

SPOT WELDING MACHINE

(NON-FERROUS)

MPSWM-series

Introduction:

MPSWM series of high/medium frequency spot welder machines are available in more than 100 different modes (50 - 25,000 ampere in various frequency ranges from 400Hz to 15,000Hz. Virtually offering all welding solutions to ferrous and non-ferrous metal. These find wide applications in automobile, medical, forging, continuous casting, aerospace, and many research & development applications.

Operating Principle:

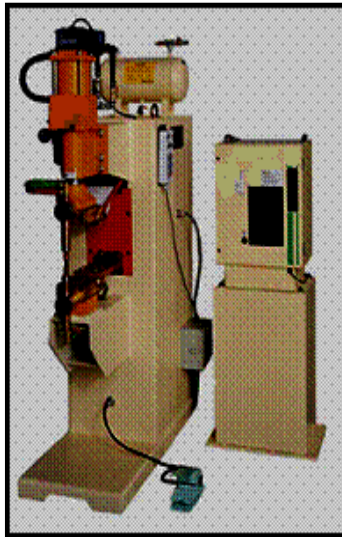
Spot welding machine are low dynamically self-adjusting output impedance machine to ensure uniform/consistent heat profile across weld to make up with 3-8 time varying weld impedance, which is the main requirement for spot welding application to minimize /eliminates, weld-metal expulsion, thereby eliminating PIND failures. Further low output impedance improves energy efficiency by more than 25 percent/low reactive power apart from saving welding material. Fast control action/low-electrical time constant ensure meeting fast varying weld current demand. If one closely understands then spot welder behaves like capacitor discharge welding machine at larger weld current above 5,000 amperes/larger welding thicknesses giving almost better spot finish/low thermal loading (2-3 x 10⁶ K/sec).In spot welding machine, heat is generated by passing high current at 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. Fast/accurate control system ensure uniform spread of current in weld target.

$$I_{melt} = K \times R^{-0.9} (f, d, T)^{0.8} \times P^{1.6} \times A \times t$$

f = frequency, D= density R= weld resistance , A= weld area, t= weld time, Imelt=max.weld current



MPSWM-0060040



MPSWM- 0160100



MPSWM-0350200

SPECIFICATIONS OF HIGH FREQUENCY SPOT WELDING MACHINE

Duty cycle:50 Power range<500.0 K.Watts

Model	Power V.A.	Current Amps	length/head/ holding of electrode	Depth pressure/ Electrode Stroke	Electrode arm/LPM	Model	Power V.A.	Current Amps	length/head/ holding electrode-m.m.	Depth pressure/ Electrode Stroke m.m.	Electrode arm/LPM
MPSWM-0006005	00,600.0	000050.0	380/02/25	00050/60	50×010/0	MPSWM-0060040	006,000.0	004000.0	380/08/25	01000/60	50×100/5
MPSWM-0007007	00,700.0	000075.0	380/02/25	00100/60	50×012/0	MPSWM-0100060	010,000.0	006000.0	380/10/25	01500/60	50×120/5
MPSWM-0007010	00,800.0	000100.0	380/02/25	00100/60	50×015/0	MPSWM-0120080	012,000.0	008000.0	380/12/25	02000/60	50×150/5
MPSWM-0008025	00,800.0	000250.0	380/02/25	00100/60	50×020/0	MPSWM-0160100	016,000.0	010000.0	380/15/25	02000/60	50×180/5
MPSWM-0100040	01,000.0	000400.0	380/02/25	002000/60	50×030/2	MPSWM-0250150	025,000.0	015000.0	380/16/25	02500/60	50×200/5
MPSWM-0120050	01,200.0	000500.0	380/02/25	003000/60	50×040/2	MPSWM-0300180	030,000.0	018000.0	380/20/25	04000/60	50×200/5
MPSWM-0150060	01,500.0	000600.0	380/03/25	004000/60	50×040/3	MPSWM-0350200	035,000.0	200000.0	380/25/25	06000/60	50×200/5
MPSWM-0200080	02,000.0	000800.0	380/04/25	000500/60	50×050/4	MPSWM-0400250	040,000.0	250000.0	380/30/25	07500/60	50×250/6
MPSWM-0250010	02,500.0	001000.0	380/05/25	000600/60	50×050/5	MPSWM-0750300	075,000.0	300000.0	380/35/25	09000/60	50×300/8
MPSWM-0030020	03,000.0	002000.0	380/06/25	000700/60	50×060/5	MPSWM-1500350	0150,000.0	350000.0	380/40/25	10000/60	50×350/8
MPSWM-0045030	04,500.0	003000.0	380/07/25	000800/60	50×080/5	MPSWM-2000500	200,000.0	500000.0	380/45/25	15000/60	50×350/8

Three numerals x 100 after MPSWM indicates wattage of welding machine 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 Above specification shall relatively alter w.r.t. copper for other non-ferrous metal/alloys

MOTORON SEMICONDUCTORS CORPORATION

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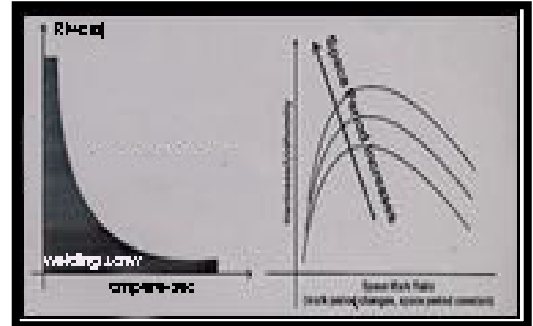
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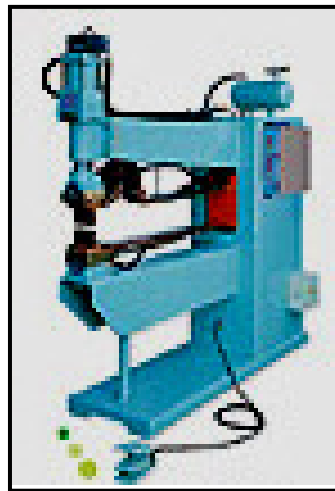
MPSWM-series

HIGH FREQUENCY SPOT WELDING MACHINE CONTROLLER SPECIFICATION:

Operating voltage 220 volts, 1/3 phase, 40-60 Hz/battery operated
 Output current/voltage 0-80 kilo amps/20000 mili volts (max)
 Voltage/current ripple 10 micro volts-noload/ 100 micro volt-full load
 Operating frequency 5.0-200 K.Hz
 Voltage/current control accuracy 99.9% of set point
 Resolution 0.1 volts/amps D.C.
 Repeatability 100 percent
 Response time 0.5 -1.1 mill-seconds
 Interface Signal 0.0-12.0 volts D.C. [proportional to energy]
 Voltage control range 0.0-8.0 kilo volts
 SPACE-MARK RATIO 1:3 to 1:9(option)
 Control options 1.cascade feedback control with soft start
 2. Constant voltage/current with external adjustment.
 Display Voltage/current/gauss/space mark/amp-sec
 3½ red glow LED display
 Protection over voltage/short ckt.
 Additional: RS-232



MPSWM--1500350



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MPSWM—1500350

Dimension of HIGH FREQUENCY SPOT WELDING MACHINE

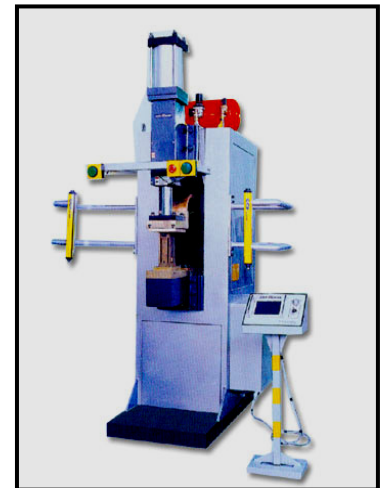
Common High Frequency Spot welder dimension:

MPSWM-0000605	08X06X06	MPSWM-0100060	14X12X12
MPSWM-0100040	10X06X06	MPSWM-0120080	16X14X24
MPSWM-0030020	12X08X08	MPSWM-0300180	18X16X36
MPSWM-0045030	12X10X10	MPSWM-0750300	20X18X48
MPSWM-006040	14X08x08	MPSWM-2000500	22x20x20

Three numerals after MPSWM indicates wattage of spot welder/and last three-digit Indicates current. All dimensions are in inches

Note: First four numeral after product code MPSWM indicate kilowatt and last numeral indicate kilo Hz.

Power range<500.0 K.Watts



MPSWM-2000500

Spot welder for flat surface/microwave oven

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