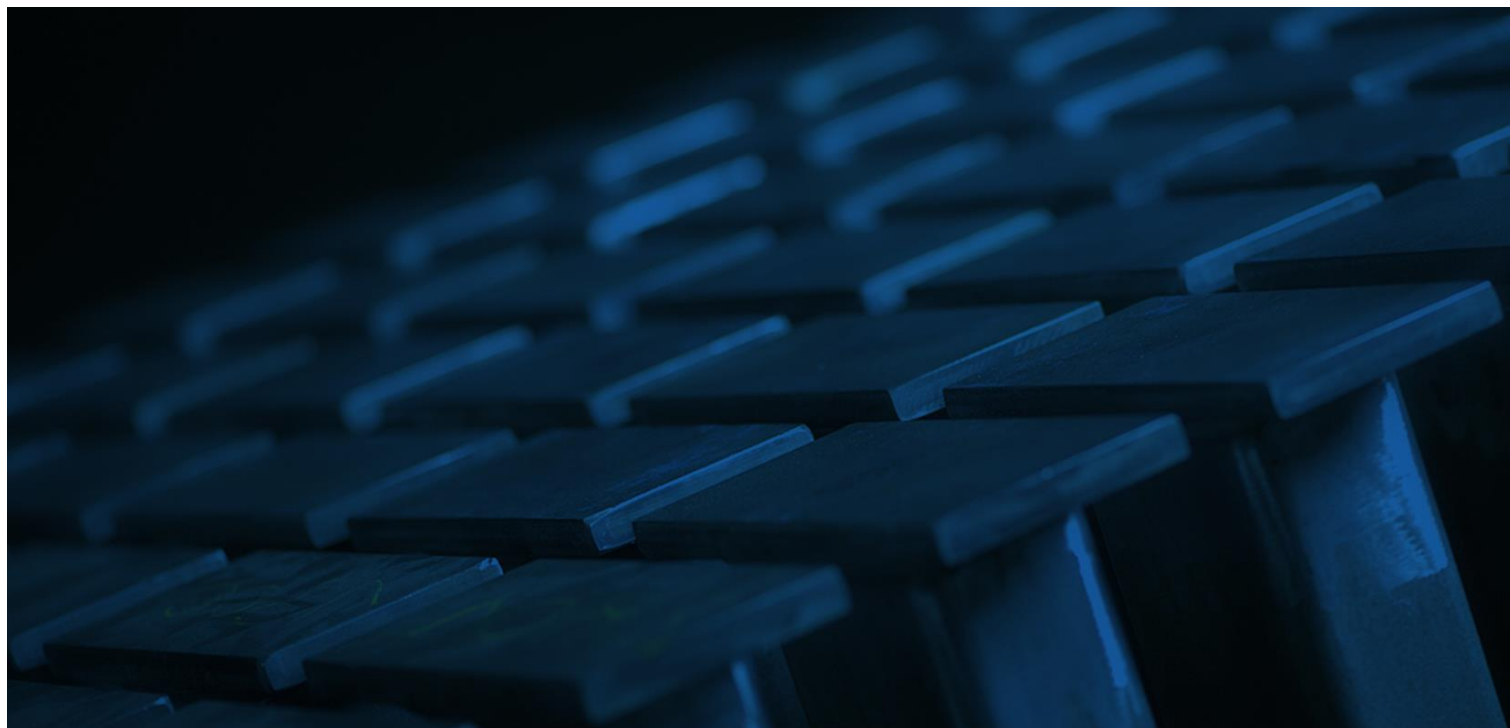


## USER MANUAL for handling of moulds



## FORMEN · STAHL · BAU



### Important:

These operating instructions are to be read carefully before the first use as well as if there are any questions concerning the operation method.

### Basic information

The moulds for the production of concrete elements are manufactured according to the latest technological standards and accordingly to applicable safety regulations. Nevertheless, there are some risks for the staff especially at inappropriate use.

In these instructions you can find important tips to the safe use of the mould. Please follow also the safety regulations applying at the side of operation. The manufacturer assumes no liability for personal damage, damage to property and/ or asset damage which originate from nonobservance of the manual. The warranty of quality is excluded in these cases. In addition all tips are to be followed in these instructions for the purposes of the intended use.

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FORMEN · STAHL · BAU

## 1. Usage according to intended purpose

The mould is an incomplete machine and is only suitable for a fixed whole machine. Our moulds should be only used for the production of concrete elements. At incorrect operations there is danger for you and others. Death, severe injury and severe damage of property could be the result.

**Maintenance and service works should be only made by qualified technical personnel!**

The manufacturer is not responsible for damages which are due to a not designated use.

## 2. Employer's obligation

The employer shall ensure that:

- this user manual is accessible to the staff any time
- only people are working with this mould which have read and understood this user manual
- the operating personell is familiar with the regulations about working security and accident prevention
- the operating personell has been briefed on the safe handling of the mould

**Only trained personell should work with the mould. Every user is obliged to follow these user manual and especially the security tips.**

The operator must make sure that other dangers which could be arised by special terms of employment in the side of operation. Moreover all other instructions and security tips are to be summarized into a risk assessment.

## 3. Scope of supply

Our moulds are basically consisting of the tamper head, the mould box and the shoes. These are assembled and on a transport pallet, secured against slipping, delivered. In addition conversion parts, spare parts as well as drawing sheets can be included in the delivery.







## 4. Documentation

This manual doesn't replace the operating instructions of the stone manufacturing plant!

## 5. Address

ZENITH Formen Produktions GmbH  
Auf dem Kikel 260  
9710 Feistritz / Drau  
AUSTRIA

## 6. Convention for safety notes

Symbol	Meaning
	Important note
	Wear safety goggles
	Wear foot protection
	Wear protective gloves
	Wear face shield
	Wear head protection

## 7. Safety related instructions

The mould is especially built for a certain machine and must be exclusively installed into this machine.

## 8. Legal Notice

Essential principles are given in the general business terms and delivery conditions of Zenith Formen Produktions GmbH. Please also follow the regulations of the place of action and the application country. We reserve the right to make mistakes or modifications.

## 9. Dangers

### 9.1 Danger from falling heavy parts



- Observe the applicable operating and working instructions
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mould
- Never walk under suspended loads
- Transport the mould only if you have the necessary qualifications to manage the respective lifting gear
- Make sure that the load capacity of the hoist is sufficient

### 9.2 Danger from materials and substances



- Forming oils can cause irritation
- Observe the safety instructions of the manufacturer of the preservative used
- Do not inhale the spray mist
- Always wear protective gloves and goggles

### 9.3 Danger from sharp edges



- Wear protective gloves during all works with the mould
- There is the danger especially at the sharp edges of the chamfers on the shoes

### 9.4 Danger from ejecting parts with compressed air



- When using the compressed air rods, concrete debris and other loose items may be launched from the mould
- Always wear face protection and protective gloves

### 9.5 Danger from ejecting parts with water



- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mould
- Observe the safety instructions of the manufacturer of your high-pressure cleaner
- Always wear face protection and protective gloves

### 9.6 Danger from slipping of heavy objects

Secure the mould during transportation to prevent slipping.

## 10. Possible Misuse

Only after fulfilling of all relevant instructions the commissioning of the mould is allowed. Only use the mould for the here described applications

Possible misuses, which could lead to warranty loss, are:

- The operation of the mould by not adequately trained personnel
- Inappropriate machine settings
- Modification of the mould or parts of it
- independent repair or rebuild works
- Transport of the mould with inappropriate means of carriage
- Assembly and disassembly of the mould
- Centering of tamper head and mould

## 11. Safety indications on the product

Please note the special safety indications on the mould.

## 12. Residual hazards and protective measures

When observing the instructions in this user manual, the operating instructions of the block fabrication plant, as well as when complying with all applicable regulations for the safe operation of the device, residual hazards may be excluded.

The mould is an incomplete machine and therefore an equipment component of a machine as a whole. Important references are on the type plate and on the information signs of the mould.

## 13. Further informations

This user manual contains important hints in order to work with the mould. Observe the operating instructions of the stone manufacturing plant in order to keep the usage, the assembly and disassembly safe. Nevertheless observe the on the site of operation applying both job instructions and rules and regulations for accident prevention. Service and repair works may only be done by trained professionals. In case you need information or offers concerning service or repair-works please don't hesitate to contact our sales department:

phone: +43 4245 2796

fax: +43 4245 2796 22

mail: [info@zenith-formen.at](mailto:info@zenith-formen.at)



## 14. Qualified personnel

Only work with the mould if

- you have understood the content of this user manual
- you have been briefed on the safe handling of the mould

Never ever work under the influence of

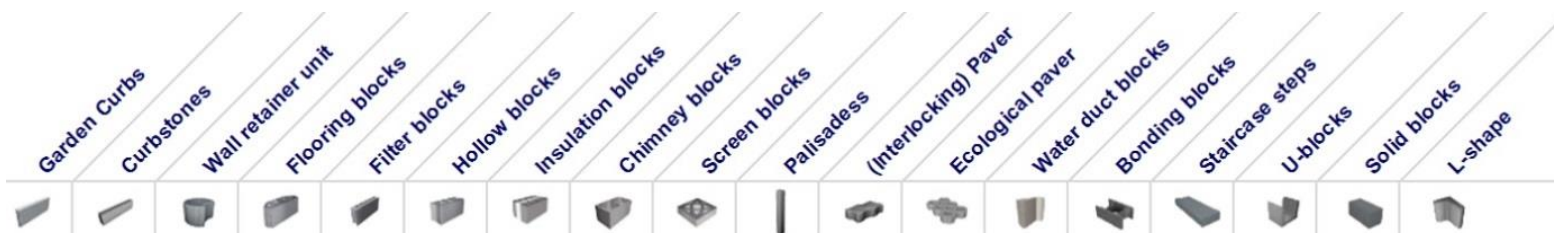
- Alcohol
- Drugs
- Medication

## 15. Specifications

The moulds produced by us are an equipment component of a whole machine and are produced individually by demands. Because the dimensions and weights vary these can be requested at our sales team. The dimensions and weights incl. pallet are also adduced on the packing list.

## 16. Production of concrete elements

Humid concrete is filled in the stone chambers of the mould box. Due the vibrations the concrete gets compressed. Afterwards the stone surface is formed by the shoes and the finished stones get pressed out of the mould box.



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## 17. Overview of the mould

Our moulds are only designed for the production of concrete products in a special stone fabrication plant and solely intended for industrial use. Our moulds essentially consist of the tamper head with shoes and the mould box including mold wing for attachment in the machine.

### 17.1 Tamper head including shoes



### 17.2 Mould box including wing



### 17.3 Rubber puffer / puller engine

- Check the rubber regularly for the correct positioning
- Check the wearout regularly and exchange the rubber puffer if needed

## 18. Transport

The mould is delivered secured against slipping on a transport pallet. Please consider the following for the internal transport:

- **Always transport the mould on a suitable transport pallet**
- Protect the mould against slipping
- Secure any loose parts lying on on the mould
- Only use suitable means of transport, which are designed for this load
- Only use lifting gear and lifting means recommended by the manufacturer of the stone fabrication plant



## 19. Initial commissioning

- Check the mould for any damages
- Check the weldseams for any cracks or damages

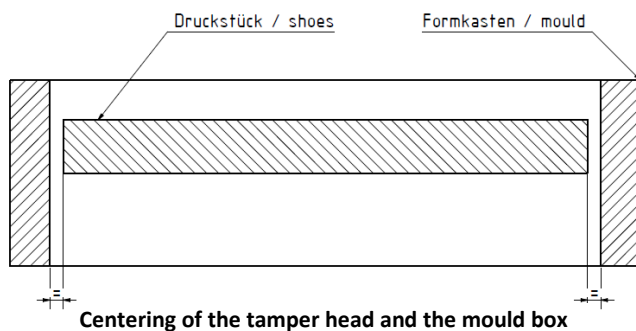
## 20. First use

- Observe the exact centering of the tamper head and the mould
- Check all necessary dimensions on the finished stone

## 21. Assembly and installation

Our moulds are specially designed for specific stone production plants and must only be installed in these. In order to install the mould in the machine please only use tools which are recommended by the manufacturer. Observe the following when installing:

- Check the alignment of the mould and the tamper head before installing
- **The Base side mix is marked with a white or blue point on the tamper head and also on the mould. They always have to point in the same direction.**
- Install the mould according to the instructions of the stone production plant
- Consider the correct position of the mould (Face Side Mix/Base Side Mix)
- **Center the tamper head and the mould with each other and check with the feeler gauge**
- Do not start vibration without concrete for centering the mould in order to avoid any damage
- Tighten the mounting screws and the wedge brace
- **After installing re-check the centering of the mould using the feeler gauge**
- Check that everything is properly installed and screwed
- Remove the spacers between the tamper head and the mould
- Ensure that there are no extraneous parts or tools in or on the mould before starting the production.
- Start a function test of the mould without concrete and without vibration (retract and move out the tamper head)



Face side mix marked with a white or blue point

## 22. Disassembly

- Disassemble the mould in accordance with the operating instructions of the device manufacturer
- Only use tools which are recommended by the manufacturer of the stone production plant
- Use no water and no high-pressure cleaner to clean electrically heated plates
- Use no acids or acidic cleaners
- After cleaning, preserve the mould with cleaning oil and forming oil
- The mould has to be put on a pallet immediately after removal
- In order to secure the chamfers of the shoes use the distance spacers between the tamper head and the mould (chamfer should be at least 10 mm above the pallet)

## 23. Storage

- Clean and preserve the mould before storing
- Insert the transport lock in each case
- Store the mould in a weather-protected area or a covered shelf

## 24. Maintenance

- **Service and repair works may be only made by qualified technical personnel**
- All service works and repair works must be carried out beyond the stone manufacturing plant in for it suitable rooms.
- At all works in the area of the stone manufacturing plant all devices have to be shut down.
- Protect movable parts against unintentional movement
- Clean the mould after every use thoroughly with air pressure or a high-pressure cleaner
- Remove sticking concrete with a wire scratch brush
- **Use no water or high-pressure cleaner for the cleaning of heated shoes**
- **Use no acids or acid-containing cleaning detergents**
- Preserve the mould with cleaning and forming oil (except rubber puffers/puller engine 17.3)
- Also while longer standstill of the mould we recommend to cure it with forming oil
- After every use the mould has to be checked for damages and the secure seat of the screws
- Make sure that damaged moulds won't get used



## 25. Cleaning

- In order to clean the mould box we recommend wire scratch brushes and high-pressure cleaners, don't use sharp-edged tools like chisel, screwdriver or similar
- Don't use air pressure-pursued hammers to avoid roughening and spalling
- After cleaning check the mould for damages and flaws
- Check if all screw connections fit tight
- After cleaning preserve the mould with forming oil
- The lifetime of the mould can vary – depending on the material mixture / recipe of the concrete used

## 26. Check

- Check the mould for remaining concrete and remove it with a wire scratch brush
- Check the mould for foreign parts and remove them in order to prevent damage
- Check the centering of the mould box and tamper head
- During longer application of the mould all connections have to be checked at regular intervals and if necessary readjust them

## 27. Spare parts and consumables

All spare parts of the Zenith Formen Produktion GmbH can be ordered at our sales department. We only recommend the use of original Zenith spare parts. By using foreign spare parts no more warranty claims can be made.

## 28. Disposal

- Follow the local regulations for the disposal of the components
- Return the components to the manufacturer

## 29. Test reports

Test reports and acceptance protocols are supplied on request.

## 30. Bolt connections and their tightening torques

### 30.1 Regular thread

Measurement	Pre-stressing forces (kN)					Tightening torques (Nm)				
Strength class	4,6	5,6	8,8	10,9	12,9	4,6	5,6	8,8	10,9	12,9
M 4 x 0,70	1,4	1,8	3,9	5,4	6,5	1,1	1,3	2,9	4,5	5,0
M 5 x 0,80	2,2	2,9	6,4	9,2	10,7	2,1	2,8	6,0	8,8	9,9
M 6 x 1,00	3,0	4,0	9	13,1	15,2	3,6	4,7	9,9	15,1	17,9
M 8 x 1,25	5,5	7,3	16,5	24,1	28,3	8,5	11,1	24,9	36	43
M 10 x 1,50	8,7	11,6	26	38,4	44,8	17	22	49	72	84
M 12 x 1,75	12,7	16,9	38,5	55,9	65,8	29	39	85	125	145
M 14 x 2,00	17,4	23,2	53	76,9	89,8	46	62	135	200	235
M 16 x 2,00	23,9	31,8	72	106	124	71	95	210	310	365
M 18 x 2,50	28,9	38,6	91	129	151	97	130	300	430	500
M 20 x 2,50	37,2	49,6	117	166	194	138	184	425	610	710
M 22 x 2,50	46,5	62	146	208	243	186	250	580	830	970
M 24 x 3,00	53,6	71,4	168	239	280	235	315	730	1050	1220
M 27 x 3,00	70,6	94,1	221	315	370	350	470	1100	1550	1800
M 30 x 3,50	85,6	114,6	270	385	450	475	635	1450	2100	2450
M 33 x 3,50	107	142,6	335	480	560	645	865	2000	2800	3400
M 36 x 4,00	125,4	167,6	395	560	680	1080	1440	2600	3700	4300
M 39 x 4,00	151	201	475	670	790	1330	1780	3400	4800	5600

### 30.2 Fine thread

Measurement	Pre-stressing forces (kN)			Tightening torques (Nm)		
Strength class	8,8	10,9	12,9	8,8	10,9	12,9
M 8 x 1,00	18,1	25,5	30,6	26,9	37,8	45,3
M 10 x 1,25	30,4	42,8	51,4	55,5	78,1	93,7
M 12 x 1,25	40,8	57,4	68,9	90,7	127,5	153,1
M 14 x 1,50	58,5	82,2	98,7	150	210,9	253,1
M 16 x 1,50	79,3	111,5	133,8	230,7	324,3	389,2
M 18 x 1,50	103,3	145,3	174,3	335,9	472,3	566,8
M 20 x 1,50	130,4	183,4	220,1	468,9	659,4	791,3
M 22 x 1,50	160,7	226	271,2	633,1	890,3	890,3
M 24 x 2,00	194,2	273,1	327,7	831,6	1169,4	1403,3
M 27 x 2,00	246,3	352	410,9	1191	1701,5	2000
M 30 x 2,00	309,2	440,9	516,2	1610,2	2300,1	2691,9