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DANUBIA *MARS* 66

WARNUNG!

Schauen Sie mit diesem Teleskop niemals direkt in die Sonne oder in die Nähe der Sonne. Es besteht **Erblindungsgefahr!**

WARNING!

Never look through this telescope at or near the sun.
You may **blind yourself!**

MUY IMPORTANTE!

No intente nunca mirar directamente al sol a través de este telescopio. Se podría **quedar ciego!**

AVERTISSEMENT !

Ne regardez jamais par ce télescope au soleil.
Vous pouvez **vous aveugler !**

ATTENZIONE!

Non guardate mai in direzione del Sole con questo telescopio o con il cercatore! Prestate particolarmente attenzione quando il telescopio viene usato dai bambini! **Pericolo di cecità!**



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MARS 66 - Achromatic Refractor

SPECIFICATIONS

Lens Mount:	60 mm
Focal Length:	700 mm
Focal Ratio:	1:12
Tube Length:	app. 800 mm
Total Weight:	app. 4,0 kg
Mount:	Azimuth Mount (11) with Height Fine Adjustment (9).
Tripod:	aluminium tripod (18) adjustable in height with fixing screws (16).

ACCESSORIES

3 Eyepieces, 1 1/4" dia. (5):

SR 4 = 175x magnification / 350x with barlow lens

H 12,5 = 56x magnification / 116x with barlow lens

H 20 = 45x magnification / 90x with barlow lens

Diagonal Prism 90° (8)

Barlow Lens 2x (not ill.)

Moon Filter for Eyepieces (not ill.)

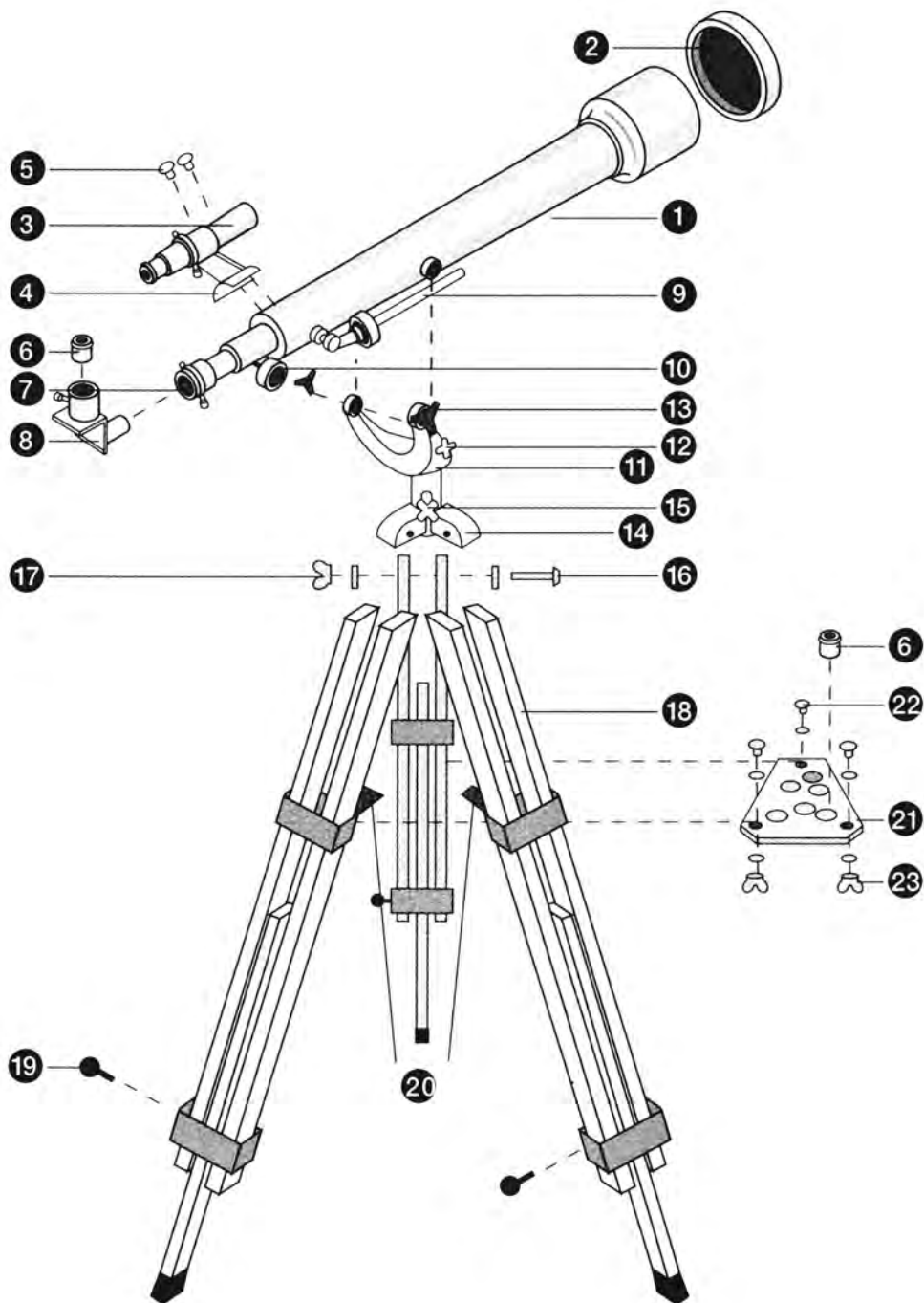
Erecting Eyepiece 1.5x for terrestrial observations (not ill.)

Finderscope 5x24 (3-4) with Reticle and Support

Tripod Tray (21-23) with fixing screws

Assembly Instructions

The MARS 66 is supplied in one carton. The components are packed in various inner cartons. The tripod legs are individually packed and stowed below the other cartons.





TRIPOD/MOUNT

First unpack the tripod legs (18). Adjust them all at the same length by extending them by 30 to 40 cm. Then fix the screws (19). Now prepare all the mount components (11) + (14) with the 3 long screws (16) and the wing nuts (17). Fix the 3 tripod legs at the mount base (14). Slide the top of each tripod leg over one of the tripod connections of the mount base (14). Then fix the screws (16) and (17) smoothly.

Note! The loose metal brackets (20) must point towards the inner side. All 3 screws (16) + (17) at the tripod head/mount base (14) should mount into the same direction. Now unpack the tripod tray (21) and the screws with washers (22) and wing nuts (23). Place the tripod and mount in front of you. Connect one edge of the tripod tray (21) with one of the brackets (20) by sliding the bracket below the tray and use 1 set of screws & nuts (22) + (23) to fix it smoothly. Repeat the procedure with the 2 other edges of the tray. Correct the fixings in a way that the tripod will stand even. Then firmly fix the tray (21) to the tripod. Afterwards fix the screws (16) at the tripod head/mount base (14). A small triangle metal plate supplied with the accessories serves ideally as a screw driver. Prepare the telescope mounting by fixing the locking screw (15) tightly so that the mount won't rotate.

MOUNTING THE TELESCOPE

Unpack the telescope tube (1) thoroughly and remove the protection cover. For the time being leave the covers at the lens (2) and at the eyepiece mount (7). Both at the left and right side within the tube there are screw mounts with 2 wing screws (13). Remove these wing screws. At the right hand side of the mount there is a chrome-plated screw (12). Unscrew it until the round opening in the lower fixed chrome-plated part becomes fully free. Lift the telescope tube (1) over the mount (11). The bracket must be tilted backwards. At the right hand side of the telescope tube there is a chrome-plated bar (9). Slide this bar into the opening described at the lateral chrome-plated screw at the right side of the mount (12). Position the telescope tube onto the mount bracket in a way that the two screw mounts match exactly with the openings of them mount. Now screw the wing screws (13) through the bracket into the telescope tube screw mounts. Fix the screws evenly while the telescope is in horizontal position. Also fix the chrome-plated screw (12) at the right side of the mount. Now the two screws (13) at the telescope and the screw (12) serve for the height adjustment of the telescope. For fine adjustment you can also use the fine adjustment bar (9) by turning its socket union back and forth.

MOUNTING THE FINDERSCOPE

Unpack the Finderscope (3) and its support (4). At the rear top end of the telescope there are two chrome-plated screws (5) for the finderscope bracket. Unscrew these and fix the support (4) at the screw mounts. For proper direction make sure that the smaller part of the finderscope (ocular side) points to the rear end of the telescope. Now fix the screws (5) at the telescope tube. Fix and adjust the finderscope using the 3 small screws around the support (4). (For details refer to section Adjusting the Finderscope).

EYEPIECES AND ACCESSORIES

First remove the lens cover (2) at the telescope tube (1). On top of the cover, there is another small lid. If you only remove the small lid, you can reduce the incidence of light. Now also remove the cover of the eyepiece mount (7). When you do not use your telescope, make sure to put the covers back.



EYEPIECES

3 eyepieces with diameter $1\frac{1}{4}$ " (31.5mm) are included:

SR 4 = 175x magnification

H 12.5 = 56x magnification

H 20 = 35x magnification

HOW TO CALCULATE THE MAGNIFICATION FACTOR

The magnification factor calculates very simply as follows:

$$\frac{\text{Focal Length of Telescope}}{\text{Focal Length of Eyepiece}} = \text{Magnification} \quad \text{e. g. } \frac{700}{4} = 175x$$

Take the eyepiece H20 with the smallest magnification. Insert the eyepiece (6) into the eyepiece mount (7) and tighten it using the 2 small outer screws. Now you can start your observations.

Caution!!

Observations of the sun are extremely dangerous. Do not use this telescope for sun observation. The optical elements have the effects of a burning glass and will blind you! The ideal way to make safe sun observations is the usage of a special sun filter foil, which is fixed at the front end of the telescope. The foil absorbs 99.9% of the sunlight.

STARTING OBSERVATIONS

Direct your telescope at daylight to a known object (house, church, tree or mountain). For the height adjustment of your telescope, loosen the screws (13 and (12). The lateral adjustment can be done with the small chrome-plated screw (15). Make sure to hold the telescope firmly, while you make these adjustments. Aim your desired object through the telescope and tighten the mentioned screws again. Your object will be visible up-side-down and reverse which is caused by optical effects. Under astronomical consideration, there is no "top" and "bottom".

FOCUSING

Turn the focus wheel (10) at the rear side of the telescope forth and back to focus your object properly. The adjustment will vary according to the distance of the object and depending on the usage of different components.

ERECTING EYEPIECE FOR TERRESTRIAL OBSERVATIONS

To correct the reverse image, the supplied erecting eyepiece 1.5x can be used. It comes with 1 side $1\frac{1}{4}$ " outer dia. and 1 side $1\frac{1}{4}$ " inner dia. Insert the smaller part into the eyepiece mount (7) and fix it using the two small screws of the eyepiece mount. Insert your eyepiece H20 at the other side of the prism and fix it with the small screws as described for the eyepieces earlier. This combination achieves a magnification of $35 \times 1.6 = 56x$.

You can now start observation as usual.



DIAGONAL PRISM 90°

A rectangular diagonal prism is included in this telescope package. It comes with 1 side $1\frac{1}{4}$ " outer dia. and 1 side $1\frac{1}{4}$ " inner dia. It mainly serves for zenith observations and hereby allows a lateral view of 90°. So you don't have to stand behind or under your telescope. Insert the smaller part into the empty eyepiece mount (7) and tighten the screws. Now insert your eyepiece H20 into the diagonal prism. The image will now be upright, but still reverse. The magnification does not change.

BARLOW LENS

The 2x barlow lens expands the original magnification of your eyepieces (6) by the factor 2. To insert it, follow the instructions of the erecting eyepiece. Observe and adjust as usual.

RECOMMENDATION

We recommend starting your observations always with small magnification. This guarantees you a wider field of view and you can recognize and focus your objects faster. The larger the magnification, the field of view decreases and you risk blurred images. The celestial objects will move faster out of the range of your telescope and you have to track more often.

MOON FILTER

Your telescope accessories include a moon filter. It provides observations of the full or light moon in rich contrasts. The moon filter is screwed into the eyepiece, when required.

Caution: Do not use this filter as a sun filter!

ADJUSTING THE FINDERSCOPE

For daylight observation we recommend to use your telescope in combination with the eyepiece H 20 (45x) only. Direct the telescope to a far-distanced object and adjust a particular part of your object (church tower, top of a tree or crane, TV antenna) in the center of your field of view. Now look through your finderscope which provides a reverse and up-side-down image. Open the 3 screws of the support (4) slightly and direct the reticle of your finderscope towards the center of your object. Tighten the 3 screws with care, making sure that the reticle stays in the center of the image. Your finderscope is adjusted now. It has a far larger field of view than your telescope and helps you to direct your telescope towards your desired objects which you can observe then through your telescope with smaller field of view. **Caution: Do not aim the sun with the finderscope. Your eyes can be seriously damaged.**

FURTHER HINTS FOR ASTRO OBSERVATIONS

Observe outdoors only, but not through a window. Train the hand movements a few times at daylight. In case of temperature differences between inside and outside, the telescope must get used to the predominant temperature in order to avoid fogging. Adopt yourself and your eyes to the darkness in advance. To clean the optical surfaces make sure to use appropriate fuzz-free optical tissues. Remove the dust with air pressure or a blow bellow. Avoid strong rubbing. We recommend studying specializing literature on astronomy and celestial observations. Enjoy your observations with your DÖRR-Danubia MARS 66 Telescope!

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