Scientific Circle of Mechanics of Structures KOMBO
Gdańsk University of Technology
ul. Gabriela Narutowicza 11/12
80-233 Gdańsk

Gdansk, January 22nd, 2026

wyKOMBinuj mOst 2026

Competition regulations

Organizer

§ 1

The Competition '**wyKOMBinuj mOst 2026**' (en. 'Create the bridge 2026'), further called '*Competition*' is organized by Scientific Circle of Mechanics of Structures KOMBO, supervised by Department of Mechanics of Materials and Structures at Faculty of Civil and Environmental Engineering at Gdansk University of Technology, further called '*Organizer*'.

Date, place, and course of the Competition

§ 2

1. The Competition will be held on **April 22-24, 2026**, on the campus of Gdansk University of Technology.
2. The Competition is held by the Organizer on the grounds of this document.
3. The Competition is divided into two stages:
   1) **Elimination stage**:
      - submission of the projects within the time limit set by the Organizer,
      - selection the teams qualified for the Competition.
   2) **The final stage** lasts three days:
      - first day – solving Competition task,
      - second day – Student Scientific Conference on Civil Engineering „KOMBOferencja" (PL), on the terms set out in separate regulations,
      - third day – load tests of prepared structures and a closing ceremony during which the results will be announced and the winners will be awarded.
4. The Organizer has a right to make minor changes, if necessary, in the Competition Regulations in future, with public announcement of that fact on the Competition's website www.wilis.pg.edu.pl/en/wykombinuj-most-contest.

Participants

§ 3

1. The Participants of the Competition are three-man Teams of **Students** on the Bachelor's or Master's level or **high-school Students**, all further called '*Participants*'.
2. Each high-school can register maximum of two Teams.
3. A Team can involve Students from different Universities or High Schools.
4. Participation in the Competition is **free of charge**.
5. The Organizer does not cover the costs of the transportation, oversleeps and other additional costs.

Competition Committee

§ 4

1. Composition of the Competition Committee will be determined by the Organizer and announced before the first day of the Competition. Assured Members of the Competition Committee would be: Head of Department of Mechanics of Materials and Structures, chosen scientific workers from GUT, and chosen members of KOMBO Scientific Circle. The Committee has a right to invite Special Guests to participate in the Committee works.
2. Head of the Committee is chosen from the Members of the Committee, during the Competition, by the voting majority.
3. Committee's tasks involve:
   - supervision of following the Competition Regulations,
   - supervision of correctness of the carried-out load tests,
   - deciding eventual disputes bounded with the Competition Regulations,
   - evaluation of sent projects and decision about their qualification to the Competition in case of the situation when the number of applications is above 30.

Essence of the Competition

§5

1. The aim of the Competition is to complete the tasks described in the article 6, paragraph 1 of this document.
2. The main and only condition of participating in the Competition is sending an application and a project of the Competition structure.
3. The applications and projects should be sent to the Organizer before **March 15, 2026** by email to the stated address wkm.wilis@pg.edu.pl.

4. **The registration form** is presented in the *Attachment A*. The form should be completed **electronically**, **printed**, and **signed** (a handwritten signature of each team member is required). The form should include **the size of the T-shirt**, in accordance with the size table in *Appendix D*. The completed and signed form should be scanned to a **file in PDF format**. It is required to save editable version of the form, fully corresponding with the printed version. The signatures are not required in the editable version.
5. Project should include at least plan, side, and front view along with dimensions, which will enable to check by the Committee if the project meets the Regulations requirements. Projects must be sent in a single file in **PDF format** (the file can contain multiple pages).
6. **The subject of the application mail** should be as follows: *TEAM_NAME*_WM2026. Four files should be involved in the application mail:
   - **scan of the registration form** (PDF), see article 5 paragraph 4, named:
     *TEAM_NAME*_FORM.PDF
   - **editable version of the registration form** (DOCX), see article 5 paragraph 4, named:
     *TEAM_NAME*_FORM.DOCX
   - **project of the bridge** (PDF), see article 5 paragraph 5, named:
     *TEAM_NAME*_PROJECT.PDF
   - **list of the additional things** (PDF), see article 6 paragraph 2, named:
     *TEAM_NAME*_THINGS.PDF

   Exemplary application mail for the Team named ‘KOMBO Breaker’:

   Subject of the mail: KOMBO_BREAKER_WM2026

   Files: KOMBO_BREAKER_FORM.PDF
   KOMBO_BREAKER_FORM.DOCX
   KOMBO_BREAKER_PROJECT.PDF
   KOMBO_BREAKER_THINGS.PDF
7. List of Teams qualified to the Competition will be announced on **March 31, 2026**, on the base of evaluation, in which correctness and technical understanding of the project would be taken into account. Projects would be verified by scientific workers from GUT, members of the Competition Committee.
8. In case of the number of applications exceeding 30, Teams representing foreign (non-Polish) universities and universities having speakers at the Conference would be taken into account with priority.

9. By joining the Competition, the Participant agrees to the recording and publication of his image to promote and popularize the Competition by the Organizer and Sponsors, as well as on placing his name, surname and university name on Organizer's websites and its Facebook profiles.

Competition task

§ 6

1. Each Team must complete a task, building a model of a bridge with the **theoretical span (between the supports) of 100 cm**, working as a simply supported beam using only provided materials and equipment described in the article 6, paragraph 2 of this document.
2. Participants must complete the given task using only the materials and articles provided by the Organizer:
    - **nine bristol boards** with dimension of 700 × 1000 mm (with tollerance ±3 mm) and grammage 250 g/m^2 (with tollerance ± 25 g/m^2),
    - **two bottles of polymeric glue**, each with volume of 500 ml (with tollerance ± 25 ml).

    Additionally, Participants can use own tools as:
    - scissors/scalpels,
    - rulers,
    - pens and pencils,
    - weights,
    - other articles declared by email along with the application and accepted by the Organizer.
3. Usage of power tools such as: drillers, grinders, jig saws, and others powered by electricity is forbidden. Usage of machines accelerating the glue drying is forbidden. That process should proceed naturally.
4. Gluing the bridges will be held in the place pointed out by the Organizer and on the previously prepared slots. Gluing and cutting outside the slot and directly on the floor is forbidden. Each slot is pointed out with the lines on the floor and consists of one table and three chairs.
5. During the Competition, the compliance of the glued structure with the project will be checked. Non-compliance may be the ground for disqualification. The Committee decides about possible disqualification.
6. After the gluing stage, Teams are obliged to mark the **'front' of their structures** (see *Attachment C, Loading space*).
7. During the entire Competition, the Participants are obliged to transport their own bridges in time and to the place indicated by the Organizer (among others, after gluing and before loading). Bridges, which

Representatives would not appear in the defined places, would be transported by the Organizer. The Organizer bears no responsibility of any possible damage acquired during the transportation. The transportation will be accompanied by the Organizer. It is not possible to transport the bridge before the end of regulated time.

8. The structure is required to have a **bridge deck**, which will enable to directly apply the load with Zwick/Roell testing machine. The load will be applied with the use of a force cell with dimensions of 10 × 10 cm in a drawn place according to the scheme presented in *Attachment C*. The structure must allow applying the load by the testing machine described in *Attachment C*.
9. The total length of the structure should exceed the theoretical span by at least 5 cm to ensure a stable, bilateral support of the bridge on supports. Allowed dimensions of the span could be found in *Attachment B*. The dimensions must also allow the test vehicle (toy car) to pass across the whole length of the bridge deck. The structure gauge is described in *Attachment C*. Moreover, the bridge deck should be straight, horizontal, and sufficiently stiff, to meet construction requirements typical for normally existing bridge structures. Under the weight of a passing vehicle, the local deflection should not exceed 2 cm at all points.
10. The place of applying the load would be drawn after the gluing of structures and will be the same for each Team. There are three possible places for applying the load by means of the force cell, located symmetrically over the bridge deck (*Attachment C*).
11. Stages of loading the span present as follows:
    - the bridge is weighed and measured to check if it meets the requirements,
    - if the mass and geometry are correct, the span is loaded with the test vehicle with a maximum mass of 2 kg and meeting the dimensions defined in *Attachment C*; the passing from one end to the other is performed by the Organizer in the presence of Team members,
    - if the vehicle is capable of passing through the deck, the bridge is placed by the Team members in the Zwick/Roell machine,
    - the span is initially loaded with the force of 10 N with the speed of 5 mm/min, in the previously drawn place (see *Attachment C*); obtained deflection is adopted as ‘zero state’,
    - the span is then further loaded in the same place with the speed of 15 mm/min,
    - a test is regarded as finished as soon as the deflection reaches 40 mm,
    - the load is relieved,
    - the bridge is taken out from the machine.

12. The bridges are classified by the coefficient *K*, calculated based on their load capacity and mass, according to the formula:

$$K_i = \frac{R_i^2}{m_i^{obl}},$$

where:

K_i – points of *i*-th Team [–],

R_i – maximum force carried by the bridge of *i*-th Team [N],

m_i^{obl} – computational mass of the bridge of *i*-th Team [g], calculated according to the formula:

$$m_i^{obl} = \begin{cases} 200 \text{ g} & \text{for } m_i < 200 \text{ g} \\ m_i & \text{for } m_i \geq 200 \text{ g} \end{cases}$$

m_i – real mass of the bridge of *i*-th Team [g].

13. The Organizer has a right to exclude from the Competition Participants who do not respect the rules stated in the Competition Regulations. Particular reasons could be:
    - breaking fair play rules,
    - using materials and tools other than stated in paragraph 2 of this article,
    - non-compliance of the performed structure with the project.

Awards

§ 7

1. Awards are funded by the Organizer.
2. Awards will be given to the Team members, whose structures reach the three highest values of *K* factor. Additional awards will be given to Teams members:
    - who estimate the load capacity of their bridge with the best accuracy; estimation take place after the construction stage – Team Captains must estimate the load in [N],
    - who estimate the mass of their bridge with the best accuracy; estimation take place after the construction stage – captains must estimate the mass in [g],
    - whose bridge will win the ‘Bridge Origami’ Competition, on the terms set out in separate regulations (*Attachment E*).
3. If teams representing at least three different high schools take part in the Competition, an additional prize will be awarded to the team that obtains the highest value *K* factor among teams representing high schools.
4. The awards will be handed over to the winners at a closing ceremony on the third day of the Competition, after the loading stage.

Closing resolutions

§ 8

1. All the disputes and claims related with the Competition will be solved by the Committee's voting majority.
2. When two Teams reach the same number of points *K*, the maximum load is a decisive criterion.
3. Participants are obliged to wear the ID provided by the Organizer in a visible place during the Competition. During the first day of the Competition, Participants are required to wear a T-shirt provided by the Organizer.
4. In all cases that are unregulated with this document common law is used.

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Attachment A

APPLICATION FORM – TEMPLATE

„wyKOMBinuj mOst 2026”

Organizer
Scientific Circle of Mechanics of Structures KOMBO, supervised by Department of Mechanics of Materials and Structures, Faculty of Civil and Environmental Engineering, Gdansk University of Technology

PLEASE FILL IN THE FORM ELECTRONICALLY, PRINT, SIGN AND SCAN

1) Team: *Team name*

2) Members:

	Member 1 – Captain	**Member 2**	**Member 3**
Name	*Name of Member 1*	*Name of Member 2*	*Name of Member 3*
Surname	*Surname of Member 1*	*Surname of Member 2*	*Surname of Member 3*
University/School	*University of Member 1*	*University of Member 2*	*University of Member 3*
Faculty	*Faculty at which Member 1 is studying*	*Faculty at which Member 2 is studying*	*Faculty at which Member 3 is studying*
Field of study	*Field of study of Member 1*	*Field of study of Member 2*	*Field of study of Member 3*
Year of study	*Year of study of Member 1*	*Year of study of Member 2*	*Year of study of Member 3*
T-shirt size	*T-shirt size for Member 1*	*T-shirt size for Member 2*	*T-shirt size for Member 3*

3) Contact details for Team Captain:

– e-mail address: *adress@mail.com*

– phone: *phone number*

I agree to the processing of personal data contained in this document for the purposes of the 'wyKOMBinuj mOst 2026' Contest in accordance with the Act of 10 May 2018 on the protection of personal data (Journal of Laws of 2018, item 1000) and in accordance with the Regulation European Parliament and Council (EU) 2016/679 of 27 April 2016 on the protection of individuals with regard to processing personal data and on the free movement of such data and the repeal of Directive 95/46 / EC (RODO).
I agree to publish my image recorded by the Organizer during the Competition and to use it for the purposes of the 'wyKOMBinuj mOst 2026' Contest.

.....

place, date .....
Place, date

.....
Participants' signatures

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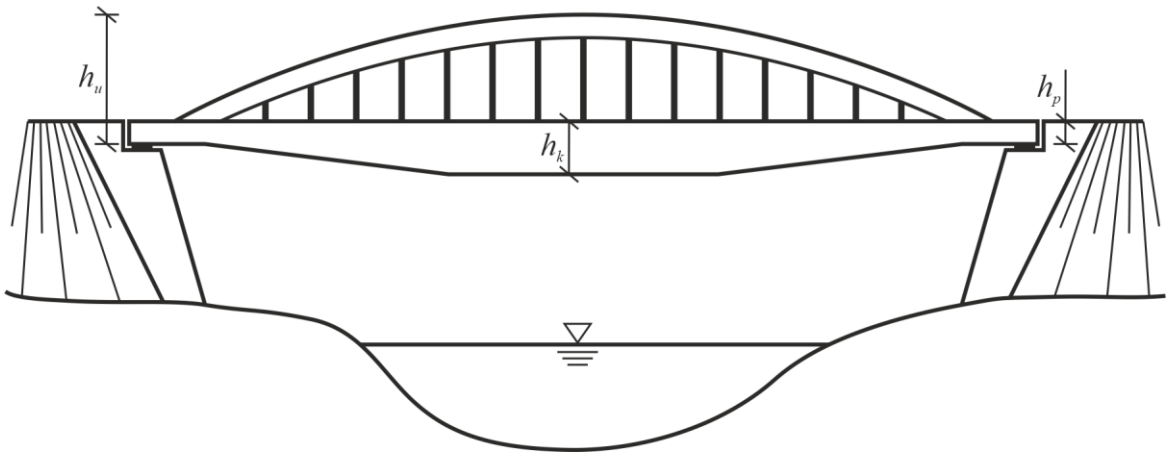
Attachment B

Acceptable span dimensions in longitudinal section

Exemplary longitudinal section of the bridge



h_k – **constructional height** – longest distance between the deck gradeline and bottom edge of the span (considered without deflection)

maximum constructional height: $h_k^{\max} = 15$ cm

h_p – **support height** – distance between the deck gradeline (above the support) and support point

maximum support height: $h_p^{\max} = 5$ cm

h_u – **superstructure height** – height measured from the supporting point to the top edge of the structure

maximum superstructure height: $h_u^{\max} = 25$ cm

l_t – **theoretical span** – distance between the supports

theoretical span: l_t = 100 cm

l_c – **total length** – distance between the most distant points of the structure (on the supports), measured along the length

total length: l_c = 105 – 120 cm

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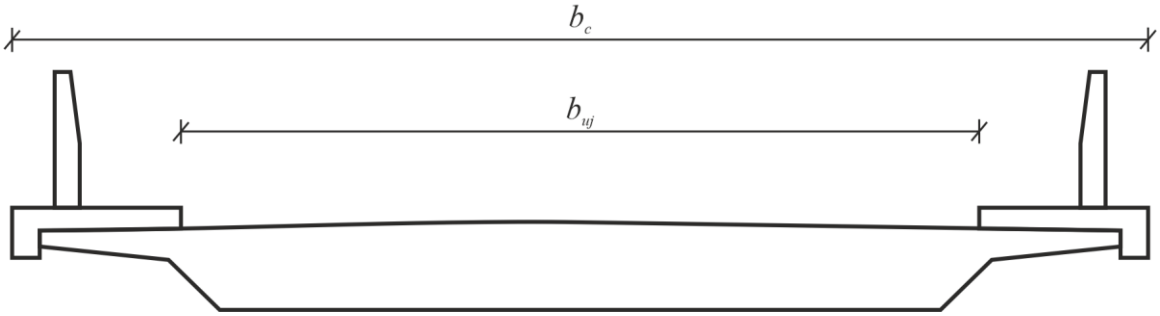
Acceptable span dimensions in cross section

Exemplary cross section of the bridge



b_c – **total width** – horizontal distance between external edges of the span cross section

maximum total width: $b_c^{\max} = 25$ cm

b_{uj} – **usable deck width** – width of the passable deck for the test vehicle (see *Attachment C*)

minimum usable deck width: $b_{uj}^{\min} = 16$ cm

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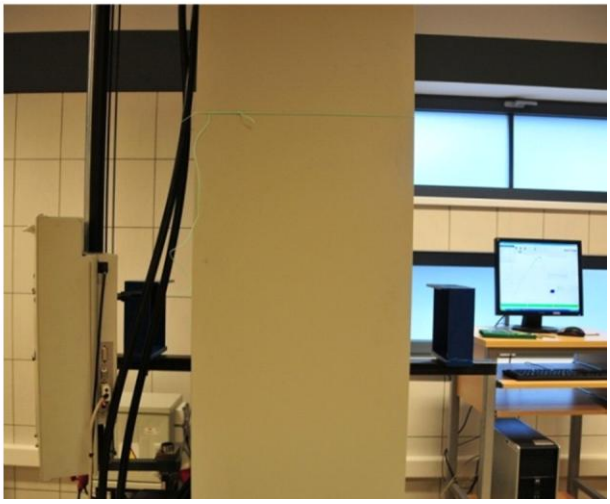
Attachment C

Measurement site

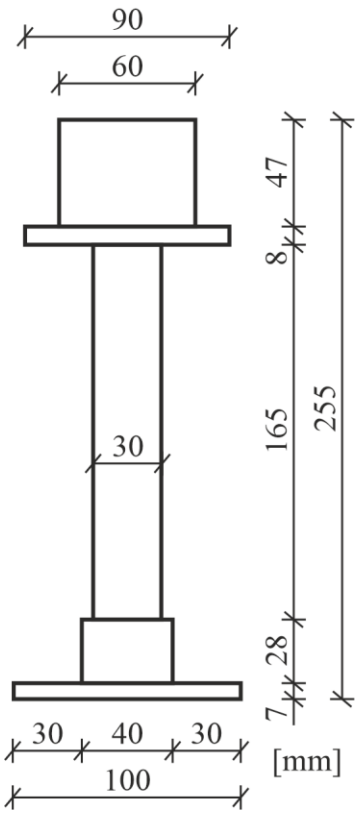
Front view

Side view

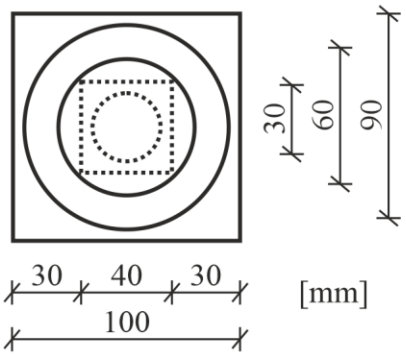


Load cell

Side view



Top view



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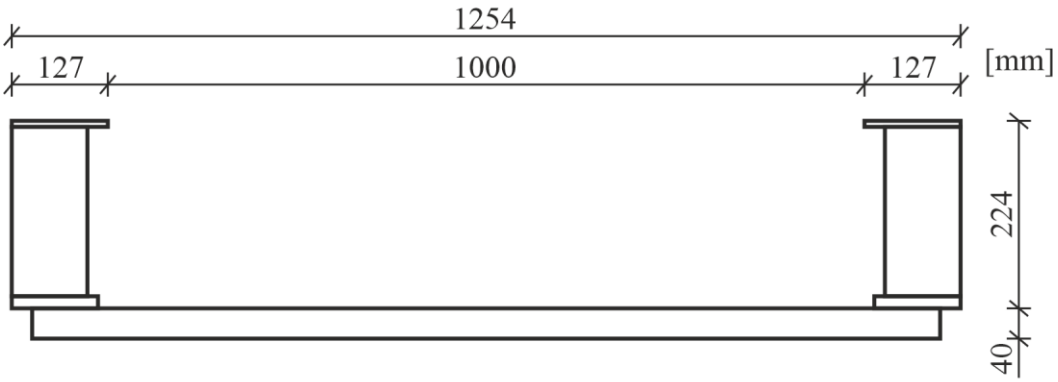
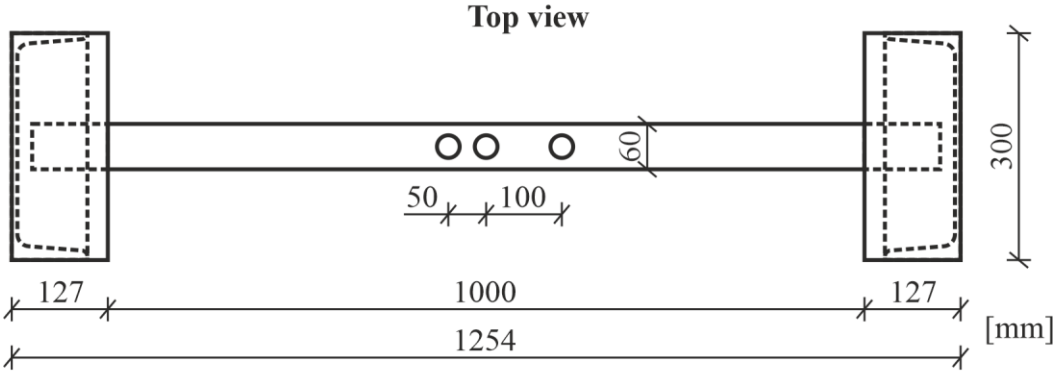
Support

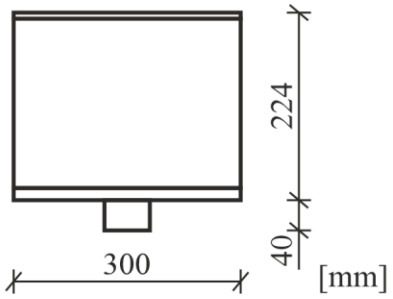
Side view



Top view



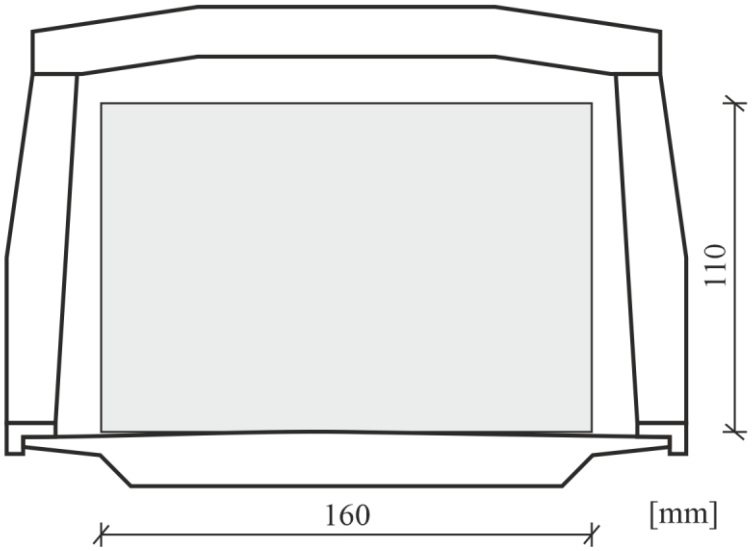
Front view



Structure gauge for the test vehicle

Structure gauge is defined as a free space above the bridge deck, enabling the test vehicle to pass through the bridge. It is a rectangle in the cross section with a width equal to the minimum deck usable width $b_s = b_{uj}^{\min} = 160$ mm and height $h_s = 110$ mm. The dimension of the bridge in the front view should not violate the gauge.

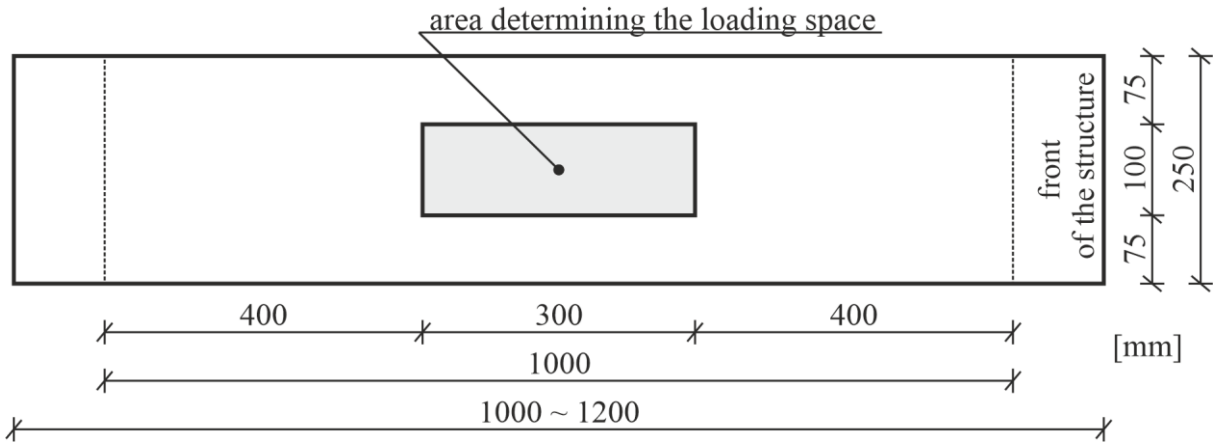
Front view of example structure with the structure gauge



Loading space

Loading space – space above the deck of the bridge marked by the rectangular field with dimensions of 300 × 100 mm, located symmetrically to the structure. It is forbidden to place any elements in the loading space, since it is a potential place for placing a loading cell.

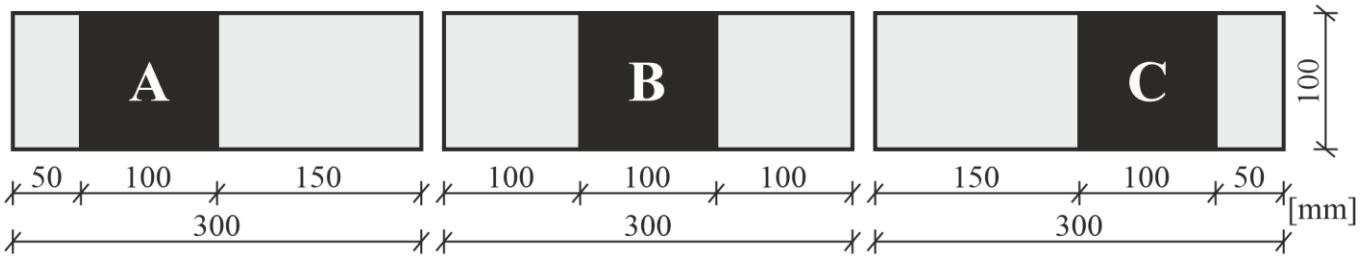
Location of the loading space on the bridge deck



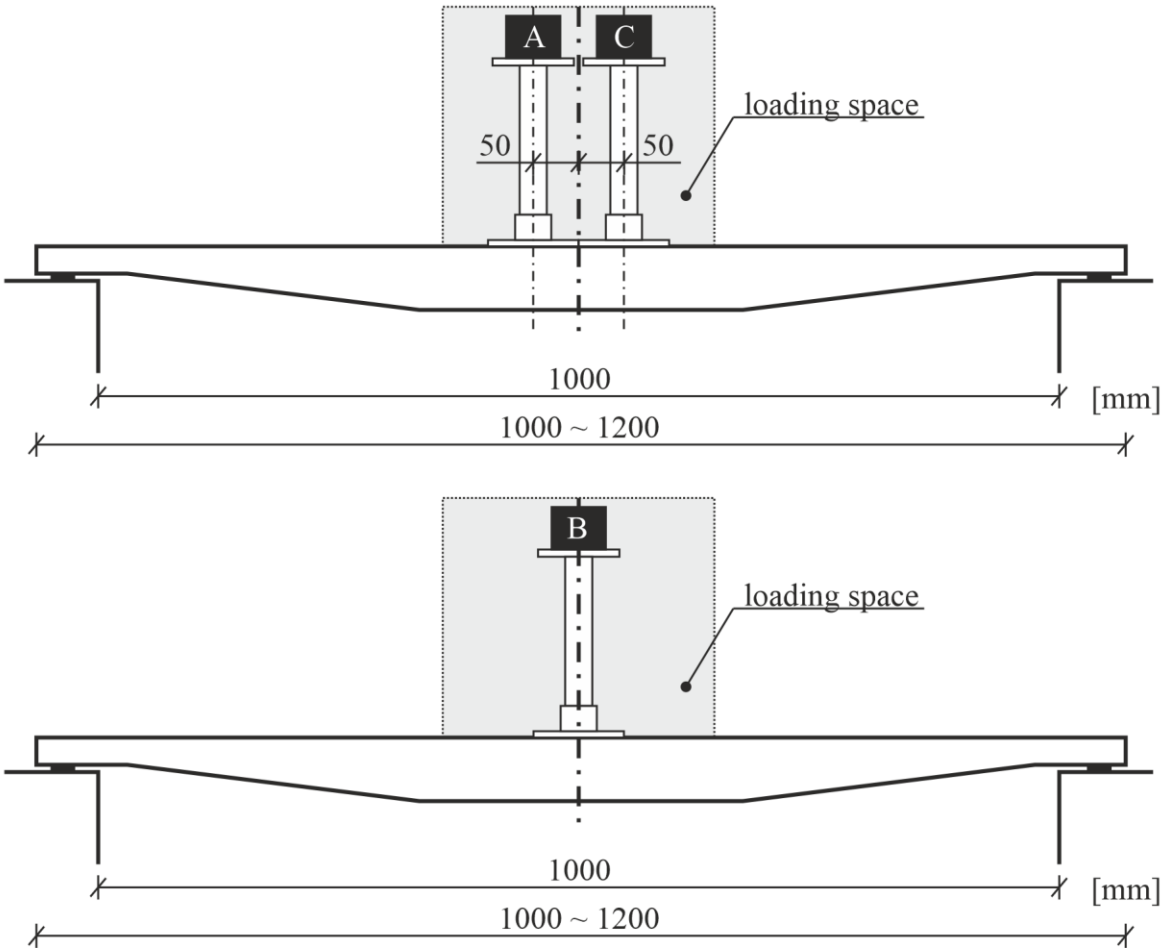
Location of load cell during loading

The load cell of the testing machine can be located at one of three positions: centrally (B) or with eccentricity of 50 mm (A – closer to the back of the structure or C – closer to the front).

Possible locations of the load cell in loading space (plan view)



Possible locations of the load cell (side view)



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Attachment D

T-shirt size table

	Women					Men								
Size	S	M	L	XL	XXL	XS	S	M	L	XL	XXL	3XL	4XL	5XL
Width [cm]	42	44	46	48	50	48	51	53,5	56	58	61	66	68	72
Height [cm]	60	62	64	66	68	68	70	72	74	76	78	82	84	88

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Attachment E

Regulations for Contest of Bridge Structures „Bridge Origami”

1. The Competition ‘Bridge Origami’, further called ‘Competition’ is organized by Scientific Circle of Mechanics of Structures KOMBO, supervised by Department of Mechanics of Materials and Structures at Faculty of Civil and Environmental Engineering at Gdansk University of Technology, further called ‘Organizer’.
2. The Competition will be held by the Organizer on the grounds of this document during ‘wyKOMBinuj mOst 2026’ Contest on **April 22 – 24, 2026**.
3. The participation in the Competition is reserved for the Teams qualified to the final stage of ‘wyKOMBinuj mOst 2026’ Contest.
4. On **April 23, 2026**, the Organizer will publish the photographs of Teams with their bridges, along with Team name, Participants names, and University/School name, on Facebook profile **www.facebook.com/wyKOMBinujmOst**. The photographs will be taken by the Organizer on **April 22, 2026**, after the construction stage.
5. At the time of publication, the electronic voting starts, which will last until **April 24, 2026, 12 p.m. UTC+2 (CEST)**.
6. The number of votes obtained by each Team will be the total number of all reactions obtained under the photo. The condition for voting is to have a profile on Facebook.
7. The Team with the highest number of votes is the winner. In the event that, after applying the above condition, the winner is not emerged, the final result will be determined by the higher number of ‘Love’ reactions obtained.
8. The results of the Competition will be announced on **April 24, 2026** during the award ceremony of the ‘wyKOMBinuj mOst 2026’ Contest at the Gdańsk University of Technology.
9. The Organizer is entitled to the exclusive interpretation of the Regulations. The Organizer also makes all decisions regarding the Competition in matters not covered by these Regulations.
10. The Organizer reserves the right to disqualify a Team in the event of a justified suspicion of fraudulent collection of Competition votes.