ATLAS®

Contractor's Handbook

bogate Commercial representative in Africa

FOREWORD

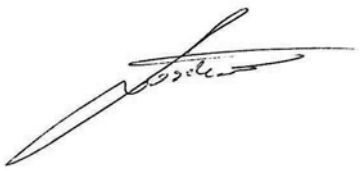
Dear All,

We are pleased to provide you with the 4th edition of our widely known and popular "ATLAS Contractor's Handbook". We keep the known and appreciated form of presentation of data which makes this book a helpful tool in your day-to-day projects.

You can find here a full range of Atlas products, including all new ones, guidelines on application, tables with technical data, illustrated technical solutions, useful definitions and universal tables of consumption: of adhesives for tiles, grouts and waterproofing. The handbook has been updated with data of the newest materials in our portfolio:
- OK! and new PLUS adhesives for tiles of double strength of fibers, which offer excellent technical and application performance.
- New mosaic renders DEKO M, including the EFFECT OF STONE and EFFECT OF SANDSTONE, METALLIC VARNISH and EFFECT OF CONCRETE which all supplement our offer of decorative top coats.

We also introduce the newest trend in tiling – installation of extra large size cladding. We point the most significant elements preceding a project acceptance and show sources of further information.

We sincerely hope you find our book helpful in your search for appropriate products and systemic solutions.



Michał Gosławski
Foreign Sales Director – Atlas Group Coordinator (West)

bogate Commercial representative in Africa

Information presented in this book is based on knowledge available in October 2018.

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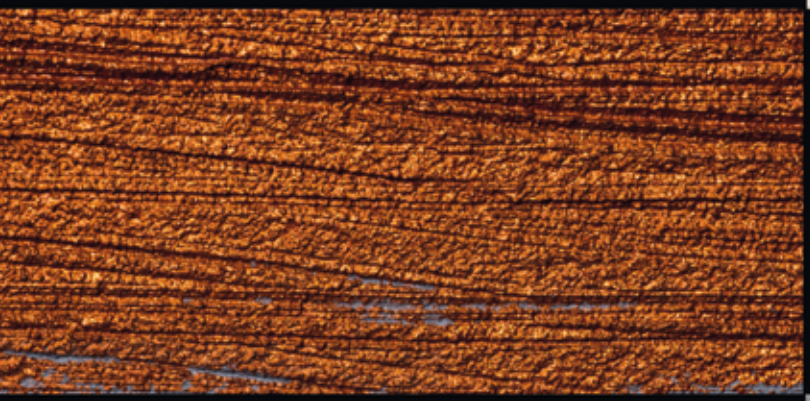
effect of timber
ATLAS CERMIT WN/
ATLAS BEJCA

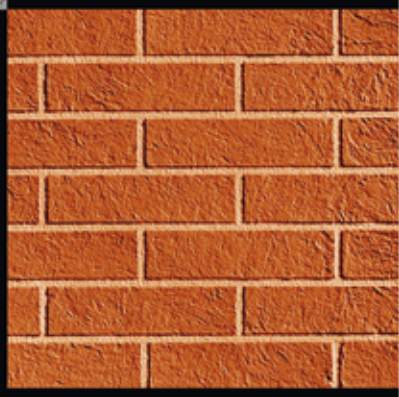


effect of stone
ATLAS DEKO TM5

effect of metal
ATLAS METALLIC VARNISH

effect of sandstone
ATLAS DEKO M TM6

effect of concrete
ATLAS CERMIT BA-M



effect of brick
ATLAS CERMIT N-100

Decorative Effects

ATLAS

Adhesives for Tiles
Grouts
Silicones
Additives
Primers
Waterproofing

1

1.1.1 Adhesives for Tiles

	GEL TECHNOLOGY						
PRODUCT							
	ATLAS PLUS S2 HYDRO	**ATLAS ULTRA GEOFLEX**	**ATLAS GEOFLEX**	**ATLAS GEOFLEX WHITE**	**ATLAS PLUS**	**ATLAS PLUS WHITE/ AVAL KM 15**	**ATLAS PLUS EXPRESS**
	Deformable S2 adhesive with waterproofing function	Deformable S1 gel adhesive	Highly flexible gel adhesive	Highly flexible white gel adhesive	Highly flexible deformable S1 adhesive	White deformable S1 adhesive	Rapid set deformable S1 adhesive
Reference document	12004/14891	PN-EN 12004+A1:2012					
Packaging size	15 kg	5 kg, 25 kg	5 kg, 25 kg	5 kg, 25 kg	5 kg, 10 kg, 20 kg, 25 kg	25 kg	25 kg
Packaging type	foil bag	foil bag/ alubag (5 kg)	foil bag/ alubag (5 kg)	foil bag/ alubag (5 kg)	foil bag/ alubag (5 kg)	foil bag/ paper bag (KM 15)	foil bag
	TECHNICAL DATA						
Class	C2TE S2	C2TE S1	C2TE	C2TE	C2TE S1	C2TE S1	C2FTE S1
Bonding [N/mm²]	≥ 1.0	≥ 1.0	≥ 1.0	≥ 1.0	≥ 1.0	≥ 1.0	≥ 1.0
Layer thickness [mm]	2-10	2 – 15	2 – 15	2 – 15	2 – 10	2 – 10	2 – 5
Temperature of application [°C]	2-25	5 – 35	5 – 35	5 – 35	1 – 25	5 – 25	5 – 25
Pot life [h]	approx. 2	approx. 4	approx. 4	approx. 4	approx. 4	approx. 5	up to 1
Open time [min]	> 30	> 30	> 30	> 30	> 30	> 30	> 30
Adjustability [min]	20	20	20	20	10	10	10
Foot traffic/grouting after [h]	24	12	12	12	24	42	4
Full load – foot traffic after [days]	approx. 4	approx. 3	approx. 3	approx. 3	approx. 3	approx. 3	24 hours
Full load – vehicle traffic after [days]	approx. 14	approx. 14	approx. 14	approx. 14	approx. 14	approx. 14	approx. 14
Full load under water pool/tank [days]	approx. 14	approx. 14	n/a	n/a	approx. 14	approx. 14	approx. 14
Floor heating (for heated surfaces) [days]	approx. 14	approx. 14	approx. 14	approx. 14	approx. 21	approx. 21	approx. 21
Shelf life [months]	12	12/24 (alu)	12/24 (alu)	12/24 (alu)	12/24 (alu)	12	12
	TYPE OF TILES TO BE FIXED						
Glazed tiles	+	+	+	+	+	+	+
Terracotta	+	+	+	+	+	+	+
Gres-porcelain	+	+	+	+	+	+	+
Laminated gres	+	+	USE ATLAS ULTRA GEOFLEX		+	+	+
Stone cladding	+*	+*	+*	+	+*	+	+*
Clinker	+	+	+	+	+	+	+
Stoneware	+	+	+	+	+	+	+
Ceramic mosaic	+	+	+	+	+	+	+
Glass mosaic	+**	+**	+**	+	+**	+**	+**
Glass, dyed, printed tiles, etc.	+**	+***	+***	+	+***	+***	+***

ATLAS PLUS MEGA	ATLAS PLUS MEGA WHITE	ATLAS ELASTYK/ AVAL KM 16	ATLAS OK!	ATLAS ELASTIFIED ADHESIVE MORTAR/ AVAL KM 11 PLUS	ATLAS MIG 2	ATLAS ATUT
Deformable S1 adhesive for floor tiles	Deformable S1 white adhesive for floor tiles	Highly flexible adhesive	Elastified adhesive	General use adhesive	Rapid set adhesive	Basic adhesive for tiles
PN-EN 12004+A1:2012						
25 kg	25 kg	25 kg	5 kg, 25 kg	5 kg, 10 kg, 25 kg	25 kg	25 kg
foil bag	foil bag	paper bag	paper bag	paper bag	paper bag	paper bag
TECHNICAL DATA						
C2E S1	C2E S1	C2TE	C1TE	C1TE	C1FTE	C1T
≥ 1.0	≥ 1.0	≥ 1.0	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5
4 – 20	4 – 20	2 – 10	2 – 10	2 – 10	2 – 5	2 – 10
5 – 25	5 – 25	5 – 25	5 – 30	5 – 25	5 – 25	5 – 25
up to 4	up to 4	up to 4	up to 4	up to 4	up to 1	up to 4
> 30	> 30	> 30	> 30	> 30	> 30	> 20
10	10	10	10	10	10	10
24	24	24	24	24	4	24
approx. 3	approx. 3	approx. 3	approx. 3	approx. 3	approx. 3	approx. 3
approx. 14	approx. 14	approx. 14	n/a	n/a	n/a	n/a
approx. 14	approx. 14	n/a	n/a	n/a	n/a	n/a
approx. 21	approx. 21	approx. 14	n/a	n/a	n/a	n/a
12	12	12	12	12	12	12
TYPE OF TILES TO BE FIXED						
+	+	+	+	+	+	+
+	+	+	+	+	+	+
+	+	+	+	+	+	+
+	+	use ATLAS PLUS				
+*	+	+*	+*	+*	+*	+*
+	+	+	+	+	+	+
+	+	+				
+	+	+	+	+	+	+
+**	+**	+**				
+***	+***	+***				

* if in doubt contact the Atlas technical department
** if in doubt conduct an application test
*** conduct an application test and check recommendations of the tiles manufacturer

1.1.2 Grouts

PRODUCT	 ATLAS ARTIS GROUT	 ATLAS ELASTIC GROUT	 ATLAS TIGHT GROUT/ AVAL EXTRA GROUT	 ATLAS GROUT	 ATLAS DECORATIVE GROUT	 ATLAS EPOXY GROUT	 ATLAS GROUT - WIDE
	Rapid-set fine aggregate grout	Flexible cement grout	Fine-aggregate cement grout	Cement grout	Decorative grout	Two-component grout	Coarse aggregate cement grout
Reference document	PN-EN 13888:2010						
TECHNICAL DATA							
Class	CG 2 WA	CG 2 WA	CG 2 WA	CG 2 WA	CG 2 WA	RG	CG 2 WA
Packaging [kg]	2 & 5	2 & 5	2 & 5	2 & 5	2	2 & 5	25
Package type	bucket	foil bag	foil bag	paper bag	foil bag	bucket	paper bag
Number of colours	40	37	40	15	5	12	7
Divided packaging (1/2 +1/2)	+	-	-	-	-	+	-
Mixing ratio water/dry mix [l/kg]	0.21–0.22 l	0.28–0.29 l	0.28–0.29 l	0.28–0.29 l	0.22–0.24 l	n/a	approx.0.25
Joint width [mm]	1 – 25	1 – 7	1 – 7	1 – 6	1 – 15	1 – 10	4 – 16
Temperature during application [°C]	5 – 35	5 – 25	5 – 25	5 – 25	5 – 35	10 – 25	5 – 25
Aluminous cement	+	n/a	n/a	n/a	n/a	n/a	n/a
Portland cement	n/a	+	+	+	+	n/a	+
Resistance to fungi	+	+	+	+	+	+	+
Low absorptiveness	+	+	+	+	+	+	n/a
Flexibility	+	+	+	+	+	+	+
Maturing time [min]	5	5	5	5	5	3	5
Pot life [min]	40 min	120	120	120	120	45	120
Initial cleaning [min]	10-30 min	10-30 min	10-30 min	10-30 min	30 min	5 min	10-20
Final cleaning [min]	180	180	180	180	180	20	
Foot traffic [h]	3	24	24	24	24	24	24
Full load [h]	24	24	24	24	24	24	24
Full chemical resistance [days]	n/a	n/a	n/a	n/a	n/a	7	n/a
Full mechanical resistance	24 h	24 h	24 h	24 h	24 h	7 days	24 h
Final shade after complete drying	2-3 days	2-3 days	2-3 days	2-3 days	2-3 days	12 hours	2-3 days
Water absorption after 30 min [g]	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	n/a	≤ 2
Water absorption after 240 min [g]	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 0.1	≤ 5
Hygienic attest for contact with drinking water	+	+	+	+	-	+	-
Radiation Hygiene Certificate	+	+	+	+	+	+	+

1.1.3 Silicones

	SILICONE ATLAS ARTIS	SILICONE ATLAS SILTON S	SILICONE AVAL EXTRA
Reference document	PN-EN 15651-1:2013 PN-EN 15651-2:2013 PN-EN 15651-3:2013		
Hardening system	acetate	acetate	acetate
Substrate and ambient temperature during application [°C]	5 – 40	5 – 40	5 – 40
Resistance to temperature after hardening [°C]	from -50 to +180	from -50 to +180	from -50 to +180
Max. joint depth [mm]	14	14	14
Joint width [mm]	4 – 25	4 – 25	4 – 25
Pot life [min]	15	15	15
Foot traffic [h]	3	3	3
Full load [h]	24	24	24
Improved colour durability	✓		
Myco Protect	✓	✓	✓
Colours	38 + transparent	38 + transparent	38 + transparent

1.1.4 Cosmetics, Impregnating Sealers, Washing Agents, Additives*

PRODUCT	ATLAS AGENT FOR REMOVAL OF STAINS OF SILICONE	ATLAS AGENT FOR REMOVAL OF STAINS OF EPOXY GROUTS	ATLAS CONCENTRATED AGENT FOR STRONG CEMENT DEPOSITS	ATLAS AGENT FOR REMOVAL OF STAINS OF PAINTS, PRIMERS AND RENDERS	ATLAS MYKOS PLUS CONCENTRATED AGENT FOR ELIMINATION OF ALGAE, FUNGI AND LICHEN
TYPE OF DIRT					
Mould, fungi, algae, lichen					✓
Deposits of stone, rust, suds			✓		
Stains of silicone	✓				
Stains of epoxy grout		✓			
Stains of grout, cement adhesives			✓		
Stains of paints, dispersion renders, adhesives				✓	
Stains of mineral mortars, plasters, top coats			✓		

PRODUCT	ATLAS CLEAN TILES	ATLAS CLEAN GROUTS	ATLAS AGENT FOR REMOVAL OF GREASY STAINS FROM CONCRETE, STONE AND TILES	ATLAS MYKOS NO 1 FOR REMOVAL OF FUNGI AND ALGAE	ATLAS AGENT FOR REMOVAL OF CEMENT DEPOSITS AND STAINS
TYPE OF DIRT					
Utility dirt (coffee, tea, wine, mud, dust)	✓	✓			✓
Cooking oil, wax	✓		✓		
Mould, fungi, algae, lichen				✓	
Deposits of stone, rust, suds		✓			✓

PRODUCT	ATLAS IMPREGNATING SEALER FOR GROUTS AND TILES	ATLAS IMPREGNATING SEALER FOR NATURAL STONE AND GRES	ATLAS IMPREGNATING SEALER FOR GYPSUM AND CEMENT DECORS	ATLAS IMPREGNATING SEALER FOR ARCHITECTURAL CONCRETE	ATLAS EFFECT OF WET STONE	ATLAS IMPREGNATING SEALER FOR SANDSTONE, BRICK AND PLASTER
IMPREGNATED SURFACE						
Cement grouts	✓		✓			
Ceramic tiles	✓	✓	✓			
Glazed ceramic tiles		✓	✓			
Porcelain-gres	✓	✓	✓			
Glazed gres		✓	✓			
Polished gres	✓	✓	✓			
Terracotta	✓	✓	✓			
Natural stone		✓			✓	✓
Polished natural stone		✓				
Synthetic stone		✓			✓	
Cement tiles/elements	✓		✓		✓	✓
Clinker		✓				✓
Stone, ceramic (brick) walls		✓				✓
Gypsum tiles/elements			✓			
Architectural concrete				✓		
Terrazzo			✓	✓	✓	
Concrete			✓	✓	✓	✓
Sett			✓	✓	✓	
Plaster			✓			✓

*to be introduced in 2019

ADDITIVES			
Product	ATLAS ELASTIC EMULTION	ATLAS ESKIMO	ATLAS HOTER DL
Reference document	AT-15-6708/2016	Additives are not classified as construction products, thus they are not covered with standards and there is no need to issue technical approvals for them.	
Use	Component of contact coats of screeds	Accelerates drying of dispersion renders and paints	Summer additive for dispersion renders extending their open time
Properties	Improves adhesion of bonded screeds.	When added to renders or façade paints, enables their application at temperature close to 0°C.	Allows application of dispersion renders at temperature from +25°C up to +35°C. Does not change strength parametres and other properties of renders.

1.1.5 Primers and Contact Coats

PRODUCT

	ATLAS UNI-GRUNT/ AVAL KT 17	ATLAS UNI-GRUNT PLUS/1.5	ATLAS OPTIGRUNT	ATLAS ULTRAGRUNT	ATLAS GRUNTOPLAST
	Fast drying priming emulsion	Deep-penetrating priming emulsion for substrate strengthening	General-use priming impregnant	Fast drying primer for critical substrates	Contact coat for difficult substrates
TECHNICAL DATA					
Density [g/cm³]	1,0	1,0	1,0	1.5	1,5
Way of application	roller/paintbrush/sprayer	roller/paintbrush/sprayer	roller/paintbrush	roller/paintbrush	roller/paintbrush
Substrate temperature and temperature during application [°C]	5 – 30	5 – 35	5 – 25	5 – 30	5 – 30
Consumption [kg/m²]	0.05 – 0.20	0.05 – 0.20	0.05 – 0.20	0.3	0.3
Further applications after	15 minutes	2 hours	2 hours	4 hours	24 hours
SAMPLE SUBSTRATES					
Bricks, ceramic hollow blocks, cellular concrete, silicates	✓		✓	✓	✓
Cement, cement-lime and gypsum plasters, plasterboards	✓		✓	✓	✓
Pro-Monta hollow blocks	✓			✓	✓
Absorbable and absorptive concrete screeds	✓	✓		✓	✓
Old concrete screeds	✓	✓		✓	✓
Anhydrite screeds		✓		✓	✓
Ceramic and stone tiles				✓	✓
Non-grinded OSB boards				✓	
Formwork concrete				✓	
Smooth floated and hardened concrete screeds				✓	
Prefabricated ferroconcrete elements				✓	
Non-grinded terrazzo				✓	
Stable timber substrates – wooden floor and surfaces				✓	
Plastic surfaces				✓	
Metal surfaces				✓	

1.1.6 Waterproofing

PRODUCT					
	ATLAS WODER DUO	**ATLAS WODER DUO EXPRESS**	**ATLAS WODER E**	**ATLAS WODER W**	**ATLAS WODER S**
	Two-component elastic waterproofing	Rapid set two-component waterproofing	Fast-drying liquid foil	Liquid foil	Watertight cement mortar
Reference document	ITB-KOT-2018/0383 ed.1 PN-EN 14891:2012	PN-EN 14891:2012	ITB-KOT-2018/491 ed.1	ITB-KOT-2018/492 ed.1	ITB-KOT-2018/490 ed.1
TECHNICAL DATA					
Min/max coat thickness (mm)	2/3	2/3	1/3	1/3	1/3
Open time (min)	30	30	30	30	30
Pot life (min)	60	45	whole shelf life period	whole shelf life period	120
Application of the second coat after (h)	3	**	1	3	5
Top coat application (h)	12	3	4	24	24
Resistance to pressurized water (head of water in m)	70	15	not resistant	not resistant	50
Resistance to pressurized water at negative side water pressure (head of water in m)	50	not resistant	not resistant	not resistant	not resistant
Loading with pressurized water (days)	7	not resistant	not resistant	not resistant	7
Resistance to agents for water purification, incl. chlorine	resistant	not resistant	not resistant	not resistant	not resistant
Chemical resistance – environmental exposure class XA2 (coating resistant to communal sewage, liquid manure, aggressive groundwater)	resistant	not resistant	not resistant	not resistant	not resistant
Cracks bridging min. up to (mm)	1,0	0.75	0.8	-	-
PLACE OF APPLICATION					
Indoors	✓	✓	✓	✓	✓
Outdoors	✓	✓	✓		✓
USAGE CONDITIONS					
Foundations, cellar walls	✓				✓
Floor/wall heating	✓		✓	✓	✓
Water tanks, pools	✓				✓
Terraces, balconies	✓	✓	✓*		✓
SUBSTRATE TYPE					
Cement and concrete screeds, cement-lime plasters, concrete, cellular concrete, silicates	✓	✓	✓	✓	✓
Anhydrite screeds, gypsum plasters			✓	✓	
Plasterboards, OSB boards	✓		✓	✓	
Galvanized metal sheets	✓		✓		
TYPE OF WATERPROOFING					
Light	✓		✓	✓	✓
Medium	✓	✓			✓
Heavy	✓				✓

* ATLAS WODER E – use on balconies only
** Straight after application of the first coat – "wet on wet" method

1.2.1 Standard Labelling

used in classification of adhesives and grouts according to PN-EN 12004+A1:2012 and PN-EN 13888:2010

According to the standard adhesive mortars are divided into:

C cement adhesives

D dispersion adhesives

R adhesives based on reactive resins

Adhesive type depends on the type of the binder and the binding mode. Adhesives based on cement (C), in which Portland cement is the binder, bind as a result of hydration of cement. Dispersion adhesives (D), in which organic resins are the binder, bind in the process of drying. Adhesives based on reactive resins (R) are two-component, therefore they bind in chemical reaction between components of the mortar.

Each of three types of adhesives can be available in different classes. Standard lists the following classes of adhesives:

1 Standard setting adhesive
bonding after 28 days ≥ 0.5 N / mm^2

2 Adhesives of improved parameters;
bonding after 28 days ≥ 1.0 N / mm^2

F Fast setting adhesives;
bonding after 6 hours ≥ 0.5 N / mm^2

T Adhesives of reduced slip;
slip not exceeding 0.5 mm

E Adhesives of extended open time;
bonding after 28 days > 0.5 N / mm^2,
despite the fact that time between application of the adhesive and placing a tile is not longer than 30 minutes

S1 Deformable adhesives

S2 Highly deformable adhesives

Deformability of an adhesive is a feature which determines the ability of transfer of shear tensions at joints between adhesive and substrate. Such tensions can occur, for example, between adhesive and elastic substrate, which is the case when fixing ceramic tiles on OSB boards or on substrates which change temperature due to external factors (e.g. terraces, balconies or floors with heating systems). In these cases one should apply deformable adhesives marked with S1 or S2 symbol.

Example of adhesive labelling - ATLAS PLUS EXPRESS - (C2 FTE S1)

ATLAS PLUS EXPRESS adhesive is:

C2	cement adhesive of improved parameters, bonding ≥ 1.0 N/mm^2
F	fast setting
T	of reduced slip
E	of extended open time
S1	deformable

Grouts are divided into three types:

CG1 cement grout of standard setting

CG 2 WA cement grout of enhanced parameters, reduced water absorption and improved resistance to abrasion

RG grout based on reactive resins

Example of grout labelling - ATLAS ARTIS GROUT - (CG2 WA)

ATLAS ARTIS GROUT IS:

CG 2	cement grout of enhanced parameters
W	of reduced water absorption
A	of improved resistance to abrasion

1.2.2 Technology of Installation of Extra Large Size Ceramic Tiles (Slabs)

1. Actual evaluation of possibility of installation before a commission acceptance
- personal check of the site of installation
- arrangement of the installation site with workbench
- preparation of appropriate quotation including special transportation, additional workload, protection of material against damage

2.Transportation
- appropriate protection of tiles – delivery in box pallets (same as in transportation of glass)
- visual evaluation of the delivered tiles
- help of additional staff and tools when bringing tiles to the site of installation
- evaluation of logistic options (corridors, doors, etc.)

3. Preparation of materials
- purchase of construction chemicals of appropriate class and quality
- tiles cleaning (dust, dirt)

4. Tiles processing
- preparation of appropriate tools
- skillful tile cutting and holes drilling
- careful distribution of cut-to-size tiles

ATLAS ULTRA GEOFLEX
highly flexible gel adhesive

- Innovative siliceous gel technology
- For tiles of any size and type – also for extra large formats > 3 m²
- 2 mixing waters – possible adjustment of consistency to the actual needs
- Range of use: bathroom/kitchen/corridor/balcony/terrace/pool/floor heating/façade
- No slip even with extra large tiles (slabs)
- For the most demanding substrates: glass/OSB/composite boards/old tiles/waterproofing

ATLAS PLUS
highly flexible deformable adhesive

- 3 times greater initial bonding
- For tiles of any size and type – also for extra large formats > 3 m²
- Excellent bonding at low temperature
- Range of use: bathroom/kitchen/garage/balcony/terrace/pool
- Perfect for difficult substrates: OSB/old tiles/waterproofing/floor heating/terrazzo/plasterboards

ATLAS ARTIS GROUT

- Rapid-set – foot traffic just after 3 h
- Easy to keep clean, resistant to development of fungi and mould
- Absorptiveness 9 times lower than the standard requirement
- Resistant to soiling
- Resistance to abrasion 6 times greater than the standard requirement

5. Cladding fixing

- appropriate adhesive mortar preparation
- application of adhesive contact coat on a tile – 100% coating
- application of adhesive contact coat on a wall – 100% coating
- appropriate tile positioning
- tile fixing with a frame
- tile pressing against the substrate in order to fill the space beneath completely

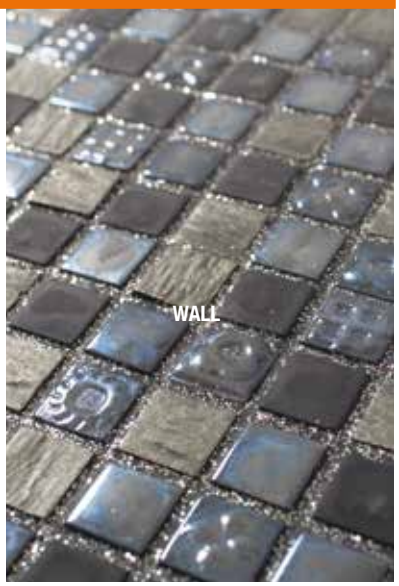
NOTE!

- appropriately heated floors – confirmed with a protocol
- appropriate transportation
- appropriate workload: staff, tools
- participation in trainings
- preparation of appropriate quotation

1.2.3 Consumption of Adhesive Mortars

CONSUMPTION DETERMINED FOR 1 m²

			ADHESIVE OF C1 CLASS	ADHESIVE OF C2 CLASS	
	Tile size (cm)	Recommended trowel (mm)	Amount needed (kg)	Amount needed (kg)	Place of application
mosaic	2x2	4	1.7	1.3	
standard tile	10x10	4	1.7	1.3	
	30x30	6	2.2	2.0	
	30x60	8	2.9	2.5	
	40x40	8	3.4	2.5	
	60x40	8	n/a	2.5	
	50x50	8	n/a	2.5	
	60x60	10	n/a	3.0	
imitating wood	23x90	10	n/a	3.0	
	23x150	10	n/a	3.0	
	23x180	10	n/a	3.0	
slim/great size	100x100	combined method*	n/a	approx. 4.5	
	120x120	combined method*	n/a	approx. 4.5	
	120x240	combined method*	n/a	approx. 4.5	
quartz sinters on façades	300x100	combined method*	n/a	approx. 4.5	
	324x162	combined method*	n/a	approx. 4.5	



CONSUMPTION DETERMINED FOR 1 m²

			ADHESIVE OF C1 CLASS	ADHESIVE OF C2 CLASS	
	Tile size (cm)	Recommended trowel (mm)	Amount needed (kg)	Amount needed (kg)	Place of application
mosaic	2x2	4	1.7	1.3	
standard tile	10x10	6	2.2	2.0	
	30x30	8	2.9	2.5	
	30x60	10	2.9	3,0	
	40x40	10	2.9	3.0	
	60x40	10	n/a	3.0	
	50x50	10	n/a	3.0	
	60x60	12	n/a	approx. 4.6	
imitating wood	23x90	12 – trowel with semi-circular notches	n/a	approx. 4.6	
	23x150	12 – trowel with semi-circular notches	n/a	approx. 4.6	
	23x180	12 – trowel with semi-circular notches	n/a	approx. 4.6	
slim/great size	100x100	12 – trowel with semi-circular notches	n/a	approx. 4.6	
	120x120	12 – trowel with semi-circular notches	n/a	approx. 4.6	
	120x240	12 – trowel with semi-circular notches	n/a	approx. 4.6	

* For great size tiles fixing one should use one of options of the combined method:
- adhesive on a substrate with 8 mm trowel + adhesive on a tile with 6 mm trowel
- adhesive on a substrate with 10 mm trowel + adhesive on a tile with 4 mm trowel
- adhesive on a substrate with 12 mm trowel + smooth coat of adhesive on a tile, thickness approx. 1 mm
It is recommended to lead a trowel (wall vs tile) parallelly to each other.

1.2.4 Types of Waterproofing, Consumption Depending on Place of Use and Coating Type

TYPES OF WATERPROOFING

Light weight waterproofing – protects against action of water freely draining down the surface of a protected element. A bathroom is an example of a room with light weight waterproofing in use. Water freely drains from walls and does not stand on the surface.

Medium weight waterproofing – protects against action of water standing on the surface (forming puddles), e.g. surfaces of terraces and balconies where, despite a slope, puddles of water from melting snow stand for long time. This type of waterproofing should also be used indoors, e.g. in bathrooms with floors with linear drainage.

Heavy weight waterproofing – protects against water under pressure, i.e. when water acts permanently on the waterproofing coat. Here we can list swimming pools, water tanks and underground parts of buildings.

ACCESSORIES FOR APPLICATION OF WATERPROOFING

Supplementary accessories form an important element of each waterproofing. In Atlas portfolio you can find two types of waterproofing accessories:

SEALING TAPES, CORNERS, FLANGES made of polyester fabric coated with an elastic material. It is characterised by transpicuous fabric on both outer edges. These accessories are recommended for interior use.

ATLAS HYDROBAND 3G are sealing elements made of laminated interfacing with addition of elastomer. They are highly resistant to alkali and UV radiation, thus recommended for outdoor use, e.g. on balconies and terraces.

CONSUMPTION OF WATERPROOFING

The material consumption depending on the waterproofing product and its required coat thickness is listed in the table below.

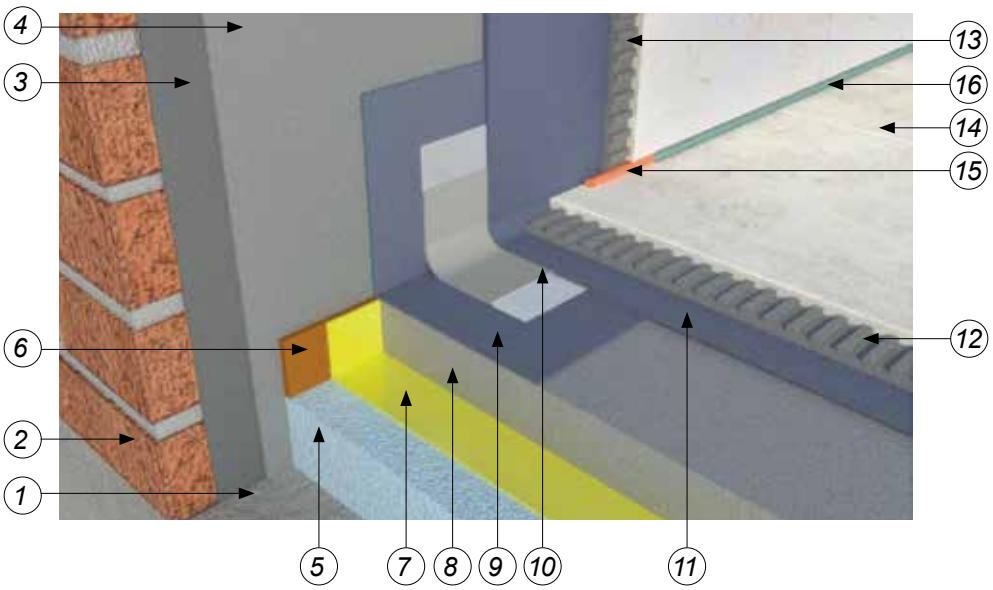
ATLAS SEALING TAPES, CORNERS, FLANGES

ATLAS HYDROBAND 3G

product	type of waterproofing	coat thickness (mm)	consumption for 1 m² (kg)
ATLAS WODER W	light	1.0	1.0
ATLAS WODER E	light	1.0	1.0
	medium	2.0	2.0
ATLAS WODER S	light	1.5	2.0
	medium	2.0	3.0
	heavy	3.0	4.5
ATLAS WODER DUO	light	2.0	3.0
	medium	2.5	3.7
	heavy	3.0	4.5
WODER DUO EXPRESS	medium	2.0	2.5

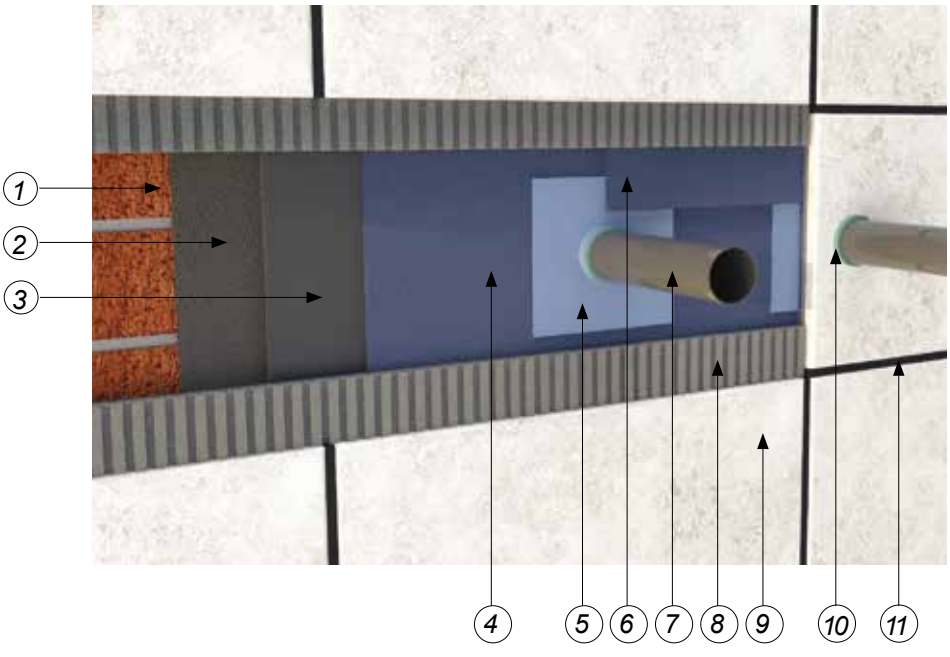
1.3.1 Sealing the Joint Between Wall and Floor in a Bathroom

1. Concrete ceiling
2. Wall
3. ATLAS CEMENT BASE COAT
4. ATLAS CEMENT PLASTER (PLASTERING MIX)
5. Thermal/acoustic insulation
6. Floor expansion joint profile
7. PE foil
8. ATLAS POSTAR 20 or ATLAS POSTAR 80 cement screed
9. ATLAS WODER E or ATLAS WODER W under tile damp-proofing
10. ATLAS Sealing Tape
11. ATLAS WODER E or ATLAS WODER W under tile damp-proofing
12. ATLAS GEOFLEX or ATLAS PLUS MEGA adhesive
13. ATLAS ULTRA GEOFLEX adhesive
14. Ceramic, gres tiles
15. ATLAS Backer Rod
16. ATLAS ARTIS Silicone



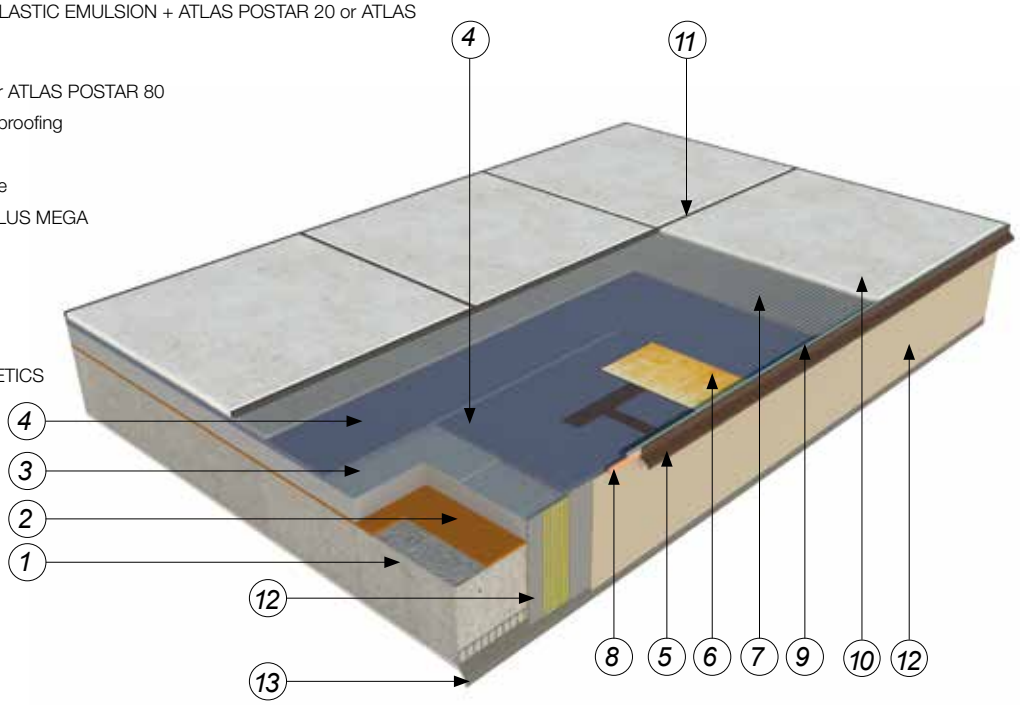
1.3.2 Waterpipe in a Wall in a Bathroom

1. Wall
2. ATLAS CEMENT BASE COAT
3. ATLAS CEMENT PLASTER (PLASTERING MIX)
4. ATLAS WODER E or ATLAS WODER W under tile damp-proofing
5. ATLAS Sealing Tape
6. ATLAS WODER E or ATLAS WODER W under tile damp-proofing
7. Waterpipe
8. ATLAS GEOFLEX or ATLAS PLUS adhesive
9. Ceramic, gres tiles
10. ATLAS ARTIS Silicone
11. ATLAS ARTIS Grout



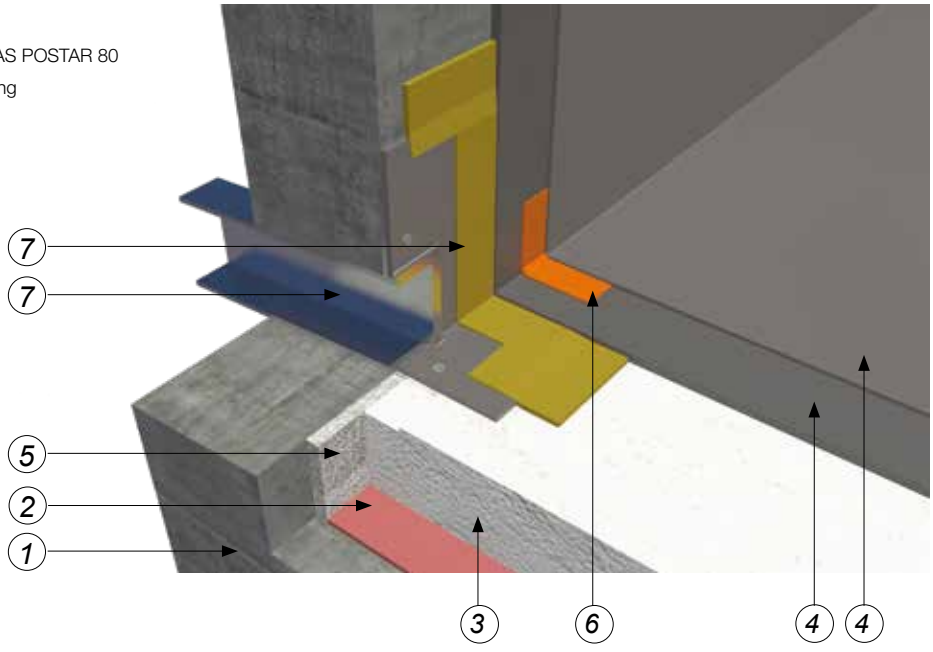
1.3.3 Layers on a Balcony Slab with Details of an Eave

1. Balcony slab
2. Contact coat:
   ATLAS ADHER S or water + ATLAS ELASTIC EMULSION + ATLAS POSTAR 20 or ATLAS POSTAR 80
3. Slope layer:
   Cement screed ATLAS POSTAR 20 or ATLAS POSTAR 80
4. ATLAS WODER DUO under tile waterproofing
5. ATLAS 150 Eaves Profile
6. ATLAS HYDROBAND 3G Sealing Tape
7. ATLAS ULTRA GEOFLEX or ATLAS PLUS MEGA
8. ATLAS Backer Rod
9. ATLAS ARTIS Silicone
10. Ceramic, gres tiles
11. ATLAS ARTIS Grout
12. Base coat + thin-coat render acc. to ETICS
13. Drip bead



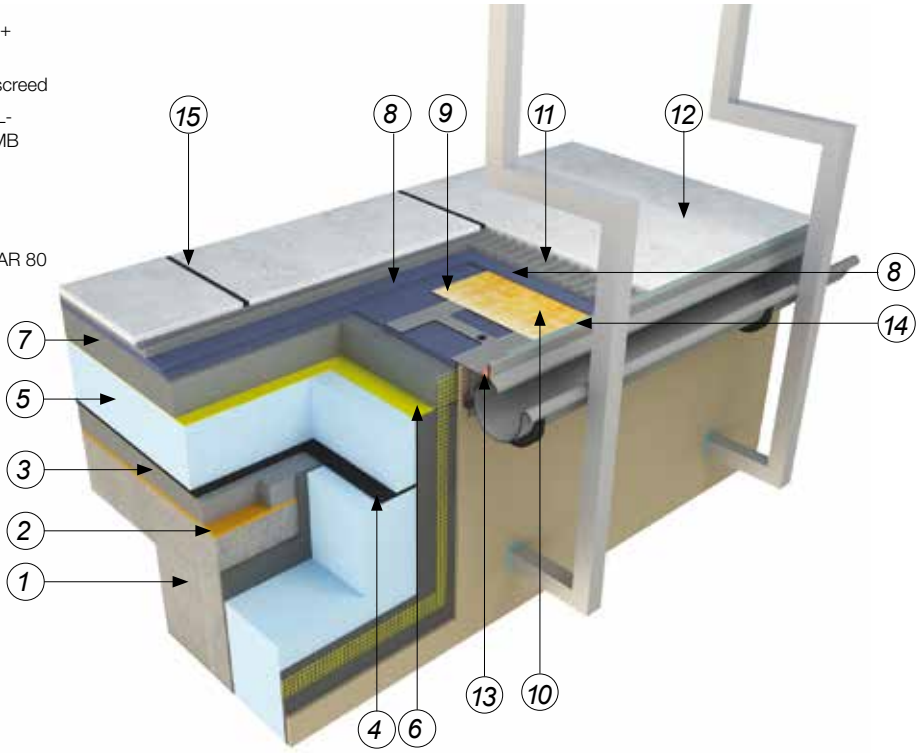
1.3.4 Balcony with Railing – Overflow Sealing

1. Balcony slab
2. Contact coat:
   ATLAS ADHER S or water + ATLAS ELASTIC EMULSION + ATLAS POSTAR 20 or ATLAS POSTAR 80
3. Slope layer:
   Cement screed ATLAS POSTAR 20 or ATLAS POSTAR 80
4. ATLAS WODER DUO under tile waterproofing
5. Screed peripheral expansion joint
6. ATLAS HYDROBAND 3G Sealing Tape
7. Overflow with factory-made sealed flange



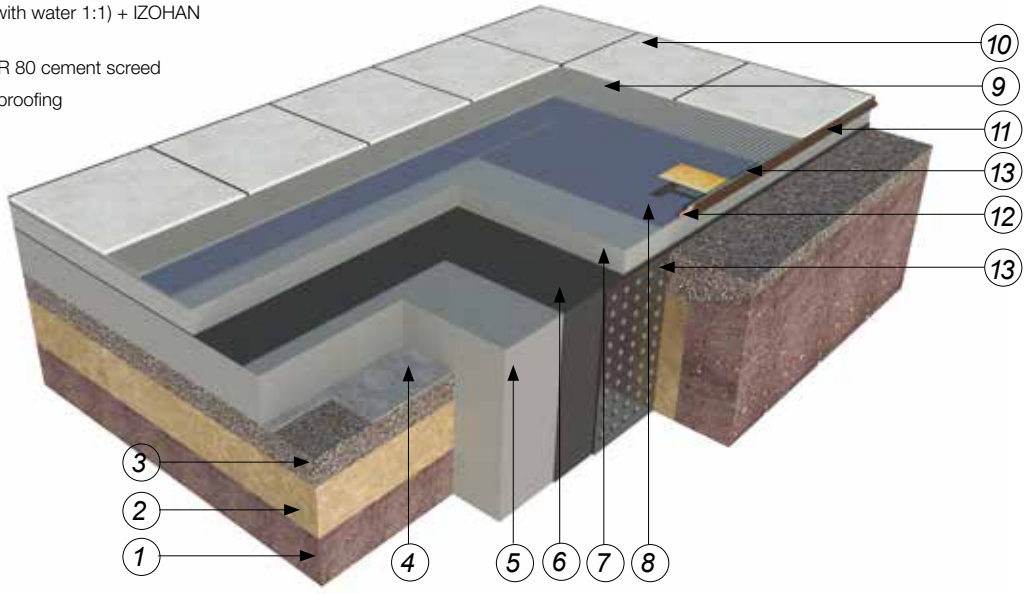
1.3.5 Layers on a Terrace Above a Heated Room with Details of an Eave

1. Ceiling above a heated room
2. Contact coat: water + ATLAS ELASTIC EMULSION + ATLAS POSTAR 20 or ATLAS POSTAR 80
3. ATLAS POSTAR 20 or ATLAS POSTAR 80 cement screed
4. Waterproofing with vapour barrier: ATLAS GENERAL-PURPOSE BITUMINOUS COMPOUND + ATLAS SMB self-adhesive bituminous membrane
5. Thermal insulation: XPS boards
6. Protecting layer: PE foil
7. Pressure layer: ATLAS POSTAR 20 or ATLAS POSTAR 80 cement screed
8. ATLAS WODER DUO under tile waterproofing
9. ATLAS 150 Eaves Profile
10. ATLAS HYDROBAND 3G Sealing Tape
11. ATLAS ULTRA GEOFLEX or ATLAS PLUS MEGA adhesive
12. Ceramic, gres tiles
13. ATLAS Backer Rod
14. ATLAS ARTIS Silicone
15. ATLAS ARTIS Grout



1.3.6 Layers of a Terrace on a Ground with Details of an Eave

1. Subsoil
2. Leveling subcrust of sand
3. Filtration layer of gravel
4. Geotextile
5. Concrete or ferroconcrete slab
6. IZOHAN IZOBUD WL Primer (diluted with water 1:1) + IZOHAN IZOBUD WM waterproofing
7. ATLAS POSTAR 20 or ATLAS POSTAR 80 cement screed
8. ATLAS WODER DUO under tile waterproofing
9. ATLAS ULTRA GEOFLEX or ATLAS PLUS MEGA adhesive
10. Ceramic, gres tiles
11. ATLAS 150 Eaves Profile
12. ATLAS Backer Rod
13. ATLAS ARTIS Silicone
14. Dimpled membrane



Screeds and Floors
Building Mortars
Gypsum Mortars and Top Coats
Repair Mortars

2

2.1.1 Self-Levelling Screeds

PRODUCT						
	ATLAS SAM 100	**ATLAS SAM 150**	**ATLAS SAM 200**	**ATLAS SAM 500**	**ATLAS SMS 15**	**ATLAS SMS 30**
	Self-leveling compound	Rapid-set, self-leveling screed	Self-leveling screed	Rapid-set, self-leveling screed	Rapid-set, self-leveling compound	Rapid-set, self-leveling screed
	ANHYDRITE				CEMENT	
Reference document	PN-EN 13813:2003					
Classification	CA-C35-F6	CA-C20-F5	CA-C16-F5	CA-C20-F4	CT-C25-F7	CT-C30-F7
TECHNICAL DATA						
Self-spreading	✓	✓	✓	✓	✓	✓
Layer thickness [mm]	5 – 30	15 – 60	25 – 60	20 – 60	1 – 15	3 – 30
Mixing ratio water/dry mix [l/ 25 kg]	5.0 – 5.5	4.0 – 4.75	4.25 – 4.75	5.0 – 5.25	5.0 – 5.25	5.0 – 5.5
Consumption for 1 cm of thickness [kg/m²]	20	20	20	18	16.6	16.5
Compressive strength [N/mm²]	≥ 35	≥ 20	≥16	≥ 20	≥ 25	≥ 30
Flexural strength [N/mm²]	≥ 6	≥ 5	≥ 5	≥ 4	≥ 7	≥ 7
Linear contraction [%]	< 0.03	< 0.03	< 0.03	< 0.05	< 0.06	< 0.06
Floor access/ foot traffic [h]	6	6	48	6	4	4
Tiles fixing [h]	14 – 21	21 – 28	21 – 28	21 – 28	1	1
Parquet fixing[days]	21 – 28				7	7
Installation of panels or carpet flooring [days]	21 – 28	21 – 28	21 – 28	21 – 28	7	7
Start of heating (for screeds with heating embedded) [days]		28	28	7		
Manual application	✓	✓	✓	✓	✓	✓
Machine application (mixing-and-pumping units)	✓	✓	✓	✓	✓	✓
SCREED TYPE						
Bonded	✓	✓	✓	✓	✓	✓
On separation layer		✓	✓	✓		
Floating		✓	✓	✓		
With heating system embedded		✓	✓	✓		
USE IN FLOOR STRUCTURE						
Smoothing compound	✓				✓	✓
PLACE OF APPLICATION						
Indoors – dry rooms	✓	✓	✓	✓	✓	✓
Indoors – wet rooms					✓	✓

2.1.2 Standard Screeds

PRODUCT					
	ATLAS POSTAR 10	**ATLAS POSTAR 20**	**ATLAS POSTAR 40**	**ATLAS POSTAR 80**	**ATLAS POSTAR 100**
	Standard cement floor	Fast-drying cement screed	cement floor	Fast-setting cement floor	Self-spreading cement floor
Reference document	PN-EN 13813:2003				
	AT-15-9621/2016	AT-15-8432/2016	AT-15-6972/2016	AT-15-8462/2016	AT-15-6971/2016
Classification	CT-C25-F5-A15	CT-C20-F4	CT-C30-F6-A22	CT-C40-F7-A12	CT-C50-F7-A15
TECHNICAL DATA					
Self-spreading					✓
Layer thickness [mm]	10 – 100	10 – 80	10-80	10 – 80	10 – 80
Mixing ratio water/dry mix [l/ 25 kg]	2.25 – 3.0	1.75 – 2.75	2.0-3.75	2.0	3.25 – 3.75
Consumption for 1 cm of thickness [kg/m²]	20	20	20	20	20
Compressive strength [N/mm²]	≥ 25	≥ 20	≥30	≥ 40	≥ 50
Flexural strength [N/mm²]	≥ 5	≥ 4	≥6	≥ 7	≥ 7
Böhme abrasion resistance - class	A15		A22	A12	A15
Linear contraction [%]	< 0.06	< 0.06	< 0.08	< 0.06	< 0.06
Floor access/ foot traffic [h]	24	24	24	3	24
Tiles fixing [days]	14	2	21-28	1	21 – 28
Parquet fixing [days]	21 – 28		21-28	7	21 – 28
Installation of panels or carpet flooring [days]	21 – 28	14	21-28	7	21 – 28
Application of epoxy coats [days]	21 – 28		21-28	7	21 – 28
Start of heating (for screeds with heating) [days]	7	7	7	7	7
Manual application	✓	✓	✓	✓	✓
Machine application (mixing-and-pumping units)					✓
SCREED TYPE					
Bonded	✓	✓	✓	✓	✓
On separation layer	✓	✓	✓	✓	✓
Floating	✓	✓	✓	✓	✓
With heating system	✓	✓	✓	✓	✓
USE IN FLOOR STRUCTURE					
Top floor	✓		✓	✓	✓
PLACE OF APPLICATION					
Indoors – dry rooms	✓	✓	✓	✓	✓
Indoors – wet rooms	✓	✓	✓	✓	✓
Outdoors	✓	✓	✓	✓	✓

2.1.3 Cement Plasters

PRODUCT				
	ATLAS PLASTERING MIX	**ATLAS CEMENT BASE COAT**	**ATLAS LIGHT MACHINE-APPLIED PLASTER**	**ATLAS REKORD**
	Traditional plaster of category III	Base coat for 2- or 3-coat plasterwork	Cement-lime plaster of category III	White cement top finish
Reference document	PN-EN 998-1:2016-12			
Mortar type*	GP	GP	LW	OC
TECHNICAL DATA				
Mixing ratio water/dry mix	3.25 – 4.0 l/25 kg	6.5 l/30 kg	6.0 – 7.8 l/30 kg	7.0 – 8.0 l/25 kg
Coat thickness [mm]	6 – 30	4	5 – 30	1 – 10
Pot life [h]	4	2	2	2
Consumption [kg/m²]	20/1 cm of thickness	8 / 4 mm of thickness	14 / 1 cm of thickness	15 / 1 cm of thickness
Type of mortar use	plaster	base coat/scratch coat	plaster	top finish
Colour	grey	grey	grey	white
FORM OF APPLICATION				
Manual	✓	✓		✓
Machine	✓**	✓	✓	
PLACE OF USE				
Indoors	✓	✓	✓	✓
Outdoors	✓	✓		✓
SUBSTRATE TYPE				
Ceramic	✓	✓	✓	
Cellular concrete	✓	✓	✓	✓
Silicate	✓	✓	✓	✓
Concrete	✓	✓	✓	✓

*cement plasters are classified according to PN-EN 998-1:2012 standard
According to the standard the main mortars classification is based on their properties and form of application. Therefore we can list the following plasters:
GP – general purpose
LW – lightweight
OC – one-coat for indoor use
** machine applied cement plaster is custom-made and the bags are labelled with the letter M

2.1.4 Masonry Mortars

PRODUCT					
	MASONRY MORTAR ATLAS	**MASONRY MORTAR ATLAS M10**	**ATLAS KB-15**	**ATLAS MASONRY MORTAR FOR CLINKER**	**ATLAS SILMUR M5/M7,5/M10/M15**
	Traditional masonry mortar	Traditional masonry mortar	Masonry mortar for cellular concrete	Masonry mortar with trass	Masonry mortars for silicate elements
Reference document	PN-EN 998-2:2016-12				
TECHNICAL DATA					
Mortar type*	G	G	T	G	T
Mixing ratio water/dry mix [l/25 kg]	3 – 3.5	3 – 3.5	5.25 – 6.0	3.25 – 3.75	5.0 – 6.0
Joint thickness [mm]	6 – 40	6 – 40	2 – 10	6 – 40	2 – 10
Compressive strength [N/mm²])	≥ 5.0	≥ 10.0	≥ 5.0	≥ 5.0	≥ 5.0/ ≥ 7.5 ≥ 10.0/ ≥ 15.0
Pot life [h]	4	4	4	3	4
Colour	grey	grey	grey	grey, dark grey, dark brown, beige, graphite, brick red, anthracite - black	grey or white
Mortar preparation and application temperature [°C]	5 – 30	5 – 30	5 – 30	5 – 30	5 – 30 0 – 30**
TYPE OF MASONRY ELEMENTS					
Ceramic	✓	✓			
Clinker				✓	
Lime-sand	✓	✓			✓
Concrete	✓	✓			
Cellular concrete	✓	✓	✓		✓***
USE					
Thick joint bricklaying	✓	✓		✓	
Thin joint bricklaying			✓		✓
Grouting				✓	

* G – general use, T – for thin joints
** applies to M15 mortar
*** does not apply to M15 mortar

2.1.5 Repair and Assembly Mortars

PRODUCT				
	ATLAS ZW 330*	**ATLAS MONTER T-5**	**ATLAS MONTER T-15**	**ATLAS TEN-10**
	Rapid set leveling mortar	Rapid set assembly mortar	Rapid set assembly mortar	Fast hardening cement mortar
Reference document	PN-EN 998-1:2016-12 PN-EN 13813:2003 AT-15-9437/2015	ITB-KOT-2017/0185	AT-15-4332/2016	PN-EN-13813:2003 AT-15-4411/2011 + Annex 1
TECHNICAL DATA				
Mixing ratio water/dry mix [l/kg]	4.25-5.5/25 kg	1.25/5 kg 6.25/25 kg	3.0-3.25/25 kg	3.0-3.75/25 kg
Pot life [min]	120	5	15	40
Open time [min]	20	5	15	40
Min/max layer thickness [mm]	3/30**	1/25***	20/50	5/30
Compressive strength [N/mm²]	≥ 20.0	without sand / with sand after 1 h: ≥ 8.0 after 3 h: ≥ 10.0 / ≥ 12.0 after 6 h: ≥ 15.0 / ≥ 12.0 after 24 h: ≥ 20.0 / ≥ 16.0 after 28 days: ≥ 44.0 / ≥ 38.0	after 6 h after 24 h after 28 days ≥ 25.0 ≥ 35.0 ≥ 70.0	≥ 40.0
Flexural strength [N/mm²]	≥ 4.0	≥ 9.0 / ≥ 7.5	≥ 7.5	≥ 7.0
Shear strength [N/mm²]		≥ 10.5 / ≥ 9.5		
Fixing the tiles/ further applications [h]	5 (5 mm of thick.)	n/a	6	24
Foot traffic/use [h]	8	n/a	0.5	3
Temporary sealing of point leakages of water	-	✓	-	-
PLACE OF APPLICATION				
Walls outdoors and indoors	✓	✓		✓
Floors outdoors and indoors	✓	✓	✓	✓
TYPE OF APPLICATION				
Repairs of small local surfaces	✓	✓	✓	✓
Repairs of large floor surfaces	✓			✓
Elements assembling		✓	✓	
Sealing of point leakages of water		✓		
TYPE OF SURFACE DAMAGE TO BE REPAIRED				
Cracking	✓	✓	✓	✓
Deeper gaps	✓	✓	✓	✓

* Product can be used to execute screeds
** In order to obtain thicker layer from 31 to 60 mm, add quartz sand (grain size up to 2 mm) in weight ratio 1:4 (sand : dry mix)
*** In case of thickness above 25 mm, mix MONTER T-5 with quartz sand in 1:1 ratio

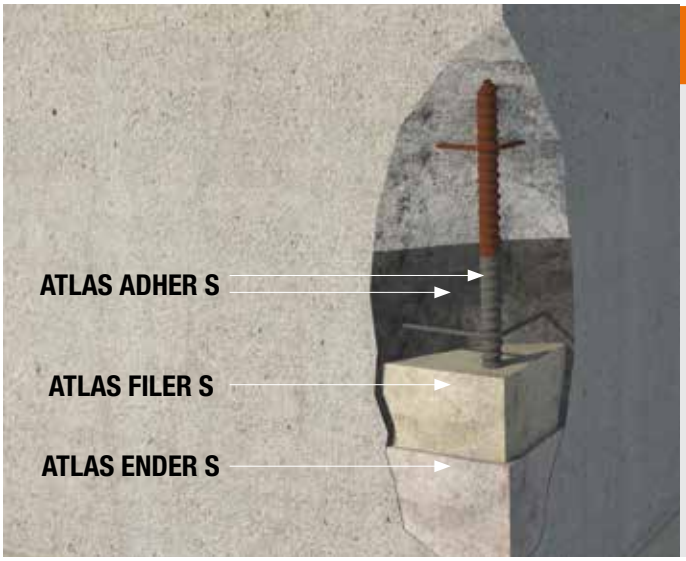
2.1.6 Gypsum Mortars and Top Coats, Interior Paints

PRODUCT						
	GIPSAR UNI	**PLUS GIPSAR**	**ATLAS GIPS RAPID**	**ATLAS GIPS SOLARIS**	**ATLAS GIPS BONDER**	**ATLAS GIPS STONER**
	Gypsum top coat	Gypsum top coat	Ready-made polymer top coat	Hand-applied gypsum plaster	Adhesive for plasterboards	Gypsum compound for plasterboards jointing
Reference document	PN-EN 13279-1:2009		PN-EN 15824:2010	PN-EN 13279-1:2009	PN-EN 14496:2007	PN-EN 13963:2014
TECHNICAL DATA						
Binder	gypsum and polymer	gypsum and polymer	resin	gypsum	gypsum	gypsum
Mixing ratio water/dry mix [l/kg]	0.39 – 0.40	0.35 – 0.45	ready-made mass	approx. 0.60	approx. 0.50	approx. 0.50
Pot life [min]	90	60	whole shelf life	30	45	60
Bonding [N/mm²]	≥ 0.5	≥ 0.5	≥ 0.3	≥ 0.1	≥ 0.06	≥ 0.25
Max. single coat thickness wall/ceiling [mm]	2/2	3/3	3/3	30/15	20/-	15/15
USE						
Top coats	✓	✓	✓			
Plasters indoors				✓		
Plasterboards fixing					✓	
Plasterboards jointing						✓
Small gypsum elements fixing					✓	✓
Installation of wiring elements				✓	✓	
Manual grinding	✓	✓	✓			
Machine grinding		✓	✓			

PRODUCT					
	ATLAS proFARBA	**ATLAS optiFARBA**	**ATLAS ecoFARBA**	**ATLAS BASE COAT PAINT**	**ATLAS WHITE INTERIOR PAINT**
Type of paint	latex	latex	acrylic	acrylic	acrylic
TECHNICAL DATA					
Density [g/cm³]	1.45	1.45	1.45	1.45	1.45
Max. content of volatile organic compounds (VOC) [g/l]	29.9	29.9	29.9	29.9	29.9
Scrub resistance according to PN EN 13300:2002	Class 2	Class 3	Class 4	-	Class 5
Water vapour permeability [m] (for double painting)	< 0.03	< 0.03	< 0.03	-	-
Thixotropy	yes	no	no	no	no
Application of the next coat [h]	2	2	3	2	3

2.1.7 Mortars for Repairs of Concrete and Ferroconcrete Surfaces – Atlas Betoner S

PRODUCT	ATLAS ADHER S	ATLAS FILER S	ATLAS ENDER S
Reference document	PN-EN 1504-7	PN-EN 1504-3:2006 – meets requirements of R3 class	
Element function	Contact coat	Repair layer	Finishing coat
TECHNICAL DATA			
Mixing ratio water/dry mix [l/ 25 kg]	8.0 – 8.75	2.5 – 3.25	4.0 – 4.5
Layer thickness [mm]	1.0	10-50	3-10
Pot life [min]	120	60	60
Open time [min]	15	10	15
Temperature of mortar preparation and application [°C]	5 – 25	5 – 25	5 – 25
Time period since execution of the previous stage		Immediately after application of ATLAS ADHER S contact coat	After 24 hours since application of ATLAS FILER S leveling layer
Bonding to concrete [MPa]	≥ 1.5	≥ 1.5	≥ 1.5
Floor access/use [h]		24	24
Load [days]		14	14
Examples of use	Protects reinforcement against corrosion	Ceilings, ferroconcrete posts, construction slabs of terraces and balconies, retaining walls, ferroconcrete beams, ferroconcrete slabs and platforms of flight of stairs	



ATLAS BETONER S SET

Technological system solution – for comprehensive repairs of damaged concrete and ferroconcrete elements. Meets requirements of R3 class acc. to PN-EN 1504:3.

Enables reconstruction of initial shape of an element – system consists of cement mortars used with various thicknesses.

Wide range of use – for repairs of both structural and top coat elements: ceilings, terraces, balconies, beams, posts, walls, stairs, floors.

2.2.1 Standard Labelling Used in Classification of Screeds According to PN-EN 13813:2003

According to the standard listed above screeds described in the table 2.1 are divided according to the type of binder used in their production:

CT cement - based screeds

CA anhydrite - based screeds (calcium sulfate)

MA magnesium screeds

AS asphalt screeds

SR screeds made of synthetic resins

Each of the screeds listed above can be characterized by the following properties:

C compressive strength (N/mm^2)

F flexural strength (N/mm^2)

A resistance to abrasion (cm^3/50 cm^2)

Example of screed labelling - ATLAS POSTAR 40 (CT-C30-F6-A22)

ATLAS POSTAR 40 screed is:

CT	a cement screed
C30	of compressive strength ≥ 30 N/mm^2
F6	of flexural strength ≥ 6 N/mm^2
A22	of resistance to abrasion ≤ 22 cm^3/50 cm^2

Resistance to abrasion of ATLAS products is listed in accordance to the Böhm's method. It consists in determination of volume of material abraded from the screed surface of 50 cm^2. Thus, the higher level of **A** index, the lower resistance to abrasion of a screed is. Therefore, a screed labelled with **A22** class has lower resistance to abrasion than the one labelled with **A15** class.

2.2.2 Guidelines on Preparation of Substrates for Bonded Screeds and Screeds Applied on Separation Layer

Bonded screeds

- Substrate must be stable, sound, clean and free of substances which can impair bonding.
- Any substrate cavities or gaps should be locally repaired with ATLAS ZW 330, ATLAS TEN-10, ATLAS MONTER T-5 mortars – according to guidelines listed in their Technical Data Sheets.
- Substrates of greater absorptiveness should be primed with ATLAS UNI-GRUNT or ATLAS UNI-GRUNT PLUS emulsion (for absorptive substrates) and ATLAS GRUNTO-PLAST or ATLAS ULTRAGRUNT priming mass (for non-absorptive substrates).
- In case of thin screed layers or in doubtful situations (possible debonding) use primers improving adhesion, e.g. ATLAS ADHER S.

NOTE:
At joint between cement substrate and anhydrite screed a compound called ettringite can crystallize and cause screed debonding. Thus, priming before application of anhydrite screeds upon cement substrates should be very scrupulous (executed in two coats).

Screeds on separation layer

- Execute separation layer made of PE foil, paraffin paper, etc.
- Separation layer should be spread tightly, with no wrinkles, protecting the mortar from access beneath, folded onto walls (on expansion joint strips) at least to the height of the screed.
- Due to self-spreading properties of anhydrite screeds, the application area should be tightly divided and should keep bath-like shape with concurrent continuity of separation layer between substrate and screed.

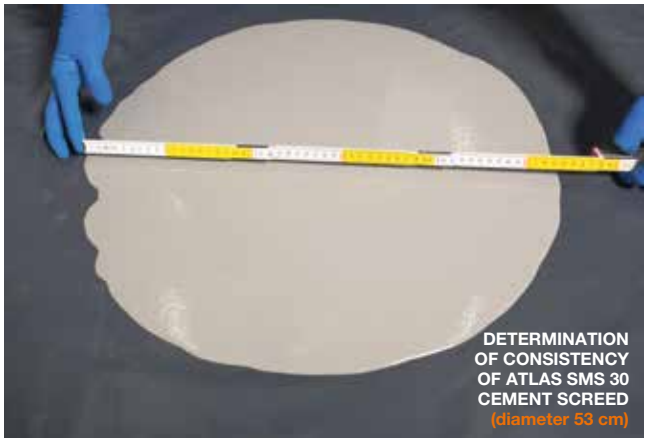
2.2.3 Application of Self-Levelling Anhydrite and Cement Screeds

Determination of appropriate consistency

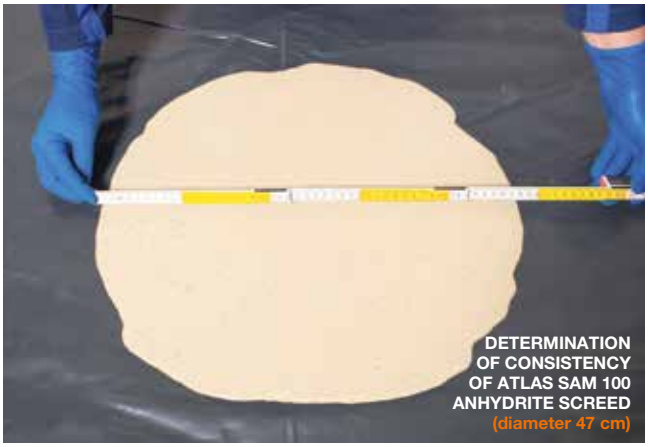
Self-levelling screeds can be applied manually or mechanically. In both cases one should check their consistency – pour the mixed mass upon even and non-absorbable surface (e.g. foil) from a 1 liter container. Photos below show the method of determination of consistency of ATLAS SAM 100. The container is made of PVC pipe of appropriate length giving the volume of 1 liter.

The consistency of self-levelling screed is appropriate if mortar forms a patch of diameter listed below.

Screed type	Size of patch made of 1 l of mortar
Anhydrite screed	45-50 cm
Cement screed	50-55 cm



DETERMINATION OF CONSISTENCY OF ATLAS SMS 30 CEMENT SCREED (diameter 53 cm)



DETERMINATION OF CONSISTENCY OF ATLAS SAM 100 ANHYDRITE SCREED (diameter 47 cm)

Machine application

Standard mixing-and-pumping units, e.g. those used for application of gypsum plasters, are also used for machine application of self-leveling screeds. Disengage the unit compressor and spray gun used for plastering – they are not needed here as the material is pumped and poured directly from a hose upon the substrate. It is advisable to change the feed pump before application of anhydrite screeds of thickness exceeding 5 cm. Pumps of efficiency of 25 l/min used for plastering should be changed to pumps of efficiency of 35 l/min and hoses changed into those of diameter of 35 mm. Greater pump and thicker hose ensures optimum unit efficiency. Changeover of unit is not necessary in case of machine application of thin-coat self-leveling compounds, e.g. SAM 100, SMS 15, SMS 30 on surfaces not exceeding 100 m² – typical pump and smaller hose diameter ensure sufficient efficiency.

Table below lists square metres which can be applied manually or with an unit of efficiency of 35 l/min. The comparison shows the most popular self-leveling Atlas screeds applied constantly within 1 hour.

	Layer thickness (cm)	Number of kilograms per 1 m²	Number of m² for manual application	Number of m² for machine application
SAM 100	**3.0**	**60**	**10**	**70**
SAM 200	5.0	100	6	42
SAM 500	5.0	90	6.7	47
SMS 15	1.5	25	24	168
SMS 30	3.0	50	12	84
POSTAR 100	5.0	100	6	42

Surface leveling and deaeration

It is advisable to use spike rollers for deaeration and leveling of screeds of small thickness and limited area of application. For larger surfaces and greater thicknesses it is easier to use a bar made of light materials, e.g. copper (photo 1) or aluminum tubes (photo 2). Bars made of copper tubes are helpful in deaeration of thin layer self-leveling masses (layer thickness up to 30 mm), bars made of aluminum are good for anhydrite screeds (layer thickness up to 60 mm).

Expansion joints

Screeds must be separated from walls and other elements (e.g. posts) with an expansion joint made of elastic material, e.g. polystyrene, polyurethane foam or ready-made ATLAS EXPANSION JOINT PROFILES. Expansion joints are not required for areas up to 50 m² large and those of diagonal below 10 m. Expansion joints should be executed also at thresholds.

Screed maintenance

Avoid direct sunlight, draught and provide appropriate ventilation during the first two days of screed setting. White surface tarnish can occur on the surface of anhydrite screeds. It should be grinded within 7 days since application and whole screed surface dedusted just after. Time of complete drying of anhydrite and cement screeds depends on temperature and air humidity in a room.

1

2

2.2.4 Application of Dense Plastic Cement Screeds

Material preparation and screed application
Pour the material from a bag into a container with suitable amount of water. Mixing ratio is listed on the packaging and in the Technical Data Sheet of the mortar. Stir the material until homogenous. Remix after approx. 5 minutes. Use a low speed mixer, a flow mixer or a cement mixer.

In order to form even screed or floor surface it is advisable to use battens. They should be placed so the screed or floor layer thickness corresponds to the expected one and in no place is lower than the minimum thickness assumed for a chosen structural arrangement (bonded, on separation layer, floating). In order to compact the mass and spread it more precisely, one can vibrate it with a darby or compact with a float until water shows on the mortar surface – see photo below.

Expansion joints
Screeds and floors must be separated from walls and other elements (e.g. posts) with an expansion joint made of elastic material, e.g. polystyrene, polyurethane foam or ready-made ATLAS EXPANSION JOINT PROFILES. Expansion joints should be executed indoors and outdoors in accordance to rules listed below:

INDOORS	OUTDOORS
application area up to 36 m²	application area up to 5 m²
side length up to 6 m	side length up to 3 m
ratio of sides length should not exceed 2:1	ratio of sides length should not exceed 2:1

Floor or screed maintenance
Freshly applied screed or floor should be protected against excessive drying, direct sunlight, low air humidity and draughts. In order to ensure favourable conditions for mortar setting, depending on needs, one should sprinkle freshly applied surface with water or cover it with foil. Appropriate maintenance allows the material to reach its declared performance. Time of drying of cement screed or floor depends on layer thickness as well as ambient temperature and air humidity.

2.2.5 Application of Top Flooring

The time of commencement of top flooring application depends on screed type, its moisture content and climate in a room. Generally, top flooring can be applied sooner on rapid-set products, such as SAM 500, SMS 15, SMS 30, POSTAR 20 and POSTAR 80. Nevertheless, one should always check the moisture content of substrate just before top layer installation. The simplest test consists in airtight fixing of foil on screed or floor surface and its removal after 24 hours (photo 1) – if marks of humidity occur on the foil backside then the substrate requires further stabilization. Top flooring application can commence when there are no marks of humidity on the foil.

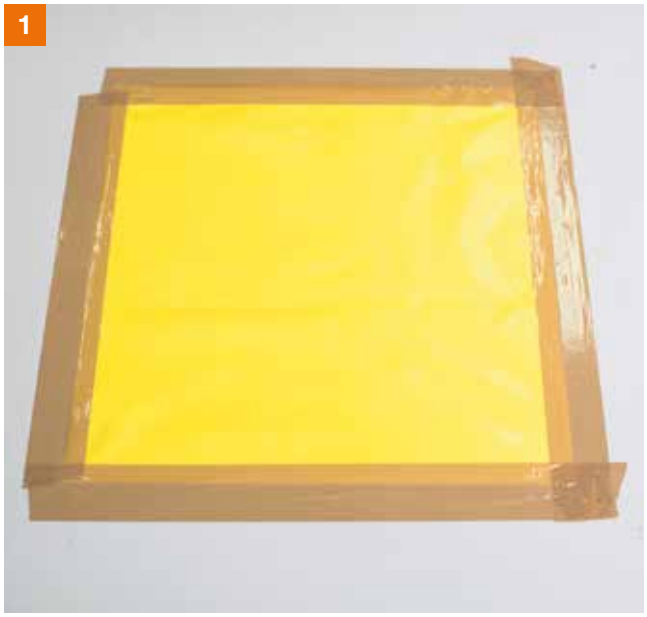
Table beside shows general time when application of top flooring on screeds can commence (number of days).

Product	Screed layer thickness (cm)	TOP FLOOR TYPE			
		Ceramic tiles	Parquet	PVC, carpet flooring	Flooring panels
ATLAS SAM 100	0.5 – 3.0	7	21	14	7
ATLAS SAM 200	2.5 – 4.0	21		21	14
	4.0 – 6.0	21		21	21
ATLAS SAM 500	2.0 – 4.0	14		21	14
	4.0 – 6.0	21		21	21
ATLAS SMS 15	0.1 – 1.5	1	7	7	7
ATLAS SMS 30	0.3 – 3.0	1	7	7	7
ATLAS POSTAR 20	1.0 – 3.0	2		14	14
	3.0 – 5.0	2		14	14
ATLAS POSTAR 80	1.0 – 3.0	1	7	7	4
	3.0 – 5.0	1	7	7	7

DATA LISTED ABOVE IS DETERMINED FOR BONDED SCREEDS APPLIED AT TEMPERATURE 20°C AND HUMIDITY 55%. IN CASE OF OTHER CONDITIONS DURING SCREED SETTING TIME LISTED IN THE TABLE CAN DIFFER. ALWAYS CONDUCT MOISTURE CONTENT TEST PRIOR TO THE APPLICATION OF TOP FLOORING.

NOTE! Follow the recommendations of manufacturers of glues for parquet and carpet flooring.

1

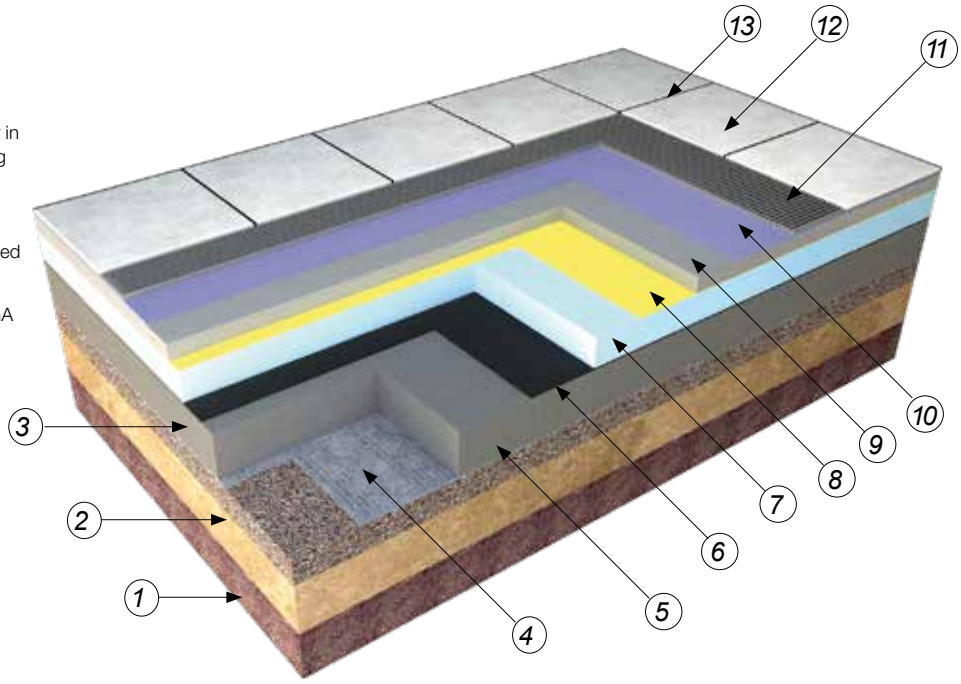


2

2.3.1 Layers of Floor Installed on a Ground in a Garage

Top finish made of ceramic tiles

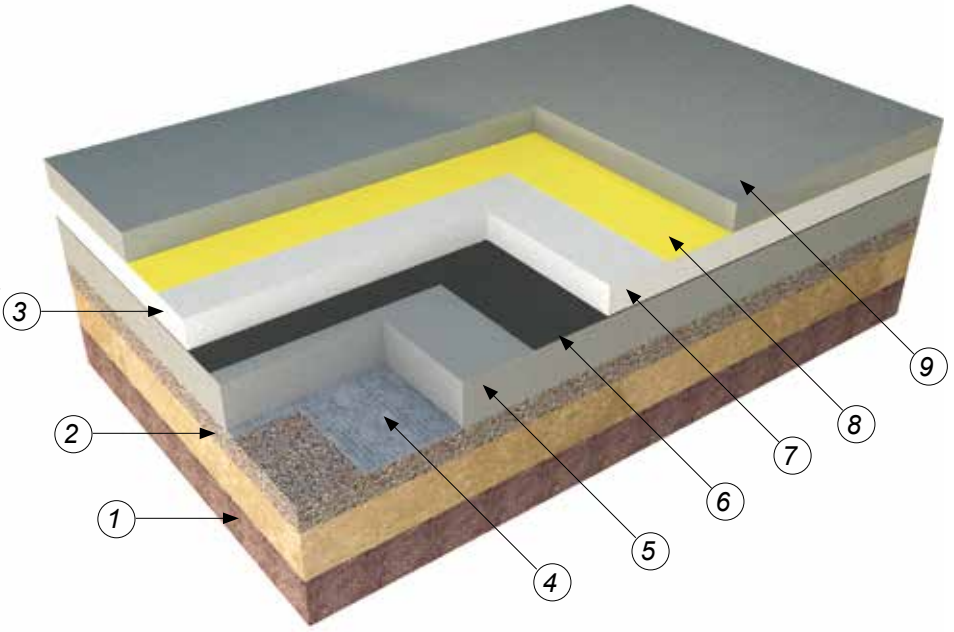
1. Subsoil
2. Leveling subcrust of sand
3. Filtration layer of gravel
4. Geotextile or dimpled membrane
5. Concrete or ferroconcrete slab
6. IZOHAN IZOBUD WL primer (diluted with water in 1:1 ratio) + IZOHAN IZOBUD WM waterproofing
7. Thermal insulation
8. PE foil
9. ATLAS POSTAR 20 or ATLAS POSTAR 80 screed
10. ATLAS WODER DUO under-tile waterproofing
11. ATLAS ULTRA GEOFLEX or ATLAS PLUS MEGA adhesive
12. Ceramic, gres tiles
13. ATLAS ARTIS grout



2.3.2 Layers of Floor on a Ground in a Boiler Room

Top finish made of Traditional Cement Floor ATLAS POSTAR 10 or ATLAS POSTAR 80

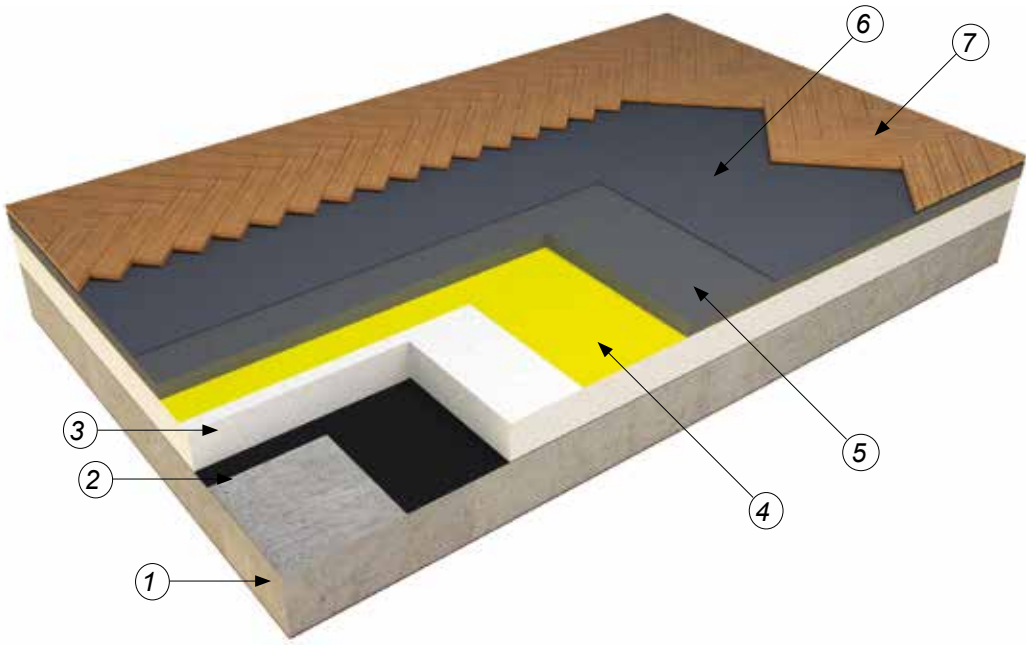
1. Subsoil
2. Leveling subcrust of sand
3. Filtration layer of gravel
4. Geotextile or dimpled membrane
5. Concrete or ferroconcrete slab
6. IZOHAN IZOBUD WL primer (diluted with water in 1:1 ratio) + IZOHAN IZOBUD WM waterproofing
7. Thermal insulation
8. PE foil
9. Traditional cement floor ATLAS POSTAR 10 or rapid-set cement floor ATLAS POSTAR 80



2.3.3 Layers of Floor on a Concrete Ceiling

Timber floor (parquet) on a leveling layer made of ATLAS SMS 15 or ATLAS SMS 30

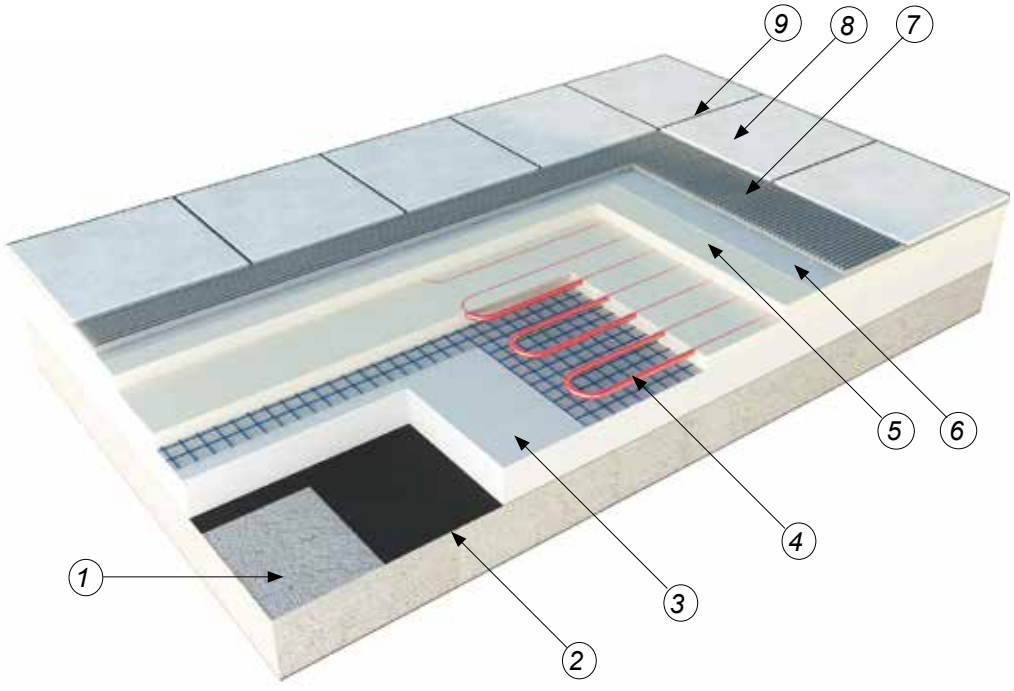
1. Concrete ceiling
2. Vapour barrier
3. Acoustic/thermal insulation
4. PE foil
5. Concrete screed
6. Self-leveling compound ATLAS SMS 15 or self-leveling screed ATLAS SMS 30
7. Primer and glue for parquet + parquet



2.3.4 Layers of Floor on a Concrete Ceiling with Floor Heating Embedded in ATLAS SAM 500 or ATLAS SAM 200 Screed

Top finish made of ceramic tiles

1. Concrete ceiling
2. Vapour barrier
3. Acoustic/thermal insulation
4. Heating system applied on foil and embedded in screed
5. Rapid-set self-leveling screed ATLAS SAM 500 or self-leveling screed ATLAS SAM 200
6. Fast-drying priming emulsion ATLAS UNI-GRUNT or AVAL KT 17
7. ATLAS ULTRA GEOFLEX or ATLAS PLUS MEGA adhesive
8. Ceramic, gres tiles
9. ATLAS ARTIS grout



ATLAS GEL TECHNOLOGY

creation of new possibilities of cement mortars

UNIQUE TECHNOLOGY OF SILICEOUS GEL

Following intensive research and development actions ATLAS introduces new building chemicals of completely new properties and unique rheology. They are based on innovative siliceous gel technology and special mix of cements. Use of mineral-based gel admixtures allows the adhesives to show homogenous consistency and outstanding ability of water binding within the mortar structure. These properties are ensured by mineral raw materials, formed in geological transition of volcanic rocks, which can accumulate even quintuple amount of water within the structure with simultaneous growth of volume.

SAFE USE AT HIGH TEMPERATURE

Presence of vast amount of water kept within the structure of ATLAS adhesive mortars: of GEOFLEX line, ATLAS HOTER U2 and ATLAS HOTER U2-B allows for full cement binding, regardless the type of cladding and the substrate absorptiveness. Complete cement hydration guarantees mortar performance even in hard usage conditions (e.g. high temperature). Retention of water of ATLAS adhesives allows for free application at temperature of even +35°C. Mineral characteristic of gelling admixtures makes them, oppositely to organic additives, less subject to change of performance under high temperature.

UNIVERSALITY OF USE

Use of gel technology in ATLAS adhesives allows for diversification of consistency which is not possible with standard mortars. Therefore, the products can be adjusted to individual preferences of users and to actual range of application. Use of minimum amount of water forms an adhesive of almost no slip allowing to fix wall tiles from top to bottom without additional support. Gradual increase of volume of mixing water causes gradual change of workability to a self-spreading adhesive which perfectly fills space beneath large size tiles.

EXCELLENT RHEOLOGY

Siliceous gel acts as a modifier of mortars workability. Therefore, products offer uniform, homogenous consistency, great stability of mortars on vertical surfaces and – most of all – fine application and parameter described by contractors as "easy troweling", which is unavailable for standard mortars. Gel adhesives offer effortless spread upon substrate. Modified consistency of gel mortars ATLAS HOTER U2 and ATLAS HOTER U2-B bring outstanding performance during application and perfectly smooth coat surface. Mortar lightness and quick application are particularly appreciated by the installers of external wall insulation systems. ATLAS HOTER U2 and ATLAS HOTER U2-B mortars do very good at the stage of mesh embedding where they significantly reduce actual workload.

QUICKER APPLICATION

Gel technology provides contractors with reduction of time and workload. The use of siliceous gel products of GEOFLEX line allow for grouting just after 12 hours. General use gel adhesive for thermal insulation ATLAS HOTER U2-B require no priming mass beneath renders. Therefore the technological cycle is one phase shorter which directly influences the actual cost of a project.

UNIQUE TECHNOLOGY
OF SILICEOUS GEL
allows for complete cement hydration

SAFE
use at high temperature **+35°C**

UNIVERSALITY
consistency adjusted to individual needs

EXCELLENT RHEOLOGY
outstanding workability

SHORTER TIME OF INSTALLATION

YOU KEEP WORKING

WHEN OTHERS HAVE TO WAIT

ONLY ATLAS

TECHNOLOGY OF **DOUBLE FIBRES**

2X

PLUS
DEFORMABLE HIGHLY FLEXIBLE ADHESIVE

What does the **technology of double fibres** bring?

OK!
ELASTIFIED ADHESIVE

- » tiles stability just after fixing
- » improved strength parametres
- » resistance to operational loads
- » use within broad range of temperature

Thermal Insulation Systems

3

3.1.1 Thermal Insulation Systems According to Technical Approvals and Technical Assessments

	ATLAS ETICS PLUS	ATLAS ETICS	ATLAS CERAMIK	ATLAS RENOTER	ATLAS ROKER	ATLAS ROKER G
Reference document	AT-15-9784/2016	AT-15-9090/2016	ITB-KOT-2018/0385	AT-15-8477/2016	AT-15-2930/2016	AT-15-7314/2016
THERMAL INSULATION LAYER						
EPS polystyrene	•	•	•	•		
Mineral wool					•	•
Lamella mineral wool					•	•
Beveled lamella mineral wool						•
ADHESIVE FOR INSULATION FIXING (•) ADHESIVE FOR INSULATION FIXING AND BASE COAT (• •)						
ATLAS STOPTER K-100	• •					
ATLAS STOPTER K-50		• •		• •	• •	
ATLAS STOPTER K-20 AVAL KT 85		• •	• •	• •		
ATLAS HOTER U2	• •					
ATLAS HOTER U2-B	• •					
ATLAS HOTER S AVAL KT 53	•	•	•	•		
ATLAS HOTER U AVAL KT 55		• •	• •	• •		
ATLAS ROKER U					• •	• •
ATLAS ROKER W					•	•
BASE COAT – MESH						
Single: ATLAS 150, ATLAS 165	•	•	•	•	•	•
Double: ATLAS 150; ATLAS 165	•	•				
Combination: ATLAS 150 + Armored 340	•					
FINISHING COAT – THIN-COAT RENDER, FAÇADE PAINT, CERAMIC TILE						
Silicone render	•	•		•	•	•
Silicone-silicate render	•	•		•	•	•
Silicate render	•	•			•	•
Acrylic render	•	•		•		
Acrylic-silicone render	•	•		•		
Mineral render	•	•		•	•	•
Façade paint	•	•		•	•	•
Ceramic tiles			•			
LIMITATION OF USE BECAUSE OF BUILDING HEIGHT*						
Up to [m]*	25	25	25	25		n/a
No limitation					•	
Use	Thermal insulation of any building type	Thermal insulation of any building type	Façades of particular operational requirements	Refurbishment of existing thermal insulation	Buildings of special fire-resistance and acoustic requirements	Underground garages, passages under buildings

*technical recommendation, local regulations can limit the allowable building height – always check and follow local requirements

3.1.2 Thermal Insulation Sets

Recommended sets

Set	Set description	Insulation material	Recommended products							
			Adhesive for thermal insulation fixing	Reinforcing mesh	Adhesive for base coat	Priming mass	Thin-coat render	Primer beneath paint	Façade paint	Additives
Premium	Great impact resistance, intensive colours, self-cleaning effect	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 165	STOPTER K-100	ATLAS SILKON ANX	ATLAS SILICONE RENDER AVAL SILICONE RENDER			
Decorative	Aesthetics, wide range of texture, discretion of layout	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U AVAL KT 55	ATLAS CERPLAST AVAL KT 16	ATLAS CERMIT WN ATLAS CERMIT PS ATLAS CERMIT N-100 ATLAS CERMIT BA-M ATLAS DEKO M (AVAL KT 77)		ATLAS BEJCA ATLAS METALLIC VARNISH ATLAS IMPREGNATING SEALER FOR ARCHITECTURAL CONCRETE	
Summer	Application at temp. up to +35°C, easy-in-use, resistance to UV radiation	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U2	ATLAS SILKON ANX	ATLAS SILICONE RENDER AVAL SILICONE RENDER			ATLAS HOTER DL summer admixture for dispersion render
Winter	Application at temp. down to 0°C, safe application, resistance to prolonged precipitation	EPS	ATLAS STOPTER K-20 AVAL KT 85	ATLAS 150	ATLAS STOPTER K-20 AVAL KT 85	ATLAS SILKON ANX	ATLAS SILICONE RENDER AVAL SILICONE RENDER			ATLAS ESKIMO winter admixture for dispersion render
Express	No priming, excellent workability, resistance to moisture	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U2-B		ATLAS SILICONE RENDER AVAL SILICONE RENDER			
Developer	Perfect for large scale investment, quick application, resistance to algae	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U AVAL KT 55	ATLAS CERPLAST AVAL KT 16	ATLAS ACRYLIC-SILICONE RENDER AVAL ACRYLIC-SILICONE RENDER			
Developer general-use	With polystyrene and mineral wool without priming, resistance to atmospheric conditions	Mineral wool / EPS	ATLAS STOPTER K-50	ATLAS 150	ATLAS STOPTER K-50		ATLAS SILICONE RENDER AVAL SILICONE RENDER			
Economical dispersive	Very competitive price, excellent workability, great flexibility and strength	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U AVAL KT 55	ATLAS CERPLAST AVAL KT 16	ATLAS ACRYLIC RENDER AVAL ACRYLIC RENDER			
Economical mineral	Very competitive price, easy in use, resistance to algae	EPS	ATLAS HOTER S AVAL KT 53	ATLAS 150	ATLAS HOTER U AVAL KT 55	ATLAS CERPLAST AVAL KT 16	ATLAS CERMIT ND	ATLAS ARKOL NX	ATLAS SALTA	
Diffusive	Great vapour permeability, comfort and safety, resistance to algae and fungi growth	Mineral wool	ATLAS ROKER W	ATLAS 150	ATLAS ROKER U	ATLAS SILKAT ASX ATLAS CERPLAST	ATLAS SILICATE RENDER ATLAS CERMIT ND FOR FURTHER PAINTING	ATLAS ARKOL SX	ATLAS ARKOL S (ONE OF MANY SOLUTIONS)	

3.1.3 Adhesives for Thermal Insulation

Commercial name	ATLAS STOPTER K-100	ATLAS STOPTER K-50	ATLAS STOPTER K-20/ AVAL KT 85	ATLAS HOTER U2	ATLAS HOTER U2-B
Reference document	AT-15-9784/2016	AT-15-9090/2016 AT-15-2930/2016 AT-15-8477/2016	AT-15-9090/2016 AT-15-8477/2016 ITB KOT-2018/0385 ed. 1	AT-15-9784/2016	AT-15-9784/2016
TECHNICAL DATA					
Mixing ratio water/dry mix [l/25 kg]	n/a	5.0 – 5.5	5.0 – 5.5	7.5 – 8.0	7.5 – 8.0
Pot life [h]	n/a	4	4	4	4
Open time [min]	25	25	25	30	30
Bonding to polystyrene [MPa]	≥ 0.08	≥ 0.1*	≥ 0.08	≥ 0.08	≥ 0.08
Bonding to mineral wool [MPa]	n/a	≥ 0.08	n/a	n/a	n/a
Bonding to concrete [MPa]	≥ 0.25	≥ 0.25	≥ 0.25	≥ 0.25	≥ 0.25
Consumption [kg/m²] – boards fixing	n/a	polystyrene 4.0-5.0 mineral wool 4.5-5.5	4.0 – 5.0	4.0 – 5.0	4.0 – 5.0
Consumption [kg/m²] – base coat	3.5 – 4.0	polystyrene 3.0-3.5 mineral wool 5.5-6.5	3.0 – 3.5	3.0 – 4.0	3.0 – 4.0
Temperature of application [°C]	5 – 30	5 – 30	0 – 25	10 – 35	10 – 35
Colour of base coat	white	white	grey	grey	white
Priming mass beneath rendering coat	not required	not required	required	required	not required
USE IN THERMAL INSULATION SYSTEM					
Boards fixing	-	+	+	+	+
Boards fixing and base coat	only base coat	+	+	+	+
TYPE OF THERMAL INSULATION					
EPS	+	+	+	+	+
Mineral wool		+			
USE WITH THERMAL INSULATION SYSTEMS					
ATLAS/AVAL ETICS		+	+		
ATLAS ETICS PLUS	+			+	+
ATLAS/AVAL ROKER		+			

*to polystyrene of TR 100

ATLAS HOTER U/ AVAL KT 55	ATLAS HOTER S/ AVAL KT 53	ATLAS ROKER W	ATLAS ROKER U
AT-15-9090/2016 AT-15-8477/2016 ITB KOT-2018/0385 ed. 1	AT-15-9090/2016 AT-15-9784/2016 AT-15-8477/2016 ITB KOT-2018/0385 ed. 1	AT-15-2930/2016 AT-15-7314/2016	
TECHNICAL DATA			
5.0 – 5.5	5.0 – 5.5	5.0 – 5.5	5.0 – 5.5
4	3	4	4
25	25	25	25
≥ 0.08	≥ 0.08	n/a	n/a
n/a	n/a	≥ 0.08	≥ 0.08
≥ 0.25	≥ 0.25	≥ 0.25	≥ 0.25
4.0 – 5.0	4.0 – 5.0	4.5 – 5.5	4.5 – 5.5
3.0 – 3.5	n/a	n/a	5.5 – 6.5
5 – 25	5 – 25	5 – 25	5 – 25
grey/white	n/a	n/a	grey
required	n/a	n/a	required
USE IN THERMAL INSULATION SYSTEM			
+	+	+	+
+			+
TYPE OF THERMAL INSULATION			
+	+		
		+	+
USE WITH THERMAL INSULATION SYSTEMS			
+	+		
	+		
		+	+

3.1.4 Thin-Coat Façade Renders

	DISPERSIVE RENDERS									
	CLASSIC					DECORATIVE				
Render type	SILICONE	ACRYLIC-SILICONE	SILICONE-SILICATE	SILICATE	ACRYLIC	MOSAIC				
										
Commercial name	ATLAS/AVAL SILICONE RENDER	ATLAS/AVAL ACRYLIC-SILICONE RENDER	ATLAS SILICONE-SILICATE RENDER	ATLAS SILICATE RENDER	ATLAS/AVAL ACRYLIC RENDER	ATLAS DEKO M TM0	ATLAS DEKO M TM1	ATLAS DEKO M TM3	ATLAS DEKO M TM5	ATLAS DEKO M TM6
Reference document	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, ITB-KOT-2018/0583 ed.1	AT-15-9090/2016, AT-15-9784/2016	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, ITB-KOT-2018/0583 ed.1		AT-15-9090/2016, AT-15-9784/2016	AT-15-9090/2016				
OPERATIONAL DATA										
Binder	styrene-acrylic and silicone resin with addition of siloxanes	styrene-acrylic and silicone resin	styrene-acrylic resin; silicone resin; potassium silicate	styrene-acrylic resin; potassium silicate	styrene-acrylic resin	acrylic resin				
Priming mass	ATLAS SILKON ANX	ATLAS CERPLAST/ AVAL KT 16	ATLAS SILKON ANX	ATLAS SILKAT ASX	ATLAS CERPLAST/ AVAL KT 16	ATLAS CERPLAST/AVAL KT 16				
Texture	spotted	spotted	spotted	spotted	spotted	standard mosaic	fine mosaic	standard mosaic	effect of stone	effect of sandstone
Colour range	400 + 80 intensive shades	400	400	264	400	unlimited	120	20	13	unlimited – 6 recommended
Max. aggregate size [mm]	1.5/N-15 2.0/N-20	1.5/N-15	1.5/N-15 2.0/N-20	1.5/N-15	1.5/N-15	2	0.8	2	1.2	0.5
Consumption [kg/m²]	2.5/N-15 3.0/N-20	2.5/N-15	2/5/N-15 3.0/N-20	2.5/N-15	2.5/N-15	3.0-5.5	1.5 – 2.5	3.0-5.5	2.4 – 4.3	1.5 – 2.5
Pot life	n/a									
APPLICATION										
Manual	+	+	+	+	+	+	+	+	+	+
Machine	+	+	+	+	+	-	-	-	+	+
TECHNICAL DATA										
Water vapour diffusion resistance coefficient μ	n/a	n/a	n/a	n/a	n/a	n/a				
Water vapour permeability coefficient V [g/m²24h]	medium 1 $5 < V_2 \leq 150$	medium $15 < V_2 \leq 150$	large $V_1 > 150$	large $V_1 > 150$	medium $15 < V_2 \leq 150$	medium $15 < V_2 \leq 150$				
Water permeability W [kg/m²h^{0,5}]	low $W_2 < 0.1$	medium $0,1 < W_2 < 0,5$	medium $0,1 < W_2 < 0,5$	medium $0,1 < W_2 < 0,5$	medium $0,1 < W_2 < 0,5$	medium $0,1 < W_2 < 0,5$				
S_d [m]	0.14 – 1.4	0.14 – 1.4	< 0.14	< 0.14	0.14 – 1.4	0.14 – 1.4				
Resistance to biological corrosion	+	+	+	+	+	+				
Resistance to biological corrosion after washing	+	+	+	+	+	+				
improved impact resistance	140 J (150 + 340 mesh)		up to 120 J							
pH	8	8	9	9.5	8	8				

	DISPERSIVE RENDERS					
	CLASSIC			DECORATIVE		
FOR TEMPLATES	MINERAL					
						
ATLAS CERMIT N-100	ATLAS CERMIT ND/ CERMIT ND FOR FURTHER PAINTING	ATLAS CERMIT SN/DR ATLAS CERMIT SN-MAL AVAL KT 137	ATLAS CERMIT MN	ATLAS CERMIT BA-M	ATLAS CERMIT WN	ATLAS CERMIT PS
AT-15-9090/2016	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, ITB-KOT-2018/0583 ED.1		AT-15-9090/2016, AT-15-2930/2016, AT-15-8477/2016, ITB-KOT-2018/0583 ed.1	AT-15-9090/2016, AT-15-2930/2016, AT-15-8477/2016	AT-15-9090/2016, AT-15-2930/2016, AT-15-8477/2016	AT-15-9090/2016, AT-15-2930/2016, AT-15-8477/2016
OPERATIONAL DATA						
styrene-acrylic and silicone resin	cement, lime					
ATLAS CERPLAST/ AVAL KT 16	ATLAS CERPLAST/ AVAL KT 16		ATLAS CERPLAST/ AVAL KT 16	ATLAS CERPLAST/ AVAL KT 16	ATLAS CERPLAST/ AVAL KT 16	ATLAS CERPLAST/ AVAL KT 16
with templates/ spotted/ sandstone	spotted	spotted/ rustic	spotted	effect of concrete	effect of timber (to be formed with silicone mold)	sandstone
400	1 (white)	1	1 (white)	1	1 (white)	1 (sandstone)
1.0	2.0	1.5/SN15 2.0/SN20, DR20 2.5/SN-MAL25 3.0/SN30,DR30	1.5	1.5	1.0	1.0
2.0	2.8	2.5/SN15, SN-MAL 15 3.0/SN20, DR20 3.5/SN-MAL25 4.0/SN30,DR30	1.5	< 3.0	2.5 – 3.0	2.0-2.5
n/a	1.5	1.5	1.5	3.0	1.0	1.5
APPLICATION						
+	+	+	-	+	+	+
+	-	+	+	-	-	-
TECHNICAL DATA						
n/a	15/35 (EN 1745:2002, table A.12)	15/35 (EN 1745:2002, table A.12)	15/35 (EN 1745:2002, table A.12)	15/35 (EN 1745:2002, table A.12)	n/a	15/35 (EN 1745:2002, table A.12)
medium $15 < V_2 \leq 150$	n/a	n/a			medium $15 < V_2 \leq 150$ (with Bejca impregnating sealer)	
medium $0.1 < W_2 < 0.5$	≤ 1ml/cm² after 48h	≤ 1ml/cm² after 48h	low $W_3 < 0.1$		≤ 1ml/cm² after 48h	≤ 1ml/cm² after 48h
0.14 – 1.4	< 0.14	< 0.14		0.14 –1.4	0.14 – 1.4	< 0.14
+	+	+	+	+	+	+
+	+	+	+	+	+	+
8	12	12	12	12	12	12

3.1.5 Thin-Coat Façade Renders

– range of use

	DISPERSIVE RENDERS									
	CLASSIC					DECORATIVE				
Render type	SILICONE	ACRYLIC-SILICONE	SILICONE-SILICATE	SILICATE	ACRYLIC	MOSAIC				
										
Commercial name	ATLAS/AVAL SILICONE RENDER	ATLAS/AVAL ACRYLIC-SILICONE RENDER	ATLAS SILICONE-SILICATE RENDER	ATLAS SILICATE RENDER	ATLAS/AVAL ACRYLIC RENDER	ATLAS DEKO M TM0	ATLAS DEKO M TM1	ATLAS DEKO M TM3	ATLAS DEKO M TM5	ATLAS DEKO M TM6
TYPE OF THERMAL INSULATION										
EPS boards	+	+	+	+	+	+				
Mineral wool	+	-	+	+	-	-				
OBJECT TYPE										
Residential housing	•••••	•••••	••••	•••	••••	•••••				
Public access and commercial	•••••	••••	••••	•••	•••	•••••				
Industrial	•••••	•••	••••	••	••	••••				
Outbuildings	•••••	••	••••	••••	••	•				
Infrastructure	•••••	••••	••••	••	••••	•••••				
Heritage	•••	-	••	•••••	-	-				
Indoors	+	+	+	+	+	+				
LOCATION										
City, urban and industrial areas	•••••	•••••	•••	•••	•••	•••••				
Rural and agricultural areas	•••••	•••	•••	•••	•	•••••				
Damp areas, close to water tanks	•••••	•••	•••	••••	•	••				
Forests	•••••	•••	•••	•••••	•	••				
USE WITH THERMAL INSULATION SYSTEMS										
ATLAS/AVAL ETICS	+	+	+	+	+	+				
ATLAS ETICS PLUS	+	-	+	+	+	-				
ATLAS ROKER G	+	-	+	+	-	-				
ATLAS/AVAL ROKER	+	-	+	+	-	-				
ATLAS RENOTER	+	+	+	-	+	-				

	DISPERSIVE RENDERS					
	CLASSIC			DECORATIVE		
FOR TEMPLATES	MINERAL					
						
ATLAS CERMIT N-100	ATLAS CERMIT ND/ CERMIT ND FOR FURTHER PAINTING	ATLAS CERMIT SN/DR ATLAS CERMIT SN-MAL AVAL KT 137	ATLAS CERMIT MN	ATLAS CERMIT BA-M	ATLAS CERMIT WN	ATLAS CERMIT PS
TYPE OF THERMAL INSULATION						
+	+	+	+	+	+	+
-	+	+	+	+	+	+
OBJECT TYPE						
•••••	•••	••	••••	•••••	•••••	•••••
•••••	•••	••	••••	•••••	•••••	•••••
•••••	•••	•	••	•	•	•
••••	••••	•••	••	•	•	•
•	••	••	••	•••	•	•
••	••••	•••	•••	-	-	••••
+	-	-	-	-	+	-
LOCATION						
•••••	•••	••	••	••••	•••••	•••
•••••	•••	••	••	••	•••••	•••
•••	••••	•••	•••	•••	•••••	•••••
•••	•••••	••••	••	••••	•••••	•••••
USE WITH THERMAL INSULATION SYSTEMS						
+	+	+	+	+	+	+
-	+	-	-	-	-	-
-	+	+	+	-	+	+
-	+	+	+	+	+	+
-	+	+	+	+	+	+

•••••	the best possible solution
•	limited use

3.1.6 Façade Paints

Paint type	SILICONE PAINT	SILICONE PAINT	SILICONE PAINT	SILICATE PAINT	ACRYLIC PAINT	STAIN	METALLIC VARNISH
Commercial name	**ATLAS SALTA N PLUS**	**ATLAS SALTA N**	**ATLAS SALTA**	**ATLAS SALTA S**	**ATLAS SALTA E**	**ATLAS BEJCA**	**ATLAS METALLIC VARNISH**
Reference document	PN-EN 1062-1:2005	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, ITB-KOT-2018/0583 ed.1			AT-15-9090/2016, AT-15-8477/2016	AT-15-9090/2016, AT-15-2930/2016,	PN-EN 1062-1:2005
Number of colours	400	400	400	352	400	10	4
OPERATIONAL DATA							
Primer	not required, in case of significant substrate absorptiveness use diluted paint					not required	not required
Density [kg/dm^3]	1.44	1.44	1.42	1.50	1.53	1.02	1.60
Temperature during application [°C]	5 – 30	5 – 30	5 – 30	5 – 25	5 – 30	5 – 25	5 – 30
Time of drying [h]	2	2 – 6	2 – 6	2 – 3	2 – 4	1 – 2	0.5
Next coat application after [h]	3	6	6	6	6	6	
Application on fresh mineral render after minimum	5 days	5 days	5 days	2 days	28 days	3 days	2 days
Coverage from 1 litre (single application) [m^2]	4 – 6.6	4 – 6.6	4 – 8	4 – 6	4 – 8	4 – 5	4 – 5
TECHNICAL DATA							
Gloss G	G3-matt	G3-matt	G3-matt	G3-matt	G3-matt	n/a	G2-semigloss
Coat thickness E [µm]	100 < E3 < 200					n/a	
Grain size [µm]	S1 – fine < 100					n/a	
Water vapour permeability coefficient V [g/m^{2}24h]	medium 15 < V_2 < 150			large V_1 > 150	medium 15 < V_2 < 150	medium 15 < V_2 < 150	
Water permeability W [kg/m^{2}h$^{0.5}$]	low W_3 < 0.1			medium 0.1 < W_2 < 0.5	low W_3 < 0.1	low W_3 < 0.1	
S_d [m]	< 0.15	0.14 - 1.4		< 0.14	0.14 - 1.4	0.14 - 1.4	0.14 - 1.4
Coating strength (white paint)	Class 1/ coverage 8 m²		Class 2/ coverage 8 m²			n/a	
pH	8	8	8	11 – 12	8	8	7.5
Bonding grade	1	1	1	1	1	1	1
Evaluation of degree of blistering, cracking and flaking	no blistering, cracking and falking						
SUBSTRATE TYPE							
Mineral substrates: concrete, traditional plasters	+	+	+	+	+	+	+
Thin-coat mineral renders	+	+	+	+	+	+	+
Thin-coat acrylic render	+	+	+		+		+
Thin-coat acrylic-silicone render	+	+	+		+		+
Thin-coat silicone render	+	+	+		+		+
Thin-coat silicone-silicate render	+	+	+	+			+
Thin-coat silicate render	+	+	+	+			+
USE WITH THERMAL INSULATION SYSTEMS							
ATLAS/AVAL ETICS		+	+	+	+	+	
ATLAS ETICS PLUS		+	+	+			
ATLAS ROKER G		+	+	+		+	
ATLAS/AVAL ROKER ETICS		+	+	+		+	
ATLAS RENOTER		+	+	+	+		

3.1.7 Façade Paints

– use

Paint type	SILICONE PAINTS			SILICATE PAINT	ACRYLIC PAINT
Commercial name	ATLAS SALTA N PLUS	ATLAS SALTA N	ATLAS SALTA AVAL KT 46	ATLAS SALTA S	ATLAS SALTA E
TYPE OF THERMAL INSULATION					
EPS boards	+	+	+	+	+
Mineral wool	+	+	+	+	-
USE					
Thin-coat mineral renders	•••••	•••••	••••	•••••	•••
Thin-coat silicate renders	•••	•••	••	•••••	•
Thin-coat silicone renders	•••••	•••••	••••	-	••
Thin-coat silicone-silicate renders	•••••	•••••	••••	-	••
Lime and renovation plasters	•••	•••	••	•••••	-
Thin-coat acrylic renders	•••••	•••••	••••	-	•••••
Thin-coat acrylic-silicone renders	•••••	•••••	••••	-	••••
Concrete substrates	•••••	•••••	••••	•••••	••
Rough walls (concrete, bricks, hollow blocks)	•••••	•••••	••••	••••	•••
Silicate paint coatings	•••	•••	••	•••••	•
Silicone paint coatings	•••••	•••••	••••	-	•••
Acrylic paint coatings	•••••	•••••	••••	-	•••••
Indoor use	+	-	-	+	+
OBJECT TYPE					
Residential housing	•••••	•••••	••••	••••	•••
Public access and commercial buildings	•••••	•••••	••••	••••	•••
Industrial buildings	••••	•••••	••••	•••	•••
Outbuildings	••••	•••••	••••	••••	•••
Infrastructure	•••••	•••••	••••	•••	••••
Heritage buildings	•••	•••	•••	•••••	-
LOCATION					
City, urban and industrial areas	•••••	•••••	••••	•••	••••
Rural and agricultural areas	•••••	•••••	••••	••••	•••
Wet areas, close to water reservoirs	•••••	•••••	••••	•••••	•••
Forests	•••••	•••••	•••	•••••	••

3.1.8 Priming Masses Beneath Thin-Coat Renders

Commercial name	ATLAS CERPLAST/ AVAL KT 16	ATLAS SILKON ANX	ATLAS SILKAT ASX
Reference document	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, AT-15-7314/2016		
USE REGARDING THE TYPE OF RENDER			
Silicone		+	
Silicone-silicate		+	
Silicate			+
Acrylic-silicone	+		
Acrylic	+		
Mineral	+		
Mosaic	+		
TECHNICAL DATA			
Density of ready-made product [g/cm³]	1.5	1.5	1.5
Application of render after [h]	4 – 6	4 – 6	4 – 6
Temperature of application [°C]	5 – 30	5 – 30	5 – 30
Consumption [kg/m²]	0.3	0.3	0.3
USE WITH THERMAL INSULATION SYSTEMS			
ATLAS/AVAL ETICS	+	+	+
ATLAS ETICS PLUS	+	+	+
ATLAS/AVAL ROKER	+	+	+
ATLAS ROKER G	+	+	+
ATLAS RENOTER	+	+	+

3.1.9 Primers Beneath Façade Paints

Commercial name	ATLAS ARKOL SX	ATLAS ARKOL NX
Reference document	AT-15-9090/2016, AT-15-2930/2016, AT-15-9784/2016, AT-15-8477/2016, AT-15-7314/2016	
USE REGARDING THE TYPE OF FAÇADE PAINT		
Silicone paint SALTA N PLUS		+
Silicone paint SALTA N		+
Silicone paint SALTA		+
Silicate paint SALTA S	+	
TECHNICAL DATA		
Density of ready-made product [g/cm^3]	1.0	1.0
Time of drying [min]	30	30
Temperature of application [°C]	5 – 30	5 – 30
Time of drying [h]	4	4
Consumption [kg/m^2]	0.2	0.05 – 0.2
USE WITH THERMAL INSULATION SYSTEMS		
ATLAS/AVAL ETICS	+	+
ATLAS ETICS PLUS	+	+
ATLAS/AVAL ROKER	+	+
ATLAS ROKER G	+	+
ATLAS RENOTER	+	+

Note:
Use the primer under paint in case of need of substrate absorptiveness unification.

3.2.1 Formal and Legal Rules of Commencement and Execution of Installation of Thermal Insulation

According to legal regulations **ETICS** (*External Thermal Insulation Composite Systems*) are treated as sets **of building products**, therefore they are subject to appropriate acts on marketing and further use. Regulation (EU) No. 305/2011 of the European Parliament and of the European Council specifies the word "set" as a building material **marketed by one manufacturer**, consisting of minimum two separate components which must be joined in order to install them in a building.

Why is it so crucial to use elements of a set provided by the same manufacturer?
In order to install sets of individual products **tested together as a whole**, because their performance is listed for an exact group of materials. Change of even one element can cause nonconformity to requirements, operational defects or aesthetic faults which will **influence further acceptance and evaluation of a project** and products installed. Only use of sets consisting of products supplied by one manufacturer can allow **a warranty** (usually for 5 years), thus ensures safety to all parties: manufacturer, investor and contractor.

DOCUMENTS ESSENTIAL FOR ETICS MARKETING
Domestic system: technical specification for ETICS is listed in the Domestic Technical Assessment (previous Technical Approval). Materials should be labelled with B mark and marketing entity should issue a Domestic Declaration of Performance.

European system: technical specification for ETICS is listed in the European Technical Assessment (previous European Technical Approval). Materials should be labelled with CE mark and marketing entity should issue a Declaration of Performance.

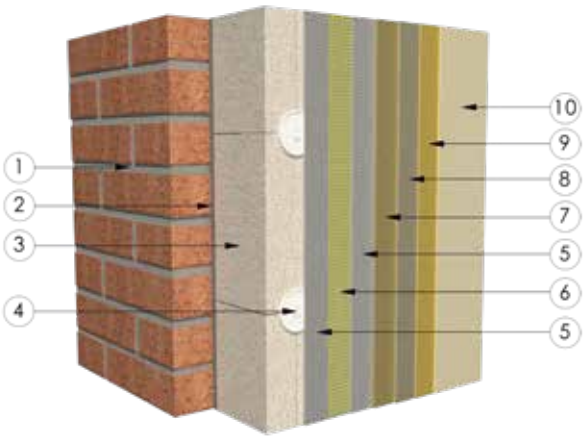
NOTE:
These documents are issued for systems – change of any element (mesh, render, adhesive, etc.) eliminates all advantages resulting from the reference documents listed above (e.g. use of declared parametres and performances).

3.2.2 System Completion

The core of external wall thermal insulation composite systems is to install layers of compatible materials forming thermal insulation and rendering top coat upon appropriately prepared substrate (wall).

The system consists of the following basic elements:
- **adhesive** for thermal insulation fixing (2)
- **thermal insulation:**
  EPS, XPS, mineral wool (3)
- **mechanical fixings** (anchors) distributed according to the design (4)
- **base coat (reinforced layer):**
  adhesive for base coat (5)
  reinforcing mesh (6)
- **rendering coat:**
  priming mass beneath thin-coat renders (7, if required)
  thin-coat render (8)
- **façade paint**
  primer (9, if required)
  paint (10)

and of supplementary elements: finishing details, starter tracks, corner beads, expansion joint profiles, sealers and other accessories.



Preparation of documentation of thermal insulation
The use of a set of products used within the ETICS structure should follow a design elaborated individually for a particular object. The design should allow for actual local standards and building regulations, most of all: technical conditions to be met by buildings, buildings location, etc.

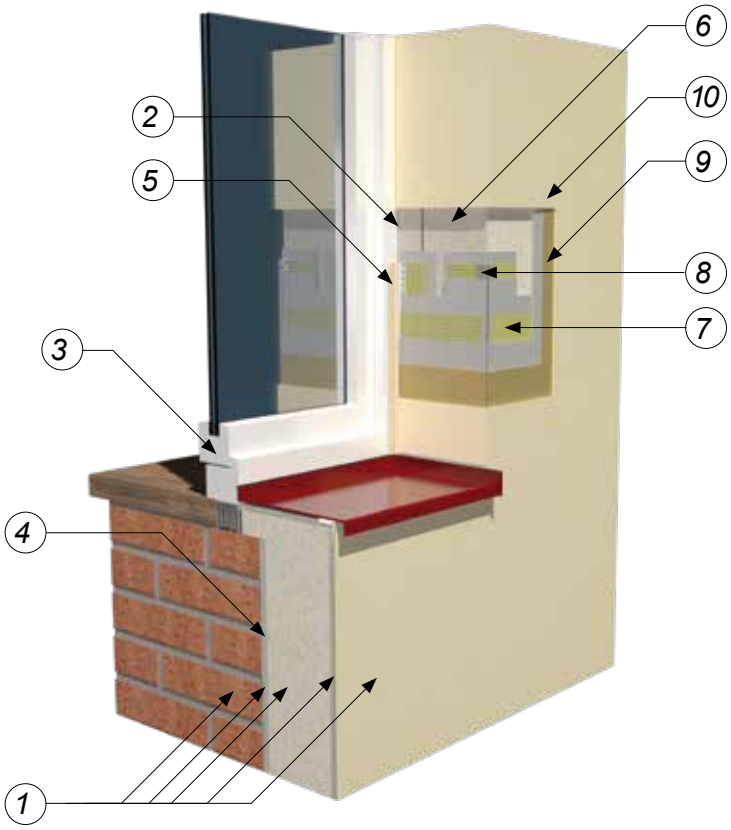
Useful information concerning installation of thermal insulation systems, components selection, operational use, maintenance and regular repairs can be found on our web site: **www.atlas.com.pl/en.**

3.2.3 Design Details

Atlas team prepared a set of design details – 43 detailed technical solutions presented in the form of technical drawings and 3D visualizations supported with appropriate descriptions. Below you can find one of the details:

Thermal insulation of inset reveal with the use of a window profile

1. Wall insulated with one of ATLAS systems
2. Low expansion foam (optional), for example:
   – IZOHAN STYROPUK ELEWACJA
3. Inset window frame
4. Adhesive for thermal insulation boards fixing, for example:
   - mineral adhesive: ATLAS HOTER U (AVAL KT 55)
5. WINDOW PROFILE WITH MESH
6. Supplementary insulation of EPS polystyrene
7. Adhesive for base coat (reinforcing layer) with mesh embedded, for example:
   – dispersive adhesive: ATLAS STOPTER K-100
   – mineral adhesive: ATLAS HOTER U (AVAL KT 55)
8. CORNER PROFILE WITH MESH
9. Priming mass beneath renders, for example:
   - ATLAS SILKON ANX
10. Rendering coat, for example:
    – ATLAS SILICONE RENDER



Presentation of all design details would go much beyond the scope of this brochure – they can be found on our web site:

www.atlas.com.pl/en (section Download - Design details)

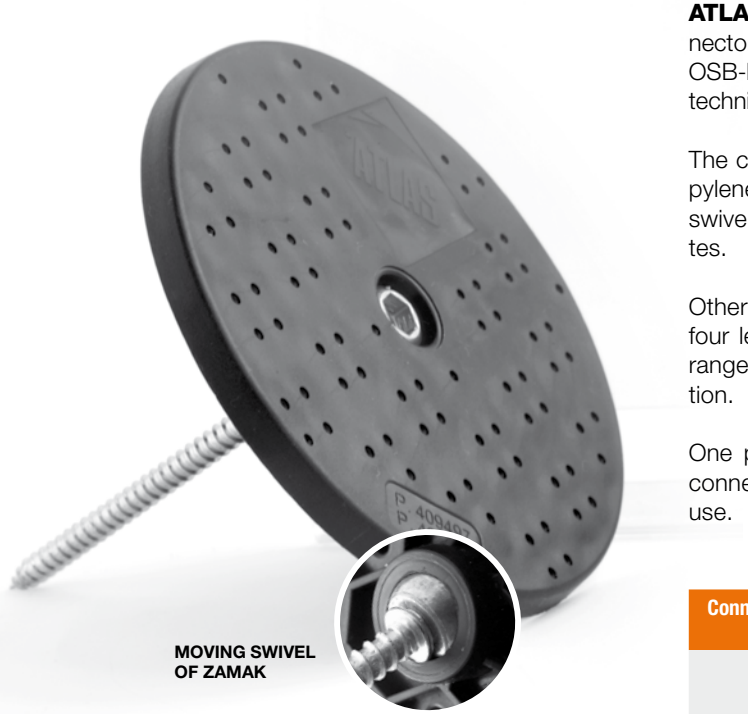
Design details as well as other catalogues and brochures can also be found on web site:

www.atlas.com.pl/en (section Download - Brochures)
Printed versions of catalogues and brochures can also be found at wholesale points distributing ATLAS materials worldwide.

ATLAS M-SYSTEM 3G – Fixings for Installation of Plasterboards and OSB Boards

4

4 ATLAS M-SYSTEM 3G - Fixings for Installation of Plasterboards and OSB-Boards



MOVING SWIVEL OF ZAMAK

ATLAS M-SYSTEM is an innovative system based on connectors which form a structure for installation of plasterboards, OSB-boards, etc. The product conforms to AT-15-9691/2016 technical approval.

The core and innovative element of the system is a polypropylene mounting disc with embedded zamak ball forming a swivel, which allows to level even the most irregular substrates.

Other system elements consist of fixing screws available in four lengths allowing for easy distance regulation within the range of 1-20 cm, bushings and screws for boards installation.

One packaging covers 4 m² of drylining. Table below lists connectors (discs) spacing depending on a room designated use.

Connectors spacing [cm]	Coverage [pcs/m²]	Designated use
60x40	6	Dry rooms: ceilings, walls with single boarding
60x50	5	Dry rooms: walls with single boarding
40x40	8	Wet rooms: ceilings, walls with single boarding

PACKAGING CONTENT

Each ATLAS M-SYSTEM packaging contains the following elements:

FIXING SCREWS 21 PCS

THERE ARE 4 LENGTHS OF SCREWS AVAILABLE:

MOUNTING DISCS 21 PCS

FIXING BUSHINGS 21 PCS

SCREWS FOR BOARDS FIXING 84 PCS

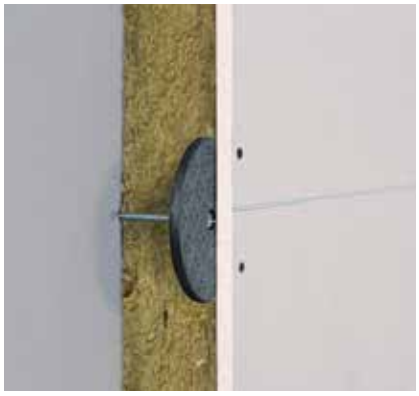
*alloy of zinc and aluminum

RANGE OF USE

- Ceilings – simple, one-layer
- Ceilings – multilayer
- Walls
- Attics
- Wiring casing
- Acoustic insulation with wool

ATLAS M-SYSTEM PROVIDES:

- Quick and easy assembling – accelera-tes pace of installation by 30%
- Maximum growth of space – distance between substrate and board starting from just 1 cm
- No transfer of stress which can cause boards cracking in old type technique






EXTERNAL WALL INSULATION SYSTEM

with polysteryne (EPS):
ETA-06/0081
ETA-06/0187

with mineral wool
ETA-06/0173
ETA-06/0281

ETA EUROPEAN TECHNICAL ASSESSMENT

400 COLOURS SAH

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 13/5018

NSAI Agrément
Atlas/Aval External Thermal Insulation Composite Systems
Cert No. 10/0347

www.atlas.com.pl/en

Important Definitions

5

5 Important Definitions

Abrasion

Abrasion in construction is determined by the loss of mass or volume under influence of an abrasive factor. Abrasion is an important parameter for materials used for installations of screeds and floors. Manufacturers of construction materials most often determine an abrasion with the Böhm's method. The one is also used by ATLAS. In case of floors we determine the loss of volume measured in cm^3 per 50 cm^2 of the material surface. In case of screeds abrasion is described with letter "A" with a numerical index.

Note! When determining abrasion, a higher numerical index „A" indicates a lower abrasion resistance of the material.

Absorbability

Absorbability of a material depends on size and structure of pores. In construction, the weight absorbability is mostly used. It determines the amount of water which a material can absorb and retain. In practice, it equals the maximum moisture content in the material. The weight absorbability is indicated by the ratio of mass of water absorbed by a material to the mass of a material in dry state, determined in percents. Thus, absorbability of 15% means that the material in wet state is 15% heavier than when it is dry.

Relative diffusion resistance coefficient "μ"

Relative diffusion resistance coefficient is comparative in nature. The comparison is made between diffusion resistance of any construction material and air diffusion resistance. It is assumed that the value of diffusion resistance of the air layer of thickness of 1 m is 1. Therefore, any construction material holds diffusion resistance greater than 1 – which is the diffusion resistance of air. If „μ" coefficient for a selected material is 67, it means that this material is 67 times more resistant to gas than air. Table below lists „μ" values of some selected building materials.

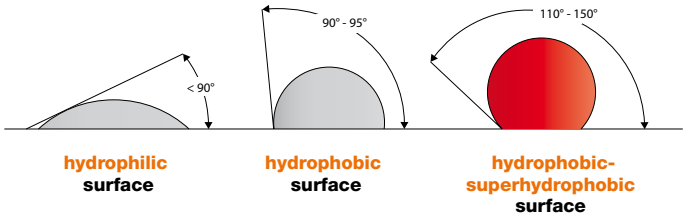
RELATIVE DIFFUSION RESISTANCE COEFFICIENT „μ" OF SELECTED BUILDING MATERIALS

Material	Coefficient „μ"
Air	1.0
Mineral wool	1.3
Gypsum	10
Full brick	10
Silicate brick	20
Cellular concrete (density 800 kg/m^3)	10
EPS polystyrene	60
Wood-based boards - plywood	150

Contact angle

Contact angle is an index allowing to classify a particular material as hydrophobic, i.e. less subject to wetting (contact angle > 90°) or hydrophobic, i.e. subject to wetting (contact angle < 90°). A material can be treated as superhydrophobic when it's contact angle is greater than 110°.

The greater a contact angle the more a surface repels water and substances contained in it, also any kind of dirt. When water gets on such material's surface (e.g. rainwater), it drains down with dirt deposited on the material's surface (dirt, dust, other solid substances) – thus the material is self-cleaning.



Thermal conductivity coefficient „λ"

Thermal conductivity coefficient λ stands for the amount of heat transmitted through the material. It is determined by the amount of heat transmitted through 1 m^2 of material of 1 m thickness at temperature difference of 1K. Low value of λ coefficient characterizes materials which poorly conduct heat, thus they are good insulators. Table below shows comparison of coefficients of selected materials

„λ" COEFFICIENT OF SELECTED BUILDING MATERIALS

Material	Thermal conductivity coefficient λ [W/mK]
Concrete of stone aggregate	1.00
Wall of full ceramic brick	0.77
Wall of ceramic hollow blocks on cement-lime mortar	0.33
Pine wood across the fibres	0.16
EPS polystyrene	0.031 – 0.045
Mineral wool	0.031 – 0.045

Data given in the table is defined for materials in a medium wet state.

Heat resistance

Heat resistance R (m^2 x K/W) depends on the thickness of a material layer and the value of λ coefficient. It is represented by the following formula:

$$R = \frac{d}{\lambda}$$

Below we show a comparison of layers of selected materials, for which heat resistance is of the same value:

R = 0,25 (m^2K/W)

THICKNESS OF SELECTED MATERIALS OF THE SAME HEAT RESISTANCE

Material	Layer thickness [cm] at R=0.25 heat resistance
Polystyrene	1.0
Pine wood across the fibres	4.0
Wall of ceramic hollow blocks	8.0
Wall of full brick	19.3
Concrete of stone aggregate	25

Thermal transmittance coefficient “U”

Thermal transmittance of a building partition is defined by the “U” coefficient [W/m^2K]. It determines the amount of heat transmitted through 1 m^2 of partition. „U” coefficient is a reciprocal of thermal resistance „R”. Therefore it is described by the formula:

$$U = \frac{1}{R}$$

Low value of „U” coefficient represents small amount of heat penetrating a building partition, e.g. an external wall of a building. Thus, the lower the „U” coefficient is, the better thermal insulation of a partition can be. Since thermal insulation of walls is crucial for energy savings, it is not surprising that the value of „U” coefficient, or rather its limit is defined in the Regulation of the Minister of Transport, Construction and Maritime Economy on technical specifications which need to be met by buildings and their location. Currently, the limiting value of „U” coefficient in Poland must not be greater than 0.25 [W/m^2K]. For other states one should follow local requirements.

Impact resistance

Impact resistance is a resistance of a material against breaking when hit. This performance is extremely important for thermal insulation systems as during operational use they are directly exposed to external mechanical factors. The greater the impact resistance, the greater resistance to incidental damage (e.g. acts of vandalism) and protection of points permanently subject to damage.

According to EOTA ETAG 004 (February 2013) a test for ETICS consists in a hit of a steel ball of appropriate mass. Depending on a result a particular system can be classified as category I, II or III.

CATEGORY	III	II	I
Hit of 10 J	puncture	damage but without puncture	no damage
	and	and	and
Hit of 3 J	damage but without puncture	no damage	no damage

Moreover, for systems of improved technical parametres a maximum impact load, which a system can be exposed to without a change of performance, including appearance, is tested. For example, for system ATLAS ETICS PLUS the maximum impact load is 140 J (when reinforced with meshes 150 + 340).

6 Units in Construction

Currently functioning system of measurement is the SI system - International System of Units approved in 1960 by the General Conference on Weights and Measures. SI units are divided into basic and derived. Table below presents the basic SI units and selected derived units used in technology, especially in construction.

BASIC UNITS AND SELECTED DERIVED SI UNITS

BASIC UNITS		
QUANTITY	**NAME**	**SYMBOL**
Length	metre	m
Mass	kilogram	kg
Time	second	s
Temperature	Kelvin	K
DERIVED UNITS		
QUANTITY	**NAME**	**SYMBOL**
Force	Newton	N
Pressure	Pascal	Pa

Despite the official system of measurement there still exists a generic system which mostly describes stress. Unit here is a kilogram per area expressed in square cm or square meters. Below there are conversions from SI units to generic system.

CONVERSIONS OF STRESS UNITS

Assumptions:
10 N ≈ 1 kG
1 MPa = 1 N/mm^2
1 MPa ≈ 10 kG/cm^2

Example:
Compressive strength of ATLAS POSTAR 40 screed is:
30 N/mm^2 = 30 MPa ≈ 300 kG/cm^2

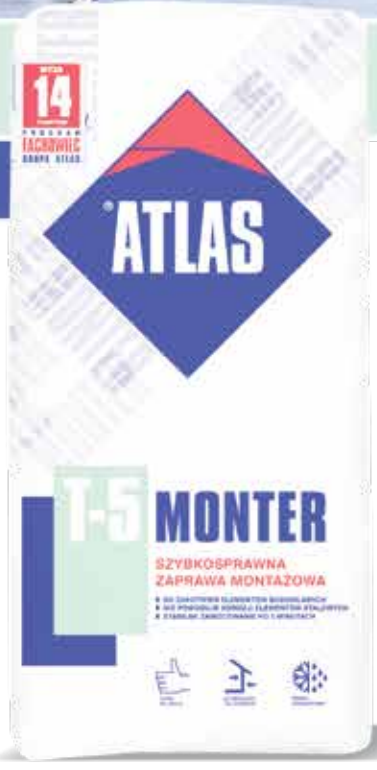
CONVERSIONS OF PRESSURE UNITS

Assumptions:
1 MPa = 100 000 mm column of wate = 100 m column of water

Example:
Resistance of pressurized water of ATLAS WODER DUO is:
0,7 MPa = 70 m head of water

DURABLE ANCHORING
AFTER 5 MINUTES

ATLAS MONTER T-5
fast setting assembly mortar



- durable anchoring just after 5 minutes
- does not cause corrosion of steel – chloride-free
- great compressive and flexural strength
- also for repairs of concrete and ferroconcrete elements

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