

# Measuring and testing devices

Precision technology for measurement, test and demonstration



## Measuring and testing devices

- ▶ Density testing set for loose insulation materials
- ▶ Borescope camera for cavity inspection
- ▶ Thickness gauges, manometers and scales
- ▶ Test benches for loose thermal insulation materials
- ▶ Exhibition and presentation models



## X-Floc blow-in technology

For more than 25 years, X-Floc Dämmtechnik-Maschinen GmbH has been considered a centre of excellence for the development of blow-in technology. In the pneumatic conveying of insulation materials, the company developed a multitude of innovations and design standards that have become established as the state of the art. In doing so, the company always keeps in mind the guiding principle that its products are compatible with as many insulation materials available on the market as possible.

One area of the wide X-Floc range is measuring and testing equipment for insulation manufacturers and material testing institutes. Thanks to its practical experience as a machine and equipment manufacturer, the company has the necessary know-how to develop standard-compliant equipment.

In this respect, X-Floc Dämmtechnik-Maschinen GmbH maintains close cooperation with university research institutions and development departments. One example of the numerous successfully completed research projects is the vibration test rig according to the standards ISO/CD 18393 and EN 15101-1. This test device for determining the setting dimension, which surpasses even the most difficult realistic conditions, was developed in joint work with the Ludwig-Maximilians University in Munich.

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## Blow-in insulation material product groups

### Cellulose

ALISANAT, Arbocel Climasafe, Cellisol 300, Cellisol 500, Warmcel, Warmcel 500, Zellofix, Ouatex, Eurocellulose, cellulose V1, Vosges Cellulose, Eurocellulose SB, cellulose V3 SB, Vosges Cellulose S B, FranceFloc B, Ecofloc B, Cell la vie B, Néocell B, Optimum MP, Climacell S, Climacell pure, Climacell akust, Climacell inside, Climacell sonic, cellfloc, climacell Loft, climacell InduTec, climacell HSX, climacell FSX, climacell Green Nature, Unifloc, Witherm, DÄMMSTATTs CI 040, KLIMA-TEC-FLOCK, biocell, DÄMMSTATTs CI Dämmschüttung, DÄMMSTATTs CI 040 bf, KLIMA-TEC-FLOCK bf, biocell bf, DÄMMSTATTs CI Dämmschüttung bf, DAEMMSTATT D, Isocell D, Trendisol D, Dobry-Ekovilla D, DAEMMSTATT D bf, Isocell D bf, Trendisol D bf, Dobry-Ekovilla D bf, Isocell P, Isocell for you, FLOCO'MOBIL Dämmflocke, Floci-Cell, naturheld Holzfaser Einblasdämmung, WoodyCell+, WoodyCell Plus, WOODYCELL, isofloc, isofloc L, isofloc L+, isofloc LW, isofloc LM, swissfloc, isofloc eco, isofloc neo, easyfiber, CelluBOR SW, OUATECO PREMIUM, JUST BE GREEN, ISOL+, OUATECO, OUATECO NATURE, STEICOfloc, STEICOfloc NB, THERMOFLOC F, THERMOFLOC B, GREENFLOC, Clima-super, Isocell, trendisol, Isodek, Dobry-Ekovilla, Fibra-Natur, Domexcell, Pavaflow, Renocell, Isolare, Poesis, isECO, ISOCELL F, greenwool, clima-super Evolution, Isocell Evolution, greenwool Evolution, isECO green, clima-super lambda+, clima-super max, Isocell lambda+, greenwool lambda+, isECO lambda+, isECO max, trendisol lambda+, Wolfinger Zellulosedämmung, STT Floc, Ekovilla, Ekovilla Puru, Ekovilla IA, Isonem, Isolet, UpCell, GreenCell, Climatizer plus, Thermocel, La cellulosa, Easycell, Celisol, Isofloc EU 01, WarmFiber, WarmFiber Plus, Termex, Termex Green, Ekocell, Ekocell Green, Kätevä, Kätevä Green, iQ3 CELLULOSE, CELLIPURE, ISOLANT ECOLOGIQUE SEMI, DOMOSANIX, CELLECO etc.

### Wood fibre

GUTEX Thermofibre, GUTEX Thermofibre FQ, WOODYCELL SW, AIRFLEX, best wood FIBRE, Hoiz, Jasmin, STEICO zell, Thermocell in-situ formed loose fill insulation, Termoträ Original, Termoträ Fire Protect etc.

### Mineral fibre

InsulSafe, Supafil Cavity Wall, Supafil Loft Plus, Supafil Timber Frame, Supafil Max Frame, Teko-Flock, Indi-Flock, Trendi-Flock, swissporROC, COOMBLISSIMO, FLOCOLENE, TECHWOOL, Fillrock KD Plus, Fillrock KD, Fillrock RG Plus, Fillrock RG, Conlit Firesafe, PAROC BLT 5, DOSSOLAN THERMIQUE etc.

### Mineral granules

BIT Perlit Bachl, HY Perlit Bachl, Neopor, Hyperdämm, Hyperlite KD, Thermoperl, 2K Perlit Flachdachdämmung, Extraperl S4, Thermo-Fill, Thermo-Floor, Thermo-Plan, Thermo-Roof, ISOPLUS100 BEPS-WD, SLS 20F, SLS20 Plus, Perli-Fill, Poraver Blähglas-Granulat, Bauhaus DSX100, Geocell Blähglas, JASS Wärmedämmschüttung, Liaver, NEVOLIT etc.

### EPS granules

ThermoWhite WD 100 R, ISO Plus BINDER WD 100R, ThermoWhite WD 70 R (RN), ThermoWhite WD 130 R, HIRSCH PoroBead 033, H2 Wall, Granublow 033, HIRSCH Poro-Bead Plus, H2 Wall Plus, Granublow Plus, Isofloc Pearl, RigiBead Premium 033, RigiBead 035, SwissporEPS Perlen, SwissporEPS Styromull, airpor level 3.0, airpor level 3.0 A, airpor rapid, airpor light, BACHL niveauTHERM 160 Premium, BACHL niveauTHERM 160 Premium-PLUS, BACHL niveauTHERM 400 Premium, BACHL niveauTHERM 400 Premium-PLUS, HK33, TF Pearls, GRANU-PUR, Neopixels Premium HR Insulation, thermotec BEPS-WD 130R, thermotec BEPS-WD 70N, Ecofibre EPS 033 Kerndämmung etc.

### Fire protection plaster

ISOVER FireProtect 150, ISOVER FireProtect 150F, DOSSOLAN THERMIQUE, DOSSOLAN 3000, DOSSOLAN-HOECO F II/1, Cafco-BLAZSHIEKD DC/F, Cafco-300, FIBREXPAN etc.

### Other insulation material

Hanf-Dämmwolle HDW, AgriCell BW, Einblasstroh, Bio-Einblasstroh, Thermostroh, Thermostraw, Blown straw insulation, Plantacell, Stroheinblasdämmung, Sonnen-Stroh, SunStraw, Blowstraw, Blow-in straw, Loose fill straw insulation, SonnenKlee-Einblasstroh, GREENFLOC, Thermofloc-Dämm pellets, G-tec gebundener Dämmkork, Iso-Stroh, Flachs-floc, Lopas-Strohhäcksel dämmung, CEMWOOD CW 1000 / CW 2000, ISOLENA-BLOCK, ISOLENA-OPTIMAL, ISOLENA-PREMIUM, ISOLENA-KLEMMFILZ, ISOLENA-OPTIMAL PLUS, MEHABIT, MEHAPORT, MEHASPORT, NeptuTherm, Calor, THERMO JUTE DUO, THERMO JUTE 100, THERMO JUTE 100 PLUS, Métisse Flocon, FonaTerm - granular, REINFLOCK, Conluto, JOMApertl etc.

Table does not claim to be complete. X-Floc will check other products upon request.



## Density testing set NW100

The density testing set NW100 is used to check the installation density of loose insulation materials such as cellulose, wood and mineral fibre. The basic test set consists of a 500mm-long piercing tube with an imprinted ISO scale and an electronic test scale (up to 2200g). The test tube is also available in 800mm length and with IMPERIAL scale on request.

Furthermore, the density testing set NW100 is also available with case or case and hole saw as well as a complete set with case, hole saw and power supply (see ordering information).

## Product details

- ▶ Measuring range insulation thickness: 40-470mm (or 1½"-18½")
- ▶ Measuring range installation density: 20-155 kg/m³ (or 1,6-6,4lb/ft³)
- ▶ Can be used selectively on any elements, e.g. walls, sloping roofs slopes, ceilings and floors.

## Instructions for use online

Please visit our YouTube Channel. There we show in video how to use the density testing set NW100 to measure the local density of the blown-in wall and to calculate the average installation density based on this measurement and calculation:

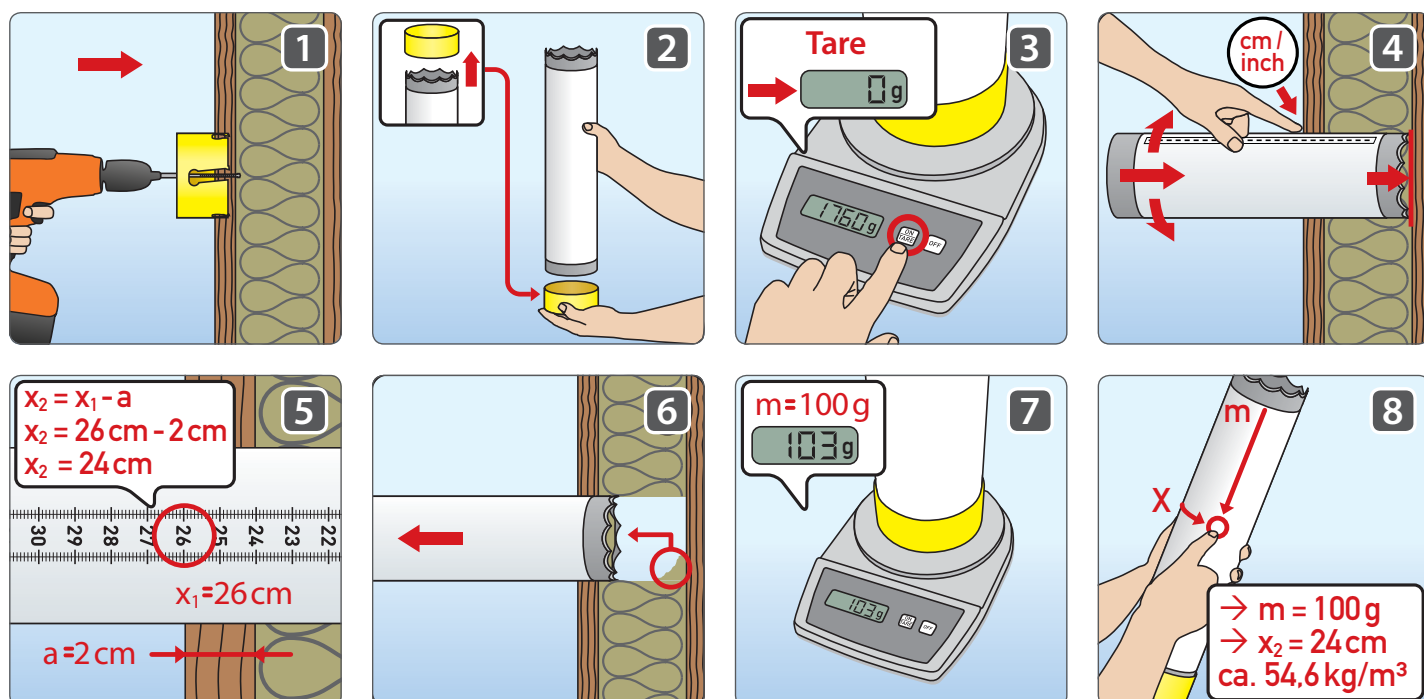


## Ordering information

		Art.no.
	Density testing set NW100 consisting of piercing tube and scale Pipe scale according to ISO (g, cm, kg/m³)	3770
	Density testing set NW100 with case Pipe scale according to ISO (g, cm, kg/m³)	5347
	Density testing set NW100 with case and hole saw D=106,5mm Pipe scale according to ISO (g, cm, kg/m³)	8383
	Density testing set NW100 with case, hole saw and power supply unit Pipe scale according to ISO (g, cm, kg/m³)	4349

On request, the test tube is available 800mm or with Imperial scale.

## Application





Borescope camera for cavity layer inspection

Borescope for hollow film inspection with one front camera and up to two side cameras. The switch for selecting the respective camera is integrated in the cable. Sound recording is possible via the built-in microphone. User-friendly, e.g. because several menu languages can be selected.

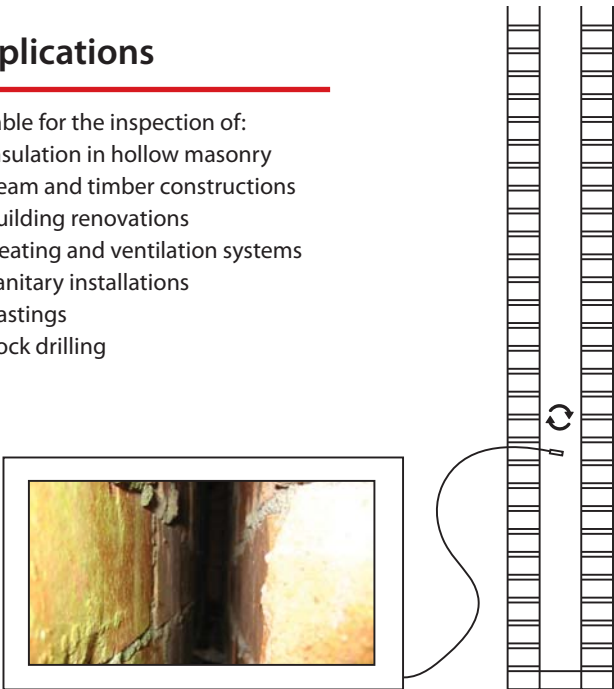


Product details

- ▶ Video and image recording
- ▶ Image resolution: 1080P Full HD
- ▶ Video resolution: 720P HD
- ▶ Light source: LED light
- ▶ Screen: 4.5 inch colour screen
- ▶ Protection class camera probe: IP67
- ▶ Protection class screen unit: IP45
- ▶ Memory: 32GB Micro SD card
- ▶ Battery: 2500mA rechargeable

Applications

- Suitable for the inspection of:
- ▶ Insulation in hollow masonry
  - ▶ Beam and timber constructions
  - ▶ Building renovations
  - ▶ Heating and ventilation systems
  - ▶ Sanitary installations
  - ▶ Castings
  - ▶ Rock drilling

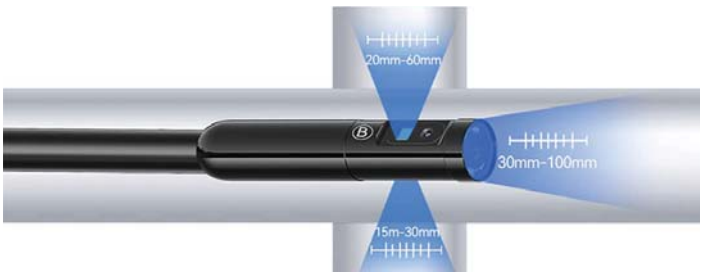


Ordering information

		Art.no.
	Borescope camera with 2 lenses for cavity inspection	11054
	Borescope camera with 3 lenses for cavity inspection	11136



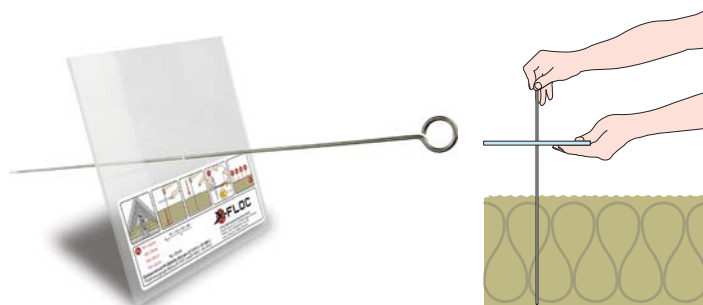
Borescope camera with two lenses



Borescope camera with three lenses

## Thickness test for attic-blown insulation

The thickness gauge is used for determining installation thickness with open/attic blowing (LFCI and MW) according to standard EN15101 and EN14064. The thickness gauge consists of a test plate (approx. 80g) and an approx. 500mm long test rod.



## How to use the thickness gauge

- ▶ Smooth out any unevenness.
- ▶ Pass the test rod through the test plate so that there is maximum distance between test plate and test probe.
- ▶ Pierce the test rod with the test plate to the bottom of the insulation layer.
- ▶ Allow the weight of the test plate to act.
- ▶ Measure the length of the test rod from the tip to the test plate.
- ▶ Test at several points of the insulation (e.g. ten times). Repeat the test on the insulation and calculate the mean value.



## Testing basket 0,1m<sup>3</sup>

The testing basket is a sample container for blow-in insulation materials, which is used, among other things, for settlement tests. The box is made of galvanised perforated steel sheet and is equipped with a removable lid as well as with two handles and two quick-release fasteners.

## Product details

- ▶ Test volume: 0,1m<sup>3</sup>
- ▶ Dimensions: approx. 549x332x549mm (WxHxD)
- ▶ Unladen weight: approx. 10,5kg
- ▶ Bore Ø 90mm

## Ordering information

		Art.no.
	<b>Thickness gauge / test plate</b> for loose insulation materials (80g) according to EN15101 and EN14064	4932
	<b>Pressure gauge</b> Manometer for pressure testing with sealing plate D= approx. 117mm Measuring range: 0-0,6bar (0-600mbar)	7079
	<b>Universal pressure gauge NW50/63</b> Suitable for hose lines, outlet nozzles or connections NW50 (2") and NW63 (2½") Measuring range: 0-0,6bar	9203
	<b>Universal pressure gauge NW63/75</b> Suitable for hose lines, outlet nozzles or connections NW63 (2½") and NW75 (3") Measuring range: 0-0,6bar	9566
	<b>Universal pressure gauge NW75/90</b> Suitable for hose lines, outlet nozzles or connections NW75 (3") and NW90 (3½") Measuring range: 0-0,6bar	8187
	<b>Digital scale</b> for weighing the test elements or the testing basket Measuring range: 0-40kg	4544
	<b>Scale with measuring tape (1m)</b> or weighing the test elements or the testing basket Measuring range: 0-22kg	5983
	<b>Testing basket V=0,1m<sup>3</sup></b> according to the approval regulations, with removable lid	315

## Measuring and testing devices

### Testing element 0,1m<sup>3</sup>

Sturdy test element with removable front made of Plexiglas. For easy emptying, the model is also available with a removable lid (optional). As standard, the test element is supplied without a drill hole in the back of the element, as this is usually done by the customer. If a hole is required, please specify when ordering.



### Product details

- ▶ Test volume: 0,1m<sup>3</sup>
- ▶ Dimensions: approx. 550x334x920mm (WxHxD)
- ▶ Unladen weight: approx. 22kg
- ▶ Removable plexiglas front
- ▶ With removable or fixed lid

### Applications

Especially suitable for testing and demonstration of:

- ▶ Dry injection with hose (vertical, inclined, horizontal)
- ▶ Dry injection with ventilated rotary nozzle through a drill hole (vertical, inclined)
- ▶ Open/attic blowing (horizontal)
- ▶ Damp spraying (vertical, horizontal)
- ▶ Blow-in with lance (horizontal)

### Examples of use



Dry injection



with ventilated rotary nozzle





Open/attic blowing








Evaluation of the filling result

### Ordering information

		Art.no.
	Testing element V=0,1m <sup>3</sup> with removable lid	3946
	Testing element V=0,1m <sup>3</sup> with fixed lid	8851

### Sample accessories

		Art.no.
	Scale for test element 0,1 m <sup>3</sup> Stable digital scale for checking the installation density in the test element, max. weighing 150kg, graduation 100g	9392
	Hole saw with ejection system complete D=106,5mm	4966
	Thickness gauge Test plate for loose insulation materials (80g) acc. to EN15101 and EN14064 and test rod approx. 500mm	4932
	Density test set NW100 consisting of measuring tube and scale Piercing tube L=500mm, scale acc. to ISO (g, cm, kg/m <sup>3</sup> )	3770
	Sealing sponge for sealing of injection holes with hoses NW63 or NW75	292




## Testing element 0,015m<sup>3</sup>

The test element is used to test the installation density when blowing in mineral fibre cavity wall insulation.

It consists of robust multiplex material with a metal-reinforced rear wall (baffle plate opposite the blow-in opening) and a removable front panel for inspecting the filling result.



## Ordering information

	Art.no.
 <b>Testing element V=0,015m<sup>3</sup></b> with removable front panel, acc. to EN 14064-2, annex C	<b>5697</b>

## Product details

- ▶ Test volume: 0,015m<sup>3</sup>
- ▶ Dimensions: approx. 570x130x530mm (WxHxD)
- ▶ Unladen weight: approx. 8kg
- ▶ Injection port: ø 25mm
- ▶ Material: multiplex / metal

## Applications

In cavity wall insulation, thermal insulation materials such as glass wool, rock wool, EPS granules or mineral granules are usually blown into the cavity wall with the help of nozzles. The test element is designed for these applications:

- ▶ Practical box closures for quick emptying
- ▶ Firm stand due to enlarged base plate
- ▶ Handle for easy handling and weighing

## Examples of use



Injection nozzle



Injection nozzle with ball valve







Quality assurance with digital scale



Evaluation of the filling result

## Sample accessories

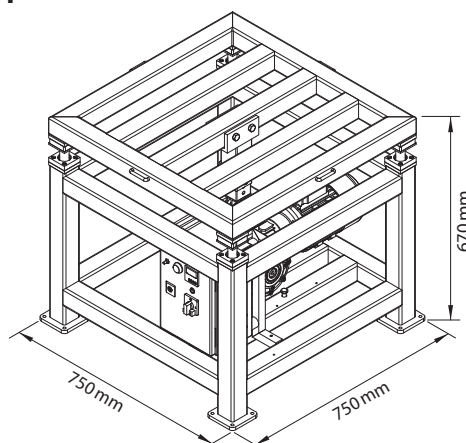
	Art.no.
 <b>Rotary nozzle 50&gt;24mm / 45° outlet</b> (increased wear resistance) Well suited for insulation work with free-flowing bulk material.	<b>6291</b>
 <b>Injection nozzle NW50&gt;24</b> for blowing in and recompacting of loose insulating materials. (hose reduction from NW50 to NW24)	<b>3961</b>
 <b>Injection nozzle NW50&gt;24 AV</b> with ball valve, for injection and post-compaction of EPS granules, mineral rock, foam glass etc.	<b>5692</b>
 <b>Digital scale</b> for weighing the test elements or the test basket Measuring range: 0-40kg	<b>4544</b>

## Impact excitation test bench according to EN 15101-1


Device for testing the settlement under impact excitation.

Preferably for settlement testing of:





- ▶ Loose fill with thermal insulation materials
- ▶ Open blown-off cellulose fillers (LFCI)
- ▶ Compacted blown-in cellulose fillers (LFCI)



## Ordering information

		Art.no.
	Settlement test rig acc. to EN 15101-1 for determining the settlement dimension for loose fill or openly inflated thermal insulation material	4179

## Sample accessories

		Art.no.
	<b>Testing basket <math>V=0,1m^3</math></b> Perforated sheet metal box complying with the approval regulations, with removable lid	315
	<b>Testing element <math>V=0,1m^3</math></b> with removable lid	3946
	<b>Thickness gauge</b> Test plate for loose insulation material (80g) according to EN15101 and EN14064 and test rod approx. 500mm	4932
	<b>Digital scale</b> for weighing the test element or the test basket Measuring range: 0-40kg	4544

## Product details

- ▶ Sturdy tubular steel frame with powder-coated surface (RAL7035 light grey)
- ▶ Four linear units for optimum guidance and low drop resistance of the lift table
- ▶ Lifting speed infinitely variable
- ▶ Preselection of adjustable test cycles
- ▶ Four lateral lugs for secure fastening of the test specimen with lashing straps
- ▶ Suitable for test basket (sample container) or test element with volume  $0,1m^3$

## Technical data

Dimensions approx. (LxWxD)	750x750x670mm
Adjustable stroke	10... 110mm
Stroke steps	6 à 20mm
Stroke speed	infinitely variable
Test cycles	1... >9999
Load max.	40kg
Rated power approx.	0,75kW
Power supply	230V/50Hz
Weight approx.	110kg



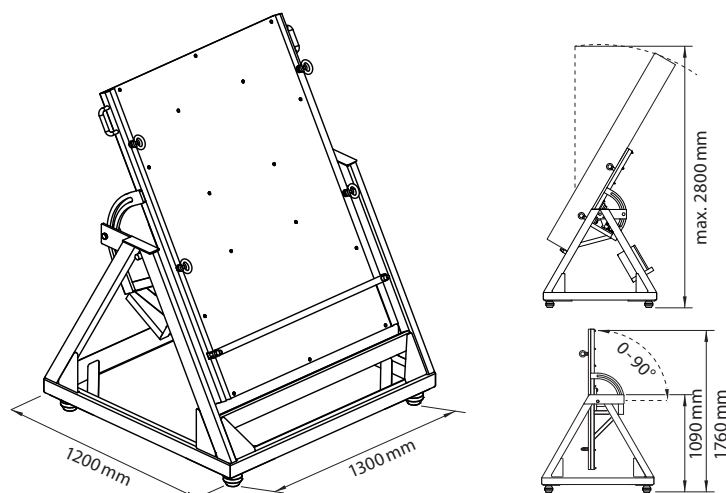


## Vibration test rig according to EN 15101-1


Device for testing the settlement under vibration, developed by X-Floc GmbH in cooperation with the Ludwig-Maximilians University Munich.

Preferably for settlement testing of:




- ▶ Compacted blown-in cellulose fillers (LFCI) and other blown-in insulation materials
- ▶ Blown-in thermal insulation in walls, ceilings and roof slopes



## Ordering information

		Art.no.
	<b>Settlement test rig acc. to EN 15101-1</b> Vibration test device for compressed blown-in insulation materials	<b>6342</b>

## Sample accessories

		Art.no.
	<b>Test element for the vibration test rig acc. to DIN-EN 15101-1</b> Stabiler Probebehälter aus Holz zur Durchführung von Setzungstests	<b>6617</b>
	<b>Test element V=0,1m³</b> with removable lid	<b>3946</b>
	<b>Density testing set NW100</b> consisting of piercing rod and scale Piercing tube L=500mm, Scale acc. to ISO (g, cm, kg/m³)	<b>3770</b>

## Product details

- ▶ Sturdy steel frame with powder-coated surface (RAL7035 light grey)
- ▶ Mounting plate can be tilted continuously up to 90°
- ▶ Enables settlement testing of thermal insulation in walls, ceilings and roof slopes
- ▶ Exact setting of the desired inclination with the aid of an angle scale
- ▶ Suitable for test elements up to wall height
- ▶ Four sturdy lashing eyes allow the test element to be fixed with straps on the mounting plate
- ▶ Stand safety profile secures the test element on the vertical axis

## Technical data

Dimensions approx. (L×W×H1/2)	1200×1300×1090/1760 mm
Sample container (W/H) max.	1000/3000mm
Surface	powder-coated RAL7035
Swivel range	0-90°
Frequency max.	87Hz
Vibrations	5220Hz
Rated power approx.	0,9kW
Power supply	230V/50Hz
Weight approx.	270kg



# Exhibition models

## Machine attachments for the blow-in demonstration

For (in-house) trade fairs, exhibitions as well as for training purposes and all kinds of demonstrations machine attachments are available for the X-Floc machine series EM300, Zellofant M95 and Minifant M99.

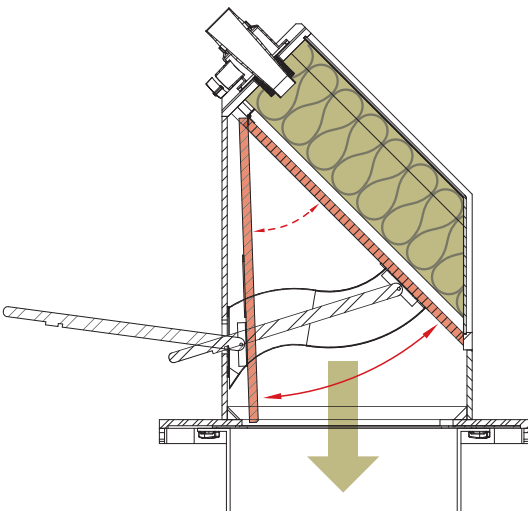
The machine attachments are very well suited for demonstrating of a blowing process with the insulating materials cellulose and wood fibre as well as with free-flowing bulk materials.





### Product details

- ▶ Impressive presentation due to large viewing window
- ▶ Dust-free and quiet operation
- ▶ Extremely simple operation
- ▶ With customised advertising sticker on request




### Functional principle



### Ordering information

Art.no.		
	<b>Exhibition model EM3xx and Zellofant M95</b> Machine attachment for demonstration Dimensions: 112x86x118cm (LxWxD)	3020
	<b>Exhibition model Minifant M99 and Zellofant M95</b> Machine attachment for demonstration Dimensions: 112x86x118cm (LxWxD)	3132

### Sample accessories

Art.no.		
	<b>Hopper short</b> Shortend hopper for Zellofant M95 approx. 750mm high, V = approx. 0,3m <sup>3</sup>	4812
	<b>Adapter plate</b> for mounting the exhibition model onto the Zellofant M95	3135
	<b>Connection kit for Zellofant M95</b> consisting of adapter plate, transport hose, reducer and hose clamps	6098

## X-Floc Machine series

The re-engineered very first model of Zellofant M95 is still being manufactured today and many machines of the first generation are still in use. This fact speaks for itself. The Zellofant M95 is the symbol for blow-in technology in Europe. Thousands of users still successfully use this machine type today.

But time does not stand still, of course. The demands on a blow-in machine have grown due to the further development of blow-in insulation materials. X-Floc still sets new standards, e.g. with the EM300 and EM400 series. In addition, the company develops special machines for particular areas of application and for special blow-in technology requirements.

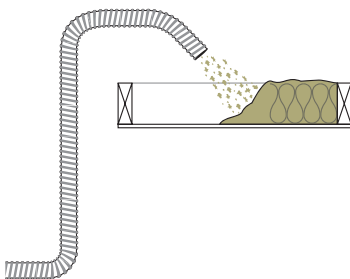


## Applications/Blow-in methods

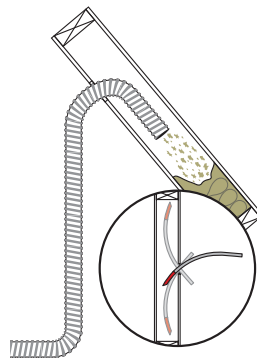
In the blow-in process, thermal insulation material is placed in building components by means of an insulation blow-in machine. The insulation material is usually fed to the machine in bag form. The blow-in machine breaks the thermal insulation material, which is compressed

in the delivery container, into pieces and then loosens it further. The loosened insulation material is transported via a hose into the building components to be insulated, where the insulation material fills the room. Compressed by the pressure, it becomes thermal insulation.

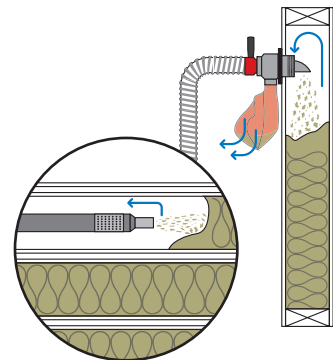
### A Open/attic blowing



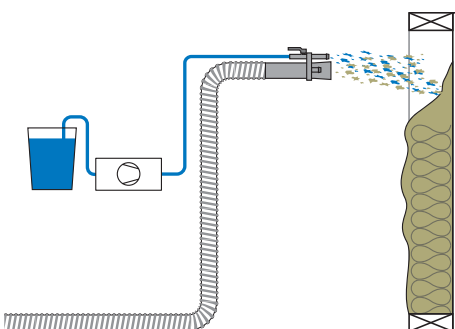
### B Dry injection



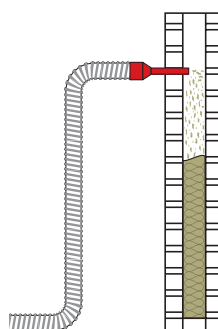
### C Dry injection with ventilation



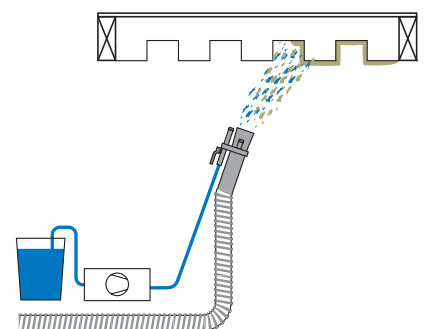
### D Damp spraying/CSO



### E Cavity wall insulation



### F Fire protection plaster





# Measuring and testing devices

## Machine accessories

X-Floc blow-in machines, amplifier/vacuum stations and other products can be operated and combined in a variety of ways. Detailed information on radio remote controls, cable control, power generators as well as bag supports, suction drums and other machine accessories can be found in the relevant product docu.

► Further information, see brochure **Machine accessories**



## Nozzles and blowing accessories

For each insulation blow-in principle and each application, tools and/or accessories are necessary for insertion, sealing and venting. Detailed information about these accessories and everything about tools such as injection nozzles, injection needles/lances as well as hole saws and sealing parts can be found in the relevant product docu.

► Further information, see brochure **Nozzles and blowing accessories**



## Hoses and connectors

Hoses and connectors are an essential part of the blow-in equipment because they can be used to create all conceivable transport lines and circuits. Detailed information on conveying and injection hoses as well as hose connectors, hose clamps, Y-pieces and fibre switches can be found in the relevant product docu.

► Further information, see brochure **Hoses and connectors**



## Measurement devices

X-Floc maintains close cooperation with university research and development institutions. This results in an extensive product range in the field of measuring and testing technology for blow-in technicians, insulation manufacturers and material testing institutes, and many more. More info can be found in the relevant product docu.

► Further information, see brochure **Measurement devices**



## Damp spraying

In the damp spray process, thermal insulation material is moistened with water after exiting the hose. Detailed information on spray heads and pipes for the various applications as well as on high-pressure pumps such as membrane or piston pumps and on wall scrubber for smooth surfaces can be found in the relevant product docu.

► Further information, see brochure **Damp spraying**



## Industrial safety and respiratory protection

The special work suit with hood protects the blow-in professional from contact with skin-irritating insulation materials. Detailed information on the X-Floc range of workwear, dust masks, professional respirators with legal approval as well as air filters, rechargeable batteries and other accessories can be found in the relevant product docu.

► Further information, see brochure **Industrial safety/Respirators**



**X-Floc Dämmtechnik-Maschinen GmbH**

Rosine-Starz-Straße 12 · 71272 Renningen · Germany

Telefon: +49-7159-80470-30 · Fax: -40

E-Mail: [info@x-floc.com](mailto:info@x-floc.com) · [www.x-floc.com](http://www.x-floc.com)



Your X-Floc representative