

PRESS RELEASE

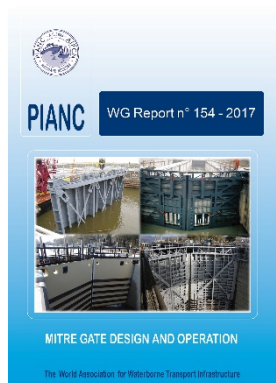


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The World Association for Waterborne
Transport Infrastructure

3 August 2017

NEW PIANC PUBLICATION AVAILABLE



Title: 'Mitre Gate Design and Operation'

Author's: InCom Working Group 154

Price: € 185.00 (160 pages)

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Introduction:

A large percentage of the navigation locks in the world use mitre gates. Double-leaf mitre gates are critical components for system reliability of navigation locks. The system reliability of a developed waterway is very dependent on the successful long-term operation of mitre gates. Experience has shown that mitre gates have performed very well although there have been a number of issues and concerns. There have been examples of mitre gates failing to perform as designed and as a consequence, it has been recognised that there is a need to improve on past designs. This Working Group Report on 'Mitre Gate Design and Operation' is a compilation of worldwide 'Best Practices' and lessons learnt.

This report gives an introduction, history, and terminology distinct to mitre gates. General design aspects, advantages, disadvantages of mitre gates and other types of lock gates are discussed to aid in selection of type of lock gate used.

The primary components of mitre gates are: hinges, Anchorages, contact blocks, filling and emptying, alves, framing, diagonals, drive systems, operating system connections, gate recess features and seals. In addition to main components, ancillary components, while not primary, are essential to proper operation of a mitre gate: walkways and other access, lubrication of components, gate leaf alignment features and impact protection systems.

These components are discussed in detail along with the general geometrical and structural system layouts. Advantages and disadvantages of these component varieties are also explored.

Mitre gate design guidance from around the world is listed for comparison and aid to designers. This report provides guidance and outlines potential issues that may be encountered during the design phase of a new mitre gate. In addition to outlining general guidance, an awareness is raised of both normal and unexpected design conditions that can alter design approach, methodology, and detailing of gate features. Comprehensive design is expected to ease construction, lower maintenance effort, enhance reliability, and extend the service life of the gate structure. In general, gates should be designed such that the failure mechanism is ductile and provides warning before failure. To aid mitre gate design, component materials such as steel, timber and nonferrous materials are evaluated. Materials are reviewed for specific function such as main framing, sliding, and sealing materials. General and specific requirements are given for material properties, working life, and failure mechanisms.

A brief summary of maintenance issues are discussed including spare parts, spare gates, standardisation, methods of repair, ice and debris management, inspections, structural health monitoring.

NOTE: The objective of this report is to provide information and recommendations on good practice. Conformity is not obligatory and engineering judgement should be used in its application, especially in special circumstances. This report should be seen as an expert guidance and state of the art on this particular subject. PIANC disclaims all responsibility in case this report should be presented as an official standard.

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