

CIPs:

DTL Ancillaries Ltd.

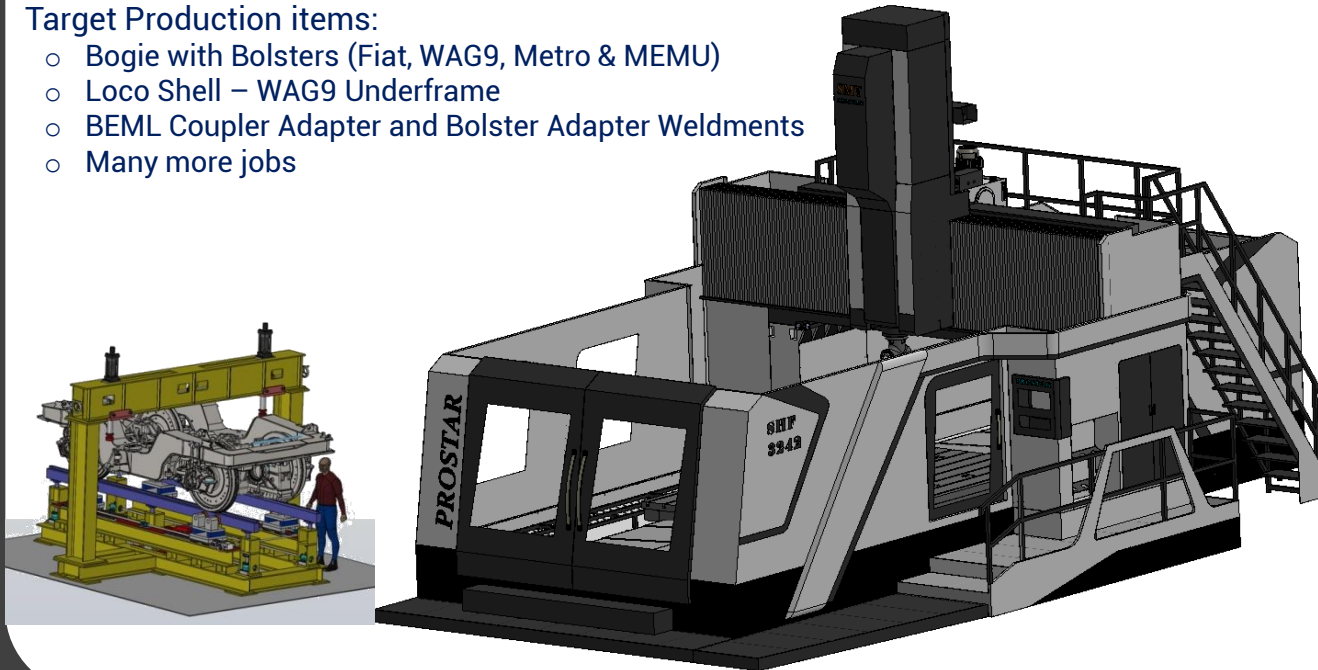
1. Bogie Manufacturing
2. FRP Composites Manufacturing
3. Aluminium Honeycomb Core Manufacturing
4. Robotic Laser Cutting System
5. RRTS Sidewall Skin-sheet Transportation Trolley
6. FRP Testing Lab Set-up
7. Aluminium Honeycomb Core Testing Facility Set-up
8. Weld-Tech Centre with Workshop

1. Bogie Manufacturing: 5Axis CNC Milling M/c

- In order to expand our offering in the areas of complete Bogie Assembly including Bogie Frame for Fiat type as well as T18 type, we have ordered for a 5Axis CNC Double Column Milling Machine worth ₹5Cr.
- ₹2Cr advance has been paid.
- At the moment the programme is delayed due to pandemic.

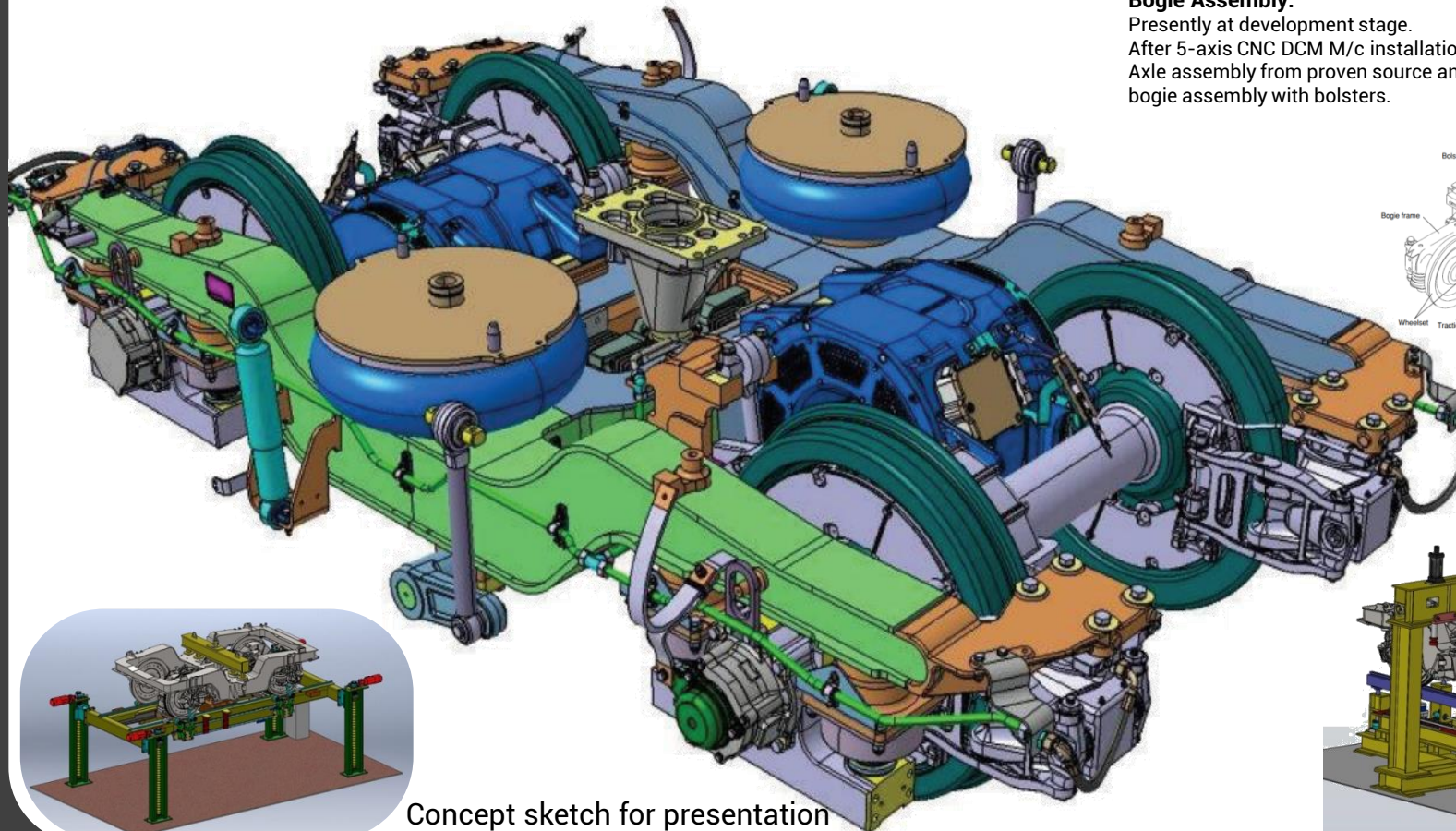
Target Production items:

- Bogie with Bolsters (Fiat, WAG9, Metro & MEMU)
- Loco Shell – WAG9 Underframe
- BEML Coupler Adapter and Bolster Adapter Weldments
- Many more jobs



ITEM	UNIT	SHF36			
Model	SH			SHF3672	
Distance Between Two Columns	mm	3620			
TRAVEL	X-axis	mm		7200	
	Y-axis	mm	3620+700		
	Z-axis	mm	1600		
Distance From Spindle Nose To Table Surface	mm	200-1400(opt.200-1600/1800)			
TABLE	Length	mm	4020	5020	7020
	Width	mm	3020		
T-slots (Width x Pitch x No.)	mm	28 x 220 x 14			
Max. Loading Capacity	ton	20	22	24	
	Spindle Taper		BT50		
SPINDLE	Spindle Speed	rpm	4000/5300(Opt.6000+2 Stage Gearbox)		
	Spindle Motor Output	kW	18.5 / 22 / 26		
FEEDRATE	Rapid Travel X-axis	m/min	12	10	10
	Rapid Travel Y-axis	m/min	12		
	Rapid Travel Z-axis	m/min	12		
	Cutting Feed Rate	m/min	6		
ACCURACY	Positioning (Full Travel)	mm	± 0.015		
	Repeatability	mm	± 0.005		
ATC & TOOL MAGAZINE	Tool Magazine	nos	32 Pcs		
	Tool Max. Dia	mm	125mm		
	Tool Max. Length	mm	400		
	Tool Max. Weight	kg	20		
OTHERS	Guideways (x/y/z axis)		Linear Guideways		
	CNC Controller		Siemens 828D (Opt.Fanuc / Mitsubishi)		
MACHINE SIZE	Length	mm	8200	10500	12800
	Width	mm	5850	5850	5850
	Height	mm	4700	4700	4700

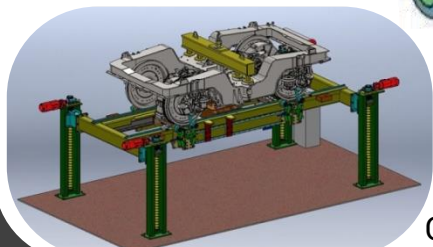
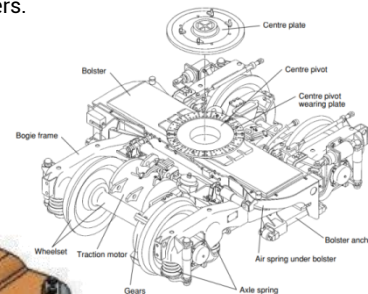
Smart Development: Bogie Assy



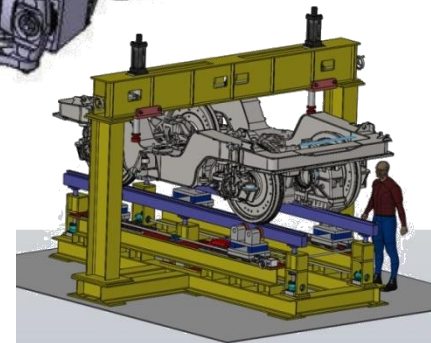
Bogie Assembly:

Presently at development stage.

After 5-axis CNC DCM M/c installation, we will source the Wheel & Axle assembly from proven source and will produce the complete bogie assembly with bolsters.



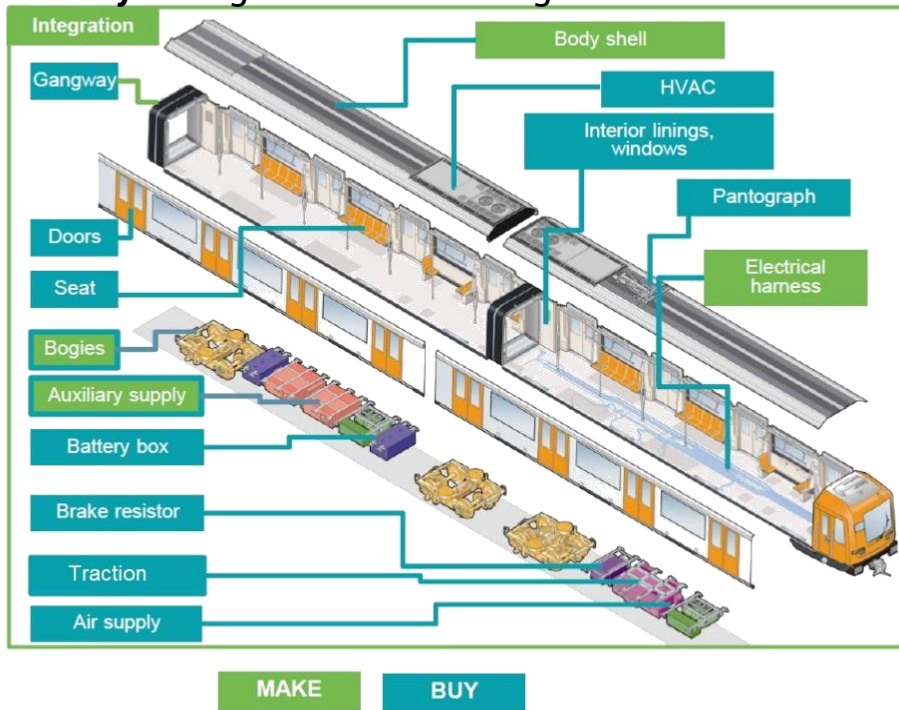
Concept sketch for presentation



Smart Procurement: Proto Development & SCM

Sourcing, a key cost reduction driver.

Make vs Buy configurations are being taken. An illustration below.



- We develop proto, and standardise the production; then outsourcing on Job work basis.
- Cost competitiveness depends on the availability of raw materials required for component manufacturing in adequate quantity and of required quality at a reasonable price.
- In the case of Aluminum technology, although India has a large production & assembling capacity, the availability of certain raw materials (quality and quantity) is doubtful. Hence, there is a dependence on overseas suppliers.

JINDAL STAINLESS - APRIL 2019

STAINLESS POST

GLOBAL STAINLESS STEEL MELT PRODUCTION UP BY 5.5% IN Q1B

Page No. 02

PUREVER'S NEXT GEN WATER STORAGE SOLUTIONS WITH STAINLESS STEEL

Page No. 14

CHECK OUT THE NEWLY INTRODUCED 'DID YOU KNOW?' SECTION AND MASTER YOUR KNOWLEDGE OF STAINLESS STEEL GRADES

Page No. 13

OUR PARTNER, OUR PRIDE

Managing Director, DTL Ancillaries Ltd.
Mr Vijay Mohan Jain

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2. FRP Composites Manufacturing: Shop

- A completely newly developed and installed FRP Shop at Unit3 with shop floor area covering 85% and houses superior production and testing facilities, inclusive of R&D and Prototype Development Validation centre.
- The units are capable of manufacturing crucial railway products of high quality. This is further ensured with the involvement of proficient human resource and technology advancement.
 - Lean manufacturing concept with capability to produce multiple technologybased products through engagement of multiple processes.
 - Stateoftheart modern facility with Mould, Fixture/Tooling design capability and Process and Product Validation through inhouse facility & tieups.
 - Process design based on FMEA outcomes to achieve optimum process capabilities (SPC).
 - 24x7 Round the clock working and support.
 - Our team is having expertise is to develop and manufacture large size FRP engineering and industrial components.
 - **Processes:**
 - Controlled Hand LayUp (HLU)
 - Sheet Moulding Compound (SMC))
 - RTM / LRTM – Under Development
 - Vacuum Infusion Process (VIP) – Under Development



2. FRP Composites Manufacturing: Products

1. Interior Panels
2. Modular Lavatories



2. FRP Composites Manufacturing: Products in AC3T



3. Aluminium Honeycomb Core Manufacturing: Shop

- A completely newly developed and installed Aluminium Honeycomb Core production Shop at Unit3.
- The units are capable of manufacturing Partition Frames and Ceiling Panels.
- State-of-the-art modern facility includes:
 - Gluing Machine
 - Hot Pressing
 - Core Sawing and cutting machine
 - Core Expander
 - Laminating Press
 - Vacuum Bagging
 - Cold Press
 - Panel Core Saw
 - CNC Router



3. Aluminium Honeycomb Core Manufacturing: Shop

Gluing Machine



CORE CELL SIZES :
3.2 MM, 4.8 MM, 6.4 MM,
9.6 MM, 12.7 MM, 19.2 MM

Hot Pressing Machine



**HOT PRESSING UPTO CORE BUNCH
OF
LENGTH 2600 MM X WIDTH 600 MM**

Core Sawing Machine



**CAPACITY:
SAWING UPTO LENGTH
2700 MM X WIDTH 600 MM**

Expander Machine



**CORE EXPANDING UPTO
LENGTH
3800 MM X WIDTH 3000 MM**



Cold Pressing Machine



Expanded Core Sawing Machine



CNC Router

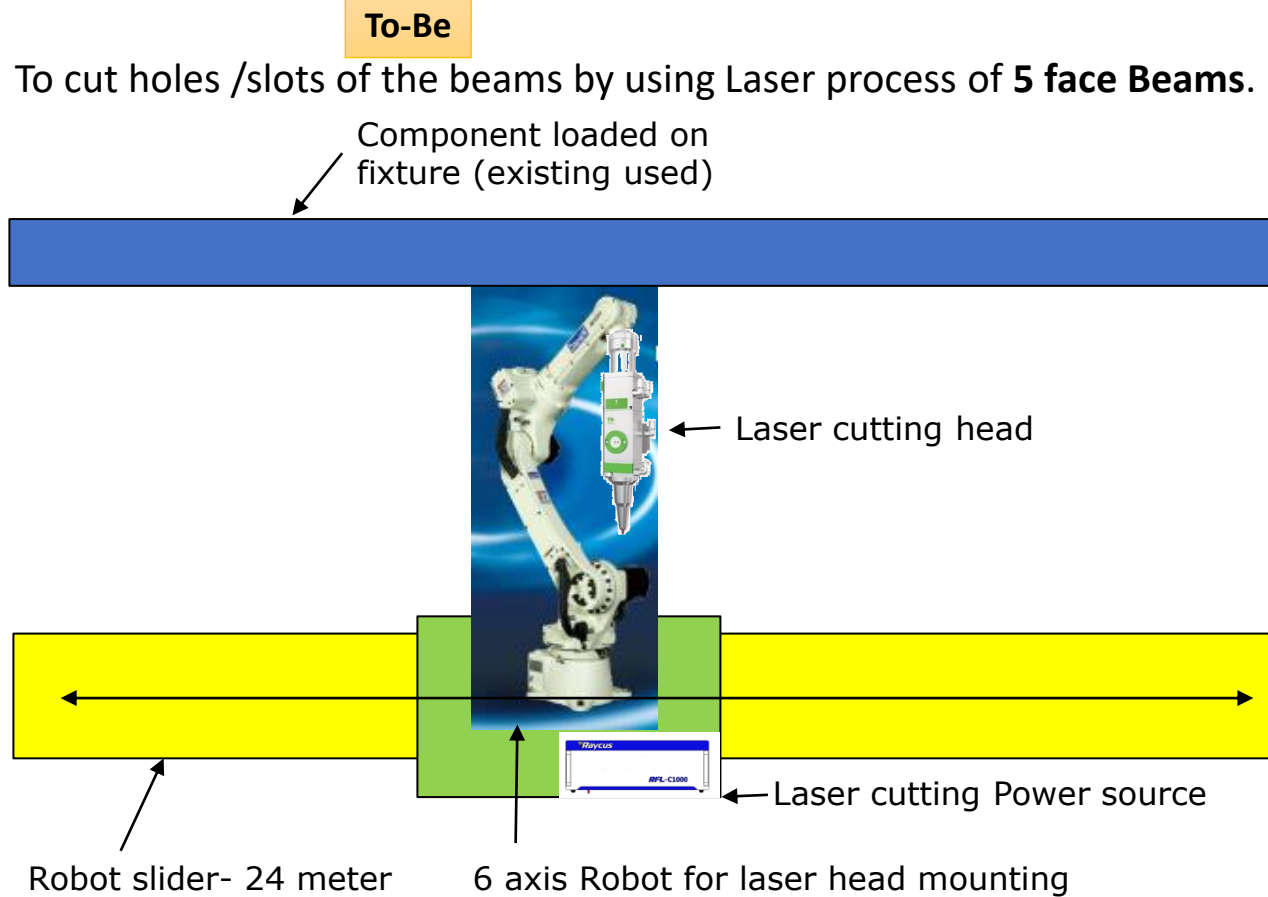
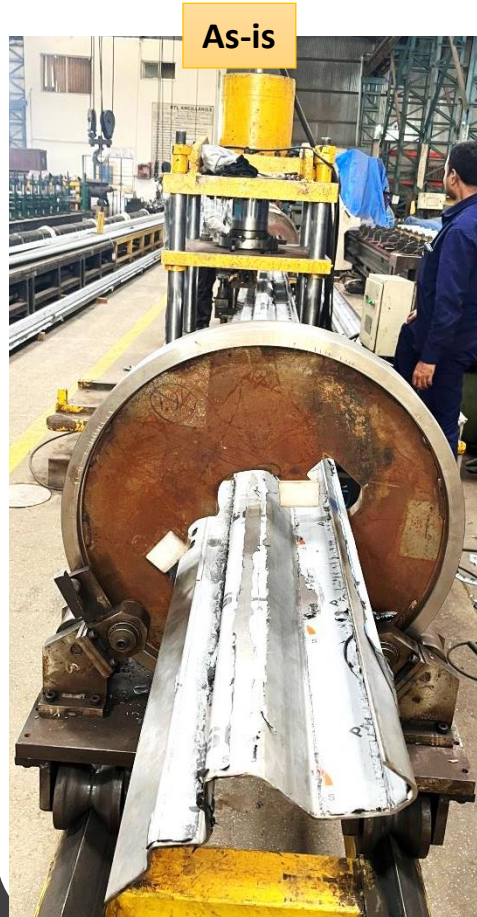
FRP & Aluminum Honeycomb Partition Frame in AC3T

DIHL design adopted by Indian Railways for all three Production Units (ICF, MCF & RCF).



***Seat & Berths: Outsourced to family concern.**

4. Robotic Laser cutting system

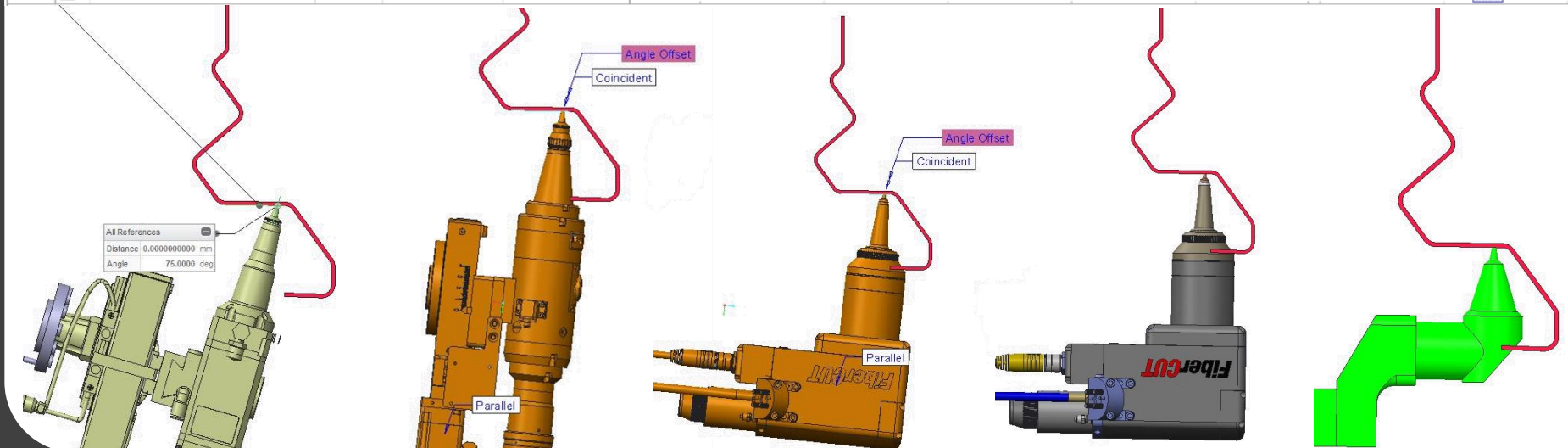
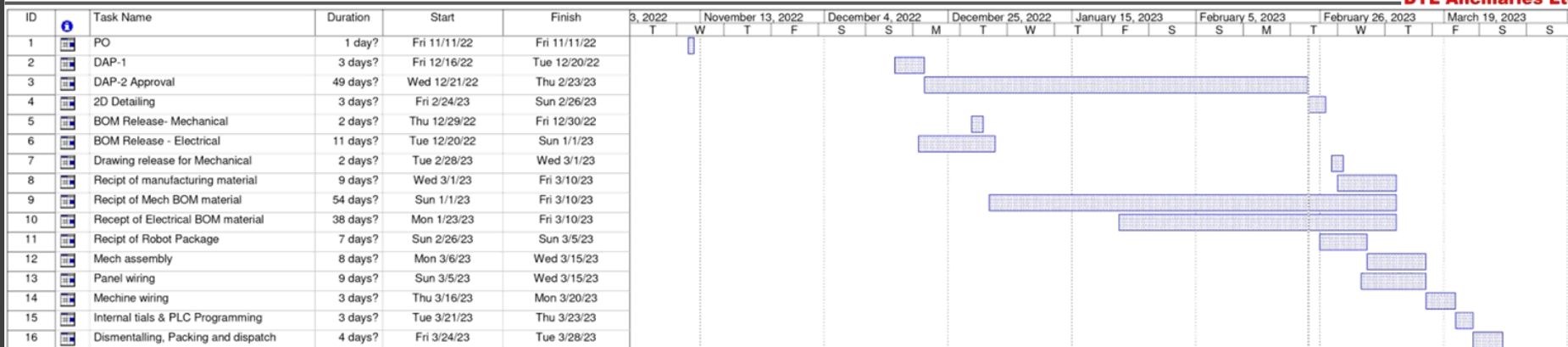


4. Robotic Laser cutting system



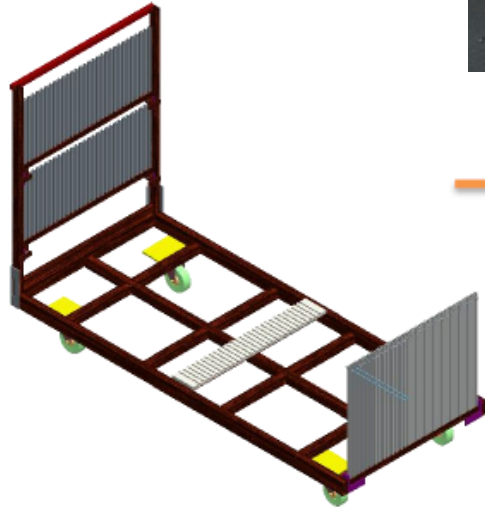
Components

4. Robotic Laser cutting system – Timeline

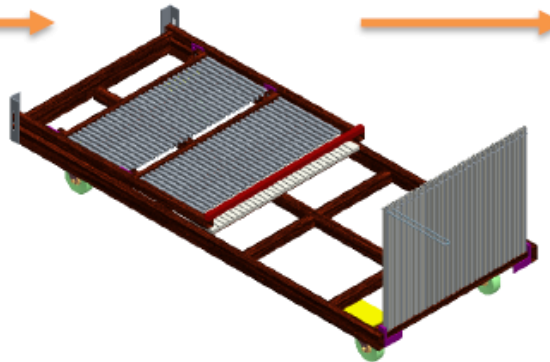


5. RRTS Skinsheet Transportation Trolley – Small

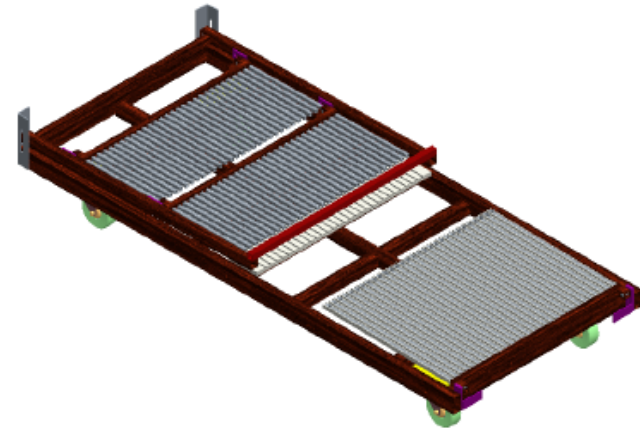
Problem:
Scratch and Waviness due to Horizontal placing



Step -1 Collapsible Sub side frame in side frame

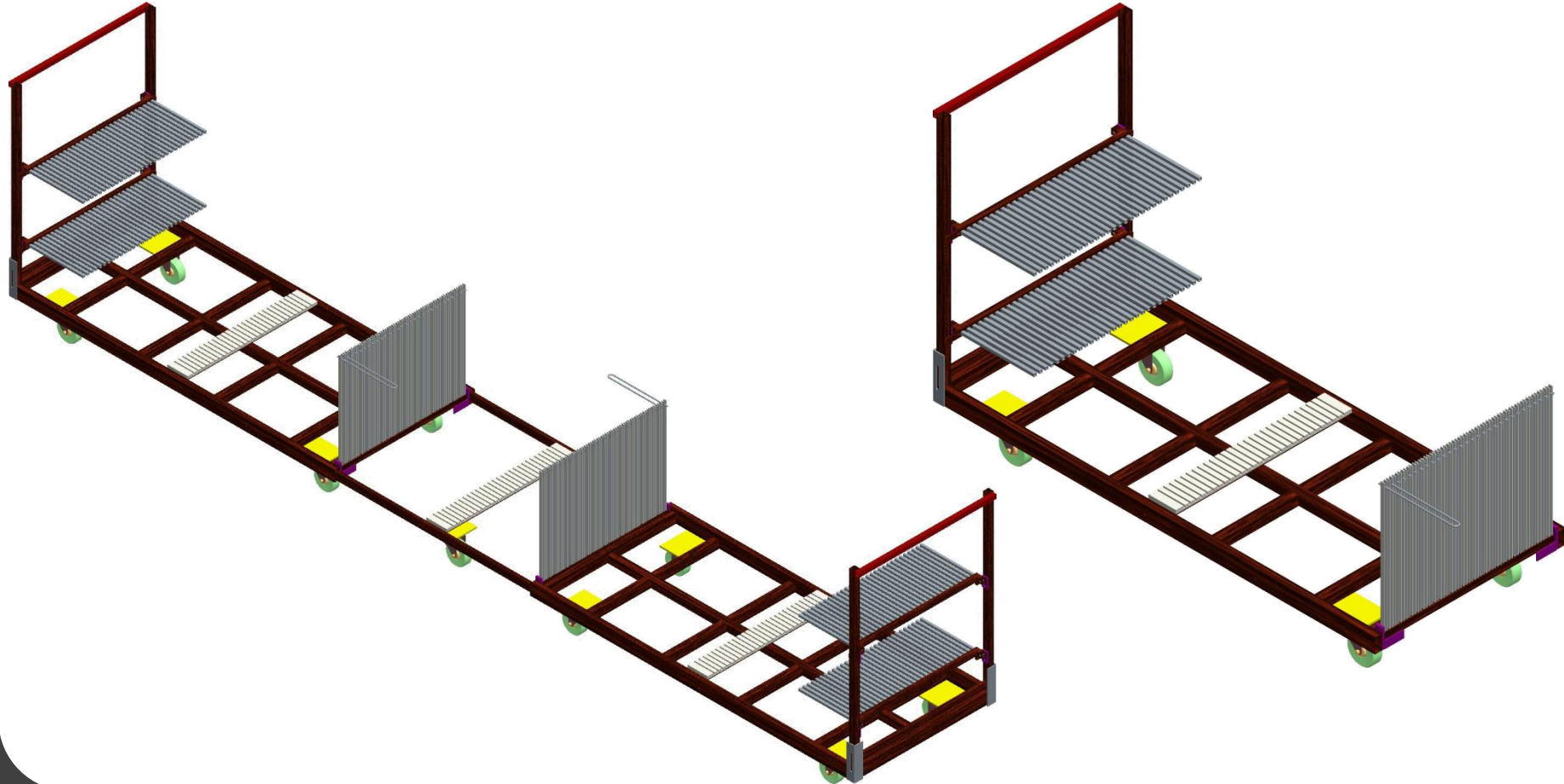


Step -2 Collapsible side frame



Step -3 Collapsible all frames

5. RRTS Skinsheet Transportation Trolley – Long



5. RRTS Skinsheet Transportation Trolley – Long



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Trolley Assembling
Method – Stage 1



Click on image for
Video



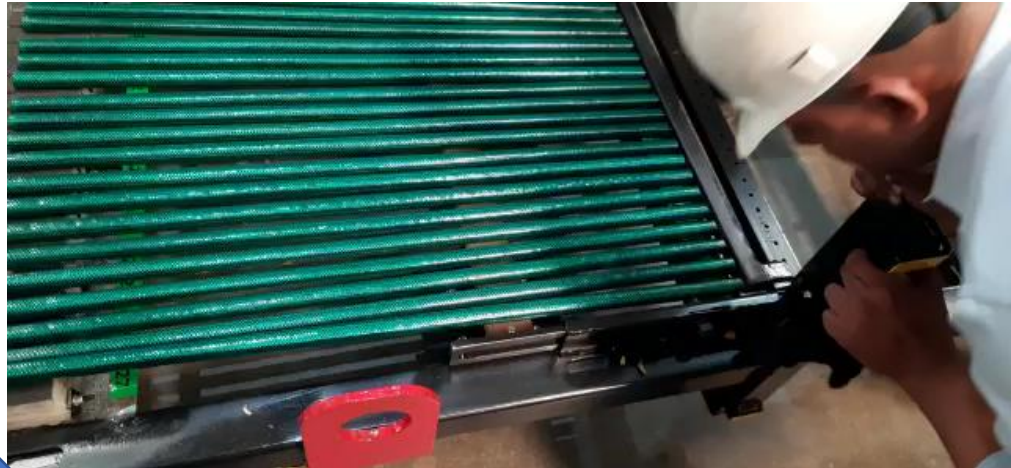
Click on image for
Video



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Trolley Assembling
Method – Stage 2

Align the Hole between 3 parts - Use
(12+12+24) bolt nut and washer as
shown in the Images



Click on image for
Video



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Trolley Assembling Method – Stage 3

Open the Side frame along with sub Assembly – As shown in Video



Click on image for Video



Click on image for Video



Click on image for Video

5. RRTS Skinsheet Transportation Trolley – Loading Steps

Trolley Assembling
Method – Stage 4

Open the vertical sub-Assembly – As
shown in Video



Click on image for
Video

Click on image for
Video

Adjustable slider in half
frame for different
length of sheet loading
As shown in Video



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Step by Step Loading of Parts



U Profile rubber to used on the part resting Position - Size – 150 mm on Each location bottom Side



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Step by Step Loading of Parts

Individual part must be wrapped with Stretch film
Stoppers given for Variable sizes of Skin to be used as per requirement



Click on image for Video



Click on Image for Video



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Step by Step Loading of
Parts

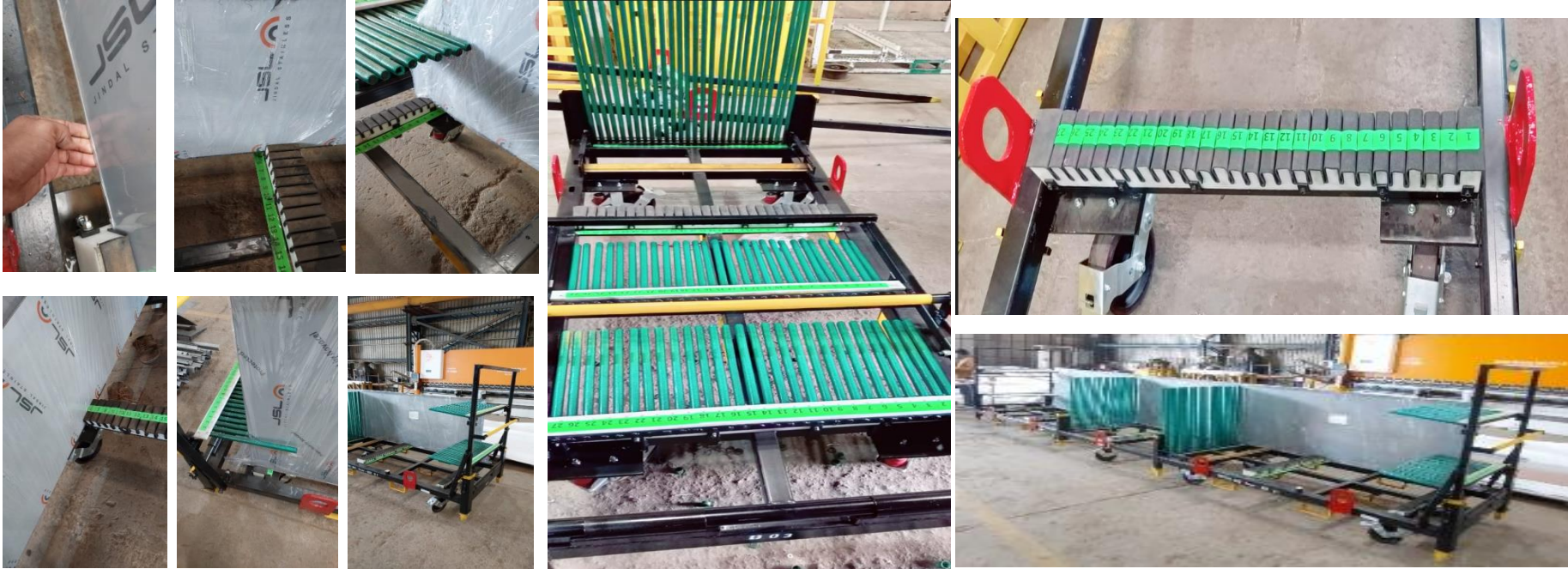
Stoppers given for Variable sizes of Skin to be used as per
requirement



5. RRTS Skinsheet Transportation Trolley – Loading Steps

Step by Step Loading of Parts

Individual part must be wrapped with Stretch film
Stoppers given for Variable sizes of Skin to be used as per requirement
Numbering sequence to be followed while loading the part

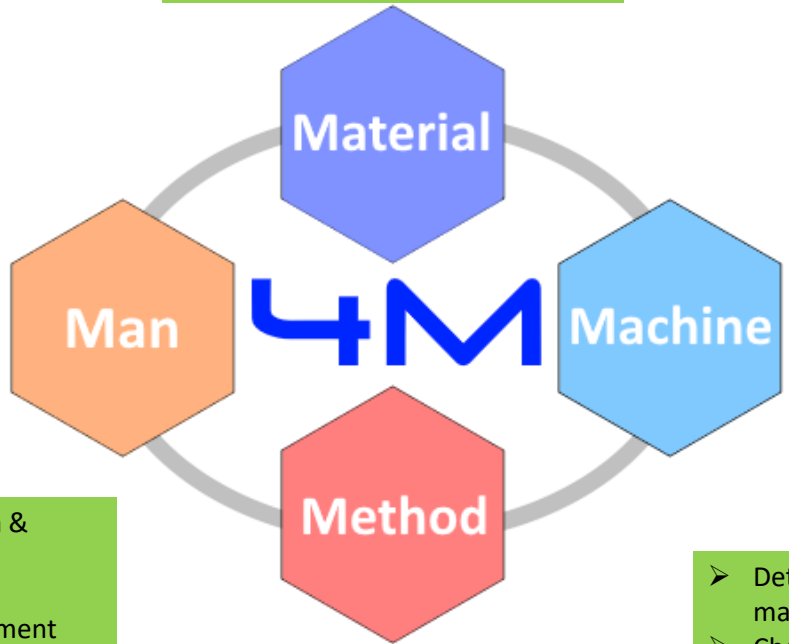


5. RRTS Skinsheet Transportation Trolley – Loading Steps

Step by Step Loading of Parts

Provided Packaging material
Structural Strength - OK

Team who is responsible for packaging is not educated enough on the packaging method



Operation Provided Mechanism to secure the Parts- OK

- Giving the detail training to the Team & Taking Signoff.
- Alignment with QC for PDI
- Continues monitoring for next 3 shipment

Method defined for packaging was followed partial
Major 2 points was not followed

- Detail method process of packaging to be made with more audio visual.
- Check sheet with Dos & Don'ts to be maid
- Quality Gate PDI (Pre dispatch Inspection) to be Implemented.

6. FRP Testing Laboratory – Set-up

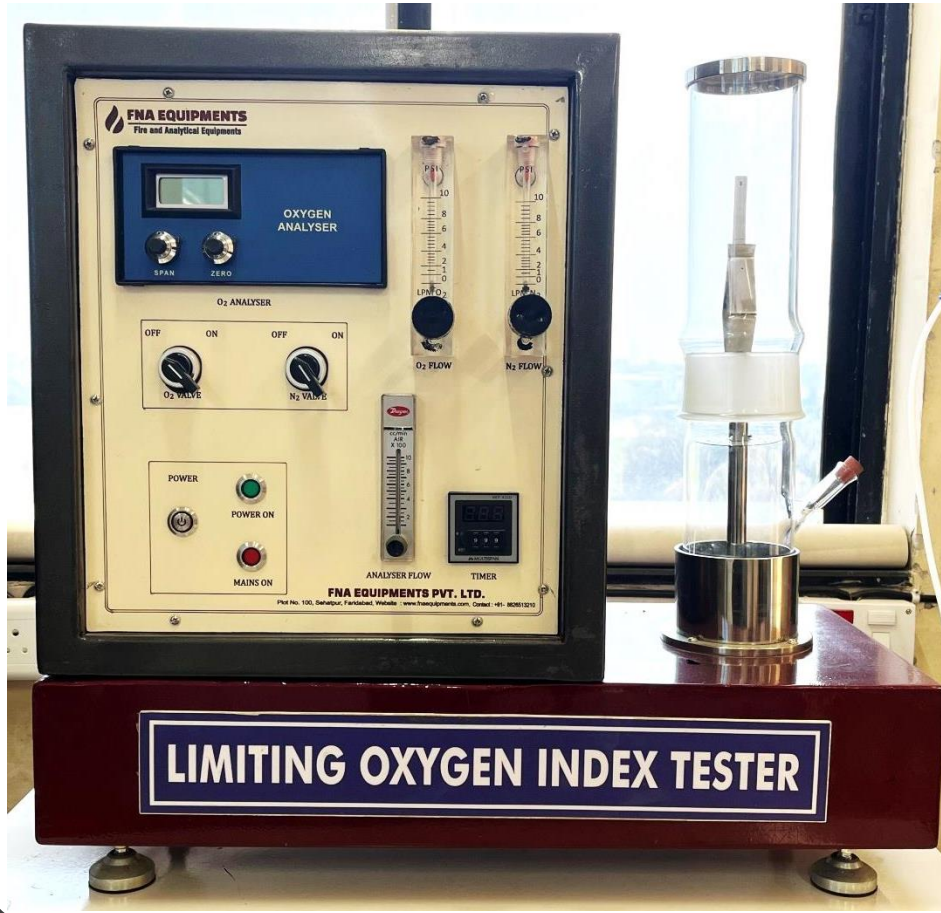
To ensure product development as per specification, we have set-up this facility for FRP Components:

Toxicity Tester	as per NCD-1409
Smoke visibility tester	as per UIC 564-2 Appx-15.
Critical Oxygen Index Testing Instrument with Electro chemical Oxygen Analyse	as per ASTM D2863
Digital Temperature Controller Muffle Furnace	up to 1000 Degree Celsius
Digital Temperature Controller Oven	up to 200 Degree Celsius
Izod impact tester	as per IS 1998.
Notch Cutter	
Resistance to impact test	
Specific gravity with density kit	accuracy 0.001 g
Toxicity 14 gas Tube and Pump	
Digital UTM	(upto 2.5 ton)
Thickness Gauge	
CMM 3-axis	

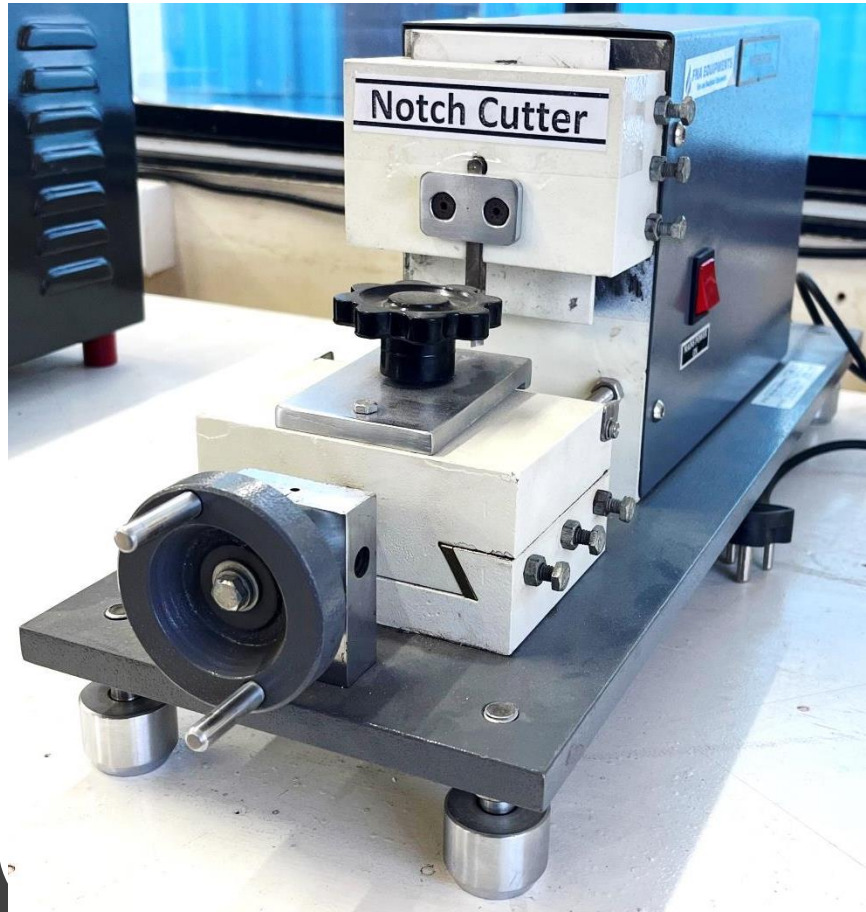
6. FRP Testing Laboratory – Equipments (1/7)



6. FRP Testing Laboratory – Equipments (2/7)



6. FRP Testing Laboratory – Equipments (3/7)



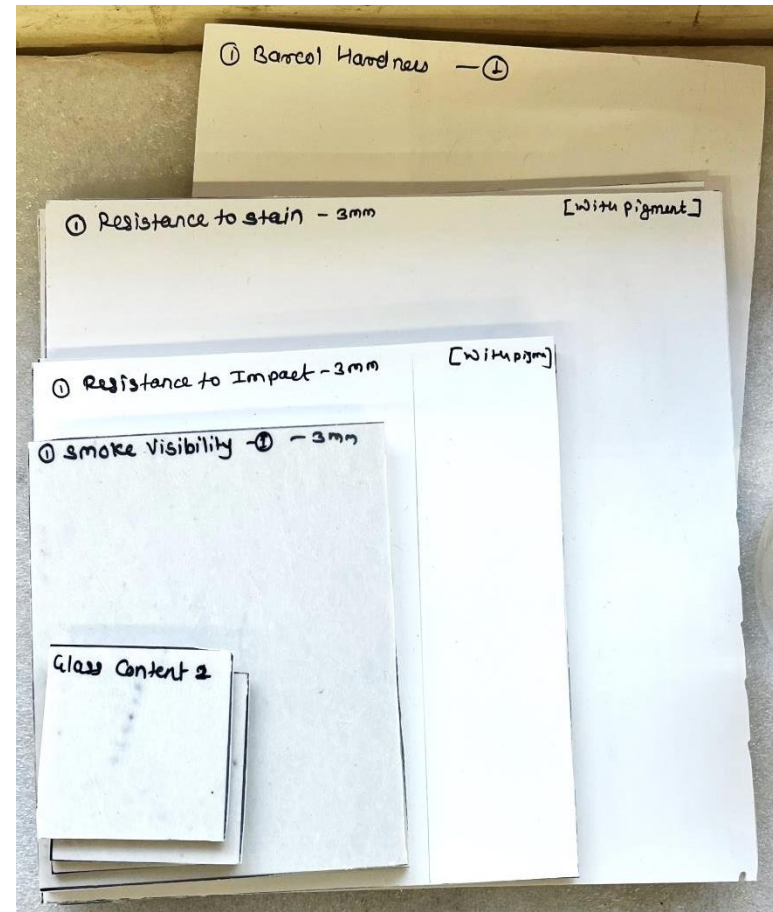
6. FRP Testing Laboratory – Equipments (4/7)



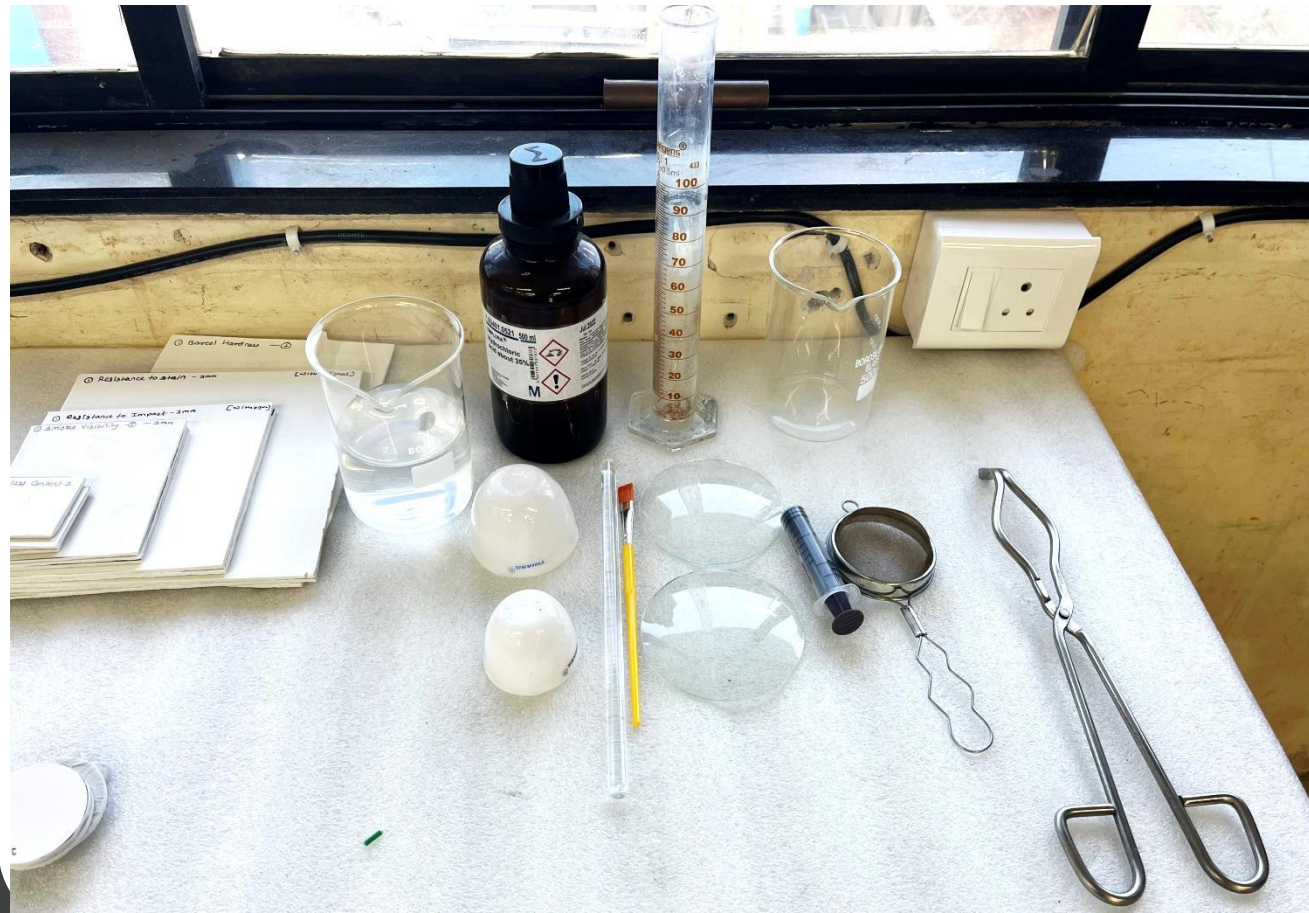
6. FRP Testing Laboratory – Equipments (5/7)



6. FRP Testing Laboratory – Equipments (6/7)



6. FRP Testing Laboratory – Equipments (7/7)

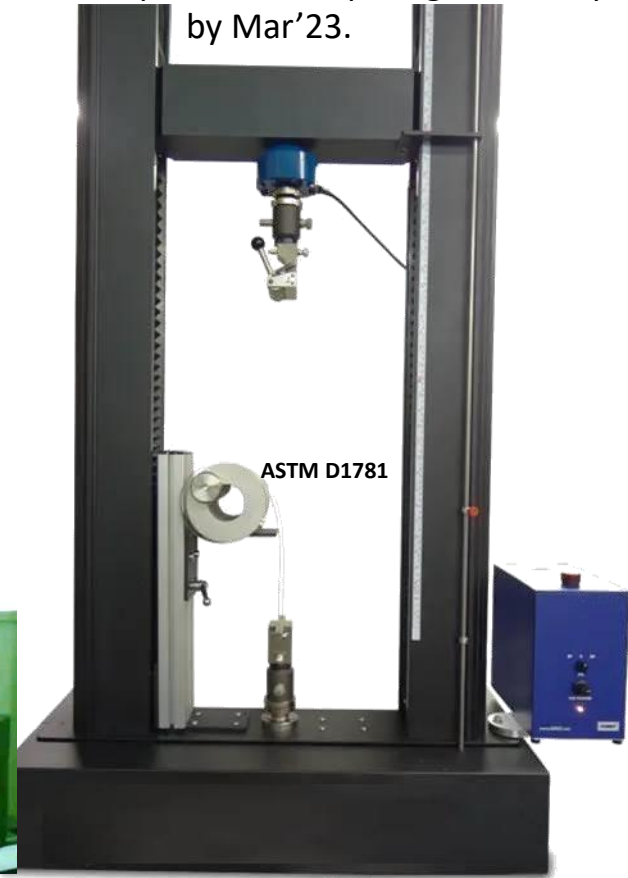


7. Aluminium Honeycomb Core Testing Laboratory

Tests to be conducted

We are in the process of acquiring this set-up by Mar'23.

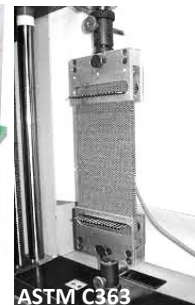
S. No.	Testing Parameter	Test Method	Test Ref Std	Actual specified value of product
1	Bare compressive strength and modulus test	APPENDIX B of IS 11642	ASTM C365	9.4 Mpa
2	Stabilized core compressive strength and modulus	APPENDIX C of IS 11642	ASTM C365	9.8 Mpa
3	Core shear strength and modulus test	APPENDIX D of IS 11642	ASTM C273	L direction strength : 4.8 Mpa L direction modulus : 0.9 Mpa W direction strength : 3.0 Mpa W direction modulus : 0.4 Mpa
4	Node-bond strength of honeycomb core material	APPENDIX E of IS 11642	ASTM C363	5.0 Mpa
5	Drum peel strength	ASTM D 1781	ASTM D 1781	Min 60 N.cm/cm
6	Bending load	ASTM C 393	ASTM C 393	Min 2.0 Mpa



ASTM C365



ASTM C273



ASTM C363



ASTM C393

8. Weld-Tech Centre

DTL
WELD TECH CENTER

DTL
WELD TECH WORKSHOP



The reason for our existence has always been 'creating the best welding experience' for our esteemed customers. Since our inception, we have served customers from transportation industry with pride in our welding works. Skill training at DTL has been an integral part of our business activities and evolved through its various platforms.

Through close involvement with industry shop floors, inspection and approval agencies, and design consultants, we have acquired and accumulated valuable insights into the needs and aspirations of the industry and come up with this Weld-Tech Centre.

DTL's Weld-Tech Centre works with the welding community to understand and meet the industry's current and future challenges, aiming to:

- Create a resource pool of employable welders, supervisors, engineers
- Provide research and consultancy solutions for industrial problems
- Lead advocacy initiatives critical to the future of the product
- Develop women as welders
- Offer Knowledge Partnership



This Weld-Tech Centre will deliver:

Best-in-class welding practice shop which is fully compliant with health, safety, and environmental norms.

Dedicated Technology Knowledge Centre along with exclusive Workshop.

All types of welding equipment, ergonomic and fully equipped welding booths with protective curtains, fume extraction facility.

Workbench with fitted vices and all necessary accessories and tools.

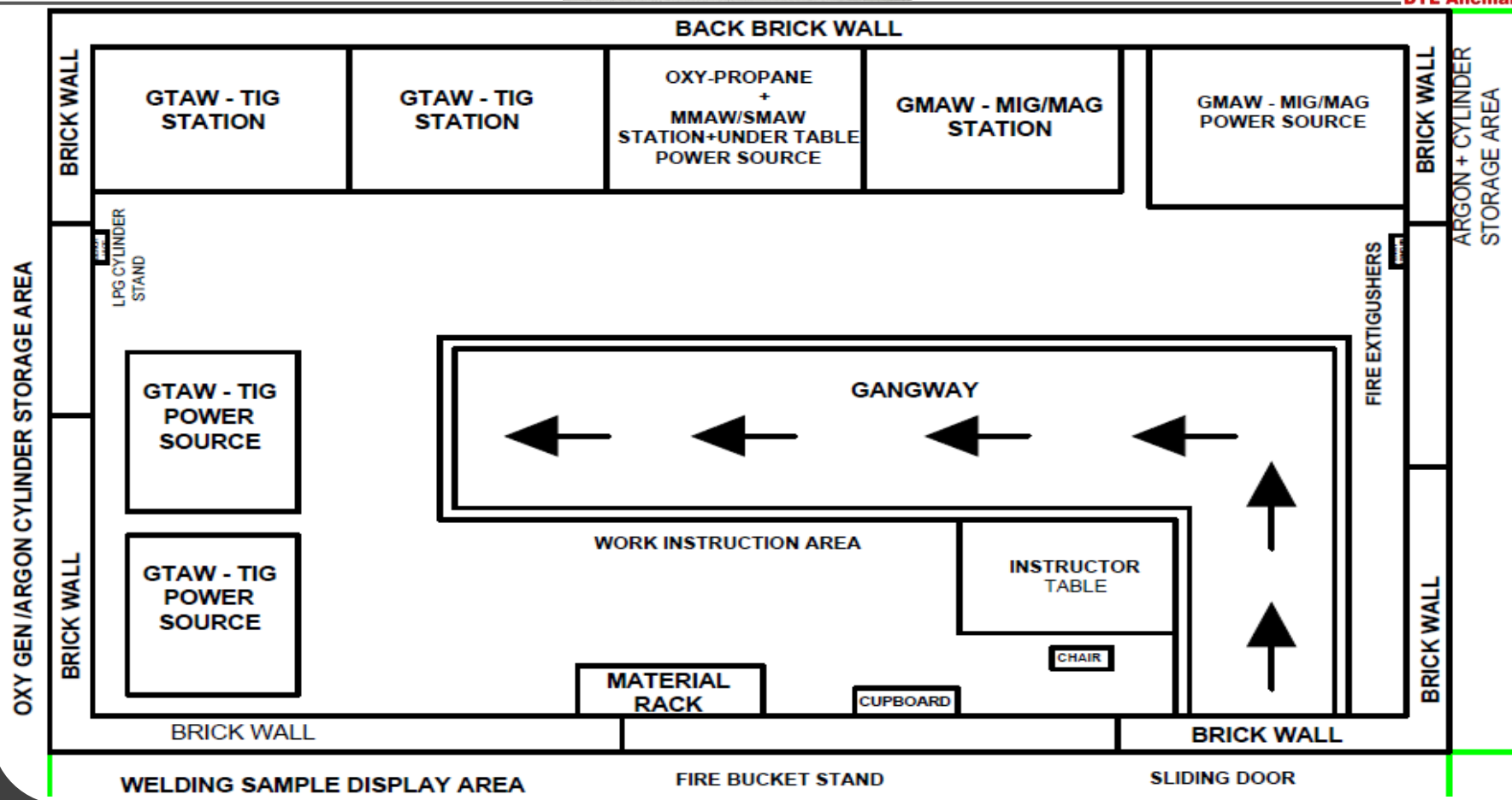
A wide range of field-tested, employability-based training modules GTAW and GMAW, across the skill spectrum.

Boost the Operational efficiency by enhancing Productivity-Quality-Cost-Delivery-Safety-Morale for better customer experience.

We are privileged to be the custodians of this legacy and to be able to continue to share fruits of this with our stakeholders.



8. Weld-Tech Centre



8. Weld-Tech Centre



8. Weld-Tech Centre

DTL
WELD-TECH CENTRE



Message from MD's Desk: Develop what will be important tomorrow.



The world never stands still.

And new challenges arise every day.

With a passion for questioning things, for supplying ideas, and intelligently driving things forward we are helping society move towards a smarter tomorrow.

Be it with technologies, innovation, up-gradation, collaboration, knowledge transfer, learning appetite, etc.

This is how we are able, to tackle the most important projects and push them forward together.

Help us shape the future.

We have been very clear from the beginning that we exist to serve our Customers.

And so, being focused on meeting or exceeding our customer's wishes is DTL's culture.

We are Future Ready.

Mr. V. M. Jain – MD, DTL Group