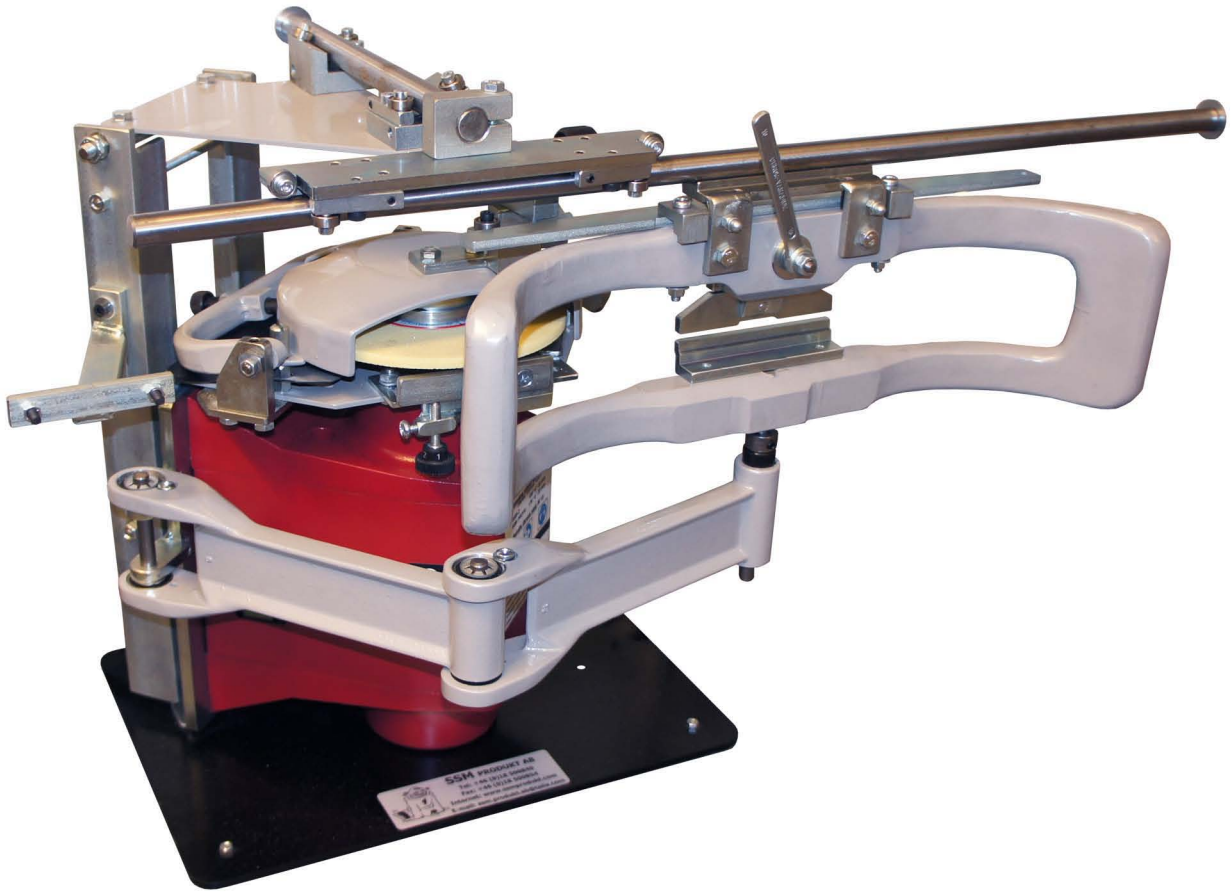
SSM-2/SM-6

INSTRUCTION MANUAL

WARNING!

TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND THIS INSTRUCTION MANUAL.

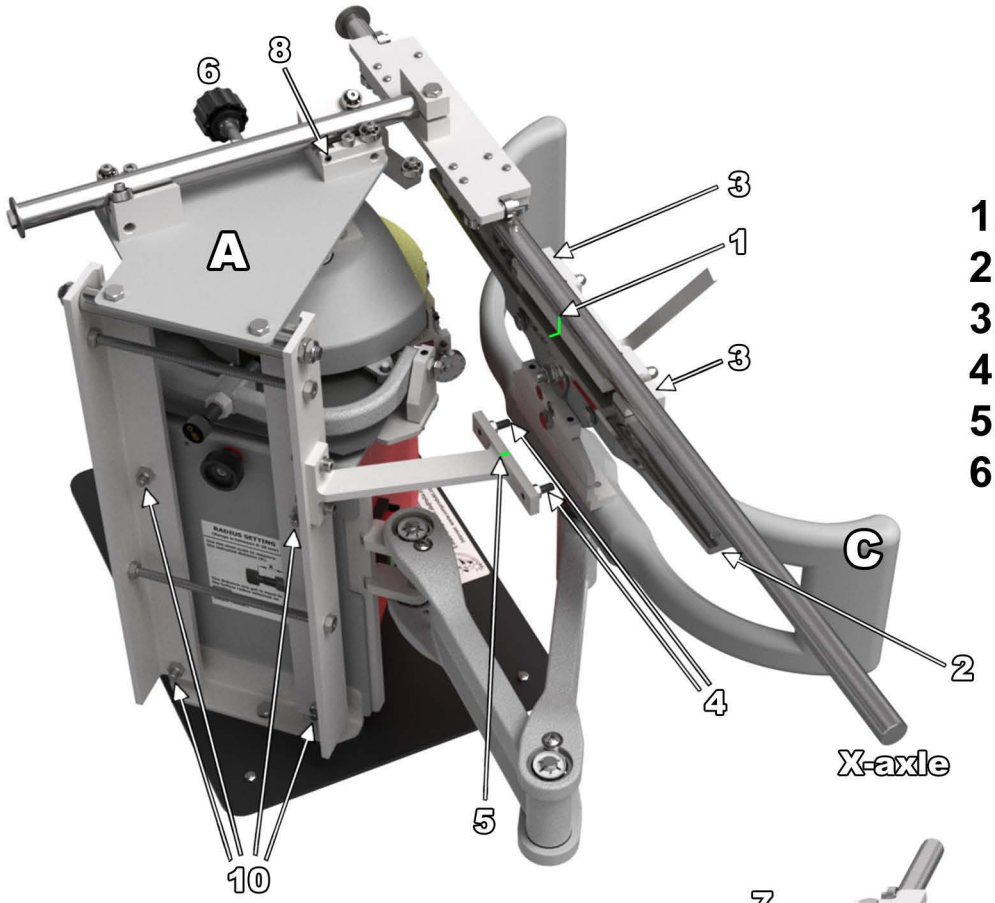


ORIGINAL INSTRUCTIONS

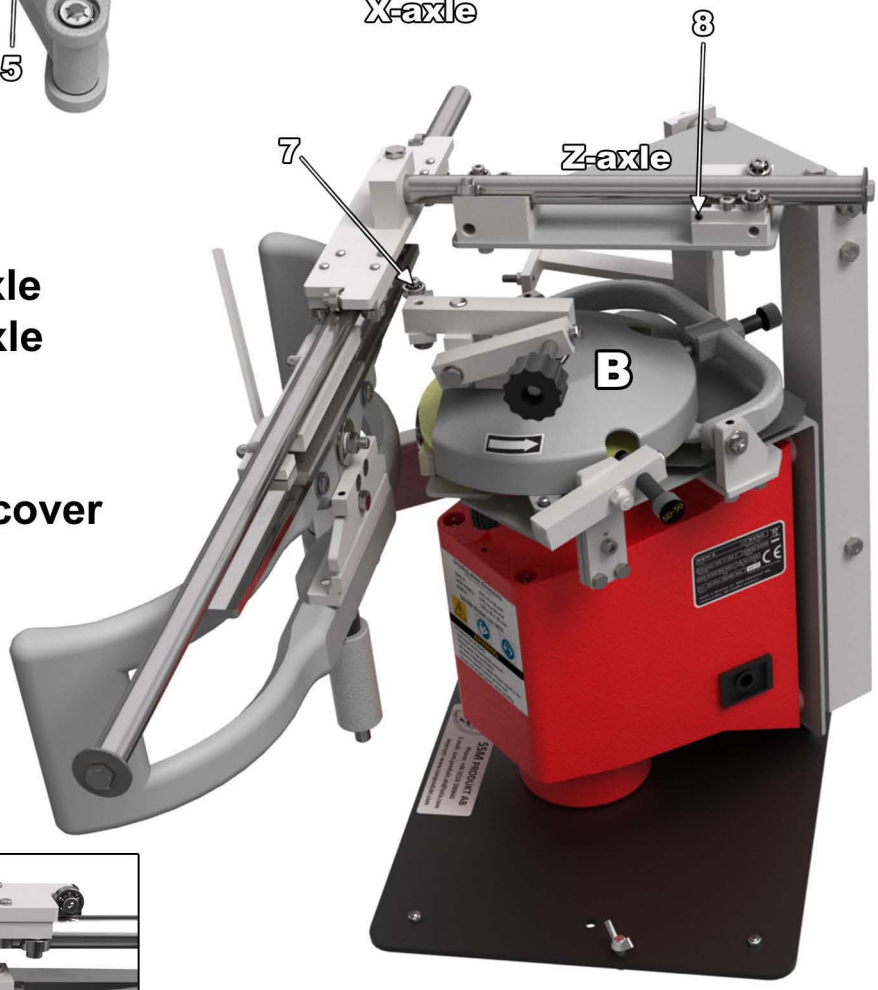
Date of purchase: .....

SM-6 Manual.en © 04/2016 SSM Produkt AB

FUNCTIONAL DESCRIPTION

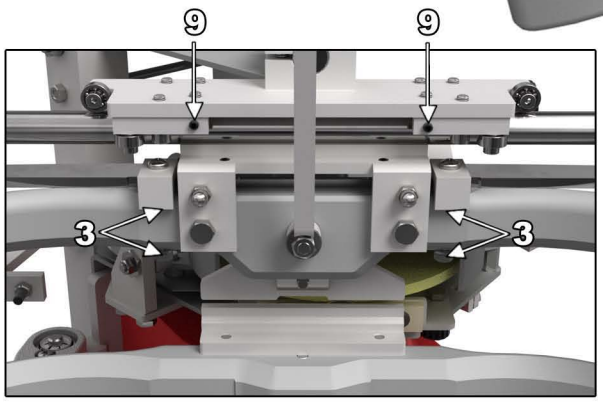


1. Center mark
2. Template
3. Template holders
4. Directing screws
5. Center mark
6. Feeding screw



7. Contact roller
8. Allen screws for Z-axle
9. Allen screws for X-axle
10. 4 Fastening screws

A. Hinged upper part
B. Modified protective cover
C. Modified H-8 holder



FUNCTIONAL DESCRIPTION (continued)

Skate blade information

Ice Hockey

The ice hockey skate blade can be divided into three sections, *front, middle and rear*. These skates has one radius shape in the middle ranging from 6' to 13' (1.83 m to 3.96 m) depending on manufacturer. When you contour a skate you basically only contour the middle part.

Goalie skates

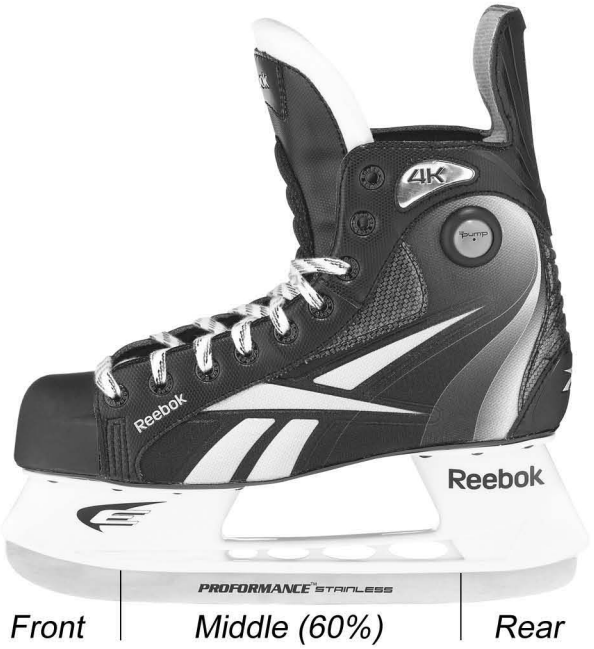
Goalie skates are designed in the same way as an ice hockey skate but their factory made radius shape instead ranges from 22' to 30' (6.7 m to 9.14 m).

Bandy skates

The bandy skate blade is basically flat from factory. Here you must contour the whole skate blade (all three sections).

Figure skates

A figure skate blade commonly uses a single radius between 7' to 8' (2.13 m to 2.44 m). More expensive models use 2-3 different radiuses.



Contour shape information

Radius

A larger radius gives more ice contact. This gives higher top speed and better balance, and is more energy efficient. However, the maneuverability will be decreased.

A smaller radius gives less ice contact which leads to increased friction (more weight on a small area). This will increase the maneuverability and acceleration at the cost of top speed, balance and energy consumption.

Flat part

A flat part in the middle area will not be as hard on the legs as a radius surface would be. It also gives better speed if the skates are in the correct angle against the ice. However, it will not give the same amount of ice contact as compared to using a radius surface. This is because the skate is very seldom in a completely flat angle against the ice.

Using a flat part is not as common today as it was before.

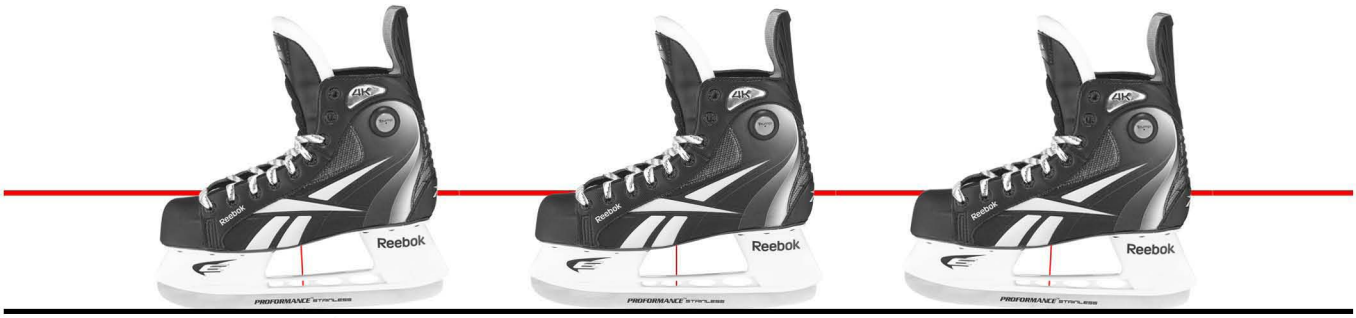
Pivot/Pitch

Pivot is the lowest point on a skate blade and *Pitch* is the angle in which the skate leans against the ice. These two are dependant of each other, which means if you alter one, the other will follow.

Pitch can be either ***neutral*** (pivot point centered underneath the skate) or be ***leaning forward*** (pivot point moved towards rear) or be ***leaning backwards*** (pivot point moved towards front).

Leaning forward is more tiresome but increases acceleration.

Skates today are designed so it is almost impossible to find the existing pivot point on a skate. Our recommendation is to contour a skate and let the player test it and then tell whether the pitch should be changed in some direction.



Pitch is leaning forward | Pitch is neutral | Pitch is leaning backwards

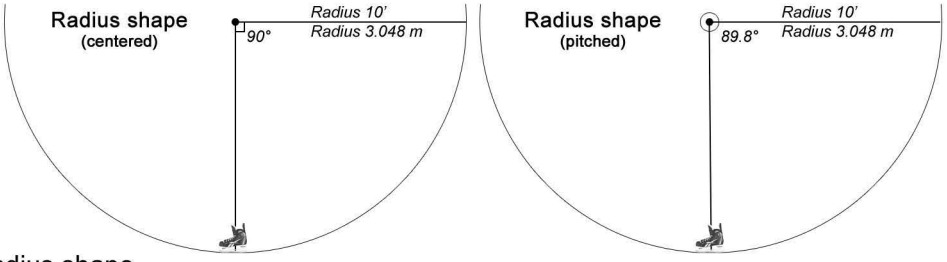
FUNCTIONAL DESCRIPTION (continued)

Skate contouring options

To summarize all information from previous page there are several ways to get a suitable shape on the skate blade (depending on the skating style). Here are some examples *(scale 1:100)*:

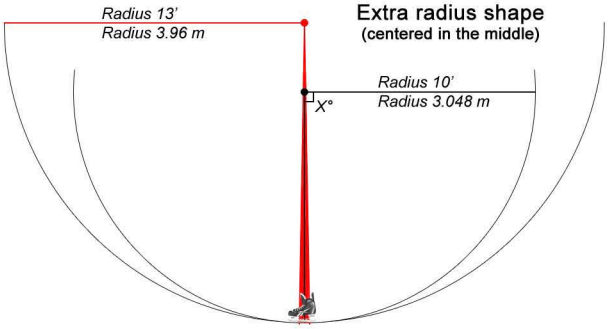
A single base radius

This is the most comon shape today. Here you use the same radius all over the middle section. This shape will give the properties described on the previous page depending on the size of the radius. Then you can pitch it to alter the abilities even further. Many seem to prefer a pitch with forward lean.



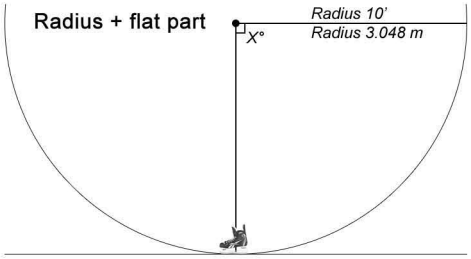
Adding another radius shape

You can add a **larger radius** of custom length on the current radius shape. This will give you the option to combine the properties of two different shapes.



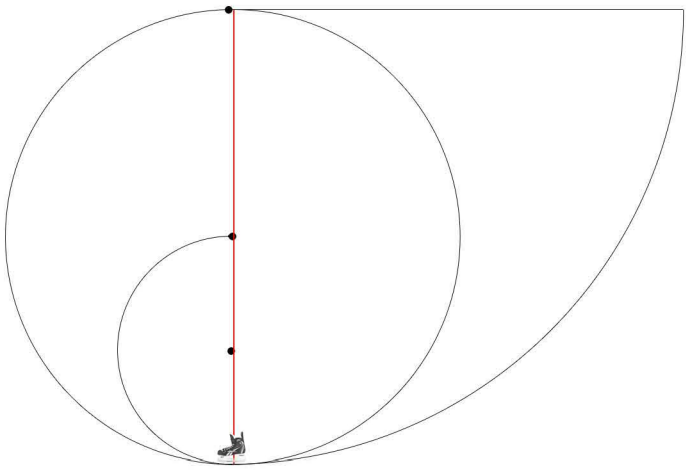
Adding a flat part

You can add a **flat glide surface** of custom length (should be between 3-6 cm) on the radius shape. This area can be in the middle, adjusted towards the front or adjusted towards the rear. *If you move the flat area towards the front you will get a forward lean.*



Custom templates

There are templates where you have several different radiuses underneath. These templates are designed so that you can utilize shapes with different properties on different parts of the skate blade. Most of these templates are pre-pitched. Here is a shape with three radiuses and an off-centre pivot point.



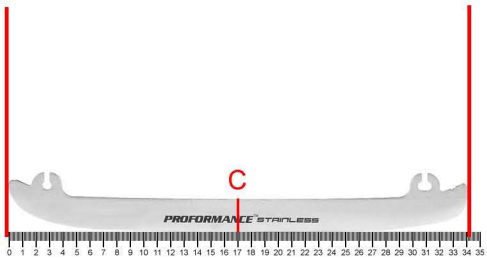
OPERATION

1. Before profiling a skate blade you need to make some auxiliary marks with a whiteboard pen on the blade depending on how you are going to change the profile. A good idea is to mark the plastic as well for future reference.
   First off, mark the center of the skate shoe *(A1, body balance point)* or the center of the skate blade *(B1)* depending on what you prefer. Let us call this point the ***center point (C)***. The skate blade is often centered underneath the shoe, so most of the times these marks *(A1 and B1)* are very near each other.

(A1)

Skate shoe is here 330 mm, center point is then 165 mm

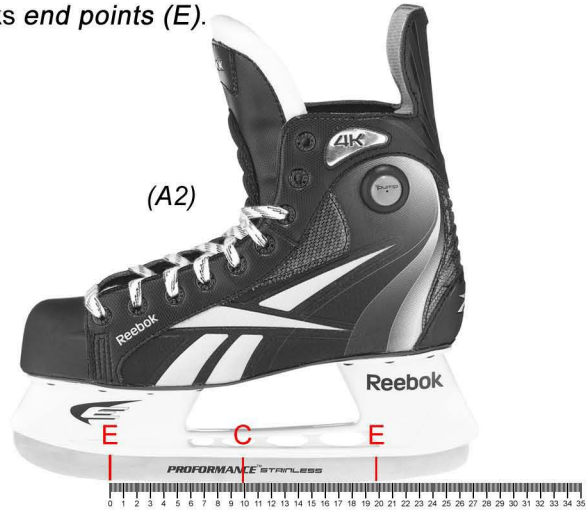
(B1)



Skate blade is here 340 mm, center point is then 170 mm instead

2a. Having obtained the ***center point (C)*** you should delimit the area you intend to contour. *If you are sharpening a single base radius or using a custom template* then you need to make two marks where the middle area (60%) ends. These marks are to be located around 30% + 30% in each direction from the center point. Let us call these marks ***end points (E)***.

(A2)



End points are here located 99 mm from center point

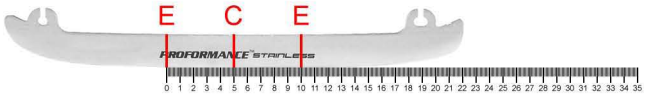
(B2)

End points are here located 102 mm from center point

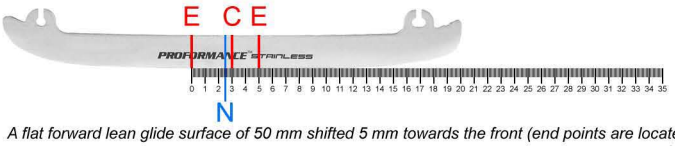
2b. If you only intend to sharpen a ***glide surface*** within the current radius, you only need to mark that area.

If you are making a **flat area** you can either center it around the center point or shift it somewhat from the center. A neutral glide surface of 50 mm is generally called 25+25 (or 25-50). A forward lean glide surface of 50 mm shifted 5 mm towards the front is generally called 30+20 (or 30-50). When you shift a flat surface you need to make a new center point located in the middle of that area. Let us call it the ***new center point (N)***.
If you are making a **radius shaped glide surface** (must be a larger radius) you should center it around the ***center point (C)*** with the desired distance.

A flat neutral glide surface of 50 mm is called 25+25.
(The end points are located 25+25 mm from center point).



A radius glide surface with end points that are located 50+50 mm from center point.
Note, if you want to pitch it, grinding will occur outside one of the markings.



A flat forward lean glide surface of 50 mm shifted 5 mm towards the front (end points are located 30+20 mm from center point).
The new center (N) should be centered between those end points (moved 5 mm towards the front).

ADJUSTMENTS before grinding

Mount a template in the skate holder

Place the template (2) onto the modified H-8 holder against the stop screws under the template holders. The template should have its center line at the center mark on the holder (1). Now fasten the template at the template holders (3) by fastening the nuts at the ends of the screws. (If the template is assymetric, be sure to direct it so that you get the intended shape of the skate blade.)

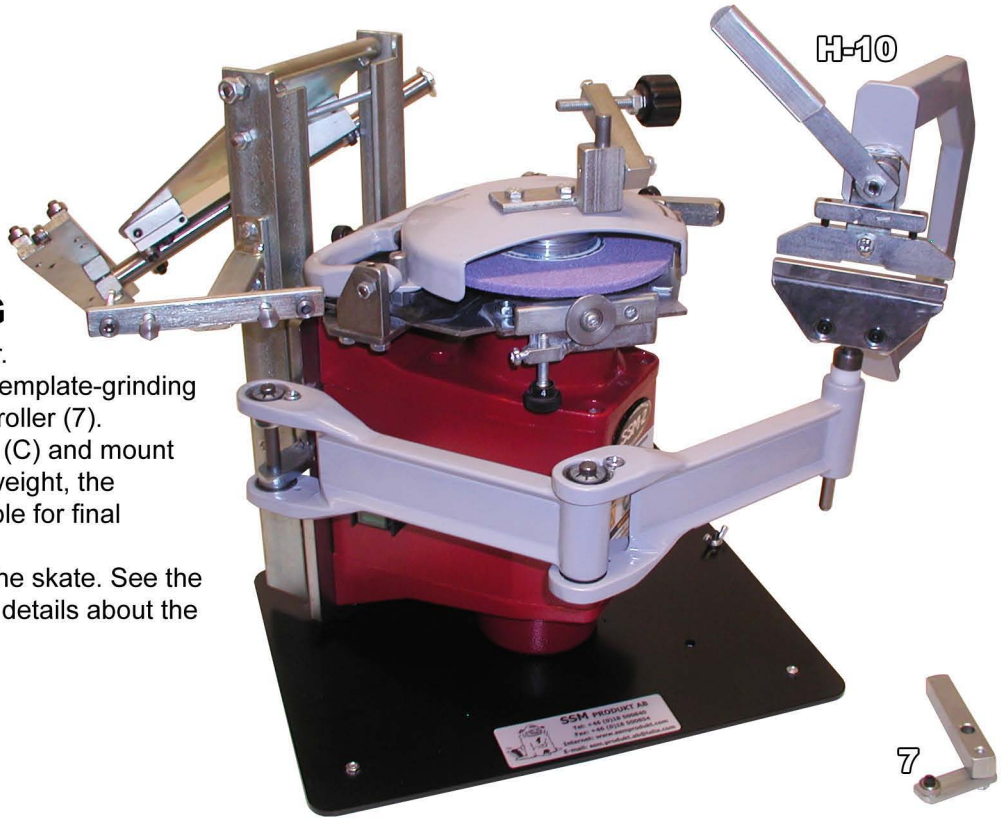
Fastening a skate or a skate blade

Put the skate in the holder pressed against the two screws (4) of the directing guide; the middle mark (C or N) that you made on the skate blade should be just opposite to the center mark (5) on the directing guide. Fasten the skate.

Now move the skate blade forwards and backwards against the ***non-rotating*** grinding wheel. Turn the feeding screw (6) clockwise to distance the holder somewhat so that the blade goes free when the grinding wheel starts to rotate. The feeding screw directs the skate holder via the contact roller (7) which should be in contact with the template when grinding.

TEMPLATE GRINDING

When grinding using a template, the support roller must always be used, even when grinding flat.
Start the machine, dress the grinding wheel for the form intended (flat blade or hollow blade). The grinding wheel should be rough-dressed for best result. Rough-dressing means that the dressing diamond is moved faster past the grinding wheel (say using one second instead of three seconds for fine-dressing). Rough-dressing is better than fine-dressing for profile grinding. It gives less generation of heat, grinding will be faster and it gives a rougher surface which is desired for profile grinding because it makes easier to minimize possible discontinuities at end points of radius parts.
Center the skate blade for hollow sharpening (using the support roller) or flat sharpening. (See the instruction manual for SSM-2.) The support roller should always be located as near the grinding wheel as possible without touching it. When profiling, the support roller should also be parallel to the X-shaft of the holder. Otherwise grinding will only occur when moving in one direction.
Then grind the skate blade using the template; turn the feeding screw (6) counter-clockwise to successively feed the skate blade inwards until grinding occurs along the whole of the marked surface of the blade. When you have ground the desired profile under the blade, you should grind another 10 times, in one direction only, without further feeding. (This gives better accuracy, circumventing the play in the ball bearings.)



ORDINARY GRINDING

Loosen the skate from the holder.
Turn away the upper part of the template-grinding equipment. Remove the contact roller (7).
Remove the modified H-8 holder (C) and mount an H-10 holder. (Because of its weight, the modified H-8 holder is less suitable for final sharpening.)
Then do the final sharpening of the skate. See the instruction manual for SSM-2 for details about the final sharpening.

MAINTENANCE

ABOUT ADJUSTMENTS OF THE MACHINE

The two cylindrical shafts are each guided by two pairs of ball bearings. If the fit becomes to loose (or too tight) you can adjust with the Allen screws 8 and 9. If the directing screws (4) of the directing guide do not direct the skate blade correctly, adjust the screws.

HOW TO REMOVE THE SM-6 FROM THE SSM-2

To get a more transportable machine you can do as follows: Loosen the four nuts (10) and the hinged upper part (A) of the SM-6 will come loose. To be able to use our transport case V-2 you should also replace the modified protective cover (B) with an ordinary protective cover. Finally use the extra holder H-10 instead of the modified H-8 holder (C). If the machine is intended to be stationary, avoid removing parts.

TEMPLATES

Four templates are included with SSM-2/SM-6. There are also special templates where we can create a template according to your wishes. Thus, we can e.g. modify a radius template so that it will also give a glide surface.

RADIUS TEMPLATE:

Radius 7´ (2.13m)
Radius 8´ (2.44m)
Radius 9´ (2.74m)
Radius 10´ (3.05m)
Radius 11´ (3.35m)
Radius 12´ (3.66m)
Radius 4m
Radius 5m
Radius 6m
Radius 7m
Radius 8m
Radius 10m

SPECIAL TEMPLATES:

Standard template with a glide surface of your choice

RADIUS TEMPLATE WITH GLIDE SURFACE:

Radius 11´ + 40mm centered flat surface
Radius 11´ + 50mm centered flat surface
Radius 11´ + 60mm centered flat surface
Flat template (for making a flat surface with the length of your choice)

COMBINED TEMPLATES:

Radius 3m + Radius 6m (Detroit 1)
Radius 4m + Radius 8m (Detroit 2)
Radius 7´ + Radius 4m (Dual 1)
Radius 7´ + Radius 5m (Dual 2)
Radius 3m + Radius 5m (Dual 3)

COMBINED RADIUSES WITH GLIDE SURFACE:

Radius 4m + Radius 8m + Radius 3m (Excel one)
The Optimal NC (several radiuses in a specific angle)

TECHNICAL SPECIFICATIONS AND DIMENSIONS

HEIGHT: **430 mm**
WIDTH: **320 mm**
LENGTH: **720 mm**
WEIGHT: **23.2 kg**

Check SSM-2 instruction manual for more details.