



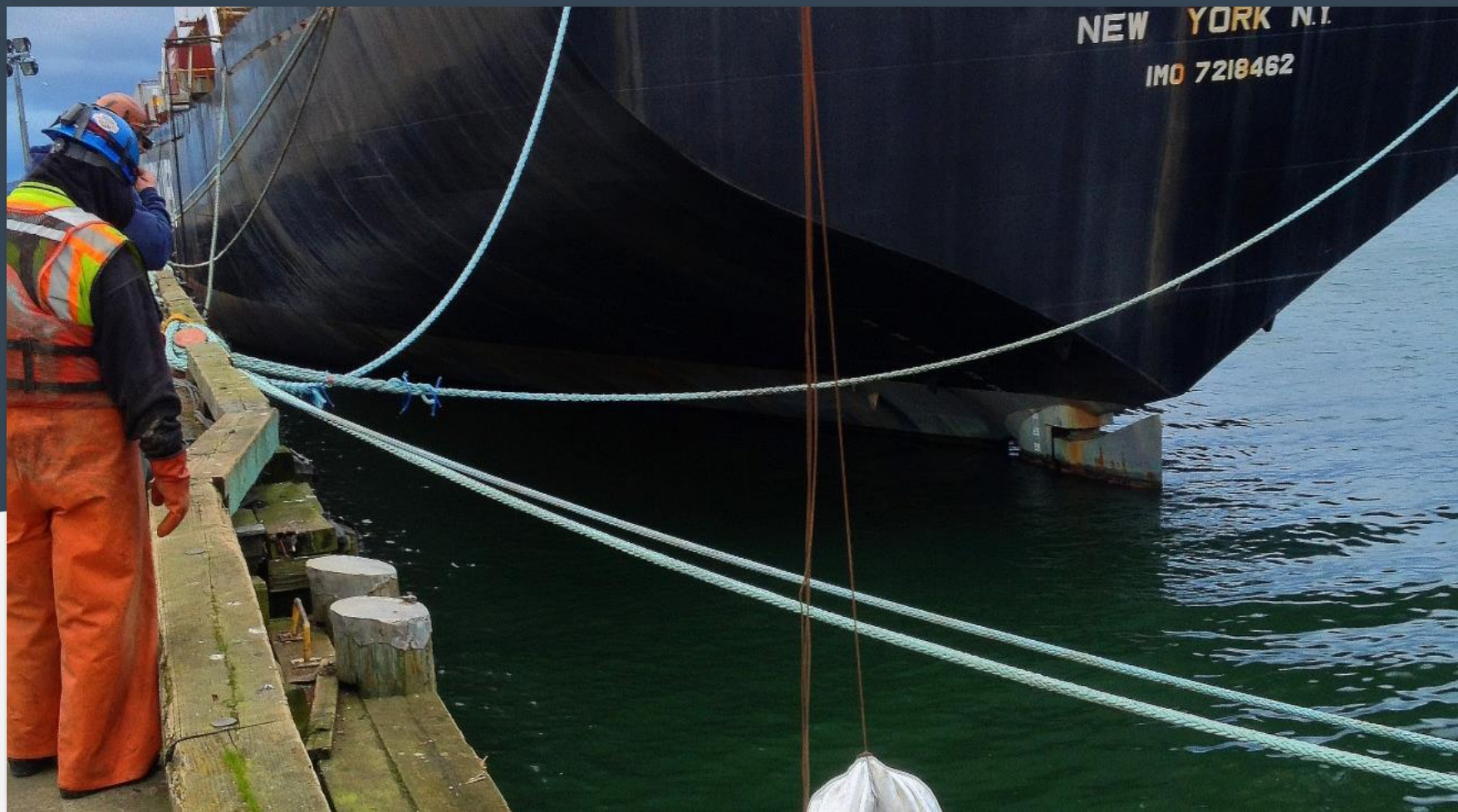
FABRIC-FORMED CONCRETE MATTRESSES

APPLICATIONS: PORTS

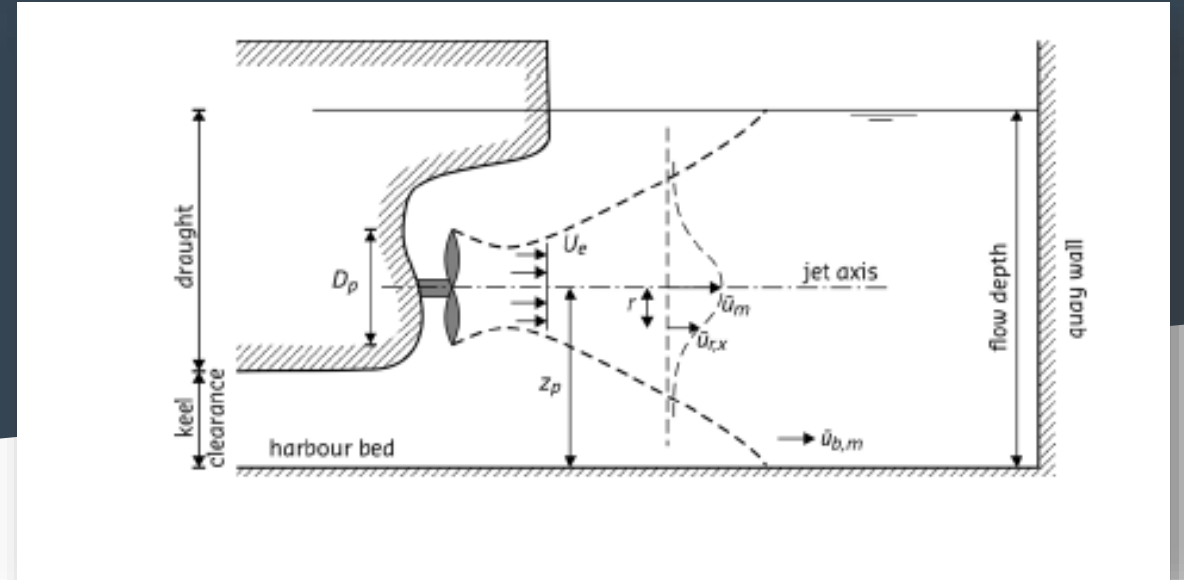
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PORTS



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Berth Scour Protection

- Custom Fabrication
- Design Assistance
- Global Experience

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Calculations

- Efflux velocity (thrusters)
- Efflux velocity (main propellers)
- Buoyant relative density
- Minimum thickness of fabric-formed concrete mattress

Dutch Method

$$D_n = \frac{\phi_c}{\Delta_m} \cdot \frac{0.035}{\psi_{cr}} \cdot \frac{k_h}{k_s} \cdot \frac{k_t^2 \cdot U_{bx}^2}{2 \cdot g}$$

Where:

Δm = relative density
 g = gravity
 U_{bx} = vertical flow velocity
 ϕ_c = stability parameter
 ψ_{cr} = critical shields-parameter
 K_s = slope parameter
 K_t = turbulence factor
 K_h = depth parameter

Método PIANC

$$D_n \geq \frac{C_L}{2 \cdot \Delta_m \cdot g} \cdot U_{bottom}^2$$

Where:

Δm = relative density
 g = gravity
 C_L = lift factor
 U_{bx} = velocity at the base

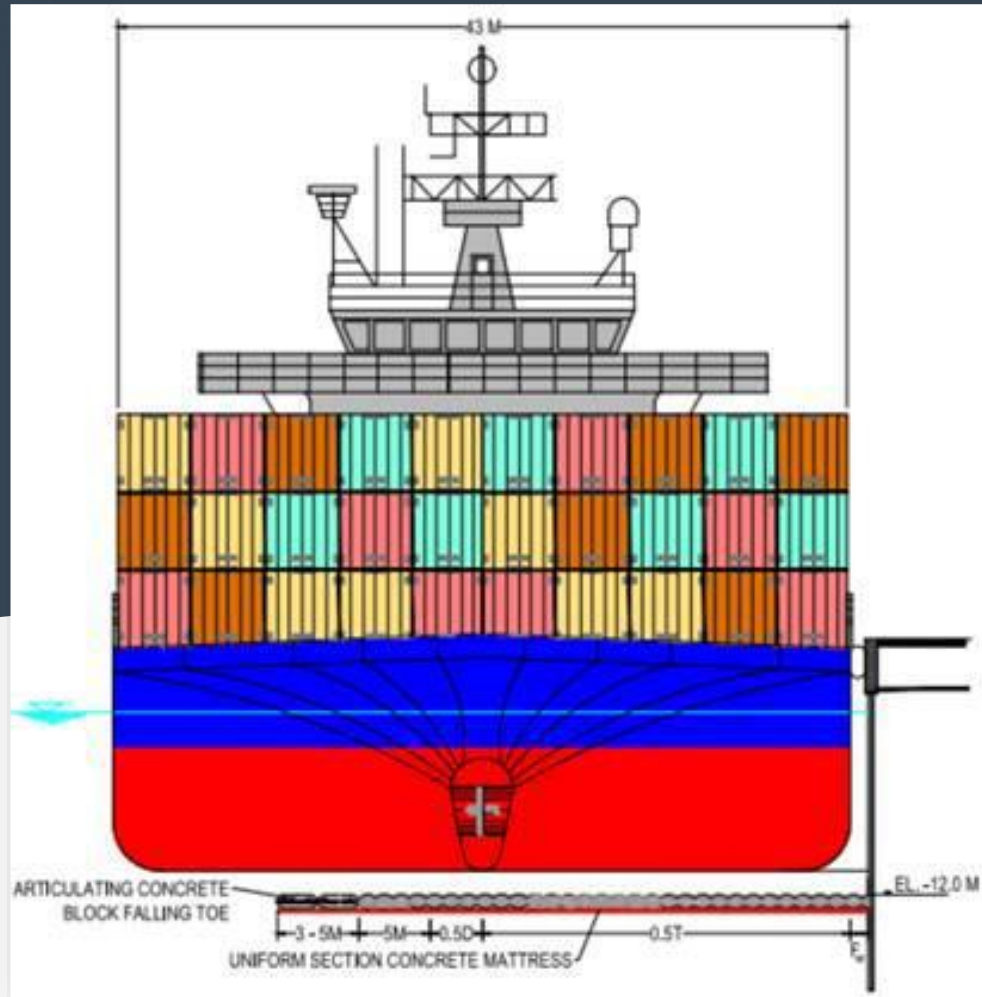
Método Alemán

$$D_n = \frac{FS \cdot A \cdot S_d}{f_{DW} \cdot \rho_w \cdot \Delta_m}$$

Where:

FS = minimum safety factor, $FS = 2$
 A = average suction factor
 f_{DW} = dead weight factor
 Δm = relative density
 S_d = Design peak suction load

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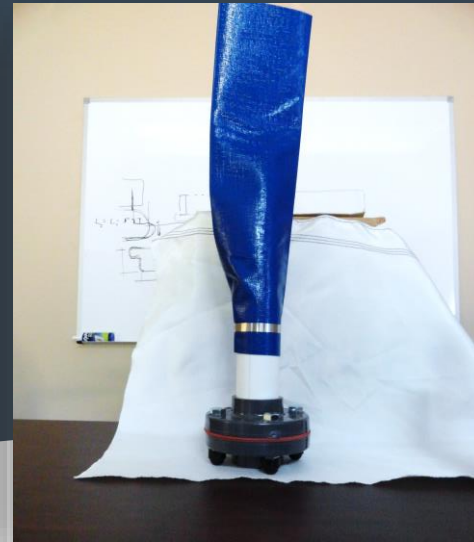


Width of scour protection

$$B_{Protection} = B_{qua} + 0.5 T + 0.5 D_p + 5m$$

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ACCESSORIES



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Experience in ports around the world

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Canaveral Port Authority Brevard County, Florida (USA)

PROJECT DETAILS

Project	Cruise Terminals
Owner	Brevard County
Operator	Canaveral Port Authority
Engineer	CH2M Hill
Contractor	Various

DETAILS

Year of Installation	2000 - 2010
Hydrotex™ Style	Articulating Block AB600, AB800 and AB1200
Quantity Installed	500,000 SF



Port of Houston Authority Houston, Texas (USA)

PROJECT DETAILS

Project	Barbours Cut Terminal
Owner	City of Houston
Operator	Port of Houston Authority
Engineer	Dannenbaum Engineering
Contractor	Zackry Construction

DETAILS

Year of Installation	2005
Hydrotex™ Style	Articulating Block - AB600, AB800 and AB1200
Quantity Installed	200,000 SF

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Port of Cape Town Republic of South Africa

PROJECT DETAILS

Project	Ben Schoeman Quay Refurbishment
Owner	City of Cape Town
Operator	Transnet National Port Authority
Engineer	ZAA Engineering Projects & Naval Architecture (Pvt) Ltd.
Contractor	WBHO – Cape Division

DETAILS

Year of Installation	2008—2010
Hydrotex™ Style	Articulating Block - AB1000 and AB1200
Quantity Installed	200,000 SF



Port of Durban Republic of South Africa

PROJECT DETAILS

Project	Reconstruction of Berth Quay Slope Protection
Owner	City of Durban
Operator	Transnet National Port Authority
Engineer	WML Coast (Pvt) Ltd.
Contractor	Stefanutti Stocks Marine

DETAILS

Year of Installation	2008—2010
Hydrotex™ Style	Articulating Block - AB800
Quantity Installed	50,000 SF



Berth Scour Protection

- Additional Information Available
- Detailed Case History