

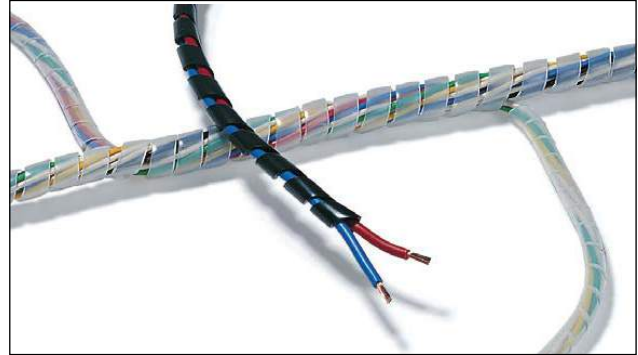
3.0 Cable Protection Systems

3.1	Spiral Binding.....	149
	Braided Sleeving	150
	Protection Sleeves	151-153
	Spiral Binding – Metal Content and Applicator Tool.....	154-155
3.2	Non-Shrinkable Tubing – PVC	156
	Tubing	157-159
3.3	Edge Protection	160

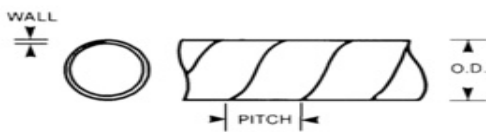
Spiral Binding

NFP-Series, PE (Black and Natural)

- Operating temperature -40°C to +90°C
- Organising and protecting wires, cables and tubes
- Retro-fit
- Wires can branch out at any point, in any direction
- Thin wall available on request
- Wide range of colours and materials available on request
- Materials include flame retardant (RPF), chemical resistant and high temperature



Spiral binding



Type	∅	Wall (WT)	Bundle ∅ max.	Material (p4)	Colour	Length (m)	Article-No.
1NFPBK	1.6	0.8	8	PE	Black (BK) ■	30	161-01001
1NFP	1.6	0.8	8	PE	Natural (NT) ■	30	161-01000
2NFPBK	4.1	1	20	PE	Black (BK) ■	30	161-01003
2NFP	4.1	1	20	PE	Natural (NT) ■	30	161-01002
3NFPBK	9.6	1.2	100	PE	Black (BK) ■	30	161-01005
3NFP	9.6	1.2	100	PE	Natural (NT) ■	30	161-01004
4NFPBK	20	1.2	158	PE	Black (BK) ■	30	911-01828
4NFP	20	1.2	158	PE	Natural (NT) ■	30	911-01827

All dimensions in mm. Subject to technical changes.
Also available in thin wall on request.

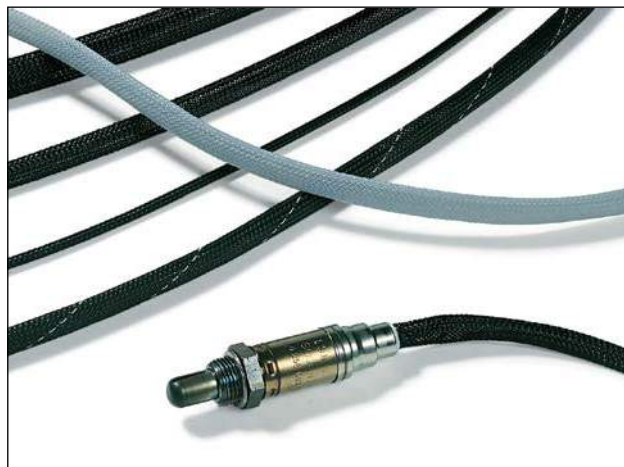
Suitable for the following industries:



Abrasion-Resistant Braided Sleeving

Helagaine, HEGPA66 (Black)

- Operating temperature -60°C to +150°C, intermittent +200°C
- Melting point +255 °C
- Flammability UL 94 V2, FMVSS 302
- Excellent abrasion resistance
- Highly flexible
- Easy to apply over irregular shapes
- Recyclable
- Insensitive to condensation and fungus
- Cutting with a hot-knife no fraying of ends



Various types of Helagaine braided sleeving

HF ✓ RoHS ✓

Type	Bundle Ø min.	Bundle Ø max.	Material (p3)	Colour	Length (m)	Article-No.
MEGA503	2	4	PA66	Black (BK) ■	200	170-40300
MEGA504	3	6	PA66	Black (BK) ■	200	170-40400
MEGA505	3	7	PA66	Black (BK) ■	200	170-40500
MEGA506	4	8	PA66	Black (BK) ■	100	170-40600
MEGA508	5	10	PA66	Black (BK) ■	100	170-40800
MEGA510	7	12	PA66	Black (BK) ■	100	170-41000
MEGA512	8	14	PA66	Black (BK) ■	100	170-41200
MEGA514	10	16	PA66	Black (BK) ■	50	170-41400
MEGA516	12	18	PA66	Black (BK) ■	50	170-41600
MEGA520	15	23	PA66	Black (BK) ■	50	170-42000
MEGA525	18	28	PA66	Black (BK) ■	50	170-42500
MEGA530	25	32	PA66	Black (BK) ■	50	170-43000
MEGA540	30	44	PA66	Black (BK) ■	50	170-44000
MEGA550	40	55	PA66	Black (BK) ■	50	170-45000
MEGA560	50	65	PA66	Black (BK) ■	50	170-46000

All dimensions in mm. Subject to technical changes.
Grey available on request.

Suitable for the following industries:



Recommended Tool: HSGO



The HSGO hot cutting tool prevents the braided sleeving from fraying

EN 45545-2

Self-Closing Sleeving

Helagain Twist-in, PET (Black)

- Operating temperature -50°C to +125°C
- Melting Point +255°C
- Flammability: self-extinguishing, FMVSS 302
- Self-closing sleeve made of sturdy polyester
- Provides very good protection against abrasion
- Ideal for retro-fitting
- Quick and easy installation and removal
- Allows for inspection and maintenance
- Bundles and protects pre-terminated cables



Helagain Twist-In enables easy access to cables and wires for assembly, inspection and maintenance

HF ✓ RoHS ✓

Type	Bundle Ø min.	Bundle Ø max.	Material (p4)	Colour	Length (m)	Article-No.
Twist-In 05	4	5	PET	Black (BK) ■	150	170-01000
Twist-In 05	4	5	PET	Black (BK) ■	5	170-01011
Twist-In 08	5	8	PET	Black (BK) ■	100	170-01001
Twist-In 08	5	8	PET	Black (BK) ■	5	170-01012
Twist-In 13	10	13	PET	Black (BK) ■	50	170-01002
Twist-In 13	10	13	PET	Black (BK) ■	5	170-01013
Twist-In 19	16	19	PET	Black (BK) ■	25	170-01004
Twist-In 19	16	19	PET	Black (BK) ■	2	170-01014
Twist-In 25	19	25	PET	Black (BK) ■	25	170-01005
Twist-In 25	19	25	PET	Black (BK) ■	2	170-01015
Twist-In 29	25	29	PET	Black (BK) ■	15	170-01006
Twist-In 29	25	29	PET	Black (BK) ■	2	170-01016
Twist-In 32	29	32	PET	Black (BK) ■	15	170-01007
Twist-In 32	29	32	PET	Black (BK) ■	2	170-01017
Twist-In 38	32	38	PET	Black (BK) ■	15	170-01008
Twist-In 38	32	38	PET	Black (BK) ■	2	170-01018
Twist-In 50	38	50	PET	Black (BK) ■	15	170-01010

All dimensions in mm. Subject to technical changes.
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools

Type	HSGO
Page	150

Suitable for the following industries:



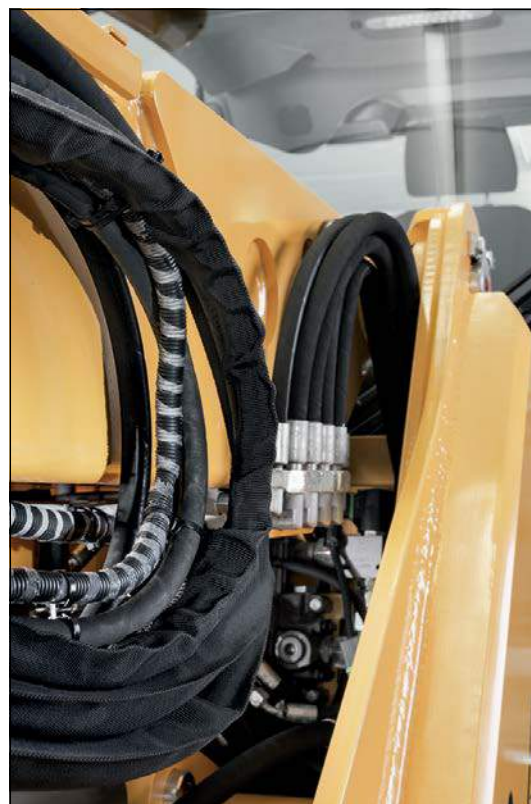
Burst Protection Sleeving for Hydraulic Hoses

Helagain, PA6 (Black)

- Operating temperature -60°C to +125°C
- Melting Point +220 +/- 10°C
- Flammability: UL 94 V2, FMVSS 302, Type B
- Exceptional tear-resistance
- Very good protection against abrasion
- Optimal protection of hydraulic hoses
- Reduces risk of liquid-jet injuries
- Fullfills the standards of Earth Moving Machinery EN ISO 3457 and Mechanical Vibration and Shock EN 1299



Helagain (HEGWS) is burst protection sleeve and is used to protect hydraulic hoses and prevent injuries due to leaks emitting high-pressure liquid jets.



Helagain HEGWS: The ideal protective sleeve for hydraulic hoses

Type	Inside Ø (ID)	Wall (WT)	Material (p3)	Colour	Length (m)	Article-No.
HEGWS20	12	1.1	PA6	Black (BK) ■	50	170-01300
HEGWS25	15	1.1	PA6	Black (BK) ■	50	170-01301
HEGWS30	19	1.1	PA6	Black (BK) ■	50	170-01302
HEGWS35	22	1.1	PA6	Black (BK) ■	50	170-01303
HEGWS40	25	1.1	PA6	Black (BK) ■	50	170-01304
HEGWS45	28	1.1	PA6	Black (BK) ■	50	170-01305
HEGWS50	31	1.1	PA6	Black (BK) ■	50	170-01306
HEGWS60	38	1.1	PA6	Black (BK) ■	50	170-01307
HEGWS70	44	1.1	PA6	Black (BK) ■	50	170-01308
HEGWS80	50	1.1	PA6	Black (BK) ■	50	170-01309
HEGWS90	57	1.1	PA6	Black (BK) ■	50	170-01310
HEGWS100	60	1.1	PA6	Black (BK) ■	50	170-01311
HEGWS115	70	1.1	PA6	Black (BK) ■	50	170-01312
HEGWS145	90	1.1	PA6	Black (BK) ■	50	170-01313
HEGWS176	110	1.1	PA6	Black (BK) ■	50	170-01314
HEGWS200	125	1.1	PA6	Black (BK) ■	50	170-01315

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) and may differ from package content.

Recommended Tools

Type	HSGO
Page	150

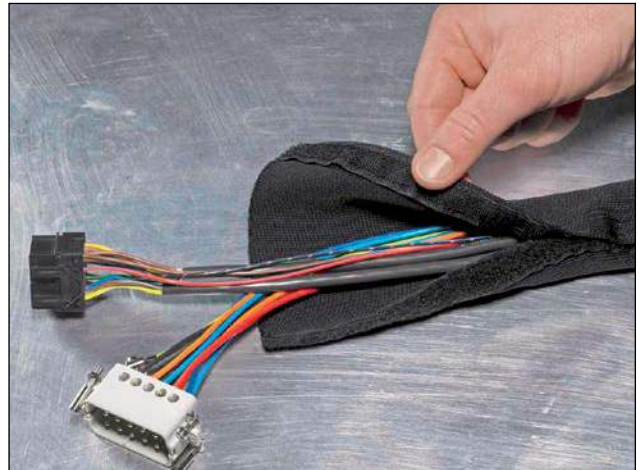
Suitable for the following industries:



Recloseable Protective Sleeving with Hook-and-Loop Seal

HELAHOOK, PET (Black)

- Operating temperature -50°C to +150°C, intermittent +220°C
- Flammability UL94V2, FVSS 302
- Re-sealable cable protection made of polyester
- Very elastic, fits snugly around the cables
- Hook and loop sealing system can be used for retro-fitting
- High abrasion-resistance



HELAHOOK protective sleeving allows for retrospective fitting and repeated use

HF ✓ RoHS ✓

Type	Bundle Ø min.	Bundle Ø max.	Material (p4)	Colour	Length (m)	Article-No.
Helahook 10	3	15	PET	Black (BK) ■	25	170-05100
Helahook 15	10	20	PET	Black (BK) ■	25	170-05150
Helahook 20	15	30	PET	Black (BK) ■	25	170-05200
Helahook 25	20	40	PET	Black (BK) ■	25	170-05250
Helahook 30	25	50	PET	Black (BK) ■	25	170-05300

All dimensions in mm. Subject to technical changes.
Cuts in any lengths are available on request.

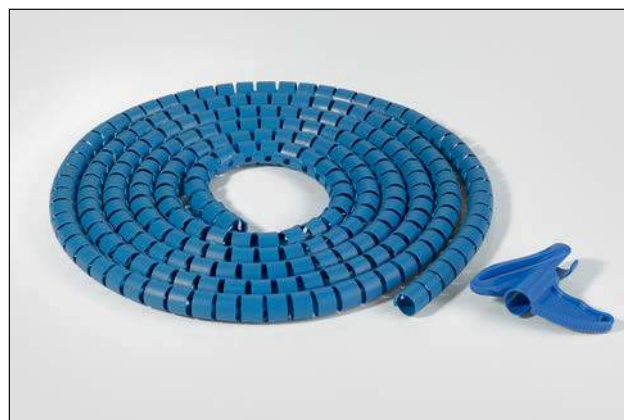
Suitable for the following industries:



Metal-Content Cable Cover

Helawrap HWPPMC (Blue)

- Operating temperature -60°C to +100°C, intermittent +140°C
- Flammability UL 94 HB
- High metal-content for reliable detection with standard detection equipment
- Quick and effortless to apply
- Stainless steel preserves resistance to corrosion
- Ideal solution for bundling and protecting cables and hoses
- Highly flexible
- Very good abrasion protection
- Special profile enables branching off cable at any point
- Can be removed and reused
- Handy applicator tool included



Metal-content cable cover

HF ✓ RoHS ✓

Type	Bundle Ø max.	Material (p4)	Colour	Length (m)	Article-No.
HWPPMC8	9	PP, SS	Blue (BL) ■	25	161-66000
HWPPMC16	16	PP, SS	Blue (BL) ■	25	161-66100
HWPPMC20	21	PP, SS	Blue (BL) ■	25	161-66200
HWPPMC25	27	PP, SS	Blue (BL) ■	25	161-66300
HWPPMC30	32	PP, SS	Blue (BL) ■	25	161-66400

All dimensions in mm. Subject to technical changes.
Minimum Order Quantity (MOQ) may differ from package content.

Helawrap Applicator Tool

HAT (blue)

- Bundles cable rapidly and effortlessly
- Glides smoothly and securely through cover
- Easy insertion of cable



Applicator tools are available for every Helawrap cover size

Type	Quantity	HWPPMC	Colour	Article-No.
HAT8	10 pcs.	HWPPMC8	Blue (BL) ■	161-60001
HAT16	10 pcs.	HWPPMC16	Blue (BL) ■	161-60002
HAT20	10 pcs.	HWPPMC20	Blue (BL) ■	161-60003
HAT25	10 pcs.	HWPPMC25	Blue (BL) ■	161-60004
HAT30	10 pcs.	HWPPMC30	Blue (BL) ■	161-60005

Subject to technical changes.
Minimum Order Quantity (MOQ) may differ from package content.

Suitable for the following industries:



Metal-Content Spiral Binding

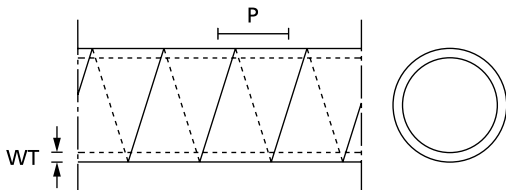
SBPEMC (blue)

- Operating temperature -60°C to +80°C, intermittent +120°C
- Flammability UL 94 HB
- High metal-content for reliable detection with standard detection equipment
- Stainless steel preserves resistance to corrosion
- Ideal solution for bundling and protecting cables and hoses
- Highly flexible
- Suitable for retro-fitting
- Branching off cable at any point



Detectable, metal-content spiral binding protects cables on food-processing machines

HF ✓ RoHS ✓



Spiral binding

i Can support quality assurance in food production.

Type	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle vØ max.	Material (p4)	Colour	Length (m)	Article-No.
SBPEMC1.5	1.5	0.8	6.0	1.6	8	PE, SS	Blue (BL) ■	30	161-46000
SBPEMC4	4	1.0	7.8	5	20	PE, SS	Blue (BL) ■	30	161-46100
SBPEMC9	9	1.4	12.5	10	100	PE, SS	Blue (BL) ■	30	161-46200
SBPEMC16	16	1.6	16.0	20	150	PE, SS	Blue (BL) ■	30	161-46300

All dimensions in mm. Subject to technical changes.
Minimum Order Quantity (MOQ) may differ from package content.

Suitable for the following industries:



PVC Tubing

Helvin PVC (Black and colour)

- Thin wall
- Minimal space is required
- Available in various colours on request (minimum order required)



Helvin PVC tubing



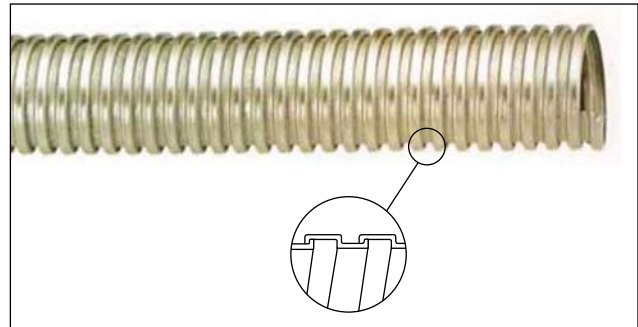
Type	Inside Ø	Wall (WT) nom.	Material (p4)	Colour	Length (m)
PVC1	1	0.3	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC2	2	0.3	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC3	3	0.5	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC4	4	0.5	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC5	5	0.5	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC6	6	0.5	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC8	8	0.7	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC10	10	0.8	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC12	12	0.8	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC13	13	0.8	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC14	14	1.0	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC16	16	1.0	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC18	18	1.0	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC19	19	1.0	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC20	20	1.0	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	100
PVC22	22	1.1	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50
PVC23	23	1.2	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50
PVC24	24	1.2	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50
PVC25	25	1.2	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50
PVC30	30	1.2	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50
PVC35	35	1.2	PVC	BK ■ BN ■ RD ■ OR ■ YL ■ GR ■ BL ■ WT □ PK □ CL □	50

All dimensions in mm. Subject to technical changes.

Flexible Metal Conduit

Galvanised Steel

- Square lock style
- Used with a variety of set-screws
- Good mechanical protection to wiring



Type	Size	IØ Min	IØ Max	OØ Min (over jacket)	OØ Max (over jacket)	Min bend Radius	Length (m)	Connector Depending on application*
ST16	16	15.8	16.3	19.2	19.7	38	30	SCM"\$" - Fixed FKCFM"\$" - Fixed FKCSM"\$" - Swivel
ST20	20	20.7	21.2	24.5	25.1	45	30	
ST25	25	26	26.6	30.4	31	55	30	
ST32	25	34.7	35.4	39.6	40.3	62	30	

"\$" = Size in mm, * Any combination can be used,
All dimensions are in mm. Subject to technical changes.



FKCSM

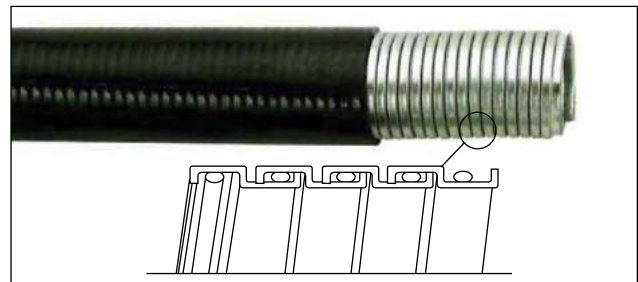


FKCFM

Liquid Tight Flexible Steel Conduit

Galvanised Steel

- Galvanised steel core, corrosion resistant
- Liquid tight PVC jacket
- Flexible
- Flame retardant
- Impact resistant
- Used with a variety of set-screws
- Good mechanical protection to wiring
- Operating temperature -10°C to +70°C



Type	Size	IØ Min	IØ Max	OØ Min (over jacket)	OØ Max (over jacket)	Min bend Radius	Length (m)	Connector Depending on application*
KT20\$	20	15.8	16.3	20.8	21.3	80	30	KCM"\$" - Flex FKCFM"\$" - Fixed FKCSM"\$" - Swivel
KT25\$	25	20.7	21.2	26.2	26.7	100	30	
KT32\$	25	26.2	26.8	32.7	33.4	150	30	

"\$" = Size in mm, Colours : Black, grey, orange.
* Any combination can be used,
All dimensions are in mm. Subject to technical changes.



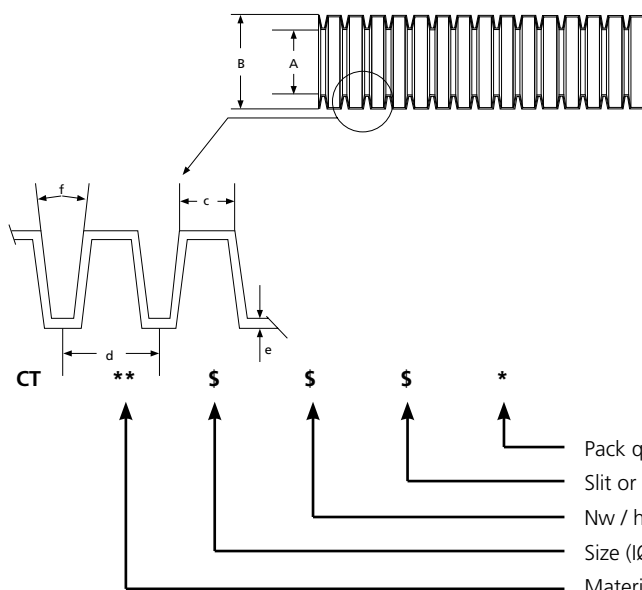
Convuluted Tubing

High Impact, PVC (Black)

- Manufactured from Polypropylene without heavy metals (lead)
- Operating temperature -40°C to 150°C
- Flame retardant and heat resistant
- Flexible
- Test certificates and car manufacturer specifications are available on request
- Meets stringent sheathing requirements for automotive wiring harnesses
- Available in slit or un-slit
- Standard colour black, but is available on request in grey, white and orange



HF ✓ RoHS ✓



MATERIAL KEY: Polypropylene (P), Polyamide (A), PVC (V).

Pack qty (if blank then qty = 100m, 1 = 10m, 2 = 25m & 5 = 50m)
 Slit or unslit (s = slit blank = unslit)
 Nw / hw = wave height
 Size (IØ)
 Material

Ordering Information

Type	Nominal Size		Dimensions					Angle
	IØ	OØ	Tolerance - A	B	C	D	E	F
\$=S for slit			±0.4	±0.3	±0.1	±0.15	±0.1	±5°
CTP7NW\$	7	10	6.9	9.6	1.8	2.6	0.15	11°
CTP10NW\$	10	13	10.1	12.7	1.8	2.7	0.2	20°
CTP13NW\$	13	16	12.9	15.8	1.8	2.7	0.2	11°
CTP17NW\$	17	21	16.8	21	2.2	3.2	0.2	11°
CTP22NW\$	22	26	21.8	25.5	2.2	3.1	0.2	11°
CTP5HW\$	5	75	5	7.1	1.2	2.2	0.15	30°
CTP9HW\$	9	13	8.5	12.9	2.1	3.14	0.2	18°
CTP11HW\$	11	16	11.1	15.7	2.1	3.14	0.2	18°
CTP15HW\$	15	21	15	21.2	2.7	3.9	0.2	12°
CTP19HW\$	19	26	19.1	25.7	2.9	4.3	0.25	12°

All dimensions are in mm. Subject to technical changes.

Suitable for the following industries:



Convolute Tubing

Medium Duty (High Impact), PVC (Grey)

- Operating temperature -5°C to 60°C
- Compression force 740N
- High impact, flexible, UV stable
- Durable, crush resistant
- Meets requirements of SABS IEC 60614-1:1994 and IEC 60614-2-3:1990 – Pliable conduits for electrical installations
- Authorisations Committee approval number 0211064
- Construction industry requirements for conduits in concrete slabs, columns, beams and decks



RoHS ✓

Type	Nominal Size		Material (p4)	Colour	Length (m)	Article-No.
	IØ	OØ				
V20HT3905	15.5	20	PVC	Grey (GY) ■	50	911-01831
V25HT3905	20.5	25	PVC	Grey (GY) ■	50	911-01841

All dimensions in mm. Subject to technical changes.

Light Duty (Medium Impact), PVC (White)

- Operating temperature -5°C to 60°C
- Compression force 320N
- Medium impact, flexible, UV stable
- Durable
- Meets requirements of SABS IEC 60614-1:1994 - Pliable conduits for electrical installations
- Tubing dimensions are compatible with standard range of commercially available PVC conduit fittings



RoHS ✓

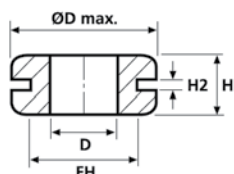
Type	Nominal Size		Material (p4)	Colour	Length (m)	Article-No.
	IØ	OØ				
V20HT2605	16.0	20	PVC	White (WT) □	50	911-01832
V25HT2605	21.0	25	PVC	White (WT) □	50	911-01839

All dimensions in mm. Subject to technical changes.

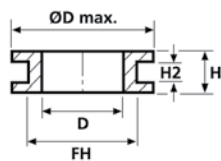
Edge Protection Grommets

PVC (Black)

- Operating temperature -30°C to +60°C
- Protects cables from sharp edges
- Provides additional strain relief
- Flexible and easy to apply
- High resistance to chemicals and environmental influences
- Shore hardness A 70±5
- Flammability UL94 HB



HV1101



HV1301 to HV1305



Edge protection grommets

HF ✓ RoHS ✓

Type	ØD max.	Fixing Hole Ø (FH)	D	Height (H)	Height (H2)	Material (p4)	Colour
HV3459	9.2	4.8	3.2	5.6	0.8	PVC	Black (BK) ■
HV2214F	9.6	6.4	4.8	6.4	0.8	PVC	Black (BK) ■
HV2214AF	9.6	6.4	4.8	6.4	3.2	PVC	Black (BK) ■
HV3098F	9.6	6.4	4	5.6	0.8	PVC	Black (BK) ■
HV3195F	9.6	6.4	4	6.4	1.6	PVC	Black (BK) ■
HV3108F	11.1	8.0	5.6	6.4	1.6	PVC	Black (BK) ■
HV2156F	14.3	9.5	7.9	7.9	1.6	PVC	Black (BK) ■
HV3109A	14.3	9.5	6.4	7.1	1.6	PVC	Black (BK) ■
HV3109BF	14.3	9.5	6.4	7.1	2.4	PVC	Black (BK) ■
HV3111F	12.7	9.5	4.8	7.1	1.2	PVC	Black (BK) ■
HV3543F	15.9	9.5	4	6.4	3.2	PVC	Black (BK) ■
HV3109	14.3	11.1	6.4	7.1	1.6	PVC	Black (BK) ■
HV2215F	19	12.7	7.9	8.8	1.6	PVC	Black (BK) ■
HV2215AF	19	12.7	7.9	9.5	3.2	PVC	Black (BK) ■
HV3110	17.5	12.7	9.6	7.9	1.6	PVC	Black (BK) ■
HV3110AF	17.5	12.7	9.6	6.7	1.2	PVC	Black (BK) ■
HV3556F	19	14.3	11.1	6.4	1.6	PVC	Black (BK) ■
HV3556AF	19	14.3	11.1	9.5	3.2	PVC	Black (BK) ■
HV3592	20.6	15.9	12.7	9.5	6.8	PVC	Black (BK) ■
HV4165F	20.6	15.9	12.7	6	1.2	PVC	Black (BK) ■
HV2412	25.4	19	12	7.9	1.6	PVC	Black (BK) ■
HV3222F	28.6	22.2	15.9	7.5	1.2	PVC	Black (BK) ■
HV2166C	38	25.4	22	11.1	3.2	PVC	Black (BK) ■
HV2165	46.1	34.9	30	8.7	0.8	PVC	Black (BK) ■
HV2512	46.1	32.5	18.3	8.7	0.8	PVC	Black (BK) ■
HV4243F	24.4	19	Blank	7.9	2	PVC	Black (BK) ■
HV244F	36.5	25.4	Blank	9.5	2.4	PVC	Black (BK) ■

All dimensions in mm. Subject to technical changes.

Suitable for the following industries:

