

From prototype to serial production

With external partner

From pre-engineering to high volume serial production & logistics

Concept

- Concept research
- Concept development
- Feasibility
- Project Evaluation
- Design Input

Prototype

- Initiation
- Planning
- Design phase
- Design Output
- Pilot studies
- Design freeze

Pre-Pilot

- Design review
- Manufacturing Process Development
- Process freeze
- Human safety, manufacturing studies

Pilot

- Prototypes
- Tools
- Additive production technologies

Pre-Engineering

- Part optimization
- Functional integration
- Part reduction
- Tolerance analysis
- Design for Manufacturing
- Simulations
- geometrical product dimensions and tolerances

Toolshop

- Tool design
- Tools – also prototype molds out of steel
- Tool assembly
- 2/3 Component IM
- Hot/cold runner
- Surface optimization
- Tool testing – own test centre
- High-cavity tools and tool optimization with high-speed camera analysis

Validation

- Tailor-made validation strategies
- FMEA
- DQ, IQ, OQ, PQ
- Documentation, DOE and Pro-Op
- Filling Studies
- Thermographical studies
- Polariscopical analysis

Injection Moulding

- Technical Thermoplastics
- Filled, magnetic and conductive plastics
- Production environment (ISO 7+ 8, analytes free)
- Multi component injection moulding (2k/3k)
- 40-300 tons
- Transparent IM (Lenses)

Handling

- 6-Achsis robots
- Linear handlings
- Cavities separation
- Integrated camera inspection
- Own handling tool-shop

Bonding

- Thermal bonding
- UV Glue Bonding
- Laser Bonding

Printing & Galvanization

- Plasma pre-treatment
- Multi colour
- Tampon print, hot stamping and laser print
- Technical galvanization
- Serialisation
- Conditioned production environments

Assembling

- Manual, semi-automatic, automatic
- Round transfer
- Module assembly
- Complete device assembly
- Functionalisation of substrates
- Liquid spotting (mikro), Lyo handling
- Bonding (Thermal, UV, Laser)
- Small and high-volume serial assembly

Packaging / Sterilisation

- Parts, modules, devices
- Tray and double bags
- Blister, Tyvek, labelling
- Sterilisation: Gamma, ETO, external service partner
- Traceability/UDI

Logistics

- Direct shipments
- Air freight handling (LBA certified), Sea freight
- Temperature controlled shipping
- Consignation stock management
- Stock management & EDI Exchange
- Global logistics services
- Customs clearance

Quality management

- Validation according to Medical Standard (IQ,OQ,PQ DOE etc.)
- Compliance with customer requirements
- GMP

Measuring technology

- Computertomographie CT (with local service provider)
- Roughness testers
- Tensile testing
- Optical testing
- Confocal Lasermicroscopic Testing

In Process Control (IPC)

- Series production 3-shift support
- Microscopic examination
- Measuring test (manual and automatic)
- Functional testing