

In reference to the research of the TYTAN WINS FLEX system at the PHI Darmstadt Institute



Picture no 1. Products and tools belong to the TYTAN WINS FLEX system

## TYTAN WINS FLEX SYSTEM APPLICATION INSTRUCTIONS

### 1. Application pu foam TYTAN WINS FLEX

The surface of the jambs, window frames and all elements should be clean, without dust and any agents, which can provide worse adhesion pu foam to the surfaces. The width of the gap between jambs and window frames should be between 10 to 30 mm ( recommended dimension for the research should be 20 mm).

If the window frames do not have a original tapes on the profiles, should be applied the recommended masking TYTAN tape for protection the surface.

Please note: the min. distance from the edge of the window frame should be 3 mm (recommended 5 mm).

Before application the product, can with liquid components of the pu foam should be shake min. 30 times.

Application pu foam should be from the bottom to the top of the gap. Every time application in to the gap should be in two steps = from both sides ( each working cycle approximately 40-50 mm depth).

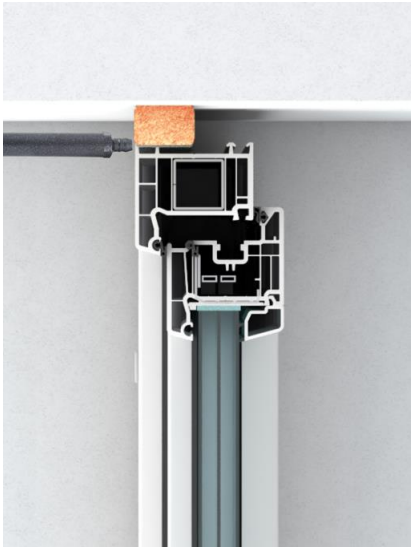


Figure no 1. Application of pu foam in the first working cycle

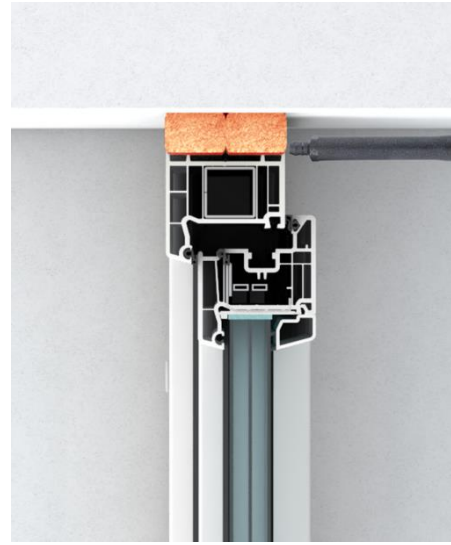


Figure no 2. Application of pu foam in the second working cycle

Before and after application each working cycle of fresh pu foam should be spraying by water fog. The gun barrel should be set at an angle of approximately 45° downwards.

Curing time of the pu foam FLEX WINS is 90 minutes at T = 23°C / RH = 50%. Recommended time for cutting the pu foam during certification process 24 hours after application pu foam.



Picture no 2. Protect the surface of the joinery by masking tape from both sides



Picture no 3. Protect the surface of the joinery by masking tape from both sides



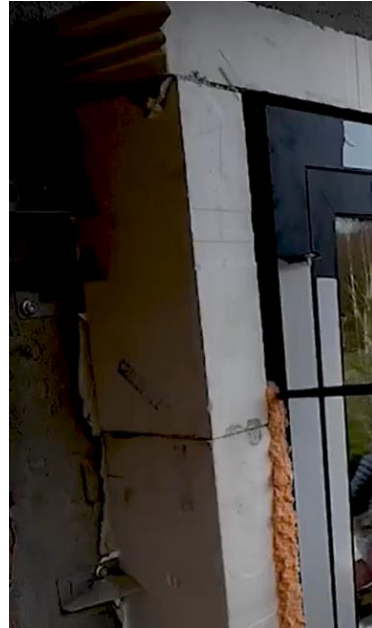
Picture no 4. wet the gap before application by water mist



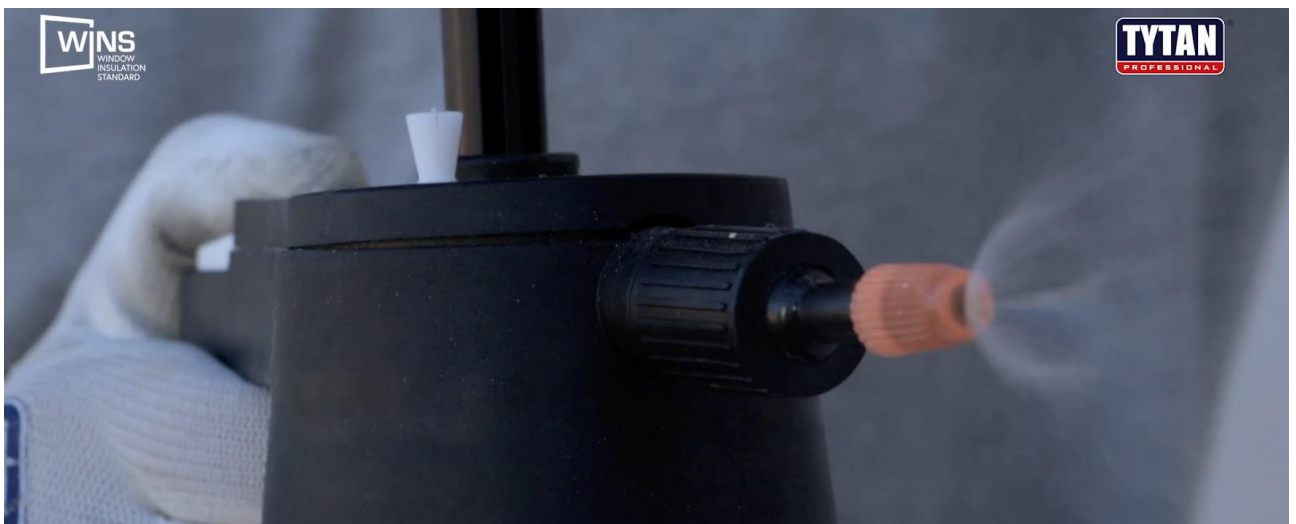
Picture no 5. Shake the can min. 30 times



Picture no 6. Apply the pu foam from bottom to the top from the both sides (visible from interior)



Picture no 7 & 8. Apply the pu foam from bottom to the top from the both sides  
(visible in the photos from the outside)



Picture no 9. Apply the water mist after each working cycle from each sides ( when we consider about 80 mm depth window frame, spraying should be 4 times)



Picture no 10. Before using the TYTAN knife for the first time, prepare the blade to the appropriate sharpness using a sharpener



Picture no 11. During the using TYTAN knife to care about regular sharpening (very often)



Picture no 12. During cutting the cured pu foam, is possible bend the blade without deformation



Picture no 13. After cutting the cured pu foam is visible smooth line, window between frame – outside line of the wall or dedicated warm beams (for example MARBET beams) in case passive houses



Picture no 14. After cutting the cured pu foam is visible smooth line, window between frame – outside line of the wall or dedicated warm beams (for example MARBET beams) in case passive houses

## 2. Application internal and external liquid foils TYTAN WINS FLEX

Application liquid foil from outside (number 1, in white colour) should be by traditional brush or TYTAN silicone applicator. The thickness of fresh liquid foil should be min. 1mm max. 3 mm.

Application liquid foil from internal side ( number 3, in blue colour when the product is fresh and black colour when the product is cured) should be by traditional brush. The thickness of fresh liquid foil should be min. 2 mm max. 3 mm.

### Please note:

- The surface of the cured foam should be smooth and covered on 100 % in case both versions liquid foils without visible opened cells of cured pu foam. If necessary is possible second application of the coat by the same product.
- The applied both liquid foils should maintain (overlap) a minimum distance 3 mm from the edge of the window frame (5 mm recommended) and min. 5 mm on the jamb surface (recommended 10 mm)



- Directly after finished application in case both liquid foils (when the products are still fresh) should to remove all masking tapes.
- The recommended curing time for both versions liquid foils during the research procedure, should be min. 3 days since the finished application at T = 23°C / RH = 50%. After this recommended period, air tightness testing should begin.



Picture no 15. Application external liquid foils (visible from the outside)



Picture no 16. Application external liquid foils by TYTAN silicone applicator from outside



Picture no 17. Application internal liquid foils



Picture no 18. Removing the masking tape from the inside

**3. Technical drawings of the TYTAN WINS FLEX sealing system for installation joinery in the MARBET system for passive houses (attachments no 1 and no 2).**

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