

- Material : High Quality Polyamide 12 (PA12)
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP68 (EN 60529)
- Temperature : -40°C ~ +105°C
- Short Term : +130°C
- Self-Extinguishing : UL94-V2
- Color : Black, Yellow
- Connections : CPSFIX
- Application : High Speed Machine, Industrial Robot
- International Specification : UL(PART-22-48B and 22-48Y)
CE, RoHS2

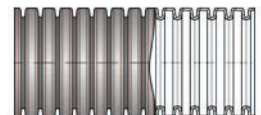
Product Size

Standard Pitch : Excellent Pull-out Performance



Black	Yellow	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) (R)mm± 10%	Packing meter / roll
PAR-07B	PAR-07Y	6.4	10.0	15.0	50/100
PAR-10B	PAR-10Y	9.6	13.0	20.0	50
PAR-12B	PAR-12Y	11.8	15.8	30.0	50
PAR-16B	PAR-16Y	15.9	21.2	40.0	50
PAR-22B	PAR-22Y	21.7	28.5	45.0	50
PAR-28B	PAR-28Y	27.8	34.5	55.0	50
PAR-36B	PAR-36Y	36.0	42.5	60.0	30
PAR-42B	PAR-42Y	41.5	48.5	65.0	30
PAR-48B	PAR-48Y	46.5	54.5	70.0	30
PAR-56B	PAR-56Y	56.3	67.2	110.0	30
PAR-70B	PAR-70Y	70.0	82.5	160.0	10
PAR-95B	PAR-95Y	91.5	106.0	210.0	10

Narrow Pitch(T) : Excellent Flexibility Performance



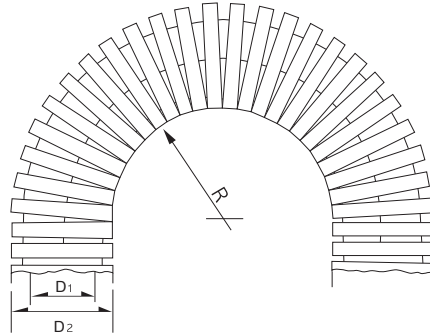
PART-22B	PART-22Y	21.7	28.5	40.0	50
PART-28B	PART-28Y	27.8	34.5	50.0	50
PART-36B	PART-36Y	36.0	42.5	55.0	30
PART-42B	PART-42Y	42.5	48.5	57.5	30
PART-48B	PART-48Y	46.5	54.5	60.0	30
PART-56B	PART-56Y	57.3	67.2	100.0	30
PART-70B	PART-70Y	72.0	82.5	150.0	10

※ Much Improved Elasticity & Flexibility compared with PAR



Roboway &
ROBO-KIT

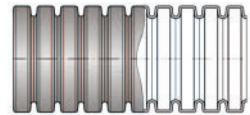
● Black
● Yellow



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- Temperature : -40℃ ~ +105℃
- Short Term : +130℃
- Self-Extinguishing : UL94-V2
- Color : Black, Yellow
- Connections : CPSFIX & ROBO-KIT
- Application : Industrial Robot(for Roboway)
- International Specification : CE, RoHS2

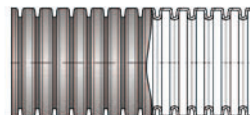
Product Size

Standard Pitch : Excellent Pull-out Performance



Black	Yellow	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) (R)mm ±10%	Packing meter / roll
PAM-07B	PAM-07Y	6.4	10.0	15.0	50/100
PAM-10B	PAM-10Y	9.6	13.0	20.0	50
PAM-12B	PAM-12Y	11.8	15.8	30.0	50
PAM-16B	PAM-16Y	15.9	21.2	40.0	50
PAM-22B	PAM-22Y	21.7	28.5	45.0	50
PAM-28B	PAM-28Y	27.8	34.5	55.0	50
PAM-36B	PAM-36Y	36.0	42.5	60.0	30
PAM-42B	PAM-42Y	41.5	48.5	65.0	30
PAM-48B	PAM-48Y	46.5	54.5	70.0	30
PAM-56B	PAM-56Y	56.3	67.2	110.0	30
PAM-70B	PAM-70Y	70.0	82.5	160.0	10
PAM-95B	PAM-95Y	91.5	106.0	210.0	10

Narrow Pitch(T) : Excellent Flexibility Performance



PAMT-22B	PAMT-22Y	21.7	28.5	40.0	50
PAMT-28B	PAMT-28Y	27.8	34.5	50.0	50
PAMT-36B	PAMT-36Y	36.0	42.5	55.0	30
PAMT-42B	PAMT-42Y	42.5	48.5	57.5	30
PAMT-48B	PAMT-48Y	46.5	54.5	60.0	30
PAMT-56B	PAMT-56Y	57.3	67.2	100.0	30
PAMT-70B	PAMT-70Y	72.1	82.5	150.0	10

Flexible Plastic Tube

CPSFLEX is Flexible Tube that is harmless to humans by using Quality Polyamide 6 material and also can be recycled. There are various flame retardant grade from UL94-HB to V0 according to its usage environment.



Product Features



CPSFLEX can be cut by a cutter, which reduces working hours.



※ Please use exclusive cutter when much cutting work is required

It has flame retardant grade from UL94-HB to V0.

Raw materials for CPSFLEX are toxic-free, and have passed the test by designated test institute. In addition, CPS products have been produced according to the directive that Europe regulates.

Standard Size of CPSFLEX based on amount of cables and hoses

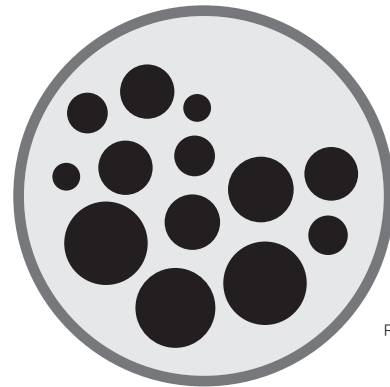
CPSFLEX List

* Same size applied to all types of CPSFLEX

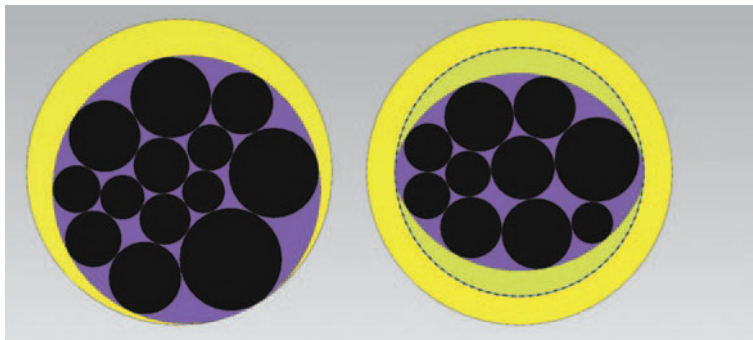


Black	Gray	Ultraviolet Block UV-R	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
CPS-07B	CPS-07G	CPS-07U	6.4	10.0	15.0	50/100
CPS-10B	CPS-10G	CPS-10U	9.6	13.0	20.0	50
CPS-12B	CPS-12G	CPS-12U	11.8	15.8	30.0	50
CPS-16B	CPS-16G	CPS-16U	15.9	21.2	40.0	50
CPS-22B	CPS-22G	CPS-22U	21.7	28.5	45.0	50
CPS-28B	CPS-28G	CPS-28U	27.8	34.5	55.0	50
CPS-36B	CPS-36G	CPS-36U	36.0	42.5	60.0	30
CPS-42B	CPS-42G	CPS-42U	41.5	48.5	65.0	30
CPS-48B	CPS-48G	CPS-48U	46.5	54.5	70.0	30
CPS-56B	CPS-56G	CPS-56U	56.3	67.2	110.0	30
CPS-70B	CPS-70G	CPS-70U	70.0	82.5	160.0	10
CPS-95B	CPS-95G	CPS-95U	91.5	106.0	210.0	10

Secure 20% of empty space inside of CPSFLEX

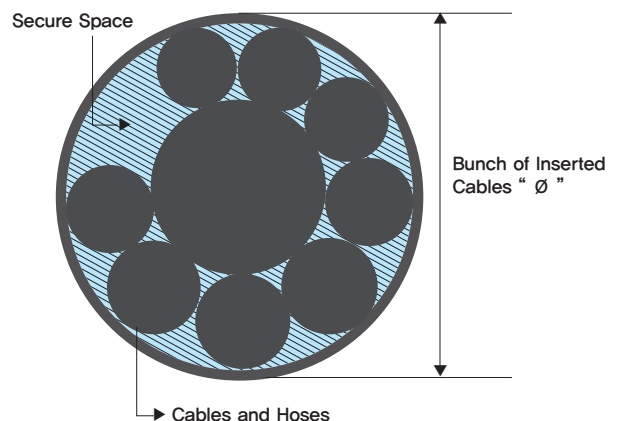


Refer to Image



How much Empty space of CPSFLEX should be secured

Please secure a 20% of empty space inside of Flexible Tube (CPSFLEX) by calculating Dia. of a bunch of inserted all cables like in the image.



EN45545-2 R22(HL2), R23(HL3) Flame Test Certification Acquired!



- Oxygen index to T01 EN ISO 4589-2
- Flue gas density to T10.03 EN ISO 5659-2
- Oxygen index to T12 NF X70-100-1 and 2



Test Method

- ① Measure time of Carbonized Length, Area and Flame stayed
- ② Measure burning time based on certain length of tube
- ③ Measure value of smoke concentration
- ④ Measure existence of toxic gases and its degree
- ⑤ Measure value of oxygen concentration that is required to combust



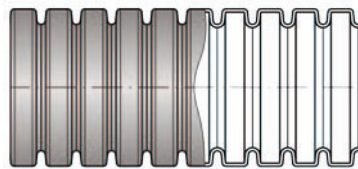
Ordering

PAH T -10B : 100M

Black and Gray is a basic color. Different color of tube can be supplied according to customer's request.

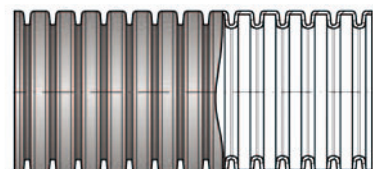
- Q'ty (m)
- Color B : Black / G : Gray
U : Ultraviolet Block (Black only)
- Size (07, 10, 12, 16, 22, 28, 36, 42, 48, 56, 70, 95)
- Type of Pitch

Standard Pitch: Excellent Pull-out Performance



Standard Pitch

Narrow Pitch: Excellent Flexibility Performance



'T' follows after model name

- * CPS / PAH / RAH / PAM / PAR
- * Size (22, 28, 36, 42, 48)

- Type (CPS / PAH / RAH / PES / CPSS / PAHS / PESS / PAR / PAM / RAH12)



Major customer for machine tools

HYUNDAI
WIA

DN SOLUTIONS
IEI HIRACHON

Major customer for railroad cars

HYUNDAI
Rotem

DAWONSYS

WOJIN
Industrial System Co., Ltd.



Eco-Friendly

All products of CP SYSTEM CO.,LTD comply with RoHS Regulation.



Restriction of the use of Specific Pollutants (RoHS)

RoHS stands for Restriction of Hazardous Substances, and impacts the entire electronics industry and many electrical products as well. The original RoHS, also known as Directive 2002/95/EC, originated in the European Union in 2002 and restricts the use of six hazardous materials found in electrical and electronic products. All applicable products in the EU market since July 1, 2006 must pass RoHS compliance.

The substances banned under RoHS are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), and four different phthalates (DEHP, BBP, BBP, DIBP).

IM Beauty	RoHS(2002/95/EC)	RoHS II(2011/65/EU)
Time of Application	1st July 2006	2nd Jan. 2013
Product Family	5 EEE products among 10 EEE products	All Electrical and Electronic Equipment - Medical device, Observation/Control Instrument(After 22 July 2014) - Medical device(After 22 July 2016) - Observation/Control Instrument - Electrical/Electronic Equipment except for 10 EEE products
CE Marking	N/A	CE Marking Compulsory
Performance of obligation Party	No Legal Provision	Performance of obligation Regulation to Manufacturer, Importer, Distributor
Technical Document	Recommended	Compulsory (EN 50581)

AE) Other harmful substance except for RoHS – Halogen Free (Br, Cl, F, I, At)

Halogens are a group in the periodic table consisting of five chemically related elements: fluorine (F), chlorine (Cl), bromine (Br), iodine (I), and astatine (At).

Halogen-free, a substance must consist of less than 900 parts per million (ppm) of chlorine or bromine and also have less than 1500 ppm of total halogens.

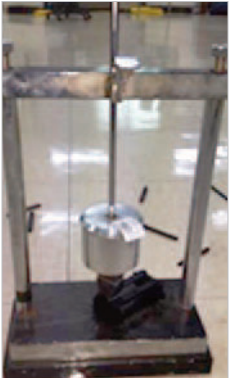
Green Peace emphasizes harmfulness of Halogen substance and publish grade of each enterprise by conducting Green Peace Self Evaluation.

Reliability Test Verification



Test of Compression and Decompression (IEC 61386)

1. Measure outer dia. of 200mm long tube at 23°C temperature before conducting test.
2. Place specimen between flat plate and compression plate.
3. Compress specimen gradually for 30 seconds based on designated compression value.
And then, compress specimen for 60 sec. again and check value of deformation.
It must not exceed 25% of deformation in regard to outer diameter from initial status.
4. Remove specimen from the plates and leave it for 60 seconds. And then measure its outer diameter of specimen again. It must not exceed 10% of deformation in regard to outer diameter from initial status.



Impact Test after keeping Low Temperature (IEC 61386)

1. Give impact to the center position of or the weakest position of flexible tube by using standard hammer.
2. Give impact to the other flexible tube that is exactly a same spec. after putting it into a low temperature chamber.
3. There must not any mark of deformation or split at those 2 specimens above.



Pulling-Out Test (UL 1696)

1. Connect 500mm long flexible tube and connector and fix them to fixing device.
Pull for 60 seconds and check its deformation value.
2. Flexible tube and Connector must not have damage after test conducted.



TENSILE TEST(IEC 61386)

1. Connect 300mm flexible tube on the fixing device. Pull for 30~40 seconds and check its deformation value after 2 minutes.
2. Flexible tube must not have damage after test..



Vertical Flame Test (Self-Extinguish ability Test / UL 1696)









1. Combust 330mm long flexible tube for 15 seconds and leave it for 15 sec in the air. And then combust it for 15 seconds again.
2. After second combustion, if flame of specimen remains over 60 seconds or the tube is completely burned to ashes, it is failed. Spark must not drop at cotton ball
3. Flexible tubes must endure more than 2.5 million times bending test



Bending Test or Flexibility Test (IEC 61386)

1. Bend Flexible tube to right and left direction by 90°. The tube must maintain its specified R value and there should be no deformation or split mark.
2. Flexible tubes must endure more than 2.5 million times bending test

Specification

Type	Material	Characteristic	Temperature range	Self-extinguishing UL-94	Color	Application
CPS 	PA6	standard version medium-wall, very flexible	-40°C ~ +105°C short term +130°C	UL94-HB	<ul style="list-style-type: none"> ● Black ● Gray ● UV-Resistant 	Machine tool, Industrial & Automatic Machinery etc.
PAH 	PA6	standard version medium-wall, very flexible	-40°C ~ +105°C short term +150°C	UL94-V0	<ul style="list-style-type: none"> ● Black ● Gray ● Light Gray ● UV-Resistant 	Machine tool, industrial & Automatic Machinery, Rolling Stock etc.
RAH 	PA6/66	standard version medium-wall, very flexible	-40°C ~ +105°C short term: +150°C	UL94-V0 EN45545-2	<ul style="list-style-type: none"> ● Black ● Gray ● UV-Resistant 	Railroad cars
POH 	PA6	reinforced version thick-wall, flexible	-40°C ~ +105°C short term +150°C	UL94-V0	<ul style="list-style-type: none"> ● Black ● Gray ● UV-Resistant 	Machinery
PES 	PE	simple version light-weight, flexible	-15°C ~ +60°C short term +80°C	UL94-HB	<ul style="list-style-type: none"> ● Black ● Gray 	Chemical Apparatus (Acid Resistance, Alkali-Resistance)
CPSS 	PA6	standard version medium-wall, very flexible	-40°C ~ +105°C short term +130°C	UL94-HB	<ul style="list-style-type: none"> ● Black ● Gray 	Machinery
PAHS 	PA6	standard version medium-wall, very flexible	-40°C ~ +105°C short term +150°C	UL94-V0	<ul style="list-style-type: none"> ● Black ● Gray ● Light Gray ● UV-Resistant 	Machine tool, industrial & Automatic Machinery, Rolling Stock etc.
PESS 	PE	simple version light-weight, flexible	-15°C ~ +60°C short term +80°C	UL94-HB	<ul style="list-style-type: none"> ● Black ● Gray 	Chemical Apparatus (Acid Resist- ance, Alkali-Re- sistance)
PAR 	PA12	medium-wall very flexible to highly flexible	-40°C ~ +105°C short term +130°C	UL94-V2	<ul style="list-style-type: none"> ● Black ● Yellow 	High Speed Machine, Industrial Robot
PAM 	PA12	medium-wall very flexible to highly flexible	-40°C ~ +105°C short term +130°C	UL94-V2	<ul style="list-style-type: none"> ● Black ● Yellow 	Industrial Robot (for Roboway)
RAH12 	PA12	standard version medium-wall, very flexible	-40°C ~ +125°C short term +150°C	UL94-V2 EN45545-2	<ul style="list-style-type: none"> ● Black ● Gray ● UV-Resistant 	Railroad cars