

## The Automated Change [AC] Line

The new industry standard for  
automated workpiece clamping

# Automated change [AC]

Smart devices and automation are everywhere, both in private life and in manufacturing facilities. The increasing individualization of products, extending to efficient one-off manufacturing, necessitates rethinking in production planning. Machines and systems have to be flexible and designed for automated set-up. And that is where our automation solutions come into play. Your machines will run longer and set themselves up automatically in record time, thus lowering your costs.

With our TOPlus AC and SPANNTOP AC chucks, clamping heads and workpiece end-stops can be changed automatically. They enable unattended set-up and manufacturing of workpieces with different clamping diameters, profiles and clamping lengths.

If you want to change entire clamping devices, however, then you should use our CENTREX duo AC and centroteX AC interfaces. They can be adapted to your individual requirements.

## Key advantages

- Automated change-over of clamping heads with or without workpiece end-stop
- Automated change-over of mandrels and chucks
- Reliable processes that have already been successfully implemented at numerous customers
- Flexible and efficient manufacturing, also with a batch size of 1

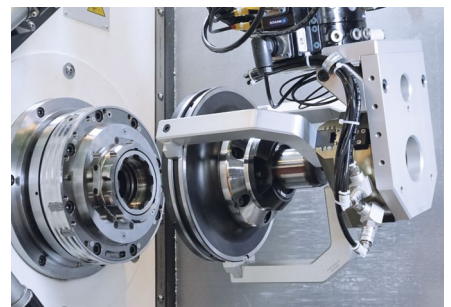
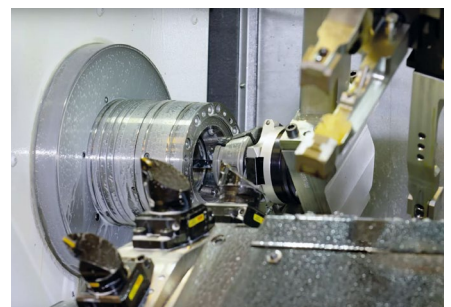
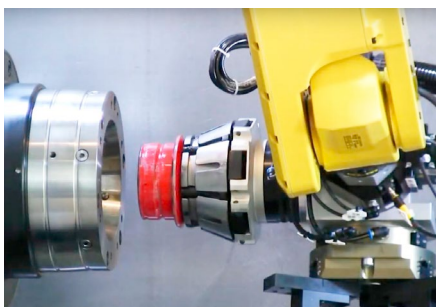
## Your benefits

- Increases quality and ensures consistent results
- Higher productivity, as unmanned production is possible



centroteX AC in action

## Customer applications



# Combined clamping head and workpiece end-stop change-over with TOPlus AC or SPANNTOP AC



- Power-operated chuck with integrated interface for changing clamping head and workpiece end-stop together
- For machines with a horizontal or vertical rotating spindle
- Also for stationary use [machining center, measuring machine, ...]

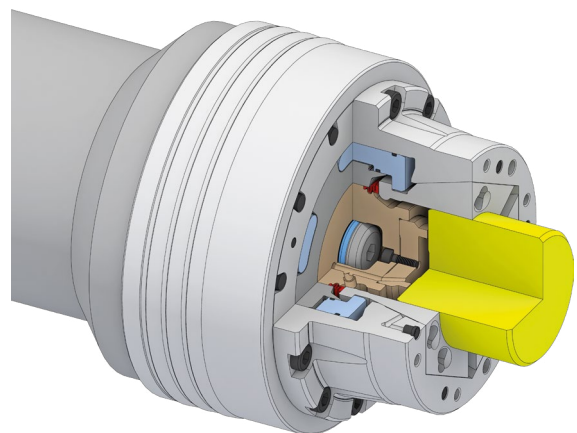
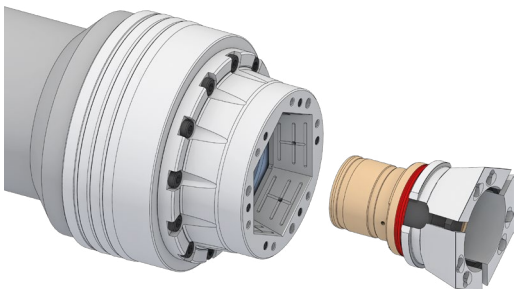
<b>Clamping task</b>	O.D. clamping
<b>Clamping device</b>	TOPlus AC or SPANNTOP AC chuck

## Technical requirements

- Power-operated clamping device under tension and pressure
- Clamping cylinder with through-bore for passage of at least two media required [cooling lubricant, air sensing]
- Due to media supply, no capacity for the workpiece is possible
- Programmable clamping pressure [e.g. proportional valve] recommended

## Result

- Automated set-up of different clamping diameters and clamping lengths in one set-up process
- Set-up of the clamping head with the workpiece end-stop eliminates one set-up process
- Same run-out and production accuracy as TOPlus and SPANNTOP chucks



## SAVINGS

- Higher machine utilization, since unattended shifts can be implemented with high process reliability
- No personnel required for set-up

# Separate clamping head and workpiece end-stop change-over with TOPlus AC or SPANNTOP AC

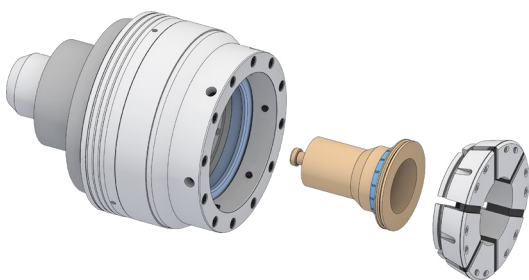


- Power-operated chuck with integrated interface for changing clamping head and workpiece end-stop separately
- For machines with a horizontal or vertical rotating spindle
- Also for stationary use [machining center, measuring machine, ...]

**Clamping task** O.D. clamping  
**Clamping device** TOPlus AC or SPANNTOP AC chuck

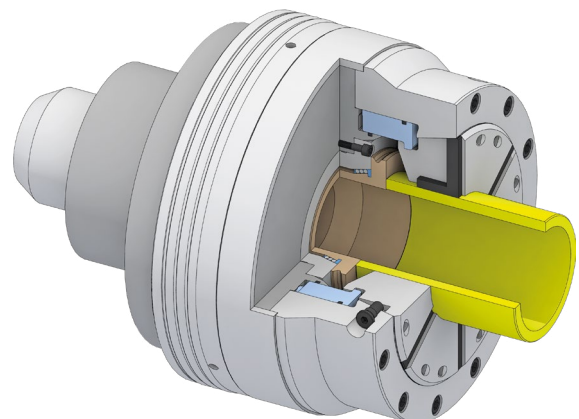
## Technical requirements

- Power-operated clamping device under tension and pressure
- Double-piston clamping cylinder with double media passage [cooling lubricant, air sensing] for actuation of the base end-stop and the clamping head is required
- Clamping diameter must be larger than the end-stop diameter or the end-stop plane must be behind the clamping head
- Programmable clamping pressure [e.g. proportional valve] recommended



## Result

- Automated set-up of different clamping diameters and clamping lengths in two separate set-up processes
- Workpiece families with different clamping diameters often need no changing of end-stop, which greatly reduces stocking of changing parts
- Same run-out and production accuracy as TOPlus and SPANNTOP chucks



## SAVINGS

- Higher machine utilization, since unattended shifts can be implemented with high process reliability
- No personnel required for set-up
- Smaller robots are possible due to the lower load

# Mandrel change-over [MAXXOS and MANDO]

with CENTREX duo AC



- CENTREX duo AC interface for automated changing of pre-set-up MAXXOS and MANDO mandrels
- For machines with a horizontal or vertical rotating spindle
- Also for stationary use [machining center, measuring machine, ...]

**Clamping task**

I.D. clamping

**Clamping device**

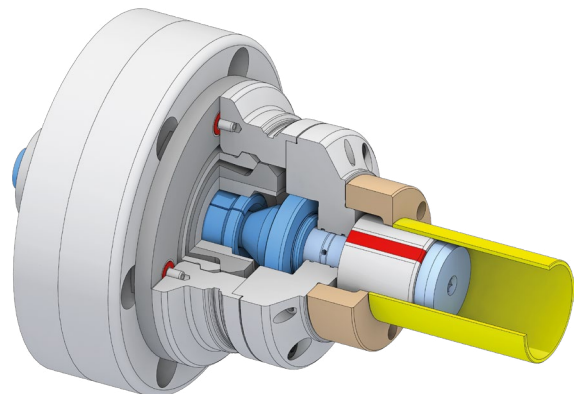
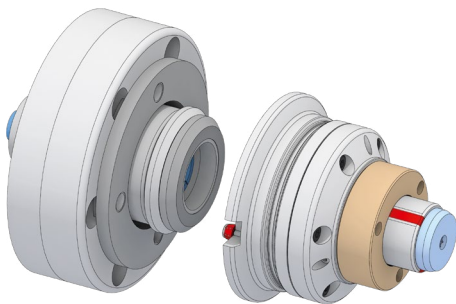
Mandrel + CENTREX duo AC

## Technical requirements

- Power-operated clamping device under tension
- Double-piston clamping cylinder, with position measuring system for passage of two media [2 x air sensing] for mounting of the mandrel on the spindle is required
- Programmable clamping pressure [e.g. proportional valve] required

## Result

- Automated changing of pre-set-up mandrels
- Segmented clamping bushing and end-stop are pre-set-up separately outside of the machine
- Different mandrel sizes can be used, therefore ideal for small and large workpieces
- Same run-out and manufacturing accuracy as the mandrels used, plus change-over accuracy of the CENTREX duo AC interface [ $\leq 0.003$  mm]



## SAVINGS

- Higher machine utilization, since unattended shifts can be implemented with high process reliability
- Personnel required only for external preliminary set-up, allowing simultaneous operation of multiple machines

# Clamping device change-over with centroteX AC



- centroteX AC interface for automated changing of pre-set-up chucks and mandrels
- For machines with a horizontal or vertical rotating spindle
- Clamping device mounting via bayonet mechanism using a mechanical actuator [e.g. screwdriver or wrench]

<b>Clamping task</b>	<b>I.D. clamping / O.D. clamping</b>
<b>Clamping device</b>	<b>Chuck, mandrel, 3-jaw chuck + centroteX AC</b>

## Technical requirements

- Power-operated clamping device under tension and pressure
- Maximum clamping device outer diameter 224 mm [TOPlus and SPANNTOP up to max. size 65]
- Clamping cylinder with through-bore, with position measuring system for passage of four media [cooling lubricant, 2 x air sensing, 1 x air purge] is required
- Programmable clamping pressure [e.g. proportional valve] required

## Result

- Automated changing of complete, different clamping devices, therefore ideal for different workpieces
- Changing parts can be pre-set-up on the machine or separately outside of the machine
- Same run-out and manufacturing accuracy as the clamping devices used, plus change-over accuracy of the centroteX AC interface [ $\leq 0.003$  mm]



## SAVINGS

- Custom one-off manufacturing of different workpieces with minimal set-up expenditure is possible, with no manual intervention
- Higher machine utilization, since unattended shifts can be implemented with high process reliability
- Personnel required only for external preliminary set-up, allowing simultaneous operation of multiple machines