



RM 602, Unit B, #253 Pangyo-Ro, Bundang-Gu, Seongnam-Si, Gyeonggi-Do, Korea

TEL : +82-31-712-6981/6982 FAX : +82-31-712-6986

Web : <http://www.iteco.co.kr> Web : <http://www.optiroad.com>

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<h1>Specification</h1> <h2>For</h2> <h1>Smooth inner wall COD</h1>					
1	OCT. 31, 2016	Original Issue	Eun-Kyung Min	Young-Ho Jun	Yu-Hyoung Lee
Rev. No.	Date	Descriptions	Prepared By	Reviewed By	Approved By

1. General

This specification cover the requirements for Smooth inner wall COD.

2. Material

High Density Polyethylene

ISO/DIS 12162 - MRS 8.0Mpa, PE80

3. Shape of pipe

- 1) Corrugated (Spiral) shape of the outer surface
- 2) Flat & smooth inner wall
- 3) Length / coil: 500 ~ 600 meter
- 4) Detailed dimension is indicated in clause 9 of this specification.



4. Test report

Classification	Test Item	Result	Criterion	Test Method
Mechanical	Tensile Strength	230	200 kgf/cm ²	KS C 8455
	Compressive Load at 5% Deformation	750 N		IEC
				61386-21
Impact Strength	No Defect	No Defect	KS C 8455	
Insulated Property	Withstand Voltage	No Defect	200V, 15 Min.	IEC 614-2-2
	Insulation Resistance	Over 500	Over 100MΩ	IEC 614-2-2
Chemical Resistance	40% HNO ₃	0.1	Within ± 1.0	KS C 8455
	40% NaOH	-0.3	Within ± 0.5	KS C 8455
	30% H ₂ SO ₄	-0.1	Within ± 0.5	KS C 8455
	10% NaCl	0	Within ± 0.5	KS C 8455
	95% EtOH	0.6	Within ± 4.0	KS C 8455

5. Performance of HDPE pipe

Properties	Method	Unit	Value
Density	ASTM D 1505	g/cm ³	>0.945
Melt Index (190 °C, 5Kg)	ASTM D 1238	g/10min	Max.0.35
Tensile Strength(at Yield, 50mm/min)	ASTM D 638	kg/cm ²	>200
Ultimate Elongation(50mm/min)	ASTM D 638	%	>500
IZOD Impact Strength(23 °C)	ASTM D 256	kg/cm/cm	Non-break
Flexural modulus	ASTM D 790	kg/cm ²	>8,000
ESCR(ConditionB,F20)	ASTM D 1693	hr	>1,000

6. Material Properties

Nr	Properties	Values	Test methods
1	Tensile strength @ Yield (Film properties)	30Mpa	ASTM D 882
2	Elongation @ Break (Film properties)	400%	ASTM D 882
3	Water Absorption	0.03%, Maximum	ASTM D 570 24hours immersion
4	Voltage Resistance	2,000 VAC (>15min.)	
5	Insulation Resistance	>200Mohm	

7. Packing (Shipping)

All pipes will be loaded as coiled pipes and they are produced by 500m/coil length. All COD, unless otherwise specified by the purchaser, will be prepared for standard commercial shipment. Care will be taken during shipment to prevent cuts, scratches, and other damage.

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8. Inspection Report for COD

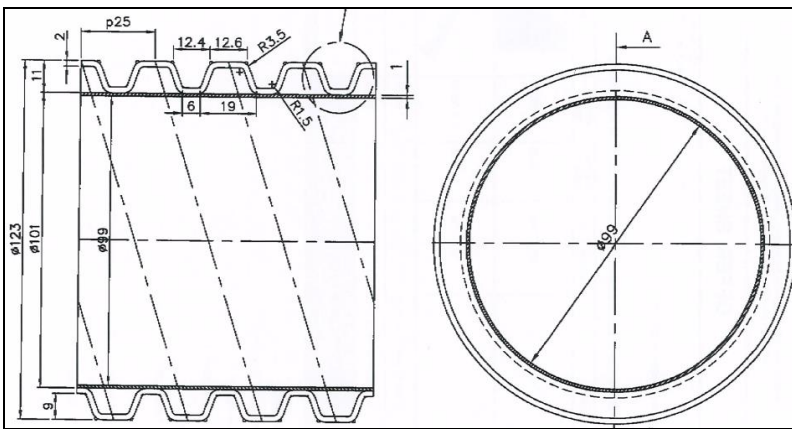
No	Test Item	Requirements		Coil & Sample No.					Reference
				CB0712	CB0712	CB0712	CB0712	CB0712	
				256/300	261/300	271/300	281/300	291/300	
1	Pipe Dimension	Outer Duct	O.D. (112±2mm)	111.24	111.44	111.08	110.12	111.58	Ruler test
			I.D. (88±2mm)	87.90	87.74	88.64	87.84	87.58	Ruler test
			Thickness(2.0±0.5mm)	2.2	2.3	2.0	2.1	2.1	Ruler test
2	Compression strength	Not to produce fissure of crack Outside		PASS	PASS	PASS	PASS	PASS	KS C 8455
3	Tensile strength	Min. 200kgf/cm ²		228.5	216.8	220.4	224.5	230.5	KS M 3006
4	Dielectrical withstand voltage	No dielectric breakdown shall appear for 2000V, 15min		PASS	PASS	PASS	PASS	PASS	KS C 8454
5	Insulation resistance	More than 100MΩ		PASS	PASS	PASS	PASS	PASS	KS C 8454
6	Friction test	Less than 0.15		0.14	0.14	0.13	0.14	0.14	Bellcore way
7	Resistance to collapse	The gauge shall pass through the specimen easily		PASS	PASS	PASS	PASS	PASS	KS C 8454
8	Resistance to thermal	The gauge shall pass through the specimen easily		PASS	PASS	PASS	PASS	PASS	KS C 8454
9	Immersion test	10% SODIUM CHLORIDE : ±0.5/M ² 30% SULFURIC ACID : ±0.5/M ² 40% NITRIC ACID : ±1.0/M ² 40% SODIUM HYDROXIDE : ±0.5/M ² 95% ETHYL ALCOHOL : ±0.4/M ²		PASS	PASS	PASS	PASS	PASS	
** Remarks									Final Test Result
									PASS

9. DIMENSION OF SMOOTH INNER WALL COD

1) Smooth inner wall COD

• Outer Corrugated Duct; 123/99mm

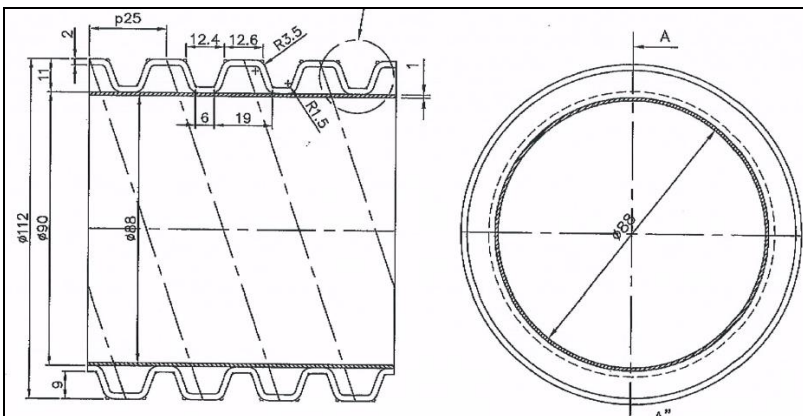
DUCT	O.D.(mm)	I.D.(mm)	Thickness(mm)	COLOR
OUTER DUCT	123±2.0	99±2.0	2.0±0.5	Depends on client requirement



2) Smooth inner wall COD

• Outer Corrugated Duct; 112/88mm

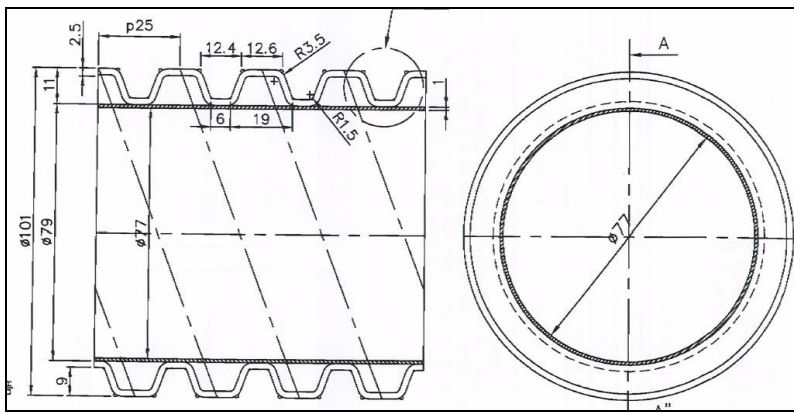
DUCT	O.D.(mm)	I.D.(mm)	Thickness(mm)	COLOR
OUTER DUCT	112±2.0	88±2.0	2.0±0.5	Depends on client requirement



3) Smooth inner wall COD

- Outer Corrugated Duct; 101/77mm

DUCT	O.D.(mm)	I.D.(mm)	Thickness(mm)	COLOR
OUTER DUCT	101±2.0	77±2.0	2.0±0.5	Depends on client requirement



- End of Specification -