Product comparison:

PROGRES GRYPHAX® NAOS vs. ProgRes® SpeedXTcore5

PROGRES GRYPHAX® NAOS

Explore the micro universe with revolutionary 5 & 20 MPix.

The advanced solution for routine applications

INDEX

PROGRES GRYPHAX® – comparison ........................................................................................................2
Comparison of PROGRES GRYPHAX® NAOS ..................................................................................2
Sensor ..................................................................................................................................................3
  Quantum efficiency with IR-cut filter ...............................................................................................3
  Sensor size with basic TV-adapter 1,0 ..............................................................................................5
  Sensor size with 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 GYPHAX® – 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 GYPHAX® NAOS

Refine every microscope workstation.

PROGRES GYPHAX® NAOS replaces all 5 MPix microscope cameras.

PROGRES GYPHAX® NAOS is made as an advanced solution for routine microscope applications, using a 1"-back-illuminated CMOS sensor made by SONY.

This camera provides high dynamic range images with non-visible noise, combined with the brilliant Jenoptik color reproduction. Fast live images are provided by 2 or 5 MPix. Maximum details are visible at pictures done with the 20 MPix record modes.

Within this comparison we take a look at the PROGRES® SpeedXTcore5 camera compared to PROGRES GYPHAX® NAOS, the successor of all 5 MPix CCD ProgRes® cameras.

<table>
<thead>
<tr>
<th>Sensor/Camera</th>
<th>ProgRes® SpeedXTcore 5 with IR cut filter</th>
<th>PROGRES GYPHAX® NAOS with IR cut filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilized sensor diagonal</td>
<td>10,95 mm</td>
<td>15,58 mm</td>
</tr>
<tr>
<td>FPS</td>
<td>13 at 5 MPix (2576 x 1932)</td>
<td>30 at 5 MPix (2700 x 1800)</td>
</tr>
<tr>
<td>Quantum Efficiency [N(e-)/N(p)] @ 532nm (green)</td>
<td>0.30 QE(λ) see spectral data</td>
<td>0.64 QE(λ) see spectral data</td>
</tr>
<tr>
<td>Dark Noise [DN/e-]</td>
<td>7 DN; 14e-</td>
<td>0.9 DN; 3e-</td>
</tr>
<tr>
<td>Dynamic Range (DR) [dB, bits]</td>
<td>56,0 dB</td>
<td>71.8 dB</td>
</tr>
</tbody>
</table>

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

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

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 cause 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.

**Quantum efficiency with IR-cut filter**

![Graph showing quantum efficiency comparison between PROGRES GRYPHAX® NAOS and ProgRes® SpeedXTcore5](source)

Source: information from [www.sony.net](http://www.sony.net)
PROGRES GRYPHAX® NAOS’s quantum efficiency is more than **two times higher** (at 532 nm) than ProgRes® SpeedXTcore 5.

**PROGRES GRYPHAX® NAOS 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 with basic TV-adapter 1,0

The 1” sensor format fits to all microscopes with the basic TV-adapter 1,0.

**Equipment:**  
Microscope: Zeiss AxioScope.A1  
Lens: Zeiss 5x EC-Epiplan-NEOFLUAR  
Sample: Hedera Helix (Gemeiner Efeu) Blattstiel quer “1037”
Sensor size with best fitting TV-adapter 0,63

Magnify the field of view with the perfect TV-adaption, depending on the microscope brand.

**Equipment:**
- Microscope: Zeiss AxioScope.A1
- Lens: Zeiss 5x EC-Epiplan-NEOFLUAR

**Sample:** Hedera Helix (Gemeiner Efeu) Blattstiel quer "1037"
PROGRES GRYPHAX® NAOS

has an approx. two times larger sensor field than ProgRes® SpeedXTcore 5.

PROGRES GRYPHAX® NAOS advantages:

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

Live image

PROGRES GRYPHAX® NAOS is equipped with an all pixel scan sensor. At 5 MPix live resolution you get 30 fps, the doubled live image speed.

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

Video

PROGRES GRYPHAX® NAOS 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® NAOS advantage:

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

Panorama

PROGRES GRYPHAX® NAOS advantage:

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

Captured image

PROGRES GRYPHAX® NAOS advantages:

☆ This camera provides revolutionary 5 and 20 MPix images.

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

<table>
<thead>
<tr>
<th>ProgRes® SpeedXTcroe 5</th>
<th>PROGRES GRYPHAX® NAOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight: ~ 600 gr</td>
<td>Weight: ~ 400 gr</td>
</tr>
<tr>
<td>Dimension: L x W x H in mm</td>
<td>Dimension: L x W x H in mm</td>
</tr>
<tr>
<td>89 x 84 x 93</td>
<td>85 x 75 x 50.2</td>
</tr>
</tbody>
</table>

PROGRES GRYPHAX® Packaging advantage:
- Lower transport costs due to less weight and dimension of housing and camera packaging.

Summary

PROGRES GRYPHAX® NAOS 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
- 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 image saves time
- Real-time appearance of panorama image saves time
- Cross-platform compatible WIN, MAC and LINUX
- Identical GUI across WIN, MAC and LINUX platform
- Lower transport costs due to less weight and dimension

Refine every microscope workstation with PROGRES GRYPHAX® NAOS.

The advanced solution for routine applications
Focus your activities on our new product portfolio PROGRES GRYPHAX.

**PROGRES**

**GRYPHAX® NAOS**

Explore the micro universe with revolutionary 5 & 20 MPix.

The advanced solution for routine applications