HIGH STRENGTH CABLE DUCT MANUFACTURING

WWW.ZVKT.KZ

SZABADALMI OKIRAT

ЕВРАЗИЙСКАЯ ПАТЕНТНАЯ ОРГАНИЗАЦИЯ
ЕВРАЗИЙСКОЕ ПАТЕНТНОЕ ВЕДОМСТВО

ЕВРАЗИЙСКИЙ ПАТЕНТ

№ 002864

Название изобретения:
«УСТРОЙСТВО И СПОСОБ ДЛЯ ИЗГОТОВЛЕНИЯ КОНСТРУКЦИИ МНОГОКАНАЛЬНОГО КАБЕЛЕПРОВОДА»

Патентовладелец (льцы):
БЬЮН МУ-ВОН (KR)

Изобретатель (и):
Бьюн Му-Вон (KR)

Заявка №: 200200064
Приоритет изобретения: 30 июня 1999 г.; 30 октября 1999 г.
Дата подачи заявки: 13 мая 2000 г.
Дата выдачи патента: 31 октября 2002 г.

Настоящим удостоверяется, что евразийский патент выдан на изобретение, изложенное в прилагаемом описании и формуле изобретения.

При уплате установленных годовых пошлин патент действует на территории государств участников Евразийской патентной конвенции – Азербайджанской Республики, Кыргызской Республики, Республики Армения, Республики Беларусь, Республики Казахстан, Республики Молдова, Республики Таджикистан, Российской Федерации, Туркменистана

БЛИННИКОВ Виктор Иванович
Президент Евразийского патентного ведомства

ЕВРАЗИЙСКАЯ ПАТЕНТНАЯ ОРГАНИЗАЦИЯ
ЕВРАЗИЙСКОЕ ПАТЕНТНОЕ ВЕДОМСТВО

ЕВРАЗИЙСКИЙ ПАТЕНТ

№ 002860

Название изобретения:
«КОНСТРУКЦИЯ МНОГОКАНАЛЬНОГО КАБЕЛЕПРОВОДА»

Патентовладелец (льцы):
БЬЮН МУ-ВОН (KR)

Изобретатель (и):
Бьюн Му-Вон (KR)

Заявка №: 200200065
Приоритет изобретения: 30 июня 1999 г.; 01 ноября 1999 г.
Дата подачи заявки: 13 мая 2000 г.
Дата выдачи патента: 31 октября 2002 г.

Настоящим удостоверяется, что евразийский патент выдан на изобретение, изложенное в прилагаемом описании и формуле изобретения.

При уплате установленных годовых пошлин патент действует на территории государств участников Евразийской патентной конвенции – Азербайджанской Республики, Кыргызской Республики, Республики Армения, Республики Беларусь, Республики Казахстан, Республики Молдова, Республики Таджикистан, Российской Федерации, Туркменистана

БЛИННИКОВ Виктор Иванович
Президент Евразийского патентного ведомства

Republic of the Philippines
INTELLECTUAL PROPERTY OFFICE

INVENTION

Republic of the Philippines
INTELLECTUAL PROPERTY OFFICE

INVENTION

THE REGISTRY OF PATENTS
SINGAPORE

THE PATENTS ACT
(CHAPTER 221)

CERTIFICATE OF GRANT OF PATENT

REPUBLIC OF SOUTH AFRICA

PATENTS ACT, 1978

CERTIFICATE

OUR COMPANY

The activity of the enterprise LLP "High Strength Cable Duct Manufacturing" is based on the use of innovative technologies for the production of spiral ducts of the first pipe construction in the CIS countries, which guarantee increased indicators of mechanical strength and, consequently, high quality of pipes for cable protection. The leading experts of South Korea are involved in the development of technologies used in production, and the enterprise is equipped with equipment from the well-known Korean company ITECO.

- The company's staff is staffed by a qualified team professionals in its industry with extensive experience in the manufacture of cable pipes
- In the production process of pipes used exclusively high-quality raw materials.
- Modern laboratory and high-tech equipment allow to improve product quality, to keep up with scientific and technological progress.

COD

The high-strength cable duct spiral is the pipe consisting of an external spiral duct and system of internal channels the quantity is coordinated with the customer's wishes. It is made of high density polyethylene (HDPE) of PE 100 pipe grade. The ducts are made on the basis of PE 100 and withstand high mechanical loads.

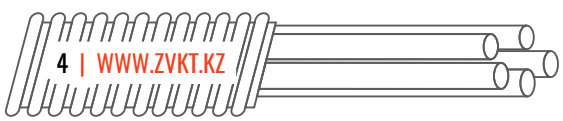
COD CLASSIFICATION

Recommended for protection of power, control and fiber optic cables.

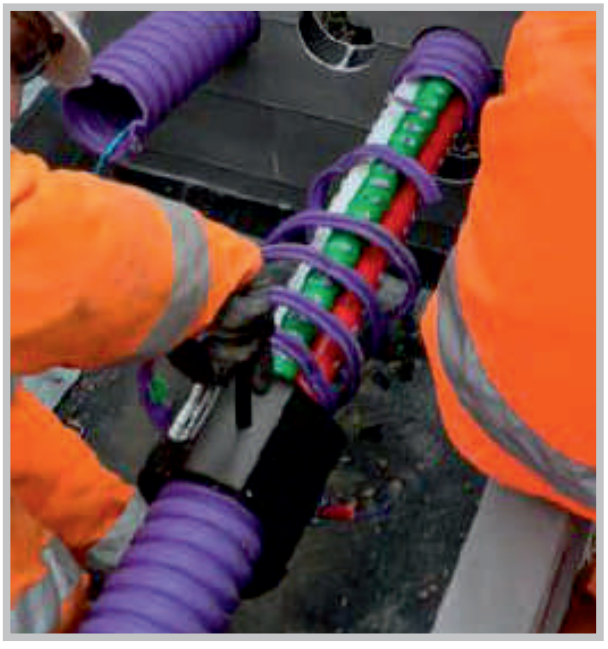
DUCT MODEL	OUTER DIAMETER OF OUTER DUCT, MM	INNER DIAMETER OF OUTER DUCT, MM	OUTER DUCT WALL THICKNESS, MM	Q-TY OF INNER CHANNELS
COD 3x28	93,0±2,0	70,0±2,0	2,5±0,5	3
COD 4x28	100,0±2,0	80,0±2,0	2,5±0,5	4
COD 5x28	110,0±2,0	90,0±2,0	2,5±0,5	5
COD 3x28FR	93,0±2,0	70,0±2,0	2,5±0,5	3
COD 4x28FR	100,0±2,0	80,0±2,0	2,5±0,5	4
COD 5x28FR	110,0±2,0	90,0±2,0	2,5±0,5	5
COD 3x28UV	93,0±2,0	70,0±2,0	2,5±0,5	3
COD 4x28UV	100,0±2,0	80,0±2,0	2,5±0,5	4
COD 5x28UV	110,0±2,0	90,0±2,0	2,5±0,5	5
COD 3x28FRUV	93,0±2,0	70,0±2,0	2,5±0,5	3
COD 4x28FRUV	100,0±2,0	80,0±2,0	2,5±0,5	4
COD 5x28FRUV	110,0±2,0	90,0±2,0	2,5±0,5	5

SPECIFICATIONS:

- Possesses the increased elasticity and shock durability.
- It is resistant to moisture.
- Possesses resistance to aging.
- Wide range of mounting temperatures: from -40 ° C to +40 ° C.
- Wide range of operating temperatures: from -40 ° C to +40 ° C.



COD



FEP

(High Strength Spiral Black Cable Duct)

In the modern world, providing a beautiful view of urban landscapes, industrial zones and roadways has become a necessary attribute, so laying pipelines and cables underground is the best solution for this.
Previously, straight asbestos-cement, steel or PVC pipes were used to lay underground cable channels. Moreover, the pipe lengths were short and required a lot of docking joints, and their main drawback was heavy weight, which was a big inconvenience in construction. In addition, the cost of material and labor resources were high, which was one of the reasons for the delay in the implementation work on time.
FEP - is a simple and reliable solution to all the above inconveniences.
Due to its flexibility, durability and ease of installation, FEP can easily replace pipes of the previous generation.
Flexible duct HDPE acts for wire networks as an additional layer of insulation and eliminates the likelihood of an electric shock in cases of damage to the own cable insulation. In addition, the spiral profile of the duct provides high mechanical protection against damage to the laid cable, thereby ensuring a more secure and uninterrupted network operation.

- flexible spiral duct is an excellent dielectric and when exposed to a direct source of flame self-extinguishes, thereby preventing the spread of flame;
- waterproof,
- differs in durability, and does not lose its protective properties over time,
- has a good degree of protection against mechanical stress,
- HDPE is a good insulation,
- high environmental friendliness and non-toxicity of the material,
- durability (calculated lifetime up to 50 years),
- pipe flexibility allows you to create tracks of various geometric complexity without attracting additional costs.

SPHERE OF APPLICATION FEP :

- As an insulation of power wires
- As insulation for telecommunication cables
- Golf courses
- Parks
- Educational institutions and sports complexes
- Residential areas

FEP

DUCT MODEL	OUTER DIAMETER OF OUTER DUCT, MM	INNER DIAMETER OF OUTER DUCT, MM	OUTER DUCT WALL THICKNESS, MM	Q-TY OF INNER CHANNELS
FEP 100	130,0±4,0	100,0±4,0	2,0±0,5	-
FEP 150	188,0±4,0	150,0±4,0	3,4±0,5	-
FEP 100FR	130,0±4,0	100,0±4,0	2,0±0,5	-
FEP 150FR	188,0±4,0	150,0±4,0	3,4±0,5	-
FEP 100FRUV	130,0±4,0	100,0±4,0	2,0±0,5	-
FEP 150FRUV	188,0±4,0	150,0±4,0	3,4±0,5	-
FEP 100FRUV	130,0±4,0	100,0±4,0	2,0±0,5	-
FEP 150FRUV	188,0±4,0	150,0±4,0	3,4±0,5	-

TECHNICAL CHARACTERISTICS OF FEP

FLEXIBILITY
Due to its spiraling surface, the pipe can easily bend and can be used in constructions where it is necessary to bypass obstacles.

THE EASE OF CABLE ENTRY
Due to the low coefficient of friction, the cable is easily pulled in the duct. The distance between the mabholes can be quite large.

STRONG AND SAFE
By the aid of its spiral construction, the high-strength surface can withstand a large load. In addition, its flexibility and strength make it safe from natural disasters, such as earthquakes, rock sedimentation, etc.

LOW WEIGHT
FEP made of polyethylene and therefore much weighing less than copper pipes, so it is easier to transport and install.

UNLIMITED LENGTH
The length of the pipe can be quite large. Consisting of fewer connections saves money on the use of human resources during installation.

LOW COST OF CONSTRUCTION
The combination of the aforementioned advantages gives an excellent result of economic value due to the increase in production efficiency, reduction in the duration of work, reduction in the number of manholes in comparison with pipes of the old generation.

HIGH STRENGTH
As an insulator, it has exceptional dielectric properties.

EXCEPTIONAL CORROSION RESISTANCE AND DURABILITY
It has high chemical resistance to acidic formations or oil, and is not damaged. Not corroded in seawater or in swampy areas.

MicroCOD

- Considering the fact that fiber optic cables are becoming lighter, there is an opportunity for "building processability" and "efficiency"
- In some cases, micro-pipelines cause malfunctions due to their low density
- High-strength spiral optical cable ducts from the LLP "High Strength Cable Duct Manufacturing" company are based on the following: "Durability" and "High manufacturability", reducing the size and weight to ensure greater productivity.

Basically, it is used as a cable channel when laying low-current and power grids operated at an AC or DC voltage of up to 1000V and made in the form of insulated wires, cables, cords, etc. Also MicroCod is successfully applied when laying internal and external computer, telephone and other wired networks.

MICROCOD CLASSIFICALION

Used for power, control and fiber optic cables.

DUCT MODEL	OUTER DIAMETER OF OUTER DUCT, MM	INNER DIAMETER OF OUTER DUCT, MM	OUTER DUCT WALL THICKNESS, MM	Q-TY OF INNER CHANNELS
MicroCOD 10x7	46,0±1,5	35,0±1,5	1,5±0,5	7
MicroCOD 12x7	55,0±1,5	42,0±1,5	1,5±0,5	7
MicroCOD 10x7FR	46,0±1,5	35,0±1,5	1,5±0,5	7
MicroCOD 12x7FR	55,0±1,5	42,0±1,5	1,5±0,5	7
MicroCOD 10x7UV	46,0±1,5	35,0±1,5	1,5±0,5	7
MicroCOD 12x7UV	55,0±1,5	42,0±1,5	1,5±0,5	7
MicroCOD 10x7FRUV	46,0±1,5	35,0±1,5	1,5±0,5	7
MicroCOD 12x7FRUV	55,0±1,5	42,0±1,5	1,5±0,5	7

MANUFACTURABILITY AND SAFETY

- Easy to carry
- A large number of ducts in one
- Does not require any additional work on the installation of internal ducts
- Maximum bay length - 1500 meters
- No fitting between manholes required
- High durability does not require additional manholes in the following locations:
- Curved sections
- High and low hard to reach areas
- Protection from UV rays avoids the destruction of ducts

MATERIAL FOR STRENGTH

- The spiral form is resistant to external influences.
- High wear resistance, prevents shrinkage from heavy soil
- Twice as strong as a conventional pipe for compressive strength

OTHER PROPERTIES

- Takes up little space due to the complex of pipes
- In hard-to-reach places, curved or U-shaped bends, an air installation with a distance of up to 1 km is applicable.
- Different duct types available on request.
- Eliminates the possibility of internal pipe twisting

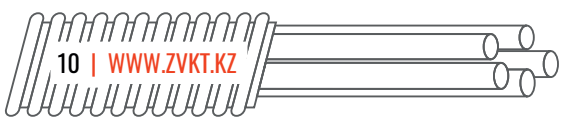
CODe

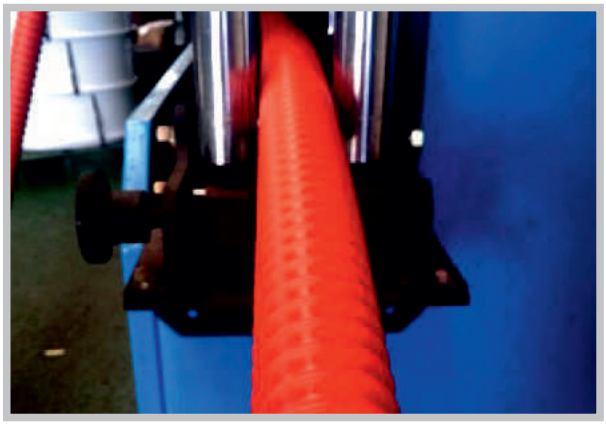
The high-strength cable duct spiral hollow is a spiral duct without internal channels. It is made of high density polyethylene (HDPE) of PE 100 pipe grade. The ducts are made on the basis of PE 100 and withstand high mechanical loads.

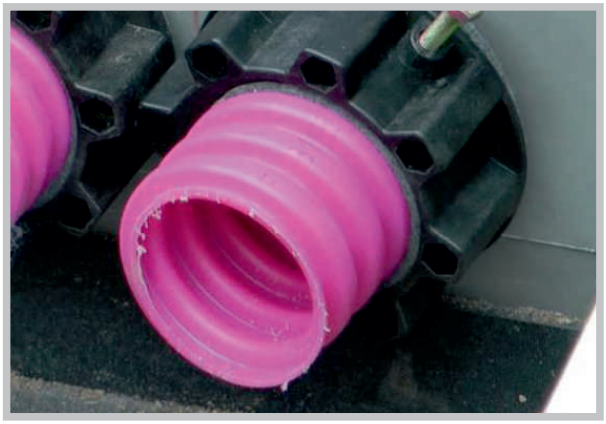
CODE CLASSIFICATION

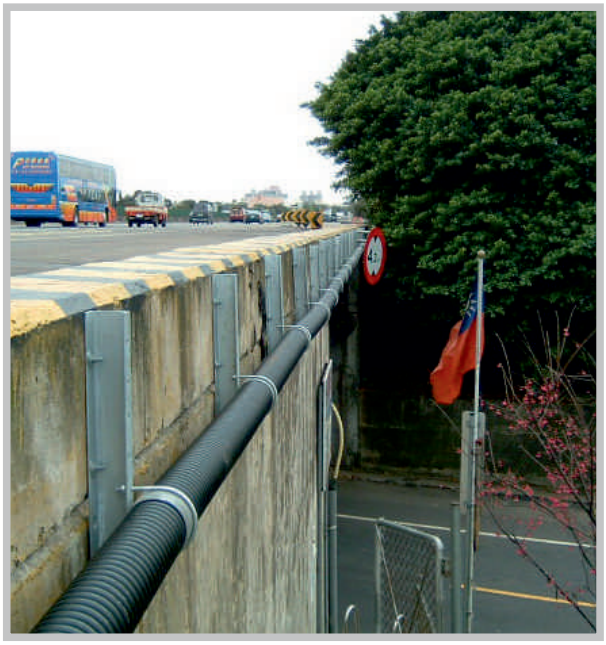
Recommended for protection of power, control and communication cables.

DUCT MODEL	OUTER DIAMETER OF OUTER DUCT, MM	INNER DIAMETER OF OUTER DUCT, MM	OUTER DUCT WALL THICKNESS, MM	Q-TY OF INNER CHANNELS
CODe 70	93,0±2,0	70,0±2,0	2,5±0,5	-
CODe 80	100,0±2,0	80,0±2,0	2,5±0,5	-
CODe 90	110,0±2,0	90,0±2,0	2,5±0,5	-
CODe 35	46,0±1,5	35,0±1,5	1,5±0,5	-
CODe 42	55,0±1,5	42,0±1,5	1,5±0,5	-
CODe 70FR	93,0±2,0	70,0±2,0	2,5±0,5	-
CODe 80FR	100,0±2,0	80,0±2,0	2,5±0,5	-
CODe 90FR	110,0±2,0	90,0±2,0	2,5±0,5	-
CODe 35FR	46,0±1,5	35,0±1,5	1,5±0,5	-
CODe 42FR	55,0±1,5	42,0±1,5	1,5±0,5	-
CODe 70UV	93,0±2,0	70,0±2,0	2,5±0,5	-
CODe 80UV	100,0±2,0	80,0±2,0	2,5±0,5	-
CODe 90UV	110,0±2,0	90,0±2,0	2,5±0,5	-
CODe 35UV	46,0±1,5	35,0±1,5	1,5±0,5	-
CODe 42UV	55,0±1,5	42,0±1,5	1,5±0,5	-
CODe 70FRUV	93,0±2,0	70,0±2,0	2,5±0,5	-
CODe 80FRUV	100,0±2,0	80,0±2,0	2,5±0,5	-
CODe 90FRUV	110,0±2,0	90,0±2,0	2,5±0,5	-
CODe 35FRUV	46,0±1,5	35,0±1,5	1,5±0,5	-
CODe 42FRUV	55,0±1,5	42,0±1,5	1,5±0,5	-





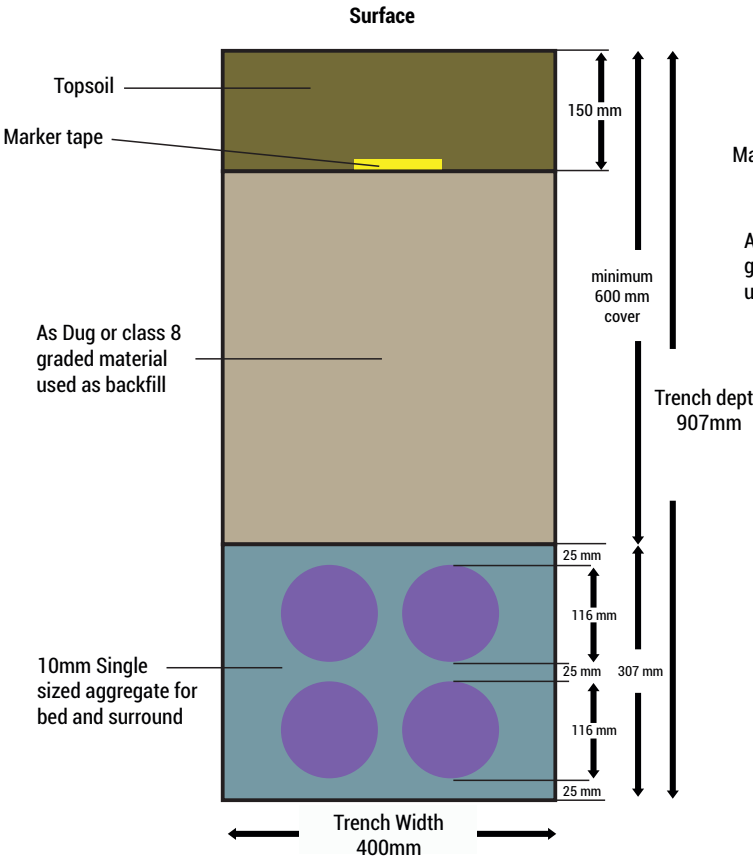




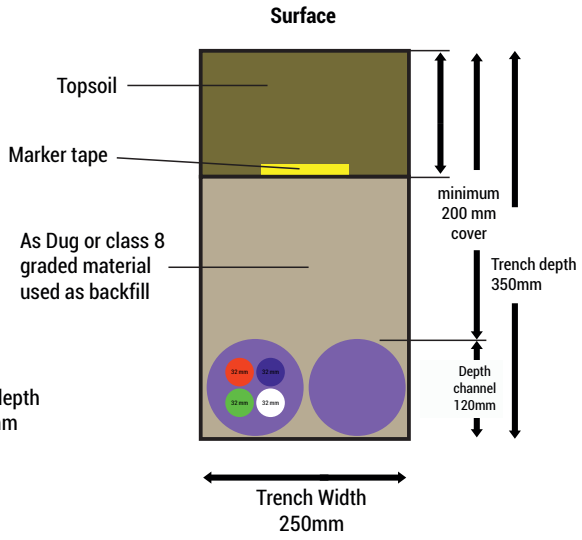
COD KEY BENEFITS

- Spiral duct (COD) is the most reliable protection for cable-conductor systems
- COD is made in the form of a solid pipe with a length of up to 1500 meters.
- The COD ducts, due to their extra strength and endurance, allow laying at a depth of 15 cm without any additional preparation of the trench used when laying traditional pipes.
- COD is air-tight and chemically resistant by its design. Connections are made by couplings without disturbing the properties of the duct
- COD minimizes installation time. Laying up to 3000 m per day by one team is possible.
- COD is extremely easy to install and does not require special skills for installation.

TRADITIONAL DUCT

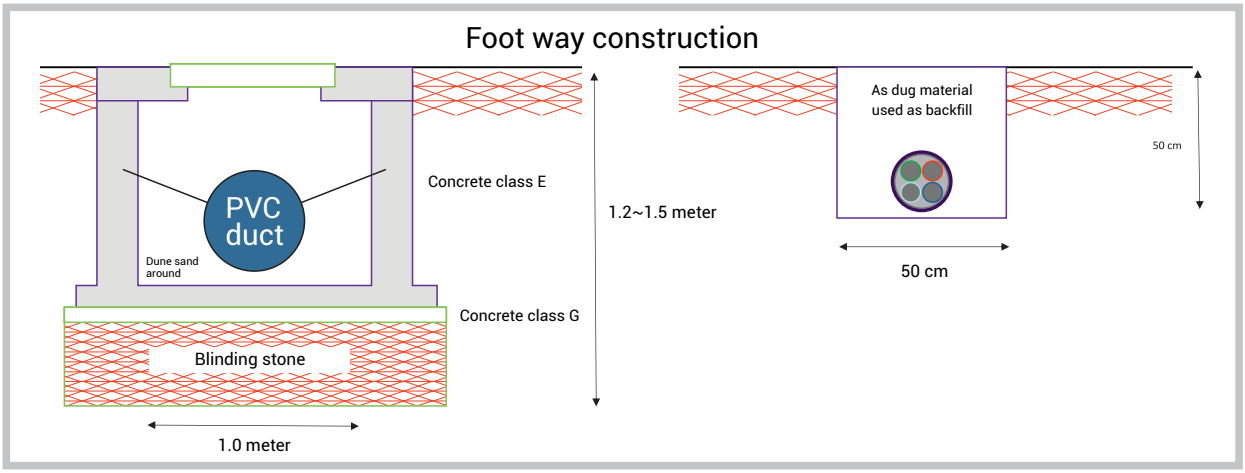


COD



Installation example of PVC duct & COD (Front view)

COD does not need concreate structures or protecting soil. Small trench is enough with backfilled soil.



FAST, RELIABLE, PRACTICAL

Example:

- COD 5x28 with an outer diameter of 110 mm is produced with a length of 500 m
- Bay 500 m long can be unwound in 10 minutes
- COD, if necessary, is easy to cut along the length of the section for the supply to the service manhole
- When laying using a rotor excavator, the laying speed is up to 3000m per shift
- Due to the fact that the trenches for the COD are 70% less than usual, the saving of time during digging and burying is reduced by more than 3 times.
- Due to its flexibility, the COD smoothly follows the contours of the trench without the use of turns and other additional connecting elements.
- Thus, the installation work of COD is carried out 6-8 times faster than the installation of a traditional pipe and reduces the working time by 1500 hours every 10 km.
- COD has high strength and is able to withstand pressure up to 300 kgf / cm2.
- Spiral duct (COD) can be installed inside the old pipe network.

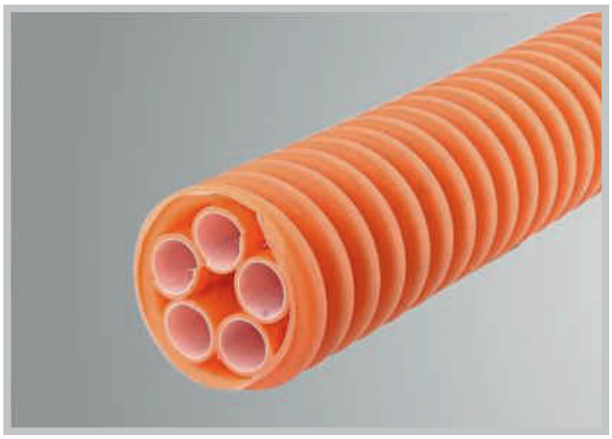
No need to remove old pipes.

The strength of the COD makes it possible to place a continuous duct into the old pipeline network to replace the old pipe without having to dig trenches and other earth-moving works.

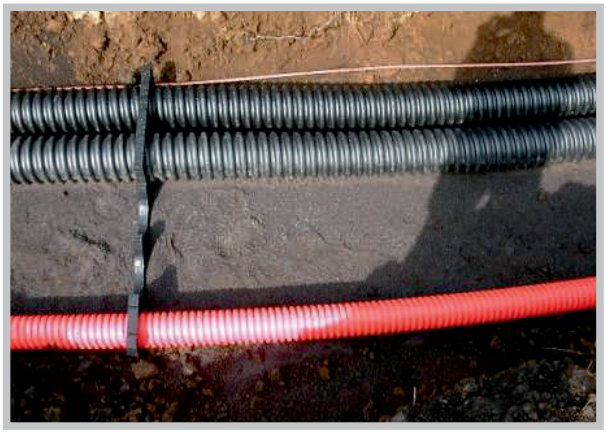
Traditional duct	COD duct
Compression limit 450N	**Compression limit 2500N**
Easily spoiled, broken, shattered by a shovel, excavator bucket or other equipment.	COD is difficult to damage even with an excavator bucket.
Straight corrugated pipe does not dampen the load	COD having a spiral shape distributes the load along the length of the duct
Often after installation, couplings begin to leak.	COD duct remains airtight due to the lack of couplings from the manhole to manhole

THE MAIN DIFFERENCES BETWEEN COD AND TRADITIONAL DUCT

Traditional duct	COD duct
110/100 mm pipe has to be connected with couplings every 6m.	110/88mm duct can be made up to 600m long
The pipe can easily deform, especially on the bends and damage the cable.	Not deformed; when laying follows the contours of the trench
A lot of storage space is required for pipe installation.	Unwinding of pipes occurs from one place, during the process does not change its location and does not lose its compactness and mobility
Due to the long laying, pipes are stored along the roads.	Bay 600m unwind for 10 minutes in the finished trench
Multiple connections on the way	Continuous tube - no connection required.
Initial cost is lower High installation costs Long installation time A large number of working staff	Initial cost is higher Minimum installation costs Save time 6-8 times A small number of working staff
A large range of fittings is required to change the direction and height.	Flexibility COD allows to change the direction and height without additional devices
The pipe is a hollow channel, thereby making it difficult to lay several lines, the simultaneous laying of several lines in a conventional pipe is difficult. In case of dismantling one line, it is necessary to free the pipe from others	Different types of COD are available from 1 to 7 color-coded embedded channels for easy recognition of one or another channel.

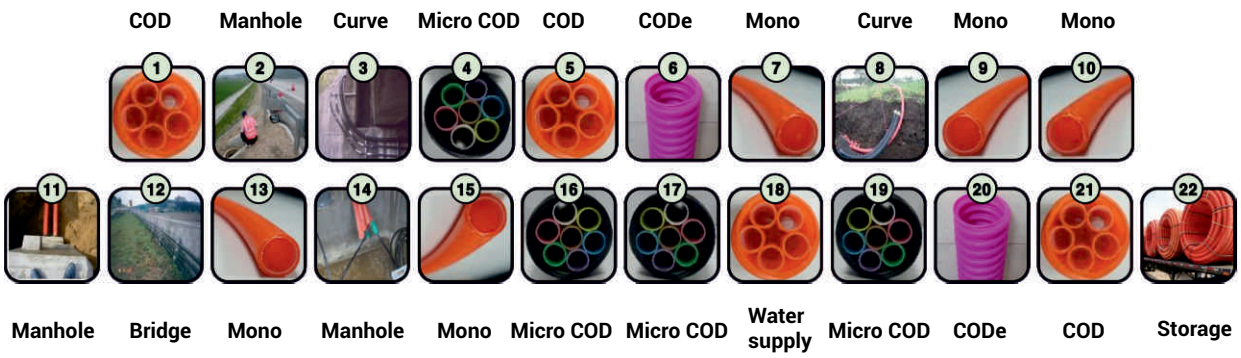


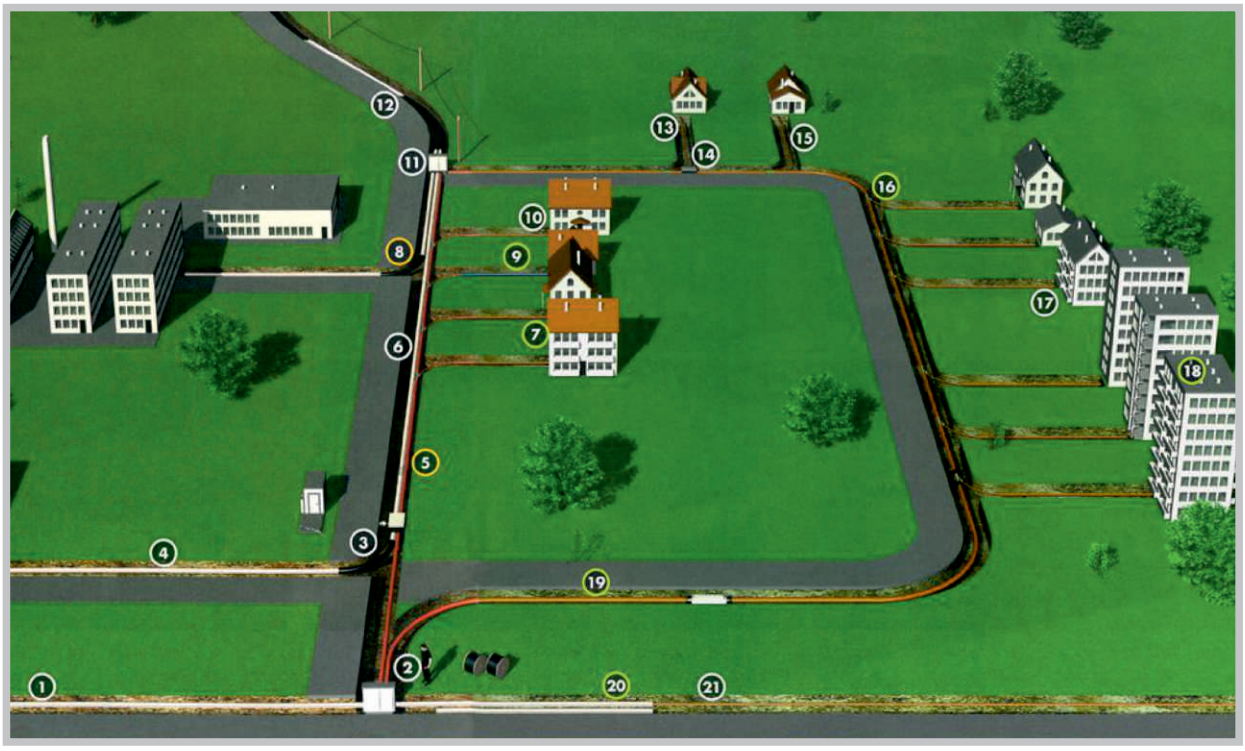
COD PHOTO INSTALLATIONS



COD PHOTO INSTALLATIONS

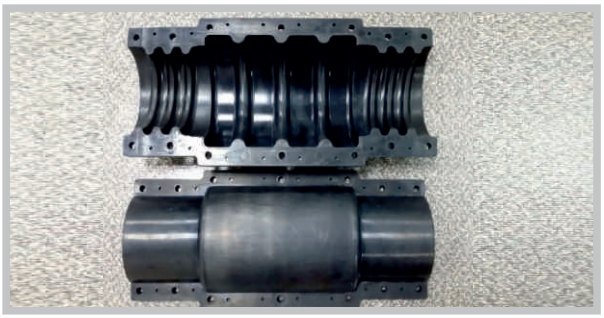
COD APPLICATION

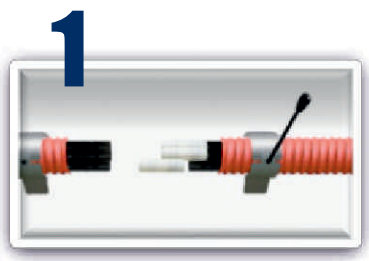




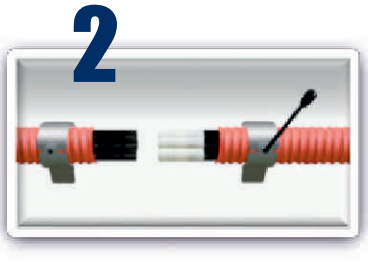
COD ACCESSORIES

Raw materials:
Outerduct connecting cover: Rubber
Bolt/nut/washer; Galvanized
Inner socket: PC

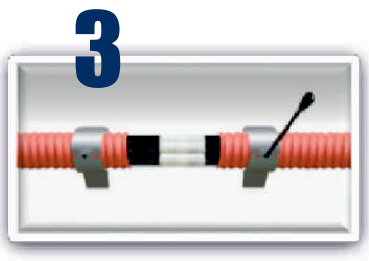




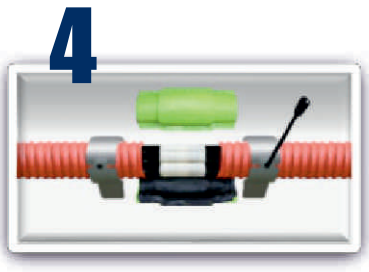
Peel off COD outer cover about pitches and arrange on the connecting jig



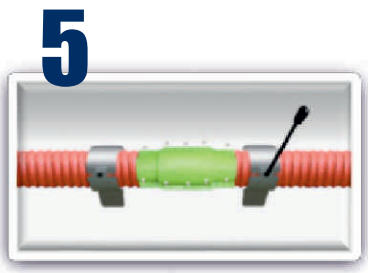
Fitting the inner duct socket one side each inner duct



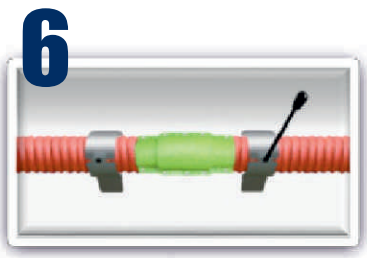
Using connecting jig insert the socket in the both side inner duct



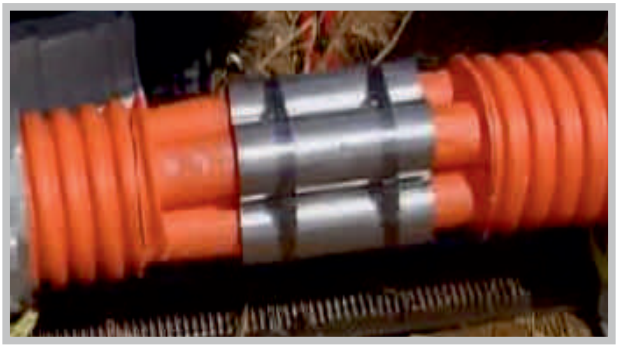
After finishing the socket coupling, cover the outer fixing cover



Tighten the bolt and nut

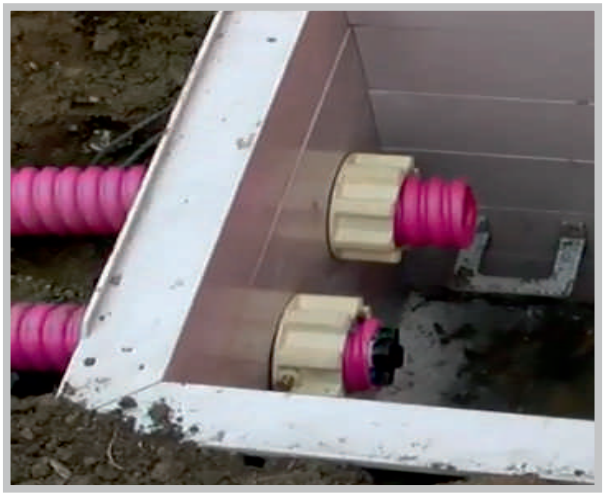


Complete



COD ACCESSORIES

Various manhole connector



INSERTING TYPE

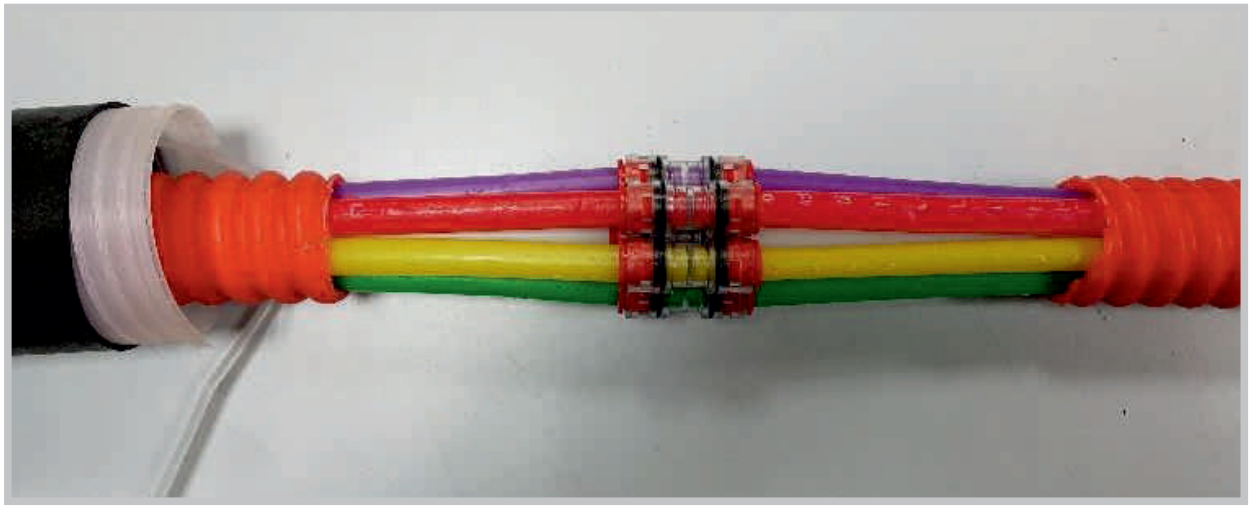
- Body:ABS
- Cap: PP (PP 90% + PE 10%)
- Fixing cover: PP
- Gasket: Rubber
- Application: COD

COMPOSITE TYPE

- Body: HDPE
- Cap: Rubber
- Band: Stainless steel
- Application: COD
- Used for manhole or Line connection

SCREW TYPE

- Body: ABS
- Gasket: Swellable Layer
- Application: COD



COUPLER SET

Inner duct end cap

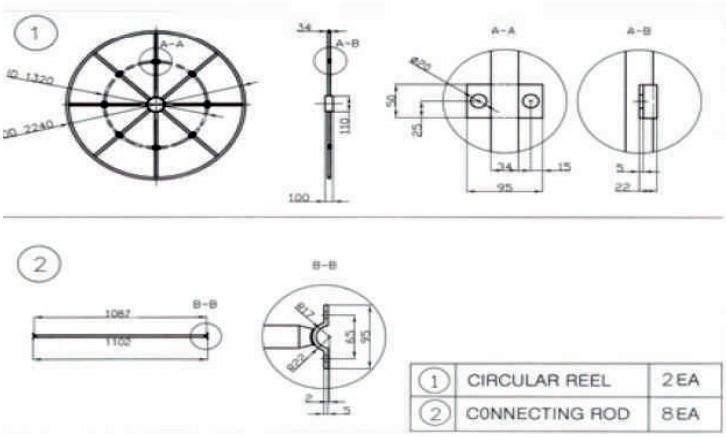
Outer duct end cap

Pushfit reducer

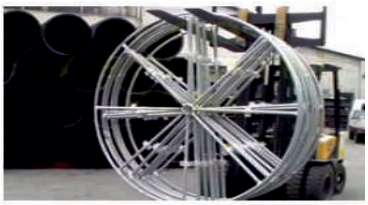
Pushfit connector

End cap

STEEL REEL

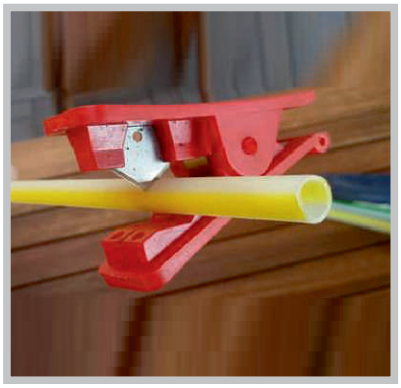


1	CIRCULAR REEL	2EA
2	CONNECTING ROD	8EA



TOOL BOX

№	TOOL BOX LIST	Q-TY
1	Handy Saw	1 EA
2	Belt Wrench	2 EA
3	Rasp	1 EA
4	Socket Wrench	1 EA
5	Spanner	2 EA
6	Pruning Shears	1 EA
7	Tool Box	1 EA

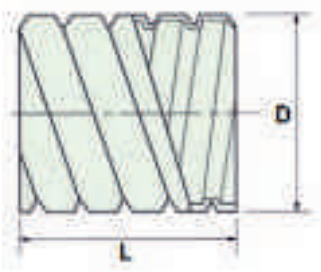


FEP ACCESSORIES

Component parts

Straight connector (termination)

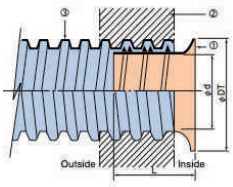
Material: HDPE

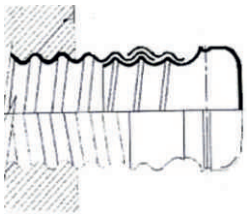


DIMENSIONS	OUTER DIAMETER	LENGTH	DIMENSIONS	OUTER DIAMETER	LENGTH
30	47	70	100	142	224
40	61	91	125	174	275
50	72	116	150	204	232
65	91	147	200	237	275
80	111	172			

End cap
(enclosed type)

End cap
(open type)





Bell of pipe
Material: HDPE

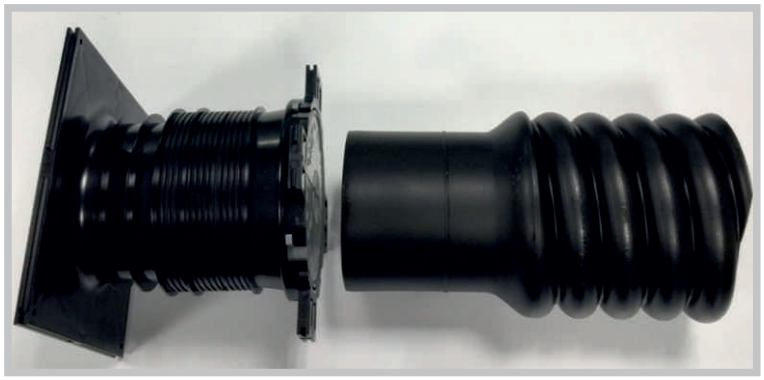
DIMENSIONS	OUTER DIAMETER	INNER DIAMETER	LENGTH	DIMENSIONS	OUTER DIAMETER	INNER DIAMETER	LENGTH
30	50	26	40	100	144	92	105
40	65	36	50	125	176	116	130
50	78	5	60	150	205	141	150
65	97	60	75	200	272	189	185
80	115	74	85				

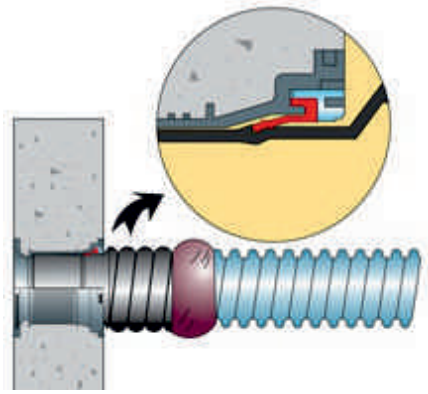
COMPONENT PARTS

Lined compound (manhole)
Material:

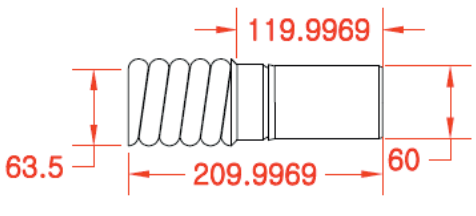
- ABS (Acrylonitrile butadiene styrene)
- Ethylene propylene diene rubber

Waterproofing cap + Composite, 1 set

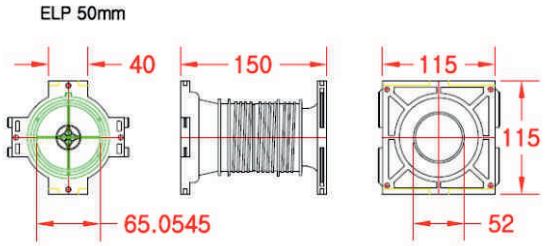




Lined compound set for HDPE duct 50 mm
Material: HDPE



Coupling (manhole)



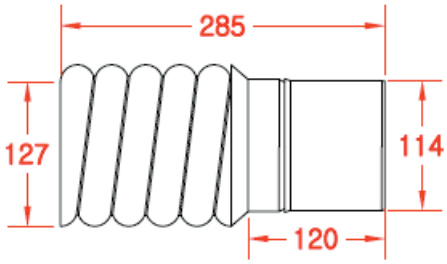
Lined compound

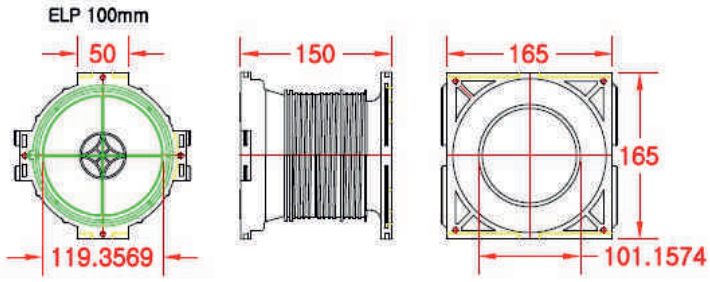
FEP ACCESSORIES

Component parts

Lined compound set (manhole) for HDPE duct 100 mm

Material: HDPE



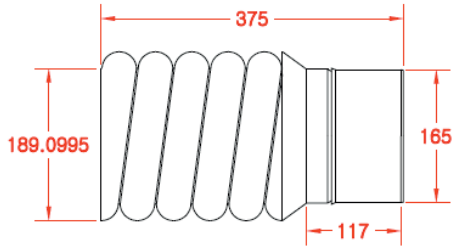


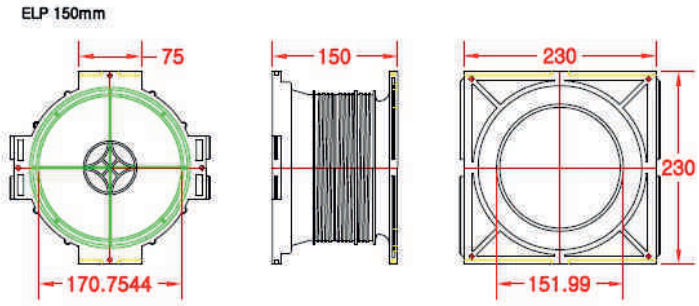
Coupling (manhole)

Lined compound

Lined compound set (manhole) for HDPE duct 150 mm (стр.46)

Material: HDPE



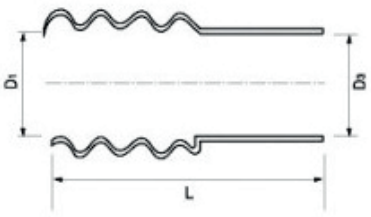


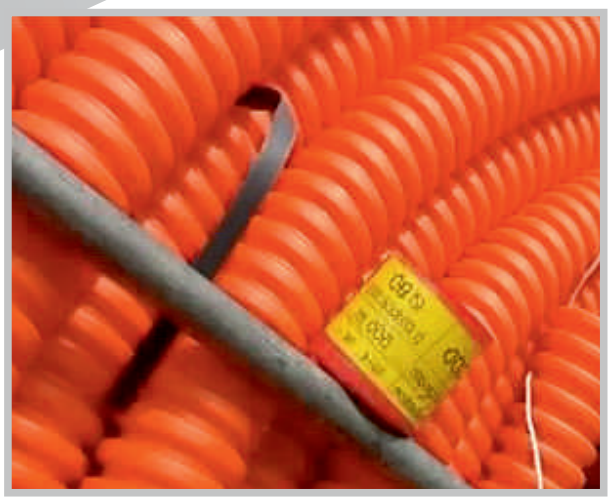
Coupling (manhole)

Lined compound

Coupling (manhole)

Material: ABS

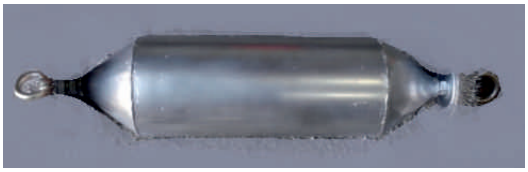


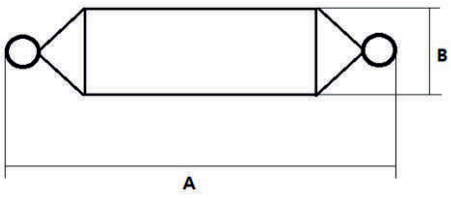


Component parts

NAME	INNER DIAMETER	OUTER DIAMETER	THICKNESS	LEAD	LENGTH
50	52	72.5	2.0	17	22
100	115	140	2.5	30	150
125	140	175	3.0	38	165
150	170	210	3.5	45	180
175	200	245	4.0	55	200
200	230	280	4.5	60	230

Dipstick steel
Material:Stainless teel





INNER DIAMETER (MM)	DIMENSIONS (MM)		WEIGHT (ABOUT)
	A	B	
150	400	135	5kg

АКСЕССУАРЫ ДЛЯ ВКТСч

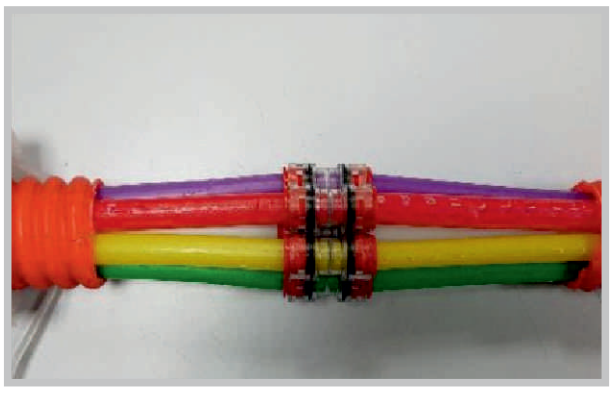
Magnetic tape kit

FEP DIMENSIONS	SEAL TAPE (WIDTH X LENGTH)	RUBBER TAPE (WIDTH X LENGTH)	PVC-TAPE (WIDTH X LENGTH)
30	3.0x25	1.9x500	1.9x1000
50	3.0x25	3.0x500	1.9x1000
80	4.0x55	3.0x500	1.9x1000
100	4.0x55	3.0x500	4.0x1000
150	5.0x80	4.0x500	4.0x1000
200	8.0x50	7.0x250	5.0x800

Coupling

The coupling is easy to adjust the length using special connectors "one-touch"
Straight PE duct with seal on waterproofing cover
Cover length – adjustable

- Joint



- Connector (waterproofing)


PATENTS ACT, 1978

CERTIFICATE


SRI LANKA

PATENT


SRI LANKA

PATENT


中華民國專利證書


The United States of America

The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.

Acting Director of the United States Patent and Trademark Office


Europäisches Patentamt | European Patent Office | Office européen des brevets

Urkunde Certificate Certificat

Es wird hiermit bescheinigt, daß für die in der beigefügten Patentschrift beschriebene Erfindung ein europäisches Patent für die in der Patentschrift bezeichneten Vertragsstaaten erteilt worden ist.

It is hereby certified that a European patent has been granted in respect of the invention described in the annexed patent specification for the Contracting States designated in the specification.

Il est certifié qu'un brevet européen a été délivré pour l'invention décrite dans le fascicule de brevet ci-joint, pour les Etats contractants désignés dans le fascicule de brevet.

Europäisches Patent Nr. / European Patent No. / Brevet européen n°

1198336

Patentinhaber / Proprietor of the Patent / Titulaire du brevet

Byun, Moo-Won
102-1306 Hyundai Apt., 39/7, 413-1 Poongnap-dong
Songpa-gu, Seoul 138-040/KR

München, den / Munich, / Fait à Munich, le 09.02.05

Alain Pompidou


中華民國專利證書

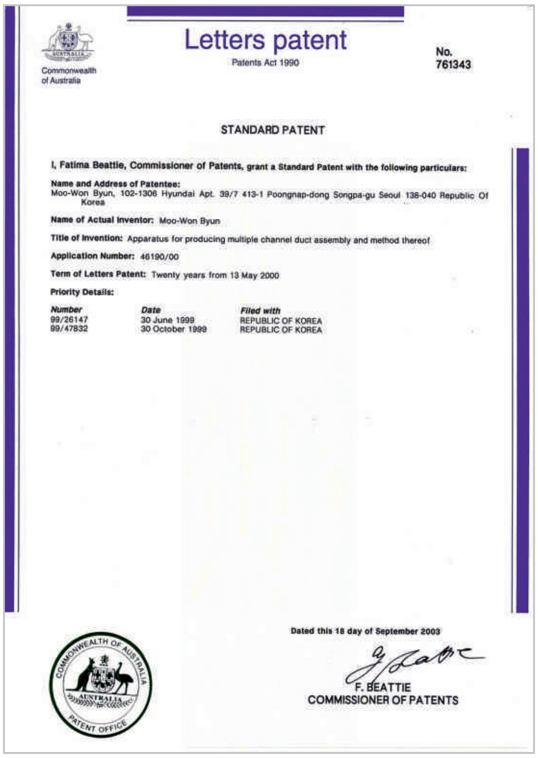

T.C.
TÜRK PATENT ENSTİTÜSÜ
İNCELEMELİ PATENT

No: TR 2001 03838 B


T.C.
TÜRK PATENT ENSTİTÜSÜ
İNCELEMELİ PATENT

No: TR 2001 03839 B


BẰNG ĐỘC QUYỀN
SÁNG CHẾ


Letters patent

Patents Act 1990

Commonwealth of Australia

No. 761343

STANDARD PATENT

I, Fatima Beattie, Commissioner of Patents, grant a Standard Patent with the following particulars:

Name and Address of Patentee:
Moo-Won Byun, 102-1306 Hyundai Apt. 39/7 413-1 Poongnap-dong Songpa-gu Seoul 138-040 Republic Of Korea

Name of Actual Inventor: Moo-Won Byun

Title of Invention: Apparatus for producing multiple channel duct assembly and method thereof

Application Number: 46190/00

Term of Letters Patent: Twenty years from 13 May 2000

Priority Details:

Number	Date	Filed with
99/26147	30 June 1999	REPUBLIC OF KOREA
99/47832	30 October 1999	REPUBLIC OF KOREA

Dated this 18 day of September 2003

F. BEATTIE
COMMISSIONER OF PATENTS

COMMONWEALTH OF AUSTRALIA
PATENT OFFICE


THE REGISTRY OF PATENTS
SINGAPORE

THE PATENTS ACT
(CHAPTER 221)

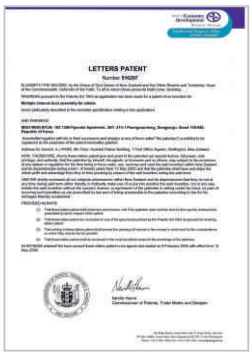
CERTIFICATE OF GRANT OF PATENT

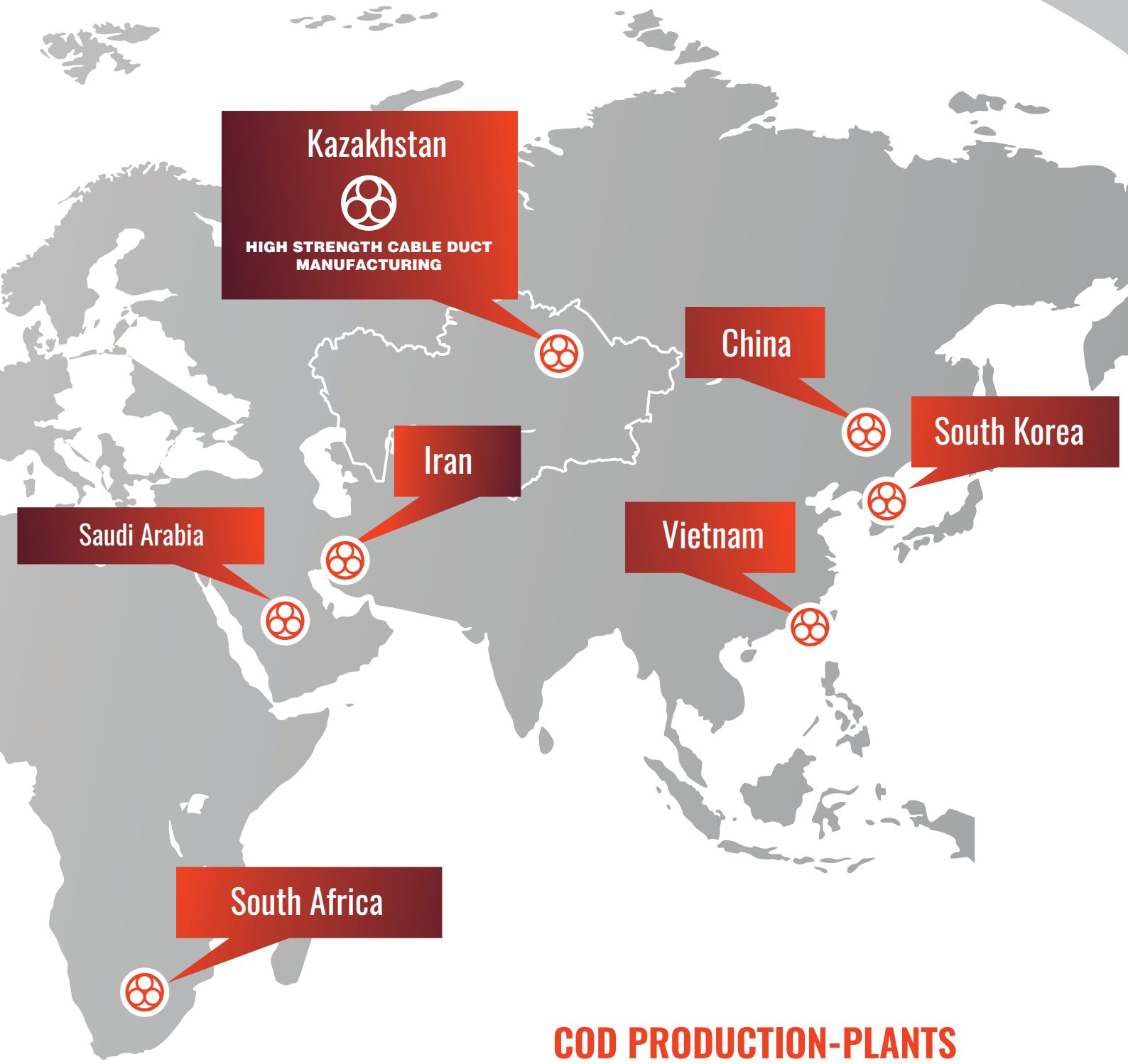
In accordance with section 35 of the Patents Act, it is hereby certified that a patent having the following P-No. 85818 [WO 01/01535] had been granted in respect of an invention having the following particulars:

Title	:	MULTIPLE CHANNEL DUCT ASSEMBLY FOR CABLES
Application No.	:	200107846-8
Date of Filing	:	13 May 2000
Priority Data	:	30 June 1999 - PATENT APPLICATION NO. 1999/26147(REPUBLIC OF KOREA)
		01 November 1999 - PATENT APPLICATION NO. 1999/47976(REPUBLIC OF KOREA)
Name of Inventor(s)	:	BYUN, MOO-WON
Name(s) and Address(es) of Proprietor(s) of Patent	:	BYUN, MOO-WON 102-1306, HYNUDAI APT., 39/7, 413-1, POONGNAP-DONG, SONGPA-GU, SEOUL 138-040, REPUBLIC OF KOREA
Date of Grant	:	24 September 2002

Dated this 24th day of September 2002.

Chiam Lu Lin (Ms)
Acting Registrar of Patents,
Singapore.





COD PRODUCTION-PLANTS IN THE WORLD

HIGH STRENGTH CABLE DUCT MANUFACTURING

The Republic of Kazakhstan
Almaty region, Bayserke,
Sultan beybars street, 5
ILC "Damu-Almaty»

Tel.: 8 (727) 317 2828
Tel.: 8 (727) 317 4848
Website: www.zvkt.kz
E-mail: sales@zvkt.kz