Seam Welding Machine

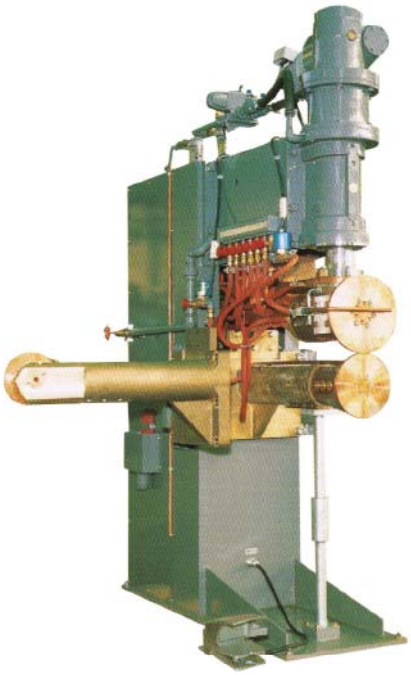
TSM

NAS TOA

BRITISH FEDERAL

our product

Seam Welding Machine

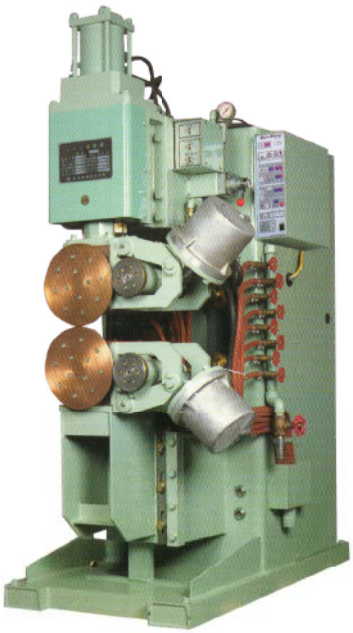


RCG/RLG/RUG
Low-input Seam Welding Machine

A.C. Inverter Control Devices
AIT-846-3B

RCK.100A/RCG.100A
Circular type
Low-input Seam Welding Machine

Contactor
TC-3C



RCK.115W/RCK.155W
Circular type
Low-input Seam Welding Machine

Microprocessor Weld Timer
TNS-815V2

A.C.Inverter Control Devices
AIT-826-3B, AIT-846-3B

Specifications: A.C. Inverter Control Devices

Model		AIT-826-3B	AIT-846-3B
Input power source	Voltage (Three phase 50/60Hz)	200 / 220V ±10%	400 / 440V ±10%
Output	Voltage (1 phase)	300V (Crest value at time of 220V input	600V (Crest value at time of 440V input
	Rated capacity	214kVA	429kVA
	Maximum capacity	240kVA	480kVA
	Frequency	50/60Hz Automatic setting #1	
	Current / Approved activity ratio	800A/40%	
Current Control		Primary constant current #2	
Setting of welding condition		127 conditions	
Electrification mode		Intermittence,Strength, Continuation 3 sorts	
While welding the control which can be changed from outside		Welding condition (127 conditions)	
		Welding on/off	
		It can increase and decrease electric current with the analog signal	
Rool spot mode		Possibility (One-shot electrification)	
Principal setting range	Welding current 1.2	400~9990A/2.0~80.0kA	
	Welding time 1.2	0~99 cycle	
	Cooling time 1.2	0~99 cycle/0.000~2.000 second	
Repeatability accuracy		±3% of largest electric current of welding machine	
Setting accuracy		±5% of largest electric current of welding machine	
Solennoid valve drive output		AC100V/DC24V 2 circuits	
Amount of cooling water		5L/min	
Mass		63kg	
Dimensions (WxHxD)		460 x 850 x 360mm	
Accessory		Program Box TP-70	
		Cable for program box CBB-05B	

#1 With manual operation it can set frequency to maximum of 180Hz.

#2 Constant current control is possible even on downstream with the installation of Toroida coil. (Optional)

- *The electrode drive control circuits is not built in, preparation you ask with the customer.*

- *High quality actualizing welding*
  Spattering control effect
  Showing power in the plated steel sheet
  Strength electrification of welding current is possible
- *Automation correspondence*
  While change of 127 conditions welding, possibility.
  Welding current can be control long way by analog signal
- *Improvement of welding speed*
  Can be cooling time control 'mm/second' short 1 cycle
- *Decrease of Flicker*
  Three phase circuits balance input

Microprocessor Weld Timer
TNS-815V2

Specifications: Microprocessor Weld Timer

Model		TNS-815V2	
Standard set of current control		Constant current control by secondary feedback	Constant current control by primary feedback
Maximum welding schedules		15	
Welding current control		Intermittence, Strength and Contination	
While welding the control which can be changed from outside		#2 Welding schedules (15 channels) While welding the control which can be changed from outside	
Analog output of welding current		0~10VDC #2	
Main setting range	Current 1.2	0.1~49.9kA	
	Weld time 1.2.3	0~99 cycles	
	Cool time 1	0~9 cycles	
	Cool time 2	0~99 cycles	
Constant current control accuracy		±4% of welding largest electric current Speed of response, 1 cycle	
Output for solenoid valve		AC 100V 0.5A / AC 200V 0.5A	
Power supply	Control	90~110V ±10% 50/60Hz / 190~210V ±10% 50/60Hz	
	Welding	160~240V/320~480V 50/60Hz	
Mass		5.2kg	
Dimensions (WxHxD)		106x350x275mm	360x106x275mm
Toroidal coil		1	-

#1 It can do welding by secondary constant current with the installation of toroidal coil. (Option)

#2 The installation of the separate baseplate is necessary. (Option)

- *As for the electrode drive curcuit it is not built in to the Micro-Computer control devices and Contactor. Preparation you ask with customer.*

- *Automation correspondence*
  While welding, change of 15 conditions is possible
  From long way electric current adjustment is possible with analog input.(option)
  Analog output of measurement electric current is possible. (option)
- *It corresponds to wide-ranging work*
  Electrification mode passes 3, strength, intermittence and continuation
- *Registration data are defended from wrong operation*
- *Easy operation*

Contactor TC-3C

Specifications: Contactor

Model		TC-3C
Power supply (single phase)	—	200/220/380/400/440V 50/60Hz
Thyristor		Esize
Amount of cooling water		4L/min
Mass		14kg
Dimensions (WxHxD)		365x480x314mm

RCK-100A/RCG-100A

Transverse-type low-input
Seam Welding Machine

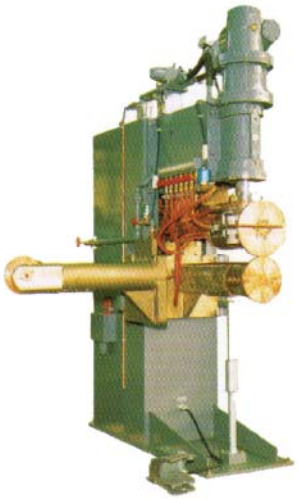
RCK-100A/RCG-100A

- Because it is constructed with low-Impedance Welding Transformer, the input capacity is small thus electric power can be saved.
- In case of material change to be welded, gear or knurl drive method can be selected.
- In case of small R-part welding, small-diameter electrode and lower gear drive method can be adopted

RCG/RLG/RUG

Universal-type
Seam Welding Machine

RCG/RLG/RUG

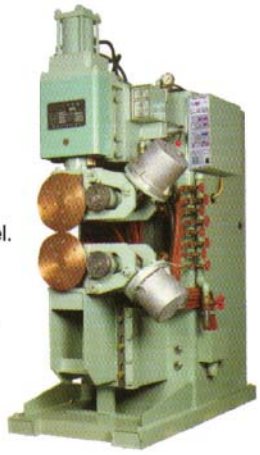


- Circular-type, longitudinal-type and both-type are provided
- RCG is circular-type, RLG is longitudinal-type and RUG is universal-type
- As the opening dimensions is large, wide and long work-piece can be welded. Longitudinal-type is applicable for vertical welding bodies of oil-drum and spray etc.
- The center drive system dose not expose the drive device

RCK-115W/RCK-155W

Transverse-type Internal Water-cooled
Seam Welding machine

RCK-115W/RCK-155W



- This type is applicable for mild-steel and not only zinc-coated but also various galvanized steel.
- Because of Internal water-cooled method, external water, cooling is not necessary thus clean working environment can be obtained.
- "Because the electrode is thin, a high quality welding with narrow bead can be implemented."
- The surface of the electrode is always dressed and forged by the driving knurl.
- The upper and lower electrodes are driven by knurl method through diferential gear.

RCK-100A/RCG-100A

Specifications

Model			RCK-100A		RCG-100A	
Rated capacity		kVA	100			
Rated Input Voltage		V	1 ø200/400			
Rated frequency		Hz	50	60	50	60
Max.input		kVA	100	115	100	115
Max.Welding Current		A	20,000			
Rated Duty Cycle		%	40			
Max.Electrode force		N	5,880			
Throat	Throat Depth	mm	250			
	Throat Opening	mm	125			
Stroke Normal	Stroke Normal	mm	20			
	Stroke Full	mm	120			
Welding Speed (by standard size)		m/min	0.8~2.7	1.0~3.3	1.0~3.4	1.2~4.0
Electrode drive method			Upper/Lower knurl drive		Upper gear drive	
Electrode wheel	Upper	øXt	ø250 x 12t			
	Lower	øXt	ø200 x 12t			
Amount of cooling water		L/min	35			
Mass		kg	820			
Dimensions		mm	1.950 x 720 x 1,300			
Max.Welding Capacity		mm	1.6t x 2			

(1) In addition to the above 3 phase 200V (about 1.5kVA) is necessary for motor drive.

RCG/RLG/RUG

Specifications

Model			RCG-150V1		RLG-150V1		RUG-150V1	
Rated capacity		kVA	150					
Rated Input Voltage		V	1 ø200/400					
Rated frequency		Hz	50	60	50	60	50	60
Max.input		kVA	177	200	177	200	177	200
Max.Welding Current		A	23.000					
Rated Duty Factor		%	30					
Max.Electrode force		N	9,800					
Throat	Throat Depth	mm	700 / 570					
	Throat Opening	mm	80 / 70					
Stroke Normal	Stroke Normal	mm	30					
	Stroke Full	mm	95					
Welding Speed		m/min	0.8~3.0					
Welding Speed (by standard size)			Upper gear drive					
Electrode wheel	Upper	mm	ø250 x 12t					
	Lower	mm	ø200 x 12t		ø160 x 12t		—	
Cooling water		L/min	40					
Mass		kg	1,350				1,430	
Dimensions		mm	2,100 x 700 x 1,600				2,100 x 1,100 x 1,610	
Max.Welding capacity		mm	2.0t x 2					

RCK-115W/RCK-155W

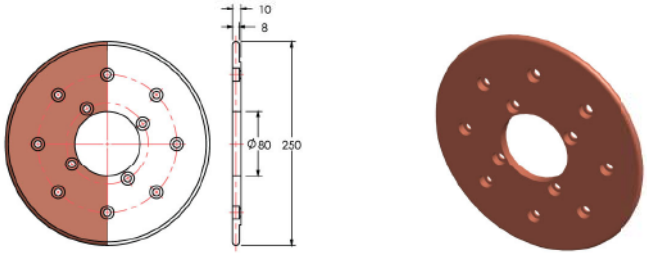
Specifications

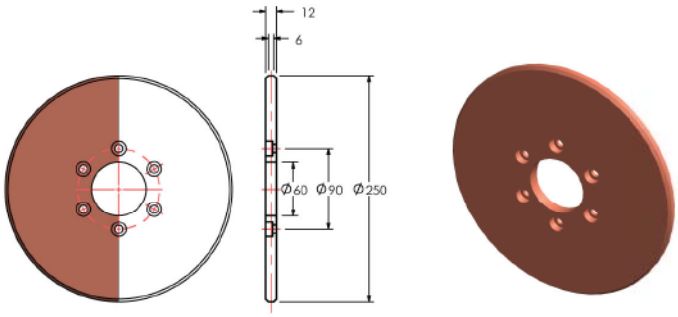
Model			RCK-115W		RCK-155W	
Rated capacity		kVA	115		155	
Rated Input Voltage		V	1 ø200/400			
Rated frequency		Hz	50	60	50	60
Max.input		kVA	115	138	155	185
Max.Welding Current		A	20,000		23,000	
Max.Electrode force		N	5,880			
Rated Duty Cycle		%	50			
Throat	Throat Depth	mm	350			
	Throat Opening	mm	90			
Stroke Normal	Stroke Normal	mm	20			
	Stroke Full	mm	120			
Welding Speed (by standard size)		m/min	1.2~5.0			
Electrode drive method			Upper/Lower knurl drive			
Electrode size Upper/Lower		mm	ø250 x 8t			
Amount of cooling water		L/min	40			
Mass		kg	1,300			
Dimensions		mm	1,950 x 970 x 1,310			
Max.Welding Capacity		mm	1.6t x 2			

our product

Wheel Electrodes for Seam Welding

Standard Drawing





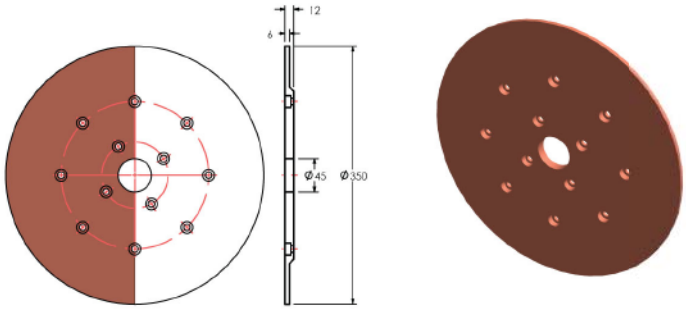
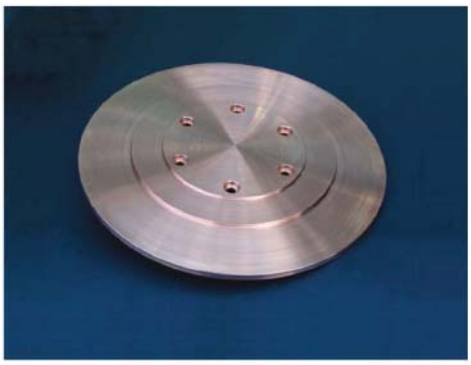


Table for Specification of Wheel Electrodes

Thickness wheel	8, 10, 12, 15, 16, 20
OutDia of wheel	Ø 30 ~ Ø 450
Material	Crcu • BeA-50 • EK-2 • Cz-5 EKB-50 • EKB-25



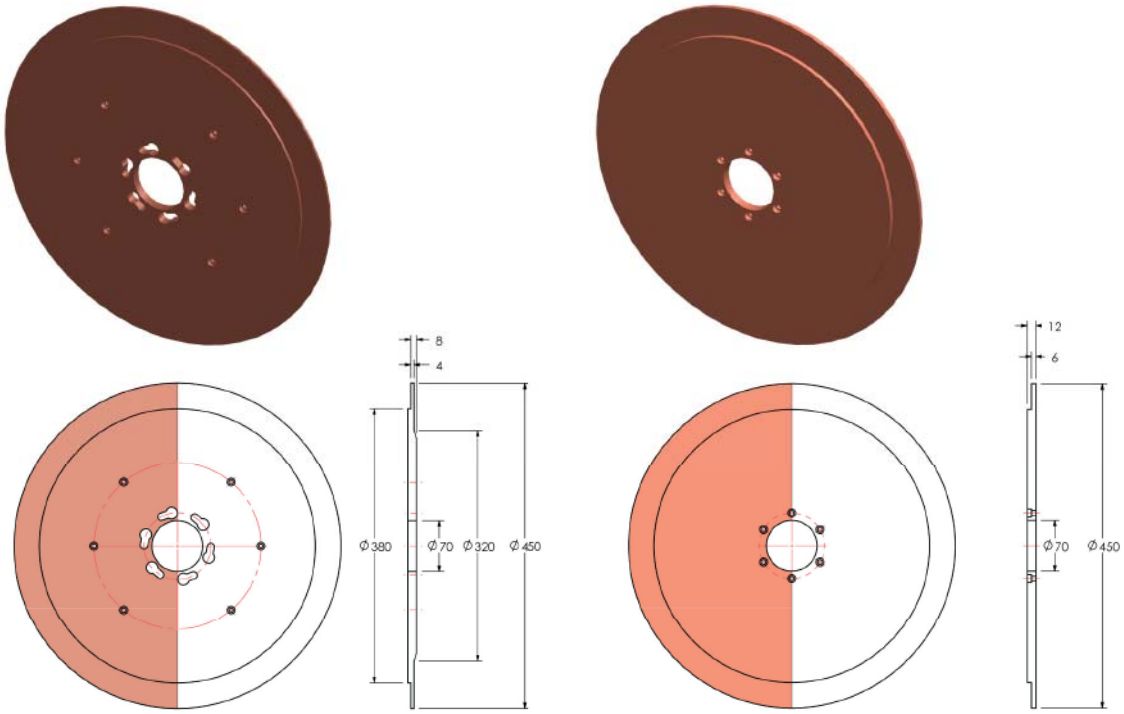
Fuel Tank of Automobile
All kinds of Tank

Chimny Tube & Pipe
Shock-absorber
Wheel House of Automobile
Heat Panel & Radiator Panel
Sink of Kitchen, Bath-tub

our product

Wheel Electrodes for Seam Welding

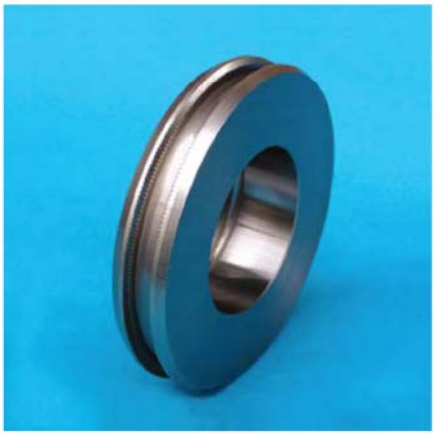
Standard Drawing



our product

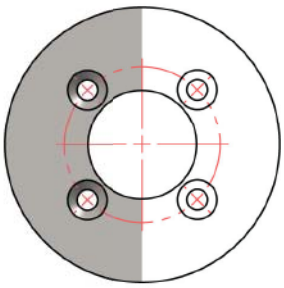
Knurl for Seam Welding

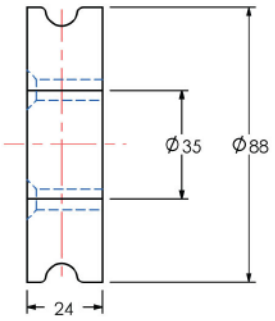
Special knurl combined with drive function and forming function gives rotation to Electrode by pressing tip of R section of Electrode.

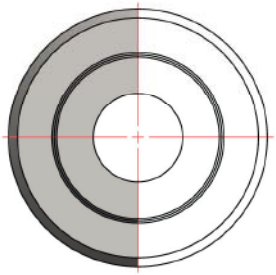


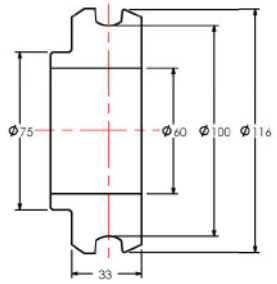
Material SuJ-2

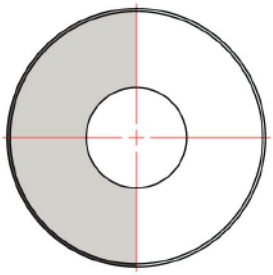
Standard Drawing

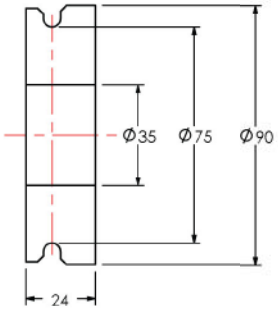


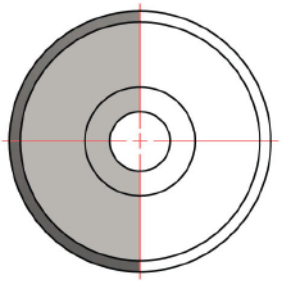


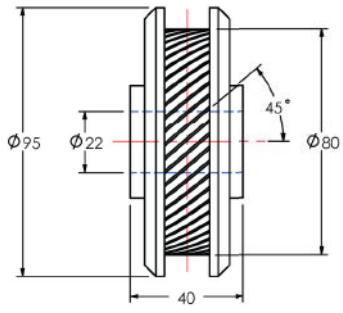












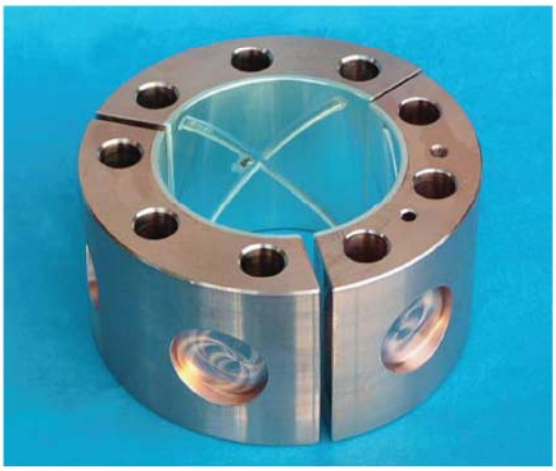
Knurl Drive

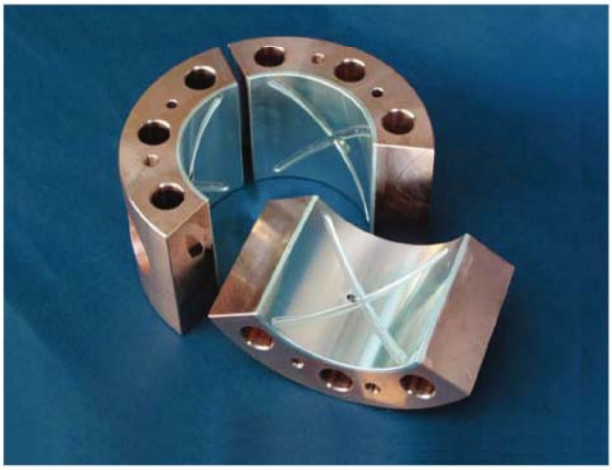
The knurl which is driven by a motor is pressed against to periphery of the electrode wheel to drive. When the diameter of the electrode wheel is changed, the welding speed remains constant.

our product

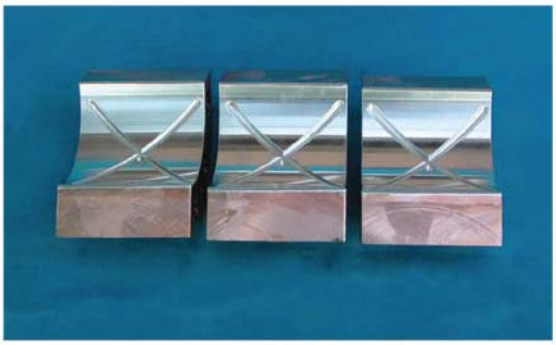
Silver Contact for Seam Welding

Current supply section of Brush is the section which is most deteriorated section by corrosion and abrasion. In case of repair work by TSM Welding, it is sufficiently grinded after replacement of Silver plate and fully adjusted surface of grinding section.

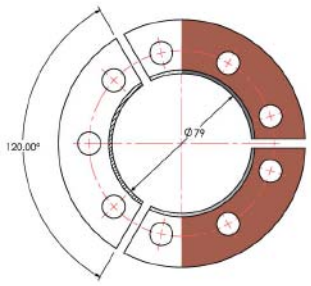


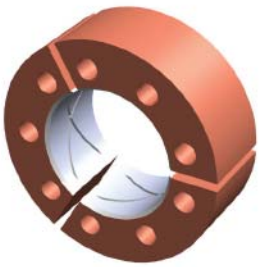


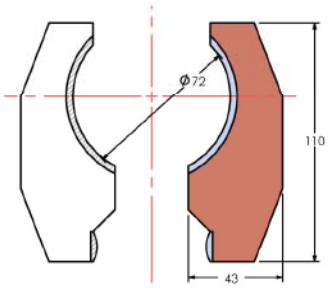
Material Cu+Ag plate

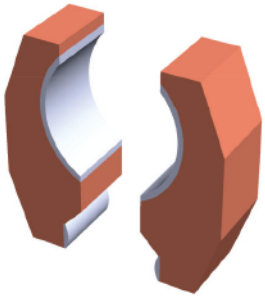


Standard Drawing



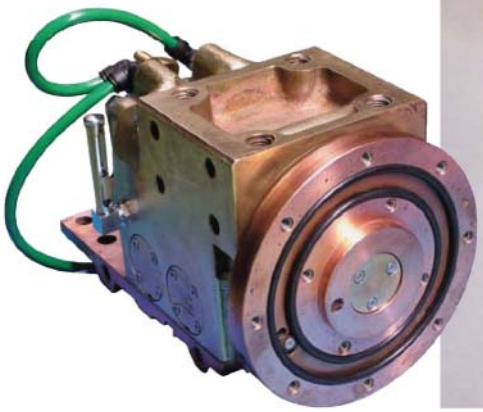






our product

Seam Head



Overhaul for every manufacturer's seam head are acceptable

1. Repair of Rolling electrode shafts and current supply section of Brush.
2. Replacement of Bearings, Insulation parts and packings.
3. Replacement of Cooling water tube.
4. Adjustment of current supply section and try out.

Seam head for Seam Welder
Oil bathType by Dengensha Mfg.Co.,Ltd.

our product

DN Oil & DN Grease for Seam Welding

Grease dedicated to Welding Machine Electrode

Features

- Stable against temperature variations. Providing constantly smooth lublication
- Acting as a thin layer in use
- Cleaning effect on the lubrication points
- Its gelation property eliminates local ununiformity
- No damage (e.g.corrosion, rusting) to mechanical parts.
- Smooth energization offered
- Low in solid and ash content
- No chemical change induced by oxygen and enzyme in air

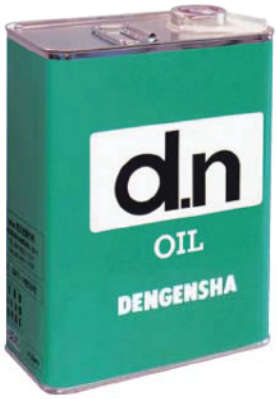
Use and Advantages of This Product

DN grease is primarily used for lubrication between the shaft and the electricity feeding shoe of the rotating electrode head in seam welding machines. Since the rotating electrode head is a mechanism that bears heavy stress in supplying a large current and transferring applied pressure while rotating, lubrication is very important. DN grease, whose state is that of a consistent paste, works as a solid lubricant when the head temperature is low to prevent wearing of the contact surfaces that feed electricity. DN grease works as lubricating oil when the temperature at the electricity feeding point reaches the dropping point. Another advantage of DN grease is that it does not corrode the metal of the head. In light of these factors, DN grease is the most suitable grease for maintaining the functions of the rotating electrode head.

Oil dedicated to Seam Welding Machine Electrodes

Features

- Maintenance-free, What's more, suitable for a large current and high-speed rotation
- Developed as an oil exclusively for seam electrodes, it keeps sliding surfaces clean, providing stable secondary current.



our product

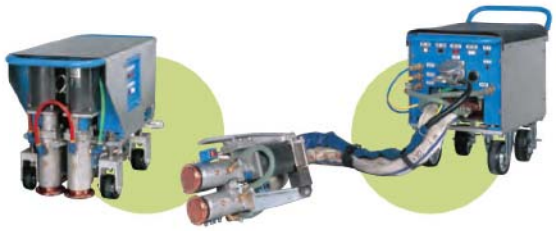
Seam Welding Machine

Seam Welding machine with controller

Auto Seam Welding

- Robot Seam Welding
- Wire Seam Welding

Small Seam (self moving)



SE-V Vertical Seam Welding Specification

	(kVA)	(%)	(A)	(kN)	(mm)
SE-V90	90	50	20,000	5.9	1.6t×2
SE-V150	150	50	25,000	8.8	2.8t×2
SE-V200	200	50	30,000	9.8	

1~4m/min

SE-U Horizontal Seam Welding Specification

	(kVA)	(%)	(A)	(kN)	(mm)
SE-U90	90	50	20,000	5.9	600
SE-U150	140	50	20,000	5.9	1,000
SE-U180	180	50	25,000	9.8	600

1~4m/min

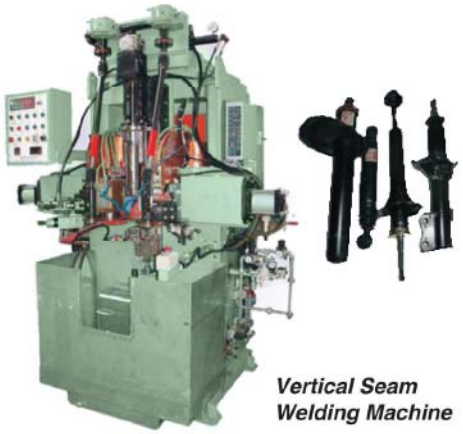
our product

Machinery for Brake Shoe

Seam Welding Machine (semi-automatic type)

our product

Machinery for Shock Absoreber



Vertical Seam Welding Machine

our product

Machinery for Fuel Tank

Seam Welding for Fuel Tank

NC Seaming Machine

our product

Lap Seam Welders

Application: Twin Lap Seam Welding for Front and Rear Roof Joining of HCV Cab

Application: Lap Seam Welder for coil joining for steel industry

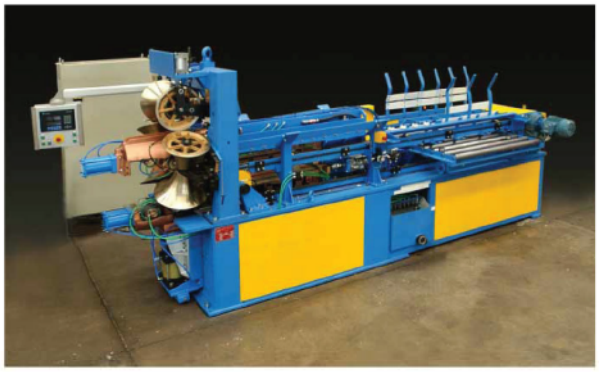
- Sheet thickness: 0.18 to 3.2mm
- High force clamping system
- Rollers for loading and trailing side (Entry and Exit) (Optional)
- ISO - Pneumatic components
- Controller - PLC
- Drive : AC motor (Brake) with Reduction gear box & Variable Frequency Drive (VFD)
- Auto programme selection through selection switch for different sheet thicknesses
- Automatic change in weld force, as per sheet thickness, weld current & linear welding speed
- Interfacing with steel roll mill line
- Centralised lubrication system
- Air jet cooling for weld wheel
- Sheet centring unit (Optional)

our product

Drum Welding Machine

FW720/800

- Automatic roll-forming and seam welding
- Dual wheel drive for high volume production
- Optional three phase balanced load electrical power source

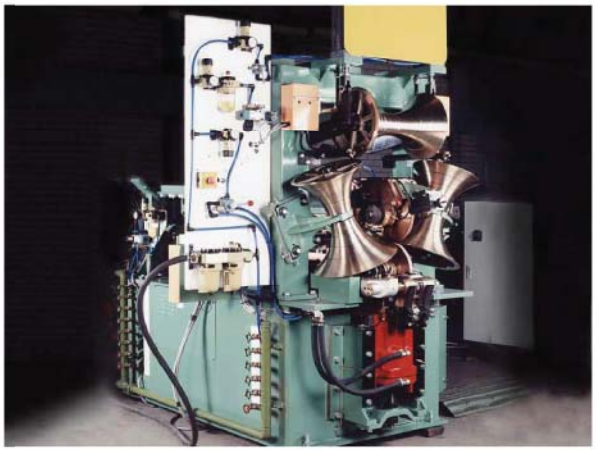


FW500

- Automatic roll-forming and seam welding
- Single wheel drive for lower production requirements
- Optional single phase AC or DC or balanced three phase power source

FW250

- Semi-automatic seam welding of pre-rolled bodies
- Weld quality as per automatic machine
- Optional single phase AC or DC

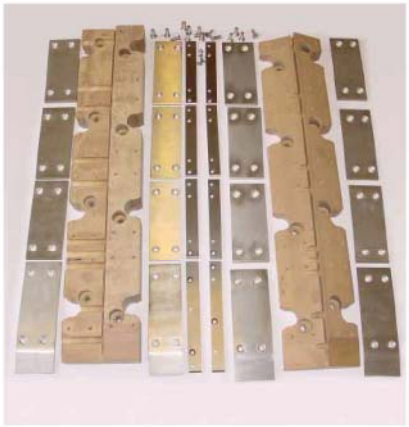


FEDERAL WELDER ARE THE EXCLUSIVE SUPPLIER OF OEM SPARE PARTS FOR EXISTING BRITISH FEDERAL DRUM WELDING MACHINES

Weld Wheel Assembly

Knurl gearbox - New, reconditioned and spare parts

Z-Bar Assembly



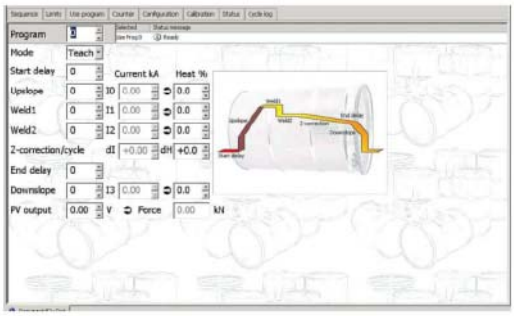
Guide Bar Assembly

Wheel Indexing Assembly

D.C Powerpack rectifier assembly

Drum Welding Controls

- Spares and service
- Upgrades
- Three phase power source conversion



Used Machinery

- Reconditioned to order
- Part exchange
- Other equipment

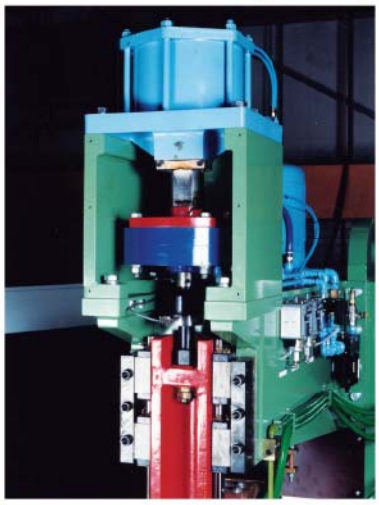
Associated Equipment

- Weld planishing - “crushing” rolls
- Exit conveyors - including weld end ‘nippers’
- Automatic destacking and loading of steel sheets

our product

Aircraft, Jet Engine & Aerospace Welding

BRITISH FEDERAL

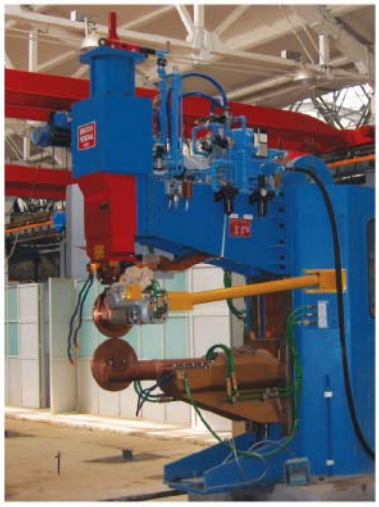


SP & SM 3-phase Secondary Rectified DC Welding machines are designed to meet the highest standards of resistance welding in the Aircraft & Aerospace industries.

Spot and Seam welding machines from 75kVA up to 600kVA are available.

3 phase machines offer numerous advantages over less efficient single phase machines:

- Fully balanced loading over the incoming mains supply
- Power Factor approaching .95
- Reduced load on mains supply
- No inductive losses
- Improved electrode life
- Quality welds using both steel and non-ferrous materials
- Less heat influence on components - less deformation
- Higher seam welding speeds



1. The Force System

The Low inertia weld force system uses double acting frictionless diaphragm cylinders ranging from 20kN or 30kN

2. The Machine Frame

All frames comprise a robust fabricated structure, containing integral reinforcing elements to absorb loads, whilst minimising deflection, which is vital for precision welding.

3. The Transformer Power Unit

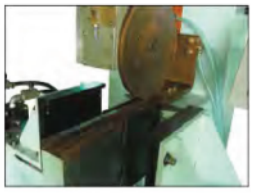
This has 3 matched single phase transformers arranged to provide a non-magnetically interlinked system and primary winding in a delta connection.

- Standard Power units are available from 75Kva - 600Kva
- Other power units to meet other applications can be designed and manufactured

our product

Ammunition Box

- Performing horizontal and vertical welding in one machine, coat saving
- TSM Welding specially designed seam welding housing with efficient cooling inside the housing to reduce wear-out and better conductivity
- Inner cooling system slows down the material oxidation



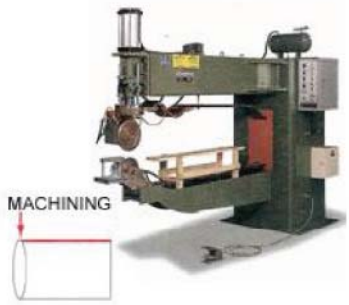
DM-300-2CY-HV
DDIM-300-2CY-HV

our product

Stainless Steel Reservoir Whole Line Equipment

Top and Bottom Cover Edge Cutting

Top and Bottom Cover Water Hole Punch



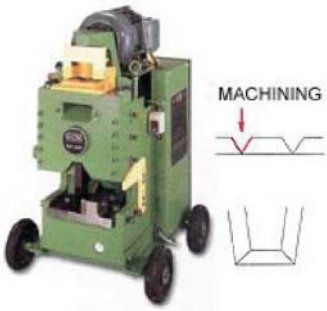
Auto Pneumatic Long Arm Seam Welding

Seam Welding For Top & Bottom Cover

Bottom Body Edge Line Forming

Auto Body Re-Enforcement Line

Tank Bottom Rack Support



Bottom Rack Cutting, Punching and Bending

Finished Goods

our product

Seam Welding with Pulsating Heat

Mild Steel

Common Condition									Hermetically Welding				
Material Thickness		Electrode (D, d, 20°)			Electrode Force		Minimum Overlap		High Speed Weld				
T mm	USS Gauge	Minimum d mm	Standard d mm	Minimum D mm	Minimum kgf	Standard kgf	For Minimum mm	For Standard mm	Heat Time ℓ	Off Time ℓ	Welding Speed mm/min	Welding Spot /10mm	Welding Current A
0.23	33	3.2	4.8	9.5	175	175	6.5	9.0	1	1	2,970	6.7	11,500
0.26	32	3.2	4.8	9.8	180	180	6.5	9.5	1	1	2,940	6.8	11,500
0.30	31	3.4	5.0	10.1	180	190	6.5	9.5	1	1	2,910	6.8	11,600
0.32	30	3.4	5.0	10.3	185	200	6.8	9.8	1	1	2,890	6.9	11,700
0.35	29	3.5	5.2	10.5	190	210	7.0	10.0	1	1	2,870	6.3	11,800
0.40	28	3.7	5.3	10.8	200	220	7.2	10.2	2	1	2,830	4.2	12,100
0.45	27	3.8	5.5	11.1	210	230	7.5	10.5	2	1	2,800	4.3	12,400
0.50	26	4.0	5.6	11.4	210	250	7.8	10.8	2	1	2,760	4.4	12,800
0.55	25	4.1	5.7	11.7	220	260	8.0	11.2	2	1	2,730	4.5	13,200
0.60	24	4.2	5.9	11.9	220	280	8.3	11.5	2	1	2,700	4.4	13,600
0.65	23	4.3	6.0	12.2	230	290	8.5	11.8	2	1	2,670	4.5	14,000
0.70	23	4.4	6.2	12.4	230	300	8.8	12.0	2	1	2,650	4.5	14,500
0.75	22	4.6	6.3	12.6	240	320	9.0	12.3	2	1	2,620	4.6	15,000
0.80	22	4.7	6.5	12.8	250	330	9.3	12.5	2	1	2,600	4.6	15,500
0.85	21	4.8	6.6	13.0	250	350	9.5	12.8	2	1	2,570	4.7	16,000
0.90	21	5.0	6.8	13.2	260	370	9.8	13.0	2	2	2,540	3.5	16,700
1.00	20	5.1	7.1	13.6	280	400	10.0	13.5	2	2	2,500	3.6	18,000
1.20	19	5.4	7.7	14.3	300	470	11.0	14.5	2	2	2,430	3.7	19,200
1.40	17	5.8	8.2	15.0	330	530	11.5	15.5	2	2	2,370	3.8	20,700
1.60	16	6.0	8.8	15.7	360	600	12.0	16.2	3	1	2,300	3.9	21,100
1.80	15	6.4	9.5	16.3	380	660	12.5	17.0	3	1	2,230	4.0	21,500
2.00	14	6.6	10.0	16.8	410	720	13.2	17.8	3	1	2,160	4.2	22,000
2.30	13	7.0	11.0	17.5	450	790	14.0	19.0	4	2	2,070	2.9	22,900
2.60	13	7.4	11.8	18.2	490	860	14.8	20.0	4	2	1,970	3.1	24,200
2.90	12	7.7	12.7	18.8	530	930	15.5	21.0	4	2	1,870	3.2	25,800
3.20	11	8.0	13.6	19.5	570	1,000	16.0	22.0	4	2	1,770	3.4	27,700

our product

Seam Welding with Pulsating Heat

Mild Steel

Material Thickness T mm	Hermetically Welding										Pulsating Weld				
	Medium Speed Weld					Low Speed Weld					With roll spot				
	Heat Time ∮	Off Time ∮	Welding Speed mm/min	Welding Spot /10 mm	Welding Current A	Heat Time ∮	Off Time ∮	Welding Speed mm/min	Welding Spot /10 mm	Welding Current A	Heat Time ∮	Off Time ∮	Welding Speed mm/min		
													Maximum	Ordinary	Minimum
0.23	2	1	2,040	6.0	7,700	2	3	1,270	5.7	7,300	2		12,300	5,100	2,570
0.26	2	1	2,030	6.0	8,100	2	3	1,250	5.8	7,500	2	〃	12,200	5,050	2,540
0.30	2	1	2,020	6.0	8,500	2	3	1,240	5.8	7,750	2	〃	12,000	5,020	2,500
0.32	2	1	2,010	6.0	8,900	2	3	1,220	5.9	8,000	2	〃	11,800	5,000	2,480
0.35	2	1	2,000	6.0	9,200	2	3	1,210	6.0	8,300	2	〃	11,600	4,950	2,450
0.40	2	2	1,980	4.5	9,700	3	3	1,190	5.1	8,600	2	〃	11,400	4,900	2,400
0.45	2	2	1,960	4.6	10,300	3	3	1,170	5.2	9,000	2	〃	11,100	4,850	2,350
0.50	2	2	1,940	4.6	10,700	3	3	1,150	5.2	9,400	2	〃	10,800	4,800	2,330
0.55	2	2	1,920	4.7	11,200	3	3	1,130	5.3	9,800	2	〃	10,500	4,750	2,300
0.60	2	2	1,910	4.7	11,600	3	3	1,120	5.4	10,200	2	〃	10,200	4,700	2,260
0.65	3	2	1,890	4.8	12,000	3	4	1,100	4.7	10,600	3	〃	10,000	4,680	2,240
0.70	3	2	1,870	4.8	12,400	2	4	1,090	5.5	10,900	3	〃	9,700	4,600	2,200
0.75	3	2	1,850	4.9	12,700	2	4	1,070	5.6	11,300	3	〃	9,400	4,550	2,170
0.80	3	2	1,840	4.9	13,200	2	4	1,060	5.7	11,700	3	〃	9,100	4,500	2,140
0.85	3	2	1,820	5.0	13,600	2	4	1,050	5.8	12,100	3	〃	8,800	4,500	2,110
0.90	3	3	1,800	3.3	14,000	2	4	1,030	5.8	12,500	3	〃	8,500	4,450	2,080
1.00	3	3	1,770	3.4	14,800	2	4	1,010	6.0	13,200	3	〃	8,000	4,400	2,030
1.20	4	3	1,690	3.0	16,000	3	4	960	5.3	14,100	4	〃	6,900	4,200	1,950
1.40	4	3	1,620	3.2	17,000	4	4	910	5.0	14,800	4	〃	6,000	4,000	1,850
1.60	5	4	1,510	2.7	17,800	4	4	860	5.2	15,400	4	〃	5,300	3,800	1,750
1.80	5	5	1,480	2.4	18,500	5	5	820	4.4	15,700	5	〃	4,800	3,700	1,700
2.00	5	5	1,410	2.5	19,000	6	6	770	3.9	16,500	5	〃	4,600	3,500	1,570
2.30	7	6	1,300	2.1	19,900	6	6	710	4.2	16,800	6	〃	4,100	3,200	1,440
2.60	8	6	1,240	2.1	20,500	6	6	660	4.6	17,800	6	〃	3,900	2,700	1,330
2.90	10	6	1,190	1.9	21,300	6	6	620	4.8	19,200	6	〃	3,800	2,500	1,230
3.20	11	7	1,150	1.8	22,000	6	6	580	5.2	21,000	6	〃	3,600	2,300	1,130

Appropriate selection depending on required spacing.

TSM

Office:

TSM WELDING TECHNOLOGY SDN.BHD.(716459-M)
No.44, Jalan Pengasah 3, Batu 4 Jalan Kapar,
42100 Klang, Selangor D.E. Malaysia.
Tel: +603 3290 3311 Fax: +603 3290 3322
Email: info@tsmwelding.com.my Website: www.tsmwelding.com.my

Factory:

TSM FORGING & MACHINING SDN BHD
No.26A, Jln Wawasan 1/KU7, Sungai Kapar Indah
42200 Klang, Selangor D.E Malaysia.
Tel: +603-3290 2392
Fax: +603-3290 2410

Johor Bahru Office:

TSM WELDING SDN.BHD. (JOHOR)
No.118, Jalan Rosmerah 2/16,
Taman Johor Jaya, 81100 Johor Bahru. Malaysia
Tel: +607-350 3477 Fax: +607-350 7781
Email: tsmjb@tsmwelding.com.my

Indonesia Office:

PT. TEKINDO SUMBER MAKMUR (TSM)
Ruko Pavilion Shop No.19, Jalan Industri Utara IV,
Jababeka 2, Cikarang Baru, Bekasi, 17550 Indonesia.
Fax : +62 21-8984 0813
Email : pt.tsm@tsmwelding.com.my

For inquiries :