

## Stainless Steel & Special Alloys

The raw stainless steels and special alloys used in AdcaPure products are acquired according to the ASME BPE specifications and comply with the relevant standards.

Internally, these materials are subject to a strict quality control that involves, not only documentation and dimensions verification, but also, spectrographic chemical composition analysis in our facilities. All materials are internally traceable, by means of the quality system procedures.

STAINLESS STEELS AND SPECIAL ALLOYS *		
MATERIAL	STANDARD	CHARACTERISTICS
AISI304 (1.4301)	ASTM A276	APPLIED ONLY IN NONWETTED PARTS
AISI316 L (1.4404)	ASTM A276	INTERCRYSTALLINE CORROSION RESISTANT ACC.TO ISO3651-2 METHOD A AND ASTM A262 PRACTICE E.
AISI316L (1.4435)	ASTM A276	IMPROVED CORROSION RESISTANCE COMPARED TO OTHER CrNi-STEELS DUE TO ITS INCREASED CONTENT OF MOLYBDENUM.
AISI316Ti (1.4571)	ASTM A276	INTERCRYSTALLINE CORROSION RESISTANT ACC.TO ISO3651-2 METHOD A AND ASTM A262 PRACTICE E.
HASTELLOY® C22 (2.4602)	ASTM B574	RESISTANCE TO BOTH OXIDIZING AND NON-OXIDIZING CHEMICALS, PROTECTION FROM CORROSION, PITTING, CREVICE ATTACK AND STRESS CORROSION CRACKING
CF3M (1.4409)	ASTM A351	FERRITE CONTENT OF LESS THAN 2% AND LOW SULPHUR BETWEEN 0,005% AND 0,017%.

\* For other special high corrosion resistance steels, please consult factory.

## Non-metallic Materials

It is crucial that non-metallic parts are selected to maintain the purity and integrity of the process fluid. In order to achieve this, they should be compatible with stated processing conditions, cleaning solutions and sterilization conditions, defined by the customer.

The following table has an overview of the non-metallic materials applied in the AdcaPure range and the respective approvals:

NON-METALLIC MATERIALS WETTED PARTS		
MATERIAL DESIGNATION	STANDARD APPROVALS	ON REQUEST
GYLON® (modified PTFE)	EC1935/2004 EC2023/2006 ADI Free BAM FDA 21CFR177.1550 NSF ROHS USP CL.VI Ch. 31, 87, 88, 281, 661 121 °C	3A Sanitary
EPDM	FDA 21 CFR 177.2600 USP CL.VI Ch. 87 & 88, 121 °C EC1935/2004 3A Sanitary ADI Free	ACS BAM NSF ROHS WRAS
VITON® (FKM)	EC1935/2004 ADI Free FDA 21 CFR 177.2600 USP CL.VI	ACS 3A Sanitary BAM
PTFE	EC1935/2004 EC2023/2006 ADI Free FDA 21CFR 177.1550 USP CL. VI Ch. 87 & 88, 121 °C	3A Sanitary DVGW W270
PTFE/FKM	EC1935/2004 EC2023/2006 ADI Free BAM FDA 21CFR 177.1550 & 177.2600 ROHS USP CL. VI Ch. 88, 121 °C	
EPM	EC1935/2004 EC2023/2006 ADI Free FDA 21 CFR 177.2600	
Fluoraz	EC1935/2004 3A Sanitary ADI Free FDA 21 CFR 177.2400 & 177.2600 USP CL.VI Ch. 87 & 88	
FEP – SILICONE	EC1935/2004 3A Sanitary FDA 21 CFR 177.1550 & 177.2600 ROHS USP CL.VI Ch. 87 & 88, 121 °C	

## Surface Finish

The surface quality, especially the area in contact with the fluid, greatly influences the cleanability of the equipment. All the products in AdcaPure range are supplied with a standard internal finishing surface that allows an efficient cleanability. Apart from the standard conditions, we can supply several combinations of roughness internally and externally, for optimized performance according to customers' requests.

We apply ASME BPE acceptance criteria, achieved by internal controlled procedures, which in term apply visual inspection and roughness measurements.

AdcaPure range parts are produced in Valsteam's factory, in dedicated high-end machines with high precision, high speed and wear tools control. This allows Valsteam to guarantee controlled surface conditions directly from the machine.

### Explanation of surface finishes

- **Fine machined:** Obtained by high performance turning and milling machines. Mechanical polishing where necessary;
- **Mechanical polishing:** Polished surface, not necessary with a shiny finish;
- **Electro polishing:** Satin surface finish typical from electro polishing process;
- **Mirror:** Shiny surface finish;
- **Satin bead blast finishing:** Obtained by sand blasting process, applicable for actuators, humidity separators, etc.

#### STANDARD SURFACE CONDITION \*

SURFACE AREA	Ra ≤ [µm]	Ra ≤ [µin]	CODE ASME BPE	SURFACE FINISH
INTERNAL WETTED PARTS **	0,51	20	SF1	MECHANICAL POLISHED
EXTERNAL SURFACES	0,76	30	SF3	FINE MACHINED

\* Does not substitute the information for standard conditions on each product catalogue. \*\* Not applied to regulating elements. Consult for certified roughness dimensions.

#### OPTIONAL SURFACE CONDITION \*

Ra ≤ [µm]	Ra ≤ [µin]	CODE ASME BPE	CODE ADCA	SURFACE FINISH
0,38	15	-	AS03	MIRROR MECHANICAL POLISHED
0,38	15	SF4	-	MIRROR MECHANICAL AND ELECTRO POLISHED
0,51	20	SF1	-	MIRROR MECHANICAL POLISHED
0,51	20	SF5	-	ELECTRO POLISHED
0,64	25	SF2	-	FINE MACHINED
0,64	25	SF6	-	ELECTRO POLISHED
0,76	30	SF3	-	STANDARD MACHINED
0,76	30	-	AS07	ELECTRO POLISHED

\* Can be applied under request to any surface, with exception of regulating elements. Please consult.

## WELDING

The design of the AdcaPure range valves are in accordance with the latest specifications of ASME BPE and EHDGE directives. The welding tasks are performed by approved welders and according to welding specifications. The process is done manually or via mechanized and orbital machines, inside dedicated rooms with strictly controlled environment to avoid any contamination with external particles.

The welding is subject to a detailed visual inspection according to ASME BPE to guarantee its conformity with high demanding industries.

## FROM CLEANING TO PACKING

After the welding and surface finishing operations, the parts enter a certified clean room, to start the process of cleaning and passivation. A full automatic ultra-sound cleaning machine allows us to control the cleaning and protection of the surfaces parts with efficiency.

It is also possible to prepare the equipment's for oxygen applications, with a guaranteed degreasing process.

The parts are then assembled and tested in an ISO14644 clean room, by trained personnel, according to our internal procedures. In the final stage, still inside the clean room, and after all the necessary quality verifications, the products are end capped and vacuum sealed with recyclable plastic film to avoid any contamination.

## CERTIFICATES

Our quality system is certified by ISO9001:2015 and guarantees the control of all the processes involved in the project, manufacturing and supply of equipment's. We can supply various sorts of certificates and declarations to attest the conformity of the supplied products.

CERTIFICATES *	
TYPE	INFORMATION
CE Conformity declaration	According to the PED directive
AdcaPure specific inspection certificate	Include chemical composition, final testing records, elastomers specifications and approvals, surface finishing requirements.
Hydrostatic test report	According to the PED directive
Pneumatic test report	According to EN12266-1
Degreasing certificate	Includes treatment information
Ultra-sound cleaning report	Includes treatment information

\* Others on request.