



For you to create



Fundermax

www.fundermax.com



**“Building sustainably means
building a sustainable future.”**

(Lukas T., producer of prefabricated houses)



Contents

Products	4
Fastening	12
Funderplan construction engineering	14

Fundermax

From furniture and facades to interior design, Fundermax is at the interface of ideas and materials. Today the company – which has a proud history spanning 130 years – stands as a global market leader and producer of high quality materials using wood and laminates. Our lasting success has been based on high quality, imaginative design, diversity and sustainable production. Our products are “Made in Austria” and exude a love for the natural resources of wood, creativity and inventiveness.

- modern production facilities in Austria and Norway
- approx. 1,400 employees
- annual turnover of €430 million
- part of Constantia Industries AG
- The Austrian Excellence Award (2018)

1 Products



“Sustainable building equates to long-term satisfaction.”

(Jonas G., processor)

Funderplan – 100% natural, 100% confidence

Funderplan – the environmental, organic and healthy alternative for timber construction

The importance of sustainable architecture using biogenic materials is increasingly coming to the forefront. When designing living spaces, health-promoting materials are needed to achieve sustainability while supporting the complex interplay of design and environmentally sound resources. Funderplan Biofaser panels were specially designed to foster a healthy living environment while helping to create an immersive indoor experience.

Our Funderplan high-density fiberboard is produced with fresh wood pulp sourced from certified, sustainably managed forests in a special procedure that uses renewable energies and abstains from artificial adhesives. In contrast to the conventional wood materials produced using oil-based adhesives, we activate the natural resin in wood fibers to create a purely natural product. That's what makes Funderplan unique.

In this way, Funderplan can create living spaces of exceptional quality, which in turn, positively impacts comfort, hygiene and the health of residents and other users. These panels help turn the décor into an experience in itself. Funderplan demonstrably enables people to live, reside and work free from exposure to unnatural emissions, especially when the projects are for children, the elderly and people with sensitive health conditions. The result is living space where people can live and recharge their energies with a clear conscience.



Funderplan 3-Field Panel – residential and economical for contemporary residential construction

Structurally effective Funderplan is used for stiffening interior paneling in timber frame construction. The flexural and transverse tensile strength are almost double that of comparable products. The large formats, which span three wall sections simultaneously, facilitate cost-effective and time-saving factory production and assembly. Processing steps such as sawing, drilling, milling, etc. are performed with the usual commercial tools.

Funderplan Tongue and Groove Subfloor Board – simply seamless for a healthy indoor climate

Thanks to the option of small-scale formats, the Funderplan tongue and groove subfloor board is ideal for renovation and modernization or general paneling in timber frame construction. A flush and seamless connection enables fast and easy installation, while a stable tongue and groove profile also facilitates 'non-supported joints'.

The unique features of Funderplan



Versatile usages

- as roofing and ceiling elements
- for exterior/partition walls
- as optical cladding
- as a wall structure for natural loam rendering

Ideal for

- Environmentally sound house construction
- Prefabricated/passive houses
- Nurseries, schools and retirement homes
- Special industrial applications



Structurally durable



For load-bearing purposes
in damp areas



Effective as a vapor retardant
with an ideal SD value



Airtight levels guaranteed



Excellent airborne sound insulation
and sound absorption



Splinter-free processing



Maximizes living space through
slimline construction

Made for people: sustainable, safe, durable and cost-effective

- Funderplan is tested for healthy living (certified by natureplus (ecological footprint), IQUH and the Sentinel Haus Institute)
- Excellent for a healthy indoor climate. No synthetic materials means no synthetic emissions, making Funderplan ideal for children, elderly people and those with sensitive health conditions
- Comfort and well-being thanks to a perfect indoor climate and moisture management
- Economically sustainable alternative
- Building with Funderplan absorbs carbon dioxide for the long term – it's like bringing the forest into your home.

For the planet: sustainable and resource-efficient

- Resource-efficient because only fresh wood pulp or sawmill by-products from sustainably certified regional forestry are used in Funderplan. Fresh wood pulp is smallwood from forest thinning. We turn this into a high quality, structurally durable product.
- Long-lasting: The life cycle assessment covering raw material provision, transport and manufacturing confirms our Greenhouse Warming potential saving of $-1,370 \text{ kg CO}_2/\text{m}^3$.
- We are proud of our positive contribution to decarbonization. (Source: LCA analysis, natureplus certificate 2019)

Funderplan is exclusively made with our self-generated, certified, resource-efficient green energy, with cascading wood use in mind.

We use 70% of our own waste (which cannot be recycled into usable materials) as substitute fuel, thereby avoiding the use of primary fuels. Find out here just how many regional homes we supply with district heating, cutting carbon emissions from domestic fuel consumption in the process:



Statements

Tilman Kramolisch Managing Director, natureplus

“The Funderplan panel has been a firm feature of our portfolio for almost a decade. It is the first (and so far only) hard fiberboard to meet the stringent requirements of our contract award guidelines.

We believe resource conservation, climate protection and healthy living are qualities of this product you can rely on.”

www.natureplus-institute.eu



Peter Bachmann Founder and Managing Director, Sentinel Haus Institut

“The Funderplan Biofaser panel is the right product for more healthy buildings. It is sustainable, tested for harmful substances in line with strict criteria and creates an ideal indoor climate.

Why does that matter? Because we are indoors for at least 90 percent of the time, and the quality of the air determines our well-being. Emissions from construction products can impair air quality, and seriously impact our health.

Wood is a fantastic material – natural, renewable and sustainable – but what you make of it is what counts. After all, low-emission wood-based materials certainly cannot be taken for granted. We evaluated Funderplan transparently in accordance with stringent health criteria, and the test results were outstanding – so there is nothing to stop us listing on the Sentinel portal. We would recommend using Funderplan for more healthy buildings.”

www.sentinel-haus.de



**SENTINEL HAUS
INSTITUT**

Certification

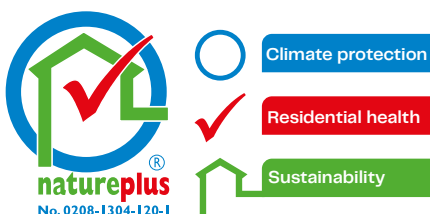
natureplus seal of quality no. 0208-1304-120-1

natureplus e.V., the European association for future-proof construction and living, is committed to a sustainability-based approach to the evaluation of construction products, with the sustainable use of resources, climate protection and healthy living forming the key criteria for products. Since all of us spend almost 90% of our lives indoors, the construction products used there have a major influence on people's health.

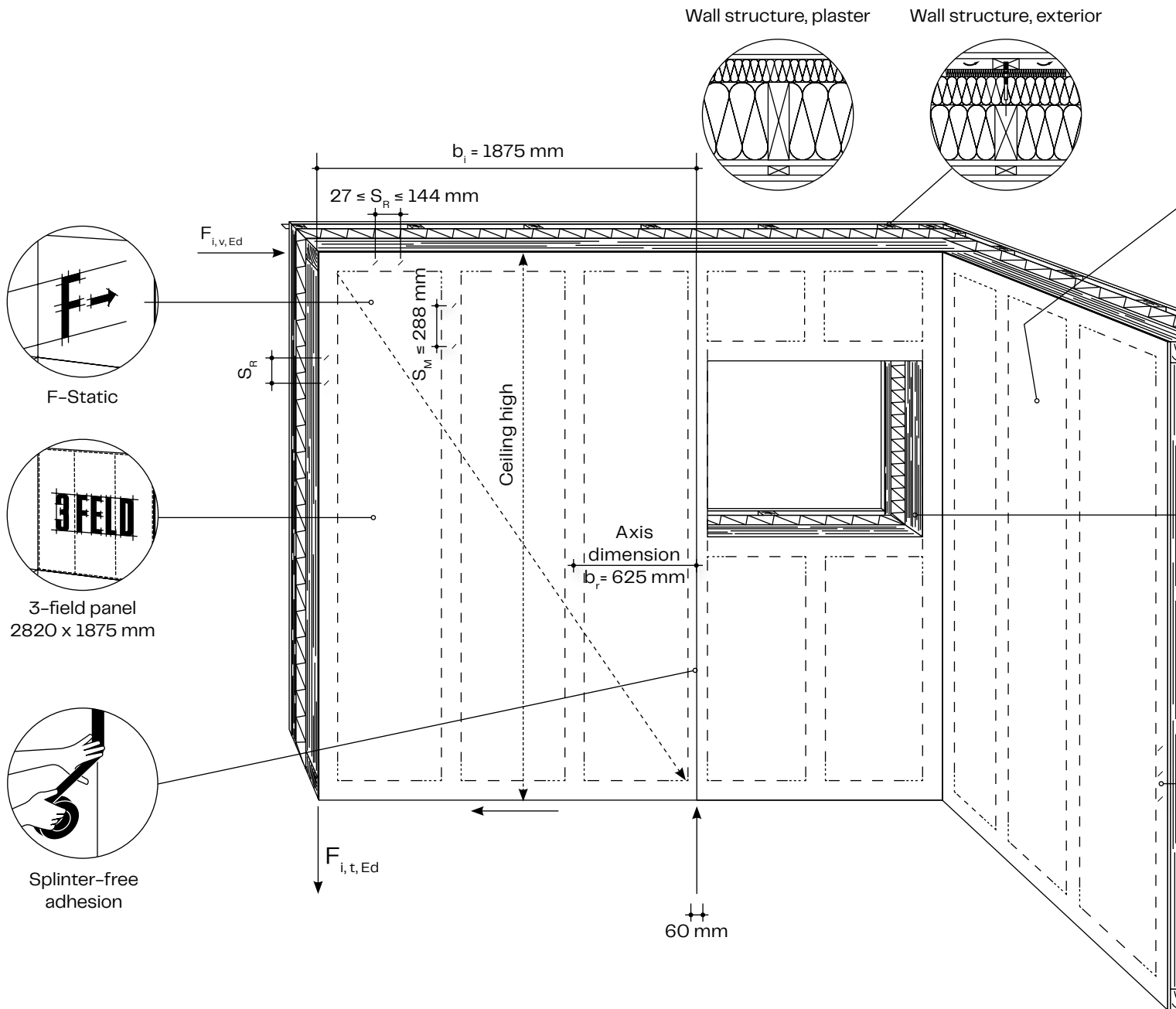
The non-profit association ensures consistently high quality through regular checks and on-site surveys while offering consumers direction and dependability in their product selections. We are proud of the certification awarded to Funderplan with the seal of quality 0208-1304-120-1.

IQUH certificate

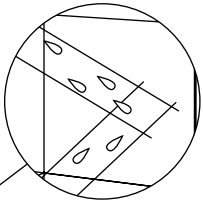
The IQUH institute of quality management and environmental hygiene reviews the contents of construction products and assesses their influence on indoor climates, air quality and healthy living. Funderplan was tested to determine raw materials and to confirm the full declaration of all ingredients. The result was more than satisfactory: Funderplan is terpene-free, with a low quality, environmental and human compatibility factor of 2.22 (the lower the figure, the more positive the effects on ambient air and indoor climate).



Example application of wall structure



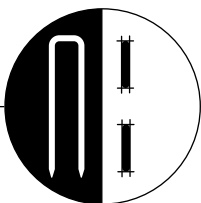
S_d - value



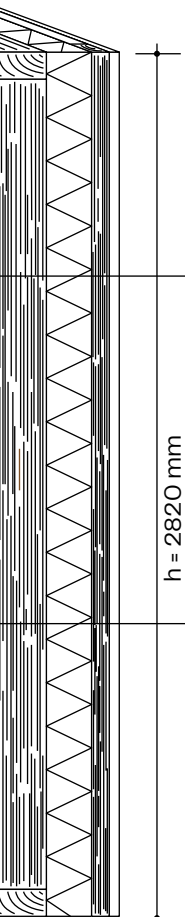
ease of processing



fast assembly



Brackets (nails)



$h = 2820 \text{ mm}$

Processing recommendations

- Affix panel on all sides
- Avoid non-supported joints
- Fixing with brackets ($\varnothing 1.8 \text{ mm}$) and plastic-bonded groove nails ($\varnothing 2.5 \text{ mm}$)

Note

For the current version of this brochure, visit www.funderplan.at

2 Processing

“A perfect product needs to be installed perfectly.”

(Katrin E., carpenter)



Fastening with brackets

To ensure neat and flush countersinking of the back of the bracket in the panel, the staple wire must have a material thickness of 1.8 mm.

Minor beading may be visible on account of the wood fibers. A bracket length of 45 mm is sufficient for Funderplan. Alternatives to hand-held tools: bracket processing with skater, inliner or slider system. In industrial timber construction, Funderplan is often fastened with a nailing bridge.

Recommended air pressure: approx. 6.0–6.5 bar.
Minimum distance to panel edge: 5.4 mm only

Fastening with adhesives

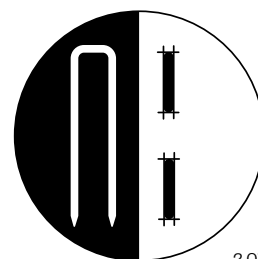
In the case of special applications (e.g. concealed fastening), Funderplan can be affixed to a wooden beam construction using adhesive.

Fastening with nails

We recommend using a 2.5 mm galvanized grooved nail, which should be sunk flush with the panel surface.

No beading is visible on the surface and the original look of the panel is retained. 50 mm length for the 2.5 mm TC groove nail is sufficient for Funderplan.

Recommended air pressure: approx. 6.0–7.0 bar.
Minimum distance to panel edge: 7.5 mm only

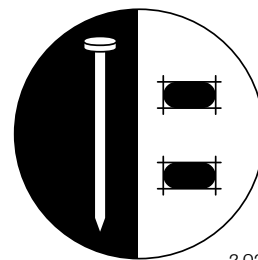


2 01

Fastening with screws

Screws can also be used for fastenings for inspection purposes. For a flush fastening, screws with milling pocket heads are required.

Recommended screw dimension: 4.5 x 50 mm.



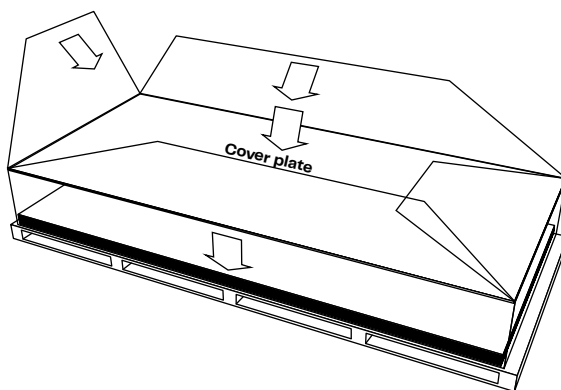
2 02



Storage

For proper storage, we recommend an unheated hall protected from the weather so that pallets are not exposed to direct sunlight. This also ensures panels are not exposed to driving rain or high temperatures. Store in a dry place, horizontally covered.

- do not store in damp environments
- cover pallets with a cover plate and film
- avoid direct sunlight



2 03

Installation

Before installation, we strongly recommend conditioning the product sufficiently with regard to in-service moisture. Avoid non-supported joints in the processing of 3-field panels.

- 2 01** Fastening with brackets
- 2 02** Fastening with nails
- 2 03** Example of correct storage

Other notes

Wood dust

We explicitly draw attention to the dangers of inhaling wood dust. The occupational health and safety strategy (AUT) must be selected on the basis of the current guidelines on wood dust issued by the Federal Ministry of Labour (or the applicable national regulations outside of Austria).

Disposal

Disposal is possible by means of landfill, material recycling or thermal recycling (in suitable plants) as biomass. The material is biodegradable. Depending on origin, the following waste code numbers from the European Waste Catalogue (EWC) are possible: 030105, 170201, waste code according to ÖNORM: 17201.

Technical support

We would be happy to answer any questions you may have regarding the processing and use of Funderplan Biofaser panels in timber construction.

support@Fundermax.biz



Examples of use



Nursery Austria, Eberschwang

Architect ARGE Architekt Dipl. Ing. Hans Achatz u. DI Erwin Stammer

Product Funderplan Biofaser

Assembly method Fastening is blunt with no expansion joint (unnecessary), 1.8mm brackets, panel joints then taped off airtight



Office building Austria, Aitlengbach

Architect Holzbau Sulzer

Product Funderplan Biofaser

Assembly method With 2.5 mm groove nails (fastening) and on-site blow-in insulation

3 Funderplan construction engineering

“We are building on nature within our own four walls.”

(Daniel W., civil engineer)



Properties	Test method/reference standard	Unit	Value
Mechanical properties			
Apparent density	EN 323	kg/m ³	> 1000
Thickness	EN 324-1	mm	8.0
Swelling in thickness (24h)	EN 317	%	< 12
Moisture content	EN 322	%	> 6
Formaldehyde ₁	EN 16516	ppm	< 0.1
	EN 717-1	ppm	≤ 0.03
Formats of 'blunt' 3-field panel		mm	2640 x 1870 mm 2820 x 1875 mm (standard format) 3000 x 1875 mm 5640 x 1875 mm Cut to size on request
Formats of tongue and groove subfloor board		mm	2600 x 625 mm 2600 x 1250 mm

₁ The formaldehyde content is in the range of naturally grown wood

Classification:

Fiberboard according to EN 316

Test standard:

EN 622

Technical class:

HB.HLA2 (heavy-duty load-bearing boards for use in humid conditions)

Service class 2 according to EN 1995-1-1, use class 2 according to EN 335

Properties	Test method/reference standard	Unit	Value
Structural physical properties			
μ value ₂	EN ISO 12572	-	185
s_d -value	DIN 4108	m	1.48
Fire behaviour ₃	EN 13986	-	D-s2, d0
Fire behaviour tested	EN 13501-1	-	D-s1, d0
Fire resistance tested	EN 13501-2:2016 EN 13501-2:2016	without installation level with installation level	REI 45 REI 60
Protection time/fire resistance	EN 1363-1	Paneling on fire protection panels	9 min
Protection time/burn rate	EN 1363-1	Individual panel check	0.86mm/min
λ value ₄	EN 13986	W/mK	0.18

² Testing institute OFI, PB no: 404.394-1, 04.07.2011

³ Testing institute MA39, PB no: MA39-VFA2011-0960.01, 29.06.2011

⁴ Determination of thermal conductivity by interpolation EN 13986

Properties	Test method/reference standard	Unit	Value
Static properties (non-directional)			
Flexural strength f_{mk}	EN 310	N/mm ²	38
E-module ($E_{o,mean}$)	EN 310	N/mm ²	> 4,100
Characteristic embedment strength (\varnothing 1.8 mm)	EN 1995-1-1	N/mm ²	87.6
Characteristic embedment measured (\varnothing 1.5 mm) ₅	ON EN 383		130.6
Characteristic embedment strength (\varnothing 3.0 mm)	EN 1995-1-1	N/mm ²	75.1
Characteristic embedment measured (\varnothing 3.0 mm) ₅	ON EN 383		94.7
Shear strength f_{vk}	EN 1995-1-1	N/mm ²	16
Pressure f_{ck}	EN 1995-1-1	N/mm ²	24
Shear Modulus G_{mean} ^a	EN 1995-1-1	N/mm ²	1900
Modification coefficient k_{mod} (KLD: Kurz; NKL 1)	EN 12369-1	N/mm ²	0.85
Transverse tensile strength	EN 319	N/mm ²	> 0.65
Transverse tensile strength after boil test	EN 1087-1	N/mm ²	> 0.35

⁵ Testing institute TU Graz, PB no: PB10-417-1-01, 15.04.2010

Dimensional tolerances	Test methods	Unit	Value
Thickness	EN 324-1	mm	± 0.2
Length	EN 324-1	mm	± 5.0
Width	EN 324-1	mm	± 3.0

Test parameters (according to natureplus)	Limit $\mu\text{g}/\text{m}^3$	Concentration $\mu\text{g}/\text{m}^3$
Total volatile organic compounds (TVOC)	≤ 300	123
Acetic acid		123
of which:		
Total bicyclic terpenes	≤ 200	n.n.
Total sensitizing substances according to MAK IV, BgVV list cat. A, TRGS 907	≤ 100	n.n.
Total VOC (VOC, VVOC, SVOC) classified in: Regulation (EC) no. 1272/2008: Category Carc. 2, Muta 2, Repr. 2; TRGS 905: K3, M3, R3; IARC: Group 2B; DFG MAK list: III3	≤ 50	n.n.
Total (VOC) without NIK	≤ 100	n.n.
Total semi-volatile organic compounds (TSVOC)	≤ 100	n.n.
R value	≤ 1	0.246

Emissions tests according to natureplus guideline 0208 on hard and medium-hard fiberboards. TÜV SÜD Industrie Service GmbH – test report: 130207-1.
Far below legal requirements.

Fastening (\varnothing 1.8 mm bracket) _e	Min.	Max.
Bracket spacing (S_a)	2.7 cm	14.4 cm
Bracket spacing (S_M)	–	28.8 cm
Minimum distance stressed edge ($a_{4,t}$)		
Bracket (\varnothing 1.8 mm)	0.54 cm	–
Nail (\varnothing 2.5 mm)	0.75 cm	–
Design value of wall resistance ($F_{t,v,Rd}$)	38.76 kN	7.26 kN

_e Fastening also possible with 2.5 mm groove nails

Input materials	Trade name	Source of supply	Product share
Timber	Spruce/beechn	local	96.7 %
Water repellents	HYDROWAX 46	Sasol Wax GmbH Worthdamm 13-27 D-20457 Hamburg	1.9 %
Phenolic resin	BOROFEN BF-35	Fenolit d.d. SI-1353 Borovnica	1.4 %



Packaging, 3-field panel

Format (mm)	Pal./truck	m ²	Pcs./pal.	m ² /pal.
2820 x 1875	11	5.29	40	211
2640 x 1875	11	4.95	40	198
3000 x 1875	11	5.63	40	225
5640 x 1875		10.58	12	127

Packaging, tongue and groove subfloor board

Format = deck area (mm)	Pal./truck	m ²	Pcs./pal.	m ² /pal.
2600 x 625	35	1.625	50	81.25
2600 x 1250	35	3.25	25	81.25

Disclaimer

The information in this document is provided solely for purposes of general information. Customers and third parties are obligated to inform themselves about Fundermax products, including their suitability for certain purposes. We strongly recommend obtaining independent professional advice on compliance with local planning and application requirements, current legislation, regulations, norms, guidelines and testing standards. Fundermax accepts no liability in connection with the use of this document. Responsibility for correct and appropriate planning and workmanship lies solely with those planning or processing the materials. All of our verbal and written statements, offers, bids, sales, shipments and/or contracts, and all activities associated therewith, are subject to the valid version of the Fundermax GmbH terms and conditions of sales and delivery (see www.fundermax.com). For the current version of this brochure, visit www.fundermax.com

Fundermax Deutschland GmbH

Mundenheimer Weg 2
D-67117 Limburgerhof
infogermany@fundermax.biz
www.fundermax.com

Fundermax France S.a.r.l.

3 Cours Albert Thomas
F-69003 Lyon
T +33 (0)4 78 68 28 31
infofrance@fundermax.biz
www.fundermax.com

Fundermax India Pvt. Ltd.

Sy. No. 7, Honnenahalli, Doddballapur Road,
IND-Yelahanka Hobli, Bangalore - 560064
T +96113 99211
officeindia@fundermax.biz
www.fundermax.in

Fundermax Italia s.r.l.

Viale Venezia 22
I-33052 Cervignano del Friuli
infoitaly@fundermax.biz
www.fundermax.com

Fundermax North America, Inc.

9401-P Southern Pine Blvd.
Charlotte, NC 28273, U.S.
T +1 980 299 0035
office.america@fundermax.biz
www.fundermax.us

Fundermax Polska Sp. z o.o.

ul. Rybitwy 12
PL-30-722 Kraków
T +48 (0)12 65 34 528
infopoland@fundermax.biz

Fundermax Swiss AG

Industriestrasse 38
CH-5314 Kleindöttingen
T +41 (0)56 268 83 11
infoswiss@fundermax.biz
www.fundermax.com

Fundermax GmbH

Klagenfurter Straße 87-89, A-9300 St. Veit/Glan
T: +43 (0)5 9494-0, F: +43 (0)5 9494-4200
office@Fundermax.at
www.Fundermax.at

