

# TYGON® E-3603

Let the Evolution Begin

NON-DEHP  
LABORATORY AND  
VACUUM TUBING



  
**SAINT-GOBAIN**  
PERFORMANCE PLASTICS

Distribuito da:

 **ENRICO BRUNO s.r.l.**  
APPARECCHI SCIENTIFICI  
SANITARI - INDUSTRIALI

# TYGON® E-3603

## NON-DEHP LABORATORY AND VACUUM TUBING

### Let the Evolution Begin

Crystal clear and flexible, long-lasting and crack-resistant, new TYGON® E-3603 Non-DEHP Laboratory and Vacuum Tubing delivers the same superior performance you've come to expect, but now in a formulation that contains a non-DEHP plasticizer. Replacing DEHP with a globally accepted substitute eliminates concerns about potentially harmful health effects from repeated exposure to high levels of DEHP leachates.

TYGON® E-3603 Laboratory Tubing handles most inorganic chemicals found in the laboratory. It is non-oxidizing and non-contaminating, and less permeable than rubber tubing. The glassy-smooth inner bore helps prevent buildup to facilitate cleaning, and coils are marked at 1-foot (30.4 cm) intervals for easy measuring.

TYGON® E-3603 Laboratory Tubing may be safely sterilized by autoclaving and, due to its excellent chemical resistance, may also be sterilized chemically or by gas (ethylene oxide).

### Engineered to Last

TYGON® E-3603 Laboratory Tubing is specially formulated for resistance to flex-fatigue and abrasion. In many peristaltic pump applications, it will outlast its nearest competitor by at least 2 to 1. As a tubing for instrumentation connection, vent, drain and other general laboratory applications, TYGON® E-3603 Laboratory Tubing offers superior life, which minimizes the labor and expense of replacement.



### Available in Vacuum Tubing Sizes

TYGON® E-3603 Vacuum Tubing has extra heavy walls that will withstand a full vacuum at room temperature (29.9" [759mm] of mercury at 73°F [23°C]) and up to 27" [686mm] of mercury at 140°F [60°C]). Like standard TYGON® Laboratory Tubing, TYGON® E-3603 Vacuum Tubing resists most inorganic chemicals and can be used in corrosive atmospheres.

## TYGON® E-3603 Non-DEHP Tubing Available Sizes

Saint-Gobain Part Number	I.D.		O.D.		Wall Thickness		Length		Minimum Bend Radius		Maximum Working Pressure		Vacuum Rating of Mercury at	
	In.	mm	In.	mm	In.	mm	Ft.	m	In.	mm	psi at 73°F **	bars at 23°C**	inches at 73°F	mm at 23°C
ACF00001	1/32	0.8	3/32	2.4	1/32	0.8	50	15	1/8	3.2	80	5.5	29.9	760
ACF00002	1/16	1.6	1/8	3.2	1/32	0.8	50	15	1/4	6.4	45	3.1	29.9	760
ACF02002	1/16	1.6	1/8	3.2	1/32	0.8	100	30.5	1/8	3.2	45	3.1	29.9	760
ACF04002	1/16	1.6	1/8	3.2	1/32	0.8	500	152	1/8	3.2	45	3.1	29.9	760
ACF00003	1/16	1.6	3/16	4.8	1/16	1.6	50	15	1/8	3.2	75	5.2	29.9	760
ACF00004	3/32	2.4	5/32	4.0	1/32	0.8	50	15	3/8	9.5	30	2.0	29.9	760
ACF02004	3/32	2.4	5/32	4.0	1/32	0.8	100	30.5	3/8	9.5	30	2.0	29.9	760
ACF00005	3/32	2.4	7/32	4.0	1/16	1.6	50	15	1/4	6.4	55	3.8	29.9	760
ACF00006	1/8	3.2	3/16	4.8	1/32	0.8	50	15	1/2	12.7	25	1.7	20	508
ACF04006	1/8	3.2	3/16	4.8	1/32	0.8	500	152	1/2	12.7	25	1.7	20	508
ACF00007 *	1/8	3.2	1/4	6.4	1/16	1.6	50	15	3/8	9.5	45	3.1	29.9	760
ACF02007 *	1/8	3.2	1/4	6.4	1/16	1.6	100	30.5	3/8	9.5	45	3.1	29.9	760
ACF04007	1/8	3.2	1/4	6.4	1/16	1.6	500	152	3/8	9.5	45	3.1	29.9	760
ACF00009	5/32	4.0	7/32	5.6	1/32	0.8	50	15	3/8	9.5	20	1.4	12	305
ACF00010	5/32	4.0	9/32	7.1	1/16	1.6	50	15	1/2	12.7	35	2.4	29.9	760
ACF02010	5/32	4.0	9/32	7.1	1/16	1.6	100	30.5	1/2	12.7	35	2.4	29.9	760
ACF00011	3/16	4.8	1/4	6.4	1/32	0.8	50	15	1	25.4	20	1.4	9	229
ACF00012 *	3/16	4.8	5/16	7.9	1/16	1.6	50	15	5/8	15.9	30	2.0	29.9	760
ACF02012	3/16	4.8	5/16	7.9	1/16	1.6	100	30.5	5/8	15.9	30	2.0	29.9	760
ACF04012	3/16	4.8	5/16	7.9	1/16	1.6	500	152	5/8	15.9	30	2.0	29.9	760
ACF00013	3/16	4.8	3/8	9.5	3/32	2.4	50	15	1/2	12.7	40	2.8	29.9	760
ACF00014	3/16	4.8	7/16	11.1	1/8	3.2	50	15	3/8	9.5	55	3.8	29.9	760
ACF00016	1/4	6.4	5/16	7.9	1/32	0.8	50	15	1-5/8	41.3	15	1.0	5	127
ACF00017 *	1/4	6.4	3/8	9.5	1/16	1.6	50	15	1	25.4	25	1.7	20	508
ACF02017	1/4	6.4	3/8	9.5	1/16	1.6	100	30.5	1	25.4	25	1.7	20	508
ACF04017	1/4	6.4	3/8	9.5	1/16	1.6	500	152	1	25.4	25	1.7	20	508
ACF00018 *	1/4	6.4	7/16	11.1	3/32	2.4	50	15	3/4	19.0	35	2.4	29.9	760
ACF00019	1/4	6.4	1/2	12.7	1/8	3.2	50	15	1/2	12.7	40	2.8	29.9	760
ACF02019	1/4	6.4	1/2	12.7	1/8	3.2	100	30.5	1/2	12.7	40	2.8	29.9	760
ACF00022	5/16	7.9	7/16	11.1	1/16	1.6	50	15	1-3/8	34.9	20	1.4	13	330
ACF00023	5/16	7.9	1/2	12.7	3/32	2.4	50	15	1	25.4	30	2.0	29.9	760
ACF00024	5/16	7.9	9/16	14.3	1/8	3.2	50	15	7/8	22.2	35	2.4	29.9	760
ACF00025	5/16	7.9	5/8	15.9	5/32	4.0	50	15	3/4	19.0	45	3.1	29.9	760
ACF00027 *	3/8	9.5	1/2	12.7	1/16	1.6	50	15	1-1/2	38.1	20	1.4	9	229
ACF00028	3/8	9.5	9/16	14.3	3/32	2.4	50	15	1-3/8	34.9	25	1.7	21	533
ACF00029 *	3/8	9.5	5/8	15.9	1/8	3.2	50	15	1-1/8	28.6	30	2.0	29.9	760
ACF00032	7/16	11.1	9/16	14.3	1/16	1.6	50	15	2-1/4	57.2	15	1.0	7	178
ACF00033	7/16	11.1	5/8	15.9	3/32	2.4	50	15	1-3/4	44.4	20	1.4	15	381
ACF00034	7/16	11.1	11/16	17.5	1/8	3.2	50	15	1-3/8	34.9	25	1.7	28	711
ACF00036	1/2	12.7	5/8	15.9	1/16	1.6	50	15	2-7/8	73.0	10	0.7	5	127
ACF00037	1/2	12.7	11/16	17.5	3/32	2.4	50	15	2-1/4	57.2	20	1.4	12	305
ACF02037	1/2	12.7	11/16	17.5	3/32	2.4	100	30.5	2-1/4	57.2	20	1.4	12	305
ACF00038*	1/2	12.7	3/4	19.0	1/8	3.2	50	15	1-1/2	38.1	25	1.7	21	533
ACF00039	1/2	12.7	13/16	20.6	5/32	4.0	50	15	1-1/2	38.1	30	2.0	29.9	760
ACF00041	9/16	14.3	3/4	19.0	3/32	2.4	50	15	2-1/2	63.5	15	1.0	9	229
ACF00042	9/16	14.3	13/16	20.6	1/8	3.2	50	15	2	50.8	20	1.4	17	432
ACF00045	5/8	15.9	13/16	20.6	3/32	2.4	50	15	3	76.2	15	1.0	7	178
ACF00046	5/8	15.9	7/8	22.2	1/8	3.2	50	15	2-3/8	60.3	20	1.4	13	330
ACF00047	5/8	15.9	15/16	23.8	5/32	4.0	50	15	2	50.8	25	1.7	21	533
ACF00050	11/16	17.5	7/8	22.2	3/32	2.4	50	15	3-1/2	88.9	15	1.0	6	152
ACF00053 *	3/4	19.0	1	25.4	1/8	3.2	50	15	3-1/4	82.6	18	1.2	9	229
ACF00054	3/4	19.0	1-1/16	27.0	5/32	4.0	50	15	2-3/4	69.8	20	1.4	15	381
ACF00055	3/4	19.0	1-1/8	28.6	3/16	4.8	50	15	2-3/8	60.3	25	1.7	21	533
ACF00057	3/4	19.0	1-1/4	31.8	1/4	6.4	50	15	2	50.8	30	2.0	29.9	760
ACF00059	7/8	22.2	1-1/8	28.6	1/8	3.2	50	15	4-1/8	104.8	15	1.0	7	178
ACF00060	7/8	22.2	1-3/16	30.2	5/32	4.0	50	15	3-1/2	88.9	20	1.4	11	279
ACF00062 *	1	25.4	1-1/4	31.8	1/8	3.2	50	15	4-3/4	120.6	15	1.0	5	127
ACF00064	1	25.4	1-3/8	34.9	3/16	4.8	50	15	4	101.6	20	1.4	12	305
ACF00065	1	25.4	1-1/2	38.1	1/4	6.4	50	15	3	76.2	25	1.7	21	533
ACF00068	1-1/8	28.6	1-1/2	38.1	3/16	4.8	50	15	4-1/2	114.3	18	1.2	9	229
ACF00069	1-1/4	31.8	1-1/2	38.1	1/8	3.2	50	15	7-7/8	200	12	0.8	3	76
ACF00070	1-1/4	31.8	1-5/8	41.3	3/16	4.8	50	15	5-1/2	139.7	15	1.0	7	178
ACF00071	1-1/4	31.8	1-3/4	44.4	1/4	6.4	50	15	4-3/8	111.1	20	1.4	13	330
ACF00073	1-1/2	38.1	1-7/8	47.6	3/16	4.8	50	15	7-1/4	184.2	15	1.0	5	127
ACF00074	1-1/2	38.1	2	50.8	1/4	6.4	50	15	5-7/8	149.2	18	1.2	9	229
ACF00076	1-3/4	44.4	2-1/4	57.2	1/4	6.4	50	15	7-1/2	190.5	16	1.1	7	178
ACF00078	2	50.8	2-1/2	63.5	1/4	6.4	50	15	9-3/8	238.1	15	1.0	5	127
ACF05078	2	50.8	2-1/2	63.5	1/4	6.4	20	6	9-3/8	238.1	15	1.0	5	127



## TYGON® E-3603 Non-DEHP Tubing Available Sizes

Saint-Gobain Part Number	I.D.		O.D.		Wall Thickness		Length		Minimum Bend Radius		Maximum Working Pressure		Vacuum Rating of Mercury at	
	In.	mm	In.	mm	In.	mm	Ft.	m	In.	mm	psi at 73°F **	bars at 23°C**	inches at 73°F	mm at 23°C

### Vacuum Sizes

ACF00015	3/16	4.8	9/16	14.3	3/16	4.8	50	15	1/4	6.4	60	4.1	29.9	760
ACF00020	1/4	6.4	5/8	15.9	3/16	4.8	50	15	1/2	12.7	50	3.5	29.9	760
ACF00030	3/8	9.5	7/8	22.2	1/4	6.4	50	15	5/8	15.9	50	3.5	29.9	760
ACF00040	1/2	12.7	1-1/8	28.6	5/16	7.9	50	15	7/8	22.2	45	3.1	29.9	760
ACF00049	5/8	15.9	1-3/8	34.9	3/8	9.5	50	15	1	25.4	40	2.8	29.9	760
ACF00058	3/4	19.0	1-1/2	38.1	3/8	9.5	50	15	1-1/2	38.1	35	2.4	29.9	760
ACF00066	1	25.4	2	50.8	1/2	12.7	50	15	1-7/8	47.6	35	2.4	29.9	760
ACF05066	1	25.4	2	50.8	1/2	12.7	20	6	1-7/8	47.6	35	2.4	29.9	760

### Unipacs (10/10' lengths per carton)

ACFUN007	1/8	3.2	1/4	6.4	1/16	1.6	10/10'	3/3	3/8	9.5	45	3.1	29.9	760
ACFUN012	3/16	4.8	5/16	7.9	1/16	1.6	10/10'	3/3	5/8	15.9	30	2.0	29.9	760
ACFUN017	1/4	6.4	3/8	9.5	1/16	1.6	10/10'	3/3	1	25.4	25	1.7	20	508
ACFUN019	1/4	6.4	1/2	12.7	1/8	3.2	10/10'	3/3	1/2	12.7	40	2.8	29.9	760
ACFUN027	3/8	9.5	1/2	12.7	1/16	1.6	10/10'	3/3	1-1/2	38.1	20	1.4	9	229
ACFUN036	1/2	12.7	5/8	15.9	1/16	1.6	10/10'	3/3	2-7/8	73.0	10	0.7	5	127
ACFUN053	3/4	19.0	1	25.4	1/8	3.2	10/10'	3/3	3-1/4	82.6	18	1.2	9	229
ACFUN062	1	25.4	1-1/4	31.8	1/8	3.2	10/10'	3/3	4-3/4	120.6	15	1.0	5	127

### Vacuum Unipacs (10/10' or 4/10' lengths per carton as shown below)

ACFUN015	3/16	4.8	9/16	14.3	3/16	4.8	10/10'	3/3	1/4	6.4	60	4.2	29.9	760
ACFUN020	1/4	6.4	5/8	15.9	3/16	4.8	10/10'	3/3	1/2	12.7	50	3.5	29.9	760
ACFUN030	3/8	9.5	7/8	22.2	1/4	6.4	10/10'	3/3	5/8	15.9	50	3.5	29.9	760
ACFUN040	1/2	12.7	1-1/8	28.6	5/16	7.9	10/10'	3/3	7/8	22.2	45	3.1	29.9	760
ACFUN049	5/8	15.9	1-3/8	34.9	3/8	9.5	10/10'	3/3	1	25.4	40	2.8	29.9	760
ACFUN058	3/4	19.0	1-1/2	38.1	3/8	9.5	10/10'	3/3	1-1/2	38.1	35	2.4	29.9	760
ACFUN066	1	25.4	2	50.8	1/2	12.7	4/10'	1.2/3	1-7/8	47.6	35	2.4	29.9	760

### Metric Sizes

Saint-Gobain Part Number	I.D. mm	O.D. mm	Wall Thickness mm	Length m	Minimum Bend Radius mm	Maximum Working Pressure Bars at 23°C	Vacuum Rating mm of Mercury at 23°C
ACF1S1502	2	4	1	15	7	2.8	760
ACF1S1517	3	5	1	15	13	2.0	760
ACF1S1518	4	6	1	15	16	1.7	533
ACF1S1503	5	8	1.5	15	19	2.0	760
ACF1S1504	6	9	1.5	15	22	1.7	559
ACF1S1505	7	10	1.5	15	29	1.4	381
ACF1S1506	8	12	2	15	29	1.7	533
ACF1S1507	10	14	2	15	42	1.4	356

Unless otherwise noted, all tests were conducted at room temperature (73°F/23°C). Values shown were determined on 0.075"/1.9 mm thick extruded strip or 0.075"/1.9 mm thick molded ASTM plaques or molded ASTM durometer buttons.

\* Available inventoried sizes.

\*\* Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.

Please consult factory for availability

Metric dimensions are nominal

## Features/Benefits

- The new non-DEHP formulation delivers the same excellent performance
- Outstanding chemical resistance
- Lot-to-lot consistency for reproducible results
- Increases productivity in peristaltic pumps – outlasts other clear tubing 2 to 1
- Non-oxidizing and non-contaminating
- Smooth, polished inner wall
- Slips easily over fittings and grips securely for simple lab set-ups
- Contains no BPA
- Standard sizes available to hold full vacuum at room temperature

## Typical Applications

- General laboratory
- Analytical instruments
- Peristaltic and vacuum pumps
- Ideal for condensers, incubators, desiccators, gas lines and drain lines

### TYGON® E-3603 Non-DEHP Tubing Typical Physical Properties

Property	ASTM Method	Value or Rating
Durometer Hardness Shore A, 15 Sec	D2240-02	55
Color	–	Clear
Tensile Strength, psi (MPa)	D412-98	1,650 (11.4)
Ultimate Elongation, %	D412-98	450
Tear Resistance, lb-f/inch (kN/m)	D1004-94	125 (22)
Specific Gravity	D792-00	1.18
Water Absorption, % 24 hrs. @ 23°C	D570-98	0.24
Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.	D395-01 Method B	61
Brittleness By Impact Temp., °F (°C)	D746-98	-58 (50)
Maximum Recommended Operating Temp., °F (°C)	–	165 (74)
Dielectric Strength, v/mil (kV/mm)	D149-97	608 (23.9)
Tensile Modulus, at 100% elongation psi (MPa)	D412-98	650 (4.5)
Tensile Set, %	D412-98	107

*Unless otherwise noted, all tests were conducted at room temperature (73°F/23°C). Values shown were determined on 0.075"/1.9 mm thick extruded strip or 0.075"/1.9 mm thick molded ASTM plaques or molded ASTM durometer buttons.*