Wieland-Werke AG

Corporate Function Global Engineering
Graf-Arco-Strasse 36
89079 Ulm
Germany
Phone +49 731 944-0
www.wieland.com

Section D – Media

Part 3: Water / wastewater

The following delivery specifications of Wieland-Werke AG form part of the contract.
Any deviating specifications are to be agreed upon between the supplier/contractor and Wieland, and documented.

Created by:	**Mr. Althoff**
	Phone: +49 731 944-6273
	Email: josef.althoff@wieland.com

The following apply to piping and components: German Construction Contract Procedures (*Vergabe- und Vertragsordnung für Bauleistungen,* VOB), "Technische Regeln" (accepted codes of good engineering practice), provisions of DIN standards, in addition the works standard for pipe insulation and pipe marking.

1.   Scope of application / Specifications for the media used

Vöhringen plant	Ulm plant	Langenberg plant	Villingen plant
➢ **Service water and drinking water network PN10**			
$p = 4.0...6.0$ bar$_g$, T = 11...13 °C		$p = 4.0...6.0$ bar$_g$, T = 5...20 C	$p = 4.0...6.0$ bar$_g$, T = 11...13 °C
➢ **Demineralised water network PN10**			
$p = 4.0...5.0$ bar$_g$, T = 20...35 C from ion exchanger systems		$p = 4.0...5.0$ bar$_g$, T = 20...35 °C from ion exchanger systems or osmosis systems	$p = 4.0...5.0$ bar$_g$, T = 20...35 °C from ion exchanger systems
➢ **Pickling rinsing water system PN6**			
Max. output temperature = 40 °C for neutralisation Pressure range: PN6 = SDR 17.6 PE100		Not relevant	Not relevant
➢ **Internal cooling circuits of systems and recooling circuits** (open and closed systems)			
PN16		PN10 Material: 1.4571	PN16

Water with additives, or antifreeze mixture 60/40 %vol water/glycol	Water with additives (biocide and corrosion protection)	Water with additives, or antifreeze mixture 60/40 %vol water/glycol

In some cases, approval as a specialist company in accordance with section 19l of the German Water Resources Act (WHG) is required.

2.   Pipe installation

Thermal expansion must be taken into account by including expansion compensators in the design. Fastenings shall be executed as slide bearings, guide bearings or fixed points. Where plastic pipes are clamped in place, the strength of the fixing points must be verified by static calculations. In addition, the pipe must have suitable retaining rings to transfer the forces to the fixed point structure. The fastening intervals specified by the pipe system manufacturers must be observed. Fastening materials of a type suitable for the pipe material. Fastening points on buildings as well as wall and ceiling openings must be agreed with the building owner. Pipe clamps must be executed with sound-absorbing rubber. Drain and bleed points must be installed at appropriate points. Each pipeline shall undergo a documented pressure test with leak-tightness check. Each major consumer shall be metered by a water meter and if necessary must be approved under relevant water legislation.

Pipe splitters: - Inlets and outlets can be shut off
                   - Equipped with pressure gauge, thermometer and drain

3.   Selection of materials and fittings

3.1   Piping

Always scale-free, like new
Material selection according to requirements and specifications of plant manager.
For drinking water, only copper pipes, stainless steel pipes or plastic pipes are to be used.

- SANCO copper installation tube from Wieland in acc. with DIN EN 1057 with DVGW mark, installed in acc. with DVGW worksheet GW2 using press connections e.g. make VIEGA.

- Seamless threaded tubes in acc. with DIN EN 10255, galvanised in acc. with DIN EN 10240.

- Seamless steel tubes in acc. with DIN EN 10220, galvanised in acc. with DIN EN 10240.
  Pipe connections using Victaulic pipe joining system subject to agreement.

- Stainless steel tubes in acc. with DIN EN ISO 1127 made from material 1.4404, WIG welded in acc. with DIN EN 288 or DIN EN ISO 15607 or pipe connections using Victaulic or VIEGA system subject to agreement.

- Plastic pipes for DN50 and up
  made from HDPE in acc. with DIN 8074, welding in acc. with DVS guideline 2207.
  Heating element butt welding in acc. with DVS guideline 2212 – part 1.
  Electrofusion welding must be agreed on a case-by-case basis.

For drinking water, only copper pipes, stainless steel pipes or plastic composite pipes (subject to consultation) are to be used.

3.2　Seals

Steam and condensate network:
Pure graphite seal with perforated steel insert and inner eyelet made of 1.4571 with DVGW approval
(Wieland stock items group M173-18)

Heating systems:
Hard fibre gasket, anti-stick coating, permissible continuous use range:
-50 to +250 °C, but to be used only up to 100 °C!
(Wieland stock items group M174-04)

3.3　Fittings

3.3.1　Shutoff devices

<DN50	Drinking water and service water	Brass ball valve with DVGW gas approval
	Pickling rinsing water, demineralised water systems	Stainless steel ball valve material 1.4571
>DN50	Well water, cold water circuits	➢ Diaphragm valve, body grey cast iron with EPDM seal, make Erhard, type B ➢ Oval body gate valve with rubber coating of the gate and enamelled body, DVGW-W approval, make Erhard "Multamed" ➢ Butterfly valve make Erhard, type ROCO, gas version for DN200 and up, inside enamelled, EKB fusion bonded epoxy coating, soft sealing EPDM ➢ Compact shutoff valve, make KSB, type EKB ➢ Butterfly valve, stainless steel disc, lug type, GGG40, EPDM seal
	Cooling circuit with impurities and wastewater pumping lines	➢ Oval body gate valve, see above ➢ Diaphragm valve Erhard, type FD ➢ Sewage: Erhard knife gate valve type ERU K1
	Recooling systems Water/glycol	Do not use brass! ➢ Oval body gate valve (spindle sleeve special brass) ➢ Butterfly valve, stainless steel disc, lug type, GGG40, EPDM seal
	Demineralised water (ion exchanger) Softened, decalcified water	➢ Diaphragm valve. Make Erhard or GEMÜ ➢ Diaphragm valve, make KSB type SISTO16, EPDM diaphragm, RILSAN coating ➢ Only after approval: Butterfly valve, stainless steel disc, lug type, GGG40, EPDM seal

3.3.2　Check valves

<DN100	For water: DISCO non-return valve, make Gestra, type RK44
>DN100	Make VAG Top Stop or PSA Hydrostop, dual-plate check valve, metal sealing, installation between two flanges with seal part made of EPDM

3.3.3   Temperature and pressure regulators

<DN80	Make Braukmann, Samson
Without auxiliary energy	Make Samson

3.3.4   Pressure gauges

Bourdon tube pressure gauge with damping fluid, display range
0-10 bar, Ø 100 mm, class 1.0 with pressure gauge shutoff valve,
make Wika/Baumer

3.3.5   Thermometers

Bimetallic dial thermometer Ø 100 mm, class 1.0, make Wika/Baumer

3.3.6   Filters, dirt traps

Dirt trap	Filter insert stainless steel, 0.2 mm mesh size with drainage
Backwash filter	<DN100 – make Grünbeck
	>DN100 – make Boll & Kirch

3.4   Flow measurement

Each meter requires as signal output:

ModbusRTU, 4-20 mA or 0-20 mA

Water meters:	Make Sensus, Diehl Metering, in each case with pulse (reed) contact
Flow meters:	Magnetic-inductive (MID) meters, make Endress+Hauser

3.5   Heat exchanger

Plate heat exchanger, make: Alfa-Laval, GEA, Thermowave
Connection: on one side
Δp max. 0.5 bar
Pressure and temperature measurement at inlet/outlet for both media must be provided as well as drains.

3.6   Dry coolers

Make Güntner, Thermal
suitable for water/glycol mixture,
installation on the production building roof, drains and safety valves are to be routed via gutters back into the collection and feed tank.
The dimensioning of the system, in particular the sound power level of the system as a whole, must be approved in advance by the environmental protection department.

3.7   Wet cooling towers

Must be approved on a case-by-case basis.

3.8   Drinking water hygiene

To ensure legionella-free operation, automatic hygiene flushing devices must be provided at the end of the line. (Flushing time <72 h)
- Make Geberit or Kemper