

COMPETENCE IN POLYURETHANE





Dear potential buyers and business partners,

For over 35 years we have been very successfully involved with the development, manufacturing and sale of high-quality semi-finished products as well as castings and mouldings made from VULKOLLAN[®] and other polyurethane elastomers. With powerful casting plants and the group's own mould construction, we offer you a highly flexible polyurethane range, from individual part to volume production. A wide range of semifinished products rounds off the service.

Delicate and complex castings and mouldings from QUADRIGA are used as construction and vendor parts in all branches of industry like, for example, in machine engineering and aeronautics. They make for smooth functioning and safety in industry and in everyday life. Furthermore, as part of the SPÄH group, we can offer you further vendor products, additional machining processes and services, such as stamping, turning, milling, water-jet cutting etc. That's why we can justifiably say:

QUADRIGA-COMPETENCE IN POLYURETHANE

Have fun browsing

Homen

Wolfgang Hofmann



Wolfgang Hofmann Managing Partner of QUADRIGA Dichtungs-GmbH

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QUADRIGA INSIDE

IN PARTY AND IN

COMPETENCE IN POLYURETHANE



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Guide rollers in elevators with VULKOLLAN® 90 coating

VULKOLLAN[®] is a registered trademark of the Covestro Group.



Quality from a single source Choose the right polyurethane for your application

Polyurethane D44 - The all-round material





With polyurethane D44 we offer a polyester-based PUR elastomer which is both great value for money and is impressively versatile. Its high structural strength combined with good elasticity and low abrasion have opened up a broad field of application for this type of material.

The continuous further development of the mixtures allows for adaptations to customer-specific requirements.

Convincing properties

- High wear resistance
- Good damping
- High tear resistance
- Colour stability
- Protected against hydrolysis
- Resistant to ozone and UV
- Very low abrasion
- High degree of elasticity
- High notch toughness
- Free of plasticizers
- Resistant to mineral oils and greases
- Configurable from 35 95 Shore A

VULKOLLAN® D15 - The high-tech material VULKOLLAN® is a registered trademark of the Covestro Group. VULKOLLAN® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group. Vulkollan® is a registered trademark of the Covestro Group.</

A classic among the polyurethane elastomers, the rubber-elastic material VULKOLLAN® is one of the most powerful design materials, even today. The raw materials used in the manufacturing are specified particularly tightly and are subjected to the strictest quality controls. Strict adherence to the manufacturing guidelines specified by the Covestro Group ensures the consistently high quality of our products.

This high-performance material stands out in particular thanks to the combination of several outstanding properties. It is precisely this which allows for the development of further areas of application.

Many products and applications have specific requirements, often requiring something other than normal rubber. Boasting considerably higher tear resistance, elongation at break, tear propagation resistance and abrasion resistance, it is in cases like this that our high-quality polyurethanes come into their own.

Outstanding properties

- Highly resistant to dynamic stressing
- High tear propagation resistance
- Very high wear resistance
- Greatest modulus of elasticity of all PUR elastomers
- Variable from 60 96 Shore A
- Constant elastic behavior across a wide temperature range
- High rebound resilience
- Very low compression set
- Excellent damping
- Low temperature dependence
- Low inner build up of heat with dynamic stressing

Values for standard elastomer EPDM 80 by comparison:

Tear resistance	 4 MPa
Elongation at break	200 %
Tear strength	 4.67 N/mm
Abrasion resistance 💻 👘	 483.77 mm ³



The right shape for everything We turn high quality raw materials into complex PUR products

Hot-casting process

In the manufacturing of our products we exclusively use carefully specified raw materials supplied by well-known German manufacturers. They provide the basis for consistent quality while at the same time



Machine casting



Hand casting

taking environmental aspects into consideration. The hot-casting process that we use enables us to manufacture various productgroups from VULKOLLAN[®], polyurethane and PUR-metal compounds.

Forms, dimensions, applications

Semi-finished products in the form of

- Sheets 0.5 to 50 mm thick
- Blocks
- Square bars
- Round bars 5 to 230 mm ø
- Ground bars from 5 to 34 mm ø
- Pipes

Custom-made products

- Other thicknesses
- Oversize formats up to 4,000 × 2,000 mm or up to 7,000 × 1,000 mm
- · Reinforced sheets with metal insert
- Customized hardness settings
- Custom colours

Mouldings

- Wearing parts such as scrapers, e.g. on snow-clearing equipment, buffer stops, printing rollers
- Membranes
- Mixer linings and PU coatings for screening systems
- Coupling elements
- Doctor blades
- PUR-coated wheels and castors
- and much more

Further mechanical processing

In order to further process the semi-finished polyurethane product or the castings and mouldings we employ various mechanical machining processes within the SPÄH group.

The variety of processing and finishing steps allows for the customized, customer-specific manufacturing of a myriad of technical components.

The permanent availability of materials prevents bottlenecks, thus minimizing the chances of missed deadlines. With the group's own tool and mould construction for all solid casting moulds and stamping tools we lay the foundations for absolute precision.

Machining process

- Turning
- Milling
- Plotting
- StampingWater-jet cutting
- Water-jet cuDrilling
- Sawing
- Roughening
- Grinding
- Splitting
- Cutting-Off





CNC processing (turning and milling)









Water-jet cutting



Splitting

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Elastomer expansion joint for slalom poles made from VULKOLLAN® 80



Products



Range of semi-finished products: Sheets (available from stock)

Hardness range

• Standard hardnesses are 70 (72), 80 (82) and 90 Shore A

Formats

 Standard formats 2×1m, 0.5-50mm max. thickness



Range of semi-finished products: Round bars (available from stock)

Hardness range

• Standard hardnesses are 70 (72), 80 (82) and 90 Shore A

Formats

 Our standard dimensions range from 5 to 150 mm in diameter, standard lengths are 1 m

Range of semi-finished products: Sheets (individual production)

Hardness range

• Individual hardness settings of 35, 40, 45, 50, 55, 60, 85 and 95 Shore A are available on request

Formats

- Special formats up to 7 m and max. 4×2m surface area (max. unit weight 130 kg)
- Special thicknesses like, for example, 3.5; 7.0 or 13 mm, splitting up to max. 1,380 mm width
- Sheets with steel, expanded metal or perforated metal sheet insert (insert at least 3 mm thick, total thickness of the sheet at least 10 mm, total size of the sheet max. 2×1 m, total weight of the sheet max. 80 kg)

Range of semi-finished products: Round bars (individual production)

Hardness range

 Individual hardness settings 60,85 and 95 Shore A are available on request

Formats

• Special formats up to 230 mm diameter



Range of semi-finished products: Pipes (individual production)

Hardness range

• Standard hardnesses are 60, 70 (72), 80 (82), 85, 90 and 95 Shore A

Formats / Special Formats

 For the manufacture of the pipes/tubes we have a variety of forming systems available that can be combined with one another i.e. for the majority of dimensions appropriate pipe/tube forms are available and no additional forming costs are incurred.

Range of semi-finished products: Pipes Pipe dimensions

Dimensions: Pipe system 1

 Total length up to approx. 550 mm Internal diameter: 8.5 to 100 mm External diameter: 20 to 135 mm Internal and external diameters can be combined as desired

Dimensions: Pipe system 2

 Total length up to approx. 110 mm Internal diameter: 32 to 330 mm External diameter: 430 mm Internal and external diameters can be combined as desired

Standard colour for VULKOLLAN[®] is basically "natural", for polyurethane D44 it is "brown". Colouring in black, white, red, blue, yellow and green can be custom made (other colour shades, e.g. from RAL colour chart after consultation).





Due to their good chemical resistance against lubricants, as well as their resistance to weathering and UV radiation, their high compressive strength, very high abrasion resistance and low deformation, castings and mouldings made from polyurethane are perfectly suited for seals or components in systems and machines.

With powerful casting plants and the group's own mould construction, we can offer you a highly flexible polyurethane range, from individual part to volume production. The production is customized according to your specifications, drawings or samples.

Castings & mouldings (individual production)

Hardness range

• Standard hardnesses are 60, 70 (72), 80 (82), 85, 90 and 95 Shore A





Clutch packets (available from stock)

Hardness range

• Standard hardness is 90 Shore A

Formats

• Oval and rectangular standard sizes

Clutch packets (individual production)

Hardness range

• Individual hardness settings of 60, 70, 80, 85 and 95 Shore A are available on request

Formats

• Other dimensions/special formats are available on request



Concrete wear parts (individual production)

Hardness range

- 80 and 90 Shore A
- Material
- Polyurethane D44, brown (standard)
- Other materials and hardnesses available on request.

Concrete wear parts made from polyurethane D44 are used as mixing tools for abrasive bulk goods in a myriad of mixing and recycling plants in the concrete and tarmac industry in the form of blades, arm protectors, scrapers, mixing arms etc.



Greatest dynamic resilience in combination with excellent damping behavior make polyurethane elastomers a superior material for spring elements. High suspension comfort and high torques for power transmissions can be achieved even with small sizes.

Our Polyurethane D44 is an excellent polyurethane elastomer based on polyester-polyol and MDI. It features an attractive price and impressive properties.

Elastomer spring elements (available from stock)

Hardness range / colour

90 Shore A, red
96 Shore A, yellow

Material

 VULKOLLAN[®] D15, depending on hardness range in red or yellow

Formats

- Standard dimensions according to DIN 9835 T1 (new: DIN ISO 10069-2)
- Other dimensions, hardness settings or polyurethane D44 material are available on request



Snow scraper bars (from stock/individual production)

Hardness range / formats

- Hardness setting 80 or 90±5 Shore
- Length up to 6,000 mm cast in one piece
- Width from 100 to 400 mm
- Thickness from 10 to 60 mm
- Sides with 90° or 45° angle
- With bores or elongated holes

High wear resistance with low abrasion even on rough road surfaces, while at the same time elastic enough to absorb unevenness: these properties make VUL-KOLLAN[®] and polyurethane the ideal material for end strips on the shovels of snow-clearing vehicles. Both road surface and clearing equipment are thus optimally protected. The high tear resistance allows for durable screw connections. Its far superior properties enable significantly longer use than with conventional rubber strips made from SBR or NBR.





PUR-metal joints (individual production)

Polyurethanes can be joined to a variety of metallic and non-metallic materials with a very high level of adhesion. In such cases the metal part acts as a load-bearing body, while the polyurethane coating provides wear protection, damping, noise reduction, cushioning etc.



Wheels, castors and rollers (individual production)

Compared to other elastomers, polyurethane elastomers boast a load-bearing capacity of up to three times higher, are largely cut-resistant and are characterized by running smoothness, ride comfort and low rolling resistance. This is vital in applications such as castors, such as castors, guide rollers, deflection rollers, drive rollers, conveyor rollers or rope pulleys.

Protective vice jaws (available from stock)



STANDARD series

Special feature

 Is suited to simple, larger as well as delicate shapes and objects

Jaw width

• 100, 125 and 150 mm



PRISMA series

Special feature

- With its V-grooves this product is perfect for large-diameter objects and irregular forms.
 Jaw width
- 100, 125 and 150 mm



DIY series

Special feature

• With hemispheric grooves and narrow jaw widths this series is ideal for small parts, e.g. for model making.

Jaw width

• 80 and 100 mm

Elastic protective vice jaws made from polyurethane with attached permanent magnets are suited to all sizes and types of parallel vices for metalworking. Wide lips enable simple attachment to the vice. Splinterproof, non-slip and anti-scratch elastomer coating. Clamping of workpieces with delicate, painted, coated or polished surface (e.g. stainless steel, glass, ...).

As a member of the SPÄH group we can offer you so much more. www.spaeh.com





Mechanically manufactured parts

Materials

 All rubber and synthetic qualities, sealants and insulators, high-performance materials, elastomers, thermosetting and thermoplastics, soft fiber materials, graphite, foams, a myriad of composite materials – in short: all non-metallic materials. We can process many other materials on request or on commission.

Machining process

- Stamping
- Cutting
- Turning, milling, plotting
- Water-jet cutting
- Products
- Retaining rings, support rings, spring rings, O-rings and rings in other shapes
- Seals of all kinds such as flat seals, flange seals, washers, sealing discs and sealing rings in every shape and size
- Scrapers, buffer stops, drive elements, bushes, damping elements, grinding discs, membranes, buffers, suction nozzles, clamping jaws and many more



Cellasto®* (PUR) elastomer material

• Low compression set and great corresponding spring back recovery, good low temperature flexibility and high levels of resistance against oil, grease and gasoline

Application

• In the form of seals for radial swivel bearings and swivel heads

Cellasto[®] is a registered trademark of BASF Polyurethanes GmbH, LEMFÖRDE, GERMANY. The worldwide distribution of CD seals by BASF Polyurethanes GmbH is carried out by Karl Späh GmbH & Co. KG, SCHEER, GERMANY.



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Snow scraper blades for snow-clearing vehicles made from polyurethane 90



Sectors













Drive roller and conveyor technology

QUADRIGA products in use

• Semi-finished products, castings and mouldings, elastomer spring elements, clutch packets, protective vice jaws, PUR-metal combinations, wheels, castors and rollers, turned and milled parts

Concrete processing

QUADRIGA products in use

• Semi-finished products, castings and mouldings, PUR-metal combinations, concrete wear parts, turned and milled parts

Printing industry

QUADRIGA products in use

• Semi-finished products, castings and mouldings, PUR-metal combinations, wheels, castors and rollers, turned and milled parts

Mechanical engineering and plant construction

QUADRIGA products in use

• Semi-finished products, castings and mouldings, elastomer spring elements, clutch packets, protective vice jaws, PUR-metal combinations, wheels, castors and rollers, turned and milled parts

Winter road maintenance

QUADRIGA products in use

• Semi-finished products, castings and mouldings, snow scraper blades, PUR-metal combinations

Supply industry

QUADRIGA products in use

 Semi-finished products, castings and mouldings, elastomer spring elements, snow scraper bars, clutch packets, protective vice jaws, PURmetal combinations, concrete wear parts, wheels, castors and rollers, turned and milled parts



Customer services



Technical consulting

Even in the consultation and offer phase we stand out thanks to our service relating to technical application and ability to develop solutions in conjunction with yourselves. Starting with a dedicated selection of materials and products, right up to the finished final product.

Long-standing customer relationships and an exceptional individually customized product service speak for themselves. The demands and requirements of our customers are always at the center of everything we do.



Material sample folder

Our material sample folder incl. technical data will give you a good feel for our materials. It will be of help to design engineers and purchasers in the preliminary selection of materials.

Your hotline: T +49 40 528 704-99 · F +49 40 5237324 info.quadriga@spaeh.de

Product services



Tool and mould construction

Our precise and durable casting moulds are predominantly designed and manufactured in the group's own in-house tool and mould construction department which is part of our parent company SPÄH. This guarantees decades of know-how, precision and flexibility as well as short delivery times.



Module assembly

Alongside the individual, order-oriented manufacturing of parts, QUADRIGA provides the additional service of assembling individual components of finished, complex vendor parts and modules.

Feel free to contact us with your requirements!



Wheel and castor recycling

If the respective wheel or castor bodies are still in good condition, we initially remove the old, worn-out coating, prepare the metal parts by sand-blasting, degreasing and applying adhesive primer, before then applying a new coat. Once any faulty bearing elements have been restored, the resulting wearing part is as good as new. Cost-effective and environmentally-friendly!



Quality management

The systematic focus on customer satisfaction from product planning through to mass production, right up to distribution enjoys pride of place in our group of companies. The constant monitoring and appraisal of all business processes is one of our most important duties. It is with consistent quality management alone that quality will become standard. The certified management system in accordance with ISO 9001 commits all areas to continual improvement. It should serve as a guarantee to our customers both of quality service provision and of performance obligation.



SPÄH group services



Parts with self-adhesive foil

To make assembly easier all stamped parts or seals can be fitted with self-adhesive foil or tape on either side or on both sides. Depending on the application and intended purpose there is a large selection of different self-adhesive foils or tapes available for processing.



Stamped parts on the reel

Our "Kiss Cut" service includes the supply of singlesided self-adhesive stamped parts on the reel made from soft sealing compounds and insulating materials as well as elastomers, foam and cellular rubber materials right up to soft plastics. This guarantees that they will be delivered free of deformations, thus allowing for efficient and automatic processing.

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Individual part number identification by print or embossing

Do you need a serial or item number on your vendor part or is a barcode required for stock-keeping? Not a problem. After consultation with you we can create a pad print or embossing to be added to the component.





With the help of the latest optical measuring technology we are not only able to measure your article using CAD files, but also create drawings from samples. Our own CAQ system provides permanent access to qualityrelevant data, including the prescribed product quality.



Mechanical visual inspection

As part of our modern quality management we offer automatic part inspection with an optical sorting machine which features packing by exact numbers and individual printing of the unit being dispatched.



Parts cleaning & cleanroom packing

The demand for our parts cleaning and packing service in a cleanroom environment is growing all the time, for the pharmaceutical sector too. Just ask us if you need anything.



Individual packing

A myriad of packaging solutions specific to parts for secure delivery with optional labelling specific to customer.





Quadriga Dichtungs-GmbH

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