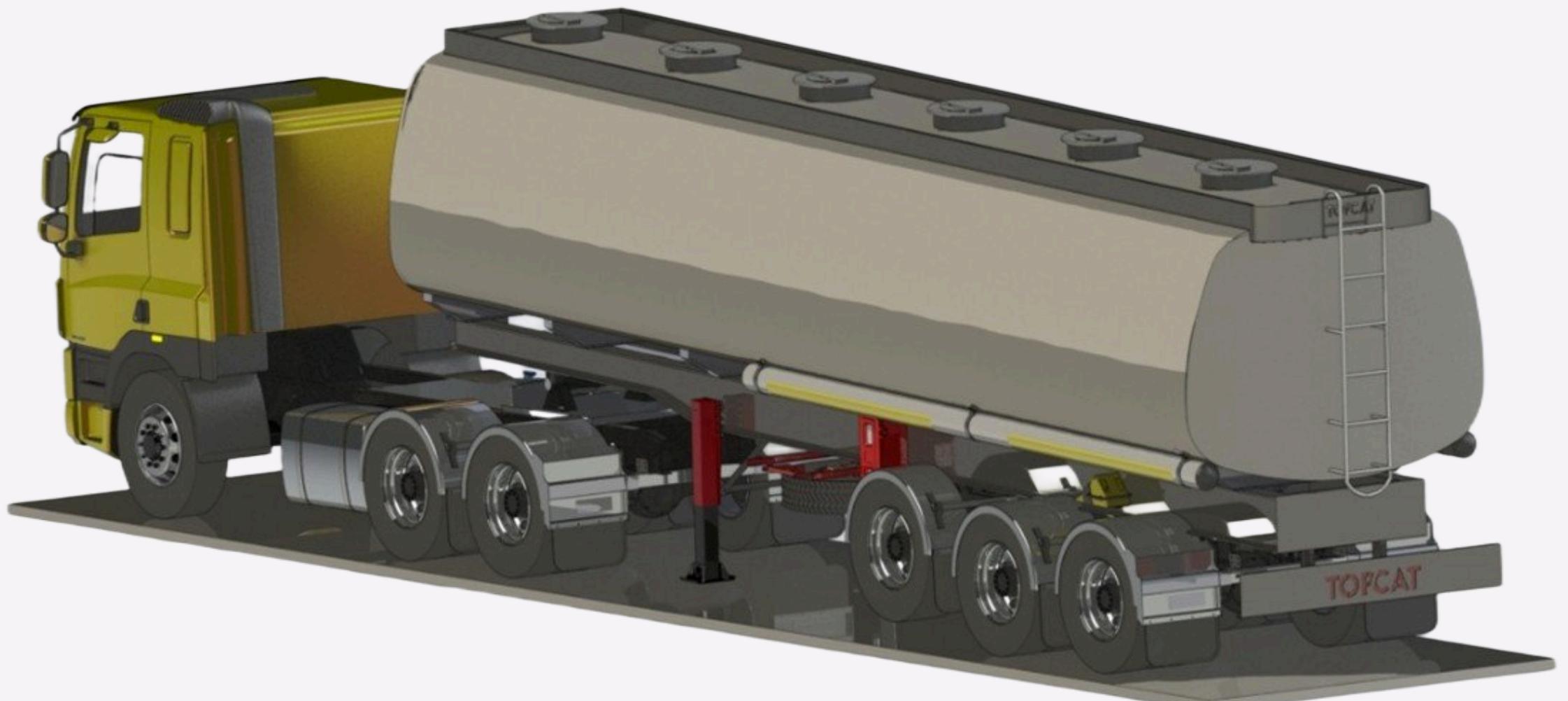


Mohamad Youness,
Mechanical Design Engineer

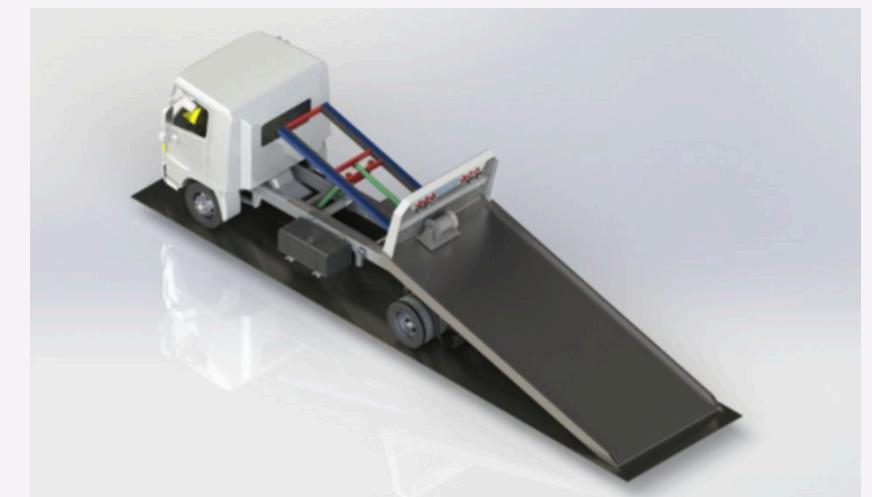
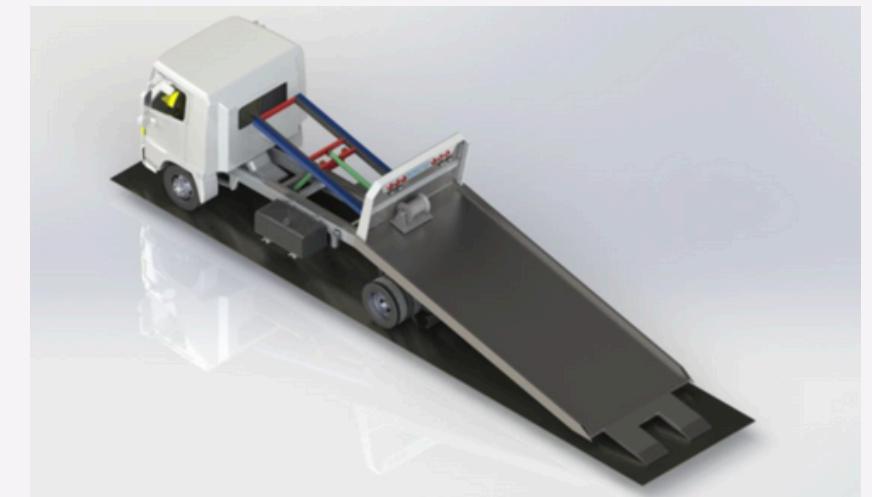
2025

Portfolio

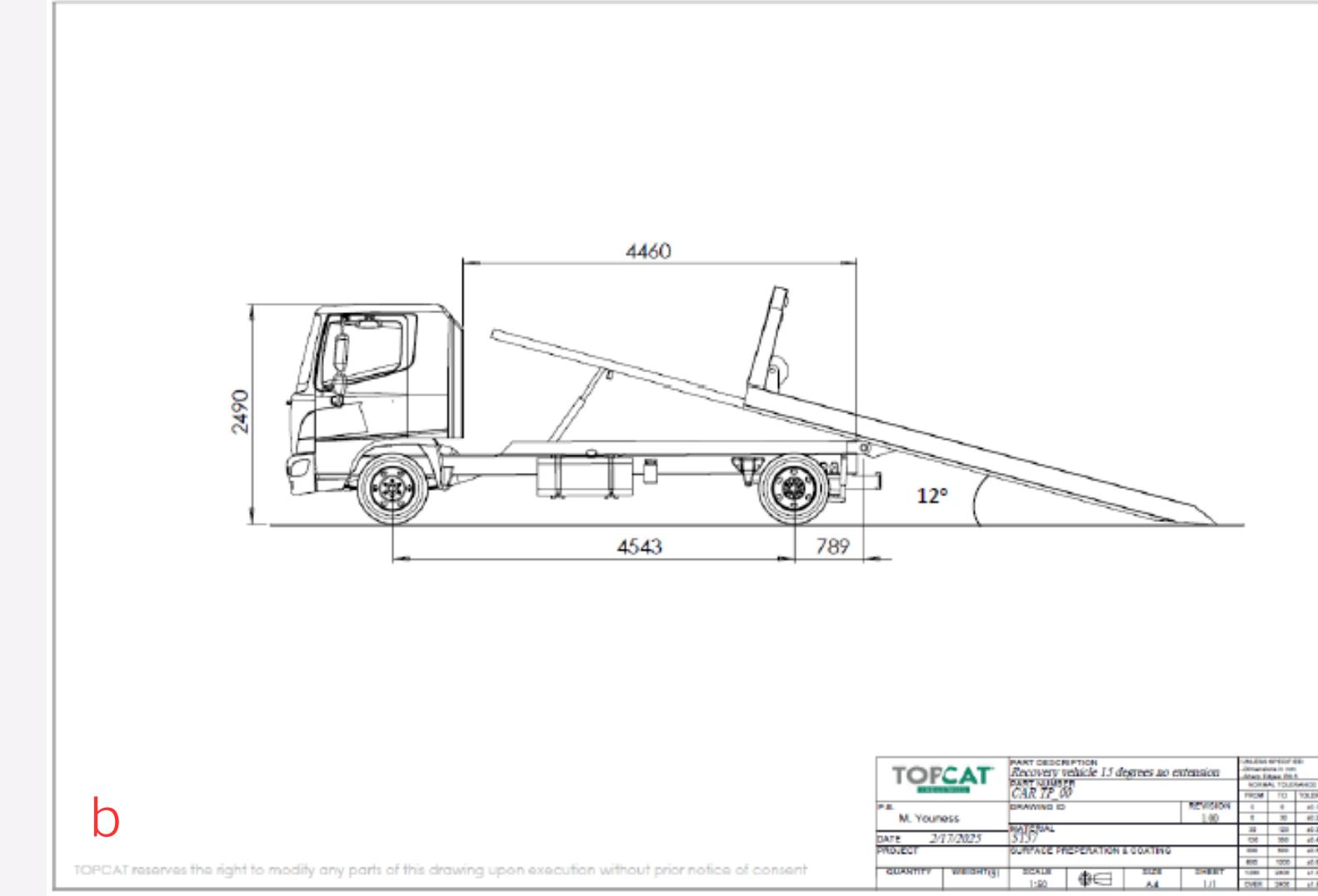
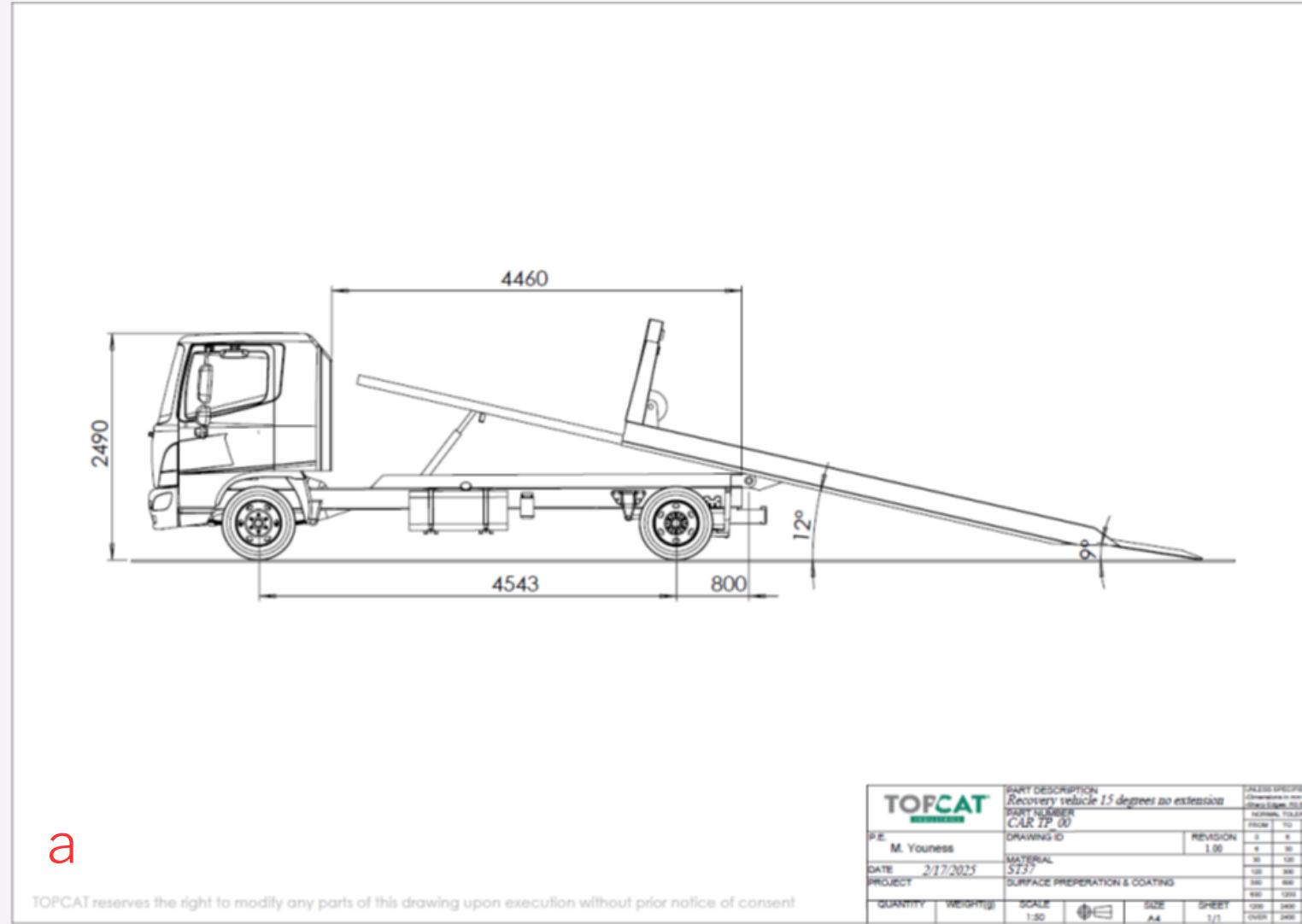


1- Tow Platform Designs

software used: Solidworks23, AutoCAD



1- Tow Platform Designs

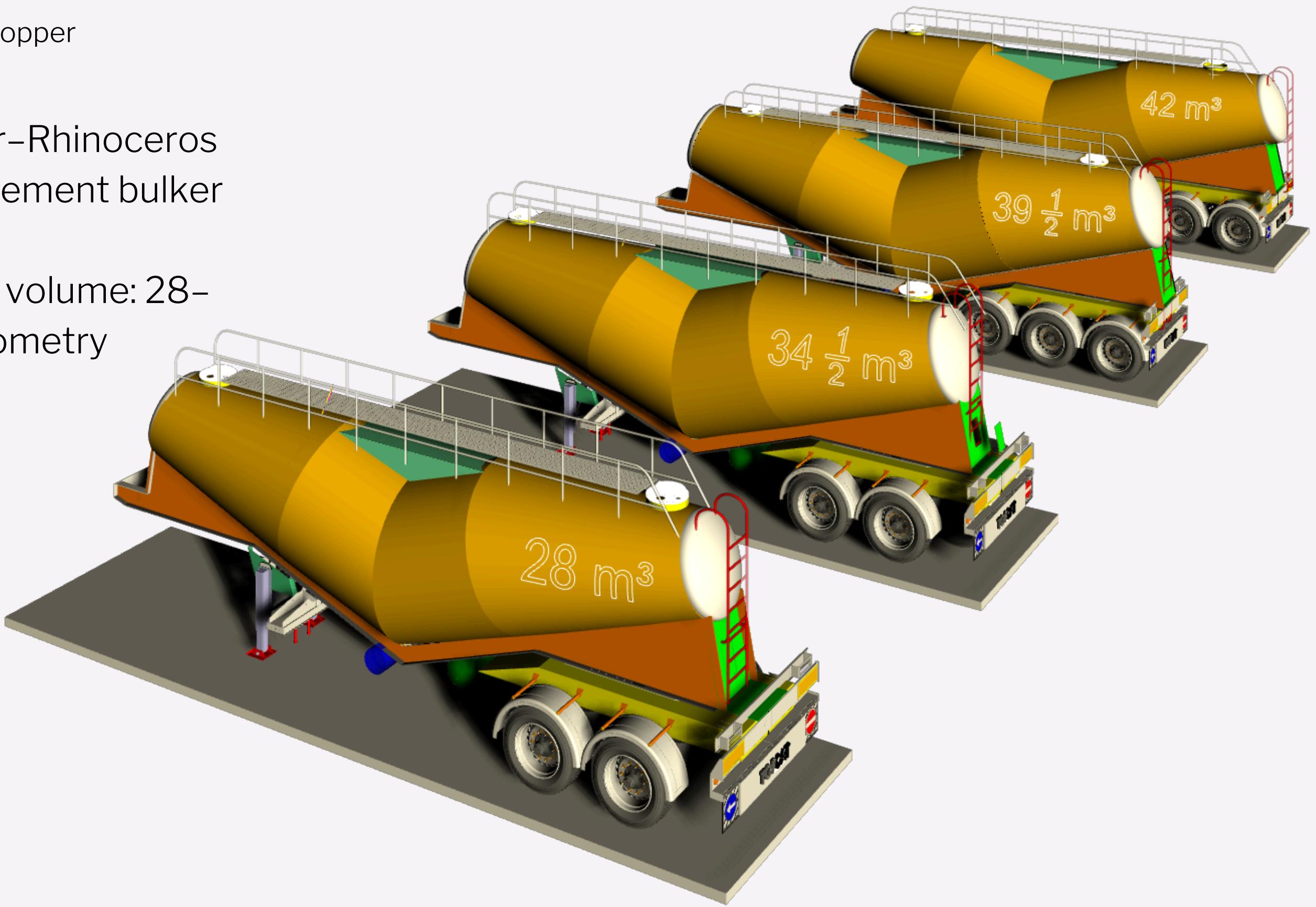


- Two inclination designs for low clearance (a) & rapid loading (b) vehicles.
- Double-acting hydraulic cylinder of 5 tons capacity and 12V DC power pack with integrated reservoir.
- Cylinder: 63 mm bore × 500 mm stroke, clevis-mounted.
- Power pack: Bucher Hydraulics 12V DC, 2.0 kW motor, 8-liter tank.
- ISO 3450 / ISO 6469

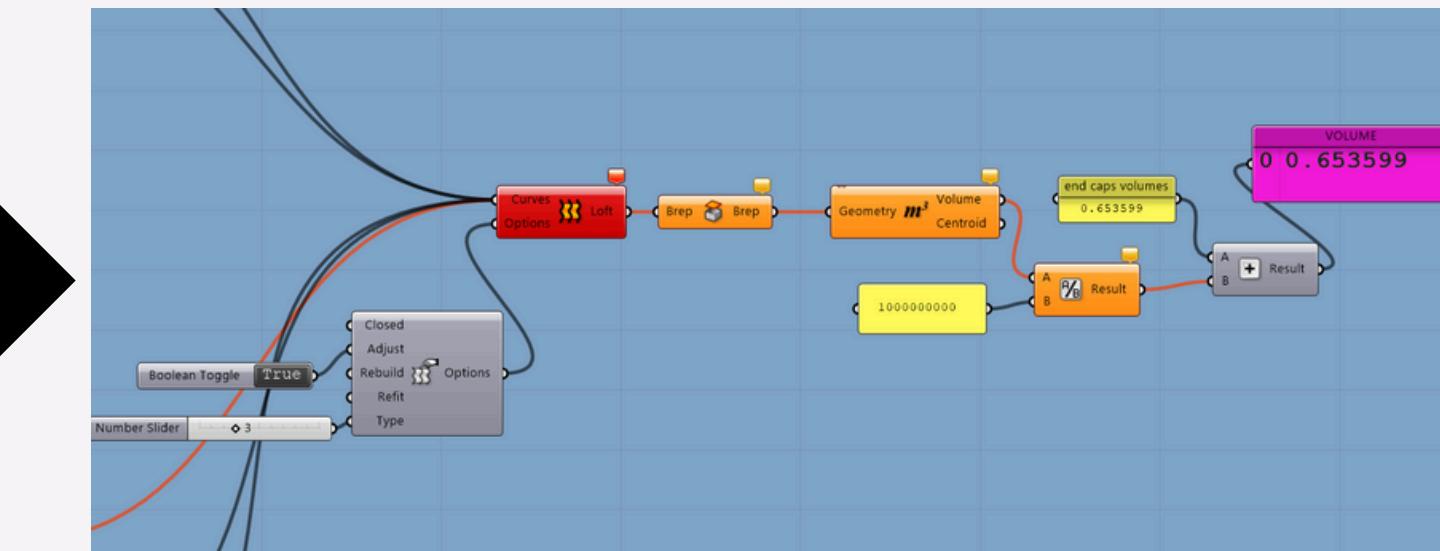
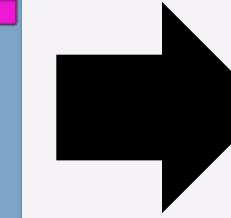
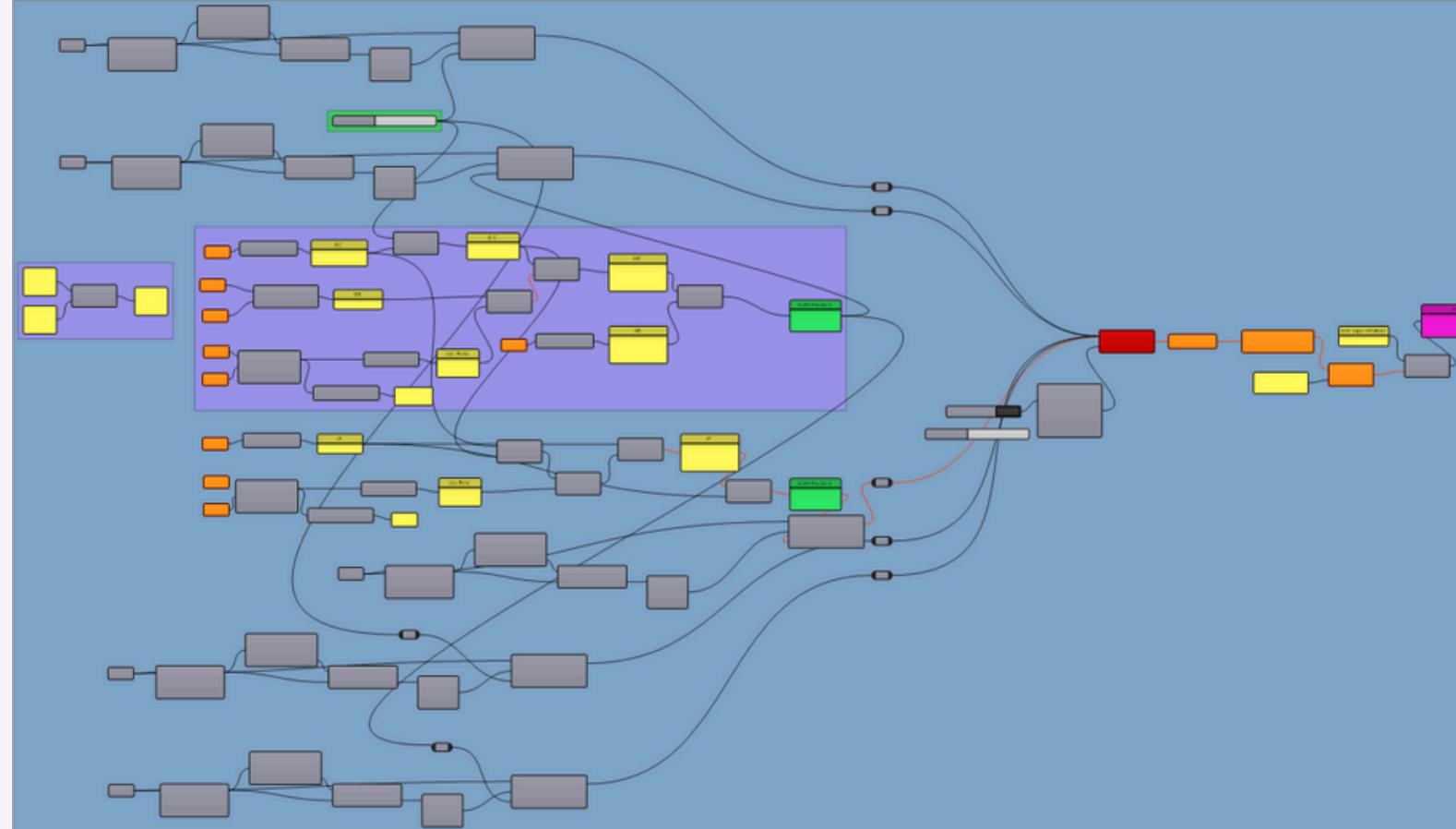
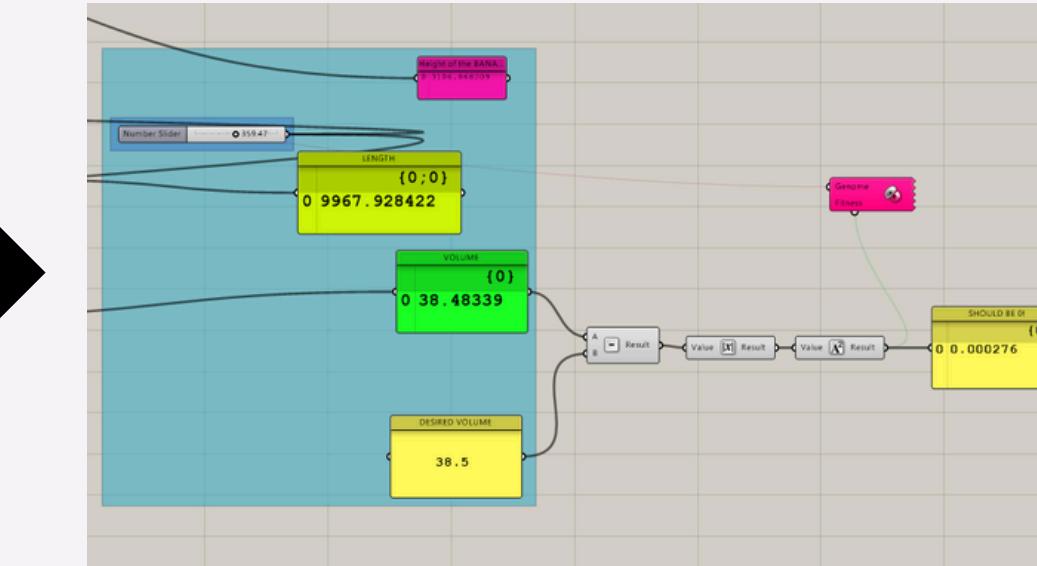
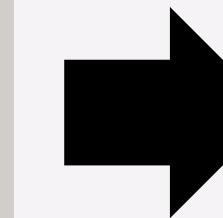
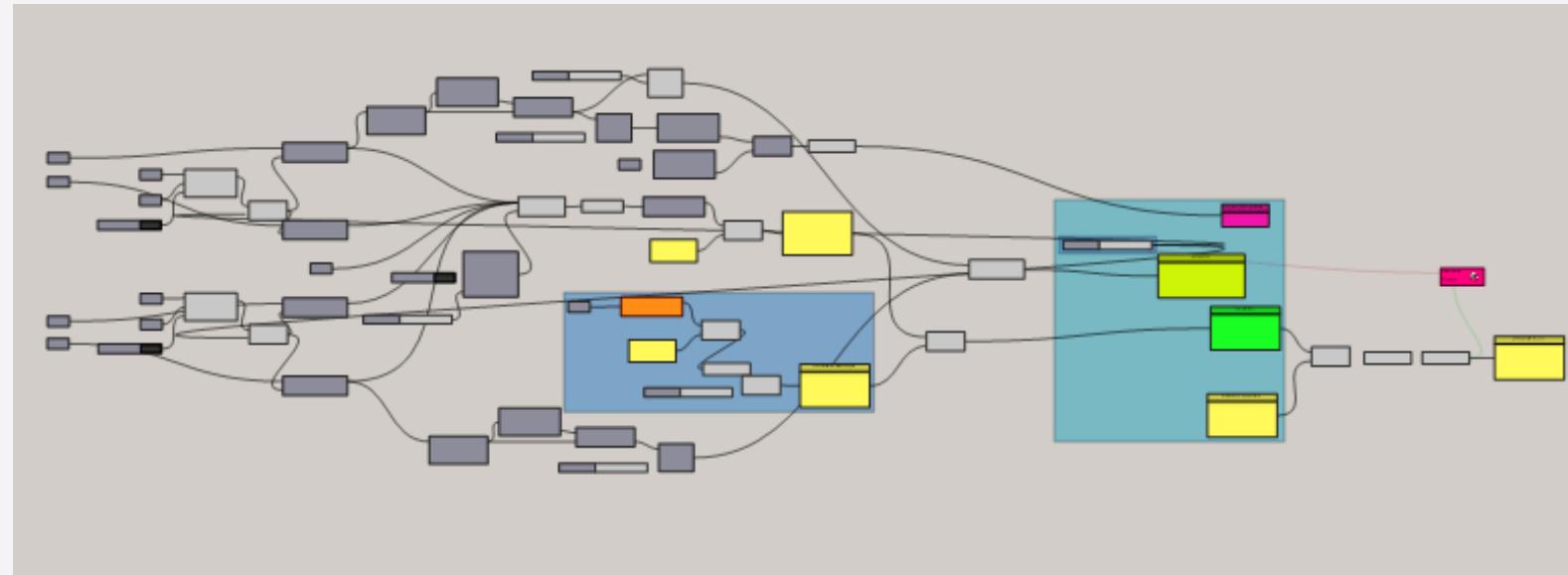
2- Cement Bulker Parametric Design

software used: Rhinoceros 3D, Grasshopper

- Developed a Grasshopper-Rhinoceros 3D script for automated cement bulker modeling.
- Client inputs (e.g., desired volume: 28–42 m³) drive real-time geometry updates.
- Optimization (Galapagos, least square rule) based on geometric equations to maximize payload capacity and discharge efficiency while meeting transport constraints (ADR regulations)



2- Cement Bulker Parametric Design

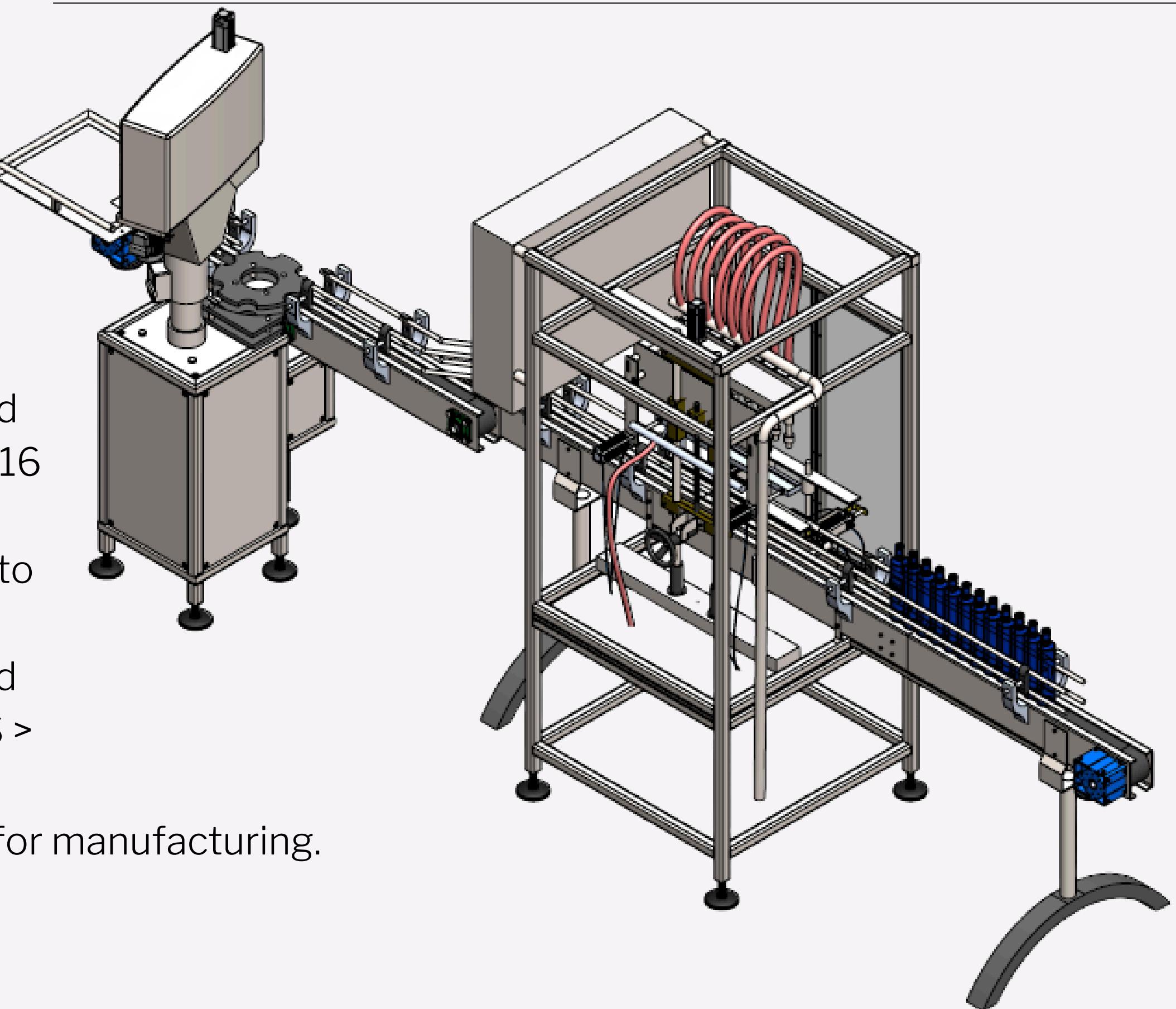


For more details you can watch this [video](#)

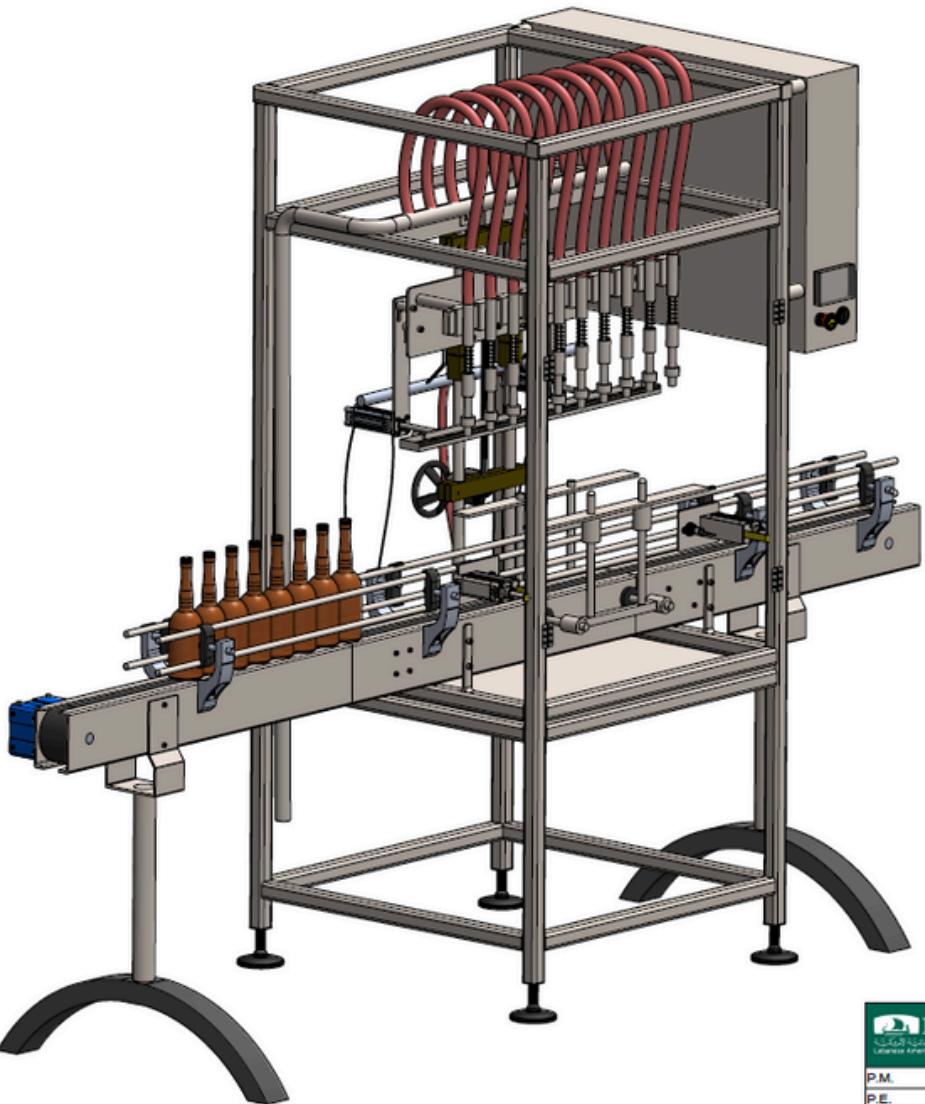
3- Filling and Capping Machines Design

software used: Solidworks23, AutoCAD

- Inspected and modeled filling and capping machines in CAD (AISI 316 SS).
- Increased filling capacity from 6 to 10 tubes for 600 ml bottles.
- Sized pistons (DSBC-80-160) and verified with stress analysis (FOS > 40).
- Delivered engineering drawings for manufacturing.



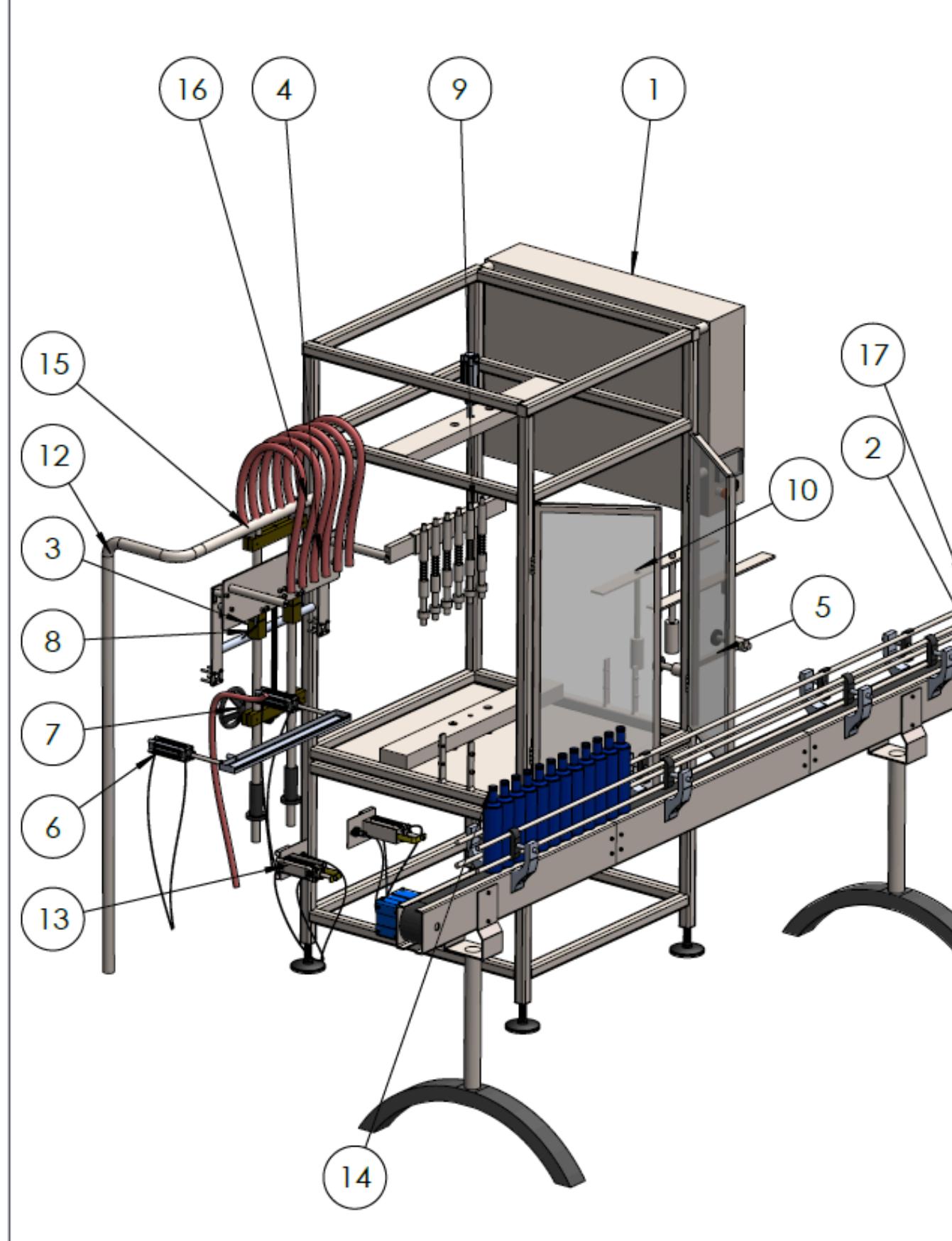
3-a- Filling Machine Design



	PART DESCRIPTION <i>Domanco Filling Machine Whole Assembly</i>	UNLESS SPECIFIED Dimensions in mm Sharp Edges: 10.5 NORMAL TOLERANCE
P.M. Ammoun	PART NUMBER <i>DMFM-00-0000</i>	FROM TO TOLER.
P.E.	DRAWING ID	1.00
DATE 8/13/2024	MATERIAL	30 30 0.0
PROJECT Domanco	Material <not specified>	120 120 0.0
	SURFACE PREPARATION & COATING	300 300 0.0
QUANTITY 1	WEIGHT(G) 758554.0	600 1200 0.0
	SCALE 1:15	1200 2400 0.0
	SIZE A4	2400 410 0.0
	SHEET 1/1	OVER 410 0.0



3-a- Filling Machine Design

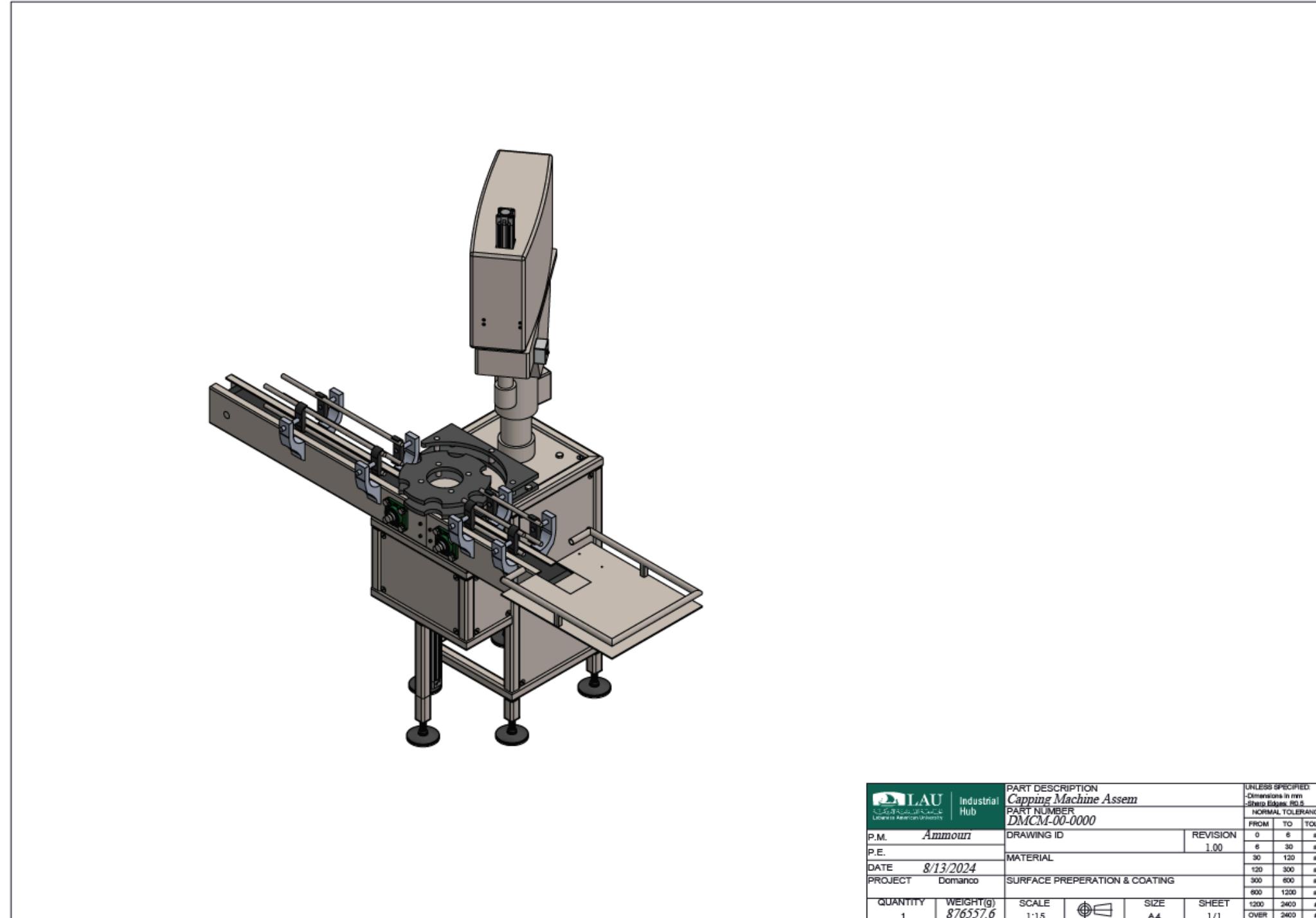


The diagram shows a 3D isometric view of a filling machine assembly. Various components are labeled with numbers 1 through 17, which correspond to the entries in the bill of materials table below.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DMFM-01-0000	Chassis Assem	1
2	DMFM-02-0000	Conveyer Assem	1
3	DMFM-03-0000	Vertical Back Support Assem	1
4	DMFM-04-0000	Filling Tubes Back Support Assem	1
5	DMFM-05-0000	Unkown Assem	1
6	DMFM-06-0000	Excess Tray Assem	1
7	DMFM-07-0000	Position Adjusting Assem	1
8	DMFM-08-0000	Retour Main Pipe Assem	1
9	DMFM-09-0000	Filling Tubes Assem	1
10	DMFM-10-0000	Unkown Assem	1
11	DMFM-11-0000	Main Piston Assem	1
12	DMFM-12-0000	Supply Pipe Assem	1
13	DMFM-13-0000	Proximity Sensor / Gate Actuator Assem	2
14	DMFM-14-0000	Bottles Assem	1
15	DMFM-15-0000	Pumping Hose	1
16	DMFM-16-0000	Pumping Hose	1
17	DMFM-19-0000	Bottle Guide Rodes Extension	1

LAU Lebanese American University	Industrial Hub	PART DESCRIPTION <i>Domanco Filling Machine Assem</i>	UNLESS SPECIFIED: -Dimensions in mm -Sharp Edges: R0.5
P.M. <i>Ammouni</i>	PART NUMBER <i>DMFM-00-0000</i>	NORMAL TOLERANCE	FROM TO TOLER.
P.E.			0 6 ±0.1
DATE <i>8/13/2024</i>		DRAWING ID	6 30 ±0.2
PROJECT <i>Domanco</i>			30 120 ±0.3
		MATERIAL <i>Material <not specified></i>	120 300 ±0.4
			300 600 ±0.5
		SURFACE PREPARATION & COATING	600 1200 ±0.8
Quantity <i>1</i>	WEIGHT(g) <i>710580.6</i>	SCALE <i>1:20</i>	SIZE <i>A4</i>
			HEET <i>1/1</i>
			OVER <i>2400</i>
			±1.5

3-b- Capping Machine Design



3-b- Capping Machine Design

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DMFM-02-0001	Conveyer Chassis	1
2	DMCM-01-0001	conveyer extension part	1
3	DMFM-02-0010	Support Bar for Bottles	8
4	DMFM-02-0011	Bottle Guide Clamp	8
5	DMFM-02-0006	Bottle Guide Clamp Support	8
6	DMCM-01-0004	Bottles Guide Rod	4
7	DMCM-01-0005	rod to hold the bottles	4
8	DMCM-01-0100	Chassis Assem	1
9	DMCM-01-0400	Capping Mechanism Support Assem	1
10	DMCM-01-0300	Spiral Plate Assem	1
11	DMFM-01-0200	Leveling Feet Assem	5
12	DMCM-01-0006	Conveyer Belt	1
13	DMCM-01-0007	Conveyer Belt	1
14	DMCM-01-0002	Bottles Tray	1
15	DMCM-01-0008	F205 Motor	5
16	DMCM-01-0500	Pneumatic Piston Assem	2
17	DMCM-01-0010	Connecting Cylinder	1
18	DMCM-01-0011	Piston to connecting cylinder	1
19	DMCM-01-0012	Plate holding piston	1
20	DMCM-01-0013	Rod over piston	1
21	DMCM-01-0600	Conveyer Belt Motor Assem	1
22	DMFM-02-0008	Conveyer Belt Gear	4

	Industrial Hub	PART DESCRIPTION <i>Capping Machine Chassis Assem</i>						
		<small>UNLESS SPECIFIED: -Dimensions in mm -Sharp Edges: R0.5</small>						
		<small>NORMAL TOLERANCE</small>						
P.M. <i>Ammoun</i>		DRAWING ID <i></i>	REVISION <i>1.00</i>	FROM <i>0</i>	TO <i>6</i>	TOLER. <i>±0.1</i>		
P.E. <i></i>					<i>6</i>	<i>30</i>	<i>±0.2</i>	
DATE <i>8/13/2024</i>					<i>30</i>	<i>120</i>	<i>±0.3</i>	
PROJECT <i>Domanco</i>		SURFACE PREPARATION & COATING			<i>120</i>	<i>300</i>	<i>±0.4</i>	
QUANTITY <i>1</i>	WEIGHT(g) <i>602228.1</i>	SCALE <i>1:15</i>		SIZE <i>A4</i>	HEET <i>1/1</i>	<i>300</i>	<i>600</i>	<i>±0.5</i>
					<i>600</i>	<i>1200</i>	<i>±0.6</i>	
					<i>1200</i>	<i>2400</i>	<i>±1.0</i>	
					<i>2400</i>	<i>4800</i>	<i>±1.5</i>	

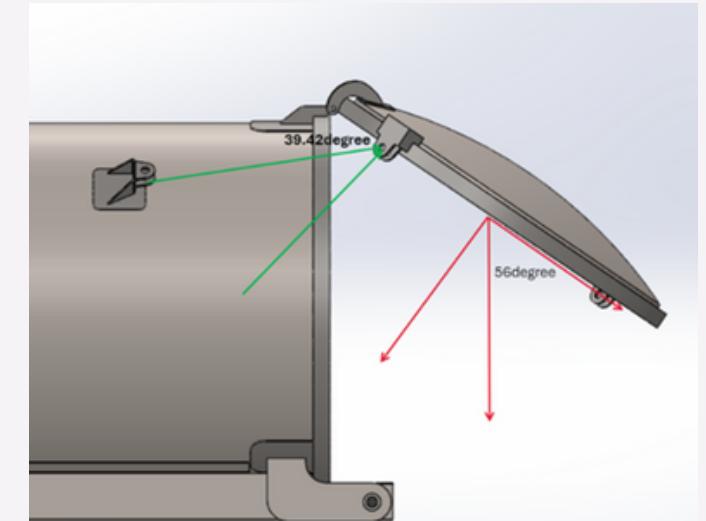
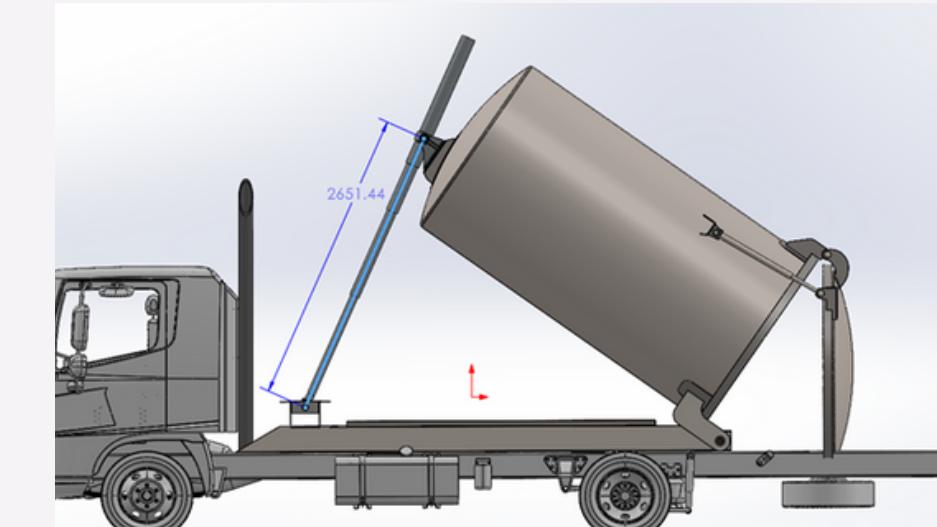
4- Sewage Tank Design

software used: Solidworks23, AutoCAD

- 8000 L Sewage Tank (QTY 4).
- 3-stage front-end hoist (Hyva Alpha 71034211).
- Dual door-lift cylinders, 45° opening for fast discharge.



4- Sewage Tank Design

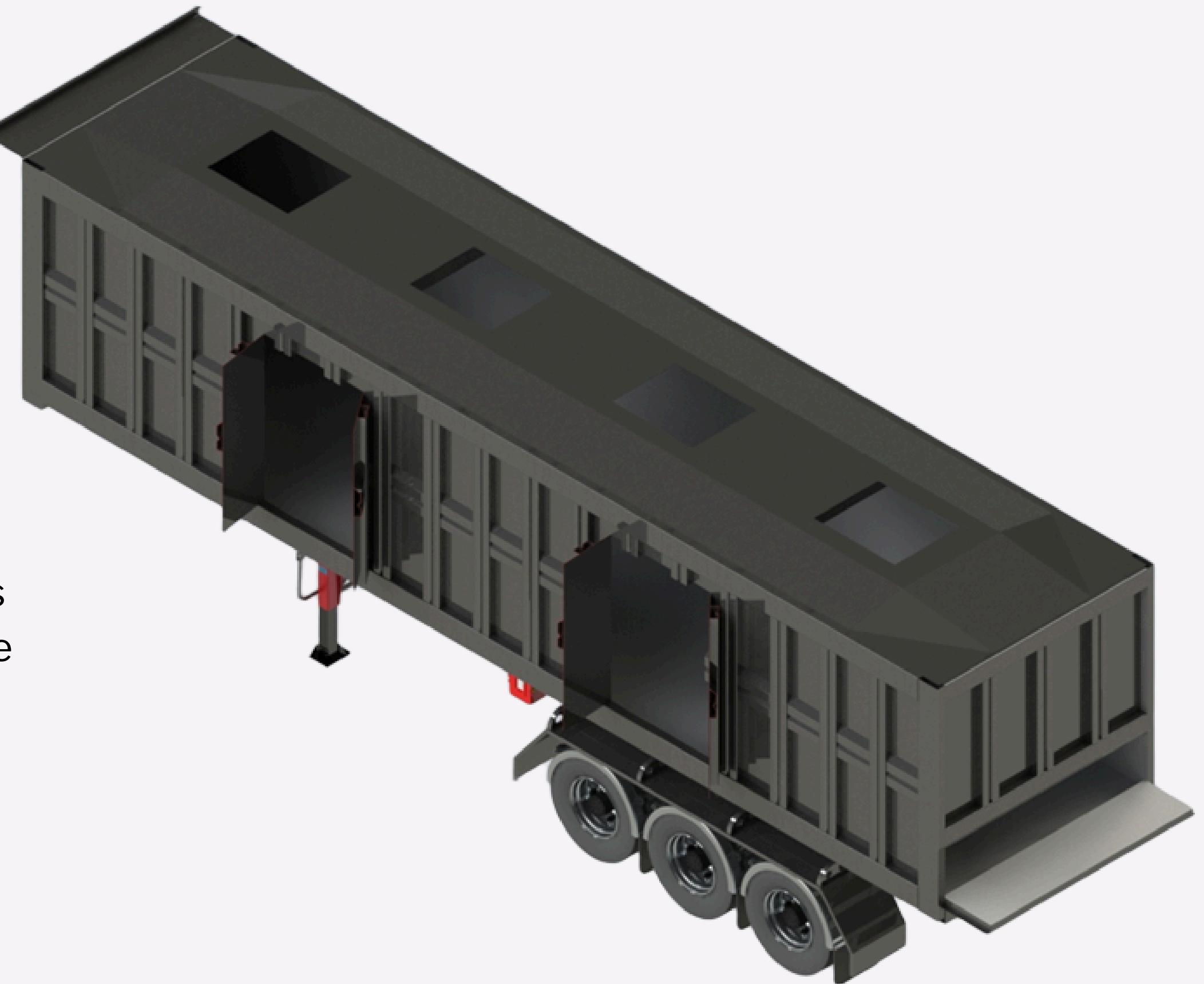


- checked CG shift and tipping stability over full/empty conditions.
- calculated required dump force & stroke for all hydraulics.
- Created assembly and fabrication drawings for production

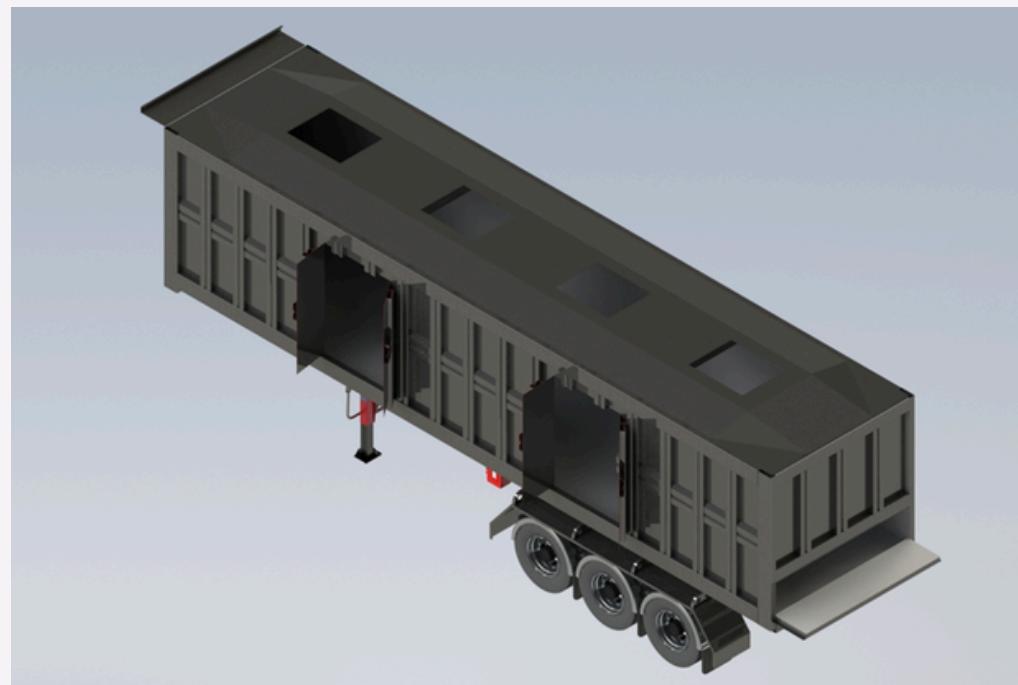
5- Wheat Trailer Designs

software used: Solidworks23, AutoCAD

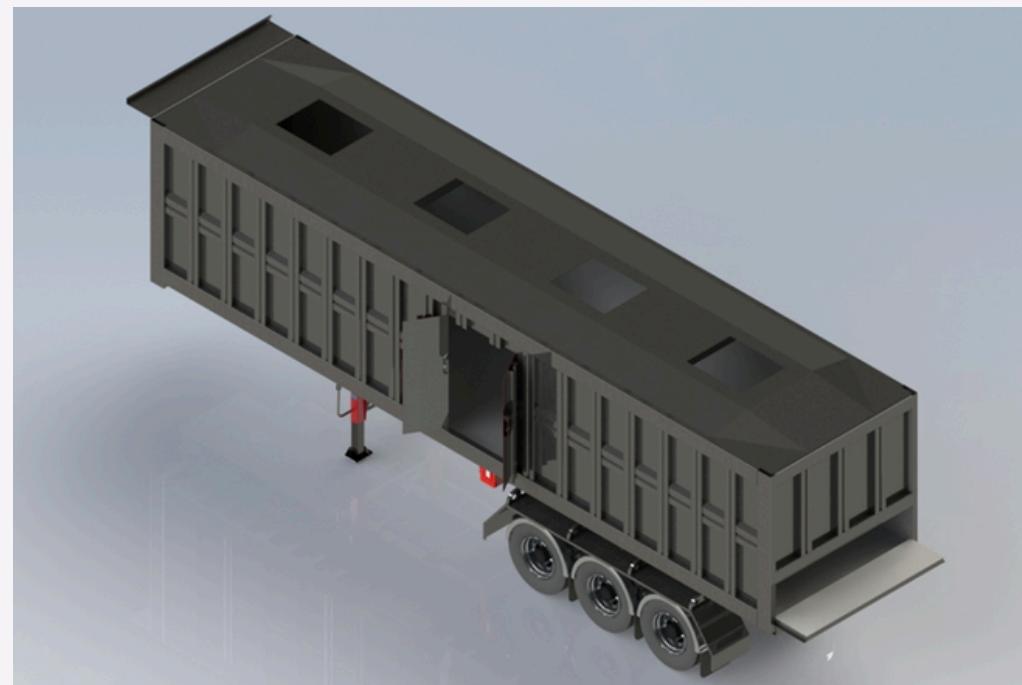
- Wheat Trailer Design with 6 different configurations
- Capacity: 62 m³ following the maximum axle load limits (per ECE).
- Tandem triple axle trailer for heavy loads activities.
- Performed structural simulations to verify load capacity and ensure no failure



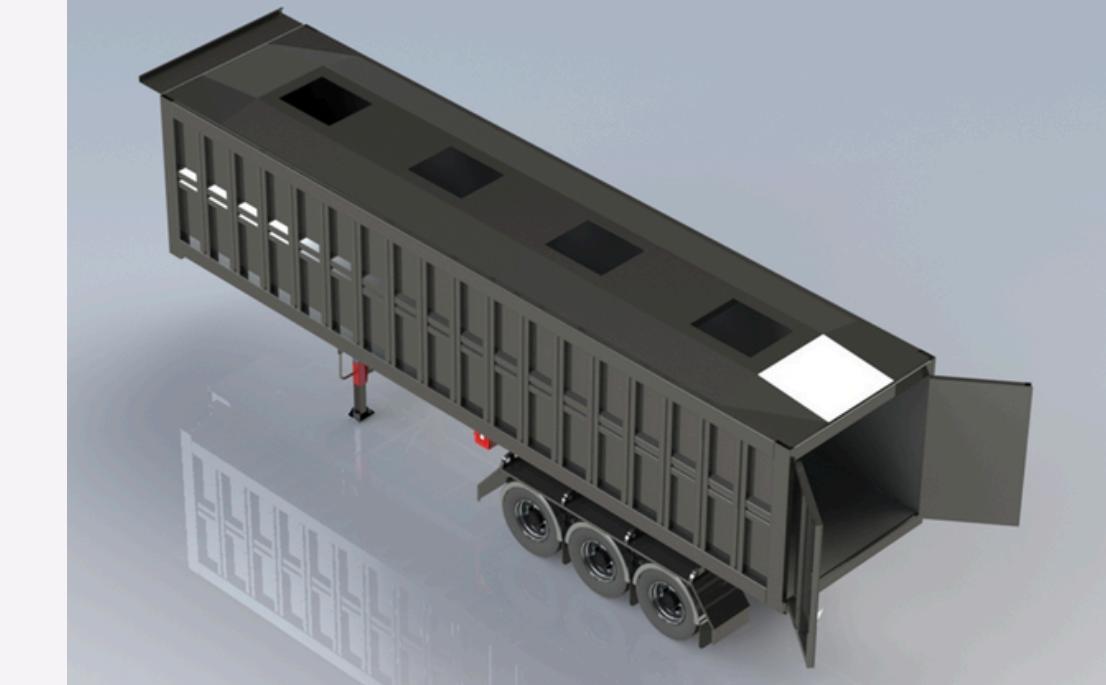
5- Wheat Trailer Designs



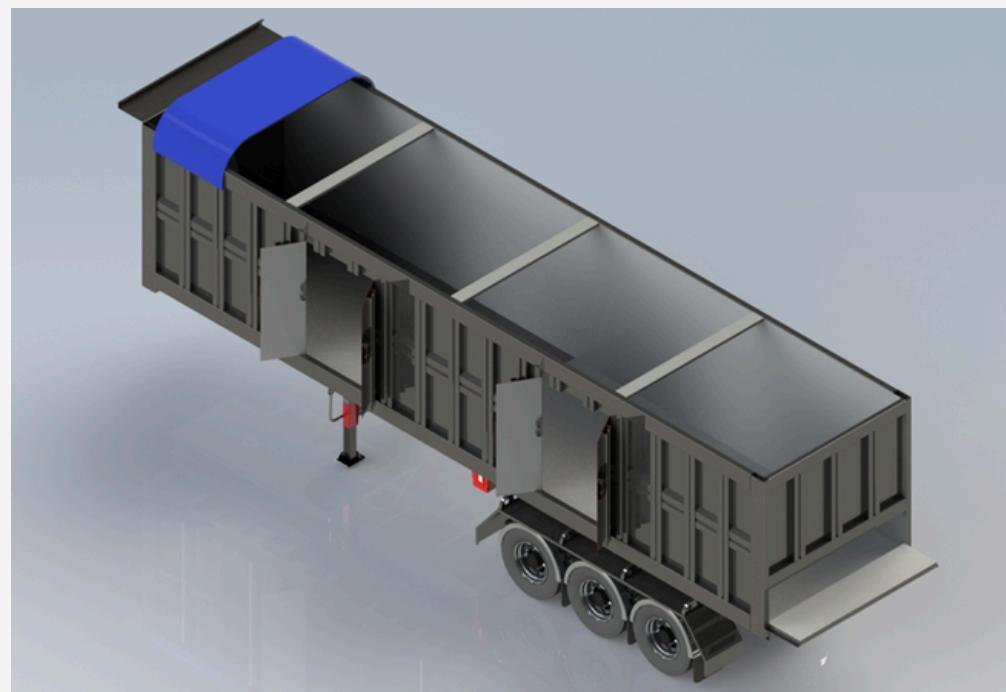
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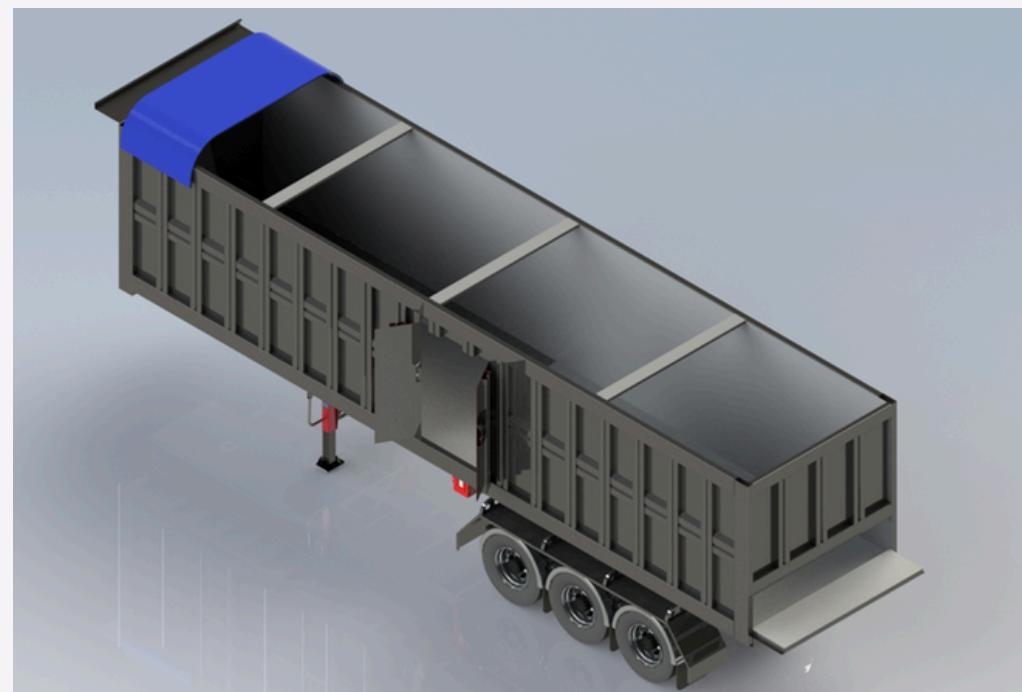
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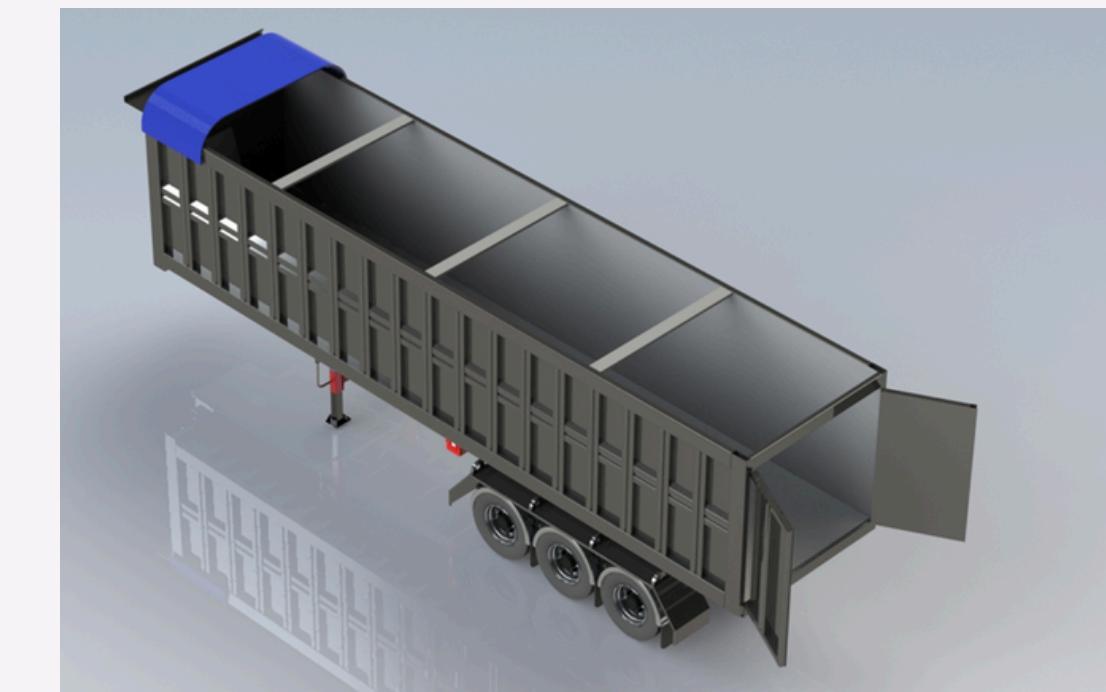
conf 3



conf 4

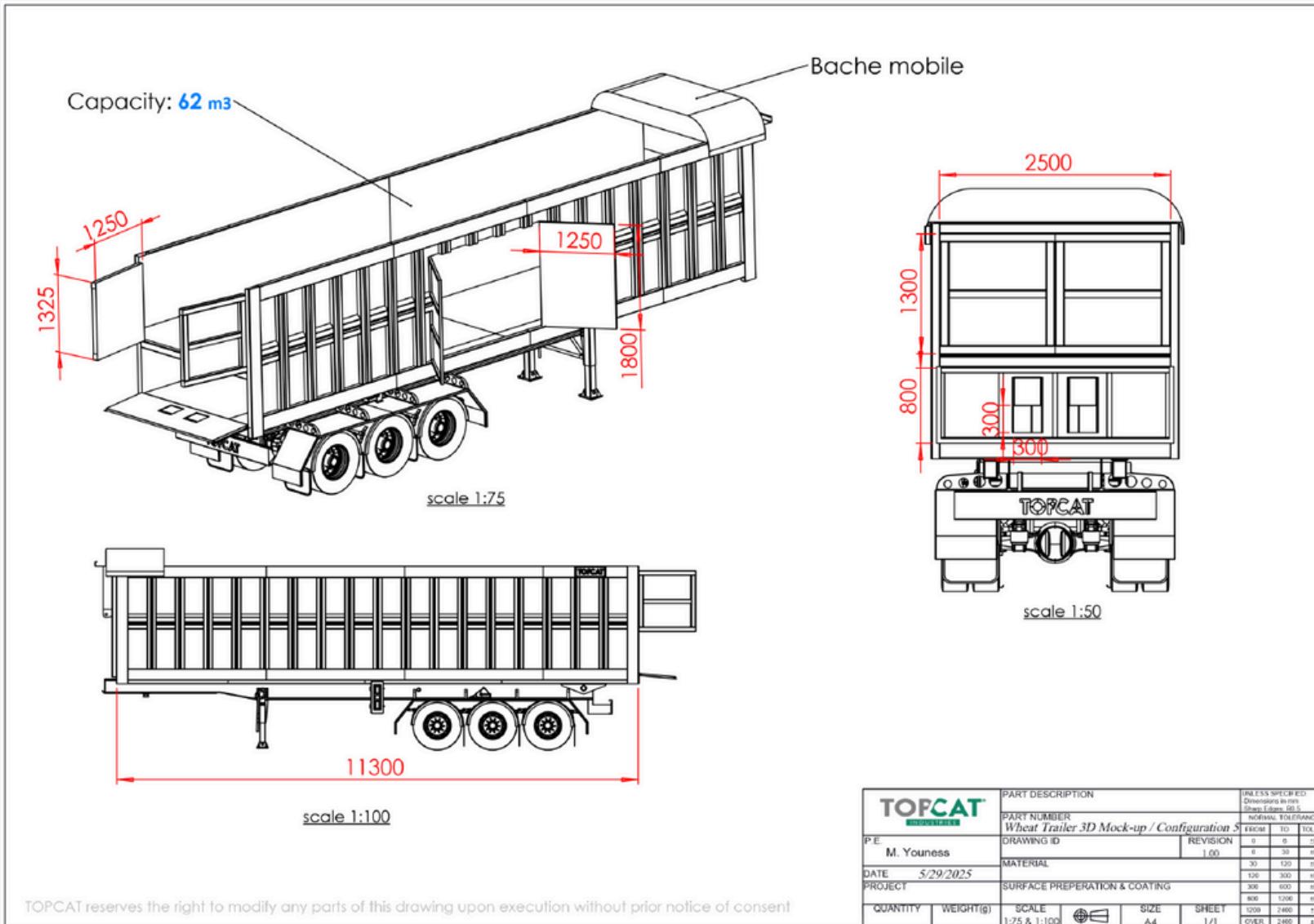


conf 5



conf 6

5- Wheat Trailer Designs



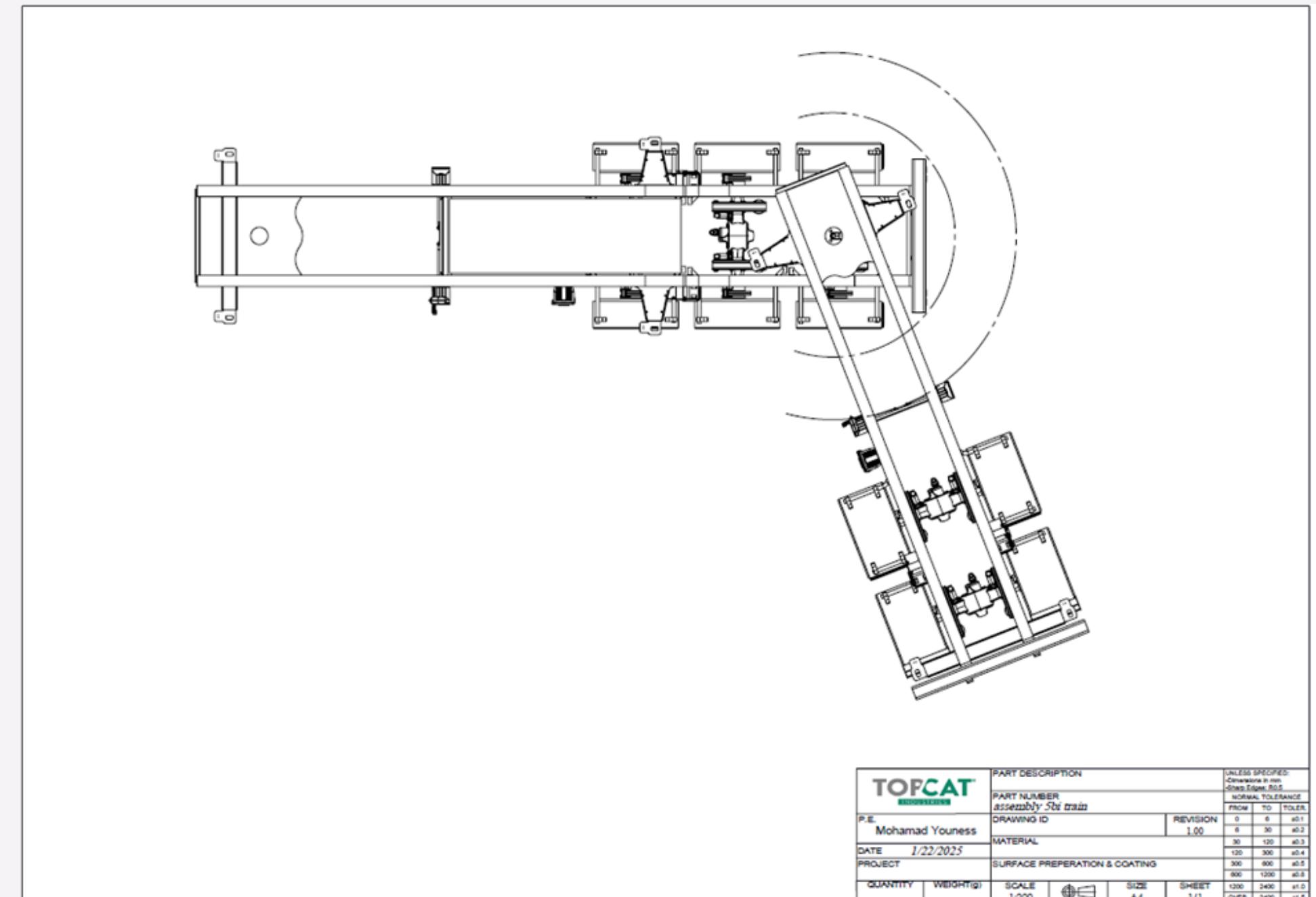
6- Bi-train Design

software used: Solidworks23, AutoCAD



- Modeled a bitrain truck with articulated trailers.
- Designed chassis and load distribution for realistic operation.
- Verified stability and compliance with axle load regulations through simulations.
- Focused on maneuverability, trailer articulation, and payload capacity.

6- Bi-train Design



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