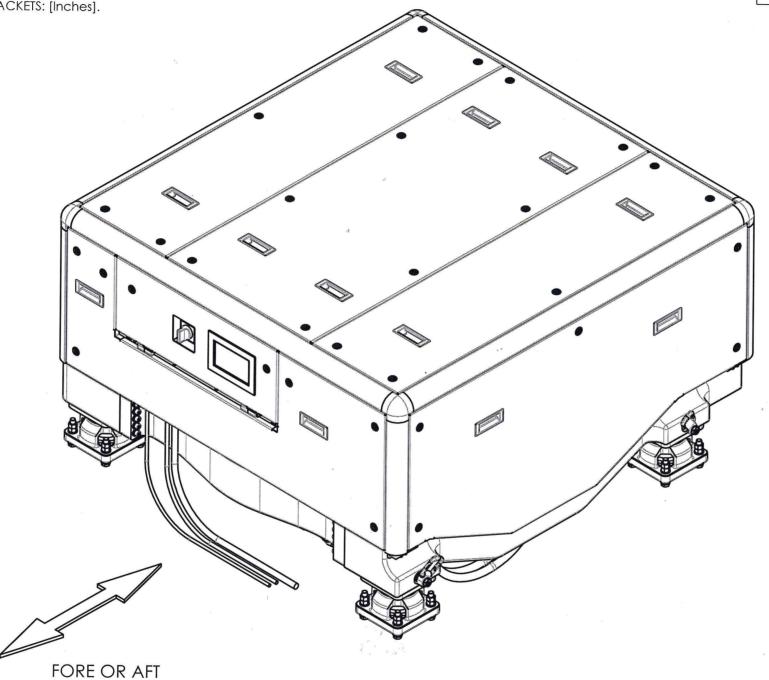
- 1. CONTACT VEEM IF GYRO INTENDED TO BE LOCATED MORE THAN 2m ABOVE DWL OR MORE THAN 70% OF LWL FORWARD OF TRANSOM.
- 2. DO NOT INSTALL GYRO WITH FRONT PANEL FACING PORT OR STARBOARD.
- 3. GYRO UNIT MAY BE INSTALLED WITH FRONT PANEL FACING FORWARD OR AFT.
- 4. REFER TO SHEET 6 FOR STRUCTURAL LOADS.
- 5. ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches].

WARNING!

GYRO-INDUCED LOADS ARE VERY LARGE. FULL STRUCTURAL ANALYSIS IS REQUIRED TO PROVIDE SUFFICIENT SUPPORT.



ISOMETRIC VIEW

12	ISSUED FOR PRODUCTION	K.SH	ksh	02,09,21	JW	Heg	03/09/21	PS	1/3	2/9/21	JM	111	3/9/21	DF	1	3/9	1
REV.	DESCRIPTION	DRN	INITL	DATE	ENG CHK	INITL	DATE	MAN APP	INITL	DATE	ELECT APP	INITL	DATE	SALES APP	INITL	DAT	re re
	REVISIONS																

/	PROPELESS AND SYROSTABILIZES MARINE	А
Ll	COPYRIGHT 2021 - ALL RIGHTS RESERVED BY VEEM LTD. THIS DRAWING HAS BEEN PRODUCED BY VEEM LTD. NO PART MAY BE COPIED, MODIFIED OR REPRODUCED IN	Г

AINT	MANNER WITHOUT FRIOR WRITEN APPROVAL OF VEEM LID - www.veem.com.au
	MANNER WITHOUT PRIOR WRITTEN APPROVAL OF VEEM LTD - www.veem.com.gu
PRC	ODUCED BY VEEM LTD. NO PART MAY BE COPIED, MODIFIED OR REPRODUCED IN
C	COPYRIGHT 2021 - ALL RIGHTS RESERVED BY VEEM LTD. THIS DRAWING HAS BEEN

DRAFTING TO 1100.101 AND 1100.201	DESCRIPTION [DRAWING	G			
TOLERANCES N ACCORDANCE WITH -	0400-DT-1	000.0)1			REV 2
MACHINE SURFACES	MATERIAL SEE BOM			PROCES MAC		NG
- BURR ALL SHARP EDGES	SHEET 01 OF 12	1:12	0	-	SHE	ET SIZE

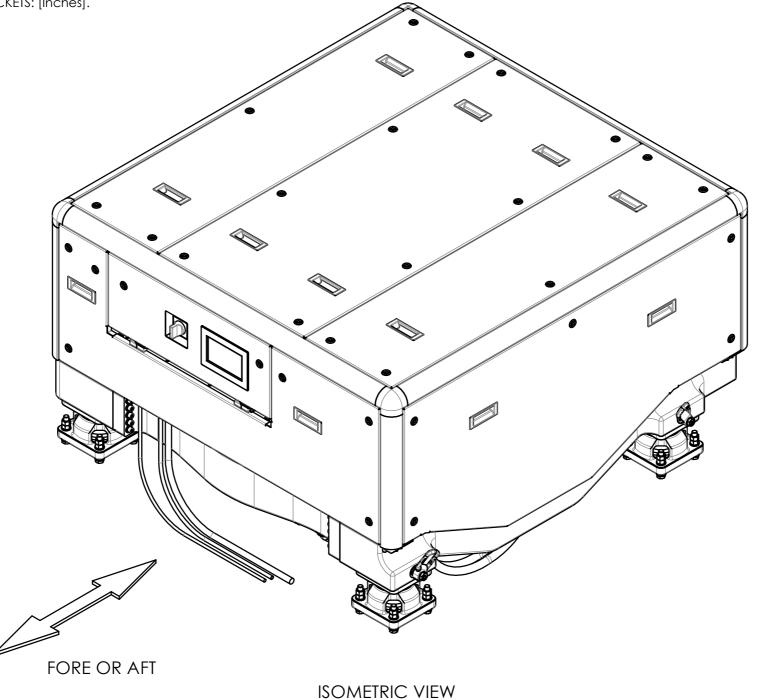
VG52SD & VG70SD
PART/ASSEMBLY NO MASS
0400-AM-1000-6 INSTALL SEE SHEET 2

TOTAL QTY / GYRO

- 1. CONTACT VEEM IF GYRO INTENDED TO BE LOCATED MORE THAN 2m ABOVE DWL OR MORE THAN 70% OF LWL FORWARD OF TRANSOM.
- 2. DO NOT INSTALL GYRO WITH FRONT PANEL FACING PORT OR STARBOARD.
- 3. GYRO UNIT MAY BE INSTALLED WITH FRONT PANEL FACING FORWARD OR AFT.
- 4. REFER TO SHEET 6 FOR STRUCTURAL LOADS.
- 5. ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches].



GYRO-INDUCED LOADS ARE VERY LARGE.
FULL STRUCTURAL ANALYSIS IS REQUIRED
TO PROVIDE SUFFICIENT SUPPORT.



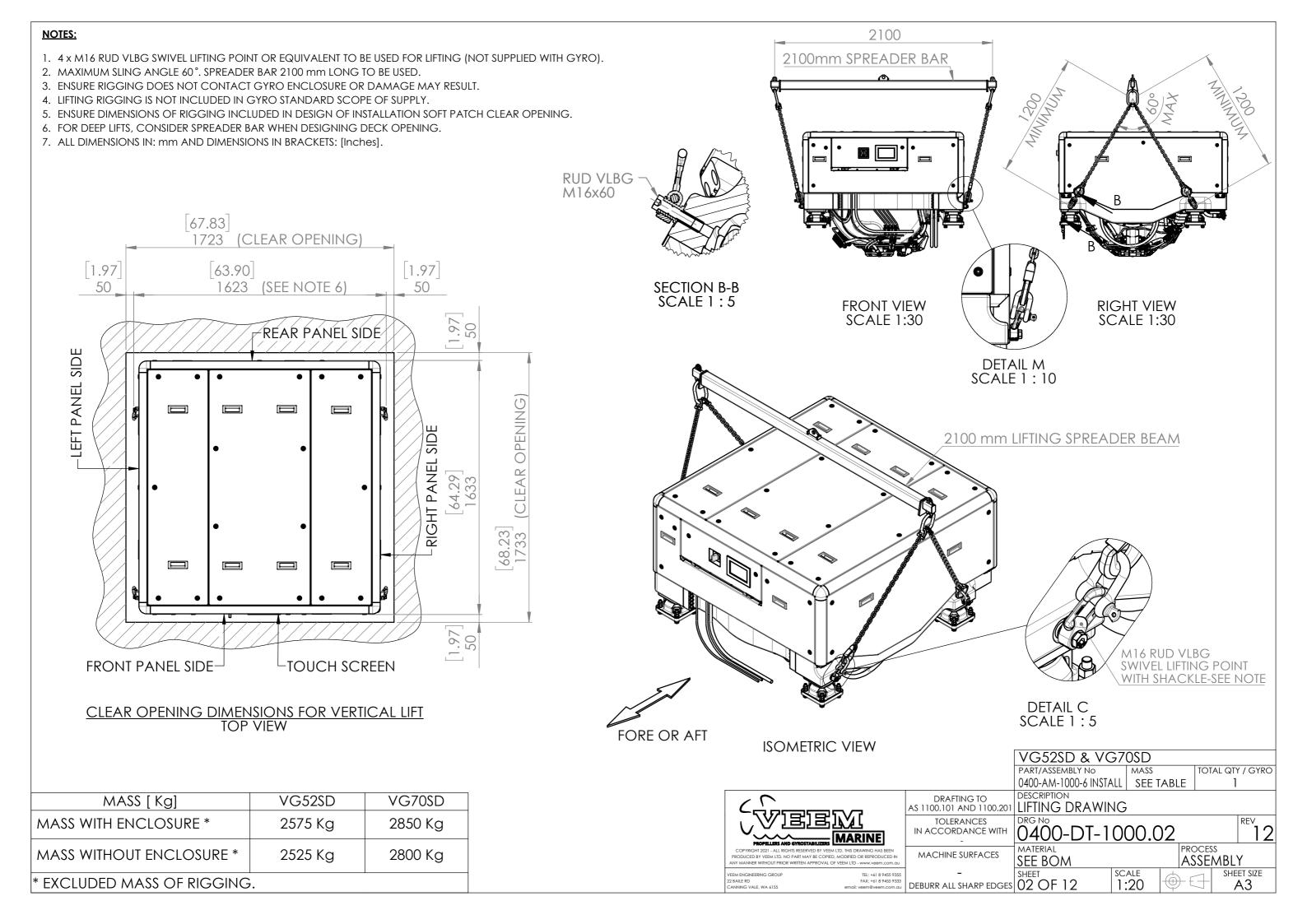
12	ISSUED FOR PRODUCTION	K.SH			JW			PS			JM			DF		
REV.	DESCRIPTION	DRN	INITL	DATE	ENG CHK	INITL	DATE	MAN APP	INITL	DATE	ELECT APP	INITL	DATE	SALES APP	INITL	DATE
	DEVISIONS															

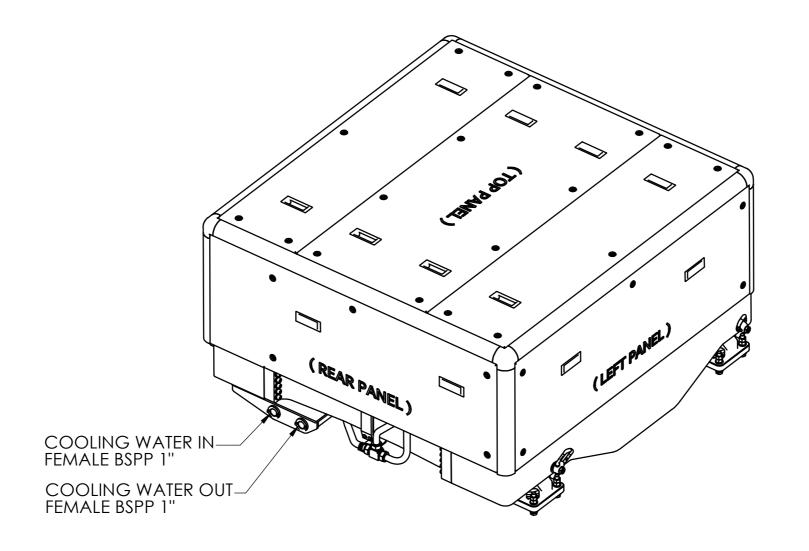
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SAILE RD	FAX: +61 8 9455 933
NNING VALE, WA 6155	email: veem@veem.com.a

VG52SD & VG70SD	
PART/ASSEMBLY NO MASS TOTAL C	QTY / GYRO
0400-AM-1000-6 INSTALL SEE SHEET 2	1
DRAFTING TO DESCRIPTION AS 1100.101 AND 1100.201 INSTALLATION DRAWING	
TOLERANCES DRG No 0400-DT-1000.01	REV 12
MACHINE SURFACES MATERIAL PROCESS MACHIN	VING
	HEET SIZE
DEBURR ALL SHARP EDGES 01 OF 12 1:12	Α3





COOLING WATER TEMP °C [°F]	FLOW RATE (LITRES/min)	PRESSURE DROP (bar)	DISCHARGE TEMP °C [°F]				
<22	30	0.3	41				
22 - 27	40	0.5	41				
27 - 32	50	0.75	43				
32 - 35	60	1.0	45				
35 - 38	75	1.5	46				
DATA FOR MAX LOADING CONDITIONS AND AT 55°C AIR							
COOLING WATER HEAT LOAD 43kW MAXIMUM. 29Kw TYPICAL MINIMUM TEMP 12°C. MINIMUM FLOW RATE 10L/min.							

AIR HANDLING TO CONSIDER COMPARTMENT HEAT LOADS AS BELOW							
COMP. TEMP. (°C)	HEAT (W)						
20	1200						
30	900						
40	600						
50	300						
60	0						

COOLING WATER OPTIONS:

- RAW SEAWATER COOLING WATER MAY BE USED WITH # 16-20 MESH FILTER.
- CLOSED CIRCUIT INTER-COOLER SYSTEM RECOMMENDED.
- COOLANT TO BE DEMINERALISED WATER WITH APPROPRIATE DOSE OF CORROSION INHIBITOR.



TOLERANCES IN ACCORDANCE WITH

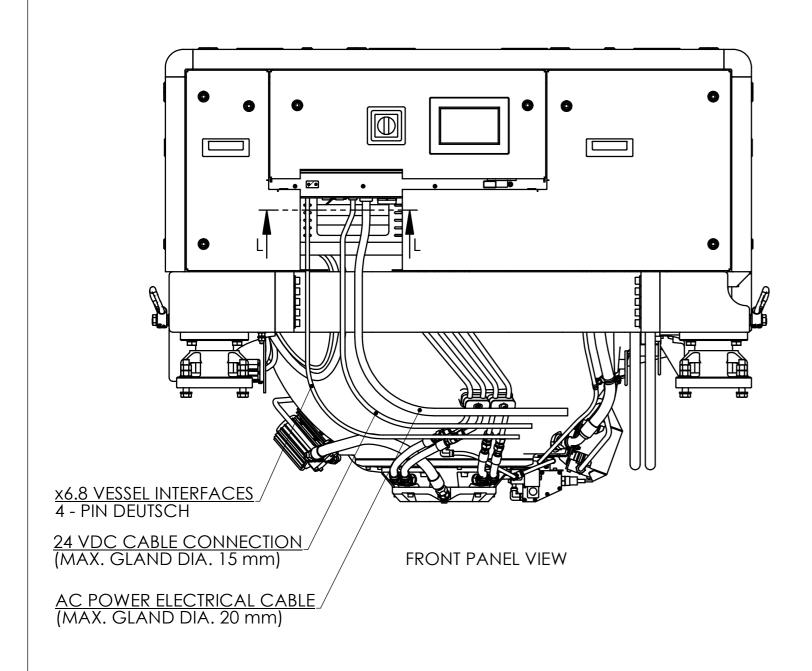
MACHINE SURFACES

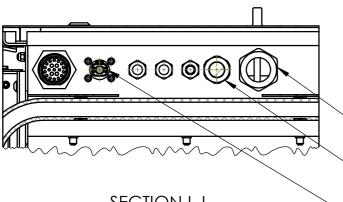
- SHEET O3 OF 12

VG52SD & VG70SD PART/ASSEMBLY No TOTAL QTY / GYRO 0400-AM-1000-6 INSTALL SEE SHEET 2 DRAFTING TO AS 1100.101 AND 1100.201 COOLING INTERFACE CONNECTIONS DESCRIPTION

0400-DT-1000.03

PROCESS ASSEMBLY SEE BOM SCALE SHEET SIZE Α3





AC POWER ELECTRICAL CABLE (MAX. GLAND DIA. 20 mm)

24 VDC CABLE CONNECTION (MAX. GLAND DIA. 15 mm)

SECTION L-L x6.8 VESSEL INTERFACES **SCALE 1:5** 4 - PIN DEUTSCH

POWER SUPPLY REQUIREMENTS

THREE PHASE SUPPLY (3Ø) 50/60Hz

VOLTAGE:		400V**	415V	440V	480V
PHASE CURRENT: BEARINGS RUN-IN	21 kVA	30.0 Arms	29.4 Arms	28.6 Arms	26.1 Arms
PHASE CURRENT: NEW BEARINGS ***	32 kVA	46 Arms	45 Arms	43 Arms	40 Arms

NOTES:

PHASE CURRENTS BASED ON PF OF 0.80, ACTUAL PF DEPENDS ON THE VESSEL POWER DISTRIBUTION DESIGN. TYPICAL PF AT FACTORY IS 0.92. MOTOR DRIVE EFFICINCY OF 98% HAS BEEN CONSIDERED.

DC SUPPLY:

24V, 23A (MAX 18Ah UNINTERRUPTED SUPPLY OF 24V DC REQUIRED IN THE EVENT OF LOSS OF AC POWÈR)

ELECTRICAL & DATA CABLES TERMINATED THROUGH GLANDS IN CABINET, SEE SHEET 12

CABLING AND BREAKERS TO BE SIZED ACCORDING TO SHEET 12

HARMONICS:

OVERALL POWER DISTRIBUTION & HARMONIC VOLTAGE DISTORTION MANAGEMENT IS THE RESPONSIBILITY OF THE POWER DISTRIBUTION INTEGRATOR. SEE VEEM DOCUMENT 0400-SE-0001 FOR GYRO STABILISER HARMONIC CURRENT DISTORTION SPECTRUM MEASURED AT FACTORY FOR VG52SD & VG70SD

** MINIMUM OF 398 VRMS MUST BE PROVIDED AND MEASURED AT THE GYRO. LOWER VOLTAGE AT GYRO MAY RESULT IN LESS THAN RATED RPM BEING ACHIEVED.

*** THE VEEM GYRO IS DELIVERED WITH BEARINGS RUN-IN AT FACTORY. THE POWER SUPPLY REQUIRED IN THIS CONDITION IS AS DESCRIBED IN THE ROW IN TABLE ABOVE MARKED "PHASE CURRENT (BEARINGS RUN-IN)".

AFTER BEARINGS ARE REPLACED IN THE FIELD THERE WILL BE A RUN-IN PERIOD DURING WHICH THE RUNNING RESISTANCE OF THE NEW BEARINGS WILL BE HIGHER. THE RUN-IN PERIOD DEPENDS UPON THE LEVEL OF LOADING OF THE BEARINGS DURING THAT PERIOD AND CAN VARY WIDELY (50 HOURS UNDER HEAVY LOADING, UP TO HUNDREDS OF HOURS UNDER LIGHT LOADING CONDITIONS).

IF THE POWER SUPPLY IS MAINTAINED AT THE SAME LEVEL AS FOR RUN-IN BEARINGS, A PERIOD OF LOWER ACHIEVABLE RPM IS EXPECTED. OPTIONALLY, IF PREFERRED, IN ORDER TO OVERCOME THE ADDITIONAL RESISTANCE DURING THIS PERIOD (AND THEREFORE MAINTAIN RATED RPM), ADDITIONAL POWER IS REQUIRED AS DESCRIBED IN THE ROW IN THE TABLE ABOVE MARKED "PHASE CURRENT (NEW BEARINGS)".



DRAFTING TO AS 1100.101 AND 1100.201 ELECTRICAL POWER CONNECTIONS

TOLERANCES IN ACCORDANCE WITH

PART/ASSEMBLY No

DESCRIPTION

MACHINE SURFACES DEBURR ALL SHARP EDGES 04 OF 12

0400-DT-1000.04 MATERIAL

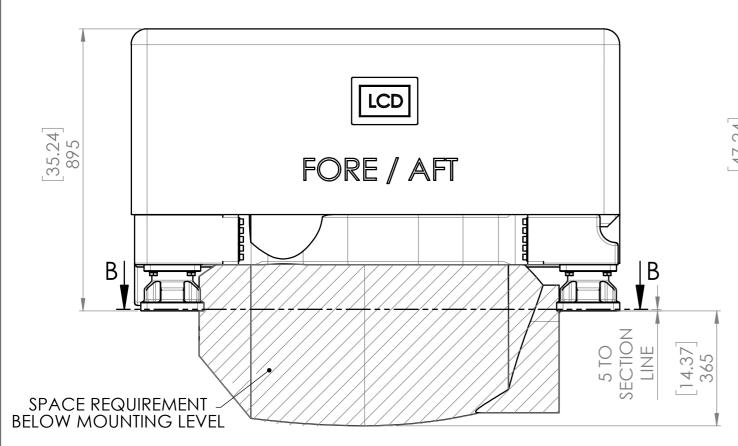
0400-AM-1000-6 INSTALL | SEE SHEET 2

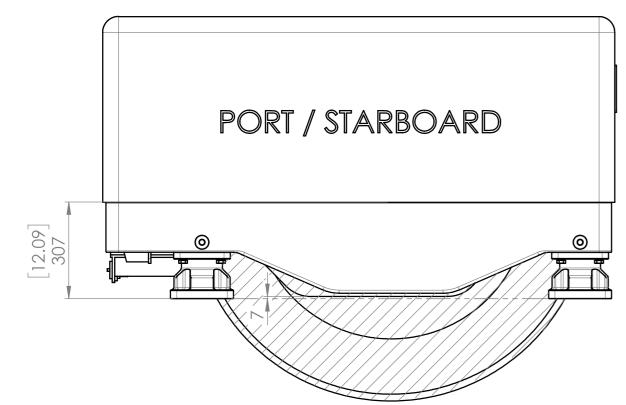
VG52SD & VG70SD

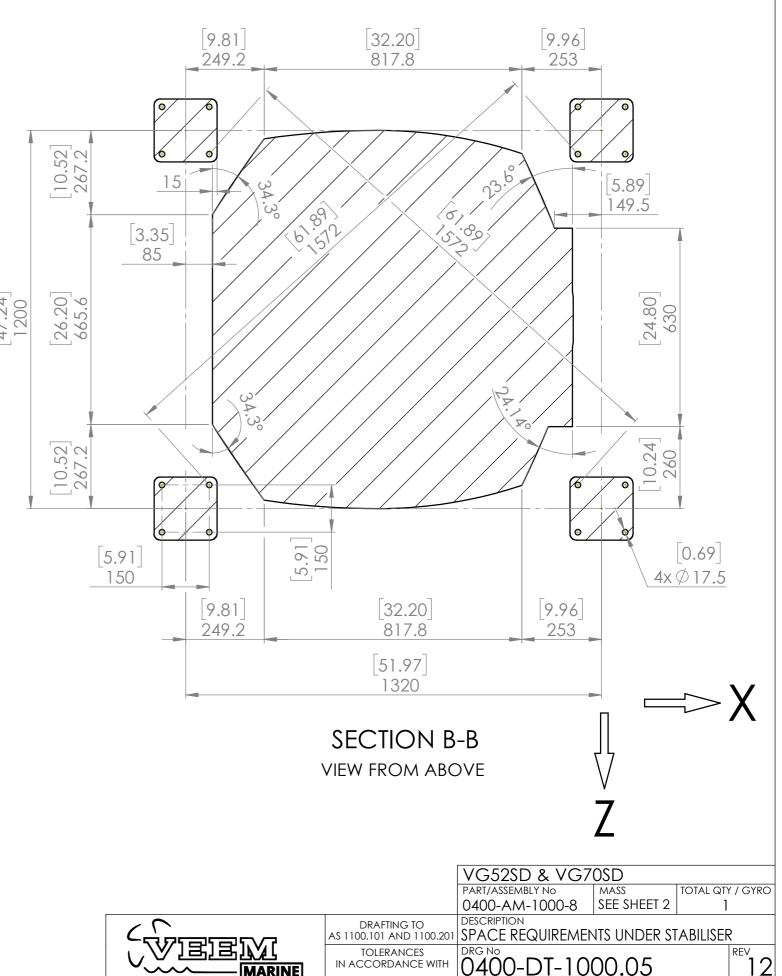
PROCESS SEE BOM **ASSEMBLY** SCALE SHEET SIZE Α3

TOTAL QTY / GYRO

- THE HATCHED AREA IS REQUIRED FOR SAFE OPERATION.
- MOUNTING SURFACES AT FOUR LOCATIONS TO BE LEVEL WITHIN 1mm ACROSS EACH MOUNT AND WITHIN 3mm ACROSS THE WHOLE FOOTPRINT.
- MOUNTING HOLE PATTERN TO BE DRILLED WITHIN +/-0.5mm
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]
- IT IS RECOMMENDED THAT THE STRUCTURAL INTERFACE DESIGNER MAKE PROVISION FOR ACCESS BELOW THE GYRO BY A TECHNICIAN. THIS WILL SAVE SIGNIFICANT TIME IN EXECUTING SOME SERVICE AND MAINTENANCE TASKS.







MACHINE SURFACES

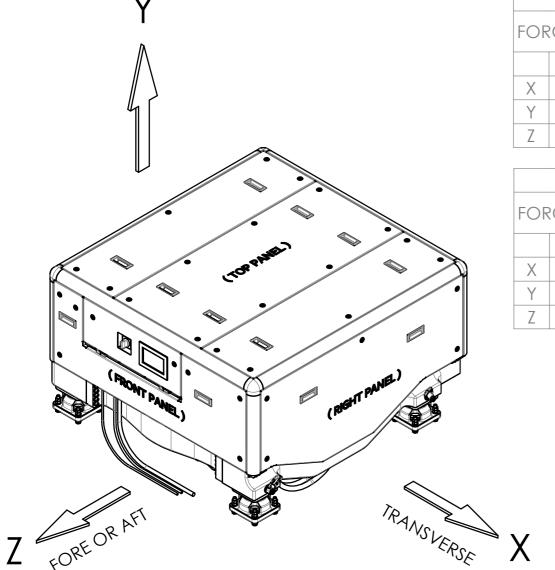
- SHEET 05 OF 12

SEE BOM

SCALE 1:12

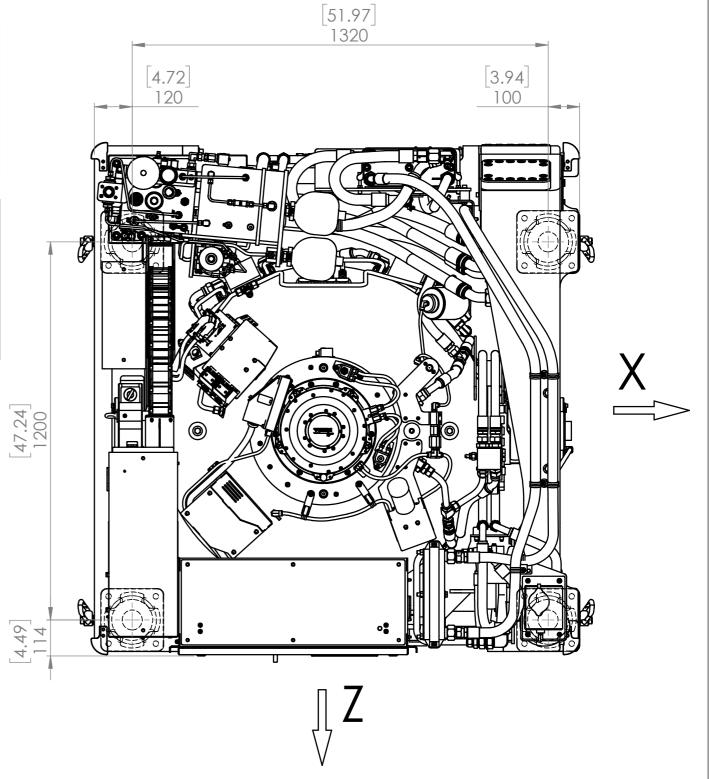
PROCESS
ASSEMBLY
SHEET SIZE

A3



VG52SD			
FORCES ON EACH MOUNT			
	MAX	MIN	
Χ	17.1kN	-17.1kN	
Υ	70.0kN	-83.5kN	
Z	18.0kN	-18.0kN	

VG70SD				
FORCES ON EACH MOUNT				
	MAX	MIN		
Χ	24.0kN	-24.0kN		
Υ	78.5kN	-93.3kN		
Z	22.3kN	-22.3kN		



WARNING!

ISOMETRIC VIEW

GYRO-INDUCED LOADS ARE VERY LARGE. FULL STRUCTURAL ANALYSIS IS REQUIRED TO PROVIDE SUFFICIENT SUPPORT.

NOTES:

- FY (VERTICAL) LOADS SHALL BE CONSIDERED TO FULLY REVERSE AT THE VESSELS NATURAL ROLLING PERIOD.
- FX AND FZ (HORIZONTAL) LOADS SHALL BE CONSIDERED TO FULLY REVERSE AT HALF THE VESSELS NATURAL ROLLING PERIOD.
- EACH LOAD SHALL BE CONSIDERED TO BE INDEPENDENT. ONEROUS LOAD COMBINATIONS SHALL BE CONSIDERED.
- TO BE READ IN CONJUNCTION WITH TECHNICAL NOTE 1404.
- LOADS ARE SAME FOR CW OR CCW ROTATION.
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]



PART/ASSEMBLY NO MASS 0400-AM-1000-6 INSTALL SEE SHEET 2 DRAFTING TO AS 1100.101 AND 1100.201 FORCES ON MOUNTS TOLERANCES IN ACCORDANCE WITH 0400-DT-1000.06 MACHINE SURFACES SEE BOM

VG52SD & VG70SD

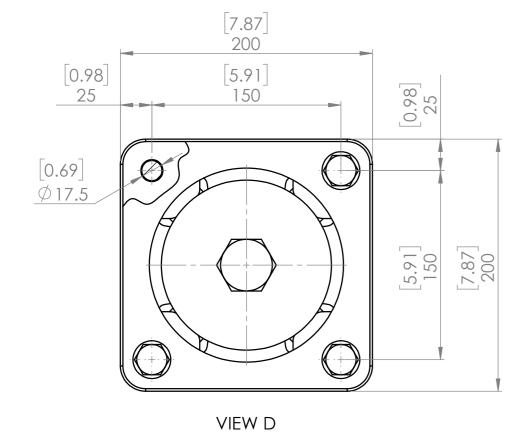
DEBURR ALL SHARP EDGES 06 OF 12

PROCESS ASSEMBLY SHEET SIZE SCALE Α3

TOTAL QTY / GYRO

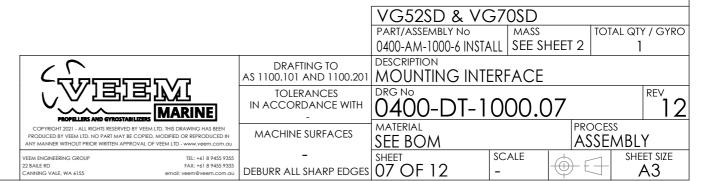
M16 HEX LOCK NUT HEX NUT FLAT WASHER DURALAC ANTI-GALVANIC PASTE RECOMMENDED FLAT WASHER (NOT REQUIRED FOR STEEL SHIPS STRUCTURE). HEX BOLT

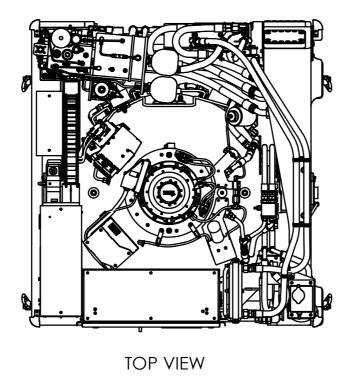
VIEW OF VIBRATION MOUNT

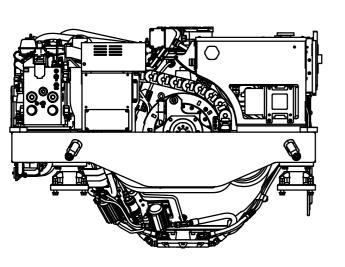


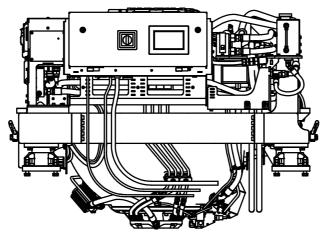
NOTES:

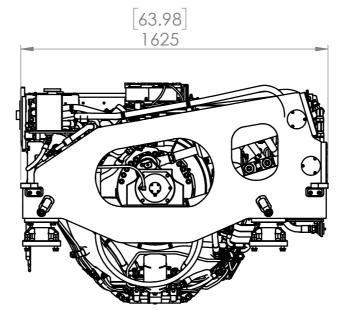
- MIN PRE-LOAD 65kN±10% ON MOUNT BOLTS.
- ENGINEERING OF TIGHTENING METHOD IS THE RESPONSIBILITY OF THE INSTALLER.
- M16 GRADE 8.8, SS A4-80 OR EQUIVALENT RECOMMENDED.
- TRAINED TECHNICIAN WITH MEANS TO MEASURE PRE-LOAD ACHIEVED WITHIN ±10% REQUIRED.
- IF CARBON STEEL FASTENERS USED, PROTECTIVE COATING REQUIRED TO PREVENT CORROSION.
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches].

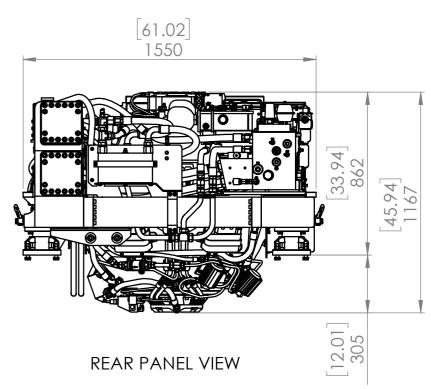












LEFT PANEL VIEW FRONT PANEL VIEW

RIGHT PANEL VIEW

ELEVATIONS WITH ENCLOSURE REMOVED

NOTES:

- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches].
- ENCLOSURE PANELS REQUIRED TO PROTECT PERSONNEL FROM INJURY.
- SEE OPERATING MANUAL FOR NOTES ON REMOVING ENCLOSURE PANELS AT OWNERS RISK.



PART/ASSEMBLY NO MASS TOTAL GO 0400-AM-1000-6 INSTALL SEE SHEET 2

DRAFTING TO DESCRIPTION SELEVATIONS WITHOUT ENCLOSURE TOLERANCES

IN ACCORDANCE WITH

MACHINE SURFACES

0400-DT-1000.08

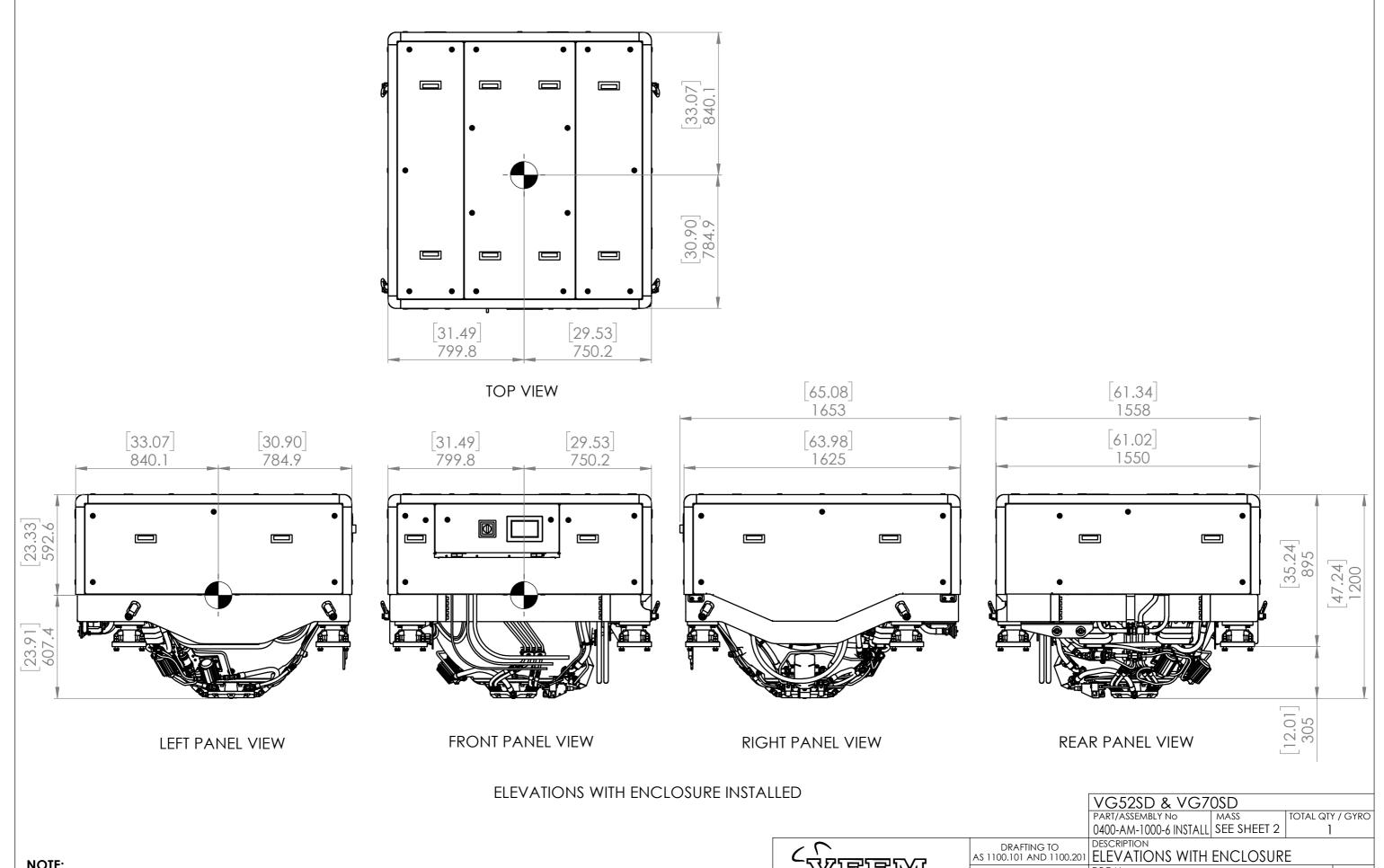
SEE BOM

VG52SD & VG70SD

PROCESS ASSEMBLY SHEET SIZE
A3

TOTAL QTY / GYRO

SCALE 1:20 - SHEET O8 OF 12



- - ⊕- LOCATION OF CENTER OF GRAVITY.
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]



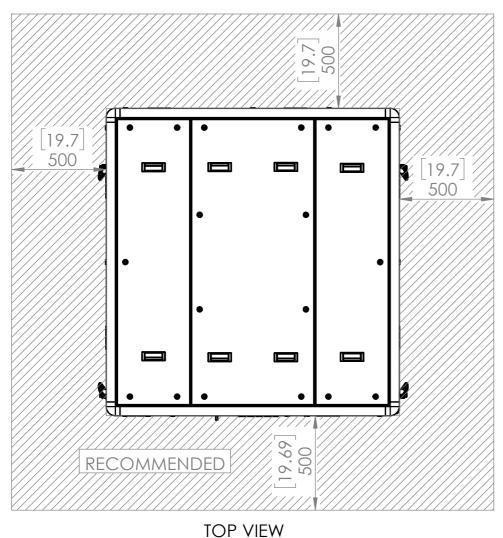
TOLERANCES IN ACCORDANCE WITH

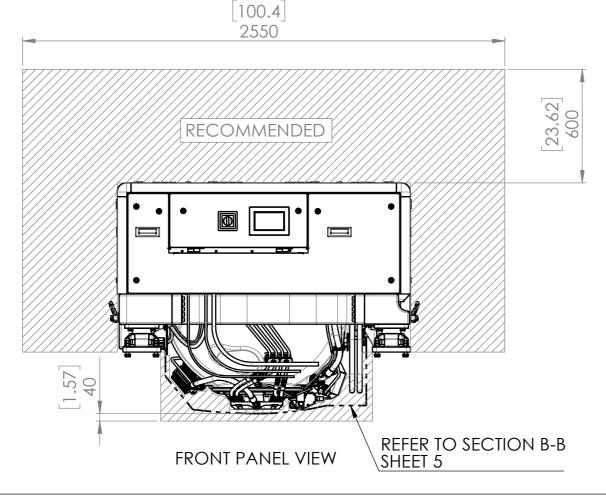
MACHINE SURFACES

120400-DT-1000.09 PROCESS
ASSEMBLY
SHEET SIZE
A3

MACHINE SURFACES
SEE BOM
SHEET
DEBURR ALL SHARP EDGES 09 OF 12

SCALE 1:20



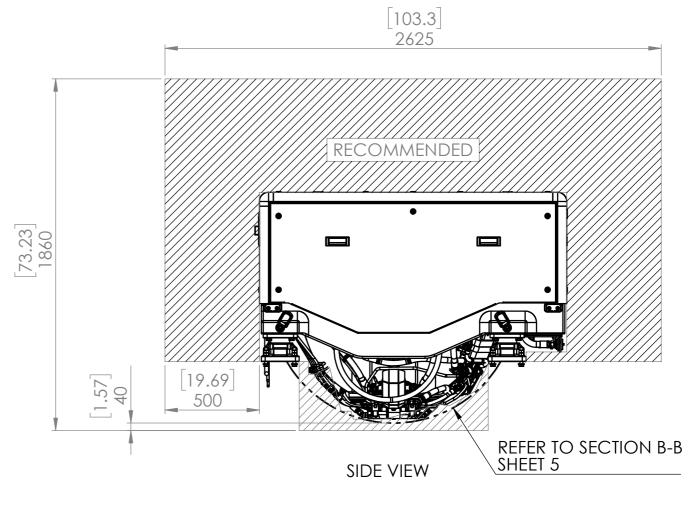


- ACCESS TO NUTS UNDER VIBRATION MOUNTS IS REQUIRED EXCEPT WHERE BONDED SADDLE IS USED, REFER TO SHEETS 5 & 7
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]

IMPORTANT:

IF THE MINIMUM MAINTENANCE ENVELOPE IS NOT PROVIDED, SOME MAINTENANCE AND OVER-HAUL ACTIVITIES MAY NOT BE POSSIBLE TO COMPLETE WITHOUT REMOVING THE GYRO FROM THE VESSEL.

REFER TO THE WARRANTY STATEMENT





DRAFTING TO AS 1100.101 AND 1100.201 RECOMMENDED SERVICE ACCESS SPACE TOLERANCES IN ACCORDANCE WITH

MACHINE SURFACES

0400-DT-1000.10

0400-AM-1000-6 INSTALL SEE SHEET 2

VG52SD & VG70SD

DESCRIPTION

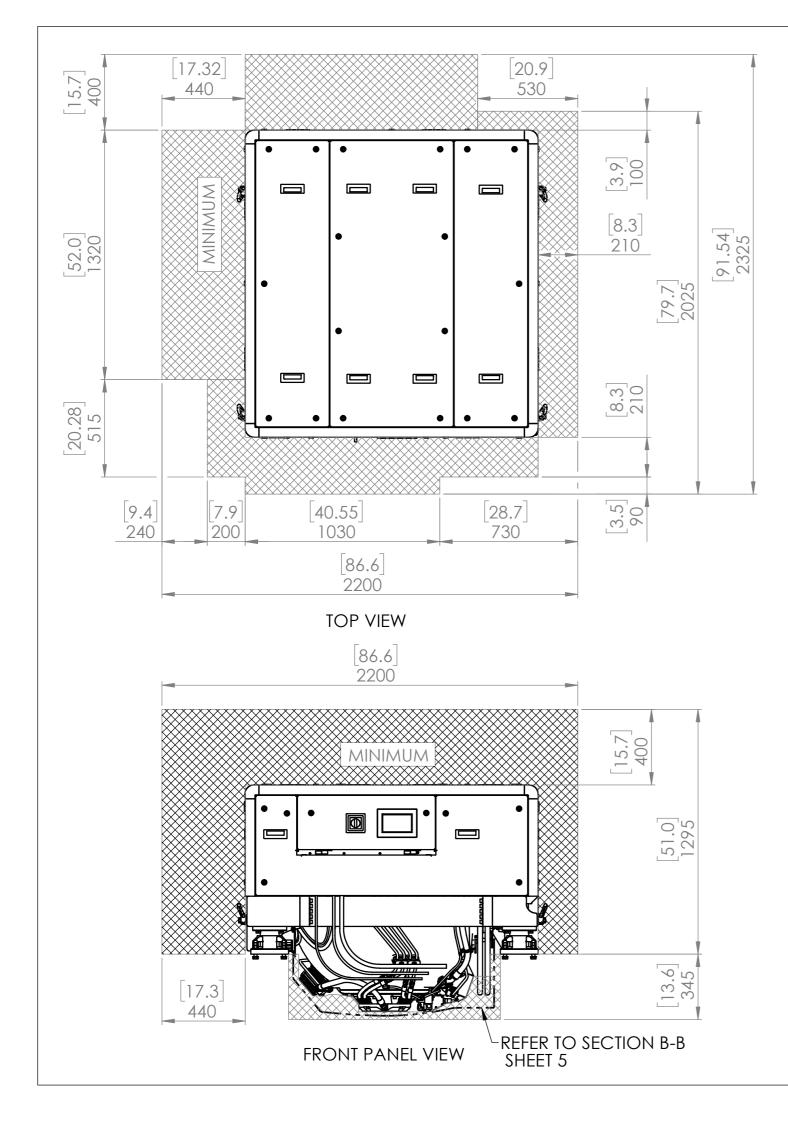
PROCESS ASSEMBLY SEE BOM SCALE 1:20

TOTAL QTY / GYRO

SHEET SIZE

Α3

DEBURR ALL SHARP EDGES 10 OF 12



- ACCESS TO NUTS UNDER VIBRATION MOUNTS IS REQUIRED EXCEPT WHERE BONDED SADDLE IS USED, REFER TO SHEETS 5 & 7
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]

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THE GYRO FROM THE VESSEL.

REFER TO THE WARRANTY STATEMENT

