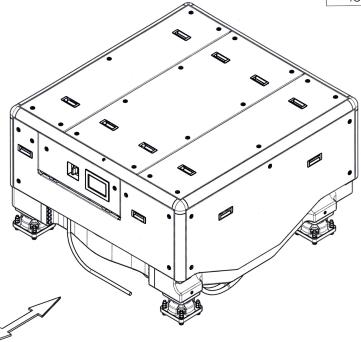
- 1. CONTACT VEEM IF GYRO INTENDED TO BE LOCATED MORE THAN 2m ABOVE DWL OR MORE THAN 70% OF LWL FORWARD OF TRANSOM.
- 2. DO NOT INSTALL GYRO WITH FRONT PANEL FACING PORT OR STARBOARD.
- 3. GYRO UNIT MAY BE INSTALLED WITH FRONT PANEL FACING FORWARD OR AFT.
- 4. REFER TO SHEET 6 FOR STRUCTURAL LOADS.
-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



FORE OR AFT

ISOMETRIC VIEW

CH	CHANGE DESCRIPTION LIFTING ARRANGEMENT UPDATED TO ALLOW FOR SMALLER INSTALLATION CLEARANCE																	
13	ISSUED FOR PRODUCTION	DOL	200	16/11/12	JW	119	16/11/22						5/11	12	DF	11	5/11/22	-
REV.	DESCRIPTION	DRN	INITL	DATE	ENG	INITL	DATE	MAN APA	INITL	DATE	APP	INITL	DAT	E	SALES APP	INITL	DATE	11
_	REVISIONS																	



	0400-AT-1000-13	SEE SI	HEET 2	2	1
DRAFTING TO 1100.101 AND 1100.201	VEEM GYRO 52	& 70 IN	STALL	ATIC	
TOLERANCES I ACCORDANCE WITH	0400-DT-1	0.000)1		R
MACHINE SURFACES	MATERIAL -			oces SSE/	s MBLY
JUON BURR ALL SHARP EDGES	SHEET 01 OF 12	SCALE 1:12	(1	SHEET

PART/ASSEMBLY No

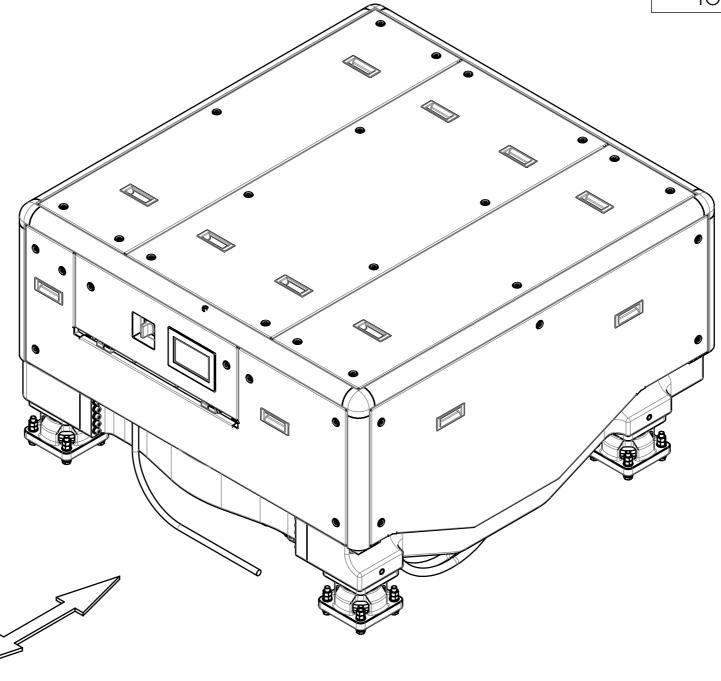
TOTAL QTY / GYRO

SHEET SIZE

- 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.



FORE OR AFT

ISOMETRIC VIEW

- 1																		1
	СН	ANGE DESCRIPTION	LIFTING	LIFTING ARRANGEMENT UPDATED TO ALLOW FOR SMALLER INSTALLATION CLEARANCE														
	13	ISSUED FOR PRODUCTION	JDD			JW									DF			
	REV.	DESCRIPTION	DRN	INITL	DATE	ENG CHK	INITL	DATE	MAN APP	INITL	DATE	ELECT APP	INITL	DATE	SALES APP	INITL	DATE	A
	REVISIONS CAI																	

	DRAFTING AS 1100.101 AND
	TOLERANC IN ACCORDANG
PROPELLERS AND GYROSTABILIZERS MARINE	-
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	MACHINE SURF

MACHINE SURFACES ^{3.2}∕UON DEBURR ALL SHARP EDGES 01 OF 12

	PART/ASSEMBLY No	MASS		T
	0400-AT-1000-13	SEE SHEET	「2	ı
DRAFTING TO AS 1100.101 AND 1100.201	DESCRIPTION VEEM GYRO 52 &	70 INSTAL	_L/	١.
TOLERANCES IN ACCORDANCE WITH -	0400-DT-10	00.01		
MACHINE SURFACES	MATERIAL		PRC)(

DESCRIPTION		
VEEM GYRO 52 &	70 INSTALLA	NOITA
DRG No		
0400-DT-10	00.01	

1:12

TOTAL QTY / GYRO

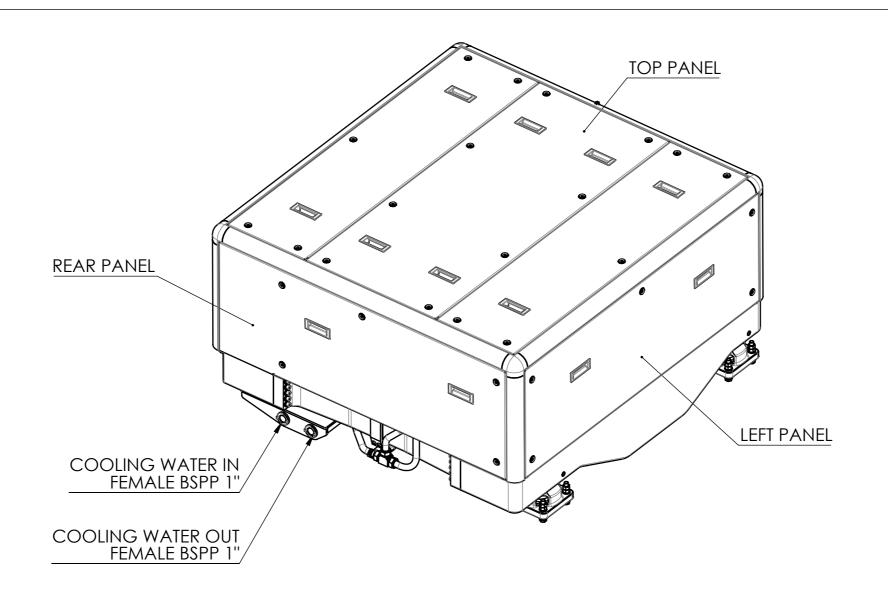
SHEET SIZE

Α3

'	U4UU-DI-1	UUU.U) [
	MATERIAL -			PROCES ASSE		1
	CHEET	SCALE	_	_	SHE	ĒΤ

NOTES: 1642 SPREADER BAR 1. 4 x M16 RUD POWERPOINT VP DIRECT CHAIN CONNECTION OR EQUIVALENT TO BE USED FOR LIFTING (NOT SUPPLIED WITH GYRO). 2. MAXIMUM SLING ANGLE 60°. SPREADER BAR 1642 mm LONG TO BE USED. LONGER SPREADER BAR MAY BE REQUIRED DEPENDING ON LIFTING LUGS USED. 3. ENSURE RIGGING DOES NOT CONTACT GYRO ENCLOSURE OR DAMAGE MAY RESULT. 4. LIFTING RIGGING IS NOT INCLUDED IN GYRO STANDARD SCOPE OF SUPPLY. 5. ENSURE DIMENSIONS OF RIGGING INCLUDED IN DESIGN OF INSTALLATION SOFT PATCH CLEAR OPENING. 6. FOR DEEP LIFTS, CONSIDER SPREADER BAR WHEN DESIGNING DECK OPENING. 7. ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]. 67.83 1723 (CLEAR OPENING) 65.60 1666 RIGHT SIDE FRONT VIEW SEE NOTE 6 **SCALE 1:30 SCALE 1:30** REAR PANEL SIDE RUD POWERPOINT DIRECT VIP CHAIN M16 LUG 1.5T WLL M16 LUG (RUD-7989526) [1.97] 1642mm LIFTING SPREADER BEAM LEFT PANEL SIDE **SECTION A-A** SCALE 1:5 CHAIN MUST BE GRADE 100 OR BETTER (6x18) (RUD - 7100477 [1.97] FRONT PANEL SIDE **TOUCH SCREEN** DETAIL 1 SCALE 1:4 CLEAR OPENING DIMENSIONS FOR VERTICAL LIFT TOP VIEW ISOMETRIC VIEW PART/ASSEMBLY No TOTAL QTY / GYRO FORE OR AFT 0400-AT-1000-13 | SEE TABLE DESCRIPTION DRAFTING TO AS 1100.101 AND 1100.201 MASS [Kg] VG52SD VG70SD LIFTING DRAWING TOLERANCES IN ACCORDANCE WITH REV_ MASS WITH ENCLOSURE * 2575 Kg 2850 Kg 0400-DT-1000.02 PROCESS MASS WITHOUT ENCLOSURE * 2525 Kg 2800 Kg MACHINE SURFACES **ASSEMBLY** 3.2 UON DEBURR ALL SHARP EDGES 02 OF 12 SCALE 1:20 SHEET SIZE * EXCLUDED MASS OF RIGGING.

Α3



COOLING WATER TEMP °C [°F]	OOLING WATER FLOW RATE (LITRES/min)		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	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. (HEAT (W)						
20	1200						
30		900					
40		600					
50	50						
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.

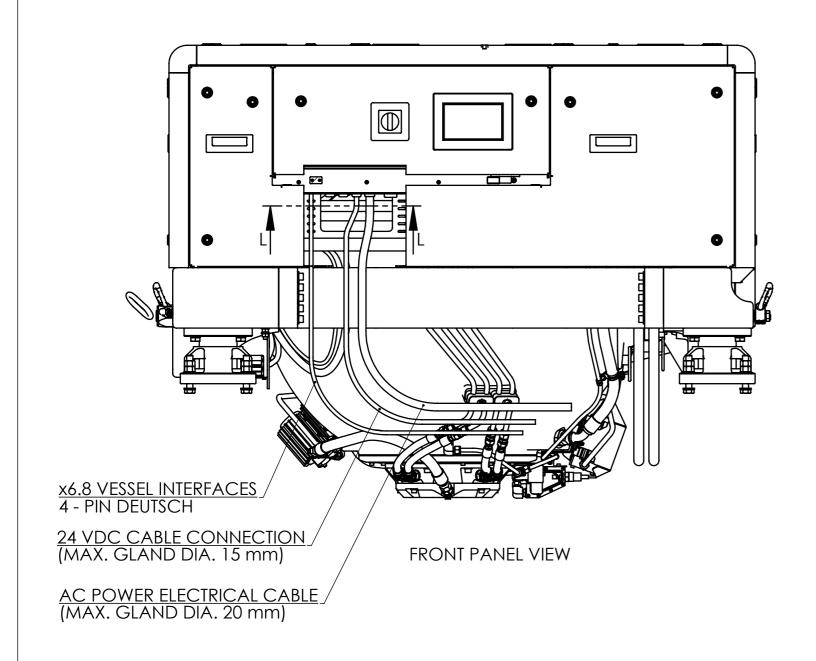


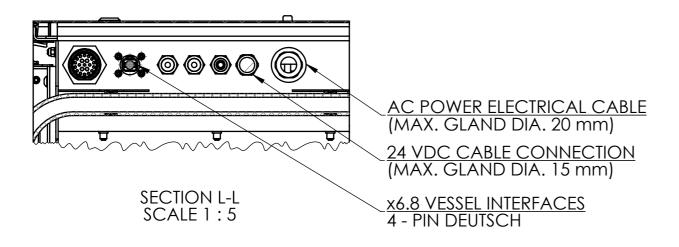
TOLERANCES IN ACCORDANCE WITH

MACHINE SURFACES ^{3.2}∕UON

PART/ASSEMBLY No MASS TOTAL QTY / GYRO 0400-AT-1000-13 | SEE SHEET 2 DRAFTING TO AS 1100.101 AND 1100.201 COOLING INTERFACE CONNECTIONS DESCRIPTION 0400-DT-1000.03

PROCESS ASSEMBLY SCALE 1:10 DEBURR ALL SHARP EDGES 03 OF 12 SHEET SIZE Α3





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 POWER)

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)".



TOLERANCES

IN ACCORDANCE WITH MATERIAL

PART/ASSEMBLY No

MACHINE SURFACES 3.2 UON

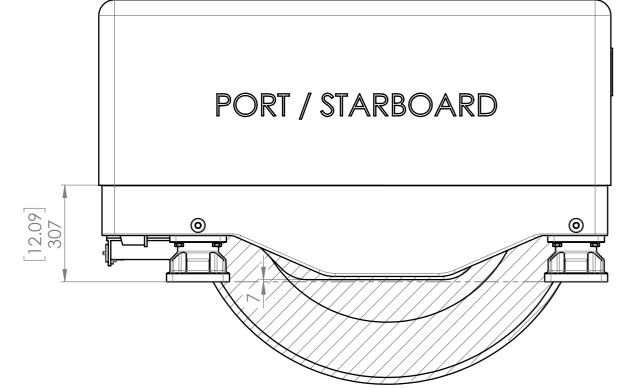
0400-AT-1000-13 | SEE SHEET 2 DRAFTING TO AS 1100.101 AND 1100.201 ELECTRICAL POWER CONNECTIONS DESCRIPTION 0400-DT-1000.04

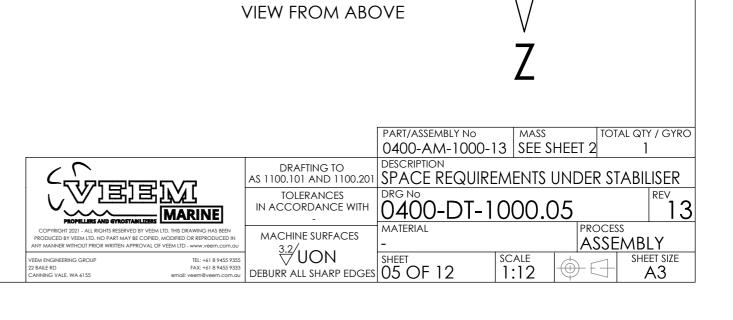
MASS

TOTAL QTY / GYRO

PROCESS **ASSEMBLY** SHEET SIZE SHEET 1:10 DEBURR ALL SHARP EDGES 04 OF 12 Α3

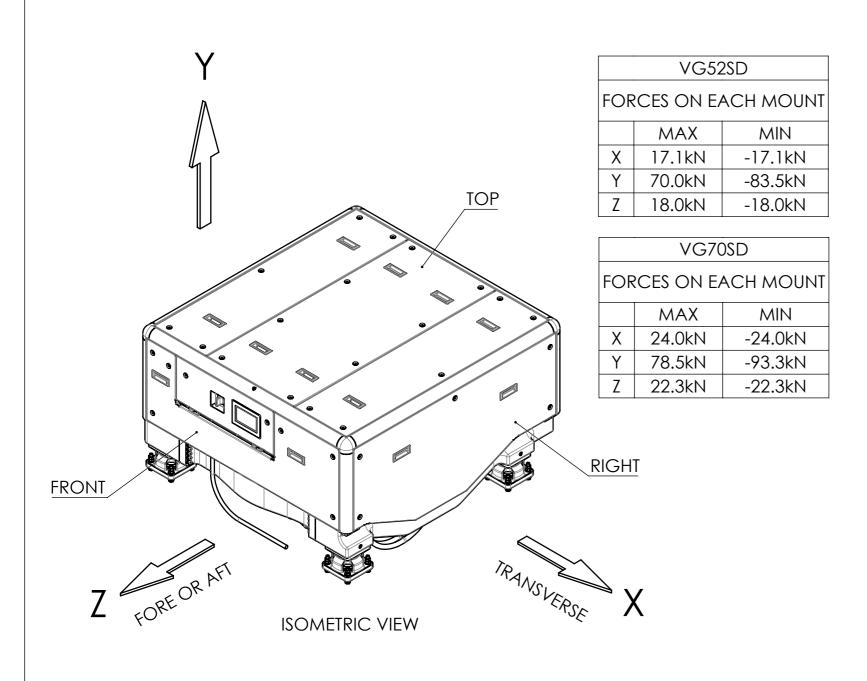
NOTES: • THE HATCHED AREA IS REQUIRED FOR SAFE OPERATION. [9.96] 253 [9.81] 249.2 [32.20] MOUNTING SURFACES AT FOUR LOCATIONS TO BE LEVEL WITHIN 1mm ACROSS EACH MOUNT 817.8 AND WITHIN 3mm ACROSS THE WHOLE FOOTPRINT. • MOUNTING HOLE PATTERN TO BE DRILLED WITHIN +/-0.5mm • ALL DIMENSIONS IN: mm AND DIMENSIONS 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. 15 149.561.89 3.35 85 LCD [24.80] 630 [26.20] 665.6 [35.24] 895 FORE / AFT [10.24] 260 [10.52] 267.2 SECTION LINE [14.37] 365 [5.91] 0.69 5.91 150 SPACE REQUIREMENT - BELOW MOUNTING LEVEL 4x ∅ 17.5 9.81 9.96 [32.20] 817.8 249.2 253 [51.97]

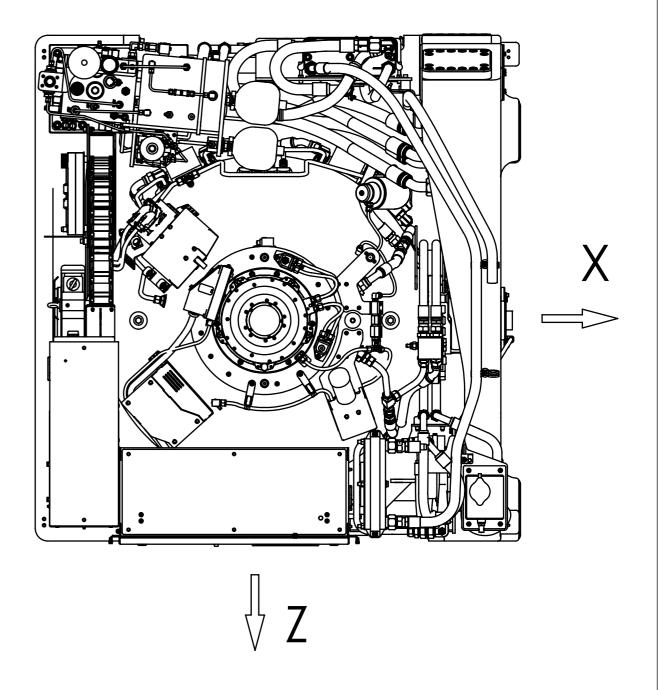




1320

SECTION B-B





WARNING!

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

NOTES:

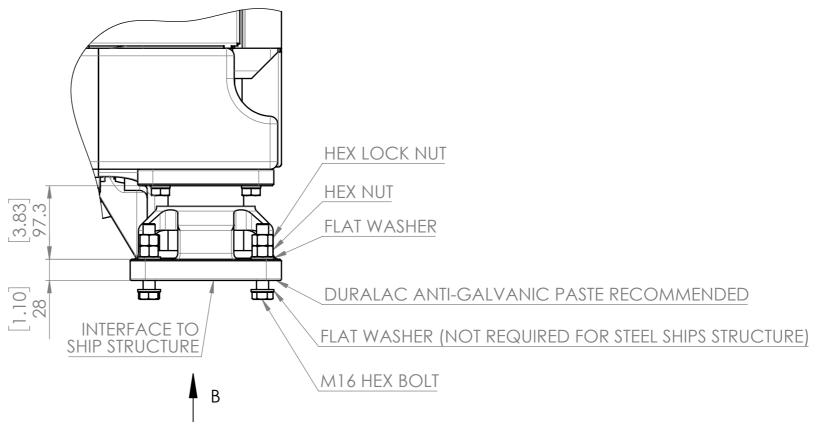
- FY (VERTICAL) LOADS SHALL BE CONSIDERED TO FULLY REVERSE AT THE VESSELS NATURAL ROLLING PERIOD.
- FX AND FZ (HORIZONTAL) LOADS SHALL BE CONSIDERED TO FULLY REVERSE AT HALF THE VESSELS NATURAL ROLLING PERIOD.
- EACH LOAD SHALL BE CONSIDERED TO BE INDEPENDENT. ONEROUS LOAD COMBINATIONS SHALL BE CONSIDERED.
- 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]



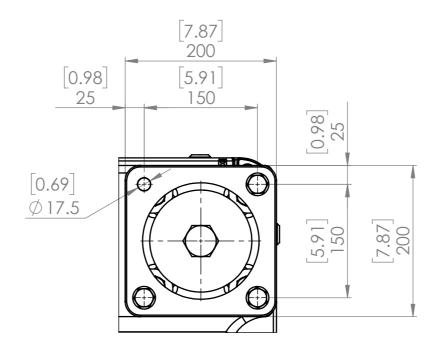
TOLERANCES IN ACCORDANCE WITH MACHINE SURFACES 3.2 UON DEBURR ALL SHARP EDGES 06 OF 12

PART/ASSEMBLY No TOTAL QTY / GYRO 0400-AT-1000-13 | SEE SHEET 2 DRAFTING TO AS 1100.101 AND 1100.201 FORCES ON MOUNTS DESCRIPTION 0400-DT-1000.06 PROCESS ASSEMBLY SCALE 1:12 SHEET SIZE Α3

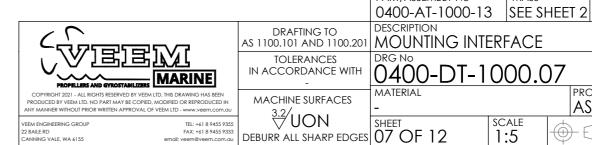
- MIN PRE-LOAD 65kN ± 10% ON MOUNT BOLTS.
- ENGINEERING OF TIGHTENING METHOD IS THE RESPONSIBILITY OF THE INSTALLER.
- M16 GRADE 8.8, SS A4-80 OR EQUIVALENT RECOMMENDED.
- TRAINED TECHNICIAN WITH MEANS TO MEASURE PRE-LOAD ACHIEVED WITHIN ±10% REQUIRED.
- IF CARBON STEEL FASTENERS USED, PROTECTIVE COATING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



VIEW OF VIBRATION MOUNT



VIEW B



PART/ASSEMBLY No

MASS

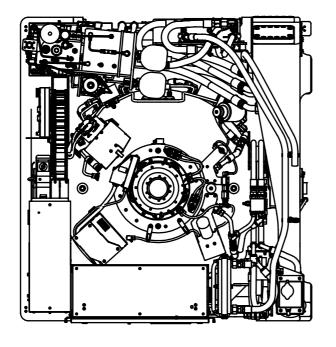
TOTAL QTY / GYRO

PROCESS

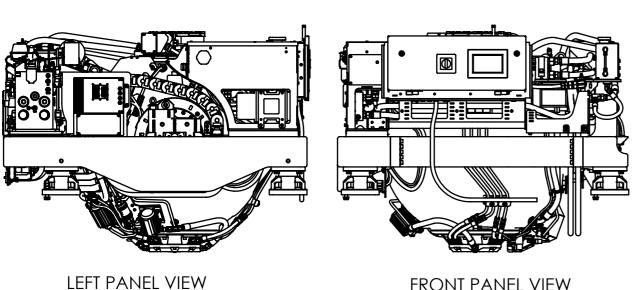
ASSEMBLY

REV

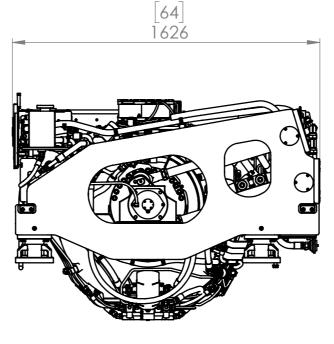
SHEET SIZE A3



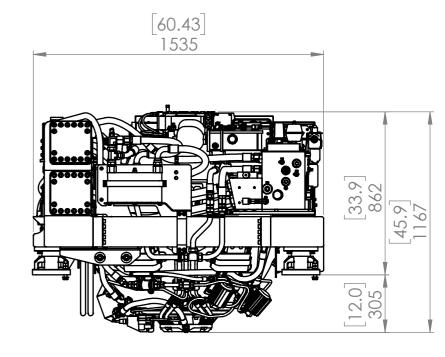
TOP PANEL VIEW



FRONT PANEL VIEW



RIGHT PANEL VIEW



REAR 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.



TOLERANCES IN ACCORDANCE WITH

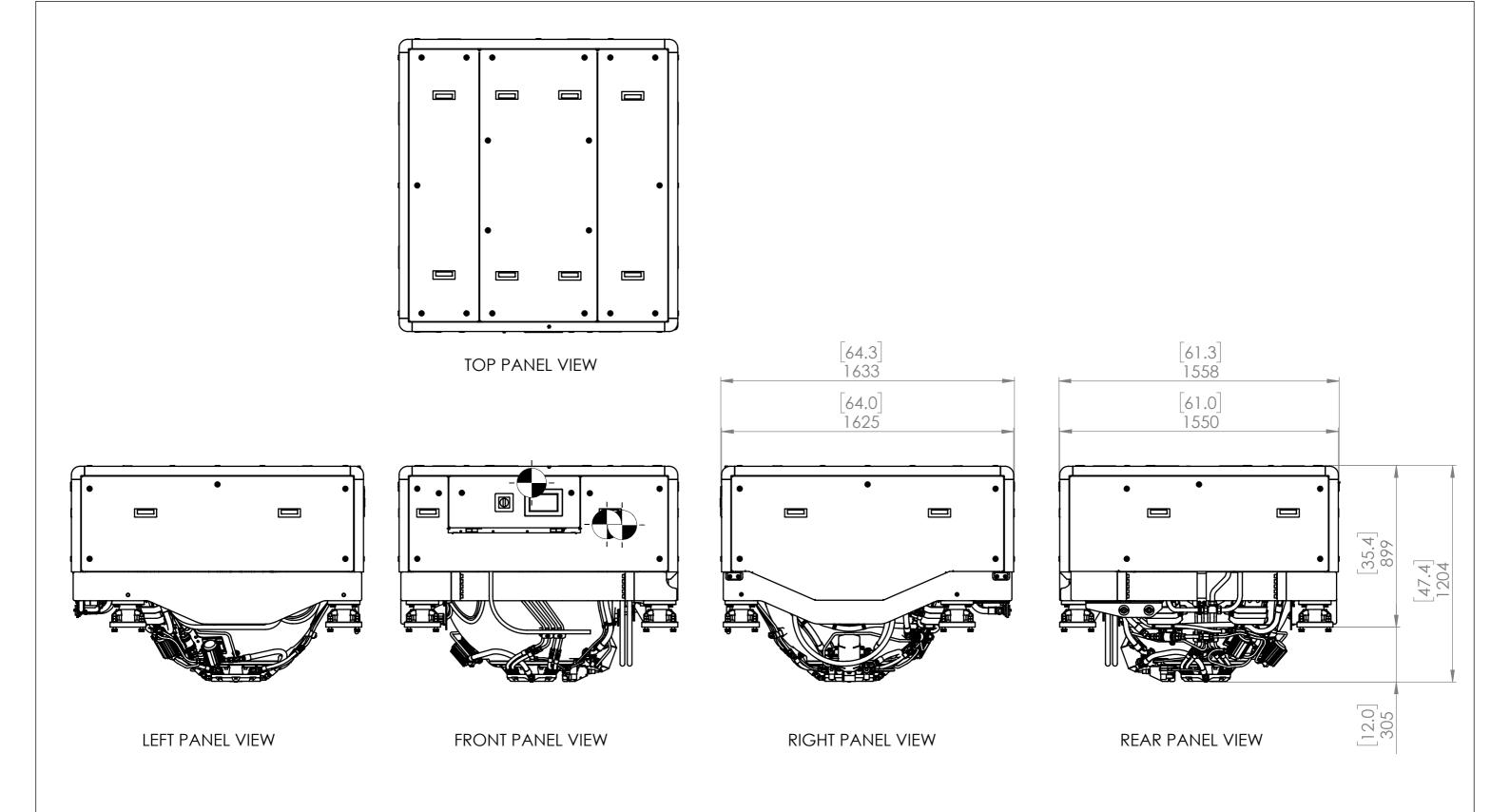
MACHINE SURFACES ^{3.2}∕UON

PART/ASSEMBLY NO MASS 0400-AT-1000-13 SEE SHEET 2 TOTAL QTY / GYRO DRAFTING TO DESCRIPTION ELEVATIONS WITHOUT ENCLOSURE

DEBURR ALL SHARP EDGES 08 OF 12

PROCESS ASSEMBLY

SHEET SIZE A3 SCALE 1:20



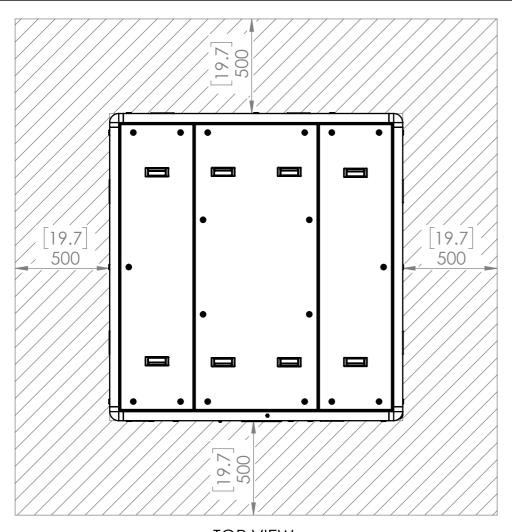
ELEVATIONS WITH ENCLOSURE INSTALLED

NOTE:

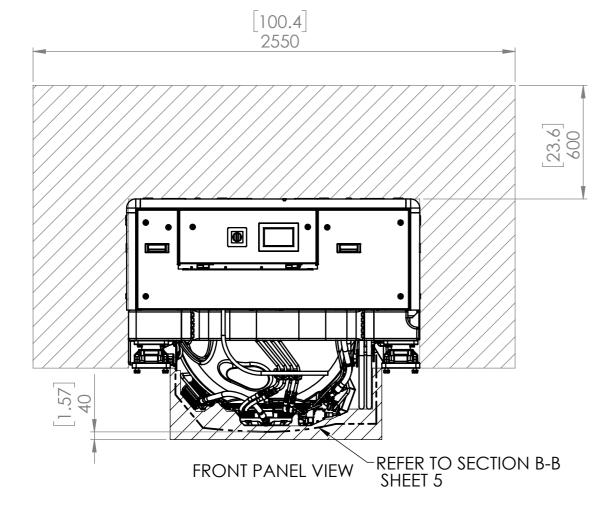
- - LOCATION OF CENTER OF GRAVITY.
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]



	PART/ASSEMBLY No		MASS			TOT	AL QT	/ / GY	RO
	0400-AT-1000-13	3	SEE SH	HEE	T 2		1		
	DESCRIPTION					_			
)1	ELEVATIONS WI	ſΗ	ENCL	OS	URI				
	DRG No							REV	
0400-DT-1000.09								3	
	MATERIAL				PRC	CES	S		
	-				AS	SE	MBL`	Y	
	SHEET		ALE	4		\neg	SHE	ET SIZE	
S	09 OF 12	1:	20	(4)	- -	士	1	43	



TOP VIEW



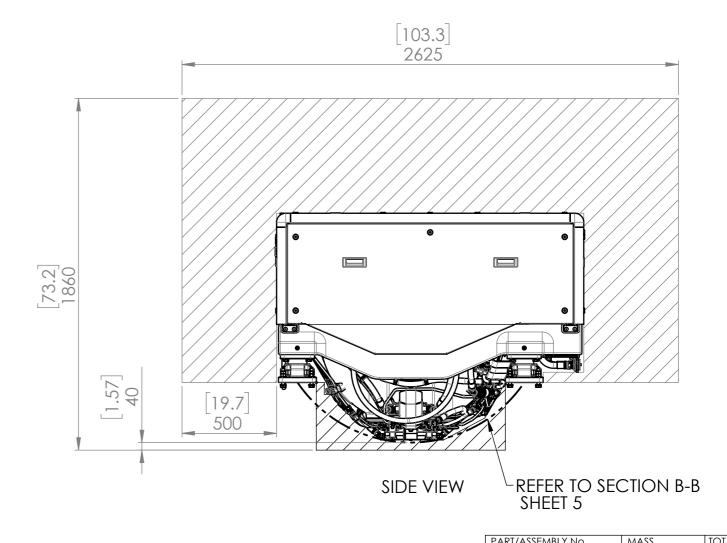
NOTES:

- 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





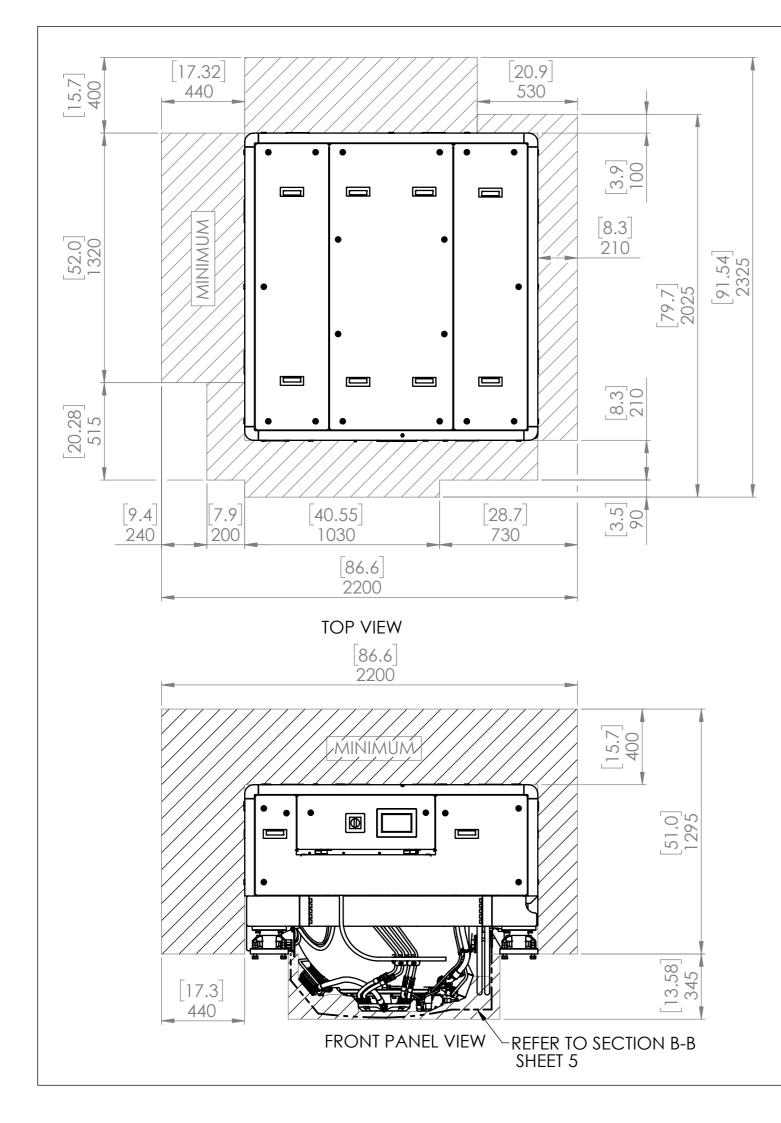
TOLERANCES IN ACCORDANCE WITH

MACHINE SURFACES ^{3.2}∕UON

PART/ASSEMBLY NO MASS TO SEE SHEET 2 TOTAL QTY / GYRO DRAFTING TO AS 1100.101 AND 1100.201 RECOMMENDED SERVICE ACCESS SPACE 0400-DT-1000.10

> SHEET SIZE Α3

PROCESS ASSEMBLY SCALE 1:20 DEBURR ALL SHARP EDGES 10 OF 12

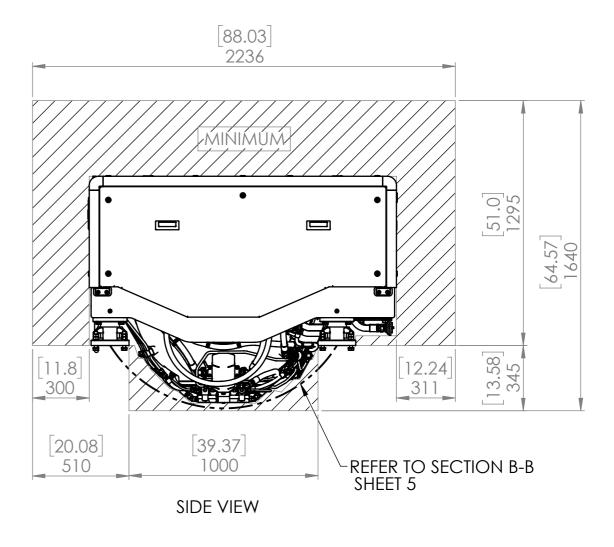


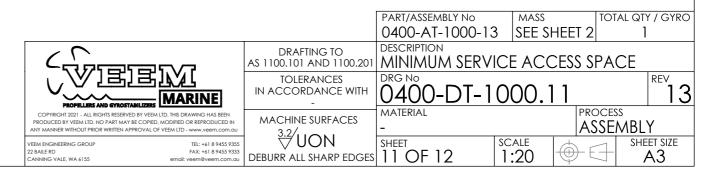
- ACCESS TO NUTS UNDER VIBRATION MOUNTS IS REQUIRED EXCEPT WHERE BONDED SADDLE IS USED, REFER TO SHEETS 5 & 7
- ALL DIMENSIONS IN: mm AND DIMENSIONS IN BRACKETS: [Inches]

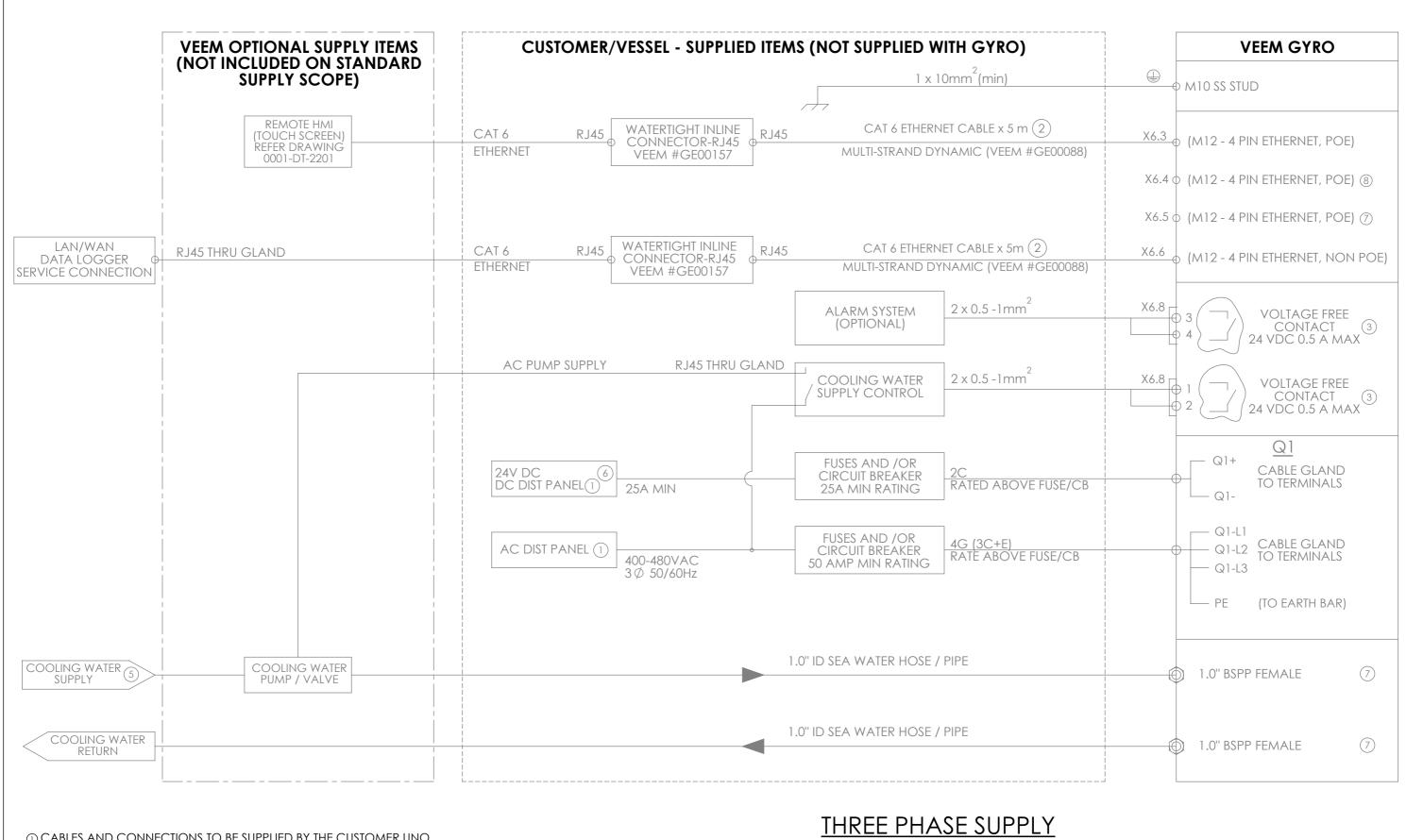
IMPORTANT:

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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







- (1) CABLES AND CONNECTIONS TO BE SUPPLIED BY THE CUSTOMER UNO
- ② SUPPLIED BY VEEM FITTED WITH GYRO CONNECTORS AT ONE END, RJ45 AT OTHER END
- (3) MATING CONNECTOR SUPPLIED BY VEEM (DEUTSCH DT4). PLUG PROVIDED.
- (4) REMOTE ACCESS REQUIRED FOR DIAGNOSTIC REPORTING & SUPPORT (REFER WARRANTY STATEMENT)
- (5) FILTRATION. REFER TO INSTALLATION MANUAL (OM-00004).
- (a) 24 V DC SUPPLY TO BE UNINTERRUPTED FOR 60mins IN CASE OF LOSS OF MAIN POWER
- 7) CONNECTS TO GYRO SPIN MOTOR SERVO DRIVE.
- (8) CONNECTS TO LOCAL GYRO HMI (TOUCH SCREEN).

