Compact single-chamber cleaning units for gentle precision cleaning

- Compact design
- Simple, straightforward operation and maintenance of the unit
- Leading edge ultrasonic technology with DUAL and MIX frequency technology
- Maximum cleaning efficiency
- Automated process flow
- Entirely made of high-quality stainless steel
- Integrated parts drying
- Integrated filtration of process media
- Gentle movement of goods
- Designed for maximum cleaning quality, meets the high quality standards of the medical optical and watch-making industries

The compact single-chamber cleaning units guarantee smooth and reproducible aqueous cleaning.
The following processes take place in the system:

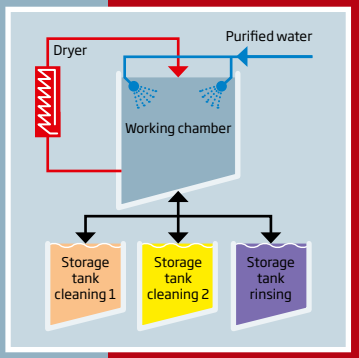
- Ultrasonic cleaning
- Ultrasonic rinsing
- Spraying with purified water
- Drying with hot air

This design concept, combined with ultrasonic technology from KKS, ensures excellent cleaning results from an extremely compact unit.
The ideal solution to clean delicate and small parts.

KTR: Unit with basket rotation

KTRO: Unit with basket oscillation

Schematic process flow



KKS Ultraschall AG
Ultrasonic technology & Surface refinement

Single-chamber cleaning units – Type KTR/KTRO

Swiss Quality

KTR-200 / KTRO-25

KTR-450 / KTRO-40
with working platform

KKS

Technical data	Type	KTR 200-2T-1111 KTRO 25-2T-1111	KTR 200-3T-2211 KTRO 25-3T-2211	KTR-450-2T-1111 KTRO-40-2T-2211	KTR 450-3T-2211 KTRO 40-3T-2211
External dimensions in mm	Length	1150	1480	1350	1950
	Width	1130	1130	1700	1700
	Height	1950	1950	2000	2000
Operating height in mm (without working platform)		1100	1100	1150	1150
Number of storage tanks		2	3	2	3
Storage tank capacity	Litres	65	65	170	170
Working chamber capacity	Litres	20	20	100	100
Process flow	Cleaning 1	Freely programmable process sequence			
	Rinsing 1				
	Cleaning 2				
	Rinsing 2				
	Spraying with purified water				
	Hot-air drying				
Ultrasonic frequencies		DUAL technology 27 & 80 kHz / 30 & 60 kHz / 40 & 100 kHz			
Ultrasonic power	W	600	600	2000	2000
Maximum load	kg	1	1	15	15
Movement of goods		Programmable recipe parameters KTR: Direction of rotation, speed of rotation, pivoting angle KTRO: stroke rate			
Control system		SIEMENS SIMATIC IPC with S7-1500 PLC			
HMI		SIEMENS SIMATIC 15" multi-touch panel with hygienic glass front			
Electrical specs		3× 400VAC/50 Hz, 3L + N + PE; special voltages on request			
Network connection		1× RJ45 for integration of the unit into existing networks and remote maintenance via remote control			
Compressed air connector		½", 3 - 6 bar oil-free, 0.5 m³/h			
Municipal water connection		¾"; 3 - 6 bar			
Purified water connection		¾"; 3 - 6 bar			

Baskets	Type	KTR 200-2T-1111 KTR-200-3T-2211	KTR 450-2T-1111 KTR 450-3T-2211	KTRO 25-2T-1111 KTRO-25-3T-2211	KTRO 40-2T-1111 KTRO 40-3T-2211
KTR workpiece size in mm	Ø	200	450		
	Height	100	200		
Number of KTR baskets	Basket Ø 63 mm	4	8		
	Basket Ø 80 mm	4	8		
	Basket Ø 90 mm	1	5		
	Basket Ø 135 mm	1	5		
	Basket Ø 175 mm	1	4		
	Basket Ø 200 mm	1	-		
	Basket Ø 450 mm	-	1		
KTRO workpiece size in mm	Length			200	460
	Width			200	280
	Height			130	200

Halar coated basket

Product-specific component holder

Software and HMI

Control systems are the central interfaces to the user and to superordinate systems/networks. KKS sets great value by reliable, user-friendly interfaces as well as process visualisations and interfaces that permit the integration of the unit into existing networks. These are core requirements of our system planning process.

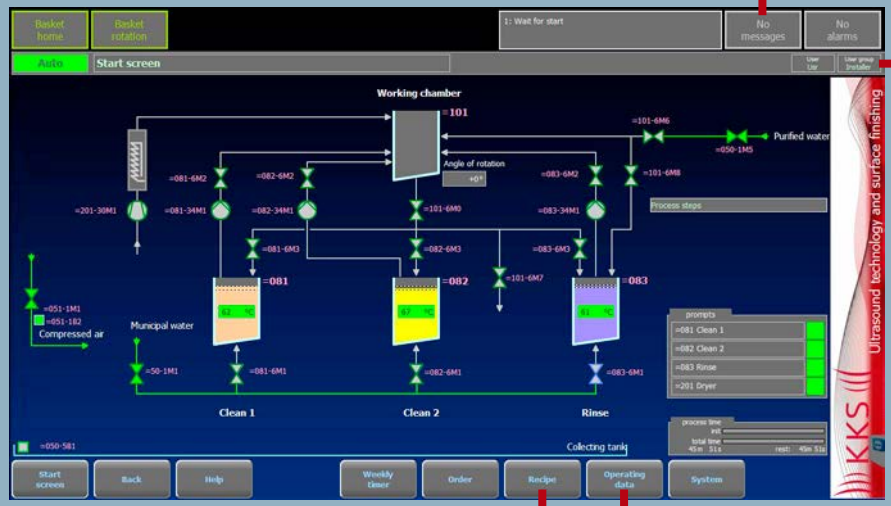
Remote maintenance support can be enabled by the user when required

Visualisation of the system status:

- Error messages and warnings in a straightforward plain text display
- Visualisation of the system status, also via signal column

User management:

- User management (user name and password), four different authorisation levels



Process flows and recipe management:

- Integrated order and recipe management
- Unlimited number of recipes possible
- Management of orders and recipes with different statuses
- Freely programmable process sequence (recipes)
- Freely definable parameters for each process step

Data archiving:

- Complete recording of all process data
- SQL database for central storage of all set and actual values
- Trending of parameters (e.g. temperature)
- Automatic backup and archiving function in the SQL database for saving data to the unit memory or an external hard drive connected to the unit
- Recording of operating data with a set value and integrated counters

Hardware options:

- **Leak basin**
  Monitoring of the leak basin with level sensor, interruption of water supply in the event liquid detection
- **Purified water treatment**
  Demineralised water with the highest purity – in the exact amount required
- **Working platform**
  Enables easy loading and unloading and simplifies parts handling
- **Dosing unit**
  Dosing of cleaning media during filling or/and refilling
- **Qualification**
  Design and qualification (DQ/IQ/OQ) from a single source

Software options:

- Barcode reader for simplified and error-free entering of process data
- Logging of actual values of the process data for each batch in PDF format
- Integration of the unit into existing IT networks
- Computer system validation in accordance with GAMP5/ FDA 21 CFR Part 11

Purified water treatment

Dosing unit

Barcode reader for simplified

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