Betongindustri
HEIDELBERGCEMENT Group

Self-compacting house-building concrete

Self-compacting house-building concrete requires no vibration. You win time and end up with a homogeneous concrete of uniform, high quality – particularly beneficial for complex castings.

Fills out the formwork quickly and efficiently

Self-compacting house-building concrete has a looser consistency and significantly better flowability than ordinary concrete. The concrete requires no vibration, and time-consuming finishing can be reduced to a minimum. The concrete's composition allows it to fill out the formwork, cover the reinforcement and cast-in details and create a surface with few external voids. You can therefore be sure that your formwork is filled out at every point, even where this would normally be problematic, e.g. under windows or round recesses. At the same time, you reduce the risk that cast-in details are moved out of position since external vibration is not required.

Resource-efficient

As the vibration stage is omitted, you can be more resource-efficient. The casting is ready at an earlier stage and personnel can be released for other tasks during the casting. It is no longer necessary to lay down electric power lines for vibration or other mechanical equipment.

Better working environment

Self-compacting house-building concrete also contributes to a better working environment. The work is quieter and you reduce health-impairing work processes and vibration-related occupational injuries.

Areas of application

- Simpler casting of all types of structures
- Facilitates industrialised construction
- Difficulty-to-cast structures with many details
- When you want a high quality external finish with few voids and uniform colour

Technical summary

- Available with the following cement types:
  – Bascement, Byggcementand Anläggningscement
- Also available with plastic or steel fibre reinforcement and as TorkBI, when drying properties are required
- The following grades are available as standard:

Strength class	Structure	D_{max}, mm	Slump flow
C 25/30	storey partition/slab	16	650
C 25/30 VäggBI	wall	16	700
C 28/35	storey partition/slab	16	650 or 700
C 28/35 VäggBI	wall	16	700
C 32/40	storey partition/slab	16	650 or 700
C 32/40 VäggBI	wall	16	700

Handling tips

Self-compacting house-building concrete is poured continuously and without pauses and is cured as for normal concrete. You may need to regulate pouring speed depending on the permitted pouring height, out of consideration for formwork pressure. Allow bubbles to rise up so they are not trapped against the formwork surface. The quality of the finished concrete surfaces will be affected by the formwork material, by how well it has been cleaned and the quantity of formwork release agent. Acceptance control is particularly important for ensuring correct function. Remember that light working of the surface may be necessary to make it as level as you require.

Walls

Leakproof formwork Be extra careful when mounting and sealing formwork to avoid leakage.

Controlled pour speed When casting self-compacting concrete, the pour speed will often be high as the concrete fills out the formwork without vibration. Especially with slightly higher formworks, you will need to be careful, as the formwork pressure is closely linked to pour speed. We generally recommend dimensioning the formwork to take the full liquid pressure in cases where you think the pour speed will be higher than normal.

Distance between pouring points Self-compacting concrete is able to move long distances within formwork. Nevertheless, you should limit the distance between the pouring points to about max. 10 m for widely spaced reinforcement and half that for closely spaced reinforcement.

Unrestricted free fall distance Normally you can let self-compacting concrete fall 2.5-3m without risk of separation. But for optimum quality of the end result, it is recommended to attempt to keep a low free fall distance.

Continuous pouring Try to maintain continuous pouring, as the surface of the old concrete can take on thixotropic properties (i.e. it will gel). If pauses do occur, you can break up the thixotropy by stirring the outer layer with a board or similar.

Slabs and storey partitions

Laying-out Self-compacting concrete has very high flowability. This is particularly important to bear in mind when casting foundation slabs over insulation, as if there is any leakage, the concrete can flow under and raise up the insulation. You can eliminate this risk by ensuring that no gaps have arisen between the insulation panels prior to pouring. Start pouring on top of the slab before allowing it to run down the edge beams.

Continuous pouring Just as for walls you should avoid pauses in pouring, as it may be difficult to work the concrete from two deliveries so as to merge together.

Surface levelling Self-compacting concrete is not completely self-levelling. Normally, a certain amount of work will be necessary to even out the surface. Often it will be sufficient to bull float the concrete while laying it. For best results, we recommend you mist the finished surface with water so as to form a thin, looser outer layer and then bull float it once again. This layer will facilitate bull floating while creating the conditions for a level, attractive surface.

Curing Self-compacting concrete contains more fine material than conventional concrete. This means that water separation is lower. As a result, the concrete may be more sensitive to crack formation if dried out too quickly (plastic shrinkage cracks) than in traditional vibrated concrete. You can counteract cracking by preventing evaporation from the young concrete surface, e.g. by prompt covering or water curing.