

CHARVÁT AXL, a.s.
AIRCRAFT LANDING GEARS

Company overview

Name: CHARVÁT Group

Turnover: 75 million EUR

Employees: 800

Production - Hydraulics

- Hydraulic cylinders
- Power packs
- Hydraulic hoses
- Bended tubes
- Hydraulic components

Production - Aerospace

- Landing gears
- Rescue system components
- Precision machining
- Heat treatment
- Surface treatment

Production - Others

- Hook loaders

Video on www.charvat-group.cz

The CHARVÁT Group and its subsidiaries offer a complete range of components for the construction of hydraulic systems and landing gears.

● Production locations and branches.

Production locations

Located in Czech Republic and Slovakia



Hydraulic cylinder
Hydraulic hoses
Bended tubes
www.charvat-chs.cz



Aerospace production
Heat treatment
Surface treatment
www.charvat-axl.cz



Hydraulic cylinders
Hydraulic components
www.sbjnmart.sk



Hook loaders
Tractor trailers
Loading cranes
www.charvat-cts.cz



Fitting and Ferrules
Power packs
www.charvat-avhb.cz



Power packs
Hydraulic components
www.charvat-hykom.cz

Aerospace certifications

CHARVÁT®



PRODUCTION ORGANISATION APPROVAL CERTIFICATE

- EASA certificate issued by the Civil Aviation Authority of the Czech Republic
- Compliance with Annex (Part 21), Section A, Subpart G of Regulation (EC)



MAINTENANCE ORGANISATION APPROVAL CERTIFICATE

- EASA certificate issued by the Civil Aviation Authority of the Czech Republic
- Compliance with Section A, Subpart F of Annex I (Part-M) of Regulation (EC) No 2042/2003



EN 9100:2018 technically equivalent to AS 9100D and JISQ 9100:2016

Production of aircraft landing gears, machining of parts including heat treatment, surface treatment and NDT.



ČSN EN ISO 9001:2016
ČSN EN ISO 3834-2:2016

Certification of quality management system:

- Production of precise parts
- Heat treatment
- Galvanic surface treatment
- Chromium plating
- Welding of parts for aircraft production (landing gear)

Aerospace Production

History since 1952

Landing gears



- Aircraft: L-410 UVP E, L-410 NG
- Customer: AERO VODOCHODY AEROSPACE



- Aircraft: P2012 TRAVELLER
- Customer: TECNAM



- Aircraft: L-39 NG
- Customer: AERO VODOCHODY AEROSPACE



- Aircraft: Z-143, Z-242
- Customer: ZLIN AIRCRAFT

In-house technology



120 CNC machines (milling, turning, grinding)



Heat Treatment and Surface Treatment (chromium plating)



NDT, static and dynamic testing



CHARVÁT®

Machining

- 120 CNC and 50 conventional machines:
 - CNC Milling centres
 - CNC Turning machines
 - CNC Grinding machines
 - CNC Wire EDM
 - Honing machines
- Equipment for the landing gears static and dynamic tests



Special processes

- Welding
- Painting
- Heat treatment (in process of NADCAP certification)
- Chromium plating
- Anodizing
- Magnetic fluorescent particle inspection (in process of NADCAP certification)
- Nitral etching
- Spectroscopy



Aerospace Engineering

Engineering

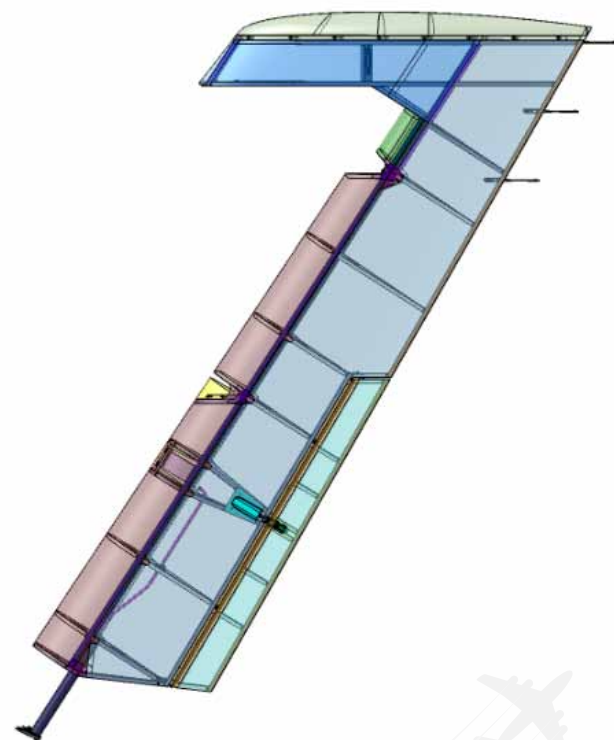
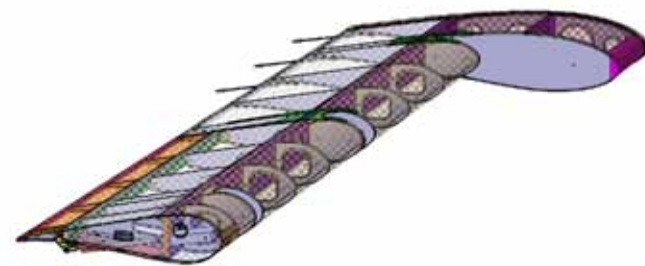
- Conceptual design
- External aerodynamics and flight physics
- Loads definition
- Fatigue spectrum definition
- Certification documentation
- Aircraft weight and stress optimization

Design

- Airframe design
- Landing gear design
- Aircraft mechanical system design
- Component and system integration and installation
- Flight test instrumentation installation
- Tooling design

Softwares

- ANSA / META
- MSC Patran / Nastran
- NX Nastran
- Abaqus
- Femap
- OpenFoam
- Fluent
- Matlab
- CATIA
- NX
- Solidworks
- Inventor



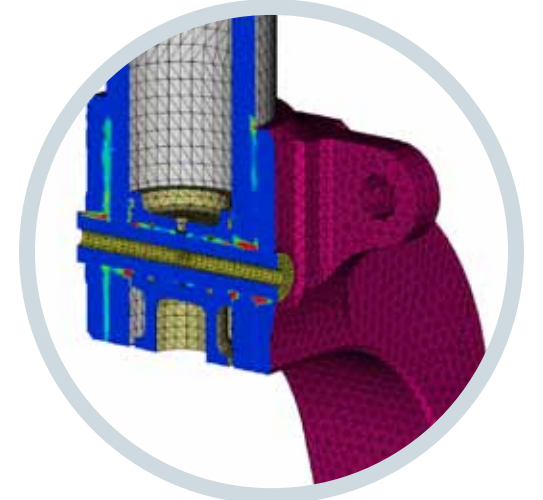
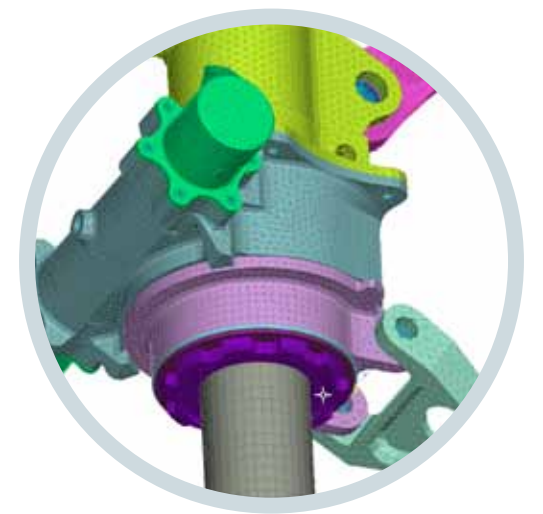
Stress Analyses

- Static stress analyses using analytical methods or linear and non-linear FEM solvers including elastoplastic materials
- Contact interaction of solid bodies
- Stability analyses of parts and assemblies
- Fatigue and DT analyses
- Structure weight optimization
- Multi-body dynamic simulations
- Oleo-pneumatic shock absorber performance analysis

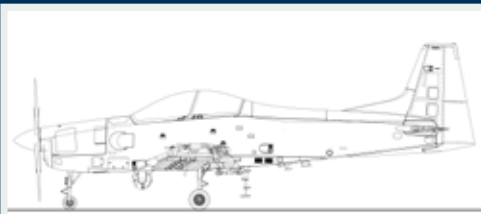
Tests

- Static, fatigue and dynamic tests including landing gear drop tests
- Specification and sub-contracting of climatic resistance tests

CHARVÁT®



Experiences of our engineering team



Calidus B-350

landing gear including wheels, brake and retraction system



Embraer KC-390

wing leading edge, flight test instrumentation



Bombardier CSeries (Airbus A220)

wing leading edge



Aero Ae 270

airframe, cockpit installations



Tecnam P2012 Traveller

landing gear



Evektor EV-55

control surfaces



KT-112

empenage, flight control



An-148

fuselage, doors, central wing box



An-140

fuselage, empenage/ fuselage fairings



An-70

fuselage, cargo ramp



Aero L-159, L-39NG

fuselage, empenage, landing gear



Let L-410 UVP E, L-410 NG

landing gear upgrade

Manufacturing references

- Tecnam P2012 Traveller
- Let L-410 UVP E
- Aero L-39NG
- Zlín Z-42, Z-43, Z-143, Z-242
- Zlín Z-37 Čmelák



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