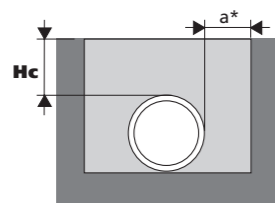


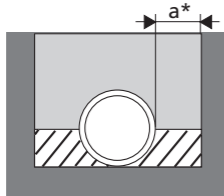
## CASES OF LAYING

### CASE N°1



DN ≤ 600

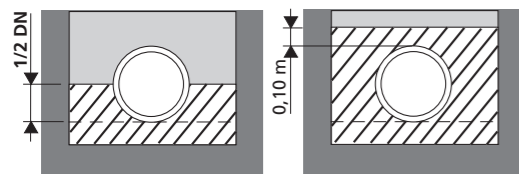
### CASE N°2



\*min a = 0.3 m if ND < 600  
0.4 m if DN > 600

DN 60 to 2000

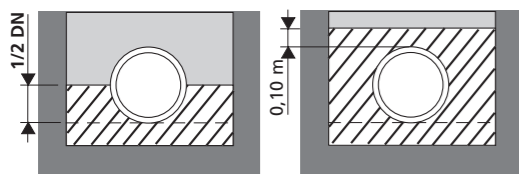
### CASE N°3



DN ≤ 1400

DN > 1400

### CASE N°4



DN ≤ 600

DN > 600



## SAINT-GOBAIN PAM LAYING RECOMMENDATIONS

- STORAGE
- HANDLING
- BACKFILL
- STANDARD JOINT
- STANDARD Vi JOINT
- STANDARD Ve JOINT
- UNIVERSAL Vi JOINT
- STANDARD V+i JOINT
- UNIVERSAL Ve JOINT DN 100 to 1200 MM
- EXPRESS JOINT
- EXPRESS Vi JOINT
- PIPE CUTTING
- WELD BEAD
- ANCHOR BLOCKS
- ANCHORING
- EXTERNAL COATING REPAIRS
- INTERNAL LINING REPAIRS
- PE SLEEVE INSTALLATION
- HYDRAULIC TESTING
- ASSEMBLY EQUIPMENT
- HORIZONTAL DIRECTIONAL DRILLING
- CONTACTS



MARKETING DEPARTMENT  
21 AVENUE CAMILLE CAVALLIER  
54705 PONT A MOUSSON CEDEX  
FRANCE  
TEL: 03.83.80.73.50  
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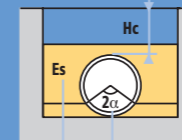
*These recommendations are based upon our knowledge of the products and their use. It is the contractor's responsibility to ensure that installation is carried out according to the best rules of practice.*



## LAYING RECOMMENDATIONS

### Backfill

DEPTH  
OF COVER



Bedding  
angle

Modulus of  
elasticity of  
backfill

### CASE N°1

trench bottom	backfill	compaction	Es	2α mini
flat bottom	group 4, 3, 2 or 1	uncompacted	< 3 bar	30°

### CASE N°2

trench bottom	backfill	compaction	Es	2α mini
flat bottom	group 3, 2 or 1	controlled compacted	7 bar	30°

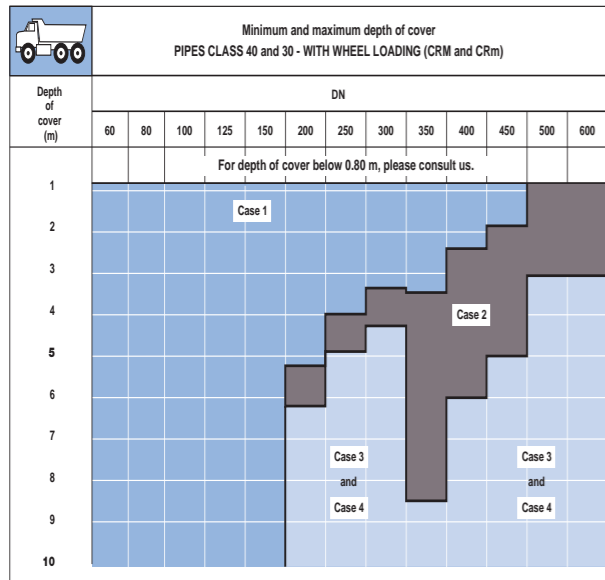
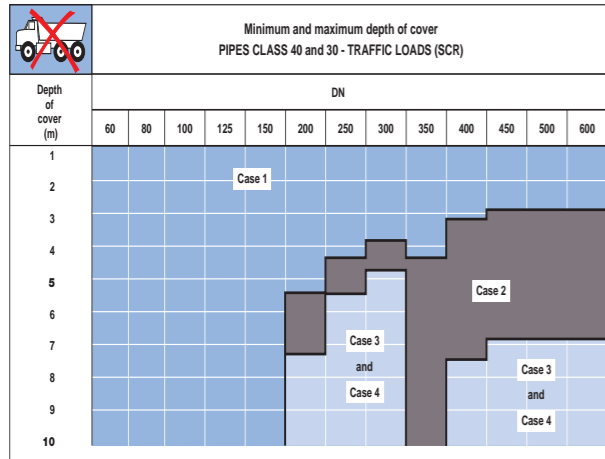
### CASE N°3

trench bottom	backfill	compaction	Es	2α mini
selected materials	group 3, 2 or 1	controlled compacted	10 bar	90°

### CASE N°4

trench bottom	backfill	compaction	Es	2α mini
selected materials	group 1	controlled compacted	20 bar	90°





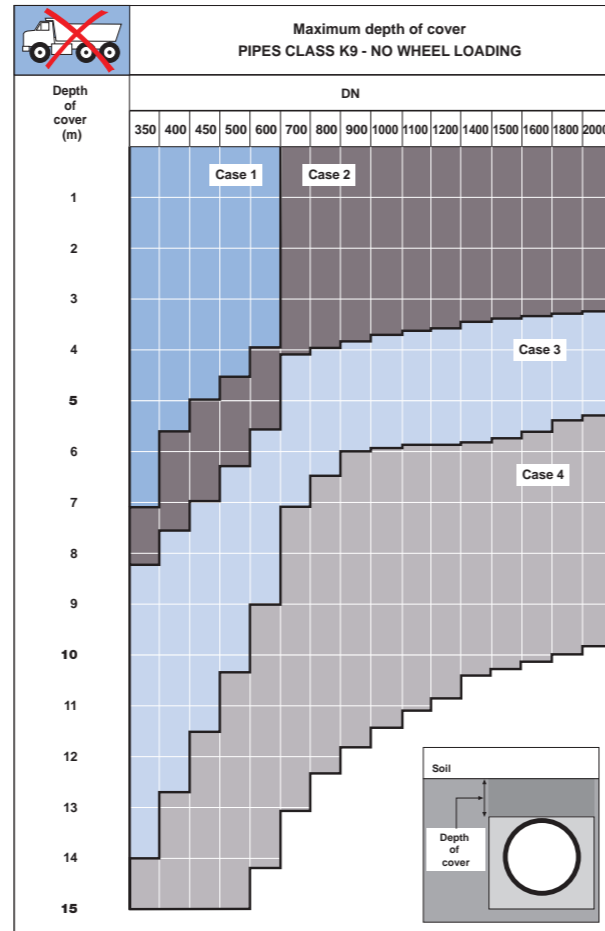
SCR: Maximum depth of cover with no wheel loading  
 CRM: Maximum depth of cover with wheel loading  
 CRm: Minimum depth of cover with wheel loading

MAXIMUM DEPTHS OF COVER

K9 CLASS PIPES WITH NO WHEEL LOADING

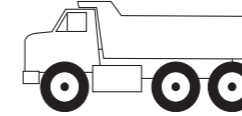


No ground water, nor timbering in trenches.

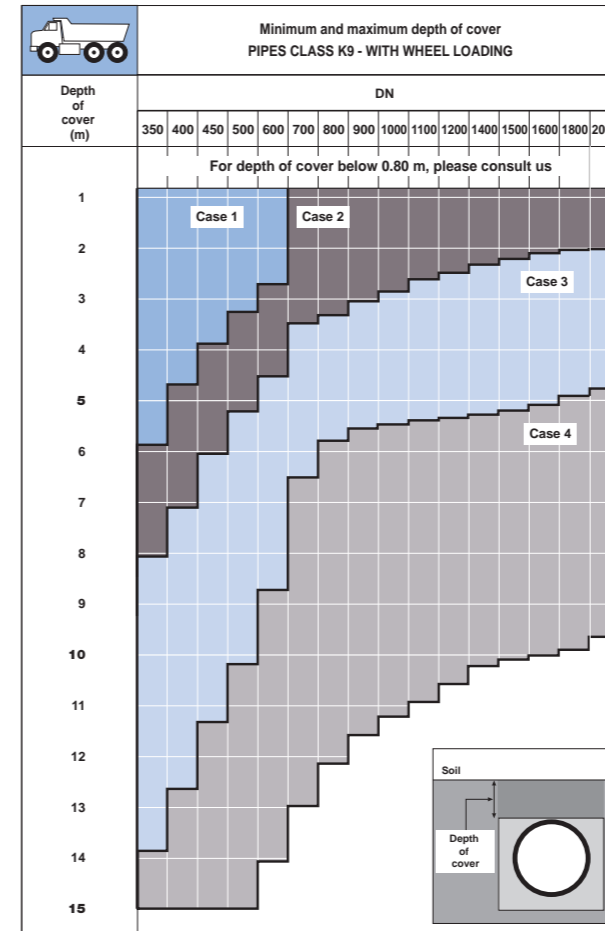


MAX AND MIN DEPTHS OF COVER

K9 CLASS PIPES WITH WHEEL LOADING (two 30 t trucks, each with 3 axles, passing one another in opposite directions).



No ground water, nor timbering in trenches.



Soil group	brief description
1	Clean or slightly silty sands and gravels (particles < 50 mm)
2	Silty or moderately clay sands and gravels
3	Clays with flints and cherty limestone, rubble, boulder clays, weathered rocks, coarse alluvium with high percentage of fines
4	Silts, fine sands, sands, clays, more or less plastic marls (Ip < 50)

The tables have been prepared with the following assumptions:

- K9 class and 40 class ductile iron pipes,
- strength and deformation criteria for pipes complying with NF EN 545,
- design models complying with Fascicule 70 (French regulation).

refer directly to Fascicule 70 or contact SAINT-GOBAIN PAM. **for all other examples of backfill.**

Fascicule 70 recommendations

Soil group	uncompacted		compacted controlled		compacted, controlled checked	
	Es (bar)	2α (°)	Es (bar)	2α (°)	Es (bar)	2α (°)
1	7	60	20	90	50	120
2	6	60	12	90	30	120
3	5	60	10	90	25	120
4	< 3	-	6	60	6	60