



Accessories

- Light Sources
- Video Cameras, Lenses
- Light Guides, Light Rods
- Monitors, Cases

Light Sources

Richard WOLF GmbH – Technoscopes/Borescopes and their Systems

Uncompromising top quality is achieved only with perfectly harmonised system components. The light sources contribute a great deal to this end.

Not only the lamp performance is what counts in a light source, but the light which can be used for the light guide. Important criteria are the useful emission of light and the brightness.

TLH-1 150 Watt Halogen



The standard light source TLH-1 has been souped up for performance consistently. There are many 150 Watt light projectors on the market which are simply too dark for this performance. Frequently, the simplest of halogen lamps are used. R. WOLF, however, uses halogen lamps with a share of xenon gas and together with the high-performance optimised focussing system achieves about 40 % more light than comparable 150 Watt light projectors.

A light reduction and thus a four-fold increase in the service life of the lamp is achieved by means of an eco switch. For gentle treatment of the lamp when the system is switched on, this process is carried out by an electronically controlled soft start.

Wattage	150 Watt
Power connection	230 V/50 Hz
Power rating	230 VA
Weight	6.8 kg
Dimensions mm	250x120x220
Colour temperature	3200°K
Accessories	Power cable
Spare lamp	2426.15
Order no.	2.42150.001

TLX-2 180 Watt Xenon/Arc



This TLX-2 light source combines all advantages in one unit: Brightness, robustness, universality. It has been designed for universal application in all fields of industry, trade and aerospace. Robust handle; edges protected by PVC; variable mechanical brightness control; wide-angle illumination; universal lighting cable connection for four conventional light guides; long service life of the lamp; all mains voltages (including 400 Hz) without switching.

Wattage	180 Watt
Power connection	100-240 V/50-400 Hz
Power rating	280-480 VA
Weight	7 kg
Dimensions mm	350x130x310
Colour temperature	6000 K
Accessories	Power cable
Spare lamp	2412.115
Order no.	2.51240.001

TLA-1 21 W Xenon Akku



The light source TLA-1 is characterised by its small bright Solarc Xenon arc lamp with 21 Watt. On account of its relatively low power consumption, independent operation of the mains is possible due to the battery-pack block installed in addition (> 2 hours).

The charging process can be carried out inside of the device, but outside as well. The battery-pack block is exchanged within a few seconds. The light source cannot be operated directly on the charging unit.

Wattage	21 Watt
Charger	100-230 V/
Power connection	50-60 Hz
Power rating	Charger 90 VA
Weight	5.9 kg
Dimensions mm	130x265x230
Colour temperature	5000°K
Accessories	Charger
Spare lamp	2.24021.101
Order no.	2.31210.001

Small light sources with mechanical brightness control and a very long service life of the lamp are available upon request.

LP 5131 300 Watt Xenon/Arc



This light source fitted with a 300 Watt Xenon arc lamp is extremely bright. However, the light source has not been designed for changing locations. An automatic video-controlled brightness control has been fitted for use when a video camera has been fitted.

Wattage	300 Watt
Power connection	100-240V/50-60 Hz
Power rating	700 VA
Weight	10 kg
Dimensions mm	330x160x380
Colour temperature	5600 K
Accessories	Power cable
Spare lamp	2412.112
Order no.	5131.001

UV-200 Watt Mercury/Arc



This UV high-performance light source can be switched from white light to UV light and vice versa by means of a hand switch or optionally by a foot switch. The DC-controlled 200 W mercury top pressure short arc lamp fitted ensures best possible flicker-free illumination. The use of a liquid light guide is recommended (cf. page 5 ☺)

Wattage	200 Watt
Power connection	90-240V/50-60 Hz
Weight	7.5 kg
Dimensions mm	340x160x310
Colour temperature	6000°K
max. UV transmission	365 nm
Spare lamp	1.24201.001
Order no.	1.40303.001

Please also order the light guide adapter 1.80830.16.



TECAM CCD Miniature Colour Video Camera

with digital signal processing and micro lens technology. Harmonised to WOLF technoscopes especially, thus excellently suited for permanent controls or documentation.

- High luminous sensitivity 1.4 Lux
- Small and light miniature camera head
- Colour fidelity, even in case of dark objects
- Manual or automatic sensitivity control
- Contrast enhancement
- In case of weakly illuminated objects, the highly sensitive B/W mode can be switched on
- Automatic white balance
- Automatic shutter
- Front membrane keyboard
- PAL TV standard (NTSC upon request)
- Very user-friendly

Image recording sensor	1/2" CCD
Video resolution	752x582 pixels/460 lines (h)
Colour system/TV standard	PAL/625 lines (50 Hz) (NTSC upon request)
Minimum sensitivities	Automatic 1.4 Lux, manual: 1 Lux/B/W 0.5 Lux (all f=1.2)
Amplification control	Automatic or manual
Automatic shutter	1/50 - 1/10.000
White balance	Automatic by the touch of a button
Video outputs	2x composite (BNC), 2x S-Video (Y/C)
Size/Weight	Controller: 225 x 80 x 275 mm/2,200 g Camera head: diam. 29.5 x 67 mm/300 g (incl. 3.80 m cable)
Lens connection thread	C mount
Power connection	100-240 V/50-60 Hz
Electric safety	in keeping with Directive 73/23/EEC
Safety class/mode of operation	I (in keeping with EN 60335-1/IEC 335-1)/continuous operation
Electro-magnetic compatibility	EMC in keeping with Directive 89/336/EEC/EMC 93/68/EEC
Type of protection	IP 20 (not protected against penetration of liquids)
Order no.:	complete 2.55212.001 (controller, camera head with cable) Controller 2.55212.101 Camera head with cable 2.55212.902

High-resolution Video CCD Compact Colour Camera

1/2" CCD sensor
440,000 pixel 752 (h) x 582 (v)
PAL colour system
Outputs: 1x Composite (BNC)
1x S-Video (Y/C)
Resolution 470 lines (h)
Sensitivity 2 Lux (f=1.2)(AGC high)
Amplification AGC on/off 0 - 18 dB
Shutter 1/50 - 1/100,000 (adjustable)
Automatic or manual white balance
C Mount lens connection thread
12 VDC (separate power unit)

Order no.:	1.53520.00
------------	------------



Plug-in Power Unit for Colour Video Camera 1.53520.00

100 - 240 V/50 - 60 Hz to 12 VDC
including Con box for 1-cable operation
(video connection to monitor on the Con box, Y/C and BNC)
Cable length to the camera 2 m

Order no.:	1.53520.95
------------	------------

Monitors

All monitors can be used irrespective of whether they are tube monitors or LCDs, which have been fitted with a video input port.
For the operation of all WOLF video cameras, this could be composite signals (BNC or cinch) or S Video signals (Y/C).

Please enquire about the currently available monitors.

Video Cables

to monitor or to other video devices, such as video recorder, video printer, PC frame grabber, et cetera.

BNC cable 2 m	103.13
Y/C cable 1.5 m	103.501

Video Cases/Lenses/Threaded Filter Adapter/Tripod arm

Video Case

A video case permits the storage of all devices which are required to render a video picture in a space-saving and user-friendly way. For space reasons, an LCD monitor, preferably notebook size 30 cm, is used together with the video camera electronics.



In order to be able to freeze and save the pictures, the electronic storage elements have been fitted as well.

By the push of a button, the images of the video camera can be digitally saved on one storage medium. These pictures can be read and processed without any problems by any PC or laptop computer.

The power supply unit has been installed as well, so that only the mains plug needs to be connected up with the socket, and immediately the complete video case is ready for operation. The removable lid contains the small parts, such as mini camera, cable and lenses.

Permanent further developments are required here as well for technical as for practical reasons. Therefore, please ask for the currently available prospectus of these units.

Video USB Connection Option

Various frame grabbers can be used to transfer the analogue video signals of the video camera directly on to the PC/laptop computer.

The frame grabber is used to convert the analogue video signal into a digital signal.

However, in order to be able to transmit a real-time picture, the USB 2.0 high-speed port is required as a minimum.

As these connection units have to be adapted continuously to the progressing computer technology, please ask for the current model.

Video Lenses

WOLF video lenses have been developed specifically for the use of CCD video cameras with the WOLF technoscopes/borescopes.

Apart from the very low weight and minimum size, they offer excellent optical transmission properties.

The focal ranges have been set in such a way that all CCD sizes can be covered excellently for an optimised image on the monitor.

All lenses without exception have a manual focussing option.

All WOLF lenses have been fitted with the C mount lens connection thread and the WOLF technoscope/borescope bayonet connection.

There are six fixed focal lengths and a zoom lens, the latter with a continuous focal length adjustment.



Fixed focal lengths	Order no.:
f = 17 mm	4.85261.172
f = 21 mm	4.85261.212
f = 24 mm	4.85261.242
f = 27 mm	4.85261.272
f = 32 mm	4.85261.322
f = 38 mm	4.85261.382



Focal length - zoom	Order no.:
f = 27 – 36 mm	4.85261.501

Filter Thread Adapter

The filter thread adapter permits the mechanical connection of all WOLF technoscopes and fibrescopes to digital cameras.

The adapter has no optical properties.

Seven standardised filter threads are available to order. All diameter has a pitch of 0.75 mm.



Filter thread diameter	Order no.:
28 mm	1.52091.28
37 mm	1.52091.37
43 mm	1.52091.43
49 mm	1.52091.49
52 mm	1.52091.52
55 mm	1.52091.55
58 mm	1.52091.58

Other diameters upon request.

Articulated tripod arm

to secure flexible or rigid technoscopes in use.

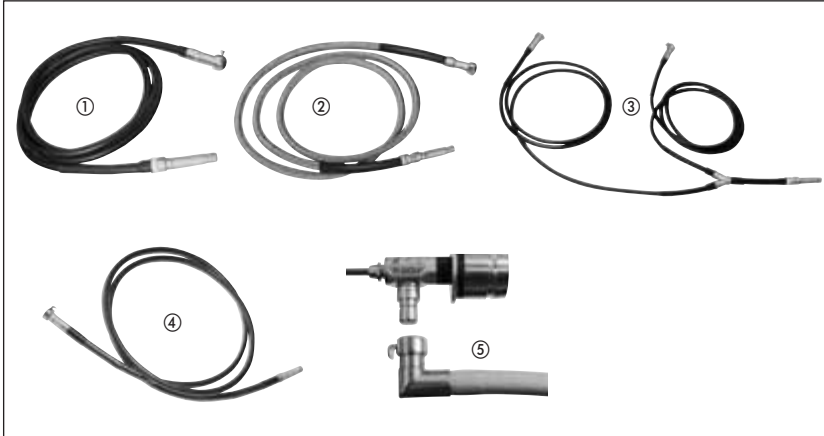
The stable articulated tripod arm has a central lock mechanism for three joints (one knee, two ball joints), two universal clamps with one clamping range of 6 to 55 mm each, including rubber pads in each clamping jaw.

The special design of the clamping jaws permits round but also flat parts to be clamping.



	Order no.:
Articulated arm	1.29100.10
Universal clamp	1.29100.20
Camera rail	1.29100.30

An additional camera rail also permits the attachment of a camera or a video camera by means of a 1/4" trippd thread.



WOLF glass fibre light guides have been harmonised to WOLF technoscopes/borescopes and WOLF light sources. They ensure an ideal light transmission, and thus a brilliant illumination of the entire viewing fields.

All WOLF light guides are light-weight, robust and highly flexible. The structure of the cable casing ensures fastness to pressure and kinking by and large.

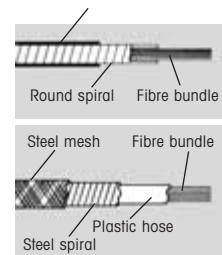
Unscrewable WOLF adapters permit the use of many conventional foreign light sources.

The Y light guide c is used, if two technoscopes are to be used at the same time on one light source.

The light guide v is a liquid light guide, which uses a special fluid to transmit the light instead of a glass fibre. It is especially suitable for the transmission of UV light.

By means of the light guide b the connection on the technoscope can be deflected by 90 deg. This is especially advantageous when using a video camera.

No.	Sheathing	Active fibre diameter	Length	For technoscopes	Order no.:
①	PVC	2.5 mm	1800 mm	up to 2.7 mm	1.40610.25
		3.5 mm	1800 mm	up to 8 mm	1.40610.35
			2300 mm		1.40630.35
		4.5 mm	1800 mm	over 8 mm	1.40610.45
		5 mm	2300 mm		1.40630.50
①	PVC	3.5 mm	2300 mm	All	8053.353
②	Steel mesh	4.5 mm	1800 mm	All	1.40650.45
		5 mm	2300 mm		1.40652.50
③	PVC	2 x 3.5 mm	2 x 1800 mm	2 x up to 8 mm	1.40620.35
④	PVC	4 mm	1800 mm	All	1.40690.45
			3500 mm		1.40690.453
⑤	PVC	4.5 mm	2300 mm	All	8062.451



Adapter

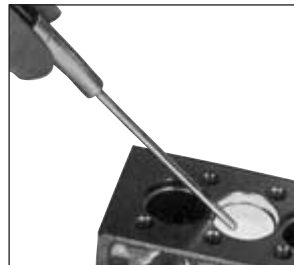
Adapter for the connection of WOLF light guides to light sources of other manufacturers.

<p>WOLF 8095.07 unscrew</p>	ACM		
	Classen & Co	8083.10	
	Henke-Sass-Wolf (HSW)		
	Olympus	8096.811	
	Model Lux	1.80830.12	
	Fort		
	Model EF	1.80831.12	
	Classen & Co.		
	Eltrotec	1.80830.13	
	Fiberoptik		
Streppel			
Volpi	1.80830.14		
Schötlly			
Schott	1.80830.15		
Storz fits directly			
Lumatec	1.80830.16		

Light Rods

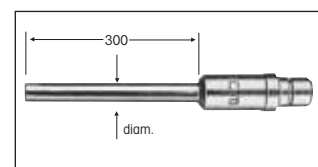
Light rods are only used to illuminate objects.

They have no optical system, but consist of illuminating glass fibres exclusively.



The light rods with firmly connected light guides transmit a very high quantity of light and thus illuminate large hollow spaces excellently.

These light rods have been designed for connection to a WOLF light guide. All light guides can be used.



diam. mm	Fibre bundle diam. mm	Total length mm	Length of light rod mm	Beam angle	Order no.:
6	5.2	1800	400	70°	1.00640.07
6	5.2	1800	400	140°	1.00640.14

diam. mm	Fibre bundle diam. mm	Order no.:
3.7	2.7	1.03730.00
4.7	3.7	1.04730.00
5.7	4.7	1.05730.00

Optical Accessories

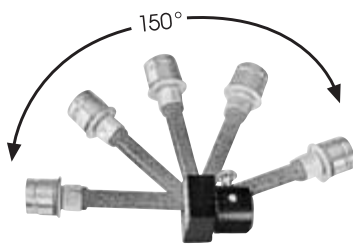


Angle Attachments

Angle attachments are used to change the angle of view in WOLF technoscopes and are pushed on to the eyepiece. By means of a ball catch it is possible without any problems to turn the technoscope in the angle attachment. The eyepiece has been fitted in a fixed angle.

Bending angle	Working length	Order no.:
60°	110 mm	1.58000.60
	260 mm	1.38001.60
90°	110 mm	1.58000.90
	260 mm	1.38000.90
	830 mm	1.83000.90

Swivelling angle attachment



The angle attachment with swivelling eyepiece can be moved from 0 deg. to 150 deg. Any angle of view requested can be set. By means of an attachment screw, the image can always be turned into the original position.

Length	Order no.:
130 mm	1.48000.96

Extension Attachments

The extension attachments can be pushed on to all WOLF technoscopes and angle attachments.

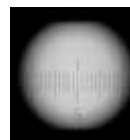
Working length	Order no.:
110 mm	1.58000.00
260 mm	1.38000.00

Magnifying Attachments

The magnifying attachments increase the respective intrinsic magnification of the WOLF technoscopes by 2.2 times effectively. They fit on to all WOLF technoscopes and angle attachments fitted with an eyepiece focussing unit.

Length	Order no.:
75 mm	1.50200.00

This magnifying attachment is also available with fitted scale with 0.1 mm graduation. For comparisons only; cannot be used for measurements.



Length	Order no.:
75 mm	1.50210.00

Eyepiece Cup

Can be pushed on to all WOLF technoscopes, fibrescopes, angle attachments and magnifying attachments. Is made of black soft rubber with a metal sleeve.



Model	Order no.:
Round	1.28000.00

Eyepiece Adapter

WOLF lenses on 32 mm eyepieces.

In order to be able to fit 32 mm eyepieces as well as camera lenses to WOLF accessories, a special adapter is required. This adapter is simply locked into the WOLF eyepiece unit, and the 32 mm eyepieces of other manufacturers are attached by means of bayonet catches.



Order No.:	1.52000.22
------------	------------

WOLF eyepieces on 32 mm eyepieces.

In order to be able to fit WOLF technoscopes and optical accessories to frequently used 32 mm lenses, a special adapter is required.

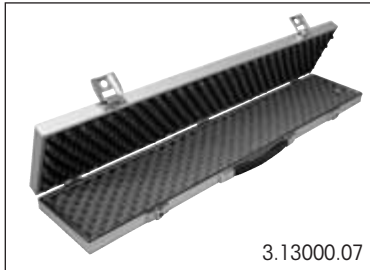


This adapter is simply locked into the WOLF eyepiece unit, and the 32 mm lenses of other manufacturers are pushed on.

Order no.:	1.52000.11
------------	------------

Narrow, Long Technoscope Case

For rigid technoscopes, angle attachments, cables, et cetera. Made of aluminium with stable aluminium edges all around, with two or four locks depending on length; inside with nap foam; universal use.



Outside dimensions (LxWxH)	Order no.:
520 x 185 x 60 mm	3.13000.05
870 x 185 x 60 mm	3.13000.07
1170 x 185 x 60 mm	3.13000.11
1620 x 185 x 60 mm	3.13000.15
1820 x 185 x 60 mm	3.13000.18

Rigid technoscopes with working lengths of more than 500 mm are supplied in the corresponding case as a matter of principle. The case is contained in the price of the technoscope and need not be ordered separately.

Light Source Case

Suitable for light sources - see table. Made of aluminium with stable aluminium edges all around on the outside, cable compartment, lid support, stable handle.



Light source	TLH-1
Outside dimensions	250 x 240 x 340 mm
Order no.	3.42150.90

Light source	TLA-1
Outside dimensions	310 x 200 x 340 mm
Order no.	3.31210.90

Light source	TLX-2
Outside dimensions	370 x 220 x 400 mm
Order no.	3.51210.90

Technoscope Kit Case

(for rigid technoscopes and light source)
Depending on model, suitable for two to three rigid technoscopes, angle attachment, light source, cable and small parts.
Made of aluminium with stable aluminium edges all around on the outside, anthracite PU foam on the inside.



For technoscope working lengths	2x up to 300 mm
Light source	TLH-1
Outside dimensions	520 x 400 x 145 mm
Order no.	3.13000.03

For technoscope working lengths	2x up to 500 mm 1x up to 200 mm
Light source	TLH-1
Outside dimensions	700 x 400 x 145 mm
Order no.	3.13000.06

For technoscope working lengths	3x up to 500 mm
Light source	TLH-1 or TLX-2
Outside dimensions	700 x 550 x 170 mm
Order no.	3.13000.09

For technoscope working lengths	3x up to 715 mm
Light source	TLH-1 or TLX-2
Outside dimensions	920 x 570 x 170 mm
Order no.	3.13000.08

For technoscope working lengths	5x up to 500 mm
Small parts	Space for accessories
Outside dimensions	700 x 400 x 145 mm
Order no.	3.13001.06

Technoscope Kit Case

(for rigid technoscopes and light source)
Suitable for a flexible technoscope, light source, cable and small parts.
Made of aluminium with stable aluminium edges all around on the outside, anthracite PU foam on the inside.



For flexible technoscope working lengths	up to 700 mm (two-sided control only)
Light source	TLH-1
Outside dimensions	520 x 400 x 145 mm
Order no.	3.13003.03

For flexible technoscope working lengths	up to 3000 mm
Light source	TLH-1
Accessories	Articulated tripod arm
Outside dimensions	700 x 550 x 170 mm
Order no.	3.13009.09

For flexible technoscope working lengths	All lengths
Light source	TLH-1 or TLX-2
Accessories	Articulated tripod arm
Outside dimensions	760 x 620 x 170 mm
Order no.	3.13002.07

For technoscopes with a working length of up to 500 mm, the manufacturer recommends to chose a suitable case from the large range of WOLF cases on this page and to order it along with the scopes.

Otherwise the technoscopes and devices are supplied in a suitable shipment packaging (dual system boxes).



Other WOLF Products

Rigid Technoscopes

Various diameters, working lengths and viewing directions

Videoscopes

Various diameters, working lengths and models

Swivel Prism Technoscopes

Various diameters, working lengths
Some models with quick zoom focussing unit

Fiberscopes

Various diameters, working lengths, with and without lens heads,
with two or four sided control of the device tip

Elastoscopes (rigid but bendable)

Various lengths, direct view and side view

Special Technoscope Systems

Grinding technoscopes
Contact measuring technoscopes
Diesel measuring technoscope system
Round vision technoscope

Accessories for Documentation

e.g. analogue video USB box
Image storage on USB stick
Digital camera and adapter
and many things more ...

Please ask for our specialised catalogues !

GERMANY (headquarters):

RICHARD WOLF GmbH
Produktgruppe Technoscope
Pforzheimer Strasse 32
D-75438 Knittlingen, Germany
Tel.: 0 70 43 - 35 222
Facsimile: 0 70 43 - 35 1220
Email: riwotech@richard-wolf.com
Internet: www.richard-wolf.com

AUSTRIA:

RICHARD WOLF Austria
Ges.m.b.H.
Wilhelminenstrasse 93 a
A-1160 Vienna, Austria
Tel.: 01-405 51 51
Facsimile: 01-405 51 51 45
info@richard-wolf.at

BELGIUM:

N.V. Endoscopie
RICHARD WOLF Belgium S.A.
Industriezone Drogen, Landegemstraat 6
B-9031 Gent -Drogen, Belgium
Tel.: +32-(0)9-280.81.00
Facsimile: +32-(0)9-282.92.16
endoscopy@richard-wolf.be