

TECHNICAL INFORMATION



KONGSBERG

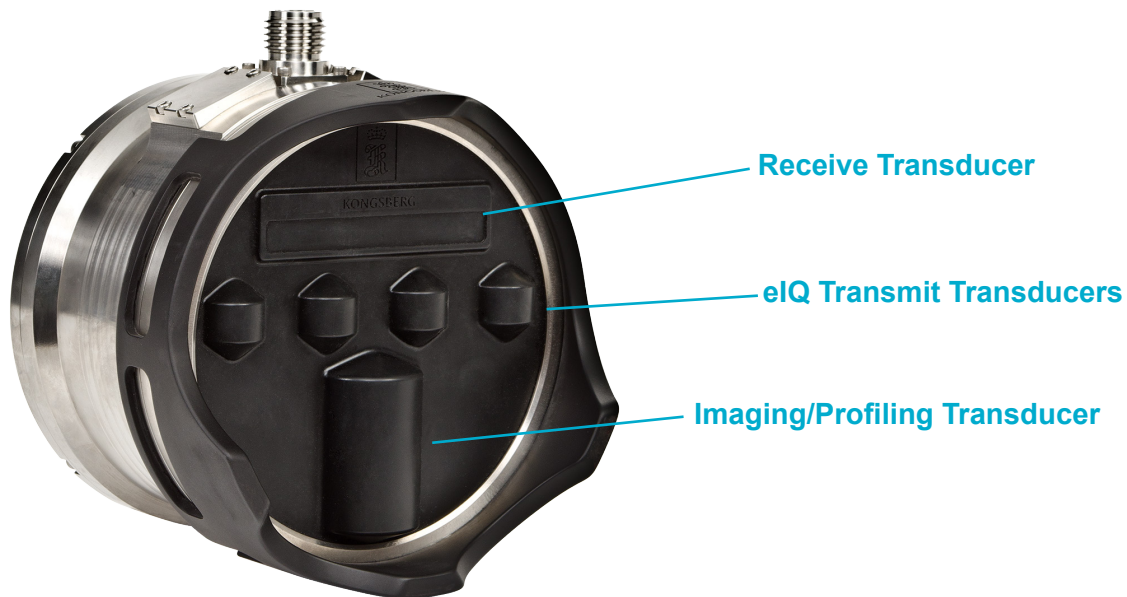
M3 SONAR[®] - 4000M

P/N 922-20020000

P/N 922-20060000 (WITH SYNC)

P/N 922-20110000 (WITH VDSL)

P/N 922-20140000 (WITH SYNC + VDSL)



Tel: (604) 464 8144
Fax: (604) 941 5423

Specifications subject to change without notice
922-20027902
KONGSBERG MESOTECH LTD.
1598 Kebet Way, Port Coquitlam B.C. Canada
V3C 5M5



KONGSBERG

KONGSBERG MESOTECH LTD.

WARRANTY STATEMENT

Effective January 1, 2006

Kongsberg Mesotech Ltd. warrants that its products are free from defective materials and/or workmanship for a period of 24 months from the date of receipt of goods by the end user, or 30 months from date of product shipment from the manufacturing facility (whichever occurs first). Kongsberg Mesotech Ltd. will - at no charge - repair or replace (at its option) any part(s) determined to be defective of workmanship or materials, provided the warranty claim is made to either the manufacturing facility or its authorized repair centres within the warranty period.

The purchaser is responsible for the examination of the product upon receipt. The purchaser is required to report any irregularity to received Kongsberg Mesotech Ltd. goods to either the manufacturer, its Sister companies or its Agents, within 15 days of receipt of goods. Proof of date received may be required.

The warranty is void if warranty labels are broken; Kongsberg Mesotech Ltd. will not warrant any product which is physically damaged, abused, altered, subjected to accident or negligence or misuse, or is incorrectly installed or used by the purchaser - or purchaser's representative.

Consumable items (including lamps, fuses, and worn O rings or shaft-seals) are excluded by the warranty.

All Product/Equipment being returned for warranty, repair/replacement shall have freight costs "prepaid". All warranty Product/Equipment being returned to the customer will be freight charges "prepaid" by Kongsberg Mesotech Ltd.

NOTE: Shipping method and carrier for warranty returned items will be at the discretion of Kongsberg Mesotech Ltd.

A Kongsberg Mesotech Ltd. Warranty Claim form must be completed and submitted to KML Service Department prior to warranty claim acceptance.

Kongsberg Mesotech Ltd. cannot warrant that its products are suitable for any particular or intended purpose. No other warranty is expressed or implied; Kongsberg Mesotech Ltd. accepts no liability on consequential damages – these include, but are not limited to: loss of profit, property damage and personal injury.

The maximum liability shall not, in any case, exceed the price of the product claimed to be defective.

DESCRIPTION



KONGSBERG

M3 SONAR® - 4000M

THE MULTIMODE MULTIBEAM FOR MULTIPLE APPLICATIONS

- Imaging and profiling capabilities
- GeoTIFF output for image mosaics
- Multiple true-zoom windows
- CHIRP and Doppler modes of operations
- User-friendly interface
- Significant time savings
- Integrated tilt and pan/tilt control

The Kongsberg Mesotech M3 Sonar® is a multibeam system with both imaging and profiling capabilities. The M3 Sonar® provides high-resolution and easy to interpret images by combining the rapid refresh rate of a conventional multibeam sonar with image quality comparable to a single-beam sonar.

Detection of small objects out to 150 meters combined with a 120° to 140° field of view allows the operator to see the complete underwater picture in real-time.

APPLICATIONS

- Marine Engineering
- Shallow Water Bathymetric Surveying
- Site Inspection
- Environmental Monitoring
- Site Clearance
- Defense and Security

MODELS WITH VDSL TELEMETRY

- Alternative to Ethernet which is limited to <100m
- Longer cable connection to sonar head (up to 1000m)

INSTALLATION OPTIONS

- Pole mount on a surface vessel
- Suitable for a wide range of vehicles from large work-class ROVs to small observation class ROVs
- Tripod mounted

M3 SOFTWARE

The M3 Software was developed specifically for the M3 Sonar® to manage communications with the head and operate all beamforming and imaging processing.

Four Pre-Defined Operating Modes:

1. **Imaging:** long range navigation with high speed update rate
2. **Enhanced Image Quality (eIQ):** greatest image quality (0.95° angular resolution) from a short range with a slower update
3. **ROV Navigation:** selects eIQ or imaging based on range
4. **Profiling:** narrow 3° beam used to generate a 3D point cloud

Tel: (604) 464 8144
Fax: (604) 941 5423

Specifications subject to change without notice
922-20027902
KONGSBERG MESOTECH LTD.
1598 Keblet Way, Port Coquitlam B.C. Canada
V3C 5M5



KONGSBERG

SPECIFICATIONS



KONGSBERG

| PART NUMBER | COMMUNICATIONS | DATA RATES | SYNCHRONIZATION | CONNECTOR MODELS |
|-------------|-----------------|------------------|-----------------|----------------------------|
| 922-2002000 | ETHERNET | 10/100/1000 MBPS | NONE | MINK-10-FCRL |
| 922-2006000 | ETHERNET | 10/100/1000 MBPS | PRI SYNC | MINK-10-FCRL MIND-4-FCR |
| 922-2011000 | ETHERNET & VDSL | 10/100 MBPS | NONE | MINK-10-FCRL |
| 922-2014000 | ETHERNET & VDSL | 10/100 MBPS | PRI SYNC | MINK-10-FCRL MIND-4-FCR |

Sonar Specifications

| | |
|-------------------|------------------------------------|
| Range: | 0.2m to 150m |
| Range Resolution: | 1cm |
| Frequency: | 500 kHz |
| Pulse Types: | CW, CHIRP |
| Modes: | Imaging, eIQ Imaging and Profiling |

Imaging Mode

| | |
|---------------------------|------------------|
| Horizontal Field of View: | 120° |
| Vertical Beamwidth: | 3°, 7°, 15°, 30° |
| Angular Resolution: | 1.6° |
| Update Rate: | up to 40 Hz |

eIQ Imaging Mode

| | |
|---------------------------|-------------|
| Horizontal Field of View: | 140° |
| Vertical Beamwidth: | 30° |
| Angular Resolution: | 0.95° |
| Update Rate: | up to 10 Hz |

Profiling Mode

| | |
|---------------------------|-------------|
| Horizontal Field of View: | 120° |
| Vertical Beamwidth: | 3° |
| Number of Beams: | 256 |
| Update Rate: | up to 40 Hz |

Interface Specifications

| | |
|-------------------|---|
| Communication: | Ethernet, or Ethernet and VDSL |
| Data Rates: | 10/100/1000 Mbps (Ethernet only) 10/100 Mbps (Ethernet and VDSL) |
| Input Voltage: | 12 to 36 VDC |
| Input Power: | 22W (avg.), peak power < 60W, mode dependant |
| Operating System: | Windows® 10 Professional Windows® 7 Professional |
| Synchronization: | PRI Sync (for models with sync) |

Environmental Specifications

Temperature

| | |
|------------|----------------|
| Operation: | -2°C to +38°C |
| Storage: | -40°C to +55°C |

Shock and Vibration

| | |
|----------------------|--|
| Shock Qualified: | +/-50gs, 3 Axes, 6 shocks per axis |
| Vibration Qualified: | 4g, 30Hz 3 Axes, 2 hours per axis. No resonance below 800Hz |

Mechanical Specifications

| | |
|------------------|--|
| Dimensions: | (see diagrams below) |
| Weight in Air: | 8.4 kg |
| Weight in Water: | 5.2 kg |
| Depth Rating: | 4000 m |
| Connector Type: | SEA CON® |
| Connector Model: | MINK-10-FCRL MIND-4-FCR (for models with sync) |
| Materials: | Titanium, Stainless Steel 316, Elastomeric Polyurethane |

Tel: (604) 464 8144
Fax: (604) 941 5423

Specifications subject to change without notice
922-20027902
KONGSBERG MESOTECH LTD.
1598 Kebet Way, Port Coquitlam B.C. Canada
V3C 5M5



KONGSBERG



KONGSBERG

DRAWING LIST

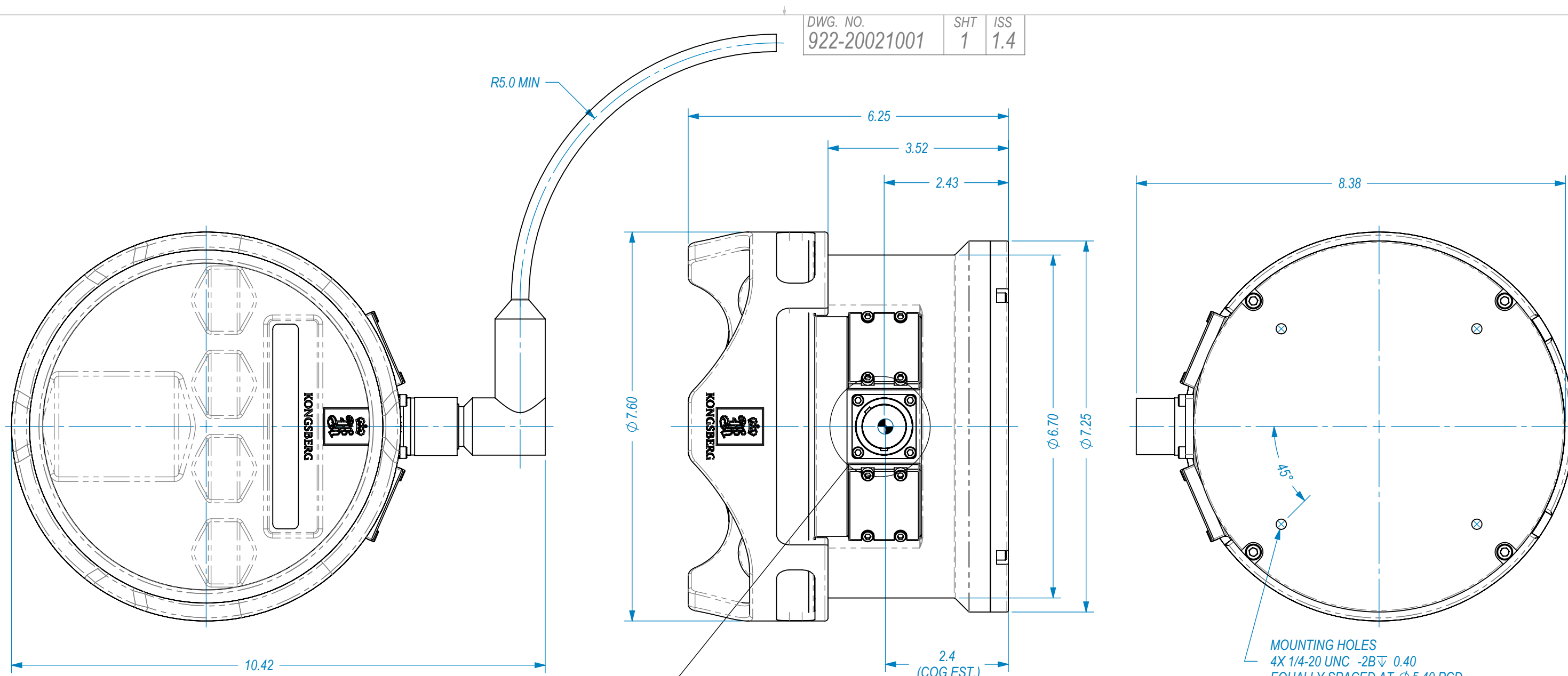
| DRAWING NUMBER | PART NUMBER | DESCRIPTION |
|----------------|--|--|
| 922-20021001 | 922-20020000 | M3 Sonar Head 4000m, SEA CON – Outline Drawing |
| 922-20061001 | 922-20060000 | M3 Sonar Head 4000m with synchronization, SEA CON – Outline Drawing |
| 922-20141001 | 922-20140000 | M3 Sonar Head 4000m with VDSL and sync, SEA CON – Outline Drawing |
| 421-21821000 | 421-21820000 | M3 Sonar Head, Power and Telemetry Connector SEA CON – Drawing |
| 421-21981000 | 421-21980000 | M3 Sonar Head, Power and Telemetry Connector SEANET – Drawing |
| 436-02381000 | 436-02380000 | M3 Cable Whip, Ethernet / Power – Drawing |
| 436-02391000 | 436-02390000-0050 | M3 Cable Assembly, Ethernet / Power – Drawing |
| 436-02811000 | 436-02810000-0004 | M3 Cable, Synchronization, SEA CON MIND-4-CCP – Drawing |
| 436-02831000 | 436-02830000-0020 | M3 Cable Whip, Synchronization, SEA CON MIND-4-CCP – Drawing |
| 436-03131000 | 436-03130000-0015 | M3 Cable Assembly, VDSL / Power – Drawing |
| 436-00001210 | 436-03350000 436-03360000 | M3 Cable Connector, MINK-10-CCPL to P/E Breakout Box – Assembly Pinout |
| 436-00001302 | 436-03350000 436-03360000 436-03370000 | M3 Cable Connector, M3 Power/Ethernet Breakout Box – Assembly Drawing |
| 422-44051000 | 422-44050000 | Bracket, M3 Sonar Head to Rotator (OE10-102 / OE10-013) – Assembly Drawing |
| 422-44061000 | 422-44060000 | Bracket, Pole Mount to Rotator (OE10-103) – Assembly Drawing |
| 422-44061001 | 422-44060000 | M3 Sonar Head, SEA CON, with Rotator (OE10-103) – Outline Drawing |
| 422-44071000 | 422-44070000 | Adapter Plate, Pole Mount to Rotator (OE10-102) – Assembly Drawing |
| 422-44071001 | 422-44070000 | M3 Sonar Head with Rotator (OE10-102) – Outline Drawing |
| 422-44121000 | 422-44120000 | Bracket, M3 Sonar Head to Pole Mount – Assembly Drawing |
| 422-44121001 | 422-44120000 | Bracket, M3 Sonar Head to Pole Mount – Outline Drawing |
| 422-44131000 | 422-44130000 | Bracket, M3 Sonar Head to Pole Mount, Downlooking – Assembly Drawing |
| 422-44131001 | 422-44130000 | Bracket, M3 Sonar Head to Pole Mount, Downlooking – Outline Drawing |
| 422-44171000 | 422-44170000 | Adapter Plate, M3 Sonar and Rotator (OE10-102) to Pole Mount – Assembly Dwg |
| 422-44171001 | 422-44170000 | Adapter Plate, M3 Sonar and Rotator (OE10-102) to Pole Mount – Outline Drawing |

Tel: (604) 464 8144
Fax: (604) 941 5423

Specifications subject to change without notice
922-20027902
KONGSBERG MESOTECH LTD.
1598 Kebet Way, Port Coquitlam B.C. Canada
V3C 5M5



KONGSBERG



DWG. NO. 922-20021001 SHT 1 ISS 1.4

MOUNTING HOLES
4X 1/4-20 UNC -2B 0.40
EQUALLY SPACED AT 5.40 PCD

CONNECTOR
ORIENTATION KEYING

DETAIL A
SCALE 1:1

| | | |
|-----|--------------------|----------|
| 1.4 | ECO 5047, ECO 5048 | 12/10/04 |
| 1.3 | ECO 4974 | 12/05/02 |
| 1.2 | ECO 4809 | 11/08/02 |
| 1.1 | ECO 4788 | 11/05/12 |

| ISS | DESCRIPTION | DATE |
|-----|-------------|------|
|-----|-------------|------|

REVISIONS

Kongsberg Mesotech Ltd.

OUTLINE AND INSTALLATION DRAWING
M3 SONAR
4000m VERSION

| | | | | |
|------|---------|------|--------------|-----|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 922-20021001 | 1.4 |

| | | |
|------------|----------|--------------|
| SCALE: 1:2 | W.O. NO. | SHEET 1 OF 1 |
|------------|----------|--------------|

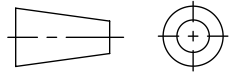
NOTES:

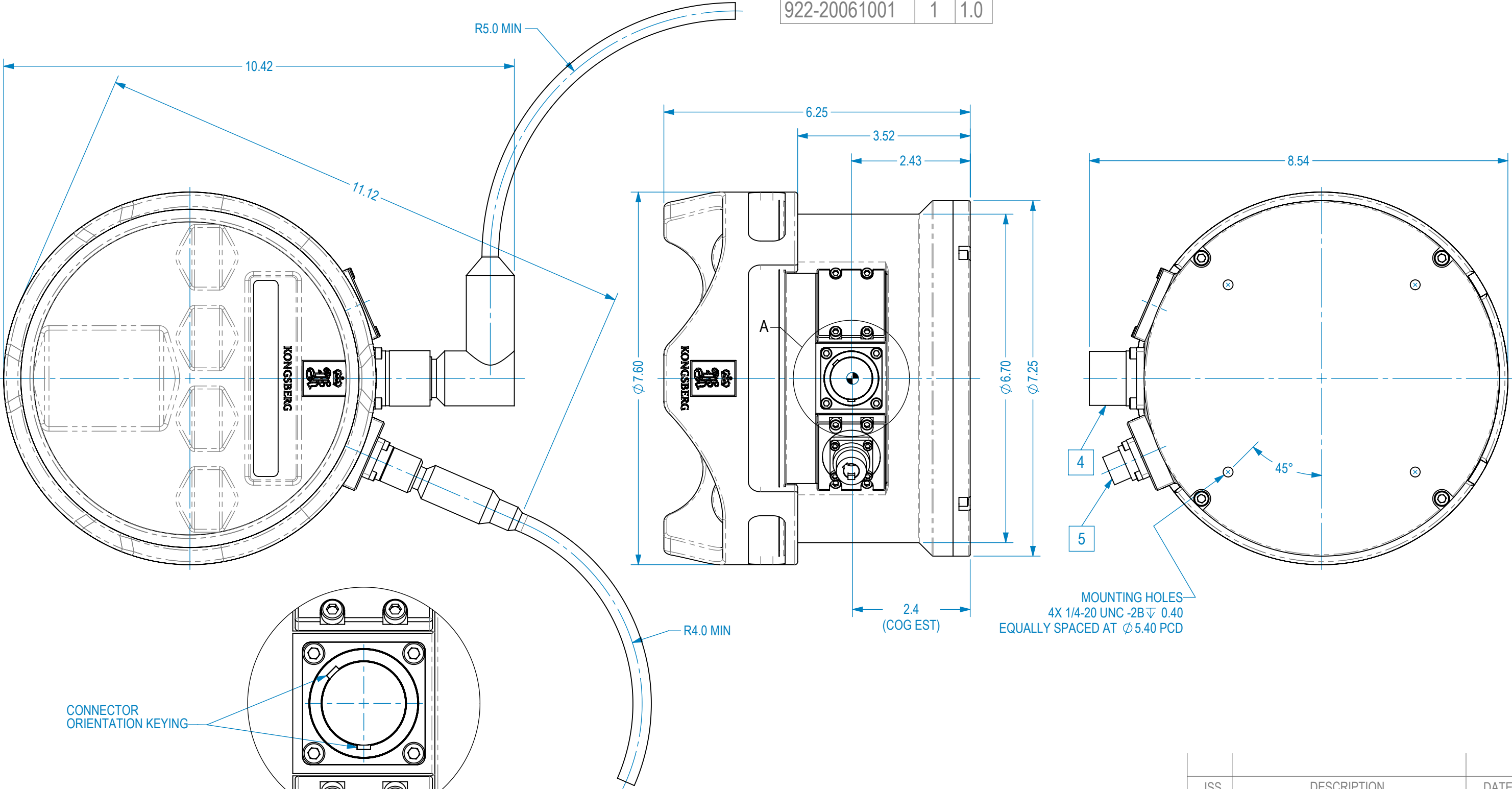
1. MAXIMUM OPERATING DEPTH: 4000msw / 13123fsw.
2. WEIGHT IN AIR: 8.4kg [18.5 lbs]
3. WEIGHT IN SEA WATER: 5.2kg [11.4 lbs]
4. STANDARD CONNECTOR: SEACON MINK-10-FCRL (2 #14, 8 #20)
5. WETTED MATERIALS: TITANIUM (CP AND ALLOY), 300 SERIES STAINLESS STEEL, ELASTOMERIC POLYURETHANE.
6. DIMENSIONS ARE NOMINAL, IN INCHES. DO NOT SCALE.

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION
WHICH IS SOLE PROPERTY OF
KONGSBERG MESOTECH LTD AND IS RECEIVED
IN CONFIDENCE. ITS CONTENTS MAY NOT BE
DISCLOSED OR REPRODUCED IN ANY WAY
WITHOUT WRITTEN CONSENT OF
KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING.
CONFIDENTIAL. DO NOT COPY.

| APPROVALS | NAME | DATE |
|-----------|------|----------|
| DRAWN | DL | 11/02/16 |
| REVISED | BMS | 12/10/04 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |





CONNECTOR
ORIENTATION KEYING

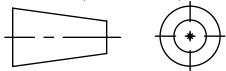
DETAIL A
POWER/TEL CONNECTOR

- NOTES:
1. MAXIMUM OPERATING DEPTH: 4000msw / 13123fsw.
 2. WEIGHT IN AIR: 8.5kg [18.8lbs] ESTIMATED
 3. WEIGHT IN SEA WATER: 5.3kg [11.7lbs] ESTIMATED
 4. POWER/TEL CONNECTOR: SEACON MINK-10-FCRL (2 #14, 8 #20)
 5. SYNC CONNECTOR: SEACON MIND-4-FCR (4 #22)
 6. WETTED MATERIALS: TITANIUM (CP AND ALLOY), 300 SERIES STAINLESS STEEL, ELASTOMERIC POLYURETHANE.
 7. DIMENSIONS ARE NOMINAL, IN INCHES. DO NOT SCALE.

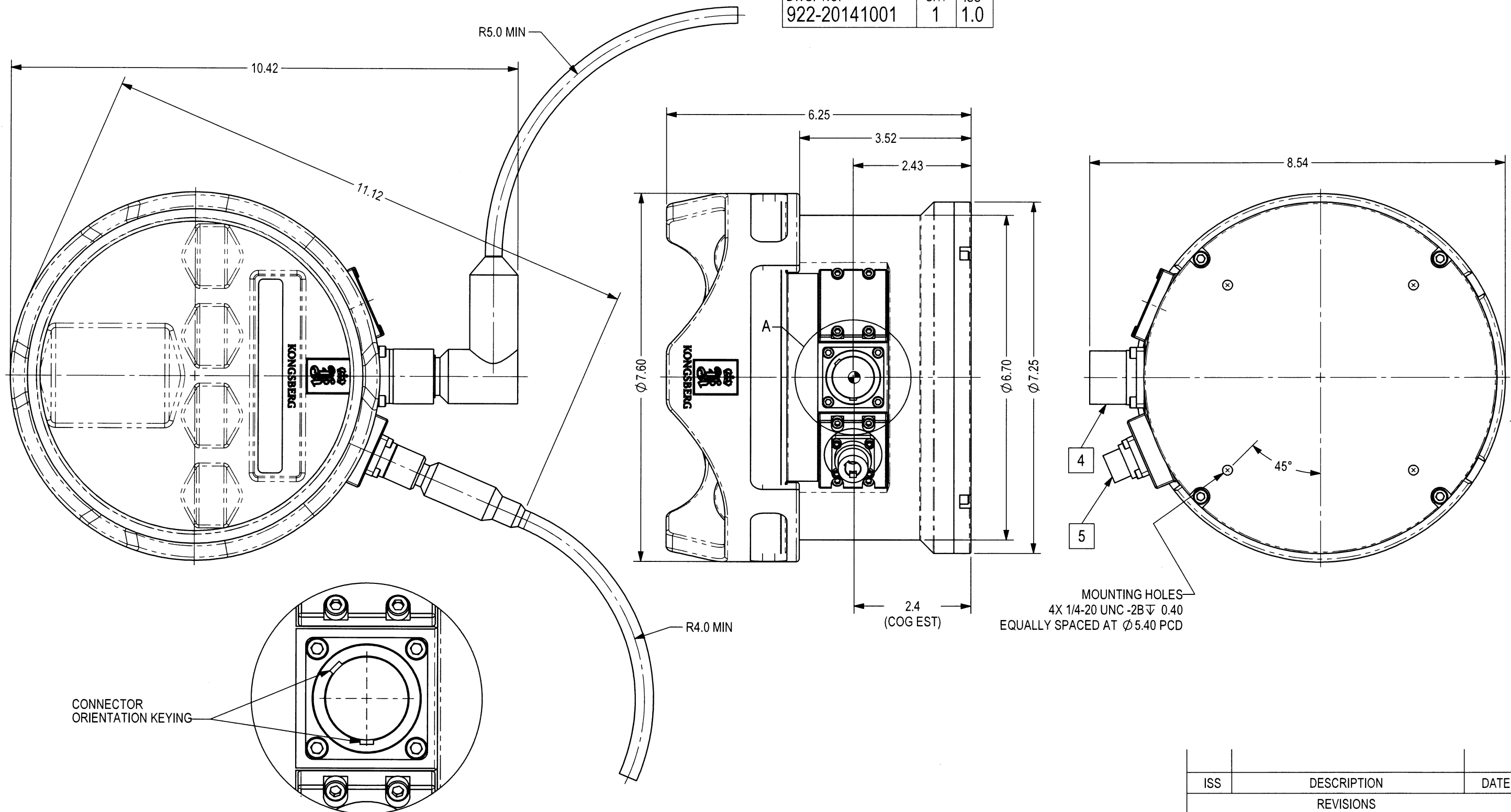
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING
CONFIDENTIAL DO NOT COPY.

| APPROVALS | NAME | DATE |
|-----------|------|----------|
| DRAWN | BMS | 13/08/30 |
| REVISED | -- | -- |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |



| ISS | DESCRIPTION | DATE |
|---|--------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| OUTLINE AND INSTALLATION DRAWING-M3 SONAR C/W SYNC OPTION 4000m VERSION | | |
| SIZE | NSCM NO | TYPE |
| B | 1C965 | MD |
| DWG. NO. | 922-20061001 | ISS |
| 1.0 | | |
| SCALE: 1:2 | W.O. NO. | SHEET 1 OF 1 |



MOUNTING HOLES
4X 1/4-20 UNC -2B ∇ 0.40
EQUALLY SPACED AT \varnothing 5.40 PCD

CONNECTOR
ORIENTATION KEYING

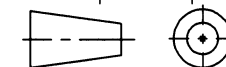
DETAIL A
POWER/TEL (VDSL/ETHERNET) CONNECTOR

- NOTES:
1. MAXIMUM OPERATING DEPTH: 4000msw / 13123fsw.
 2. WEIGHT IN AIR: 8.5kg [18.8lbs] ESTIMATED
 3. WEIGHT IN SEA WATER: 5.3kg [11.7lbs] ESTIMATED
 4. POWER/TEL (VDSL/ETHERNET) CONNECTOR: SEACON MINK-10-FCRL (2 #14, 8 #20)
 5. SYNC CONNECTOR: SEACON MIND-4-FCR (4 #22)
 6. WETTED MATERIALS: TITANIUM (CP AND ALLOY), 300 SERIES STAINLESS STEEL, ELASTOMERIC POLYURETHANE.
 7. DIMENSIONS ARE NOMINAL, IN INCHES. DO NOT SCALE.

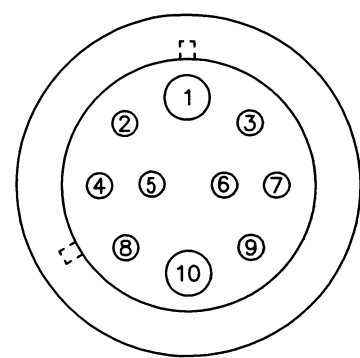
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING
CONFIDENTIAL DO NOT COPY.

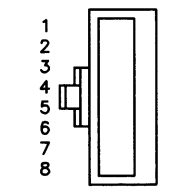
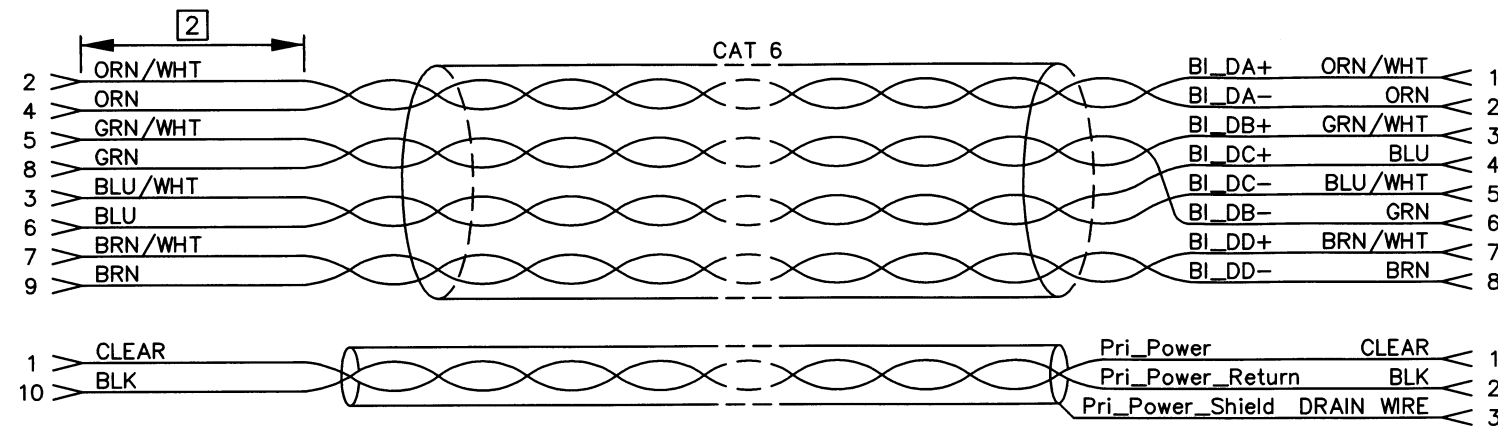
| APPROVALS | NAME | DATE |
|-----------|------|----------|
| DRAWN | BMS | 15/04/24 |
| REVISED | -- | -- |
| CHECKED | DL | 15/06/03 |
| ENGR | ES | 15/06/04 |
| ISSUED | R.A. | 15/06/09 |



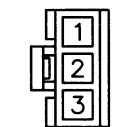
| ISS | DESCRIPTION | DATE |
|--|--------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| OUTLINE & INSTALLATION DRAWING-M3 SONAR HEAD 4000M SEACON C/W VDSL/ETH TEL & SYNC OPTION | | |
| SIZE | NSCM NO | TYPE |
| B | 1C965 | MD |
| DWG. NO. | 922-20141001 | ISS |
| SCALE: 1:2 | W.O. NO. | SHEET 1 OF 1 |



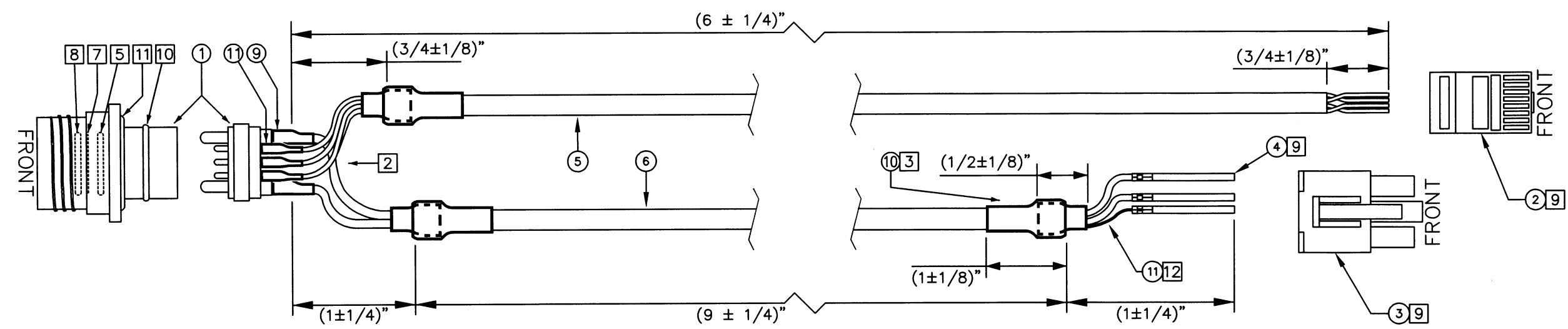
REAR VIEW



REAR VIEW



REAR VIEW



NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 MAXIMUM 1/2" UNTWISTED.
- 3 3PLACES: INSTALL HEATSHRINK AS SHOWN (OVERLAPPING).
- 4 SOLDER AND HEATSHRINK WIRES.
- 5 INSTALL 1st O-RING.
- 6 INSERT CONNECTOR INTO HOUSING FROM FRONT.
- 7 INSTALL SPRING CLIP.
- 8 INSTALL 2nd O-RING.
- 9 ADD RJ45 CONNECTOR, CRIMPS, AND MOLEX HOUSING.
- 10 INSTALL 3rd O-RING.
- 11 PUT 4th O-RING IN A PLASTIC BAG AND KEEP WITH ASSEMBLY.
- 12 HEATSHRINK DRAIN WIRE.

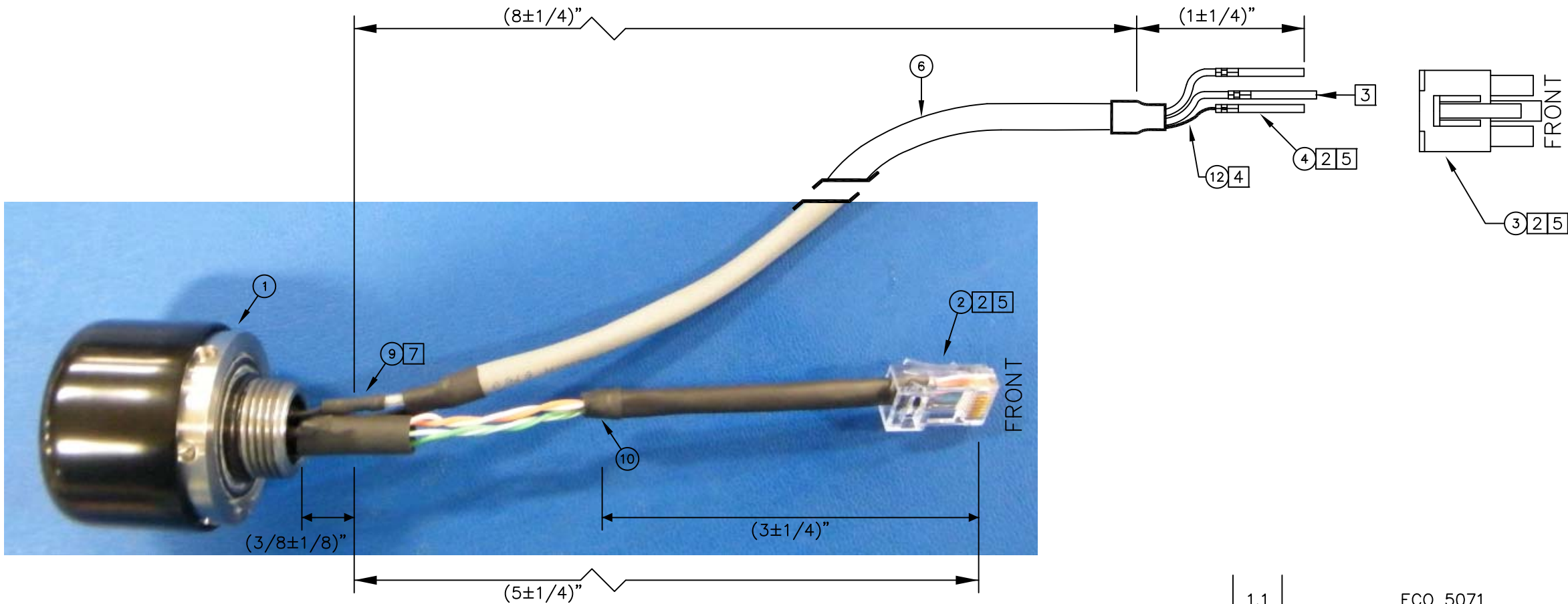
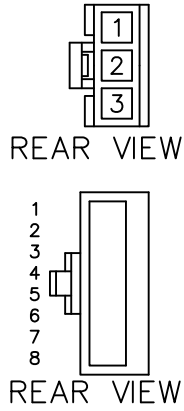
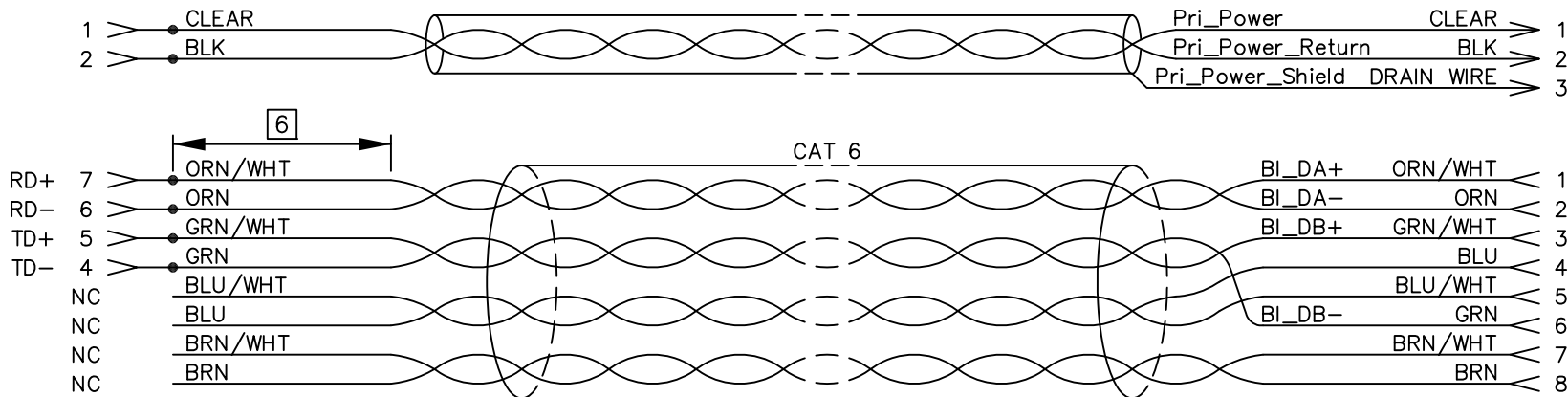
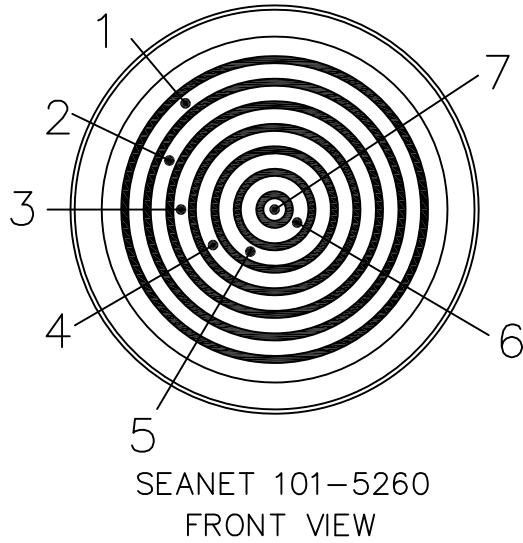
PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING

| APPROVALS | DATE |
|--------------------------|------------|
| DRAWN BH | 2011/06/29 |
| REVISED BH | 2015/02/27 |
| CHECKED <i>Sm</i> | 2015/3/5 |
| ENGR <i>I.B</i> | 2015/03/05 |
| ISSUED <i>R.C.H.</i> | 2015/03/05 |
| CONFIDENTIAL DO NOT COPY | |

| 1.2 | SEE ECO 5407 | 2015 FEB 27 |
|-----|--------------|-------------|
| 1.1 | SEE ECO 4934 | 2012 MAR 02 |
| ISS | DESCRIPTION | DATE |
| | REVISIONS | |

| | | | | |
|---|---------------|----------|----------------------|--------------|
| Kongsberg Mesotech Ltd. | | | | |
| M3 POWER/TELEMETRY HEAD CONNECTOR WIRING ASSEMBLY | | | | |
| SIZE B | NSCM NO 1C965 | TYPE MD | DWG NO. 421-21821000 | ISS 1.2 |
| SCALE: - | | W.O. NO. | | SHEET 1 OF 1 |



NOTES:

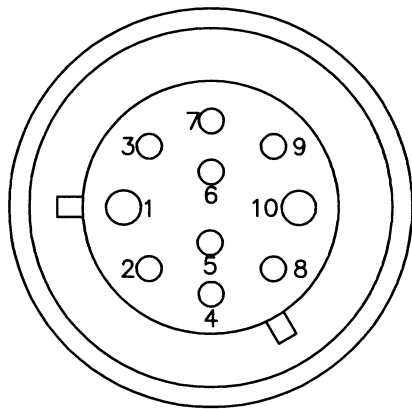
- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 ADD RJ45 AND MOLEX CONNECTORS BEFORE SOLDERING.
- 3 MAKE WIRE TO THE CENTER (PIN 2) 1/8" LONGER THAN THE OTHER ONES.
- 4 HEATSHRINK DRAIN WIRE.
- 5 ADD RJ45 CONNECTOR, CRIMPS, AND MOLEX HOUSING.
- 6 MAXIMUM 1/2" UNTWISTED.
- 7 SOLDER AND HEATSHRINK WIRES.

PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

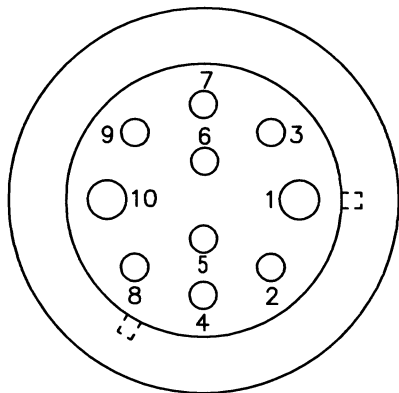
DO NOT SCALE DRAWING

| APPROVALS | | DATE |
|--------------------------|----|------------|
| DRAWN | BH | 2012/11/22 |
| REVISED | BH | 2012/12/10 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |
| CONFIDENTIAL DO NOT COPY | | |

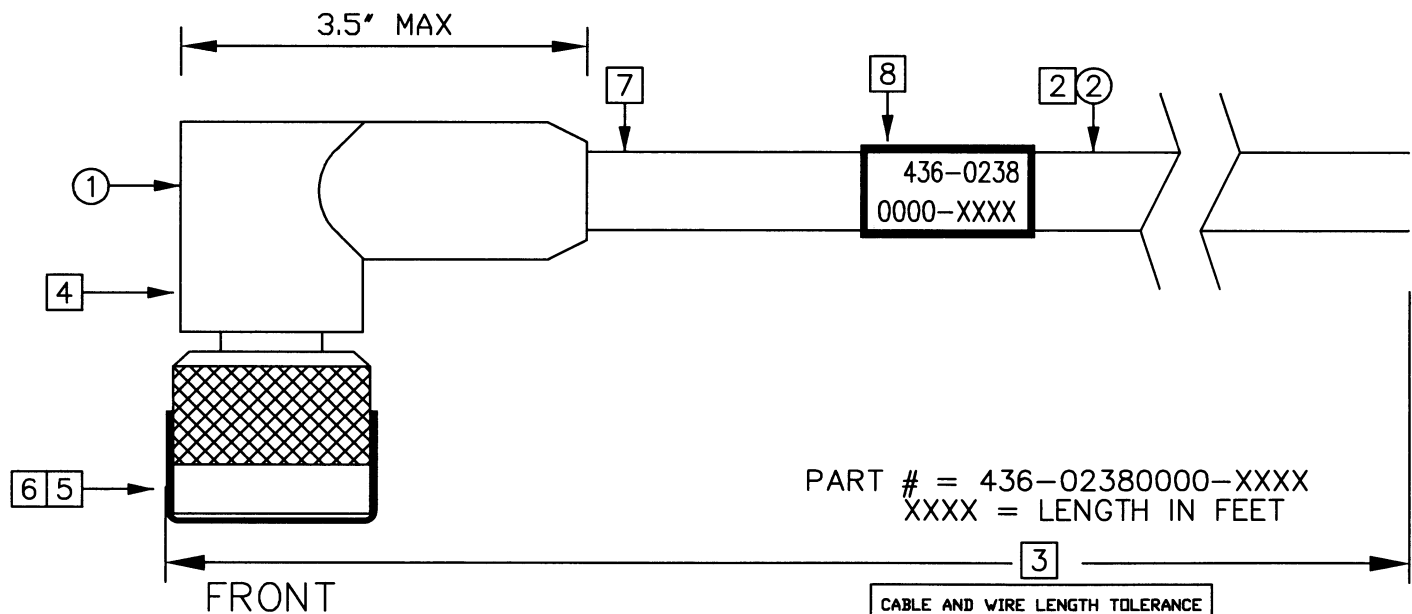
| | | | | |
|---|-------------|----------|--------------|--------------|
| 1.1 | ECO 5071 | | 2012/12/10 | |
| ISS | DESCRIPTION | | DATE | |
| REVISIONS | | | | |
| Kongsberg Mesotech Ltd. | | | | |
| M3 POWER/TELEMETRY HEAD CONNECTOR WIRING ASSEMBLY | | | | |
| SIZE | NSCM NO | TYPE | DWG NO. | ISS |
| B | 1C965 | MD | 421-21981000 | 1.1 |
| SCALE: - | | W.O. NO. | | SHEET 1 OF 1 |



PIN VIEW/
FACE VIEW



SOLDER LUG/
REAR VIEW



PART # = 436-02380000-XXXX
XXXX = LENGTH IN FEET

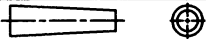
| CABLE AND WIRE LENGTH TOLERANCE | |
|---------------------------------|-------------|
| ≤1 FT | +1 IN -0 IN |
| >1 FT-5 FT | +2 IN -0 IN |
| >5 FT-10 FT | +4 IN -0 IN |
| >10 FT- 25 FT | +6 IN -0 IN |
| >25 FT | +5% -0% |

NOTES:

- ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- CABLE MINIMUM BEND RADIUS = 5".
- THE LAST 4 DIGITS OF THE PART NUMBER STATES THE LENGTH OF THE CABLE IN FEET.
- MINK-10-CCPL MOLDED R/A.
- INSTALL PUSH-ON PROTECTIVE CAP (SUPPLIED WITH CONNECTOR).
- O-RINGS MUST BE INSTALLED ON CONNECTOR IF APPLICABLE.
- MAXIMUM 1/2" UNTWISTED FOR ALL TP.
- PRINT PART NUMBER USING 1/8" BLACK TEXT ON WHITE, THEN INSTALL CLEAR HEATSHRINK OVER.

PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING



| MINK-10-CCP R/A WHIP | | |
|----------------------|---------|--------------|
| FALMAT FM022208-10 | | |
| PIN NUMBER | COLOR | DESC |
| 1 | RED | 18AWG |
| | WHT | 19AWG |
| 10 | BLK | 18AWG |
| | GRN | 18AWG |
| 2 | WHT/ORG | TWISTED PAIR |
| 4 | WHT | |
| 5 | WHT/GRN | TWISTED PAIR |
| 8 | WHT | |
| 3 | WHT/BLU | TWISTED PAIR |
| 6 | WHT | |
| 7 | WHT/BRN | TWISTED PAIR |
| 9 | WHT | |

| | | |
|-----|----------|-------------|
| 1.5 | ECO 6036 | 2016 NOV 28 |
| 1.4 | ECO 5189 | 2013 OCT 3 |
| 1.3 | ECO 5020 | 2012 AUG 14 |
| 1.2 | ECO 4870 | 2011 OCT 4 |
| 1.1 | ECO 4829 | 2011 AUG 10 |
| 1.0 | ECO 4796 | 2011 MAY 31 |

| ISS | DESCRIPTION | DATE |
|-----|-------------|------|
|-----|-------------|------|

REVISIONS

Kongsberg Mesotech Ltd.

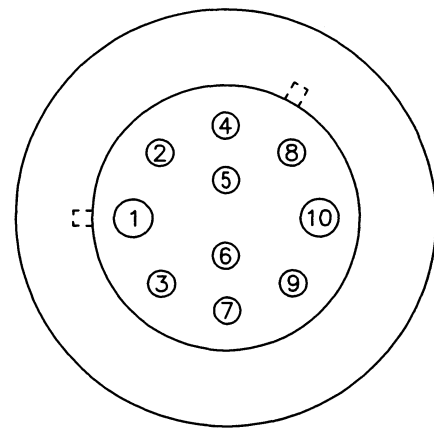
M3 SONAR
CABLE POWER/TELEMETRY WHIP
SEACON MINK-10-CCPL MOLDED R/A

| | | | | |
|------|---------|------|--------------|-----|
| SIZE | NSCM NO | TYPE | DWG NO. | ISS |
| B | 1C965 | MD | 436-02381000 | 1.5 |

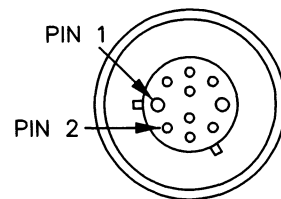
| | | |
|------------|----------|--------------|
| SCALE: NTS | W.O. NO. | SHEET 1 OF 1 |
|------------|----------|--------------|

CABLE FM022208-10 (GREEN)

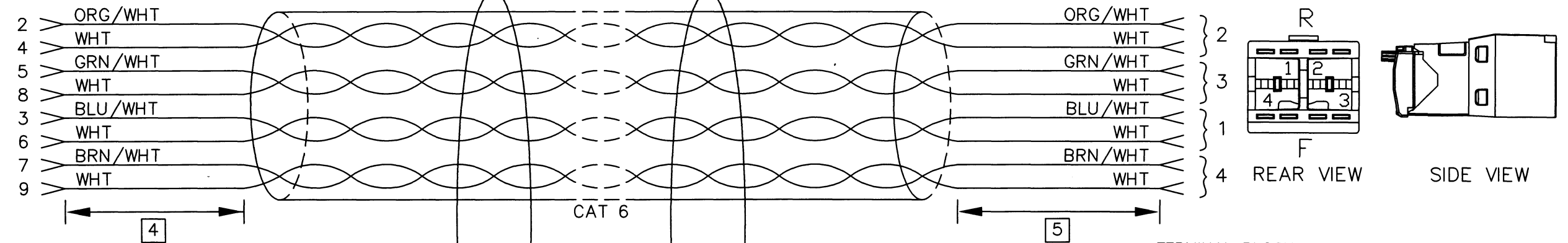
DWG NO. 436-02391000 SHT 1 ISS 1.8



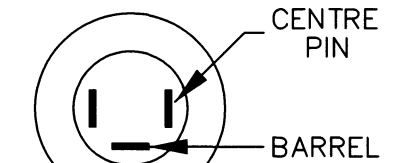
PIN VIEW



FRONT VIEW



TERMINAL BLOCK

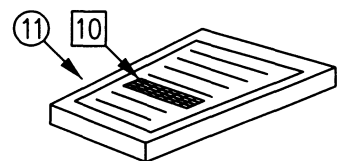
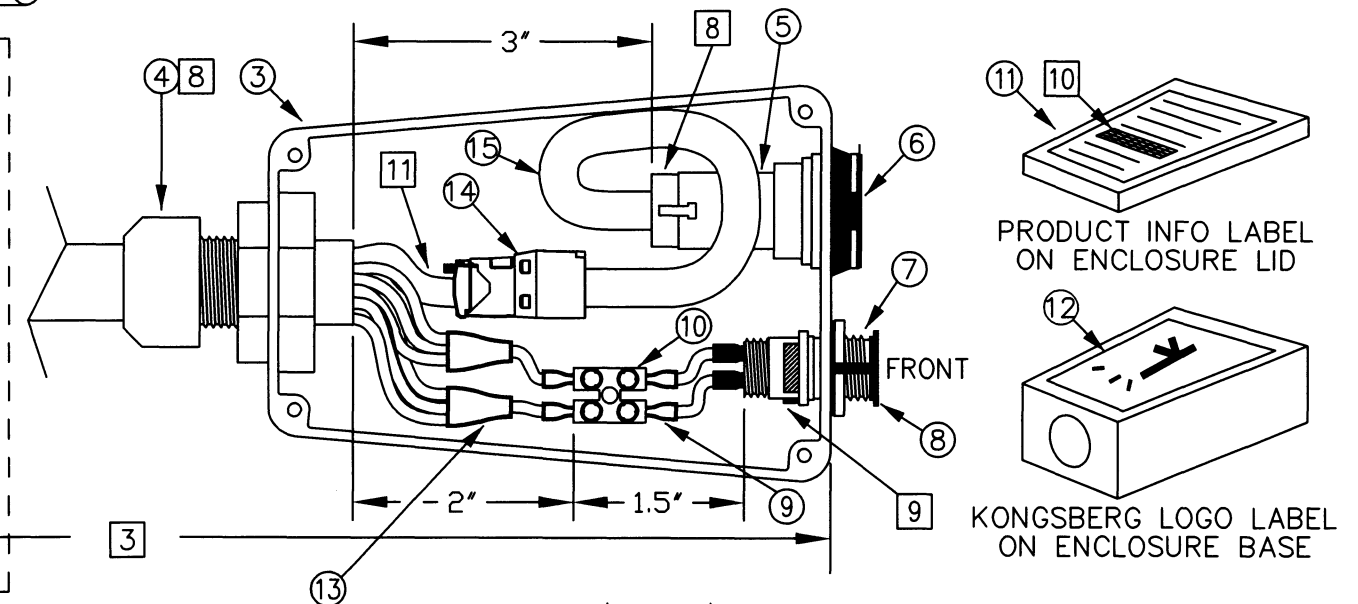


REAR VIEW

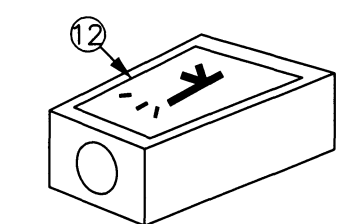
NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 CABLE MINIMUM BEND RADIUS = 5".
- 3 LENGTH (IN FT., $\pm 2\%$)= XXXX IN PART# 436-0PPP0000-XXXX.
- 4 STRIP CABLE BY 1.5" ± 0.10 ". MAXIMUM 0.5" UNTWISTED.
- 5 STRIP CABLE BY 3.5" ± 0.25 ". MAXIMUM 0.5" UNTWISTED.
- 6 SPLICE 2x20AWG WIRES TO 1x18AWG WIRE, COVER SPLICE WITH HEATSHRINK.
- 7 INSTALL CAP (SUPPLIED WITH CONNECTOR).
- 8 INSTALL CABLE GLAND.
INSTALL RJ45 JACK:
a- REMOVE JACK PLUG FROM RJ45 JACK (5), THEN INSTALL OUTER PIECE AND HAND-TIGHTEN WITH 24MM SOCKET (COVER BEND ON TOP).
b- INSTALL WIRES AS PER T568B ETHERNET STANDARD.
c- TEST WITH 1 Gbps ETHERNET TESTER (FLUKE CABLE IQ TESTER OR EQUIVALENT).
- 9 INSTALL POWER JACK CONNECTOR:
a- INSTALL O-RING, THEN INSTALL CONNECTOR THRU THE HOLE IN THE BOX.
b- INSTALL COVER (WITH THE BEND ON TOP), WASHER, THEN THE NUT.
c- INSTALL WIRES AS PER WIRING DIAGRAM.
- 10 INSTALL A STICKER WITH CABLE P/N ON ENCLOSURE LID.
LABEL SIZE 45mm x 10mm, BROTHER LABEL MAKER SETTINGS;
FONT: HEL, WIDTH x1, SIZE: 12PT, STYLE: BOLD
- 11 INSTALL WIRES AS PER T568B ETHERNET STANDARD
INSTALL RJ45 JACK

SUPPLIED AS PRE-FABRICATED PART - SEE ENGINEERING MASTER



PRODUCT INFO LABEL ON ENCLOSURE LID



KONGSBERG LOGO LABEL ON ENCLOSURE BASE

| | | |
|-----|----------------------------------|------------|
| 1.8 | SEE ECO 5537 | 2015/07/13 |
| 1.7 | SEE ECO 5465 | 2015/03/09 |
| 1.6 | ECO 5395/5431 AFTER ENG. CHANGES | 2014/12/02 |
| 1.5 | SEE ECO 5312 | 2014/06/11 |
| 1.4 | SEE ECO 5127 | 2013/05/15 |

| ISS | DESCRIPTION | DATE |
|-----------|-------------|------|
| REVISIONS | | |

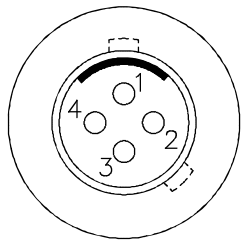
PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING

| APPROVALS | DATE |
|--------------------------|--------------|
| DRAWN BH | 2014 SEP 26 |
| REVISED BH | 2015 JUL 13 |
| CHECKED I.B. | 7/13/2015 |
| ENGR DM | July 13/2015 |
| ISSUED R.H. | 2015 JUL 13 |
| CONFIDENTIAL DO NOT COPY | |

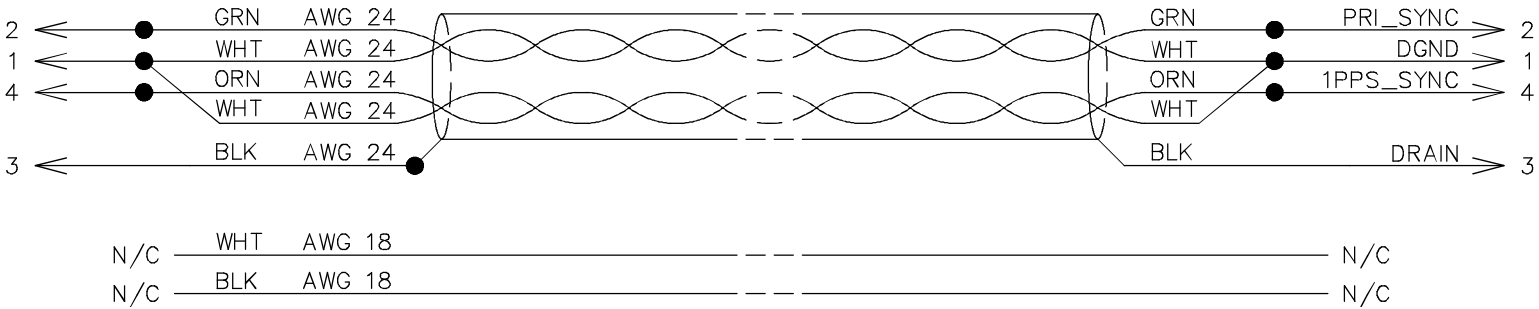
| | | | |
|------------------------------------|---------------|---------|----------------------|
| Kongsberg Mesotech Ltd. | | | |
| DWG ASSY M3 TEST CABLE SEACON MINK | | | |
| SIZE B | NSCM NO 1C965 | TYPE MD | DWG NO. 436-02391000 |
| SCALE: NTS | | | ISS 1.8 |

| | |
|----------|--------------|
| W.O. NO. | SHEET 1 OF 1 |
|----------|--------------|

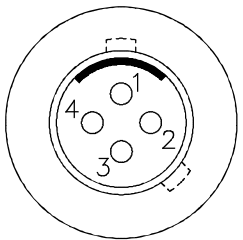


SEACON
MIND-CCP
4#22

REAR VIEW

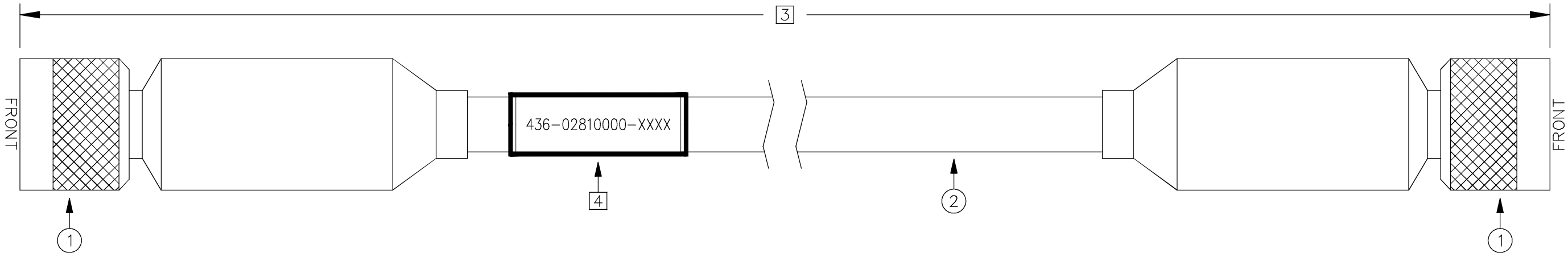


FALMAT FM022208-03



SEACON
MIND-CCP
4#22

REAR VIEW



NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 SOLDER AND HEATSHRINK WIRES.
- 3 LENGTH (IN FT, \pm 0.1 FT.) = XXXX IN PART# nnn-nnnn0000-XXXX.
- 4 PRINT PART# USING 1/8" BLACK TEXT ON WHITE, THEN COVER WITH CLEAR HEATSHRINK.

PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING

| APPROVALS | | DATE |
|--------------------------|----|------------|
| DRAWN | BH | 2013/07/20 |
| REVISED | IB | 2013/08/15 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |
| CONFIDENTIAL DO NOT COPY | | |

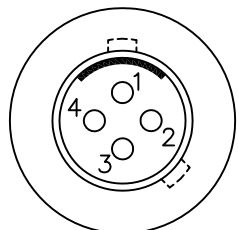


| | | |
|-----------|-------------|------------|
| 1.1 | ECO# 5174 | 2013/08/15 |
| ISS | DESCRIPTION | DATE |
| REVISIONS | | |

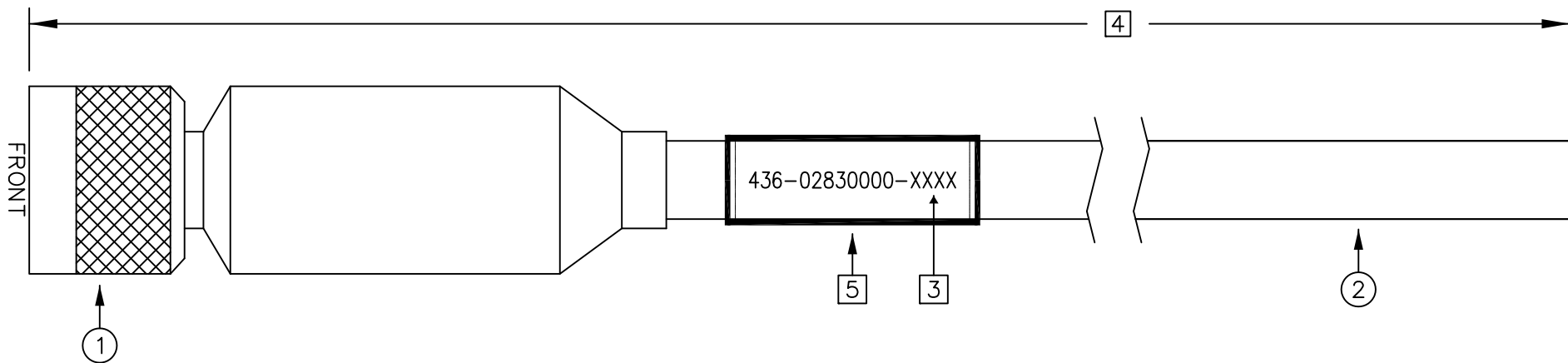
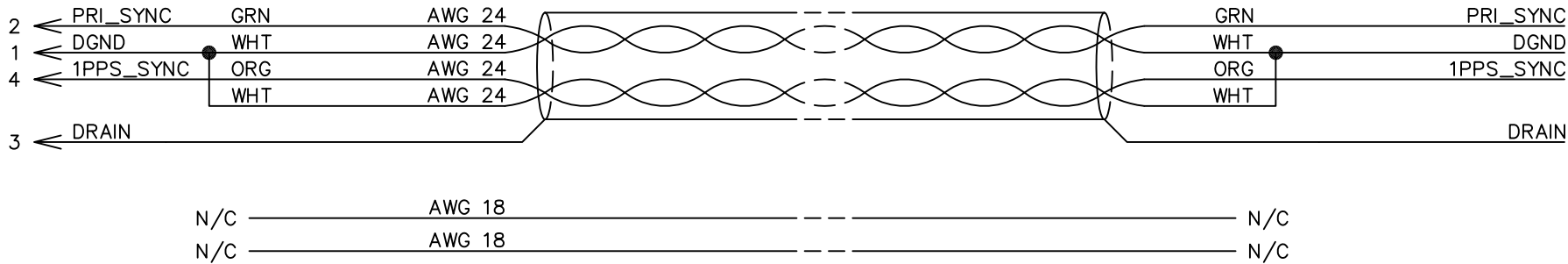
Kongsberg Mesotech Ltd.

M3
DUAL HEAD SYNC
CABLE ASSEMBLY

| | | | | |
|----------|---------|----------|--------------|-----|
| SIZE | NSCM NO | TYPE | DWG NO. | ISS |
| B | 1C965 | MD | 436-02811000 | 1.1 |
| SCALE: - | | W.O. NO. | SHEET 1 OF 1 | |



4#22
REAR VIEW



NOTES:

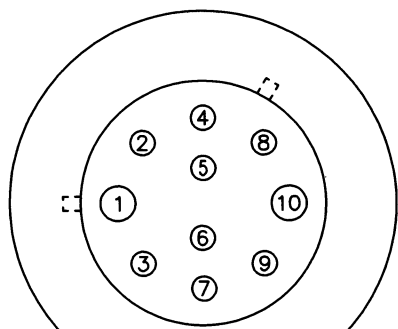
- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 SOLDER AND HEATSHRINK WIRES.
- 3 XXXX INDICATES LENGTH + COMPLETE PART NUMBER.
- 4 LENGTH (IN FT, \pm 0.1 FT.).
- 5 PRINT PART# USING 1/8" BLACK TEXT ON WHITE, THEN COVER WITH CLEAR HEATSHRINK.

PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

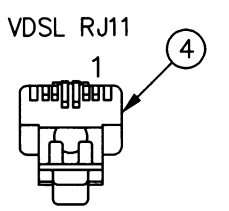
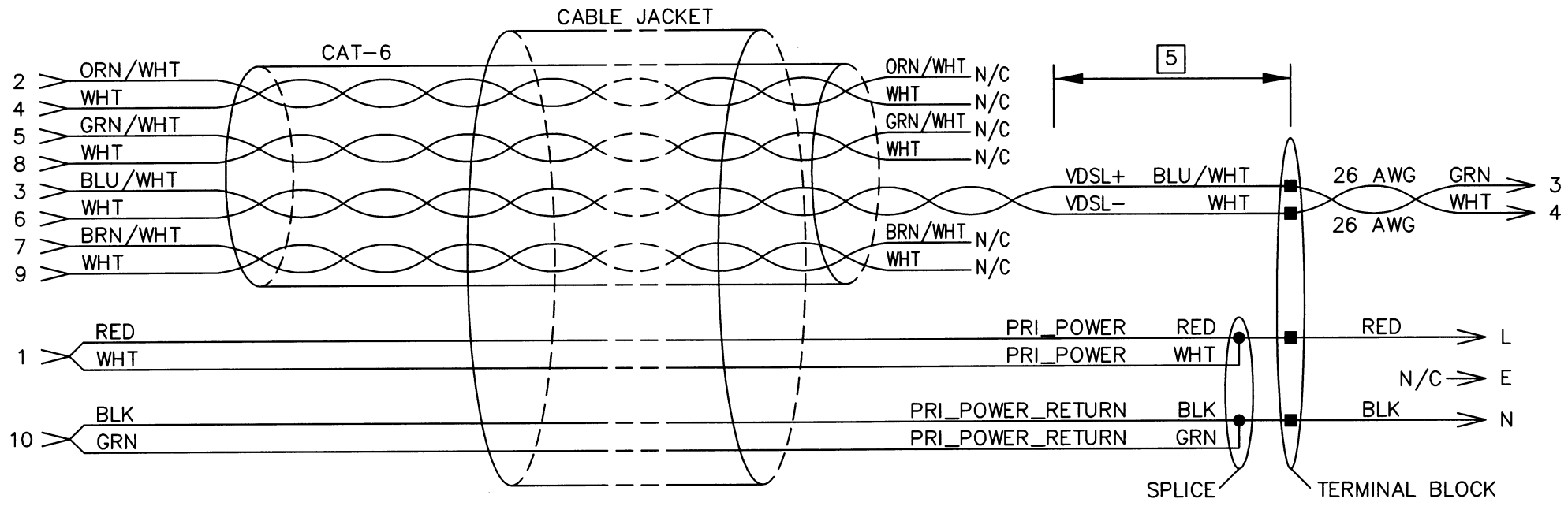
DO NOT SCALE DRAWING

| APPROVALS | | DATE |
|--------------------------|----|-------------|
| DRAWN | BH | 2013 JUL 20 |
| REVISED | BH | 2014 MAY 13 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |
| CONFIDENTIAL DO NOT COPY | | |

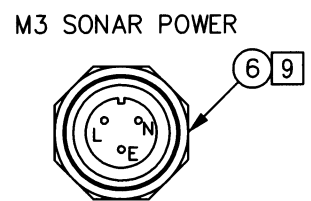
| | | | | |
|--------------------------------|-------------|----------|--------------|--------------|
| 1.1 | ECO 5289 | | 2014 MAY 13 | |
| ISS | DESCRIPTION | | DATE | |
| REVISIONS | | | | |
| Kongsberg Mesotech Ltd. | | | | |
| DWG CABLE WHIP M3 HEAD SYNC | | | | |
| SIZE | NSCM NO | TYPE | DWG NO. | ISS |
| B | 1C965 | MD | 436-02831000 | 1.1 |
| SCALE: — | | W.O. NO. | | SHEET 1 OF 1 |



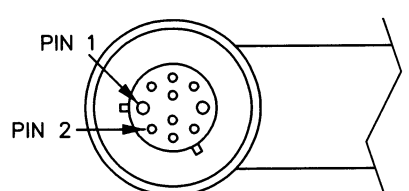
SOLDER LUG/
REAR VIEW



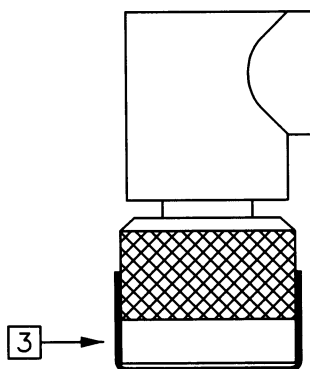
PIN VIEW
(FRONT)



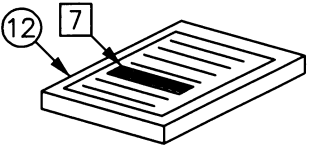
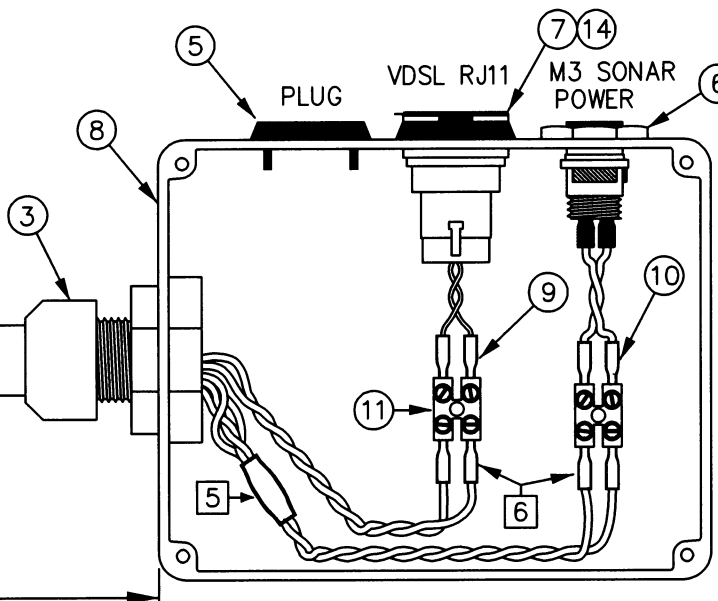
PIN VIEW
(FRONT)



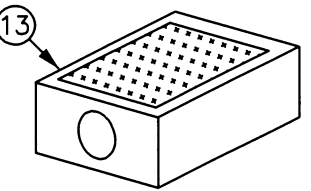
FRONT VIEW



FRONT



PRODUCT INFO LABEL
ON ENCLOSURE LID



KONGSBERG LOGO LABEL
ON ENCLOSURE BASE

NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 CABLE MINIMUM BEND RADIUS = 5".
- 3 INSTALL PUSH-ON PROTECTIVE CAP (SUPPLIED WITH CONNECTOR).
- 4 REFER TO BILL OF MATERIALS FOR LENGTH (IN FT. \pm 0.1 FT.)
- 5 SPLICE CABLE BY 3.5" \pm 0.25". MAXIMUM 0.5" UNTWISTED.
- 6 CRIMP FERRULES.
- 7 INSTALL A STICKER WITH CABLE P/N ON ENCLOSURE LID. LABEL SIZE 56mm x 10mm, BROTHER LABEL MAKER SETTINGS: FONT: HEL, SIZE:12PT, WIDTH: x1, STYLE: BOLD
- 8 REMOVE LABEL THAT IS ON THE CABLE WHIP.
- 9 INSERT EXTRA PIN INTO LOCATION MARKED AS "E".

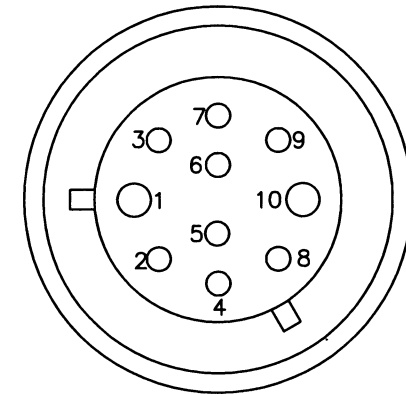
PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING

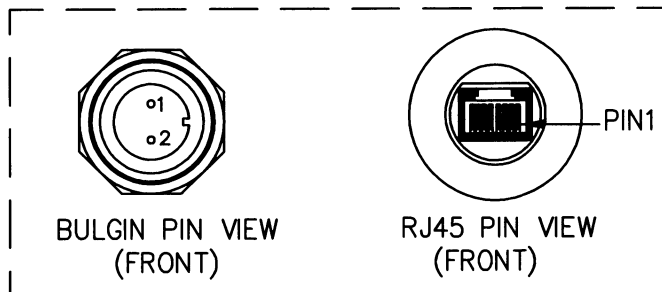
| APPROVALS | | DATE |
|--------------------------|--------------------|------------|
| DRAWN | BH | 2015 APR 2 |
| REVISED | | |
| CHECKED | <i>[Signature]</i> | June 26/15 |
| ENGR | <i>I.B.</i> | June 26/15 |
| ISSUED | <i>R.C.H.</i> | JUNE 26/15 |
| CONFIDENTIAL DO NOT COPY | | |

| ISS | DESCRIPTION | DATE |
|---|-------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| CABLE ASSY M3 VDSL/POWER SEACON MINK-10-CCPL TO VDSL BREAKOUT BOX FALMAT FM022208-10 (R/A MOLDED) | | |
| SIZE | NCSM NO | TYPE |
| B | 1C965 | MD |
| DWG NO. | | ISS |
| 436-03131000 | | 1.0 |
| SCALE: NTS | | W.O. NO. |
| | | SHEET 1 OF 1 |

| MINK-10-CCP TO M3 BOX CONNECTION | | | |
|----------------------------------|--------|------------|-------------|
| MINK-10 | | BULGIN | RJ45(T568B) |
| PIN NUMBER | SIGNAL | PIN NUMBER | PIN NUMBER |
| 1 | V+ | 1 | N/A |
| 2 | BI_DA+ | N/C | 1 |
| 3 | BI_DC- | N/C | 5 |
| 4 | BI_DA- | N/C | 2 |
| 5 | BI_DB+ | N/C | 3 |
| 6 | BI_DC+ | N/C | 4 |
| 7 | BI_DD+ | N/C | 7 |
| 8 | BI_DB- | N/C | 6 |
| 9 | BI_DD- | N/C | 8 |
| 10 | V- | 2 | N/A |



FRONT VIEW



BULGIN PIN VIEW
(FRONT)

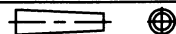
RJ45 PIN VIEW
(FRONT)

NOTES:

ALL PARTS AND PROCESSES USED ON THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE

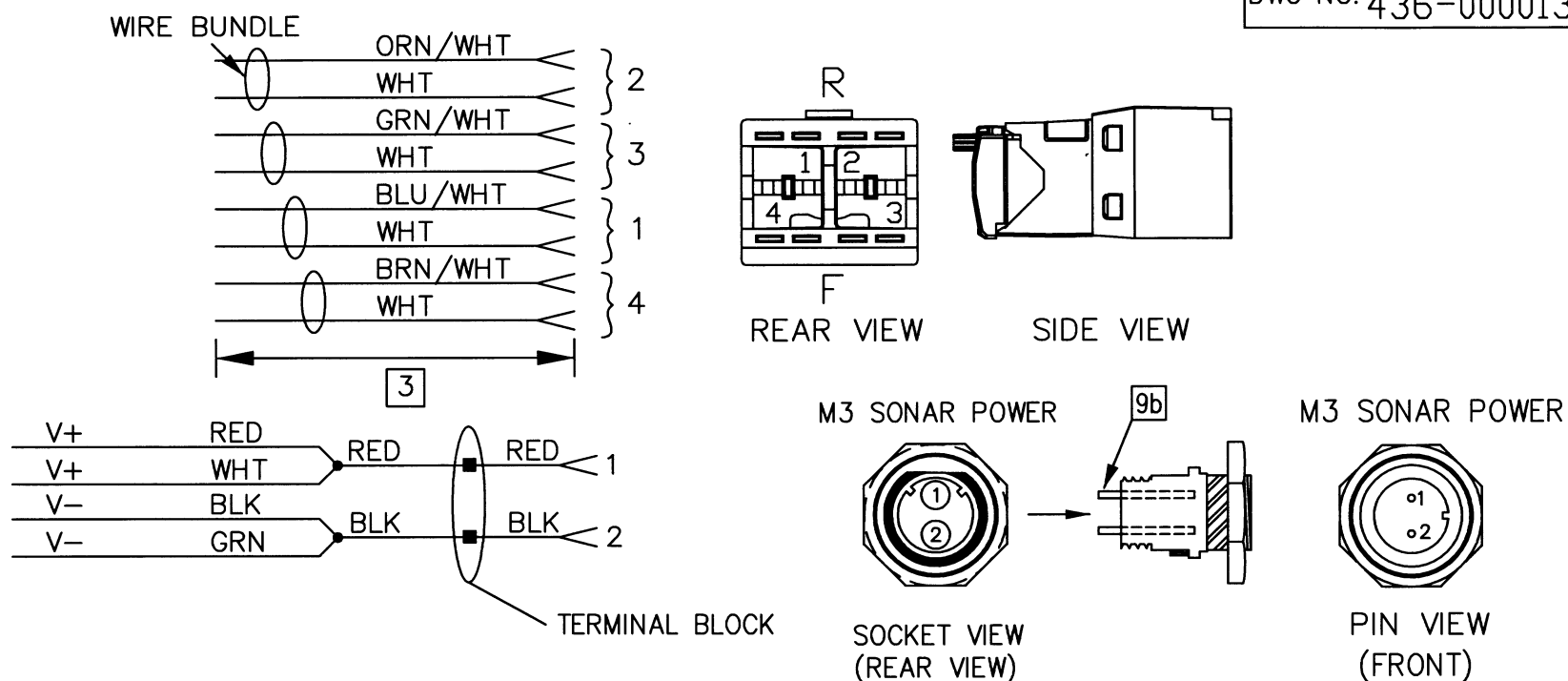
PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING



| APPROVALS | | DATE |
|-----------|------|-------------|
| DRAWN | DM | 2016-DEC-08 |
| REVISED | | |
| ENGR | J.M. | Jan 18/2017 |
| CHECKED | J.H. | Jan 18/2017 |
| PROD | P.C. | Jan 18/2017 |
| QA | K.H. | 18 JAN 17 |
| ISSUED | K.H. | 18 JAN 17 |

| ISS | DESCRIPTION | DATE |
|---|--------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| ASSEMBLY PINOUT MINK-10-CCPL TO POWER/ETHERNET BREAKOUT BOX | | |
| SIZE | NSCM NO | TYPE |
| A | 1C965 | MD |
| DWG NO. | 436-00001210 | |
| ISS | 1.0 | |
| SCALE: NTS | W.O. NO. | SHEET 1 OF 1 |



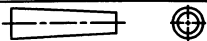
NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- 2 REFER TO THE TABLE FOR TOLERANCES
- 3 STRIP CABLE BY 3.5" (+1" -0"). MAXIMUM 0.5" UNTWISTED.
- 4 INSTALL CABLE GLAND.
- 5 INSTALL RJ45 JACK
- 6 INSTALL RJ45 COUPLER
a- REMOVE JACK PLUG FROM RJ45 COUPLER ⑤,
THEN INSTALL OUTER PIECE AND HAND-TIGHTEN WITH 24MM SOCKET (COVER BEND ON TOP).
b- TEST WITH ETHERNET TESTER (FLUKE CABLE IQ TESTER OR EQUIVALENT).
- 7 SPLICE CABLE BY 3.5" (+1" -0"). HEATSHRINK OVERLAPS THE WIRE INSULATION ON BOTH ENDS OF THE SPLICED AREA BY A MINIMUM OF 1 WIRE GROUP(LARGEST GROUP) DIAMETER.
- 8 CRIMP FERRULES.
- 9 INSTALL POWER JACK CONNECTOR:
a- INSTALL CONNECTOR, WASHER, THEN THE NUT.
b- INSTALL PINS WITH SOLDERED WIRES TO THE CONNECTOR.
c- INSTALL CAP (SUPPLIED WITH CONNECTOR).
- 10 INSTALL A STICKER WITH CABLE P/N ON ENCLOSURE LID.
LABEL SIZE 45mm x 10MM, BROTHER LABEL MAKER SETTINGS;
FONT: HEL, WIDTH x1, SIZE: 12PT, STYLE: BOLD
- 11 REMOVE LABEL THAT IS ON THE CABLE WHIP.

| CABLE AND WIRE LENGTH TOLERANCE | |
|---------------------------------|-------------|
| ≤1 FT | +1 IN -0 IN |
| >1 FT-5 FT | +2 IN -0 IN |
| >5 FT-10 FT | +4 IN -0 IN |
| >10 FT- 25 FT | +6 IN -0 IN |
| >25 FT | +5% -0% |

PROPRIETARY NOTICE - THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

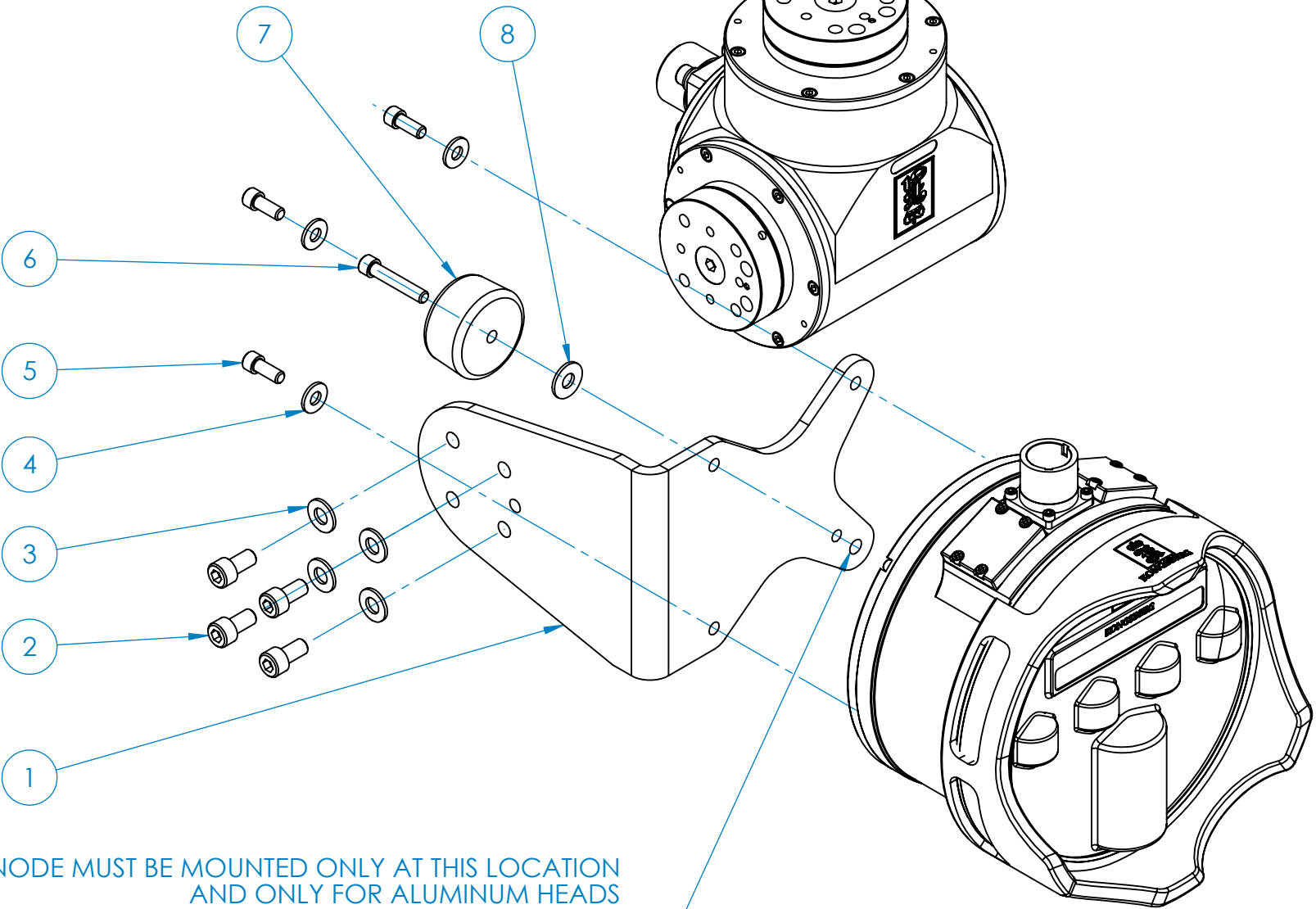
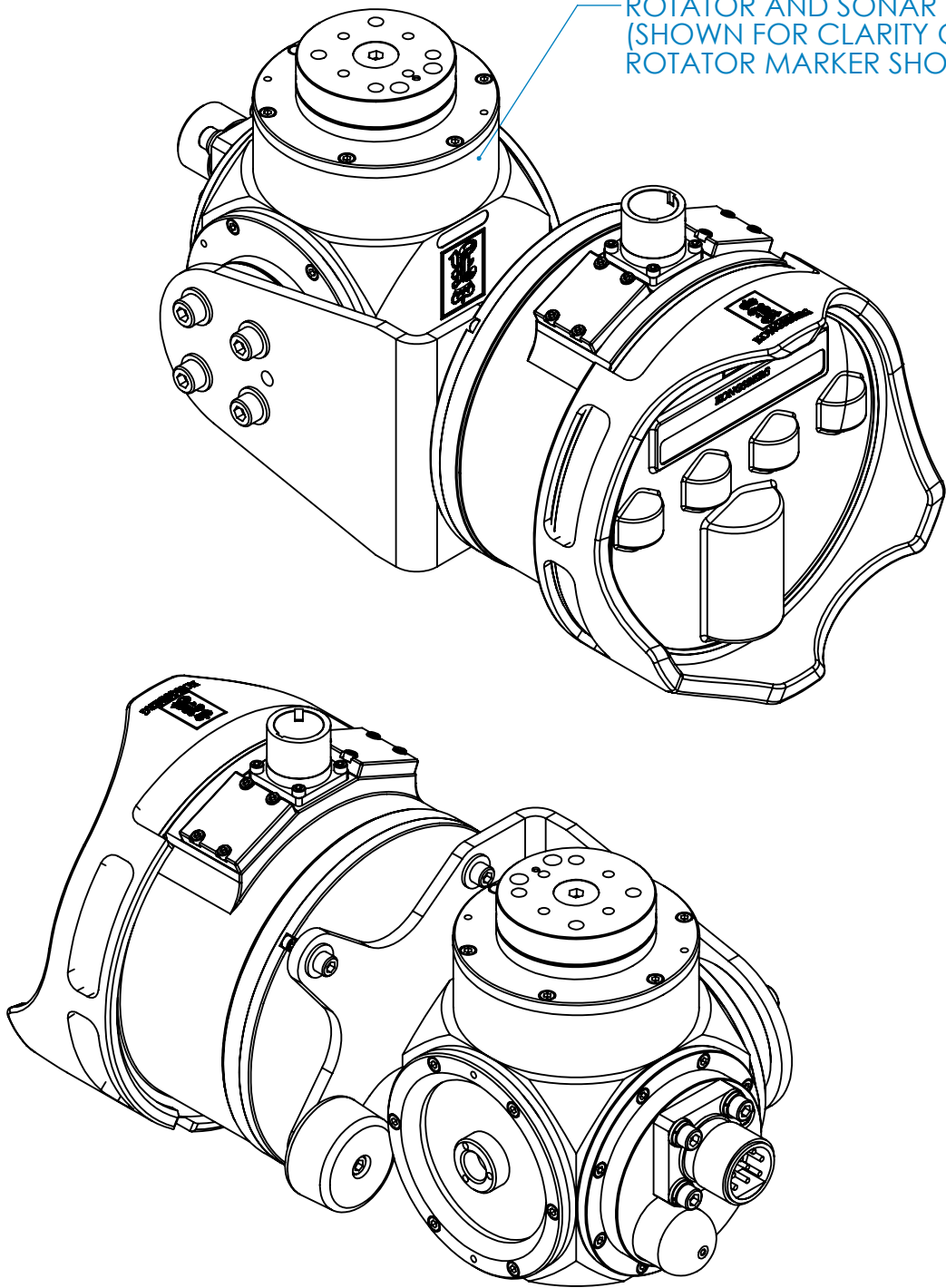
DO NOT SCALE DRAWING



| APPROVALS | | DATE |
|-----------|-----|-------------|
| DRAWN | DM | 2016-DEC-08 |
| REVISED | | |
| ENGR | dm | Jan 18/2017 |
| CHECKED | JH | Jan 18/2017 |
| PROD | lc | Jan 18/2017 |
| QA | KA | 18-Jan-17 |
| ISSUED | RCH | 14 JAN 17 |

| ISS | DESCRIPTION | DATE |
|--|--------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| ASSY DWG M3 POWER/ETHERNET BREAKOUT BOX | | |
| SIZE | NSCM NO | TYPE |
| B | 1C965 | MD |
| DWG NO. | 436-00001302 | |
| ISS | 1.0 | |
| SCALE: NTS | W.O. NO. | SHEET 1 OF 1 |

ROTATOR AND SONAR HEAD NOT INCLUDED
(SHOWN FOR CLARITY ONLY)
ROTATOR MARKER SHOWN AT 180 DEG

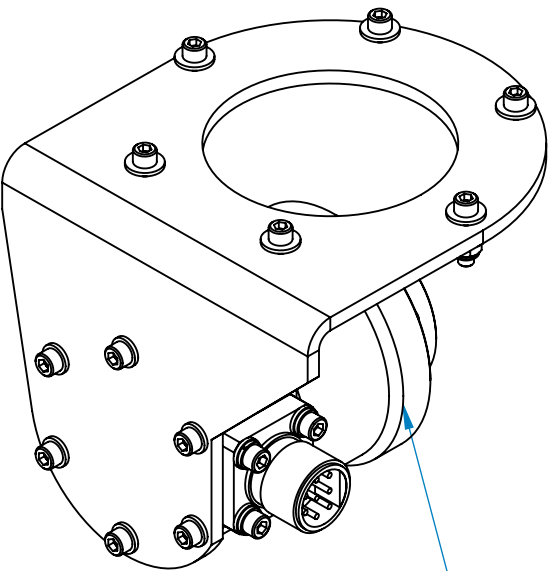
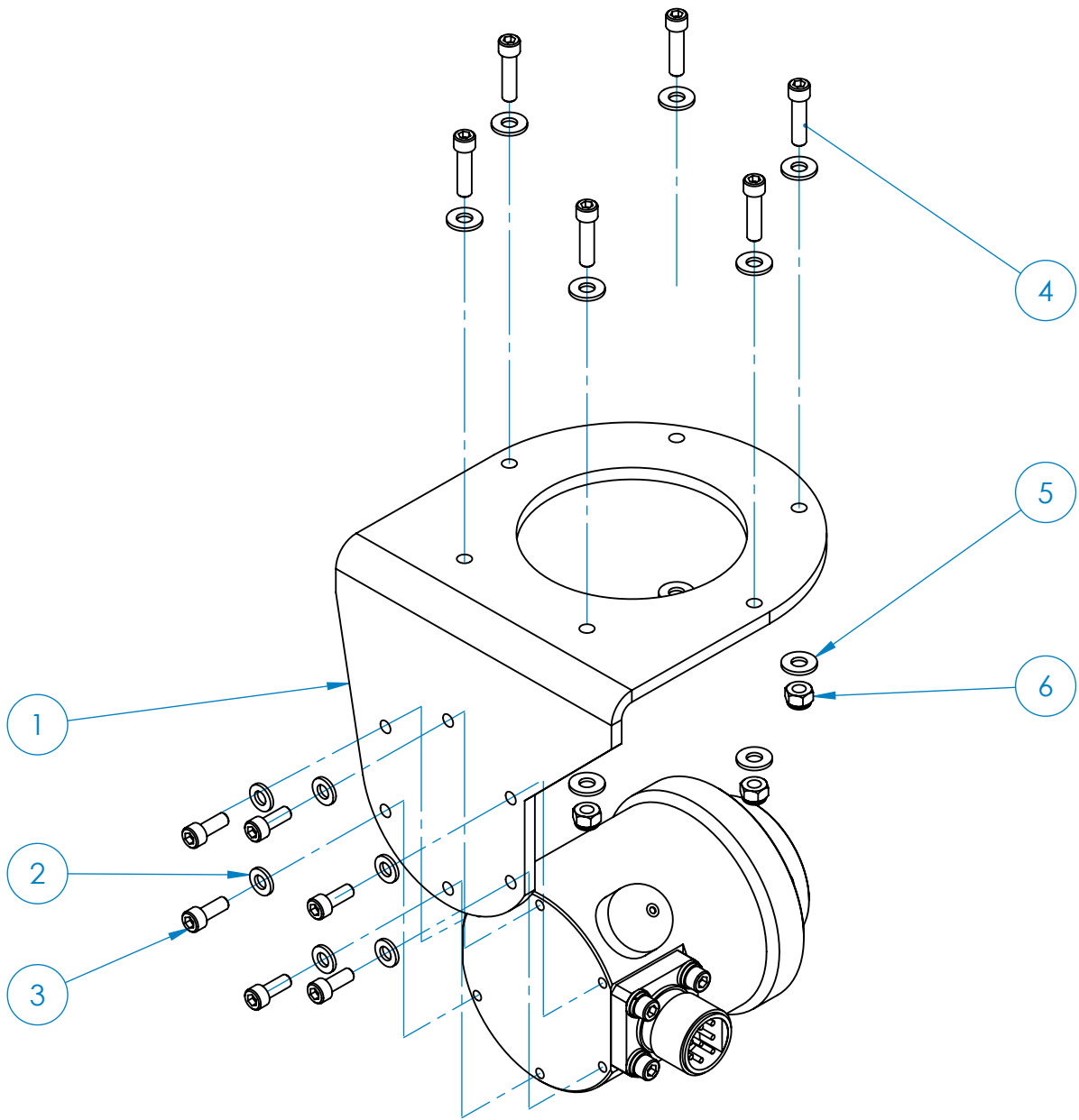


ANODE MUST BE MOUNTED ONLY AT THIS LOCATION
AND ONLY FOR ALUMINUM HEADS
NOTE EXTRA HOLE MARKING ANODE LOCATION

FOR TITANIUM HEADS ITEMS 6, 7 & 8 ARE NOT REQUIRED
USE INSTEAD ONE MORE EACH OF ITEMS 4 & 5

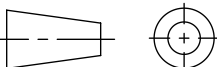
NOTE:
- LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT
- LUBRICATE BASE OF ANODE WITH WATER RESISTANT GREASE

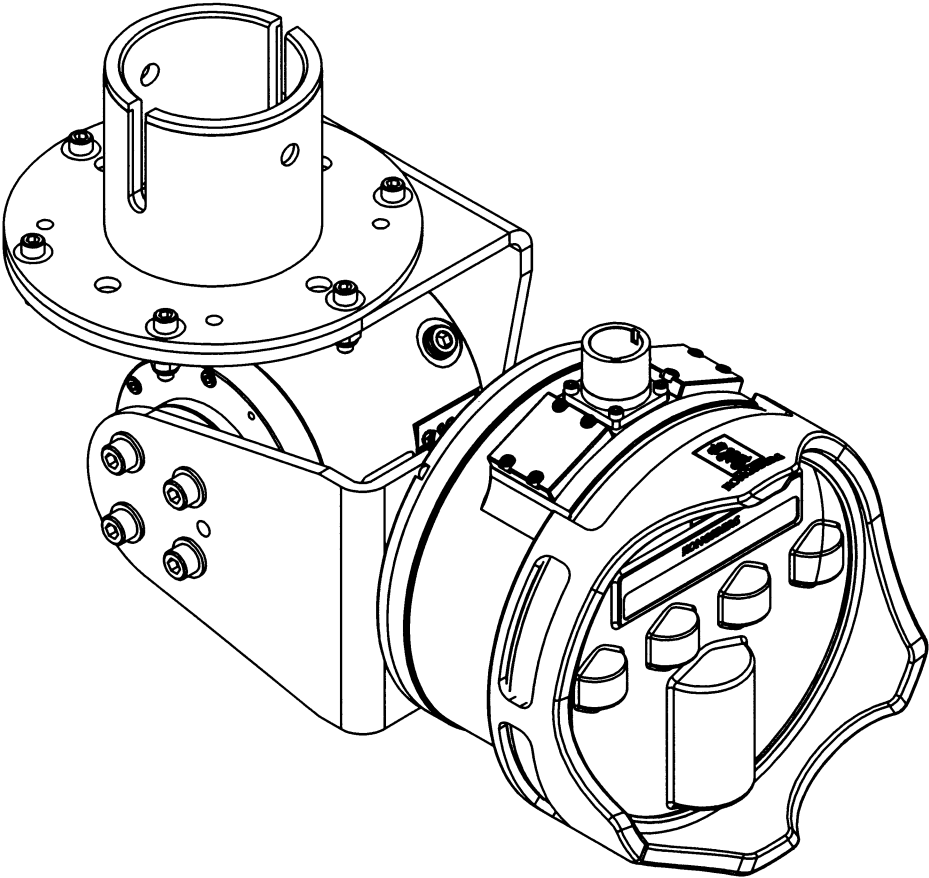
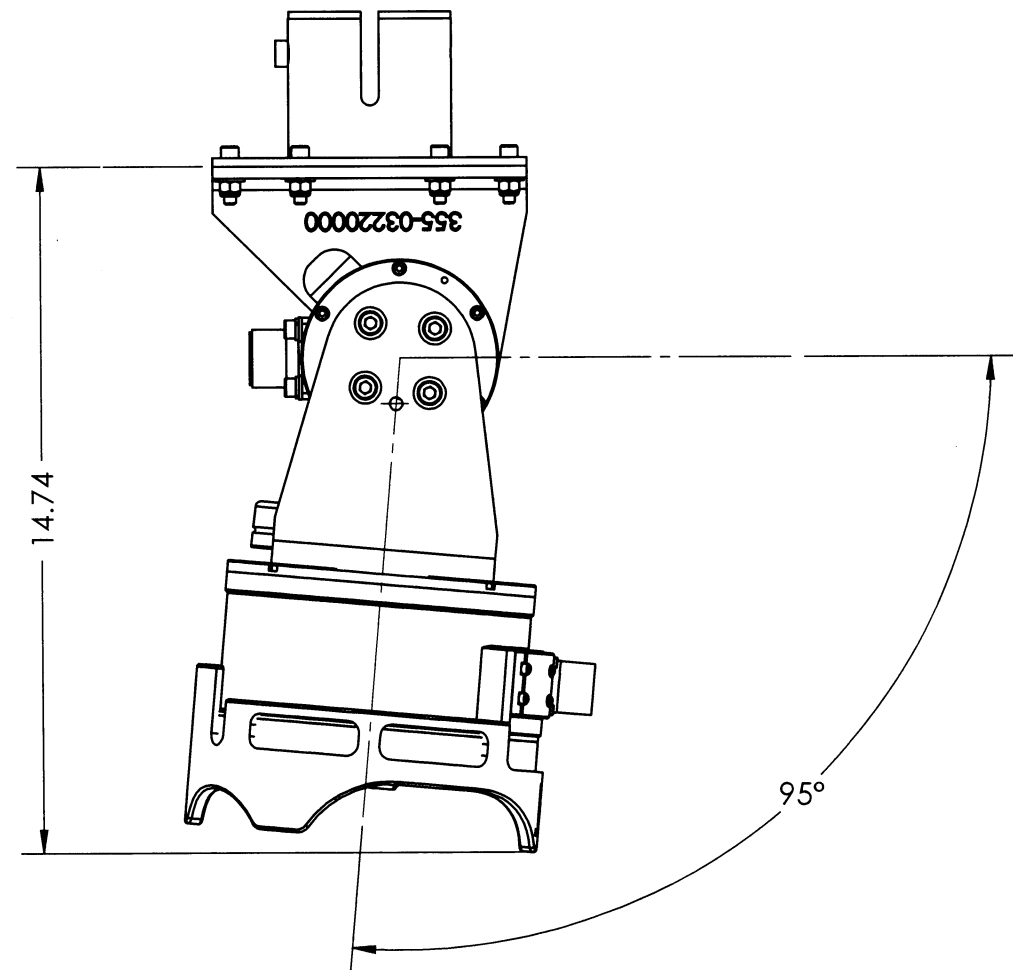
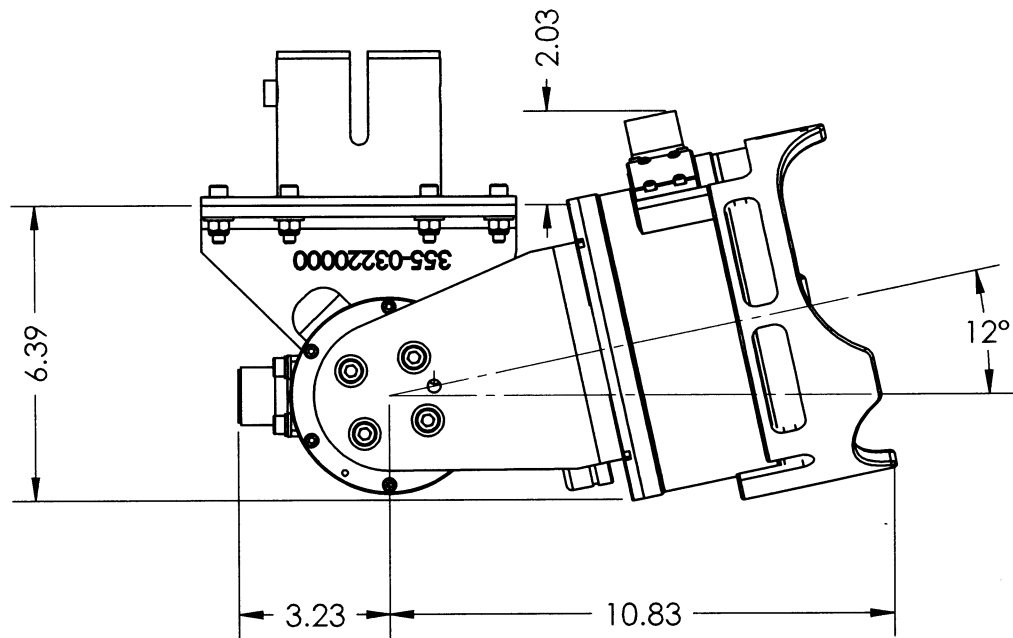
| | | | | | |
|--|-----------|------|------------|--|--------------------------|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | APPROVALS | NAME | DATE | <div>Kongsberg Mesotech Ltd.</div> <div>ASSEMBLY DRAWING BRACKET - M3 SONAR TO ROTATOR (OE10-102 / OE10-103)</div> | |
| | DRAWN | DV | 2012-05-30 | | |
| | REVISED | -- | -- | | |
| | CHECKED | | | | |
| | ENGR | | | | |
| DO NOT SCALE DRAWING. CONFIDENTIAL. DO NOT COPY. | ISSUED | | | SIZE B | NSCM NO 1C965 |
| | | | | TYPE MD | DWG. NO. 422-44051000 |
| | | | | SCALE: 1:3 | ISS 1.0 |
| | | | | W.O. NO. | SHEET 1 OF 1 |



ROTATOR NOT INCLUDED
SHOWN FOR CLARITY ONLY

NOTE:
- LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT

| | | | | | | | | |
|--|---|------|------------|---|----------|------|--------------|-----|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | APPROVALS | NAME | DATE | Kongsberg Mesotech Ltd. | | | | |
| | DRAWN | DV | 2012-05-30 | | | | | |
| | REVISED | BMS | 2013-07-03 | ASSEMBLY DRAWING BRACKET - POLE MOUNT TO ROTATOR (OE10-103) | | | | |
| | CHECKED | | | | | | | |
| | ENGR | | | | | | | |
| | ISSUED | | | | | | | |
| DO NOT SCALE DRAWING. CONFIDENTIAL. DO NOT COPY. |  | | | SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| | | | | B | 1C965 | MD | 422-44061000 | 1.1 |
| | | | SCALE: 1:3 | | W.O. NO. | | SHEET 1 OF 1 | |

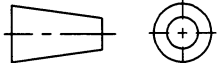


NOTE: DIMENSIONS IN INCHES

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING.
CONFIDENTIAL. DO NOT COPY.

| APPROVALS | NAME | DATE |
|-----------|---------------|-------------|
| DRAWN | DV | 2012-07-24 |
| REVISED | DRC | 2015-07-31 |
| CHECKED | <i>DV</i> | 2015/08/13 |
| ENGR | <i>W</i> | 2015 ALX 28 |
| ISSUED | <i>R.C.H.</i> | 2015 SEP 2 |

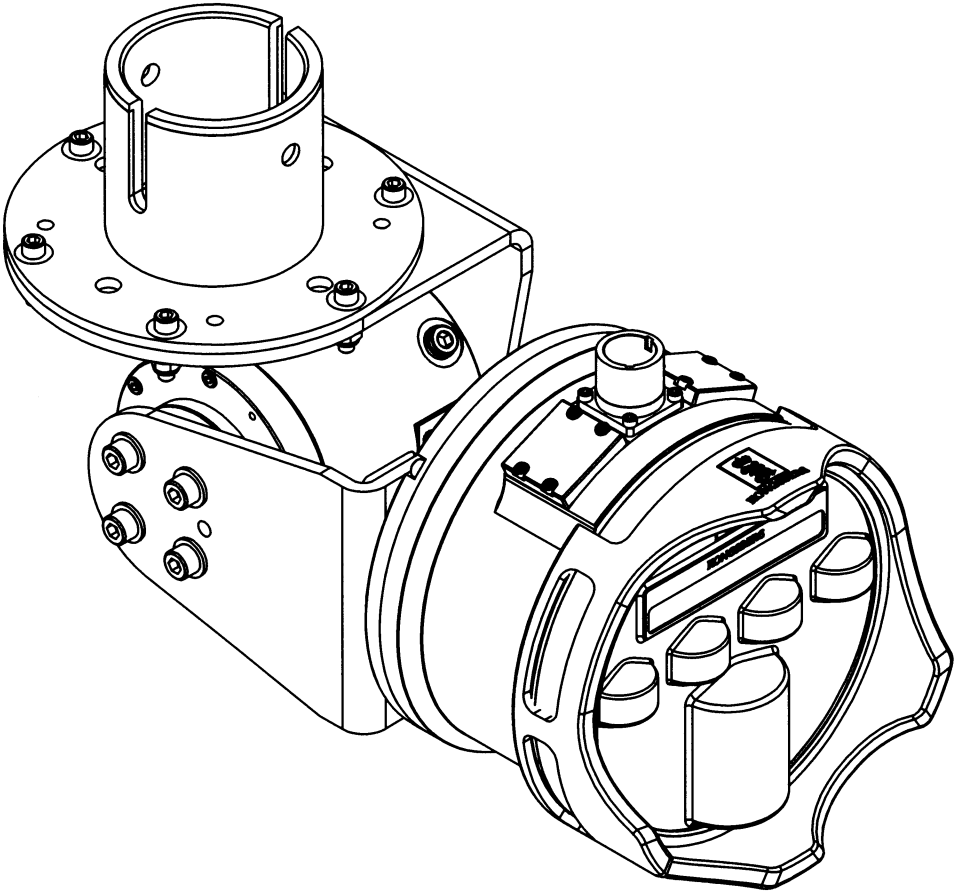
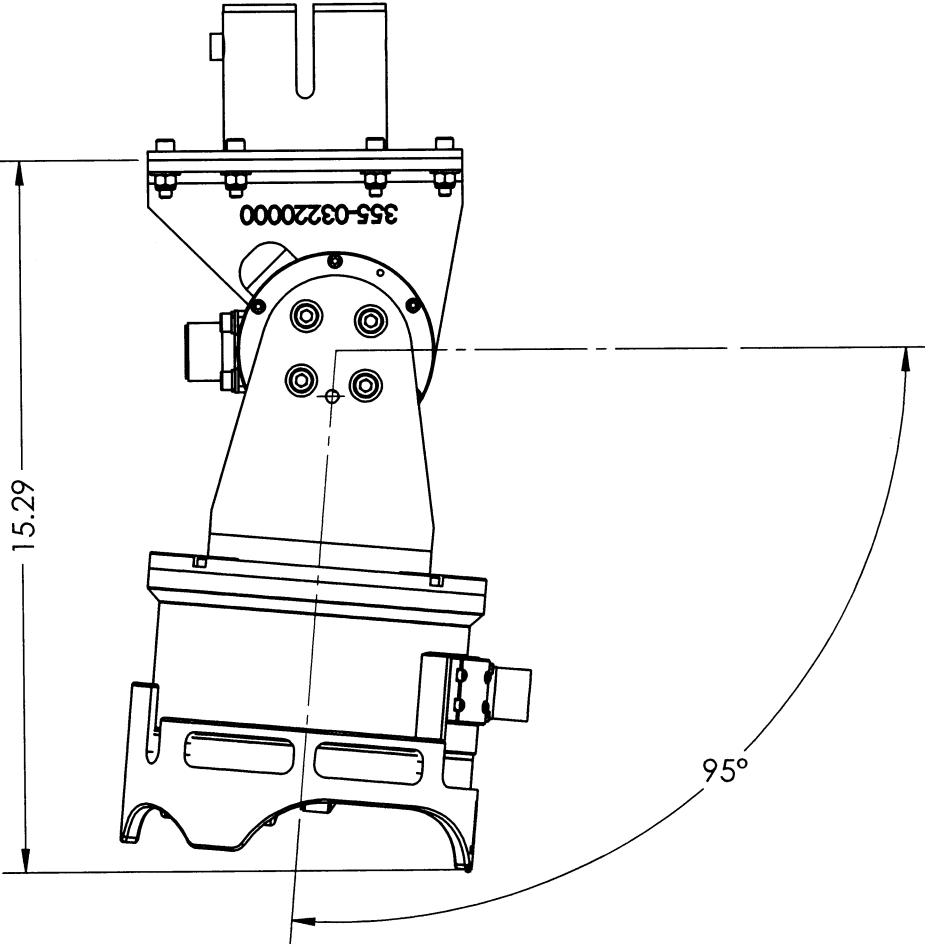
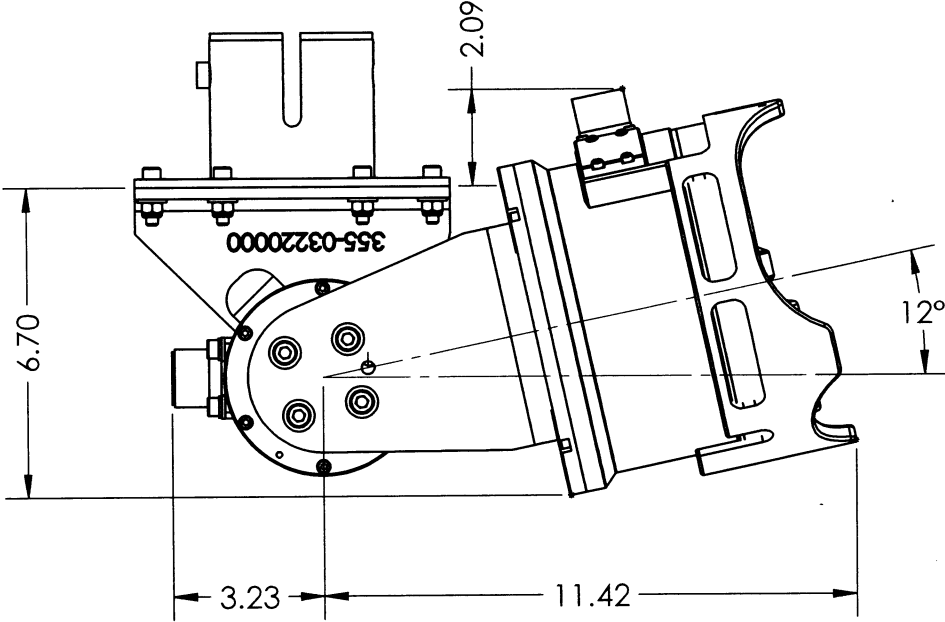


| 1.2 | ECO 5549 | 2015/07/31 |
|-----------|-------------|------------|
| 1.1 | ECO 5401 | 2014/12/04 |
| ISS | DESCRIPTION | DATE |
| REVISIONS | | |

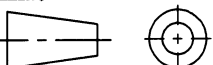
Kongsberg Mesotech Ltd.

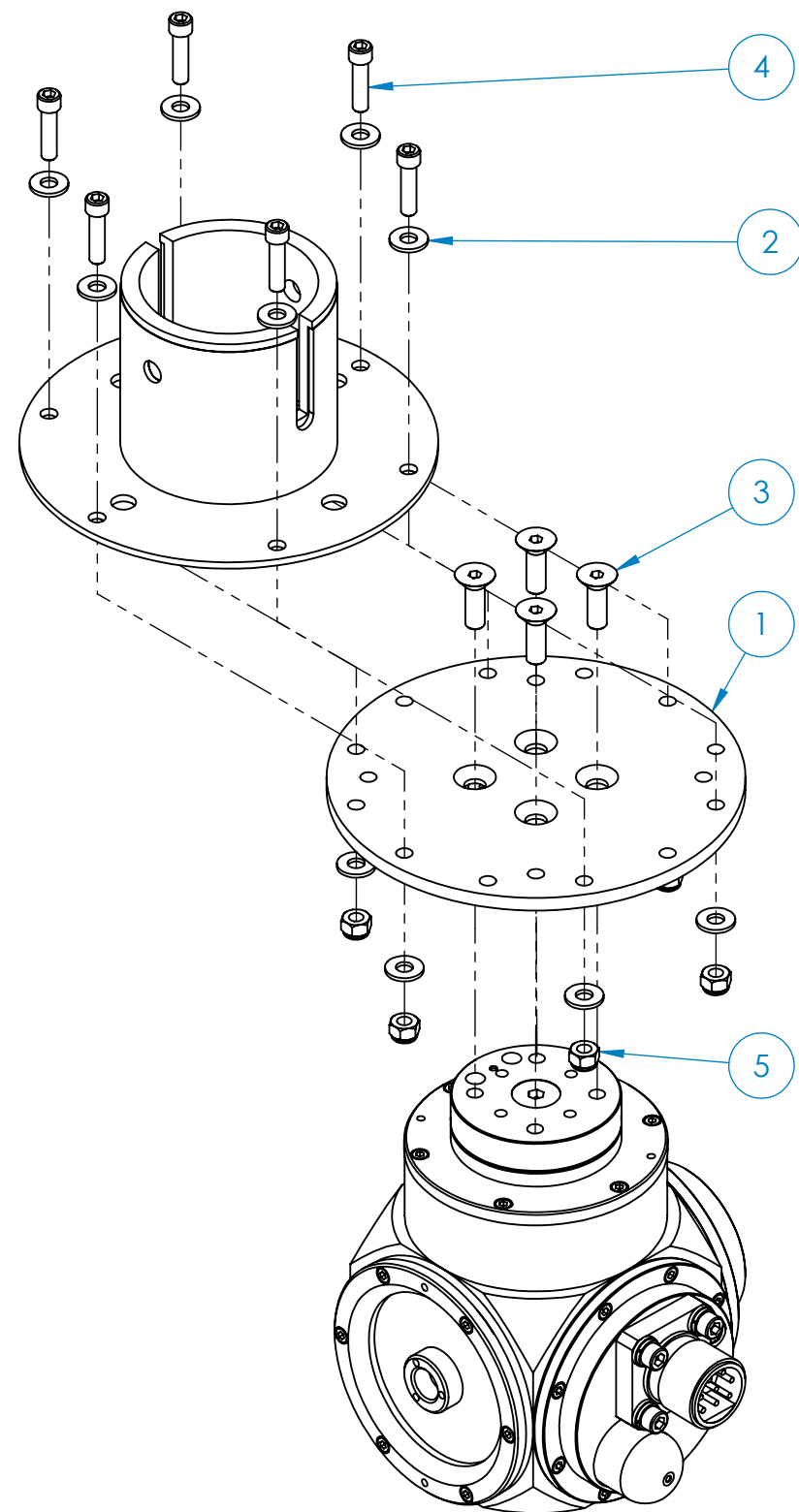
OUTLINE AND INSTALLATION DRAWING
M3 SONAR 500M
WITH ROTATOR (OE10-103)

| | | | | |
|------------|---------|-------------------|--------------|--------------|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44061001 | 1.2 |
| SCALE: 1:3 | | W.O. NO. 281-1150 | | SHEET 1 OF 2 |

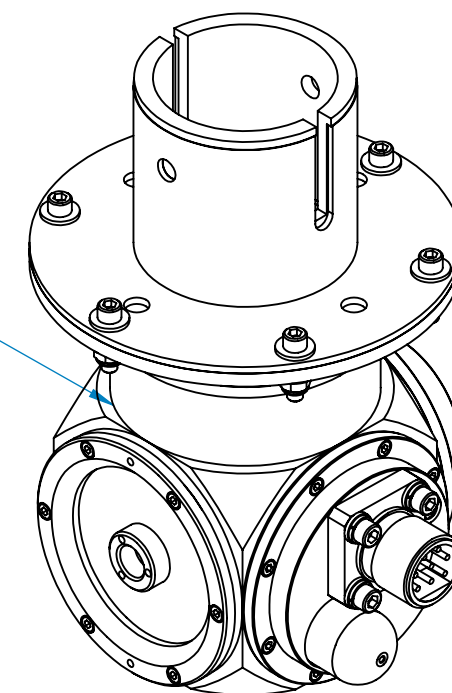


NOTE: DIMENSIONS IN INCHES

| | | | | | | | | |
|--|---|------|-------------|---|---------|-------------------|--------------|--------------|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | APPROVALS | NAME | DATE | Kongsberg Mesotech Ltd. | | | | |
| | DRAWN | DV | 2012-07-24 | | | | | |
| | REVISED | DRC | 2015-07-31 | OUTLINE AND INSTALLATION DRAWING M3 SONAR 4000M WITH ROTATOR (OE10-103) | | | | |
| | CHECKED | DL | 2015/08/13 | | | | | |
| | ENGR | PC.H | 2015 AUG 28 | | | | | |
| | ISSUED | PC.H | 2015 SEP 2 | SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| DO NOT SCALE DRAWING. CONFIDENTIAL. DO NOT COPY. |  | | | B | 1C965 | MD | 422-44061001 | 1.2 |
| | | | | SCALE: 1:3 | | W.O. NO. 281-1150 | | SHEET 2 OF 2 |



ROTATOR AND POLE MOUNT FLANGE
NOT INCLUDED
SHOWN FOR CLARITY ONLY



NOTES:
1. LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT

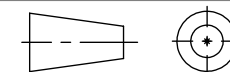
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION
WHICH IS SOLE PROPERTY OF
KONGSBERG MESOTECH LTD AND IS RECEIVED
IN CONFIDENCE. ITS CONTENTS MAY NOT BE
DISCLOSED OR REPRODUCED IN ANY WAY
WITHOUT WRITTEN CONSENT OF
KONGSBERG MESOTECH LTD.

CONFIDENTIAL. DO NOT COPY.

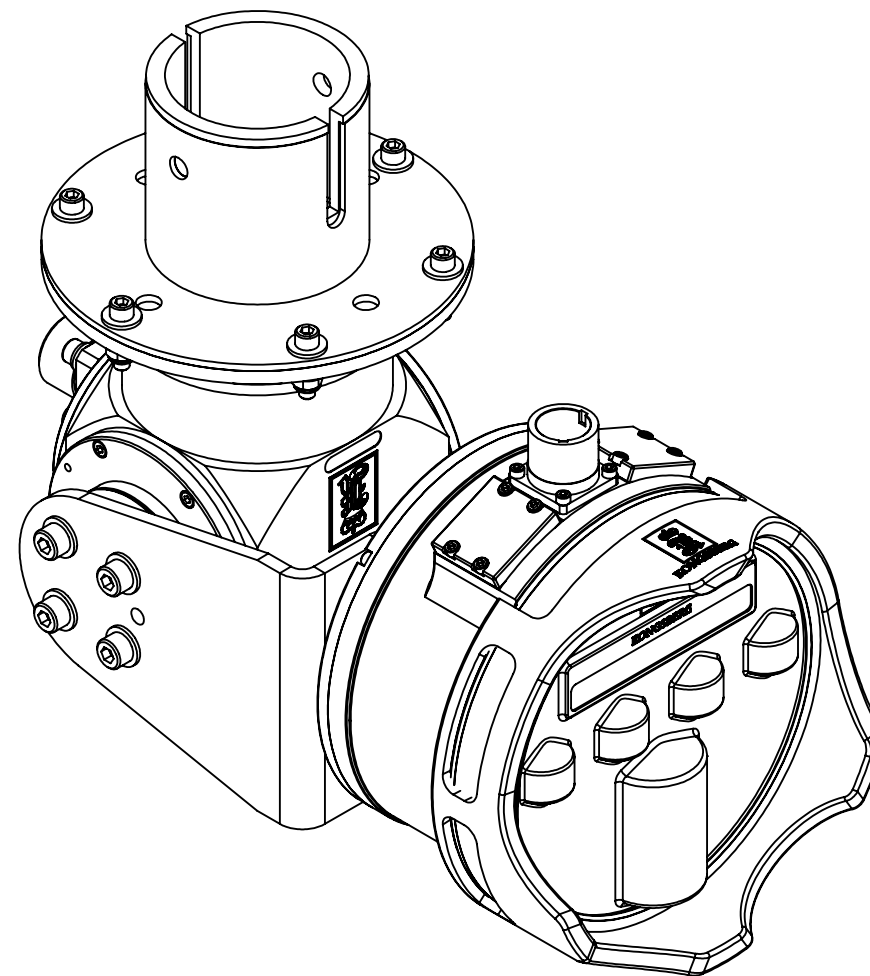
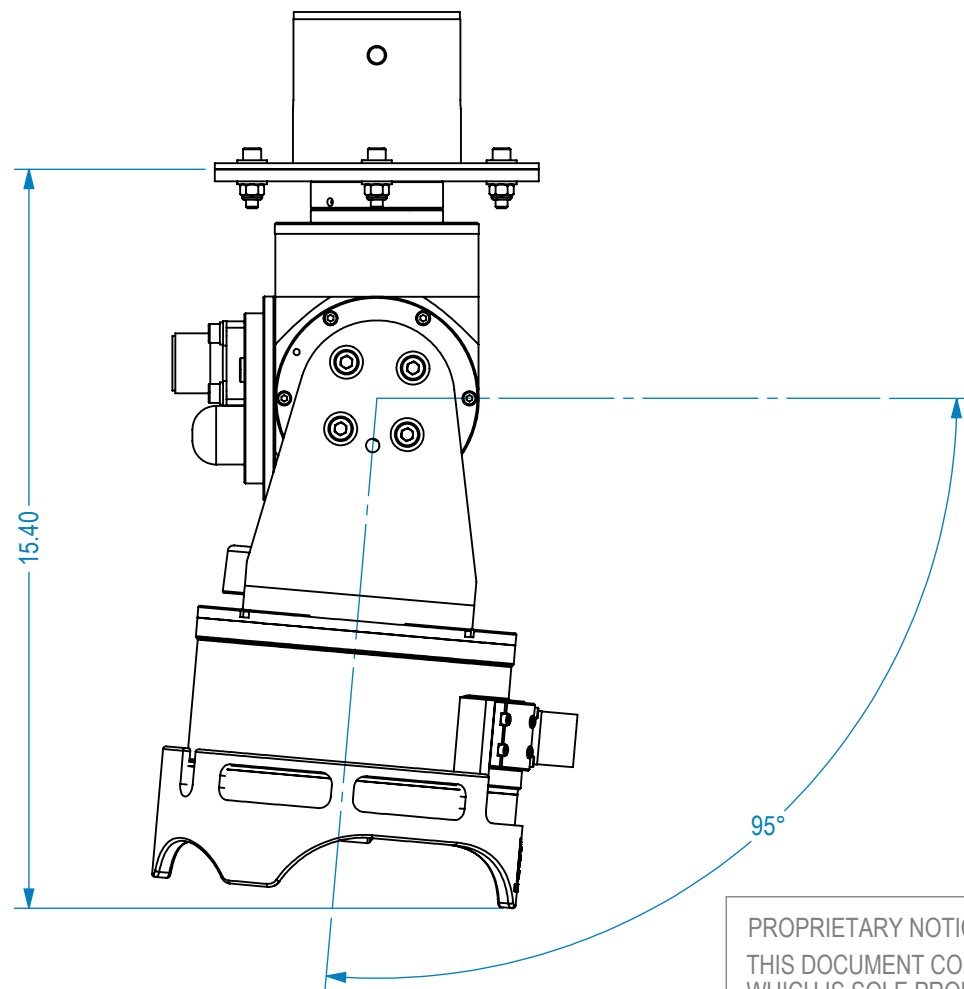
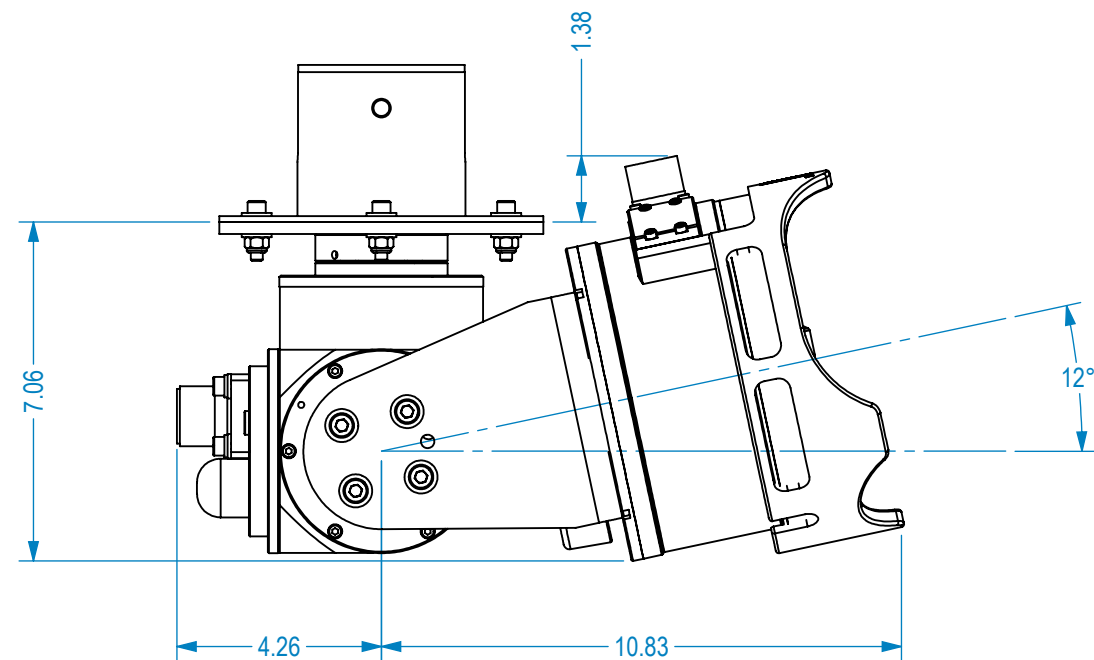
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS FRACTIONAL ANGULAR
X.XX ± 0.006 $\pm 1/32$ MACH $\pm 30'$
X.XXX ± 0.003 BEND $\pm 1^\circ$
SURFACE FINISH 125 Ra, DE-BURR HOLES
BREAK SHARP EDGES 0.010

DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|------|------------|
| DRAWN | DV | 2012-07-24 |
| REVISED | DRC | 2013-08-21 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |



| | | |
|---|------------------|--------------|
| 1.1 | ECO 5170-1 | 2013-08-21 |
| ISS | DESCRIPTION | DATE |
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| ASSEMBLY DRAWING ADAPTER PLATE - POLE MOUNT TO ROTATOR (OE10-102) | | |
| SIZE B | NSCM NO 1C965 | TYPE MD |
| DWG. NO. 422-44071000 | ISS 1.1 | |
| SCALE: 1:3 | W.O. NO. | SHEET 1 OF 1 |



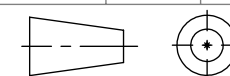
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION
WHICH IS SOLE PROPERTY OF
KONGSBERG MESOTECH LTD AND IS RECEIVED
IN CONFIDENCE. ITS CONTENTS MAY NOT BE
DISCLOSED OR REPRODUCED IN ANY WAY
WITHOUT WRITTEN CONSENT OF
KONGSBERG MESOTECH LTD.

CONFIDENTIAL. DO NOT COPY.

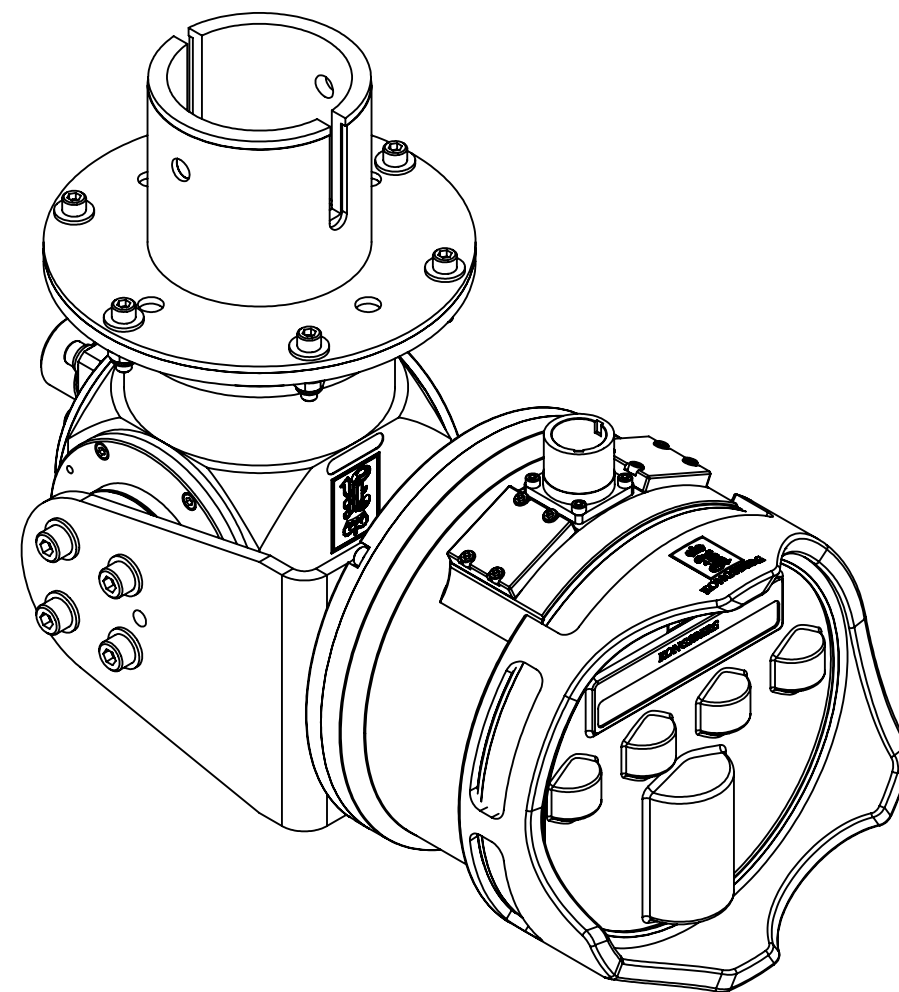
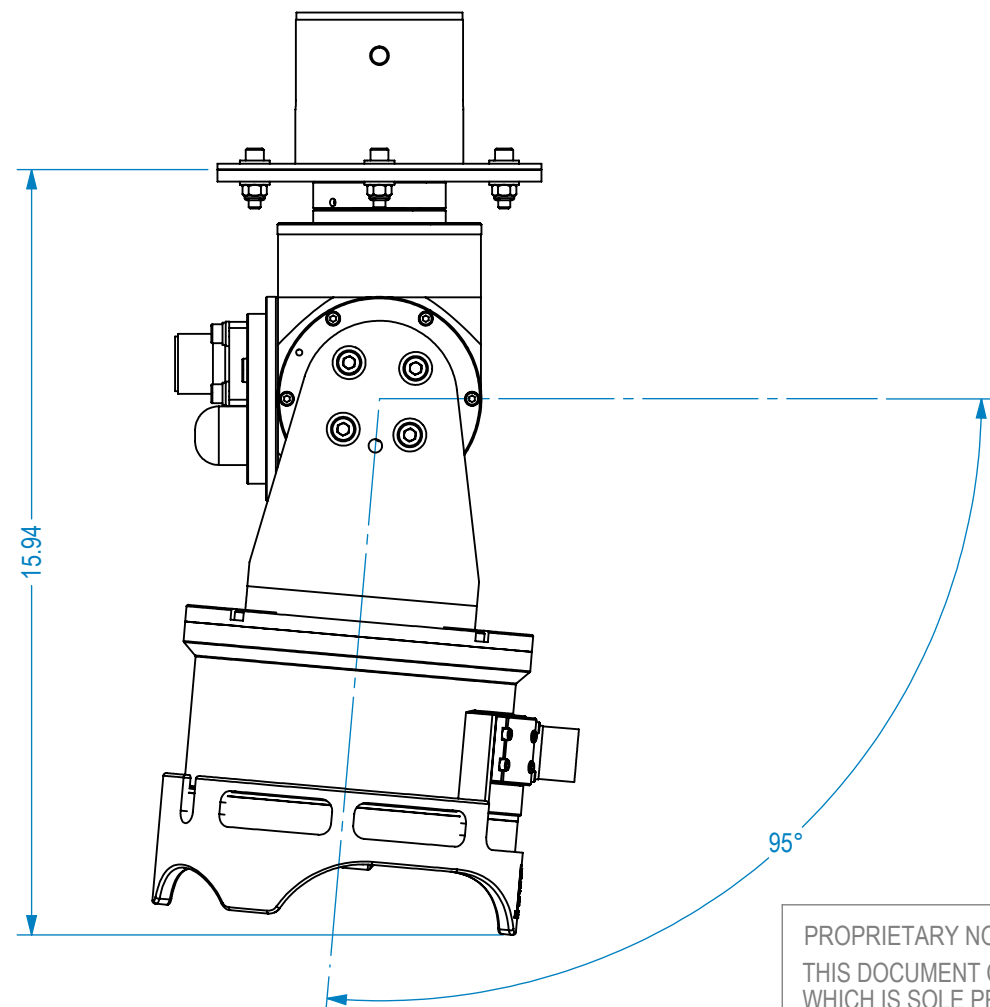
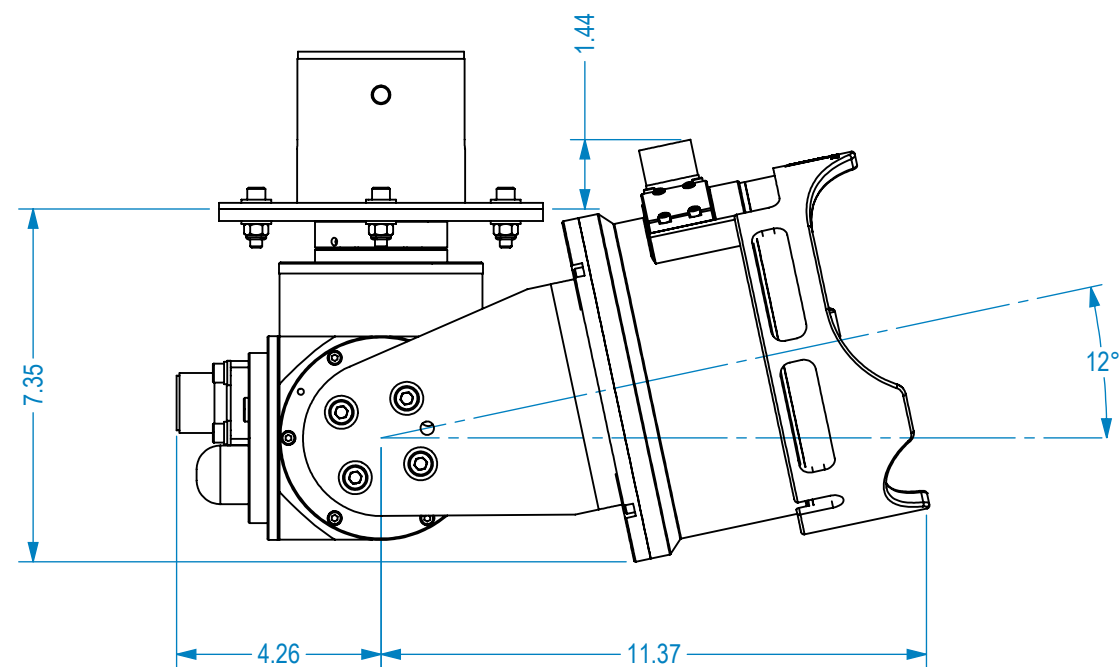
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS FRACTIONAL ANGULAR
X.XX ±0.006 ±1/32 MACH ±30'
X.XXX ±0.003 BEND ±1°
SURFACE FINISH 125 Ra, DE-BURR HOLES
BREAK SHARP EDGES 0.010

DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|------|------------|
| DRAWN | DV | 2012-07-24 |
| REVISED | DRC | 2013-08-21 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |



| ISS | DESCRIPTION | DATE |
|--|------------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| OUTLINE AND INSTALLATION DRAWING M3 SONAR 500M WITH ROTATOR (OE10-102) | | |
| SIZE B | NSCM NO 1C965 | TYPE MD |
| DWG. NO. 422-44071001 | | ISS 1.0 |
| SCALE: 1:4 | | W.O. NO. |
| | | SHEET 1 OF 2 |



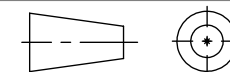
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION
WHICH IS SOLE PROPERTY OF
KONGSBERG MESOTECH LTD AND IS RECEIVED
IN CONFIDENCE. ITS CONTENTS MAY NOT BE
DISCLOSED OR REPRODUCED IN ANY WAY
WITHOUT WRITTEN CONSENT OF
KONGSBERG MESOTECH LTD.

CONFIDENTIAL. DO NOT COPY.

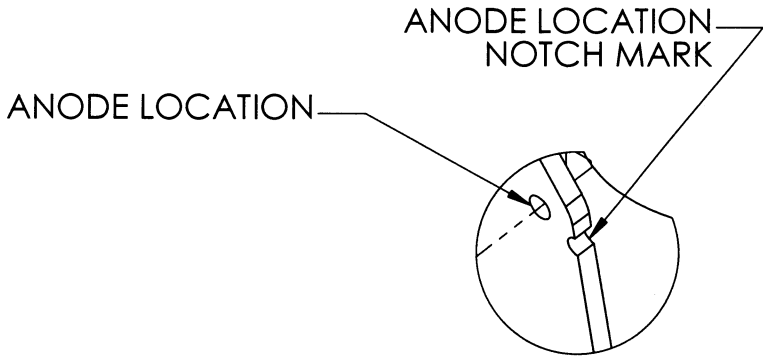
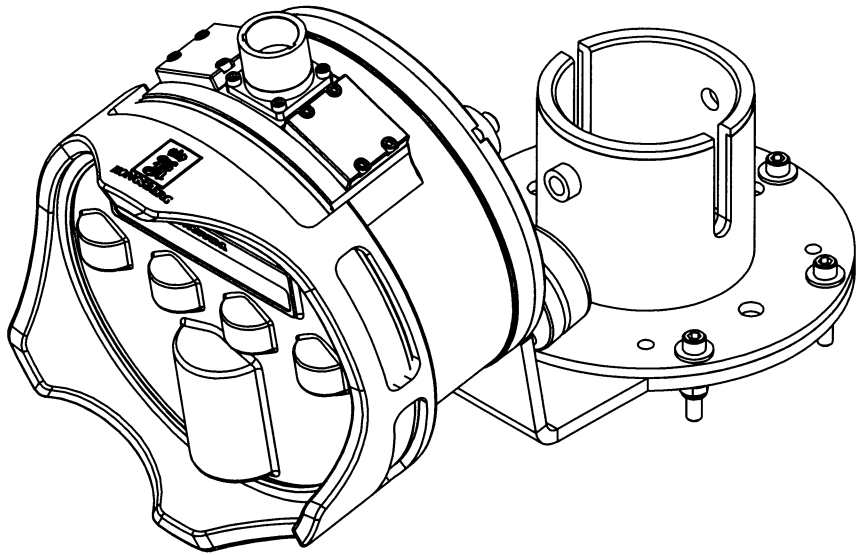
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS FRACTIONAL ANGULAR
X.XX ±0.006 ±1/32 MACH ±30'
X.XXX ±0.003 BEND ±1°
SURFACE FINISH 125 Ra, DE-BURR HOLES
BREAK SHARP EDGES 0.010

DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|------|------------|
| DRAWN | DV | 2012-07-24 |
| REVISED | DRC | 2013-08-21 |
| CHECKED | | |
| ENGR | | |
| ISSUED | | |

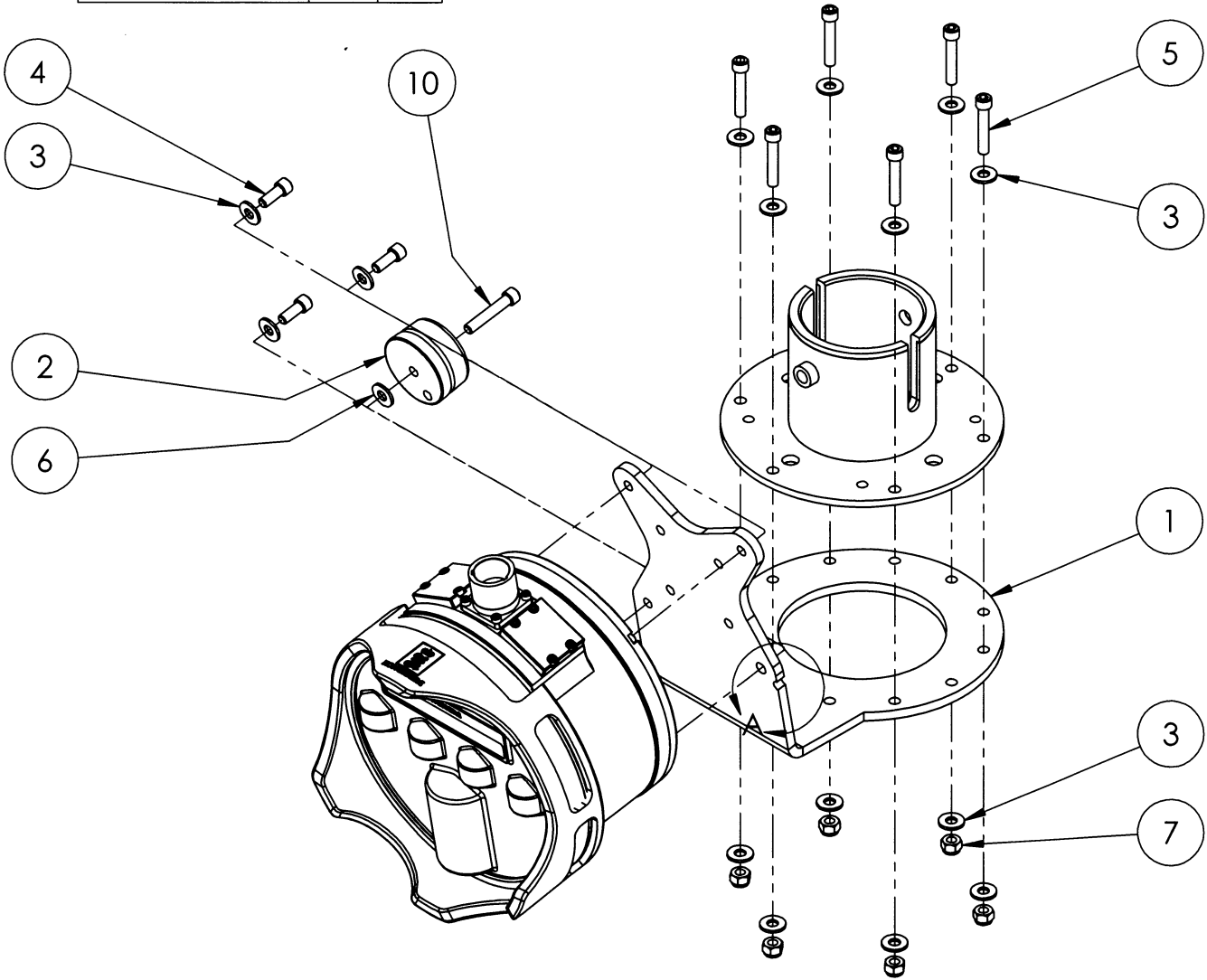


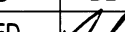

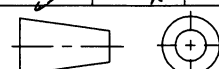
| ISS | DESCRIPTION | DATE |
|---|------------------|--------------|
| REVISIONS | | |
| Kongsberg Mesotech Ltd. | | |
| OUTLINE AND INSTALLATION DRAWING M3 SONAR 4000M WITH ROTATOR (OE10-102) | | |
| SIZE B | NSCM NO 1C965 | TYPE MD |
| DWG. NO. 422-44071001 | ISS 1.0 | |
| SCALE: 1:4 | W.O. NO. | SHEET 2 OF 2 |

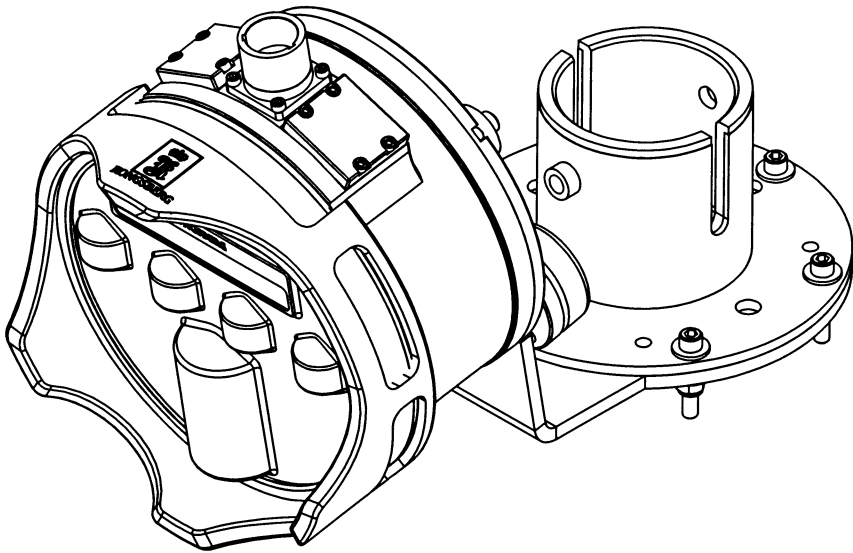
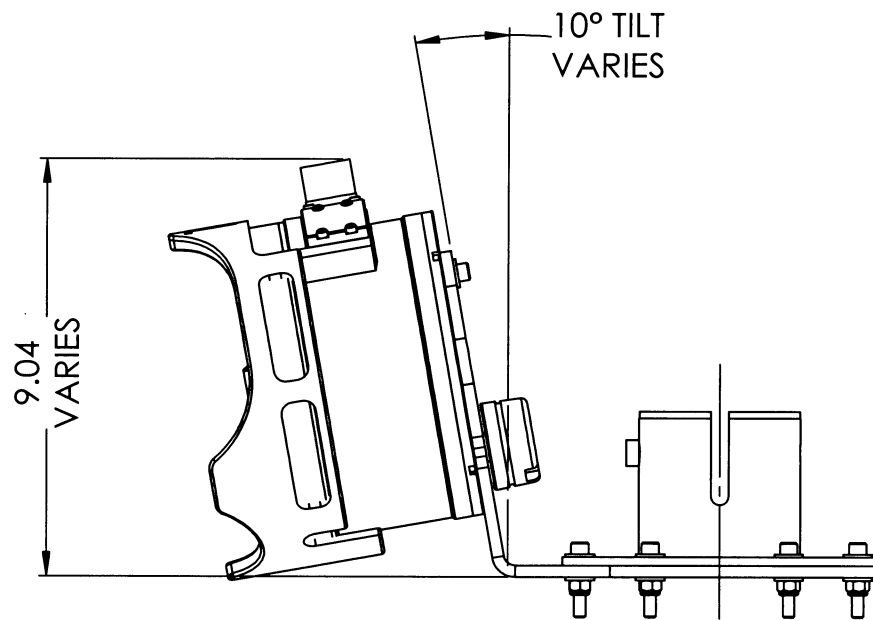
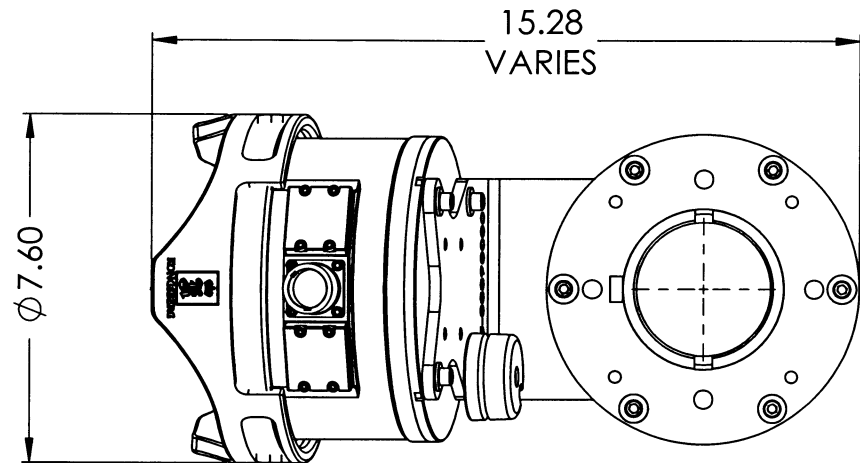


DETAIL A
SCALE 1 : 2






- NOTES:**
- 1. ANODE TO BE USED ONLY WITH ALUMINUM HEAD AT LOCATION MARKED WITH NOTCH - SEE DETAIL
 - 2. FOR TITANIUM HEAD, ITEMS 2, 5 AND 6 NOT USED; USE INSTEAD ONE MORE EACH OF ITEM 3 AND 4
 - 3. LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT
 - 4. LUBRICATE BASE OF ANODE WITH WATER RESISTANT GREASE

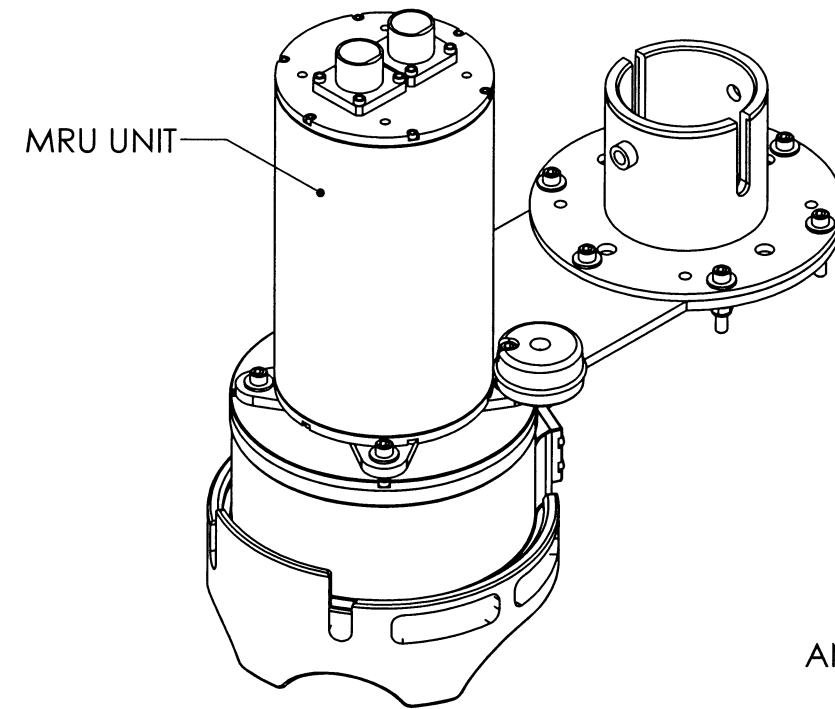


| | | | | | | | | |
|---|---|---|-------------|---|---------|----------|--------------|--------------|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | APPROVALS | NAME | DATE | Kongsberg Mesotech Ltd. | | | | |
| | DRAWN | DRC | 2013-08-07 | | | | | |
| | REVISED | DL | 2015-08-24 | ASSEMBLY DRAWING TILT BRACKET POLE MOUNT TO M3 SONAR | | | | |
| | CHECKED |  | 2015 AUG 31 | | | | | |
| | ENGR |  | 2015 AUG 31 | | | | | |
| | ISSUED | R.C.H. | 2015 SEP 2 | | | | | |
| DO NOT SCALE DRAWING. CONFIDENTIAL. DO NOT COPY. |  | | | SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| | | | | B | 1C965 | MD | 422-44121000 | 1.2 |
| | | | | SCALE: 1:4 | | W.O. NO. | | SHEET 1 OF 1 |

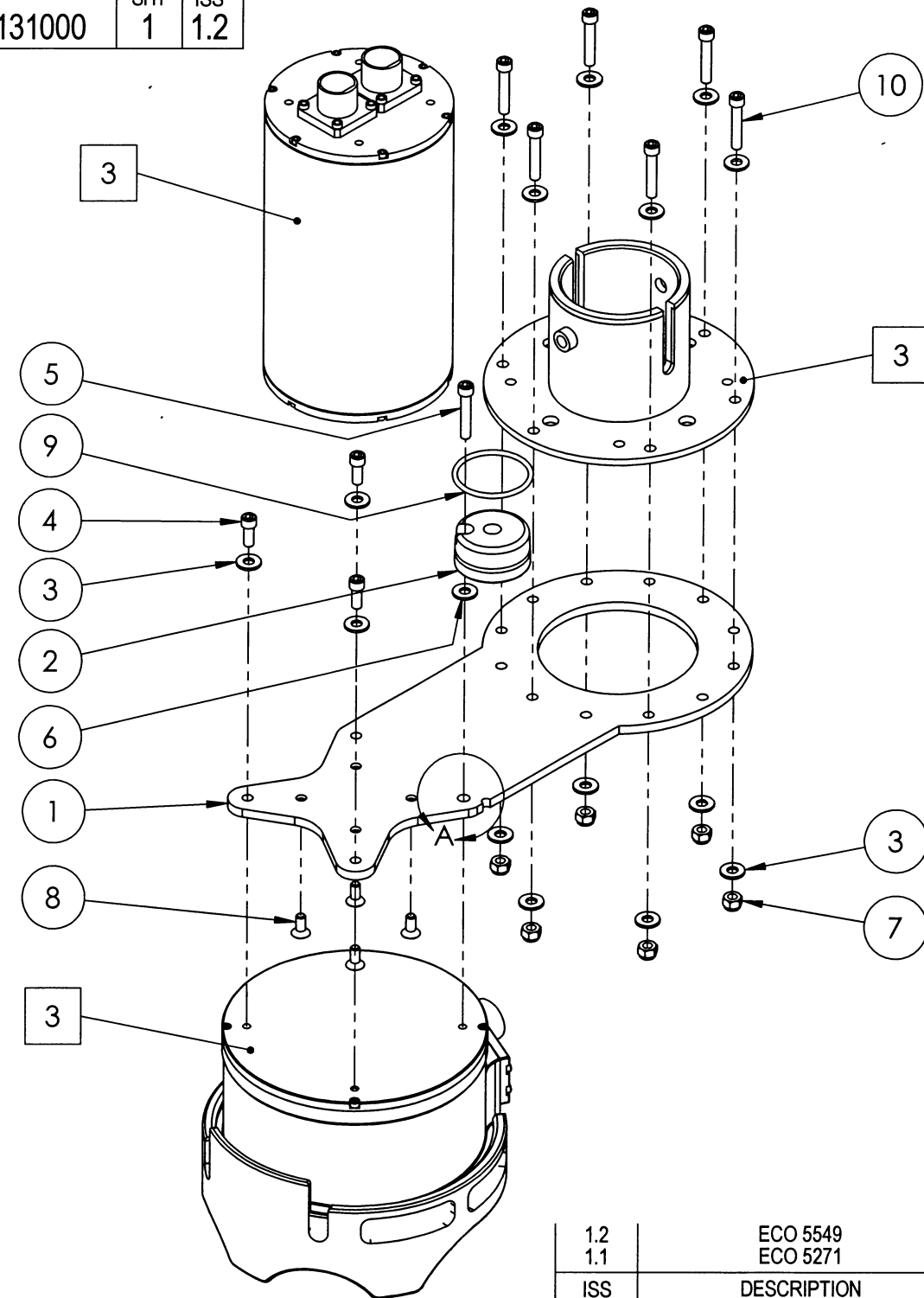
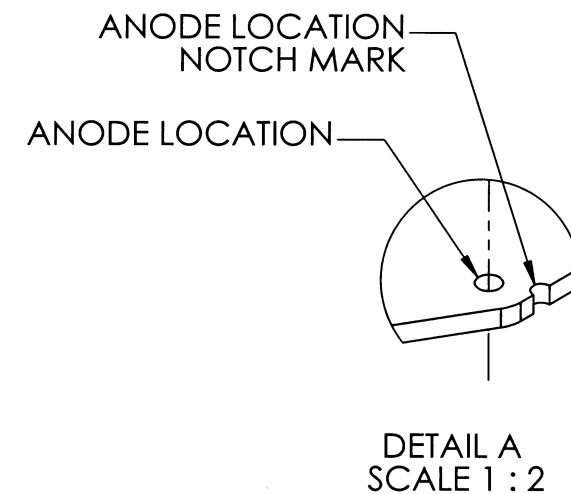


NOTE:
SONAR HEAD, FLANGE AND MRU NOT INCLUDED;
SHOWN ONLY FOR CLARITY

| | | | | | | | | | | | | | | | | | | |
|---|--|--------------|---|---|---|------------|--------------|--------------|---------------------|--------------|-----------|------|------|--------------------------------|--|--|--|--|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: <table><tr><td>DECIMALS</td><td>FRACTIONAL</td><td>ANGULAR</td></tr><tr><td>X.XX ±0.006</td><td>± 1/32</td><td>MACH ±30'</td></tr><tr><td>X.XXX ±0.003</td><td></td><td>BEND ±1°</td></tr></table> SURFACE FINISH 125 Ra, DE-BURR HOLES BREAK SHARP EDGES 0.010 | DECIMALS | FRACTIONAL | ANGULAR | X.XX ±0.006 | ± 1/32 | MACH ±30' | X.XXX ±0.003 | | BEND ±1° | APPROVALS | NAME | DATE | Kongsberg Mesotech Ltd. | | | | |
| | | DECIMALS | FRACTIONAL | ANGULAR | | | | | | | | | | | | | | |
| | | X.XX ±0.006 | ± 1/32 | MACH ±30' | | | | | | | | | | | | | | |
| | | X.XXX ±0.003 | | BEND ±1° | | | | | | | | | | | | | | |
| | | DRAWN | DRC | 2013-08-07 | | | | | | | | | | | | | | |
| CONFIDENTIAL. DO NOT COPY. | DO NOT SCALE DRAWING | REVISED | DL | 2015-08-24 | OUTLINE AND INSTALLATION DRAWING M3 SONAR 500M WITH TILT BRACKET | | | | | | | | | | | | | |
| | | CHECKED |  | 2015 AUG 31 | | | | | | | | | | | | | | |
| | | ENGR |  | 2015 AUG 31 | | | | | | | | | | | | | | |
| | | ISSUED |  | R.C.H. | 2015 SEP 2 | SIZE | NSCM NO | TYPE | DWG. NO. | ISS | | | | | | | | |
| | | |  |  | | B | 1C965 | MD | 422-44121001 | 1.2 | | | | | | | | |
| | | | | | | SCALE: 1:4 | | W.O. NO. | | SHEET 1 OF 1 | | | | | | | | |



SHOWN WITH BOTH HEAD AND
MRU UNIT INSTALLED



NOTES:

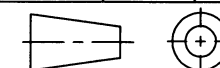
1. ANODE TO BE USED ONLY WITH ALUMINUM HEAD AT LOCATION MARKED WITH NOTCH - SEE DETAIL
2. FOR TITANIUM HEAD, ITEMS 2, 5, 6 AND 9 NOT USED; USE INSTEAD ONE MORE EACH OF ITEM 3 AND 4
3. HEAD, FLANGE AND MRU NOT INCLUDED; SHOWN ONLY FOR CLARITY
4. IF NOT USING MRU DO NOT USE ITEMS 8 AND 9 AND USE CENTER HOLE OF ITEM 2 FOR INSTALLATION
5. LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT
6. LUBRICATE BASE OF ANODE WITH WATER RESISTANT GREASE

PROPRIETARY NOTICE

THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

DO NOT SCALE DRAWING.
CONFIDENTIAL. DO NOT COPY.

| APPROVALS | NAME | DATE |
|-----------|--------|-------------|
| DRAWN | DRC | 2013-08-07 |
| REVISED | DL | 2014-07-31 |
| CHECKED | | 2015 AUG 31 |
| ENGR | | 2015 AUG 31 |
| ISSUED | R.C.H. | 2015 SEP 2 |



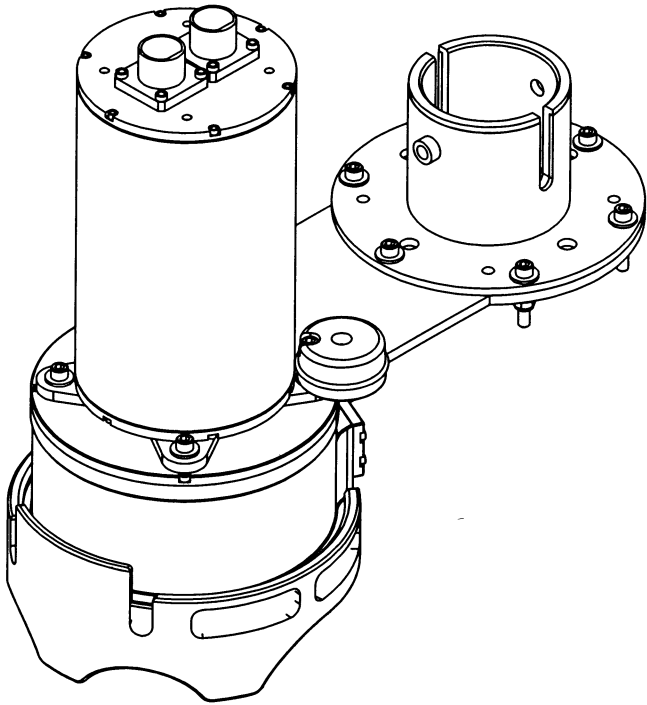
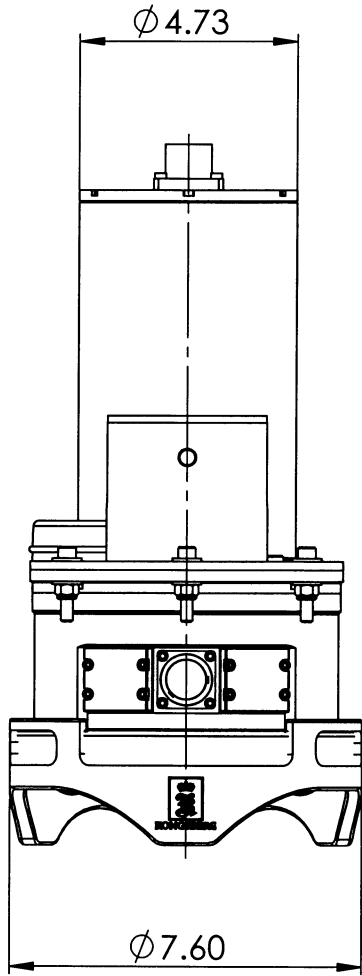
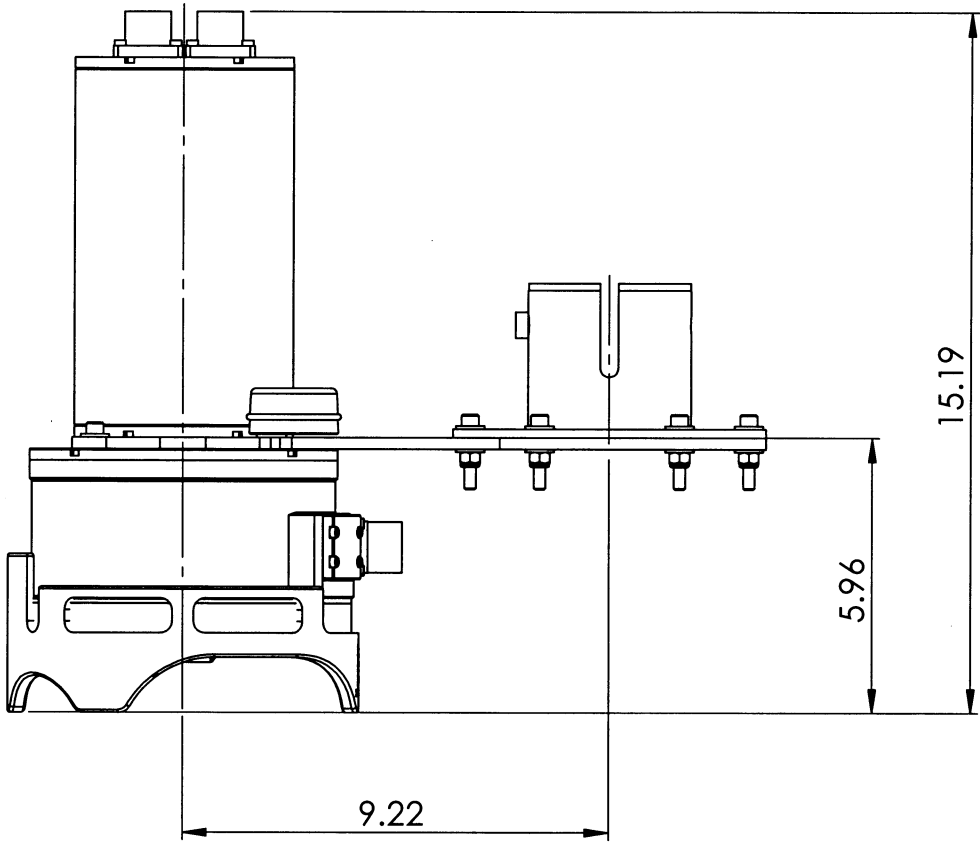
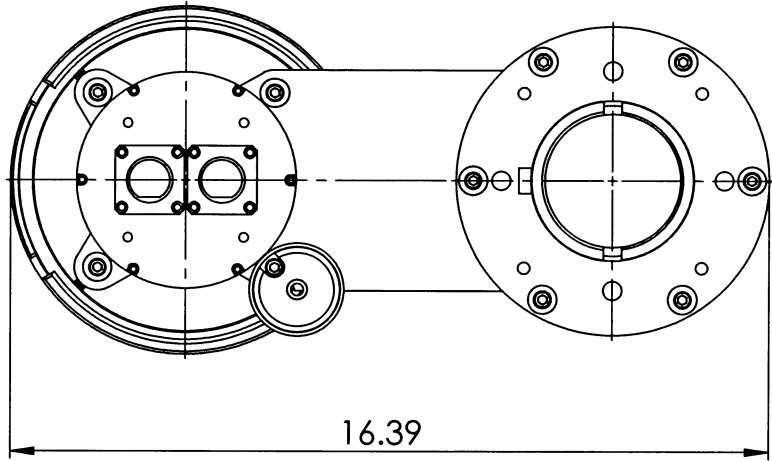
| 1.2 | ECO 5549 | 2014-07-31 |
|-----|-------------|------------|
| 1.1 | ECO 5271 | 2014-03-14 |
| ISS | DESCRIPTION | DATE |

REVISIONS

Kongsberg Mesotech Ltd.

ASSEMBLY DRAWING
DOWNLOOKING BRACKET
POLE MOUNT TO M3 SONAR

| | | | | |
|------------|---------|----------|--------------|--------------|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44131000 | 1.2 |
| SCALE: 1:4 | | W.O. NO. | | SHEET 1 OF 1 |



SHOWN WITH BOTH HEAD AND MRU UNIT INSTALLED

| | | |
|-----|-------------|------------|
| 1.2 | ECO 5549 | 2014-07-31 |
| 1.1 | ECO 5271 | 2014-03-14 |
| ISS | DESCRIPTION | DATE |

REVISIONS

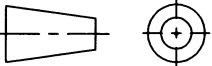
Kongsberg Mesotech Ltd.

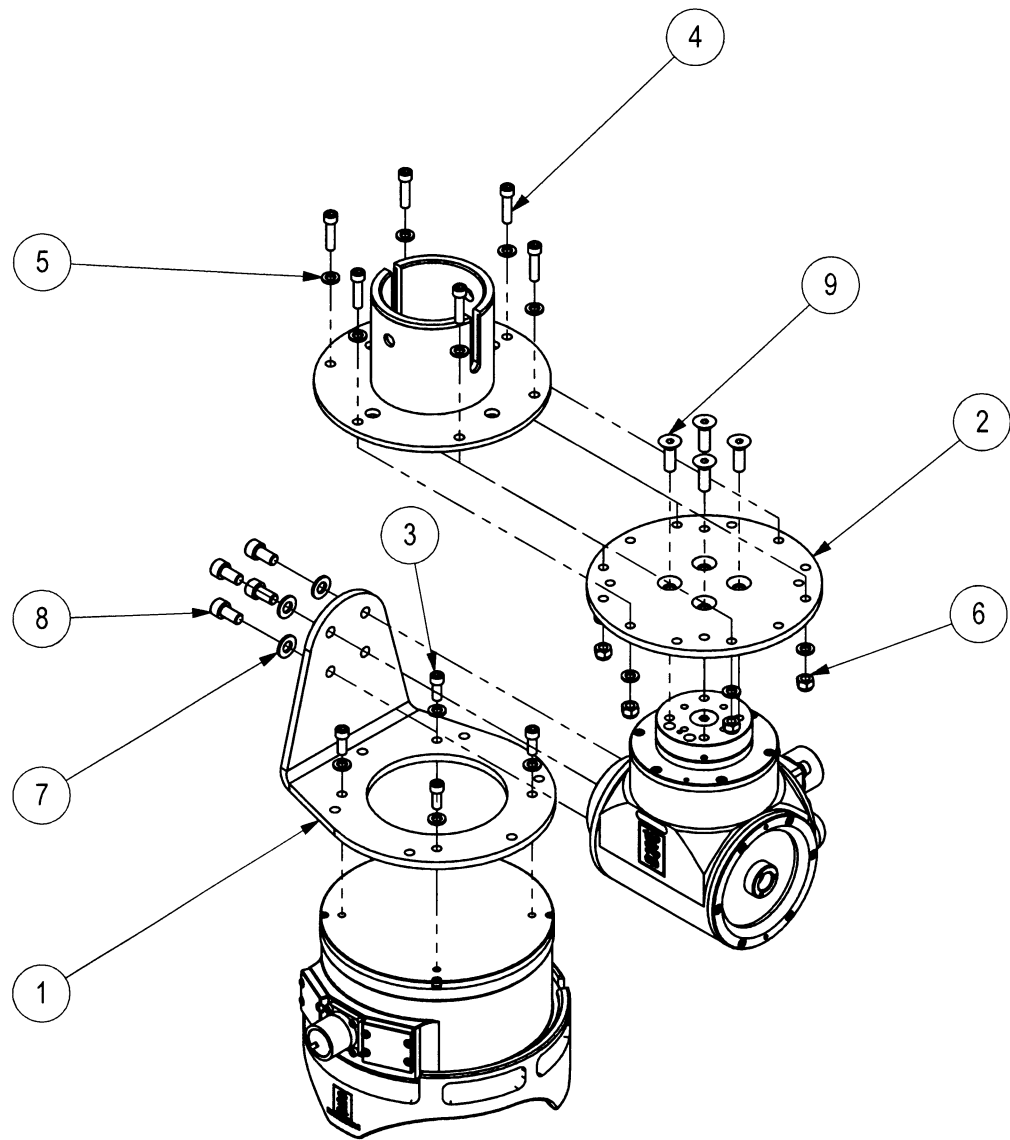
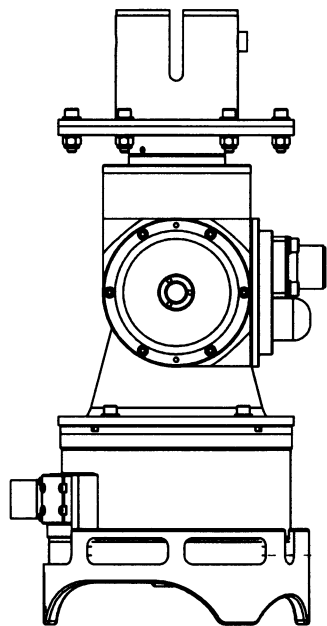
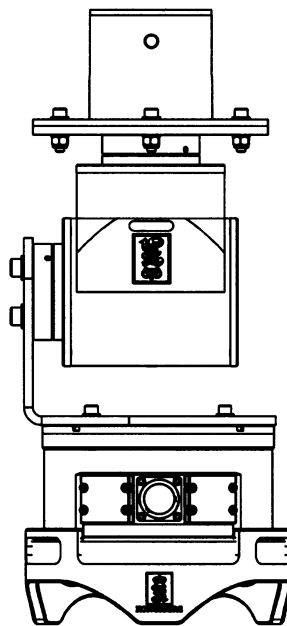
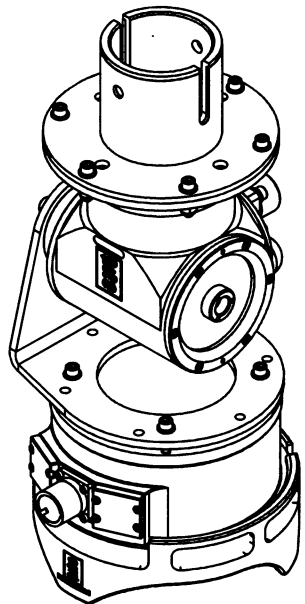
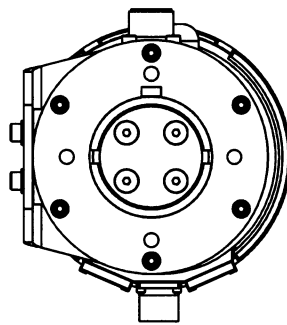
OUTLINE AND INSTALLATION DRAWING
M3 SONAR 500M
WITH DOWNLOOKING BRACKET

| | | | | |
|------------|---------|----------|--------------|--------------|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44131001 | 1.2 |
| SCALE: 1:4 | | W.O. NO. | | SHEET 1 OF 1 |

NOTE:
SONAR HEAD, FLANGE AND MRU NOT INCLUDED;
SHOWN ONLY FOR CLARITY

| | | | | | | |
|---|--|--|--|-----------|--------------------|-------------|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS FRACTIONAL ANGULAR X.XX ±0.006 ± 1/32 MACH ±30' X.XXX ±0.003 BEND ±1° SURFACE FINISH 125 Ra, DE-BURR HOLES BREAK SHARP EDGES 0.010 | | | APPROVALS | NAME | DATE |
| | DO NOT SCALE DRAWING | | | DRAWN | DRC | 2013-08-07 |
| CONFIDENTIAL. DO NOT COPY. | | | | REVISED | DL | 2015-07-31 |
| | | | | CHECKED | <i>[Signature]</i> | 2015 AUG 28 |
| | | | | ENGR | <i>[Signature]</i> | 2015 AUG 28 |
| | | | | ISSUED | R.I.H. | 2015 SEP 2 |





- NOTES:
1. FLANGE, ROTATOR, AND SONAR HEAD NOT INCLUDED; SHOWN ONLY FOR CLARITY
 2. LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT
 3. BRACKET AND ADAPTOR CAN BE ASSEMBLED AS SHOWN ON EITHER PAGE

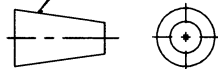
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

CONFIDENTIAL. DO NOT COPY.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS FRACTIONAL ANGULAR
X.XX ±0.006 ±1/32 MACH ±30'
X.XXX ±0.003 BEND ±1°
SURFACE FINISH 125 Ra, DE-BURR HOLES
BREAK SHARP EDGES 0.010

DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|--------|-------------|
| DRAWN | DRC | 13/08/15 |
| REVISED | DRC | 15/07/31 |
| CHECKED | | 2015 AUG 28 |
| ENGR | | 2015 AUG 28 |
| ISSUED | R.C.H. | 2015 SEP 2 |

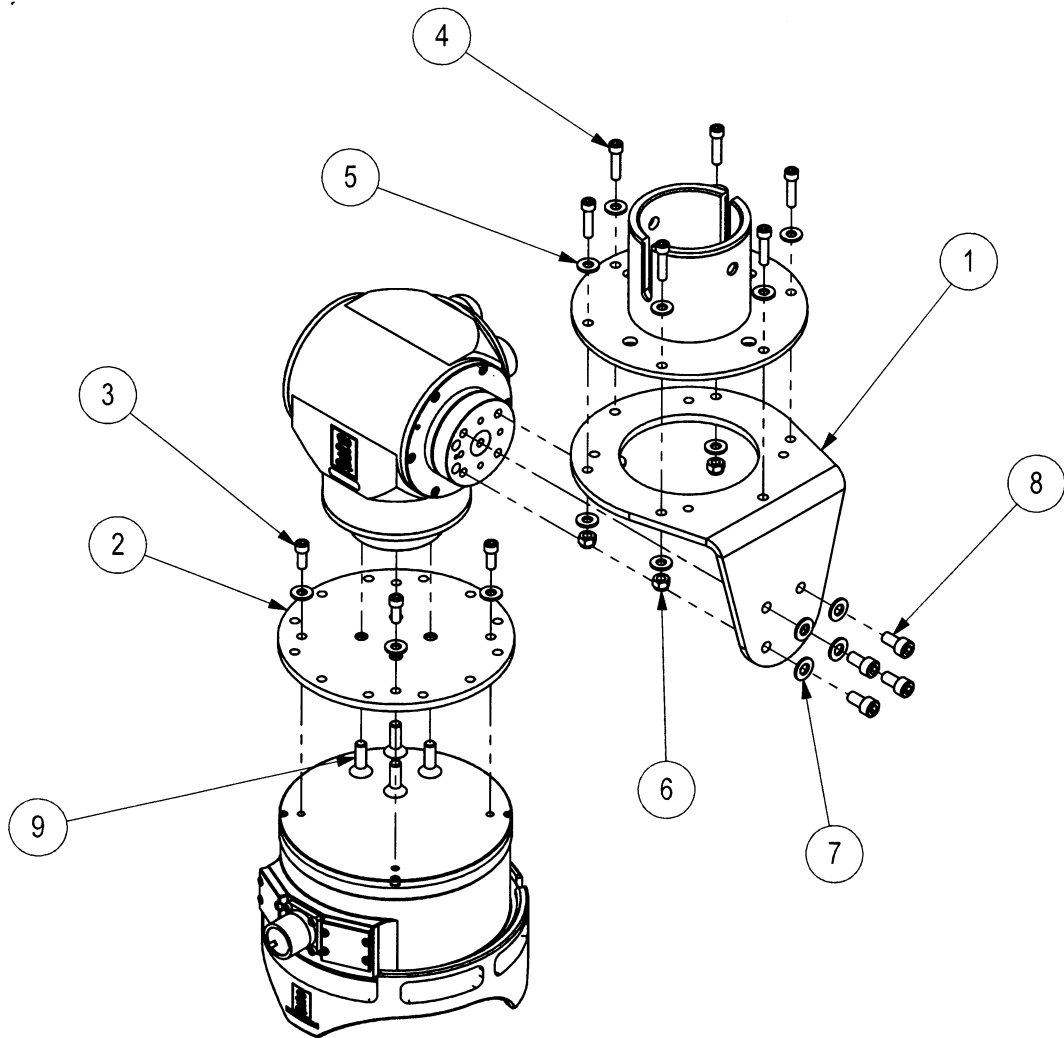
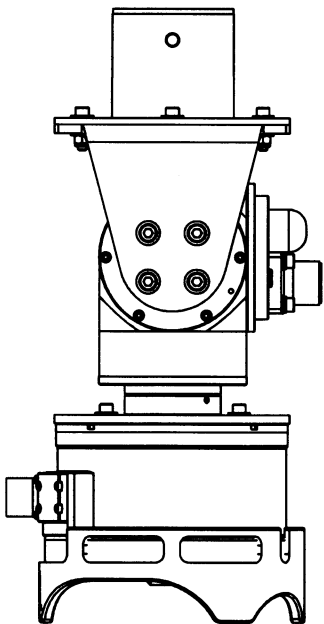
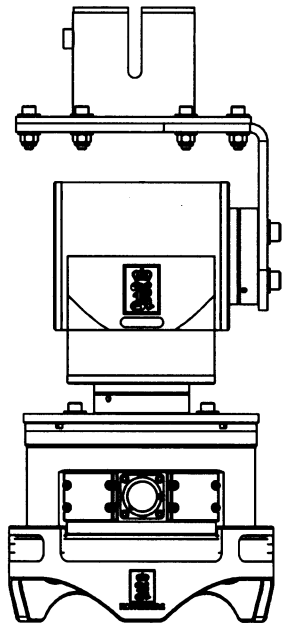
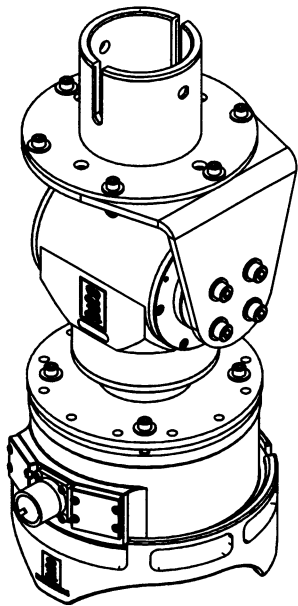
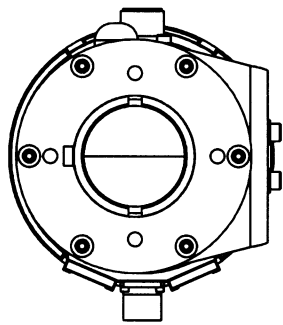


| | | |
|-----------|-------------|------------|
| 1.1 | ECO 5549 | 2015-07-31 |
| ISS | DESCRIPTION | DATE |
| REVISIONS | | |

Kongsberg Mesotech Ltd.

ASSEMBLY DRAWING
ADAPTOR PLATE AND BRACKET - M3 SONAR
AND ROTATOR (OE10-102) TO POLE MOUNT

| | | | | |
|-------------|---------|-------------------|--------------|--------------|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44171000 | 1.1 |
| SCALE: 3:16 | | W.O. NO. 281-1150 | | SHEET 1 OF 2 |



- NOTES:
- 1. FLANGE, ROTATOR, AND SONAR HEAD NOT INCLUDED; SHOWN ONLY FOR CLARITY
 - 2. LUBRICATE FASTENERS WITH ANTI-SEIZE LUBRICANT
 - 3. BRACKET AND ADAPTOR CAN BE ASSEMBLED AS SHOWN ON EITHER PAGE

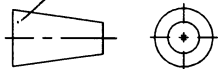
PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD.

CONFIDENTIAL. DO NOT COPY.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS FRACTIONAL ANGULAR
X.XX ±0.006 ±1/32 MACH ±30°
X.XXX ±0.003 BEND ±1°
SURFACE FINISH 125 Ra, DE-BURR HOLES
BREAK SHARP EDGES 0.010

DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|--------|-------------|
| DRAWN | DRC | 13/08/15 |
| REVISED | DRC | 15/07/31 |
| CHECKED | | 2015 AUG 28 |
| ENGR | | 2015 AUG 28 |
| ISSUED | R.C.H. | 2015 SEP 2 |



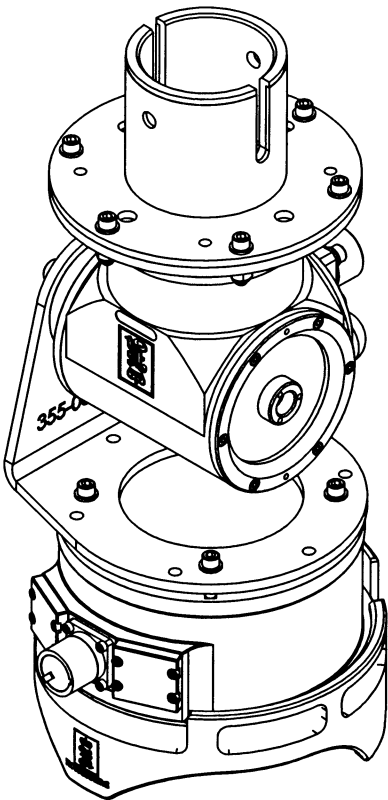
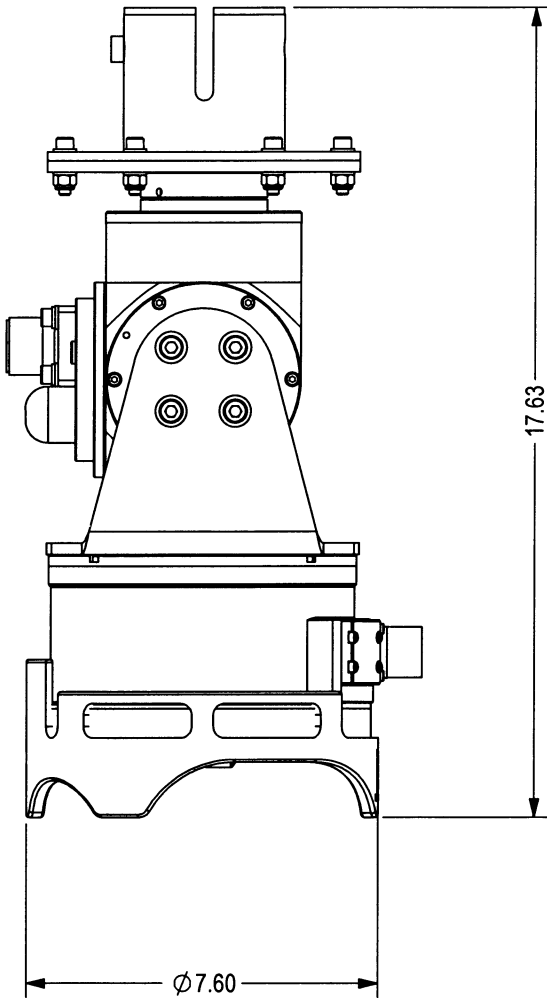
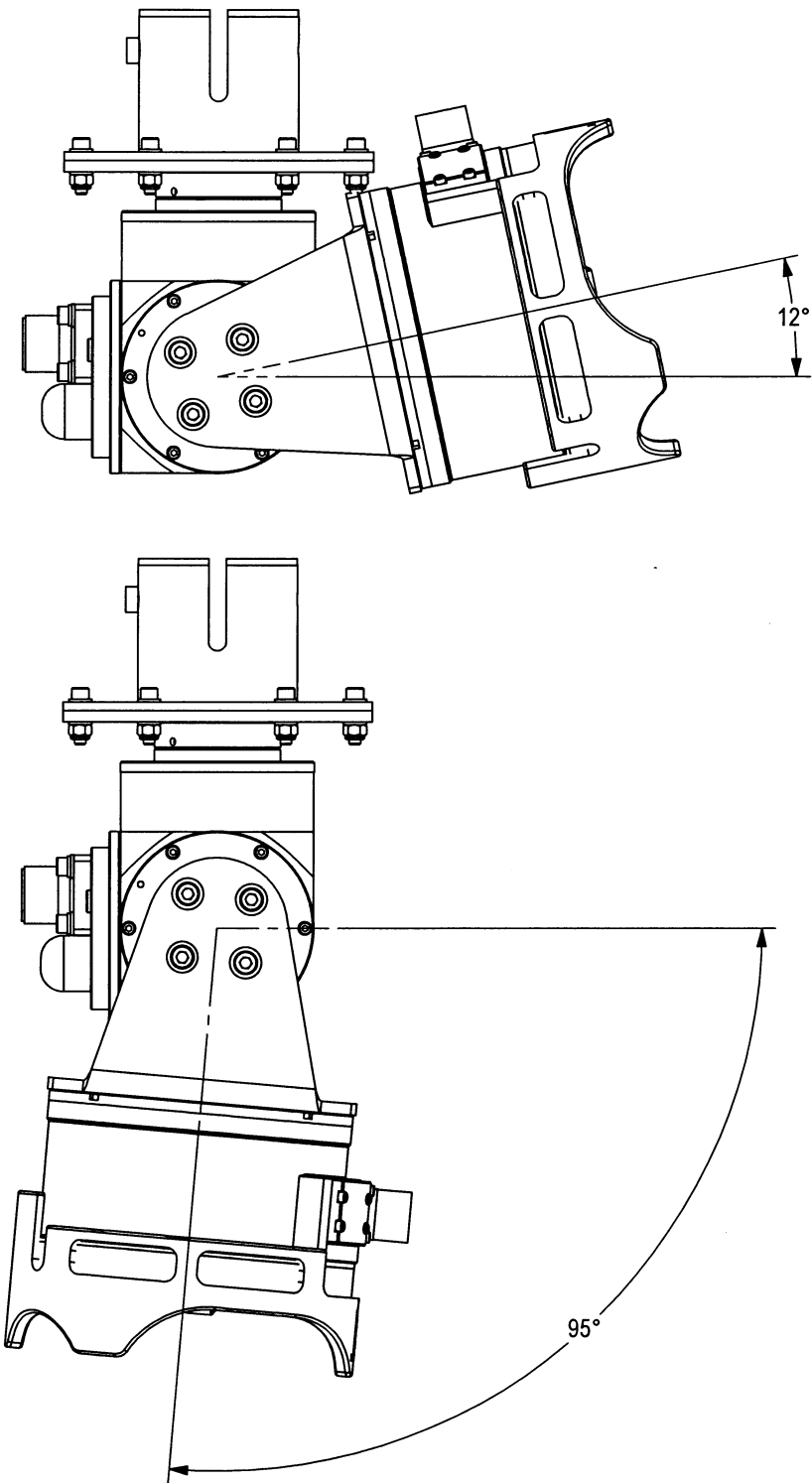
| | | |
|-----------|-------------|------------|
| 1.1 | ECO 5549 | 2015-07-31 |
| ISS | DESCRIPTION | DATE |
| REVISIONS | | |

Kongsberg Mesotech Ltd.

ASSEMBLY DRAWING
ADAPTOR PLATE AND BRACKET - M3 SONAR
AND ROTATOR (OE10-102) TO POLE MOUNT

| | | | | |
|-------------|---------|-------------------|--------------|--------------|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44171000 | 1.1 |
| SCALE: 3:16 | | W.O. NO. 281-1150 | | SHEET 2 OF 2 |

| | | |
|--------------|-----|-----|
| DWG. NO. | SHT | ISS |
| 422-44171001 | 1 | 1.1 |



| | | |
|-----|-------------|------------|
| 1.1 | ECO 5549 | 2015/08/24 |
| ISS | DESCRIPTION | DATE |

REVISIONS

Kongsberg Mesotech Ltd.

OUTLINE AND INSTALLATION DRAWING
ADAPTOR PLATE AND BRACKET - M3 SONAR
AND ROTATOR (OE10-102) TO POLE MOUNT

| | | | | |
|------------|-------------------|--------------|--------------|-----|
| SIZE | NSCM NO | TYPE | DWG. NO. | ISS |
| B | 1C965 | MD | 422-44171001 | 1.1 |
| SCALE: 1:4 | W.O. NO. 281-1150 | SHEET 1 OF 2 | | |

NOTES:
1. FLANGE, ROTATOR, AND SONAR HEAD NOT INCLUDED;
SHOWN ONLY FOR CLARITY

PROPRIETARY NOTICE

THIS DOCUMENT CONTAINS INFORMATION
WHICH IS SOLE PROPERTY OF
KONGSBERG MESOTECH LTD AND IS RECEIVED
IN CONFIDENCE. ITS CONTENTS MAY NOT BE
DISCLOSED OR REPRODUCED IN ANY WAY
WITHOUT WRITTEN CONSENT OF
KONGSBERG MESOTECH LTD.

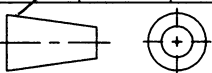
CONFIDENTIAL. DO NOT COPY.

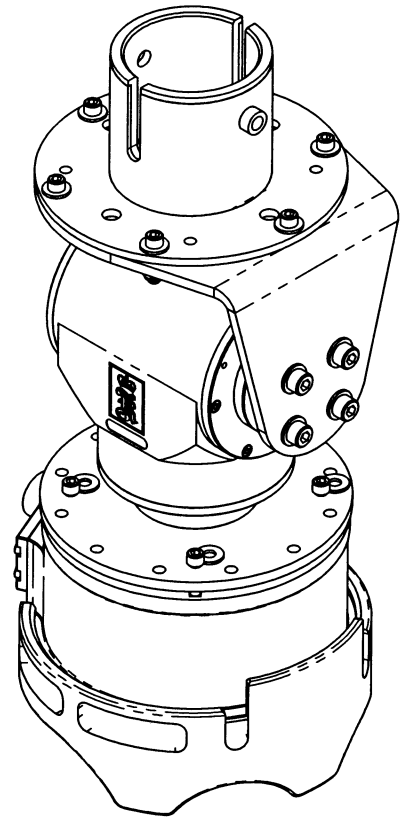
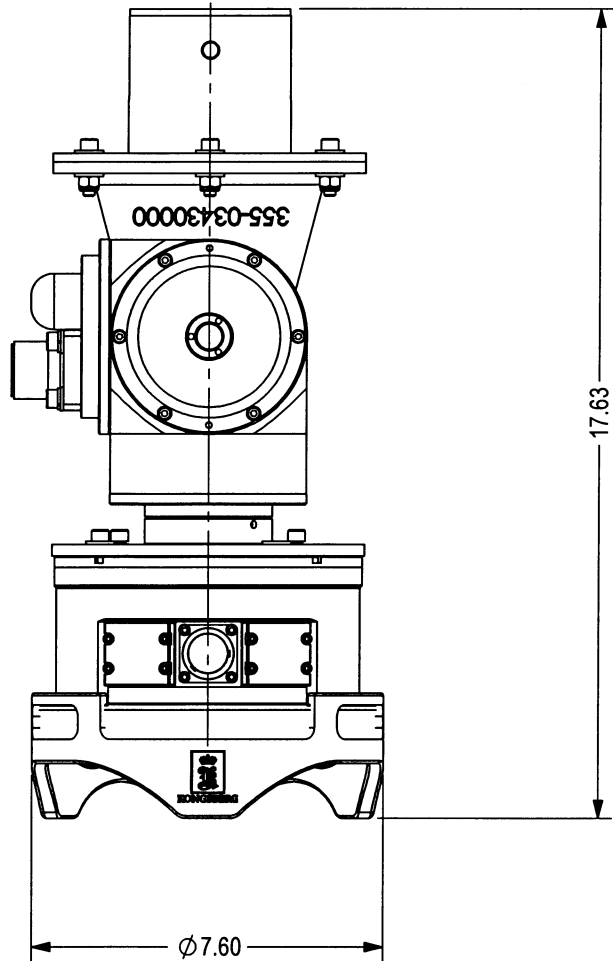
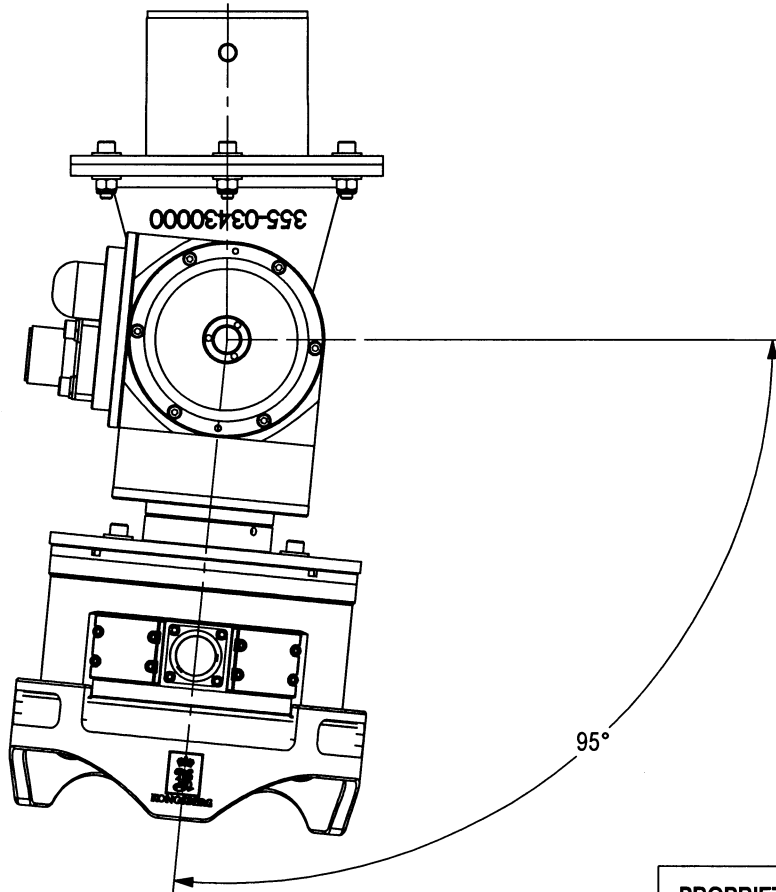
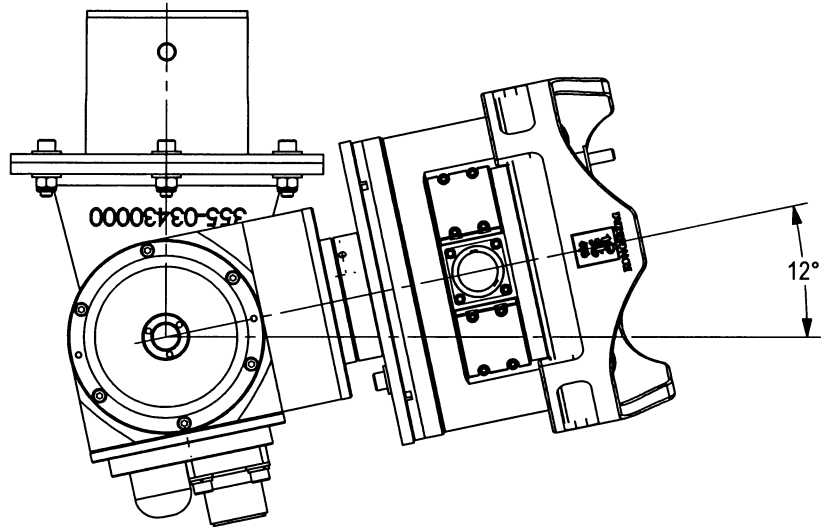
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

| DECIMALS | FRACTIONAL | ANGULAR |
|---|------------|-----------|
| X.XX ±0.006 | ±1/32 | MACH ±30' |
| X.XXX ±0.003 | | BEND ±1° |
| SURFACE FINISH 125 Ra, DE-BURR HOLES BREAK SHARP EDGES 0.010 | | |



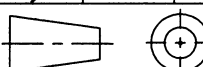
DO NOT SCALE DRAWING

| APPROVALS | NAME | DATE |
|-----------|--------|-------------|
| DRAWN | DRC | 2013/08/15 |
| REVISED | DL | 2015/08/24 |
| CHECKED | | 2015 AUG 28 |
| ENGR | | 2015 AUG 28 |
| ISSUED | R.C.H. | 2015 SEP 2 |





NOTES:
1. FLANGE, ROTATOR, AND SONAR HEAD NOT INCLUDED;
SHOWN ONLY FOR CLARITY

| | | | | | | | | | | | | | | | | |
|---|--|---|------------|--------------|-------------|--|-----------|--------------|------|----------|-----------|------|-------|--|--------------|-----|
| PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION WHICH IS SOLE PROPERTY OF KONGSBERG MESOTECH LTD AND IS RECEIVED IN CONFIDENCE. ITS CONTENTS MAY NOT BE DISCLOSED OR REPRODUCED IN ANY WAY WITHOUT WRITTEN CONSENT OF KONGSBERG MESOTECH LTD. | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: <table><tr><td>DECIMALS</td><td>FRACTIONAL</td><td>ANGULAR</td></tr><tr><td>X.XX ±0.006</td><td>± 1/32</td><td>MACH ±30'</td></tr><tr><td>X.XXX ±0.003</td><td></td><td>BEND ±1°</td></tr></table> SURFACE FINISH 125 Ra, DE-BURR HOLES BREAK SHARP EDGES 0.010 | DECIMALS | FRACTIONAL | ANGULAR | X.XX ±0.006 | ± 1/32 | MACH ±30' | X.XXX ±0.003 | | BEND ±1° | APPROVALS | NAME | DATE | Kongsberg Mesotech Ltd. OUTLINE AND INSTALLATION DRAWING ADAPTOR PLATE AND BRACKET - M3 SONAR AND ROTATOR (OE10-102) TO POLE MOUNT | | |
| | | DECIMALS | FRACTIONAL | ANGULAR | | | | | | | | | | | | |
| | | X.XX ±0.006 | ± 1/32 | MACH ±30' | | | | | | | | | | | | |
| | | X.XXX ±0.003 | | BEND ±1° | | | | | | | | | | | | |
| | | DRAWN | DRC | 2013/08/15 | | | | | | | | | | | | |
| REVISED | DL | 2015/08/24 | | | | | | | | | | | | | | |
| CHECKED |  | 2015 AUG 28 | | | | | | | | | | | | | | |
| ENGR |  | 2015 AUG 28 | | | | | | | | | | | | | | |
| CONFIDENTIAL. DO NOT COPY. | DO NOT SCALE DRAWING |  | ISSUED | R.C.H. | 2015 SEP 2 | <table><tr><td>SIZE</td><td>NSCM NO</td><td>TYPE</td><td>DWG. NO.</td><td>ISS</td></tr><tr><td>B</td><td>1C965</td><td>MD</td><td>422-44171001</td><td>1.1</td></tr></table> | SIZE | NSCM NO | TYPE | DWG. NO. | ISS | B | 1C965 | MD | 422-44171001 | 1.1 |
| | | | SIZE | NSCM NO | TYPE | DWG. NO. | ISS | | | | | | | | | |
| | | | B | 1C965 | MD | 422-44171001 | 1.1 | | | | | | | | | |
| SCALE: 1:4 | | W.O. NO. 281-1150 | | SHEET 2 OF 2 | | | | | | | | | | | | |