



Polyline Industries
Tough Plastics Fabrication

Capability Statement



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Polyline Industries

Polyline Industries

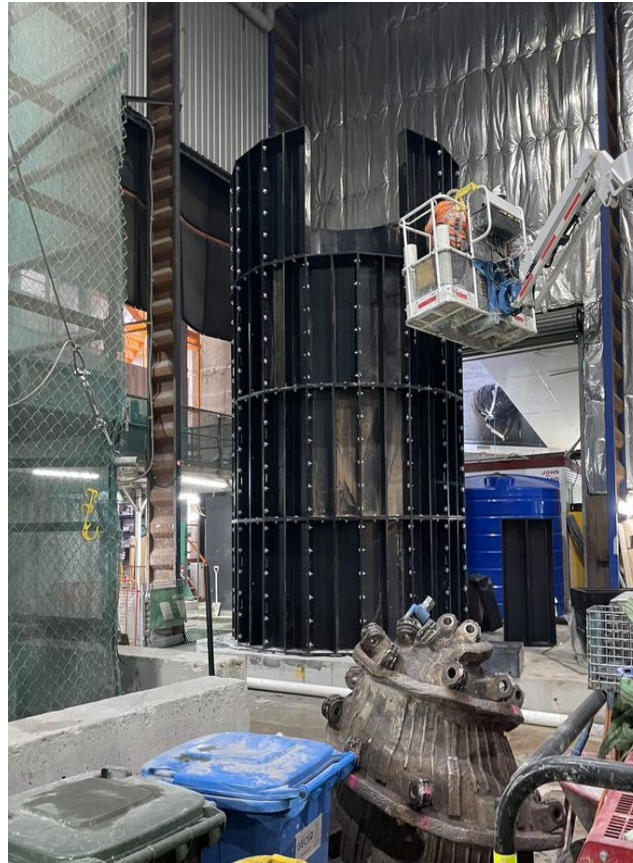
- Western Australia's long-standing HDPE fabrication specialists.
- Custom, project-specific engineered solutions.

Did You Know ...

Polyline Industries was founded in 1999.



Large-scale 3200 X 3030 mm pump float for a 3-tonne 110kW pump



Modular stacked PolyDuct for a free air-rise



Our Ventilation ducting loaded for transport

What We Do

- Engineered HDPE that keeps air, water and people moving-safely.

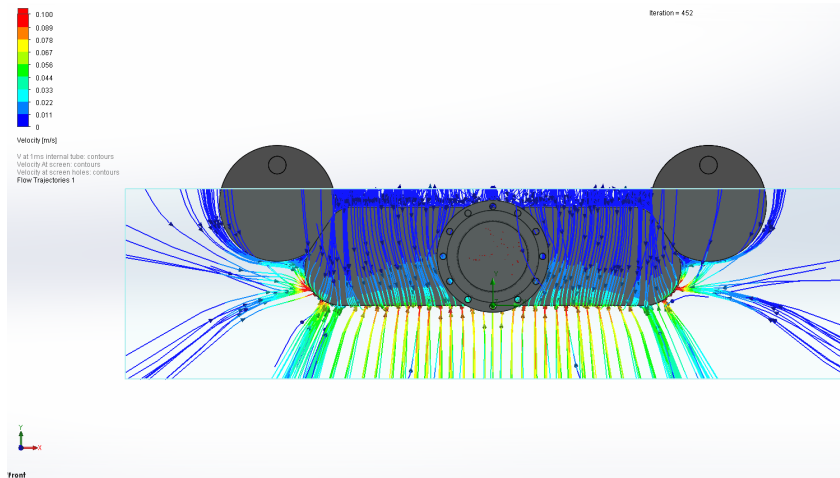
Air



Our ventilation ducting moving air cubes to the face

Fabricate

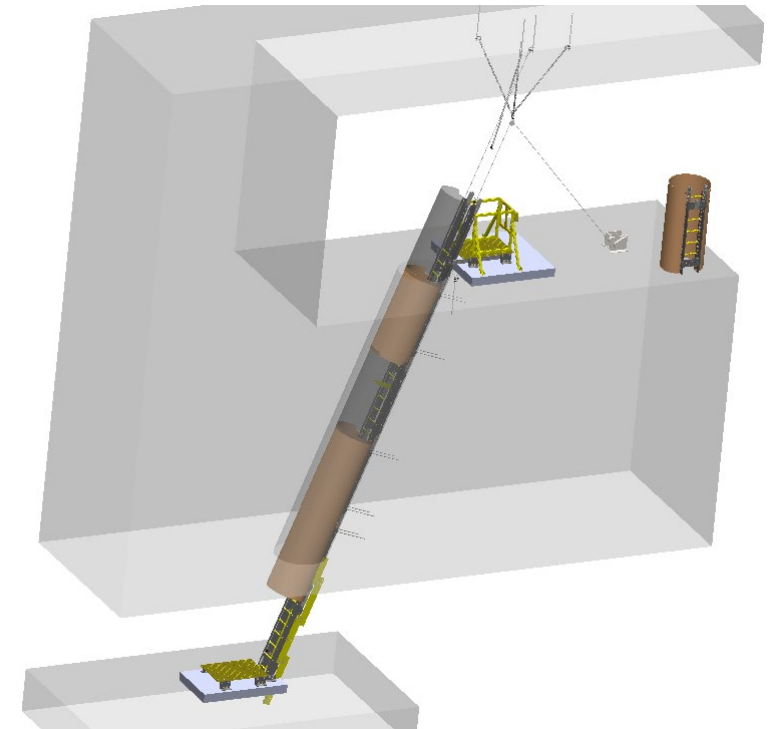
Water



CFD velocity plot for shallow intake screen.

Analyse

People



Our Escapeway enabling emergency egress underground

Design

HDPE



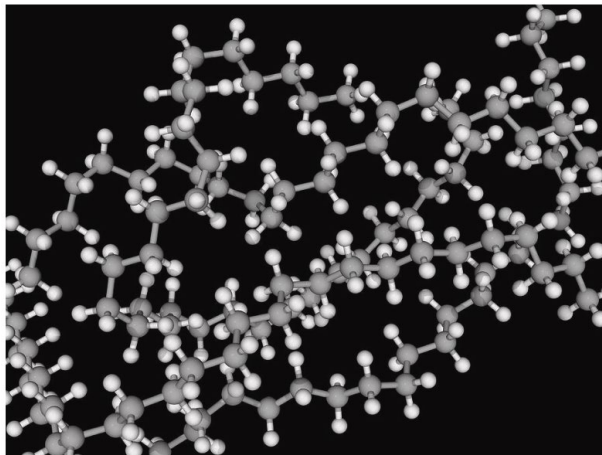
HDPE Sheets



High-Density Polyethylene (HDPE)

A semi-crystalline thermoplastic engineered for harsh industrial environments. It is one of the most versatile plastic materials around.

- Corrosion resistant — chemically inert, no coatings or cathodic protection needed.
- Flexible with natural vibration damping — reduces noise transmission versus rigid materials.
- Impact & abrasion resistant — absorbs shock without cracking.
- Lightweight — roughly 1/8th the density of steel by volume.
- High tensile strength (~24MPa)
- Low maintenance — no painting or corrosion protection required over its service life.
- Smooth, low-friction surface— reduces flow resistance and energy loss.



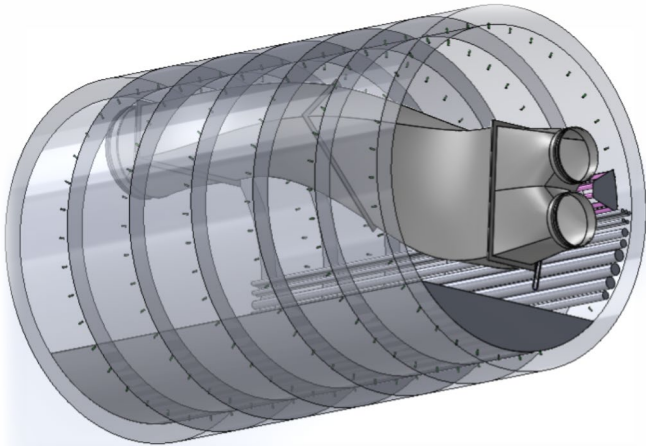
Polyethylene Molecule - Photograph by Laguna Design - Science Photo Library

Our Experience

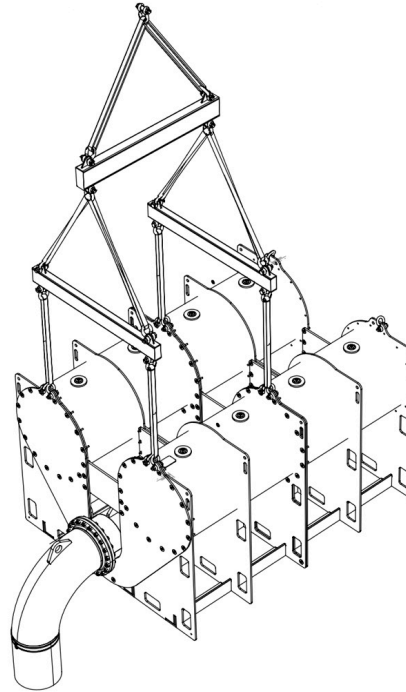
Previous Projects



Design & Engineering



"Corkscrew" duct for a specialised tunneling application



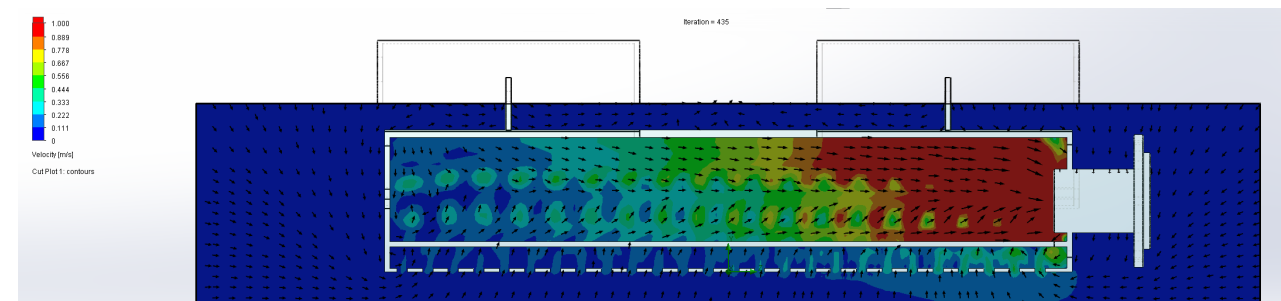
Rigging and lifting detail sample

Design & Engineering - More than Just Fabrication

- SolidWorks 3D design (concepts, layouts, visualisations).
- FEA on lifting points, brackets and critical structure.
- CFD where airflow or intake behaviour matters.
- R&D on mine-specific innovations.
- Compliance documentation : drawings, calcs, transport and install guides.



R&D example – HDPE concertina



CFD analysis

In-house Fabrication (CNC/Butt-weld/Extrusion)



CNC Router

- Enables accurate cutting of HDPE sheets and complex profiles
- HSD 9kW spindles, up to 24,000 RPM.
- Automatic tool change and tool-length sensor.
- Laser pointer for pinpoint accuracy.
- Linear vacuum tabletop.
- Processing area : X = 4100 x Y = 2055 mm





Bending and Fusion Butt-Welding

- Joins HDPE sections with high, consistent strength.
- Heat and pressure form homogeneous butt joints
- Leak-proof connections.



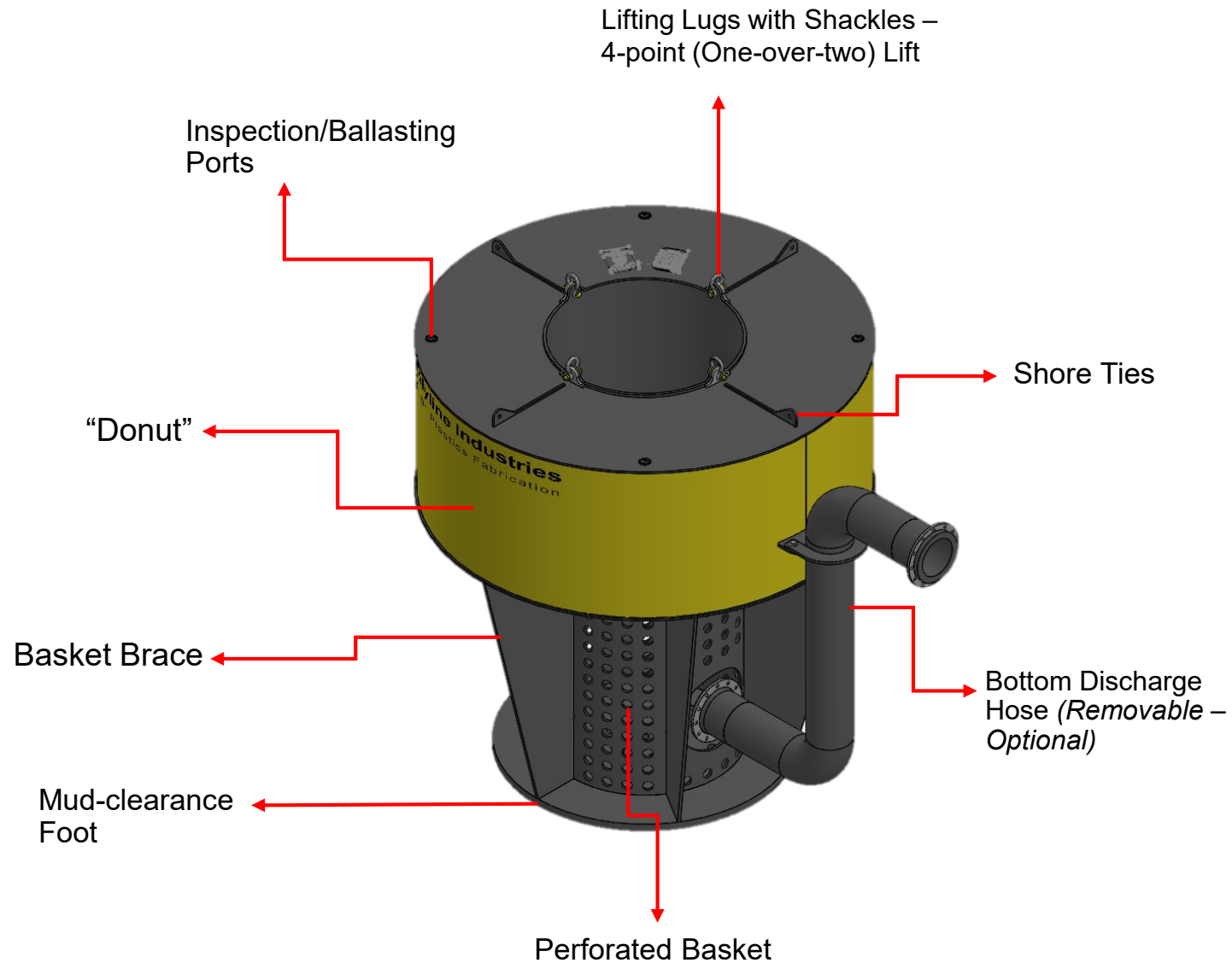


Extrusion welding guns

Extrusion Welding

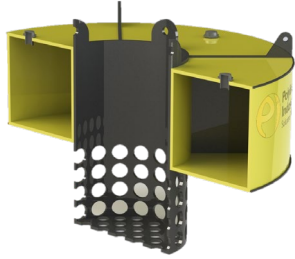
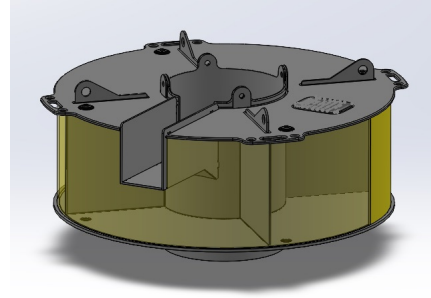
- Enables detailed assembly and fit-up
- Qualified, experienced HDPE welders and fabricators.
- In-house fabrication = quality control + shorter lead times.
- Supervised fabrication environment.
- Welding to DVS 2207-4 standard.

Dewatering Solutions



Donut-style pump floats

- Highly customizable.
- Fits bottom/top/mid-discharge pumps
- Transport-friendly: width <2.7 m.
- Designed for easy install and service.



Small

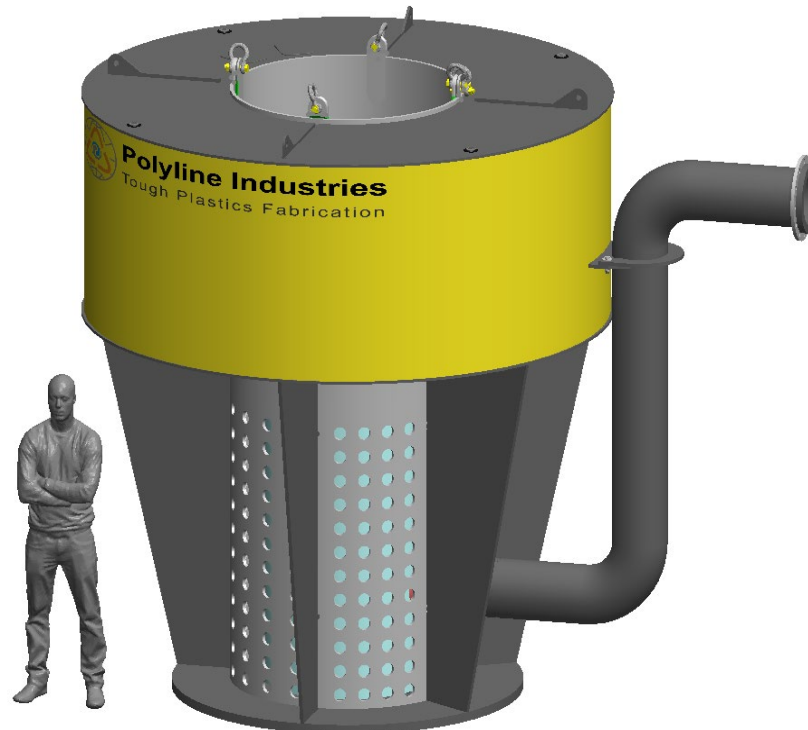
Dimensions - L x W x H (m)	1.8 x 1.8 x 1.4
Weight (Kg)	110
Load Rating (Kg)	Up to 500

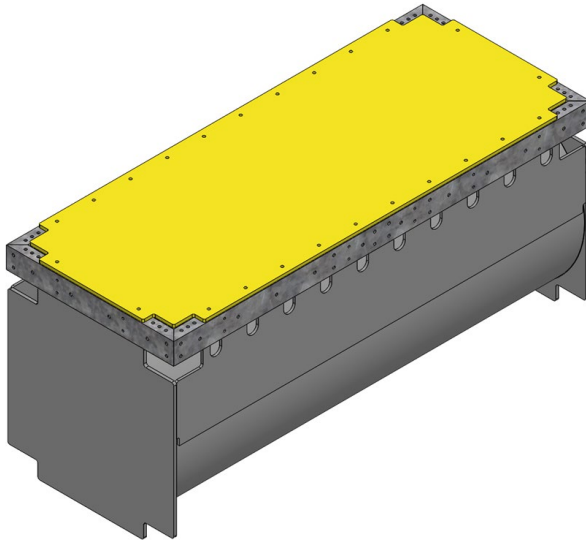
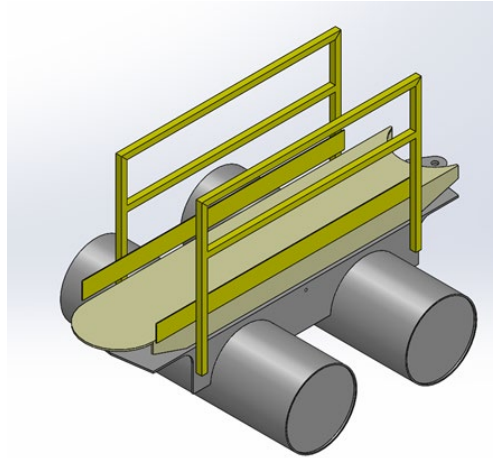
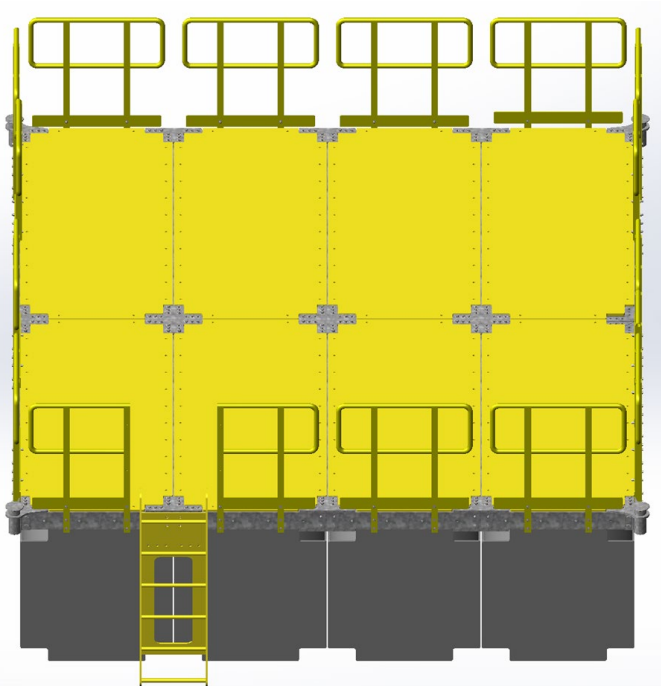
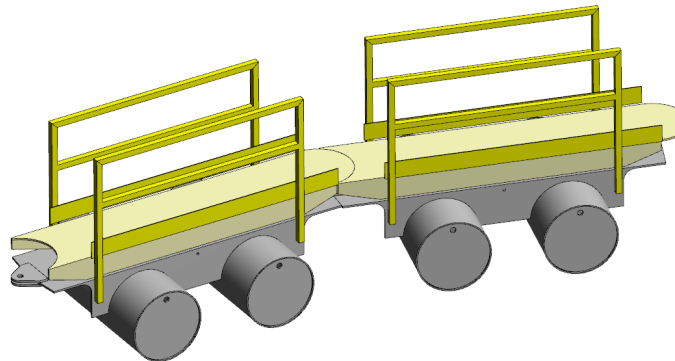
Medium

Dimensions - L x W x H (m)	2 x 2 x 2
Weight (Kg)	~300-400
Load Rating (Kg)	1000-1600

Large

Dimensions - L x W x H (m)	3 x 3 x 3
Weight (Kg)	1000+
Load Rating (Kg)	2500+



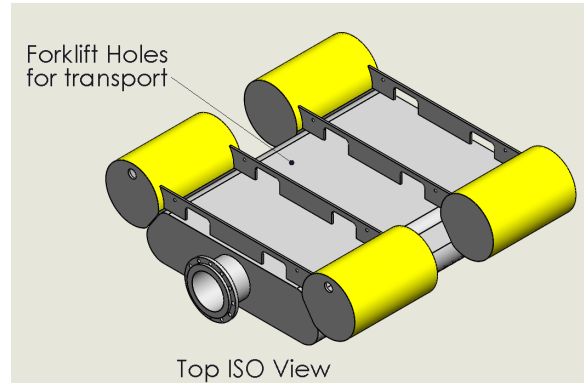
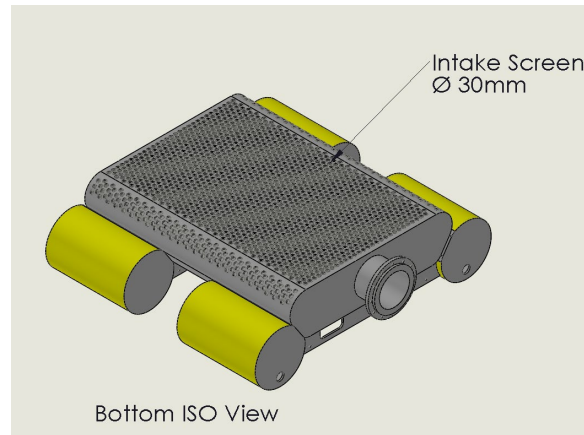


Platforms and Pontoons

- Modular Pontoon
- Able to form massive floating platforms
- Connect bollards, ladders etc as required
- Takes almost any sized pump, Pumps sit on Steel I beams that distribute load
- Removable tread plates keep trip hazards like cables and Steel safely concealed but easily accessible
- Excellent transport economics
- Limits the size of heavy lifting equipment required
- In this case all modules can be moved with 2.5T forklift
- Easy to accommodate changes



Floating Intake Screen – 1.9 x 1.9 x 1.5 m



Floating Intake Screen 2.2 x 2.3 m
(Shallow Sucker)

Floating Intake Screens

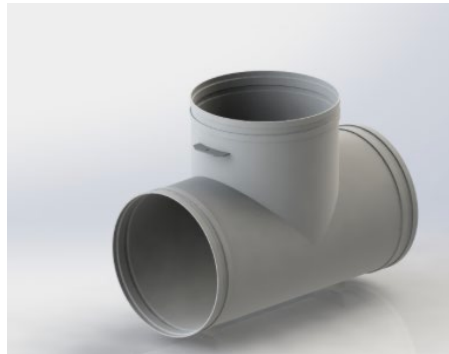
- Enables floating intakes instead of fixed structures.
- Fixed intakes need special design to avoid damage if levels drop.
- Fixed assemblies are harder to install.
- Fixed pontoons need leg supports during ground assembly.
- Floating intake screens are self-contained and self-buoyant

Mine Ventilation Ducting

- Challenges:



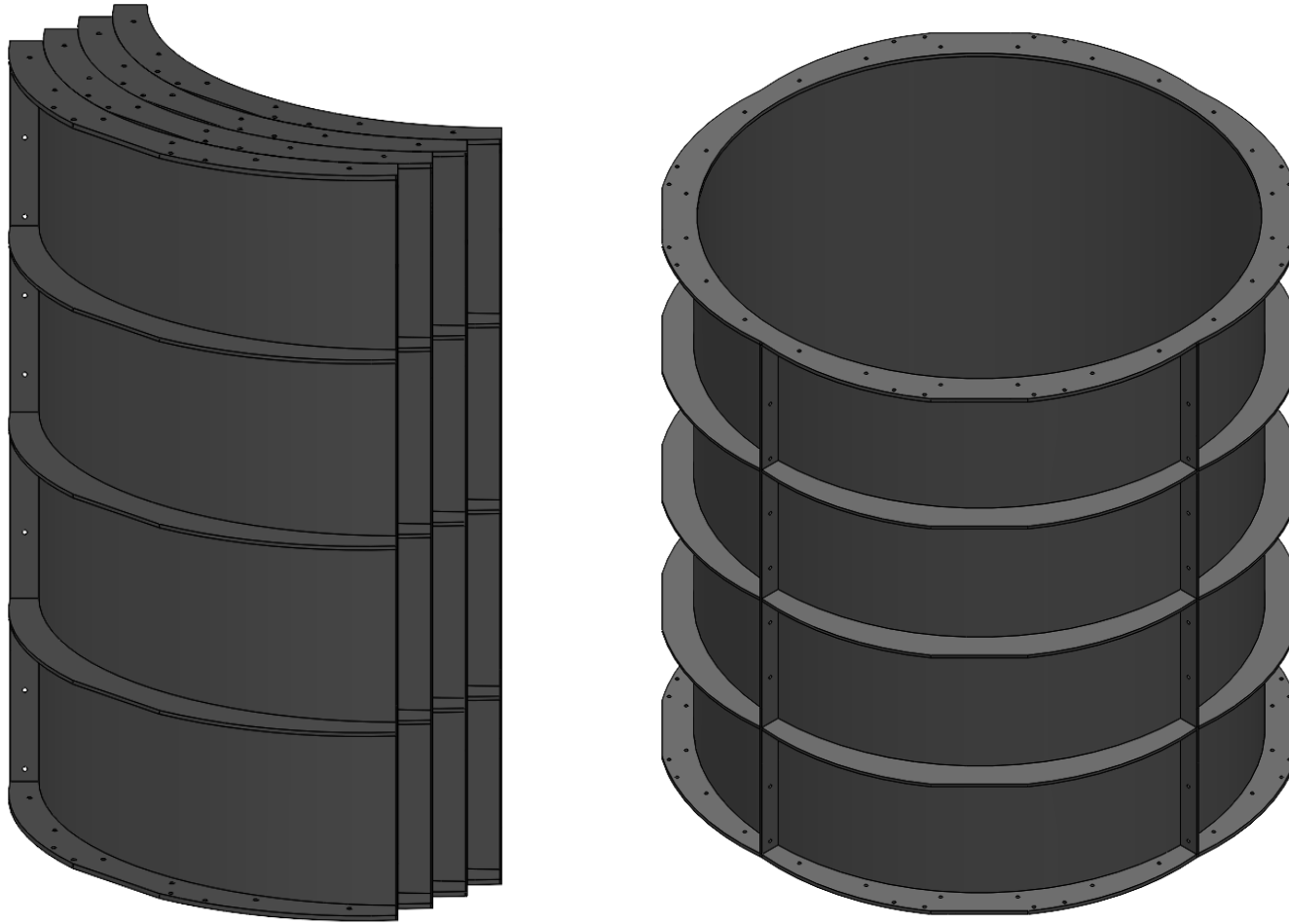
- Our Solution: Developed a complete suite of rigid ventilation ducting for positive and negative pressure. We offer straight sections, elbows(45/60/90 degrees – 3/5 sections), branches, Y-pieces, adapters, and flanged and vent bag adapter end treatments.



Did You Know ...

A single 110kW fan can cost around \$400,000 per year to run – reducing friction, leakage and recirculation directly impacts cost.

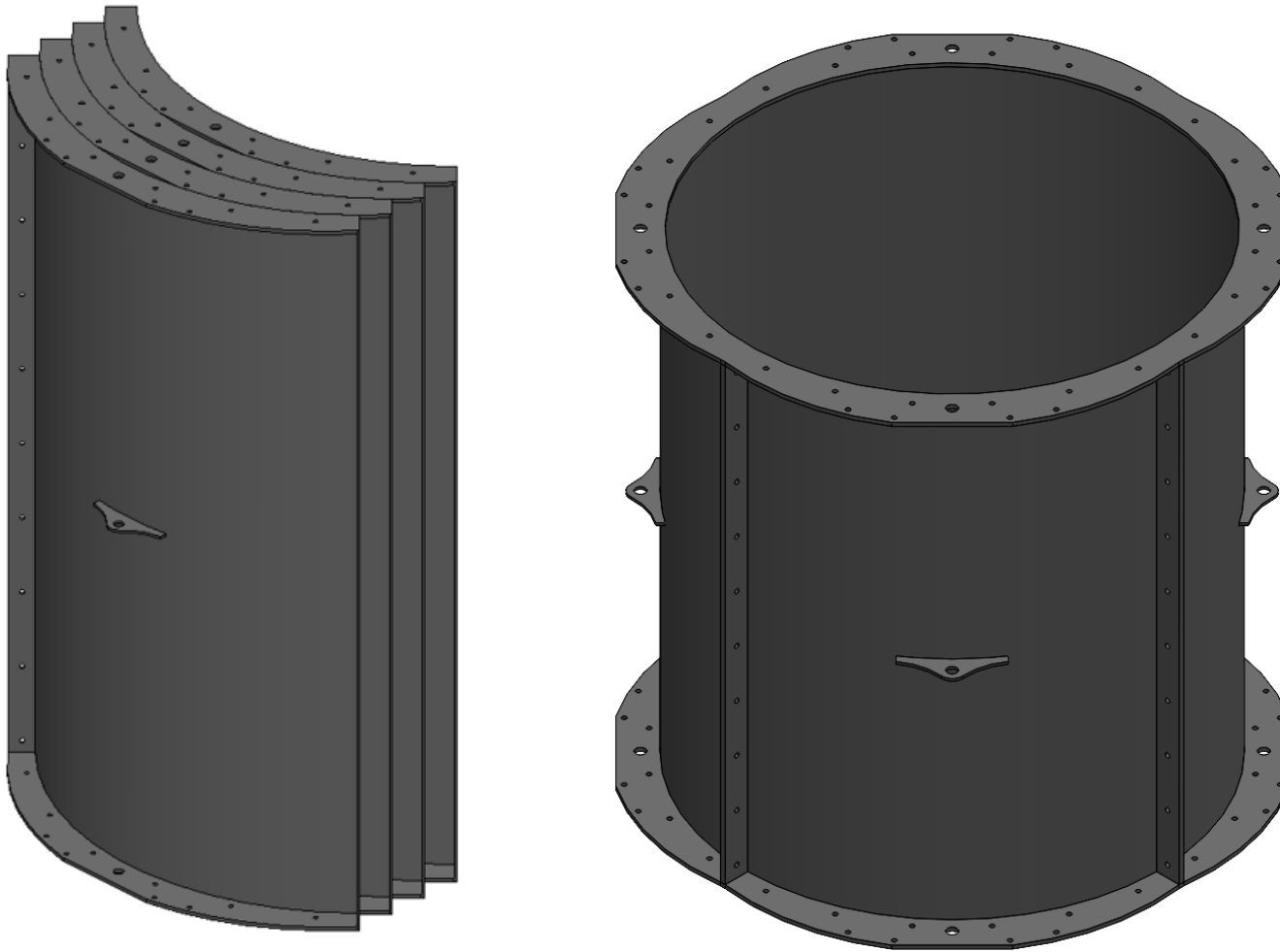
Segmented Ducting



Segmented ducting for negative pressure applications with external strengthening ribs

Negative Pressure Segmented Ducting:

- Significant transport cost savings.
- Highly customisable.
- Low component weight for safety and convenience.
- Readily relocatable and reusable
- Available in 3m, 2m, 1m and telescopic adjustable lengths.



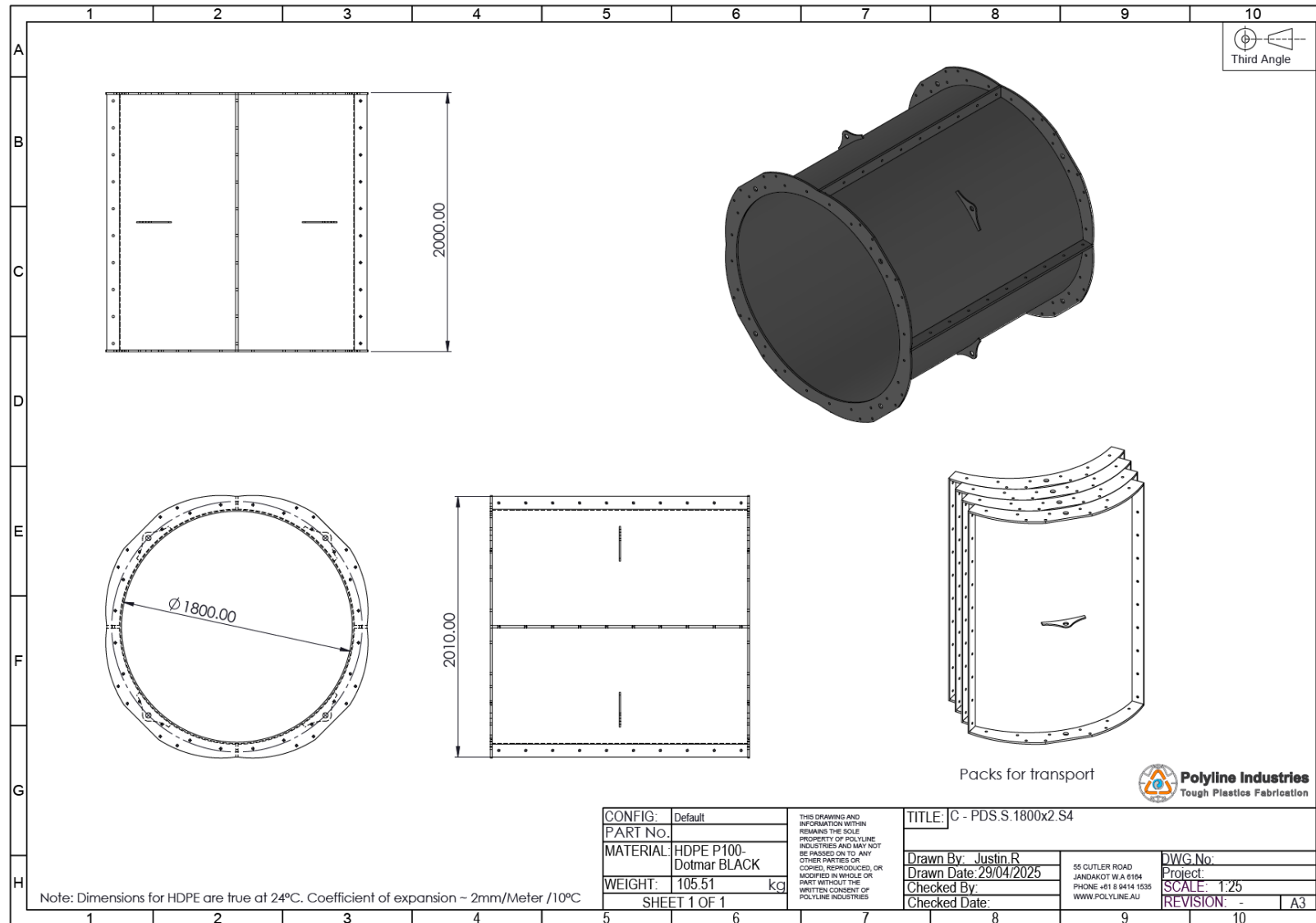
Positive Pressure Segmented Ducting:

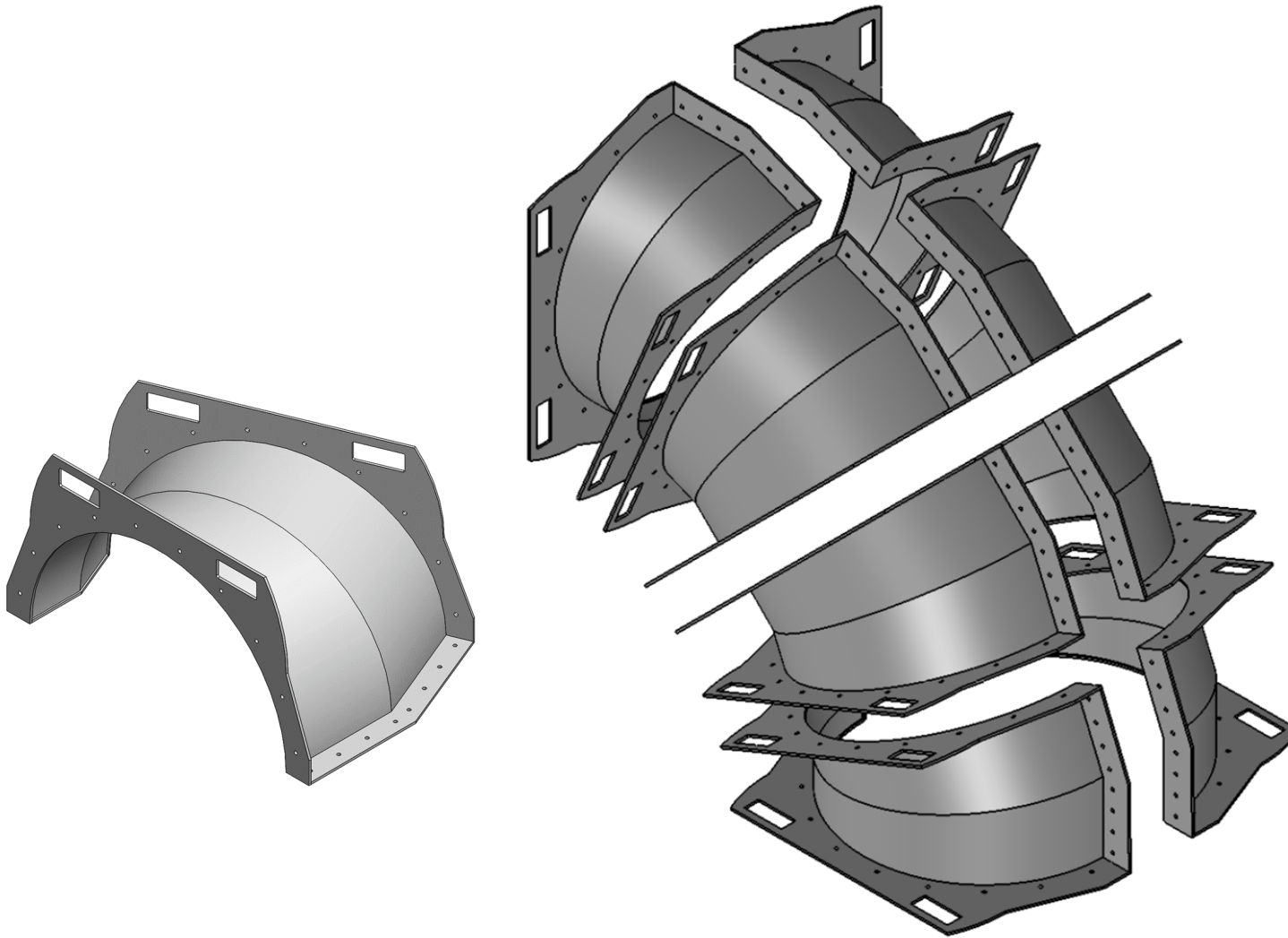
- Significant transport cost savings.
- Highly customisable.
- Low component weight for safety and convenience.
- Readily relocatable and reusable
- Available in 3m, 2m, 1m and telescopic adjustable lengths.

Segmented ducting for positive pressure applications without the external strengthening ribs



Positive Pressure Segmented Ducting Reference



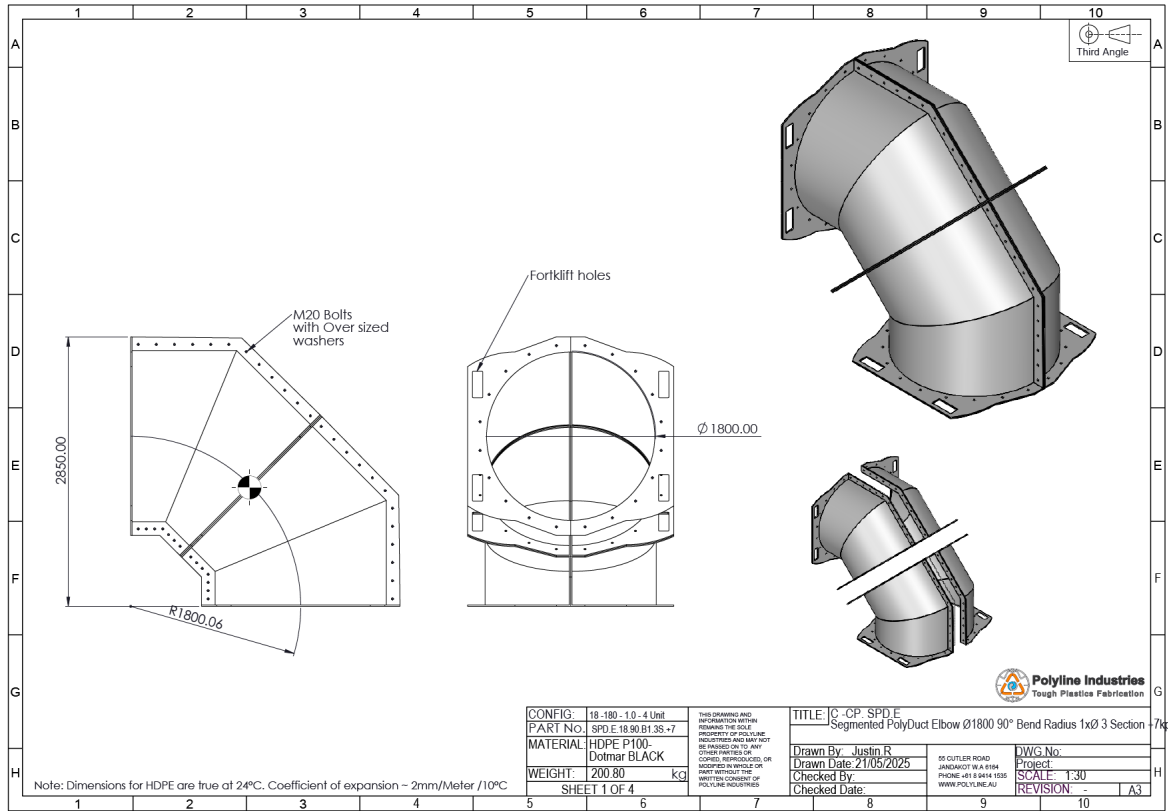
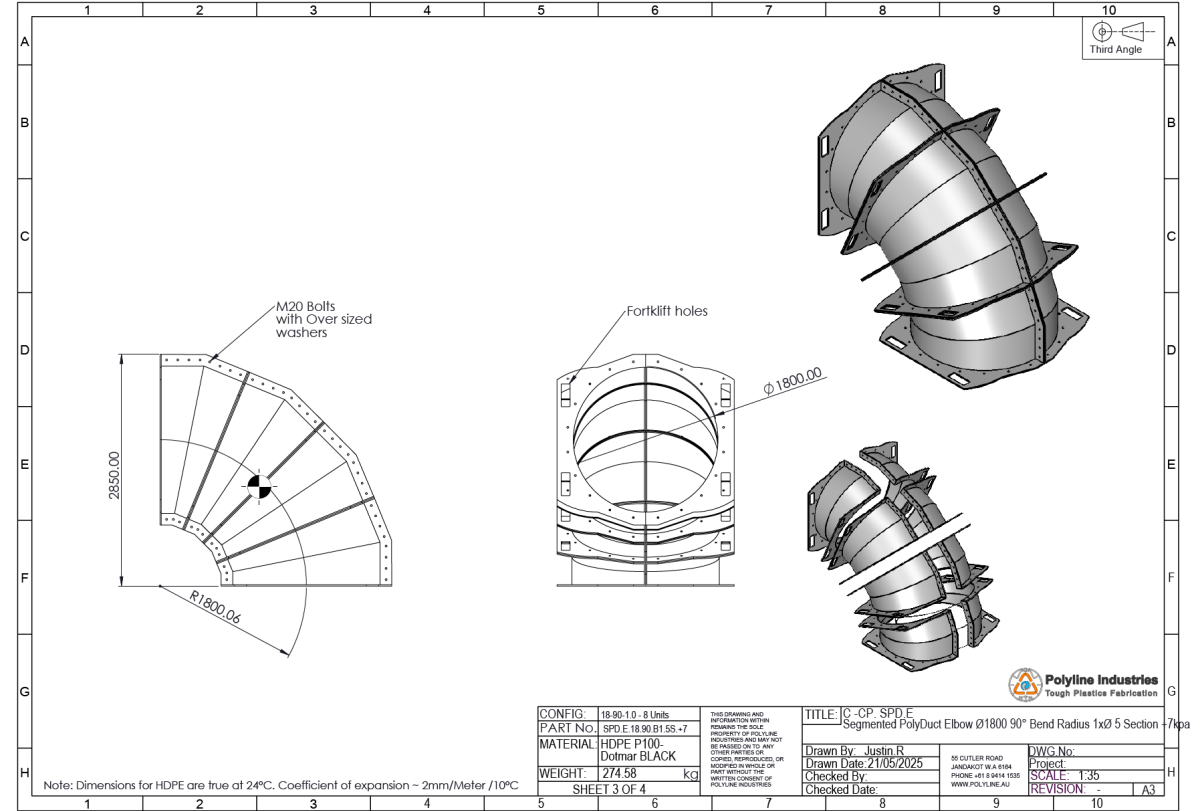


Segmented 90 degree Elbow

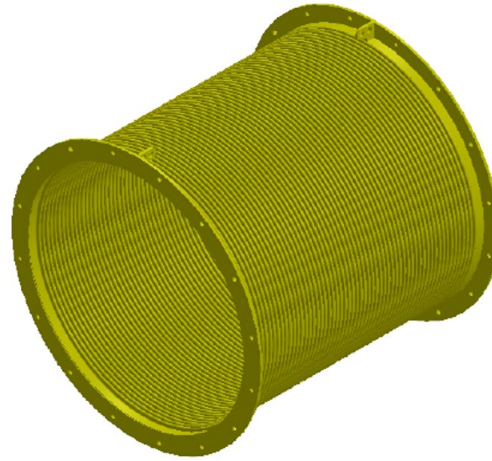
Segmented Bends:

- Available in 22.5°, 30°, 45°, 60° and 90° for both positive and negative pressure applications.
- Available in various bend radii options.

Segmented Bends Reference

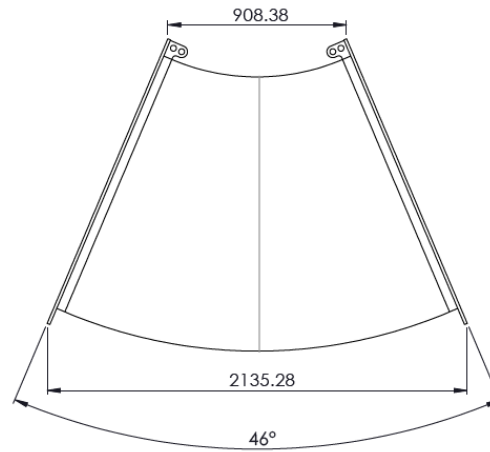


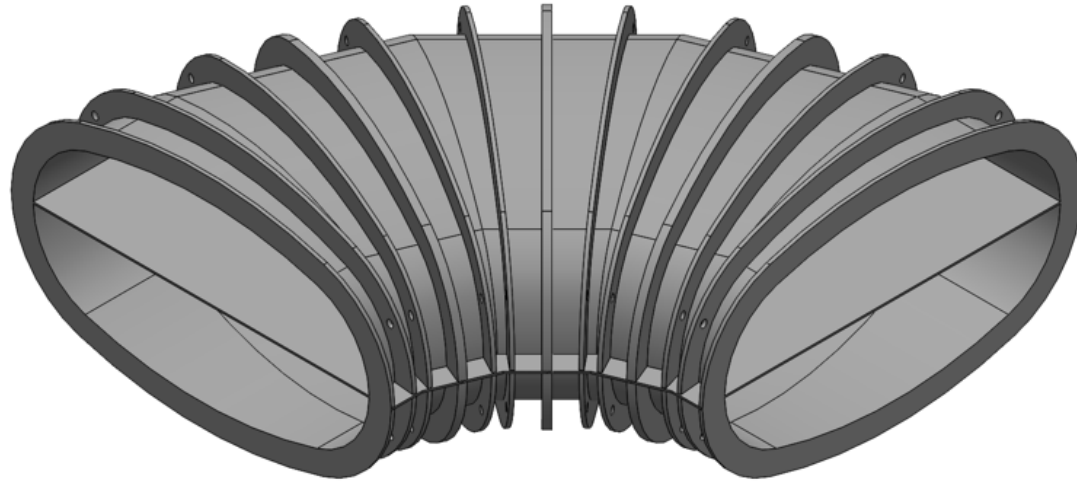
Segmented 90 degree Elbows



Flexible Concertina Joiners and Sockets :

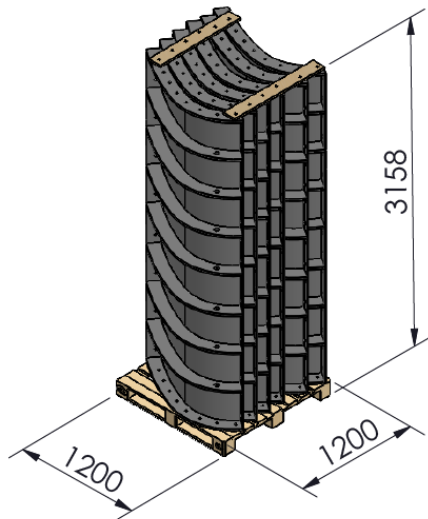
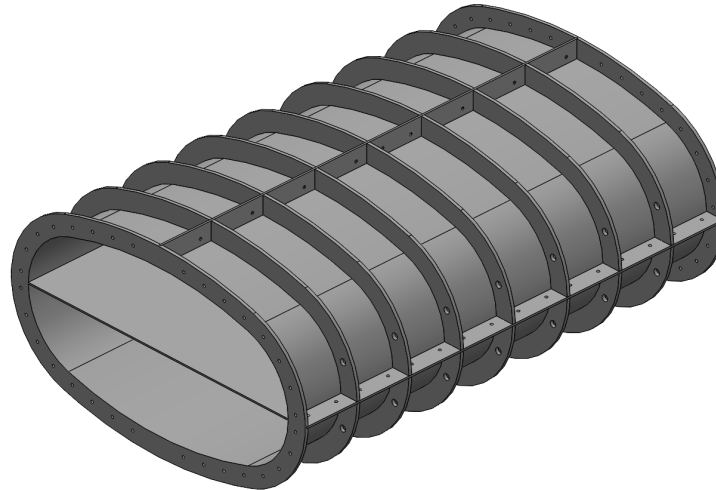
- HDPE concertina fittings that let the ducting follow angled/misaligned ventilation runs.
- 0-10° adjustable sockets for alignment between sections.
- 0-15° and 0-45° elbows curves.
- Follows the drive
- Adjustable on site.





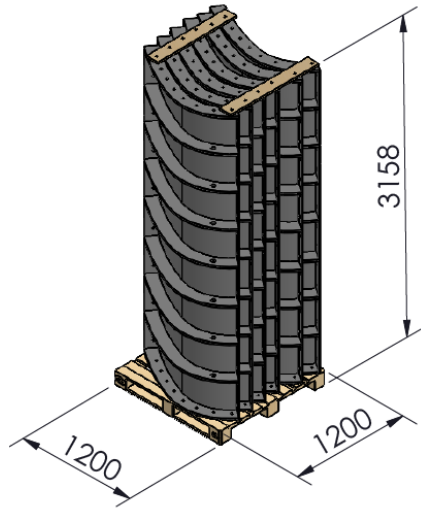
Negative 4kPa Low Profile Ducting:

- Developed for areas with low headroom.
- The flattened shape sits closer to the roof, giving more clearance for people, vehicles and equipment.
- Holds its shape - rigid segments with external ribs keep the cross-section steady
- Compact transport - segments nest and stack on pallets.
- Bolted, reusable design: flanged joints mean the ducting can be taken apart, moved, and set up again.

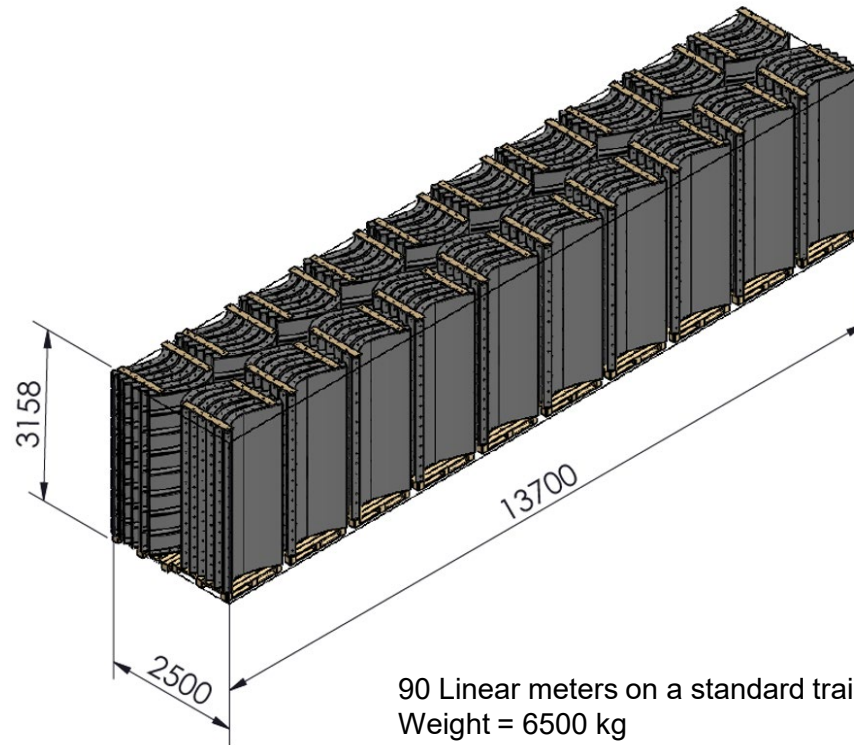


**Efficient Transport – Ø1.4m @ -ve 1kPa 1.57 m² vs Low
Profile @ -ve 4kPa 1.57 m² Cross sectional area**

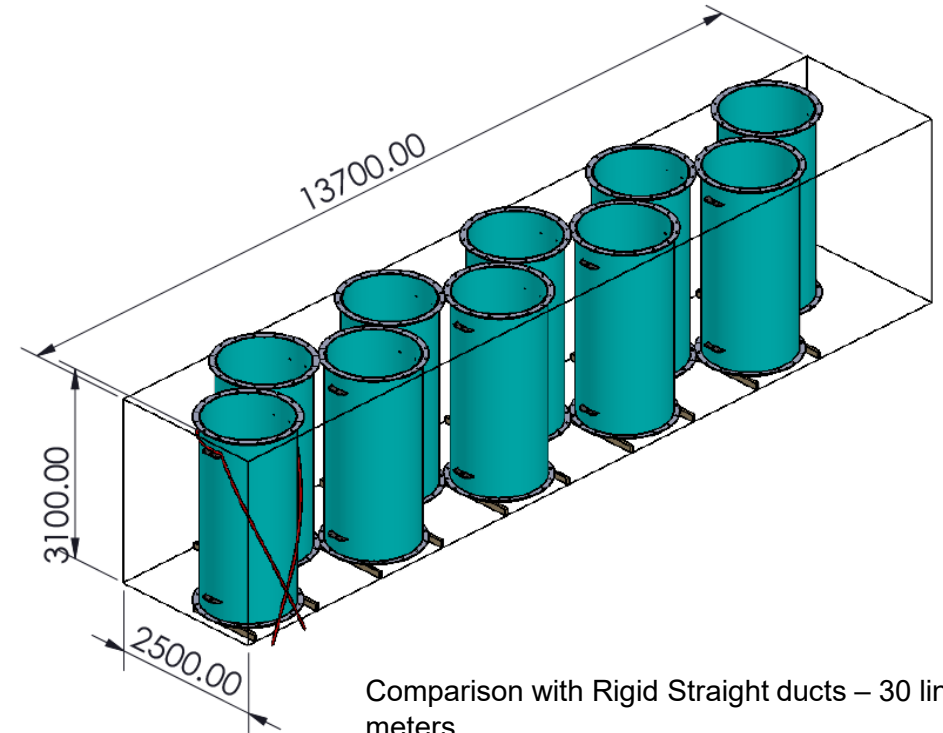
30 vs 90 Linear meters



Weight = 325 kg



90 Linear meters on a standard trailer.
Weight = 6500 kg



Comparison with Rigid Straight ducts – 30 linear
meters.
Weight = 2200 kg

Previous Segmented Projects



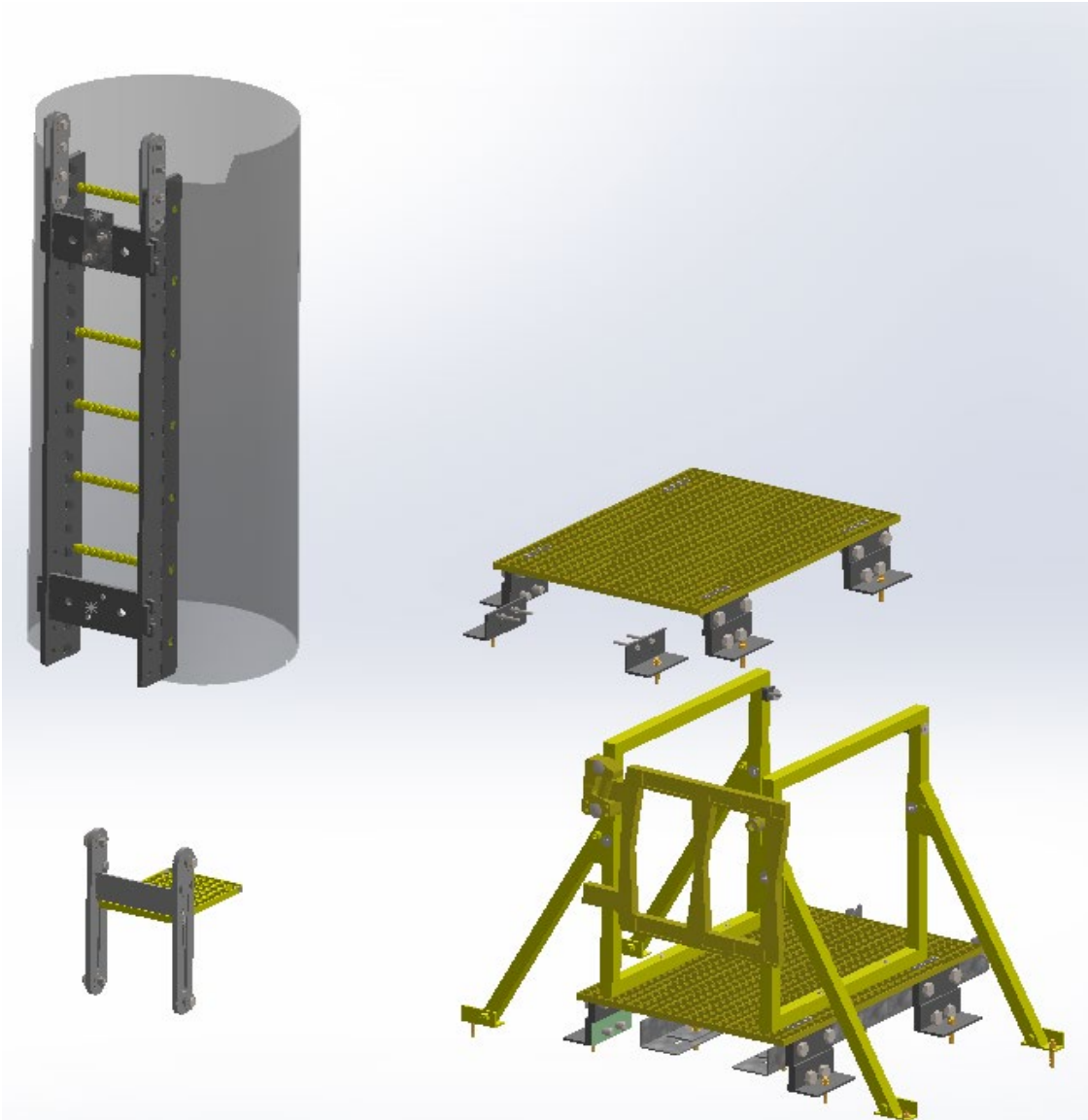
Previous Segmented Projects



Escapeways

Escapeways

- Modular design, flat-packed, assembled on site.
- Supplied with installation documentation.



Escapeway design



Ready to be installed at the mine site

Survey Buoys



Raw material - Polystone PE - Yellow



Raw material - Polystone PE - Black

Our Capability

Our Experience

Survey Buoys

Your product, delivered to your requirements



- Made to order: sized to fit your instrumentation.
- Applications: Survey, monitoring, marking



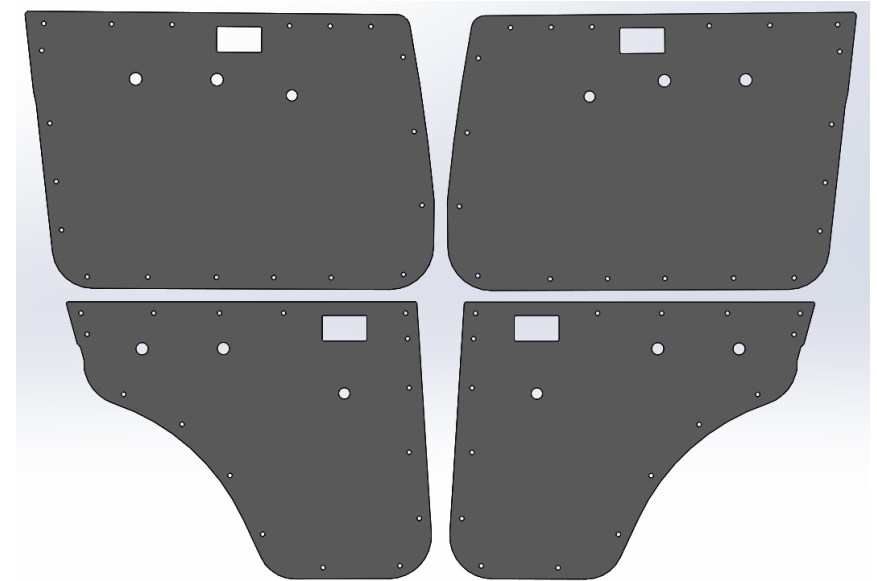
We Also Offer:



Industrial Hose Hangers



Polyurethane Cable Stoppers



Land Cruiser Door Protectors

Why HDPE?



Performance Comparison HDPE and Steel:

Attribute	HDPE	Carbon Steel
Density (kg/m ³)	≈ 960	≈ 7,850
Corrosion	Immune — no rust	Requires coating/cathodic protection
Painting	None	Initial + periodic repainting
Maintenance	Visual checks only	Regular corrosion checks
Durability	Impact-resistant and flexible	Prone to permanent impact damage
UV Resistance	UV-stabilised	Paint breakdown & chalking
Lifecycle Cost	Typically lower – Especially when reused	Higher due to maintenance/downtime



Performance Comparison HDPE and Aluminium:

Attribute	HDPE	Aluminium
Density (kg/m ³)	≈ 960	≈ 2,700
Chloride Exposure	Unaffected	Pitting risk
Shotcrete	No reaction	Disintegration risk in alkalis
Steel Hangers/Chains	Non-metallic	Galvanic coupling possible
Vehicle/equipment strike	Impact-resistant and flexible	Prone to dents
Thermal conductivity	≈ 0.3-0.5 W/mK	≈ 200 W/mK
Lifecycle Cost	Typically lower – Especially when reused	Higher due to maintenance/downtime

Get In Touch



Let's talk about your next project:



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Thank you