

# Accessories for Industrial Radiography

**Film viewing equipment**

**Densitometers**

**Exposure and darkroom accessories**

**Film marking equipment**

**Marking tapes**

**Intensifying screens**

**Radiation protection equipment**

**Dye penetrants**

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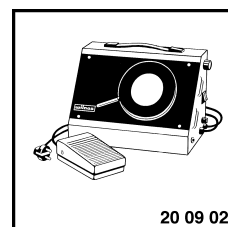
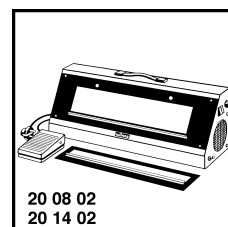
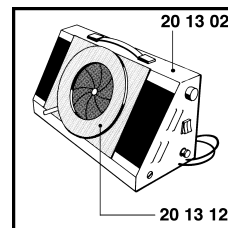
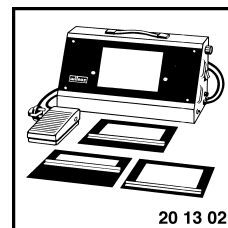
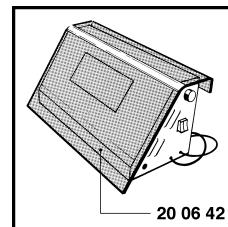
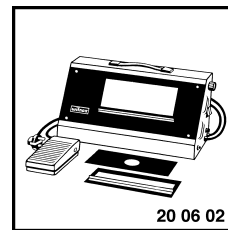
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## Film viewing equipment and accessories

- 20 06 02 WILNOS film viewing unit Wilnosol H "Universal"**, luminance approx. 45 000 cd/m<sup>2</sup>, for densities up to **D = 3.7**<sup>1)</sup> as per EN 25 580, illuminated area **8.5 x 22 cm**, with cooling fan for continuous operation, heat filters, foot switch, switchable to foot switch mode or continuous light mode, with infinitely variable electronic luminosity control and adjustable background luminosity in the case of foot switch mode. Complete with 2 additional masks, aperture sizes 5.0 x 22 cm for 6 cm wide films and 4 cm diameter for glare-free viewing of film sections. With 3 halogen lamps 24 V / 150 W, for connection to 230 V a.c.<sup>2)</sup>
- 20 06 11 Spare halogen lamp** 24 V / 150 W, suitable for "Universal", "Universal-plus", "Langfeld" and "Langfeld-S"<sup>3)</sup>.
- 20 06 22** Supplementary price for **chemical-resistant plastic coating of front panel and masks**, for Wilnosol H "Universal".
- 20 06 42 Protective transparent cover for viewing wet films** made of thick acryl glass, for Wilnosol H "Universal", Wilnosol HI "Super", and Wilnosol "Universal-plus".
- 20 06 62 Special heat filter (Heavy Duty Type) for Wilnosol H "Universal"**, recommended if the viewing equipment is used under severe working conditions, such as high environmental temperature or in training courses, when the viewers are running with nearly 100 % switch-on time. Final temperature of the film will be diminished by about 15°C to 20°C<sup>4)</sup>. The heavy duty heat filter is easily to be changed against a normal filter, also in viewers of earlier "Universal" series.
- 20 13 02 WILNOS film viewing unit Wilnosol "Universal-plus"**, luminance approx. 200 000 cd/m<sup>2</sup>, for densities up to **D = 4.3**<sup>1)</sup> as per EN 25 580, with cooling fan and two heavy duty heat filters for practically unlimited viewing without the danger of permanent deformation of films at full luminance. Other technical properties similar to the Wilnosol H "Universal" (Li.-No. 20 06 02). Illuminated area **12 x 18 cm**, completely flat front panel with two powerful sintered magnets to fix the additional masks for viewing weld radiographs (apertures 5 x 18 cm, 8.5 x 18 cm, and 12 x 18 cm). With 3 halogen lamps 24 V / 150 W (Li.-No. 20 06 11), for connection to 230 V a.c.<sup>2)</sup>
- 20 13 12 Iris diaphragm unit, 6 to 120 mm diameter**, for Wilnosol "Universal-plus". May be fixed to and removed from the front panel within seconds. The diaphragm plane is positioned very near behind the covering glass sheet, resulting in sharp borders of the illuminated area of the radiograph.
- 20 08 02 WILNOS film viewing unit Wilnosol H "Langfeld"**, luminance approx. 40 000 cd/m<sup>2</sup>, for densities up to **D = 3.6**<sup>1)</sup> as per EN 25 580, illuminated area **8.5 x 45 cm**, with twin cooling fans for continuous operation, heat filters, foot switch, switchable to foot switch mode or continuous light mode, with infinitely variable electronic luminosity control and adjustable background luminosity with the foot switch mode, complete with mask for 6 cm wide films. With 10 halogen lamps 24 V / 150 W (Li.-No. 20 06 11), for connection to 230 V a.c.<sup>2)</sup>
- 20 08 12 Special heat filter (Heavy Duty Type) for Wilnosol H "Langfeld"**, recommendations similar as described under Li.-No. 20 06 62. This heat filter consists of two separate glass sheets. It reduces the final temperature of the film as described above. May be inserted also into "Langfeld" units of earlier series.
- 20 14 02 WILNOS film viewing unit Wilnosol "Langfeld-S"**, luminance approx. 120 000 cd/m<sup>2</sup>, for densities up to **D = 4.1**<sup>1)</sup> as per EN 25 580, illuminated area **8.5 x 45 cm**. Its general technical data are very similar to the Wilnosol H "Langfeld" (Li.-No. 20 08 02) film viewing unit, but it is equipped with a single sheet special heat filter and an acryl glass scattering screen. By these variations the Wilnosol "Langfeld-S" offers an improved heat protection (see Li.-No. 20 06 62 and comment) and a three times higher luminosity, compared to the Wilnosol H "Langfeld".
- 20 14 12 Set of special heat filter (single sheet type) and acryl glass scattering sheet**, to vary a Wilnosol H "Langfeld" into a Wilnosol "Langfeld-S" viewing unit. May be inserted also into "Langfeld" viewers of earlier series.
- 20 09 02 WILNOS film viewing unit Wilnosol HI "Super"**, luminance approx. 470 000 cd/m<sup>2</sup>, for densities up to **D = 4.7**<sup>1)</sup> as per EN 25 580. With iris diaphragm for **5 to 75 mm** diameter, foot switch, switchable to foot switch mode or continuous light mode, with infinitely variable electronic luminosity control and adjustable background luminosity in the case of foot switch mode, with cooling fan and dual heat filters, suitable for continuous operation. With halogen lamp 24 V / 250 W, for connection to 230 V a.c.<sup>2)</sup>
- 20 09 11 Spare halogen lamp** 24 V / 250 W<sup>3)</sup>.

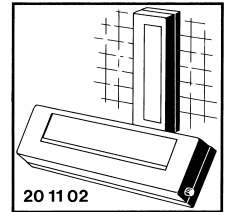
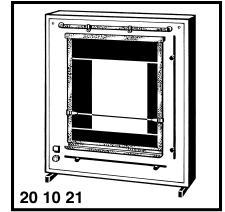


### Notes:

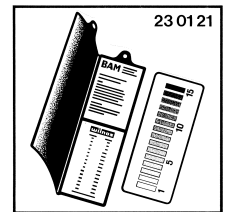
- 1) Sometimes claims are made with regard to similar equipment, whereby the viewable film density is quoted as being  $D = 1$  (or more) higher than the density values listed here which comply with EN 25 5280 and others.
- 2) Some of the units described on this page are also available for mains-supply versions other than 230 V/50 Hz. We will be pleased to send you further information and a quotation on enquiry.
- 3) On behalf of the high switching frequency in film viewing units, there are existing differences in the suitability for some halogen lamps. We deliver only lamp types which have been tested by us.
- 4) According to EN 25 580, ISO 5580, and ASTM E 1390-90, a radiograph with  $D = 2,0$  must not be damaged by a one minute viewing period after the unit has been used for a total of one hour with 50 % switch-on time, with 15 seconds full light periods each time, at an environmental temperature of 20 °C. Already in the standard version WILNOS film viewing units are much more better than claimed above.

## Film viewing equipment, densitometers, and accessories

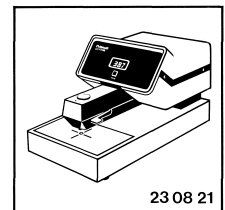
- 20 10 21 WILNOS Film Viewing Unit Wilnolux 48/46,**  
luminance approx. 12 000 cd/m<sup>2</sup>, for densities up to  $D = 3.1$ <sup>1)</sup> as per EN 25 580. For table top or wall-mounting, illuminated area **48 x 46 cm**, with 4 individual internal shutters adjustable over the full area down to a minimum area of 10 x 10 cm, with infinitely variable control between approx. 50 % and 100 %, complete with 12 fluorescent lamps.  
For connection to 230 V a.c. , 2.75 A, 300 W <sup>2)</sup>
- 20 10 11 Spare Fluorescent Lamp** 230 V / 18 W, for Wilnolux 42/48 and 48/46.
- 20 11 02 WILNOS film viewing unit Wilnolux 10/48 T (table unit),**  
No longer available, out of production.
- 20 11 11 Spare fluorescent lamp** 220 V / 20 W, for Wilnolux 10/48.
- 20 12 02 WILNOS film viewing unit Wilnolux 10/48 W (wall unit),**  
an especially bright wall unit for viewing wet films in the darkroom, luminance approx. 12 000 cd/m<sup>2</sup>, for densities up to  $D = 3.1$ <sup>1)</sup> as per EN 25 580. Illuminated area **10 x 48 cm**, the entire film format can be viewed at a glance. With water-tight front screen mounting, interconnecting cable with non-fused earthing contact, complete with fluorescent lamps, for connection to 230 V a.c.
- 20 12 12 Switch socket combination, humid room design,** for surface mounting, wired ready to use, for connecting film viewing unit Wilnolux 10/48 W.



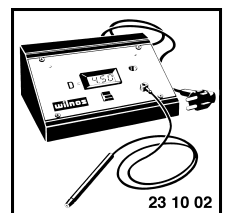
- 23 01 21 Calibrated Density Reference Scale, BAM-tested density step tablet,**  
for checking and calibrating densitometers. Density range 0.3 to 4.6; approx. 10 measuring fields within the density range, tolerance +/- 0.05. The density step tablet has been exposed by X-radiation on commercial, double-layered industrial X-ray film. The density step tablet comes in a special black PVC cover, which protects it against light when stored. Also supplied is the original BAM certificate plus a copy, which are kept in a transparent pocket of the cover for daily use. References of the density step tablet: "PTB-Normal" and "Standard Reference Material 1001, X-ray film step tablet" ( NIST; National Institute of Standards and Technology , USA, formerly NBS ).  
(BAM = Bundesanstalt für Materialprüfung und -forschung, Berlin)
- 23 01 31 Recalibration charges** for BAM-tested density step tablet, including BAM-certificate.



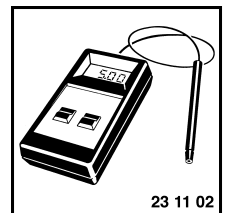
- 23 08 31 Gretag-Macbeth Densitometer D 200-II,**  
succession model of the Macbeth Densitometer TD 932, ancient Li.-No. 23 08 21. With digital display for black and white transmission density measurement. **Measuring range 0 to 6.0** with measuring apertures in diameters 1, 2, and 3 mm. **Semi-automatic push-button zeroing.** Measuring accuracy  $\pm 0.01$  in the range  $D = 0 - 4$ . For 230 V, 50 Hz power supplies. Other mains-supply versions available on request as well as optional equipment and accessories.



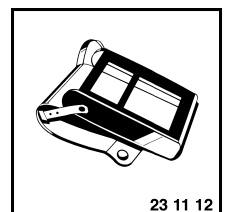
- 23 10 02 WILNOS LCD 201 Hand-held Probe Densitometer**  
with digital LED display for industrial X-ray film density measurement. Standard probe with 2 mm aperture diameter. Measuring range 0 to 5.0 ; measuring accuracy +/- 0.05 absolute across entire measuring range, repeatability accuracy of instrument +/- 0.01. The hand-held probe, in slimline-pen format, is interchangeably connected to the control unit by means of a highly flexible 1.30 meter long cable. Can be stored in a mounting on the control unit when not in use. Semi-automatic **push-button zeroing.** Excess and inadequate brightness levels indicated by means of a flashing LED on the display. Trimmer for density calibration on front panel.  
For 230 V, 50 Hz power supplies, ready for operation immediately. No warm-up time.



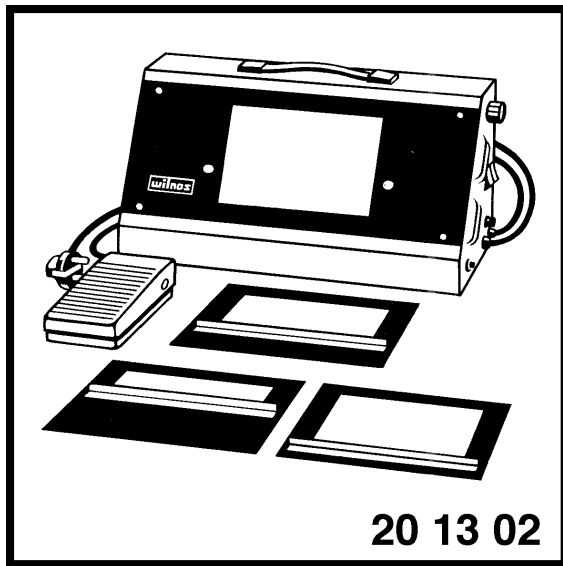
- 23 11 02 WILNOS LCD 51 Hand-held Probe Densitometer**  
with digital LCD for industrial X-ray film density measurement. Probe with 2 mm aperture diameter. Measuring range 0 to 5.0 ; measuring accuracy +/- 0.05 absolute across entire measuring range, repeatability accuracy of instrument +/- 0.01. The hand-held probe, in slimline-pen format, is connected to the control unit by means of a highly flexible 1.30 meter long cable. Semi-automatic **push-button zeroing.** Trimmer for density calibration on front panel.  
The instrument is supplied ready for operation, complete with a commercially available 9V battery. Extremely low power consumption ( less than 1 mA); immediately ready for operation - no warm-up time. **Automatic battery check;** warning appears in display well before battery expires.



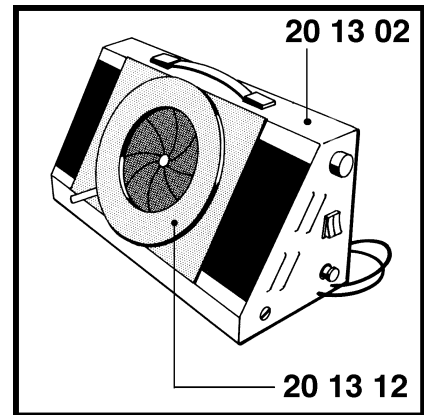
- 23 11 12 Carrying case for LCD 51,**  
very handy, especially recommended for site work.



# WILNOS film viewing unit Wilnosol "Universal-plus"



Wilnosol "Universal-plus", complete as delivered (Li.-No. 20 13 02). Viewer with 3 additional masks.



## Iris diaphragm 6 to 120 mm diameter (Li.-Nr. 20 13 12).

The iris diaphragm unit is fixed on the front panel of the "Universal-plus" by two powerful sintered magnets in the same way as the other additional masks. It may be adapted to or removed from the front panel within seconds. The diaphragm plane is positioned very close behind the clear protecting glass sheet, thus producing a sharp-edged border of detail areas in radiographs.

The iris diaphragm is a really valuable completion of the film viewing system "Universal-plus".

## Wilnosol "Universal-plus", Li.-No. 20 13 02,

a film viewer combining a large illuminated area and extreme luminance as not previously available. Its perfect filtration of thermal radiation and highly efficient fan cooling are **permitting practically unlimited viewing** without the danger of permanent deformation films.

The unit is eminently suitable for evaluation of large-format radiographs of castings and concrete components, with high overall and detail optical density, and also for superimposed duplicate films. Three masks with positioning bracket are supplied with the unit for viewing of weld radiographs. The masks can be reliably fixed into place on the front panel using two powerful sintered magnets. The magnets are recessed flush into the otherwise completely flat front panel. As an optional accessories part there is an iris diaphragm unit with 6 to 120 mm diameter available. This attachment will be fixed to the front panel in the same way as the above described masks.

**The Wilnosol "Universal-plus" permits particularly comfortable and untiring evaluation of high density radiographs at a wire sensitivity improved by up to two levels. The evaluation of normal dense radiographs may be done quicker and at the same time more reliable.**

**Luminance** approx. 200.000 cd/m<sup>2</sup> at rated voltage

Viewable density D = 4.3 as per EN 25 580

Illuminated area 12 x 18 cm; three additional masks 5 x 18 cm, 8.5 x 18 cm, and 12 x 18 cm, with positioning bracket

Infinitely adjustable electronic brightness control from 0 to 100 %

Switchable to foot switch or continuous light modes

Adjustable background luminosity with foot switch mode to prevent glare

**Electrical data** 230 Volt , 50 Hz, 500 Watt,  
other mains-supply versions on request

**Dimensions** W 412 mm, H 210 mm, D 173 mm

**Weight** 11 Kg net

**Coating** Synthetic resin enamel