

kVp & mAs DEFINITIONS

kVp: Kilovolt Peak

kVp is the component that controls the QUALITY of the x-ray beam produced. It is also what controls the CONTRAST or GRAY SCALE in the produced x-ray film. The Higher the kVP the LOWER the CONTRAST. When the kV is set on the control console, the maximum kilovolt that will be achieved is the number you have selected. For example, if you set the kVp at “60”, the maximum kilovolt that will be produced is 60 kV, or 60,000 volts. The reason we call it Kilovolts Peak or kVp is, you will also get some voltages that are LESS than the kilovolts peak, or maximum kV set on the control console. You will get some voltages at 58 kV or 59 kV etc.

mAs: Milliamp Seconds

$$\underline{\text{Milliamps}} \times \underline{\text{Seconds (time)}} = \text{mAs}$$

Milliamp (1/1000 of an amp) times(x) **TIME** (in seconds) is what controls the QUANTITY or the AMOUNT of x-ray photons produced.

This is also what controls the BLACKENING or DENSITY on the x-ray film.

To **CALCULATE** the mAs, you multiply mA x s

mA = Milliamp s = seconds (usually in fractions of a sec.)

For example: mA = 200, s = 0.25 (200 x 0.25) mAs = 50 mAs

To get an mAs of 20 you simply multiply an combination of numbers that will come out to equal 20 ex: 200 x 0.1, 40 x 0.5, 20 x 1, etc.

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| 5 mAs = 10 mA x 0.5 sec |
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| 10 mAs = 20 mA x 0.5 sec |
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| 100 mAs = 100 mA x 1.0 sec |
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| 15 mAs = 50 mA x 0.3 sec |
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_____ mA x _____ sec = 60 mAs

_____ mA x _____ sec = 80 mAs

0.5 sec x 25 mA = _____ mAs

0.25 sec x _____ mA = 100 mAs