

**PERFECT SURFACES WORLDWIDE**



# A WELCOME FROM THE TECHNOLOGY LEADER

in mass finishing



Proverbial ingenuity, coupled with German efficiency and a love of perfection, are the best qualifications for developing successful ways of creating immaculate surfaces. Driven by these attributes of German engineering, OTEC, with its innovative technologies, has grown into the industry trendsetter in just a few years.

# MARKETS



AUTOMOTIVE INDUSTRY



TOOLMAKING INDUSTRY



STAMPED, TURNED AND MILLED PARTS



AEROSPACE INDUSTRY



MEDICAL AND PHARMACEUTICAL INDUSTRY



CERAMIC AND PLASTIC PARTS




JEWELLERY AND WATCHMAKING INDUSTRY

**STAMPED, TURNED  
AND MILLED PARTS**



## STAMPED, TURNED AND MILLED PARTS

Quality within minutes

- 
- A close-up photograph of several metal parts, likely aluminum, showing circular holes and chamfered edges. The parts are arranged in a row, with some showing a polished finish and others showing a more matte, industrial finish. The background is a soft, out-of-focus light blue.
- Reliable deburring, edge rounding, smoothing and polishing
    - Within minutes
    - Significant visual enhancement
  - Special features of the OTEC process:
    - Even the thinnest workpieces (e. g. discs with a thickness of 0.1 mm)
  - Decisive factors
    - Reproducible quality and speed
  - Special equipment variants
    - Adaptation to customer requirements
    - Process reliability
    - Repeatable finishing result

## FINISHING MACHINES

For Stamped, turned and milled parts

DISC FINISHING MACHINES



A close-up photograph of a disc finishing machine. The machine's interior is filled with a dense, swirling mass of small, light blue abrasive discs. A person's hand is visible, holding a small cluster of these discs, with a few more falling into the machine. The machine's structure is dark, and the overall scene is brightly lit, highlighting the texture of the discs.

## DISC FINISHING MACHINES

# DISC FINISHING MACHINES (CF)

## Technology

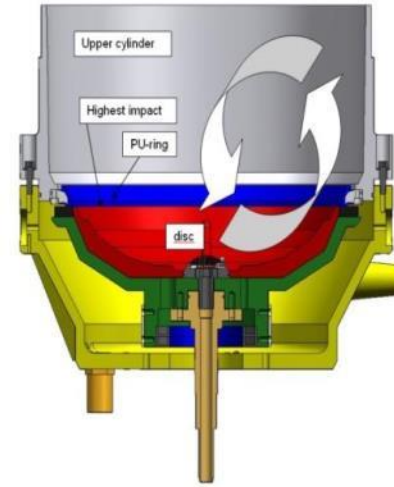
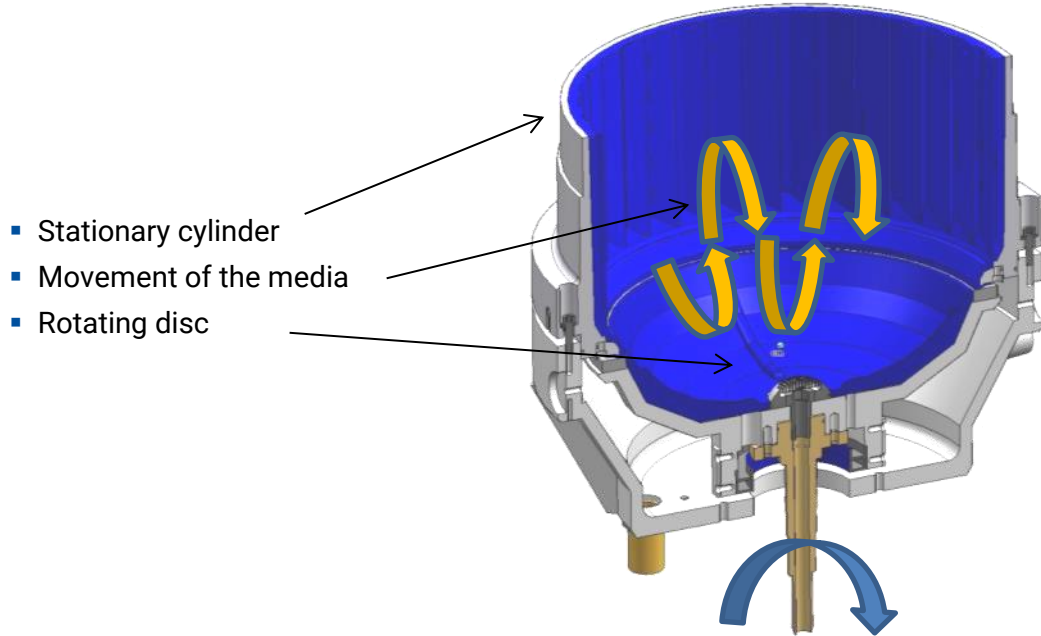
- Processing in an open drum (the process container) with a base plate in the form of a disc
- Workpieces, together with a suitable polishing or grinding media, are set in motion by the rotation of the disc to create a toroidal stream inside the stationary drum
- Contact between the workpieces and the media generates a very intense finishing effect
  - up to 20 times more efficient than with systems such as conventional vibrators
- In the wet finishing process, a water/compound mixture is continuously added and drains off, taking with it the residues of the material removed
  
- Advantages:
  - Fast, absolutely reliable and reproducible results
  - Extremely cost-effective finishing, even for very small parts (e.g. turned parts 0.5 mm Ø, material thickness 0.08 mm)
  - Simple handling
  - Wide range of applications, from deburring to mirror-finish polishing





# DISC FINISHING MACHINES

Cross section of a process container



# DISC FINISHING MACHINES

## Gap systems

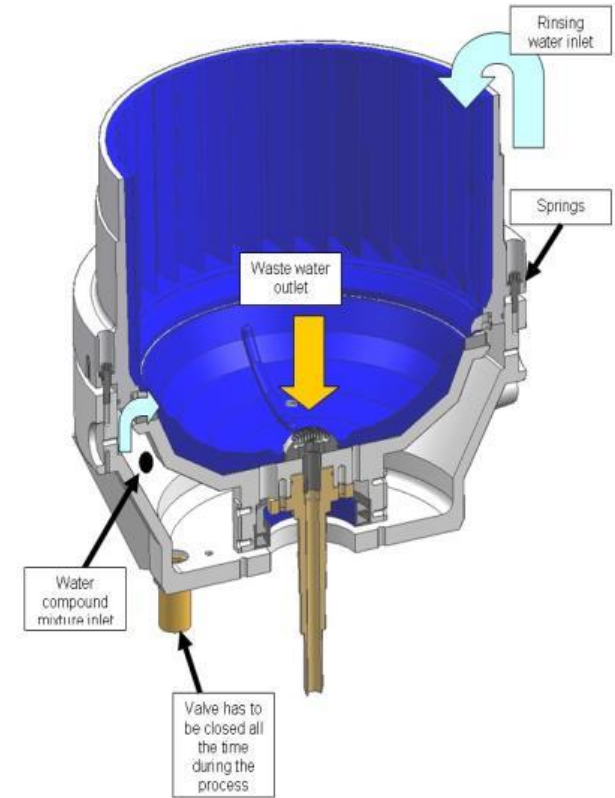
- Ceramic gap system:
  - Two SIC-ceramic rings form the gap (setting to 0.05 mm)
  - Advantage: Use of very fine polishing granule for perfect results
- Ceramic/polyurethane gap system:
  - OTEC standard
  - The system for most of the applications for wet processing
  - Advantage: Prevents jamming and blocking of the disc, high reliability, low maintenance requirement



# DISC FINISHING MACHINES

## OTEC zero-gap system

- For wet processing of very thin work pieces, the gap which is usually in between the disc and the upper cylinder, can be reduced to zero.
- Advantages:
  - Use of very fine grinding media is possible
  - Impossible that work pieces jam in the gap
  - Processing of very thin work pieces possible. (Even thinner than 0.1 mm)



# DISC FINISHING MACHINES

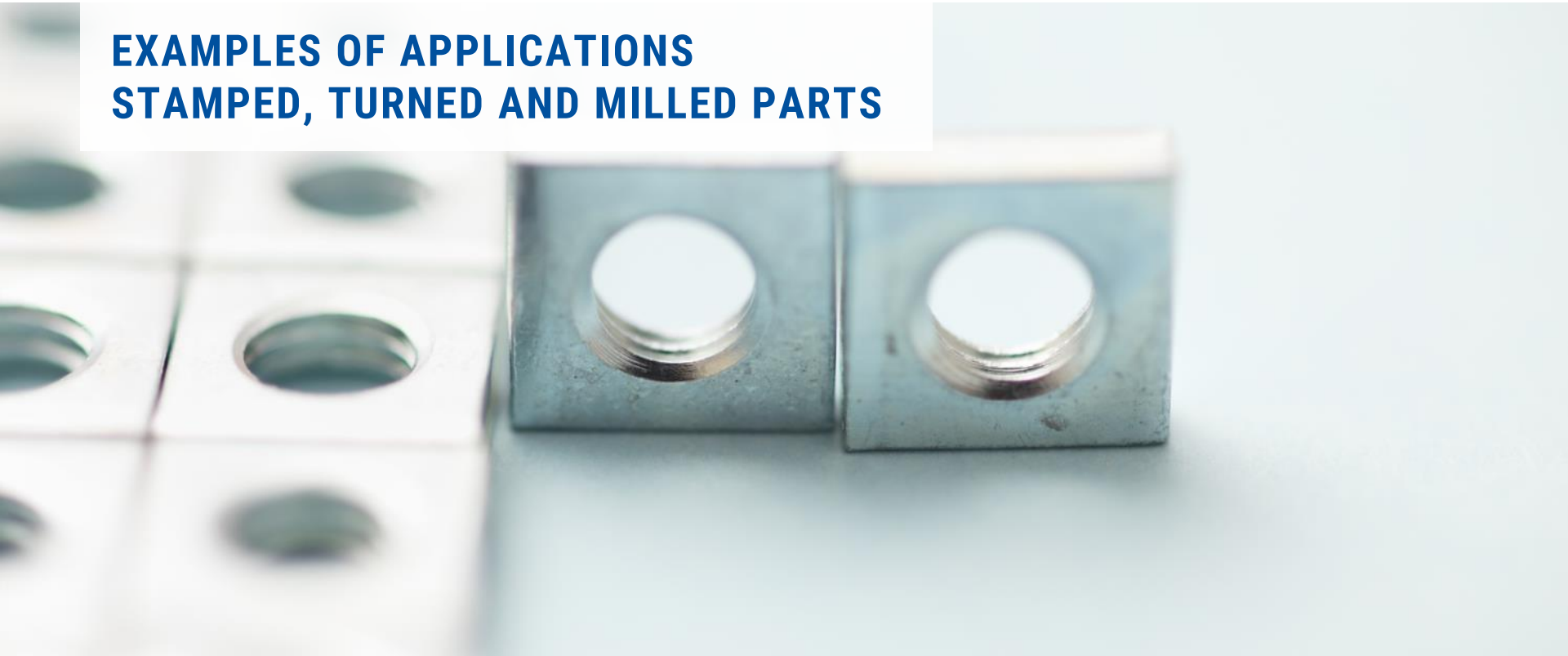
## Series CF

- Modular system for up to 6 process containers
- For wet and dry processing
- Process container with hot cast inner polyurethane lining
- Aluminium profile frame – for easy adaption of additional devices
- Frame made of anodised aluminium profile (corrosion resistant)
- Speed regulation via frequency inverter
- SPS-Touch-Screen with digital display of
  - Process time, speed, rinsing cycles, dosing and other important process parameters
  - More than 1000 individual programs can be stored.



[Video](#)

## **EXAMPLES OF APPLICATIONS STAMPED, TURNED AND MILLED PARTS**



## STAMPED, TURNED AND MILLED PARTS

### Workpiece finish at the limit

- Smoothing, polishing and deburring of turned and milled parts of die-cast products as well as punched parts for
  - Automotive industry
  - Mechanical engineering
  - Precision engineering



## STAMPED, TURNED AND MILLED PARTS

### Workpiece finish at the limit

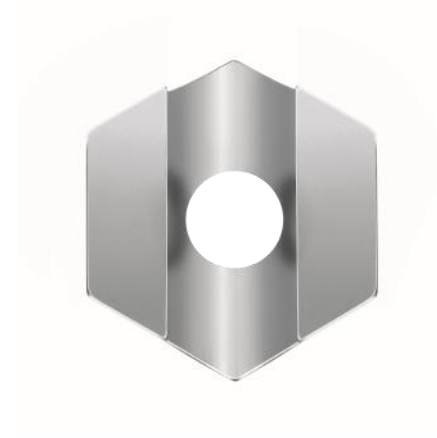
- The quality of precision, stamped or turned parts is outstanding for:
  - Perfect surface finish on edges and tips
    - Perfect, homogeneous deburring
    - Defined rounding
    - Depending on requirements, smooth surface
  - Prerequisite for further processing or subsequent surface treatment
- Decisive factors
  - Constant and reproducible quality
  - Quickness



# STAMPED, TURNED AND MILLED PARTS

## Series CF

- Examples of applications





# STAMPED, TURNED AND MILLED PARTS

## Series CF

- Advantages of CF machines from OTEC
  - Reliable deburring, rounding, polishing and smoothing
  - Low maintenance requirements
  - Simple operation
  - Very reliable and long service life
  - Trouble-free working thanks to innovative technology such as
    - Sophisticated gap technology
    - Highest quality bearing assemblies
    - Best quality in wear protection



# STAMPED, TURNED AND MILLED PARTS

## Accessories

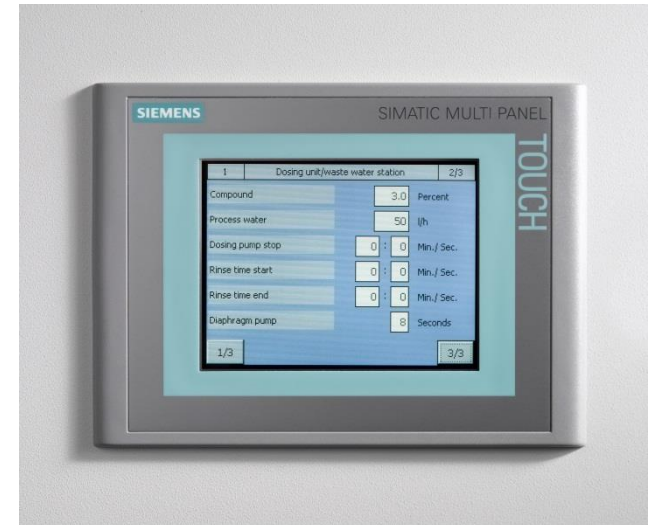
- Spray system
  - Thin small stamped parts can adhere to the process container wall during the process and thus will not be processed adequately
  - Workpieces are rinsed off periodically (freely programmable) via a spray system, so that the workpieces are always returned to the process container
  - Process-safe
  
- Separation machines
  - Reliable separation of media and workpieces after processing



# STAMPED, TURNED AND MILLED PARTS

## Accessories

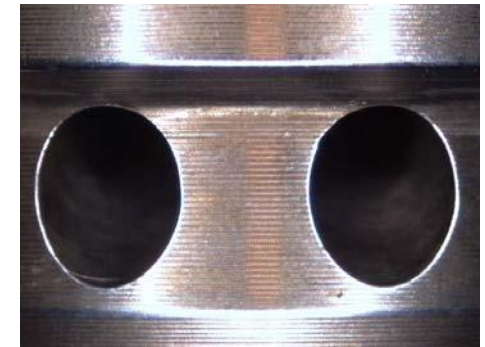
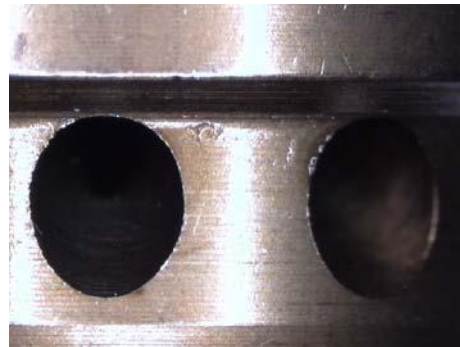
- Dosing unit
  - Dosing unit for automatic preparation of the water/compound mixture with automatic rinsing device
  - Preselection of compound concentration touch panel
  - Display of the water flow at the control unit
  
- Dosing unit with digitally selectable process-water volume
  - Water flow rate and compound concentration during the process flexibly programmable
  - Low water flow rate, low compound concentration at the beginning of the process → high abrasive effect
  - High water flow rate, high compound concentration, low speed at the end of the process → higher quality surface, higher process reliability



# TURNUED PARTS

## Series CF

- Processing requirements
  - Deburring of the holes
- Processing time 30 minutes
- By selecting the correct media in the correct size, it was possible to achieve a 100% deburring of the bore holes



## STAMPED, TURNED AND MILLED PARTS

### Series CF

- Examples of applications: Small springs and washers



# TEXTILE WEAVING NEEDLES

## Series CF zero gap system

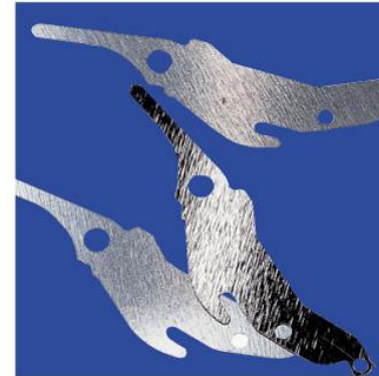
- OTEC zero gap system
  - Use of the finest grinding powder, pastes or even abrasive blasting materials possible
- Advantages:
  - Absolutely reliable
  - As good as maintenance-free
  - Processing of thinnest workpieces possible (even smaller than 0.1 mm)
  - Many years of experience



# THREAD GUIDE ELEMENTS

## Series CF zero gap system

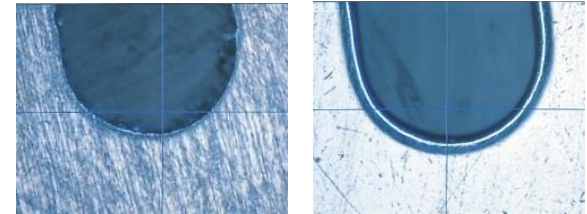
- Previous procedure
  - Processing in tumblers
  - Disc finishing machines not possible so far due to the gap problems
  - unique OTEC zero gap system enables processing of very thin parts
  
- Workpieces
  - Between 0.08 mm and 0.5 mm thick
  - Hardened spring steel



# THREAD GUIDE ELEMENTS

## Series CF zero gap system

- Problem:
  - Rounding in the groove in which the thread is guided, e. g. during the weaving process
  - The better the roundness, the less the thread breaks during the weaving process
  - Rounding is a measure of workpiece quality
  - Processing times so far between 40 and 100 hours in tumblers
  - The smaller and lighter the workpieces, the longer the process times
  - Deburring process determines the total production time of the stamped parts
  - High capital commitment and certain flexibility due to high storage costs
  
- Advantage CF Machines
  - Reduction of deburring process to about 6 hours
  - Significantly improved rounding quality in the groove area



Groove before (left) and after (right) processing



# STAMPED, TURNED AND MILLED PARTS

## Series CF Oil

- Deburring and smoothing of turned and milled parts with little burrs
  - E. g. workpieces from the lock industry
- Grinding and honing oils are excellently suited for vibratory grinding
  - High cleaning effect
  - High corrosion protection
- CF Oil
  - Integrated oil supply tank with filter unit and supply pump, e. g. for rinsing processes
  - Spray gun for cleaning the workpieces of abrasive bodies during the separation process
  - Collecting trays for oil splashes
  - Oil resistant machine design
  - From 1 to 4 process containers



# STAMPED, TURNED AND MILLED PARTS

## Series CF Oil

- Advantages:
  - No waste water treatment required
  - Oil is circulated by means of a filter for 100-200 operating hours
  - It is not necessary to remove oil from the workpieces before mass finishing and drying the workpieces after mass finishing for corrosion protection.



## FINISHING CENTRE



- Finishing of sample workpiece with no obligation and costs
  - Individual customer advice
  - Detailed documentation
  - Finishing concept tailored to your needs

## FINISHING CENTRE



- State of the art measurement technology
- Very experienced and highly qualified staff members
- Process research together with institutes and universities



**THANK YOU FOR YOUR ATTENTION.**