



## List of available objectives at the CFH-IU


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### 1. Objective Fluor 2.5x/0.12 M27

#### 1.1 Characteristics:

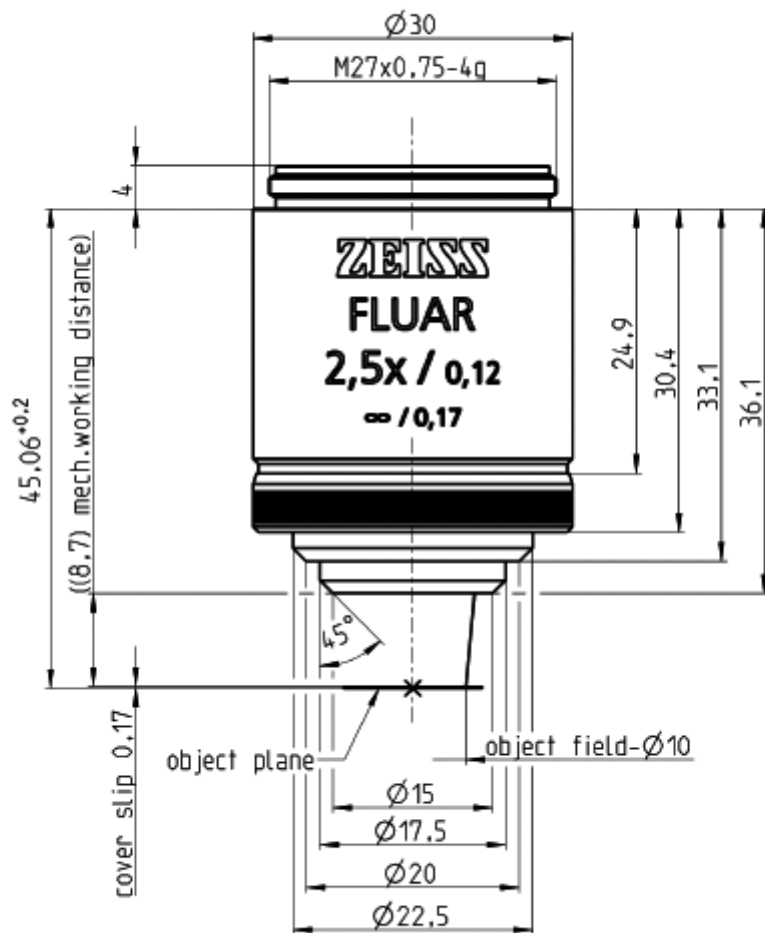
This objective is suitable for a field of view diameter of 25 mm. It is used as an overview objective for confocal microscopy.

Magnification	2.5x
Numerical Aperture	0.12
Free Working Distance [mm]	8.7
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	23
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	*
Color Correction	*
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	*
- Ultraviolet Transmission	* * * * *
- Infra Red Transmission	* * * * *
BrightField	
DIC [Differential Interference Contrast]	
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	

High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	
Confocal Microscopy	
- Ultra Violet	* * * * *
- VIS (visible light)	* * *
- NLO-IR / 2 Photon	
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

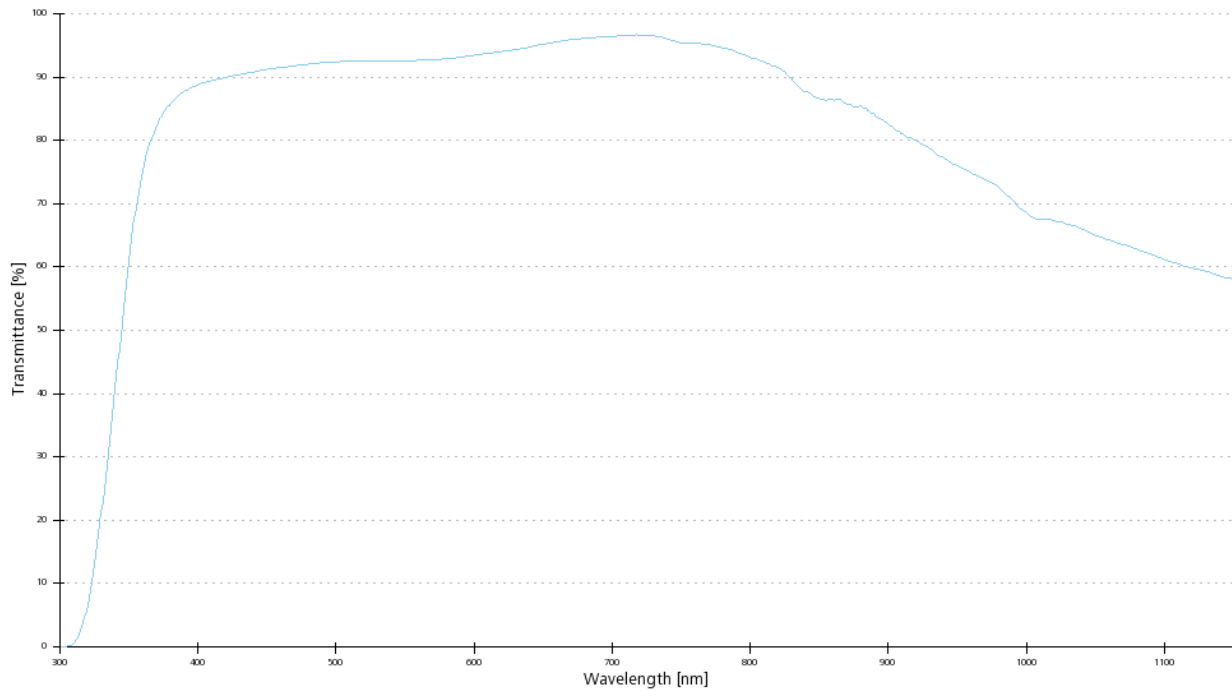
## 1.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



### 1.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### 1.4 Objective Class:



Fluar These objectives have been designed especially for qualitative and quantitative analysis of ion movements and for particularly critical fluorescence methods (e.g. chromosome studies in human and cytogenetics). These objectives are distinguished by high numerical apertures and highest transmission at wavelengths even of 340 nm. Field flattening is sufficient up to a field of 20 mm.

#### 1.5 Objective Description:

Objective Fluar 2.5x/0.12 M27 (FWD=8.7mm)

## 2 Objective "Plan-Apochromat" 5x/0.16 M27

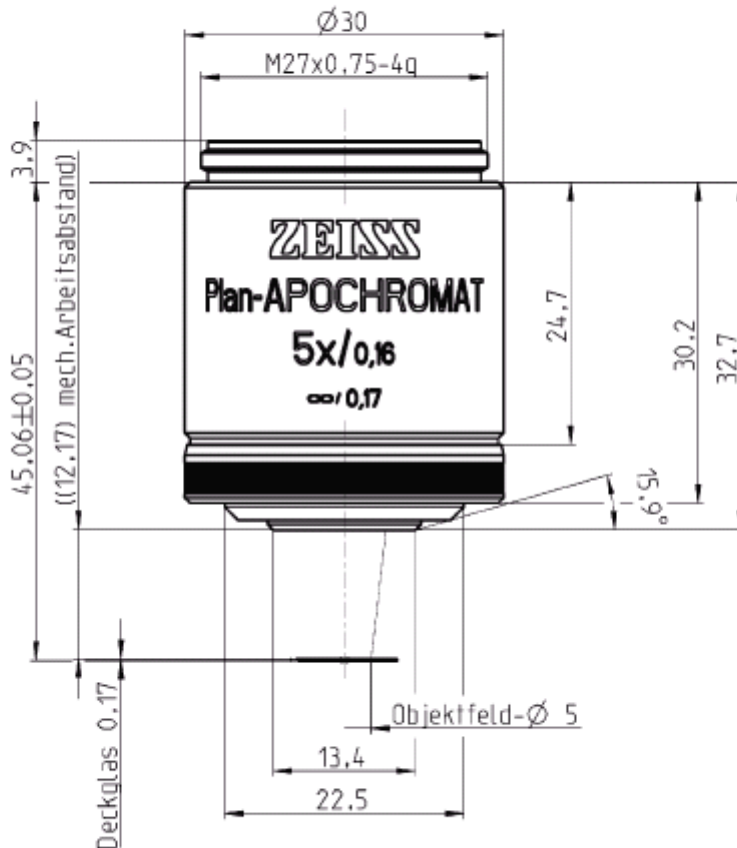
### 2.1 Characteristics:

Magnification	5x
Numerical Aperture	0.16
Free Working Distance [mm]	12.1
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * * * *

Confocal Microscopy	■
- Ultra Violet	* * *
- VIS (visible light)	* * * * *
- NLO-IR / 2 Photon	* *
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

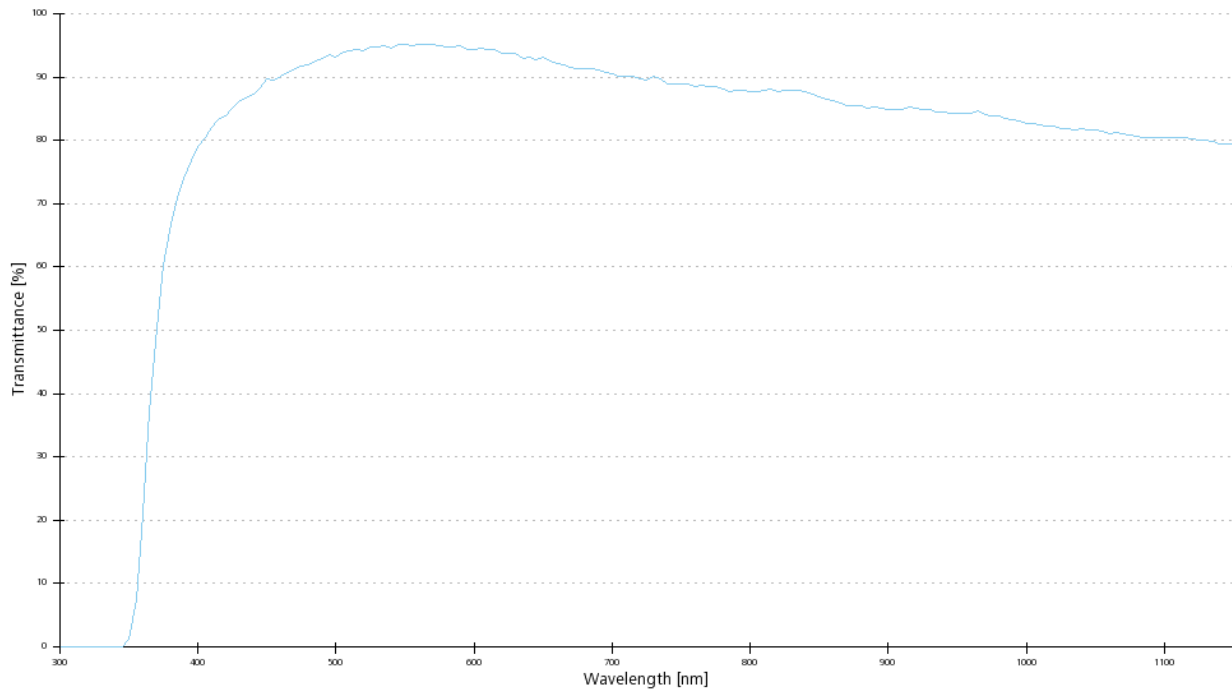
## 2.2 Technical Drawing:

Note: All measures in [mm] mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 2.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



## 2.4 Objective Class:



Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

## 2.5 Objective Description:

Objective Plan-Apochromat 5x/0.16 M27 (FWD=12.1mm)

### 3 Objective "Plan-Apochromat" 10x/0.45 M27

#### 3.1 Characteristics:

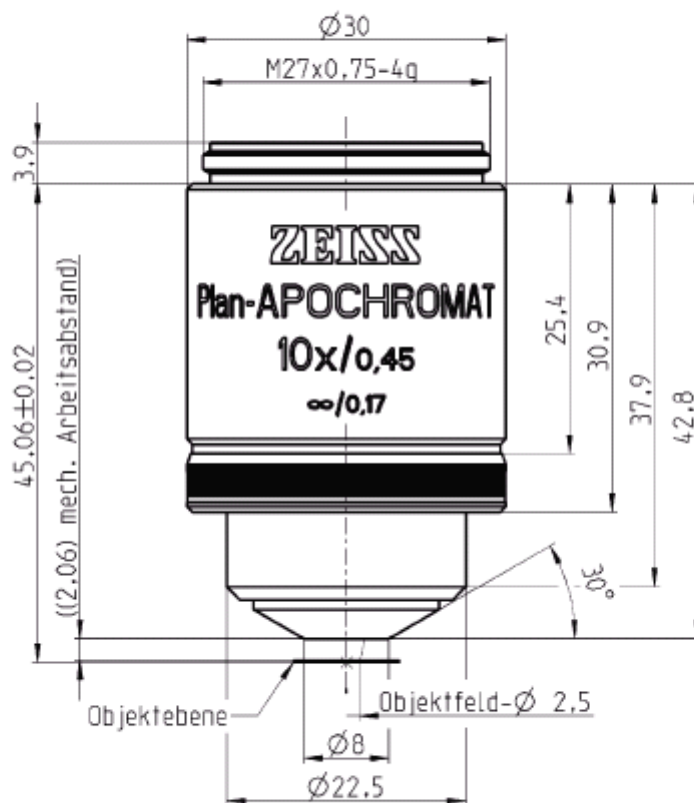
Magnification	10x
Numerical Aperture	0.45
Free Working Distance [mm]	2.0
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * *



Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	■
Microdissection	

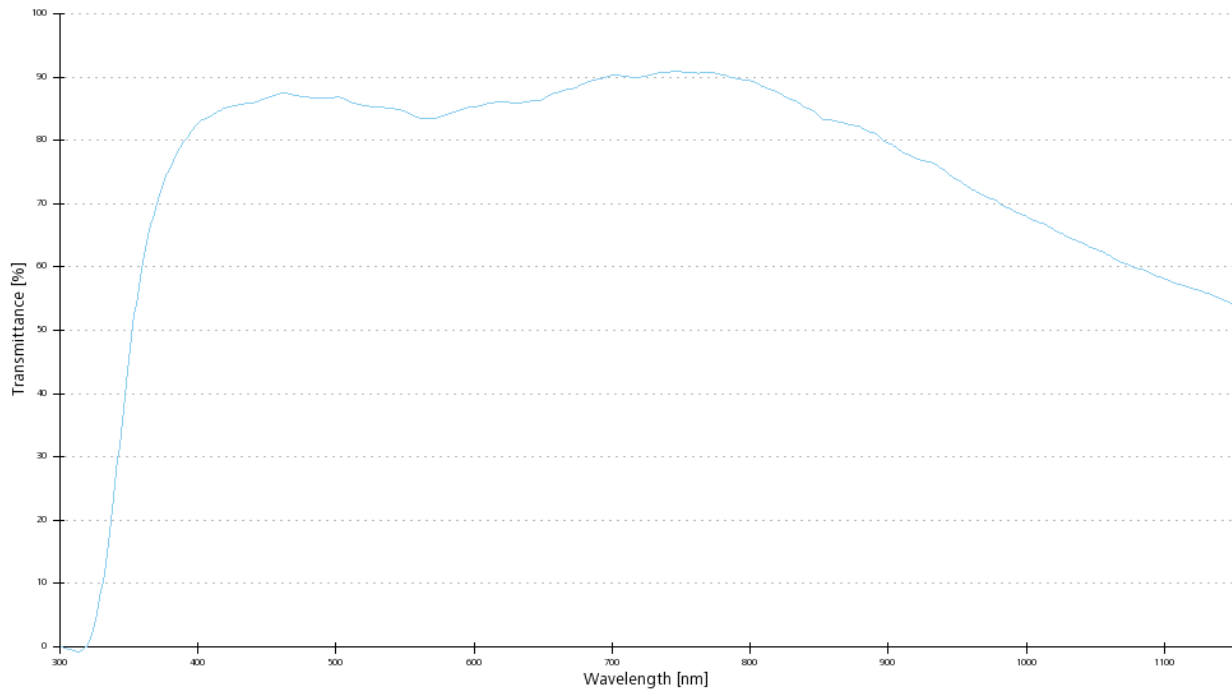
### 3.2 Technical Drawing:

Note: All measures in [mm] mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



### 3.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



### 3.4 Objective Class:



Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

### 3.5 Objective Description:

Objective Plan-Apochromat 10x/0.45 M27 (FWD=2.1mm)

## 4 Objective "Plan-Apochromat" 10x/0.3 M27

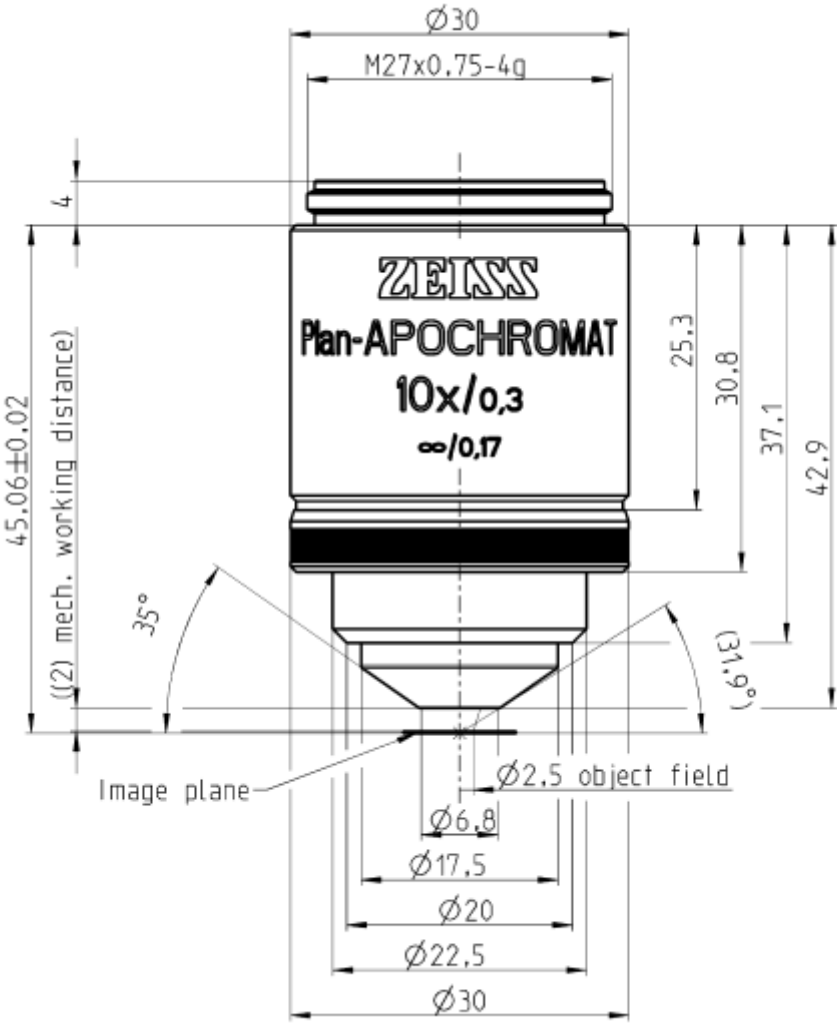
### 4.1 Characteristics:

Magnification	10x
Numerical Aperture	0.3
Free Working Distance [mm]	2.0
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * * * *
- Infra Red Transmission	* * * * *
BrightField	
DIC [Differential Interference Contrast]	
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * * * *

Confocal Microscopy	■
- Ultra Violet	****
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

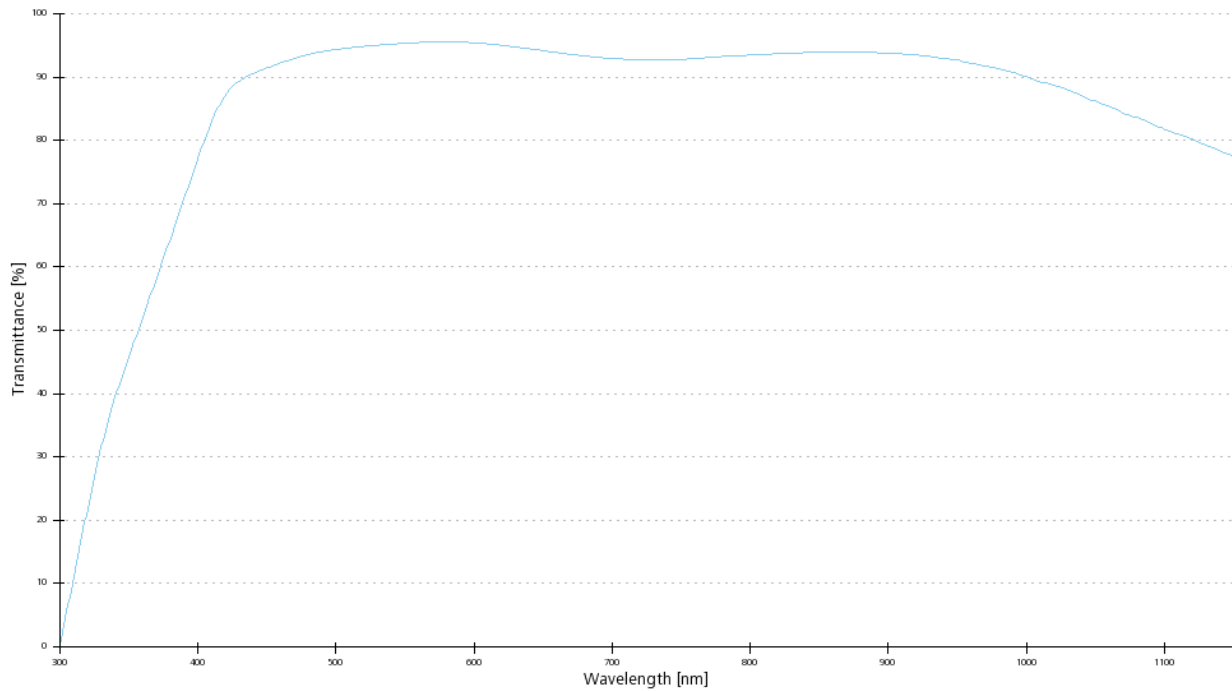
**4.2 Technical Drawing:**

Note: All measures in [mm] mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



**4.3 Transmittance Curve:**

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### **4.4 Objective Class:**



Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

#### **4.5 Objective Description:**

Objective Plan-Apochromat 10x/0.3 M27 (FWD=2.0mm)

## 5 Objective Plan-Apochromat 20x/0.8 M27

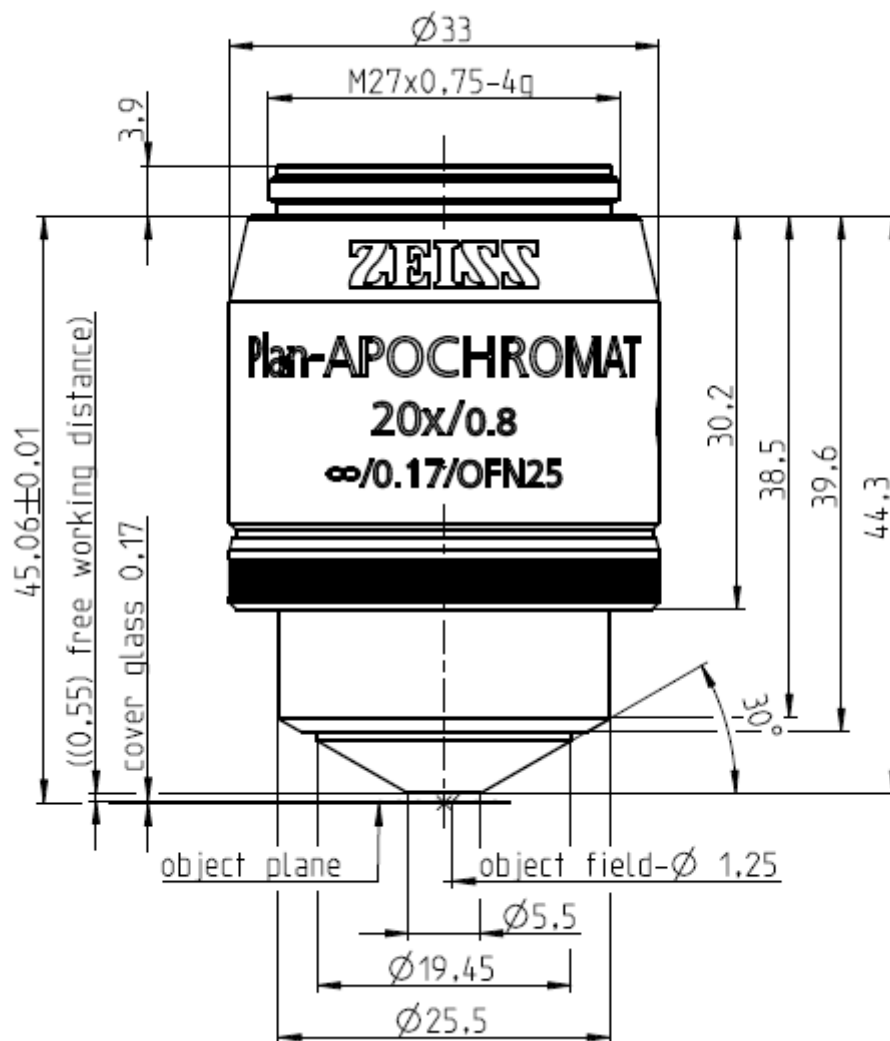
### 5.1 Characteristics:

Magnification	20x
Numerical Aperture	0.8
Free Working Distance [mm]	0.55
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* *

Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	■
Microdissection	■

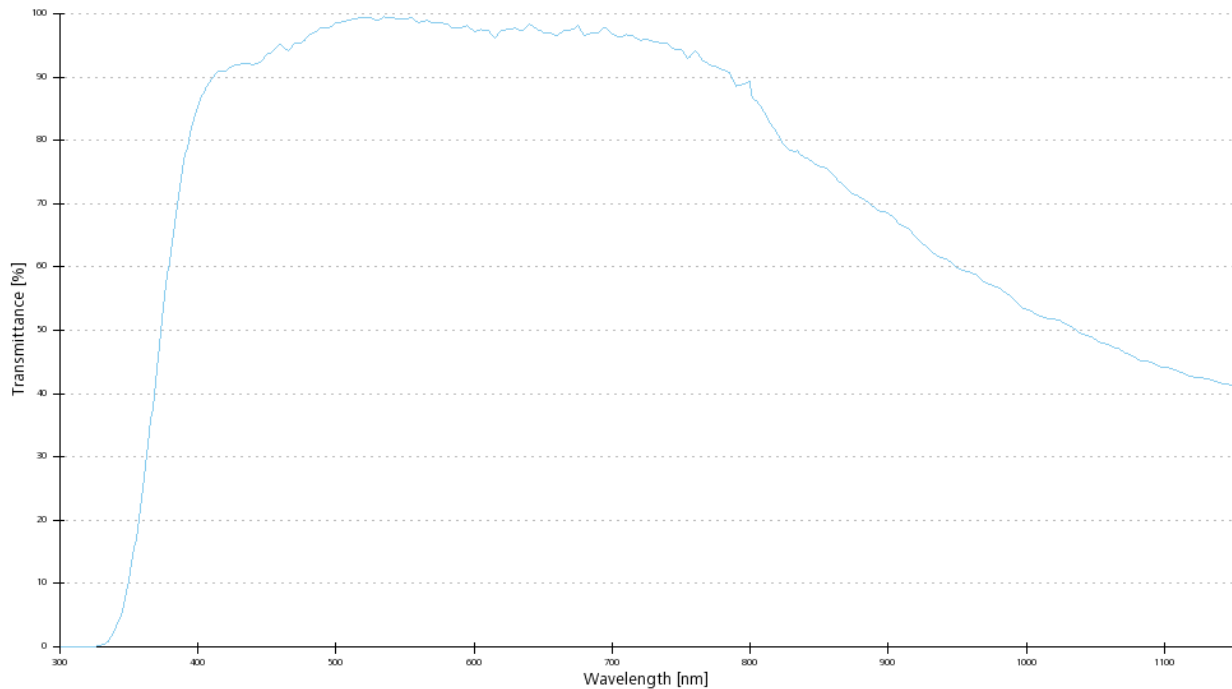
## 5.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 5.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### 5.4 Objective Class:

Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.



#### 5.5 Objective Description:

Objective Plan-Apochromat 20x/0.8 M27 (FWD=0.55mm), incl. Cover glasses, high performance, CG=0.17mm, box with 100 pc Lead-free



## 6 Objective Plan-Apochromat 20x/0.8 M27

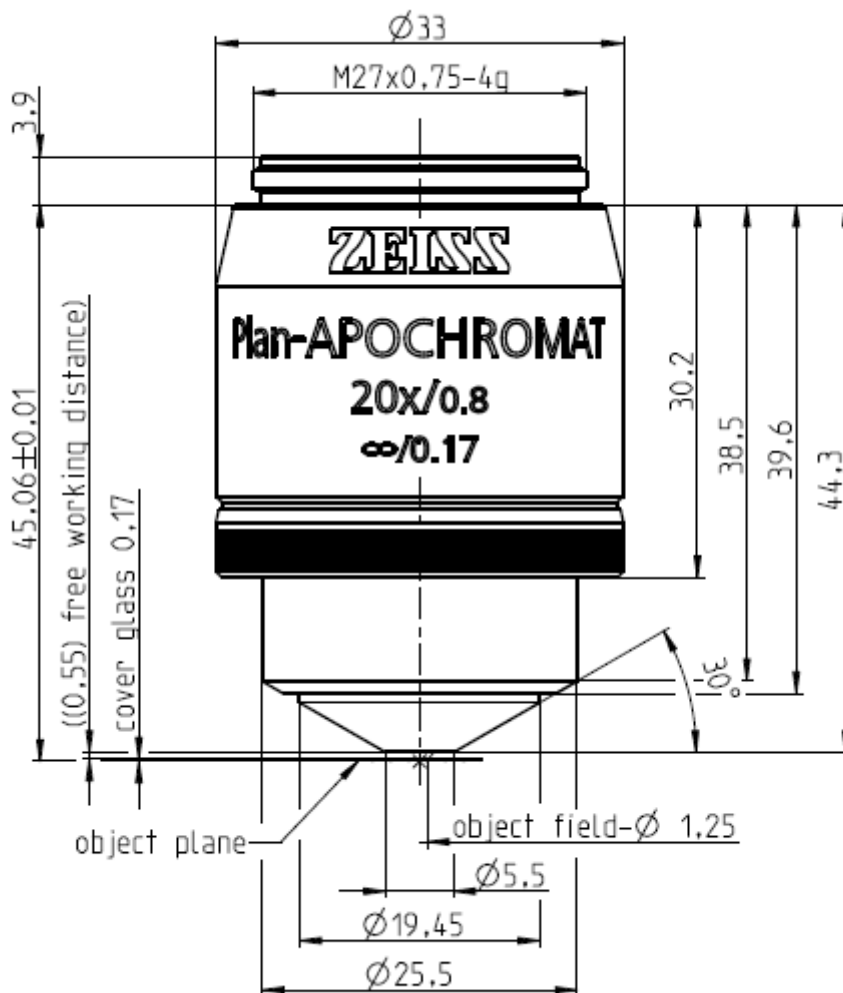
### 6.1 Characteristics:

Magnification	20x
Numerical Aperture	0.8
Free Working Distance [mm]	0.55
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* *

Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	■
Microdissection	■

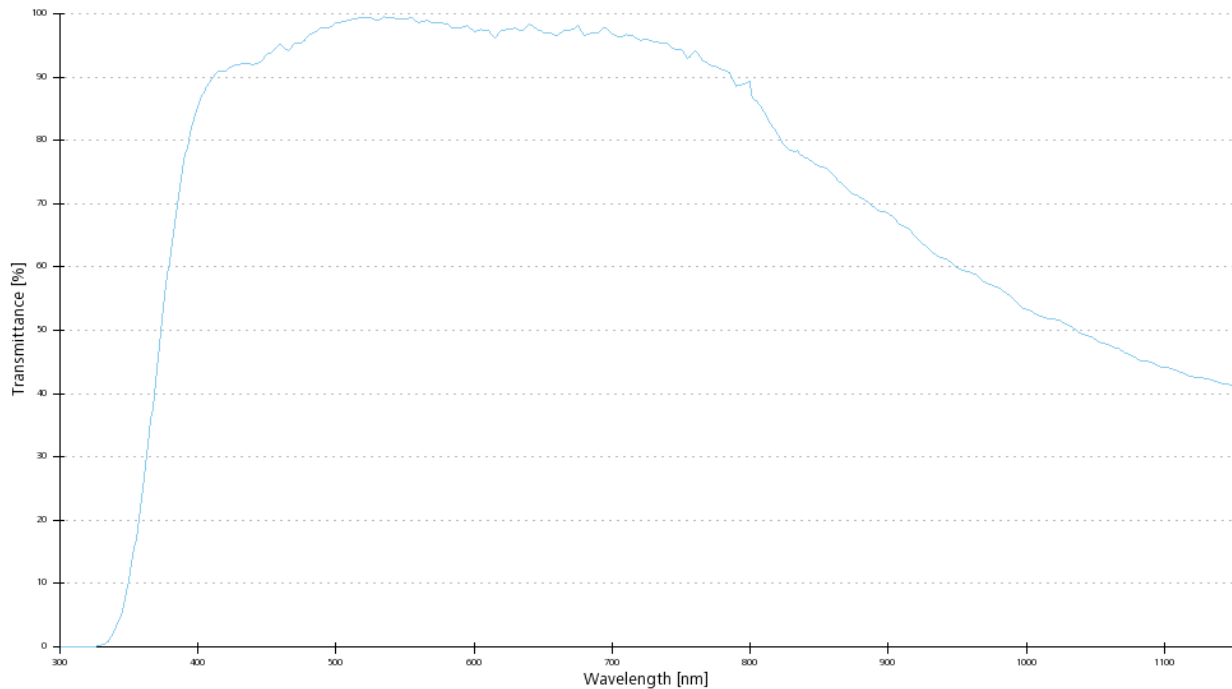
## 6.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 6.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### **6.4 Objective Class:**






Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

#### **6.5 Objective Description:**

Objective Plan-Apochromat 20x/0.8 M27 (FWD=0.55mm), incl. Cover glasses, high performance, CG=0.17mm, box with 100 pc

## 7 Objective LD Plan-Neofluar 20x/0.4 Corr Ph2 M27

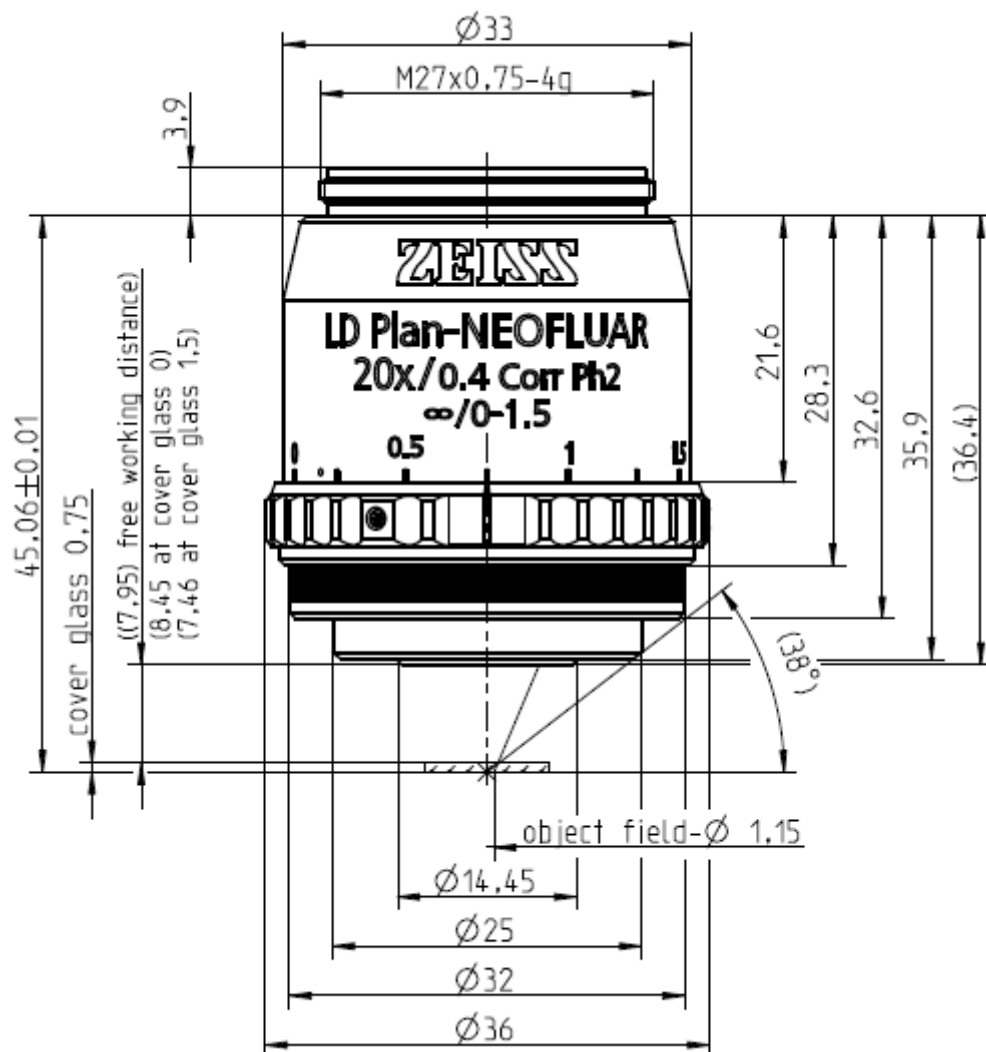
### 7.1 Characteristics:

Magnification	20x
Numerical Aperture	0.4
Free Working Distance [mm]	7.9 at cover glass 0.75
Coverglass Thickness [mm]	0 - 1.5
Thread Type	M27x0.75
Immersion	Without Immersion
Field of View [mm]	23
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * *
Color Correction	* * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * *
- Ultraviolet Transmission	* * * *
- Infra Red Transmission	* * *
BrightField	
DIC [Differential Interference Contrast]	
High Contrast DIC	
PlasDIC	
Phase Contrast	Ph 2
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* *

Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	■

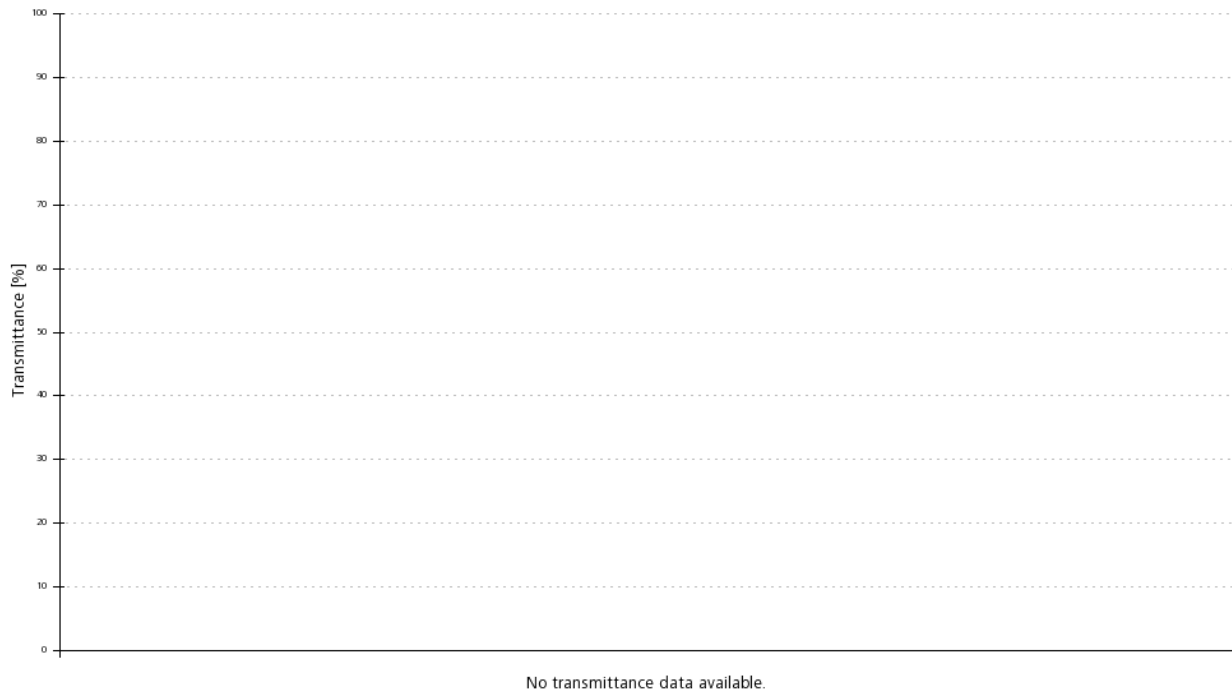
## 7.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 7.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### **7.4 Objective Class:**

LD Plan-Neofluar The version of the EC Plan-Neofluar objectives with extra long working distance to be used at the inverted research microscope Axiovert 200. Beside the well-known, fluorescence of all EC Plan-Neofluar objectives the LD versions have a correction collar to adjust the objective to different cover glass thicknesses from 0 to 1.5 mm. They can of course be used in all known contrast techniques such as Brightfield, Phase contrast, DIC and PlasDIC.





#### **7.5 Objective Description:**

Objective LD Plan-Neofluar 20x/0.4 Corr Ph2 M27 (CG=0-1.5mm) (FWD=8.4mm at CG=0mm and FWD=7.4mm at CG=1.5mm)

## 8 Objective LD LCI Plan-Apochromat 25x/0.8 Imm Corr DIC M27

### 8.1 Characteristics:

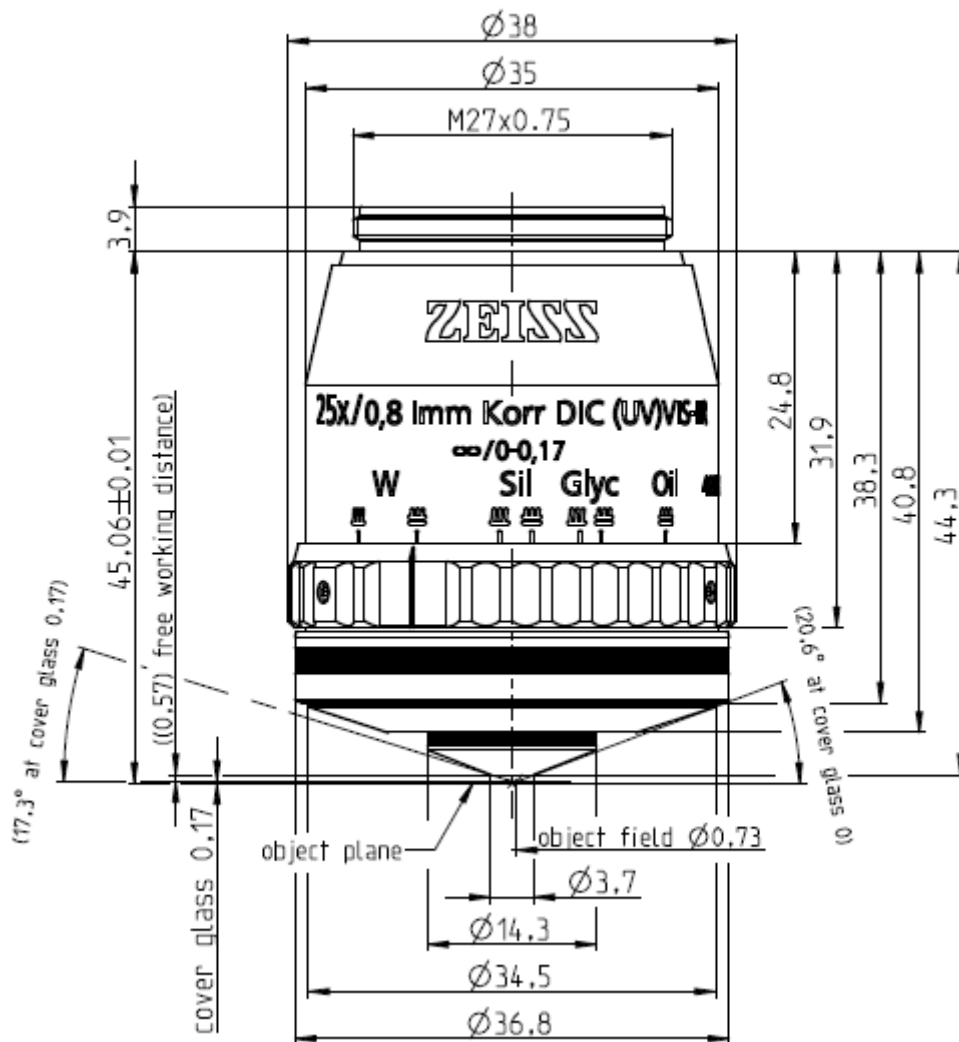
This objective has a high Strehl ratio, especially for Superresolution Microscopy. The rating of the option Definite Focus.2 is valid for use with water, glycerine or oil immersion.

Magnification	25x
Numerical Aperture	0.8
Free Working Distance [mm]	0.57 at cover glass 0.17
Coverglass Thickness [mm]	0 - 0.17
Thread Type	M27x0.75
Immersion	Water, Silicone oil, Glycerine and Oil
Field of View [mm]	18
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	

Polarization Contrast	
Options	Options
Definite Focus.2	****
Confocal Microscopy	<span style="background-color: blue; color: blue;">■</span>
- Ultra Violet	****
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

## 8.2 Technical Drawing:

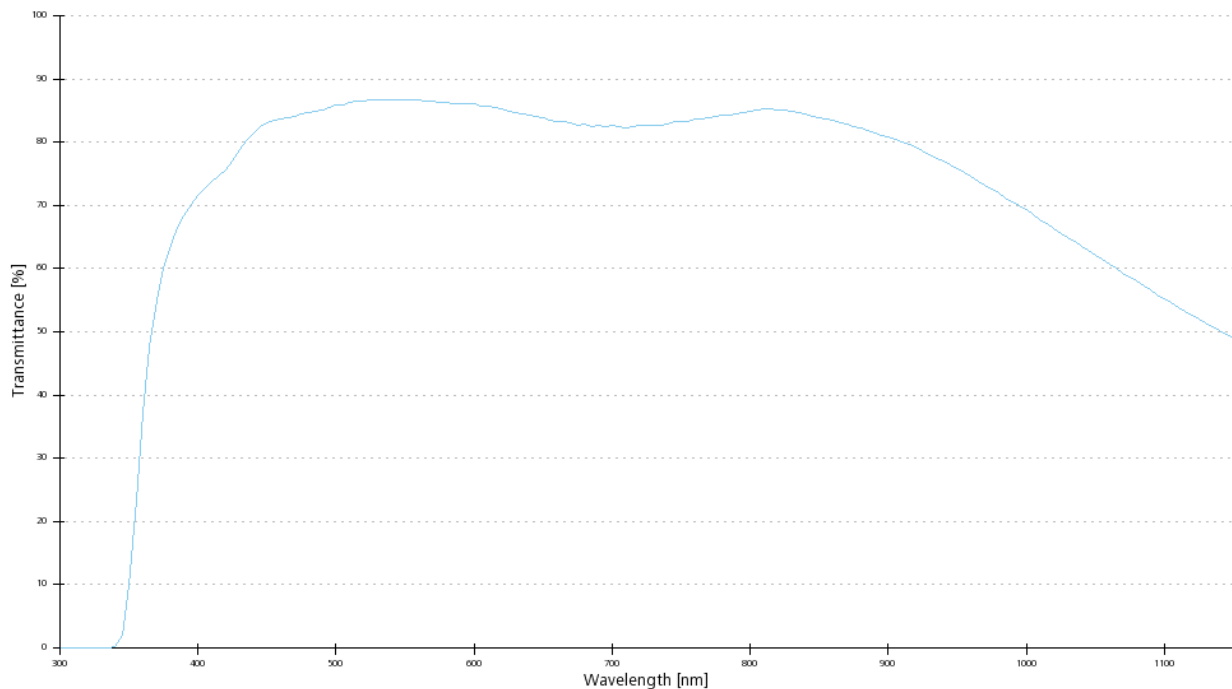
Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
Deckglas = cover glass  
Objektebene = object plane  
Objektfeld = object field  
Ausleuchtung = illumination  
Probenzugänglichkeit = specimen accessibility





### 8.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



### 8.4 Objective Class:




LCI Plan-Apochromat These objectives have been specifically designed for Life Cell Imaging techniques and are designed for the temperature interval between 23° and 37°C. The 25x/0.8 can be used with the immersion mediums water, glycerine and oil. A single correction collar permits simple and convenient compensation for spherical aberration caused, for example, by different cover slip thicknesses, temperature drift or immersion media with a different refractive index, adjustable between water and glycerine. For the examination of living objects, water is particularly suitable as immersion medium. Furthermore, cleaning is extremely easy. For critical fluorescence examinations, cleaned glycerol is the ideal immersion medium, as it has very low autofluorescence. Therefore, glycerol and water should be preferred for the microscopy of living objects, since these are found in a medium with a similar refractive index. The Refractive Index Mismatch indicates the deviation of the actually available refractive index from the one that the objective has been calculated for. This deviation too can be compensated for by means of the correction collar. Used with inverted microscopes, multi-immersion objectives are ideal for the limited compensation of non-standard glass bottom thicknesses ( $D < 0,17$ ) or the popular use of water as immersion medium with a slightly lower numerical aperture than oil-immersion objectives. Special emphasis has been placed on good accessibility of the optical axis with micromanipulators.

### **8.5 Objective Description:**

Objective LD LCI Plan-Apochromat 25x/0.8 Imm Corr DIC M27 for oil, water, silicone oil or glycerine immersion (CG=0-0.17mm) (FWD=0.57mm at CG=0.17mm) incl. Immersol 518 F, oiler 20 ml With serial number. Strehl ratio >90%.

## 9 Objective "C-Achroplan" 32x/0.85 W Corr M27

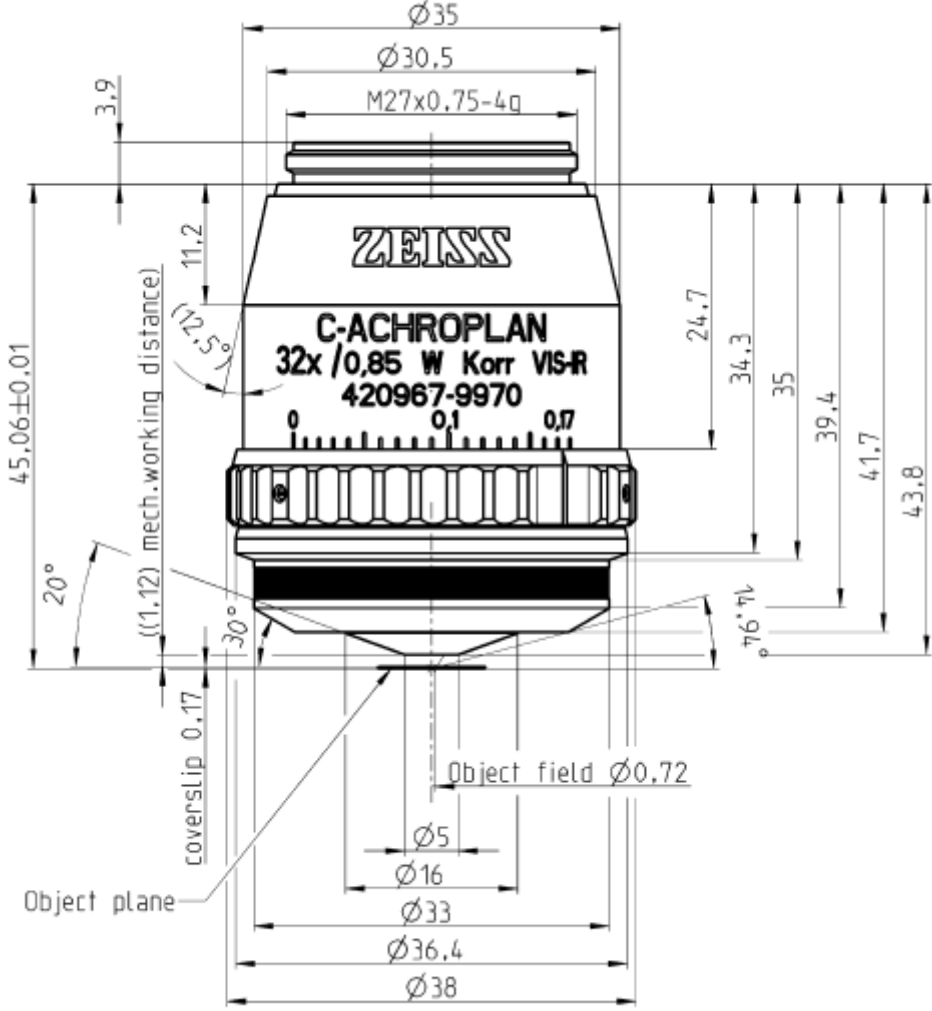
### 9.1 Characteristics:

Magnification	32x
Numerical Aperture	0.85
Free Working Distance [mm]	1.1
Coverglass Thickness [mm]	0 - 0.17
Thread Type	M27x0.75
Immersion	Water
Field of View [mm]	23
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* *
Color Correction	* * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* *
- Ultraviolet Transmission	* *
- Infra Red Transmission	* * *
BrightField	
DIC [Differential Interference Contrast]	
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * *

Confocal Microscopy	
- Ultra Violet	
- VIS (visible light)	**
- NLO-IR / 2 Photon	*****
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

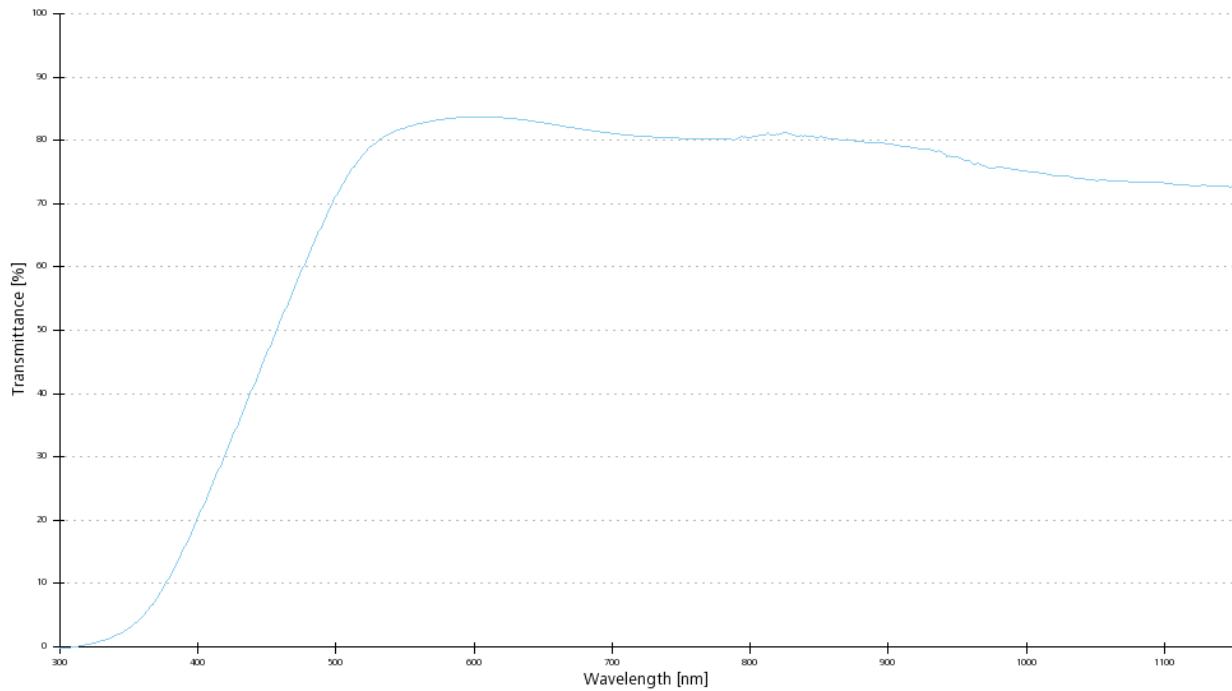
**9.2 Technical Drawing:**

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



**9.3 Transmittance Curve:**

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### 9.4 Objective Class:



C-Achroplan These are objectives for transmitted-light routine microscopy and epi-fluorescence microscopy with visible-light excitation. Special Achroplan W (water) objectives are provided for applications in physiology. Thanks to their excellent image flatness across visual field diameters of 23 mm, Achroplan objectives are ideal for photomicrography in routine microscopy.

#### 9.5 Objective Description:

Objective C-Achroplan 32x/0.85 W Corr M27 VIS-IR, (FWD=1.1mm at CG=0.17mm) (CG=0-0.17mm)

## 10 Objective Plan-Apochromat 40x/1.4 Oil DIC M27

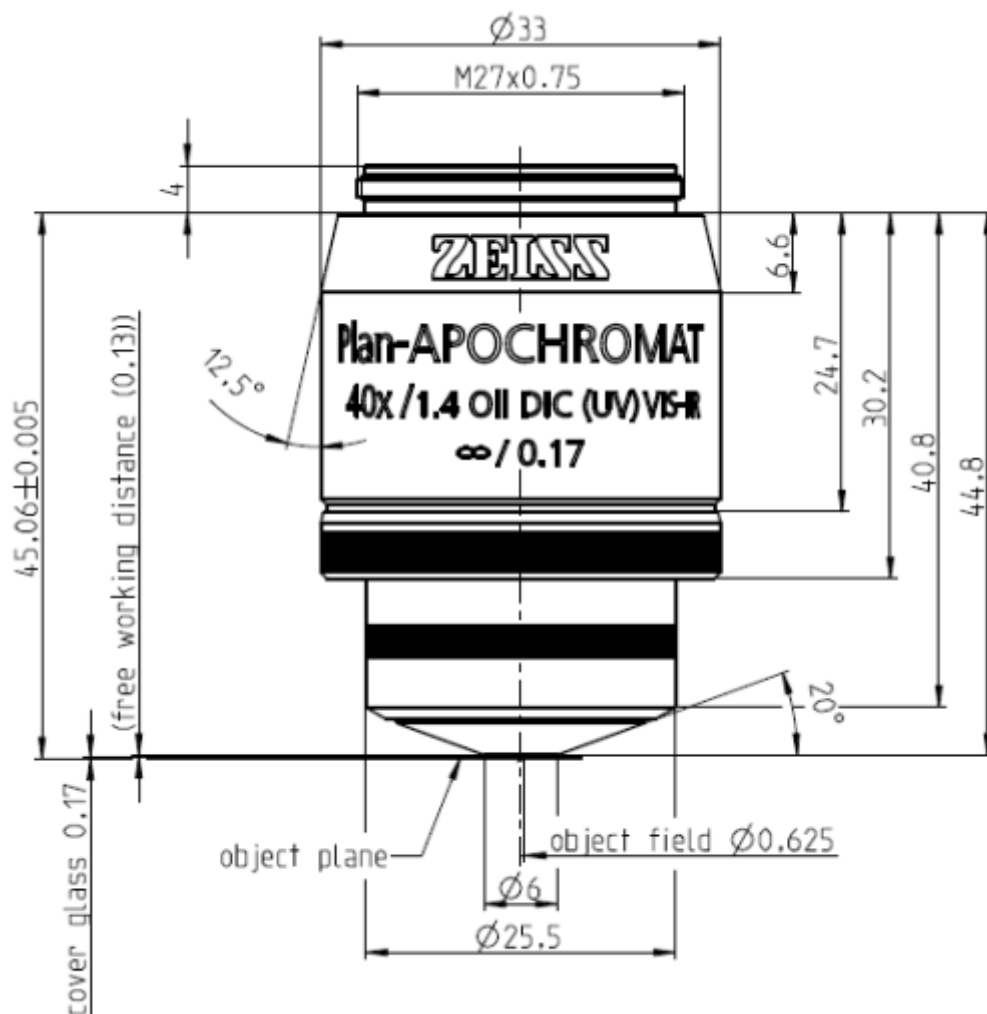
### 10.1 Characteristics:

Magnification	40x
Numerical Aperture	1.4
Free Working Distance [mm]	0.13
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Oil
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * *

Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	■
Microdissection	■

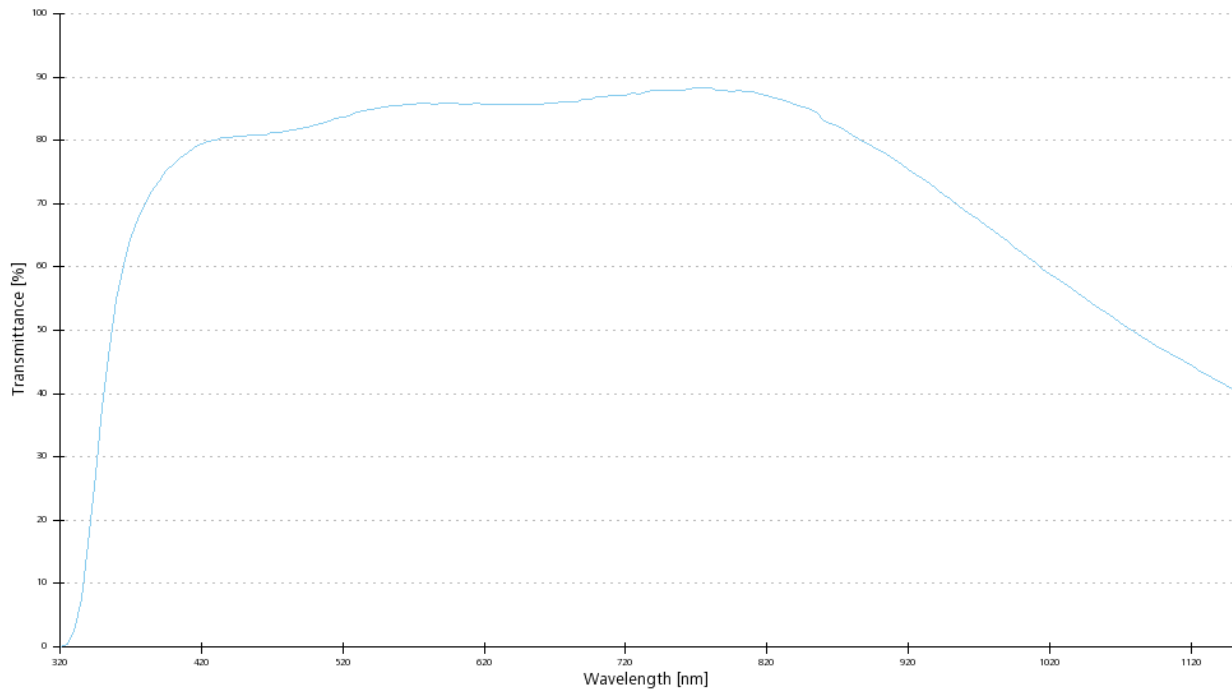
## 10.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 10.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### 10.4 Objective Class:

Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

#### 10.5 Objective Description:

Objective Plan-Apochromat 40x/1.4 Oil DIC M27 (FWD=0.13mm), (UV)VIS-IR, incl. Immersol 518 F, oiler 20 ml and cover glasses, high performance, CG=0.17 mm, box with 100 pc.



# 11 Objective LD LCI Plan-Apochromat 40x/1.2 Imm Corr DIC M27

## 11.1 Characteristics:

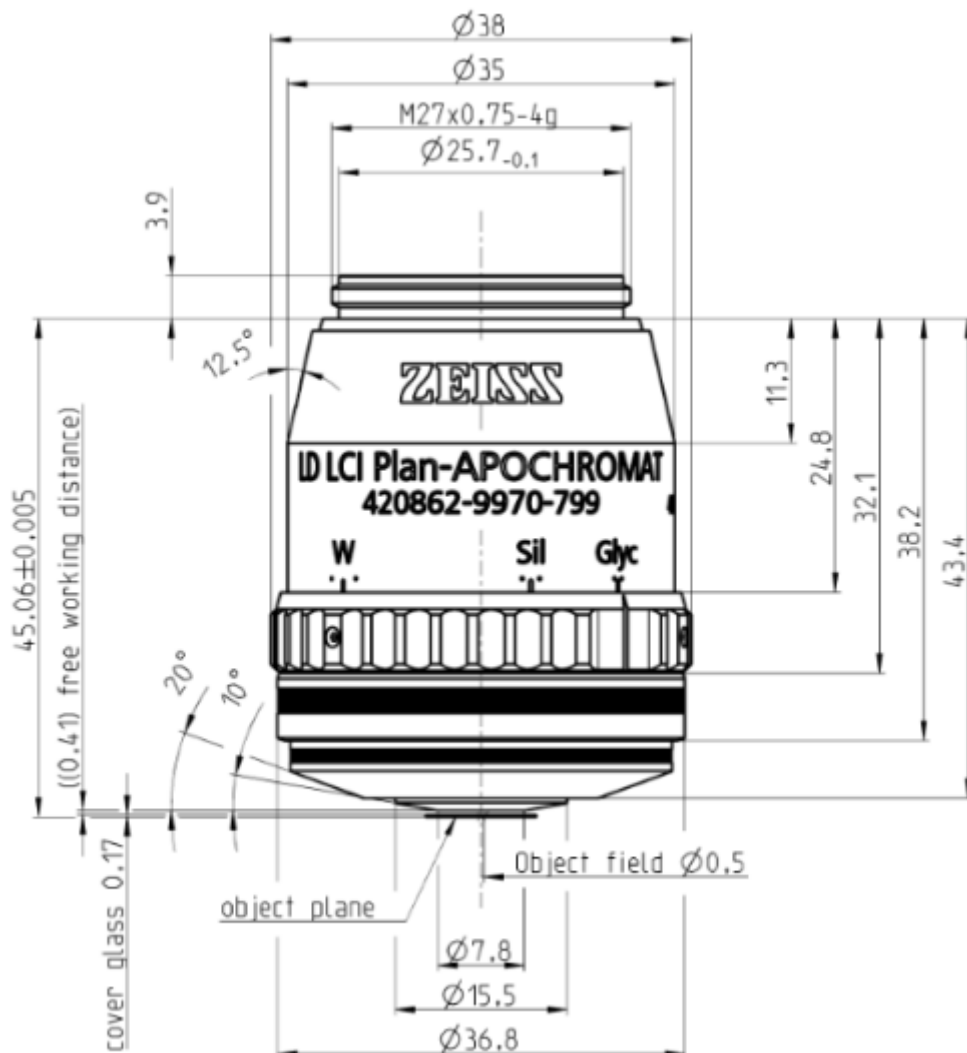
This objective has a high Strehl ratio, especially for Superresolution Microscopy. The rating of the option Definite Focus.2 is valid for use with water immersion.

Magnification	40x
Numerical Aperture	1.2
Free Working Distance [mm]	0.41 at cover glass 0.17
Coverglass Thickness [mm]	0.15 - 0.19
Thread Type	M27x0.75
Immersion	Water, Silicone oil and Glycerine
Field of View [mm]	18
Parfocal Length [mm]	45.06
Long Distance	■
Correction Ring	■
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	■
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	■
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	

Options	Options
Definite Focus.2	***
Confocal Microscopy	<input checked="" type="checkbox"/>
- Ultra Violet	****
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	
Microdissection	

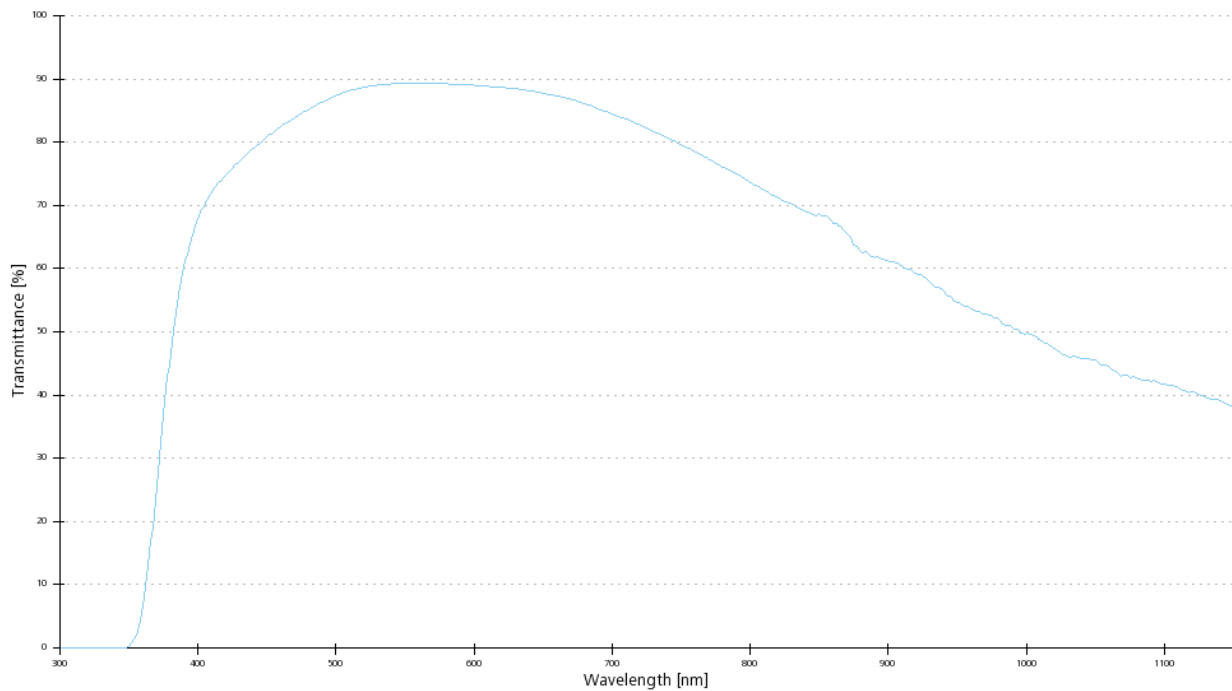
## 11.2 Technical Drawing:

Note: All measures in [mm]mech. Arbeitsabstand = mechanical working distance  
Deckglas = cover glass  
Objektebene = object plane  
Objektfeld = object field  
Ausleuchtung = illumination  
Probenzugänglichkeit = specimen accessibility



### 11.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



### 11.4 Objective Class:





LCI Plan-Apochromat These objectives have been specifically designed for Life Cell Imaging techniques and are designed for the temperature interval between 23° and 37°C. The 25x/0.8 can be used with the immersion mediums water, glycerine and oil. A single correction collar permits simple and convenient compensation for spherical aberration caused, for example, by different cover slip thicknesses, temperature drift or immersion media with a different refractive index, adjustable between water and glycerine. For the examination of living objects, water is particularly suitable as immersion medium. Furthermore, cleaning is extremely easy. For critical fluorescence examinations, cleaned glycerol is the ideal immersion medium, as it has very low autofluorescence. Therefore, glycerol and water should be preferred for the microscopy of living objects, since these are found in a medium with a similar refractive index. The Refractive Index Mismatch indicates the deviation of the actually available refractive index from the one that the objective has been calculated for. This deviation too can be compensated for by means of the correction collar. Used with inverted microscopes, multi-immersion objectives are ideal for the limited compensation of non-standard glass bottom thicknesses ( $D < 0,17$ ) or the popular use of water as immersion medium with a slightly lower numerical aperture than oil-immersion objectives. Special emphasis has been placed on good accessibility of the optical axis with micromanipulators.

### **11.5 Objective Description:**

Objective LD LCI Plan-Apochromat 40x/1.2 Imm Corr DIC M27 for water, silicon oil or glycerine immersion (CG=0.15-0.19mm) (FWD=0.41mm at CG=0.17mm) incl. Immersol G, bottle 20 ml and Cover glasses, high performance, CG=0.17mm, box with 100 pc With serial number. Strehl ratio >90%.

## 12 Objective Plan-Apochromat 63x/1.4 Oil DIC M27

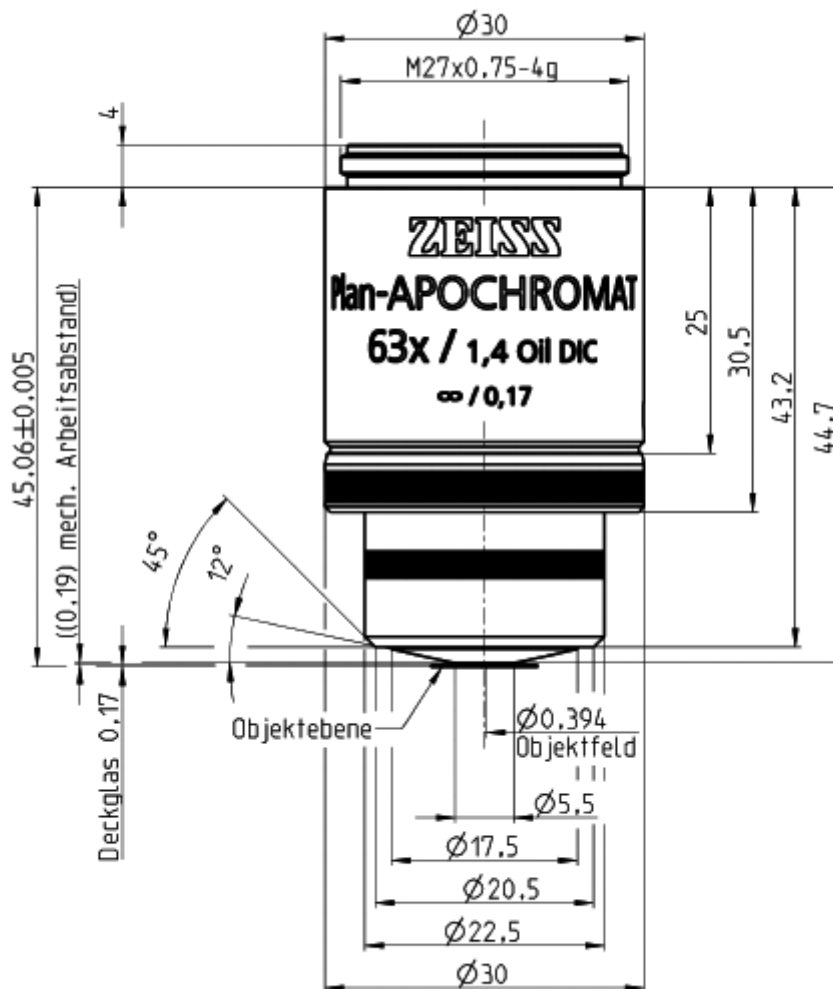
### 12.1 Characteristics:

Magnification	63x
Numerical Aperture	1.4
Free Working Distance [mm]	0.19
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Oil
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	* * *

Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	**
Total Internal Reflection Fluorescence	
Apotome	■
Microdissection	■

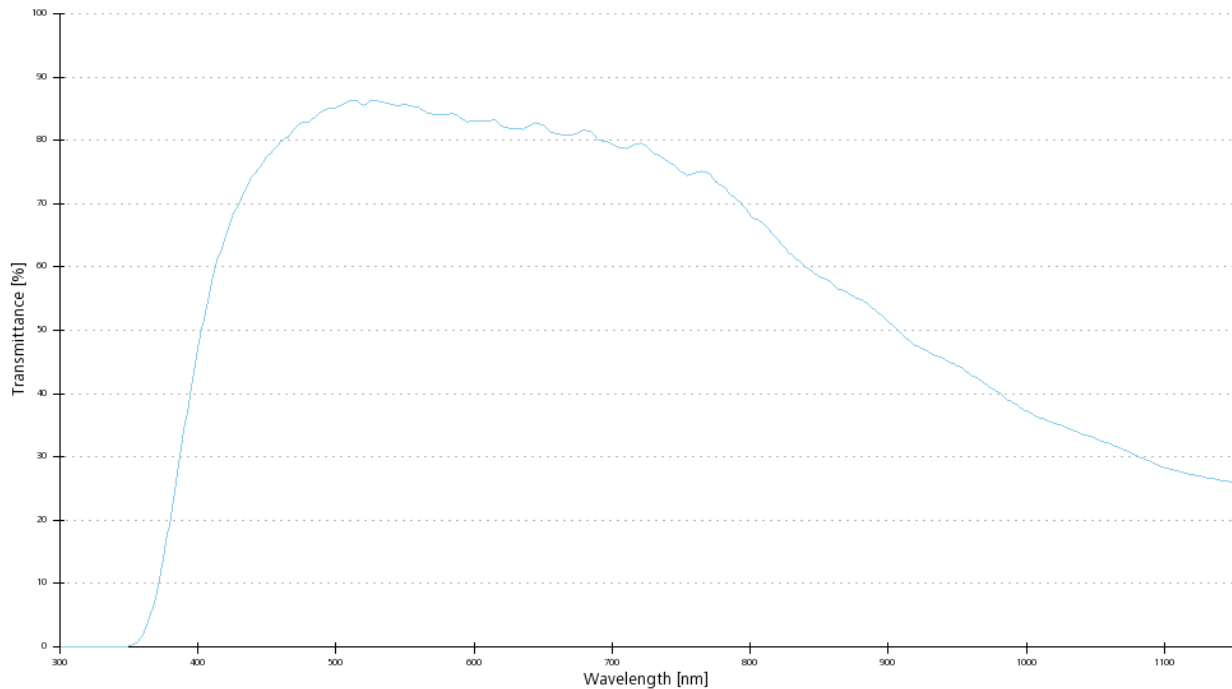
## 12.2 Technical Drawing:

Note: All measures in [mm] mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



## 12.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



#### **12.4 Objective Class:**



Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

#### **12.5 Objective Description:**

Objective Plan-Apochromat 63x/1.4 Oil DIC M27 (FWD=0.19mm), incl. Immersol 518 F, oiler 20ml and Cover glasses, high performance, CG=0.17mm, box with 100 pc.

## 13 Objective $\alpha$ Plan-Apochromat 100x/1.46 Oil DIC M27

### 13.1 Characteristics:

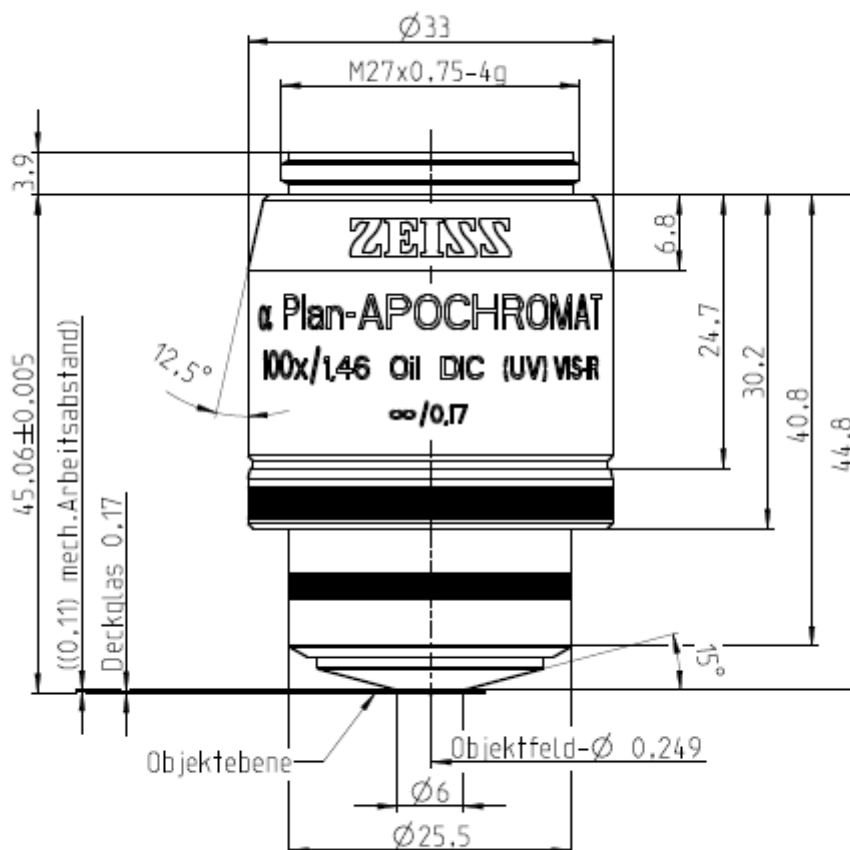
Magnification	100x
Numerical Aperture	1.46
Free Working Distance [mm]	0.11
Coverglass Thickness [mm]	0.17
Thread Type	M27x0.75
Immersion	Oil
Field of View [mm]	25
Parfocal Length [mm]	45.06
Long Distance	
Correction Ring	
Iris	
Optical System	Infinity Color Corrected System (ICS)
Flatness	* * * * *
Color Correction	* * * * *
Biomedical Applications	Biomedical Applications
Fluorescence	
- Multichannel	* * * * *
- Ultraviolet Transmission	* * *
- Infra Red Transmission	* * * *
BrightField	
DIC [Differential Interference Contrast]	* * * * *
High Contrast DIC	
PlasDIC	
Phase Contrast	
VAREL Contrast	
Hoffman Modulation Contrast	
Polarization Contrast	
Materials (Reflected Light) Applications	Materials (Reflected Light) Applications
BrightField	
BrightField/DarkField	
Reflected Light DIC	
High Contrast DIC	
DIC with circular polarized light	
Total Interference Contrast	
Polarization Contrast	
Options	Options
Definite Focus.2	*



Confocal Microscopy	■
- Ultra Violet	***
- VIS (visible light)	*****
- NLO-IR / 2 Photon	***
Total Internal Reflection Fluorescence	■
Apotome	
Microdissection	

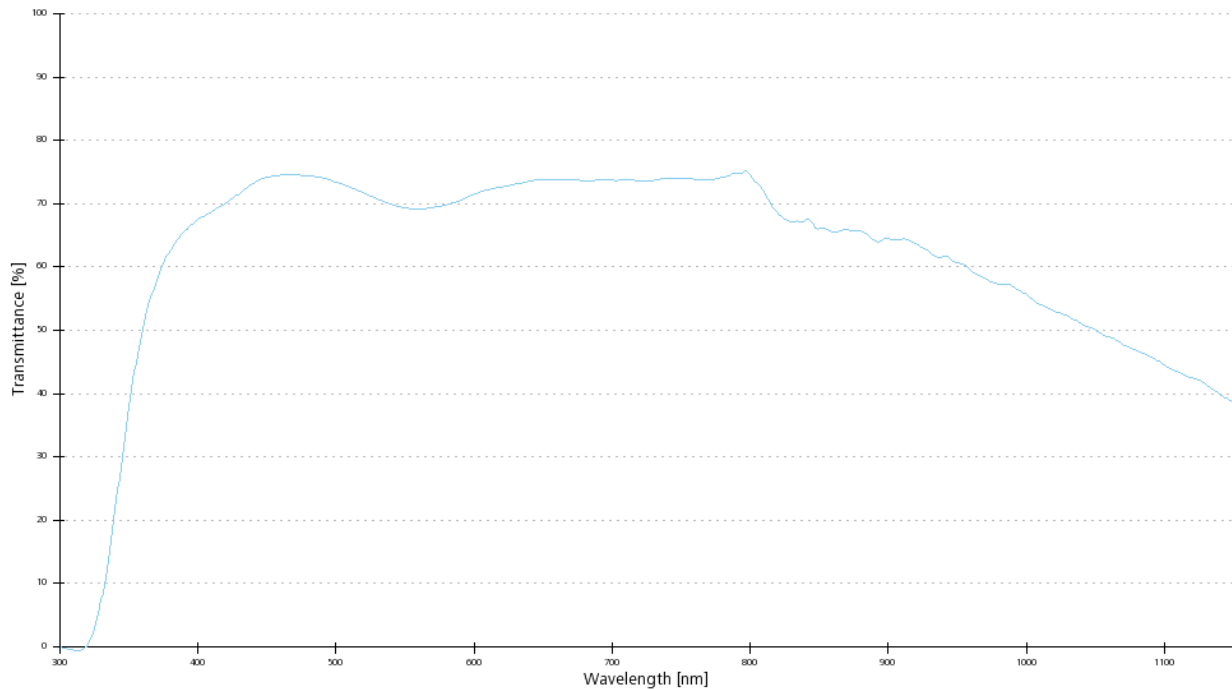
### 13.2 Technical Drawing:

Note: All measures in [mm] mech. Arbeitsabstand = mechanical working distance  
 Deckglas = cover glass  
 Objektebene = object plane  
 Objektfeld = object field  
 Ausleuchtung = illumination  
 Probenzugänglichkeit = specimen accessibility



### 13.3 Transmittance Curve:

Note: Please note that due to production tolerances, the given values are typical only and not guaranteed.



### 13.4 Objective Class:

Plan-Apochromat SF25 This first-class series of objectives with excellent correction and extremely high apertures provide a maximum of resolving power, color purity, contrast and image flatness for observation and photomicrography. The enormous resolving power reveals structures that otherwise can not be discerned. As image brightness in fluorescence microscopy increases with the power of four of numerical aperture, Plan Apochromat objectives are excellently suited to fluorescence applications.

### 13.5 Objective Description:

Objective alpha Plan-Apochromat 100x/1.46 Oil DIC M27 (FWD=0.10mm), (UV)VIS-IR, incl. Immersol 518 F, oiler 20ml and Cover glasses, high performance, CG=0.17mm, box with 100 pc.