CEILING
LIGHTING
AMBIENCE

S7 TAIFUN

INSTALLATION MANUAL

GENERAL INFORMATION

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This assembly manual addresses all metal ceilings manufactured by durlum. The different sections describe the related/relevant products.

durlum is a leading German manufacturer of metal ceilings and cladding elements, mainly made of galvanised sheet steel, aluminium and expanded metal.


ZERTIFIKAT ◆ CERTIFICATE ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

durlum GmbH
An der Wiese 5
79650 Schopfheim
Germany

has established and applies a
Quality and Environmental Management System
for the following scope of application:

Planning, development, manufacturing and sales of metal ceilings, functional ceilings, luminaires, lighting and daylight systems.

Performance of audits (Report-No. 70014435)
has furnished proof that the requirements under:

ISO 9001:2008
ISO 14001:2004
ISO 50001:2011

are fulfilled. The certificate is valid from 2014-07-27 until 2017-05-29.
Certificate Registration No. 12 100/104/340 25601 TMS

Product Compliance Management
Munich, 2014-06-17

DAkkS

The relevant products are described in the marketing and sales documents. They are both acoustically effective, and can also be used as design elements only. Specifically, these products are:

- Acoustic ceilings
- Chilled ceilings
- CHARACTER products

durlum differentiates between a wide range of ceiling systems, for example S1. "S1" stands for system 1 clamping. In this system, there are different nomenclatures that allow a further subdivision of the systems.

All durlum systems are systems of modular design. This applies not only to the substructure but also the ceiling parts that are suspended, locked into place or placed on the substructure.

durlum metal ceilings comply with the standard EN 13964:2007 and are CE-certified.

Appropriate static certificates are available for special systems marketed by us and for which no general approvals are available, and appropriate designs compliant with EN 13964 have been constructed. durlum lamps comply with standard EN 60598-1 and are CE-certified.

GUIDELINES

These installation instructions have been structured in accordance with the requirement of EN 13964:2007 and describe a proper assembly.

The description does not exempt the user from examining the structural conditions, implementing the building code regulations and observing the information given in the building permit prior to starting assembly. They have priority, but could not be included here.

It is advisable always to draw up assembly diagrams/drawings, to establish the location where assembly is to begin and to establish the required suspension points for the relevant ceiling system prior to starting assembly.

STRUCTURAL PRECONDITIONS

Metal ceilings may usually be installed as soon as the building is swept clean, but at least when all wet work in the interior has been completed and the building has been closed.

Prior to starting assembly, the suspension points must be checked for their usability, and load introduction into the building must be guaranteed.

When using wall mounting points, such as brackets or wall anchors, the load-carrying capacity of the wall in question must be checked.

If ceiling elements rest on brackets, possible wall movements must be taken into account.

Only anchors for which a general building supervisory approval is available may be used, and their minimum extraction force must be greater than 100kg. The anchors must be mounted as specified by the relevant anchors manufacturer. We recommend performing regular tensile stress tests, to verify that anchors have been set correctly.

durlum metal ceilings are dimensioned such that they carry their own weight of the system construction plus a surface load amounting to 40N/m². Higher loads must be taken into account or suspended separately in the construction, and the measures must be adapted to the situation at hand. Usually, built-in components and loads must be suspended separately.

For ceiling systems that do not allow any tolerance compensation within a module, suitable material expansions must be taken into account.

Building expansion joints and tolerances customary in building construction must be taken into account accordingly.

durlum metal ceilings must always be assembled by expert dry building companies who are capable of assessing the overall situation in the building, the metal ceiling, the cladding surface, as well as the structural conditions and are able to take suitable precautions for ensuring proper assembly.

If parts from different manufacturers are used to assemble the ceiling, the relevant mounting company must provide the certificates required by EN 13964:2007 and must obtain suitable certificates of conformity itself.

Liability for proper selection of the products and system conformity can only be assumed for the systems delivered by durlum.

To prevent the parts from becoming dirty, gloves must be worn during assembly. If the ceiling products are delivered laminated with a protective film, they must be protected from exposure to UV radiation [sunlight], the film must likewise be removed from the goods no later than 4 weeks after delivery, and the storage temperature must not exceed 30°, since otherwise the adhesive on the panel may become hardened, and the protective film can no longer be removed.

STORAGE

durlum metal ceilings are usually delivered on pallets. It is advisable to leave the metal panels on the pallets as long as possible. If the pallets need to be opened, the durlum POLYLAM® should always be placed on its underside.

Storage must be carried out such that damage is excluded.

The assembly of the ceiling panels must not start until all dust-producing work has been completed [swept clean].

durlum products are certified according to ISO 9001 for development, production, sales and also for service. Nevertheless, it is recommended to always subject the metal ceilings immediately to an inspection and to report any complaints right away [usually immediately following delivery or within 3 days]. Visible damage must be noted on the delivery note.

STANDARDS AND REGULATIONS

The relevant regulations applicable at the installation site must be determined by the assembly company in question. The ceilings marketed by durlum conform to EN 13964. This standard also governs fire behaviour in accordance with EN 13501.

APPLICATION

The application of durlum metal ceilings is restricted, unless agreed upon otherwise, to interiors, so that, pursuant to EN 13964, class of use 1, corrosion protection class A, has been defined here as standard. The use of durlum lighting is restricted to interiors. The lighting complies with protection class IP 20, protection class 1 according to EN 60598-1.

Should it become necessary to adjust the metal ceiling panels to the building by cutting, we recommend protecting the cutting edges from corrosion by means of a paint, to maintain the corrosion protection class A.

QUALITY STANDARD

For material properties, dimensions, tolerances, colour deviations, the TAIM Directives [Technical Association of Industrial Metal Ceiling Manufacturers] applies.

MOUNTING SEQUENCE

1. Prepare ceiling- and lighting installation plan or adopt architect's plan.

2. Check ceiling lighting installation plan versus structural conditions.

3. Prepare a bill of materials, including a suitable work plan and retrieval/order of the materials required.

4. Determine the required suspension points in accordance with the classes of use of EN 13964. The corresponding suspension distances for the different systems can be taken from the detailed descriptions of the individual ceiling systems.

5. Establish which generally approved anchor is suitable. Check the raw ceiling and the walls. Mark the anchor mounting holes and drill them. Mount the anchors as specified by the anchor manufacturer and carry out extraction tests using the device recommended by the anchor manufacturer, if necessary.

6. Use the same procedure when mounting the wall brackets, mounting distance about 400–625 mm, check the introduction of force into the wall.

7. Shorten intended fastening elements, such as the M6/M8 threaded rod to the intended length or order the correct length and mount it on the raw ceiling.

8. Usually, the panel layout should be started from the centre of the room, in order to be able to compensate the tolerance of the room and cut the panels in half, if necessary. The precise arrangement must always be done on the basis of the ceiling layout plan.

9. durlum metal ceilings are usually provided with a cross support [primary profile].

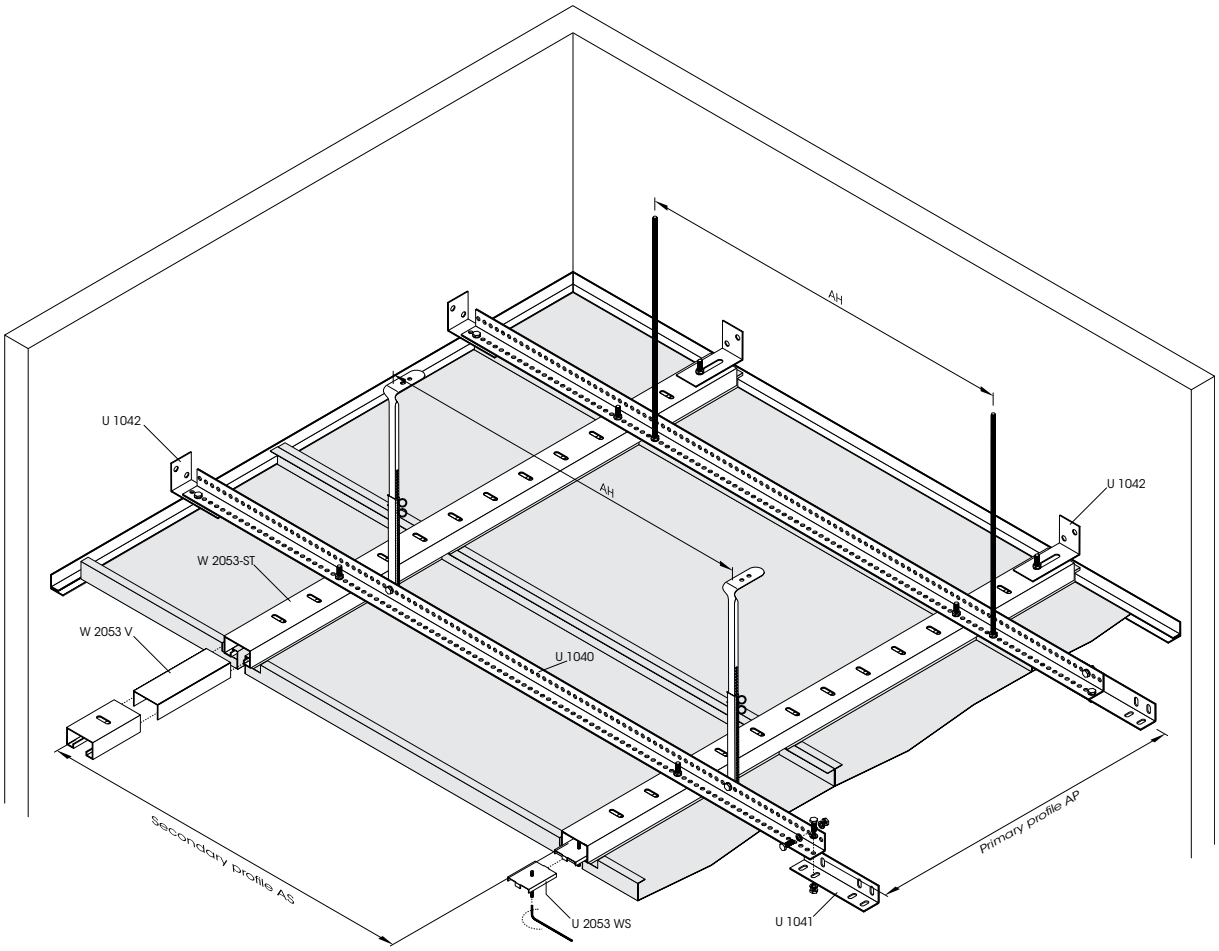
10. Use the layout plan to determine in which direction the cross reinforcement profiles are laid, either in parallel to the façade [usually] or vertically to the façade. The cross reinforcement profiles should be mounted via a wall anchor or via a diagonal anchoring to prevent an axial movement. The corresponding primary profiles are mounted at right angles to the secondary profiles. To this end, the system-specific connecting elements are used, see system descriptions. The position of the primary profiles is established in the reflected ceiling plan.

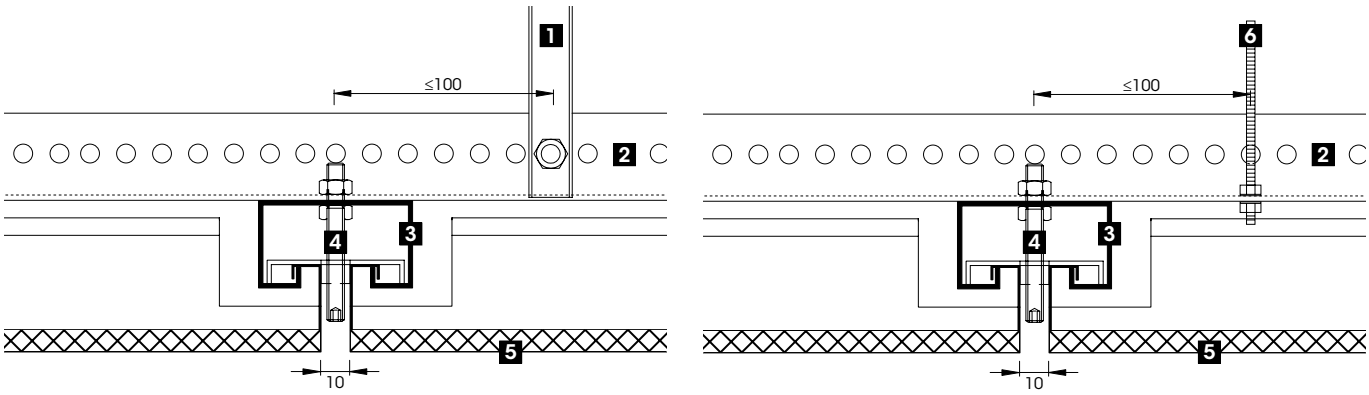
11. The metal ceiling panels are often provided with a joint tape [9x3mm], to make for easier tolerance compensation. Should a joint tape be used, the joints must also be re-aligned from time to time, since the joint tape also has tolerances. However, owing to the high production precision, it is also possible to connect the panels without a joint tape by using butt joints or provide them with rubber spacer naps. Always ensure that the joints are aligned.

12. If the panels are placed on a perimeter trim, we recommend our F-bracket as bracket or as stepped F-bracket. The bracket secures the panel and protects it against lifting. The ceiling panel is cut with electric sheet shears [i.e. Treco shears] and adapted to the prevailing room dimensions. When calculating the minimum support area [10mm], the dimensions of possible wall movement should be taken into account.

13. Attachments or other loads are to be mounted separately. For logical reasons these parts are integrated during the mounting process.

14. After completion and pre-acceptance of the ceiling, the sequence of joints should be re-aligned. Soiled ceiling panels should be cleaned to give a perfect result for assembly.





1 Vernier scale lower part U 1370
2 L-shaped primary carrier U 1040
3 Rail channel W 2053-ST
4 Securing element U 2053 WS
5 Expanded metal element
6 Threaded rod M6

ABBREVIATIONS

AP: Distance of primary profiles U 1040
AS: Distance of secondary profiles W 2053-ST
AH: Distance of the suspension hangers in axial direction of the primary profile

DISTANCE OF THE SUSPENSIONS ETC.

The following recommendation for the distances of the primary profiles and the suspension points refers only to standard ceilings in indoor applications without additional loads.

Distance of the primary profiles AP according to EN 13964:
≤1 000 mm

Distance of the secondary profiles AS according to EN 13964:
Depending on the panel length
but ≤1 000 mm.

Distance of the suspension points AH:
The distance of the suspension points AH is determined by the corresponding panel length. The L-shaped primary carrier serves mainly for cross bracing. The maximum force applied to the suspension point may be 200 N. The corresponding suspension parts and dowels must be taken into account. If it is not possible to specify in advance where the secondary profiles will run, select the distance of the suspension points AH ≤1 000 mm.

Load-carrying capacity of the suspension points
[tensile loads]:
- Maximum load per vernier suspension: 200 N
- Other loads must be verified statically.

Stress class according to EN 13964: Stress class A according to Table 7

PLEASE NOTE

- Use only officially approved dowels.
- The fastening base must be suitable in terms of statics. It must be able to reliably absorb the forces introduced into the building.

ASSEMBLY OF THE SUSPENSION

Assembly of the wall bracket:
The regular distance for mounting the perimeter trim is max. 500 mm. This regular distance is less, depending on additional loads, the type of wall and special requirements.

1. Level and outline the given ceiling height.
2. Outline the upper edge of the U-shaped border.
3. Mark the drill hole.
4. Drill a hole for the dowel.
5. Secure the perimeter trim with dowels.
6. Cleanly mitre cut the edges of the perimeter trim profiles.

Assembly of the primary profile [U 1040]:

7. Outline the axis grid for the primary and secondary profiles.
8. Define the suspension points.
   - 8.1. The suspension hanger of the primary profile should be mounted as close as possible to the crossing point of the primary and secondary profiles. The maximum distance between the suspension hanger and the secondary profile is 100 mm [also see "Distance of the AH suspension points"].
   - 8.2. Module adapters [cross connectors] may not be mounted at the joint of the primary profiles.
   - 8.3. Keep a distance of at least 400 mm to the joint of the primary profiles.
   - 8.4. The maximum distance of a suspension point from the wall is 500 mm.
9. Drill a hole for the dowel.
10. Mount the upper part of vernier scale U 1300 according to the manufacturer's instructions.
11. Cut the L-shaped primary carrier U 1040 to the required length.
12. Fasten the vernier scale lower part U 1370 to the suspension points with a self-securing screw connection M6.
13. Place the L-shaped primary carrier U 1040 horizontally, vertically and aligned to the given ceiling height.
14. Secure vernier scale lower part U 1370 to vernier scale upper parts with two vernier scale safety pins U 1372.
15. The L-shaped primary carrier connector U 1041 is connected to the joint of the L-shaped primary carrier using a self-securing screw connection M6. Arrange the longitudinal connections of the profiles in an offset manner.
16. When adjusting the height, observe the permissible height tolerances according to EN 13964, readjusting it, if necessary.
17. The primary profiles must be connected to the wall at least on one side with the wall bracket U 1042 to exclude any shift in axial direction.

Assembly of the secondary profile [W 2053-ST]:

18. Apply the predefined axis grid to the secondary profiles from the layout plan and outline it at the L-shaped primary carrier profiles.
19. Cut the rail channel W 2053-ST to the required length and insert U2053.
20. At the crossing points to the primary profile, the rail channel W 2053-ST is fastened to the L-shaped primary carrier U 1040 using a self-securing screw connection M6.
21. The joint formation of the rail channel W 2053-ST is performed using the rail channel connector W 2053 -ST V.
22. Required longitudinal connections should be arranged offset to one another.
23. The wall bracket U 1042 is used to connect the rail channels W 2053-ST to the wall.
24. The wall bracket is screwed to the rail channel W 2053-ST using a self-securing screw connection M6 and then fastened to the partition walls using dowels.

ASSEMBLY OF THE CEILING PANELS

1. Wear clean cotton gloves.
2. Remove the protective film from the ceiling panels, if available.
3. Insert the ceiling panel with the hook-on edge[AS6] using the vertical suspension brackets of the rail channels.
4. Check the joint for perpendicularity and uniform width and; if necessary, readjust the rail channels to the required axial dimension.
5. At a panel width of <400 mm, use two securing elements U 2053 WS and at a panet width of > 400-600 mm use three securing elements U 2053 WS. Screw down threaded rod firmly.
6. Precut shims for insertion into F-bracket F025 can be manufactured on site.

DISASSEMBLY OF THE CEILING PANELS

1. Wear clean cotton gloves.
2. Unscrew securing element U 2053.
3. Lift the ceiling panel to be dismounted, remove it using the hook-on edge [AS6] and lower it.
4. Then lift off the other side using the hook-on edge [AS6] and remove the entire panel moving it downwards.
5. Put the ceiling panel down and store it protected against damage.

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