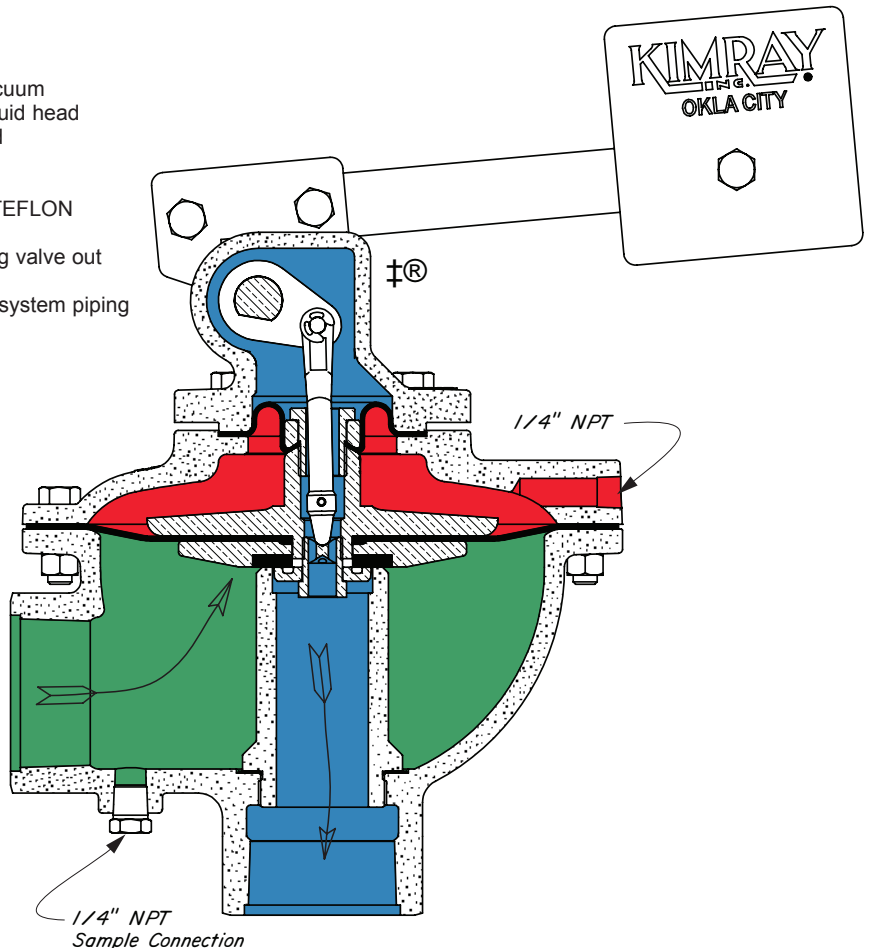
#### FEATURES:

- Single soft seat for tight shut off
- Balanced against upstream pressure
- Balanced against downstream pressure or vacuum
- Standard weight and lever holds approx. 4' liquid head
- Weights may be added to increase liquid head
- Can be manually opened and closed
- Sample tap on inlet connection
- Rotary stuffing box with leakless, low friction TEFLON packing
- All interior parts can be removed without taking valve out of line
- Prevents air from entering salt water disposal system piping

#### CERTIFICATIONS:

Canadian Registration Number (CRN):  
0C15735.24567890NTY (Ductile)  
0C15811.24567890NTY (Steel)  
Kimray is an ISO 9001- certified manufacturer.

-  Diaphragm Assembly
-  Vessel Gas Pressured
-  Downstream Pressure or Vacuum
-  Gas Pressure plus Liquid Head



| Standard Configuration Code † | Order Code | Line Size | Connection Type | Body Type | Max Δ P psig | Max. W.P. psig †† | Cv   | Cf   |
|-------------------------------|------------|-----------|-----------------|-----------|--------------|-------------------|------|------|
| WLD2SADS                      | DAA        | 2"        | NPT             | Angle     | 125          | 125               | 36.5 | 0.75 |
| WLD2ARDS                      | DAB        | 2"        | 150RF           |           |              |                   | 36.5 |      |
| WLD3ARDS                      | DAC        | 3"        |                 |           |              |                   | 93.3 |      |
| WLD4ARDS                      | DAD        | 4"        |                 |           |              |                   | 173  |      |
| WLD6ARDS                      | DAE        | 6"        |                 |           | 60           |                   | 371  |      |

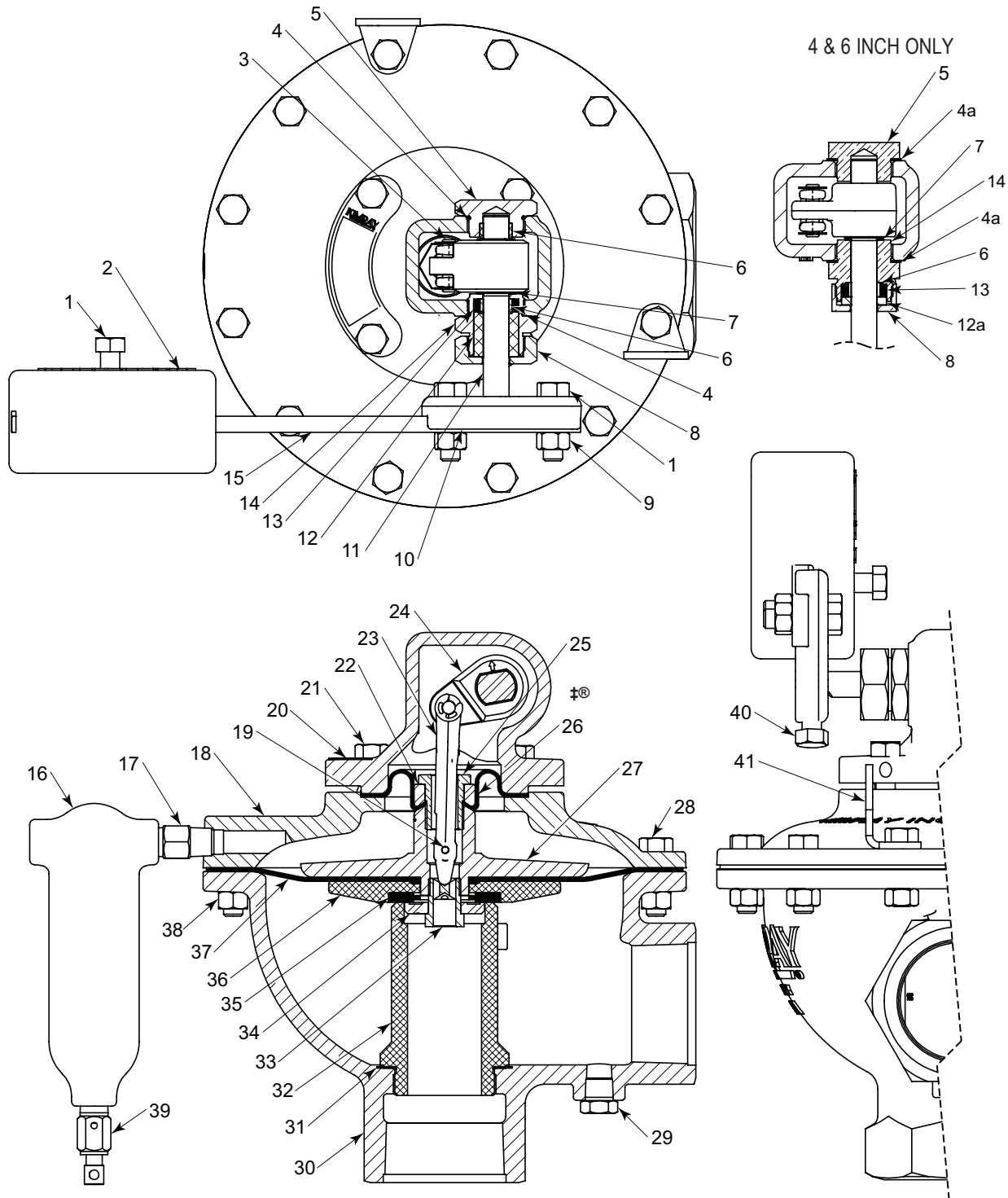
#### NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 05:1 - 05:1V  
† For Corrosive service remove last "S" & replace with "C"  
† For KimCoat option remove last "S" & replace with "K"  
† For code builder see page 05:00.2  
†† Max W.P. values based on -20°F to 100°F.

# WEIGHT OPERATED DUMP VALVES

## TREATER / DUMP VALVE MODEL LD PARTS DRAWING

# KIMRAY<sup>®</sup>



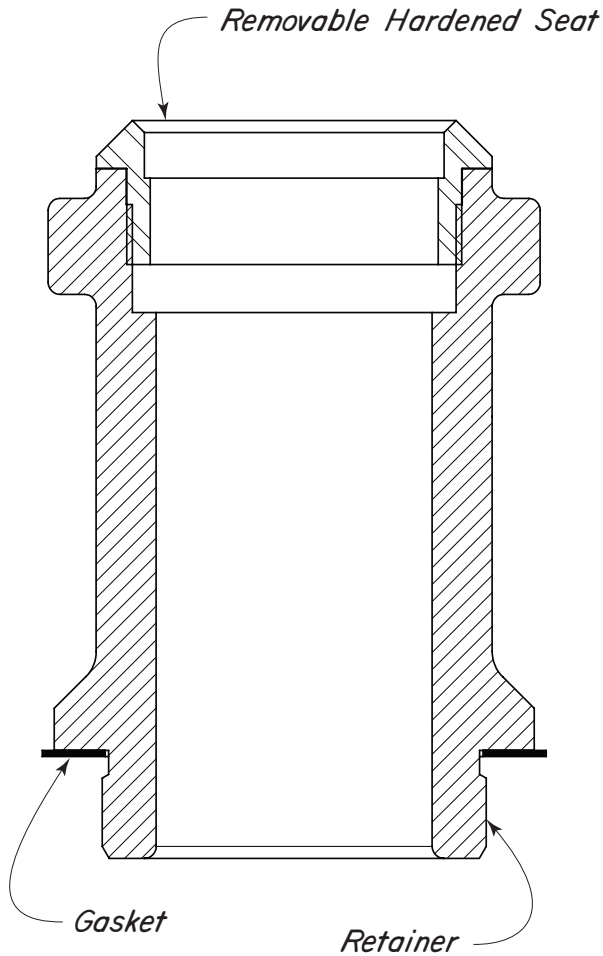
| ITEM                                             | QTY.  | DESCRIPTION                                               |                                                                           | PART NO. |          |           |          |           |          |           |         |  |
|--------------------------------------------------|-------|-----------------------------------------------------------|---------------------------------------------------------------------------|----------|----------|-----------|----------|-----------|----------|-----------|---------|--|
|                                                  |       |                                                           |                                                                           | STANDARD |          |           |          | CORROSIVE |          |           |         |  |
|                                                  |       |                                                           |                                                                           | 2 INCH   | 3 INCH   | 4 INCH    | 6 INCH   | 2 INCH    | 3 INCH   | 4 INCH    | 6 INCH  |  |
| 1                                                |       | Bolt                                                      |                                                                           | 247 (3)  |          |           |          | 247 (4)   |          |           |         |  |
| 2                                                | (QTY) | Weight                                                    | 7 lbs.                                                                    | 424 (1)  | ----     |           |          | 424 (1)   | ----     | 426 (1)   | 426 (2) |  |
|                                                  |       |                                                           | 9 lbs.                                                                    | ----     | 425 (1)  | ----      |          |           | 425 (1)  | ----      |         |  |
|                                                  |       |                                                           | 11 lbs.                                                                   | ----     |          |           | 426 (1)  | 426 (2)   | ----     |           |         |  |
| 3                                                | 1     | Link Pin w/ Snap Ring *<br>(kit includes Snap Rings only) | 316                                                                       | 317      |          |           | 1790     | 316SS6    | 317SS6   |           | 1790SS6 |  |
| 4                                                | 2     | O-Ring ◇ *                                                | 2131HSN                                                                   | 5226HSN  | ----     |           |          | 2131HSN   | 5226HSN  | ----      |         |  |
| 4a                                               | 2     | Gasket *                                                  | ----                                                                      |          |          | 366       | 1789     | ----      |          | 366       | 1789    |  |
| 5                                                | 1     | Trunnion Plug                                             | 7522                                                                      | 7523     | 369      | 1777      | 7522S6   | 7523S6    | 369      | 1777      |         |  |
| 6                                                | (QTY) | Teflon ring ◇ *                                           | 7662 (2)                                                                  | 355 (2)  | 356 (1)  | 1786 (1)  | 7662 (2) | 355 (2)   | 356 (1)  | 1786 (1)  |         |  |
| 7                                                | 1     | Thrust Washer ◇ *                                         | 360                                                                       | 361      | 362      | 1788      | 360      | 361       | 362      | 1788      |         |  |
| 8                                                | 1     | Stuffing Box Nut ◇                                        | 7917                                                                      | 7919     | 347      | 1778      | 7917     | 7919      | 347SS6   | 1778SS6   |         |  |
| 9                                                | 2     | Nut                                                       | 241                                                                       |          |          |           | 241      |           |          |           |         |  |
| 10                                               | 1     | Lever Hub                                                 | 7600                                                                      | 7601     | 7602     | 7603      | 7600     | 7601      | 7602     | 7603      |         |  |
| 11                                               | 1     | Shaft                                                     | Old Style                                                                 | 7404     | 7408     | 7427      | 7449     | 7404S6    | 7408S6   | 7427S6    | 7449S6  |  |
|                                                  |       | New Style                                                 | 7609                                                                      | 7610     | 7611     | 7612      | 7609S6   | 7610S6    | 7611S6   | 7612S6    |         |  |
| 12                                               | 1     | Bushing ◇ *                                               | 7915                                                                      | 7916     | ----     |           |          | 7915      | 7916     | ----      |         |  |
| 12a                                              | 1     | Follower                                                  | ----                                                                      | ----     | 350      | 1785      | ----     | ----      | 350      | 1785      |         |  |
| 13                                               | (QTY) | Packing Ring ◇ *                                          | 351 (1)                                                                   | 352 (1)  | 353 (1)  | 1787 (2)  | 351 (1)  | 352 (1)   | 353 (1)  | 1787 (2)  |         |  |
| 14                                               | 1     | Stuffing Box ◇                                            | 7918                                                                      | 7920     | 359      | 1779      | 7918S6   | 7920S6    | 359SS6   | 1779SS6   |         |  |
| 15                                               | 1     | Lever Bar                                                 | Standard 11"                                                              | 419      | ----     |           | 419      | ----      |          |           |         |  |
|                                                  |       |                                                           | Optional 19"                                                              | 419L     | ----     |           | 419L     | ----      |          |           |         |  |
|                                                  |       |                                                           | Standard 16"                                                              | ----     | 420      |           | ----     | 420       |          |           |         |  |
|                                                  |       |                                                           | Optional 29"                                                              | ----     | 420L     |           | ----     | 420L      |          |           |         |  |
| 16                                               | 1     | Drip Pot                                                  | 431                                                                       |          |          |           | 431      |           |          |           |         |  |
| 17                                               | 1     | Nipple                                                    | 648                                                                       |          |          |           | 648SS6   |           |          |           |         |  |
| 18                                               | 1     | Housing                                                   | 1499                                                                      | 411      | 412      | 1768      | 1499‡    | 411‡      | 412‡     | 1768‡     |         |  |
| 19                                               | 1     | Dowel Pin                                                 | 932                                                                       | 428      | 429SS6   | 1792SS6   | 932SS6   | 428SS6    | 429SS6   | 1792SS6   |         |  |
| 20                                               | 1     | Bonnet                                                    | 295                                                                       | 296      | 297      | 1767      | 295‡     | 296‡      | 297‡     | 1767‡     |         |  |
| 21                                               | (QTY) | Bolt                                                      | 380 (4)                                                                   | 247 (6)  | 247 (8)  | 1794 (8)  | 380 (4)  | 247 (6)   | 247 (8)  | 1794 (8)  |         |  |
| 22                                               | 1     | Diaphragm Retainer                                        | 401SS6                                                                    | 402SS6   | 403SS6   | 1782      | 401SS6   | 402SS6    | 403SS6   | 1782      |         |  |
| 23                                               | 1     | Stem                                                      | 398                                                                       | 399      | 400      | 1774      | 398SS6   | 399SS6    | 400SS6   | 1774SS6   |         |  |
| 24                                               | 1     | Trunnion Hub                                              | Old Style                                                                 | 7403     | 7407     | 7454      | 7453     | 7403S6    | 7407S6   | 7454S6    | 7453S6  |  |
|                                                  |       | New Style                                                 | 7613S6                                                                    | 7614S6   | 7615S6   | 7616S6    | 7613S6   | 7614S6    | 7615S6   | 7616S6    |         |  |
| 25                                               | 1     | Diaphragm Bolt                                            | 407                                                                       | 408      | 409      | 1780      | 407SS6   | 408SS6    | 409SS6   | 1780SS6   |         |  |
| 26                                               | 1     | Diaphragm *                                               | 416                                                                       | 417      | 418      | 1766      | 416      | 417       | 418      | 1766      |         |  |
| 27                                               | 1     | Diaphragm Plate                                           | 404                                                                       | 405      | 406      | 1769      | 404‡     | 405‡      | 406‡     | 1769‡     |         |  |
| 28                                               | (QTY) | Bolt                                                      | 247 (12)                                                                  | 430 (14) | 430 (16) | 1795 (24) | 247 (12) | 430 (14)  | 430 (16) | 1795 (24) |         |  |
| 29                                               | 1     | Plug                                                      | 699                                                                       |          |          |           | 699SS6   |           |          |           |         |  |
| 30                                               | 1     | Body                                                      |                                                                           |          |          |           |          |           |          |           |         |  |
|                                                  |       | NPT Thru                                                  | 381                                                                       | ----     | ----     | ----      | 381‡     | ----      | ----     | ----      |         |  |
|                                                  |       | 150RF Angle                                               | 1492                                                                      | 382      | 383      | 1765      | 1492‡    | 382‡      | 383‡     | 1765‡     |         |  |
| 31                                               | 1     | Gasket *                                                  | 387                                                                       | 388      | 389      | 1797      | 387      | 388       | 389      | 1797      |         |  |
| 32                                               | 1     | Seat                                                      | 384DEL                                                                    | 385DEL   | 386      | 1771      | 384DEL   | 385DEL    | 386      | 1771      |         |  |
| 33                                               | 1     | Pivot Bolt                                                | 396                                                                       |          |          | 397       | 1781     | 396SS6    |          | 397SS6    | 1781SS6 |  |
| 34                                               | 1     | Ratio Plug                                                | 413SS6                                                                    | 414SS6   | 415SS6   | 1773      | 413SS6   | 414SS6    | 415SS6   | 1773SS6   |         |  |
| 35                                               | 1     | Seat *                                                    | 7502HSN                                                                   | 7503HSN  | 392      | 1793P     | 7502HSN  | 7503HSN   | 392      | 1793      |         |  |
| 36                                               | 1     | Seat Disc                                                 | 393KC                                                                     | 394KC    | 395      | 1770      | 393KC    | 394KC     | 395      | 1770      |         |  |
| 37                                               | 1     | Diaphragm *                                               | 421                                                                       | 422      | 423      | 1764      | 421      | 422       | 423      | 1764      |         |  |
| 38                                               | (QTY) | Nut                                                       | 241 (12)                                                                  | 241 (14) | 241 (16) | 101 (24)  | 241 (12) | 241 (14)  | 241 (16) | 101 (24)  |         |  |
| 39                                               | 1     | Bleed Valve                                               | YBF1                                                                      |          |          |           | YBF1-SS6 |           |          |           |         |  |
| 40                                               | 1     | Set Screw                                                 | 7608                                                                      |          |          |           | 7608     |           |          |           |         |  |
| 41                                               | 2     | Lifting Rings                                             | 7559                                                                      |          |          | ----      |          | 7559      |          |           | ----    |  |
| ‡ Coated Parts available with "E" shell material |       |                                                           |                                                                           |          |          |           |          |           |          |           |         |  |
| Repair Kits                                      |       |                                                           | REL                                                                       | REM      | REN      | REP       |          | REL       | REM      | REN       | REP     |  |
|                                                  |       |                                                           | * These parts are recommended spare parts and are stocked as repair kits. |          |          |           |          |           |          |           |         |  |
| Stuffing Box Replacement Kits                    |       |                                                           | RZL                                                                       | RZM      | ----     | ----      |          | RZL       | RZM      | ----      | ----    |  |
|                                                  |       |                                                           | ◇ These parts are stocked as Stuffing Box Replacement Kits.               |          |          |           |          |           |          |           |         |  |

# WEIGHT OPERATED DUMP VALVES

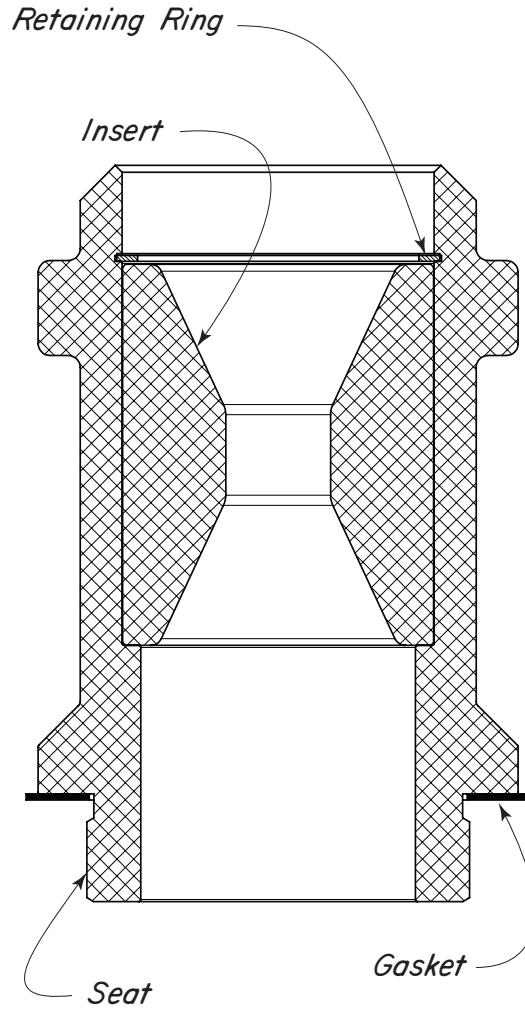
## ALTERNATE SEAT ASSEMBLIES

# KIMRAY<sup>®</sup>

### REMOVABLE HARD SEAT ASSEMBLY



### ORIFICE REDUCER SEAT ASSEMBLY



#### HARD SEATS AVAILABLE:

| CODE | LINE SIZE | SEAT    | SEAT MATERIAL | RETAINER | GASKET |
|------|-----------|---------|---------------|----------|--------|
| 384H | 2"        | 384HA   | 17-4          | 384HB    | 387    |
| 385H | 3"        | 385PH   | 17-4          | 385HB    | 388    |
|      | 3"        | 385ASS6 | 316 SS        | 385HB    | 388    |

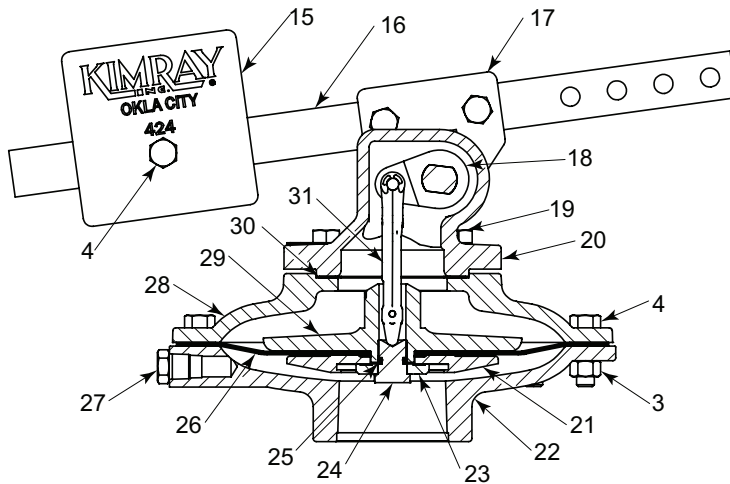
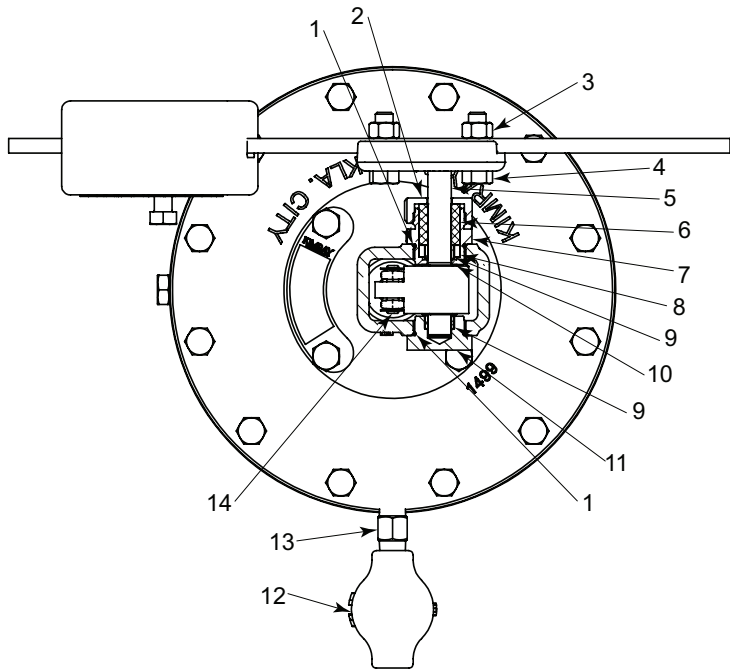
#### ORIFICE REDUCERS AVAILABLE:

| CODE    | LINE SIZE | INSERT  | RETAINING RING | SEAT     | GASKET |
|---------|-----------|---------|----------------|----------|--------|
| 7932DEL | 2"        | 7933DEL | 7936S6         | 7932DELK | 387    |
| 7934DEL | 3"        | 7935DEL | 7937S6         | 7934DELK | 388    |

#### NOTES:

For Cf & Cv values see technical data on page 05:1





| ITEM        | QTY. | DESCRIPTION                                               | PART NO. |        |
|-------------|------|-----------------------------------------------------------|----------|--------|
|             |      |                                                           | DMA      | DMAS6  |
| 1           | 2    | O-Ring *                                                  | 2131HSN  |        |
| 2           | 1    | Stuffing Box Nut                                          | 7917     |        |
| 3           | 14   | Nut                                                       | 241      |        |
| 4           | 15   | Bolt                                                      | 247      |        |
| 5           | 1    | Shaft                                                     | 7609     | 7609S6 |
| 6           | 1    | Bushing *                                                 | 7915     |        |
| 7           | 1    | Stuffing Box                                              | 7918     | 7918S6 |
| 8           | 1    | Packing Ring *                                            | 351      |        |
| 9           | 1    | Packing *                                                 | 7662     |        |
| 10          | 1    | Thrust Washer *                                           | 360      |        |
| 11          | 1    | Trunnion Plug                                             | 7522     | 7522S6 |
| 12          | 1    | Drip Pot                                                  | YAM      | YAMSS6 |
| 13          | 1    | Nipple                                                    | 648SS6   | 648SS6 |
| 14          | 1    | Link Pin w/ Snap Ring *<br>(kit includes Snap Rings only) | 316      | 316SS6 |
| 15          | 1    | Weight                                                    | 424      |        |
| 16          | 1    | Lever                                                     | 749      |        |
| 17          | 1    | Lever Hub                                                 | 7600     |        |
|             | 1    | Set Screw (Not Shown)                                     | 7608     |        |
| 18          | 1    | Trunnion Hub                                              | 7613S6   |        |
| 19          | 4    | Bolt                                                      | 380      |        |
| 20          | 1    | Bonnet                                                    | 295      |        |
| 21          | 1    | Seat Retaining Disc                                       | 393KC    | 393SS6 |
| 22          | 1    | Lower Housing                                             | 714      |        |
| 23          | 1    | Ratio Plug                                                | 413SS6   |        |
| 24          | 1    | Pivot Bolt                                                | 747      | 747SS6 |
| 25          | 1    | O-Ring *                                                  | 530      |        |
| 26          | 1    | Diaphragm *                                               | 421      |        |
| 27          | 1    | Plug                                                      | 699      | 699SS6 |
| 28          | 1    | Upper Housing                                             | 1499     |        |
| 29          | 1    | Diaphragm Plate                                           | 746      |        |
| 30          | 1    | Gasket *                                                  | 750      |        |
| 31          | 1    | Stem                                                      | 398      | 398SS6 |
| Repair Kits |      |                                                           | REW      |        |

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

| Standard Order Code | Description | Line Size | Connection Type | Oper. Press. psig | Max. W.P. psig <sup>††</sup> |
|---------------------|-------------|-----------|-----------------|-------------------|------------------------------|
| DMA                 | 26 DMV      | 2"        | NPT             | 0-125             | 125                          |
| DMAS6               | 26 DMV      | 2"        | NPT             | 0-125             | 125                          |

#### NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 05:I - 05:IV

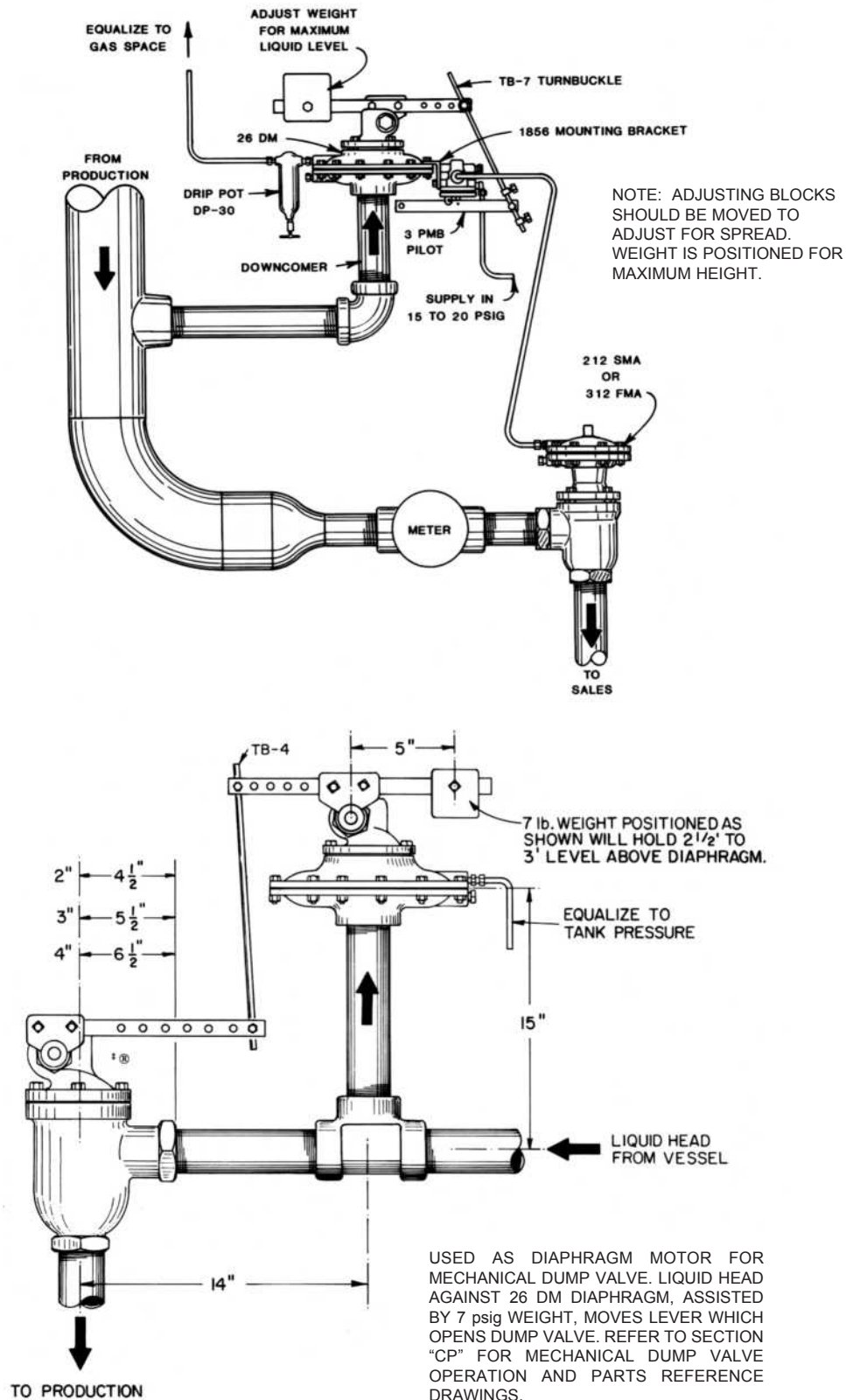
<sup>††</sup> Max W.P. values based on -20°F to 100°F.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

## WEIGHT OPERATED DUMP VALVES

### DIAPHRAGM BALANCED TRUNNION TYPICAL INSTALL

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All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

**Table 1 - Flow Coefficient(Cv) Weight Operated Dump Valve**

| Line Size | Trim Size in. (mm) | Cf   | Valve Opening Percentage |      |      |       |       |       |       |       |       |       |
|-----------|--------------------|------|--------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|           |                    |      | 10                       | 20   | 30   | 40    | 50    | 60    | 70    | 80    | 90    | 100   |
| 2"        | 2 in (50 mm)       | 0.75 | 0.6                      | 0.9  | 4.2  | 8.9   | 13.8  | 18.4  | 23.4  | 28.3  | 33.0  | 36.5  |
| 3"        | 3 in (76 mm)       | 0.75 | 0.7                      | 11.5 | 21.1 | 29.1  | 37.8  | 48.1  | 60.0  | 72.6  | 84.2  | 93.3  |
| 4"        | 4 in (100 mm)      | 0.75 | 1.4                      | 18.6 | 38.4 | 56.6  | 76.9  | 98.8  | 120.5 | 142.2 | 159.9 | 173.5 |
| 6"        | 6 in (152 mm)      | 0.75 | 1.5                      | 32.6 | 68.1 | 103.8 | 146.4 | 195.0 | 247.0 | 294.0 | 337.2 | 371.9 |

**Table 2 - Flow Coefficient(Cv) Reduced Orifice Weight Operated Dump Valve**

| Line Size | Orifice Reducer Size | Cf   | Valve Opening Percentage |      |      |      |      |      |      |      |      |      |
|-----------|----------------------|------|--------------------------|------|------|------|------|------|------|------|------|------|
|           |                      |      | 10                       | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
| 2"        | 1/2"                 | 0.75 | ----                     | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 10.7 |
| 3"        | 1/2"                 | 0.75 | ----                     | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 11.0 |

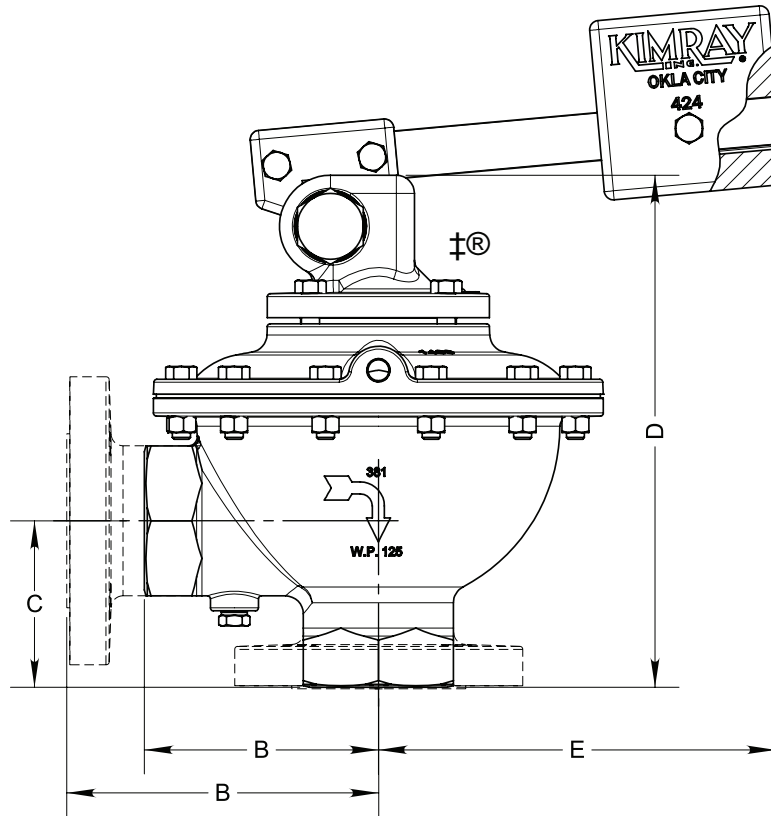
Kimray flow equations conform to ANSI/ISA - 75.01.01-2002

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

# WEIGHT OPERATED DUMP VALVES

DIMENSIONS  
MODEL LD

# KIMRAY INC.®



**Table 2 - Dimensions**

|    | End Connection | A                      | B                      | C                     | D                      | E                      | Approx. Weight       |
|----|----------------|------------------------|------------------------|-----------------------|------------------------|------------------------|----------------------|
| 2" | NPT            | 9 3/8 in.<br>(238 mm)  | 4 7/8 in.<br>(123 mm)  | 3 1/2 in.<br>(88 mm)  | 10 5/8 in.<br>(269 mm) | 8 1/2 in.<br>(215 mm)  | 46 lbs<br>(20.8 kg)  |
|    | 150RF          | 9 3/8 in.<br>(238 mm)  | 6 1/2 in.<br>(165 mm)  | 3 1/2 in.<br>(88 mm)  | 10 5/8 in.<br>(269 mm) | 8 1/2 in.<br>(215 mm)  |                      |
|    | 150RF          | 11 3/4 in.<br>(298 mm) | 8.00 in.<br>(203 mm)   | 4 1/4 in.<br>(107 mm) | 13 1/2 in.<br>(342 mm) | 13.00 in.<br>(330 mm)  | 90 lbs<br>(40.8 kg)  |
|    | 150RF          | 13.00 in.<br>(330 mm)  | 9.00 in.<br>(228 mm)   | 4 3/4 in.<br>(120 mm) | 14 5/8 in.<br>(371 mm) | 13.00 in.<br>(330 mm)  | 132 lbs<br>(59.8 kg) |
|    | 150RF          | 18 5/8 in.<br>(473 mm) | 12 1/4 in.<br>(311 mm) | 6 3/4 in.<br>(95 mm)  | 21 1/2 in.<br>(317 mm) | 12 1/2 in.<br>(317 mm) | 375 lbs<br>(170 kg)  |

**Table 3 - Seal Options**

| Part      | Standard Material | Optional Material |
|-----------|-------------------|-------------------|
| Diaphragm | Nitrile           | FKM               |
| Soft Seat | HSN               | FKM               |
| O-Ring    | HSN               | FKM               |

**Table 4 - Seal Specifications**

| Table 4 - Seal Specifications                |                  |                |                          |                |
|----------------------------------------------|------------------|----------------|--------------------------|----------------|
|                                              |                  | NITRILE        | HIGHLY SATURATED NITRILE | FKM            |
| Kimray Suffix                                |                  | -              | HSN                      | V              |
| Resistance                                   | Abrasion         | G              | G-E                      | G              |
|                                              | Acid             | F              | G-E                      | G-E            |
|                                              | Chemical         | F              | F                        | E              |
|                                              | Cold             | G              | G                        | P              |
|                                              | Flame            | P              | P                        | E              |
|                                              | Heat             | G              | E                        | E              |
|                                              | Oil              | G-E            | E                        | E              |
|                                              | Ozone            | P              | G                        | G-E            |
|                                              | Set              | G              | G                        | G-E            |
|                                              | Tear             | F              | F                        | F              |
|                                              | Water/Steam      | F              | E                        | P              |
|                                              | Weather          | F              | G                        | E              |
|                                              | CO2              | F-G            | G                        | G              |
|                                              | H2S              | P              | F                        | P              |
|                                              | Methanol         | F              | E                        | P              |
| Properties                                   | Dynamic          | G              | G                        | G              |
|                                              | Electrical       | F              | F                        | F              |
|                                              | Impermeability   | G              | G                        | G              |
|                                              | Tensile Strength | G              | G-E                      | G              |
|                                              | Temp. Range      | -20° to +250°F | -20° to +300°F           | -15° to +400°F |
| -29° to +121°C                               |                  | -29° to +149°C | -26° to +204°C           |                |
| RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT |                  |                |                          |                |

**Table 5 - Materials Options**

| Table 5 - Materials Options |                        |                           |
|-----------------------------|------------------------|---------------------------|
| Part Description            | Standard Material      | Corrosive Material        |
| Body                        | Ductile (ASTM A395)    | WCB (ASTM A216) + Kimcoat |
| Bonnet                      | Ductile (ASTM A395)    | WCB (ASTM A216) + Kimcoat |
| Housing                     | Ductile (ASTM A395)    | WCB (ASTM A216) + Kimcoat |
| Removable Seat              | 2" & 3"                | Delrin (ASTM D4181)       |
|                             | 4" & 6"                | Ductile (ASTM A395)       |
| Packing Box                 | Brass B-16 C-36000 HO2 | 316SS (ASTM A479)         |

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