Tempofor® F-range Germany	FP-53-01

General

Tempofor® F panels are a very useful and effective temporary fencing system used for protection and control of people, vehicles, and goods.
This standard includes requirements for the components and the way in which it should be constructed.
An example of a typical Tempofor® F panel is given in photo: 1

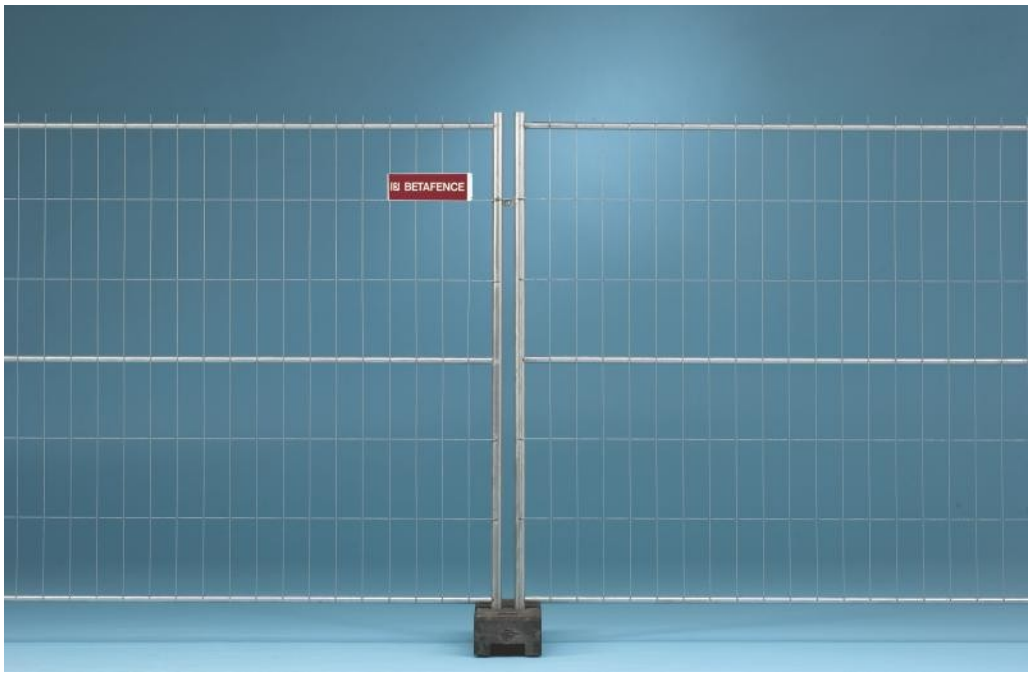


photo. 1

Date: 06 / 06		Production Approved by: K.De Backer	Product Manager Approved by: J.Thurman	Quality Control Approved by: D.Delrue

Panel

1 Description

The Tempofor® F panel, “F” stands for “flat”, is a solid welded construction of horizontal and vertical round tubes and welded mesh as infill panel.
The horizontal and vertical tubes are welded together in the 4 corners. The infill is a spot-welded mesh made of galvanized low-carbon steel wire and each wire is welded at horizontal respectively vertical round steel tubes.
The panels F2; F3 and F2 Super have a barb of about 25mm at the upper side of the panel.
The Tempofor® F range consists of different types:

- F1: standard panel of 1,2m height.
- F2: standard panel of 2m height.
- F3: standard panel of 2m height, with additional horizontal tube for extra rigidity.
- F2 Super: panel with reinforced horizontal tubes and infill mesh. This mobile fence panel is ideal for heavy duty usage.

Below some photos of the different types.

F2

F3

The Tempofor® F panels F1; F2 and F3, can be transformed in an F gate by installing the standard hinge set; in combination with the ring and/or wheel system, see also photo 4 below of an F2 gate.

photo 4

1.1 Normative references

- EN 10016-2 :Non-alloy steel rod for drawing and/or for cold rolling.
  Part 2 specific requirements for general purposes rod.
- EN 10244-2 : Steel wire and wire products - Non ferrous metallic coatings on steel wire.
  Part 2: zinc or zinc-alloy coatings on steel wire.
- EN 10326: Continuously hot-dip coated strip and sheet of structural steels - Technical delivery conditions
- EN 10305-3: Steel tubes for precision application – Technical delivery conditions –
  Part3: Welded cold sized tubes
- The Betafence drawings
  F1: P00940.3; P01045.3;
  F2: P01014.3; P01020.3; P01019.3;
  F2 Super: P01038.3;
  F3: P00937.3; P00968.3; P01047.3;

1.2 Definitions

- nominal wire diameter: the diameter in mm to designate the wire
- real wire diameter: the average value of the minimal and the maximal diameter, measured in the same section of a straight piece of wire, by means of a micrometer to 0,01mm
- mesh sizes: see fig 1
  the meshes are measured from centre to centre of the wires.
- Width of a panel (W): distance measured between the centres of the vertical posts
- Height of a panel (H): distance measured between both ends of the vertical post

2 Manufacture

2.1 Raw material

2.1.1 Wire rod

Chemical composition: see table 1 below

Table 1 : Chemical composition					
Element	C	Si	Mn	P	S
%	≤ 0,10	≤ 0,30	≤ 0,60	≤ 0,035	≤ 0,035

The chemical composition is in accordance with EN 10 016-2 .The designation of the wire rod is C9D.

2.1.2 Tube

Chemical composition: see table 2 below

Table 2: Chemical composition					
Element	C	Si	Mn	P	S
%	≤ 0.20	≤ 0.60	≤ 1.70	≤ 0.10	≤ 0.045

The steel is in accordance with the European Standard EN10326. The designation of the steel is: S250 or steel number1.0242.

3 Requirements.

3.1 Welded mesh infill

3.1.1 Wire diameter and tolerances

see table 3

Table 3: wire dimensions and tolerances						
type	Wire diameter and tolerances (mm)		Tensile strength (N/mm²)		Zinc weight (g/m²)	
	Vertical wire	Horizontal wire	Vertical wire	Horizontal wire	Vertical wire	Horizontal wire
F1, F2 and F3	3,40 ± 0,06	3,80 ± 0,06	600 to 800	550 to 750	min.25	min.25
F2 Super	4,00 ± 0,06	4,50 ± 0,06	550 to 750	550 to 750	min.25	min.25

3.1.2 Mesh spacing

Mesh spacing is measured from centre to centre, wire or tube.

distance between:

the vertical wires: 100±3mm

the horizontal wires: see table 4 below, tolerance ±3mm.

Table 4: spacing horizontal wires				
type panel	F1	F2	F3	F2 Super
distance	350+300+350	5x300+280	5x300+280	5x300+280

See also fig.1 below with dimensions of F2 panel

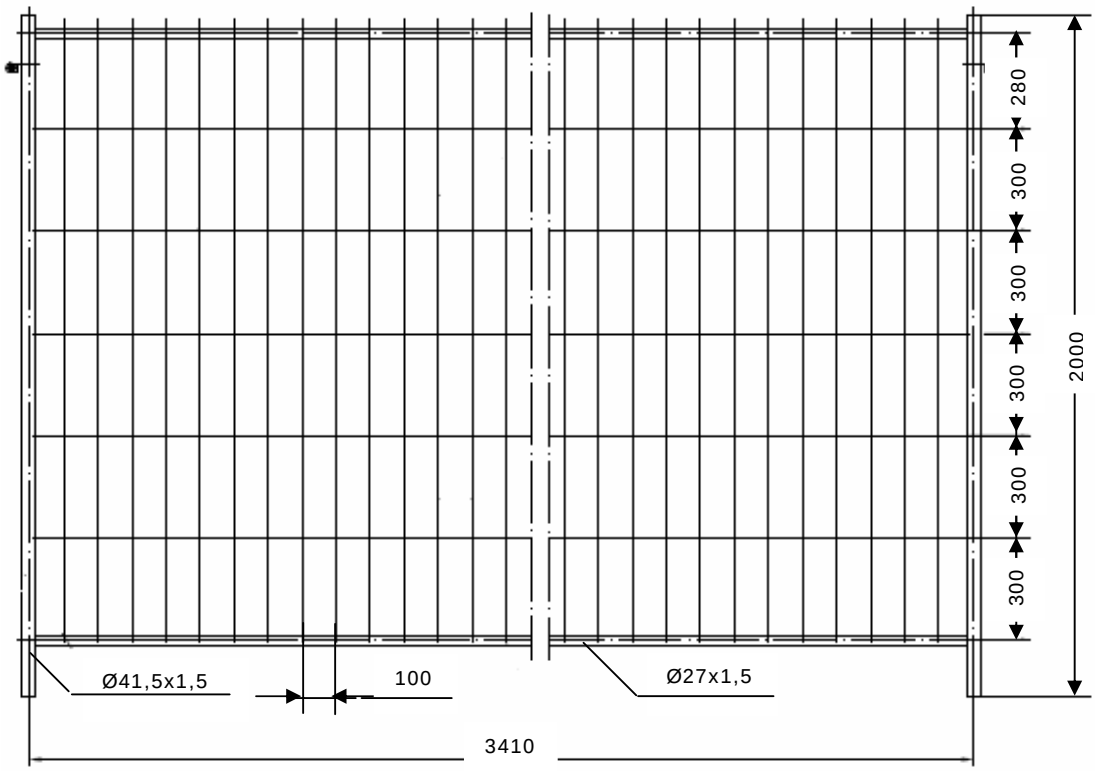
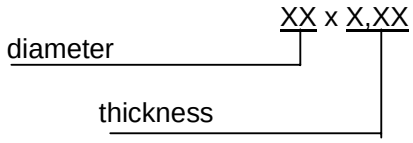


Fig. 1

3.2 Tube dimensions and tolerances

- Designation of the tubes



- Dimensions and tolerances: see table 5

Table 5: dimensions and tolerances tubes(mm)

panel type	vertical tube			horizontal tube		
	diameter	thickness	overall height	diameter	thickness	width
F1	41,5±0,20	1,5±0,15	1200±10	27,0±0,20	1,5±0,15	3410±10
F2 and F3	41,5±0,20	1,5±0,15	2000±10	27,0±0,20	1,5±0,15	3410±10
F2 Super	41,5±0,20	1,5±0,15	2000±10	38,0±0,20	1,5±0,15	3410±10

- Zinc weight
  Minimum 275g/m², double side measured as specified in EN 10326
- Mechanical characteristics:
  The strength is specified by:
  tensile strength: min. 330 N/mm²
  yield strength: min. 250 N/mm²

3.3 Panel dimensions and characteristics

3.3.1 Weld shear strength

The weld shear strength of the wires and of the wires at the frame will be not less than 2400N for F1, F2, and F3 panels and not less than 3150N for F2 Super (= 50% of the breaking load of the vertical wire).
The weld shear strength of the tubes of the frame, welded together in the 4 corners, is at least 20 000N
measuring method: see annex EN 10223-7

3.3.2 Width and height of the panels

- **Width:**
  Panels F1; F2, F2 Super, and F3
  Standard width: 3410±10mm, measured centre to centre of the vertical posts. This width corresponds with a distance of 3500mm between the centres of 2 consecutive blocks.
  Intermediate or infill panel: width of 2200±10mm
  Gate: width of 1200±10mm

- **Standard height**
  The height is specified as the overall height of the vertical tubes, see table 6

Table 6: height of the panels				
type	F1	F2	F2 Super	F3
height (mm)	1200±10	2000±10	2000±10	2000±10

3.4 Packaging

The panels F1, F2 and F3 are packed in bundles of 2x35 panels, F2 Super in bundles of 2x25 panels. Each bundle is provided with a label stating: the panel type, SAP number and traceability number. Customer should send back this number in case of complaint

4 Installation of the F panels.

4.1 Connection system

Panels are standard with or without out connections. Tempofor® F2 Super is without attached connection system, the security connector should be used with these panels. Different connection systems are possible in agreement between buyer and seller.
Below some connection systems which are possible:

- wire loop: available on F2 and F3
- adjustable brackets with nuts and bolts: this system is available on F1, F2 and F3.
- hook and eye: available on F2
- security connectors for a durable and secure connection: this connector is standard for the F2 Super panel but fits also for other panels.

Below photos of these connections

adjustable bracket

wire loop

eye and hook

security connector

All metallic parts are hot dipped galvanised.

4.2 Blocks used to install the panels

Concrete or recycled PVC blocks can be used for installing the panels F1, F2, F2 Super, and F3 panels.

- Concrete blocks
  Dimensions: 680x250mm
  Weight: 36kg
  Holes: 6 holes (3x2) for 3 panel position
- Recycled PVC:
  Dimensions: 630x250mm
  Weight: 24kg
  Holes: 4 holes (2x2) for 2 panel positions and 1 rectangle hole for traffic signs