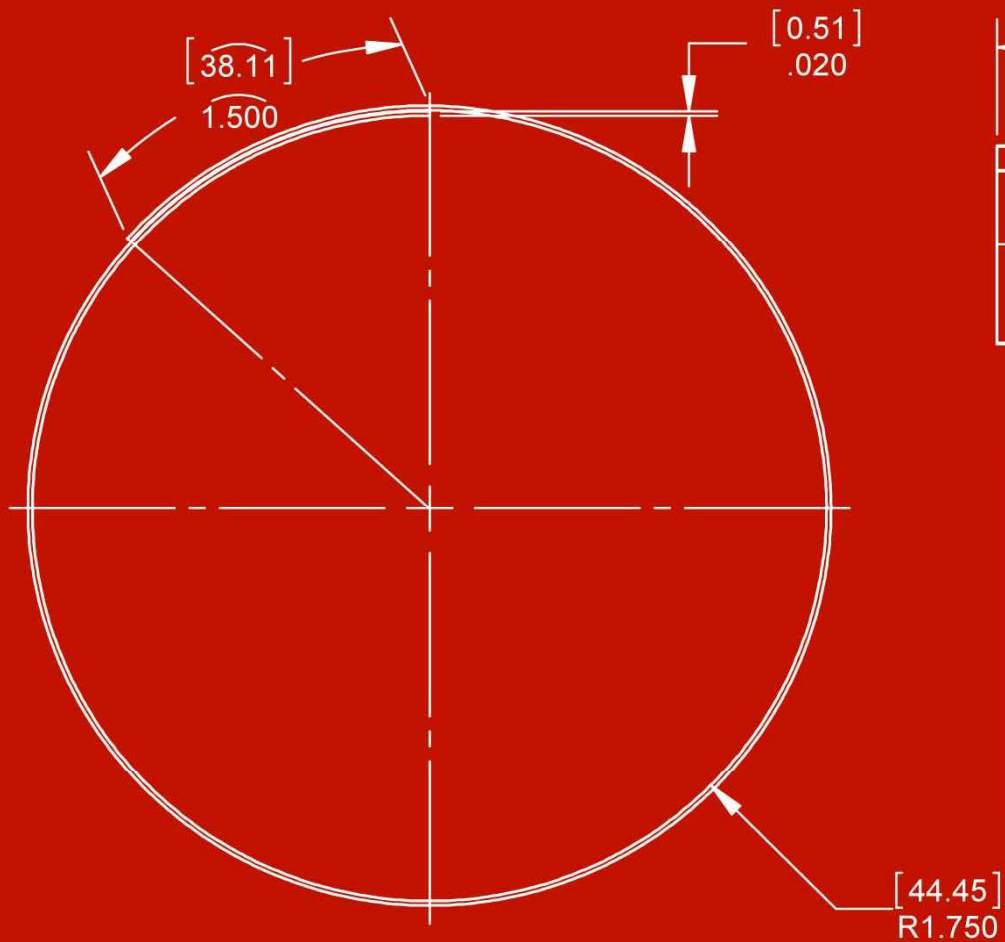


SMC Industries, Inc.





SMC Industries, Inc.



PVC Product Literature

CUT & CURLED PVC JACKETING

Years of Experience

SMC has more than twenty-five years of efficient and high quality Cut & Curled PVC Jacketing experience.

Quality Product

SMC only uses Proto Corporation PVC products. Since Proto Corporation's inception in 1980, their mission has remained the same: to create superior products, deliver outstanding service, and remain unmatched in product innovation.



Proper Sizing

Under or over curled Cut & Curled PVC Jacketing is not a problem. SMC has a full line of graduated tube sizes. Each piece is curled in the proper diameter tube.

Limited Dust Attraction

Every 'Tube' of Cut & Curled PVC Jacketing is wrapped with Kraft paper to minimize dust attraction and keep the product clean.

Order Any Quantity

Material can be ordered in any 4' increment. Full carton quantities are **NOT** required.

Quick Response Time

SMC maintain a large stock of .020" LoSMOKE® Cut & Curled PVC Jacketing. Most orders are available to ship within 24 hours.

Convenient Pickup & Freight Free Shipping Programs

All Cut & Curled PVC Jacketing can be picked up or shipped from our location in Malvern, Pennsylvania. Any of SMC's freight free programs can be customized to fit specific needs.

Detailed Labeling System

Each 'Tube' of Cut & Curled PVC Jacketing is labeled with the size and quantity of pieces per tube. Custom tagging of tubes, boxes, and pallets is available upon request.





PVC JACKETING SYSTEMS

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Terms & Conditions

All prices are subject to change without prior notice

All prices F.O.B. Malvern, Pennsylvania 19355

Standard Payment Terms: ½% Ten Days/Net 30 Days from date of invoice, add 2% per month after 30 days

Warranty & Disclaimer

The information herein is accurate and reliable to the best of SMC Industries, Inc.'s knowledge. But, because SMC Industries, Inc. has no control over our products once they leave our plant, no representation or warranty, expressed or implied, either as to **Merchantability** or **Fitness for a particular purpose** is made as to the performance or results of an installation containing our product which extend the description on the face hereof. If the products otherwise fail to conform to the representations made herein, through no fault of the purchaser, purchaser's exclusive remedy and SMC Industries, Inc.'s sole liability, shall at SMC Industries, Inc.'s options, be the repair or replacement of the nonconforming products or parts thereof, F.O.B. our nearest shipping point. The warranty expires one year from date of purchase. **In no event shall SMC Industries, Inc. be responsible or liable for any incidental, special or consequential damages, which might result from product failure.**

Returns & Allowances

SMC Industries, Inc. considers most material to be specialty items, therefore returns will not be accepted. However, SMC Industries, Inc. will examine each return request on a case by case basis and may allow some material to be returned. No returns of products will be accepted without prior written approval. Where returns are authorized due to causes for which SMC Industries, Inc. is responsible, SMC Industries, Inc. will assume all charges and the full purchase price will be credited. When returns are made for convenience of the purchaser at his/her request and these are approved in advance, in writing, by SMC Industries, Inc., such products returned to the shipping points will be credited at the purchase price less all freight charges, including stopover charges absorbed by SMC Industries, Inc. on the original shipment to the purchaser and full freight charges on the return. SMC Industries, Inc. will also charge for handling and reconditioning. Credit will be based upon the quantity received at SMC Industries, Inc. shipping point in resale condition, as determined by SMC Industries, Inc., plus a 20% restocking charge.

Delayed/Cancelled/Modified Purchase Orders

Due to our limited shipping and staging areas in both our Malvern, PA and Houston, TX facilities, the following terms and conditions will pertain all PVC orders valued at \$2,500 USD or greater. If an order is reduced or cancelled in full, a 20% restocking charge will be applied to all material which was produced specifically for the cancelled/reduced order. Any material which is deemed 'non-stock' will be charged a 100% restocking fee. No restocking fee will be charged for material which was pulled from inventory, or had yet to be pulled. Orders which are delayed more than 10 business days, at the customers request, will be subject to the following detention fee schedule.

Delay Date	Weekly Detention Fee
Within 1 week of ship date	1.25%/week of value of material currently ready to ship (detention fee valuation)
Within 2 weeks of ship date	0.625%/week of value of material currently ready to ship (detention fee valuation)
Prior to 2 weeks of ship date	No detention charges will be incurred

Charges will be incurred starting the day of original ship date. Weekly charges will be incurred at the end of the business day, on the Friday of each week. SMC Industries, Inc., reserves the right to steal material from a delayed order, when and if possible, to fill other open orders. Stealing will allow SMC Industries, Inc. to minimize the floor space of a delayed order. In return, the value of any material stolen will be reduced from value of the delayed order, thus reducing the weekly detention fee incurred. Detention fees will continue to be incurred until the value of material ready to ship falls below \$2,500 USD. All production on the delayed orders will be halted until a new ship date is determined. Only after a release date is determined will any sizes, which require production, be rescheduled. SMC Industries, Inc. will make every attempt to meet this new ship date, but material which requires production will be scheduled as if the purchase order had just been received.

Replacement Materials

SMC Industries, Inc. will replace, at no charge to the customer, any and all incorrect or damaged material deemed to be the fault of SMC Industries, Inc. SMC Industries, Inc. will ship such material by the same or equal freight method as the original shipment. SMC Industries, Inc. will not be responsible for any expedited freight expenses.

Title

Title to the products shall remain SMC Industries, Inc.'s until paid in full by the purchaser. However, risk of loss shall vest in the purchaser at the time of delivery of the products to the carrier.



PVC Cut & Curled Jacketing Price List (per LF*)

Jacket O.D. Inches **	.020" LoSMOKE® Plain	.020" LoSMOKE® with SSL	.030" LoSMOKE® Plain	.030" LoSMOKE® with SSL
2.0	\$ 0.94	\$ 1.24	\$ 1.72	\$ 2.09
2.5	\$ 1.03	\$ 1.33	\$ 1.86	\$ 2.24
3.0	\$ 1.13	\$ 1.43	\$ 1.71	\$ 2.08
3.5	\$ 1.27	\$ 1.57	\$ 1.89	\$ 2.27
4.0	\$ 1.38	\$ 1.68	\$ 2.07	\$ 2.45
4.5	\$ 1.49	\$ 1.79	\$ 2.23	\$ 2.60
5.0	\$ 1.59	\$ 1.89	\$ 2.38	\$ 2.75
5.5	\$ 1.72	\$ 2.02	\$ 2.55	\$ 2.93
6.0	\$ 1.82	\$ 2.12	\$ 2.75	\$ 3.13
6.5	\$ 1.91	\$ 2.21	\$ 2.96	\$ 3.34
7.0	\$ 2.00	\$ 2.30	\$ 3.12	\$ 3.50
7.5	\$ 2.09	\$ 2.39	\$ 3.27	\$ 3.64
8.0	\$ 2.17	\$ 2.47	\$ 3.46	\$ 3.84
8.5	\$ 2.24	\$ 2.54	\$ 3.61	\$ 3.98
9.0	\$ 2.43	\$ 2.73	\$ 3.82	\$ 4.20
9.5	\$ 2.50	\$ 2.80	\$ 3.97	\$ 4.34
10.0	\$ 2.74	\$ 3.04	\$ 4.13	\$ 4.50
10.5	\$ 2.81	\$ 3.11	\$ 4.32	\$ 4.70
11.0	\$ 2.93	\$ 3.23	\$ 4.46	\$ 4.84
11.5	\$ 3.01	\$ 3.31	\$ 4.65	\$ 5.03
12.0	\$ 3.22	\$ 3.52	\$ 4.76	\$ 5.14
12.5	\$ 3.31	\$ 3.61	\$ 4.96	\$ 5.34
14.0	\$ 3.53	\$ 3.83	\$ 5.38	\$ 5.76
15.0	\$ 3.81	\$ 4.11	\$ 5.61	\$ 5.99
16.0	\$ 3.98	\$ 4.28	\$ 5.79	\$ 6.17
17.0	\$ 4.36	\$ 4.66	\$ 6.16	\$ 6.54
18.0	\$ 4.57	\$ 4.87	\$ 6.47	\$ 6.85
19.0	\$ 4.81	\$ 5.11	\$ 6.77	\$ 7.15
20.0	\$ 5.08	\$ 5.38	\$ 7.08	\$ 7.46
21.0	\$ 5.37	\$ 5.67	\$ 7.39	\$ 7.76
22.0	\$ 5.71	\$ 6.01	\$ 7.69	\$ 8.07
23.0	\$ 5.95	\$ 6.25	\$ 8.01	\$ 8.39
24.0	\$ 6.10	\$ 6.40	\$ 8.45	\$ 8.83
25.0	\$ 6.25	\$ 6.55	\$ 8.76	\$ 9.13
26.0	\$ 6.71	\$ 7.01	\$ 9.06	\$ 9.44
27.0	\$ 6.96	\$ 7.26	\$ 9.37	\$ 9.75
28.0	\$ 7.25	\$ 7.55	\$ 9.67	\$ 10.05
29.0	\$ 7.41	\$ 7.71	\$ 9.98	\$ 10.36
30.0	\$ 7.62	\$ 7.92	\$ 10.29	\$ 10.66

* All SMC Industries Cut & Curled Jacketing is sold in 4' increments. All quotations and/or orders quantities will be rounded up to the nearest 4' increment.

** All SMC PVC Cut & Curled Jacketing is cut to ASTM dimensional standards



PVC Cut & Curled Jacketing Packaging Data*

Jacket O.D. Inches	Tubes per Carton	.020" Plain & SSL			.030" Plain & SSL		
		Pieces per Tube	LF per Carton	Weight per Carton	Pieces per Tube	LF per Carton	Weight per Carton
2.0	25	3	300	31.2	2	200	31.2
2.5	16	3	192	24.9	3	192	36.3
3.0	9	5	180	25.7	4	144	30.5
3.5	9	5	180	30.2	4	144	35.9
4.0	5	7	140	26.7	5	100	28.5
4.5	5	7	140	29.5	5	100	31.5
5.0	4	8	128	29.6	6	96	33.0
5.5	4	8	128	32.5	6	96	36.3
6.0	2	10	80	22.5	8	64	26.6
6.5	2	10	80	24.9	8	64	29.5
7.0	2	10	80	26.1	8	64	30.9
7.5	2	10	80	27.9	8	64	33.1
8.0	1	12	48	18.4	12	48	26.5
8.5	1	12	48	19.5	12	48	28.3
9.0	1	12	48	20.3	12	48	29.3
9.5	1	12	48	21.5	12	48	31.1
10.0	1	14	56	25.5	12	48	32.1
10.5	1	14	56	27.1	12	48	34.3
11.0	1	14	56	27.7	10	40	29.5
11.5	1	14	56	29.4	10	40	31.3
12.0	1	12	48	25.9	10	40	31.9
12.5	1	12	48	27.3	10	40	33.6
14.0	1	12	48	29.7	8	32	29.7
15.0	1	12	48	31.9	8	32	31.9
16.0	1	10	40	28.5	8	32	33.8
17.0	1	10	40	30.0	6	24	27.2
18.0	1	10	40	31.6	6	24	28.7
19.0	1	10	40	33.2	6	24	30.1
20.0	1	8	32	28.2	6	24	31.5
21.0	1	8	32	29.5	6	24	32.9
22.0	1	8	32	30.7	6	24	34.3
23.0	1	8	32	32.0	6	24	35.7
24.0	1	8	32	33.2	4	16	25.5
25.0	1	8	32	34.5	4	16	26.4
26.0	1	6	24	27.3	4	16	27.3
27.0	1	6	24	28.3	4	16	28.3
28.0	1	6	24	29.2	4	16	29.2
29.0	1	6	24	30.3	4	16	30.2
30.0	1	6	24	31.2	4	16	31.1

* The chart above represents standard packaging in 10 ½ X 10 ½ X 48 boxes. Please refer to the *General Packaging Data* page for detailed box and shipping information.



PVC Cut & Curled Jacketing Sizing/Conversion Charts

Iron Pipe Sizes

Iron Pipe NPS	NOMINAL INSULATION THICKNESS							
	1/2"	1"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
3/8"	2.0	3.0	3.5					
1/2"	2.0	3.0	4.0	5.0	6.5	7.5	8.5	9.5
3/4"	2.0	3.0	4.0	5.0	6.5	7.5	8.5	9.5
1"	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
1-1/4"	3.0	3.5	*	5.5	6.5	7.5	8.5	9.5
1-1/2"	3.0	4.0	5.0	6.5	7.5	8.5	9.5	10.5
2"	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
2-1/2"	4.0	5.0	6.5	7.5	8.5	9.5	10.5	11.5
3"	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5
3-1/2"	5.0	6.5	7.5	8.5	9.5	10.5	11.5	12.5
4"	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5
4-1/2"	6.0	7.5	8.5	9.5	10.5	11.5	12.5	14.0
5"	6.5	7.5	8.5	9.5	10.5	11.5	12.5	14.0
6"	7.5	8.5	9.5	10.5	11.5	12.5	14.0	15.0
7"	8.5	9.5	10.5	11.5	12.5	14.0	15.0	16.0
8"	9.5	10.5	11.5	12.5	14.0	15.0	16.0	17.0
9"	10.5	11.5	12.5	14.0	15.0	16.0	17.0	18.0
10"	11.5	12.5	14.0	15.0	16.0	17.0	18.0	19.0
11"	12.5	14.0	15.0	16.0	17.0	18.0	19.0	20.0
12"	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0
14"	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
15"	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0
16"	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0
17"	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
18"	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
19"	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0
20"	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0
21"	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0
22"	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0
23"	24.0	25.0	26.0	27.0	28.0	29.0	30.0	
24"	25.0	26.0	27.0	28.0	29.0	30.0		
25"	26.0	27.0	28.0	29.0	30.0			

Number/ OD/ SMC Conversion

Proto Jacket Number	O.D. Inches	SMC Size
2	1-5/8"	2.0
3	1-7/8"	2.0
4	2-1/8"	2.5
5	2-3/8"	2.5
6	2-5/8"	3.0
7	2-7/8"	3.0
8	3-1/8"	3.5
9	3-1/2"	3.5
10	4"	4.0
11	4-1/2"	4.5
12	5"	5.0
13	5-9/16"	5.5
14	6-1/8"	6.0
15	6-5/8"	6.5
16	7-1/8"	7.0
17	7-5/8"	7.5
18	8-5/8"	8.5
19	9-5/8"	9.5
20	10-3/4"	10.5
21	11-3/4"	11.5
22	12-3/4"	12.5
23	14"	14.0
24	15"	15.0
25	16"	16.0
26	17"	17.0
27	18"	18.0
28	19"	19.0
29	20"	20.0
30	21"	21.0
31	22"	22.0
32	23"	23.0
33	24"	24.0
34	25"	25.0
35	26"	26.0
36	27"	27.0
37	28"	28.0
38	29"	29.0
39	30"	30.0

Copper Tubing Sizes

Copper Tubing	NOMINAL INSULATION THICKNESS							
	1/2"	1"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
1/2"	2.0	2.5	3.5	4.5	5.5	6.5		
5/8"	2.0	3.0	3.5	4.5	5.5	6.5	7.5	8.5
7/8"	2.0	3.0	4.0	5.0	6.0	7.5	8.5	9.5
1-1/8"	2.0	3.0	4.0	5.0	6.5	7.5	8.5	9.5
1-3/8"	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
1-5/8"	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
2-1/8"	3.0	4.0	5.0	6.0	7.5	8.5	9.5	10.5
2-5/8"	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
3-1/8"	4.0	5.0	6.5	7.5	8.5	9.5	10.5	11.5
3-5/8"	5.0	5.5	6.5	7.5	8.5	9.5	10.5	11.5
4-1/8"	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5
5-1/8"	6.5	7.5	8.5	9.5	10.5	11.5	12.5	14.0
6-1/8"	7.5	8.5	9.5	10.5	11.5	12.5	14.0	15.0

Cut & Curled Overlap

Min OD	Max OD	SMC Overlap
2.0	6.0	1-1/2"
6.5	14.0	2"
15.0+		2-1/2"

* Please consult the insulation manufacturer / fabricator for recommended size.



General Packaging & Shipping Data

Carton Dimensions

Carton	Length	Width	Height	Ft ³	per Pallet
A	17" (43.2 cm)	17" (43.2 cm)	12 ½" (31.8 cm)	1.97	35
B	17" (43.2 cm)	17" (43.2 cm)	25" (63.6 cm)	3.86	18
C	20" (50.8 cm)	26 ½" (67.3 cm)	21" (53.3 cm)	6.50	12
D	24" (61.0 cm)	30 ½" (77.5 cm)	24 ½" (62.2 cm)	10.80	6
E	26 ½" (67.3 cm)	34 ½" (87.6 cm)	30" (76.2 cm)	15.70	4
Q	26 ½" (67.3 cm)	34 ½" (87.6 cm)	21" (53.3 cm)	10.75	6
10 ½ X 10 ½	10 ½" (26.7 cm)	10 ½" (26.7 cm)	48" (121.9 cm)	3.06	12
7 X 7	7" (17.8 cm)	7" (17.8 cm)	48" (121.9 cm)	1.36	25

Shipping Methods

Will Call / Hot Shot Shipments: All Will Call and Hot Shot orders will be available for pickup during normal shipping hours unless arranged in advance. Will Call and Hot Shot shipments will be loose loaded unless specifically requested ahead of time. A \$10.00 handling fee will be charged per pallet.

United Parcel Service Shipments: Only carton types A, B, C, D, 10 ½ X 10 ½, and 7 X 7 may ship via UPS. B, C, D, and 10 ½ X 10 ½ cartons are subject to dimensional weight standards, and ship at a minimum of 30 lbs. (B and C cartons) or 70 lbs. (D Cartons) for Ground Service. All A, B, C, D, 7 X 7, and 10 ½ X 10 ½ cartons are subject to dimensional weight standards when shipping 3 Day Select®, 2nd Day Air®, and Next Day Air®. Please contact the factory for a freight quote for these services. In addition to the actual freight costs, a \$5.00 handling fee per carton will be charged for all UPS shipments.

Less Than Truckload (LTL) Shipments: All SMC PVC will ship at Class 55, Item 156830, Sub 1. All paperwork and pallets will be marked with 'Top Load Only' and 'Do Not Remove From Pallet.' All cartons will be stretch wrapped and securely banded to the pallet. In order to calculate an accurate shipping weight, SMC will use a constant weight of 45 lbs. per pallet plus the weight of the cartons themselves. In addition to the actual freight costs, a \$10.00 handling fee will be charged per pallet.

Full Truckload Shipments: Unless otherwise requested, SMC Industries, Inc. will floor (loose) load all Full Truckload Shipments. SMC Industries, Inc. estimates one 'Full Truckload' as 3,600 cubic feet. Please allow for additional cubic footage due to packaging variations of partial cartons. All orders containing 50 or more cartons will have a cross off sheet included with the packing slip to ease the unloading process. In the cases of multiple order shipments, SMC Industries, Inc. will make every attempt to keep orders grouped together within the truck, but to maximize the utilization of the trailer, SMC Industries, Inc. cannot guarantee that orders will be kept together.

PROTO FITTING COVERS

25/50 RATED
PER ASTM E-84 — LoSMOKE® PVC

SUBMITTAL SHEET

Effective: 05/01/07

Submitted Date: _____

PVC FITTING COVERS, PRE-MOLDED, INSULATED
WHITE GLOSS FINISH — INDOOR OUTDOOR GRADE

DESCRIPTION

The Proto Fitting Cover System consists of one piece and two piece pre-molded high impact LoSMOKE® PVC fitting covers with fiberglass inserts and accessories, which include elbows, tee/valves, end caps, mechanical line couplings, specialty fittings, white and indoor color jacketing, Protop® Tank End Panels, tack fasteners, tapes and specialty items.

APPLICATIONS

The Proto Fitting Cover System is used to insulate mechanical piping systems at fitting locations and provide a PVC jacketing for straight run piping. Both give a quality appearance and have excellent durability.

FEATURES AND BENEFITS

25/50 Rated. All Proto PVC Fittings are made of LoSMOKE® grade PVC. Roll Jacketing is available in either 25/50 rated or regular PVC Grade (not 25/50 rated). The 25/50 products meet fire and smoke safety requirements of federal, state and local building codes.

Excellent Appearance. Bright high-gloss white coloring adds a distinct quality appearance to the system. The standard line of Proto Fitting Covers are made in LoSMOKE® PVC designed for indoor and outdoor use. Virtually all sizes pass 25/50 when made of LoSMOKE® PVC. Colored PVC is manufactured from a LoSMOKE® formula that is suitable for indoor use only.

Easy To Clean. Due to the smooth, high gloss finish on Proto PVC Fittings, the product cleans easily with soap and water. This makes the system ideal for food and drug facilities.

Low Cost Installation. Significant cost savings vs. conventional cement, molded sections, and mitered sections.

Fast and Easy. At fitting locations, wrap the fiberglass insert around the pipe fitting, apply the Proto PVC Fitting over the insert and tack or tape in place. Do not use tacks where a vapor retarder is applied.

Wide Temperature Range. May be used for mechanical piping systems operating from -20°F to +140°F surface temperature of insulation. Variety: LoSMOKE®, Indoor/Outdoor, Exod®, Exotuff®. Proto products are also available in LoSMOKE® Indoor colors. Exod® is CPVC, GOOD TO 225° F.

Long Lasting. Can be used more than once on retrofit projects, general maintenance.

Excellent Thermal Value. K value of .26 at 75°F (.037 W/m °C at 24°C) of fiberglass insert, mean temperature assures better thermal efficiency than conventional cement fittings.

Resistance To Fungi and Bacteria. (ASTM G 21, ASTM G 22) Does not promote growth of fungi or bacteria.

U.V. Resistant. Can be used on indoor or outdoor applications, for both (White) LoSMOKE® PVC and Regular PVC. Extra thick fitting covers should be used outdoors. (All Std. Proto Fitting covers are made of LoSMOKE® PVC.)

TECHNICAL PHYSICAL PROPERTIES OF PVC LoSMOKE® MATERIALS

Specific Gravity (ASTM D-792)1.41
Tensile Modulus, PSI (ASTM D-638)361,000 (25,380 kg/cm²)
Tensile Strength, PSI (ASTM D-638)6,011

PROTO REGULAR PVC LoSMOKE® PVC JACKETING

PROTO CORP.

10500 47th Street North
Clearwater, FL 33762-5017
Tel: (727) 573-4665
Fax: (727) 572-6823
Toll Free (800) 875-7768

SUBMITTAL SHEET DOES NOT SUPERCEDE WRITTEN
SPECIFICATIONS OR OWNER AGREEMENT.

Flexural Strength, PSI (ASTM D-790)9,396
Izod Impact (1/4") ft. lb./in (ASTM D-256)3.7
Heat Deflection Temp. (ASTM D-648)157°F (70°C)
at 264 PSI (8.95 kg/cm²), °F
VICAT Softening Temp. (ASTM D-1525)198°F (92°C)

Water Vapor Transmission

ASTM E 96-95

70°F & 50% Relative Humidity

.015" thick = .058

.020" thick = .047

.030" thick = .027

Surface Burning Characteristics of All Fitting Covers and Jacketing
LoSMOKE® PVCpasses 25/50 ASTM-E 84
Up to .035" Thk.

Puncture Resistance (ASTM D 781) .. .006" thick = 178 Beach Units
.015" thick = 221 Beach Units

FEDERAL SPECIFICATIONS COMPLIANCE— POLY VINYL CHLORIDE — ASTM 1784-92

LP-1035A Type II Grade GU and Type III

LP-535E Type II Grade GU and Type III

United States Department of Agriculture Authorized
Agriculture Canada Authorized

New York City MEA 243-84-M, Chicago, Los Angeles ASTM
C-585-76 (sizes)

Canada CAN/CGSB - 51.53-95

TECHNICAL PROPERTIES OF FIBERGLASS INSERT MATERIAL

Thermal Conductivity (ASTM C 177)

Mean Temperature — °F	"k" — BTU in./hr. Ft.2 °F
HH-I-558 Form B 75° 1(24°C)	.26 (.037 W/m. °C)
Type 1 Class B 150° 1(66°C)	.33 (.048 W/m. °C)
250° (121°C)	.44 (.063 W/m. °C)

APPLICATION AND SPECIFICATION GUIDELINES

A. STORAGE

Protect cartons from water damage or other abuse. Proto Fitting Cover cartons are not designed for outside storage.

B. PREPARATION

Proto Fitting Covers should be applied on clean, dry surfaces.

C. APPLICATION

1. **General:** The matching fiberglass insert shall be wrapped completely around the metal fitting leaving no voids. Loose wrappings of twine is helpful in shaping difficult surfaces. The Proto Fitting Cover shall then be applied over the fitting and insert, and the throat secured by either tack fastening or taping.

2. **Cold Pipe:** Fitting systems below ambient temperature must have a continuous vapor retarder or vapor retardant mastic as specified by the engineer. When using Proto PVC Tape, a 2" (51mm) minimum downward overlap is recommended for optimum performance. Care should be taken not to stretch the last 2" (51mm) of Proto PVC Tape, to avoid stretching or creeping.

3. **Hot Pipe:** Insulate as per General Instructions given above. Due to PVC softening point at approximately 159°F (70.6°C), care should be taken to ensure sufficient insulation thicknesses are applied.

For hot piping which requires Pipe Insulation over 1 1/2" (38 mm) wall thickness, an extra fiberglass insert shall be applied for each additional inch of pipe insulation wall thickness. Proto recommends the surface temperature of the Pipe Insulation and PVC to be no higher than 125°F (52°C). To complete application of Proto PVC Fittings on hot piping, the throat seam shall be tack fastened or taped. Seal all laps outdoors and in wash down areas.

CAUTION: During initial heat-up to operating temperatures above 350°F (177°C) an acrid odor and some smoke may be given off as a portion of the bonding material used in the insulation begins to undergo a controlled decomposition. If natural convection is not adequate in confined areas, forced ventilation should be provided in order to protect against any harmful fumes and vapors that might be generated.

4. Outdoor Pipe: Insulate as per above instructions.

Minimum Proto PVC Jacketing thickness for outdoor applications should be .030" (.7 mm). Over 15" O.D., .040 is recommended. Under 3 1/8" O.D., .020 is permitted. The PVC Jacketing shall be overlapped a minimum of 2" (51 mm) on the down side so as to shed water. All long and round joints shall be completely weather sealed with caulk adhesive.

On all piping, insulation shall be of sufficient thickness to keep the surface temperature below 125°F (52°C). Additionally, a slip type expansion joint of 8" (202 mm) minimum width shall be applied at least every 25 lineal feet (6.1 lineal meters) and between fittings.

Painting: Painting must be done only after priming the PVC surface with a suitable primer, such as X-1-M 400W Primer, or a similar, approved product.

Outdoor Painting: Only over White Exotuff® 195°F deflection temp. (modified PVC) or EXOD™ 225°F deflection temp. CPVC after X-1-M primer, or a similar, approved product. Use PVC compatible paints without strong solvents. Test paint a section before proceeding.

5. CAUTION: Fiberglass may cause temporary skin irritation. Wear long-sleeved, loose-fitting clothing, head covering, gloves and eye protection when handling and applying material. Wash with soap and warm water after handling. Wash work clothes separately and rinse washer. A disposable mask designed for nuisance type dusts should be used where sensitivity to dust and airborne particles may cause irritation to the nose or throat.

D. HEAVY INDUSTRIAL APPLICATIONS OUTDOORS

Use .030" or higher PVC Jacketing. Use "heavy duty" two piece fitting covers made from minimum .030" thick to .050" thick PVC sheet depending on size of fitting cover. Jacketing to be cut and oven precured

E. FIRE TEST RESULTS: PROTO LoSMOKE® — PVC

USA: E-84 25/50 Rated up to .035" thick (The Best Rated PVC)

CANADA: Conforms to CAN 4-S102.2

LoSMOKE® fitting covers conform to virtually all city, state and federal codes, for use in hotel, commercial and industrial buildings.

LoSMOKE® fitting covers will be labeled on the box "Passes ASTM E-84." Flame spread 25; smoke developed 50".

All E-84 ratings shown here were tested on flat sheets from which fitting covers are made.

Virtually all Proto LoSMOKE® fitting covers will pass E-84 25/50 flame spread and smoke development rating requirements.

SUGGESTIONS

Slide Joints: Do not apply PVC Jacketing too tightly. Slide joints plus PVC thickness must work together to prevent cracks and puckering.

Caulk/Adhesives:

Use: Celulon® (Red Devil Inc.) water base "Ultra Clear".

Service temp. -25°F to +175°F

PVC Cement: Avoid use if possible. Heavy application can cause puckering and cracks. Learn how to use it sparingly.

Vapor Retarder: A vapor retarder is required under all fitting covers for systems operating below ambient temperatures, such as chilled water lines, and is recommended for all outdoor applications. The fitting vapor retarder should provide a continuous seal with the adjacent pipe vapor retarder.

Outdoor Fitting Covers: Use extra thick, plastic heavy duty covers.

Outdoor and Indoor Washdown Areas: Use EXOD™ (CPVC) by Proto, for its higher deflection temperature (225°F). It is light grey.

PVC Outdoor Thickness (Reg. PVC Jacketing): Use .030" thick cut and oven precured jacketing. Use "heavy duty" plastic fitting covers formed from minimum .030" to .050" thick PVC sheet depending on size of fitting cover. On pipe insulation larger than 15" O.D. use .040" thick PVC.

PVC Indoor Thickness: Use white or indoor color LoSMOKE® on piping. Use .020" thick with standard one piece fitting cover, .030" jacketing can also be used.

Vessels and Tank Tops: Use .050" or .060" thick tank panels for outdoor applications and .030" or .040" for indoor tanks. Use .050" thick Protop® segments for tank heads. (Only Proto Corp. has them.) Made of LoSMOKE® PVC.

Pipe Insulation End Caps: Use on all outdoor, indoor washdown areas, and all vapor sealed systems. End caps will be PVC, metal, or gasket materials appropriate for the metal pipe temperatures. Silicone rubber (500°F) can be applied (min. 1/16" thick) as an end cap outdoors.

Indoor hot piping need not be sealed to the end cap. Cap will be sealed or taped to the jacket.

Two-Ply Waterproofing System: Use .010" thick PVC with self-sealing long lap tape, as the first waterproof layer. Overlap ends 3" and PVC tape over. Caulk all openings with Celulon® or similar, approved product. The finished jacketing material should employ staggered joints with at least a .010 mil thick first layer. Recaulk again over last layer. Install slide joints every 25', caulk shut all other seams, openings, or end overlaps with PVC tape or caulk. Use vapor seal jacketing (instead of .010" thick PVC first layer) where a vapor seal system is required.

CPVC-High Chemical Resistance and High Deflection Temperature:

Use "Exod™" CPVC jacketing and fitting covers for 225°F deflection temperature and maximum chemical resistance. Offered only by Proto Corp. as a substitute for stainless steel.

Regular PVC Jacketing Outdoors: Use regular PVC jacketing outdoors. It is less expensive, does the same job as LoSMOKE® PVC. Regular PVC has very good fire (self-extinguishing) properties — not as good as the LoSMOKE® PVC used in confined people areas (buildings), however much better than common plastics used outdoors.

Vessels with ends 24" O.D. or larger: Use .040" thick jacketing up to 48" O.D. On sides of vessels larger than 48" O.D. See Protop® brochure for instructions requiring a suspended band system, to hang panels from, (Gerrard & Company or equal). Use thick PVC panels on Outdoor Tanks not PVC Roll Jacketing. See Tank Tops above for end segments.

PROTO **PVC**
CORP™

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The physical and chemical properties of Proto Corp. PVC represent typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread rating is not intended to reflect hazards presented by this or any other materials under actual fire conditions. Check with Proto Corp. office to assure current information. Purchaser will be responsible to determine suitability of this product for purchaser's use. Proto Corp. liability will be limited to the purchase price of the material. No person is authorized to alter this without a Proto Corp. officer's written approval.



Safety Data Sheet Proto Corporation

Section 1 – Product and Company Information

Product Name: Proto ® PVC Fitting Covers and Jacketing

Proto Corporation
10500 47th Street North
Clearwater, FL 33762

Emergency Telephone Number:

CHEMTREC: 800-424-9300 or 1-703-741-5500

Customer Information:

800-875-7768

Section 3 – Composition and Information on Ingredients

General Product Description:

Thermoformed plastic fitting covers of varying shapes and sizes, including jacketing.

Section 4 – First Aid Measures

First Aid – Inhalation:

None Required

First Aid – Skin:

None Required

First Aid – Ingestion:

None Required

First Aid – Eyes:

None Required

First Aid – Ears:

None Required

Section 5 – Firefighting Measures

Flash Point: Not applicable

Upper Flammable Limit (UFL): Not applicable

Auto Ignition: Not determined

Rate of Burning: Not determined

General Fire Hazards:

There is no potential for spontaneous fire or explosion. If exposed to fire, product may melt and drops of molten product may cause burns.

Extinguishing Media:

Carbon Dioxide (CO₂), Dry Chemical

Fire Fighting Equipment/Instructions:

No special procedures are expected to be necessary for this product. Normal firefighting procedures should be followed to avoid inhalation of smoke and gases.

Method Used: Not applicable

Lower Flammable Limit (LFL): Not applicable

Flammability Classification: Not determined

Section 6 – Accidental Release Measures

Clean-Up Procedures

Vacuum up dusts.

Section 7 – Handling and Storage

Handling Procedure

Handle in accordance with good industrial hygiene and safety practices.

Storage Procedures

Warehouse storage should be in accordance with packaging directions. Material should be kept dry and in original packaging.

Section 8 – Exposure Controls and Personal Protective Equipment

A: Component Exposure Limits:

This material has no components listed.

B: Personal Protective Equipment:

- i. **Personal Protective Equipment: Eyes and Face**
None required
Personal Protective Equipment: Ears
None required
- ii. **Personal Protective Equipment: Skin**
None required
- iii. **Personal Protective Equipment: Respiratory**
None required
- iv. **Ventilation:**
None required
- v. **Personal Protective Equipment: General**
None required

Section 9 – Physical/Chemical Properties

Appearance: Thermoformed plastic fitting covers
of varying colors shapes and sizes,
including jacketing.

Odor: No Odor

Physical State: Solid

Vapor Pressure: Not determined

Boiling Point: Not determined

Solubility (H₂O): Nil

Freezing Point: Not applicable

Percent Volatile: 0

pH: Not determined

Vapor Density: Not determined

Melting Point: Not determined

Specific Gravity: Variable

Evaporation Rate: Not applicable

VOC: Not determined

Section 10 – Stability and Reactivity Information

Stability

These products are not reactive.

Hazardous Decomposition

This product will not decompose at temperatures > 300°C. May form carbon dioxide and carbon monoxide.

Hazardous Polymerization

Will not occur.

Section 11 – Toxicological Information

Acute Toxicity

A. General Product Information

If dust evolves from this product during use, it may cause temporary mechanical irritation or scratchiness of the throat and/or itching of the eyes and skin.

B. Component Analysis

This material has no components listed.

Section 12 – Ecological Information

Ecotoxicity

A. General Product Information

No data available for this product.

B. Component Analysis – Ecotoxicity – Aquatic Toxicity

This material has no components listed.

Section 13 – Disposal Considerations

US EPA Waste Number and Description

A. General Product Information

This product is not expected to be a hazardous waste when it is disposed of according to the U.S Environmental Protection Agency (EPA) under Resource Conservation and Recovery (RCRA) regulations. Product characterization after use is recommended to ensure proper disposal under Federal and/or State requirements.

B. Component Waste Numbers

This material has no component listed.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

Section 14– Transport Information

International Transport Regulations

These products are not classified as dangerous goods according to international transport regulations.

Section 15 – Regulatory Information

US Federal Regulations

A. General Information

SARA 311/312. The product is not classified as hazardous under SARA 311/312

B. Component Analysis

This material has no components listed.

State Regulations

A. General Product Information

Other State regulation may apply. Check individual state requirements.

Component Analysis - State

This material has no components listed.

B. TSCA Status

This material has no components listed.

International Regulations

A. General Information

These products are considered articles under both U.S and international product regulations and, as such, these products do not require registration or notification on the various country-specific inventories.

B. Component Analysis – WHMIS IDL

This material has no components listed.

WHMIS Classification

This is not a WHMIS controlled product. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations. This SDS contains all the information required by the Controlled Products Regulations.

Section 16 – Other Information

Other Information

Prepared by:

Proto Corporation

10500 47th Street North

Clearwater, FL 33762

This SDS document is written and published by Proto Corporation to conform to OSHA standard CFR29 1910 and conforms to GHS guidelines.

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State, Provincial or local laws.