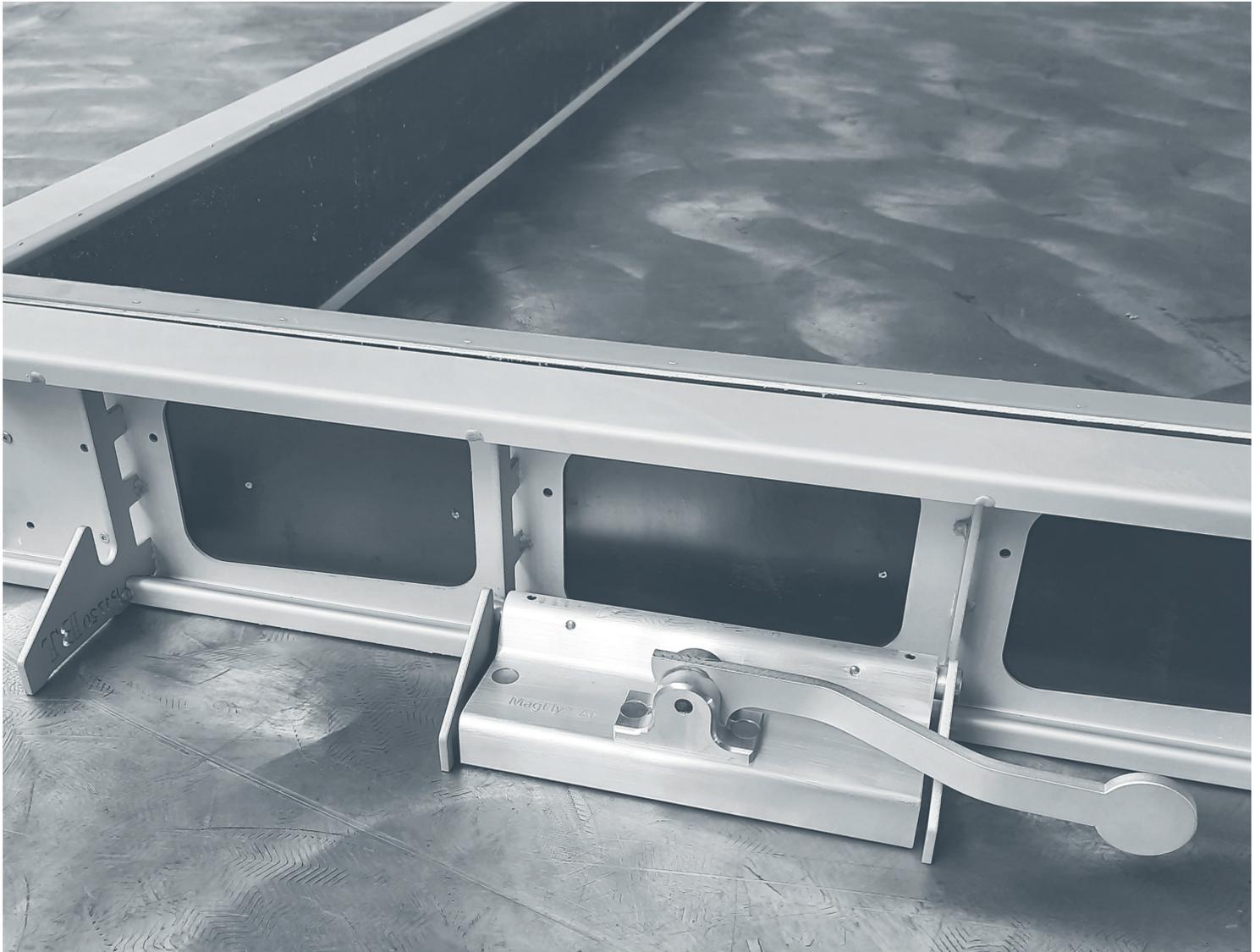


for faster construction



MultiForm Alu

Ergonomic shuttering of precast concrete elements

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UP TO 70% LIGHTER THAN COMPARABLE STEEL FORMWORK BEAMS

Ergonomic Shuttering of Precast Concrete Elements with the MultiForm Alu Formwork Beam

MultiForm Alu is a lightweight, but dimensionally stable and sturdy formwork beam made of specially coated aluminium.

Due to its reduced dead weight, MultiForm Alu weighs less than half in comparison with other beam systems, even with the formwork facing mounted. As a result, the MultiForm Alu can ensure compliance with national health and safety standards for all shuttering heights and reduce the workload for shuttering and demoulding. Even formwork with a shuttering height of 400 mm including formwork facing can be transported by one employee.

Moreover, the load reduction provides important relief for the employees and is an adaptation to the ageing workforce. It has a positive effect on employee absences due to illness and plays a central role in occupational health management. The formwork facing made of wood, chipboard

or steel panels can simply be screwed to the shuttering from behind. The large openings on the rear side of the MultiForm Alu enable even bulky and large built-in components to be fastened from behind. Like every MultiForm shutter, the shuttering height can be adjusted by changing the formwork facing. Important: even with greater shuttering heights, the shuttering can be mounted, dismantled and carried by one person due to the low dead weight.

In combination with the patented MagFly® magnets, the MultiForm Alu can easily be moved and precisely positioned on the steel surface. The additional and usually laborious sealing, for example with silicone or other sealants, is unnecessary.

MultiForm Alu in combination with a formwork facing made of wood with PE chamfer profiles



Advantages at a Glance:

- ✓ Up to 70% lighter than other formwork beam systems made of steel
- ✓ Dimensionally stable and sturdy thanks to new design
- ✓ Compliance with national health and safety standards & requirements
- ✓ No need for cranes, transport with fewer personnel
- ✓ Reduction of the work intensity and employee absences due to illness
- ✓ Fast and precise shuttering process
- ✓ Fast amortisation due to synergies in the production
- ✓ No time-consuming additional sealing, for example with silicone

An Example for a National Occupational Health and Safety Standard (LandhandhabV)*

Table 1: Wooden Shuttering*²

Height	W Max. 10 kg	M (15-18) Max. 20 kg	M (19-45) Max. 30 kg	M (>45) Max. 25 kg
98 mm	×	✓	✓	✓
148 mm	×	×	✓	✓
198 mm	×	×	✓	×
248 mm	×	×	×	×
298 mm	×	×	×	×
>348 mm	×	×	×	×

Table 2: Steel Shuttering*²

Height	W Max. 10 kg	M (15-18) Max. 20 kg	M (19-45) Max. 30 kg	M (>45) Max. 25 kg
98 mm	×	✓	✓	✓
148 mm	×	×	✓	✓
198 mm	×	×	✓	×
248 mm	×	×	×	×
298 mm	×	×	×	×
>348 mm	×	×	×	×

Table 3: BT Aluminium Shuttering*²

Height	W Max. 10 kg	M (15-18) Max. 20 kg	M (19-45) Max. 30 kg	M (>45) Max. 25 kg
98 mm	✓	✓	✓	✓
148 mm	×	✓	✓	✓
198 mm	×	✓	✓	✓
248 mm	×	✓	✓	✓
298 mm	×	✓	✓	✓
348 mm	×	×	✓	✓
398 mm	×	×	✓	✓
498 mm	×	×	✓	×
>598 mm	×	×	×	×

*What is the German LandhandhabV?

These regulations apply to the manual handling of loads which, by reason of their characteristics or of unfavourable ergonomic conditions, present a risk to the health and safety of workers [...]. For the purposes of these regulations, 'manual handling' shall be any transporting or supporting of a load by human effort, including the lifting, putting down, pushing, pulling, carrying or moving of a load.

*²Table data based on the general recommended values from the German Load Handling Regulations (LastenhandhabV)

Investment Consideration - MultiForm Alu vs. MultiForm Type 2

Although the MultiForm Alu is more expensive than the MultiForm type 2 when compared directly, this disadvantage is put into perspective in the overall investment consideration.

Example calculation:

::: Use of 50 running metres of formwork beams (198 mm high) incl. magnets and accessories

Products required:

- ::: Magnets: 50 MagFly® AP x €228 = €11,400
- ::: MultiForm type 2 (steel): approx. €2,600
- ::: MultiForm Alu: approx. €5,000
- ::: Accessories*: approx. €750

Result:

- ::: Steel shuttering: €14,750
- ::: Aluminium shuttering: €17,150



*Connecting bars, splash guard, rack for magnets, other racks, etc.

Profitability Consideration

Considered over the lifecycle, the difference in cost (of the beam system) per concreting between a steel shutter and an aluminium shutter is negligible. The expected synergies and advantages of the aluminium shuttering outweigh the higher costs.

Example: 50 running metres of table occupation with a height of 198 mm and with magnets

1 MagFly AP / running metre x 50 x €228 = €11,400 / 1000 applications

= **€11.40 / concreting**

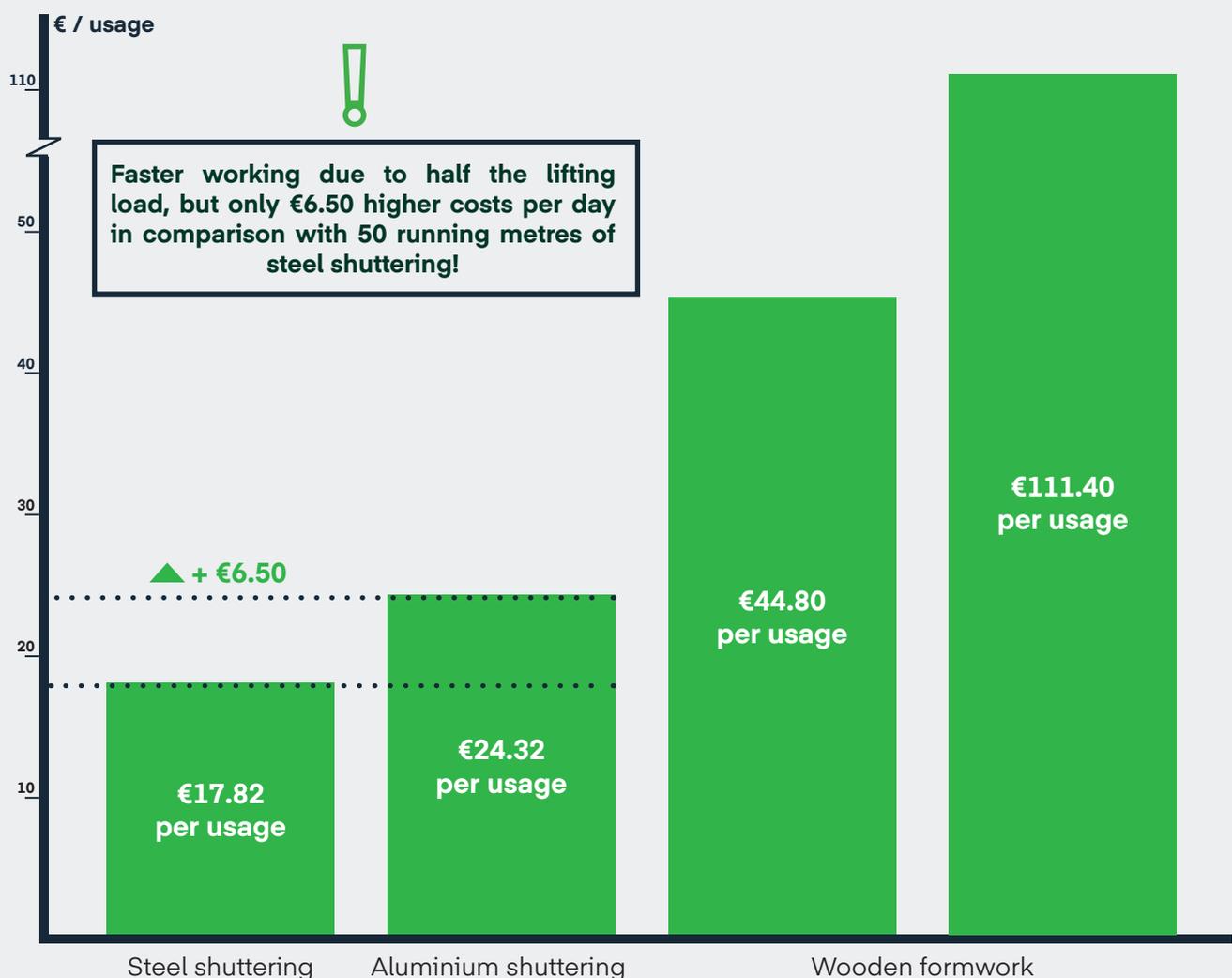
Steel (approx. 2 years / 400 applications):

€2,570 / 400 + €11.40 = **€17.82 / concreting**

Aluminium (approx. 2 years / 400 applications):

€5,170 / 400 + €11.40 = **€24.32 / concreting**

Wood, with up to 60 applications and extra costs due to additional work and recycling, costs depending on type of wood and quality: (€2,000 - €6,000) / 60 + €11.40 = **€44.80 - €111.40 per concreting**

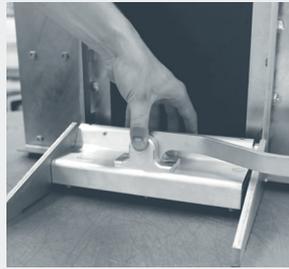


Application



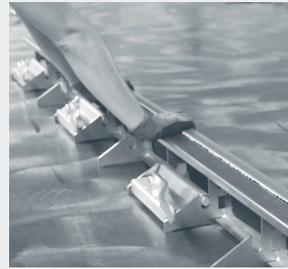
01

Place the formwork facing in front of the MultiForm Alu and screw it tight from the back



02

MagFly® magnets are placed in the MultiForm Alu



03

Move and position the MultiForm Alu on the formwork table



04

Activate the magnets after positioning

BT Shuttering System: Combination of MultiForm Alu, UniForm® and MagFly® AP

The BT shuttering system enables fast and flexible shuttering by hand. The MultiForm can easily be moved and precisely positioned on the formwork table with the MagFly® magnets. Window and door openings are also no problem to implement.

→ **MagFly® AP**

The MagFly® AP is a patented shuttering magnet and part of the BT shuttering system. Its magnetic force-to-weight ratio and the foot/spring system that allows the magnets to slide effortlessly over the formwork table are unique.

→ **UniForm®**

UniForm® is a continuously usable formwork facing made of steel for fastening to the MultiForm Alu formwork beams.

→ **Window and door openings**

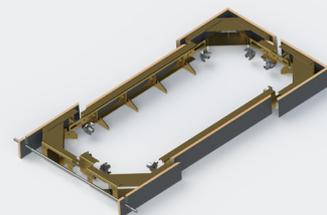
The MultiForm window and door openings are a strong and flexible shuttering system for the manufacturing of openings in precast concrete elements.



MagFly® AP



UniForm® - formwork facing



Window and door openings

Current Situation due to the Use of Wooden or Steel Shutters

Current problems

- ⊗ High loads and high physical demands on one's own production employees
- ⊗ Time-consuming transport measures
- ⊗ Strict national regulations, high health and safety standards

Solutions with MultiForm Alu

- ✓ Health relief for employees
- ✓ Adaptation to ageing workforce
- ✓ Occupational health management
- ✓ Low employee absence due to illness
- ✓ No need for cranes and lifting gear
- ✓ One employee moves the shuttering elements instead of two
- ✓ Compliance with national regulations, health and safety standards

Areas of Application

- ::: Manufacturing of solid and sandwich walls
- ::: Manufacturing of landing slabs, beams and joists
- ::: Use on tilting tables, formwork tables, circulation pallets and wooden surfaces

Do you have a Problem? We've got the Solution!

Your application isn't listed?
We offer individual costum solutions:

- Angled shuttering
- Longitudinal shuttering
- Vertical shuttering
- Transversal shuttering



Learn more about our magnets and formwork in our general product catalogue or on our website:

www.bt-innovation.de

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