



BARB DIMENSIONS PG-75

200 SERIES	BARB SIZE	BARB OD	IN
	210	0.094	0.1
	220	0.141	0.1
	230	0.188	0.1
	240	0.234	0.1

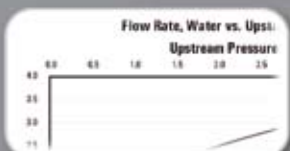
BARB PERFORMANCE PG-76



PANEL MOUNT INSTRUCTIONS PG-77



BPF SERIES PERFORMANCE PG-77



RESIN INFORMATION PG-78

CHEMICAL	%	TEMP °C	TEMP °F	APL
Acetic Acid	5%	23 C	73 F	Excludes
Acetone	100%	50 C	122 F	Satisfactory
Acrylonitrile	100%	24 C	75 F	Satisfactory
Acrylonitrile	100%	24 C	75 F	—
Air	100%	82 C	180 F	Excludes
Ammonia, Liquid	100%	24 C	75 F	Satisfactory
Ammonium Hydroxide	100%	19 C	66 F	Satisfactory

TRADEMARKS & PATENTS PG-80



TERMS & CONDITIONS PG-81

TERMS AND CONDITIONS OF SALE

All terms are subject to all January 1, 2000 and are subject to change with these Terms and Conditions of Sale and any quote submitted with these Terms and Conditions of Sale and any quote submitted with these Terms and Conditions of Sale and any quote submitted with these Terms and Conditions of Sale.

ORDER FORM PG-82

Value Plastics, Inc. Flexible Order Form: 978-223-0953

All for 24 hours (day) for and call

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

INDEX PG-83

10	1000	10	1000
11	1000	11	1000
12	1000	12	1000
13	1000	13	1000
14	1000	14	1000
15	1000	15	1000
16	1000	16	1000
17	1000	17	1000
18	1000	18	1000
19	1000	19	1000

CLASSIC SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
10	0.105	0.046	0.063	1/16"	1.6 mm
20	0.145	0.060	0.094	3/32"	2.4 mm
30	0.187	0.078	0.125	1/8"	3.2 mm
40	0.234	0.100	0.156	5/32"	4.0 mm
50	0.280	0.130	0.188	3/16"	4.8 mm
60	0.355	0.187	0.250	1/4"	6.4 mm

500 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
004	0.102	0.060	0.063	1/16"	1.6 mm
007	0.129	0.076	0.094	3/32"	2.4 mm
013	0.164	0.096	0.125	1/8"	3.2 mm
025	0.208	0.122	0.156	5/32"	4.0 mm
035	0.264	0.155	0.188	3/16"	4.8 mm
055	0.335	0.197	0.250	1/4"	6.4 mm
065	0.425	0.250	0.312	5/16"	7.9 mm
N070	0.483	0.262	0.375	3/8"	9.5 mm
L070	0.483	0.251	0.375	3/8"	9.5 mm
T070	0.483	0.290	0.375	3/8"	9.5 mm
Y070	0.483	0.290	0.375	3/8"	9.5 mm
N080	0.613	0.333	0.500	1/2"	12.7 mm
L080	0.613	0.319	0.500	1/2"	12.7 mm
T080	0.613	0.356	0.500	1/2"	12.7 mm
Y080	0.613	0.362	0.500	1/2"	12.7 mm
N090	0.718	0.390	0.625	5/8"	16.0 mm
L090	0.718	0.374	0.625	5/8"	16.0 mm
T090	0.718	0.374	0.625	5/8"	16.0 mm
Y090	0.718	0.390	0.625	5/8"	16.0 mm
N100	0.853	0.465	0.750	3/4"	19.0 mm
L100	0.853	0.443	0.750	3/4"	19.0 mm
T100	0.853	0.447	0.750	3/4"	19.0 mm
Y100	0.853	0.492	0.750	3/4"	19.0 mm
N110	1.125	0.623	1.000	1"	25.4 mm
L110	1.125	0.600	1.000	1"	25.4 mm
T110	1.125	0.600	1.000	1"	25.4 mm
Y110	1.125	0.623	1.000	1"	25.4 mm

200 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
210	0.094	0.047	0.063	1/16"	1.6 mm
220	0.141	0.070	0.094	3/32"	2.4 mm
230	0.188	0.094	0.125	1/8"	3.2 mm
240	0.234	0.117	0.156	5/32"	4.0 mm
250	0.282	0.141	0.188	3/16"	4.8 mm
260	0.375	0.188	0.250	1/4"	6.4 mm

300 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
360	0.338	0.192	0.250	1/4"	6.4 mm

400 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
410	0.078	0.046	0.063	1/16"	1.6 mm
420	0.117	0.068	0.094	3/32"	2.4 mm
430	0.156	0.092	0.125	1/8"	3.2 mm
440	0.206	0.125	0.156	5/32"	4.0 mm
445	0.213	0.125	0.170	-	4.3 mm
450	0.234	0.137	0.188	3/16"	4.8 mm
460	0.313	0.184	0.250	1/4"	6.4 mm

600 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
N655	0.335	0.181	0.250	1/4"	6.4 mm
N670	0.490	0.296	0.375	3/8"	9.5 mm
N680	0.625	0.403	0.500	1/2"	12.7 mm
N690	0.762	0.499	0.625	5/8"	16.0 mm
N6100	0.900	0.615	0.750	3/4"	19.0 mm
N6110	1.180	0.804	1.000	1"	25.4 mm
T670	0.490	0.286	0.375	3/8"	9.5 mm
T680	0.625	0.399	0.500	1/2"	12.7 mm
T690	0.762	0.483	0.625	5/8"	16.0 mm
Y670	0.490	0.296	0.375	3/8"	9.5 mm
Y680	0.625	0.401	0.500	1/2"	12.7 mm

700 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
755	0.329	0.204	0.250	1/4"	6.4 mm
770	0.450	0.302	.375	3/8"	9.5 mm

900 SERIES



BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
970	0.437	0.269	0.375	3/8"	9.5 mm
975	0.573	0.358	0.500	1/2"	12.7 mm

The data presented here is for reference only. It was compiled to provide our customers with a means of comparing the characteristics of components at the time of publication. The particular conditions of your use and application of our products are beyond our control. Thus, it is imperative that you test our products in your specific application to determine their suitability. All information is provided without implied or express warranty or guarantee by Value Plastics® or other manufacturers. None of the information provided constitutes a recommendation or endorsement of any kind by Value Plastics®.

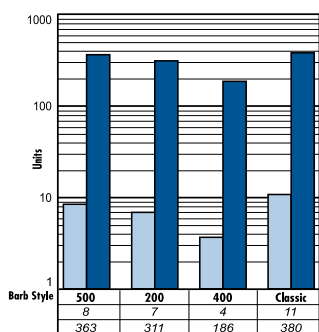
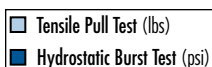
Performance of Barb to Tube Connection

Tensile pull and burst tests were performed by an independent laboratory under controlled conditions to provide comparative performance data for the various barb styles and sizes offered by Value Plastics. Graph numbers 1 through 8 present the data from each of the tests for each barb size and each barb style connected to PVC tube.

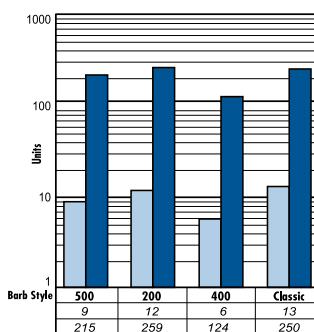
The values shown are the means of a statistically significant sample quantity of each configuration. Value Plastics® barbed fittings specifically designed for use with the tubing size indicated were used in these tests. No oversized barbs, solvents, adhesives, or secondary fasteners of any kind were used.

Tensile Pull Test: Tensile properties were measured to determine the force required to remove the barbed fitting from the tubing. Tensile specimens were mounted axially in a holding fixture and tested at a rate of 20 inches per minute. Failure mode was tubing separating from the barb.

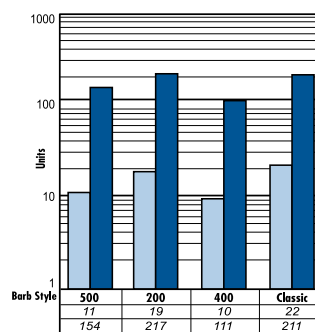
Hydrostatic Burst Test: Hydrostatic burst testing was performed in general accordance with ASTM D1599. Failure mode was either tubing separating from the barb, the tubing bursting, or a combination of the two.

PERFORMANCE OF BARB TO TUBE CONNECTIONS

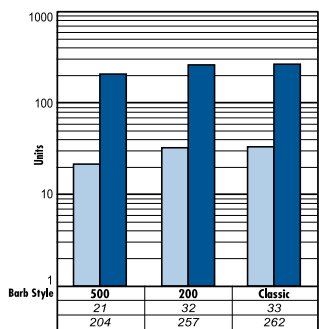
Graph 1: 1/16" Barb Performance



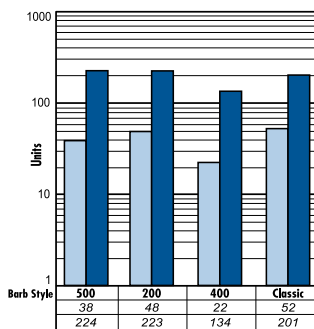
Graph 2: 3/32" Barb Performance



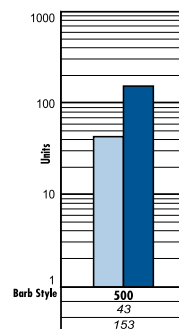
Graph 3: 1/8" Barb Performance



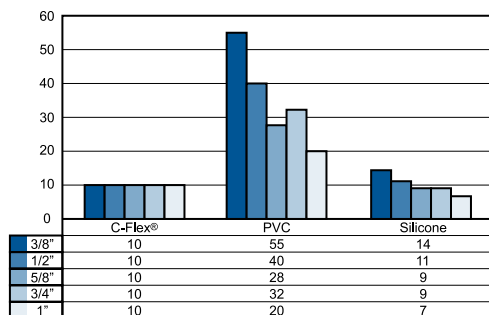
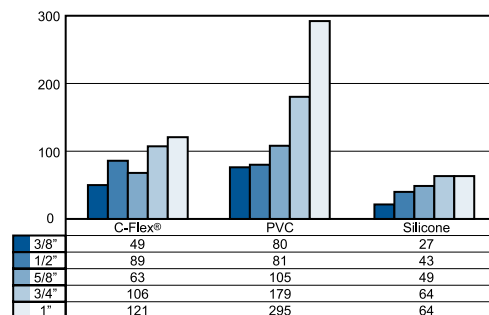
Graph 4: 5/32" Barb Performance



Graph 5: 3/16" Barb Performance



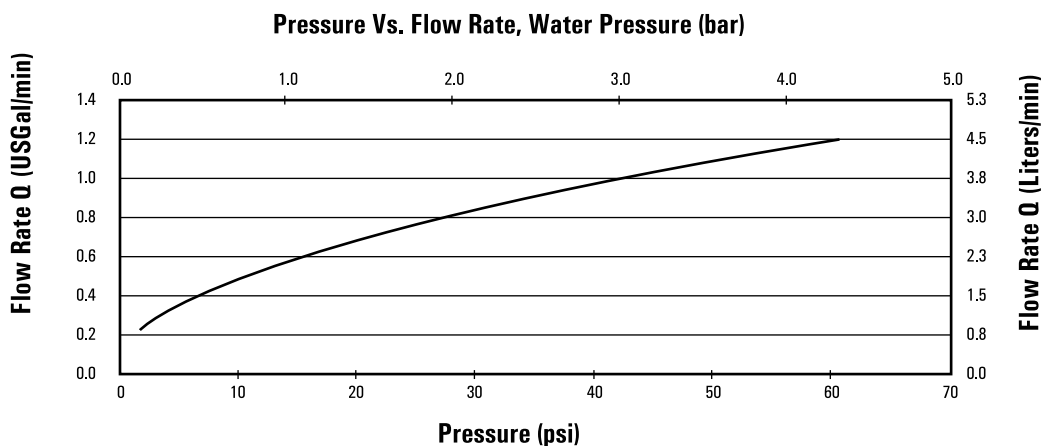
Graph 6: 1/4" Barb Performance

600 Series Leak Tests**600 Series Tensile Pull Tests**

The data presented here is for reference only. It was compiled to provide our customers with a means of comparing the characteristics of components at the time of publication. The particular conditions of your use and application of our products are beyond our control. Thus, it is imperative that you test our products in your specific application to determine their suitability. All information is provided without implied or express warranty or guarantee by Value Plastics® or other manufacturers. None of the information provided constitutes a recommendation or endorsement of any kind by Value Plastics®.

BPF Series Typical Physical Properties

Maximum cycles _____	50,000 connect-disconnect cycles	Maximum leak resistance _____	< .007 psi / 0.05 kPa / sec.
Maximum axial tensile resistance _____	20 lbf.	Minimum Fitting ID _____	.113" / 2.9 mm
Maximum working pressure _____	60 psi, 4.14 bar	Minimum Cv _____	.39



Panel Mount Instructions

Panel-mounted female luer, in both FTLLB (thread style) and FTLB (lug style) series, are shown beginning on page 19. When used with our CCLR lock rings or CCR color coding rings and LNS lock nuts (see pages 20, 44), color coding of connections is easy.

The information provided here will help you mount the panel mount luer. Please note that they are intended for panel thickness of 1/16" to 1/8" (1.5 to 3 mm).

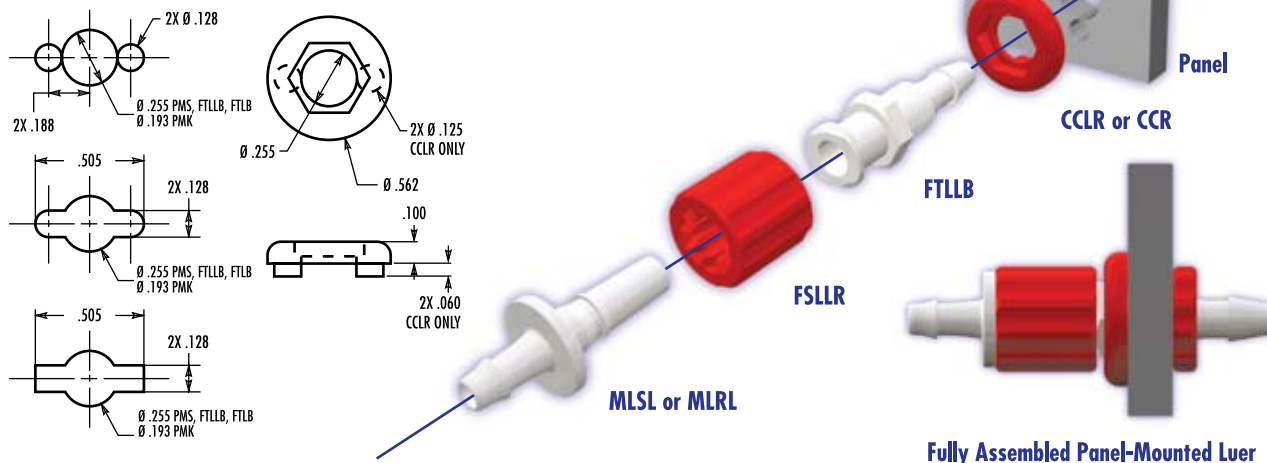
FTLLB series shown with MSLR luer, FSLLR lock ring, CCLR color coding lock ring, and LNS lock nut.

Threaded Panel Openings:

Tap the panel with threads from tube fittings, panel mounts or BPMBs and use a CCR color coded ring. In this case, the fitting tightened into the panel prevents fitting rotation. Use an LNS lock nut for additional security; tighten snug plus 1/4 turn only.

Non-Threaded Panel Openings:

Use any one of the three panel patterns shown below with a CCLR lock ring and LNS lock nut. Together, the panel opening and CCLR prevent the panel mount fitting from rotating. Tighten LNS snug plus 1/4 turn only.



The data presented here is for reference only. It was compiled to provide our customers with a means of comparing the characteristics of components at the time of publication. The particular conditions of your use and application of our products are beyond our control. Thus, it is imperative that you test our products in your specific application to determine their suitability. All information is provided without implied or express warranty or guarantee by Value Plastics® or other manufacturers. None of the information provided constitutes a recommendation or endorsement of any kind by Value Plastics®.

CHEMICAL	%	TEMP C	TEMP F	ABS	ACETAL	PVDF	NYLON	MABS	POLYCARBONATE	POLYPROPYLENE	POLYSULFONE
Acetic Acid	5%	23 C	73 F	Excellent	Unsatisfactory	Excellent	Satisfactory	Satisfactory	Satisfactory	Excellent	Unsatisfactory
Acetone	100%	50 C	122 F	Satisfactory	Unsatisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Unsatisfactory	Excellent	Unsatisfactory
Acetophenone	100%	24 C	75 F	Satisfactory	—	Unsatisfactory	Excellent	—	—	Satisfactory	—
Acetylene	100%	24 C	75 F	—	—	Excellent	Excellent	—	—	—	—
Air	100%	82 C	180 F	Excellent	Excellent	Excellent	Excellent	—	—	—	Excellent
Ammonia, Liquid	100%	24 C	75 F	Satisfactory	—	Unsatisfactory	Satisfactory	—	Unsatisfactory	Excellent	Excellent
Ammonium Hydroxide	10%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Excellent	Excellent
Ammonium Hydroxide	10%	70 C	158 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Excellent	Excellent
Barium Sulfide	100%	24 C	75 F	Excellent	Excellent	Excellent	Satisfactory	—	—	Excellent	—
Benzene	100%	23 C	73 F	Satisfactory	Excellent	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Bleach	100%	23 C	73 F	Satisfactory	Unsatisfactory	Excellent	Satisfactory	—	Unsatisfactory	Satisfactory	Excellent
Boric Acid	7%	35 C	95 F	Excellent	Excellent	Excellent	Unsatisfactory	—	Excellent	Excellent	—
Calcium Carbonate	Sat. sol.	24 C	75 F	Excellent	—	Excellent	—	—	—	Excellent	—
Carbon Dioxide	100%	50 C	122 F	Satisfactory	Excellent	Excellent	Excellent	—	—	Excellent	—
Carbon Monoxide	100%	50 C	122 F	Satisfactory	—	Excellent	Excellent	—	—	Excellent	—
Carbon Tetrachloride	100%	50 C	122 F	Unsatisfactory	—	Excellent	Excellent	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Chlorine Water	Dilute	23 C	73 F	Unsatisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Satisfactory
Chlorine Water	Concen.	23 C	73 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Chlorobenzene	100%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Chlorofluorocarbon 11	100%	24 C	75 F	—	—	Excellent	Excellent	—	Satisfactory	—	Excellent
Chloroform	100%	23 C	73 F	Unsatisfactory	Satisfactory	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Cyclohexanone	100%	24 C	75 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Dichlorethylene	100%	23 C	73 F	—	—	Excellent	Satisfactory	—	—	Excellent	Unsatisfactory
Ethanol	95%	50 C	122 F	Satisfactory	—	Excellent	Excellent	—	Satisfactory	Excellent	Satisfactory
Ethyl Acetate	95%	50 C	122 F	Satisfactory	—	Unsatisfactory	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Ethylene Glycol	100%	23 C	73 F	Excellent	Satisfactory	Excellent	Excellent	Unsatisfactory	Satisfactory	Excellent	Excellent
Ethylene Oxide	100%	24 C	75 F	Unsatisfactory	—	Excellent	Satisfactory	—	Satisfactory	Satisfactory	Excellent
Ethylene Oxide	100%	79 C	175 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Satisfactory	Unsatisfactory	Excellent
Fatty Acids	—	—	—	—	Excellent	Excellent	—	—	—	Excellent	—
Fluorine	100%	23 C	73 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	—	—	—
Formaldehyde	37%	24 C	75 F	Unsatisfactory	Excellent	Excellent	—	—	Unsatisfactory	Excellent	Unsatisfactory
Gasoline	100%	85 C	185 F	Excellent	Satisfactory	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Satisfactory
Glucose	Concen.	24 C	75 F	Excellent	—	Excellent	—	—	—	Excellent	—
Glycerin	100%	24 C	75 F	Excellent	—	Excellent	—	—	Excellent	Excellent	Excellent
Hydrochloric Acid	2%	23 C	73 F	Excellent	Satisfactory	Excellent	Excellent	—	Excellent	Excellent	Excellent
Hydrochloric Acid	10%	25 C	77 F	Excellent	Satisfactory	Excellent	Unsatisfactory	—	Excellent	Excellent	Excellent
Hydrofluoric Acid	10%	23 C	73 F	Satisfactory	—	Excellent	Unsatisfactory	—	—	Excellent	Excellent
Hydrogen Peroxide	1%	24 C	75 F	Excellent	Unsatisfactory	Excellent	Satisfactory	Satisfactory	Excellent	Excellent	Excellent
Hydrogen Peroxide	5%	43 C	110 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	Satisfactory	Excellent	Satisfactory	Excellent
Isopropanol	100%	23 C	73 F	—	Excellent	Excellent	Excellent	Unsatisfactory	Excellent	Excellent	Satisfactory
Kerosene	100%	85 C	185 F	Satisfactory	—	Excellent	Excellent	—	Satisfactory	Satisfactory	Satisfactory
Methyl Ethyl Ketone	100%	50 C	122 F	Satisfactory	—	Unsatisfactory	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Methylene Chloride	100%	23 C	73 F	Unsatisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Excellent	Unsatisfactory
Methanol	100%	23 C	73 F	Unsatisfactory	—	Excellent	Excellent	Satisfactory	Satisfactory	Excellent	Satisfactory
Nitric Acid	10%	23 C	73 F	Satisfactory	—	Excellent	Unsatisfactory	Unsatisfactory	Unsatisfactory	Excellent	Satisfactory
Oxygen	100%	24 C	75 F	—	—	Excellent	Satisfactory	—	—	—	—
Ozone	100%	43 C	110 F	Satisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	—	—
Phenol	90%	23 C	73 F	Unsatisfactory	Unsatisfactory	Excellent	Unsatisfactory	—	—	Excellent	—
Phosphoric Acid	5%	98 C	208 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	—	Unsatisfactory	Excellent	Excellent
Propane	100%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	—	—	—
Sodium Bicarbonate	Concen.	24 C	75 F	Excellent	Excellent	Excellent	Excellent	—	—	Excellent	Excellent
Sodium Chloride	10%	23 C	73 F	Excellent	—	Excellent	Excellent	Satisfactory	—	Excellent	Excellent
Sodium Chloride	Sat. sol.	24 C	75 F	Excellent	—	Excellent	Excellent	—	—	Excellent	Excellent
Sodium Hydroxide	10%	70 C	158 F	Satisfactory	—	Excellent	Satisfactory	Satisfactory	—	Excellent	Excellent
Steam	—	120 C	248 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Satisfactory	Excellent
Sulfuric Acid	30%	23 C	73 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	Satisfactory	Excellent	Excellent	Excellent
Tetrahydrofuran	100%	23 C	73 F	Satisfactory	—	Unsatisfactory	Excellent	—	—	Unsatisfactory	—
Toluene	100%	50 C	122 F	Satisfactory	Unsatisfactory	Excellent	Excellent	Unsatisfactory	Unsatisfactory	Unsatisfactory	Unsatisfactory
Trichloroethylene	100%	23 C	73 F	Satisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Water	100%	79 C	175 F	Excellent	—	Excellent	Excellent	Satisfactory	Unsatisfactory	Excellent	Excellent

The data presented here is for reference only. It was compiled primarily from the resin manufacturers' data to provide our customers with a means of comparing the characteristics of components at the time of publication. The particular conditions of your use and application of our products are beyond our control. Thus, it is imperative that you test our products in your specific application to determine their suitability. All information is provided without implied or express warranty or guarantee by Value Plastics® or other manufacturers. None of the information provided constitutes a recommendation or endorsement of any kind by Value Plastics®.

Material/ Manufacturer & Grade	VP Code	Regulatory Status of Base Resin*	Animal Derivative Free*	Gamma Radiation** (Sterilization)	Ethylene Oxide (Sterilization)	Autoclave (Sterilization)
ABS Dow Magnum 9020	-81	21 CFR 181.32 FDA Approved for Food Contact; RoHS Compliant	No	Compatible up to 1 Mrad	Not recommended	Poor. Components may distort due to low heat deflection temperatures
ABS (Methyl Methacrylate) BASF Terlux 2802 TR	-8003	USP Class VI Certified; FDA Approved; RoHS Compliant	Yes	Withstands up to 5 Mrad doses without yellowing	Good	Poor. Components may distort due to low heat deflection temperatures
ABS (Sno White) INEOS Lustran 348-012002	-8012	USP Class VI Certified; FDA Approved; ISO 10993 Part I Compliant; RoHS Compliant	N/A	Compatible up to 5 Mrads	Good	Not suitable due to low heat deflection temperatures
Acetal Dupont Delrin 500P	-10	RoHS Compliant	No	Compatible up to 1 Mrad	Excellent	Very Good
Acetal Copolymer BASF Ultrahom N 23020 003 UNC Q600	-1006	USP Class VI Certified; FDA Approved 21 CFR 177.2470; RoHS Compliant	No	Compatible up to 1.5 Mrads	Excellent	Very Good
Acrylic Crylite Med 2	-50	USP Class VI Certified; 21 CFR 177.1010 FDA Approved; RoHS Compliant	Yes	Very good up to commonly used doses (6 Mrads).	Excellent	Not Recommended
Copolyester Eastman EKSTAR MN211 Natural	-CM018	USP Class VI Certified; ISO 10993 Compliant; RoHS Compliant	N/A	Compatible up to 6 Mrads	Highly compatible	-
Nylon BASF Ultramid A3K	-00USP	21 CFR 177.1500 FDA Approved; RoHS Compliant	N/A	Very good. May discolor to brownish hue.	Very good. Some susceptibility to oxidizing agents.	Very good. Product may swell slightly due to water absorption.
Nylon Dupont Zytel 101F	-0, -1, -2, -3, -4, -5, -06, -07	21 CFR 177.1500 FDA Approved; RoHS Compliant	No	Very good. May discolor to brownish hue.	Very good. Some susceptibility to oxidizing agents.	Very good. Product may swell slightly due to water absorption.
Nylon (Glass Reinforced) Dupont Zytel 70G331	-7, -72	-	No	Very good. May discolor to brownish hue.	Very good. Some susceptibility to oxidizing agents.	Excellent
Polycarbonate (Clear) Bayer Makrolon 2558 550115	-9	USP Class VI Certified; 21 CFR 177.1580; FDA Approved; ISO 10993 Compliant; RoHS Compliant	No	Compatible up to 10 Mrads with minor loss of physical properties. Will discolor to yellow-green hue.	Highly compatible	Poor. May craze or stress crack due to molding stresses.
Polycarbonate (Clear) Bayer Makrolon Rx 1805 451118	-9010	USP Class VI Certified; ISO 10993 Compliant; RoHS Compliant	Yes	Compatible up to 10 Mrads with minor loss of physical properties. May discolor slightly dependent upon dose/number of cycles.	Highly compatible	Poor. May craze or stress crack due to molding stresses.
Polycarbonate (Tinted) Dow Calibre Megarad 2081-15	-9002	USP Class VI Certified; ISO 10993 Compliant; RoHS Compliant	Yes	Excellent up to 10 Mrads with minor loss of physical properties. Light violet hue turns clear upon sterilization.	Highly compatible	Not Recommended
Polyethylene Eastman Voridian 1870A	-CM006	USP Class VI Certified; FDA Approved; RoHS Compliant	Yes	Compatible up to 6 Mrads	Highly compatible	Not Recommended
Polypropylene Bacell Profax PD626	-6	USP Class VI Certified; 21 CFR 177.1520 FDA Approved; RoHS Compliant	No	Excellent up to commonly used sterilization doses (6 Mrads).	Good. May react poorly to EtO/CFE mix.	Poor. Components may distort due to low heat deflection temperatures
Polypropylene Flint Hills PS-080X	-6005	USP Class VI Certified; 21 CFR 177.1520 FDA Approved; RoHS Compliant	Yes	Very good to commonly used sterilization doses (6 Mrads).	Highly compatible	Not Recommended
Polysulfone Solvay Udel P1700 MG11	-F1A	USP Class VI Certified; 21 CFR 177.1655 FDA Approved; RoHS Compliant	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Excellent
Polysulfone Solvay Udel P1700 CL2611	-40	21 CFR 177.1655 FDA Approved	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Excellent
PVDF Atofina Kynar 1000 HD	-J1A	USP Class VI Certified; 21 CFR 177.1500 FDA Approved; RoHS Compliant	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Highly Compatible

*as determined by resin manufacturer

**1 Mrad (Mrad) = 10 kiloGrays (kGy)

Property	ASTM Test Method	PVDF	Polycarb	Radiation Stable PC	Polypro	Nylon ^a	GF Nylon ^a	ABS	MABS	Polysulfone	Acetal
Tensile Strength	D638	5,400	10,000	9,800	—	12,000	27,000	4,800	—	—	—
Elongation at Break, %	D638	100-400	120	150	375	300	3	50	12	50-100	40
Tensile Yield Strength, psi	D638	6,500	9,200	9,800	4,400	12,000	—	5,700	6,960	10,200	9,900
Flexural Modulus, kpsi	D790	360	330	350	170	410	1,300	330	—	390	450
Rockwell Hardness D	D785	—	R118	R118	R80-102	R121	—	R107	—	—	R122
Rockwell Hardness M	—	—	M75	M72	—	M79	M101	—	—	M69	M89
Shore Hardness D	D2240	D76-80	—	—	—	—	—	—	—	—	—
Coef. of Linear 10-5 in/in/°F	D696	7.6	3.9	3.8	—	4	1.3	5.5	—	3.1	—
Deflection Temp°F @264psi	D648	244	266	252	—	194	480	173	194	345	216
Deflection Temp°F @66psi	D648	—	273	—	190	455	—	—	201	358	332
Water Absorption, %, 24 h	D570	0.015	0.15	0.15	0	1.2	0.7	0.25-0.40	0.7	0.3	0.4
Izod Impact, (Notched) ft-lb/in	D256	3.1	16.0	14.0	0.5	1.0	2.2	6.0	1.31	1.3	—

The data presented here is for reference only. It was compiled primarily from the resin manufacturers' data to provide our customers with a means of comparing the characteristics of components at the time of publication. The particular conditions of your use and application of our products are beyond our control. Thus, it is imperative that you test our products in your specific application to determine their suitability. All information is provided without implied or expressed warranty or guarantee by Value Plastics® or other manufacturers. None of the information provided constitutes a recommendation or endorsement of any kind by Value Plastics®.

TECHNICAL:
Patents and Trademarks
PATENTS

5,075,615
5,165,733
5,704,106
D339,417
D372,093
D375,160
D388,876

To protect our designs and our customers, it is important to be aware of the patents and trademarks that apply to our products. Look for the Value Plastics logo (∇) to ensure you do not mistakenly use a poor quality counterfeit of a Value Plastics® fitting, thereby jeopardizing the integrity and quality of your product.

C-Flex® is a registered trademark of Consolidated Polymer Technologies, Inc.
Dow® is a registered trademark of the Dow Chemical Company
DuPont® is a registered trademark of E.I. DuPont de Nemours & Co
Delrin® is a registered trademark of E.I. DuPont de Nemours & Co.
Dinamap® is a registered trademark of GE Healthcare
Kynar® is a registered trademark of Atochem Atofina North America, Inc.
The Lee Company® is a registered trademark of The Lee Company
Makrolon® is a registered trademark of Bayer A.G.
Tygon® is a registered trademark of Saint-Gobain Performance Plastics
Unichem® is a registered trademark of the Colorite Plastics Company
Zytel® is a registered trademark of E.I. DuPont de Nemours & Co.

One or more components contained in this catalog may be covered by B. Braun OEM Division patents and trademarks. Patent numbers: 4,246,932; 4,535,820; 4,683,916.

©2008 Value Plastics, Inc. All rights reserved. No part of this catalog may be reproduced without the express consent of Value Plastics, Inc. All terms are current as of September 1, 2008 and are subject to change without notice.

TRADEMARK
1,428,380


Corporate Trademark. The stylized design associated with Value Plastics® products and services.

TRADEMARK
1,887,178
VALUE PLASTICS®

Corporate Trademark.

TRADEMARK
1,727,081
TUBESSETTER®

Trademark for our rapid assembly devices

OTHER TRADEMARKS

1,827,467
1,817,921
1,817,922
2,655,263
2,616,170
2,535,232
2,535,234

All terms are current as of September 1, 2008 and are subject to change without notice.

These Terms and Conditions of Sale and any quote submitted with these Terms and Conditions of Sale (together, the "Contract") are between Value Plastics, Inc. ("Value Plastics") and the customer to which these Terms and Conditions of Sale and any quote are delivered ("Buyer").

1. AGREEMENT. Buyer accepts this Contract by: (a) executing a separate agreement with Value Plastics which incorporates these terms and conditions, (b) delivering a purchase order for Products (defined below) with quantities and delivery dates acceptable to Value Plastics; (c) accepting delivery of the Products; or (d) paying the price for the Products, whether prior to delivery or not, as agreed to by the parties and/or set forth in the quote or invoice, whichever of the four acceptance methods comes first. Any counteroffer or proposed addition to or supplement of, or any material variance from, the material terms and conditions of this Contract are hereby expressly objected to and rejected. If this Contract is responsive to a prior offer by Buyer, then this Contract shall be deemed an acceptance of such offer limited to the material terms and conditions stated in this Contract, and any additional or supplemental terms or any material variance from the terms and conditions of this Contract are expressly objected to and rejected. Any non-material variance from the terms of this Contract proposed by Buyer shall not operate as a rejection of this Contract, and shall be deemed a part of this Contract.

2. PRODUCTS. Buyer agrees to buy, and Value Plastics agrees to manufacture and sell, the products ("Products") described in a quote or, if none, pursuant to any acceptable orders placed by Buyer under this Contract. To the extent Buyer provides any product specifications to Value Plastics, Buyer grants Value Plastics the right to use any such specifications to fill any orders placed by Buyer in connection therewith.

3. ORDERING. Customer Service accepts telephone orders at 970-267-5200 from 7:00 am to 5:00 pm Mountain Time, Monday through Friday. Orders may also be placed by mail, fax at 970-223-0953, by email to orders@valueplastics.com or any time at www.valueplastics.com. Orders must be placed using a Value Plastics part number. Most Products are shipped bulk in quantities of 100, 500, or 1,000 pieces, as molded and non-sterile. For all orders except those placed through www.valueplastics.com, customer reference numbers may be included on the invoice and packing slip if requested at order placement.

4. PRICE. Prices for the Products are described on the quote or, if none, on Value Plastics' published price list and are effective for the period set forth in the quote, on the price list or, if none, until otherwise changed, which may occur at any time without notice to Buyer. Buyer shall pay Value Plastics the price for Products ordered set forth on the quote or as notified to Buyer on Value Plastics' invoice. Prices exclude all federal, state, or local taxes, and therefore such prices are subject to increase in the amount of any such tax (excluding tax on net income) that Value Plastics may be required to collect or pay upon the sale or delivery of the Products. All prices are, and all payments shall be made, in US dollars.

5. PAYMENT TERMS. Value Plastics accepts checks, wire transfers, MasterCard, Visa or American Express and open account invoicing (upon completion and execution of a credit agreement satisfactory to Value Plastics). Unless prepaid or otherwise stated on the quote, invoice or order confirmation, payment terms for sales of Products are net 30 days after the date of Value Plastics' invoice. Buyer shall make all payments irrespective of whether Buyer has made or may make any inspection of any Product. Value Plastics may cancel or reschedule deliveries of products if Buyer fails to make any payment when due. Value Plastics' rights under this section shall be in addition to all other rights and remedies available to Value Plastics upon Buyer's default. Buyer shall be liable for all expenses attendant to collection of past due amounts, including attorney's fees.

6. FORCE MAJEURE. Value Plastics shall not be liable for any delays in the delivery of orders, due in whole or in part, directly or indirectly, to fire, act of God, strike, shortage of raw materials, supplies or components, retooling, upgrading of technology, delays of carriers, embargo, government order or directive, or any other circumstance beyond Value Plastics' reasonable control.

7. DELIVERY TERMS. Unless otherwise stated on a quote, if any, (a) all domestic deliveries shall be made F.O.B. Value Plastics' factory in Fort Collins, Colorado, USA and risk of loss of such Products shall transfer to Buyer upon delivery to the freight carrier; and (b) all international deliveries shall be made Ex Works Value Plastics' factory (Incoterms 2000), and, unless otherwise stated in a quote, if any, Value Plastics shall present the Products to the carrier, and risk of loss of such Products shall transfer to Buyer upon presentation. Orders for stocked product are usually shipped within 48 hours of receipt unless express delivery is specified. Value Plastics will attempt to meet the requirements of Buyer's delivery schedule and Value Plastics shall not be in default of performance due to a delay of reasonable duration resulting from any cause. Buyer shall pay, or reimburse Value Plastics for, all amounts due for import and export licenses and permits, custom charges and duties, penalties, freight, insurance and other shipping expenses. Unless otherwise instructed, selection of carrier and routing of all shipments shall be at Value Plastics' discretion. Shipment dates for export sales are approximate and are subject to receipt of all necessary Buyer information, and all necessary licenses, permits and other documents. A variation in the quantity of any Products which are especially made-to-order not to exceed plus or minus ten percent (10%) of the amount agreed upon will be considered to be in compliance with the agreement of the parties.

8. INSPECTION AND ACCEPTANCE. Buyer must inspect delivered Products and report claims for any damages or shortages in writing within ten (10) days of delivery or the Products shall be deemed irrevocably accepted and such claims shall be deemed waived, except as provided in Section 10. In the event of source inspection by Buyer, Value Plastics reserves the right to designate the place within the plant where inspection may be performed and to deny access to areas and processes considered proprietary to Value Plastics.

9. TITLE. Title to the Products shall stay with Value Plastics until Value Plastics receives payment in full for such Products. Buyer hereby recognizes that Value Plastics retains all right, title and interest in (a) all intellectual property rights in and to the Products; (b) all processes, methods, formula, ingredients, designs, procedures and other practices used by Value Plastics or relating to the manufacture and sale of the Products, including all intellectual property rights therein; and (c) all of Value Plastics' equipment and tooling used in the manufacture and sale of the Products, including all intellectual property rights therein, (collectively "Value Plastics Technology"). Buyer hereby assigns to Value Plastics all right (including intellectual property rights), title and interest it may now or hereafter possess in and to the Value Plastics Technology and in any derivative works of and improvements to the Products and agrees to execute all documents, and take all actions, that may be necessary to effect such assignment. Value Plastics is under no obligation to disclose any of the Value Plastics Technology to Buyer for any reason.

10. LIMITED WARRANTY AND REMEDIES. Value Plastics warrants to Buyer that the Products shall be free from defects in materials and workmanship. Any claims for breach of the foregoing warranty shall only be valid if Buyer makes such claim within sixty (60) days of the date of shipment of

the Product to which the claim relates, or such shorter period specified on a quote, if any, by notifying Value Plastics Sales Department in writing and obtaining a Return Material Authorization Number for the return of the Products (which is to be referenced on all return shipping documents). Buyer's exclusive remedy and Value Plastics' sole liability for any breach of the foregoing warranty shall be for Value Plastics, at Value Plastics' sole option, to repair, replace or modify the defective Product, or refund to Buyer the purchase price paid by Buyer for the defective Product. The warranty service shall be performed at Value Plastics' factory. In order to receive the warranty service, Buyer must return the defective Product within 30 days of notification from Buyer hereunder. All warranty claims will be handled pursuant to Value Plastics' standard RMA procedures. If Value Plastics determines that the original Products were not defective, Buyer shall reimburse Value Plastics all costs of handling, transportation and repairs at Value Plastics' prevailing rates. All defective Products returned under this warranty which are replaced or for which a refund is given to Buyer shall become Value Plastics property. **THE WARRANTY SET FORTH IN THIS SECTION 10 IS IN LIEU OF ALL OTHER WARRANTIES AND VALUE PLASTICS HEREBY EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, INFRINGEMENT AND FITNESS FOR PARTICULAR USE.** Any repair or attempt to repair Products by anyone other than an authorized representative of Value Plastics automatically voids any warranty on those Products. Value Plastics' parts are not intended for human implantation or use in aircraft applications. Buyer may request free samples for testing and evaluation.

11. INDEMNIFICATION. Buyer shall indemnify and hold harmless Value Plastics from all losses, claims, damages, expenses or liabilities of any kind (including attorney's fees and court costs) resulting from or arising out of any use by Buyer of the Products.

12. LIMITATIONS ON LIABILITY. Value Plastics shall not be liable for any loss or damage caused by delay in furnishing the Products. **UNDER NO CIRCUMSTANCES SHALL VALUE PLASTICS BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, COLLATERAL, SPECIAL, PUNITIVE, TREBLE, EXEMPLARY OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS OR GOODWILL) WHETHER SUCH CLAIM IS BASED ON CONTRACT, NEGLIGENCE, TORT, WARRANTY OR ANY OTHER BASIS UNDER OR AS A RESULT OF THIS CONTRACT OR THE PRODUCTS, IRRESPECTIVE OF WHETHER VALUE PLASTICS HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH LOSS OR DAMAGE. IN NO EVENT SHALL VALUE PLASTICS' AGGREGATE LIABILITY UNDER OR AS A RESULT OF THIS CONTRACT EXCEED THE TOTAL AMOUNTS ACTUALLY PAID BY BUYER FOR THE PRODUCTS PURCHASED UNDER THIS CONTRACT.** The parties agree that the limitations on liability set forth in this Contract are independent of any exclusive or limited remedies, and shall survive and apply even if such remedies are found to have failed of their essential purpose. No action, regardless of form, arising out of the transactions under this Contract may be brought by Buyer more than 1 year after the events which gave rise to the cause of action occurred.

13. TERMINATION/CANCELLATION. Value Plastics may terminate this Contract or orders placed hereunder with notice to Buyer if (a) Buyer fails to pay when due any sums payable hereunder and such failure continues for ten (10) days after the due date or (b) Buyer materially breaches its obligations hereunder, other than the payment of money, and such breach continues for a period of twenty (20) days after receipt by Buyer of written notice from Value Plastics specifying such breach. Buyer may not cancel all or any portion of an order for which Products have been shipped.

14. PROPRIETARY INFORMATION. Value Plastics Products are components designed and manufactured to specifications developed, maintained, and controlled by Value Plastics. For the purpose of processing orders, Value Plastics requires no proprietary information from Buyer, and specifically requests that buyers refrain from including any information that may be considered proprietary. Buyer agrees that all non-public information furnished to Buyer by Value Plastics, including any variations in pricing from Value Plastics' standard prices for Products, is proprietary to Value Plastics and such information shall be held in confidence and shall not be used or disclosed by Buyer without Value Plastics' prior written consent. Buyer shall enforce against its employees and agents these obligations of confidentiality.

15. INSTALLMENT. Value Plastics' failure to deliver, or nonconformity of, any installment under any installment agreement with, or blanket order from, Buyer shall not be a breach of this entire Contract.

16. EXPORT REGULATIONS; PERMITS. Buyer will comply with the provisions of the United States Government's Export Administration regulations and related documentation requirements and internal control procedures. Buyer shall be responsible for obtaining any necessary export or import licenses and permits.

17. APPLICABLE LAW; VENUE. This Contract shall be governed by and construed in accordance with the internal laws (and not the laws of conflicts) of the State of Colorado. The parties expressly waive the application of the United Nations Convention on Contracts for the International Sale of Goods to this Contract. Any action at law, suit in equity, or judicial proceeding of any kind arising directly, indirectly, or otherwise in connection with, out of, related to or from this Contract or the relationship between the parties shall be litigated only in the state or federal courts located in the City and County of Denver, Colorado and the parties waive any right they may have to challenge the jurisdiction of this court or seek to bring any action in any other forum, whether originally or by transfer, removal, or change of venue. The losing party in a lawsuit shall pay its own and the prevailing party's attorney's fees and expenses.

18. MISCELLANEOUS. This Contract and any other agreement or document entered into by the parties which incorporate these Terms and Conditions by reference, constitute the final, complete, exclusive and entire agreement between the parties and supersede all prior or contemporaneous agreements, written or oral, regarding the subject matter of this Contract. The failure of Value Plastics to enforce at any time any of the provisions of this Contract shall not be construed to be a waiver of such provisions nor the right of Value Plastics to enforce such provisions in the future. Buyer may not assign any rights under this Contract or this Contract in whole or in part without the prior written consent of Value Plastics. Any prohibited assignment shall be null and void. This Contract shall inure to the benefit of successors in interest and permitted assigns. Value Plastics may subcontract any of its obligations hereunder. If any provision of this Contract is found to be invalid or unenforceable in any respect, the validity and enforceability of the remaining provisions shall not be affected. The parties may only modify this Contract in a writing signed by both parties.