

# TREMIX Vacuum System



*When the going gets really tough, you want the best*

ADVANTAGES OF THE TREMIX VACUUM SYSTEM

**Improved wear resistance**

Power-floating with a disc can start immediately after vacuum dewatering. As, at this stage, concrete has not yet hardened, an after-mixing of cement and sand particles takes place, which essentially increases the wear resistance of a floor. An improvement of the wear resistance by up to 2-3 times can be achieved through floating and repeated power trowelling.

**Elimination of curling**

A vacuum treated concrete slab shows no curling because the slightest shrinkage will be on the top part of the slab where the water/cement ratio is lowest. Therefore, the edges will remain in their correct position when concrete hardens.

**Compressive strength**

Tests very clearly show that vacuum processing improves compressive strength and how vacuum affects the top and bottom part of the slab respectively. Note that already after seven days, the compressive strength value of vacuum dewatered concrete will be the same as that for normal concrete after 28 days.

In addition to that, the 24-hour-strength of the vacuum dewatered concrete slab is much higher, which reduces the risk of damage on a newly cast floor.

The final strength is about 50 % higher than that of a conventional concrete floor.

It is important to note that the highest compressive strength value for a vacuum dewatered slab is on the top surface i.e. a part of the floor that will be exposed to a lot of stress.

**Owners**

- \* Lower production costs
- \* Reduced maintenance costs
- \* Earlier utilization
- \* Improved wear resistance
- \* Minimum dusting
- \* Lower water permeability thanks to a denser concrete
- \* Even and level floor
- \* Minimized crack formation

**Architects /design engineers**

- \* Higher and more uniform quality
- \* Increased tensile strength in bending
- \* Thinner slabs - lower cost
- \* Minimized plastic shrinkage
- \* Minimized dry shrinkage
- \* Increased wear resistance
- \* Improved frost resistance
- \* Minimized crack formation
- \* High flatness accuracy
- \* Better adhesion to the base, when casting a wear course on already hardened concrete
- \* No curling

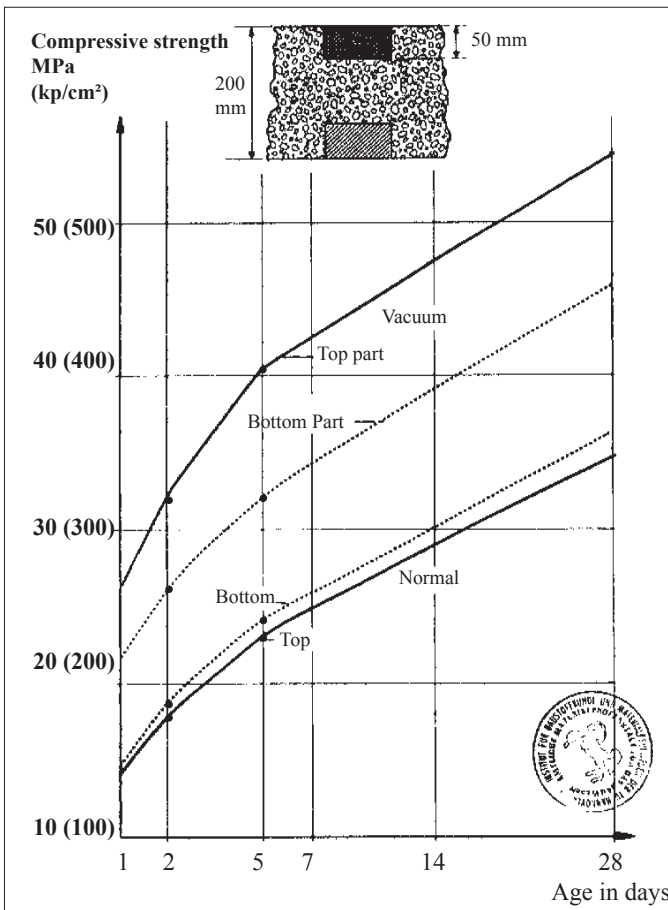
**Contractors**

- \* Cheaper concrete
- \* Better utilization of man power
- \* Elimination or reduction of overtime
- \* Controlled working cycle
- \* High early strength minimizes damage on newly cast floors
- \* Fewer forms - faster re-utilization
- \* Earlier start of finishing operations
- \* Quicker completion

**Handbook**

The Tremix Handbook is a summary of 45 years of experience. It contains what you need to know about concrete floors.

Examples of calculations, specifications, working techniques and other questions worth knowing are included. The Tremix Handbook (revised edition) is intended for guidance and as a reference for educational purpose. Available in several languages.



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- Reduction of the water content in concrete by 20-25%
- Increased compression and wear resistance
- Reduced risk of shrinkage in concrete
- Finishing possible immediately after vacuum dewatering

✓ Please refer to technical data, page 7.



**P 4001**

The Tremix Vacuum System is a method for laying high-quality concrete floors at an acceptable cost. The key of the method is dewatering concrete by the vacuum process. Through vacuum dewatering, the surplus water is removed from the concrete, which means that the water/cement ratio automatically leads to a noticeable improvement of almost each of the concrete properties. These improvements are particularly noticeable on the top surface i.e. the most vital part of a floor.

Immediately after vacuum dewatering the flatness of the concrete surface is checked and adjusted with a control tool, and the finishing operation with a power-trowel can start.

The Tremix equipment for dewatering of concrete by the vacuum process consists of a vacuum pump P 4001, a top cover and filter pads.

The top cover is made of special reinforced, airtight plastic sheet, with a suction channel on the bottom side. It is provided with two lifting tubes which makes it easier to unroll the top cover to the required length.

The filter pad is made of perforated plastic sheet with distance cushions on the top side. It acts as a filter between the fresh concrete and the top cover.

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**Fig. 1** The filter pads are placed so that there will be a sealing edge around the entire filter pad surface

The Tremix Vacuum Pump P 4001 is a small, powerful pump that makes it possible to work with two suction mats of 6 x 7 m = 84 m<sup>2</sup> simultaneously. The pump is self-discharging and can be run continuously. It is provided with an electric motor or a petrol engine.

Standard voltage 400 V, other voltages to order.



**Fig. 2** The top cover is unrolled over the filter pads.

The Tremix vacuum pump P 4001 is fitted with a ring liquid pump. The tank is provided with two easily removable lids, one of which is positioned on the bottom of the tank for efficient cleaning.

The suction hoses consist of a helical hose, of durable reinforced plastic dia. 1 1/2", standard length 15 m. The hoses are provided with either a quick-coupling, type fire-hose, or conical couplings for connection to different types of suction hoses.

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**Fig. 3** The top cover is connected to the suction hose of the vacuum pump. Thereafter it is important to check that the top cover seals against the fresh concrete outside the filter pads.

The Tremix Top Cover and Filter Pads are connected to the vacuum pump. A complete suction mat consists of 1 top cover and 1 to 6 filter pads depending on the width of the top cover. Two persons can easily move the top cover.

The top cover is available in standard widths from 3 m to 7 m in intervals of 1 m. The standard length is 6m. Special lengths and widths to order.



**Fig. 4** While vacuum is on, the surface that has already been vacuum dewatered is floated with a power trowel fitted with a disc.

The standard width of the pads is 1.2 m. Standard lengths: 2.8 - 6.8 m in intervals of 1 m. The pad is also available in a roll of 30 m. The number of the pads depends on the size of the top cover. Normally, 6 pads are required for each standard top cover. The pads must overlap each other by 20-30 cm. The top cover must be placed so that it seals against fresh concrete all around.

## FLATNESS ADJUSTMENT TOOL

- TR 1 provided with a control board
- TR 2 with a saw teeth board
- TR 3 provided with a rubber-edge board

✓ Please refer to technical data, page 7.



### TR Rake

The evenness of a concrete floor can be checked and, when necessary, adjusted with the Tremix adjustment tool TR before concrete has hardened. This means that the evenness of the floor can be controlled at an early stage, which reduces the need of grinding and putty-coating. Power-floating is easier and faster if the surface is level. Power-trowelling can be started sooner and there is practically no need of putty-coating.

TR1 with a control board consisting of a light-alloy profile is an excellent tool to check the flatness of the surface before the last pass with a power-trowel.

The TR 1 with control board is available in standard lengths of 2, 3 and 4 m.

The TR2 with a saw teeth board is pushed over the concrete immediately after vacuum dewatering, but before power-floating.

The saw-teeth board has a length of 2 m. The tool is provided with a long handle for maximum reach, which allows a large surface to be adjusted rapidly.

The TR3 provided with a rubber-edge board is particularly suitable for scraping off humidity and water from the unfinished concrete surface i.e. it is used between vacuum dewatering and power-trowelling. The length of the rubber edge is 1.3 m.

TECHNICAL DATA

**Vacuum Pump P 4001**

	P 4001 E Electric	P 4001 B petrol
Max. vacuum	-90 kPa (e)	-90 kPa (e)
Motor/ engine type	Electric	Honda petrol engine GX 270
Motor/ engine power	4 kW (5.4 HP)	6.7 kW (9HP)
Voltage	400 V	-
Type of current	3-phase, 50 Hz	-
Rated current	8.1 A (400 V)	-
		-
Fuel tank, volume	-	6 liters
Fuel consumption	-	3 l/ hour
Length	1300 mm	1300 mm
Width	700 mm	700 mm
Height	800 mm	800 mm
Weight, empty	125 kg	120 kg
Discharge hose, length	5 m	5 m
Discharge hose, dia.	1 1/2"	1 1/2"
Suction hose, length	15 m	15 m
Suction hose, dia.	1 1/2"	1 1/2"

**Top Cover/ Filter Pad**

<b>Top Cover TOP</b>	
Standard length unrollable up to	6 m
Standard width (bay width)	3, 4, 5, 6 and 7 m
Weight, including lifting tubes	24, 31, 43, 51 and 59 kg
<b>Filter Pad FP</b>	
Standard width	1.2 m
Standard length	2.8, 3.8, 4.8, 5.8, 6.8, and a roll of 30 m
Weight	3, 4, 5, 6, 7, and 35 kg
<b>TR Adjustment Tool</b>	
TR 1 with control board	2, 3 and 4 m
TR 2 with saw teeth board	2 m
TR 3 with rubber edge board	1.3 m

## Facts about TREMIX

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TREMIX products are successfully used in the construction industry and in civil engineering projects. The Tremix System is used for the production of strong and durable concrete for industrial floors, parking decks, bridges, etc.

### PRODUCT RANGE

Vibratory tampers, forward and reversible soil compactors, duplex rollers, immersion vibrators, surface vibrators (screeds), bull floats, power-trowels and equipment for the dewatering of concrete by the vacuum process.



**TREMIX®**

Nordic Construction Equipment AB  
P.O.Box 226, SE-127 24 Skärholmen, Sweden  
Tel.int. +46 8 603 32 00, Telefax int. +46 8 646 72 61  
[www.tremix.com](http://www.tremix.com)