

# Pneumatic expansion shaft Series A

with individual expansion ledges

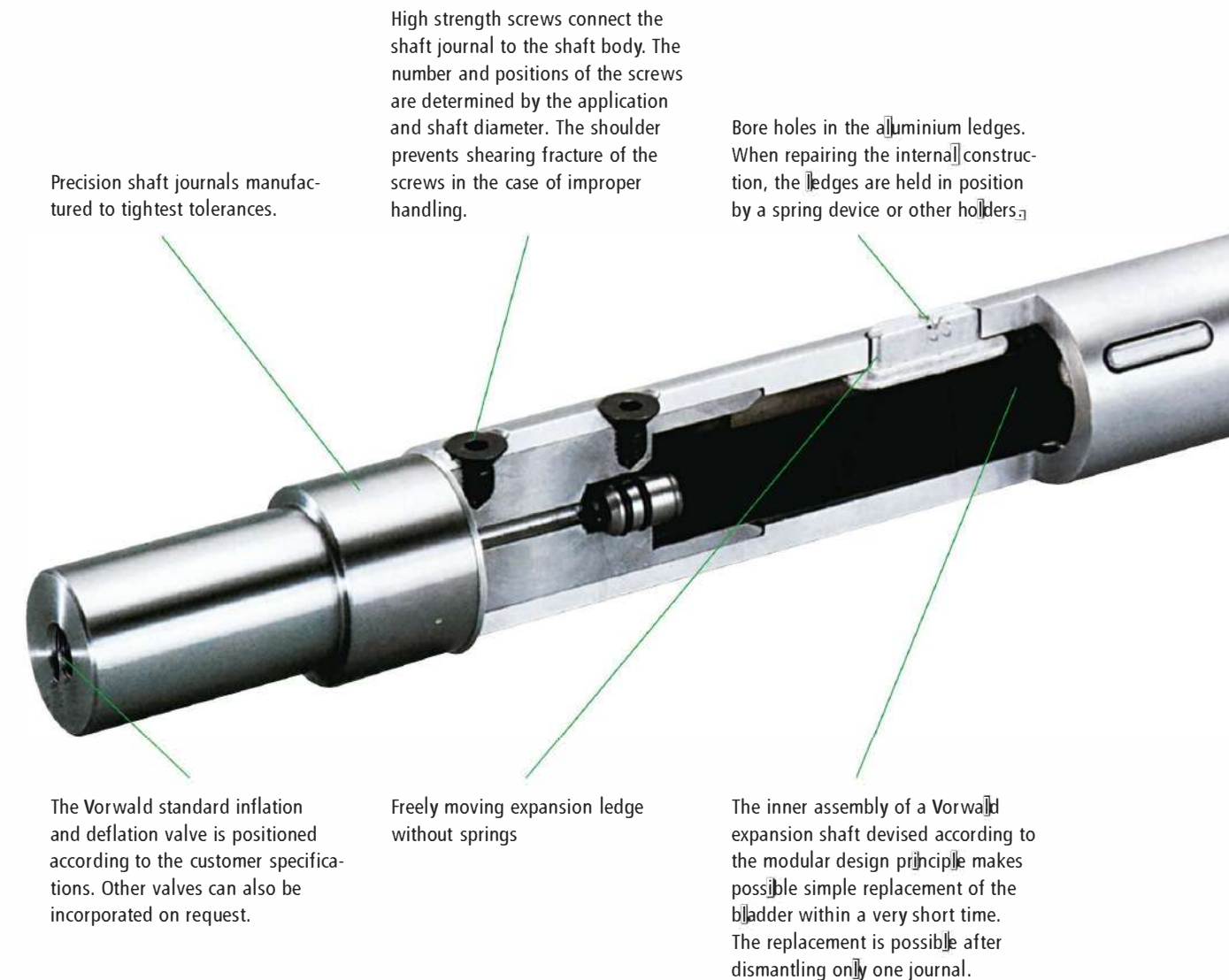
Vorwald expansion shafts of the Series A are the standard models with individual expansion ledges, that can be used in nearly all applications. The simple and well designed construction ensures a long service life.

Three expansion ledge types are available for covering all requirements: Lengthwise grooved expansion ledges made of aluminium, expansion ledges made of steel or expansion ledges made of polyurethane. The number and positioning of the expansion ledges in the shaft body are determined by the customer requirements.

The lengthwise grooved surface of the steel and aluminium expansion ledges permits the greatest possible torque transmission for cardboard cores. The smooth surface of the polyurethane expansion ledges permits this force transmission for steel or plastic cores. All Vorwald expansion ledges are designed with a bevel, a "guiding angle", to permit easy push-on and push-off of the material cores. Expansion shafts with expansion ledges are available for cores with an internal diameter in the range from 12.5 to 300 mm.

A further very important advantage of the Vorwald expansion shafts is the design of the journals that are attached to the shaft body with screws. The tight dimensional tolerances of the journals provide a positive fit construction. Dismantling of a shaft designed this way is very much simpler than normally encountered with shafts where the journal is attached with set screws. The shaft journals with the same principal dimensions are exchangeable with other Vorwald shaft journals. Machining by the customer to ensure a good fit in the case of a replacement is not necessary.

The shaft bodies can be made of numerous materials with various wall thicknesses – depending on the application. Based on the Vorwald standard, the expansion shafts are customised according to the modular design principle. If the bladder starts to leak, as can happen from time to time with every expansion shaft, the unique internal constructional design makes a repair possible within a very short time. By keeping a complete inner assembly or "repair kit" in stock, a bladder defect can be remedied within minutes.



## Options

- WR Extended expansion range for clamping varying core diameters
- OL Overlapping expansion ledges for narrow web winding
- CB Preliminary centering of the core over the shaft body
- CE Preliminary centering of the core with additional expansion ledges
- Special dimensions are possible on inquiry

## Advantages

- + Simple construction according to the modular design principle
- + Dirt accumulation is minimised
- + High rotation speeds are possible
- + Very short repair times
- + Numerous variants

Available shaft diameters  
from 12.5 to 300 mm



# Pneumatic expansion shaft Series 403

with individual expansion ledges

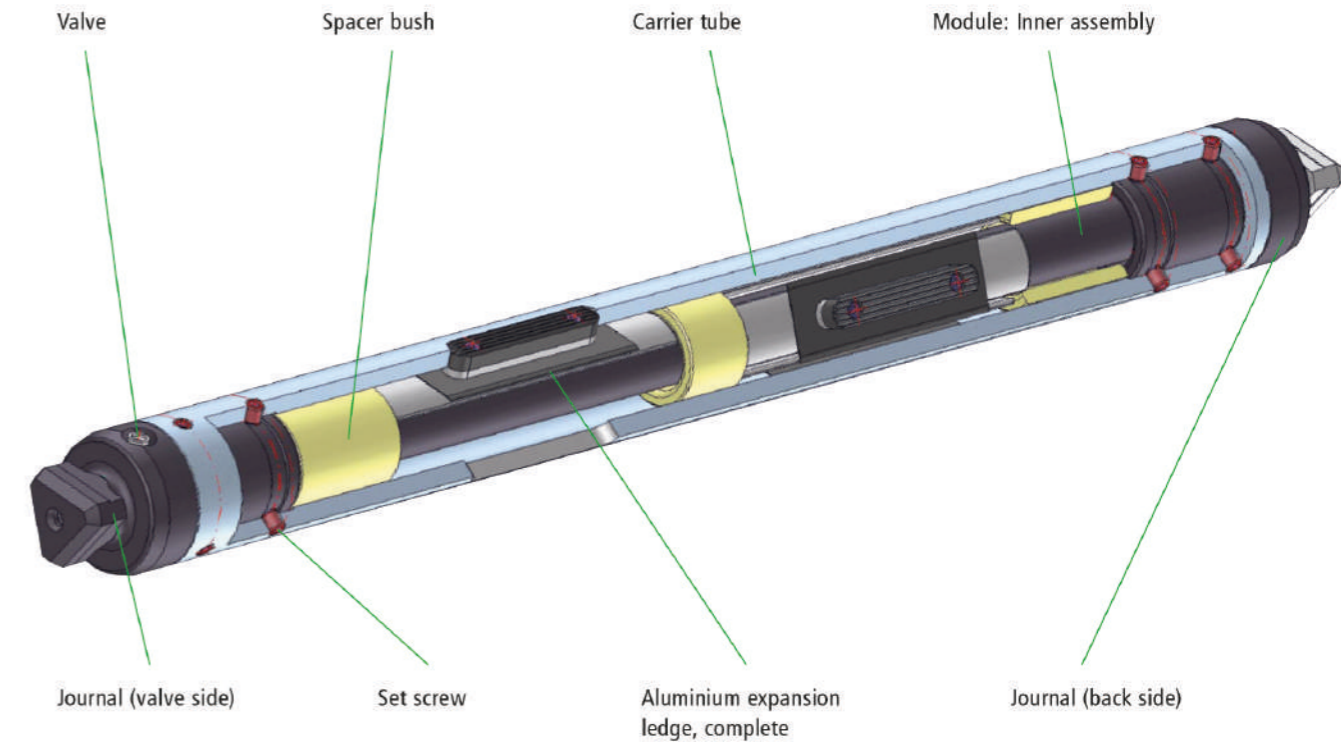
These unusually robust Vorwald expansion shafts of the Series 403 L are intended for utilisation under conditions of heavy reel weights and large torques.

As with the Series A, these expansion shafts are equipped with individual expansion ledges. The simple construction permits direct replacement of the expansion ledges from outside. Three types of expansion ledges are available to cover all requirements: Lengthwise grooved expansion ledges made of aluminium, expansion ledges made of steel or rubber expansion ledges. The number and positioning of the expansion ledges in the shaft body are determined by the customer requirements.

The lengthwise grooved surface of the steel and aluminium expansion ledges permits the greatest possible torque transmission with cardboard cores. The smooth surface of the rubber expansion ledges permits this force transmission for steel or plastic cores.

All expansion ledges are retracted into the carrier body by an internal plate spring, so that the shaft can easily be pulled out of the core. Expansion shafts with expansion ledges are available for cores with an internal diameter in the range from 50 to 300 mm.

Further very important advantages of these Vorwald expansion shafts include the light weight of the shaft compared with its high load carrying capability, by using high strength materials (steel, aluminium, CFK) as well as the easy to maintain construction. If the bladder starts to leak, as can happen from time to time with every expansion shaft, the unique internal constructional design makes a repair possible within a very short time. By keeping a complete inner assembly or a "repair kit" in stock, a bladder defect can be remedied within minutes.



## Advantages

- + Simple construction according to the modular design principle
- + Numerous variants
- + Heavy reel weights and large torques possible
- + Expansion ledge retracted by spring system
- + Short repair times, by virtue of externally accessible expansion ledges
- + Robust design

Available shaft diameters  
from 50 to 300 mm

Special dimensions are possible on inquiry.



# Pneumatic expansion shaft Series L

with continuous expansion leaves

The Vorwald expansion shafts of the Series L were developed for applications where flexibility is required as well as for use with thin walled cores when deformations could lead to problems.

The obvious advantage of the expansion leaves is the continuous clamping over the entire length of the inside surface of the core. The outer surface of the leaves is available in smooth or lengthwise grooved versions, or as combination. The outer and inner leaves are connected with DIN screws, enabling easy quick replacement.

In particular the version LG with a fixed expansion leaf permits improved true running and clamping of the winding material when winding without a core.

For the standard leaf version the leaf length is chosen to ensure easy servicing, because the journal screw fitting is freely accessible as for the Series A.

The tight tolerances of the shaft/journal connection in combination with the fixing screws ensures trouble-free operation.

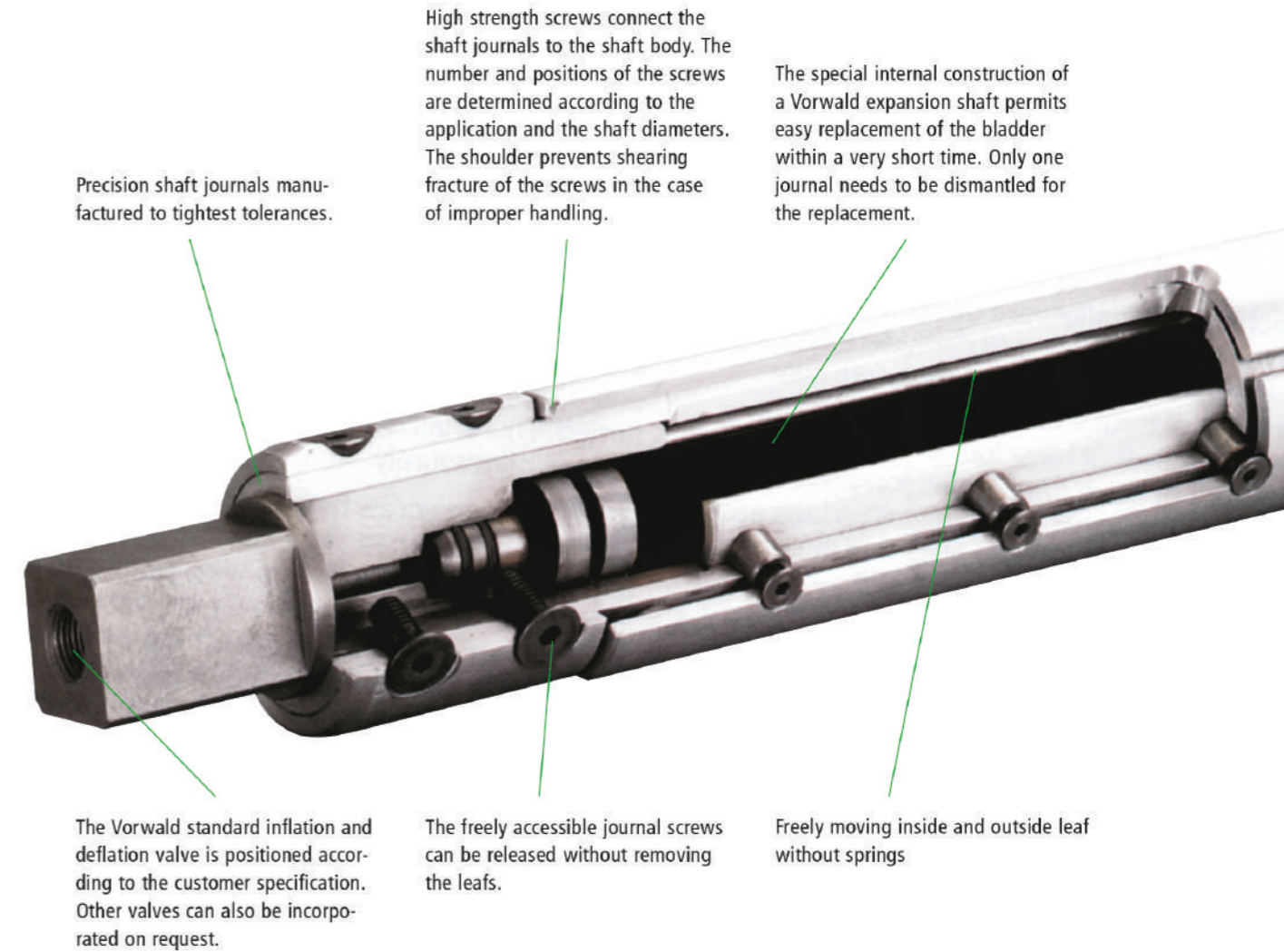
The modular shaft construction permits, replacement of the shaft journals without any machining by the customer, provided that the outer shaft diameter is identical.

In serial production the shaft body is made of steel, but other materials are possible depending on the required load ratings.

In standard production the leaves are made of aluminium. However, smooth or knurled steel leaves are available on request.

Replacement of the inner assembly is possible within a very short time, by releasing and removing one journal end.

## Sectional drawing with inner assembly of an expansion shaft, Series L



### Options

- Version with smooth or lengthwise grooved expansion leaves
- WR Extended expansion range
- LG With web start clamping
- Special dimensions are possible on inquiry

### Advantages

- + Suitable for winding without core and for thin walled cores
- + Simple construction according to the modular design principle
- + Very short repair times

Available shaft diameters  
from 40 to 300 mm



# Pneumatic expansion shaft Series MB

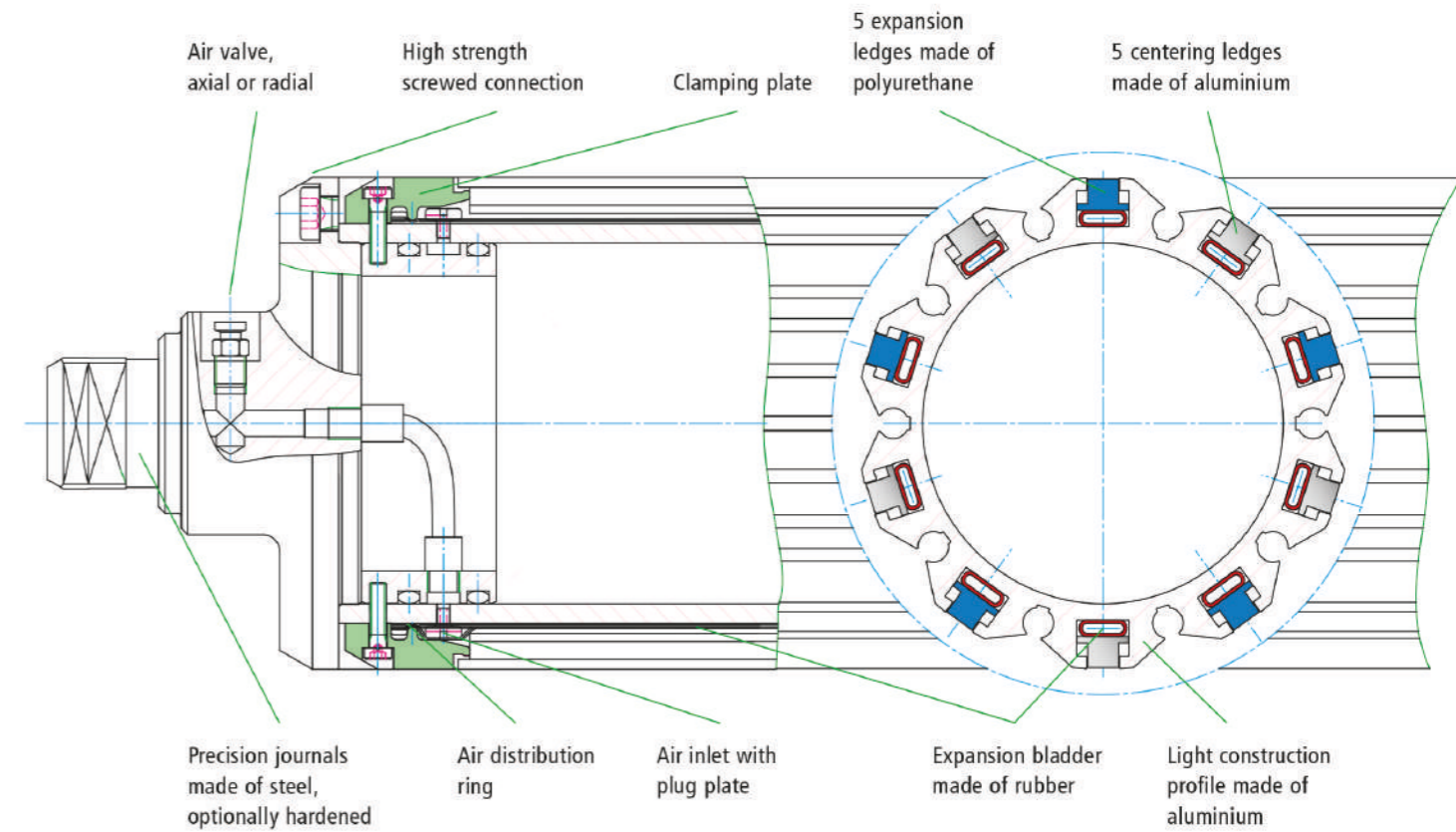
with continuous expansion ledges

Vorwald expansion shafts of the Series MB can be used for wide as well as for the narrowest reels, by virtue of the continuous expansion ledges. This is an economical shaft which can be used for many applications. Its multiple flat bladders are readily accessible from the outside. The standard sizes are 3 inches/75 mm and 6 inches/150 mm. Other sizes are available on inquiry.

The carrier body consists of a high strength to weight ratio aluminium extrusion profile. The shaft journals are made of steel and are attached with a screw connection so that they can easily be replaced when necessary.

The MB shaft is very light and permits easy handling which can otherwise only be achieved by using the considerably more expensive CFK-shafts.

A clamping and/or a centering function can be assigned to the expansion ledges depending on the actual requirements. The type and number of ledges is selected according to the application and customer requirements. Thus this type of shaft is very flexibly and can also be adapted subsequently to changed conditions such as new core tolerances, higher speeds, etc.



## Options

- Filling valves on both sides
- Expansion ledges made of polyurethane, aluminium or plastic
- Aluminium carrier body with wear proof coating
- Quasi-centering design, matched to your core internal diameter
- Special dimensions are possible on inquiry

## Advantages

- + Simple construction according to the modular design principle
- + Parts subject to wear are readily accessible from outside
- + High rotation speeds possible
- + Low weight of the shaft
- + Secure clamping of the narrowest webs

Available shaft diameters  
from 12.5 to 300 mm



# Pneumatic expansion shaft Series 409

with continuous expansion ledges

Vorwald expansion shafts of the Series 409 are suitable for wide as well as for the narrowest reels by virtue of the continuous expansion ledges. The expansion shaft transmits very large torques and has an exceptionally high reel weight carrying capability.

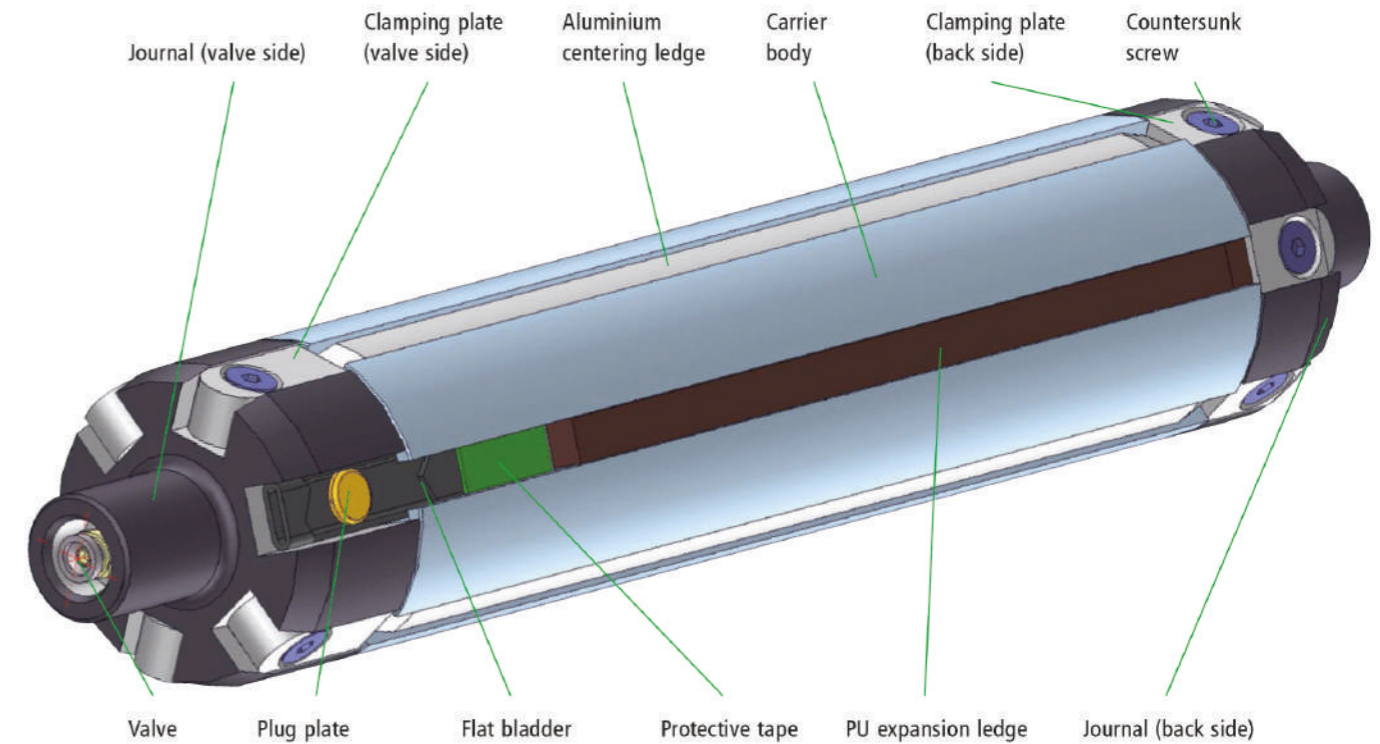
This is an economic and flexible shaft which has a clamping system that is readily accessible externally. It is manufactured in standard sizes of 3 inches/75mm and 6 inches/150mm. Other sizes are available on inquiry.

The carrier body consists either of a high strength aluminium extrusion profile, or of steel for very high load carrying applications. The shaft journals are also made of steel, and they are attached with screws so that they can easily be replaced when necessary.

The weight of the expansion shaft is light compared with the load carrying capability and permits easy handling which otherwise can only be achieved by using considerably more expensive CFK-shafts.

A clamping and/or centering function can be assigned to the expansion ledges depending on the actual requirements. The type and number of ledges is selected according to the application and customer requirements. Thus this type of shaft is very flexibly and can also be adapted subsequently to changed conditions such as new core tolerances, higher speeds, etc.

All expansion shafts described above are available on customer request in special versions and as expansion shafts with bearing on only one side.



## Options

- Filling valves on both sides
- Expansion ledges made of polyurethane, aluminium or plastic
- Aluminium carrier body with wear proof coating; carrier body also available in steel for high loads carrying capability
- Quasi-centering design, matched to your core internal diameter
- Special dimensions are possible on inquiry

## Advantages

- + Simple construction according to the modular design principle
- + Parts subject to wear are readily accessible from outside
- + High rotation speeds possible
- + Low weight of the shaft
- + Secure clamping of the narrowest webs

Available shaft diameters  
from 40 to 500 mm

