

FIBRO STANDARD PARTS I4.0 COMPATIBLE FEATURES IN COMPACT MULTIFUNCTIONAL DIES



**INTERNATIONAL SEMINAR ON
FORMING TECHNOLOGY**

"Shaping the future of Manufacturing"



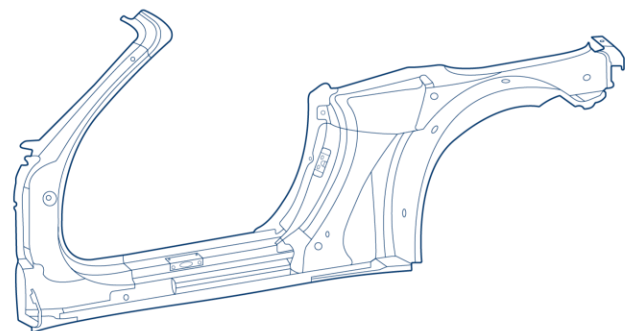
Bengaluru, 18th January 2024



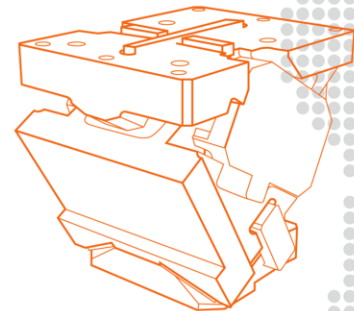
LÄPPLE GROUP YOUR GLOBAL PARTNER



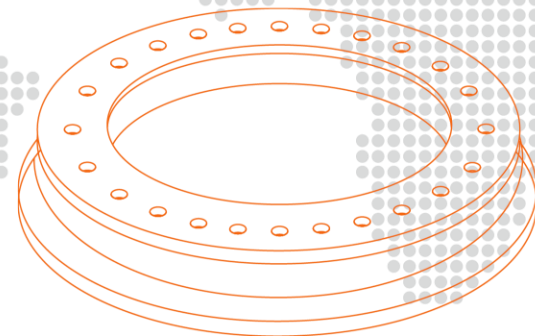
CAR BODY
MODULES



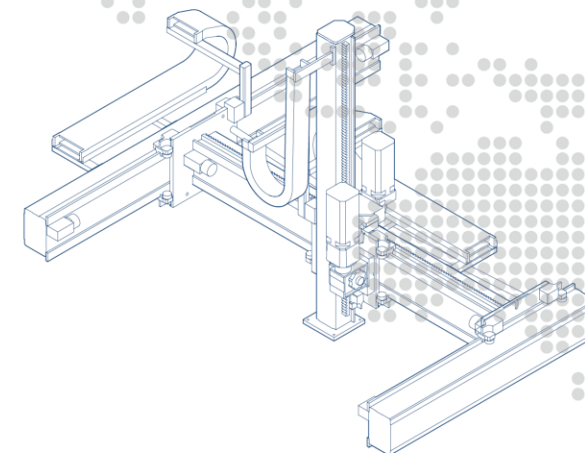
STANDARD
PARTS



ROTARY
TABLES



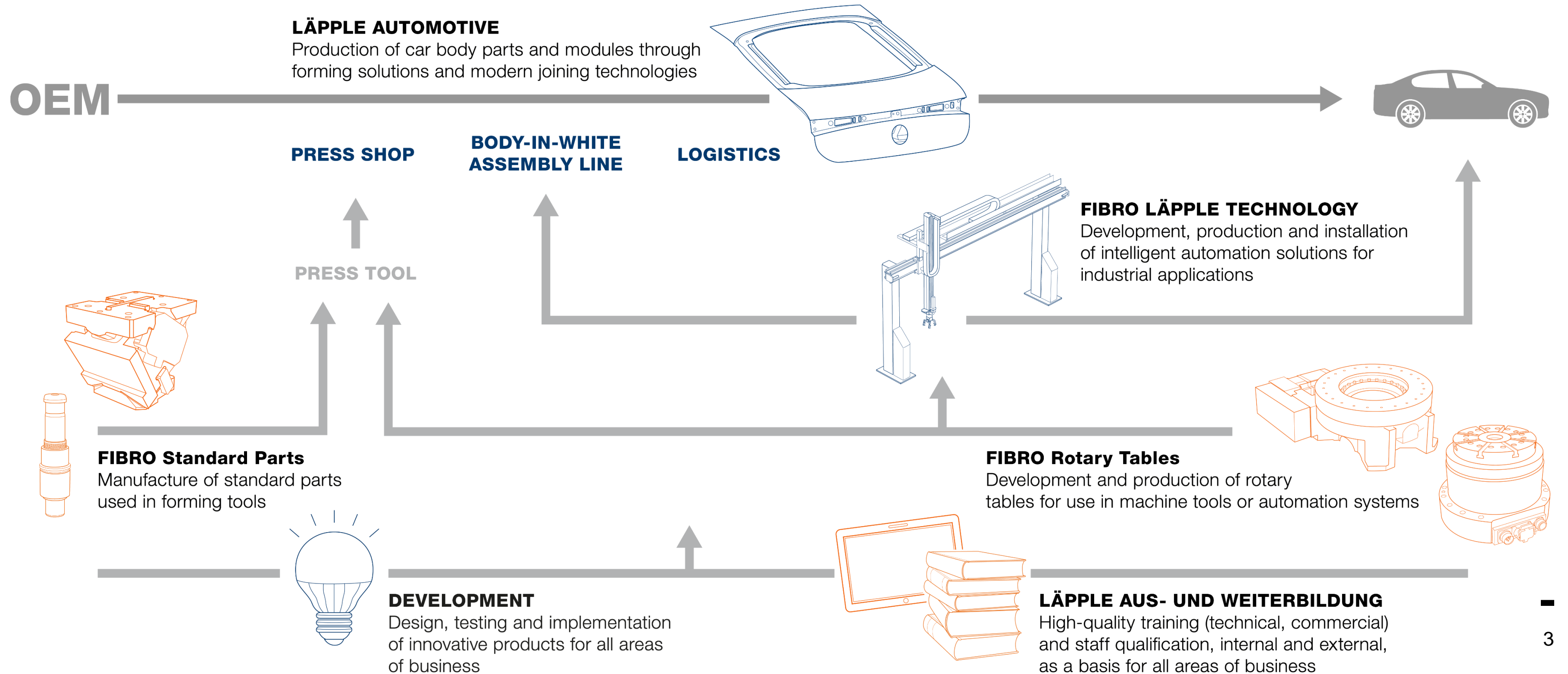
AUTOMATION
SOLUTIONS



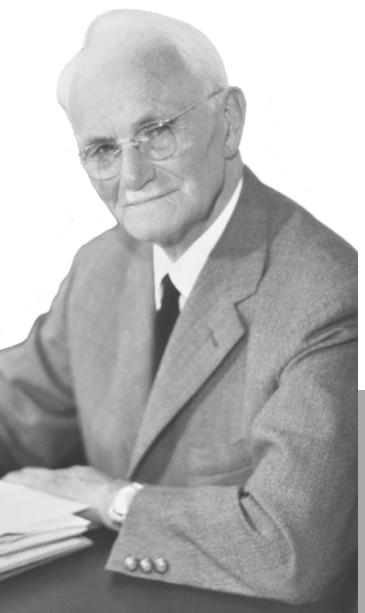
TRAINING AND
QUALIFICATIONS



LÄPPLE GROUP COMPETENCES IN THE VALUE CHAIN OF PRODUCTION



LÄPPLE GROUP HISTORY (EXTRACT)



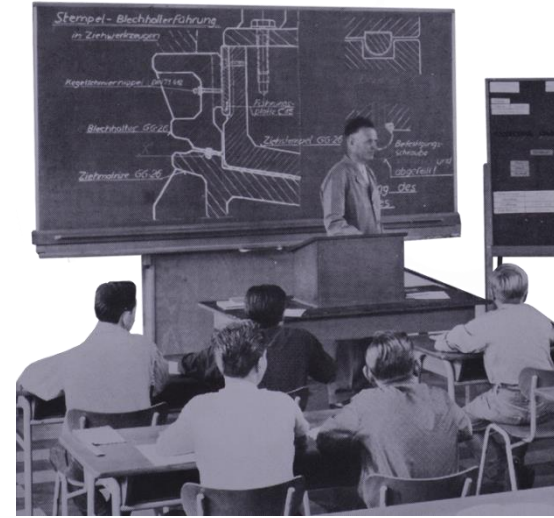
FOUNDATION
AUGUST LÄPPLE

1919



MOVE TO
HEILBRONN

1950



FOUNDATION OF THE
TRAINING AND
EDUCATION GMBH

1986



FOUNDATION
FIBRO INDIA

2008

1940

SECOND
GENERATION



1974

ACQUISITION OF
FIBRO GMBH



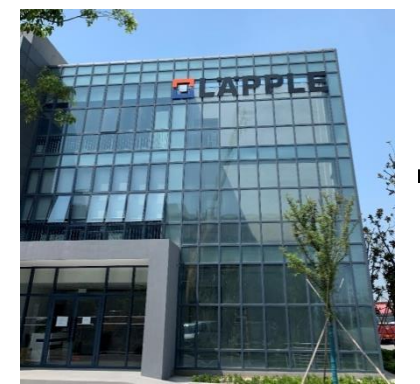
1990

ACQUISITION OF
TEUBLITZ

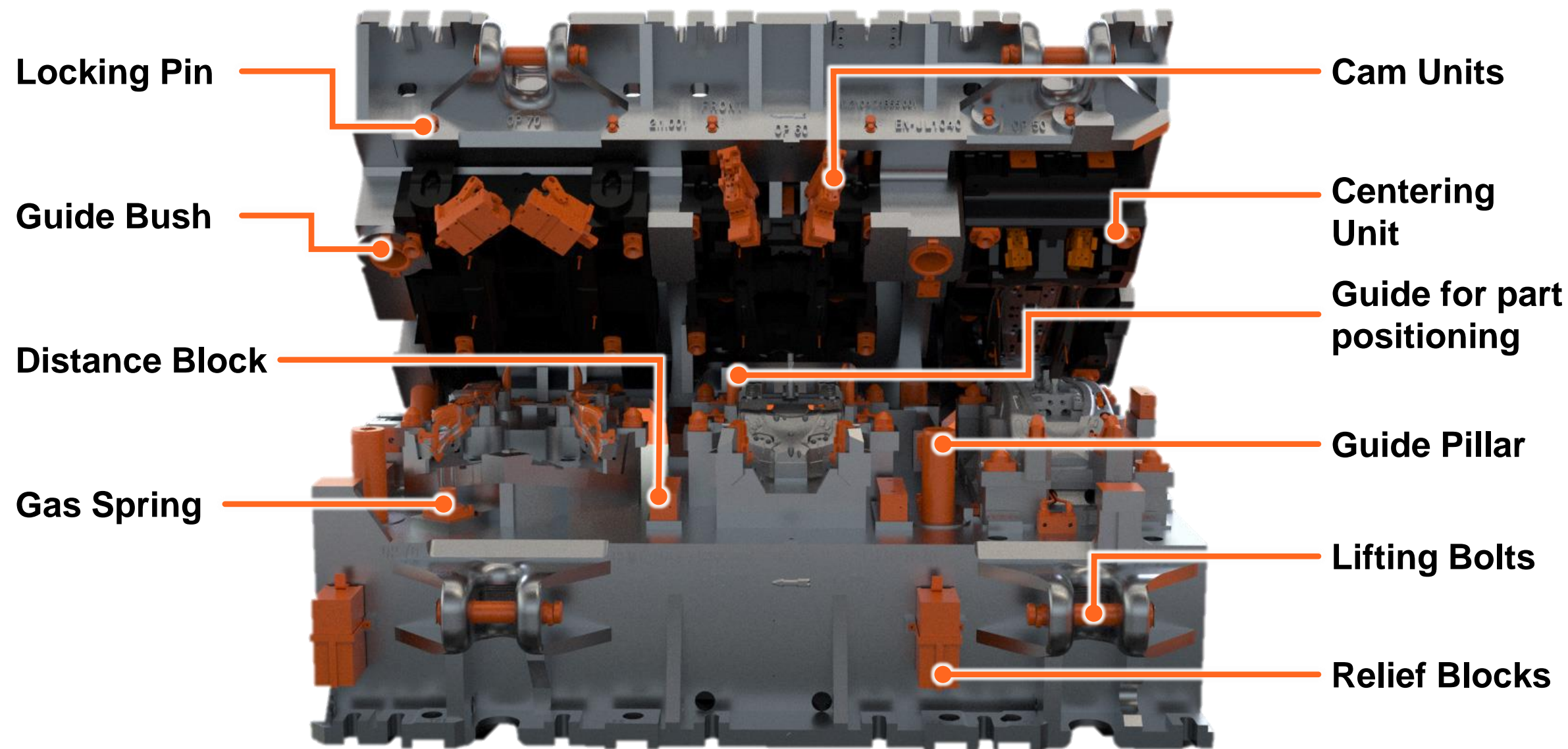


2019

FOUNDATION
LÄPPLE
TAICANG



STANDARD PARTS IN A STAMPING DIE



HISTORY OF GAS SPRINGS

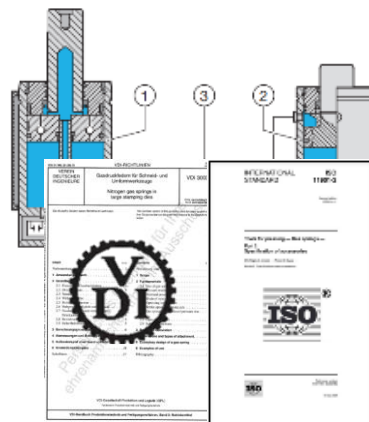


1983

From mixed culture to the industrial revolution. The **first gas pressure spring for punching tools** is invented.

The success story of **controllable gas springs** begins. Gas springs are now part of VDI 3003 & ISO11901.

1990



2000

All our gas springs comply with **PED 97/23/EC** and so is the new **Power Line gas spring series**.

By **combining** two existing gas spring series, the **high-strength spring for high-strength sheet metal** was created

2010



100% compliance with **BetrSichV** and the latest **VDI 3003** is the cherry on the cake of the "Safer Choice" campaign.



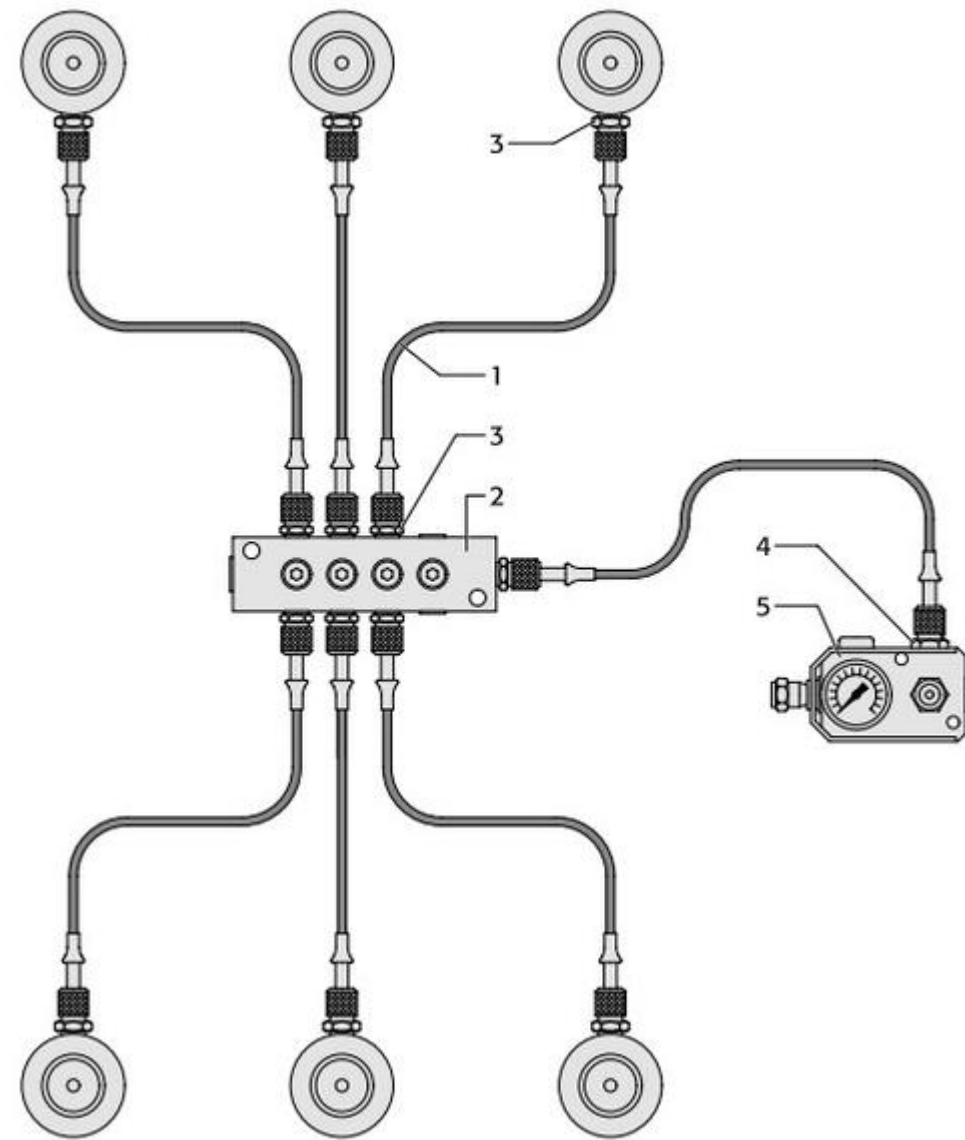
2021

With the **latest version of the WPM System** the gas spring is able to play a role at IoT

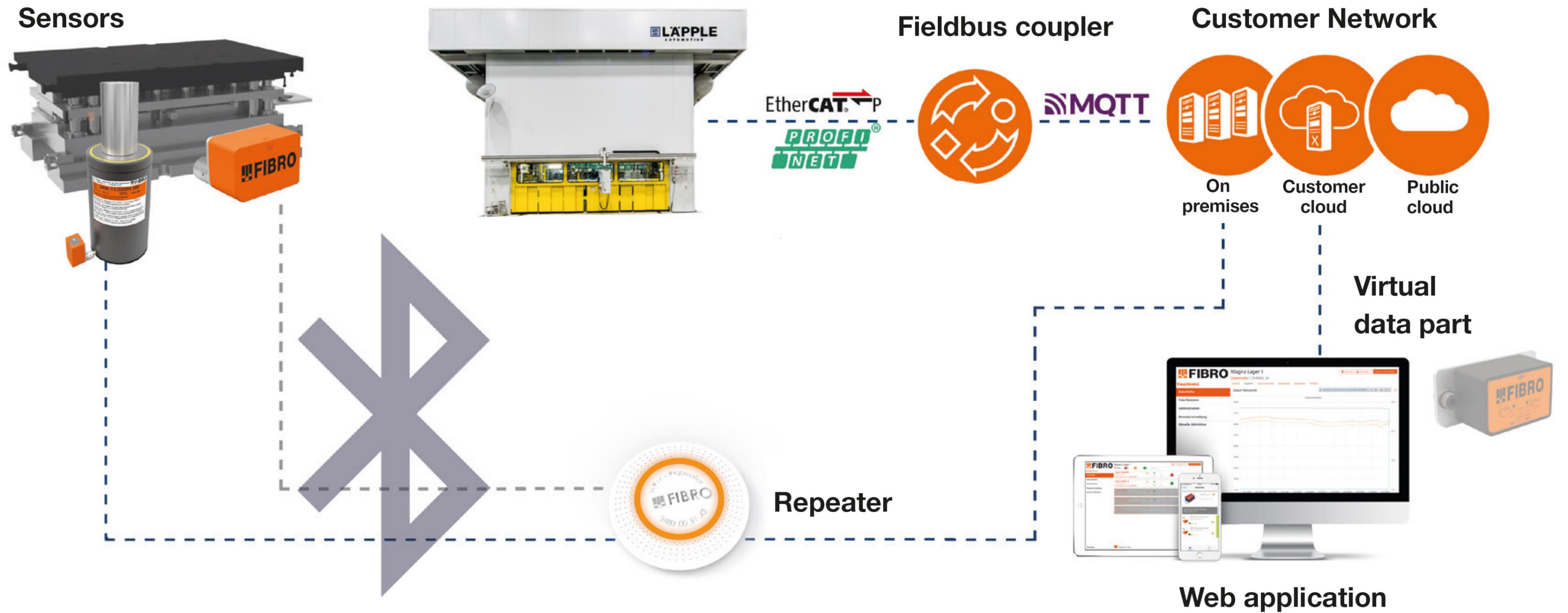
2023

Heading Into The 4th Decade Of Innovative Gas Springs

HOW TO TRACK GAS SPRINGS



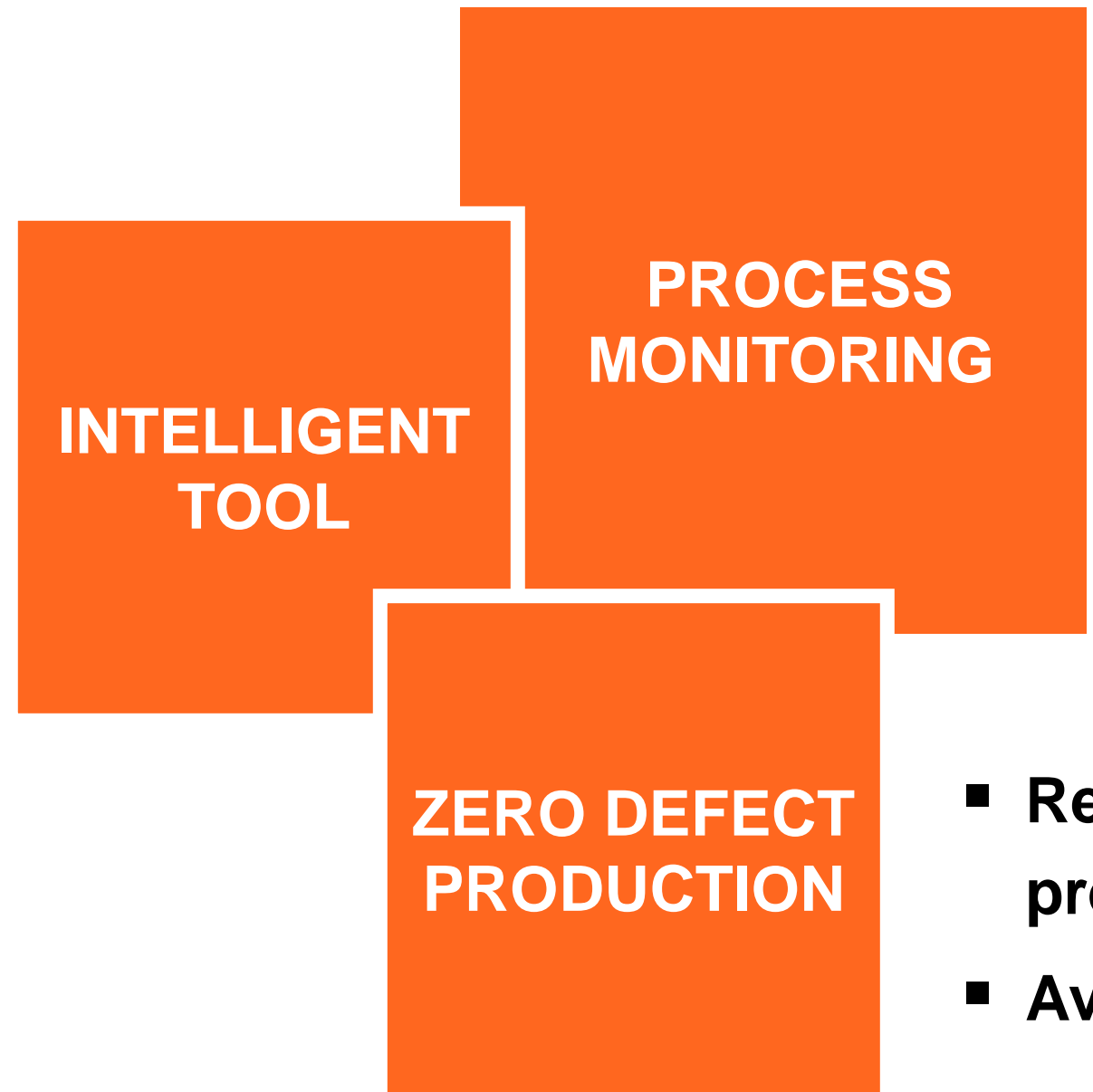
WIRELESS PRESSURE MONITORING SYSTEM





WIRELESS PRESSURE MONITORING

- **Documentation and analysis** of pressure and temperature **of gas springs**
- **Notifications** if defined **limit value** overruns or underruns occur

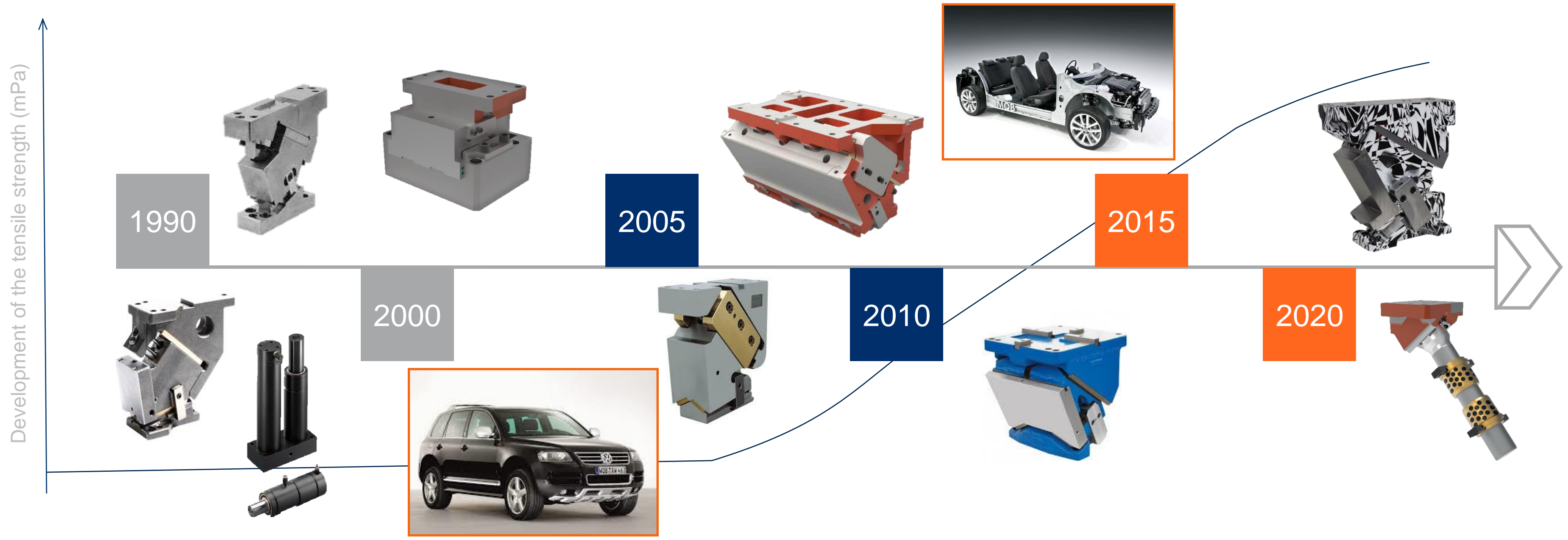


- **Increased efficiency** thanks to early **wear detection**
- **Needs-optimised maintenance** intervals via automated trend analysis

- **Reduction** in gas spring-specific **press downtime** by 90%*
- **Avoidance of scrap parts**

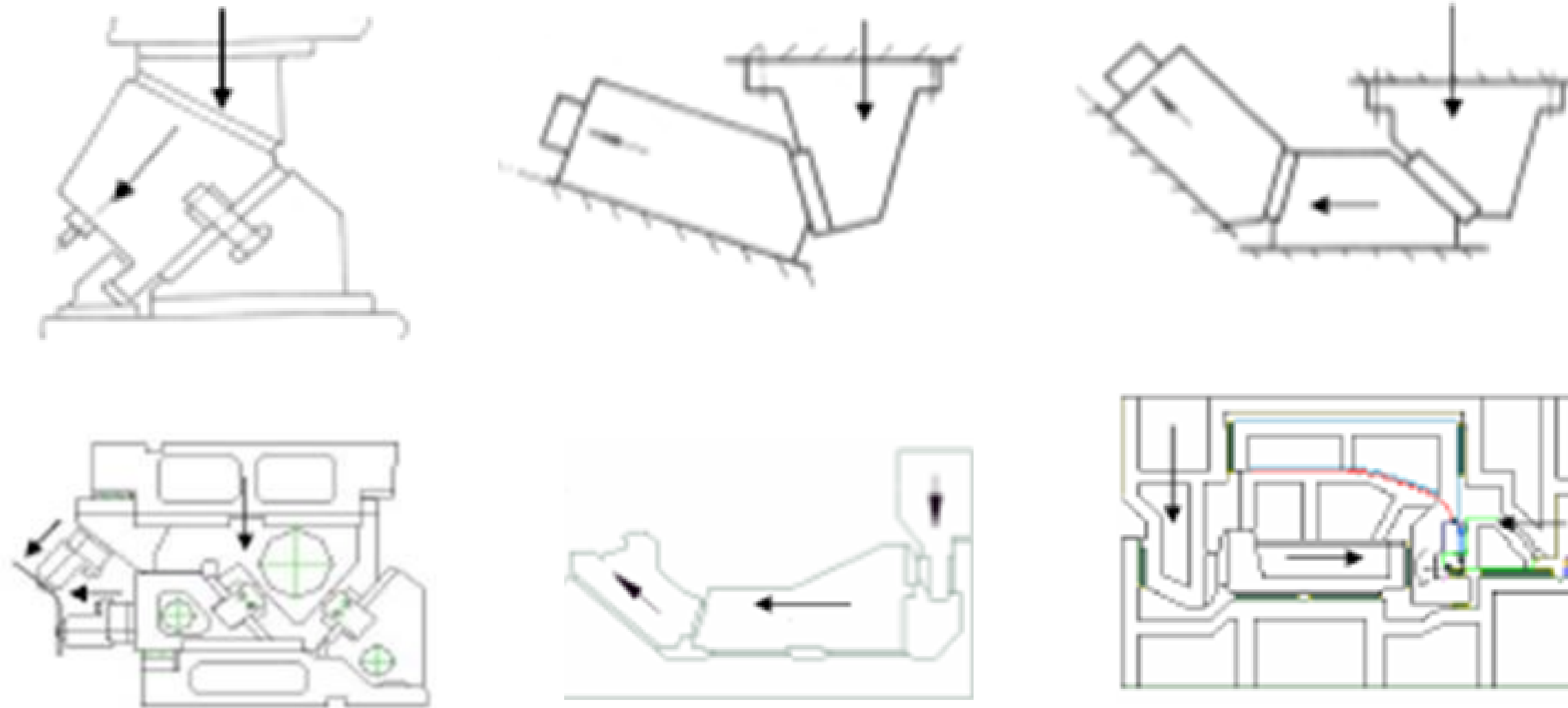
*Value from a problem solving project internal at LÄPPLE Automotive

HISTORY OF CAM UNITS (LAST 30 YEARS)



**Development From Self Made Cam Units To High Level Standard Part Cam Units Driven By I.E.
The Tensile Strength Of Light Weight Vehicle Body In White**

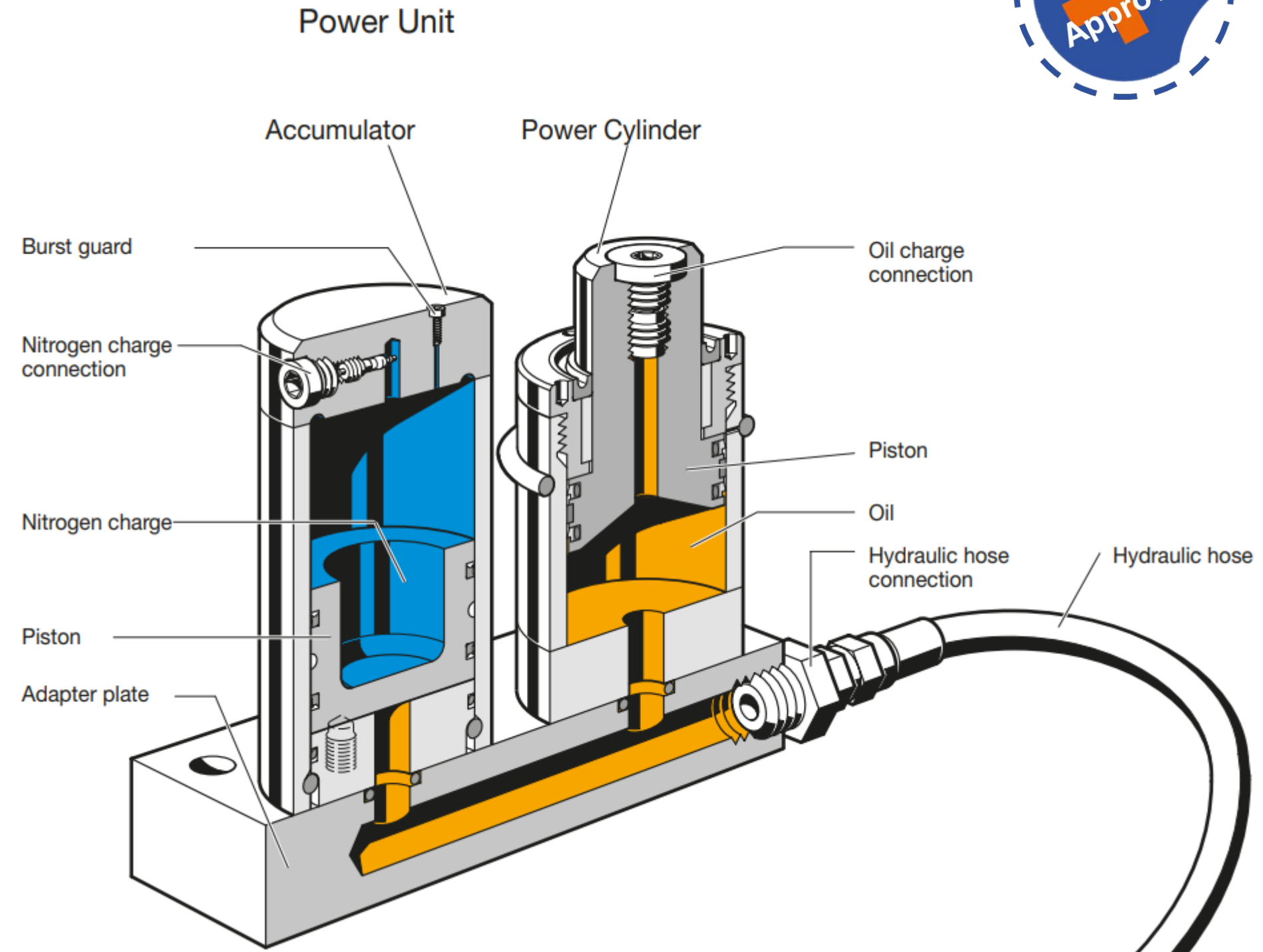
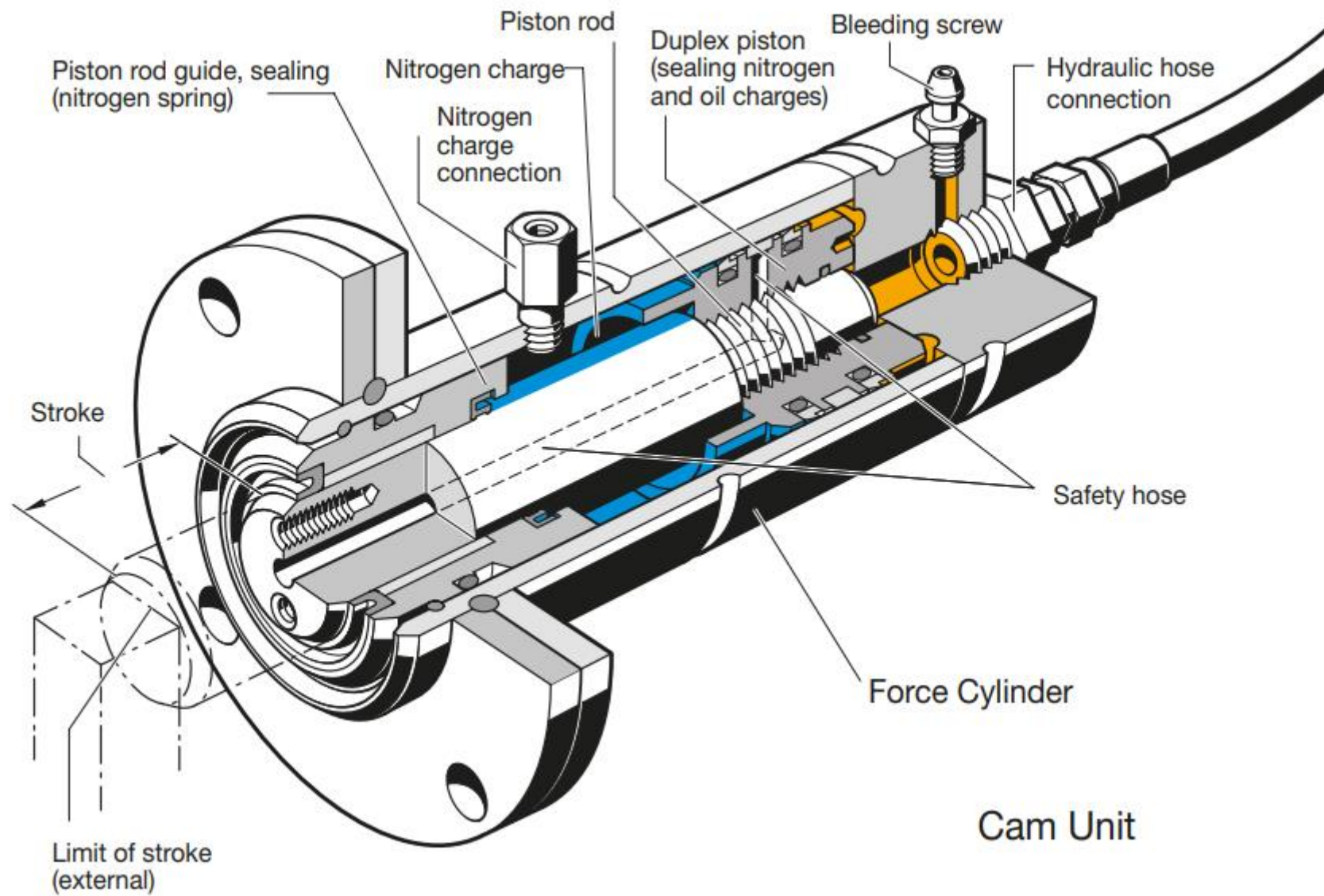
HYDROCAM INTRODUCTION



Hydrocam Can Handle Every Kind Of Cam Application But Will Never Replace The Mechanical



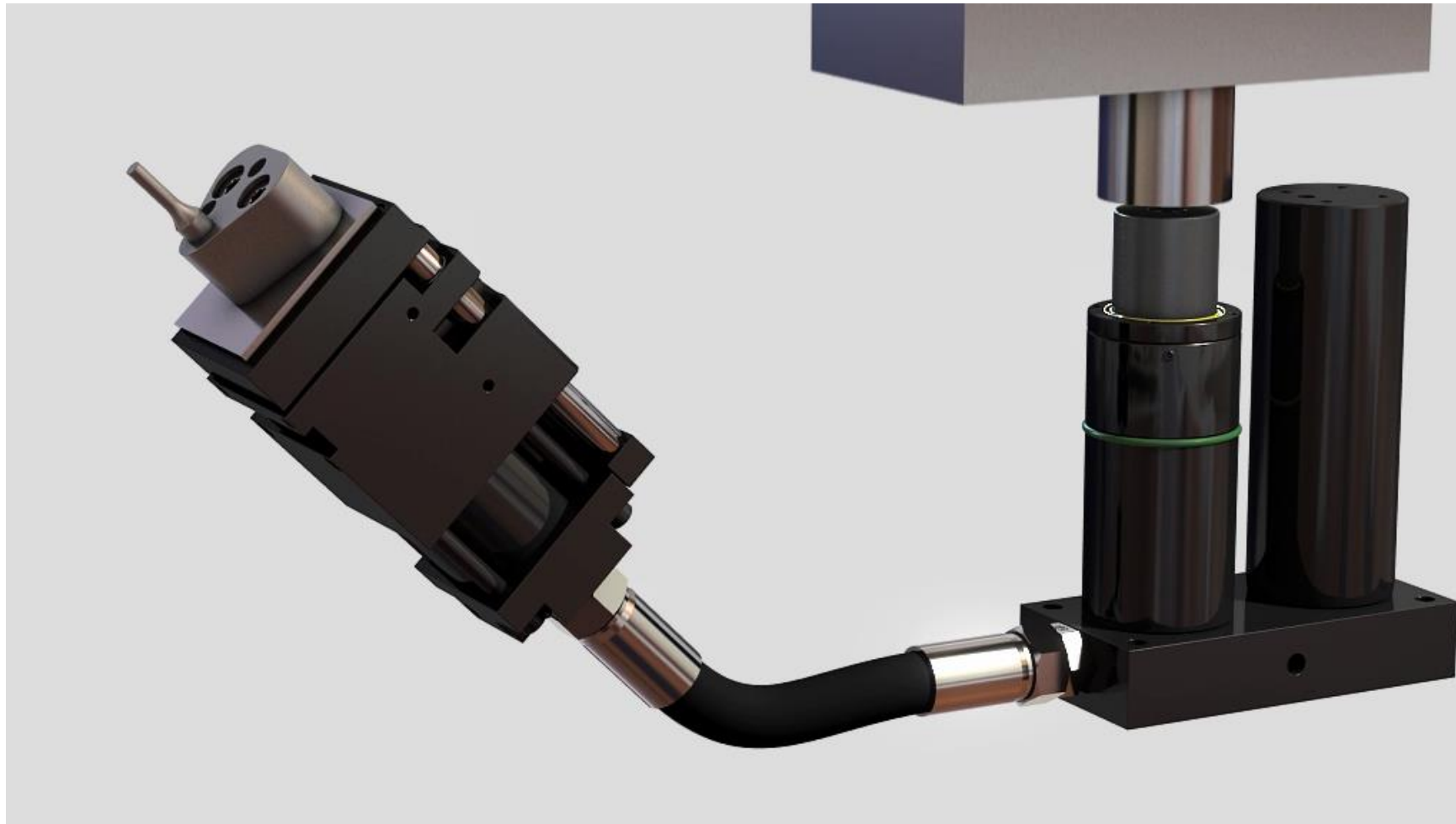
HYDROCAM STRUCTURE



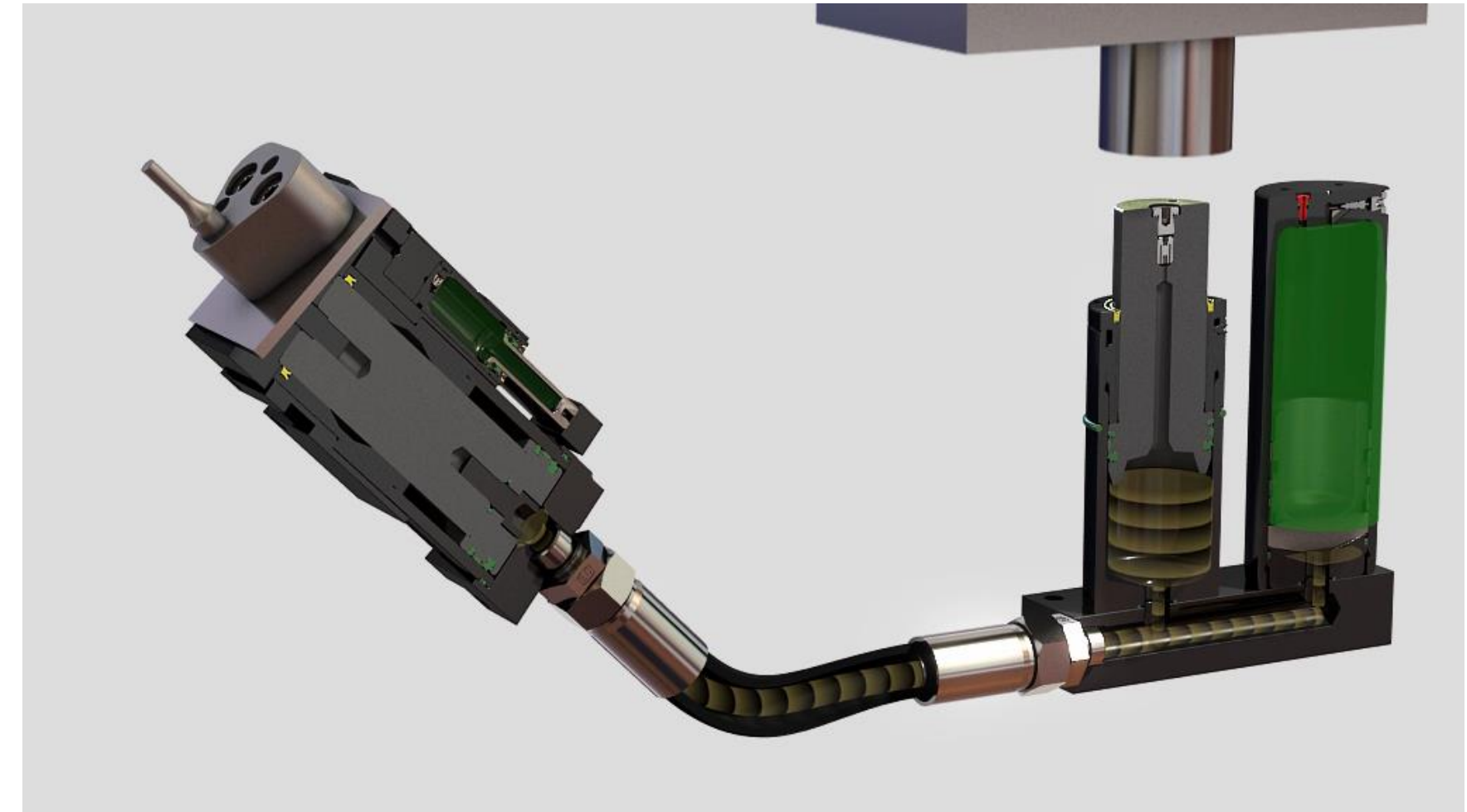


HYDROCAM FUNCTION

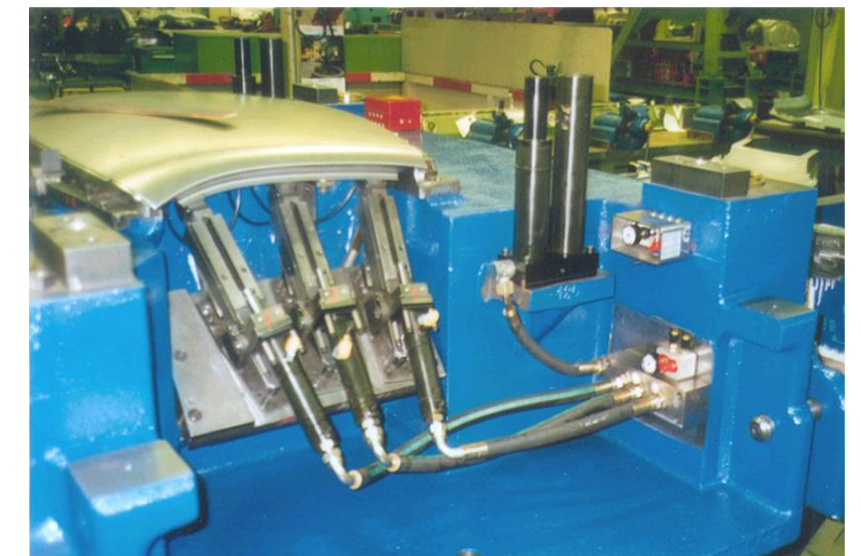
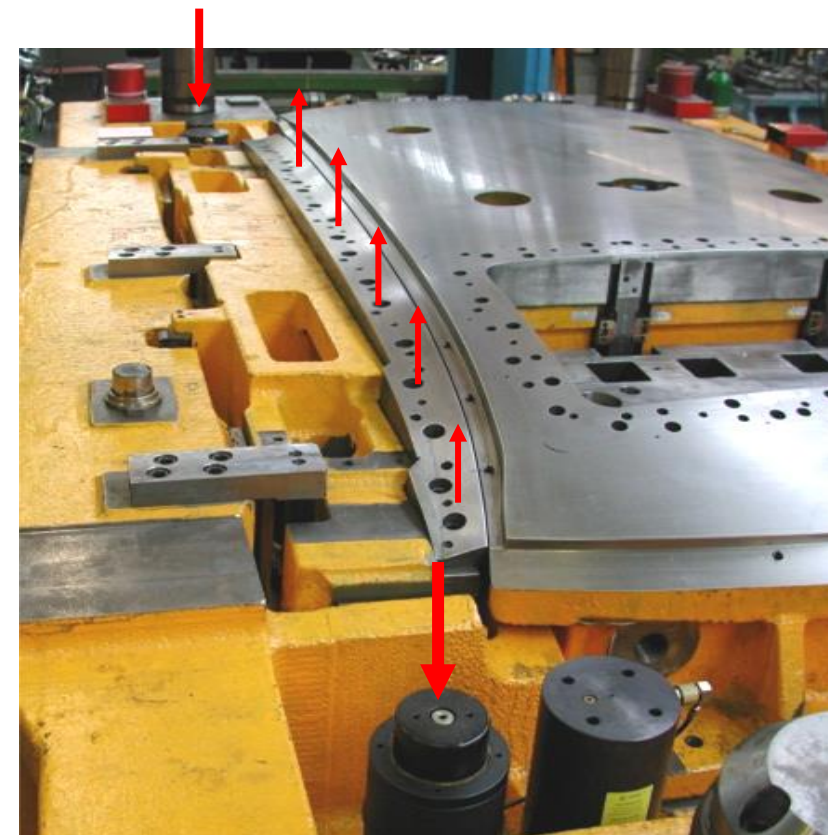
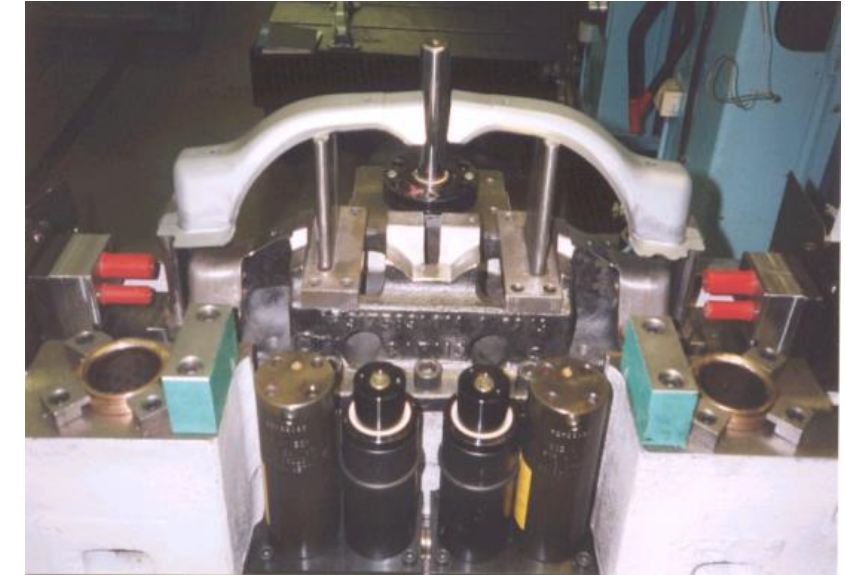
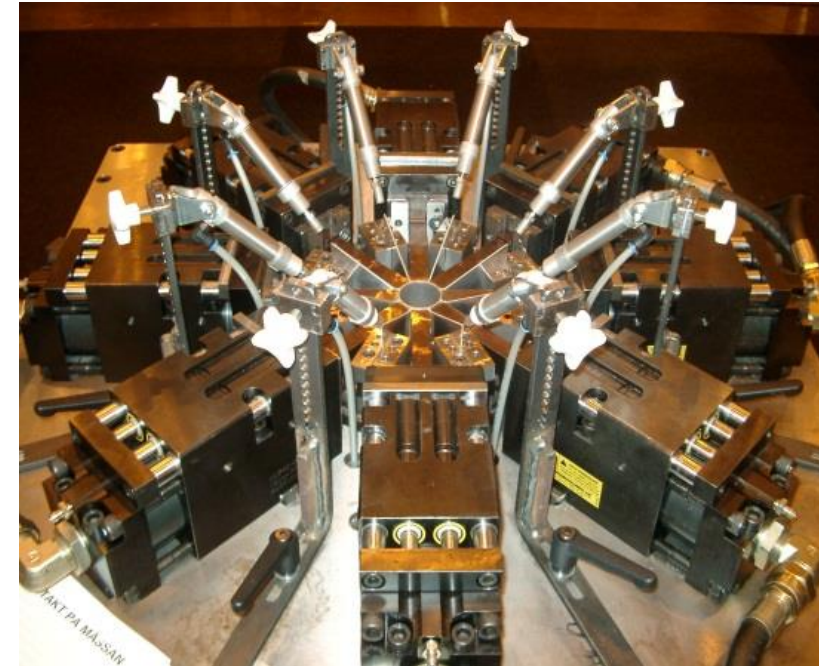
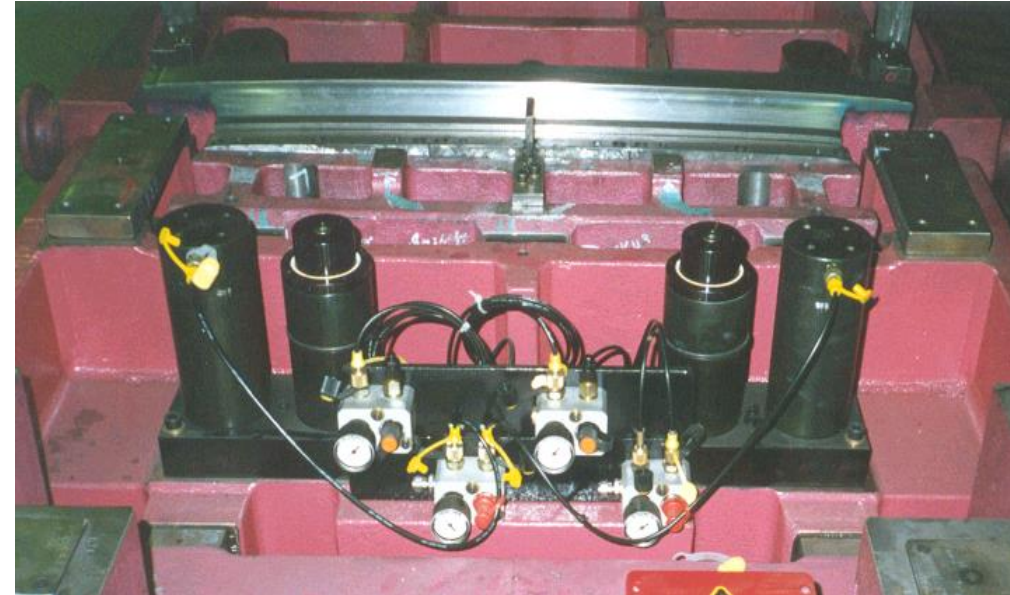
STANDARD FUNCTION



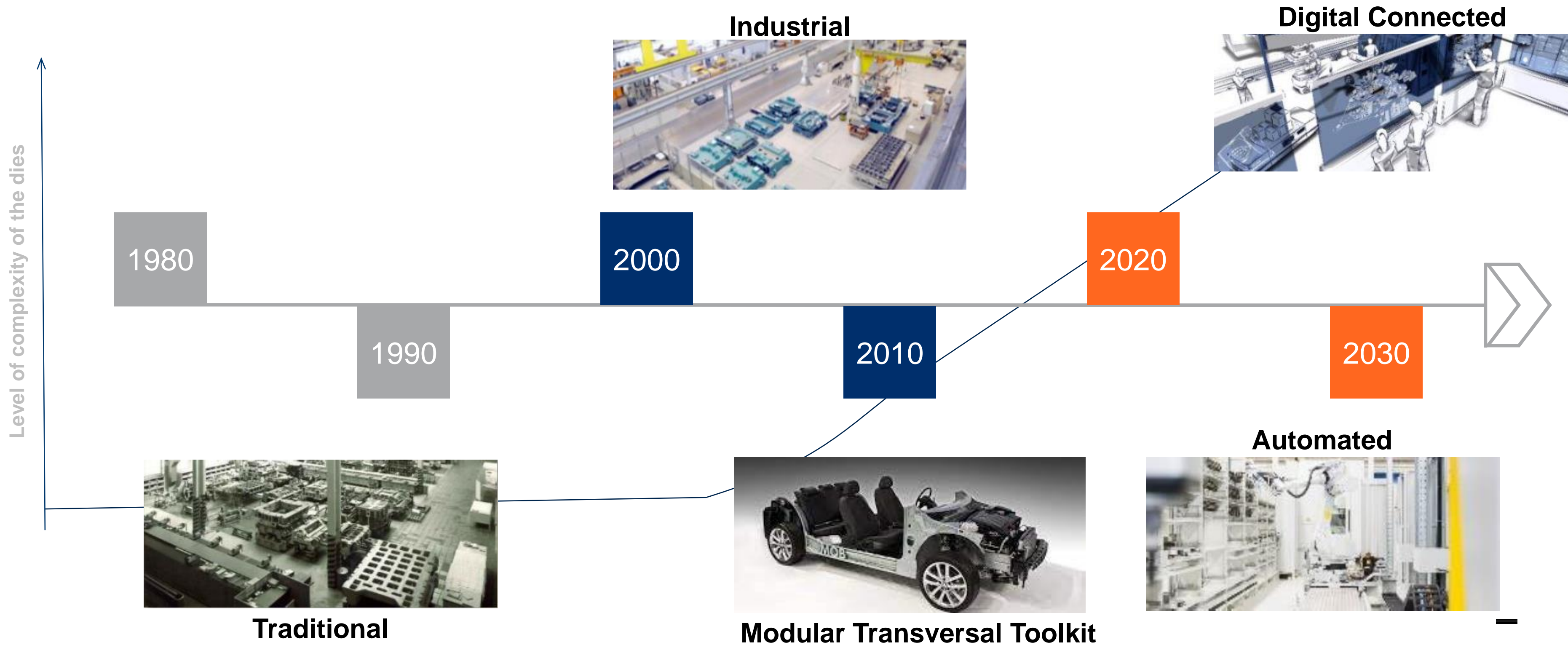
BLOCKED FUNCTION



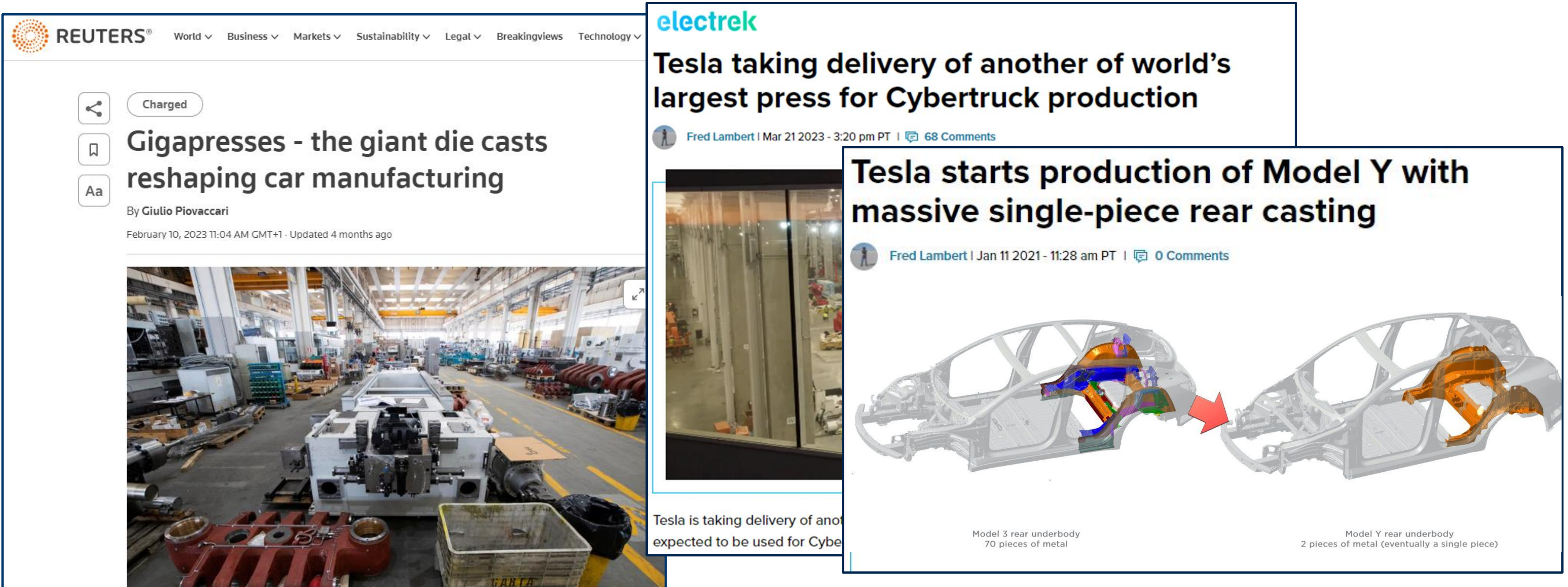
HYDROCAM EXAMPLE



HISTORY OF TOOL AND DIE SHOP



DIE CONCEPTS – BEGINNING OF INDUSTRIAL REVOLUTION



REUTERS® World Business Markets Sustainability Legal Breakingviews Technology

Charged

Gigapresses - the giant die casts reshaping car manufacturing

By Giulio Piovaccari
February 10, 2023 11:04 AM GMT+1 · Updated 4 months ago

electrek

Tesla taking delivery of another of world's largest press for Cybertruck production

Fred Lambert | Mar 21 2023 - 3:20 pm PT | 68 Comments

Tesla starts production of Model Y with massive single-piece rear casting

Fred Lambert | Jan 11 2021 - 11:28 am PT | 0 Comments

Model 3 rear underbody
70 pieces of metal

Model Y rear underbody
2 pieces of metal (eventually a single piece)

**Example Of A Technology For The Possibility Of Widely Change
The Established Production Value Chain**



DIE CONCEPTS – BEGINNING OF INDUSTRIAL REVOLUTION

Conventional necessary production steps

MULTI FUNCTIONAL DIE



Example Of A Technology For The Possibility Of Getting Implemented In The Already Existing Value Stream

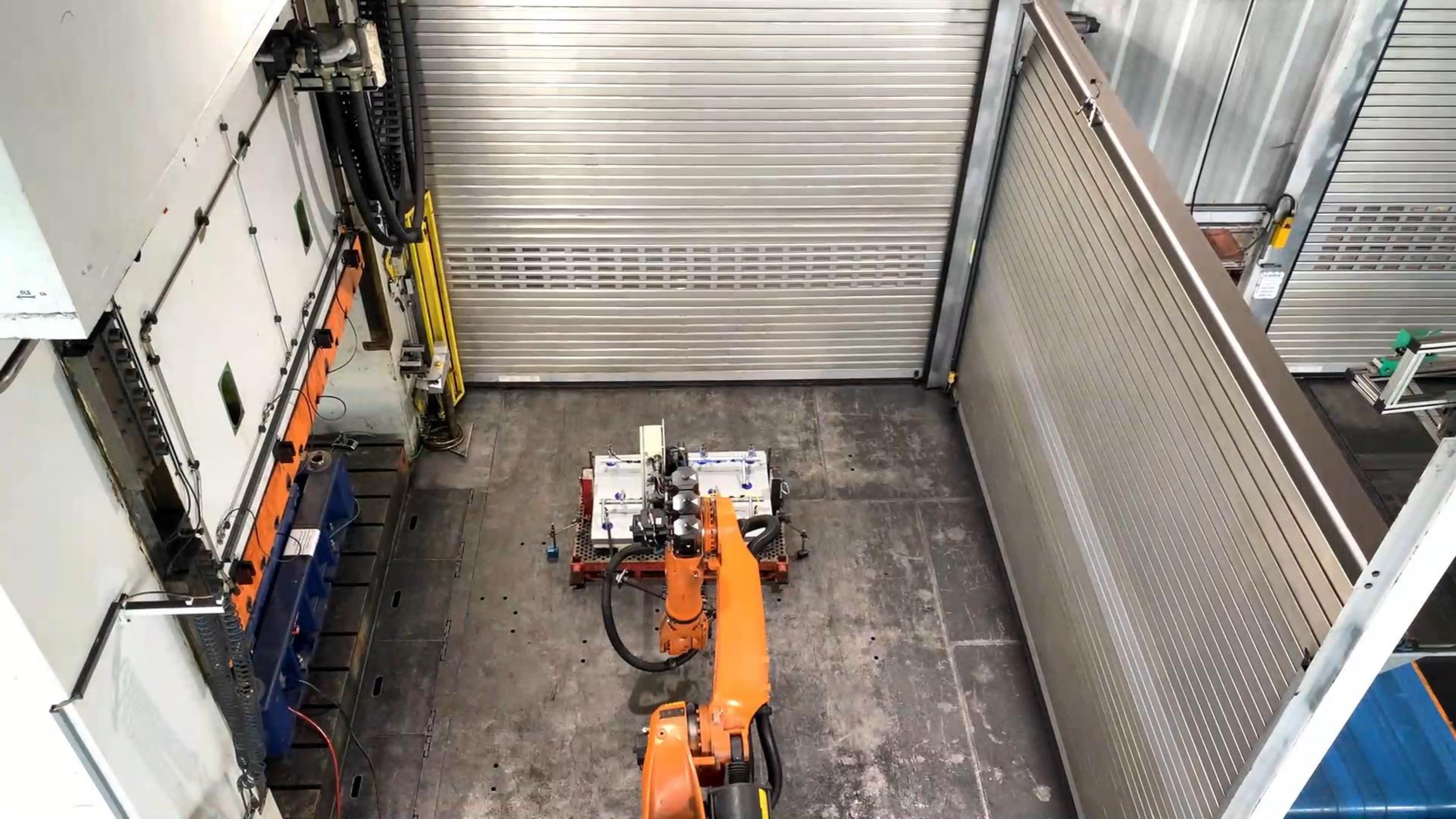
MULTI FUNCTIONAL DIE – FACTS



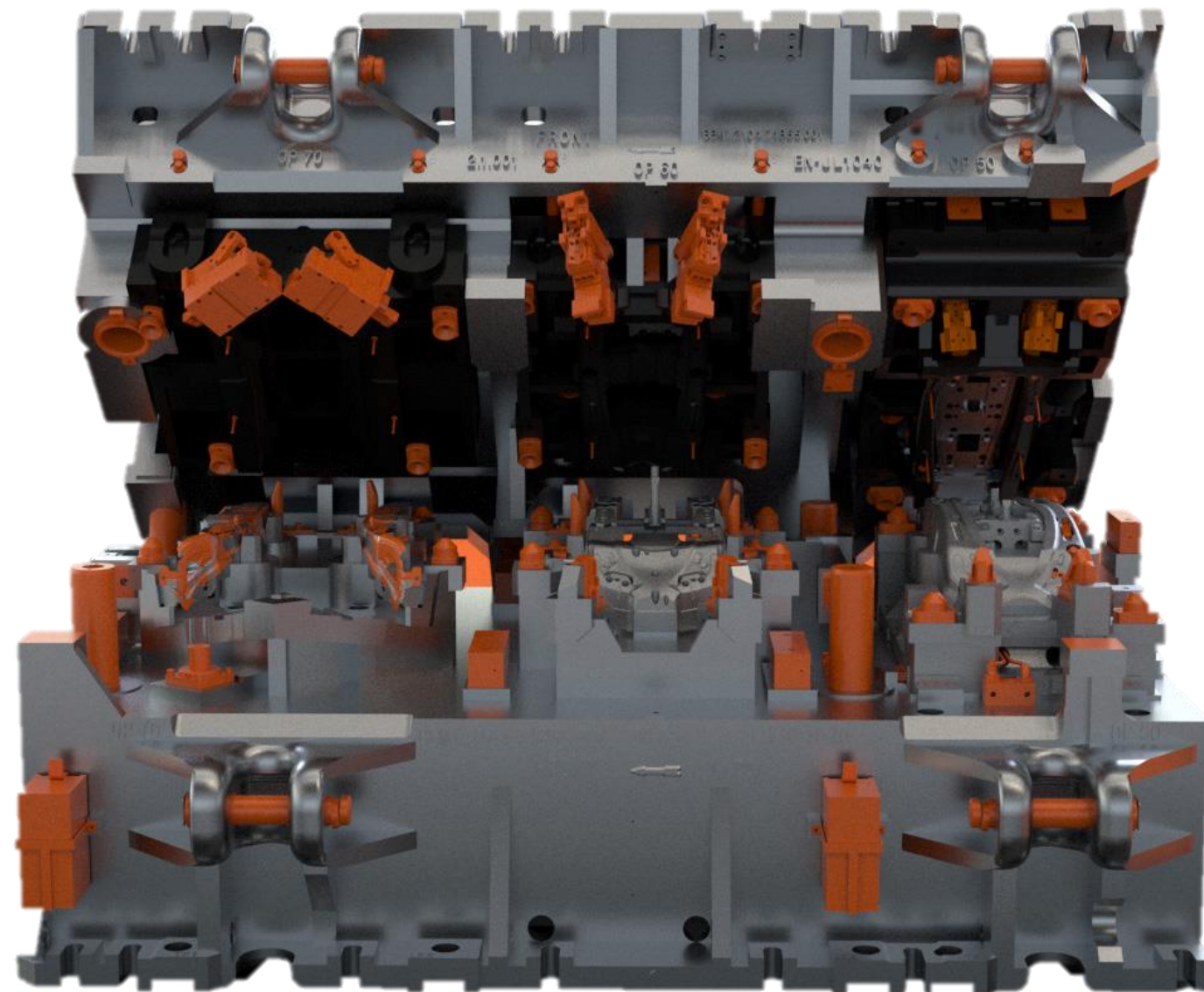
- Original geometric **door exterior trim W213** with **sophisticated features**
- **Development of part-specific solutions FEM simulation, tool design, tool making**
- **Comprehensive condition monitoring of gas springs with FIBRO-WPM system**
- **Demonstration runs under series production conditions at the LÄPPLE press shop in Heilbronn, Germany.**
- **Various customer components currently in feasibility studies**

Development Project Of LÄPPLE Automotive In Cooperation With FIBRO And The Tool Shop

FMF

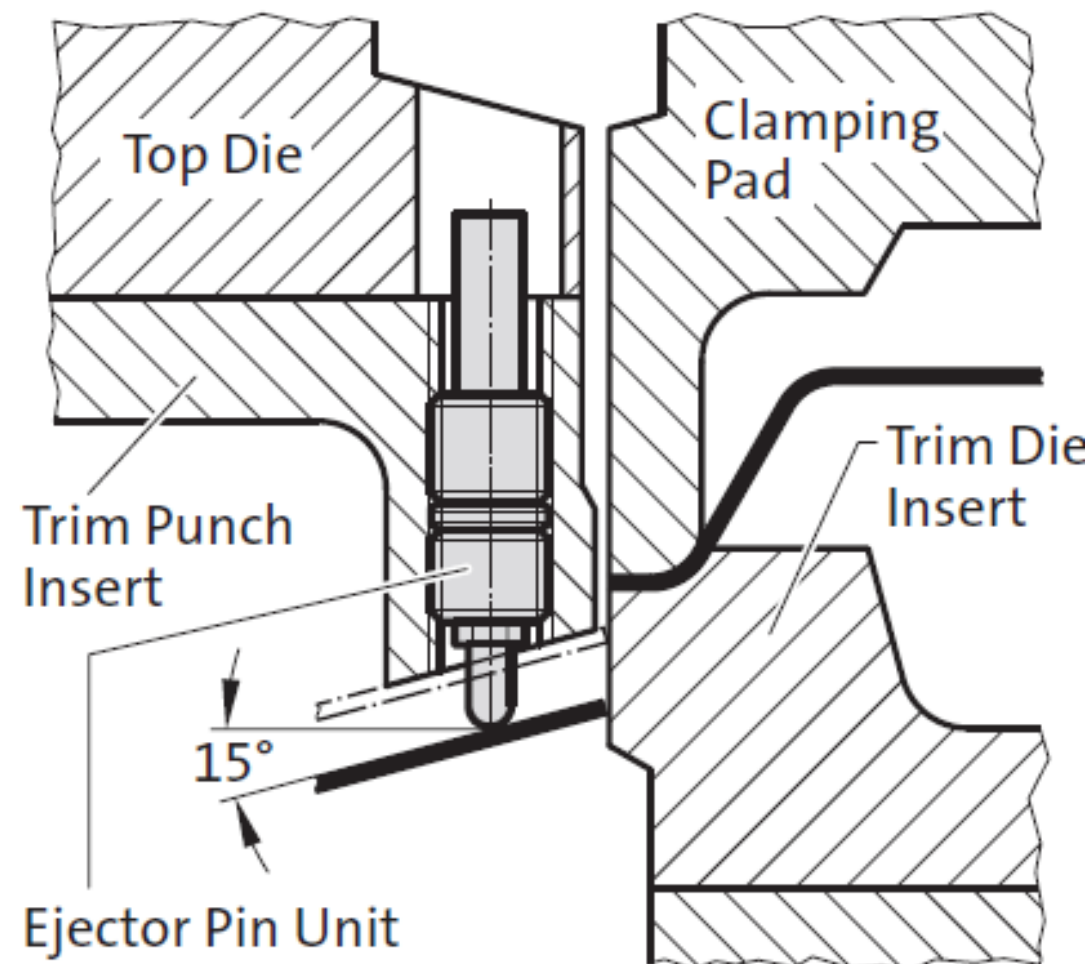


EXTRACT OF PROBLEM SOLVER



The Smaller The Cause Of An Error, The Greater The Annoyance

PROBLEM SOLVERS SPRING PLUNGER FOR SIDE LOADS



15° LATERAL
LOAD

FLEXIBILITY

PLANNABLE
PRODUCTION
PROCESS

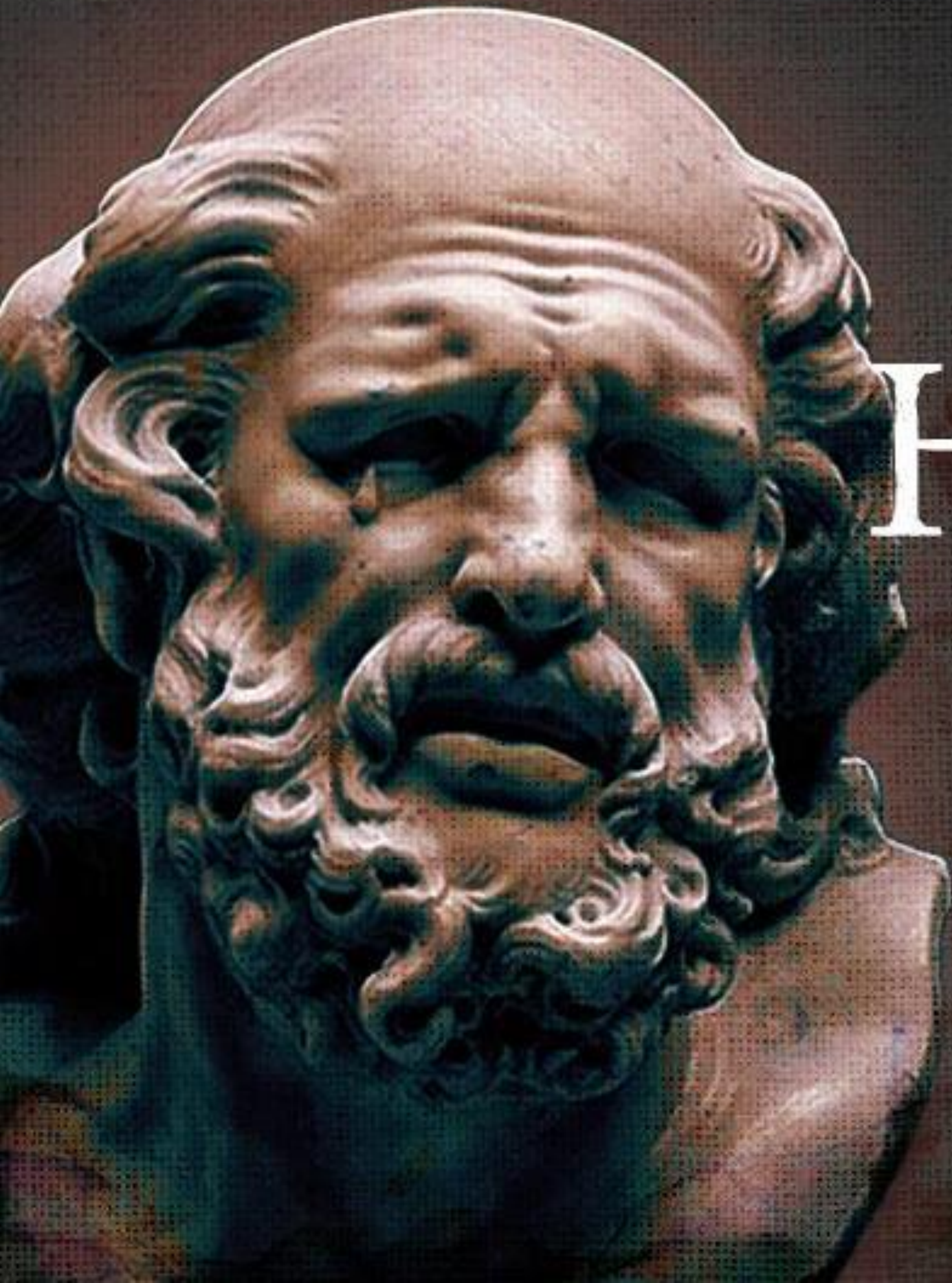
- Simpler design as **load capacity increased from 0° to 15**
- Enables a **wide range of applications** due to stroke lengths up to 30mm
- **No bolt breakage** due to the use of high-performance plastic with metallic additives
- **Lowest maintenance** due to almost no wear

PROBLEM SOLVERS DAMPING ELEMENTS



- No consideration of the **performance** levels at standard parts when using **servo presses** with dynamic return stroke speed

- **Prevention of unplanned production downtime** and **consequential damage** due to breaking blank holder retainer screws



HERACLITUS

OF EPHESUS

**“NOTHING IS PERMANENT
BUT CHANGE!”**



Contact: Indian Sales
Team



Contact: Steffen



WE LOVE TECHNOLOGY