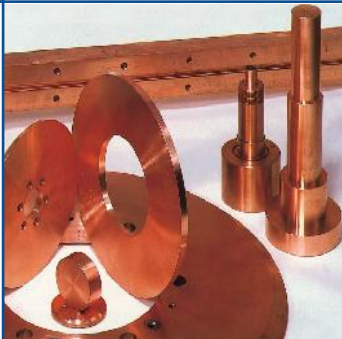




# PURSUIT OF EXCELLENCE





# M.S. TRADING

Pursuit of Excellence

Since 1991

M.S. Trading Eu Hua Guang Jear Sung Co., Ltd.

Found on 1989, since then we have been a leading-edge trader and manufacturer of state-of-the-art products related mainly in resistance welding industry to meet customer needs.

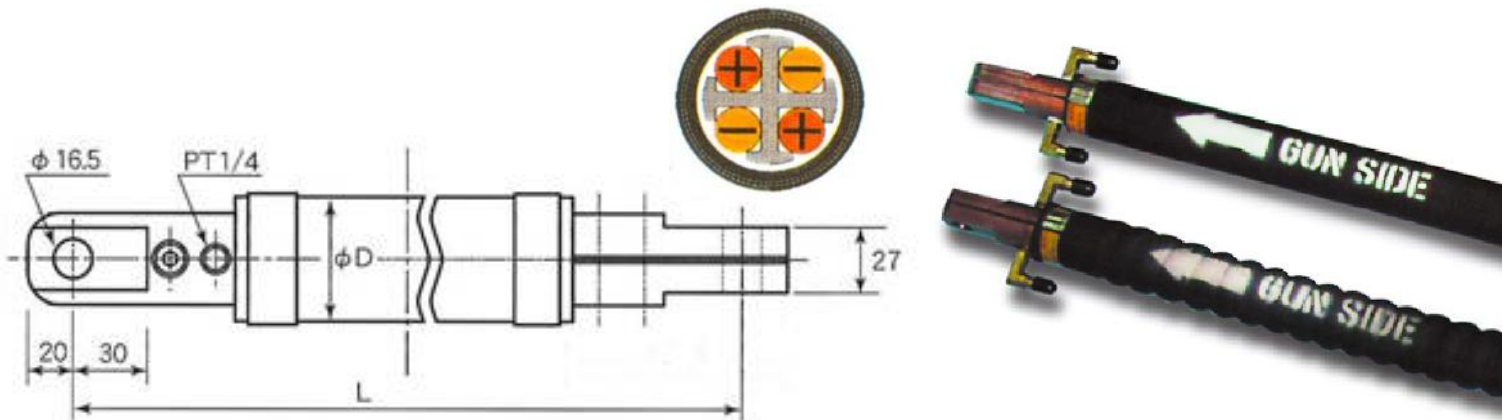
- Kickless cables, aka, Low reactance cables
- Secondary cables
- Water-cooled and air-cooled cables
- Flexible shunts
- Resistance welding electrodes and accessories
- Resistance welding guns
- Resistance welding machines and systems
- Resistance welding quality monitoring and checking equipment
- Wide varieties of custom engineered resistance welding products

We have been serving automotive industry, computer assembly industry, steel furniture industry, electrical appliance industry and high-tech industry for over two successful decade. We utilize our innovations and expertise to bring our customers products performing quality driven. Our products are tough, dependable and efficient of their cost.

Our target is to be the best one-stop service point to support all needs and requirements from our customers.

# MS KICKLESS CABLE

(Low Reactance Cable)



## Main Feature :

- Unique “X-shape” separator maintains strand positioning and equally distributed cooling water flow
- State-of-the-art 4-wire design to minimize current loss, reduced CO<sup>2</sup> emission
- Electrolytic tough pitch annealed, bare copper wire, 28 AWG, herringbone rope construction for greater flexibility and reduced wear point
- High temperature internal restraining collars to minimize stress in the bending area
- Lowest reactance of the class to engage lower primary power demand
- No noticeable pulsation due to low magnetic kicking
- Improved flexibility, smaller bend radii comparing to previous model
- Reduced operator fatigue, higher productivity
- All customized length is available upon request

## Main Specification :

Item	Specification								
	300 MCM			400 MCM			500 MCM		
	2.0 m	2.4 m	3.0 m	2.0 m	2.4 m	3.0 m	2.0 m	2.4 m	3.0 m
Reactance ( $\mu\Omega$ ) <sup>1</sup>	68	81	90	45	57	71	33	44	57
Resistance ( $\mu\Omega$ ) <sup>2</sup>	460	550	680	330	400	495	265	320	400
Impedance ( $\mu\Omega$ ) <sup>1</sup>	465±10	556±10	686±10	333±15	404±15	500±15	267±20	323±20	404±20
Power Factor	≈0.99								
Breakdown Pressure	8 kg/cm <sup>2</sup>								
Min. Cooling Water Require Rate	6 Liter/min								
Outer Diameter (mm)	52 mm			56 mm			63 mm		

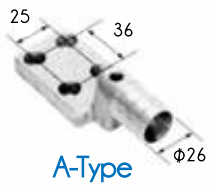
<sup>1</sup> By calculating under ISO 8205-1:2002 at 50 Hz

<sup>2</sup> By measuring under JIS C9318-1976 at 25°C

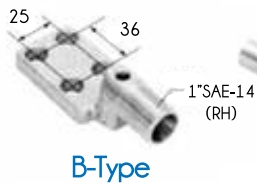
# WATER-COOLED SECONDARY AND AID CABLE

## Feature :

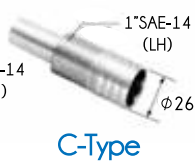
- Available in 185mm<sup>2</sup>, 200mm<sup>2</sup>, and 250mm<sup>2</sup>
- Special joining method to improve the durability of the cable
- Special twist to balance the stress regardless of the welding direction
- Made-to-order at any length
- Unique 150mm<sup>2</sup> model comes with full-length special tube to insure free-flow water path, also available



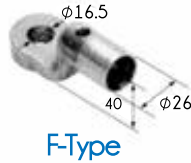
A-Type



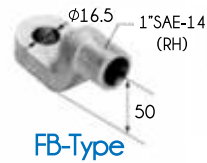
B-Type



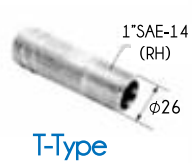
C-Type



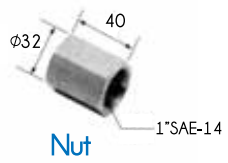
F-Type



FB-Type

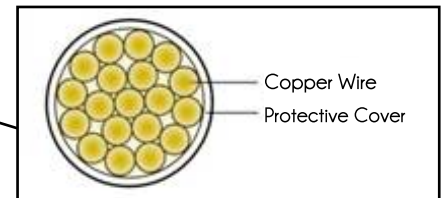
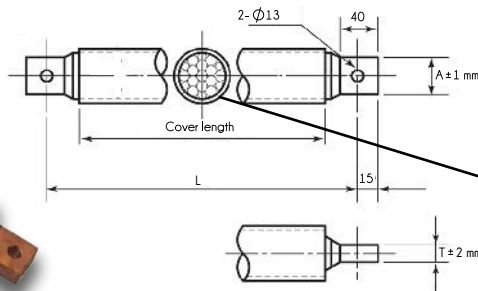
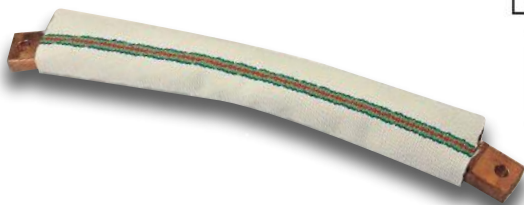


T-Type



Nut

# AIR COOLED JUMPER



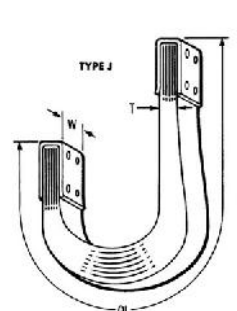
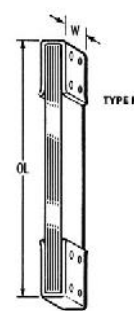
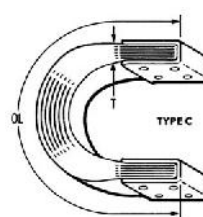
## CA-Type :

- Cable twisted to form circular cross section
- Economical type for non-directional movement
- Available from 150mm<sup>2</sup> – 750mm<sup>2</sup>
- Made-to-order at any length
- Non-asbestos protective cover

## Standard size

Type No	Cross Section (sq)	T	A
CA-375	375	18.0	32
CA-400	400	16.0	38
CA-500	500	19.0	
CA-600	600	22.0	
CA-750	750	26.0	

# LAMINATED SHUNT



# S TYPE SPOT WELDER and SP TYPE SPOT & PROJECTION WELDER

Non-oil supply guide is adopted considering the environment.  
And there're 9 types of wide variation available .

## Feature for S2 Series :

1. Non - oil supply inflating guide with high performance adopted (Electrode stroke is of one - touch switching)
2. A ball valve mounted at feed - water inlet
3. Transparent hose available for stream confirmation
4. Microcomputer timer mounted (welding time interlock equipment )
5. Operation available with little cooling water (comparing with our previous type / under 50kVA)

## Feature for SP2 Series :

1. Spot and projection welding compatible type mounted with frame of high precision
2. Non-oil supply inflating guide with high performance adopted (Electrode stroke is of one-touch switching)
3. A ball valve mounted at feed-water inlet
4. Transparent hole available for stream confirmatio
5. Microcomputer timer mounted (welding time interlock equipment)



## Main Specifications :

Specifications \ Model		S2-6-355T	S2-6-505T	SP2-10-70T		SP2-10-110T	
				Platen	Spot	Platen	Spot
Rated capacity	kVA	35	50	70	70	110	110
Throat dimensions (opening x depth)	mm	200 x 500	200 x 500	200 x 300	200 x 400	200 x 300	200 x 400
Max. short circuit secondary current	A	16,500	20,000	35,000	26,000	45,000	35,000
Rated max. input	kVA	86/104	131/145	277/303	198/226	430/510	335/397
Duty cycle	%	8.3/5.7	7.3/5.9	3.2/2.7	6.3/4.8	3.3/2.3	5.4/9.8
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
Welder power source	V	380	380	380		380	
Control unit power source	V	100	100	100		100	
Max. electrode force	kN	5.9	5.9	9.8		9.8	
Electrode stroke	mm	60.20	60.20	60.20 (max 75)		60.20 (max 75)	
Electrode tip diameter	mm	φ 16	φ 16	φ 16		φ 16	
Electrode tip taper		1/10	1/10	1/10		1/10	
Tip holder diameter	mm	φ 25	φ 25	φ 32		φ 32	
Horn diameter	mm	φ 60	φ 60	φ 60		φ 60	
Cooling water	l/min	4	4	8		8	
Weight	kg	245	260	385		410	
Thyristor size		C	C	D		E	

# INVERTER TYPE DC SPOT WELDER

Offering High Quality Welding and Wide Range for Welding Condition!! Achieve to Improve a Working Environment and Reduce Flash & Spatter!!

## Main Specifications :

Specifications	Model	SID2-6-505T
Rated capacity	kVA	50
Throat dimensions (opening x depth)	mm	200x500
Max. short circuit secondary current	A	18,000
Rated max. input	kVA	125
Duty cycle	%	10
Rated frequency	Hz	50/60
Welder power source	V	3 $\phi$ 380
Max. electrode force	kN	5.9
Electrode stroke	mm	60.20 (max 75)
Electrode tip diameter	mm	$\Phi$ 16
Cooling water	l/min	4
Weight	kg	300

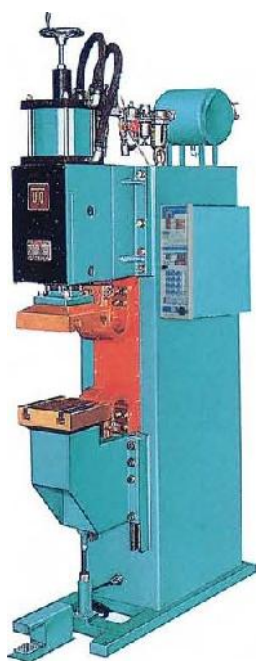


## Main Feature :

1. Non-oil supply inflating guide with high performance adopted (Electrode stroke is of one-touch switching)
2. Output with DC high-frequency current of good heat efficiency
3. Input unbalance improved by 3-phase balanced loading
4. Short time welding available, electrode abrasion reduced
5. Space saving with inverter power built in the frame
6. Inflating auto switching with electro-pneumatic proportional valve mounted (optional)

# PROJECTION WELDER

High precision projection welder with further improved advanced features inflating precision.



## Main Feature :

1. Dynamic precision improved with a high efficiency design
2. Precision needle bearing adopted at inflating guide
3. Stable quality compensated, such as multipoint, ring projection
4. Simple setup change of the jig electrode
5. Support big work or special shaped work
6. Power saving type
7. Electric transformer with perfect durability
8. Microcomputer timer mounted
9. Semi-permanent main circuit switch adopted

## Main Specifications :

Specifications	Model	P-15-150T	
Rated capacity	kVA	150	
Rated primary voltage	V	380	
Max. electrode force	kN	13.7	
Electrode stroke	mm	0-85	
Rated frequency	Hz	50	60
Rated max. input	kVA	438	506
Duty cycle	%	5.9	4.4
Max. short circuit secondary current	A	50,000	
Throat dimensions (opening x depth)	mm	200 x 300	
Lower platen adjustable range	mm	0-100	
Platen size	mm	$\Phi$ 230	
Cooling water	l/min	8	
Weight	kg	720	

# SEAM WELDER

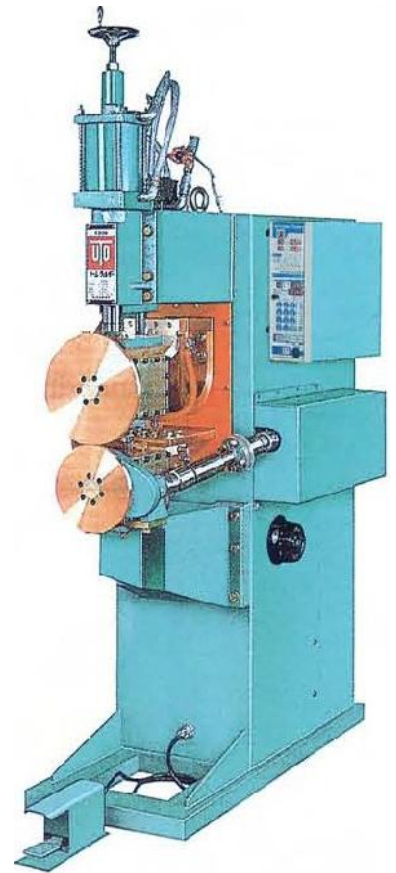
Latest technology added to the function pursued by different using condition  
And newly developed power supply housing adopted!!

## Main Feature :

1. High performance pressure guide and cylinder
2. Uses silver contacts point in conductivity part
3. 3-phase induction motor for electrode housing drive
4. Free select drive system
5. Equipped welding transformer to with stand highly severe work conditions
6. Slim and compact type part
7. Easy maintenance for electric supplied housing
8. State of - the - art microcomputer

## Main Specifications :

Specifications	Model	SC-10-160 □G		SC-10-160 □K	
Rated capacity	kVA	135	160	135	160
Rated frequency	Hz	50	60	50	60
Duty cycle	%	50			
Max. short circuit secondary current	A	25,000			
Weld speed	m/min	0.9-3.0	10-3.5	0.9-3.0	10-3.5
Throat dimensions (opening x depth)	mm	90x200			
Max. electrode force	kN	9.8			
Electrode stroke	mm	30:95			
Electrode dimentions		Upper 12x Φ250		Lower 12x Φ 200	
Drive system		Gear		Knurl	
Cooling water	ℓ/min	40			



# SPECIAL SPOT WELDER

LONG ARM TYPE  
model : S,-6-5010



LOCKER ARM TYPE  
model : S,-4-257RA



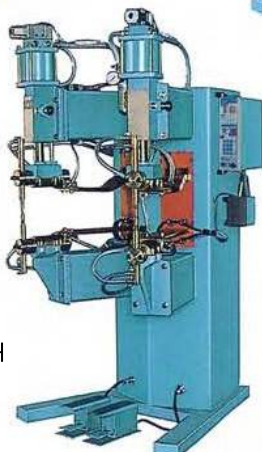
2 STEP STROKE TYPE  
model : S,-6-906DH



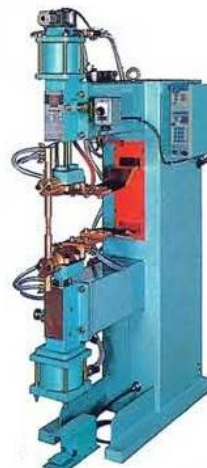
2 HEAD TYPE  
model : S,-6-353MH



2 HEAD TYPE  
model : S,-6-355DH



UP & DOWN PRESSURE FORCE TYPE  
model : S,-6-355BP



# WELD CONTROL

Model : CK4-8-15P/15



## Main Feature :

1. Additional functions are further substantiated. And also available used as a simple control device by signal assembly.
2. 2 current monitor displays. 2-stage power-on monitoring available.
3. Direct input method adopted . Preset value can be inputted accurately.
4. A maximum of 31 welding conditions can be inputted. (15/31 condition switching type)
5. Total tapping dots counter added. Counter function was further substantiated.
6. External management of stored input data is available as an option feature.

## Main Specifications :

		Item	Specifications
Fundamental		Welding set data channel	15 or 31
		Number of squeezing channel	2
		Number of pulsation	3
		Welding process step	4 or 8
Time control		Heat 1-3 time	0-99 cycles
		Other time	0(2)-99 cycles
		Pulsation	2-99 times
		Current slope	0-98 cycles for up or down
Current control		Welding Current	2.0-50.0kA
		Voltage compensation control	Constant current compensation
		Current detector coil	WMC-451N
Additional function	External input/output	Heat-on output	Solid-start circuit
		Pulsation-on output	(Alternately switched)
		Work input	Equipped
		Welding step timing output	One make-contact
		Outside squeezing mode input	Equipped
		Squeezing pressure control output	0.00-999N (for 15ch or 31ch) (Option)
		No work input	Equipped
	Counter	Spot counter	0-99 (for 15ch or 31ch)
		Work counter	0-9999 (for 15ch or 31ch)
		Total spot counter	0-99999 (for 15ch or 31ch)
		Sleep-up counter	0-9999 (for 3SVch)
	Monitors	memory error	SCR short-circuited
		Up/low limit current error	Current checker
		Full heat check	Contact checker
		Cooling water error	Welding power discontinuation
		Up/low limit firing angle monitor (Error memory capacity : 10 points)	Fused electrode detec/No work
Data Store		Data backup	with flash memory
Environmental condition		Operation temperature	0-45 °C
		Storing temperature	-10 - +60 °C
		Allowable humidity	45 - 85% (without condensation)
Power supply		Control power	100V AC+ 10% / -15%, 50/60Hz,30VA
		Welding power	220V/440V AC+ 10%/+20%, 50/60Hz
Dimensions		Vertical type CK4-8-15	W90 X H300 X D325
		Lateral type CK4-8-15P	W300 X H90 X D325
Waight		Vertical type/Lateral type	5kg

# WELD CONTROL

Model : CE2-6-7

High reliability and Easy operation

## Main Feature :

1. Easy operation
2. Wide input voltage 100-220V of power source is available. Squeezing output voltage becomes same as the input voltage.
3. Total counter
4. 7 channels for welding condition

## Main Specifications :



Model	CE2-6-7		Monitors	Constant current monitor	±5%
Welding Condition Setting	Channel	7 channels		Full heat	Detection on voltage compensation control
	Squeezing channel	2 channels		Over temperature	Lack of cooling water, duty cycle is over.
	Weld step	2 steps		Weld source	Weld source detection
	Sequence step	6 steps		Thyristor	Short circuit of thyristor detection
Time Control	Weld time	0-99 cycle		Count up	Stop restarting during count up
	Other times	0 (2)-99 cycle	External input & output	Weld interlock output	Non-contact circuit
	Current upslope time	0-29 cycle		Weld input	Non-voltage contact
Current Control	Welding current (When WMC-451N is used)	2.0-49.9kA		Monitor reset input	Non-voltage contact
	Current range (secondary) (When WMC-451N is used)	5.0-50kA		Release time output	1a contact
				Monitor error output	1a contact
	Constant current response speed	0.5 cycle		Usage Environment	Squeezing output
	Constant voltage control and voltage compensation control can be combined .	Input Voltage	Ambient temperature		0-45 ℃
			Humidity	45-85% (No condensation)	
Welding current detection coil			WMC-451 N	Control input voltage	AC 100-220V, 50/60Hz
Counter	Total counter	0-999	Dimension	Welding input voltage	AC200-220V, 380-415V, 50/60Hz
				Weight	3.8kg

# RECTANGULAR WAVE AC INVERTER FOR WELDER

The 21st Century Manufacturing Style! We offer Next Generation Welding Quality!!

## Main Feature :

1. A wide variation-6 model
2. Easy selection for input voltage
3. Equipped with power supply : DC24V of electrode force for standard and AC100V or AC110V made on order
4. A built-in type weld controller, setting can be operated by program box (Optional)
5. Welding conditions : 31 channel settings
6. A wide variety of weld conditions with up-slope, down-slope, pulsation and 2 step weld
7. Easy remote operation and equipped lead wire : 20m between main unit and program box or monitor box
8. The display contents on program box and monitor box can be switched between Japanese and English



## Main Specifications :

Model	WP2-440AC	WP2-460AC
Specifications		
Rated primary voltage	380V /400V / 440V +/-15%	
Rated frequency	50-60Hz	
Output current	400A	500A
Output voltage	620V (at 440V)	
Max. capacity	248kVA	372kVA
Rated capacity	110kVA	166kVA
Duty cycle	10%	
Turns ratio	4.0-200.0	
Primary current	50A-400A	50A-600A
Cooling water	5e min or more infet temperature 30°C or below	
Dimension	W320 X H750 X D320	W450 X H750 X D350

# HI-MINI RECTIFIER MB8C SERIES

## Major features :

1. High reliability
2. Plating defective prevention circuit
3. A perfect protection circuit
4. A wild control functions
5. A rich option
6. Miniature, light weight, small space
7. Quiet operation sound
8. Durability and environmental resistance characteristics
9. A wild variation
10. Usage

MB8C-□□□-□□□

Indicates rated Output voltage  
EX: 080—8V  
120—12V  
150—15V

Indicates rated Output voltage  
EX: 101—100A  
102—1000A  
152—1500A  
103—10000A



Input capacity (kVA)		Current(A)	100	200	300	500	1000	1500	2000	3000	4000	5000	6000	8000	10000
	Voltage(V)	Model	101	201	301	5.1	102	152	202	302	402	5.2	6.2	802	103
	6	060	1.0	1.8	2.8	4.5	8.5	12.5	16.7	25.0	33.6	42.0	52.5	71.0	89.5
	8	080	1.2	2.2	3.4	5.6	10.6	15.7	21.0	31.5	42.0	52.3	62.5	85.0	98.0
	10	100	1.4	2.7	1.4	6.6	12.8	19.0	25.5	38.2	50.3	62.8	78.0	105.0	130.0
	12	120	1.6	3.1	4.7	7.6	15.0	22.4	30.2	45.0	60.2	73.8	92.0	121.0	150.0
	15	150	1.9	3.7	5.6	9.4	18.5	27.5	37.2	55.2	74.2	92.6	112.0	151.0	190.0

## SP-231N SERIES

### HYDRAULIC WELD FORCE GAUGE

For General Resistance Weld Compact, Lightweight, Easy



#### Outline :

For getting better result of weld, it is necessary to control fully pressure force put in between electrodes which is one of the three important factors for welding conditions. The weld force gauge of SP-231N series employs closed and sealed hydraulic system offering compactness, light weight and simplicity of handling. Pressure receiving section is fabricated with insulated plate which safeguards against weld current on if applied by any chance. In accordance with the international standard, unit of N (Newton) is adopted and indicated on the meter. High reliability of this gauge supports severe quality control.

#### Main Features :

1. Seven types of variations fitted to the weld force are available.
2. Be indicated with the international standard, unit of N (Newton).
3. Closed and sealed hydraulic system offers small size, light weight and easy handling.
4. Insulation type to protect to a certain extent against weld current on when carelessly applied.
5. Adoption of pointing needle except SP-232N can point at maximum value of pressure force.  
(Optional for SP-232N)
6. SP-241N has a flexible neck which is bendable from straight to U-form.
7. With accessory of a hardcase convenient for keeping and custody.

#### Main Specification :

Model		SP-233SN	SP-236N	SP-231N	SP-232N	SP-233-3T	SP-233-4T	SP-241N
Range		0.25-3kN	0.3-6kN	0.5-10kN	1-20kN	1.5-30kN	2-40kN	0.5-10kN
Min. Scale		100N (10kgf)	200N (20kgf)	200N (20kgf)	1kN (100kgf)	1kN (100kgf)	2kN (200kgf)	200N (20kgf)
Accuracy		+3% F.S.						
Weight (g)	Unit	400	410	500	660	900	900	580
	case	400						650

# SP-255 SERIES

## HYDRAULIC WELD FORCE GAUGE For General Resistance Weld

### Outline :

The model SP-255 is a handy type digital welding force gauge, which can measure weld force applied between electrodes that is one of the three important conditions for the spot welding. The model measures the force applied and displays data on LCD by using high accurate sensor

### Main Features :

1. Measuring forces are digitally displayed successively.
2. To ensure accuracy, averaged value of sampling in 64 times/sec. is employed in display.
3. It can hold an optional data measured.
4. It can memory and indicate maximum load during measurement.
5. It has an auto-zero reset function.
6. Convenient in handling by incorporating dry batteries (UM-3x2)
7. Auto-power off function for saving power consumption.
8. Indication is for requesting replacement of batteries.

### Main Specification :

Item	Contents
Measurment display	Digital successive (with hold function)
Display	3+1 / 2 digits LCD (Segment type)
Accuracy	+/- 1% Full scale (Static force)
Limit force	120% of fixed force
Power source	Dry battery X 2 (UM-3)
Battery life	8hrs (Alkaline battery continuous use)
Temp. operated	0°~+40°C
Accessory	Case / Manual / Test report

[Fixed type] The fixed neck type is standard type in this series which adopts hydraulic system.

Model	Measure range	Minimum force	Dimensions (mm)
SP-255-10kN	0.5kN~10.00kN	0.01kN (1kgf)	L262 × W68 × T36 /780g
SP-255-20kN	1.0kN~20.0 kN	0.1 kN (10kgf)	L262 × W68 × T36 /780g

[Flexible type] Two types are available, the one is fixed neck type and the other is flexible neck type, which is convenient in the measurement for the distant place.

SP-255-F 200N	10N ~ 200N	1 N (0.1kgf)	Sensor $\phi$ 20×L198 / 60g / Cable 1.0m
SP-255-F1000N	50N ~ 1000N	1 N (0.1kgf)	Sensor $\phi$ 20×L198 / 60g / Cable 1.0m
SP-255-F10kN	0.50kN ~ 10.00kN	0.01kN (1kgf)	Sensor $\phi$ 34×L470 / 550g / Cable 1.5m
SP-255-F30kN	1.5 kN ~ 30.0 kN	0.1 kN (10kgf)	Sensor $\phi$ 36×L472 / 570g / Cable 1.5m

Body L195×W68×T36/430g

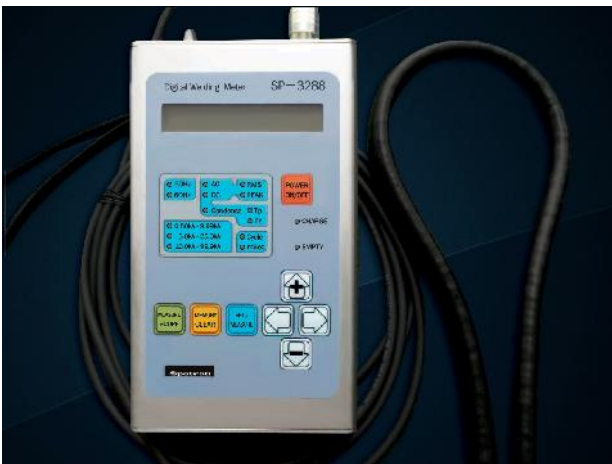
[Flexible FU type] The new FU type is flexible long neck and closed hydraulic system, insulated against weld current.

SP-255-FU10kN	0.50kN ~ 10.00kN	0.01kN (1kgf)	Sensor 36×36×L470/ 610g / Cable 1.5m
SP-255-FU20kN	1.0 kN ~ 20.0 kN	0.1 kN (10kgf)	Sensor 36×36×L470/ 610g / Cable 1.5m

Body L195×W68×T36/430g



# SP-3288 SERIES



## WELDING CURRENT METER

### Lightweight Compact

#### Outline:

Model SP-3288 is handy type welding meter of secondary current and welding time for all kinds of resistance welding. Sensor is MEKANO patented toroidal coil for precise current detection. Measured data is digitally indicated in the RMS effective value calculated at each half cycle or Peak value of welding current is displayed together with welding time and conduction angle. In case of capacitor discharge type welder, it measures and displays peak value of current and time(mSec) to peak current or time(mSec) to the end of current application.

#### Main Specifications:

Index		Description
Applicable for		Single phase AC, Single phase rectified, 3 phase rectified, Inverter, Capacitor discharge, Intermittent seam weld
Welding current	Ranges	0.50kA - 9.99kA / 5.0kA - 25.0 kA / 10.0kA - 99.9kA
	Indication	Average of RMS value or PEAK value
	Accuracy	±2% of full scale
Welding time	Ranges	Cycle: 0.5 - 999.5 cycles, mSec: 0.1 - 2000mSec
	Indication	[Cycles] All over weld time [mSec] Time to Peak(Tp) / Time to End(Tz)
	Accuracy	Cycle: ±0.5 cycle, mSec: ±0.1 mSec
Power source		NiMH battery (1900mAH) AC adaptor (AC100-240V 50/60Hz 2A)
Operating temperature range		5°C - 40°C
Dimensions		87(W) x 151(H) x 30(D) mm
Weight		0.45kg (Main unit) / Approx. 1.8kg (Including Case & Accessories)
Accessories		Toroidal coil PU-15B (16 x 500mm, U-Shape), AC adaptor (AC100-240V) Carrying case, Strap, Instruction manual, Test Certificate

■ Option: Soft case for main unit, Toroidal coil PU-14 [18φ x 800mm (260φ)]

#### Main Features :

1. More compact • lighter body and touch key is improved for easier operation.
2. Measured data of maximum 100counts are stocked in built-in memory.  
Wide range for measurement (Current: Max. 99.9kA, Time: Max. 999.5CY / 2000ms)
3. The unit displays measured data; "Count No.", "Current (kA)", "Welding time (cycle / ms)" and "Conduction angle".
4. Additional new functions support measurement of designated time scope for any current type and designated pulse number for multi-pulse current application.

# SP-3510 SERIES



## Main Features :

1. Displaying Current/Voltage/Weld time/Wave form on LCD (3.5inch, 240x320dots)
2. Easy operation and setting by Touch Panel.
3. Saving measured data and wave form into SD card and data output by USB connector is possible.
4. Covering weld time max.3minutes for the continuous seam weld.
5. Wider current range 1.00kA-499kA consists of 3ranges (HIGH/MIDDLE/LOW)

## WELDING METER

### USB Access Lightweight, Compact

#### Outline :

Model SP-3510 is welding current/volt meter for all kinds of resistance welding, such as Single phase AC, Inverter, Condenser type, etc.. Current detection is supported by high performance toroidal coil made by Spotron. The unit has 4 patterns of display for measurement [Standard (per weld)] [Divisional(per cycle)] [Wave form] [Graph data] depending on the purpose. Measured value (Current/Voltage/Weld time) is displayed on touch panel LCD and it is possible to save measured data into SD card. External start signal can be used for the measurement to be linked with timer.

#### Main Specification :

Item		Description
Applicable for		Single phase AC, Three phase Rectified, Inverter, Condenser, etc. (for resistance welding)
Welding Current	Ranges	1.00kA-499kA
	Display	Average of RMS or Peak value (excluding upslope and downslope)
	Accuracy	+/-2% (F.S.)
Voltage	Ranges	0.30-59.9 V
	Display	Average of RMS or Peak value (excluding upslope and downslope)
	Accuracy	+/-1% (F.S.)
Welding Time	Ranges	CYCLE : 0.5 cycle-9999 cycle / mSec : 1-180,000mSec
	Display	All over weld time: cycle / Time to peakTp, Time to zero:tz
	Accuracy	CYCLE : +/-0.5 cycle / mSec : +/-1 mSec
Display	Standard	Current • Effective heat time • Voltage • Phase control angle
	Division	Standard data + divisional data of designated time/cycle
	Wave form	Standard data + Wave form per one heat(current application)
	Graph	Standard data + Graphic display of measured data
Power source		Built-in Battery & AC Adapter ( AC100-240V 50/60Hz )
Dimensions		W145 X H183 X D65 (mm)
Weight		Body: Approx 1.9 kg
Accessories		<ul style="list-style-type: none"> <li>• Toroidal Coil PU-14 [Current detection] (Φ18×800≒Φ260)</li> <li>• Clip cable[Voltage detection]</li> <li>• Start signal cable</li> <li>• Instruction manual</li> <li>• AC Adapter (AC100-240V)</li> <li>• SD Card</li> <li>• Shoulder belt</li> <li>• Test certificate</li> </ul>



# AMS-1070M SERIES

## SECONDARY CABLE CHECKER (MicroOhm Meter)

#### Main Specification :

Measuring range	3μΩ~9.9mΩ	
Range select	Auto range	
Display	Index	1-digit LED
	Resistance	4-digit LED (Effective value)
Accuracy	Relative accuracy	Less than 3/1,000 F.S.
	Absolute accuracy	Less than 1/100 F.S.
Data memory	Index	10 items
Printing item	Index, Resistance, NG judge ratio	
Power supply	Rechargeable battery (built-in charger)	
Dimensions	150(W) × 60(H) × 200(D)mm Weight 1.6 kg (Approx)	
Accessory	Pen type probe (one couple) ,Shoulder belt	

## Main Features :

1. Employed 4-terminal system to neglect resistance between terminal and work piece.
2. Can measure low resistance in accurate by adoption of such circuits as precision constant-current, microvoltage amplifying and common voltage eliminating.
3. Easy to read even in dark place by adoption of digital LED display.
4. Data memory function capable of storing 10 kinds of upper limit resistance value.  
The criterion for judging a Yes or No can be monitored at the time of measurement.
5. An pen probe with automatic start for ready measurement on the site.
6. A compact and lightweight convenient to use at any places.

## Outline :

The model measures an increase in DC resistance due to deterioration of the secondary cables or kickles cable and also detects an abnormality in the secondary circuit caused by insufficient bolting or oxidizing of the contact surface.



# NUGGET - VIEWER (SPOT WELD ANALYZER)



## What is Nugget Viewer?

1. This is newly developed spot weld inspection tool with application of ultrasonic wave phenomenon.
2. It simply indicates spot weld nugget on the display in flat image (C-scope image) and determines judgment either of ideal weld nugget has performed or not.
3. Automatic measurement on weld nugget diameter and also on space factor can be made for the evaluation of weld quality.

## Standard set :

SCANNER (WITH HAND STRAP)	1 SET
MONITOR (WITH NECK STRAP)	1 SET
AC ADAPTOR	1 SET
CABLE 1.0M (MONITOR-SCANNER)	1 PC
BATTERY SET (BATTERY CHARGER, CASE, CABLE 1.0M)	1 SET
SD MEMORY CARD	1 PC
PC SOFT FOR DATE CHECK	1 PC
MEMBRANE SHEET	20 PCS
TOUCH CATALYST (150g)	1 PC
TEST PIECE	1 PC
MANUAL	1 SET

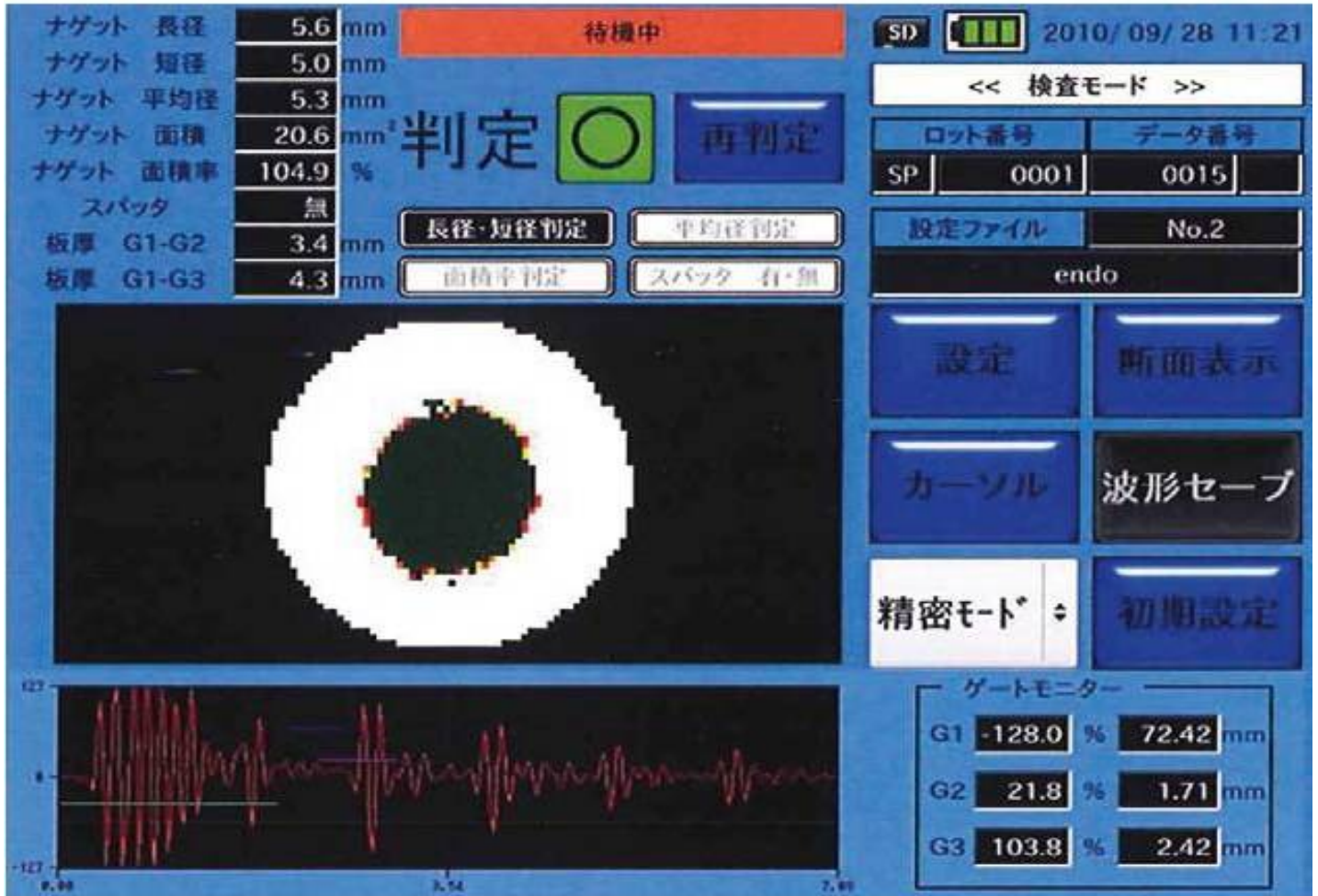
## Specification :

CHECK TIME	HIGH SPEED MODE	2SEC
	HIGH SPEED SAVE MODE	4SEC
	PRECISION MODE	4SEC
CHECK AREA	$\Phi$ 12mm	
INTERFACE	SO CAAD, USB, ETHERNET	
UTILITY	AC100V/200V 10% SINGLE P	
	50/80Hz (WITH BATTERY CHARGE)	
ENVIRONMENT	INDOOR 5°C - 40°C	
SIZE	L280 X W80 X H71mm(SCANNER)	
	L214 X W287 X H73mm (MONITOR)	
WEIGHT	0.8kg (SCANNER)	
	2.5kg (MONITOR)	

OPTION : CARRYING CASE / SPARE BATTERY / HOLDER BELT  
PARTS : TOUCH CATALYST / MEMBRANE SHEET

## Operating windows

1. Indication is possible either on the plane (C-scope) and on the cross section (B-scope) of spot welding nugget performance.
2. The automatic judgment function has employed so that three level of evaluations (O / Δ / X) in nugget long dia., short dia. / in average diameter / in space factor.
3. The judgment shall be informed by lamp of the scanner and / or buzzer sound of the monitor.

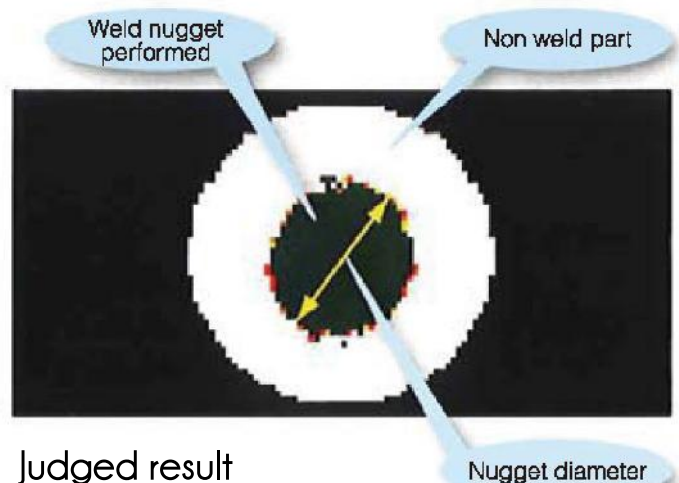
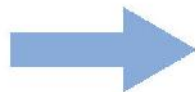


Indicate Plane (C-scope) / Base (A-scope)

## Judgment result example



Spot weld



Judged result



# EK-METALS



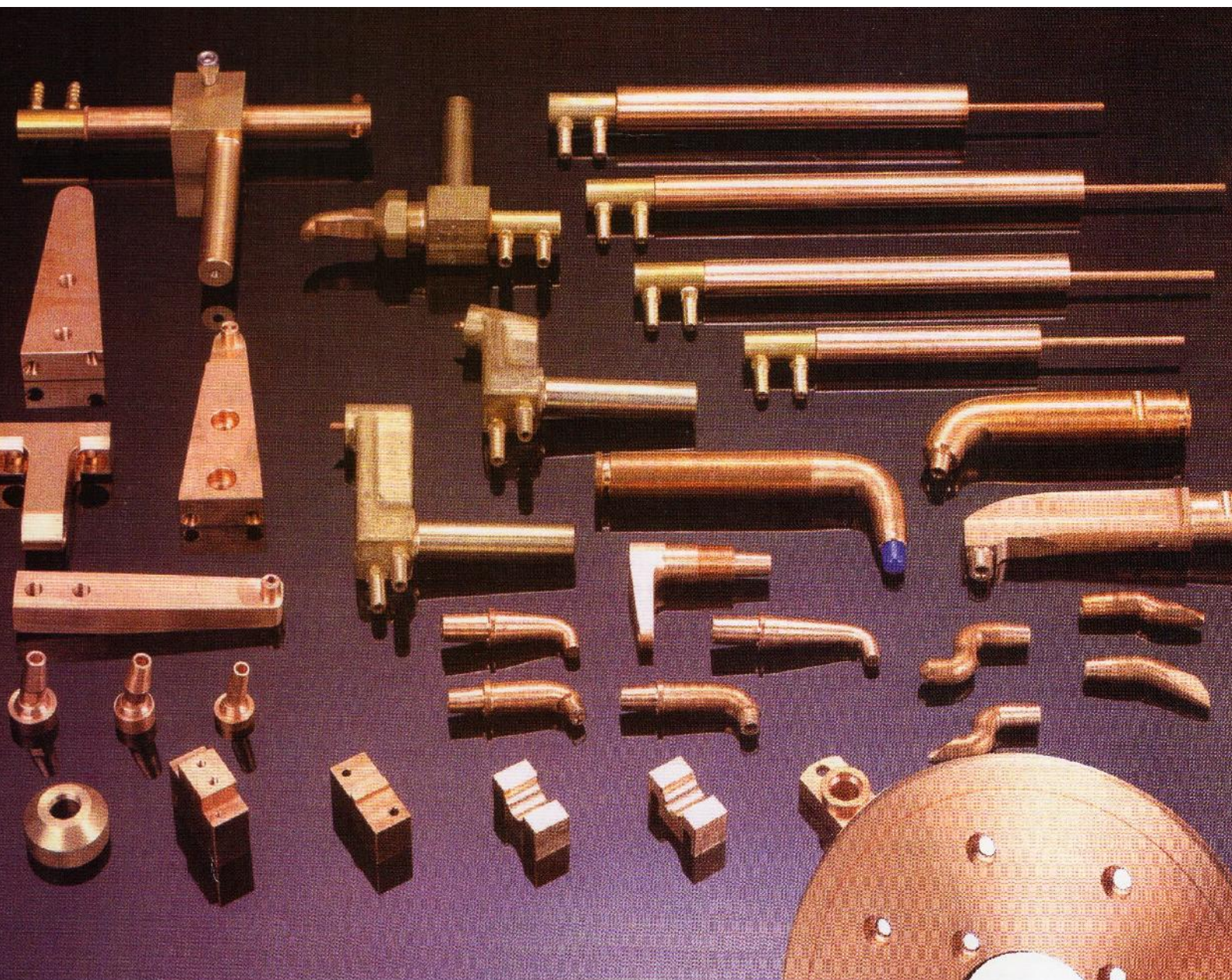
"EK-METALS" are precipitation hardening type special alloys produced through our strictly controlled process of solution as well as precipitation heat treatment subsequent to some plastic deformation processes - extruding, drawing, forging or rolling -of their alloyed ingots cast by quality controlled melting of respective chemical compositions made of copper and other component (Cr, Zr, Ti, Be, Ni) with some special elements as additive.

"EK-METALS" have the outstanding features of high temperature endurance, thermal and electric conductivities in virtue of our selected process control mentioned above.

Alloy		Mechanical properties			Electrical conductivity	Temperature limit on heat	Equivalent standard
		Tensile strength	Elongation	Hardness			
		N/m2	%	HRB			
					L.A.C.S.% at20°C	°C	
EK-2	Drown bar	450-550	15-30	78-87	78-88	480-520	JIS Z 3234-2 ISO5182-1978-2-1 RWMA Class 2
	Forged Products	390-490	15-30	72-82			
	Characteristics & Applications	With durability improved byadding special element to copperchromium-zirconium alloy, itexcells in electric conductivity and heat resistanze; hence, it is in usemost windely as resistance welding electrode material.					
EK-3	Drown bar	510-640	15-30	85-92	50-70	490-530	RWMA Class B10
	Forged Products	470-590	15-30	82-90			
	Characteristics & Applications	Having execeletent mechanical strength of copper-chromium-titanium alloy, EK-3 issued to the electrode materials working under raised welding pressure where very high strength and durability are required.					
CZ-5	Drown bar	490-600	15-25	80-90	70-85	500-550	JIS Z 3234-2 ISO5182-1978A-2-2 RWMA Class 2
	Forged Products	440-590	15-25	75-88			
	Characteristics & Applications	having a high copper-chromium-zirconium content, it's high-temperature strength is best suited for seam welding electorode in particular, the surface treated steel plates resistant welding is being used.					
EKB-50	Drown bar	730-880	9-25	93-105	45-60	480-52	JIS Z 3234-2 ISO5182-1978A-3-1 RWMA Class 3
	Forged Products	690-830	9-25	93-105			
	Characteristics & Applications	having the most excellent strength, wear resistance and themal themal durability of the beryllium-copper 50 alloy made by adding some sopecial elements to copper beryllium base alloy, EKB-50 proves its merits in the applicatins to flush butt and seam welding electorodes or holders of spot welder operating under very severe working environment.					
EKB-25	Drown bar	1100-1500	2-8	HRC 36-45	20-30	315-350	JIS H 3270 C1720 JIS Z 3234-4
	Forged Products	970 (Min)	2(Min)	HRC 33 (Min)			
	Characteristics & Applications	EKB-25 metal becomes to compare with special steels in high strength by means of the pertinently suitable heat treament and it has, besides, the outstanding properties relating to those of specific spring character, electric conductivity resistance and wear resistance.					
EK-NS50	Drown bar	650-850	15-25	90-105	40-50	500-550	
	Forged Products	600-800	15-25	90-105			
	Characteristics & Applications	with it's copper-nickek-silicon-chronium alloy, and eco-friendly (conaini beryllium) attributes, it is best used as electrode material for extreme conditions.					



# ELECTRODE SAMPLES



Bräuer Systemtechnik GmbH is a midsize company from the southeast of Germany. Known as an experienced and reliable system supplier in the automotive industry, we care for customers from around the world. Our engineering company offers the best requirements for the development and manufacturing of high-quality product solutions in the area of resistance welding. Customized solutions for welding tools, electrode tip dressing as well as the automation of welding processes belong to our special product portfolio.



### Electrode Tip Dresser for Manual Welding Guns

**BF 2400**

pneumatically driven  
electrode tip dresser



### Electrode Tip Dresser for Robot Welding Guns

**BFS 3600**

electrically driven single head  
electrode tip dresser -stationary-



### Electrode Tip Changer for Robot Welding Guns

**BWS 5700**

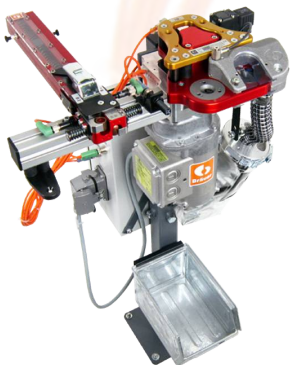
electrode tip changing system  
with tip cartridge and control  
sensor (single head)



### Electrode Tip Changer for Robot Welding Guns

**BWS 5710**

electrode tip changing system  
with tip cartridge and control  
sensor (double head)



### Combi Units for Robot Welding Guns

**BKS 5810**

combined electrode tip  
dressing and tip changing  
system with tip cartridge and  
control sensor (double head)



### Combi Units for Robot Welding Guns

**BKS 5820**

combined electrode tip dressing  
and tip changing system with tip  
cartridge and control sensor  
(triple head)

### Mobile Systems for Stationary Welding Guns

**FS 1600**

electrically driven swiveling system for electrode tip dresser



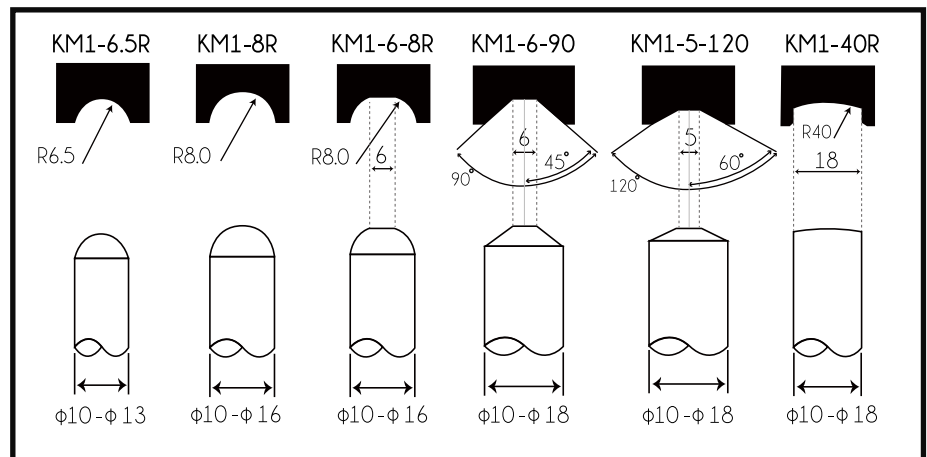
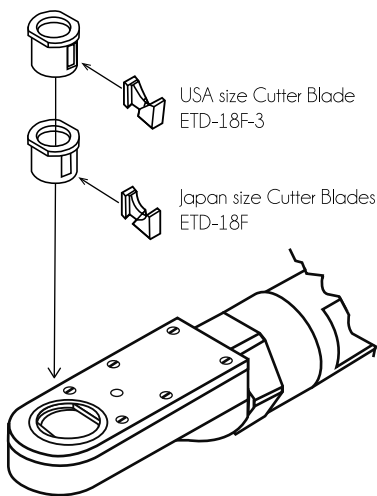
# TIP DRESSER

## ETD-18F



Small, light and easy to handle  
Quick and accurate work  
Low air consumption  
Easy to change cutter and cutter case

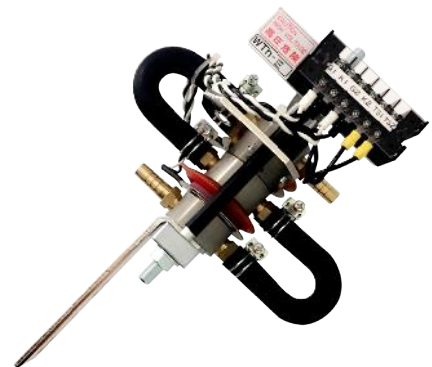
Tip size : 10-18 mm  
No-load RPM : 1,300 r.p.m.  
Weight : 1.65 kg



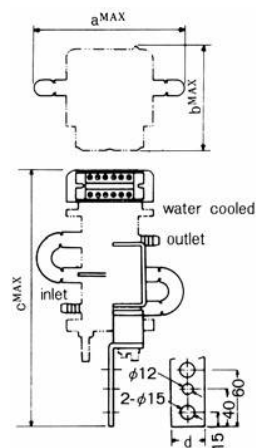
# Welding Thyristor

## Water-Cooled Stack Type

THYRISTOR STACKS FOR RESISTANCE WELDING MACHINE



Type No.	RMS. Input Voltage (V)	RMS. Load Current Continuous (A)	JIS Japanese Industrial Standard		Dimensions (mm.)			
			JIS Class	Type No.				
AC05-4S07	400	510	C	WTh-C-400	225	145	235	40
AD09-4S07	400	910	D	WTh-D-400	225	145	250	40
AE11-4S07	400	1,110	E	WTh-E-400	225	155	300	40
AF16-4S07	400	1,600	F	WTh-F-400	225	155	300	35
AG22-4S07	400	2,200	G	WTh-G-400	225	180	370	40
AH30-4S07	400	3,000	H	WTh-H-400	225	270	370	40



● Outline Drawing

## NUT FEEDER SERIES :

### NF21 (YAJIMA)

#### series which you can combine

NF21 (YAJIMA) is our latest machine. It has high performance with high speed supply ability, eco-friendly and maintenance-free.

1. Changing air-cylinder can change supply head stroke.
2. High speed supply (1.5 times faster than the previous model)
3. Low noise (Less than 80dB for parts feeder configuration)
4. Energy-saving (Power consumption was reduced to 1/2 and air-consumption was reduced to 1/6)
5. Simple & Compact (It easy to handle or operate and compact-sized)
6. You can choose the combination of bowls and hoppers.



#### 260H standard type

It has nut selection configuration of  $\Phi 260$  and equipped with 10L hopper. The height from floor to hopper is 1m, which makes it easy for you to re-supply nuts.



#### 260N standard type

It is a cheaper version of  $\Phi 260$  nut selection bowl configuration. You can attach hopper in a later time by sliding counter. You can perform control operation in front of the equipment.



#### 300N standard type

It has  $\Phi 300$  nut selection bowl and therefore can accommodate nuts twice compared with  $\Phi 260$ . You can perform control operation in front of the equipment. You can attach hopper in a later time.

#### STANDARD CONFIGURATION :

Power supply	: AC100V, 50Hz / 60Hz Max 300VA
Nut shapes which can be used	: Square, round, Hexagon
Air pressure used	: 0.3 - 0.4MPa
Sizes	: M5 - M10
Bowl size	: $\Phi 260$ mm, $\Phi 300$ mm
Hopper capacity	: 10L (Approx. 12,000 pcs for M6 nut)
Supply capacity	: 60 pcs / minute for single feed M6 square nuts
Angle	: (Against floor) 0° - 90°
Equipment weight	: $\Phi 260$ Body: 54kgf : $\Phi 300$ Body: 57kgf

\*All specifications are subject to change without notice, due to Yajima's policy of continuous improvement.

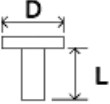
# BOLT FEEDER SERIES :

## ELECTRODE PUSH TYPE BOLT FEEDER

Standard configuration :



Bolts that are chucked will be pushed into work holes directly at the upper electrode of welding machine. It has a simple and secure mechanism, which enables short cycle time.

Power Supply	AC100V, 50Hz / 60Hz 300VA - 500VA
Nut sizes which can be used	M5,6,8,10 MIN. L = 1.2 x Dmm MAX. L = 40mm *Round bolts only <div>  </div>
Air pressure used	0.3 - 0.5MPa
Bowl size	Φ 260mm, Φ350mm
Supply capacity	Approx. 15 - 20 pcs/minute
Supply chute length	3m
Angle	(Against floor) 40°
Equipment	Type S body: 70kgf Type L body: 90kgf Supply head: 3kgf

## VECUUM TYPE BOLT FEEDER

Standard configuration :



Vacuum type bolt feeder performs the vacuum absorption of bolt heads, therefore it can used with any kind of bolt material. It can also be installed for small space, as its absorbing part is compact. We also has special chute (Hose) for those bolts whose length under head is short. Please feel free to make inquiry.

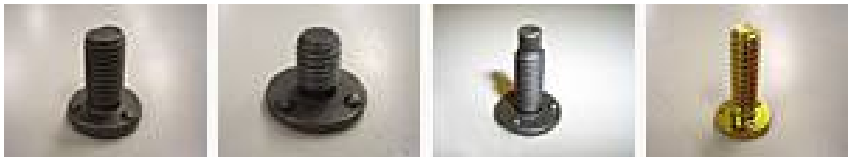
Power supply	AC100V, 50Hz / 60Hz, Max 300 - 500VA
Nut shapes which can be used	M5,6,8,10 MAX. D ≤ Φ 25 MAX. L ≤ 40
Air pressure used	0.35 - 0.4MPa
Supply stroke	200mm, 250mm, 300mm
Bowl size	Φ 260mm, Φ350mm
Supply capacity	Approx. 20 pcs/minute
Supply chute length	3m
Angle	(Against floor) 45° *0° is available as an option.
Equipment weight	Type S body : 70kgf Type L Body : 90kgf Supply head : 10kgf



Body for S type bowl configuration



Body for L type bowl configuration



# AMADA MIYACHI's TECHNOLOGY

AMADA MIYACHI's technology supports our daily lives & Industry.

## Automobile



Bus bar welding of electronics control units (ECUs)  
PULSETIG Welders

Fusing of motor terminals  
DC Inverter-type Welding Power Supplies

- Fusing for terminal treatment for HV(hybrid) motors.
- Tab Welding of EV (electric vehicle) batteries
- Seal Welding of on-vehicle relay covers
- Fusing of starters and alternators

## Smartphone / Electrical Appliance & Component



- Welding of Vibration motor terminals for mobile phones
- Welding of IC lead and sensor component
- Joining of LCD panels for car navigation system and flexible flat cable

## Photovoltaic Cells



Joining of bus bars and interconnectors  
Pulsed Heat Controllers

- Ribbon welding between cells
- Welding of terminals inside junction boxes
- Joining of interconnectors

## Medical Instrument



- Fusion cutting mesh catheters
- Welding of guide wire tips

## Batteries



Layer joining (inside battery cells)  
Transistor-type Power Supplies

Layer joining (inside battery cells)  
Transistor-type Power Supplies

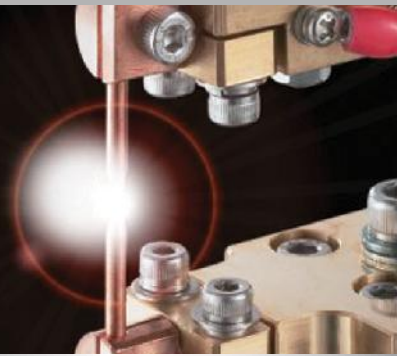
## Others



- Resistance brazing of eyeglass frames
- Welding of fountain pen tips
- Welding of fuel rods

# FINE SPOT WELDER

AMADA MIYACHI's Lineup of Fine Spot Welders



## Fine Spot Welders

### Welding Power Supplies



Provides precise closed looped feedback control for any weld profile, and provides the current necessary for resistance welding.

### Welding Power Supplies



Converts low current output from welding power suppliers to the high current required for resistance welding.

### Weld Checker / Testers



To realize welding quality control, weld checker/testers measure important parameters for resistance welding, specifically current, voltage, welding time, welding force, and displacement.

### Weld Heads



In resistance welding, weld head supply the required force to the parts via welding electrodes, current is then passed through the electrodes and parts to weld them together.

## PULSETIG® Welder



PULSETIG® Welders are DC current TIG welder (Arc welders). These units can be used for TIG welding or precision devices and miniature parts with good weld quality and reduced thermal effects.

## Pulsed Heat Controllers



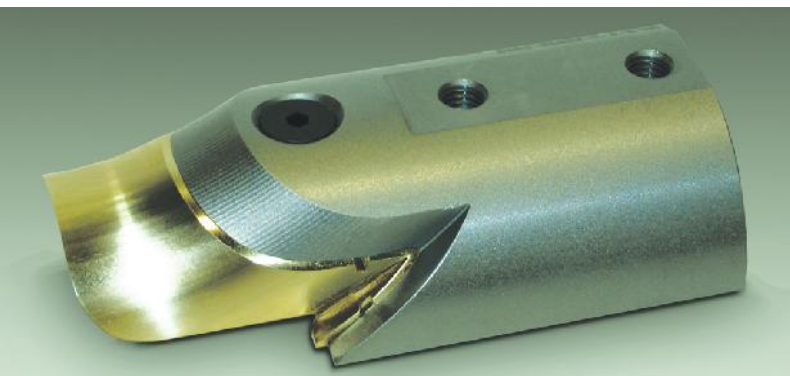
Pulsed heat controller are best suited for solder joining of flexible flat cable (FFC) and substrates as well as thermal caulking of resin. These controllers utilize closed-loop temperature and time control to produce precise and repeatable energy profiles for precision solder joining.

# ALUMINIUM-BRONZE ALLOY

We have been witnessing a rise in demand for special copper alloys with more demanding requirements. We have to be careful in meeting customers' needs and we must not deviate from their specifications in metallic industry as the present age of new technology progresses. A special aluminum-bronze alloy was developed by our founder, Dr. Shigeru Hagino, when he was with Mitsubishi Steel Mfg. in the 1940s. Many of the alloys developed during that period have made a big impact in the alloy industry in the past 65 years.

## HRW-1

We have developed a special aluminum-bronze alloy, HRW-1, the only one of its kind on the market. HRW-1 (Patent NO. 18919342) has over 640MPa in tensile strength, over 15% of elongation and has over HBW180 of hardness. Its characteristics include high mechanical strength and high wear resistance, and it is best suited for small abrasion-movement parts or parts that must withstand heavy load.



### Feature :

- Mechanical properties are good.
- Excellent in wear resistance.
- Excellent in anti-corrosion quality.
- Excellent in fatigue resistance.
- Small specific gravity (specific gravity 7.5-7.6).

### Principal applications :

- Non-magnetic bolts
- Non-magnetic engine materials
- Rotor wedges Shafts
- Bolts
- Nuts
- Overhead wiring metal fittings for trains
- Springs
- Connecting rods
- Brackets
- Various gears
- Bearings
- Liners
- Various materials for ships
- Pistons
- Bushes
- Various materials for electric machine parts
- Joints
- Valve cocks
- Valve seats
- Pumps
- Various machines
- Bushings for aircraft

## OVERHEAD MATERIALS HANDLING LIGHT CRANE SYSTEMS



### Turn-key installation of CEARS Gantry System, IT Guns, Non-IT Guns, Transformers and Controllers

CEARS Gantry System is a proven system and efficient solution for variety of overhead material handling requirement for auto and engineering industry. CEARS Gantry System is used for handling and assembling of heavy material in three dimensional work space. The operator does not feel fatigue in handling heavy material which results in enhancement of production to great extent.

CEARS sections are cold rolled Special Track Sections in steel with a smooth surface finish. The dead weight being very low and with extremely smooth running trolleys the crosstracker allows heavy and odd size goods to be moved quickly and effortlessly. Special guide surfaces and slightly inclined contact surfaces guarantee smooth trolley travel.

All rails are powder coated from inside as well as outside.

Cears rails are available in four different sizes - CGS-1G, CGS-1, CGS-2L and CGS-2.

CEARS Gantry System can be suspended from the building structure or a pillar type structure can be erected from the floor. Technical assistance is provided in designing this structure. We can also assist in providing other details like height of structure, height of gun station, working height of gun etc.

As sections are available in different sizes, wide variety of possible combinations can be adapted and any load handling problem can be solved.

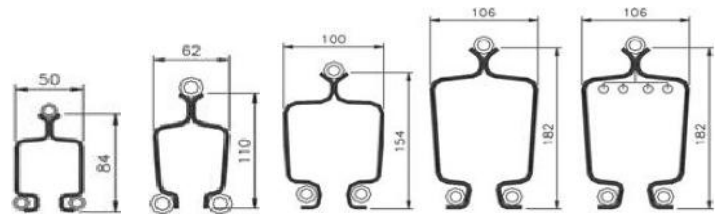
If possible, please send us your shop layout to enable us to offer you right solution for your requirement.

- **Suspension Assembly for Suspending Runways :** Suspension assemblies are mounted on 1-beams for suspending runways. The 1-beam holder is provided with an adjustment clamp which can fit on all standard 1-beams. The complete assembly consists of ball and socket joint with moulded plastic cups for noiseless operation, absorption of jerks and minimum maintenance. Uniqueness of the assembly allows pendulum movement which prevents bending stresses and minimizes horizontal forces in the CEARS structure. The height of the runway can be easily and accurately adjusted by means of threaded suspension rods.
- **Runways :** Runways are suspended on 1-beams with the help of suspension assemblies. Runways are available in various lengths. The runway joining set enables the runways to be extended to any required lengths.
- **Cross Tracker :** The Cross Tracker has a two axis movement. It is suspended on runways with the help of tracker suspension trolley.
- **Smooth Running Trolleys :** Trolleys are strong, fitted with self lubricating polymer wheels, moulded with double Z bearings for maintenance free and long life operation. Trolley wheels are tapered to match the taper of the track thereby reducing rolling resistance.

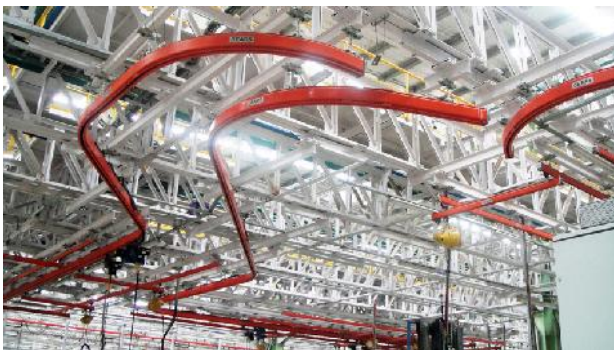
Cears rails are available in four different sizes - CGS-1G, CGS-1, CGS-2L and CGS-2.



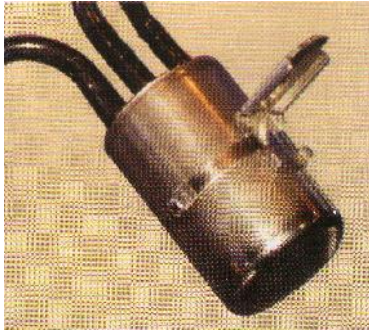
CGS-1G CGS-1 CGS-2L CGS-2 CGS-288 Bus Bar



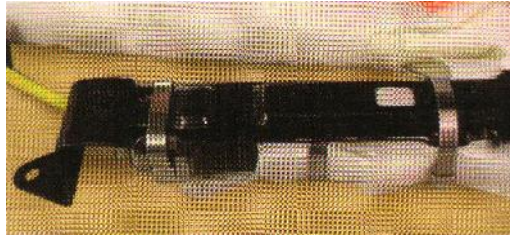
CGS-1G CGS-1 CGS-2L CGS-2 CGS-288 Bus Bar



## AUTOMOTIVE APPLICATIONS

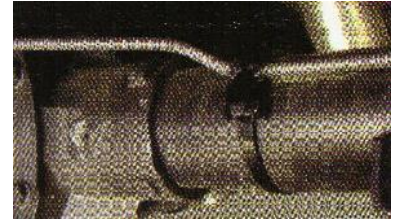


FUEL FILTER



AIR BAGS :

- Clamp canisters and other components in air bag systems



BRAKE CABLE SUPPORT :

- Coated stainless steel tie secures brake cable to axle
- Unaffected by heat, cold, moisture, UV
- Fasten and unfasten tie without tools



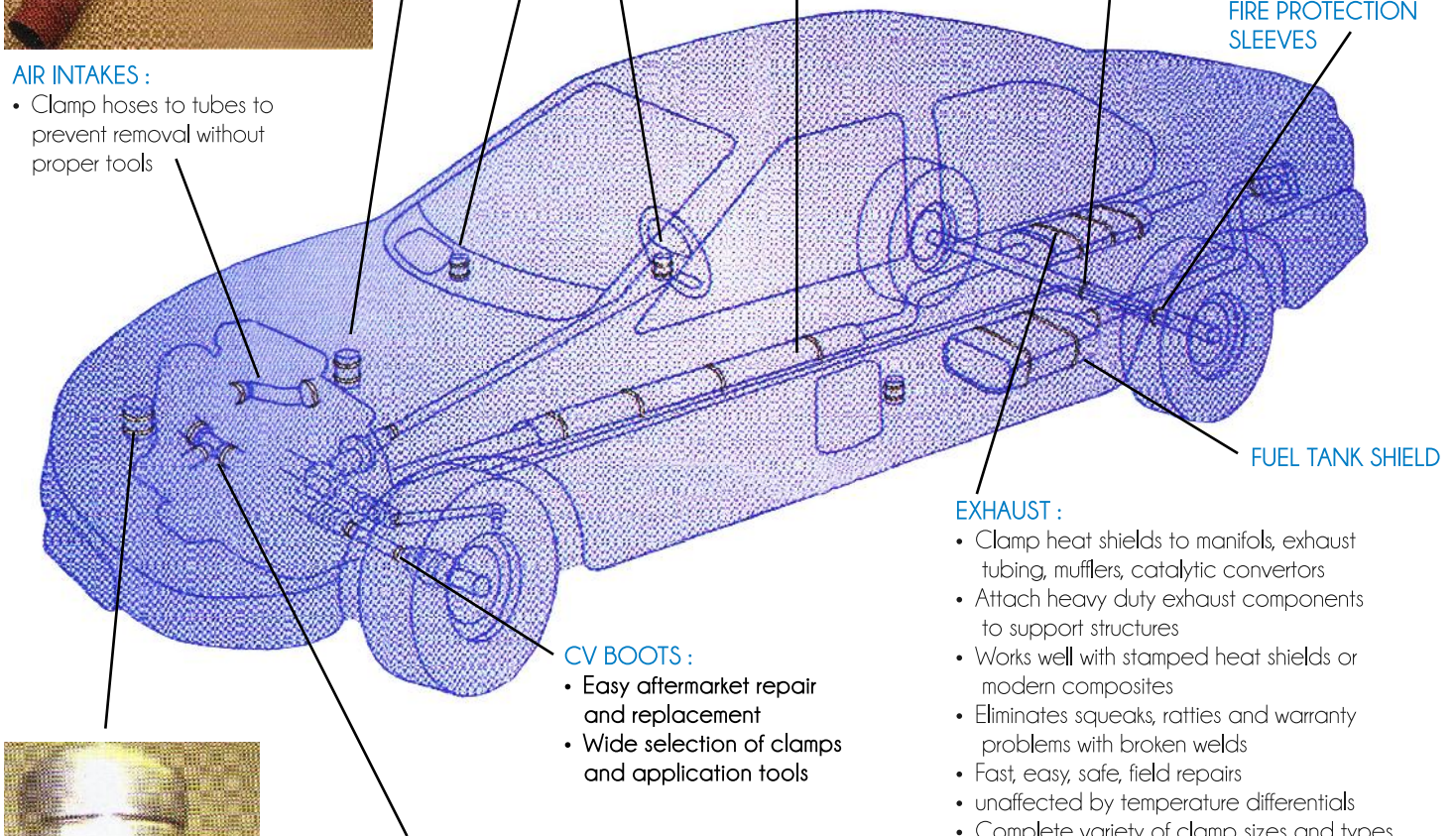
AIR INTAKES :

- Clamp hoses to tubes to prevent removal without proper tools

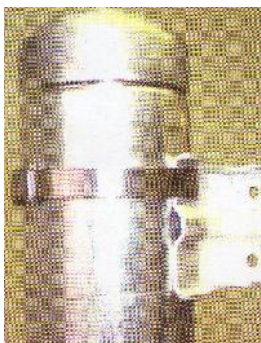
SOUND ATTENUATION SHIELD



FIRE PROTECTION SLEEVES



FUEL TANK SHIELD



DRYWE / RECEIVER

CV BOOTS :

- Easy aftermarket repair and replacement
- Wide selection of clamps and application tools

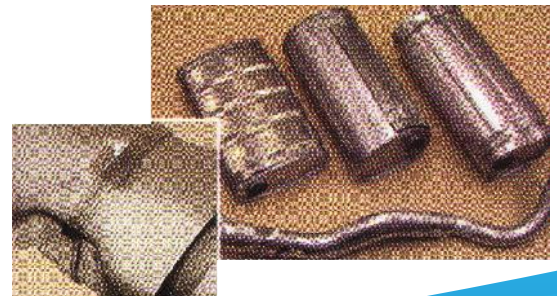


COOLING SYSTEMS :

- PERMANENT clamping of heavy duty cooling lines to prevent removal without proper tools

EXHAUST :

- Clamp heat shields to manifolds, exhaust tubing, mufflers, catalytic converters
- Attach heavy duty exhaust components to support structures
- Works well with stamped heat shields or modern composites
- Eliminates squeaks, ratties and warranty problems with broken welds
- Fast, easy, safe, field repairs
- unaffected by temperature differentials
- Complete variety of clamp sizes and types





**M.S. Trading Eu Hua Guang Jear Sung Co., Ltd.**

346 On-Nuch Rd, Kwang Prawet, Khet Prawet, Bangkok, 10250, Thailand.

Tel. : +66(0) 2328 8302-3, +66(0) 2328 7869,

Fax. : +66(0) 2328 7431

E-Mail. : [info@ms-cable.com](mailto:info@ms-cable.com), Website. : [www.ms-cable.com](http://www.ms-cable.com)

**BAND-IT®**

**Spotron**

**YAMATO**

**AMADA®**

