

# Demco TerraRange



Terraline<sup>®</sup> & Terradrain  
Pipework systems for the rail industry



# the company

'Terradrain has been used with success on a number of Infraco and Metronet SSL track drainage renewal works and is now accepted as the benchmark pipe replacement material'

Brian McGinnity  
Asset Manager Metronet SSL



Demco has full approval by Link-up, recognised for more than a decade as the essential supplier approval system to the rail industry.



**D**emco has been a major provider of specialist thermoplastic pipework systems for more than 25 years, supplying all major UK and overseas drilling, construction, environmental and landfill companies.

In October 2001, Demco became part of Marton Geotechnical Services Ltd, a company with an annual turnover in excess of £8 million and a workforce of more than 50 people based at Bury St Edmunds and Coventry.

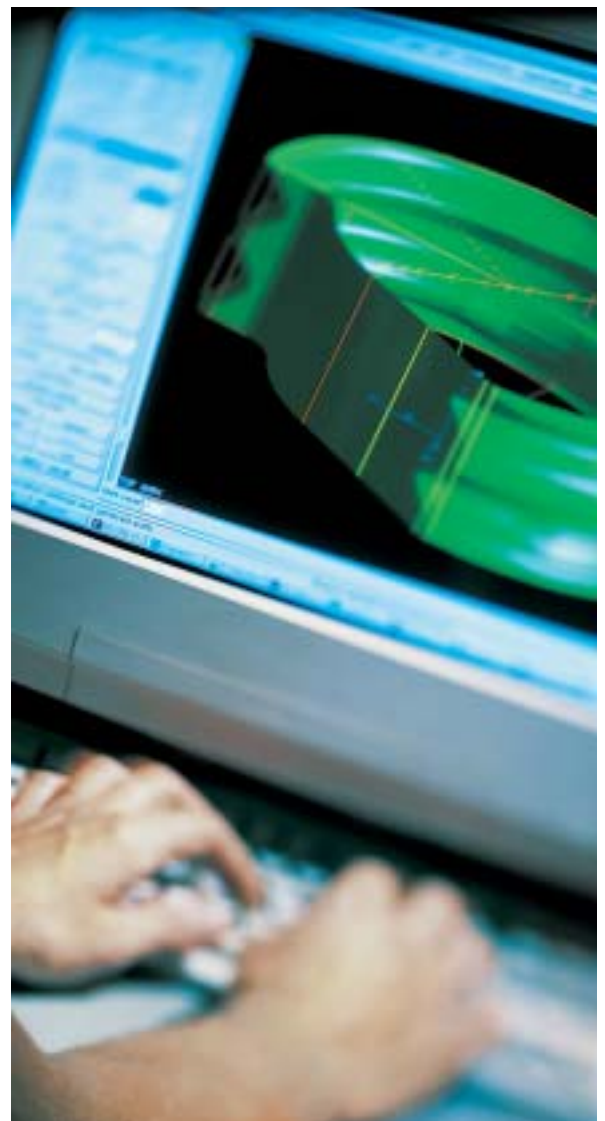
Demco's Coventry base specialises in the machining, slotting and perforating of thermoplastic pipes from 19 to 710mm which are used throughout the civil, geotechnical and environmental industries.

## LOGISTICS

Due to the time constraints often necessary for railway projects, Demco offers delivery to suit all requirements, including a **timed delivery service available 24 hours a day seven days a week.**

## TECHNICAL SUPPORT

From concept to installation, our engineers support and assist our customers with product selection, design specification, costing and installation requirements. We specialise in high load applications and 'No-dig' pipe solutions. During the installation phase, our logistics department will liaise on a regular basis with your site staff to ensure that delivery of goods matches the site programme. Computer generated static loading calculations using EasyPipe program in accordance with BS4500 Part 2/ATV 127 can be supplied to verify the suitability of all products. Calculations are carried out in accordance with the European Loading Standard UIC (Committee of the International Union of Railways) to ensure products meet and exceed the anticipated loading on railways within the UK.



# the products

The TerraRange of products includes Terradrain, Terraline®, and Terrafilter®. Made from polyethylene (PE80), these products provide solutions of the highest quality and performance which are now being used widely within the railway industry – largely due to the ease, speed and method of installation plus long-term performance. Terradrain and Terraline® are used particularly where time constraints and variable ground conditions could compromise the integrity of other less durable products.



## TERRADRAIN

is a perforated heavy duty polyethylene pipe especially developed for railway track drainage to meet the high dynamic and static loads and offers high chemical resistance.

## TERRALINE®

is a heavy duty polyethylene pipe for lining and re-lining of predrilled holes or sewers. Available with either flush push fit or threaded joints, it is smooth both internally and externally to minimise friction for installation and liquid flow.



## TERRAFILTER®

is a patented multi-component non-metallic filter screen system, which can be produced to provide filtration down to an equivalent slot width of 100 microns and which can be used in conjunction with Terradrain for specialist drainage applications. Terrafilter® can be used for horizontal or inclined drainage pipes to reduce pore water pressures and thus improve the stability of railway embankments. Installation can be easily done by horizontal directional drilling (HDD) or traditional excavation techniques.



## MATERIALS

The materials involved in the manufacture of TerraRange products are manufactured in accordance with DIN 8074/5 and are only sourced from ISO 9000 accredited manufacturers.

Only virgin PE80 material is used to ensure the highest quality in terms of the chemical resistance and physical properties essential for the high tolerance machining and 'O' ring seal requirements.

Operating its own internal Quality Assurance System, together with MRP manufacturing procedures, Demco ensures that all products are manufactured to the highest quality with full product and material traceability.

Quality Control and Conformance Certificates can be provided with each batch of products, if required.

As a major purchaser of pipe products, our procurement team has established world-wide long-term sourcing of quality materials which is of benefit to our clients in terms of cost savings, security of supply and technical support.

We also constantly investigate and identify products and solutions used successfully in other countries in order to bring these to our UK customer base, where appropriate to meet a specific project need.



# terraline®

Lightweight,  
simple, quick and  
cost effective to  
install

Provides type II  
structural lining

Can be installed  
in compression  
or tension

Well established  
renovation  
technique

Flush push fit or  
threaded joints  
with 'O' ring

Joint seal leak  
tested up to 1 bar

Safe jacking  
loads up to  
105 tonnes

Wide range of  
diameters and  
lengths

Low coefficient  
of friction

Smooth internal  
bore suitable for  
CCTV inspection  
and jetting

Weld compatible  
with all PE  
fittings

Excellent  
chemical  
resistance



**D**emco Terraline® can be installed using slip lining, pipe bursting or horizontal thrust boring techniques and can easily be assembled in confined spaces such as manholes or small excavations.

Demco Terraline® is manufactured from PE80, an extremely tough, high strength material used world-wide for sewer, sewer relining, chemical and other industrial applications.

Demco Terraline® has 'flush joints' which provide a smooth internal and external

surface for easy installation and low friction coefficient.

The joint seal is made by an 'O' ring joint which is suitable for gravity sewers as specified by WRc.

Demco Terraline® provides a 'No-dig' solution for the installation of cable ducts, carrier drains and sewer relining in highly congested areas and where there is restricted access, such as embankments, railway and road crossings.

**MATERIAL:** Polyethylene (PE80)

**JOINT TYPES:**

**FTO** – Flush thread, trapezoidal form, 2 or 4 TPI with 'O' ring seal

**FPO** – Flush push fit complete with 'O' ring seal

**PL** – Plain ended with push fit couplings and double 'O' ring seal

**JOINT PRESSURE:** FTO/FPO tested to +1 bar against leakage

# terradrain



**D**emco Terradrain is a heavy duty polyethylene drainage pipe used where heavy loads are to be expected and is used typically for draining rail tracks, airport aprons, runways and roads.

Demco Terradrain has been adopted on the London Underground and is now being used extensively by Network Rail as the long-term solution for track drainage.

Demco Terradrain is manufactured from PE80, an extremely tough, high strength material well proven to resist static and shock loading. It can be installed using traditional trenching or slip lining methods.

Demco Terradrain standard perforation, which appears over the top half of the pipe, has a minimum open area of 1%, thus providing much higher drainage performance than any other similar product on the market. Other perforations and open areas are available on request.

## KEY FEATURES

**Lightweight, simple, quick and cost effective to install**

**As specified by London Underground for covered ways and open track**

**Minimum open area 1%**

**Flush push fit, threaded or coupling joints**

**Wide range of perforations available including 1/2, 2/3 or fully perforated**

**Low coefficient of friction**

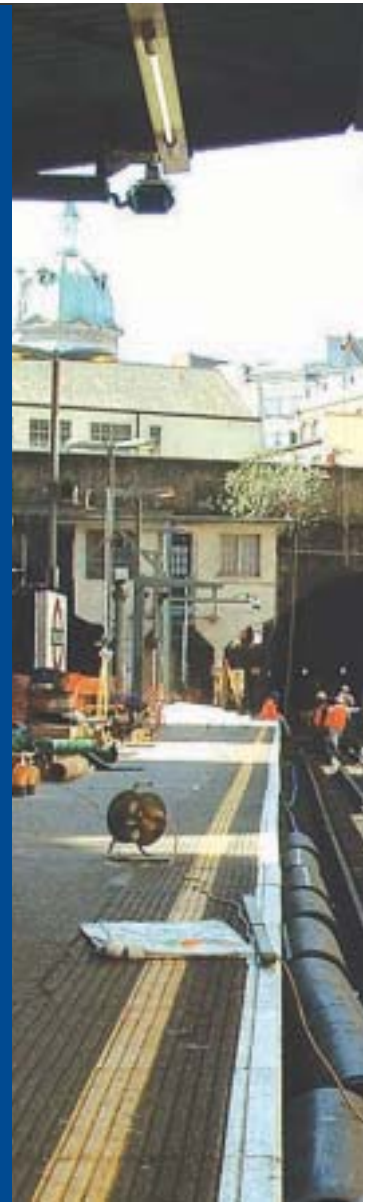
**Smooth internal bore suitable for CCTV inspection and jetting**

**Weld compatible with all PE fittings**

**Wide range of lengths and diameters**

**Excellent chemical resistance**

**High visibility markings to aid installation under poor light conditions**



**MATERIAL:** Polyethylene (PE80)

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# pipelengths

## overall & effective

threaded ends

OVERALL LENGTH mm	500	750	1000	1500	2000	3000	6000
Outside Diameter mm	EFFECTIVE LENGTH mm						
63	450	700	950	1450	1950	2950	5950
90-125	425	675	925	1425	1925	2925	5925
160-225	415	665	915	1415	1915	2915	5915
250-355	400	650	900	1400	1900	2900	5900
400-630	400	650	900	1400	1900	2900	-
710	400	650	900	1400	1900	-	-



flush push fit ends

OVERALL LENGTH mm	500	750	1000	1500	2000	3000	6000
Outside Diameter mm	EFFECTIVE LENGTH mm						
110-180	450	700	950	1450	1950	2950	5950
200-355	440	690	940	1425	1940	2940	5940
400-450	430	680	930	1415	1930	2930	-
500	425	675	925	1400	1925	2925	-
560-630	415	665	915	1400	1915	2915	-
710	415	665	915	1400	1915	-	-



# specifications

pipe dimensions & weights to DIN 8074/5

Outside Diameter mm	TERRALINE®/TERRADRAIN 17					TERRALINE®/TERRADRAIN 11				
	Wall thickness	Inside diameter	Weight	Safe end loading tonnes	Max tension load tonnes	Wall thickness	Inside diameter	Weight	Safe end loading tonnes	Max tension load tonnes
	mm	mm	Kg/m	FPO	FTO	mm	mm	Kg/m	FPO	FTO
63	NA	NA	-	-	-	5.8	51.4	1.05	-	-
90	NA	NA	-	-	-	8.2	73.6	2.12	-	-
110	6.3	97.4	2.08	-	0.70	10.0	90.0	3.14	3.20	1.05
125	7.1	110.8	2.66	-	0.90	11.4	102.2	4.08	4.10	1.40
160	9.1	141.8	4.35	-	1.50	14.6	130.8	6.67	6.80	2.33
180	10.2	159.6	5.48	-	1.90	16.4	147.2	8.42	8.60	2.90
200	11.4	177.2	6.79	4.70	2.35	18.2	163.6	10.4	10.60	3.60
225	12.8	199.4	8.55	5.90	2.95	20.5	184.0	13.1	13.40	4.60
250	14.2	221.6	10.6	7.30	3.70	22.8	204.4	16.2	16.60	5.65
280	15.9	248.2	13.2	9.20	4.60	25.5	229.0	20.3	20.80	7.10
315	17.9	279.2	16.7	11.60	4.75	28.7	257.6	25.7	26.40	7.40
355	20.1	314.8	21.2	14.80	4.90	32.3	290.4	32.6	33.50	7.60
400	22.7	354.6	26.9	18.80	6.20	36.4	327.2	41.4	42.50	9.60
450	25.5	399.0	34.0	23.80	7.80	40.9	368.2	52.4	53.80	12.25
500	28.3	443.4	41.9	29.40	9.50	45.4	409.2	64.6	66.50	15.00
560	31.7	496.6	52.5	36.80	12.00	50.8	458.4	81.1	83.40	18.70
630	35.7	558.8	66.5	46.20	15.00	57.2	515.6	102.5	105.60	23.50

## physical properties

PROPERTY	STANDARD	UNIT	VALUE
DENSITY	DIN 53479	g/cm <sup>3</sup>	0.953
MFI 190/5	DIN 53735	g/10min	0.7-1.0
TENSILE STRESS AT YIELD	DIN 53455	N/mm <sup>2</sup>	21
ELONGATION AT YIELD	DIN 53455	%	10
TENSILE STRESS AT BREAK	DIN 53495	N/mm <sup>2</sup>	30-33
ELONGATION AT BREAK	DIN 53455	%	>600
MODULUS OF ELASTICITY (SHORT TERM)	DIN 53457	N/mm <sup>2</sup>	800
MODULUS OF ELASTICITY (LONG TERM)	DIN 53457	N/mm <sup>2</sup>	150
TEMPERATURE RANGE	-	°C	-20 to +40

FTO – Flush thread with 'O' ring  
FPO – Flush push fit with 'O' ring



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