COMMERCIAL SHIP REFERENCES

SHIPOWNERS USING THORDON
SEAWATER LUBRICATED PROPELLER SHAFT BEARINGS

Future Compliant Gaining an Eco-Advantage
Summer 2018

THORDON
THORDON BEARINGS INC.

ZERO POLLUTION | HIGH PERFORMANCE | BEARING & SEAL SYSTEMS
<table>
<thead>
<tr>
<th>Company</th>
<th>Order Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Princess Cruise Lines (USA) – Carnival Corp</td>
<td>3 – 145,000 GT cruise ship on order To be equipped with COMPAC bearings Delivery: 2019 - 2022 Fincantieri (Italy)</td>
</tr>
<tr>
<td>Mitsui OSK Lines Ltd (Japan)</td>
<td>2 – 11,500 DWT LNG tankers on order To be equipped with COMPAC bearings Delivery: 2020 Hudong-Zhonghua Shipbuilding (China)</td>
</tr>
<tr>
<td>COSCO (China)</td>
<td>3 – 7,500 DWT tankers on order To be equipped with COMPAC system, ThorShield, &amp; WQP Delivery: 2018 Chengxi Shipyard (China)</td>
</tr>
<tr>
<td>Log-In Logistica Intermodal SA (Brazil)</td>
<td>1 – 37,000 DWT 2,700 TEU container ship on order To be equipped with COMPAC system, Shaft Liners, ThorShield, WQP and BCM Delivery: 2019 Guangzhou Wenchong (China)</td>
</tr>
<tr>
<td>COSCO (China)</td>
<td>3 – 62,000 DWT cargo ships on order To be equipped with COMPAC system, Shaft Liners, and WQP Delivery: 2019 COSCO Dalian Shipyard (China)</td>
</tr>
<tr>
<td>Royal Caribbean Cruises Ltd</td>
<td>1 – 54,000 GT cruise ship on order To be equipped with COMPAC bearings Delivery: 2016</td>
</tr>
<tr>
<td>Princess Cruise Lines (USA)</td>
<td>4 – 195,000 GT cruise ships on order To be equipped with COMPAC bearings Delivery: 2017 - 2019 Fincantieri (Italy)</td>
</tr>
<tr>
<td>Alaskan Ferries (USA)</td>
<td>2 Alaska Class ferries on order To be equipped with COMPAC bearings Delivered: 2018 Vigor Industrial Shipyard (USA)</td>
</tr>
<tr>
<td>Lomar Shipping (United Kingdom)</td>
<td>2 – 37,000 DWT 2700 TEU container ships on order To be equipped with COMPAC system, WQP, &amp; BCM Delivery: 2018 Guangzhou Wenchong Shipyard (China)</td>
</tr>
<tr>
<td>Matson Navigation Co. Inc. (USA)</td>
<td>2 – 31,400 DWT 3600 TEU container ships on order To be equipped with COMPAC system, Shaft Liners, ThorShield, &amp; WQP Delivery: 2018 - 2019 Philadelphia Shipyard (USA)</td>
</tr>
<tr>
<td>Regent Seven Seas Cruises (USA) – Norwegian Cruise Lines</td>
<td>1 – 54,000 GT cruise ship on order To be equipped with COMPAC bearings Delivery: 2020 Fincantieri (Italy)</td>
</tr>
<tr>
<td>MSC Mediterranean Shipping (Switzerland)</td>
<td>2 – 154,000 GT cruise ship on order To be equipped with COMPAC bearings Delivery: 2018 Fincantieri (Italy)</td>
</tr>
<tr>
<td>Tropical Shipping (USA)</td>
<td>2 – 4,233 DWT container ships on order To be equipped with COMPAC system, Shaft Liners, ThorShield &amp; WQP Delivery: 2018 Guangzhou Wenchong Shipyard (China)</td>
</tr>
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<tr>
<td>Regent Seven Seas Cruises (USA) – Norwegian Cruise Lines</td>
<td>1 – 54,000 GT cruise ship on order To be equipped with COMPAC bearings Delivery: 2020 Fincantieri (Italy)</td>
</tr>
</tbody>
</table>

**LEGEND**

- **COMPAC**: Seawater lubricated propeller shaft bearings for blue water
- **ThorShield**: Shaft coatings for seawater lubricated propeller shaft bearing systems provides protection against corrosion
- **Water Quality Package (WQP)**: Thordon WQP supplies seawater to the propeller shaft bearings for lubrication and cooling while removing abrasives
- **Bearing Conditioning Monitoring (BCM)**: Thordon BCM system enables real time observation of propeller shaft bearing behaviour
- **SXL**: Seawater lubricated propeller shaft bearings & grease free rudder bearings
- **Seawater lubricated propeller shaft bearings for offshore operating water conditions**
**REFERENCES**

**BULK CARRIERS**

<table>
<thead>
<tr>
<th>Company</th>
<th>Type: DWT</th>
<th>Equipment:</th>
<th>Delivery:</th>
</tr>
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<tbody>
<tr>
<td>COSCO (China)</td>
<td>15 – 32,000 to 38,500</td>
<td>COMPAC bearings, WQP &amp; Thor-Coat</td>
<td>2009 - 2017</td>
</tr>
<tr>
<td>CSL Group (Canada)</td>
<td>6 – 33,000 to 74,000</td>
<td>COMPAC bearings, WQP &amp; Thor-Coat</td>
<td>2001 - 2014</td>
</tr>
<tr>
<td>Fuzhou Haitong Shipping (China)</td>
<td>2–51,000</td>
<td>COMPAC bearings</td>
<td>2013</td>
</tr>
<tr>
<td>Atlantska Plovidba (Croatia)</td>
<td>2–38,000</td>
<td>COMPAC bearings, WQP</td>
<td>2014</td>
</tr>
<tr>
<td>Keystone Shipping (USA)</td>
<td>1 – 26,011</td>
<td>Compac &amp; WQP</td>
<td>2016</td>
</tr>
<tr>
<td>Sinotrans (China)</td>
<td>2–35,000</td>
<td>COMPAC bearings, WQP &amp; Thor-Coat</td>
<td>2010</td>
</tr>
<tr>
<td>Lower Lakes Towing (Canada)</td>
<td>1–36,245</td>
<td>COMPAC system, WQP &amp; Thor-Coat</td>
<td>2014</td>
</tr>
<tr>
<td>Algoma Central Corp. (Canada)</td>
<td>8</td>
<td>COMPAC bearings, WQP &amp; Thor-Coat</td>
<td>1999 - 2013</td>
</tr>
<tr>
<td>Interlake Steamships (USA)</td>
<td>7</td>
<td>COMPAC bearings (4), RiverTough bearings (3)</td>
<td>1998 - 2016</td>
</tr>
<tr>
<td>Polsteam (Poland)</td>
<td>3 – 35,500</td>
<td>COMPAC &amp; WQP</td>
<td>2016</td>
</tr>
</tbody>
</table>
REFERENCES

TANKERS

Lower Lakes Towing (Canada)
1 – 14,986 DWT tanker
Converted to COMPAC system, WQP & Thor-Coat
Delivered: 2015
Chengsi Shipyard (China)

Alaskan Tanker Company (USA)
4 – 193,049 DWT oil tankers
Equipped with COMPAC bearings
Delivered: 2004 - 2006
NASSCO (USA)

ConocoPhillips (USA)
5 – 141,739 DWT oil tankers
Equipped with COMPAC bearings & WQP
Converted: 2010 - 2012
Sembawang Shipyard (Singapore)

Fangchenggang City Hengsheng (China)
1 – 2,500 DWT & 1 – 3,050 DWT tanker
Equipped with COMPAC bearings
Wuhan Nanhua, Hubei Huanggang Shipyard (China)

Palmali Group (Turkey)
11 – 6,600 DWT tankers
Equipped with COMPAC bearings
Delivered: 1999 - 2009
BLTR (Estonia), Volgograd, Krasnoye Sormovo (Russia)

Xin Yuan Ocean Shipping (China)
2 – 12,000 DWT asphalt/bitumen tankers
Equipped with COMPAC bearings
Delivered: 2011 - 2012
COSCO, Navy 4807 Shipyard (China)

Fortune Marine Company Ltd. (South Korea)
4 – 6,500 DWT tankers
Equipped with COMPAC bearings
Delivered: 2008 - 2009
Pharung Shipyard (Vietnam)

Keo Young Shipping Co. Ltd. (South Korea)
1 – 2,747 DWT & 1 – 3,919 DWT tanker
Equipped with COMPAC bearings
Delivered: 2007 - 2008
Onnishigumi Zosensho (Japan)

REFERENCES

TANKERS

ConocoPhillips (USA)
5 – 141,739 DWT oil tankers
Equipped with COMPAC bearings & WQP
Converted: 2010 - 2012
Sembawang Shipyard (Singapore)

Fangchenggang City Hengsheng (China)
1 – 2,500 DWT & 1 – 3,050 DWT tanker
Equipped with COMPAC bearings
Wuhan Nanhua, Hubei Huanggang Shipyard (China)
### References

#### Container Ship/Dry Cargo

<table>
<thead>
<tr>
<th>Shipyard/Company</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carisbrooke Shipping Ltd. (UK)</td>
<td>8 cargo vessels – 4 ships at 8,500 DWT &amp; 4 ships at 10,200 DWT Equipped with COMPAC bearings Delivered: 2011 - 2013 Jiangsu Yangzijiang Shipbuilding (China)</td>
</tr>
<tr>
<td>Flinter Groningen (Netherlands)</td>
<td>26 dry cargo ships ranging from 3,500 DWT to 9,200 DWT Equipped with COMPAC bearings Delivered: 2002 - 2013 Kiran (Turkey), Haiphong (Vietnam), Ferus Smit (Germany), Westerbroek, Bodewes Shipyard (Netherlands)</td>
</tr>
<tr>
<td>COSCO (China)</td>
<td>6–28,000 DWT &amp; 8–36,000 DWT container /dry cargo vessels Equipped with COMPAC bearings, Thor-Coat &amp; WQP Delivered: 2013 - 2017 Nanqiang, Guangzhou, Shanghai Shipyard (China)</td>
</tr>
<tr>
<td>Tanto Intim Line (Indonesia)</td>
<td>2–4,705 DWT general cargo ships Equipped with COMPAC bearings Delivered: 1995, 1997 Keppel (Singapore), Novorossiysk Ship Repair (Russia)</td>
</tr>
<tr>
<td>Unitra Maritime Co. Ltd. (Japan)</td>
<td>3–9,667 DWT dry cargo vessels Equipped with COMPAC bearings Delivered: 2008 Nanjing Wujiazui Shipbuilding (China)</td>
</tr>
<tr>
<td>Lithuanian Shipping Co. (Lithuania)</td>
<td>1–4,470 DWT &amp; 1–5,836 DWT 221 TEU container ships Equipped with COMPAC bearings Delivered: 2006 - 2007 Western Shipyard (Lithuania), Tallin (Estonia)</td>
</tr>
<tr>
<td>Northwestern Shipping (Russia)</td>
<td>11 container ships ranging from 1,706 DWT to 3,030 DWT 118 TEU Equipped with COMPAC bearings Delivered: 1993 - 2001 Volgograd Shipbuilding (Russia)</td>
</tr>
<tr>
<td>Group Desgagnés (Canada)</td>
<td>2 –14,000 DWT dry container/dry cargo vessel on order Equipped with COMPAC &amp; WQP Delivered: 2017 Besiktas Shipyard (Turkey)</td>
</tr>
<tr>
<td>Meriaura Group (Finland) - VG - Shipping</td>
<td>2 –4,700 DWT dry cargo vessels on order Equipped with COMPAC bearings Delivered: 2016 Royal Bodewes (Netherlands)</td>
</tr>
</tbody>
</table>
**REFERENCES**

- **Princess Cruises (USA) - Carnival Corp.**
  - 12 cruise ships ranging from 108,000 GT to 143,700 GT
  - Equipped with COMPAC bearings
  - Delivered: 1998 - 2017
  - Fincantieri (Italy), MHI (Japan)

- **P&O Cruises (UK) - Carnival Corp.**
  - 3 cruise ships ranging from 116,000 GT to 143,730 GT
  - Equipped with COMPAC bearings
  - Delivered: 2008 - 2015
  - Fincantieri (Italy)

- **Seabourn Cruise Lines (USA) - Carnival Corp.**
  - 4 cruise ships ranging from 32,200 GT to 40,350 GT
  - Equipped with COMPAC bearings
  - Delivered: 2009 - 2017
  - Mariotti (Italy)

- **Viking Cruise Lines (Austria)**
  - 4 – 47,800 GT cruise ship
  - Equipped with COMPAC bearings
  - Delivered: 2015 - 2018
  - Fincantieri (Italy)

- **Regent Seven Seas Cruises (USA) - Norwegian Cruise Lines**
  - 1 – 54,000 GT cruise ship
  - Equipped with COMPAC bearings
  - Delivered: 2016
  - Fincantieri (Italy)

- **Disney Cruise Lines (USA)**
  - 4 cruise ships ranging from 85,000 GT to 124,000 GT
  - Equipped with COMPAC bearings
  - Fincantieri (Italy), Meyer Werft (Germany)

- **Oceania Cruises (USA)**
  - 2 – 65,000 GT cruise ships
  - Equipped with COMPAC bearings
  - Delivered: 2010 - 2011
  - Fincantieri (Italy)

- **Viking Cruises (Austria)**
  - 4 – 47,800 GT cruise ship
  - Equipped with COMPAC bearings
  - Delivered: 2015 - 2018
  - Fincantieri (Italy)
REFERENCES

THORDON Seawater Lubricated Propeller Shaft Bearings

Anek Lines (Greece)
1 – 9,851 GT ferry
Converted to SXL bearings, Thor-Coat
Delivered: 2015

Sado Kisen (Japan)
1 passenger ferry
Equipped with SXL bearings
Delivered: 2014
Kanda Shipyard (Japan)

ANMEZ AE (Greece)
1 – 6,307 GT passenger ferry
Equipped with SXL bearings
Delivered: 2013
Elefssis Shipyard (Greece)

BC Ferries (Canada)
10 ferries ranging from 6,555 GT to 6,969 GT
Equipped with COMPAC bearings
Delivered: Since 2003
Washington Marine Group (Canada)

Grimaldi Group (Italy)
2 – 49,257 GT ferries
Equipped with COMPAC bearings
Delivered: 2001 - 2002
Marina di Carrara (Italy)

New York City Staten Island Ferries (USA)
3 – 5,901 GT ferries
Equipped with COMPAC bearings
Delivered: 2004 - 2006
Marinette Marine (USA)

FERRIES

FERRIES

Société des traversiers du Québec (Canada)
6–1,500 GT ferries
Equipped with COMPAC bearings
Delivered: 1996 - 2002
MIL Davie Industries (Canada)

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WITH OPEN SEAWATER LUBRICATED PROPELLER SHAFTS

PROVEN PERFORMANCE:
550+ commercial ships are using Thordon COMPAC bearings

SUBSTANTIALLY LOWER OPERATIONAL COST:
Compared to a sealed oil system

FUTURE COMPLIANT:
Meets VGP & Polar Code Regulations

Specify an Open Thordon COMPAC Seawater Lubricated Propeller Shaft Bearing System for your newbuild.

To learn more visit us online at thordonbearings.com/provenperformance
REFERENCES

**AHTS**

- **China Oilfield Services Limited (China)**
  - 7–12,000 HP AHTS vessels
  - Equipped with COMPAC bearings, WQP
  - Shanghai, Shipyard (China); Wuhan Shipbuilding (China)

- **China Oilfield Services Limited (China)**
  - 5 – 2,300 DWT AHTS vessels
  - Equipped with COMPAC bearings
  - Delivered: 2016
  - Wuhan Shipbuilding & Fujian Mawei Shipbuilding (China)

- **Great Offshore (India)**
  - 3 AHTS vessels ranging from 2,339 DWT to 3,319 DWT
  - Equipped with COMPAC bearings
  - Great Eastern Shipping (India)

- **Seacor Marine (USA)**
  - 5–4,500 DWT AHTS vessels
  - Equipped with COMPAC bearings
  - Delivered: 2007 - 2008
  - Bender Shipbuilding (USA)

- **Tidewater Inc. (USA)**
  - 5 AHTS vessels ranging from 3,297 DWT to 4,500 DWT
  - Equipped with COMPAC bearings
  - Delivered: 2005 - 2006
  - ENVAI Shipyard (Brazil)

**OTHER VESSELS**

- **HEROYHAV (Norway)**
  - 1 fishing vessel
  - Equipped with COMPAC bearings
  - Delivered: 2013
  - Karstensen Shipyard (Norway)

- **PEVASA Group (Spain)**
  - 1 tuna fishing vessel
  - Equipped with COMPAC bearings & WQP
  - Delivered: 2014
  - Astilleros de Murueta Shipyard (Spain)

- **Louis - Dreyfus Armateurs (France)**
  - 3 cable ships ranging from 9,820 DWT to 10,000 DWT
  - Equipped with COMPAC bearings
  - Delivered: 2001 - 2002
  - Hyundai Mipo Shipyard (South Korea)

- **Heerema Engineering Services (Netherlands)**
  - 2–59,344 DWT offshore vessels
  - Equipped with COMPAC bearings
  - Delivered: 2001, 2004
  - Drunen, Verolme Botlek Shipyard (Netherlands)

- **COSCO (China)**
  - 2–18,500 DWT car carriers equipped with COMPAC bearings
  - 1–90,000 DWT semi - submersible vessels equipped with COMPAC bearings, Thor-Coat, WQP
  - Delivered: 2009 - 2017
  - COSCO Zhoushan, Nangtong, Shanghai, Guangzhou (China)

- **China Oilfield Services Limited (China)**
  - 3 seismic vessels, 1 deepwater 2D seismic vessel
  - Equipped with COMPAC bearings, WQP
  - Shanghai, Shipyard (China)