

Bottle Shapes, VG style

• Helashrink 150 Series, with rib

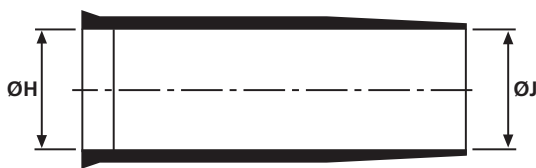
This style is used in conjunction with a circular grooved adaptor, providing strain relief and enviromental sealing. For VG shapes with portholes "P" please refer to product standards tables in the appendix.



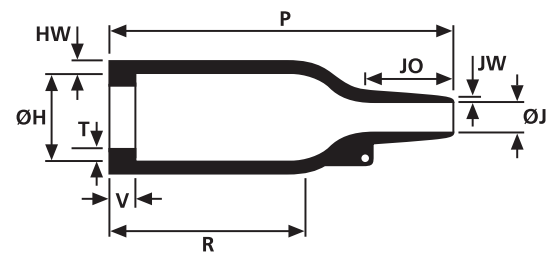
150 Series supplied.



150 Series boot recovered onto a connector.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive selection and other information please refer to page 10.

| Sizes and Type Table | | | | | | | | | | | | |
|----------------------|----------------------------|-----------|-----------|-----------|-----------|---------|---------|----------|----------|----------|---------|---------|
| Type | Designation as per VG-Norm | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | JO ± 10% | HW ± 20% | JW ± 20% | V ± 10% | T ± 20% |
| 152-42 | VG 95343 T06 B 001 A | 24.0 | 10.5 | 24.0 | 6.0 | 38.0 | 21.0 | 10.0 | 1.6 | 0.5 | 3.0 | 1.0 |
| 153-42 | VG 95343 T06 B 002 A | 25.0 | 14.0 | 9.0 | 3.5 | 55.0 | 28.0 | 16.0 | 1.8 | 0.5 | 3.0 | 1.0 |
| 154-42 | VG 95343 T06 B 003 A | 30.0 | 14.0 | 30.0 | 6.0 | 55.0 | 32.0 | 13.0 | 1.8 | 1.0 | 3.0 | 1.0 |
| 155-42 | VG 95343 T06 B 004 A | 31.0 | 18.0 | 31.0 | 7.0 | 67.0 | 35.0 | 18.0 | 1.8 | 1.0 | 3.0 | 1.0 |
| 156-42 | VG 95343 T06 B 005 A | 36.0 | 22.5 | 36.0 | 8.5 | 80.0 | 42.0 | 20.0 | 2.0 | 1.0 | 3.0 | 1.0 |
| 157-43 | VG 95343 T06 C 001 A | 43.0 | 28.0 | 43.0 | 10.0 | 99.0 | 61.0 | 20.0 | 2.2 | 1.0 | 3.0 | 1.7 |
| 158-43 | VG 95343 T06 C 002 A | 60.0 | 35.0 | 60.0 | 16.0 | 130.0 | 72.0 | 38.0 | 3.2 | 1.5 | 3.0 | 1.7 |
| 159-43 | VG 95343 T06 C 003 A | 66.0 | 45.0 | 66.0 | 17.0 | 171.0 | 90.0 | 50.0 | 3.8 | 2.0 | 3.0 | 2.0 |
| 160-43 | VG 95343 T06 C 004 A | 82.0 | 58.0 | 82.0 | 27.0 | 213.0 | 113.0 | 62.0 | 3.8 | 3.8 | 3.0 | 2.0 |
| 152-41 | VG 95343 T06 A 001 A | 24.0 | 10.5 | 24.0 | 6.0 | 26.0 | 9.0 | 10.0 | 1.6 | 0.5 | 3.0 | 1.0 |
| 153-41 | VG 95343 T06 A 002 A | 25.0 | 14.0 | 9.0 | 3.5 | 40.0 | 13.0 | 16.0 | 1.8 | 0.5 | 3.0 | 1.0 |
| 154-41 | VG 95343 T06 A 003 A | 30.0 | 14.0 | 30.0 | 6.0 | 43.0 | 20.0 | 13.0 | 1.8 | 1.0 | 3.0 | 1.0 |
| 155-41 | VG 95343 T06 A 004 A | 31.0 | 18.0 | 31.0 | 7.0 | 47.0 | 15.0 | 18.0 | 1.8 | 1.0 | 3.0 | 1.0 |
| 156-41 | VG 95343 T06 A 005 A | 36.0 | 22.5 | 36.0 | 8.5 | 60.0 | 22.0 | 20.0 | 2.0 | 1.0 | 3.0 | 1.0 |
| 159-41 | VG 95343 T06 A 008 A | 66.0 | 45.0 | 66.0 | 17.0 | 130.0 | 50.0 | 50.0 | 3.8 | 2.0 | 3.0 | 2.0 |
| 157-42 | VG 95343 T06 B 006 A | 43.0 | 28.0 | 43.0 | 10.0 | 79.0 | 41.0 | 20.0 | 2.2 | 1.0 | 3.0 | 1.7 |
| 158-41 | VG 95343 T06 A 007 A | 60.0 | 35.0 | 60.0 | 16.0 | 90.0 | 32.0 | 38.0 | 3.2 | 1.5 | 3.0 | 1.7 |
| 159-41 | VG 95343 T06 A 008 A | 66.0 | 45.0 | 66.0 | 17.0 | 130.0 | 50.0 | 50.0 | 3.8 | 2.0 | 3.0 | 2.0 |
| 159-42 | VG 95343 T06 B 008 A | 66.0 | 45.0 | 66.0 | 17.0 | 150.0 | 70.0 | 50.0 | 3.8 | 2.0 | 3.0 | 2.0 |
| 160-41 | VG 95343 T06 A 009 A | 82.0 | 58.0 | 82.0 | 27.0 | 137.0 | 37.0 | 62.0 | 3.8 | 3.8 | 3.0 | 2.0 |
| 160-42 | VG 95343 T06 B 009 A | 82.0 | 58.0 | 82.0 | 27.0 | 158.0 | 58.0 | 62.0 | 3.8 | 3.8 | 3.0 | 2.0 |

All dimensions in mm. Subject to technical changes.

Bottle Shapes, VG style

- Helashrink 150 Series, with rib



150 Series supplied.



150 Series boot recovered onto a connector.

Combinations "On request"

| Adhesive | Material | | | | |
|------------------|----------|---|---|---|---|
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| W21 | √ | √ | √ | √ | - |
| V9500 | √ | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

Standard combinations

| Article-No. | Type |
|-------------|----------|
| 401-52880 | 152-42-G |
| 401-53880 | 153-42-G |
| 401-54880 | 154-42-G |
| 401-55880 | 155-42-G |
| 401-56880 | 156-42-G |
| 401-57980 | 157-43-G |
| 401-58980 | 158-43-G |
| 401-59980 | 159-43-G |
| 401-60980 | 160-43-G |
| 401-52780 | 152-41-G |
| 401-53780 | 153-41-G |
| 401-54780 | 154-41-G |
| 401-55780 | 155-41-G |
| 401-56780 | 156-41-G |
| 401-59780 | 159-41-G |
| 401-57880 | 157-42-G |
| 401-58780 | 158-41-G |
| 401-59780 | 159-41-G |
| 401-59880 | 159-42-G |
| 401-60780 | 160-41-G |
| 401-60880 | 160-42-G |

Bottle Shapes, MIL style

- Helashrink 100 Series, with rib

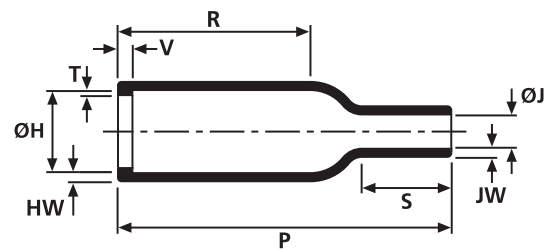
This style is used in conjunction with a circular grooved adaptor providing strain relief and environmental sealing when used in conjunction with one of our complementary adhesives.



104-4 supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

| Sizes and Type Table | | | | | | | | | | | | |
|----------------------|--------------|--------------|--------------|--------------|------------|------------|-------------|-------------|------------|------------|----------|--|
| Type | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | HW ± 20% | JW ± 20% | V ± 10% | T ± 20% | S nom | |
| 1030-4 | 12.0 | 9.8 | 6.0 | 2.0 | 19.0 | 8.0 | 1.0 | 0.5 | 1.5 | 0.5 | 4.6 | |
| 1031-4 | 12.0 | 9.8 | 6.0 | 2.0 | 15.0 | 4.0 | 1.0 | 0.5 | 1.5 | 0.5 | 4.6 | |
| 1037-4 | 9.0 | 5.6 | 9.0 | 2.0 | 19.0 | 9.0 | 1.0 | 0.6 | 1.5 | 0.6 | 4.5 | |
| 1009-1 | 9.0 | 5.6 | 4.0 | 3.2 | 27.0 | 14.0 | 1.0 | 0.5 | 1.6 | 0.9 | 7.5 | |
| 113-4 | 10.7 | 7.9 | 4.6 | 2.0 | 25.4 | 14.5 | 1.3 | 1.0 | 3.0 | 1.0 | 4.6 | |
| 104-4 | 16.5 | 7.9 | 16.5 | 3.8 | 25.4 | 14.2 | 1.3 | 1.3 | 3.0 | 1.0 | 6.9 | |
| 105-4 | 23.4 | 10.4 | 23.4 | 5.6 | 38.1 | 14.2 | 1.5 | 1.5 | 3.0 | 1.0 | 10.2 | |
| 106-4 | 31.0 | 14.2 | 31.0 | 6.6 | 55.4 | 22.9 | 1.8 | 1.8 | 3.0 | 1.0 | 10.2 | |
| 101-4 | 31.0 | 17.8 | 31.0 | 7.1 | 67.0 | 38.1 | 2.0 | 2.0 | 3.0 | 1.0 | 17.8 | |
| 102-4 | 36.1 | 22.4 | 36.1 | 8.4 | 73.7 | 43.2 | 1.8 | 1.8 | 3.0 | 1.0 | 21.0 | |
| 103-4 | 42.7 | 28.2 | 42.7 | 9.9 | 99.1 | 54.0 | 2.0 | 2.0 | 3.0 | 1.7 | 24.0 | |
| 107-4 | 51.9 | 35.1 | 51.9 | 15.8 | 124.5 | 66.0 | 3.1 | 3.1 | 3.0 | 1.7 | 40.6 | |
| 118-4 | 66.0 | 44.4 | 66.0 | 20.3 | 160.5 | 91.4 | 3.8 | 3.8 | 3.0 | 2.0 | 48.3 | |

All dimensions in mm. Subject to technical changes.

For Material / Adhesive selection and other information please refer to page 10.

| Combinations "On request" | | | | | |
|---------------------------|----------|---|---|---|---|
| Adhesive | Material | | | | |
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| W21 | √ | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| V9500 | √ | √ | √ | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

| Standard combinations | |
|-----------------------|----------|
| Article-No. | Type |
| 410-30480 | 1030-4-G |
| 410-31001 | 1031-4-G |
| 410-37001 | 1037-4-G |
| 410-09001 | 1009-1-G |
| 401-13480 | 113-4-G |
| 401-04024 | 104-4-G |
| 401-05034 | 105-4-G |
| 401-06036 | 106-4-G |
| 401-01037 | 101-4-G |
| 401-02031 | 102-4-G |
| 401-03041 | 103-4-G |
| 401-07030 | 107-4-G |
| 401-18018 | 118-4-B7 |

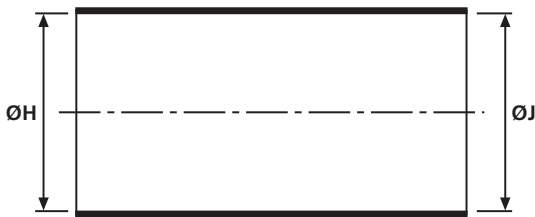
Bottle Shapes

• Helashrink 100 Series, without rib

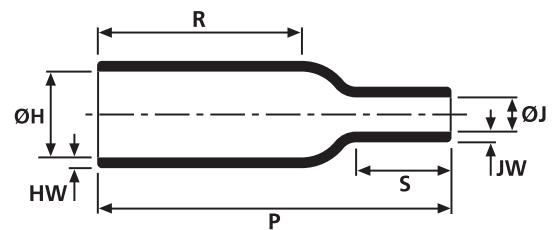
This style provides connector cable strain relief. Can be installed on the connector rear thread or plain shaft and allows easy re-entry for repair when combined with a hot melt adhesive.



109-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

Sizes and Type Table

| Type | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R max. | HW ± 20% | JW ± 30% | S nom |
|--------|--------------|--------------|--------------|--------------|------------|-----------|-------------|-------------|----------|
| 104-1 | 16.5 | 7.9 | 16.5 | 3.8 | 25.4 | 14.2 | 1.3 | 1.3 | 6.9 |
| 104-2 | 10.7 | 7.9 | 8.4 | 3.8 | 25.4 | 14.2 | 1.3 | 1.3 | 6.9 |
| 105-1 | 23.4 | 10.4 | 23.4 | 5.6 | 38.1 | 22.9 | 1.5 | 1.5 | 10.2 |
| 106-1 | 31.0 | 14.2 | 31.0 | 6.6 | 55.4 | 26.5 | 1.8 | 1.8 | 16.5 |
| 106-2 | 19.3 | 14.2 | 14.2 | 6.6 | 55.4 | 26.5 | 1.8 | 1.8 | 16.5 |
| 101-1 | 31.0 | 17.8 | 31.0 | 7.1 | 66.0 | 38.1 | 2.0 | 2.0 | 17.8 |
| 101-2 | 23.9 | 17.8 | 15.5 | 7.1 | 66.0 | 38.1 | 2.0 | 2.0 | 17.8 |
| 102-1 | 36.1 | 22.4 | 36.1 | 8.4 | 73.7 | 43.2 | 1.8 | 1.8 | 17.8 |
| 102-2 | 30.0 | 22.4 | 18.0 | 8.4 | 73.7 | 43.2 | 1.8 | 1.8 | 17.8 |
| 1006-1 | 40.0 | 20.0 | 20.0 | 6.0 | 78.8 | 30.0 | 1.5 | 1.0 | 20.0 |
| 103-1 | 42.7 | 28.2 | 42.7 | 9.9 | 95.5 | 54.0 | 2.0 | 2.0 | 24.0 |
| 103-2 | 37.8 | 28.2 | 21.3 | 9.9 | 95.5 | 54.0 | 2.0 | 2.0 | 24.0 |
| 107-1 | 51.9 | 35.1 | 51.9 | 15.8 | 124.5 | 66.0 | 3.1 | 3.1 | 40.6 |
| 107-2 | 46.9 | 35.1 | 35.6 | 15.8 | 124.5 | 66.0 | 3.1 | 3.1 | 40.6 |
| 118-1 | 66.0 | 44.4 | 66.0 | 20.3 | 150.0 | 80.0 | 3.8 | 3.8 | 48.3 |
| 119-1 | 86.4 | 57.2 | 86.4 | 26.6 | 209.6 | 118.1 | 4.6 | 4.6 | 61.0 |
| 113-1 | 10.7 | 7.9 | 4.6 | 2.0 | 25.4 | 14.5 | 1.3 | 1.0 | 4.6 |
| 113-2 | 21.6 | 7.9 | 5.8 | 2.0 | 25.4 | 14.5 | 1.3 | 1.3 | 4.6 |
| 108-1 | 13.7 | 10.4 | 6.6 | 3.1 | 38.1 | 22.9 | 1.5 | 1.0 | 7.6 |
| 108-2 | 27.9 | 10.4 | 7.9 | 3.1 | 38.1 | 22.9 | 1.5 | 1.0 | 7.6 |
| 109-1 | 19.3 | 14.2 | 8.1 | 4.1 | 53.3 | 35.6 | 2.0 | 1.3 | 7.6 |
| 109-2 | 38.1 | 14.2 | 11.7 | 4.1 | 53.3 | 35.6 | 2.0 | 1.3 | 7.6 |
| 110-1 | 23.9 | 17.8 | 11.7 | 5.6 | 63.5 | 38.1 | 2.5 | 1.5 | 12.7 |
| 110-2 | 50.8 | 17.8 | 17.0 | 5.6 | 63.5 | 38.1 | 2.5 | 1.5 | 12.7 |
| 111-1 | 30.0 | 22.4 | 14.7 | 7.1 | 76.2 | 43.2 | 3.1 | 1.8 | 15.2 |
| 111-2 | 63.5 | 22.4 | 21.3 | 7.1 | 76.2 | 43.2 | 3.1 | 1.8 | 15.2 |
| 116-1 | 59.4 | 44.5 | 43.7 | 20.8 | 158.8 | 91.4 | 5.6 | 4.6 | 41.9 |

All dimensions in mm. Subject to technical changes.

Bottle Shapes

- Helashrink 100 Series, without rib



109-1-G supplied / fully recovered.

Combinations "On request"

| Adhesive | Material | | | | |
|------------------|----------|---|---|---|---|
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| W21 | - | - | - | √ | - |
| Without Adhesive | √ | √ | √ | √ | - |

Standard combinations

| Article-No. | Type |
|-------------|-----------|
| 401-04006 | 104-1-G |
| 401-04017 | 104-2-G |
| 401-05005 | 105-1-G |
| 401-06005 | 106-1-G |
| 401-06023 | 106-2-G |
| 401-01006 | 101-1-G |
| 401-01026 | 101-2-G |
| 401-02005 | 102-1-G |
| 401-02020 | 102-2-G |
| 410-06006 | 1006-1-B7 |
| 401-03006 | 103-1-G |
| 401-03024 | 103-2-B7 |
| 401-07006 | 107-1-G |
| 401-07016 | 107-2-B7 |
| 401-18005 | 118-1-G |
| 401-19001 | 119-1-B7 |
| 401-13180 | 113-1-G |
| 401-13011 | 113-2-G |
| 401-08001 | 108-1-B7 |
| 401-08016 | 108-2-G |
| 401-09002 | 109-1-B7 |
| 401-09011 | 109-2-G |
| 401-10005 | 110-1-G |
| 401-10011 | 110-2-G |
| 401-11003 | 111-1-J |
| 401-11011 | 111-2-G |
| 401-16007 | 116-1-B7. |

For Material / Adhesive selection and other information please refer to page 10.

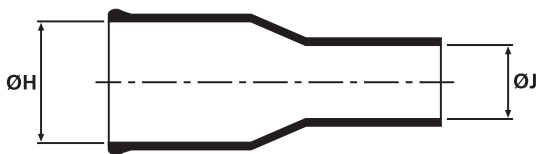
Bottle Shapes

- Helashrink 120 Series, with and without rib

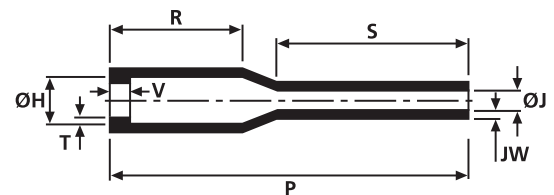
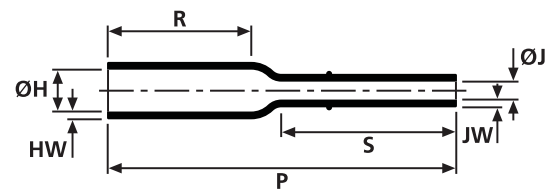
This style has a long tail providing extended strain relief for small diameter wires and can be supplied with or without rib and in various material / adhesive combinations to meet your requirement.



120-42-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

| Sizes and Type Table | | | | | | | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|---------|---------|---------|----------|----------|---------|---------|-------|
| Type | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | R ± 10% | W ± 20% | P ± 10% | HW ± 20% | JW ± 20% | V ± 10% | T ± 10% | S nom |
| 120-1 | 16.5 | 7.0 | 10.2 | 3.0 | 24.0 | 1.3 | 60.9 | 1.3 | 1.3 | - | - | 32.0 |
| 120-2 | 20.3 | 7.0 | 10.2 | 3.0 | 24.0 | 1.3 | 60.9 | 1.3 | 1.3 | - | - | 32.0 |
| 120-3 | 16.5 | 7.0 | 10.7 | 3.0 | 24.0 | 1.3 | 38.0 | 1.3 | 1.3 | - | - | 9.1 |
| 120-41* | 16.5 | 7.0 | 10.7 | 3.0 | 24.0 | 1.3 | 38.0 | 1.3 | 1.3 | 3.0 | 1.0 | 32.0 |
| 120-42* | 16.5 | 7.0 | 10.2 | 3.0 | 24.0 | 1.3 | 60.9 | 1.3 | 1.3 | 3.0 | 1.0 | - |

All dimensions in mm. Subject to technical changes.

*Note: 120-41 & 42 are with end ribs.

Combinations "On request"

| Adhesive | Material | | | | |
|------------------|----------|---|---|---|---|
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| V9500 | - | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| W21 | - | - | - | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

Standard combinations

| Article-No. | Type |
|-------------|----------|
| 401-20003 | 120-1-G |
| 401-20014 | 120-2-G |
| 401-20020 | 120-3-G |
| 401-20022 | 120-41-G |
| 401-20026 | 120-42-G |

Long Outlet Shape, VG style

- Helashrink 130 Series, with rib, low profile

This style is low profile and lightweight. Typically used on airborne harnesses. Rib locates on circular backshell. For VG shapes with portholes "P" please refer to product standards tables in the appendix.

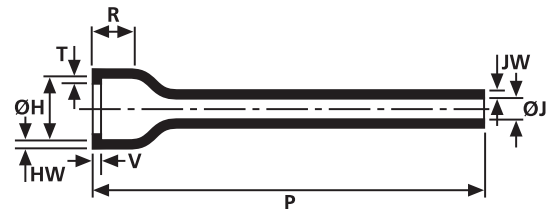


135-1 supplied / fully recovered.

For Material / Adhesive selection and other information please refer to page 10.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

Sizes and Type Table

| Type | Designation as per VG-Norm | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | HW ± 20% | JW ± 20% | V ± 10% | T ± 10% |
|-------|----------------------------|-----------|-----------|-----------|-----------|---------|---------|----------|----------|---------|---------|
| 129-1 | VG95343T06D001A | 22.0 | 12.0 | 22.0 | 6.5 | 76.0 | 12.0 | 1.5 | 1.1 | 3.0 | 1.0 |
| 130-1 | VG95343T06D002A | 25.5 | 15.0 | 25.5 | 7.5 | 83.0 | 12.0 | 1.5 | 1.1 | 3.0 | 1.0 |
| 131-1 | VG95343T06D003A | 29.0 | 19.0 | 29.0 | 8.5 | 89.0 | 12.0 | 1.8 | 1.1 | 3.0 | 1.0 |
| 132-1 | VG95343T06D004A | 34.0 | 23.0 | 34.0 | 10.0 | 102.0 | 12.0 | 1.8 | 1.1 | 3.0 | 1.0 |
| 133-1 | VG95343T06D005A | 37.0 | 30.0 | 37.0 | 11.0 | 108.0 | 14.0 | 2.0 | 1.1 | 3.0 | 1.7 |
| 134-1 | VG95343T06D006A | 43.5 | 34.0 | 43.5 | 12.0 | 114.0 | 15.0 | 2.0 | 1.1 | 3.0 | 1.7 |
| 135-1 | VG95343T06D007A | 50.0 | 41.0 | 50.0 | 14.5 | 118.0 | 15.0 | 2.3 | 1.4 | 3.0 | 1.7 |
| 136-1 | VG95343T06D008A | 62.5 | 47.0 | 62.5 | 18.0 | 121.0 | 16.0 | 2.5 | 1.4 | 3.0 | 2.0 |
| 138-1 | VG95343T06D009A | 69.0 | 60.0 | 69.0 | 20.0 | 127.0 | 16.0 | 2.5 | 1.4 | 3.0 | 2.0 |
| 187-1 | VG95343T06D010A | 81.5 | 67.0 | 81.5 | 23.0 | 133.0 | 16.0 | 2.5 | 1.4 | 3.0 | 2.0 |
| 129-4 | – | 22.3 | 11.4 | 22.3 | 6.5 | 105.9 | 11.7 | 1.5 | 1.1 | 3.0 | 1.0 |
| 130-4 | – | 25.6 | 15.0 | 25.6 | 7.4 | 121.2 | 12.2 | 1.5 | 1.1 | 3.0 | 1.0 |
| 131-4 | – | 29.4 | 18.8 | 29.4 | 8.4 | 138.7 | 12.2 | 1.8 | 1.1 | 1.0 | 1.0 |
| 132-2 | – | 34.0 | 22.9 | 34.0 | 9.7 | 35.0 | 12.2 | 1.8 | 1.1 | 3.0 | 1.0 |
| 132-4 | – | 34.0 | 22.9 | 34.0 | 9.7 | 159.5 | 12.2 | 1.8 | 1.1 | 3.0 | 1.0 |
| 133-2 | – | 37.3 | 26.9 | 37.3 | 10.4 | 47.0 | 14.0 | 2.0 | 1.1 | 3.0 | 1.7 |
| 133-3 | – | 37.3 | 29.5 | 37.3 | 10.4 | 60.0 | 14.0 | 2.0 | 1.1 | 3.0 | 1.7 |
| 133-4 | – | 37.3 | 26.9 | 37.3 | 10.4 | 177.8 | 14.0 | 2.0 | 1.1 | 3.0 | 1.7 |
| 134-4 | – | 43.7 | 34.0 | 43.7 | 12.2 | 203.2 | 15.2 | 2.0 | 1.1 | 3.0 | 1.7 |
| 135-4 | – | 50.0 | 41.2 | 50.0 | 14.2 | 203.2 | 15.2 | 2.3 | 1.4 | 3.0 | 1.7 |
| 136-2 | – | 70.0 | 47.0 | 70.0 | 17.5 | 125.0 | 16.0 | 2.5 | 1.4 | 3.0 | 2.0 |
| 136-4 | – | 62.7 | 47.0 | 62.7 | 17.5 | 203.2 | 16.0 | 2.5 | 1.4 | 3.0 | 2.0 |

All dimensions in mm. Subject to technical changes.

Long Outlet Shape, VG style

- Helashrink 130 Series, with rib, low profile



135-1 supplied / fully recovered.

Combinations "On request"

| Adhesive | Material | | | | |
|------------------|----------|---|---|---|---|
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| W21 | √ | √ | √ | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

Standard combinations

| Article-No. | Type |
|-------------|---------------|
| 401-29180 | 129-1-G |
| 401-30180 | 130-1-G |
| 401-31180 | 131-1-G |
| 401-32180 | 132-1-G |
| 401-33180 | 133-1-G |
| 401-34180 | 134-1-G |
| 401-35180 | 135-1-G |
| 401-36180 | 136-1-G |
| 401-38180 | 138-1-G |
| 401-87180 | 187-1-G |
| 401-29025 | 129-4-G |
| 401-30021 | 130-4-G |
| 401-31028 | 131-4-G |
| 401-32014 | 132-2-G |
| 401-32030 | 132-4-G |
| 401-33008 | 133-2-JWM250 |
| 401-33036 | 133-3-B7WM250 |
| 401-33021 | 133-4-G |
| 401-34015 | 134-4-G |
| 401-35009 | 135-4-G |
| 401-36024 | 136-2-JW8 |
| 401-36006 | 136-4-G |
| 401-36008 | 136-4-J |

Long Outlet Shapes

- Helashrink 140 Series, without rib

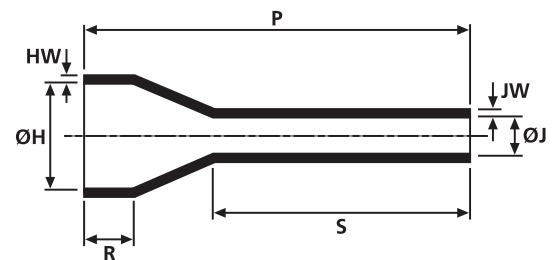
This style is low profile and lightweight, ideally suited to aerospace harness assemblies, the extended tail provides excellent strain relief and flexibility.



146-1 supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive selection and other information please refer to page 10.

| Sizes and Type Table | | | | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|---------|---------|----------|----------|-------|
| Type | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | HW ± 20% | JW ± 30% | S nom |
| 146-1 | 20.1 | 14.5 | 20.1 | 5.3 | 127.0 | 15.7 | 2.0 | 2.0 | 97.0 |
| 146-2 | 22.3 | 14.5 | 10.2 | 5.3 | 127.0 | 15.7 | 2.0 | 2.0 | 97.0 |
| 148-1 | 30.5 | 18.0 | 30.5 | 7.9 | 146.0 | 15.7 | 2.0 | 2.0 | 125.0 |
| 148-2 | 30.5 | 18.0 | 15.2 | 7.9 | 146.0 | 15.7 | 2.3 | 2.3 | 125.0 |
| 149-1 | 41.2 | 21.8 | 41.2 | 10.2 | 162.1 | 22.4 | 2.3 | 2.3 | - |

All dimensions in mm. Subject to technical changes.

| Combinations "On request" | | | | | |
|---------------------------|----------|---|---|---|---|
| Adhesive | Material | | | | |
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ | - |
| HMT200A | - | √ | √ | √ | - |
| W21 | - | - | - | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

| Standard combinations | |
|-----------------------|----------|
| Article-No. | Type |
| 401-46001 | 146-1-B7 |
| 401-46009 | 146-2-G |
| 401-48006 | 148-1-G |
| 401-48016 | 148-2-J |
| 401-49006 | 149-1-J |

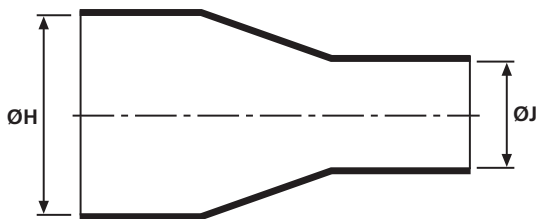
Bottle Shapes

- Helashrink 160 Series, without rib

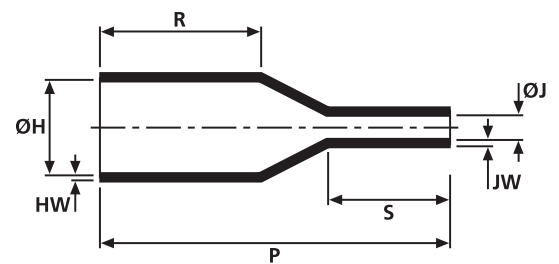
This style is a straight boot used for cable strain relief and environmental protection on many applications and is ideally suited where space is a premium.



162-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

| Sizes and Type Table | | | | | | | | | |
|----------------------|--------------|--------------|--------------|--------------|------------|------------|-------------|-------------|----------|
| Type | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | HW ± 20% | JW ± 20% | S nom |
| 162-1 | 22.0 | 14.2 | 9.0 | 4.1 | 44.0 | 15.7 | 1.8 | 1.8 | 16.0 |

All dimensions in mm. Subject to technical changes.

| Combinations "On request" | | | | |
|---------------------------|----------|---|---|---|
| Adhesive | Material | | | |
| | B7 | G | J | H |
| WM250 | √ | √ | √ | √ |
| W8 | √ | √ | √ | √ |
| W24 | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ |
| HMT200A | √ | √ | √ | √ |
| W21 | - | - | - | √ |
| Without Adhesive | √ | √ | √ | √ |

| Standard combinations | |
|-----------------------|---------|
| Article-No. | Type |
| 401-62180 | 162-1-G |

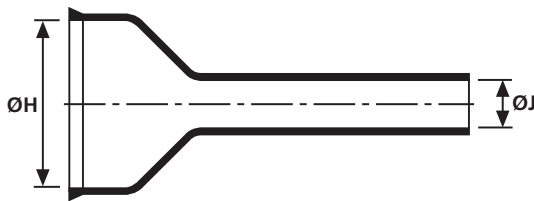
Bottle Shapes, VG style

- Helashrink 170 Series, with rib

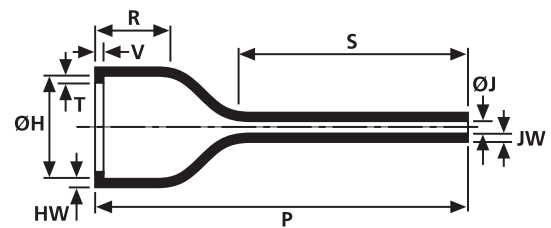
This style provides cable strain relief in applications using partially loaded connectors, resulting in small cable diameters. When used in conjunction with our W24 adhesive, excellent chemical resistance can also be achieved.



177-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

Sizes and Type Table

| Type | Designation as per VG-Norm | ØH | | ØJ | | P | R | T | HW | JW | V | S |
|--------|----------------------------|--------|--------|--------|--------|-------|-------|-------|-------|-----|-----|------|
| | | min. a | max. b | min. a | max. b | ± 10% | ± 10% | ± 20% | ± 20% | nom | max | nom |
| 1724-1 | – | 20.0 | 16.5 | 20.0 | 4.5 | 42.0 | 20.0 | – | 1.0 | 1.0 | 3.3 | 10.0 |
| 1738-1 | – | 20.0 | 16.5 | 20.0 | 4.5 | 32.0 | 10.0 | – | 1.0 | 1.0 | 3.3 | 22.0 |
| 176-1 | VG95343T06D011A | 19.3 | 13.0 | 6.3 | 2.1 | 60.0 | 11.7 | 1.0 | 1.5 | 1.1 | 3.3 | 38.0 |
| 176-2 | – | 19.0 | 13.0 | 6.0 | 2.0 | 30.0 | 11.7 | 1.0 | 1.5 | 1.1 | 3.3 | 8.0 |
| 176-3 | – | 25.0 | 13.0 | 4.0 | 2.0 | 45.0 | 11.7 | 1.0 | 1.5 | 1.1 | 3.3 | 23.0 |
| 176-4 | – | 19.0 | 13.0 | 6.0 | 2.0 | 60.0 | 11.7 | 1.0 | 1.5 | 1.1 | 3.3 | 38.0 |
| 177-1 | VG95343T06D012A | 26.1 | 19.1 | 7.6 | 2.6 | 74.0 | 12.2 | 1.0 | 1.8 | 1.1 | 3.3 | 45.0 |
| 178-1 | VG95343T06D013A | 34.2 | 26.0 | 9.6 | 3.1 | 84.0 | 12.2 | 1.0 | 1.8 | 1.1 | 3.3 | 51.0 |
| 179-1 | VG95343T06D014A | 43.6 | 34.1 | 11.4 | 3.6 | 100.0 | 12.2 | 1.7 | 1.8 | 1.1 | 3.3 | 58.0 |

All dimensions in mm. Subject to technical changes.

For Material / Adhesive selection and other information please refer to page 10.

Combinations "On request"

| Adhesive | Material | | | | |
|------------------|----------|---|---|---|---|
| | B7 | G | J | H | L |
| WM250 | √ | √ | √ | √ | - |
| W8 | √ | √ | √ | √ | - |
| W24 | √ | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ | - |
| HMT200A | √ | √ | √ | √ | - |
| W21 | - | - | - | √ | - |
| Without Adhesive | √ | √ | √ | √ | √ |

Standard combinations

| Article-No. | Type |
|-------------|-----------------|
| 417-24003 | 1724-1-B7WM250B |
| 417-38002 | 1738-1-B8WM250 |
| 401-76180 | 176-1-G |
| 401-76014 | 176-2-B7 |
| 401-76018 | 176-3-G |
| 401-77023 | 177-1-G |
| 401-77180 | 177-1-G |
| 401-78180 | 178-1-G |
| 401-79180 | 179-1-G |

Bottle Shapes, VG style

- Helashrink 190 Series, with external ribs

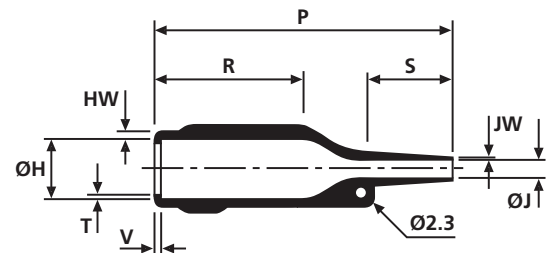
This style was developed specifically for small audio connectors with multiple external ribs to improve grip in harsh conditions.



Recovered 199-4-G, VG style shape for small audio connectors with external ribs for improved grip.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

Sizes and Type Table

| Type | Designation as per VG-Norm | ØH min. a | ØH max. b | ØJ min. a | ØJ max. b | P ± 10% | R ± 10% | HW ± 20% | JW ± 20% | V ± 10% | T ± 20% | S nom |
|-------|----------------------------|-----------|-----------|-----------|-----------|---------|---------|----------|----------|---------|---------|-------|
| 199-4 | VG 95343 T06 A 010 A | 17.5 | 14.0 | 7.0 | 4.3 | 70.0 | 35.0 | 1.8 | 0.5 | 1.5 | 1.0 | 20.0 |
| 199-6 | - | 18.5 | 14.0 | 18.5 | 4.3 | 70.0 | 35.0 | 1.8 | 0.5 | 1.5 | 1.0 | 20.0 |

All dimensions in mm. Subject to technical changes.

Combinations "On request"

| Adhesive | Material | | | |
|------------------|----------|---|---|---|
| | B7 | G | J | H |
| WM250 | √ | √ | √ | √ |
| W8 | √ | √ | √ | √ |
| W24 | √ | √ | √ | √ |
| V9500 | √ | √ | √ | √ |
| HMT200A | √ | √ | √ | √ |
| W21 | - | - | - | √ |
| Without Adhesive | √ | √ | √ | √ |

Standard combinations

| Article-No. | Type |
|-------------|---------|
| 401-99480 | 199-4-G |
| 401-99007 | 199-6-G |