

BOLLARDS, MOORING & SHIPHAULING

DAMEN CIVIL PRODUCT

GENERAL

Ref/No	23
Basic functions	Quay equipment

DIMENSIONS (APPROX.)

Length	varied	m
Width	varied	m
Height	varied	m
Area	-	m ²
Volume	-	m ³
Weight	-	t

TRICORN & T-HEAD BOLLARDS

Tricorn Bollards provides more holding power than any other bollard in its class, even on line angles up to 70°. Its generous trunk diameter reduces mooring line stresses. Integrated load fuses and capacities up to 2500kN are available.

T-Head Bollards can handle line angles up to 45°. Bollard capacities of up to 2000kN are available.

K-HEAD, QUAD-HEAD & T-HORN BOLLARDS

K-Head Bollards are a popular, economical choice for applications with a single mooring line per bollard and with lower ranges of vertical line angle than Tricorn Bollards.

Quad-Head Bollards provide the best holding power in its class, even on line angles up to 70°.

T-Horn Bollards accept multiple mooring.

DESCRIPTION

Damen Civil ensures that every bollard anchor that we supply is right for the job. Our design team will collaborate closely with you to match your project's special requirements. Anchor systems and mounting instructions are unique to each bollard type.

Damen consults, designs, produces and commissions engineered solutions for a vast range of marine and port construction applications.

BOLLARD MATERIALS

Before cast steel was readily available, bollards were made in different grades of cast or ductile cast iron. Most modern ports now recognise the great benefits of cast steel but it is important to understand the differences between the materials to appreciate the benefits and advantages of cast steel compared to any grade of cast or ductile cast iron. The main characteristics and benefits of cast steel, cast iron and ductile (SG) iron and grey iron, are defined below to help designers and specifiers of bollards make informed choices.

SHIPHAULING SYSTEM/WINCHES/CAPSTANS

Damen Civil design and build a range of winches and capstans for warping and hauling vessels along berths.

Winches can be deployed at each end of the berth with a rail and carriage system which act as a 'mule' to haul the vessel in either direction. The winches can incorporate a Leadscrew Levelwind System for even spooling of.

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TRICORN



T-HEAD



K-HEAD

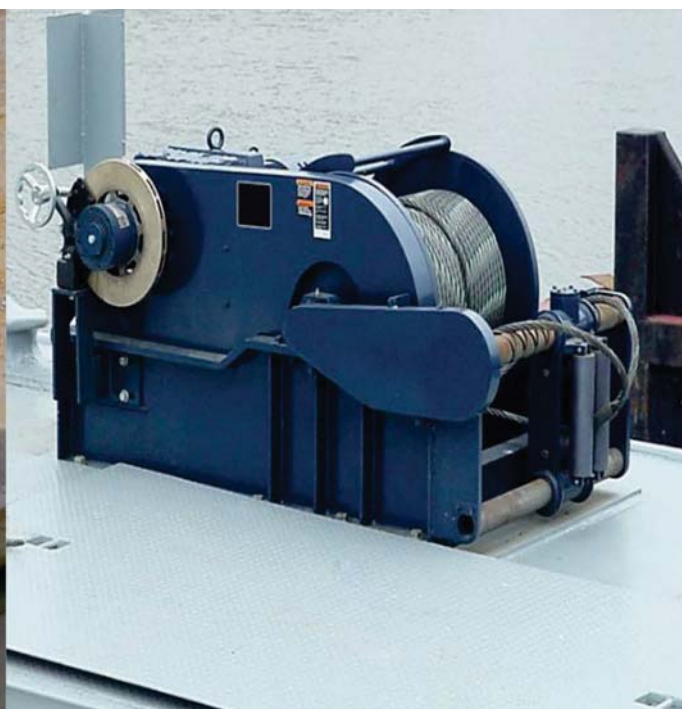
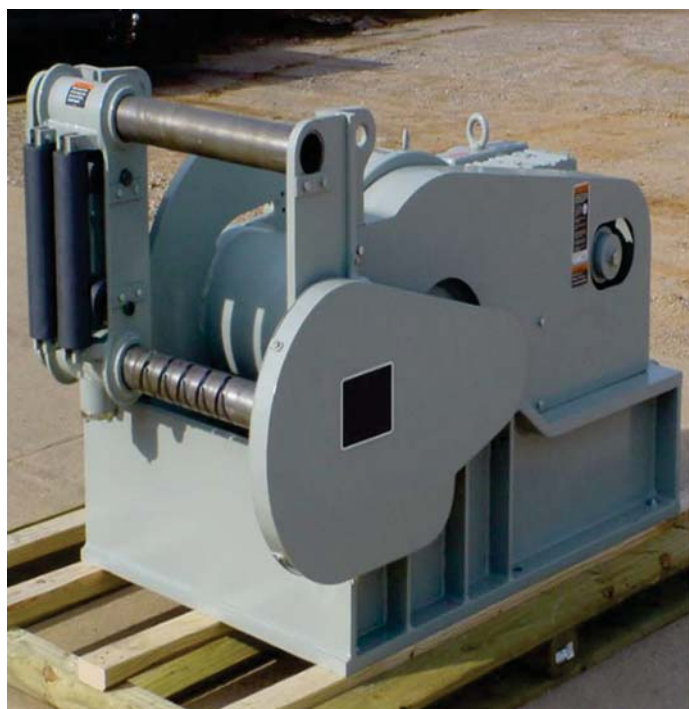


QUAD - HEAD



T-HORN

BOLLARD RANGE



SHIPHAULING SYSTEM

DAMEN

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