**Sample Tender specification text**

**TAS Automatic sludge water discharge system**

**model TAS – reducing sludge with a cleaning free technology**

**Note on Ex-Zones**

The selection of the required type of TAS depends on the existing Ex danger zone. Relevant for the determination and classification of the Ex/ hazardous areas are the "inner tank" (usually zone 1), the "mast location" (usually zone 2) and the "control cabinet location" (outside the hazardous area / 1 meter sphere radius).

**ATEX certification**

Since 2016, the design according to ATEX Directive 2014/34/EU has been specified for the operation of the TAS in Ex zone 1 (inside of the tank) and Ex zone 2 (tank edge). The TAS from KLEINE Solutions has been tested accordingly and certified by the conformity statement of TÜV Nord Cert (certificate is supplied).

**The KLEINE TAS standard**

We also use Ex versions for the relevant basic modules in non-Ex systems. In case of increasing requirements (e.g. changed conditions of use at the place of use or higher, legal requirements) on the operator's side, the SMALL TOUCH can be upgraded to conform to ATEX for Zone 2 or Zone 1 in a technically and legally safe manner.

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| ***tender header for non EX version*** |
| **Fully automatic sludge water discharge system model TAS 4 non Ex**Mounting according to machinery directive 2006/42/EC, EMC, CEConstruction, cabling and operation are adapted at the location of the TAS to the on-site conditions in accordance with UVV. |
| ***tender header for ATEX version***  |
| **Fully automatic sludge water discharge system model TAS 4 ATEX**Mounting according to machinery directive 2006/42/EC, EMC, CEConstruction, cabling and operation are adapted at the location of the TAS to the on-site conditions in accordance with UVV.**Plant equipment for Ex zones/areas** *[x]*  1. *Inside tank[ ]* Zone 1*[ ]* Zone 2
2. *Outside tank*

The following requirements apply to:*[ ]* entire construction*[ ]* limited to building/ maintenance hatch*[ ]* Zone 1 adjoining a) (up to 1m radius)*[ ]* Zone 2 adjoining a) (up to 1m radius)*[ ]* exfree over 1m radius to a)*[ ]* exfree adjoining a) |
| **Pos. 1 Ultrasonic turbidity sensor*** Ultrasonic sensor in fork version made of stainless steel (1.4571)

cleaning-free, maintenance-free, resistant to aging * with protection device made of stainless steel (1.4571)
* high-precision measurement independent of colour, movement, sludge floc structure and medium consistency
* **Individually adjustable working range 1 to 10 adjustable.**

 **Standard density measurement approx. 0.05 to 1%, from clear water to sludge water to thin sludge*** Separate fine adjustment device for optimum adjustment to specific turbid water and zone detection
* 4 years special warranty on the ultrasonic sensor
 |
| **Pos. 2 Control cabinet (800 x 600 x 300 mm) with large window (IP 55)*** Connection data of the control cabinet:
* voltage: 230 / 400 VAC / frequency: 50Hz /
* Power PN: 2.5 kW Current: 5.5A / Control voltage: 24 VDC
* Control cabinet inner door with clearly arranged function display
 |
| Control system* Controller: Siemens SIMATIC S7-12x Serie
* Siemens text display: basic mono with 3" LCD S/W-display with10 function keys for free setting and parameterization of the system functions; simple, fast direct access to operator menus
* Information texts for winter operation
* adjustable start and pumping times with separate release
* Operating hours counter pump / winch
* long-life, LED lights visible from afar
* Function keys for operating displays and for manual
* Operation: "Operation" "Turbid water" "Fault
* terminal-independent display/direct selection keys for quick switchover to manual/automatic for manual operation of the pump
* Function keys "Manual/Automatic", "Pump On/Off", "Lift", "Lower
* Rotary switch for fast on/off switching of the control
* Control cabinet heating/ventilation
* automatic frost detection with system protection function
* Terminal strip for remote start, collective fault signal, operating signals
* User-configurable signal/function outputs with optional assignment by the user, electrically isolated Output on terminal strip
* Locking circuit for use with agitator/mill
* Autonomous travel path detection and end position monitoring
* Networkability via ProfiNet/Ethernet
* **Extended requirements/optional versions**

 + Profibus-Slave connection+ with 230V socket and FI switch and / or control cabinet lighting+ Control cabinet air conditioning with heating/active ventilation+ Stainless steel version control cabinet material 1.4301+ stainless steel version kpt. system incl. control cabinet material 1.4571+ **Siemens Touchpanel 7“** TFT-display with background lighting* Key and/or touch operation with integrated PROFINET interface
* separate information light for important messages
* with operating and instruction texts for operation
* free adjustment and parameterization of the system functions
* Logbook with display of the last working steps at a glance
* History logbook for long-term data recording/analyses
* Graphical and statistical analyses of turbidity zones/quantities
* Plant remote control/visualization via LAN plant network
 |
| **Pos. 3 Lift mast (1.4301) with internal rope running system*** height 2 m, jib 1.00 - 1.80 m adjustable
* 360° boom can be swivelled for inspection and maintenance work, PA6 bearing
* Flexible mounting (wall mounting) of the mast as a quiver version
* **Alternative**: Stand version (please note the mounting requirements)
* **All stainless steel components pickled and passivated, corrosion resistant**
* Stainless steel support cable 6 mm with internal guide via
* 3 maintenance-free, self-lubricating rope sheaves
* Local control unit on the mast with the functions pump/lift/lower
* and integrated EMERGENCY STOP button (according to UVV / Ex-systems requirements)
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| **Pos. 4 Geared engine with maintenance-free incremental encoder engine (IP 55) with Ex protection (Zone 1 II 2G Ex IIC T3 Gb) Gear unit ATEX-conform 3G*** Type Getriebebau Nord / spur gear SK02050
* Nominal power 0.12 KW / speed 1,375 rpm / N2= 3.1 rpm
* Covered with a protective hood made of stainless steel (1.4301), hinged with locking clamps for maintenance and inspection work
* Maintenance- and user-friendly at a height of approx. 1.20 m
* Winch protection device with reversing protection and overload protection
* Gearbox mounted on the side of the standpipe, 180° adjustable for optimum
* Adaptation to structural conditions
* Travel path control / path detection via maintenance-free incremental encoder / pulse generator evaluated and displayed in the control cabinet (pos. 2)
 |
| **Pos. 5 Submersible electric pump with ultrasonic turbidity sensor (see item 1) with explosion protection** (ATEX II 2G Ex db h IIB T4 Gb)* Type ARX F 50, make KSB
* Delivery rate Q = 4.0 - 20m³/h, delivery head H= 11 to 4.5 metres
* Pressure connection DN50 / PN16 - rotatable
* Nominal power 2.3 KW / speed 2,965 1/min
* Additional motor protection: Temperature monitoring with bimetallic switch
* Dry run protection with a float switch
* (redundant ATEX Namur switches for Ex-plant)
* Sensor protection, pump protection device as stand made of 1.4571
* All other attachments are made of coarse fibre-repellent,
* Ageing and UV resistant material
* Pressure hose with stainless steel inlet bend (DN50) for tank depths up to 12 m
* Cable harness (in protective hose) up to 22 m
* All protective hoses and cables made of fibre material -absolutely water-repellent, made of age-resistant and UV-resistant material
* Optional: Integrated leakage monitor
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**Assembly**

* Assembly, commissioning, instruction by our service staff
* Documentation: Operating Instructions Manual Manual folder and PDF document

Warranty: 2 years according to §13 No. 4 Para. 2 VOB/B

Warranty: 4 years on the turbidity sensor