

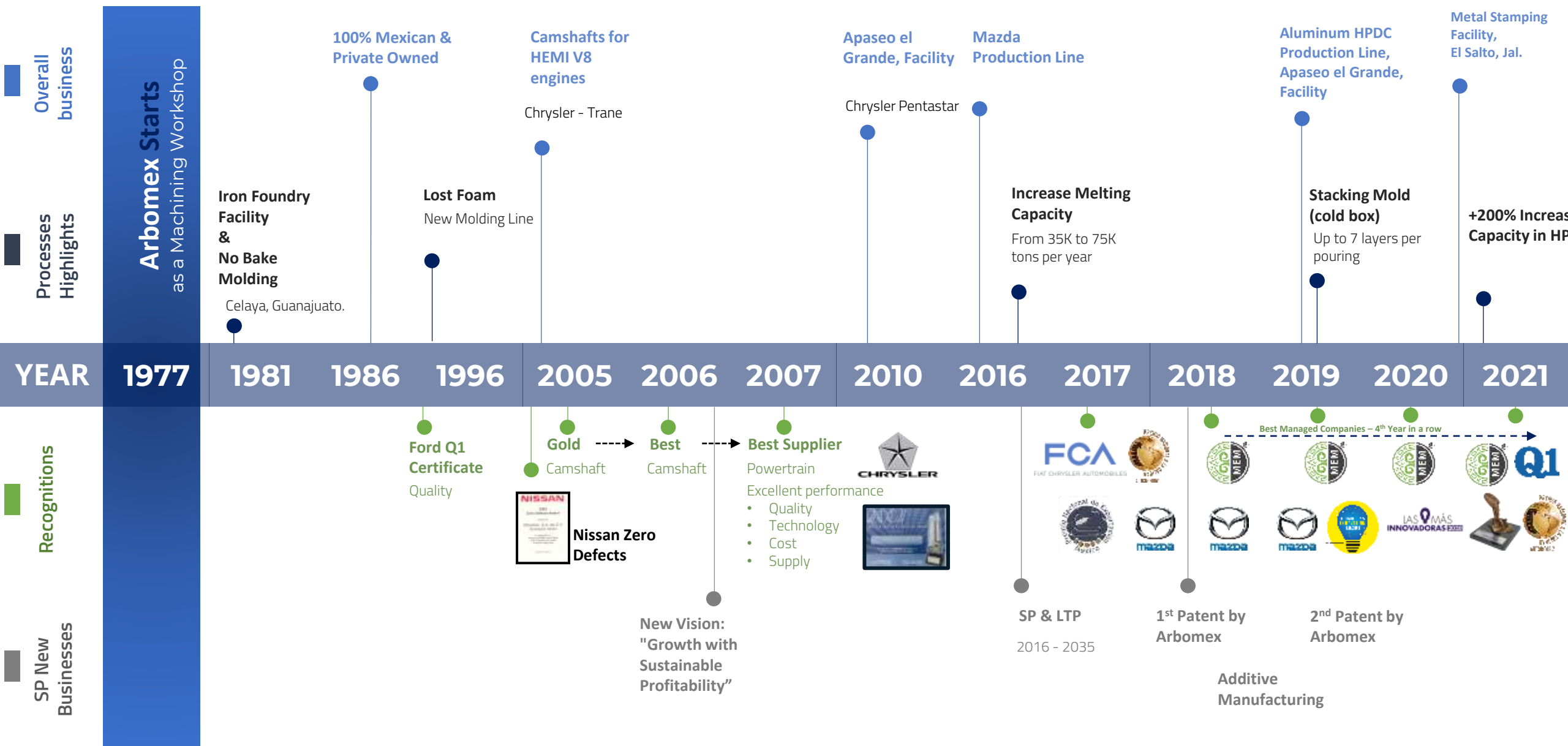


Company Profile

Capabilities

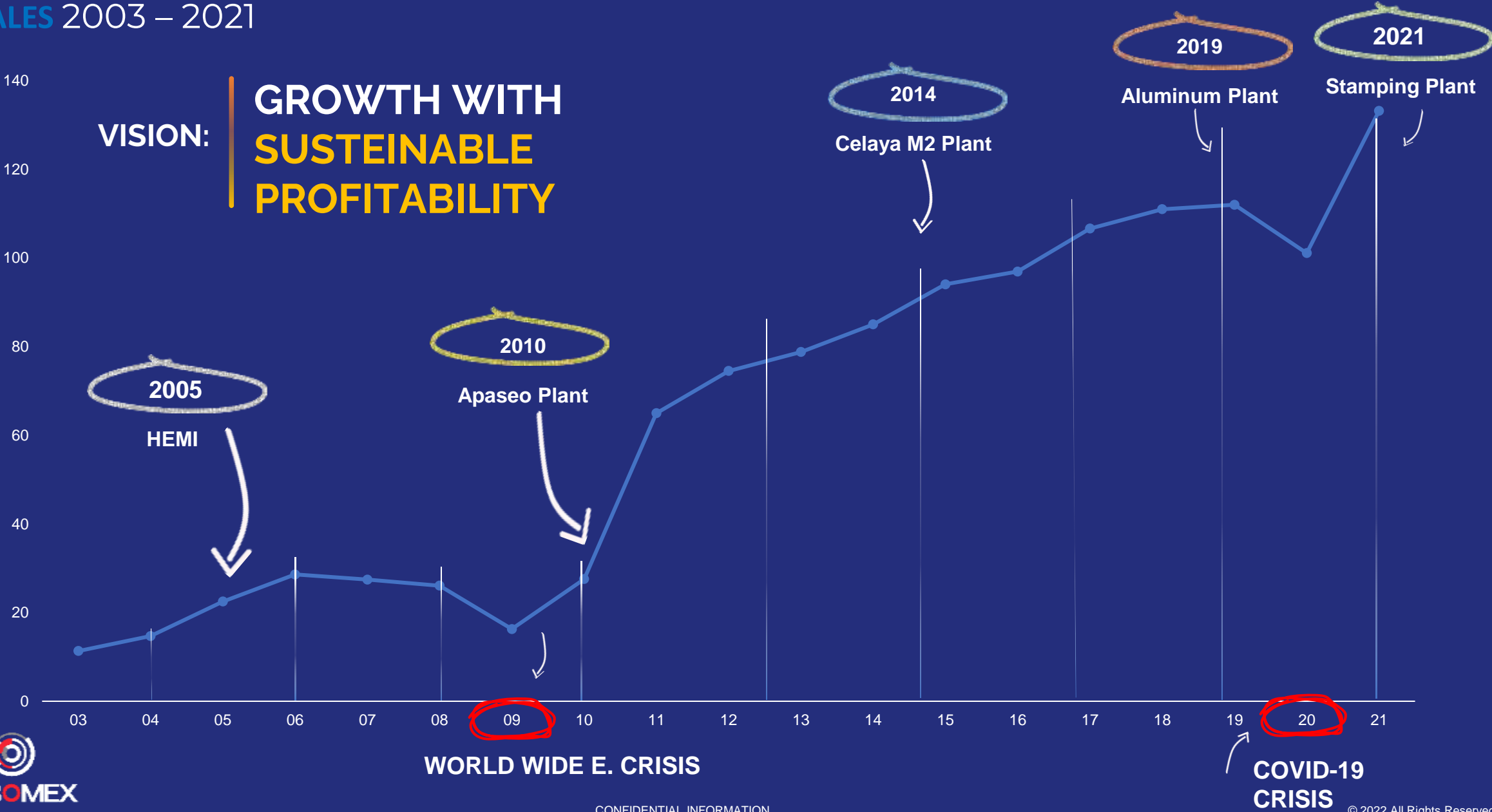
January, 2023

Arbomex Timeline



SALES 2003 – 2021

VISION: **GROWTH WITH
SUSTAINABLE
PROFITABILITY**



COMPANY STRENGTHS

01.

Metallurgy



02.

Machining

03.

**N.A.
Market**

04.

**+40 years
as Tier 1**

KEY DATA

+2,200

Employees

+40

Years as Tier 1 Supplier

100%

Mexican Company

3

Cast Iron Molding Processes

1

Aluminum HPDC Process

1

Metal Stamping: Aluminum & Steel



44 YEARS
IN MEXICO

ARBOMEX

MAIN CUSTOMERS

STELLANTIS
40 years

FIDESA
AUTOMOTRIZ
30 years

BOSCH
20 years

ZF
19 years

DAIMLER TRUCKS
10 years

Kawasaki
8 years

Mazda
7 years

Ford
3 years

Note: Not All Customers Included

OUR PRESENCE



1

1. Celaya, Guanajuato.
Cast Iron Foundry
Cast Iron & Steel Machining

2. Apaseo el Grande, Guanajuato.
Cast Iron Machining
Aluminum HPDC & Machining

2A. Mexico City
Aluminum HPDC & Machining
Zamak HPDC



2



3

3. El Salto, Jalisco.
Metal Stamping:
Aluminum & Steel

PLANT LOCATIONS



CONFIDENTIAL INFORMATION





**2035 GHG⁽¹⁾ emission
reduction target:**

-50%

Note: (1) Absolute reduction in Scope 1 & 2 greenhouse gas emissions against a 2021 baseline

IRON CAPABILITIES



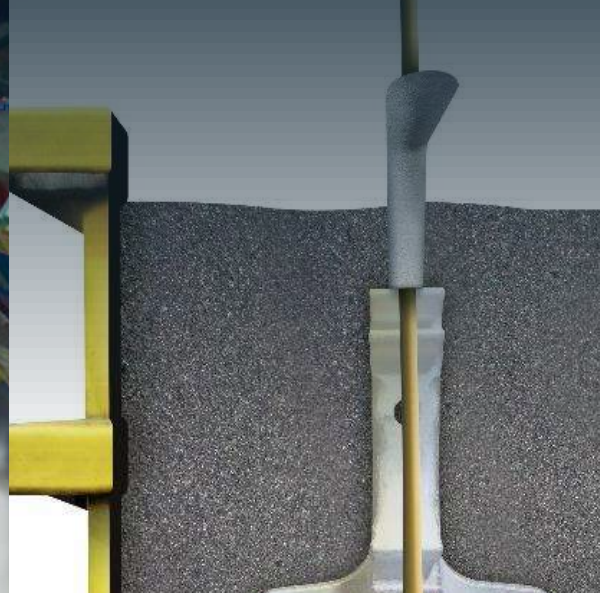
01.

**No Bake
Molding**



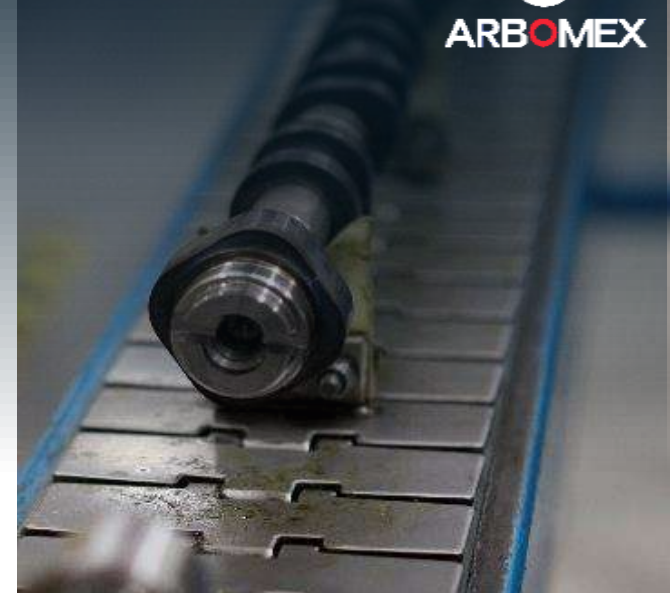
02.

**Stack
Molding**



03.

**Lost Foam
Molding**



04.

Machining

MOLDING PROCESSES

MACHINING

Iron Products

Automotive OEM

Water pump



Camshafts



ICE
4 Cyl

ICE & HEV
V6

ICE V8

Housing Carrier



Balance Shafts



Near net & Net shape products



Cabin support



Engine
Support

Refrigeration

Crankshafts



Eccentric shafts

Industrial



Camshafts

Crankshafts



IRON **FOUNDRY** HIGHLIGHTS

Melting

- ✓ 2 induction furnaces batteries dual track (4 furnaces).
- ✓ Installed capacity 72,000 tons/year.

No Bake Molding

- ✓ 80 molds per hour
- ✓ Horizontal parting line
- ✓ Typical draft angle of 1.5°
- ✓ Parts from 1.5 kg to 15 kg

Stack Mold

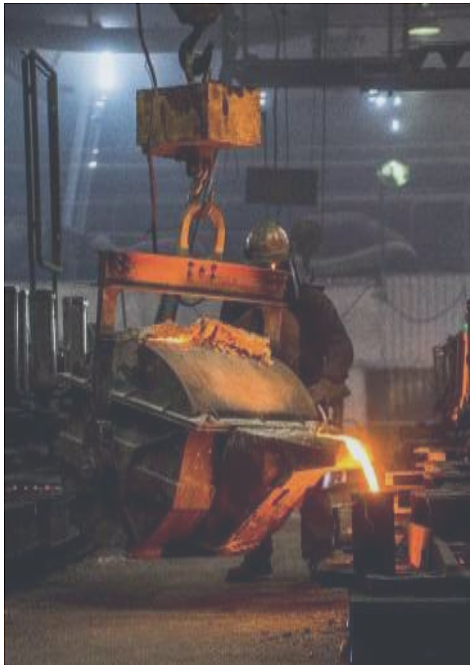
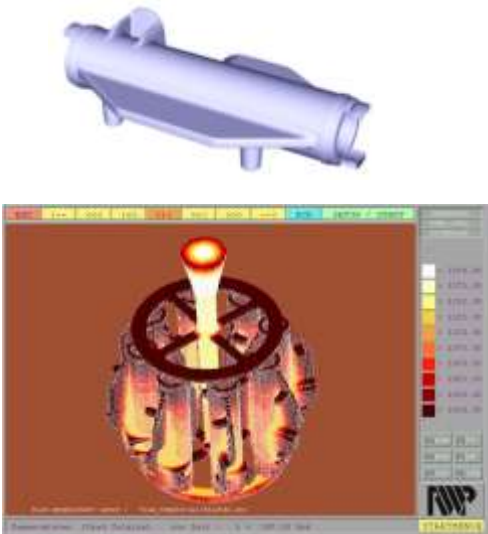
- ✓ 4 layers stack
- ✓ Cold box process

Lost Foam

- ✓ 35 molds per hour
- ✓ Parts from 2 kg to 150 kg
- ✓ Flask size: 800 x 800 x 1000 mm
- ✓ Draft angle: down to 0°

Foundry available
capacity

52%



Iron Machining Highlights

Apaseo plant produces
1 camshaft every 5.8 seconds

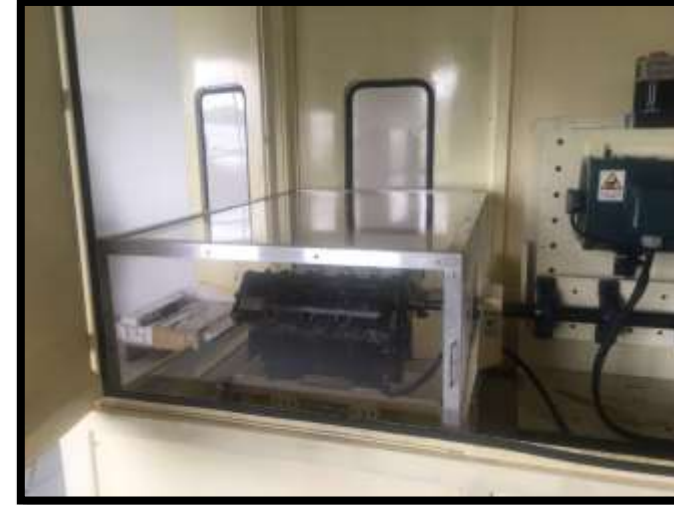
Both Plants deliver
1 camshaft every 3.9 seconds

Overall equipment (Celaya & Apaseo)
More than 460 CNC Mach.



Engine test lab

Electric
Engine
Bank



SUPPLY CAPABILITIES & OTHER COMPETENCES

OUTSIDE CAPABILITIES

Paint



E-coat, Powder Coating

Heat Treatment



ADI, Nitride, Annealing, tempering

Mechanical Testing



Destructive, Non destructive

Radiographic Testing



X - Ray

Casting Flow Analysis



Magma

Already on site

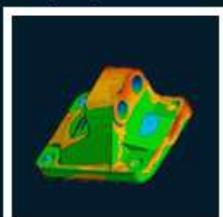
DESIGN COMPETENCES

CAD, CAM



Euklid V5, NX11
Siemens, Pro/E,
AutoCAD 2018

3D Vision Equipment



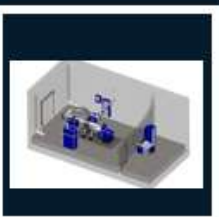
Geomagic 3D
systems 4000

Residual Stress Analysis



Rigaku
Smarsite RS

Engine Test Lab



Alloys developments



Iron to substitute
steel

Steel lobe casted
into an iron part

In-House Additive Manufacturing for Prototypes

Thermoplastic: PLA, CPE, PC, ABS, Nylon, PP

Metals: 17-4 PH – 316L stainless, H13, A2,
D2, Ti 6-4, Inconel 625 copper

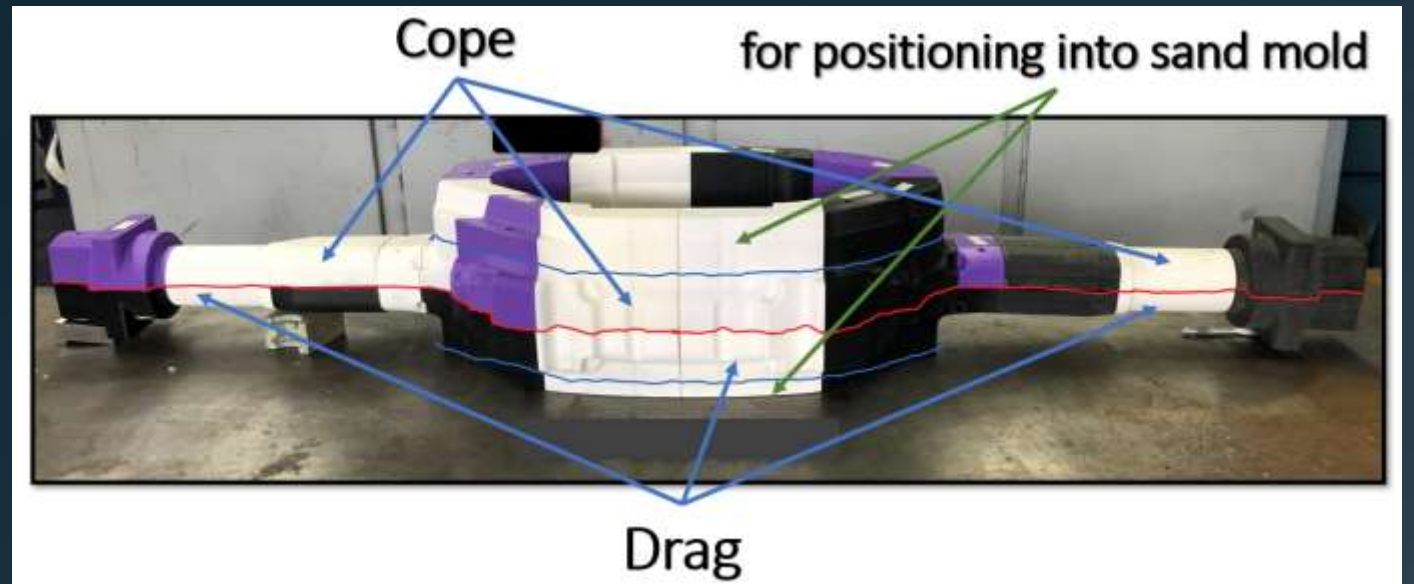


Axle Housing - Prototypes



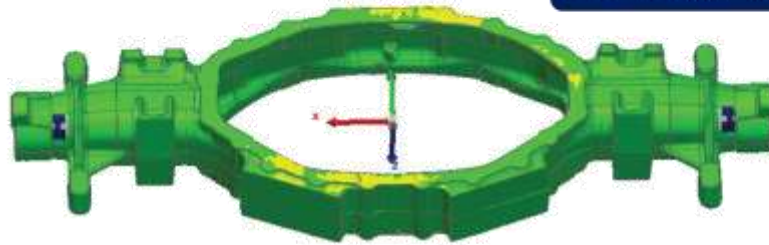
ARBOMEX

Internal development: 3D printing

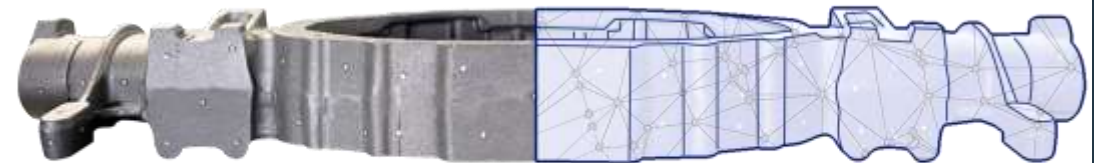


Product Engineering Highlights

3D scan for measurement vs design



3D scan for measurement



Escaneo de la pieza: 100%
Comparativo de geometría 3D vs pieza casting: 100%

ALUMINUM CAPABILITIES

01.

**High Pressure
Die Casting**



02.

**Finish manufacturing
process (machining)**

ALUMINUM CAPABILITIES



03.

2D X-ray

Computed Tomography ready

Some Aluminum Parts

Heat Sink housing
Weight: 0.190 kgs.



Housing bracket
Weight: 0.340 kgs.



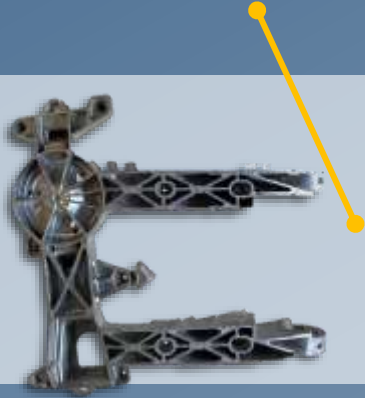
Housing bracket
Weight: 0.528 kgs.



Housing bracket
Weight: 0.840 kgs.



Mirror bracket
Weight: 1.10 kgs.



Aluminum Available Capacity (expected 2023)

8 machines
Capacity:
550 Tons

15% open capacity

1 machine
Capacity:
650 Tons

30% open capacity

5 machines
Capacity:
750 Tons

40% open capacity

5 machines
Capacity:
900 Tons

20% open capacity

1 machine
Capacity:
1,600 Tons

100% open capacity

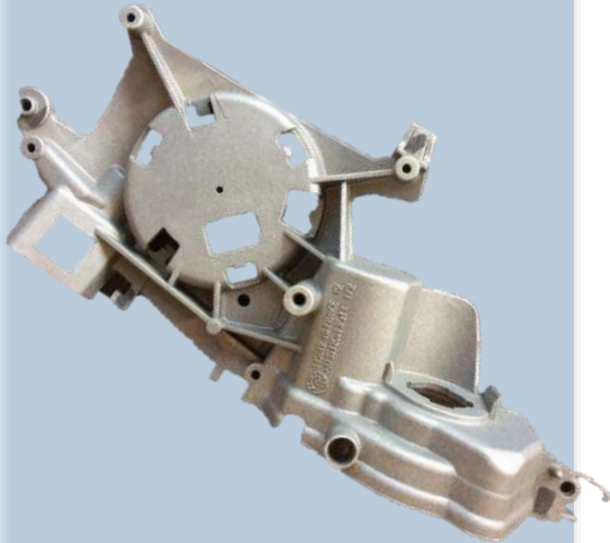
2 machines
Capacity:
2,500 Tons

100% open capacity

ALUMINUM PRODUCTS



Mirror Bracket



Audi

Window Bracket



Mirror Bracket



HONDA

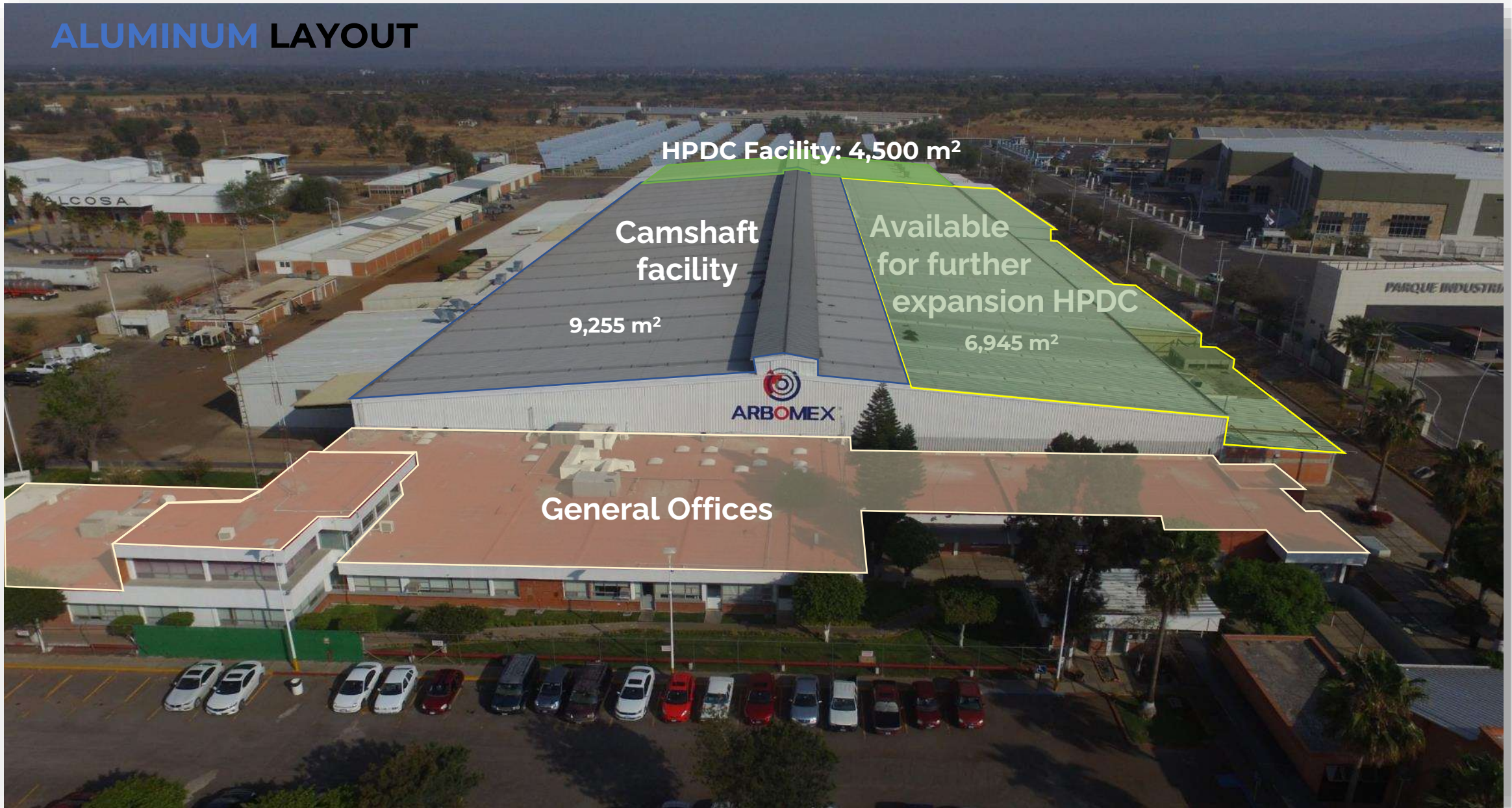
Base Bracket



ALUMINUM PRODUCTS



ALUMINUM LAYOUT



ALUMINUM PLANT



ALUMINUM MACHINING



**ALUMINUM
QUALITY & 3D SCANNING**



ALUMINUM SERVICES



Shot blasting



**E – coat, powder coat,
Surtec 650 (outsourced)**





Sustainability & Other Certifications



ARBOMEX



1 Mwatt

**20% of Apaseo facility energy
is generated by solar panels**



LIGHTWEIGHT COMPONENTS MANUFACTURING



Arbomex LCM at a glance

| | |
|----------------|---|
| Established | 1998 |
| Footprint | 11,330 m2 |
| Employees | +250 |
| Business model | Tier 2 |
| Capital | 100% Mexican & Private owned |



Stamping Technology Mexico



Transfer Presses

**6 presses from
540 to 800 tons**



Progressive Processes

**9 presses from
150 to 440 tons**



Manual Processes

**5 presses from
80 to 500 tons**

Stamping Technology Mexico



Other Processes Capabilities => Welding



Welding Process

1. LAUNIK Machine
2. Messer Machine
3. Centerline Machine
4. KOCH Machine



Other Processes Capabilities



Washing Processes

(3 washing machines, 1 recently installed)

Tapping + Riveting processes

(3 CNC machines + BALTEC riveting machine)

Staking Operations

(5 staking processes)



Tool Making



Equipment

- Tool shop fully equipped for tool making and maintenance
- Computer aided manufacturing (CAD/CAM).
- CNC 5-axis machining center.
- In-house heat treatment.
- Design software: SolidWorks, NX 11 and AutoCAD 2016.

Education as toolmaker ("Ausbildung")

- Toolmakers and Tool designers from German culture with broad experience of more than 25 years.
- Mexican tool makers trained at VOIT – Germany.
- Apprenticeship program.
 - A 3 year dual program based on German "toolmaker"
 - Professional training contents translated into Spanish
 - 30 apprentices contracted each generation
 - 3rd generation in development.



Quality Lab equipment:

- 3 + 1 Coordinate measurement machine (CMM)
- Optical comparator
- Hardness testing machine (HR)
- Surface roughness tester
- Profilometer
- Air-conditioned environment
- Statistic process control (SPC)
- Part specific production gages

Product Portfolio

Motor Housings and Endshields



Housing & Vacuum components



Headers and Side Plates



Shock absorber components



For more information visit

www.arbomex.com



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THANK YOU!

