



mekoprint

Our story

your business

Group presentation

Juni 2024

Agenda

- Mekoprint Group
- Cables and wire harness
- Unique technology mix
- Trusted partnerships
- Product portfolio
- Contact



Curious on how we
improve your
business – in the
best possible way?



Are you curious?

Long term customer focus – based on a strong foundation with **highly specialized people**

Long-term customer focus

1000+ regional and global customers.

90% customer satisfaction

60% of turnover based on 10 years running partnerships

Highly specialised

10 locations

40 production technologies

4 Divisions: Mechanics, Graphic Electronics, Micromechanics, Cables.

Strong foundation

100 m EUR

~800 employees

70 years in industry

14% of turnover was invested in new technologies and energy sources in 2023



“Treading in the footsteps of others will never lead to new horizons”

Erland Kold, Founder

1950-60's
Growth with curiosity

to fulfill customer needs is our foundation.

1970-80's
Technological first movers

in printing & metal to support high-growth markets

1990's
Triple certification

Environment, Social & Quality ISO to ensure highest standards.

2000-2015
Automation & digital

technology leadership to provide effective and flexible production

2015 -
Sustainable front-runner

to develop a more safe, stable and environmentally friendly Supply Chain for you

We want to be a frontrunner **for you.**

Leading new ways

Documented front-runner

- 1st triple ISO certification in 1999
- UN Global Goals in 2017
- EcoVadis since 2019
- ESG reporting since 2022/23

Top 3 %
EcoVadis global
manufacturing
benchmark

Short term CO2 focus

- Invest in energy optimization
- CO2 neutral scope 1-2 by 2025
- Provide CO2 item calculation

19 % CO2
reduction
last year
(scope 1-2)

Long term collaboration

- Reduce material usage & CO2
- ESG value chain demands
- Optimize logistics & CO2
- Circular product design

Top 200
Supplier
Sustainability
Assessment

to sustainable growth

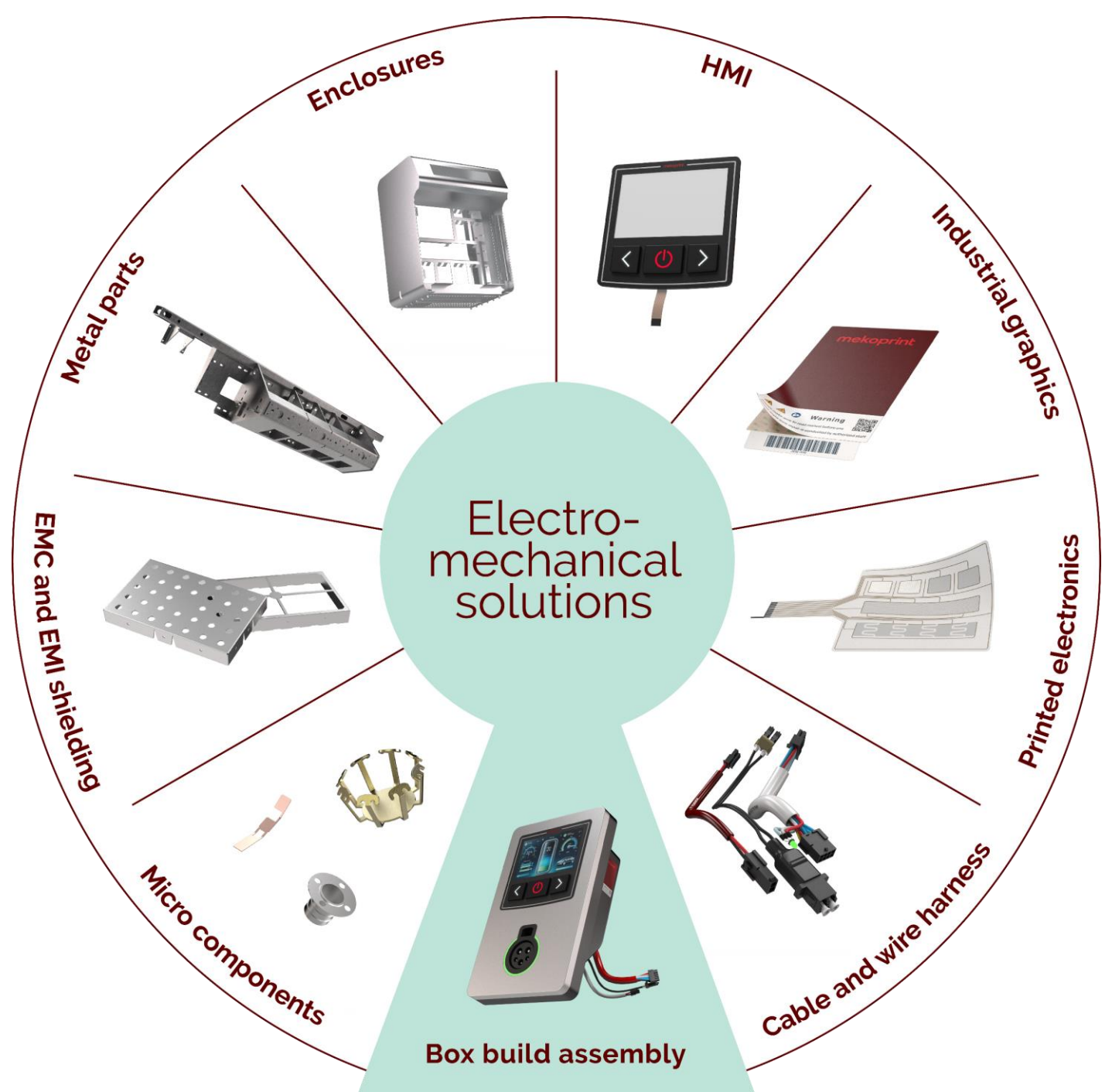


Global footprint gives resilience in the supply chain.

- **Denmark**
420 employees, 7 factories, 40,000 m²
- **Poland**
220 employees, 2 factories, 7,500 m²
- **Ukraine**
100 employees, 1 factory, 2,000 m²
- **Serbia**
60 employees, 1 factory, 1,700 m²
- **Asia**
4 employees, Hong Kong supply chain & sales office +15 strategic production partners



A unique mix of competences and combination options



Trusted by more than 1.000 regional and global brands across **demanding industries**

Medico & Life Science

Dräger
 erbe
 oticon
 LINAK
 MED[®]EL
 cytiva
 PHILIPS
 eppendorf
 ThermoFisher
 SCIENTIFIC

Manufacturing & Automation

TRUMPF
 Danfoss
 kamstrup
 WÜRTH
 BEUMERGROUP
 UNIVERSAL ROBOTS
 GRUNDFOS

Machinery & Transportation

VOLVO
 HARDI
 ITW
 GSE
 JUNGHEINRICH
 COMPANY
 VESTERGAARD
 MYDEFENCE

GreenTech & Energy

xylem
 SMA
 BALLARD
 ALFA
 LAVAT
 Hitachi Energy
 MICROPOWER GROUP

Appliances & Electronics

Leica
 Geosystems
 Electrolux
 COBHAM
 Miele
 SIEMENS

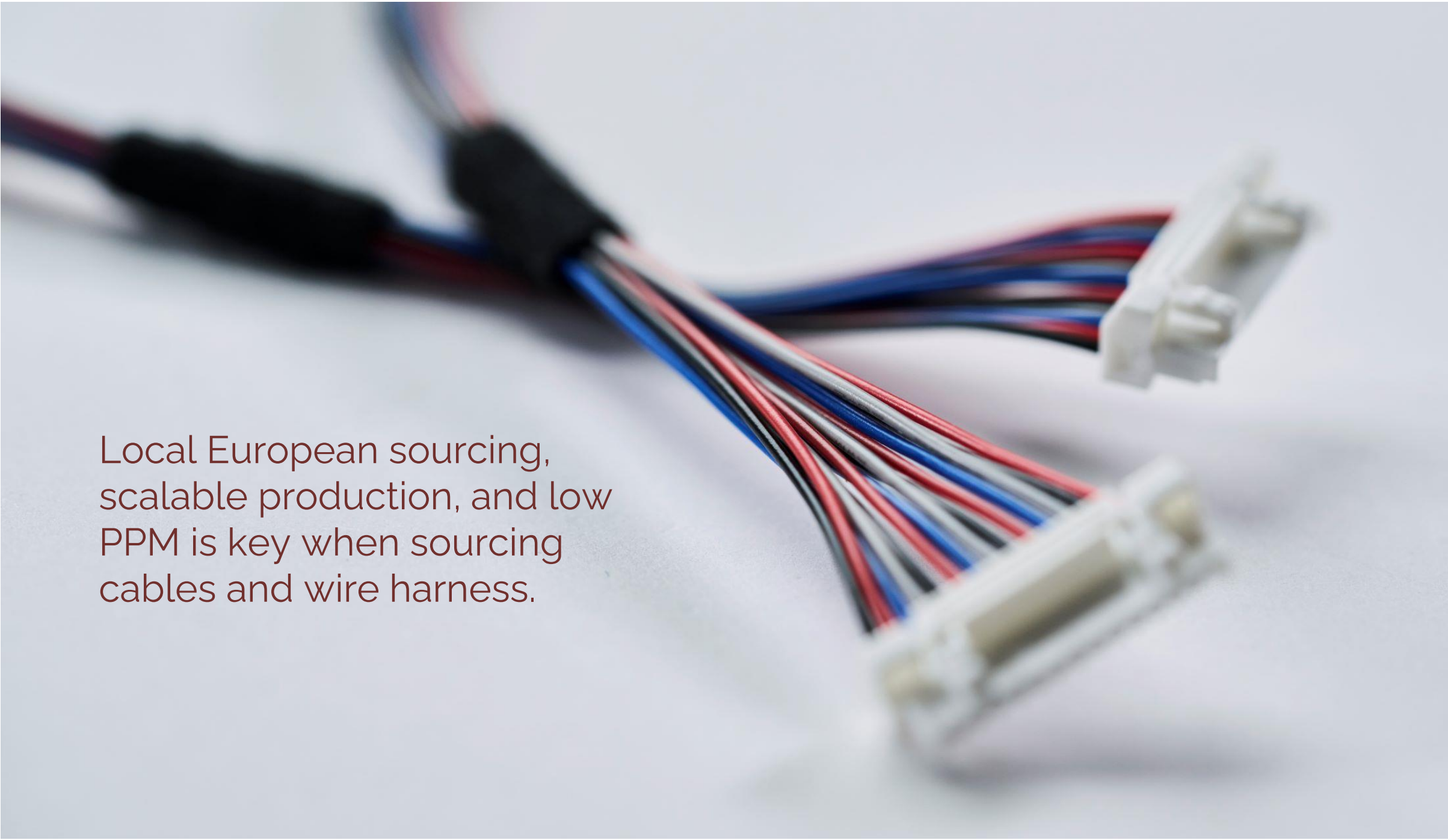
Sustainable growth
is a must-win battle for all of us
— and an opportunity for
business optimization





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Cables and wire harness solutions

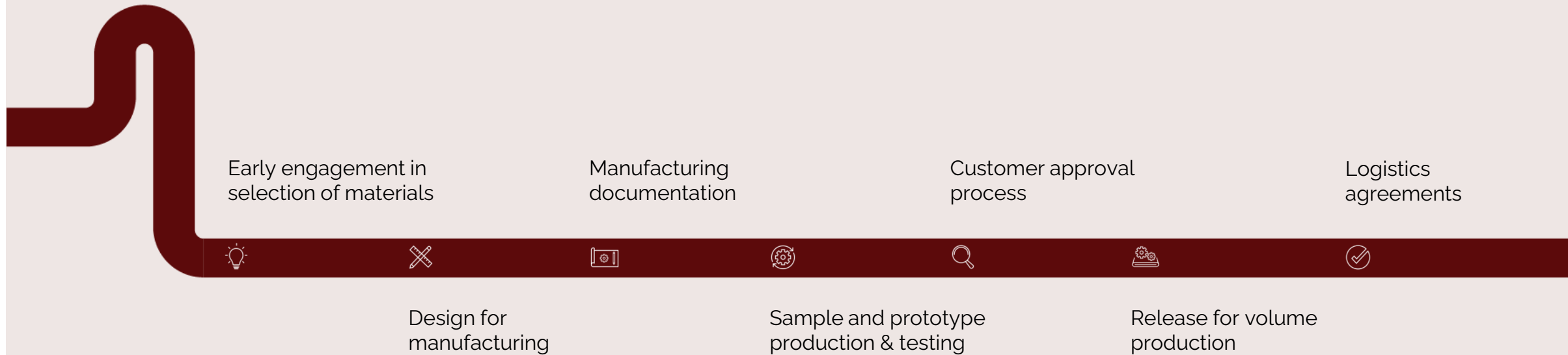


Local European sourcing,
scalable production, and low
PPM is key when sourcing
cables and wire harness.

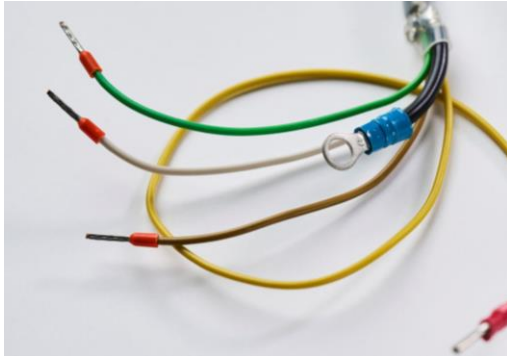
How we work

- Specialist in cables harness assemblies
- Flexible and LEAN production suitable for small, medium to high volume production
- Technical support in selection of material based on customer needs.
- Professional and efficient support in development and delivery of prototypes
- Agility and on-time delivery
- Lead time 10 days ex. works, Poland

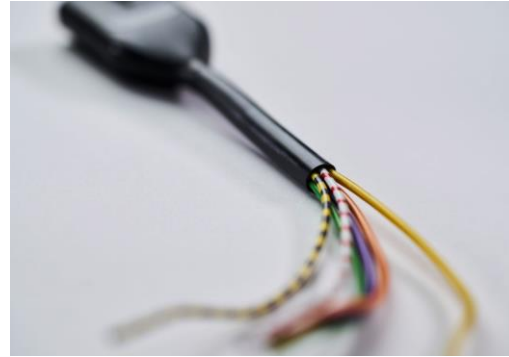
Connected proces **from idea to components**



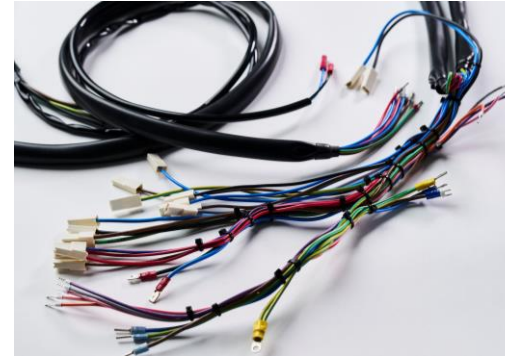
Full portfolio customised to your needs



Single core cables



Multicore cables



Wiring harness



Heavy cables



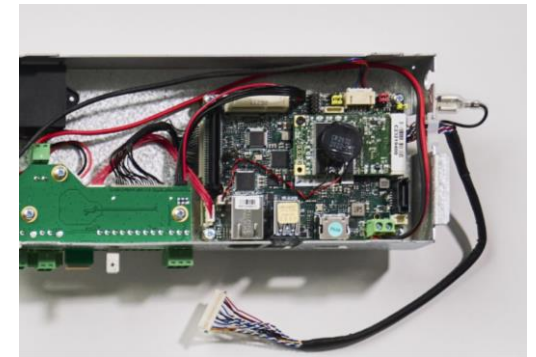
Coax and RF cables



Flat cables



Molded cables



Integrated products

Trusted by many **regional and global brands** across demanding industries

Appliances & Electronics

Communication

COBHAM

 **MYDEFENCE**

GreenTech & Energy

Climate, solar & batteries

VELUX®

MICROPOWER GROUP™

Danfoss

Machinery & Transportation

Specialty vehicles & installations

**ITW
GSE**

HARDI

SMA

Manufacturing & Automation

Robots & Process automation equipment

Medico & Life science

Laboratory & hospital equipment

ITAB

Leica
Geosystems

Dantherm®

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Unique technology mix

Production equipment available

Process	Producer	Type	Qty	Operating range	Other Options/description
Cutting	Schleuninger	CSM9100	1	<6mm2	
Cutting	Komax	Kappa 235	2	<35mm2	Slitting unit
Cutting	Kinsing	KS-W001	2	<50mm2	
Cutting	Ramatech	Speedy 35	1	<185mm2	Slitting unit
Cutting	Ramatech	Speedy 40H	1	<400mm2	Slitting unit
Cutting	Schleuninger	PS9500RSL	4	<16MM2	With rotating head for shielded & coax cables colling units inline. White or black inkjet printer tinning unit.
Cut and crimp	Komaxx	Gamma 255	2	AWG32-AWG14	Tinning unit.
Cut and crimp	Komax	Gamma 333PC	2	AWF24-AWG10	White or black inkjet printer double crimp unit. Hot stamp.
Cut and crimp	Komax	Alpha 356&565	2	AWG24-AWG10	Ferrule crimping Mil-crimp White or black printer. Hot stamp. Special machine.
Cut and crimp	KMI	5T5	1	AWG24-AWG10	Double crimp unit. Special machine.
Cut and crimp multicore	Zoko	Zoko-601	1	Up to 11x AWG18	Cut multicore cable with crimping. Special machine.
Cut, crimp and load	Yuanhan	CJK075		AWG2B-20	One end block loading up to 7 colors. Second end tinning/crimping. Camera system for terminal inspection. Special machine.

Production equipment available

Process	Producer	Type	Qty	Operating range	Other Options/description
Printers	Hitachi	UXH000071102	6	OD1,0-16mm	Housing printers – black & white ink
Press	Mecal	TT & P100	21	<6mm ²	Stripping & crimping press
Press	Mecal	P100&P107	3	<6mm ²	Crimping press
Press	GLW	EC65	12	<35mm ²	Ferrule crimping, F-crimp, lug, plastic terminals
Press	Z+F	SC05	3	<6mm ²	Ferrule crimping
Press	Molex	Picoflex	4	Flat cable	Semi-automatic machines for Molex PicoFlex
Stripper and crimper	Wirtec	SC21	1	<4,0mm ²	Stripping & crimping press short jacket stripping
Stripper, crimper and seal	Wiremac	WSC36	1	<4,0mm ²	Stripping & crimping press + seal insetion
Strlpper and crimper	Changzhou	HC-2BT+D	1	<2,0mm ²	Stripping & crimping press for multicore cables, special machine
Stripper	Komax	Mira230&340	6	Max od 6,4mm	
Stripper	Komax	Mira440	1	Max od 8mm	Rotating stripper for hard insulations & coax
Stripper	Beri	AM ALL AROUND	2	Max od 25mm	Rotating stripper for hard insulations

Production equipment available

Process	Producer	Type	Qty	Operating range	Other Options/description
Moulding	Optimal	2002	4	Max part size 40g	Low pressure molding machine
Moulding	Yuhdak	YC-60-25	2	Clamping force 60T	High pressure molding machine, shuffling table
Harness testers	ENGBERTS	ICAT	3		Electrical tester with vision system
Harness testers	CableEye	Hipot	1	Hi-pot-215DV tester	Electrical tester
Harness testers	CableEye	M2U&M3Z	15	Up to 1024 connections	Electrical tester
Harness testers	KEYSIGHT	P9375A	1	300kHz-26,5GHz	Vector network analyzer. Used for coaxial cable

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Trusted partnerships

Outsourced assembly for frequency converters

- Outsourcing saved time, space, and resources
- 70 product numbers
- Danfoss cables' assembly manufacturing setup moved to Mekoprint factory in Poland
- Machinery, materials, and tools

"With this outsourcing, we **save time, space, and resources** to enable us to concentrate fully on our core expertise: Our frequency converters."



Customized **wiring harness** in soundproof workstadiums

- Development and production of complicated wiring harness
- Four different types of wiring harnesses combined into one solution
- Build into a narrow frame

"We needed support for **making the design** and an understanding of how to plan them, considering **cost-effective production** and special requirements we had."



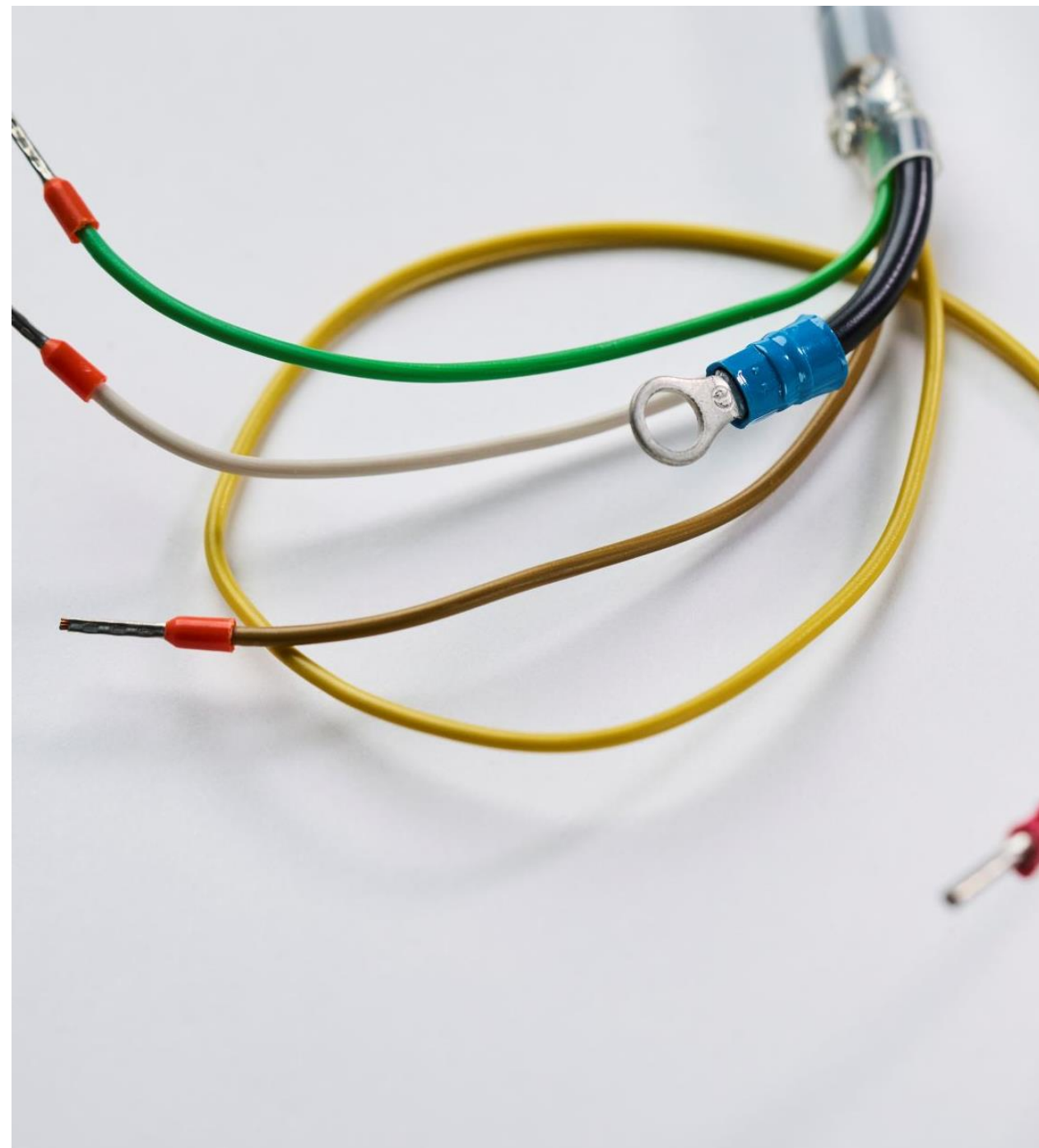
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Product portfolio

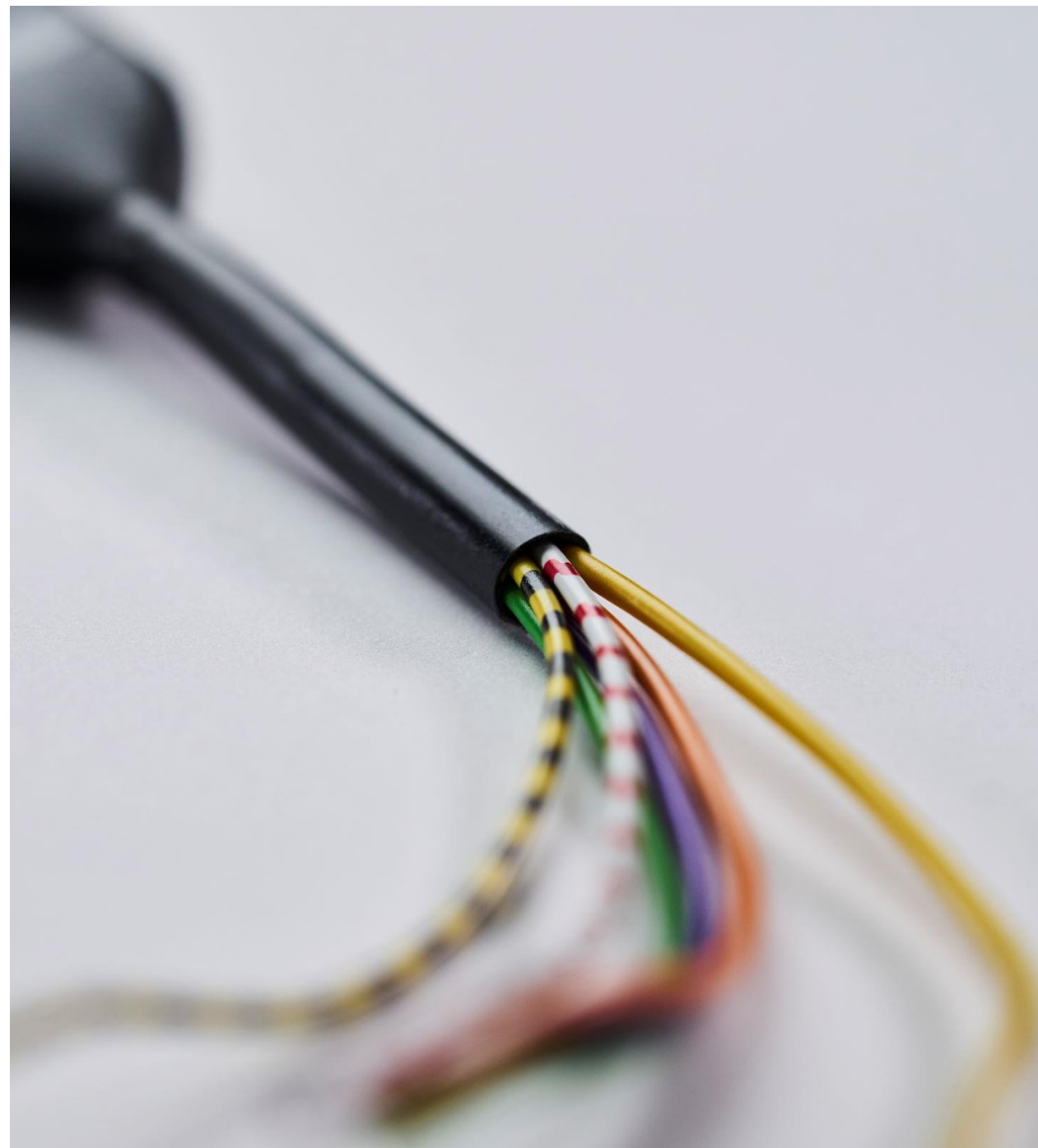
Single core cables

- Available in various sizes, gauges and insulation materials to meet the needs of your system
- Standard single-core cables range from AWG 30/28-10, with or without terminals
- Larger single-core cables are available in sizes from 10-50mm², with even bigger options ranging from 35-240 (300) mm²



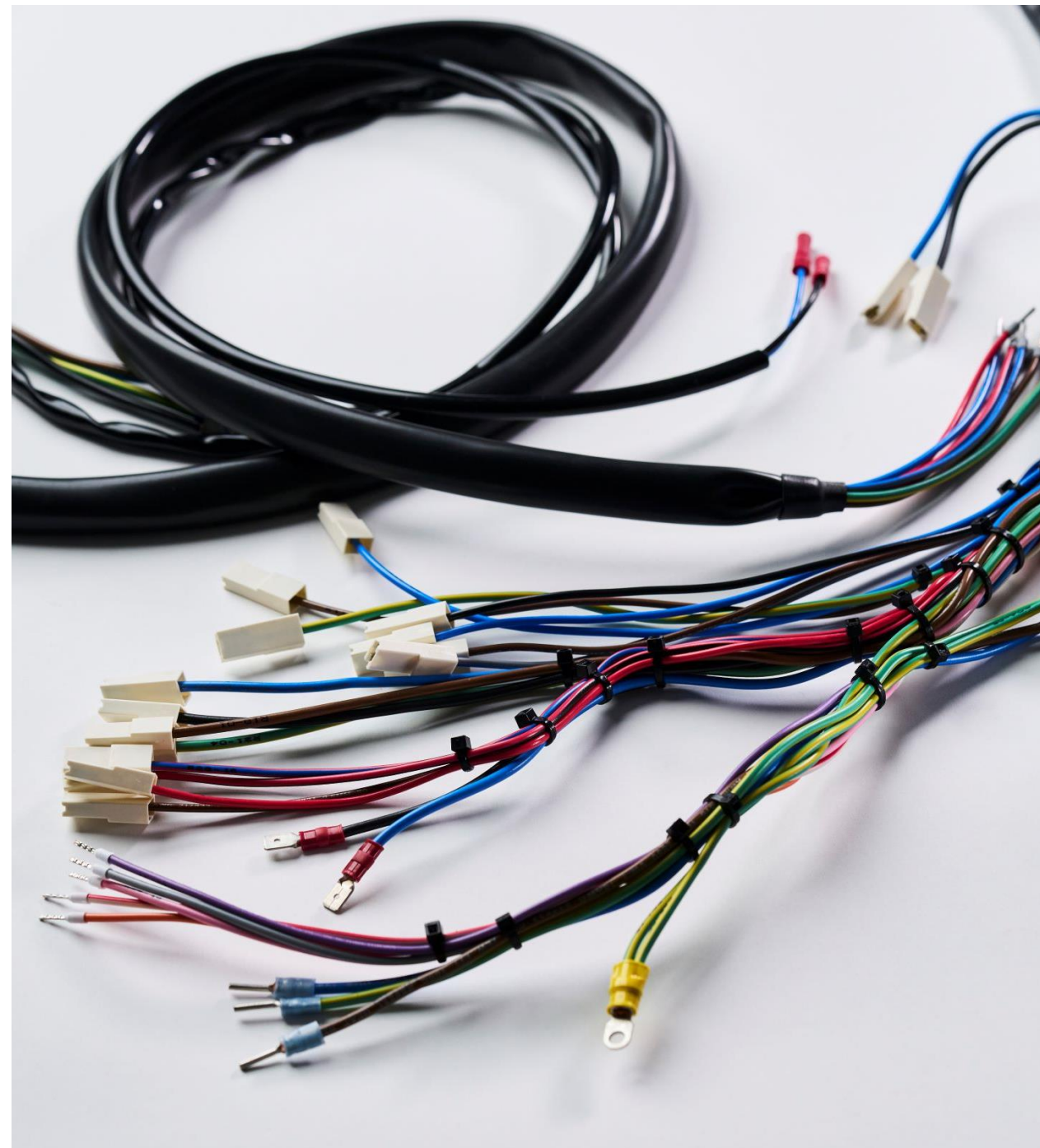
Multicore cables

- Multiple signals or power lines
- Highly automated production with cutting, stripping, and shrinking processes.
- Include up to 11 wires



Wiring harness

- Complex harness assembly.
- 1:1 drawings to secure "Right First Time" as part's are easy to recognize.
- High flexibility in changes.
- Wires/connectors numbered with Ink-jet.
- 100% testing.



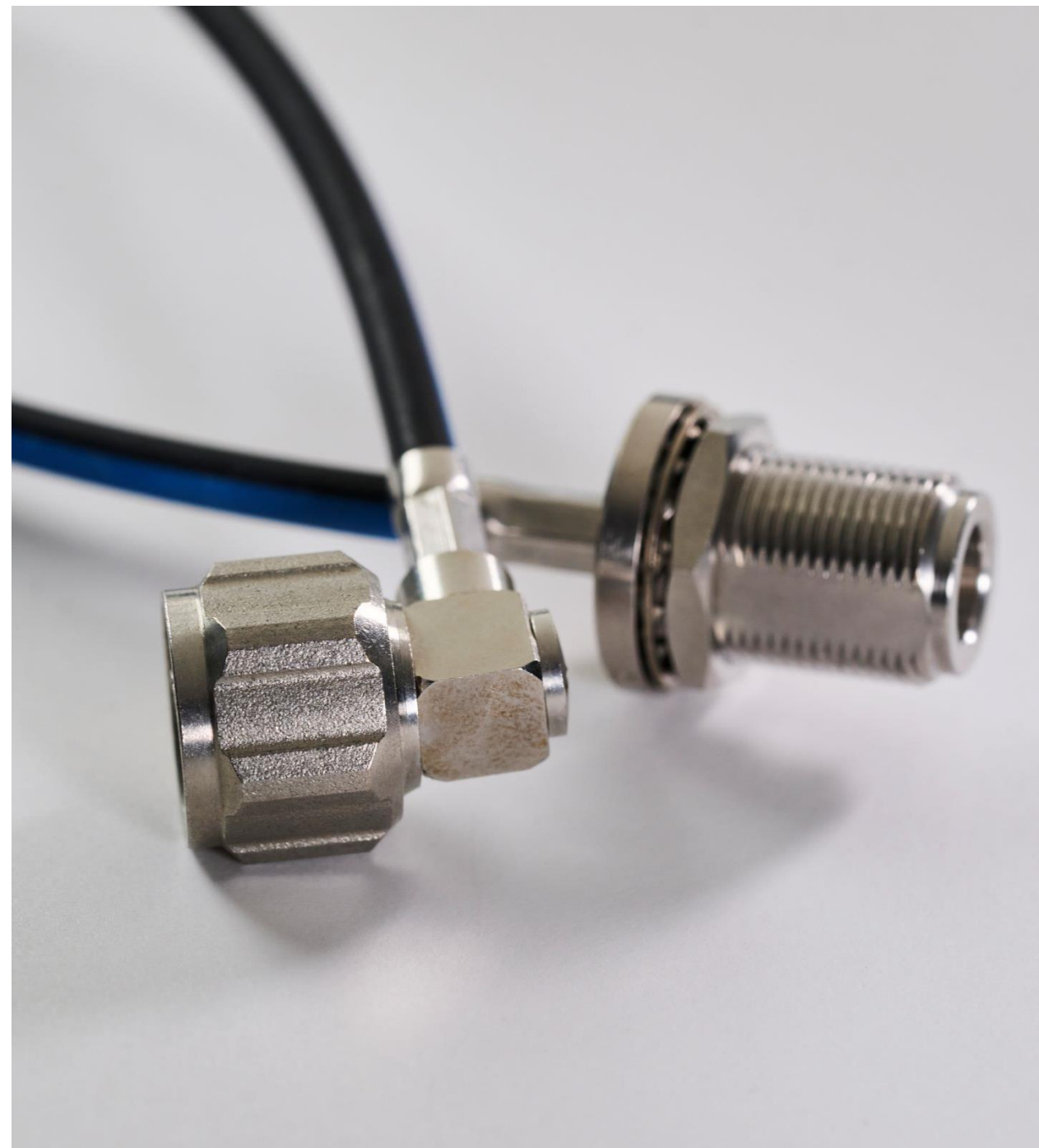
Heavy cables

- Cutting up to 400 mm².
- Crimping up to 300mm².
- 10t presses.
- Hexagon crimp possibility.
- Best crimping parameters base on „Conductor compaction analyze – 20%“ for terminals up to 95mm²;
- Pull testing equipment.
- Micrography / cross section.



Coax and RF cables

- Wide range of connectors, including SMA, BNC, N-TYPE, and TNC.
- Shielding as foil, braid, and semi-rigid constructions
- Providing shielding and isolation from EMI (electromagnetic interference)



Flat cables

- Made with PVC or TPE
- Widths ranging from 1.0 to 2.54mm



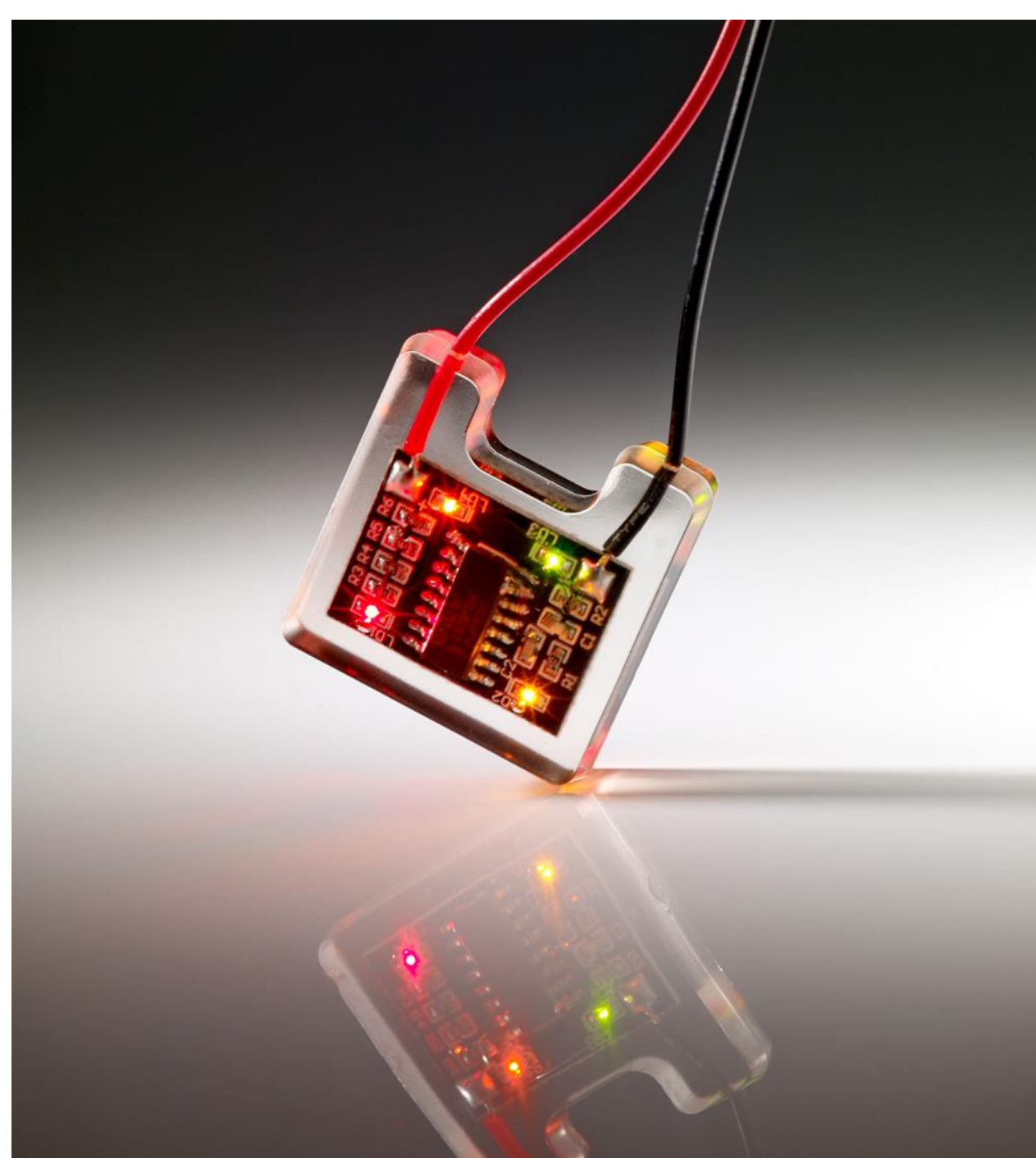
Molded cables

- Fully seals electronic components, protecting against water, moisture, dust and heat.
- Low-pressure injection molding
- High-pressure injection molding
- Aluminum tools / Stainless Steel tools.
- 'Shuffle' table for high volume.
- Wire & terminals.
- Selection of materials from recognized manufactures.
- 6 machines.



Moulded electronics

- Extend the lifespan of your electronic components with thermoplastic hotmelts.
- An one-in-all solution: low-pressure moulding, housing and protection in one.
- **Shape** that fits your requirements
- Securing aftermarket sales by **unique design**
- Brand your components by adding your **logo**
- Choose from a variety of **colours and hardness level** to match your application or brand



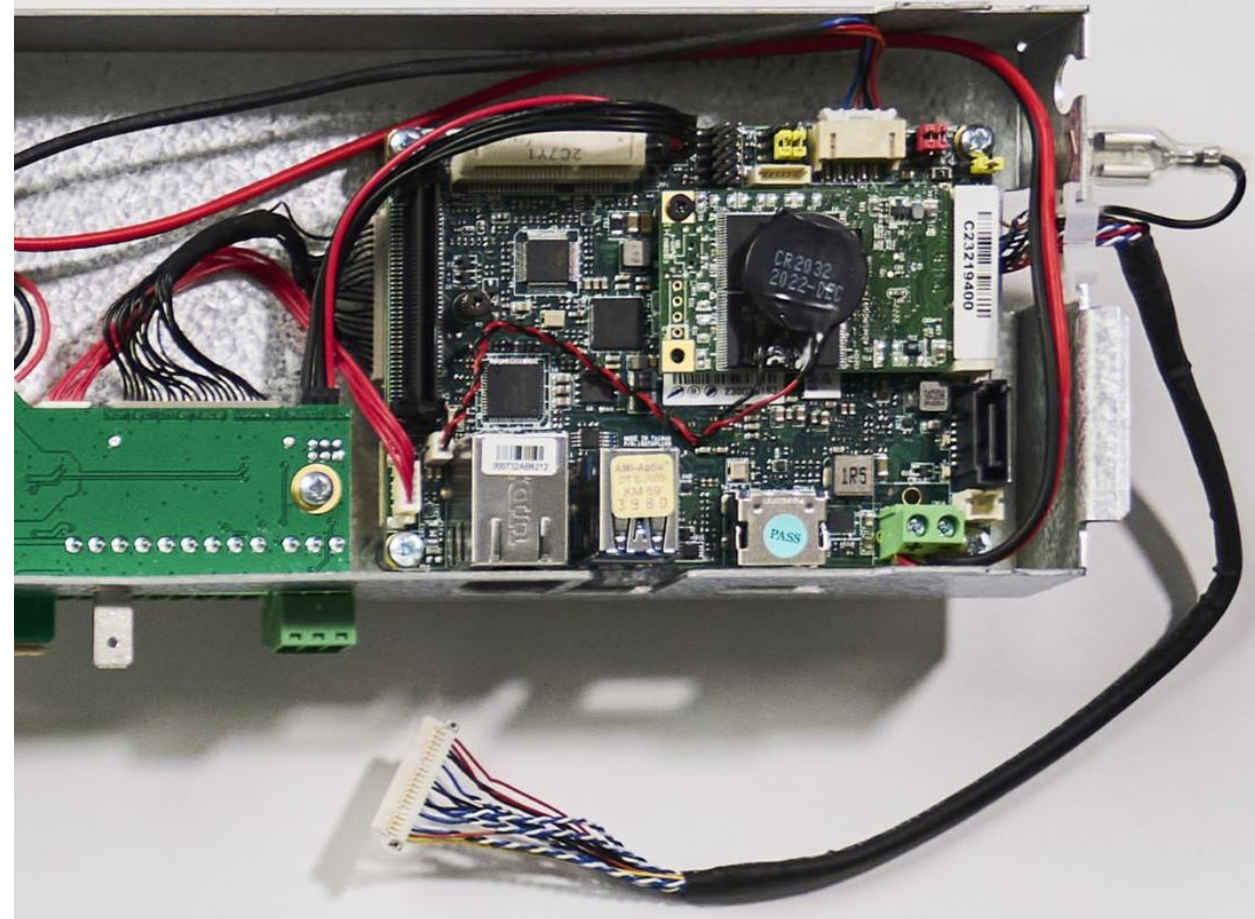
Circular connectors

- Circular connectors designed to meet the specific needs of your application.
 - Submarine connectors
 - Miniature connectors
 - Power connectors
 - Connectors for medical applications
 - Sensors & actuators
 - Data transmission
 - Voltage & power supply



Integrated products

- Handling of PCBA's in ESD safe area.
- Sourcing of mechanical parts from Mekoprint Mechanics or externally.



Position sensors

- Rotary and linear position sensors using contacting and non-contacting technologies.
- Sensor technologies
 - GMR/Multiturn
 - Hall
 - Magnetostriktion
 - NOVOPAD
 - Potentiometers
- Interfaces
 - CAN SAE J1939
 - CANopen
 - IO-Link
 - Incremental/Quadrature
 - SSI



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Leading new ways™
towards better business
and a brighter future

Your
personal
contact

Micro components

Tailored precision parts in metal and plastics:

- Micro machined parts
- Micro sheet parts
- Total solutions

Key features:

- Cutting-edge technology
- Wide range of materials
- Highest quality standards



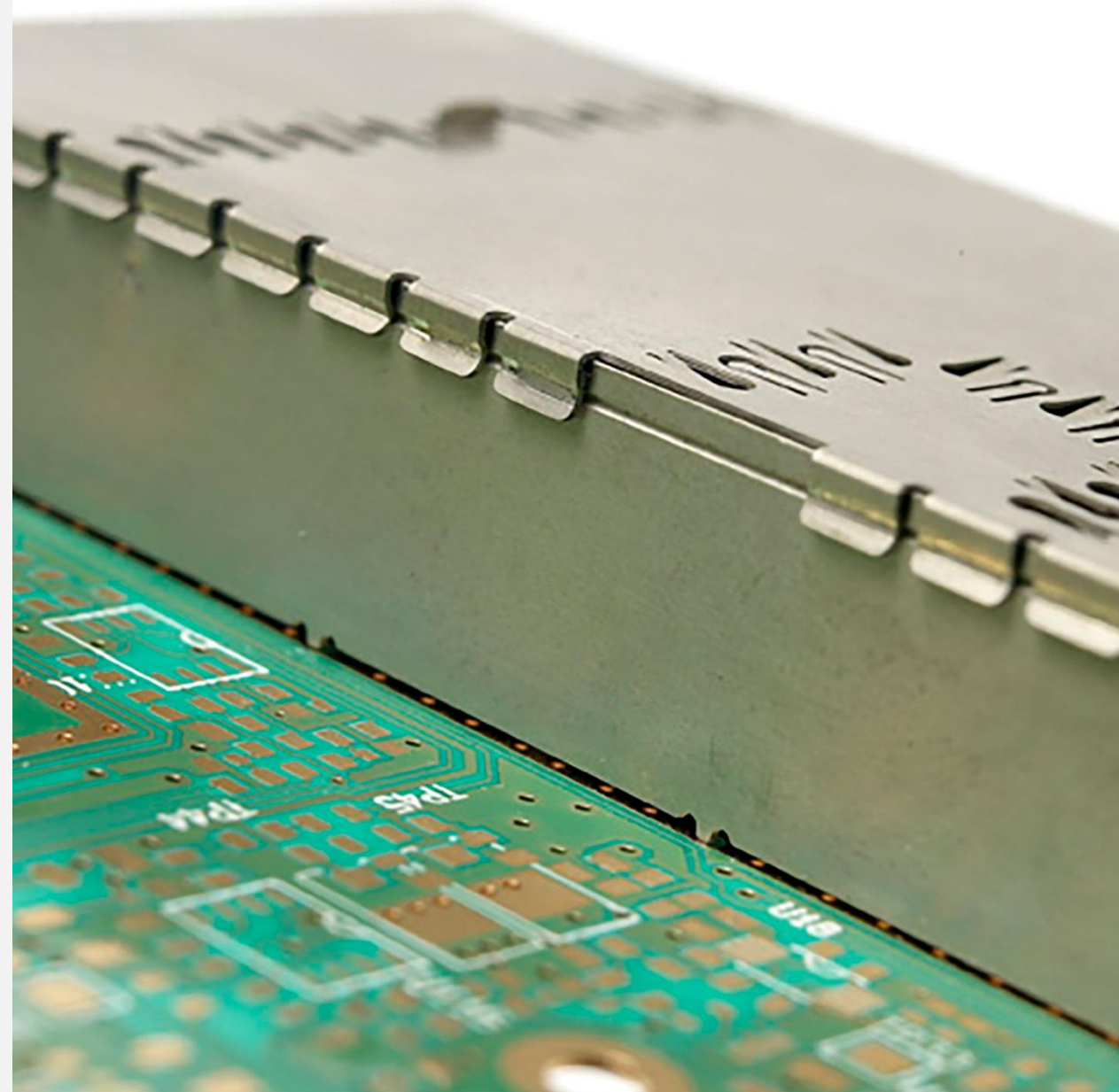
EMC/EMI shielding

Keeping electronics safe from interference:

- Customised EMC solutions
- Standard EMC shielding
- Closed EMC shielding
- Insulation foils

Key features:

- 20+ years of expertise
- Trusted by most demanding industries, such as medico, telecommunications, electronics
- Full portfolio of customised designs



Metal parts

Full portfolio of metal processing technologies:

- Sheet metal solutions
- Mechanical systems
- Deep drawing and punching solutions
- Milled solutions

Key features:

- Full portfolio of metal processing technologies
- Reliable quality
- 60+ years of metal processing expertise



Enclosures

Robust, high-quality housings for all types of products:

- Sheet metal enclosures
- High volume solutions
- Milled enclosure solutions

Key features:

- Broad range of metal processing technologies
- 60+ years of experience



HMI solutions

Solutions for great user experience:

- membrane switches
- silicone keypads
- complete HMI assemblies

Key features:

- Material expertise
- Design & engineering competences
- 40 years experience in keypad production
- Global production and sourcing setup



Industrial graphics

Durable solutions for information & branding:

- graphic overlays
- labels and decals
- transfers

Key features:

- Sustainable approach to material use
- Design competences
- Competitive production setup in Denmark
- Latest printing technology



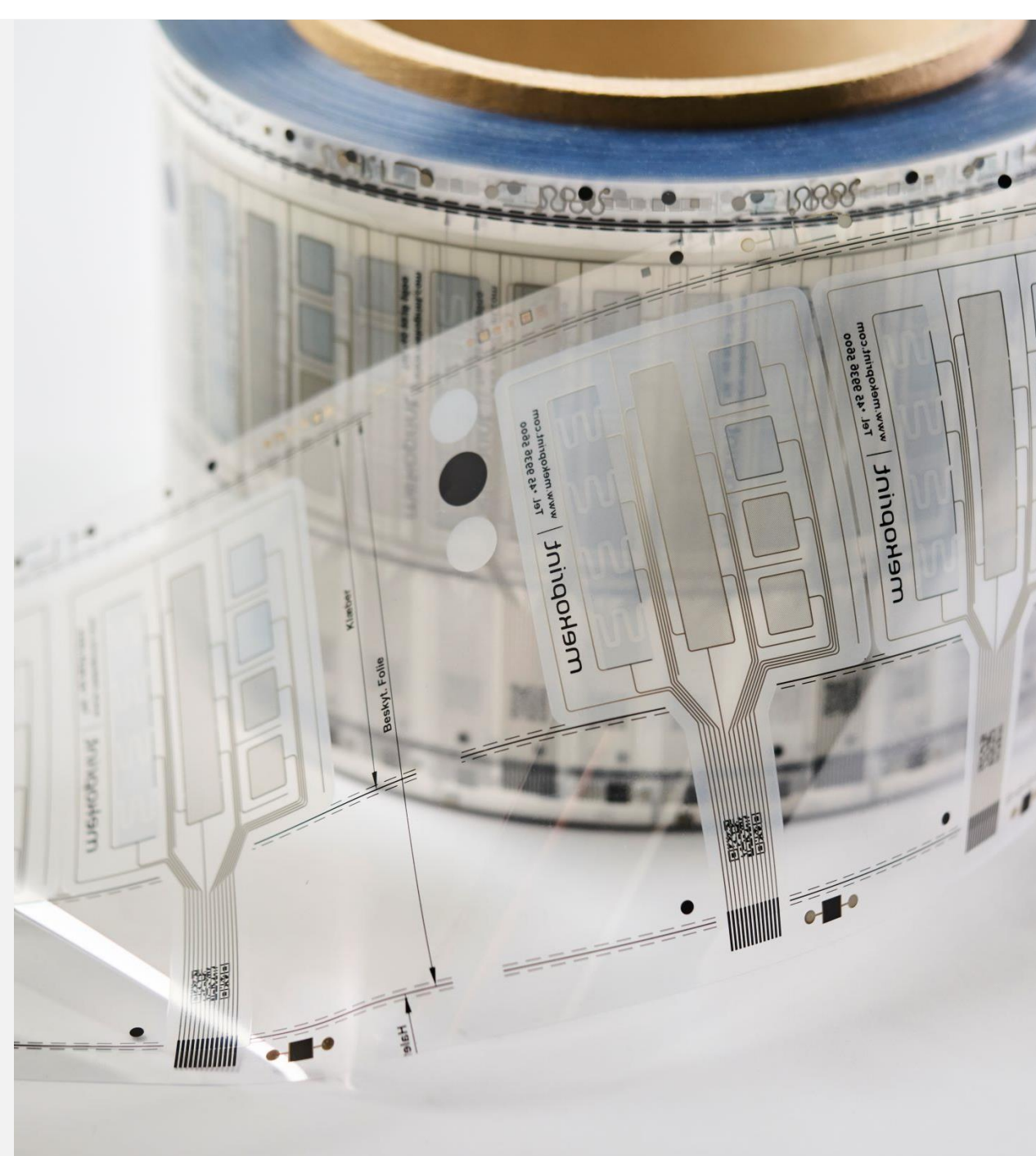
Printed electronics

Customised sensors and circuits:

- Capacitive touch sensors
- Wearable sensors
- Flexible circuits
- Printed heaters

Key features:

- Automated roll-to-roll production
- Experienced engineering competences
- Advanced printing technologies



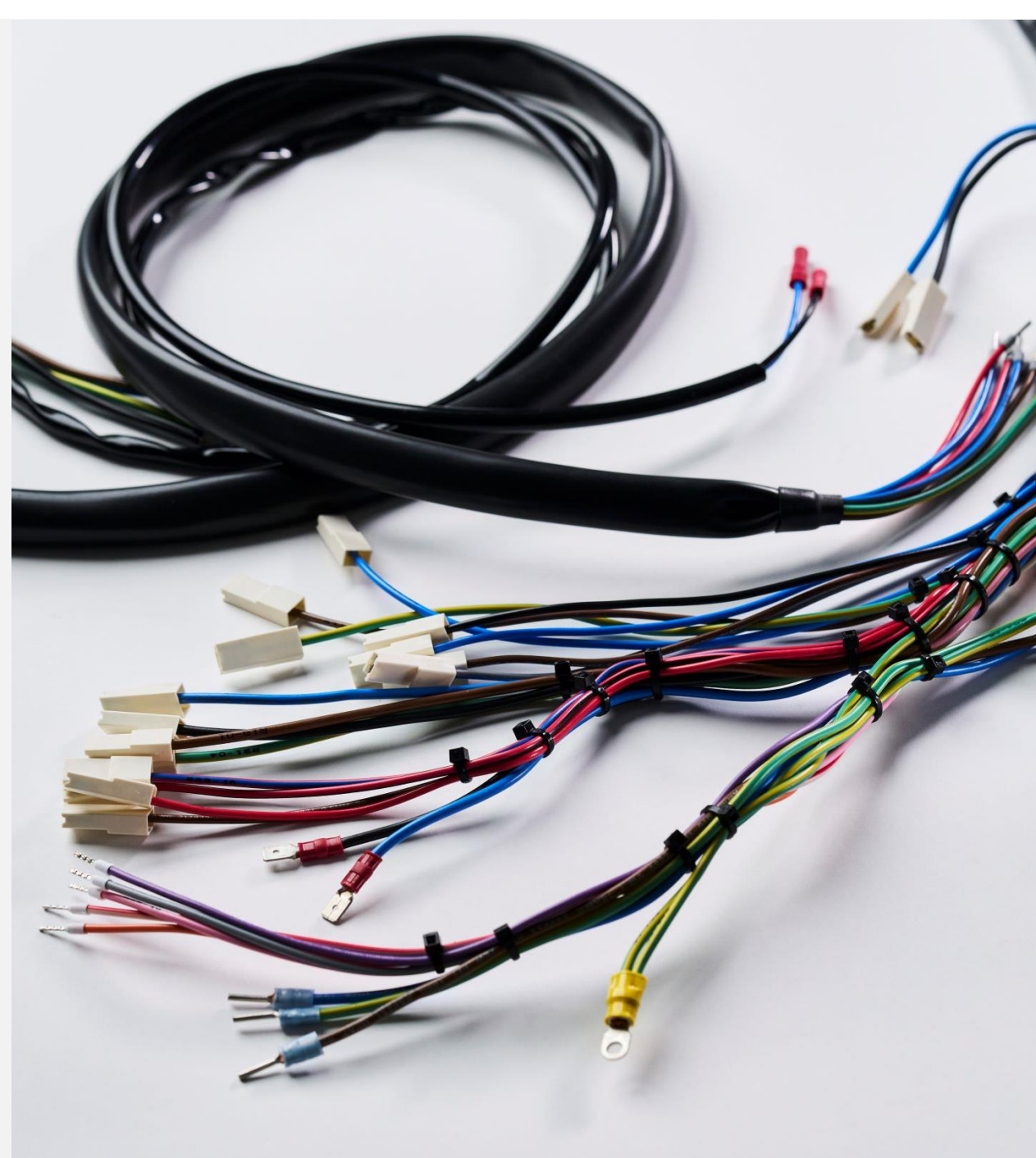
Cables

Wide portfolio of cable solutions:

- single & multicore cables
- wire harness
- heavy cables
- flat & molded cables
- integrated for box build

Key features:

- European production
- Scalable manufacturing capacity



Box build assembly

Components for complete assembly:

- Enclosures & metal parts
 - Micro parts and shielding
 - Cables & circuitry
 - Keypads, displays and graphics
-

Key features:

- Broad technology mix
- Structured development process
- Global production and supply chain



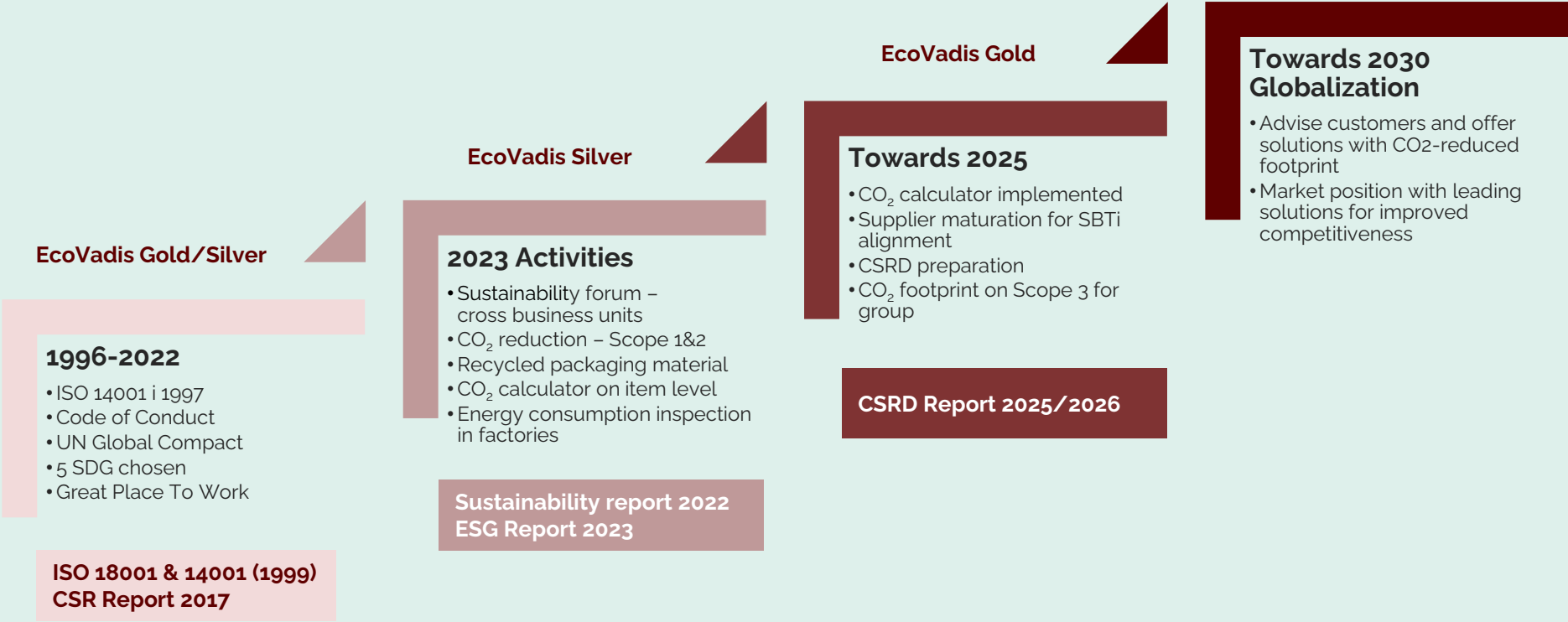
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Sustainable growth

Documented front-runner

Sustainability activities **towards 2030**



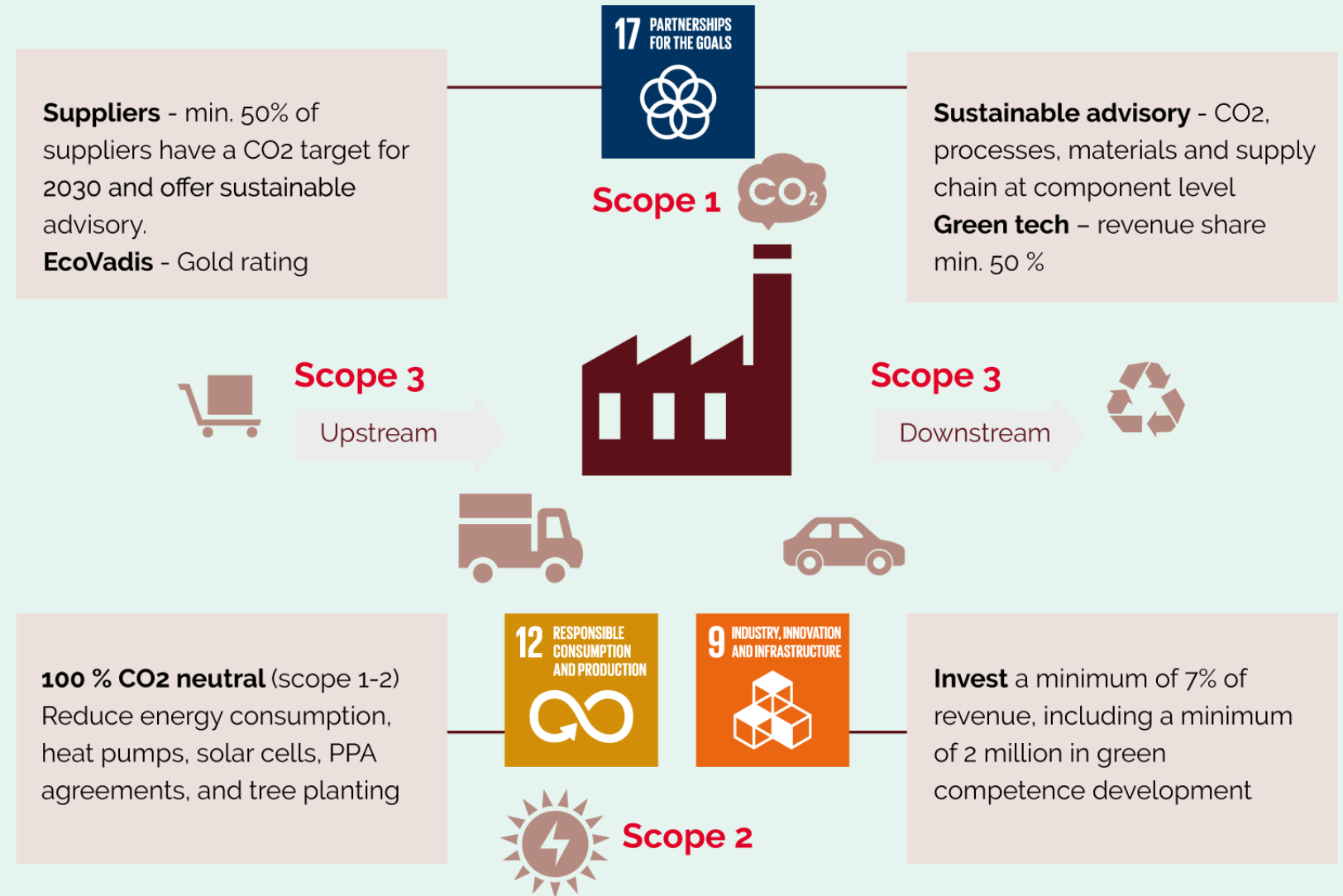
Documented front-runner

Achieved **ESG** results in **2022/2023**

500 tonnes CO2 reduction corresponding to 7.4% overall reduction due to investments in reduced energy consumption E	81% Recycling of total waste fractions E	30.000 Trees planted in Denmark and Equador securing biodiversity and reducing CO2 emissions E
78% employee Net Promotor Score (eNPS) – increase from top 10 % to top 5 % S	3.2% sick leave – a 0,9 % reduction in recent year S	32% females in management positions – 4 % increase towards 40 % target S
96% leadership quality rated in employee pulse survey G	90 % Customer satisfaction across Mekoprint Group. G	54% of suppliers signed Supplier Code of Conduct G

Short term CO2 focus

Strategic focus towards 2025 – CO2 reduction



Short term CO2 focus

Achieved results in 2023

7.4% CO2 reduction through energy-saving investments

- Energy optimisation to reduce electricity, heating and gas
- New energy optimised ventilation and heating systems
- New optimised software (CTS) to control of heating systems

Renewable energy investments

- Forestation with 30,000 trees planted
- Heat pump investments to replace natural gas
- Investment in 2,600 m solar panels

Optimised waste processes

- Dividing waste streams in more than 40 fractions – gain recycling up to 85%
- Focus on production waste reduction
- Focus on food waste reduction
- Optimised cleaning to reduce silver-rated water pollution by 95%

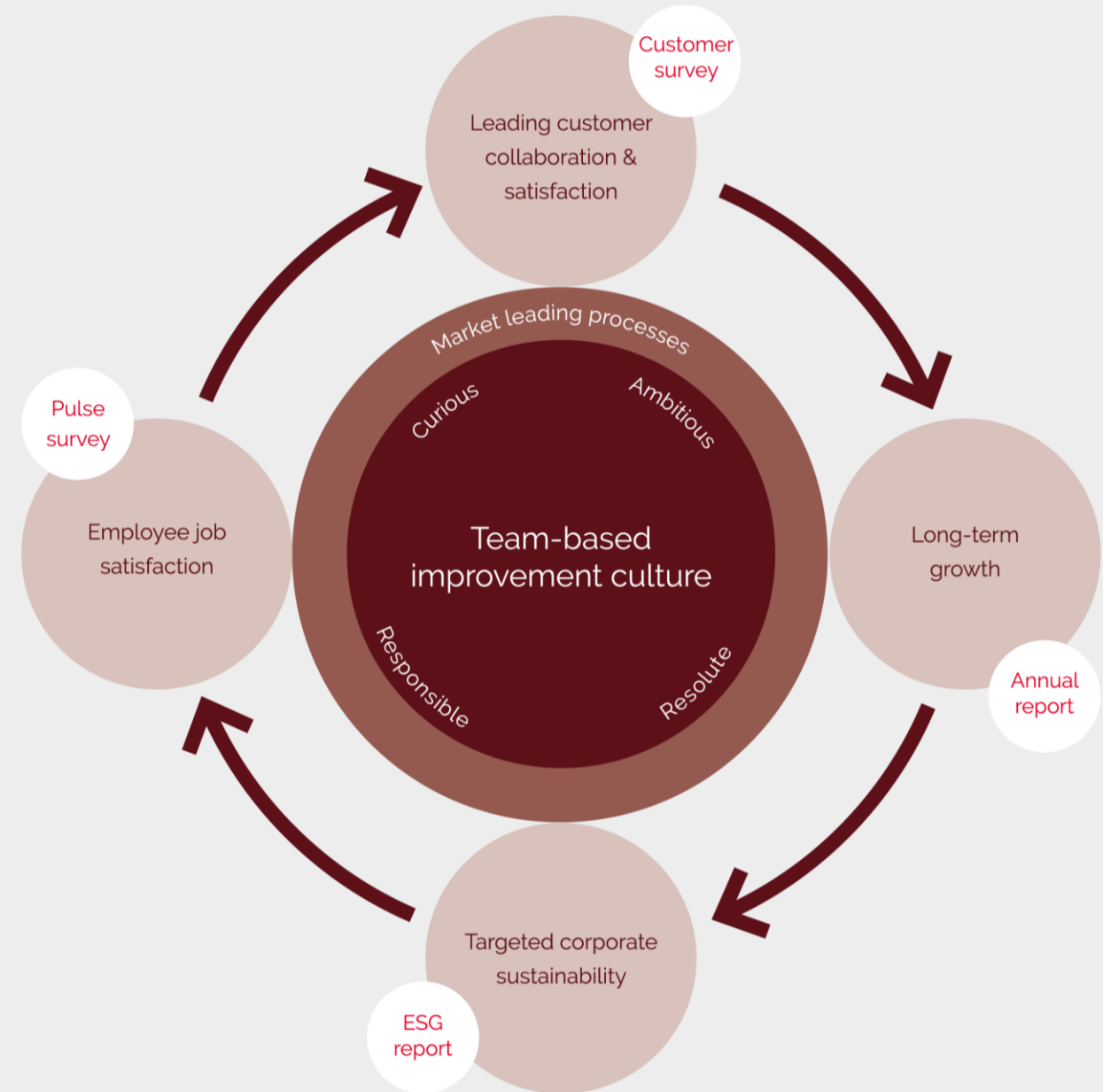
Long term collaboration

Balanced performance optimisation is the key to sustainable business

At Mekoprint, we measure our overall results in **4 bottom lines**

- Employee job satisfaction
- Targeted corporate sustainability
- Long term growth
- Customer satisfaction

All our activities are deeply rooted in our **4 core values** and our **team-based culture**.



Long term collaboration

We are developing tools for **easy decision making**

Data input to the model:

- Proces time in production on work centers (electricity and indirect materials) from routing
- Direct material usage from BOM
- Transport of raw material and semi-finished products from suppliers

[illegible]

Mekoprint CO2 calculator

Long term collaboration

Supplier maturity model – **yearly assessment**

All suppliers and partners beyond 20 TEUR in yearly spend are assigned (~220 suppliers)

Level 5 - Preferred Sustainable Partner

Require level 4 + CO2 neutrality before 2030 & Sustainable advice available

Level 4 – Environmental compliant Supplier

Require level 3 + CO2 reduction targets by 2030 & ISO 45001 certificate

Level 3 – Quality compliant Supplier

Require level 2 + ISO 9001 certificate

Level 2 - CoC compliant Supplier

Signed Mekoprint Code of Conduct, UN Global Compact or similar

Level 1 - Basic Supplier

Approved for delivery, but not yet assessed for Sustainable practices

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Sourcing made easy

From **fast prototyping** to **structured NPI** processes

- **Structured R&D process**
continuous alignment, clear project management
- **Early responsibility for series production**
Our core business is series deliveries with streamlined purchase, production, quality, delivery
- **FAI / PPAP processes**
incorporated from project start
- **Total cost of ownership**
mindset throughout the project
- **Cooperation and responsibility as core DNA**
Hands on the steering wheel approach
Experience with complex supply chain projects (8D, tooling, product updates (DCR))



Quality assurance

High quality standards in process, environment and people management since 1999

- ISO 9001
- ISO 14001
- ISO 18001

UL and IPS compliant production

Compliance by product

Automotive TS16949, medical ISO 13485 and military standard

Compliance by product

Services

- Eight disciplines (8D)
- Production part approval processes (PPAP)
First article inspection (FAIR)



Simplify your sourcing with Mekoprint's unique mix of competences

