

TEAMING UP FOR A JOINT JOURNEY

FROM A PROCESS-DRIVEN  
MANUFACTURING TO AN  
INTEGRATED TOOL & DIE SHOP  
IN AN INDUSTRIAL NETWORK

A LARGE-SIZE MOULD MANUFACTURING  
AT A MAJOR AUTOMOTIVE COMPANY

 **JOBS**  
keen on innovation

# IT ALL BEGINS WITH ENVISIONING THE FUTURE PRODUCTION SYSTEM

In order to keep up in global competition, our customer relies on a new toolmaking system based on four pillars.

## Salient traits

### PROCESS-DRIVEN STRUCTURE

- *The project schedules drive the tool production cycle*
- *From block- to flow-line production – quality improvement through precision – in order to support time-to-market*
- *Everything moves in the direction of tool assembly – »Fishbone principle«*

### LEAN PROCESSES

- *Avoid waste – 24/7 with highest efficiency is the ideal goal*

### GLOBAL NETWORK

- *Horizontal: in order to integrate internal and external added value processes*
- *Vertical: integrating engineering and manufacturing processes*

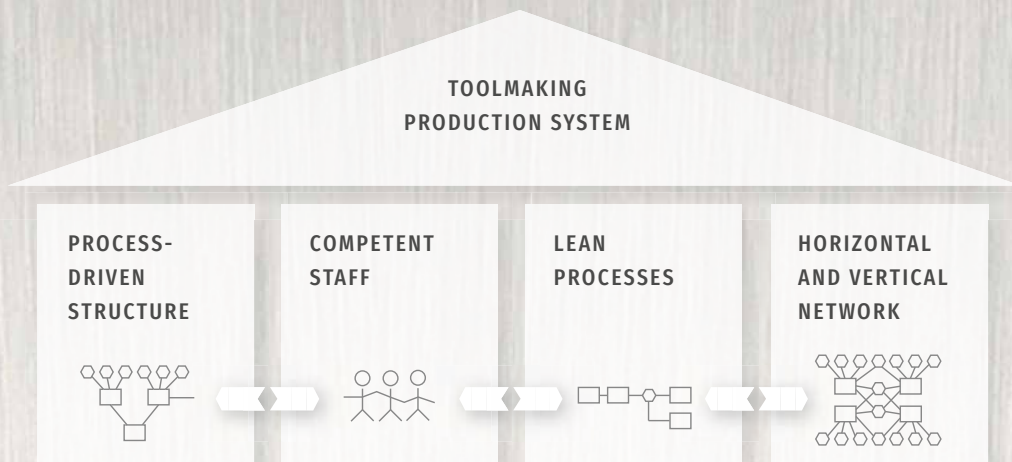
## Common Goals

*for tool & die manufacturer and machine-tool supplier*

- *Outstanding precision, high surface-quality*
- *Amend flexibility – in order to reduce the lead-time and support time-to-market for new car-projects*
- *High reliability and availability >80% round the clock*
- *Competitive cost-structure in a global tool & die network*
- *Outstanding service*

Essential to meeting Common Goals that are established are through **well trained employees** who demonstrate the passion for the business.

# TOOLMAKING PRODUCTION SYSTEM



**JOBS FOCUSES  
ON IMPLEMENTING  
YOUR VISION**



**JOBS DEVELOPS THE BEST MANUFACTURING EQUIPMENT AND PROVIDES THE BEST RESULTS**

# THE PROCESS STEPS HAVE TO BE SYNCHRONIZED AND INTERCONNECTED

## **1. Simulation/Method planning**

»Simulation demonstrate manufacturability« – reduction of changes.

## **2. Tool & die design**

is based on efficient geometrical data processing.

Efficiency is increased by

- Integrated use of digital tools, simulation and tool & die design
- Integrated CAx process chain
- Design tolerances that are compliant with the assembly and production requirements
- Functional hubs for material- and press-suppliers

## **3. Tool & die shop planning**

and control is based on

- Transparent capacity planning
- Integrated planning and control network
- Integration of supplier network

## **4. Manufacturing**

is focused on

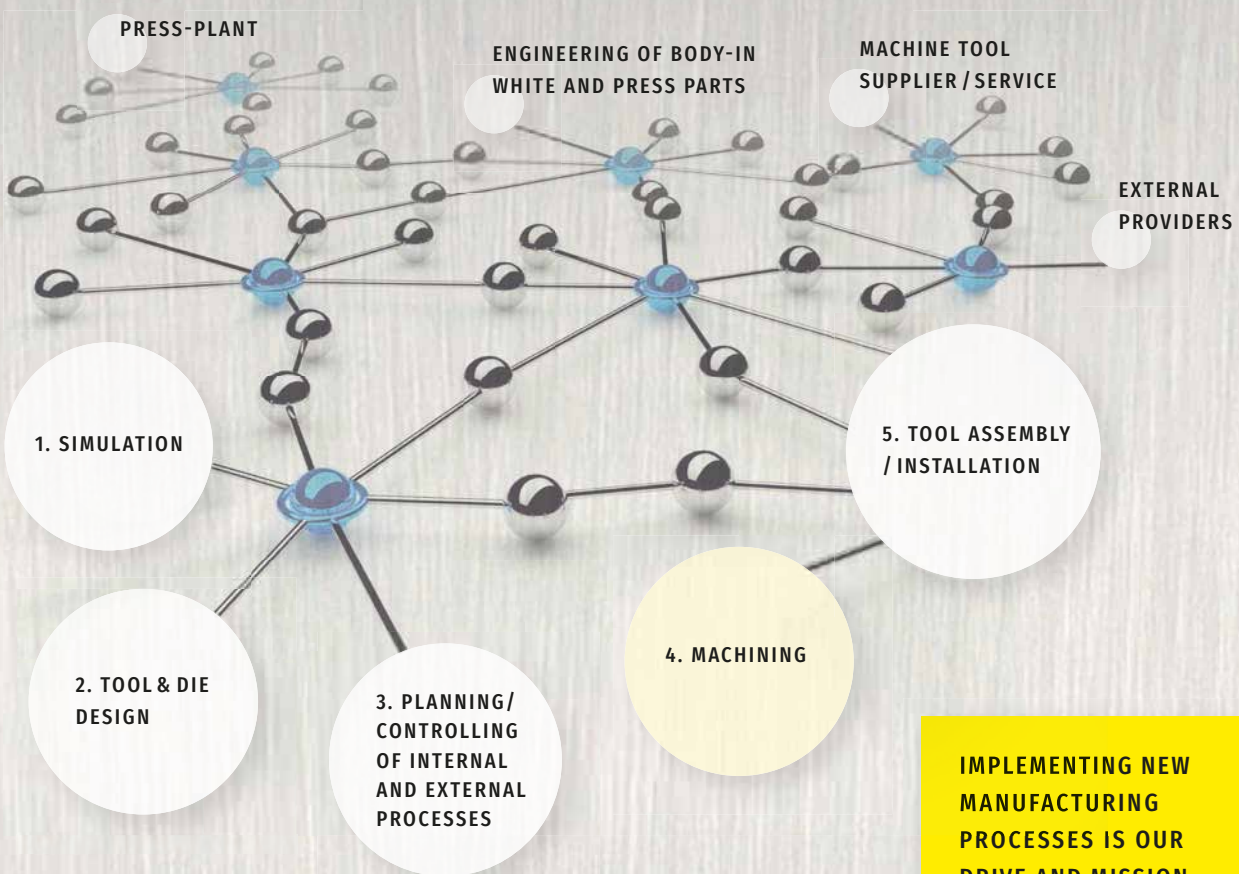
- Increasing the degree of automation by means of pallet systems and robotic handling units
- Integrating new technologies in the machine tool
- Standardized data analysis and programming
- Higher degree of freedom for car-body and tool design

## **5. Tool assembly**

follows these principles

- One-touch strategy
- No finish machining after assembly
- Flow line tool assembly

# PROCESS STEPS



**IMPLEMENTING NEW  
MANUFACTURING  
PROCESSES IS OUR  
DRIVE AND MISSION**







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## MAIN HIGHLIGHTS

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STIFF MACHINE FOR ROUGHING USING CROSSBEAM STRUCTURE WITH MULTI-TRIANGLE SECTION ENSURING HIGH RIGIDITY

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HIGH DYNAMICS FOR FINISHING THROUGH INNOVATIVE MECHANICS AND KINEMATICS: ACCELERATION UP TO 3 M/SEC<sup>2</sup>, FEEDRATE 32 M/MIN

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HEADS THERMO-STABILITY WITH WATER COOLING

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FULLY AUTOMATIC HEAD CHANGE SYSTEM

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MAIN SPINDLE MOTOR WITHOUT GEARBOX

JOBS PROVIDES YOU  
WITH THE BEST  
SYSTEM SOLUTION

# BEST SYSTEM SOLUTION

## CUSTOMER SPECIFIC FEATURES

*In order to offer our customer a tailored solution matching their various needs, we provided our designers with a thorough specification sheet. The most important items are listed adjacent. The four Jobs machines were individually configured for the three different sites they are located at, matching the varying application requirements.*

*Furthermore, we developed and installed a Laser Speeder machine equipped with the newest laser technology to repair large tools. It provides an excellent rapid repair solution and provides the integration of late product-changes into the tool & die manufacturing process.*

- 1 WORKING TRAVEL X 6.000 (7.000) Y 4.000 Z 1.500 MM**
- 2 U-SHAPE CONCRETE FOUNDATION**
- 3 PALLET 5.000 x 2.500 WITH 35 TON LOAD CAPACITY**
- 4 ADDITIONAL PALLET 5.000 x 2.500 MM**
- 5 RAIL SYSTEM EXTENSION**
- 6 LATERAL MAGAZINE FOR 4 HEADS**
- 7 96-PLACE TOOL CHANGER FOR HSK-A-100 AND HSK-A-63**
- 8 ENVIRONMENTAL SUSTAINABILITY**
- 9 CNC HEIDENHAIN ITNC530 HSCI**
- 10 MINIMUM QUANTITY LUBRICATION SYSTEM (MQL)**
- 11 MAINTENANCE FRIENDLY QUICK SPINDLE CHANGE**
- 12 CAMERA MONITORING SYSTEM**
- 13 SENSORS FOR VIBRATION CAPTURE**
- 14 M&H DIGITAL MEASURING PROBE**
- 15 BLUM LASER FOR TOOL MEASURING AND BREAK DETECTION**







IN A JOINT PROCESS  
WITH A BAVARIAN  
AUTOMAKER, THESE  
FEATURES WERE IN-  
TEGRATED INTO THE  
MACHINE CONCEPT

# FULLY AUTOMATIC PALLET CHANGE

*A pallet system is used to handle the drawing dies. The maximum load of the pallets is maximum 35 tons.*

*With the pallet-changer we gain benefits like:*

- Increased machine utilization*
- Off line tooling setup*
- Centralized part Load and Unload with reducing the work in process*
- Easy handling of heavy loads and allowing ideal work flow in and out of the cell*







FULLY AUTOMATIC  
PALLET CHANGE



# FULLY AUTOMATIC HEAD CHANGE

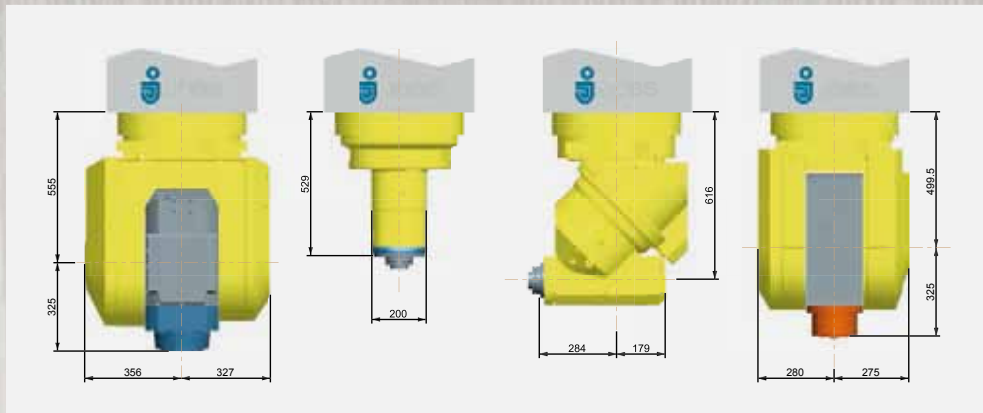
*The automatic head change system provides for in-process use of different heads. This allows roughing and finishing operations with the same machine.*

*The benefits this feature provides:*

- Ability to start a part and finish the part in a single setup machining operation*
- Provides best cutting performance and reduction in cycle time*
- Reduces part handling and reduces work in process*
- Reduces capital investment requirements*



## THE IDEAL HEAD FOR EVERY MACHINING PROCESS



FORK HEAD  
WITH MOTOR  
SPINDLE

STRAIGHT  
SPINDLE HEAD

MECHANICAL  
UNIVERSAL HEAD

HSC FORK HEAD

FULLY AUTOMATIC  
HEAD CHANGE

# LASER SPEEDER

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**LASER SPEEDER IS THE FIRST MACHINE SPECIFICALLY DEVELOPED BY JOBS FOR REPAIRING LARGE DRAWING DIES AT A BAVARIAN AUTOMAKER. IT USES AN ADDITIVE TECHNOLOGY BASED ON POWDER CLADDING AND HARDENING TECHNOLOGY.**

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*Laser beam cladding is a technology developed in order to apply wear-free layers on mechanical parts. Besides repairing molds and dies, this process is suitable for the development of any desired 3D geometry. The head change is a very simple process: by changing some components, the machine switches from hardening to cladding by means of disposing more powder.*

*The benefits of this process are:*

- Manages design changes easily during the manufacturing process*
- Lowers material and machining costs by providing near net shape buildup over solid part machining*
- Allows simple repair without major rework*

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**AND THESE ARE THE TECHNOLOGIES THAT WILL BE INTEGRATED INTO OUR MACHINES NEXT**



**PEENING**



**LASER HARDENING AND WELDING**



LASERTEC

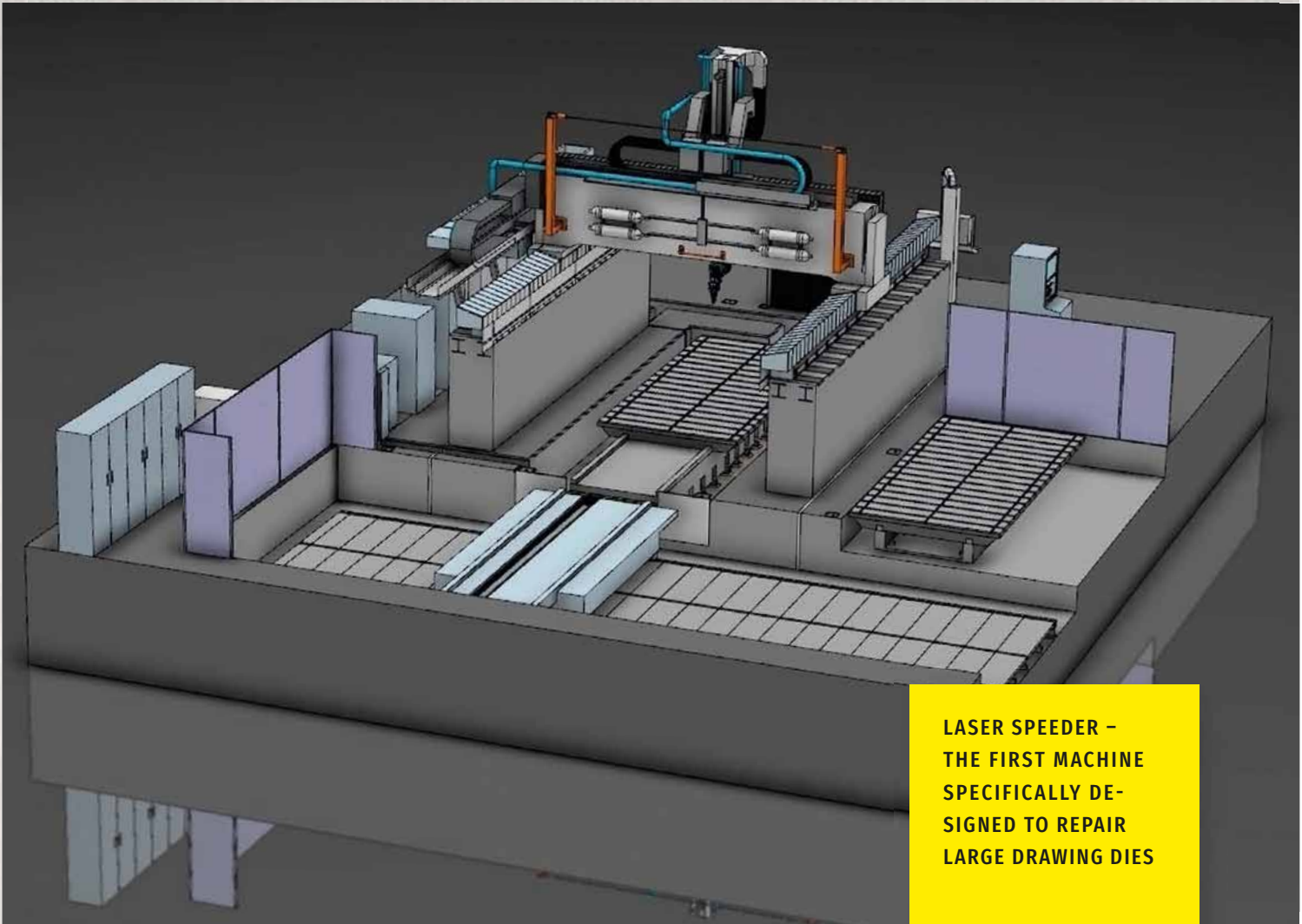
NEW LASER TECHNOLOGY – ADDITIVE MANUFACTURING



CLADDING

HARDENING

MEASURING



**LASER SPEEDER –  
THE FIRST MACHINE  
SPECIFICALLY DE-  
SIGN TO REPAIR  
LARGE DRAWING DIES**

# EFFICIENCY. PARTNERSHIP PAYS OFF

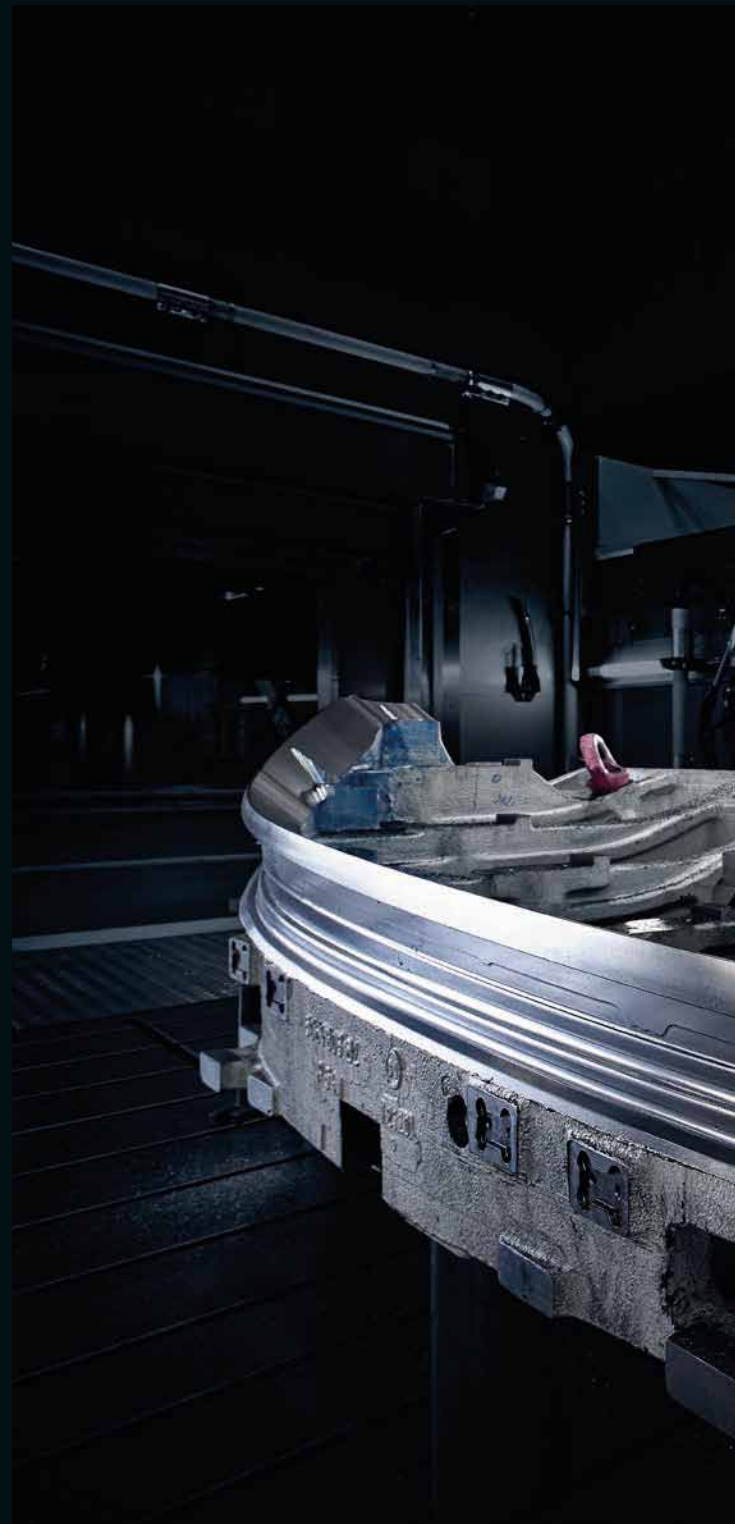
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## INDUSTRY 4.0 METHODS AND SYSTEMS WILL HELP MAINTAINING A GOOD PART- NERSHIP DURING THE ENTIRE MACHINE LIFE-CYCLE

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*After several months of work, our client confirms that our systems excellently meet all their requirements. What especially stands out is the robustness of the machines, the effective tool and head change and the high machining flexibility. This was due to an intensive partnership during the design and configuration of the machine.*

*The next steps will include the implementation of a digital network to gather machine data in order to establish a service network, preventive maintenance and more.*





**OUR CUSTOMER  
CONFIRMS THAT JOBS'  
SYSTEMS MEET ALL  
THEIR REQUIREMENTS  
IDEALLY**



WHEN WILL YOUR VISION  
BECOME REALITY?





**TO MAKE A VISION  
COME TRUE, YOU NEED  
COURAGE AND STRONG  
PARTNERS.  
PLAN WITH JOBS.**

**JOBS – A MEMBER OF  
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**WE HAVE THE KNOWLEDGE AND AS WELL THE COURAGE  
AND STRENGTHEN TO REALIZE YOUR VISION**



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**FFG DMC**

**SK**

**FEELER - COSMOS**

**Pfiffner**

**JOBS**

**SACHMAN**

**RAMBAUDI**

**SIGMA**

**HÜLLER HILLE  
DIEDESHEIM**

**HESSAPP**

**MODUL**

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