



HST homogenizers

HST Maschinenbau GmbH



HST banks on tradition and know-how



As a manufacturer of homogenizers and piston pumps, HST Maschinenbau GmbH enhances Krones process equipment with its additional key technology. HST process equipment stands out through its combination of proven experience and the most up-to-date technology: Inexpensive and energy-saving, fast, with assured quality, flexible and robust.

At a glance

- Decades of experience in the production of high-pressure homogenizers and piston pumps
- Inexpensive complete solutions: Fast with assured quality and high versatility
- Homogenizers process 10 up to 70,000 litres per hour at a pressure of 100 to 1,500 bar (depending on configuration)



Range of services at a glance

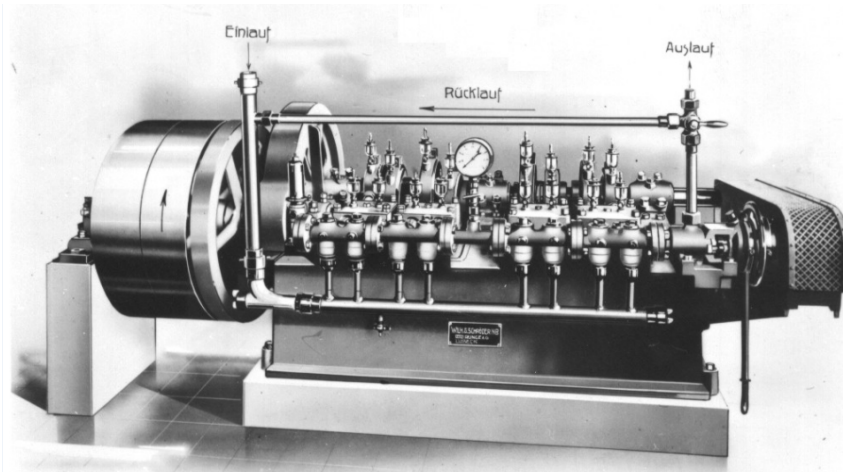


Our technology

- Production of high-pressure homogenizers and piston pumps
- Spare and wear parts
- Maintenance and repairs
- Trade in rental and used machines
- Application technology consulting
- Commissionings

Our strong points

- Decades of experience
- 24/7 service
- Quality assurance
- Speed
- Low-cost solutions
- Flexibility



HST Maschinenbau GmbH



- Founded in 2001
- Production site in Dassow
- Operating in the Krones Group since 2014



Application areas



Food industry

- Fresh milk
- Cream
- Vegetable juices
- UHT milk
- Yoghurt
- Baby and infant food
- Condensed milk
- Ketchup
- Sauces and dressings
- Mixed ice cream
- Fruit juices
- Egg products
- Special drinks



Pharmaceutical and cosmetics industry

- Intravenous emulsions
- Liposomes
- Ingredients
- Textures
- Beauty creams
- Colouring agents
- Ointments
- Cell disruption
- Pigment dispersions



Chemicals industry

- Lubricants
- Fuels/water emulsions
- Wax emulsions
- Insecticides/herbicides
- Resin dispersions
- Nanosomes
- Colours
- Latex



High-pressure pumps for the HL series



- Throughput range between 10 and 70,000 l/h
- Operating pressure up to 1,500 bar
- Models: HLL0, HL1 – HL8
- Design details:



HL(P) 3 200 T (X)

- X – aseptic
 - A – adjustable packing
 - T – poppet valve
 - K – ball valve
- 200 bar max. operating pressure
- 3 – machine size (1 – 8)
- P – pump



Performance overview – HST homogenizers



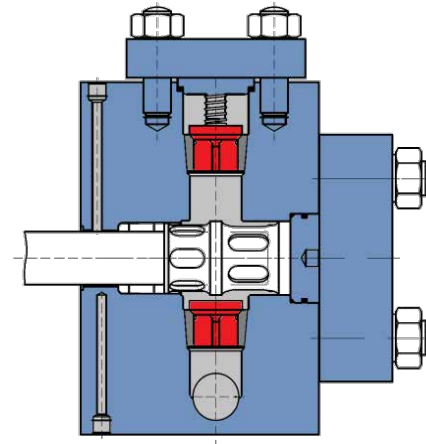
Model	Max. throughput (l/h)									Power (kW)
	150 bar	200 bar	250 bar	300 bar	350 bar	550 bar	700 bar	800 bar	1500 bar	
HLL0									10	1.1
HL1	285	285	230	175	175	70	60			3
HL2.5	2,800	2,100	1,700	1,250	1,200	750	360	360		15
HL2	5,800	4,600	3,500	2,500	2,100	1,500	550	500		30
HL3	11,500	10,000	7,500	6,000	5,500	3,000	1,400			68
HLI55	10,000	7,600	6,000	5,000	4,300	2,700	2,100			55
HLI75	14,000	10,500	8,500	7,000	6,000	3,800	2,900			75
HLI90	17,500	13,000	9,600	8,000	6,600	4,200	2,900			90
HL4	24,000	18,000	15,000	12,000	10,500	6,600	4,000			110
HL5	34,000	28,000	21,000	18,000	15,000	9,500	7,500			160
HL6	45,000	35,000	30,500	22,500	19,500	13,500	9,500			220
HL8	70,000	60,000	45,000	35,000	30,000					355

Homogenizers – pump valve design



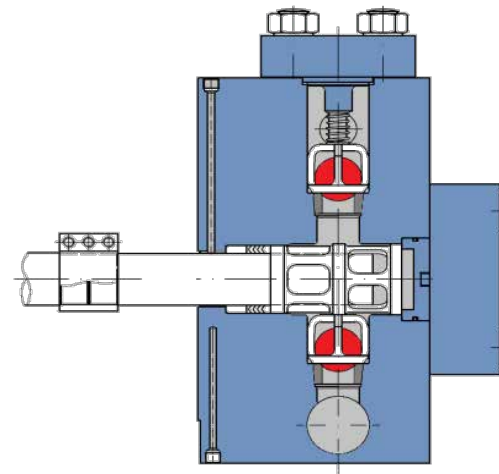
Poppet valves

- High volumetric efficiency with a low product viscosity
- Permit higher speeds $> 160 \text{ min}^{-1}$
- Suitable for low-viscosity and slightly abrasive products
- Max. product viscosity up to 500 mPas

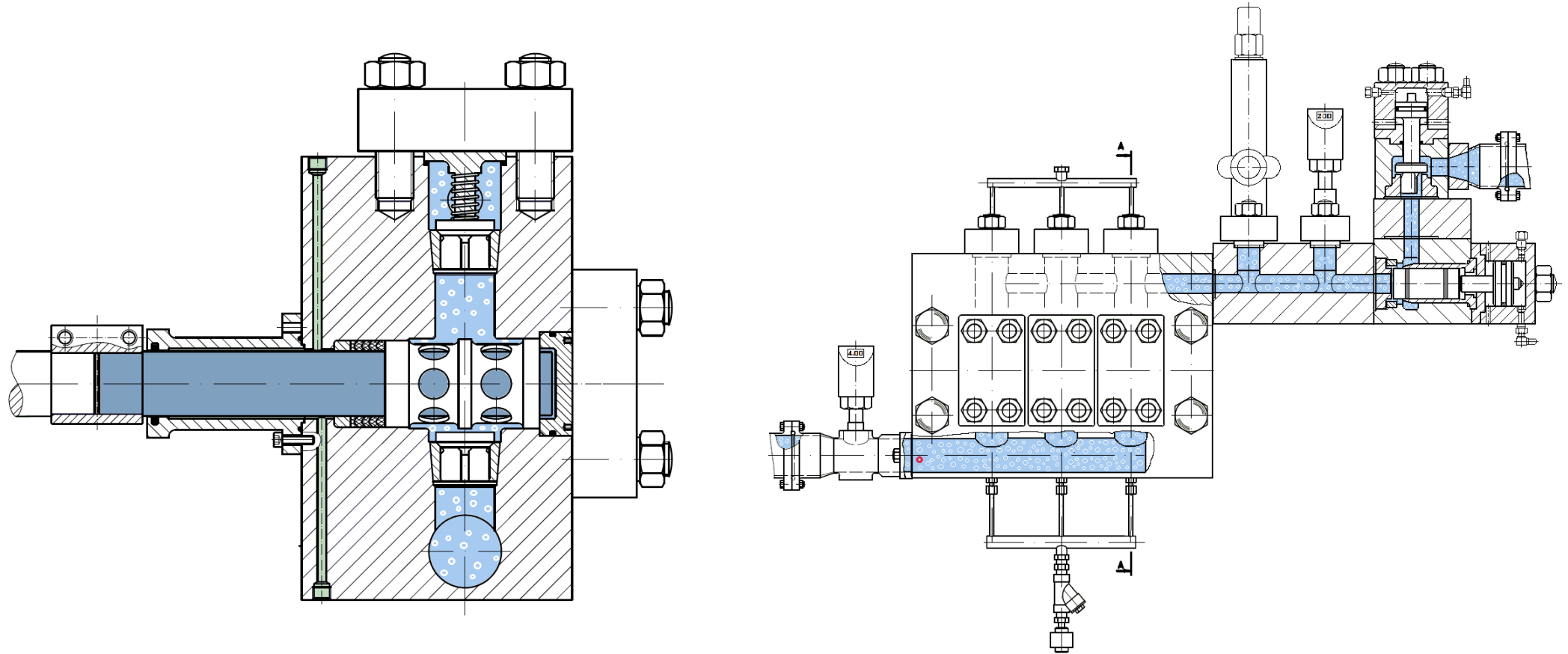


Ball valves

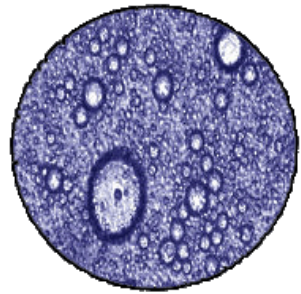
- Suitable for high-viscosity and abrasive products
- Product viscosity up to approx. 1,000,000 mPas
- Limited speed up to approx. 160 min^{-1}



The working principle of high-pressure homogenization

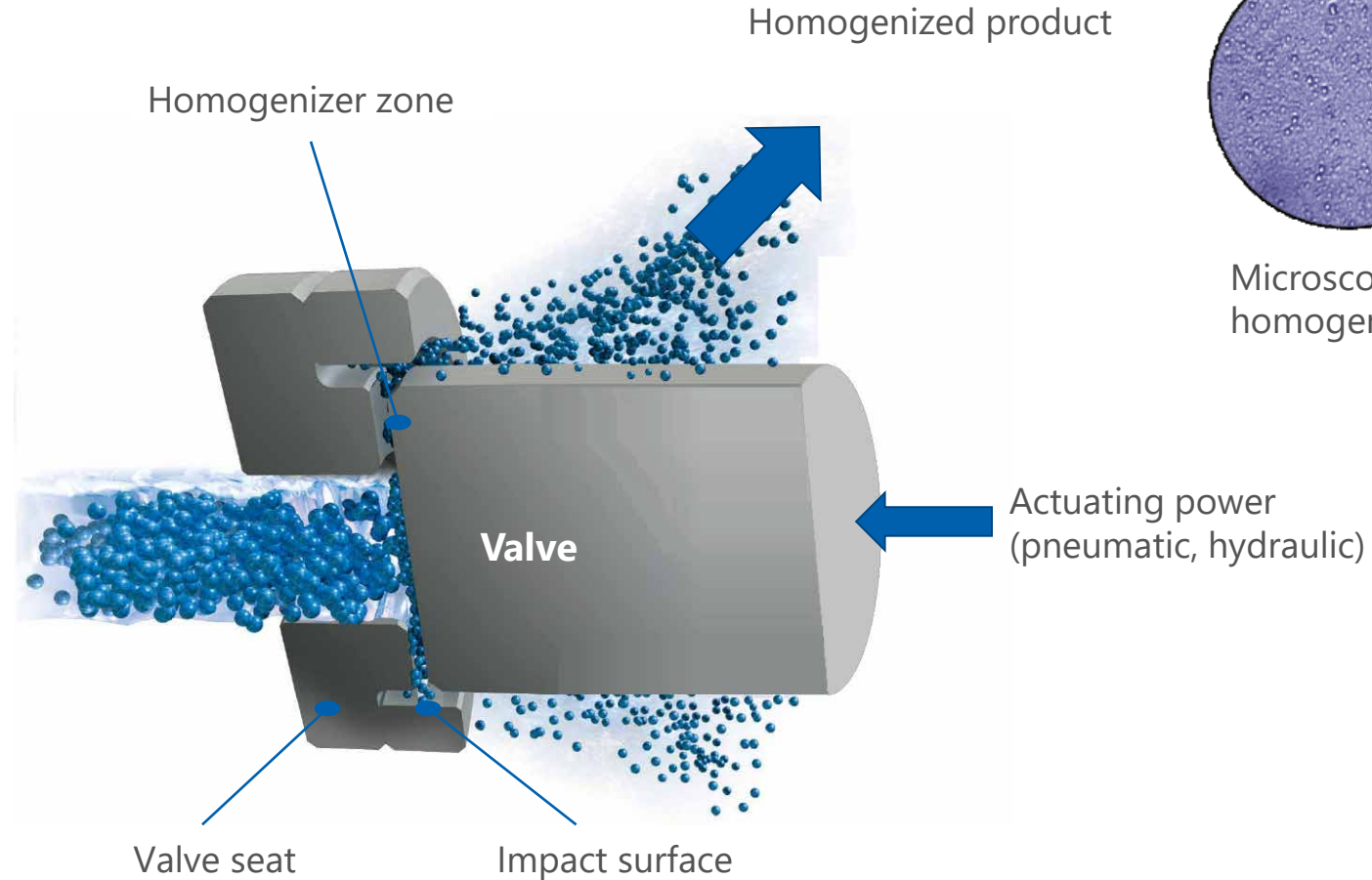


The working principle of high-pressure homogenization



Microscopical view of raw milk

Raw product from high-pressure pump



Microscopical view of homogenized milk

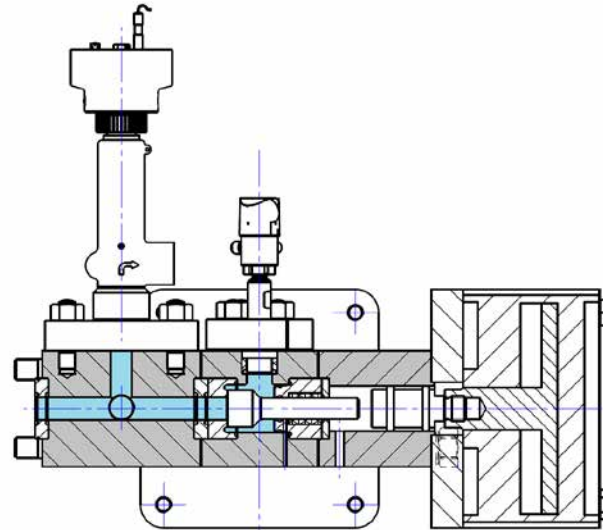
HST homogenizer valve technology



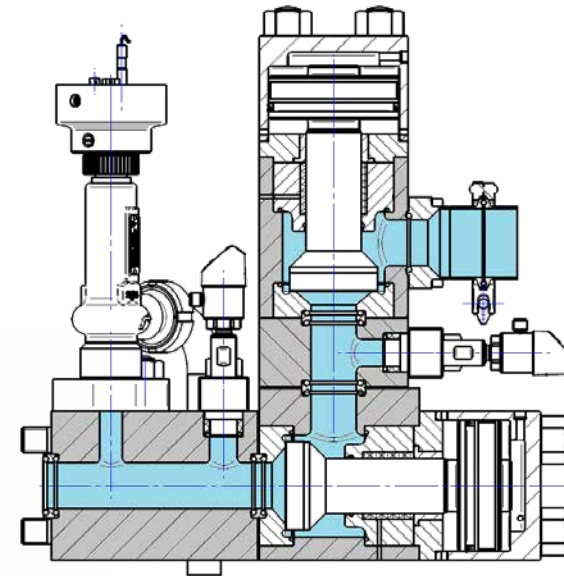
- Design in accordance with the **latest hygienic standard**
- Standardised modular component system
- Valve geometries and materials adapted to the product
- Pneumatic pressure setting up to 35 mm (HL1 – HLI90)
- Hydraulic pressure setting > 35 mm (HL4 – HL8)
- MultiGap™ multi-gap valve from 10,000 l/h for dairy products



MultiGap™



20 – 35 mm

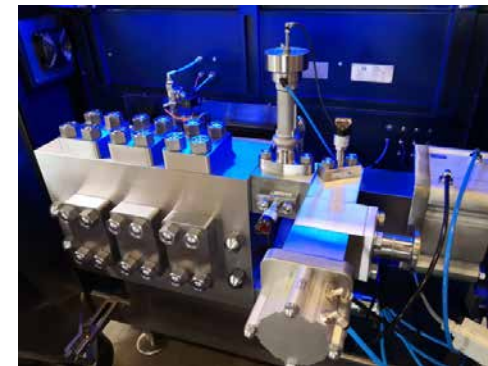
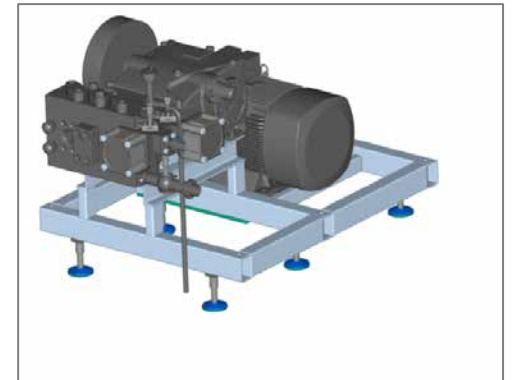


50 – 80 mm

Model range HLI55 – HLI75 – HLI90



- Max. homogenization pressure: 700 bar
- Max. throughput: 16,000 l/h (150 bar)
- Motor power: HLI55: 55 kW, HLI75: 75 kW, HLI90: 90 kW
- Compact drive for 150 kW/200 PS with max. 90 kW power load
- Internal lubrication, no cooling water, no auxiliary units
- Hygienic design, 3-A compliant
- Pneumatic homogenizing valve adjustment
- Aseptic design optional
- Sound reduction cabinet



Model series Economy HLE3 – HLE75



- Max. homogenization pressure: 1,500 bar
- Max. throughput: 10,000 l/h (200 bar)
- Motor power: 3 to 75 kW (higher power on request)

Special features of the Economy series

- Compact design
- Including control cabinet

Optional

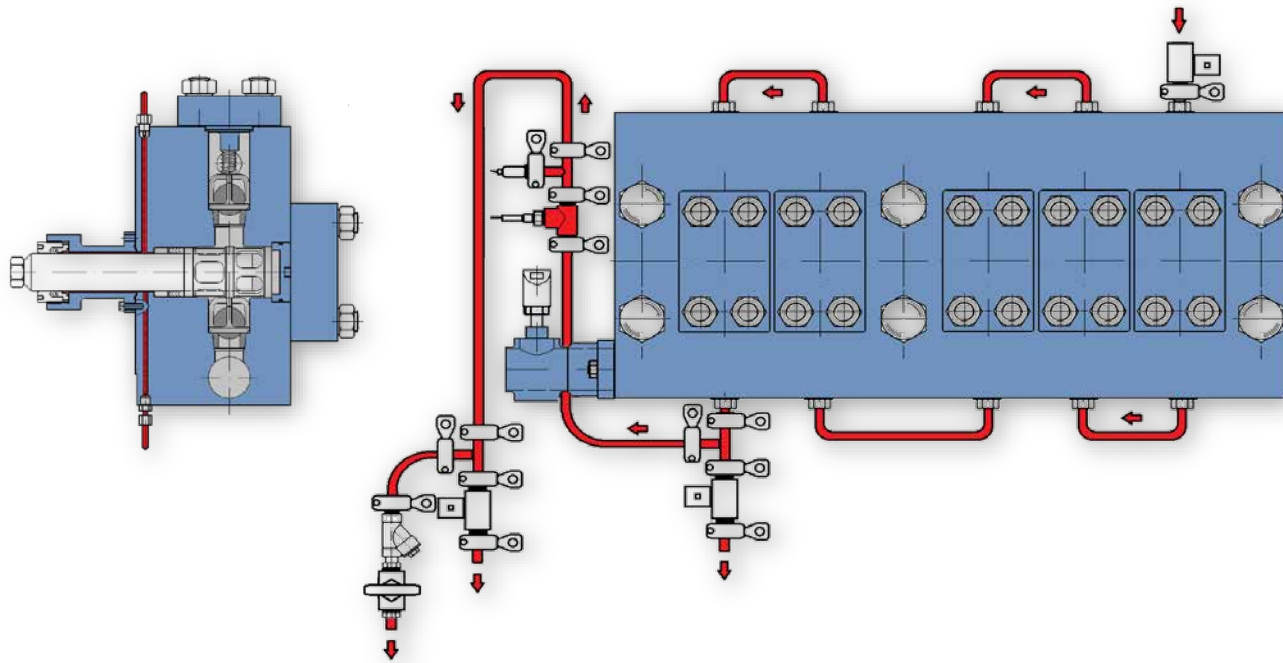
- Aseptic design
- Variable throughput and control through PLC
- 3A certification currently in operation



Aseptic design of homogenizers



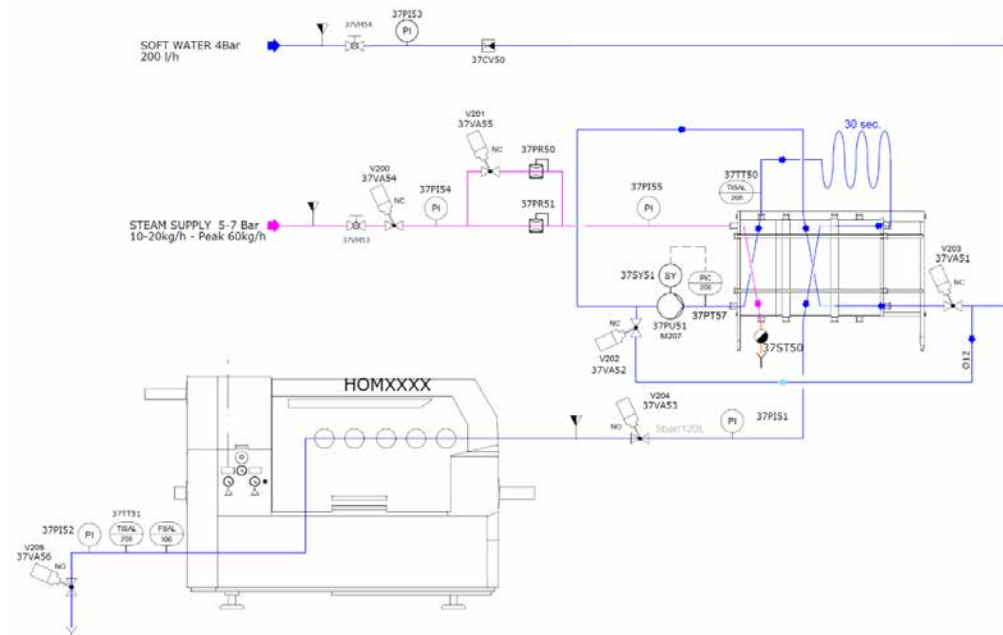
- Sterile barriers serial with robust seals
- Temperature measurement and flow monitoring at discharge
- Can be sterilised with hot water or pure steam
- Sterile-water generating system optionally available



Sterile-water generating system for aseptic homogenizers



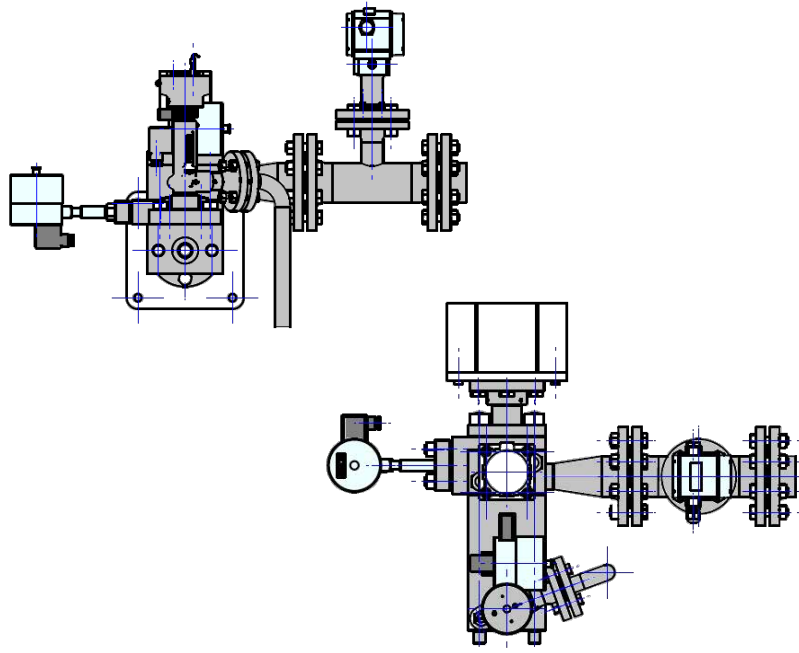
- Reduction of the steam and water consumption by approximately 90 percent (compared to condensate generators)
- Long service life of the piston seals due to the colder lubrication temperature
- Internal pressure and flow rate control which is insensitive to fluctuations of the water pressure



HST homogenizers for the explosive atmosphere (ATEX)



- Use for zone 1 (ATEX) 2014/34/EC
- **Ex II 2G / Ex h IIB T3 Gb**
- Temperature class T3 (200 °C)
- ATEX certificate and documentation



HST Maschinenbau GmbH Zündgefahrenbewertung für Homogenisator nach ISO EN 80079-36:2016 und EN 60079-0

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Hochdruck Homogenisator Typ HL 4.600K, TAG, Serien Nr. 190465														
Zündgefahr		Bewertung der Möglichkeit des Auftretens einer Zündung sowie der Ausbreitung einer Zündung über Maschinen				Eingetragene Maßnahmen zur Verhinderung des Wiedereintritts der Zündgefahr				Möglichkeit des Auftretens explosionsfähiger Gemische				
		A	B	C	D	A	B	C	D	A	B	C	D	F
1	Physische Zündquellen	Beschreibung: primäre Zündquellen (z.B. Zündkerzen, Zündspulen, etc.)												
1	Heiße Oberflächen	Kollisionsantrieb an Kollisionsstelle												
2	Heiße Oberflächen	Kollisionsantrieb an Kollisionsstelle												

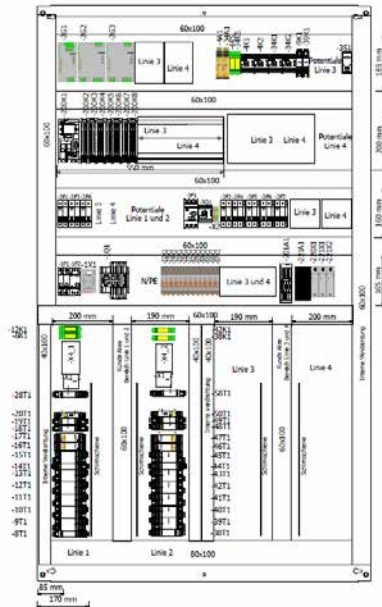
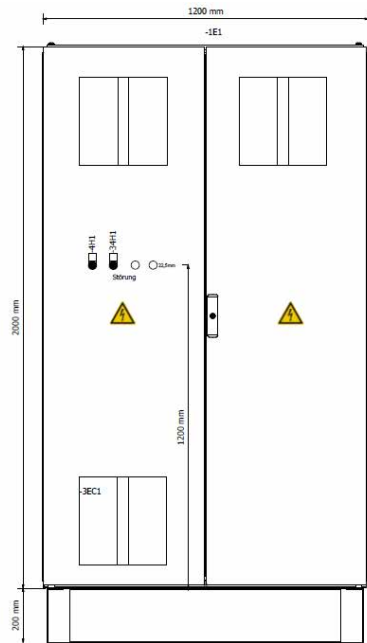
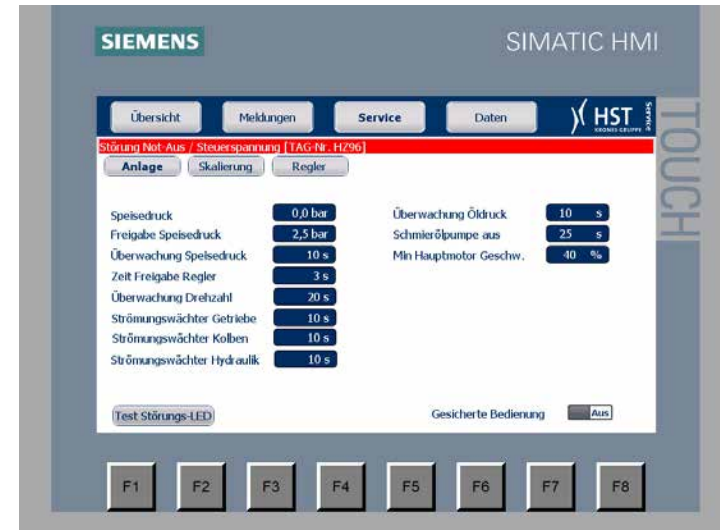
Seite 1 von 7 Dokument Zündgefahrenbewertung_Z_HDR46_000 Datum: 30.08.2019



Automation and control cabinet construction



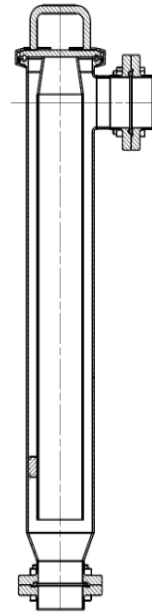
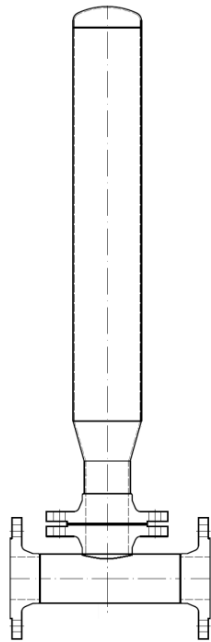
- Construction of control cabinets for homogenizers and other components
- Automation of homogenizers and systems
- Touch panel controller (HMI) for all HST homogenizers
- Controllers and touch-screens: Siemens or Rockwell



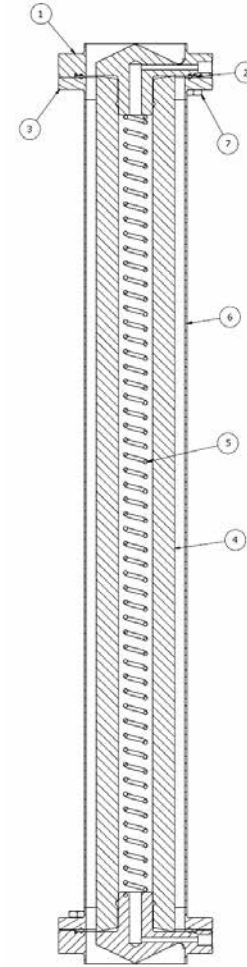
Pulsation dampener



- Calculation of dampeners and air vessels
- HST delivery program:
 - Air vessel (sanitary), simple design
 - Inline large damping tank with silicone inserts



Direct gas inclusion in air vessel system



Material deforming silicone inserts

Wear and spare parts for homogenizers



HST homogenizers

We keep all wear parts in stock – spare parts, such as crankshafts, cylinder blocks or housings will be supplied on request.

Alfa homogenizers

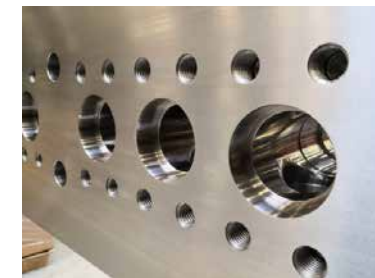
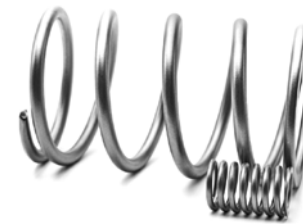
Thanks to many years of experience with Alfa homogenizers, we are able to supply nearly all wear parts. Spare parts such as cylinder blocks, housings for homogenizing valves and various manufactured parts are manufactured at our factory on customer request.

GEA Niro Soavi and APV Rannie homogenizers

We will deliver the appropriate wear and spare parts on request.

APV Gaulin homogenizers

We have most APV homogenizer wear parts available. Spare parts such as cylinder blocks, housings for homogenizing valves and various manufactured parts are manufactured at our factory.



Benefits to you



Flexible thanks to our own production

Thanks to our high flexibility and a modern machinery, we are able to quickly react to customer requirements. We produce standard wear parts and special parts quickly and cost-efficiently.

From a single source

Through us, you are provided with most varying products of world-leading manufacturers in the area of high pressure homogenizers from one source.

Energy saving and efficient

The use of our innovative MultiGap valve saves up to 25 percent energy as compared to a standard valve.

High product quality

Throughout the complete production process, our products are subjected to a continuous quality assurance. We thereby grant you a continuously high product quality.

Our service

Our experience service team offers you competent consultation and ensures quick and unproblematic processing of your enquiries.

Our service hotline

- 24 hours daily
- Telephone: +49 38826 887877

Synergies in the Kronos Group

Product treatment system: KRONES VarioAsept UHT system



As little as possible, as much as necessary – this is the declared goal of the product heating process in terms of the parameters time and temperature. The VarioAsept system masters this challenge with flying colours. Kronos also uses a HST homogenizer of the HL/HLI series as a standard feature in the UHT system.

VarioAsept at a glance

- Output range: Between 3,500 and 60,000 litres per hour
- Proven design which
 - meets the highest hygiene requirements
 - Is extremely gentle on the product
- With Kronos tubular heat exchangers, developed by Kronos process equipment experts
- In-house laboratory for product analysis
- Perfectly matched with the Kronos aseptic fillers



Synergies in the Krones Group

Everything single-sourced



Training sessions at the Krones Academy – trained personnel for an increased efficiency of your line

The multifaceted offer by the Krones Academy ranges from operation, servicing and maintenance courses through to management training. We will gladly also create your individual training programme.

KIC Krones cleaning agents make your machine shine

Only if the production environment is immaculate, can your product be brilliant. KIC Krones provides you with the optimum cleaning agents and disinfectants for each individual production step.

KIC Krones lubricants for each production step

Whether for gears, chains or central lubrication systems – our greases and oils are true all-rounders. They can reach every lubrication point, protect your line and ensure gentle treatment for your products thanks to their food-grade quality.

Krones Lifecycle Service – partner for performance

It goes without saying that also after the purchase of new machines, Krones takes care of your lines: The Krones LCS experts are always there to help you reaching your goals and turn your wishes into optimal LCS solutions.

High-quality components from Evoguard and Ampco

Are you looking for shut-off, separation or control valves? For hygienic or aseptic applications? Would you like to have pump technology that perfectly fits into your machines? You will find exactly what you are looking for at Evoguard and Ampco Pumps. The two Krones subsidiaries cover the entire spectrum of process technology components that you need for high-quality production.

**SOLUTIONS
BEYOND
TOMORROW**