



ALUMINIUM & COPPER ALLOYS PRESSURE DIE CASTING

DESIGNING & SUPPLYING TECHNICAL ASSEMBLED SOLUTIONS



Our Company





About Us ...



FAVI S.A.

14 rue Louis Deneux
80490 Hallencourt – France



310 employees
(3 shifts/day & 5 days/week)



3000 tons of alloys per year



Your contact

Function	Name	Phone	Mail
Business Development Manager	Benjamin Ramet	+33 (0)7.76.72.42.43	bramet@favi.com





Our History – Some Key Dates

1957 : Founding of FAVI S.A. / Manufacture of sanitary products.

1971 : Take-over of FAVI S.A. by AFICA,
the leading copper alloys refiner in Europe.

1979 : 1st series delivery of gearbox forks.

2002 : Start of production copper rotors.

2014 : Start of gearbox forks production in aluminium.



Year	Turnover France	Turnover Export	Total	% Export
2017	45,3 M€	15,1 M€	60,4 M€	25%





- 2 Plants
 - 23. 000 m²
 - 4.500 m²





Our Alloys





Cu Zn40

An all purpose brass alloy



Cu Zn34 Pb Si

Corrosion resistant brass alloy



Cu Zn27 Mn3 Al2

A hard wearing resistant brass alloy



Cu Zn40 B

Brass alloy giving high levels of quality surface, ideal for polishing

Common brass



LOW LEAD

Cu Zn16 Si4

A brass alloy, with low lead content, giving good mechanical strength and containing more than 78% copper



LOW LEAD

Cu Zn34 Si1

A brass alloy, with low lead content giving excellent cold working properties



LOW LEAD

Cu Zn25 Al5 Mn4 Fe3

A brass alloy, with low lead content giving high mechanical characteristics

Low lead brass

Need a specific alloy?

Contact us!



Cu Zn40 Pb0,2

A brass alloy with low lead content, for 'drinking water' applications, compliant with the american AWWA standards.



Cu Zn36 Pb

A DZR brass, for 'drinking water' applications, compliant with the European standards.

'Drinking water' application



Cu Zn20 Mn18 (Bronwite)

A 'silver' color brass alloy, with high levels of quality surface, ideal for polishing



AB+ brass

Anti microbial brass

Specials



Our Copper

Material	% IACS	Applications / Characteristics
Cu97	97	Rotors for electrical motors.





Our Aluminium Alloys

Alloy	Rm N/mm ²	Rp 0,2% N/mm ²	A%	Hardness HB	Applications / Characteristics
Al Si9 Cu3 (Fe) (Zn)	240	140	< 1	80	An alloy with good mechanical properties, used in engineering applications & building sector.
Al Si11 Cu2 (Fe)	240	140	< 1	80	An alloy with very good castability, for wide range of applications, particularly suitable for thin-wall castings.
Al Si15 Cu3 (Mg)	277	262	< 1	70	A light, hard wearing aluminium alloy for automotive applications.



... Other alloys available on demand.

FAVI is able to develop new alloys to satisfy your needs !





Our Industrial Know-How





FAVI has always considered R&D as its priority.

Typical projects are :

- Developing specific and innovative alloys.
- Developing innovative technologies.
- Developing innovative solutions.





Concept and Product Design

- **CAD**
 - Pro Engineer Version Creo 3
 - Solidworks 2016
 - Catia V5
- **Finite Elements Analysis**
 - Ansys v.18.2
- **Rheology**
 - Novacast latest version
- **Rapid Prototyping in 3D**



Our test laboratory validates products and materials (Self certification RENAULT since 2015):

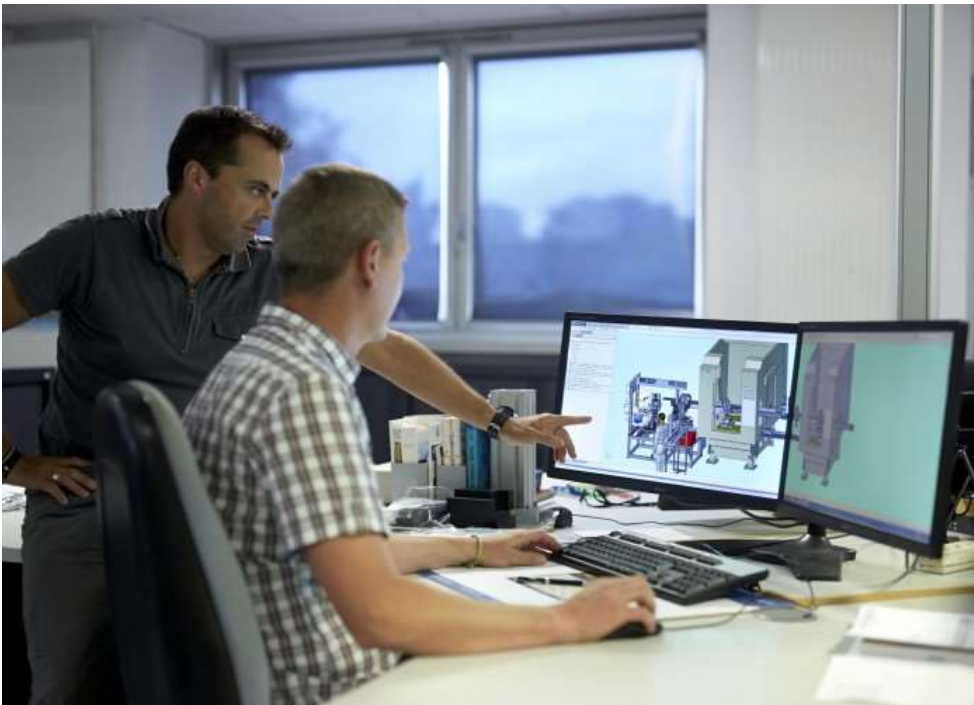
- Through material structural analysis and metallurgical testing.
- Through static, dynamic & fatigue testing to validate product function and resistance.
- Through specific bench testing on request.



We internally design & manufacture:

- Foundry & Cutting Tools (Tools maintenance is also made in-house).
- Machining & Assembly machines.
- Control Devices.

This is a real advantage to industrialize your products offering you continuous improvement throughout the manufacturing process.





- **18 pressure die casting machines** (80 to 900 tons) including 5 machines dedicated to aluminium die casting (520 to 750 tons)
- ***New 850 tons machine dedicated to aluminium die casting will be implemented in 2019 !***
- **24 furnaces** for different alloys
- **11 clipping presses** (20 to 100 tons)
+ 5 Reis Kuka clipping presses in foundry
- **Specific control means** (Radioscopy, Spectrometry, Leak Test, Material Hardness, Geometrical Control, 3D control machines (x4) ...)
- **Surface treatment** workshop, including shotblasting, tribofinishing, polishing
- **3 high capacity transfer machines**
- **80 specific transfer machines**
- **CNC lathes and milling machines**





Our Strengths

Our Strategy





Our Competitive Advantages

- ✓ FAVI is a family-owned company, which means more flexibility, more reactivity, and an ability to invest.
- ✓ FAVI's management is customer focused.
- ✓ FAVI : The complete solution, from a single source.
- ✓ FAVI is able to develop new alloys to satisfy your needs.





Awards & Certifications

✓ Awards



- QSB + Certification 2018
- Best Plant 2014
- Best Plant 2015
- Best Plant 2017



GROUPE RENAULT

- Self Laboratory Certification



- 2016 VIP supplier



- Innovation Award 2015 (Copper Rotors)

✓ Certifications



QSEE Management





Our Strategy





Technical Parts in Brass





Technical Parts in Brass



- Main Customers

Honeywell

Schneider
Electric

 **PENTAIR**

Itron

viega

Valeo

STUART
TURNER LTD
The Pump People

Danfoss

GRUNDFOS 





Shifting Systems





Shifting Systems in Brass



- Main Customers



Volkswagen



OPEL



GETRAG



Audi





Shifting Systems in Aluminium



- Main Customers



Volkswagen





Die Cast Copper Rotors





Copper Rotors

- **Innovation Process :**

- Replacing aluminum by copper in the rotors for asynchronous motors.

- **Advantages :**

- Efficiency ↗ **(up to 95%)**
- Working temperature ↘ **(-30°C for a 4kW industrial motor)**
- Motor size ↘ **(power density up to 3kW/kg)**
- Torque ↗ **(+50% @ same rpm)**
- Lifetime (x2) ↗ **(x2)**

- **Size & Weight Limits :**

- 21 kg copper per rotor
- 400 mm diameter
- 450 mm length





Applications for Copper Rotors

- **Applications :**

- Motors for high speed machining machines
- High efficiency motors
- Traction motors for EV
- Electrical power steering
- Compressors
- Alternators
- Pumps
- Fans

**2 million copper rotors
delivered up to now.**



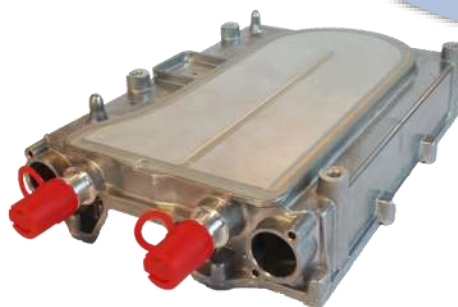
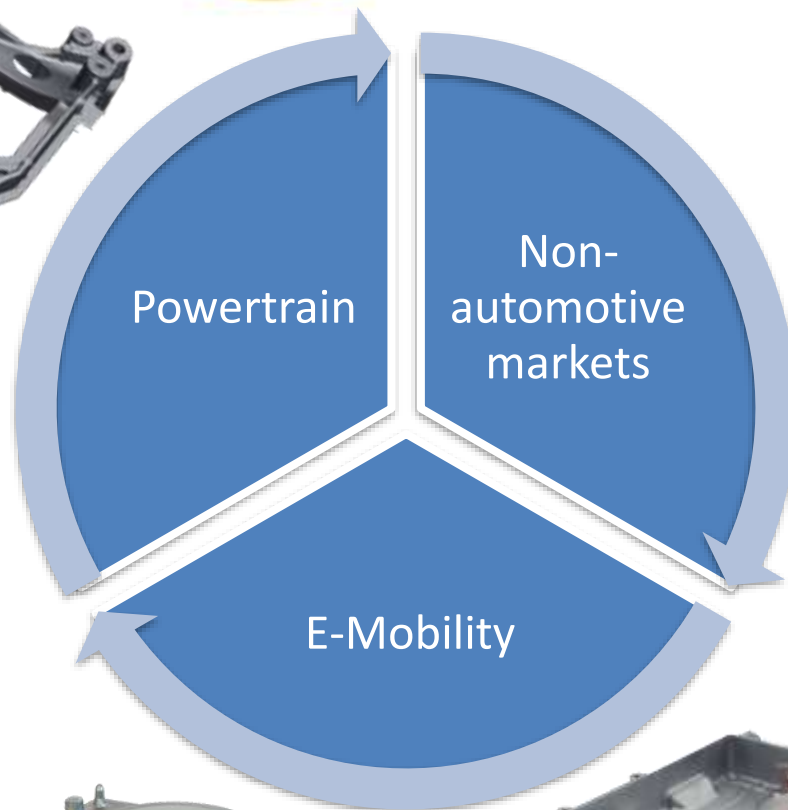
- **Main customers**





Aluminium Solutions







Powertrain Components



Air-Conditioning Compressors



Brackets



Assembled Covers



Brackets





Non-Automotive Markets – Luxury Goods

- Loudspeakers
- Lighting
- Cooking tools ...



- *Specific surface treatments*
- *Painted parts*





Cockpit pedal
project



Seats components

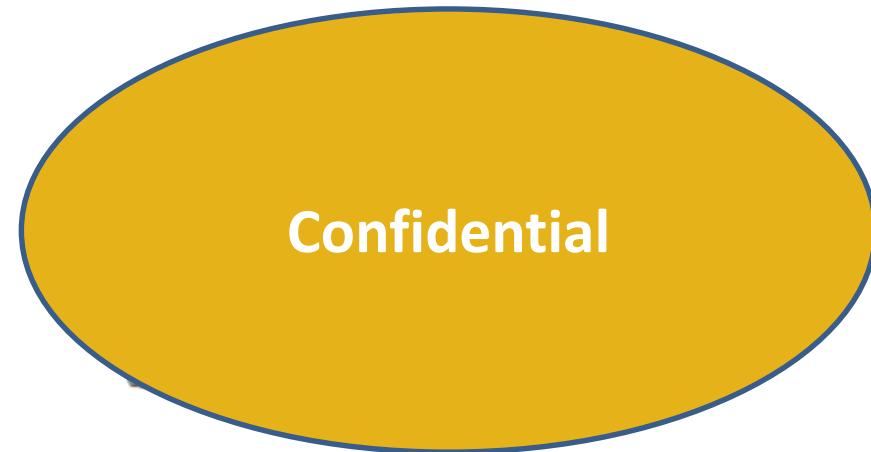




Chargers



Inverters / Converters



Confidential

48V Batteries



E-Mobility Components – Our Targets



Confidential

Heatsinks



Converting / Connecting Cables

Possible to manufacture complete solutions !

Specific aluminium alloys for E-Mobility requirements !

Possibility to integrate functions by using HPDC process !

Friction Stir Welding (FSW) implementation !

FAVI, your partner for electric motors !





Thanks a lot for your interest!

