

**PRODUCT DATA SHEET FOR 1/2 INCH MODEL 175 GATE VALVE
WITH HYDRAULIC ACTUATOR AND MANUAL ROTARY OVERRIDE**

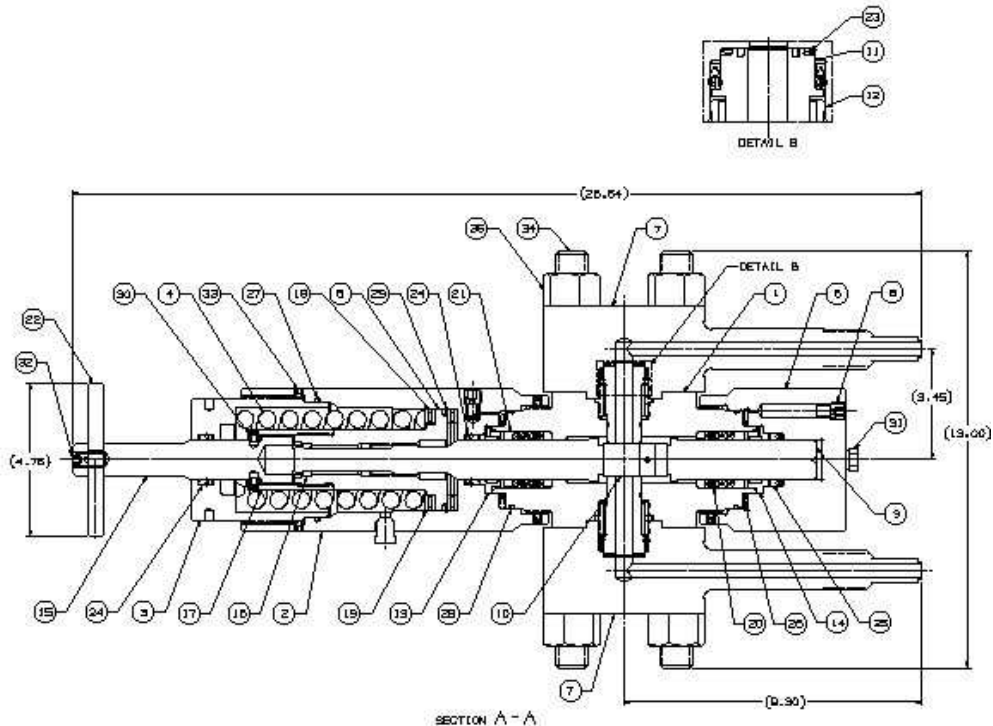
Rev	ECN No.	Date	Reviewed By	Approved By	Status
B	1084781	21-Aug-02	Hernandez, Phil	Smith, Archie	RELEASED

Summary:

The new ½ 17.5K Model 175 Gate Valve with Hydraulic Actuator and Manual Rotary Override, rated up to 17,500 working pressure and 10,000 ft subsea depth with a temperature range of 0 deg F to 250 deg F is designed to replace the older Model 140 and 150 gate valves. The Model 175 pressure rating and size is not in API Spec 6A so these valves cannot be monogrammed. All the design criteria for these valves, however, are in full compliance with the design criteria established in API 6A. The Model 175 Gate Valve will provide the customers, mainly Subsea, with a compact, rugged, more economical and reliable gate valve that will eventually replace the current Model 140 and Model 150. Usage for the valve is the same as for the older models but with deeper subsea depth capabilities and higher pressure rating.

Product Data Sheet – PDS100004991

½" - 17.5K Model 175 Gate Valve



ITEM	DESCRIPTION	QTY
1	GATE VALVE BODY	1
2	SPRING HOUSING	1
3	OUTER HEAD	1
4	SPRING	1
5	SPRING RETAINER	1
6	ACTUATOR CAP	1
7	SEAT RETAINER FLANGE	2
8	RELIEF VALVE, 1/4 NPT	2
9	STEM	1
10	GATE	1
11	SEAT ASSY	2
12	SEAL SEAL	2
13	SEAL RING RETAINER ASSY, TAILROD	1
14	SEAL RING RETAINER ASSY, STEM	1
15	UPPER STEM	1
16	BEARING RING	1
17	STEM RETAINER	1
18	THRUST BEARING ASSY	2
19	THRUST WASHER	4
20	LV PKG ASSY, 1.75 OD X 1.25 ID	1
21	LV PKG ASSY, 1.712 OD X 1.225 ID	1
22	HANDLE	1
23	WAVE SPRING	2
24	PIP SEAL, .188 OS X .312 LG X J.22 ID	2
25	PIP SEAL, .188 OS X .312 LG X J.25 OD	1
26	FACE SEAL, 2.140 ID X 2.720 OD X.188 OS	2
27	O-RING, .125 OS X 3.608 ID	1
28	O-RING, .109 OS X 3.662 ID	2
29	RETAINING RING, SMALLER	1
30	SET SCREW, SPECIAL HALF 003 FT., .250-20UNC	2
31	3/8 SAE .475 PLUG	5
32	SET BOREW, CUP FT., .500-12UNC X .50 LG	1
33	SET BOREW, CUP FT., .250-20UNC X .31 LG	5
34	ALL THREAD STUD, 1-BUND-24 X 13 LG	4
35	WY HEX NUT, 1-BUND-28	8

½" Model 175

Panel Mount 90-degree butt weld X 90 degree butt weld, up to 17.5K WP

Key Features

- API 6A PR2 and API 17D Qualified
- Bi-directional metal-to-metal sealing slab gate valve design
- Material Class HH is rated up to 17,500 psi working pressure, 10,000 ft subsea depth
- Material Class FF is rated to 12,500 psi working pressure, 10,000 ft subsea depth
- Temperature Class U (0F to 250F)
- Material Classes FF and HH
- The valve is interchangeable with the current Model 140 Gate Valve. When used with the BX-150 gasket, the rated working pressure is limited to 12,500 psi
- Manual Rotary Override 5 $\frac{3}{4}$ turns with position indicator option
- Fail-Safe Close
- Design life of 20 years
- Patented non-elastomeric "UV" stem packing is suitable for all service environments
- Metal-to-metal seat/body seal
- Metal-to-metal retainer flange seals
- Testable bi-directional seawater exclusion seal to prevent seawater hydrostatic pressure from acting on stem seals
- High Strength stem design
- No elastomeric seals used for the valve pressure containing components
- Downstream sealing

Technical Description

Configuration	
All Block Mount interface can be supplied with buried check valve	<ul style="list-style-type: none">Block Mount (BX150) x 90 degree butt weld 12.5K WP
<ul style="list-style-type: none">Block Mount (Special BX) X 90 degree butt weld, up to 17.5K WP	<ul style="list-style-type: none">Block Mount (BX-150) x Autoclave High Pressure Female Port 12.5K WP
<ul style="list-style-type: none">Block Mount (Special BX) x Autoclave High Pressure Female Port 17.5K WP	<ul style="list-style-type: none">Block Mounts will have option for buried check valve
<ul style="list-style-type: none">Panel Mount 90 degree butt weld X 90 degree butt weld, up to 17.5K WP (can be limited by butt weld end rating)	<ul style="list-style-type: none">Panel mount with Female threaded ports up to 17.5K WP

Design Rating	
<ul style="list-style-type: none">10,000 ft (3,048m) maximum water depth rating	<ul style="list-style-type: none">Compensation fluid volume per stroke 1 cu in when operated with manual override.
<ul style="list-style-type: none">Minimum temperature of 0 deg F and maximum temperature of 250 deg F (Temperature Class U)	<ul style="list-style-type: none">24.87 inches in length and 14.84 inches wide at the flanges
<ul style="list-style-type: none">Maximum rated working pressure of 17,500 psi	<ul style="list-style-type: none">Maximum Actuator Control Design Working Pressure of 6,000 psi, tested to 9,000 psi and can operate at 3,400 psi
<ul style="list-style-type: none">Normal Operating Torque for Manual Override is 50 ft-lbs with maximum gate/seat differential pressure	<ul style="list-style-type: none">Piston Area 1.22 sq. in.
<ul style="list-style-type: none">Damage torque of 400 ft-lbs	<ul style="list-style-type: none">Compensation/spring housing rated to 1,000 psi, tested to 1,500 psi
<ul style="list-style-type: none">Valve stroke .72" .	<ul style="list-style-type: none">Spring force- Preload 1,020 lbs
<ul style="list-style-type: none">Actuator control fluid volume per stroke 1 cu. in.	<ul style="list-style-type: none">Spring force- Compressed 1,750 lbs
<ul style="list-style-type: none">5 ¾ Turns To Open/Close	<ul style="list-style-type: none">Valve and actuator weight 150 lbs

Installation

- Valve may be block mounted or panel mounted in any orientation
- For block mounting, install block mount flange and BX gasket to the block studded outlet. Torque nuts to 279 ft-lbs
- For panel mounting- Remove hex nuts on one side of the valve, attach valve to panel, thread nuts onto bolts and tighten to 279 ft-lbs.
- Equipment required: stud driver, torque wrench with 1 5/8 hex socket

Interfaces

- Block gate valve assembly
- 3/8 SAE for Hydraulic Control Pressure and Compensation Ports
- Frame Assembly Panel
- ROV manipulated override tool

References

Description	Data
System Specific Documents and Drawings	Part Number: P161912 P161989 P163171 P170439 MATL CL FF
Assembly Procedure	ASY100004412
FAT Procedure	TST100004411
API 6A PR2 Test Report	Test Report: No. 2002-48
Actuator Qualification Report With Hyperbaric Testing	Test Report No. 2002-63
Methanol Testing	
SBMS External Pressure Test (+Rotation Test)	Test Report No. 2002-61
Torque (Damage) Test	Test Report No. 2002-70
FMECA Report	Test Report No. 2002-62
Reliability Assurance Program	RPT100004506
Hazard Analysis	RPT100004507
Reliability Demonstration Document	RPT100005241 RPT100005700