clover

GRP PIPE & FITTINGS

SUPERLIT®

AUG 2014

CONTENTS

REFERENCE DOCUMENTS:

- Superlit GRP Product Catalogue
- Superlit GRP Technical Design Manual
- Superlit GRP Installation Manual
- Clover GRP Jacking Pipe Product Guide

For further information relating to GRP Pipe & Fittings or any other Clover product contact your local Clover branch for assistance.

clover

clover

water, sewer, electrical, gas.

AUSTRALIAN OWNED AND OPERATED

Clover Pipelines is Australia's fastest growing specialist supplier and distributor of innovative pipeline products with years of industry experience for the Australian water, wastewater, electrical and gas infrastructure markets.

KNOWLEDGE YOU CAN TRUST

Specialising in specifying and supplying the most technically advanced pipe and fitting systems for the Australian market, Clover provides complete pipe systems including Australian manufactured products and exclusive international product lines. This ensures our customers get the best solution, every time. To stay ahead of the game, we make sure we don't rest on the past, but focus on our customer's next project and challenge.

A DEEP POOL OF TALENT

People at Clover are a unique group of professionals who actually care. We are to the point and offer no compromises when it comes to quality and the end to end delivery of our products and advice. Clover has an established force employing dedicated professionals in areas including sales, distribution, customer service, manufacturing, technical support, research and development.

FRESH THINKING With innovation at the core of our business, we are always investing in ways to deliver best practice from our technically advanced thermoplastics pipe manufacturing system to our growing distribution network. Our strategic approach of working with industry leaders, research and development through sound investment and innovation, coupled by meticulous quality control and safety has established Clover as a global leader in the thermoplastics industry.

ZERO HARM

As part of our commitment to achieving the principles of health and safety in our workplace, we recognise our moral and legal responsibility to provide a safe and healthy work environment for employees, contractors, customers and visitors. This commitment also extends to ensuring that our operations do not place the local community or environment at risk of injury, illness or damage.

LOOKING AFTER OUR FUTURE

As part of our commitment to achieving the principles of responsible environmental management, sustainability and protection of the natural environment, we recognise our moral and legal responsibility to ensure that our activities, products and services are designed to protect and enhance the environment in the communities in which we operate. Our obligations are to ensure that our operations do not place the natural environment or the local community at risk of harm and to leave the world a better place for our children and their children.

STRIVING TO EXCEED

Our continuous improvement programs examine new materials, process technology, manufacturing equipment and new product developments ensure our leading innovative edge within the pipeline industry. What does this mean? Better products for you and the industry that meet the strictest approval requirements and exceed industry standards. Clover is a quality endorsed company, accredited to ISO9001. With an ongoing commitment to processes and products that comply with all relevant statutory and regulatory requirements.

EVERYWHERE YOU NEED US TO BE

With locations across Australia, Clover has the resources and commitment to deliver infrastructure projects right across Australia, on time and to budget.

Quality Management · ISO 9001

Global-Mark.com.au®

PRODUCT APPLICATIONS

PIPE LAYING METHODS

Clover Superlit GRP Pipes are designed to be installed using all the various pipe laying methods available today:

- Open Cut Trenches
- Above Ground
- Sliplining/Relining
- Pipe Jacking/Microtunnelling
  (Refer to Clover GRP Pipe Jacking Product Guide for Trenchless applications)

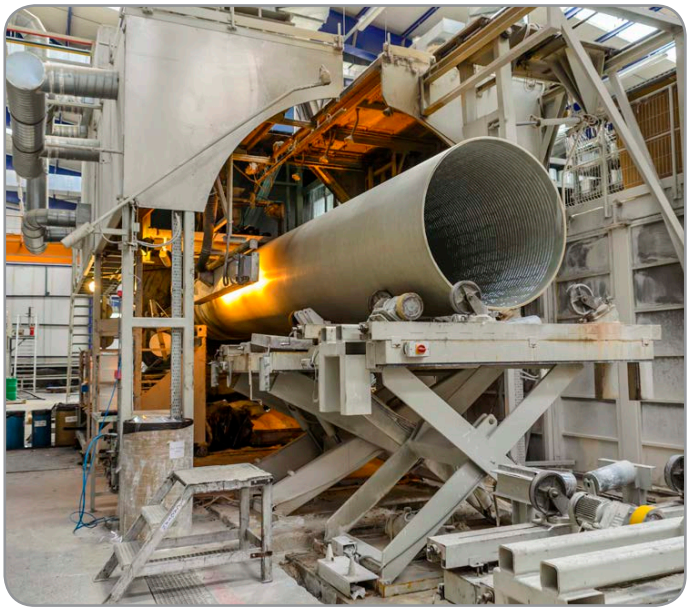
APPLICATIONS

The pipe laying methods above may be used to install Clover Superlit GRP Pipes in the following pressure, non-pressure and trenchless applications:

- Potable Water (Water Supply)
- Non Potable Water (Recycled Water, Bore Water, Irrigation etc)
- Sewage (Gravity Sewers, Sewer Rising Mains)
- Cooling Systems (Power Stations etc)
- Hydro Power
- Industrial (Transportation of petroleum/chemical materials)
- Undersea and Seawater applications
- Retention Systems (Sewer/Stormwater overflow storage)

FEATURES AND BENEFITS

- **50 Years of proven manufacturing history**
- **Versatile manufacturing processes:**
  - Custom sizes, classes & pressure ratings
  - Lengths can be varied to suit application
  - Fittings can be fabricated to suit
  - Spigot / Socket or Flanged connections
  - Use of both Continuous Filament Winding and Centrifugally Cast manufacturing
- **Light Weight materials:**
  - Lower transport costs
  - Significant installation & handling savings
- **High Stiffness capability:**
  - SN20000 available in Continuous Filament Wound pipe
- **Australian Standard and ISO sizing:**
  - AS/NZS2280 Compatible DN 300 – DN 750
  - ISO Range DN 300 – DN 3400
  - Refer to Pipe Dimensions section for details
- **Corrosion resistant materials:**
  - Long service life with less maintenance costs
  - Suitable for high Ph applications
  - No need for protective coating or liner
  - Hydraulic characteristics remain essentially constant over time
- **Non Conductive materials:**
  - Not affected by induced currents or earth leakage
  - No Cathodic protection required
- **Smooth Internal Bore:**
  - Low friction loss gives excellent hydraulic performance
  - Less Pumping energy required means lower running costs
  - Less surface build up hence lower maintenance costs
- **Integrated Coupling:**
  - Integral EPDM seal prevents leakage
  - Seal won't dislodge or roll during installation
  - Prevents root intrusion



TECHNICAL DATA

Clover SUPERLIT GRP PIPES: (Not applicable to Jacking Pipe)

- GRP pipes and fittings comply with the requirements of the following standards:
  AS 3571.1 GRP Drainage & Sewer Systems
  AS 3571.2 GRP Water Supply Systems
  ISO 10467 GRP Drainage & Sewer Systems
  ISO 10639 GRP Water Supply Systems
- GRP Pipes are manufactured using either the Continuous Filament Winding process or the Centrifugal Casting process in accordance with the relevant ISO standards.
- Pipe Diameters: AS3571 Australian dimensions compatible with AS/NZS2280 or ISO International dimensions
- Size Range: DN 300 to DN 3400
- Pressure Rating: PN 1 to PN 32
- Stiffness Class: SN 1,250 to SN 20,000
- Lengths: Up to 11.8m
- Pipe Ends: Spigot / Socket
  One Coupling fitted to each pipe length
- Fittings: Fabricated to match Pipe strength/class

Wide range of shapes available
Spigot, Socket or Flanged end options

Clover SUPERLIT GRP JACKING PIPE:

- Refer to Clover GRP Jacking Pipe product guide for product technical data.

Technical Properties of SUPERLİT GRP Pipe and Fitting Parts

Performance Tests

Blasting test

Rigidity test

QUALITY CONTROL

SUPERLİT GRP Pipe production technology includes a detailed quality control program. The compliance of the production and testing of the pipes and fittings with the international and Turkish standards is provided by this program.

Quality Control tests
Raw material is tested before the production. Tests include the compliance of the raw materials and the products produced (pipe, sleeve, fitting) with the standards.
These tests guarantee the compliance of the pipe materials used with the specified tests.

Certification works within the direction of ISO 9000 standards are provided by the total quality concept that is applied with the joint participation of the employees at **SUPERLIT.**

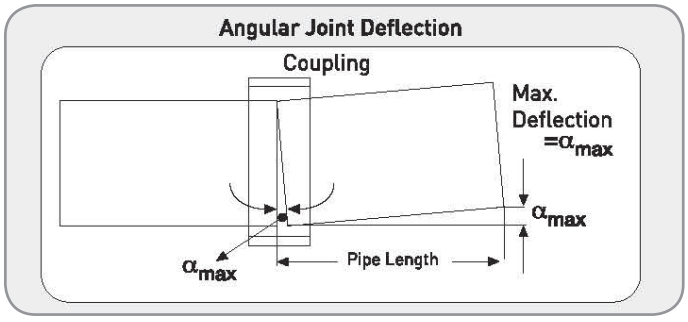
Measured Qualities	Limits of change
Pipe wall thickness	at single spot (-10% of nominal thickness)
Visual inspection	standard
Pipe length	± 100 mm
Pipe diameter	± 1 mm
Pipe hardness	± 5 Barcol
Pipe stiffness	ASTM D-2412 Standard
Longitudinal tensile strength	ASTM Standard D-638 Standard
Peripheral tensile strength	ASTM Standard D-2290 Standard
Laminate bonding	ASTM Standard D-2584 Standard

Classification of the pipes according to their operation pressures is according to the criterias included in AWWA C 950 Standard and characteristics included in M 45.
SUPERLİT GRP Pipes absorb 40% of the additional pressure arising of the water hammer.

DESIGN DATA

(Refer to Superlit GRP Technical Design Manual for further details)

- **Flow Roughness Coefficient:**
  Hazen-William C = 150
  Manning n = 0.009
  Colebrook-White k = 0.029 mm
- **Poisson Ratio:** Typically 0.22 to 0.29
- **Thermal Expansion**
  Coefficient: 24 to 30 x 10-6 mm/mm/oC
- **Temperature Derating:**
  Below 35°C No Pressure Derating required
  36° to 50° C Derate Pressure 30% (36°) to 50% (50°)
  51° to 70° C Contact Clover for Technical Advice regarding resin use and revised pressure rating



MANUFACTURING PROCESS

GENERAL

Clover Superlit GRP Pipes are manufactured using a combination of three basic raw materials – sand, glass fibres & thermosetting resins.

The manner in which these materials are applied vary throughout the process to produce a pipe with the required pressure rating, structural strength, stiffness rating and chemical & abrasion resistance.

Clover Superlit GRP Pipes can be produced using either the Continuous Filament Winding (CFW) process or the Centrifugal Casting (CC) process. These processes whilst different in the application of raw materials, both produce pipe with typical layers that have a specific design function.

Once the materials have been applied, the laminate is polymerised and cured to form a homogeneous wall over the full length of the pipe.

Typically, the CFW process leads to a more material efficient pressure pipe for higher pressure applications such as water mains and sewer rising mains. The CC process on the other hand leads to a pipe that is able to deal with far higher axial compressive loadings and is therefore suited to jacking pipe applications. Both methods produce a GRP pipe that is superior in strength, corrosion resistance and abrasion resistance.

MATERIALS

The GRP material is thermally stable (thermosetting material) whose properties are unaffected by temperature changes once cured. The basic raw materials comply with the requirements of ISO standards and are tested prior to use.

Glass Fibre:

Direct Roving Fibres; Choppable Fibres and Reinforcing Fibre Filaments.

Fibres vary in thickness, weight and width and when combined with resin provide significant hoop strength and axial reinforcement.

Resins:

The pipe's chemical stability depends on the type of polyester resin used in the pipe structure.

The thermosetting polyester resin used in Clover Superlit GRP water and waste water pipe is Orthophthalic polyester. Isophthalic polyester and Vinyl Ester resins are also for special environmental conditions.

Sand:

Silica Sand is used to provide rigidity in the pipe and is applied to the core of the wall.

LAYER CONTROL

The raw materials applied during the process vary to produce a series of layers that give protection, pressure resistance, structural integrity and stiffness.

Internal & External Protective Layer:

The inner and outer layers contain a high concentration of polyester resin that provides a protective layer that has outstanding resistance to chemicals, corrosion and abrasion.

Barrier Layer:

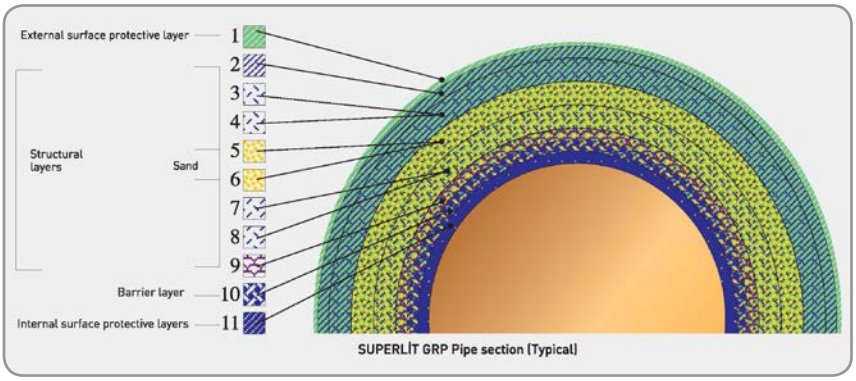
The Barrier Layer is reinforced polyester resin layer that prevents penetration of materials into the structural layer of the pipe.

Structural Layers:

The Structural Layers provide hoop strength, axial reinforcement and structural integrity. This consists of Glass Fibres of different types and sizes together with thermosetting resins.

Core Layer:

The centre core layer provides strength, reinforcement and stiffness to the product. This layer contains chopped glass fibres, sand and resins.



SUPERLİT GRP Pipe section (Typical)

MANUFACTURING PROCESS

CONTINUOUS FILAMENT WINDING PROCESS (CFW)

PRODUCTION PROCESS

Clover Superlit GRP CFW Pipes are manufactured by applying raw materials to the outside of a steel mandrel that rotates and advances under the control of a Programmable Logic Control system and Computer system.

This system precisely determines; measures and applies exact quantities of each of the raw materials throughout the process.

All process parameters, temperature and wall thickness are constantly monitored during the process to ensure quality control of the manufactured pipe.

STRUCTURAL STRENGTH

The key feature of this process is the high strength that can be achieved in the Structural Layers.

This process allows the use of continuous reinforcing fibre filaments that are wound around the circumference to produce a pipe capable of withstanding high stresses.

In addition, continuous glass fibre rovings and chopped glass fibres are added to generate high circumferential and axial strength.

RESIN CONTROL

The Superlit CFW process has a dual resin delivery system capable of applying 2 different types of resin during the process.

This allows the flexibility to apply a special resin to the inner layer of the pipe for highly corrosive applications while applying normal resins to the core and outer layers.

CURING

Once the materials have been applied, the laminate is polymerised and cured by means of applying heat through the mandrel and the external surface.product technical data.

CENTRIFUGAL CASTING PROCESS (CC)

PRODUCTION PROCESS

Clover Superlit GRP CC Pipes are manufactured using a fully automatic computer controlled system that feeds raw materials into a rotating mould starting from the external surface of the pipe until the required wall thickness is obtained.

This system precisely determines; measures and applies exact quantities of each of the raw materials throughout the process. Process parameters, temperature and thickness are constantly monitored during the process to ensure quality control of the manufactured pipe.

STRUCTURAL STRENGTH

Glass fibres in this process are chopped and do not contain continuous filaments as for CFW process. In this process the glass fibre distribution is controlled by using variable cutters and mould speeds that when applied meet the designed axial and circumferential resistance requirements.

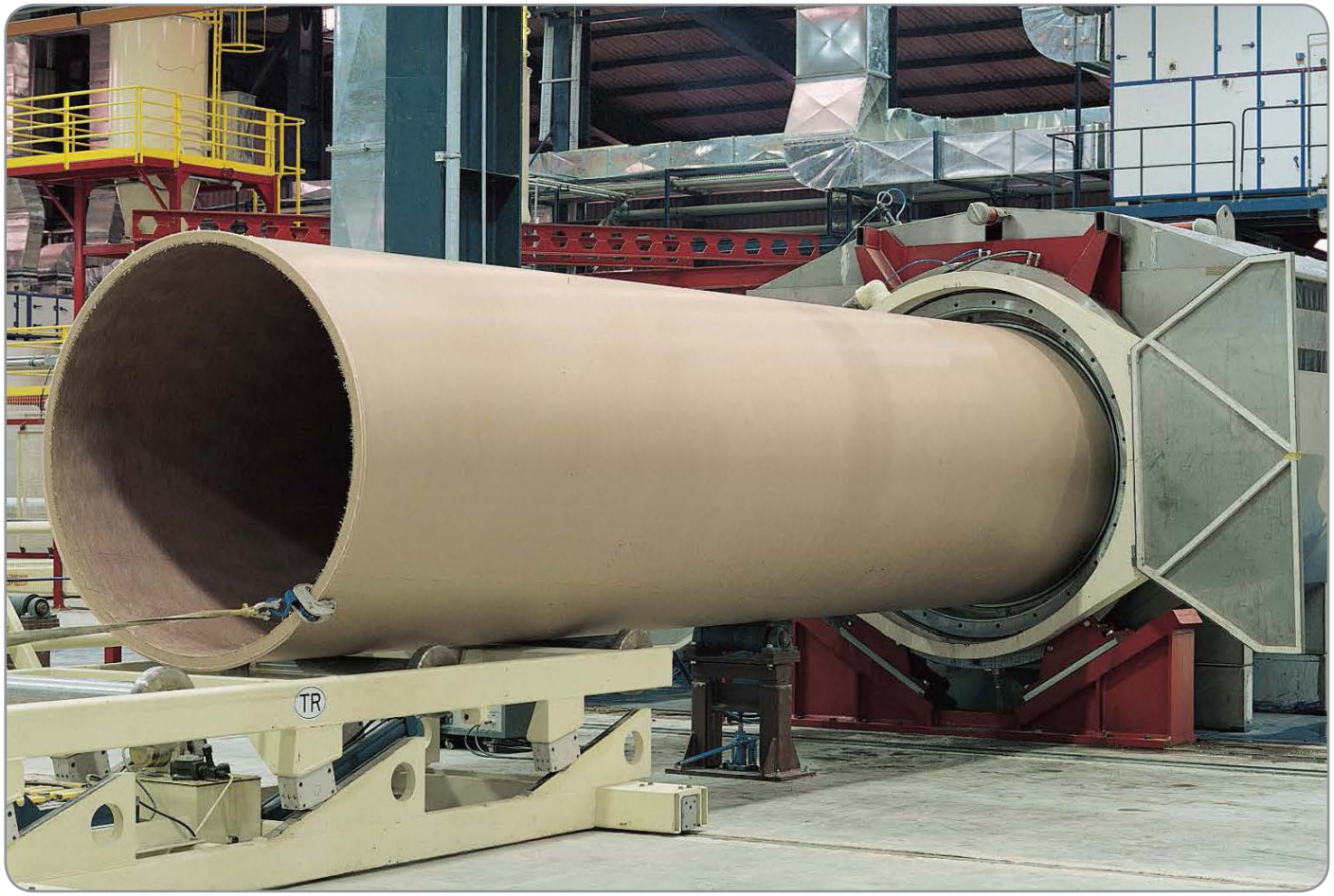
RESIN CONTROL

The GRP Resin is specially formulated to ensure the GRP materials do not polymerise during the filling process.

CURING

Once the materials have been applied, the rotating speed of the mould is increased which in turn raises the internal compression forces.

This process continues until complete compaction is achieved and all air is expelled and will continue until the material is fully cured.



PIPE DIMENSIONS

PIPE DIAMETERS

Clover Superlit GRP Pipes can be manufactured with external diameters that conform to the requirements of the Australian standards as well as International standards.

Given the versatile manufacturing processes, other intermediate pipe diameters can be manufactured to meet specific project needs.

The internal diameter may vary depending on the manufacturing process, design pressure and stiffness class required.

Our Engineers are available to assist in determining the most efficient and cost effective pipeline design to meet your project needs.

AS 3571.1 & AS 3571.2		
Nom Size DN	Outside Pipe Diameter	Available
(mm)	(mm)	CFW
300	345	✓
375	426	✓
450	507	✓
525	587	✓
600	667	✓
675	747	✓
750	826	✓
900	924	✓
1000	1026	✓
1200	1229	✓
1400	1434	✓
1600	1638	✓
1800	1842	✓
2000	2046	✓
2200	2250	✓
2400	2453	✓
3000	3066	✓

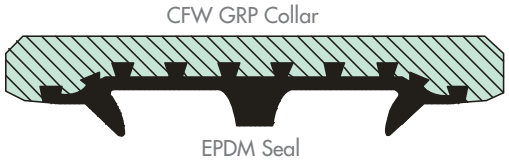
ISO 10467 & ISO 10639			
Nom Size DN	Outside Pipe Diameter	Available	
(mm)	(mm)	CFW	CC
300	324.3	✓	
350	376.1	✓	
400	427.1	✓	✓
450	475.3	✓	✓
500	530.1	✓	✓
600	633.1	✓	✓
700	718.3	✓	✓
800	819.9	✓	✓
900	924.1	✓	✓
1000	1026.1	✓	✓
1100	1125.0	✓	✓
1200	1228.8	✓	✓
1300	1331.5	✓	✓
1400	1433.6	✓	✓
1500	1535.6	✓	
1600	1637.6	✓	
1700	1739.4	✓	
1800	1841.7	✓	
1900	1943.4	✓	
2000	2045.8	✓	
2100	2147.9	✓	
2200	2250.0	✓	
2300	2351.4	✓	
2400	2453.0	✓	
2500	2555.0	✓	
2600	2657.0	✓	
2700	2758.0	✓	
2800	2860.0	✓	
2900	2962.0	✓	
3000	3065.0	✓	
3100	3167.0	✓	
3200	3269.0	✓	
3300	3371.0	✓	
3400	3473.0	✓	

GRP COUPLINGS

This unique design provides a complete EPDM lined internal seal that is fully bonded to the outer GRP collar produced using the Continuous Filament Winding process.

This process guarantees safer joining as the seal will not dislodge during installation and the seal will remain leak proof.

Refer table below for coupling dimensions.



COUPLING SECTION

GRP COUPLING DIMENSIONS													
PN RATING:				PN 1 – 10		PN 16		PN 20		PN 25		PN 32	
DN	STD	PIPE OD	LENGTH mm	OD mm	Mass Kg	OD mm	Mass Kg	OD mm	Mass Kg	OD mm	Mass Kg	OD mm	Mass Kg
300	ISO	324	220	356	5.5	356	5.5	357	5.8	359	6.2	361	6.5
300	AS	345	220	377	5.9	377	5.9	378	6.2	380	6.6	382	6.9
350	ISO	376	220	408	6.4	408	6.4	409	6.8	411	7.2	413	7.6
375	AS	426	242	460	8.4	462	8.9	464	9.4	465	9.9	467	10.3
400	ISO	427	242	460	8.4	462	8.9	464	9.4	465	9.9	467	10.3
450	ISO	475	242	509	9.4	511	9.9	512	10.5	514	11.0	515	11.5
450	AS	507	242	541	10.0	543	10.9	545	11.5	547	12.4	549	13.2
500	ISO	530	242	564	10.4	567	11.6	569	12.2	572	13.4	575	14.5
525	AS	587	242	621	11.6	624	12.8	627	13.9	631	15.6	635	17.2
600	ISO	633	242	668	12.5	671	13.8	674	15.2	679	17.3	684	19.4
600	AS	667	242	702	14.4	705	15.8	708	17.3	714	19.9	719	22.4
675	AS	747	260	786	18.2	789	20.1	792	21.9	798	25.2	804	28.8
700	ISO	718	260	757	17.5	760	19.1	763	20.8	769	24.0	775	27.2
750	AS	826	260	865	20.2	870	23.0	873	24.9	879	28.6	886	33.2
800	ISO	820	260	859	20.0	864	22.8	867	24.6	873	28.3	880	32.9
900	AS/ISO	924	260	963	23.5	967	26.3	971	29.4	977	33.5	985	38.7
1000	AS/ISO	1026	260	1067	27.3	1071	30.4	1075	33.8	1081	38.4	1089	44.1
1200	AS/ISO	1229	260	1271	32.6	1276	37.7	1282	43.2	1290	50.0	1297	56.9
1400	AS/ISO	1434	275	1479	47.8	1483	53.2	1490	60.2	1498	70.0	1507	79.7
1600	AS/ISO	1638	275	1686	58.3	1691	64.5	1697	72.6	1705	83.1	1715	94.8
1800	AS/ISO	1842	275	1893	67.7	1898	76.0	1907	87.8	1915	99.6	1925	114.9
2000	AS/ISO	2046	275	2098	75.1	2106	89.0	2114	102.1	2122	115.2	2133	132.2
2400	AS/ISO	2453	275	2508	97.6	2518	107.0	2526	132.7	2534	148.4	2545	168.8

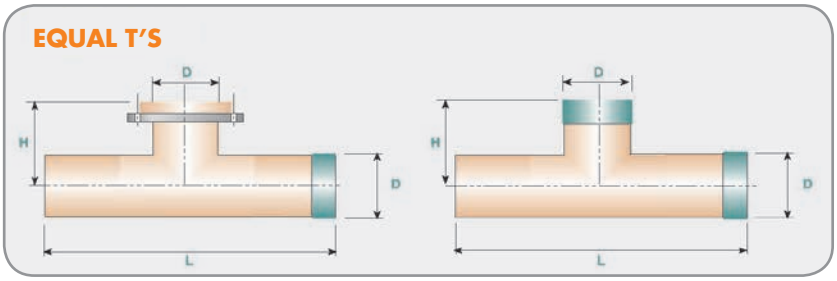
FITTINGS

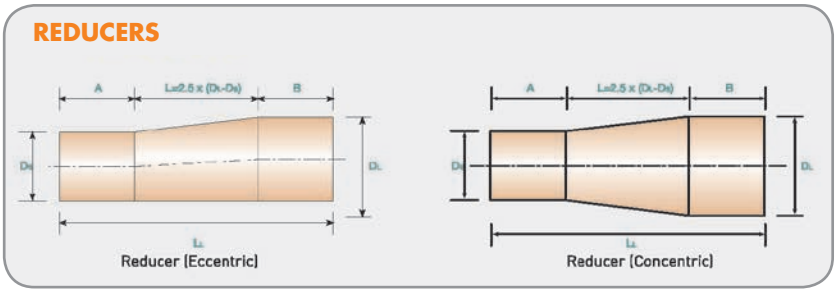
GRP FITTINGS

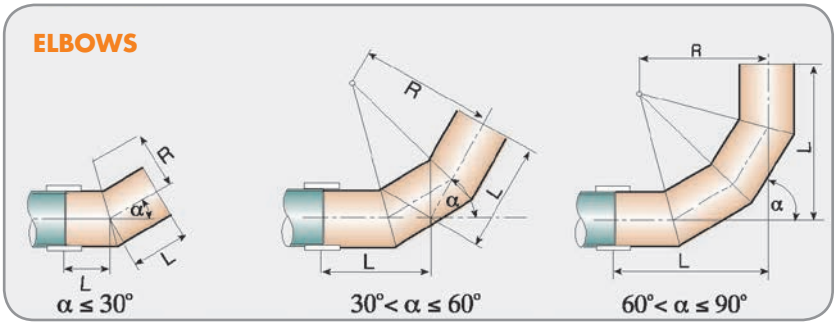
Superlit GRP Fittings can be manufactured in a wide range of standards shapes and sizes that can be modified to include flanges

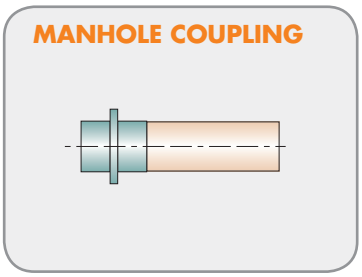
and offtakes etc to suit a special project need. The Fittings are manufactured to the same working pressure and stiffness of the pipeline.

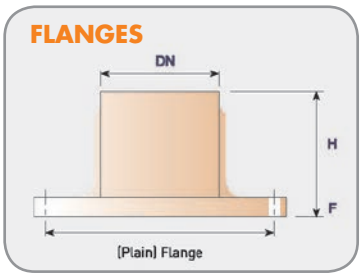
For detailed information on fitting dimensions refer to the Superlit GRP Product Catalogue.











ELBOW OPTIONS:

Segmented Elbows are manufactured in a range of standard angles as follows:

0 – 30 deg	2 Segments
31 – 60 deg	3 Segments
61 – 90 deg	4 Segments

FLANGE OPTIONS:

Flanges can be manufactured to meet the pressure requirements of pipeline

Flange drilling options to suit AS4087, ISO or ANSI standards as required

DUCTILE IRON & STEEL FITTINGS

The outside diameter of Superlit GRP Pipe manufactured to AS3571 is compatible with ductile iron pipes and fittings manufactured to AS/NZS2280. (DN 300 to DN 750)

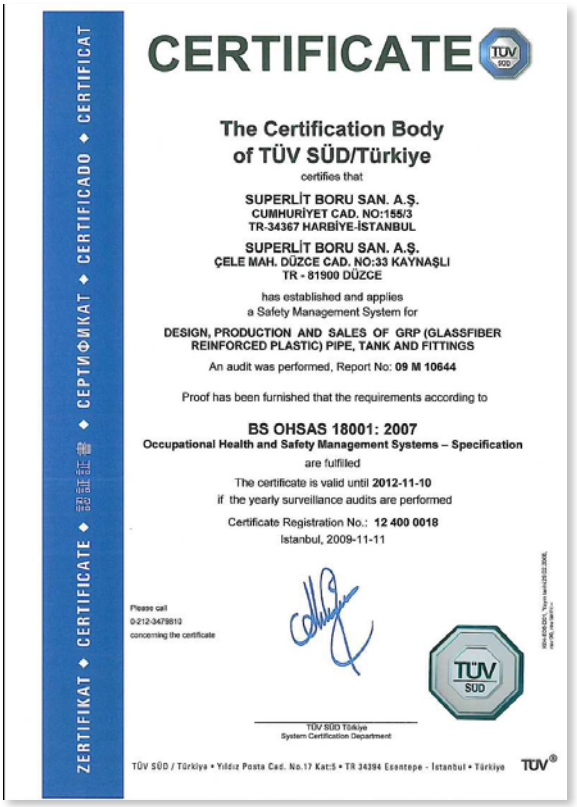
Steel fittings manufactured to AS 1759 with spigot ends to match the outside diameter of the GRP pipe can also be joined using the GRP Coupling.

Other products with matching diameters may also be suitable however Clover should be contacted to confirm compatibility prior to use.

CERTIFICATIONS

Superlit is certified for the Design, Production and Sales of GRP Pipe, Tank and Fittings to ISO9001:2008 Quality Management System; ISO14001:2004 Environmental Management System and BS OHSAS18001:2007 OH&S Management Systems.

Clover is certified for the Warehousing, Sales and Supply of Pipes, Valves and Fittings to ISO9001:2008 Quality Management System and AS/NZS4801:2001 OH&S Management system.



CERTIFICATE

The Certification Body of TÜV SÜD/Türkiye

certifies that

SUPERLİT BORU SAN. A.Ş.
CUMHURİYET CAD. NO:155/3
TR-34367 HARBİYE-İSTANBUL

SUPERLİT BORU SAN. A.Ş.
ÇELE MAH. DÜZCE CAD. NO:33 KAYNAŞLI
TR - 81900 DÜZCE

has established and applies a Safety Management System for

DESIGN, PRODUCTION AND SALES OF GRP (GLASSFIBER REINFORCED PLASTIC) PIPE, TANK AND FITTINGS

An audit was performed, Report No: 09 M 10644

Proof has been furnished that the requirements according to

BS OHSAS 18001: 2007
Occupational Health and Safety Management Systems – Specification

are fulfilled

The certificate is valid until 2012-11-10
if the yearly surveillance audits are performed

Certificate Registration No.: 12 400 0018
Istanbul, 2009-11-11

TÜV SÜD Türkiye
System Certification Department

TÜV SÜD / Türkiye • Yıldız Posta Cad. No.17 Kat:5 • TR 34394 Esentepe - İstanbul • Türkiye

Management Service

CERTIFICATE

The Certification Body of TÜV SÜD Management Service GmbH

certifies that

SUPERLİT BORU SAN. A.Ş.
CUMHURİYET CAD. NO:155/3
TR-34367 HARBİYE-İSTANBUL

SUPERLİT BORU SAN. A.Ş.
ÇELE MAH. DÜZCE CAD. NO:33 KAYNAŞLI
TR - 81900 DÜZCE

has established and applies an Environmental Management System for

DESIGN, PRODUCTION AND SALES OF GRP (GLASSFIBER REINFORCED PLASTIC) PIPE, TANK AND FITTINGS

An audit was performed, Report No. 70021356
Proof has been furnished that the requirements according to

ISO 14001:2004

are fulfilled. The certificate is valid until 2012-11-04
Certificate Registration No. 12 104 15302 TMS

Munich, 2009-11-05

TÜV SÜD Management Service GmbH • Zertifizierstelle • Ridlerstraße 65 • 80339 München • Germany

Management Service

CERTIFICATE

The Certification Body of TÜV SÜD Management Service GmbH

certifies that

SUPERLİT BORU SAN. A.Ş.
CUMHURİYET CAD. NO:155/3
TR-34367 HARBİYE-İSTANBUL

SUPERLİT BORU SAN. A.Ş.
ÇELE MAH. DÜZCE CAD. NO:33 KAYNAŞLI
TR - 81900 DÜZCE

has established and applies a Quality Management System for

DESIGN, PRODUCTION AND SALES OF GRP (GLASSFIBER REINFORCED PLASTIC) PIPE, TANK AND FITTINGS

An audit was performed, Report No. 70021356
Proof has been furnished that the requirements according to

ISO 9001:2008

are fulfilled. The certificate is valid until 2012-10-19
Certificate Registration No. 12 100 15302 TMS

Munich, 2009-11-09

TÜV SÜD Management Service GmbH • Zertifizierstelle • Ridlerstraße 65 • 80339 München • Germany

global-mark

Certificate of Approval

This certificate confirms that the company below complies with the following standard:

Company Name	Clover Pipelines Pty Ltd
Company Other Name	
Client ID	102368
Certification Standard	AS/NZS ISO 9001:2008: Quality management systems - Requirements
Scope of Certification	Design, purchasing, warehousing and distribution of pipes, conduits, valves and associated fittings for the water supply, sewerage, drainage, electrical, communication, mining, rural and gas industries.
Type of Certification	Product Conformance

Certificate Dates:

Certification Review Date	14/04/2014
Certification Expiry Date	14/04/2017
Certificate Issue Date	12/05/2014
Certificate Last Update Date	

Approved Company/Site Address(es):

137-141 National Boulevard Campbellfield 3061 VIC Australia

The use of the Accreditation Mark indicates accreditation by the Joint Accreditation System of Australia and New Zealand in respect to those activities covered by JAS-ANZ accreditation.

Refer to www.jas-anz.org/register for verification.

JAS-ANZ

This certification remains valid until the above mentioned expiry date and subject to the organisation's continued compliance with the certification standard, and Global-Mark's Terms and Conditions.

This Certificate of Approval remains the property of Global-Mark Pty Ltd, Company Number: ACN.108-087-654

Certification Manager

NOTES

water, sewer, electrical, gas.

HEAD OFFICE

141 National Boulevard,
Campbellfield VIC 3061

Locked Bag 2021. Somerton VIC 3062

P 03 8373 8000 **F** 03 8373 8099

NEW SOUTH WALES

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Wetherill Park, NSW 2164

P 02 8279 8000 **F** 02 8279 8099

QUEENSLAND

6/41 Bellrick St,
Acacia Ridge QLD 4110

P 07 3073 7000 **F** 07 3073 7099

SOUTH AUSTRALIA

P 08 8120 4600 **F** 08 8120 4699

WESTERN AUSTRALIA

P 08 6166 6800 **F** 08 6166 6899

NORTHERN TERRITORY

P 08 7999 8400 **F** 08 7999 8499

TASMANIA

P 03 6111 9500 **F** 03 6111 9599

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