



***EK SEN TEKNIK Engineering  
& Manufacturing Company***



EK SEN TEKNIK  
Engineering & Manufacturing Company

## ORIGINAL EQUIPMENT MANUFACTURER (OEM)

- ***MACHINING***
- ***MODEL***
- ***CASTING***
- ***FORGING***
- ***COATING***
- ***CATAPHORESIS***



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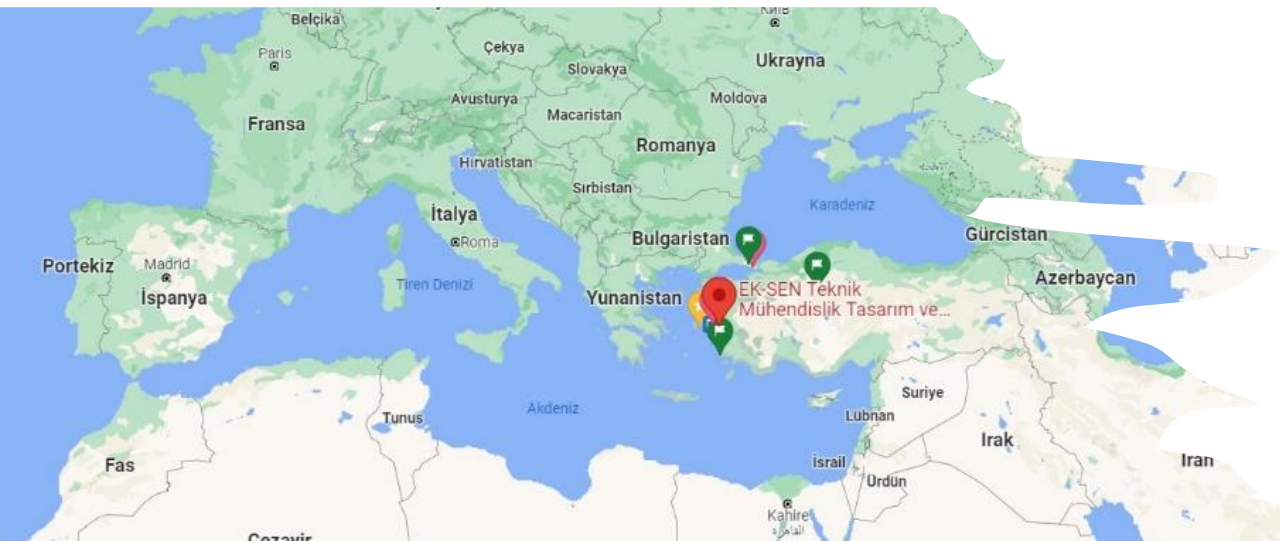
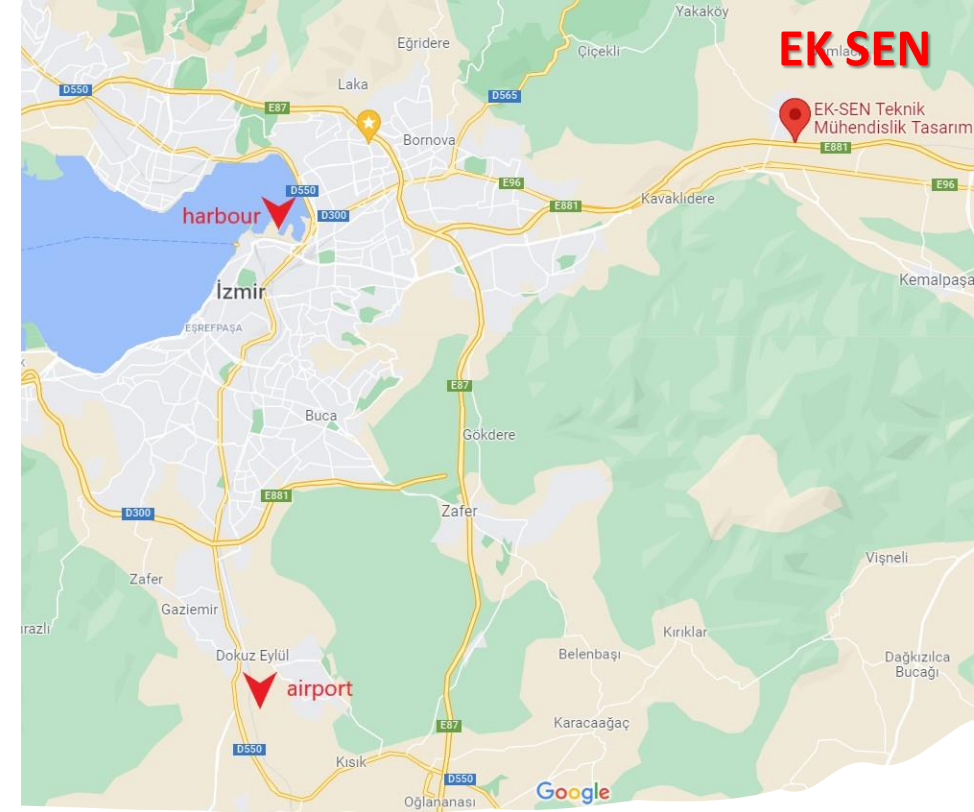
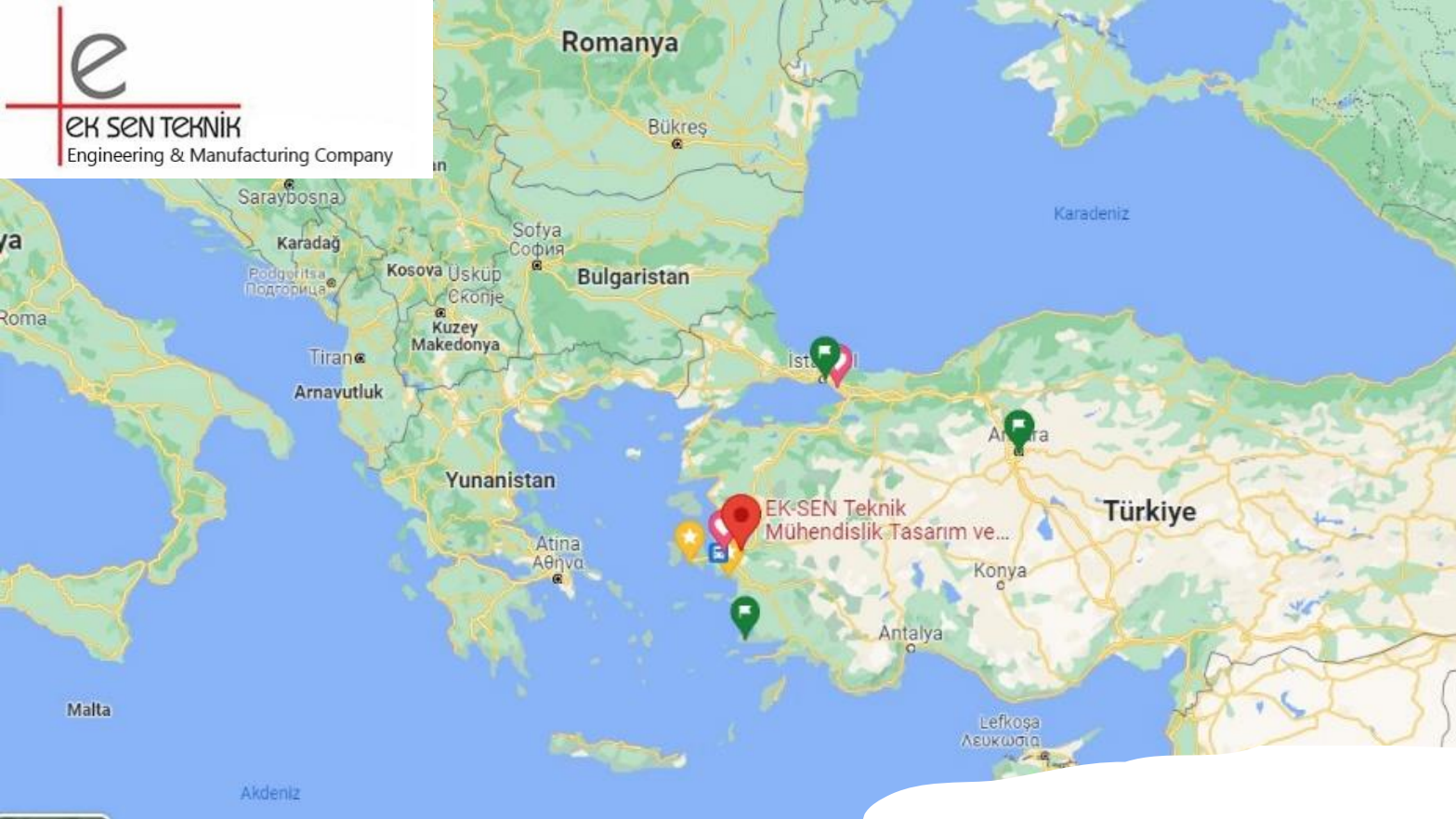
## About Us

- *Founded in 2015*
- *Total Closed Area 2.000 m<sup>2</sup>*





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## Location

- 20 km (25min.) to *Izmir Harbour*
- 40 km (45min.) to *Adnan Menderes Airport*





## Employees

- *Manager* 1
- *Administration* 4
- *Chief* 3
- *Workers* 16
- *TOTAL* 24



## Areas of Activities

- *Commercial Vehicles*
- *Heavy Duty Vehicles*
- *Agricultural Vehicles*
- *Defense Vehicles*

*Specialized in Automotive Industry*



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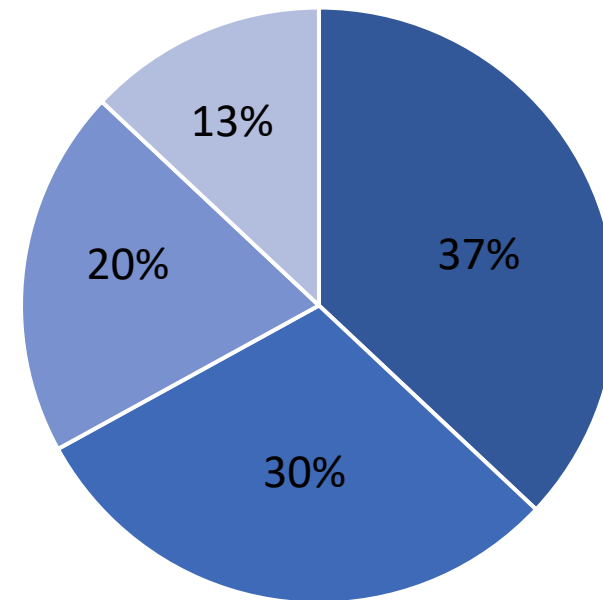


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# Areas of Activities



# Customer Turnover Percentage



- 1. Customer
- 2. Customer
- 3. Customer
- 4. Others





## Production

- **Machining**
- **CMM**
- **Casting**
  - *Gray Cast Iron*
  - *Spheroidal Cast Iron*
  - *Steel Casting*
  - *Aluminium Casting*
- **Forging**
- **Heat Treatment**
- **Coating/Cataphoresis**

*Main Process /Insource  
Measurement /Insource  
Outsourced Process*

*Outsourced Process  
Outsourced Process  
Outsourced Process*



## Products

- ***Engine Mounting Parts***
- ***Brackets***
- ***Manifolds***

### **Weight**

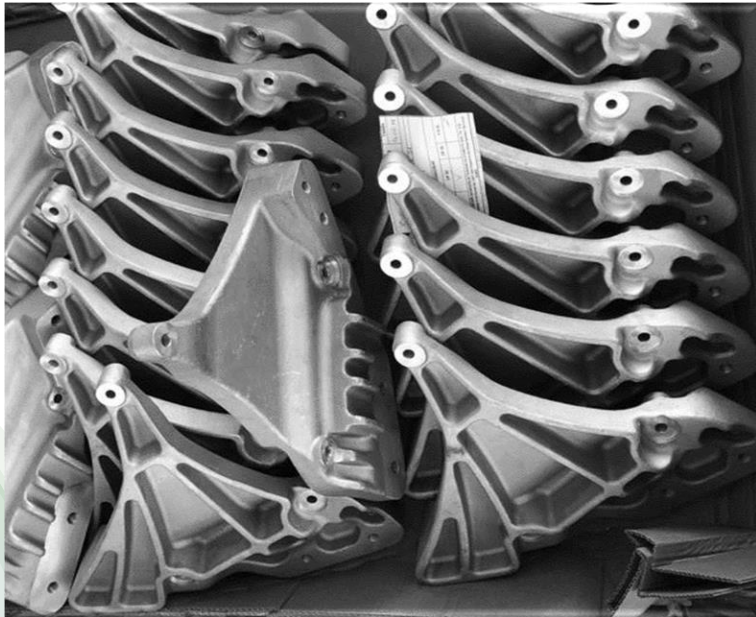
***0,5 kg – 120 kg***

### **Material**

- ***Spheroidal Cast Iron***
- ***Gray Cast Iron***
- ***Forged Iron***
- ***Aluminium***
- ***Various Steel suitable for machining***

## Products

- *Engine Mounting Parts*



*5 kg – E AC-42200*

- *Link Part*



*14 kg – GS 52*



## Products

- *Engine Mounting Parts*



**57 kg - EGGG50 (EN-GJS-500-7)**





## Products

- *Bearing*

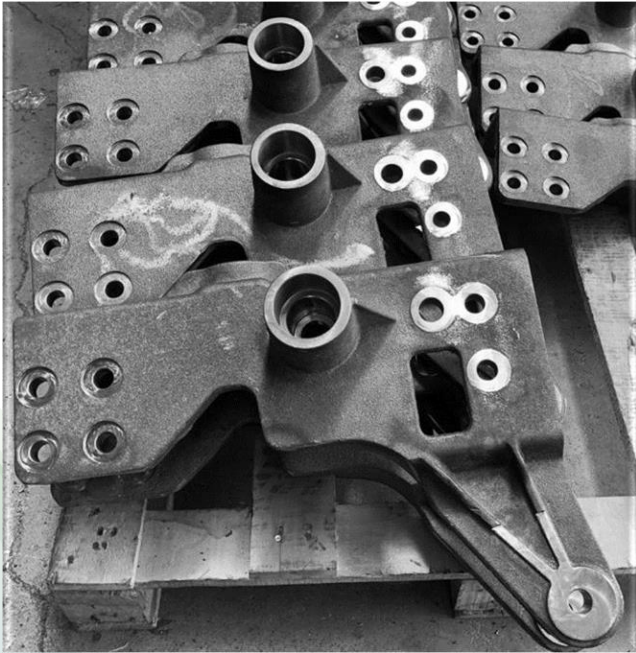


*14 kg – Alloyed Steel / AISI 4140*



# Products

- *Brackets*



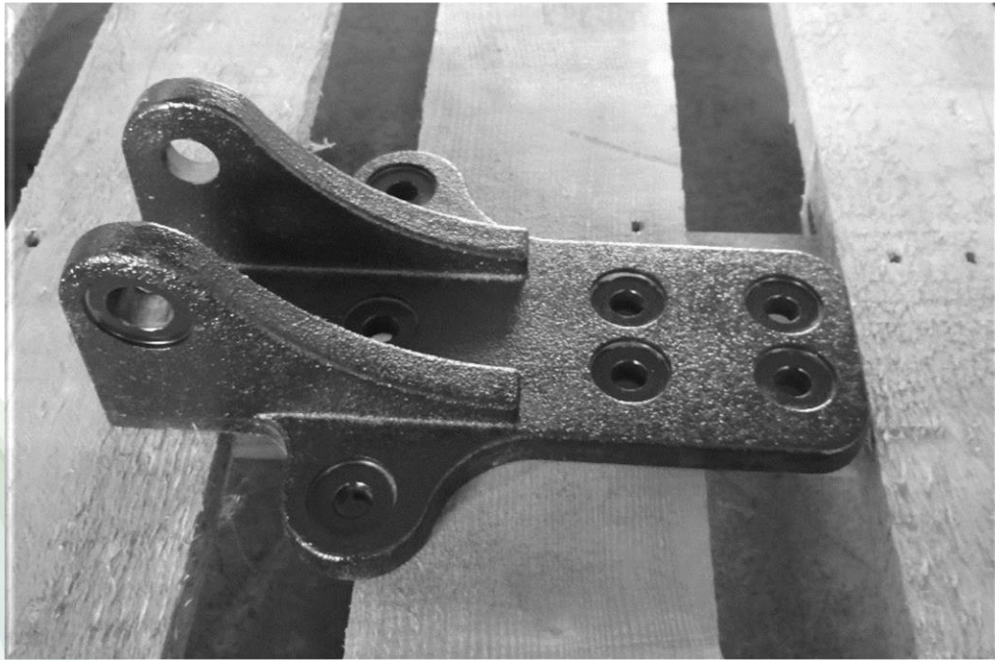
**14 kg – GGG50 (EN-GJS-500-7)**



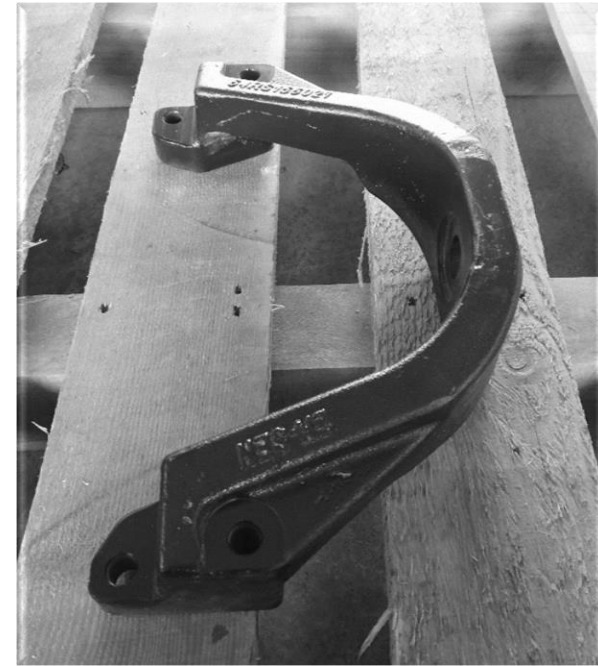
**27 kg – GGG50 (EN-GJS-500-7)**

# Products

- *Brackets*



*2,5 kg – GGG50 (EN-GJS-500-7)*



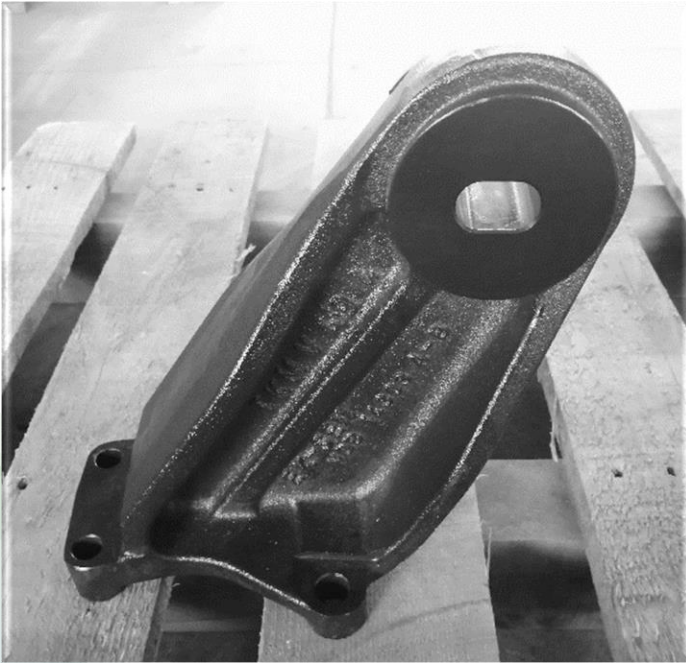
*5 kg – GGG50 (EN-GJS-500-7)*



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## Products

- *Brackets*



*12 kg – GGG50 (EN-GJS-500-7)*



## Products

- *Brackets*



6 kg – GGG50 (EN-GJS-500-7)



21 kg – GGG50 (EN-GJS-500-7)



## Products

- *Brackets*



*6 kg – GGG50 (EN-GJS-500-7)*



*5 kg – GGG50 (EN-GJS-500-7)*

## Products

- *Brackets*



*8 kg – GGG50 (EN-GJS-500-7)*

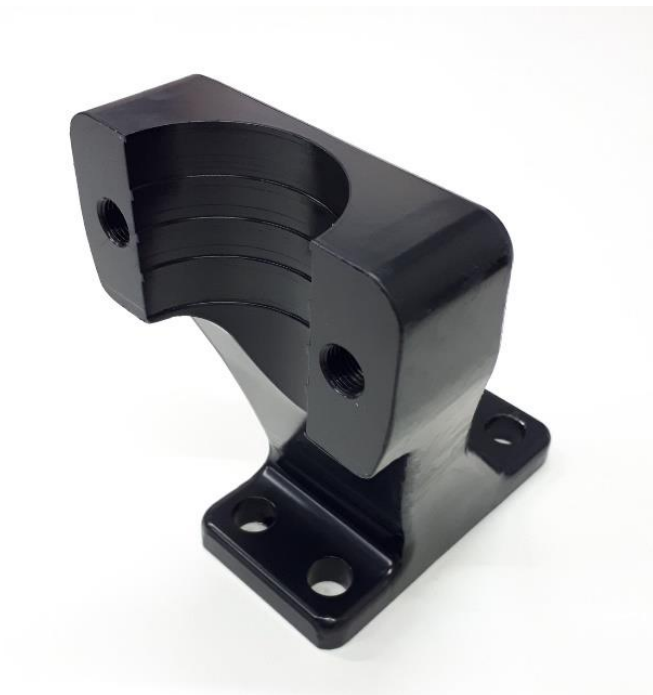


*8 kg – GGG50 (EN-GJS-500-7)*



## Products

- *Brackets*



*10 kg – SAE 1040*



*1 kg – SAE 1040*





## Products

- *Pulley*



*15 kg – Ck45*



## Products

- *Manifolds*



*4 kg – Aluminium / EN AC-42200*



*2 kg – GG20 (EN-GJL-200)*



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# Machining

- *Continuous improvement at our machine park in order to make developments at our operations & in case of need by following developments in the sector*



## • 2 Machines

### DOOSAN DNM 6700 4 AXIS

4-Table Size	12"
Table size additional fixed table	1500mm x 670mm
X - stroke	1300mm
Y - stroke	670mm
Z - stroke	625mm
Spindle	8000 rpm
Tool Magazine	30+1 (BT40)
CNC Control System	FANUC
Reset and Measuring	Renishaw Prob
Coolant Through Spindle	30 bar
Lathe Code	CD-02







## HAAS VF-4-SE

## 4 AXIS



4-Table Size	12"
Tablesize additional fixed table	1321mm x 457mm
X - stroke	1270mm
Y - stroke	508mm
Z - stroke	635mm
Spindle	10000 rpm
Tool Magazine	30+1 (SK40)
CNC Control System	HAAS Control Unit
Reset and Measuring	Renishaw Prob
Coolant Through Spindle	21 bar
Lathe Code	CD-03



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# CNC VERTICAL MACHINING CENTERS

**HAAS VF-3**

**3 AXIS**

Tablesize additional fixed table	1219mm x 457mm
X - stroke	1016mm
Y - stroke	508mm
Z - stroke	635mm
Spindle	8100 rpm
Tool Magazine	20+1 (SK40)
CNC Control System	HAAS Control Unit
Coolant Through Spindle	21 bar
Lathe Code	CD-01





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## CNC LATHES

### **FOCUS FBL-300**

Max Turning Diameter	510 mm
Chuck Size	10"
Spindle	2500 rpm
Z - stroke	640mm
X - stroke	290mm
Turning Tool Size	25 x 25
Control Board	Fanuc Oi-TC
Tool Magazine	10
Lathe Code	CT-01





## FOCUS FBL 230

Max. Cutting Diameter	311mm
Chuck Size	8"
Spindle	3500rpm
Z - stroke	450mm
X - stroke	210mm
Turning Tool Size	25 x 25
Control Board	Fanuc
Tool Magazine	10
Lathe Code	CT-03







## DOOSAN PUMA GT2600L



Max Turning Diameter	460 mm
Chuck Size	12"
Spindle	3500 rpm
Z - stroke	1100mm
X - stroke	265mm
Turning Tool Size	25 x 25
Control Board	Doosan Fanuc I Serial
Tool Magazine	12
Lathe Code	CT-02



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# Design & Programing

*SolidWorks CAD and CAM programs  
are being used effectively in our  
processes*



**Solid Works 2020 3D CAD & CAM  
Machining from solid material**



# Design

*SolidWorks CAD and CAM programs are being used effectively in our processes*

- *Machining Fixture*
  - *Model*
  - *Part Design*
- Casting / Forging Part*

# Design

- *The fixtures using in machining are designed & manufactured by our qualified engineering & manufacturing team*
- *Model (Casting) design is realised & manufacturing by our qualified engineering & supplier team*
- *Customer specific casting /forging part design could be made in the form of a new product or conversion from welded construction to casting part /forging part*





# DESIGN

- **1. DESIGN FROM SCRATCH**
  - According To Customer Specifications & Requirements
  
- **2. TRANSFORMING DESIGN**
  - From Welded Part To
    - Casting
    - Forging
    - Machining From Solid Material



# Analysis

*Analysis capability for new designed products*

- *Structural Analysis (FEM)*
- *Modal (Free Vibration) Analysis*



# STATIC ANALYSIS - FEM MODEL

- MESH
- CONSTRAINTS
- LOAD CONDITION
- CHARACTERISTICS OF THE MATERIAL
- MAXIMUM ALLOWABLE STRESS
- STATIC ANALYSIS RESULTS



## Static analysis - fem model

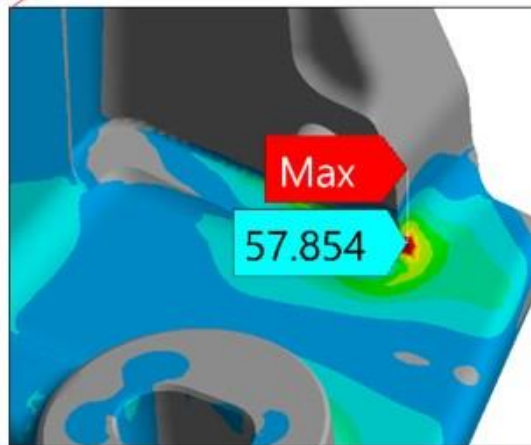
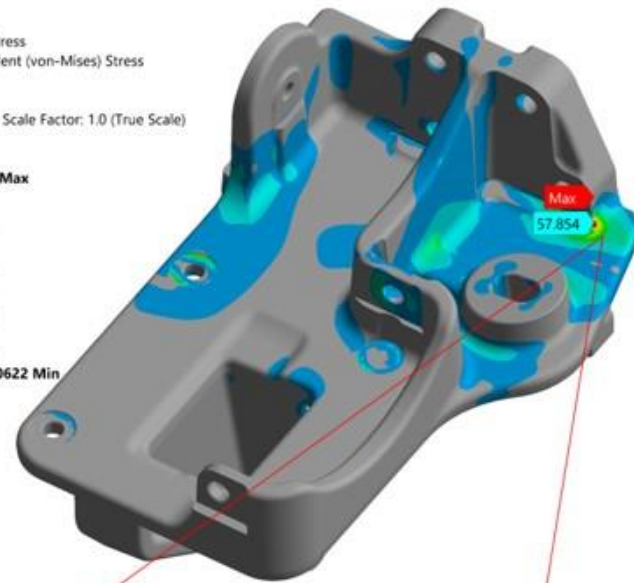
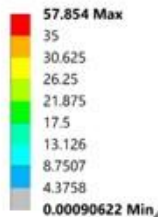
- **Structural analysis of the part is done by the fem method. The input model for the computation is made starting from the cad model adapted for the purpose. The casting manufacturing processes of the part, for example the mold exit angles, etc. and the design is made according to the machining process.**



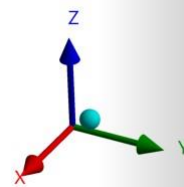
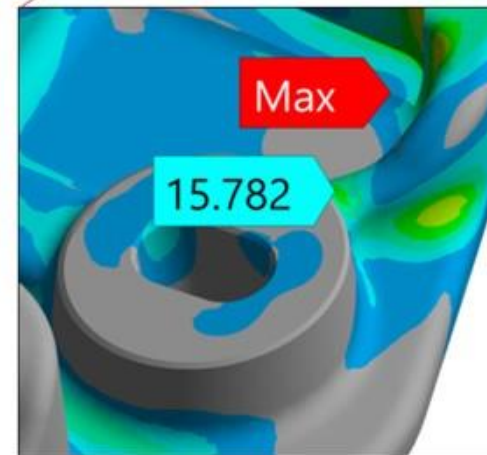
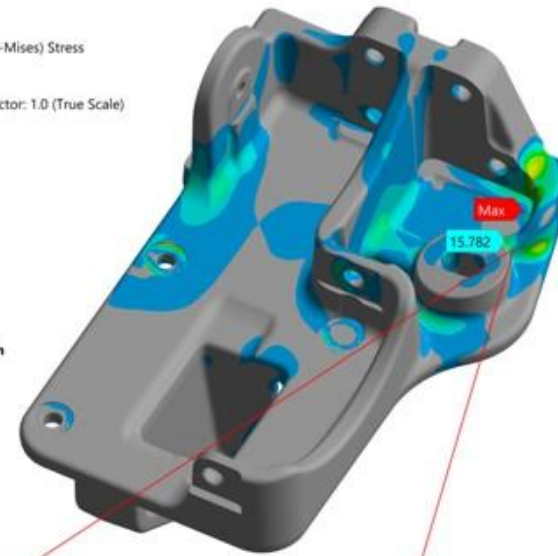
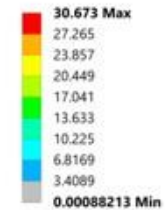


Static analysis - fem  
model  
STATIC ANALYSIS RESULTS

Equivalent Stress  
Type: Equivalent (von-Mises) Stress  
Unit: MPa  
Time: 1  
Deformation Scale Factor: 1.0 (True Scale)



Equivalent Stress  
Type: Equivalent (von-Mises) Stress  
Unit: MPa  
Time: 1  
Deformation Scale Factor: 1.0 (True Scale)





## MODAL ANALYSIS

- A modal analysis is performed on the support in question to determine the first natural frequencies. It is a question of verifying whether among these there are frequencies that can resonate with the excitation produced by the engine.
- The solver system is asked to calculate the first ten frequencies.

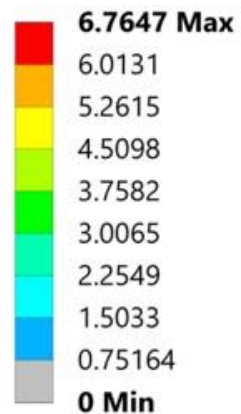


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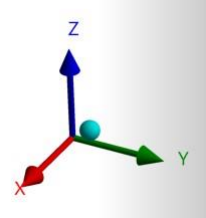
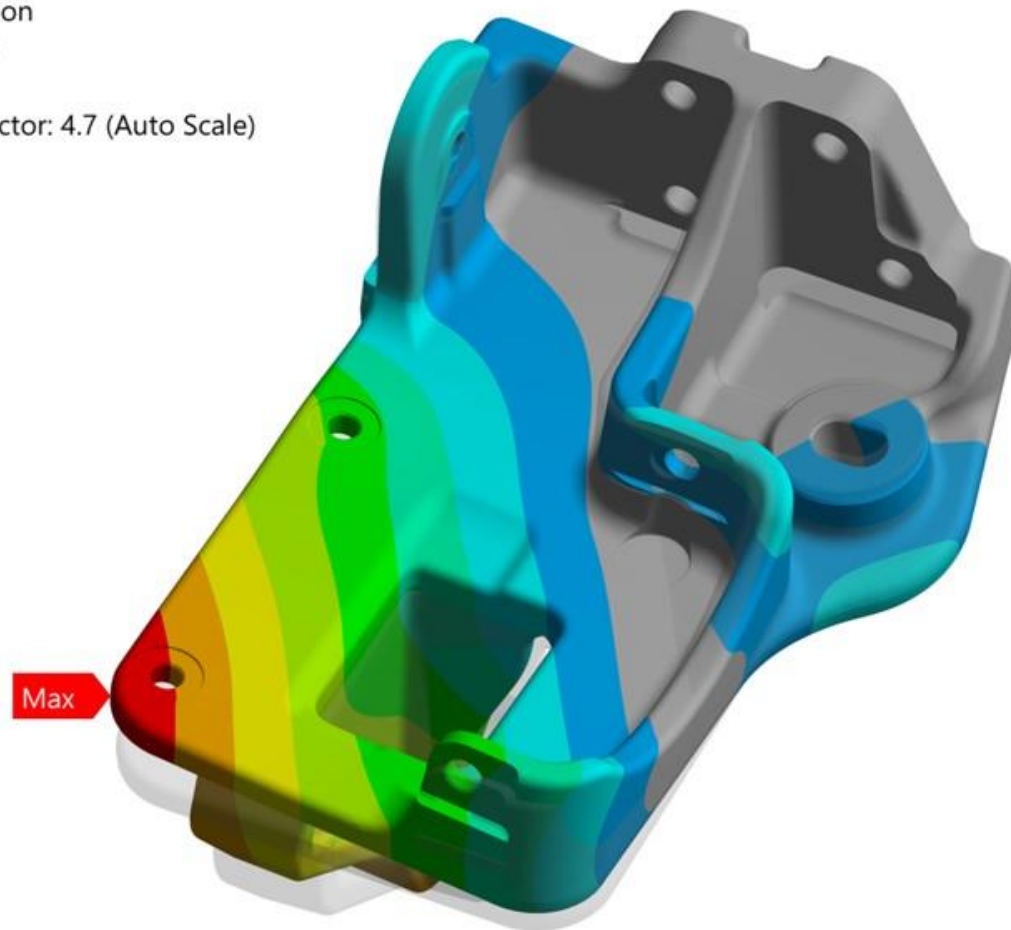
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# Modal Analysis RESULTS

Total Deformation - Mode 1 - 237.26 Hz  
Type: Total Deformation  
Frequency: 237.26 Hz  
Unit: mm  
Deformation Scale Factor: 4.7 (Auto Scale)  
17/06/2022 10:12



Mode	Frequency [Hz]
1.	237.26
2.	273.95
3.	388.07
4.	684.65
5.	761.31
6.	877.72
7.	1280.2
8.	1375.4
9.	1855.5
10.	2165.1





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# Quality

- *Our products are being checked by CMM for quality control process*
- *We have a partnership with ZEISS about CMM*

Measuring Volume

X	1000 mm
Y	1600 mm
Z	600 mm



*ZEISS CMM SPECTRUM 10/16/6 RDS VAST XXT*





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# Quality

- *Quality Management System  
ISO 9001:2015 since 2017*



## Certificate of Registration

This certificate has been awarded to

**EK SEN TEKNİK MÜHENDİSLİK TASARIM VE OTOMOTİV  
SAN. TİC. A.Ş.**

Egemenlik Mah. 6106 Sokak No:105/1 Işıkent Bornova İZMİR, Turkey

in recognition of the organization's Quality Management System which complies with

**ISO 9001:2015**

The scope of activities covered by this certificate is defined below

**Manufacture of Machined Metal Parts for the Automotive and Defense  
Industries**

Certificate Number:	Date of Issue: (Original)	Date of Issue:
205979/A/0001/UK/En	30 October 2020	30 October 2020
Issue No:	Expiry Date:	
1	29 October 2023	

Issued by:

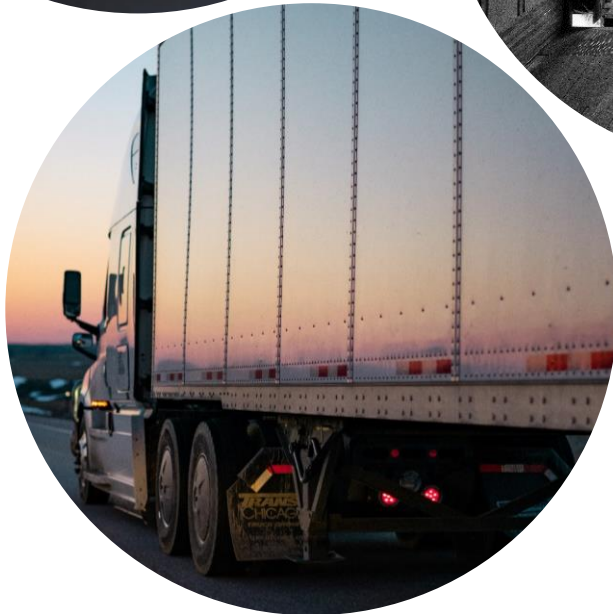
On behalf of the Schemes Manager





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## Packaging & Delivery

- *According to  
Customer Specification*



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## Investment Targets



*CNC VERTICAL MACH. CENT.  
IN PROCESS*

**2022**



*CNC LATHE MACHINE  
REALISED IN APRIL 2022*

**2022**



*IATF 16949  
IN PROCESS*

**2023**



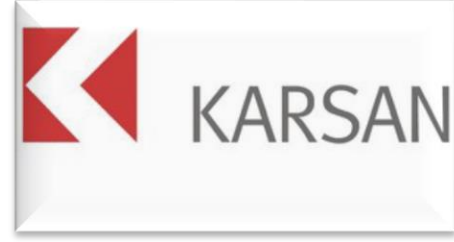
*OHSAS 45001  
IN PROCESS*

**2023**



*ISO 14001  
IN PROCESS*

**2023**



## References



## ADDRESS

EK SEN  
TEKNİK MÜHENDİSLİK  
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