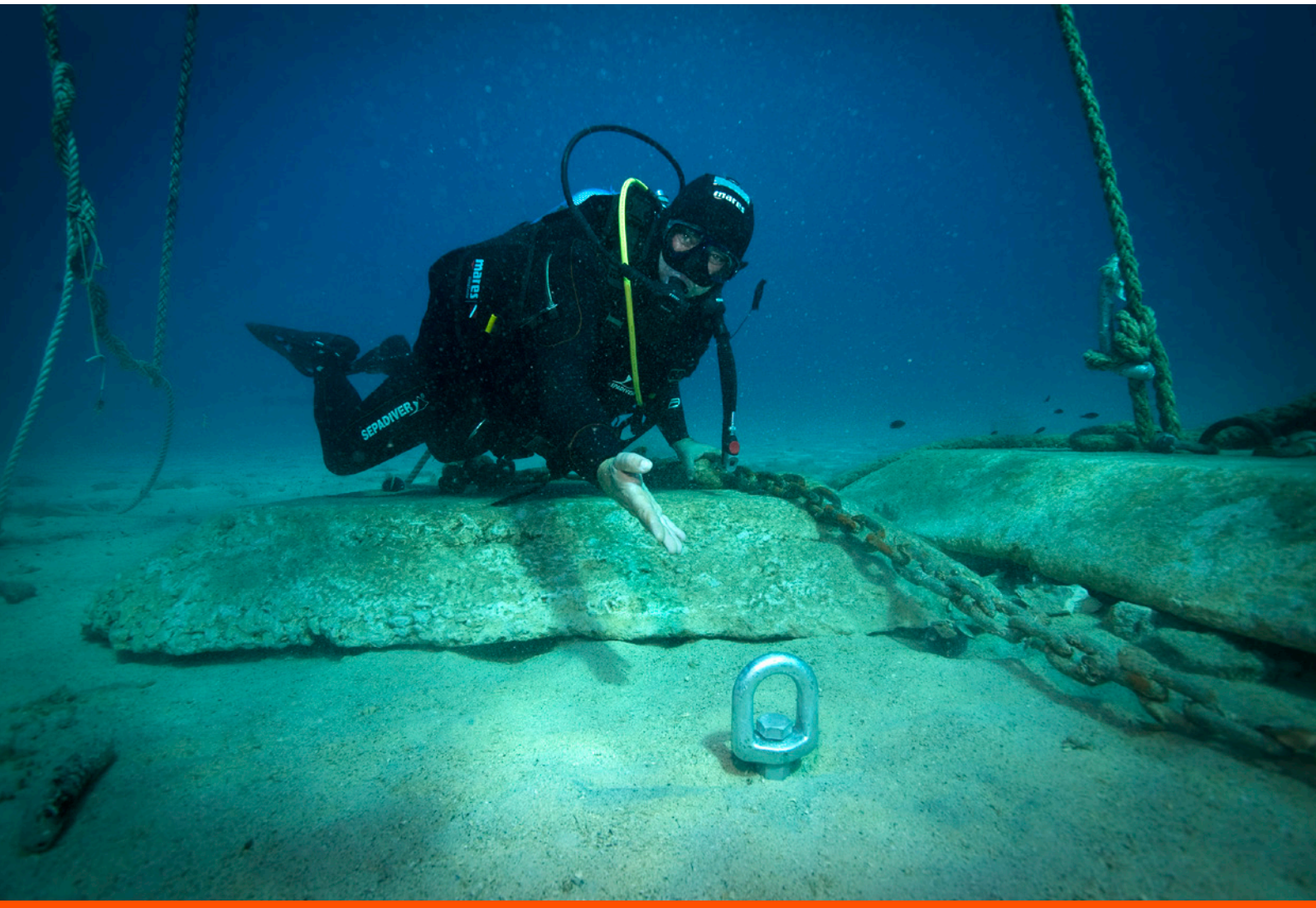
INTERNATIONAL BV



INTERNATIONAL

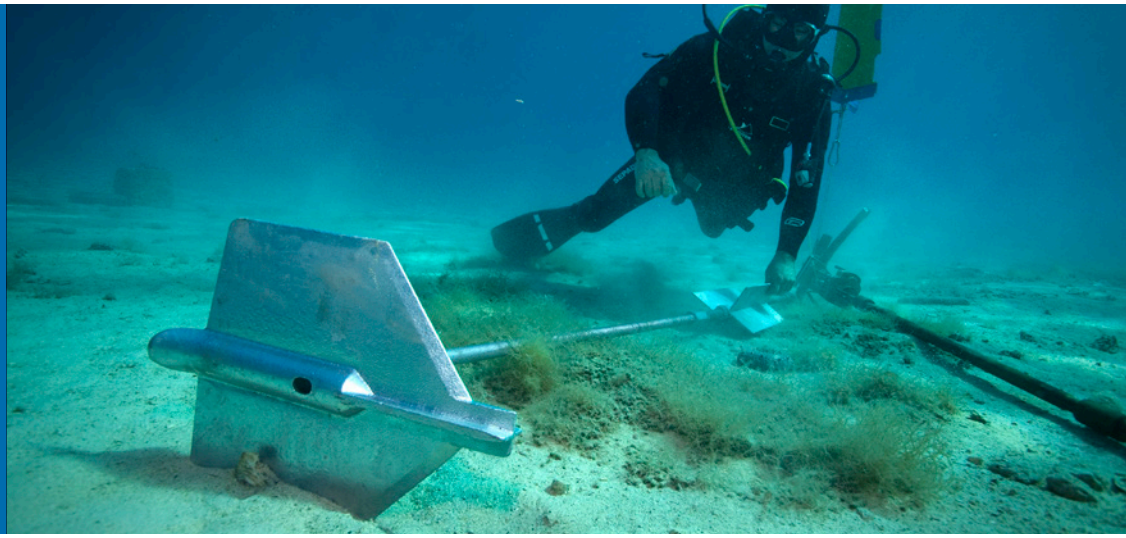
INNOVATIVE ON THE SHORELINE

www.JLDinternational.com

JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

Safety, quality and environment are paramount at JLD.
*We are: VCA ** | ISO 9001 | CO_2 Level 5 certified.*
More information can be found on our website.



ECOLOGICAL MOORING SOLUTION

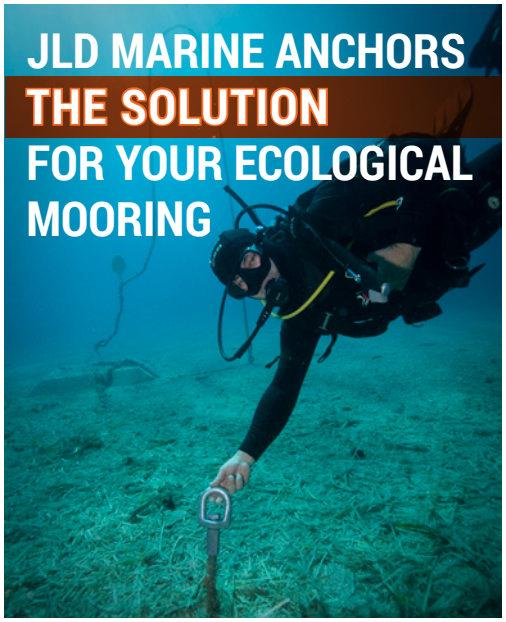
The JLD-Marine Anchor is a mechanical anchor with comprehensive structural applications for anchoring in the maritime industries.

THE JLD-MARINE ANCHOR

Compared with other systems, the JLD-Marine Anchor offers the advantage of achieving the anchor force "without soil disturbance" due to the mechanism of installing and tilting.

APPLICATIONS

- Pontoon Anchoring
- Floating Docks
- Buoys
- Moorings
- Bulk Heads
- Wave Attenuators
- Fixed Piers
- Pipeline Anchoring
- Aquaculture
- Seawalls
- Floating Solar Farms
- And Many Other Applications



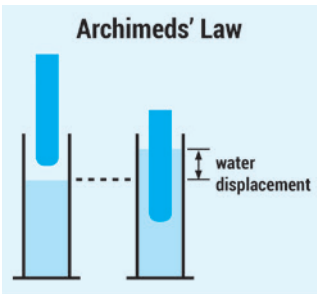
ECOLOGICAL MOORING SOLUTION

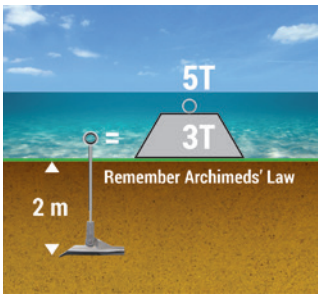
STABILITY

- Weight reduction by Archimedes' Law
- Secured Mooring

POLLUTION

- CO_2 Discharge





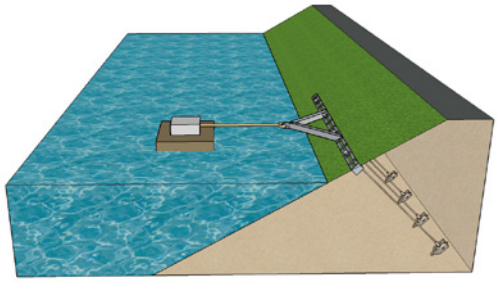
STRICT RULES AND REGULATIONS

- Eurocode
- ISO 9001 and ISO 14001
- Declaration of Conformity / CE-Certifation
- Euro 1 Certificate

DESIGN

The anchors are designed in accordance with the national standards.

Our technical team is available to advise on the most suitable anchor systems.



Floating Solar

ECOLOGICAL MOORING SOLUTION

WHY THE JLD MARINE ANCHOR SYSTEM?

- No Concrete
- No Movement
- Secured Mooring
- Clean Apperance of Attachment
- Load Tested
- Reliable
- Easy and Fast Installation
- Low Initial Cost
- Less Maintenance
- No Coral, Reef or Posidonia Damage
- No Damage to the Sea-Bottom and Shellfishes

TRADITIONAL MOORING

TRADITIONAL WAYS OF ANCHORING:

- Concrete Blocks
- Dead Weight
- Helical Anchors
- Connection to Coral
- Ships Anchor

WEAKNESSES:

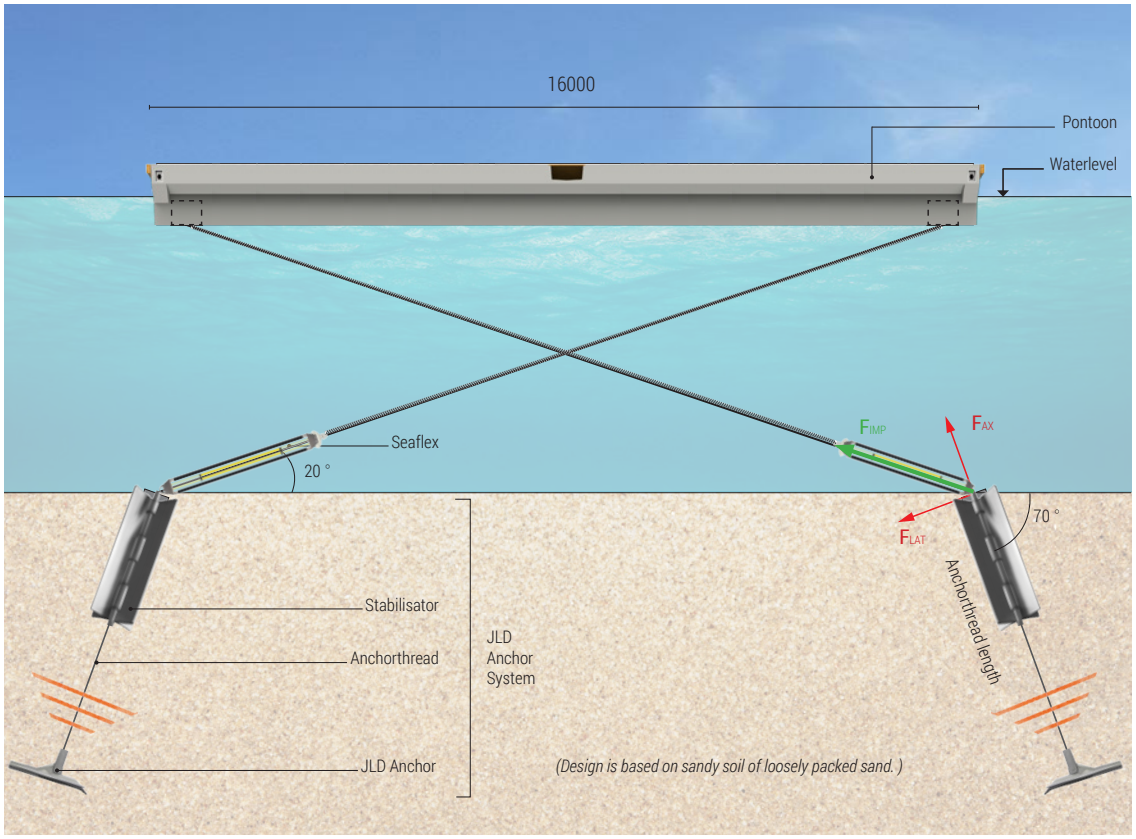
- Damage to Environment
- Special Equipment
- Time Consuming Installation Process
- High Initial Cost
- Frequent Maintenance
- Unsightly Appearance
- Obstical Hazard for Boats

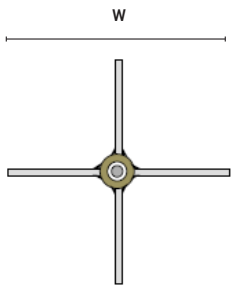
JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

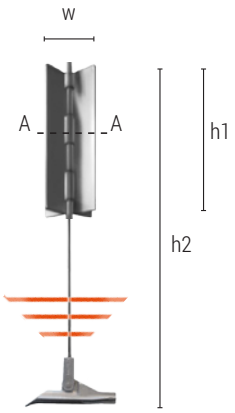
Safety, quality and environment are paramount at JLD.
*We are: VCA ** | ISO 9001 | CO_2 Level 5 certified.*
More information can be found on our website.

JLD ANCHOR SYSTEM - PONTOON





INTERSECTION AA

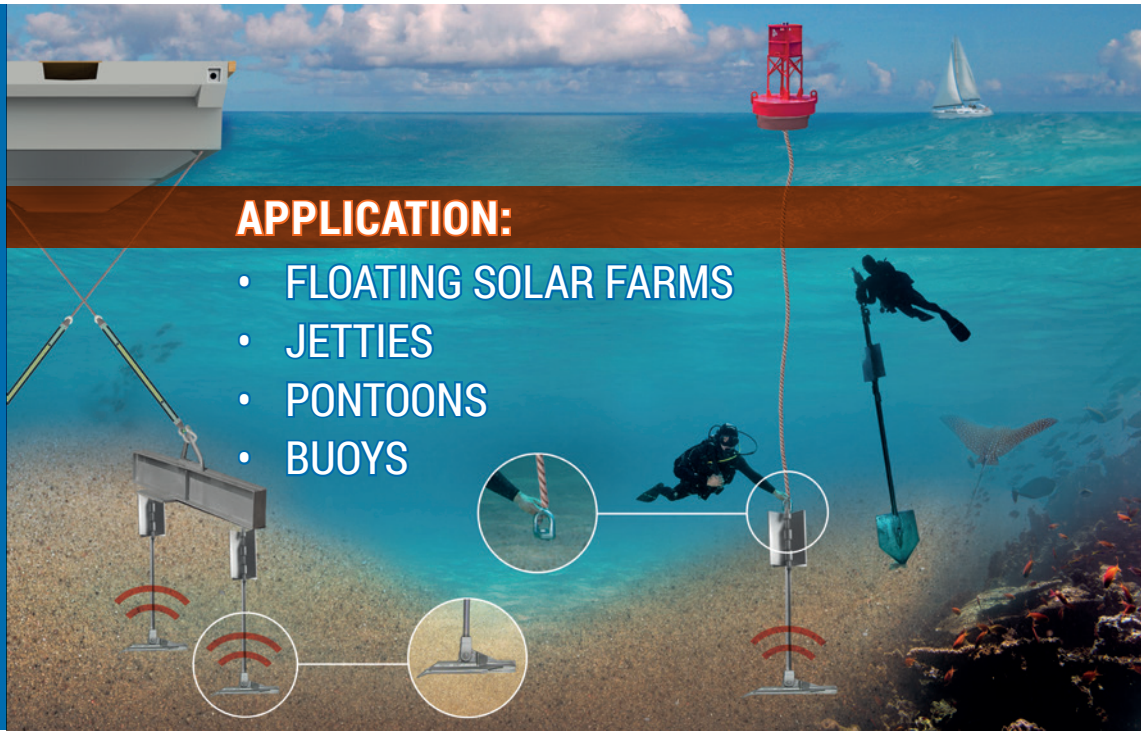


JLD ANCHOR SYSTEM

JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

*Safety, quality and environment are paramount at JLD International BV. We are: VCA ** | ISO 9001 | CO_2 Level 5 certified. More information can be found on our website.*



HOW TO INSTALL

DECLARATION OF CONFORMITY

TO THE CONSTRUCTION PRODUCTS DIRECTIVE
(COUNCIL DIRECTIVE 89/106/EEC)

Product type and identification

JLD EARTHANCHOR
JLD 1.0, JLD 1.2, JLD 1.4, JLD 2.2, JLD 2.4, JLD 2.6, JLD 2.8

Producer **JLD International BV**
Address Wieder 23, NL-1648 GA, De Goorn, the Netherlands

Producer declares the product to comply with the applicable requirements of the construction products directive 89/106/EEC.

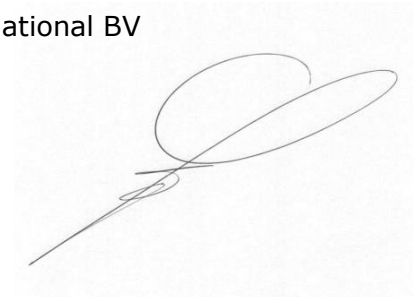
Use
The anchors are designed to be driven into the ground, pull the anchor within the limits of the force as required but limited to the force as prescribed by the calculation of the producer.

Provisions of the product
This Declaration of Conformity is based on the quality control system of the producer (s) and the quality control system at JLD International BV.
The product is in conformity with art. 6.3 of NEN-EN 1537, it can be used in works that must comply with NEN-EN 1537.

Conformity attestation: Annex III, under 2, third possibility.

The quality control system is reviewed by ECB Nederland BV and found sufficient to ensure conformity of the products.

Function:
Director JLD International BV
Jos F. Karsten
Date: 01-06-2017
Signature:



Declaration of Conformity identification number "JLD MR 110128"

EUROPEAN **CERTIFICATION** BUREAU NEDERLAND BV

JULIANAWEG 224A – 1131 NW VOLENDAM – THE NETHERLANDS
PHONE +31 (0) 299 323123 – FAX +31 (0) 299 323023 – E-MAIL info@ecb.nl – www.ecb.nl
Chamber of Commerce: HOORN 48.385 VAT nº: NL 8058.15.466.B.01

Geotechnical bearing capacity

In cohesive grounds, the geotechnical bearing capacity is calculated as follows: $F_{A,d} = 10 * c_{u,d} * A$

In non-cohesive grounds, the geotechnical bearing capacity is calculated as follows: $R_{A,min} = 0,4 * q_c * A$

Type of soil where the anchoring element is at: **non - cohesive** [-]

Surface anchoring element A	0,094	[m²]	
Value cone resistance	10	[MPa]	
Number of combined anchors	1 of 2	[-]	NEN 9997-1
Number exceptions from the same division	2	[-]	CUR 166 6e druk, deel 1, p.77 / 78
Value of ξ	1	[-]	*because test are excecuted this value equals 1,0.*
Are control tests executed on all anchors ?	**yes**	[-]	
Partial material factor γ_a	1,20	[-]	CUR 166 6e druk, deel 1, p.77
$R_{A,min}$ *0,4*qc*A*	375,3	[kN]	*indication minimum bearing capacity*
$R_{A,k}$ *Ra,min / ksi*	375,3	[kN]	
$R_{A,d}$ *Ra,k / gamma,a*	312,7	[-]	
$F_{r,A,schr,d}$, incl. evt. reduction hoh distance	312,7	[kN]	

Testing

$R_{a,d}$ =	312,7	[kN]
$P_{d,geo}$ =	88,0	[kN]
u.c.	**0.28**	

The geotechnical bearing complies

Test anchor rod

Select massive anchor rod

Type + quality	M24 8.8	[mm]
Diameter	24	[mm]
A	**353**	[mm²]
f_{flow}	640	[N/mm²]
$f_{pulling\ strength}$	800	[N/mm²]

Since the metric wire anchor rods are thermally galvanized, no bar section reduction is

Test geotechnical bearing capacity

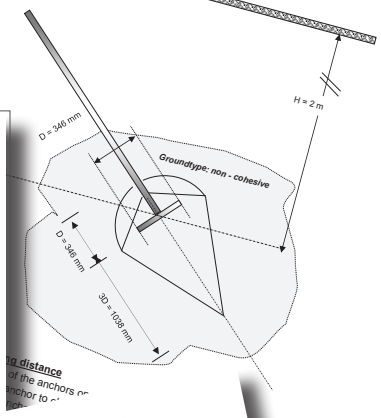
The geotechnical bearing capacity is determined in the same way as the screw anchor.
A so-called "deep screw blade" is assumed since one of the assumptions is the applicability of the following ratio: H/D > 5

www.JLDinternational.com

Drawing / depth

$D_{equivalent}$	346	[mm]
$H_{requirement}$	1,73	[m]
$H_{present}$	2,00	[m]

Agreed



Calculation Civil Anchor System version: 21-06-2017

Conform: NEN 9997-1 (nov. 2011) / NEN-EN 1993-1-1 (jan.06) / CUR 166 - 6e edition

JLD International BV

Printdate: 21-11-2018
Attachment:
of document:

Project:	**Marine anchor**
Part:	
Principal:	
Contactperson:	
Constructor:	

Reference-documents

Geometric JLD Anchor and material specification www.JLDinternational.com

Geometrics anchor rod

Type of anchor	**JLD 2.4**	[-]
Anchor foot break resistance	220	[kN]
Flowing strength anchor foot	165	[kN]
Surface anchor foot	93820	[mm²]
Width anchor foot	317,5	[mm]
Height anchor foot	436,8	[mm]
$D_{equivalent}$	346	[mm]
Spacing distance **(= distance guess 1 to 2)**	3,000	[m]

Geometrics environment

Ground level	0,00	[m]

Positioning anchors

Application point anchoring of 1st row	0,0	
Angle anchor with ground level 1st row	9	
Working anchor length 1st row	2,0	
Application point anchoring of 2nd row	0,00	
Angle anchor with ground level 2nd row	90	
Working anchor length 2nd row	3,00	

Explanation
The anchors should be a specific distance from one another so that the standard method is varying sequential anchors regarding application poi in 1st row or 2nd row. When all anchors have the same angle and length,

Observing load

Load

Feed load per anchor or per meter:	per anchor	[-]
Status indicated load:	calculated value	[-]
Direction indicated load:	axis	[-]
Given Anchor force	80	[kN]
Resulting $F_{a,s,d,axis}$ =	80	[kN]
$F_{s,A,d}$ =	88	[kN]
$F_{s,A,st,d}$ =	100	[kN]

Remark:
The measuring anchor angle of 90 degrees was used.

Test anchor foot

Type JLD klapanker:	**JLD 2.4**	[-]
$F_{r,rod,max}$ = Breaking force cf. specification / 1,40 =	157	[kN]
$R_{t,d,2}$ = Yield strength cf. specification =	165	[kN]
$R_{t,d}$ =	157	[kN]
$F_{s,A,st,d}$ =	100	[kN]
unity check =	**0,64**	[-]

The anc

Remark
No corrosion on the anchor is calculated because it is hot dipped galvanized.

DECLARATION OF CONFORMITY

TO THE CONSTRUCTION PRODUCTS DIRECTIVE (COUNCIL DIRECTIVE 89/106/EEC)

Product type and identification

JLD EARTHANCHOR
JLD 1.0, JLD 1.2, JLD 1.4, JLD 2.2, JLD 2.4, JLD 2.6, JLD 2.8

Producer **JLD International BV**
Address Wieder 23, NL-1648 GA, De Goorn, the Netherlands

Producer declares the product to comply with the applicable requirements of the construction products directive 89/106/EEC.

Use
The anchors are designed to be driven into the ground, pull the anchor within the limits of the force as required but limited to the force as prescribed by the calculation of the producer.

Provisions of the product
This Declaration of Conformity is based on the quality control system of the producer (s) and the quality control system at JLD International BV.
The product is in conformity with art. 6.3 of NEN-EN 1537, it can be used in works that must comply with NEN-EN 1537.

Conformity attestation: Annex III, under 2, third possibility.

The quality control system is reviewed by ECB Nederland BV and found sufficient to ensure conformity of the products.

Function:
Director JLD International BV
Jos F. Karsten
Date: 01-04-2020 Signature:

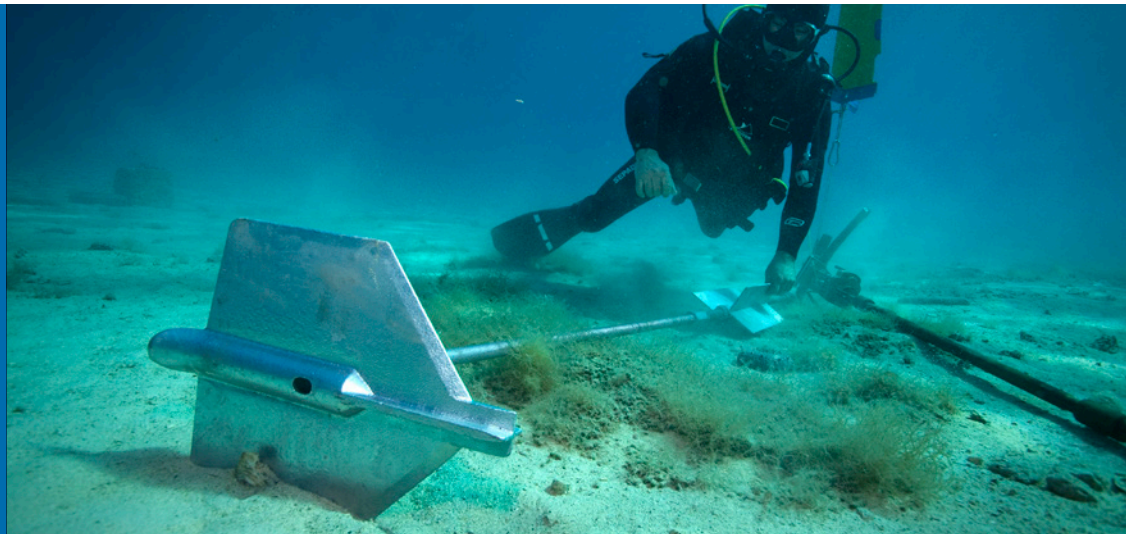
Declaration of Conformity identification number "JLD MR 110128"

EUROPEAN CERTIFICATION BUREAU NEDERLAND BV
JULIANAWEG 224A – 1131 NW VOLENDAM – THE NETHERLANDS
PHONE +31 (0) 299 323123 – FAX +31 (0) 299 323023 – E-MAIL info@ecb.nl – www.ecb.nl
Chamber of Commerce: HOORN 48.385 VAT nr: NL 8058.15.466.B.01

JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

Safety, quality and environment are paramount at JLD.
*We are: VCA ** | ISO 9001 | CO_2 Level 5 certified.*
More information can be found on our website.



JLD MARINE ANCHOR

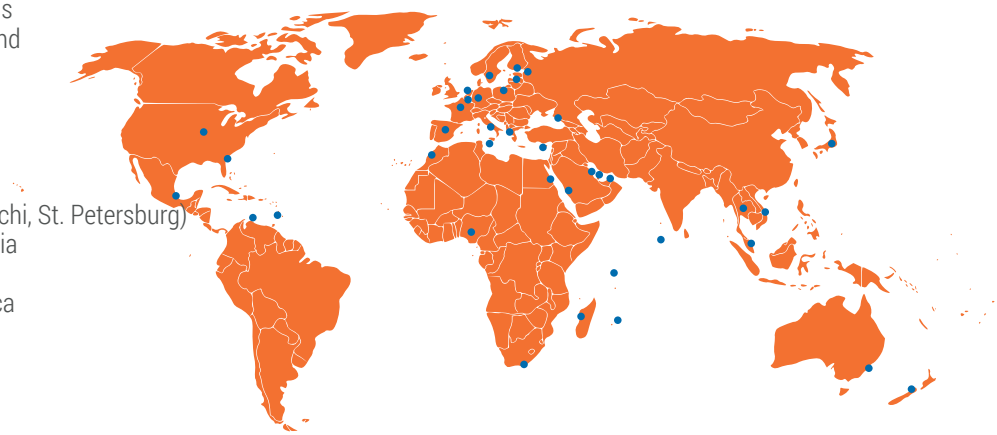
- Easy (underwater) anchor installation!
- Installs with light, portable equipment!
- Substantial time & cost savings!
- Anchors tested to exact holding capacity during installation

REFERENCE PROJECTS

All materials supply for 10.000+ mooring positions.

PROJECTS MARINE ANCHORS

- Aruba
- Australia, (Sidney)
- Belgium
- Caribbean
- Croatia
- Cyprus
- Dubai
- Egypt
- Italia
- Finland
- Florida (USA)
- France
- Germany
- Japan
- Letvia
- Madagaskar
- Maladives
- Malta
- Morocco
- Netherlands
- New Zealand
- Nigeria
- Mauritius
- Malaysia
- Poland
- Qatar
- Russia (Sochi, St. Petersburg)
- Saudi Arabia
- Seychelles
- South Africa
- Spain
- Sweden
- Thailand
- U.S.A.
- Vietnam



And many other beautiful countries around the world.

LINKS: https://www.youtube.com/watch?v=urlJ5lo5cQc

JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

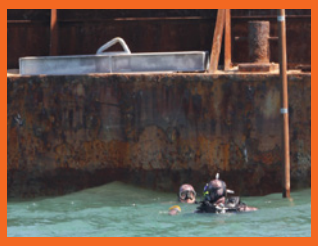
Safety, quality and environment are paramount at JLD.
*We are: VCA ** | ISO 9001 | CO_2 Level 5 certified.*
More information can be found on our website.

REFERENCE PROJECTS

EGYPT HEPCA

SCANFI / INTERTECH-BATINORM
SOUTH SINAI
REGIONAL DEVELOPMENT PROGRAM
EUROPEAID / 12451/D/DUP/EG

- **ALL MATERIAL SUPPLY FOR 1000+ MOORING BUOYS**



GLOSSY BAY - CANUOAN

Glossy Bay is a Yacht Marina that can accommodate boats and yachts of all shapes and sizes, but in general the marina is considered a port for all super yacht categories.

Because of the possibility of extreme wheaterconditions and the fact that there are accomodated mega-yachts JLD was asked to help think about solutions. We came with the solution, the JLD Premium Anchor.

The JLD Premium anchor has been specially developed for anchoring floating risers / pontoons and mooring / mooring places for vessels, among other things. This innovative design consists of a JLD folding anchor with a cross-shaped steel plate with a towing eye. The JLD folding anchor provides vertical and horizontal stability and the cross-shaped steel plate provides extra capacity with regard to horizontal stability. The JLD premium anchor is available in various holding forces.

JLD International BV

NL - P.O. BOX 144
1135 ZK EDAM
The Netherlands
Tel. +31 (0)299 622 396
Mail. info@JLDinternational.com
Web. www.JLDinternational.com

Safety, quality and environment are paramount at JLD.
*We are: VCA ** | ISO 9001 | CO_2 Level 5 certified.*
More information can be found on our website.

REFERENCE PROJECTS

YACHT HAVEN PHUKET, THAILAND.

Located on the northeastern coast of the island of Phuket, Phuket Yacht Haven can accommodate boats and yachts of all shapes and sizes, but in general the marina is considered a first port for all super yacht categories. With the advantages of access to deep water and the proximity of an airport, it is the largest and busiest marina in the region.

JLD International was asked by the harbor builder, Marinetek, to help think about solutions to anchor the pontoons where the super yachts will be moored. Given the enormous forces involved to keep the super yachts in place in all weather conditions, a unique solution had to be devised.

The installation was controlled by JLD staff and went smoothly. A more than satisfied client has indicated that they consider using JLD anchors as the ideal solution for such projects.