

Test report no. 243621

English version

1st copy of 22 August 2024

Principal: Hanno Werk GmbH & Co. KG
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30880 Laatzen

Date of commission: 08.07.2024

Subject of commission: Extension of the summary of test results according to
DIN 18542: 2020 - exposure class MF 2 for the
multifunctional sealing tape:
"Hannoband-3E"

original period of validity until 31.07.2024

extended on 22.08.2024

Extended period of validity until 31.07.2029

The test report contains 7 pages.



In case of any dispute the German version is decisive. The test report shall be published unabridged. Any partial publishing requires written allowance by the testing institute.
~~The test results refer only to the tested material.~~

1. Test object

The company Hanno Werk GmbH & Co. KG manufactures joint sealing tapes from impregnated foam plastics, among other things. Open-cell foam is predominantly impregnated with appropriate substances for production.

The joint sealing tape has internal membrane layers at intervals of around 19 mm.

General information on the product:

Manufacturer	Hanno Werk GmbH & Co. KG
Designation	Multifunctional sealing tape DIN 18542 - MF 2
Trade name	„Hannoband-3E“
Foam base	largely open-cell PUR foam
Type of impregnation	Acrylates
Type of self-adhesive	Acrylic adhesive
Special feature	Membranes at a constant distance of 19 mm, i.e. at least 2 membrane layers within the band

Information from the manufacturer on the sealing tape dimensions tested:

Tape dimension	Cutting width of the tape (t_F) mm	Minimum joint width (b_{min}) mm	Maximum joint width (b_{max}) mm	Tape thickness uncompressed state (b_0) mm	Average volumetric weight (¹) kg/m ³
(56/4-9)	56	4	10	18	75
(56/6-15)	56	6	15	30	75
(56/10-20)	56	10	24	40	75
(56/15-30)	56	15	36	60	75

(¹ tolerance +/- 10%; pure impregnated foam without self-adhesive coating and membrane layers)

Dimensions of the sealing tape tested here:

Tape dimension	Colour	Cutting width of the tape (t_F) mm	Tape thickness compressed state (b_L) mm	Tape thickness decompressed state (b_d) mm	Tape-length m	Volumetric weight (⁵) kg/m ³
(56/4-9) (¹)	black	55.9	2.72	16.6	2.38	83.8
(56/6-15) (²)	black	56.2	4.7	27.4	2.35	87.2
(56/10-20) (³)	black	55.5	6.03	39.0	2.39	73.2
(56/15-30) (⁴)	black	55.3	8.89	56.5	2.41	72.9

(¹ Charge-no.: 371657

(² Charge-no.: 384704 1943

(³ Charge-no.: 371668

(⁴ Charge-no.: 371671

(⁵ density including self-adhesive and membrane layers

2. Test order

One-time extension (requalification) due to the alternative tests according to DIN 18542:2020, Annex-C and the summary of the test results of the impregnated multifunctional sealing tape

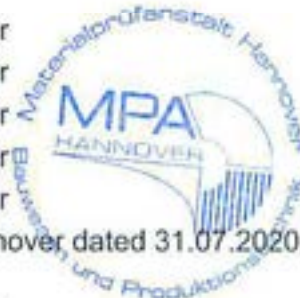
"Hannoband-3E"

and comparison of these test results with the requirements according to DIN 18542: 2020 "Impregnated foam plastic joint sealing tapes for the sealing of external wall joints - requirements and testing" for exposure class MF 2.

3. Test results and requirements

The following test reports / certificates are available for the „Hannoband-3E“ multifunctional sealing tape:

- 1) Test report 192137 dated 26.07.2019 of the Materialprüfanstalt Hannover
- 2) Test report 192142 dated 04.11.2019 of the Materialprüfanstalt Hannover
- 3) Test report 200212 dated 06.03.2020 of the Materialprüfanstalt Hannover
- 4) Test report 196781 dated 10.02.2020 of the Materialprüfanstalt Hannover
- 5) Test report 202486 dated 03.07.2020 of the Materialprüfanstalt Hannover
- 6) General technical approval P-NDS04-717 of the Materialprüfanstalt Hannover dated 31.07.2020, valid until 31.07.2025
- 7) Test report 201944 dated 11.09.2020 of the Materialprüfanstalt Hannover
- 8) Test report 241338 dated 22.08.2024 of the Materialprüfanstalt Hannover



The test results summarised in Tables 1 and 3 are taken from these test reports/certificates and compared with the requirements of DIN 18542:2020.

Summary for 12 mm standard joint ($b_N = 12$)

Table 1: Comparison of test results for the tape dimension for the 12 mm standard joint (manufacturer's dimension /10-20) with the requirements of DIN 18542:2020

Test	Test acc. to DIN 18542, Section	Requirements of DIN 18542 for MF 2	Result of the test	documented in test report
Joint permeability coefficient a at 10 Pa Airtightness	8.2	$< 0.1 \text{ m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^n)$ Below MF 2 limit line	0.008 $\text{m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^{0.67}$ Below MF 2 limit line	MPA test report no.: 192137
Tightness against driving rain	8.3	$\geq 300 \text{ Pa}$	750 Pa	MPA test report no.: 192137
Protection of the functional layer (on dim(56/6-15))	8.5	$\geq 300 \text{ Pa}$	600 Pa	MPA test report no.: 216781
Resistance to temperature fluctuations	8.6	From -20°C to $+60^\circ\text{C}$	Requirements fulfilled	MPA test report no.: 192142

Table 1: (continued) Comparison of test results for the tape dimension for the 12 mm standard joint (manufacturer's dimension /10-20) with the requirements of DIN 18542:2020

Test	Test acc. to DIN 18542, Section	Requirements of DIN 18542 for MF 2	Result of the test	documented in test report
Compatibility with adjacent materials	8.8	Up to 60°C	Requirements fulfilled	MPA test report no.: 192142
Resistance to condensation	8.9	100% relative humidity / 85°C	Requirements fulfilled	MPA test report no.: 202486
Water vapour permeability s_d -value ($s_d = \mu \cdot t_f$) (for tape width 16 mm)	8.10	determined value I. Area	I: $s_d = 0.055 \text{ m}$ $\mu = 3.5$ (black foam without membrane layer)	MPA test report no.: 192142
		determined value II. Area	II: $s_d = 0.118 \text{ m}$ $\mu = 7.5$ (black foam with membrane layer)	MPA test report no.: 192142
Thermal conductivity (λ)	8.11	mean value Standard deviation	$\lambda \text{ } 0.0417 \text{ W/(m}\cdot\text{K)}$ $0.0005 \text{ W/(m}\cdot\text{K)}$	MPA test report no.: 200212
Fire behaviour	8.12	B2 / E	B2	ABP Nr.: P-NDS04-717

Tabel 2: Comparative, alternative tests according to DIN 18542:2020, Annex C

Testing	Comparative requirements of DIN 18542, Annex-C ⁽¹⁾	Result of the test	documented in the test report
Tape thickness in decompressed state	No significant deviations	fulfilled	MPA HANNOVER Test report no.: 241338
Volume weight	No significant deviations	fulfilled	MPA HANNOVER Test report no.: 241338
Infrared spectrum	No significant deviations	fulfilled	MPA HANNOVER Test report no.: 241338
Thermogravimetric analysis (TGA)	No significant deviations	fulfilled	MPA HANNOVER Test report no.: 241338
Differential scanning calorimetry (DSC)	No significant deviations	fulfilled	MPA HANNOVER Test report no.: 241338

⁽¹⁾ Comparison of initial test results with current production batch

Transferability to other tape dimensions

The transferability of the attained exposure class to other dimensions of the tested tape type (manufacturer's supply programme according to Table 3) is possible in accordance with the transfer rule (DIN 18542) presented in Fig. 1, based on the ratio of cutting width to maximum joint width (t_c / b_{max}). The attained exposure class can be transferred to dimensions above the connecting line of the tested dimensions.



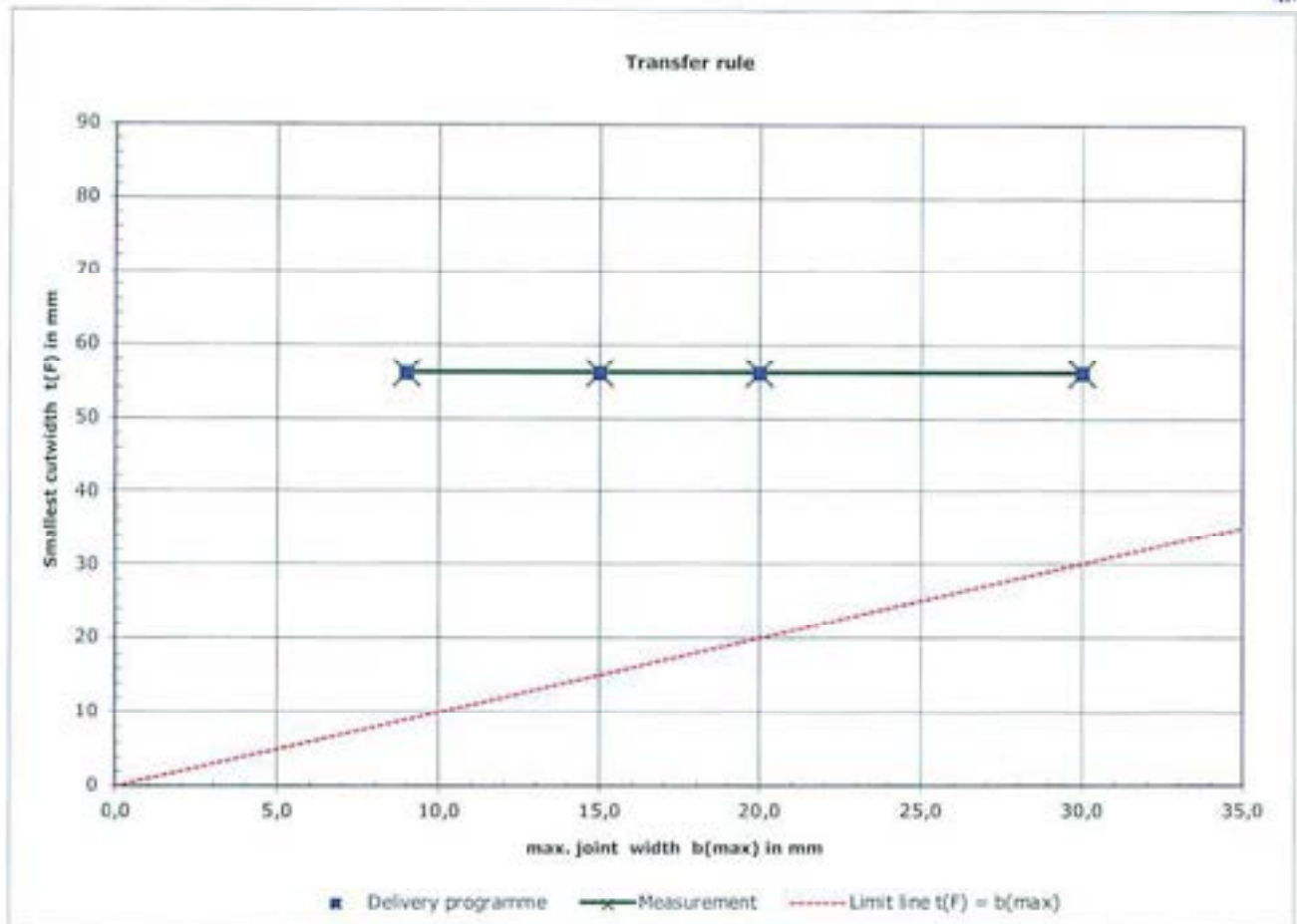


Fig. 1: Transfer rule to other tape dimensions

Table 3: Supply programme and test results for the requirements (airtightness and tightness against driving rain) regarding the transferability according to DIN 18542: 2020

Tape dimension	Cutting width of tape (t_F) mm	Maximum joint width ($b_{\max}$) mm	Compression value %	Requirements of DIN 18542 for MF 2	documented in test report
56/4-9	56	9	50%	fulfilled ⁽¹⁾	MPA test report no 192137
56/6-15	56	15	50%	fulfilled ⁽²⁾	MPA test report no 196781
56/10-20	56	20	50%	fulfilled ⁽³⁾	MPA test report no 192137
56/15-30	56	30	50%	fulfilled ⁽⁴⁾	MPA test report no 192137

⁽¹⁾ Air permeability $0.005 \text{ m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^{0.93})$; driving rain tight 750 Pa

⁽²⁾ Air permeability $0.020 \text{ m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^{0.78})$; driving rain tight 600 Pa

⁽³⁾ Air permeability $0.008 \text{ m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^{0.87})$; driving rain tight 750 Pa

⁽⁴⁾ Air permeability $0.028 \text{ m}^3/(\text{h} \cdot \text{m} \cdot (\text{daPa})^{0.81})$; driving rain tight 1050 Pa

4. Conclusion

Based on the requalification tests carried out in accordance with DIN 18542:2020, Annex-C, the period of validity of the classification according to exposure class MF 2 is extended for the multifunctional sealing tape **"Hannoband-3E"**.

Hanover, 22 August 2024

Head of Chemical Laboratory

A handwritten signature in blue ink, appearing to read "Dr. T. Schnatzke".

(Dr. T. Schnatzke)

