



FÉDÉRATION INTERNATIONALE DE LUGE
INTERNATIONAL LUGE FEDERATION
INTERNATIONALER RODELVERBAND

FIL Track Construction Regulations Artificial Track

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Introduction:

The FIL Track Regulations for Artificial Luge Tracks apply to all artificial luge tracks on which FIL competitions (races and/or training sessions) take place. These rules must be observed during the construction of new track projects as well as when making changes to the track design and sports-related infrastructure. Existing tracks remain permissible in accordance with the previously approved rules for the duration of their current homologation. Compliance with these rules is verified as part of the regular homologation process or in the event of incidents; where necessary, adjustments must be made by the track operator or the competent authority. Any unusual or dangerous incidents on the track must be reported by the track operator or the competent authority to the FIL Track Construction Commission.

In the event of future revisions or changes to these rules, existing tracks must implement the necessary changes within the timeframe specified by the FIL upon request from the Track Construction Commission.

When planning, building, or renovating tracks, attention must always be paid to the sustainability and long-term use of the sports facility; factors such as energy efficiency and the latest technologies, as well as spectator-friendly aspects and the use of the track for recreational sports such as tourist rides, should be taken into account.

Particularly with regard to financial investment, a balance should be found between the minimum necessary requirements for operational aspects and the measures required to ensure sustainability.

Compliance with the track regulations does not relieve the track designer and operator of the responsibility to consider aspects of safe and sustainable operation for all during planning and construction and to monitor these on an ongoing basis. The track regulations merely provide a framework within which the track designer and operator must, on their own responsibility, plan and construct a track that is built to the state of the art, safe to use, and sustainable. Official permits must be obtained independently of compliance with the FIL Track Construction Regulations.

FIL staff who provide support during the planning phase, construction or renovation, and commissioning of the track act solely in an advisory capacity regarding compliance with FIL rules. Responsibility for operation, safety, and compliance with the FIL Track Regulations lies solely with the track operator or the competent authority. Neither the FIL nor its employees assume any liability for the supporting staff in connection with the planning phase, construction or renovation, or the operation of the track.

For any planned renovation of an existing track, including partial renovations, track operators must notify and consult with the FIL as early as possible. This early consultation is necessary to ensure compliance with the FIL Track Regulations.

1. Environmental Protection

The environment, environmental protection, and sustainability must be given the highest priority during planning, construction, and operation.

2. FIL Track Construction Commission

The FIL Track Construction Commission accompanies the preparatory planning, planning, construction, and commissioning phases. The FIL Track Construction Commission is available to builders and operators of artificial luge tracks for consultation in exchange for reimbursement of daily rates and expense costs to be determined in advance. Builders and operators acknowledge and agree that such consultation does not relieve them of their own responsibility. Such consultation expressly does not constitute acceptance of the track or any part thereof. The FIL's liability for the activities of the Track Construction Commission is limited to cases of willful misconduct and gross negligence. This does not apply to personal injury.

3. Sports Area

The sports area includes the entire track structure as such, as well as all areas necessary for the practice of the sport and/or specified in the FIL's International Regulations.

4. Planning Preparation

The FIL Track Construction Commission must be involved in the planning phase as early as possible, particularly in the selection of the site for a new track and the location of any sections to be rebuilt. An on-site visit by representatives of the Track Construction Commission is mandatory.

5. General Planning

The Track Construction Commission must be consulted periodically during the planning phase. The Commission reviews the site selection and planning concepts and issues corresponding recommendations. The same applies to changes to the site and the planning concept.

6. Track Location

For sustainability reasons, the track should, as far as possible, be located on the north side of a slope. The site must be easily accessible via transportation and communication infrastructure. The course of the track should conform to the natural topography of the terrain as much as possible.

To ensure optimal utilization and long-term profitability of the facility, locations within reasonable proximity to urban areas or regions with higher population density should be given preference.

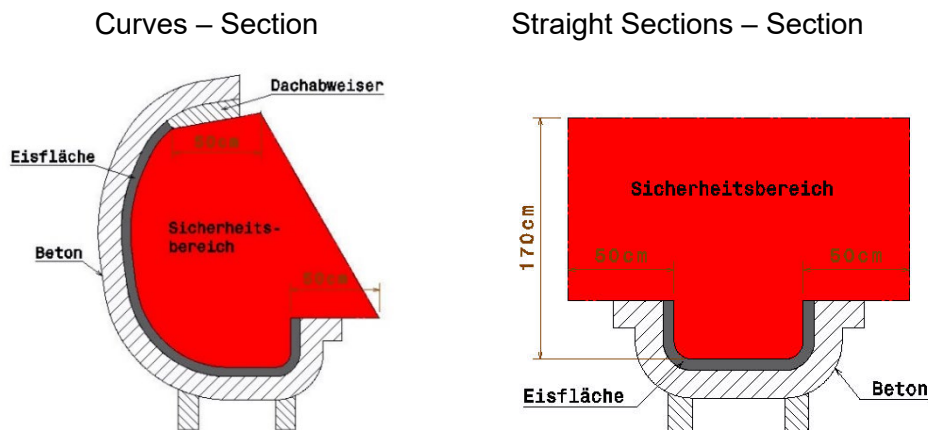
7. Track Length

New artificial luge tracks should have a competition length (distance from the start light barrier to the finish light barrier) of 1,200 to 1,400 meters. Depending on speed, the final 100 to 150 meters may run uphill and include curves. This section of the track must not exceed a gradient of 12%. The speed at the finish line should be over 80 km/h. After the timing point, the braking zone should be straight and free of curves.

8. Track Characteristics

The track must include sections with varying levels of technical difficulty. Technically challenging sections should be located in the first two-thirds of the track. On a project basis, the track should be designed to reach a speed of 80 to 100 km/h after 250 m. Curves, combinations of curves, and longer straightaways must be incorporated. Sections with an incline are also permitted within the competition track course. In the driving dynamics calculations, a speed of 135 km/h must not be exceeded.

9. Safety Zones Track Body



No permanent structures or installations are permitted in the areas marked in red. A minimum height of 210 cm must be ensured for the start and finish areas. Temporary structures and installations are permitted in accordance with the FIL regulations.

10. Start Area for Luge

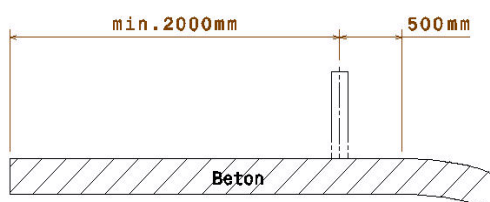
10.1 Start Facilities for Luge

The track must be equipped with starting facilities for men, women, doubles, juniors, and youth that ensure the smooth conduct of all disciplines. The starting area must be lockable during FIL competitions.

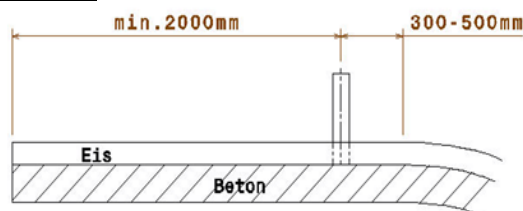
In the starting area, 20 m² must be provided at all official starting heights for the international classes for technical inspection, and 80 m² for sled preparation. Similarly large areas must also be provided at the starting heights for junior and youth events.

Specifically, the starting facilities include:

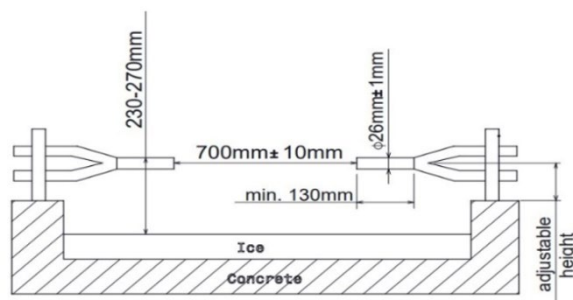
Concrete track



Ice track



- A horizontal ice surface on which the athlete can assume their position on the sled.
- Length of the horizontal ice surface from the starting handles to the rear end: at least 2000 mm (open at the rear).
- Length of the horizontal ice surface from the starting handles to the start of the run: concrete track 500 mm; ice track 300 mm – 500 mm.
- Two side-mounted, height-adjustable starting bars that the athlete can use to increase initial speed.
- The radius from the horizontal starting surface to the downward slope should be 4 to 6 meters.



- From the ice surface to the top edge of the handles at an equal height: 230 mm – 270 mm.
- Inner distance between the two handles: 700 mm ± 10 mm.
- Length of the handle: at least 130 mm.
- Diameter of the handle: 26 cm ± 1 mm.
- The surface of the grips must be grooved.
- The construction of the start handles must ensure that they cannot bend when pulled by the athlete.

- l) The start light barrier must be installed 5 to 10 m past the start handles. The start time (from the start light barrier to the next light barrier) should be greater than 3 seconds; if this is not possible, it should be immediately after the first curve.
- m) Photocells must be mounted at a height of 300 mm above the track surface in concrete tracks; in ice tracks, the height must be between 20 cm and 25 cm.

10.2 Luge Start Ramp

The start ramp should have a gradient of 20–25% and be at least 10 m and no more than 30 m long. The approach angle must not exceed 8 degrees relative to the track axis. Stable starting ramps are required for men, women, doubles, juniors, and Youth A. The locations are determined by the Track Construction Commission in consultation with the planner and the operator during the preliminary planning phase. Two additional starting points should be provided for youth and tourists.

10.3 Luge Start Signals

The start signal must be given both visually, via start signal lights that are clearly visible to the athletes, and acoustically. Start signal lights and start clocks with elapsed time displays must be installed at all start heights.

11. Curves

The curves must be designed so that the sleds can not only travel along a single racing line but can also choose their racing line from a range of possible racing lines. The curve height should not exceed 3 meters.

In the middle section of the curve, the racing line should run through the upper half of the curve.

The radii at the entry and exit points of the curves must be dimensioned so that a smooth entry and exit is possible and to prevent the sled from tipping over without causing a driving error.

In the cross-section, there must be a minimum curvature of 5 cm over a length of 1 meter.

The inner walls in the curves must have a height of 80 cm in the concrete structure, or 60 cm in the concrete structure plus a 20-cm wall extension (for a total height of 80 cm).

Exceptions to this rule are the start and finish areas.

12. Deflectors

Deflectors are additional safety devices installed along the iced track section. Their purpose is to guide sleds back onto the iced racing line. Deflectors must be designed to withstand the expected impact of the sled.

When designing deflectors and track side barriers, obtuse angles, sharp edges, and gaps should be avoided. The final design of the deflectors is determined by the Track Construction Commission on-site.

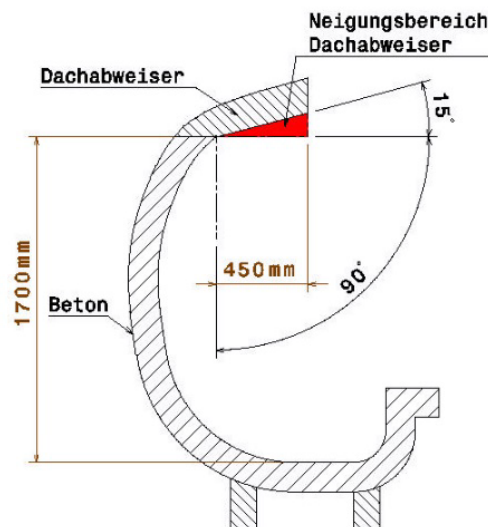
A basic distinction is made between vertical and horizontal deflectors.

12.1 Vertical Deflectors

- As a general rule, all curve entrances and exits must be secured with a vertical deflector.
- In curve entrances and exits with a particularly high degree of difficulty, the inner rail must also be equipped with a vertical deflector.
- Vertical deflectors must have an angle of ≤ 15 degrees at the beginning. In track sections where sleds can run backward, they must also have an angle of ≤ 15 degrees at the end.
- The upper edge of the taper (the wedge-shaped area at the beginning/end of the deflector) must be 15 cm wide.
- Vertical deflectors on straight sections are referred to as track superelevations.

12.2 Horizontal Deflectors

- As a general rule, all curves must be secured with a horizontal deflector extending from the entrance to the exit of the curve.
- The deflectors must be installed at a height of at least 170 cm and must have a width of at least 45 cm.
- The angle of the deflector relative to the vertical is 105 degrees. Adjustments are possible, but the angle must not be less than 90 degrees relative to the vertical.
- Horizontal deflectors must have an angle of ≤ 15 degrees at the beginning. In track sections where sleds can run backward, they must also have an angle of ≤ 15 degrees at the end.
- In slow curves, as well as in chicanes or curves with a very large radius, a vertical deflector may be constructed in place of a horizontal deflector.



13. Straightaways

In the concrete construction, the maximum width is 150 cm and the maximum height is 80 cm, or 60 cm in the concrete construction plus a 20-cm wall extension (for a total height of 80 cm).

Exceptions to this rule are the start and finish areas. The inner wall height must be at least 50 cm when the track is iced over. The walls on the straightaways should be at a right angle to the track bed. The transition from the side wall to the track bed in concrete construction must be filleted with a radius of 15 cm. At the transitions between a curve and a straight, the superelevated curve section must be gradually tapered into the curb of the straight over a sufficiently long distance.

14. Braking Zone

The braking zone must be constructed so that luge sleds come to a stop even without braking. The gradient of the braking zone must not exceed 20%.

The sleds must be able to continue unimpeded at the end of the iced track. If necessary, deceleration devices may be installed for speeds below 30 km/h to prevent injury to persons and minimize damage to the equipment.

As a general rule, the design office should provide exit points in the outrun area for slower sleds, with little or no slope.

15. Centrifugal Forces

Centrifugal forces of $\geq 5G$ must not occur continuously for more than 2 seconds.

16. Lighting

For training and racing operations, the lighting must meet the following criteria:

- a) Uniform, even illumination that is free of shadows and glare.
- b) In the event of a power failure, a residual illuminance of approximately 300 LUX must be maintained for a period of at least 10 minutes.
- c) The lighting should be set up in such a way that events can be broadcast on TV or streamed. The minimum LUX level required for this is 1,200.

17. Safety Equipment

- a) A continuous video surveillance system must be installed along the track. This system must also be connected to the emergency power supply and powered by it for 10 minutes.
- b) A continuous public address system must be installed along the track and in the buildings relevant to the sporting events. This system should be connected to the emergency power supply and powered by it for 10 minutes.
- c) Two-way communication stations must be available at all starting heights, in the finish area, and along the track to enable communication with the timing staff.

18. Timing system

In accordance with FIL rules (IRO §4, Timekeeping).
Photocells for measuring time and speed should only be installed in areas with vertical walls. To obtain more meaningful results, the photocells used for speed measurement should be at least 10 m apart.

19. Sun and Weather Protection

A track should be completely covered and provide effective protection from the elements. Supports (of any type and for any purpose) and mounting systems must be at least 50 cm from the inside of the walls. The covers must not significantly obstruct television broadcasts or the view of spectators. They should, if possible, be removable. Local climatic conditions must be taken into consideration. To reduce maintenance costs over the long term, a fully covered track is recommended. Such a roof also reduces energy consumption.

20. Water Supply

A frost-protected water supply system with a sufficient number of properly protected hydrants must be installed along the racetrack. Access to the hydrants from the racetrack must be ensured.

21. Maintenance and Walkways

A maintenance walkway for coaches and athletes, as well as for the upkeep and maintenance of the ice surface, should run immediately alongside the entire track. This walkway should have a minimum width of 80 cm and, if possible, be constructed of steel grating. It must be possible to cross from one side of the track to the other via several overpasses or underpasses. In addition, the overall planning of the walkway system must take the needs of spectators into account.

22. Infrastructure

The areas designated for the warm-up zone, the start and finish buildings, and the weighing enclosure must be sufficiently large. In particular, sufficiently large and safe outdoor areas should be provided for athletes to warm up, although an indoor enclosure is preferable whenever possible. A medical room, a doping control station (which should include a waiting area, a processing area, and adjacent restrooms—see the ITA Guidelines for Doping Controls in Competition for further details), and a room for equipment inspections must be provided. These rooms must comply with the requirements of the FIL's international rules. Any necessary auxiliary facilities may also be temporary in nature. The construction of the artificial luge track will be determined jointly by the project initiator and the Track Construction Commission or other FIL representatives. The structural infrastructure of the sports venue should be designed to be accessible to people with disabilities.

23. Cost Allocation

The cost estimate and construction costs for an artificial luge track must be itemized as follows:

- a) Costs for the track and infrastructure incurred in accordance with FIL regulations and requirements.
- b) Other costs, such as a longer track, improved infrastructure, access roads, site development, etc.

The exact allocation is determined in consultation between the contracting body and the FIL Track Construction Commission or other officials authorized by the FIL.

24. Exceptions

In special cases, exceptions to these rules are possible. For this, the FIL Executive Board or its authorized representatives must approve these exceptions in writing. For the construction of short tracks, modifications to these regulations may be made by the Track Construction Commissions in accordance with the track's intended sporting use. Exceptions to these track construction regulations are granted on a case-by-case basis for existing tracks through regular homologation procedures. An exemption does not affect the sole responsibility of the track builder or operator for technical planning and implementation, track safety, and environmental compatibility. Responsibility for the planning and construction—including those parts that are the subject of the exemption—lies solely with the track builder or operator.

25. Homologation

To be used in FIL events, the track must be homologated by the FIL. The track operator or builder acknowledges and agrees that homologation does not constitute a comprehensive review of the calculations, planning, or execution of work. In particular, homologation does not constitute an acceptance of the track by the FIL. The FIL assumes no responsibility or liability whatsoever for the accuracy of the calculations, the planning, or the execution of work in connection with the construction or renovation of tracks. Responsibility for planning, calculations, and construction lies

exclusively with the planner, architect, or engineer responsible for the planning and the construction company carrying out the work.

Homologation of a newly built track:

The track must undergo a homologation process, which is divided into two stages.

a) Pre-homologation

For pre-homologation, the track structure must be completed and the track must be fully iced. Buildings or access roads may still be under construction; however, access to the track must be ensured for medical personnel at all points, and the safety of participants in the pre-homologation must be guaranteed. Preliminary homologation serves to verify the track's suitability for competition. This requires the participation of international athletes, coaches, and officials from all disciplines. The total number of participants is determined by the International Luge Federation (FIL) and must be appropriate for the purpose of the inspection. The track operator shall fully reimburse the participation costs. If required by the Track Construction Commission, the cooling system must undergo a "stress test." Following the pre-homologation, the FIL prepares a report, which is submitted to the track operator (pre-homologation report). At least eight weeks prior to the pre-homologation of a track, as well as upon request by the FIL Track Construction Commission at any time, the track builder and/or operator must submit the driving dynamics calculations prepared prior to the start of construction—including any subsequent updates, if applicable—for review.

b) Homologation

Homologation is granted upon successful completion of the pre-homologation process. Once all additional requirements listed in the pre-homologation report have been met and the "builder's declaration" has been submitted, a homologation certificate is issued.

For existing tracks undergoing renovation or reconstruction, a modified pre-homologation procedure applies. The procedure for this pre-homologation process is determined by the Track Construction Commission with the approval of the FIL.

26. Temporary Structures

Temporary installations may be erected for various purposes. Final approval is granted either in advance by submitting an application to the FIL for the respective event, or by the person responsible within the federation in accordance with the statutes, in the case of installations set up on-site at short notice.

The exact specifications for temporary structures can be found on the FIL website under "Rules/Artificial Track Rules/Guidelines for Temporary Structures."

27. Validity

In the event of any discrepancies between the English and German versions, the German version shall prevail.

28. General Recommendations

The International Luge Federation (FIL) places great importance on the sustainable and long-term use of the track in both winter and summer. In this context, **the FIL recommends** taking the following aspects into consideration when constructing a new track or renovating an existing one.

Spectator Experience

Luge is characterized by the proximity between spectators and the sport at the venue. To enhance this unique experience, a “stadium” atmosphere should be created, particularly at the start and finish lines, which allows for a gathering of spectators—for example, through the use of grandstands. In this regard, provisions should be made for temporary expansions to accommodate major events.

Along the track itself, video monitors placed at regular intervals have proven effective (see the Königssee track). The placement of large video walls at the start and finish for spectators should also be planned.

Hospitality Area

Permanently installed hospitality areas have proven effective for both VIP and client events. The investment pays for itself over the course of its useful life.

Media

For major events, such as World Cups or World Championships, sufficient space must be planned for television broadcast equipment and commentary booths. Suitable locations for photographers along the track must be provided.

As a general rule, costs should always be evaluated in terms of long-term use, taking environmental considerations and energy efficiency into account.