

PVC PRESSURE SYSTEMS

SPECIFICATION AND INSTALLATION GUIDE





The Iplex® vision is to be the leading manufacturer and supplier of plastic building materials in New Zealand.

iPLEX
Pipelines

DELIVERING
PIPELINES TO
NEW ZEALAND

IPLEX20

Pipe Liner

Pipe Liner

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Iplex Apollo® Series 1

- Metric
- Manufactured in accordance with AS/NZS 4441 (Series 1)
- Available in PN6.3, PN10, PN12.5
- Increased impact strength and lighter in weight compared with Iplex PVC-U pressure pipes of a similar size and pressure class
- Available in alternative colours to suit applications



Iplex Apollo® Blue Series 2

- Imperial
- Manufactured in accordance with AS/NZS 4441 (Series 2)
- Available in PN12.5 and PN16
- Increased impact strength and lighter in weight compared with Iplex PVC-U pressure pipes of a similar size and pressure class
- Available in alternative colours to suit applications

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Iplex White Rhino™ Series 1

- Metric
- Manufactured in accordance with AS/NZS 4765 (Series 1)
- Available in PN6, PN9, PN12, PN15 subject to diameter
- Greater impact strength and hydraulic capacity compared with Iplex PVC-U pressure pipes of a similar size and pressure class
- Solvent Cement Joint and Rubber Ring Joint options subject to diameter



Iplex Blue Rhino™ Series 2

- Imperial
- Manufactured in accordance with AS/NZS 4765 (Series 2)
- Available in PN9, PN12, PN16, PN20 subject to diameter

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Iplex Novakey® Series 1

- Metric
- Manufactured in accordance with AS/NZS 1477 (Series One)
- Available in PN6, PN9, PN12, PN15 subject to diameter
- Solvent Cement Joint and Rubber Ring Joint options subject to diameter

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Iplex Apollo® PVC-O Fittings

- Rubber Ring Joint configuration
- PN16 pressure rating
- Significantly lighter than ductile iron fittings of a similar size and pressure class
- Compatible with Iplex Series 1 PVC-O, PVC-M and PVC-U pressure pipes.



Iplex Novakey® PVC-U Fittings

- Manufactured in accordance with AS/NZS 1477
- Compatible with Series One Iplex Apollo® Series 1 PVC-O, Iplex White Rhino PVC-M and Iplex Novakey® PVC-U pressure pipes.

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Seismic Applications

- Iplex Rubber Ring Jointed PVC pipes assist in delivering resilient performance in NZ seismic events



Storage and Handling

- Store pipes on flat ground and if possible leave in their original crates or packs
- Avoid careless mishandling that could lead to pipe damage
- It is recommended that pipes be covered if being stored outside for more than 24 months



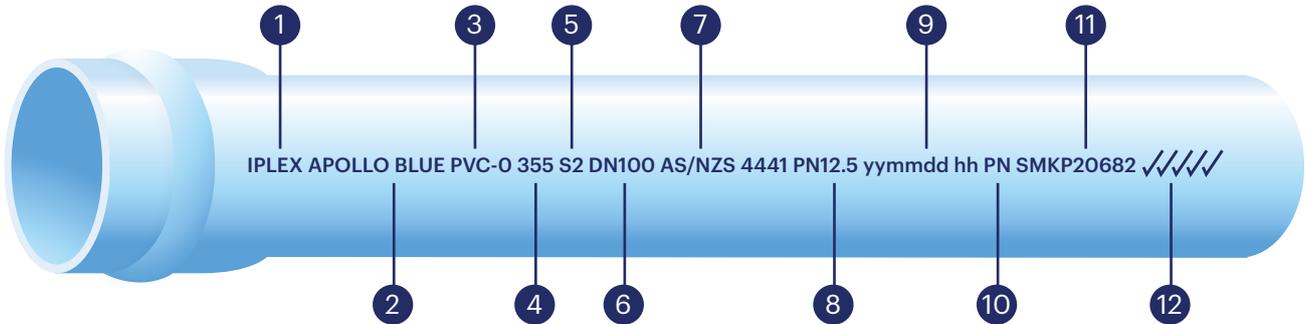
Installation, Bedding and Backfill

Consult the Iplex Pipeline Percy guidelines

- 'How I Install PVC Pipes'
- 'How I Solvent Cement Joint PVC Pipes'
- 'How I Field Test PVC Pipes'

For more information on best practice installation refer to www.iplex.co.nz/iplex-resources/

UNDERSTANDING PIPE CODES - EXAMPLE



- | | |
|-----------------------------|---|
| ① Company Name | ⑦ Manufacturing Standard |
| ② Brand Name | ⑧ Pressure/PN Rating |
| ③ Classification (PVC Type) | ⑨ Date and Hour of Manufacture |
| ④ Design Material Class | ⑩ Location of Manufacture (PN = Palmerston North) |
| ⑤ Dimensional Series | ⑪ 3rd Party Certification Licence |
| ⑥ Nominal Size | ⑫ 3rd Party Certification Body Logo |

PN TO PSI CONVERSION

Iplex typically measure the pressure ratings of pipelines in Pressure Nominal (PN) or Bar. The table below shows the PN pressure ratings of the Iplex PVC pipes identified in this guide and their corresponding Pounds per Square Inch (PSI) rating.

PN/Bar Pressure Rating	PSI Pressure Rating
PN 6	87.0
PN 6.3	91.4
PN 9	130.5
PN 10	145.0
PN 12	174.0
PN 12.5	181.3
PN 15	217.6
PN 16	232.1
PN 18	261.1
PN 20	290.1

IPLIX PVC-O

SECTION 1

IPLEX PVC-O

IPLEX APOLLO® PVC-O PRESSURE PIPE

Iplex Apollo® PVC-O is a biaxially orientated PVC pressure pipe for use in water and waste water infrastructure pipelines.

Iplex Apollo® PVC-O offers increased impact strength and greater hydraulic capacity, when compared with Iplex PVC-U pressure pipes of the same OD size and similar pressure classes.

Iplex Apollo® PVC-O pipes are also lighter in weight compared with Iplex PVC-U or PVC-M of the same OD size and similar pressure class, which allows for efficiencies in the cost of transportation, handling and installation.

Product Codes:

- Series 1: Z880 (Metric)
- Series 2: 1880 (Imperial)

Specification

Iplex manufactures PVC-O using two patented processes known as biaxial extrusion and super socketing. Iplex PVC-O pipes are available in two dimensional series:

Series 1 (Metric) – Iplex Apollo® is manufactured in accordance with AS/NZS 4441 'Orientated PVC (PVC-O) Pipes for pressure applications for Series 1, coloured white.

(StandardsMark Licence number SMKP20682)

Series 2 (Imperial) – Iplex Apollo® Blue is manufactured in accordance with AS/NZS 4441 'Orientated PVC (PVC-O) Pipes for pressure applications for Series 2, coloured blue.

(StandardsMark Licence number SMKP20682)

Iplex have the ability to produce PVC-O in other colours such as: cream (wastewater), purple (recycled water).



Iplex Apollo® PVC-O Series 1 pressure pipe used for water distribution, in a residential subdivision near Martinborough.

SECTION 1

IPLX PVC-O

IPLX APOLLO® PVC-O PRESSURE PIPE

Applications

Iplex Apollo® PVC-O pressure pipes are suitable for a wide range of buried pipeline applications including:

- Major potable water supply trunk and reticulation mains
- Principal water mains
- Principal pressure sewer mains
- Industrial process lines
- Effluent pipelines for industrial and rural waste
- Irrigation and turf water systems

Iplex Apollo® Series 1 pipe is compatible with Iplex Novakey® PVC-U pressure fittings using solvent cement joints (SCJ). Refer to Section 5.

Installation

Installation methods for Iplex Apollo® pipes are the same as those used for Iplex PVC-U and PVC-M pipes. Buried pipe installation should be in accordance with the following standards:

General Installation – AS/NZS 2032, “Installation of PVC Pipe Systems”

Buried Structural Design - AS/NZS 2566 Part 1 and Supplement 1 “Buried Flexible Pipelines – Structural Design”

Detailed Installation and Site Pressure Testing – AS/NZS 2566 Part 2 “Installation”

For more information on best practice installation of Iplex Apollo® PVC-O pipes, consult the Iplex Pipeline Percy Installation guides;

- ‘How I Install PVC Pipes’
- ‘How I Solvent Cement Joint PVC Pipes’
- ‘How I Field Test PVC Pipelines’

(refer to www.iplex.co.nz/iplex-resources/).



Iplex Apollo® Blue PVC-O Series 2 pressure pipe, used in the Oamaru to Hampden water pipeline.

SECTION 1

IPLEX PVC-O

IPLEX APOLLO® KEY BENEFITS

FEATURES		BENEFITS
DIAMETERS	Series 1 Diameters (metric) Series 2 Diameters (imperial)	Compatible OD size with all Series 1 PVC-U and PVC-M water mains in current use. Compatible OD size with all Series 2 PVC-U and PVC-M watermains in current use, and the majority of AC/CI/DI dimension water mains in use.
FITTINGS	Iplex Apollo® PVC-O Series 1 or Series 2 pipe can be used with PVC-compatible socketed Ductile Iron fittings to AS/NZS 2880, unrestrained mechanical couplings to AS/NZS 4793 and tapping bands to AS/NZS 4998. Iplex Apollo® PVC-O Series 1 pipe can be used with Iplex Series 1 PVC-U solvent cement joint pressure fittings.	The same fittings and jointing assembly methods apply for Iplex PVC-O, Iplex PVC-U and PVC-M pressure pipes, when in accordance with Iplex's published Guidelines, which simplifies fittings selection, acquisition and installation.
IMPACT STRENGTH	Increased Impact strength, low temperature performance and tensile strength compared with Iplex PVC-U pressure pipe (higher impact mass, and impact test is conducted at zero °C).	Improved resistance to accidental impact, or disturbance during handling, installation and in service.
INTERNAL DIAMETER	Increased internal diameter, compared with equivalent Iplex PVC-U and PVC-M pressure pipe.	Increased flow capacity compared with Iplex PVC-U and PVC-M of the same Series, and equivalent or similar PN class and diameter.
RETAINED SEAL RING	Factory fitted, EPDM jointing seal ring is "retained in the socket", with integral blue coloured polypropylene retaining element.	Eliminates potential seal ring displacement during joint assembly.
STRUCTURAL STIFFNESS	Designed for buried installation.	Suitable for installation under roads by open cut trench methods, to AS/NZS 2032 and AS/NZS 2566.2.
DYNAMIC STRESSES (FATIGUE)	Can be used in applications involving cyclical operating pressures.	Has predictable fatigue performance under cyclical operating pressures and Dynamic Stresses when designed according to PIPA Technical guideline - POP - 101 - PVC Press.
INDUSTRY CONSTRUCTION CODES & STANDARDS		PVC-O is nominated for Principal Water Main Systems or Principal Sewerage Pressure Pipeline Systems in relevant WSAA Codes (WSA 03 AND WSA 02). PVC-O to AS/NZ 4441 is an Acceptable Pipe Material and Standard for Pressure Water Supply or Wastewater / Pressure Sewer Rising main, in NZS 4404:2010.
LIGHT WEIGHT PIPE	Iplex Apollo® is lighter in weight than Iplex PVC-U or PVC-M of the same OD size and similar pressure class.	Potential efficiencies in the cost of transportation, handling on site and installation.

SECTION 1
IPLEX PVC-O



Iplex Apollo® Blue PVC-O Series 2 pressure pipe used in the Oamaru to Hampden water pipeline.

SECTION 1

IPLEX PVC-O

IPLEX APOLLO® PVC-O SERIES 1 (METRIC) PRODUCT RANGE

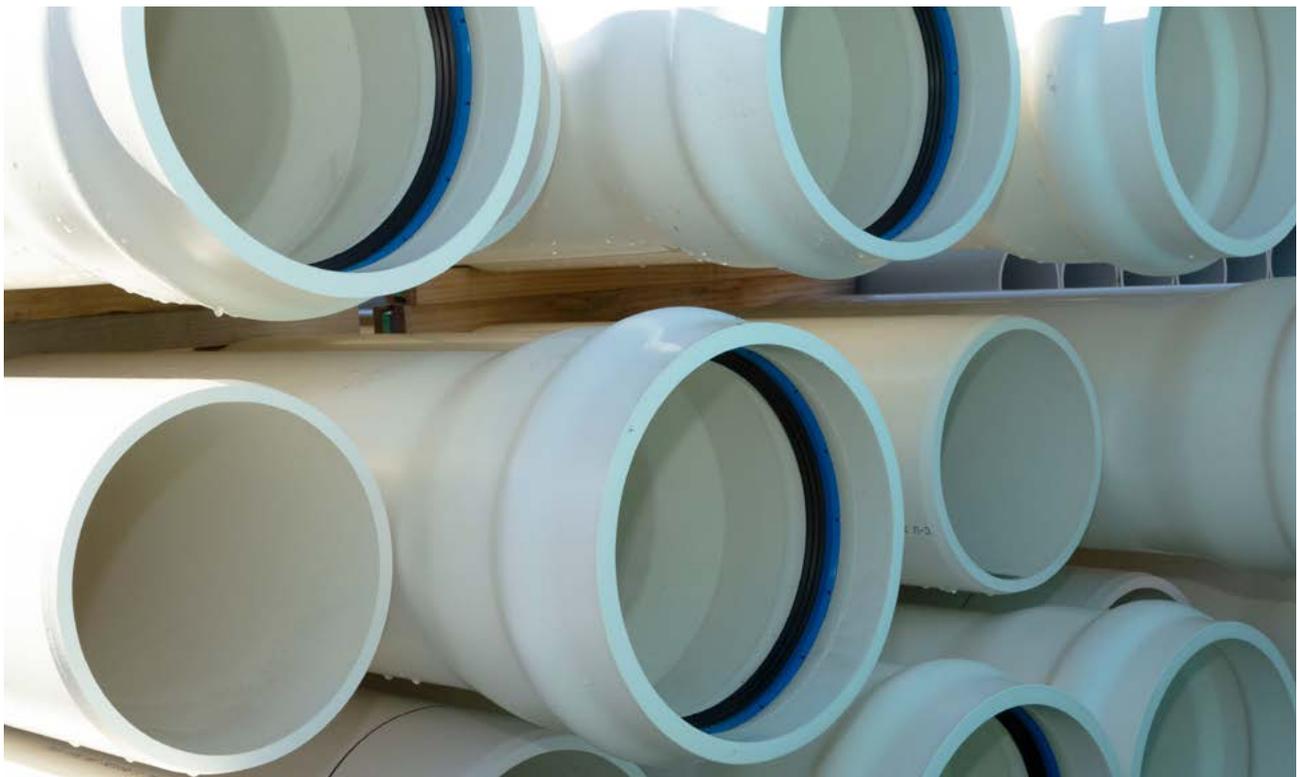
IPLEX APOLLO® PVC-O (Metric) Series 1 Pressure Pipe Dimensions

Class	PN6.3	PN10	PN12.5
Pressure rating (MPa)	0.63 MPa	1.00 MPa	1.25 MPa
Approx rating (m head)	63m head	100m head	125m head
Design MRS MPa	17.4 MPa	31.5 MPa	40.0 MPa

Nom. Dia (mm)	Mean O.D. (mm)	Mean I.D. (mm)	Mean W.T. (mm)
100	114.25	108.2	3.0
150	160.25	151.6	4.3
200	225.35	213.5	5.9
300	315.50	299.1	8.2

Minimum order quantities may apply.

*PN 6.3 is not included in AS/NZS 4441, but it is mechanically compliant with AS/NZS 4441.



Iplex Apollo® Series 1 PVC-O pressure pipe.

SECTION 1

IPLEX PVC-O

IPLEX APOLLO® BLUE PVC-O SERIES 2 (IMPERIAL) PRODUCT RANGE

IPLEX APOLLO® Blue PVC-O (Imperial) Series 2 Pressure Pipe Dimensions

Class	PN12.5	PN16
Pressure rating (MPa)	1.25 MPa	1.6 MPa
Approx rating (m head)	125m head	160m head
Design MRS MPa	35.5 MPa	45.0 MPa

Nom. Dia (mm)	Mean O.D. (mm)	Mean I.D. (mm)	Mean W.T. (mm)
100	121.90	114.5	3.7
150	177.40	166.8	5.3
200	232.25	218.4	6.9
*225	259.30	244.1	7.6
250	286.25	269.4	8.4
*300	345.45	325.2	10.1

Minimum order quantities may apply.

*Subject to minimum order quantity and availability.



Iplex Apollo® Blue Series 2 PVC-O pressure pipe.

NOTES



IPLIX PVC-M

SECTION 2

IPLEX PVC-M

IPLEX RHINO™ PVC-M PRESSURE PIPE

Iplex Rhino™ PVC-M is a tough, high-strength pressure pipe suitable for a wide variety of applications. PVC-M incorporates advanced technology which gives Iplex Rhino™ PVC-M pipes higher impact resistance, greater ductility, lighter weight and an increase in hydraulic capacity when compared with Iplex PVC-U pipe.

Iplex offer two PVC-M solutions;

- 1) Iplex White Rhino PVC-M Series 1 (White)
- 2) Iplex Blue Rhino PVC-M Series 2 (Blue)

Iplex can produce PVC-M pipe in other colours such as cream (wastewater), purple (recycled water)

Iplex Series 1 PVC-M pressure pipes can be configured in either a Solvent Cement Joint (SCJ) configuration or a Rubber Ring Joint (RRJ) configuration. This is dependent on both size and pressure class. Please consult the Iplex Product Catalogue in the resources section on the Iplex website for more information.

Product Codes:

- Series 1: 850 (Metric)
- Series 2: 1850 (Imperial)

Specification

Both Iplex White Rhino™ Series 1 and Iplex Blue Rhino™ Series 2 comply with the appropriate standard.

Series 1 (Metric) – Manufactured in accordance with AS/NZS 4765 Modified PVC (PVC-M) pipe for pressure applications for Series 1 pipe..

(StandardsMark Licence number SMK02570)

Series 2 (Imperial) – Manufactured in accordance with AS/NZS 4765 Modified PVC (PVC-M) pipes for pressure applications for Series 2 pipe C.I.O.D. (Cast Iron Outside Diameter Compatible).

(StandardsMark Licence number SMK02570)



Iplex White Rhino™ Series 1 PVC-M pressure pipe.

SECTION 2

IPLEX PVC-M

IPLEX RHINO™ PVC-M PRESSURE PIPE

Applications

Iplex Rhino™ PVC-M pipes may be used for:

- Urban potable water supply
- Pumped sewer rising mains
- Agricultural irrigation and rural water supply
- Industrial processing fluids
- Industrial effluent disposal
- Abrasive slurries in quarrying and mining
- Acids, alkalis and aggressive chemicals

Iplex White Rhino™ Series One pipe is compatible with Iplex Novakey® PVC-U pressure fittings using solvent cement joints (SCJ). Refer Section 5.

Installation

Iplex Rhino™ PVC-M pipes should be designed and installed in accordance with the following standards:

General Installation – AS/NZS 2032, “Installation of PVC Pipe Systems”

Buried Structural Design - AS/NZS 2566 Part 1 and supplement 1. “Buried Flexible Pipelines Structural Design”

Detailed Installation and Site Pressure Testing – AS/NZS 2566 Part 2 “Installation”

For more information on best practice installation of PVC-M pipes, consult the Iplex Pipeline Percy Installation guides;

- ‘How I Install PVC Pipes’
- ‘How I Solvent Cement Joint PVC Pipes’
- ‘How I Field Test PVC Pipelines’

(refer to www.iplex.co.nz/iplex-resources/).



Iplex Series 2 PVC pressure pipe, used for a bulk transmission watermain, near Rangiora, Waimakariri District.

SECTION 2

IPLEX PVC-M

IPLEX WHITE RHINO™ PVC-M SERIES 1 (METRIC) PRODUCT RANGE

IPLEX WHITE RHINO™ PVC-M Series 1 (Metric) Pressure Pipe Dimensions

Class	PN6	PN9	PN12	PN15
Pressure rating (MPa)	(0.6 MPa)	(0.9 MPa)	(1.2 MPa)	(1.5 MPa)
Approx rating (m head)	PN12	90m head	120m head	150m head

Nom. Dia (mm)	Mean O.D. (mm)	Mean I.D. (mm)	Mean W.T. (mm)						
100	114.3	108.3	3.0	107.5	3.4	105.5	4.4	103.5	5.4
125	140.2	133.3	3.5	131.8	4.2	129.4	5.4	127.2	6.5
150	160.3	152.3	4.0	150.9	4.7	148.3	6.3	145.5	7.4
175	200.3	190.5	4.9	188.7	5.8	185.3	7.5	181.9	9.2
200	225.3	214.3	5.5	212.5	6.4	208.5	8.4	204.7	10.3
225	250.4	238.2	6.1	236.2	7.1	232.0	9.2	226.6	11.9
250	280.4	-	-	264.6	7.9	259.8	10.3	-	-
300	315.5	300.5	7.5	297.9	8.8	292.3	11.6	286.9	14.3
375	400.5	381.5	9.5	378.1	11.2	371.3	14.6	364.3	18.1
450	500.5	476.9	11.8	472.9	13.8	464.3	18.1	455.3	22.6
500	560.5	-	-	529.5	15.5	519.9	20.3	-	-
575	630.5	-	-	596.1	17.2	584.9	20.3	-	-

Minimum order quantities may apply.



Iplex White Rhino™ Series 1 PVC-M pressure pipe - Solvent Cement Joint.



Iplex White Rhino™ Series 1 PVC-M pressure pipe - Rubber Ring Joint.

SECTION 2

IPLEX PVC-M

IPLEX BLUE RHINO™ PVC-M SERIES 2 (IMPERIAL) PRODUCT RANGE

IPLEX BLUE RHINO™ PVC-M Series 2 (Imperial) Pressure Pipe Dimensions

Class	PN9	PN12	PN16	PN20
Pressure rating (MPa)	(0.9 MPa)	(1.2 MPa)	(1.6 MPa)	(2.0 MPa)
Approx rating (m head)	90m head	120m head	160m head	200m head

Nom. Dia (mm)	Mean O.D. (mm)	Mean I.D. (mm)	Mean W.T. (mm)						
100	114.3	-	-	112.5	4.7	109.7	6.1	107.3	7.3
150	177.3	-	-	164.1	6.6	159.9	8.7	156.7	10.3
200	232.2	-	-	215.0	8.6	209.6	11.3	205.6	13.3
250	286.2	270.3	8.0	265.3	10.5	258.9	13.7	253.5	16.4
300	345.4	326.0	9.7	320.0	12.7	312.4	16.5	-	-
375	426.2	-	-	395.0	15.6	386.4	19.9	-	-
450	507.0	-	-	470.2	18.4	-	-	-	-
500	560.3	-	-	519.7	20.3	-	-	-	-

Minimum order quantities may apply.



Iplex Blue Rhino™ Series 2 PVC-M pressure pipe.

NOTES



IPLIX PVC-U

SECTION 3

IPLEX PVC-U

IPLEX NOVAKEY® PVC-U PRESSURE PIPE

Iplex Novakey® PVC-U pressure pipes are manufactured from unplasticised polyvinyl chloride (PVC-U) polymer using the continuous extrusion process.

Iplex Novakey® PVC-U pressure pipes can be configured in either a Solvent Cement Joint (SCJ) configuration or a Rubber Ring Joint (RRJ) configuration. This is dependent on both size and pressure class. Refer to the Iplex Product Catalogue at iplex.co.nz for more information.

Product Code:

- Series 1: Z800 or 800

Specification

Iplex PVC-U is manufactured in accordance with AS/NZS 1477 PVC pipes & fittings for pressure applications for Series 1 pipe.

(StandardsMark Licence number SMK02569 and SMKP20181)

Applications

Iplex Novakey® PVC-U pressure pipes are suitable for a wide range of buried pipeline applications including:

- Urban potable water supply
- Pumped sewer rising mains
- Agricultural irrigation and rural water supply
- Industrial processing fluids
- Industrial effluent disposal
- Slurry lines
- Acids, alkalis and aggressive chemicals (refer Iplex chemical resistance guidelines)

Iplex Novakey® Series One pipe is compatible with Iplex Novakey® PVC-U pressure fittings using solvent cement joints (SCJ), refer section 5.

Installation

Iplex Novakey® PVC-U should be installed in accordance with the following standards:

General Installation – AS/NZS 2032, “Installation of PVC Pipe Systems”

Buried Structural Design - AS/NZS 2566 Part 1 and supplement 1. “Buried Flexible Pipelines Structural Design”

Detailed Installation and Site Pressure Testing – AS/NZS 2566 Part 2 “Installation”

For more information on best practice installation of PVC-U pipes, consult the Iplex Pipeline Percy Installation guides;

- ‘How I Install PVC Pipes’
- ‘How I Solvent Cement Joint PVC Pipes’
- ‘How I Field Test PVC Pipelines’

(refer to www.iplex.co.nz/iplex-resources/).



Iplex Novakey™ Series 1 PVC-U Solvent Cement Joint (SCJ) pressure pipe.



Iplex Novakey™ Series 1 PVC-U Rubber Ring Joint (RRJ) pressure pipe.

SECTION 3

IPLEX PVC-U

IPLEX NOVAKEY® PVC-U SERIES 1 PRODUCT RANGE

IPLEX NOVAKEY® PVC-U (Metric) Series 1 Pressure Pipe Dimensions

Class	PN6	PN9	PN12	PN15	PN18
Pressure rating (MPa)	(0.6 MPa)	(0.9 MPa)	(1.2 MPa)	(1.5 MPa)	(1.8 MPa)
Approx rating (m head)	60m head	90m head	120m head	150m head	180m head

Nom. Dia (mm)	Mean O.D. (mm)	Mean I.D. (mm)	Mean W.T. (mm)								
15	21.3	-	-	-	-	-	-	18.2	1.5	-	-
20	26.7	-	-	-	-	-	-	22.9	1.9	-	-
25	33.5	-	-	-	-	-	-	28.9	2.3	-	-
32	42.3	-	-	-	-	37.4	2.4	36.3	2.9	-	-
40	48.2	45.1	1.5	-	-	42.7	2.8	41.5	3.3	-	-
50	60.3	56.7	1.8	55.1	2.6	53.5	3.4	52.1	4.1	50.5	4.9
65	75.4	71.0	2.2	68.8	3.3	67.0	4.2	65.0	5.2	63.2	6.1
80	88.9	83.7	2.6	81.3	3.8	78.9	5.0	76.7	6.1	74.5	7.2
100	114.3	107.7	3.3	104.5	4.9	101.7	6.3	98.7	7.8	74.5	9.2
125	140.2	132.2	4.0	128.4	5.9	124.8	7.7	121.2	9.5	117.8	11.2
150	160.2	151.2	4.5	146.8	6.7	142.6	8.8	138.6	10.8	-	-
175	200.2	190.0	5.1	185.0	7.6	180.4	9.9	175.8	12.2	-	-
200	225.3	213.7	5.8	208.5	8.4	203.1	11.1	197.9	13.7	-	-
225	250.3	237.7	6.3	231.7	9.3	225.7	12.3	-	-	-	-
250	280.4	266.2	7.1	259.4	10.5	253.0	13.7	-	-	-	-
300	315.4	299.4	8.0	292.0	11.7	284.4	15.5	-	-	-	-
375	400.5	380.3	10.1	370.7	14.9	361.3	19.6	352.1	24.2	343.1	28.7
450	500.5	475.3	12.6	463.3	18.6	451.5	24.5	440.1	30.2	-	-
500	560.5	532.3	14.1	518.9	20.8	-	-	-	-	-	-
575	630.5	598.9	15.8	583.5	23.5	-	-	-	-	-	-

Minimum order quantities may apply.

IPLIX PVC FITTINGS

SECTION 4

IPLEX PVC FITTINGS

IPLEX APOLLO® PVC-O SERIES 1 PRESSURE FITTINGS

Iplex Apollo® PVC-O fittings have Series 1 metric dimensions and have a fitted retained rubber ring joint seal system and can be manually installed.

Features:

- Iplex Apollo® PVC-O fittings have a 16-bar pressure rating (PN16)
- Significantly lighter than Ductile Iron fittings of a similar size and pressure class
- Compatible with Iplex Series 1 PVC-O, PVC-M and PVC-U pressure pipe

Ranging

Diameters - Series 1 DN150, DN175, DN225, DN300 and DN375

Product	Product Code	Size (mm)
 22.5° Bend	8801.150.22	150
	8801.175.22	175
	8801.225.22	225
	8801.300.22	300
	8801.375.22	375
 45° Bend	8801.150.45	150
	8801.175.45	175
	8801.225.45	225
	8801.300.45	300
	8801.375.45	375
 Coupling	8810.150	150
	8810.175	175
	8810.225	225
	8810.300	300
	8810.375	375
 Slip/Repair Coupling	8811.150	150
	8811.175	175
	8811.225	225
	8811.300	300
	8811.375	375
 Reducing Socket	8823.175.150	175 x 150
	8823.225.175	225 x 175
	8823.300.225	300 x 225
	8823.375.225	375 x 225
	8823.375.300	375 x 300

SECTION 4

IPLX PVC FITTINGS

IPLX NOVAKEY® PVC-U SERIES 1 PRESSURE FITTINGS

Iplex Novakey® PVC-U Series 1 pressure fittings are suitable for use with Iplex Apollo® PVC-O Series 1, Iplex White Rhino™ PVC-M Series 1 and Novakey® PVC-U pressure pipes. Iplex PVC-U pressure fittings are suitable for the conveyance of drinking water.

For a complete list of the Iplex Novakey® PVC-U pressure fittings refer to the Iplex Product Catalogue at www.iplex.co.nz/iplex-resources/

Iplex Novakey® PVC-U pressure fittings are manufactured in accordance with AS/NZS 1477 PVC pipes & fittings for pressure applications for Series 1 pipe.

Note - Most Iplex Novakey® PVC-U pressure fittings come in a Solvent Cement Joint (SCJ) configuration. Iplex's recommendation for best practice in solvent cement jointing PVC pipes and fittings, including the correct use of Iplex Novakey® cleaner primer with Iplex Novakey® solvent cement can be found in the 'Pipeline Percy - How I Solvent Cement Joint PVC Pipes' guide (refer to www.iplex.co.nz/iplex-resources/).



Iplex Novakey® 804 series PVC-U pressure fitting.

SECTION 4

IPLX PVC FITTINGS

IPLX NOVAKEY® PRODUCT RANGE

Maximum nominal working pressure rating vs size range:(except as shown under each image)

15-50mm1800kPa, PN18
65-125mm1500kPa, PN15
150-200mm1200kPa, PN12

This is a general guideline only. If in doubt, check the pressure rating on the fitting or contact Iplex Pipelines NZ.

PVC-U Pressure Plain 90° Elbow SCJ (F&F)	Product Code	Size (mm)
 125mm - PN16	801.15.90	15mm
	801.20.90	20mm
	801.25.90	25mm
	801.32.90	32mm
	801.40.90	40mm
	801.50.90	50mm
	801.65.90	65mm
	801.80.90	80mm
	801.100.90	100mm
	801.125.90*	125mm
	801.150.90	150mm
801.200.90*	200mm	

*Grey fitting with parallel socket

PVC-U Pressure Plain 45° Elbow SCJ (F&F)	Product Code	Size (mm)
 65mm & 125mm - PN16 200mm - PN10	801.15.45	15mm
	801.20.45	20mm
	801.25.45	25mm
	801.32.45	32mm
	801.40.45	40mm
	801.50.45	50mm
	801.65.45	65mm
	801.80.45	80mm
	801.100.45	100mm
	801.125.45*	125mm
	801.150.45	150mm
801.200.45*	200mm	

*Grey fitting with parallel socket

PVC-U Pressure Plain 90° Tee SCJ (F&F)	Product Code	Size (mm)
 125mm & 200mm - PN16	804.15	15mm
	804.20	20mm
	804.25	25mm
	804.32	32mm
	804.40	40mm
	804.50	50mm
	804.65	65mm
	804.80	80mm
	804.100	100mm
	804.125*	125mm
	804.150	150mm
804.200*	200mm	

*Grey fitting with parallel socket

PVC-U Pressure Plain 90° Reducing Tee SCJ (F&F)	Product Code	Size (mm)
	805.20.15	20 x 15
	805.25.20	25 x 20
	805.32.25	32 x 25
	805.40.32	40 x 32
	805.50.40	50 x 40
	805.80.50	80 x 50
	805.100.50	100 x 50

PVC-U Pressure Faucet Coupling BSP x SCJ (F&F)	Product Code	Size (mm)
 65mm - PN10	806.15	15mm
	806.20	20mm
	806.25	25mm
	806.32	32mm
	806.40*	40mm
	806.50	50mm
	806.65	65mm
	806.80	80mm
	806.100	100mm

PVC-U Pressure Faucet 90° Tee Solvent Cement x BSP Branch (F&F)	Product Code	Size (mm)
	807.15	15mm
	807.20	20mm
	807.25	25mm

SECTION 4

IPLX PVC FITTINGS

IPLX NOVAKEY® PRODUCT RANGE

PVC-U Pressure Faucet 90° Elbow Solvent Cement x Female BSP (F&F)	Product Code	Size (mm)
	808.15.90	15 x 90
	808.20.90	20 x 90
	808.25.90	25 x 90
	808.32.90	32 x 90

PVC-U Pressure RRJ Compression Coupling PN12 (F&F)	Product Code	Size (mm)
 15mm & 50mm - PN12	809.15	15mm
	809.20	20mm
	809.25	25mm
	809.32	32mm
	809.40	40mm
	809.50	50mm

PVC-U Pressure Plain Coupler SCJ (F&F)	Product Code	Size (mm)
	810.15	15mm
	810.20	20mm
	810.25	25mm
	810.32	32mm
	810.40	40mm
	810.50	50mm
	810.65	65mm
	810.80	80mm
	810.100	100mm
	810.150	125mm

PVC-U Pressure Socket Union SCJ (F&F)	Product Code	Size (mm)
	811.15	15mm
	811.20	20mm
	811.25	25mm
	811.32	32mm
	811.40	40mm
	811.50	50mm

PVC-U Pressure Valve Socket Solvent Cement x Male BSP Joint (F&M)	Product Code	Size (mm)
 65mm - PN12	813.15	15mm
	813.20	20mm
	813.25	25mm
	813.32	32mm
	813.40	40mm
	813.50	50mm
	813.65	65mm
	813.80	80mm
	813.100	100mm

PVC-U Pressure Valve Spigot Solvent Cement x Male BSP Thread (M&M)	Product Code	Size (mm)
	817.15	15mm
	817.20	20mm
	817.25	25mm
	817.32	32mm
	817.40	40mm
	817.50	50mm

SECTION 4

IPLX PVC FITTINGS

IPLX NOVAKEY® PRODUCT RANGE

PVC-U Pressure Threaded Bush BSP x BSP Thread (M&F)	Product Code	Size (mm)
	818.20.15	15mm
	818.25.20	20mm

PVC-U Pressure Reducing Socket SCJ (F&F)	Product Code	Size (mm)
	823.20.15	20 x 15
	823.25.20	25 x 20
	823.32.25	32 x 25
	823.40.32	40 x 32
	823.50.40	50 x 40
	823.65.50	65 x 50
	823.80.50	80 x 50
	823.80.65	80 x 65
	823.100.80	100 x 80
	823.125.100	125 x 100
823.150.100	150 x 100	

PVC-U Pressure Reducing Bush SCJ (F&F)	Product Code	Size (mm)
	824.20.15	20 x 15
	824.25.15	25 x 15
	824.25.20	25 x 20
	824.32.25	32 x 25
	824.40.25	40 x 25
	824.40.32	40 x 32
	824.50.40	50 x 40
	824.65.50	65 x 50
	824.80.50	80 x 50
	824.80.65*	80 x 65
	824.100.50	100 x 50
	824.100.80	100 x 80
	824.125.100*	125 x 100
	824.150.100	150 x 100
	823.150.125*	150 x 125

150mm x 125mm - PN16

*Grey fitting with parallel socket

PVC-U Pressure Full Face Flange SCJ (F)	Product Code	Size (mm)
	825.50	50mm
	825.65	65mm
	825.80	80mm
	825.100	100mm
	825.150	150mm

Holes must be drilled to suit the application

PVC-U Pressure Stub Flange SCJ (F)	Product Code	Size (mm)
	826.50	50mm
	826.65	65mm
	826.80	80mm
	826.100	100mm
	826.125	125mm
	826.150	150mm
	826.175*	175mm
	826.200	200mm
	826.225	225mm
	826.300*	300mm

125mm - PN16
175mm - 300mm - PN10

*Grey fitting with parallel socket

Metal Backing Ring	Product Code	Size (mm)
	827.50	50mm
	827.65	65mm
	827.80	80mm
	827.100	100mm
	827.125	125mm
	827.150	150mm
	827.200	200mm
	827.300	300mm

- Used with 826 series Stub Flange
- Drilled to AS 2129 (BS 10) Table E
- Indicative image - number of holes, and PCD vary with size

SECTION 4

IPLX PVC FITTINGS

IPLX NOVAKEY® PRODUCT RANGE

PVC-U Pressure Plain End Cap SCJ (F)	Product Code	Size (mm)
	830.15	15mm
	830.20	20mm
	830.25	25mm
	830.32	32mm
	830.40	40mm
	830.50	50mm
	830.65	65mm
	830.80	80mm
	830.100	100mm
	830.125	125mm
	830.150	150mm

PVC-U Pressure Neoprene Gasket For Stub Flange (826)	Product Code	Size (mm)
	845.50	50mm
	845.65	65mm
	845.80	80mm
	845.100	100mm
	845.150	150mm
	845.175	175mm
	845.200	200mm
	845.225	225mm
	845.300	300mm

PVC-U Pressure Threaded End Plug BSP (M)	Product Code	Size (mm)
	837.15	20 x 15
	837.20	25 x 20
	837.25	32 x 25
	837.32	40 x 25
	837.40	40 x 32
	837.50	50 x 40
	837.80	65 x 50
	837.100	80 x 50

Pipe Clip	Product Code	Size (mm)
 Product may differ from drawing	840.15	15mm
	840.20	20mm
	840.25*	25mm
	840.32*	32mm
	840.40*	40mm
	840.50*	50mm

PVC-U Pressure Neoprene Gasket For Full Face Flange (825)	Product Code	Size (mm)
	842.50	50mm
	842.65	65mm
	842.80	80mm
	842.100	100mm
	842.150	150mm

INSTALLATION

SECTION 5 INSTALLATION

IPLEX PVC SEISMIC APPLICATIONS

Iplex PVC pipes with rubber ring joints have a long record of success in delivering resilient performance in New Zealand seismic events, including the M 6.5 Edgecombe earthquake (1987), the Te Anau area (2001), Christchurch (2010 to 2012,) and Kaikoura (2016).

The major Canterbury area earthquake sequence of 2010 to 2012 severely tested buried pipes in the region. PVC pressure pipes and fittings systems with rubber ring joints were generally found to perform well and continue as a preferred solution for many earthquake rebuild and new development projects, in the Selwyn and Waimakariri Districts.



Iplex Novakey® DN450 PVC-U pressure sewer rising main, laid near Belfast, Christchurch in 2005, which endured the 2010 -2011 Canterbury earthquake sequences undamaged.



Iplex PVC-U DN450 sewer main installed in Te Anau 2001, to replace a earthquake damaged concrete pipeline, and which has endured all earthquakes in the area since, undamaged.



Iplex Apollo® Blue PVC-O DN150 PN16 pressure watermain, installed in Kelburn Parade, Wellington City, in 2011, specifically to improve seismic resilience in the area, which endured the November 2016 Kaikoura / Culverden earthquake sequence, undamaged.



Iplex Apollo® PVC-O DN200 PN12.5 pressure sewer main, installed in Charles St, Kaiapoi, October 2010, which endured the February 2011 Christchurch earthquake sequence, undamaged.

SECTION 5

INSTALLATION

STORAGE AND HANDLING

PVC pipes are relatively lightweight and easy to handle, but careless storage or handling may cause unnecessary damage. Pipes and fittings must be lifted, not dropped or thrown onto hard surfaces or impacted by sharp objects, which can gouge or score the pipe.

Storage areas should be flat and free of large stones, or rubbish. Pipe should be stored in the original crates, or on timber dunnage, and stack heights limited to 2.5 m approximately for long-term storage.

In direct hot sunlight, pipes may bow slightly due to uneven heating of individual pipe lengths. Bowed pipe may be straightened by rotating 180° in the sun. PVC pipes may be stored outside for up to 24 months. For longer term storage, pipes must be protected from direct sunlight, either under cover or with hessian or canvas covers to allow adequate cooling air circulation. Do not use plastic covers which may heat and damage the pipes. Socketed pipes should be stacked in layers with sockets "topped and tailed" in the stack and protruding, to avoid distortion.



PVC pressure pipe showing storage on a project site.



DN525 PVC pressure pipe showing "2 point support" lifting arrangement during offloading on a project site.

SECTION 5 INSTALLATION

INSTALLATION

Bedding particle size

Bedding material in direct contact with the pipe, including directly under, alongside and directly above the pipe must be compactible, non-cohesive material, not exceeding 20mm maximum particle size. This may include approved imported aggregate or approved selected screened as-dug material, compliant to the contract specification.

Backfill materials

Trench backfill material may include approved imported compactible aggregate, or other approved selected as-dug material, compliant to the contract specification

Backfill compaction

As with any buried flexible pipe, including any type of PVC pipe, compaction of the backfill under and alongside the pipe barrel is important to ensure good structural performance of the backfill and also of the completed pipeline. The correct sequence of backfill actions includes placement and compaction of the bedding, under the pipe and secondly, beside and surrounding the pipe barrel, BEFORE placement and compaction of trench backfill above the bedding zone.

Solvent Cement Jointing PVC Pipes and Fittings

Iplex's recommendation for best practice in solvent cement jointing PVC pipes and fittings, including the correct use of Iplex Novakey® cleaner primer with Iplex Novakey® solvent cement as well as suitable conditions of solvent cement for use, can be found in 'Pipeline Percy - How I Solvent Cement Joint PVC Pipes' (refer to www.iplex.co.nz/iplex-resources/).

Iplex strongly recommends the use of medlube for rubber ring joint pressure pipes used in drinking water applications.

Field Testing

All pressure pipelines should be field tested to uncover any faults during pipeline construction.

You must check that:

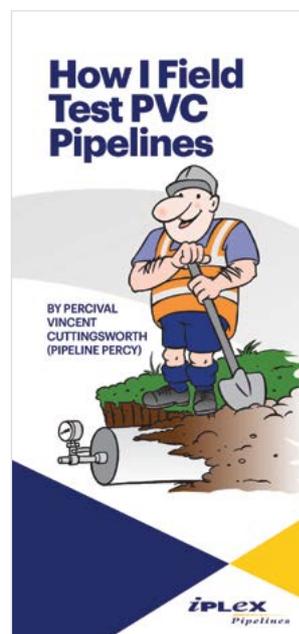
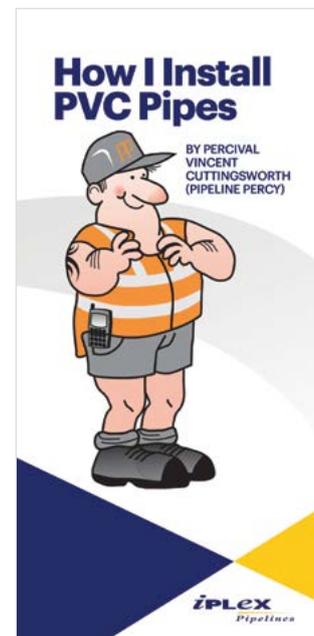
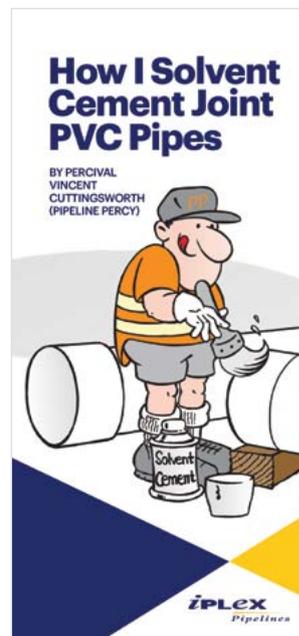
- All pipe-joints have been made correctly.
- All pipeline components valves, hydrants, bends, tees, tapping bands and any other mechanical fittings have been installed correctly.
- Determine that the pipeline will handle pressure greater than its design pressure without leaking.

Best Practice Installation

Please consult the Iplex Pipeline Percy Installation guides;

- 'How I Install PVC Pipes'
- 'How I Solvent Cement Joint PVC Pipes'
- 'How I Field Test PVC Pipelines'

For Iplex's recommendation for best practice installation refer to www.iplex.co.nz/iplex-resources/. You can also contact Iplex's technical support on 0800 800 262.



IPLEX QUALITY MANAGEMENT SYSTEMS

Quality Assurance

Creating products of consistently high quality is at the forefront of the Iplex® manufacturing process, and central to the customer promise that Iplex® product quality meets or exceeds standards claimed.

All Iplex® manufacturing plants operate under a strict ISO 9001 Quality Management System (QMS). External certifying bodies carry out regular audits to provide third-party certification of the Company's QMS. Continue third-party product certification of Iplex® plastic pipeline products to relevant Australian & New Zealand standards, is also provided by these bodies.

The Iplex® mechanical testing laboratory in Palmerston North is an IANZ accredited facility, providing added assurance that any measurement and testing is carried out professionally and in a technically reliable manner in accordance with international standards.



APPLICABLE STANDARD	LICENCE TYPE	LICENCE NUMBER	CONFORMITY ASSESSMENT BODY
ISO 9001:2015	QMS Accreditation	QEC4169	SAI Global
ISO/IEC 17025:2017	IANZ Accreditation	ACCREDITATION NUMB 1	IANZ
BEST ENVIRONMENTAL PRACTICE-PVC	BEP-PVC	BEP-PVC-0067	ApprovalMark International
AS/NZS 1254:2010	StandardsMark™	SMKP20126 & SMKP20180	SAI Global
AS/NZS 1260:2017	StandardsMark™	SMKP20184, SMKP20185 & SMK1305	SAI Global
AS/NZS 1260:2017	WaterMark	WM 74868	ApprovalMark International
AS/NZS 1477:2017	StandardsMark™	SMK02569 & SMKP20181	SAI Global
AS/NZS 1477:2017	WaterMark	WM 74530	ApprovalMark International
AS/NZS 4130:2018	StandardsMark™	SMKP20400	SAI Global
AS/NZS 4130:2018	ISO Type 5	AMI 74891	ApprovalMark International
AS/NZS 4441:2017	StandardsMark™	SMKP20682	SAI Global
AS/NZS 4765:2017	StandardsMark™	SMK02570	SAI Global
AS/NZS 61386.21:2015	S-Mark	LIC 2901 & LIC 2910	Bureau Veritas

ABOUT IPLEX

IPLEX PIPELINES NZ THE COMPANY

Iplex is one of New Zealand's leading manufacturers and suppliers of plastic pipeline systems. Iplex provides products and services throughout New Zealand and to export markets around the Pacific and other international markets. Iplex has manufacturing operations in Palmerston North, Christchurch and Ashburton, as well as access to the Iplex Australian network.

Iplex have been manufacturing plastic pipelines since 1938 and with over 80 years of industry service and technical experience.

Civil: Iplex provides a wide range of solutions for wastewater, drainage and potable water pipeline projects. Manufacturing both PE (Polyethylene) & PVC (Polyvinylchloride) for both pressure and non-pressure (gravity fed) pipeline systems including civil infrastructure, drainage systems and roading systems.

Iplex also services the following industry sectors:

Energy and Communications: an important sector for Iplex NZ and there is a wide range of conduits, ducts and fittings available for new development and maintenance projects. The range covers electrical, communication and gas.

Plumbing: The Iplex plumbing sector covers pipes and fittings used within the property boundary. This includes reticulation of potable and non-potable water, sanitary plumbing, wastewater, drainage and gas reticulation. Iplex have the capabilities of supplying drain, waste and vent pipes and fittings, rainwater systems, traps and accessories.

Rural: Iplex also service the rural market providing pipes and fittings for rural use. Iplex provide systems for irrigation, stock water, land drainage, culverts and farm dairy effluent.



Iplex Pipelines manufacturing plant and distribution hub in Palmerston North, New Zealand.

PVC PRESSURE SYSTEMS SPECIFICATION AND INSTALLATION GUIDE, AUGUST 2020

LIMITATIONS

The information contained in this document is current as at October 2022 and is based on data available to Iplex Pipelines NZ Ltd at the time of going to print. All photographic images are intended to provide a general impression only and should not be relied upon as an accurate example of Iplex Pipelines NZ Ltd products installed in accordance with this document or the referenced compliance documents.

This publication replaces all previous Iplex Pipelines NZ design information and literature relating to Iplex Pipelines NZ Ltd PVC pressure systems products. Iplex Pipelines NZ Ltd reserves the right to change the information contained in this document without prior notice. It is your responsibility to ensure that you have the most up to date information available. You can call toll free on 0800 800 262 or visit www.iplex.co.nz to obtain current information.

Iplex Pipelines NZ Ltd has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. However, to the maximum extent permitted by law, Iplex Pipelines NZ Ltd assumes no responsibility or liability for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information. 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 circumstance.

TRADEMARKS

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