Product comparison:

JENOPTIK GRYPHAX® PROKYON vs. ProgRes® C14plus

GRYPHAX® PROKYON

Explore the micro universe
with the flagship.

The premium solution
for highest demands on color reproduction
in all microscopy applications

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JENOPTIK GRYPHAX® – comparison

All camera comparisons are based on results of our JENOPTIK digital image laboratory. The quality of our cameras is proven by spectral measurement at our laboratory and is based on guidelines of EMVA 1288 standard.

Comparison of JENOPTIK GRYPHAX® PROKYON

Refine your microscope workstation

The flagship JENOPTIK GRYPHAX® PROKYON replaces all pixel shift microscope cameras.

JENOPTIK GRYPHAX® PROKYON is the premium solution for highest demands on color reproduction in all microscopy applications. It is powered by a 1/1.2" back-illuminated CMOS sensor made by SONY.

This camera provides fast live images, with global shutter technology, high dynamic range and non-visible noise. Reach up to 120 fps in full sensor resolution combined with the brilliant Jenoptik color reproduction. Maximum details are visible at true color images done with 2, 9 or 21 MPix record mode.

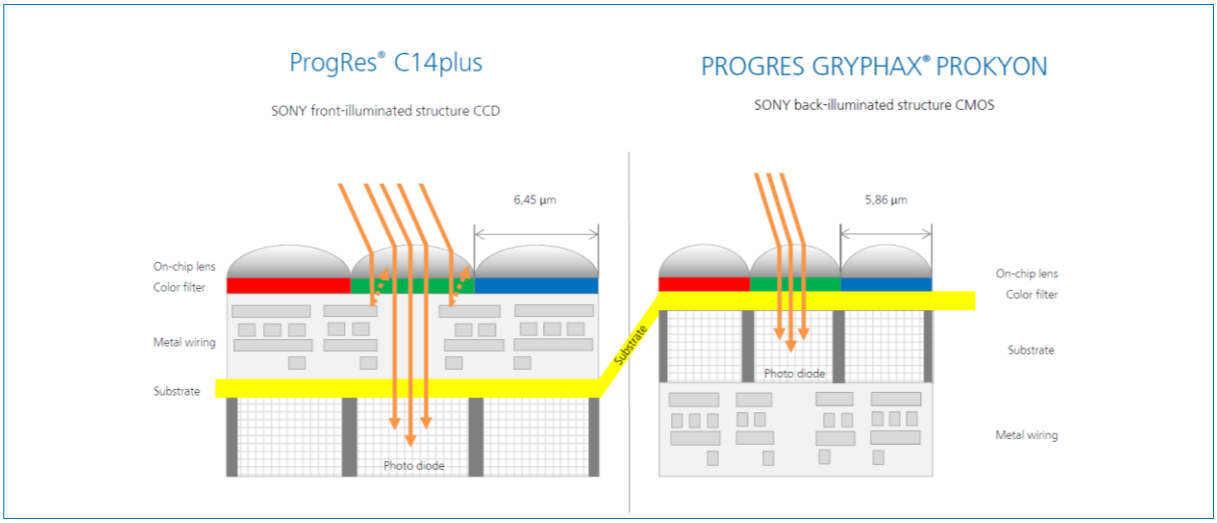
Within this comparison we take a look at the ProgRes® C14plus compared to JENOPTIK GRYPHAX® PROKYON, the successor of the color ProgRes® research CCD cameras.

Sensor/Camera	ProgRes® C14plus with IR cut filter	JENOPTIK GRYPHAX® PROKYON with IR cut filter
Utilized sensor diagonal	10,9 mm	13,3 mm
FPS	13 (1360 x 1024)	120 (1920 x 1200)
Quantum Efficiency [N(e-)/N(p)] @ 532nm (green)	0.32 QE(λ) see spectral data	0.58 QE(λ) see spectral data
Dark Noise [DN/e-]	7 DN (at 14 bit); 9e-	0.8 DN (at 12 bit); 6e-
Dynamic Range (DR)	66 dB	73 dB

By reason on our measurements, done within our laboratory and based on guidelines of EMVA 1288.

Sensor

JENOPTIK GRYPHAX® PROKYON
is equipped with SONY's **back-illuminated CMOS** sensor technology.

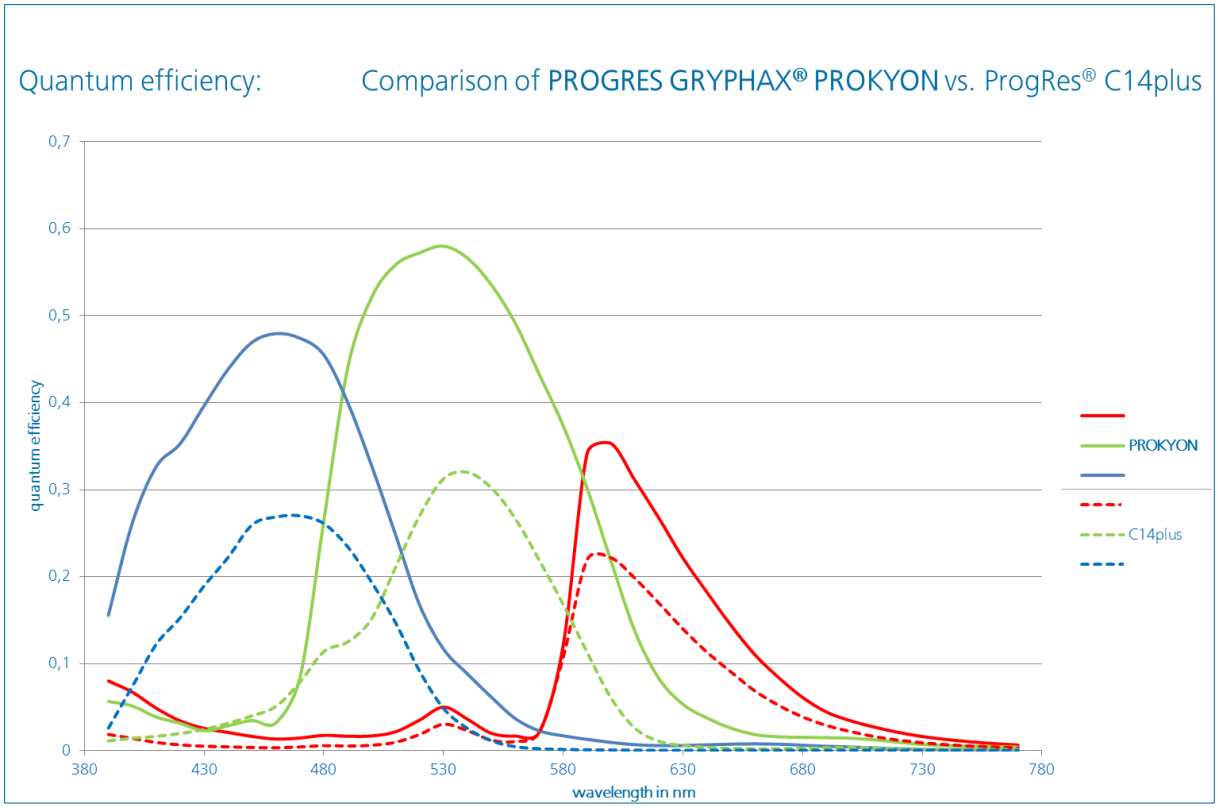


Source: Graphic done by Jenoptik based on information from www.sony.net

With a conventional front-illumination structure, the metal wiring and transistors on the surface of the silicon substrate that form the sensor's light-sensitive area (photo-diode) impede photon gathering carried out by the on-chip lens, and this has also been an important issue in the miniaturization of pixels and widening optical angle response. A back-illuminated structure minimizes the degradation of sensitivity to optical angle response, while also increasing the amount of light that enters each pixel due to the lack of obstacles such as metal wiring and transistors that have been moved to the reverse of the silicon substrate. However, compared to conventional front-illuminated structures, back-illuminated structures commonly causes problems such as noise, dark current, defective pixels and color mixture that lead to image degradation and also cause a decrease in the signal-to-noise ratio. To overcome this Sony has developed a unique photo-diode structure and on-chip lens optimized for back-illuminated structures, that achieves a higher sensitivity and a lower random noise without light by reducing noise, dark current and defect pixels compared to the conventional front-illuminated structure. Additionally, Sony's advanced technologies such as high-precision alignment have addressed any color mixture problems.

Source: information from www.sony.net

Quantum efficiency with IR-cut filter



JENOPTIK GRYPHAX® PROKYON quantum efficiency is nearly two times higher (at 532 nm) than ProgRes® C14plus.

Camera cooling

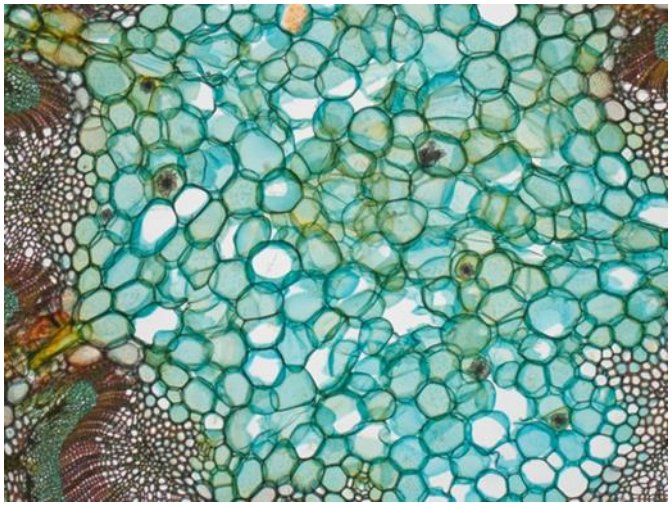
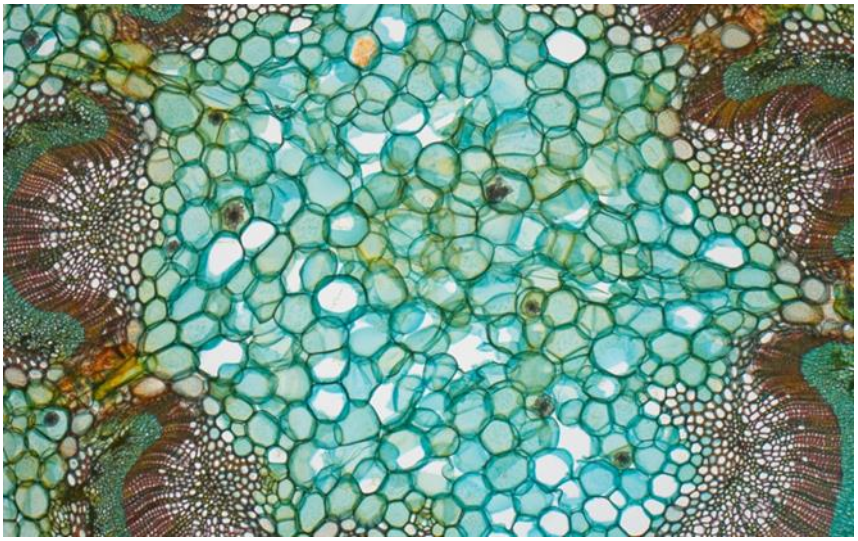
JENOPTIK GRYPHAX® PROKYON has a unique vibration-free software cooling developed by JENOPTIK.

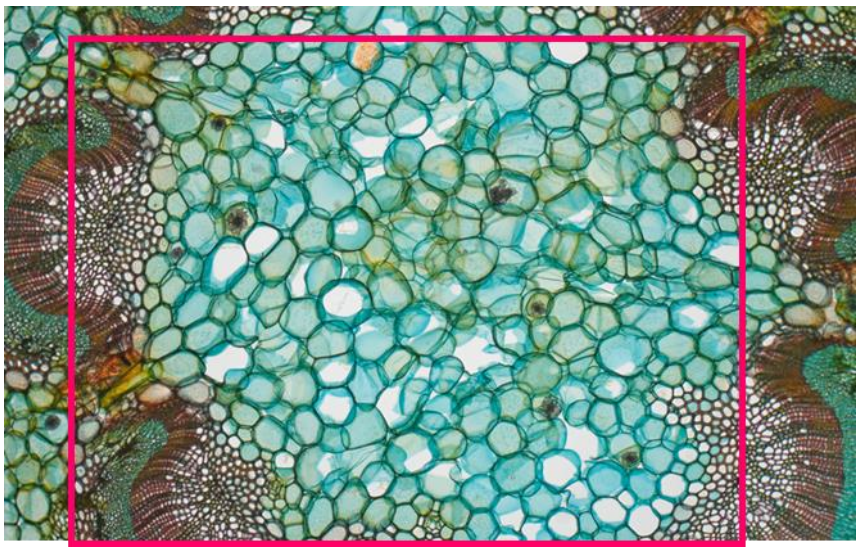
The so-called **software cooling** is a camera individual calibration for temperature correction to deliver best noise level to the images.

JENOPTIK GRYPHAX® PROKYON **advantages**:

- ☆ **Effective** photon to electron transformation
- ☆ No interlace effect & no smear
- ☆ **Low dark noise** and **low dark current**
- ☆ **Cooling** - Unique vibration-free software cooling developed by JENOPTIK*
- ☆ **Highest** live & video **frame rate**
- ☆ High input clock frequency
- ☆ **High dynamic** range
- ☆ **Secure investment**: long-lasting & reliable hardware

Sensor size and basic TV-adapter 1,0

ProgRes® C14plus CCD 2/3"	JENOPTIK GRYPHAX® PROKYON CMOS 1/1.2"
	
TV-Adaption Zeiss 1,0x (60N-C 1")	TV-Adaption Zeiss 1,0x (60N-C 1")



Equipment:	Microscope	Zeiss AxioScope.A1
	Lens	Zeiss 5x EC-Epiplan-NEOFLUAR
Sample:	Hedera Helix (Gemeiner Efeu) Blattstiel quer "1037"	

Sensor size and best fitting TV-adapter 0,63

ProgRes® C14plus CCD 2/3"	JENOPTIK GRYPHAX® PROKYON CMOS 1/1.2"
	
TV-Adaption Zeiss 0,63x (60N-C 2/3")	TV-Adaption Zeiss 0,63x (60N-C 2/3")

Equipment:	Microscope	Zeiss AxioScope.A1
	Lens	Zeiss 5x EC-Epiplan-NEOFLUAR
Sample:	Hedera Helix (Gemeiner Efeu) Blattstiel quer "1037"	

JENOPTIK GRYPHAX® PROKYON has a more than **37 % larger** sensor field than ProgRes® C14plus.

JENOPTIK GRYPHAX® PROKYON advantages:

- ☆ Microscopy-**optimized** field of view
- ☆ Cost-**efficient** TV adaption 1x are suitable
- ☆ **Brilliant** image colors by proven JENOPTIK color reproduction

Live image

JENOPTIK GRYPHAX® PROKYON is equipped with an all pixel scan and global shutter sensor. It provides 120 fps at 2.3 MPix live image speed, perfect for video recording and slow-motion record.
This is more than 9 times faster compared to C14plus.

Main features of JENOPTIK GRYPHAX software take advantage of the modern camera characteristics.

Video / Slow motion record

JENOPTIK GRYPHAX® PROKYON advantages:

- ☆ Video speed at live image: "You get what you see"
- ☆ Video recording of living or to be moved specimen at brilliant image quality, without interlace effect.

EDF / Z-stacking

JENOPTIK GRYPHAX® PROKYON advantage:

- ☆ Real-time appearance of EDF/ Z-stacking images (no interlace effect, no distorted images) saves time.

Panorama

JENOPTIK GRYPHAX® PROKYON advantage:

- ☆ Real-time appearance of panorama images (no interlace effect, no distorted images) saves time.

Captured image

JENOPTIK GRYPHAX® PROKYON advantage:

- ☆ This camera provides true color information at revolutionary 9 and 21 MPix images within significantly enhanced capture time.

Software

JENOPTIK GRYPHAX software is workflow optimized capture software. It is created to help users intuitive getting the perfect live and captured image and saving time.

JENOPTIK GRYPHAX® Software advantage:

- ☆ Cross-platform compatible **WIN, MAC** and **LINUX**
- ☆ **Identical GUI** across WIN, MAC and LINUX platform
- ☆ **Versatility:** Free SDK, wide range of 3rd party software support
- ☆ **Drivers for:** µManager, Twain, MetaMorph and DirectX support included
- ☆ **Stability:** Made in Germany, software updates free of charge

Weight and dimension

ProgRes® MFcool		JENOPTIK GRYPHAX® PROKYON	
Weight:	~ 800 gr	Weight:	~ 420 gr
Dimension::	L x W x H in mm 89 x 84 x 93	Dimension:	L x W x H in mm 85 x 75 x 50,2

JENOPTIK GRYPHAX® Packaging **advantage:**

☆ Lower transport costs due to less weight and dimension of housing and camera packaging.

Applications and contrast techniques

JENOPTIK GRYPHAX® PROKYON recommended Applications

●●●● Life & Medical Science
○○○○ Education Life & Medical Science
●●●● Material & Manufacturing
○○○○ Education Material & Manufacturing
●●●● Fluorescence
○○○○ Education Fluorescence

JENOPTIK GRYPHAX® PROKYON recommended contrast techniques

●●●● BF – Bright-Field
●●●○ DF – Dark-Field
●●○○ DIC – Differential-Interference-Contrast
●●●○ Ph – Phase contrast
●●●● Pol - Polarization

JENOPTIK GRYPHAX® PROKYON is the superior solution for fluorescence applications.

Summary

JENOPTIK GRYPHAX® PROKYON advantages at a glance:

- ☆ **Effective** photon to electron transformation
- ☆ No interlace effect & no smear
- ☆ **Low dark noise** and **low dark current**
- ☆ **High dynamic** range
- ☆ **Cooling** - Unique vibration-free software cooling developed by JENOPTIK*
- ☆ High input clock frequency
- ☆ **Highest** live & video **frame rate**
- ☆ **Slow-Motion** record
- ☆ **Secure investment**: long-lasting & reliable hardware
- ☆ **37% larger** field of view
- ☆ Microscopy-**optimized** field of view
- ☆ Cost-**efficient** TV adaption 1x are suitable
- ☆ Video speed at live image: "You get what you see"
- ☆ Real-time appearance of **EDF/ Z-stacking** images saves time
- ☆ Real-time appearance of **panorama** saves time
- ☆ Camera provides **true color** information at **revolutionary 9 and 21 MPix** images within significantly enhanced capture time.
- ☆ Cross-platform compatible **WIN**, **MAC** and **LINUX**
- ☆ **Identical GUI** across WIN, MAC and LINUX platform
- ☆ **Versatility:** Free SDK, wide range of 3rd party software support
- ☆ **Drivers for:** µManager, Twain, MetaMorph and DirectX support included
- ☆ **Stability:** Made in Germany, software updates free of charge
- ☆ Low transport costs due to less weight and dimension

*unique vibration-free software cooling developed by JENOPTIK (further information gryphax@jenoptik.com)

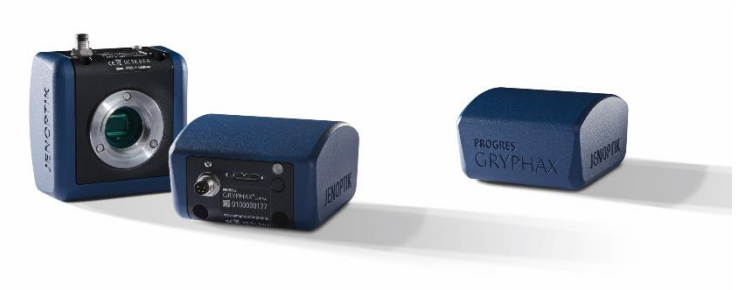
Refine every microscope workstation with JENOPTIK GRYPHAX® PROKYON

The premium solution for highest demands on color reproduction in all microscopy applications

Also take a look on our new product portfolio JENOPTIK GRYPHAX®!

GRYPHAX® PROKYON

Explore the micro universe with the flagship.



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