

# 6" WSRR/WSRF BOTTOM-UNLOADING WAFER-SPHERE® BUTTERFLY VALVES FOR TANK CAR APPLICATIONS (AAR NO. E089015)

The **Wafer-Sphere** tank car butterfly valve is the most compact valve available for tank car service. In addition to low initial cost, this valve offers low installation cost with minimum skidding requirements, 100% unloading capability, and easy maintenance.

The low profile of these valves requires one-third the skid height necessary for conventional bottom outlet valves. Because the valve does not project into the tank shell, it allows for 100% unloading.

**Wafer-Sphere** tank car valves provide long-lasting, reliable shutoff and considerable dollar savings. In addition to the standard WSRR, the valve is also available in a design approved for use with food products such as corn syrup. Designated WSRR 36HB TT6KT, the valve is constructed of stainless steel, has a polished disc, and is fully passivated.

## FEATURES

### Unique Sealing

Derived from the unique lip-seal in the Jamesbury® ball valve, the seat in the **Wafer-Sphere** tank car valve provides tight sealing between PTFE and metal. The flexible one-piece PTFE seat automatically compensates for wear and for temperature changes, furnishing the valve with the capability to withstand the most rugged tank car services.

### Materials

Available in stainless steel as standard, **Wafer-Sphere** tank car valves handle an extremely wide range of media. Other materials are available on application.

### Fire-Tite® Design

**Wafer-Sphere** butterfly tank car ball valves are available with **Fire-Tite** design. In the event of a fire resulting in partial or complete destruction of the PTFE seats, a secondary metal sealing surface provides continuous effective shutoff.



## SPECIFICATIONS

### Flow Data

The 6" WSRR/WSRF valve has an installed  $C_v$  value of 980.  $C_v$  is defined as the flow of water through the valve in U.S. gallons per minute at a pressure drop of 1 psi. The metric equivalent,  $K_v$ , is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm<sup>2</sup>. To convert  $C_v$  to  $K_v$ , multiply by 0.8569. This  $C_v$  value is an estimate of the installed flow capacity and considers typical inlet losses.

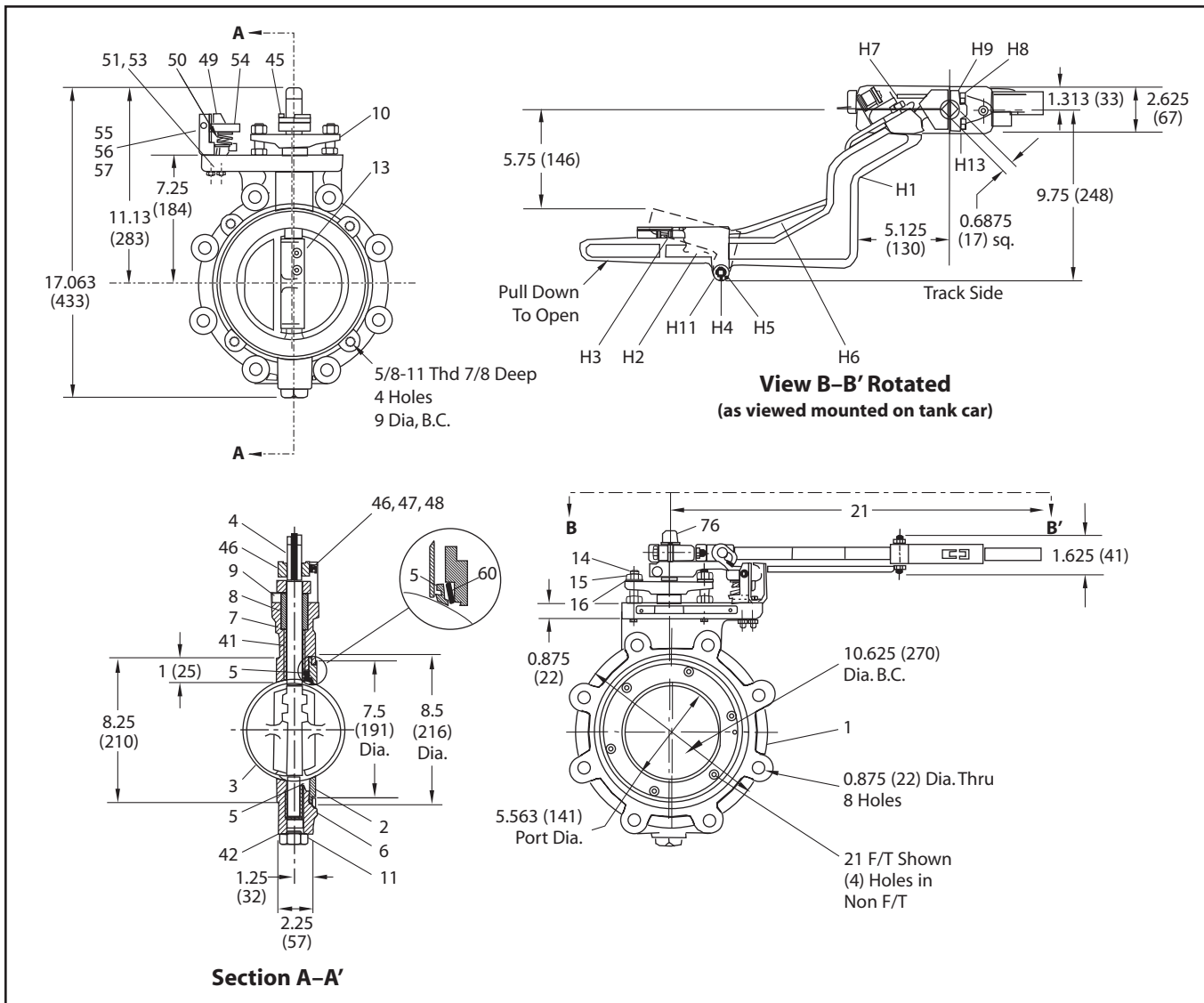
### Ratings

WSRR/WSRF valves are rated for pressures and temperatures well in excess of those normally encountered. 316 stainless-steel valves are rated from -60°F to +500°F (-51°C to +260°C). The pressure rating is 285 psi.

### Service

Representative stocks of **Wafer-Sphere** valves are maintained by the Metso network of authorized stocking distributors located in key areas of the United States and Canada. They will be happy to assist you in the selection of the most cost-effective valve for your application. For the distributor, visit our web site at [www.metso.com/automation](http://www.metso.com/automation).

**DIMENSIONS – inches (mm)**



<b>BILL OF MATERIALS AND PARTS LIST</b>		
<b>Part No.</b>	<b>Part Name</b>	<b>Body Material</b>
		<b>316 Stainless Steel (36HB)</b>
1	Body	316 Stainless steel ASTM A351 Type CF8M
2	Body Insert	316 Stainless steel
3	Disc	316 Stainless steel
4	Shaft	17-4PH Stainless steel
5	Seat	PTFE or Filled PTFE (WSRR) or PTFE/17-4PH (Part No.60) Stainless steel (WSRF)
6	Shaft Bearing	PTFE/316 Stainless (WSRR) or Rulon®/316 Stainless (WSRF)
7	Spacer	Stainless steel
8	Shaft Seal	PTFE (WSRR) or graphite (WSRF)
9	Compression Ring	Stainless steel
10	Compression Plate	316 Stainless steel
11	Pipe Plug	316 Stainless steel
13	Pin	17-4PH Stainless steel, 316 Stainless steel*
14	Stud	Carbon steel cadmium plated
15	Jam Nut	Carbon steel cadmium plated
16	Lock Washer	Carbon steel
17	Nameplate	Stainless steel
18	Drive Screw	Stainless steel
21	Socket Head Cap Screw	Hex head cap screw for food service – Stainless steel
27	Retaining Ring	Inconel®
28	Centering Device	Delrin®
29	Bottom Bearing Spacer	PTFE
41	Top Bearing Spacer	PTFE
43	Tag	Paper
45	Lock Arm	Carbon steel
46	Head Cap Screw	Carbon steel
47	Lock Washer	Carbon steel
48	Nut	Carbon steel cadmium plated
49	Spring Stand	Carbon steel
50	Latch Spring	Stainless steel
51	Hex Head Cap Screw	Carbon steel cadmium plated
53	Centerlock Nut	Carbon steel cadmium plated
54	Latch Pawl	Stainless steel
55	Clevis Pin	Stainless steel
56	Flat Washer	Carbon steel cadmium plated
57	Cotter Pin	Stainless steel
76	Retaining Ring	Carbon steel
WEIGHT (valve and handle): 62 lbs. (28 kg)		

Rulon is a Registered Trademark of Dixon Industries Corporation of America.

\* Food service only

<b>Part No.</b>	<b>Part Name</b>	<b>Body Material</b>
H1	Handle	Ductile iron
H2	Gripper Handle	Carbon steel
H3	Compression Spring	Carbon steel
H4	Clevis Pin	Stainless steel
H5	Washer	Carbon steel
H6	Latch Wire	PTFE Coated ENP Carbon Steel
H7	Shoulder Screw	Carbon steel
H8	Cap Screw	Carbon steel
H9	Lock Washer	Carbon steel
H11	Cotter Pin	Stainless steel
H13	Handle Cap	Carbon steel

## HOW TO ORDER WAFER-SPHERE VALVES

To specify one of these valves, it is necessary only to select the proper body material to meet a specific service requirement. All other components are of materials appropriate for the most severe conditions.

The catalog designations below fully describe a valve, identifying body and trim materials. The codes are:

### Standard Wafer-Sphere Valves

Stainless Steel Body and Trim  
**6" WSRR – 36HBTT5**

### For Food Grade Service

Stainless Steel with Pressed Pins and Full Passivation  
**6" WSRR – 36HBTT6KT**

### Fire-Tite Wafer-Sphere Valves

Stainless Steel Body and Trim  
**6" WSRF – 36HBTL5**

To order a Service Kit for these valves, specify RKR32 TT or MT for standard valves, or RKR35 TL or ML for Fire-Tite valves.

Subject to change without prior notice.

#### Metso Automation Inc.

Europe, Levytie 6, P.O. Box 310, 00811 Helsinki, Finland.  
Tel. +358 20 483 150. Fax +358 20 483 151

North America, 44 Bowditch Drive, P.O. Box 8044, Shrewsbury, MA 01545, USA.  
Tel. +1 508 852 0200. Fax +1 508 852 8172

South America, Av. Independência, 2500- Iporanga, 18087-101, Sorocaba-São Paulo  
Brazil. Tel. +55 15 2102 9700. Fax +55 15 2102 9748/49

Asia Pacific, 238A Thomson Road, #25-09 Novena Square Tower A, 307684 Singapore.  
Tel. +65 6511 1011. Fax +65 6250 0830

China, 19/F, the Exchange Beijing, No. 118, Jianguo Lu Yi, Chaoyang Dist, 100022 Beijing, China.  
Tel. +86-10-6566-6600. Fax +86-10-6566-2575

Middle East, Roundabout 8, Unit AB-07, P.O. Box 17175, Jebel Ali Freezone, Dubai,  
United Arab Emirates. Tel. +971 4 883 6974. Fax +971 4 883 6836

[www.metso.com/automation](http://www.metso.com/automation)

