



## Innovative solutions

Royal HaskoningDHV delivers specialist design and consultancy services for major coastal and inland maritime projects in the UK, Europe and across the world.

Our mechanical engineering team work closely with clients to meet project objectives, achieve the most cost effective solution and deliver added value wherever possible. We provide technical expertise for the whole life cycle and aim to build long term working relationships through the mutual exchange of knowledge and experience.

We deliver projects and activities within the following sectors:

- Container terminals
- Passenger and vehicle terminals
- Liquid bulk terminals
- Dry bulk terminals
- Naval base and defence facilities
- Shipbuilding/ ship repair yards and dry dock facilities
- Moveable bridges, dock and lock gates, weirs, sluices, dams and pumping stations

Our experts offer a wide range of services, including: design; specification and inspection during manufacture; project management; supervision of installation and commissioning; service condition surveys; safety surveys, inspection and maintenance programmes.

We have extensive experience of ports, coastal environments and inland waterways and deliver services for: docks; river and canal navigation locks; river flow control structures; tidal defence barriers; land drainage and other raw water pumping stations; fire fighting systems; petroleum product handling; dry dock gates and pumping systems; lifting equipment; RO-RO linkspans; passenger walkways; lifeboat cradles and port equipment condition surveys.

We provide mechanical engineering design and consultancy services for the distribution of potable water pipelines and pipework design, plant and control room design, asset condition surveys, pumping systems, motors, gearboxes, winches, drive systems and corrosion control.

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We also have considerable expertise in fuel, oil and gas distribution, including:

- Design of pipework systems and calculations for pipe sizing
- Detailed specifications and design of fluid pumping machinery
- Material selection
- Distribution, storage, containment and bunding
- Protection of fuel, plant and associated equipment.

Our professionals can advise on the design of fire fighting systems and strategies, and fire detection and prevention. We identify the fire fighting protection measures needed to meet both our clients' operational requirements as well as the mandatory requirements of international legislative bodies, insurance companies and fire brigades.

As part of our commitment to meet best practices and international legislation we often undertake professional risk assessment for marine terminals to assess and mitigate potential hazards in design, construction and operation. We are professional members of the National Fire Protection Agency and the International Cargo Handling Association.

We have worked with complete storage and distribution systems for many different types of industrial gases, including acetylene, methane, LPG, oxygen, carbon dioxide, compressed air and argon. We are able to analyse the requirements of a particular site in terms of the size of the demand, both peak and average, and identify the specific locations within the site that will require gas supplies. We then use this information to determine the optimal locations for storage compounds and routing for distribution pipework.

We have many years of experience in flood defence, hydraulic fluid power, water and wastewater treatment systems, penstocks, sluices. We also design swing bridges, lift bridges, mitre, flap, floating, sliding, rolling lock and dock gates, ballasting and bunkering systems.

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