



Metal frames

+ tools and machines used at optician

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[Points of presentation]

- Glasses
- Frames parts
- Type of glasses
- Accessories
- Tools and machines



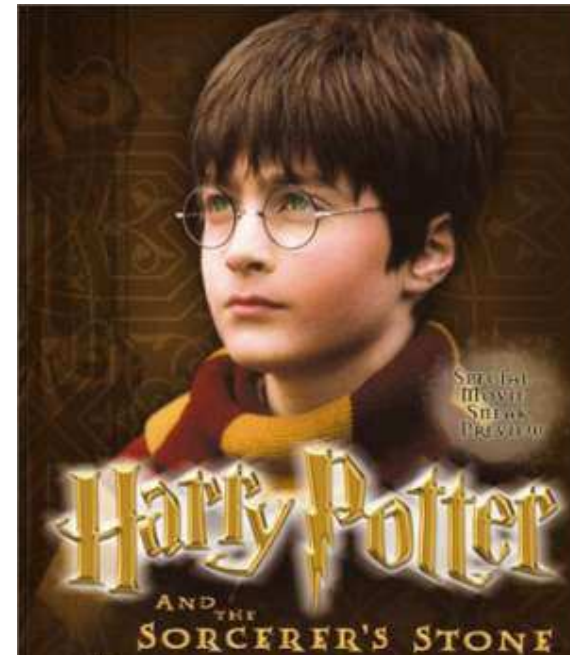
Tough decisions.

[Glasses]

- Eyeglasses
- Frames
- Spectacles
- Eyewear
- Goggles



[What are glasses for?]



[Frame parts]



- Rim
- Nose bridge
- Pad arm, pad
- Temple arm, (side)

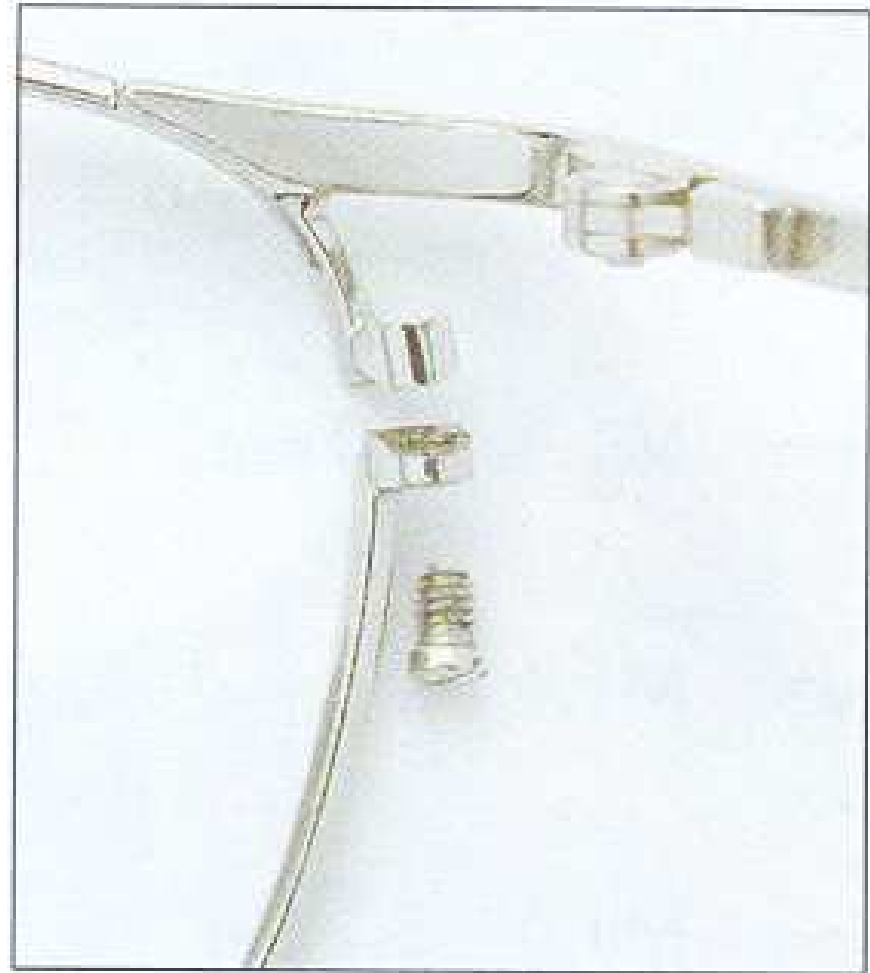
[Rim]



- Along the inner part of rim is a groove.

[Rim lock]

- Eye
- Screw
- Hinge



[Nose bridge]



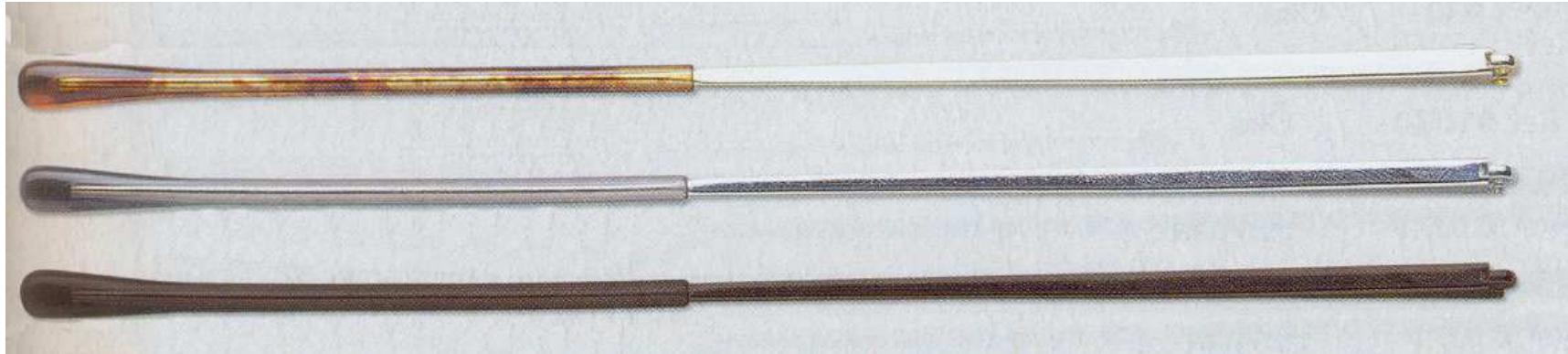
- Rims are held together by the nose bridge.

[Pad arm and pad]

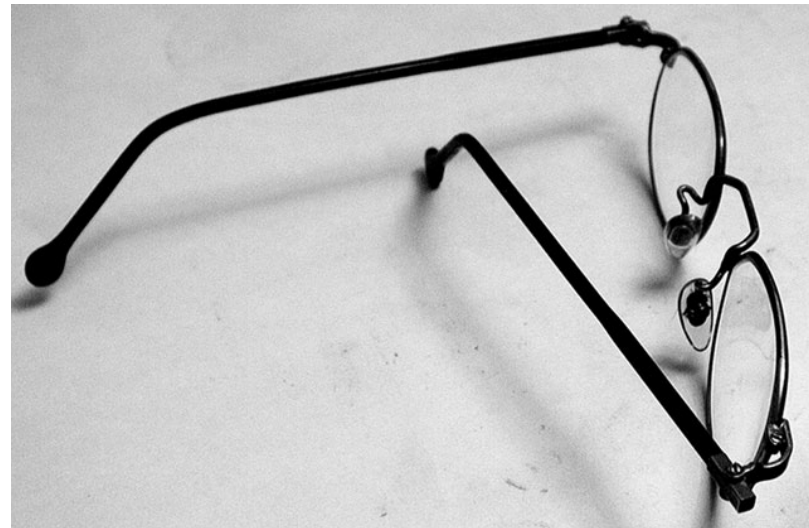
- Pad arm
- Pad lock
- Pad



[Temple arms or sides]



- Part with temple tip (earpiece or end)
- Part with an eye



[Hinge]

- Rims eye
- Sides eye



[Type of glasses]

Classified according to rim shape

- All rim frames
- Supra frames
- Rimless glasses

[All rim frames]



Lens is set in the rim and fixed with the rim lock.

[Supra frames]



Lower part is rimless and replaced by a nylon cord.

[Fixing with the nylon cord]



- The lens has a groove
- The nylon cord goes through two little holes

[Rimless glasses]



- Just drilled lens with nose bridge and temple arms fixed with screws.

[Types of eyeglasses]

Classified according to usage

- Dioptric glasses
- Reading glasses
- Sun glasses
- Glasses for kids
- Special glasses -goggles

[Dioptric glasses]



- Common dioptric glasses



[Reading glasses]



- The rim is lower or smaller, the nose bridge is larger, sides are longer.
- Adapted for wearing on top of the nose.

[Sun glasses]



- Bigger rims better protect from the sun



[Glasses for kids]



- colored with childrens motives

[Special glasses]



- Swimming goggles

[Special glasses]



- diving goggles



[Special glasses]

- For winter sports

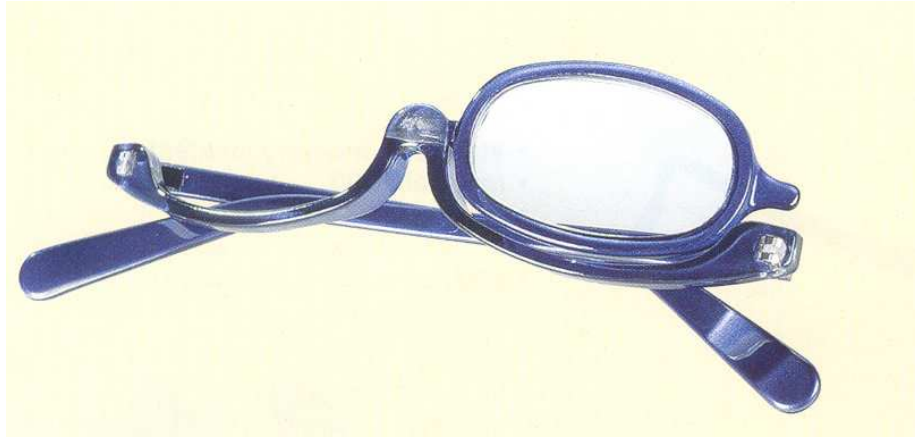


[Special glasses]



- Solar clips

[Special glasses]



- Make-up glasses



[Special glasses]



- Safety goggles



[Accessories]

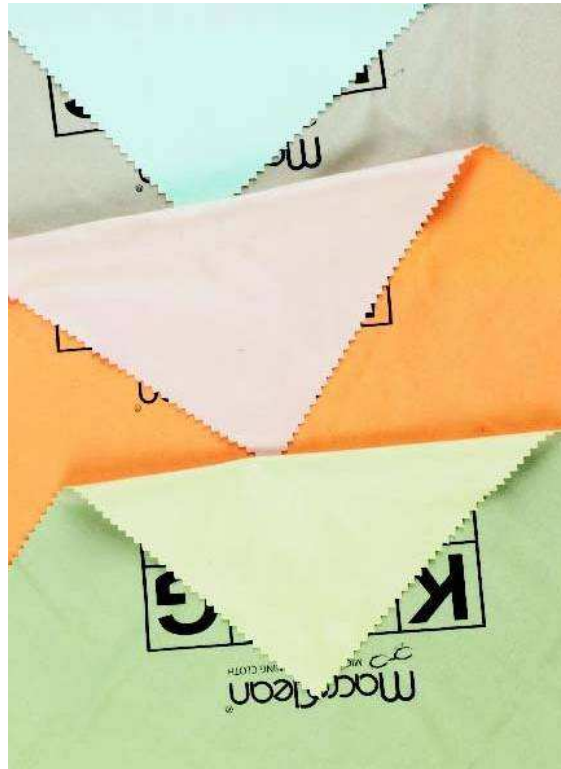
- Cases
- Microfibers
- Spray cleaners
- Cords

[Accessories]



- Cases –many designs, colors and materials.

[Accessories]



- Spray cleaners
- Microfibers

[Accessories]



- Cords from many materials - microfiber, silicon, beads, metal...

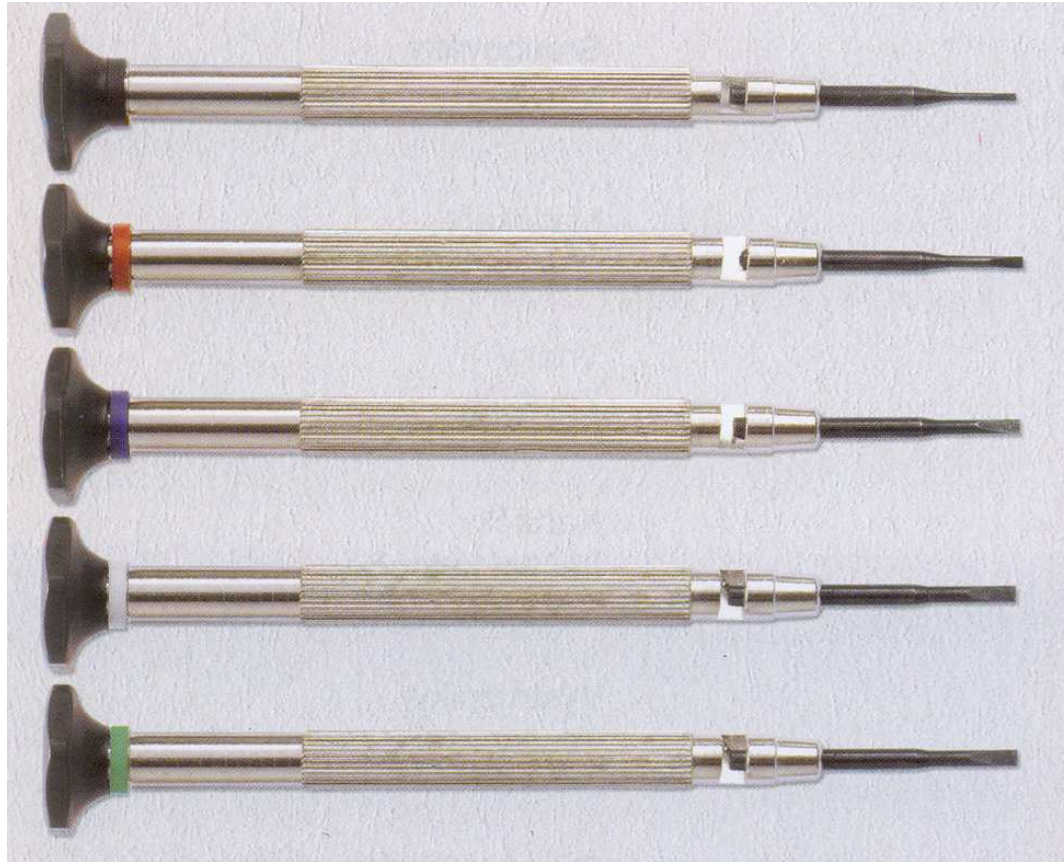


[Tools and machines]

Tools

- Screwdriver
- Nutdriver
- File
- Driler
- Broacher
- Pliers

[Tools]



- Screwdriver
For screwing the screws.

[Tools]



- Nutdriver
Screwing the nut

[Tools]



File

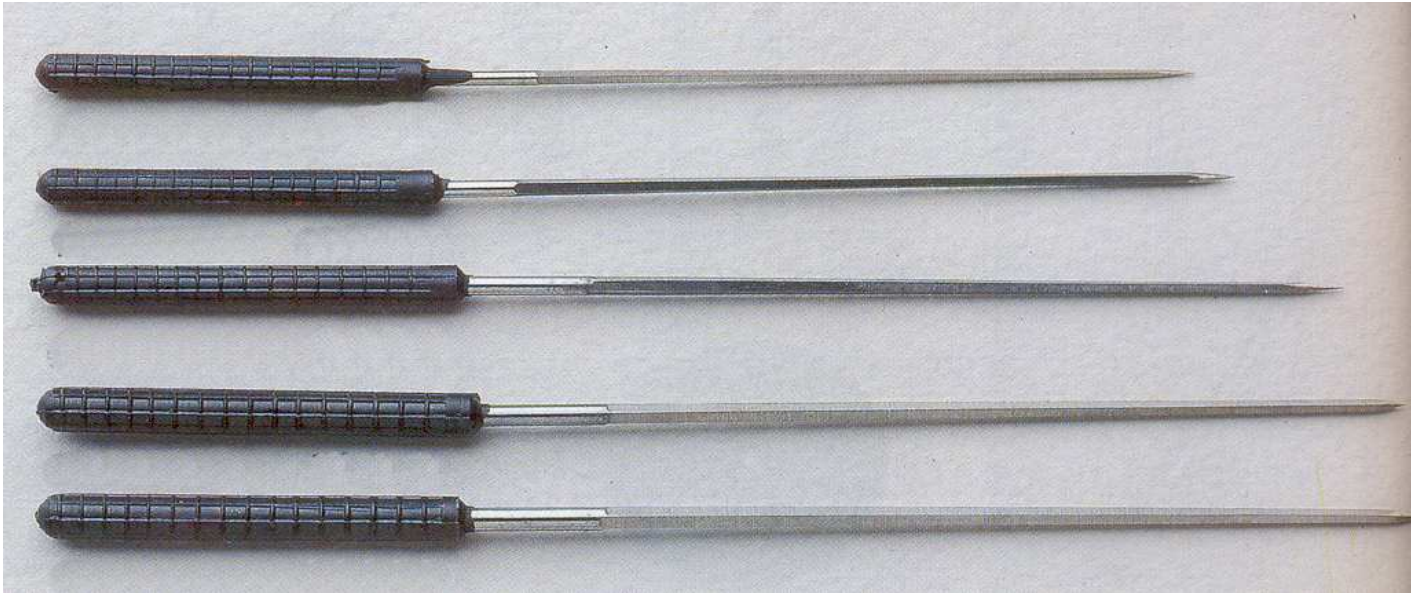
- Flat or rectangular
- Half round
- Triangular
- Square
- Round

[Tools]



- Driller
For drilling

[Tools]



- Broacher

is square shaped, sharp and strict metal gad, using for enlarge holes

[Tools]

Pliers

- Chipping pliers
- Angling pliers
- Size testing pliers
- Peening pliers
- Bending pliers
- Adjusting pliers
- Inclination pliers
- Holding pliers
- Nose pad adjusting pliers

[Pliers]



- Chipping pliers

[Pliers]



ANGLING PLIER

SIZE TESTING PLIER

PEENING PLIER



- Angling pliers
- Size testing pliers
- Peening pliers

[Pliers]



EYEWIRE SHAPER

EYEWIRE SHAPER



- Bending pliers

[Pliers]



TEMPLE ADJUSTING PLIER



INCLINATION PLIER



- Adjusting pliers
- Inclination pliers

[Pliers]



HOLDING PLIER

HOLDING PLIER



- Holding pliers

[Pliers]



NOSE PAD ADJUSTING
PLIER

SLIM NOSE PAD
ADJUSTING PLIER

NOSE PAD PUSH-ON
REMOVING PLIER

NOSE PAD PUSH-ON
REMOVING TWEEZER

- Nose pad adjusting pliers



[Tools and machines]

Machines

- Edging machine
- Frame heater
- Lens groover
- Driller
- Ultrasonic cleaner

Special units

- Focimeter
- PD meter
- Refractometer or
Optometer
- Ophtalmometer
- Optotyp
- Acuity projector
- Trial frame and trial lens
case
- Phoropter
- Collimator

[Machines]



- Edging machine

[Machines]



- Frame heater

[Machines]



- Lens groover

[Machines]



- Driller

[Machines]



- Ultrasonic cleaner



[Special units]



- Focimeter
Notice the optical power
of lenses

[Special units]



- PD meter

notice the distance between pupils - "eye distance"

[Special units]

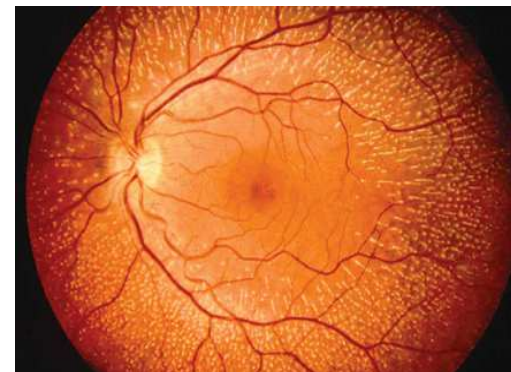
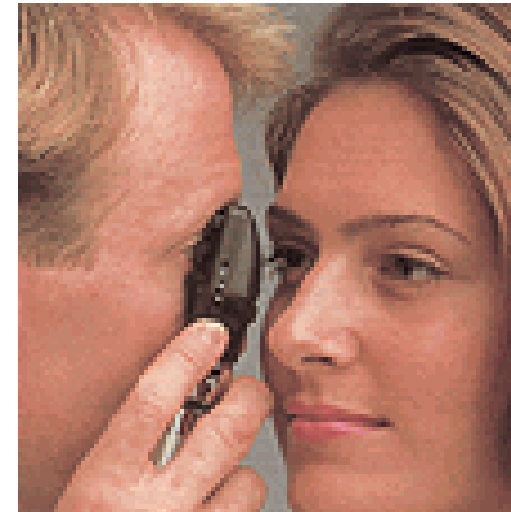


- Refractometer or Optometer

[Special units]

- Ophthalmometer

we can see the eyeground by ophthalmometer



[Special units]



- Acuity projector

Projects optical tests onto white matt surface

Odległość w m	E	Ostrość wzroku
50	E	0,1
25	F H	0,2
16,5	E N T	0,3
12,5	T N H L	0,4
10	L E F N H	0,5
8,3	Z L P O H F	0,6
7,1	H L A E Z T P T	0,7
6,2	N Z E P L P F N	0,8
5,5	F P Z H T L E Z	0,9
5,0	P N P Z H T L E Z	1,0

[Special units]



- Trial frame and trial lens case



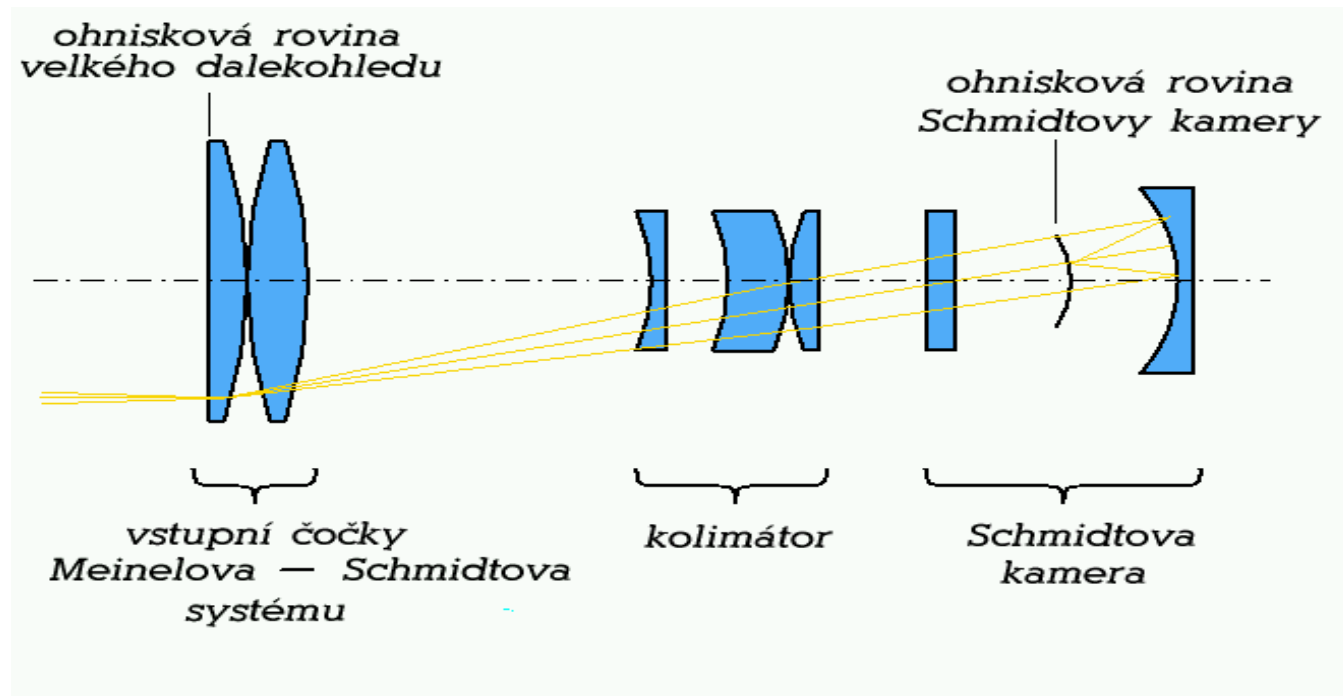
[Special units]



- Phoropter



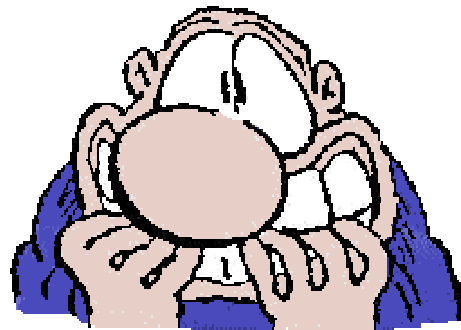
[Special units]



- Collimator

Is one or more lenses in any optical system

[Any questions?]



[Thank you...]

