





## **Malmsten** the company that knows aquatics

The swimming pool – a place for exercise, wellness and organised activities. Our goal at Malmsten is to assist our clients in creating beautiful, profitable and efficient aquatic centres. Malmsten's products and services are exclusively devoted to bathing, aquatics and swimming assortiment. Experience of aquatics means greater reliability.

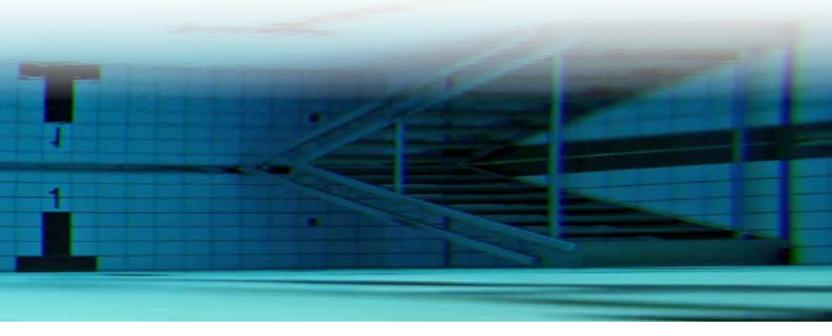
#### **Products**

Our extensive range of products includes stainless steel pool equipment, movable floors, gratings, lane lines, diving boards and water slides. Some of our products are designed and/or manufactured inhouse, the others are purchased from leading manufacturers. But they are all made from the highest quality materials. Most are manufactured in Sweden, which is an advantage when it comes to service and spare parts.

#### Services and advice

We can provide advice for new construction projects or for refurbishments of existing swimming pools. With more than 50 years of experience of swimming and aquatic centres, we have the breadth of expertise and resources necessary to create attractive and efficient swimming facilities. We can also contribute ideas and valuable advice about how to make good swimming pools even better.

Make us your creative partner.



## Flexible swimming pools It is profitable?

Many public swimming pools that were built in the 1960s and 70s are today run down and municipalities are faced with the choice of building new ones, refurbishing existing ones or, in the worst case, demolishing them.

Swimming pools from that era traditionally had one 25-metre pool and a smaller children's pool, which catered to swimming classes, fitness swimming and swimming club training.

Opening hours for the general pubic were often limited.

Today's swimming pools have a whole new range of uses. Swimming is the recreational activity that attracts most people in all age groups. For the very youngest there is Baby Swim, toddlers enjoy Splash & Play and pre-school kids take learn-to-swim classes.

Fitness enthusiasts rub shoulders with pensioners. Space also has to be found for aquatic sports enthusiasts such as high-divers, competitive swimmers, underwater divers, waterpolo players and synchronised swimmers.

Aquatic rehab training is an excellent alternative for many disabled people. Many groups' needs must be catered to.

Building a public swimming pool is a costly investment for any municipality. In addition to the construction

costs, there are sizeable running, overhead and maintenance costs to consider. But providing visitors with sound, healthy recreational activities can also be a wise investment. Swimming pools are often the municipality's most frequently visited sports facilities.

By installing one or several movable floors, one swimming pool can accommodate a wide range of activities. Making the swimming pool accessible to more people, extending the opening hours and offering more fitness/wellness activities will boost the number of visitors and thereby also the revenues.

A movable floor generates increased revenues from Day 1 and quickly pays for itself. In our view, that's a sound investment.









## **The Flexible**Swimming Pool

With a Malmsten movable floor the same pool can be used for activities that require different water depths. It is important to be able to quickly adjust the depth and the movable floor is simple to control, ensuring that no important instruction time is lost.

#### Splash & Play

Splash and Play is an activity for non-swimming children aged 3-6. The optimal water depth is 0.4-0.5 m, so that the children feel safe and secure enough to do the required exercises.

#### Learning to Swim

Learning to Swim lessons require a water depth of between 0.6 and 0.9 m, depending on the children's ages. It is an advantage to be able to adjust the pool depth to the height of the children in order to create an optimal learning environment. A greater depth is required for swimming lessons for adults so that their legs do not touch the bottom.













# The swimming pool a place for exercise and wellness

#### Rehabilitation

Rehabilitation/habilitation requires different water depths depending on the type of disability, age group and training activity.

#### Water Workout

Water Workout is an activity that is growing in popularity. The water must be shoulder-deep (approx. 1.4 m), so that the participants can perform the exercises correctly and stay warm throughout the entire training session.

#### Water Aerobics

Water Aerobics require deeper water as the exercise programmes require the participants not to touch the bottom of the pool.

#### Competitive training/fitness swimming

Competitive/fitness training for adults requires a depth of approx. 1.5 m. 1.8 m is the minimum depth when using starting blocks, while 2.0 m is recommended for swimming competitions.



### **Malmsten** movable floors

We have many names for the things we love: movable floor, adjustable floor and movable bottom. Regardless of this, the principle is that movable floors make it possible to use the same pool for a wide range of activities. A Malmsten movable floor can be installed either in new or existing pools.

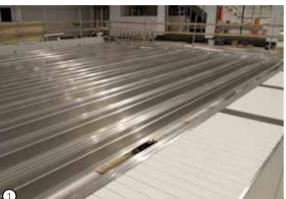
#### Construction

We manufacture two different models: Classic and Advanced. But one thing all Malmsten's movable floors have in common is that they are made of beams in stainless acid-proof steel. These are protected in non-slip PVC boards. The floor is raised and lowered using screw jacks placed in slits inside the pool walls. In the Classic model, the screw jacks are connected to motors via a system of shafts and gears placed in the pool's overflow gutters. In the Advanced model, each screw jack has its own motor.

#### Safety

Our movable floors have undergone extensive testing to comply with with Swedish and European safety requirements and are CE-certified.





Malmsten's movable floors are made of beams in stainless acid-proof steel

Screw jack for pools with the Classic Movable Floor

(3) Deployed guide rail in pools for Advanced Movable Floors





### The Swedish Model

A Malmsten movable floor is constructed for optimal ease of use and maintenance. As opposed to many other brands of movable floor there are no attachments on the pool floor, which simplifies cleaning.

The floor boards ensure that the water has an efficient through-flow across the whole floor. There are no recesses where dirt can accumulate, which means the quality of the water remains unaffected.

A Malmsten movable floor has at least one service hatch, where you can lower a normal-sized pool cleaner. As the shaft and the gears are placed in the gutter, all servicing is done from the top (pool edge). The motors are normally placed and serviced in the basement (applies to Classic model). In the Advanced model, motors are serviced from the pool edge. Therefore you never need to empty the pool for service and maintenance.

When the floor is at ground level (top position) it also acts as a pool cover, minimising evaporation and heat loss. In top position, it can also be used as a floor for out-of-pool activities. The maximum load is 65 kg/m² as standard (but it can be dimensioned to handle heavier loads, optional extra). The floor can handle a point load of 200 kg as standard.

### Why Malmsten?

- Reliable partner, stable and financially sound company
- · Long experience; our installation manager has installed some 100 movable floors and bridges
- Malmsten has completed 150 projects with this type of product
- Own service organisation with rapid call-out times
- All components are always available at our spare parts centre
- · Capability for handling multiple installation projects
- · Continuous product development; improvements to existing designs, e.g. stainless steel gear casings, gear wheels in bronze, adjustable guide rails in sections
- · New control system with remote control, which means we can read the movable floor's functionality data by remote and provide a customised level of service

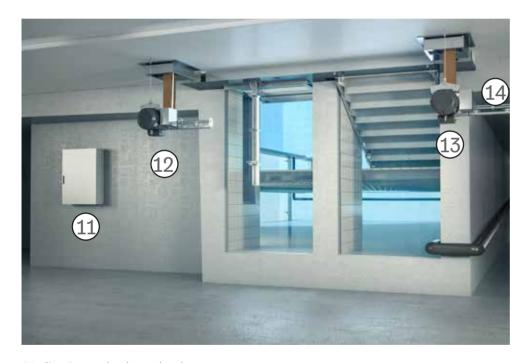


## **Malmsten**Classic Movable Floor

Our movable floors are made of beams in stainless acid-proof steel. The floor covering consists of slip-proof (Class C, 24°) boards of PVC vinyl ester, 117 mm wide and 22 mm thick. They are placed with 8 mm gaps to create an efficient through-flow. The standard colour of the boards is white.

Coloured boards, dark blue or black, can be chosen for swimming lane markings.

- 1. Control panel
- 2. Display
- 3. Drop down
- 4. Service hatch
- 5. Overflow gutter
- 6. Drive shaft on both sides
- 7. Guide rail (optional extra)
- 8. Articulated steps in niche
- 9. Movable platform
- 10. Screw jack



- 11. Circuit panel at lower level
- 12. Motor for platform
- 13. Motor for movable floor
- 14. Drop down







### **Malmsten**Advanced Movable Floor

With many years of experience under our belt we are now ready to install the next generation of movable floor. In close collaboration with our customers and with the help of skilled technicians, we now have an improved solution – we are confident the market is ready. We proudly present a ground-breaking product that can quickly be customised to adapt your pool for a wide range of activities. So what's new?

- The drive function is assisted by screw jacks, each fitted with its own separate motor. The floor is therefore flexible and can be angled both horizontally and vertically Malmsten can programme the software from 0 to 3 per cent inclination. If the pool walls are straight, the normal inclination is 2 3 per cent without exceeding the 8 mm gaps on the outer wall
- The system does not require special guttering and can be installed either in new or existing pools whether they are tiled, in stainless steel or lined
- The movable floor can be installed in pools of different design, e.g. freeform pools, that do not require gutters.
- · No installations in the gutter that collect dirt
- Low noise level as the motors are under water and no mechanical devices needed
- Our floor covering is in PP/PE or PVC material
- No extra volume required in the equalizing tank in the basement as the water level does not fall 10 cm when operation is stopped for water cleaning
- Remote monitoring The control system has a remote connection for reading operation data, running times, number of starts and stops, movement distances, etc.
- Fewer wear parts that need to be serviced and maintained
- Quick installation







- ① Service hatch to lower pool cleaner
- ② Screw jack for pools with the Classic Movable Floor.
- 3 Pool with Advanced Movable Floor in top position





## **Malmsten**Advanced Movable Floor

Our movable floors are made of beams in stainless acid-proof steel. The floor covering consists of slip proof (Class C, 24°) boards of PVC vinyl ester, 117 mm wide and 22 mm thick. They are installed with 8 mm gaps to create an efficient through-flow. The standard colour of the boards is white.

Coloured boards, dark blue or black, can be chosen for swimming lane markings.

- 1. Control panel
- 2. Display
- 3. Control cabinet
- 4. Service hatch
- 5. Screw jack and motor
- 6. Guide rail
- 7. Overflow gutter
- 8. Articulated steps in a niche
- 9. Movable platform











# **Movable floor** in one section of the pool

A public swimming pool is a major investment, which is why it is important to offer visitors with varying requirements a wide range of activities, preferable all in the same pool. Perfect conditions for each activity are created with different sections. For increased flexibility, it is therefore common today to offer a number of possible configurations.

#### Submersible bridge

A bridge which is 1.5 m or wider provides greater flexibility. You can walk on it, equip it with starting blocks and attachments for lane lines, install turning boards for timed swimming, etc. Another option is **multi-section bridge**, which is a suitable solution in 50 meter pools, for example. The whole length of the pool can be used for training in one section of the pool while other activities can take place in other sections.

#### Bulkhead

By choosing a bulkhead you create a bridge that moves along the length of the pool, but which is fixed in place in height. With a bulkhead, a 50-metre pool can be spilt into two 25-metre pools, for example. A bulkhead can be combined with a movable floor.

#### Dividing wall (drape)

An electronically controlled partition that is attached in the ceiling, and lowered. Please note that the partitions divide the whole room not the pool. Together with a submersible bridge you can create a completely secluded room where several activities can be conducted simultaneously.

#### Sliding flap

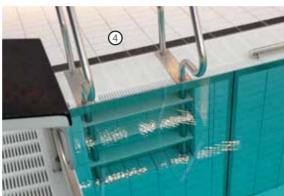
If the movable floor will be used in only one part of the pool, it can be equipped with a sliding flap to prevent anyone swimming underneath it.

A sliding flap is attached to the movable floor on one side and rests flat against the bottom of the pool. It moves in tandem with the movable floor. The sliding flap creates a perfect and tight transition between the movable floor and the bottom of the pool, at any floor depth.











### Accessibility in the swimming pool

#### **1** Steps

Our articulated stairs are fitted either in the overflow gutter or on the pool deck. These steps adjust to the movements of the movable floor, ensuring they are always horizontal.

#### ②Protective wall for steps

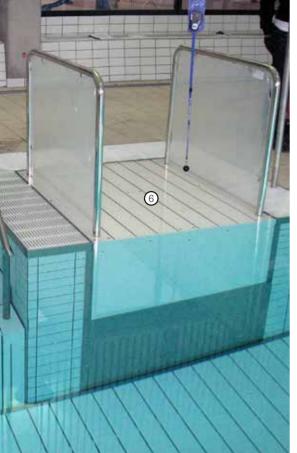
Unless the steps are placed in a niche, it is strongly recommended that our articulated steps are equipped with a protective wall to prevent anyone from swimming under the steps.

#### Stairs in niche

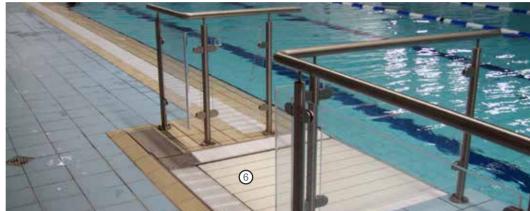
As a safety measure we recommend that the articulated stairs are placed in a sealed niche in the pool, to prevent anyone from swimming under the steps. It is also a more space-efficient solution.

#### 4 Recessed ladder

If you require a ladder in the pool they are supplied recessed in a niche. The movable floor will in that case only be able to stop directly in front of each step due to safety reasons.







#### ⑤ Integrated stairs

Our Integrated steps are made of the same material as our Movable Floor and it is placed in a "sealed" niche outside the pool. The placement in the niche does not take any pool space and it is safe since it prevents anyone from swimming under it.

It is an elegant solution. When the Movable Floor is raised the staircase is also raised and will appear to be part of the pool floor, as a ramp. As the movable floor is being lowered, each step of the staircase is released gradually. As the floor is being raised, each step follows suit gradually. The integrated steps can either take the form of a step ladder, or be part of a larger section, i.e. take up the entire length of the short or long side of the pool.

#### Movable Platform

Malmsten's Movable Platform is constructed for the needs of the disabled. The platform is build according to the same principle as the movable floor and can be installed either in a niche or in a corner of the pool. With a remote control, wheelchair-bound visitors can lower themselves to the desired depth, but no deeper than max 90 cm for safety reasons. A telescopic wall prevents people from swimming under the platform. We can also offer a stretcher hoist platform.

### **Options**

**Starting blocks:** Our range includes a range of starting blocks which can be mounted on a partition, e.g. bridge or bulkhead.

**Turning boards:** Own manufacture in Åhus. Used in pools with overflow gutters. Material: polyethylene and stainless steel. Can also be supplied entirely in stainless steel.

**Wave breaking lane lines:** Own manufacture in Åhus. Material: polyethylene with UV protection, tighteners and stainless steel wire. Malmsten's lane lines are recommended by Fina and LEN. They were the official equipment at nine Olympic Games and can often be found in the pool at major international swimming competitions such as the European and World Championships.

**Lane markings:** Coloured floor boards, dark blue or black, can be chosen for swimming lane markings.

**Concrete embedded goods and pool floor attachments:**Own manufacture. Material: stainless steel

**Floor hatch with rolling mechanism:** Own manufacture. Simplifies storage of lane lines under the floor.

**Gratings:** Own manufacture in Åhus sedan 1998. Supplied in 1-metre sections of UV-treated polyethylene, other lengths available on order. More than 900 installations, including the olympic swimming pools in Athens and Moscow.

**Cleaning run-off in overflow gutter:** Own manufacture. Wide run-off with space for integrated cleaning drain.

**LED-TV**, shows depth and info, e.g. diving forbidden.

**Partitions:** Partition wall, bridge, multi-section bridge and bulkhead: Own manufacture. Frames in stainless steel covered with floor boards in PVC material (same as the floor). Can be ordered with lane markings.

**Safety seal for diving boards with movable floors in high-diving pools:** Own manufacture. Safety system that prevents high-diving when the depth is insufficient.

**Surface layer in stainless material:** Available as extra for stainless steel pools.

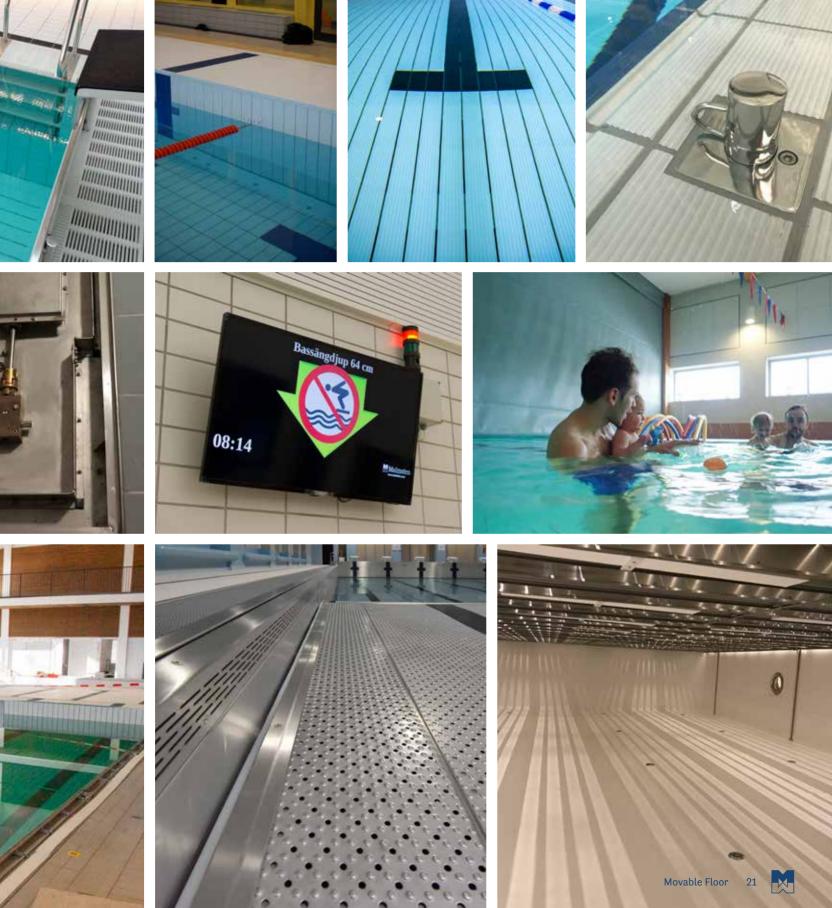
**Underwater lighting:** We will provide lighting suggestions on request.













# **Service**Safety and maintenance

We supply Malmsten movable floors with a two-year warranty which includes service. We can also provide a 5-year service agreement, which means yearly servicing (every 10th to 18th month).

Our remote monitoring system provides extra security for the customer. We can immediately see what the problem is and provide instructions until we arrive on site, which is as quickly as possible.

We recommend that our customers ensure that their movable floors are serviced regularly.



#### Safety

- CE-certified. We deliver in accordance with SS-EN-13451-11:2014
- The floor has undergone extensive safety testing to comply with Swedish and European safety requirements
- For safety reasons the control panel is fitted with lockable power switch and emergency stop
- There are no gaps in the construction larger than 8 mm
- The floor has a non-slip surface
- Malmsten's movable floors are developed and manufactured in Sweden. Choice of materials and design comply with strict Malmsten requirements

#### Maintenance

A Malmsten movable floor is simple to keep clean, simply lift the gratings and hose the gutters clean.

Cleaning under the movable floor is done with a pool cleaner which is lowered through a service hatch.

There are no attachments on the pool floor to obstruct the cleaning process. All servicing can also be done from the top. You never need to empty the pool for service and maintenance.

### What happens

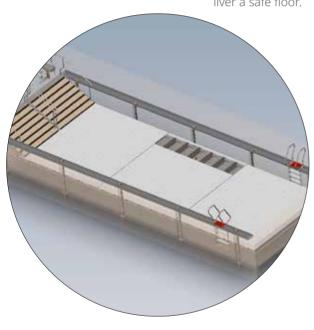
### when you purchase one of our floors?

Start-up meeting Once we have received an order, we like to hold a start-up meeting, with the client/builder to finalise the parts that we need in order to begin construction.

After approximately 8 weeks we have a casting drawing (concrete pool) or alternatively a construction drawing (steel pool) ready. A casting drawing contains the dimensions and tolerances on the pool construction that we need to have ready in order to be able to deliver a safe floor.

(Applies to concrete pool) When the pool construction is cast, screeded and dry, we come on site and take measurements for the future pool: We do this to get exact construction for our production. We can now begin to manufacture the overflow gutters, guide rails, etc.

After approx.
8 weeks we can be
on site to install our guide
rails and overflow gutters.
After this the pool can be
plastered and then tiled.





8 weeks X weeks 1 week

Preparatory meeting

Drawing of movable floor

Construction outside Malmsten's control

Inspection after completed casting

On-site assembly



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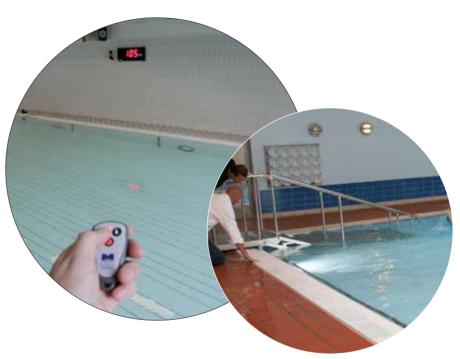
Final installation. Now it's time to put the rest of the movable floor in place; control system, motors, beams, and finally the floor itself.



After filling the pool with water, we test the movable floor.

Thanks to remote control capability of the control system, we can continue to assist the users of the movable floor after handover. In conjunction with handover of the movable floor we perform a function test according to a checklist and offer training to the people who will be operating the movable floor.





X weeks 1-2 days

Construction outside Malmsten's control Plaster/tiling

On-site assembly

Test run and handover



2005

2008

 1996
 Bromölla
 5x7 m

 Vilhelmina
 5.5x12 m

 1998
 Halmstad
 8x12.5 m

 Umeå
 8x12 m

 Mallorca, Spain
 8.5X25 m

 Wetteren, Belgium
 9x20 m

**1999** Fredericia, Denmark 15.5x11.4 m + bridge + 15.5x1.5 m

East Anglia University, UK 17x25m
Siilinjärvi, Finland 1x1 m platform
Torsby 4x9 m

**2001** Helsinki, Finland 3x5m och 1.2x1.2 platform

Ulricehamn 6x12.5 m
Uleåborg, Raksila, Finland 1x1 m platform
Falkenberg 8x12.5 m
Gentofte, Kildeskovshallen, Denmark 12.5x2 m bridge

Geraardsbergen, Belgium L-shaped, 76 m<sup>2</sup>
Wachtebeke, Belgium 10x14.5 m

Oggiono, Italy 6.3x7 m + sliding platform

Skövde 6x14 m

Valencia, Spain 10.5x25 m

Ieper, Belgium 6.2x13.4 m

Helsingborg 10x12.5 m

Uleåborg Caritas, Finland 1x1 m platform

Viitasaari, Finland 1x1 m platform

Rovaniemi, Finland 1x1 m platform

 Laholm
 7x12 m

 Nordlandsbadet, Bodö, Norway
 7.8x10.8 m

 Leuven, Belgium
 10x20 m

 Espo, Finland
 2.8x5 m

 Skara
 6x12 m

Meranarena, Italy 4x9 m, depth 3.7 m

Växjö 8.5x16.7 m + 8.5x7,8 m + 8.5x0.5 bridge

Oulu, Finland, two platforms 1x1 m platform Mjölby 4x12 m
Auburn, USA 6,1x12,2 m
Barcelona, Spain 25x7,2 m

 2004
 Åre
 1x1 m platform

 Åbyhallen
 7x10 m

Bologna, Italy for a private pool 1x1 m platform
Chiba project, Japan 1x1 m platform
Finland, Helsinki 1x1 m platform
Shafallah Center, Qatar 5.5x9,65 m
Borlänge 7.7x16.4 m

Gent, Belgium 18x14.7 m +18x2 m bridge

 Lund
 6x12 m

 Borås
 6x12 m

 Falköping
 6x10 m

 Markaryd
 5x8 m

 2006
 Toronto, Canada
 18x7.5 m

 Valjeviken
 7.05x11.5 m

 Oskarshamn
 8x12.5 m

Philoktitas. Greece 4.2x6.8 m + 5.7x5.9 m

 2007
 Finland
 4x9 m

 Gustavsberg
 6x10 m

 Malmö
 5x10 m

 Håbo
 6x12.5 m

Finspång 6x12.5 m + 1x1 m platform

 Höör
 7x10 m

 Kristiansand, Norway
 1x1 m platform

 Skellefteå
 8x12.5 m

Drammen, Norway 8x12.5 m + 21x1.5m bridge

Sweden, Finland1x1 m platformKopavogur, Iceland1x1 m platformTaukokangas, Finland1x1 m platformJärvenpää, Finland,1x1 m platform

Olofström 6x6 m + sliding platform
Coventry, UK 1x1 m platform

Vilundabadet 6x11 m
Shafallah Center, Qatar 5.5x9.5 m
Forthbank, UK 7x12.5 m
Klippan (steps in niche) 8,33x11.01 m

Mountbatten, Portsmouth, UK 17.5x23 m + 17.5x1.5 m bridge

2004

2002

2003



**2008** Malaga, Spain 16.5x25 m

Alta, Norway 25x5.5 + 25x1.5 m bridge

 Kålmården Sweden, Dolphin pool
 13x13 m

 2009
 Skövde
 1x1 m

 Lerberget
 6x11.5 m

 Spiceball
 10x20 m

 Kristinehamn
 6.5x12 m

Sundsvall (steps in niche) 8x16.7 + 8x7.9 m + 8.5x0.5 m bridge

Police hospital Cairo, Egypt 5x8 m
Hallsberg 5x10 m
Dunfirmline 12x25 m
Basildon 21x25 m

2010

 2011
 Basildon
 21x25 m

 Sollefteå
 6.5x10 m + 1x1 m platform

 La Concha, Spain
 2x1.4 m + 1x1 m platform

**2012** Kumla (steps in niche) 6x12.5m + 1x1 m platform

Knowsley, UK (integrated steps) 8.5x25 m

 $\begin{array}{ll} \text{Lund} & 7.5\text{x}10 \text{ m} + 1\text{x}1 \text{ m platform} \\ \\ \text{Bangor, Northern Ireland} & 25\text{x}8.5 + 25\text{x}12.95 \text{ bridge} + 15\text{x}25 \text{ m bridge} \\ \end{array}$ 

Tyresö 7x16.7 m + 1x1 m platformAngered 8x13.5 m + 1x1 m platform

Killmarnock, UK (integrated steps) 5.5x8,6 m Rochdale, UK (steps in niche) 7x17 m

Kv. Prästosten, Umeå (steps in niche) 5x12.5 m + platform in nicheAnkerskogen, Norway 13x12.5 m + sliding platform

Arvika (steps) 6x12.5 + platform

St. Sigfrid, Växjö 4.5x8 + 2 stretcher hoist platform CIPD, Dublin, Ireland 12.5x12 m + 12.5x1 m bridge

Llorett de mar, Spain 25x8,1 m

Lasswade, UK 13x7.5 + 13x0,8 m bridge

Portugalete, Spain 5.5x11.7m Martesana Tuffi, Italy 5x10.5 m

Sherbrooke, Canada 21x10 m + sliding platform + 21x50 m

**2013** Kellett School, Hong Kong 15x25 m + 15x25 m

MAC, Canada 25x12.5 m

Ystad (steps) 8x16.7 m + platform PAAC, Canada 25x10.5 + 25x52,25 m **2014** Hyllie, Malmö (steps) 8.5x16.7 m + platform

Norrtälje, Linad pool (steps)

Vara (steps)

Märsta (steps)

Sundbyberg (steps)

6x10. m + platform

6x12.5 m + platforms

12x25 m multi pool + platform

20.5x1.5 m 2 bridges

**2015** Tomelilla (steps) 8x12.5 m + platform

NMC, UK (steps) 7x13 m Ellesmere, UK 2 platforms Sjöbo (steps) 10x16 m + platform

Sjöbo Lyftplan Espoo, Finland 6x5 m

Gnesta (steps) 6x12.5 m + platform

**2016** Ängelholm (steps) 5x10 m Åkeshov (steps) 6x10 m

Järfälla (steps) 6x8.5 m + platform

 Järfälla (steps)
 6x12.5 m + 25x1.5 m multi-section bridge

 Fagersta (steps)
 5.5x12 m + large platform

2018 Stenungsund, Advanced, (steps) 6x12.5 m

Stenungsund, Advanced, (steps) 6x12.5 m + platform

Vysoke Myto, Czech Republic 10x10 m + sliding platform

Trelleborg 6.0x12.0 m T≈ammerfors, Finland 8.0x16,67 m Exhibition pool Berndorf 1.5x4 m

**2019** Västerås (steps) 8.5x16.7 + platform Västerås 12.5x12.5 m + 11.5x12.5 m

+ 12.5x0.9 m bridge

Västerås 1.5x25 m, multi-section bridge + platform

Lifting platform, Finland 1x1 m, platform Vadulik Zlin, Czech Republic 3.7x6.5 m

Örjanshallen, Stålpool Berndorf 10x12 m + sliding platform

Wroclaw, Poland 3x4 m Östra sjukhuset, Gothenburg (steps) 7.8x16.7 m

2020

Kungsbacka (steps)8.5x12.5 + 8.5x12.5 m+ platformKungsbacka1.5x25 m multi-section bridge





Marcus Malmsten CEO



Tobias Salomonsson Contracting Manager



Jens Rosander Project Manager, CEO Mirena



Pontus Andersson Project Manager



Torild Jahnsen Construction



Pontus Falk - Service Technician/Construction



Magnus Johansson Service Technician

### Feel free to to contact us and we will be happy to discuss your needs

Our goal at Malmsten is to assist our clients in the creation of beautiful, profitable and smooth-running aquatic centres. Malmsten's products and services are exclusively devoted to bathing, aquatics and swimming.

Just Add Water



www.malmsten.com