

International System Integration

**Design & Engineering
Services**



Certifications

Regions	Sites	Quality	People & Environment				Medi-tech	Auto-motive	ESD		LAB	Explosives	Control Panels	Welding	
		ISO 9001	ISO 14001	OHSAS 18001	ISO 50001	TLS 8001	ISO 13485	IATF 16949	ANSI/ESD S20.20	ESD/IEC 61340-5-1	ISO 17025	ATEX 2014/34/EU	UL 508A	EN 3834	EN 15085
Asia	Electronics LK	✓	✓	✓											
	Electronics TH	✓	✓	✓		✓	✓		✓	✓	✓				
	Mechanics TH	✓	✓	✓		✓									
Europe	Cables AT (FRA)	✓	✓	✓			✓								
	Cables AT (ROT)	✓	✓	✓			✓								
	Electronics DK	✓	✓				✓				✓	✓			
	Mechanics DK	✓									*		✓	✓	
	Electronics DE	✓	✓	✓	✓			✓			✓				
	Cables SK	✓	✓	✓			✓								
	Electronics SK	✓	✓	✓											
	Electronics CH	✓	✓	✓			✓					✓			
	The Americas	Electronics MX	✓	✓				✓				**			

* IECEX

** INMETRO no. 179 (Ex Certificate of Conformity for Brazil)

Services

Design & Engineering

> Design

- > Feasibility
- > Specification
- > System design

> Application development

- > Project management
- > DFX - Design for Excellence
- > Software and hardware development
- > Design and construction

> Approvals

- > Coordination and support for certification (CE, Electrosuisse, VDE, TÜV, UL, CSA)

> Engineering specialisms:

- > High-frequency, radio and communication technology
- > Embedded-Software in C for 8 to 32-bit micro-controllers from microchip PIC to ARM A8
- > Power electronics in the low to one kilowatt range
- > Sensor technologies
- > For applications in extreme environments such as automotive production, defence technologies or potentially explosive atmospheres (ATEX)

New Product Introduction (NPI)

> Industrialisation phase (NPI): Optimisation for mass production

- > Specification of production-relevant data
- > Production technology optimisation (DFX)
- > Definition of test concept

> Prototyping for sample and pre-series at our European locations

Supply Chain Management

> Active supplier management and strategic partnerships with preferred suppliers worldwide

> Supplier evaluation and development programmes (Supplier Relationship Management & Supplier Performance Rating)

> Asian preferred supplier programme with local audits of Chinese market partners

> Materials supply chain assured through international materials sourcing

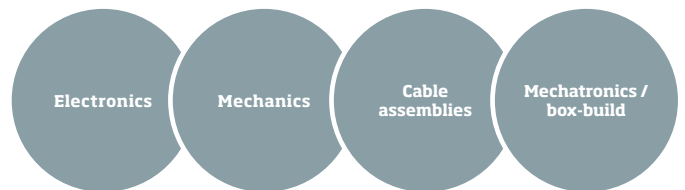
Overview

GPV supports its customers with products across the entire life cycle, whether it be individual PCBAs or complete devices.

- > **Complete devices or subassemblies: develop, produce, test and deliver**
- > **Mechatronics assembling: electronics, cables and mechanics**

With a global presence and strong local networks, we make our extensive know-how available to clients so as to produce sustainable solutions not just for the present, but well into the future.

Competencies



Industries



Cleantech



Instruments & Industry



Medtech



Transportation

Production

Manufacturing expertise in the areas of electronic components and assemblies (including in-house manufacturing of inductive components):

- > **29 SMT lines**
- > **Batch sizes from 1 to > 1 million**
- > **Conducting customer-specific tests (optical electrical and X-rays) and environmental simulations**
- > **Mechanics, subassemblies**
- > **Cable assemblies, wiring**
- > **Mechatronics (incl. devices and box-build)**
- > **Production compliant with IPC 610 Class 2 and 3**

Life Cycle Services

- > **Life Cycle Cost Monitoring:**
 - > Component engineering
 - > Production costs optimisation
 - > Obsolescence management and redesign
- > **After-Sales Services:**
 - > Repairs and spare parts management
 - > Software updates
- > **End-of-Life Services:**
 - > Waste management
 - > Certification management (discontinuation)
 - > Data archiving / transfer



Instruments & Industry



Cleantech



Transportation



Medtech

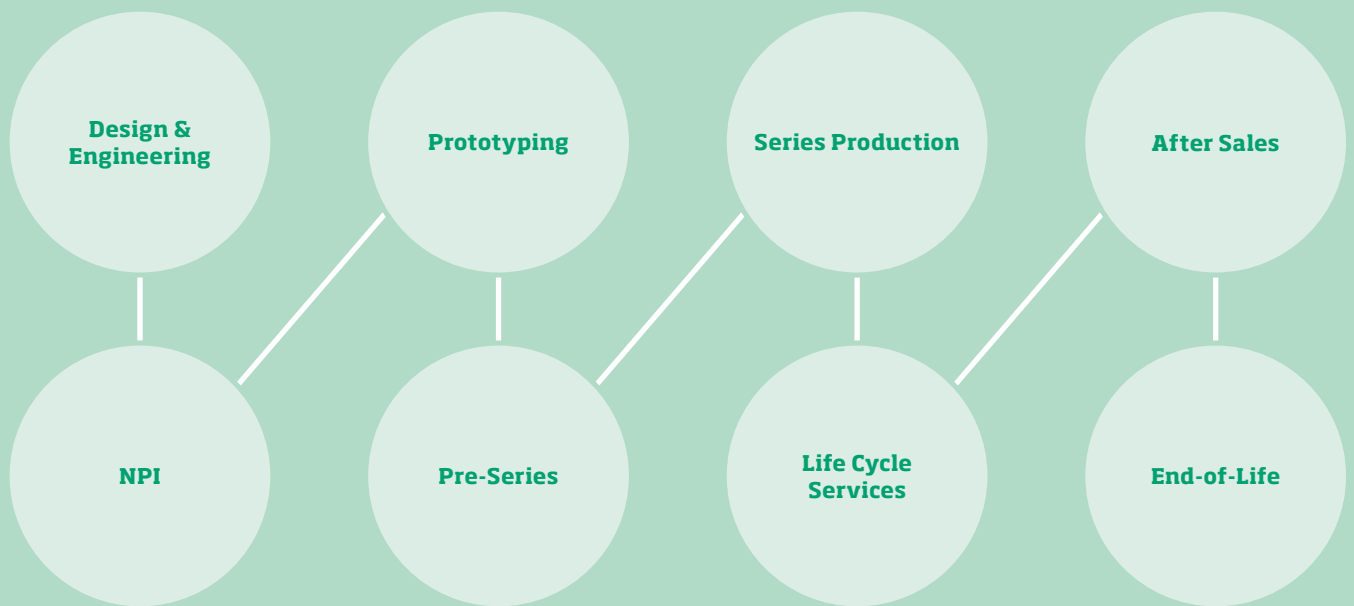
50%

20%

20%

10%

Processes



Competencies

Electronics

GPV is a leading EMS partner in Northern Europe and in Germany, Austria and Switzerland (DACH region): its portfolio of services includes all technology combinations plus individual specialist processes:

- > **Smallest designs (01005) can be processed**
- > **Lead-free (RoHS-compliant) technology or lead-coated on request**
- > **SMT & THT manufacturing (including selective soldering and U-bracket soldering)**
- > **Press-fit technology**
- > **Depanelisation technology**
- > **Printed circuit board cleaning, component cleaning including plasma process**
- > **Lacquering and potting techniques**
- > **3D/2D X-ray and optical inspection methods**
- > **Electrical tests with own test equipment construction**
- > **PoP "Package-on-Package"**
- > **After-sales processes**
- > **Laser marking**

Mechatronics and Box-Build

- > **Services cover electronics, software and mechanics**
- > **Flexible batch sizes: from small assemblies to the finished product**
- > **Versatility: assembling to the highest standard for every job and project size**

Cable assemblies

- > **Applications for extreme environments**
- > **Batch sizes: 1 - 300,000 pieces / year**
- > **Dimensioning: 1 - 1000 braids per strand**
- > **Dimensions: 5 centimetres up to 50 metres**
- > **Design using CAD software**
- > **Fully automatic cutting and stripping machines**
- > **Crimping machines with crimp force monitoring**
- > **Automatic cable harness winding machines**
- > **Ultrasonic welding**
- > **Very diverse testing options**

Mechanics

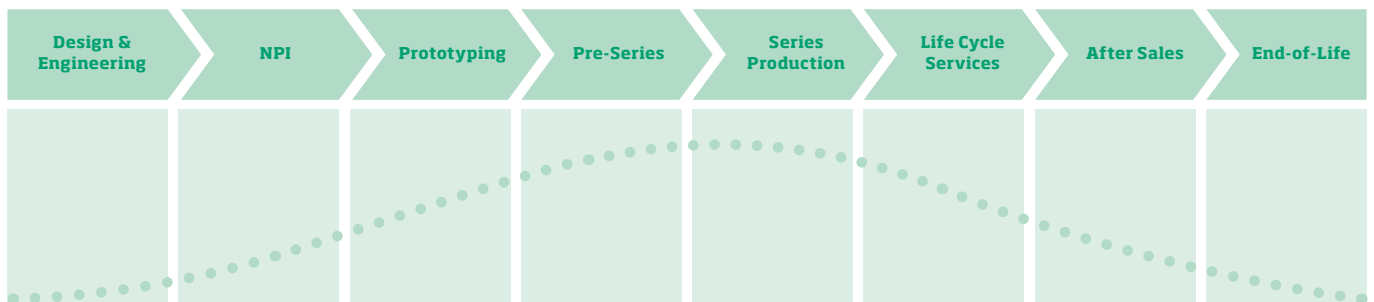
Specialist in making high-quality cable assemblies

- > **High-precision 3 & 5 axis CNC milling**
- > **7 and 5 axis CNC turning**
- > **Fine sheet metal processing**
- > **Lacquering and silk-screen printing**
- > **Subassemblies**

Design & Engineering Services

- > Design & Engineering
- > New Product Introduction (NPI)
- > Supply Chain Management

- > Production
- > Life Cycle Services



GVP Group

- > Leading partner for high mix / low-medium volume box-build products
- > System provider with global locations in Asia, Europe and the Americas
- > Modular electronics and mechatronics services in all phases of the life cycle (product design, development, supply chain management, production, after-sales service)
- > State-of-the-art and scalable machinery: from individual prototypes to series production
- > Member of the ZVEI initiative "Services in EMS" (ZVEI = Deutscher Zentralverband Elektrotechnik- und Elektronikindustrie e.V.)

Facts & Figures

Locations - We have been exploiting the advantages of different cultures and business environments for over 30 years

- > International group presence in Europe / Asia / Americas assures on-site support
- > Specialist for retail packaging of device assemblies
- > Hardware and software development services in Switzerland, Thailand, Germany and China
- > Components sourcing at our Asian locations
- > Global supplier management
- > Manufacture of complex machine-milled parts, lathed parts and sheet components
- > Manufacture of complex machined-milled parts, turned and sheet metal parts incl. surface treatment
- > Manufacture of cables and complex cable assemblies

Figures

- > Around 4,000 dedicated staff
- > Sales: Switzerland 20%, Denmark 18%, Germany 14%, Austria 12%, USA 5%, other countries 31%

Quality assurance processes according to IPC 610 Klasse 2 & 3

- > Visual checks compliant with IPC 610 Class 2 and 3
- > Train-the-trainer system: coaching of IPC trainers and subsidiary internal training courses



The hardware of the digital world

From ambition to real products

A unique customer perspective

GPV is committed to ensuring that our customers accomplish more. We do this by building strong and trusting partnerships based on responsible and honest cooperation.

We acquire comprehensive insights into our customers' needs and industries, and we manage advanced and stable product processing, relying on our strong technological knowledge.

Stable. Specialised. Global.

In everything we do, we focus on creating value for our customers, and our approach is supported by the strong spirit of our organisation. As such, we always strive for a timely delivery of faultless, secure and functional products and services that fulfil the expectations and requirements of our customers.

> gpv-group.com



Headquarters

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Denmark

Europe

GPV Cables AT (F)
Frankenmarkt, Austria

GPV Cables AT (R)
Rottenmann, Austria

GPV Electronics DK
Aars, Denmark

GPV Mechanics DK
Tarm, Denmark

GPV Electronics EE
Elva, Estonia

GPV Electronics FI
Lohja, Finland

GPV Electronics DE
Hildesheim, Germany

GPV Cables SK
Hlohovec-Šulekovo, Slovakia

GPV Electronics SK (H)
Hlohovec-Šulekovo, Slovakia

GPV Electronics SK (N)
Nova Dubnica, Slovakia

GPV Electronics SE
Västerås, Sweden

GPV Electronics CH
Mendrisio, Switzerland

Asia

GPV Electronics CN (B)
Beijing, China

GPV Electronics CN (S)
Suzhou, China

GPV Electronics MY
Johor Bahru, Malaysia

GPV Electronics TH
Bangkok, Thailand

GPV Mechanics TH
Bangkok, Thailand

GPV Electronics LK
Kochchikade, Sri Lanka

The Americas

GPV Electronics MX
Guadalajara, Mexico