



Variotech General Catalogue

Customised trays for the automotive,
medical and electronics industries



Variotech Reality



CONTENTS

Integrated innovation	4
Experienced associates with a deep understanding of our customer needs	5
Development, construction and tooling	6
Precision in series production	8
Quality assurance	10
Variotech product groups	12
Product variety - even in standard versions	50
Variotech – material selection	52
System supplier for automobile manufacturers, electrical engineering, medical industry, electronics	54
Maximum benefits in a small package	56
Colour strip identification for trays	57
Extract from the list of references	59



BEAR® pure strength in a single unit



TIGER® automatic handling perfected



STALLION® the future of automatic handling



FOX® a clever cleaning carrier



BIRD® intelligent disposable packaging

Integrated innovation



Innovative development, creative planning, precise manufacturing and spot-on scheduling - we are a system supplier, so we look at the whole picture.

From product development to construction, tooling, production, packaging, just-in-time delivery and finally, recycling - at Variotech, you literally get "everything from a single source".

Experienced associates with a deep understanding of our customer needs



Every new development of a tray starts with a personal customer dialogue. Each Variotech customer consultant has better-than-average expertise and many years of experience. The thorough training and continuous professional development of our staff ensure that our customers receive high-quality and efficient advice.

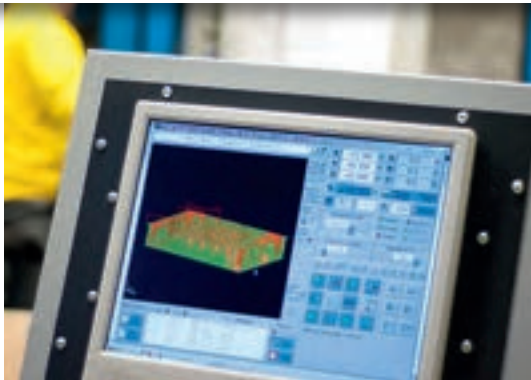
Using proven tools such as standardised checklists for new product developments or the "Variotechnixx" miniature workpieces, we make it easier for our customers to exchange information and perfect the entire workflow.

Development, construction and tooling

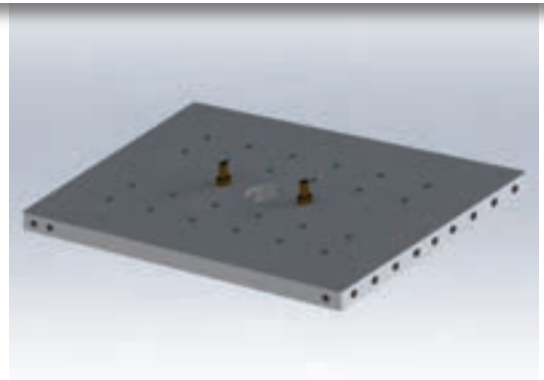


Creativity, an innovative spirit and professional expertise are the foundation upon which our products are built, and which have been recognised time and again. In 2008, our company was selected as one of the TOP 100 most innovative companies in Germany for its innovation management.

Every day we produce new workpieces according to customer specifications and perfect them to production maturity. The development process is described in detail in the "QM System Standards Chapter". This is the chapter with the most extensive procedural instructions regarding our certification in accordance with ISO 9001:2000. Without a detailed definition of this process, it would be nearly impossible to effectively manage the large number of new developments.



CAM workplace



Cooling ducts



CNC milling machine



Engravings



Upper punch



Aluminium milling devices



Vacuum holes



Tool transfer to production

Precision in series production



Whether customised versions or serial products, disposable packaging or reusable tray with a load capacity of up to several tonnes: in Variotech's production, every single tray is produced with the same level of precision, passion and professionalism.

Our state-of-the-art machinery, experienced machine operators, QM-supported production processes, precision control mechanisms and logistics planning guarantee maximum quality and exemplary adherence to deadlines.



Production



Production



Production



Production



Logistics



Logistics



Quality Assurance

TRAYMASTER

For the premium production segment, we optionally recommend our surface cleaning system TrayMaster.

The system, which has been designed specifically for sensitive, slightly moulded and large surface areas, enables non-contact and gentle cleaning of the surface using pulsating air swirls.

Outstanding cleaning can be attributed to the combination of electrostatic discharge, pulsating compressed air and targeted extraction. Dust and dirt particles are removed residue-free.



Fully automatic, non-contact cleaning of trays and flat components



Truly clean: Contaminants are collected in the dust collection drawer



Safe guidance through cords at the bottom and top; adjustable conveying speed.



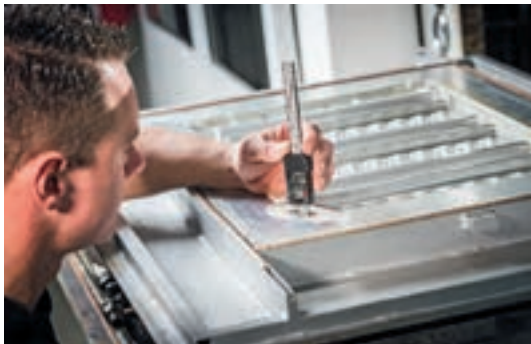
Depending on the number of units, the TrayMaster is either integrated into the production process or operated as a single unit.



Review of material conductivity
by the ESD Officer



Product cleaning with ionised compressed air
as a quality standard



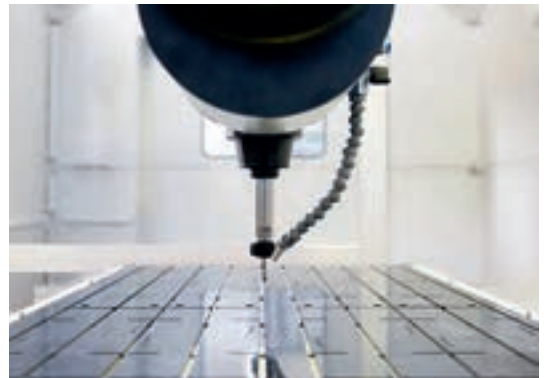
Hourly QA checks, selection pursuant to electronic
random number generator, documented in writing



Specially trained employees continuously monitor
refined quality and performance standards



Our balance scorecard system informs all employees
of developments and innovations



Hightech 5-axis milling of Variotech WPCs takes place
exclusively in completely shielded machines



3D printed samples, moulds of customised trays that
you can touch



Performance and quality certified in accordance with
ISO 9001:2008

BEAR[®]





The ingenious base frame principle

The powerful all-rounder for automatic handling and palletising fulfils every requirement of an ingenious and economical tray.

The extremely stable base frame principle enables precise and reliable positioning of even the heaviest products and workpieces.

The unique advantages of the BEAR® frame also facilitate individual and customised solutions for trouble-free transport and safe storage, particularly for complex requirements specifications in terms of shape, dimensions and weight.

BEAR[®] Advantages



A single unit

No logistics chaos with containers and separate compartments, no assembly or dismantling required for cleaning! BEAR[®] is the clever alternative to standard containers with a compartment and is made as a single unit.



One for all

ONE tray for ONE product: ONE BEAR[®] instead of different types of containers, different materials and a range of compartments.



Comfortable handling

In and out of the cleaning system in the blink of an eye. With the BEAR[®] frame, there is no need for time-consuming separation of container and compartment before cleaning, and no need for reassembly after drying.



Fixing plate for pallet

Where others tend to give in, BEAR[®] always remains upright. The torsion-resistant and self-locking frame construction guarantees safe and stable stacking.



Extremely strong

Centre stacking and end-to-end flow of force in the frame prevent buckling and interlocking at higher loads.



Water-repellent

Thanks to an angled base frame, water can easily flow off the BEAR® system. All of this leads to shorter drying periods and corrosion prevention..



Space-saving

Thanks to continuously height-adjustable tools, the BEAR® frame allows for any desired height. The available area is used most efficiently, resulting in extra space for transport and storage.



Flexible in size

While others offer only very few standard dimensions, the BEAR® frame is available in the following basic formats:

400 x 300 mm, 600 x 400 mm, 800 x 600 mm,
1000 x 600 mm and 1200 x 800 mm.

Special dimensions on request!

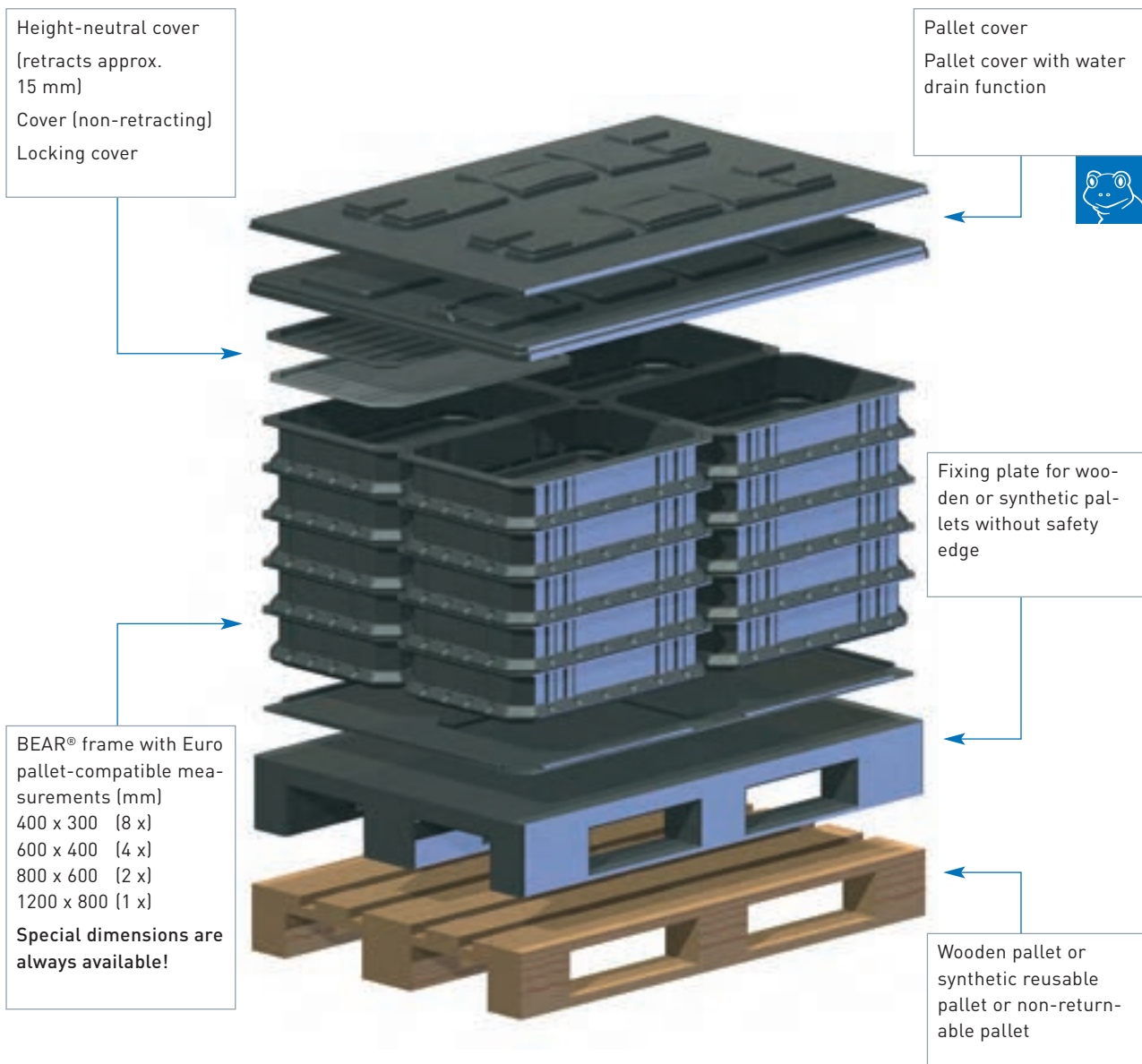
BEAR[®] Developer, producer and system supplier



Through the daily production of individual solutions for customised trays, we are very familiar with the needs and requirements of the market. The remarkable Variotech quality also translates to our standard products, and we are proud to be able to offer a perfect equipment system from a single source.

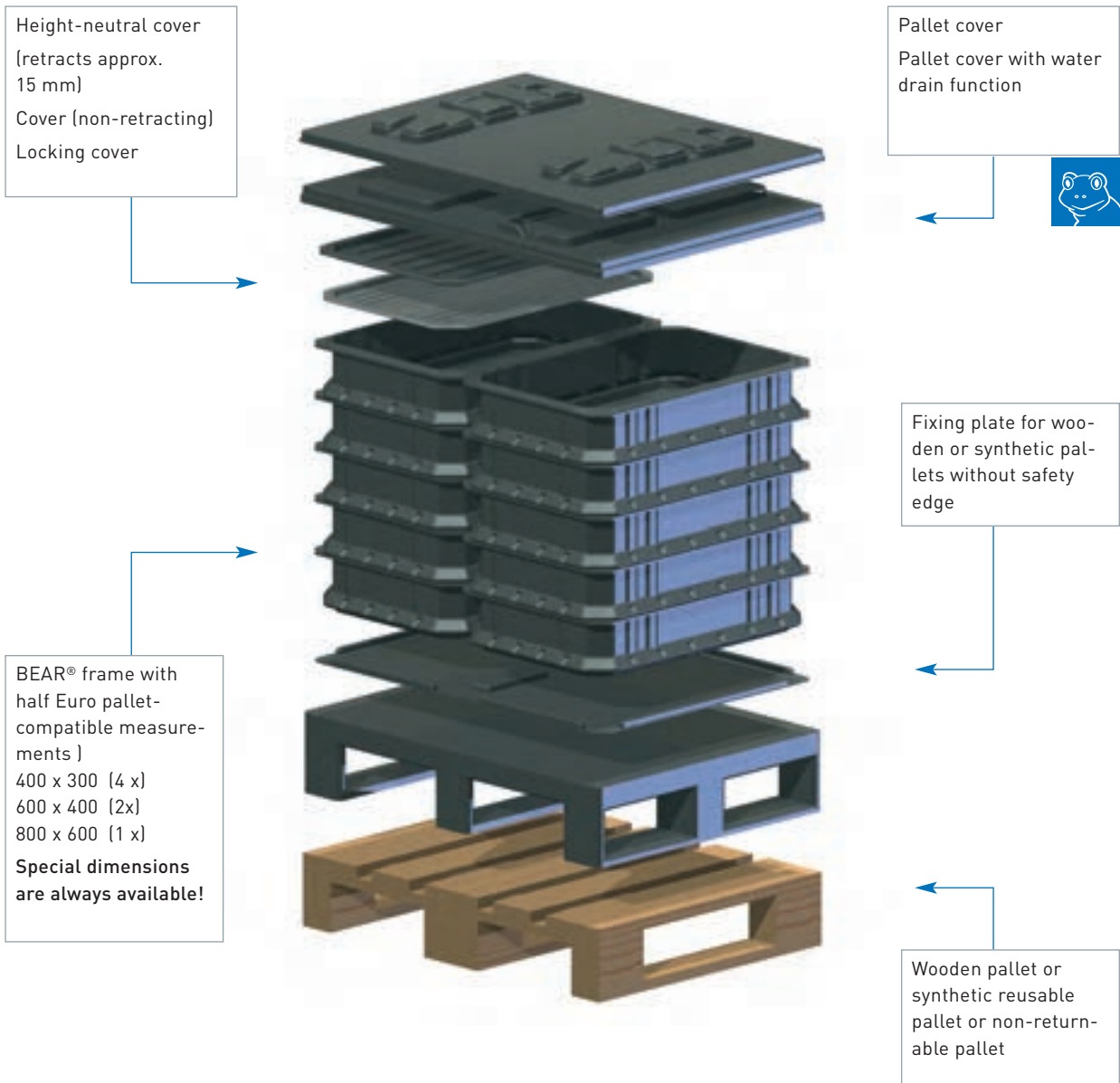
Euro, ISO, non-returnable or reusable pallets, fixing plates or covers – whichever carrying device you require for safe transport, you will find it at Variotech.

Euro pallet 1200 x 800



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).

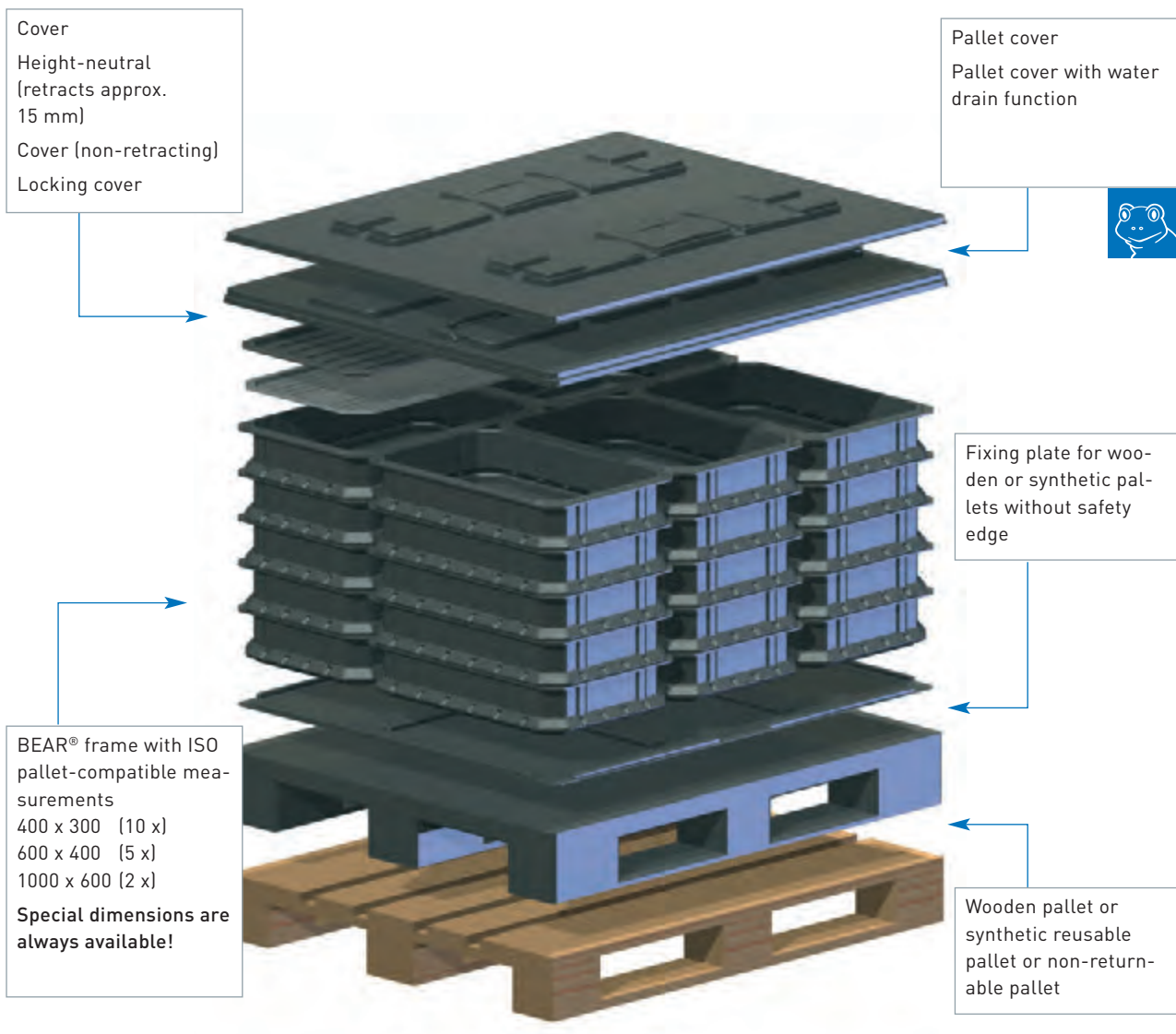
Half Euro pallet 800 x 600



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).



ISO pallet 1200 x 1000



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).

BEAR[®] Accessories



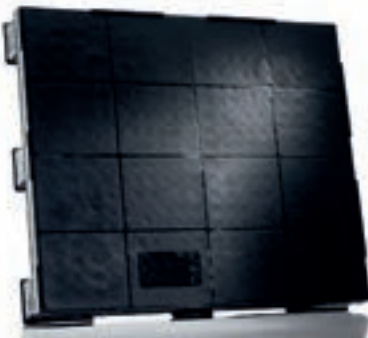
Pallet cover



Pallet cover with water drain function



Fixing plate for pallet



Synthetic pallet



Height-neutral cover

A wide variety of functional accessories and special designs is available for our BEAR[®] tray.



Label pockets



Colour strip identification



Printing



Sticker



Transponder



VCI capsules

Close cooperation and ongoing dialogue with our customers has resulted in numerous improvements and new product ideas in recent years, which have yielded exclusive special designs, smart extras and useful additional components. The Variotech team is looking forward to hearing your ideas and to putting its expertise to work.

BEAR[®] Accessories



Tray for fuel distributor rails



Tray for rails



Tray for high-pressure pumps



Tray for stators



Tray for case covers



Tray for delivery units

BEAR[®] combines the safety and reliability of an optimal base frame principle with an unparalleled variety of possible applications.

Well-known manufacturers in the automotive industry and in medical technology trust the creativity of the Variotech designers and quality claims of the Variotech production team.



Tray for wheel bearing sensors



Tray for fuel pumps



Tray for lever-type senders



Tray for gears



Tray for levers



Tray for seat trim cover

Please find some "Made by Variotech" design solutions below, to demonstrate the creative potential of our development team and the range of possibilities.

For more detailed information, please call us on +49 5921 89 89 0.

TIGER[®]



Automatic handling
perfected





Variotech's tray system TIGER® was specifically designed for automatic handling in palletising stations. Its modular base frame tool makes it possible to individually adapt the basic dimensions, height and the specific handling functions of each tray.

The ingenious modular system has established itself as a quick, flexible and highly reliable tray in the "automatic handling" market segment. Its qualities are reflected in better-than-average growth rates and have allowed us to garner invaluable experience in developing unique solutions. Why not take advantage of it?

TIGER[®] Advantages



Coding strip

Coding strip in action. The coding enables a binary search of the tray type.



Optical anti-twist protection

Optical anti-twist protection is a visual tool for proper positioning of the trays.



Mechanical anti-twist protection for conveyor systems

This special protection ensures that the orientation of a tray is mechanically recognised by the palletiser.

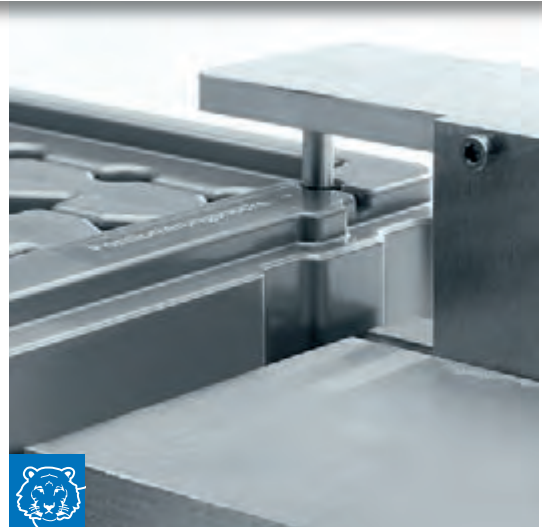


Directional arrow

The directional arrow can be used as additional optical anti-twist protection..



Mechanical and optical anti-twist protection
Anti-twist protection is essential in automated systems if the workpieces are asymmetrical.



Positioning cam
The positioning cam fixes the tray during automatic handling.



Circumferential groove for palletising stations
The circumferential groove is required in palletising stations for raising and lowering the tray.



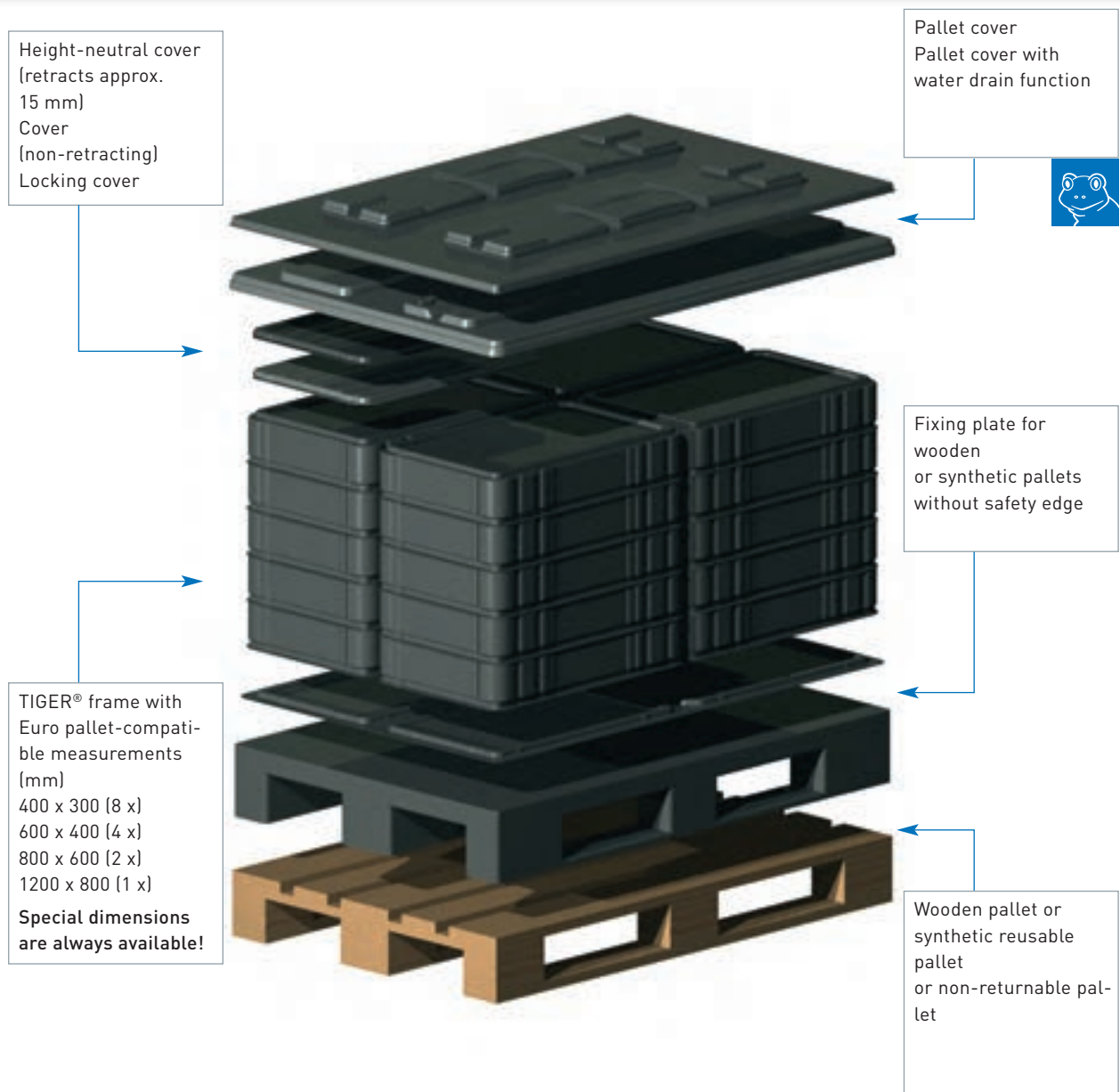
Space for barcode label
We automatically attach barcode labels during the production process. For special shapes (temperature or chemical-resistant), we can also take care of procurement.

TIGER[®] Cost savings



TIGER[®] base frame tools are modular. You decide what functions "your" TIGER[®] needs to fulfil, resulting in significantly lower costs, in part by reducing the tool costs, because you are only paying for the compartment in the standardised frame and also because the TIGER[®] offers a complete equipment system from EURO to ISO pallet and from fixing plates to covers, which significantly minimises organisational and logistical expenses.

Euro pallet 1200 x 800



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).

Half Euro pallet 800 x 600

Height-neutral cover
(retracts approx.
15 mm)
Cover
(non-retracting)
Locking cover

Pallet cover Pallet
cover with water
drain function



Fixing plate for
wooden
or synthetic pallets
without safety edge

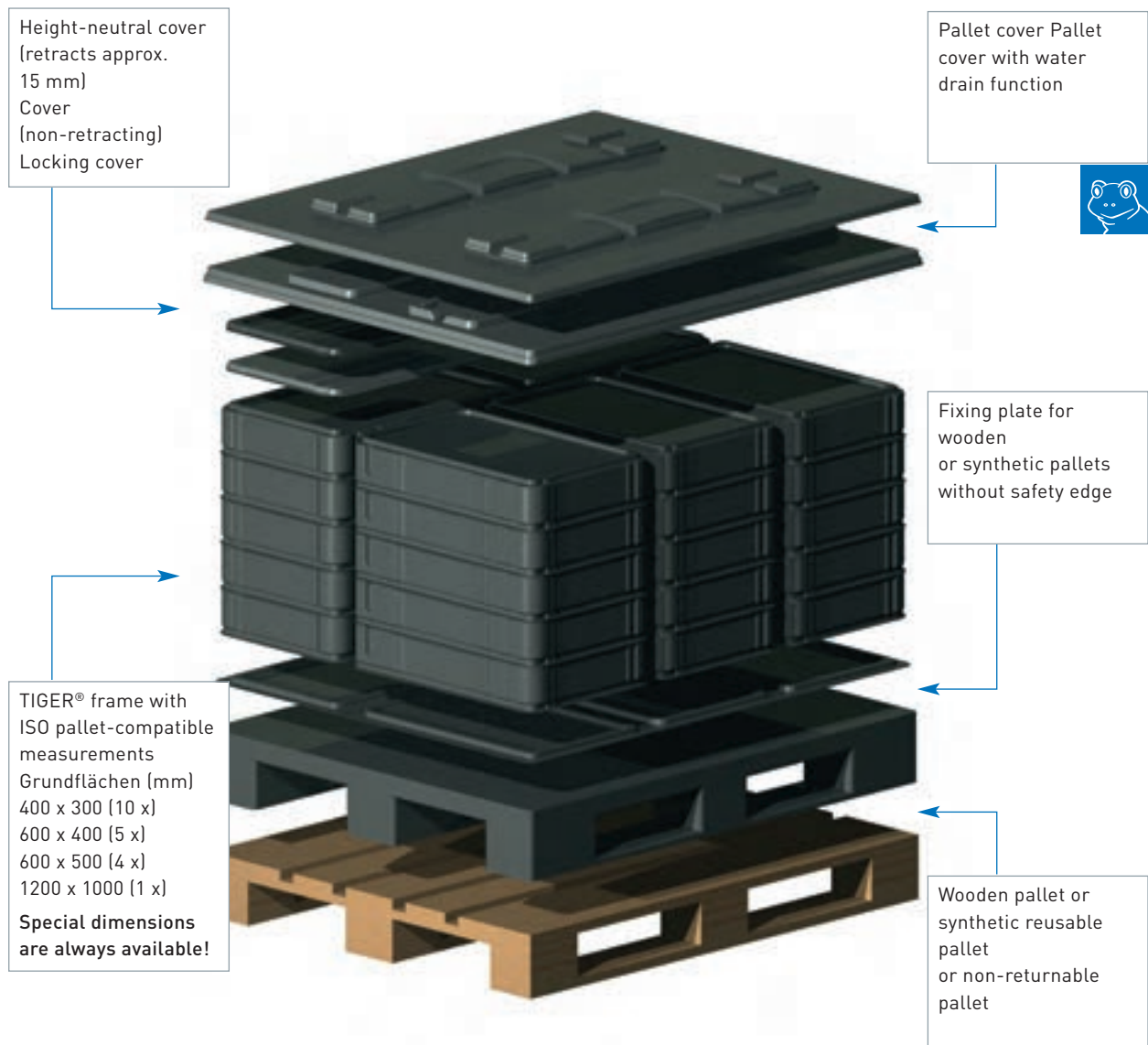
TIGER® frame with
ISO pallet-compatible
measurements
Grundflächen (mm)
400 x 300 (4 x)
600 x 400 (2 x)
800 x 600 (1 x)
**Special dimensions
are always available!**

Wooden pallet or
synthetic reusable
pallet
or non-returnable
pallet



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).

ISO-Palette 1200 x 1000



All elements of the system can be produced from a range of thermoplastics (see p. 52/53), also in electrically conductive and transparent variants (the reusable pallet is limited as it is produced through injection moulding).

TIGER[®] Accessories



Pallet cover



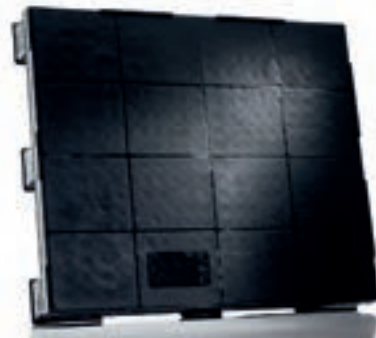
Pallet cover with water drain function



Cover does not retract



Fixing plate for pallet

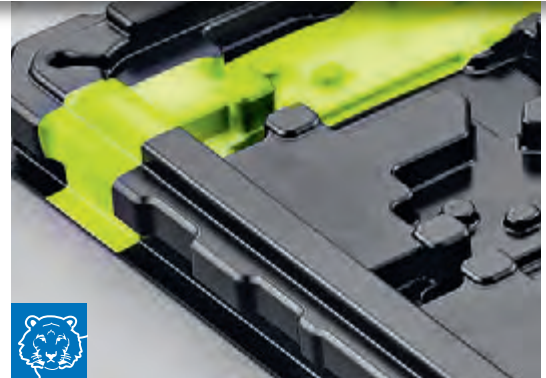


Synthetic pallet

The high demands of our customers when it comes to trays for automatic handling spur us on to develop new product ideas and improve quality on a daily basis. A small selection of optionally available special designs can be seen on this double page.



Label pockets



Colour strip identification



Printing



Inserted label frame



Transponder



Sticker

A wide variety of useful accessories is available for our Variotech TIGER® tray. Simply arrange a no-obligation appointment with us. You will be impressed by our original samples.

Or put us to the test in practice. The Variotech team is looking forward to fulfilling your specific requirements and solving your unique challenges.

TIGER® Application examples



Tray for fuel caps



Tray for retaining plates



Tray for base plates



Tray for transmission rods



Tray for sleeves



Tray for electric motor stators

TIGER® combines design flexibility with economical production.

Renowned manufacturers in the automotive industry trust our creativity and standard of work.



Tray for electric motors



Tray for circuit boards



Tray for toothed segments



Tray for circuit boards



Tray for rails



Tray for camshafts

The “Made by Variotech” designs below illustrate our extensive understanding of the perfect tray for automatic handling.

For more detailed information, please call us on +49 5921 89 89 0.

STALLION®

The future of automatic
handling



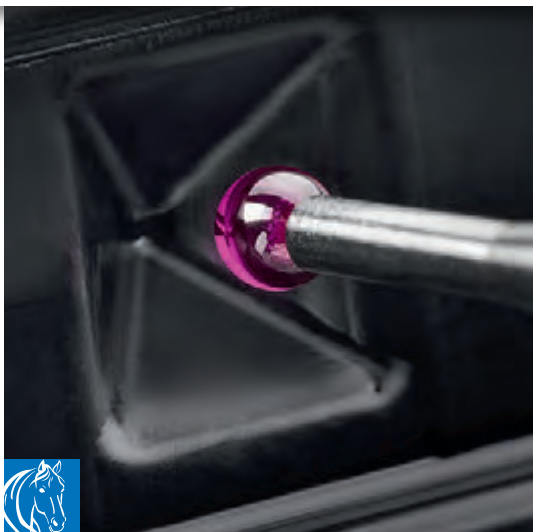


The Variotech STALLION® tray is another modular system for automatic handling in palletising stations that is conquering the international market.

The STALLION® guarantees high-precision equipping, outstanding steering qualities as well as maximum stability for stack management and transport. Extra large radii ensure an exclusive design and prevent the formation of predetermined breaking points.

When placed side by side on a pallet, the STALLION® can be removed synchronously by handling equipment. Newly developed tools with innovative cooling control enable an optimised production process and reduce production tolerances. The modular system allows individual customisation as well as adjustable basic dimensions (W | L | H), as well as numerous innovative handling functions.

STALLION[®] Advantages



Centring pyramid

A pyramid-shaped hollow is placed on all four sides of the tray; when positioned centrally on the longitudinal sides (standard), the potential tolerance values are halved.



Ergonomically shaped handles

Well-protected handles with an ergonomically designed radius placed on the short sides enable easy and safe transport of the trays and optimise manual handling.



Prominent bump stop

A wide circumferential stop surface optimises the steering of trays in palletising stations; the protruding stop surface with a recessed punched edge prevents the trays from getting stuck (interlocking/jamming).

XXL groove

A significantly stronger (higher) circumferential groove supports the levelling of height tolerances and facilitates the option of manually working the flanging radii.



Minimal stacking deviation

The new manufacturing process guarantees maximum dimensional stability at all levels and only marginal deviations in the stack thanks to minimal height tolerances.



Adaptation of corner contours

To refine the manufacturing process, corner contours can be subsequently processed (milled) on the underside of the tray to optimise stacking accuracy.



Covered side windows

Inserted into the walls, the funnel-shaped indentations create openings in the stack formation and allow corrosion protection fluids (VCI) to enter from the outside.



Positioning cam

The extra deep and diagonally (left/right) placed cam allows the tray to be securely fixed during automatic handling.

STALLION[®] Advantages



Coding strip

With up to five digits, these enable a binary search of the tray type.



Directional arrow

Can be optionally used as additional optical anti-twist protection..



Optical anti-twist protection

Three smoothly rounded edges and one diagonal edge enable fast and reliable identification..



Mechanical anti-twist protection

The single-sided uniquely shaped flanging radius enables easy mechanical recognition in the palletising station.



Transponder, barcode and QR code identification



Colour strip identification



All-sided printing



Pallet cover



Load test



Synthetic pallet

From Euro, ISO and securing pallet to the cover - a compact range of accessories is also available for the STALLION®.

The tray can be equipped, printed and labelled on several sides as well as in different colours. This takes place during the production process.

Unique in the Variotech tray segment: We can optionally perform a load test for each STALLION®.

FOX[®]





A clever cleaning carrier

The FOX® is a special synthetic cleaning carrier that has been developed by our designers in close cooperation with highly experienced professionals.

A significant advantage when compared to our standard metal trays is cost-efficient production, as the raw material (special synthetic material instead of stainless steel) and the deep drawing process are perfectly suitable for series production. The low weight, favourable recovery capacities of the material and low risk of injury for the user are further arguments for the economic viability of the Variotech FOX® cleaning carrier.

FOX[®] Advantages



Special PP material

The polypropylene used by FOX[®] is resistant to the stress experienced during cleaning in the ultrasonic bath.



Lightweight

FOX[®] trays are made from synthetic material and are therefore especially light. They are nevertheless just as robust as our trays made from metal.



Recoverable

Metal containers quickly become "deformed" and potentially unusable. Even after significant load, the FOX[®] trays take on their original shape, similar to a car's bumper.



Safe (no risk of injury)

Metal carriers are welded, bevelled or screwed and have correspondingly sharp edges. FOX[®] synthetic carriers on the other hand have soft edges and are always cleanly deburred..



Tray for stators



Tray for liners



Tray for tubular bags



Tray for various pistons



Tray for pump plates



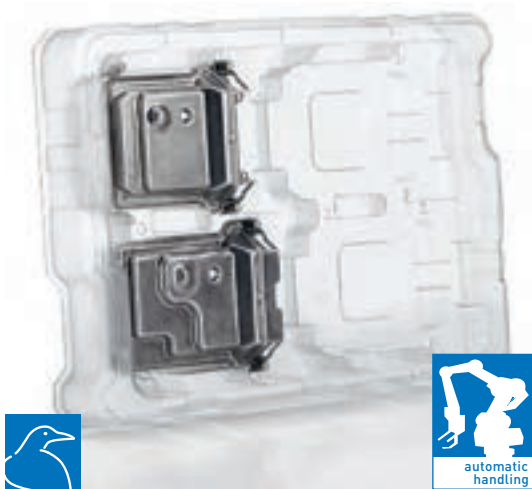
Tray for speed selector pistons

BIRD®



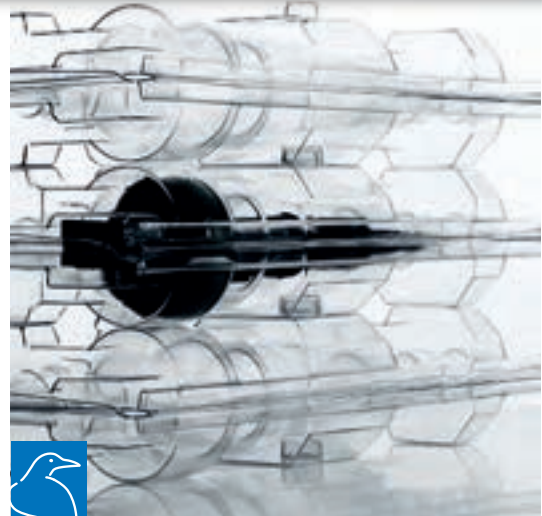
Intelligent disposable packaging

Nothing is impossible. This is also true for the production of disposable trays. Whether solid axle components or fragile electronic accessories, BIRD® unites the requirements of functional trays for quality and efficiency of a disposable carrier in one visionary product.



Thin & light

BIRD[®] trays save valuable resources. They are light yet stable, which leads to lower transport and logistics costs.



Stackable

As with regular trays, BIRD[®] offers a wide variety of options: stackable as an intermediate layer, rotary stackable, compartment in container or box, etc.



Folding mechanism

As folding packaging, BIRD[®] is extremely stable and dust-proof, while offering a very low weight.



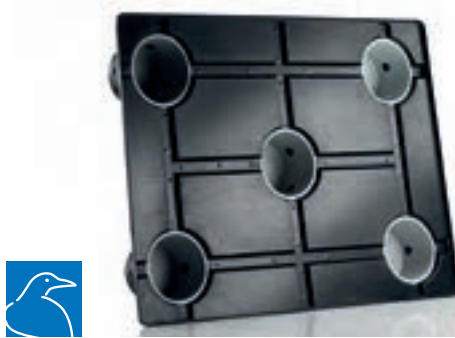
Recyclable

BIRD[®] is exclusively made of pure materials. This makes recycling a breeze.

BIRD® Application examples



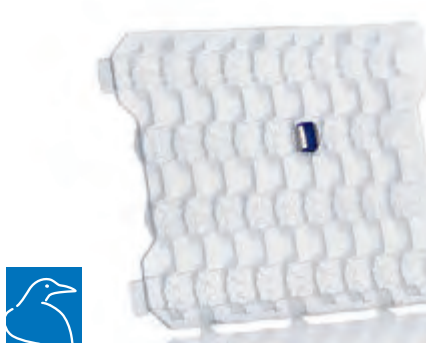
Tray for common rail injector



BIRD® non-returnable pallet with integrated stabilizing elements



Tray for circuit boards



Tray for capacitors



Protective cap for control units



Tray for electronic transmission control units

Disposable trays also require precision and cost effectiveness. For the production of our BIRD® One-Way-Trays, we use state-of-the-art vacuum forming machines. The special machines for separate forming and stamping offer sophisticated technology and guarantee computer-controlled accuracy and clean room compliance.

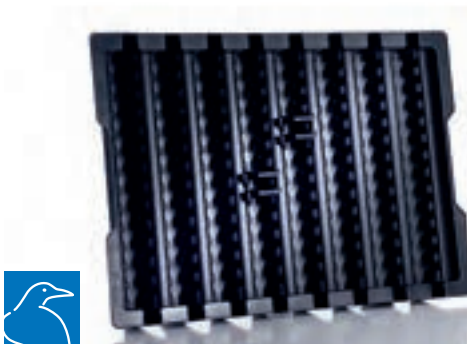
Technical ingenuity such as the heated stamping knives and pre-heating of the clamping edge, or the excellent moulding quality achieved by using adjustable compressed air, guarantee better-than-average product quality.



Tray for rotary angle sensors



Tray for membranes



Tray for signal transmitters



Tray for electronic sensors



Tray for pressure pipe sockets



Tray for rotary knobs



Product variety – even in standard versions



In addition to the individual trays of our BEAR®, TIGER®, STALLION®, FOX® and BIRD® brands, we also develop off-the-shelf quality trays for any application. Product data sheets and information about the extensive Variotech Classic product range are available on request.



Slipsheets



Cover



Rotary stacking



Plates and compartments



Compartments in containers



Standard trays

We keep a large selection of standardised trays on hand for our customers (also for applications in other industries) for on-demand production and delivery. Please contact your Variotech sales representative for more information.

Variotech – Material selection



In principle, we are capable of using all types of synthetic material that are processed by thermoforming for our trays. Naturally, each material has its own specific properties and is therefore more or less suitable for any given application.

We provide sample materials including a classification overview as a Variotech service for our customers. This is not, however, a substitute for the expertise of our sales representatives. Make a no-obligation appointment and experience the competent Variotech service first-hand.



ABS regenerated



PE



PS-PE



ABS-TPU



PS-EL



PET



ABS-TPU-EL



dissipative PS



PP



PS



PC



dissipative PET



ABS-EL



Maywotron



ABS-PC

Variotech – System supplier for the ...



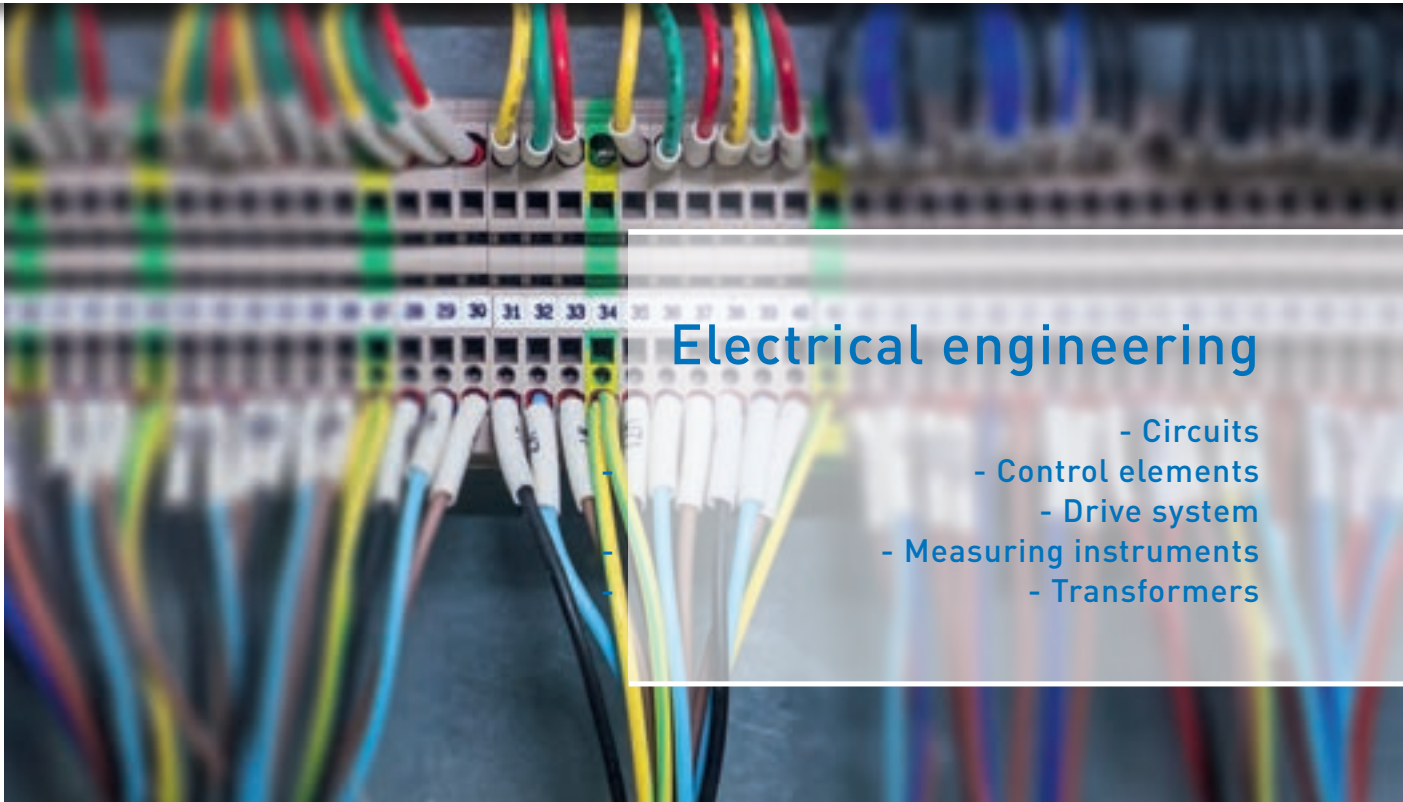
Automotive industry

- Engine components
- Climate control
- Chassis components
- Electronic components
- Fuel supply
- Interior/exterior



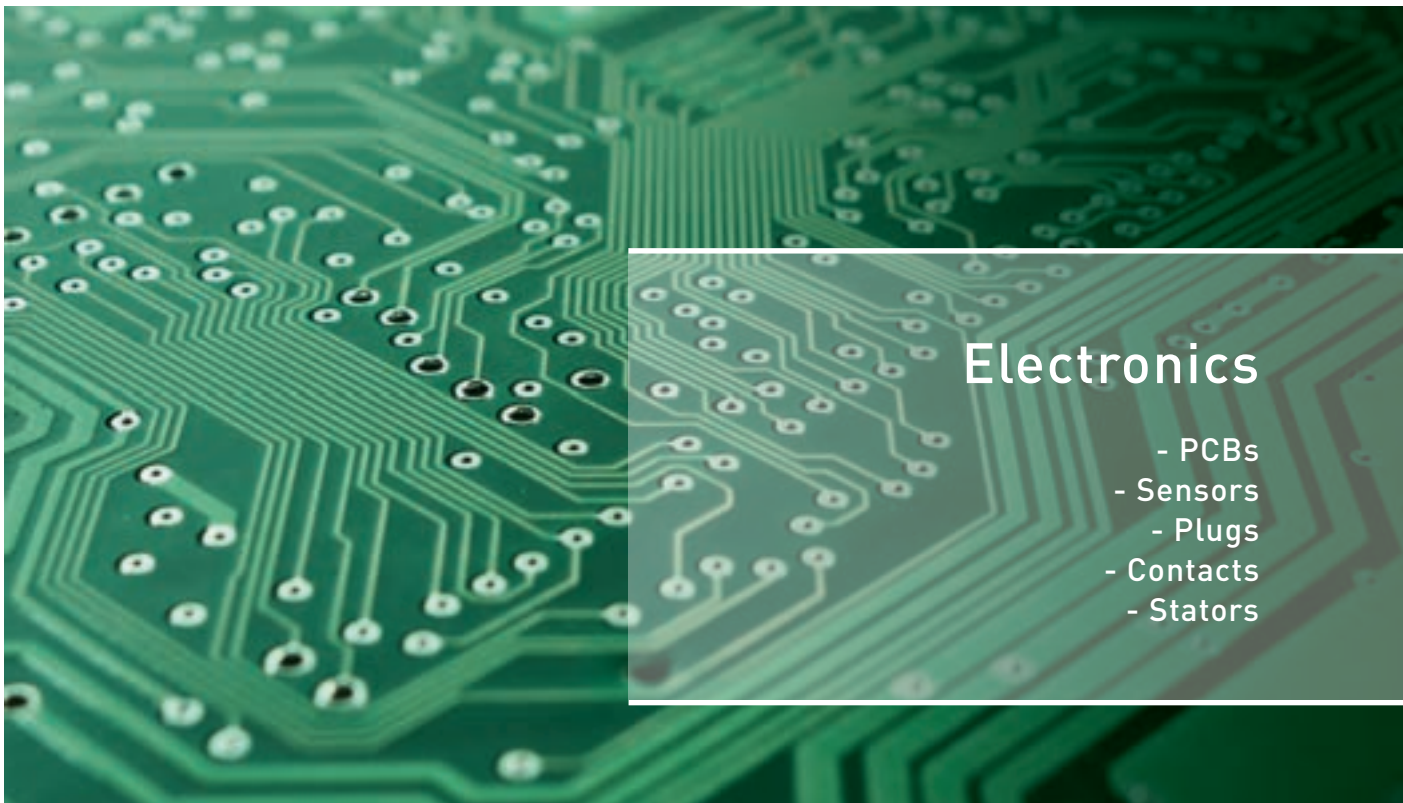
Medical industry

- Injection moulded components
- Prosthetic components
- Drain tubes
- Inhalers



Electrical engineering

- Circuits
- Control elements
- Drive system
- Measuring instruments
- Transformers



Electronics

- PCBs
- Sensors
- Plugs
- Contacts
- Stators

Maximum benefits in a small package



We have garnered an excellent reputation throughout the industry as an innovative incubator of ideas and an experienced system provider. Our recipe for success? Our claim to develop customised solutions for any customer requirement. So it should be of no surprise that we have developed something very special for a quick and memorable demonstration of the benefits of our Variotech tray types: Using miniature trays, the various stacking principles and advantages of our BEAR® and TIGER® products are very easy to grasp. Ask your Variotech expert for your personal set of samples, or call us on +49 5921 89 89 0.

Colour strip identification for trays



In pursuit of a fully-automated and cost-efficient production process, colour coding plays an integral part. Variotech is therefore offering trays with colour strip identification.

For the production of the raw material panels, we use only tested granules from selected raw material producers. Even the carrier material (ABS) is subject to very strict quality control and is processed on high-performance extrusion lines on thermal rollers, where it is "married" to the colour strip(s). The complex manufacturing process guarantees an outstanding quality standard (impact resistance, stiffness, UV colour stability).

Colour chart for colour strip identification

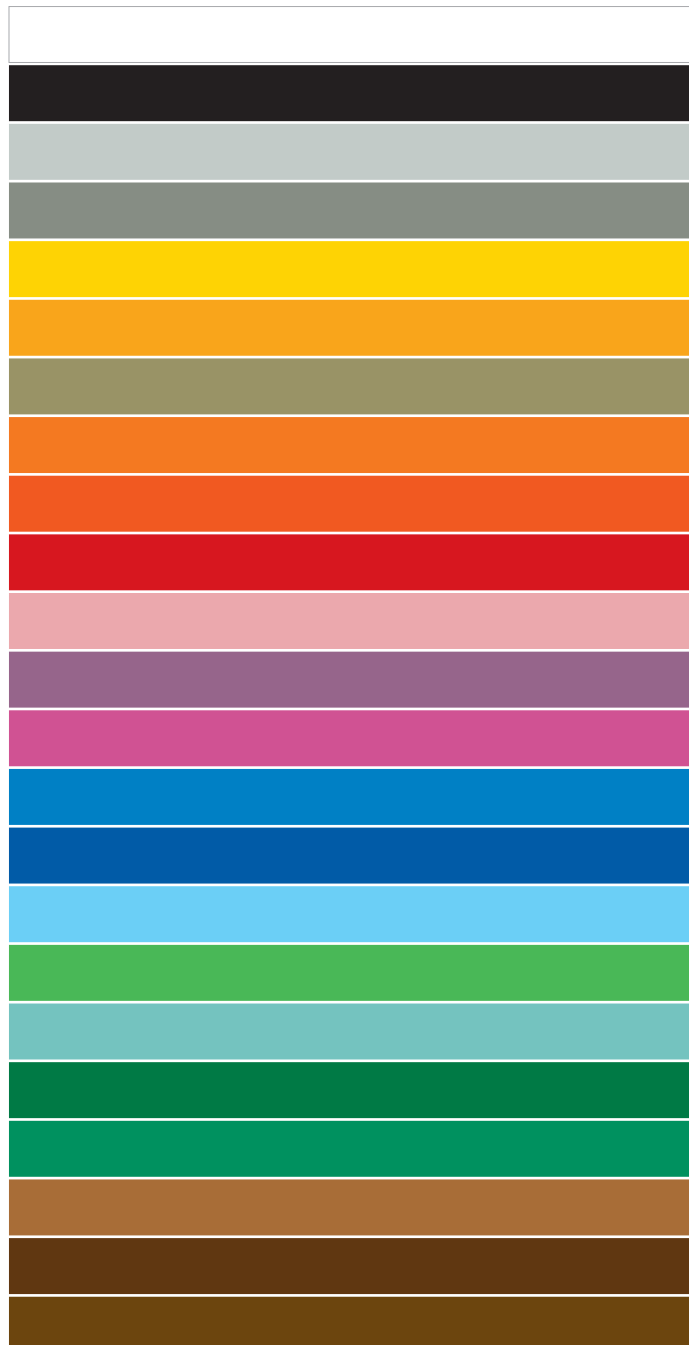
Up to three strips can be used next to one another (standard strip width = 50 mm / other formats on request; minimum spacing between the colour strips = 20 mm).

The following 24 colours are available for individual colour coding.

Colour designation*

Colour sample**

White (standard version)
Black
Light grey, similar to RAL 7035
Traffic grey, similar to RAL 7042
Zinc yellow, similar to RAL 1018
Yellow, similar to RAL 1006
Olive yellow, similar to RAL 1020
Yellow-orange, similar to RAL 2000
Orange, similar to RAL 2009
Red, similar to RAL 3020
Light pink, similar to RAL 3015
Red lilac, similar to RAL 4001
Heather violet, similar to RAL 4003
Sky blue, similar to RAL 5015
Dark blue standard
Light blue standard
Yellow green, similar to RAL 6018
Light green, similar to RAL 6027
Mint green, similar to RAL 6029
Green standard
Ochre brown, similar to RAL 8001
Brown standard
Olive brown, similar to RAL 8008



* The colours are similar to the RAL colour values listed in the table

** The illustration may differ from the original

Our partners for automatic handling



In order to ensure the process reliability of our trays for the long term, we work exclusively with renowned plant manufacturers and partner companies. Some of these are

FLG Automation AG



Sortimat GmbH



Krauss-Maffei GmbH



Reis GmbH



Grässlin GmbH



Hirata Robotics GmbH



Geiger Handling GmbH & Co. KG



Ima-tec





Variotech GmbH
Lise-Meitner-Straße 12, 48529 Nordhorn, Germany
Phone +49 59 21 8989-0, Fax +49 59 21 8989-10
info@variotech.de



Come and visit us:
www.variotech.de