

### HANDLING AND STORAGE

#### **PLANNING AHEAD**

Some thought and care should be given in preparing the site prior to receiving the pipes and fittings.

Choose flat areas for pipe storage with safe vehicle access and ensure that it is possible to safely unload the pipes at the sites you have chosen.

Note: the pack sizes, weights and pipe configurations including the fittings for storage purposes.

#### **SAFETY**

Glass reinforced plastic (GRP) pipe, like virtually all pipe made with petrochemicals, can burn and is therefore not recommended for use in applications which are exposed to intense heat or flames. During installation, care must be taken to avoid exposure of the pipe to welders sparks, cutting-torch flames or other heat/flame/electrical spark sources which could ignite the pipe material. This precaution is particularly important when working with volatile chemicals in making lay-up joints, repairing or modifying the pipe in the field.

#### TRANSPORTING

FLOWTITE® pipes should be handled with care to protect the pipes and the safety of the workers.

#### **RECEIVING THE PIPES AND FITTINGS**

#### Pipes should arrive securely packed and supported.

When receiving the load at the job site:

- Check the timber packs. If they are broken and/or have moved, inspect each pipe for damage, especially the pipe ends.
- Check the correct pipes and fittings have been delivered. E.g. The pressure class, stiffness and sizes match what has been ordered.
- Check the quantities against the delivery dockets and the order, not forgetting smaller items such as loose couplings and jointing lubricants.
- Any damaged or missing items should be noted on the delivery docket and countersigned by the driver
- Iplex Pipelines should be informed immediately if any items are missing or damaged upon delivery.
- Quarantine any damaged items for inspection.

#### DO NOT USE PIPES OR FITTINGS THAT APPEAR DAMAGED OR DEFECTIVE.



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### HANDLING AND STORAGE

#### **UNLOADING AND HANDLING**

FLOWTITE<sup>®</sup> pipes up to and including DN1200 are normally assembled in packs designed to hold the pipes in position and protect the pipes from excessive point loads.

FLOWTITE® pipes larger than DN1200 are supported on timbers with chocks and restrained with straps to prevent movement.

The timber bearers separating each pipe row also provide support at the correct intervals along the length of the pipe. Timber uprights are also used to separate and protect each pipe from rubbing and impact during transport.

The following table gives approximate weights for FLOWTITE® pipes in 3m, 6m, 12m and 13m:

	APPROXIMATE MASS PER PIPE LENGTH (INCLUDES PIPE COUPLING) SN10000							
DN	PN1 X 3m	PN16 X 6m	PN16 X 12m	PN16 X 13m				
	KG/LENGTH	KG/LENGTH	KG/LENGTH	KG/LENGTH				
300	60	108	204	220				
375	80	141	267	288				
450	113	192	366	395				
500	136	244	460	501				
525	148	255	489	528				
600	199	335	635	685				
675	247	417	795	858				
750	299	499	955	1031				
900	364	620	1190	1285				
1000	447	759	1461	1578				
1100	537	910	1756	1897				
1200	632	1074	2076	2243				
1300	734	1249	2419	2614				
1400	848	1446	2802	3028				
1500	964	1655	3209	3468				
1600	1093	1877	3641	3935				
1700	1225	2116	4108	4440				
1800	1368	2366	4598	4970				
1900	1518	2624	5102	5515				
2000	1674	2904	5652	6110				
2100	1839	3017	5867	6342				
2200	2013	3490	6802	7354				
2400	2263	4141	8083	8740				
2600	2844	4882	9496	10265				
3000	3750							



## Pipelines

# **FLOWTITE® GRP PIPE AND FITTINGS**

## HANDLING AND STORAGE

### UNLOADING PACKED PIPES AND LOOSE PIPES WILL REQUIRE LIFTING EQUIPMENTS

For example:

- Forklift with padded tynes
- Crane
- Spreader lifting bar with nylon slings
- Backhoe/excavator with nylon sling •

The unloading area should be even, level and stable for lifting.

### FOLLOW SAFE UNLOADING REQUIREMENTS AT ALL TIMES.

For example:

- Forklift and attachments must be load rated to suit the lifting requirements.
- Do not stand under or near a pipe or fitting that is being lifted.
- Enforce SAFE exclusion zones around the pipes and fittings being lifted.
- If unsure speak to the forklift manufacturer for advice and information for your particular needs.

#### Webbing slings should be placed under and around the pipe pack!

- × Don't use the pack's frame or straps for lifting! It is not designed for unloading.
- × Avoid climbing on the pipes for safety reasons. The surface can be slippery, especially in wet or frosty conditions.



Lifting a unitized pack with webbing slings and spacer bar Illustration only, not to scale.





## HANDLING AND STORAGE

Single pipes must be unloaded and handled separately (one at a time), using an approved sling. For example nylon webbing or soft nylon webbing have been used to lift FLOWTITE® pipes. The sling must be load rated for the pipe being lifted.





Lifting a pipe with one support point requires the sling to be placed at the pipes centre of balance, taking into account the weight of the coupling at the end. *Illustration only, not to scale.* 

Lifting a pipe with two support points Illustration only, not to scale

Note: Care should always be taken to avoid damage to the pipes and fittings when handling or unloading. Avoid impact loads and always lower the pipes to the ground carefully.

DO NOT:

- × BUMP!
- × DROP!
- × ROLL! Or
- × DRAG! The pipes.

NEVER:

- × USE CHAINS, STEEL WIRE SLINGS ETC.
- × USE LIFTING HOOKS ON THE ENDS OF THE PIPES AS THIS COULD CAUSE DAMAGE.
- × LIFT PIPES BY PASSING A ROPE THROUGH THE PIPE SECTION FROM END TO END!
- × PLACE PIPES DIRECTLY ONTO STONY OR ROCKY GROUND.

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### HANDLING AND STORAGE

#### HANDLING AND UNLOADING NESTED PIPES

FLOWTITE<sup>®</sup> pipes may occasionally be nested (smaller diameter pipes assembled inside of larger sizes) for transport efficiency and therefore, they are packaged with special protection and support.





Lifting a nested bundle using two slings for balance Illustration only, not to scale

De nesting FLOWTITE<sup>®</sup> pipe using forklift padded tynes is important to ensure the pipe is not damaged and supported along its length. *Illustration only, not to scale* 

The following points are important when, unloading, handling and storing nested FLOWTITE® pipes on site. Proper preparation is therefore essential.

#### Nested pipes:

- Transported in 'packs' will be significantly heavier than un-nested pipe packs.
- Should always be lifted with two webbing slings for balance.
- Should be lifted with slings that are load rated for the weight.
- Are best stored in their 'packs'.

Note: Do not stack nested pipe packs!

#### De-nesting is best accomplished at a de-nesting station

- 1. Remove the smallest pipe first.
- 2. The forklift tyne should protect and support the pipe.
- 3. Move the inner pipe out of the host pipe to avoid damaging it or other pipes.
- 4. Always follow safety procedures.





### HANDLING AND STORAGE

### **DE-NESTING FLOWTITE® PIPE PROCEDURE**

Personnel shall observe correct manual handling techniques at all times. Any safety concerns must be reported to your site safety officer immediately. Required PPE must be worn at all times.

01

Cut the strapping and remove packing materials, but leave the carpet in place.



Ensure the inner surface of the pipe is not scratched as the strapping is removed.

Check and remove any foreign material. e.g. stones between the pipes.



04

Using rubber protected forklift tynes or tynes with jib attachment, slowly lift the nested pipe. Ensure the pipe does not hit the host pipe.







05 Slowly reverse the nested pipe out. Ensure the nested pipe does not scrape the host pipe and the carpet remains in place. Stop when 200mm of the nested pipe is still within the host pipe.







Support the free end on a timber bearer between 1m and 2m from the end at carpeted points.



Using the forklift with side shift, remove the nested pipe and store on timbers on flat ground.



#### REMEMBER

#### Pipes and fittings should be:

- ✓ Lowered
- ✓ Lifted
- ✓ Carried

#### Never:

- × Thrown
- Dropped
- × Dragged

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HANDLING AND STORAGE

#### **PACK DIMENSIONS & WEIGHTS**

DN	NUMBER OF PIPES 'FULL PACK'	NUMBER OF PIPES 'PART PACK'	PACK CONFIGURATIONS					
			NO OF PIPES ACROSS	NO OF PIPES HIGH	OVERALL PACK LENGTH	APPROX. MASS 'FULL PACK' (KG)	APPROX. MASS 'PART PACK' (KG)	
300	12	N/A	6	2	3.14m	720	N/A	
375	15	10	5	3 or 2	3.14m	945	630	
450	8	N/A	4	2	3.14m	840	N/A	
500	8	N/A	4	2	3.14m	1088	N/A	
525	8	N/A	4	2	3.14m	1104	N/A	
600	3	N/A	3	1	3.17m	555	N/A	
675	3	N/A	3	1	3.17m	684	N/A	
750	2	N/A	2	1	3.17m	542	N/A	
900	2	N/A	2	1	3.17m	670	N/A	
1000	2	N/A	2	1	3.17m	816	N/A	
1100	2	N/A	2	1	3.17m	974	N/A	
1200	2	N/A	2	1	3.17m	1146	N/A	

#### TABLE 1.1 FLOWTITE® PIPE PN1 SN10000 IN 3M NOMINAL LENGTHS

#### TABLE 1.2 FLOWTITE® PIPE PN16 SN10000 IN 6M NOMINAL LENGTHS

DN	NUMBER OF PIPES 'FULL PACK'	NUMBER OF PIPES 'PART PACK'	PACK CONFIGURATIONS						
			NO OF PIPES ACROSS	NO OF PIPES HIGH	OVERALL PACK LENGTH	APPROX. MASS 'FULL PACK' (KG)	APPROX. MASS 'PART PACK' (KG)		
300	12	N/A	6	2	6.14m	1296	N/A		
375	15	10	5	3 or 2	6.14m	2115	1410		
450	8	N/A	4	2	6.14m	1536	N/A		
500	8	N/A	4	2	6.14m	1896	N/A		
525	8	N/A	4	2	6.14m	2040	N/A		
600	3	N/A	3	1	6.17m	1005	N/A		
675	3	N/A	3	1	6.17m	1251	N/A		
750	2	N/A	2	1	6.17m	998	N/A		
900	2	N/A	2	1	6.17m	1240	N/A		
1000	2	N/A	2	1	6.17m	1518	N/A		
1100	2	N/A	2	1	6.17m	1820	N/A		
1200	2	N/A	2	1	6.17m	2148	N/A		



# **FLOWTITE® GRP PIPE AND FITTINGS**



HANDLING AND STORAGE

#### TABLE 1.3 FLOWTITE® PIPE PN16 SN10000 IN 12M NOMINAL LENGTHS

DN	NUMBER OF PIPES 'FULL PACK'	NUMBER OF PIPES 'PART PACK'	PACK CONFIGURATIONS					
			NO OF PIPES ACROSS	NO OF PIPES HIGH	OVERALL PACK LENGTH	APPROX. MASS 'FULL PACK' (KG)	APPROX. MASS 'PART PACK' (KG)	
300	12	N/A	6	2	12.14m	2448	N/A	
375	15	10	5	3 or 2	12.14m	4005	2670	
450	8	N/A	4	2	12.14m	2928	N/A	
500	8	N/A	4	2	12.14m	3624	N/A	
525	8	N/A	4	2	12.14m	3912	N/A	
600	3	N/A	3	1	12.17m	1905	N/A	
675	3	N/A	3	1	12.17m	2385	N/A	
750	2	N/A	2	1	12.17m	1910	N/A	
900	2	N/A	2	1	12.17m	2380	N/A	
1000	2	N/A	2	1	12.17m	2922	N/A	
1100	2	N/A	2	1	12.17m	3512	N/A	
1200	2	N/A	2	1	12.17m	4152	N/A	

#### TABLE 1.4 FLOWTITE® PIPE PN16 SN10000 IN 13M NOMINAL LENGTHS

DN	NUMBER OF PIPES 'FULL PACK'	NUMBER OF PIPES 'PART PACK'	PACK CONFIGURATIONS					
			NO OF PIPES ACROSS	NO OF PIPES HIGH	OVERALL PACK LENGTH	APPROX. MASS 'FULL PACK' (KG)	APPROX. MASS 'PART PACK' (KG)	
300	12	N/A	6	2	13.14m	2640	N/A	
375	15	10	5	3 or 2	13.14m	4320	2880	
450	8	N/A	4	2	13.14m	3160	N/A	
500	8	N/A	4	2	13.14m	3912	N/A	
525	8	N/A	4	2	13.14m	4224	N/A	
600	3	N/A	3	1	13.17m	2055	N/A	
675	3	N/A	3	1	13.17m	2574	N/A	
750	2	N/A	2	1	13.17m	2062	N/A	
900	2	N/A	2	1	13.17m	2570	N/A	
1000	2	N/A	2	1	13.17m	3156	N/A	
1100	2	N/A	2	1	13.17m	3794	N/A	
1200	2	N/A	2	1	13.17m	4152	N/A	





### HANDLING AND STORAGE

#### SITE STORAGE AND STRINGING

Storing and stacking FLOWTITE<sup>®</sup> pipes correctly will limit any damage to the pipe and will help lead to efficient work practices.

#### Important tips!

- Tins of pipe jointing lubricant should be stored securely, preferably in a lockable container or shed
- Petroleum products, solvents and greases etc. can damage rubber products and therefore they should not be stored in close proximity with any rubber sealing rings.

FLOWTITE<sup>®</sup> pipes are generally supplied in packs (up to DN1200) and should be left in their pack units wherever possible until they are required to be installed.

It is advantageous to place loose pipes on flat timber supports to facilitate the placement and removal of lifting slings.

Loose pipes may also be stored on soil mounds or sand bags provided that the ground is flat. Any soil in contact with pipe must be free of rocks and any other potentially damaging debris.

ALL PIPES SHOULD BE RESTRAINED TO PREVENT ROLLING BY UNEVEN GROUND, WIND LOADS OR OTHER EXTERNAL FORCES.







### HANDLING AND STORAGE

#### **PIPE STACKING**

Pipes may also be stacked but the heights should be kept to a minimum. Allow enough space in between each pipe layer for lifting equipment to manoeuvre without causing accidental damage.

Where different pressure or stiffness classes are stored on site, it is also a good idea to store them in separate locations to avoid picking the wrong pipes during installation.



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# **FLOWTITE® GRP PIPE AND FITTINGS**



### HANDLING AND STORAGE

When unloading single pipes (one at a time) the following stacking procedure is recommended:

- The bottom layer of pipes should be laid on flat timber bearers about 100mm wide and high. ٠
- ٠ Each layer should be stacked with the couplings at opposite ends of the alternate pipes to avoid point loading.
- Each layer should be securely restrained to prevent the pipes from moving. Use the same timber bearers to separate each pipe layer.
- Continue stacking this way, up to the maximum number of layers given in the following table.

The stack height should not be more than 2m high for safety reasons.

DN	300, 375	450	500-600	750-1000	≥1100
PIPE LAYERS	5	4	3	2	1



Stacking loose pipes on site ion only. not to sca

#### LONG TERM STORAGE

FLOWTITE® GRP pipes are U.V. and weather resistant and do not require protection. They might discolour slightly over time but this is cosmetic only and not a defect.

If the pipes are to be stored in direct sunlight for more than six months then;

- The pipe ends should be covered to keep the pipes clean and to protect the internal liner of the pipe. Hessian or • white shade cloth is normally used. BLACK PLASTIC is not recommended as it prevents air ventilation and builds up heat in the pipe.
- Rubber ring seals should be removed from the pipe couplings and placed in a suitable bag and stored under cover in a cool dark area. The rubber rings should be protected and not come into contact with greases and oils, solvents and other harmful substances.

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# Figure ipelines

### HANDLING AND STORAGE

**FLOWTITE® GRP** 

#### **STRINGING**

When stringing the pipes, unload them along the trench line on the opposite side to the spoil. This can be done with single pipes or pipe packs.



#### Stringing pipes along the trench in original packs Illustration only, not to scale.

The stringing operation provides an opportunity to further inspect the pipe for any damage, especially the pipe spigot end. Impact damage will generally be visible. Check the pipe ends especially.



# Figure ipelines

# FLOWTITE<sup>®</sup> GRP PIPE AND FITTINGS

### HANDLING AND STORAGE

Decide at this stage whether the pipes will be joined with the spigot being pushed into the socket or the socket pushed over the spigot. Either is suitable with FLOWTITE® pipes.

String the pipes along the trench according to the orientation chosen and the proposed laying direction.



Stringing pipes along the trench Illustration only, not to scale.

Pipes should be supported by timbers, sand bags or soil mounds at all times prior to installation. If the pipes are supported with soil mounds they must be free of rocks and any other potentially damaging debris.

All pipes should be securely restrained so there is no danger of them rolling into the trench.

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