



## Cryogenic Bearings

Cryogenic Bearings are essential high-precision components for pump systems operating at extremely low temperatures. They enable the reliable operation of rotating shafts in systems that condense gases to create a vacuum – such as LNG plants, liquefied natural gas pumps, and aerospace turbopumps.

Thanks to specially developed materials and innovative lubrication concepts, often using the process medium itself as the lubricant, these bearings ensure minimal friction and maximum wear protection at temperatures as low as  $-253\text{ }^{\circ}\text{C}$ .

### Key Benefits

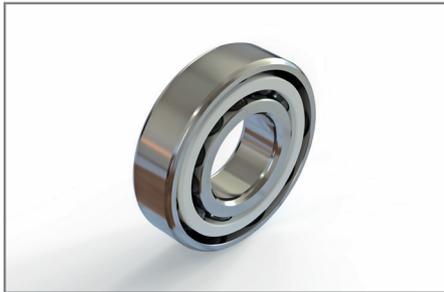
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**Reliable shaft support:** Cryogenic Bearings precisely support rotating shafts and reduce friction between moving and stationary components — even under extreme operating conditions.
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**Performance at cryogenic temperatures:** Designed for safe and reliable operation at temperatures ranging from  $-196\text{ }^{\circ}\text{C}$  (LNG) to  $-253\text{ }^{\circ}\text{C}$  (liquid hydrogen).
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**Innovative lubrication concepts:** As conventional lubricants fail at cryogenic temperatures, specially engineered bearing materials are used that can be lubricated directly by the process medium.
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**Simplified pump design:** Media-based lubrication often eliminates the need for additional seals, resulting in more compact, robust and low-maintenance pump designs.



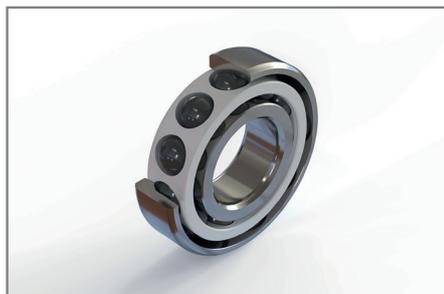
Cryogenic Bearing

## Areas of Application

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**LNG industry:**  
 Pumps for liquefied natural gas, methane, and other cryogenic hydrocarbons.
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**Aerospace engineering:**  
 High-dynamic turbopumps for rocket propulsion systems handling cryogenic propellants such as liquid hydrogen or oxygen.
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**Medical imaging:**  
 Cryocoolers in MRI (Magnetic Resonance Imaging) systems for stable and reliable operation.
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**Industrial gas technology:**  
 Applications for the handling and processing of pure or mixed industrial gases.



Isometric view



Detail view



Section view

## Available Size Range

Bearing Type	HQW Type	Dimension
6205	QC006311	25x52x15
6206	QC006266	30x62x16
6207	QC006313	35x72x17
6208	QC006341	40x80x18
6211	QC005734	55x100x21
6212	QC006267	60x110x22
6303	QC006033	17x47x14
6311	QC005323	55x120x29
6314	QC005095	70x150x35
6320	QC006265	100x215x47
6322	QC006260	110x240x50
6328	QC006517	140x300x62
7301	QC006809	12x37x12
7305	QC006034	25x62x17
7307	QC006666	35x80x21
7314	QC006607	70x150x35

Other sizes on request.

Further information can be obtained from the HQW Application Engineering Dept.

## Challenges and Our Solutions

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**Specialized materials:**  
 Use of advanced materials that maintain strength and toughness at extremely low temperatures without becoming brittle.
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**Dry-running capability:**  
 Designed for operation without conventional lubricants – reliable in dry-running conditions or with media-based lubrication.
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**Thermal stability:**  
 Optimized designs that safely accommodate extreme expansion and contraction caused by temperature fluctuations.

[www.hqw.gmbh](http://www.hqw.gmbh)

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