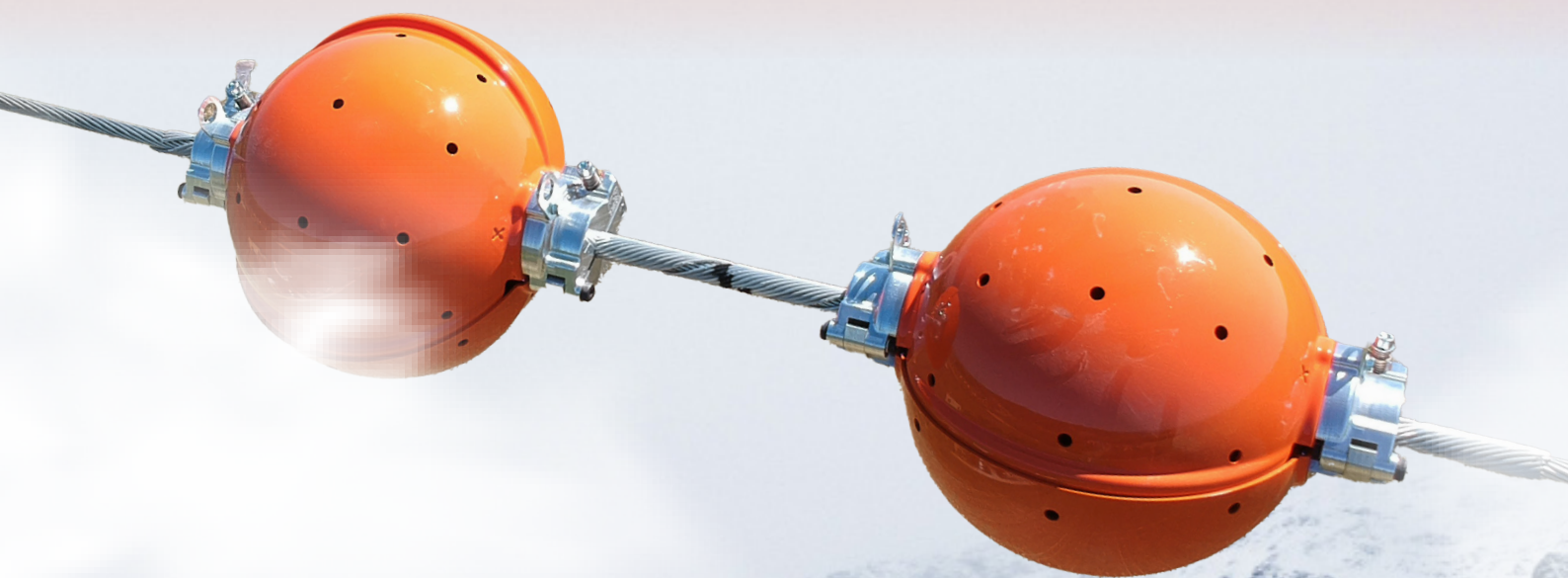


SPHERA



The Power Line Marker
Made in Austria



More than practicability
Is passion.

SPHERA

Shortest assembly time - Visible superiority

MS Design has redeveloped the aerial marker ball and fundamentally simplified its assembly. Our marker ball stands out from the competition because the assembly time has been reduced to a minimum, thus saving costs. The assembly of the marker ball can be carried out with a time saving of 70% compared to competitor models.

70%

REDUCED ASSEMBLY TIME

AREA OF APPLICATION

Wide field of application and versatile possibilities - This is what distinguishes the aerial marker ball from MS Design. One main field of application is the marking of high-voltage power lines. The different marker ball sizes are used at different heights. On lift support lines, supply lines on mountains and navigation pylons, the aerial marker ball also serves as a marking for aircraft and other objects.

THE BENEFITS AT A GLANCE

- Unique, pre-assembled half-shells, which are hooked into the high-voltage line captively
- Quick-release fastener with spring-loaded hinges for quick assembly
- Extremely short assembly time with a few simple steps, resulting in a significant reduction of helicopter flight time per aerial marker ball
- Modular hinges for different cable thicknesses
- Transponders can be placed inside the marker ball if required
- No peeling of paint or weathering of the marker ball surface, solid coloured material with UV stabilisation
- Different colours are possible
- Delivery quantity and variants can be put together as required
- No loose parts, therefore no risk of losing parts
- TÜV tested and practical experience through several years of testing
- Increased work safety due to time-efficient and simple assembly



OTHER MEASURES

With the installation of a PV system, we are taking up the environmental idea further and are committed to a sustainable future. This means that a large part of our energy requirements can be generated locally and can be incorporated into our production in a CO2-neutral manner.

The holding jaws of the marker ball are cast entirely from aluminium and are therefore also fully recyclable. To keep the cycle as efficient as possible, we offer our „Back-to-the-Roots“ programme. You return the used aerial marker balls that you purchased from us and we take care of the sustainable recirculation of the materials into the production cycle.

ENVIRONMENTAL AWARENESS

As an internationally operating system supplier, MS Design places great importance to sustainability in order to remain in line with the times. In the production of our aerial marker balls, we also pay specific attention to good environmental value and to a great extent, produce with recycled and recyclable materials. The main body of our marker ball is, to a great extent, made of recycling material and is protected from sunlight by a UV-resistant layer.

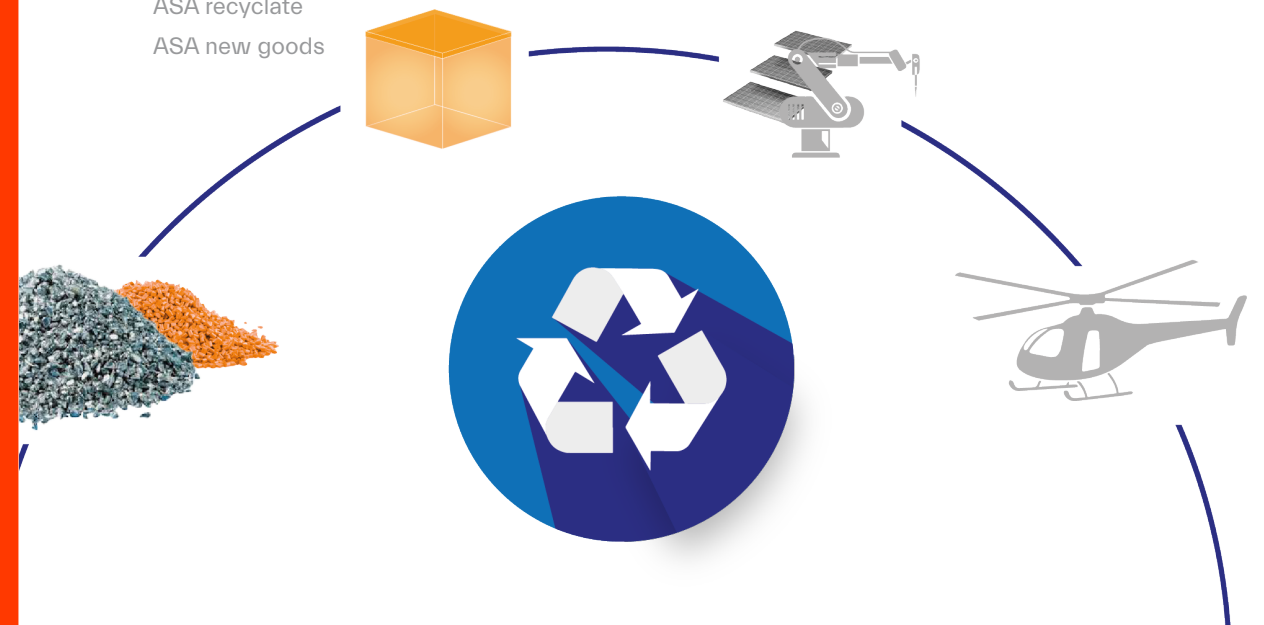
Due to the coloured material, we avoid unnecessary release of pollutants, such as paint vapours, into the air and the sewage system.

In the manufacturing process, we already take care to meet the demands of the environment and society. By using renewable energies and intelligent heat recovery systems, we ensure that our materials are processed in a climate-friendly manner. Furthermore, our products are manufactured and completed exclusively at our location in Tyrol, Austria, under the highest quality standards.

The marker ball itself is characterised by its extremely reduced assembly time. The competition time has been considerably shortened. In this way, we minimise the pollution caused by using the helicopter. The cycle closes in the recycling of our marker balls and holding jaws. These can then be reprocessed.

MATERIAL PARTS

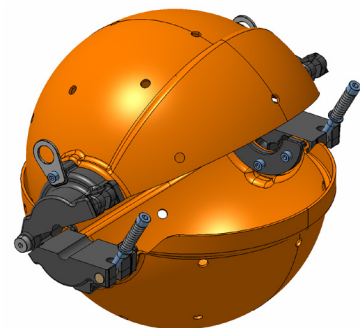
ASA new goods
ASA recyclate
ASA new goods



DETAILS

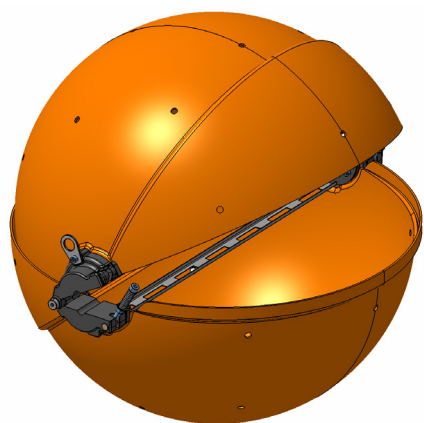
300 mm

Small and robust - The small version of the marker ball measures 300 mm in diameter and is easy to handle. The holding jaws are produced in one size for both sizes. This variant has a weight of 2621 grams.



600 mm

Eye-catching - Our 600 mm marker ball stands out, and not just in the sky. The aerial marker ball has a diameter of 600 mm, with the holding jaws remaining the same size. In the large version, these are connected by a strut inside the marker ball. The marker ball has a total weight of 5144 grams.



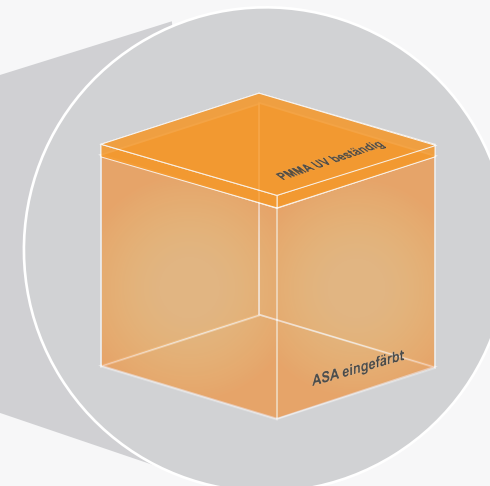
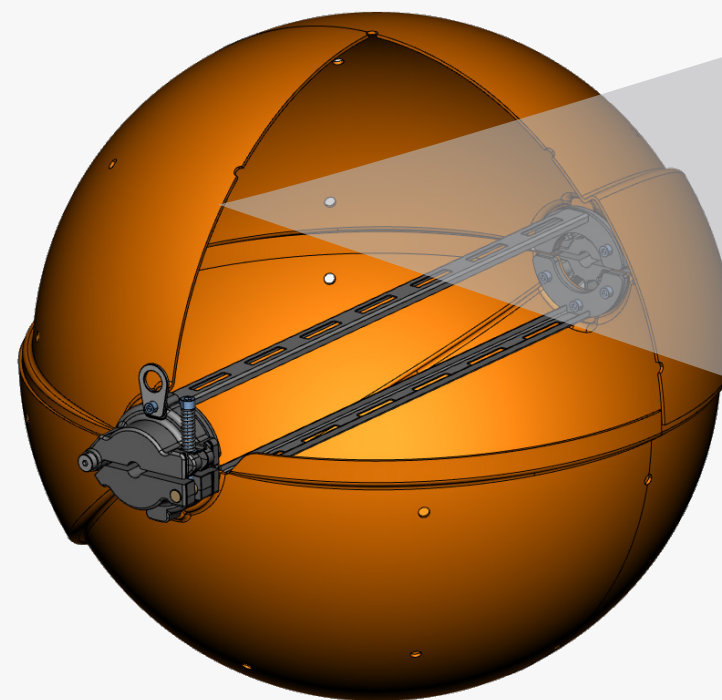
DRAINING HOLES

Draining holes on the surface of the marker ball ensure targeted drainage of the collected rainwater and prevent the formation of condensation as well as the additional weighting of the cable due to frozen water.



CLOSURE PRINCIPLE

Excellent for quick assembly - After hanging the marker ball on the cable, the closure is closed by two short handles and fixed by tightening the spring-loaded screw.

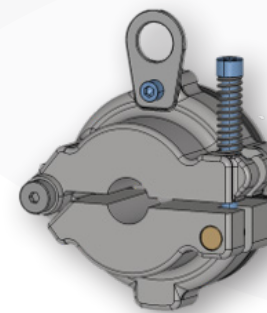


LAYER STRUCTURE

Due to the use of solid-coloured material, we guarantee a long service life despite all weather influences. The materials used have already been recycled and therefore offer the best prerequisites for a green vision for the future. The main component of our panels (97%) consists largely of recycled, dyed ASA. The surface is protected from weathering by a UV-resistant layer (3%). The material PMMA is used for this purpose.

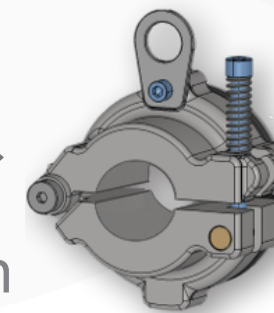
VARIANTS

The MS Design aerial marker ball is available in both sizes in the standard colours. On request and with a minimum order quantity of 200 pieces, any colour value is possible. Individual preparations as well as special samples or prototypes can be produced through our individual programme in both sizes with all clamping range diameters from 15 mm - 55 mm. The marker balls are suitable for different cable thicknesses and thus offer a wide range of applications.



15mm ↔ 55mm

Clamping range available for cable diameters incl. spiral from 15mm - 55mm



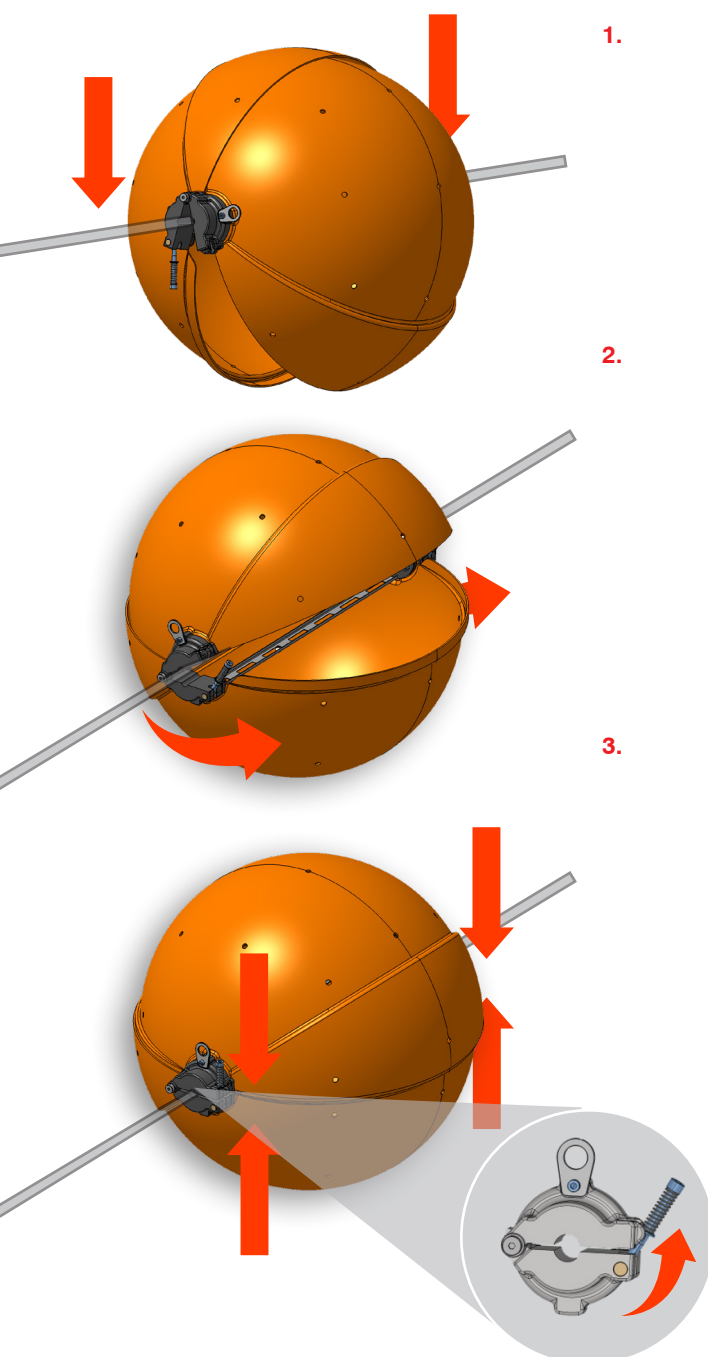
VARIABLE CABLE STRENGTHS AND TYPES

Different clamping ranges allow the use on different cable thicknesses. The diameter of the clamping range extends from 15 mm to 55 mm. With larger diameters, the size of the clamping jaws always remains one size. This avoids additional costs due to having to use more material. Due to the tension generated by tightening the closure, the marker ball is prevented from slipping on any rope diameter.

LAYOUT AND ASSEMBLY

With two half shells already pre-assembled, individual parts are reduced and the marker ball offers the best conditions for quick assembly. The marker balls are delivered assembled or screwed together in one easy step by the customer and are therefore ready for assembly on power lines with different cable diameters.

After the aerial marker ball has been attached and fastened, penetrating rainwater can drain off through the specially placed holes. This prevents the cable from sinking caused by the marker ball



1. Thanks to the hinge, both half-shells hang firmly connected together. This allows the marker ball to be hug on the cable from above. The innovative assembly method of the MS Design marker ball therefore avoids a great expenditure of time, the risk of parts being lost and complications.

2. Once the marker ball has been attached to the cable or power line, it can be closed and locked by a single skilled employee in two simple steps.

3. The full tension is achieved by screwing the springloaded quick-release fixture. The newly developed locking mechanism facilitates assembly by a single person, which minimizes helicopter flight time per marker ball and thus the cost of assembly.

The attached hinge has a retaining loop to secure it and a screw with a spring-loaded quick-release fastener for rapid attachment of the marker ball by a single-person.



EASY ASSEMBLY FOR
A SINGLE WORKER

STANDARD VARIANTS

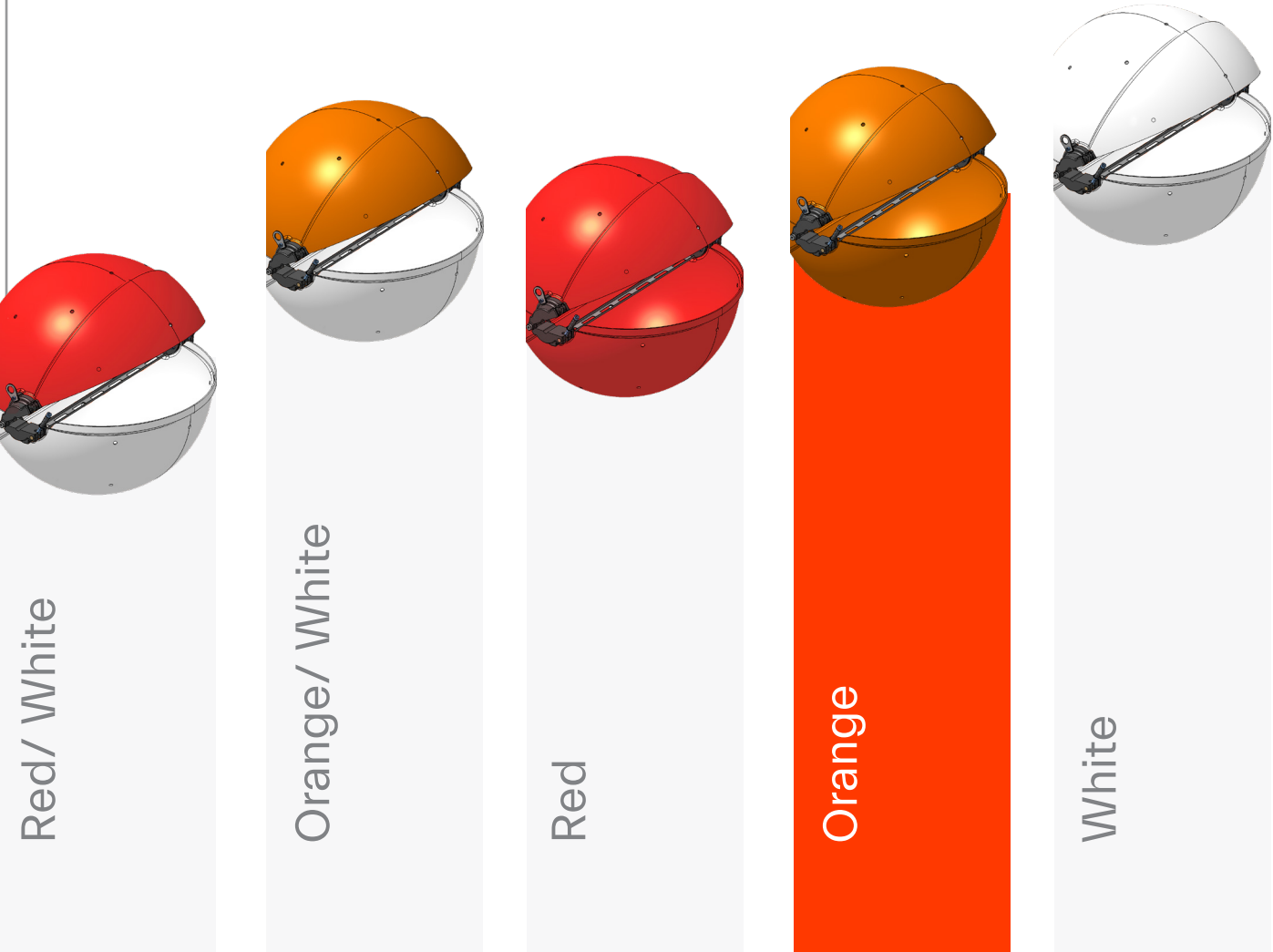
The MS Design aerial marker ball is available in five standard colour variants in sizes 300 and 600. This means that we cover the common requirements in the aviation and shipping sectors. We only use solid-coloured material for all marker balls.

If no standard colour meets your requirements, we will be happy to provide you with an almost unlimited range of colours via our individual programme.

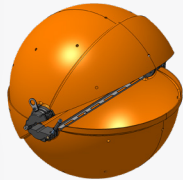
STANDARD-COLOURS

Solid-coloured material

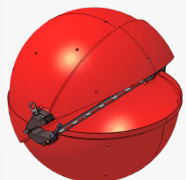
From 1 to ∞. Suitable for any quantity



Aerial marker ball 300	Article number	Product	Ø Clamping range	Ø Ball	Colour
	SK300172004	Aerial marker ball SK 300 - 17 - Shipping part	15 - 17 mm	300 mm	Orange
	SK300192004	Aerial marker ball SK 300 - 19 - Shipping part	17,01 - 19 mm	300 mm	Orange
	SK300212004	Aerial marker ball SK 300 - 21 - Shipping part	19,01 - 21 mm	300 mm	Orange
	SK300232004	Aerial marker ball SK 300 - 23 - Shipping part	21,01 - 23 mm	300 mm	Orange
	SK300252004	Aerial marker ball SK 300 - 25 - Shipping part	23,01 - 25 mm	300 mm	Orange
	SK300272004	Aerial marker ball SK 300 - 27 - Shipping part	25,01 - 27 mm	300 mm	Orange
	SK300292004	Aerial marker ball SK 300 - 29 - Shipping part	27,01 - 29 mm	300 mm	Orange
	SK300312004	Aerial marker ball SK 300 - 31 - Shipping part	29,01 - 31 mm	300 mm	Orange
	SK300332004	Aerial marker ball SK 300 - 33 - Shipping part	31,01 - 33 mm	300 mm	Orange
	SK300352004	Aerial marker ball SK 300 - 35 - Shipping part	33,01 - 35 mm	300 mm	Orange
	SK300372004	Aerial marker ball SK 300 - 37 - Shipping part	35,01 - 37 mm	300 mm	Orange
	SK300392004	Aerial marker ball SK 300 - 39 - Shipping part	37,01 - 39 mm	300 mm	Orange
	SK300412004	Aerial marker ball SK 300 - 41 - Shipping part	39,01 - 41 mm	300 mm	Orange
	SK300432004	Aerial marker ball SK 300 - 43 - Shipping part	41,01 - 43 mm	300 mm	Orange
	SK300452004	Aerial marker ball SK 300 - 45 - Shipping part	43,01 - 45 mm	300 mm	Orange
	SK300472004	Aerial marker ball SK 300 - 47 - Shipping part	45,01 - 47 mm	300 mm	Orange
	SK300492004	Aerial marker ball SK 300 - 49 - Shipping part	47,01 - 49 mm	300 mm	Orange
	SK300512004	Aerial marker ball SK 300 - 51 - Shipping part	49,01 - 51 mm	300 mm	Orange
	SK300532004	Aerial marker ball SK 300 - 53 - Shipping part	51,01 - 53 mm	300 mm	Orange
	SK300552004	Aerial marker ball SK 300 - 55 - Shipping part	53,01 - 55 mm	300 mm	Orange
Aerial marker ball 600	SK600172004	Aerial marker ball SK 600 - 17 - Shipping part	15 - 17 mm	600 mm	Orange
	SK600192004	Aerial marker ball SK 600 - 19 - Shipping part	17,01 - 19 mm	600 mm	Orange
	SK600212004	Aerial marker ball SK 600 - 21 - Shipping part	19,01 - 21 mm	600 mm	Orange
	SK600232004	Aerial marker ball SK 600 - 23 - Shipping part	21,01 - 23 mm	600 mm	Orange
	SK600252004	Aerial marker ball SK 600 - 25 - Shipping part	23,01 - 25 mm	600 mm	Orange
	SK600272004	Aerial marker ball SK 600 - 27 - Shipping part	25,01 - 27 mm	600 mm	Orange
	SK600292004	Aerial marker ball SK 600 - 29 - Shipping part	27,01 - 29 mm	600 mm	Orange
	SK600312004	Aerial marker ball SK 600 - 31 - Shipping part	29,01 - 31 mm	600 mm	Orange
	SK600332004	Aerial marker ball SK 600 - 33 - Shipping part	31,01 - 33 mm	600 mm	Orange
	SK600352004	Aerial marker ball SK 600 - 35 - Shipping part	33,01 - 35 mm	600 mm	Orange
	SK600372004	Aerial marker ball SK 600 - 37 - Shipping part	35,01 - 37 mm	600 mm	Orange
	SK600392004	Aerial marker ball SK 600 - 39 - Shipping part	37,01 - 39 mm	600 mm	Orange
	SK600412004	Aerial marker ball SK 600 - 41 - Shipping part	39,01 - 41 mm	600 mm	Orange
	SK600432004	Aerial marker ball SK 600 - 43 - Shipping part	41,01 - 43 mm	600 mm	Orange
	SK600452004	Aerial marker ball SK 600 - 45 - Shipping part	43,01 - 45 mm	600 mm	Orange
	SK600472004	Aerial marker ball SK 600 - 47 - Shipping part	45,01 - 47 mm	600 mm	Orange
	SK600492004	Aerial marker ball SK 600 - 49 - Shipping part	47,01 - 49 mm	600 mm	Orange
	SK600512004	Aerial marker ball SK 600 - 51 - Shipping part	49,01 - 51 mm	600 mm	Orange
	SK600532004	Aerial marker ball SK 600 - 53 - Shipping part	51,01 - 53 mm	600 mm	Orange
	SK600552004	Aerial marker ball SK 600 - 55 - Shipping part	53,01 - 55 mm	600 mm	Orange



	Article number	Product	Ø Clamping range	Ø Ball	Colour
Aerial marker ball 300	SK300179003	Aerial marker ball SK 300 - 17 - Shipping part	15 - 17 mm	300 mm	White
	SK300199003	Aerial marker ball SK 300 - 19 - Shipping part	17,01 - 19 mm	300 mm	White
	SK300219003	Aerial marker ball SK 300 - 21 - Shipping part	19,01 - 21 mm	300 mm	White
	SK300239003	Aerial marker ball SK 300 - 23 - Shipping part	21,01 - 23 mm	300 mm	White
	SK300259003	Aerial marker ball SK 300 - 25 - Shipping part	23,01 - 25 mm	300 mm	White
	SK300279003	Aerial marker ball SK 300 - 27 - Shipping part	25,01 - 27 mm	300 mm	White
	SK300299003	Aerial marker ball SK 300 - 29 - Shipping part	27,01 - 29 mm	300 mm	White
	SK300319003	Aerial marker ball SK 300 - 31 - Shipping part	29,01 - 31 mm	300 mm	White
	SK300339003	Aerial marker ball SK 300 - 33 - Shipping part	31,01 - 33 mm	300 mm	White
	SK300359003	Aerial marker ball SK 300 - 35 - Shipping part	33,01 - 35 mm	300 mm	White
	SK300379003	Aerial marker ball SK 300 - 37 - Shipping part	35,01 - 37 mm	300 mm	White
	SK300399003	Aerial marker ball SK 300 - 39 - Shipping part	37,01 - 39 mm	300 mm	White
	SK300419003	Aerial marker ball SK 300 - 41 - Shipping part	39,01 - 41 mm	300 mm	White
	SK300439003	Aerial marker ball SK 300 - 43 - Shipping part	41,01 - 43 mm	300 mm	White
	SK300459003	Aerial marker ball SK 300 - 45 - Shipping part	43,01 - 45 mm	300 mm	White
	SK300479003	Aerial marker ball SK 300 - 47 - Shipping part	45,01 - 47 mm	300 mm	White
	SK300499003	Aerial marker ball SK 300 - 49 - Shipping part	47,01 - 49 mm	300 mm	White
	SK300519003	Aerial marker ball SK 300 - 51 - Shipping part	49,01 - 51 mm	300 mm	White
	SK300539003	Aerial marker ball SK 300 - 53 - Shipping part	51,01 - 53 mm	300 mm	White
	SK300559003	Aerial marker ball SK 300 - 55 - Shipping part	53,01 - 55 mm	300 mm	White
Aerial marker ball 600	SK600179003	Aerial marker ball SK 600 - 17 - Shipping part	15 - 17 mm	600 mm	White
	SK600199003	Aerial marker ball SK 600 - 19 - Shipping part	17,01 - 19 mm	600 mm	White
	SK600219003	Aerial marker ball SK 600 - 21 - Shipping part	19,01 - 21 mm	600 mm	White
	SK600239003	Aerial marker ball SK 600 - 23 - Shipping part	21,01 - 23 mm	600 mm	White
	SK600259003	Aerial marker ball SK 600 - 25 - Shipping part	23,01 - 25 mm	600 mm	White
	SK600279003	Aerial marker ball SK 600 - 27 - Shipping part	25,01 - 27 mm	600 mm	White
	SK600299003	Aerial marker ball SK 600 - 29 - Shipping part	27,01 - 29 mm	600 mm	White
	SK600319003	Aerial marker ball SK 600 - 31 - Shipping part	29,01 - 31 mm	600 mm	White
	SK600339003	Aerial marker ball SK 600 - 33 - Shipping part	31,01 - 33 mm	600 mm	White
	SK600359003	Aerial marker ball SK 600 - 35 - Shipping part	33,01 - 35 mm	600 mm	White
	SK600379003	Aerial marker ball SK 600 - 37 - Shipping part	35,01 - 37 mm	600 mm	White
	SK600399003	Aerial marker ball SK 600 - 39 - Shipping part	37,01 - 39 mm	600 mm	White
	SK600419003	Aerial marker ball SK 600 - 41 - Shipping part	39,01 - 41 mm	600 mm	White
	SK600439003	Aerial marker ball SK 600 - 43 - Shipping part	41,01 - 43 mm	600 mm	White
	SK600459003	Aerial marker ball SK 600 - 45 - Shipping part	43,01 - 45 mm	600 mm	White
	SK600479003	Aerial marker ball SK 600 - 47 - Shipping part	45,01 - 47 mm	600 mm	White
	SK600499003	Aerial marker ball SK 600 - 49 - Shipping part	47,01 - 49 mm	600 mm	White
	SK600519003	Aerial marker ball SK 600 - 51 - Shipping part	49,01 - 51 mm	600 mm	White
	SK600539003	Aerial marker ball SK 600 - 53 - Shipping part	51,01 - 53 mm	600 mm	White
	SK600559003	Aerial marker ball SK 600 - 55 - Shipping part	53,01 - 55 mm	600 mm	White



INDIVIDUALPROGRAMME

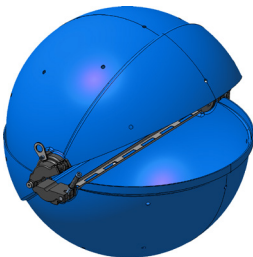
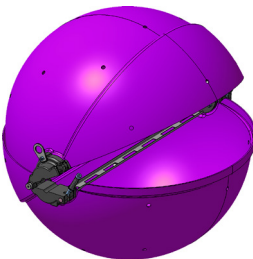
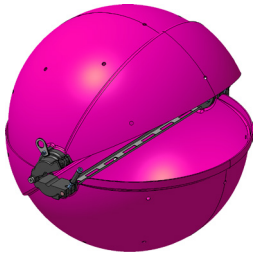
The marker ball can be ordered in both sizes in the individual programme. Depending on your requirements, you can compile individual packages with varying quantities for different applications.

Our recycled panels are also used in the individual programme. As with the standard variants, these are already coloured. This means that small quantities can also be produced in an environmentally friendly manner, while retaining UV resistance.

PROTOTYPES

According to the customer's wishes, individual models, suitable for demonstration purposes, can be implemented as samples, especially by means of painting. In this way, our product range covers possible prototype requests and individual implementations and yet remains completely flexible.

If you are interested in our individual programme or if you need more details, please contact our contact person for the marker balls.



INDIVIDUALPROGRAMME

Solid-coloured material

Suitable for individual applications, samples and prototypes.



SPARE PARTS

Should individual change requests arise, we offer three spare parts packages. These are available in all sizes for both variants of the aerial marker ball. Our spare parts packages include the holding jaws of each diameter, as well as the strut of size 600 and the spring-loaded quick-release fastener screw including pin.

The selected packages make it easy to replace or renew these parts without having to replace the entire marker ball. All spare parts can be assembled by the customer himself in a user-friendly manner.

SPARE PART PACKAGE 1

Fitting screw

Fitting screw to hold the upper and lower half together.

SPARE PART PACKAGE 2

Spring loaded screw cap

Screw fastener with spring and bolt on the lower part.

SPARE PART PACKAGE 3

Holding jaws incl. strut

Holding jaws including strut for aerial marker ball 600.

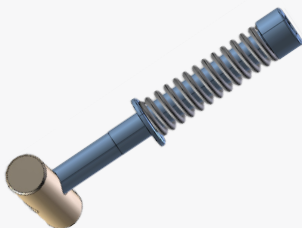
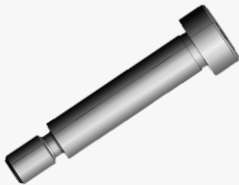
SPARE PART PACKAGE 4

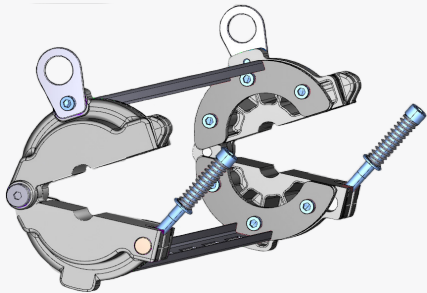
Holding jaws

Holding jaws of any diameter for aerial marker ball 300.

	Article number	Product
Fitting screw between upper and lower half	SKSCHR02ET	Fitting screw spare part

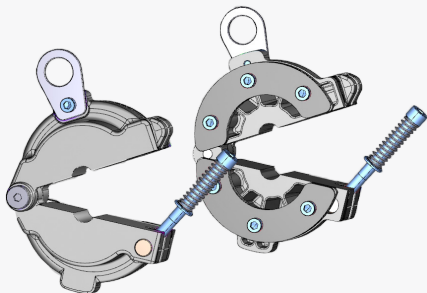
	Article number	Product
Screw fastener with spring and bolt	SKSCHR01ET	Screw fastener spare part





Clamping jaws with strut

Article number	Product	Ø Clamping range
KLB60017ET	Clamping jaws - 17 - Spare part	15 - 17 mm
KLB60019ET	Clamping jaws - 19 - Spare part	17,01 - 19 mm
KLB60021ET	Clamping jaws - 21 - Spare part	19,01 - 21 mm
KLB60023ET	Clamping jaws - 23 - Spare part	21,01 - 23 mm
KLB60025ET	Clamping jaws - 25 - Spare part	23,01 - 25 mm
KLB60027ET	Clamping jaws - 27 - Spare part	25,01 - 27 mm
KLB60029ET	Clamping jaws- 29 - Spare part	27,01 - 29 mm
KLB60031ET	Clamping jaws - 31 - Spare part	29,01 - 31 mm
KLB60033ET	Clamping jaws - 33 - Spare part	31,01 - 33 mm
KLB60035ET	Clamping jaws - 35 - Spare part	33,01 - 35 mm
KLB60037ET	Clamping jaws - 37 - Spare part	35,01 - 37 mm
KLB60039ET	Clamping jaws - 39 - Spare part	37,01 - 39 mm
KLB60041ET	Clamping jaws - 41 - Spare part	39,01 - 41 mm
KLB60043ET	Clamping jaws - 43 - Spare part	41,01 - 43 mm
KLB60045ET	Clamping jaws - 45 - Spare part	43,01 - 45 mm
KLB60047ET	Clamping jaws - 47 - Spare part	45,01 - 47 mm
KLB60049ET	Clamping jaws - 49 - Spare part	47,01 - 49 mm
KLB60051ET	Clamping jaws - 51 - Spare part	49,01 - 51 mm
KLB60053ET	Clamping jaws - 53 - Spare part	51,01 - 53 mm
KLB60055ET	Clamping jaws - 55 - Spare part	53,01 - 55 mm



Clamping jaws

Article number	Product	Ø Clamping range
KLB30017ET	Clamping jaws - 17 - Spare part	15 - 17 mm
KLB30019ET	Clamping jaws - 19 - Spare part	17,01 - 19 mm
KLB30021ET	Clamping jaws - 21 - Spare part	19,01 - 21 mm
KLB30023ET	Clamping jaws - 23 - Spare part	21,01 - 23 mm
KLB30025ET	Clamping jaws - 25 - Spare part	23,01 - 25 mm
KLB30027ET	Clamping jaws - 27 - Spare part	25,01 - 27 mm
KLB30029ET	Clamping jaws- 29 - Spare part	27,01 - 29 mm
KLB30031ET	Clamping jaws - 31 - Spare part	29,01 - 31 mm
KLB30033ET	Clamping jaws - 33 - Spare part	31,01 - 33 mm
KLB30035ET	Clamping jaws - 35 - Spare part	33,01 - 35 mm
KLB30037ET	Clamping jaws - 37 - Spare part	35,01 - 37 mm
KLB30039ET	Clamping jaws - 39 - Spare part	37,01 - 39 mm
KLB30041ET	Clamping jaws - 41 - Spare part	39,01 - 41 mm
KLB30043ET	Clamping jaws - 43 - Spare part	41,01 - 43 mm
KLB30045ET	Clamping jaws - 45 - Spare part	43,01 - 45 mm
KLB30047ET	Clamping jaws - 47 - Spare part	45,01 - 47 mm
KLB30049ET	Clamping jaws - 49 - Spare part	47,01 - 49 mm
KLB30051ET	Clamping jaws - 51 - Spare part	49,01 - 51 mm
KLB30053ET	Clamping jaws - 53 - Spare part	51,01 - 53 mm
KLB30055ET	Clamping jaws - 55 - Spare part	53,01 - 55 mm

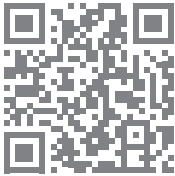
TRANSPORT/ PACKAGING

When delivering our marker balls, we pay attention to the highest safety standards. Through the arrangement of the marker balls, we ensure movement-free transport. We put the package together perfectly according to your order. In this way, we remain cost-effective in delivery and save space.

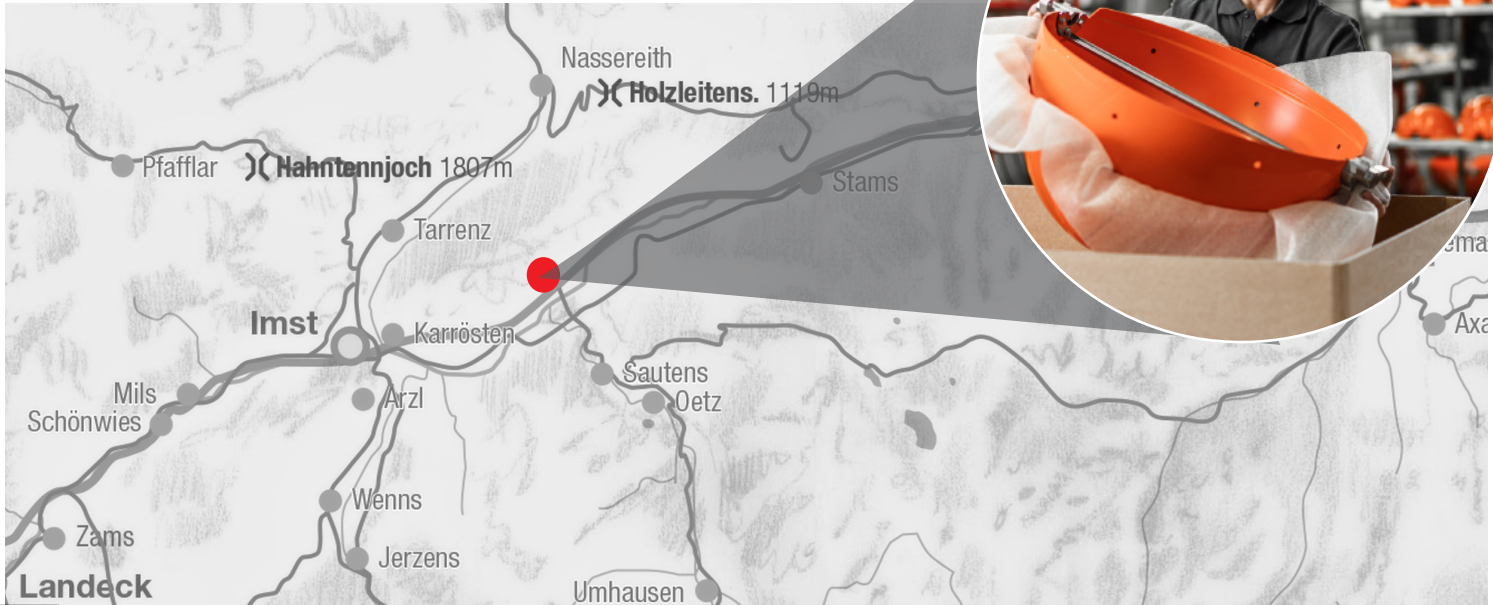
Depending on the customer's needs, we deliver the marker ball halves already pre-assembled or individually. You can then store them or hang them up immediately. We remain flexible for you and in this way, you can have your order quantity delivered cost-effectively as a mix.

SPHERA

MS-Design-Strasse 1 6426 Roppen
05417 6363-0
info@sphera-marker.com



If we have aroused your interest in a sales consultation, please call us or send us your completed contact form by e-mail.



SPHERA

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