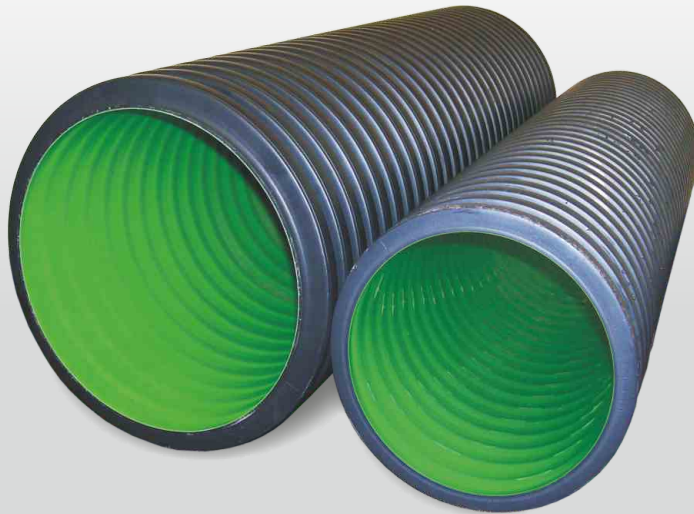


# NAYLOR DRAINAGE

*Made in the UK*  
Excellent Construction Products

## Metro Drain & N-Drain



## DN100-600 Twinwall Drainage Systems

email: [sales@naylor.co.uk](mailto:sales@naylor.co.uk) web: [www.naylor.co.uk](http://www.naylor.co.uk)



Winners -  
Growing Business



The MANUFACTURING  
EXCELLENCE Awards  
Winner - Best SME

# NaylorMetroDrain

Premium Drainage System



A new generation of HDPE high performance twin-wall pipes designed for use with all non-pressure, surface and sub-surface storm water drainage applications.

- **Smooth bore for superior hydraulic flow; corrugated outer wall for additional strength**
- **Available in carrier or perforated configurations**
- **Building Regulations and Highways Agency compliant**
- **British Board of Agrément approved**

## Why Twinwall?

Lightweight product - easier transport, handling & installation

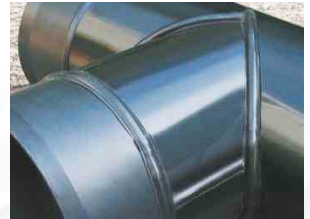
Recognised alternative to concrete and clayware pipes

High strength and durability

Excellent resistance to differential settlement

Minimal jointing compared with traditional materials

Easily cut to required lengths



## Why Naylor MetroDrain?

HDPE not PVC/PP

Enhanced profile - stronger pipe

Optimal environmental credentials

Improved abrasion resistance

Less brittle, less vulnerable to crack propagation

Ideal for cold weather applications



# Certification and applications

The MetroDrain Premium Drainage system has been specified and installed on many civil engineering and construction projects.

## Highway Drainage

Naylor MetroDrain is suitable for the collection and disposal of surface and sub-surface storm water. The product meets the specific requirements of the Highways Agency Manual of Contract Documents for Highway Works and is an approved alternative to the products in Table 5/1 of the Specification for Highway Works.

MetroDrain products can be adopted under the Highways Act (1980).

## Building Drainage

The Naylor MetroDrain Premium Drainage System is suitable for non-adopted surface water drains subject to Building Regulations and Standards throughout the UK.

BBA Certificate No: 09/H145

## Environmental

MetroDrain is ideally suited for use in environmental systems such as:

- Pump and sampling chambers
- Catchpits
- Soakaways
- Stormwater attenuation
- Manholes

## Golf Courses and Sports Fields

MetroDrain is perfect for use in the drainage of sports fields and golf courses. It can also be used in the construction of under pitch heating.

## Landfill

MetroDrain can be successfully used in landfill applications for leachate drainage and methane gas control.

## Agriculture

Naylor also manufactures N-Drain - a lighter duty general purpose Twinwall Drainage System for Non BBA applications such as agricultural projects.

Green Inner Wall: MetroDrain - premium BBA product

Black Inner Wall: N-Drain - lighter duty general purpose product



**MetroDrain**



**N-Drain**

# Polyethylene

- for Improved Environmental and Technical Performance

The Naylor MetroDrain Premium Drainage system\* is manufactured in High Density Polyethylene (HDPE); competitor plastic products are primarily manufactured in either PVC or Polypropylene (PP). HDPE has important technical and environmental advantages:

*\*the same applies to N-Drain - our general purpose product for non-BBA applications*

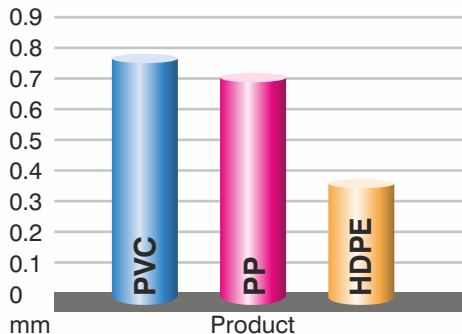
## Materials

	Advantages of HDPE vs PVC	Advantages of HDPE vs PP
<b>Environment</b>	Raw material production does not produce the toxic by-products associated with PVC production	Use of recycled material can be maximised - using recyclate in PP production is problematic as impact resistance decreases dramatically with recycled material
<b>Abrasion Resistance</b> (Fig 1)	HDPE has less than half PVC's susceptibility to abrasion resistance: particularly important where sand and gravel are present in the pipeline	HDPE has around half PP's susceptibility to abrasion resistance
<b>Vulnerability to Splitting Etc</b>	HDPE lacks the brittleness of PVC - this is particularly important in cold weathers and climates	HDPE does not share PP's vulnerability to crack propagation - PP has around half HDPE's resistance and it is for this reason that PP is generally not used in pressure pipelines

(Fig 1)

### Pipe Abrasion after 400,000 Load Cycles

**Source:**  
Technical University of Darmstadt



# Sustainability

## - Use of Recyclate

Naylor is one of the UK's largest users of recycled HDPE:

recycled/reprocessed materials are incorporated into our products where practicable and technically permissible **without compromising quality**:

- inbound materials are subject to stringent laboratory quality controls to ensure that the quality of finished goods is never compromised
- internal mixing and blending procedures are tightly controlled and maintained

*Source materials are:*

- Post consumer - processed from drinks bottles etc, originating in Municipal Recycling Facilities (MRFs): these are subject to stringent cleaning/sorting procedures
- Post industrial - produced as an industrial by-product or waste
- Reprocessed waste - any scrap product produced by our operations is granulated and the resultant material reused

### **Recycled material content:**

	<b>MetroDrain</b>	<b>N-Drain</b>
<b>DN 150, 225 &amp; 300</b>	<b>70%</b>	<b>100%</b>
<b>DN 375, 450 &amp; 600</b>	<b>70%</b>	<b>70%</b>

NB above statistics apply to black drainage pipe: coloured pipe (blue/yellow) for utility applications may have a higher prime material content.

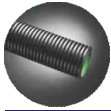
Certificates of raw material content are available for local authority and other client presentation.

- **Naylor's 2010 use of recycled HDPE material in pipe extrusion was just under 6,000 tonnes**
- **The energy saved is the equivalent of eliminating 12,000 tonnes of CO2 or removing over 9,000 cars from the road for a year!!**
- **Highways Magazine shortlisted us for the "Excellence in Recycling" Award**



# MetroDrain

## HDPE Premium Twinwall



**Carrier Drain (solid)**  
Plain Ended



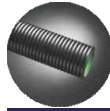
Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
150	33	71302	150	178	6	1.6
225	14	71303	225	267	6	3.0
300	9	71304	300	355	6	5.0



Integrally Socketed

Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
375	5	71355	375	434	6	7.4
450	4	71356	450	520	6	10.75
600	28/Load	71357	600	694	6	18.6

375/450/600 plain ended also available subject to minimum quantities and lead time.  
Codes 71305(375), 71306(450) and 71307(600).



**Filter Drain (perforated)**  
Plain Ended



Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
150	33	71312	150	178	6	1.6
225	14	71313	225	267	6	3.0
300	9	71314	300	355	6	5.0

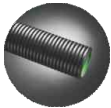


Integrally Socketed



Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
375	5	71365	375	434	6	7.4
450	4	71366	450	520	6	10.75
600	28/Load	71367	600	694	6	18.6

375/450/600 plain ended also available subject to minimum quantities and lead time.  
Codes 71315(375), 71316(450) and 71317(600).

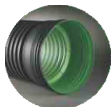


**Filter Drain (half perforated)**  
Plain Ended



Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
150*	33	71322	150	178	6	1.6
225*	14	71323	225	267	6	3.0
300*	9	71324	300	355	6	5.0

\*Subject to minimum quantities and lead time.



Socketed



Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
375*	5	71375	375	434	6	7.4
450*	4	71376	450	520	6	10.75
600*	28/Load	71377	600	694	6	18.6

\*Subject to minimum quantities and lead time.

150mm-300mm Pipe Plain Ended, Couplings and Seals sold separately.

375mm-600mm Pipe Single Socket, Seals sold separately.



**MetroDrain Double socket couplers**

One coupling and two seals are required per joint



Nominal Size	Code	Dimension mm A	Dimension mm B
150	71332	180	4
225	71333	287	4
300	71334	355	4
375	71335	330	20
450	71336	396	18
600	71337	490	22



**MetroDrain Sealing rings**

Two seals are required per joint



Nominal Size	Material	Code
150	EPDM	71342
225	EPDM	71343
300	EPDM	71344
375	EPDM	71345
450	EPDM	71346
600	EPDM	71347



### Bends

Two seals  
are required per joint



Nominal Size	Codes			
	11.25°	22.5°	45°	90°
150	71502	71512	71522	71532
225	71503	71513	71523	71533
300	71504	71514	71524	71534
375	71505	71515	71525	71535
450	71506	71516	71526	71536
600	71507	71517	71527	71537



### MetroDrain Junctions

Three seals  
are required per joint



Nominal Size	45° Code	90° Code
150 x 100	71603	71604
150 x 150	71605	71606
225 x 100	71611	71612
225 x 150	71613	71614
225 x 225	71615	71616
300 x 100	71621	71622
300 x 150	71623	71624
300 x 225	71625	71626
300 x 300	71627	71628
375 x 100	71631	71632
375 x 150	71633	71634
375 x 225	71635	71636
375 x 300	71637	71638
375 x 375	71639	71640
450 x 100	71641	71642
450 x 150	71643	71644
450 x 225	71645	71646
450 x 300	71647	71648
450 x 375	71649	71650
450 x 450	71651	71652
600 x 100	71661	71662
600 x 150	71663	71664
600 x 225	71665	71666
600 x 300	71667	71668
600 x 375	71669	71670
600 x 450	71671	71672
600 x 600	71673	71674

Junctions incorporating other angles and diameters can be manufactured to suit special applications



### Lubricant

Lubricant is to be used on  
all sealed joints



Code	Weight kg
50001	1
50002	2.5
DN Pipe Size	150 225 300 375 450 600
Average No. of Joints per Kg.	25 15 12 8 6 4



### MetroDrain Level Invert Reducers

Double Socket

Nominal Size	Code
225 x 150	71703
300 x 150	71705
300 x 225	71706
375 x 150*	71708
375 x 225*	71709
375 x 300*	71710
450 x 150*	71712
450 x 225*	71713
450 x 300*	71714
450 x 375*	71715
600 x 150*	71717
600 x 225*	71718
600 x 300*	71719
600 x 375*	71720
600 x 450*	71721

Requires sealing rings on all sealed systems.

\*Subject to minimum order quantities and carriage if purchased in single units.



# N-Drain

## General Purpose Twinwall



**N-Drain  
Plain Ended Carrier drain**  
HDPE (solid)

Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
100 PE	85	71107	100	118	6	0.64
150 PE	33	71077	150	178	6	1.34
225 PE	14	71076	225	266	6	2.60
300 PE	9	71075	300	354.5	6	4.00
375 PE	5	71117	375	432	6	6.10
450 PE	4	71118	450	520	6	9.20
600 PE	24/Load	71093	595	692	6	17.30
375 S/S*	5	71068	375	432	6	6.10
450 S/S*	4	71005	450	520	6	9.20
600 S/S*	24/Load	71030	595	692	6	17.30

\*Subject to minimum order quantity and lead time.



**N-Drain  
Plain Ended Filter drain**  
HDPE (perforated)

Nominal Size	Pack Qty	Code	ID mm	OD mm	Length m	Weight kg/m
100 PE	85	71108	100	118	6	0.64
150 PE	33	71078	150	178	6	1.34
225 PE	14	71080	225	266	6	2.60
300 PE	9	71079	300	354.5	6	4.00
375 PE	5	71119	375	432	6	6.10
450 PE	4	71120	450	520	6	9.20
600 PE	24/Load	71121	595	692	6	17.30
375 S/S*	5	71089	375	432	6	6.10
450 S/S*	4	71095	450	520	6	9.20
600 S/S*	24/Load	71029	595	692	6	17.30

\*Subject to minimum order quantity and lead time.



**N-Drain  
Couplings**

Nominal Size	Code
100	71085
150	71084
225	71074
300	71041
375	71098
450	71097
600	71044



**N-Drain  
Bends**

Nominal Size	11¼° Code	22½° Code	45° Code	90° Code
100	71401	71402	71403	71404
150	71223	71224	71227	71228
225	71064	71060	71052	71061
300	71055	71054	71056	71057
375*	71141	71142	71143	71144
450*	71145	71146	71147	71148
600*	71149	71150	71151	71152

\*Subject to minimum order quantities and carriage if purchased in single units.



**N-Drain  
Junctions**

Nominal Size	45° Code	90° Code
100 x 100	71405	71406
150 x 100	71083	71100
150 x 150	71220	71221
225 x 100	71103	71087
225 x 150	71058	71010
225 x 225	71016	71073
300 x 100	71086	71237
300 x 150	71019	71081
300 x 225	71070	71071
300 x 300	71072	71018
375 x 150*	71069	71168
375 x 225*	71190	71169
375 x 300*	71191	71170
375 x 375*	71192	71171
450 x 150*	71193	71172
450 x 225*	71194	71173
450 x 300*	71195	71210
450 x 375*	71196	71175
450 x 450*	71105	71176
600 x 150*	71197	71177
600 x 225*	71198	71178
600 x 300*	71199	71179
600 x 375*	71200	71180
600 x 450*	71201	71181
600 x 600*	71202	71182

\*Subject to minimum order quantities and carriage if purchased in single units.





**N-Drain Level Invert Reducers**  
Double Socket

Nominal Size	Code
150 x 100	71204
225 x 150	71203
300 x 150	71101
300 x 225	71205
375 x 150*	71206
375 x 225*	71207
375 x 300*	71208
450 x 150*	71106
450 x 225*	71209
450 x 300*	71210
450 x 375*	71211
600 x 150*	71212
600 x 225*	71213
600 x 300*	71214
600 x 375*	71215
600 x 450*	71216

\*Subject to minimum order quantities and carriage if purchased in single units.



**Lubricant**

Lubricant is to be used on all sealed joints

Code	Weight kg					
50001	1					
50002	2.5					
DN Pipe Size	150	225	300	375	450	600
Average No. of Joints per Kg.	25	15	12	8	6	4

# Fabrications

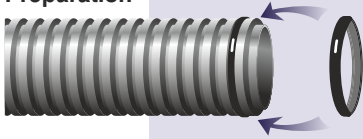
A comprehensive fabrication service is available producing complementary items such as chambers and catch pits.

Please contact sales office for price and availability.



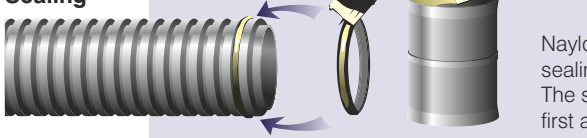
# Joining

## Preparation



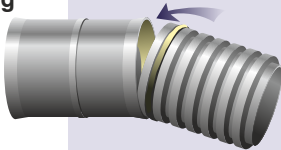
The Naylor MetroDrain Premium Drainage System is easily cut to length using a coarse toothed saw or jigsaw. Cuts should be made between the corrugations on the pipe. Before joining, the pipe ends should be cleared of all sharp edges and dirt.

## Sealing



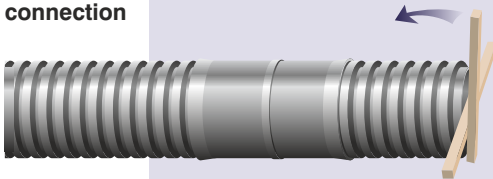
Naylor lubricant should be applied to the sealing ring and pipe end. The sealing ring is then located between the first and second corrugation on the pipe.

## Connector or fitting



Ensure the inside of the connector or fitting is clean and then apply Naylor lubricant. The connector or fitting should then be pushed over the seal and on to the pipe ensuring all surfaces are kept clean during this process. It is often easier to start this process with the pipe at a slight angle.

## The connection



The pipe should be pushed fully onto the connector or fitting until it reaches the stays within the connector or fitting. This can be done by hand or using timber as shown on the larger diameters.

Ensure that the alignment of the pipes is correct and that there is no excessive angular deflection.

# Pressure testing

## Air test

1. Seal the ends of the pipe and connectors or fittings with expanding stoppers.
2. Fill a U-tube manometer with water to the required level without any trapped air bubbles.
3. Connect the manometer to the port of one of the sealed stoppers.
4. Increase the pressure until 100mm of water (0.01 Bar) is achieved.
5. Let the pressure stabilise for 5 minutes and then increase the pressure to 100mm head of water if it drops.
6. Record the pressure after 5 minutes. It should not drop below 75mm head of water without any additional pumping.

## Water test

1. Seal the ends of the pipe and connectors or fittings with expanding stoppers.
2. A standpipe should be fitted at the top end of the pipeline, a maximum of 1.2 metres above the crown at the high end and 6 metres at the low end of the pipeline.
3. Fill the pipe with water and allow it to stabilise for 2 hours. Top up as required.
4. The water loss can be determined by measuring the quantity of water added to the pipeline to maintain the level during a 30 minute test period.
5. The water loss rate should not exceed 1 litre per hour per linear metre pipeline per metre of nominal pipe diameter.

The table below shows the maximum allowable loss of water during a 30 minute test period.

Diameter	Maximum loss litres per minute
100	0.05
150	0.075
225	0.1125
300	0.15
375	0.1875
450	0.225
600	0.3

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- **Band-Seal** - flexible pipe couplings
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- **Gardenware** - The Yorkshire Flowerpot range of frostproof pots



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ENGLAND

TELEPHONE: 01226 790591  
FACSIMILE: 01226 791531  
EMAIL: SALES@NAYLOR.CO.UK  
WEB: WWW.NAYLOR.CO.UK

OFF SEA ROAD,  
METHIL, LEVEN  
FIFE, KY8 3DE  
SCOTLAND

TELEPHONE: 01592 717900  
FACSIMILE: 01592 717906  
EMAIL: SALES@NAYLOR.CO.UK  
WEB: WWW.NAYLOR.CO.UK