

USER MANUAL FOR SUBSEA AX-VX CLEANING TOOL

Document title : *UMA-7144-001 Subsea AX-VX Cleaning Tool*


IKM TECHNOLOGY AS ref. : *P7144*

Customer ref. : *Subsea Tool*




IKM Technology AS

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BTE.12-26 User Manual				Page 2 of 16	
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Author:	Gabrielsen Trine (Technique)	Owner:	IKM Administrator		
Approved by:	Reinsnos Jostein (Technique)	Company:	IKM Technique AS		

USER MANUAL	1
1 GENERAL INFORMATION.....	3
1.1 Abbreviations	4
1.2 References	5
2 TECHNICAL SPECIFICATION	6
3 SAFETY	7
4 OPERATIONAL DESCRIPTION	9
5 MAINTENANCE.....	10
6 SPARE PART LIST	12
7 REVISION CHANGES	13
8 APPENDIX	14

BTE.12-26 User Manual				Page 3 of 16	
Dok.ID:	010984	Issue date:	2014.12.29		
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1 GENERAL INFORMATION

This manual is a user manual for the IKM Technology 18-3/4" Cleaning tool system.

The Cleaning Tool is designed for cleaning 18 ¾"AX / VX Wellhead seal surfaces. Designed for operations with and without tubing hanger installed.


The Cleaning Tool consists of a main frame with a hydraulic driven cleaning disk.

Handling of the Cleaning tool is designed for a ROV equipped with a 7 function manipulator, typical Schilling T4. The frame is not certified for lift by wire from surface.

BTE.12-26 User Manual				Page 4 of 16	
Dok.ID:	010984	Issue date:	2014.12.29		
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1.1 Abbreviations

HPU	Hydraulic Power Unit
ROV	Remotely Operated Vehicle
kg	Kilo gram
mm	Milli meter
BSP	British standard pipe
JIC	Joint industry council
CCM	Cubic centimeter
LPM	Liter per minute
Nm	Newton meter
CCW	Counter clockwise

BTE.12-26 User Manual				Page 5 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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1.2 References

Doc nr	Description	Rev.	Issued	Can be found
7144-001	Drawing of AX-VX Cleaning Tool	03	17.03.15	Appendix A

BTE.12-26 User Manual				Page 6 of 16	
Dok.ID:	010984	Issue date:	2014.12.29		
Approved date:	2015.02.13	Rev.no:	002		
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2 TECHNICAL SPESIFICATION

The Cleaning tool is designed to be used on an 18-3/4" Wellhead with or without tubing hanger installed.

Hydraulic supply and control of the Cleaning Tool is by means of and through the ROV system. When hydraulic system pressure is sullied to the hydraulic motor, the cleaning disk will start to turn.

The Cleaning tool is also fitted with an option to connect an acid injecting system to the Cleaning Tool.

Weight:


In Air 58 kg
In Water 35 kg

Maximum dimensions:

Width 847 mm
Height 816 mm (w/ fishtale handle)

Hydraulic:

Working pressure 97 bar (103 max).
Flow: 7 LPM.

BTE.12-26 User Manual				Page 7 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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3 SAFETY

3.1 General - Operations

Only authorised people and qualified personnel should work on the system, and take suitable precautions to prevent any potential injuries. Always adhere to authorised working practices, and use the correct tools for the job. To facilitate this, make sure that these are available before commencing the test.

Ensure that the working area is kept clear and uncluttered.

3.2 General – Hydraulic

Do not work on pressurised systems. Hydraulic systems contain a large amount of stored energy when pressurised, therefore the system (including any accumulators) should be de-pressurised, and the power pack switched off, prior to working on the system. Exceptions to this would be system adjustments to components requiring the presence of pressure and/or flow.

Any personnel authorised to work on the system must have a complete understanding of the operation of the hydraulic system, so that they will be aware of any system liable to remain pressurised or hazardous in any other way. Ensure that all personnel are clear of any mechanical/hydraulic system likely to move if pressure to system actuators is released or applied.

Do not attempt to tighten any leaking fittings whilst under pressure. A hose/fitting rupture could result, leading to injury from flying components and/or oil jets.

Regularly inspect fittings and pipe-work for mechanical damage. If any such damage is found, the item must be repaired or replaced as necessary before pressure is applied to the system. Do not allow damaged fittings to remain in service.


Take care when inspecting, commissioning, repairing or maintaining the system to avoid jets of oil issuing from open orifices; pipe ends etc. if pressure is applied. Particular care should be taken to protect the eyes.

Hydraulic components may be heavy and slippery when covered in oil. Ensure that adequate protective clothing and footwear is used.

Any moving component should be treated with caution when the system is pressurised during operation, and especially during on-deck testing and repair. Keep clear of all moving components, and take all necessary precautions to avoid injury when working on these systems by preventing movement of any components likely to cause injury.

3.3 General – Mechanical

Beware of and keep clear of all moving components. Do not work on the system whilst power is applied, or if there is any potential for components to move.


BTE.12-26 User Manual				Page 8 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
Approved date:	2015.02.13	Rev.no:	002			
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Ensure that all load bearing components are adequately and regularly inspected. If damage is found the component must be repaired/replaced as necessary. Do not allow damaged components to remain in service.

Always ensure that items are correctly and adequately supported before removal, and that authorised lifting equipment and procedures are used.

Note: trying to lift heavy components in an awkward position by hand without the assistance of correct lifting equipment, or lifting any component without adopting the correct stance, can lead to serious injury.

Ensure that when working within or underneath the machine that your presence is known to your supervisor. If working underneath the machine, always ensure that there are no loose or unsupported assemblies, components or tools above.

BTE.12-26 User Manual				Page 9 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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4 OPERATIONAL DESCRIPTION

The following description is a generic description of preparation and use of the Cleaning tool. Customers are advised to adapt the following information to their own specific operations and specific work area.

4.1 Preparation on the vessel prior to operations

- Unpack all parts and check for transport damages
- Verify all parts on equipment list is present
- Check hydraulic hoses, bolts, etc.
- Direction of rotation to be clockwise.
- Check that the 3M cleaning cloths are in place and in good shape.
- Connect the hydraulic hoses to the ROV, check for correct direction of rotation.
- Connect the acid hose if this shall be used (not part of Cleaning Tool)

4.2 Step by Step Procedure


General

Perform SJA/Toolbox talk for the operation as required by client/ROV contractors own procedures.

Operation

The following steps are to be regarded as guidelines for operation. Operator of the tooling must adapt the steps into their own operations procedure.

- Maneuver ROV to worksite
- Stabilize ROV at worksite and in good position for commencing work
- Verify visual by means of ROV camera that the Cleaning tool is in position.
- Lower the Cleaning tool over the Wellhead, until the frame is positioned on top of the Wellhead.
- If installed and required to be used, start the acid pump and verify acid flow..
- When positioned, start the hydraulic motor.
- Run the cleaning tool as required
- Inspect after cleaning.
- Restart cleaning if inspection does not give acceptable results.

BTE.12-26 User Manual				Page 10 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
Approved date:	2015.02.13	Rev.no:	002			
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5 MAINTENANCE

After use:

Clean tool with fresh water followed with a protective coat with WD40 or equal to keep the equipment in good condition.

General:

Maintenance of the Cleaning tool is limited to flushing hydraulic circuits with clean oil after use and external corrosion protection.

Hoses and fitting must be carefully inspected prior to use and after operations. Cut or sharp bends indicates that the hoses should be replaced.

Check the cleaning disc and that the 3M cleaning cloths are in place and in good shape.


5.1 Step-by-step changing brush.

- Remove screw as shown on picture below.



- Use a flat screwdriver to lift up the brush holder.



BTE.12-26 User Manual				Page 11 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
Approved date:	2015.02.13	Rev.no:	002			
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- The brush is now ready to be lifted up.




- Picture shows Cleaning Cloth wrapped around bolt.




For installation of the brush, reverse the operation.

- Turn the main screw clockwise until the small screw hits the bore in the cleaning disc.

BTE.12-26 User Manual				Page 12 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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6 SPARE PART LIST

- 3M cleaning cloths.
- Hydraulic hoses and connections.
- Nuts and bolts.
- Motor.
- Cleaning disc.

BTE.12-26 User Manual				Page 13 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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7 REVISION CHANGES


Revision	Procedure change	Author
01	<i>Original version</i>	EN
02	<i>Update</i>	KF

8 CONTACT INFORMATION

All enquiries relating to the tooling should be addressed to:

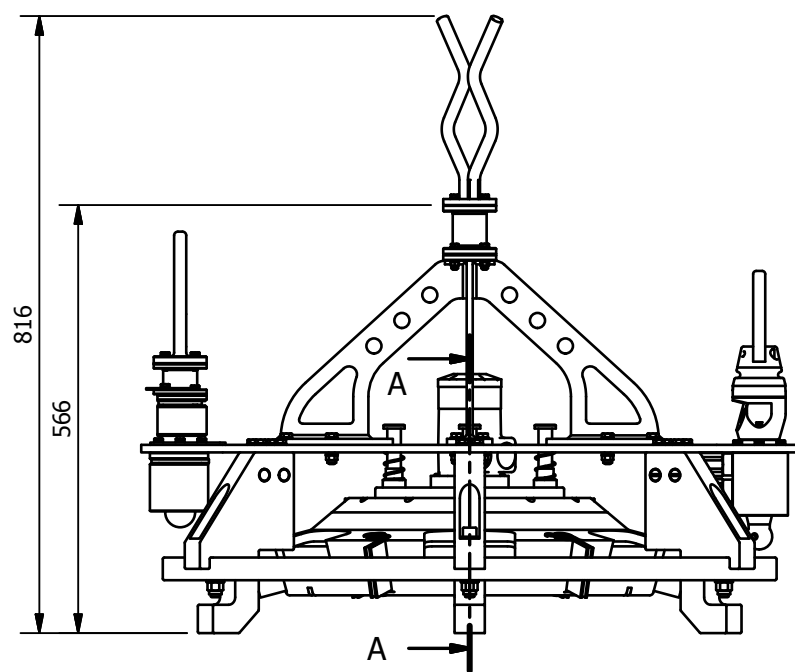
IKM Technology AS
 Nordlysveien 7,
 N-4340 Bryne
 Norway

Phone, 24/7 : +47 51 80 05 20
 Mail : IKMtechnology@IKM.no

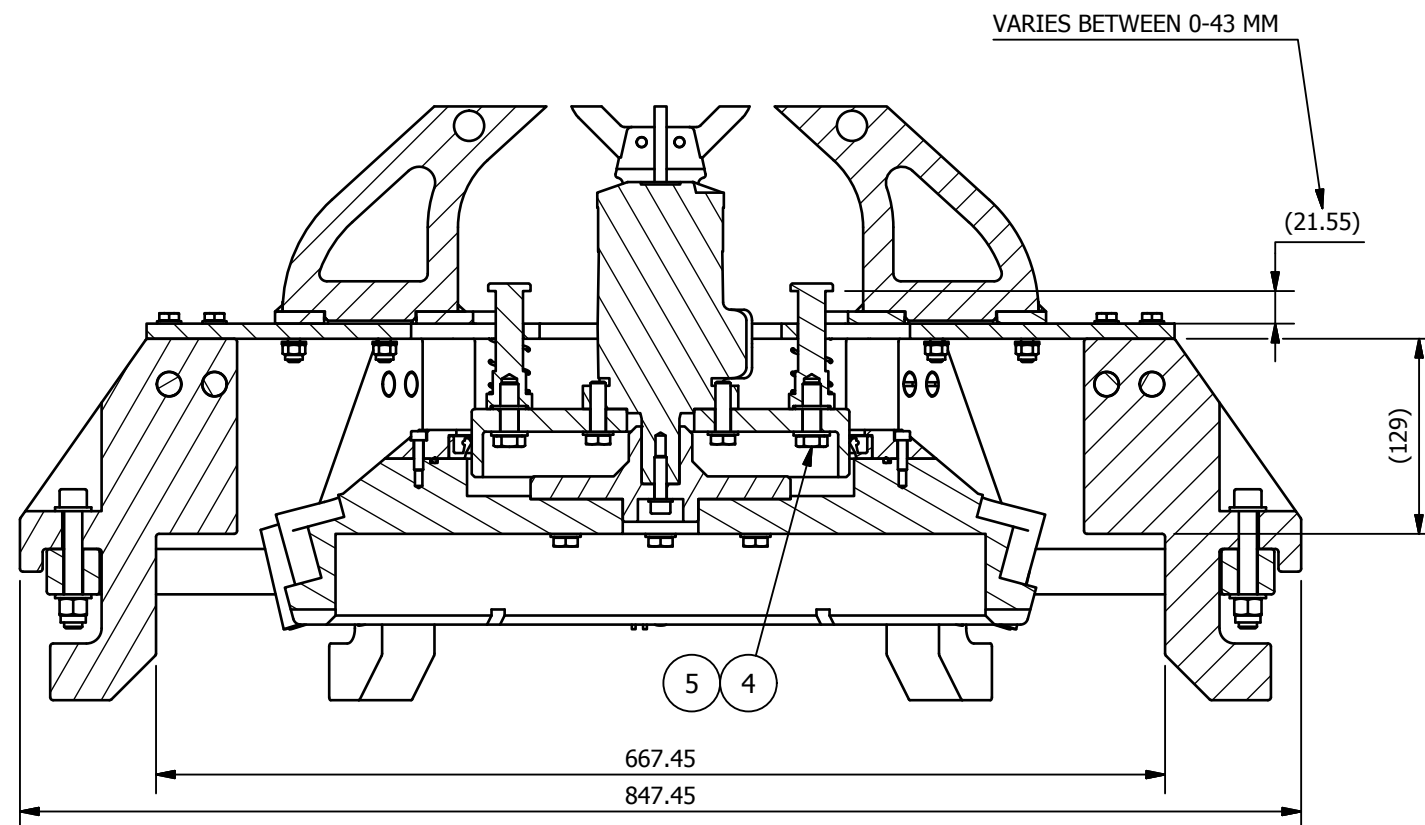
BTE.12-26 User Manual				Page 14 of 16		
Dok.ID:	010984	Issue date:	2014.12.29			
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9 APPENDIX

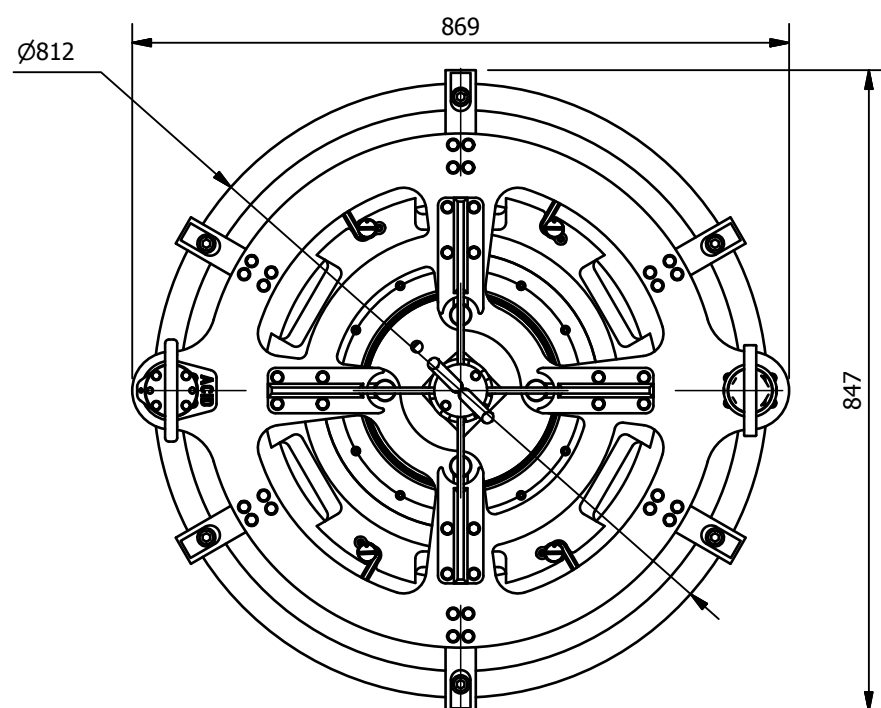
	Doc number	Description	Rev
Appendix A	7144-001	Drawings of AX-VX Cleaning Tool	03
Appendix B			
Appendix C			
Appendix D			
Appendix E			



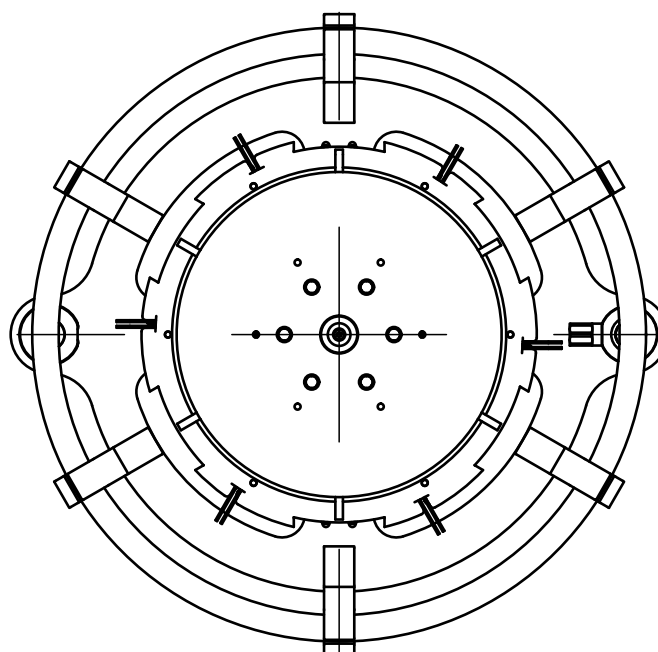
FRONT VIEW





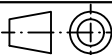
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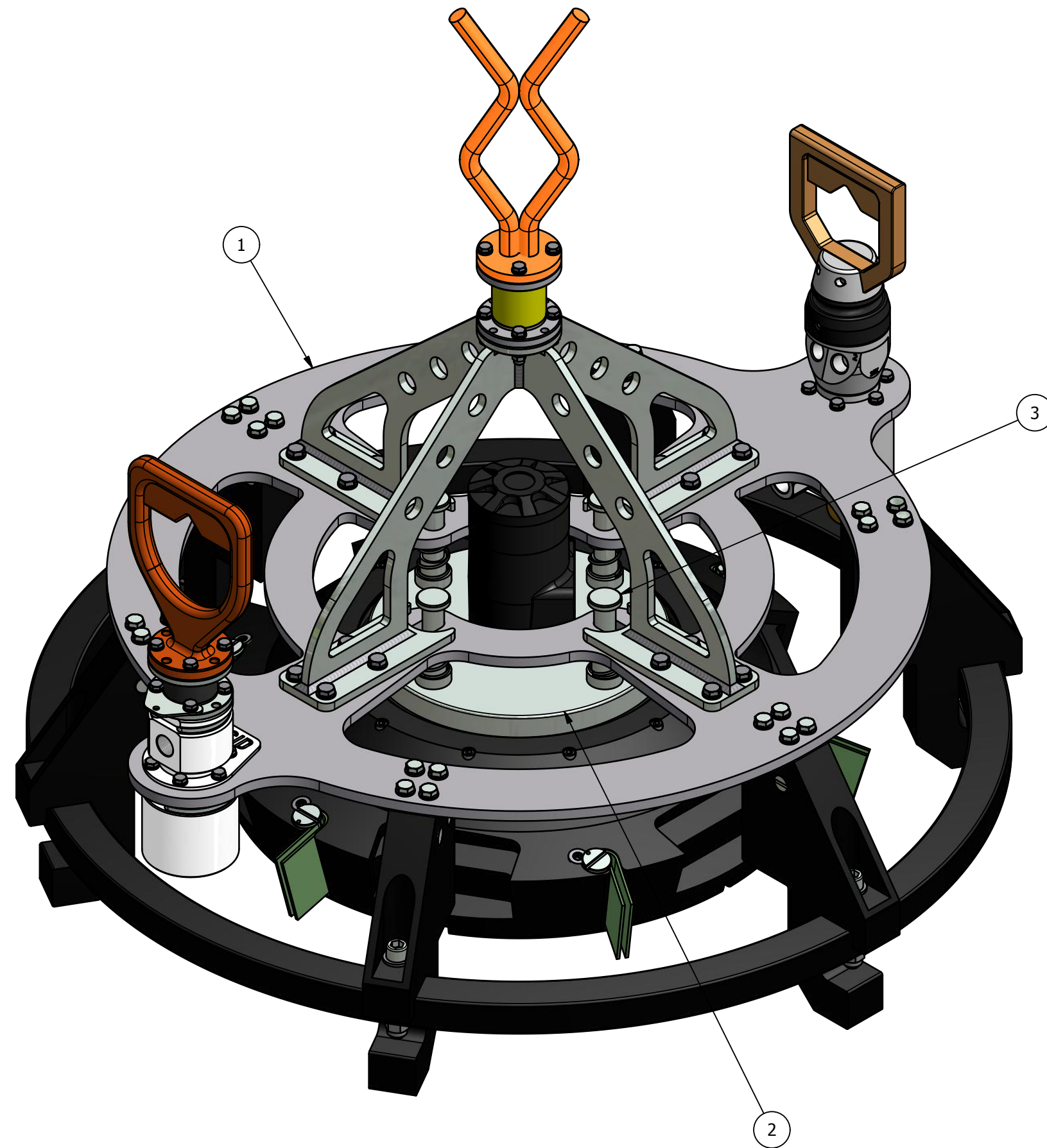


TOP VIEW



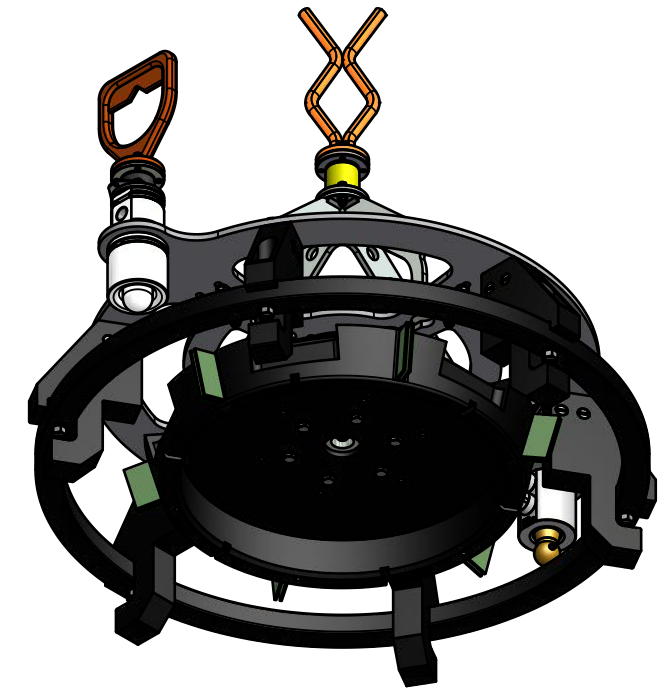
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03	17.03.2015	RE-ISSUED FOR CONSTRUCTION		AH	RH	AH
02	16.09.2013	AS BUILT		JKK		
01	12.07.2013	FOR CONSTRUCTION		JKK	EN	JKK
REV	DATE	DESCRIPTION		BY	CHKD	APPD
WEIGHT:		<div>IKM TECHNIQUE AS</div> <div>Tomeroseveien 12, 4315 SANDNES</div> <div>Tel.: 51 80 05 20</div> <div>E-mail: ikmtechnique@IKM.no</div> <div>Web: www.IKM.no</div>				
IN AIR:						
IN WATER:						
UNLESS OTHERWISE SPECIFIED:		<div></div> <div>THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF IKM TECHNIQUE AS. NONE OF THE INFORMATION CONTAINED HEREIN MAY BE DISCLOSED, REPRODUCED, DISTRIBUTED OR USED WITHOUT WRITTEN CONSENT FROM IKM TECHNIQUE AS.</div>				
ALL DIMENSIONS ARE IN MILLIMETRES						
TOLERANCES:						
LINEAR: ISO 2768-1 m		<div>PROJECT TITLE:</div> <div>P7144</div> <div>DRAWING TITLE: 18-3/4" CLEANING TOOL</div>				
ANGULAR: ISO 2768-1 m						
EDGES: ISO 2768-1 m						
REMOVE ALL BURRS BREAK ALL SHARP EDGES						
FIRST ANGLE PROJECTION		SHEET SIZE: A3	SHEET NO.: 1 OF 2	SCALE: 1:10		
		DRAWING NO.: 7144-001	LATEST REV.: 03			


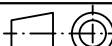


ISOMETRIC VIEW
(1 : 4)

PARTS LIST					
ITEM	QTY	PART NUMBER	MATERIAL	MASS	DESCRIPTION
1	1	7144-002	SEE DRAWING 7144-002	26.36 kg	
2	1	7144-003	SEE DRAWING 7144-003	30.56 kg	
3	4	7144-007	SEE DRAWING 7144-007	0.22 kg	
4	4	ISO 4017 - M12 x 35	Stainless Steel, 440C	0.05 kg	Hexagon head screws
5	4	ISO 7089 - 12 - 140 HV	Stainless Steel	0.01 kg	Plain washers - Normal series - Product grade A



BOTTOM ISOMETRIC VIEW

WEIGHT: IN AIR: 58 kg		 IKM TECHNIQUE AS Tomeroseveien 12, 4315 SANDNES Tel.: 51 80 05 20 E-mail: ikmtechnique@IKM.no Web: www.IKM.no	
IN WATER: 35 kg			
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN MILLIMETRES			
TOLERANCES: LINEAR: ISO 2768-1 m ANGULAR: ISO 2768-1 m EDGES: ISO 2768-1 m		THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF IKM TECHNIQUE AS. NONE OF THE INFORMATION CONTAINED HEREIN MAY BE DISCLOSED, REPRODUCED, DISTRIBUTED OR USED WITHOUT WRITTEN CONSENT FROM IKM TECHNIQUE AS.	
REMOVE ALL BURRS BREAK ALL SHARP EDGES		PROJECT TITLE: P7144	
		DRAWING TITLE: 18-3/4" CLEANING TOOL	
FIRST ANGLE PROJECTION 		SHEET SIZE: A3	SHEET NO.: 2 OF 2
		DRAWING NO.: 7144-001	SCALE: 1:10 LATEST REV.: 03