

# HIGH FREQUENCY PROJECTION WELDING MACHINE

MHFPW-series

## Introduction:

**MHFPW** series of load compatible high/medium frequency projection welder machines are available in more than 100 different models (50 -50,000 ampere/ 400 to 15,000Hz). Virtually offering all welding solutions to ferrous and non-ferrous metal. This welding machine is used for hermetic sealing in a number of industries, semiconductor packaging, hybrid circuits, crystals, surface acoustic wave devices, medical implants, burst discs, relays, connectors, batteries, electro-optical devices, microelectromechanical systems, sealed compressor feed-throughs, automotive airbag burst discs to man-rated (safety/life-critical) electronic components used in space missions, sheet metal, chassis mfr., home appliances,semiconductors, heavy electrical engineering, aerospace, other applications like semiconductor packaging, hybrid circuits, crystals, surface acoustic wave devices, medical implants, relays, connectors, batteries, electro-optical devices, microelectromechanical systems, sealed compressor feed-throughs, etc.

## Operating Principle:

Projection welding are ultra low dynamically self adjusting output impedance machine to ensure uniform/consistent heat profile across weld to make up with 3-20 time varying weld impedance which is the main requirement for hermitically sealing joint's which minimize /eliminates, weld-metal expulsion, thereby eliminating PIND failures. Further low output impedance improves energy efficiency by more than 25 percent/low reactive power apart from saving welding material. ultra low time constant ensure meeting fast varying weld current demand. These projection-welding machine behave like capacitor discharge welding machine at larger weld current/high frequency . In these projection welding machine, heat is generated by passing high current at moving high resistance weld point. Amount of heat generated is the function of weld current, weld resistance, contact pressure, welds area etc. Effectively a good weld joint is achieved when optimal melt of weld is fused at a specific rate under external applied pressure.

$$I_{melt} = KxR^{-1.8}(f,D,T)^{0.8}XV(P.D.F)A.t \quad f = \text{frequency, } D = \text{density } R = \text{weld resistance, } A = \text{weld area, } t = \text{weld time, } I_{melt} = \text{max.weld current}$$



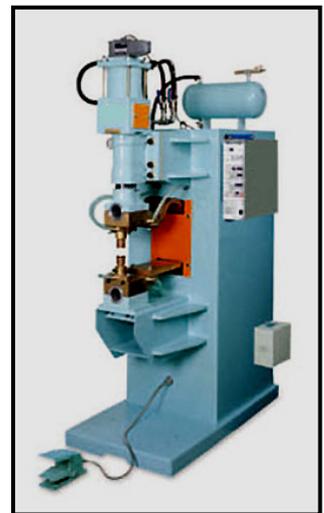
MHFPW-1500350



MHFPW-2500350



MHFPW-0750300



MHFPW-1000300

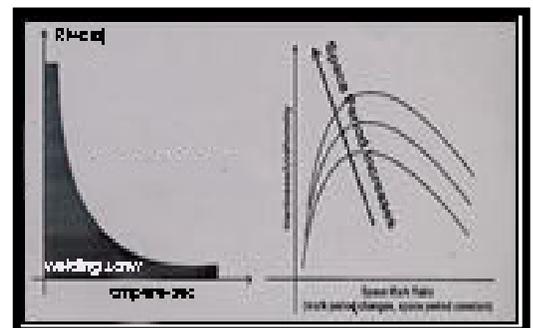
## SPECIFICATIONS OF HIGH FREQUENCY PROJECTION WELDING MACHINE Duty cycle:50 Power range<500.0 K.Watts

Model	Power V.A.	Current Amps	Welding speed/motor power/	Electrode pressure(K.N.) / Stroke	Weld metal/ /LPM	Model	Power V.A.	Current Amps	Welding speed m/s/motor power(W/V)	Electrode pressure(K.N.) / Stroke	Weld metal/ /LPM
MHFPW-0150060	01,500.0	000600.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-0300040	030,000.0	018000.0	0.5-2.5/(220,100)	2.5/ 50	M.S./S.S./ other/3-12
MHFPW-0250010	02,500.0	001000.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-0500060	050,000.0	200000.0	0.5-2.5/(220,100)	3.5/ 50	M.S./S.S./ other/3-12
MHFPW-0030020	03,000.0	002000.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-0750080	075,000.0	250000.0	0.5-2.5/(220,100)	4.5/ 50	M.S./S.S./ other/3-12
MHFPW-0060040	006,000.0	004000.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-1000300	100,000.0	300000.0	0.5-2.5/(220,100)	6.5/ 50	M.S./S.S./ other/3-12
MHFPW-0100060	010,000.0	006000.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-1500500	0150,000.0	500000.0	0.5-2.5/(220,100)	7.5/ 50	M.S./S.S./ other/3-12
MHFPW-0120080	012,000.0	008000.0	0.5-2.5/(220,050)	1.5/ 50	M.S./S.S./ other/3-12	MHFPW-2500350	0250,000.0	800000.0	0.5-2.5/(220,100)	12.0/ 50	M.S./S.S./ other/3-12
MHFPW-0250150	025,000.0	015000.0	0.5-2.5/(220,100)	2.5/ 50	M.S./S.S./ other/3-12	MHFPW-4000350	0400,000.0	950000.0	0.5-2.5/(220,100)	15.0/ 50	M.S./S.S./ other/3-12

Three numerals x 100 after MHFPW indicates voltage of power supply and last three digit Indicates current.All dimensions are in inches/Efficiency of welding machine raises as current increases. Welding equipment above 200 amps are water cooled.

## HIGH FREQUENCY PROJECTION WELDING MACHINE CONTROLLER SPECIFICATION:

Operating voltage 220 volts, 1/3 phase, 40-60 Hz  
 Output current/voltage 0-80 kilo amps/20000 mili volts(max)  
 Voltage/current ripple 10 micro volts-noload/ 100 micro volt-full load  
 Output impedance: 1/1000 of load/Operating frequency : 5.0-200 K.Hz(MAY BE AMENDED)  
 Voltage/current control accuracy 99.9% of set point  
 Resolution 0.1 volts/amps D.C.  
 Repeatability 100 percent  
 Response time 10-100 micro-seconds  
 Interface Signal 0.0-12.0 volts D.C. [proportional to weld current]  
 Current control range 0-100%  
 Space mark ratio 1:3 to 1:9(option)  
 Weld density: 1.0-1.2 mm/10,000 amps  
 Control options 1.cascade feedback control with soft start  
 2. Constant voltage/current with external adjustment. /pulse mode  
 Display Voltage/current/ampere-sec/joule 3½ red glow LED display  
 Protection over voltage/short ckt. Interface: RS-232  
 Additional: RS-232 /Synchronous operation



## MOTORON SEMICONDUCTORS CORPORATION

11, Shri nagar colony, Shakti nagar extension, DELHI-110052. Tel: 011-23655454/23648181  
 motoronenergy@hotmail.com