



Product comparison:

PROGRES GRYPHAX® RIGEL vs. ProgRes® MFcool

PROGRES GRYPHAX® RIGEL



Explore the micro universe
monochrome in low light.

The **premium solution**
for low light research microscope applications

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PROGRES 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 PROGRES GRYPHAX® RIGEL



Refine every microscope workstation

PROGRES GRYPHAX® RIGEL replaces all monochrome research CCD cameras.

PROGRES GRYPHAX® RIGEL is the **premium solution** for low light research microscope 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 60 fps in full sensor resolution combined with the brilliant Jenoptik image quality. **Collect information beyond visible light.**

Within this comparison we take a look at the ProgRes® MFcool compared to PROGRES GRYPHAX® RIGEL, the successor of all monochrome research ProgRes® CCD cameras.

Sensor/Camera	ProgRes® MFcool with clear glass filter	PROGRES GRYPHAX® RIGEL with clear glass filter
Utilized sensor diagonal	10,965 mm	13,268 mm
FPS	13 (1360 x 1024)	60 (1920 x 1200)
Quantum Efficiency [N(e-)/N(p)] @ 532nm (green)	0.54 QE(λ) see spectral data	0.64 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)	66,0 dB	73,3 dB

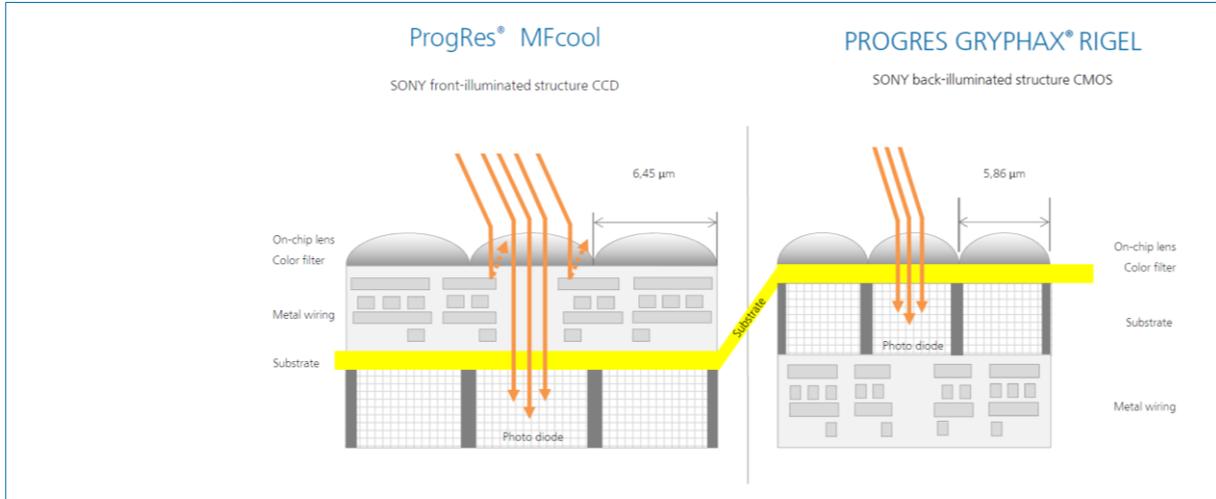
By reason on our measurements, done within our laboratory and based on guidelines of EMVA 1288.

Sensor



PROGRES GRYPHAX® RIGEL

is equipped with SONY's back-illuminated CMOS sensor technology.

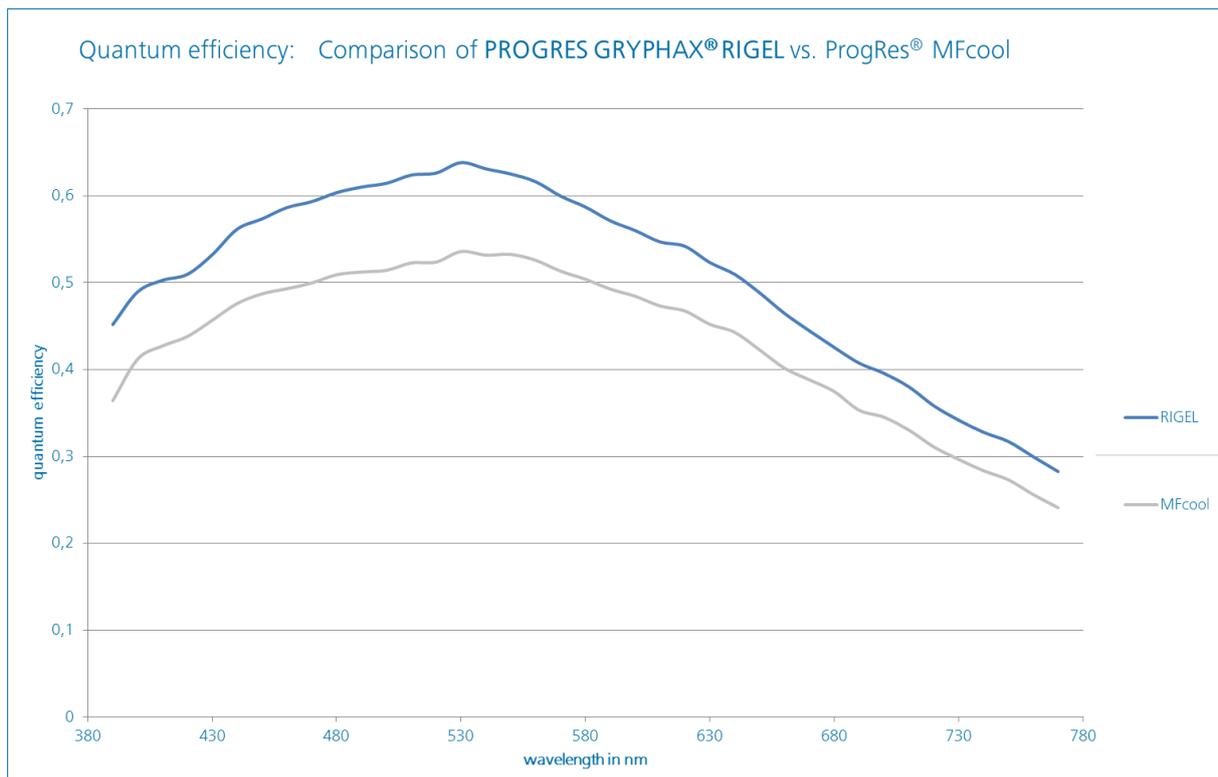


Source: Graphic done by Jenoptik based on information from www.sony.net

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 clear glass





PROGRES GRYPHAX® RIGEL's quantum efficiency is more than **20 percent higher** (at 532 nm) than ProgRes® MFcool

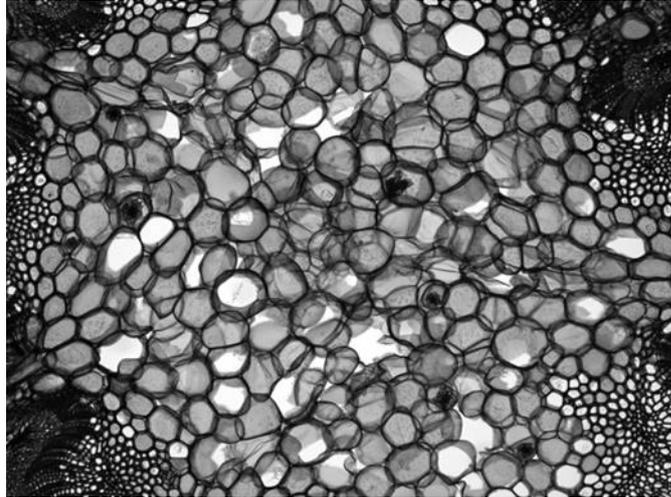
PROGRES GRYPHAX® RIGEL advantages:

- ☆ Effective photon to electron transformation
- ☆ No interlace effect & no smear
- ☆ Low dark noise and low dark current
- ☆ High input clock frequency
- ☆ High dynamic range
- ☆ Secure investment: long-lasting & reliable hardware

Sensor size and basic TV-adapter 1,0

ProgRes® MFcool

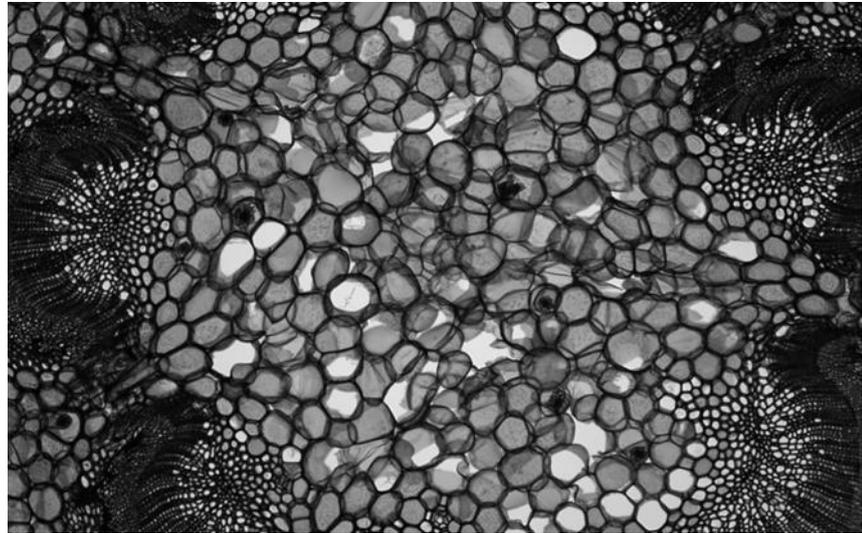
CCD 2/3"



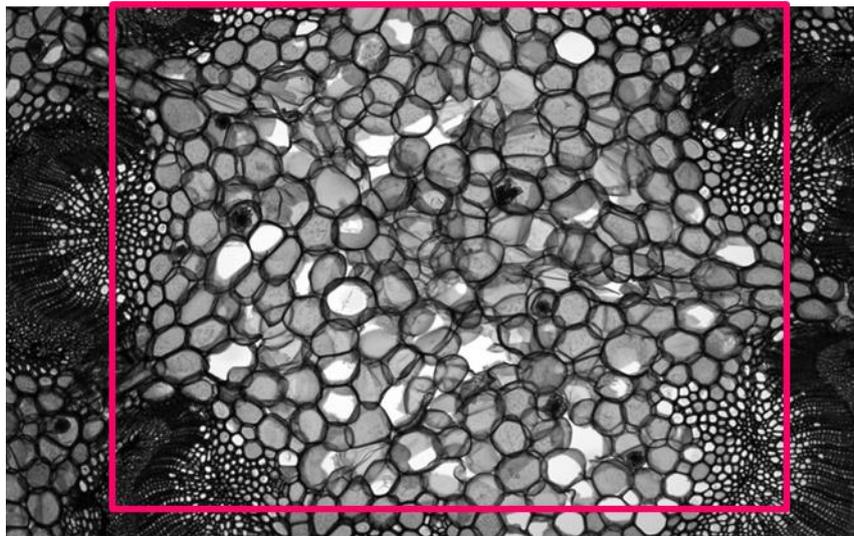
TV-Adaption Zeiss 1,0x (60N-C 1")

PROGRES GRYPHAX® RIGEL

CMOS 1/1.2"



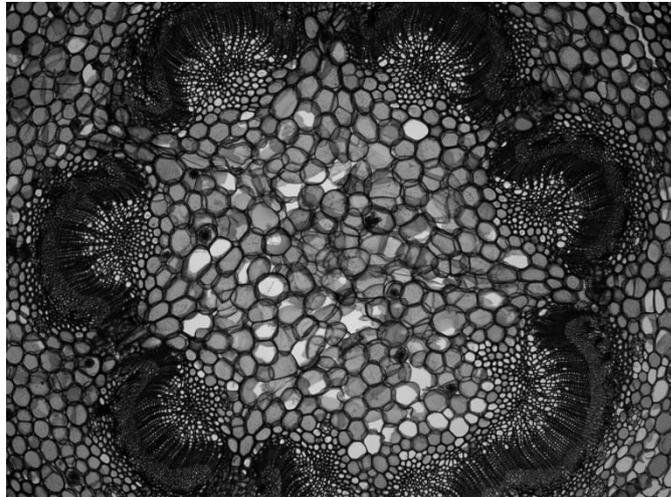
TV-Adaption Zeiss 1,0x (60N-C 1")



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

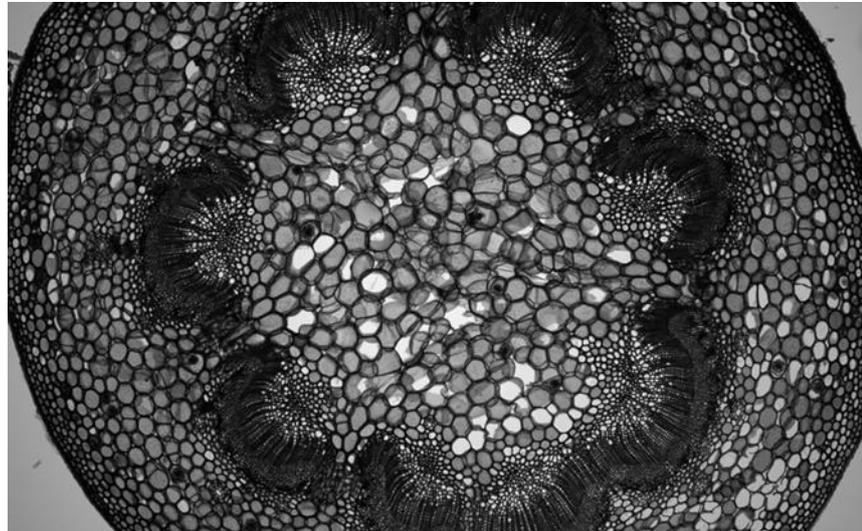
Sensor size and best fitting TV-adapter 0,63

ProgRes® MFcool
CCD 2/3"

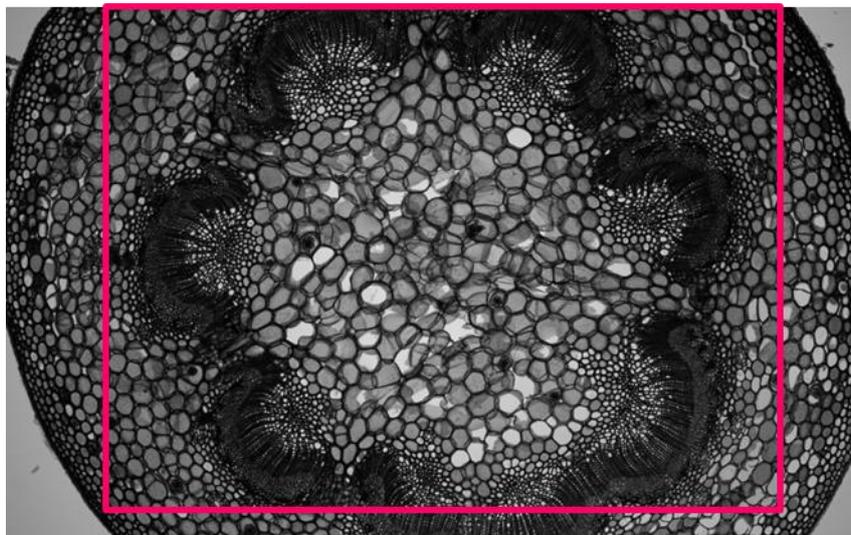


TV-Adaption Zeiss 0,63x (60N-C 2/3")

PROGRES GRYPHAX® RIGEL
CMOS 1/1.2"



TV-Adaption Zeiss 0,63x (60N-C 2/3")



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



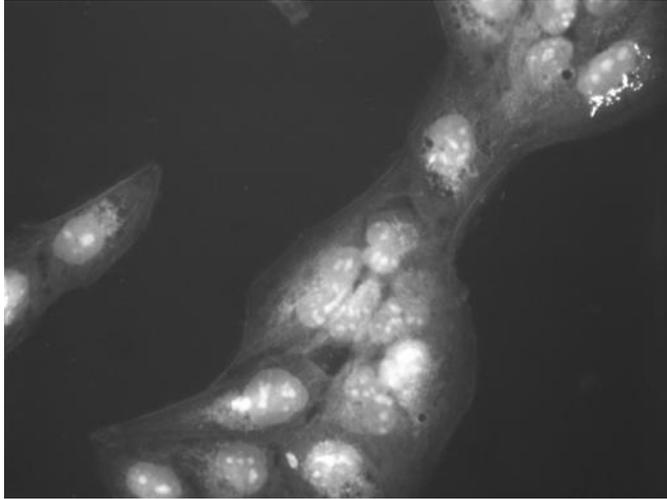
PROGRES GRYPHAX® RIGEL has a more than **37 % larger** sensor field than ProgRes® MFcool

PROGRES GRYPHAX® RIGEL advantages:

- ☆ Microscopy-optimized field of view
- ☆ Cost-efficient TV adaption 1x are suitable

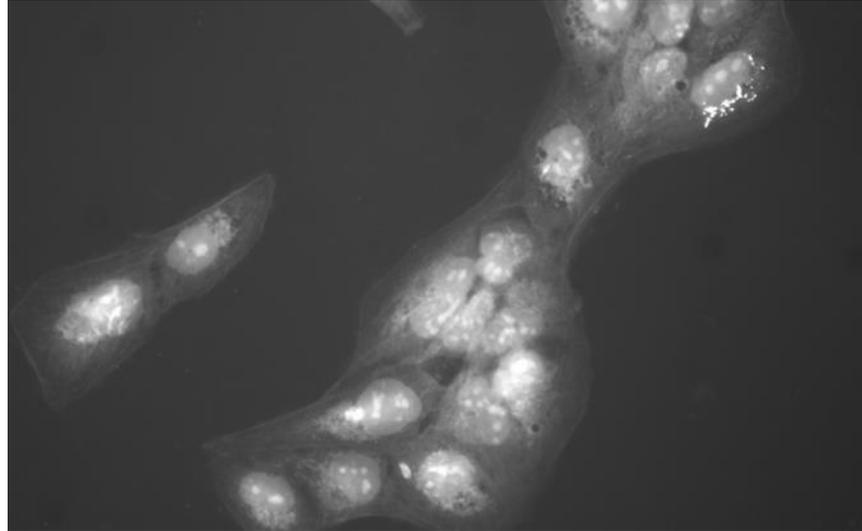
Fluorescence

ProgRes® MFcool
CCD 2/3"



TV-Adaption Zeiss 1,0x (60-C 1")

PROGRES GRYPHAX® RIGEL
CMOS 1/1.2"



TV-Adaption Zeiss 1,0x (60-C 1")

Equipment: Microscope Zeiss AxioScope 40

Lens Zeiss Plan-NEOFLUAR 40x

Sample: Bovine pulmonary artery endothelia (BPAE)



PROGRES GRYPHAX® RIGEL provides the same sensitivity with a back illuminated CMOS sensor. Fast live images are possible with increased gain because of the very low dark noise.

PROGRES GRYPHAX® RIGEL advantages:

- ☆ Using increased Gain to get a fast live image for easy focusing

Live image



PROGRES GRYPHAX® RIGEL is equipped with an **all pixel scan** and **global shutter** sensor. It provides **60 fps at 2.3 MPix** live image speed, perfect for video recording. This is four times faster compared to MFcool.

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

Video

PROGRES GRYPHAX® RIGEL 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

PROGRES GRYPHAX® RIGEL advantage:

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

Panorama

PROGRES GRYPHAX® RIGEL advantage:

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

Captured Image

PROGRES GRYPHAX® RIGEL advantage:

- ☆ This camera provides 60 % more resolution and therefore more details.

Software



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

PROGRES GRYPHAX® Software advantage:

- ☆ Cross-platform compatible WIN, MAC and LINUX
- ☆ Identical GUI across WIN, MAC and LINUX platform

Weight and dimension

ProgRes® MFcool		PROGRES GRYPHAX® RIGEL	
Weight:	~ 800 gr	Weight:	~ 400 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

PROGRES GRYPHAX® Packaging advantage:

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

Summary

PROGRES GRYPHAX® RIGEL advantages at a glance:

- ☆ Effective photon to electron transformation
- ☆ No interlace effect & no smear
- ☆ Low dark noise and low dark current
- ☆ High input clock frequency
- ☆ High dynamic range
- ☆ Secure investment: long-lasting & reliable hardware
- ☆ 37% larger field of view
- ☆ Microscopy-optimized field of view
- ☆ Cost-efficient TV adaption 1x are suitable
- ☆ Using increased Gain to get a fast live image for easy focusing
- ☆ 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
- ☆ Cross-platform compatible WIN, MAC and LINUX
- ☆ Identical GUI across WIN, MAC and LINUX platform
- ☆ Low transport costs due to less weight and dimension



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The **premium solution** for low light research microscope applications

Focus your activities on our [new product portfolio](#) PROGRES GRYPHAX®.

PROGRES GRYPHAX® RIGEL

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