

## VENA® FLEXIP - X

Ref: DO 03.10 FT 361 Rev. 00 Date: 29/11/2022



### APPLICATIONS

This hose is specially recommended for the transport of liquid and semi-liquid fluids in the food, cosmetic, chemical, and pharma industries. Engineered to ensure dissipation of electrostatic charges thanks to its conductive inner layer. It has good resistance specially to fatty and oily foods and glycols, as well as alcoholic beverages.

Inner layer in Vena® Flexip-X is made from a self-developed fluoroelastomer doped with PTFE particles, that gives resistance to both acidic and alkali mediums as the ones used for CIP cleaning processes.

### PROPERTIES

- Odorless, tasteless, and completely non-toxic
- With and smooth outer appearance
- High abrasion resistance
- Can be equipped with 316L stainless steel fittings on each end with roughness value of less than 0.8  $\mu\text{m}$  (smaller roughness is possible on request)
- Operational temperature range from -20°C (-4 F) to +175°C (347 F), it may reach up to +200°C (372 F) during short periods of time
- Standard manufacturing length is 6 meters long (19.69 ft.)
- Compatible with CIP and SIP cleaning processes
- Resistance in the inner layer  $R < 10^3 \Omega$

### CONSTRUCTION

It is specially recommended when a small bending radius is required. This reference is manufactured with inner layer made off hybrid fluoroelastomer material doped with PTFE particles, with three polyester reinforcement and stainless-steel wire spring. Everything encased inside the hose.

Shapes such as elbows or curvatures can also be manufactured to adapt them to any installation.



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**REGULATIONS**

Inner layer in Vena® Flexip – X in accordance with:

- US FDA Standard 21 CFR 177.2600
- USP Class VI <88>, in vivo test
- ResAp 2004 (5), according to Reg 1935/2004/EEC and Reg10/2011/EEC with simulants A (10% ethanol) and simulant D2 (olive oil)

Outer silicone layer in Vena® Flexip – X in accordance with:

- US FDA Standard 21 CFR 177.2600
- USP Class VI <88>, in vivo test
- ISO 10993-4, 5, 6 & 10
- ResAp 2004 (5), according to Reg 1935/2004/EEC and Reg10/2011/EEC
- European Pharmacopeia 3.1.9
- 3A Sanitary Standard 18-03 Class I (material)

This hose is in accordance with EU Directive 2002/95/ECC for Restriction of the use of Hazardous Substances (RoHS)

**TECHNICAL SPECIFICATIONS**

Inner Diameter		Wall Thickness		Working pressure ISO 1402		Bursting pressure ISO 1402		Bending radius ISO 10619-1	
mm	inch	+1/-0.5 mm	+0.04/-0.02 inch	Bar at 23°C	Psi at 73,4°F	Bar at 23°C	Psi at 73,4°F	mm	inch
6	1/4	5,5	0,22	32,7	474,4	98,1	1423,2	29	1,14
8	0,3	5,5	0,22	31,2	452,0	93,5	1356,0	31	1,22
10	0,4	5,5	0,22	29,7	430,3	89,0	1290,8	34	1,34
13	1/2	5,5	0,22	27,5	398,9	28,5	1196,7	39	1,54
16	0,6	5,5	0,22	25,4	369,0	76,3	1107,1	45	1,77
19	3/4	5,5	0,22	23,5	340,6	70,5	1021,8	54	2,13
22	0,9	5,5	0,22	21,6	313,7	64,9	941,0	60	2,36
25	1	5,5	0,22	19,9	288,2	59,6	864,5	68	2,68
32	1 1/4	5,5	0,22	16,2	234,5	48,5	703,4	94	3,70
38	1 1/2	5,5	0,22	13,4	194,8	40,3	584,4	112	4,41
51	2	5,5	0,22	8,9	129,1	26,7	387,2	144	5,67
63	2 1/2	5,5	0,22	6,4	92,9	19,2	278,8	181	7,13
76	3	5,5	0,22	5,5	80,4	16,6	241,1	232	9,13

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**CLEANING CONDITIONS**

	Vena® Flexip-X
HOT WATER	Up to 95°C
STEAM	Up to 130°C-30'
CAUSTIC SODA	Up to 1% - 80°C
NITRIC ACID	Up to 0.5% - 80°C
PERACETIC ACID	Up to 3% - 80°C

**ADDITIONAL INFORMATION**

The following chart is purely informative and does not imply any responsibility for Venair. Chemical compatibility will depend on the customer conditions. For further information you can contact our specialist.

	MEDIUM	COMPATIBILITY
<b>ACIDS</b>	Acetic acid 5%	A
	Hydrochloric acid 32%	A
	Lactic acid	A
	Nitric acid 10%	A
	Phosphoric acid 20%	A
	Sulfuric Acid 20%	A
<b>BASES</b>	Caustic soda	C
	Potassium hydroxide	C
<b>SALTS</b>	Calcium salts	A
	Sodium chloride 10%	A
<b>SOLVENTS</b>	Acetone	D
	Butanol	B
	Heptane	A
	Isopropyl alcohol	B
<b>OTHERS</b>	Ethylene glycol	A
	Glycerine-glycol	A
	Propylene-glycol	A
	Sodium laureth sulfate 70%	A
<b>CLEANING MEDIUMS</b>	Urea 40%	A
	Acid CIP 3%	A
	Alkaline CIP 3%	A
	Chlorinated alkaline CIP 3%	A
	Hot water	A

	MEDIUM	COMPATIBILITY
<b>FOOD PRODUCTS</b>	Beer	A
	Beet sugar liquors	A
	Butter	A
	Chocolate	A
	Citric acid	A
	Coca-cola	A
	Cocoonut oil	A
	Coffee	A
	Corn oil	A
	Lard	A
	Milk	A
	Olive oil	A
	Vinegar	A
Whisky	A	

Where A is excellent, B is good, C is fair, and D is not recommended.

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**TECHNICAL INFORMATION FOR EXPLOSIVE ATMOSPHERES**

OBLIGATIONS

- This reference is outside the scope of the ATEX Directive 94/9/EC due to the fact it's a product having not their own source of ignition
- End-to-end electrical bonding to assure continuity is necessary; metal helix of the hose must be connected electrically to both end fittings
- Properly connect of the hose to earth (is necessary earth the hose metal fittings or directly the wire of both ends of the hose)
- This hose cannot be used for transport of explosive materials

ELECTRICAL PROPERTIES

	REFERENCE STANDARDS	CLASSIFICATION OF HOSE GRADES
Electrical features information	ISO 8031:2009 / EN12115 (if is complete with end fittings) R<100Ω	Continuous electrically bonded
	ISO 8031:2009 & IEC/TS 60079-32-1:2013 Antistatic only in inner lining (incorporating antistatic layer, 1kΩ≤R≤100MΩ)	Ω-L
Explosive Atmosphere inside the hose	ATEX ZONES	Zone 0-20 (Class I & II D1) Zone 1-21 (Class I & II D1) Zone 2-22 (Class & II D2)  According to IEC/TS 60079-32-1:2013 the hose can classify as "Acceptable" for flammable high conductive liquids (>10.000 pS/m), and as "Generally acceptable <sup>1</sup> " for medium and low conductive liquids (<10.000 pS/m).
Explosive Atmosphere inside the hose	ATEX ZONES	Zone 0-20 (Class I & II D1) Zone 1-21 (Class I & II D1) Zone 2-22 (Class & II D2)  <b>It is necessary a specific analysis of the risk according to the point "use precautions"</b>

<sup>1</sup> "Generally acceptable". Antistatic Ω-L grade hoses are acceptable in most circumstances but should be avoided immediately downstream of high charging devices such as high throughput fine filters that may generate more than 10 μA of current (point 7.7.3.5 of IEC/TS 60079-32-1:2013).

**▲** Where rates of charge generation can exceed 10 μA, Antistatic Ω-L grade hoses, may not be able to dissipate charges safely. In this case, a Grade Ω-L or Ω-CL Conductive hose should be used.

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### USE PRECAUTIONS

- This hose cannot be used with pneumatic transport of bulk materials. For such pneumatic transport the leakage resistance from any place of the inner wall of the hose has to be less than 100 MΩ (point 9.3.3 of IEC/TS 60079-32-1:2013).
- The end-to-end resistance of the hose should be checked regularly to ensure that this bonding remains intact. It's recommendable to perform this check before each use.
- It is not allowed a prolonged friction in the surface of the hose.
- The hose must be clean of flammable products.
- The hose should be inspected over the entire length for signs of hardening, abrasion, cuts, kinking, crushing, cracks, scratches, breaks or tears. It's recommendable to perform this check before each use. These faults required the affected hose to be replaced.