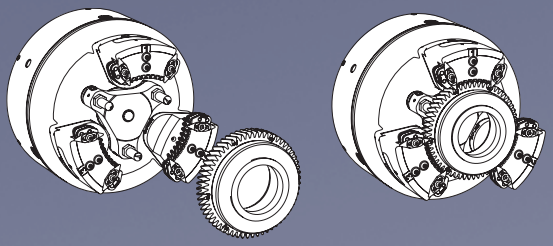
Diaphragm clamping technology with quick jaw change at its best – for hard turning, grinding, high precision turning

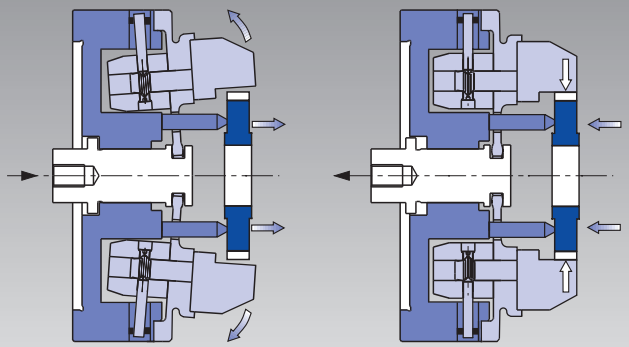
D-210®/D-260/D-315



The ultimate, easy principle:

The operation is based on elastic deformation of the diaphragm - this means
- no sliding parts
- no friction
- centrifugal force compensation
- proofline® series = fully sealed low maintenance

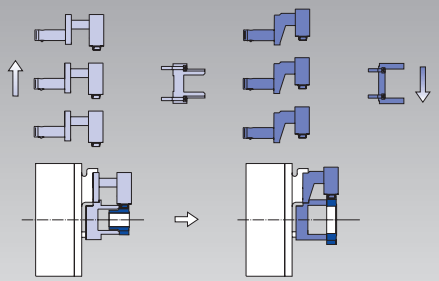
Operation of diaphragm system



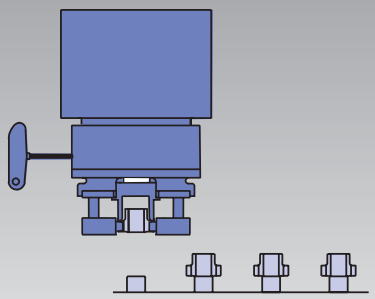
Jaws are factory finished and match any chuck with no loss of concentricity.
Never, ever grind or bore jaws on the chuck!
TIR < 0,020 mm

Setup time < 4 minutes

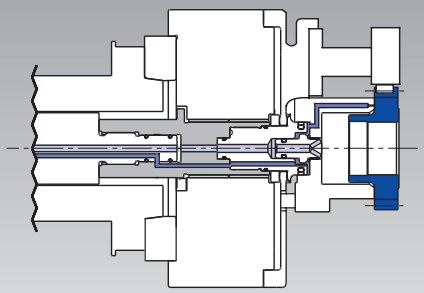
for jaws and locators
TIR <0,020 mm without boring/grinding

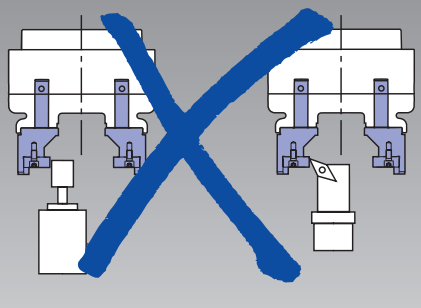


Ideal for PICK-UP machines: Radial access for quick change mechanism



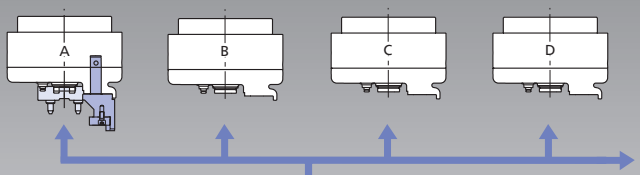
Media feed: Air sensing + air blow/coolant



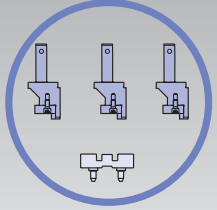


NEVER, EVER GRIND OR BORE JAWS ON THE CHUCK

Full interchangeability of the jaws



ANY JAWSET CAN BE PUT ON TO ANY CHUCK WITHOUT LOSS OF CONCENTRICITY



- NO BORING
- NO GRINDING
- LESS JAWSETS NEEDED
- TIR < 0,020 mm

Clamping glossary

ABS® connection: A connecting system, developed by the Komet company for highest rigidity and accuracy. A version of this proven design is used for the quick jaw change on the **Type D** chuck.

Centrifugal force compensation: Underneath the diaphragm, counter balance weights made of heavy metal are mounted which are connected to the clamping jaws. They completely compensate the centrifugal force caused by the jaws.

Roller cage clamping: Floating vollers are held in a voller cage. They extend from the location face of the clamping insert. In principle the work-piece is clamped like an external clamping but the steel rollers clamp in the pitch line. Special jaws with roller cages have been developed for the **Type D**. Since the clamping force is spread equally onto multiple tooth gaps easily deformed components can be clamped without distortion.

Air sensing: Air is fed through the contact face of the work stop. When the work-piece is in contact with the work stop the airflow is stopped and converts into a signal. If the component is not correctly positioned or is lifted, the machine can not start or the spindle is stopped. This important feature is standard on all **Type D** chucks.

Medium supply: Coolant or air to clean/cool during the machining process come through the machine spindle/chuck. This important feature is standard on all **Type D** chucks.

Diaphragm clamping technology: It is based on the elastic deformation of the diaphragm (like a large belleville washer). There are no sliding parts and the mechanism is completely maintenance free. The specially and patented diaphragm of the **Type D** allows a constant fine regulatable clamping force with the highest precision.

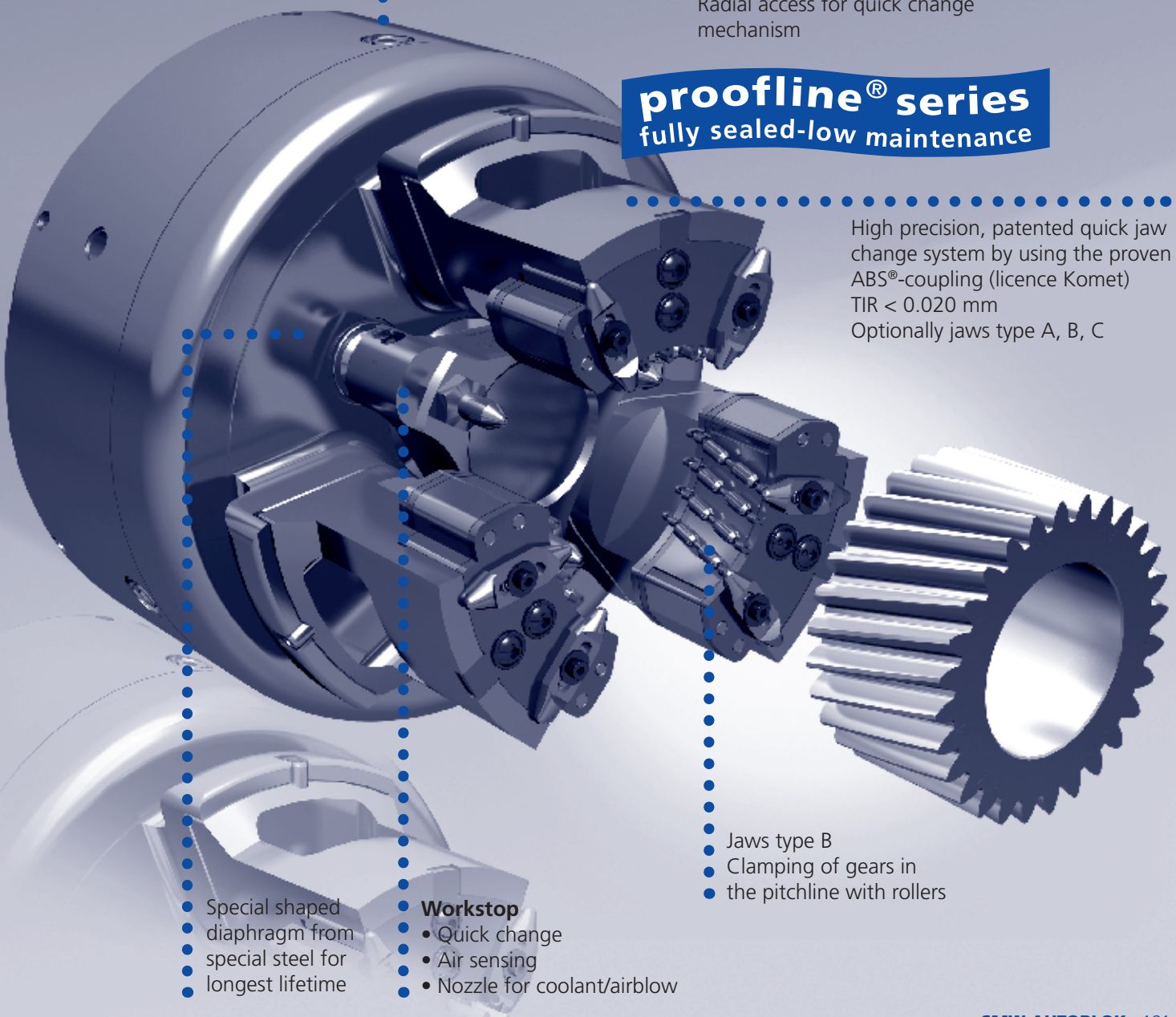
Pre-locaters: These protect the clamping pins during engagement into the serration especially during automatic loading.

Pitch line clamping: Clamping gears in the pitch line with clamping pins, the radial datum for the bore to be machined is the pitch line. According to the application and customers request jaws with clamping pins to clamp in the pitch line are offered.

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



Special shaped diaphragm from special steel for longest lifetime

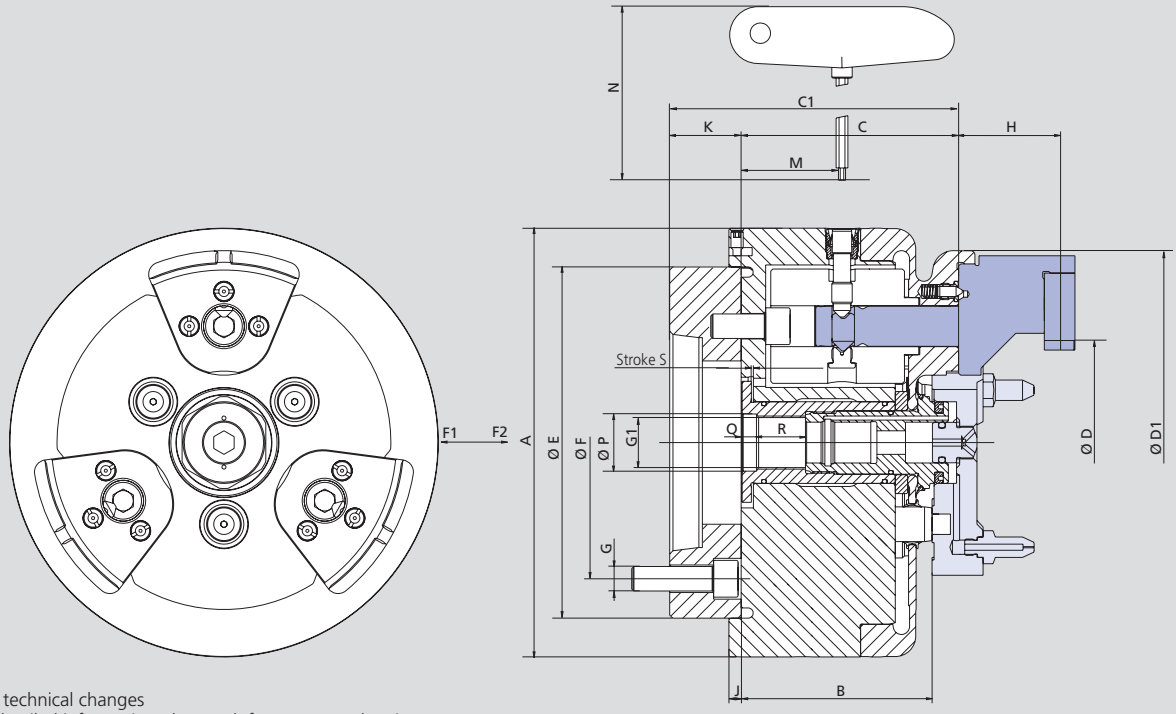
Workstop
- Quick change
- Air sensing
- Nozzle for coolant/airblow

Jaws type B
Clamping of gears in the pitchline with rollers

Type D

Diaphragm chuck
QUICK JAW CHANGE SYSTEMS

Main dimensions and technical data



Subject to technical changes
For more detailed information please ask for customer drawing

SMW-AUTOBLOK Type			D-210		D-260		D-315
Mounting		Size	A5	A6	A6	A8	A8
	A	mm	210		260		315
	B	mm	93.5		108		111
	C	mm	106.5		120		125
	C1	mm	146.5		156		173
Clamping range min./max.	**D**	mm	20-175		40-220		60-275
	D1	mm	188		227		275
	E	mm	172		225		275
	F	mm	104.8	133.4	133.4	171.4	171.4
	G		M10	M12	M12	M16	M16
	G1		M26 x 1.5		M26 x 1.5		M30 x 1.5
Jaw height	**H**	mm	52		62		64
	J	mm	6		6		6
	K	mm	40		48		48
	M	mm	49.4		53		57
	N	mm	185		185		185
	P H6	mm	28		28		32
	Q	mm	7		7		7
	R	mm	24		24		29.5
Piston stroke	**S**	mm	1.0		1.5		1.7
Jaw stroke at distance H			1.0		1.1		1.2
Draw pull min./max.*	**F1**	kN	0-25		0-25		0-25
Draw pull for chuck open	**F2**	kN	30		30		30
Moment of inertia		kg·m²	0.16		0.45		0.75
Weight without top tooling		kg	30		44		60
Recommended actuating cylinders		**Type**	**SIN-DFR**		**SIN-DFR**		**SIN-DFR**

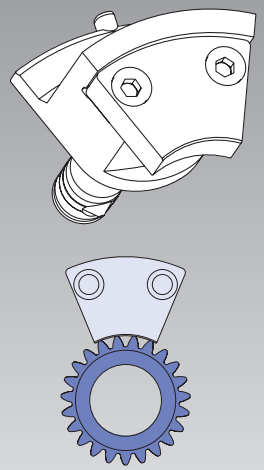
*Additional actuation force to the diaphragm spring clamping force applied by the clamping cylinder.

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

Advice: Please note, that it is important, that the cylinder force for pushing and pulling can be set to different values independently!

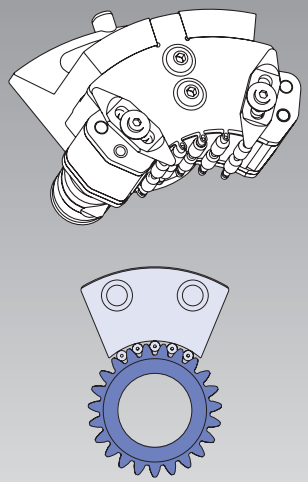
Important: Never rotate the chuck without inserted jaws, otherwise the centrifugal force compensation mechanism will get damaged.

Jaws type A



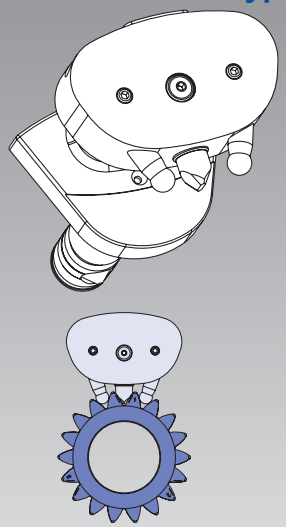
External clamping

Jaws type B



Pitchline clamping with roller cage

Jaws type C



Pitchline clamping with clamping pin

Actuating cylinder SIN-DFR for diaphragm chuck Type D

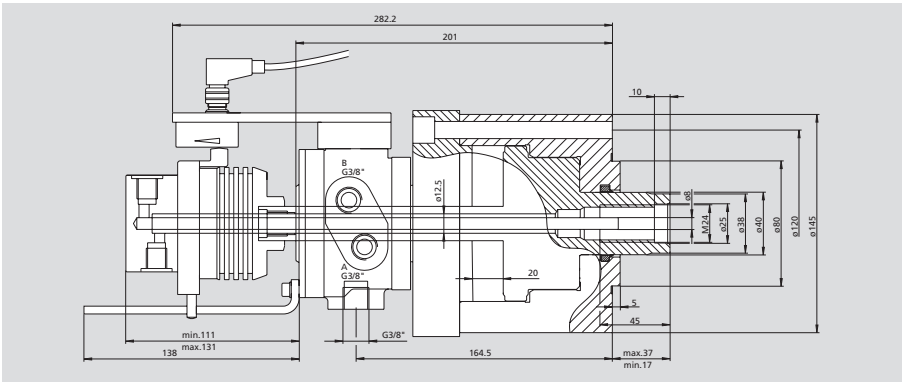
Technical features

- Special cylinder to actuate the diaphragm chuck
- Large/small piston area for opening/ clamping
- Rotary unions for 1 or 2 media
- Linear positioning system LPS to monitor the piston stroke

Standard equipment

- Cylinder with kit for LPS-XS installation without LPS-XS position sensor

LPS-XS see page 241

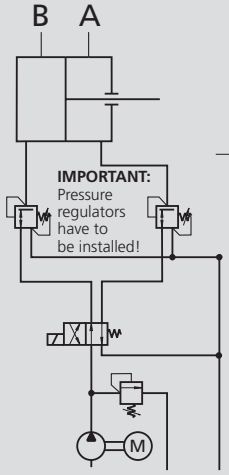


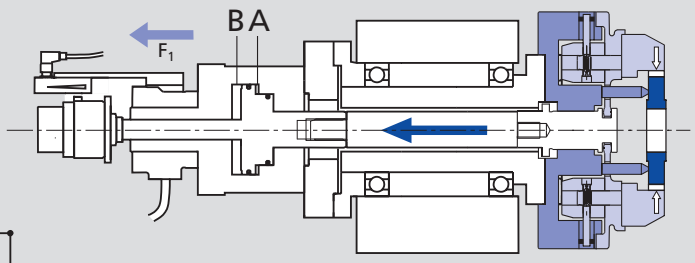
SIN-DFR-LPS-XS for rotary union 1 medium Id. No. 044860 (without rotary union*)
SIN-DFR-LPS-XS with rotary union 2 media Id. No. 044861 (rotary union 2 media included)

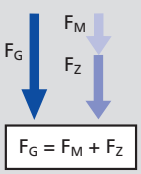
Piston surface A pull cm²	Piston surface B push cm²	Pressure A min/max bar	Pressure B min/max bar	Pull min./max. kN	Push min./max. (36 bar max.) kN	Speed max. r.p.m.	Leakage at 30 bar 50°C dm³/min	Weight cylinder kg	Moment of inertia kg·m²	Weight of rotary union 1 medium kg	Weight of rotary union 2 media kg
21	74	3-70	3-36	0.6/14	2.2-27	7000	1.5	9	0.016	0.4	1.5

* Please order separately

Installation







F_G = total clamping force
F_M = diaphragm clamping force
F_Z = additional clamping force applied by the actuating cylinder

The total clamping force (F_G) is the total of the diaphragm clamping force and the clamping force (F_Z), created by the draw pull (F_1) of the actuating cylinder.

Thus the clamping force F_G can be regulated by adjusting the pressure of the actuating cylinder.

Advice: Please note, it is important, that the cylinder pressure for pushing and pulling can be set to different values!