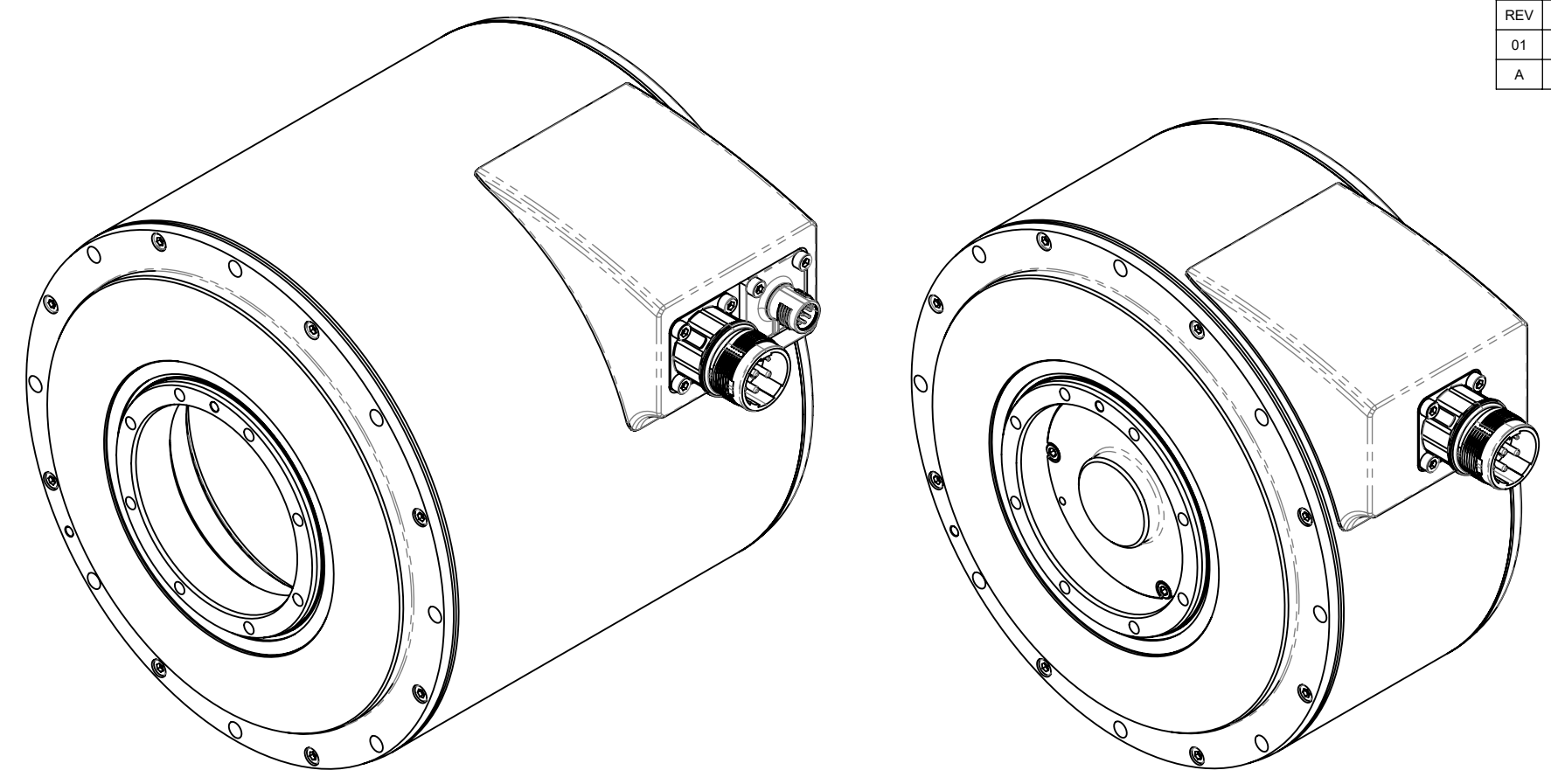


| CONFIGURATION TABLE | | | |
|---------------------|------------|-------|-------------|
| MODEL NUMBER | CAD NUMBER | X | MASS (kg) |
| LDD 1830A-E17-BA | 103815 | 106.2 | 7.8 - 8.3 |
| LDD 1830A-E17-NA | 103815 | 106.2 | 6.9 - 7.5 |
| LDD 1830A-H17-BA | 103815 | 106.2 | 7.9 - 8.4 |
| LDD 1830A-H17-NA | 103815 | 106.2 | 7.0 - 7.5 |
| LDD 1830A-D17-BA | 103814 | 106.2 | 7.9 - 8.4 |
| LDD 1830A-D17-NA | 103814 | 106.2 | 7.0 - 7.6 |
| LDD 1830A-B17-BA | 103815 | 106.2 | 7.8 - 8.3 |
| LDD 1830A-B17-NA | 103815 | 106.2 | 6.9 - 7.5 |
| LDD 1830B-E17-BA | 103815 | 106.2 | 7.9 - 8.4 |
| LDD 1830B-E17-NA | 103815 | 106.2 | 7.0 - 7.6 |
| LDD 1830B-H17-BA | 103815 | 106.2 | 7.9 - 8.5 |
| LDD 1830B-H17-NA | 103815 | 106.2 | 7.1 - 7.6 |
| LDD 1830B-D17-BA | 103814 | 106.2 | 8.0 - 8.5 |
| LDD 1830B-D17-NA | 103814 | 106.2 | 7.1 - 7.6 |
| LDD 1830B-B17-BA | 103815 | 106.2 | 7.9 - 8.4 |
| LDD 1830B-B17-NA | 103815 | 106.2 | 7.0 - 7.6 |
| LDD 1841A-E17-BA | 103817 | 131.4 | 10.2 - 11.0 |
| LDD 1841A-E17-NA | 103817 | 131.4 | 9.4 - 10.1 |
| LDD 1841A-H17-BA | 103817 | 131.4 | 10.3 - 11.0 |
| LDD 1841A-H17-NA | 103817 | 131.4 | 9.4 - 10.2 |
| LDD 1841A-D17-BA | 103816 | 131.4 | 10.3 - 11.1 |
| LDD 1841A-D17-NA | 103816 | 131.4 | 9.5 - 10.2 |
| LDD 1841A-B17-BA | 103817 | 131.4 | 10.2 - 11.0 |
| LDD 1841A-B17-NA | 103817 | 131.4 | 9.4 - 10.1 |
| LDD 1841B-E17-BA | 103817 | 131.4 | 10.2 - 10.9 |
| LDD 1841B-E17-NA | 103817 | 131.4 | 9.3 - 10.0 |
| LDD 1841B-H17-BA | 103817 | 131.4 | 10.2 - 11.0 |
| LDD 1841B-H17-NA | 103817 | 131.4 | 9.4 - 10.1 |
| LDD 1841B-D17-BA | 103816 | 131.4 | 10.3 - 11.0 |
| LDD 1841B-D17-NA | 103816 | 131.4 | 9.4 - 10.1 |
| LDD 1841B-B17-BA | 103817 | 131.4 | 10.2 - 10.9 |
| LDD 1841B-B17-NA | 103817 | 131.4 | 9.3 - 10.0 |
| LDD 1850A-E17-BA | 103819 | 156.6 | 12.5 - 13.5 |
| LDD 1850A-E17-NA | 103819 | 156.6 | 11.7 - 12.6 |
| LDD 1850A-H17-BA | 103819 | 156.6 | 12.6 - 13.5 |
| LDD 1850A-H17-NA | 103819 | 156.6 | 11.7 - 12.7 |
| LDD 1850A-D17-BA | 103818 | 156.6 | 12.6 - 13.5 |
| LDD 1850A-D17-NA | 103818 | 156.6 | 11.8 - 12.7 |
| LDD 1850A-B17-BA | 103819 | 156.6 | 12.5 - 13.5 |
| LDD 1850A-B17-NA | 103819 | 156.6 | 11.7 - 12.6 |
| LDD 1850B-E17-BA | 103819 | 156.6 | 12.4 - 13.4 |
| LDD 1850B-E17-NA | 103819 | 156.6 | 11.6 - 12.5 |
| LDD 1850B-H17-BA | 103819 | 156.6 | 12.5 - 13.4 |
| LDD 1850B-H17-NA | 103819 | 156.6 | 11.6 - 12.6 |
| LDD 1850B-D17-BA | 103818 | 156.6 | 12.5 - 13.5 |
| LDD 1850B-D17-NA | 103818 | 156.6 | 11.7 - 12.6 |
| LDD 1850B-B17-BA | 103819 | 156.6 | 12.4 - 13.4 |
| LDD 1850B-B17-NA | 103819 | 156.6 | 11.6 - 12.5 |
| LDD 1860A-E17-BA | 103821 | 181.8 | 14.6 - 15.7 |
| LDD 1860A-E17-NA | 103821 | 181.8 | 13.8 - 14.9 |
| LDD 1860A-H17-BA | 103821 | 181.8 | 14.7 - 15.8 |
| LDD 1860A-H17-NA | 103821 | 181.8 | 13.8 - 14.9 |
| LDD 1860A-D17-BA | 103820 | 181.8 | 14.7 - 15.8 |
| LDD 1860A-D17-NA | 103820 | 181.8 | 13.9 - 14.9 |
| LDD 1860A-B17-BA | 103821 | 181.8 | 14.6 - 15.7 |
| LDD 1860A-B17-NA | 103821 | 181.8 | 13.8 - 14.9 |
| LDD 1860B-E17-BA | 103821 | 181.8 | 14.7 - 15.9 |
| LDD 1860B-E17-NA | 103821 | 181.8 | 13.9 - 15.0 |
| LDD 1860B-H17-BA | 103821 | 181.8 | 14.8 - 15.9 |
| LDD 1860B-H17-NA | 103821 | 181.8 | 13.9 - 15.1 |
| LDD 1860B-D17-BA | 103820 | 181.8 | 14.8 - 15.9 |
| LDD 1860B-D17-NA | 103820 | 181.8 | 14.0 - 15.1 |
| LDD 1860B-B17-BA | 103821 | 181.8 | 14.7 - 15.9 |
| LDD 1860B-B17-NA | 103821 | 181.8 | 13.9 - 15.0 |

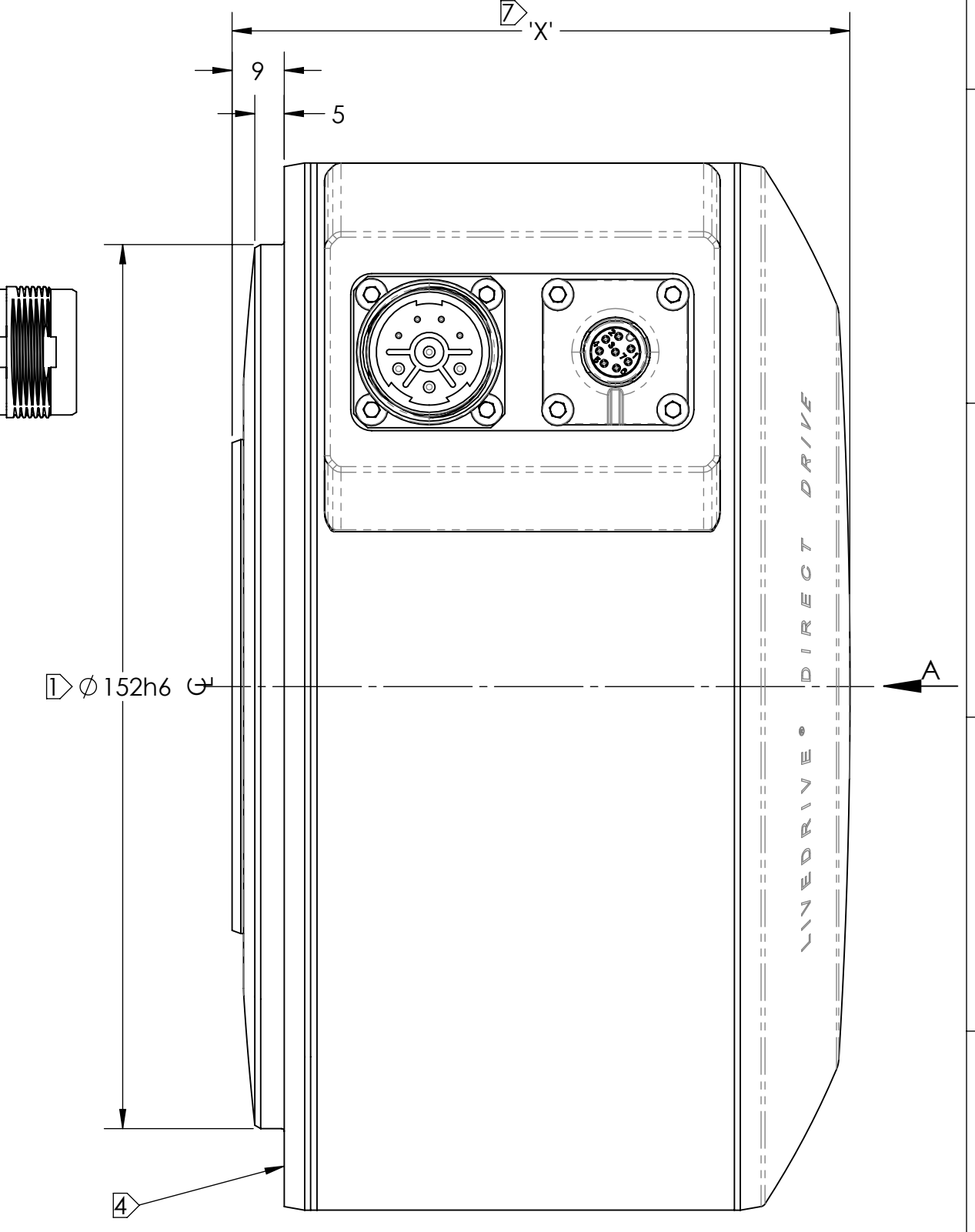
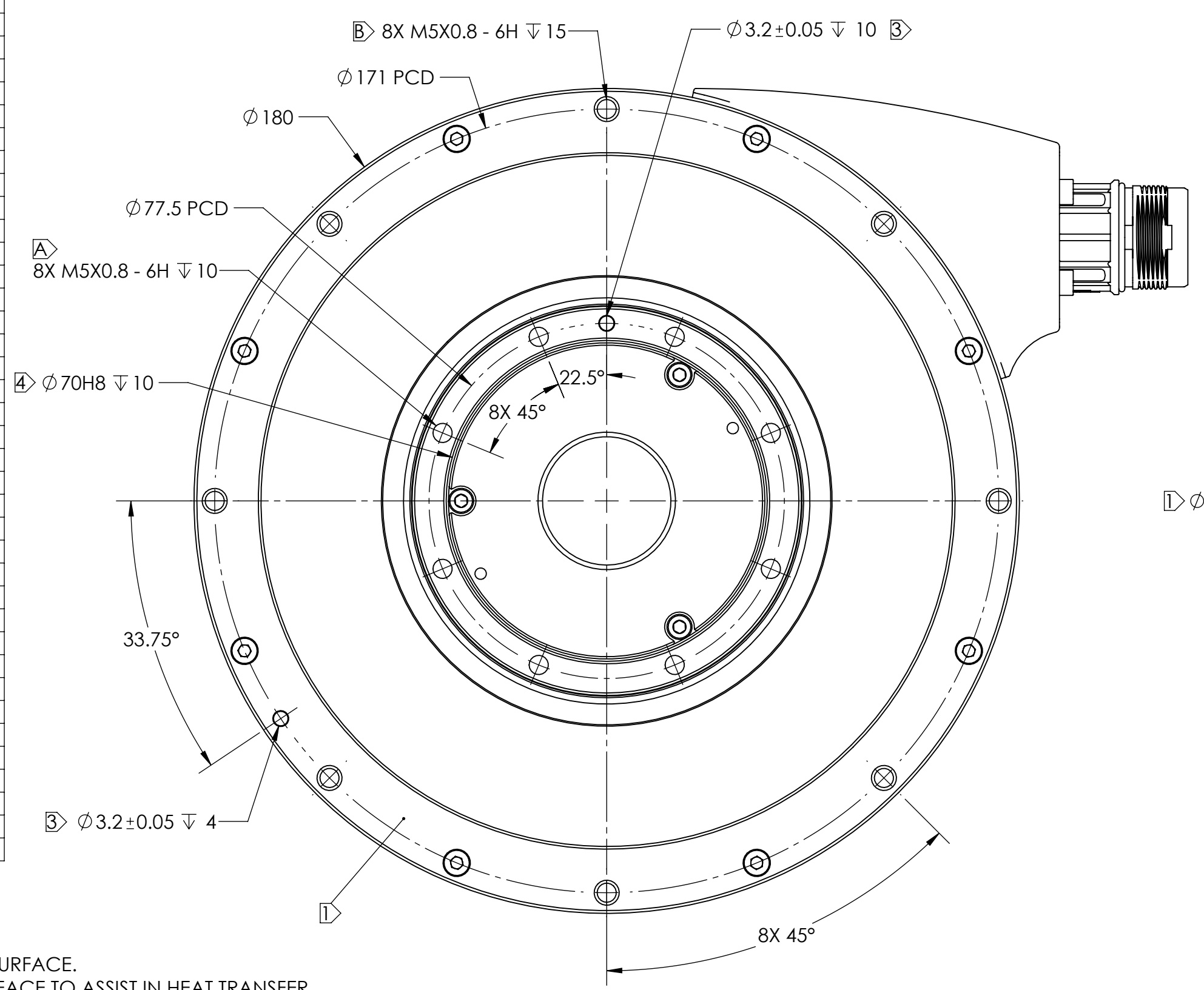
NOTES: (SHEET 1)

- 1 MOUNTING (THERMAL AND STRUCTURAL) INTERFACE.
 - RECOMMENDED $\sqrt{0.03}$ & $\sqrt{0.8}$ FOR MATING SURFACE.
 - APPLY THERMAL PASTE BETWEEN MOUNTING SURFACE TO ASSIST IN HEAT TRANSFER.
- 2 RECOMMENDED USE OF CLASS 12.9 FASTENERS WITH THREAD LOCKER FOR MOUNTING.
 - A TORQUE M5 BOLTS IN SHAFT TO 8.0 Nm.
 - B TORQUE M5 BOLTS IN HOUSING TO 5.5 Nm.
- 3 LOCATION FEATURE FOR 3 mm DOWEL PIN TO AID IN MOUNTING OF MOTOR AND ALIGNING BOLT HOLES (USE IS OPTIONAL).
- 4 SUGGESTED SEALING SURFACE. REDUCED INTERNAL AREA FOR LDD 1830: SEE SHEET 3.
- 5 FOR MORE DIMENSIONAL DETAILS REFER TO APPLICABLE CAD MODEL LISTED IN CONFIGURATION TABLE.
- 6 SEE LDD18XX REFERENCE GUIDE (DOCUMENT NO. 103796-[REVISION]) FOR FURTHER INFORMATION.
- 7 DEPENDENT ON PART NUMBER, SEE CONFIGURATION TABLE. LDD 1830 SHOWN.

| REVISIONS | | | | DRW | CHK | APR | QLT | MFG |
|-----------|------------|----------|--------------------|-----|-----|-----|-----|-----|
| REV | DATE | CO NO. | DESCRIPTION | LSJ | YK | DDR | - | - |
| 01 | 2021-07-06 | CO000272 | INITIAL RELEASE | LSJ | YK | DDR | - | - |
| A | 2021-11-03 | CO000484 | PRODUCTION RELEASE | LSJ | YK | DDR | TF | OO |



PICTORIAL VIEW - LDD 1860X-XX7-XA PICTORIAL VIEW - LDD 1830X-D17-XA



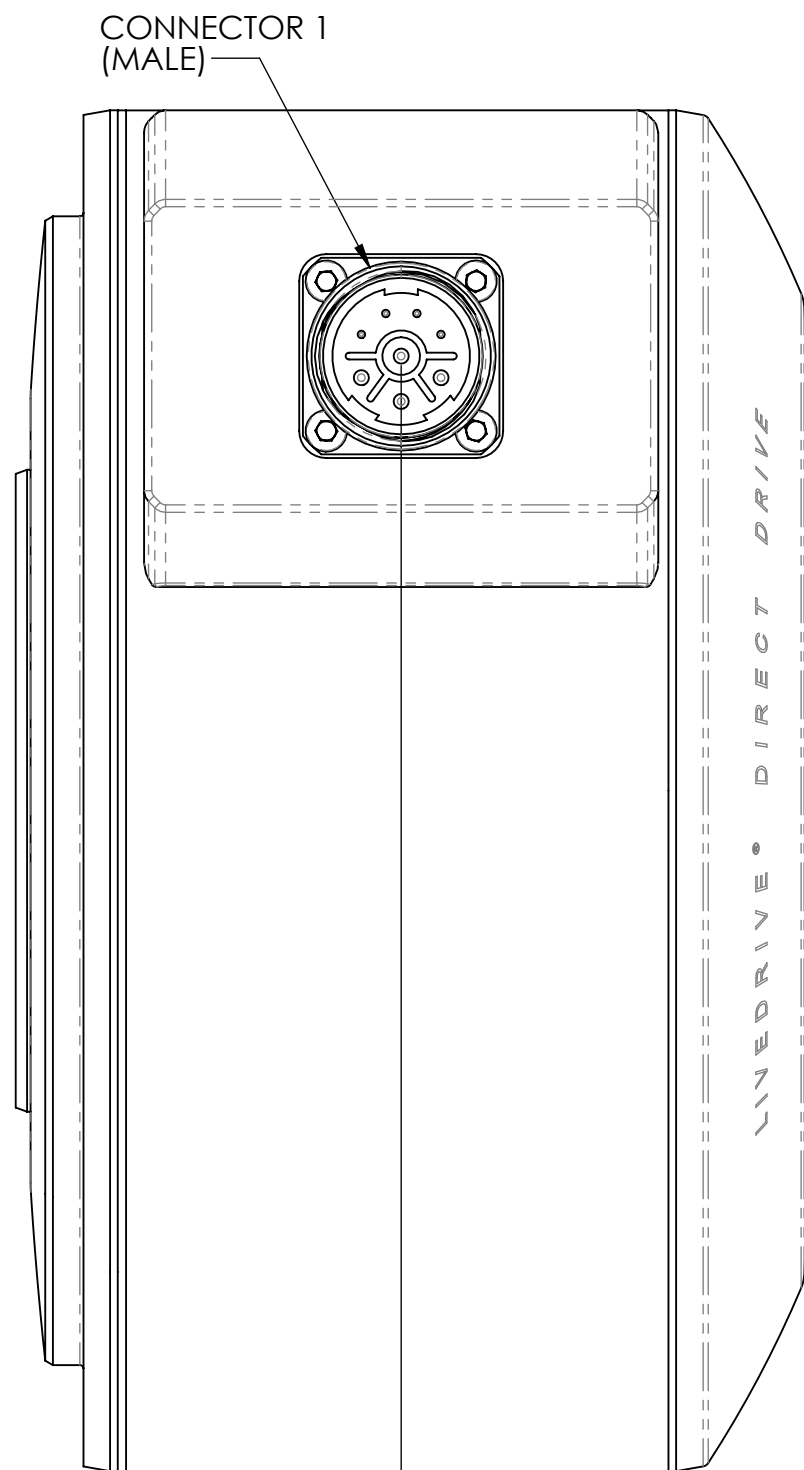
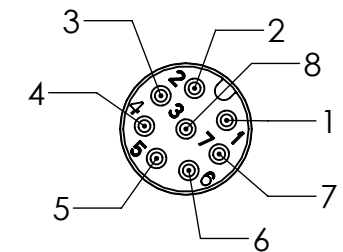
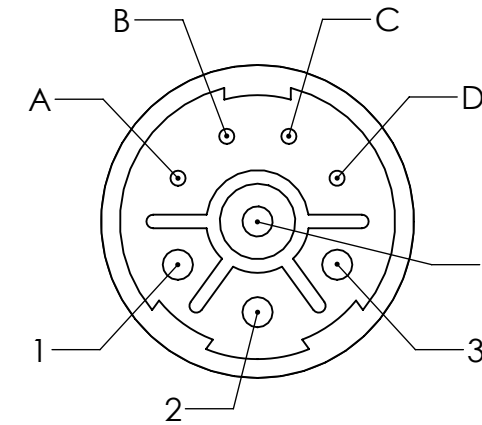
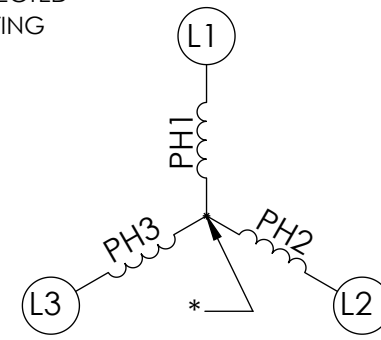
| | | | | |
|--|--|---|---|---|
| PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENESIS ROBOTICS AND MOTION TECHNOLOGIES, LP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENESIS ROBOTICS AND MOTION TECHNOLOGIES IS PROHIBITED. COPYRIGHT 2019-GENESIS ROBOTICS AND MOTION TECHNOLOGIES, LP. ALL RIGHTS RESERVED. | | MATERIAL: FINISH: DIMENSION UNITS: mm DIMENSIONS GIVEN FOR REFERENCE ONLY CONSULT GENESIS ROBOTICS AND MOTION TECHNOLOGIES FOR DETAILED TOLERANCE INFORMATION | 3RD ANGLE INTERPRET GEOMETRIC TOLERANCES AS PER ASME Y14.5-2009 MASS SEE TABLE SCALE 1:1 SIZE DWG NO. C 103282 REV A SHEET 1 of 3 | Genesis Robotics and Motion Technologies TITLE INTERFACE DRAWING, LDD 18XX ACTUATOR |
|--|--|---|---|---|

NOTES: (SHEET 2)

8. USE ONLY SUPPLIED POWER CABLES OUTLINED BELOW:
- STRAIGHT CONNECTOR PN:
 - 3 METERS LONG: 102750
 - 5 METERS LONG: 102751
 - 10 METERS LONG: 102752
 REFER TO CABLE INTERFACE DRAWING 103063-[REVISION] FOR FURTHER DETAIL.
 - 90° CONNECTOR PN:
 - 3 METERS LONG: 102753
 - 5 METERS LONG: 102754
 - 10 METERS LONG: 102755
 REFER TO CABLE INTERFACE DRAWING 103063-[REVISION] FOR FURTHER DETAIL.
9. USE ONLY SUPPLIED ENCODER CABLES OUTLINED BELOW:
- STRAIGHT CONNECTOR PN:
 - 3 METERS LONG: 102744
 - 5 METERS LONG: 102745
 - 10 METERS LONG: 102746
 REFER TO CABLE INTERFACE DRAWING 103064-[REVISION] FOR FURTHER DETAIL.
 - 90° CONNECTOR PN:
 - 3 METERS LONG: 102747
 - 5 METERS LONG: 102748
 - 10 METERS LONG: 102749
 REFER TO CABLE INTERFACE DRAWING 103064-[REVISION] FOR FURTHER DETAIL.
10. SEALING ONLY ASSURED WHEN BOTH POWER AND ENCODER CABLES ARE FULLY MATED. ENSURE CORRECT INSTALLATION PRIOR TO OPERATION.
11. PE MECHANICALLY FASTENED TO THE HOUSING OF THE MOTOR.
12. TEMPERATURE SENSORS ARE RTD's (PT1000 TYPE). AVAILABLE TEMPERATURE CHANNELS ARE OUTLINED IN PINOUT TABLES.
- [13] HIPERFACE DSL CONFIGURATIONS HAVE TEMPERATURE DATA ROUTED THROUGH THE ENCODER DATA STREAM.
14. ONE TEMPERATURE SENSOR MUST BE MONITORED AND CONNECTED TO A THERMAL SHUT DOWN AT ALL TIMES DURING OPERATION.
- [15] CONSTANT BETWEEN STACK LENGTHS

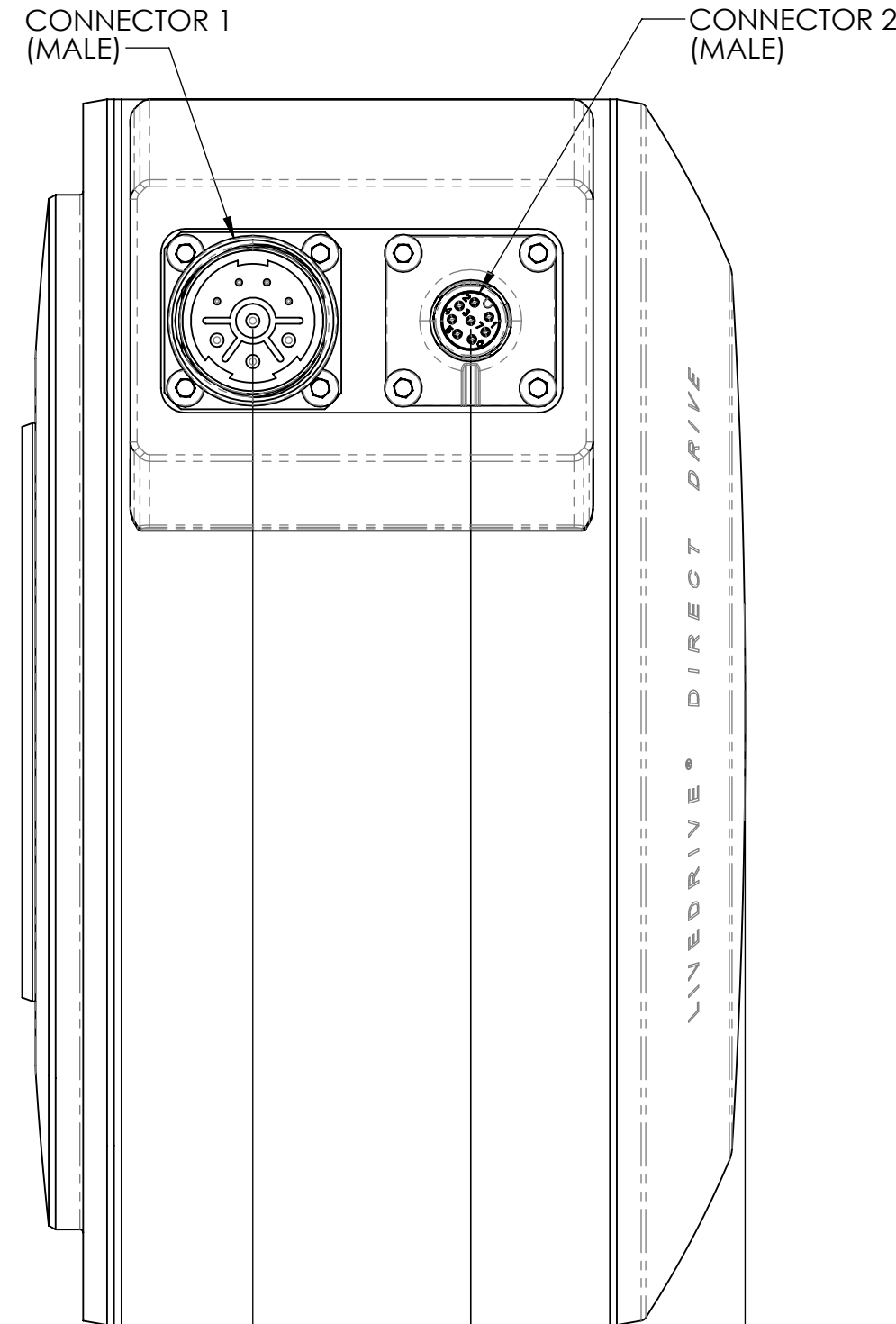
| CONNECTOR 1 PINOUT | | | | | | | | | CONNECTOR 2 PINOUT | | | | |
|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|-----------------------|------------------|------------------|------------------|
| PIN | LDD 18XXX-E17-BA | LDD 18XXX-E17-NA | LDD 18XXX-H17-BA | LDD 18XXX-H17-NA | LDD 18XXX-D17-BA | LDD 18XXX-D17-NA | LDD 18XXX-B17-BA | LDD 18XXX-B17-NA | PIN | LDD 18XXX-E17-XA | LDD 18XXX-H17-XA | LDD 18XXX-D17-XA | LDD 18XXX-B17-XA |
| 1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | 1 | SENSOR 0V | DATA- | N/C | N/C |
| 2 | PE | PE | PE | PE | PE | PE | PE | PE | 2 | SENSOR U _p | DATA+ | N/C | N/C |
| 3 | L2 | L2 | L2 | L2 | L2 | L2 | L2 | L2 | 3 | DATA+ | REFCOS | N/C | DATA+ |
| 4 | L3 | L3 | L3 | L3 | L3 | L3 | L3 | L3 | 4 | DATA- | COS+ | N/C | DATA- |
| A | BR+ | N/C | BR+ | N/C | BR+ | N/C | BR+ | N/C | 5 | 0V | GND | N/C | 0V |
| B | BR- | N/C | BR- | N/C | BR- | N/C | BR- | N/C | 6 | CLK- | REFSIN | N/C | CLK- |
| C | TH ₋₁ | TH ₋₁ | TH ₋₁ | TH ₋₁ | DSL+ [13] | DSL+ [13] | TH ₋₁ | TH ₋₁ | 7 | CLK+ | SIN+ | N/C | CLK+ |
| D | TH ₊₁ | TH ₊₁ | TH ₊₁ | TH ₊₁ | DSL- [13] | DSL- [13] | TH ₊₁ | TH ₊₁ | 8 | U _p | U _s | N/C | U _p |

N/C = NOT CONNECTED
*NEUTRAL IS FLOATING



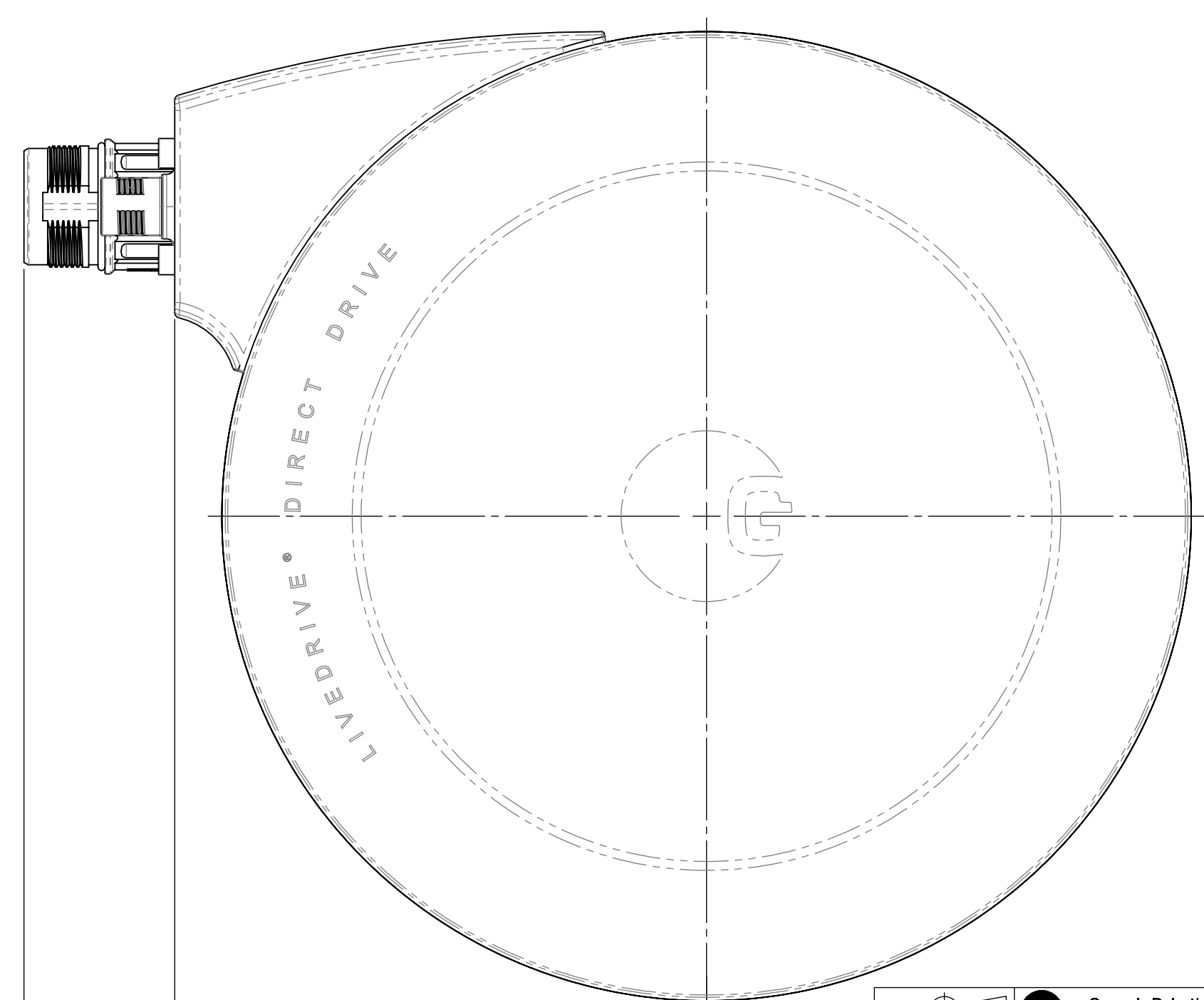
HIPERFACE DSL CONFIGURATIONS

56±1
[15]



BISS-C, HIPERFACE, AND ENDAT 2.2 CONFIGURATIONS

32±1 [15] 40±1 [15]

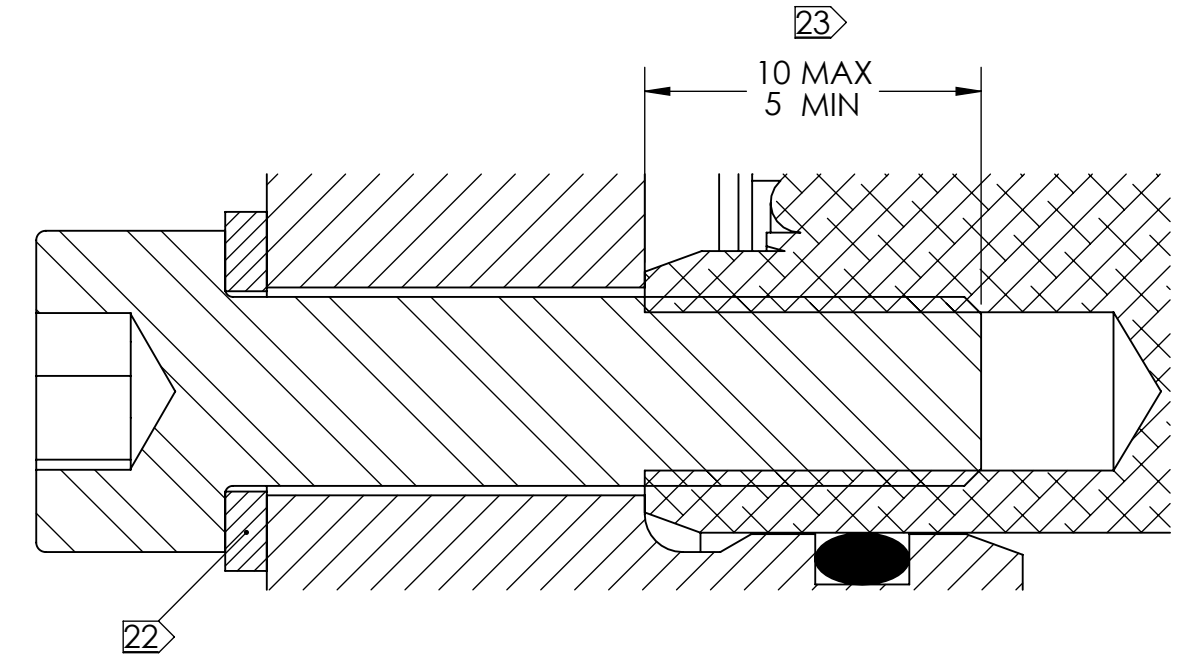
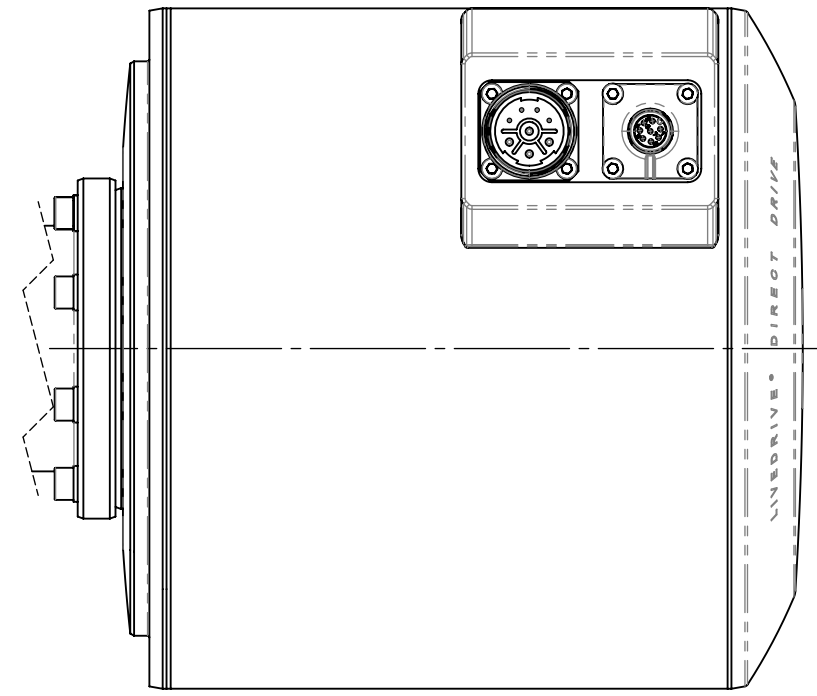
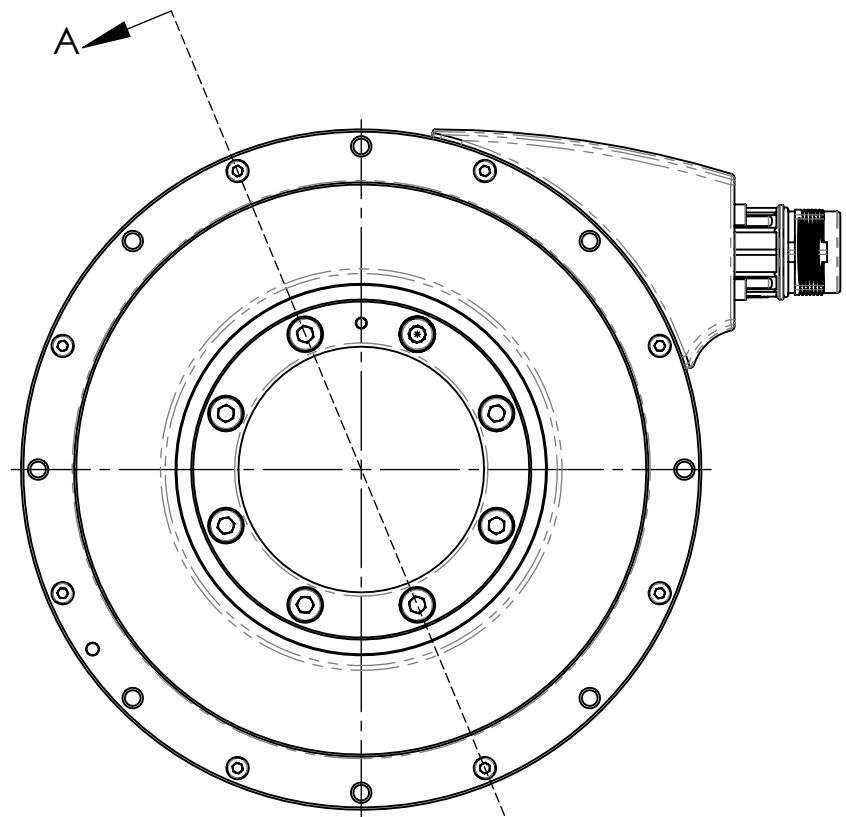


VIEW A

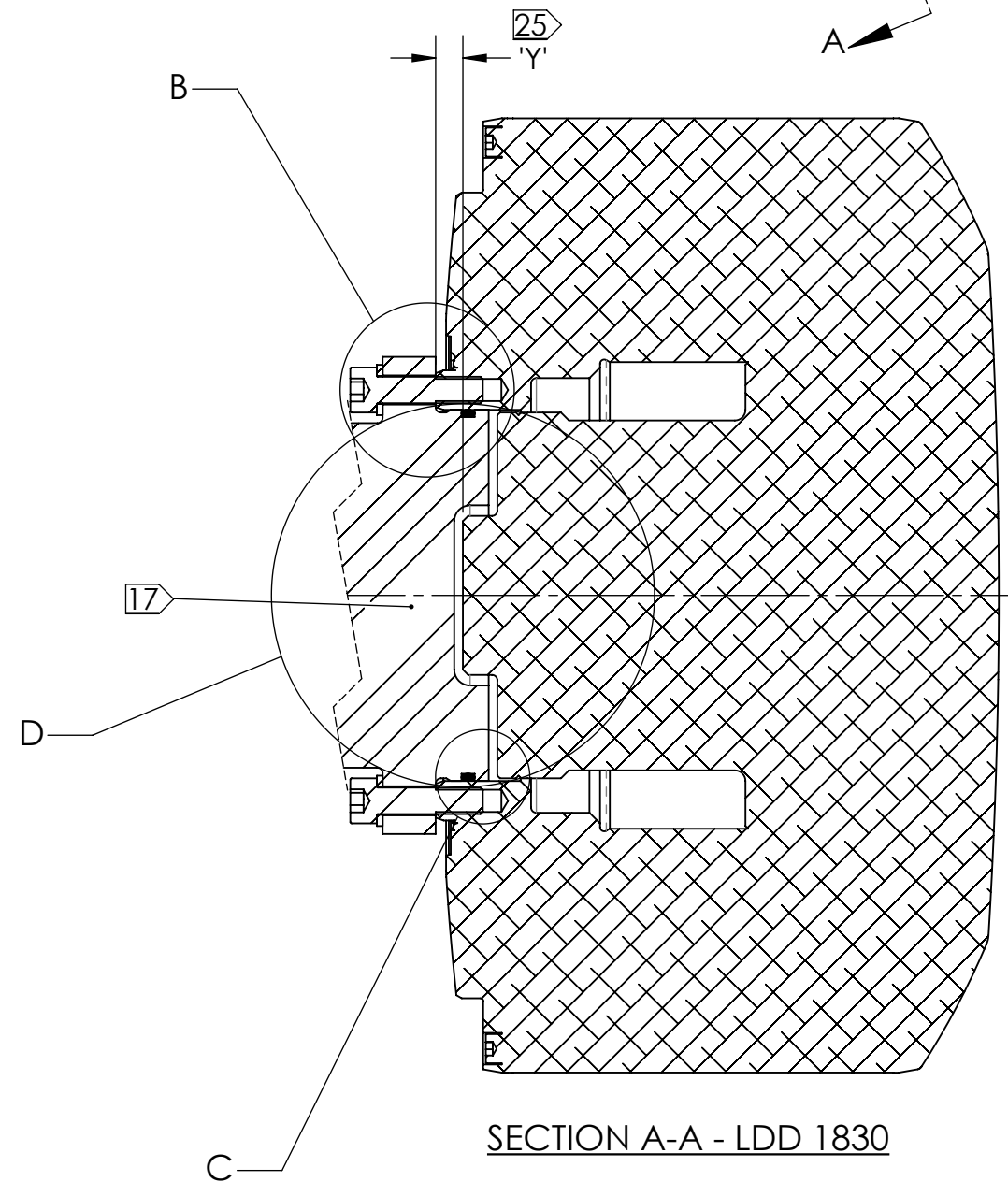
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127

| | | | |
|---|-------|--------------------------------------|--|
| 3RD ANGLE | | | Genesis Robotics and Motion Technologies |
| INTERPRET GEOMETRIC TOLERANCES AS PER ASME Y14.5-2009 | | TITLE | |
| SEE TABLE [7] | | INTERFACE DRAWING, LDD 18XX ACTUATOR | |
| DRE | SCALE | SIZE | DWG NO. |
| LSJ | 1:1 | C | 103282 |
| | | REV | SHEET |
| | | A | 2 of 3 |

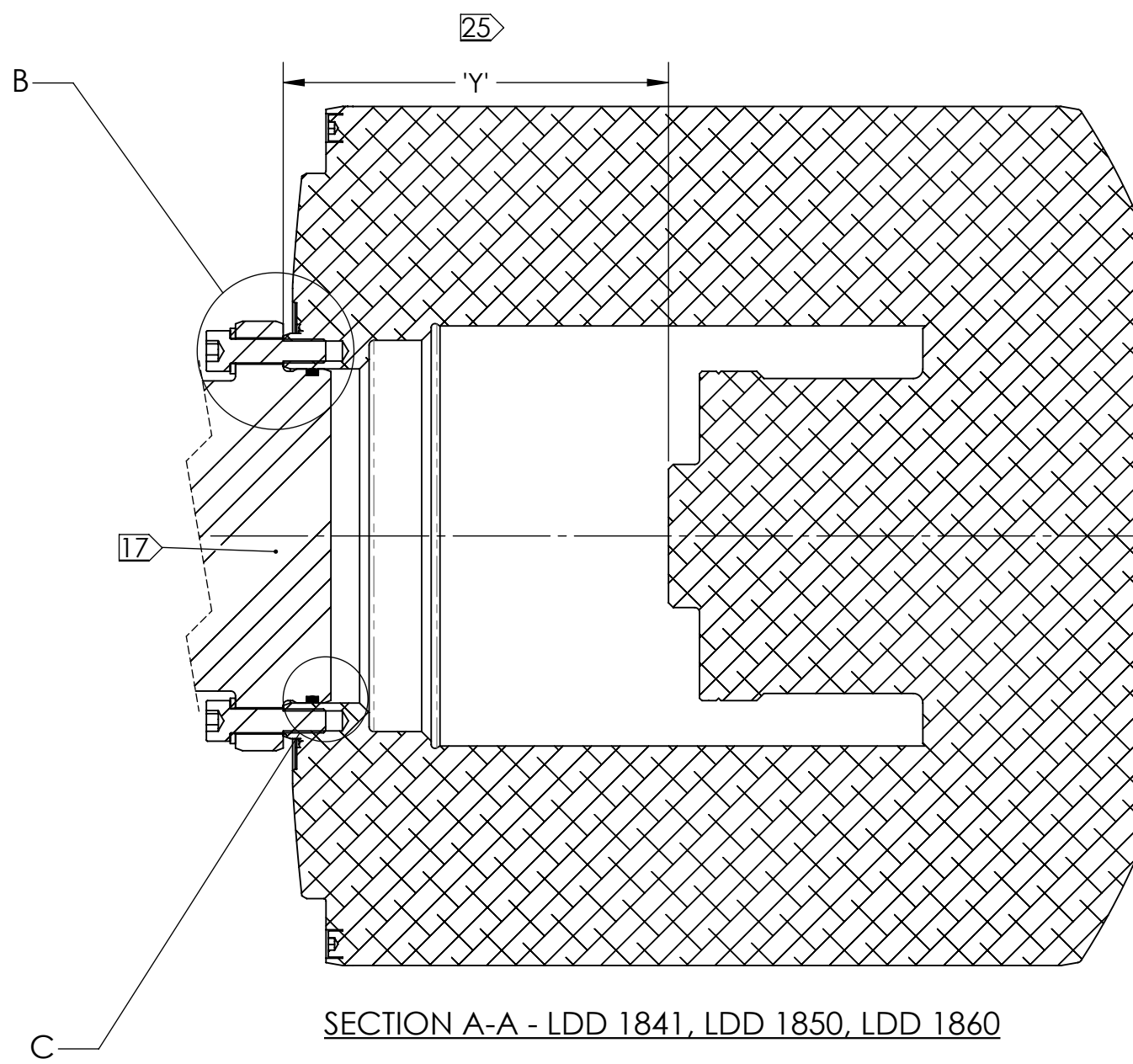
| CONFIGURATION TABLE | |
|---------------------|------|
| MODEL NUMBER | Y 25 |
| LDD 1830X-XXX-XX | 5.1 |
| LDD 1841X-XXX-XX | 30.3 |
| LDD 1850X-XXX-XX | 55.5 |
| LDD 1860X-XXX-XX | 80.7 |



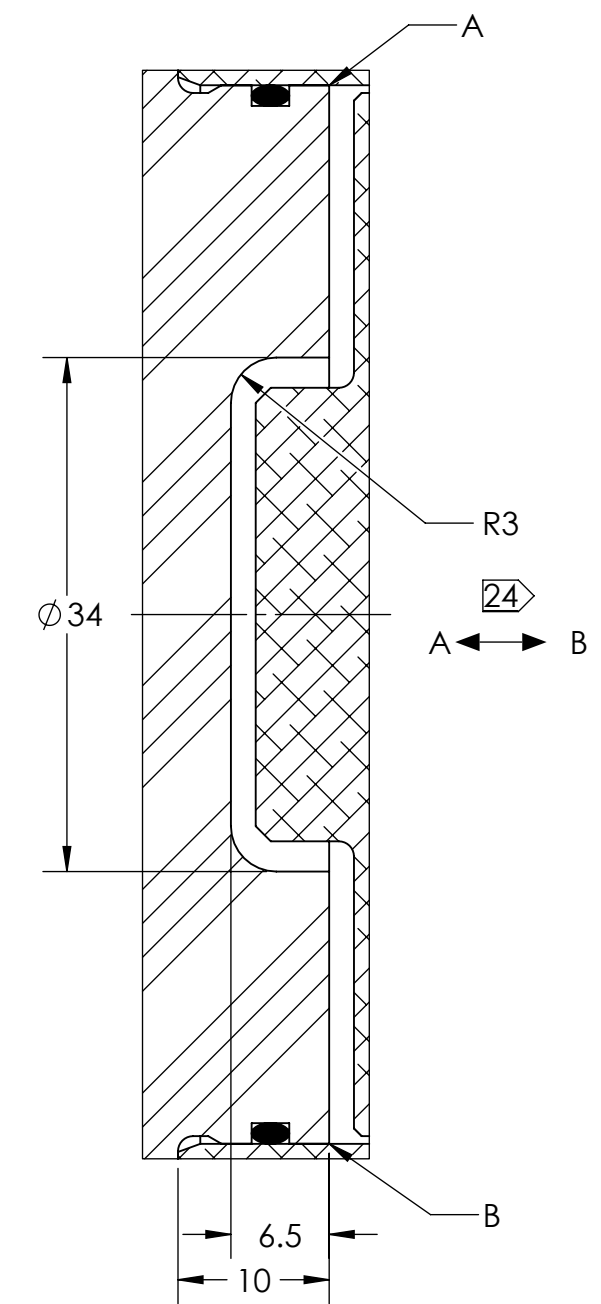
DETAIL B



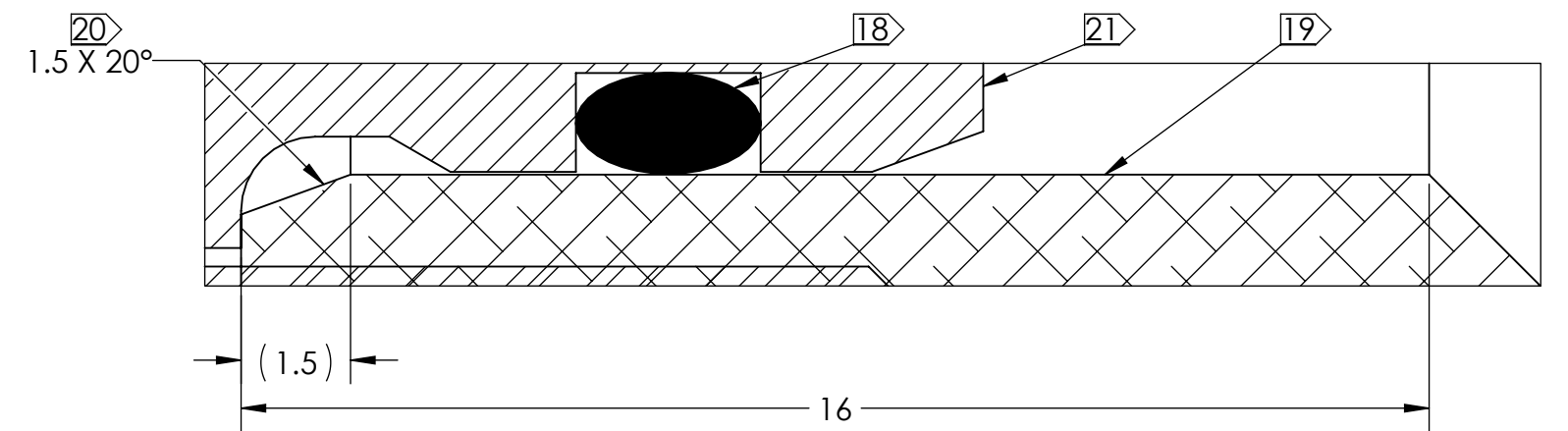
SECTION A-A - LDD 1830



SECTION A-A - LDD 1841, LDD 1850, LDD 1860



DETAIL D
REQUIRED FOR ALL LDD 1830 MODELS



DETAIL C

NOTES: (SHEET 3)

- 16. CONTACT GRMT FOR FURTHER MOUNTING RECOMMENDATIONS. ONLY CRITICAL DIMENSIONS PROVIDED.
- 17. HOLLOW INTERFACE ALLOWING WATER OR DUST INGRESS ACCEPTABLE. ACTUATOR IS INTERNALLY SEALED. NO MOTOR DRAINAGE PROVIDED. CUSTOMER MUST UNDERSTAND APPLICATION IMPLICATIONS IF INTERNAL CAVITY IS ALLOWED TO FILL.
- 18. SUGGESTED 2-038 O-RING. MATERIAL DEFINED BY ENVIRONMENTAL COMPATIBILITY. APPROPRIATE O-RING LUBRICANT RECOMMENDED. CONTACT GRMT FOR FURTHER RECOMMENDATIONS.
- 19. RECOMMENDED SEALING SURFACE.
- 20. DESIGNER MUST ENSURE APPROPRIATE CLEARANCE OF MOUNTING COMPONENTS.
- 21. NOTE UNDERCUT DETAIL REQUIREMENT FOR LDD 1830 MODELS.
- 22. USE OF WASHER MAY BE APPROPRIATE IN SOME CUSTOMER IMPLEMENTATIONS.
- 23. FULL THREAD ENGAGEMENT.
- 24. DESIGNER MUST ENSURE INTERFACE FALLS LEFT OF INDICATED BOUNDARY AT ALL POINTS.
- 25. DEPENDENT ON PART NUMBER, SEE CONFIGURATION TABLE. LDD 1830 AND LDD 1860 SHOWN.

SHAFT INTERFACE DETAILS

| | | | |
|---|-------|--|---------|
| 3RD ANGLE | | Genesis Robotics and Motion Technologies | |
| INTERPRET GEOMETRIC TOLERANCES AS PER ASME Y14.5-2009 | | TITLE | |
| SEE TABLE 7 | | INTERFACE DRAWING, LDD 18XX ACTUATOR | |
| DRE | SCALE | SIZE | DWG NO. |
| LSJ | 1:1 | C | 103282 |
| | | REV | SHEET |
| | | A | 3 of 3 |