# VALVE PORTFOLIO









# ATWOOD & MORRILL®

Engineered Isolation & Check Valves

# **BATLEY VALVE®**

**Butterfly Valves** 

# **BLAKEBOROUGH®**

Control, Choke, & Steam Conditioning Valves

# **HOPKINSONS®**

**Isolation Valves** 

# **MAC®**

**Rotary Gate Valve** 

# **RED POINT®**

Ball, Gate, Globe, Check, and Double Block & Bleed valves

# **SARASIN-RSBD®**

Safety & Safety Relief Valves

# **SEBIM®**

Nuclear Pilot Operated Safety Valves

# **TRICENTRIC®**

Triple Offset Butterfly Valves



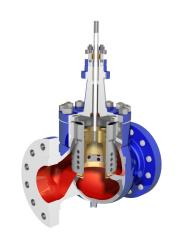


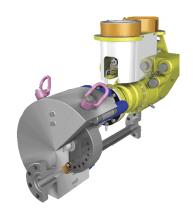














#### **BLAKEBOROUGH®**



#### General Service

#### **Features**

- Top and bottom guided
- Contour trim
- · Low pressure applications

**Class -** ASME 150-600

**Sizes -** 1 1/2" - 6" (40mm-150mm)

#### **BLAKEBOROUGH®**





· Low Cv control

Small Size Control

- High pressure drop
- · Cage & seat guided
- Suitable for all applications
- Multi-stage trims available

**Class -** ASME 150-4500

**Sizes -** 1/2" - 1" (15mm - 25mm)

#### **BLAKEBOROUGH®**

# Cage Guided Control



#### **Features**

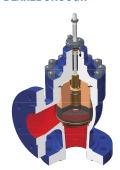
- · Stable cage guiding
- Single & multi-stage trims
- Used to eliminate effects of cavitation, flashing, noise & medium pressure drops

**Class -** ASME 150-4500

**Sizes -** 1 1/2" - 36" (40mm - 900mm)

**BLAKEBOROUGH®** 

# X-Stream™ Severe Service



#### **Features**

- Stable cage guiding
- Trim velocity control
- Patented flow path
- Used in high pressure drop applications

**Class -** ASME 150-4500

**Double Seated Control** 

**Sizes -** 2" - 24" (50mm - 600mm)

**BLAKEBOROUGH®** 

#### **Features**



- · Top and bottom guided
- Contour trim
- Double seated valve for high capacities
- Ideal for mixing applications

Class - ASME 150-1500

**Sizes -** 1 1/2" - 36" (40mm - 900mm)

#### **BLAKEBOROUGH®**



#### **BLAKEBOROUGH®**

Choke

#### **Features**

- Stable cage guiding
- Erosion resistance
- Tungsten carbide trims
- High pressure drop control
- · API designs available

**Class -** ASME 150-4500

**Sizes -** 1"- 24" (25mm-600mm)

#### Mini Desuperheater



#### **Features**

- · Steam conditioning for small pipe
- Separate water control

Class - ASME 150-2500

**Sizes -** 1/2" - 12" (15mm-300mm)

#### **BLAKEBOROUGH®**

# Pipe Desuperheater



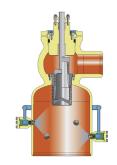
**Features** 

- Integrated water control
- Atomising nozzles
- Water is injected along the pipe centreline

**Class -** ASME 150-2500

**Sizes -** 6"- 36" (150mm-900mm)

#### Turbine Bypass



**BLAKEBOROUGH®** 

#### **Features**

- · Pressure reducing & desuperheating as an integral unit
- Noise & stable pressure control
- Water atomising nozzles

**Class -** ASME 150-4500

**Sizes -** 1 1/2" - 36" (40mm - 900mm)

Rotary Gate

#### **MAC®**



#### **Features**

- No displaced volume or cavity
- Straight through design: no bends
- Adaptable for isolation, chemical injection & throttling

**Class -** API 3000-15000

**Sizes -** 1"-6" (25mm-150mm)

#### **BATLEY VALVE®**



**BATLEY VALVE®** 



**BATLEY VALVE®** 



BATLEY VALVE®



**TRICENTRIC®** 



#### Softseal

#### **Features**

- Low cost option for low temperature water sealing
- Rubber seal located on valve disk
- Single & double offset designs

**Class -** ASME 150-600

**Sizes -** 6"-80" (150mm-2000mm)

#### Hyperseal/Metalseal

#### **Features**

- Single & double offset designs
- Seal clamped into valve body
- Resilient seated, metal seated, fire safe, & swing through options

**Class -** ASME 150-900

**Sizes -** 3"- 64" (80mm-1600mm)

#### Rubber Lined

#### **Features**

- Low cost solution for controlling low temperature corrosive fluids
- Body & shaft material fully isolated from fluid

Class - ASMF 150-300

**Sizes -** 3"- 64" (80mm-1600mm)

#### Anti-Cavitation Disk

#### **Features**

- Swing through & Hyperseal designs
- Anti-cavitation cowl to prevent cavitation at reduced valve openings

**Class -** ASME 150-2500

**Sizes -** 4"- 64" (100mm-1600mm)

#### Triple Offset Butterfly

#### **Features**

- Metal seat design
- Long life seats
- Bi-directional tight sealing
- · API 598 zero leakage

**Class -** ASME 150-900

**Sizes -** 2"- 120"(40mm-3048mm)

#### **A&M FREE FLOW®**

#### Reverse Current

**Features** 

# • [

- Free-swinging disk allows independent movement with assured closure
- Inclined seat design
- Self aligning disk & disk arm

**Class -** ASME 150-1500

**Sizes -** 3"-48" (80mm-1200mm)

#### ATWOOD & MORRILL® Boiler Feed Check



#### **Features**

- Double protection including positive closure & power-assisted closure
- Streamlined flow passages minimizes pressure drop

Class - ASME 900-2500

**Sizes -** 4"- 24" (100mm-600mm)

#### ATWOOD & MORRILL® Compressor Check



#### **Features**

- Tight sealing pressure
- Low pressure drop
- Power-assisted
- · Quick closure

Class - ASME 150-300

**Sizes -** 8"- 56" (200mm-1400mm)

#### ATWOOD & MORRILL® Wye Type Check



#### **Features**

- · Stop check, stop, lift check, MSIV
- · Y for lower pressure loss
- Bevelled seats for tight sealing
- Large seat bore for reduced pressure drop
- Forged or cast body

**Class -** ASME 900-2500

**Sizes -** 6"- 24" (150mm-600mm)

#### ATWOOD & MORRILL® Three Way



#### **Features**

- Allow two different flow directions from the same valve
- Simplifies piping layout
- Installation & maintenance savings

Class - ASME 150-2500

**US Sizes -** 6"- 24" (150mm-600mm)

**UK Sizes -** 2"- 24" (40mm-600mm)

#### **HOPKINSONS®**



**HOPKINSONS®** 



**HOPKINSONS®** 



**HOPKINSONS®** 



**HOPKINSONS®** 



Full Bore Parallel Slide

#### **Features**

- Full bore straight through design
- Complete flow isolation in either direction
- Suitable for any temperature

**Class -** ASME 150-3100

**Sizes -** 1/2" - 36" (15mm-900mm)

Venturi Parallel Slide

#### **Features**

- Smooth transitional flow
- Anti-vibration disk arrangement
- Minimum pressure drop
- Self aligning disks
- Sealing achieved by fluid

**Class -** ASME 150-3100

**Sizes -** 1/2" - 26" (15mm - 650mm)

Forged Parallel Slide

#### **Features**

- Superior forged material
- Ideal for high temperatures
- Minimum pressure drop
- Isolation in both directions

**Class -** ASME 900-4500

**Sizes -** 3"- 26" (80mm-650mm)

High Performance Drain

#### **Features**

- Can be installed singly or in a master and martyr configuration
- Winged seats
- Square gates

**Class -** ASME 900-3600

**Sizes -** 3/4" - 4" (20mm - 100mm)

Uniflow Slide

#### **Features**

- · Globe design with parallel slide design seating technology
- Ideal for isolation in small process
- Uni-directional sealing

Class - ASME 2500-3100

**Sizes -** 3/8" - 2" (10mm-50mm)

#### **HOPKINSONS®**

Flexi-Wedge Gate

#### **Features**

- Bonnet over-pressure protection
- Flexible wedge design
- · Precision body guides
- Bi-directional operation

Class - ASME 150-2500

**Sizes -** 3"- 24" (80mm-600mm)

**HOPKINSONS®** 

Globe Isolation

#### **Features**



- High integrity shut-off
- Patented high grade nickel alloy
- Linear rising stem

Class - ASME 2500-3100

**Sizes -** 1/2" - 2" (15mm-50mm)

**HOPKINSONS®** 

Feed Heater Bypass

## **Features**



- Recognized industry standard for extraction steam turbine protection
- Positive, tight sealing, fast closure, & low pressure drop

Class - ASME 900-2500

**Sizes -** 1"- 36" (25mm-900mm)

**RED POINT®** 

Gates

# **Features**



- · Solid wedge, flex-wedge, parallel slide, through conduit
- Standard, bolted bonnet, pressure seal bonnet
- Low fugitive emission
- Different hard facing
- Exotic and commodity material

**Class -** ASME 150 - 4,500

**Sizes -** .25" - 16" (8mm-400mm)

**RED POINT®** Globes

**Features** 



- Y-type, Pressure seal
- Bonnet and angle globe
- Low fugitive emission
- Exotic and commodity material

**Class -** ASME 150 - 4.500

**Sizes -** .25" - 16" (8mm-400mm)

#### SARASIN-RSBD®



# SARASIN-RSBD®



SARASIN-RSBD®



SARASIN-RSBD®



SARASIN-RSBD®



9 Series

#### **Features**

- Thermal expansion
- Full nozzle
- Conventional or balanced
- Metal or soft seat
- Adjustable blowdown

Class - ASME & API 150-2500 **Sizes -** 1/2" - 1 1/2" (15mm-40mm)

#### 76 & 78 Series

#### **Features**

- · Full & Semi Nozzle
- API STD 526 standardized dimensions
- Non-flowing, pop, or modulating action pilots

Class - ASME & API 150-2500 **Sizes -**1" - 12" (25mm-300mm)

76F Series Stareco™

#### **Features**

- Economizer applications (water & steam)
- Thermoglide® anti-seizing capabilities

Class - ASME 150-2500 **Sizes -**1" - 12" (25mm-300mm)

#### **MBP**

#### **Features**

Low pressure steam -

- Turbines and Condensers Watersealed soft seated
- High seat tightness

**Class -** 150 through 2500 **Sizes -**6" - 30" (150mm-750mm)

#### STARSTEAM® & STARFLOW-V™

#### **Features**

- · Boiler steam low/medium/high
- Thermoglide® anti-seizing capabilities
- Stardisc high seat tightness
- In-situ testing ready

**Sizes -**1 1/2" - 12" (40mm-300mm)

#### **SARASIN-RSBD®**

#### 74VP/LP Series

#### **Features**

- · Tank storage protection
- · Semi nozzle
- High seat tightness

Class - ASME & API 150-300 **Sizes -**2" - 14" (50mm-350mm)

**SARASIN-RSBD®** 

#### 77 Series



**Features** 

**Features** 

- Tank storage protection
- Avoid tank corrosion

Class - ASME & API 150-300 **Sizes -** 1/2" - 1" (15mm-25mm)

**SARASIN-RSBD®** 

**RS** Series



Less than 3% pressure drop

**Class -** 150 through 600

Single way -  $2" - 2 \times 2"$  through 10" - 2 x 10"

**Dual way -**  $2" - 2 \times 1"$  through  $10'' - 2 \times 8''$ 

#### **NUCLEAR POSV**

#### **SEBIM®**

# TSV 2000 Nuclear POSV



#### **Features**

- Excellent operation for: steam, gas, liquid, or two-phase
- Design standard: RCC-M level 1,
- IEEE, NNSA
- Applications: primary or secondary circuits

**Class -** ASME 150-2500 **Sizes -**4" - 6" (100mm-150mm)

#### **SEBIM®**

#### PRG 2000 Nuclear POSV

# **Features**

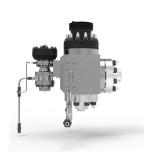
- Alternative version of TSV 2000
- Excellent operation for: steam, gas, liquid, or two-phase
- Design standard: RCC-M level 1, IEEE, NNSA
- Applications: primary circuit

**Class -** ASME 150-2500

**Sizes -**4" - 6" (100mm-150mm)

**Class -** 150 through 2500

#### **SEBIM®**



#### Nuclear POSV

#### **Features**

- · Alternative version of TSV 2000
- · For steam, gas, liquid, or two-phase
- · Design standards: RCC-M level 1, ASME section III Sub.NB Class 1. OTT. IEEE. NNSA
- · Applications: primary or secondary circuit
- Alternative version of TSV 2000

Class - ASME 150-2500

**Sizes -** 4" - 16" (100mm-400mm)

#### **SEBIM®**



# Nuclear POSV **Features**

- Compact design
- For steam, gas, liquid or two-phase
- Design standards: RCC-M level 1, ASME section III Sub.NB Class 1. OTT. IEEE. NNSA
- Applications: primary or secondary circuit

**Class -** 150 through 2500

**Sizes -** 2" - 8" (50mm-200mm)

#### Nuclear POSV **SEBIM®**



#### **Features**

- · For containment cold and hot overpressure protection on steam, water, gas, or steam & water
- Design standards: RCC-M level 1, ASME section III Sub. NB Class 1, OTT, IEEE, NNSAK1 - 1E
- Applications: primary circuit

**Class -** 150 through 2500

**Sizes -** 1" - 16" (25mm-400mm)

#### **SEBIM®**



#### **Features**

Nuclear POSV

- · Compact design for SMR
- For steam, gas, liquid, or two-phase
- · Design standards: RCC-M level 1, ASME section III Sub.NB Class 1. OTT, IEEE, NNSA
- · Applications: primary circuit

**Class -** 150 through 2500

**Sizes -** 1/2" - 1 1/2" (15mm-40mm)

#### **SEBIM®**



# Nuclear POSV **Features**

- For steam, gas, liquid, or two-phase
- · Design standards: RCC-M level 2, ASME section III Sub.NB Class 2, OTT. IEEE. NNSA
- · Applications: secondary circuit (steam generator)

Class - 150 through 2500 **Sizes -** 1" - 16" (25mm-400mm)

#### **RED POINT®**



#### Bellow Sealed

#### **Features**

- · Gate and globe
- · Non-rotating stem prevents torsion of bellows
- Exotic and commodity material

**Class -** ASME 150 - 4,500

**Sizes -** .25" - 16" (8mm-400mm)

#### **RED POINT®**



#### **Features**

- Floating or trunnion mounted
- Seats Soft or metal seated
- Extended bonnet, Lipseals, Heating Jacket
- Low fugitive emission, fire safe design

**Class -** ASME 150 - 4,500

**Sizes -** .25" - 16" (8mm-400mm)

#### **RED POINT®**



#### **Features**

Check

- Piston, swing, ball, dual plate, nozzle
- Low fugitive emission
- Exotic and commodity material

Class - ASME 150 - 4.500

**Sizes -** .25" - 16" (8mm-400mm)

#### **RED POINT®** Double Block and Bleed

#### **Features**

- Floating or trunnion mounted
- Seats Soft or metal seated
- Extended bonnet, Lipseals, Heating Jacket
- DBB-DIB1-DIB2 as per API6D
- Low fugitive emission, fire safe design
- Exotic and commodity material

Class - ASME 150 - 4.500

**Sizes -** .25" - 16" (8mm-400mm)

#### **RED POINT®** Non-Commodity



#### **Features**

- · Designed, calculated, produced and tested according to customer requirements
- 3-4 way ball valves
- · Exotic and commodity material

Class - ASME 150 - 4,500

**Sizes -** .25" - 16" (8mm-400mm)

**VALVE PORTFOLIO** 

									A	PPL	ICAT	ION								M	IANU	FACT	URIN	IG LO	CATION
			Acid Service	Chemical Processing	Corrosive Gases	Cryogenic	Fire Protection	Gas Pressure	Marine Seawater	Molten Salt	Oil & Gas	Petrochemical	Pharmaceuticals	Power Generation	Water Treatment	Steam Pressure	Steam Conditioning	Subsea	Nuclear	China	UK	France	Netherlands	South Korea	USA
		FULL BORE Parallel slide		•				•				•	•	•		•			•		•				•
		VENTURI Parallel slide		•				•				•	•	•		•			•		•				
		FORGED Parallel Slide		•				•				•	•	•		•			•		•				•
		HIGH Performance Drain												•		•			•		•				
	VES	UNIFLOW SLIDE												•		•			•		•				
	SOLATION VALVES	FLEXI-WEDGE Gate	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•		
	ISOLA	GLOBE ISOLATION	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•		•
		THREE WAY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•				•
		FEED HEATER Bypass												•					•		•				
		LOW PRESSURE Wedge gate	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
		HIGH PRESSURE Wedge gate	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
- Thomas -		SPRING LOADED Safety relief	•	•	•	•	•		•	•	•	•	•	•	•	•				•		•			
	VES	SPRING LOADED SAFETY												•		•			•			•			
	SAFETY VALVES	PILOT OPERATED Safety relief	•	•	•	•	•	•	•	•	•	•	•	•	•	•						•			
	SS	PILOT OPERATED Safety	•	•	•	•	•	•	•	•	•	•	•	•	•	•						•			
		NUCLEAR PILOT Operated	•	•	•	•	•		•	•	•	•	•	•	•	•			•			•			
	AND VALVES	2 PIECE Trunnion Ball	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
<b>1</b>	BLOCK	3 PIECE Trunnion Ball	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
0	BALL, DOUBLE BLOCK AND Bleed, Non-Commodity Valves	DOUBLE BLOCK and bleed	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
	BALL, BLEED, N	NON-COMMODITY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•		•		•

8 VALVE DIVISION TRILLIUM FLOW TECHNOLOGIES®

		APPLICATION							M	MANUFACTURING LOCAT															
			Acid Service	Chemical Processing	Corrosive Gases	Cryogenic	Fire Protection	Gas Pressure	Marine Seawater	Molten Salt	Oil & Gas	Petrochemical	Pharmaceuticals	Power Generation	Water Treatment	Steam Pressure	Steam Conditioning	Subsea	Nuclear	China	UK	France	Netherlands	South Korea	USA
		GENERAL SERVICE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•		•		
		SMALL SIZE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	
		CAGE GUIDED	•	•	•	•		•	•	•	•	•	•	•		•	•		•	•	•			•	
		SEVERE SERVICE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	
	CONTROL VALVES	CONTOUR TRIM	•	•	•	•		•	•	•	•	•	•	•		•	•				•			•	
4	CONTROI	СНОКЕ			•			•	•		•										•				
		ROTARY GATE									•							•			•				
		MINI DESUPERHEATER				•								•		•					•			•	
*		PIPE DESUPERHEATER				•								•		•					•			•	
		TURBINE BYPASS												•		•			•		•			•	
0		SOFTSEAL					•		•												•				
	VALVES	HYPERSEAL/ METALSEAL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•				
<b>(</b> )	BUTTERFLY VALVES	RUBBER LINED			•					•	•										•				
	BUT	ANTI-CAVITATION	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•				
Ö		TRICENTRIC®	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•						•
		A&M FREE FLOW® REVERSE CURRENT		•				•	•	•		•		•		•			•	•	•			•	•
	CHECK VALVES	BOILER FEED CHECK												•						•	•			•	•
3	CHEC	COMPRESSOR Check						•												•	•			•	•
<b>F</b>		WYE TYPE												•		•									•

TRILLIUM FLOW TECHNOLOGIES® VALVE DIVISION 9

	APPLICATION											N	IANL	JFAC	NG I	LOCATION								
		Acid Service	Chemical Processing	Corrosive Gases	Cryogenic	Fire Protection	Gas Pressure	Marine Seawater	Molten Salt	Oil & Gas	Petrochemical	Pharmaceuticals	Power Generation	Water Treatment	Steam Pressure	Steam Conditioning	Subsea	Nuclear	China	UK	France	Netherlands	South Korea	USA
	DUAL PLATE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
CHECK VALVES	NOZZLE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
CHECK	PISTON	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		
	SWING	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•		



10 VALVE DIVISION TRILLIUM FLOW TECHNOLOGIES®

SITE SERVICE	WORKSHOP SERVICES	SERVICE PLANS
Outage, shutdown, and turnaround management	Mechanical valve overhaul and refurbishment	24-hour customer service number
Overhaul and refurbishment	Valve pressure testing	48-hour service response engineer
Installation and commissioning	Upgrades and modifications	Long term service agreement
In-site valve seat replacement	Control valve service, maintenance, and monitoring	Embedded engineering programmes
In-situ testing and monitoring	Actuator servicing and torque testing	Asset management
Turnkey project management	Service exchange programs for valves and actuators	Bespoke service management



TRILLIUM FLOW TECHNOLOGIES® VALVE DIVISION 11





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