

SPORTING CODE

EURO STAR CUP AND OPEN GERMAN CHAMPIONSHIP OF THE DMFV (GERMAN MODEL FLYING ASSOCIATION)

Stand-off Scale (piston engine-powered model aircraft) EXPERT Stand-off Scale (piston engine-powered model aircraft) SPORT English version 1 / 2021

DMFV – Head of division

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1. Terms of Conditions

1.1: All modellers are eligible to participate (not only members of the DMFV) who possess an adequate insurance.

1.2: All replicas of piston and jet propulsion man-carrying aircraft are accepted which were or are still present in aviation history.

1.3: For fighters, trainers, aerobatic and potential reconnaissance aircraft with **jet propulsion** the total score for flight will be multiplied by a K-factor of 0.9. This shall provide the equality of opportunity for all participants.

1.4: In order to motivate the general modeller's community to participate at the contest, all models built by various techniques are accepted.

1.5: Each participant is allowed to make use of one model aircraft only.

Each participant can fly merely one model aircraft.

Participants, which fly in both classes are penalised by 15% on total score in Stand-off Scale Sports Class ("beginners class").

Models, which have already won the German Championship in the EXPERT Class are charged by 50 minus points in statics and flight for each win, respectively.

1.6: Teams are not allowed.

1.7: Model aircraft, which exceeds the authorised maximum take-off weight (MTOW) needs a valid airworthiness certificate.

1.8: All models are weighed prior to the first flight and possibly reweigh prior to the second flight.

1.9: If the aircraft loses parts, the flight has to be stopped, and landing has to be induced immediately. Already acquired points will be maintained.

1.10: Contest registration has to be carried out in writing by using the official registration form. Registration is legal if the registration form is complete and the entry fee is paid.

1.11: The entry fee is 15 Euro.

1.12: At the beginning of the contest briefing, the participant should be present in time with his model aircraft ready for flight.

1.13: <u>Participants, who may be on the first three places but not present at the contest will be placed</u> <u>last. This is valid for all single contests as well as for the overall standings.</u>

1.14: All participants obtain a certificate.

The first three places will receive a trophy, respectively. Furthermore, the German Champion as well as the final winner of the European Star Cup obtain a challenge cup.

Participants, who subsequently have won the challenge cup three times the challenge cup will be passed into ownership.

1.15: Cancellation of the contest - the DMFV (Deutscher Modellflieger Verband-German Model Flying Association) reserves the right to cancel the German Championship or individual contests. In case of cancelation, already paid entry fees will be paid back. In addition, there are no further claims of compensation or reimbursement to the DMFV and organising flying club. Especially, there are no claims of compensation for traveling or lodging.

1.16: The consummation of alcohol and any kind of drugs (according to the current banned substances of the World Anti-Doping Agency) is forbidden for each participant.

1.17: The final competition result is evaluated in percentage points. The number of points for the bestseeded participant in a Euro Star Cup contest will be scored 100 %. In case of two or more participants have the same number of points after three contests, a fourth contest is taken into account until the final winner has been determined.

1.18: Contest rules:

In Germany, the Euro Star Cup competition has to be held according to the present sporting code. Due to the fact, that foreign contest organisers do not need to employ the present sporting code it can be variant at particular contests, however, the sporting code is employed at most Euro Star Cup contests.

The open German Championship is held according to the DMFV sporting code.

1.19: Final scoring

In order to get into the final scoring of the Euro Star Cub, one has to participate at three ESC contests, whereof one of these three contests must be abroad. For the final score the three best contest is considered.

1.20: Pandemic regulations

[...] With regard to the current SARS-CoV2 pandemic regulations for contests have to be considered. Current legal circumstances at the contest location, i.e., organising clubs, participants and all spectators strictly have to follow the regulatory requirements and rules of the RDM. All participants have to read up on current Covid regulations. Additionally, face masks and keep sufficient distance to other people according to obligatory current regulations is recommended during the contest. [...]

1.21: If any ESC contest does not take place abroad due to, e.g. SARS-CoV2 pandemic, three domestic and best-scored contests for the overall standings are taken into account.

2. Statics

2.1: Three-view drawing (both classes)

The three-view drawing has to be at least in DIN A4 size. The aircraft on the three-view drawing must have at least a span of 15 cm. It must be a published three-view drawing. The source has to be documented.

3. Static judging (Score sheet A) – Expert Class Only

Every participant has to present **5 copies** (Euro Star Cup 3 copies) of the three-view drawing, technical drawings, photos or other illustrations of the full-size aircraft. It has turned out to be tactical if a few but a precise and well-arranged documentation should be provided for each judge.

Insufficient documentation will be charge with penalty marks. Example: if merely one set of documentation is provided the model aircraft will be assessed by <u>one</u> judge. The other judges will score a zero.

The beauty of a model is not a crucial factor for its construction assessment, but it is solely the degree of the consistency with the full-size aircraft.

So-called small parts and details are assessed to a lesser extent. They proportionally play a role for the aircraft components. Missing parts and details cause just a few penalty marks. Scale model aircraft is accepted, but it is considered to be assessed semi scale accuracy. For all models, static judging is carried out at 5 metres distance. The appropriate judging time shall be no longer than 15 minutes.

3.1 Fuselage, wings and tail unit accuracy (outline)

A subjective assessment is carried out in accordance with the overall impression, shape, geometry as well as contour by the judges. The surface texture (not colour) and a distortion-free appearance of the components is reviewed. With visual judgement, the dimensions of wing controls are assessed and if slats and flaps exist or take-off and landing aids are incorporated, although, they may not possibly be established in the full-size aircraft.

3.2 Landing gear accuracy

Attention is paid to position, angle, size, wheels and suspension.

3.3 Struts accuracy

Attention is paid to position, angle, shape and size.

3.4 Cabin accuracy

At this point, a clear separation to a scale contest is met. The interior of the cabin is definitely not considered during the assessment of the model aircraft. Each judge shall be unimpressed by an ultimately detailed scale cockpit interior. Assessment is carried out for glazing or if the cabin is just painted on (50% deduction). Furthermore, one has to compare between glazing of minor quality and the deviation of the cabin's strut forming. The position and dimension of the cabin are matched with the documentation by visual judgement.

3.5 Engine installation

For statics, propellers and spinners can be exchanged. Except these exchangeable parts, the model aircraft has to be presented as being flown.

3.6 Colour accuracy

Colouring and markings have to be documented. This is possible by using colourised general drawings or by colour images of the full-size aircraft. If the participating modeller specifies these documents the accuracy between the documentation and model aircraft, even though, the exact colour of the full-size aircraft is not expressed caused by printing techniques.

Colouring can be described textually, even by a general documentation. Frequently, this is the only option to approximately describe the colouring of a vintage aircraft. In this case, the description of a similar aircraft is permitted. A convincing, excellent finishing is not decisive, but the degree of accuracy

between the model aircraft and the documentation. A skilful realisation of operational aircraft should be condignly considered. One has to survey if a matt finish exists.

3.7 Markings accuracy

In this category, possibly existing nationality and identification markings ought to be assessed. The judges access the existence and visualise the position, size, colour shade of nationality and identification markings, insignia, numbers, lettering, advertising inscriptions and squadron badges which can be found on the model aircraft. Thereby, the layout quality is considered. All markings which belong to the generic term "instructions" (e.g., "Danger", "Lift Here", Tire Pressure", etc.) are not considered. Model aircraft of full-size aircraft, which demonstrably did not have markings at all get full marks. Existing badges of a model company label (company name or similar) is penalised by reduced score.

Due to law enforcement swastikas are not allowed to be shown. Existing markings have to be removed or garbled.

3.8 Inapplicable marks in statics

All marks are inapplicable if the participant does not finish "take-off" at least.

4. Flight judging (Score sheet B) – both classes

4.1 Compulsory exercise and freestyle

The flying performance of the model aircraft is judged in compulsory exercises and freestyle. The participant selects four freestyle manoeuvres and bindingly write them down on the evaluation sheet in the correct order and deliver it to the control centre. Intermediate landing finishes the heat.

4.2. Conditions of assessment

In fight, the marks range from 0 to 10 in steps of 0.5 points. Here, a fair average quality performance is standardised. For safety reasons, each pilot can leave the pilot zone during take-off, approach and landing. All manoeuvres the pilot flies being outside the pilot zone, is scored **zero**. Each manoeuvre, which is directly flown near or above spectators, is scored **zero**. In this case, flight control can sound a note of warning or even disqualify the pilot. Total flight time of each participant is 15 minutes. Multiengine model aircraft gets an additional minute to the nominal flight time per engine (not valid for electric powered models). All manoeuvres, which are flown out of flight time are scored **zero**. Evident slip of the tongue while announcing a manoeuvre does not result in zero scoring if immediately corrected.

4.3. Preparation of flight

After calling to be ready for take-off all preparations should be met as possible. Then, the model aircraft can taxi or be carried to the "runway". This arrangement was made for replicas of previous years, which are hardly to control on the ground. The pilot zone is directly in front of the judges. According to safety aspects, the pilot may leave the pilot zone for take-off, approach and landing.

4.4 Technical fault

A technical fault can be announced once a heat, and as long as the second manoeuvre has not been commenced. The participant then will be relegated two numbers. The time for a restart is the remaining time of the first start. If the participant is not ready for take-off after being relegated the heat for him is finished. The last but one starter and last starter of a heat will have 15 and 30 minutes for repair, respectively, after the heat is finished.

5 Flight judging of compulsory exercises – manoeuvres

5.1. Take-off

The model aircraft should stand still on the ground with the engine running without being touched by the pilot or an assisting person (mechanic). If the model aircraft is touched after the pilot calls "Now" the manoeuvre take-off will be scored zero. Take-off has to be carried out upwind but alongside the landing area (runway) which is parallel to the judge's line. Take-off ought to be in a straight line. The model aircraft should accelerate gradually to a realistic speed and gently lift off the ground at an appropriate angle according to the full-size aircraft. Take-off is finished after the model has turned by 90 degrees and passed on to a level flight.



Errors:

- Model aircraft is touched after calling "Now" (0 marks)
- Model aircraft swings during acceleration (For a model with a landing gear different to a tricycle undercarriage, slight swinging after tail is raised can be accepted)
- Take-off run is too long or too short
- Unrealistic speed / acceleration too strong
- Landing gear retracted at too low altitude after lift-off
- Lift-off is not smooth
- Wrong climb rate (too steep or too shallow)
- Angle of attack is wrong during climb (nose too high or too low)
- Landing gear not retracted if applicable
- Model significantly drops wing
- Climb is not in line with direction of runway
- Unrealistic 90-degree turn to crosswind leg
- Crosswind leg not 90 degrees to runway
- No "Now" and "Finished" (zero marks)

5.2 Flight in a straight line

The model aircraft flies for 100 m or 10 sec. at constant altitude upwind, according to take-off. The centre of the manoeuvre is in front of the judges. By means of this manoeuvre, the altitude of all following manoeuvres is determined (except downward manoeuvres).



- Flight not straight (slight correction for lighter models are accepted)
- Not at constant altitude
- Not above the landing area
- Centre of total run not in front of the judges'
 position
- Not parallel to judges' line
- Distance too short (no error if distance too long)
- Flight direction of the model is not tender and steady
- Length of run not on constant level
- No "Now" and "Finished" (zero marks)

5.3 Figure eight

The model aircraft approaches in a straight a level flight parallel to the judges' line. It makes a onequarter circle in a direction away from the judges' line. Then a 360-degree turn follows in the opposite direction, followed by a 270-degree in the first direction. The manoeuvre is completed on the initial approach line.

The intersection of the two circles (central point) ought to be on a line, which is at right angle of the entry. It should be in front of the judges.



Errors:

- Entry into the first circle not 90 degrees to approach
- Size of circles not equal
- Missed circles
- Altitude not constant
- Intersection point not in front of the judges' position
- Direction of entry and exit not identical
- Direction of entry and exit not parallel to judges' line.
- Total size of manoeuvre not realistic in comparison to full size aircraft
- Flight path not smooth and steady
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

5.4 360°- Descending circle at constant half throttle engine

While approaching with constant altitude the model commences a 360-degree circle by descending above the landing area away from the judges with constant half throttle engine. The manoeuvre finishes at a maximum of 6 m altitude and continues flight at constant altitude until "finished" is called.



- Rate of descent not constant
- Descent too steep
- Setting of throttle not constant or low enough
- Missed circle
- No conspicuous loss of altitude
- Descent does not finish at 6 m or below
- Circle not in front of the judges
- Entry and exit paths not parallel to the judges
- "Now" and "Finished" not called at straight flight and constant altitude
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

5.5 Rectangular approach

The rectangular approach begins in take-off and upwind direction in front of the pilot. It is followed by a 90-degree turn (1), a straight crosswind leg, a second 90-degree turn (2), a downwind flight, a third 90-degree turn (3), a base leg at which the engine is throttled and the model starts to descent smoothly, and a fourth 90-degree turn (4) into upwind before landing is commenced. An existing retractable landing gear ought to be activated during the upwind path. During approach, existing flaps shall be set at an appropriate moment.



5.6. Landing

The model ought to be held off, according to the full-size aircraft, and touched down smoothly without bouncing. After rolling to a stop, the model ought to stand still in take-off or in flight direction. Rotation by 90 degrees will result in a reduction of 30%. In case that the model gets on its nose, the landing points is reduced by 50%. Model aircraft, which lands or runs off the landing area or indicated landing area limits, landing is scored **zero**. If the model does not stop landing is scored **zero**. Landing direction is the same like take-off direction.



- Model does not perform the correct landing speed or flight attitude
- Model does not descent continuously
- Model does not touch down ahead centre line
- Touch down not smooth
- Model touches down after centre line
- Not parallel to judges` line
- Model does not stop parallel to judges` line
- Model does not stop at all
- No "Now" and "Finished" (zero marks)

6. Flight judging of freestyle - manoeuvers

6.1 Chandelle

The manoeuvre ought to be commenced coming from a straight flight at constant altitude and then starts to turn by 180 degrees in front of the pilot while increasing altitude away from the judges. The manoeuvre finishes with a straight flight of constant altitude in the opposite direction. The angle of climb shall be according to the full-size aircraft.



Errors:

- Turn not smooth and continuous
- Climb not smooth and continuous
- Half of aspired altitude not reached at 90 degrees
- Excessive/unrealistic power performance of engine during climb
- Climb insignificant
- "Now" and "Finished" not in front of judges' position
- Entry and exit path not parallel to the judges` line
- Exit path not 180 degrees in opposition to direction of entry path
- Entry and exit path not in straight flight at constant altitude
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.2. Procedure turn

The model commences a 90-degree turn (away from the judges) coming from a straight flight, followed by a 270-degree turn.



- Turn not 90 degrees to entry path
- Not at constant altitude during manoeuvre
- "Circle" missed
- Entry and exit path not parallel to judges` line
- Size of manoeuvre unrealistic in comparison to full size aircraft
- Path not smooth and steady
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.3 Wingover

The model aircraft flies in a straight line at constant altitude parallel to the judges' line. After passing the judges, it smoothly climbs and makes a wingover away from the judges. At the highest point, the model ought to be at a 45-degree slope. It continues the manoeuvre until a 180-degree turn is carried out and then commences a dive of the same initial climb angle. The manoeuvre finishes at the identical altitude of entry path but on the opposite heading. If the model is low powered according to the full size aircraft, it can go into a shallow dive before climb. This manoeuvre is accepted for non-aerobatic aircraft only.



Errors:

- "Now" and "Finished" not in front of judges
- Insufficient Climb
- Insufficient slope
- Climb and dive angle not uniform during manoeuvre
- Model does not fly smoothly and steadily
- Entry and exit path not parallel to the judges` line
- Size of manoeuvre unrealistic in comparison to full size aircraft
- Path not smooth and steady
- Too far away, too close, too high, too low
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.4 Flight in a straight line at constant altitude (max. 6 m)

The model flies in a straight line at constant altitude, which shall not exceed 6 m, for a distance of 100 m or 10 sec. After the manoeuvre is finished, the model ought to climb again. This manoeuvre shall demonstrate a low fly-by.



- Not a straight line (for lighter Aircraft, tender corrections are accepted)
- Altitude not constant
- Flight path not above landing area
- Not centred in front of the judges
- Not parallel to judges' line
- Distance too short (no error if distance too long)
- Model flight path not steady
- Too high
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.5 Roll

From a straight flight at constant altitude, the model aircraft rolls at constant rate by making a complete rotation about its longitudinal axis, and finishes the manoeuvre with a straight at constant altitude according to its entry path. The participant must announce the type of roll he likes to perform (e.g. slow roll, barrel or snap roll). One roll can be performed per heat only.



6.6 Loop

From a straight flight, the model aircraft flies into a circular loop and finishes the loop by continuing straight and level flight in the same direction of the entry path. The engine may be throttled at the highest point of the loop according to the full-size aircraft, before being opened in the straight flight position of the exit path. Low powered model aircraft is allowed to go into a shallow dive at full throttle before commencing the manoeuvre.

Comment: While the loop should be a circular manoeuvre, it is rarely impossible to fly it as a perfect circle for low powered model aircraft, but for jet planes and highly powered aerobatics aircraft. Consequently, a somewhat oval shaped loop of the first-mentioned aircraft has to be scored in the same way like a circular shaped one as expected from the latter aircraft. However, a grossly misshapen loop should significantly be scored down. This applies to all other manoeuvre, which involve loops or parts of it.



- Loop "twisted"
- Loop not circular, with attention to relevant full-size aircraft
- Insufficient use of throttle
- Size and speed of loop not according to full size aircraft
- Loop not in front of judges
- Model does not fly in a straight line, level path and on the same track like manoeuvre was commenced
- Manoeuvre not parallel to judges' line
- Too far away, too close, too high, too low
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.7 Stall turn

The model aircraft commences the manoeuvre in straight and level flight and climbs nose up vertically until it stops. At this point, the model aircraft turns 180 degrees about its normal axis away from the judges, then dives and smoothly pulls out in the opposite direction. The entrance and exit path ought to be at the same altitude. Low powered model aircraft may carry out a shallow dive at full throttle, in order to gain necessary speed before commencing the manoeuvre.



Errors:

- Entry and exit path not parallel to judges' line
- Pull up not in appropriate view of judges
- Pull up and dive not near vertical
- Vertical climb not pronounced
- Model aircraft does not stop at highest point
- Entry and exit path not on the same level
- Model aircraft does not turn within maximum half wingspan away from entry track
- Entry and exit path not parallel to judges' line
- Too far away, too close, too high, too low
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.8 Inverted flight

Inverted flight is commenced and diverted making half rolls (considered for scoring). The state of inverted flight must be 5 seconds or 50 m. Commencement can be from the left or right direction and half roll in can arbitrarily be right or left rolling.



• No "Now" and "Finished" (zero marks)

6.9 Immelmann turn – split S (reversal)

Commencement and finish of manoeuvre is carried out in front of the Pilot (judges) parallel to the landing area. From a straight flight, the model aircraft goes into a half circular inside loop followed by a half roll. It conspicuously resumes in a level flight and then makes a half roll again followed by a half circular loop, in order to finish the manoeuvre in a straight and level flight on the entry path. Commencement can arbitrarily be from the left or right direction. The distances a and b shall be equal.



6.10 Spin - three turns

From a straight and level flight, the model aircraft exacts a stall and then commences a spin through three turns. After three turns, the model recovers to a straight and level flight on the same track as the initial flight direction. During descent, the model aircraft is allowed to drift with the wind.



6.11 Cuban eight

The model aircraft pulls into a circular inside loop after passing the judges until it reaches 45 degrees in the downward position. It makes a half roll centred in front of the judges and resumes the 45 degrees dive until it reaches the altitude of the entry path. Now, the model goes into a straight and level flight and flies the same manoeuvre in the opposite direction again. The manoeuvre finishes in a straight and level flight like on entry path. At the highest point of the manoeuvre, the engine can be throttled down, and during the downward path, the throttle can be opened again, according to the full size aircraft.



Errors:

- Manoeuvre not flow in vertical plane parallel to judges' line
- Loops not circular
- Loops do not have equal diameters
- Half rolls not centred in front of the judges
- No 45-degree paths
- Entry and exit path not on the same level
- Model does not finish manoeuvre in a straight and level flight like entry path
- Insufficient use of throttle
- Size of loops and speed not according to full size aircraft
- Too far away, too close, too high, too low
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.12 Immelmann turn

From a straight and level flight, the model aircraft pulls into a circular half loop (according to the full size aircraft) and makes a half roll as soon as inverted, in order to exit the manoeuvre in a straight and level flight in the opposite direction.



- Half loop not in vertical plane
- Half loop not shaped like half of a circle
- Half roll too early or too late
- Excessive loss of altitude during half roll
- Change of course during half loop
- Model aircraft does not finish the manoeuvre on straight and level flight in the opposite direction
- Entry and exit path not parallel to judges' line
- Speed and size of manoeuvre not according
- to the full-size aircraft
- Too far away, too close, too high, too low
 Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.13 Split S (reversal)

From a straight flight, the model aircraft makes a half roll until it is inverted, followed by a circular downward half loop. The manoeuvre finishes at a straight and level flight in the opposite direction. When inverted, the engine ought to be throttled down. Once the model is in a horizontal position, the throttle ought to be opened again.



Errors:

- Change of course during half loop
- Model aircraft inverted too long or too short
- Insufficient use of throttle
- Half loop not on track and in vertical plane
- Half loop not shaped like half of a circle
- Half loop too fast and too narrow
- Model aircraft does not finish manoeuvre in a straight, level flight and same path as entered
- Entry and exit path not parallel to judges' line
- Too far away, too close, too high, too low
- Entry and exit path not on the same level
- No "Now" and "Finished" (zero marks)

6.14 Overshoot

The model aircraft commences descending from a straight crosswind leg. Here, the engine is throttled down and flaps are set if available. Then a 90-degree turn follows upwind into take-off direction. In the centre of the landing area at an altitude of 3 m the throttle must be opened, in order to finish descent. After reaching a level flight and right speed, the model climbs again. This manoeuvre shall simulate an aborted landing procedure with a higher approach as usually carried out.



- Manoeuvre not commenced on crosswind leg
- Turn not smooth and continuous or not 90
 degrees
- Model aircraft does not perform the correct, too high landing approach
- Model aircraft does not perform the correct landing speed or attitude of flight
- Model aircraft does not continuously descend before the throttle is opened again
- Model aircraft extremely descends to above or below 3 m
- Lowest point of manoeuvre not in front of judges
- No smooth change of speed and attitude of flight, from descent to recovery into climb
- Incorrect use of flaps and /or landing gear
 Model aircraft could make a landing from approach
- Model aircraft does not carry out a smooth climb
- Approach and climb not equal
- Too close, too far away
- Initial approach not level
- No "Now" and "Finished" (zero marks)

6.15 Touch and Go

The model aircraft commences the manoeuvre by descending on the crosswind leg followed by a 90-degree turn to a final approach. The model aircraft lands and takes off upwind without coming to a stop. The main landing gear must roll at least 5 m on the ground. Flaps ought to be used if applicable.



• No "Now" and "Finished" (zero marks)

6.16 Flight in triangular circuit

The model aircraft approaches in a straight and level flight and makes a 30-degree turn directly in front of and away from the judges. It flies straight and level not less than 150 m, and then makes a 60-degree turn to a 150 m long path parallel to the judges' line. After this, the model aircraft makes a second 60-degree turn towards the judges and flies not less than 150 m. Finally, the model makes a 30-degree turn in front of the judges' position and finishes the manoeuvre on a path parallel to the judges' line in the same direction of the entry path.



- Manoeuvre is not commenced and finished at equidistant points
- Model aircraft varies altitude
- Turns not steady or no 30- and 60-degree turns
- Legs of triangle not straight
- Length of legs not equal
- Legs of triangle too long or too short
- Origin and endpoint (apex) of triangle not centred in front of judges
- Drift angle not sufficiently corrected
- Entry and exit path not equal
- Entry and exit path not parallel to judges' line
- Too far away, too close, too high, too low
- Entry and exit path not horizontal
- No "Now" and "Finished" (zero marks)

6.17 Flight in circular circuit

The model aircraft approaches in a straight and level flight and makes a 360-degree turn (circle) directly in front of and away from the judges.



Errors:

- Circle missed
- No level flight
- Entry and exit path not equal
- Entry and exit path not parallel to judges'
 line
- Size of manoeuvre not realistic in accordance to the full-size aircraft
- Track of model aircraft not smooth and constant
- Entry and exit path not horizontal
- No "Now" and "Finished" (zero marks)

6.18 Flight in rectangular circuit

The model aircraft approaches in a straight and level flight parallel to the judges' line, passes the judges, continues at least 75 m and then turns 90 degrees away from the judges. After 150 m, the model aircraft turns by 90 degrees again to fly at least 75 m parallel to the judges' line and then makes a turn towards the judges. It flies a distance of 150 m and then turns in front of the judges, in order to take the initial flight path. The model aircraft flies a manoeuvre, which describes a rectangle above ground.



- Manoeuvre is not commenced and finished at equidistant points from the judges
- Model aircraft varies altitude
- Turns not constant or not 90 degrees
- No equal legs
- Legs too long or too short
- No equal length of opposite legs
- Drift angle not sufficiently corrected
- Final leg of rectangle not centred in front of judges' position
- Entry and exit path not equal
- Entry and exit path not parallel to judges' line
- Too far away, too close, too high, too low
- Entry and exit path not horizontal
- Long legs not twice as long as short legs
- No "Now" and "Finished" (zero marks)

6.19 Side slip

The model aircraft approaches in a level flight but higher altitude than for a landing approach where it reduces power on the base leg. Then, it turns into upwind direction parallel to the judges' line. Now the model aircraft start a sideslip by the opposite operation of the rudder and aileron leading to a yaw of 20 degrees minimum off track. The achievement of speed at final approach and the loss of altitude must be conspicuous. From the manoeuvre sideslip, landing in front of the judges should be possible, if continued. At the judges' position sideslip should be finished below 5 m, and the model aircraft resumes in normal flight by climbing on exit path. This manoeuvre shall demonstrate a marked loss of altitude without gaining substantial speed and without applying flaps.



6.20 Flight in a straight line with one engine throttled

The model aircraft approaches in straight and level flight with one engine throttled for a minimum of 100 m. After 100 m, the throttle is opened at which the model aircraft continues in normal attitude of flight. This manoeuvre is accepted only for multi-engine aircraft, but without a mid-engine.



7. Flight judging

7.1 Selection of manoeuvres

Beside of the six compulsory manoeuvres, every pilot has to choose four additional manoeuvres, which are typical for the full-size aircraft. The specification of proof for the full-size aircraft, i.e., the assessment of the aerobatic capability, the properties of the full-size aircraft have to be taken as a basis, not those of the replica.

7.2 Coefficients

Each freestyle manoeuvre possesses the same K-factor.

7.3 Sound emission

The sound level may not exceed the value constituted in the airfield permit.

7.4 Sound level - assessment

Not applicable!

7.5 Speed of the model aircraft

The speed of the model aircraft should be according to the full-size aircraft. Too fast or too slow will be down marked.

7.6 Elegance of flight

Flight is assessed by considering the model aircraft stability, arrangement of air space between the manoeuvres, size and positioning of the manoeuvres.

7.7 Selection of manoeuvres

Manoeuvres must be selected in accordance to the full-size aircraft capabilities.

For aerobatic aircraft, four freestyle manoeuvres must be selected from the following list:

6.5	Roll
6.6	Loop
6.7	Stall turn
6.8	Inverted flight
6.9	Immelmann turn – split S (reversal)
6.10	Spin-three turns
6.11	Cuban eight
6.12	Immelmann turn
6.13	Split S (reversal)
6.15	Touch and Go

For replica of conditional aerobatic aircraft, two aerobatic manoeuvres must be selected from the following list, (conditional aerobatic capability must be proven. In case of doubt, the arbitrating body has to decide)

6.5	Roll
6.6	Loop
6.7	Stall turn
6.8	Inverted flight
6.9	Immelmann turn – split S (reversal)
6.10	Spin-three turns
6.11	Cuban eight
6.12	Immelmann turn
6.13	Split S (reversal)

and two manoeuvers must be selected from the next list:

6.1	Chandelle
6.2	Procedure turn
6.3	Wingover
6.4	Flight in a straight line at constant altitude
	(max. 6 m)
6.14	Overshoot
6.15	Touch and Go
6.16	Flight in triangular circuit
6.17	Flight in circular circuit
6.18	Flight in rectangular circuit
6.19	Side slip
6.20	Flight in a straight line with one engine
	throttled

For non-aerobatic aircraft, four manoeuvers must be selected as listed below:

6.1	Chandelle	
6.2	Procedure turn	
6.3	Wingover	
6.4	Flight in a straight line at constant altitude	
	(max. 6 m)	
6.14	Overshoot	
6.15	Touch and Go	
6.16	Flight in triangular circuit	
6.17	Flight in circular circuit	
6.18	Flight in rectangular circuit	
6.19	Side slip	
6.20	Flight in a straight line with one engine	
	throttled	

7.8 Flight safety

Flight safety is of ultimate ambition for this kind of contest. By means of various measures (safety net, transmitter and frequency control, preparation area, function check prior to take-off) guarantees passive safety. The pilot confirms by signature that the model aircraft had its virgin flight, is technically sound, and he is able to control the model aircraft. Flying above safety zones results in an immediate abortion of flight. Manoeuvres flown behind the judges result in zero scoring. Instructions from the flight control or competition manager must thoroughly be followed. Participants who consciously violate safety regulations will be suspended from the contest.

7.9 Flights

Basically, three flights are aspired, whereupon the flight with the lowest number of points will be deleted and the mean value of the two best flights is taken. If it is mandatory to carry out only two flights due to any circumstances, the worst flight is deleted and the best one is taken. If it is mandatory to carry out a single flight only, this one is taken.

8. Evaluation of the various results

8.1 Static judging

The total score of static judging result from the construction points of score sheet A.

8.2 Construction (see score sheet A)

Five consolidated judges assess the constructional quality of a model aircraft (Euro Star Cup-three judges). The judges are able to give marks from 0 to 100. The data centre multiplies the marks by the respective coefficients. In order to obtain a well-balanced assessment from five judges, the best and worst assessment will be deleted. With three judges, one finally averages over three assessments.

8.3 Flight judging (see score sheet B)

For flight judging, five or three consolidated judges are deployed. The judges assign marks between 0 and 10 (step 0.5) for each manoeuvre. The data centre multiplies the marks by the respective coefficients. In order to obtain a well-balanced assessment from five judges, the best and worst assessment will be deleted. With three judges, one finally averages over three assessments.

9. Overall standings

The points of the overall standings result from:

- Expert class: sum of static and flight judging
- Sports class: flight judging only

10. Arbitrating body

The arbitrating body consist of the competition manager, the head of division and one elected representative from the participants.

10.1 Protest / exclusion of legal recourse

Civil action against the decision of a sports representative is excluded. Participants may enter a prompt protest to the arbitrating body, which must be in written form. Protests are accepted within 30 minutes only after the last run is finished. For entering a protest, the participant has to deposit an amount of 20 Euro. If the arbitrating body makes a positive decision the amount of 20 Euro will be repaid. The decision of the arbitrating body is concluding and final. Civil action against the decision of the arbitrating body is excluded.

11. Amendments - sporting code 2018

Points that are modified:

- There is only one sporting code for the Euro Star Cup and the Open German Championship in the expert and sports class.
- Participants who participate in both classes (Expert and sports class) are 15 % down scored in the sports class.

- Registration needs to be made in writing in due time to the competition manager by using the official forms. The registration is legal if the registration form is complete and the entry fee is paid.
- Participants, who may be on the first three places but not present at the contest will be placed last. This is valid for all single contests as well as for the overall standings.
- The first three places will receive a trophy, respectively. Furthermore, the German Champion as well as the final winner of the European Star Cup obtain a challenge cup.
- Pandemic regulations were added.
- If any ESC contest does not take place abroad due to, e.g. SARS-CoV2 pandemic, three domestic and best-scored contests for the overall standings are taken into account.
- If the aircraft loses parts, the flight has to be stopped, and landing has to be induced immediately. Already acquired points will be maintained.
- Announcement "technical fault" was added.

The specification of proof for the full-size aircraft, i.e., the assessment of the aerobatic capability, the properties of the full-size aircraft have to be taken as a basis, not those of the replica.

Score sheet A (static judging)

ESC contest:	
Number:	
Participant:	
Model aircraft:	

Construction	Coefficient	Points 1 to 100	
Rumpf (fuselage)	2,50		
Flächen (wings)	3,50		
Leitwerk (tailplane)	2,50		
Fahrwerk (landing gear)	1,50	x/ 0,6	
Streben (struts)	1,50	x/ 0,4	
Kabine (cabin)	2,50		
Motoreneinbau (engine installation)	2,50		
Farbgebung (colour)	1,50		
Markierungen (markings)	1,50		
		Number of points:	

Total:	

Signature of judge:	

Score sheet B (flight judging)

ESC contest:	
Number:	
Participant:	
Model aircraft:	
Heat:	

Scale of model aircraft:	1:	Speed of full-size aircraft:	km/h

Aerobatic manoeuvres

- 6.9 Auf & Abschwung (Immelmann turn/split S) 6.5 Rolle (roll)
- 6.6 Looping (loop)
- 6.7 Turn (stall turn)
- 6.8 Rückenflug (inverted flight)
- 6.12 Aufschwung (Immelmann turn)
- 6.13 Abschwung (split S (reversal))
- 6.10 Trudeln drei Umdrehungen (spin-3 turns)
- 6.11 Kuban Acht (cuban eight)
- 6.20 Flug mit einem gedrosselten Motor (flight with one engine throttled)
- 6.15 Touch and Go

Non-aerobatic manoeuvres

- 6.1 Chandelle
- 6.2 Verfahrenskurve (procedure turn)
 6.4 Niedriger Vorbeiflug (flight in a straight line at constant altitude (max. 6 m))
 6.14 Durchstarten (overshoot)
 6.15 Touch and Go
 6.16 Dreieckskurs (Flight in triangular circuit)
 6.17 Horizontaler Vollkreis (flight in circular circuit)
 6.18 Rechteckkurs (flight in rectangular circuit)
 6.19 Seitenslip (side slip)
 6.3 Kehrtkurve (wingover)
- 6.20 Flug mit einem gedrosselten Motor

Replica of conditional aerobatic full-size aircraft must select at least two aerobatic manoeuvers.

	Aerobatic: yes no Conditional aerobatic: yes	Coefficient	Points 1 - 10
1	Start (take-off)	50	
2	Geradeausflug (flight in a straight line)	20	
3	Horizontale Acht (figure eight)	50	
4	Sinkkreis 360° (descending circle)	40	
Freestyle 5		40	
Freestyle 6		40	
Freestyle 7		40	
Freestyle 8		40	
9	Landeanflug (approach)	50	
10	Landung (landing)	50	
11	Geschwindigkeit des Modells (speed)	40	
12	Eleganz des Fluges (elegance of flight)	40	
			Total:

Signature of judge:	
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Anmeldung DM Semi Scale Großmodelle

Anmeldung in der Expert-Klasse O Anmeldung in der Sport-Klasse			
Vorname: Nachname:			
Staatsangehörigkeit:			
Straße, Hausnr.:			
PLZ, Ort:			
Land:			
EMail-Adresse:			
Telefonnummer:			
Geburtsdatum:			
Verein:			
Organisiert bei:			
Versicherung vorhanden, Versicherungsnummer:			
Lärmpass vorhanden:) ja O nein			
e-ID Registriernummer:			
Anreise am:			
Zimmernachweis erwünscht (Reservierung muss selbst vorgenommen werden)			

Wohnwagen oder Zelt

Hiermit bestätige ich, dass mein Modell ordnungsgemäß eingeflogen und dass seine Technik nach den im Modellflug üblichen Maßstäben in Ordnung ist. Ich bin ausreichend versichert, die Teilnahmebedingungen und Datenschutzbestimmungen sind mit bekannt.

Angaben zum Modell

Typbezeichnung:						
Spannweite [mm]:	Länge [mm]:	Gewicht [g]:				
Maßstab:	Bauzeit [h]:					
Fernsteuerung:						
Frequenz:	Kanal:					
Motor Fabrikat:						
Hubraum [ccm]:	Anzahl:					
 Zweitakt-Motor 	O Viertakt-Motor O Turbinenantrieb	O Elektroantrieb				
	Angaben zum Vorbild					
Angaben zum Vo	rbild					
Angaben zum Vo	rbild Länge [m]:	Gewicht [kg]:				
Angaben zum Vo Spannweite [m]: Baujahr:	rbild Länge [m]: Geschwindigkeit [km/h] (erfor	Gewicht [kg]:				
Angaben zum Vo Spannweite [m]: Baujahr: Verwendungszweck:	rbild Länge [m]: Geschwindigkeit [km/h] (erfor	Gewicht [kg]:				
Angaben zum Vo Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort:	rbild Länge [m]: Geschwindigkeit [km/h] (erfor	Gewicht [kg]:				
Angaben zum Vo Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort: Einsatzzeit:	rbild Länge [m]: Geschwindigkeit [km/h] (erfor	Gewicht [kg]:				
Angaben zum Vo Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort: Einsatzzeit: Name Pilot/Eigentüm	rbild Länge [m]: Geschwindigkeit [km/h] (erfor	Gewicht [kg]:				

Die Herkunft der 3-Seiten Ansicht muss belegt werden, z. B.: aus Fachbüchern, Zeitschriften oder anderen Quellen. Bei Verstoß erfolgt der Ausschluss vom Wettbewerb. Für die Baubewertung bitte 5 Kopien der 3-Seiten Ansicht mitbringen.



Angaben zum Flugprogramm

kunstflugtauglich O nicht kunstflugtauglich O bedingt kunstflugtaulich

Bitte 4 Kürfiguren auswählen und in der Reihenfolge 1 bis 4 beziffern.

	n.K.	Chandelle
	n.K.	Verfahrenskurve
	n.K.	Kehrtkurve
	n.K.	Flug in gerader Linie bei gleich bleibender Höhe (max. 6m)
	к.	Rolle
	к.	Looping
	к.	Turn
	к.	Rückenflug
	к.	Aufschwung - Abschwung
	к.	Trudeln 3 Umdrehungen
	к.	Kuban Acht
2	к.	Aufschwung
3	к.	Abschwung
•	n.K.	Durchstarten
5	n.K./K.	Touch and Go
3	n.K.	Dreieckskurs
	n.K.	Horizontaler Vollkreis
	n.K.	Rechteckskurs
	n.K.	Seitenslip
	n.K./K.	Flug mit einem gedrosselten Motor (nicht gültig für Mittelmotormodelle
		n.K. n.K. n.K. n.K. n.K. K. K.

Anmeldung Eurostar Cup Wettbewerb in	
Anmeldung in der Expert-Klasse O Anmeldung in der Sport-Klasse	
Vorname: Nachname:	-
Staatsangehörigkeit:	
Straße, Hausnr.:	
PLZ, Ort:	٦
Land:	
EMail-Adresse:	
Telefonnummer:	
Geburtsdatum:	
Verein:	
Organisiert bei:	
Versicherung vorhanden, Versicherungsnummer:	
Lärmpass vorhanden:) ja O nein	
e-ID Registriernummer:	
Anreise am:	
Zimmernachweis erwünscht (Reservierung muss selbst vorgenommen werden)	
Li vvonnwagen oder Zeit	
seine Technik nach den im Modellflug üblichen Maßstäben in Ordnung ist. Ich bin ausreichend versichert, die Teilnahmebedingungen und	

Datenschutzbestimmungen sind mit bekannt.

Angaben zum Modell

Typbezeichnung:	
Spannweite [mm]:	Länge [mm]: Gewicht [g]:
Maßstab:	Bauzeit [h]:
Fernsteuerung:	
Frequenz:	Kanal:
Motor Fabrikat:	
Hubraum [ccm]:	Anzahl:
Zweitakt-Motor O	Viertakt-Motor 🔿 Turbinenantrieb 🔿 Elektroantrieb
Angaben zum Vorb	ld
Angaben zum Vorb	Id Länge [m]: Gewicht [kg]:
Angaben zum Vorb Spannweite [m]: Baujahr:	Id Länge [m]: Gewicht [kg]: Geschwindigkeit [km/h] (erforderlich):
Angaben zum Vorb Spannweite [m]: Baujahr: Verwendungszweck:	Id Länge [m]: Gewicht [kg]: Geschwindigkeit [km/h] (erforderlich):
Angaben zum Vorb Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort:	Id Länge [m]: Gewicht [kg]: Geschwindigkeit [km/h] (erforderlich):
Angaben zum Vorb Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort: Einsatzzeit:	Id Länge [m]: Gewicht [kg]: Geschwindigkeit [km/h] (erforderlich):
Angaben zum Vorb Spannweite [m]: Baujahr: Verwendungszweck: Einsatzort: Einsatzzeit: Name Pilot/Eigentümer:	Id Länge [m]: Gewicht [kg]: Geschwindigkeit [km/h] (erforderlich):

Die Herkunft der 3-Seiten Ansicht muss belegt werden, z. B.: aus Fachbüchern, Zeitschriften oder anderen Quellen. Bei Verstoß erfolgt der Ausschluss vom Wettbewerb. Für die Baubewertung bitte 3 Kopien der 3-Seiten Ansicht mitbringen.



Angaben zum Flugprogramm

kunstflugtauglich O nicht kunstflugtauglich O bedingt kunstflugtaulich

Bitte 4 Kürfiguren auswählen und in der Reihenfolge 1 bis 4 beziffern.

6.1	n.K.	Chandelle
6.2	n.K.	Verfahrenskurve
6.3	n.K.	Kehrtkurve
6.4	n.K.	Flug in gerader Linie bei gleich bleibender Höhe (max. 6m)
6.5	к.	Rolle
6.6	к.	Looping
6.7	к.	Turn
6.8	к.	Rückenflug
6.9	к.	Aufschwung - Abschwung
6.10	к.	Trudeln 3 Umdrehungen
6.11	к.	Kuban Acht
6.12	к.	Aufschwung
6.13	к.	Abschwung
6.14	n.K.	Durchstarten
6.15	n.K./K.	Touch and Go
6.16	n.K.	Dreieckskurs
6.17	n.K.	Horizontaler Vollkreis
6.18	n.K.	Rechteckskurs
6.19	n.K.	Seitenslip
6.20	n.K./K.	Flug mit einem gedrosselten Motor (nicht gültig für Mittelmotormodelle)