

## deconex<sup>®</sup> MT

parts cleaning in the medical technology industry





## It's a clean thing

### **Borer Chemie AG – your professional partner**

Borer Chemie AG is a leading technology firm at the cutting edge of the global field of cleaning for professional applications in parts production, laboratory applications, the pharmaceutical sector and hospital hygiene.

Our cleaning products are developed, manufactured and shipped from Our headquarters in Zuchwil, Switzerland. First-class Swiss quality is found in the company's products as well as Our **process development** and customer service. To this end, We guarantee quality from the raw material to the finished product and keep our customers proactively informed about product changes. We have a professional sales network to serve our global customers.

### **Comprehensive advice: our strength – your added value**

With Our many years' experience of cleaning-related matters in the medical technology industry and Our expertise in surface technology, We are able to advise you on every aspect of rigorous and precise cleaning.

Our professionals work with you to comprehensively plan the cleaning process. Your upstream and downstream processes, as well as your preferences and specifications, for example regarding the system type and productivity, are all factored in. We remain a neutral partner – the decision is yours.

Our company is certified to **ISO 9001:2008** and **ISO 13485:2012**.

We can either advise you at your premises or at Our technology centre, providing you with detailed and professional advice at all times. Following a detailed evaluation of your specifications, we recommend the right **deconex® products for your cleaning process**.



## Safety for people

### Safe and stable cleaning processes

To achieve a high standard of quality in the production of medical technology parts, all of the production processes must be perfectly coordinated with each other. We have developed a **7-step process** in which we work with you to systematically document your needs and requirements in order to determine the best possible cleaning method. We offer you support throughout, **from the concept to a cleaning process that can be validated.**

### Safe, high-performance medical products

The cleanliness of your implants and instruments is our number one priority. This is why we recommend process parameters that continuously fulfil the acceptance criteria of your cleaning results. We are happy to offer you comprehensive advice on this – from the choice of system technology through to regular checks of the cleaning baths at your premises.

### Safe, water-based cleaning agents

#### Safety for patients and users

deconex® MT cleaning agents are based on the exacting requirements of medical product manufacturers. With deconex® MT cleaning agents, hard-to-rinse ingredients have been completely avoided.

This means that the products are:

- free from corrosion inhibitors
- free from perfumes
- free from dyes

These ingredients are therefore excluded entirely from coming into contact with the implants and instruments.

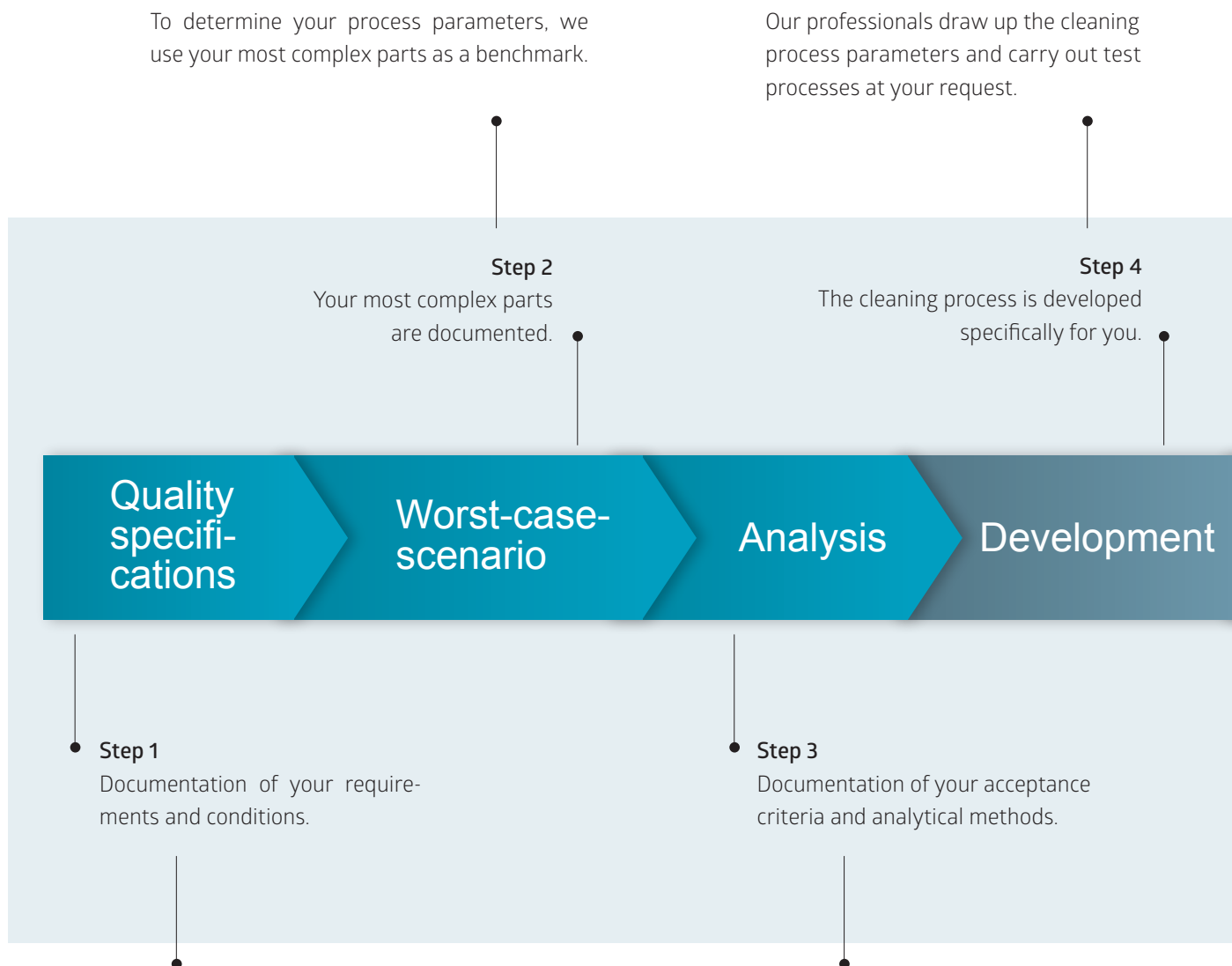
The MT cleaning agents are all formulated as water-based products, containing neither volatile nor flammable ingredients, this increasing safety in your company.

We assist you with cleaning-related questions surrounding clean and safe parts with:

- the 7-step process
- comprehensive technical advice
- target-oriented documentation for your process validation
- MT cleaning agents designed for medical technology, including cytotoxic values

# The 7-step process

You are fully supported for a cleaning process that stands up to validation



To determine your process parameters, we use your most complex parts as a benchmark.

Our professionals draw up the cleaning process parameters and carry out test processes at your request.

**Step 2**  
Your most complex parts are documented.

**Step 4**  
The cleaning process is developed specifically for you.

Quality specifications

Worst-case-scenario

Analysis

Development

**Step 1**  
Documentation of your requirements and conditions.

**Step 3**  
Documentation of your acceptance criteria and analytical methods.

We take account of your individual specifications and requirements. We also factor in your technical requirements, including:

- substrate materials
- contamination
- system technology
- requirements of the next process step

Your target requirements on cleanliness, for example:

- inorganic and organic residue
- bio-burden
- biocompatibility, cytotoxicity
- endotoxins
- particle numbers

To carry out residue analyses, we can provide you with information on suitable tests if required.



**Step 6**

You are provided with specific information for validation purposes.



Installation

Qualification

Monitoring

• **Step 5**

The cleaning process is set up at your facility.



During the installation and fine-tuning of the cleaning process, we support you with our professional expertise.

• **Step 7**

Your cleaning process is regularly monitored.



The cleaning agent concentration and water quality in your cleaning process is tested. This service can be provided on request by Borer Chemie AG.

# The cleaning stages

The correct cleaning for each production stage of your parts

Between processing stages and as preparation for the next cleaning stage in the sequence



## Intermediate cleaning – in the process

During the shaping stages, parts are machined, ground and polished. With these and other processing steps, lots of contamination occurs - such as oils, cooling lubricants, shavings and polishing agents. In this case, very high cleaning performance is needed.

Your parts are prepared perfectly for the next stage of the process.

Before final assembly, before final processing



## Fine cleaning – for semi-finished products

When it comes to manufacturing semi-finished products, a high standard of cleanliness is essential. Contamination such as polishing paste residue, traces of oil, fingerprints and dust needs to be removed.

The parts are perfectly prepared before they go through the final processing stages; either on your premises or your customer's.

Before sterilisation



## Final cleaning – for finished products

In this stage of cleaning, maximum care must be taken to ensure the cleaning result meets the acceptance criteria. For this reason, multiple rinses is a very important factor during final cleaning in order to ensure the maximum possible cleanliness. The parts are disinfected as necessary and then packaged and sterilised.



Before final rinsing, before sterilisation



## Passivation – protect your stainless steel

Effectively protect your stainless steel parts from corrosion. With the passivation process, a protective layer is rapidly built up from an ideal ratio of chromium (Cr) and iron (Fe) on the part surface. Thanks to its ideal formulation with various acids, passivation is effective and complies with ASTM A967.

# The cleaning agents

	Ultrasonic cleaning, immersion bath cleaning			Spray cleaning			Passivation	pH guideline value*
								
deconex® MT 12	•	•	•					11.2
deconex® MT 13	•	•	•					12.3
deconex® MT 14					•	•		12.2
deconex® MT 15	•	•	•					12.0
deconex® MT 16	•			•				12.7
deconex® MT 19							•	12.7
deconex® MT 21					•	•		7.2
deconex® MT 22	•	•	•	•				11.8
deconex® MT 27				•	•	•		10.7
deconex® MT 30				•	•	•		2.6
deconex® MT 31				•	•	•		2.3
deconex® MT 32	•	•	•					10.4
deconex® MT 41							•	2.2



### Description

Alkaline cleaning agent, used in combination with deconex® MT 13, for stubborn residue, particularly suitable for stainless steel and titanium.

Strongly alkaline cleaning agent, used in combination with deconex® MT 12, for stubborn residue, particularly suitable for stainless steel and titanium.

Strongly alkaline cleaning agent, for the highest standard of cleanliness, removes light residue, especially suitable for stainless steel and titanium.

Strongly alkaline cleaning agent, designed for the highest standard of cleanliness, especially suitable for titanium as well as stainless steel.

Strongly alkaline cleaning agent, for stubborn residue, especially suitable for stainless steel and titanium.

Strongly alkaline cleaning agent, prepares stainless steel surfaces for passivation with deconex® MT 41.

Neutral cleaning agent, for the highest standard of cleanliness, removes light residue, suitable if aluminium is also being cleaned.

Alkaline cleaning agent, suitable if aluminium is also being cleaned.

Mildly alkaline cleaning agent, for the highest standard of cleanliness. Can also be used as a finish.

Strongly acidic cleaning agent, is used for better rinsing properties as a finish, suitable if aluminium is also being cleaned.

Strongly acidic cleaning agent, is used for better rinsing properties as a finish, especially suitable for stainless steel and titanium.

Mildly alkaline cleaning agent, is used for better rinsing properties as a finish, especially suitable for stainless steel and titanium.

Strongly acidic cleaning agent, for the passivation of stainless steel.

\* pH guideline value = 1% product in de-ionised water








# The cleaning processes

Whether it be ultrasonic or spray cleaning, we have the right processes for you





## Cleaning processes in the ultrasonic method



<b>Intermediate cleaning</b> 
For stubborn residue such as: processing oils, polishing pastes
For stubborn residue such as: processing oils, polishing pastes
For particularly stubborn residue such as: processing oils, polishing pastes
For stubborn residue such as: processing oils, polishing pastes
<b>Fine / final cleaning</b>  
For small amounts of residue such as: fingerprints, traces of oil, dust, salts
For light residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts
For light residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts

## Cleaning processes in the spraying method



<b>Intermediate cleaning</b> 
For stubborn residue such as: polishing pastes, processing oils
For particularly stubborn residue such as: polishing pastes, processing oils
For stubborn residue such as: polishing pastes, processing oils
For particularly stubborn residue such as: polishing pastes, processing oils
<b>Fine / final cleaning</b>  
For light residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts
For light residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts
For small amounts of residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts
For light residue such as: residual polishing paste, traces of oil, fingerprints, dust, salts
<b>Passivation</b> 
For the passivation of stainless steel to provide increased protection from corrosion with prior cleaning to degrease the substrate.

**Rinsing is crucial** – To achieve the best cleaning result, we recommend the right rinsing stages. In the final rinsing bath, a very high standard of water quality with de-ionised (DI) water is required for the final cleaning stage (< 1 µS/cm).

Cleaning	Finish	Rinsing	Aluminium	Stainless steel	Titanium	Fibre composite materials	Plastics	Ceramic
deconex® MT 15	deconex® MT 32	DI-water		x	x	x	x	x
deconex® MT 16	deconex® MT 32	DI-water		x	x	x	x	x
deconex® MT 13 deconex® MT 12	deconex® MT 32	DI-water		x	x	x	x	x
deconex® MT 22	deconex® MT 32	DI-water	(x)	x	x	x	x	x
deconex® MT 15	deconex® MT 32	DI-water		x	x	x	x	x
deconex® MT 13 deconex® MT 12	deconex® MT 32	DI-water		x	x	x	x	x
deconex® MT 22	deconex® MT 32	DI-water	(x)	x	x	x	x	x
deconex® MT 16	deconex® MT 31	DI-water		x	x	x	x	x
deconex® MT 16	deconex® MT 27	DI-water		x	x	x	x	x
deconex® MT 22	deconex® MT 30	DI-water	x	x	x	x	x	x
deconex® MT 22	deconex® MT 27	DI-water	(x)	x	x	x	x	x
deconex® MT 27	deconex® MT 31	DI-water		x	x	x	x	x
deconex® MT 14	deconex® MT 31	DI-water		x	x	x	x	x
deconex® MT 21	—	DI-water	x	x	x	x	x	x
deconex® MT 27	deconex® MT 30	DI-water	(x)	x	x	x	x	x
deconex® MT 19	deconex® MT 41	DI-water		x				

Independent compatibility tests should be carried out on materials other than those specified or requested from Borer Chemie AG.



## Special processes and their deconex® MT- products

### **The process for individual customer requirements**

Due to individual requirements in medical technology, customer- and process-specific solutions can also be provided. In order to meet the special requirements, Borer Chemie AG designs tailor-made cleaning processes which are characterised by the use of deconex® MT special products. The MT special process is based on the experience from medical technology and differs from the standard product range due to the ingredients.

These cleaners may contain undesirable foreign substances and are also declared as such. Due to subsequent processes, such as electropolishing, passivation, pickling, anodising and the corresponding rinsing processes, such substances can still be used and the desired product purity (biocompatibility values) can be achieved.

In addition, we develop individual and tailor-made MT products for your requirements and support you in the implementation of the process. Please contact us directly with your wishes and needs.



## Borer Chemie AG creates added value for its customers with high-quality cleaning concepts.

We represent cleanliness, stable processes and compliance with regulations. Our employees – whether developing your cleaning process, fine-tuning your installation or monitoring – are all committed to delivering precisely this. And by so doing, we are able to create added value in your process chain.

Contact us: [industry@borer.ch](mailto:industry@borer.ch)



# Borer Chemie AG

## Specialists in cleaning and disinfection

### Expertise and innovation – worldwide

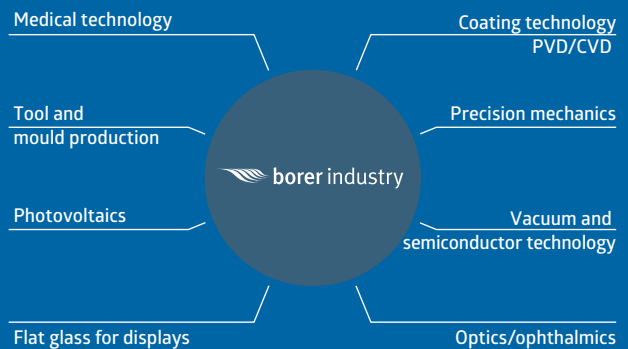
Since 1965 we have been researching, developing and producing in Switzerland products for demanding applications in the field of cleaning and disinfection.

We distribute our branded products and proven processes for professional applications in industry, hospital hygiene, laboratories, the pharmaceutical sector and in the field of hand and surface disinfection worldwide through a network of subsidiaries and distribution partners.



### Clean solutions for every industry

In almost every industrial company, surface cleaning is an integral part of the manufacturing process. A perfect cleaning result directly influences the quality of your products. The Borer Industry division stands for residue-free parts cleaning, stable processes and regulation compliance. Our experts – whether developing your cleaning process, fine-tuning your implementation or monitoring – are all committed to delivering precisely this.



### A unique service:

#### the deconex® test and training centre

In our in-house technical centre, you have the opportunity to test tailor-made potential system technology and chemistry for your cleaning, passivation or decoating processes – using state-of-the-art technologies and with the support of our specialists.



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