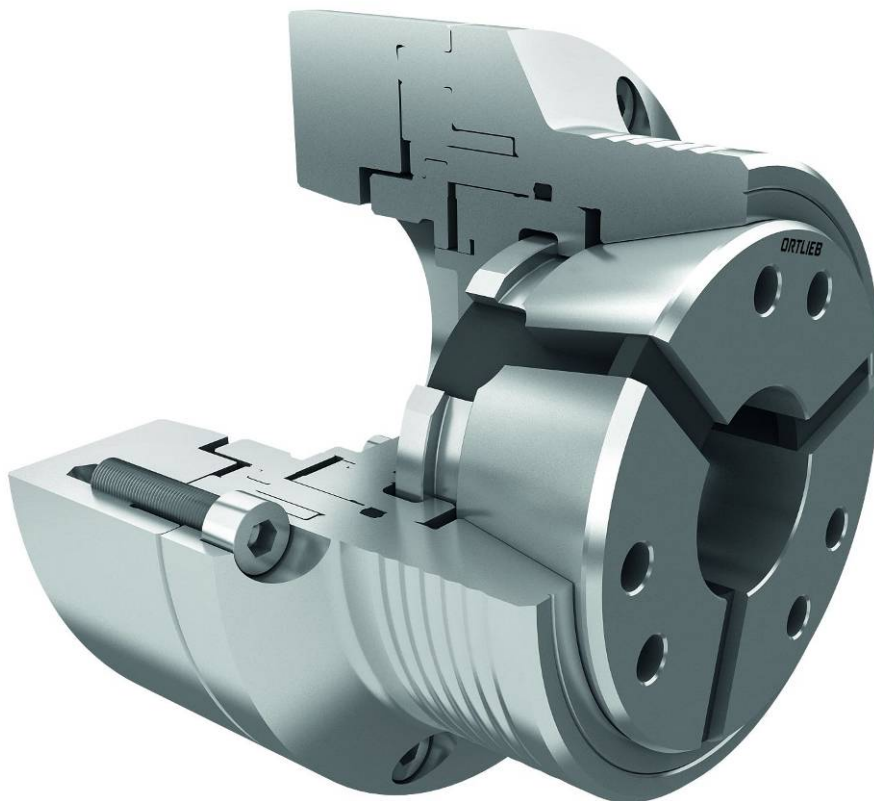


Technical Documentation



SPANNAX[®] - Chucks

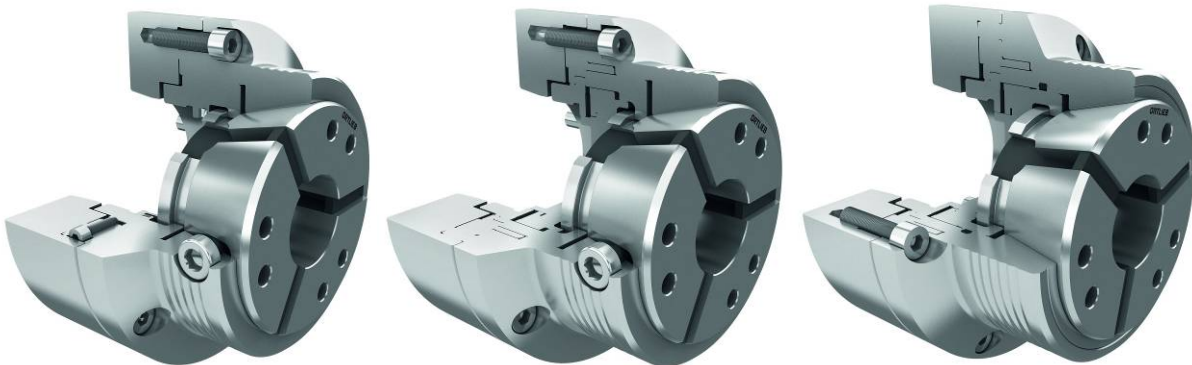
Pulldown- and Dead Length Chucks size 42 + 65 + 80

with short taper mount acc. DIN 55026
or cylindrical flange acc. DIN 6353

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1 General



1.1 Introduction

This manual helps you to operate your Ortlieb product safely and to avoid potential dangers and risks

→ Please read this manual and the safety instructions before initial operation.

This technical documentation includes all files and data for initial operation, maintenance and service of your Ortlieb product. Ortlieb Präzisionssysteme GmbH & Co. KG does not guarantee any accountability for damages and operational disturbances, occurred by disregarding several issues.

Ortlieb Präzisionssysteme GmbH & Co. KG reserves the right for technical changes to increase the product usability and to improve quality. No accountability on print errors.

Please mind the regulations for the prevention of industrial accidents besides the indexed safety instructions while initial operation, operation and maintenance. Observing these regulations and advices avoids damages to persons, machines and to this Ortlieb product.

1. General

1.2 Guarantee

Products of Ortlieb Präzisionssysteme GmbH & Co. KG are produced according to national and international standards as well as company standards, supervised by a certified quality assurance.

For those products Ortlieb Präzisionssysteme GmbH & Co. KG assumes liability in the manner that parts with material or production defects proven within 12 month after purchasing were repaired free-of-charge, replaced by new ones or taken back to the charged price.

In the event of improper assembly and operation, use of non-original spare parts, unauthorized modifications to our product we shall assume no liability for personal injury or damage to machinery and our product.

We shall assume no liability for damage of any type resulting from the removal of safety devices. We take the initial start-up of our products on appropriate and technically flawless machines by qualified and continuous trained personal for granted.

1.3 Intended Use

Use the collet chucks only for the intended use. Insufficiently clamped tools or work-pieces, failure to comply „safety and accident prevention regulations“, and the use of work-pieces and our products on machines that are not intended for this propose, can result in personal injury and damages to the clamping devices. In this case, we shall assume no liability. Do not apply force during assembly, disassembly and operation; this could damage the clamping device or the machine.

1.4 Initial start-up

A function check is implicitly before initial operation of the collet chuck. To ensure a safe and precise operation of the collet chuck during machining, a sufficient clamping force must be provided. Check the clamping force.

The collet chuck, especially the function surfaces must be clean and lubricated sufficiently.

Never exceed the axial and radial forces specified on the chuck. Pay attention to the max. RPM. Check the clamping force regularly!

Do not operate the collet chuck without a clamping head mounted and a workpiece clamped. Persons might get hurt or the collet chuck gets damaged.

Tighten screws with the torque shown in the table below:

	8.8		10.9		12.9	
	F [kN]	M [Nm]	F [kN]	M [Nm]	F [kN]	M [Nm]
M6	10	12	12	14	14	16
M8	16	24	24	35	28	40
M10	26	45	38	75	45	77
M12	38	77	56	128	65	135
M14	52	125	75	182	90	215
M16	72	190	106	314	123	330
M20	117	430	116	615	194	720
M24	168	743	238	1060	280	1240

2 Product description

This pull-down chucking system can be used on turning, grinding, milling and indexing table machines. You can compose the individual chuck components as required due to the modularity of the system. All you need is the maximum work piece diameter and the size of the spindle nose of your machine.

The following types of **SPANNAX®-chucks** are available:

Through-hole chuck:

- Especially designed for bar material machining
- Mainly used on main-spindles
- Short and compact design

End-Stop chuck:

- Designed for insert parts on main and sub-spindles
- Highest axial reference of workpieces due to axial pull-back movement on end-stop
- Optional: End-stop with air sensing / back-purging
- Short changeover from end-stop to through hole by quick changeable end-stop

DL-Dead Length chuck:

- Designed for the use on sub-spindles
- Axial-force free clamping due to clamping by pushing
- Removable end-stop for insert parts

Your benefit:

- Safe clamping by constant clamping force also at increasing rotational speed
- High rigidity due to parallel movement of the clamping jaws
- Increasing flexibility of your production machine due to large clamping range $\pm 0,5\text{mm}$
- Extension of working space due to compact design and reduction of interfering edges

→ To solve special clamping-jobs, we are pleased to build special chucks or adapt the **SPANNAX®- chuck** according to your specifications. Contact us!

→ We are pleased to produce the adapter to connect your machine. Please send us the spindle dimensions of your machine.

2. Product description

2.1 Variant-overview

SPANNAX® Through Hole Chuck



Your benefit:

- Extension of the working space due to compact design and reduction of interfering edges
- Spindle preserving by small centrifugal force.
- Designed for main-spindles
- Ideal for bar material machining
- Sealed against chips and cooling lubricant

SPANNAX® Endstop Chuck



Your benefit:

- High axial reference of workpieces due to axial pull-back movement on end-stop
- Short changeover time from end-stop to through hole by quick changeable end-stop
- Ideal for insert parts
- Sealed against chips and cooling lubricant

SPANNAX® DL-Dead Length Chuck



Your benefit:

- Extension of the working space due to compact design and reduction of interfering edges
- Spindle preserving by small centrifugal force and axial force-free clamping.
- Short changeover time from end-stop to through hole by quick changeable end-stop
- Sealed against chips and cooling lubricant

2. Product description

2.2 Technical Data

SPANNAX® Through Hole Chuck



Typ	Art. Nr.	Fz max	Fsp max	Rpm max.	kg
TS 42/5D	036.8010/00	35 kN	80 kN	7000 1/min	5,9 kg
TS 42/6D	036.8011/00	35 kN	80 kN	7000 1/min	7,0 kg
TS 42/140D	036.8012/00	35 kN	80 kN	7000 1/min	5,4 kg
TS 65/5D	036.8020/00	45 kN	105 kN	6000 1/min	8,5 kg
TS 65/6D	036.8021/00	45 kN	105 kN	6000 1/min	7,8 kg
TS 65/8D	036.8022/00	45 kN	105 kN	6000 1/min	11,2kg
TS 65/140D	036.8023/00	45 kN	105 kN	6000 1/min	8,7 kg
TS 65/170D	036.8024/00	45 kN	105 kN	6000 1/min	8,9 kg

SPANNAX® Endstop Chuck



Typ	Art. Nr.	Fz max	Fsp max	Rpm max	kg
TS 42/5A	036.8030/00	35 kN	80 kN	7000 1/min	6,4 kg
TS 42/6A	036.8031/00	35 kN	80 kN	7000 1/min	7,4 kg
TS 42/140A	036.8032/00	35 kN	80 kN	7000 1/min	5,8 kg
TS 65/5A	036.8040/00	45 kN	105 kN	6000 1/min	9,3 kg
TS 65/6A	036.8041/00	45 kN	105 kN	6000 1/min	8,6 kg
TS 65/8A	036.8042/00	45 kN	105 kN	6000 1/min	11,0kg
TS 65/140A	036.8043/00	45 kN	105 kN	6000 1/min	9,5 kg
TS 65/170A	036.8044/00	45 kN	105 kN	6000 1/min	9,7 kg
TS 80/6A	036.8051/00	50 kN	115 kN	5500 1/min	13,9 kg
TS 80/8A	036.8052/00	50 kN	115 kN	5500 1/min	14,9 kg
TS 80/140A	036.8055/00	50 kN	115 kN	5500 1/min	15,9 kg
TS 80/170A	036.8053/00	50 kN	115 kN	5500 1/min	13,3 kg
TS 80/220A	036.8054/00	50 kN	115 kN	5500 1/min	15,3 kg

SPANNAX® DL-Dead Length Chuck

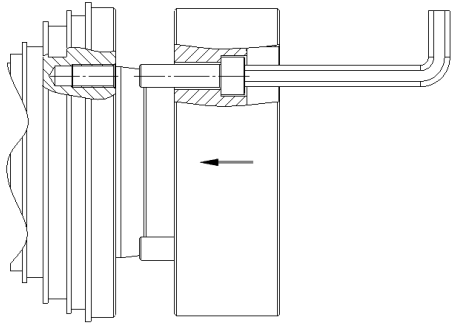


Typ	Art. Nr.	Fz max	Fsp max	Rpm max	kg
TS 42/5DL	036.9061/00	35 kN	80 kN	7000 1/min	6,3 kg
TS 42/6DL	036.9062/00	35 kN	80 kN	7000 1/min	7,4 kg
TS 42/140DL	036.9069/00	35 kN	80 kN	7000 1/min	5,9 kg
TS 65/5DL	036.9063/00	45 kN	105 kN	6000 1/min	9,4 kg
TS 65/6DL	036.9070/00	45 kN	105 kN	6000 1/min	8,6 kg
TS 65/8DL	036.9065/00	45 kN	105 kN	6000 1/min	10,8kg
TS 65/140DL	036.9611/00	45 kN	105 kN	6000 1/min	9,6 kg
TS 65/170DL	036.9612/00	45 kN	105 kN	6000 1/min	9,8 kg
TS 80/6DL	036.8061/00	50 kN	115 kN	5500 1/min	14,2 kg
TS 80/8DL	036.8062/00	50 kN	115 kN	5500 1/min	15,1 kg
TS 80/140DL	036.8065/00	50 kN	115 kN	5500 1/min	16,1 kg
TS 80/170DL	036.8063/00	50 kN	115 kN	5500 1/min	13,5 kg
TS 80/220DL	036.8064/00	50 kN	115 kN	5500 1/min	15,5 kg

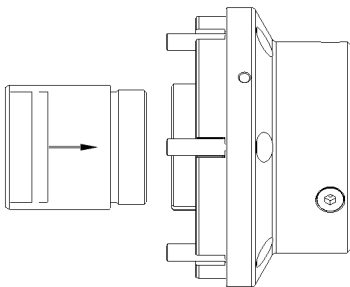
3. Mounting instructions

3 Mounting instructions

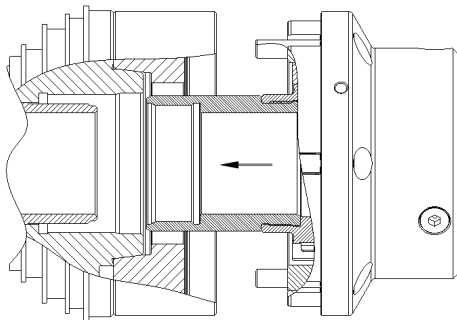
1.



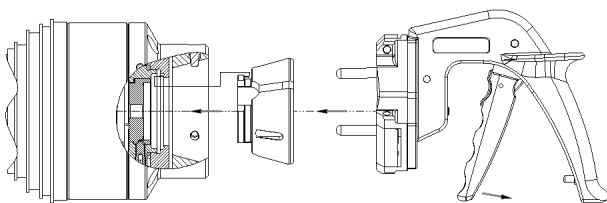
2.



3.



4.



- Clean the spindle nose and the face plane properly.
- Disassemble the flange from the chuck
- Mount the flange to the spindle (1)
Mind the torque! (See chap. 1.4)
- Attach the adaptor into the threaded sleeve (eventually glue with thread glue) (2)
- Drive the pressure tube in front position
- Screw the chuck onto the thread of the pressure tube (3)
- Turn reverse until the screw-holes match between chuck and flange. Tighten the mounting screws softly.
- Check run-out, adjust the chuck (see: chap. 3,4)
- Tighten the mounting screws with the proper torque (see chap. 1.4)
- Insert clamping head (4)
(see: Collet-change, chap. 3.1)
- The chuck is now ready for operation

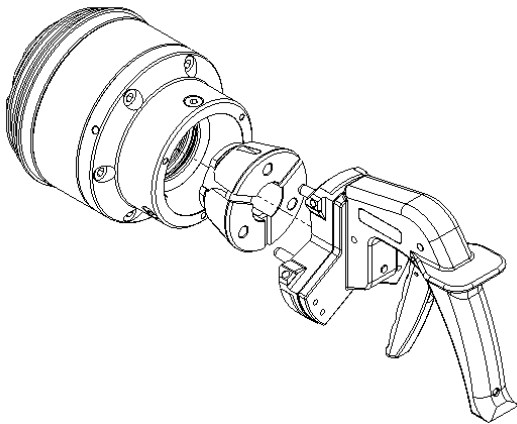
Please notice:

The Through Hole Chuck and Endstop Chucks operates by pulling! – Pull-down-effect
→ Adjust your machine control to „OD-clamping“.

The Dead Length Chuck operates by pushing! – Axial force-free clamping
→ Adjust your machine control to „ID-clamping“.

3. Mounting instructions

3.1 Collet-change



- Insert the changing device into the borings of the clamping head, then squeeze
- Insert clamping head to the chuck. Pay attention of the driver-pin-slot!
- Unlock the changing device, make sure the clamping head is mounted properly and locked to the notch
- Remove the changing device

→ Important:

Please pay attention to a clean taper, free of dirt and chips, especially when the clamping head is changed. Use solely intact, clean and slightly greased clamping heads. Check the rubber on damages. Before operation, make sure the clamping head is locked properly and cannot get loose!!

→ Hazard note:

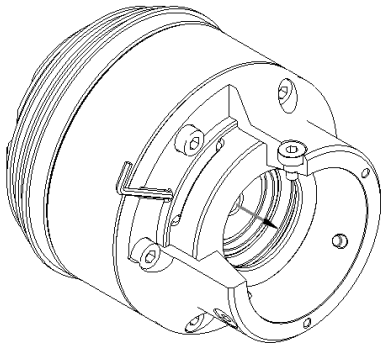
When clamping insert parts, especially on End-Stop or Dead-Length chucks, please pay attention to the minimal clamping length.

If the minimal clamping length is undercut, the clamping head may tilt out of the interface notch. A safe workpiece-clamping can not be granted anymore.

Gr.	angle	max. force		min. clamping length	
		axial	radial	smooth	serrated
32	12 °	25 kN	70 kN	5 mm	8 mm
42	15 °	35 kN	80 kN	6 mm	11 mm
65	15 °	45 kN	105 kN	6 mm	11 mm
80	15 °	65 kN	150 kN	6 mm	11 mm

3. Mounting instructions

3.2 Removal of the end-stop



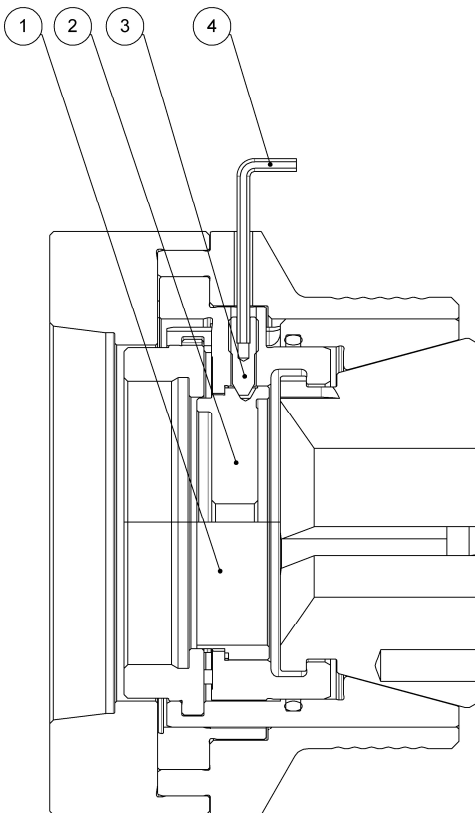
- Remove the clamping head
- Release the bolts (3x120°) through the borings of the base body
- Remove the end-stop to the front through the chuck
- Insert clamping head (4)

* Only on End-Stop or Dead-Length chucks

→ Important:

If the chuck is supplied with a sealing between clamping head and end-stop, the sealing must be removed first before removing the end-stop!

3.3 Installation of the protective sleeve



After removing off the end-stop the provided protective sleeve must be installed.

- Remove End-stop (2) (see chapter 3.2)
- Insert protective sleeve (1)
- Tighten locking screws 3x (3) with Allen key (4) and use low force




3. Mounting instructions

3.4 Check run-out

It is necessary to adjust the clamping device in order to provide best possible run-out results. Therefore loose the mounting screws between main-body of the chuck and the flange. Check the TIR with a dial indicator in the taper of the pressure sleeve or main-body. After adjusting the chuck, do not forget to retighten the mounting screws with the proper torque.

4 Accessories

4.1 Clamping heads

Size	Type		Range	Order-Nr.
 Ø 42	●	smooth	4-42 mm	T0042R...G
		serrated	8-11 mm	T0042R...Q
		double serrated	12-42 mm	T0042R...L
	◆	smooth	7 mm	T0042V...G
		serrated	8-30 mm	T0042V...Q
	⬡	smooth	7 mm	T0042S...G
Querrillen		8-36 mm	T0042S...Q	
 Ø 65	●	smooth	4-65 mm	T0065R...G
		serrated	8-10 mm	T0065R...Q
		double serrated	11-65 mm	T0065R...L
	◆	serrated	8-46 mm	T0065V...Q
		⬡	smooth	7 mm
	serrated		8-56 mm	T0065S...Q
 Ø 80	●	smooth	10-80 mm	T0080R...G
		serrated	11-21 mm	T0080R...Q
		double serrated	22-80 mm	T0080R...L
	◆	serrated	10-56 mm	T0080V...Q
		⬡	smooth	7 mm
	serrated		8-70 mm	T0080S...Q

→ Intermediate sizes, inch-sizes and special profiles on request

The Ortlieb GT clamping heads are based on the proved RubberFlex® - vulcanization. This rubber-steel-connection can stand toughest conditions and guarantees a long life-time. Due to the facial borings, the clamping heads are quick changeable but also precise, a TIR of $\leq 0,01\text{mm}$ are possible (smooth boring). The clamping head with highest clamping force, high rigidity and increased clamping tolerance of $\pm 0,5\text{mm}$ is predestinated for bar-material machining. Especially the double serrated type. Use the smooth type for second-side operation to prevent markings on the surface of the workpiece.

Your benefit:

- High clamping force and rigidity
- Temperature resistant up to 100°C
- Long-term life-time
- High run-out accuracy of $\leq 0,01\text{mm}$ are possible (smooth boring)
- Clamping tolerance of $\pm 0,5\text{m}$

4.2 Changing devices

A changing device is necessary to change the clamping heads. Lever-operated or pneumatic-operated changing devices are available.

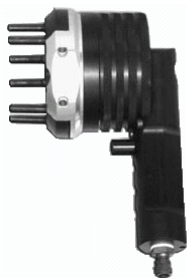
Function:

The ergonomic-designed lever-operated changing device guarantees a fast and simple change by internal power-enforcement with self-locking function which keeps the clamping head in squeezed condition during changeover.

The pneumatic changing device needs a connection to compressed air. During the changeover, the button must be pressed, to keep the clamping head in squeezed condition. This changing device is designed for larger clamping heads (GT100) with a higher rubber-tension.



Beschreibung	Größe	Bestell-Nr.
Wechselvorrichtung, manuell	Gr. 32	036.9961/00
Wechselvorrichtung, manuell	Gr. 42	036.9962/00
Wechselvorrichtung, manuell	Gr. 65	036.9964/00
Wechselvorrichtung, manuell	Gr. 80	036.9971/00

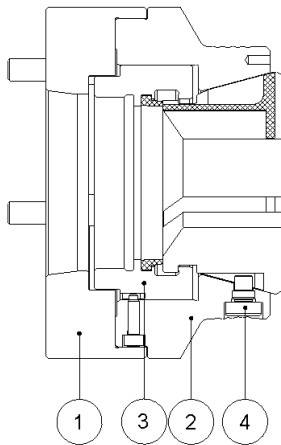


Wechselvorrichtung, pneumatisch	Gr. 32	036.9953/00
Wechselvorrichtung, pneumatisch	Gr. 42	036.9950/00
Wechselvorrichtung, pneumatisch	Gr. 65	036.9951/00
Wechselvorrichtung, pneumatisch	Gr. 80	036.9954/00

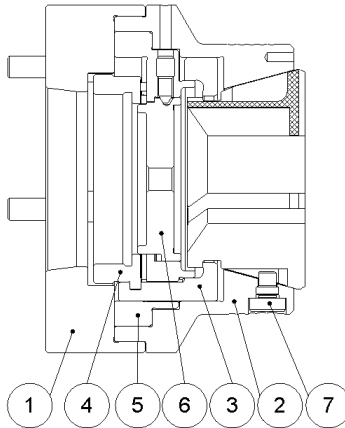
4. Accessories

4.3 Spare part list

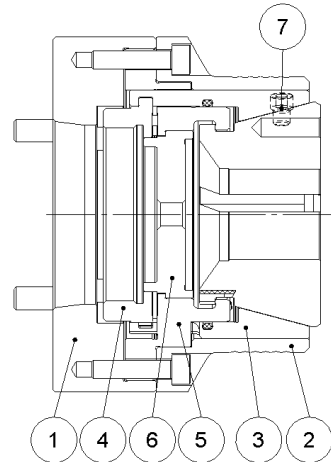
Through Hole Chuck



Endstop Chuck*



DL Dead-Length Chuck*



*Protective sleeve not on sketch of End-Stop chuck and Dead-Length chuck. Protective sleeve not provided for Through-Hole chuck.

Through-Hole chuck

Type	Art. Nr.	Pos. 1	Pos. 2	Pos. 3	Pos. 4
TS42/5D	036.8010/00	036.9061/01	036.8010/02	036.8010/03	OBN6623/39
TS42/6D	036.8011/00	036.9062/01			
TS42/140D	036.8012/00	036.9069/01			
TS65/5D	036.8020/00	036.9063/01	036.8020/02	036.8020/03	036.9012/07
TS65/6D	036.8021/00	036.9070/01			
TS65/8D	036.8022/00	036.9065/01			
TS65/140D	036.8023/00	036.9066/01			
TS65/170D	036.8024/00	036.9068/01			

End-Stop chuck

Type	Art. Nr.	Pos. 1	Pos. 2	Pos. 3	Pos. 4	Pos. 5	Pos. 6	Pos. 7
TS42/5A	036.8030/00	036.9061/01	036.8030/02	036.8030/03	036.9061/04	036.8030/05	036.9061/06	OBN6623/39
TS42/6A	036.8031/00	036.9062/01						
TS42/140A	036.8032/00	036.9069/01						
TS65/5A	036.8040/00	036.9063/01	036.8040/02	036.8040/03	036.8040/04	036.8040/05	036.9063/06	036.9012/07
TS65/6A	036.8041/00	036.9070/01						
TS65/8A	036.8042/00	036.9065/01						
TS65/140A	036.8043/00	036.9066/01						
TS65/170A	036.8044/00	036.9068/01						
TS80/6A	036.8051/00	036.8051/01						
TS80/8A	036.8052/00	036.8052/01						
TS80/140A	036.8055/00	036.8055/01						
TS80/170A	036.8053/00	036.8053/01						
TS80/220A	036.8054/00	036.8054/01						

4. Accessories

Dead-Length chuck

Type	Art. Nr.	Pos. 1	Pos. 2	Pos. 3	Pos. 4	Pos. 5	Pos. 6	Pos. 7	Pos. 8
TS42/5DL	036.9061/00	036.9061/01	036.9061/02	036.9061/03	036.9061/04	036.9061/05	036.9061/06	036.9266/07	036.9061/07 (protective sleeve)
TS42/6DL	036.9062/00	036.9062/01							
TS42/140DL	036.9069/00	036.9069/01							
TS65/5DL	036.9063/00	036.9063/01	036.9063/02	036.9063/03	036.9063/04	036.9063/05	036.9063/06	OBN6620/19	036.9061/07 (protective sleeve)
TS65/6DL	036.9070/00	036.9070/01							
TS65/8DL	036.9065/00	036.9065/01							
TS65/140DL	036.9611/00	036.9066/01							
TS65/170DL	036.9612/00	036.9068/01							
TS80/6DL	036.8061/00	036.8051/01	036.8061/02	036.8061/03	036.8051/04	036.8061/05	036.8061/06	OBN6620/19	036.9061/07 (protective sleeve)
TS80/8DL	036.8062/00	036.8052/01							
TS80/140DL	036.8065/00	036.8055/01							
TS80/170DL	036.8063/00	036.8053/01							
TS80/220DL	036.8064/00	036.8054/01							

5 General Safety Instructions

1. Safety requirements to machines

- Operation of the machine spindle is only allowed, when the clamping pressure and clamping force is in the acceptable range.
- Do not rotate the spindle without a workpiece clamped.
- On a breakdown of the clamping power a signal must stop the machine spindle and the workpiece has to be clamped till a complete stop of the spindle.
- After a power breakdown and on return of the power, a changing over must not occur.
- During operation, the spindle and the clamped workpiece must be secured by a safety facility.
- The opening of the safety doors is only possible if the machine spindle stands still.
- All operations and maintenance to the spindle and the tool-gripper are only allowed if the spindle stands still.
- Do not operate the chuck without a bayonet nut mounted. The safety screw to prevent rotation to the pressure sleeve might get damaged.

2. Operation cylinders, machine spindles

To operate the chucks, please use only appropriate cylinders according the safety and accident preventions regulations. Mounting the collet chuck to a spindle with an existing operating cylinder, make sure that the clamping power is sufficient to clamp the workpiece and the maximum clamping force is not exceeded! Connection parts and adapters must be designed to endurance strength. Set and check the limit switch to check the stroke before initial operation.

3. Operating data

The allowed operating data, maximum clamping force and maximum revolutions shown on the technical data sheet (Technical Data chap. 2.2) may not be exceeded. The minimum clamping force depends on cutting rates.

4. Tools

Please use solely suitable clamping heads matching your chuck (see: Technical Data chap. 2.2).

5. General Safety Instructions

5. Residual risks

The system machine tool – chuck – workpiece is mainly influenced by the properties of the tool (shape, weight, unbalance, material, etc.) as well as the cutting parameters which can cause residual risks. Those remaining dangers must be considered by the worker and eliminated by appropriate means.

6. Maintenance

Accurate and regularly maintenance (quarter annually) increases the natural life of the SPANNAX® chuck. Please keep the following advices:

- Clean the chuck frequently, especially when changing the clamping head.
 - Make sure the collet-carrier is clean and free of dirt and chips. Dirt reduces the run-out accuracy and reduces the clamping force.
 - Slightly greased collets increase the clamping force and reduce wear
 - Do not use polar or ester-containing solvents to clean the spindle and the collet chuck. Sealings and the rubber-bonded parts could be damaged.
 - Avoid cleaning with compressed-air gun.
 - On disassembly, check for cracks and other damages. Renew, if necessary.
 - After a crash, a complete check is essential. You will find spare parts in chapter 4.3.
 - Replace damaged parts only by original spare-parts. Otherwise guarantee is expired.
 - Store the collet chuck clean and protect it from dust or similar influences. Spray it slightly with anti-corrosion agent. Choose a dry place to store.
- To provide long-term function and accuracy, depending on application conditions, it is necessary to disassemble the chuck and to clean it completely. Check all parts for cracks or damages. Regrease before reassembly.
- Remember that your chuck should operate precisely and reliably.

5. General Safety Instructions

5.1 Troubleshooting

Below, you will find some of the most frequently asked questions. If an error cannot be eliminated with the methods below, please contact your technical support team. Always name the accurate article-number and the description in case of questions or re-order.

Problem	Possible cause	Remedy
Radial run-out fault to the workpiece	Chuck is not adjusted properly or soiled	Adjust the chuck with a dial indicator. Mind to tighten the mounting screws after adjusting
Axial run-out fault to the workpiece	Dirt on the front plane to the spindle	Unmount the chuck, clean, mount and readjust
Shape-fault to the workpiece	Workpiece is elastic deformed during clamping	Reduce clamping force, pay attention to cutting force
Markings on the clamping surface	Punctual or linear workpiece clamping	Wide difference between clamping diameter and collet bore. Eventually rework or regrind the collet bore
Too low clamping force	Wrong clamping head	Mount suitable clamping head
	Soiled chuck	Disassemble the chuck, clean parts and check for damages. Reassemble and regrease.
	Low hydraulic pressure	Check the pressure to your operating cylinder. Check for leaks. Increase pressure
	Damaged operation cylinder	Check operating cylinder for leaks and damages. Replace sealings.
Workpiece not clamped properly	Wrong switching position	Dead-Length: Clamping occurs on pushing. Switch machine control to: „I.D. clamping“ End-Stop and Through-hole chucks operate on pulling: „O.D. clamping“
	Clamping sleeve got loose, relocation of clamping position	Make sure, the safety screw is mounted and not damaged.

6. Assembly declaration

6 Assembly declaration

for an incomplete machine (acc. machine directive 2006/42/EG)

Name of the company and producer:

Ortlieb Präzisionssysteme GmbH & Co. KG
Jurastraße 11
73119 Zell unter Aichelberg – Germany
Phone: +49 (0) 7164 797 01 0
FAX: +49 (0) 7164 797 01 51

The **SPANNAX® chuck** is described as a incomplete machine according article 2g of the machine directive and designated only to be mounted into or with an other machine or equipment.

The following fundamental safety and health-protection requirements according attachment 1 of the machine directive were used, are valid and adhered:

Nr. 1.1.3, Nr. 1.3.2, Nr. 1.5.4, Nr. 1.6.1

The following standards (or extracts of these standards) are used:

DIN 55026/27, DIN 6352, DIN 6343

The start-up of this product is forbidden until it is proven, that the machine in which the above named incomplete machine is mounted to conform the regulations according the machine directive 2006/42/EG.

The special technical documentations according attachment VII part B have been complied. The producer obligates to provide these documentations in written form to public authorities if their request is justified.

Only the management of Ortlieb Präzisionssysteme GmbH & Co. KG, represented by Mr. Dirk Laubengeiger, is authorized to comply the relevant technical documents according attachment VIII B to this product

Zell unter Aichelberg,



Dirk Laubengeiger, CEO

7. Shipping data

7 Shipping data

Article-No.:

Serial No.:

Delivery date:
