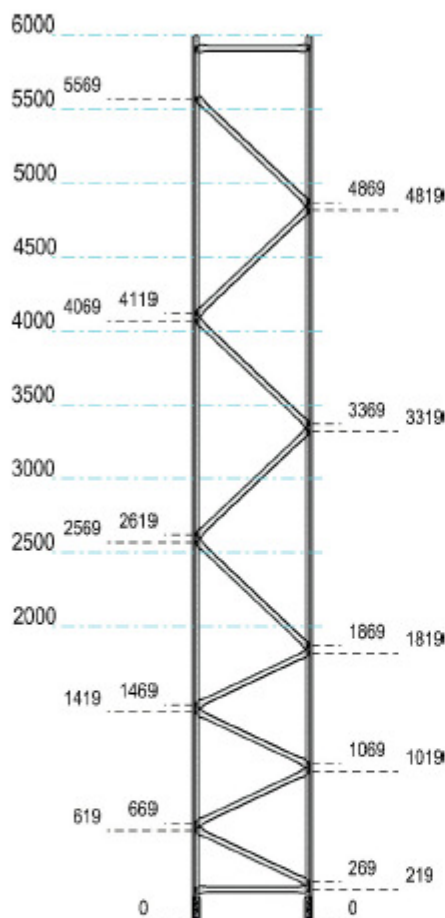


UNISHELF MONTAGEVEJLEDNING

UNISHELF FRAME ASSEMBLY DIAGRAM



- calculations in accordance with the FEM 10.2.06 standard, with material factors $\gamma_{M1} = \gamma_{M2} = 1.05$, $\gamma_{M3} = 1.25$;
- every upright with $H \leq 3000$ mm using a metal base plate and anchored to ground with at least one (1) anchor bolt;
- every upright with $H > 3000$ mm using a Super 1-2-3 – UNIRACK Heavy Duty Base Plate and anchored to the ground with two (2) anchor bolts;
- compliance with the specific conditions listed under the load bearing capacity tables.

Given that the load bearing capacity of the frame is also dependent from other factors (height of beam from ground equal to or more than the centre distance between the bay beams, frame base to height ratio, seismicity of the area, environmental factors such as vibrations, atmospheric conditions, etc) contact the METALSISTEM Technical Offices regarding doubts concerning non-standard applications, large or complex installations requiring optimization, or structural controls for specific solutions.

The frame load bearing capacities have been determined considering horizontal forces induced by imperfections as defined by the FEM 10.2.06 standard. Horizontal forces due to wind, vibrations, impact, seismic activity or other have not been considered. If these conditions apply, contact the METALSISTEM Technical Department.

The FEM 10.2.06 Standard applies material factors which may vary between the European member states with values ranging from 1.0 to 1.1. The METALSISTEM frame load bearing capacity tables have taken a γ_{M1} value of 1.05. Clients of member states which apply other γ_{M1} values shall contact the METALSISTEM Technical Office.

k) Installation environment, use and maintenance of the product

The load bearing capacities and the material finish assume that the product is assembled in dry internal environments. Applications in external or highly aggressive environments forfeit the guarantee of the surface treatment. Contact the METALSISTEM Technical Department for structural verification of outdoor applications.

For guidelines regarding use of the installation and programmed component inspection, required by the UNI EN 15635 standards, refer to the "Archive Racking Operating and Maintenance Manual", code MUM18.

l) Raw material

The 3.1 certificate (UNI EN 10204 standards) guarantees the mechanical properties of the high tensile structural steels used by METALSISTEM production.

The mechanical properties of the structural steel may vary from between S315 to S355 for pickled steels and between S360 and S400 for galvanized steels (UNI EN 10346 and UNI EN 10149) depending on the components' structural application.

The surface treatment of the structural steels may either be hot dip galvanized using the SENDZIMIR process or powder coated pickled steel.

m) Fire protection

Refer to the "Archive Racking Operating and Maintenance Manual", code MUM18, document for information regarding standard applications, reaction and resistance to fire. It is the duty of the racking installation designer to check if the client requires the installation to have allowances for the integration of fire protection measures.

n) Controls

The raw material entering production sustains ongoing testing by METALSISTEM internal Quality Control Department. The tests confirm the mechanical properties (elongation, yield, rupture), dimensional characteristics (gauge and width) surface finish (absence of defects, uniformity, resistance of coating). METALSISTEM has its own internal testing facilities able to conduct SIT (Servizio di Taratura in Italia) certified tensile tests (approx. 1000 per year), dimensional tests and performance tests (stub column, nodal stiffness, shear and deflection) on finished product. Saline mist, scratch resistance and other tests are conducted by external facilities.

Testing of finished products are conducted by both the internal METALSISTEM Quality Control Office and externally by the product certifying agency TÜV. The system certifying agency RINA guarantees consistent product quality.

o) Certifications

METALSISTEM production has been certified by the following international standards:

- Centro di Trasformazione – Italian Metal Fabricator certificate No. 7537/10;
- Environmental Management System ISO 14001;
- Quality Management Standard - ISO 9001;
- Health and Safety System certification OHSAS 18001;
- ACI CISI – Quality and safety;
- AEO FULL – Authorized Economic Operator;
- UNI EN ISO 3834 – Qualified welding processes;
- EN 1090-1 – Certificate of conformity of the factory production control.

p) Safety apparel

The installation designer, in consultation with the client, must review the type, locations, and needs of the safety apparel to be fitted to the installation (e.g.: upright and frame protection, floor guide rails, safety netting, walkway protection and covers, seismic design) in accordance with the risk and use of the areas under examination.

q) Customized applications

Contact the METALSISTEM Technical Office for solutions and/or calculations of non-standard applications.

METALSISTEM reserves the right to modify the technical characteristics of its products at any time it sees fit.

UNISHELF MONTAGEVEJLEDNING

MAIN STRUCTURAL COMPONENTS

The design of the various components is the result of rigorous technical testing and the highly specialised knowledge developed over years of experience in the field of metal processing.

This experience has enabled METALSISTEM to offer innovative products of the highest quality, highly competitively priced, and to provide a highly technical solution to the most important storage problems, such as rapid assembly, stability, low cost and load bearing capacity.

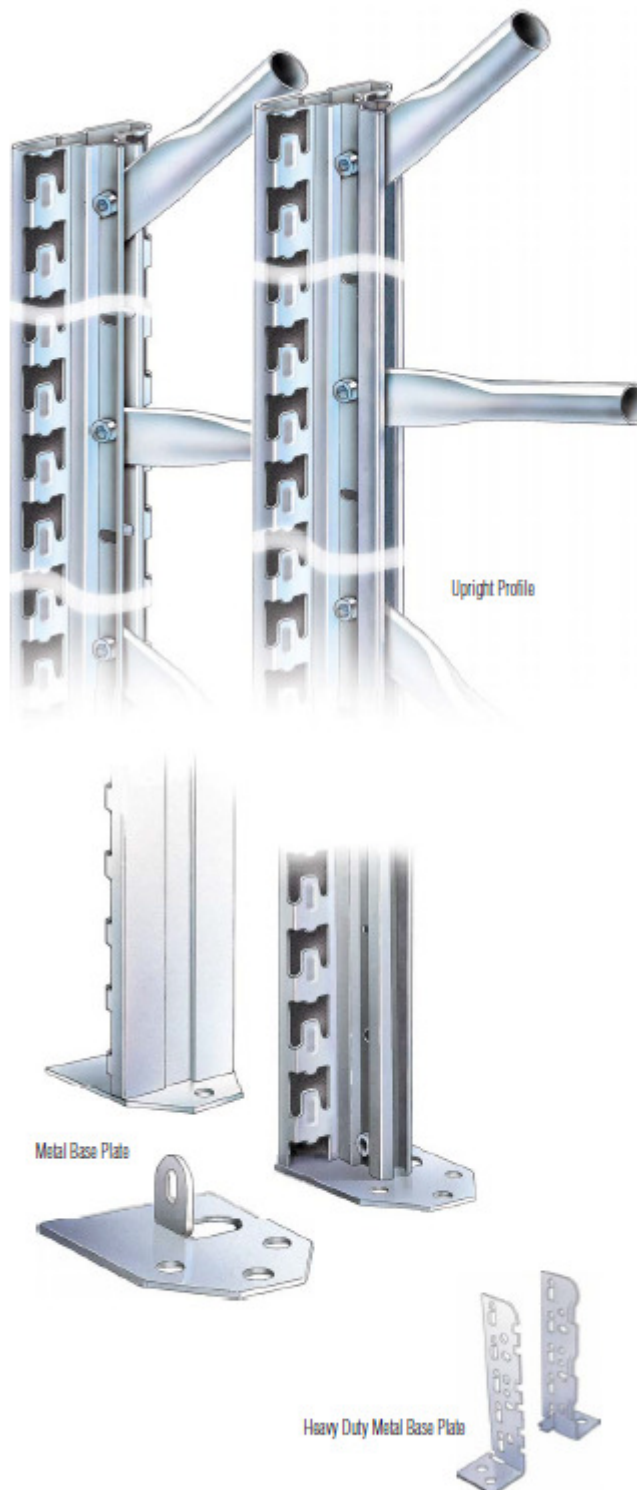
UNISHELF frames with height ≤ 3000 mm may be assembled using the metal base plate (Article SLACC001.95) and fixed to the floor slab with at least one M8x50 anchor bolt per upright.

UNISHELF frames with height > 3000 mm must use the heavy duty base plate (Article 67006.95) and must always be fixed to the floor slab with two Mx50 anchor bolts per upright.

At the top of the frame, uprights are finished off with plastic caps (Article SLACC063.98). A double sided top cap is also available for back-to-back configurations (Article SLACC064.98).

When building back-to-back bays, frame clamps are used to lock frames together for added stability, as illustrated in the scheme below.

Regarding the UNISHELF frame assembly diagram, please refer to page 5. Horizontal frame spacer bars must always be located at the bottom and at the top of each frame.



UNISHELF MONTAGEVEJLEDNING



11

UNISHELF MONTAGEVEJLEDNING

UNISHELF 70 mm high beams are profiled box sections of variable gauge with riveted upright connection brackets at either end. The patented production methods used to create these sections maximise beam load bearing capacity providing an optimal performance to cost ratio.

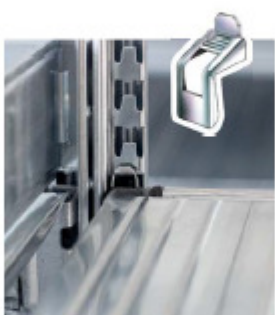
A groove running along the top face of the beam provides a support point onto which a variety of accessories may be placed. For example shelf panels, secondary beams and a wide range of accessory items such as those illustrated in the following pages.

The patented riveted beam connectors grant an optimised upright/beam connection.

The UNISHELF system is entirely galvanised using the SENDZIMIR procedure, ensuring that both internal and external faces of the product are protected.



Beam Profile with riveted connectors



Beam Safety Pin

The use of safety pins is mandatory
(Article SLACC000.95)

