Western Water Constructors, Inc.
license no. 188068

# Submittal Cover

Job no. 16-05

| | | | |
|---|---|---|---|
| **CONTRACT NAME:** | Manteca WQCF Digester Improvements | **SUB #:** | 293 |
| **SPEC SECTION:** | 15114 Check Valves | **REV #:** | 0 |
| **SUBMITTAL TITLE:** | DI Swing Check Valves – O&M | **CODE:** | 15114-06 |
| **FILE NAME:** | 293-R0_15114-06_DI Swing Check Valves-OM | **DATE:** | 3/7/2018 |

**WWC REVIEW/COMMENTS:** ☒ **NO EXCEPTIONS** ☐ **EXCEPTIONS / DEVIATIONS AS NOTED**

**REVIEWED BY:** ST **SIGNED:**

***WWC HAS REVIEWED THIS SUBMITTAL FOR CONFORMANCE WITH THE PROJECT PLANS & SPECIFICATIONS.***

**OWNER REVIEW:**

| ITEM | DESCRIPTION | REVIEW STATUS | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 1 | DI Swing Check Valves – O&M | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5 | | ☐ | ☐ | ☐ | ☐ | ☐ |

**LEGEND:** **A =** No Exceptions Taken **B =** Make Correction Noted **C =** Correct & Resubmit
**D =** Rejected **E** = Accepted for Record

**OWNER COMMENTS:**

**REVIEWER'S NAME:** _____

**REVIEWER'S SIGNATURE:** _____ **DATE:** _____

707 Aviation Blvd
Santa Rosa, CA 95403

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general engineering contractors

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f 707.540.9641

# MILLIKEN VALVE

## OPERATION AND MAINTENANCE MANUAL

**Submittal Date:** February 22, 2018

**Manufacturer:**
Milliken Valve
401 S. Highland Ave.
Aurora, IL 60506
PH: (877) 655-6858
Fax: (630) 844-4160

**Name and Address of Local Sales Representative:**
Southwest Valve, LLC.
402 W. Bedford #111
Fresno, CA 93711
Phone: 559-261-2703
Fax: 559-261-2711

**Project Name: Manteca WWQF Digester Improvements - Manteca, CA**

**Product:** **Swing Cehck Valves**

**Milliken SO #:** 2226531 ML

# TABLE OF CONTENTS

## Milliken Order Number: 2226531 ML

## Check Valves

# Equipment Record

# LIST OF EQUIPMENT

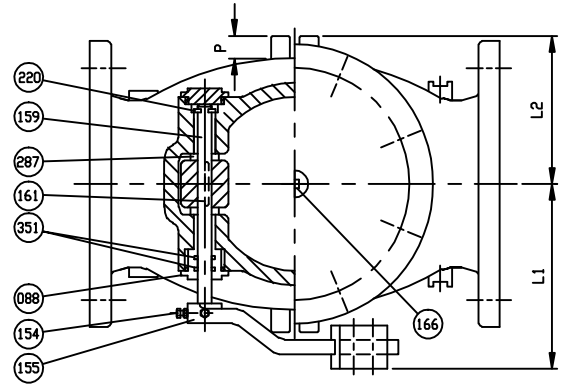
## Milliken Order No.: 2226531 ML

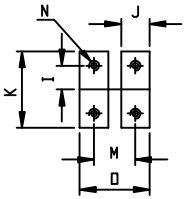
| ITEM | TAG | QTY | EQUIPMENT DESCRIPTION | DRAWING REFERENCE |
|---|---|---|---|---|
| 3.0 | SP-VFSCVP | 2 | 4" 8001A FLANGED SWING CHECK VALVE, SINGLE LEVER & WEIGHT | G.A.: S80001 |
| 5.0 | SP-VFSCVX | 4 | 8" 8001A FLANGED SWING CHECK VALVE, SINGLE LEVER & WEIGHT | G.A.: S80001 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**A.D. Assembly Drawing** **A.D.S. Actuator Data Sheet** **C.C. Catalog Cuts**
**C.S. Cross Section Drawing** **D.D. Dimensional Drawing** **E.P.C. Electrical Pneumatic Connections**
**G.A. General Arrangement**

SUPPLIED WITH 8 MILS AMERLOCK 2 RED OXIDE EPOXY INTERIOR AND EXTERIOR OF THE VALVE

REFERENCE ONLY



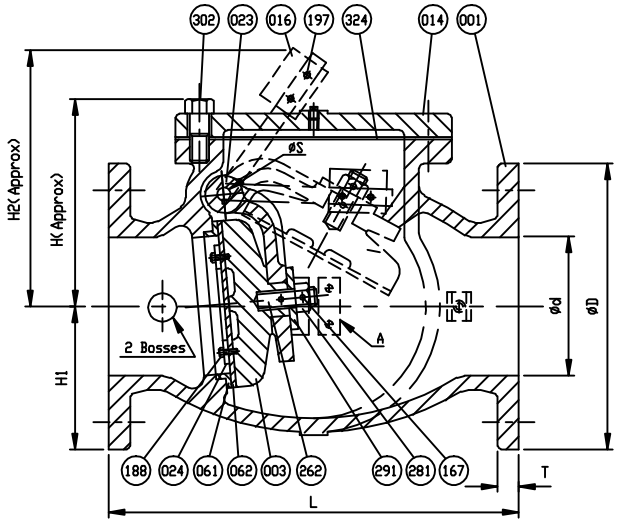

Detail A

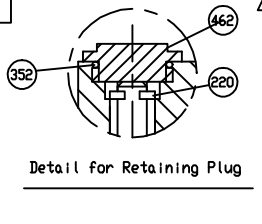
MARKING

SIZE (INCH)
CCNE
200 CWP
AWWA C508
SERIES 8000

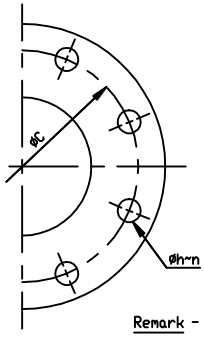
SCI
YEAR
POURING DATE

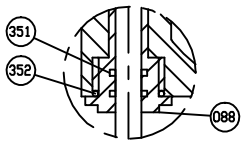
| COVER BOLTS/NUTS | |
|---|---|
| TYPE | MATERIAL |
| STANDARD | STEEL/ZINC |
| S1 | 304 STN. STEEL |
| S3 | 316 STN. STEEL |




Detail for Retaining Plug




Detail for Seat Nut

Remark - Part No. 024 (Seat Holder)
- size 2"-6" => Cast Iron
- size 8"-12" => Ductile Iron

| NO. | PARTS | MATERIAL | ASTM. DESIGNATION. | Q'TY |
|---|---|---|---|---|
| 462 | Retaining Plug | Brass | B 21 | 1 |
| 352 | O-Ring C | Rubber (Buna N) | D 2000 BK 707 | 2 |
| 351 | O-Ring B | Rubber (Buna N) | D 2000 BK 707 | 2 |
| 324 | Gasket | Rubber (Buna N) | D 2000 BK 807 | 1 |
| 302 | Cover Bolt | See Cover Bolt Table | | 1 set |
| 291 | Washer | Brass | B 21 | 1 |
| 287 | Spacer | Brass | B 21 | 2 |
| 281 | Disc Nut | Brass | B 21 | 1 |
| 262 | Disc Stud | Brass | B 21 | 1 |
| 220 | Snap Ring | Stainless Steel | A 276 Type 420 | 1 |
| 197 | Weight Bolt & Nut | Zinc Coated Steel | A 307 Grade B | 2 |
| 188 | Disc Seat Bolt | Stainless Steel | A 276 Type 304 | 1 set |
| 167 | Pin | Stainless Steel | A 276 Type 304 | 2 |
| 166 | Plug | Stainless Steel | A 276 Type 304 | 1 |
| 161 | Key | Stainless Steel | A 276 Type 304 | 1 |
| 159 | Hinge Pin | Stainless Steel | A 276 Type 304 | 1 |
| 155 | Weight Arm | Ductile Iron | A 536 Gr. 65-45-12 | 1 |
| 154 | Bolt & Nut | Zinc Coated Steel | A 307 Grade B | 2 |
| 088 | Seat Nut | Brass | B 21 | 1 |
| 062 | Disc Seat Ring | Rubber (Buna N) | D 2000 BK 807 | 1 |
| 061 | Body Seat Ring | Bronze | B 62 | 1 |
| 024 | Seat Holder | See Remark | ——— | 1 |
| 023 | Arm | Ductile Iron | A 536 Gr. 65-45-12 | 1 |
| 016 | Weight | Cast Iron | A 126 Class B | 1 |
| 014 | Cover | Cast Iron | A 126 Class B | 1 |
| 003 | Disc | Cast Iron | A 126 Class B | 1 |
| 001 | Body | Cast Iron | A 126 Class B | 1 |

MATERIAL LIST

| | | |
|---|---|---|
| HYDRO SHELL | 400 | PSI. |
| HYDRO VALVE SEAT | 200 | PSI. |
| HYDRO BACK SEAT | — | PSI. |
| AIR SEAT | — | PSI. |
| STEAM | — | PSI. |
| TEST PRESSURE | | |
| WORKING PRESSURE | 200 | PSI. |

| SIZE ød in. | SIZE ød mm. | L | ANSI B16.1 CL.125 øD | øC | øh | n | T | øS | H | H1 | H2 | I | J | K | M | N | D | P | L1 | L2 | PLUG SIZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | (50) | 8 | 6 | 4 3/4 | 3/4 | 4 | 5/8 | 3/8 | 4 15/16 | 3 | 7 1/2 | 7/16 | 7/8 | 1 11/16 | — | 5/16x18v(UNC) | — | 3/8 | 5 1/8 | 2 13/16 | 1/2 |
| 2 1/2 | (65) | 8 1/2 | 7 | 5 1/2 | 3/4 | 4 | 11/16 | 3/8 | 5 11/16 | 3 1/2 | 8 1/8 | 7/16 | 7/8 | 1 11/16 | — | 5/16x18v(UNC) | — | 3/8 | 5 1/8 | 3 9/16 | 1/2 |
| 3 | (80) | 9 1/2 | 7 1/2 | 6 | 3/4 | 4 | 3/4 | 1/2 | 6 1/16 | 3 3/4 | 9 1/4 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 6 5/16 | 4 1/16 | 1/2 |
| 4 | (100) | 11 1/2 | 9 | 7 1/2 | 3/4 | 8 | 15/16 | 1/2 | 6 7/8 | 4 1/2 | 11 13/16 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 7 1/8 | 4 15/16 | 1/2 |
| 6 | (150) | 14 | 11 | 9 1/2 | 7/8 | 8 | 1 | 3/4 | 8 1/2 | 5 1/2 | 14 3/8 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 8 11/16 | 5 15/16 | 3/4 |
| 8 | (200) | 19 1/2 | 13 1/2 | 11 3/4 | 7/8 | 8 | 1 1/8 | 7/8 | 9 15/16 | 6 3/4 | 17 3/8 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 10 7/8 | 8 1/16 | 3/4 |
| 10 | (250) | 24 1/2 | 16 | 14 1/4 | 1 | 12 | 1 3/16 | 1 | 11 3/16 | 8 | 21 1/2 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 12 1/4 | 9 3/16 | 1 |
| 12 | (300) | 27 1/2 | 19 | 17 | 1 | 12 | 1 1/4 | 1 1/8 | 13 9/16 | 9 1/2 | 24 1/16 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 14 3/8 | 10 13/16 | 1 |

MILLIKEN - CCNE

190 BRODHEAD RD. BETHLEHEM, PA 18017 PHONE: 610-861-8803, FAX: 610-861-8094

| SCALE | DR. | DATE | REF. DWG. |
|---|---|---|---|
| N.T.S. | JON COLPAN | 10/20/10 | USA1361D |
| | CHK. APP. | E.C.N. | |

TITLE

SIZE 2" TO 12" SWING CHECK VALVE AWWA C508
BRONZE BODY SEAT RING & BUNA N DISC SEAT RING
WITH ONE LEVER AND WEIGHT

| TYPE: | DWG NO. | REV. |
|---|---|---|
| 8001AB1LW | S80001 | 3 |

DS01 ISSUED - 240640 REVISED -

REVISION 1, CHANGED ITEM 166 MTRL. TYPE FROM MALLEABLE IRON A47 TO, UJC, 03/08/11, ECR# 456
REVISION 2, ADDED ITEM 220 SNAP RING MATERIAL TYPE, UJC, 04/04/11, ECR# 491
REVISION 3, ADDED COVER BOLT TABLE, AA, 04/16/2014

LINES 3.0 , 5.0

# Check Valve

# EQUIPMENT SUMMARY FORM

1. EQUIPMENT ITEM 4" 8001A FLANGED SWING CHECK VALVE - LEVER & WEIGHT

2. MANUFACTURER Milliken Valve Co. 401 S. Highland Avenue Aurora, IL 60506 630-844-4000

3. EQUIPMENT IDENTIFICATION NUMBER(S) SP-VFSCVP
(maps equipment number)

4. LOCATION OF EQUIPMENT None Provided

5. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS) 116#

6. NAMEPLATE DATA - Horsepower Not Applicable
Amperage
Voltage
Service Factor (S.F.)
Speed
ENC Type
Capacity
Other

MANFACTURER'S LOCAL REPRESENTATIVE:

Name Southwest Valve, LLC. Address 402 W. Bedford #111 Fresno, CA 93711

Telephone Number 559-261-2703

8. MAINTENANCE REQUIREMENTS At minimum semi-annual inspections are recommended.

Points of inspection should be at a minimum: All end joints, cover joints and packing boxes for leakage.

Tighten bolts appropriately. Inspect valve during operations. Orings -Check packing box for leakage.

9. LUBRICANT LIST None Required

10. SPARE PARTS (recommendations) None Recommended

11. COMMENTS

# EQUIPMENT SUMMARY FORM

1. EQUIPMENT ITEM 8" 8001A FLANGED SWING CHECK VALVE - LEVER & WEIGHT

2. MANUFACTURER Milliken Valve Co. 401 S. Highland Avenue Aurora, IL 60506 630-844-4000

3. EQUIPMENT IDENTIFICATION NUMBER(S) SP-VFSCVX
(maps equipment number)

4. LOCATION OF EQUIPMENT None Provided

5. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS) 282#

6. NAMEPLATE DATA - Horsepower Not Applicable
Amperage
Voltage
Service Factor (S.F.)
Speed
ENC Type
Capacity
Other

MANFACTURER'S LOCAL REPRESENTATIVE:

Name Southwest Valve, LLC. Address 402 W. Bedford #111 Fresno, CA 93711

Telephone Number 559-261-2703

8. MAINTENANCE REQUIREMENTS At minimum semi-annual inspections are recommended.

Points of inspection should be at a minimum: All end joints, cover joints and packing boxes for leakage.

Tighten bolts appropriately. Inspect valve during operations. Orings -Check packing box for leakage.

9. LUBRICANT LIST None Required

10. SPARE PARTS (recommendations) None Recommended

11. COMMENTS

January 2014

# Operation and Maintenance Manual Series 8000A


**Milliken Valve**
**401 S. Highland Ave**
**Aurora, IL 60506**
**Phone: (877) 655-6858**
**Fax: (630) 844-4160**
**Website: www.millikenvalve.com**

# Operations & Maintenance

## Description

Series 8000 swing check valves are of self-contained, free-swinging disc style with outside lever and weight or outside lever and spring. Valves conform to all standards set forth in AWWA C508. Suitable for use in wastewater, water, sewage, oil, and gas applications. Valves are produced in cast iron body, bronze or stainless steel seat rings, Buna-N or EPDM disc inserts, and hinge pins of corrosion resistant stainless steel. Internal and external epoxy coating conforming to AWWA C550 is a standard. Valves are designed for horizontal or vertical installations and for uninterrupted continuous service.

# Operations & Maintenance

## Theory of Operation

The Milliken/CCNE check valve is a non-return valve that allows the fluid to pass through the disc, but will not allow it to return because the disc closes and stops the flow.

This valve requires approximately ½ psi to open. The valve can be equipped with weight on the arm or a spring.

# Operations & Maintenance

## Pre Start-Up Check

All valves should be inspected at time of delivery for shipping damage and to confirm compliance with specifications. Whenever possible, the valves and all apparatus should be protected from the weather. Water and debris should not collect in the valve. Note; these instructions are guidelines for use by experienced piping and mechanical personnel.

# Operations & Maintenance

## Safety

Valves are to be handled by experienced installers. They should never be used as structural members and should be appropriately rigged for lifting. Valves are heavy and include various accessories, which should be handled with caution.

TOOLS AND EQUIPMENT NEEDED:

STANDARD BOX WRENCHES
PIN DRIVERS
BALL PEEN HAMMER
RIGGING EQUIPMENT
PACKING PULLER
PACKING CUTTER
CHAIN HOIST

# Operations & Maintenance

## Storage

Store valves closed. Store on end flange or in the horizontal position. They should be stored inside or covered away from weather. If valves must be stored outside, protect them from weather. Valves on jobsites should be protected to avoid physical damage from heavy equipment or tools.

Outside lever and spring components should be protected to avoid inadvertent contact.

Make sure valves are kept drained of water in freezing weather to prevent cracking of iron parts. All coatings shall be protected to avoid damage from handling, weather, and light rays.

# Operations & Maintenance

## Installation Instructions

A) Check that valve end joints conform to the mating pipe and verify that ends are clean and sound. All 8001 series valves are supplied with flat faced flanges with ANSI class 125 drilling. Do not mate these valves to pipe or fittings with raised face flanges.

B) Remove any material used to restrain the flow control device, lever or pin during shipment and storage. Attach any outside closing mechanism in proper position manually.

C) The flow control device and closing mechanism should be checked to insure freedom of motion and proper operation. Cover bolts shall be checked for any loose joints.

D) When handling the valve, do not use the outside mechanisms for lifting.

E) It is necessary to install the valve in proper orientation with regard to flow direction. Please note flow arrow on side of body.

F) Prepare pipe ends per pipe manufacturers instruction and install valve as per appropriate instructions for the specific joint. All piping should be properly supported to avoid line stress on the valve. Do not use valves as a jack to force a pipeline in position.

G) Standard wrenches and/or sockets are to be used to tighten all nuts and bolts. Fasteners are to be tightened in a star pattern to insure balance loading of bolts.

# Operations & Maintenance

## Maintenance Instructions

The system is designed to be trouble free with minimum care. Frequency of inspection should be based on the operational characteristics of the system i.e. systems of high cycles should be inspected frequently.

At a minimum, semi-annual inspections are recommended, points of inspection should be at a minimum:

1) All end joints, cover joints, and packing boxes should be inspected for leakage.

2) Bolts should be checked for tightness, a torque of 90 foot pounds is recommended for gasketed joints.

3) Inspection of the valve during operations is recommended so that the outside linkages can be inspected for proper operation.

4) Inspection of the packing box is required to assure no leakage is evident. If leakage exists, replace o rings (part 351). Do not tighten end plug to stop leak. Caution: o rings should not be changed or added in an active valve. Valve should be isolated to prevent injury or damage to valve and operator.

5) Inspection of interior of valve is not necessary unless improper operation is witnessed or leakage beyond the allowable rate is experienced. The interior of the valve and the internal components can be inspected by removing the valve cover. Cover gasket should be replaced any time this joint is broken. Never re-installed a used cover gasket.

# Operations & Maintenance

## Operating Instructions

## (includes start up, normal shutdown, and emergency shutdown)

Once in the pipeline, the swing check valve will start up and operate as flow conditions dictate. The valve will open as the pressure on the upstream side of the disc overcomes the downstream side. The valve will close as the situation reverses itself or the pressure equalizes.

Normal shutdown will be determined by how quickly the forward flow is arrested.

In emergency shutdown, when the pumps are immediately stopped, the valve will immediately close.

These valves are self contained units. Outside levers, weights, springs, or hinge pins should never be used to manually operate the valve or restrict its operation.

External shields and surrounding piping should not interfere with the free operation of external apparatus of the valves.

# Operations & Maintenance

## Trouble Shooting

| POSSIBLE MALFUNCTION | SYMPTOMS/ CAUSE | CORRECTIVE ACTION |
|---|---|---|
| End Joint Leakage | Tension on bolts relaxed | Tighten bolts in Star pattern |
| Cover Gasket Leakage | Relaxed Cover bolts tension | Tighten Bolts in Star Pattern. Should leakage Continue, replace Gasket |
| Valve Slams While Closing | Weight needs adjustment | Adjust weight location/ Addition of spring kit req'd |
| Seat Leakage | Seats Dirty | Remove valve top Cover and flush |
| | Disc Seat Damaged | Replace Buna-N Insert or Replace Disc |
| Leak by Hinge Pin | Cracked or Broken O Rings | Replace O Rings |

# Operations & Maintenance

## Lubrication

Under normal operation, lubrication is not required to maintain proper operation of components or assembled units.

# Operations & Maintenance

## Series 8001 Recommended Spare Parts

**SIZES 2”-16”**

| PART | MATERIAL | QTY PER VALVE | PART # |
|---|---|---|---|
| COVER GASKET | BUNA-N | 1 | 80-324 |
| O RINGS KIT* | BUNA–N | 1 | 80-351/352-KIT |

**SIZES 18”-36”**

| PART | MATERIAL | QTY PER VALVE | PART # |
|---|---|---|---|
| COVER GASKET | NON ASBESTOS | 1 | 80-327 |
| O RING KIT** | BUNA–N | 1 | 80-351/352-KIT |

*Includes (2) internal and (2) external O rings
**Includes (2) internal O rings

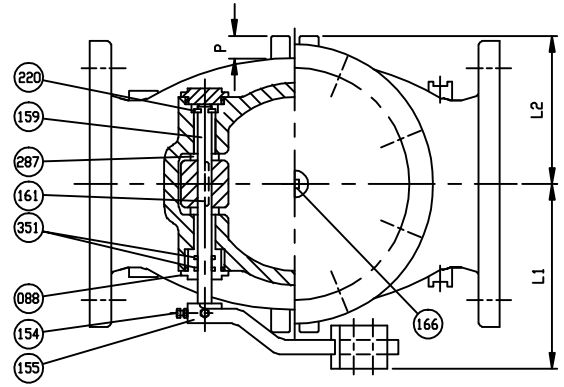
## PREDICTED LIFE OF SPARE PARTS

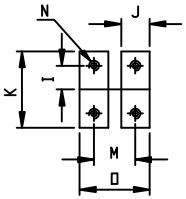
The life of the “O” ring kits is based on opening and closing a maximum of 6 times per day x 365 days per year and should last a minimum of five (5) years.

The gasket is a long life item, and should only need to be replaced if the valve is repeatedly disassembled, or if the gasket is damaged.

SUPPLIED WITH 8 MILS AMERLOCK 2 RED OXIDE EPOXY INTERIOR AND EXTERIOR OF THE VALVE

REFERENCE ONLY



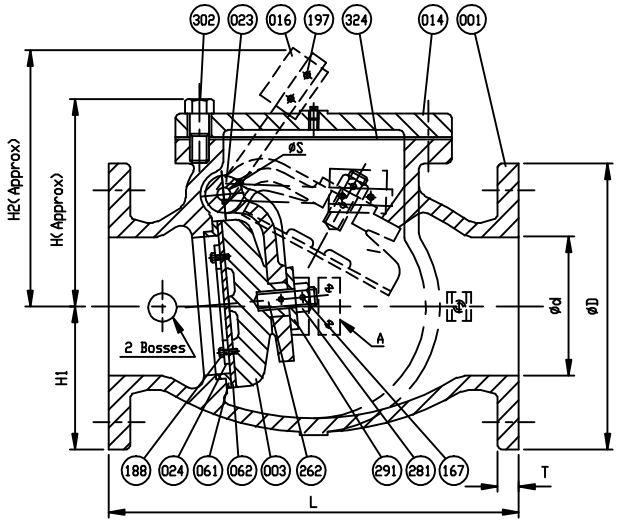

Detail A

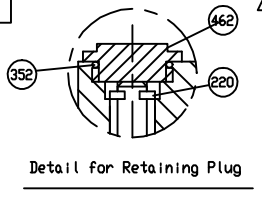
MARKING

SIZE (INCH)
CCNE
200 CWP
AWWA C508
SERIES 8000

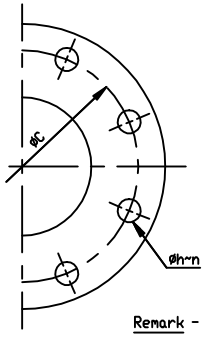
SCI
YEAR
POURING DATE

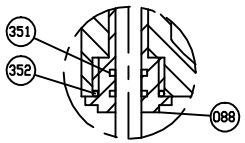
| COVER BOLTS/NUTS | |
|---|---|
| TYPE | MATERIAL |
| STANDARD | STEEL/ZINC |
| S1 | 304 STN. STEEL |
| S3 | 316 STN. STEEL |




Detail for Retaining Plug




Detail for Seat Nut

Remark - Part No. 024 (Seat Holder)
- size 2"-6" => Cast Iron
- size 8"-12" => Ductile Iron

| NO. | PARTS | MATERIAL | ASTM. DESIGNATION. | Q'TY |
|---|---|---|---|---|
| 462 | Retaining Plug | Brass | B 21 | 1 |
| 352 | O-Ring C | Rubber (Buna N) | D 2000 BK 707 | 2 |
| 351 | O-Ring B | Rubber (Buna N) | D 2000 BK 707 | 2 |
| 324 | Gasket | Rubber (Buna N) | D 2000 BK 807 | 1 |
| 302 | Cover Bolt | See Cover Bolt Table | | 1 set |
| 291 | Washer | Brass | B 21 | 1 |
| 287 | Spacer | Brass | B 21 | 2 |
| 281 | Disc Nut | Brass | B 21 | 1 |
| 262 | Disc Stud | Brass | B 21 | 1 |
| 220 | Snap Ring | Stainless Steel | A 276 Type 420 | 1 |
| 197 | Weight Bolt & Nut | Zinc Coated Steel | A 307 Grade B | 2 |
| 188 | Disc Seat Bolt | Stainless Steel | A 276 Type 304 | 1 set |
| 167 | Pin | Stainless Steel | A 276 Type 304 | 2 |
| 166 | Plug | Stainless Steel | A 276 Type 304 | 1 |
| 161 | Key | Stainless Steel | A 276 Type 304 | 1 |
| 159 | Hinge Pin | Stainless Steel | A 276 Type 304 | 1 |
| 155 | Weight Arm | Ductile Iron | A 536 Gr. 65-45-12 | 1 |
| 154 | Bolt & Nut | Zinc Coated Steel | A 307 Grade B | 2 |
| 088 | Seat Nut | Brass | B 21 | 1 |
| 062 | Disc Seat Ring | Rubber (Buna N) | D 2000 BK 807 | 1 |
| 061 | Body Seat Ring | Bronze | B 62 | 1 |
| 024 | Seat Holder | See Remark | ——— | 1 |
| 023 | Arm | Ductile Iron | A 536 Gr. 65-45-12 | 1 |
| 016 | Weight | Cast Iron | A 126 Class B | 1 |
| 014 | Cover | Cast Iron | A 126 Class B | 1 |
| 003 | Disc | Cast Iron | A 126 Class B | 1 |
| 001 | Body | Cast Iron | A 126 Class B | 1 |

MATERIAL LIST

| | | |
|---|---|---|
| HYDRO SHELL | 400 | PSI. |
| HYDRO VALVE SEAT | 200 | PSI. |
| HYDRO BACK SEAT | — | PSI. |
| AIR SEAT | — | PSI. |
| STEAM | — | PSI. |
| TEST PRESSURE | | |
| WORKING PRESSURE | 200 | PSI. |

| SIZE ød in. | SIZE ød mm. | L | ANSI B16.1 CL.125 øD | øC | øh | n | T | øS | H | H1 | H2 | I | J | K | M | N | D | P | L1 | L2 | PLUG SIZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | (50) | 8 | 6 | 4 3/4 | 3/4 | 4 | 5/8 | 3/8 | 4 15/16 | 3 | 7 1/2 | 7/16 | 7/8 | 1 11/16 | — | 5/16x18v(UNC) | — | 3/8 | 5 1/8 | 2 13/16 | 1/2 |
| 2 1/2 | (65) | 8 1/2 | 7 | 5 1/2 | 3/4 | 4 | 11/16 | 3/8 | 5 11/16 | 3 1/2 | 8 1/8 | 7/16 | 7/8 | 1 11/16 | — | 5/16x18v(UNC) | — | 3/8 | 5 1/8 | 3 9/16 | 1/2 |
| 3 | (80) | 9 1/2 | 7 1/2 | 6 | 3/4 | 4 | 3/4 | 1/2 | 6 1/16 | 3 3/4 | 9 1/4 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 6 5/16 | 4 1/16 | 1/2 |
| 4 | (100) | 11 1/2 | 9 | 7 1/2 | 3/4 | 8 | 15/16 | 1/2 | 6 7/8 | 4 1/2 | 11 13/16 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 7 1/8 | 4 15/16 | 1/2 |
| 6 | (150) | 14 | 11 | 9 1/2 | 7/8 | 8 | 1 | 3/4 | 8 1/2 | 5 1/2 | 14 3/8 | 3/4 | 1 1/2 | 3 | 2 1/2 | 1/2x13v(UNC) | 4 | 3/4 | 8 11/16 | 5 15/16 | 3/4 |
| 8 | (200) | 19 1/2 | 13 1/2 | 11 3/4 | 7/8 | 8 | 1 1/8 | 7/8 | 9 15/16 | 6 3/4 | 17 3/8 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 10 7/8 | 8 1/16 | 3/4 |
| 10 | (250) | 24 1/2 | 16 | 14 1/4 | 1 | 12 | 1 3/16 | 1 | 11 3/16 | 8 | 21 1/2 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 12 1/4 | 9 3/16 | 1 |
| 12 | (300) | 27 1/2 | 19 | 17 | 1 | 12 | 1 1/4 | 1 1/8 | 13 9/16 | 9 1/2 | 24 1/16 | 7/8 | 1 3/4 | 3 1/2 | 3 1/4 | 5/8x11v(UNC) | 5 | 1 1/4 | 14 3/8 | 10 13/16 | 1 |

MILLIKEN - CCNE

190 BRODHEAD RD. BETHLEHEM, PA 18017 PHONE: 610-861-8803, FAX: 610-861-8094

| SCALE | DR. | DATE | REF. DWG. |
|---|---|---|---|
| N.T.S. | JON COLPAN | 10/20/10 | USA1361D |
| | CHK. APP. | E.C.N. | |

TITLE

SIZE 2" TO 12" SWING CHECK VALVE AWWA C508
BRONZE BODY SEAT RING & BUNA N DISC SEAT RING
WITH ONE LEVER AND WEIGHT

| TYPE: | DWG NO. | REV. |
|---|---|---|
| 8001AB1LW | S80001 | 3 |

DS01 ISSUED - 240640 REVISED -

REVISION 1, CHANGED ITEM 166 MTRL. TYPE FROM MALLEABLE IRON A47 TO, UJC, 03/08/11, ECR# 456
REVISION 2, ADDED ITEM 220 SNAP RING MATERIAL TYPE, UJC, 04/04/11, ECR# 491
REVISION 3, ADDED COVER BOLT TABLE, AA, 04/16/2014

LINES 3.0 , 5.0

401 S. HIGHLAND AVENUE, AURORA, IL 60506
TEL: (630) 844-4000 FAX: (630) 844-4160

**Purchase Order #:** LOI-Manteca CA
**Sales Order #:** 2226531ML
**Proposal/Quote #:** Q-017-17005
**Project Name:** WQCF Digester Improvements 20
**Project Location:** Manteca, CA
**Date:** August 8, 2017
**Revision:** 1

# MATERIAL WARRANTY

Seller warrants that, at its option, it will repair, replace, or refund the unit purchase price of any products which are non-conforming due to Seller's material or workmanship during the warranty period.

The warranty period shall be twelve (12) months for parts and eighteen (18) months for all other goods after date of shipment. This shall be Buyer's sole remedy.

In order to maintain this product warranty, Buyer must give written notice to Seller's Field Service Supervisor prior to any work being performed. In no event shall warranty include the cost of valve removal or reinstallation.

**IN CONSIDERATION OF THE FOREGOING, SELLER EXCLUDES ALL OTHER EXPRESS OR IMPLIED WARRANTIES INCLUDING BUT NOT LIMITED TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

Seller does not warrant water-operated metallic cylinders against damage caused by corrosion, electrolysis or mineral deposits.

In no event shall warranty include valve removal or reinstallation.