MEISER® HTS-Wooden Beams

MEISER®

HTS-HOLZTRÄGER®

MEISER is a medium sized company specialising in Open Bar Grating, Profile Planks, Stairways, Stairtreads, Galvanising and Slit Steel Materials. There are two main factories in Germany, one at Schmelz-Limbach in the Saarland and the other at Oelsnitz in Saxony plus other subsidiaries in Belgium, France, Hungary, Egypt and Dubai. Both German plants have Galvanising, Slitting and Cold Rolling facilities which ensure high quality is maintained throughout our manufacturing processes. We have MEISER Sales Offices and Agencies worldwide, guaranteeing a local contact and a personal customer experience. The company employs 1800 people world wide with over 1200 of them in the German factories.

The company was founded in 1956 by Edmund Meiser and to this day has remained a family owned and run enterprise with traditional values ensuring quality and reliability. We trust in our flexible and commited work-force along with our ability to invest in state of the art ultra efficient machinery. To us, business is primarily to do with people. We place high value on personal and individual contact with our business associates and cus-tomers. We believe that progress and growth is only feasible when customers are satisfied with our products and levels of service. Various project collaborations that we have created together with our customers confirm our strategy.

We look forward to welcoming you as a customer!

Edmund, Wolfgang und Ulrich Meiser Josef Schuh

PICTURE RIGHT AND TOP LEFT:
OELSNITZ SITE,
PICTURE TOP RIGHT:
LIMBACH SITE

MEISER HTS-Wooden Beams are characterised by combining wood and steel which creates a unique synergy in hybrid technology. Dimensioning is simple, fast and safe with the support of our measurement software. The technical processing and production of the beams is carried out specifically for each project in accordance with your individual requirements. This ensures realisation of the most efficient solution of all the possible beam variations in every case.

MEISER HTS-Wooden Beams are:

- SIMPLE
  Straightforward connections, without any special connecting parts, make the beams a popular product.

- STRONG
  The well-engineered combination of wood and steel enables maximum load capacity.

- LIGHT
  The optimum use of materials in the flanges and web means the beams are very light.

- DURABLE
  The individual components are permanently joined using hydraulic pressure to produce a secure, stable connection without the use of glue.

- ECONOMICAL
  Spans of up to 24 m means less foundations, supports and connection points are necessary. The resource-saving use of materials makes the work process easier and faster – and optimises costs.

- HIGH QUALITY
  MEISER HTS-Wooden Beams carry the mark of quality. The production partners are subject to regular inspections.

- ELEGANT
  Whether as a visible beam or wainscoted in construction: MEISER HTS-Wooden Beams are always a modern support structure.

MEISER HTS - the intelligent solution in construction

MEISER HTS-Wooden Beams are hybrid beams for intelligent construction solutions. Optimized material use – maximum load capacity.

MEISER HTS-Wooden Beams are particularly characterized by their optimized material use and their high load capacity. Wood is excellently transfers tensile and pressure strains in the direction of the fibers. These forces are absorbed by the upper and lower flanges in MEISER HTS-Wooden Beams.

The shear flow between the flanges is transferred in a perfect manner by one or two parallel steel web. It was thus possible to conceive a beam with a higher overall load capacity than solid wood sections or laminated timber beams. The beams are manufactured by the use of a hydraulic press, which friction locks the web and flanges.

The MEISER steel web is the heart of the MEISER HTS-Wooden Beam. The corrugated profile has special serrations for the connection to the wood flanges. The web is made of hot-dip galvanized primary material in accordance with DIN EN 10147 1995 – 08 and provides excellent corrosion protection.

MEISER HTS-Wooden Beams

Technical data

- Flanges in conifer wood (KVH), S10 or C24, dried, finger jointed, planed, bevelled or in laminated timber, GL24h, dried, glued, planed, bevelled
- Web 0.5 mm special steel of quality S550 GD+Z, corrosion protection: hot-dip galvanized
- Beam length up to 24 m
- Beam heights 230 – 590 mm
- Flange height 60 – 120 mm
- Flange width 80 – 200 mm
- Beam weight 5 – 30 kg
- Elevation l/300 optional

Application

MEISER HTS-Wooden Beams typically are used as roof purlins and/or rafters, wall-columns or ceiling girders in the listed structures:

Structures

- Hall, sports, commercial, industrial and agricultural buildings
- Flat or mono-pitch roof structures
- Shopping Malls, pavilion structures, element construction and nomad construction systems
- Multi-storey structures, residential buildings, passive homes, studio roofs
- Renovation, adding floors
- Storage spaces, roofing, carports

MEISER HTS-Wooden Beams in use

Advantages for hall, sports, commercial, industrial and agricultural buildings:
- Longer distances between the main beams (10 – 12 m) mean less foundations necessary
- Reduced assembly times because of a lower number of components
- Larger passage widths on the long axes
- Savings on secondary beams because of increased load capacity

Advantages for flat or mono-pitch roof structures:
- Free-floating roofs and ceilings up to 24 m
- Space gain through free construction heights to roof deck

Advantages for shopping markets, pavilion structures, element construction and nomad construction systems:
- Fast and efficient assembly with high-quality, pre-fabricated construction elements, fully heat insulated, either planked on both sides with OSB boards or planked according to project-specific requirements

Advantages for multi-storey structures, residential buildings, passive homes, studio roofs:
- Free-floating roofs with wide support widths
- Low weight of support structure
- Large studio spaces in the roof area are free of supports
- Low beam height and optimal heat insulation

Advantages for renovation of existing ceilings:
- Light beams enable fast and easy assembly, even without using a crane
- MEISER HTS-Wooden Beams can be transported by hand
- The weight of a HTS beam of 6 m length is about 40 kg, compared to 100 kg for a comparable section in solid wood or glued laminated timber
- Minimal weight for later addition of floors

Advantages for storage spaces, roofing, carports etc.:
- The range of applications is almost unlimited because free-floating construction is possible up to 24 m

Large spans, light structures, aesthetic forms and clear functionality, safety, short construction time and economy are reliable arguments for the use of MEISER HTS-Wooden Beams in the realisation of various construction projects.

Facts and advantages

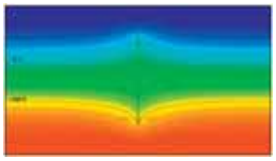
MEISER HTS-Wooden Beam characteristics at a glance:
- High load capacity: Small beam sections, large spans
- Simple production: No milling, no gluing
- Low materials use: Steel sheet 0.5 mm, optimised wood section
- Excellent look: Elegant and filigree
- Long life: No distortion, warping or creaking
- Easy to process: Low weight, easy to cut to length

These properties are not offered by any other beam system and they are available for free-floating spans of up to 24 m. With MEISER HTS-Wooden Beams efficient spans typically are between 7 and 18 m. Beam height is between 27 and 59 cm with a very low dead load of 7 – 21 kg/m.

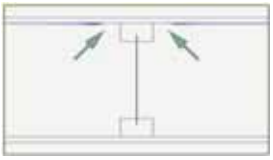
Load capacity:

MEISER HTS-Wooden Beams meet the statics requirements through optimum use of materials. The wood in the beam flanges is excellent at transferring pressure and tensile force. The steel web absorbs the thrust in an ideal manner. The shear-resistance of the beam increases immensely, particularly with heavy loads and large spans.

MEISER HTS-Wooden Beams are resiliently connected wooden beams. One particular characteristic of the structure is that the moment of inertia increases as support width increases. In contrast to this it remains constant in solid or laminated timber. This means that load capacity of solid wood sections is reduced increasingly in comparison to the MEISER HTS-Wooden Beams as support width increases.



Temperature field isotherm:
intervals 2° C



condensation water drop out:
0 blue = 7.99 g/(d*m^2*mm)

Construction physics:

The very thin steel web (0.5 mm) gives the MEISER HTS-Wooden Beams excellent properties when producing heat-insulated construction elements. The insulation properties are substantially better than by using beams in solid or laminated timber and if no thermal bridge formation is permitted. Condensation in the web area is inconsequential if the insulation is fitted correctly. Additional security is provided by the corrosion protection on the crosspiece for use in difficult conditions.

Vibration behaviour and earthquake resistance:
The light steel web and the low overall weight of the structure provides the MEISER HTS-Wooden Beam with good vibration behaviour, which has a positive effect on sound-attenuation, e.g. when used in ceilings. Furthermore structures with MEISER HTS-Wooden Beams are considerably more earthquake resistant.

This aspect depends, on one hand, on the low weight of the structure and is, on the other, influenced to a significant extent by the resilient combination of steel web and wooden flanges. This kind of connection ensures, that possible forces on the structure resulting from vibration in e.g. an earthquake are reduced through friction.

Elemental construction

MEISER HTS-Wooden Beams were used mainly in pre-fabricated roof, ceiling and wall elements, e.g. for supermarkets, office buildings, kindergartens, schools and residential buildings. The elements can reach up to 2.50 x 18 m. Such an element consists of 4 MEISER HTS-Wooden Beams, planked on both sides with OSB boards and the cavity filled with the desired insulation. The pre-fabricated element is then fitted with a cover as rain protection. MEISER HTS elements allow the fitting of a room of 1.200 m^2 in one day. Necessary fire safety cladding or sound-absorbing surface planking can be fitted subsequently. The maximum total weight for the attachment of the ceiling should not exceed 35 kg/m^2 (depending on the distance between beams).

Processing

The beam can be cut to an optimal size using a hand-held circular saw with an hard metal blade. All standard wood construction connectors can also be used. The low weight of the MEISER HTS-Wooden Beam allows easy and fast processing. Additionally large spans allow faster installation.

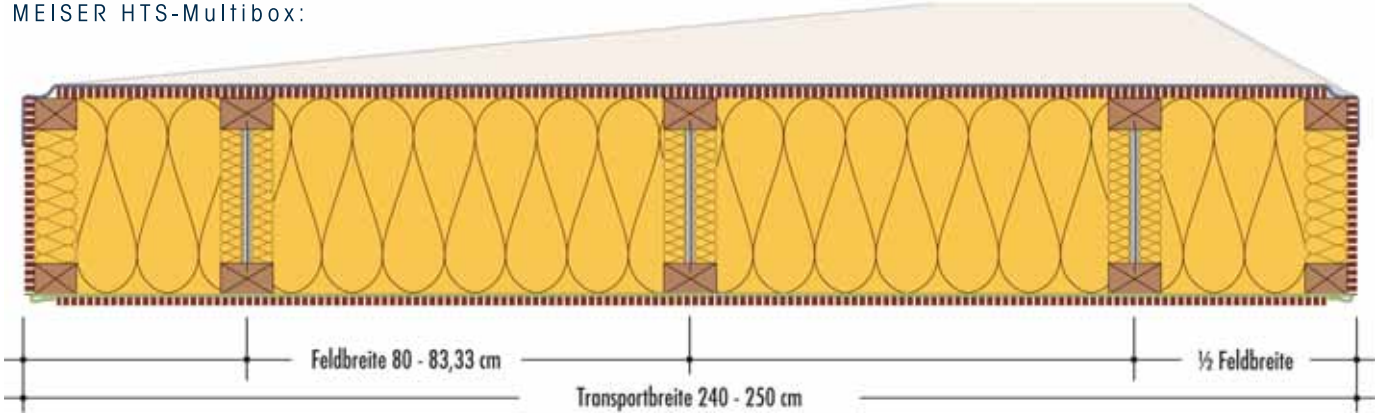
Life

The web is made of hot-dip galvanised primary material of class S550 GD+Z, whereby the zinc layer is at least 275 g/m^2 (ca. 40 µm). Corrosion of coated surfaces in various atmospheric conditions is divided into corrosiveness categories C1 to C5 in accordance with DIN EN 12944-2. The classification depends on the micro and/or macroclimate at the location of use. Allocation to class C3 is very common. This assumes high humidity and moderate atmospheric pollution, e.g. an industrial or city atmosphere or a coastal climate with a low chloride level. Under these circumstances the expected lifespan of the zinc coating is 20 – 30 years. Dry, indoor conditions, on the other hand, are termed class C1 and the expected lifespan is then 50 to 100 years.

Compared to lacquered coating the hot-dip galvanisation offers the following advantages:

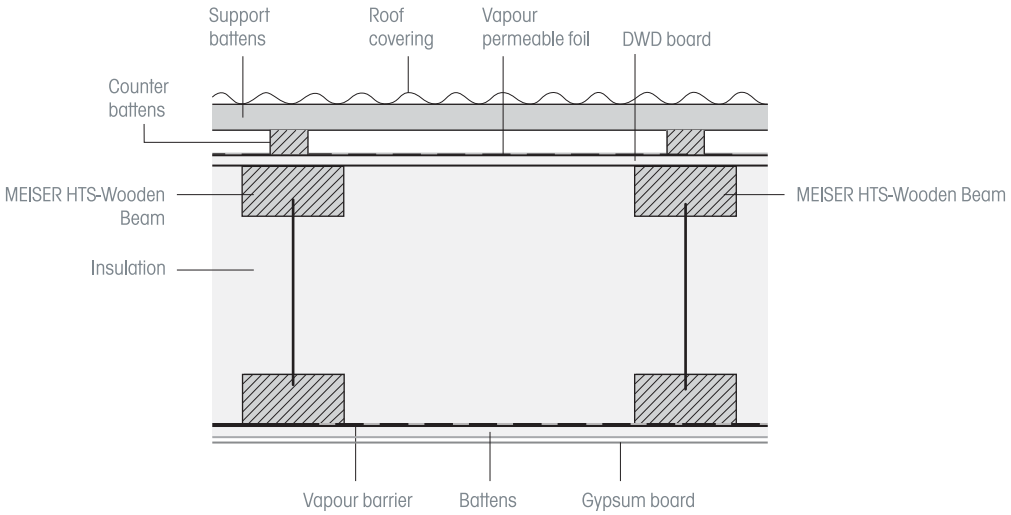
- Substantially improved durability with mechanical loads
- The cathodic protection avoids formation of a corrosion point, even in smaller areas of damage
- No penetration/detachment is possible

MEISER HTS-Multibox:

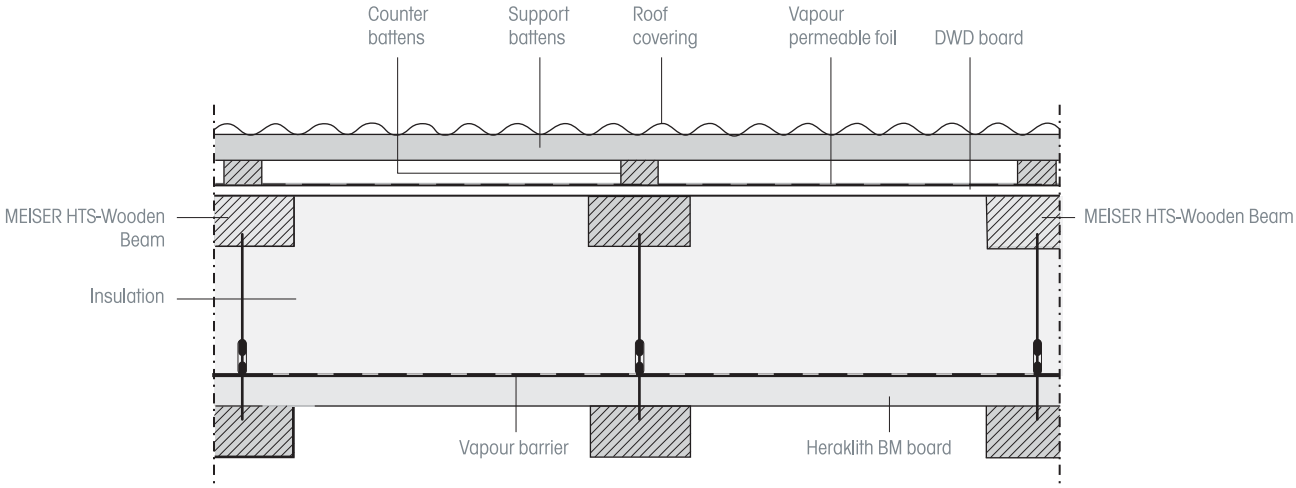


Passive construction method – Innovation and development are our strengths!

Layout 1



Layout 2




Belinea

Service

To MEISER, service means looking after the wishes of its clients. We are happy to advise you and make sure you will get top quality products.

It starts with the provision of all necessary technical documentation in the form of calculation tables, construction details and tender texts etc. We offer you a wide-range, individual planning service in cooperation with our local partners.

This means for you :

- Full support with regard to technical execution, norms and regulations
- Provision of statics calculations
- Development of tailor made solutions for special customers requirement

Quality assurance matters. The structures are in accordance with valid DIN/EN standards, the UVV requirements and the trade associations.

Put us to test!

You will find the contact details of our production partners on the internet at www.meiser.de

Would you like more information?

Ask for our product brochures or visit us online:
www.meiser.de
E-Mail: hts@meiser.de

Product Range

Other MEISER products:

Gratings – In steel, stainless steel and aluminium

Profile Rankings

Staircases

GRP-Products

Metal Processing

Galvanising

Steel Profile Tubes

Vineyard Poles

Production sites

Germany
Gebr. MEISER GmbH
Schmelzer Straße
D-66839 Schmelz-Limbach
Tel +49 (0) 68 87 - 3 09-0
Fax +49 (0) 68 87 - 3 09-3131
eMail info@meiser.de

MEISER Vogtland OHG
Am Lehmteich 3
D-08606 Oelsnitz
Tel +49 (0) 37 421 - 50-0
Fax +49 (0) 37 421 - 50 2120
eMail info@meiser.de

Hungary
MEISER Ferroste
Papirgyári ut 13
H-2400 Dumaújváros
Tel +36 (0) 25 511-012
Fax +36 (0) 25 501-870
eMail ferroste@ferroste.hu

Belgium
FAMECO S.A.
Rue Pelé-Bois 4
B-4590 Ouffet
Tel +32 (0) 86 36 64 31
Fax +32 (0) 86 36 64 33
eMail sales@fameco.be

Egypt
Multi MEISER Egypt
for Bar grating
production S.A.E.
6, Ramo Buildings/Nasr Road
AE-Nasr City, Cairo
Arab Republic of Egypt
Tel +202 (0) 41 51 485
Fax +202 (0) 29 10 702
eMail mmeiser@link.net

Morocco
MEISER EGL SARL
Zone industrielle sud ouest – Lot 118
MA-Mohammedia
Tel +212 (0) 22 95 04 31
Fax +212 (0) 22 95 04 32
GSM +212 (0) 61 18 16 19
eMail eglbat@menara.ma

France
MEISER SARL
Avenue de la Ferme du Roy
BP 80013
F-62401 Bethune Cedex
Tel +33 (0) 32 16 47 543
Fax +33 (0) 32 16 47 542
eMail bethune@meiser.fr

MEISER SARL
Zone Industrielle
F-54920 Villers La Montagne
Tel +33 (0) 38 24 40 120
Fax +33 (0) 38 24 45 296
eMail villers@meiser.fr

UAE
Lionweld MEISER LLC
DUTCO Compound
Jebel Ali Industrial 2
DUBAI
United Arab Emirates
Tel +971 (0) 48 80 11 25
Fax +971 (0) 48 80 11 99
eMail info@lionweldmeiser.com

Turkey
Kartal MEISER
Izgara Üretim Ltd. Şti.
Istanbul Yolu 30. km
Kartal Cad. No: 9
06980 Sarayköy Kazan / Ankara
Tel +90 (0) 312 815 43 22
Fax +90 (0) 312 815 52 23
eMail info@kartalmeiser.com

Agencies

Norway
NTJ AS
Melsomvikveien 3
Postboks 113
N-3161 Stokke
Tel +47 (0) 33 30 58 30
Fax +47 (0) 33 30 58 31
eMail ntjas@ntj.no

Estonia
Metal Disain Ltd
Suur-Sõjamäe 10,
EE-11415, Tallinn
Tel +372 (0) 61 01 150
+372 (0) 68 39 023
Fax +372 (0) 61 01 130
+372 (0) 68 39 021
eMail metaldis@metaldis.ee
www.metaldis.ee

Croatia
MASERVICE-VRBOVEC d.o.o.
Gradecka ul. 33.
HR-10340 Vrbovec
Tel +385 (0) 12 791 - 609
Fax +385 (0) 12 791 - 884

Lithuania
UAB Morionis
Joint stock company Ltd.
Kestucio g.54
LT-3000 Kaunas
Tel +37 (0) 37 20 32 10
Fax +37 (0) 37 20 32 17
eMail morionis@takas.lt

Denmark
SEMITECH A/S
Reskavej 1
DK-4220 Korsør
Tel +45 (0) 57 52 75 75
Fax +45 (0) 57 52 75 77
E-Mail email@semitech.dk
www.semitech.dk

Offices

Germany
MEISER Vertriebsbüro
Essen GmbH
Hafenstraße 280
D-45356 Essen
Tel +49 (0) 201 - 83 38 0
Fax +49 (0) 201 - 83 38 146
eMail info@meiser.de

France
MEISER SARL
25, rue de la République
F-02400 Château-Thierry
Tel +33 (0) 32 36 92 119
Fax +33 (0) 32 38 31 532
eMail chateauthierry@meiser.fr

UK
MEISER UK Ltd
1B Poplar Road
Broadmeadow Industrial Estate
GB-Dumbarton G82 2RD
Scotland
Tel +44 (0) 13 89 76 50 00
Fax +44 (0) 13 89 76 11 66
Potto Office:
Tel +44 (0) 1642 701510
Fax +44 (0) 1642 701791
Mob +44 (0) 7823 322 456
eMail info@meiser.co.uk

Italy
MEISER-GTC Srl
Via Consiglio dei Sessanta,172
47891 Dogana Rep. San Marino
per chiamate dall'Italia:
Tel 0549 90 98 15
per chiamate dall'estero:
Tel + 39 (0) 378 909815
eMail info@meiser.it

Bulgaria
MEISER Bulgaria EOOD
Rajko Zsinzifov ulica No 20,
vh. B, ap 19,
BG-Sofia
Tel +35 (0) 92 95 46 771
Fax +35 (0) 92 95 46 771
eMail meiser@abv.bg

Poland
MEISER Polska Sp. z o.o.
ul. Przemysłowa 3
PL-44-203 Rybnik
Tel +48 (0) 32 75 52 385
Fax +48 (0) 32 75 52 386
eMail biuro@meiser.pl

Romania
MEISER Romania S.R.L.
RO-3700, Oradea
Str. Henri Coanda Nr. 13
Bl. PC 23 Ap. 2 Romania
Tel +40 (0) 25 94 70 621
Fax +40 (0) 25 94 70 621
eMail meiser@rdslink.ro

Switzerland
PMI MEISER Gitterroste AG
Schlüechtistrasse 6
CH-8104 Weiningen ZH
Tel +41 (0) 44 75 17 051
Fax +41 (0) 44 75 17 055
eMail info@meiser.ch

Spain
MEISER Rejillas Iberica Ltda
Av. Jose Garcia Bernardo 998 - Urbanizacion
el Rinconin
Vivienda No. 91
E-33203 Gijon
Tel +34 985 / 33 40 65
Fax +34 985 / 33 40 65
eMail info@meiser.es

Czech Republic
V-Kuty MEISER spol. s.r.o.
Krokova 4
CZ-70030 Ostrava-Zábreh
Tel +420 / 59 67 61 911
Fax +420 / 59 67 87 751
eMail kuty@vkuty.cz

Netherlands
RST MEISER Nederland BV
Goudsesingel 98
NL-3011 KD Rotterdam
Tel +31 (0) 10 23 31 300
Fax +31 (0) 10 41 47 847
eMail info@rstmeiser.nl

Algeria
MEISER Algerie SARL
Hay Benghazi "B" n° 424,
Baraki - Alger Algérie
Tel/Fax +213 21 76 26 84
Mobil +213 66 15 03 552
eMail y.mouftakir@meiser.de

Sweden
MEISER AB
Box 8778
SE-402 76 GÖTEBORG
Tel +46 (0) 10 - 4 58 00 00
Fax +46 (0) 31 - 55 40 51
eMail info@meiser.se

Brasil
MEISER do Brasil
Pisos Metalicos Ltda.
Rua Luis Coelho, 223 1° andar
CEP 01309-001, Cerqueira César,
São Paulo (SP), Brasil
Tel +55 (11) 64 26 68 50
eMail info@meiser-brasil.com.br
www.meiser-brasil.com


We look forward
to serving you!

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