CRYOGENIC

Ball Valves
Company Profile

- Leading manufacturer of high-end ball valves and pneumatic actuators
- Over 60 years experience with industrial applications
- We develop, manufacture and market our products
- HABONIM tailor-made solutions assist global customers in meeting their challenges
HABONIM Product Lines

- Flanged Ball Valve
- Three Piece Ball Valve
- 3,4,5 Way Ball Valve
- TuBore™ Ball Valve
- Flush Tank Ball Valve
- DBB Ball Valve
- Cryogenic Ball Valve
- High Pressure Ball Valve
- Metal seated Ball Valve
- Control Ball Valve
- Trunnion Mounted Ball Valve
- Pneumatic Actuator
HABONIM global network
Distribution to 52 countries worldwide

HEADQUARTER  HABONIM Israel
SUBSIDIARIES  HABONIM USA | HABONIM Europe | HABONIM Australia
SALES OFFICES  HABONIM UK | HABONIM China | HABONIM Singapore

Austria | Australia | Belgium | Belarus | Brazil | Canada | Cayman Islands | China | Canada | Colombia | Costa Rica | Croatia | Cyprus | Czech Republic | Germany | Denmark | Estonia | Finland | France | UK | Georgia | Greece | Hungary | Indonesia | Ireland | Israel | India | Italy | Jordan | Japan | Korea | Kazakhstan | Lithuania | Macedonia | Mexico | Malesia | Netherlands | Norway | New Zealand | Peru | Philippines | Poland | Romania | Russia | Sweden | Singapore | Slovenia | Slovak Republic | Spain | Switzerland | Turkey | Taiwan | Thailand | Ukraine | UAE | USA | Vietnam | South Africa
HABONIM Activities by Industry Segments

Oil & Gas  
Energy  
Petrochemical  

Chemical  
Pharmaceutical
Cryogenic Valves
On The Field – Exxon CFZ
CNOOC Fujian LNG Terminal
High Pressure Cryogenic Class #2500, -196°C degrees
Cryogenic Valves on the Field | LNG Terminal in Sweden
Cryogenic Valves

- Safety in Operation
- Safety During Maintenance
- Safety in Hazardous Environments
Safe Operation

Fire safe by design
Safe Operation

Fire safe by design

- Graphite free fire safe HermetiX™ stem seal
- 500,000 cycles tested maintenance free
- Certified to ISO 15848-1 for fugitive emission
Safe Operation

- 45° inclination limitation
- Stem seal remains at ambient condition
- Minimize fugitive emission
- One piece bonnet (made without welding)
- Full compliance with BS 6364
Safe Operation

Fire safe by design

Burnout of soft seats provide metal to metal sealing against a fire lip
Safe Operation

Fire safe by design

Tongue and groove design
Labyrinth leak path
Aligned and accurate body-ends assembly
Safe Operation

Fire safe by design

Minimum thermal expansion /contraction
When an object is heated or cooled, its length changes by an amount proportional to the original length and the change in temperature
One-size-up, Short bolts
Safe Operation

Anti-static device - as standard

Spring Loaded Plunger
Electro-static discharge - Grounding of valve rotating parts
Safe Operation

- Cryogenic valve are unidirectional
- No trapped cavities are allowed (BS6364)

![Cryogenic valve diagram with pressure relief hole and flow direction indicated]
Safe Operation

- Efficient heat transfer
- Thin layer between stem OD and bonnet ID
- Stem seal at ambient condition
- Minimize fugitive emission
Orientation determination for safe field service

- Rib & groove
- Integral stem rib
- Ball groove
- Relief hole
Safe Maintenance

Flow direction indication
Safe Maintenance

Do not dismantle Tag
Safe Maintenance

Flexible Choice of Bonnets

12” Standard BS6364 bonnet
(10” between welding)
6” Bonnet
6” Bonnet Benefits (none BS6364 standard)

- Suitable for confined space applications
- Needless for radiographic test
- Cost effective

6” bonnet cryogenic test
After 4 hours immerse in LN₂ (cryogenic condition) bonnet top temperature measured at +10°C
High Pressure Cryogenic valves

- High Pressure Cryogenic Shutoff
- Up to 414 Bar / -269°C
- Hybrid PCTFE (KEL-F) Seats
High Pressure Cryogenic Valves

- Hybrid Seats
- Metal housing and PCTFE inserts
- Safe operation under Class 2500 differential pressure
- Lower torque than metal seated valve
- EN12266-1 Rate A bubble tight shut-off
High Pressure Cryogenic Valves

Cryogenic #900 Metal Seat Valve

Cryogenic #900 Metal Seat Control Valve

C28z
High Pressure Cryogenic Valves

- High Pressure Cryogenic Metal Seated Control Valve
- Class 900 / -260°C
- Superior Performance
- Trouble Free Operation
- Full DP open \ Close
High Pressure Cryogenic Valves
Quality Control

In house cryogenic test
Quality Control

- NDT Testing – On request
- PMI-XRF tests
- Cryogenic Impact tests on foundry and bar stock materials
Quality Control

NDT testing – Cryogenic Charpy test on request

Cryogenic Impact tests on
Bar stock materials

Success Criteria
EN 10045-1
Kv > 60J
Lateral Expansion
> 0.381 mm

Same Test can be done on foundry,
where 24 week lead time is required
Series in Range

- Three piece C47
- ANSI standard port flanged 150/300 C31 & C32
- ANSI full port flanged 150/300 C73 & C74
- DIN EN1092 full port flanged C77 & C78
- High Pressure C28 #2500
## Choice of Materials

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Cryogenic Valves Series

Special Cryogenic Valves

- Control
- Wafer Style

Emission Control
Cryogenic Valves Series

Multiport and diverter cryogenic lines are extremely flexible and space saving valves. Enable the piping and machine designer to save valves, space, flow elements, while enhancing safety and simplicity.
Cryogenic Valves - Special Developments

Cryogenic #600 6” Full Port Valve
Cryogenic Valves - Special Developments

- Cryogenic Double Block And Bleed
- Allows Safe Furnace use of Liquid Oxygen and Fuels
- Thermal Relief of Body Cavity – Optional
HABONIM Cryogenic Valves – Key Clients

Logos of key clients:
- SpaceX
- ORMAT
- CRYOSTAR
- AIR PRODUCTS
- Blue Origin USA
- HEROSE
- WÄRTSILÄ
- EXXON Mobil
- THE LINDE GROUP
- TECMA BV
- CHART
- BOC
Thank You