

The background of the slide features a dark blue industrial scene with a prominent orange robotic arm in the foreground. The arm is positioned over a complex mechanical assembly. In the background, there are more industrial structures and a large window showing a factory interior. Overlaid on the left side is a vertical stream of binary code (0s and 1s) in a light blue color. The top of the image is decorated with a network of glowing blue dots connected by thin lines, resembling a molecular or digital structure.

# Bosch Manufacturing Solutions | BMG

Sales presentation as of 01.2025

A decorative header featuring a series of overlapping, colorful geometric shapes (triangles and polygons) in shades of red, purple, blue, and green, creating a modern, abstract pattern.

# The Bosch Group

Corporate presentation as of 10.2024



# Invented for life



# Who we are

## Our company in figures

In 2023



91.6

billion euros  
sales revenue



4.8

billion euros EBIT  
from operations



429,400

Bosch associates  
worldwide at year-end  
(approx.)



470

subsidiaries and regional  
companies (approx.) in  
more than **60** countries

# Who we are

## Our business sectors



**Mobility**



**Industrial Technology**



**Energy and Building  
Technology**



**Consumer Goods**

# Who we are

## Industrial Technology



As a pioneer in the domain of connected industry, Bosch is a leading supplier of software, systems, and components for a wide variety of manufacturing and logistics applications.

# Who we are

## Industrial Technology

In 2023



8%

share of Bosch  
Group sales



7.4

billion euros  
sales revenue



35,700

associates  
(approx.)

# Who we are

## Industrial Technology



### Drive and Control Technology

- Mobile Hydraulics
- Machinery Applications
- Factory Automation

### Bosch Manufacturing Solutions

- Production equipment & automation: special purpose machinery
- Individual assembly and testing systems
- advanced manufacturing processes and technologies
- digital & intelligent solutions and services along entire product lifecycle

### Bosch Connected Industry

- Production & logistics software from a single source

# Who we are

## Industrial Technology



## Drive and Control Technology

- Mobile Hydraulics
- Machinery Applications
- Factory Automation

## Bosch Manufacturing Solutions

- Production equipment & automation: special purpose machinery
- Individual assembly and testing systems
- advanced manufacturing processes and technologies
- digital & intelligent solutions and services along entire product lifecycle

## Bosch Connected Industry

- Production & logistics software from a single source

# BMG | who we are

Bosch Manufacturing Solutions | BMG –

**Global industrialization partner & turnkey special machinery provider for production equipment & automation**



> 30 years of experience as special machinery supplier



> 4.000 assembly & testing systems  
> 10.000 small & services projects



Automation level adjustable,  
semi- to fully automated solutions



Digital planning & process to digital  
engineering & i4.0 applications

**>17**  
Locations



Full-liner  
**portfolio**



Several  
industries &  
product areas



**1.900**  
Employees



**~680**  
TNS m€



# BMG | our purpose statement

## The difference in manufacturing



For us, ‘**Invented for life**’ means to build a **more sustainable future** through production equipment by Bosch Manufacturing Solutions.

We create a difference in our customers’ products by offering “**the difference in manufacturing**”

# BMG | our portfolio

## Customized assembly & testing systems

Global industrialization partner & turnkey special machinery provider for production equipment & automation, offering

## Customized assembly & testing systems

empowered by ...



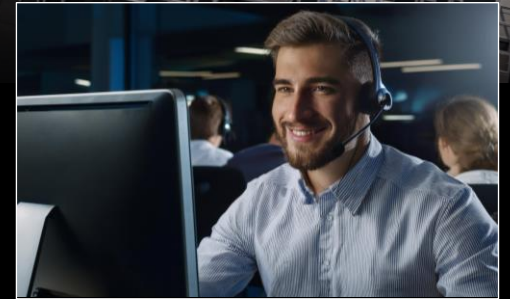
**Engineering Consulting  
& Digital Engineering**



**Advanced Manufacturing  
Processes & Technologies**

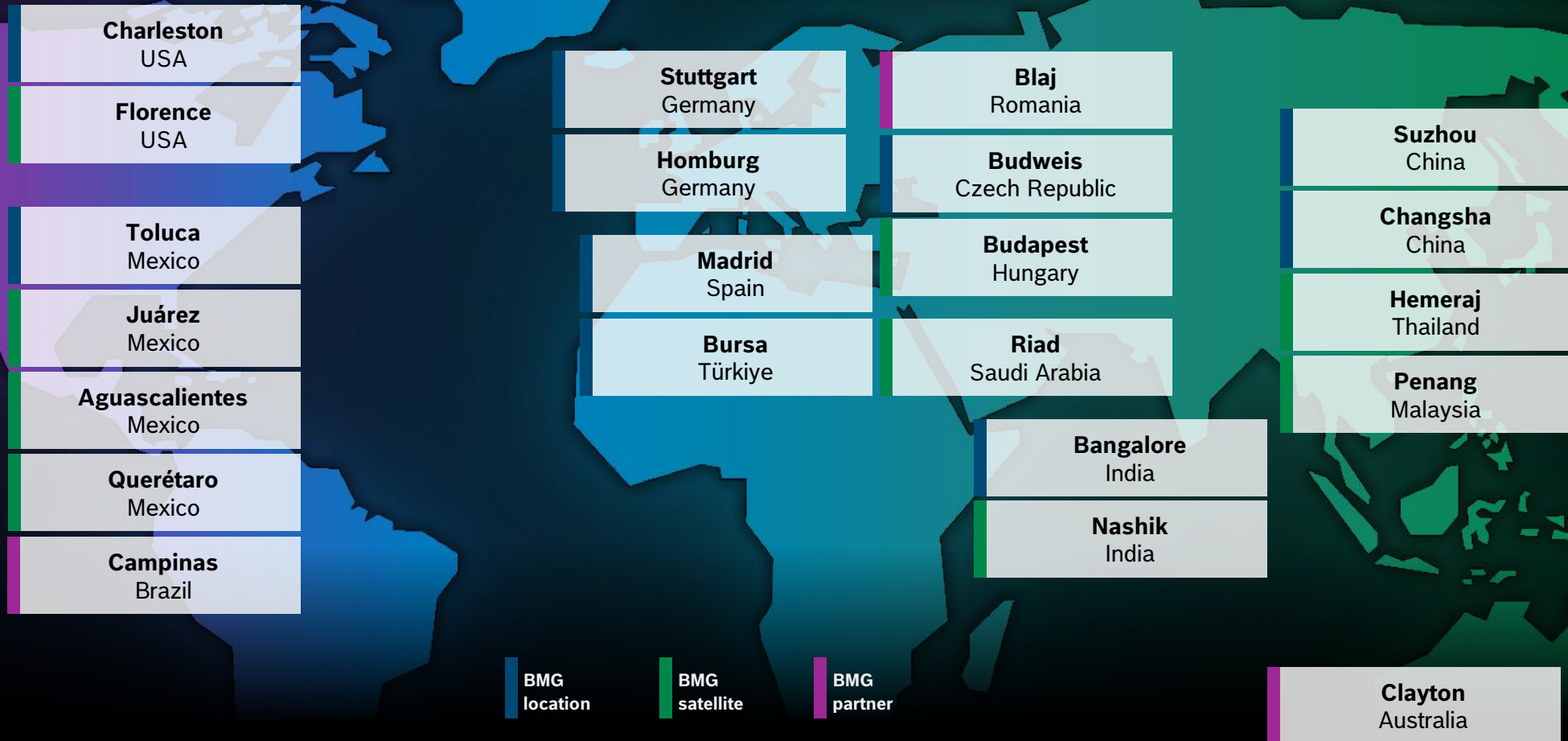


**Digital & Intelligent  
Solutions**



**Services along the entire  
product lifecycle**

# BMG | global strength in network & partners



# BMG | focus industries & product areas

## Focus industries



eMobility



Automotive (ICE)



Energy



Consumer Goods

## Focus product areas



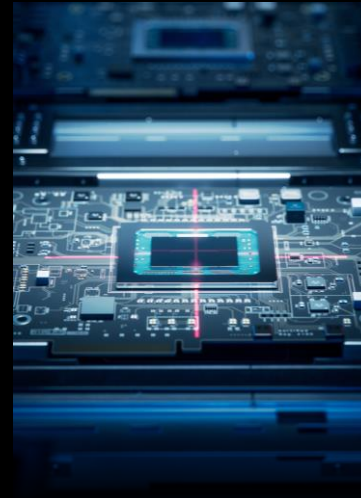
Battery



H2 Solutions / Fuel  
Cell



eDrive



Sensors &  
Electronics



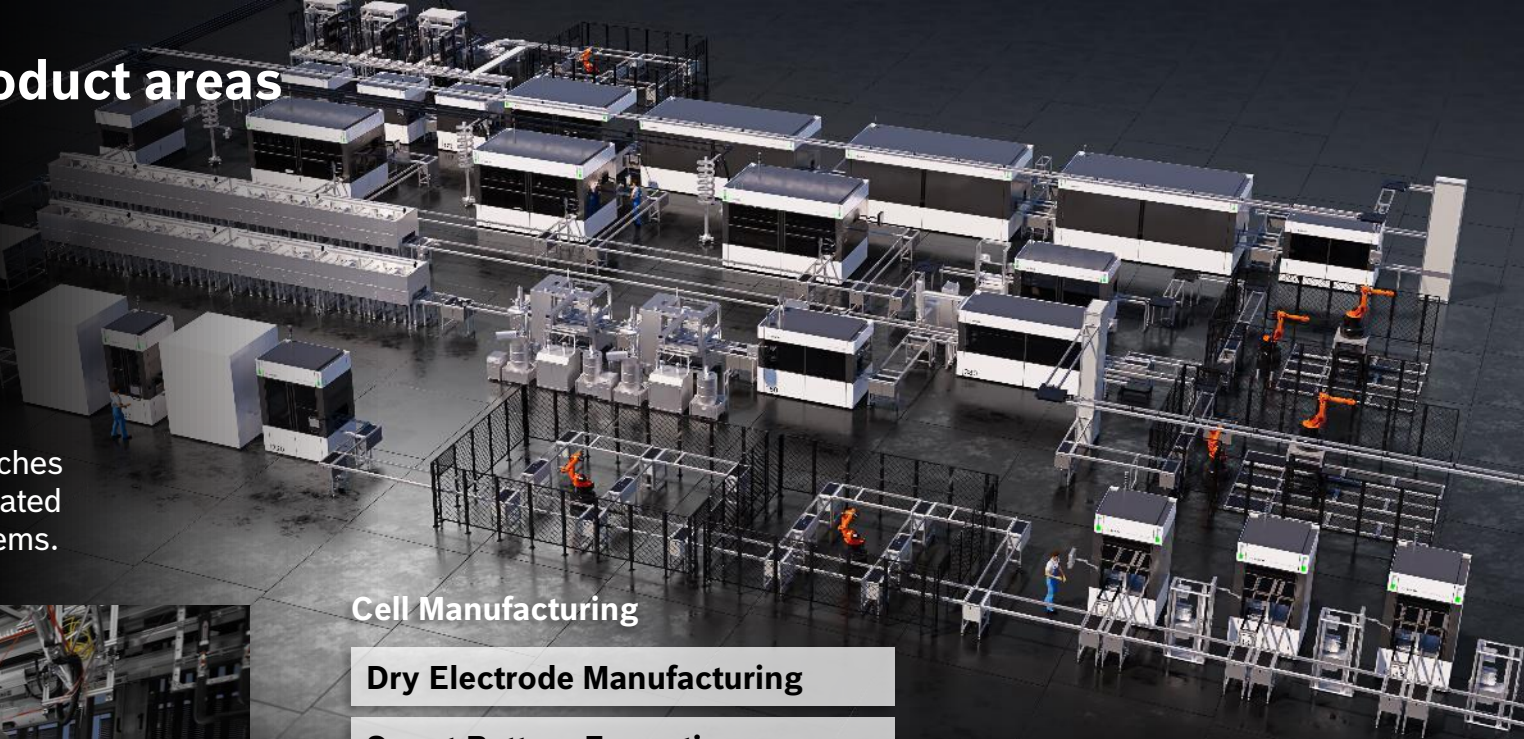
Chassis & Steering



Combustion Engine

# Stay charged

with battery production equipment from Bosch Manufacturing Solutions | BMG. Our expertise reaches from cell production technologies up to fully automated and intelligent Cell to X assembly and testing systems.



## Cell Manufacturing

Dry Electrode Manufacturing

Smart Battery Formation

## Cell to X Manufacturing

Cell Supply

Cell Cleaning

Begin & End of Line Testing

Dispensing

Resistance Welding

Laser Welding

Machine Vision

Leakage Testing

# Driving mobility

with innovative eDrive production equipment from Bosch Manufacturing Solutions | BMG. Our expertise ranges from various winding technologies such as Hair-Pin, I-Pin, X-Pin, for all vehicle classes, to individual line concepts from semi to fully automated, including AI based solutions for increased efficiency.



## eDrive – some process highlights

Handling & Robotics

Twisting

Laser Welding

Separating & Cutting

Clamping

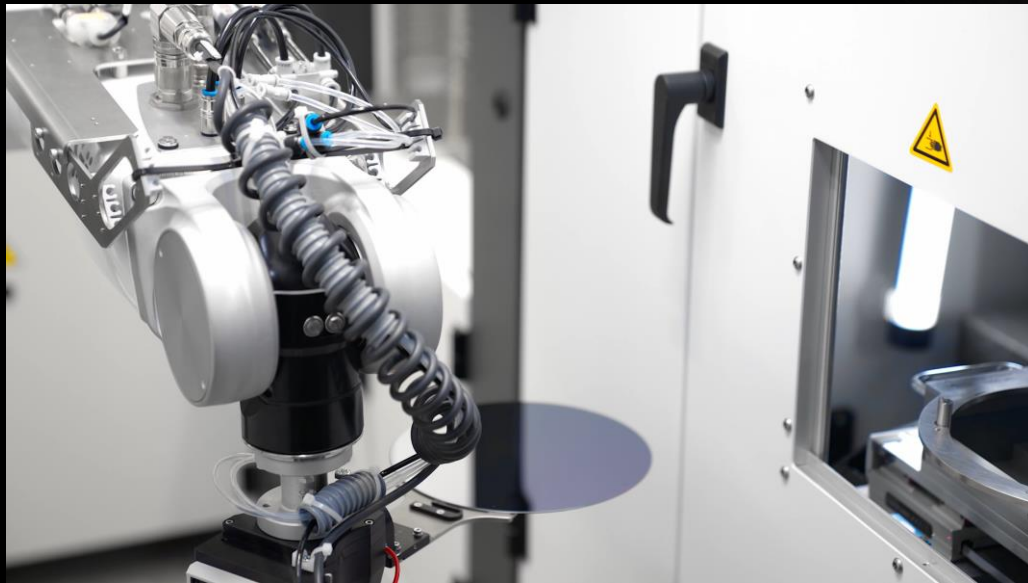
Optical Inspection: Post Vision

Parameter Identification (PI) Testing

Further ...

# Unleash power

with sensors & electronics production equipment from Bosch Manufacturing Solutions | BMG. We provide flexible assembly technology for ECUs, power electronics, and sensors, mainly in eMobility. Our scalable solutions optimize investments and adapt to variable production volumes.



## Sensors & Electronics – some insights

**Flexfoil Handling**

**Laser Welding of Electrical Connections**

**Laser Micro Structuring**

**Laser Cleaning**

**Dispensing**

**Screwing**

**Pressfit & Single Pin Insertion**

**Optical Inspection**

**Magnetic Conveyor System**

# From Water to Energy –

empower your sustainable future with H<sub>2</sub> solutions by Bosch Manufacturing Solutions | BMG, in the area of water purification & electrolysis, fuel cell assembly & testing as well as power generation.



H2 & Fuel Cell

Water Purification

Electrolysis

PEMFC Solutions

FCPM Solutions

SOFC Solutions

# BMG | our portfolio

## Customized assembly & testing systems

Global industrialization partner & turnkey special machinery provider for production equipment & automation, offering

## Customized assembly & testing systems

empowered by ...



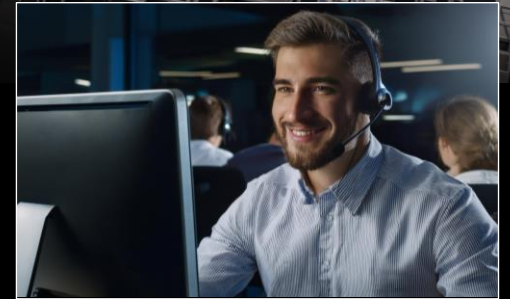
**Engineering Consulting  
& Digital Engineering**



**Advanced Manufacturing  
Processes & Technologies**



**Digital & Intelligent  
Solutions**



**Services along the entire  
product lifecycle**

# BMG | our portfolio

## Customized assembly & testing systems

## Customized assembly & testing systems

empowered by ...



### Engineering Consulting & Digital Engineering

- Engineering Consulting
- Seamless Digital Toolchain
- Model-Based Engineering
- Functional Machine Structure
- Field Data Leverage
- Mechatronic Modular Standards
- Material Flow Simulation
- Virtual Commissioning



### Advanced Manufacturing Processes & Technologies

- Handling, Robotic & Automation
- Measurement & Testing
- Optical Inspection
- Forming
- Laser Technology
- Joining
- Surface Technology
- Separating



### Digital & Intelligent Solutions

- System Connectivity
- Condition Monitoring & Alerting
- Data Analysis
- Prediction
- Intelligent Process Optimization
- Line & Shopfloor Solutions
- Hardware & Services



### Services along the entire product lifecycle

- Technical Support
- Modernization & Condition-based Services
- Engineering Services
- Spare Parts & Repairs
- Services Contracts

# Engineering Consulting & Digital Engineering



Engineering Consulting  
& Digital Engineering



Advanced Manufacturing  
Processes & Technologies



Digital & Intelligent  
Solutions



Services along the entire  
product lifecycle

# BMG | our portfolio

## Engineering Consulting & Digital Engineering

We support you with our experience already in **your SE work** - for **sustainable product design** that leads to **simpler and more cost-effective manufacturing equipment concepts**. Thanks to our **digital engineering**, we are able to simulate even before realization and thus check everything for feasibility and technical requirements.



### Seamless Digital Toolchain

- Automation of engineering tasks
- Bi-directional change management
- Highly efficient global collaboration



### Model-Based Engineering

- Line concept & material flow
- Kinematic sequences
- PLC software & MES connection



### Functional Machine Structure

- Structured requirement engineering
- One perspective for all domains
- Parallelized work



### Mechatronic Modular Standards

- Effective reuse in engineering
- Creators are provided right content at right time
- Exchange of standards across organizations



### Field Data Leverage

- Digital machine twins
- Product understanding and improvements
- Custom-tailored services



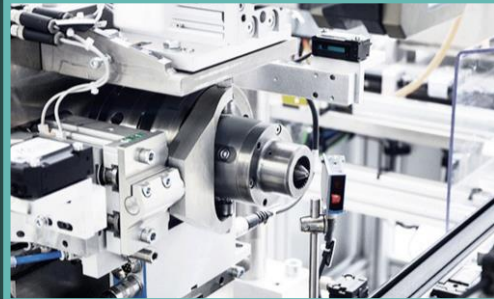
### Digital Solutions & Application on the Edge

- Real-time data processing
- Data aggregation & enrichment
- Powerful (AI) algorithms on the edge

# Manufacturing Processes & Technologies



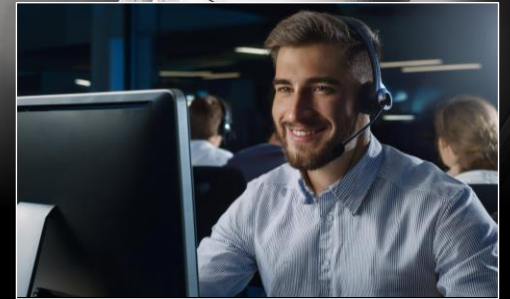
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Solutions



Services along the entire  
product lifecycle

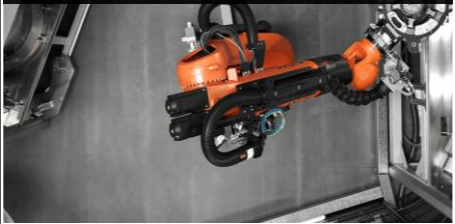
# BMG | our portfolio

## Manufacturing Processes & Technologies

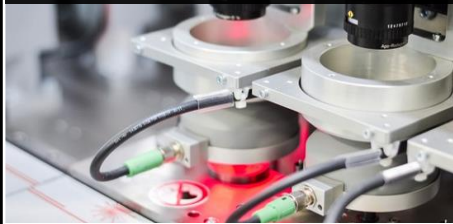
### Manufacturing Processes – innovative & intelligent.

Efficient solutions for demanding & customized applications

Handling, Robotic & Automation



Optical Inspection



Separating



Joining



Measurement & Testing



Laser Technology



Forming



Surface Technology



# BMG | our portfolio

## Manufacturing Processes & Technologies

### Manufacturing Processes – innovative & intelligent.

Efficient solutions for demanding & customized applications

#### Handling, Robotic & Automation

- Handling & Positioning
- Transfer, Transport & AGVs
- Robotics & Gripping
- Feeding, Clamping, Palletizing

#### Optical Inspection

- Assembly Guiding
- Process Control
- Quality Check End of Line / Inline

#### Separating

- Stripping / Skinning
- Cutting with undefined Edge (Internal Grinding & External Grinding)
- Balancing

#### Joining

- Resistance & keep welding
- Friction welding
- Ultrasonic welding
- Dispensing & gluing
- Tightening & screwing

#### Measurement & Testing

- Electrical Testing & Characterization
- Leakage, Gas & Pneumatic Testing

#### Laser Technology

- Laser Welding (on-the-fly)
- Laser Cutting
- Laser Drilling
- Laser Micro Structuring

#### Forming

- Twisting
- Bending
- Winding
- 3D Forming

#### Surface Technology

- Electro plating
- PVD coating
- Functional printing

# Digital & Intelligent Solutions



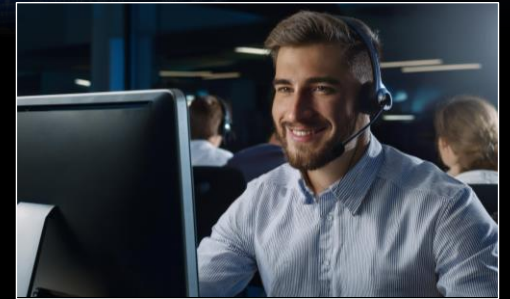
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& Digital Engineering**



**Advanced Manufacturing  
Processes & Technologies**



**Digital & Intelligent  
Solutions**



**Services along the entire  
product lifecycle**

# BMG | our portfolio

## Digital & Intelligent Solutions | IP Suite environment

Factory Network OS

Plant OS: e.g. Bosch Nexeed MES / IAS

### BMG intelligent production suite (IP Suite)



Condition Monitoring  
& Alerting



Data Analysis



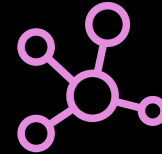
Prediction



Intelligent Process  
Optimization



Line & Shopfloor  
Solutions



System  
Connectivity

Hardware, Security, Documentation

Line, Machine, Process

Nexeed

Beckhoff

Mitsubishi

Siemens

Fanuc

CtrlX

...

BMG Consulting & Services

# BMG | our portfolio

## Digital & Intelligent Solutions | IP Suite modules overview

### BMG intelligent production suite (IP Suite)



#### Condition Monitoring & Alerting

Process Monitoring
Health Report
Cycle Time Assist
Cycle Time Analysis
uHMI (universal HMI)
Dolphin



#### Data Analysis

AI-based Anomaly Detection
AI-based Root Cause Analysis
MathEngine



#### Prediction

MathEngine
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#### Intelligent Process Optimization

PPO (Process Parameter Optimization)
MathEngine



#### Line & Shopfloor Solutions

DashCam (Event-based Video Monitoring)
KPI-Views / Digital Twin
MTS (Maintenance Ticket System)



#### System Connectivity

UMC (Universal Machine Connector)
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### Hardware, Security, Services & Documentation

Experience Share System (ESS)

EFA (Embedded Field Application)

Digital Manuals

# Services along entire product lifecycle



**Engineering Consulting  
& Digital Engineering**



**Advanced Manufacturing  
Processes & Technologies**



**Digital & Intelligent  
Solutions**



**Services along the entire  
product lifecycle**

# BMG | our portfolio

## Services along entire product lifecycle

With our comprehensive range of services, we ensure worldwide availability, fast response times, and flexible organization. We maintain consistent standards across all locations, providing you with local contacts for seamless support and efficient solutions wherever you are.



**Consulting Services & Services Contracts**



**Engineering Services**



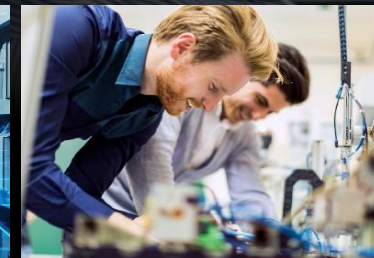
**Modernization & Condition-based Services**



**Technical Support**



**Spare parts & Repair Services**



**Training**