

Description

Dukane *iQ Series i220* ultrasonic welding system is an integrated machine designed for applications that require less process documentation, yet are built on the robust precision mechanical platform as our full featured machines. Available in 20 kHz power levels from 1200 – 2400 watts. Two main models offer either Time and Energy or Time Energy and Distance options. *i220* offers advanced features like Process Limits, 0.5 ms data acquisition sample rate, and Patented Trigger by Power.

Features

- **100% Digital Control** of all power supply functions and parameters allows for unique configurations and future upgrades or requirements. Includes digital frequency synthesis.
- **Data Acquisition Rate of 0.5 ms** due to advanced multi-core architecture. Increased weld accuracy and repeatability.
- **Amplitude Adjustment** in 1% increments from 20% to 100% through front panel.
- **Linear Ramp Soft-start** algorithm allows the acoustic stack to be brought to operating amplitude smoothly, minimizing start-up surges and abnormal stress to the stack and power supply.
- **Digi-Trac** tuning automatically tracks the resonant frequency digitally. No need to manually tune the generator during every weld cycle. The output frequency adjusts itself to match the acoustic stack (sonotrode booster and transducer).
- **Line and Load Regulation** amplitude is maintained independent of load force and incoming line voltage variations. Through a closed-loop amplitude control, the amplitude regulation maintains output amplitude by correcting for fluctuations in line voltage and output power loading. Maintained within 1% to provide weld process consistency and shorter cycle times.



Easy Alarm is an exclusive feature of *iQ Series*. When system faults and alarms prompt a fault code (i.e. U501). Just enter the code at: www.dukane.com/easyalarm and easy alarm search will provide tips and process improvement information. This expedites solution and reduces down time.

i220 Features

Features Continued from previous page

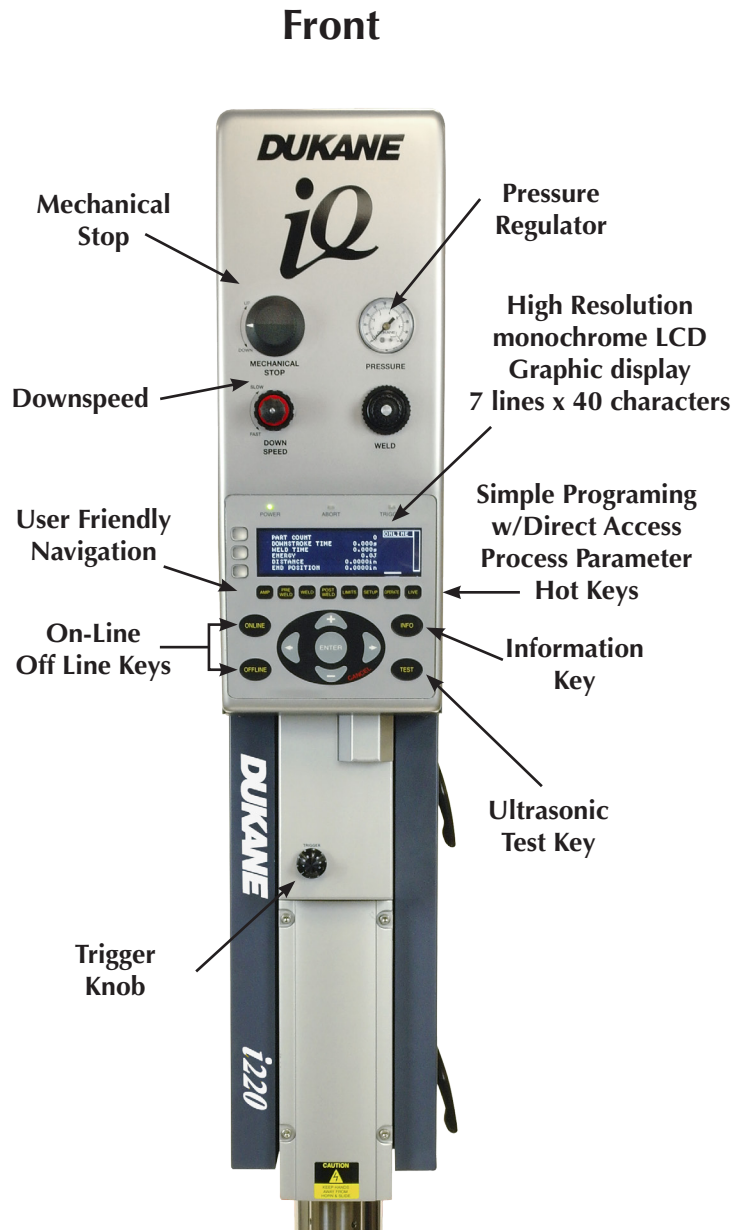
- **Programmable Softstart** and **Softstop** (Patented) amplitude can be used to reduce stress on acoustic stacks, or for high-speed application to achieve full amplitude in as short as 0.010 seconds. Factory configurable settings also available.
- **Stack Scan** feature scans the stack to determine the optimum starting frequency and provides a method for setting the start up frequency (Free Run Frequency).
- **Frequency Tracking** feature improves the consistency of starting an acoustic stack if the frequency of the stack changes significantly over a shift or a day.
- **User-Accessible, Programmable Advanced Hardware** settings allow changes to Free Run Frequency, Frequency Tracking, Frequency Lock/Hold and Frequency Limits, which provides advance settings for difficult acoustic stacks.
- **Afterburst** include delay and duration time settings.
- **Power Display** for checking and monitoring acoustic stack characteristics.
- **Eight Unique Setups** including Process Parameters, Amplitude and Limits.

Distance Module and Linear Encoder

- **Weld by Distance Mode** controls the melt collapse distance to ensure that the same volume of material melts on each part so that the finished joint strength is consistent.
- **Weld by Position** controls the finished part height to yield uniform assemblies.
- **Trigger by Power** (U.S. Patent 7,475,801) Provides more consistent welds by providing a sufficient and repeatable amount of pressure/force to be applied to the part before the weld cycle starts.
www.dukane.com/us/Documents/AppNote/AN506.pdf
- **All Distance Parameters** (weld, total weld, and end weld position distances) are monitored, with upper and lower limits for bad or suspect parts to verify quality and consistency.
- **High Quality Linear Optical Encoder** with a one-micron resolution for excellent precision and repeatability.

Power and Energy Module

- **Weld by Energy Mode** delivers a specific amount of energy to the part to enhance process control.
- **Monitors All Power and Energy Parameters** with upper and lower limits for bad and suspect parts.



- **100% digitally controlled**
- **Linear Ramp Soft-Start**
- **DIGI-TRAC tuning**
- **Line Regulation**
- **Load Regulation**
- **Overload Protection**
- **Complete Dukane compatibility**
- **... and much more!**

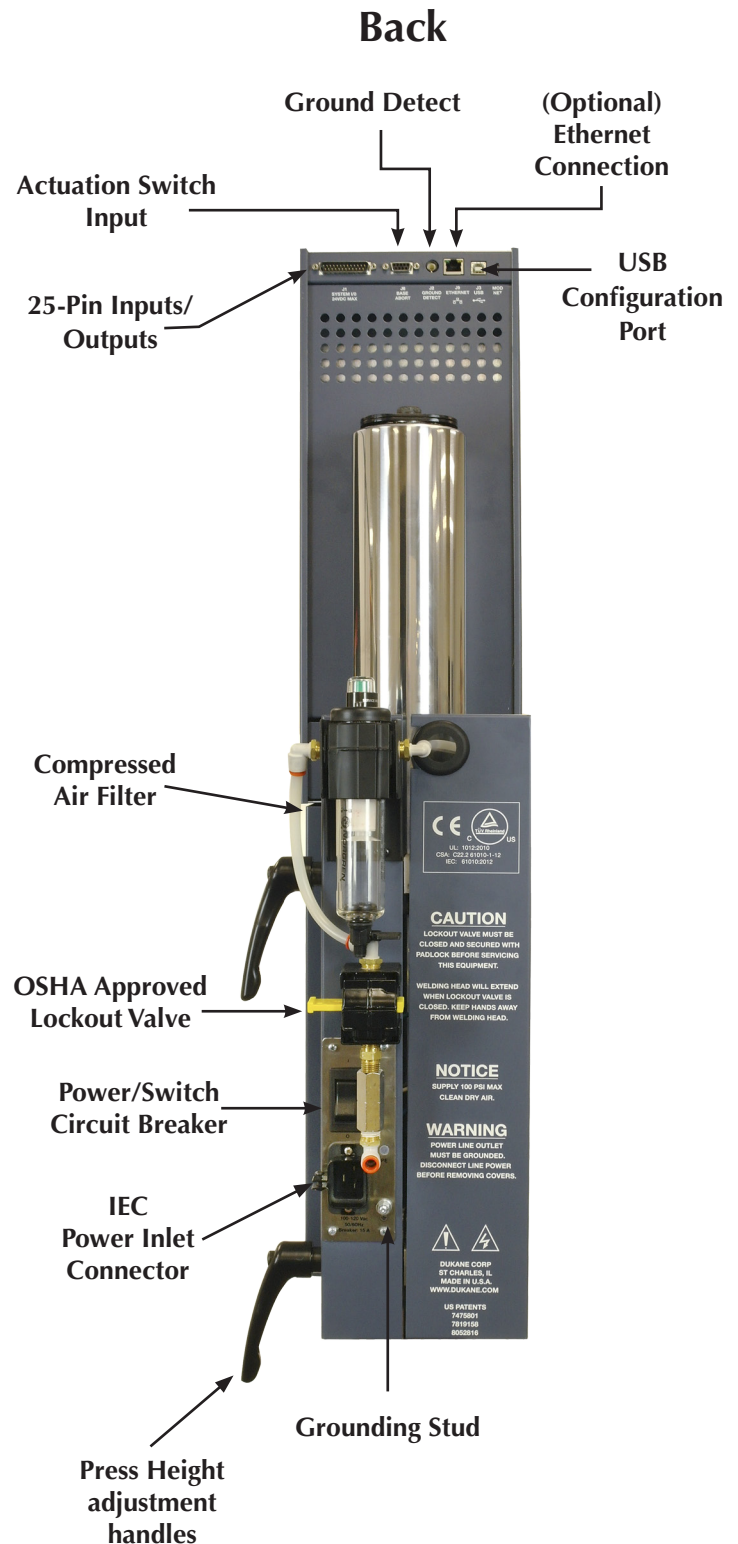
i220 Features

i220 Press Features

- **Rugged Construction** using the highest quality components provides superior performance, precision, and reliability.
- **Compact, Single-Rail Linear Ball Slide Assembly System** offers accurate positioning, stable movement, and friction-free travel.
- **7" (178 mm) Stroke** with mechanical bottom stop adjustable in 0.001" (0.025 mm) increments.
- **Top-of-Stroke Limit Switch** for automation application.
- **All Controls are Accessible From the Front** for convenient set-up and operation.
- **Front Panel Lockout** allows for remote input to lockout all front panel operator controls.
- **Chrome-Plated Column and Titanium Booster** are standard.
- **Internally Mounted Optional Linear Encoder** saves space in multi head and automated installations.
- **OSHA-Required Lockout for Air Supply** is standard.
- **Ergonomic Base and Cycle Activation Switches** reduce operator fatigue.
- **Status Indicators**, In Cycle, and Abort clearly communicate system conditions.
- **Twist-Release Emergency Stop Switch** meets international safety standards.

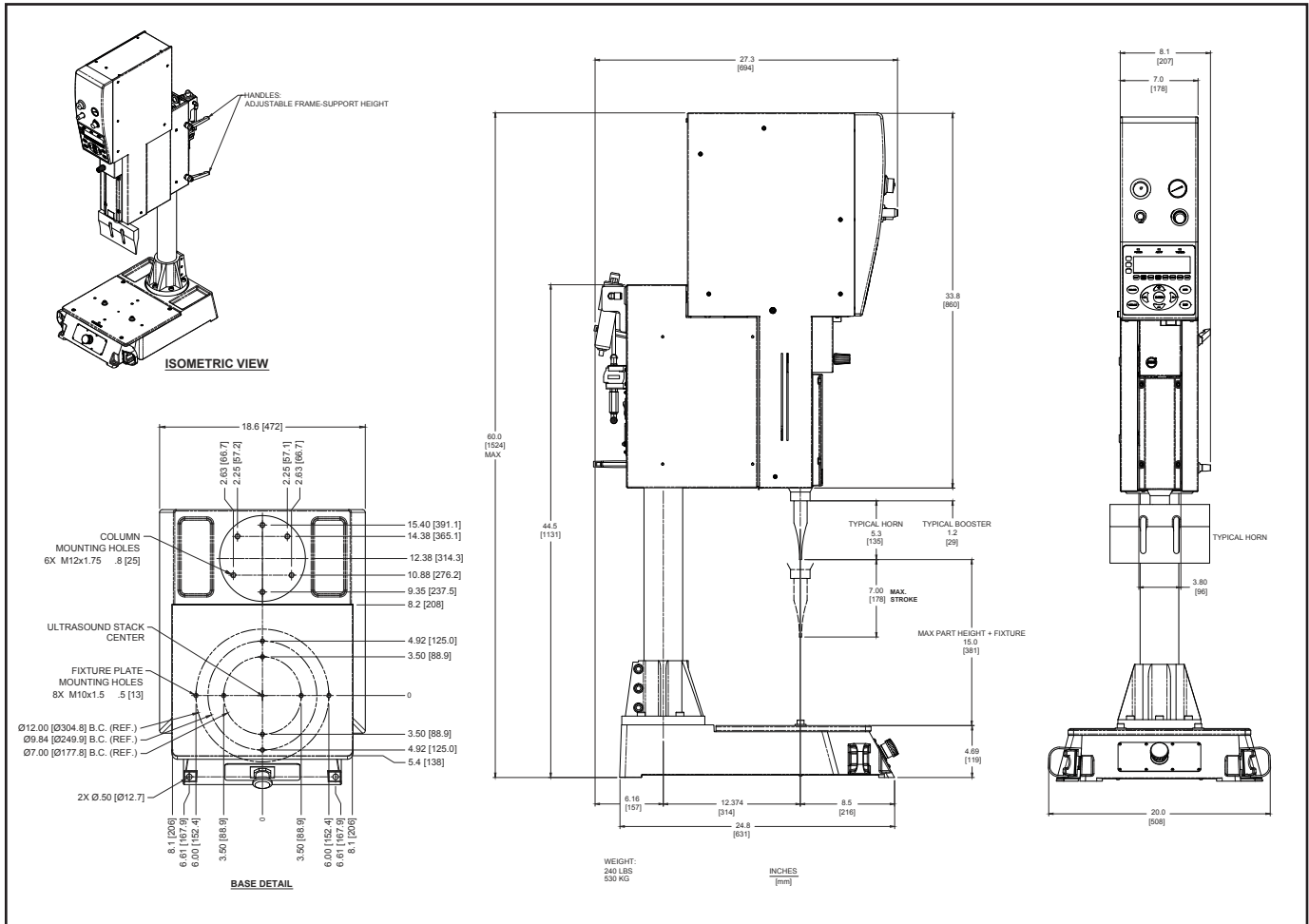
Options

- **Resonant Mount Booster.**
- **Taller Press Columns** to increase part load area height.
- **Custom Air Cylinder** 1.50" (38 mm), or 2.00" (51 mm) and 3.00" (76 mm) diameters.
- **Automatic Buffer** sheet film feeder.
- **Ethernet/IP port** for ease of automation and communication with PLC.



iQ Series

Dimensions



www.dukane.com/us/Documents/Layouts/400-2403.PDF

Dimensions

Press Dimensions	Standard	Press Dimensions	Standard
Base Width	18.58" (472 mm)	Column CL to Horn CL	12.38" (314 mm)
Base Depth	24.83" (631 mm)	Usable Throat	8.00" (200 mm)
Base Height	39.00" (991 mm)	Stroke	7.00" (178 mm)
Column Diameter	3.50" (89 mm)	Weight	240.00 lbs (530 kg)
Maximum Height	60.00" (1530 mm)	Housing Width	7.00" (178 mm)

Model (20 kHz)

Power/Frequency/Profile	1200 W	2400 W
20 kHz	X	X
Maximum Current	110-120V 50/60 Hz @ 15 amps	200-240V 50/60 Hz @ 15 amps
1200 W fixed cord 100-120 VAC	1200 W model also available in 200-240 VAC @ 8 amps	

Note: All specifications are subject to change without notice. Please consult Dukane for any updated information.