

# foam concrete: from the laboratory to the building

We are Slovak company specialized in manufacturing of technical foam and development of manufacturing procedures for industrial production of foam concrete.

This presentation contains available data about developed foam concretes, their manufacturing and verified uses.

There is also an available generator for manufacturing of test bodies with a guaranteed repeatability of test mixtures with volume up to 50 l of fresh mixture.

The foam concretes are manufactured using the generators of GFS/M 8 and progressively implemented in network of CEMEX Companies

Further details available upon your request.

"foam concrete as concrete"

Foam concrete FC 300 - 400 kg/m<sup>3</sup>  
from mixing plant:  
for floors in the apartment and office

***iwtech***

[info@iwtech.sk](mailto:info@iwtech.sk)

# Production plant

- Mixing plant:** same as for concrete production, before production of cement grout mixing center must be cleaned from residues of the previous concrete production
- Truck Mixer:** the same as for concrete transport, before production of cement grout mixing drum must be cleaned from residues of the previous concrete production
- Generators:** GFS 8 – stable, for industrial production FC, without the chassis, see DS 102  
GFM 8 – mobile – for transport in public roads, for industrial production FC, see DS 101  
GFS LabE – for manufacturing of test bodies, see DS 105
- Pump:** Screw type, for instance Estrich Boy FHS 200  
piston type, for instance Putzmeister P 715

# FC 300 – 900: in the concrete plant



**filling of the drum by technical foam and cement grout, homogenization of fresh mixture during the transport, screw or piston pump on site**

# Raw materials for foam concrete (FC) production

- Cement:** for FC production of 300 – 900 kg/m<sup>3</sup> according to the iwtech production all available cement classes may be used, verification of compatibility of cement with used technical foam (TF) must be provided prior the use, depending on the achievable hardnesses
- Components:** finely ground slag (GGBS), finely ground limestone
- Agregates:** fractions 0/2 or 0/4 mm, mined type is more suitable
- Water:** clean, without chemical additions residues from concrete production
- Tech. foam:** made in GFS/M 8 of FC1 concentrate and added to the drum with identified quantity, other foaming concentrates must be verified in relation with their function in all production cycle: mixing + transport + pumping + hardening



# FC 300 – 900: quality control on the building



# FC 300 - 400: covering of pipes





# FC 300 - 400: pouring and levelling of FC





# FC 300 - 400: insulation of stepping noise



# FC 300 - 400: also for high buildings



## **Designation, location:**

Panorama, Bratislava, Slovensko

## **Type, floor area, height:**

2 towers, apartments  $\approx 36\,000\text{ m}^2$ , 110 m - 33 floors

## **Realised foam concrete thickness:**

55 – 65 mm

## **Foam concrete production/ distance from the construction:**

mixing plant CEMEX CZ, Břeclav / 85 km

## **Finished floors delivery:**

december 2014 – july 2015

# FC 350 for +85m: used components



## Mixing plant:

Mixing plant CEMEX, Břeclav (CZ)  
Truck Mixer, CEMEX CZ  
generator of technical foam GFM 8

## Components:

CEM I 42,5R	127 kg
GGBS	126 kg
water	144 ltr
technical foam	770 ltr

## Projected density of the foam concrete:

fresh	/	in stable humidity	/	dried	kg/m <sup>3</sup> :
461	/	365	/	332	

## Technical foam:

foaming concentrate	FC1
volumetric volume	80 g/ltr



# FC 350 for +85m: transport & pumping in height



**Mixing plant Břeclav (CZ) → site Bratislava (SK):**  
85 km ≈ 1 h 35 min

**Pump:**  
Estrich Boy FHS 200/3

**Hoses lenght/ transport height / floor:**  
175 m      /      85,1 m      / 27th floor

**Internal hose diameter:**  
50 mm

**Volumetric loss of foam concrete in +85,1 m:**  
< 5 %

**Pumping duration 7 m<sup>3</sup> to +85,1 m:**  
35 min



# FC 350 for +85m: density in heights



## Destination place / height:

at the end of transport hose / +85,1 m

## Comparing of densities of foam concrete:

projected	measured
fresh	fresh
461	470 kg/m <sup>3</sup> (8 samples averages)

## Measuring date:

18.6.2015

## Measuring provided by:

iwtech s.r.o.

# FC 300 – 900: further examples of use

## **Applications in industry verified by time:**

- Levelling of foundation in residential and office buildings and by imbedding of wiring material created flat ground for assembly of acoustic insulation, levelling of barrel ceiling surface
- Creation of supporting ceiling layer from the trapezoidal sheet metal
- The slope layer of flat roof with up to 3% slope
- Stabilization and protection of large diameter pipe in the excavation
- Filling of pipe guard, for example under the road
- Layer improving the properties of industrial floor background
- Substitution of backfills between the foundation strips of family house
- Layer improving properties of parking for motor vehicles
- Filling of cavities in buildings, earth, etc.

On markets in SK, CZ, PL, UK since 2013

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Thank you for your attention



iwtech s.r.o.  
K výstavisku 15  
912 50 Trenčín  
Slovakia

further information  
available at:  
[info@iwtech.sk](mailto:info@iwtech.sk)  
+421 904 179296