Materials of Construction

Airlift Pumps

FloMov Pumps operate best at higher submergence ratios, it is not recommended to have a submergence ratio below 50%. Contact FloNergia for technical advice if you wish to use a submergence ratio below 50%. FloMov pumps need at least ...

FLONERGIA SYSTEMS

www.flonergia.com | info@flonergia.com | 289-427-01 61

Nylon P2200

The improvements in 3D printing technologies and the feasibility of manufacturing the FloMov Airlift Pump make it an excellent choice for the production of the small-scale pumps. Pump sizes for ½, 1 and 2-inch pumps are 3D printed from our dedicated supplier. The FloMov pumps are 3D printed using the selective laser sintering (SLS) technique. SLS printing allows for the complex geometry of FloMov Airlift Pumps to be manufactured with high precision and accuracy. EOS Nylon P2200 is the material of construction – the material data sheet for this material is inserted in Appendix 1.

PVC

The larger size FloMov pumps, 4, 6 and 8-inch diameter are fabricated from polyvinyl chloride (PVC) by our dedicated supplier using various machining techniques and plastic welding. The parts are then assembled together using PVC welding. All the material data sheet for the materials is inserted in Appendix 2.

Appendices

1

EOS Nylon P2200:

https://www.eos.info/en/additive-manufacturing/3d-printing-plastic/sls-polymer-materials/polyamide-pa-12-alumide

PA 2200 -Polymide 12

White

The property profile of durable white parts made from PA 2200 is very balanced: such parts are characterized by strength, rigidity and good chemical resistance. They are also biocompatible and certified for contact with foodstuffs.

Typical Mechanical Properties	
Tensile modulus	1650 MPa
Tensile strength	48 MPa
Elongation at break	18%
Thermal Properties	
Melting temperature (20°C/min)	176°C
Heat deflection temperature (1.80 MPa)	70°C
Heat deflection temperature (0.65 MPa)	154°C
Physical Properties	
Density	930 kg/m^3

2

2. Plastic Piping Standards, HYTEK Plastics:

https://www.hytekplastics.com/file_library/products1/85_2%20Plastic%20Piping%20Standards.pdf

Physical Properties, HYTEK Plastics:

https://www.hytekplastics.com/file_library/products1/47_5%20Physical%20Properties.pdf

Napco Pipe Specification, NAPCO Pipe and Fittings:

https://napcopipe.com/sites/default/files/media/PL-PS-001-US-EN-0119.2_D1785-D2665.pdf

Vintec Physical Properties, vycomplastics:

CORZTEC CHEMICAL & CORROSION RESISTANT MATERIALS

VINTEC I

Typical PhysicalProperties	Units of Measure	Value	ASTM Method
Physical			
Density	g/cm³	142	D 792
Water Absorption	%	0.15-0.30	D 570
Rockwell Hardness	R Scale	115	D 785
Shore Durometer	D	89	D 2240
Cell Class	-	12454-B	1748
Mechanical			
Tensile Modulus	psi	411,000	D 638
Yield Strength	psi	12,800	D 790
FlexuralModulus	psi	481,000	D 790
Yield Strength	psi	12,800	D 790
Izod Impact Strength	ft-lb/in	1.0	D 256
Thermal			
Vicat Softening Point	°C/°F	83/181	D 638
Heat Deflection Temp (66 psi)	°C/°F	82/179	D 790
Heat Deflection Temp (264 psi)	°C/°F	80/176	D 790
Coefficient of Linear Expansion	in/in/°C	5.8×10^{-5}	D 790
Coefficient of Linear Expansion	in/in/°F	5.8×10^{-5}	D 256
Flammability Ratings			
Flame Spread Index	-	20	E 84
Vertical Burn Test	-	5-V	UL 94
Foam Fire Test	-	Passed / Classified	UL 1975
Chemical			
Chemical Resistance	-	5.8×10^{-5}	D 790
Electrical			
Electric Volume Resistivity	Ohm/cm	5.4×10^{15}	D 257
Dielectric constant	60 Hz	3.9	D 150
Dissipation Factor	60 Hz	0.0096	D 150
Loss Index	60 Hz	0.030	D 150
Dielectric Strength	Volts/mil	544	D 149

www.flonergia.com | info@flonergia.com | 289-427-01 61