



HARNESSEFLEX

# HARNESSEFLEX SPECIALIST CONDUIT SYSTEMS

Harnessflex conduit systems combine innovative design with precision manufacturing to offer customers a broad range of cable protection products and solutions.

Our range includes Conduits, Sealed Fittings and Hinged Fittings. The Harnessflex system performs in a wide variety of environments from high temperature to freezing subzero conditions.

Whether used individually or in combination, Harnessflex products provide protection against not only liquid and dust ingress, but also mechanical abrasion and corrosive salts.

Specifically designed to protect critical electrical and electronic wiring assemblies in heavy-duty commercial applications such as:

- ▶ Fuel Tankers
- ▶ Trucks & Buses
- ▶ Construction & Mining Vehicles
- ▶ Dangerous Goods Vehicle (ADR approved)
- ▶ Marine Vessels
- ▶ Security & Data
- ▶ Critical Power
- ▶ Agricultural Vehicles



**Harnessflex**  
SPECIALIST CONDUIT SYSTEMS

# CARROLL SPECIALISED CONDUIT SYSTEMS

Harnessflex combines innovative design with precision manufacturing to offer customers a broad range of cable protection products and solutions.

- Performs in a wide variety of environments from high temperature to freezing subzero conditions
- Extensive range of engineered solutions are designed to withstand the rigours of the most technically demanding applications
- Harnessflex Specialist Conduit Systems can be used to protect critical power and data cabling. ADR approved.
- Tested and approved to ANZ and International Standards
- Harnessflex hinged systems are rated at IP40.
- Harnessflex sealed systems are rated at IP66, 67, 68 (2 BAR for 30 mins) and 69k, when using Harnessflex conduit.

## Markets and Industries

Harnessflex Specialist Conduit Systems can be used to protect critical power and data cabling and is available throughout a wide range of markets including:

- **Dangerous Goods Vehicles**
- **Commercial Contracting**
- **Machinery**
- **Rail/Infrastructure**
- **Marine**
- **Mechanical**
- **Security/CCTV**
- **Data Cabling**
- **Critical Power**

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***Harnessflex***  
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Many components are designed specifically for a market solution. These products uniquely meet an industry's needs - solving a specific application requirement, providing product innovation, saving installation and component costs, improving the quality and the integrity of the end product. Wherever you need mechanical and electrical protection for your cables you can be confident in specifying Harnessflex products.

## Approvals

Harnessflex is tested and approved to International Standards, i.e. TUV & LCIE, for the widest variety of automotive applications including hazardous or aggressive fuel or chemical transportation environments. In Australia and New Zealand, Harnessflex is approved and meets the requirements specified in AS2809 for Dangerous Goods Vehicles, e.g. fuel tankers. It is also the system specified by the leading Australian heavy duty truck manufacturers. ADR Approved.

**Copies of ADR approvals are available upon request.**



# HARNESSFLEX SPECIFICATIONS



Harnessflex premium nylon conduit is designed to withstand temperatures from -40°C to +120°C for long term static use and has many features including:

- Resistance to many oils, solvents and petrochemicals
- Flexible tough construction with high impact strength and a long fatigue life
- High UV resistance, halogen free and self extinguishing
- Stocked in a wide range of sizes

**When used in conjunction with the extensive range of fittings and adaptors the Harnessflex System can achieve IP66, IP67, IP68 and IP69K and offers extreme versatility for both harness manufacturing and general purpose applications.**

## Harnessflex Chemical Compatibility

CHEMICAL MINERAL	HARNESSFLEX CONDUIT	CHEMICAL/ MINERAL	HARNESSFLEX CONDUIT	CHEMICAL/ MINERAL	HARNESSFLEX CONDUIT
Astm oil no. 1	S	Astm oil no. 2	S	Astm oil no. 3	S
Acetic acid (10%)	L	Acetone	S	Aluminum chloride (10%)	L
Benzene	S	Chlorine water	U	Diesel oil	S
Ethyl alcohol	S	Ethylene glycol (antifreeze)	S	Freon 32	S
Hydrochloric acid (10%)	U	Hydrochloric acid (36%)	U	Hydrogen peroxide (35%)	L
Lactic acid (90%)	L	Lubricating oil	S	Methyl alcohol	L
Methyl ethyl ketone	S	Nitric acid (10%)	U	Nitric acid (70%)	U
Oxalic acid	L	Ozone gas	U	Paraffin oil	S
Petrol	S	Silver nitrate	S	Sodium chloride	S
Sodium hydroxide (10%)	S	Sodium hydroxide (60%)	S	Sulphuric acid (10%)	U
Sulphuric acid (70%)	U	Toluene	S	Transformer oil	S
Trichlorethylene	L	Turpentine	S	Vegetable oils (general)	S
Vinyl acetate	L	Water (sea)	S	White spirit	S
Zinc chloride	U				

Note: These results shown are based on exposure to individual chemicals at ambient temperature.  
All inorganic salts are saturated aqueous solutions unless otherwise stated.  
Key: S = Suitable L = Limited U = Unsuitable

## Harnessflex Physical Properties

CHEMICAL/MINERAL	HARNESSFLEX	CHEMICAL/ MINERAL	HARNESSFLEX CONDUIT
Specific gravity	1.14	Melting point	220°C
Max. Operating temperature static	120°C	Max. Operating temperature dynamic	100°C
Min. Operating temperature static	-40°C	Min operating temperature dynamic	-30°C
Tensile strength *	40MPa	Elongation at break *	60%
Flexural modulus *	1.0GPa	Impact strength – notched izod *	0.25KJ/m
Dielectric strength *	25MV/m	Volume resistivity *	8 log ohm cm
Halogen free	Yes		

\* The results are from test pieces of sheet material, conditioned at 23°C and 50% Relative Humidity, and not from finished products.

**The International Protection (IP Rating) and published performance specifications of Harnessflex fittings is only guaranteed by Carroll Australasia when used in conjunction with Carroll supplied conduit.**



## Nylon Flexible Conduit

CODE	PART NO.	NOMINAL SIZE	BORE	OD mm	LENGTH
PD	NC08	8	6.6	10	100m
	NC10	10	8.4	11.5	100m
	NC12	12	9.9	13	100m
	NC16	16	12.7	16.1	50m
	NC20	20	16.6	21.2	50m
	NC25	25	21.3	25.6	50m
	NC28	28	22.6	28.5	50m
	NC32	32	28.8	34.5	50m
	NC40	40	35.2	42.5	25m
	NC50	50	46.5	54.5	25m



**HARNESSFLEX CONDUIT**

## Nylon Flexible Conduit - Dispenser Box (Retail)

CODE	PART NO.	DESCRIPTION	LENGTH
PD	NC08/DB	NC08 HFX CONDUIT WITH DISPENSER BOX	100m
	NC10/DB	NC10 HFX CONDUIT WITH DISPENSER BOX	100m
	NC12/DB	NC12 HFX CONDUIT WITH DISPENSER BOX	100m
	NC16/DB	NC16 HFX CONDUIT WITH DISPENSER BOX	50m
	NC20/DB	NC20 HFX CONDUIT WITH DISPENSER BOX	50m
	NC25/DB	NC25 HFX CONDUIT WITH DISPENSER BOX	50m

## Nylon Flexible Conduit - Wooden Drum (Bulk)

CODE	PART NO.	NOMINAL SIZE	BORE	OD mm	LENGTH
PD	NC08 WD	8	6.6	10	1,000m
	NC10 WD	10	8.4	11.5	1,000m
	NC12 WD	12	9.9	13	1,000m
	NC16 WD	16	12.7	16.1	500m
	NC20 WD	20	16.6	21.2	350m
	NC25 WD	25	21.3	25.6	250m

## Complete Straight Sealed Adapters (IP 66, 67, 68, 69K)

Harnessflex straight adaptor bodies feature an anti vibration locking ring on the cap nut which ensures the fitting remains tightened during assembly and in service. An integral neoprene 'O' ring embedded in the mounting face seals the fitting against the junction box or enclosure.

CODE	PART NO.	DESCRIPTION	PACK QTY
PD	CAB10M16-CA	KIT ADAPTOR BODY NC10/M16 X 10PC	10
	CAB12M16-CA	KIT ADAPTOR BODY NC12/M16 X 10PC	10
	CAB12M20-CA	KIT ADAPTOR BODY NC12/M20 X 10PC	10
	CAB16M16-CA	KIT ADAPTOR BODY NC16/M16 X 10PC	10
	CAB16M20-CA	KIT ADAPTOR BODY NC16/M20 X 10PC	10
	CAB16PG13-CA	KIT ADAPTOR BODY NC16/PG13 X 10PC	10
	CAB20M20-CA	KIT ADAPTOR BODY NC20/M20 X 10PC	10
	CAB25M25-CA	KIT ADAPTOR BODY NC25/M25 X 10PC	10
	CAB32M32-CA	KIT ADAPTOR BODY NC32/M32 X 10PC	10
	CAB28M25-CA	KIT ADAPTOR BODY NC28/M25 X 10PC	10
	CAB40M40-CA	KIT ADAPTOR BODY NC40/M40 X 1	1



**STRAIGHT ADAPTER BODIES**

## ATS Fittings - Quick Installation, One Piece, IP 69K rated

CODE	PART NO.	THREAD SIZE mm	FIT CONDUIT SIZE mm	BODY COLOUR	ELASTOMER COLOUR	PACK QTY
PD	CAB12M1690ATS	16	12	BLACK	YELLOW	5
	CAB16M16ATS	16	16	BLACK	YELLOW	5
	CAB16M1690ATS	16	16	BLACK	YELLOW	5
	CAB16M20ATS	20	16	BLACK	YELLOW	5
	CAB16M2090ATS	20	16	BLACK	YELLOW	5
	CAB20M20ATS	20	20	BLACK	YELLOW	5
	CAB20M2090ATS	20	20	BLACK	YELLOW	5
	CAB25M25ATS	25	28	BLACK	YELLOW	5
	CAB32M3290ATS	32	32	BLACK	YELLOW	5
	CAB40M40ATS	40	40	BLACK	YELLOW	1
	CAB40M4090ATS	40	40	BLACK	YELLOW	1

## Complete Flanged 90° Adapter Bodies (IP 66, 67, 68, 69K)

Used in place of an electrical connector where cables need to be passed through a bulkhead.

CODE	PART NO.	CONDUIT SIZE	PACK QTY
PD	CAB40F90	40	1

## Complete 90° Adapter Bodies (IP 66, 67, 68, 69K)

Harnessflex 90° adaptor bodies are similar to the straight adaptors, in that they feature anti vibration locking ring on the cap nut. The seal between the adaptor body and enclosure is achieved by the neoprene sealing face washer supplied in the kit.

CODE	PART NO.	DESCRIPTION	PACK QTY
PD	CAB10M1690-CA	KIT 90 DEGREE A/BODY NC10/M16MM X 10PC	10
	CAB12M1690-CA	KIT 90 DEGREE A/BODY NC12/M16MM X 10PC	10
	CAB16M1690-CA	KIT 90 DEGREE A/BODY NC16/M16MM X 10PC	10
	CAB16M2090-CA	KIT 90 DEGREE A/BODY NC16/M20MM X 10PC	10
	CAB20M2090-CA	KIT 90 DEGREE A/BODY NC20/M20MM X 10PC	10
	CAB25M2590-CA	KIT 90 DEGREE A/BODY NC25/M25MM X 10PC	10
	CAB28M2590-CA	KIT 90 DEGREE A/BODY NC28/M25MM X 10PC	10
	CAB32M3290-CA	KIT 90 DEGREE A/BODY NC32/M32MM X 1	1
	CAB40M4090	KIT 90 DEGREE A/BODY NC40/M40MM X 1	1

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ATS FITTING



COMPLETE FLANGED 90° ADAPTER BODIES



90° ADAPTER BODIES

## Complete 'T' Pieces (IP 66, 67, 68, 69K)

Harnessflex "T" pieces save time and space in the construction of wiring looms. Also featuring the unique anti vibration rings, the "T" pieces make branches from main harnesses simple and also in many instances can replace expensive junction boxes. Through the use of the simple reducing kits, any outlet can be reduced down to any smaller conduit size. The inspection hatch can be removed in order to ease routing cables through the "T" piece but this must be refitted after assembly to maintain the IP67 rating.

CODE	PART NO.	CONDUIT SIZE	PACK QTY
PD	CTP10	10 x 3	1
	CTP12	12 x 3	1
	CTP16	16 x 3	1
	CTPB20	20 x 3	1
	CTPB25	25 x 3	1
	CTPB28	25 x 3	1
	CTPB32	32 x 3	1



'T' PIECE

## Reducing Kits (IP 66, 67, 68, 69K)

Special cap nut and sealing bush kit, designed to reduce outlets from "T" pieces, manifolds and connectors.

CODE	PART NO.	DESCRIPTION	PACK QTY
PD	RK12-08-CA	REDUCING BUSH NC12 TO NC08 X 10PC	10
	RK16-08-CA	REDUCING BUSH NC16 TO NC08 X 10PC	10
	RK16-12-CA	REDUCING BUSH NC16 TO NC12 X 10PC	10
	RK20-08-CA	REDUCING BUSH NC20 TO NC08 X 10PC	10
	RK20-12-CA	REDUCING BUSH NC20 TO NC12 X 10PC	10
	RK20-16-CA	REDUCING BUSH NC20 TO NC16 X 10PC	10
	RK25-12-CA	REDUCING BUSH NC25 TO NC12 X 10PC	10
	RK25-16-CA	REDUCING BUSH NC25 TO NC16 X 10PC	10
	RK25-20-CA	REDUCING BUSH NC25 TO NC20 X 10PC	10
	RK28-12-CA	REDUCING BUSH NC28 TO NC12 X 10PC	10
	RK28-16-CA	REDUCING BUSH NC28 TO NC16 X 10PC	10
	RK28-20-CA	REDUCING BUSH NC28 TO NC20 X 10PC	10
	RK32-20-CA	REDUCING BUSH NC32 TO NC20 X 10PC	10
	RK32-25-CA	REDUCING BUSH NC32 TO NC25 X 10PC	10
	RK32-28-CA	REDUCING BUSH NC32 TO NC28 X 10PC	10

## 'T' Piece Connector (IP 66, 67, 68, 69K)

CODE	PART NO.	JOINS T PIECES	PACK QTY
PD	TPC12	CTP10 & CTP12	5
	TPC16	CTP16	5
	TPC20	CTPB20	5
	TPC28	CTPB28	5



'T' PIECE CONNECTOR

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**PROTECTORS**

## Complete 'X' Piece (IP 66, 67, 68, 69K)

The Harnessflex "X" Piece exhibits all the sealing and anti-vibration features of the T Piece, and accepts the reducing kits allowing utilisation of 20, 16, 12 and 8mm conduit sizes from any of the 4 outlets. A perfect, space saving, economical replacement for junction boxes.

CODE	PART NO.	CONDUIT SIZE	PACK QTY
PD	CXP20	20 x 4	1

## Complete Manifold (IP 66, 67, 68, 69K)

Similar to a "T" piece. This product can be used where two outlets are required close together from a main conduit run. Used principally on vehicle chassis harnesses where connections are required to gearbox, differentials and air drier switches etc.

CODE	PART NO.	CONDUIT SIZE	PACK QTY
PD	CMF25X12	2 x 12, 2 x 25	1

## 'Y' Piece Hinged Fittings (IP 40)

"Y" pieces provide branch outlets along a conduit run. Standard applications include insertion in vehicle engine or chassis harness where complete sealing is not required. Splash proof to IP40. Sizes are available for use with conduit diameters from 8mm up to 25mm. The "Y" piece is supplied as one part and hinged along its length. They are simply applied as the final assembly item by locating onto the conduit corrugations and snapped together. The fitting offers no restriction of the conduit bore.

CODE	PART NO.	CONDUIT SIZE	PACK QTY
PD	YPS080808 - HX	08-08-08	10
	YPS120808 - HX	12-08-08	10
	YPS121212 - HX	12-12-12	10
	YPS161208 - HX	16-12-08	10
	YPS161212 - HX	16-12-12	10
	YPS161608 - HX	16-16-08	10
	YPS161612 - HX	16-12-12	10
	YPS201208 - HX	20-12-08	10
	YPS201212 - HX	20-12-12	10
	YPS201612 - HX	20-16-12	10
	YPS201616 - HX	20-16-16	10
	YPS202012 - HX	20-20-12	10
	YPS202016 - HX	20-20-16	10
	YPS252016 - HX	25-20-16	10
	YPS252512 - HX	25-25-12	10
	YPS252516 - HX	25-25-16	10
	YPS252520 - HX	25-25-20	10
	YPS252525 - HX	25-25-20	10

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COMPLETE 'X' PIECE



MANIFOLD



HINGED 'Y' PIECE