

GE  
Measurement & Control

# Krautkramer USM Vision+

Simplicity Meets Performance.





## Krautkramer USM Vision+ : the versatility you need every day.

The Krautkramer USM Vision+ is everything you can expect from a phased array flaw detector. It combines high quality images with easy operation and can be used for a broad spectrum of applications such as weld, forgings, composites or corrosion inspection.

The newest member of GE's portable ultrasonic flaw detector portfolio builds on the excellent reputation that Krautkramer instruments have enjoyed for many decades.

The Krautkramer USM Vision+ offers a unique combination of high performance, versatility and intuitive operation.

### High performance at your fingertips

You can use the USM Vision+ in phased array as well as in conventional modes. Its 16/128 configuration allows USM Vision+ to be used in a wide variety of applications while complying with global inspection codes and standards.

Up to 12 groups or apertures can be used simultaneously for coupling control supporting standard inspections, or for heavy wall applications, for example.

The intuitive user interface gives you full control of your inspection with a short learning curve, and the fully digital amplification offers you the complete dynamic range for the offline DB set.

You can create instant reports using the on-board jpg function either on the instrument's hard drive or on a connected USB flash drive. For extensive and customised reporting, post-processing and sizing, GE's optional multi-modal Rhythm software platform acquires, reviews and archives your data using the industry standard DICONDE tagging system.

### Designed for any environment

Developed to perform in harsh environments, the Krautkramer USM Vision+ is designed to take them in its stride. It has a certified and tested operating range of 0°C to +45°C, and



the USM Vision+ even comes with an integrated stylus to support inspections where gloves are required. Its robust, rubberised housing is sealed to an IP 54 rating, to resist dust and humidity. It has a hot swap battery to keep your inspection going despite battery changes. And at just 4,5 kg (9.9 lbs) including batteries, the USM Vision+ is truly portable.

The USM Vision+ is compatible with a wide range of motion encoders and scanners, so you can choose whichever you feel is right for your inspection task.

## Simple, intuitive operation

The industry-proven user interface will need no introduction for inspectors familiar with the USM family. However, the logical and intuitive parameter set-up enables new users to get off to a quick start too. There are two trackballs for fast access and easy pointing, as well as dedicated function buttons. All of this makes on-site set up, calibration and inspection simplicity itself. The image quality on the 10.4"

TFT LED screen is outstandingly crisp, and with high resolution and superior signal to noise ratio, the image truly sets new standards.

## At home in every industry

The Krautkramer USM Vision+ is versatile enough to meet the inspection demands of a wide variety of applications in different industries.

### Weld inspection

The Krautkramer USM Vision+ inspects virtually any weld type, including V, X, J and K, circumferential and longitudinal welds, meeting a wide range of inspection codes. The USM Vision+ can be set up to carry out parallel, dual as well as linear scanning. The range of view formats covers A, B, C, D, E and S-scans, selectable on demand. Graphical weld overlays support an easier geometric interpretation of artifacts.

### Forging and casting inspection

You can use the Krautkramer USM Vision+ to inspect forgings and

castings to identify inclusions, slag and other flaws, and to determine their size.

### Corrosion inspection

In conjunction with GE's range of DM phased array probes, the Krautkramer USM Vision+ is an ideal tool for reliable corrosion mapping and monitoring. Compared with traditional thickness gauge and flaw detector inspection, it offers a much higher probability of detection of corrosion pits and guarantees a faster, more reliable scanning.

### Boiler tube inspection

The Krautkramer USM Vision+ complements a range of low profile scanners, including the AIR PALM scanner. This gives you an industry-proven and comprehensive solution for inspecting a wide range of boiler tubes for corrosion, pitting, etc.

### Composites inspection

With features like an interface echo trigger, you can use the Krautkramer USM Vision+ with a range of probes designed for inspecting composites, including the RotoArray solution, for example, for wind blade inspections.



## Technical Data - Krautkramer USM Vision+

### Configurations

Phased array configuration	16/128	number of simultaneously controlled channels and number of available channels
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### General features

Size, WxHxD	367 x 250 x 100 mm	14.4 x 9.8 x 3.9 inch	
Weight	4.6 kg	10.1 lb	with one battery
Display resolution	1024 x 768 pixel		TFT with LED backlight
Battery operational time	3 h		hot swap possible
Number of batteries	2		Li-Ion
Operating temperature range	0 to 45°C	32 to 113°F	Actual operating temperature range depending on environmental conditions. Expanded temperature models available on request.
Storage temperature range	-20 to -70°C	-4 to -94°F	
Pulse repetition frequency (PRF)	0.015 to 10 kHz		depending on settings
Protection grade	IP 54		

### Display

Range of sound velocities	100 to 15000 m/s		
Time base:	Delay	0 - 10000 mm	in steel long, IP delay
	Width	6 - 10000 mm	in steel long
Available views	A, B, C, D, E, S		
Screen refresh rate for A-scan presentations	50 Hz		depending on setting

### Phased array channels

Shape of transmitter pulse	Negative unipolar		
Transmitter voltage	10 - 150 V		in 10 V steps, supply voltage 200 V
Maximum time delay	0 to 20000 ns		
Time delay resolution	5 ns		
Linearity of vertical display	± 2 %		
Frequency response	0.5 - 15 MHz		-3 dB without digital filter
Digital filters	8		
Dynamic range	0 to 90 dB		digital gain, 0,1 dB step
Time corrected gain	90 dB		16 points/90 dB in 20 ns steps, 90 dB/80 ns slope, 220 ns delay of start
Gain linearity	± 2 dB		of full range
Display start mode	IP, IF Start display		display start depending on interface echo in gate I, gate A and B also triggered with interface echo

### Data acquisition

Maximum number of A-scans stored per second	4000	A-scan 512 points with 16 bit amplitude
Maximum number of samples per A-scan	1024	16 bit amplitude

### Gates

Number of gates	3	incl. IF (A, B, I)
Type of detection	2	coincidence or anticoincidence
Measurement mode	3	flank, J-flank, peak
Synchronisation of gates	2	initial pulse or with interface echo in gate I
Start mode	IP, IF Start display	

### Processing

Rectification	4	pos, neg, RF, full
Averaging	1, 2, 4, 8, 16	TOFD: max depth 500 mm in steel

Imagination at work

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