



# Installation & Operational Manual for Turret™

## 1.0 General Information:

### 1.1 Disclaimer:

This document is general in nature and should not be relied upon as a complete or definitive guide for all situations. Each application may differ based on site conditions, personnel expertise, training, and the specific risk management, safety, environmental, and quality standards in place. Clients, engineers, consultants, and relevant stakeholders must independently assess the suitability of Turret equipment, pump compatibility, and any site-specific requirements before making decisions. This document is subject to change and ongoing development. Turret Engineering Pty Ltd (TEPL) and its associated companies accept no liability for any loss, damage, or expenses incurred because of reliance on this document or any other documents we produce. All sales and hire are governed by our **Terms & Conditions of Sale and Hire**.

### 1.2 Purpose:

“Water intakes” must be a certain depth below the surface, or vortexes form. This can cause cavitation in the pump. They must also be at a certain height above the bottom, or they will ingest solids that could damage the pump. The Turret™ offers a solution to inhibit vortexing, cavitation and solves this problem by taking water from just under the surface on the side. This way Turret™ can operate in as little “minimum depth” of water when used as directed. The “minimum depth” is tabulated in the Data Sheet.

### 1.3 Scope:

This manual provides information for all Turrets tabulated in the data sheet, when used in accordance with guidelines and excludes any variations or combinations of usage of Turrets with accessories or spools not listed in this data sheet. User specific installation guidelines could be discussed & created for specific applications. **This manual relates to the information relevant to Turret ONLY.**

### 1.4 Prerequisites & responsibilities:

A detailed design must be undertaken by the client or professional like engineers, consultants, project managers or personnel designated by the client. Installation must be undertaken by trained personnel complying with legislated, site-specific and industry requirements & standards.

#### Responsibilities:

Roles	Definition
Client	Understands the site, local condition & application
Professionals	Consultants   Engineers   Project Managers   Personnel designing application
Vendor	Turret Engineering Pty Ltd as a vendor of the product
Installers	Management & team responsible for installation at site

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### 1.5 Definition:

Terminology	Definition
Our, We, TEPL, TIPL, TVPL	Relates to Turret Engineering Pty Ltd & associated entities
Client	End user of Turret
You	Anyone using this document an end user, consultant, engineer etc.
MHE	Suitable site approved Material Handling Equipment
Dimensions & Weight	Size (in mm), Weight (Kg) or any measure as noted
Suction Pipe (Poly Pipe)	HDPE Pipe PN10 PE100 SDR17
Self-Priming Pump	Automatically remove air from its suction line and lift water on its own
Pump with priming unit	Remove air from suction line with the help of a priming unit
Flood primed pump	Non-self-priming pump
LLDPE	Linear low-density polyethylene
DN	Diameter Nominal measures Outer Diameter of Poly Pipe
Anchor Points	Designated lifting points on Turret
Guarantees	Warranties that can't be excluded under the Australian Consumer Law
PPE	Personal Protective Equipment

### 1.6 Additional Resources & References:

Please refer to relevant documentation:

- Evaluate design, code of practices at geographical jurisdiction, local site procedures, safety, environmental and other standards – policies – protocol – to be adhered.
- Pump specification, data sheet, curves, operational & maintenance manuals.
- MHE and associated operation processes as required by manufacturer & site
- Site safety information including PPE
- Technical information on poly pipe, mining hose and other accessories.

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## Installation & Operational Manual for Turret™

### 2.0 Data Sheet:

<span style="font-size: 2em; font-weight: bold; vertical-align: middle;">TURRET</span>		Data Sheet			
Item	Clarification	Turret 3m (Mega-flow)	Turret 2m (Maxi-flow)	Turret 1m (Mini-flow)	Turret 1/2m (Micro-flow)
Part Number	Naming of Turret (Size - Backing Ring - Material)	T3M-E355-SS316	T2M-E225-SS316	T1M-E110-SS316	Releasing Soon
Friction Loss	K - Factor	0.5	0.5	0.5	Releasing Soon
Material	Turret Shell "Linear Low Density Poly Ethylene" LLDPE	LLDPE	LLDPE	LLDPE	Releasing Soon
Process	Manufacturing Process	Rotamoulded   Welded	Rotamoulded   Welded	Rotamoulded   Welded	Releasing Soon
Shallow Depth	Operational Limit (depth in mm)	> 380mm	< 100mm	> 180mm	Releasing Soon
Flow	Flow Range Max (m3/hour)	1000 m3/h	500 m3/h	100 m3/h	Releasing Soon
Anchor Points	Anchor Points with Work Load Limit (WLL)	150 Kg	50 Kg	10 Kg	Releasing Soon
	Number of Points	9 Points	5 Points	2 Handles	Releasing Soon
Backing Ring	Table E (optional ANZI #150)	Table E	Table E	Table E	Releasing Soon
	Options Available	<i>please contact us</i>	<i>please contact us</i>	Threaded Male 110mm	Releasing Soon
Stubflange	Backing Ring (Material)	SS316	SS316	SS316	Releasing Soon
	Stubflanged HDPE to Size (PN10 PE100 SDR17)	DN355	DN225	DN110	Releasing Soon
Reducer	Directly Reduced (Eccentric)	DN400   DN450	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Directly Reduced (Concentric)	<i>not a preferred option</i>	<i>please contact us</i>	DN160	Releasing Soon
	External Reducer	<i>to suit application</i>	<i>to suit application</i>	<i>to suit application</i>	Releasing Soon
Bolts & Washers	Material for bolts & washers	SS316	SS316	SS316	Releasing Soon
Screen Options	Standard	30mm dia approx	50mm approx	16mm dia approx	Releasing Soon
	Wide (for high salinity)	150mm x 550mm	50mm approx	100mm x 250mm	Releasing Soon
	Special Sizing	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Gutter Screen	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
Temperature	Typical Design Temperature (Deg C)	0 - 40	0 - 40	0 - 40	Releasing Soon
	Exceeding 40 Deg C	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Options < 0 Deg C	<i>anti-freezing solution</i>	<i>anti-freezing solution</i>	<i>anti-freezing solution</i>	Releasing Soon
Quality Checks	Our Accreditation Standard Checking	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
Accessories	Typical Accessories - Optional	Floats for Pipe Size	Floats for Pipe Size	Floats for Pipe Size	Releasing Soon
Spools	Y - Spool	DN560 or DN630 to DN355	DN355 - DN315 - DN225	DN225 to DN110	Releasing Soon
	Tri - Spool	DN560 or DN630 to DN356	DN355 - DN315 - DN225	DN225 to DN 160 - DN110	Releasing Soon
Packaging	Packaging Standard	Transport Frame (ISPM15)	Transport A-Frame (ISPM15)	Handboard Box	Releasing Soon
	Approximate Mass (Kg) of Turret	477 Kg	175 Kg	15 Kg	Releasing Soon
Mass (Kg)	Approximate Mass (Kg) of Frame	178 Kg	75 Kg	5 Kg	Releasing Soon
	Approximate Mass (Kg) Total	655 Kg	250 Kg	20Kg	Releasing Soon
Dimensions	Dimensions & Packaging	Ref attached	Ref attached	Ref attached	Releasing Soon

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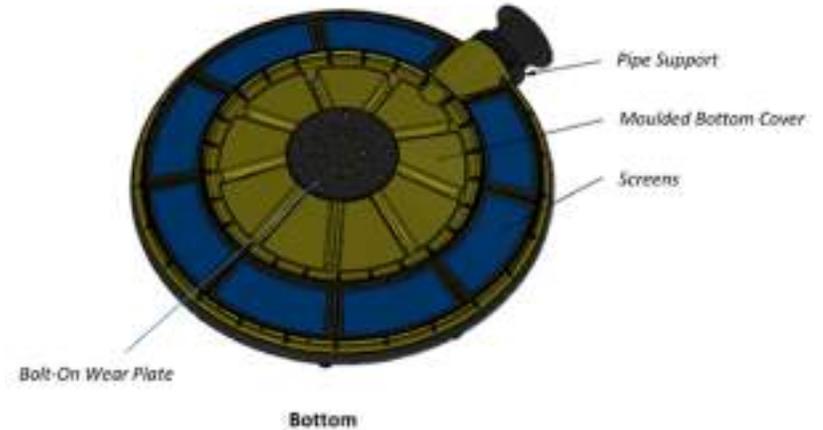
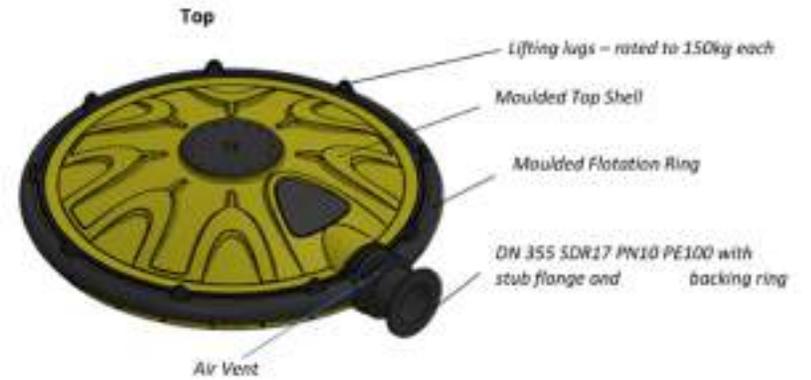
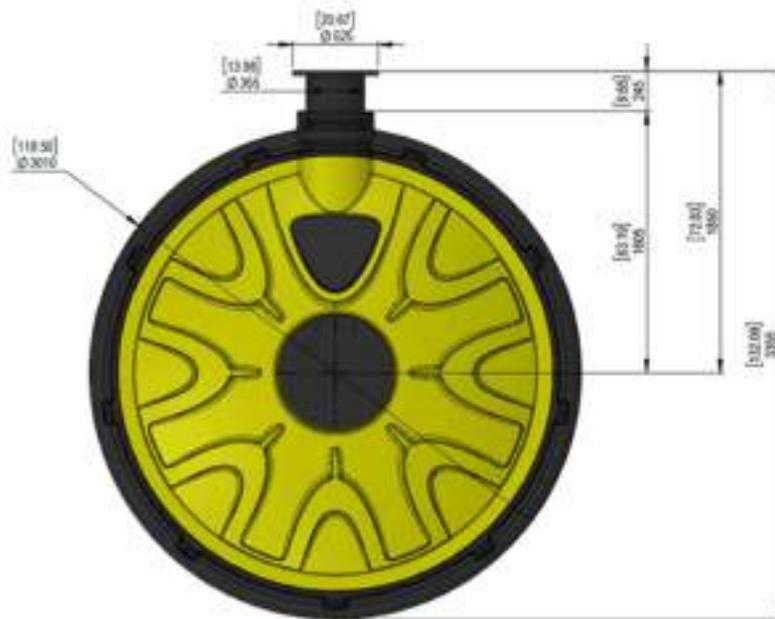
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## 3.0 Procedures:

### 3.1 General Information: Turret 3m (Mega-flow)



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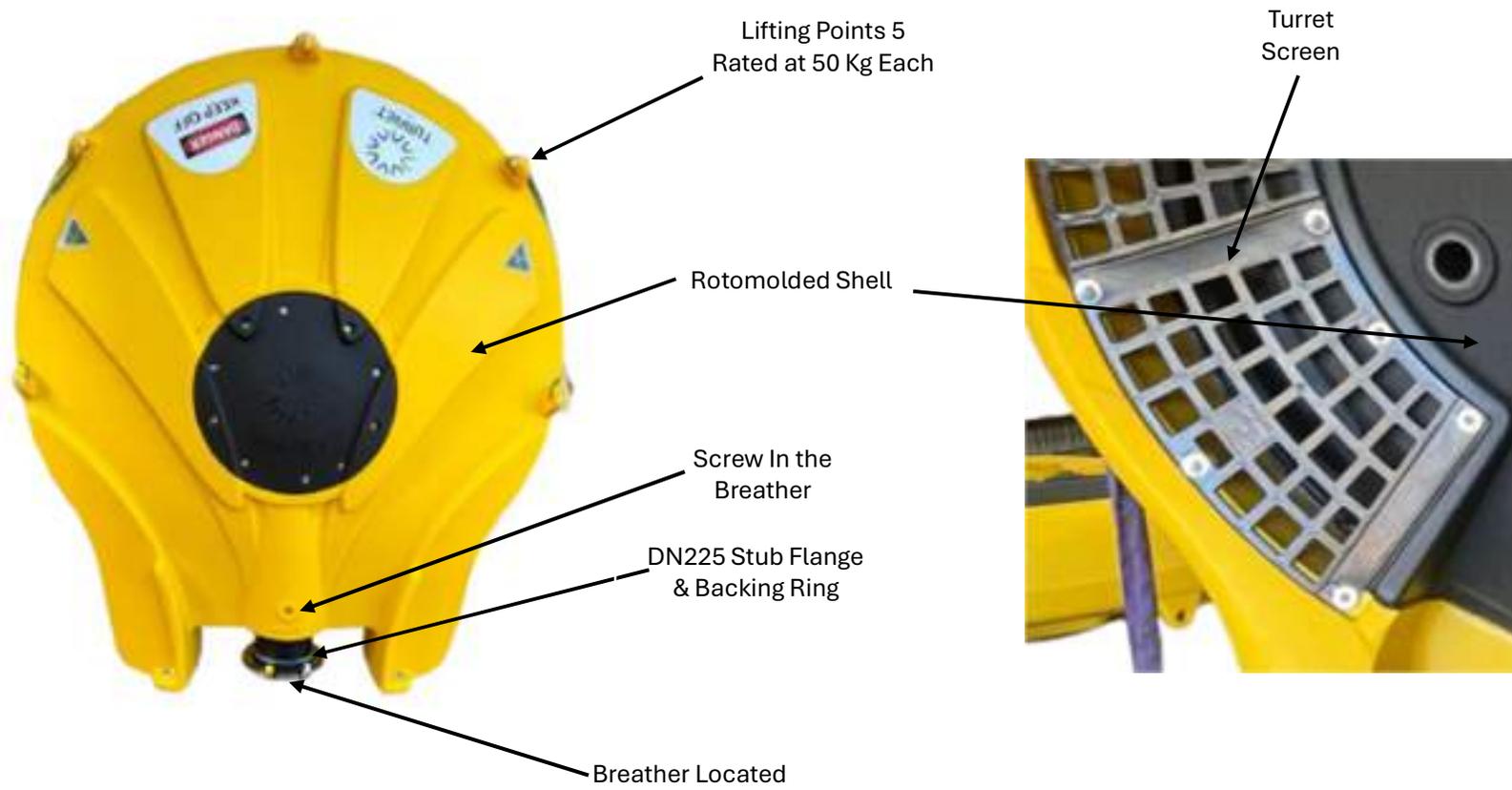
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### 3.2 General Information: Turret 2m (Maxi-flow)



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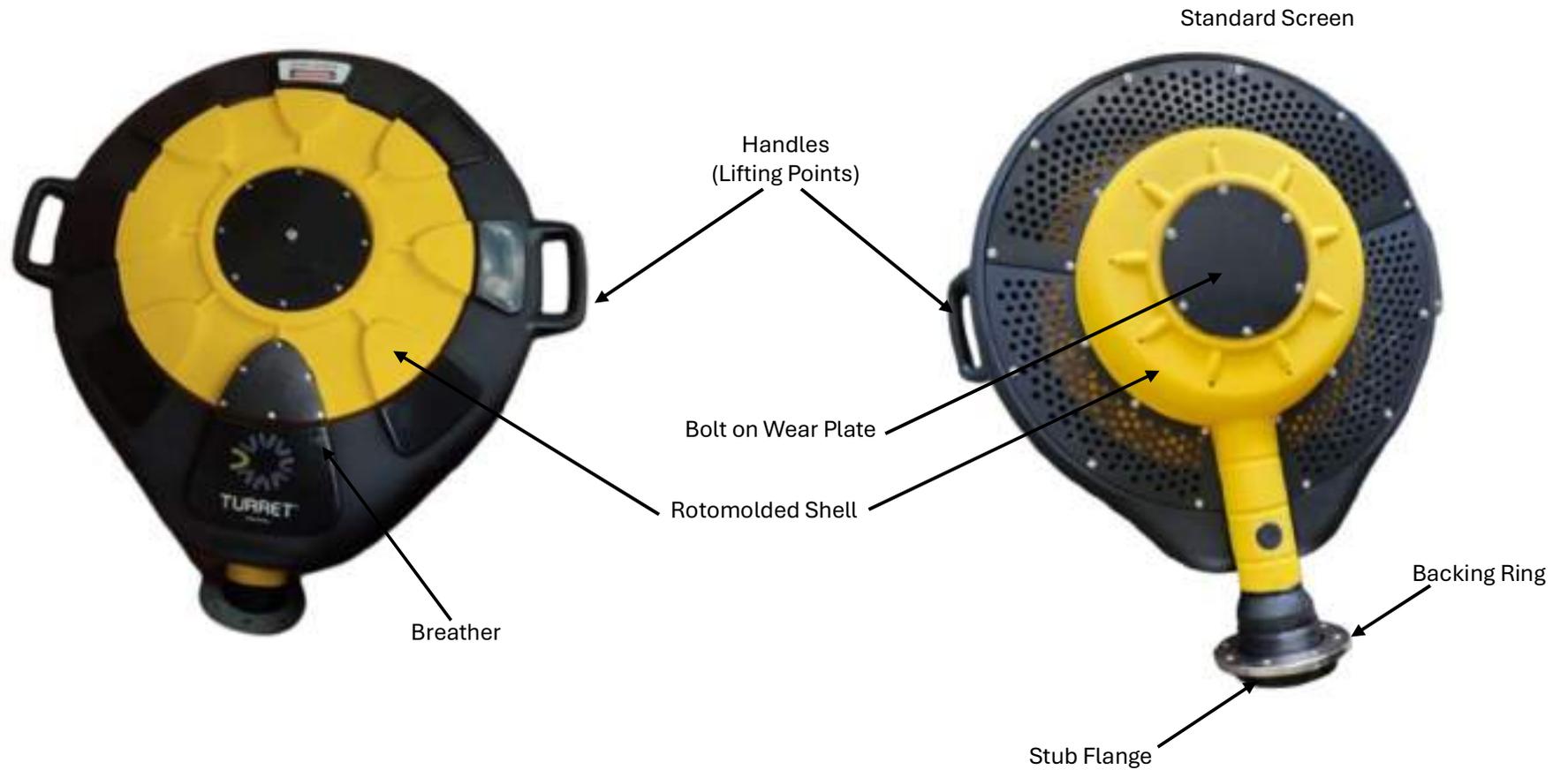
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### 3.2 General Information: Turret 1m (Mini-flow)



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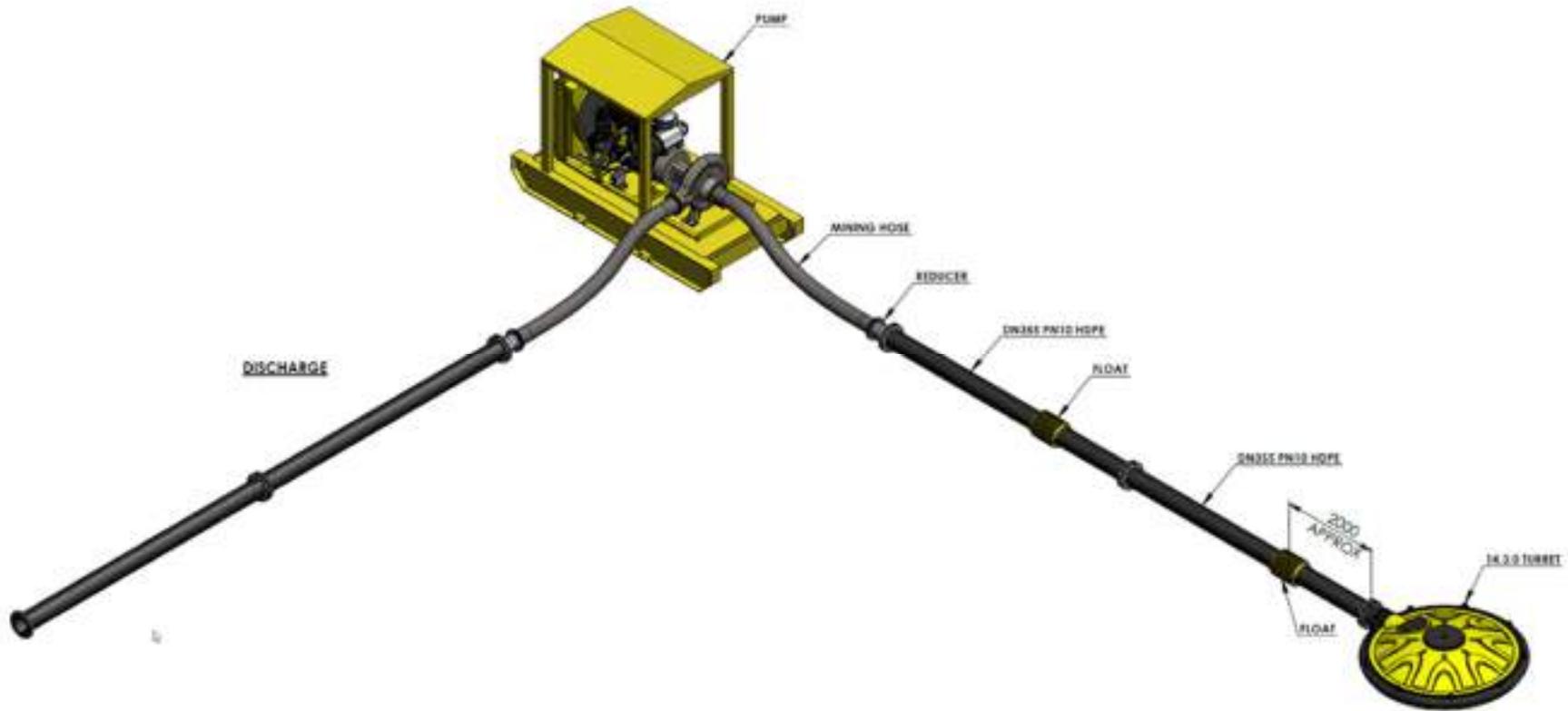
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## 4.0 General Arrangement: Examples



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### 5.0 Handling: Transportation & Storage

Our Turret 3m (Mega-flow) & Turret 2m (Maxi-flow) come in our specially designed transport frame. Turrets can be lifted with suitably trained, licensed and competent personnel using a suitable material handling equipment such as Forklift, Crane, Telehandler (or as approved by site). Ensure using the designated lifting points and use the required number of lifting points to ensure handling within the Workload Limit (WLL) or Safe Working Load (SWL) – please note the terminology may vary at each country. The Turret 1m (Mini-flow) has 2 handles for safe lifting and always conform to manual handling training, techniques, policies & procedures approved or mandated at your country, geographical location, site and team. Watch Videos on our web: <https://turrets.au/resources>

		
<p style="text-align: center;"><b>Unload Transport Frame using forklift &amp; Fork Tyne slots</b></p>	<p style="text-align: center;"><b>Load Transport Frame using forklift and or site approved equipment</b></p>	<p style="text-align: center;"><b>Example of Handling Turrets using Mobile Crane as per site approval</b></p>
		
<p style="text-align: center;"><b>Using Designated Rated Lifting Points to Safely Lift Turret</b></p>	<p style="text-align: center;"><b>Slide Turret with Site Approved Equipment</b></p>	<p style="text-align: center;"><b>Site Approved Material Handling Equipment</b></p>

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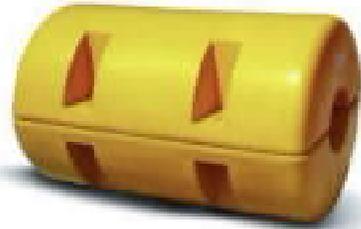
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### 6.0 Accessories & Special Configuration

We have solution to suit a wide range of applications ranging from Floats, Reducers and Y Spool (2 Turrets to a Pump) through to Penta (5 Turrets to a Pump) and more being gradually designed, tested & released to the market.



**Floats**



**Reducers**



**Y Spools to Tri Spools**



**Penta Spools**



**Submersible Solution**



**Pipe Spools**



**Mining Hose**

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### 7.0 Installation

While this photo example shows Turret 1m (Mini-flow), the process is same for all Turrets.

1. Use appropriate lifting & material handling equipment to lay the Turret down
2. Fit or ensure “Breather” is fitted
3. Connect the 1<sup>st</sup> length of poly pipe (PN10 PE100 SDR17) we suggest using SS316 Bolts, Washers & Galvanised Nuts to ease of removal.
4. Fasten the floats as required. Position the first float closer to the Turret and at every section closer to the joint.
5. Join additional lengths of poly pipe as required
6. Connect mining hose to the last length of poly pipe. Use mining hose along embankment as required and connect to pump suction.
7. Prime the system and start dewatering.



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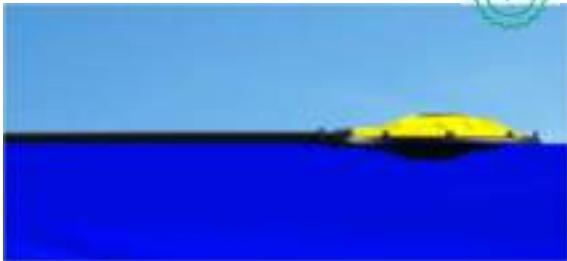
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### 7.1 Notes:

Quantities of floats may vary based on site levels, slope of the ramp and layout of the application site.



Turret sitting **level** in water



Turret **NOT** sitting level in water



Turret sitting **TOO HIGH**



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### 7.2 **Warning:** Caution & Danger notes

 <b>Exert Caution Assess Risk While Undertaking Task</b>	 <b>Adhere to Danger Signs &amp; Assess Risk as required</b>
Turret is used for dewatering & suction ONLY	Not to be used in Hydrocarbons or any other types of fluids - liquids
This is NOT A TOY	No person should stand on Turret and or swim near or under the Turret
Always use appropriate lifting equipment	Turret must be empty before lifting & ensure operating within WLL as tagged
DO NOT modify Turret	Don't open, puncture, or try to operate it with any tear, opening or puncture.
Always check the WLL on each lifting points	Don't exceed the design WLL tagged on each lifting point (refer data sheet)
Adhere to safe lifting procedures	Check WLL and use required number of lifting points for safe lift
Always check before lifting	DO NOT lift with water, silt, mud or tailings or particles inside
Ensure "Wear Plate" is in good condition	Replace worn-out wear plate (bottom plate) to prevent damages to Turret
Always check for site safety procedures and comply	DO NOT work near edge of water & comply with site safety requirements
Breather (to the air vent) provided must be fitted to each Turret	Air vent is critical in balancing air pressure and maintain integrity of the weld
Ensure Turrets are partially submerged as per Section 7.1	Ensure the "pre-flooded holes" are free of any debris
Turrets must be restrained during transport & transit	Follow legislated load restraint procedures & site policies for safe transport
Engage suitably trained personnel	Personnel must be trained, ticketed, supervised and tasks risk assessed
Ensure Turret is not modified or damaged before use	All damages must be reported and repaired prior to use
Operate within the flow rate and in suction only	DO NOT exceed maximum vacuum, design flow and operate within capacity
Follow design criteria and process for safe operation	All installations to comply with this instruction manual & operate safely

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### 7.3 Applications:

Subject to engineering design, client approval and processes, Turrets can be used in the following dewatering applications:

- a. Tailing Storage Facilities (TSF)
- b. Mine Pit
- c. Construction
- d. Agricultural & Irrigation
- e. Potable water supplies
- f. Desalination
- g. Sewer & wastewater
- h. Emergency management (fire, flood etc.)

### 7.4 Maintenance:

Unlike pumps, there are no moving parts in Turret. Suggested maintenance include:

- a. Withdraw Turret to land on periodic basis (quarterly and then decide on required frequency)
- b. Ensure Turret is clean and empty (no water, silt, mud etc.)
- c. Lift Turret with a suitable lifting equipment
- d. Inspect screens to ensure no blockage
- e. If needed use high pressure cleaner (water) and clean screens
- f. Inspect Turret – weld, screens, breather, surface ensure no damages and return Turret to operational position

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### 7.5 Troubleshooting

Follow the table below for basic troubleshooting. Contact the Turret team for further details as required: [solutions@turrets.com.au](mailto:solutions@turrets.com.au)

Symptoms	Probably Cause	Solution
Turret doesn't submerge	Pre-flood holes could be blocked	Clear & ensure pre-flood holes are not blocked
Turret doesn't sit level with water	Lack of floats	Use floats or adjust position
	Pipe may not be long enough to level out in water	Add suction pipe or level it or consider mining hose
	Incorrect installation	Refer to Section 7.0 & 7.1 for installation
Pump is not priming	Suction connection is not sealed	Check & reseal connection
	Air leak on top of Turret	Contact us for suggestions (don't open Top plate)
	Faulty pump	Refer to pump OEM manuals
Pump is primed but cavitating	Air lock in suction line	Reposition suction line and bleed air up to the pump
	Pump exceeding flow rates	Check & operate within parameters
	Water level is too low	Refer to minimum depth and operate within limits
Cavitation in pump	Blockage of Turret screen	Check Turret suction & clear debris
Top of Turret is distorted or collapsed	Pump has exceeded recommended vacuum	Check and operate within pump specification
	Fluid density is too high	Check density & contact Turret
	Blocked screens	Clean screen & reduce flow
Turret sits too low in water	Hole, leak or damage to main body of Turret	Withdraw Turret to land & inspect – contact Turret Team

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### 8.0 Spares

Suggested stock of operational spares per Turret to mitigate handling & damages at site. This may vary depending on number of Turrets at site, usage and handling etc.

Spare Parts	Quantity	Turret 3m (Mega-flow)	Turret 2m (Maxi-flow)	Turret 1m (Mini-flow)
Breather	5	 <p style="text-align: center;"><b>Breather with Cap</b></p>	 <p style="text-align: center;"><b>Breather with Cap &amp; reducing bush</b></p>	 <p style="text-align: center;"><b>Screw on breather</b></p>
		 <p style="text-align: center;"><b>1 Set = 8 Screens</b></p>	 <p style="text-align: center;"><b>1 Set = 8 Screens</b></p>	 <p style="text-align: center;"><b>1 Set = 3 Segments</b></p>

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### 9.0 Warranty:

Turret Engineering Pty Ltd (Turret) undertakes to the original purchaser of the Turret to remedy defects in the Turret in the terms of the warranty set out below (the “*Warranty*”) by either, at its sole discretion, replacing or repairing the Turret affected by defects in design, materials or workmanship for a period limited to 12 months from the date of completion of purchase. This warranty is only available to the original purchaser and is not transferrable. It does not apply to original purchasers who resell the Turret.

#### **Warranty repair will take place providing:**

- a. The fault is due to defects in design, materials, or workmanship and the faulty Turret is reported to "Turret" contact email in the footer with necessary information so we can ascertain the issue, investigate the claim and identify the root causes etc.
- b. The Warranty claim is accompanied by proof of purchase. The defect is not caused by the purchaser or any other person (other than "Turret") and the Turret is used for the intended purposes only as per our operational manual.
- c. The installation and maintenance works are undertaken by the client as per this manual
- d. All services and repairs are undertaken by Turret team or in consultation with and approved by Turret team.
- e. Turret is always used with the “Breather” provided or supplied by us
- f. The Warranty does not extend to submersible pumps fitted inside the Turret. In such cases, please refer to the OEM pump manufacturer’s warranty.
- g. The Warranty does not cover the wear plate on the bottom of the Turret because this plate is designed to wear away if the Turret is dragged across abrasive ground for extended periods of time.
- h. This warranty does not apply to the colour or appearance of the Turret, which may alter.

Any payment under this Warranty is limited to the cost of repairing or replacing the Turret (at "Turret" sole discretion) and does not extend to any indirect or consequential loss, claim, expense or damage resulting from or caused by any defect or fault in the Turret, including, but not limited to loss of income, damage, profits or goodwill or loss sustained by the Customer or third parties.

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**The Warranty does not cover defects that are caused by the following:**

- Deficient maintenance.
- Improper installation.
- Failure to have the Air Vent in working order prior to deployment.
- Normal wear & tear
- Wear due to frictional damage of dragging the Turret in transport, relocation etc.
- An act of God, an act of war, storm, hail, wind or other natural event or force of nature.
- Reasonable weathering/degradation over time.
- Negligence (other than by "Turret"), abuse, wilful damage or other deliberate or careless act.
- Someone walking on, driving on, dropping or applying any load to the Turret.
- Inadequate or incorrect site preparation.
- Pipe work connected to the Turret which is not adequately supported to put undue pressure or strain on fittings.
- The Turret being lifted or transported with water, silt, tailings or particles inside it.
- After sale modifications, repairs or the installation of fittings which are not suitable for the Turret or weaken its integral properties.

**Turret Engineering Pty Ltd assumes no liability for the following:**

- Bodily injuries.
- Material damages.
- Economic losses.

For all warranty claims, please contact our enquiries email (refer footer note)

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# Installation & Operational Manual for Turret™

## 10.0 Risk Assessment:

Following Risk matrix is used for the assessment of aspects of risk.

Likelihood	Consequence				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
5 Certain	11 High	16 High	20 Extreme	23 Extreme	25 Extreme
4 Likely	7 Medium	12 High	17 High	21 Extreme	24 Extreme
3 Possible	4 Low	8 Medium	11 High	16 Extreme	22 Extreme
2 Unlikely	2 Low	3 Low	6 Medium	9 High	14 Extreme
1 Rare	1 Low	1 Low	3 Medium	6 Medium	10 High

Level	Financial	Health & Safety	Operational
1	Insignificant >\$1,000	First Aid injury. Nuisance value.	Loss equivalent to 1 hour of production interruption.
2	Minor >\$10,000	Medical treatment injury. Restricted work injury.	Loss equivalent to 6 hours of production interruption.
3	Moderate >\$100,000	Single lost time injury.	Loss equivalent to 12 hours of production interruption.
4	Major >\$1,000,000	Multiple lost time injuries. Admission to intensive care unit or equivalent. Serious chronic long term effects.	Loss equivalent to 3-7 days of production interruption.
5	Catastrophic >10,000,000	Fatality(s) or permanent disability.	Loss equivalent to more than a week of production interruption.

Level	Description	Criteria
5	Certain	The event will occur
		The event occurs daily
4	Likely	The event is expected to occur
		The event occurs weekly/monthly
3	Possible	The event will occur under some circumstances
		The event occurs annually
2	Unlikely	The event has happened elsewhere
		The event occurs every 10 years
1	Rare	The event may occur in exceptional circumstances
		The event has rarely occurred in the industry

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## Installation & Operational Manual for Turret™

Risk Number & Activity	Risk Description	Potential Causes	Potential Consequences	Current Controls	Impacted Area	C	L	S	M	Risk Treatment Action
1. Taking delivery of Turret	Uncontrolled load during lift	1. Lack of knowledge 2. Turret shifted/loosened from carry frame in transport	1. Personal injury 2. Equipment damage 3. Interruption to business	1. Ensure that all involved persons have read the 3m Turret Owner's Manual 2. Operator to be aware of the correct technique to lift the carry frame 3. Inspect the straps securing the Turret to the carry frame and ensure that they are still tight and in position 4. Do not attempt a lift until the integrity of Turret and carry frame is verified	Health & Safety	3	2	9	M	1. All involved persons to understand how the lift is to be performed 2. All involved persons to understand their role in the lift 3. Extraneous personnel to be kept clear of the area
2. Offloading Turret & carry frame from truck	Uncontrolled release of energy- unexpected movement	1. Incorrect lift 2. Load slippage	1. Personal injury. 2. Equipment damage. 3. Interruption to business.	1. Competent person to unload Turret and carry frame 2. Operator to lift load at appropriate speeds 3. Known weight of Turret and carry frame 4. Spotters to be used	Health & Safety	2	3	8	M	1. Tyned lifting equipment to be rated for the lift 2. Operator to be competent on the chosen equipment 3. Unload Turret and carry frame on flat even ground
3. Offloading Turret & carry frame from truck	Turret falling off carry frame and truck bed	1. Turret not secured to carry frame 2. Load slippage	1. Equipment damage 2. Interruption to business	1. Inspect and tighten straps securing Turret to carry frame if required 2. Loosen straps holding Turret and carry frame to truck bed 3. Clear area of extraneous personnel 4. Spotters to be used	Financial	2	2	5	L	1. Clear communications 2. Equipment inspections prior to unloading
4. Offloading Turret & carry frame from truck	Carry frame damage due to incorrect unloading	1. Tynes striking carry frame. 2. Tynes incorrectly seated in carry frame	1. Equipment damage. 2. Inability to offload Turret and carry frame. 3. Interruption to business	1. Competent person to unload Turret and carry frame. 2. Operator to lift load at appropriate speeds 3. Spotters to be used	Operational	2	3	8	M	1. Operator to be competent on the chosen equipment 2. Unload Turret and carry frame on flat even ground

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## Installation & Operational Manual for Turret™

Risk Number & Activity	Risk Description	Potential Causes	Potential Consequences	Current Controls	Impacted Area	Risk Rating				Risk Treatment Action
						C	L	S	M	
5. Preparing to remove Turret from carry frame.	Crush injury	1. Turret slippage after straps released from carry frame 2. Body in the Line of Fire	1. Personal injury	1. Ensure Turret is seated in the carry frame and carefully release and remove straps 2. Do not stand in front of the Turret, stand to the side	Health & Safety	2	2	5	L	1. Clear communications 2. Extraneous personnel to be kept clear of the area
6. Fitment of the Turret to suction pipe	Incorrect fitment, equipment failure	1. Cracks, holing or damage to the top of the unit-Turret not airtight 2. Dirt, grease or debris on the sealing faces 3. Blocked flood prime holes	1. Interruption to business 2. Financial loss	1. Inspect Turret for damage 2. Clean sealing faces on the Turret and suction pipe 3. Ensure that flood prime holes are clear of debris	Financial	2	2	5	L	1. Contact us for repair if the Turret is damaged. 2. Use RTV silicon or similar sealant on the sealing faces
7. Pushing Turret and suction pipe into water	Uncontrolled energy-Turret and suction pipe lost in water	1. Suction pipe not secured to the push equipment 2. Push equipment operated at inappropriate speed 3. Sloping ground conditions	1. Personal injury 2. Equipment damage 3. Interruption to business	1. Secure suction pipe to push vehicle and use a tag line to maintain control of the pipe and Turret 2. Operator to be competent on the chosen equipment 3. Pump ground environment to have been developed and maintained	Operational	2	3	8	M	1. Ensure Turret is sitting flat in the water 2. Ensure sealing faces are clean and free of debris, apply RTV silicone 3. Bolt a length of mining hose to the pump end before bolting open end of suction pipe to the open end of the mining hose 3. This protects the pump end from 'shock loading' due to the rigidity of suction pipe

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## Installation & Operational Manual for Turret™

Risk Number & Activity	Risk Description	Potential Causes	Potential Consequences	Current Controls	Impacted Area	Risk Rating				Risk Treatment Action
						L	S	E	C	
8. Turret sitting proud in water	Incorrect placement- pump will not prime	1. Turret not partially submerged as required 2. The flood holes at the bottom of the Turret are blocked 3. Hose and fittings are not air tight	1. Interruption to business 2. Financial loss	1. Ensure that the water body is at least 400mm deep 2. Recheck the pre-flood holes for obstructions 3. Ensure that the suction hose slopes down to the water from the pump end	Operational	2	3	8	M	Floats may be added if a lengthy suction pipeline is being utilized, this will help to stabilize hose and Turret
9. Turret sits too low in the water	Incorrect placement- pump performance affected	1. Hole, leak or damage to the main body in the Turret	1. Interruption to business 2. Financial loss	1. Turn off pump, isolate if required 2. Remove Turret and inspect for damage 3. Contact us for advice and repair	Financial	3	2	9	M	Do not effect repair yourself as this may void your warranty
10. Top of Turret is distorted or has collapsed	Turret has become damaged	1. Pump has exceeded recommended vacuum due to high fluid density 2. Pump has exceeded recommended vacuum due screen blockage	1. Equipment damage 2. Interruption to business 3. Financial loss	1. Turn off pump, isolate if required 2. Clean screens and/or reduce flow 3. Contact us for advice and repair	Operational	3	2	9	M	Do not effect repair yourself as this may void your warranty

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## Installation & Operational Manual for Turret™

### 11. Frequently Asked Questions (FAQ):

**1. What is Turret™ and how does it solve shallow water pumping challenges?**

The Turret™ is a floating water intake solution designed to draw water from just below the surface using a radial intake. It inhibits Vortexing, cavitation, and sediment ingestion, commonly used in shallow water pumping, ensuring more efficient and safer operations.

**2. Is Turret a pump?**

a. No, Turret is a dewatering device with global patents and facilitates dewatering effectively and used with suitable pumps

**3. What type of pumps are suitable?**

Turrets are used with skid-mounted, submersible, and amphibious pumps. It's compatible with most vacuum-prime pumps or pump systems with priming units.

a. Preferably Self-priming pumps or

b. Pumps with priming units or

c. If Flood-primed then requires a Check – Non return Valve (Metal or Poly NRV)

**4. What is the friction loss of Turret?**

a. Factor in a K Factor loss of 0.5 for max flow of 1000 m<sup>3</sup>/h.

**5. What Turret best suits my application?**

a. Consult engineers, designers or an experienced professional to choose a Turret based on application, flow rate  
or

b. Refer to our “Data Sheet”  
or

c. Email us your enquiry should you require detailed understanding of Turret for your application

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## Installation & Operational Manual for Turret™

# Data Sheet & Dimensions for Logistics

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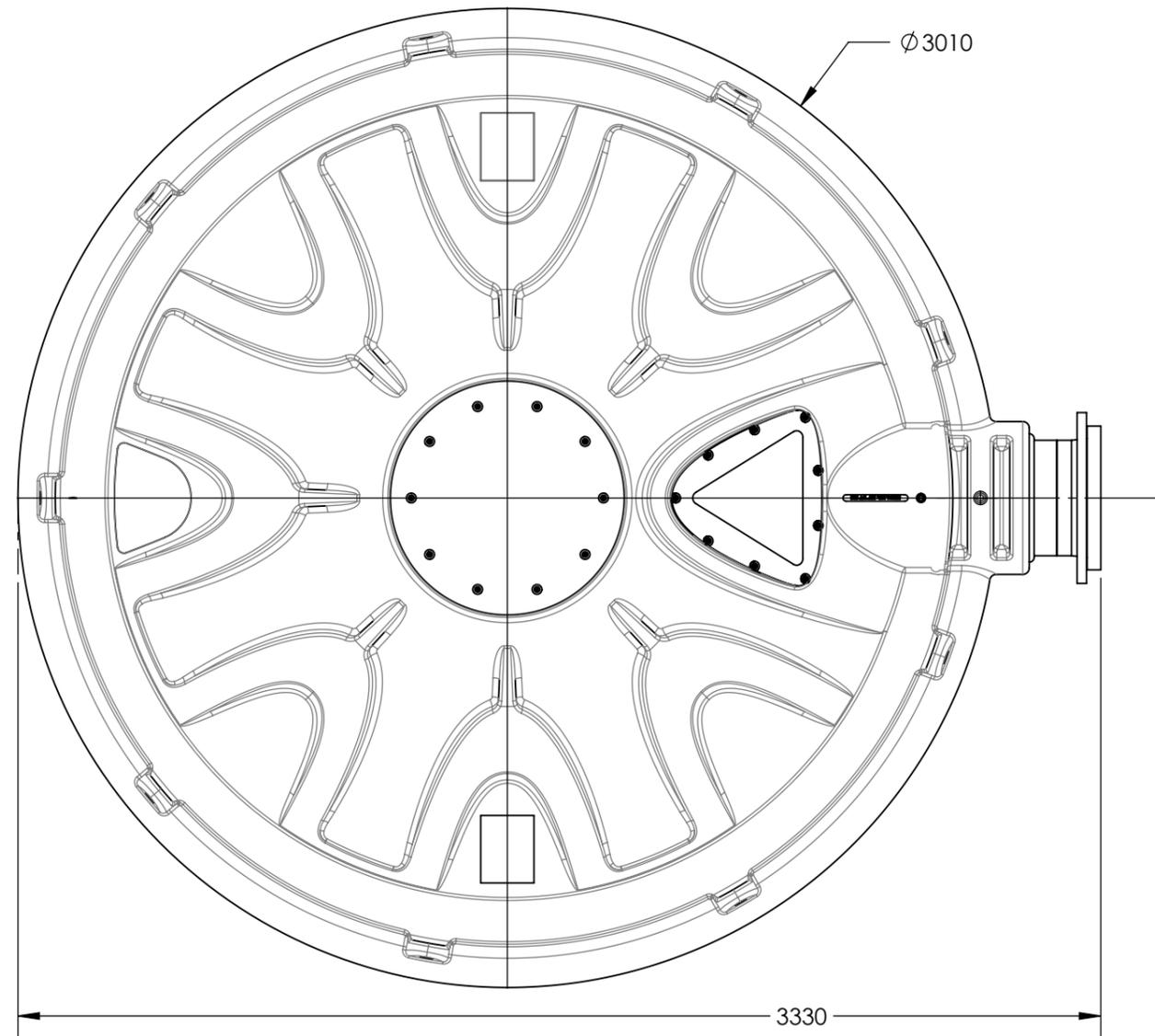


# TURRET

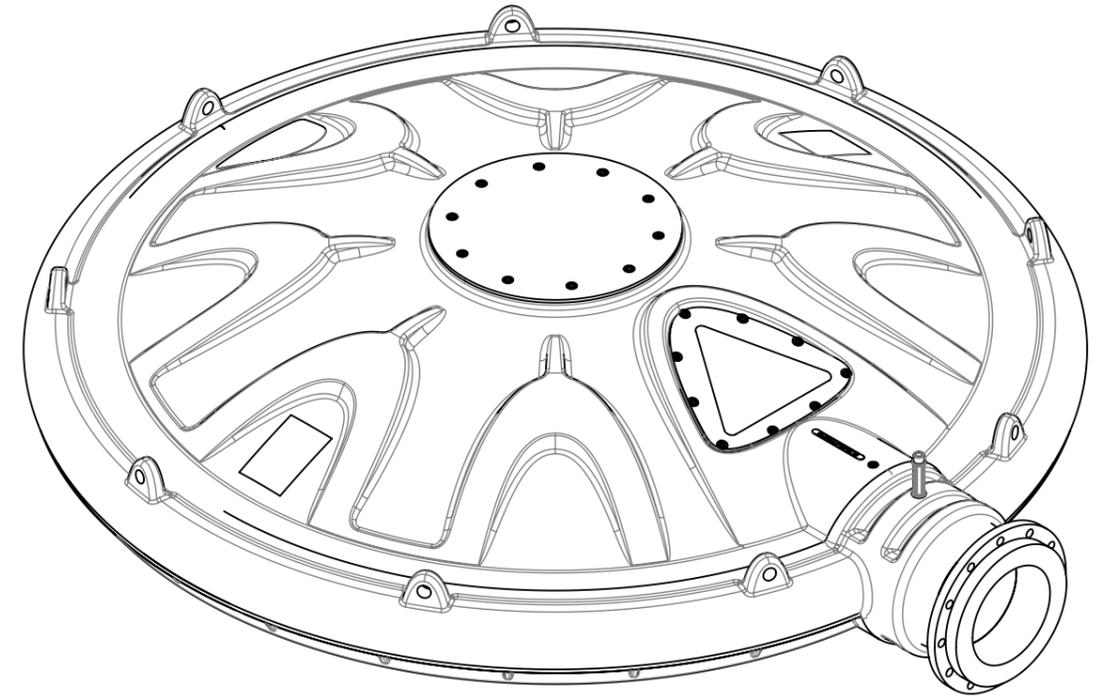
# Data Sheet

Item	Clarification	Turret 3m (Mega-flow)	Turret 2m (Maxi-flow)	Turret 1m (Mini-flow)	Turret 1/2m (Micro-flow)
Part Number	Naming of Turret (Size - Backing Ring - Material)	T3M-E355-SS316	T2M-E225-SS316	T1M-E110-SS316	Releasing Soon
Friction Loss	K - Factor	0.5	0.5	0.5	Releasing Soon
Material	Turret Shell "Linear Low Density Poly Ethlyne" LLDPE	LLDPE	LLDPE	LLDPE	Releasing Soon
Process	Manufacturing Process	Rotamoulded   Welded	Rotamoulded   Welded	Rotamoulded   Welded	Releasing Soon
Shallow Depth	Operational Limit (depth in mm)	> 380mm	< 100mm	> 180mm	Releasing Soon
Flow	Flow Range Max (m3/hour)	1000 m3/h	500 m3/h	100 m3/h	Releasing Soon
Anchor Points	Anchor Points with Work Load Limit (WLL)	150 Kg	50 Kg	10 Kg	Releasing Soon
	Number of Points	9 Points	5 Points	2 Handles	Releasing Soon
Backing Ring	Table E (optional ANZI #150)	Table E	Table E	Table E	Releasing Soon
	Options Available	<i>please contact us</i>	<i>please contact us</i>	Threaded Male 110mm	Releasing Soon
	Backing Ring (Material)	SS316	SS316	SS316	Releasing Soon
Stubflange	Stubflanged HDPE to Size (PN10 PE100 SDR17)	DN355	DN225	DN110	Releasing Soon
Reducer	Directly Reduced (Eccentric)	DN400   DN450	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Directly Reduced (Concentric)	<i>not a preferred option</i>	<i>please contact us</i>	DN160	Releasing Soon
	External Reducer	<i>to suit application</i>	<i>to suit application</i>	<i>to suit application</i>	Releasing Soon
Bolts & Washers	Material for bolts & washers	SS316	SS316	SS316	Releasing Soon
Screen Options	Standard	30mm dia approx	50mm approx	16mm dia approx	Releasing Soon
	Wide (for high salinity)	150mm x 550mm	50mm approx	100mm x 250mm	Releasing Soon
	Special Sizing	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Gutter Screen	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
Temperature	Typical Design Temperature (Deg C)	0 - 40	0 - 40	0 - 40	Releasing Soon
	Exceeding 40 Deg C	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
	Options < 0 Deg C	<i>anti-freezing solution</i>	<i>anti-freezing solution</i>	<i>anti-freezing solution</i>	Releasing Soon
Quality Checks	Our Accreditation Standard Checking	<i>please contact us</i>	<i>please contact us</i>	<i>please contact us</i>	Releasing Soon
Accessories	Typical Accessories - Optional	Floats for Pipe Size	Floats for Pipe Size	Floats for Pipe Size	Releasing Soon
Spools	Y - Spool	DN560 or DN630 to DN355	DN355 - DN315 - DN225	DN225 to DN110	Releasing Soon
	Tri - Spool	DN560 or DN630 to DN356	DN355 - DN315 - DN225	DN225 to DN 160 - DN110	Releasing Soon
Packaging	Packaging Standard	Transport Frame (ISPM15)	Transport A-Frame (ISPM15)	Hardboard Box	Releasing Soon
Mass (Kg)	Approximate Mass (Kg) of Turret	477 Kg	175 Kg	15 Kg	Releasing Soon
	Approximate Mass (Kg) of Frame	178 Kg	75 Kg	5 Kg	Releasing Soon
	Approximate Mass (Kg) Total	655 Kg	250 Kg	20Kg	Releasing Soon
Dimensions	Dimensions & Packaging	Ref attached	Ref attached	Ref attached	Releasing Soon

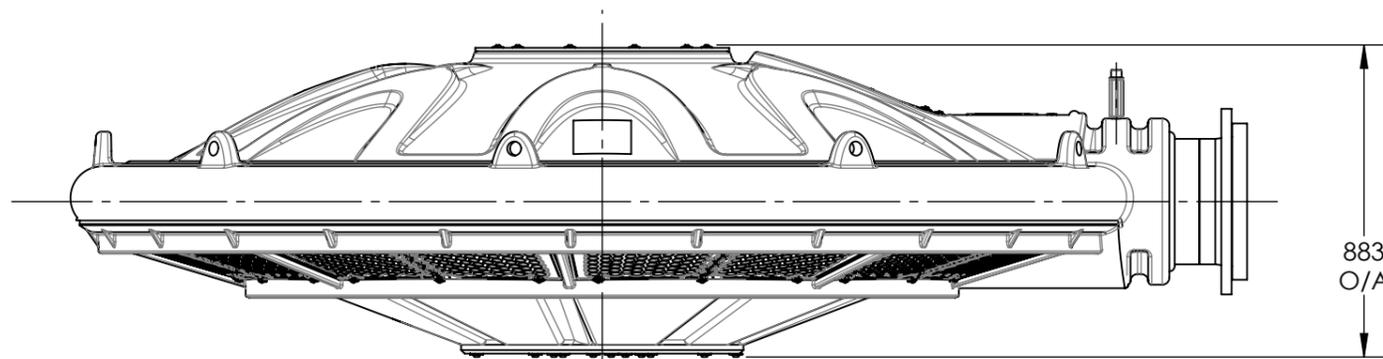
# 3m TURRET - EXTERNAL USE



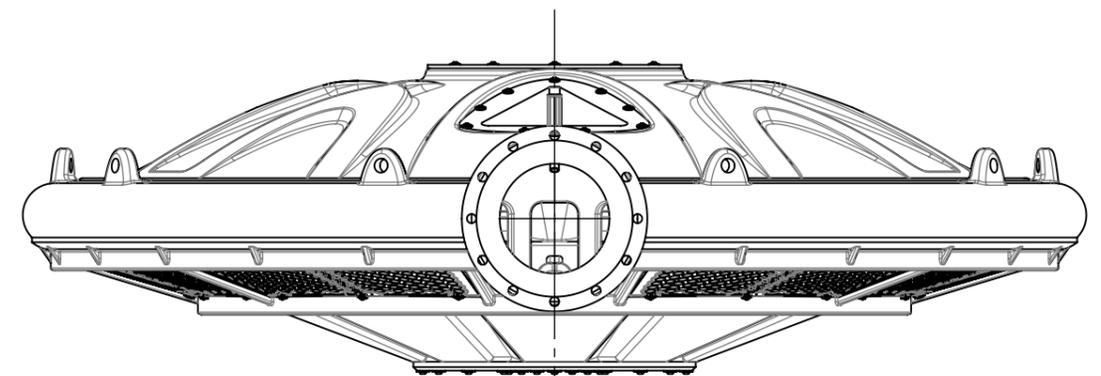
PLAN VIEW



PICTORIAL VIEW



SIDE VIEW



FRONT VIEW

REFER TO CAD IF SPEC'D. NO STRUCTURAL ENGINEERING HAS BEEN CONSIDERED.  
NOTE: ALL TOLERANCES  $\pm 1\%$  UNLESS NOTED OTHERWISE

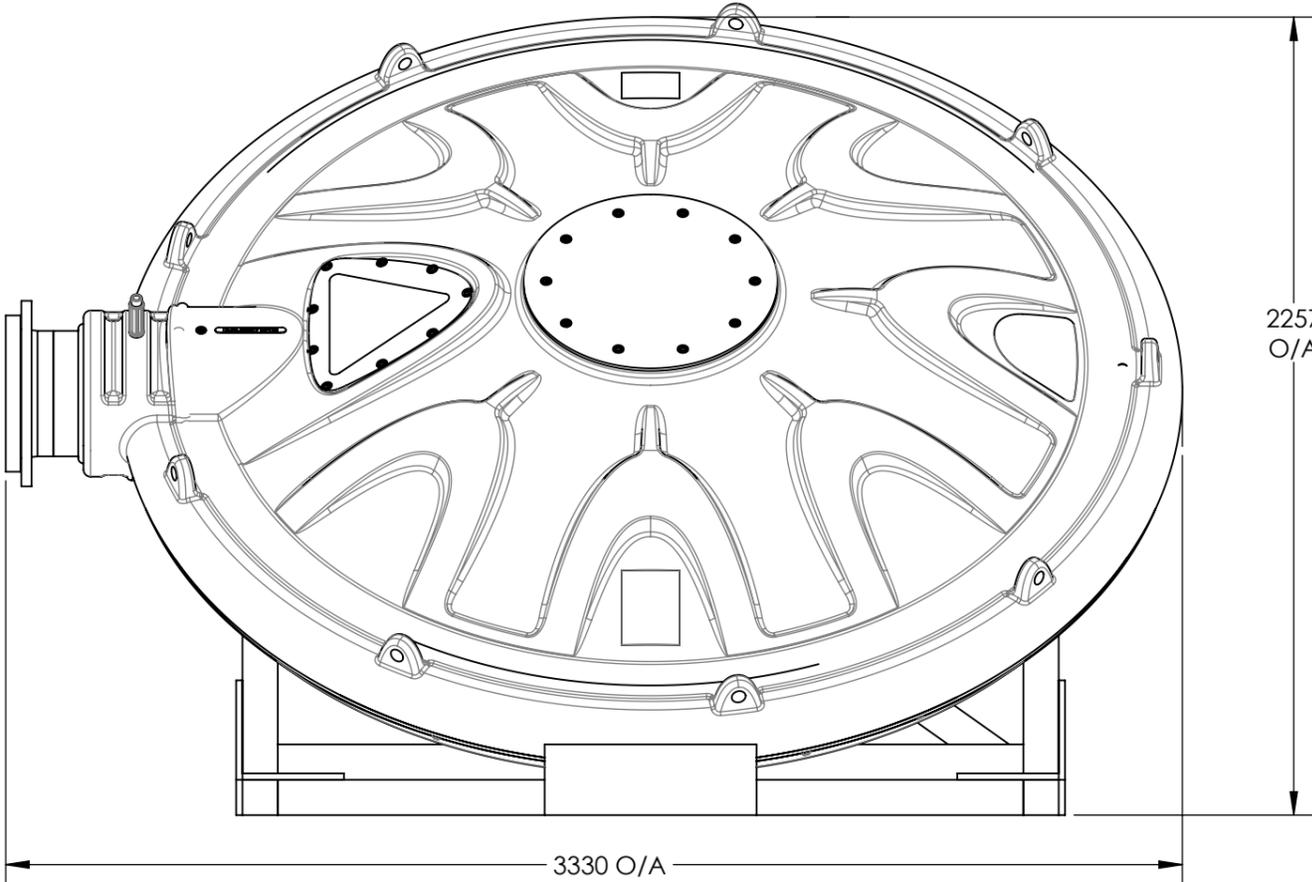
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## RELEASE

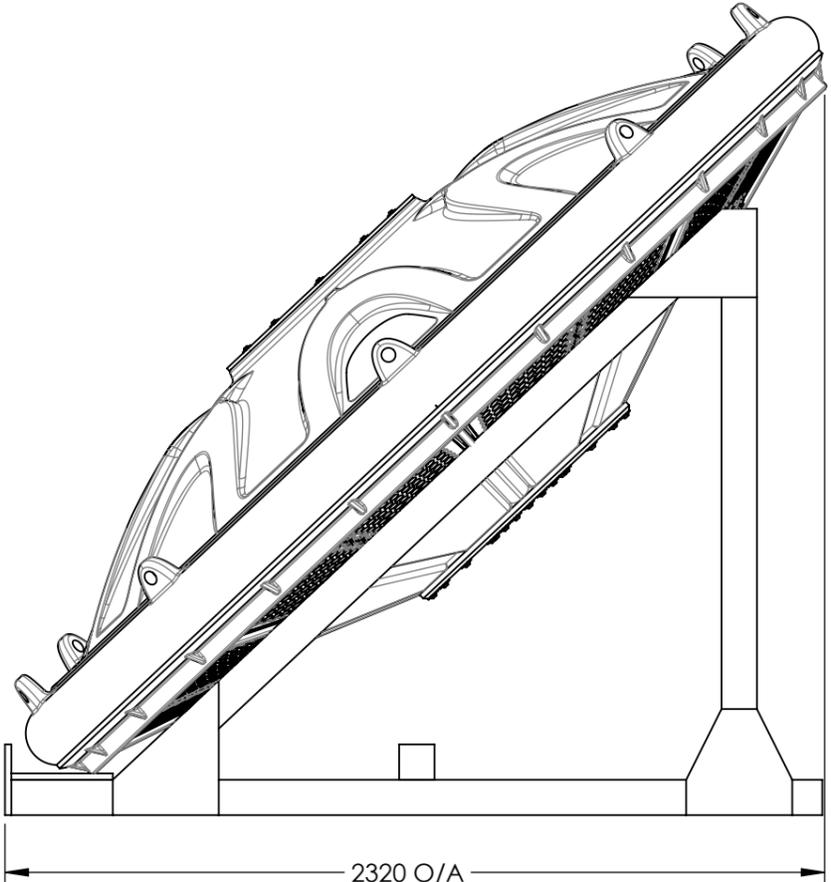
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B				DESCRIPTION: 3m TURRET	MATERIAL: VARS	DATE: 30/04/2024			
A				FILE NAME: 17-920 3m Turret External Use	WEIGHT: NA	SCALE: 1:50			
REV	DESCRIPTION	DATE	DRAWN	FILE NAME: 17-920 3m Turret External Use	WALL THICKNESS: VARS	SHEET 1 OF 2			

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# 3m TURRET - SHIPPING - EXTERNAL USE



**FRONT VIEW**



**SIDE VIEW**

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NOTE: ALL TOLERANCES  $\pm 1\%$  UNLESS NOTED OTHERWISE

**PRODUCT SIZES**

**RELEASE**

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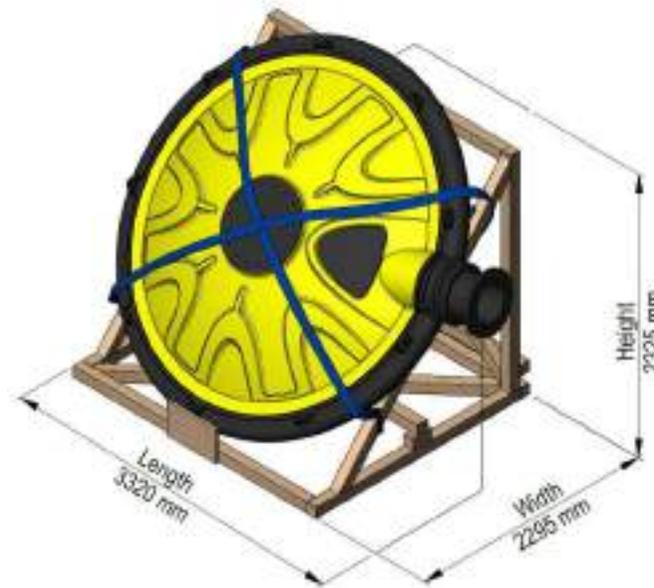
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# Handling & Transportation Turret 3m *mega-flow*



Road Freight



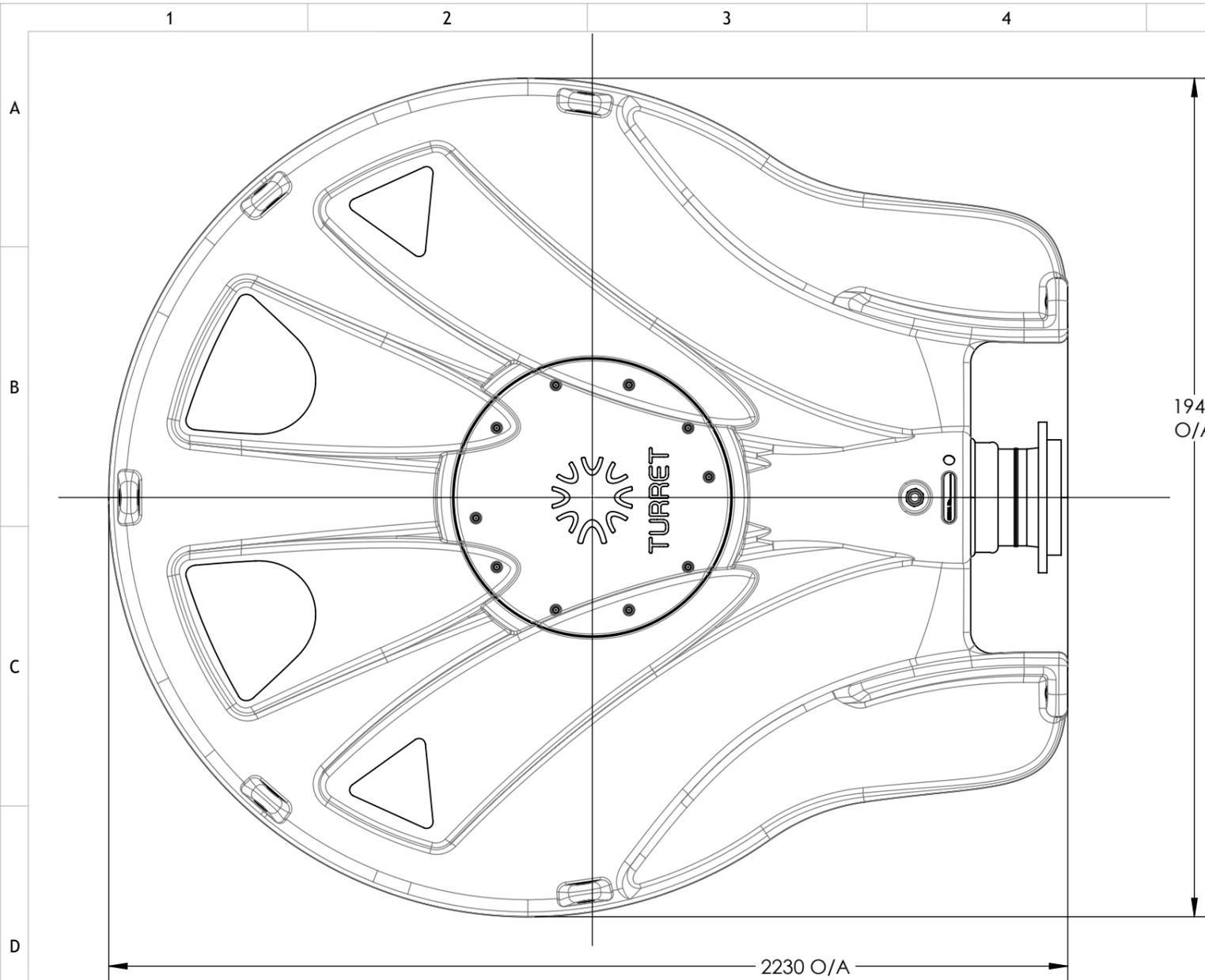
Weight	
Stand	178.00 kg
Turret	476.50 kg
Total	654.50 kg



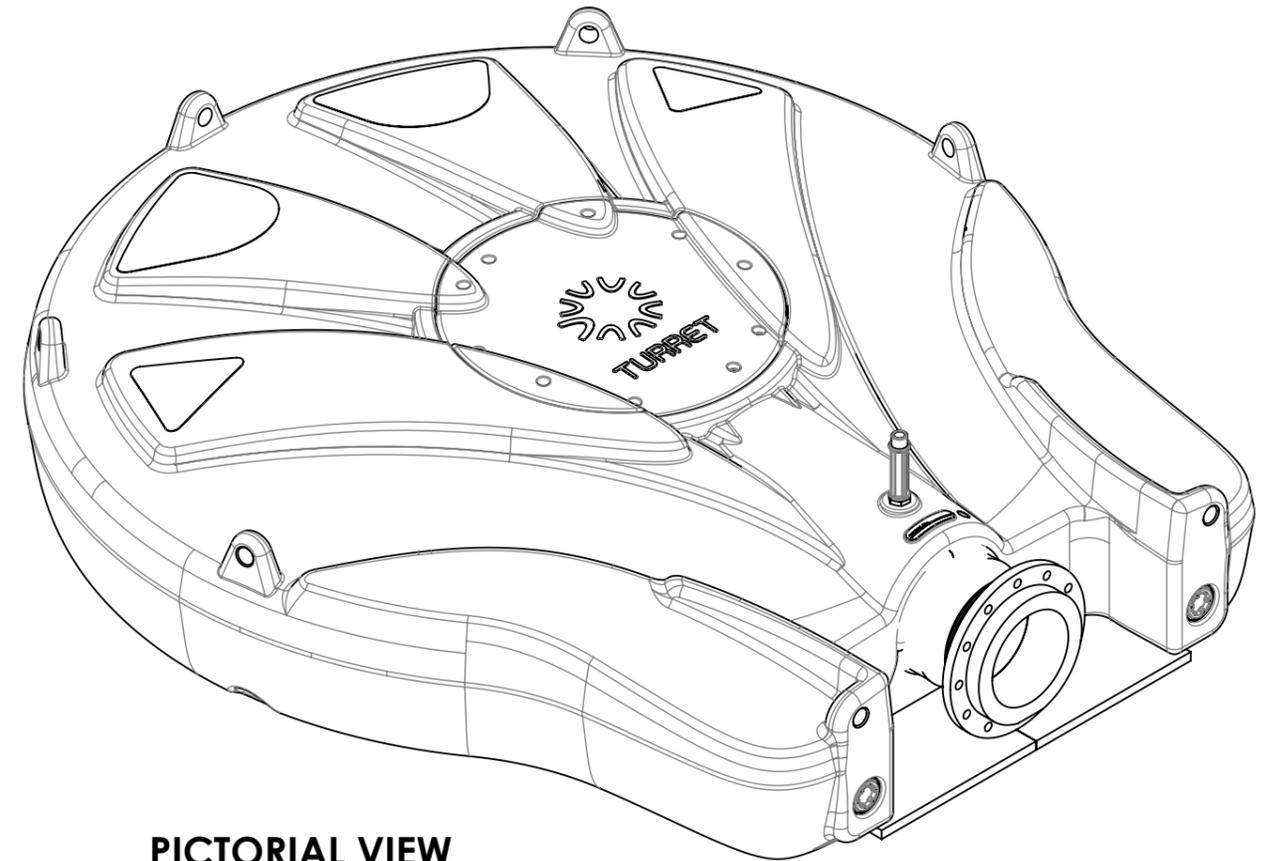
Export & Container



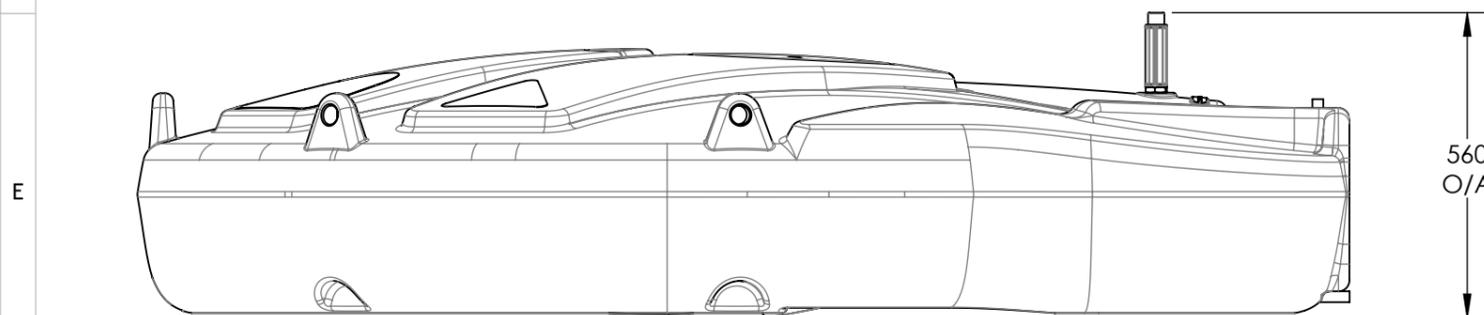
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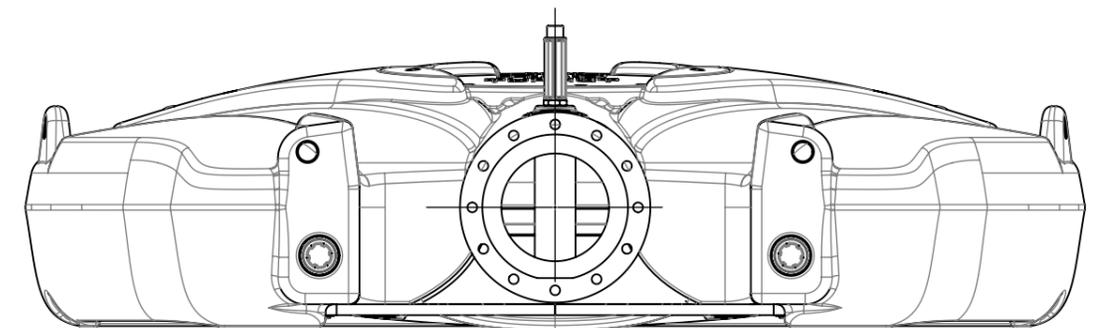
PLAN VIEW



PICTORIAL VIEW



SIDE VIEW



FRONT VIEW

REFER TO CAD IF SPEC'D. NO STRUCTURAL ENGINEERING HAS BEEN CONSIDERED.  
NOTE: ALL TOLERANCES ±1% UNLESS NOTED OTHERWISE

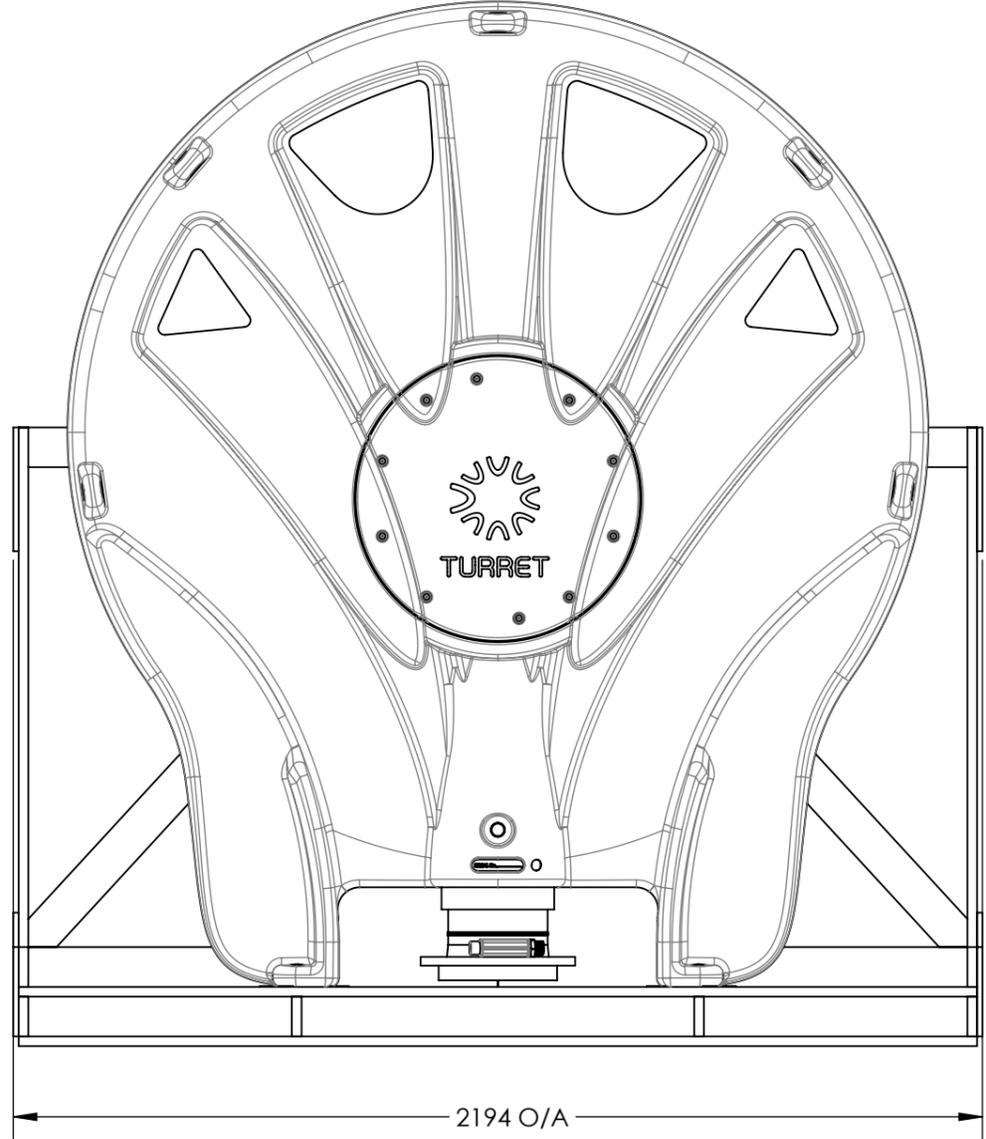
## PRODUCT SIZES

## RELEASE

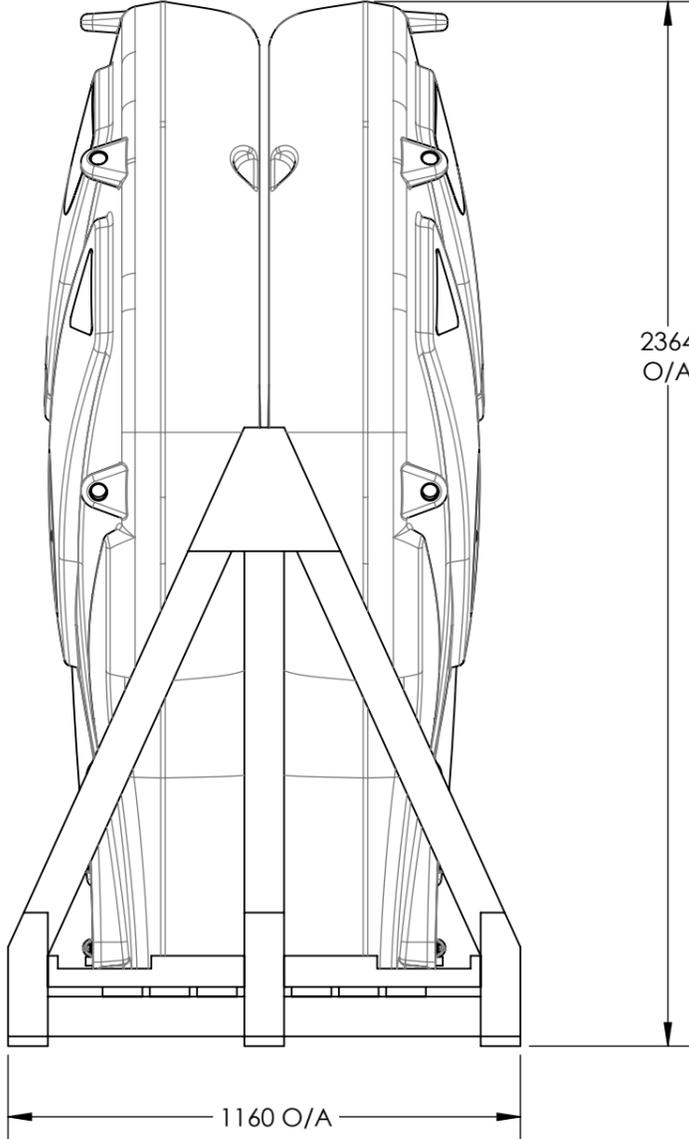
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REV	DESCRIPTION	DATE	DRAWN	FILE NAME: 20-1006 2m Turret External Use	WALL THICKNESS: VARS	SHEET 1 OF 2			

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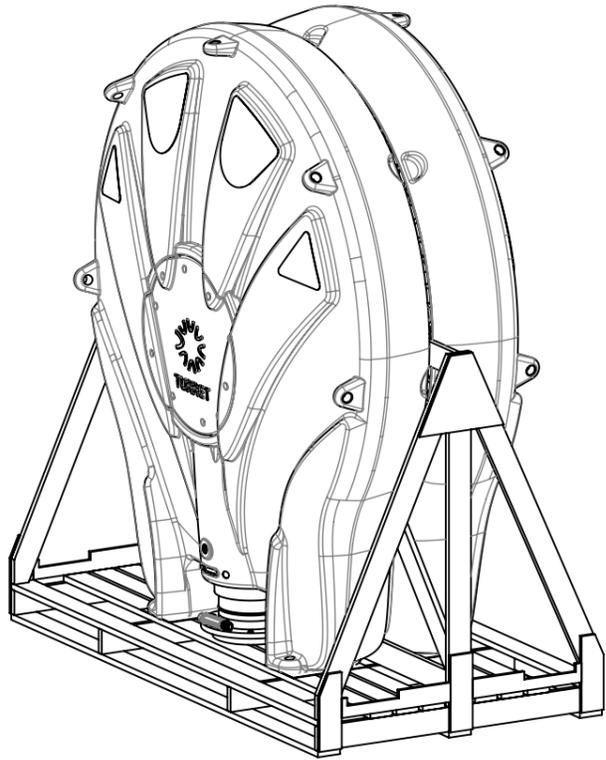
# 2m TURRET - SHIPPING - EXTERNAL USE



**FRONT VIEW**



**SIDE VIEW**



**PICTORIAL VIEW**

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**PRODUCT SIZES**

**RELEASE**

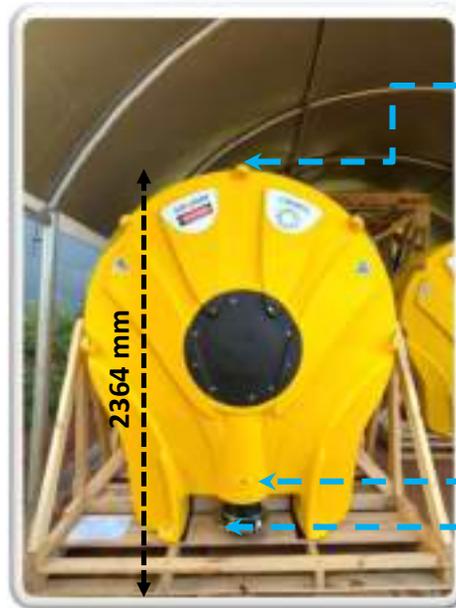
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# Handling & Transport

2m Back-to-Back  
Export Crate Packing



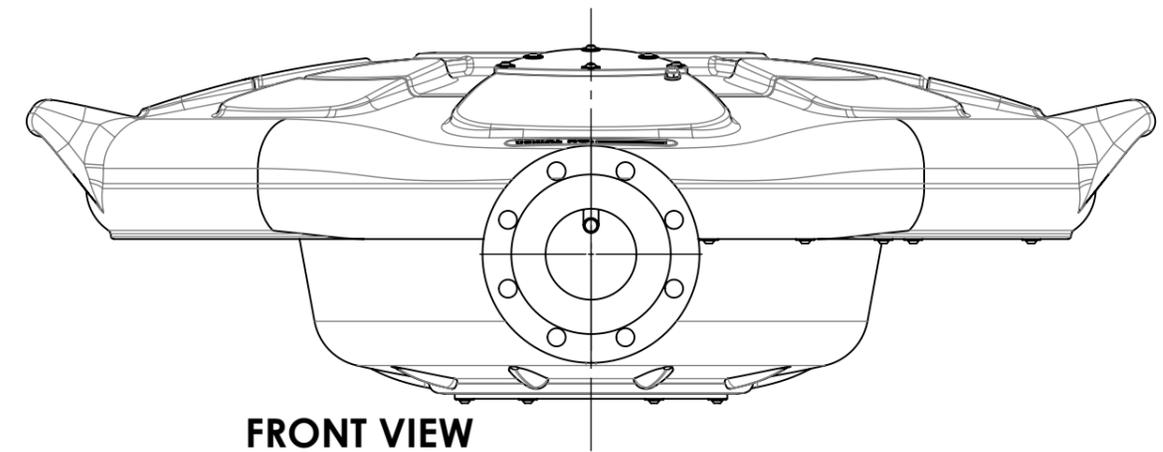
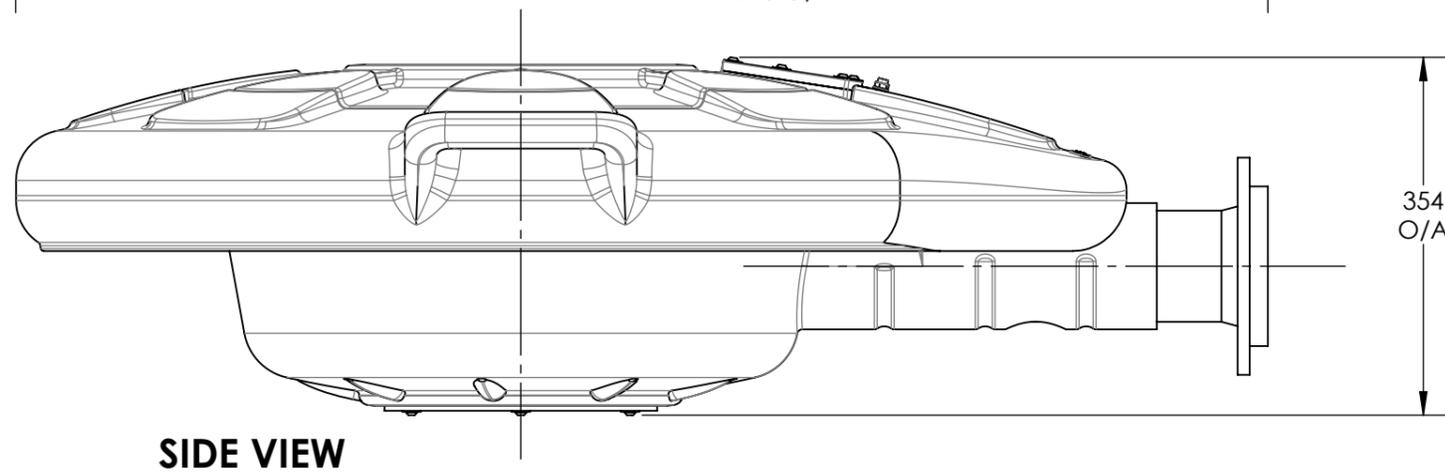
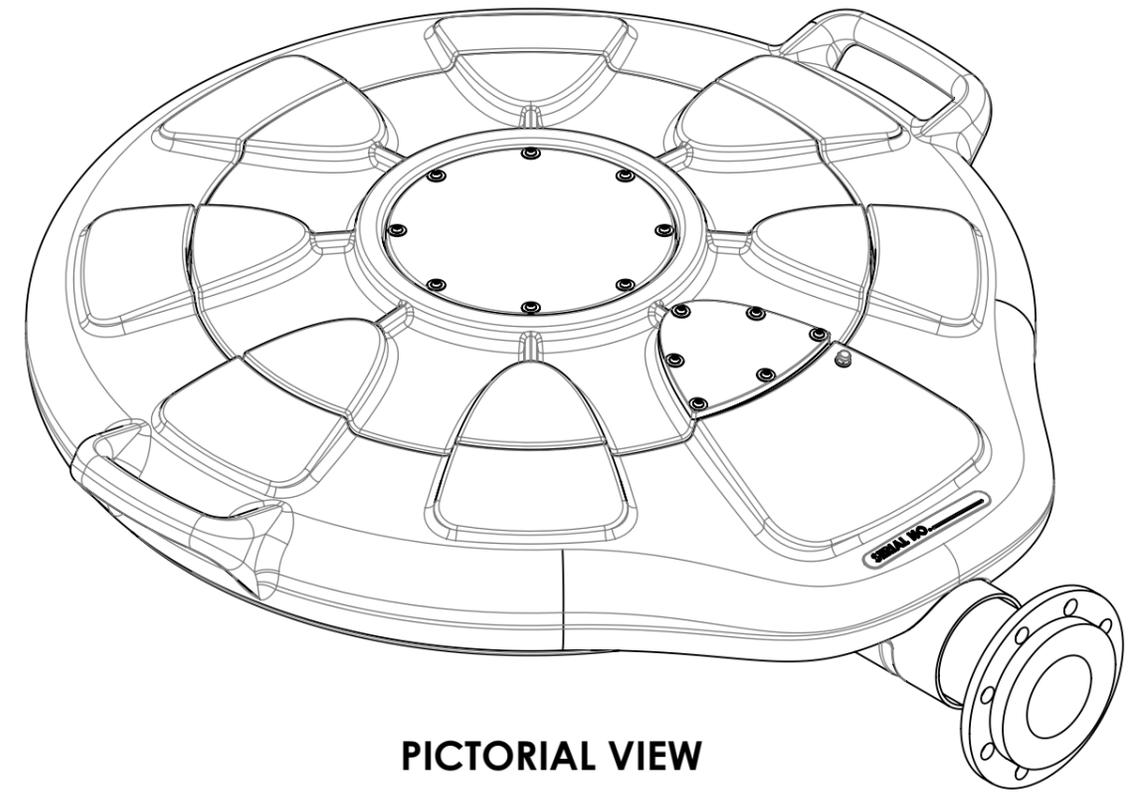
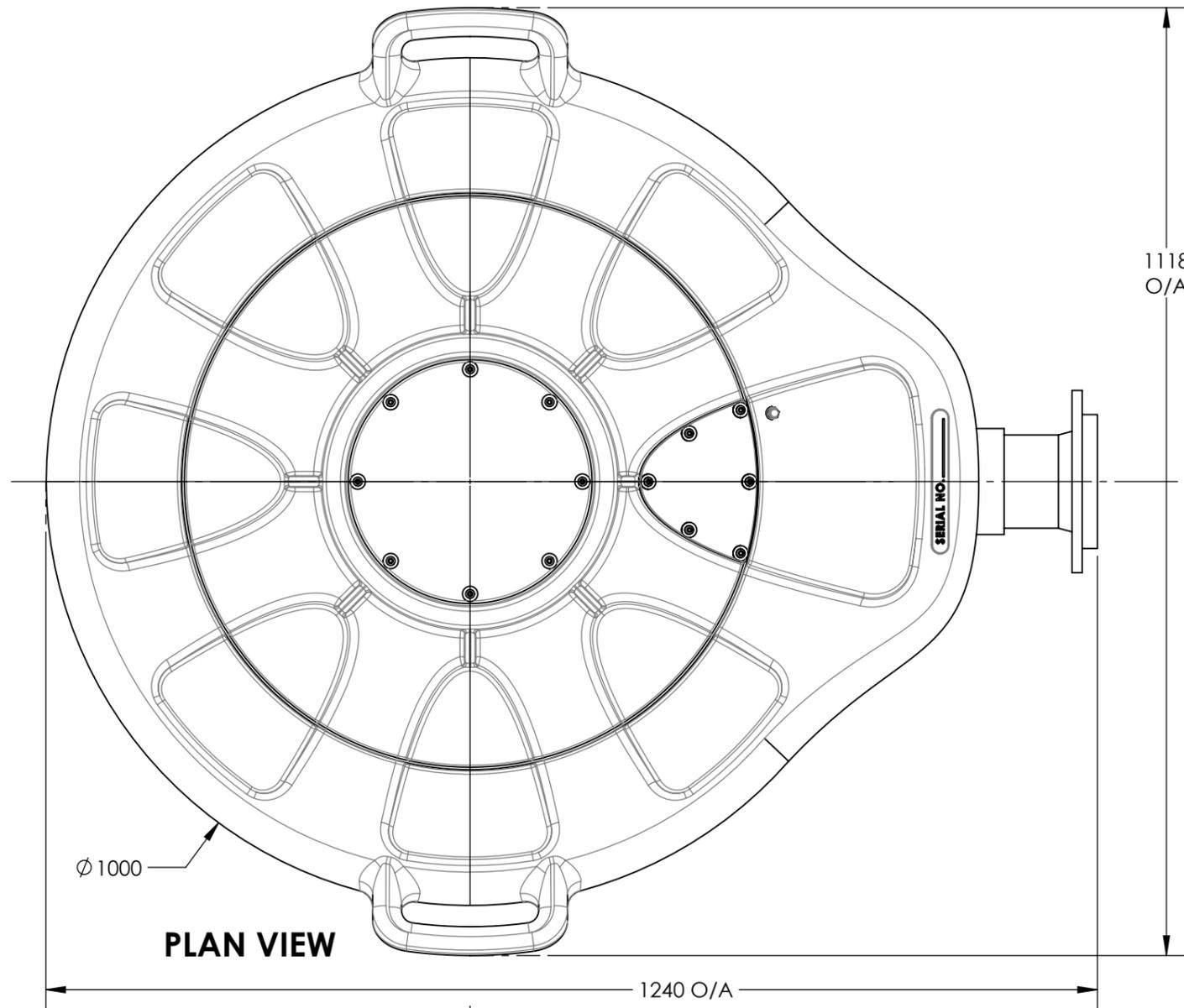
5 x Lifting Points  
WLL 150 Kg each

Screw In The Breather  
Provided

Connect to Flange  
or Coupling



# 1m TURRET - EXTERNAL USE



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NOTE: ALL TOLERANCES ±1% UNLESS NOTED OTHERWISE

## PRODUCT SIZES

## RELEASE

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# Handling & Transport



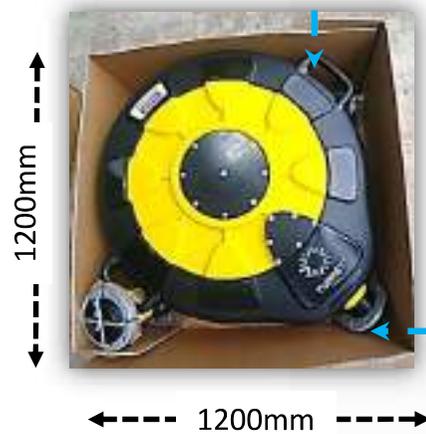
mini-flow  
in hardboard Box

Stacked & Packed



Export Crate Packing

2 x Lifting Points  
WLL 10 Kg each



Connect to Flange or  
Coupling etc.

Float



All our Estimated Quotations are based on information provided by Client

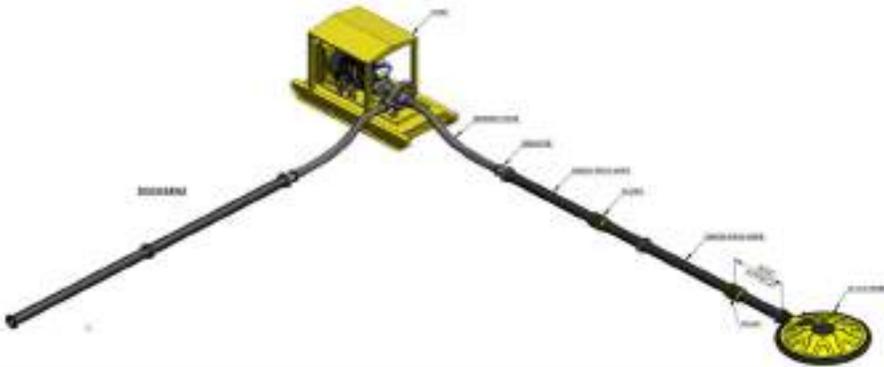


**Turret Engineering Pty Ltd**  
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 11 Evinrude Bend, east Rockingham  
 WA 6168, Australia  
 Email: solutions@turrets.com.au  
 Web: www.turrets.com.au



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**Turret™ is a patented & trademarked innovation of our company**  
**Typical General Set up & Arrangements as depicted below**



- Unload Turret using designated lifting | anchor points.
- Connect & fasten backing ring of poly pipe to Turret.
- Attach float as required (based on site & application).
- Slide Turret & Float in position.
- Connect suction line to pump, then prime the pump and dewater.

- NOTE :**
1. Turret Pricing: Validity for 14 Days & Subject to our Terms and Conditions of Sale
  2. Repairs: Estimates for strip, assess & repair may incur additional cost due to "unforeseen" damages
  3. Accessories: Pricing is subject to changes due to supplier prices variations & availability
  4. Hire of Goods: Is subject to our Terms and Conditions of Dry Hire
  5. All prices are in AUD
  6. Lead-Time: 4 - 8 Weeks for Turret only from receiving PO & Payment (for non-account holders)
  7. Packaging & Transport - refer attached dimensions
  8. For Exports - we offer Ex-Works & Incoterms 2020 (CPT | DAP | DDP etc.) through our Freight Forwarder.
    - 8.1. Clients are free to choose a freight forwarder & agent. You require High Cube (HC) Container for 3m Turrets
    - 8.2. We only load trucks at our yard. Loading of containers is by freight forwarder or your representative agent.

**a member of RBH Group**

Information & Notes

**The Estimation | Quotation is based on information provided at the time of enquiry**

Refer to Tabs of Excel Sheet "Site Information & Calculations" & provide additional information of the application. We require information about your application, photos, RLs, pH, schematics, various distances, pump curve etc.

**Please note that there are no moving parts in the Turret. We suggest monitoring & basic cleaning regime**  
 As each site condition, application and water condition may vary, please undertake periodic checks as required.

- Pull the Turret out periodically as required (Monthly | Quarterly | Half Yearly | Yearly)
- Inspect condition of Turret - deposition, scaling (if any)
- High pressure water clean, undertake descaling and declogging as required
- Float the Turret back on water
- Repeat periodically as required
- Sites requiring descaling may introduce descaling agent through an injector properly mounted through the "Top Plate"

**Options Available for Backing Ring**

Considering various applications and site conditions we offer a wide range of options including but not limited to:

- Table E (Stainles Steel SS316). Table E is widely preferred locally & globally
- ANSI (Stainles Steel SS316)
- Explore HDPE or Other Options to suit application

**Screens**

Turret 1m & 3m have screen options, while 2m Turret has customised screen

- We provide "Standard" Screens with holes for general water application
- We provide "Wide" Slotted Screens for application with high salinity & no free floating objects
- Turret 2m (Maxi-Flow) has 8 Sets of Customised Screens



**Turret 1m Standard Screen** (approx 16mm dia holes)



**Turret 1m Wide Slotted** (aperture Screen)



**Turret 2m Customised Screen** (aperture Screen)



**Turret 3m Standard Screen** (approx 32mm dia holes)



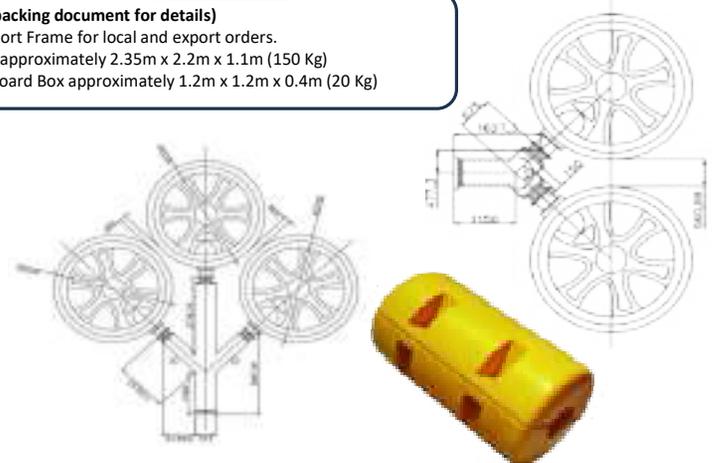
**Turret 3m WIDE Slotted Screen** (approx 150mm x 550mm slot)

**Packaging & Transport (refer packing document for details)**

- Turret (3m) packed on Transport Frame for local and export orders.
- Turret (2m) packed in Frame approximately 2.35m x 2.2m x 1.1m (150 Kg)
- Turret (1m) packed in Hard Board Box approximately 1.2m x 1.2m x 0.4m (20 Kg)

**Turret Options**

Turret can be used extensively with wide range of options -  
 - With Land based pumps -  
 - With Submersible retro fitted by us -  
 - With amphibious pump solution & barge based pumps -  
 - In combination Turret to Pump: 1 to 1 | 2 to 1 | 3 to 1 with accessories -  
 - We also supply Floats, Y-Spool & Tri-Spools.





## Installation & Operational Manual for Turret™

### Manufactured in Australia by:

**Turret Engineering Pty Ltd**  
11 Evinrude Bend  
East Rockingham, WA 6168  
Australia

**Email:** [solutions@turrets.com.au](mailto:solutions@turrets.com.au)

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