



Product comparison:

## PROGRES GRYPHAX® KAPELLA vs. ProgRes® CFcool

# PROGRES GRYPHAX® KAPELLA

Explore the micro universe  
colored in low light and bright field.



The **premium solution**  
for research applications with difficulty lighting conditions

### INDEX

|   |   |
|---|---|
| PROGRES GRYPHAX® – comparison .....               | 2 |
| Comparison of PROGRES GRYPHAX® KAPELLA.....       | 2 |
| Sensor .....                                      | 3 |
| Quantum efficiency with IR-cut filter .....       | 3 |
| Sensor size and basic TV-adapter 1,0 .....        | 5 |
| Sensor size and best fitting TV-adapter 0,63..... | 6 |
| Live image .....                                  | 7 |
| Video.....  | 7 |
| EDF / Z-stacking .....                            | 7 |
| Panorama .....                                    | 7 |
| Captured Image.....                               | 7 |
| Software .....                                    | 7 |
| Weight and dimension.....                         | 8 |
| Summary .....                                     | 8 |

## 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® KAPELLA



Refine every microscope workstation.

PROGRES GRYPHAX® KAPELLA replaces all colored research CCD cameras.

PROGRES GRYPHAX® KAPELLA is the **premium solution** for research microscope applications with difficult lighting conditions. 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 color reproduction.

Within this comparison we take a look at the ProgRes® CFcool compared to PROGRES GRYPHAX® KAPELLA, the successor of color research ProgRes® CCD cameras.

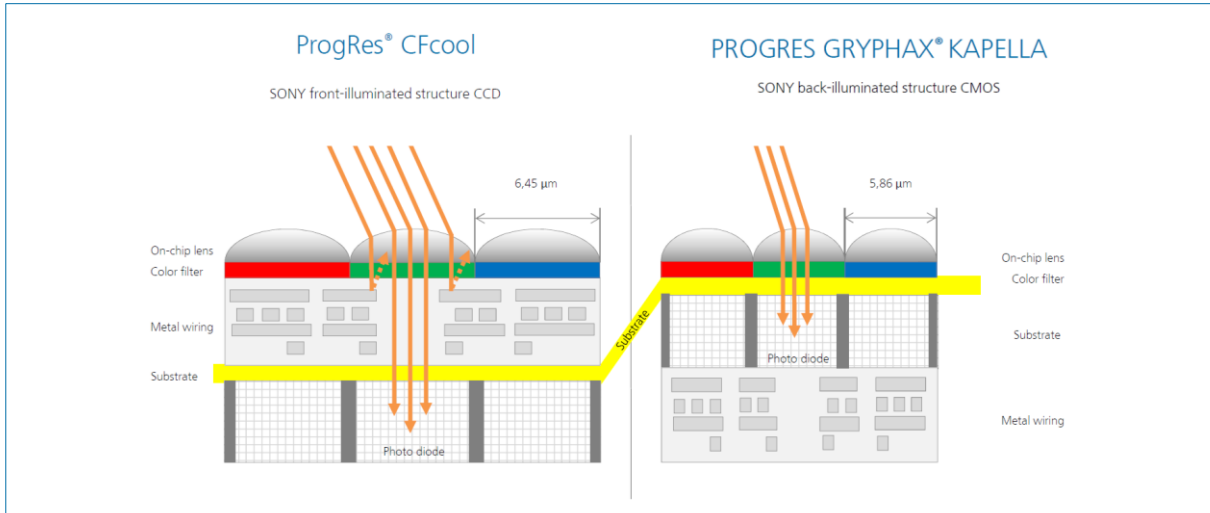
| Sensor/Camera                                      | ProgRes® CFcool<br>with IR cut filter | PROGRES GRYPHAX®<br>KAPELLA<br>with IR cut filter |
|--|---------------------------------------|---|
| Utilized sensor diagonal                           | 10,965 mm                             | 13,268 mm   |
| FPS  | 13 (1360 x 1024)                      | <b>60</b> (1920 x 1200)                           |
| Quantum Efficiency [N(e-)/N(p)] @<br>532nm (green) | 0.32 QE(λ) see spectral data          | <b>0.58</b> QE(λ) see spectral data               |
| Dark Noise [DN/e-]                                 | 7 DN (at 14 bit); 9e-                 | <b>0.8 DN (at 12 bit); 6e-</b>                    |
| Dynamic Range (DR)                                 | 66,0 dB                               | <b>73,3 dB</b>                                    |

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

## Sensor



PROGRES GRYPHAX® KAPELLA is equipped with SONY’s back-illuminated CMOS sensor technology.

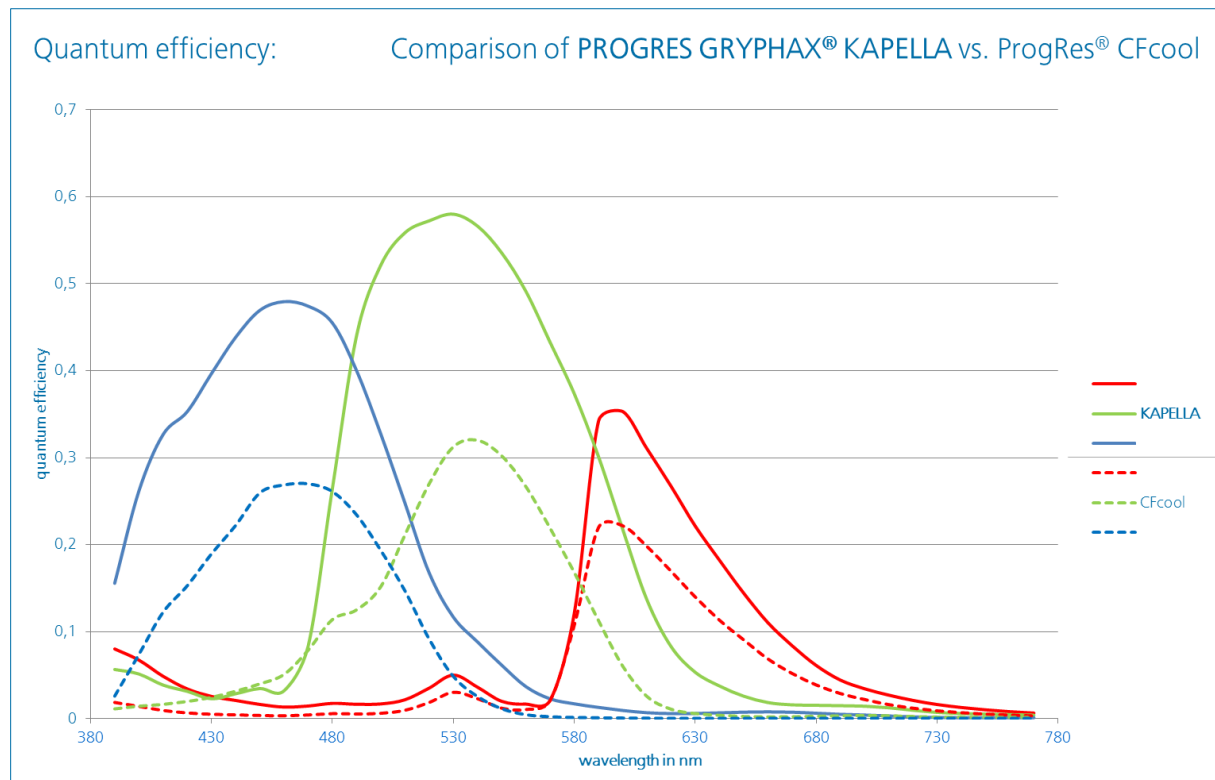


Source: Graphic done by Jenoptik based on information from [www.sony.net](http://www.sony.net)

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](http://www.sony.net)

## Quantum efficiency with IR-cut filter





**PROGRES GRYPHAX® KAPELLA** quantum efficiency is nearly **two times higher** (at 532 nm) than ProgRes® CFcool

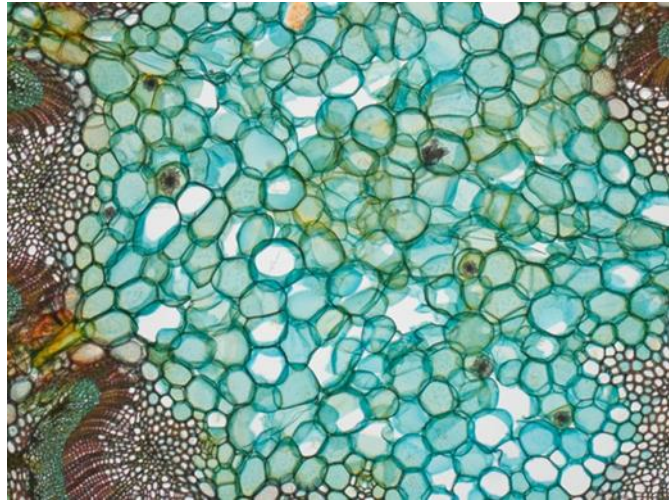
**PROGRES GRYPHAX® KAPELLA advantages:**

- ☆ 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® CFcool

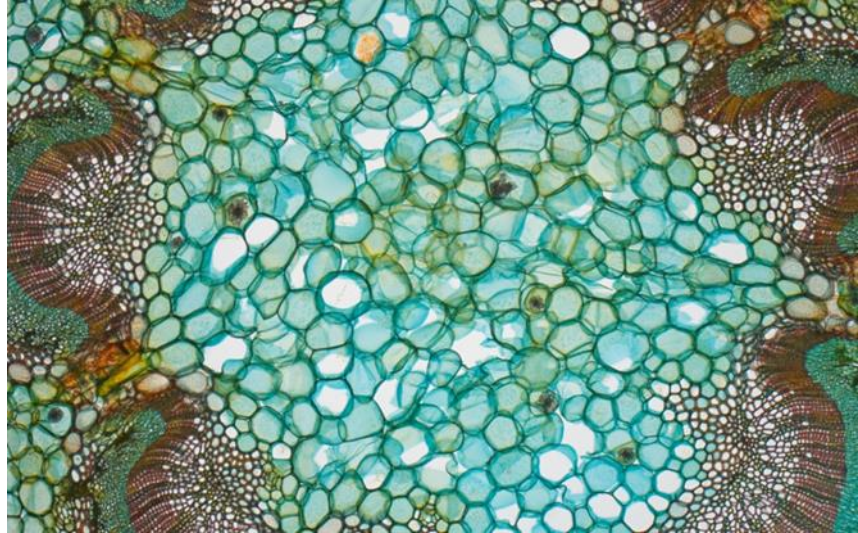
CCD 2/3"



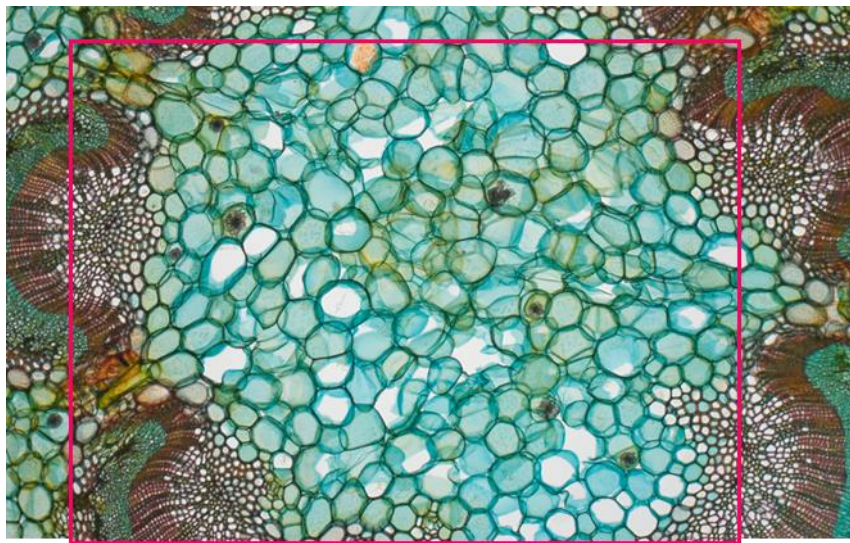
TV-Adaption Zeiss 1,0x (60N-C 1")

PROGRES GRYPHAX® KAPELLA

CMOS 1/1.2"



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



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

Sensor size and best fitting TV-adapter 0,63

ProgRes® CFcool  
CCD 2/3"



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

PROGRES GRYPHAX® KAPELLA  
CMOS 1/1.2"



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"



PROGRES GRYPHAX® KAPELLA has a more than 37 % larger sensor field than ProgRes® CFcool.

PROGRES GRYPHAX® KAPELLA advantages:

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

## Live image



PROGRES GRYPHAX® KAPELLA 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 CFcool.

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

### Video

PROGRES GRYPHAX® KAPELLA **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® KAPELLA **advantage:**

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

### Panorama

PROGRES GRYPHAX® KAPELLA **advantage:**

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

## Captured Image

PROGRES GRYPHAX® KAPELLA **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® CFcool                             | PROGRES GRYPHAX® KAPELLA                     |
|---|--|
| Weight: ~ 800 gr                            | Weight: ~ 400 gr                             |
| Dimension:: L x W x H in mm<br>89 x 84 x 93 | Dimension: L x W x H in mm<br>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® KAPELLA 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
- ☆ 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 60 % more resolution and therefore more details.
- ☆ Cross-platform compatible WIN, MAC and LINUX
- ☆ Identical GUI across WIN, MAC and LINUX platform
- ☆ Low transport costs due to less weight and dimension



Refine every microscope workstation with  
**PROGRES GRYPHAX® KAPELLA**

The **premium solution** for research applications with  
difficulty lighting conditions



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

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colored in low light and bright field.



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