

Jointing technology

Solvent cement jointing

Instructions for Dytex solvent cement jointing of PVC-U and PVC-C dimension d12 to d140

General

Dytex solvent cement combined with Dytex solvent / cleaner is a special cementing system for PVC-U / PVC-C piping systems which are exposed to the effects of highly aggressive chemicals, such as concentrated, inorganic acids. For all media not mentioned below or media in lower concentrations, Tangit solvent cement should be used. Because Dytex is not gap-filling, a special cement jointing procedure is required and is described in the following.

Dytex solvent cement jointing calls for adequate technical know-how, which can be acquired in the appropriate training courses. Your GF representative will gladly provide you with information about training possibilities.

The dimensions of GF pipes, fittings and valves conform generally to the various national standards as well as to ISO 727-1 concerning dimensions of sockets. Our fittings and valves can be used with any PVC-U or PVC-C pipes whose outside diameter tolerance conforms to ISO 11922-1.

According to ISO 727-1 the following minimal cement lengths apply:

Pipe outside diameter - Socket inside diameter d (mm)	Minimal cement length L (mm)
12	11.0
16	13.0
20	15.0
25	17.5
32	21.0
40	25.0
50	30.0
63	36.5
75	42.5
90	50.0
110	60.0
125	67.5
140	75.0

The use of Dytex solvent cement is recommended for cement jointing PVC-U or PVC-C in connection with the acids shown in the table.

Due to the effects of these acids on the pipe material, we recommend using pipes with a pressure rating PN16. For the expected lifetime and compressive strength, please contact your GF representative.

Attention! Usually the allowable pressure must be decreased by one pressure rating (thus PN16 to PN10).

When using Dytex in PVC-C piping construction with the above mentioned acids, the pressure and temperature requirements for PVC-U must be adhered to.

Please refer to the information on the above mentioned acids in our list of chemical resistance.

Medium	Up to % concentration
Sulphuric acid	≥70 % H ₂ SO ₄ concentration
Chromic- sulphuric acid mixture	≥70 % H ₂ SO ₄ concentration plus 5 % K ₂ Cr ₂ O ₇ / Na ₂ Cr ₂ O ₄
Chromic acid	≥10 % CrO ₃ concentration
Hydrochloric acid	≥25 % HCl concentration
Nitric acid	≥20 % HNO ₃ concentration
Sodium hypochlorite (calcium hypochlorite)	≥6 % NaOCl concentration of active chlorine
Hydrogen peroxide	≥5 % H ₂ O ₂ concentration
Hydrofluoric acid	In every HF concentration

Tools and equipment

Pipe cutter Type KRA	d10 - 63 d50 - 110 d110 - 160	790 109 001 790 109 002 790 109 003
Pipe cutter type KS 355	230 V / 50 - 60 Hz	790 202 001
Chamfering tool	d16-75 d32-200	799 495 145 799 495 146
Dytex solvent and cleaner	0.5 litre tin	799 271 383
Dytex solvent cement	0.5 litre tin	799 271 423
Brush sizes		
Pipe outside diameter in mm	Brush	
6-10	Round brush ø4 mm	799 299 001
12-32	Round brush ø8 mm	799 299 002
40-63	Flat brush 1" 25 x 3 mm	799 299 003
75-140	Flat brush 2" 50 x 5 mm	799 299 004
Tin lid		799 298 028
White absorbent paper	commercially available	
Solvent resistant protecting gloves,	commercially available	
Safety glasses		



Solvent cementing equipment

Dytex solvent and cleaner: Amounts required

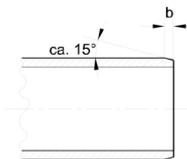
Pipe diameter d (mm)	Dytex cement amount per 100 joints (kg)	Dytex cleaner amount per 100 joints (litre)
16	0.25	0.55
20	0.3	0.65
25	0.4	0.8
32	0.5	1.0
40	0.7	1.2
50	0.9	1.4
63	1.1	1.8
75	1.5	2.3
90	2.1	3.1
110	2.9	4.7
140	4.5	7.9

Note: The quantities specified above are to be understood as practice-orientated maximum values. In principle the quantities depend on gap dimensions, temperatures, working technique.

Preparations

The pipe must be cut off at right angles. Remove the inside edges and chamfer the outside ones as illustrated in the sketch. This is the only way to achieve an optimal solvent cemented joint.

Important: Well-chamfered pipe ends prevent the layer of cement from being removed as the pipe is inserted into the fitting.



Pipe outside diameter mm	b
6 - 16 mm	1 - 2 mm
20 - 50 mm	2 - 3 mm
63 - 140 mm	3 - 6 mm



Marking the jointing length

Wipe the outside of the pipe and the inside of the socket with a clean cloth to remove obvious dirt. Marking the jointing length on the pipe end makes it possible to check afterwards whether the pipe has been inserted to the full extent of the socket.

Because Dytex cement is not gap-filling, the fit of the pipe and fitting must be checked in the dry state. If the pipe end can be inserted easily and without resistance to the stop, several applications of cement are necessary.

Dytex solvent cement is supplied ready to use. Stir well before using. Diluting the solvent cement is prohibited. Cement and solvent should be stored in a dry and cool place (5 - 35 °C)! Under these conditions the cement and cleaner are durable for 24 months starting from the date of filling (imprinted on the tin).

For more information please consult the safety datasheets under the following link: www.sdb.henkel.de/index.cfm

Cementing

Fine cleaning is done with the Dytex solvent (do not use Tangit cleaner!). Soak a white, absorbent, lint-free paper with Dytex solvent and thoroughly clean the dry surfaces which are to be cemented. Use a new sheet of absorbent paper for each cleaning. Then brush Dytex solvent onto the surfaces to be cemented (pipe ends on the outside, fitting on the inside) until the surface clearly begins to dissolve (becomes sticky).

Apply Dytex cement to the dissolved surfaces with a brush in the axial direction and let dry for at least 30 seconds. Repeat this process as indicated in the following table.

Cement gap (diameter difference) of more than 0.4 mm are not permitted! Pipes / fittings from the dimension 110 must be measured to determine the permissible gap.

d up to 16 mm	gap = ± 0.0 mm	max. 2 x both sides
d 16 - 25 mm	gap = + 0.0 mm	max. 3 x both sides
d 32 - 40 mm	gap = + 0.1 mm	max. 4 x both sides
d 50 - 63 mm	gap = + 0.2 mm	max. 6 x both sides
d 75 - 90 mm	gap = + 0.3 mm	max. 8 x both sides
d 110 - 140 mm	gap = + 0.4 mm	max. 10 x both sides

Cement applications in relation to gap (diameter difference)



Remark: If there are smaller gaps than shown in the table, the amount of cement applications can be reduced.

After the final application of cement, coat both surfaces again with the Dytex solvent until they are once again sticky, then insert the parts immediately to the full depth of the fitting, without twisting/tilting and hold for a few seconds. Make sure that the fitting outlet is in the right position. When inserting, you must feel some resistance. The solvent cement bead that forms must be complete and consistent. Excess cement is wiped off immediately.

Because the solvent cement bonds quickly, the parts must be joined within max. 1 minute of applying the final coat of Dytex solvent. At temperatures above 25 °C this time frame is reduced to under 1 minute.

Due to the short open assembly time of 1 minute, the use of Dytex is limited to a pipe diameter of 140 mm.

The waiting time between the individual work steps (=next cement joint) depends on the size of the gap.

Cement gap less than 0.2 mm	Cement gap greater than 0.2 to 0.4 mm
Waiting time 10 - 15 minutes	Waiting time 30 minutes At temperatures under 10 °C the waiting time extends to 45 minutes

The cementing should be done at temperatures between 5 °C and 40 °C. If there are deviations, please observe the following safety measures:

At temperatures near the freezing point, any condensation or thaw must be removed, e.g. with warm air. The cement and the solvent should be kept beforehand at room temperature. The finished joint must be kept at approx. 25 °C for another 15-30 minutes.

At higher temperatures, protect the jointing area from direct sunlight as the components could heat up too much.

Up to about d63 mm, the cement joints can be manufactured by one person alone. From d75 mm one person should apply the cement to the fitting socket while another coats the pipe end, otherwise it is not possible to maintain the open assembly time of max. 1 minute.

Remove any thick cement residue on the brush with a dry absorbent paper and then rinse the brush with the solvent. Before using the cleaned brushes again, they must be dry to touch (shake out).

To prevent the solvent from evaporating (cement dries up), the cement tin should be kept closed during work breaks. A lid that allows keeping the brush in the tin can be used.

Since Dytex cement and solvent are etching, pipes or fittings may not be placed on spilled cement or cement residue left on the paper or come into contact with them in any way.

Do not close off cement pipelines during the drying process. This is particularly important at temperatures below + 5 °C, when there is otherwise a danger of damaging the material.

Drying period and pressure testing

After a drying period of approx. 48 hours at room temperature, the final strength of the joint is achieved. At lower ambient temperatures, the bonding takes longer.

The pipeline may only be filled and the pressure test may only be done at the earliest 48 hours after the last cementing.

For temperatures above 20 °C the test pressure must be reduced according to the requirements given in the chapter "final testing and commissioning".

Safety precautions

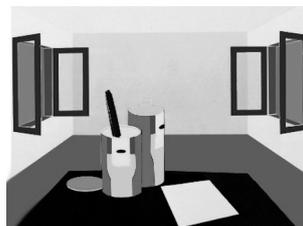
Dytex cement and Dytex solvent contain highly volatile solvents. Make sure there is adequate ventilation or exhaust fans in closed rooms. Solvent vapours are heavier than air. The off-take must therefore be on the floor or under the workbench for example. The paper used to clean the parts and to remove the cement must be deposited in closed containers to reduce the amount of solvent vapours in the air.

The cement and the solvent are flammable. Make sure there are no open flames before starting to work. Shut off any electrical equipment that is not designed to be explosion-proof, electric ovens, etc. Avoid static charge. Do not smoke! Stop all fusion work. Also heed the instructions of the cement manufacturer (e. g. on the tin and in the leaflets supplied).

Protect pipes and fittings from spilled cement, solvent and paper that has been used to wipe the cement from the parts. Do not pour cement or solvent no longer required into the sewer pipes.

We recommend using protective gloves to avoid contact with the cement and the solvent. In case of contact with eyes, rinse thoroughly with water. Seek medical advice! Replace clothing contaminated with the cement immediately.

Observe the respective accident prevention guidelines.



Adequate ventilation of the workplace



No open flames when cementing. No smoking.