

## PRODUCT OVERVIEW

# Harnessflex® EVO™ Conduit Systems

for safeguarding critical wiring in  
heavy-duty electric vehicles

**Harnessflex**<sup>®</sup>  
SPECIALIST CONDUIT SYSTEMS





**Harnessflex®**

**EVO™**

(Electric Vehicle Orange) specialist range for full EV (electric vehicle) industry compliance.



## Harnessflex® EVO™

### (Electric Vehicle Orange) conduit systems

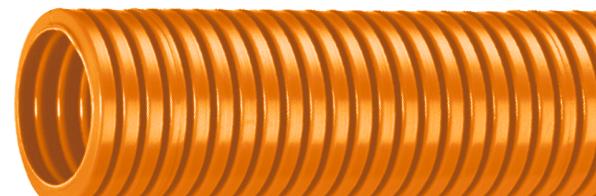
Electric Vehicle Orange (EVO™) conduit systems for safeguarding critical wiring in heavy-duty electric vehicles.



Harnessflex EVO™ (Electric Vehicle Orange) conduit is flexible nylon (PA6) conduit suitable for electric vehicle applications.

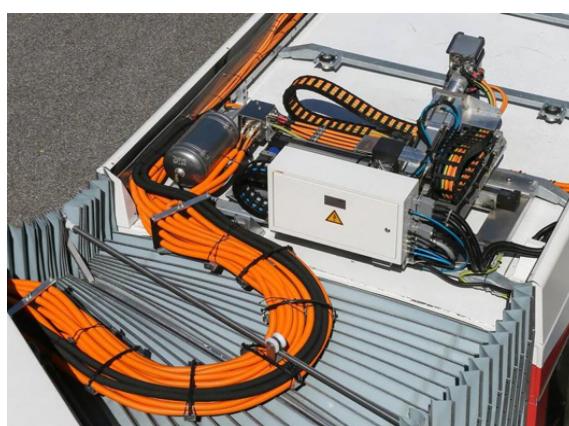
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**Heavy automotive cable protection systems**  
Protection from damage by mechanical abrasion, excessive cable strain, corrosive salts and liquid ingress.

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02

Built for use in a wide range of EV applications Including electric cars, buses, trucks, lorries, trams and trains.

**High voltage connectors**  
Connectors that easily integrate into high and low voltage wiring and are proven to withstand abrasion, stress, vibration, corrosive conditions and higher vehicle running temperatures.  
Testing – Form, Fit and Function.



**Reliable complete system integration for EV wiring protection**

Featuring our signature vibration friendly profile (VFP) as standard, as well as UV and heat stabilisation as standard, Harnessflex EVO™ conduit systems minimise the risk of electrical failure whilst also protecting crucial HV connectors.



# Harnessflex®

## Conduit systems

Harnessflex® conduit systems are built for performance, designed to protect critical wiring in harnesses on HGVs, off-road vehicles and other heavy automotives.

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01 Light, Medium and Standard weight flexible conduit for a wide range of wiring harness applications and environments.

Harnessflex® has the largest range of flexible conduits, sealed fittings, hinged connector interfaces and Y&T pieces, anywhere in the global cable protection market. Constantly evolving through innovation driven by some of the most demanding automotive industry sectors, Harnessflex products are designed to be used together as a system for easy installation and complete wiring harness protection.

Featuring a unique vibration friendly profile (VFP) as standard, as well as UV and heat stabilisation as standard, Harnessflex® conduit systems provide 10-150% greater life expectancy in dynamic or vibrating applications, when compared with other products. This maximises the productivity of the system being protected, whilst minimising the risk of electrical failure.



From fit-and-forget CPC conduit systems offering unbeatable dynamic performance, to our X-Temp™ range that is designed and tested to withstand extreme temperatures, Harnessflex® can provide a solution for most applications and environments.

### Features & benefits:

- High flexibility and fatigue life - continuous performance over a long product lifespan
- Protects critical cables with very high abrasion, impact and shock resistance
- Specialist ranges for use in extreme high and low temperatures
- Range includes products with IP40-IP69 rating, as well as self-extinguishing and low fire hazard capabilities and fittings offering reduction options
- VFP as standard, delivering minimal cable abrasion
- Designed to maximise tensile strength and reduce together with all Harnessflex® connector interface, Y&T and joining system installations
- 100% inspected and tested



### Harnessflex® Standard

A comprehensive range of cable protection products for heavy automotive 12V and 24V systems.



### Harnessflex® X-Temp™

Protection at temperatures between 200°C to -50°C with high vibration, dynamic conditions.



### Harnessflex® EVO™

(Electric Vehicle Orange) specialist range for full EV (electric vehicle) industry compliance.



## Product selection guide

### EVO™ conduit systems



#### Product selection guide

Type	NC	CTPA	CPC
Conduit material	Polyamide 6	Polyamide 6	Co-Polyester
Conduit weight	Standard	Light	Medium
Slit version available	•	•	-
<b>Temperature range</b>			
Long term static min.	-40°C	-40°C	-50°C
Long term static max.	+120°C	+120°C	+135°C
Short term (3000 hrs)	+150°C	+135°C	+150°C
Short term (200 hrs)	+175°C	+150°C	+175°C
<b>Characteristics</b>			
UV resistance	■■■■	■■■■	■■■■
Flexibility	■■■□	■■■■	■■■■
Fatigue life	■■■■	■■■□	■■■■
Ext. wear resistance	■■■■	■■■■	■■■□
Self extinguishing	•	•	•
Halogen free	•	•	•
Low smoke toxicity	•	•	•
<b>Approvals</b>			
CE	•	•	•
UL94 VO	-	-	-
UL94 V2	-	-	•
UL94 HB	•	•	-
R118	•	-	-
RoHS Compliant	•	•	•
ADR Approved	•	-	-
(ELV) EU200/53/EC	•	•	•
<b>Chemical resistance*</b>			
IRM 903 (ASTM Oil No.2)	S	S	S
Diesel Oil	S	S	S
Ethylene Glycol (Anti-freeze)	S	S	S
Lubricating Oil	S	S	S
Methyl Alcohol	L	L	S
Parafin Oil	S	S	S
Petrol	S	S	S
Sodium Chloride	S	S	S
Sodium Hydroxide (10%)	S	S	S
Transformer Oil	S	S	S
Urea	S	S	NT
Vegetable Oil	S	S	S
Sea (Water)	S	S	S

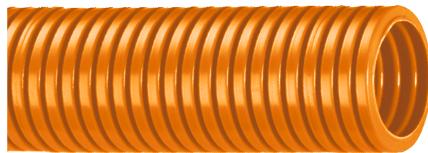
Key: S = Suitable / L = Limited Suitability / U = Unsustainable / NT = Not Tested

Maximum Performance = ■■■■

\*All chemicals tested for resistance at 23°C.

## NC Standard weight, polyamide 6

General purpose conduit



Solid

### Description

Flexible standard weight nylon (PA6) conduit is a general-purpose conduit suitable for automotive harness applications. Able to withstand extremes of temperatures and resistant to automotive oils and solvents. It is extremely tough and has a very high impact strength and high fatigue life.

### Applications

NC standard weight conduit is extensively used in harnesses on HGV and off road vehicle applications where a superior protection against impact and mechanical shock is preferred. The conduit is used for both chassis and engine applications and can be used in a wide range of temperatures. Polyamide 6 is highly resistant to all hydrocarbon based oils and fluids and many types of solvents.

### NC Standard weight

**Materials:** Polyamide 6

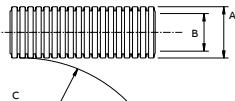
Approvals	IP Rating	Appropriate fitting
ADR Approved (Sealed fittings)	<b>IP40</b>	Hinged fittings
UL94 HB rated	NC Slit (IP40 only)	
CE Mark to the Low Voltage Directive	<b>IP67</b>	Sealed fittings
RoHS Compliant to 2011/65/EU	<b>IP68</b> (2 bar 30 mins)	Sealed fittings
Reg 118		
Conforms with End of Life Vehicle directive (ELV) EU200/53/EC		

Degree of mechanical protection	Temperature range	UV resistance
Very high abrasion, impact and shock resistance	Long term: -40°C to +120°C	High
	Short term: +150°C	
	<b>Fire performance</b>	
	Self extinguishing	
	Low smoke toxicity	
	Halogen free	

### Dimensions

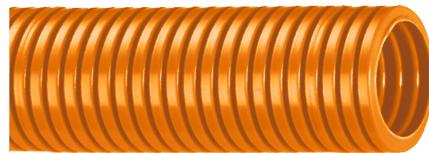
Solid Part No.	Conduit size			Nominal O/D A (mm)	Min. bore B (mm)	Min. static bend radius C (mm)	Reel length (m)
	NC	NW	US				
NC16/OR/100M	16	13	3/8	16.05	11.70	30.0	100
NC20/OR/50M	20	17	1/2	21.20	16.45	35.0	50
NC25/OR/50M	25	22	3/4	25.80	21.10	40.0	50
NC28/OR/50M	28	23	3/4	28.35	22.50	45.0	50

\*Other sizes available on request



## CTPA Lightweight, polyamide 6

Extra flexible conduit



Solid

### Description

Extra flexible lightweight nylon (PA6) conduit is a general-purpose conduit suitable for electrical loom applications. Able to withstand extremes of temperatures and resistant to automotive oils and solvents. It is extremely tough and has a medium impact strength and high fatigue life.

### Applications

CTPA lightweight conduit is extensively used in general purpose, lightweight electrical loom applications. Polyamide 6 is highly resistant to all hydrocarbon based oils and fluids and many types of solvents.

### CTPA Lightweight

### Materials: Polyamide 6

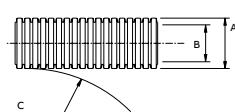
Approvals	IP Rating	Appropriate fitting	Temperature range	UV resistance
CE Mark to the Low Voltage Directive	IP40	Hinged fitting	Long term: -40°C to +120°C	High
UL94 HB rated	IP67	Sealed fittings	Short term: +150°C	
Degree of mechanical protection				Fire performance
Medium impact resistance - suited to lower impact risk applications				Self extinguishing
				Low smoke toxicity
				Halogen free



### Dimensions

Solid Part No.	Conduit size			Nominal O/D A (mm)	Min. bore B (mm)	Min. static bend radius C (mm)	Reel length (m)
	NC	NW	US				
CTPA16/OR/100M	16	13	3/8	16.05	11.70	35.0	100
CTPA20/OR/50M	20	17	1/2	21.20	16.60	45.0	50
CTPA25/OR/50M	25	22	3/4	25.60	20.60	45.0	50
CTPA28/OR/50M	28	23	3/4	28.35	22.80	45.0	50

\*Other sizes available on request



## CPC Medium weight, co-polyester

Dynamic conduit



Solid

### Description

Dynamic and extra flexible medium weight, co-polyester conduit suitable for automotive harness applications. Able to withstand extremes of temperatures and resistant to automotive oils and solvents. It is extremely tough and has a very high impact strength and fatigue life.

### Applications

A low smoke, low toxicity conduit, CPC has excellent high and low temperature properties, making it ideal for harness applications such as engine, body section and chassis. CPC is resistant to hydrocarbons, greases, fuels and oils.

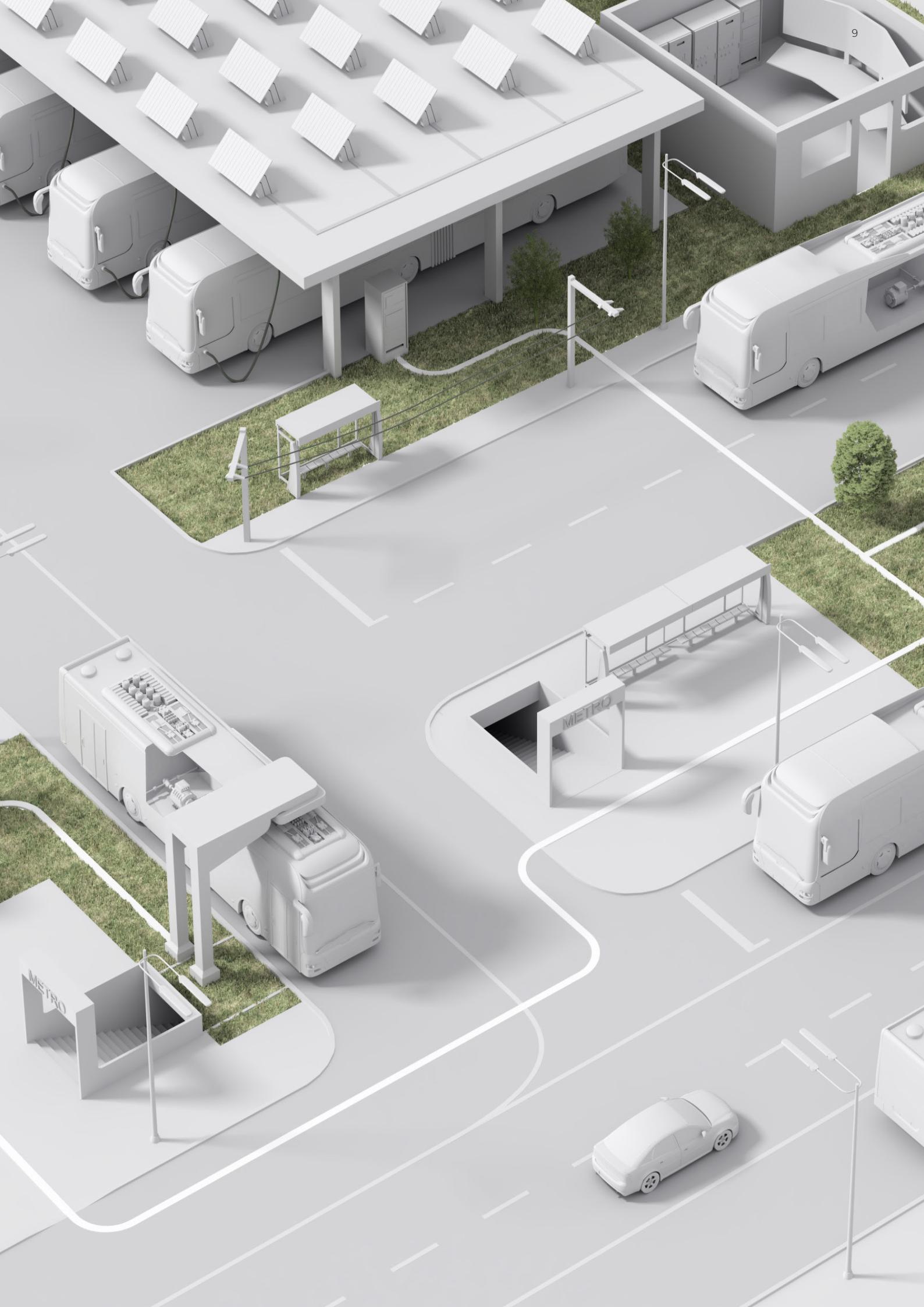
### CPC Medium weight

			Materials: FR Co-Polyester				
Approvals	IP Rating	Appropriate fitting	Temperature range	UV resistance			
CE Mark to the Low Voltage Directive	IP40	Hinged fitting	Long term: -50°C to +135°C	Very high			
UL94 V2 rated	IP67	Sealed fittings	Short term: +175°C				
RoHS Compliant to 2011/65/EU			Fire performance				
Conforms with End of Life Vehicle directive (ELV) EU200/53/EC			Self extinguishing				
			Low smoke toxicity				
			Halogen free				

### Dimensions

Solid Part No.	Conduit size	Nominal O/D A (mm)	Min. bore B (mm)	Min. static bend radius C (mm)	Reel length (m)
CPC20/OR/50M	20	17	½	21.00	16.05
CPC28/OR/50M	28	23	¾	28.25	21.20

\*Other sizes available on request



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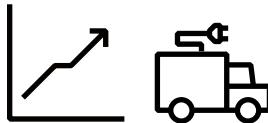
Connectors are often left exposed, leaving them open to intrusion, excessive strain and impact damage.



# Harnessflex® EVO™ conduit systems

## Talking about EV connector risks

With countries across the globe looking to tackle climate change through less carbon emissions and greater sustainability, the shift towards electric modes of transport is ever-growing.



- 01 No strain relief present.
- 02 Exposed HV cable.
- 03 Extra engineering required.
- 04 Compromise of connector seals.
- 05 Debris intrusion hotspot.
- 06 Management of bulky cables.

**With the electric vehicle (EV) industry** projected to see compounded annual growth (CAGR) of 21.1% over the next 10 years, we can soon expect to see more electric cars, buses, trucks, trams and trains in our cities.

With electric vehicles soon to become the norm, it is important that their reputation for reliability is maintained. Electric vehicles contain significant critical wiring that facilitates their operation. Therefore, the optimum level of cable protection is absolutely crucial in order to maintain the vehicle's productivity.



Without the right cable protection system in place, electric vehicles may become prone to critical electrical failure which will cause them to breakdown, resulting in timetable disruptions and repair costs.

One of the key areas at risk is the vital link between cable and connector. Without robust backshell protection, cables running into connectors are often left exposed, leaving them open to intrusion, excessive strain and impact damage - all of which can lead to electrical faults and vehicle failure.

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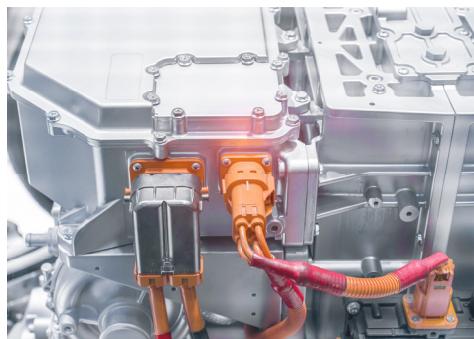
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— 04



— 02



— 05



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## EVO™ High voltage connectors

### HV Connector interfaces

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01 EVO™ High  
voltage connectors  
HV Connector  
interfaces.

#### Features & benefits:

- Supports connector Ingress Protection (IP) performance
- Isolates and reduces cable movement
- Provides cable-connector interface with high mechanical protection
- Provides connector to cable strain relief
- High pull-off strength - conduit corrugations sit tightly into joiner junctions
- Enhanced abrasion and vibration protection
- External fit for unrestricted bore and quick assembly
- Tamperproof, integrated clip system as standard
- Safe for use with 1000V AC and 1500V DC

#### Applications:

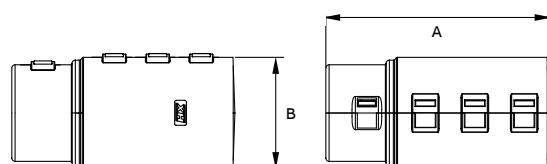
- For use with high voltage connectors
- Power Distribution Units (PDU)
- Motor Control Units (MCU)
- Inverters
- DC Drive Motors
- In-wheel Motors
- E-Axes
- High Voltage Battery Packs
- Hybrid Systems
- Static Power Systems
- Marine

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#### EVO™ high voltage connectors for use with Amphenol Powerlok high voltage connectors

Part No.	Connector Series		Connector Series	Dimensions (mm)	
	NC	NW		A	B
CI25-PL300	25	22	Amphenol Powerlok 300 (1 Pos)	67.7	33.8
CI28-PL300	28	23	Amphenol Powerlok 300 (1 Pos)	68.5	33.8



## EVO™ High voltage connectors

### HV Connector interfaces

#### EVO™ high voltage connectors for use with Amphenol Powerlok high voltage connectors

Part No.	Connector Series		Connector Series	Dimensions (mm)	
	NC	NW		A	B
CI25-PL282-PL300	25	22	Amphenol Powerlok 300 (2 Pos)	50.7	38.2
CI28-PL282-PL300	28	23	Amphenol Powerlok 300 (2 Pos)	50.7	38.2

#### EVO™ high voltage connectors for use with Amphenol Powerlok high voltage connectors

Part No.	Connector Series		Connector Series	Dimensions (mm)	
	NC	NW		A	B
CI25-PL18-G2	25	22	Amphenol Powerlok 300 G2 (1 Pos)	59.5	34.2
CI28-PL18-G2	28	23	Amphenol Powerlok 300 G2 (1 Pos)	59.5	34.2

#### EVO™ high voltage connectors for use with Amphenol Powerlok high voltage connectors

Part No.	Connector Series		Connector Series	Dimensions (mm)	
	NC	NW		A	B
CI25-PL182-G2	25	22	Amphenol Powerlok 300 G2 (2 Pos)	59.7	76.6
CI28-PL182-G2	28	23	Amphenol Powerlok 300 G2 (2 Pos)	59.7	76.6

#### EVO™ high voltage connectors for use with TE HVA280-3 high voltage connectors

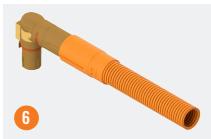
Part No.	Connector Series		Connector Series	Dimensions (mm)		
	NC	NW		A	B	C
CI16-HVA280-3	16	13	TE HVA280	42.9	33.4	30.6

## HARNESSFLEX EVO CONNECTOR INTERFACE - QUICK REFERENCE CHART



EVO™ CONDUIT SYSTEMS – PRODUCT SELECTION GUIDE

TYPE	Conduit material	Conduit weight	Slit version available	Temperature Range			
				Long term static min.	Long term static max.	Short term (3000 hrs)	Short term (200 hrs)
NC	Polyamide 6	Standard	●	-40°C	+120°C	+150°C	+175°C
CTPA	Polyamide 6	Light	●	-40°C	+120°C	+135°C	+135°C
CPC	Co-Polyester	Medium	—	-50°C	+135°C	+150°C	+175°C



## CONNECTOR KEY

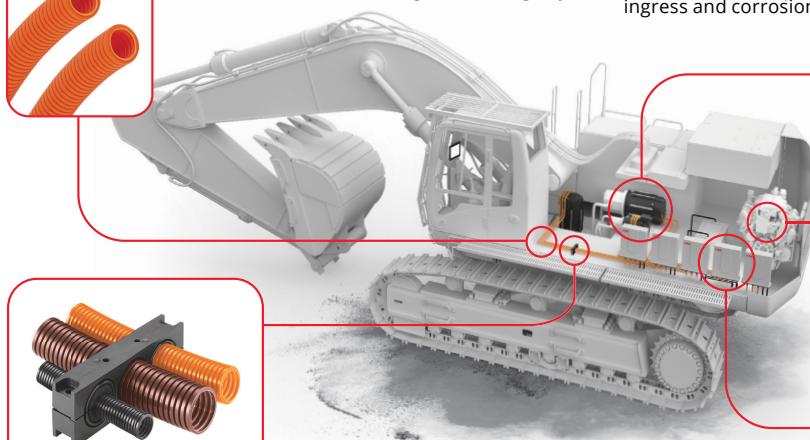
- 1 Amphenol PL18-G2 (Straight)
- 2 Amphenol PL28-G2 (90°)
- 3 Amphenol PL300 PL282 (90°)
- 4 Amphenol PL182-G2 (Straight)
- 5 Amphenol PL300 (Straight)
- 6 Amphenol PL300 (90°)
- 7 TE HVA280 3P

TYPE	Amphenol PL300 (Straight)
Part No.	Connector
28-PL300	PL18X-301-50-5
25-PL300	PL18Y-301-50-5
28-PL300	PL18U-301-50-5
25-PL300	PL18V-301-50-5
28-PL300	PL18W-301-50-5
25-PL300	PL18T-301-50-5
28-PL300	PL18X-300-50-5
25-PL300	PL18Y-300-70-5
28-PL300	PL18U-300-70-5
28-PL300	PL18V-300-70-5
28-PL300	PL18W-300-70-5
28-PL300	PL18T-300-70-5
28-PL300	PL18X-301-70-5
28-PL300	PL18Y-301-70-5
28-PL300	PL18U-301-70-5
28-PL300	PL18V-301-70-5
28-PL300	PL18W-301-70-5
28-PL300	PL18T-301-70-5

TYPE	Amphenol PL300 (90°)
Part No.	Connector
CI25-PL300	PL28X-300-35-5
CI28-PL300	PL28Y-300-35-5
CI25-PL300	PL28U-300-35-5
CI28-PL300	PL28V-300-35-5
CI25-PL300	PL28W-300-35-5
CI28-PL300	PL28T-300-35-5
CI25-PL300	PL28X-301-35-5
CI28-PL300	PL28Y-301-35-5
CI25-PL300	PL28Y-301-35-5
CI28-PL300	PL28U-301-35-5
CI25-PL300	PL28U-301-35-5
CI28-PL300	PL28T-301-35-5
CI25-PL300	PL28X-300-50-5
CI28-PL300	PL28Y-300-50-5
CI25-PL300	PL28U-300-50-5
CI28-PL300	PL28V-300-50-5
CI25-PL300	PL28T-300-50-5
CI28-PL300	PL28X-300-50-5
CI25-PL300	PL28Y-300-50-5
CI28-PL300	PL28U-300-50-5
CI25-PL300	PL28V-300-50-5
CI28-PL300	PL28T-300-50-5
CI25-PL300	PL28W-300-50-5
CI28-PL300	PL28W-300-50-5
CI25-PL300	PL28T-300-50-5
CI28-PL300	PL28T-300-50-5

TYPE	Amphenol PL300 (90°)
Part No.	Connector
CI25-PL300	PL28Y-301-50-5
CI28-PL300	PL28Y-301-50-5
CI25-PL300	PL28U-301-50-5
CI28-PL300	PL28V-301-50-5
CI25-PL300	PL28W-301-50-5
CI28-PL300	PL28T-301-50-5
CI25-PL300	PL28X-301-70-5
CI28-PL300	PL28Y-301-70-5
CI25-PL300	PL28U-301-70-5
CI28-PL300	PL28V-301-70-5
CI25-PL300	PL28W-301-70-5
CI28-PL300	PL28T-301-70-5
CI25-PL300	PL28X-301-70-5
CI28-PL300	PL28Y-301-70-5
CI25-PL300	PL28U-301-70-5
CI28-PL300	PL28V-301-70-5
CI25-PL300	PL28W-301-70-5
CI28-PL300	PL28T-301-70-5

TYPE	TE HVA280 3P	
Part No.	Connector	Compatible Connector
CI16-HVA280-3	4-2103015-1	2103013-1
CI16-HVA280-3	4-2103015-2	2103013-2
CI16-HVA280-3	4-2103015-3	2103013-3
CI16-HVA280-3	4-2103015-4	2103013-1
CI16-HVA280-3	4-2103015-5	2103013-2
CI16-HVA280-3	4-2103015-6	2103013-3



**Harnessflex®** offers complete systems solutions for the routing and protection of electrical wiring against damage by mechanical abrasion, liquid ingress and corrosion

# DESIGNING A HARNESS?

**Contact us today to discuss with our Harnessflex experts on how we can improve the reliability and performance of the electrical wiring harness so your vehicle and business stays up and running when you need it.**

 1800 777 458

 sales@quikcrimp.com.au

 quikcrimp.com.au

## WHO IS QUIKCRIMP

Quikcrimp Australia is the exclusive distributor for the Harnessflex products in Australia and New Zealand (ANZ). We are a specialist stockist of the Harnessflex specialised range of flexible conduit systems, fittings and accessories, supplying and servicing customers in the automotive and electrical markets with their harness applications.

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Greystanes 2145

**WA** 133 Logistics Boulevard  
Kenwick 6107