

System Specification

SYGEF Plus

Piping systems in PVDF-HP



SYGEF Plus – System Specification

Material	High Purity Polyvinylidene fluoride (PVDF HP)
Colour	Virgin material, opaque
Density	~1.78 g/cm ³ (ISO 1183 / ASTM D 792)
Surface tension	30–35 mJ/m ²
Linear expansion coefficient	0.12–0.18 mm/mK (DIN 53752)
E-modulus	≥1700 N/mm ² (EN ISO 527 / ASTM D 790)
Thermal conductivity	0.19 W/mK (EN12664)
Surface resistivity	5 x 10 ¹⁴ Ωcm (IEC 60093)
Dimension	d20 (½") – d450 (18") in accordance to ISO 10931
Pressure rating	Pipes/fittings: PN16 (d20 – d315), PN10 (d90 – d450) Valves: separate specification
Temperature rating	From –20 °C to +140 °C (–4 °F to +284 °F)
Production	Fittings/diaphragm valves: injection moulded Pipes: extruded Produced under clean room ISO 14644-1 Class 7 (U.S. Fed. Std. 209E Class 10'000) conditions. Subsequent assembling, quality inspection and cleaning is carried out using 18 MΩ pure water under clean room ISO 14644-1 Class 5-6 (U.S. Fed. Std. 209E Class 100-1000) conditions.
Surface finish compliant to Semi F57	Inner surface (PN10/SDR33): ≤d225 Ra ≤0.2µm (8µin) / >d225 Ra ≤0.3µm (12µin) / ≥d280 Ra ≤0.4µm (16µin) / ≥d355 Ra ≤0.65µm (26µin) for injection moulded and extruded components
Marking	All components are embossed with a permanent identification during the production process to ensure full traceability. Lot No Material Dimension Pressure Rating
Testing and inspection (ISO 10931)	Inclusions Visual inspection Surface finish Dimension tolerance Pressure testing Periodic leachout per SEMI F40/F57
Approvals/conformance	DIBt ASME BPE FDA CFR 21 177.2510 USP 25 class VI (physiological non-toxic) SEMI F57 FM-4910 listing
Welding technology	BCF Plus, bead and crevice free fusion, size d20 (½") – d110 (4") IR Plus, infrared fusion (DVS 2207-6), size d20 (½") – d450 (18")
Documentation*	Certificate of Conformance with FDA, USP EN 10204 2.2 EN 10204 3.1
Packing	Pipes capped and each component double bagged in an specified inner bag and an outer bag under clean room ISO 14644-1 Class 6 (U.S. Fed. Std. 209E Class 1000) conditions.
Labeling	Brand Name Product Description Code Number Material Dimension
Main applications	Uses include delivery of ultrapure water in the semiconductor/electronic industry, pharmaceutical grade purified water (WFI/PW) and analytical DI water to highest purity requirements. A wide range of sanitisation methods is suitable such as Ozone, hot water or steam.

* On request