KAMAZ

KAMAZ
Publicly
Traded
Company

PRESS and STAMP PLANT

2020

Press and Stamp plant was founded in 1971

According to the project, Press and Stamp plant was designed for the production of 150 ths. truck unit kits, 250 thnd. engine kits, spare parts for 500 ths. trucks under operation.

Press and Stamp plant production includes 13 production shops and over 30 auxiliary shops and service centres. The headcount of the Press and Stamp plant is equal to 4993 employees.

Press and Stamp plant production facility is located on the main building territory of 31,8 ha.

The main product range

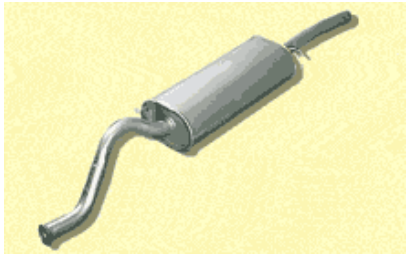
- Production of truck family parts and units (frames, cabins, platform units and parts, KAMAZ chassis, fin parts, engines, exhaust systems, fuel tanks, etc.);
- Production of bus chassis parts and units.
- Manufacture of die tooling;
- Rendering of services for part stamping.

The plant houses a complete production cycle.

The plant realizes the flow-production on the basis of unit and process specialization in production including the closed manufacturing cycle for parts from cold-rolled and hot-rolled coiled and sheet steel. Press and Stamp plant production setup is based on strict specialization principles for the following activities:

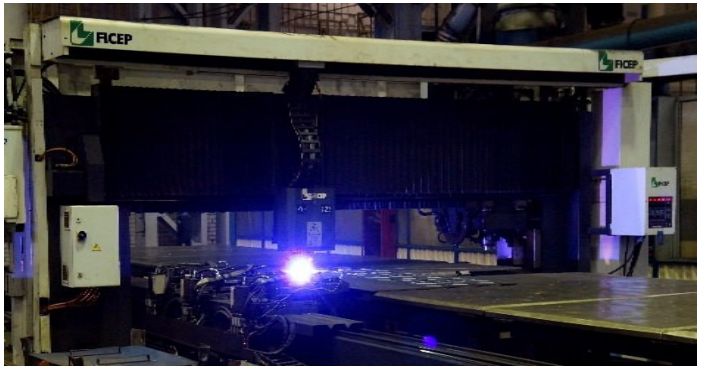
- ❖ **on a unit basis** (frame workshop and chassis workshop),
- ❖ **on a process homogeneity basis** (blank production shop, large die shop, press shop, cabin and chassis welding and assembly shop, paint shop),
- ❖ **on a mass production basis** (original parts and units are manufactured in a small batch shop, and in the main production workshops the original parts and units are manufactured in original parts and units areas).

The complete production cycle makes it possible for the plant to continuously keep the wide product range.



New advanced equipment purchased in 2008–2015

Equipment description	Q-ty pcs	Procurement target
Ficep TIPO D8 CNC punching machine	1	Cost reduction for process planning, side-member production, plates and frame parts
602 DZTT CNC automated line	2	
Ficep TIPO D8 CNC punching machine	2	
ARG-250 band saw semi-automated machine	2	Bus chassis foundation space frame assimilation. Exhaust system pipe cutting.
MEBA-260DG band saw semi-automated machine	2	
MEBA-335A band saw semi-automated machine	2	
Yamazaki Mazak SG-48 MK laser unit	1	Cost reduction for process planning for original parts. Sheet product cutting.
Mazak space grear-48 laser cutting machine	1	
Ficep TIPO C 25 CNC machining centre	2	
Ficep TIPO C 25 CNC machining centre	1	
DURR automated cab painting line	1	Quality increase of cab shell painting and corrosive resistance, environment impact reduction.
TOR 10*20 shot blasting machine	1	Quality increase of frame surface preparation before painting.
Trubend 3020 rolling-and-bending machine	4	Assimilation of E-4 vehicles, cost reduction for process planning for original parts. Sheet product cutting.
Trulazer 3020 CNC laser station	5	
SB-80-12A-MR-PT pipe-bending machine	1	Assimilation of E-4 vehicles, cost reduction for exhaust system parts, quality increase.
SB-130-8B-3S-PT pipe-bending machine	2	
WECOMATIC-IO forming machine	2	



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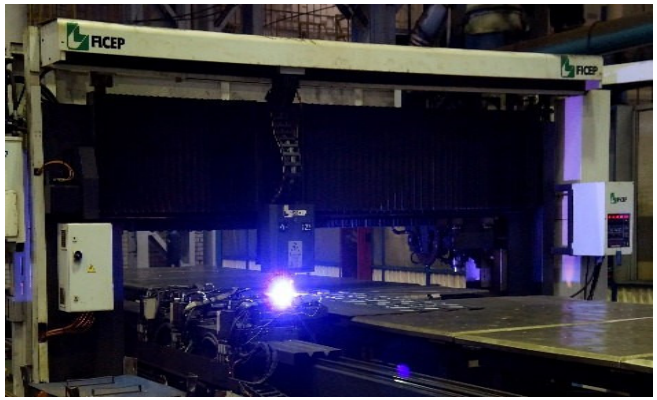


Press production:

Blank production shop: the shop processes 15000 tons of rolled metal products monthly (3 ton per 1 truck). The plant performs metal dimension cutting for workshops using sheet-metal stamping. Dimension cutting process is fully automated and is performed on four *KOMATSU* (Japan) cutting lines and one *KPO* (city of Azov) cutting line. The thickness of the processed metal is from 0,7 mm to 15 mm.

Press production:

Plate steel blasting line has been started in 2015.

Blasting, straightening and oiling of sheet / flat rolled metal products.

- **RÖSLER RRB 22/5 line equipment configuration:**

1. Lifting gantry at the feeding line,
2. RAB 2 blasting unit,
3. RVW 22/5 preblasting chamber,
4. RRB 22/5 HD shotblast unit,
5. RAB 1 blasting unit,
6. FlatMaster 180 flattening machine,
7. Marking unit,
8. RBS 22/5 oiling machine,
9. Lifting gantry at the discharge line,
10. Intermediate table.

- **PLASMA NOVA line**

Area……. **5280 sq. m.**

Productive capacity …….. ***4,5 m/min, 40 pcs/h***

Press production:

Press shop:

The shop is dedicated to manufacture press-works made by forming thin plate and plate iron, as well as to manufacture original parts for a KAMAZ truck.

Production process enables to produce parts under the complete cycle on one line and in one aisle.

Press production:

In 2015 a new housing beam stamping line has been started in the press shop:
SOITAAB plasma cutting unit,
Bosio furnace, *KAMAZ PTC RIZ* lifting equipment, *COGEIM* shot blasting unit.
2 presses have undergone overhaul.

Plasma blank cutting

Shot blasting unit

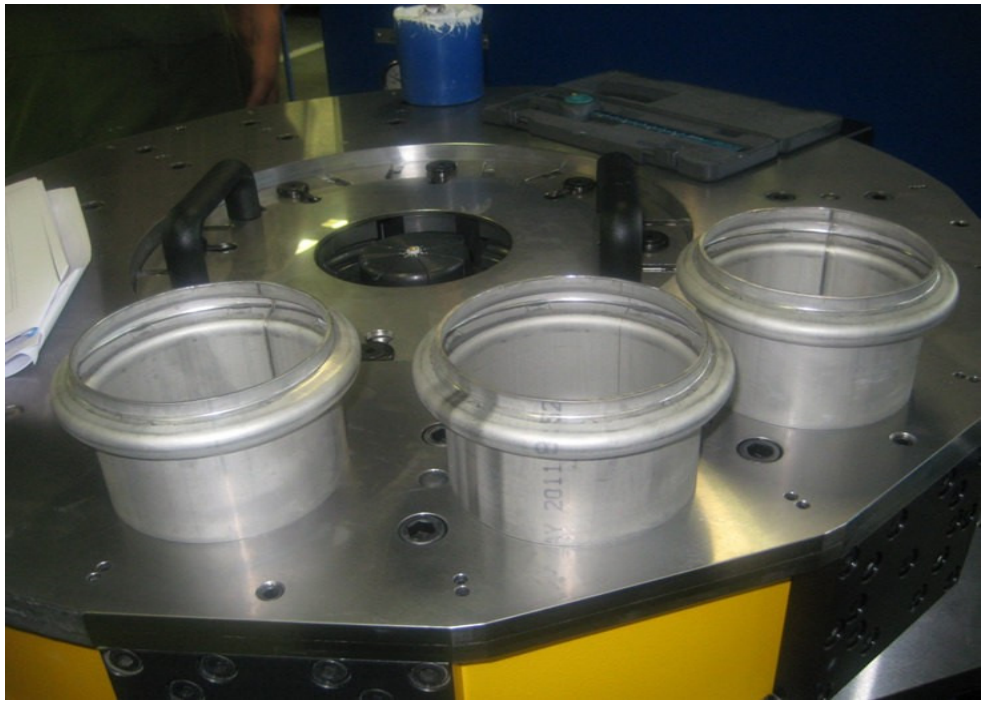
Press production:

Large die shop:

In this shop facial parts for KAMAZ trucks are produced. Cab shells, bodies, doors, roof and other parts are made out of a metal sheet by cold stamping. The workshop is equipped with 14 lines, including two automated and two semi-automated lines. Doors and fin parts are manufactured on automated lines. Semi-automated lines are dedicated for the production of large parts.

Press production:

In 2014 a design-to-manufacturing workshop for the manufacture of exhaust system pipes was established on the territory of the blank workshop. It includes three CNC pipe-bending machine (Taiwan) for bending d.38–60 mm and d.80–120 mm stainless steel pipes, two machines for forming pipe ends (Switzerland), two band saw machines, etc.



Welding-painting facilities

Welding production site includes:

- ✓ Chassis workshop,
- ✓ Frame assembly workshop,
- ✓ Cabin and body workshop.

Welding production serves for machining of frame brackets, frame assembly, chassis and platform unit welding, welding and subassembly of cabin units and fin parts. It includes general-purpose equipment. Cabin assembly and welding and separate units are performed on twelve automated lines using ring seam welding in carbon dioxide, continuous and projection welding, as well as multielectrode machines.

Welding-painting facilities: Cab assembly and welding workshop

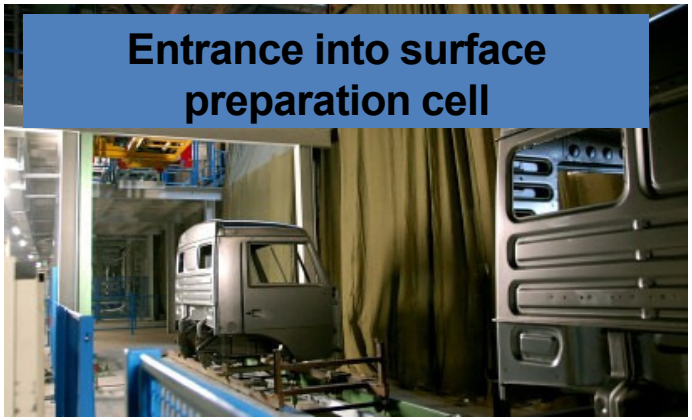
In December 2013 Daimler cab shell (large units) assembly and welding workshop was brought into operation at the P&S plant followed by further painting.

Starting from 2015 cab shells are assembled and welded under a complete cycle at the P&S plant.

In 2010 paint line based on *DURR* equipment was put into commercial operation.

In 2013 *DURR* paint line for Daimler cab shell painting was upgraded.

Entrance into surface preparation cell



Paint chamber

Control chamber

Development of the vehicle with Daimler components

Zeiss measuring laboratory was procured for performing regular checks of Daimler cab shells for compliance with the drawings.

Production of small batches and original parts

Small batch workshop

Today flexible manufacturing technology workshop includes 3 *Ficep* (Italy) plasma machines and 9 *Trumpf* (Germany) machines: 4 plate-flanging machines of 200 ton force and 2000 mm bend length, 5 laser stations including changeable pallets (1500x3000 mm) and automated warehouses of 30 tons per each laser allowing automatic mode of operation. There are no similar stations in Russia. A lot of companies use a great number of laser machines but no company has such a state-of-the-art integrated solution.

Production of small batches and original parts

Die making workshop

Die making workshop is meant for the production of small, medium and large dies, checking fixtures, models. The workshop occupies 16917 sq. m.

The workshop includes 6 machining centers separated as one shop, among them 2 *Mitsubishi* machining centers for large die manufacturing and 5 CNC contour-milling machines made according to mathematical models. The workshop produces dies of 30 kg to 80 ton.

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