



INSTALLATION GUIDE



Contents:

Paragraph	Contents	Page
1	Basics	
1.1	Preliminary Remarks	2
1.2	Ordering and Planning Instructions	3
1.3	Technical Working Out	4
1.4	Fixing of Extraneous Loads	5
1.5	Service Installation Instructions	5
2	Building Survey	
2.1	Grid Survey	6
2.2	Altitude Survey	6
2.3	Depth Survey	6
3	Examination of Trade Works	
3.1	Basics	7
3.2	Building Tolerances	7
3.3	Windows and Doors	7
3.4	Building Joints	8
4	Installation	
4.1	Primary Sub-construction (Wall Brackets)	9
4.2	Primary Sub-construction (Vertical T-profiles)	9
4.3	Primary Sub-construction (Horizontal L-profiles)	9
4.4	Thermal Insulation	9-10
4.5	ADS: Vertical Profile and Joint Profile	11
4.6	BAS: Base Clinch Rail Profile	12
4.7	CLS: Vertical Profile and Joint Profile	13
4.8	Cladding Tiles	13
5	Cleaning and Care Instructions	14

1. Basics

1.1 Preliminary Remarks

The following description shall be considered standard. The sequence of the work steps as well as their implementation may vary more or less due to differentiated building situations.

All CREATON products have been designed and selected for the variety of possible applications within cladding design. They are intended for installation by specialized contractors familiar with the recognized rules of technology particularly in the field of cladding and in the case of which, it can be assumed that they have knowledge of all relevant German Industrial Standards (DIN), guidelines and recommendations. All the documentation offered by CREATON, such as texts and drawings dealing with the combination, sequence, processing and installation, must be considered nonbinding recommendations aiming to provide the specialist installer with suggestions or as a report on already realized combinations and building projects. The specialist installer must always check carefully and on his own authority whether the suggestions he is offered here are suitable for his special case in every respect or not, as the produced recommendations can never cover the large variety of installations and loading possibilities occurring in practice down to the smallest detail. All the drawings offered by CREATON represent simplified, technical recommendations and must be suited to the requirements of the respective building project.

The façade must therefore be suited to the respective building project by the installation contractor on his own authority under consideration of the constructional, static and technological aspects of the installation. The technical requirements of CREATON, the conditions of the Technical Approval as well as the Building Regulations must, however, be observed in any case.



1.2 Ordering and Planning Instructions

Determine the distance of the façade to the carcass of the building taking into account the thickness of the insulation and the unrestricted ventilation (see DIN 18516). The established distance is important for your order of the primary sub-construction.

Plan the grid sectioning (tile lengths) in agreement with the architect / building owner methodically. In this context, it will be necessary to verify details, connections, etc., by presentation of drawings.

Perform the site measuring and determine the quantities of tiles, profiles, wall brackets, joining plates, etc.

Determine the profiles, wall brackets, connection components and the plugs admitted for this use by the construction supervising authority. Perform static calculations for load-bearing profiles and anchorings and if necessary, have these calculations reviewed.

Perform the sectioning of profiles according to length:

Profile length	Tile height	with max. tile length of
2.694 mm	= 18 x 150 mm	x 1.100 mm
2.794 mm	= 16 x 175 mm	x 1.100 mm
2.794 mm	= 14 x 200 mm	x 1.100 mm
2.694 mm	= 12 x 225 mm	x 1.100 mm
2.744 mm	= 11 x 250 mm	x 1.100 mm



As a rule, the length of the T-profile must correspond to the length of the „TONALITY“- vertical profile in case of vertical sub-construction. The façade must be installed free of constraint forces through fixed and loose point connections.

Place your order of „TONALITY“-profiles by fax (No.: 0049 6435/ 90999-30) with CREATON (see order form). Order the tiles indicating their dimensions for trimming to size. In case of special lengths of the profiles (only after consultation with CREATON), the installer must draw up production plans.

In order to avoid interruptions of the installation due to breakage or clippings, we recommend to add on approx. 5 % to the required amount.

Our details pertaining to execution do not constitute but recommendations. Profiles, bearing constructions, reinforcements, sub-construction, etc., must be determined in accordance with the static calculation for the individual building project taking into account the altitude of the building and the load due to wind pressure. Documents must be examined and approved by a structural engineer prior to the execution of the order. All measurements (dimensions, trimming) and details must be determined by the installer. The responsibility for their correctness shall rest with him. The conditions stipulated by the Technical Approval must, however, be observed in any case. If required, please refer to CREATON in order to receive a copy of the abovementioned Technical Approval.

The range of services offered by CREATON is limited to the manufacturing and supply of the „TONALITY“- profiles and the cladding tiles.

The primary sub-construction is to be ordered by the installer with third parties on his own authority. The necessary planning as well as the required static calculation must be performed by the installer beforehand and if necessary, presented to all those in authority in order to be clarified and approved. We ask you to please take into consideration the respective linear expansion when planning the primary sub-construction (Length of the bearing profiles not exceeding 2.80 m with gaps at the joints of minimum 6 mm according to Technical Approval). In accordance with DIN 18516, Section 1, attention must be paid to the execution of fixed and floating points.

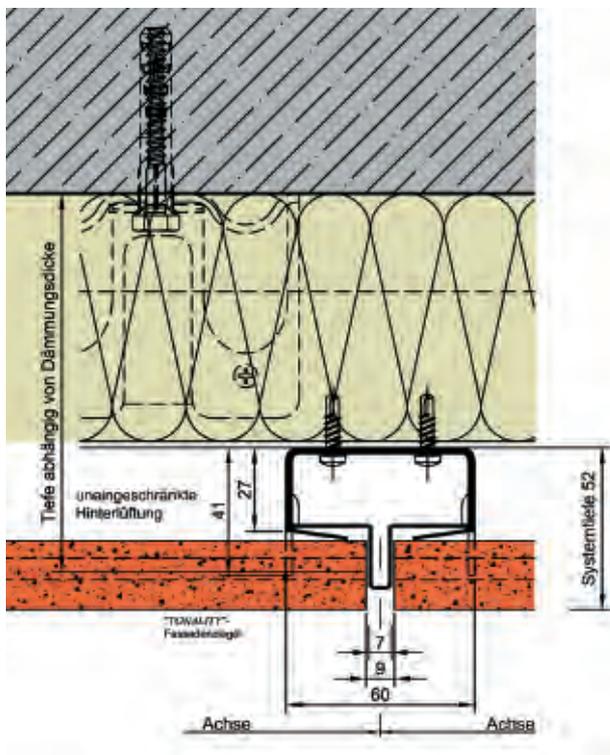
1.3 Technical Working Out

We recommend the drawing up of a detailed plan of the façade that includes the worked out details as a basis for the order and the installation. As a rule, it paid off to make these documents out and to have them approved in close collaboration and consultation with the building planner/façade planner, installer and building owner. To help you with the planning, CREATON's Architect's and Planning Binder is offering you standard details already worked out for the respective sub-construction systems, CAD files and sample letters of invitations to tender. On request, we would be pleased to provide you with names of competent façade planners already familiar with the CREATON products.

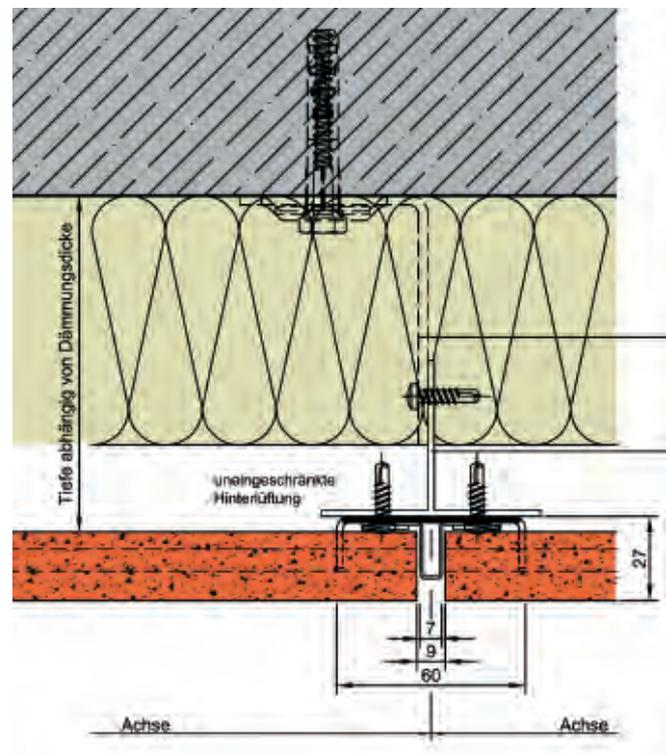


1.4 Fastening of Extraneous Loads

The Technical Approval of the cladding system includes „TONALITY“-tiles as well as their fastening onto the 3 kinds of profiles. A special use intended to allow for the fastening of additional design loads (lamps, signs or nameplates, other façade components, etc.) contradicts this approval. The various loads, lever arms and distances from the carcass are changing the demands on the carcass of the building. Thus, an examination under consideration of the respective building project that includes a calculation and carried out by a structural engineer is required here.



„TONALITY“ Adaptive System



„TONALITY“ Base Clinch Rail System

1.5 Service Installation Instructions

On request, we can arrange for a competent specialist to introduce the installation staff to the respective system on site.

2. Building Survey

2.1 Grid Survey

On principle, we recommend to mark out the main grids established by the façade planning onto the external walls of the carcass and to use them as a starting point for the marking out of the required grid of the façade prior to the commencement of installation. In order to minimize measuring tolerances, it might be helpful to have some auxiliary grids marked out taking the grid of the façade into account. At least 2 building grids shall be marked for each façade area in such a way that the further grid sections of the vertical profiles can be measured in.

In case of already installed windows or cladding panels, it must be checked whether these have been put in under observation of the prescribed grid position or not.

All measurements shall be permanently marked on the building for the purpose of checking the measurements at some future date. The result of these measurements shall be recorded in writing and if necessary, presented to all those in authority in order to be approved.

2.2 Altitude Survey

Façade resp. storey altitudes shall be checked analogous to the descriptions under 2.1 prior to commencement of installation.

In case of already installed windows or cladding panels, it must be checked whether these have been put in under observation of the prescribed height or not. The result of these measurements shall be recorded in writing and if necessary, presented to all those in authority in order to be approved.

2.3 Depth Survey

Each façade area shall be measured for a possible occurred depth tolerance prior to commencement of installation. Occurring tolerances shall be immediately checked with regard to effects on and alterations of individual façade components.

In case of already installed windows or cladding panels, it must be checked whether these have been installed under observation of the prescribed depth and alignment or not. The result of these measurements shall be recorded in writing and if necessary, presented to all those in authority in order to be approved.



3. Examination of Trade Works

3.1 Basics

According to the VOB/B [German Regulations for contracts and execution of construction works], the contractor below (in this case the façade builder) is committed to verify the trade works for visible deficiencies. In practice, however, this is being done only rarely. If he does not address the visible deficiencies, problems will arise according to VOB/B anyway. On the other hand, if he does not recognize deficiencies, he cannot just pretend this would not fall within his area of responsibility, as he is lacking the required specialized knowledge with regard to trade works.

The occurrence of the above mentioned circumstances could lead to the effect that in the event of damage, the façade builder will see himself confronted with his customer's claims.

For this reason, the contractor in charge with the execution is advised to deal with the trade works intensively. Thus, the below list of recommended checks contains merely suggestions and must not be considered complete.

3.2 Building Tolerances

The already existing carcass shall be classified with regard to admissibility according to its actual tolerances on the basis of the measurements described under 2.1 to 2.3. Inadmissible deviations must be reported to the building site supervisory staff in writing beforehand.

Prior to the commencement of installation, it shall be examined, whether these established tolerances can be taken in by the planned sub-construction without affecting the static requirements or not.

Possible required alterations (such as the extension of the fastening bows, etc.) shall be discussed and agreed upon with all those in authority in any case and prior to the commencement of installation.

3.3 Windows and Doors

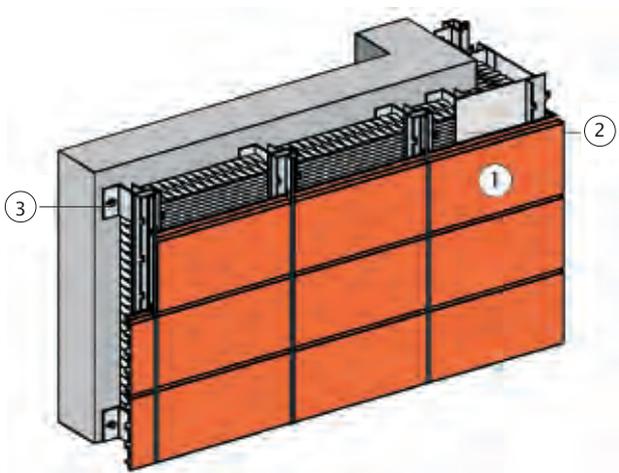
The adjoining trade works (windows, doors) shall be checked for completeness prior to the commencement of installation.

It shall particularly be paid attention to the fact that all window and door components have been professionally fixed and sealed.

3.4 Building Joints

All building joints shall be checked for professional sealing prior to the commencement of installation. In the course of the sectioning of the grid, it shall be taken account of the fact that the sub-construction is not fixed covering an extension joint.

In addition, it shall be paid attention not to cause any damages of the trade works and particularly of the sealing of the building carcass in the course of the installation.

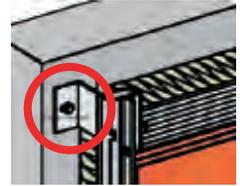


- 1 „TONALITY” Cladding tile
- 2 „TONALITY” Adaptive vertical profile metal
- 3 Primary sub-construction aluminum T-profile with wall fastening



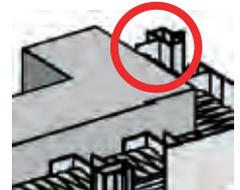
4. Installation

4.1 Primary Sub-construction (Wall Brackets)



Wall brackets are to be fixed at the grid distance of the façade and observing the height grid in accordance with the static calculations. An exact perpendicular alignment must be observed in this context. The installation instructions of the system manufacturer of the primary sub-constructions and of the plugs must be observed in the course of the installation without restriction. All brackets must be separated thermally from the external walls of the building by means of appropriate underlays in accordance with DIN 18516. Attention must be paid to the use of fixing material admitted for use by the construction supervising authority under consideration of the static issues.

4.2 Primary Sub-construction (Vertical T-profiles)



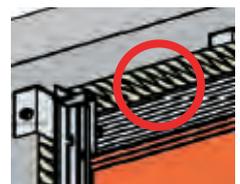
Vertical T-profiles are to be aligned on the wall brackets at suitable height and under observation of the façade line, as well as screwed resp. riveted according to the manufacturer's instructions. Appropriate gaps at the joints as well as loose and fixed point connections must be executed in the course of the installation of the vertical T-profiles in order to allow for their linear expansion to be taken up. It must be guaranteed that the expansion of the primary sub-construction and of the CREATON profile can occur evenly and free of constraint forces.

4.3 Primary Sub-construction (Alternative Horizontal L-profiles)



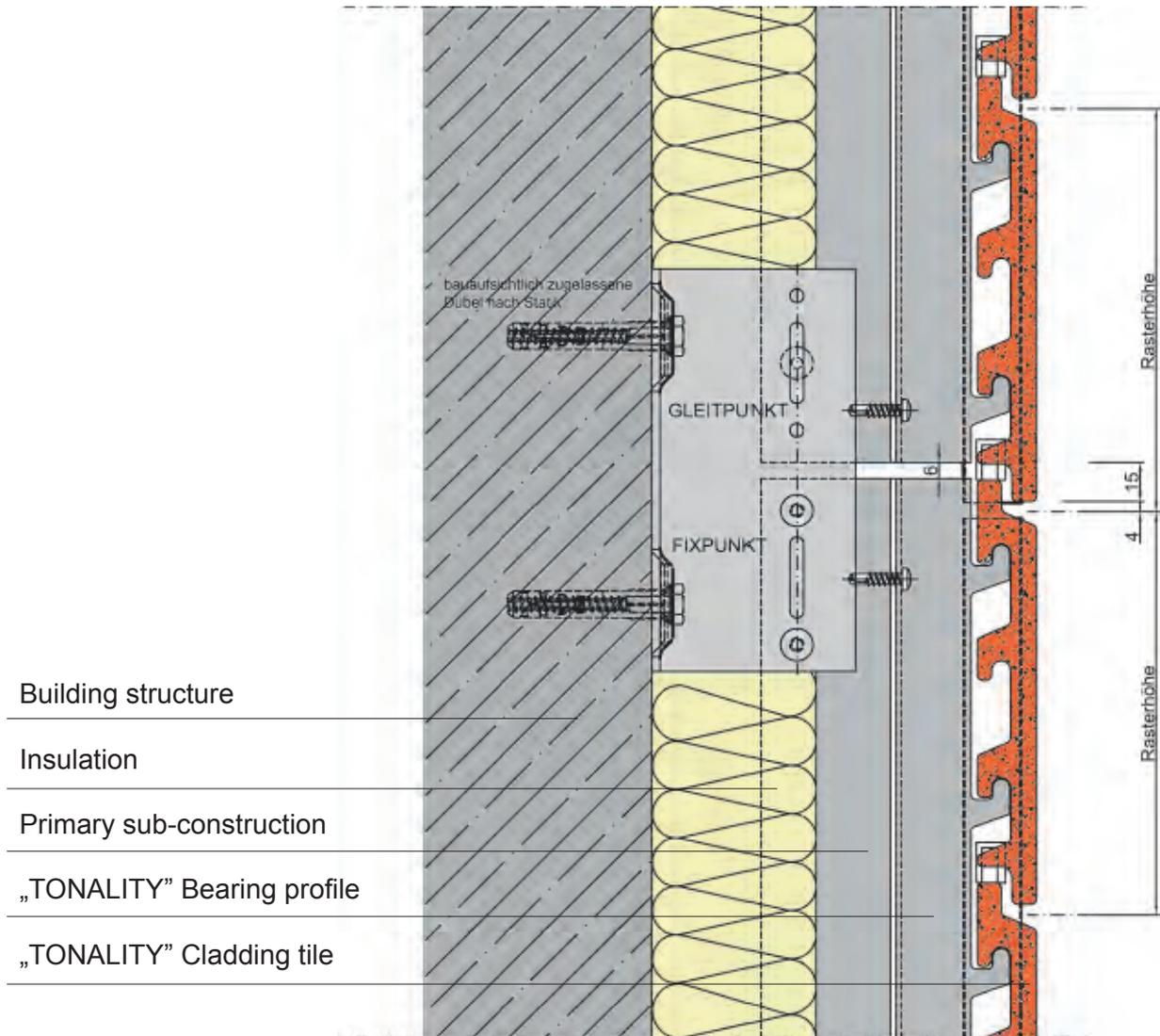
Horizontal L-profiles are to be aligned on the wall brackets at suitable height and under observation of the façade line, as well as screwed resp. riveted according to the manufacturer's instructions. Appropriate gaps at the joints as well as loose and fixed point connections must be executed in the course of the installation of the profiles in order to allow for their linear expansion to be taken up. It must be guaranteed that the expansion of the primary sub-construction and of the CREATON profile can occur evenly and free of constraint forces. For thermal expansion reasons, we recommend to limit the maximal profile length to 3.00 m. In order to avoid constraint forces due to thermal expansion, attention must be paid to a sufficient joint between the profiles.

4.4 Thermal Insulation



The thickness of the thermal insulation and the kind of insulating material are determined by the EnEV [German Energy Conservation Act] resp. the customer's requirements. In general, insulation must be fixed onto the wall surfaces cleaned beforehand and under observation of the manufacturer's instructions.

For the base area, we recommend the use of perimeter insulation. It must be paid attention to the fact that the insulating board are butted against each other in the joint area. Prior to the commencement of the insulating work, all doors, windows and joints of the building must be checked for professional sealing. Possible visible deficiencies must be reported to the building site supervisory staff prior to the commencement of the works.

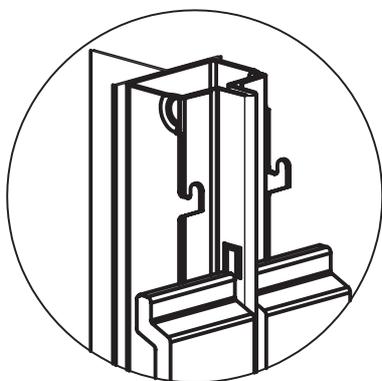


4.5 ADS: Vertical Profile and Joint Profile

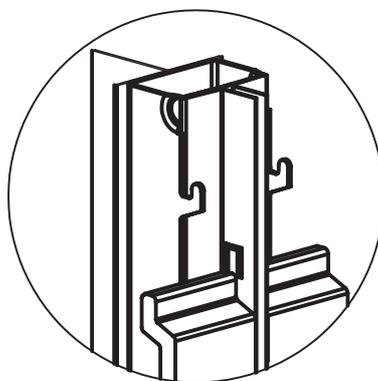
Installation vertical profiles: The CREATON vertical profiles must be screwed resp. riveted according to the height and the façade grid of the already installed sub-construction. The distance between brackets and the kind of fastening must be effected according to the static requirements of the building. Fixing material admitted for use by the construction supervising authority must be used at any rate. As already described for the primary sub-construction, gaps for the linear expansion of profiles must be allowed for at the joints in the course of the profile installation. It must be paid attention to the fact that the required gap at the joint is executed observing the same height grid of the primary sub-construction (T-profile) and of the clinch rail profile.

In case of formation of several carrier profiles one above the other, the lengths of the carrier profiles as well as the distance between the fixed points of two carrier profiles following each other must not exceed 2.80 m. The gap at the joint of the cladding tiles and carrier profiles must be at least 6 mm. Corresponding gaps at the joints must be allowed for in the event of site trimming. Joints of the carrier profiles may not be overlapped by cladding tiles.

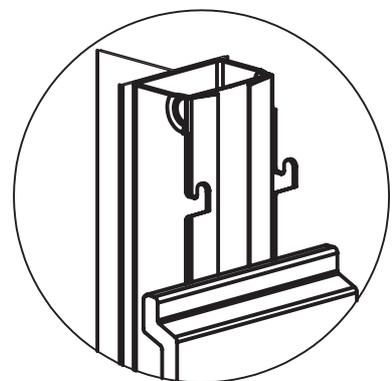
Installation joint profile: In order to fasten the joint profile, it is clamped into the vertical profile. At the same time, it rests on the beads executed in the webs of the joint profile on the reverse side. As a rule, it is secured against falling off through insertion of the tiles. At the same time, the tiles are pushed to the vertical profile by the joint profile in order to avoid the generation of noise of the tiles in case of load from wind pressure. Attention must be paid to the height locks of the system profiles when inserting the joint profile and to the fact that the joint profile is inserted in such way that the required clamping effect of the tiles is achieved. In case of bottom views, we recommend to screw the joint profile onto the vertical profile in order to completely rule out a possible horizontal shifting of the joint profile and of the inserted tiles.



closed joint profile



open joint profile



end profile for border

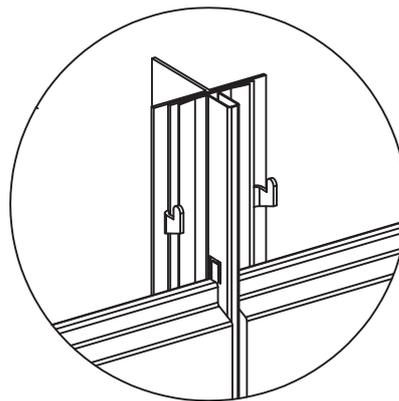
4.6 BAS: Base Clinch Rail Profile

The CREATON base clinch rail profiles must be screwed to the height and the façade grid on the carrier profiles of aluminum T 70x50x2 mm at the double distance of the nominal height of the tile in accordance with the Technical Approval. Proof of the stability of the carrier profiles must be presented under consideration of the static issues for the relevant building project.

The connection between base clinch rail profile and carrier profile on the reverse must be effected using Saphir drilling screws manufactured by EJOT of the type EJOT JT4 – 4 – 4.8 x 19 (A2) in normal atmosphere or EJOT JT9 – 4 – 4.8 x 19 (A4) in industrial or in maritime atmosphere according to the Test Report or in an equivalent way. Please note that 2 screws must be aligned symmetrically per each fastening. All fastening holes must be filled. The joint must be effected according to the aforementioned paragraphs (ADS).



BAS Bearing profile



BAS Bearing profile on T-profile



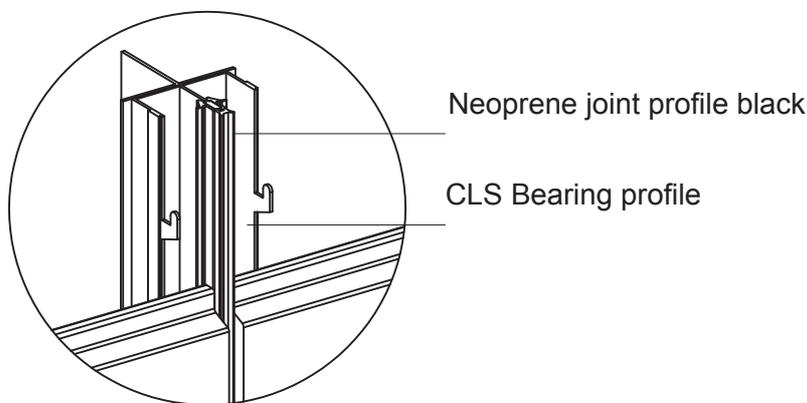
BAS End profile



4.7 CLS: Vertical Profile and Joint Profile

Installation vertical profiles: Installation of vertical profiles is effected as described for the vertical profiles of the ADS System.

Installation joint profile: In order to fasten the neoprene joint profile, it is clamped into the vertical profile. As a rule, it is secured against falling off through insertion of the tiles. At the same time, the tiles are pushed to the vertical profile by the joint profile in order to avoid the generation of noise of the tiles in case of load from wind pressure.



4.8 Cladding Tiles

In general, all tiles must be fitted in free of constraint forces between the vertical system profiles. Attention must be paid to the fact that the tile can easily be inserted into the system bearing. It should show a gap to the joint profile of 1 mm to the left as well as to the right. This does, however, presuppose that the installation of the vertical profiles has been executed carefully and accurately.

In the event of trimming on site, the tiles should be cut using a wet cutter. Attention must be paid here to the fact that the soiling of the tiles is sufficiently rinsed off resp. cleaned with clear water after the cutting process.



5. Cleaning and Care Instructions for CREATON Façades „TONALITY”

Maintenance: The façade is absolutely maintenance-free, as the system does not include any silicone or maintenance joints whatsoever.

First cleaning: Prior to acceptance of work, the façade must be cleaned thoroughly of the soiling that has occurred in the course of installation. This can be done with water. In this context, we ask you to please observe that you must use only the prescribed cleansing agents. For the removal of concrete and mortar, we recommend the use of our CREATON laitance remover (Art. No. 139277 for packing unit of 1 L and Art. No. 139279 for 5 L).

The cleaning of our supplied bearing and joint plates is to be performed in accordance with the instructions of the German Aluminium-Zentrale „Cleaning in the building sector“.

Subsequent cleaning: The façade is resistant and withstands most aggressive environmental effects even in the long term. Simple soiling caused by usual environmental effects can be removed by running water.

Graffiti Protection: The wish to have a graffiti protection installed must be indicated at the time the cladding tiles are ordered.

