

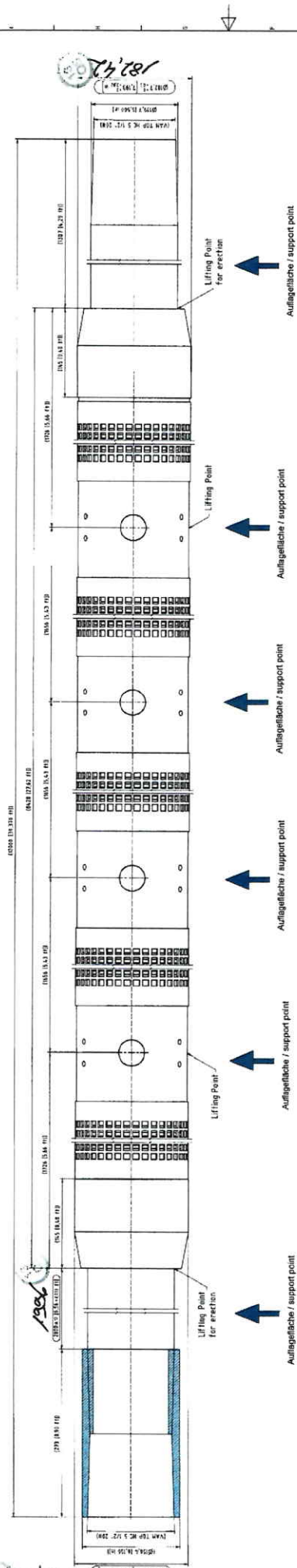
Drawings

Final Inspection

27

Difference $\phi_i : i.O.$

Kundenzeichnung
customer drawing

[illegible]

Kundenzeichnung
customer drawing

Drifttest ϕ_i : 10

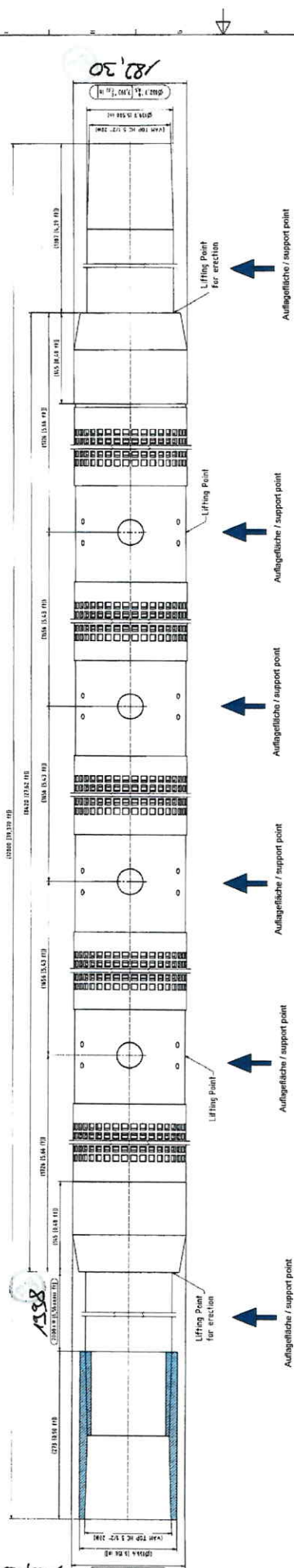


Drifttest ϕ_i : i. O. #6

[illegible]

Distest $\phi_i :: i.O.$

Kundenzeichnung
customer drawing

[illegible]

Kundenzeichnung
customer drawing

;



DATE	10/10/2018	TIME	11:00 AM	STATION	101.1 FM	POWER	100.0 W	TYPE	FM	CLASS	FM	STATUS	ON
NAME	12 Sand Screen SAS 5.5'												
LOCATION	7100209234												
OWNER	CS-543-553 A05-259 KC												
DESCRIPTION	ALL THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. IT IS THE POLICY OF THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION TO RELEASE ALL INFORMATION IN ITS POSSESSION TO THE PUBLIC AS SOON AS THE INFORMATION IS DETERMINED TO BE UNCLASSIFIED. DATE OF REVIEW: 10/10/2018 BY: 60322 UCBAW/STW												

Prüfprotokoll Prooftest / Inspection protocol Prooftest

3M

Auftragsnummer / order number:

702438140

Materialnummer / material number:

6010028437

Größe ID / size ID:

3,3 Zoll / inch

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

Prüfer / checker:

Kray

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

797 Stk. / pcs.

Gutteile / good parts:

763 Stk. / pcs.

Schlechtteile / bad parts:

34 Stk. / pcs.

19.07.79

Datum / date

Kray

Unterschrift / signature

**Prüfprotokoll Prooftest /
Inspection protocol Prooftest**



Auftragsnummer / order number:

102493336 (Teilmenge)

Materialnummer / material number:

4010028457

Größe ID / size ID:

5.5 Zoll / inch

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

Prüfer / checker:

Gyerman

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

1821 Stk. / pcs.

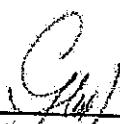
Gutteile / good parts:

1821 Stk. / pcs.

Schlechtteile / bad parts:

 Stk. / pcs.

24.07.2019
Datum / date


Unterschrift / signature

**Prüfprotokoll Prooftest /
Inspection protocol Prooftest**



Auftragsnummer / order number:

102438324

Materialnummer / material number:

4010028457

Größe ID / size ID:

55 Zoll / inch

☒ SIC Ringe / filter segment

☐ Abschlusssegment / end ring

Prüfer / checker:

Gyerman

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

6008 Stk. / pcs.

Gutteile / good parts:

5999 Stk. / pcs.

Schlechtteile / bad parts:

9 Stk. / pcs.

8.8.2019
Datum / date

Gyerman
Unterschrift / signature

**Prüfprotokoll Prooftest /
Inspection protocol Prooftest**



Auftragsnummer / order number:

102493441

Materialnummer / material number:

9010028457

Größe ID / size ID:

5,5 Zoll / inch

- ☐ SiC Ringe / filter segment
☐ Abschlusssegment / end ring

Prüfer / checker:

Pisarcu M.

Prüfdruck / test pressure:

115 barÜ / barg

Losgröße / lot amount:

449 Stk. / pcs.

Gutteile / good parts:

449 Stk. / pcs.

Schlechtteile / bad parts:

— Stk. / pcs.

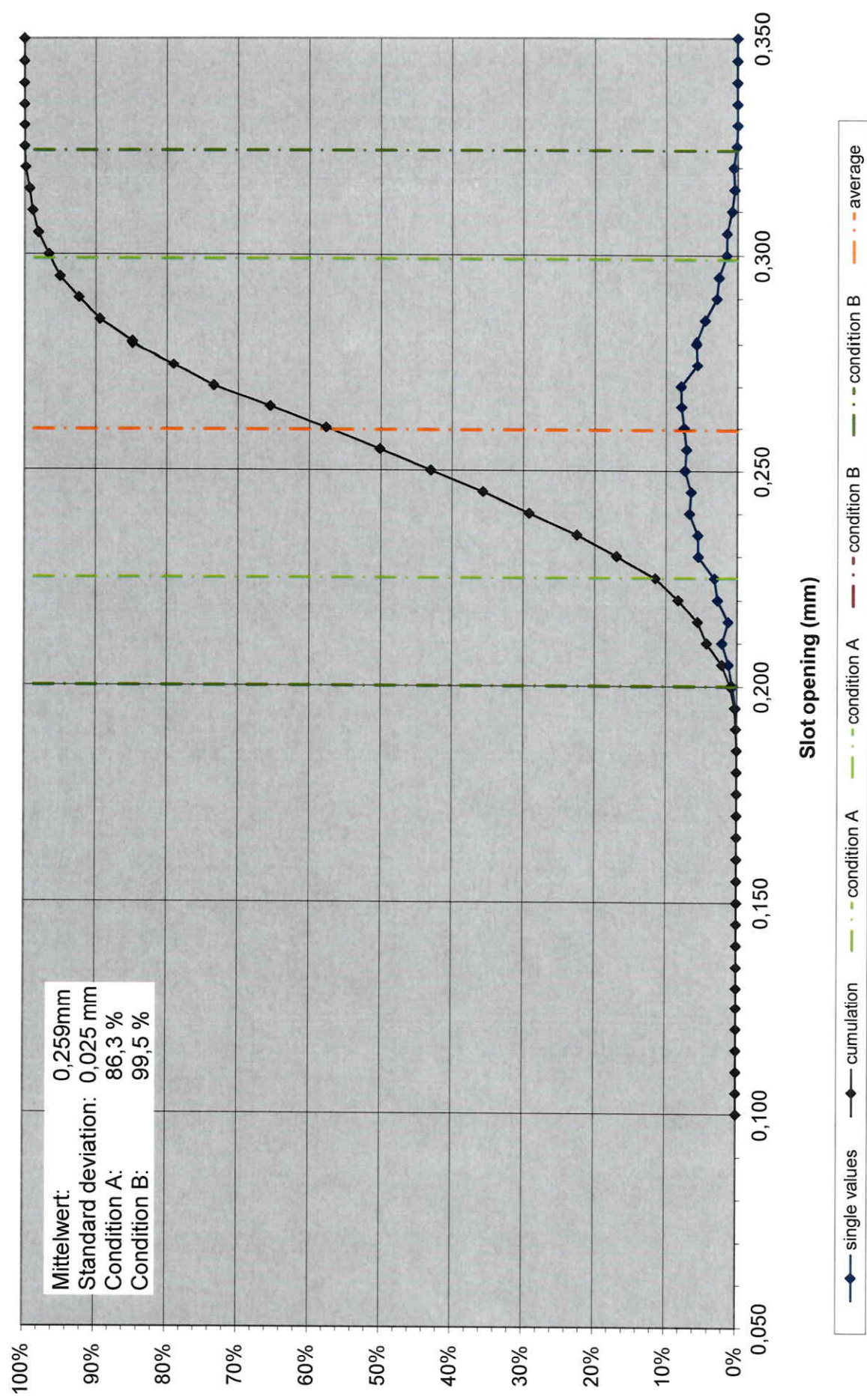
5.05.19.

Datum / date

Pisarcu M.

Unterschrift / signature

Certificates



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

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	2	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	859	15	15	☒	☐
2	21,6	795	15	15	☒	☐

10.10.2019

Date


Signature

Test Report: Penetrant testing of welds



Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	4	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	784	15	15	☒	☐
2	20,8	800	15	15	☒	☐

08.10.2019

Date

Signature

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

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	6	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	749	15	15	☒	☐
2	21	848	15	15	☒	☐

08.10.2019

Date


Signature

Test Report: Penetrant testing of welds



Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	8	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	720	15	15	☒	☐
2	21,5	725	15	15	☒	☐

08.10.2019

Date


Signature

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

Product Details:

Order number	102459657	Material number	7100209234
Ongoing number	10	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

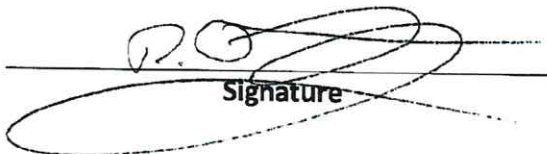
Weld inspection:



Pos.	Temperature (Room) in °C	Illuminance in Lux	Penetration in min	Developer time in min	Test result	
					ok	n.ok
1	22	739	15	15	☒	☐
2	22	1031	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 **Tobias Schuster**
 5 Legitimation eingesehen
 6 Art der Legitimation Personalausweis
 7 Geburtsdatum, -ort 25.03.1990, Kempten
 8 Beschäftigt bei 3M Deutschland GmbH, Neuss
 9 Vorschrift/Prüfnorm DIN EN ISO 9606-1:2017-12
 10 Fachkunde bestanden

Prüfstelle: GSI mbH, NL SLV München
 Prüf.-Nr.: D-SLV-80636-9606-1-190605-EX-2019.001514

Foto
 (falls nötig)

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 Schweißnahtseinheiten	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: 24.05.2019 Gültig bis: 23.05.2022
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

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



QC Standard for 3M™ Ceramic Sand Screen Systems(based on ISO 17824:2009)

Certification

Steel components	Material and dimensional record, MTR (EN 10204)
Base pipe (including ID drift)	Inspection certificate COC (EN 10204); (base pipe supplier)
Base pipe thread certification	Inspection certificate COC (EN 10204);(base pipe supplier)
Welding instructions / certification	Welding procedure qualification 3th party record

Component traceability

Base pipe	Job lot
Base pipe perforation	Serialized
Ceramic rings	Job lot
All other components	Job lot
Assembled Screen	Serialized

Component inspection (ceramic components)

For ceramic parts derived and adapted from ISO 17824:2009

Visual inspection	100%
Screen slot size	10%

Component inspection

ID drift basepipe after perforation	Supplier/manufacturer's documented specifications
Visually inspect perforation pattern	10%
Visually inspect perforation for burrs	100%
All other components	Supplier/manufacturer's documented specifications

Assembly verification

OD on final filter	100%
ID drift	on customer request
Thread damage (visual inspection)	100%
Dimension (LS, LP, LB) (screen jacket length, LS / pin handling length, LP / box handling length LB)	100%

Assembly traceability

serialized (digital documentation)

QC documentation / final inspection

Retained by supplier / manufacturer, available
upon request to user / purchaser / Dimension
LS,LP,LB 100% / OD on final filter 100% / ID drift
on customer request
Creation MTR on total sand screen

Ausgabe: 07.02.2017
Ersetzt Ausgabe: 18.01.17
STA7/SC-A-600-00

1. Safety information

Please read, understand, and follow all safety information contained in these instructions prior to the use of this device. Retain these instructions for future reference.

Product Selection and Use:

The 3M™ Ceramic Sand Screen are designed as downhole completions to prevent the spread of formation sand throughout oil and gas facilities and pipelines and operate at the **MAXIMUM TEMPERATURE of 150 °C (302 °F)** and **MAXIMUM PRESSURE of 10,000 PSI**. Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Explanation of Signal Word Consequences

- | | |
|---|---|
|  WARNING: | Indicates a hazardous situation which, if not avoided, could result in serious injury or death. |
|  CAUTION: | Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and/or property damage. |
| NOTICE: | Indicates a situation which, if not avoided, could result in property damage. |



2. Scope of delivery

Box 1

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

Content Box 1

<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 #1	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 3

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

Content Box 3

Serial Number	Max OD	ID	Weight	Length	Slot opening	SKU
102459657 #3	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 5

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

Content Box 5

<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 #5	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 7

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

Content Box 7

<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 #7	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 9

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

Content Box 9

<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 #9	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).

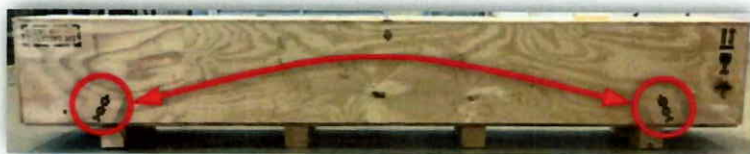


Figure 3.1: lifting points box



Figure 3.2: fork positioning



Figure 3.3: upside marking

4. Opening of the box

Box is locked with clamping locks (Figure 4.1) which can be easily opened and closed. Depending on Ceramic Screen length, crate may have more than one lid, in this case each lid is labelled with a number (Figure 4.2), always open lids in sequence of these numbers (Figure 4.3), starting with one. To unfasten the Ceramic Screens, remove screws on either side of the box (Figure 4.4) with a Philips screwdriver or preferable a drilling machine with suitable bit and remove transversal wood protections. If it's not possible to unscrew transversals (because of damaged screw head etc.) don't use a hammer (Figure 4.5) or similar tool to remove them and never use a crowbar between transversals and Screen, try to cut screws with a saw instead.



Figure4. 1: clamping lock



Figure 4.2: lid number



Figure 4.3: opening sequence



Figure 4.4: remove of wooden beams

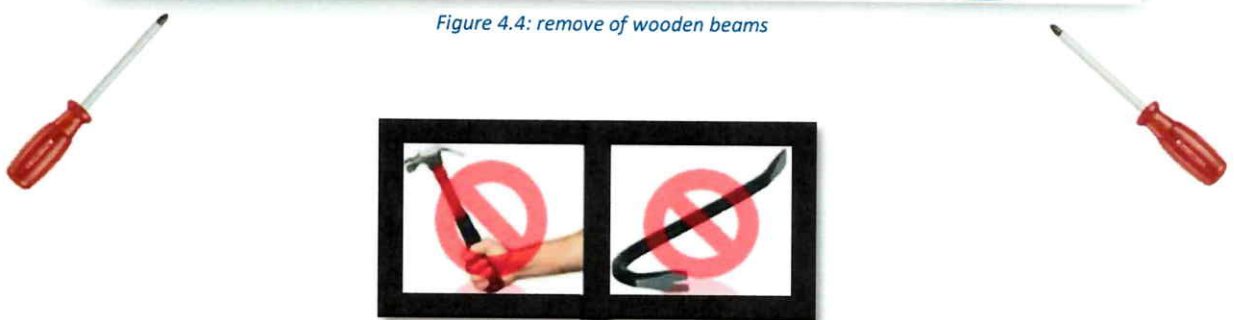


Figure 4.5: forbidden tools to unfasten Screens

Important Note: Proceed the above checks carefully and take your time, make sure you inspect the whole diameter and entire length of the Ceramic Screen



Figure 5.1: serial numbers



Figure 5.2: not allowed chipping

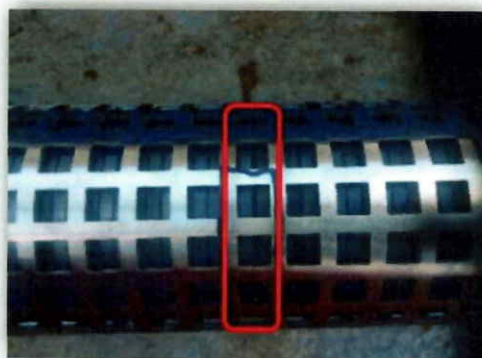


Figure 5.3: wrong slot

For horizontal storage of the Ceramic Screens including Lami Wrap shaped wooden/plastic underlays needs to be used (figure 6.3). The Ceramic Screen has several support point options for the usage of underlays (figure 6.4).



Figure 6.3: shaped wooden/plastic underlays

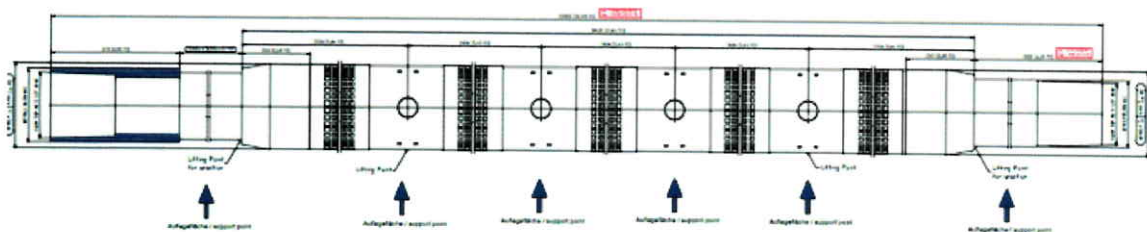


Figure 6.4: Support points options for underlays/stands

8. Lift Screen to a vertical position

Bring the ceramic sand screens on deck as per horizontal handling procedure (chapter 6). To bring the Screen in a vertical position (Figure 8.1) apply a suitable clamp, C-plate etc. at top end of the Screen and bring it slowly in a vertical position by using a second crane, elevator or similar lifting equipment.

The screens must never be lifted or handed on the shrouds, only on the lifting points highlighted by red stickers!

If allowable on RIG, use tag lines or push / pull poles (load guiders) for hands free lifting operation to avoid any swinging or hitting to the RIG fixtures and so to avoid any potential damage to screens.

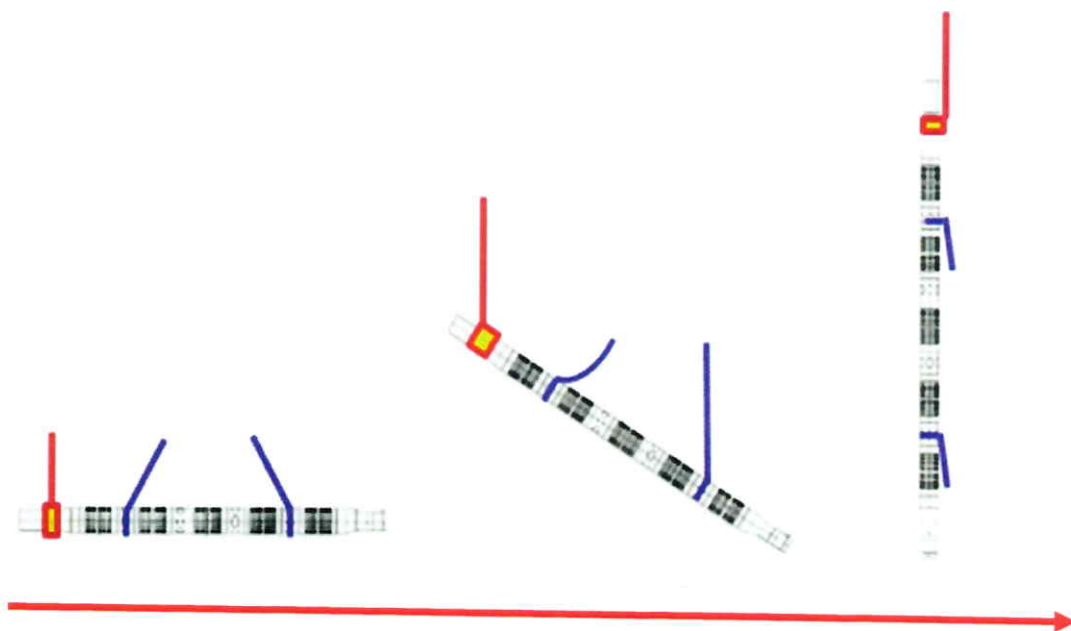


Figure 8.1: horizontal to vertical lifting

10. Storage of Ceramic Screens

- Wooden boxes must be stored in a dry location (Figure 10.1)
- Vertical storage of the box is forbidden
- If you store crates on a rack/shelf there must be at least 3 supporting points
- Never stack the crates
- Never store the bare Screens on the floor/shelf without suitable underlay (Figure 10.2) at least under the lifting points. Never put the underlay below shrouds, use intermediate steel parts, endcaps or blank pipe area
- If you place the Screens on wooden beams secure them with wedges from rolling
- Screens need to be stored with Lami Wrap protection as this protects the filter section of the screens for dust and water.

In case of doubts about storage, please contact a 3M representative!

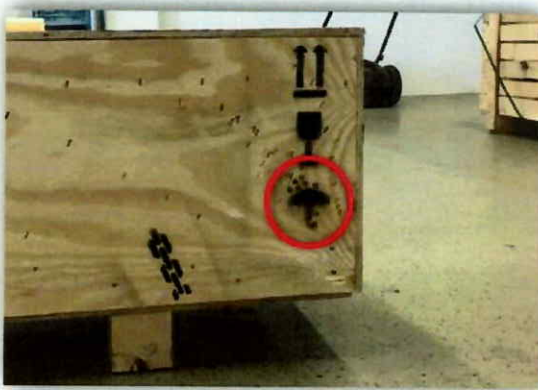


Figure 10.1: store crate only in dry location



Figure 10.2: shaped wooden/plastic underlays