

# S L U T I O N S

## PROJECT:

*Haifa Port — Israel*

**OWNER:** *Israeli Port Authority*

**YEAR:** *2016*

## The Details

PROJECT CONTRACTOR:

SHAPIR/ASHTROM (Joint Venture)

PROJECT ENGINEER:

Haifa Ports Authority

MARKET/ENVIRONMENT:

Marine

SUBSTRATE

Concrete

PRODUCT USED:

**Five Star Structural Concrete® Underwater Hand Pack**

SIZE OF PROJECT

320 x 36 lb. Units — Over 5 metric tons

**The Challenge** — Haifa Port, Israel's largest and leading port, is located in a natural, protected bay and includes many facilities that allow for the shipping and transportation of all types of cargo, as well as docking facilities for large passenger liners. During the positioning and sinking of concrete caissons that were cast on rigs and then towed to their installation locations, the caissons sustained mechanical damage. Once in place these underwater caissons needed to be repaired.

**The Solution** — **Five Star Structural Concrete® Underwater Hand Pack**, supplied locally by Five Star® licensee Shoshani & Weinstein, was chosen for its high early strength and because it is ideal for small hand placements with minimal underwater washout. Professional divers from Nashon Ltd. were called in to make the repairs and this project was completed with no delays to the installation timeline.



Underwater Caisson Repair



**FIVE STAR**

Specified by the World's Best™

**FiveStarProducts.com**

# STRUCTURAL CONCRETE® UNDERWATER HAND PACK

**Hand Applied, Rapid Strength Underwater Repair**

## PRODUCT DESCRIPTION

Five Star Structural Concrete® Underwater Hand Pack is a rapid strength gain, single component, permanent concrete repair material intended for underwater application by hand or trowel. This concrete repair material allows small volume hand placements with minimal underwater washout. Designed for placement in tidal zones and underwater, application thickness may range from one-half inch (13 mm) to several inches in a single installation. Five Star Structural Concrete® Underwater Hand Pack provides corrosion protection of steel reinforced structures with migrating corrosion inhibitor technology and very low chloride ion permeability.

## ADVANTAGES

- Rapid set underwater placement
- Minimal washout
- Saltwater resistant
- Chloride and sulfate resistant
- High early strength
- Variable application thickness
- One component for reliability and ease of use
- Migrating corrosion inhibitor technology

## USES

- Underwater repair of concrete tanks, dams and hydraulic structures
- Filling underwater concrete cavities and voids
- Underwater repair of concrete piles, piers, seawalls and marine structures

## FIVE STAR® SERVICES

- Design-A-Spec™ engineering specification assistance
- Technical on-call center with field and project experienced staff
- Field support representatives for on-site consultation
- Corporate research laboratory available to customize products for unique applications



For worldwide availability, additional product information and technical support, contact your local Five Star® licensee, distributor, local sales representative, or you may call the Five Star Products' Engineering and Technical Service Center at 1-800-243-2206 (from the U.S.) or +1 203-336-7900 (outside the U.S.).

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Printed in the U.S.A. | Lit No. 12816 Rev. B