

# POLiplex<sup>®</sup>

## PE100 Polyethylene pipes and fittings systems



**iPLEX**  
Pipelines



Polyethylene (PE) pipes have been produced in New Zealand and Australia since the mid 1950's. The first Australian Standard for polyethylene pipe was released in 1962 and Iplex Pipelines commenced production of its POLIplex® range in the early 1970's.

Whilst initially in small diameters for industrial and agricultural applications, Iplex POLIplex® polyethylene pipes and fittings are now available in diameters as large as 2000mm OD. Usage of Iplex PE pipes has grown rapidly over the past forty years, and Iplex's POLIplex® range has become one of New Zealand's leading plastic pipeline systems, with strong forecast growth over the coming decades.

## Installation Methods

Horizontal directional drilling, slip lining, swage lining, pipe bursting or conventional open cut methods.

## Applications

- Pressure water transmission and distribution mains for cities and towns
- Submarine pipelines for transmission and ocean outfalls
- Rural water infrastructure and irrigation transmission and distribution mains
- Pressure sewer rising mains
- Estuary and river crossings
- Above ground temporary and unrestrained pipelines
- Above ground fixed (restrained) pipe system
- Pipeline renovation liners
- Sleeve pipes for corrosion or mechanical protection
- Chemical process pipe work
- Dredge discharge lines
- Mine tailings disposal
- Trenchless (No-Dig) installations
- Natural gas reticulation
- LPG reticulation
- Landfill gas extraction
- Transporting acids, alkalies and aggressive chemicals\*
- Compressed air\*\*

## Features and Benefits

- Security of Third-Party certification to Joint Australian/New Zealand Standard AS/NZS 4130
- Diameter range from DN20 to DN2000
- Full axial restraint at joints
- Low celerity material minimises water hammer
- UV stability( black colored pipes) for above ground pipelines
- Rust and corrosion free
- Long length availability to minimise joints
- Complete range of fittings
- Fusible using butt fusion and electrofusion jointing methods
- High ring stiffness for deeply buried pipelines
- Excellent abrasion resistance
- Possibility of 100+ year asset life

## Standards Compliance

Iplex POLIplex® pipes comply with AS/NZS 4130 'PE Pipes for Pressure Applications'.

Iplex uses fully pre-compounded PE 100 materials, conforming to AS/NZS 4131 'PE Compounds for Pressure Pipes and Fittings' and PIPA Industry Guidelines POP 004 'Polyethylene Pipe and Fittings Compounds'. (Refer <http://www.pipa.com.au/sites/default/files/document/attachment/pop004-2016-5-23.pdf>.)

POLIplex® PE pressure pipes are independently certified in accordance with the test requirements of AS/NZ 4130. Standards Mark Licence number SMK20400. (Refer <http://register.saiglobal.com/client/schedule>.)

\* Refer to 'A Guide to Chemical Resistance of Thermoplastic and Elastomeric Materials' - available from Iplex Pipelines and <http://www.pipa.com.au/sites/default/files/document/attachment/pop201.pdf>

\*\*Refer [http://www.pipa.com.au/sites/default/files/document/attachment/2014-08-12-pop002\\_0.pdf](http://www.pipa.com.au/sites/default/files/document/attachment/2014-08-12-pop002_0.pdf)

## POLIplex® pipe colour options

- Fully black pipe, for **general** applications
- Dark blue jacket or stripes on black inner for **pressure drinking water** applications
- Cream jacket or stripes on black inner for **pressure wastewater** applications
- Purple jacket or stripes on black inner for **recycled** or **"grey"** water applications
- Light grey jacket or stripes on black inner for **gravity wastewater** applications

## POLIplex® pipes dimensions to AS / NZS 4130 Series 1

SDR PN for PE100	41				26				21				17				13.6				11				9				7.4				SDR PN for PE100
	4				6.3				8				10				12.5				16				20				25				
DN	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	Min Wall	Mean ID	Ovality Max	Weight Avg kg/m	DN
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	16.7	1.2	0.10	1.9	16.0	1.2	0.11	2.3	15.2	1.2	0.13	2.8	14.2	1.2	0.16	20
25	-	-	-	-	-	-	-	-	-	-	-	-	1.6	21.7	1.2	0.12	1.9	21.0	1.2	0.14	2.3	20.2	1.2	0.17	2.8	19.2	1.2	0.20	3.5	17.7	1.2	0.24	25
32	-	-	-	-	-	-	-	-	1.6	28.7	1.3	0.16	1.9	28.0	1.3	0.19	2.4	27.0	1.3	0.23	2.9	26.0	1.3	0.27	3.6	24.5	1.3	0.33	4.4	22.8	1.3	0.39	32
40	-	-	-	-	-	-	-	-	1.9	36.1	1.4	0.24	2.4	35.0	1.4	0.30	3.0	33.8	1.4	0.36	3.7	32.3	1.4	0.43	4.5	30.6	1.4	0.52	5.5	28.5	1.4	0.61	40
50	-	-	-	-	-	-	-	-	2.4	45.0	1.4	0.38	3.0	43.9	1.4	0.46	3.7	42.4	1.4	0.55	4.6	40.4	1.4	0.67	5.6	38.4	1.4	0.80	6.9	35.7	1.4	0.95	50
63	-	-	-	-	2.4	58.1	1.5	0.48	3.0	56.9	1.5	0.58	3.8	55.2	1.5	0.73	4.7	53.3	1.5	0.88	5.8	51.0	1.5	1.07	7.1	48.2	1.5	1.28	8.6	45.1	1.5	1.50	63
75	-	-	-	-	2.9	69.2	1.6	0.68	3.6	67.7	1.6	0.83	4.5	65.8	1.6	1.03	5.5	63.7	1.6	1.23	6.8	61.0	1.6	1.49	8.4	57.6	1.6	1.79	10.3	53.6	1.6	2.13	75
90	-	-	-	-	3.5	83.0	1.8	0.99	4.3	81.3	1.8	1.20	5.4	79.0	1.8	1.48	6.6	76.5	1.8	1.77	8.2	73.0	1.8	2.16	10.1	69.1	1.8	2.59	12.3	64.5	1.8	3.05	90
110	2.7	104.7	2.2	0.95	4.3	101.3	2.2	1.48	5.3	99.2	2.2	1.80	6.6	96.5	2.2	2.20	8.1	93.3	2.2	2.66	10.0	89.4	2.2	3.20	12.3	84.5	2.2	3.84	15.1	78.6	2.2	4.57	110
125	3.1	118.9	2.5	1.24	4.8	115.4	2.5	1.86	6.0	112.9	2.5	2.30	7.4	109.9	2.5	2.80	9.2	106.1	2.5	3.42	11.4	101.5	2.5	4.15	14.0	96.1	2.5	4.96	17.1	89.5	2.5	5.88	125
140	3.5	133.2	2.8	1.56	5.4	129.2	2.8	2.35	6.7	126.5	2.8	2.87	8.3	123.0	2.8	3.52	10.3	118.9	2.8	4.29	12.7	113.9	2.8	5.17	15.7	107.6	2.8	6.23	19.2	100.2	2.8	7.39	140
160	4.0	152.3	3.2	2.02	6.2	147.6	3.2	3.08	7.7	144.5	3.2	3.77	9.5	140.7	3.2	4.59	11.8	135.9	3.2	5.60	14.6	130.0	3.2	6.78	17.9	123.0	3.2	8.11	21.9	114.7	3.2	9.62	160
180	4.4	171.5	3.6	2.51	6.9	166.3	3.6	3.84	8.6	163.1	3.6	4.74	10.7	158.3	3.6	5.81	13.3	152.8	3.6	7.10	16.4	146.3	3.6	8.58	20.1	138.5	3.6	10.26	24.6	129.1	3.6	12.16	180
200	4.9	190.5	4.0	3.08	7.7	184.6	4.0	4.76	9.6	180.6	4.0	5.87	11.9	175.8	4.0	7.16	14.7	170.0	4.0	8.71	18.2	162.5	4.0	10.57	22.4	153.7	4.0	12.68	27.3	143.4	4.0	15.00	200
225	5.5	214.4	4.5	3.90	8.6	207.9	4.5	5.98	10.8	203.3	4.5	7.42	13.4	197.8	4.5	9.09	16.6	191.0	4.5	11.06	20.5	182.9	4.5	13.39	25.1	173.2	4.5	16.00	30.8	161.3	4.5	19.02	225
250	6.2	238.0	5.0	4.89	9.6	230.9	5.0	7.41	11.9	226.0	5.0	9.08	14.8	220.0	5.0	11.14	18.4	212.4	5.0	13.63	22.7	203.4	5.0	16.46	27.9	192.5	5.0	19.73	34.2	179.2	5.0	23.48	250
280	6.9	266.7	5.8	6.06	10.7	258.7	5.8	9.25	13.4	253.0	5.8	11.46	16.6	246.3	5.8	13.99	20.6	237.9	5.8	17.08	25.4	227.8	5.8	20.64	31.3	215.4	5.8	24.80	38.3	200.7	5.8	29.44	280
315	7.7	300.2	6.5	7.62	12.1	290.9	6.5	11.78	15.0	284.9	6.5	14.40	18.7	276.6	6.5	17.72	23.2	267.6	6.5	21.64	28.6	256.3	6.5	26.13	35.2	242.4	6.5	31.38	43.0	226.1	6.5	37.16	315
355	8.7	338.2	7.5	9.69	13.6	327.9	7.5	14.89	16.9	321.0	7.5	18.28	21.1	312.1	7.5	22.55	26.1	301.6	7.5	27.43	32.2	288.8	7.5	33.16	39.6	273.3	7.5	39.76	48.5	254.6	7.5	47.24	355
400	9.8	380.0	8.4	12.28	15.3	369.5	8.4	18.88	19.1	361.5	8.4	23.31	23.7	351.9	8.4	28.50	29.4	339.9	8.4	34.79	36.3	325.4	8.4	42.10	44.7	307.8	8.4	50.55	54.6	287.0	8.4	59.92	400
450	11.0	428.9	9.6	15.49	17.2	415.8	9.6	23.87	21.5	406.8	9.6	29.48	26.7	395.9	9.6	36.11	33.1	382.4	9.6	44.07	40.9	366.1	9.6	53.31	50.2	346.5	9.6	63.90	61.5	322.8	9.6	75.92	450
500	12.3	476.3	10.8	19.28	19.1	462.0	10.8	29.45	23.9	452.0	10.8	36.37	29.6	439.9	10.8	44.48	36.8	424.9	10.8	54.38	45.4	406.8	10.8	65.78	55.8	385.0	10.8	78.86	70.4	354.0	10.8	94.00	500
560	13.7	533.6	12.0	24.00	21.4	517.4	12.0	36.91	26.7	506.4	12.0	45.52	33.2	492.7	12.0	55.89	41.2	475.8	12.0	68.22	50.8	455.8	12.0	82.40	62.5	430.3	12.0	98.93	80.4	394.0	12.0	118.00	560
630	15.4	600.4	13.6	30.37	24.1	582.1	13.6	46.77	30.0	569.8	13.6	57.50	37.3	554.4	13.6	70.62	46.3	535.5	13.6	86.23	57.2	512.6	13.6	104.42	70.3	484.1	13.6	125.20	88.3	-	-	-	630
710	17.4	676.5	15.2	38.65	27.2	655.9	15.2	59.45	33.9	641.9	15.2	73.22	42.1	624.6	15.2	89.82	52.2	603.4	15.2	109.55	64.5	577.6	15.2	132.64	79.3	546.5	15.2	159.13	97.3	-	-	-	710
800	19.6	762.3	17.0	49.01	30.6	739.2	17.0	75.29	38.1	723.4	17.0	92.80	47.4	703.9	17.0	113.89	58.8	680.0	17.0	138.96	72.5	651.0	17.0	168.11	89.3	615.9	17.0	201.90	97.3	-	-	-	800
900	22.0	857.8	19.4	61.81	34.4	831.7	19.4	95.23	42.9	813.9	19.4	117.42	53.5	791.7	19.4	144.55	66.2	764.9	19.4	176.04	81.7	732.4	19.4	212.91	97.3	-	-	-	-	-	-	900	
1000	24.5	952.9	21.4	76.54	38.2	924.1	21.4	110.50	47.7	904.2	21.4	145.07	59.3	879.8	21.4	178.06	72.5	852.1	21.4	214.41	90.3	814.9	21.4	261.40	97.3	-	-	-	-	-	-	1000	
1200	29.4	1143.1	26.0	110.14	45.9	1108.5	26.0	169.18	57.2	1084.7	26.0	208.73	67.9	1062.7	26.0	245.17	88.2	1020.0	26.0	312.54	-	-	-	-	-	-	-	-	-	-	-	1200	
1400	34.4	1332.6	32.0	150.19	53.2	1293.1	32.0	239.54	66.7	1266.1	32.0	283.64	82.4	1233.1	32.0	346.07	97.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1400	
1600	39.3	1522.3	36.0	195.75	61.3	1476.1	36.0	300.95	76.2	1447.0	36.0	370.23	94.1	1409.4	36.0	451.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600	
1800	43.8	1716.0	-	245.95	69.1	1662.8	-	382.16	85.7	1628.0	63.0	468.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1800	
2000	48.8	1906.4	-	304.41	76.9	1847.4	-	472.24	95.2	1808.9	70.0	578.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2000	

Note:

- Minimum order quantities apply to all sizes.
- All dimensions are in millimetres and mass in kg/m.
- Nominal diameter (DN) equals outside diameter.

## POLIplex® Pipe Joining Systems

- Butt Fusion**, conforming to POP 003 "BUTT FUSION JOINTING OF PE PIPES AND FITTINGS - RECOMMENDED PARAMETERS"  
Refer <http://www.pipa.com.au/sites/default/files/document/attachment/pop003.pdf>  
<http://www.pipa.com.au/sites/default/files/document/attachment/2015-8-12-pop014.pdf>
- Electrofusion**, conforming to POP 001 - ELECTROFUSION JOINTING OF PE PIPES AND FITTINGS FOR PRESSURE APPLICATIONS. Refer <http://www.pipa.com.au/sites/default/files/document/attachment/2015-12-08-pop001.pdf>
- Mechanical Fittings**. Pipe sizes DN 20 to DN125 can be joined using Plasson® mechanical compression couplings complying with AS/NZS 4129. These can be undone and reused when altering the system layout. Larger pipe sizes can be joined using Ductile Iron restrained joint fittings, designed for PE pipe conforming to AS/NZS 4129



DN710, PN12.5, PE100 sewer rising main being prepared for installation by horizontal directional drilling. Pipe is black with a cream coloured jacket, identifying it visually as a pressure sewer in accordance with AS/NZS 4130.

## Thermal pressure re-rating of POLIplex® PE 100 pipe

POLIplex® pipes must be pressure re-rated at temperatures above 25°C, according to this table.

Maximum allowable operating pressure metres vs pipe operating temperature

Temp °C	PN4	PN6.3	PN8	PN10	PN12.5	PN16	PN20	PN25
20	40	63	80	100	125	160	200	250
25	36	58	73	91	115	145	182	227
30	36	58	73	91	115	145	182	227
35	33	53	67	83	106	133	167	208
40	33	53	67	83	106	133	167	208
45 (35y)*	31	49	62	77	99	123	154	192
50 (22y)*	29	46	57	71	91	114	143	179
55 (15y)*	29	46	57	71	91	114	143	179
60 (7y)*	27	43	53	67	85	107	133	167
80 (1y)*	20	32	40	50	63	80	100	125

Note:

\*At constant temperatures greater than 40°C the design life of POLIplex® pipes is reduced

Maximum spacing for POLIplex® Pipe support spans above ground - conforming to AS/NZS 2033  
Nominal outside

Nominal outside diameter of pipe (mm)	Recommended maximum spacing of supports (metres)	
	Horizontal or graded pipes	Vertical pipes
16	0.25	0.50
20	0.30	0.60
25	0.35	0.70
32	0.38	0.75
40	0.43	0.85
50	0.45	0.90
63	0.50	1.05
75	0.60	1.20
90	0.67	1.35
125	0.75	1.50
140	0.85	1.70
160	1.00	2.00
200	1.10	2.20
225	1.15	2.30
250	1.25	2.50
280	1.30	2.60
≥355	1.50	3.00



Support brackets for POLIplex pipe including allowance for expansion and contraction.

Minimum bending radius for installing PE pipes

SDR	At 20°C or more	At 0°C
41	40 x DN	100 x DN
33	30 x DN	75 x DN
26	25 x DN	60 x DN
≤21	20 x DN	50 x DN



## Safe Axial (Pulling) loads for POLIplex pipe (KN)

SDR	41	26	21	17	13.6	11	9	7.4
PN for PE100	4	6.3	8	10	12.5	16	20	25
DN50	-	-	2.8	3.5	4.3	5.2	6.2	7.3
DN63	-	3.7	4.5	5.5	6.8	8.2	9.9	11.7
DN75	-	5.2	6.4	7.8	9.6	11.7	14.0	16.5
DN90	-	7.5	9.2	11.3	13.9	16.8	20.1	23.8
DN110	7.2	11.2	13.8	16.8	20.7	25.1	30.0	35.5
DN125	9.3	14.5	17.8	21.7	26.8	32.5	38.8	45.9
DN140	11.7	18.2	22.3	27.3	33.6	40.7	48.7	57.6
DN160	15.3	23.8	29.2	35.6	43.8	53.2	63.5	75.2
DN180	19.4	30.1	36.9	45.1	55.5	67.3	80.4	95.2
DN200	23.9	37.2	45.6	55.7	68.5	83.1	99.3	117.5
DN225	30.3	47.1	57.7	70.4	86.7	105.2	125.7	148.7
DN250	37.4	58.1	71.2	87.0	107.0	129.8	155.1	183.6
DN280	46.9	72.9	89.4	109.1	134.2	162.8	194.6	230.3
DN315	59.3	92.2	113.1	138.1	169.9	206.1	246.3	291.5
DN355	75.4	117.1	143.6	175.4	215.8	261.8	312.8	370.2
DN400	95.7	148.7	182.4	222.6	273.9	332.3	397.2	470.0
DN450	121.1	188.2	230.8	281.8	346.7	420.6	502.7	594.8
DN500	149.5	232.4	285.0	347.9	428.0	519.3	620.6	-
DN560	187.5	291.5	357.4	436.4	536.9	651.4	778.4	-
DN630	237.4	368.9	452.4	552.3	679.5	824.4	985.2	-
DN710	301.5	468.5	574.6	701.4	863.1	1047.1	1251.3	-
DN800	382.7	594.9	729.5	890.5	1095.8	1329.3	1588.6	-
DN900	484.4	752.9	923.2	1127.1	1386.8	1682.4	-	-
DN1000	598.0	929.5	1139.8	1391.4	1712.1	2077.1	-	-



PE100 pressure pipes coloured black with blue stripes or black with a blue jacket identifying them as pressure water mains in accordance with AS/NZS 4130.



## Horizontal Directional Drilling



PM 105 Christchurch



Tekapo diversion main



Pukekohe/Patumahoe transmission main

## Slip Lining



Nairn Street, Wellington

## Pipe Bursting



Trentham Army Camp

## Above Ground Installation



Gisborne wastewater rising main

## Open Cut Installation



Aokautere falling water main



Papamoa trunk water main



Waitara to New Plymouth wastewater rising main

### Important Disclaimer

The information, opinions, advice and recommendations contained in this publication are put forward with the main objective of providing a better understanding of technical matters associated with pipeline design using Iplex Pipelines. Whilst all reasonable care has been made in ensuring that the information contained in this publication is accurate, this publication should not be used as the only source of information by the reader. Reference should also be made to established textbooks and other published material, and readers should not rely on the information contained in this publication without taking appropriate professional advice for their particular circumstances. Pipes and fittings have been shown as typical configurations, however, in some cases product dimensions may vary or be changed without notice. In all instances, the reader should contact Iplex Pipelines for clarification that the specific product is appropriate for their circumstances.

Iplex Pipelines NZ Limited.

Call Centre –

Phone: 0800 800 262

Fax: 0800 800 804

Web: [www.iplex.co.nz](http://www.iplex.co.nz)

Offices at:

Auckland: Private Bag 92 114, 810 Great South Road, Penrose

Palmerston North: Private Bag 11019, 67 Malden Street.

Christchurch: PO Box 16225, 22 Braeburn Drive, Sockburn

Version 1A This version supersedes all previous versions or additions of this product catalogue

© 2016 IPLEX PIPELINES (NZ) LIMITED. NEXUS™, IPLEX™, RESTRAIN™, APOLLO™, NOVAFLO™, FARMTOUFF™, NOVAKEY™, NOVAFUSE™, POLIGAS™, RHINO™, REDLINE™, POLYDRAIN™, SUPERSTORM™ are registered trademarks of IPLEX PIPELINES (NZ) LIMITED.

**POLiplex®**  
**PE100 Polyethylene pipes**  
**and fittings systems**

**iplex**  
Pipelines