



**SAS
OD 5,5"**

PC-0332

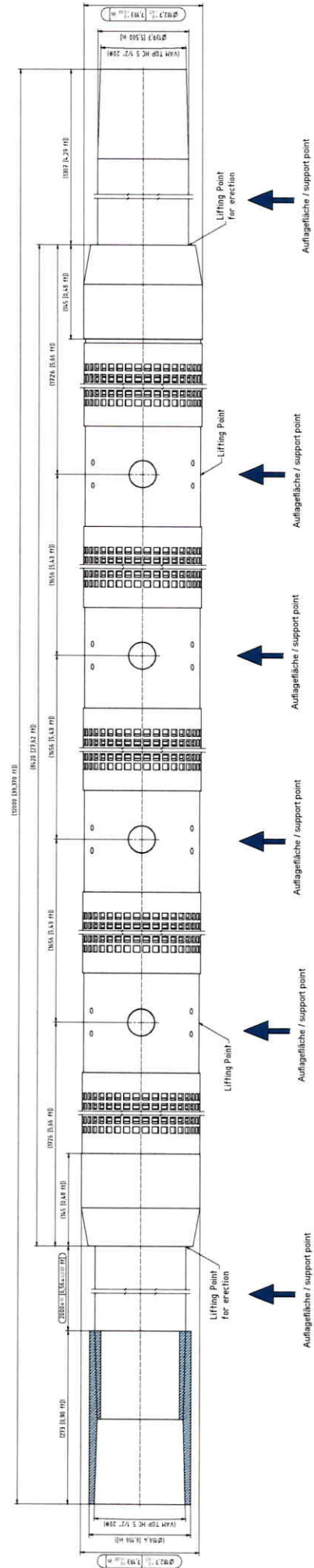
SAP

**PO#
102459657**

**Mat.#
7100209234**

Drawings
Final Inspection
Certificate
Handling Instruction

Kundenzeichnung
customer drawing

[illegible]

Kundenzeichnung
customer drawing



Kundenzeichnung
customer drawing



Drifttest ϕ i. O.

Kundenzeichnung
customer drawing



Doc-102 459654

Prof. Yes & No.

[illegible]

Dufftest ϕ_i : 1.0

Auflagefläche / support point

[illegible]

Prüfprotokoll Prooftest / Inspection protocol Prooftest



Auftragsnummer / order number:

202493614

Materialnummer / material number:

4010028437

Größe ID / size ID:

3,5 Zoll / inch

☒ SiC Ringe / filter segment

☐ Abschlusssegment / end ring

Prüfer / checker:

Krey

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

7657 Stk. / pcs.

Gutteile / good parts:

7657 Stk. / pcs.

Schlechtteile / bad parts:

0 Stk. / pcs.

18.07.29
Datum / date

Krey
Unterschrift / signature

Prüfprotokoll Prooftest / Inspection protocol Prooftest



Auftragsnummer / order number:

102970690

Materialnummer / material number:

4010028457

Größe ID / size ID:

5,5 Zoll / inch

- ☒ SIC Ringe / filter segment
☐ Abschlusssegment / end ring

Prüfer / checker:

Reither

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

30 Stk. / pcs.

Gutteile / good parts:

30 Stk. / pcs.

Schlechtteile / bad parts:

/ Stk. / pcs.

9.7.19

Datum / date

Reither

Unterschrift / signature

Prüfprotokoll Prooftest /
Inspection protocol Prooftest



Auftragsnummer / order number:

102493336

Materialnummer / material number:

4010028457

Größe ID / size ID:

5.5 Zoll / inch

☒ SIC Ringe / filter segment

☐ Abschlussegment / end ring

Prüfer / checker:

Gyerman

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

93 Stk. / pcs.

Gutteile / good parts:

78 Stk. / pcs.

Schlechtteile / bad parts:

15 Stk. / pcs.

9.8.2019
Datum / date

[Signature]
Unterschrift / signature

**Prüfprotokoll Prooftest /
Inspection protocol Prooftest**



Auftragsnummer / order number:

102504388

Materialnummer / material number:

4010028457

Größe ID / size ID:

5.5

Zoll / inch

- ☒ SiC Ringe / filter segment
☐ Abschlussegment / end ring

Prüfer / checker:

Schuster T.

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

1839

Stk. / pcs.

Gutteile / good parts:

1834

Stk. / pcs.

Schlechtteile / bad parts:

5

Stk. / pcs.

17.09.19

Datum / date

S.A.T.

Unterschrift / signature

**Prüfprotokoll Prooftest /
Inspection protocol Prooftest**

3M

Auftragsnummer / order number:

102493340

Materialnummer / material number:

90100218457

Größe ID / size ID:

5,5 Zoll / inch

☐ SiC Ringe / filter segment

☐ Abschlussegment / end ring

Prüfer / checker:

Pisarev M.

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

1152 Stk. / pcs.

Gutteile / good parts:

1152 Stk. / pcs.

Schlechtteile / bad parts:

 / Stk. / pcs.

2.09.19.

Datum / date

Pisarev M.

Unterschrift / signature

Nr. / No.: CSS-013-19		ABNAHMEPRÜFZEUGNIS 3.1 <i>Inspection Certificate</i> nach / according to DIN EN 10204	 Zertifiziert / certified ISO 9001 ISO 14001 ISO 50001
Datum / Date Oct. 07, 2019	Seite von 1 1 Page of		

Kunde / Customer Vår Energi AS Vestre Svanholmen 12 4313 SANDNES Norway	Bestell-Nr. / P.O. No. PO-4501350427	Best.-Datum / P.O. Date 29.04.2019
Lieferwerk / Delivery Plant 3M Technical Ceramics - Kempten	Komm.- Nr.: / Commission No. 4007025896	Datum / Date 29.04.2019
Artikelbezeichnung, Material / Product, Material Designation/ Mat.-Nr. / Mat.-No. 3M™ Ceramic Sand Screen – Max. OD 7.193" / ID 5.50" /20# L80Cr13/ 250µm/ 7100200180		Liefermenge / Quantity of Delivery 10 EA
Kunden Forderungen / Customer Requirements Documentation and certification according order confirmation		Los / Lot 102459657

Certificates and Documentation acc. to
STA7_SC-A-600-00_3M
Welding Procedure Specification
(Documents attached, detailed results can be viewed at 3M)

In Spec.
In Spec.

Material Sand Screen:

Base Pipe 5,5"
Metal components:
Ceramic components:

L80Cr13
1.4404 / 1.4571
Silicon Carbide

Visual Inspections:

Thread PIN:
Thread BOX:

VAM TOP HC 5,5" - 26#
VAM TOP HC 5,5" - 26#

Measuring report: 4010028457

Slot Opening:
mean gap width (mm) 0.250 +0.020 / -0.020
gap width between 0.225 mm and 0.299 mm ≥ 80 %
gap width between 0.200 mm and 0.324 mm ≥ 99 %

0,259
86,3 %
99,5 %

Formblatt F1/VAW/Q-009-00, Index 4

Es wird bestätigt, dass die Lieferung den Vereinbarungen der Bestellung entspricht.	
We hereby certify, that the material described above complies with the terms of the order.	
I.Theiß Qualitätsmanagement / Quality Management	3M Technical Ceramics Zweigniederlassung der 3M Deutschland GmbH Max-Schaidhauf-Straße 25 87437 Kempten, Germany

Dieses Dokument wurde elektronisch erstellt und ist ohne Unterschrift gültig. This document has been prepared electronically and is valid without signature.

Test Report: Penetrant testing of welds **3M**

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	1	Welding additive	Ø 1,6 / 1.4576
Material Base Pipe	L80 Cr13	Material Endcaps	1.4404

Inspector:

Last name	Frischmuth	First name	Robert
Employee number	204337	Company	3M Technical Ceramics

Test equipment:

	Typ	Batch Number	Shelf Date
Penetrant	MR® 68 NF Penetrant	68NF/1131G	04/2023
Developer	MR® 70 Entwickler weiß	70/1200A	12/2022
Remover	MR® 85 Zwischenreiniger	85/1101A	09/2022

Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	21,6	756	15	15	☒	☐
2	21,6	625	15	15	☒	☐

10.10.2019

Date

Signature

Test Report: Penetrant testing of welds **3M**

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	3	Welding additive	Ø 1,6 / 1.4576
Material Base Pipe	L80 Cr13	Material Endcaps	1.4404

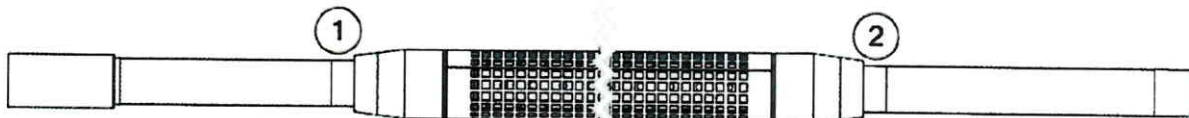
Inspector:

Last name	Frischmuth	First name	Robert
Employee number	204337	Company	3M Technical Ceramics

Test equipment:

	Typ	Batch Number	Shelf Date
Penetrant	MR® 68 NF Penetrant	68NF/1131G	04/2023
Developer	MR® 70 Entwickler weiß	70/1200A	12/2022
Remover	MR® 85 Zwischenreiniger	85/1101A	09/2022

Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	20,8	730	15	15	☒	☐
2	20,8	775	15	15	☒	☐

08.10.2019

Date


Signature

Test Report: Penetrant testing of welds



Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	5	Welding additive	Ø 1,6 / 1.4576
Material Base Pipe	L80 Cr13	Material Endcaps	1.4404

Inspector:

Last name	Frischmuth	First name	Robert
Employee number	204337	Company	3M Technical Ceramics

Test equipment:

	Typ	Batch Number	Shelf Date
Penetrant	MR® 68 NF Penetrant	68NF/1131G	04/2023
Developer	MR® 70 Entwickler weiß	70/1200A	12/2022
Remover	MR® 85 Zwischenreiniger	85/1101A	09/2022

Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	21	659	15	15	☒	☐
2	21	847	15	15	☒	☐

08.10.2019

Date

Signature

Test Report: Penetrant testing of welds **3M**

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	7	Welding additive	Ø 1,6 / 1.4576
Material Base Pipe	L80 Cr13	Material Endcaps	1.4404

Inspector:

Last name	Frischmuth	First name	Robert
Employee number	204337	Company	3M Technical Ceramics

Test equipment:

	Typ	Batch Number	Shelf Date
Penetrant	MR® 68 NF Penetrant	68NF/1131G	04/2023
Developer	MR® 70 Entwickler weiß	70/1200A	12/2022
Remover	MR® 85 Zwischenreiniger	85/1101A	09/2022

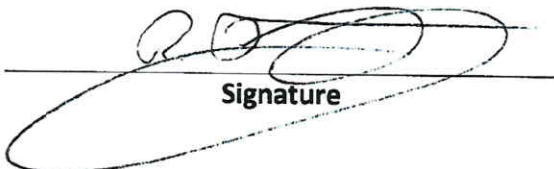
Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	21,5	806	15	15	☒	☐
2	21,5	696	15	15	☒	☐

08.10.2019

Date


Signature

Test Report: Penetrant testing of welds **3M**

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	9	Welding additive	Ø 1,6 / 1.4576
Material Base Pipe	L80 Cr13	Material Endcaps	1.4404

Inspector:

Last name	Frischmuth	First name	Robert
Employee number	204337	Company	3M Technical Ceramics

Test equipment:

	Typ	Batch Number	Shelf Date
Penetrant	MR® 68 NF Penetrant	68NF/1131G	04/2023
Developer	MR® 70 Entwickler weiß	70/1200A	12/2022
Remover	MR® 85 Zwischenreiniger	85/1101A	09/2022

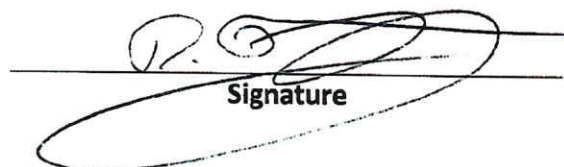
Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	22	790	15	15	☒	☐
2	22	915	15	15	☒	☐

07.10.2019

Date


Signature

Schweißer-Prüfungsbescheinigung

2 Bezeichnung **ISO 9606-1 141 T FW FM5 S t12 D60 PB ml**

3 WPS - Bezug Schweißerprüfung FM5 > 30mm
 4 Name des Schweißers **Artur Ioan Gyerman** Prüfstelle: GSI mbH, NL SLV München
 5 Legitimation LGWZPWYXM Prüf.-Nr.: D-SLV-80636-9606-1-190605-EX-2019.001516
 6 Art der Legitimation Personalausweis Foto
 7 Geburtsdatum, -ort 18.06.1976, Sanislau (falls nötig)
 8 Beschäftigt bei 3M Deutschland GmbH, Neuss
 9 Vorschrift/Prüfnorm DIN EN ISO 9606-1:2017-12
 10 Fachkunde bestanden

11 Kenngrößen	Prüfstück	Geltungsbereich
12 Schweißprozess(e)	ISO 4063 - 141	141,142,143,145
13 Stromart/Polung	DC (-)	-
14 Produktform (Blech oder Rohr)	T	T, P
15 Nahtart	FW	FW
16 Werkstoffgruppe(n)	8	-
17 Schweißzusatzgruppe	FM5	FM5
18 Zusatzwerkstoff/Bezeichnung	S	S, M
19 Schutzgas	DIN EN ISO 14175 - I1	-
20 Hilfsstoffe	DIN EN ISO 14175 - I1	-
21 Werkstoffdicke (mm)	12,00	>= 3,00
22 Rohraußendurchmesser (mm)	60,00	>= 30,00
23 Schweißposition	PB	PB, PA
24 Schweißnahteinheiten	ml	sl, ml

25 Zusätzliche Hinweise:

26 Art der Prüfung	Ausgeführt und bestanden	Nicht geprüft	Stempel: Ort: München Verlängerung nach: 9.3 a Datum des Schweißens: 27.05.2019 Gültig bis: 26.05.2022
27			
28 Sichtprüfung	X	-	
29 Durchstrahlungsprüfung	-	X	
30 Bruchprüfung	X	-	
31 Biegeprüfung	-	X	
32 Kerbzugprüfung	-	X	
33 Makroskopische Untersuchung	-	X	
34 Zusätzliche Prüfungen *	-	X	

35 Bemerkungen:



GSI mbH, NL SLV München

36

Name und Unterschrift des Prüfers oder der Prüfstelle

37 Bestätigung der Gültigkeit durch die Schweißaufsichtsperson oder den Prüfer / die Prüfstelle für die folgenden 6 Monate (Abschnitt 9.2)

Datum	Unterschrift	Dienststellung oder Titel

Datum	Unterschrift	Dienststellung oder Titel

39 * falls notwendig, Angaben auf Zusatzblatt

40 Übersetzung und weitere Angaben auf der Rückseite





Zertifikat-/Auftrags-Nr.:
Reference No.:
N° de référence:

0036 / MUC / 600010388/1 - 12

Revision 1

Seite 1 von 2
Page of de

ZERTIFIKAT - QUALIFIZIERUNG VON SCHWEISSVERFAHREN (WPQR)

WELDING PROCEDURE QUALIFICATION RECORD / CERTIFICAT DE QUALIFICATION D'UN MODE OPÉRATOIRE DE SOUDAGE

Zertifizierstelle:
Certification Body:
Organisme de certification:

TÜV SÜD Industrie Service GmbH
Westendstraße 199
D-80686 München

Zeichen:
Sign:
Sign.:

IS-ATA6-MUC/fi

Hersteller / Anschrift:
Manufacturer / Address:
Constructeur / Adresse:

ESK Ceramics GmbH & Co. KG
Max-Schaidhauf-Str. 25
87437 Kempten

Beleg-Nr. des Herstellers:
Manufacturer's Reference No.:
N° de référence du constructeur:

WPS Nr. -4-
PC-SRB-4.78-A-4

Vorschrift/Prüfnorm:
Code/Testing Standard:
Code/Norme d'essai:

DIN EN ISO 15614-1

Datum der Schweißung:
Date of Welding:
Date du soudage:

11.05.2012

GELTUNGSBEREICH - RANGE OF APPROVAL - DOMAINE DE VALIDITÉ

Schweißprozeß:
Welding Process:
Procédé de soudage:

141 (WIG)

Nahtart:
Joint Type:
Type de joint:

FW - Kehlnähte am
Überlappstoß bei Rohr
auf Rohr und Rohr-
bohrung; einlagig

Werkstoffgruppe:
Parent Metal Group:
Matériaux:

13Cr80 nach API 5CT entspricht X20Cr13
nach DIN EN 10088-3 mit X2CrNiMo17-12-2
(1.4404) nach DIN EN 10216-5 sowie
miferfasste Stähle*) der Kombination Gruppe
7.2/8.1 nach CR ISO 15608

Dicke des Grundwerkstoffs
[mm]:
Parent Metal Thickness [mm]:
Épaisseur du matériau [mm]:

3,3 - 13,0 (Innenrohr)
6,8 - 27,0 (Außenrohr)

Kehlnahtdicke [mm]
Fillet weld thickn.:
Épaisseur de fillet:

2,3 - 4,5

Außendurchmesser [mm]:
Pipe Outside Diameter [mm]:
Diamètre extérieur [mm]:

≥ 25

Zusatzwerkstoff/Bezeichn.:
Filler Metal Type/Designation:
Caractéristique du métal d'apport:

1.4370

Stromart:
Type of Welding Current:
Nature de courant de soudage:

G / minus

Schutzgas / Wurzelschutz:
Shielding Gas / Backing Gas:
Gaz de protection / Purge:

EN ISO 14175 - I1

Puiver:
Flux:
Flux:

./.

Schweißpositionen:
Welding Positions:
Positions de soudage:

PB (hv)

Betriebstemperatur:
Working Temperature:
Température de service:

Wie Grundwerkstoff bzw. Zusatzwerkstoff
As base material and filler metal respectively
Comme métal de base et métal d'apport respectivement

Vorwärmung:
Preheat:
Préchauffage:

≥ 85 °C

Zwischenlagentemperatur [°C]:
Interpass Temperature [°C]:
Température entre passes [°C]:

./.

Wärmenachbehandlung:
Post Weld Heat Treatment:
Traitement thermique après
soudage:

keine

Gültigkeit der Prüfung:
Validity of Approval:
Validité du Certificat:

AD 2000-HP 2/1
Abschnitt 8

SONSTIGE ANGABEN - OTHER INFORMATION - AUTRES PARAMÈTRES

BILDBEILAGEN ZUR METALLOGRAFISCHEN UNTERSUCHUNG: siehe Anlage 1 und 2
SCHWEISSANWEISUNG (WPS): siehe Anlage 3
Aktualisierte Fassung der WPQR 0036/MUC/600010388/1 - 12 vom 26.06.2012

Hiermit wird bestätigt, daß die Prüfstücke in Übereinstimmung mit den Anforderungen der vorbezeichneten Vorschriften bzw. Prüfnormen zufriedenstellend vorbereitet, geschweißt und geprüft wurden. / Certified that test pieces were prepared, welded and tested satisfactorily in accordance with the requirements of the code or the testing standard indicated above. / Nous certifions que les essais de soudage ont été préparés, soudés et contrôlés avec succès, conformément aux exigences du code ou de la norme d'essai ci-dessus mentionné(e).

Ort: München
Location:
Lieu:

Datum der Ausstellung: 28.01.2013
Date of issue:
Date d'émission:

Name und Unterschrift
des Zertifizierers:
Name and Signature:
Nom et signature:

Anlagen: 2
Annexes:
Annexes:

Zertifizierstelle:
Certification Body:
Organisme de certification:

TÜV SÜD Industrie Service GmbH

*) siehe Tabelle 3 für Geltungsbereich Werkstoffe in EN ISO 15614-1



Handling Instructions

 WARNING

To reduce the risks associated with impact:

- Only lift the sand screen box at the lift points designated on the box.
- Use only lift equipment rated to lift the sand screen box and its contents.
- The sand screens should only be lifted using soft slings at lifting points designated by red stickers.
- Do not ride or stand on the sand screen box while it is being lifted or moved.
- Always store the box horizontally in the orientation designated by the pictogram (e.g., "This side up") on the box.
- Always store the box on flat and level surface.
- Do not stack boxes or other materials on top of the sand screen shipping box.
- Open the sand screen shipping box from the side defined in the instruction.
- Avoid lifting or installing the sand screen during adverse weather conditions.
- Remove protective sheet from the sand screen before handling.
- To prevent the sand screen from rolling, place wooden/plastic wedges under the screens when placing it on the floor.
- Place the wedges under the lift points marked by the red stickers.
- Ensure the lifting straps are securely positioned at the lifting points on the sand screen so they will not slip while lifting and/or transitioning the sand screen from a horizontal to vertical orientation.

To reduce the risks associated with impact, lifting or moving:

- The sand screen should be lifted and transferred without colliding with other objects and without sudden or abrupt stops.

 CAUTION

To reduce the risks associated with environmental contamination:

- Dispose of electronic components in accordance with applicable local regulations or laws.

To reduce the risks associated with pinch points:

- Keep fingers and arms clear of pinch points on shipping box when closing or in the event the box lid closes accidentally.

To reduce the risks associated with sharp edges:

- The openings on the sand screen shroud may have sharp edges. Use appropriate Personal Protective Equipment (PPE) when handling the ceramic sand screen.

NOTICE

- Limit the amount the screen bends while lifting horizontally and while transitioning from the horizontal position to vertical position.
- Inspect the ceramic rings for cracks or chips using a torch lamp on the entire length of the shroud and on the whole diameter.
- Use make-up tong to the approved torque. Never make-up the screens with wrenches on the shroud, but only the base pipe.



2. Scope of delivery

Box 2

<i>Weight (kg)</i>	<i>Dimensions (cm)</i>	<i>Quantity Screens</i>	<i>Quantity Bull Nose</i>
1160	1330x40x56	1	-

Content Box 2

<i>Serial Number</i>	<i>Max OD</i>	<i>ID</i>	<i>Weight</i>	<i>Length</i>	<i>Slot opening</i>	<i>SKU</i>
102459657 #2	7.193"	4.892"	750 kg	~12 m	250 µm	7100209234

3. Handling of the box

The box must be handled by a crane with two slings or by fork lift, ideally use lift points marked on box exterior (Figure 3.1), crate must be moved gently under any circumstances. To keep balance by transportation with fork lift, distance from forks to box end should be the same on both sides (Figure 3.2). The orientation of the crate must be considered all time (Figure 3.3).



Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

2. Scope of delivery

Box 4

Weight (kg)	Dimensions (cm)	Quantity Screens	Quantity Bull Nose
1160	1330x40x56	1	-

Content Box 4

Serial Number	Max OD	ID	Weight	Length	Slot opening	SKU
102459657 #4	7.193"	4.892"	750 kg	~12 m	250 µm	7100209234

3. Handling of the box

The box must be handled by a crane with two slings or by fork lift, ideally use lift points marked on box exterior (Figure 3.1), crate must be moved gently under any circumstances. To keep balance by transportation with fork lift, distance from forks to box end should be the same on both sides (Figure 3.2). The orientation of the crate must be considered all time (Figure 3.3).



Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

2. Scope of delivery

Box 6

Weight (kg)	Dimensions (cm)	Quantity Screens	Quantity Bull Nose
1160	1330x40x56	1	-

Content Box 6

Serial Number	Max OD	ID	Weight	Length	Slot opening	SKU
102459657 #6	7.193"	4.892"	750 kg	~12 m	250 µm	7100209234

3. Handling of the box

The box must be handled by a crane with two slings or by fork lift, ideally use lift points marked on box exterior (Figure 3.1), crate must be moved gently under any circumstances. To keep balance by transportation with fork lift, distance from forks to box end should be the same on both sides (Figure 3.2). The orientation of the crate must be considered all time (Figure 3.3).



Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

2. Scope of delivery

Box 8

<i>Weight (kg)</i>	<i>Dimensions (cm)</i>	<i>Quantity Screens</i>	<i>Quantity Bull Nose</i>
1160	1330x40x56	1	-

Content Box 8

<i>Serial Number</i>	<i>Max OD</i>	<i>ID</i>	<i>Weight</i>	<i>Length</i>	<i>Slot opening</i>	<i>SKU</i>
102459657 #8	7.193"	4.892"	750 kg	~12 m	250 µm	7100209234

3. Handling of the box

The box must be handled by a crane with two slings or by fork lift, ideally use lift points marked on box exterior (Figure 3.1), crate must be moved gently under any circumstances. To keep balance by transportation with fork lift, distance from forks to box end should be the same on both sides (Figure 3.2). The orientation of the crate must be considered all time (Figure 3.3).



Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

2. Scope of delivery

Box 10

Weight (kg)	Dimensions (cm)	Quantity Screens	Quantity Bull Nose
1160	1330x40x56	1	-

Content Box 10

Serial Number	Max OD	ID	Weight	Length	Slot opening	SKU
102459657 #10	7.193"	4.892"	750 kg	~12 m	250 µm	7100209234

3. Handling of the box

The box must be handled by a crane with two slings or by fork lift, ideally use lift points marked on box exterior (Figure 3.1), crate must be moved gently under any circumstances. To keep balance by transportation with fork lift, distance from forks to box end should be the same on both sides (Figure 3.2). The orientation of the crate must be considered all time (Figure 3.3).



Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

In order to see the Ceramic Screen it would afterwards be necessary to first remove the protection sheet (on top of Figure 4.6) and afterwards the Lami Wrap (on bottom of Figure 4.5).



Figure 4.6: Protection sheet and Lami Wrap

If there is no further action at this stage (e.g. due to inspection during customs clearance) it is important that the packaging of the Ceramic Screen will be set back to the original state. Therefore, please carry out the above mentioned steps of chapter 4 (Opening of the box) in reversed order.

5. Screens inspection

You can inspect the Screens in the crate, therefore you have to open the protection sheet and Lami Wrap (refer to chapter 4, Figure 4.6), preferable take them out of the box to have a 360° view to inspect screen at site. For documentation of inspection, Ceramic Screens can be differentiated by their serial numbers engraved on the blank areas (Figure 5.1).

Check following characteristics of the Ceramic Screen:

- make sure that there is no damage or deformation of visible metal parts
- check that protection shroud is not in contact with the ceramic rings
- Inspect Ceramic rings through the protection shroud for cracks and chippings (Figure 5.2) by using a torch lamp, perform visually check of uniformity of slot opening also (Figure 5.3).

6. Horizontal handling of Screens

First remove protection sheet (refer to chapter 4, on top of figure 4.6) – the Lami Wrap (refer to chapter 4, on bottom of figure 4.6) needs to remain at the Ceramic Screen during storage as this protects the filter section of the screen for dust and water. Ceramic Screen can be lifted by using 2 soft slings (not provided from 3M), lifting points are shown with red stickers (figure 6.1). **Never put the slings on the shroud!** The screens have to be balanced at any time and must be handled gently, avoid any shocks at the Screen by hitting objects or the ground.

See below illustration (Figure 6.2) for correct lifting.



Figure 6.1: Lift point

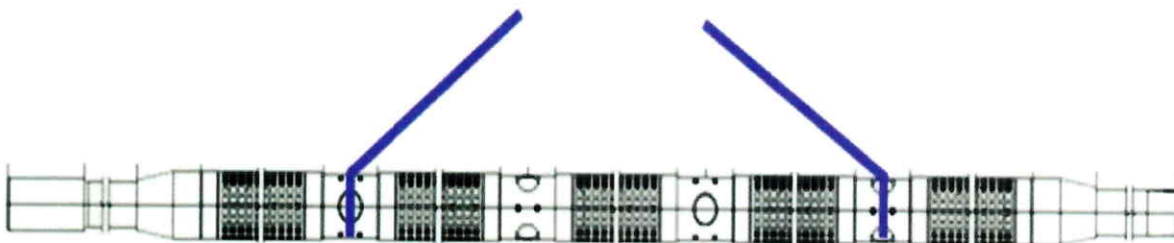


Figure 6.2: Horizontal lifting of a 5 module Ceramic Screen

NOTICE: No handling / loads / stepping / crane lift point at the Lami Wrap packed sections of the screen



7. Make up of Ceramic Screens

To make-up Ceramic Screens use the determined torques from table below. Do never use wrenches or tongs on shroud but only on the base pipe areas! For horizontal make up use suitable underlay (refer to chapter 6, figure 6.3 + 6.4 and chapter 10, figure 10.2) and make sure that Ceramic Screens don't rotate during the process.

Use enough lubrication on PIN connection to avoid damage of threading during make-up at RIG site.

The type of lubricator needs to be defined by operator, RIG or well recommendations.

During make-up, at no point tongs / wrenches are holding on the shroud / end cap areas of the screens. The blank section of the pipes needs to be used.

Connection	Grade	Min. Torque	Opt. Torque	Max. Torque
20# - VAM-TOP HC	-	7,830 ft/lbs	8,700 ft/lbs	9,570 ft/lbs

The customer is using their own connection - the above mentioned torque values have been provided by the customer.



9. Deployment recommendation

Hold TBT (tool box talk) to cover rig up of handling equipment and ceramic screens.

Bring Screens to the well as described in horizontal/vertical handling recommendation in this document.
During running the Screen in the well/lubricator proceed a final inspection (Figure 9.1).

- ⚠ **Never set slings on the shroud, only on the lifting points**
- ⚠ **Do not at any time set slips on the jacket**
- ⚠ **Ensure all Lami Wrap and all kind of stickers or tapes are removed on each screen joint before deploying**

RIH recommendations:

- Do not exceed RIH speed of **120 ft./min.**
- **50 ft.** before, until **50 ft.** after restrictions (Nipples, Valves etc.) slow down RIH speed to **30 ft./min.**
- Also reduce speed **50 ft.** before setting depth to **30 ft./min.**
- Do not set down more than **258708 lbs** at the top of the screens.



Figure 9.1: last Screen check while bring in the well