

Section 15. Sleeving Products



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Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

Ex-Flex

Construction: Available in AWG sizes #24 through 3/4" I.D.

Insulation: Fiberglass Sleeving (Saturated). **Jacket:** Heat Treated, Fray-Resistant.

Features:

Prevent end fray and increase ease of handling.

Applications:

Most assembly operations and for high temperature operations.

Product Specifications – Ben-Har™ Ex-Flex

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	36007924XX	0.027	0.020
22	0.027	0.69	36007922XX	0.032	0.025
20	0.034	0.86	36007920XX	0.039	0.032
18	0.042	1.07	36007918XX	0.049	0.040
16	0.053	1.35	36007916XX	0.061	0.051
14	0.074	1.88	36007914XX	0.072	0.064
12	0.091	2.31	36007912XX	0.089	0.081
11	0.095	2.41	36007911XX	0.101	0.091
10	0.106	2.69	36007910XX	0.112	0.102
9	0.118	3.00	36007909XX	0.124	0.114
8	0.133	3.38	36007908XX	0.141	0.129
7	0.148	3.76	36007907XX	0.158	0.144
6	0.166	4.22	36007906XX	0.178	0.162
5	0.186	4.72	36007905XX	0.198	0.182
4	0.208	5.28	36007904XX	0.224	0.204
3	0.234	5.94	36007903XX	0.249	0.229
2	0.263	6.68	36007902XX	0.278	0.258
1	0.294	7.47	36007901XX	0.311	0.289
0	0.330	8.38	36007900XX	0.347	0.325
3/8"	0.375	9.52	36007010XX	0.399	0.375
7/16"	0.438	11.12	36007011XX	0.462	0.438
1/2"	0.500	12.70	36007013XX	0.524	0.500
5/8"	0.625	15.87	36007016XX	0.655	.0625
3/4"	0.750	19.05	36007019XX	0.786	0.750

XX = Color Code

*UL Recognized Component for sizes up to 3/4"

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94



Technical Data: VW-1



Temperature:
• Rated to 240°C+ Class C



Rated Voltage: NA



Color Code:
01-Natural, 03-Black



Approvals:
• UL Recognized Component for sizes up to 3/4", ASTM D-350, ASTM D-372, NEMA TF-1, VW-1 sizes up to 3/4"

Check out our complete inventory of products at www.lapptannehill.com

Sleeving Products

Ex-Flex 1500

Construction: Available in AWG sizes 20-3/8".

Insulation: Fiberglass Sleeving. **Jacket:** Heat Treated, Fray-Resistant Fiberglass Sleeving.

Features:

Prevent end fray and increase ease of handling.

Applications:

Most assembly operations and for high temperature applications where ordinary film varnish and impregnants cannot be used.

Additional Information:

Ben-Har™ Ex-Flex is a braided fiberglass sleeving which is heat treated and saturated to prevent end fray and increase ease of handling. This product was developed to meet end fray resistance needs of most assembly operations and for high temperature applications where ordinary film varnish and impregnants cannot be used.



Product Specifications – Ben-Har™ Ex-Flex 1500

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
20	0.034	0.86	36006920XX	0.039	0.032
18	0.042	1.07	36006918XX	0.049	0.040
16	0.053	1.35	36006916XX	0.061	0.051
14	0.074	1.88	36006914XX	0.072	0.064
12	0.091	2.31	36006912XX	0.089	0.081
11	0.095	2.41	36006911XX	0.101	0.091
10	0.106	2.69	36006910XX	0.112	0.102
9	0.118	3.00	36006909XX	0.124	0.114
8	0.133	3.38	36006908XX	0.141	0.129
7	0.148	3.76	36006907XX	0.158	0.144
6	0.166	4.22	36006906XX	0.178	0.162
5	0.186	4.72	36006905XX	0.198	0.182
4	0.208	5.28	36006904XX	0.224	0.204
3	0.234	5.94	36006903XX	0.249	0.229
2	0.263	6.68	36006902XX	0.278	0.258
1	0.294	7.47	36006901XX	0.311	0.289
0	0.330	8.38	36006900XX	0.347	0.325
3/8"	0.375	9.52	36006010XX	0.399	0.375

XX = Color Code

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data: VW-1

Temperature:
• Rated to 240°C + Class C

Rated Voltage: NA

Color Code:
01-Natural, 03-Black

Approvals:
• ASTM D-350
• ASTM D-372
• NEMA TF-1

Please contact your sales representative for detailed information at sales@lapptannehill.com

1151-XL-FR1

Construction: Available in AWG sizes 24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Rubber Extrusion Coated.

Features:

Good push back and expandability, excellent flex life and fatigue resistance.

Applications:

Ideal for most applications.

Additional Information:

Ben-Har™ 1151-XL-FR1 is a VW-1 flammability rated silicone rubber coated fiberglass sleeving with outstanding mechanical and electrical properties. The specially formulated extrusion coating makes it ideal for most applications. It exhibits good push back and expandability, excellent flex life and fatigue resistance. This grade A sleeving is rated for a Class H 200C service life.



Product Specifications – Ben-Har™ Ex-Flex 1500

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	3320192409	0.027	0.020
22	0.027	0.69	3320192209	0.032	0.025
20	0.034	0.86	3320192009	0.039	0.032
18	0.042	1.07	3320191809	0.049	0.040
16	0.053	1.35	3320191609	0.061	0.051
14	0.074	1.88	3320191409	0.072	0.064
12	0.091	2.31	3320191209	0.089	0.081
10	0.106	2.69	3320191009	0.112	0.102
9	0.118	3.00	3320190909	0.124	0.114
8	0.133	3.38	3320190809	0.141	0.129
7	0.148	3.76	3320190709	0.158	0.144
6	0.166	4.22	3320190609	0.178	0.162
5	0.186	4.72	3320190509	0.198	0.182
4	0.208	5.28	3320190409	0.224	0.204
3	0.234	5.94	3320190309	0.249	0.229
2	0.263	6.68	3320190209	0.278	0.258
1	0.294	7.47	3320190109	0.311	0.289
0	0.330	8.38	3320190009	0.347	0.325
3/8"	0.375	9.52	3320101009	0.399	0.375
7/16"	0.438	11.12	3320101109	0.462	0.438
1/2"	0.500	12.70	3320101309	0.524	0.500
5/8"	0.625	15.87	3320101609	0.655	.0625
3/4"	0.750	19.05	3320101909	0.786	0.750
7/8"	0.875	22.22	3320102209	0.911	0.875
1"	1.000	25.40	3320102509	1.036	1.000

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data: VW-1

Temperature:
• 200°C Class H

Rated Voltage:
• Grade A 7000V

Color Code:
Brown only

Approvals:
• UL Recognized component,
CSA File #058703,
Mil-I-3190/6-QPL

Complete catalog available online at:
www.lapptannehill.com

Sleeving Products

Acryl A Fully Heat Treated

Construction: Available in AWG sizes 24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Acrylic Resin Coated Fiberglass Sleeving.

Features:

Withstands severe bending without loss of dielectric properties.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ Acryl Fully Heat Treated sleeving is manufactured by coating heat treated braided fiberglass sleeving with a dielectric film of thermosetting polyacrylate resin qualified for Class F (155°C) systems. The tough acrylate film is highly craze resistant and will withstand severe bending without loss of dielectric properties. It is resistant to acids and most organic solvents and compatible with a broad range of wire enamels - acrylic, polyester, polyamide, polyimide, and polyvinylformal. By virtue of crosslinking the acrylate, film will not flow upon application of heat.



Product Specifications – Ben-Har™ Acryl A Fully Heat Treated

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	3010192401	0.027	0.020
22	0.027	0.69	3010192201	0.032	0.025
20	0.034	0.86	3010192001	0.039	0.032
18	0.042	1.07	3010191801	0.049	0.040
16	0.074	1.88	3010191601	0.061	0.051
14	0.091	2.31	3010191401	0.072	0.064
12	0.085	2.16	3010191201	0.089	0.081
11	0.095	2.41	3010191101	0.101	0.091
10	0.106	2.69	3010191001	0.112	0.102
9	0.118	3.00	3010190901	0.124	0.114
8	0.133	3.38	3010190801	0.141	0.129
7	0.148	3.76	3010190701	0.158	0.144
6	0.166	4.22	3010190601	0.178	0.162
5	0.186	4.72	3010190501	0.198	0.182
4	0.208	5.28	3010190401	0.224	0.204
3	0.234	5.94	3010190301	0.249	0.229
2	0.263	6.68	3010190201	0.278	0.258
1	0.294	7.47	3010190101	0.311	0.289
0	0.330	8.38	3010190001	0.347	0.325
3/8"	0.375	9.52	3010101001	0.399	0.375
7/16"	0.438	11.12	3010101101	0.462	0.438
1/2"	0.500	12.70	3010101301	0.524	0.500
5/8"	0.625	15.87	3010101601	0.655	.0625
3/4"	0.750	19.05	3010101901	0.786	0.750
7/8"	0.875	22.22	3010102201	0.911	0.875
1"	1.000	25.40	3010102501	1.036	1.000

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• Rated to 155°C Class F

Rated Voltage: Grade A 7000V

Color Code:
Natural (tan) only

Approvals:
• Mil-E-5272, Mil-T-18057,
NEMA 6, ASTM-D-350,
ASTM D-372, UL1441,
NEMA TF-1

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Acryl Grade A

Construction: Available in AWG sizes 24-2" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Acrylic Resin Coated Fiberglass Sleeving.

Features:

Withstands rough assembly handling, mechanical stress, and resistant to cut through.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ Acryl sleeving is manufactured by coating a lightly heat-treated braided fiberglass sleeving with a dielectric film of thermosetting polyacrylate resin qualified for Class F (155°C) systems. The tough acrylate film is highly craze resistant and will withstand severe bending without loss of dielectric properties. It is resistant to acids and most organic solvents and compatible with a broad range of wire enamels - acrylic, polyester, polyamide, polyimide, and polyvinylformal. By virtue of crosslinking the acrylate, film will not flow upon application of heat.



Product Specifications – Ben-Har™ Acryl Grade A

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	30001924XX	0.027	0.020
22	0.027	0.69	30001922XX	0.032	0.025
20	0.034	0.86	30001920XX	0.039	0.032
18	0.042	1.07	30001918XX	0.049	0.040
16	0.053	1.35	30001916XX	0.061	0.051
14	0.074	1.88	30001914XX	0.072	0.064
12	0.091	2.31	30001912XX	0.089	0.081
11	0.095	2.41	30001911XX	0.101	0.091
10	0.106	2.69	30001910XX	0.112	0.102
9	0.118	3.00	30001909XX	0.124	0.114
8	0.133	3.38	30001908XX	0.141	0.129
7	0.148	3.76	30001907XX	0.158	0.144
6	0.166	4.22	30001906XX	0.178	0.162
5	0.186	4.72	30001905XX	0.198	0.182
4	0.208	5.28	30001904XX	0.224	0.204
3	0.234	5.94	30001903XX	0.249	0.229
2	0.263	6.68	30001902XX	0.278	0.258
1	0.294	7.47	30001901XX	0.311	0.289
0	0.330	8.38	30001900XX	0.347	0.325
3/8"	0.375	9.52	30001010XX	0.399	0.375
7/16"	0.438	11.12	30001011XX	0.462	0.438
1/2"	0.500	12.70	30001013XX	0.524	0.500
5/8"	0.625	15.87	30001016XX	0.655	0.625
3/4"	0.750	19.05	30001019XX	0.786	0.750
7/8"	0.875	22.22	30001022XX	0.911	0.875
1"	1.000	25.40	30001025XX	1.036	1.000
1 1/8"	1.125	28.58	30011029XX		
1 1/4"	1.250	31.75	30011032XX		
1 3/8"	1.375	34.93	30011035XX		
1 1/2"	1.500	38.10	30011038XX		
1 5/8"	1.625	41.28	30011041XX		
1 3/4"	1.750	44.45	30011045XX		
2"	2.000	50.80	30011051XX		

XX = Color Code

Sizes over 1" are available in 36" lengths only

*UL Recognized for sizes up to 1" only

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 155°C Class F

Rated Voltage:
• Grade A 7000V

Color Code:
01 = Natural
03 = Black
04 = Yellow
05 = Red

Approvals:
• CSA File #058703,
Meets Mil-I-3190/3, ASTM D-350,
ASTM D-372, UL1441, NEMA TF-1

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inventory of products at
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Sleeving Products

Acryl Supergrade A+

Construction: Available in AWG sized 24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Acrylic Resin Coated Fiberglass Sleeving.

Features:

Resistant to acids and most organic solvents.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ Acryl sleeving is manufactured by coating a lightly heat-treated braided fiberglass sleeving with a dielectric film of thermosetting polyacrylate resin qualified for Class F (155°C) systems. The tough acrylate film is highly craze resistant and will withstand severe bending without loss of dielectric properties. It is resistant to acids and most organic solvents and compatible with a broad range of wire enamels - acrylic, polyester, polyamide, polyimide, and polyvinylformal. By virtue of crosslinking the acrylate, film will not flow upon application of heat.

Product Specifications – Ben-Har™ Acryl Supergrade A+

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	30010924XX	0.027	0.020
22	0.027	0.69	30010922XX	0.032	0.025
20	0.034	0.86	30010920XX	0.039	0.032
19	0.038	0.96	30010919XX	0.044	0.036
18	0.042	1.07	30010918XX	0.049	0.040
17	0.047	1.19	30010917XX	0.055	0.045
16	0.053	1.35	30010916XX	0.061	0.051
15	0.059	1.50	30010915XX	0.066	0.057
14	0.074	1.88	30010914XX	0.072	0.064
13	0.076	1.93	30010913XX	0.080	0.072
12	0.091	2.31	30010912XX	0.089	0.081
11	0.095	2.41	30010911XX	0.101	0.091
10	0.106	2.69	30010910XX	0.112	0.102
9	0.118	3.00	30010909XX	0.124	0.114
8	0.133	3.38	30010908XX	0.141	0.129
7	0.148	3.76	30010907XX	0.158	0.144
6	0.166	4.22	30010906XX	0.178	0.162
5	0.186	4.72	30010905XX	0.198	0.182
4	0.208	5.28	30010904XX	0.224	0.204
3	0.234	5.94	30010903XX	0.249	0.229
2	0.263	6.68	30010902XX	0.278	0.258
1	0.294	7.47	30010901XX	0.311	0.289
0	0.330	8.38	30010900XX	0.347	0.325
3/8"	0.375	9.52	30010010XX	0.399	0.375
7/16"	0.438	11.12	30010011XX	0.462	0.438
1/2"	0.500	12.70	30010013XX	0.524	0.500
5/8"	0.625	15.87	30010016XX	0.655	.0625
3/4"	0.750	19.05	30010019XX	0.786	0.750
7/8"	0.875	22.22	30010022XX	0.911	0.875
1"	1.000	25.40	30010025XX	1.036	1.000

XX = Color Code

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94



Technical Data:

Temperature:
• Rated to 155°C Class F

Rated Voltage:
Grade A+ 12,500V

Color Code:
04 = Yellow
05 = Red

Approvals:
• ASTM D-350, ASTM D-372, UL1441, NEMA TF-1

Please contact your sales representative for detailed information at sales@lapptannehill.com

Acryl C-2 FR

Construction: Available in AWG sizes 24-5/8" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Flame Retardant Acrylic Resin Coated.

Features:

Resistant to acids, alkalis, organic solvent, and aliphatic hydrocarbons.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ Acryl sleeving is manufactured by coating a lightly heat-treated braided fiberglass sleeving with a dielectric film of thermosetting polyacrylate resin qualified for Class F (155°C) systems. The tough acrylate film is highly craze resistant and will withstand severe bending without loss of dielectric properties. It is resistant to acids and most organic solvents and compatible with a broad range of wire enamels - acrylic, polyester, polyamide, polyimide, and polyvinylformal. By virtue of crosslinking the acrylate, film will not flow upon application of heat.



Product Specifications – Ben-Har™ Acryl Grade A

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	30404924XX	0.027	0.020
22	0.027	0.69	30404922XX	0.032	0.025
20	0.034	0.86	30404920XX	0.039	0.032
18	0.042	1.07	30404918XX	0.049	0.040
16	0.053	1.35	30404916XX	0.061	0.051
14	0.074	1.88	30404914XX	0.072	0.064
12	0.091	2.31	30404912XX	0.089	0.081
11	0.095	2.41	30404911XX	0.101	0.091
10	0.106	2.69	30404910XX	0.112	0.102
9	0.118	3.00	30404909XX	0.124	0.114
8	0.133	3.38	30404908XX	0.141	0.129
7	0.148	3.76	30404907XX	0.158	0.144
6	0.166	4.22	30404906XX	0.178	0.162
5	0.186	4.72	30404905XX	0.198	0.182
4	0.208	5.28	30404904XX	0.224	0.204
3	0.234	5.94	30404903XX	0.249	0.229
2	0.263	6.68	30404902XX	0.278	0.258
1	0.294	7.47	30404901XX	0.311	0.289
0	0.330	8.38	30404900XX	0.347	0.325
3/8"	0.375	9.52	30404010XX	0.399	0.375
1/2"	0.500	12.70	30404013XX	0.524	0.500
5/8"	0.625	15.87	30404016XX	0.655	.0625

XX = Color Code

Sizes over 1" are available in 36" lengths only

*UL Recognized Component for sizes #24 through #0

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 155°C Class F

Rated Voltage:
• Grade C-2 1500V

Color Code:
01 = Natural
03 = Black
04 = Yellow
05 = Red

Approvals:
• ASTM D-350, ASTM D-372,
UL1441, NEMA TF-1, VW-1,
NEMA 6

Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

Sleeving Products

Acryl Grade C

Construction: Available in sizes 24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Acrylic Resin Coated Fiberglass Sleeving.

Features:

Excellent low temperature flexibility.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ Acryl sleeving is manufactured by coating a lightly heat-treated braided fiberglass sleeving with a dielectric film of thermosetting polyacrylate resin qualified for Class F (155°C) systems. The tough acrylate film is highly craze resistant and will withstand severe bending without loss of dielectric properties. It is resistant to acids and most organic solvents and compatible with a broad range of wire enamels - acrylic, polyester, polyamide, polyimide, and polyvinylformal. By virtue of crosslinking the acrylate, film will not flow upon application of heat.



Product Specifications – Ben-Har™ Acryl Grade C

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	30003924XX	0.027	0.020
20	0.034	0.86	30003920XX	0.039	0.032
18	0.042	1.07	30003918XX	0.049	0.040
16	0.053	1.35	30003916XX	0.061	0.051
14	0.074	1.88	30003914XX	0.072	0.064
12	0.091	2.31	30003912XX	0.089	0.081
11	0.095	2.41	30003911XX	0.101	0.091
10	0.106	2.69	30003910XX	0.112	0.102
9	0.118	3.00	30003909XX	0.124	0.114
8	0.133	3.38	30003908XX	0.141	0.129
7	0.148	3.76	30003907XX	0.158	0.144
6	0.166	4.22	30003906XX	0.178	0.162
5	0.186	4.72	30003905XX	0.198	0.182
4	0.208	5.28	30003904XX	0.224	0.204
3	0.234	5.94	30003903XX	0.249	0.229
2	0.263	6.68	30003902XX	0.278	0.258
1	0.294	7.47	30003901XX	0.311	0.289
0	0.330	8.38	30003900XX	0.347	0.325
3/8"	0.375	9.52	30003010XX	0.399	0.375
7/16"	0.438	11.12	30003011XX	0.462	0.438
1/2"	0.500	12.70	30003013XX	0.524	0.500
5/8"	0.625	15.87	30003016XX	0.655	0.625
3/4"	0.750	19.05	30003019XX	0.786	0.750
7/8"	0.875	22.22	30003022XX	0.911	0.875
1"	1.000	25.40	30003025XX	1.036	1.000

XX = Color Code

Sizes over 1" are available in 36" lengths only

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• Rated to 155°C Class F

Rated Voltage:
Grade C 2500 V

Color Code:
01 = Natural
03 = Black
04 = Yellow
05 = Red

Approvals:
• ASTM D-350, ASTM D-373,
UL1441, NEMA TF-1

Complete catalog available online at:
www.lapptannehill.com



1151-FR Grade A

Construction: Available in AWG sizes #24 through 2".

Insulation: Fiberglass Sleeving. **Jacket:** Silicone Rubber Coated Fiberglass Sleeving.

Features:

Excellent low temperature flexibility.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ 1151-FR sleeving is an extremely flexible silicone rubber coated fiberglass sleeving with outstanding flame retardant properties. It is a UL Recognized Component, meeting VW-1 flammability requirements, recommended for Class H (200°C) systems. The special combination of a smooth fiberglass bore and flexible, elastomeric silicone coating allows this sleeving to expand and conform over larger dimensions, assuring a snug fit, permanent placement, and elastic self-fitting on components or terminals. The excellent bond of rubber coating to the braid insures against damage from rough assembly handling.



Product Specifications – Ben-Har™ 1151-FR Grade A

NEMA Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	32001924XX	0.027	0.020
22	0.027	0.69	32001922XX	0.032	0.025
20	0.034	0.86	32001920XX	0.039	0.032
18	0.042	1.07	32001918XX	0.049	0.040
16	0.053	1.35	32001916XX	0.061	0.051
14	0.074	1.88	32001914XX	0.072	0.064
12	0.091	2.31	32001912XX	0.089	0.081
10	0.106	2.69	32001910XX	0.112	0.102
9	0.118	2.10	32001909XX	0.124	0.114
8	0.133	3.38	32001908XX	0.141	0.129
7	0.148	3.76	32001907XX	0.158	0.144
6	0.166	4.22	32001906XX	0.178	0.162
5	0.186	4.72	32001905XX	0.198	0.182
4	0.208	5.28	32001904XX	0.224	0.204
3	0.234	5.94	32001903XX	0.249	0.229
2	0.263	6.68	32001902XX	0.278	0.258
1	0.294	7.47	32001901XX	0.311	0.289
0	0.330	8.38	32001900XX	0.347	0.325
3/8"	0.375	9.52	32001010XX	0.399	0.375
7/16"	0.438	11.12	32001011XX	0.462	0.438
1/2"	0.500	12.70	32001013XX	0.524	0.500
5/8"	0.625	15.87	32001016XX	0.655	0.625
3/4"	0.750	19.05	32001019XX	0.786	0.750
7/8"	0.875	22.22	32001022XX	0.911	0.875
1"	1.000	25.40	32001025XX	1.036	1.000
1 1/4"	1.250	31.75	32001032XX		
1 1/2"	1.500	38.10	32001038XX		
*2"	2.000	50.80	32001051XX		

XX = Color Code

*Sizes not available in white

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 200°C Class H

Rated Voltage:
• Grade A 7000V

Color Code:
02 = White
03 = Black
14 = Red Iron Oxide

Approvals:
• ASTM D-350, ASTM D-372,
UL1441, NEMA TF-1,
CSA File #058703,
Mil-I-3190/6 QPL

Specifications subject to change.
For complete specifications and availability visit
www.lapptannehill.com

Sleeving Products

1151-FR Grade C

Construction: Available in AWG sizes #24 through 1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Silicone Rubber Coated Fiberglass Sleeving

Features:

Sleeving expands and conforms over larger dimensions, assuring a snug fit.

Applications:

Most sleeving applications.

Additional Information:

Ben-Har™ 1151-FR sleeving is an extremely flexible silicone rubber coated fiberglass sleeving with outstanding flame retardant properties. It is a UL Recognized Component meeting VW-1 flammability requirements and is recommended for Class H (200°C) systems. The special combination of a smooth fiberglass bore and flexible, elastomeric silicone coating allows this sleeving to expand and conform over larger dimensions, assuring a snug fit, permanent placement, and elastic self-fitting on components or terminals. The excellent bond of rubber coating to the braid insures against damage from rough assembly handling.



Product Specifications – Ben-Har™ 1151-FR Grade C

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	32003924XX	0.027	0.020
22	0.027	0.69	32003922XX	0.032	0.025
20	0.034	0.86	32003920XX	0.039	0.032
18	0.042	1.07	32003918XX	0.049	0.040
16	0.053	1.35	32003916XX	0.061	0.051
14	0.074	1.88	32003914XX	0.072	0.064
12	0.091	2.31	32003912XX	0.089	0.081
10	0.106	2.69	32003910XX	0.112	0.102
9	0.118	3.00	32003909XX	0.124	0.114
8	0.133	3.38	32003908XX	0.141	0.129
7	0.148	3.76	32003907XX	0.158	0.144
6	0.166	4.22	32003906XX	0.178	0.162
5	0.186	4.72	32003905XX	0.198	0.182
4	0.208	5.28	32003904XX	0.224	0.204
3	0.234	5.94	32003903XX	0.249	0.229
2	0.263	6.68	32003902XX	0.278	0.258
1	0.294	7.47	32003901XX	0.311	0.289
0	0.330	8.38	32003900XX	0.347	0.325
3/8"	0.375	9.52	32003010XX	0.399	0.375
7/16"	0.438	11.12	32003011XX	0.462	0.438
1/2"	0.500	12.70	32003013XX	0.524	0.500
5/8"	0.625	15.87	32003016XX	0.655	.0625
3/4"	0.750	19.05	32003019XX	0.786	0.750
7/8"	0.875	22.22	32003022XX	0.911	0.875
1"	1.000	25.40	32003025XX	1.036	1.000

XX = Color Code

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• Rated to 200°C Class H

Rated Voltage:
Grade C 2500V

Color Code:
01 = Natural
02 = White
03 = Black
14 = Red Iron Oxide

Approvals:
• UL recognized component, meets VW-1, ASTM D-350, ASTM D-372, UL1441, NEMA TF-1

Please contact your sales representative for detailed information at sales@lapptannehill.com

Ben-Har™ 1151-FRB

Construction: Available in Awg sizes 14-1" I.D.

Insulation: Fiberglass sleeving. **Jacket:** Silicone rubber

Features:

Excellent cut-through and abrasion protection for wiring systems.

Applications:

Most sleeving applications.

Additional Information:

Bentley-Harris® Ben-Har 1151-FRB is a rugged, flame-retardant, silicone rubber coated sleeving that provides excellent cut-through and abrasion protection for wiring systems in applications with temperatures ranging from -70°C to 200°C. Because the specially formulated silicone rubber is extrusion coated over the non-combustible fiberglass braid, it results in a reinforced sleeving that is superior to ordinary dip-coated sleeving and unreinforced rubber or plastic tubing.



Performance Data – Ben-Har™ 1151-FRB

Property	Result
Hardness, durometer: ASTM D-2240, shore A	50 +/-5
Tensile strength: ASTM D-412	1300 psi
Elongation: ASTM D-412	450%
Tear resistance: ASTM D624	100 psi
Flammability	Passes FAR Part 25

UL Recognized Component for sizes up to 1"

Product Specification

NEMA Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
14	0.066	1.68	3250191415	0.072	0.064
12	0.085	2.16	3250191215	0.089	0.081
10	0.106	2.69	3250191015	0.112	0.102
9	0.118	3.00	3250190915	0.124	0.114
8	0.133	3.38	3250190815	0.141	0.129
7	0.148	3.76	3250190715	0.158	0.144
6	0.166	4.22	3250190615	0.178	0.162
5	0.186	4.72	3250190515	0.198	0.182
4	0.208	5.28	3250190415	0.224	0.204
3	0.234	5.94	3250190315	0.249	0.229
2	0.263	6.68	3250190215	0.278	0.258
1	0.294	7.47	3250190115	0.311	0.289
0	0.330	8.38	3250190015	0.347	0.325
3/8"	0.375	9.52	3250101015	0.399	0.375
7/16"	0.438	11.12	3250101115	0.462	0.438
1/2"	0.500	12.70	3250101315	0.524	0.500
5/8"	0.625	15.87	3250101615	0.655	.0625
3/4"	0.750	19.05	3250101915	0.786	0.750
7/8"	0.875	22.22	3250102215	0.911	0.875
1"	1.000	25.40	3250102515	1.036	1.000

Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 200°C Class H

Rated Voltage:
• Grade A 7000V

Color Code:
Blue/gray only

Approvals:
• VW-1 sizes up to 1",
FAR Part 25, CSA File #LR58703,
MIL-I-3190/6- QPL, NEMA 5,
UL File recognized

Sleeving Products

1151-HW

Construction: Available in Awg sizes #14-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Extruded Silicone Rubber Coated Fiberglass Sleeving (Heavy Wall).

Features:

The coating allows the inside diameter of the sleeving to expand over wire sizes larger than it's original diameter without coating fracture or end fray.

Applications:

Most sleeving applications.

Additional Information:

Low temperature brittle point below -85C.

Through its unique extrusion process, Ben-Har™ 1151-HW has unique properties unequaled by ordinary dip coated sleeveings. The silicone rubber coating is a tough and integral part of the sleeving, giving Ben-Har™ 1151-HW unsurpassed heat/flex life and protection against production assembly hazards. The coating's formulation design allows the inside diameter of the sleeving to expand over wire sizes larger than its original diameter without coating fracture or end fray, providing the "snug fit" so essential to preventing vibration damage.

Product Specifications – Ben-Har™ 1151-HW

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
14	0.074	1.88	3300691414	0.072	0.064
12	0.091	2.31	3300691214	0.089	0.081
10	0.106	2.69	3300691014	0.112	0.102
9	0.118	3.00	3300690914	0.124	0.114
8	0.133	3.38	3300690814	0.141	0.129
7	0.148	3.76	3300690714	0.158	0.144
6	0.166	4.22	3300690614	0.178	0.162
5	0.186	4.72	3300690514	0.198	0.182
4	0.208	5.28	3300690414	0.224	0.204
3	0.234	5.94	3300690314	0.249	0.229
2	0.263	6.68	3300690214	0.278	0.258
1	0.294	7.47	3300690114	0.311	0.289
0	0.330	8.38	3300690014	0.347	0.325
3/8"	0.375	9.52	3300601014	0.399	0.375
7/16"	0.438	11.12	3300601114	0.462	0.438
1/2"	0.500	12.70	3300601314	0.524	0.500
5/8"	0.625	15.87	3300601614	0.655	.0625
3/4"	0.750	19.05	3300601914	0.786	0.750
7/8"	0.875	22.22	3300602214	0.911	0.875
1"	1.000	25.40	3300602514	1.036	1.000

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94



Technical Data:

 **Temperature:**
• 200°C Class H

 **Rated Voltage:**
15,000V

 **Color Code:**
Red Iron Oxide

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visit our website at: www.lapptannehill.com

1151-XL-200 Grade A

Construction: Available in Awg sizes #24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Silicone Rubber Coated Fiberglass Sleeving.

Features:

Highly resistant to cut through and abrasion.

Applications:

Heavy duty applications.

Additional Information:

Ben-Har™ 1151-XL-200 is a reinforced silicone rubber coated fiberglass sleeving with outstanding mechanical and electrical properties. The specially formulated extrusion coating is highly resistant to cut-through and abrasion, making it ideal for heavy duty applications. It exhibits high tear strength, good push back and expandability, excellent flex life and fatigue resistance. The sleeving is rated for 200°C service life (Class H.)



Product Specifications – Ben-Har™ 1151-XL-200 Grade A

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	33001924XX	0.027	0.020
22	0.027	0.69	33001922XX	0.032	0.025
20	0.034	0.86	33001920XX	0.039	0.032
18	0.042	1.07	33001918XX	0.049	0.040
16	0.053	1.35	33001916XX	0.061	0.051
14	0.074	1.88	33001914XX	0.072	0.064
12	0.091	2.31	33001912XX	0.089	0.081
10	0.106	2.69	33001910XX	0.112	0.102
9	0.118	3.00	33001909XX	0.124	0.114
8	0.133	3.38	33001908XX	0.141	0.129
7	0.148	3.76	33001907XX	0.158	0.144
6	0.166	4.22	33001906XX	0.178	0.162
5	0.186	4.72	33001905XX	0.198	0.182
4	0.208	5.28	33001904XX	0.224	0.204
3	0.234	5.94	33001903XX	0.249	0.229
2	0.263	6.68	33001902XX	0.278	0.258
1	0.294	7.47	33001901XX	0.311	0.289
0	0.330	8.38	33001900XX	0.347	0.325
3/8"	0.375	9.52	33001010XX	0.399	0.375
7/16"	0.438	11.12	33001011XX	0.462	0.438
1/2"	0.500	12.70	33001013XX	0.524	0.500
5/8"	0.625	15.87	33001016XX	0.655	.0625
3/4"	0.750	19.05	33001019XX	0.786	0.750
7/8"	0.875	22.22	33001022XX	0.911	0.875
1"	1.000	25.40	33001025XX	1.036	1.000

XX = Color Code

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:



Temperature:
• 200°C Class H



Rated Voltage:
• Grade A 7,000V



Color Code:
02 = White
03 = Black
12 = Amber/Transparent



Approvals:
• UL recognized component,
CSA File #058703, NEMA 5,
ASTM D-350, ASTM D-372,
UL1441, NEMA TF-1

Complete catalog available online at:
www.lapptannehill.com

Sleeving Products

1151-XL-200 Grade C

Construction: Available in AWG Sizes 24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Extruded Silicone Rubber Coated Fiberglass Sleeving.

Features:

High tear strength, good push back and expandability.

Applications:

To be used where superior mechanical performance and high dielectric strength are needed.

Additional Information:

Ben-Har™ 1151-XL-200 is a reinforced silicone rubber coated fiberglass sleeving with outstanding mechanical and electrical properties. The specially formulated extrusion coating is highly resistant to cut-through and abrasion, making it ideal for heavy duty applications. It exhibits high tear strength, good push back and expandability, excellent flex life and fatigue resistance. The sleeving is rated for 200°C service life (Class H.)



Product Specifications – Ben-Har™ 1151-XL-200 Grade C

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley- Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	33003924XX	0.027	0.020
22	0.027	0.69	33003922XX	0.032	0.025
20	0.034	0.86	33003920XX	0.039	0.032
18	0.042	1.07	33003918XX	0.049	0.040
16	0.053	1.35	33003916XX	0.061	0.051
14	0.074	1.88	33003914XX	0.072	0.064
12	0.091	2.31	33003912XX	0.089	0.081
10	0.106	2.69	33003910XX	0.112	0.102
9	0.118	3.00	33003909XX	0.124	0.114
8	0.133	3.38	33003908XX	0.141	0.129
7	0.148	3.76	33003907XX	0.158	0.144
6	0.166	4.22	33003906XX	0.178	0.162
5	0.186	4.72	33003905XX	0.198	0.182
4	0.208	5.28	33003904XX	0.224	0.204
3	0.234	5.94	33003903XX	0.249	0.229
2	0.263	6.68	33003902XX	0.278	0.258
1	0.294	7.47	33003901XX	0.311	0.289
0	0.330	8.38	33003900XX	0.347	0.325
3/8"	0.375	9.52	33003010XX	0.399	0.375
7/16"	0.438	11.12	33003011XX	0.462	0.438
1/2"	0.500	12.70	33003013XX	0.524	0.500
5/8"	0.625	15.87	33003016XX	0.655	0.625
3/4"	0.750	19.05	33003019XX	0.786	0.750
7/8"	0.875	22.22	33003022XX	0.911	0.875
1"	1.000	25.40	33003025XX	1.036	1.000

XX = Color Code

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 200°C Class H

Rated Voltage:
Grade C 2,500V

Color Code:
02 = White
03 = Black
12 = Amber/Transparent

Approvals:
ASTM D-350, ASTM D-372,
UL1441, NEMA TF-1, NEMA 5,
UL recognized component

Check out our complete inventory of products at
www.lapptannehill.com

1151-XL-240

Construction: Available in AWG sizes #24-1" I.D.

Insulation: Fiberglass Sleeving. **Jacket:** Silicone Rubber Coated Fiberglass Sleeving.

Features:

Ensures a snug fit without installation difficulty or damage to the coating.

Applications:

Quick solution for high temperature insulation needs.

Additional Information:

Ben-Har™ 1151-XL-240 is a unique silicone rubber coated fiberglass sleeving attaining the first UL recognition of a fabric-reinforced sleeving for 240°C service temperatures. By combining a proprietary silicone rubber formulation with an extrusion-coating technique, a significant advance in insulation has been achieved. The operating temperature spectrum has been increased and a significant improvement in mechanical and electrical properties has been realized.



Product Specifications – Ben-Har™ 1151-XL-240

NEM A Size	Nominal Diameter (inches)	Nominal Diameter (mm)	Bentley-Harris Part Number	Maximum Diameter (inches)	Minimum Diameter (inches)
24	0.022	0.56	3310192414	0.027	0.020
22	0.027	0.69	3310192214	0.032	0.025
20	0.034	0.86	3310192014	0.039	0.032
18	0.042	1.07	3310191814	0.049	0.040
16	0.053	1.35	3310191614	0.061	0.051
14	0.074	1.88	3310191414	0.072	0.064
12	0.091	2.31	3310191214	0.089	0.081
10	0.106	2.69	3310191014	0.112	0.102
9	0.118	3.00	3310190914	0.124	0.114
8	0.133	3.38	3310190814	0.141	0.129
7	0.148	3.76	3310190714	0.158	0.144
6	0.166	4.22	3310190614	0.178	0.162
5	0.186	4.72	3310190514	0.198	0.182
4	0.208	5.28	3310190414	0.224	0.204
3	0.234	5.94	3310190314	0.249	0.229
2	0.263	6.68	3310190214	0.278	0.258
1	0.294	7.47	3310190114	0.311	0.289
0	0.330	8.38	3310190014	0.347	0.325
3/8"	0.375	9.52	3310101014	0.399	0.375
7/16"	0.438	11.12	3310101114	0.462	0.438
1/2"	0.500	12.70	3310101314	0.524	0.500
5/8"	0.625	15.87	3310101614	0.655	.0625
3/4"	0.750	19.05	3310101914	0.786	0.750
7/8"	0.875	22.22	3310102214	0.911	0.875
1"	1.000	25.40	3310102514	1.036	1.000

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 240°C Class C

Rated Voltage:
• Grade A 7,000V

Color Code:
Red Iron Oxide

Approvals:
• CSA File #05703, NEMA 5, ASTM D-350, ASTM D-372, TF-1, UL1441

Complete catalog available online at:
www.lapptannehill.com

Sleeving Products

Expando® PT Plus

Construction: Available in AWG size 1/8" through 2-1/2" Nominal I.D.

Insulation: Braided polyester (PET).

Features:

Eliminates the need for hot-knife cutting. Does not trap heat or humidity. Rot-free. Self-extinguishing when used to encase typical non-flammable wires or cables.

Applications:

Used to protect cable assemblies, hoses and wire harnesses from chafing, cutting and abrading. Cost effective.



Performance Data – Expando® PT Plus

Property	Test Method	Value
Filament Diameter		.010"
Melt Temperature	ASTM D-3418	250°C
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Smoke Density	ASTM E-1354	$D_{mc} = 2.05$
Copper Corrosivity	MIL-I-23053	No Effect

Product Specifications – Expando® PT Plus

Nominal Size (in)	Minimum Diameter (in)	Maximum Diameter (in)	Part Number	Typical Weight (lb/ft)	Spool Length (ft)
1/8	3/32	1/4	51010003XX	0.0019	2,000
1/4	1/8	7/16	51010006XX	0.0027	1,000
3/8	1/4	1/2	51010010XX	0.0058	500
1/2	1/4	3/4	51010013XX	0.0078	500
3/4	1/2	1 1/4	51010019XX	0.0130	500
1 1/4	3/4	1 3/4	51010032XX	0.0166	250
1 3/4	1 1/4	2 3/4	51010045XX	0.0272	250
2	1 1/2	3 1/2	51010051XX	0.0332	250
2 1/2	1 3/4	4 1/2	51010064XX	0.0462	250

XX = Color Code

* Expando sleeving products made with the patented "Plus" treatment should not be used in hard vacuum environments nor immersed in solvents or liquids where Plus particulates could contaminate the system environment. Consult Federal-Mogul Systems Protection Group for information on protection products for these applications.

Technical Data:

 **Temperature:**
• 125°C

 **Rated Voltage:**
NA

 **Color Code:**
01 = Natural
03 = Black
04 = Yellow
06 = Blue
08 = Grey
10 = Orange

 **Approvals:**
UL recognized component.
CSA File #LR52852

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Expando® DM

Construction: Dual-monofilament.

Insulation: Nylon (guard) strands with customary resilient polyester (support) strands.

Features:

Highly flexible and resistant to trapping water, heat and humidity

Applications:

Handling, repeated flexing, abrasion, impact or similar hazards indicate a need.

Additional Information:

Bentley-Harris® Expando® products are tough, lightweight oversleeves used to protect cable assemblies, hoses and wire harnesses from chafing, cutting and abrading. The open-weave construction of Expando products enables each size to expand to fit several application shapes and sizes. This open-weave construction also makes them highly flexible and resistant to trapping water, heat and humidity.



Performance Data – Expando® DM

Property	Test Method	Value
Filament Diameter		Nylon .015"
		Polyester .010"
Melt Temperature	ASTM D-3418	Nylon 257°C
		Polyester 250°C
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Smoke Density	ASTM E-1354	D _{mc} = 1.37
Hard Vacuum	ASTM E-595	
TML		1.10%
CVCVM		.01%
WVR		.69%
Copper Corrosivity	MIL-I-23053	No Effect
Fluid Resistance	MIL-I-23053	Tensile Retention
Jet Fuel JP-4 (MIL-T-5624)		98%
Hydraulic Fluid (MIL-H-5606)		99%
Lube Oil (MIL-I-7808)		99%
De-Ice Fluid (MIL-A-8243)		99%
Reference Oil #2 (ASTM D-471)		100%
Salt Water (O-S-1926)		88%

Technical Data:

Temperature:
• 125°C

Rated Voltage:
NA

Color Code:
01 = Natural
03 = Black
04 = Yellow
05 = Red
06 = Blue
08 = Gray
10 = Orange

Approvals:
UL recognized component,
CSA File #LR52852

Product Specifications – Expando® DM

Nominal Size (in)	Minimum Diameter (in)	Maximum Diameter (in)	Part Number	Typical Weight (lb/ft)	Spool Length (ft)
1/8	1/16	1/4	52010003XX	0.0020	2,000
1/4	1/8	1/2	52010006XX	0.0030	1,000
3/8	1/4	1/2	52010010XX	0.0070	500
1/2	1/4	7/8	52010013XX	0.0100	500
3/4	1/2	1 1/4	52010019XX	0.0145	500
1	5/8	2	52010025XX	0.0185	250
1 1/4	3/4	2 1/4	52010032XX	0.0195	250
1 1/2	7/8	2 1/2	52010038XX	0.0250	250
2	1 1/8	3	52010051XX	0.0320	250

XX = Color Code

Specifications subject to change. For complete specifications and availability visit www.lapptannehill.com

Sleeving Products

Expando® FR & Expando® FR Plus

Construction: Available in AWG sizes 3/32-1-3/4".

Insulation: Flame retardant polyester (PET).

Features:

Makes end termination neater and easier.

Applications:

Many applications in the electronics, marine, and general manufacturing industries.

Additional Information:

Expando® FR & Expando® FR Plus are expandable sleeves constructed of flame-retardant polyester (PET) that is designed for applications up to 125°C (257°F). They are UL Recognized Components and meet VW-1 and F.A.R. part 25 flammability requirements. Expando FR Plus balances the properties of mechanical and thermal stability with economy. The patented Bentley-Harris Plus treatment makes end termination neater and easier. The Plus treatment creates a webbing between the filaments of the sleeving to reduce end-fray during installation, allowing Expando FR Plus to be cut with ordinary scissors. This reduces assembly time and eliminates the need for proper ventilation equipment required for hot-knife cutting.



Product Specifications – Expando® FR & Expando® FR Plus

Property	Test Method	Result
Operating Temperature Range		-70°C to +125°C (-94°F to +257°F)
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Flammability	UL 1441	VW-1
Flammability	F.A.R. Part 25	Pass

Technical Data:

 **Temperature:**
• 125°C

 **Rated Voltage:**
NA

Product Specifications

Nominal Size (in)	Minimum Diameter (in)	Maximum Diameter (in)	Part Number Expando FR	Nominal ID mm (In)	Part Number Expando FR Plus	Nominal ID mm (In)	Typical Weight (lb/ft)	Spool Length (ft)
1/8	3/32	1/4	50210003XX	3 (1/8")	51210003XX	3 (1/8")	0.0019	2,000
1/4	1/8	7/16	50210006XX	6 (1/4")	51210006XX	6 (1/4")	0.0027	1,000
3/8	1/4	1/2	50210010XX*	10 (3/8")	51210010XX	10 (3/8")	0.0059	500
1/2	1/4	3/4	50210013XX	13 (1/2")	51210013XX	13 (1/2")	0.0081	500
3/4	1/2	1 1/4	50210019XX	19 (3/4")	51210019XX	19 (3/4")	0.0131	500
1 1/4	3/4	1 3/4	50210032XX	32 (1-1/4")	51210032XX	32 (1-1/4")	0.0167	250
1 3/4	1 1/4	2 3/4	50210045XX	45 (1-3/4")	51210045XX	45 (1-3/4")	0.0273	250
2	1 1/2	3 1/2	50210051XX	51 (2")	51210051XX	51 (2")	0.0333	250
2 1/2	1 3/4	4 1/2	50210064XX	64 (2-1/2")	51210064XX	64 (2-1/2")	0.0463	250

 **Color Code:**
32 = Black with two white tracer strands
23 = White with two black tracer strands

 **Approvals:**
UL recognized component

XX = Color Code

*Expando sleeving products made with the patented "Plus" treatment should not be used in hard vacuum environments nor immersed in solvents or liquids where Plus particulates could contaminate the system environment. Consult Federal-Mogul Systems Protection for information on protection products for these applications.

Check out our complete inventory of products at www.lapptannehill.com

Expando® HR & Expando® HR Plus

Construction: Expandable sleeve constructed of Halar* (E-CTFE) fluoropolymer.

Features:

Special purpose, highly reliable solution for military and aerospace applications.

Applications:

Military and Aerospace applications.

Additional Information:

Expando® HR Plus is an expandable sleeve constructed of Halar* (E-CTFE) fluoropolymer that is designed for applications up to 150°C (302°F). Inherently flame-retardant, it is a UL Recognized Component which meets VW-1 requirements, and will not melt and drip on direct exposure to flame. Expando HR Plus is a special purpose, highly reliable solution for military and aerospace applications. It offers good mechanical properties, performs well in both high and low temperature environments, and has outstanding chemical resistance.



Performance Data – Expando® HR & Expando® HR Plus

Property	Test Method	Value
Filament Diameter		.011"
Melt Temperature	ASTM D-3418	240°C
Low Temperature Flexibility	MIL-DTL-23053D	-70°C
Flammability	UL 1441	VW-1
Smoke Density	ASTM E-662	
	Flaming Mode	Dmax = 7
	Non-Flaming Mode	Dmax = 17
Copper Corrosivity	MIL-I-23053	No Effect

Product Specifications - Expando HR

Description	Recommended diameter range (mm)		Part number	Weight (g/100m)	Packaging (m)
	Min. Ø	Max.Ø			
Expando HR 3	2	6	50110003xxS	402	600
Expando HR 6	3	11	50110006xxS	596	300
Expando HR 13	6	19	50110013xxS	1790	150
Expando HR 19	12	32	50110019xxS	2685	150
Expando HR 32	19	45	50110032xxS	3431	75
Expando HR 45	32	70	50110045xxS	5669	75

Product Specifications - Expando HR Plus

Description	Recommended diameter range (mm)		Part number	Weight (g/100m)	Packaging (m)
	Min. Ø	Max.Ø			
Expando HR + 3	2	6	51110003xxS	402	600
Expando HR + 6	3	11	51110006xxS	596	300
Expando HR + 13	6	19	51110013xxS	1790	150
Expando HR + 19	12	32	51110019xxS	2685	150
Expando HR + 32	19	45	51110032xxS	3431	75
Expando HR + 45	32	70	51110045xxS	5669	75

Part Numbering System

Example :	Description	Size	Color	Quantity
	Expando HR	32	0 (black)	75 m

XX = Color Code

* Expando sleeving products made with the patented "Plus" treatment should not be used in hard vacuum environments nor immersed in solvents or liquids where Plus particulates could contaminate the system environment. Consult Federal-Mogul Systems Protection Group for information on protection products for these applications.

Technical Data:

Temperature:
• 150°C

Rated Voltage:
NA

Color Code:
32 = Black with two white tracer strands
23 = White with two black tracer strands

Approvals:
VW-1 according to UL1441,
F.A.R. Part 25,
UL Recognized Component,
CSA File #LR52852

Sleeving Products

Roundit® PPS

Construction: Available in AWG sizes 1/4" through 1-1/2".

Insulation: Roundit® PPS (polyphenylene sulfide) is an expandable sleeve designed for mechanical protection in high temperatures.

Features:

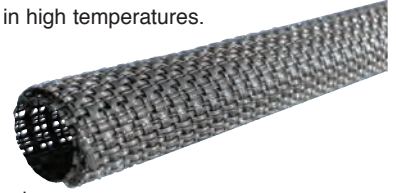
Outstanding properties in extreme environments.

Applications:

Considered for aircraft, space, military, marine, and hostile-environment applications.

Additional Information:

The inherent properties of PPS gives ROUNDIT PPS low levels of flammability, toxicity, smoke generation and hard vacuum offgassing. Because of its high use temperature, ROUNDIT PPS resists damage from high temperature air guns used with heat-shrinkable elements such as strain reliefs, terminations and identification sleeves. Roundit PPS is used in the aerospace industry for its outstanding properties in extreme environments. This product should be considered for aircraft, space, military, marine, and hostile-environment applications.



Performance Data – ROUNDIT® PPS

Property	Test Method	Result
PHYSICAL		
Operating temperature range	EN 6053-302	-60°C to +175°C (-76°F to +347°F)
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Flammability/smoke density/toxicity	031 ABD & FAR 25 § 853	Conforms – no halogen content
MECHANICAL		
Abrasion resistance	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Vibrations	DO 160B	No cable abrasion
Hard Vacuum	ASTM E-595	Meets industry limits
TML		1.0% max
CVCM		0.1% max
CHEMICAL		
Fluid Resistance	MIL-DTL-23053E	
Jet Fuel JP-4 (Otan F44)		Good resistance
Hydraulic Fluid (Skydrol 500 B4)		Good resistance
Mineral Oil (MIL-L-7870A)		Good resistance
Synthetic Oil (MIL-L-23699)		Good resistance
Cleaning Fluids (MIL-L-87936)		Good resistance
De-icing Fluid (MIL-A-8243)		Good resistance
5% NaCl Solution		Good resistance
Mold Growth	EN 6049 Part 306	Pass

Technical Data:



Temperature:
• 175°C



Rated Voltage:
NA



Color Code:
Black



Approvals:
VW-1, BMS 13-52 Type III

Product Specifications

Commercial Part Number	Recommended Application Range mm (in)		Max Weight g/m (lbs/ft)	Standard Packaging m (ft)
	Min Ø	Max Ø		
ROUNDIT PPS 5-0/9	1 (1/32")	5 (3/16")	13.0 (0.009)	150 (492)
ROUNDIT PPS 8-0/9	5 (3/16")	8 (5/16")	17.0 (0.011)	100 (328)
ROUNDIT PPS 13-0/9	8 (5/16")	13 (1/2")	25.0 (0.017)	50 (164)
ROUNDIT PPS 19-0/9	13 (1/2")	19 (3/4")	40.0 (0.027)	25 (82)
ROUNDIT PPS 25-0/9	19 (3/4")	25 (1")	49.0 (0.033)	25 (82)
ROUNDIT PPS 32-0/9	25 (1")	32 (1-1/4")	68.0 (0.046)	25 (82)
ROUNDIT PPS 38-0/9	32 (1-1/4")	38 (1-1/2")	85.0 (0.057)	25 (82)

ROUNDIT PPS is available in sizes from 1/4" to 1-1/2" (5 mm to 38 mm) to cover a wide range of cable and wire diameters.

*A professional assembly tool (Roundit Tool) is available on request for sizes 5, 8, 13 and 19 mm.

All numeric data shows average or typical value.

Complete catalog available online at: www.lapptannehill.com



Expando® PFA

Construction: Available in AWG sizes 1/8" through 1-1/4".

Insulation: Expandable sleeve constructed of PFA (perfluoroalkoxy).

Features:

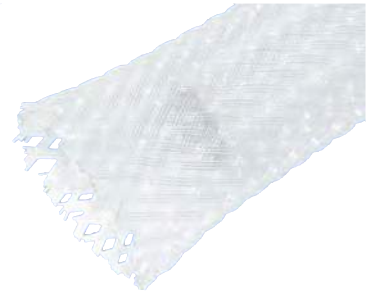
Low flammability and resists damage from most chemicals.

Applications:

Widely used in the aerospace industry for its high temperature capability.

Additional Information:

Expando® PFA is an expandable sleeve constructed of PFA (perfluoroalkoxy) that is designed for applications up to +260°C (+500°F). Expando PFA has low flammability and resists damage from most chemicals. Expando PFA protective oversleeve is widely used in the aerospace industry for its high temperature capability and ability to retain flexibility at low temperatures.



Performance Data – Expando® PFA

Property	Test Method	Value
Filament Diameter		.016"
Melt Temperature	ASTM D-3418	302°C
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Smoke Density	ASTM E-1354	No smoke / No ignition
Hard Vacuum	ASTM E-595	
TML		.08%
CVCM		.01%
WVR		.01%
Fluid Resistance	MIL-I-23053	Tensile Retention
Jet Fuel JP-4 (MIL-T-5624)		88%
Hydraulic Fluid (MIL-H-5606)		94%
Lube Oil (MIL-I-7808)		90%
De-Ice Fluid (MIL-A-8243)		84%
Reference Oil #2 (ASTM D-471)		90%
Salt Water (O-S-1926)		96%

Product Specifications – Expando® PFA

Nominal Size (in)	Maximum Diameter (in)	Part Number	Typical Weight (lb/ft)	Spool Length (ft)
1/8	1/4	5051000301	0.005	2,000
1/4	7/16	5051000601	0.007	1,000
3/8	1/2	5051001001	0.021	500
1/2	3/4	5051001301	0.026	500
3/4	1 1/4	5051001901	0.032	250
1 1/4	1 3/4	5051003201	0.048	250

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 260°C

Rated Voltage:
NA

Color Code:
Natural (milky-white)

Approvals:
BMS 13-52 Type IV,
FAR Part 25

Please contact your sales representative for detailed information at sales@lapptannehill.com

Sleeving Products

Roundit® 2000

Construction: Available in AWG sizes 3/16" through 1-1/2".

Insulation: Woven blend of polyester monofilaments and multifilaments.

Features:

Tough, lightweight oversleeves used to bundle and protect cable assemblies.

Applications:

Aeronautical, marine, electronic, furniture accessory and general manufacturing industries.

Additional Information:

ROUNDIT® 2000 is a woven blend of polyester monofilaments and multifilaments. The monofilament/multifilament blend in a flat weave construction gives ROUNDIT 2000 a rugged yet smooth texture and appearance. This product is rated to 125°C. Roundit has many applications in the aeronautical, marine, electronic, furniture accessory and general manufacturing industries.



Performance Data – Roundit® 2000

Property	Test Method	Value
Filament Diameter		Warp 1250 denier polyester multifilament
		Fill .009" polyester monofilament
Melt Temperature	ASTM D-3418	250°C
Low Temperature Flexibility	MIL-DTL-23053E	-70°C
Smoke Density	ASTM E-662	
	Specific Optical Density @ 1.5 min.	15
	Specific Optical Density @ 4.0 min.	20
Hard Vacuum	ASTM E-595	
TML		.63%
CVCN		.16%
WVR		.06%
Copper Corrosivity	MIL-I-23053	No Effect
Fluid Resistance	MIL-I-23053	Tensile Retention
Jet Fuel JP-4 (MIL-T-5624)		100%
Hydraulic Fluid (MIL-H-5606)		100%
Lube Oil (MIL-I-7808)		100%
De-Ice Fluid (MIL-A-8243)		100%
Reference Oil #2 (ASTM D-471)		100%
Salt Water (O-S-1926)		100%

°C	°F
538	1000
527	980
516	960
504	940
493	920
482	900
471	880
460	860
449	840
438	820
427	800
416	780
404	760
393	740
382	720
371	700
360	680
349	660
338	640
327	620
316	600
304	580
293	560
282	540
271	520
260	500
249	480
238	460
227	440
216	420
204	400
193	380
182	360
171	340
160	320
149	300
138	280
127	260
116	240
104	220
99	210
88	190
77	170
66	150
54	130
43	110
38	100
35	95
30	86
25	77
20	68
15	59
10	50
5	41
0	32
-5	23
-10	14
-15	5
-18	0
-20	-4
-40	-40
-60	-76
-70	-94

Technical Data:

Temperature:
• 125°C

Rated Voltage:
NA

Color Code:
Black

Approvals:
UL recognized component

Product Specifications – Roundit® 2000

Nominal Size (in)	Part Number	Typical Weight (lb/ft)	Feet Per Box*
3/16"	5651000503	0.0070	492 (150 m)
5/16"	5651000803	0.0110	328 (100 m)
1/2"	5651001303	0.0130	164 (50 m)
3/4"	5651001903	0.0200	82 (25 m)
1"	5651002503	0.0240	82 (25 m)
1 1/4"	5651003203	0.0297	49 (15 m)
1 1/2"	5651003803	0.0368	49 (15 m)

Nominal size is determined by wrapping product around a mandrel of a given size to obtain an overlap of between 45° and 135°. Roundit 2000 should be tied at intervals if continuous use temperature exceeds 110°C. * Package sizes are subject to change.



Roundit® 2000 FR

Construction: Available in AWG sizes 3/16" through 1-1/2".

Insulation: Polyester monofilaments and multifilaments.

Features:

Quick and easy installation and removal of the product for assembly and maintenance.

Applications:

Maintenance of wires and cable bundles.

Additional Information:

ROUNDIT® 2000 FR is a wrap-around sleeving manufactured from flame retardant polyester monofilaments and multifilaments and was designed for mechanical protection and maintenance of wires and cable bundles. Its construction allows for 100% coverage while also providing excellent cut-through and abrasion resistance. The self-wrapping feature of ROUNDIT 2000 FR enables quick and easy installation and removal of the product for assembly and maintenance. It can be applied or removed without the need to adjust connectors or fittings and offers an innovative solution in areas where breakouts are necessary.



Performance Data – Roundit® 2000 FR

Property	Test	Result
Operating temperature range		-50°C to +125°C
Oxygen Index	NF EN ISO 4589-2	IO 31.75
Fire resistance	NF 16 101- 16 102 Marine: Surface Material & Floor Coverings with Low Flame-Spread characteristics – Surface Lining	I3 – F2 Zero Halogen Veritas Approved Module B &D
Dynamic cut-through	BS G212	Pass
Smoke density	ASTM E-662	Pass
Surface flammability	ASTM E-162	Pass

Technical Data:

 **Temperature:**
• 125°C

 **Rated Voltage:**
NA

 **Color Code:**
Black with white tracer

 **Approvals:**

Product Specifications – Roundit® 2000 FR

Nominal Size (in)	Part Number	Feet Per Box*
3/16"	5663000532	492 (150 m)
5/16"	5663000832	328 (100 m)
1/2"	5663001332	164 (50 m)
3/4"	5663001932	82 (25 m)
1"	5663002532	82 (25 m)
1 1/4 "	5663003232	82 (25 m)
1 1/2 "	5663003832	82 (25 m)

Nominal size is determined by wrapping the product around a mandrel of a given size to obtain 90 degrees of overlap (average value).

*Package sizes are subject to change.

Please contact your sales representative for detailed information at sales@lapptannehill.com

Sleeving Products

Roundit® 2000 NX

Construction: Available in AWG sizes 1/32" through 1-1/4".

Insulation: Woven combination of Nomex® and PPS (polyphenylene sulfide).

Features:

Rugged yet smooth texture and appearance for high temperature bundling.

Applications:

Ideal for commercial and defense aircraft applications.

Additional Information:

ROUNDIT® 2000 NX is a woven combination of Nomex® and PPS (polyphenylene sulfide). The Nomex/PPS blend in a flat weave construction gives ROUNDIT 2000 NX a rugged yet smooth texture and appearance for high temperature bundling and abrasion resistance. This product is rated to +200°C (+392°F) and is non-halogenated. ROUNDIT 2000 NX is ideal for commercial and defense aircraft applications due to its excellent abrasion resistance and halogen-free qualities.



Performance Data – Roundit® 2000 NX

Property	Test Method	Result
PHYSICAL		
Operating Temperature		-60°C (-76°F) to +200°C (392°F)
Flammability	F.A.R. Part 25 (60 s) F.A.R. Part 25 (12 s)	Pass Pass
Smoke Density	ASTM E-662 (flaming) prEN 2825B (non-flaming)	Pass
Toxicity	BSS7239 + prEN 2826B	Pass
Water Repellency	EN 6059 Part 305	Pass
MECHANICAL		
Abrasion resistance	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Vibration	DO 160B	No damage to cable
CHEMICAL		
Fluid Resistance	EN 6059 Part 303	BMS 13-81 § 8.2
Fuel JP5 Jet A, ASTM D1655	✓	✓ Good resistance
Hydraulic Fluid Skydrol MIL-PRF-5606 MIL-PRF-87257	✓	✓ ✓ ✓ Good resistance
Methyl Propyl Ketone BMS11-9, Grade 1		✓ Good resistance
Isopropyl Alcohol TT-I-735		✓ Good resistance
Synthetic Lubricant MIL-PRF-23699	✓	✓ Good resistance
Mineral Lubricant MIL-L-7870A	✓	Good resistance
De-Icing Fluid MIL-A-8243D	✓	✓ Good resistance
Cleaning Products MIL-C-87937, Type 1 Alkaline Detergent (pH 10.0 - 10.5)	✓	✓ Good resistance
Mold Growth	EN 6059 Part 306	Pass

Technical Data:

Temperature:
• 200°C

Rated Voltage:
NA

Color Code:
Green

Approvals:
ASD EN 6049-006,
BMS 13-81 Type 1,
DMS239 Class 4, Type 4

Product Specifications

Commercial Part Number	Recommended Application Range mm (in)		Max Weight g/m (lbs/ft)	Standard Packaging m (ft)
	Min Ø	Max Ø		
ROUNDIT 2000 NX 5-5	1 (1/32")	5 (3/16")	13 (0.009)	150 (492')
ROUNDIT 2000 NX 8-5	5 (3/16")	8 (5/16")	18 (0.012)	100 (328')
ROUNDIT 2000 NX 13-5	8 (5/16")	13 (1/2")	26 (0.017)	50 (164')
ROUNDIT 2000 NX 16-5	13 (1/2")	16 (5/8")	33 (0.022)	25 (82')
ROUNDIT 2000 NX 19-5	16 (5/8")	19 (3/4")	38 (0.026)	25 (82')
ROUNDIT 2000 NX 25-5	19 (3/4")	25 (1")	47 (0.032)	25 (82')
ROUNDIT 2000 NX 32-5	25 (1")	32 (1-1/4")	65 (0.044)	25 (82')
ROUNDIT 2000 NX 40-5	32 (1-1/4")	40 (1-1/2")	90 (0.060)	25 (82')

Nominal size is determined by wrapping product around a mandrel of a given size to obtain an overlap of between 45 and 135.



Fyrejacket® Aerospace Grade

Construction: Available in AWG sizes 1/8" through 2-1/8".

Insulation: Thickwall braided fiberglass sleeving coated with specially compounded silicone rubber.

Features:

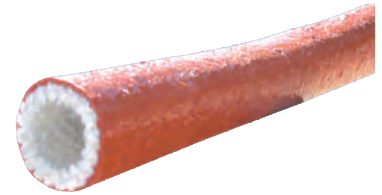
Slides on easily over a variety of cables and hoses.

Applications:

Protect hoses and hose assemblies, tubing, piping, wires, wire assemblies.

Additional Information:

Fyrejacket® Aerospace Grade is a thickwall braided fiberglass sleeving coated with specially compounded silicone rubber. Fyrejacket is intended to slide on easily over a variety of cables and hoses and expand readily to go over fittings and couplings. The specially formulated silicone rubber coating has excellent shedding properties. Fyrejacket is used to protect hoses and hose assemblies, tubing, piping, wires, wire assemblies, and cables from exposure up to 500°F (+260°C) and from molten splash and welding sparks. Aerospace grade Fyrejacket will withstand short term flame exposure to 2000°F (+1093°C) when installed on a hose assembly qualified to SAE Aerospace Standard 1055. Aerospace Fyrejacket is packaged.



Performance Data – Fyrejacket® / Fyretape®

Bentley Harris standard Aerospace Fyrejacket is a Type 2 silicone rubber composite manufactured by coating a fiberglass braided substrate with a specially formulated orange silicone rubber coating. The standard product meets the requirements of SAE Aerospace Standard AS1072 Type 2. Suitable hoses, sleeved with Aerospace Fyrejacket have been tested in accordance with UL 73/SAE 1055 and have allowed some hose manufacturers to meet the following specifications: UL 181, SAE 1055 Class A and B, and FAA standards TSO-C53a and TSO-C75.

Product Specifications – Fyrejacket® Aerospace Grade

Part Number	Nominal Size I.D.	Aerospace Grade BH Spec #	Industrial Grade BH Spec #
-4	1/4"	4001000610S	4002000610F0050
-5	5/16"	4001000810S	4002000810F0050
-6	3/8"	4001001010S	4002001010F0050
-7	7/16"	4001001110S	4002001110F0050
-8	1/2"	4001001310S	4002001310F0050
-9	9/16"	4001001410S	4002001410F0050
-10	5/8"	4001001610S	4002001610F0050
-11	11/16"	4001001810S	4002001810F0050
-12	3/4"	4001001910S	4002001910F0050
-13	13/16"	4001002110S	4002002110F0050
-14	7/8"	4001002210S	4002002210F0050
-15	15/16"	4001002410S	4002002410F0050
-16	1"	4001002510S	4002002510F0050
-18	1-1/8"	4001002910S	4002002910F0050
-20	1-1/4"	4001003210S	4002003210F0050
-22	1-3/8"	4001003510S	4002003510F0050
-24	1-1/2"	4001003810S	4002003810F0050
-26	1-5/8"	4001004110S	4002004110F0050
-28	1-3/4"	4001004510S	4002004510F0050
-30	1-7/8"	4001004810S	4002004810F0050
-32	2"	4001005110S	4002005110F0050
-34	2-1/8"	4001005410S	4002005410F0050

Fyretape BH Spec#
1" 4055302510S
2" 4055305110S
3" 4055307610S
4" 4055310210S
5" 4055312710S
6" 4055315210S

Availability

Bentley-Harris® Fyrejacket is available in inner diameter sizes ranging from 1/4" to 1" in 1/16" increments and from 1" to 4" in 1/8" increments. Standard color is orange.

Fyretape is supplied in 1" to 6" widths in 1" increments and can be supplied on spools or cut to length according to your specifications.

All numeric data shows average or typical values.

Technical Data:

Temperature:
• 260°C

Rated Voltage:
NA

Color Code:
Red-Iron

Approvals:
AS1072 Type 2 (Aero Grade)

Not finding what you are looking for?
Please contact us at sales@lapptannehill.com, or visit our website at: www.lapptannehill.com

Sleeving Products

Therm-L-Lite® FG

Construction: Available in AWG sizes 3/8" through 2-1/2".

Insulation: Flexible, aluminized fiberglass sleeving.

Features:

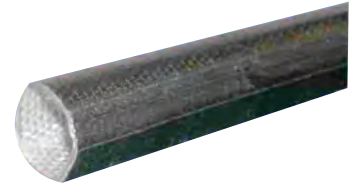
Protects components in high temperature areas.

Applications:

Protects wire harnesses, hoses and pipes from the effects of radiant heat.

Additional Information:

Bentley-Harris® Therm-L-Lite FG is a flexible, aluminized fiberglass sleeving used to protect components in high temperature areas. An aluminized heat-seal film is adhesively bonded to a woven, one-piece fiberglass substrate to produce a seamless barrier to radiant heat. The flexibility of Therm-L-Lite FG allows it to conform easily to complex geometric designs. The smooth outer surface of Therm-L-Lite FG provides component protection from extreme radiated heat as well as abrasion. While designed to protect wire harnesses, hoses and pipes from the effects of radiant heat.



Performance Data – Therm-L-Lite® FG

Property	Test Method	Value
Wall Thickness		.025"
Peel Strength	ASTM D-1876 30-minute immersion at 23 +/- 1°C	1 lb minimum or bond stronger than foil itself
Flammability	ASTM D-4723	Avg. time to flame-out = 24 sec.
Low Temperature Flexibility	BH100-016	-60°C
Thermal Endurance	1" above 1000°F radiant Heat Source (6 hours)	No delamination
Thermal Endurance	Oven soak, 10 hrs at 175°C	No cracking or delamination
Burst Strength	ASTM D-3787	285 pounds
Thermal Performance		See chart below

Technical Data:

Temperature:

Rated Voltage:

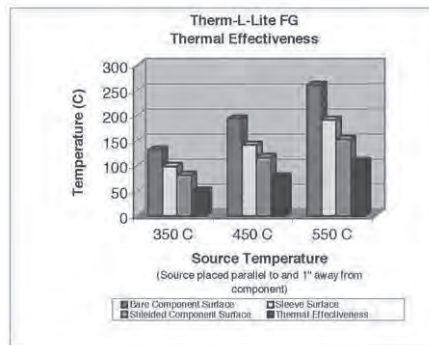
Color Code:

Approvals:

Product Specifications – Therm-L-Lite® FG

Nominal Size (in)	Part Number	Feet Per Spool
3/8"	4033001016	500
1/2"	4033001316	500
5/8"	4033001616	500
3/4"	4033001916	500
7/8"	4033002216	500
1"	4033002516	250
1 1/4"	4033003216	250
1 1/2"	4033003816	250
1 3/4"	4033004516	250
2"	4033005116	125
2 1/2"	4033006416	125

Therm-L-Lite FG is available in spools or lengths cut to your specifications.



Complete catalog available online at: www.lapptannehill.com

