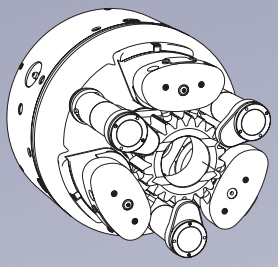
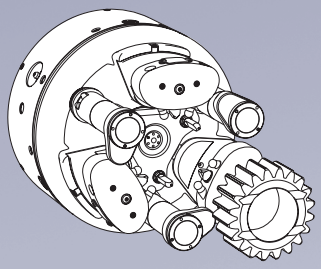
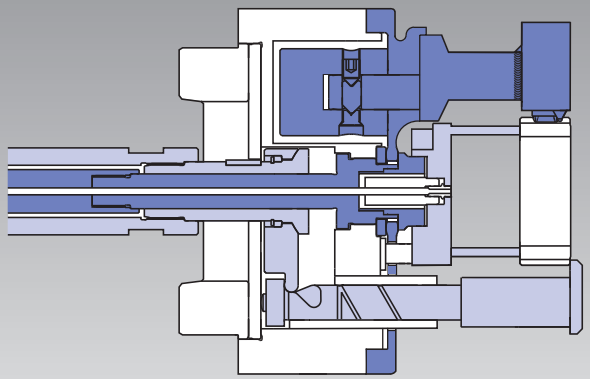
Clamping of easily deformed thin walled workpieces for hard turning or grinding





D-KOMBI®

Principle of D-KOMBI®

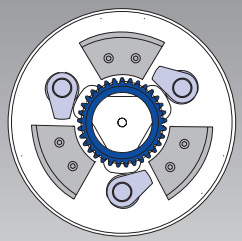


- Radial centering / clamping of the work piece with the diaphragm jaws, with quick jaw change system (same principle / characteristic as D-chuck page 234, however with additional face clamping)
- Axial clamping with swing clamps with axial compensation
- Actuation with double piston cylinder
  Separate actuation of the diaphragm jaws and the axial swing-clamps

Jaws are factory finished and match any chuck with no loss of concentricity

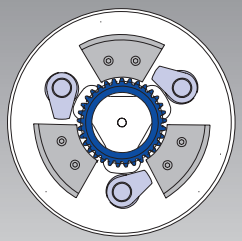
Never ever grind or bore jaws on the chuck anymore!
TIR < 0.020 mm

1. Loading



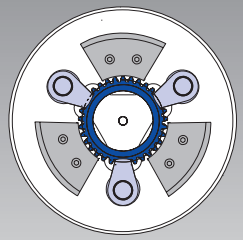
Centering jaws open.
Swing-clamps open / swivel outwards

2. Centering



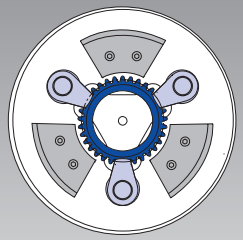
Centering jaws clamped

3. Clamping



Swing-clamps swivel inward + clamp axially. Centering jaws open (if requested)

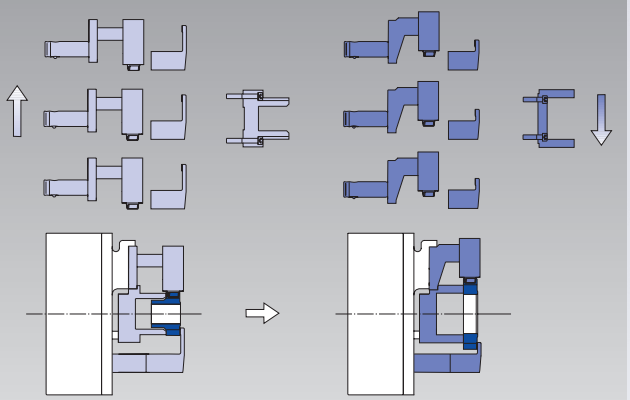
4. Machining



Centering jaws open or closed

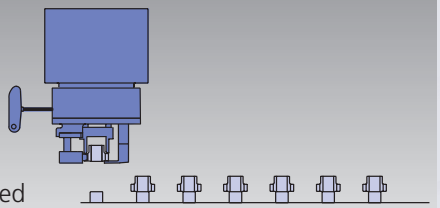
Set-up time 5 minutes

for jaws, swing-clamps and workstop change
TIR < 0.020 mm without boring/grinding

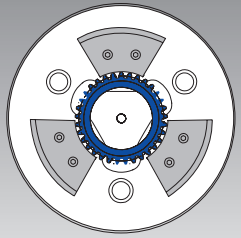


Ideal for pick up machines

Easy to operate,
low maintenance,
chuck completely sealed



Radial clamping only is also possbile = function like D-chuck



Swing clamps are not mounted

Clamping glossary

Radial clamping: Self-centering clamping of work pieces on the outside diameter. Depending on the necessary clamping force to drive the parts during machining thin walled components can be easily deformed.

Axial clamping: Clamping of work pieces on their face sides. This method is used for thin walled components. The radial deformation of the diameter to be machined can be eliminated. However, this is not self-centering clamping so the work piece has to be positioned concentric.

Kombi clamping: Chucks with centering jaws for centering the workpiece with the diaphragm and axial clamping with swing clamps. After the work piece is clamped with a swing-clamp, the centering jaws can be opened (double piston cylinder necessary).
The **D-KOMBI** with quick jaw change ideally fulfills these requirements. The proven design of the **D-CHUCK** is maintained completely. Additionally an axial clamping drive is integrated.

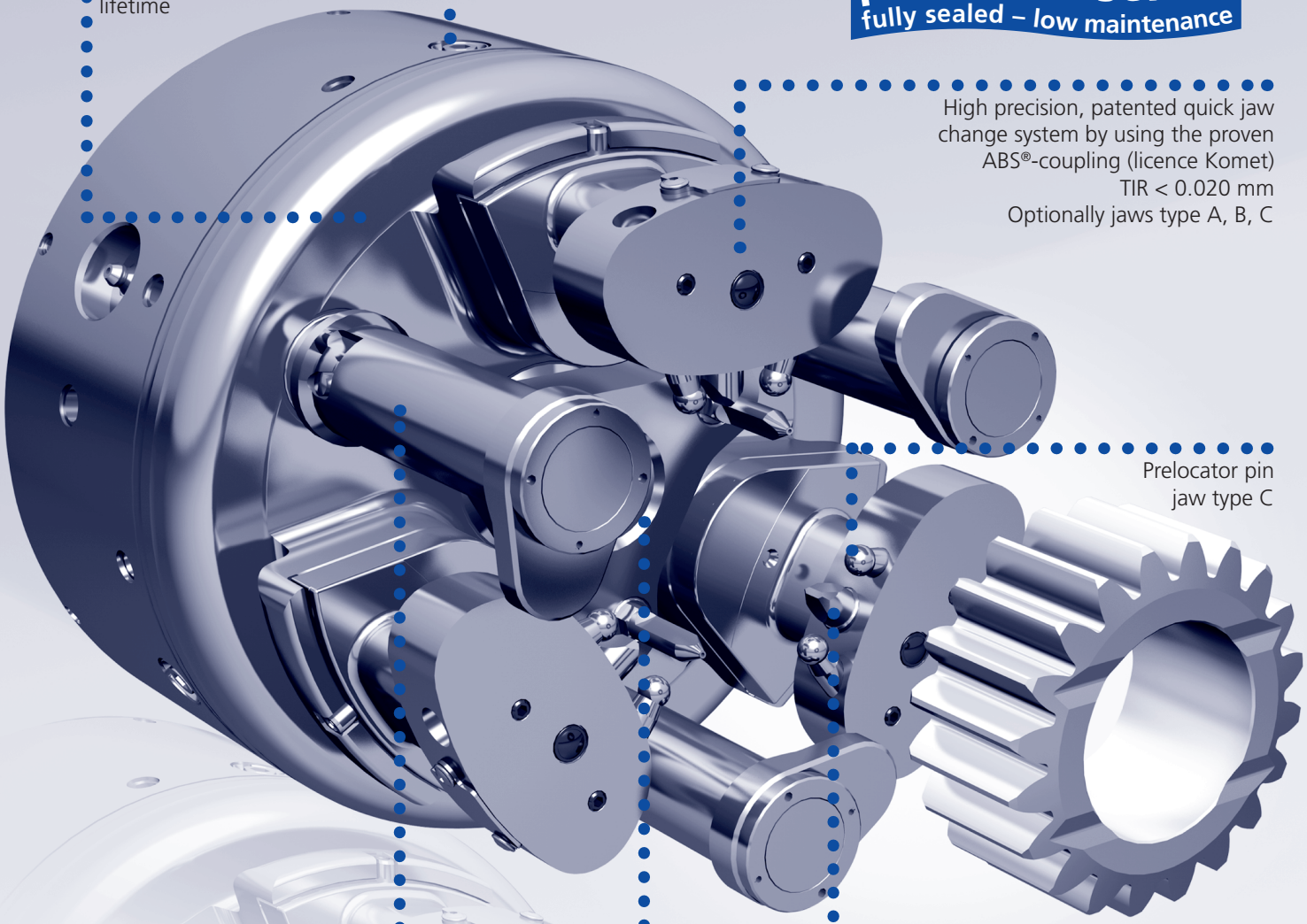
If requested the **D-KOMBI** can also be used just for radial clamping. In this case no clamping fingers are mounted and the clamping force is regulated by adjusting the pressure on the clamping cylinder.

Double piston cylinder: These are cylinders with two independent pistons. Piston A drives the swing-clamps, piston B releases the diaphragm or regulates the clamping force of the diaphragm. Depending on the application, it may be necessary to have the pressure in the supply lines for piston surfaces A / B / C / D individually adjustable by individual pressure regulating valves. The SMW-AUTOBLOK double piston cylinder **ZHVD-DFR** is specially designed for this application. Different rotating unions for 1 or 2 media (as an example air sensing and coolant) can be mounted to the standard cylinder.

- Special shaped diaphragm from special steel for longest lifetime
- Ideal for PICK-UP machines: Radial access for quick change mechanism

proofline® series
fully sealed – low maintenance

- High precision, patented quick jaw change system by using the proven ABS®-coupling (licence Komet)
- TIR < 0.020 mm
- Optionally jaws type A, B, C



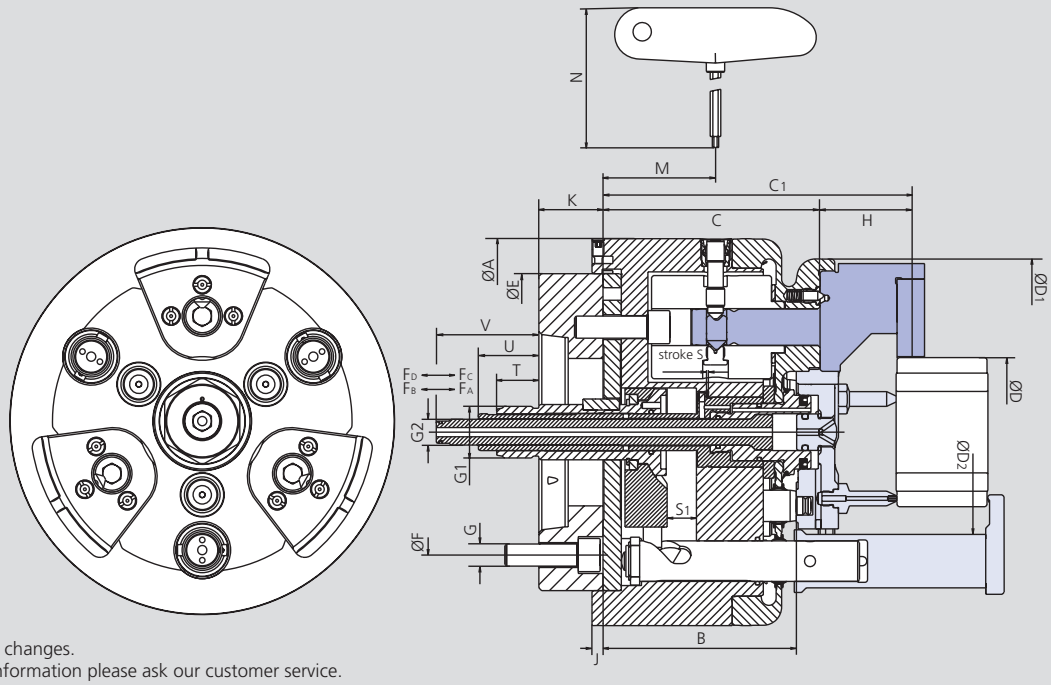
- Prelocator pin jaw type C
- Clamping tooth jaws Type C
- Clamping of gears in the pitchline
- Quick change of swing clamps via bajonet

Workstop
- Quick change
- Air sensing
- Nozzle for coolant/airblow

D-KOMBI®

Radial-axial clamping
QUICK JAW CHANGE SYSTEMS

Main dimensions and technical data



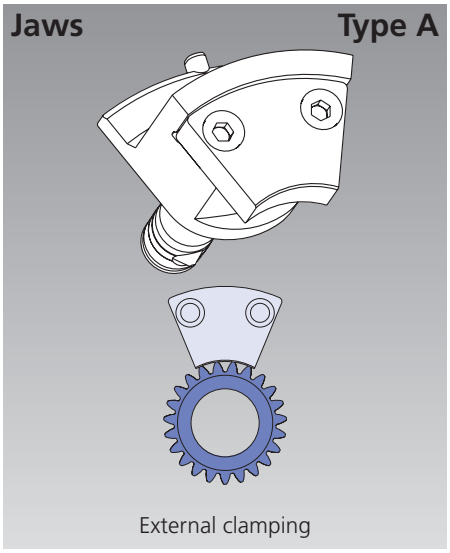
Subject to technical changes.
For more detailed information please ask our customer service.

SMW-AUTOBLOK Type			D-210 KOMBI		D-260 KOMBI		D-315 KOMBI	D-400 KOMBI	
Mounting	**Size**		**A5**	**A6**	**A6**	**A8**	**A8**	**A8**	**A11**
	A	mm	210		260		315	400	
	B	mm	105.5		111		116	123	
	C	mm	118.5		130		130	136	
	C1	mm	170.5		187		192	-	
Clamping range without fingers	**D**	mm	20-175		40-220		60-275	126-350	
	D1	mm	188		227		275	354	
Clamping range with fingers	**D2**	mm	111		153		203	268	
	E	mm	172		225		275	350	
	F	mm	104.8	133.4	133.4	171.4	171.4	171.4	235
	G		M10	M12	M12	M16	M16	M16	M20
	G1		M28 x 1.5		M28 x 1.5		M28 x 1.5	M28 x 1.5	
	G2		M14 x 1.0		M14 x 1.0		M14 x 1.0	M14 x 1.0	
Jaw height	**H**	mm	52		62		64	-	
	J	mm	6		6		6	6	
	K	mm	40		48		48	50	
	M	mm	61.4		61.9		61.9	66.5	
	N	mm	185		185		185	185	
Piston stroke	**S**	mm	1.0		1.5		1.5	1.5	
Axial stroke swing clamps	**S1**	mm	16		16		16	16	
	T	mm	18		10		10	8	
	U	mm	28		20		20	18	
	V	mm	51		43		43	41	
Jaw stroke at distance H		mm	1.0		1.1		1.2	0.87	
Draw pull min. / max.*	**FD**	kN	0-25		0-25		0-25	0-25	
Draw push for chuck open	**FC**	kN	20		20		20	20	
Draw pull swing clamps max.	**FB**	kN	6		9		9	18	
Draw push swing clamps open	**FA**	kN	2		2		2	2	
Moment of inertia		kg·m²	0.16		0.45		0.75	2.26	
Weight without top tooling		kg	30		44		60	109	
Recommended actuating cylinder		**Type**	**ZHVD-DFR**		**ZHVD-DFR**		**ZHVD-DFR**	**ZHVD-DFR**	

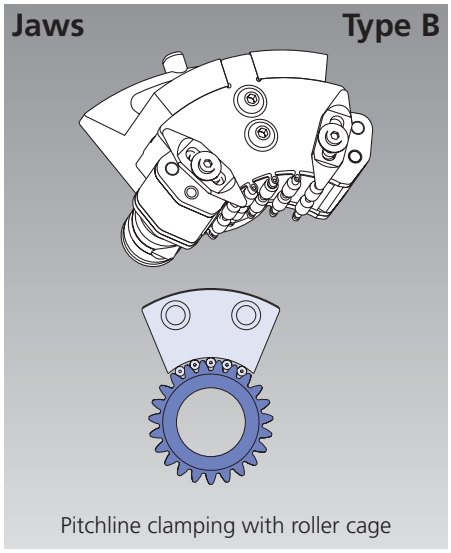
* Additional draw pull to the diaphragme force actuated by the actuating cylinder.

Advice: The max. allowed speed for the application is permanently marked on the corresponding top jaws and must not be exceeded.

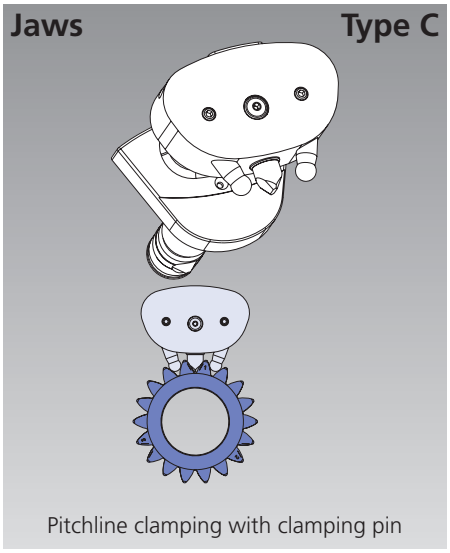
Important: Never rotate the chuck without inserted jaws, otherwise the centrifugal force compensation mechanism will get damaged.



External clamping



Pitchline clamping with roller cage



Pitchline clamping with clamping pin

Actuating cylinder ZHVD-DFR for D-KOMBI®

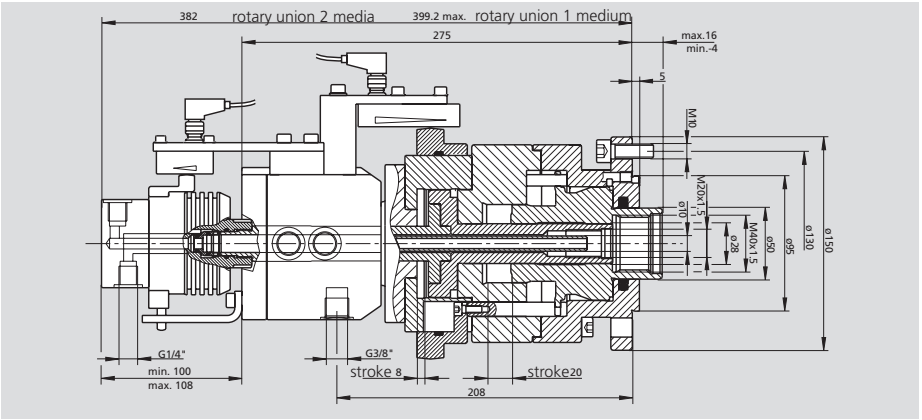
Technical features

- Special double piston cylinder to actuate D-KOMBI
- 2 independent pistons for diaphragm jaws and axial swing clamp drive
- Rotating unions for 1 or 2 media
- 2 Linear Position Systems LPS 4.0 for monitoring of the piston strokes

Standard equipment

- Cylinder with kit for LPS 4.0, without LPS 4.0 position sensor

LPS 4.0 see total catalog page 313



ZHVD-DFR for rotary union 1 medium Id. No. 046914 (without rotary union)*
ZHVD-DFR with rotary union 2 media Id. No. 046887 (rotary union 2 media included)

Piston surface				Pressure	Speed	Leakage	Weight	Moment	Weight of	Weight of
Axial finger (K1)		Diaphragm (K2)		min / max	max	at 30 bar 50°C	cylinder	of inertia	rotary union	rotary union
A	B	C	D						1 medium	2 media
push cm²	pull cm²	push cm²	pull cm²	bar	min⁻¹	dm³/min	kg	kg·m²	kg	kg
17.6	30.6	40.6	39.2	3-60	4000	3.0	25	0.065	0.4	1.5

* To be ordered seperately!

Installation