



REINFORCED PIPES

PE100 RC

for excavation and non-excavation technologies

TRADEMARKS

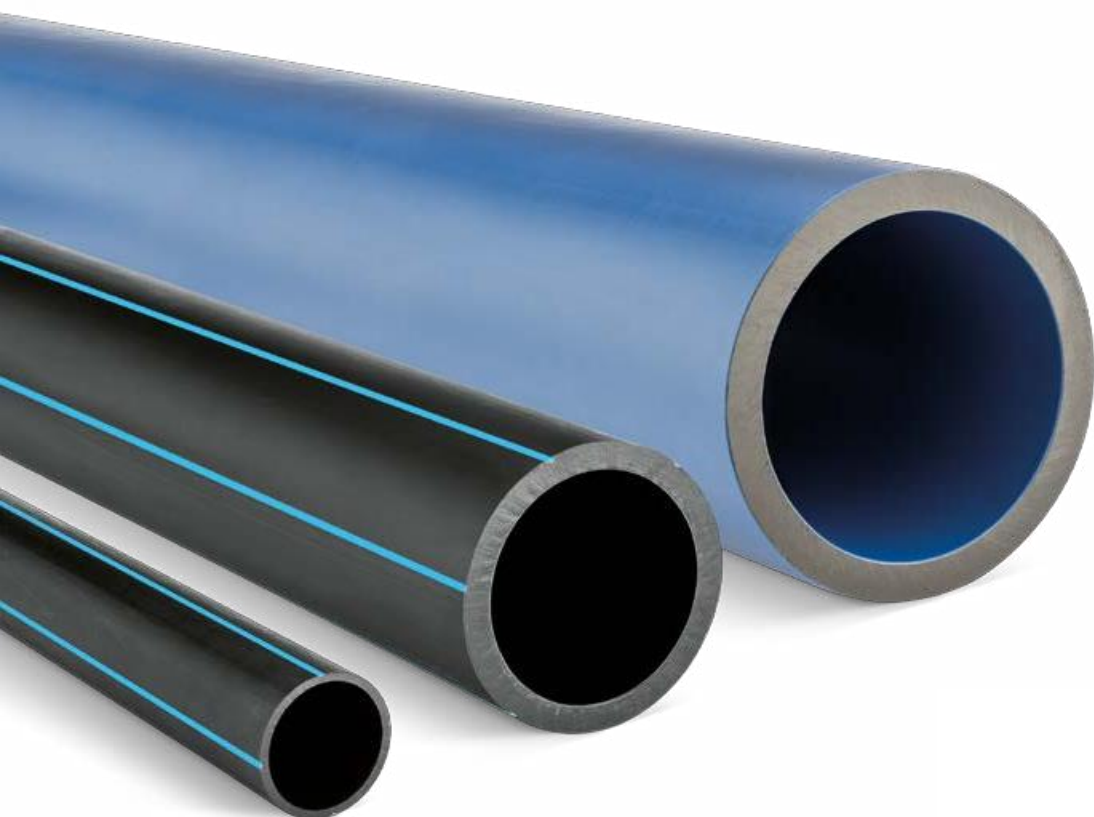
- **SPECJAL and DUO SPECJAL**
- pipes with non-molecularly connected jacket
- **MONO SPECJAL**
- monolithic pipes, one- or multi-layered with co-extrusion

DIMENSIONS

- **Specjal and Duo Specjal**
Ø 75 - 400 mm, length 12 m
- **Mono Specjal 1RC**
Ø 20 - 630 mm, length 12 m
- **Mono Specjal 2RC and 3RC**
Ø 75 - 630 mm, length 12 m
- **Pipe PE100/PE100 RC**
Ø 75 - 630 mm:
- length 12 m
- coils 50-300 metres

PURPOSE:

- water installations and systems
- pressure and non-pressure rainwater and sanitary sewers
- gravity sewers, industrial
- installations, replacement of
- old pipelines without excavations
- renovation of old pipelines with tight or loose methods (e.g. kraking, relining, sliplining, burstlining)





TECHNICAL DESCRIPTION

Pipes for construction of water installations and systems, pressure and non-pressure rainwater and sanitary sewers, gravity sewers and industrial installations. Pipes are used for construction of systems using traditional excavation methods and narrow excavation methods in native soils, without bedding and sand surround layers, non-excavation methods (e.g. directional drilling or jacking) and used in specific terrain conditions, including the surface. The pipes can also be used for non-excavation replacement of old pipelines and for renovation of old pipelines with tight or loose methods (e.g. kraking, relining, sliplining, burstlining).

CHARACTERISTICS OF REINFORCED PIPES

- additional protection of inner pipe from damage during transport, storage, relocation and laying the pipeline at the construction site using the excavation and non-excavation technology
- possibility of laying pipes in native grounds without bedding and sand surround layers, possibility of
- connecting with other polyethylene pipes and fittings

MONO SPECJAL reinforced pipe:

- almost total elimination of fast and slow propagation of cracks
- no propagation of scratches and cuts and spot pressure directly on the internal pressure pipe and high
- resistance to scratches, cuts and spot pressure
- high resistance to FNCT, ACT stress cracking
- using traditional connecting methods, i.e. butt welding, electric resistivity welding and clamp connectors
- use of typical fittings for butt welding and electric resistivity welding,
- possibility of manufacturing segmented fittings

SPECJAL and DUO SPECJAL reinforced pipe:

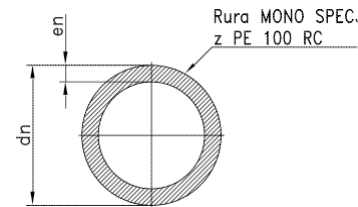
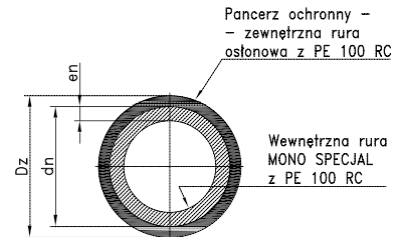
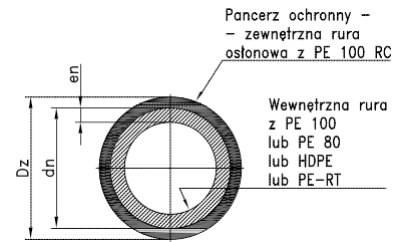
- double protection from the fast and slow crack propagation
- no propagation of scratches and cracks and spot pressure in SPECJAL and DUO SPECJAL pipes directly on the inner pipe
- additional resistance to cracking, cuts, spot pressure, resistance to
- FNCT, ACT stress cracks
- resistance of the "protective jacket" to long-term mechanical properties (CLT)
- possibility of butt welding (without removing the protective jacket)
- possibility of electric resistivity welding and using the clamp connectors (after previous removal of the protective jacket)
- possibility of using the typical fittings for butt welding and electric resistivity welding,
- possibility of manufacturing segmented fittings from SPECJAL and DUO SPECJAL pipes
- total weldability of the inner pipe and the protective jacket
- possibility of using the steel, copper or aluminium location tape between the inner pipe and the protective jacket that enables locating the pipeline after
e.g. a horizontal drilling, kraking or other renovation method



TRADEMARKS

SPECJAL - pipes with non-molecularly connected jacket

- type PE 100 RC/PE 100, PE 100 RC/PE 80
- PE 100 RC/PE 100 RD, PE 100 RC/PEHD
- PE 100 RC/PE-RT



DUO SPECJAL

MONO SPECJAL - monolithic pipes, single-
or multi-layered with co-extrusion:

- type 1 RC
- 2 RC
- 3 RC

PROPERTIES

SPECJAL and DUO SPECJAL reinforced pipes have an external "protective jacket" in the form of a polyethylene PE 100 RC pipe with increased resistance to crack propagation, spot pressure, FNCT and ACT stress cracking and long-term CLT mechanical properties.

In the case of SPECJAL pipes the inner pipe is a polyethylene pipe made of z PE 100, PE 80, HDPE or PE RT, whereas in the case of DUO SPECJAL pipes the inner polyethylene pipe is made of PE 100 RC polyethylene.

Such construction of the SPECJAL and DUO SPECJAL pipe, where the outer covering pipe (protective jacket) is not connected molecularly with the inner pressure pipe enables an additional protection from the phenomenon of fast and slow crack propagation and spot pressure. Mechanical damages of the outer pipe do not propagate to the inner pipe. Moreover, the outer "protective jacket" can be antistatic, flame retardant or UV stabilized.

It is possible to manufacture the reinforced pipes with stainless steel, copper or aluminium location tape. The tape is located between the jacket and the inner pipe.

By default, SPECJAL and DUO SPECJAL reinforced pipes are manufactured with diameters of \varnothing 75 mm to \varnothing 400 mm. Standard pipe section lengths are 12 m.

Depending on the purpose, the inner pipes of SPECJAL, DUO SPECJAL and MONO SPECJAL pipes have their dimensions conformable with the ones given in the following standards and technical approvals:

in the case of pressure and sub-pressure pipes:

- in standards PN-EN 12201-2+A1:2013, PN-ISO 11922-1:2013 or PN-EN ISO 22391-2:2010,

in the case of non-pressure applications, for gravity sewers:

- in standards PN-EN 12666-1+A1:2011 or PN-ISO 11922-1:2013,

in the case of culverts:

- in technical approvals IŁ AT/2011-08-005, IŁ AT/2009-04-001 and IBDiM AT/2010-02-2665.

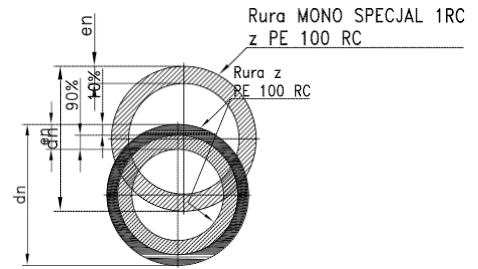
Tightly applied outer protective jacket in the form of a covering pipe is made of PE 100 RC polyethylene.

MONO SPECJAL pipes are monolithic pipes made in whole from PE 100 RC polyethylene with increased resistance to crack propagation, spot pressures and FNCT, ACT stress cracking.

Manufactured in 3 construction versions with names:

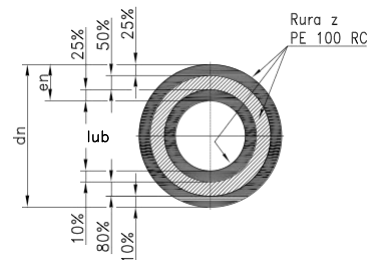


MONO SPECJAL 1RC - single-layer (one colour).



MONO SPECJAL 2RC - two-layer (e.g. in two colours), where the outer coloured layer is 10% of the wall thickness.

MONO SPECJAL 3RC - three-layer, external and internal layer is at least 10% fo the wall thickness and can have a different colour than the middle layer.



Mono Specjal 1RC pipes are manufactured with diameters of Ø 16 to Ø 630 mm, Mono Specjal 2RC pipes and 3RC pipes - Ø75 to Ø400 mm. Standard pipe section lengths are 12 m.

EXAMPLES OF REINFORCED PIPE DIMENSIONS

SPECJAL and DUO SPECJAL FOR WATER: SDR 11 PN 16

TYPE OF THE PIPE [MM]	OUTER DIAMETER OF A REINFORCED PIPE [MM]	OUTER DIAMETER OF AN INNER PRESSURE PIPEJ [MM]	INNER WALL THICKNESS OF THE PRESSURE PIPE [MM]
79	79,4	75	6,8
94	94,4	90	8,2
115	115	110	10,0
130	130	125	11,4
146	146	140	12,7
166	166	160	14,6
186	186	180	16,4
206	206,4	200	18,2
232	232	225	20,5
258	257,8	250	22,7
289	288,8	280	25,4
325	324,8	315	28,6
366	366,2	355	32,2
413	412,6	400	36,3

**SPECJAL and DUO SPECJAL FOR WATER: SDR 17 PN 10**

TYPE OF THE PIPE [MM]	OUTER DIAMETER OF A REINFORCED PIPE [MM]	OUTER DIAMETER OF THE INNER PRESSURE PIPEJ [MM]	INNER WALL THICKNESS OF THE PRESSURE PIPE [MM]
79	79,4	75	4,5
94	94,4	90	5,4
115	115	110	6,6
130	130	125	7,4
146	146	140	8,3
166	166	160	9,5
186	186	180	10,7
206	206,4	200	11,9
232	232	225	13,4
258	257,8	250	14,8
289	288,8	280	16,6
325	324,8	315	18,7
366	366,2	355	21,1
413	412,6	400	23,7

MONO SPECJAL pipe dimensions according to the standard PN-EN 12201-2 with diameters of Ø 16 mm to Ø 630 mm.

APPENDICES:

- Technical approval AT-15-9291/2014
- Declaration of conformity Hygienic
- certificate GIG technical opinion
- Instruction EL-22 Recommended transportation and storage methods of PE pipes
- Price list – prices provided at the customer's request