



## **VALVE SELECTION GUIDE FOR THE MINING INDUSTRY**



## The DeZURIK Difference

Throughout our 250 years of combined history, DeZURIK, APCO, and HILTON have been recognized worldwide for collaborating with customers to design and engineer valves that provide superior performance and value. Each company was founded by an innovator who set out to solve a customer's problem application.

Today, the DeZURIK, APCO, and HILTON brands continue the tradition of partnering with our customers in the mining industry to provide the newest innovations in gate, plug, butterfly, check, air, and rotary control valves.



An ASME Pressure Class Severe Service Knife Gate valve in a slurry concentrate pump suction application.

## Full-Featured Valves for Today's Mines

Valve designs include features for superior performance in mining applications such as 100% port areas for high flow capacity, premium packing systems with metallic scraper rings for long service life, and full-force lockouts for safety. In addition, our expertise in materials engineering allows us to assist you in selecting the proper metals, elastomers and hardened trim materials for longest service life and maximum value.



48" and 60" bonneted knife gate valves with motor actuators, carbon steel bodies, 304 stainless steel wetted parts and removable polyurethane port liners on a tailings application.

## Ruggedly Designed for Maximum Value

DeZURIK engineers spent many hours in the field listening to customers so that they fully understand the intricacies of each application and incorporate that knowledge into each valve design. Using the latest advancements in technology such as Solid Modeling, Finite Element Analysis, 3D Rapid Prototyping and Computational Fluid Dynamics, DeZURIK engineers create valves that offer superior installed performance in some of the toughest applications in mining.



A 24" Rubber Lined Eccentric Plug Valve on a tailings application.



## Quality Centered Manufacturing

DeZURIK's dedication to quality is exemplified in all aspects of the business but foremost in our manufacturing capabilities. Our state-of-the-art CNC machining centers and large valve fabrication facilities allow us to produce in excess of 100,000 valves annually that range in size from 1/2" to 144" and weigh up to 40 tons.

DeZURIK's dedication to outstanding practices is ingrained in its culture, and exemplified in our quality system. DeZURIK has been certified to the ISO 9001 standard since 1996. To further demonstrate our confidence in our product quality, **DeZURIK offers a 2-Year Manufacturer's Standard Warranty** - double the length of time offered by most other manufacturers.



Slow Closing Air/Vacuum Valves on an acid delivery application.

## Wide Selection of Valve Styles

DeZURIK has a wide variety of valve styles to meet the application requirements of the mining industry. DeZURIK manufactures valves for on/off, throttling, diverting, air relief, air/vacuum, vacuum relief/air inlet, foot valves, surge relief and check valve services. Valve styles that can handle everything from abrasive tailings and scaling slurries to corrosive and caustic acids. The selection charts on the following pages serve as a starting point in the valve selection process. For additional information or to contact your local representative, visit us at [www.dezurik.com](http://www.dezurik.com)



A DeZURIK Knife Gate Valve on a pond/ground water reclamation line.



Four ASME Class Severe Service Knife Gate Valves in slurry service at a copper mine.







## Application Expertise You Can Trust

The application expertise of DeZURIK technical sales representatives, located throughout the world, will ensure you receive the personalized and complete service you need to keep your process performing at optimum levels. Our independent representatives are backed by over 500 DeZURIK employees at our factories, service centers and offices whose primary goal is customer satisfaction and maintaining long-term relationships.








A 30" Bonnetless Thru-Port Gate Valve in Carbon Steel construction with Tungsten-Carbide Hard Faced Gate and hydraulic cylinder in abrasive slurry service.






# DeZURIK Valve Selection Chart for the Mining Industry

	General Service		Heavy Duty and Enhanced Performance			
	Cast Stainless Steel Knife Gate Valves		Heavy Duty Knife Gate Valves	Extended Service Knife Gate Valves	Bi-Directional Knife Gate Valves	Maximum Duty Knife Gate Valves
						
	KGN-MSU	KGN-RSB	KGC-HD	KGC-ES	KCG-BD	KGC-MD
Size Range	2-36" (50-900mm)	2-24" (50-600mm)	2-48" (50-1200mm)	2-48" (50-1200mm)	2-36" (50-900mm)	3-24" (80-600mm)
Seat Type	Metal	Resilient	Metal & Resilient	Metal & Resilient	Resilient	Metal & Resilient
<b>FUNCTION:</b>						
On-Off	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Throttling	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used
Diversion	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
<b>MEDIA:</b>						
Slurries, Light	May Be Used	May Be Used	Typical Application	Typical Application	Typical Application	Typical Application
Slurries, Medium	Limited Application	Limited Application	May Be Used	May Be Used	May Be Used	May Be Used
Slurries, Heavy	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application
Process Fluids/Chemicals	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Corrosive Media / Acid	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Steam	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application
Supply & Wash Water	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Water Treatment/Disposal	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Tailings	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application
Cyclone	Limited Application	Limited Application	May Be Used	May Be Used	May Be Used	Typical Application
Dry Materials	Typical Application	May Be Used	May Be Used	Typical Application	Limited Application	May Be Used
Gasses	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used
<b>VALVE CHARACTERISTICS:</b>						
High Flow Capacity	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Head Loss (Wide Open)	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Torque/Thrust	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used
High Temperature (800° F+)	Typical Application	Typical Application	Typical Application	Typical Application	Not Used	May Be Used
Erosion Resistance	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used	Typical Application
Cavitation (Kc) @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Recovery Factor @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Shutoff Class	MSS-SP81	Driptight	MSS-SP81 or Driptight*	MSS-SP81 or Driptight*	Driptight	MSS-SP81 or Driptight*
Pressure Rating	100-150 psi CWP	150 psi CWP	100-150 psi CWP	100-150 psi CWP	100-150 psi CWP	150 psi CWP

**\* Resilient Seated**

**Note:** This valve selection chart is designed to provide you with a quick reference on valve style capabilities. The chart considers both cost and performance factors for a specific application when determining whether a valve style is rated Typical, May Be Used, or Limited Application. For more information, contact DeZURIK, Inc. or your local representative with your specific application requirements.

Heavy Duty and Enhanced Performance			Severe Service		
Urethane Lined Knife Gate Valves	Slurry Knife Gate Valves		ANSI Class Severe Service Knife Gate Valves	Double Block & Bleed Knife Gate Valves	
					
KUL	KSL-SD	KSL-LA	KSV	DBB	
Size Range	2-48" (50-1200mm)	2-24" (50-600mm)	2-24" (50-600mm)	2-60" (50-1500mm)	
Seat Type	Resilient	Resilient Sleeve	Resilient Sleeve	Metal & Resilient	
<b>FUNCTION:</b>					
On-Off	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Throttling	Not Used	Not Used	Not Used	May Be Used	Not Used
Diversion	Not Used	Not Used	Not Used	Not Used	Not Used
<b>MEDIA:</b>					
Slurries, Light	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Slurries, Medium	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Slurries, Heavy	May Be Used	May Be Used	Typical Application	Typical Application	Typical Application
Process Fluids/Chemicals	Typical Application	May Be Used	May Be Used	Typical Application	Typical Application
Corrosive Media / Acid	Typical Application	May Be Used	May Be Used	Typical Application	Typical Application
Steam	Limited Application	Limited Application	Limited Application	Limited Application	Limited Application
Supply & Wash Water	Typical Application	May Be Used	May Be Used	Typical Application	Typical Application
Water Treatment/Disposal	Typical Application	May Be Used	May Be Used	Typical Application	Typical Application
Tailings	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Cyclone	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Dry Materials	Typical Application	Limited Application	Limited Application	Limited Application	Limited Application
Gasses	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used
<b>VALVE CHARACTERISTICS:</b>					
High Flow Capacity	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Head Loss (Wide Open)	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Torque/Thrust	May Be Used	May Be Used	May Be Used	May Be Used	May Be Used
High Temperature (800° F+)	Not Used	Not Used	Not Used	May Be Used	May Be Used
Erosion Resistance	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Cavitation (Kc) @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Recovery Factor @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Shutoff Class	Driptight	Driptight	Driptight	MSS-SP81 or Driptight*	MSS-SP81 or Driptight*av
Pressure Rating	150-250 psi CWP	100 or 150 psi CWP	100 psi CWP	ASME 150, 300	ASME 150, 300

	Fabricated Custom Designs			Ported Slide Gates	
	Bonnetless Knife Gate Valves	Bonneted Knife Gate Valves	Square/ Rectangular Knife Gate Valves	O-Port Gate Valves	Ported Gate Valves
					
	H-200	H-200-B	H-200	KGO	PGV
Size Range	2-144" (50-3700mm)	2-144" (50-3700mm)	2-72" (50-1800mm)	2-72" (50-1800mm)	2-36" (50-900mm)
Seat Type	Metal & Resilient	Metal & Resilient	Metal & Resilient	Metal & Resilient	Resilient
<b>FUNCTION:</b>					
On-Off	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Throttling	Limited Application	Typical Application	Not Used	Typical Application	Not Used
Diversion	Not Used	Not Used	Not Used	Not Used	Not Used
<b>MEDIA:</b>					
Slurries, Light	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Slurries, Medium	May Be Used	Typical Application	Limited Application	Typical Application	Typical Application
Slurries, Heavy	Limited Application	May Be Used	Limited Application	Typical Application	Typical Application
Process Fluids/Chemicals	Typical Application	Typical Application	Typical Application	May Be Used	Typical Application
Corrosive Media / Acid	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Steam	Limited Application	Limited Application	Limited Application	Not Used	Limited Application
Supply & Wash Water	Typical Application	Typical Application	Typical Application	May Be Used	May Be Used
Water Treatment/Disposal	Typical Application	Typical Application	Typical Application	May Be Used	May Be Used
Tailings	Limited Application	May Be Used	Limited Application	Typical Application	Typical Application
Cyclone	Limited Application	Limited Application	Limited Application	Typical Application	Typical Application
Dry Materials	Limited Application	May Be Used	Typical Application	Typical Application	May Be Used
Gasses	May Be Used	May Be Used	May Be Used	Not Used	May Be Used
<b>VALVE CHARACTERISTICS:</b>					
High Flow Capacity	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Head Loss (Wide Open)	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Torque/Thrust	May Be Used	Typical Application	May Be Used	Not Used	May Be Used
High Temperature (800° F+)	May Be Used	Typical Application	May Be Used	May Be Used	Not Used
Erosion Resistance	May Be Used	Typical Application	May Be Used	May Be Used	Typical Application
Cavitation (Kc) @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Recovery Factor @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Shutoff Class	MSS-SP81 or Driptight*	MSS-SP81 or Driptight*	MSS-SP81 or Driptight*	MSS-SP81 or Driptight*	Driptight
Pressure Rating	as needed	as needed	as needed	as needed	150 psi CWP







# DeZURIK Valve Selection Chart for the Mining Industry





	Control Valves		Butterfly Valves		
	Rotary Control Valves	V-Port Ball Valves	High Performance Butterfly Valves	Resilient Seated Butterfly Valves	AWWA Butterfly Valves
	RCV	VPB	BHP	BOS	BAW
Size Range	1-12" (25-300mm)	1-20" (25-500mm)	2-60" (50-1500mm)	2-42" (50-1050mm)	3-144" (80-3600mm)
Seat Type	Metal	Metal & Resilient	Metal & Resilient	Resilient	Resilient
<b>FUNCTION:</b>					
On-Off	Typical Application	Not Used	Typical Application	Typical Application	Typical Application
Throttling	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Diversion	Not Used	Not Used	Limited Application	Limited Application	Limited Application
<b>MEDIA:</b>					
Slurries, Light	Typical Application	Typical Application	May Be Used	Typical Application	Typical Application
Slurries, Medium	Typical Application	Limited Application	Limited Application	Limited Application	Limited Application
Slurries, Heavy	May Be Used	Not Used	Limited Application	Limited Application	Limited Application
Process Fluids/Chemicals	Typical Application	Typical Application	Typical Application	Typical Application	Limited Application
Corrosive Media / Acid	Typical Application	Typical Application	Typical Application	Typical Application	Limited Application
Steam	Typical Application	May Be Used	Typical Application	Limited Application	Limited Application
Supply & Wash Water	May Be Used	Typical Application	Typical Application	Typical Application	Typical Application
Water Treatment/Disposal	May Be Used	Typical Application	Typical Application	Typical Application	Typical Application
Tailings	May Be Used	Not Used	Limited Application	Limited Application	Limited Application
Cyclone	May Be Used	Not Used	Limited Application	Limited Application	Limited Application
Dry Materials	Limited Application	Not Used	Limited Application	May Be Used	Limited Application
Gasses	May Be Used	Typical Application	Typical Application	Typical Application	Typical Application
<b>VALVE CHARACTERISTICS:</b>					
High Flow Capacity	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Head Loss (Wide Open)	Typical Application	Typical Application	Typical Application	Typical Application	Typical Application
Low Torque/Thrust	Typical Application	Typical Application	Typical Application	May Be Used	May Be Used
High Temperature (800° F+)	May Be Used	Not Used	May Be Used	Not Used	Not Used
Erosion Resistance	Typical Application	Limited Application	Limited Application	Limited Application	Not Used
Cavitation (Kc) @ 60% Open	0.60	0.49	0.35	0.35	0.35
Recovery Factor @ 60% Open	0.70	0.61	0.43	0.40	0.40
Shutoff Class	ANSI/FCI 70-2 IV or better	ANSI/FCI 70-2 IV, VI or better	ANSI/FCI 70-2 IV, V, VI or better	Driptight	AWWA C504
Pressure Rating	ASME 150, 300	ASME 150, 300	ASME 150, 300	150/175 psi CWP	AWWA 25, 75, 150

**\*Resilient Seated**

**Note:** This valve selection chart is designed to provide you with a quick reference on valve style capabilities. The chart considers both cost and performance factors for a specific application when determining whether a valve style is rated Typical, May Be Used, or Limited Application. For more information, contact DeZURIK, Inc. or your local representative with your specific application requirements.

		<b>Plug Valves</b>		<b>Check Valves</b>	
		<b>Eccentric Plug Valves</b>	<b>3-Way and 4-Way Plug Valves</b>	<b>Cushioned Swing Check Valves</b>	<b>Rubber Flapper Swing Check Valves</b>
					
		PEC/PEF	PTW/PFW	CVS	CRF
Size Range		½-72" (15-1800mm)	2-16" (50-400mm)	2-66" (50-1700mm)	2-48" (50-1200mm)
Seat Type		Metal & Resilient	Metal & Resilient	Metal & Resilient	Resilient
<b>FUNCTION:</b>					
On-Off		Typical Application	Not Used	Used in Check Valve Service of On/Off, Throttling or Diverting Piping Systems.	
Throttling		Typical Application	Typical Application		
Diversion		Not Used	Typical Application		
<b>MEDIA:</b>					
Slurries, Light		Typical Application	May Be Used	Typical Application	Typical Application
Slurries, Medium		Typical Application	Limited Application	May Be Used	Typical Application
Slurries, Heavy		May Be Used	Limited Application	Limited Application	May Be Used
Process Fluids/Chemicals		Typical Application	Typical Application	Typical Application	Typical Application
Corrosive Media / Acid		Typical Application	Typical Application	May Be Used	Typical Application
Steam		Limited Application	Limited Application	Limited Application	Limited Application
Supply & Wash Water		Typical Application	Typical Application	Typical Application	Typical Application
Water Treatment/Disposal		Typical Application	Typical Application	Typical Application	Typical Application
Tailings		May Be Used	Limited Application	Limited Application	May Be Used
Cyclone		Limited Application	Limited Application	Limited Application	Limited Application
Dry Materials		May Be Used	Limited Application	Limited Application	Limited Application
Gasses		Typical Application	Typical Application	May Be Used	May Be Used
<b>VALVE CHARACTERISTICS:</b>					
High Flow Capacity		Typical Application	Typical Application	Typical Application	Typical Application
Low Head Loss (Wide Open)		Typical Application	Typical Application	Typical Application	Typical Application
Low Torque/Thrust		Not Used	Not Used	Not Applicable	Not Applicable
High Temperature (800° F+)		Limited Application	Not Used	Not Used	Not Used
Erosion Resistance		May Be Used	Limited Application	Limited Application	Typical Application
Cavitation (Kc) @ 60% Open		0.59	Not Applicable	Not Applicable	Not Applicable
Recovery Factor @ 60% Open		0.70	Not Applicable	Not Applicable	Not Applicable
Shutoff Class		Equal to ANSI IV or Driptight*	Not Applicable	Equal to ANSI Class IV or Driptight*	Driptight
Pressure Rating		125-450 psi CWP	125 psi CWP	250 psi CWP	175 psi CWP



<b>Air Valves</b>				
	<b>Air Release Valves</b>	<b>Air Vacuum Valves</b>	<b>Single Body Combination Air Valves</b>	<b>Vacuum Relief/ Air Inlet Valves</b>
				
	ASR	ASV	ASC	AVR
Size Range	2-4" (50-100mm)	1-14" (25-350mm)	1-6" (25-150mm)	1½-36" (15-900mm)
Seat Type	Resilient	Resilient	Resilient	Resilient
<b>FUNCTION:</b>				
On-Off	Used in Air Valve Service of On/Off, Throttling or Diverting Piping Systems.			
Throttling				
Diversion				
<b>MEDIA:</b>				
Slurries, Light	Typical Application	Typical Application	Typical Application	May Be Used
Slurries, Medium	Typical Application	Typical Application	Typical Application	Limited Application
Slurries, Heavy	May Be Used	May Be Used	May Be Used	Limited Application
Process Fluids/Chemicals	Typical Application	Typical Application	Typical Application	Typical Application
Corrosive Media / Acid	Typical Application	Typical Application	Typical Application	Typical Application
Steam	Limited Application	Limited Application	Limited Application	Limited Application
Supply & Wash Water	May Be Used	May Be Used	May Be Used	Typical Application
Water Treatment/Disposal	Typical Application	Typical Application	Typical Application	Typical Application
Tailings	Limited Application	Limited Application	Limited Application	Limited Application
Cyclone	Limited Application	Limited Application	Limited Application	Limited Application
Dry Materials	Limited Application	Limited Application	Limited Application	Limited Application
Gasses	Limited Application	Limited Application	Limited Application	Typical Application
<b>VALVE CHARACTERISTICS:</b>				
High Flow Capacity	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Low Head Loss (Wide Open)	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Low Torque/Thrust	Not Applicable	Not Applicable	Not Applicable	Not Applicable
High Temperature (800° F+)	Not Used	Not Used	Not Used	Not Used
Erosion Resistance	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cavitation (Kc) @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Recovery Factor @ 60% Open	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Shutoff Class	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Pressure Rating	To 300 psi CWP	To 740 psi CWP	To 300 psi CWP	To 740 psi CWP

# Facilities



DeZURIK Corporate Headquarters and Manufacturing facility, Sartell, MN USA. Established in 1928, 420,000 sq. ft.



DeZURIK Cambridge, Ontario, Canada. Established in 1961, 50,000 sq. ft.



DeZURIK, Schaumburg, IL, USA. Established in 1895, 100,000 sq. ft.



DeZURIK, Redmond, WA, USA. Established in 1952, 25,000 sq. ft.

## Sales and Service

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

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



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