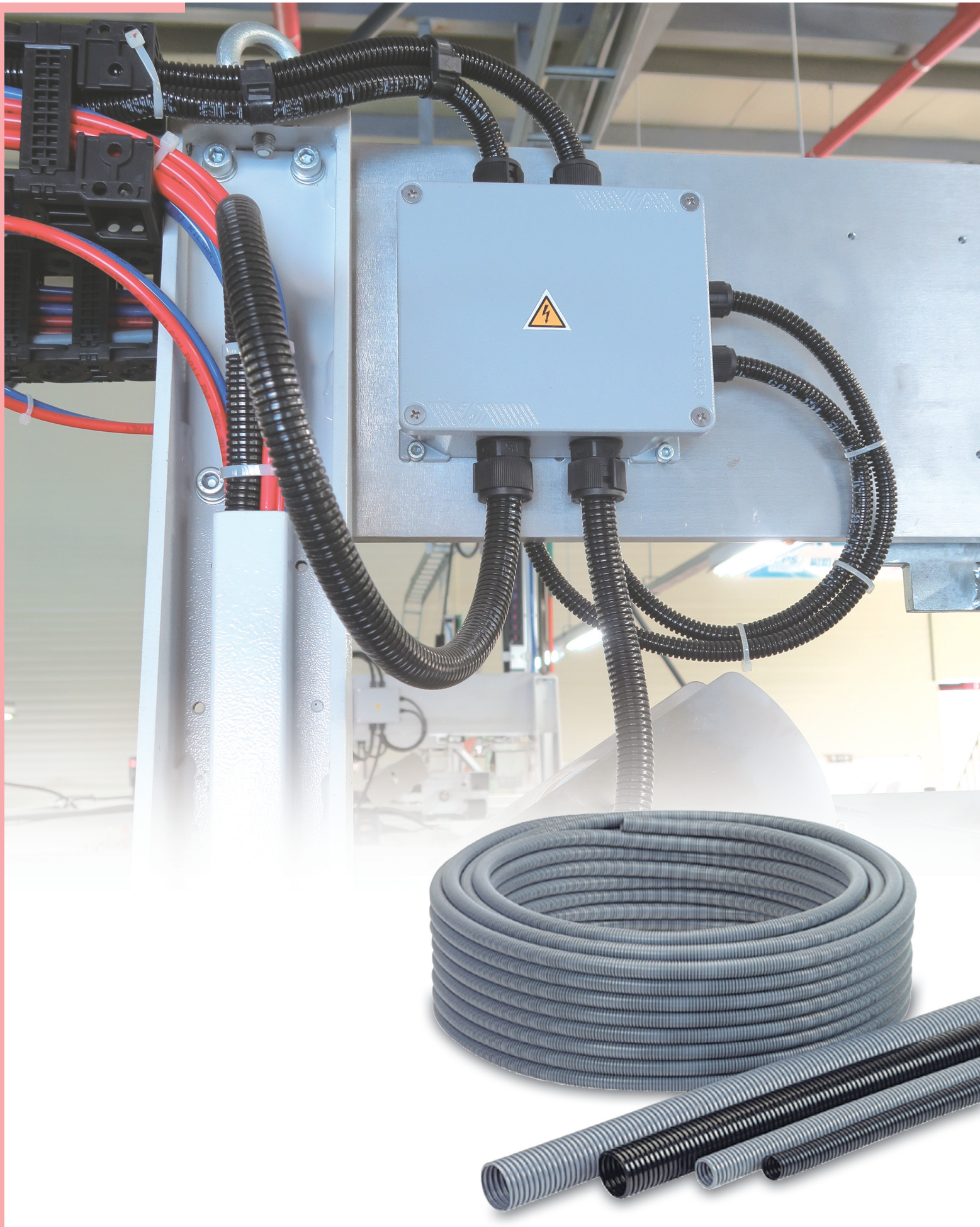
CPSFLEX



≫ Details of CPSFLEX

● *Anyone is able to cut the flexible tube with a cutter easily. Users can save time for installaton.*



● *CPS products have various ranges of flame retardant grade from UL94-HB to Vo.*



● *RoHS Directive 2002/95/EC*

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.

● *PAH Certificate of Reliability*

The flexible conduit, PAH, was awarded the UL94 certification from Korean Agency after passing reliability test.

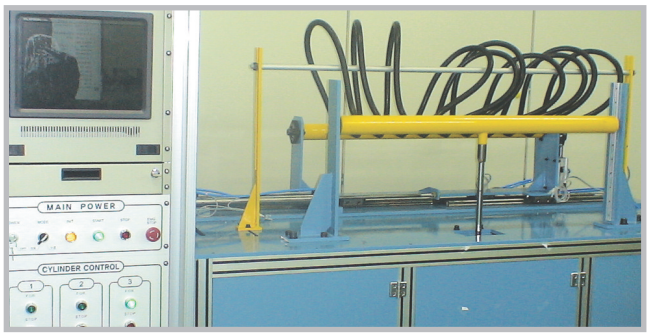
Flexibility : angular velocity 5,000 times under ∠40 ± 5°

Tensile Strength : 250N / 30 ± 3 second

Temperature : 4hours under -7 ± 2° 4 hours under / 55 ± 2°

Flammibility : 10 second(UL94)

Durability : 4 million round trip



≫ Ordering

PAH-10B : 100M ▶ Black& Gray are main colors, but it is available to produce light gray color according to customer's request.

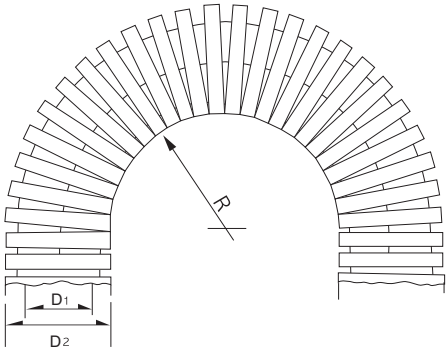
- Q'ty (m)
- Color B : Black / G : Gray U : U.V Resistant (Black only)
- Size (07, 10, 12, 16, 22, 28, 36, 48, 56, 70, 95)
- Type (CPS / PAH / RAH / POH / PES / PPS / CPSS / PESS / PPSS / PAM / PAR)

>> CPSFLEX Specification

Type	Material	Version	Temperature range	Self-extinguishing UL-94	Resistance	Color	Application
CPS 	Polyamide 6	standard version medium-wall, very flexible	-40˚C to +105˚C +130˚C short term	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, Industrial & Automatic Machinery etc.
PAH 	Polyamide 6	standard version medium-wall, very flexible	-40˚C to +105˚C +150˚C short term	UL94-Vo Halogen-Free UL File No.E191879 VDE License No.135369	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, industrial & Automatic Machinery, Rolling Stock etc.
RAH 	Polyamide 6	standard version medium-wall, very flexible	-40˚C to +105˚C +150˚C short term	UL94-Vo Halogen-Free UL File No.E191879 VDE License No.135369	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Rolling Stock, Machine tool, industrial & Automatic Machinery etc.
POH 	Polyamide 6	reinforced version thick-wall, flexible	-40˚C to +105˚C +150˚C short term	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, Shipbuilding Industrial Machinery, Heavy Industry etc.
PES 	Polyethylene	simple version light-weight, flexible	-15˚C to +60˚C +80˚C short term	-	acid, sea water, ammonia etc	Black / Gray	Chemical Machinery, Acid areas, Industrial Machinery etc.
CPSS 	Polyamide 6	standard version medium-wall, very flexible	-40˚C to +105˚C +130˚C short term	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray	Machine tool, Industrial & Automatic Machinery etc.
PESS 	Polyethylene	simple version light-weight, flexible	-15˚C to +60˚C +80˚C short term	-	acid, sea water, ammonia etc	Black / Gray	Chemical Machinery, Acid areas, Industrial Machinery etc.
PAM 	Polyamide 11/12	medium -wall very flexible to highly flexible	-50˚C to +95˚C +150˚C short term	UL94-V2 Halogen-Free	alcohol, benzol, mineral oil, diesel fuel, etc	Black / Yellow, UV-resistant (Only black)	Robots
PAR 	Polyamide 12	medium -wall very flexible to highly flexible	-50˚C to +95˚C +150˚C short term	UL94-V2 Halogen-Free	alcohol, benzol, mineral oil, diesel fuel, etc	Black / Yellow, UV-resistant (Only black)	Robots

CPS





- Material : High Quality Polyamide 6
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68 acc. EN 60529
- The max. Instantaneous Temperature : -40℃ to +105℃
- Short Term : up to +130℃
- Self-Extinguishing : UL94-HB, Halogen-Free
- Color : Black & Gray / Light gray (MOQ:100rolls)
- Connections : CPSFIX
- Application : Machine tool, Shipbuilding, Tramway Industrial / Automatic Machinery Printing Machine etc.

>> Product size

Black	Gray	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	50/100
CPS-10B	CPS-10G	CPS-10U	9.6	13.0	20	50
CPS-12B	CPS-12G	CPS-12U	11.8	15.8	30	50
CPS-16B	CPS-16G	CPS-16U	15.9	21.2	40	50
CPS-22B	CPS-22G	CPS-22U	21.7	28.5	45	50
CPS-28B	CPS-28G	CPS-28U	27.8	34.5	55	50
CPS-36B	CPS-36G	CPS-36U	36.0	42.5	60	30
CPS-48B	CPS-48G	CPS-48U	46.5	54.5	70	30
CPS-56B	CPS-56G	CPS-56U	56.3	67.2	110	30
CPS-70B	CPS-70G	CPS-70U	70.0	82.5	160	10
CPS-95B	CPS-95G	CPS-95U	91.5	106.0	210	10

(Dimensions in mm)

CPSFLEX

NEW

Specially corrugated tube for Railway!





- EN45545-2(HL3)

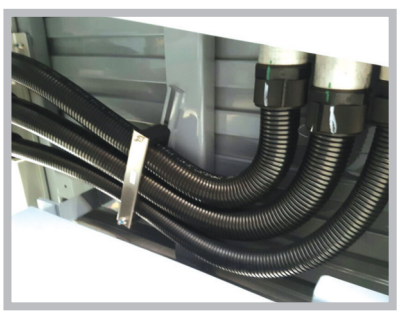
Applied to train in Korea.











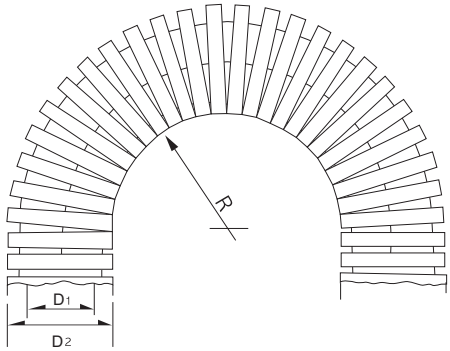


NEW

RAH

EN45545-2(HL3)





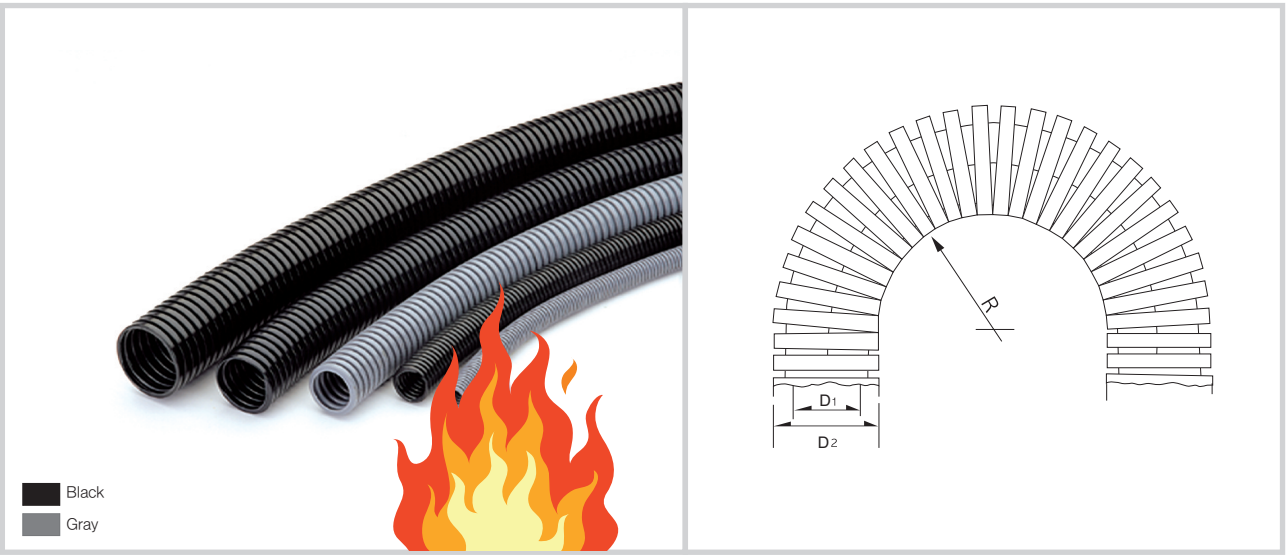
- Material : High Quality Polyamide 6
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68 acc. EN 60529
- The max. Instantaneous Temperature : -40℃ to +105℃
- Short Term : up to +150℃
- Self-Extinguishing : UL94-Vo, Halogen-Free
- Color : Black & Gray / Light gray (MOQ:100rolls)
- Connections : CPSFIX
- Application : Machine tool, Shipbuilding, Tramway Industrial, Automatic Machinery, Printing Machine, Rolling Stock, Railway, Subway etc.

>> Product size

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

(Dimensions in mm)

PAH



- Material : High Quality Polyamide 6
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68 acc. EN 60529
- The max. Instantaneous Temperature : -40℃ to +105℃
- Short Term : up to +150℃
- Self-Extinguishing : UL94-Vo, Halogen-Free
- Color : Black & Gray / Light gray (MOQ:100rolls)
- Connections : CPSFIX
- Application : Machine tool, Shipbuilding, Tramway Industrial, Automatic Machinery, Printing Machine, Rolling Stock, Railway, Subway etc.
- International Specification :

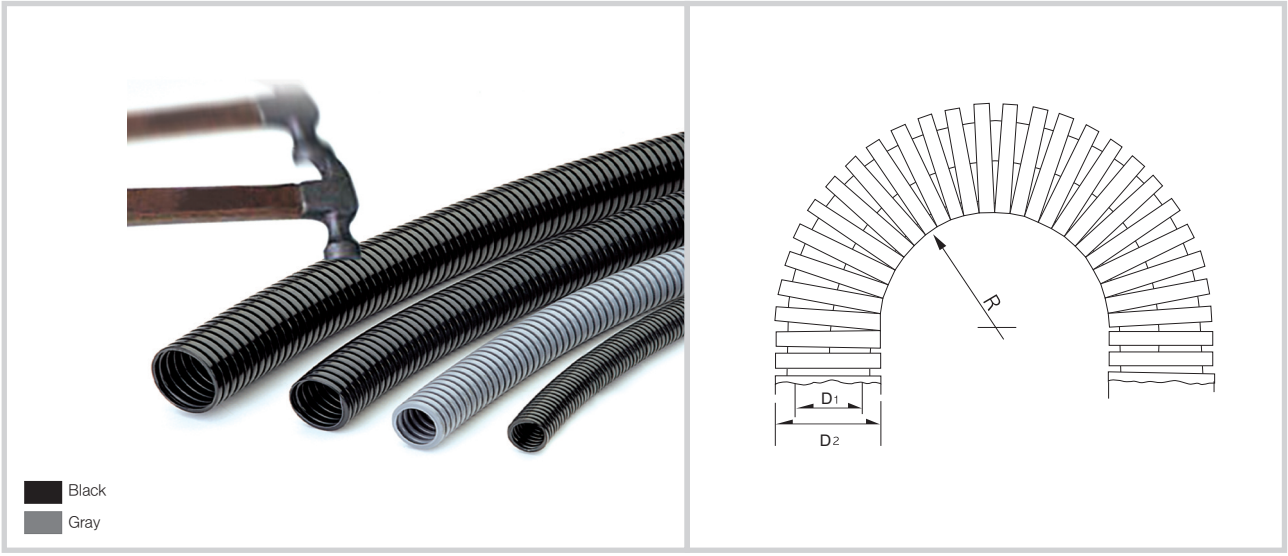
≫ Product size

Black	Gray	UV-R	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ± 10%	Packing meter / roll
PAH-07B	PAH-07G	PAH-07U	6.4	10.0	15	50/100
PAH-10B	PAH-10G	PAH-10U	9.6	13.0	20	50
PAH-12B	PAH-12G	PAH-12U	11.8	15.8	30	50
PAH-16B	PAH-16G	PAH-16U	15.9	21.2	40	50
PAH-22B	PAH-22G	PAH-22U	21.7	28.5	45	50
PAH-28B	PAH-28G	PAH-28U	27.8	34.5	55	50
PAH-36B	PAH-36G	PAH-36U	36.0	42.5	60	30
PAH-48B	PAH-48G	PAH-48U	46.5	54.5	70	30
PAH-56B	PAH-56G	PAH-56U	56.3	67.2	110	30
PAH-70B	PAH-70G	PAH-70U	70.0	82.5	160	10
PAH-95B	PAH-95G	PAH-95U	91.5	106.0	210	10

(Dimensions in mm)

※ Available in Light Gray production.

POH



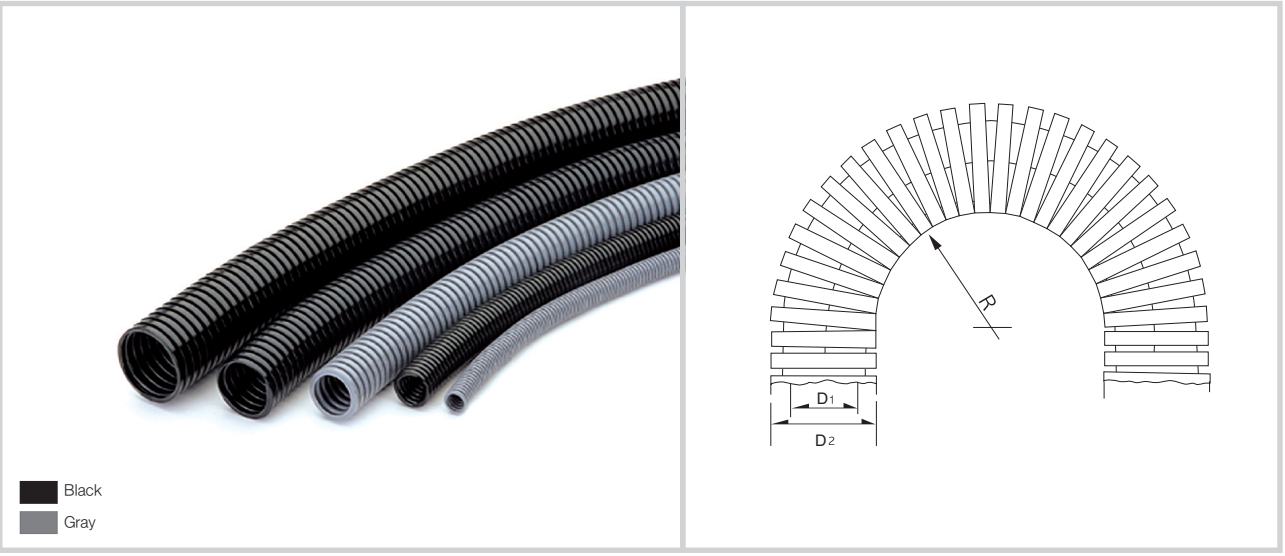
- Material : High Quality Polyamide 6
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68 acc. EN 60529
- The max. Instantaneous Temperature : -40℃ to +105℃
- Short Term : up to +150℃
- Self-Extinguishing : UL94-HB, Halogen-Free
- Color : Black & Gray
- Connections : CPSFIX
- Application : Machine tool, Plant Construction Crane and Heavy Machinery etc.

≫ Product size

Black	Gray	UV-R	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ± 10%	Packing meter / roll
POH-07B	POH-07G	POH-07U	6.0	10.0	20	50/100
POH-10B	POH-10G	POH-10U	9.0	13.0	25	50
POH-12B	POH-12G	POH-12U	11.5	15.8	35	50
POH-16B	POH-16G	POH-16U	15.5	21.2	45	50
POH-22B	POH-22G	POH-22U	21.3	28.5	50	50
POH-28B	POH-28G	POH-28U	26.8	34.5	60	50
POH-36B	POH-36G	POH-36U	35.2	42.5	70	30
POH-48B	POH-48G	POH-48U	46.0	54.5	80	30
POH-56B	POH-56G	POH-56U	55.3	67.2	110	30
POH-70B	POH-70G	POH-70U	69.0	82.5	160	10
POH-95B	POH-95G	POH-95U	91.5	106.0	210	10

(Dimensions in mm)

PES



- Material : Soft Polyethylene (PE)
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68
- The max. Instantaneous Temperature : -15℃ to +60℃
- Short Term : up to +80℃
- Color : Black & Gray
- Resistant to : Acid, Alkali
- Application : Machine tool, Plant Construction Crane and Heavy Machinery etc.

>> Product size

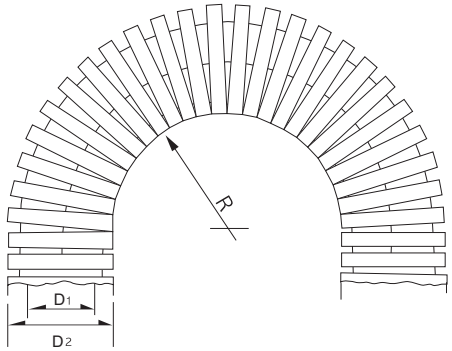
Black	Gray	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
PES-07B	PES-07G	6.4	10.0	15	50/100
PES-10B	PES-10G	9.6	13.0	20	50
PES-12B	PES-12G	11.8	15.8	30	50
PES-16B	PES-16G	15.9	21.2	40	50
PES-22B	PES-22G	21.7	28.5	45	50
PES-28B	PES-28G	27.8	34.5	55	50
PES-36B	PES-36G	36.0	42.5	60	30
PES-48B	PES-48G	46.5	54.5	70	30
PES-56B	PES-56G	56.3	67.2	110	30
PES-70B	PES-70G	70.0	82.5	160	10
PES-95B	PES-95G	91.5	106.0	210	10

(Dimensions in mm)

PPS



Black
Gray



- Material : Polypropylene (PP)
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68
- The max. Instantaneous Temperature : -15℃ to +60℃
- Short Term : up to +80℃
- Color : Black & Gray
- Connections : CPSFIX
- Resistant to : Acid, Alkali
- Application : Machine tool, Industrial Machinery, Chemical Machinery etc.

≫ Product size

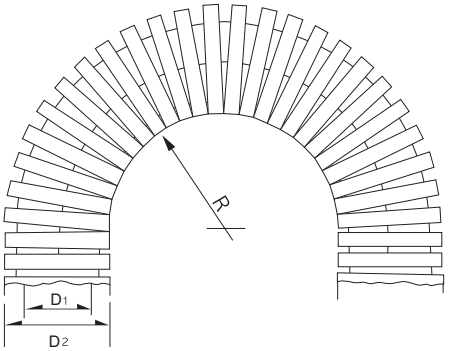
Black	Gray	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
PPS-07B	PPS-07G	6.4	10.0	15	50/100
PPS-10B	PPS-10G	9.6	13.0	20	50
PPS-12B	PPS-12G	11.8	15.8	30	50
PPS-16B	PPS-16G	15.9	21.2	40	50
PPS-22B	PPS-22G	21.7	28.5	45	50
PPS-28B	PPS-28G	27.8	34.5	55	50
PPS-36B	PPS-36G	36.0	42.5	60	30
PPS-48B	PPS-48G	46.5	54.5	70	30
PPS-56B	PPS-56G	56.3	67.2	110	30
PPS-70B	PPS-70G	70.0	82.5	160	10
PPS-95B	PPS-95G	91.5	106.0	210	10

(Dimensions in mm)

CPSS



Black
Gray



- Material : High Quality Polyamide 6
- Construction : Inside & Outside Corrugated Plastic Hose
- The max. Instantaneous Temperature : -40℃ to +105℃
- Short Term : up to +130℃
- Self-Extinguishing : UL94-HB, Halogen-Free
- Color : Black & Gray, Light gray (MOQ:100rolls)
- Connections : CPSFIX
- Application : Machine tool, Shipbuilding, Tramway Industrial, Automatic Machinery Printing Machinery etc.

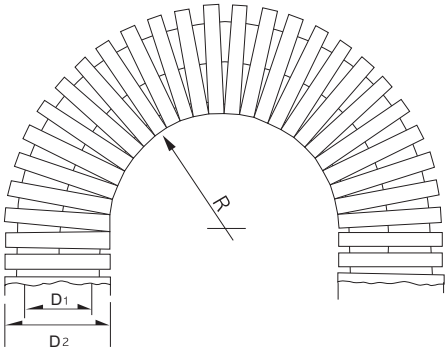
>> Product size

Black	Gray	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
CPSS-07B	CPSS-07G	6.4	10.0	15	50/100
CPSS-10B	CPSS-10G	9.6	13.0	20	50
CPSS-12B	CPSS-12G	11.8	15.8	30	50
CPSS-16B	CPSS-16G	15.9	21.2	40	50
CPSS-22B	CPSS-22G	21.7	28.5	45	50
CPSS-28B	CPSS-28G	27.8	34.5	55	50
CPSS-36B	CPSS-36G	36.0	42.5	60	30
CPSS-48B	CPSS-48G	46.5	54.5	70	30
CPSS-56B	CPSS-56G	56.3	67.2	110	30
CPSS-70B	CPSS-70G	70.0	82.5	160	10
CPSS-95B	CPSS-95G	91.5	106.0	210	10

(Dimensions in mm)

PESS





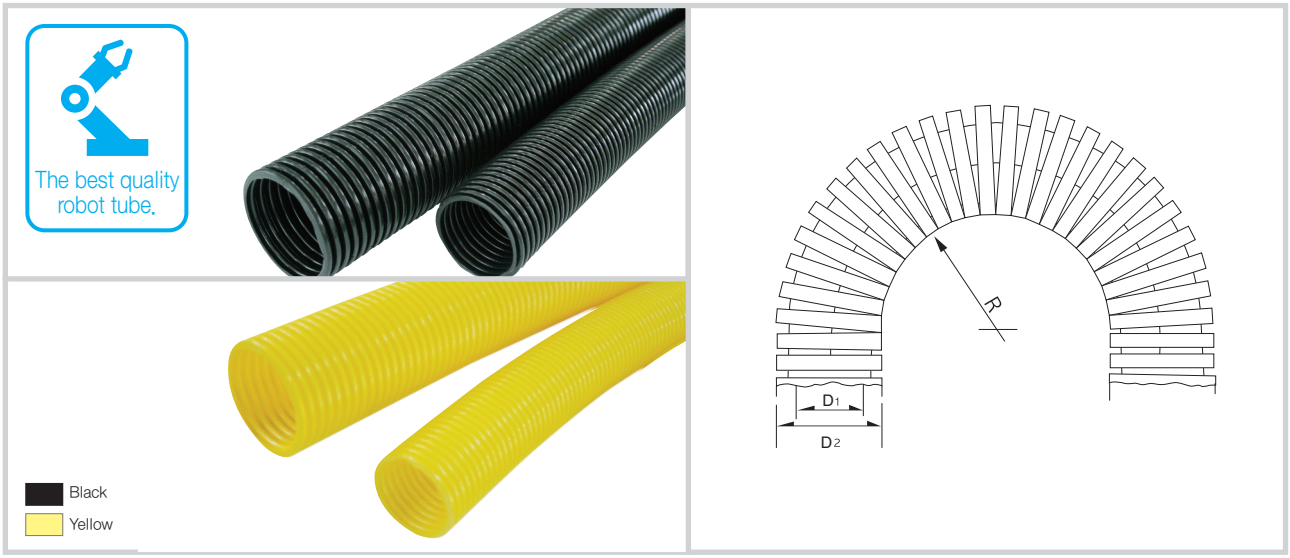
- Material : Soft Polyethylene (PE)
- Construction : Inside & Outside Corrugated Plastic Hose
- The max. Instantaneous Temperature : -15℃ to +60℃
- Short Term : up to +80℃
- Color : Black & Gray
- Resistant to : Acid, Alkali
- Application : Machine tool, Plant Construction Crane and Heavy Machinery etc.

≫ Product size

Black	Gray	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
PESS-07B	PESS-07G	6.4	10.0	15	50/100
PESS-10B	PESS-10G	9.6	13.0	20	50
PESS-12B	PESS-12G	11.8	15.8	30	50
PESS-16B	PESS-16G	15.9	21.2	40	50
PESS-22B	PESS-22G	21.7	28.5	45	50
PESS-28B	PESS-28G	27.8	34.5	55	50
PESS-36B	PESS-36G	36.0	42.5	60	30
PESS-48B	PESS-48G	46.5	54.5	70	30
PESS-56B	PESS-56G	56.3	67.2	110	30
PESS-70B	PESS-70G	70.0	82.5	160	10
PESS-95B	PESS-95G	91.5	106.0	210	10

(Dimensions in mm)

PAM



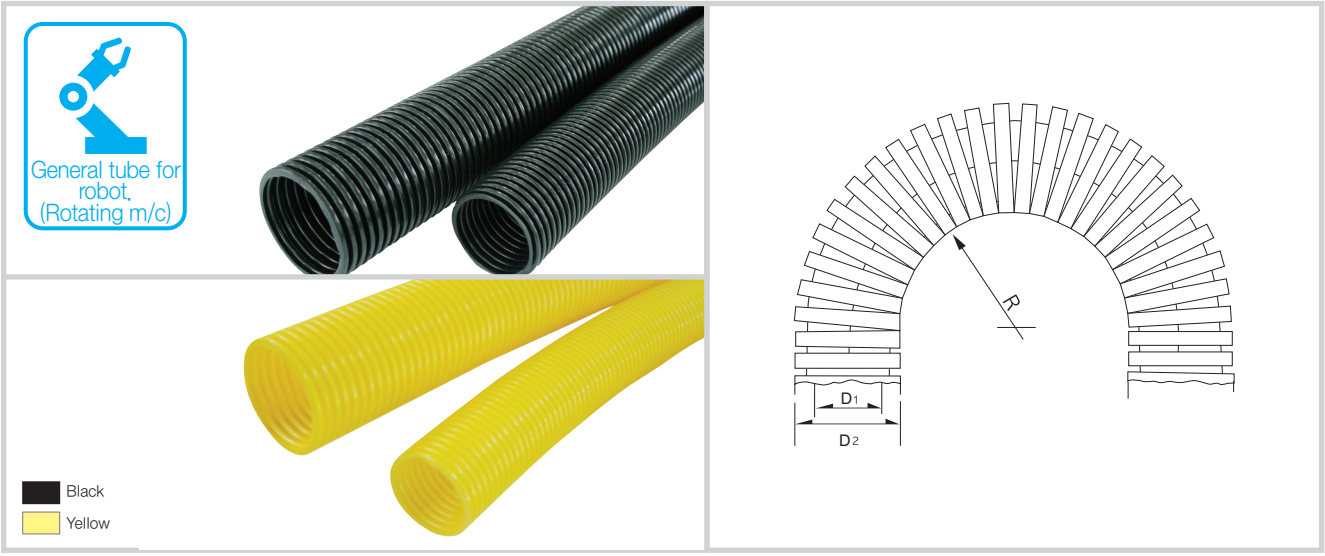
- Material : High Quality Polyamide 11/12
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68
- The max. Instantaneous Temperature : -50℃ to +95℃
- Short Term : up to +150℃
- Self-Extinguishing : UL94-V2, Halogen-Free
- Color : Black & Yellow
- Connections : CPSFIX
- Application : Robots (Welding robot)

≫ Product size

Black	Yellow	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
PAM-07B	PAM-07Y	6.4	10.0	15	50/100
PAM-10B	PAM-10Y	9.6	13.0	20	50
PAM-12B	PAM-12Y	11.8	15.8	30	50
PAM-16B	PAM-16Y	15.9	21.2	40	50
PAM-22B	PAM-22Y	21.7	28.5	45	50
PAM-28B	PAM-28Y	27.8	34.5	55	50
PAM-36B	PAM-36Y	36.0	42.5	60	30
PAM-48B	PAM-48Y	46.5	54.5	70	30
PAM-56B	PAM-56Y	56.3	67.2	110	30
PAM-70B	PAM-70Y	70.0	82.5	160	10
PAM-95B	PAM-95Y	91.5	106.0	210	10

(Dimensions in mm)

PAR



- Material : High Quality Polyamide 12
- Construction : Inside & Outside Corrugated Plastic Hose
- Degrees of Protection : IP 68
- The max. Instantaneous Temperature : -50℃ to +95℃
- Short Term : up to +150℃
- Self-Extinguishing : UL94-V2, Halogen-Free
- Color : Black & Yellow
- Connections : CPSFIX
- Application : Robots (Heandling robot, Rotating machinery)

≫ Product size

Black	Yellow	UV-R (Only black)	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ±10%	Packing meter / roll
PAR-07B	PAR-07Y	PAR-07U	6.4	10.0	15	50/100
PAR-10B	PAR-10Y	PAR-10U	9.6	13.0	20	50
PAR-12B	PAR-12Y	PAR-12U	11.8	15.8	30	50
PAR-16B	PAR-16Y	PAR-16U	15.9	21.2	40	50
PAR-22B	PAR-22Y	PAR-22U	21.7	28.5	45	50
PAR-28B	PAR-28Y	PAR-28U	27.8	34.5	55	50
PAR-36B	PAR-36Y	PAR-36U	36.0	42.5	60	30
PAR-48B	PAR-48Y	PAR-48U	46.5	54.5	70	30
PAR-56B	PAR-56Y	PAR-56U	56.3	67.2	110	30
PAR-70B	PAR-70Y	PAR-70U	70.0	82.5	160	10
PAR-95B	PAR-95Y	PAR-95U	91.5	106.0	210	10

(Dimensions in mm)

CPSFLEX - CPS,PAH,PAR,PES Type - Impact

Test Report

CPS-T-160225-001

Issued Date : 2016. 2. 25

CP SYSTEM CO,.LTD
#27-37, Jeonggwansanggok 1-gil,
Jeonggwan-myeon, Gijang-gun, Busan,
Korea

Test No.	: CPS-T-160225-001
Document No.	: R51-160225-5-01
Description	: Impact Test
Sample Items	: CPSFLEX - CPS,PAH,PAR,PES Type
Test organized by	: CP SYSTEM CO,.LTD, Q.C Department
Person in charge	: Min-Uk, Shin
Test Period	: 2016. 2. 25

CPS-T-160225-001

CPSFLEX - CPS,PAH,PAR,PES Type - Impact Test

Content

1. Information of Test Equipment
2. Information of Sample
3. Test Method
4. Test Environment
5. Test Result

(Legally binding signature of the issuer)

1. Information of Test Equipment

· The name of equipmer : Impact test equipment
· Equiptment No. : G1504-01
· Items tested : IZOD & CHARPY Impact test equipment
· On testing

Method	Specification
Pendulum	60kgf
Distance of Striking Center	300mm
Velocity of Striking	3.5m / sec
Angle of Hammer	130°



FIG 1. Impact test equipment

2. Information of Sample

· Sample 1 CPSFLEX - CPS impact specimen : 4EA
· Sample 2 CPSFLEX - PAH impact specimen : 4EA
· Sample 3 CPSFLEX - PAR impact specimen : 4EA
· Sample 4 CPSFLEX - PES impact specimen : 4EA



FIG 2. impact specimen

Test Report

CPS-T-160225-001

Issued Date : 2016. 2. 25

3. Test Method

· Test 1. Measure impact values of spcimens on impact

※ This test is non-standard and random



FIG 3. TEST 1.

4. Test Environment

· Temparature : 21℃
· Humidity : 35%

Test Report

CPS-T-160225-001

Issued Date : 2016. 2. 25

5. Test Results

Specimen Item	Standard (Based on 2014 catalog)	Impact Strength	Note
CPSFLEX - CPS Type	20 kgf-cm/cm	61.03 kgf-cm/cm	-
		67.78 kgf-cm/cm	
		64.60 kgf-cm/cm	
		70.77 kgf-cm/cm	
CPSFLEX - PAH Type	25 kgf-cm/cm	15.43 kgf-cm/cm	NG
		12.37 kgf-cm/cm	
		16.12 kgf-cm/cm	
		13.55 kgf-cm/cm	
CPSFLEX - PAR Type	15 kgf-cm/cm	58.26 kgf-cm/cm	-
		43.43 kgf-cm/cm	
		46.52 kgf-cm/cm	
		28.21 kgf-cm/cm	
CPSFLEX - PES Type	15 kgf-cm/cm	62.81 kgf-cm/cm	-
		59.05 kgf-cm/cm	
		56.49 kgf-cm/cm	
		57.67 kgf-cm/cm	



FIG 4. CPS Type Impact Test Result

CPSFLEX - CPS,PAH,PAR,PES Type - Impact

Test Report CPS-T-160225-001 Issued Date : 2016. 2. 25



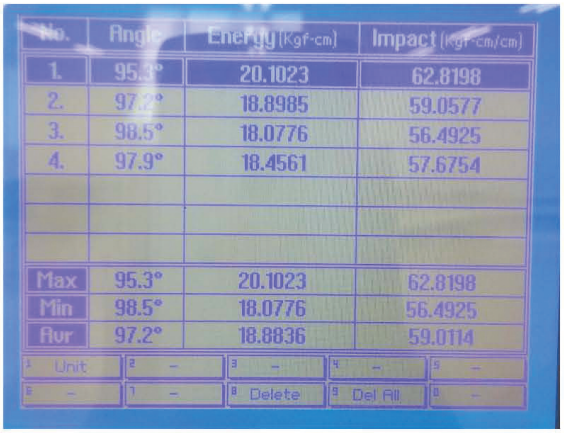
No.	Angle	Energy (Kgf-cm)	Impact (Kgf-cm/cm)
1.	120.5°	4.9396	15.4362
2.	122.3°	3.9603	12.3759
3.	120.1°	5.1597	16.1241
4.	121.6°	4.3389	13.5590
Max	120.1°	5.1597	16.1241
Min	122.3°	3.9603	12.3759
Avr	121.1°	4.5996	14.3738

→ FIG 5. PAH Type Impact Test Result



No.	Angle	Energy (Kgf-cm)	Impact (Kgf-cm/cm)
1.	97.6°	18.6456	58.2676
2.	105.2°	13.9002	43.4382
3.	103.6°	14.8880	46.5251
4.	113.3°	9.0298	28.2181
Max	97.6°	18.6456	58.2676
Min	113.3°	9.0298	28.2181
Avr	104.9°	14.1159	44.1122

→ FIG 6. PAR Type Impact Test Result



No.	Angle	Energy (Kgf-cm)	Impact (Kgf-cm/cm)
1.	95.3°	20.1023	62.8198
2.	97.2°	18.8985	59.0577
3.	98.5°	18.0776	56.4925
4.	97.9°	18.4561	57.6754
Max	95.3°	20.1023	62.8198
Min	98.5°	18.0776	56.4925
Avr	97.2°	18.8836	59.0114

→ FIG 7. PES Type Impact Test Result

CPSFLEX -OIL-RESIST TEST Report

Issued Date : 2016. 11.23

CP SYSTEM CO,.LTD
#27-37, Jeonggwansanggok 1-gil,
Jeonggwan-myeon, Gijang-gun, Busan,
Korea

Sample Name : CPSFLEX - tube
Department : CP SYSTEM CO,.LTD, Q.C Department
Person in charge : Sung-In Lee (General Manager)
Test Period : 1 Jun, 2016 ~

REPORT OF OIL-RESIST TEST PROCESS and INTERMEDIATE INSPECTION for CPSFLEX

CONTENTS

1. Test Description
2. Sample Details
3. Test Method
4. Test Result

(Legally binding signature of the issuer)

CPSFLEX -OIL-RESIST TEST Report

Issued Date : 2016. 11.23

1. Test Description

· Subject : CPSFLEX (CPS - CPSU - PAH - PAR - PES)

· Test Details : Soak cut tube into listed oil below.

· List of Oils

Category	Names of Goods	Characteristic
Cutting Oil	BW CUT LU-209	for cutting process
Inhibited Oil	BW RUSTOP P-DBH	for rust preventative
CI-Free Cold Forging Oil	Tectyl form cf350	for punching press work
Hydraulic Oil	KIxx RD HD 46	for lubricants, hydraulic fluid

2. Sample Details

· SAMPLE CPSFLEX - 5 different tubes + 3 different sizes of each tube(Total 8 categories), 4 types of oil



FIG 1. Samples for Oil-resist Test

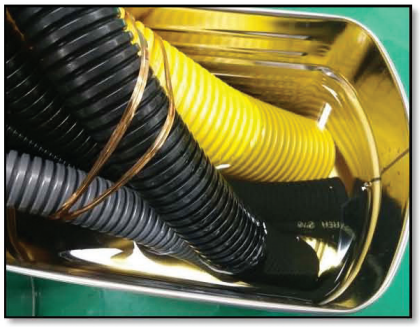
CPSFLEX -OIL-RESIST TEST Report

Issued Date : 2016. 11.23

3. Test Method

· 시험 1. Before the test, record the name and lot number of sample tube, examine its appearance first.
2. Prepare the tube sample which has been cut over 300mm length, and soak it into 4 litres of listed oils.
3. This test should be done indoors, observing the change of its shape every three month.
※ Intermediate inspection is held every three month
4. Make an annual test report, conduct Reliability Test regularly.

※ Non-Standard Condition Test



TEST FIG 3. 1.



TEST FIG 3. 1. Test conducted by oils

4. Test Result

· Experiment start date / 01 Jun, 2016
· Intermediate inspection (05 Sep, 2016)
=>The oil-resist result for (CPS - CPSU - PAH - PAR - PES)
> had found no change in shape and figuration > Conduct regular Reliability Test

PAR-56B Reliability Test

Test Report

CPS-T-160701-001

Issued Date : 2016. 07. 01

CP SYSTEM CO,.LTD
#27-37, Jeonggwansanggok 1-gil,
Jeonggwan-eup, Gijang-gun, Busan,
Korea

Test No : CPS-T-160701-001

Sample Name : CPSYSTEM, PAR 56B - test

Test organized by	: CP SYSTEM CO,.LTD, Q.C Department
rson in charge	: Min wook, Shin
Test Period	: 2015. 11. 30~2016.07.01

Contents

1. TEST EQUIPMENT
2. SAMPLE
3. TEST METHOD
4. TEST RESULTS
5. Photograph

Quality Control Dept. CPS CPSYSTEM CO.,LTD.

(Legally binding signature of the issuer)

Test No : CPS-T-160701-001

Sample Name : CPSYSTEM, PAR 56B – test

1. TEST EQUIPMENT

1) The name of test equipment : Reciprocating test equipment for tubes

→ Tubes reciprocate 600mm , (30times / min)

2. SAMPLE

1) PAR-56B Tube

2) Inner diameter of tube : 56mm

3) Raw material of tube : Polyamide 12

3. TEST METHOD

1) Insert 3pcs of 24mm cables and 1 pcs of 19mm into PAR-56B tube

2) 230 of banding radius which is the 10 times of inserted 24mm cable has been applied.
(R= 230)

3) The target number of reciprocating test : 7 million times
(999,999 times × 7 tiems)

4) Quality of surface of tubes is checked during test.

→ Refer to photograph and test record

4. TEST RESULT

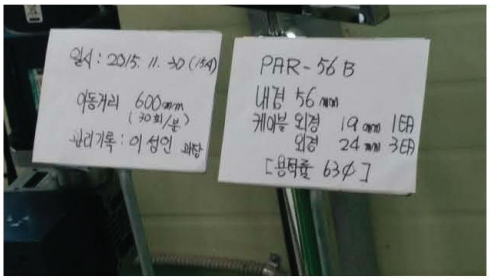
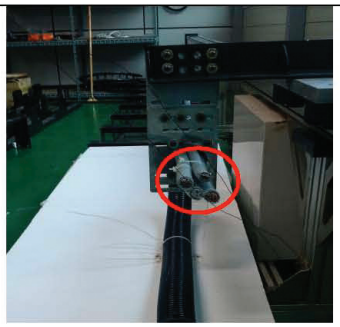
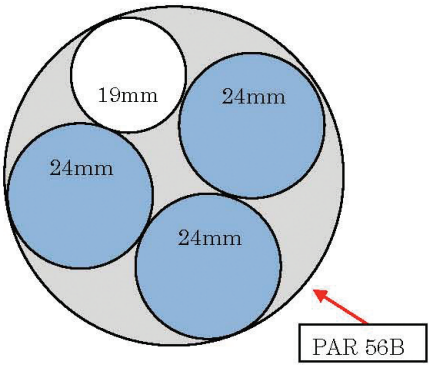
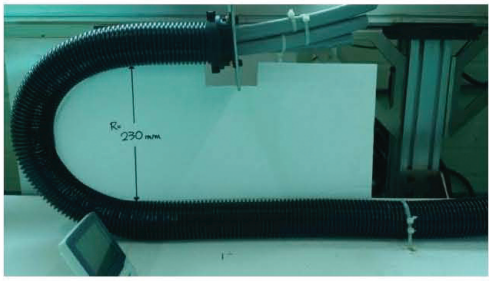
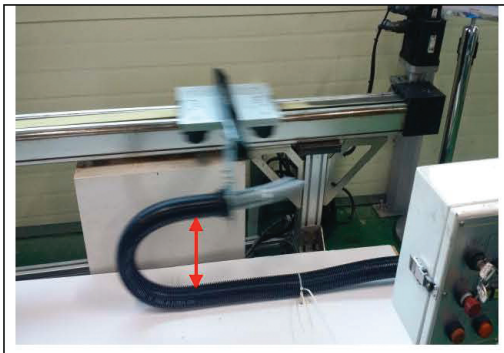
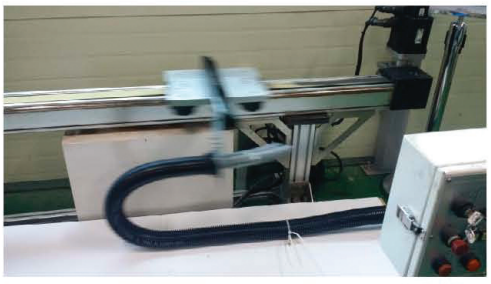
1) 2016.07.01, Completed tested **7,188,392 times**.

2) There's no damage or crack of product

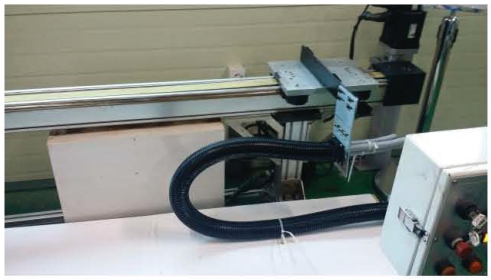
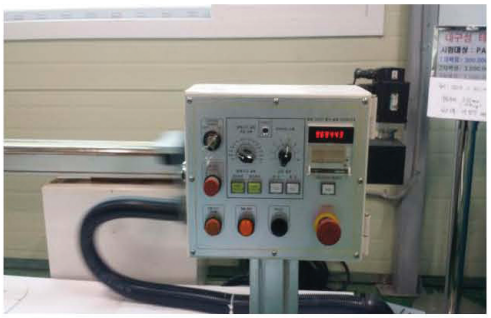
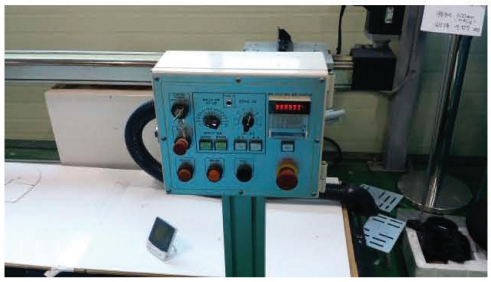
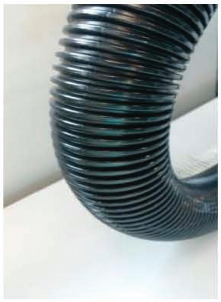
3) The condition of both inside and outside of tube has no problem.

PAR-56B Reliability Test

Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

<table>
<tr><td> 
</td><td>  </td></tr>
<tr><td>Machinery Stroke 600mm(30times/min)</td><td>Cables inserted:
19mm(1ea), 24mm(3ea)</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Inserted condition in PAR-56B</td><td>Apply bending radius of tubes</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Apply bending radius of 24mm cable
1. Applied less than 10times of the diameter of cable
2. Actual height is under 230mm</td><td>Reciprocating test 1.</td></tr>
</table>

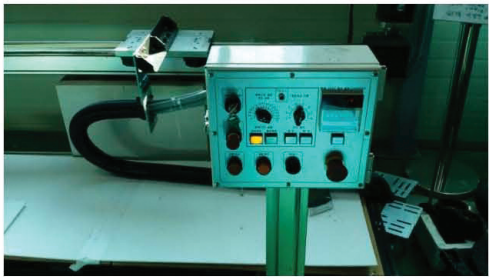
Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

	
Reciprocating test 2.	Test have been done 0.96million times July 2015. 12.24 (No problem)
	
2016.1.25 DATA (Test have been done 1,999,999times)	2016.2.1 DATA (2,295,645times)
	
Check outside : Good	Check inside : Good

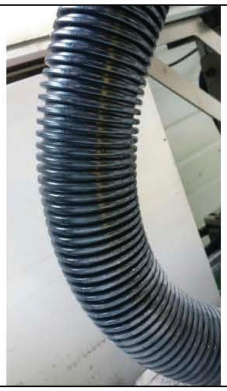
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PAR-56B Reliability Test

Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

	
Test have been done 3 million times July 2016. 02.17 (No problem)	Check inside : Good
	
Check outside : Good	2016. 2.17 DATA (Test have been done 3,000,014times)
	
Test have been done 4 million times July 2016. 03.17 (No problem)	Check outside/inside : Good

Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

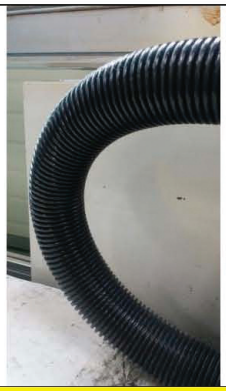
	
Test have been done 5 million times July 2016. 04.29 (No problem)	Check inside : Good
	
Check outside : Good	2016. 4.29 DATA (Test have been done 5,000,034times)
	
Test have been done 6 million times July 2016. 05.24 (No problem)	Check inside : Good

PAR-56B Reliability Test

Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

	
Check outside : Good	2016. 5.24 DATA (Test have been done 6,000,073times)
	
Test have been done 7 million times July 2016. 06.23 (No problem)	Check inside : Good
	
Check outside : Good	2016. 6.23 DATA (Test have been done 7,000,025times)

Photograph (PAR 56B 신뢰성 테스트 진행 Inspection Date: 2016. 07.01)

	
Test have been done 7,188,392 times July 2016. 07.01 (No problem) · Final	Check appearance : Good
	
Test Completed · 2016. 7.01 DATA (Test have been done 7,188,392times)	