

## Bridge structures and frame culverts

# Prefab garbled system Matire® | 41 Litice



## Key Features

| Trademark | Dimensions (cm) |    |    |
|-----------|-----------------|----|----|
|           | L               | B  | H  |
| ZV 018    | **              | ** | ** |

\* as specified in the project documentation, without restrictions

## Usage

Patented prefab garbled systems Matire® are applied mainly as bridges and underpasses, flood pools and floodgates, souterrains and excavating tunnels. Two basic types are offered – arch Modularch® and frame OptiCadre®. Both systems use an ingenious transverse profile division and the interaction with a filler body which enables to design individual elements as a very subtle structures. For each order and object a separate static calculation is made which will specify the element thickness and reinforcement degree. Thus out of the system for example the bridges can be made passing a habitat corridor across newly built roads with minimum random load, as well as the bridges under airport traverse areas with the load by the airliners with the weight of hundreds of tonnes. Also for each element a different concrete grade is used depending on the construction requirements and the degree of environment impact. Due to this it is possible to design the block with a maximum efficiency - environmentally friendly and at the same time saving investors' funds.

Arch prefab system Modularch CM4<sup>®</sup> consist of four basic elements – arch, two side parts and a monolithic or prefab bottom, or footings for larger spans. The system is split as per the cross-section area which ranges from from 3,5m<sup>2</sup> up to 120,0m<sup>2</sup> (or more to order) which corresponds to the net span in one field from 2,5m up to approx. 20m. As per the cross-section area of a standard ring (arch diameter is identical with the diameter of a side part) the respective side part is marked as well as the arch creating this area. Horizontal connection is made as jointed and is made by longitudinal "semi-cylindrical" joint (part of the arch) inserted in the longitudinal hole (part of the side part). Due to the fact that each side part traverses in the arch angle-wise 45°, is is possible to combine freely the side parts and arches of individual sizes between each other. This ensures that the system features a unique flexibility during solution and seeking for an appropriate solution of a given order. Currently ABM Mosty owns 20 shutterings for arches and 15 shutterings for side parts, i.e. in theory approx. 300 various combinations!

The thickness of prefab side parts and arches is constant for one structure and ranges mostly from 180 to 340mm in the steps of 40mm. The longitudinal dimension of the parts is mostly limited by transportation and the basis is module dimension 2500mm. There are a couple of structure ending ways - monolithic retaining walls and wings or various types of reinforced fillings. For the CM4 system it is useful to apply standard side parts with bevel edges making a natural transition from a closed ring to an open portal.

The system can be expanded from one-chamber to multi-chamber one using special inner vertical walls containing two mirrored hole connections in the crown or simply pairing off basic rings.

Opti-Cadre<sup>®</sup> system shares a number of common features with system Matière CM4<sup>®</sup> and is used mainly for the object with a small filler. It consist again of four basic elements, however in this case the transverse profile has a frame shape. Thus the system is composed of an upper semi-frame, two side blocks and a prefab or monolithic bottom or footings for larger span. Opti-Cadre<sup>®</sup> system is intended for spans 4.0 to 15 meters with clear height 2.5 to 8.0 meters. Unlike Modularch<sup>®</sup> system the blocks are not marked as per inscribed area but simply as per clear span and height. Module dimension is again the standard of 2500mm, for larger spans mostly above 10 meters it is necessary the make the module dimension smaller due to block weight. The thickness of individual elements of the structure is commonly between 300mm to 500mm in the steps of 50mm.

The exclusive licence owner for Matière<sup>®</sup> systems in the CR and Slovakia is ABM Mosty that supplies the "turnkey" systems, i.e. provides the static proposal and production documentation, parts production, transport and object assembly itself. An exclusive parts producer for the CR and SR is ŽPSV a.s.. For more information please contact:

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