Shiplifts

Our unique capability is your solution
Our experience – Your infrastructure

Shiplifts must be operated at a high utilisation to recoup the major investment in equipment and supporting infrastructure. We have planned and designed many shipyards incorporating shiplifts where this launch and retrieval system is the most economical. Our global track record in designing the shiplift supporting civil engineering infrastructure, developed over the last 30 years, gives us the capability to deliver cost effective solutions to the demanding standards and requirements of modern shiplift systems.

A shipyard’s business can be wholly dependent on the reliability of the shiplift facility. In the more efficient shipyards they can be required to function on a daily basis. Shiplifts with winches are the most common and these demand a higher performance from the supporting structure than is require from routine maritime civil engineering, especially deflection.

Our experience includes the whole family of shiplifts

Winched – ships lifted vertically on platforms connected to winches, then transferred horizontally to land based berths on rail systems.

Hydraulic liftdocks – ships lifted vertically by water impounding systems, then floated laterally across the land to berths which subsequently become dry.

Floating dock lifts – ships docked and raised in a floating dock with subsequent horizontal rail or transporter end transfer facility onto the land.
Our experience covers projects across the full spectrum of shiplift size, lift capacity, ground conditions, new shipyard greenfield sites and retrofitting, to upgrade existing shipyards. The following project examples cover the range of:

- **Lift capacity**: 1,070 tonnes to 25,000 tonnes
- **Platform size**: length 32.5m to 188.4m, width 12m to 34m
- **Type of business**: naval (surface & submarines), commercial, cruise shipbuilding and ship repair
- **Transfer**: end only to land transfer area, side only to land transfer area, side and end to land transfer area
- **Shiplift type**: winched, hydraulic lift dock, floating dock lift
- **Ground conditions**: granite, dense sand, reclaimed land with soft marine clays, former mangrove swamp
- **Service to client**: shipyard planning to optimise utilisation, detailed design of shiplift infrastructure, project and procurement management, technical audit and value engineering
- **Locations**: from Scotland to Egypt to India to Malaysia to Australia
Shiplift experience

Osborne Common User Shiplift Facility, Adelaide, Australia

The South Australia State Government is promoting the development of a Centre of Excellence in Marine and Defence Related Industries. At the centre of the development is a common user shiplift facility which is the largest in the Southern Hemisphere. Royal HaskoningDHV acted as Technical and Procurement Advisor covering contract administration, engineering, inspection and survey, site supervision, technical assistance, tender documents and contracts.

- **Lift capacity**: 17,000 tonnes (extendable to 25,000 tonnes)
- **Platform size**: 150m long (extendable to 230m) x 34m wide
- **Type of business**: mixed naval and commercial shipbuilding and ship repair
- **Transfer**: end only to transfer area on rail mounted carriages followed by side and end transfer to dry berths
- **Shiplift type**: 20 pairs of electric winches (extendable to 32 pairs of winches)
- **Ground conditions**: sensitive clays

Goa Shipyard Modernisation, India

The key element of this major modernisation programme, is the construction of the new shiplift facility. The modernisation plan drawn up by Royal HaskoningDHV will greatly improve the productivity for new building and repair of steel vessels, plus the construction of fibre-glass vessels.

All aspects of the design of the shiplift facility including procurement have been entrusted to Royal HaskoningDHV by the Government of India owned Goa Shipyard Ltd.

- **Lift capacity**: 6,000 tonnes
- **Platform size**: 120m long x 25m wide
- **Type of business**: mixed naval and commercial shipbuilding and ship repair
- **Transfer**: end only to transfer area on rail mounted carriages followed by side and end transfer to dry berths
- **Shiplift type**: 14 pairs of electric winches
- **Ground conditions**: alluvial deposits
Benoi Shipyard Shiplifts, Singapore
Our survey of an existing shiplift at the ST Marine Benoi Yard found premature degradation of the supporting structure due to an inadequate understanding of the design requirements by the original designer. We were immediately commissioned to design and procure a new larger shiplift adjacent to enable the client to continue operations. The new construction took place with all other shipyard operations ongoing around it. We subsequently designed and procured a second smaller shiplift.

- **Lift capacity**: 5,200 tonnes
- **Platform size**: 100m long x 20m wide
- **Type of business**: mixed naval and commercial shipbuilding and ship repair
- **Transfer**: side transfer and end transfer to land on rail mounted carriages
- **Shiplift type**: 13 pairs of electric winches
- **Ground conditions**: soft marine clays overlain by reclamation material

Suez Canal Authority Armant Project, Egypt
A turnkey contract by one of the global market leaders in shiplift equipment for the Suez Canal Authority. Aware of the importance of a specialist civil engineering designer experienced in shiplifts, the equipment supplier commissioned Royal HaskoningDHV to carry out the full detailed design of the supporting structure and transfer areas.

- **Lift capacity**: 3,400 tonnes
- **Platform size**: 17m long x 75m wide
- **Type of business**: repair of cruise and ferry vessels
- **Transfer**: side transfer to land on rail mounted carriages
- **Shiplift type**: 6 pairs of electric winches
- **Ground conditions**: dense sand
Shiplift experience

Fraserburgh Harbour Shiplift Facility, Scotland
This is the first purely commercial shiplift constructed in the UK. Whilst not the smallest shiplift project in our experience, this is an example of a small shiplift which required all the attention and expertise of a major shiplift to achieve a successful facility. In addition to the usual challenges of supporting structure performance was the very hard granite founding material which also formed part of the shiplift basin walls.

- **Lift capacity**: 1,070 tonnes
- **Platform size**: 32.5m long x 12m wide
- **Type of business**: repair of large fishing trawlers
- **Transfer**: end transfer on rail mounted cradles
- **Shiplift type**: 3 pairs of electric winches
- **Ground conditions**: granite

MMHE Shiplift, Malaysia
Royal HaskoningDHV was commissioned to carry out a technical audit of the support structure (piers, transfer and dry berth areas) design to check on its adequacy. Subsequently building on the in depth understanding of the design and the special requirements for shiplift facilities, Royal HaskoningDHV advised on value engineering opportunities for the shipyard to reduce the capital costs.

- **Lift capacity**: 24,000 tonnes
- **Platform size**: 188.4m long x 33.8m wide
- **Type of business**: repair commercial ships
- **Transfer**: end transfer on rail mounted cradles
- **Shiplift type**: 55 pairs of electric winches
- **Ground conditions**: former mangrove swamp
Safina Hydrolift, Dubai, UAE
The project for Dubai Drydocks included a unique hydrolift facility used to launch and recover ships from a fabrication yard at ground level to the sea. The project involved the construction of a large impounded basin, with diaphragm walls, two steel entrance gates, massive concrete abutments and a loading platform. Royal HaskoningDHV provided design and construction phase services.

- Lift capacity: limited only by vessel dimensions
- Platform size: 360m long by 60m wide
- Type of business: oil storage vessels
- Transfer: vessels floated laterally
- Shiplift type: hydraulic lift dock
- Ground conditions: sands overlying sandstone

Shiplifts for Royal Dutch Navy, Netherlands
Royal HaskoningDHV has worked for the Royal Dutch Navy on two shiplift projects. In Den Helder our role included the design for the shiplift support structure and associated transfer systems. In Rotterdam, the shiplift facility was designed for a new class of submarine, with a state-of-the-art system for positioning the vessel precisely over the keep blocks. Royal HaskoningDHV provided design of all the support structure and transfer area, to the demanding performance requirements of the shiplift.

- Lift capacity: 2,500-4000 tonnes
- Platform size: 70-76m long by 15m wide
- Type of business: submarine maintenance and naval vessel repair
- Transfer: end transfer on rail mounted cradles
- Shiplift type: 9 pairs/11 pairs of electrical winches
- Ground conditions: soft clay/sand layers on dense sand
About Royal HaskoningDHV
With its headquarters in Amersfoort, the Netherlands, Royal HaskoningDHV is an independent, international project management, engineering and consultancy service provider. Ranking globally in the top 10 of independently owned, non-listed companies and top 40 overall, the company’s 7,000 staff provide services across the world from more than 100 offices in over 35 countries.

Our connections
Innovation is a collaborative process, which is why Royal HaskoningDHV works in association with clients, project partners, universities, government agencies, NGOs and many other organisations to develop and introduce new ways of living and working to enhance society together, now and in the future.

Memberships
Royal HaskoningDHV is a member of the recognised engineering and environmental bodies in those countries where it has a permanent office base.

All Royal HaskoningDHV consultants, engineers, architects, planners, environmental and other specialists are members of their individual branch organisations in their various countries.

Company QHSE Management
Royal HaskoningDHV is committed to Quality, Health, Safety and Environmental (QHSE) Management and this lies at the heart of the management of all projects.

The Company’s H&S system complies with the requirement of The Health and Safety at Work Act 1974 and is certified by Lloyds Register under Certificate Number RQA664199.

The company’s QMS complies with the requirements of BS/NEN-EN-ISO 9001:2000 and is certified by Lloyds Register Quality Assurance. The Approval Certification Number is 655229.

The QMS also includes an Environmental Management System (EMS) which complies with the requirements of BS/NEN-EN-ISO 14001:2004 and for which registration is being rolled out across the company. The Approval Certification Number is 663206 for the Netherlands and 662753 for the UK.

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