

# **HILTON MATERIAL HANDLING KNIFE GATE VALVE (H-290/H-290B & H-291/H-291B)**

## **Design & Construction**

Hilton Material Handling Knife Gate Valves are specifically designed to be used on dry bulk materials where the valve is installed horizontally in a vertical pipe. A displacement pocket is provided which enables the valve to close through a standing column of packed material. Bonneted and bonnetless configurations are available with round, square, rectangular or combination port with a round port on one side and a square or rectangular port on the other side, eliminating the need for a transition piece.

## **Sizes, Pressures and Temperatures for a Wide Range of Applications**

The H-290/H-290B & H-291/H-291B Knife Gate Valves are available in 4-48" (100-1200mm) sizes. Valves are suitable to 150 psi (1030 kPa) and -40 to 2000°F (-40 to 1050°C) depending on the seat material selection. Metal seats (H-290/H-290B) and resilient seats (H-291/H-291B) are available.

## **Versatile Material Options for Superior Abrasion and Corrosion Resistance**

Material Handling Knife Gate Valves are available in solid or wetted parts construction in any weldable alloy. Optional abrasion and corrosion resistant materials with hard facing are available.

## **Resilient and Soft Seal Rings for Drip-Tight Shutoff**

Seal rings are available for applications where drip-tight shutoff is required. They come in a range of elastomers and soft seals, including Fluoro Rubber, Acrylonitrile-Butadiene, Chloroprene, Polyurethane, and PTFE.



Hilton Material Handling Knife Gate Valve with Bonnet installed in a power plant on a hot bottom ash application.

## Displacement Pocket for Reliable Shutoff

All Material Handling Knife Gate Valves have a displacement pocket included in the body as a standard feature. The displacement pocket is at the end of the stroke in the lower portion of the body. The pocket is designed to retain a void when material flow ceases, allowing the gate to fully close against a static column of material. This feature ensures reliable shutoff performance in material handling applications even under no-flow conditions.

## Bonnet for Extended Packing Life

H-290B/H-291B are the bonneted material handling knife gate valves. The bonnet design incorporates an enhanced feature that confines the packing to the stem only, rather than requiring sealing around the gate. This configuration eliminates the potential for process media to leak through the packing and significantly extends the packing life during frequent valve cycling. Additionally, it provides improved fugitive emissions control by minimizing leakage to atmosphere. The stem features a backseating ring that allows packing replacement while the valve is in service without shutting the process down, as long as the valve is in the fully open position.

## Guides and Wedges for Enhanced Gate Support and Sealing

Valves can be supplied with either gate guides or wedges. Gate guides will fully support the gate over the full length of the stroke. Wedges on the lower end of the body enhance the sealing capability by forcing the gate against the seat similar to a traditional knife gate valve. One or both options can be supplied, depending on the specific requirements of the application.

## Customizable Modifications

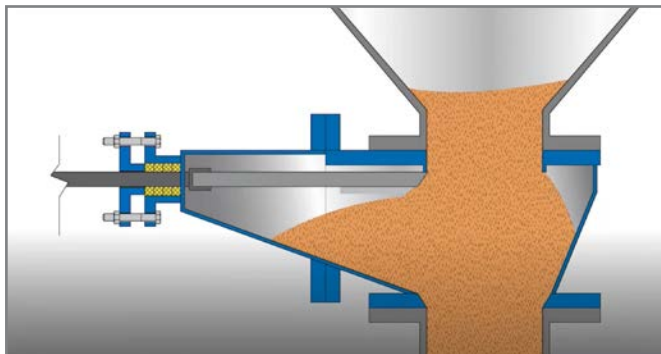
Valves can be customized with modifications including square ports, purges, removable seats, specifiable face-to-face dimension and live loaded packing.

## Applicable Standards

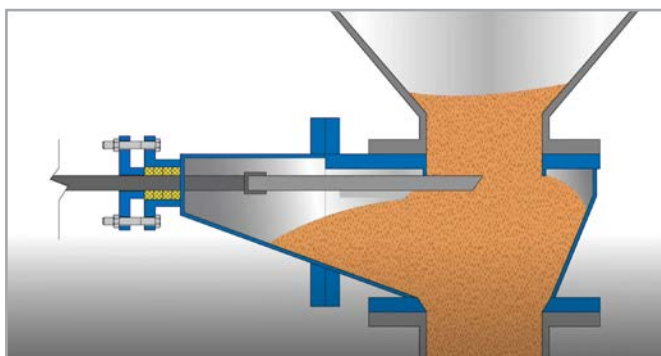
**Hilton Material Handling Knife Gate Valves are designed and/or tested to meet the following standards:**

MSS SP-81	Metal Seated Valves, Stainless Steel, Bonnetless, Flanged Knife Gate Valves
ASME B16.5	Flanges and Flanged Fittings, ASME 150

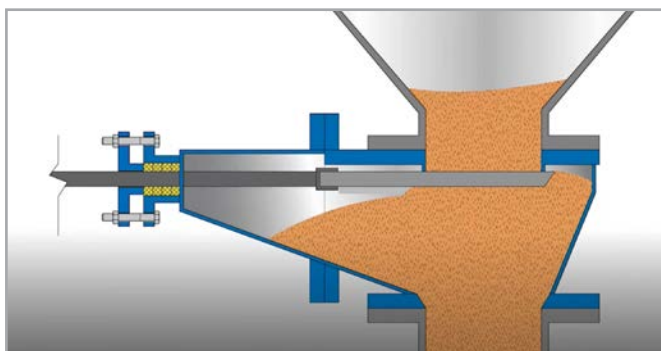
To see the animation of Hilton Material Handling Knife Gate Valve in action visit the DeZURIK website, YouTube Channel or scan the QR code.



When fully open, the material handling knife gate valve allows dry solids to discharge freely into a bin or silo, ensuring smooth, unobstructed flow.



When closing, the material handling knife gate valve pushes through a standing column of dry material, maintaining seal integrity and structural stability.

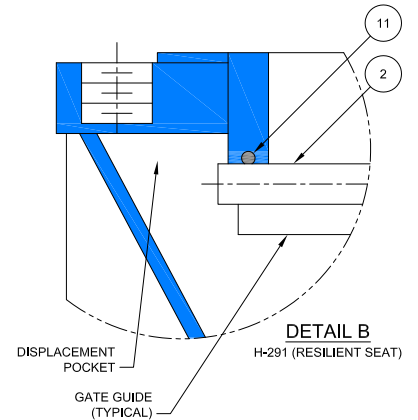
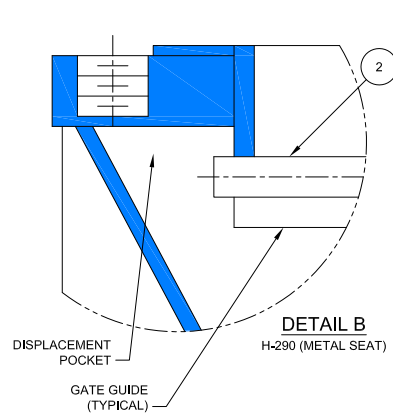
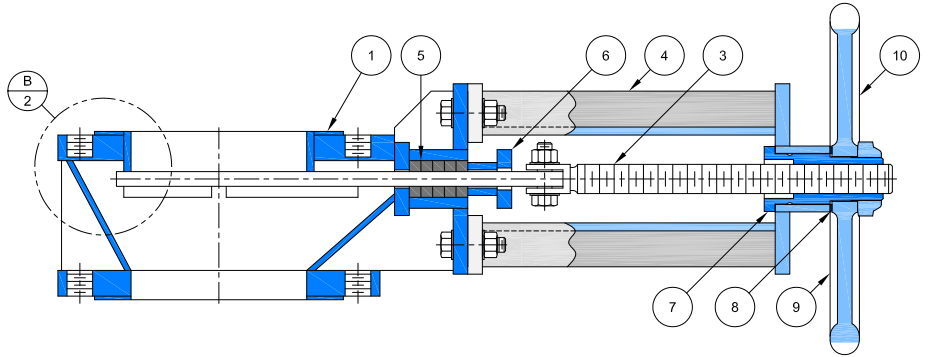


When fully closed, the material handling knife gate valve with displaces dry solids in the pocket, ensuring complete shutoff and isolation.

# Materials of Construction

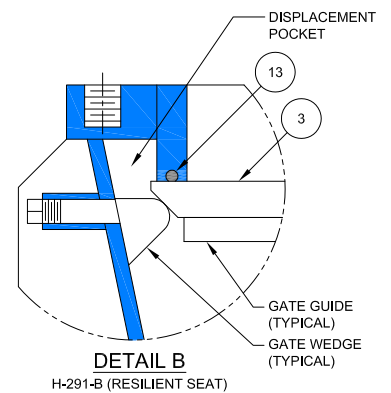
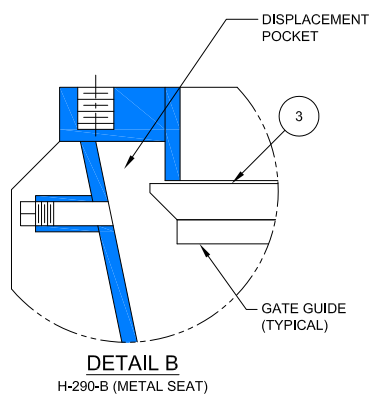
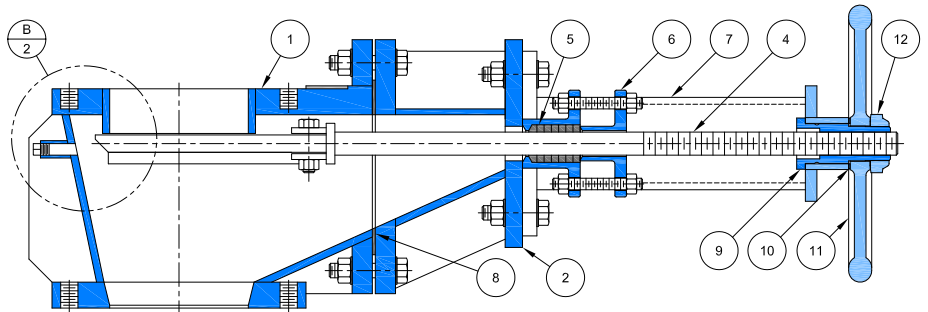
## H-290/H-291 (Bonnetless)

Item	Description	Material
1	Valve Body	Alloy Steel
2	Gate	Alloy Steel
3	Stem	Alloy Steel
4	Yoke	Carbon Steel/304 Stainless Steel
5	Packing Set	PTFE/Synthetic Fiber
6	Packing Follower	Alloy Steel
7	Stem Nut	Bronze
8	Thrust Washer	Bronze
9	Handwheel	Ductile Iron
10	Handwheel Nut	Steel
11	Seal Ring	Fluoro Rubber, Acrylonitrile-Butadiene, Chloroprene, PTFE and Polyurethane



## H-290-B/H-291-B (Bonneted)

Item	Description	Material
1	Valve Body	Alloy Steel
2	Bonnet	Alloy Steel
3	Gate	Alloy Steel
4	Stem	Alloy Steel
5	Packing Set	PTFE/Synthetic Fiber
6	Packing Follower	Alloy Steel
7	Yoke	Carbon Steel
8	Bonnet Gasket	Synthetic Fiber
9	Stem Nut	Bronze
10	Thrust Washer	Bronze
11	Handwheel	Ductile Iron
12	Handwheel Nut	Steel
13	Seal Ring	Fluoro Rubber, Acrylonitrile-Butadiene, Chloroprene, PTFE and Polyurethane

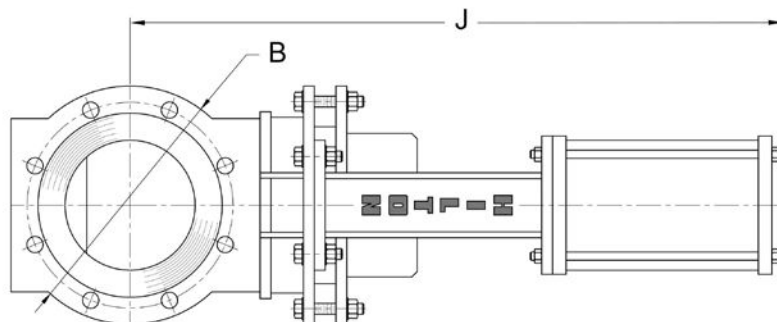
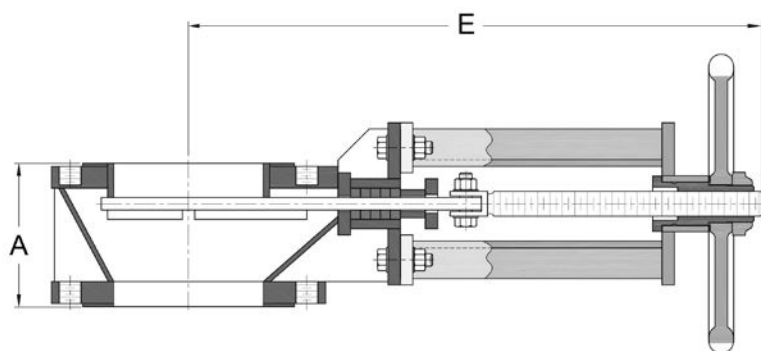


# Dimensions

## H-290 (Bonnetless)

Valve Size	A	B	E (Handwheel)	J (Cylinder)
4	5.00	9.00	25.00	32.00
100	127	229	635	813
5	5.50	10.00	27.50	35.00
120	140	254	699	889
6	6.00	11.00	30.50	39.00
150	152	279	775	991
8	7.50	13.50	36.50	46.00
200	191	343	927	1168
10	9.00	16.00	42.00	52.00
250	229	406	1067	1321
12	10.50	19.00	47.50	58.00
300	267	483	1207	1473
14	12.00	21.00	53.50	65.00
350	305	533	1359	1651
16	13.50	23.50	59.50	73.00
400	343	597	1511	1854
18	15.00	25.00	66.00	80.00
450	381	635	1676	2032
20	16.50	27.50	72.00	86.00
500	419	699	1829	2184
22	18.00	29.50	78.50	92.50
550	457	749	1994	2350
24	19.50	32.00	85.00	99.00
600	495	813	2159	2515

Inches  
Millimeters

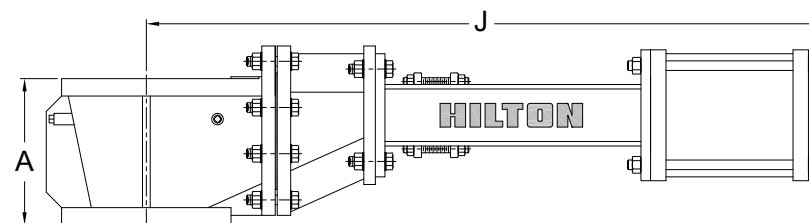
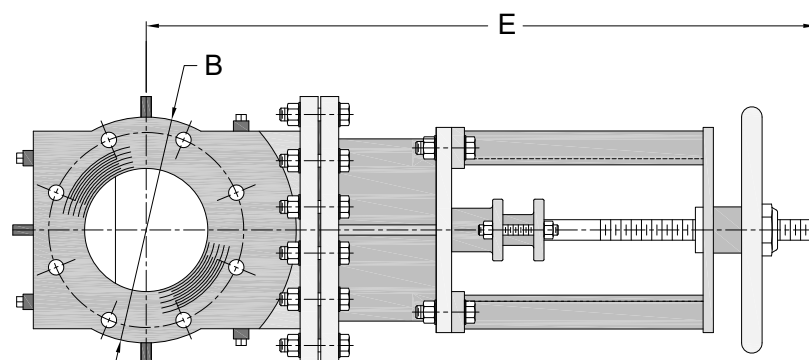


Note: Gate shown partially open

## H-290-B (Bonneted)

Valve Size	A	B	E (Handwheel)	J (Cylinder)
4	8.00	9.00	27.00	28.00
100	203	229	686	711
5	9.00	10.00	30.00	31.00
120	229	254	762	787
6	9.50	11.00	33.00	34.00
150	241	279	838	864
8	11.00	13.50	39.50	40.50
200	279	343	1003	1029
10	12.50	16.00	46.00	47.00
250	318	406	1168	1194
12	14.00	19.00	52.50	54.50
300	356	483	1334	1384
14	15.50	21.00	59.50	61.50
350	394	533	1511	1562
16	17.00	23.50	67.00	69.00
400	432	597	1702	1753
18	19.00	25.00	75.00	78.00
450	483	635	1905	1981
20	20.50	27.50	82.50	85.50
500	521	699	2096	2172
22	22.00	29.50	90.00	93.00
550	559	749	2286	2362
24	23.50	32.00	97.00	100.00
600	597	813	2464	2540

Inches  
Millimeters







The Hilton Material Handling Knife Gate Valve, with a fabricated displacement pocket and bonnet, is designed to operate against a standing column of dry, packed material.

### **Sales and Service**

For information about our worldwide locations, approvals, certifications and local representative:

**Web Site:** [DeZURIK.com](http://DeZURIK.com) **E-Mail:** [info@DeZURIK.com](mailto:info@DeZURIK.com)



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