

COMET PRODUCT CATALOG

Portable and mobile X-ray systems

COMET
Technology with Passion



reddot award 2015
best of the best

MEET THE FUTURE

Creating a new product usually starts with a dream; a dream that is often compromised by the design limitations of materials, technology or resources. At COMET, we don't compromise on our dreams. By combining our years of experience and knowhow with the latest in design thinking, we've created the most uncompromising product range yet. Meet PXS EVO; the future of portable X-ray equipment.

DESIGNED FOR REAL-LIFE CHALLENGES

Creating the successor for the tried and tested PXS series has been a daunting task. To help define the parameters for the new PXS EVO series, we turned to our experts in the field – our customers. Their insight, combined with our technological expertise and uncompromising approach to design and function, was essential in realizing our common vision.

AN UNCOMPROMISING APPROACH

"When we started the EVO project, our ambition was to create a portable product range with high X-ray performance and a state-of-the-art interface between the operator and the equipment," explains Product Manager Jan Bressendorff, one of the minds behind the PXS EVO series.

"When constructing portable equipment, it's crucial to find the right balance. The trick is to make products that are light-weight and still robust with high performance. Usually, this results in a trade-off – but not with the PXS EVO series, where we've succeeded in making the range even more robust and light-weight, while improving the thermal performance."

THE HEART OF THE SYSTEM

The new control unit, CONTROL EVO, has catapulted portable X-ray equipment into the 21st century. Combined with the redesigned PXS EVO tube head, it's a system that sets the standard for many years to come.

A powerful computer with an intuitive user interface is the core of CONTROL EVO. With direct access to basic and advanced functions and features such as exposure calculations and exposure profiles, the unit simplifies and speeds up both fieldwork and diagnostics.

An advanced exposure calculator allows users to define input for film type profiles, material type, thickness and density, distance to the object and the required kilovolt. It also calculates the optimal mA setting and exposure in real-time. User support is also provided for all film types and digital imaging.

"When you're out on field inspection, you're not wearing kid gloves"

BUILT FOR EXTREMES

"Part of the brief for the design of the new EVO series was that it should be extremely robust and work anywhere in the world – even in the harshest and most remote environments," says Jan Bressendorff.

"One of the real-life challenges faced by our customers around the world is an inconsistent or differing electrical power supply. That's why we equipped the new CONTROL EVO with a Power Factor Correction module that can handle voltage input from 85 to 264 VAC. Now, you can be fully operational on every global



“We’ve succeeded in making the range even more robust and light-weight, while improving the thermal performance”

power grid and insensitive to unstable grid voltages,” he adds. “We also know, first-hand, the treatment our products have to withstand. It’s a tough job.” He smiles. “When you’re out on field inspection, you’re not wearing kid gloves, and the knocks, drops and scrapes from regular use have to be taken into PXS EVO’s stride,” says Jan. With its smart robust design, improved ergonomics for better handling, and integrated protective bumpers, the PXS EVO series is built to last. And with IP65 protection standard, it’s fully operational in dusty and wet conditions, with the cabinet protecting all vital parts.

LOOKING BACK AND MOVING FORWARD SAFELY

“Knowing how long-lasting and robust your existing COMET products are, we designed the CONTROL EVO to be retro-compatible – with support for all product specific cables. With our new design, we were very much aware that our customers needed to maximize the value of all their existing equipment and to make fleet management flexible and efficient,” says Jan Bressendorff.

“And safe operation is a given,” he adds. “The PXS EVO series complies with all international radiation leakage standards and the European machinery directive. It doesn’t get safer than that.”

EXCELLENT IMAGE QUALITY WITH DIGITAL TECHNOLOGY

By introducing the small 1.0 mm focal spot we also significantly improve the quality by reducing unsharpness, making the output resolution higher and the ability to detect defects or see small details greater, generating much sharper image output.

It ensures superior digital detector based inspection, and major advantages when using conventional film, optimizing the exposure time and making radiography inspection more efficient.

NEW DESIGN & SMARTER WORKFLOW

“The PXS EVO project started when we acknowledged that the control units for our existing PXS systems had been surpassed by modern technology. Our customers’ needs for state-of-the-art equipment proved to us the need for change – and provided us with a chance to update our range,” explains Martin Astradsson, the Chief Software Architect behind the PXS EVO series.

DESIGNED TO PERFECTION - IN AND OUT

“At COMET, design is a high priority. We take it very seriously. From the product’s outward form to the architecture of the software; good design is paramount. That’s why we started with a clean slate rather than building on existing technology. Actually, that’s not entirely true: When we design something new, we actually start with a clean slate and 50 years of experience...” admits Martin.

“... for example, when I think of our existing PXS, it’s a piece of equipment that’s built like a tank – robust and reliable. And that’s not a bad thing, knowing how it gets treated. So, we kept this aspect of the design. But when I look at the PXS EVO, knowing the state-of-the-art technology hidden beneath this heavy-duty armor, I think of it more like a Tesla or a Rolls Royce. It really is in that league”

A SMARTER WORKFLOW

Workflows can always be optimized. The CONTROL EVO technology dovetails naturally with modern customer setups and adds functions that can save time, both in the field and in administration to maximize the use of time – shortening customer processes and

increasing their revenue. “When we upgraded the technical capabilities of the CONTROL EVO, we had the network-based workflows of our customers in mind,” says Martin. “Nowadays, when our customers are out in the field, they often have their laptops with them. Having a modern and future-proof platform with USB, Ethernet and Bluetooth™, we make it possible to provide our customers with new services in the future, so that they can stay connected to their own company legacy systems for immediate upload of exposure data - even when they are out in the field.”

“The PXS EVO system does everything it used to, but it does it better and it does it faster - it’s as simple as that”

AN ONGOING PARTNERSHIP

“By learning more about our customers’ workflow, we can easily customize and add functionalities, because we’ve created a platform that is designed to be future-proof. But even with a traditional inspection company setup, the PXS EVO system adds tremendous value. The user interface is intuitive, with all the data clearly displayed and easily accessible. Software updates are as easy as plugging in a USB. The possibilities are endless; it’s just up to our customers to take full advantage of the new technology and make it work for them,” says Martin.

“Some people might say, ‘Do I really need all these functions? My system works just fine already, and a portable system’s job is simply to make images...’ And they might be right – but would you ever go back to a manual dial landline after you’d experienced the

freedom and efficiency of a cell phone? Probably not. The PXS EVO system does everything it used to, but it does it better and it does it faster - it's as simple as that," states Martin.



reddot award 2015 best of the best

WINNER OF THE RED DOT AWARD

PXS EVO is an award-winning top achievement after being presented with the prestigious Red Dot Award; Best of the Best in Product Design 2015.

PXS EVO won over the 38-member jury of the Red Dot Award and proved its design excellence in this respected global competition. Out of 4,928 participants, PXS EVO stood out and was awarded the Red Dot: Best of the Best for top quality and innovative product design.

Statement by the jury: "The design of PXS EVO impressively combines the innovative technology of the CONTROL EVO unit with a portable system for non-destructive testing. As such, this system sets new standards for the future. It fascinates with a highly user-friendly operation, which allows it to be perfectly adjusted to various workflows even under the most extreme conditions. It is compact and ergonomically well thought-through."



THE PXS EVO SERIES

PORTABLE X-RAY GENERATORS

COMET systems are light, of high quality and have been designed for flexible field inspection, in all types of industrial environments. The combination of our new PXS EVO tube heads and CONTROL EVO is the key to a significantly improved workflow.

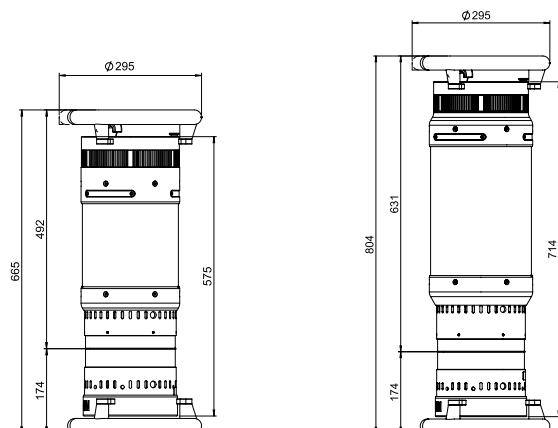


SPECIFICATIONS

	PXS EVO 200P	PXS EVO 300P
WEIGHT	28 kg	36 kg
HEIGHT	665 mm	804 mm
FOCAL SPOT SIZE EN 12543	0.4 x 4.0 mm	0.5 x 5.5 mm
HIGH VOLTAGE ADJUSTMENT	30 – 200 kV	50 – 300 kV
mA ADJUSTMENT	0.5 – 6.0 mA	0.5 – 4.5 mA
MAX X-RAY POWER	750 W	750 W
BEAM ANGLE	38° x 360°	38° x 360°
LEAKAGE RADIATION	Max. 2.0 mSv/h	Max. 5.0 mSv/h
ENVIRONMENT	IP65	IP65
TEMPERATURE RANGE	-20°C to +50°C	-20°C to +50°C
CONT. EXPOSURE 35°C, MAX kV, MAX mA	Min. 1 hour	Min. 1 hour

OEM integration

The broad voltage range and the high performance makes our portable X-ray systems flexible and perfect as an integrated X-ray source. They are well suited for OEM integration and offer numerous application possibilities. We support new projects with our expertise and knowledge, and we provide support for system integration to ensure the proof-of-concept phase.





PXS EVO
160D

PXS EVO
200D

PXS EVO
225D/DS

PXS EVO
300D/DS

22 kg

23 kg

26 kg

29 kg

611 mm

635 mm

708 mm

774 mm

1.0 mm

1.0 mm

3.0 / 1.0 mm

3.0 / 1.0 mm

20 – 160 kV

30 – 200 kV

40 – 225 kV

50 – 300 kV

0.5 – 7.0 mA

0.5 – 6.0 mA

0.5 – 5.5 mA

0.5 – 4.5 mA

750 W

750 W

900 W

900 W

40° x 60°

40° x 60°

40° x 60° / 30° x 60°

40° x 60° / 30° x 60°

Max. 2.0 mSv/h

Max. 2.0 mSv/h

Max. 5.0 mSv/h

Max. 5.0 mSv/h

IP65

IP65

IP65

IP65

-20°C to +50°C

-20°C to +50°C

-20°C to +50°C

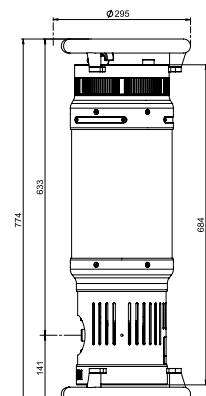
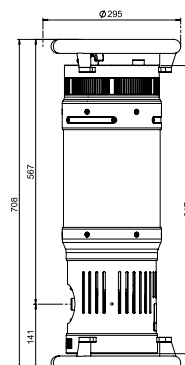
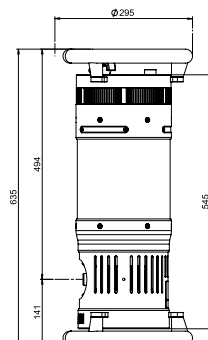
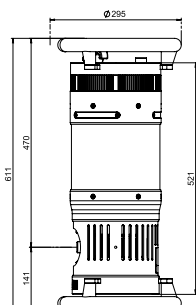
-20°C to +50°C

Min. 1 hour

Min. 1 hour

Min. 1 hour

Min. 1 hour





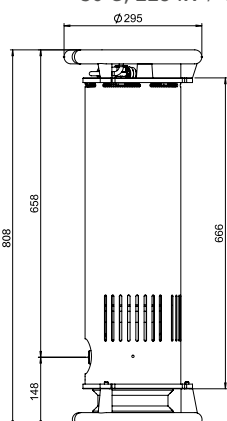
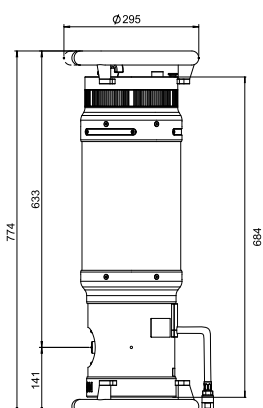
**PXS EVO
300DW**

**PXS EVO
225D/1200**

31 kg	28 kg
774 mm	808 mm
3.0 mm	3.0 mm
50 – 300 kV	25 – 225 kV
0.5 – 4.5 mA	0.5 – 10 mA
900 W	1200 W
40° x 60°	40° x 60°
Max. 5.0 mSv/h	Max. 5.0 mSv/h
IP65	IP65
-20°C to +50°C	-20°C to +50°C
Continuous *	1 hour **

* 30°C

** 30°C, 225 kV / 4.4 mA



PXS EVO CRAWLER PACKAGE

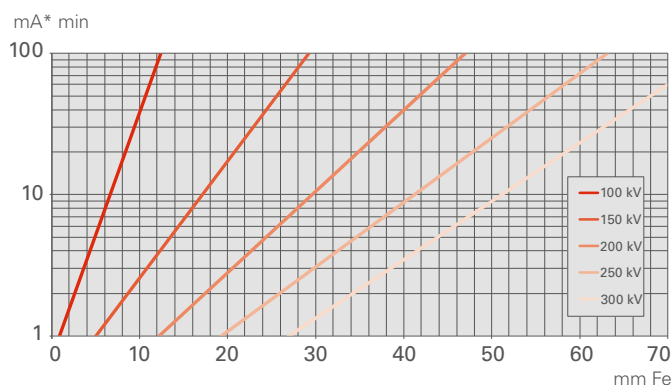
The PXS EVO 200P & 300P tube heads are designed for inline inspections of pipes and vessels. COMET offers a crawler package for system integration with pipeline crawlers. The package includes a DC/DC converter, controller board, support and documentation, ensuring complete integration.

PXS EVO WATER-COOLED

Special inspection jobs, like in confined spaces or with 24/7 operation in extreme temperatures, may require special solutions. All PXS EVO directional tube heads and the CONTROL EVO are available in reliable water-cooled versions to cover nearly any possible application.

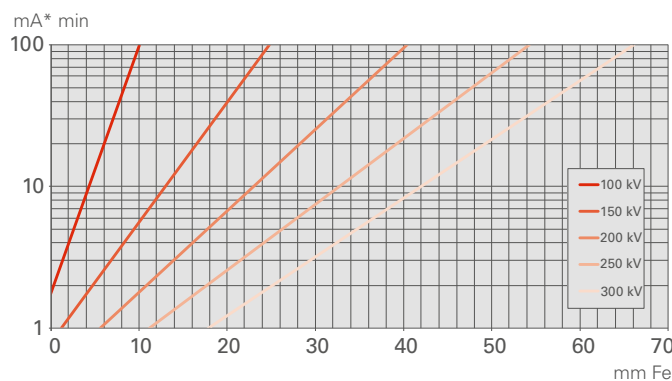
DIRECTIONAL Fe EXPOSURE DIAGRAM

700 mm FFD / D7-type + Pb / D = 2,0



PANORAMIC Fe EXPOSURE DIAGRAM

700 mm FFD / D7-type + Pb / D = 2,0



THE CONTROL EVO



COMPATIBLE

The CONTROL EVO is backwards compatible with the PXS portable X-ray systems. It has an Ethernet interface allowing for remote diagnostics and software updates. The USB interface facilitates, control of the system via a USB-to-Serial converter, saving diagnostics reports and can also be used for software updates in the field. It even has Bluetooth™ for future applications. All of these make the EVO system smart and future-proof.

CONTROL EVO

WEIGHT	13 kg
DISPLAY	6.5" LCD Color
MAX X-RAY POWER	1200 W*
HIGH VOLTAGE ADJUSTMENT / 1 kV RES.	10 – 300 kV*
mA ADJUSTMENT / 0.1 mA RES.	0.5 – 10 mA*
EXPOSURE TIME	1 sec. - 60 min. or ∞*
INTERFACES	Ethernet, Bluetooth and USB
NUMBER OF EXPOSURE PROFILES	100
EXPOSURE HISTORY	Last 100 exposures
ENVIRONMENT	IP66
TEMPERATURE RANGE	-20°C to +50°C

* DEPENDS ON TUBE HEAD TYPE

Calculate exposure values

Tube: Auto-calculate

Material:

Film manufacturer:

Film type:

FFD: cm [30 - 200]

Density: [1.0 - 3.5]

Thickness: mm

Voltage: kV [40 - 225]

Current: mA Factor:

Time: min. Save as profile

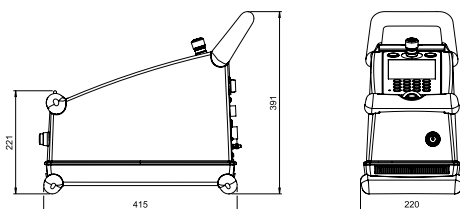
Save as profile Close

EXPOSURE CALCULATOR

The advanced built-in exposure calculator ensures fast exposure calculations and uniform results. It can calculate the minimum required film focus distance optimising the exposure time. It accommodates the use of a wide range of films, materials and settings.

POWER SUPPLY

The AC-mains voltage range spans from 85 to 264 VAC and from 45 to 65 Hz, supporting global operation. The power factor correction module ensures stable operation, where AC-mains are unstable.



THE EVO SERIES ACCESSORIES

A BROAD RANGE OF ACCESSORIES

In our world, time is everything. The smarter we help you and your people work, the faster and better you'll get the job done. Working smart means accuracy, safety and reliability, and most important it means avoiding costly disruptions to your workflow.

High quality accessories are available for the PXS EVO series. These various accessories enable a smarter workflow and support multiple applications in all environments.

4-LEGGED TUBE STAND - (ONLY DIRECTIONALS)	1
3-LEGGED TUBE STAND - (ONLY DIRECTIONALS)	2
FLIGHT CASE EVOTUBE HEADS - (ONLY DIRECTIONALS)	3
FLIGHT CASE CONTROL EVO	4
WARNING LAMPS	5
LEAD CONE PACKAGE - (ONLY DIRECTIONALS)	6
WATER COOLER - (ONLY WATER-COOLED)	7
MOBILE TUBE STAND - (ONLY DIRECTIONALS)	8
DOOR AND LAMP CABLES	9
LIGHT-WEIGHT TUBE STAND	10
REVOLVING HAND RING - (ONLY PXS EVO 225D/1200)	11

Our range of accessories makes the use of portable X-ray equipment safer, more efficient and convenient, when challenging working conditions have to be solved. The accessories are not only designed to be used in rough conditions, but also to be agile and user-friendly for customers when using portable X-ray systems.



1



2



3



5



4



7



6



9



8



11



10

MAKING THE PXS EVO UNIQUE

BUILT TO LAST

IT'S ROBUST AND RELIABLE

Designed and built in Denmark; the PXS EVO systems are comprised of the best components and assembled with the utmost care – making them reliable, long lasting and a sound investment. They are fitted with a high quality metal ceramic X-ray tube and the robust composite casing now protects all vital parts even better. The systems meet the IP65 standard, making them fully operational in dusty and wet conditions.

SMARTER WORKFLOW

IT'S LIGHTWEIGHT AND EASY TO HANDLE

The ergonomic design and the low weight makes the PXS EVO systems easy to handle and re-position. A broad temperature range from -20°C to +50°C makes the EVO systems reliable and ensures smooth operation even in extreme environments. The intuitive interface allows for a smarter workflow.

HIGH PERFORMANCE

DUE TO ITS TECHNICAL CAPABILITIES

Built to meet the highest international safety standards, each unit is individually tested and measured for safety and accuracy. The PXS EVO systems features focal spots from 1.0 mm to 3.0 mm and ranges from 750 W to 900 W constant potential X-ray power ensuring high performance, shorter exposure times and high resolution results.



THE Y.XMB SERIES

MOBILE X-RAY SYSTEMS

The mobile Y.XMB X-ray system utilizes constant potential energy, minimizing exposure time and optimizing your workflow. The Y.XMB is available in 100 kV, 160 kV and 225 kV. This system is well suited for jobs in confined spaces and for low density materials, thanks to the agile high voltage cable and the compact X-ray tube.



SPECIFICATIONS

	Y.XMB 100	Y.XMB 160	Y.XMB 225
WEIGHT	approx. 180 kg	approx. 184 kg	approx. 190 kg
HEIGHT x DEPTH	1630 x 980 mm	1630 x 980 mm	1630 x 980 mm
WIDTH OF AXIS	600 mm	600 mm	600 mm
HIGH VOLTAGE ADJUSTMENT	7.5 – 100 kV	7.5 – 160 kV	10 – 225 kV
mA ADJUSTMENT	0 – 20 mA	0 – 20 mA	0 – 15 mA
MAX X-RAY POWER	1500 W	2250 W	2250 W
CABLE LENGTH	10, 15 or 20 m	10, 15 or 20 m	10, 15 or 20 m

ACCESS TO CONFINED SPACES

Mobile constant potential X-ray generators from COMET, with extremely high X-ray power of up to 2.25 kW, combined with a compact X-ray tube mounted on a flexible X-ray cable, are perfectly designed to access even the most challenging inspection tasks in narrow and hard to reach spaces, for example for operations at nuclear power plants or in the petrochemical industry.

WIDE RANGE OF TUBES

The mobile Y.XMB X-ray system with 100, 160 or 225 kV, supports a wide range of different high quality X-ray tubes, from directional, panoramic or fan beam tubes,

with different beam shapes and different size focal spots. The Y.XMB system features a broad mA range from 0-20 mA depending on the chosen system and X-ray tube, and it supports high voltage cables with lengths up to 20 meters.

SAFE OPERATION

Safety is paramount to us, that's why our products are safe to use. The Y.XMB product range is produced in accordance with the most strict radiation safety standards. The combined features of the Y.XMB product range will give you a competitive advantage by reducing exposure time and by optimizing your workflow.

A man wearing a blue hard hat with a name tag that reads "PER K. ANDERSEN" and a high-visibility yellow vest over a dark blue shirt. He is holding a large, circular, portable inspection device. The background shows an industrial setting with pipes and machinery.

BUILT TO LAST

GAS COMPRESSOR STATION NEAR EGTVED, DENMARK.

Per Kopperup Andersen has been an NDT Inspector with FORCE Technology for the past four years, working with COMET's portable products. FORCE Technology is the largest inspection company in Scandinavia. They were founded more than 70 years ago - and operate worldwide from America to Asia.

FORCE Technology has inspected weld seams on pipelines, for ELnet Danmark, during the construction of the new gas compressor station near Egtved in Denmark. Per Kopperup and his colleague Lars are conducting the inspections. Once up and running, the gas compressor station will increase the capacity of the gas transmission network in Denmark.

For this inspection job, Per is using the PXS EVO 225D, which is made by COMET. "Relying on your equipment is of paramount importance. The equipment has to withstand all the stress and rough handling that comes with field operation. When you bring a tube head on site to do an inspection job, it has to work."

**"The EVO 225D is
reliable and robust"**

"The PXS EVO is like the PXS - it just works. The EVO 225D is reliable and robust. Over the past four years I have not experienced one single breakdown, and even though I have dropped them a couple of times they continue to function just fine."

The EVO series is robust and built to endure rough handling, and it is also light-weight for easy positioning.

QUALITY

You need equipment you can rely on, day in day out. Built in Denmark to stringent specifications with the highest quality components, our products are both built to last and operate accurately even under the harshest situations. For us, the highest priority is placed on quality: the quality of our X-ray equipment and, as a result, the quality of your products.

TRUST

You work in unpredictable challenging environments and sometimes things don't go as planned. That's when it's good to know that we've got your back. With our comprehensive support and local service and repair network, you can trust us to keep downtime to a minimum.

EXPERIENCE

With COMET, you're in good company. As the leading global provider of X-ray inspection equipment for industrial applications, we have the right solution to match nearly every application. Our years of experience have enabled us to gain the confidence and trust of some of the world's top companies in a wide range of demanding business areas. We'd like to think that your company is next.