

rare
PLASTICS

CO-EXTRUDED PIPE



RPC is a three layer co-extruded pipe with outer and inner layers of advanced PE100-RC polymer and a PE100 core, that conform to ISO 4427.2 and PAS1075.



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A Division of the Rare Group

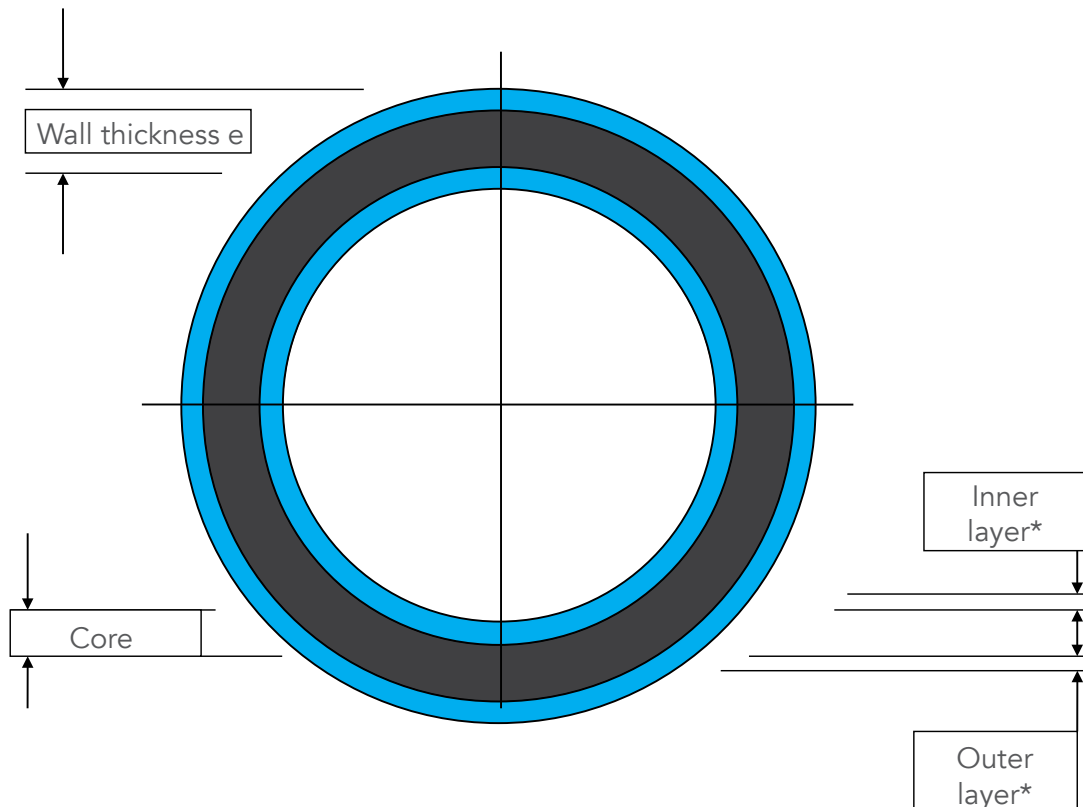
PE100-RC is a specifically developed advanced polymer that resists the effects of notches, scores, scratches, grooves and point loads that may result from the trenchless installation technique used or installation without selected or imported bedding and embedding material.



RARE RPC (RARE PLASTICS CO-EXTRUDED) PIPES FOR WATER & SEWER

Rare Plastics, in conjunction with its technology partner Borealis, has produced a water and sewer pipe specifically for AIT (Alternative Installation Techniques). This polymer technology has high resistance to slow crack growth and point loads, compared to standard PE100.

RPC is a three layer co-extruded pipe with outer and inner layers of advanced PE100-RC polymer and a PE100 core as shown below. The outer and inner layers are blue PE100-RC polymer and the remaining core is black PE100. The three layers are fused together during manufacture and inseparably extruded.



* Minimum of 2,5 mm as per PAS 1075



PE100-RC

This is a specifically developed advanced polymer that resists the effects of notches, scores, scratches, grooves and point loads that may result from the trenchless installation technique used or installation without selected or imported bedding and embedding material.

PIPES MANUFACTURED USING PE100-RC MATERIAL MUST PASS DEMANDING TESTS AS FOLLOWS:

The Notch Test (ISO 13479)	FNCT (Full Notch Creep Test) (ISO 16770)	CT (Cone Test)	PLT (Point Loading Test)	PAS (Publicly Available Specification) 1075 requires:
tests SCG (Slow Crack Growth) at 4.6 MPa stress and 80° Celsius temperature and must not fail before 8,760 hours (1 year)	tests SCG at 4.0 MPa stress and 80° Celsius temperature in a 2% Arkopal solution and must not fail before 8,760 hours (1 year)	measures time for crack formation and crack propagation	in 2% Arkopal solution at 80° Celsius with a 10 mm diameter piston pressed into the wall of the pipe at yield stress (4N/mm ²) and maintained until failure. Failure time is greater than 5 times PE100 time and the correlation between FNCT and PLT shows a pipeline life expectancy of about 100 years when installed without embedment (bedding and surrounding).	FNCT (ISO 16770) >8,760 hours; PLT >8,760 hours; Notch Test (ISO 13479) >8,760 hours; FNCT and PLT correlation – 8,760 and 3,300 hours.

Please see the “Trenchless Technology” Specification on the Centre of Expertise website for a comprehensive specification of PE-100-RC and PAS 1075 for more details of the above tests.

PE100-RC AND PE100

The superior properties of PE100-RC compared with standard (ISO/SANS 4427) PE100 are as follows:

TEST	PE100 - hours	PE100-RC - hours
Notch test	2,200	11,580
FNCT	1,600	8,552*
Point load test	2,200	>9,000

*NB: The failure was ductile not brittle



ALTERNATIVE INSTALLATION METHODS REQUIRING RPC



TWO ONEROUS DEMANDS MAY BE MADE ON THE PIPES AS FOLLOWS:

▶ Outside damage such as notches, scores, scratches and grooves caused by pulling the pipeline.

▶ Point loading caused by hard objects impinging on the pipe.

Installation method	Point loads	Crack initiation	Notch
Directional drilling	XXX	XXX	XXX
Pipe bursting	XX	XXX	XXX
Swagelining	XX	XX	XX
Close fit	X	XX	XX
Slip lining	X	X	XX
No imported bed	XXX	X	-

X – Indicates the probability of damage occurring and protection needed.




JOINING RPC PIPES

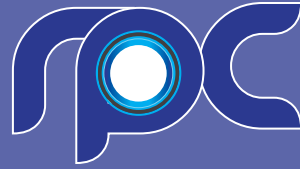
TWO METHODS OF JOINING THE PIPES MAY BE USED AS FOLLOWS:

- 1 Butt welding – the machinery, procedures and techniques are the same as those for standard PE100 polymer pipes.
- 2 Electro-fusion – the machinery, procedures and techniques are the same as those for standard PE100 polymer pipes and can be welded to both PE80 and PE100 fittings.

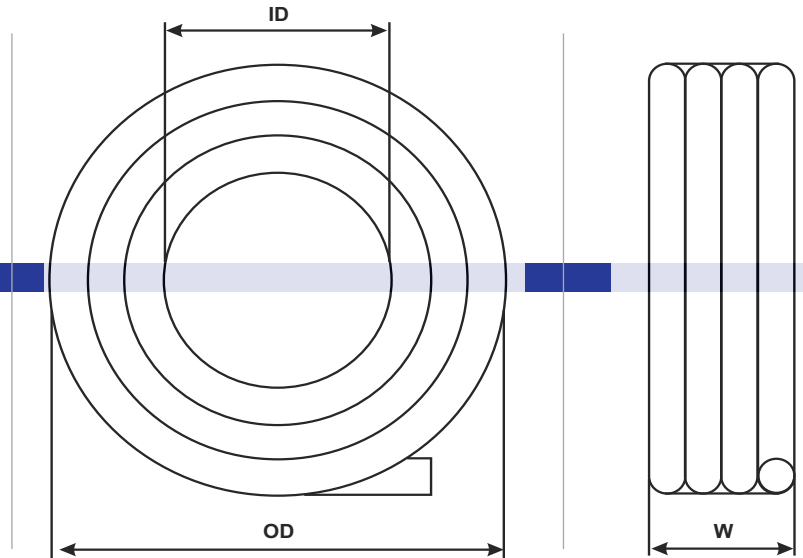
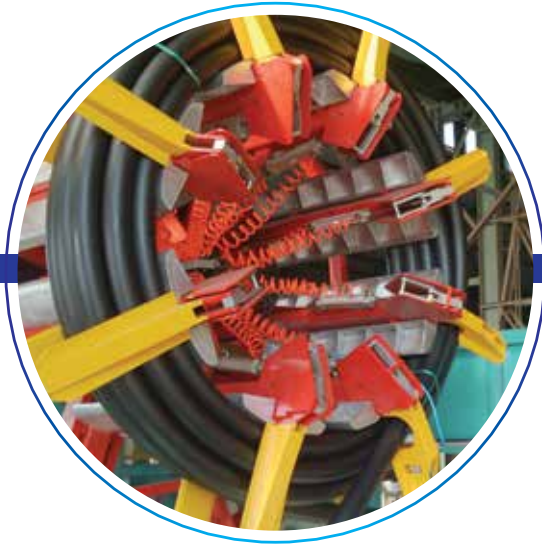
RPC pipes are compatible with standard PE100 polymer pipes and can be joined with standard jointing methods such as Buttwelding and Electro-fusion.



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AVAILABLE RPC WATER AND SEWER COILS



COIL DIMENSIONS			ID	OD				Width (W)				Weight			
				mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg
Dia	PN	Kg/m	m	50m	75m	100m	150m	50m	75m	100m	150m	50m	75m	100m	150m
110	10	2.177	1800	2240	2240	2460	2460	460	690	575	920	110	163	218	327
110	12.5	2.634	1800	2240	2240	2460	2460	460	690	575	920	133	198	263	396
110	16	3.169	1800	2240	2240	2460	2460	460	690	575	920	160	238	317	477
125	10	2.777	1800	2300	2550	2550	N/A	520	520	650	N/A	139	209	279	N/A
125	12.5	3.394	1800	2300	2550	2550	N/A	520	520	650	N/A	170	256	341	N/A
125	16	4.111	1800	2300	2550	2550	N/A	520	520	650	N/A	206	310	413	N/A
140	12.5	4.250	2000	2560	2560	N/A	N/A	580	580	N/A	N/A	211	320	N/A	N/A
140	16	5.124	1800	2360	2640	2640	N/A	580	580	725	N/A	256	387	512	N/A
160	12.5	5.547	2000	2640	2640	N/A	N/A	660	1000	N/A	N/A	279	418	N/A	N/A
160	16	6.725	1700	2340	2660	2660	N/A	660	660	825	N/A	334	506	672	N/A
180	16	8.500	1700	2420	2420	N/A	N/A	740	1080	N/A	N/A	422	638	N/A	N/A

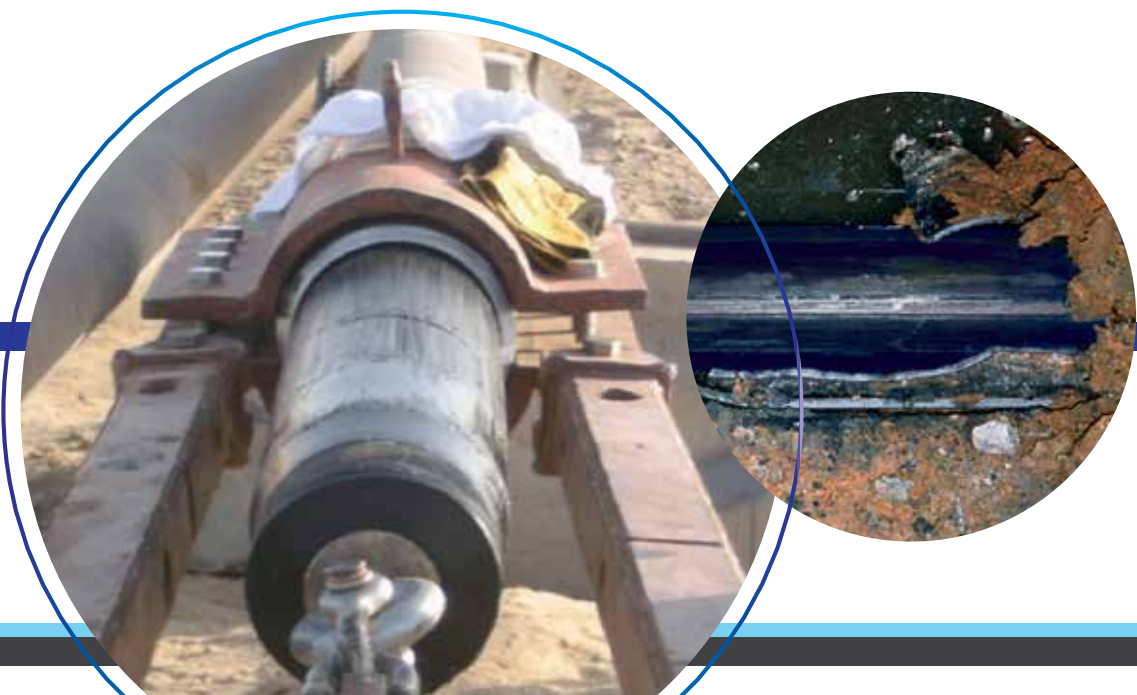
Larger coil dimensions are available on request.



AVAILABLE RPC WATER AND SEWER PIPES

RPC PIPES ARE AVAILABLE IN 12 METRE STRAIGHT LENGTHS AS FOLLOWS:											
SDR RATING 11				SDR RATING 13.6				SDR RATING 17			
PN RATING 16				PN RATING 12.5				PN RATING 10			
OD	WALL THICKNESS	LENGTH	MASS	OD	WALL THICKNESS	LENGTH	MASS	OD	WALL THICKNESS	LENGTH	MASS
min	mm	m	kg/m*	min	mm	m	kg/m*	min	mm	m	kg/m*
110	10	12	3.169	110	8.1	12	2.634	110	6.6	12	2.177
125	11.4	12	4.111	125	9.2	12	3.394	125	7.4	12	2.777
140	12.7	12	5.124	140	10.3	12	4.25	140	8.3	12	3.487
160	14.6	12	6.725	160	11.8	12	5.547	160	9.5	12	4.551
180	16.4	12	8.5	180	13.3	12	7.041	180	10.7	12	5.756
200	18.2	12	10.482	200	14.7	12	8.635	200	11.9	12	7.103
225	20.5	12	13.268	225	16.6	12	10.966	225	13.4	12	9.009
250	22.7	12	16.317	250	18.4	12	13.508	250	14.8	12	11.04

*N.B.: The mass is based upon the average OD (Outside Diameter) and the average e (Wall thickness) of the pipe and may therefore vary. Larger sizes available on request.





CONTACT

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