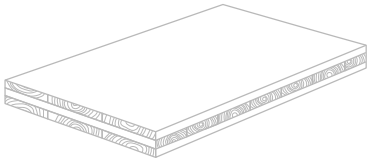


CONCRETE FORMWORK

# Shuttering panels

# SHUTTERING PANELS

## FEATURES

- Type of wood: spruce / fir
- Accurate to size and dimensionally stable
- Time and cost-saving in machining
- A long service life is guaranteed with proper treatment
- Resistant surface treatment made of melamine resin (not 1-ply)
- Suitable for construction sites for stacking with supporting timber
- Water and weather resistant according to EN 13353 (SWP/3)
- Produced according to Austrian standard B 3023 three-ply concrete formwork panel
- Light weight

## CONSTRUCTION

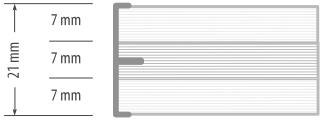
*SHUTTERING PANELS (21) with edge bands*

Thickness: 21 mm
Width: 500 mm
Lengths: 1.500 / 2,000 / 2,500 mm


*SHUTTERING PANELS (21) with edge protection*

Small formats with edge protection made of iron

Thickness: 21 mm
Width: 500 mm
Lengths: 1.500 / 2,000 / 2,500 mm

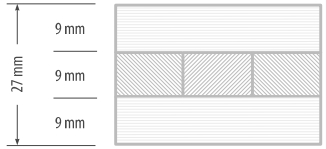





## CONSTRUCTION

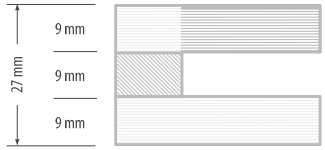
*SHUTTERING PANELS (27) without edge bands (on request)*

Thickness: 27 mm
Width: 500 mm
Lengths: 1.500 / 2,000 / 2,500 / 3,000 mm



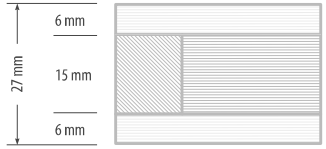

*SHUTTERING PANELS (27) with edge bands*

Thickness: 27 mm
Width: 500 mm
Lengths: 1.000 / 1.500 / 1.970 / 2,000 / 2,500 / 3,000 mm



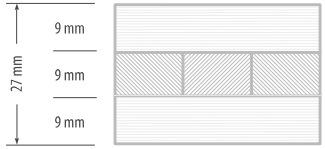

*SHUTTERING PANELS (27) Large formats*

Thickness: 27 mm
Width: 1.000 / 2,000 mm
Lengths: 1.000 / 2,000 / 2,500 / 3,000 / 4,000 / 5,000 mm

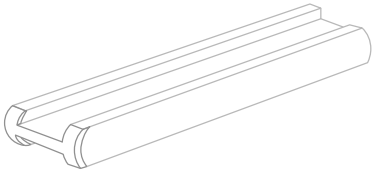



*FORMWORK (27)*

Thickness: 27 mm
Width: 200 / 250 / 300 / 350 / 400 mm
Lengths: 3,000 mm







CONCRETE FORMWORK

# Formwork beams

# FORMWORK BEAMS

Formwork beams are designed in such a way that they are suitable for use under construction site conditions, such as, for example, the exposure to water and cement. Industrially manufactured formwork beams made of wood are intended for use in load-bearing structures and formwork, and may only be strained in the direction of the beam height.

## FEATURES PF20PLUS

- Beam ends and protective caps are rounded
- The entire front side is protected by the protective cap
- Handy, lightweight
- Shock resistant
- High dimensional stability
- Very low shrinkage
- Low risk of injury
- No glueing and no steel clips required to attach the protective cap
- Good mechanical properties of the protective cap at high and low temperatures
- The protective cap has a UV stabiliser against weathering

## FEATURES PF20

- The beam ends are rounded
- The entire front side is protected against the influence of the weather by the special front-side glaze
- Handy, lightweight
- Shock resistant
- High dimensional stability
- Very low shrinkage
- No more risk of injury



## PRODUCT FEATURES

PF20plus: End cap up to 9 m possible

PF20: Curvature with sealing up to 9 m possible – over 9 m only cut straight and sealed

Weight: approx. 4.5 kg/lfm

Bar thickness: 27 mm

Lengths: 190, 245, 265, 290, 330, 360, 390, 450, 490, 590 cm
Special lengths up to 11.90 m

Package units: 100 pieces per package

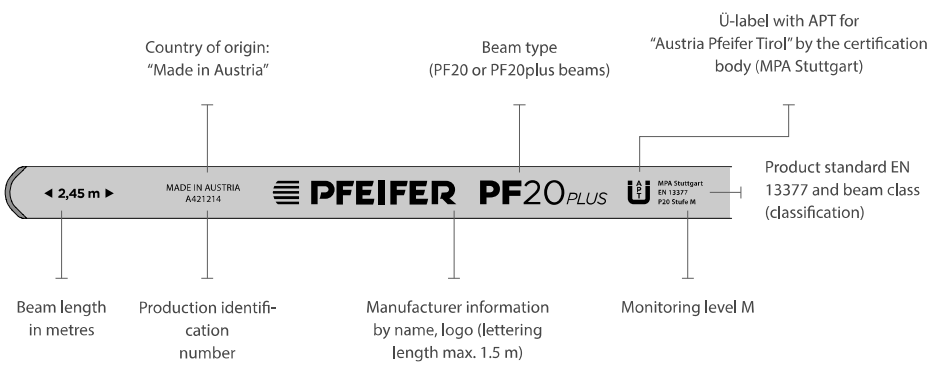
Package dimensions (w x h): 110 x 110 (100 pieces; without underlay)

Max. number of stacks on top of each other: 2 (100 pieces)

Wood humidity: 12 +/- 2% upon delivery

Dimensional tolerances: Height H = 200+/- 2 mm;
Length tolerance: specified length +/-10 mm

## LABEL

## BEAM STACK

- Always stack beam stacks "sorted by model", i.e., do not place PF 20 and H20 beams together in stacks
- The web thicknesses must be the same within a stack
- Edge protection is not necessary, i.e., the rounded edges are sufficient
- The floor must be as flat as possible
- The substrate must be adequately secured. Optimally, the storage areas should be concreted or paved
- With storage on asphalt, additional load distribution must be ensured by base wood
- With storage on other soils (gravel, sand, etc.), appropriate storage measures must be taken (e.g., base plates)

## DIRECTIONS FOR USE

Pfeifer's PF20 and PF20plus timber formwork beams are solid wall beams and are subject to monitoring level M according to EN13377 in conjunction with DIN 20000-2.

Monitoring and certification is carried out by the Materials Testing Institute of the University of Stuttgart. Certificate of conformity Reg. No.: BWU03-0639

These instructions for use serve to explain how the formwork beams should be used. However, Pfeifer's solid wall formwork beams must be independently tested by the user for suitability for the intended purpose. Compliance with legal standards in the respective country of use is the responsibility of the user.

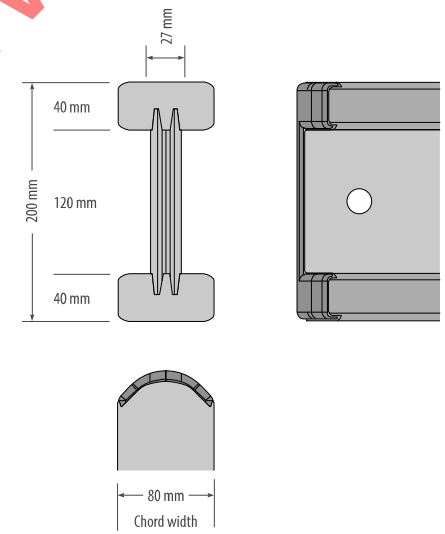




## MAINTENANCE

- The beam should be protected from extreme weather conditions such as direct sunlight or wetness by being stored under a roof or covering. Complete wrapping of the beams should be avoided.
- Unchanging storage conditions reduce the formation of cracks and infestation by mould and fungi. After use, it should be possible to dry the beams.
- The following damage prohibits the static use of beams. The beams must be replaced in case of the following:

- Oblique cracks (crosswise to the fibre)
- Straight cracks (parallel to the chord) with a crack width of more than 2 mm
- Side chippings deeper than 10 mm and longer than 500 mm
- Oblique chippings over the edge wider than 30 mm and longer than 500 mm
- Saw cuts deeper than 2 mm
- Drill holes (excluding system drillings)




## CHARACTERISTIC LIMIT VALUES ACCORDING TO EN 13377

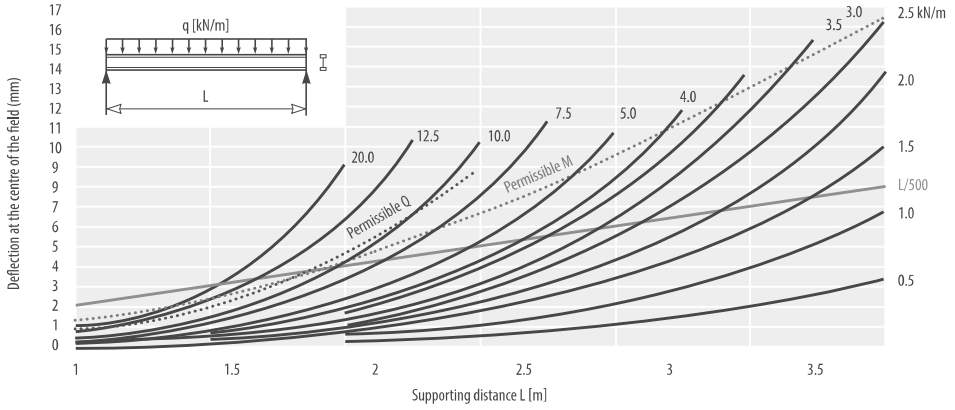
Transverse force: Vk = 23.9 kN

Bearing resistance: Rb,k = 47.8 kN

Bending moment: Mk = 10.9 kNm

Bending stiffness: $E_I = 450\ kNm^2$

## DEFLECTION OF THE FORMWORK BEAM



## PERMISSIBLE LOADS FOR FULL-WALL BEAMS ACCORDING TO EN 13377

Transverse force Q = 11 kN

Bearing force A = 22 kN

Bending moment M = 5 kNm

E-module EI = 450 kNm²

The strength of the chords is sorted by machine

## MARKING OF THE BEAM

- Beam length
- Manufacturer information by name, logo
- Own customer logos/labelling possible
- Beam type
- Classification
- Monitoring level M
- Production identification number
- Country of origin

## SIZING OF CEILING TABLES

For the sizing of ceiling tables, please refer to our table with the max. permissible yoke beam, transverse beam and supporting distances. The specified cut sizes must not be exceeded at any point on the timber formwork beams.

## PROVISIONS FOR IMPLEMENTATION AND USE

- Assembly of the timber formwork beams must be carried out by qualified and trained employees and in accordance with our instructions for use.
- The permissible supporting width of PF20 and PF20plus beams must not exceed 4.0 m.
- The formwork shell must be nailed directly onto the top chord.
- Timber formwork beams may only be used upright. In addition, these must be secured against tilting in accordance with statics requirements.
- Changes to the product are not allowed and can lead to increased risk potential.
- Timber formwork beams may only be used for formwork work with concrete, no other usages are permitted.
- Before using the timber formwork beams, they must be checked each time by the installation company to ensure that they are in perfect condition.
- Damaged beams or beams that have been weakened by decay must not be used.
- When storing the timber formwork beams, care should be taken to ensure that they are not exposed to excessive weather influences and are not stored outdoors without protection. Professional storage increases the overall service life and reduces deformation and cracks.



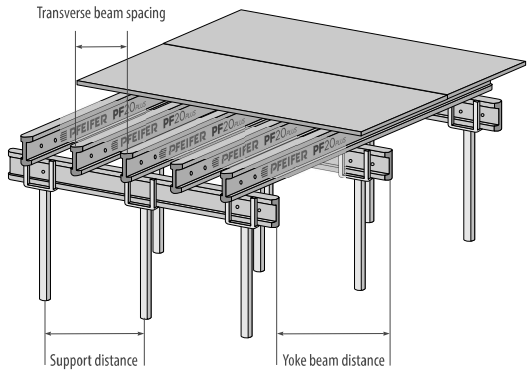
## SIZING TABLE

CASE STUDY

Given: Ceiling thickness (18 cm) + cross beam distance (75 cm)

Wanted: yoke beam distance + support distance

1. Ceiling thickness: 18 cm
2. Cross beam distance: 75 cm
3. Permissible yoke beam distance according to Table 1 = 2.65 m
4. Equate or choose the next smaller yoke beam distance in Table 2 = 2.5 m
5. In Table 2 of column 2.5, read the permissible supporting distance depending on the ceiling thickness (18 cm): 1.36 m
6. Attention: the supports must be checked regarding the corresponding load capacity!




| | | TABLE 1 | | | | TABLE 2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Transverse beam distance [m] | | | | Yoke carrier distance [m] | | | | | | | | |
| CEILING THICKNESS in cm | TOTAL LOAD kN/m² | 0.50 | 0.63 | 0.67 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 3.00 | 3.50 |
| | | PERMISSIBLE SPAN WIDTH FOR TRANSVERSE BEAM [m] | | | | PERMISSIBLE SPAN WIDTH FOR YOKE BEAM [m] = MAX. DISTANCE OF THE CEILING SUPPORTS | | | | | | | | |
| 10 | 4.40 | 3.63 | 3.37 | 3.29 | 3.17 | 2.88 | 2.67 | 2.46 | 2.28 | 2.13 | 2.01 | 1.91 | 1.67 | 1.43 |
| 12 | 4.92 | 3.43 | 3.19 | 3.12 | 3.00 | 2.72 | 2.53 | 2.33 | 2.16 | 2.02 | 1.90 | 1.79 | 1.49 | 1.28 |
| 14 | 5.44 | 3.27 | 3.04 | 2.97 | 2.86 | 2.60 | 2.41 | 2.41 | 2.05 | 1.92 | 1.80 | 1.62 | 1.35 | 1.16 |
| 16 | 5.96 | 3.14 | 2.92 | 2.85 | 2.74 | 2.49 | 2.31 | 2.12 | 1.90 | 1.83 | 1.64 | 1.48 | 1.23 | 1.05 |
| 18 | 6.48 | 3.03 | 2.81 | 2.75 | 2.65 | 2.40 | 2.22 | 2.03 | 1.88 | 1.70 | 1.51 | 1.36 | 1.13 | 0.97 |
| 20 | 7.00 | 2.93 | 2.72 | 2.66 | 2.56 | 2.32 | 2.14 | 1.95 | 1.80 | 1.57 | 1.40 | 1.2 | 1.05 | 0.90 |
| 22 | 7.52 | 2.84 | 2.64 | 2.58 | 2.48 | 2.26 | 2.06 | 1.88 | 1.67 | 1.46 | 1.30 | 1.17 | 0.98 | 0.84 |
| 24 | 8.04 | 2.76 | 2.57 | 2.51 | 2.42 | 2.19 | 2.00 | 1.82 | 1.56 | 1.37 | 1.22 | 1.09 | 0.91 | 0.78 |
| 26 | 8.56 | 2.70 | 2.50 | 2.45 | 2.35 | 2.14 | 1.93 | 1.71 | 1.47 | 1.29 | 1.14 | 1.03 | 0.86 | 0.73 |
| 28 | 9.08 | 2.63 | 2.44 | 2.39 | 2.30 | 2.09 | 1.88 | 1.62 | 1.38 | 1.21 | 1.08 | 0.97 | 0.81 | 0.69 |
| 30 | 9.66 | 2.57 | 2.39 | 2.34 | 2.25 | 2.03 | 1.82 | 1.52 | 1.40 | 1.14 | 1.01 | 0.91 | 0.76 | 0.65 |
| 35 | 11.22 | 2.45 | 2.27 | 2.23 | 2.14 | 1.89 | 1.57 | 1.31 | 1.12 | 0.98 | 0.87 | 0.78 | 0.65 | 0.56 |
| 40 | 12.78 | 2.35 | 2.18 | 2.13 | 2.04 | 1.72 | 1.38 | 1.15 | 0.98 | 0.86 | 0.77 | 0.69 | 0.57 | 0.49 |
| 45 | 14.34 | 2.26 | 2.10 | 2.04 | | 1.53 | 1.23 | 1.02 | 0.88 | 0.77 | 0.68 | 0.61 | 0.51 | 0.44 |
| 50 | 15.90 | 2.18 | 2.01 | 1.94 | | 1.38 | 1.11 | 0.92 | 0.79 | 0.69 | 0.61 | 0.55 | 0.46 | 0.40 |

Deflection of the beams is limited to L/500. Live load is 1.5 kN/m² or 20% of the fresh concrete weight.