

PRECISION FARMING SOLUTIONS



MAXIMISATION OF YOUR FARMS POTENTIAL

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Iplex Pipelines is committed to providing precision farm solutions. As New Zealand farmers demand improved management systems to maximise farming returns, so too does the demand for a range of products that deliver optimum performance. Iplex Pipelines has built its range of products, production capability and added value services to provide tailor-made solutions to meet the needs of today's farmers.

Water Management Systems

Things to consider –

- How much water does your stock/crop require to maximise production?
- Why spend money on genetics, animal health and pasture management if you don't provide enough water?
- How effective is your current water system?
 - pumping costs
 - ability to provide peak demand requirements
 - maintenance costs
 - ability to meet future requirements
 - labour requirements
- System design – have you considered
 - peak water demand
 - length of pipeline
 - pump duty
 - changes in height
 - maximum working pressure of pipe
 - bloat treatment
 - installation methods
 - choice of pipeline materials
 - type of fittings to be used

Desired Outcome

A system designed around specific requirements which maximises production for economic development and running costs.

Helpful Information

Water requirements of the average New Zealand farm (approximate daily consumption rates)

ANIMALS	Litres/Head/Day	Peak Flow Litres/Head/Hour
Sheep:		
Ewes	4	0.40
Lambs	2.5	0.25
Cattle:		
Cows in milk	70	14.0
Beef cattle	45	7.5
Calves	25	4.2
Horses:		
Working	54	5.4
Grazing	36	3.6
Pigs:		
Brood sows	25	2.5
Mature pigs	10	1.0
Litres/100 Birds/Day		Peak Flow Litres/Hour
Poultry:		
Laying hens	32	3.2
Pullets	18	1.8
Turkeys	54	5.4
Domestic:		
4 person household		920
Garden per m ²		4

Pressure Conversion Table

Bar	Metres Head	KPa	PSI
6	60	600	87
8	80	800	116
9	90	900	131
12	120	1200	173
16	160	1600	232

Pressure Conversion Formulas

1 Bar	=	14.564 PSI
1 PSI	=	6.89 KPa
1 KPa	=	0.145 PSI
100 KPa	=	1 Bar
1 mPa	=	1000 KPa
1m	=	10 KPa

370 Series

Code Explanation	
Product Code	Pressure Class
370.40PN6.3.50	
OD (mm)	Coil Length (metres)



Iplex Pipelines' GREENLINE is a metric OD diameter polyethylene pipe (PE) manufactured to international standards.

Polyethylene (PE) is a popular material for rural water reticulation, being lightweight, strong and durable.

GREENLINE is a pipe system that has been specifically developed to suit today's modern farming practices. It is a reliable, economical system which maintains a consistent pressure rating across a range of pipe diameters.

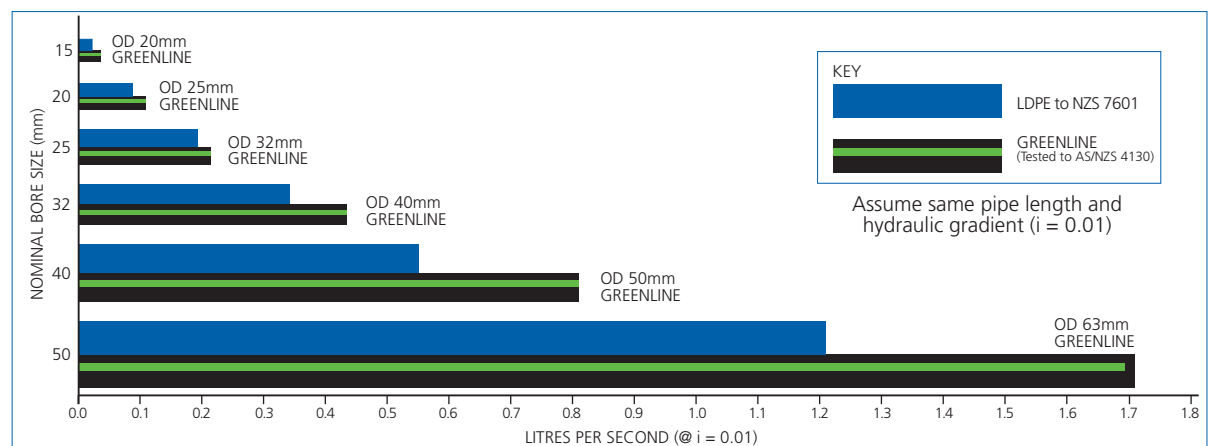
The GREENLINE system uses the technically superior PLASSON range of compression pipe fittings.

FEATURES AND BENEFITS

Efficient	GREENLINE transports more litres per metre and has a larger bore size compared to traditional LDPE pipe.
Reliable	GREENLINE is a reliable and economical system that maintains a consistent pressure rating across a range of pipe diameters. GREENLINE is rated 9 bar in 20mm and 8 bar in 25mm and 32mm diameters.
Flexible	GREENLINE is a metric OD diameter pipe that is light-weight, strong and flexible.
Suitable	GREENLINE is suitable for use with in-line bloat dispensing systems, based on testing in accordance with ASTM D 1693 "Environmental Stress Crack Resistance".
Compatible	The GREENLINE system is easily connected to existing high density (HDPE) and low density (LDPE) polyethylene pipes as well as PVC and GWI systems, using threaded fittings or a PLASSON Universal Coupling (code 2512).
Versatile	GREENLINE, when used in conjunction with our comprehensive and technically superior range of PLASSON compression pipe fittings, builds a total system. PLASSON fittings are easy to assemble – there's no need for special tools or hot water. When correctly assembled, PLASSON fittings won't pull apart around troughs and gateways even when kicked or trodden on. PLASSON fittings are simple to use and have been put to the test, with years of demanding use in agricultural applications in New Zealand and throughout the world.
Durable	GREENLINE is manufactured from tough polyethylene.
Visible	The three permanent green stripes on GREENLINE ensure instant identification.
Economical	GREENLINE is available in 3 different coil lengths (50, 100 and 200 metres) to suit a wide range of applications.
Quality	GREENLINE is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

GREENLINE is tested to AS/NZS 4130:1997 - "PE Pipes for Pressure Applications".

Flow rate comparison



360 Series

Code Explanation	
Product Code	Pressure Class
360.40PN9.50	
OD (mm)	Coil Length (metres)

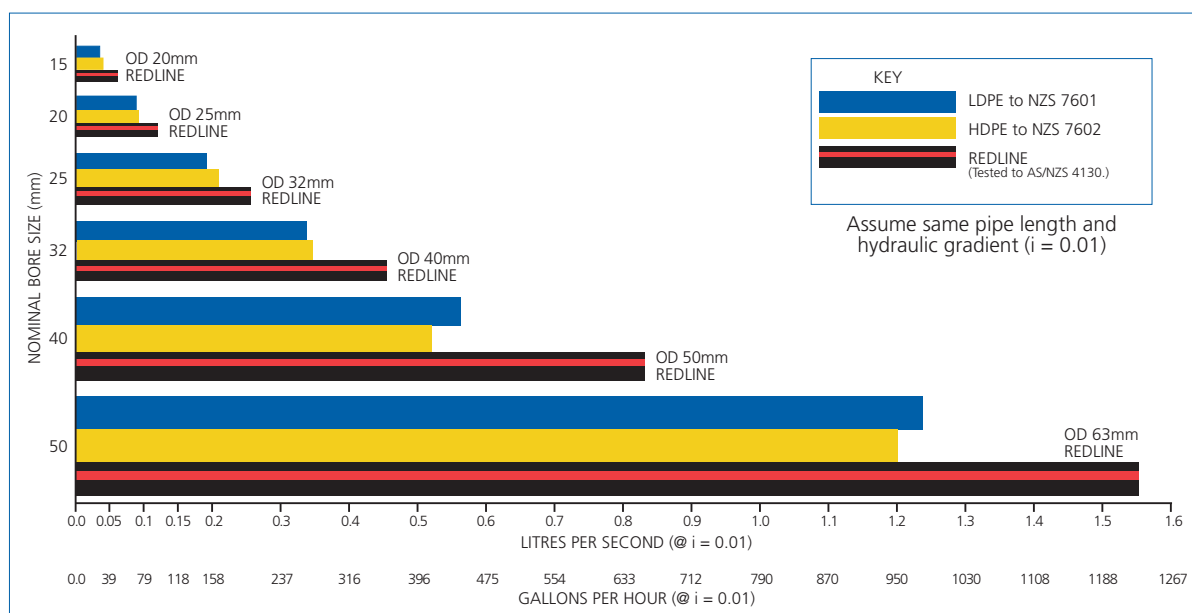


REDLINE™ is a metric pipe made from flexible, PE100 high performance polyethylene (HPPE) to international standards. Iplex Pipelines' REDLINE™ is a reliable, economical system which maintains a consistent pressure rating across a range of pipe diameters. A popular material for urban and rural water supplies, HPPE is lightweight, strong and flexible. The REDLINE™ system uses the technically superior PLASSON range of compression fittings.

FEATURES AND BENEFITS

- Efficient** REDLINE™ transports greater volumes of water more efficiently than either the same nominal sized HDPE or LDPE pipe.
 - Reliable** REDLINE is a reliable and economical system that maintains a consistent pressure rating across a range of pipe diameters. REDLINE™ is rated to 12.5 bar in diameters 20mm and 25mm.
 - Flexible** REDLINE™ is a high performance polyethylene pipe that is light-weight, strong and flexible.
 - Suitable** REDLINE™ is suitable for use with in-line bloat dispensing systems.
 - Compatible** The REDLINE™ system is easily connected to existing high density (HDPE) and low density (LDPE) polyethylene pipes as well as PVC and GWI systems using threaded fittings or a PLASSON Universal Coupling (code 2512).
 - Versatile** REDLINE™, when used in conjunction with our comprehensive and technically superior range of PLASSON compression pipe fittings, builds a total system. Our fittings are simple to use and have been put to the test, with many years of demanding use in agricultural and mining applications in New Zealand, Australia and throughout the world.
 - Durable** REDLINE™ is made from tough high performance polyethylene.
 - Economical** REDLINE™ is available in three different coil lengths (50, 100 and 200 metres) to suit a wide range of applications.
 - Visible** The three permanent red stripes on REDLINE™ ensure instant identification.
 - Quality** REDLINE™ is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.
- REDLINE™ is tested to AS/NZS 4130:1997 - "PE Pipes for Pressure Applications".

Flow rate comparison



ruralblack

HPPE PRESSURE PIPE

12.5^{Bar}

340 Series

Code Explanation	
Product Code	Pressure Class
340.32PN12.5.50	
OD (mm)	Coil Length (metres)



RURAL BLACK is a metric pipe made from flexible, PE100 high performance polyethylene (HPPE) to international standards. Iplex RURAL BLACK is a reliable, economical system which maintains a consistent pressure rating across a range of pipe diameters. A popular material for urban and rural water supplies, HPPE is lightweight, strong and flexible.

The RURAL BLACK system uses the technically superior PLASSON range of compression fittings.

Excellent Reasons to Specify RURAL BLACK:

RURAL BLACK is:

- Efficient - Coiled pipe is more efficient to install on farm.
- Flexible - Reliable and economical system that has a constant 12.5 bar pressure rating across the range of pipe diameters.
 - Structural pipe work - available in straight 6-metre lengths in diameters 32mm, 40mm and 63mm for ease of forming pipework around tanks, troughs and farm buildings.
- Suitable - RURAL BLACK is suitable for use with in-line bloat dispensing systems.
- Compatible - Connects easily to other pipe systems through the use of BSP threaded fittings or a PLASSON Universal Coupling (code 2512).
- Versatile - RURAL BLACK when used with PLASSON compression fittings builds a total system.
- Durable - RURAL BLACK is made from tough high performance polyethylene.
- Economical - RURAL BLACK is available in three different coil lengths (50, 100 and 200 metres)
 - 32mm, 40mm & 63mm RURAL BLACK is also available in 6-metre lengths for straight pipe connections to tanks & troughs.
- Quality - Pipe is manufactured and tested to AS/NZS 4130:1997 - "PE Pipes for Pressure Applications".
 - RURAL BLACK is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

blackline

HPPE PRESSURE PIPE

16^{Bar}

3500 BTS Series

Code Explanation	
Product Code	Pressure Class
3500.50PN16.100BTS-Blue Tri Stripe	
OD (mm)	Coil Length (metres)



BLACKLINE PN16 is a metric pipe made from PE100 high performance polyethylene (HPPE) to international standards. Iplex BLACKLINE PN16 has been specifically developed to work in higher pressure situations such as occur on steeper country. Together with PLASSON compression fittings, BLACKLINE PN16 offers the farmer a new flexibility in design choice.

Excellent Reasons to Specify BLACKLINE PN16:

BLACKLINE PN16 is:

- Efficient - Coiled pipe is more efficient to install on farm.
- Flexible - Reliable and economical system that has a constant 16 bar pressure rating across the range of pipe diameters.
 - BLACKLINE PN16 is suitable for use with in-line bloat dispensing systems.
- Suitable - Connects easily to other pipe systems through the use of BSP threaded fittings or a PLASSON Universal Coupling (code 2512).
- Compatible - BLACKLINE PN16 when used with PLASSON compression fittings builds a total system.
- Durable - BLACKLINE PN16 is made from tough medium density polyethylene.
- Visible - The three permanent blue stripes on BLACKLINE PN16 ensure instant identification.
- Quality - Pipe is manufactured and tested to AS/NZS 4130:1997 - "PE Pipes for Pressure Applications".
 - BLACKLINE PN16 is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

Code Explanation			
Product Code	Pressure Class		
3500.63PN25.100B	Black pipe		
OD (mm)	Coil Length (metres)		



The BLACKLINE HP system is a range of high pressure polyethylene pipe and ductile iron fittings designed to offer a flexible pipeline solution for water reticulation pipes operating up to 20 and 25-bar. BLACKLINE HP pipe is manufactured from tough and durable High Performance Polyethylene (HPPE), in metric OD diameters 63mm, 90mm and 110mm and coil lengths 50-metre and 100-metre. BLACKLINE HP fittings are mechanical Ductile Iron (D.I.) fittings, which have a series of sharp machined teeth, specifically designed to positively grip HPPE pipe, while the C-shaped gasket forms a water seal. The "shouldered" BLACKLINE HP Transition Coupling used in conjunction with a BLACKLINE HP Universal Flange Adapter or Stainless Steel Threaded Adapter, make this system easy to connect to other types of pipes, valves and pumps. Now contractors and farmers alike, have an option other than traditional metal pipes joined together in lengths by threaded couplings or butt-welding PE pipe in remote areas, with the hassles and expense involved in this process. The Iplex BLACKLINE HP system delivers an affordable and practical solution for high pressure water reticulation schemes.

Excellent Reasons to Specify BLACKLINE HP

- BLACKLINE HP is:
- Efficient - Supplied in 50-metre and 100-metre coils, using BLACKLINE HP pipe reduces the amount of expensive and time consuming joints required
 - Flexible - The BLACKLINE HP (20-bar & 25-bar) high-pressure PE pipe and Ductile Iron (D.I.) fittings system offers an affordable, flexible and easy to connect pipeline choice
 - Suitable - BLACKLINE HP is suitable for use with in-line bloat dispensing systems
 - Compatible - BLACKLINE HP mechanical fittings are easy to use and readily adaptable to either flanged or threaded joints, for quick coupling to other types of pipes, pumps and valves
 - Versatile - BLACKLINE HP is manufactured from flexible High Performance Polyethylene (PE100), making it cheaper and easier to install than rigid pipes that require costly fittings and thrust blocks for changes in pipeline direction
 - Durable - High Performance Polyethylene is a tough pipe material designed to provide a long service life
 - Quality - BLACKLINE HP pipe is manufactured and tested to AS/NZS 4130: "PE Pipes for Pressure Applications" - BLACKLINE HP pipe is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008. - BLACKLINE HP D.I. fittings conform to the ASTM and AWWA standards - BLACKLINE HP fittings are manufactured in a production facility certified to ISO 9001

Assembly Instructions

BLACKLINE HP Ductile Iron fittings are designed to provide a fast and easy way to mechanically join High Performance Polyethylene (HPPE) pipe, up pressure rating PN25 (25-bar). Note: BLACKLINE HP fittings are not intended for use on other types of pipe.



1. Marking: Use a pen and tape measure to place marks 25mm from the end of each pipe.



2. Gasket Mounting: Using a silicone based lubricant; slip the gasket over the pipe ends and center the gasket between the marks. Ensure the pipe ends are butted together.







3. Fitting Assembly: Place the housing over the gasket and insert bolts. Then tighten the nuts by hand.



4. Tightening Nuts: Using an appropriate tool, tighten the nuts sequentially until the fittings' housing bolt pads meet, metal to metal.

Specifications - Fittings

Product Code	Description	Pipe OD (mm)			
DIC63PE	Ductile Iron Coupling 63mm PN25	63			
DIC90PE	Ductile Iron Coupling 90mm PN25	90			
DIC110PE	Ductile Iron Coupling 110mm PN25	110			
Product Code	Description	Pipe OD (mm)			
DITC63PE	Ductile Iron Transition Coupling 63mm PN25	63			
DITC90PE	Ductile Iron Transition Coupling 90mm PN25	90			
DITC110PE	Ductile Iron Transition Coupling 110mm PN25	110			
Product Code	Description	Pipe OD (mm) x BSP "			
SSMTA50	Stainless Steel Male Threaded Adapter 50mm BSP PN25	63 x 2"			
SSMTA80	Stainless Steel Male Threaded Adapter 80mm BSP PN25	90 x 3"			
SSMTA100	Stainless Steel Male Threaded Adapter 110mm BSP PN25	110 x 4"			
Product Code	Description	Pipe OD (mm)	PCD (mm)	Hole Number	
DIUFA50	Ductile Iron Universal Flange Adapter 50mm PN25	63	120 - 125	4	
DIUFA80	Ductile Iron Universal Flange Adapter 80mm PN25	90	150 - 160	8	
DIUFA100	Ductile Iron Universal Flange Adapter 100mm PN25	110	175 - 191	8	

FACT SHEET

		Greenline (370 Series)		Redline™ (360 Series)		Rural Black (340 Series)		BlacklinePN16 (3500 BTS Series)		BlacklineHPPN20 (3500 B Series)		BlacklineHPPN25 (3500 B Series)	
Pressure Rating *		Bar	PSI	Bar	PSI	Bar	PSI	Bar	PSI	Bar	PSI	Bar	PSI
	20	9	131	12.5	182	✗	✗	✗	✗	✗	✗	✗	✗
	25	8	116	12.5	182	✗	✗	16	233	✗	✗	✗	✗
	32	8	116	9	131	12.5	182	16	233	✗	✗	✗	✗
	40	6.3	91	9	131	12.5	182	16	233	✗	✗	✗	✗
	50	6.3	91	9	131	12.5	182	16	233	✗	✗	✗	✗
	63	6.3	91	9	131	12.5	182	16	233	20	291	25	364
	75	✗	✗	✗	✗	12.5	182	16	233	✗	✗	✗	✗
	90	✗	✗	✗	✗	12.5	182	16	233	20	291	25	364
	110	✗	✗	✗	✗	12.5	182	16	233	20	291	25	364
Mean Internal Diameter (mm)	20	16.7		16.7		✗		✗		✗		✗	
	25	21.7		21.1		✗		20.2		✗		✗	
	32	28.3		28.3		27.0		26.0		✗		✗	
	40	36.1		35.5		33.8		32.3		✗		✗	
	50	45.1		44.5		42.4		40.5		✗		✗	
	63	56.9		56.1		53.3		51.0		48.2		45.01	
	75	✗		✗		63.7		61.0		✗		✗	
	90	✗		✗		76.5		73.1		69.01		64.5	
	110	✗		✗		93.3		89.4		84.5		78.6	
Standard Coil Sizes (M)	25	✗		✗		✗		✓		✗		✗	
	50	✓		✓		✓		✓		✓		✓	
	100	✓		✓		✓		✓		✓		✓	
	200	✓		✓		✓		✗		✗		✗	
Pipe Material	Bloat resistant	✓		✓		✓		✓		✓		✓	
	PE100 (HPPE)	✓		✓		✓		✓		✓		✓	

*Maximum operating pressure at 20°C

Technical Specifications

OPERATING TEMPERATURE

−10°C to + 60°C*

*Pressure derating must be applied for operating temperatures above 20°C.

MINIMUM COLD BENDING RADII (M)

(=22 x OD)	20°C	0°C
PIPE OD (mm)	(m)	(m)
20	0.44	1.0
25	0.55	1.2
32	0.71	1.6
40	0.88	2.0
50	1.10	2.5
63	1.39	3.2

INSTALLATION

Mole-ploughing

These pipes can be installed by the mole-plough method providing that the mole-plough is specifically designed and maintained for this application and will not subject the pipe to stretching, scoring or any other damage during installation.

Depth of cover

These pipes should be laid at a sufficient depth to protect them from damage by normal agricultural/horticultural cultivation or other operations. It makes good sense to record the location of buried pipes so they can be located again as needed.

These pipes are not suitable for use:*

- 1 As a conductor used for earthing electrical appliances.
- 2 In all fire rated applications.
- 3 For continuous service above 20°C internal or external temperature, where provision for pressure derating appropriate to the temperature has not been made.

NOTE: Iplex Pipelines' strongly recommend that these systems be buried in service to give protection from high climatic temperatures, ultra-violet light and physical damage. High climatic temperatures may reduce the pipe's pressure rating.

* Suitability for conveying a wide range of chemicals is tabulated in the Iplex Pipelines' POLIPLEX Polyethylene Pipe Design Textbook and also in our publication, "A Guide to Chemical Resistance of Thermoplastics and Elastomeric Materials".

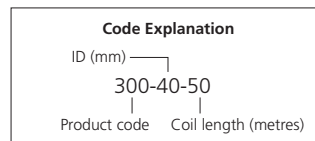
alkathene™

LDPE PRESSURE PIPE

Variable Pressure ratings

300 Series

A name to depend on



ALKATHENE™ is manufactured from a “new generation” low density polyethylene material, improving the pipes performance characteristics. It’s robust wall section and flexibility make it a reliable choice for on farm day to day water reticulation needs.

PRODUCT CODE	PIPE SIZE OD (mm)	MEAN BORE ID (mm)	PRESSURE RATING*		STANDARD COIL SIZES (m)			
			(BAR)	(PSI)	25	50	100	200
300.15	17	12.8	9.7	141	✓	✓	✓	✓
300.20	25	19.0	9	131	✓	✓	✓	✓
300.25	31	25.3	8	116	✓	✓	✓	✓
300.32	38	31.1	7	102	✓	✓	✓	✓
300.40	44	37.5	6	87	✓	✓	✓	✓
300.50	57	50.0	5	73	✓	✓	✓	✓

*Maximum operating pressure at 20°C

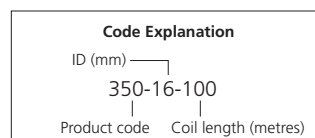
Excellent Reasons to Specify ALKATHENE™:

Economical	Good flexibility, due to the “new generation” LDPE material makes ALKATHENE™ easy to uncoil and fast to install
Flexible	Higher pressure rating than traditional LDPE manufactured to NZS 7601. ALKATHENE™ can be used in a wider range of applications
Suitable	Resistant to bloat remedies, tested in accordance with ASTM D 1693 “Environmental Stress Crack Resistance”. ALKATHENE™ is suitable for use with in-line bloat remedy dispensing systems
Durable	Robust wall section, makes ALKATHENE™ resistant to kinking and able “to take the knocks”
Compatible	Fully approved by Hansen Products (NZ) Ltd. for use with Hansen Polyethylene Pipe Fittings
Quality	The outside diameter of ALKATHENE™ is conformant to NZS 7601. ALKATHENE™ is manufactured from pre-compounded LDPE, ensuring consistent carbon black dispersion to maximise ALKATHENE’s ability to withstand UV degradation. ALKATHENE™ is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

novatube

HORTICULTURAL LATERAL TUBE

350 Series



5 Bar



NOVATUBE is a low density polyethylene pipe designed specifically for use in low pressure horticultural and viticultural irrigation lateral applications. Novatube is manufactured from pre-compounded LDPE, ensuring consistent carbon black dispersion to maximise Novatube’s ability to withstand UV degradation.

PRODUCT CODE	MEAN BORE ID (mm)	PIPE SIZE OD (mm)	PRESSURE RATING*		STANDARD COIL SIZES (m)			
			(BAR)	(PSI)	100	200	300	400
350.13	13.1	15.3	5	73	✓	✗	✗	✓
350.16	16.3	18.9	5	73	✓	✗	✗	✓
350.19	19.0	22.0	5	73	✓	✗	✓	✗
350.25	24.9	28.7	5	73	✓	✓	✗	✗

*Maximum operating pressure at 20°C



COMPRESSION FITTINGS for GREENLINE, REDLINE™, RURAL BLACK and BLACKLINE.



2500 Series

PLASSON fittings are an internationally recognised 16 Bar rated compression fitting specifically designed for use with Iplex GREENLINE, REDLINE™, RURAL BLACK and BLACKLINE PN16 pipe. These external fittings offer exceptional joint security for metric OD polyethylene pipe and form a seal without distorting the pipe or restricting the pipe bore. PLASSON fittings can also be used on ALKATHENE™ low density polyethylene pipe in diameters 20mm and 25mm. A large range of threaded fittings make PLASSON a versatile product range and allow compatibility with other pipe materials. PLASSON fittings are available in 75mm, 90mm and 110mm diameters for use with Iplex effluent pipe.

COMPRESSION FITTINGS (20 - 110mm: 16 Bar)

90° ELBOW



Code	Size mm
2501.20	20
2501.25	25
2501.32	32
2501.40	40
2501.50	50
2501.63	63
2501.90	90
2501.110	110

SLIP TEE 90°



Code	Size mm
2502.20	20
2502.25	25
2502.32	32
2502.40	40
2502.50	50
2502.63	63

40 - 63mm: 12.5 Bar

FEMALE THREADED TEE



Code	Size mm x BSP
2503.20.15	20 x 1/2"
2503.25.20	25 x 1/2"
2503.32.25	32 x 1"
2503.40.32	40 x 1 1/4"
2503.50.40	50 x 1 1/2"
2503.63.50	63 x 2"
2503.75.65	75 x 2 1/2"
2503.90.80	90 x 3"
2503.110.100	100 x 4"

90mm: 10 Bar 110mm: 6 Bar

TEE 90°



Code	Size mm
2504.20	20
2504.25	25
2504.32	32
2504.40	40
2504.50	50
2504.63	63
2504.90	90
2504.110	110

REDUCING TEE 90°



Code	Size mm
2505.25.20	25 x 20
2505.32.25	32 x 25
2505.40.32	40 x 32
2505.50.40	50 x 40
2505.63.50	63 x 50
2505.75.63	75 x 63

FEMALE THREADED ADAPTER



Code	Size mm x BSP
2506.20	20 x 1/2"
2506.25	25 x 1/2"
2506.32	32 x 1"
2506.40	40 x 1 1/4"
2506.50	50 x 1 1/2"
2506.63	63 x 2"
2506.75.65	75 x 2 1/2"
2506.90	90 x 3"
2506.110	110 x 4"

90mm: 10 Bar 110mm: 6 Bar

MALE THREADED ELBOW 90°



Code	Size mm x BSP
2507.20	20 x 1/2"
2507.25	25 x 1/2"
2507.32	32 x 1"
2507.40	40 x 1 1/4"
2507.50	50 x 1 1/2"
2507.63	63 x 2"

FEMALE THREADED ELBOW 90°



Code	Size mm x BSP
2508.20	20 x 1/2"
2508.25	25 x 1/2"
2508.32	32 x 1"
2508.40	40 x 1 1/4"
2508.50	50 x 1 1/2"
2508.63	63 x 2"

WINGBACK FEMALE ADAPTER



Code	Size mm x BSP
2509.20	20 x 1/2"
2509.25	25 x 1/2"

COUPLING



Code	Size mm
2510.20	20
2510.25	25
2510.32	32
2510.40	40
2510.50	50
2510.63	63
2510.75	75
2510.90	90
2510.110	110

SLIP COUPLING



Code	Size mm
2511.20	20
2511.25	25
2511.32	32
2511.40	40
2511.50	50
2511.63	63

UNIVERSAL COUPLING



Code	Size mm
2512.25x15-22	20 x 15 to 22
2512.25x20-27	25 x 20 to 27
2512.25x27-35	25 x 27 to 35
2512.32x27-35	32 x 27 to 35
2512.50x35-50	50 x 35 to 50

50mm: 10 Bar

MALE THREADED ADAPTER



Code	Size mm x BSP
2513.20	20 x 1/2"
2513.25.15	25 x 1/2"
2513.25	25 x 1/2"
2513.32	32 x 1"
2513.40	40 x 1 1/4"
2513.50	50 x 1 1/2"
2513.63	63 x 2"
2513.75.65	75 x 2 1/2"
2513.90	90 x 3"
2513.110	110 x 4"

FEMALE THREADED BRANCH SADDLE



Code	Size mm x BSP
2519.25.20	25 x 1/2"
2519.32.25	32 x 1"
2519.40.25	40 x 1"
2519.50.15	50 x 1/2"
2519.50.20	50 x 1/2"
2519.50.25	50 x 1"
2519.50.32	50 x 1 1/4"
2519.63.15	63 x 1/2"
2519.63.20	63 x 1/2"
2519.63.25	63 x 1"
2519.63.32	63 x 1 1/4"
2519.63.40	63 x 1 1/2"
2519.75.25	75 x 1"
2519.75.50	75 x 2"
2519.90.25	90 x 1"
2519.90.50	90 x 2"
2519.110.25	110 x 1"
2519.110.32	110 x 1 1/4"
2519.110.40	110 x 1 1/2"

25 - 63mm: 12.5 Bar
75 - 110mm: 10 Bar

REDUCING COUPLING



Code	Size mm
2523.25.20	25 x 20
2523.32.25	32 x 25
2523.40.32	40 x 32
2523.50.40	50 x 40
2523.63.50	63 x 50
2523.75.63	75 x 63
2523.90.75	90 x 75
2523.110.90	110 x 90

REDUCING SET



Code	Size mm
2524.25.20	25 x 20
2524.32.20	32 x 20
2524.32.25	32 x 25
2524.40.25	40 x 25
2524.40.32	40 x 32
2524.50.25	50 x 25
2524.50.32	50 x 32
2524.50.40	50 x 40
2524.63.25	63 x 25
2524.63.32	63 x 32
2524.63.40	63 x 40
2524.63.50	63 x 50
2524.75.63	75 x 63
2524.110.63	110 x 63
2524.110.75	110 x 75
2524.110.90	110 x 90

SHOULDERED ADAPTER



Code	Size mm
2525.63	63
2525.110	110

PLUG ADAPTER



Code	Size mm
2530.20	20
2530.25	25
2530.32	32
2530.40	40
2530.50	50
2530.63	63

12.5 Bar

END PLUG



Code	Size mm
2531.20	20
2531.25	25
2531.32	32
2531.40	40
2531.50	50
2531.63	63
2531.75	75
2531.90	90
2531.110	110

BARREL UNION THREADED MALE ADAPTER



Code	Size mm
2572.25.15	25 x 1/2"
2572.25.20	25 x 1/2"
2572.32.15	32 x 1/2"
2572.32.20	32 x 1/2"
2572.32.25	32 x 1"
2572.40.25	40 x 1"
2572.40.32	40 x 1 1/4"
2572.40.40	40 x 1 1/2"
2572.50.25	50 x 1"
2572.50.32	50 x 1 1/4"
2572.50.40	50 x 1 1/2"
2572.50.50	50 x 2"
2572.63.25	63 x 1"
2572.63.32	63 x 1 1/4"
2572.63.40	63 x 1 1/2"
2572.63.50	63 x 2"
2572.63.65	63 x 2 1/2"
2572.75.40	75 x 1 1/2"
2572.75.50	75 x 2"
2572.75.65	75 x 2 1/2"
2572.75.80	75 x 3"

MODULAR ADAPTER



Code	Size mm
2579.20	20
2579.25	25
2579.32	32
2579.40	40
2579.50	50
2563.63	63

WRENCH



Code	Size mm
2550.40.75	40 to 75
2550.63.125	63 to 125

CHAMFERING TOOL



Code	Size mm
2555.20.63	25 to 63

PLASSON THREADED FITTINGS

THREADED TEE



Code	Size BSP
2514.15	1/2"
2514.20	1/2"
2514.25	1"
2514.32	1 1/4"
2514.40	1 1/2"
2514.50	2"

1/2" - 1" : 16 Bar
1 1/4" - 2" : 10 Bar

THREADED ELBOW



Code	Size BSP
2515.15	1/2"
2515.20	1/2"
2515.25	1"
2515.32	1 1/4"
2515.40	1 1/2"
2515.50	2"

1/2" - 1" : 16 Bar
1 1/4" - 2" : 10 Bar

THREADED NIPPLE



Code	Size BSP
2516.15	1/2"
2516.20	1/2"
2516.25	1"
2516.32	1 1/4"
2516.40	1 1/2"
2516.50	2"

16 Bar

THREADED REDUCING RUSH



Code	Size BSP
2517.20.15	1/2" x 1/2"
2517.25.15	1" x 1/2"
2517.25.20	1" x 1/2"
2517.32.15	1 1/4" x 1/2"
2517.32.20	1 1/4" x 1/2"
2517.32.25	1 1/2" x 1/2"
2517.40.15	1 1/2" x 1/2"
2517.40.20	1 1/2" x 1"
2517.40.25	1 1/2" x 1"
2517.50.15	2" x 1/2"
2517.50.20	2" x 3/4"
2517.50.25	2" x 1"
2517.50.32	2" x 1 1/4"
2517.50.40	2" x 1 1/2"
2517.65.50	2 1/2" x 2"
2517.80.25	3" x 1"
2517.80.32	3" x 1 1/4"
2517.80.40	3" x 1 1/2"
2517.80.50	3" x 2"
2517.80.65	3" x 2 1/2"
2517.100.50	4" x 3/4"
2517.100.80	4" x 3"

THREADED REDUCING NIPPLE



Code	Size BSP
2518.20.15	1/2" x 1/2"
2518.25.15	1" x 1/2"
2518.25.20	1" x 1/2"
2518.32.15	1 1/4" x 1/2"
2518.32.20	1 1/4" x 1/2"
2518.32.25	1 1/2" x 1"
2518.40.15	1 1/2" x 1 1/4"
2518.40.20	1 1/2" x 1 1/2"
2518.40.25	1 1/2" x 1"
2518.40.32	1 1/2" x 1 1/4"
2518.50.15	2" x 1/2"
2518.50.20	2" x 3/4"
2518.50.25	2" x 1"
2518.50.32	2" x 1 1/4"
2518.50.40	2" x 1 1/2"

THREADED SOCKET



Code	Size BSP
2521.15	1/2"
2521.20	1/2"
2521.25	1"
2521.32	1 1/4"
2521.40	1 1/2"
2521.50	2"

1/2" - 1" : 16 Bar
1 1/4" - 2" : 10 Bar

THREADED PLUG



Code	Size BSP
25307.15	1/2"
25307.20	1/2"
25307.25	1"
25307.32	1 1/4"
25307.40	1 1/2"
25307.50	2"

16 Bar



Excellent Reasons to Specify PLASSON:

Efficient	forms a fast, end load resistant, watertight joint, with no bore restriction.
Compatible	with GREENLINE, REDLINE™, RURAL BLACK, BLACKLINE PN16 and ALKATHENE™ 20mm and 25mm diameters.
Versatile	range allows joints to be formed with other pipe materials by way of male and female couplings with BSP threads or PLASSON Universal Coupler (code 2512).
Durable	manufactured from a high impact resistant polypropylene material.
Economical	rapid assembly, push-fit and tighten. PLASSON fittings from 20mm to 63mm diameter do not require to be disassembled before making a connection.
Quality	manufactured and tested to AS/NZS 1460 "Fittings for polyethylene (PE) pipe for pressure applications".

Assembly Instructions (20mm - 63mm)*

GENERAL INSTRUCTIONS

Follow these assembly instructions for a leak proof connection to last a lifetime.
Before assembly ensure:

- That the end of the pipe to be inserted into the fittings is free of scratches and other imperfections.
- That both the end of the pipe and the fitting itself are clean of sand, mud, stones, etc.
- Do not overtighten nut when closing. NEVER use wrenches or spanners with handle lengths longer than 46cm – excessive torque during tightening can spread nut cone and result in pull outs.
- If fittings are reused, ensure split ring is sharp and bites into pipe to avoid pull outs. Alternatively replace split ring.

Note: We strongly recommend the use of PTFE tape in threaded connections.

1. Cut the pipe square and remove burrs. It is good trade practise to both chamfer (with a file or chamfering tool) and lubricate (use Medlube or an approved equivalent) the pipe ends. Chamfering and lubrication will ease insertion, however these steps are optional.

2. Undo the nut up to the last thread. Do not remove nut from body.

3. Twist the pipe into the fitting through the nut and split ring until it meets the first resistance – pushing against the captive O-ring. Push and twist the pipe past the O-ring until it stops at pipe stop inside the fitting – the final stop.

4. Firmly hand tighten nut. Use a wrench for a further half turn past hand tight for final tightening of fittings diameters 40mm and greater.

The full hydraulic seal is achieved when the pipe passes through the O-ring. Nut tightening is only to achieve pullout resistance – the hydraulic seal is automatically created when the pipe is pushed past the captive O-ring.

* Contact your local Iplex Pipelines Sales Office for PLASSON assembly instructions for 75mm and 90mm diameter fittings



High quality polypropylene valves adding to the range and versatility of PLASSON fittings.

QUICK COUPLING VALVE*

Ordering Code	Size mm
2711	20 (3/4")
2712	25 (1")

(Used with 2713)

*10 Bar Rating

- instant on/off water supply valve
- compatible with GREENLINE, REDLINE™ and ALKATHENE™ pipes
- ideal for wash down areas and filling spray tanks

VALVE*

Ordering Code	Size mm
2731	20 (3/4")
2732	25 (1")

*10 Bar Rating

- economical BSP female threaded valve
- small size and rugged polypropylene body make it ideal for use around the farm.

RISER KEY*

Ordering Code
2713

(Used with 2712)

*10 Bar Rating

- bayonet type fitting used on end of hose to turn on PLASSON quick coupling valves

COMPRESSION STOPCOCK*

Ordering Code	Size mm
2741.20	20mm
2741.25	25mm
2741.32	32mm

*16 Bar Rating

- direct connection to GREENLINE, REDLINE™, RURAL BLACK and 20mm and 25mm ALKATHENE™ pipe
- no more leaking threaded joints
- cost effective – do away with threaded adapters, to connect valve to the pipe.

ANGLE SEAT VALVE*

Ordering Code	Size mm
2735.32	32 (1 1/4")
2735.40	40 (1 1/2")
2735.50	50 (2")

*8 Bar Rating

- economical BSP male threaded valve
- rugged polypropylene construction to take the knocks
- full-bore flow performance when the valve is open

CHECK VALVE INSERT*

Ordering Code	Size mm
2720-25	25mm

*16 Bar Rating

- check valve designed to be inserted into 25mm PLASSON fittings
- compatible with REDLINE™, RURAL BLACK, BLACKLINE PN16 and 20mm ALKATHENE™ pipes
- used for backflow protection.

VALVE BOX

Ordering Code	Size mm
193*	155mm x 200mm x 200mm high
193LIDGR**	155mm x 200mm
193LIDBL***	155mm x 200mm

*Valve box only - no lid
** Green lid
*** Blue lid

- house and protect valves and meters
- tough polyethylene construction
- snap on lid for easy access
- colour coded lids for asset identification

Technical Specifications

Fittings

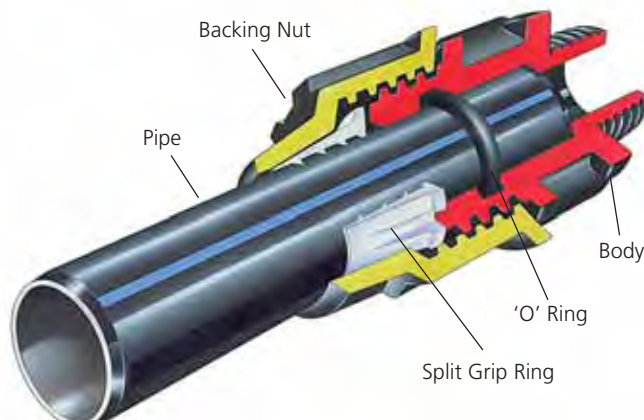
- Body – polypropylene – food grade polymer
- Backing nut – polypropylene – food grade polymer
- Split ring – acetyl
- 'O' ring – nitrile rubber (70 Shore A.NBR)

Saddles

- Reinforcing ring on BSP threaded outlets – stainless steel
- Nuts – stainless steel
- Bolts – stainless steel
- Threads – B.S.P. standard

Maximum operating pressure at 20°C

PLASSON 16 Bar



Pasture Management Systems

How important is good land drainage?

Investment in land drainage leads to better utilisation of other farm inputs. The benefits are long proven and numerous...

Improved pasture growth/crop yields

- higher soil temperatures extend growth season and increase kilograms of dry matter produced
- encourages root system development, improving yields and developing sturdier, well rooted plants more resistant to high winds and drought
- contributes to improved soil structure through encouraging worm activity
- better utilisation of pasture/crop management inputs, such as fertiliser and herbicides
- land dries more uniformly encouraging crops to germinate and emerge consistently

Increase in productive pasture area

- decrease in areas subject to pugging maximises productive area
- ability to do away with some open culverts by installing larger diameter subsurface drainage increases productive area

Improved animal health

- drier paddocks decrease stock health problems and provide improved conditions for lambing and calving

Increased land value

- Improved mobility around farm
- better operating conditions for farm machinery

Environmentally friendly

- Reduces surface compaction decreasing run-off to open waterways

Things to consider

- What is the return on investing in well drained land?
 - better yields
 - longer growth season
 - maximising returns from fertiliser inputs

- What cost reductions in hay and supplements could be expected by improving pasture production potential through land drainage?
- Benefits of a drainage system designed around Nexus™ technology - improved design options based around the increased flow capacity of Nexus™.

Desired Outcome

A land drainage system designed around your farm's requirements which maximises the land's production potential.





PE LAND DRAINAGE PIPE (smooth bore)

go with the flow

Code Explanation	
Product code	Coil length (metres)
NEXUS110.100	
OD (mm)	



Nexus Series (punched) - Nexuscoil Series (unpunched)

NEXUS™ is a double wall polyethylene pipe, combining a smooth inner wall with a corrugated outer wall. During manufacture, the two walls are welded together. This results in a high stiffness wall section with smooth bore flow performance. NEXUSFLO is punched while NEXUSCOIL is unpunched. NEXUS™ is available in standard diameters 110mm, 160mm as well as a new 200mm diameter.

FEATURES AND BENEFITS

Efficient	NEXUS™ smooth bore construction improves flow characteristics leading to earlier peak flow results.
Reliable	NEXUS™ smooth bore construction maintains a high water velocity in the pipe, making it self cleaning and less prone to silting.
Flexible	NEXUS™ corrugated outer wall and polyethylene construction give it excellent flexibility and strength.
Compatible	NEXUS™ is compatible with NOVAFLO™ and NOVACOIL as well as a number of PVC pipeline products manufactured by Iplex Pipelines.
Versatile	NEXUS™ is available in the standard diameters 110mm, 160mm as well as 200mm. The new 200mm diameter allows the possibility of designing open culverts out of some land drainage schemes thereby increasing productive area. NEXUS™ is available in lengths as well as a large range of coil sizes and together with a range of compatible fittings provide drainage solutions for a wide range of situations.
Suitable	NEXUS™ smooth bore construction allows installation in lower gradient situations.
Durable	The double wall construction of NEXUS™ allows Iplex Pipelines to offer a guaranteed stiffness resulting in a more robust product.
Economical	The improved flow characteristics brought about by NEXUS™ smooth bore technology can lead to savings by: <ul style="list-style-type: none">– increasing drainage row spacings– decreasing pipe diameter in low gradient situations– decreasing pipe diameter through better hydraulic performance. NEXUS™ light-weight and ease of handling makes it cost effective to install.
Quality	NEXUS™ technology offers the New Zealand land drainage market a new level of performance. NEXUS™ is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.
Visible	Colour coded for easy identification

PRODUCT RANGE

	Diameter OD (mm)	Length or Coil Size (metres)	Colour of pipe & stripe
NEXUSFLO (Punched)	110	15, 30, 50, 100, 450	Black with blue stripe
	160	45, 185	
	200	5, 29, 120	
NEXUSCOIL (Unpunched)	110	15, 30, 50, 100, 450	Black with yellow stripe
	160	45, 185	
	200	29, 120	

How to lay Nexus

NEXUSFLO can work effectively on low gradients. The minimum grade (slope) allowed for trench and pipe should be as follows:

NEXUSFLO nominal OD (mm)	Min. recommended gradient (%)*	Min. recommended gradient (m)*	Min. recommended gradient (m)
Existing corrugated Novaflo™			
110	0.1	1 in 1000	1 in 400
160	0.07	1 in 1500	1 in 1000
200	0.05	1 in 2000	n/a

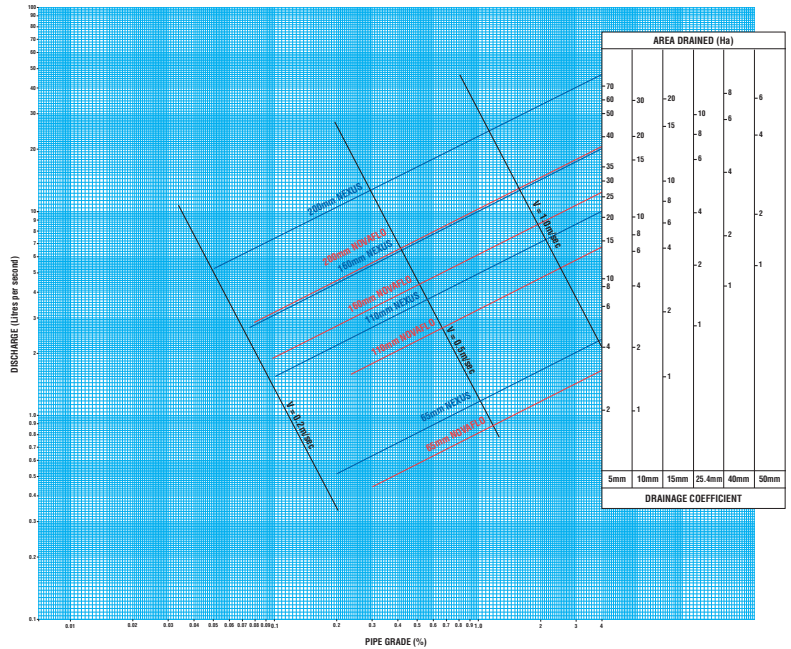
*Based upon minimum recommended flow velocity of 0.2m/sec (small risk of silting from clay particles and fine silts). Where coarse silts or fine sands could enter the pipe, steeper gradients and higher minimum flow velocities should be used. Designers and installers of NEXUSFLO systems should refer to NZAEI Guide to Subsurface Land Drainage – May 1988 for more information.

Guaranteed Strength

NEXUSFLO offers a guaranteed stiffness* criteria, resulting in good load bearing resistance in ground.
* Tested to AS2439 part 1 'class 200'.

ADVANTAGES OF FASTER LAND DRAINAGE

Recent Massey University tests have for the first time quantified the improved flow results achieved by NEXUS™ land drainage pipe compared to NOVAFLO™. Smooth bore NEXUS™ provides a less turbulent water flow through the pipe than the corrugated bore NOVAFLO™. This results in higher flow velocity, which translates to a greater volume of flow than for NOVAFLO™ given the same installation parameters.



Faster drainage - why is it so important?

Higher flow velocity - reduced chance of silting

- less maintenance
- longer service life

Greater volume - faster and drainage

- less short term pasture damage - more palatable grazing
- faster pasture recovery
- less long term soil damage (compaction) - improved surface drainage
- more pasture growth (kgDMI/h)
- reduced duration of water logging in the root zone
- more pasture growth (kgDMI/h)
- more flexibility in stock placement during wet months
- easier farm management.

160mm NEXUSFLO delivers 69% greater flow than 160mm NOVAFLO™...

110mm NEXUSFLO delivers 49% greater flow than 110mm NOVAFLO™!

Summary of flow comparison between NEXUSFLO and NOVAFLO™

110mm NOVAFLO™ + 49% extra flow = 110mm NEXUSFLO performance
 110mm NEXUSFLO + 38% extra flow = 160mm NOVAFLO™ performance
 160mm NOVAFLO™ + 69% extra flow = 160mm NEXUSFLO performance
 160mm NEXUSFLO + 83% extra flow = 200mm NEXUSFLO performance



SINGLE WALL PUNCHED LAND DRAINAGE PIPE

400 Series (punched)
500 Series (unpunched)

Code Explanation	
Product code	Coil length (metres)
400-110-100	
	OD (mm)



NOVAFLO™ is a single wall corrugated high density polyethylene land drainage pipe. NOVAFLO™ has been a leading brand name in the rural New Zealand land drainage market for over twenty years. During this time farmers have learned to rely on this quality product for delivering excellent drainage results. Such proven benefits as improved soil structure, larger root systems, better fertiliser uptake and reduction in surface pugging has made the use of NOVAFLO™ an integral part of the New Zealand farmer's search for greater productivity. Novacoil is the unslotted version of NOVAFLO™.

FEATURES AND BENEFITS

- Economical** NOVAFLO™'s single wall construction, light weight and ease of installation, makes this product the cost effective choice for land drainage.
- Reliable** NOVAFLO™ has a long track record of being a quality product in New Zealand.
- Durable** NOVAFLO™ is made from tough high density polyethylene.
- Flexible** NOVAFLO™'s single wall corrugated construction gives it excellent flexibility and strength.
- Versatile** NOVAFLO™ and NOVACOIL's diameter and coil size range, together with a range of compatible fittings, provide drainage solutions for a wide range of situations.
- Compatible** NOVAFLO™ and NOVACOIL are compatible with the NEXUS™ range of pipe as well as a number of PVC pipeline products manufactured by Iplex Pipelines.
- Quality** NOVAFLO™ and NOVACOIL are manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.
- Visible** NOVAFLO™ and NOVACOIL are colour coded for easy identification.

PRODUCT RANGE

	Diameter OD (mm)	Length of Coils (metres)	Colour of pipe & stripe
NOVAFLO™ (Punched)	65	15, 30, 150	Black, no stripe
	110	15, 30, 50, 100, 450	
	160	15, 45, 185	
NOVACOIL (Unpunched)	65	15, 30, 150	Black with white stripe
	110	15, 30, 100	
	160	15, 45	

NEXUS™/NOVAFLO™ FITTINGS

Compatible range of PVC and PE fittings designed for use with the NEXUS™ and NOVAFLO™ range of pipes.

	45° JUNCTION	
	SIZE (mm)	ORDER CODE
	110x45°	104.100.45
	160x45°	704.150.45
	160x110x45°	704.150.100.45

	LEVEL INVERT	
	SIZE (mm)	ORDER CODE
	160x110	423.160.110

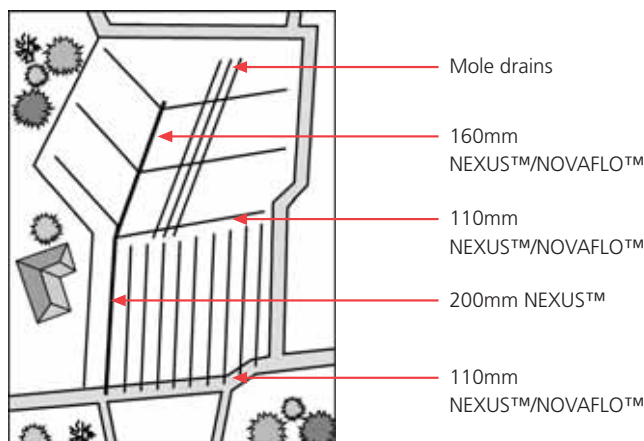
	COUPLER	
	SIZE (mm)	ORDER CODE
	65	410.065

	NEW COUPLER	
	SIZE (mm)	ORDER CODE
	110	420.110
	160	420.160
	200	420.200

	END CAP	
	SIZE (mm)	ORDER CODE
	110	430.110
	160	430.160

NEXUS™ and NOVAFLO™ Installation

How to install your NEXUS™ and NOVAFLO™



NEXUS™ and NOVAFLO™ complement existing drainage techniques, such as mole drainage; removing surplus water gathered by the mole network.

External Load Strength

As a corrugated product, NEXUS™ and NOVAFLO™ have excellent strength to resist external loads from either soil, backfill or vehicle loads provided it is installed correctly.



Lightweight and Versatile

The light weight and long coil lengths of NEXUS™ and NOVAFLO™ minimise the physical effort required to lay pipe. Reduced operator fatigue and significant transportation savings can be achieved.

Depth of Drainage

The maximum depth of burial in agricultural applications is not often limiting and is usually determined by the nature of the soil/water profile. For NEXUS™ and NOVAFLO™ the most crucial factors are trench width and bedding/haunching. No rule of thumb can be given and the best information is available in AS/NZS 2566.

Backfill

An envelope of granular aggregate around the drainage pipe improves the flow of soil water into the pipe by increasing the effective diameter of the drain and may under certain circumstances allow the spacing of drains to be increased.

In permeable soils, water flows into the drain mainly through entry points at the sides and bottom of the drain pipe. It is therefore particularly important that the gravel envelope should completely surround the drain pipe in order to be fully effective. Such an envelope can also act as a partial filter, hence reducing the ingress of fines. In soils where particles can be washed into the pipe, eventually causing silting, a fabric filter can be used to impede the ingress of these fines.

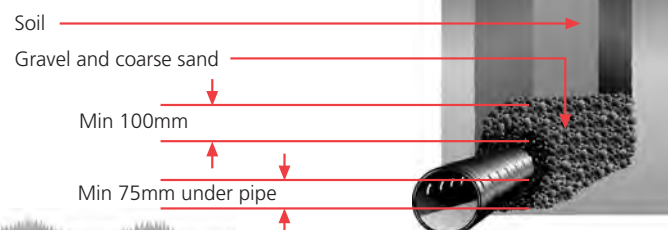
Flexibility

NEXUS™ and NOVAFLO™ pipe can be installed continuously around curves and bends, without the need for separate fittings, allowing NEXUS™ and NOVAFLO™ to be installed in continuous lengths.

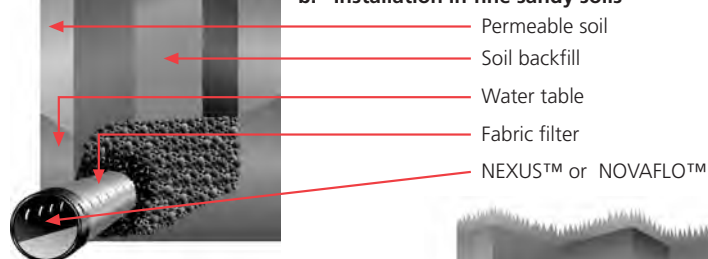
Bedding and Backfill Alternatives

a. Standard installation in permeable non-sandy soils.

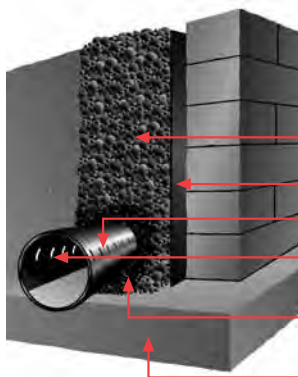
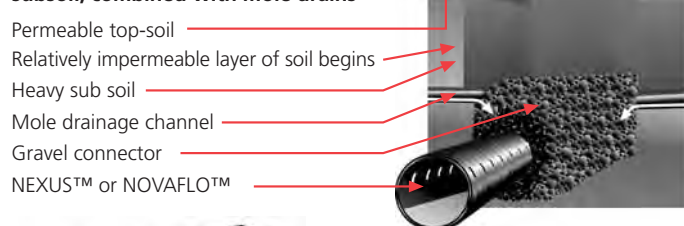
NEXUS™ and NOVAFLO™ encased in gravel and coarse sand envelope designed as a filter



b. Installation in fine sandy soils



c. Installation in an impermeable heavy subsoil, combined with mole drains



Retaining walls

Min. 150mm of free-draining material e.g. scoria

3 coats "Bituproof"

Filter sock recommended

NEXUS™ or NOVAFLO™

Min. 75mm of filter material and adjust depth of filter material to obtain pipe gradient

Concrete floor

Drain Spacing

The following table gives a guide for drain spacing proportional to drain depth and soil type. However, land utilisation factors such as paddock area, crop or tree spacing and vehicular access must all be considered. The standard design is a 20m spacing for cattle farm drainage and 60m for sheep grazed pasture.

Drain Spacing vs Soil Type

	Effective drainage distance Each side of pipe (m) at a Drain depth of		Permeability k*(cm/sec)	A General Description of Soil Permeability
	0.6 - 0.9m	0.9 - 1.2m		
Sand	15.2-22.9	22.9-45.7	10 ⁻²	medium/high
Sandy Loam	12.2-15.2	15.2-22.90	2.4 x 10 ⁻⁴	medium
Loam	10.7-13.7	12.2-15.2	4.7 x 10 ⁻⁵	medium/low
Clay Loam	6.1-9.1	7.6-10.7	1.2 x 10 ⁻⁵	low
Sandy Clay	5.3-6.1	6.1-7.6	5 x 10 ⁻⁶	very low
Clay	3.6-4.6	4.8-5.3	1.2 x 10 ⁻⁶ Thru 10 ⁻⁷	verylow practically impermeable

*k = coefficient of permeability

Resource Management Systems

Dairy Shed Effluent **"Waste or Useful By-Product"**

Things to be considered

More and more dairy farmers have to look at installing land based dairy shed waste schemes these days. What has brought this sudden upturn in interest and what should the dairy farmer look at when considering effluent disposal?

What is the history of dairy shed effluent disposal in New Zealand?

It has been considered a waste product to be disposed of by the easiest and least expensive means possible with little consideration given to its value, utilization or the environmental effects.

Why has the thinking about the disposal of dairy shed effluent changed?

The Resource Management Act 1991 charged Regional Councils with preventing the pollution of water courses through promoting sustainable land management practices, e.g. encouraging "permitted" activities such as land drainage disposal recycling of dairy shed effluent.

What is the nutrient value of your dairy shed effluent?

Dairy shed effluent should be thought of as a liquid fertilizer containing significant amounts of nitrogen (N), phosphorus (P), potassium (K), sulphur (S) as well as trace elements. It also adds organic matter to the soil which helps increase earthworm activity.

What land area requirement is needed for a dispersal system?

The maximum utilization rate of 150kg of nitrogen per hectare per year is the limiting factor determining minimum land area requirements. Rotational cropping which also ensures all surplus potassium is removed can increase this utilization rate. Recommended land area per 100 dairy cows is 4.5 hectares.

What are buffer zones?

Dairy Industry legislation requires that effluent be disposed of at least 50 metres from a dairy shed and accompanying yards. Local bylaws and town planning ordinances can and do specify other minimum distances for sprayed dispersal from domestic buildings, streams, drains and public roads.

What should be considered when looking at effluent collection systems?

There are two types of collection systems, effluent sumps and effluent ponds.

- An effluent sump should be sized to accommodate the size of the herd and is located at the shed. The drawback of sumps

are that the dispersal process becomes a daily job, contingency measures have to be made for machinery failure or excessive rainfall and it is hard to target paddocks that have just been grazed.

- Effluent ponds should be sized to hold one week's worth of dairy shed washdown. The advantage of a pond is that most dairy farms already have one, effluent dispersion can become a weekly job allowing a buffer for wet weather and machinery failure as well as offering the ability to target recently grazed paddocks.

What are the pipeline requirements for an effluent scheme?

Mainlines are either rigid Iplex PVC or Iplex flexible polyethylene pipe sized for the discharge flow and reticulation distance, installed below or above ground. Above ground polyethylene systems utilizing camlock type fittings are able to be moved and offer some savings in main line costs.

What are the choices in application systems?

There are three main means of land application, tanker/spreader, sprinkler/honey pot and self-propelled effluent applicator/travelling irrigator. Travelling irrigators have the benefit of being able to achieve low even application rates with a minimum of labour input.

What are the considerations in looking at a dairy shed effluent pump?

The choice of a dairy effluent pump hinges around selecting a pump capable of supplying the required pump duty for a given situation.

Why is an effluent management programme such an important part of the overall package?

Good management programmes ensure:

- Lowest possible application rate onto short pasture, which maximises nutrient utilization ensuring regrowth is clean and palatable.
- Rotation of application minimizes risk of disease transmission.
- Soil moisture levels are evaluated to optimise nutrient utilization.
- Nutrient monitoring through soil testing and herbage analysis help ensure nutrient levels are maintained to maximise pasture growth.

Desired outcome

An effectively managed effluent dispersal system that efficiently maximises the nutrient value of the effluent and meets the local authority's dispersal requirements.

effluent 6.3 & 8 Bar

PE PRESSURE PIPE

2200 Series

Code Explanation		
Product Code	Coil length (metres)	
2200-90PN8-100		
OD (mm)	Pressure class	



Iplex Pipelines effluent pipe is a metric OD sized PE polyethylene (PE) pipe designed specifically for the disposal of dairy shed effluent. This pipe is typically installed above ground and jointed using camlock type fittings. This allows the pipe to be moved easily for discharge to specific paddocks. The robust nature and ease of handling of Iplex effluent pipe has made it an economical and effective choice for effluent dispersal. Iplex also manufacture a lilac coloured PVC pressure pipe, as an effluent main line alternative to PE pipe.

FEATURES AND BENEFITS

Efficient	Iplex PE effluent pipe is easily installed and lends itself to efficient relocation. Rubber ring joint PVC effluent pipe is quick and easy to join.
Reliable	Iplex PE effluent pipe has been well proven on New Zealand dairy farms.
Compatible	Iplex effluent pipe is compatible with other PE and PVC pipeline systems, through the use of threaded and solvent cement joint fittings and camlock type fittings.
Versatile	Iplex effluent pipe is available in a number of diameters and coil sizes. It is compatible with camlock fittings and PLASSON fittings. This range offers an effluent pipe solution for most applications whether it be used as a drag hose or as a main line. Iplex lilac coloured PVC effluent pipe allows installation without the need to handle large coils of PE pipe.
Durable	Iplex effluent pipe is manufactured from tough PVC and Polyethylene for a long service life.
Economical	Above ground installation of Iplex Pipelines polyethylene pipe is an efficient and economical solution to most effluent disposal needs. Iplex lilac coloured PVC effluent pipe provides a large bore for hydraulic efficiency.
Quality	Iplex Pipelines PE effluent pipe is tested to AS/NZS 4130:1997 - "PE Pipes for Pressure Applications". Iplex PVC effluent pipe is dimensionally conformant to AS/NZS 1477 PVC pipe and fittings for pressure application Series 1. Iplex effluent pipe is manufactured in New Zealand by Iplex Pipelines using a quality system accredited to ISO 9002: 1987
Visible	Three permanent lilac stripes on Iplex PE and a solid lilac colour on PVC effluent pipe ensure instant identification.

DESIGN SUMMARY

Listed below are the critical design components associated with three herd sizes and their effluent disposal systems.

Herd Size (Cows)	Recommended area required (hectares)	Pump duty	Sump size (m ³)	Mainline size (mm)	Effluent applicator	Average application rate (mm/yr)	Annual nutrient deposit (270 day milking season)		
							Nutrients		
							N	P	K
200	9.0	Min. flow 15m ³ /hr Min. head 34m	4.0	65mm PVC PN6 75mm PE PN6.3 or PN8	As required	33	1296.0 Kg	135.0 Kg	1674.0 Kg
400	18.0	Min. flow 15m ³ /hr Min. head 39m	6.0	65mm PVC PN6 75mm PE PN6.3 or PN8	As required	33	2592.02 Kg	270.0 Kg	3348.0 Kg
600	27.0	Min. flow 15m ³ /hr Min. head 40m	8.0	80mm or 100mm PVC PN8 90mm or 110mm PE PN6.3 or PN8	As required	34	3888.0 Kg	405.0 Kg	5022.0 Kg

PRODUCT RANGE

*Maximum operating pressure at 20°C

PE Product Code	Nominal OD (mm)	Mean ID (mm)	Standard Coil Sizes (metres)			Pressure Rating*		Application
			50	100	200	(Bar)	(PSI)	
2230.45PN5	51.1	44.0		✓	✓	5	72	Pod irrigation
2200.63PN6.3	63	56.9	✓	✓	✗	6.3	91	Drag hose/main line
2200.75PN6.3	75	65.8	✓	✓	✗	6.3	91	Main line
2200.75PN8	75	65.8	✓	✓	✗	8	116	Main line
2200.90PN6.3	90	81.3	✓	✓	✗	6.3	91	Main line
2200.90PN8	90	81.3	✓	✓	✗	8	116	Main line
2200.110PN8	110	96.5	✓	✓	✗	8	116	Main line

PVC Product Code	Nominal OD (mm)	Mean ID (mm)	Effective Length (metres)	Pressure Rating*		Application
				(Bar)	(PSI)	
Z822.80PN6.6 LILAC	88.9	82.3	6	6	87	Main line
Z822.100PN6.6 LILAC	114.3	107.8	6	6	87	Main line
Z822.80PN8.6 LILAC	88.9	82.1	6	8	116	Main line
Z822.100PN8.6 LILC	114.3	105.7	6	8	116	Main line

Maintenance

The installation and maintenance of access ways to and on farm is important in optimising the efficiency of moving around the farm. The choice of a culvert pipe system that is durable and easy to install is part of this process. FARMTUFF™ uPVC Culvert Pipe and NEXUS™ Culvert PE culvert pipe offer a flexibility of choice for these applications.

farmtuff™

PVC CULVERT PIPE

550 Series

Code Explanation		
Product Code	Socketed one end	
550-200-5	SOE	
OD (mm)	Length (metres)	



Strength under foot

FARMTUFF™ is the answer to the majority of the on farm culvert pipe needs. This smooth bore, lightweight, easy to handle PVC pipe makes installation a breeze compared to culvert pipes made of more traditional materials. Correctly installed FARMTUFF™ will provide years of dependable service improving access around the farm and taking away stormwater.

FEATURES AND BENEFITS

Efficient	FARMTUFF's™ range of diameters and large, smooth bore size allows efficient selection of pipe for any given culvert pipe requirement. Smooth rather than corrugated-bore culverts have less chance of jamming up with branches and deliver greater flow at higher speed, lessening the chance of debris build up within the culvert pipe.
Durable	FARMTUFF™ is manufactured from uPVC, a material which is both rust and abrasion resistant to give a long in-ground life. FARMTUFF™ has precision formed sockets, allowing push-fit or solvent cement water tight joints. Such joints lessen the chance of leakage, which can cause scouring, undermining the culvert pipe installation.
Compatible	FARMTUFF™ pipe is compatible with a large range of injection moulded and fabricated PVC fittings and floodgates allowing greater flexibility of use.
Versatile	FARMTUFF™ is available in seven diameters with three length options. Apart from its usual culvert pipe application it can be used for piping dairy shed effluent to settling ponds and other on farm stormwater applications. Cut lengthwise it can be used as an open channel for water drainage around cow sheds and driveways or as economical stock feeding troughs.
Economical	FARMTUFF's™ light-weight smooth bore PVC construction makes it an economical choice to purchase and install compared to traditional heavy culvert pipes.
Reliable	High strength PVC construction gives FARMTUFF™ an excellent load-bearing capability and longitudinal rigidity to lie on grade for reliable long-term service.
Quality	FARMTUFF™ is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

PRODUCT RANGE

Product Code	Nominal OD (mm)	Length available		
		3m	5m	6m
550.110	110		✓	✓
550.160	160		✓	✓
550.200	200	✓	✓	✓
550.250	250	✓	✓	✓
550.315	315	✓	✓	✓
550.400	400	✓	✓	✓
550.500	500	✓	✓	✓

nexusTM CULVERTTM

PE HEAVY DUTY TWIN WALL SMOOTH BORE CULVERT PIPE

Code Explanation	
Product Code	Length (metres)
NEXUS CULVERT 2005	
OD (mm)	



Cost effective culvert



NEXUSTM CULVERT SERIES

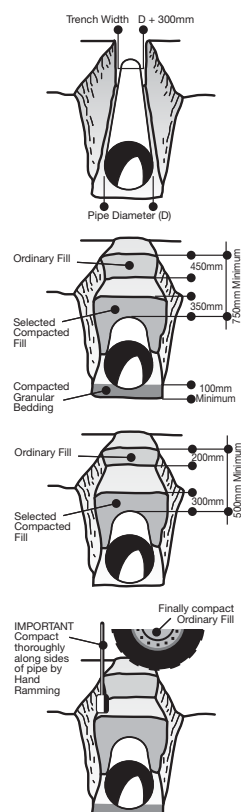
NEXUSTM Culvert is an economic alternative to PVC culvert pipes. The heavy duty polyethylene dual wall construction of NEXUSTM Culvert gives both excellent impact strength and crush resistance, while being extremely light-weight and easy to handle. The smooth internal bore gives good flow performance making NEXUSTM Culvert an ideal choice for culvert pipes around the farm.

FEATURES AND BENEFITS

Efficient	NEXUS TM Culvert smooth bores provides good hydraulic performance for efficient water relocation.
Durable	NEXUS TM Culvert is manufactured from polyethylene, a material which is both rust and abrasion resistant to give a long in-ground life.
Compatible	NEXUS TM Culvert is compatible with a large range of inject moulded and fabricated PVC fittings allowing a greater flexibility of use.
Versatile	NEXUS TM Culvert is available in six diameters allowing a degree of choice to match the performance requirement. NEXUS TM Culvert is supplied with a PVC coupler or pre-formed socket on one end so culverts can be fabricated to the required length on site. NEXUS TM Culvert is flexible allowing culverts to be formed to fit most situations.
Economical	NEXUS TM Culvert's light weight, smooth bore polyethylene construction makes it an economical choice to purchase and install compared to traditional heavy culvert pipes
Reliable	NEXUS TM Culvert's corrugated outer wall gives it excellent load-bearing capability to provide reliable long-term service.
Visible	NEXUS TM Culvert is colour coded for easy identification.
Quality	NEXUS TM Culvert is manufactured in New Zealand by Iplex Pipelines using a Quality Management System accredited to AS/NZS ISO 9001:2008.

PRODUCT RANGE

Product Code	Nominal OD (mm)	Length (m)	Coupling	Colour of pipe and stripe
NEXUS CULVERT 1105	110	5	c/w Push fit coupler	Black with brown stripe 
NEXUS CULVERT 1605	160	5	c/w Push fit coupler	
NEXUS CULVERT 2005	200	5	c/w Push fit coupler	
NEXUS CULVERT 2506	250	6	Socketed	Black with brown stripe 
NEXUS CULVERT 3156	315	6	Socketed	
NEXUS CULVERT 4006	400	6	Socketed	
NEXUS CULVERT 5006	500	6	Socketed	



INSTALLATION INSTRUCTIONS

Important for the correct performance of FARMTUFFTM and NEXUSTM Culvert Pipe

Excavation

When digging a trench, ensure that the width of the trench at the top of the pipe is no greater than necessary to allow the bedding and side fill to be properly placed and compacted. As a rule, 300mm wider than the pipe is normally sufficient. This will minimise loading on the buried pipe.

Culverts Under Roads, Farm Tracks and Raceways

Compacted granular bedding material is preferred in the particle size range 5mm to 20mm. Suitable granular materials include scoria, pumice, river gravel, sandstone or limestone. The minimum depth of the cover for PVC culverts under roads, farm tracks, raceways, etc. should be 750mm.

Culverts Under Areas Not Subject to Traffic or Heavy Stock Movement

Selected excavation fill may be used as bedding. It should be substantially free from rock, tree roots or rubbish. Wet or saturated clay should not, under any circumstances, be used as bedding or surround material. The minimum depth of cover should be 500mm.

Compaction of Bedding

FARMTUFFTM and NEXUSTM Culvert pipes use their flexibility to transfer load to the surrounding bedding. One purpose of the bedding is to ensure longitudinal support to the pipe. Another purpose is to provide lateral support to the pipe and increase its load capacity. Thorough compaction of the fill along the pipe is important to ensure long, trouble free service from your FARMTUFFTM and NEXUSTM Culvert pipe. Fill should be carefully compacted by hand ramming along the sides and around the pipe, and built up to the finished ground surface.

Extra considerations

It's a good idea to project the end of the culvert pipe out from the surface of filled earth face (suggested 300-500mm) to prevent erosion of the fill. In hilly country, fluming is recommended to guard against surface erosion from culvert discharge.

Note: FARMTUFFTM and NEXUSTM Culverts are not approved for local authority stormwater or gravity sewer applications.

Asset Management Systems

A number of services which Iplex Pipelines offer as part of providing a precision package are important asset management tools.

farmtrac™

GLOBAL POSITIONING SYSTEMS

The Global Positioning System (GPS) is a constellation of 24 satellites that orbit the earth at an altitude of 20,000 kilometres, constantly emitting GPS signals. GPS receivers on Earth calculate their positions by making distance measurements to four or more satellites.

This satellite data can accurately plot heights and distances of various points for any given area of land.

The GPS system was originally developed as a navigation and timing system for military applications. At Iplex Pipelines we use the GPS to assist the farmer in mapping installations of land drainage and farm water reticulation schemes.

Typically with the FARMTRAC™ mapping of a NEXUS™ or NOVAFLO™ installation a minimum installation of 2,000 metres at one time is required for this service to be offered as part of the purchase price.

FARMTRAC™ mapping of farm water reticulation schemes after the installation of Iplex Pipelines product comes with a cost attached. This is negotiable at the time of purchase and depends on the size of the installation.

These maps of on-farm water and drainage systems are proving to be excellent asset management recording systems. They have the added benefit of simplifying future system additions or maintenance. This data can also be supplied in a digital format for use with a number of farm management software packages available in New Zealand.

The digital data involved remains the property of Iplex Pipelines and its availability is negotiated on a job by job basis.

Further information on the FARMTRAC™ service can be obtained from selected rural merchants or by phoning your local Iplex Sales Office on freephone 0800 800 262.



Other Services

Design assistance

Iplex Pipelines offer a number of levels of rural water reticulation design assistance. This ranges from our local Territory Manager offering on farm advice about simple gravity reticulation schemes to accurate satellite data collection to produce a full farm water reticulation design, guaranteed by a professional agricultural engineer.



Chamfering tool

Available to chamfer Iplex Pipelines polyethylene pipe prior to using Plasson compression fittings.

Installation assistance



Pipe dispensing trailer

Can be provided subject to availability to assist in uncoiling Iplex Pipelines polyethylene pipe. This is a time saving alternative to uncoiling by hand.

Moleplough

Can be provided subject to availability to install Iplex Pipeline polyethylene pipe. Moleploughing is a quick and efficient method of installation.



Technical backup

Iplex Pipelines sales staff are available to answer your questions on our range of products and their applications.

Other products

Iplex Pipelines manufactures in New Zealand a comprehensive range of PVC and PE, pressure and non pressure pipe systems for the building, civil, export and rural markets. Other more specialised pipeline products are available from Iplex Pipelines Australia or one of our parent companies; Wavin B.V, based in the Netherlands.

This range and access to international product lines enables Iplex Pipelines to offer specialised products to meet the majority of our customers requirements.

For further information on our range of products and added value services please contact one of our selected rural merchants or phone your local Iplex Sales Office on freephone 0800 800 262.

Access to on-line brochures and further contact details can be found by visiting our web site on www.iplex.co.nz



Iplex Pipelines NZ Limited Rural Product Range

GREENLINE

REDLINE™

RURAL BLACK

BLACKLINE

BLACKLINE HP

PLASSON

ALKATHENE™

NOVATUBE

NEXUS™

NOVAFLO™

EFFLUENT PIPE

FARMTUFF™

NEXUS™ CULVERT



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