

CORPORATE INFORMATION

DENGENSHA TOA's Welding equipment is used by companies all over the world.



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 DENGENSHA MEXICO S. DE R. L. DE C. V.
 DENGENSHA INDIA PVT. LTD.

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DENGENSHA
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DENGENSHA MEXICO
 S.DE R.L.DE C.V.



DENGENSHA
 INDIA PVT.LTD.



NDZ Series

Stationary spot welder



[Single Phase AC Type]



[Inverter Type]



[Capacitor Discharge Type]



[Single Phase AC Type]
 (Adjustable Lower Knee)



[DC Invert Type]
 (Adjustable Lower Knee)

DENGENSHA TOA co., LTD.

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Registered company: Dengensha Toa Co., Ltd.
 Scope of registration: Design, development, manufacturing, and related service
 for resistance welders and related equipment (product
 operation and maintenance training and service/spare
 parts supply)
 Related facilities: [Scope of activities: Same as above]
 Headquarters, Toyama plant, and Omi plant

Pioneering a New Dimension in Spot Welding

As a manufacturer of full line of resistance welding welders with extensive track record, Dengensha Toa has supplied high quality products not only in Japan, but to the rest of the world. In order to meet society’s demands and customers’ expectations, we will devote our effort to the advance of products that are environmentally-friendly energy-saving, safe, and high quality, and make further advancement to become a true global company.

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Features of NDZ

- 1. Wide Variety of Welder Model
- 2. High Quality for Nut/Bolt Welding
- 3. Easy Feeder Installation
- 4. Electrode Force Monitor
- 5. Pokayoke Function for Nut/Bolt
- 6. Network Management System

Non-Lubrication Cylinder

Easy Maintenance and Clean Environment

Long Stroke

75mm Stroke as standard, 115mm or 155mm Stroke are available(Optional) for Deep Drawing Part or Long Beneath Bolt.

Free Stress for Operator

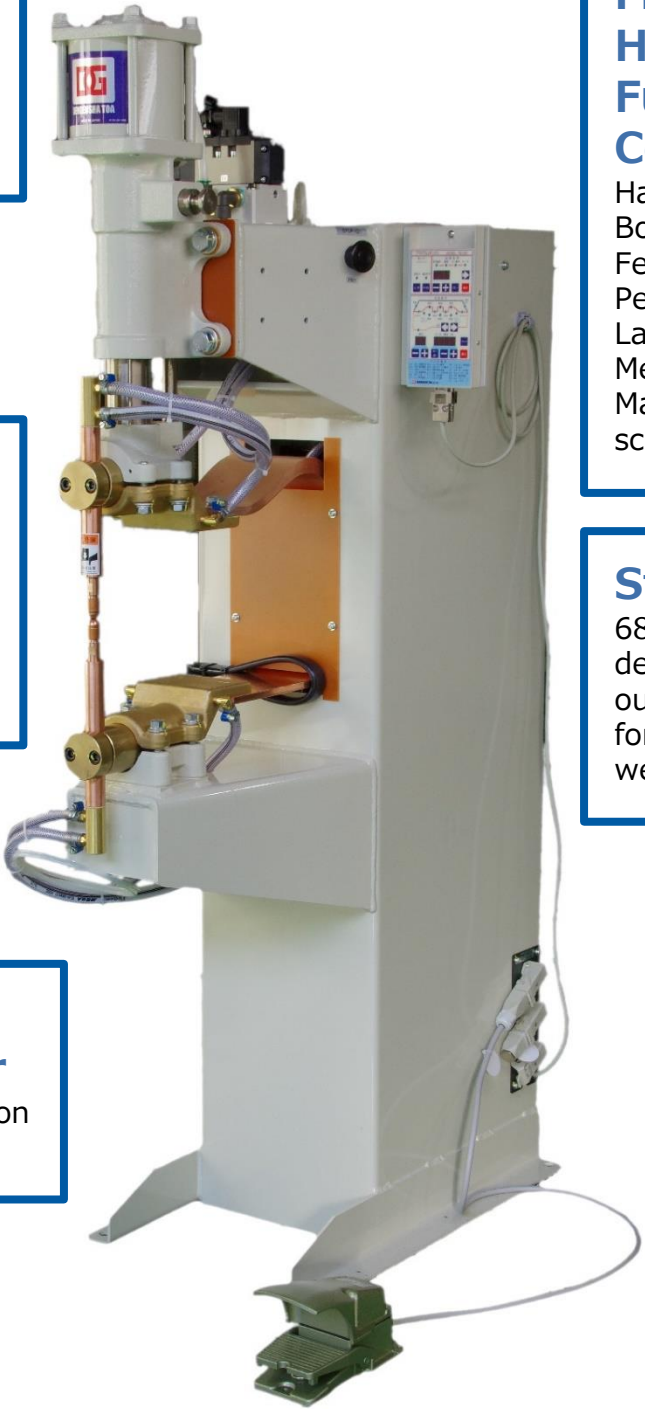
Rear Bottom Position for Air Exhaust

User-Friendly and High-Functional Controller

Handheld Program Box and High Speed Feedback by High Performance CPU. Large Capacity Memory for Maximum 255 weld schedule.

Strong Frame

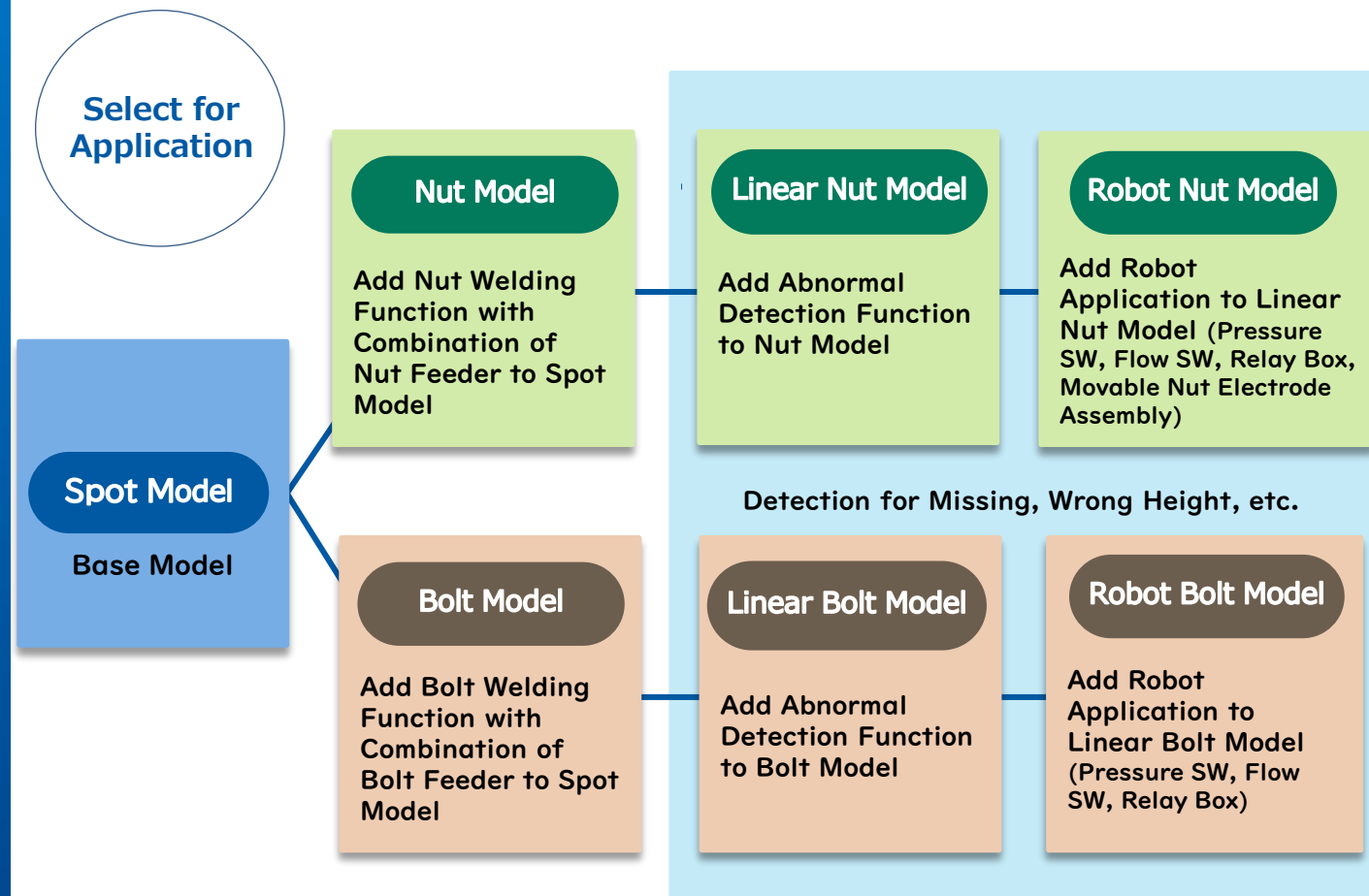
68% Relative Slipping decrease, comparing our previous products, for high quality welding.



Point 1

Wide Variety of Welder Model

Selectable Suitable Welder from Wide Variety according to Workpiece, Applications with covering Global Specifications for destinations.



Select for Size of Workpiece

- Standard Stroke ... 75mm
- Long Stroke ... 115mm, 155mm
- Throat Depth ... 400mm, 600mm
- Adjustable Lower Knee ... Throat Depth 400mm :
Throat Gap 215/270/325/380mm
Throat Depth 600mm:
Throat Gap 200/255/310/365mm

Select for Weld Controller

- Single Phase AC Type
- DC Inverter Type
- AC Inverter Type
- Capacitor Discharge Type

Single Phase AC Type

- Rapid Rising Current makes High Quality of Projection Welding
- High Strength Projection Welding by setting Pilot Current
- Selectable Suitable Control from Constant Current, Power Factor and HCCL(Heat Control Current Limit)

Capacity	Stroke	Power	Linear Encoders	Throat Depth	Welding force
35kVA	75st	single phase	Linear Encoders	400mm	6kN
50kVA	115st			600mm	10kN
70kVA	155st				
100kVA					

Note)
115/155 stroke are not available for 600mm Throat Depth/10kN Welding Force Model

DC Inverter Type

- Rapid Rising Current makes High Quality of Projection Welding
- Wide Weld Lobe and Stable Welding Quality by Efficient Heat through Continuously Temperature Rising in Weld Part
- Reduction of Expulsion by Control of Peak Current
- Detailed and Fine Adjustment for Weld Condition by msec setting for Weld Time
- Available Large Current Models for Thick Material Welding
- Suitable Aluminum Spot Welding

Capacity	Stroke	Power	Linear Encoders	Throat Depth	Welding force
50kVA	75st	three phase	Linear Encoders	400mm	6kN
70kVA	115st			600mm	10kN
100kVA	155st				
150kVA					

Note)
115/155 stroke are not available for 600mm Throat Depth/10kN Welding Force Model

AC Inverter Type

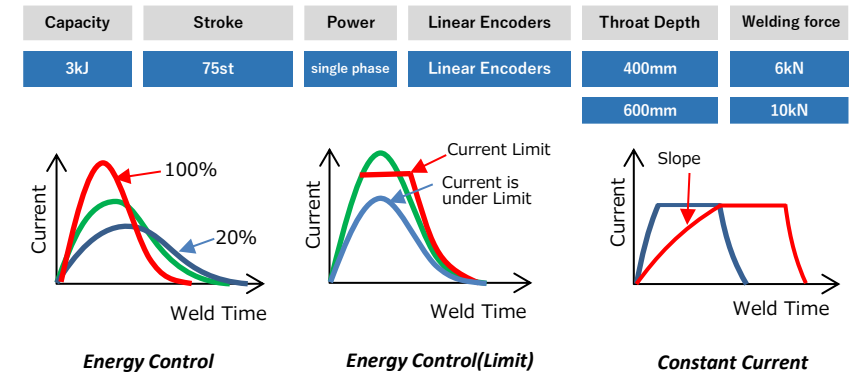
- Rapid Rising Current makes High Quality of Projection Welding
- Reduction of Expulsion by Control of Peak Current
- Low Cost for Modification from Single Phase AC Welder to AC Inverter
- No Polarity Effect, it is not Short Lifetime of Electrode, such as Galvanized Sheet Welding by DC Inverter Welder.
- Effective for Flicker Suppression

Capacity	Stroke	Power	Linear Encoders	Throat Depth	Welding force
50kVA	75st	three phase	Linear Encoders	400mm	6kN
70kVA	115st			600mm	10kN
	155st				

Note)
115/155 stroke are not available for 600mm Throat Depth/10kN Welding Force Model

Capacitor Discharge Type

- High Quality Welding with Low Heat Distortion/Weld Burning/Indentation by running Large Weld Current in short time
- Small Capacity and Energy-Saving Welder
- Energy is charged in Capacitor Bank, No Influence by Fluctuation of Power Supply and No Flicker.
- Energy Control Mode, Possible to Control Rising Current without Tap Change and Effective for Reducing Expulsion by using Limit Function
- Constant Current Mode, Possible for Detailed and Fine Control for Weld Current and Weld Time, setting Upslope as well.



Single Phase AC Type (Adjustable Lower Knee)

- Apply for Wide Variation for Workpiece Size

Capacity	Stroke	Power	Linear Encoders	Throat Depth	Welding force
70kVA	115st	single phase	Linear Encoders	400mm	6kN
100kVA	155st			600mm	10kN

DC Inverter Type (Adjustable Lower Knee)

- Apply for Wide Variation for Workpiece Size
- Available Large Current Models for Thick Material Welding
- Suitable Aluminum Spot Welding

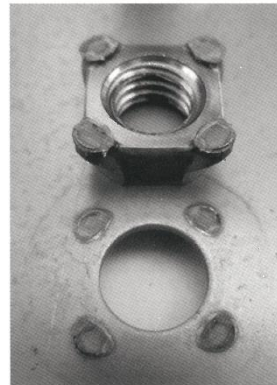
Capacity	Stroke	Power	Linear Encoders	Throat Depth	Welding force
75kVA	115st	three phase	Linear Encoders	400mm	6kN
100kVA	155st			600mm	10kN

※Some Combinations may be not available depending on selected items. Please see P18 to identify Model Number and Specifications.

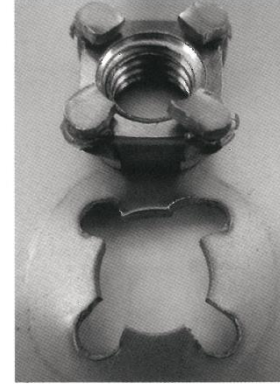
Point 2 High Quality for Nut/Bolt Welding

High Strength and Excellent Welding by Rapid and Accuracy Rising Current by Pilot Current Control and Strong Frame. Effective for Hi-tensile Material.

Interface Failure



Plug Failure

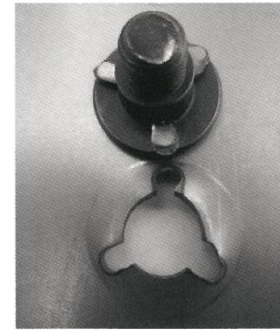
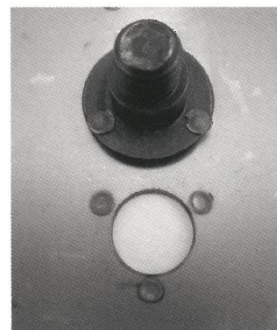


Base Material :
High Tensile Steel
80kgf Class t1.2

Nut:M8

Base Material :
High Tensile Steel
80kgf Class t1.2

Bolt:M8



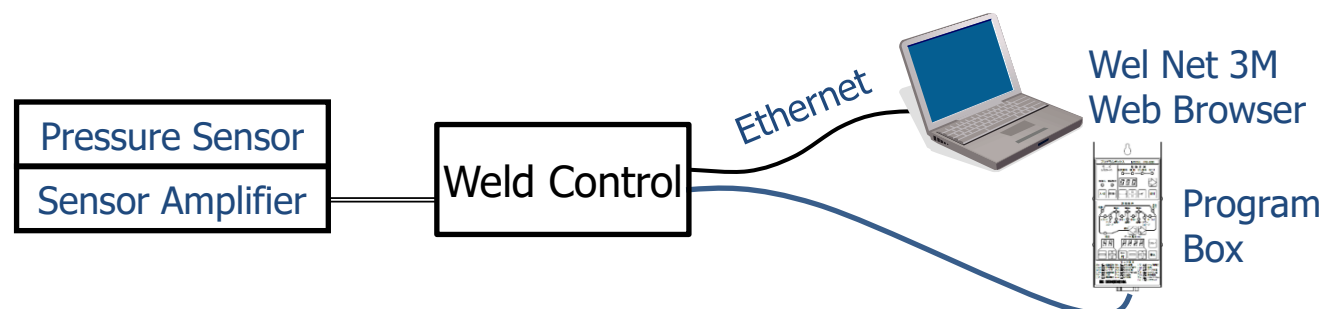
Point 3 Easy Feeder Installation

1. Mounting Holes for Feed Unit on Upper Arm Provided.
2. Easy Connection with connector to install DGT Feeder, No need Discrete Wiring or Power Supply for Feeder.
3. Welder Supply Air for Feeder and Nut Welding Electrode.

Note) 2、3 are equipped except S-Model

Point 4 Electrode Force Monitor

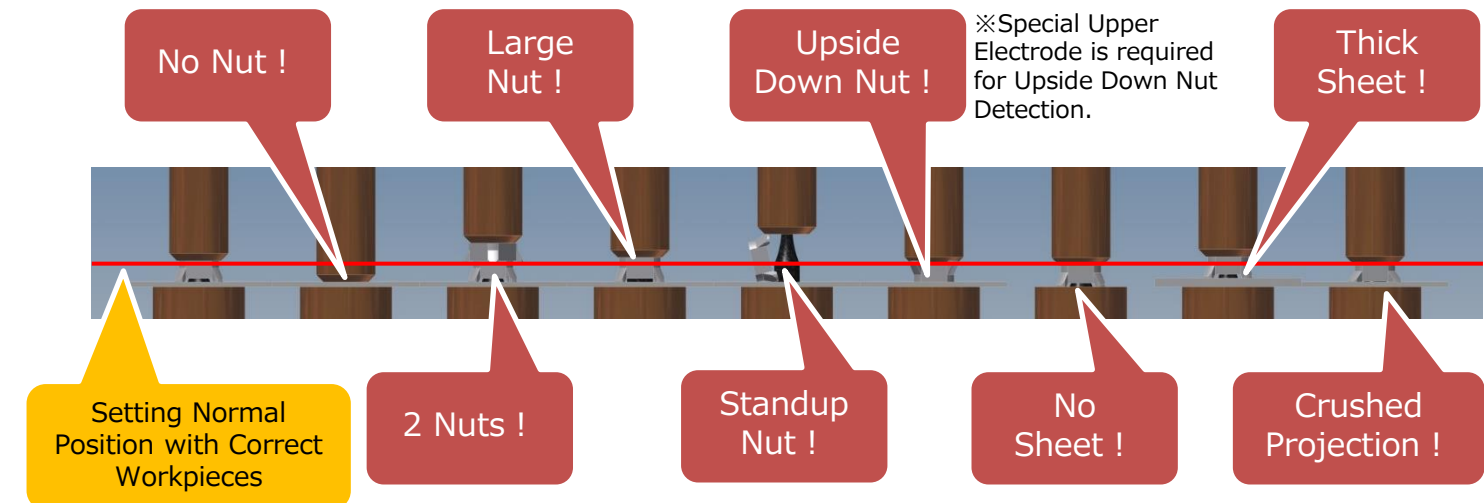
Monitor Actual Electrode Force and 、 Check Upper/Lower Limit.
(Expansion P.C.B. and Pressure Sensor/Amplifier is additionally required.)



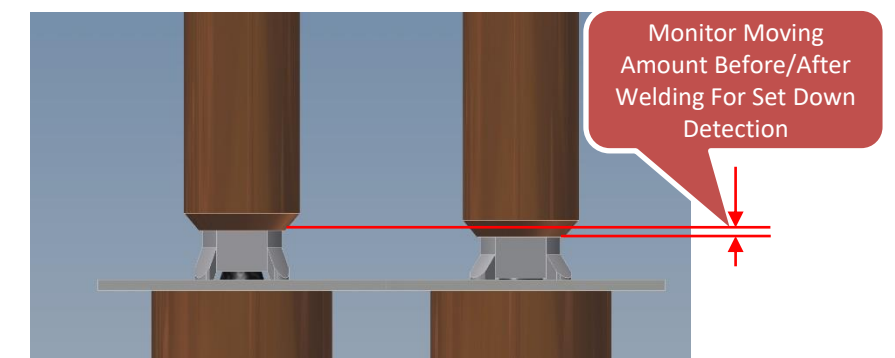
Point 5 Pokayoke Function for Nut/Bolt (Expect S-Model)

Detection by Linear Encoder Function for Missing Nut/Bolt/Panel, 2 Nuts/Panels, Standup-Nut, Wrong-Height-Nut, Wrong-Thickness-Panel, Irregular Set down, also available for Upside-down or Offset Position Nut with Special Electrode.

①Detection for Irregular Nut Positioning «example»

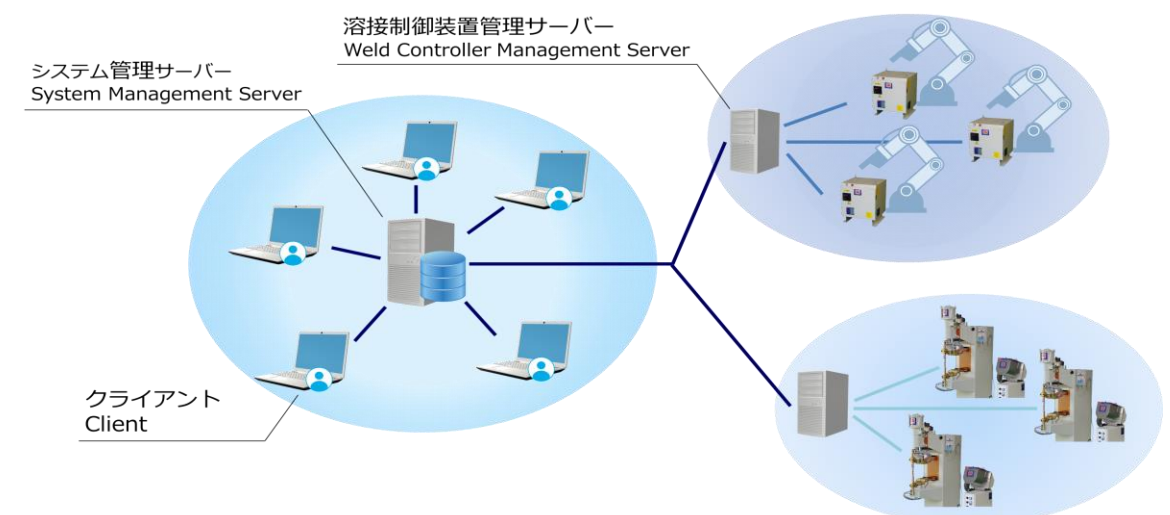


②Detection for Irregular Set down

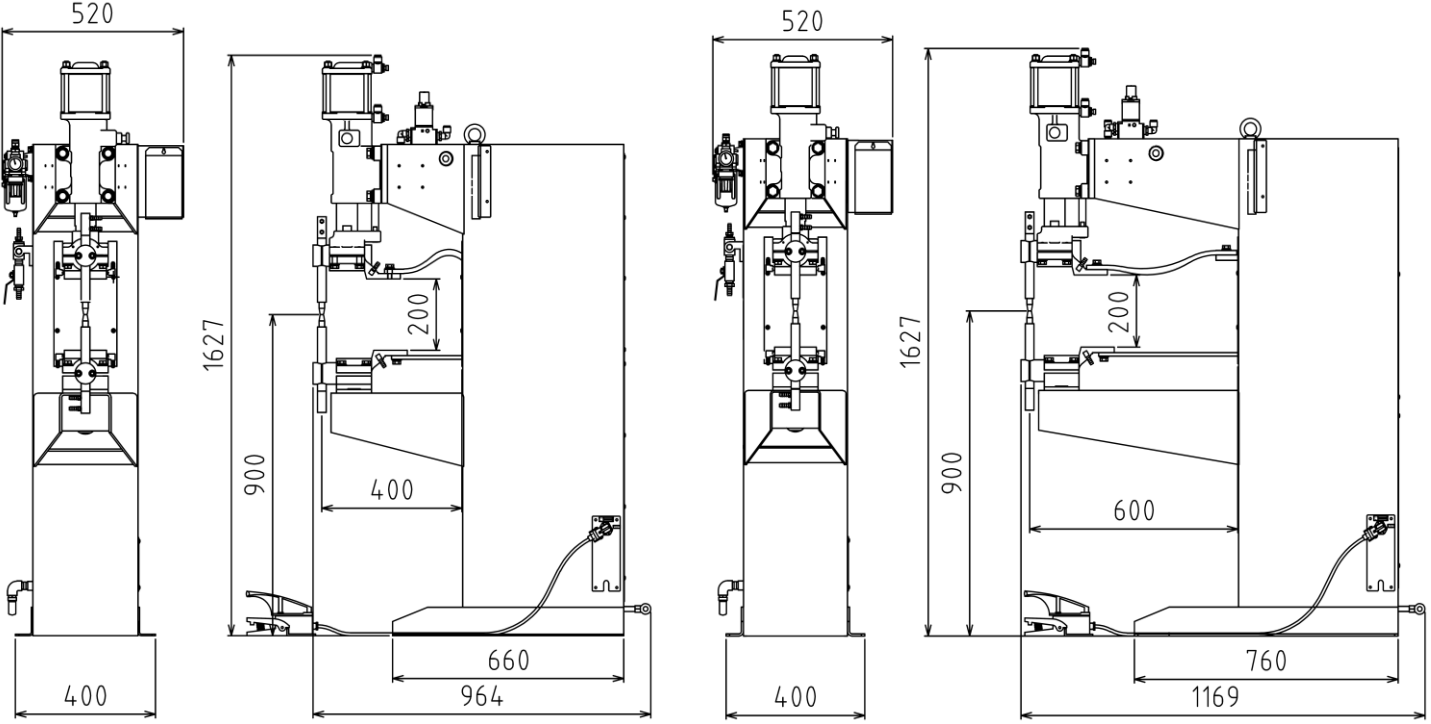


Point 6 Network Management System

Database of Unitary Management of Welding Condition and Weld Monitoring Result for Traceability or Weld Quality Management (Weld Network Management System Wel Net 3M is required.)



Single-phase AC Type Spot Welder

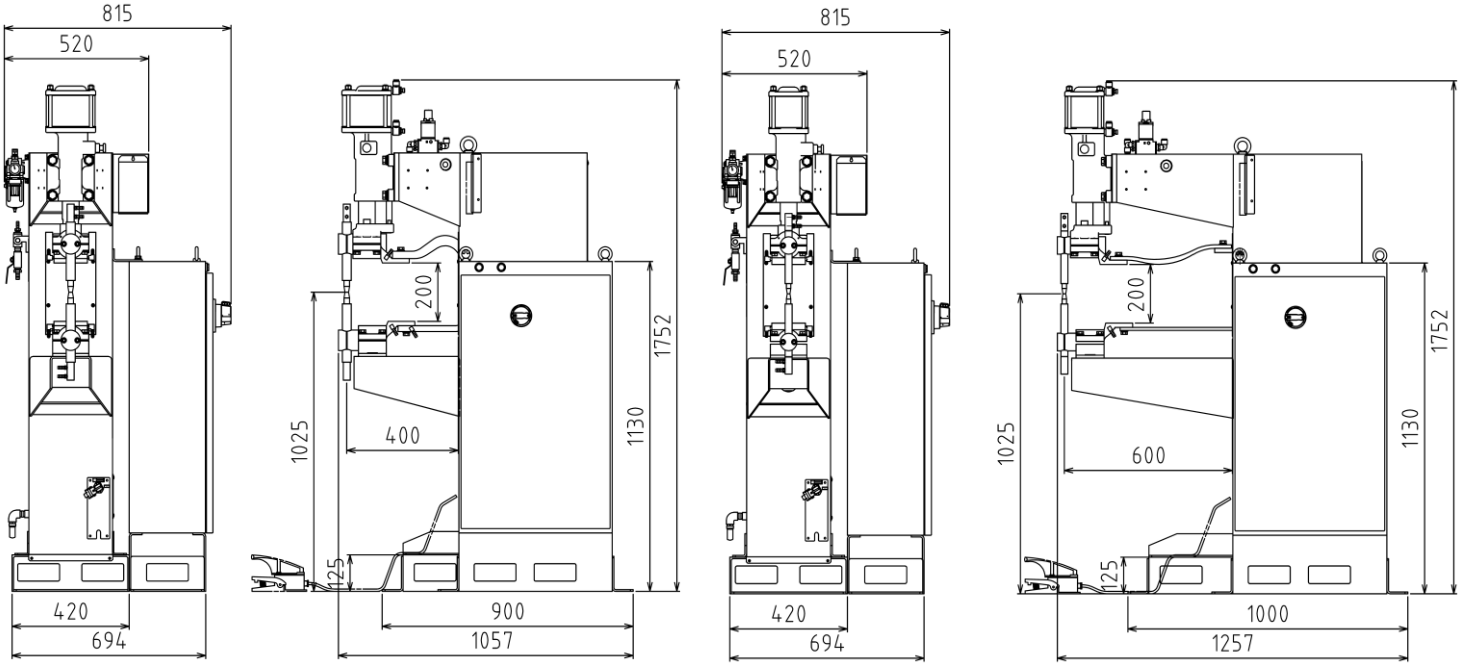


Specifications	Model										
	Model #	NDZ-035-46B*J-*-E	NDZ-035-66B*J-*-E	NDZ-050-46B*J-*-E	NDZ-050-41B*J-*-E	NDZ-050-66B*J-*-E	NDZ-070-41B*J-*-E	NDZ-070-61B*J-*-E	NDZ-100-41B*J-*-E	NDZ-100-61B*J-*-E	
	Rated Primary Voltage U_{1N}	V	1 Φ AC 200/400					1 Φ AC 400			
	Rated Frequency U_{1N}	Hz	50/60								
	Rated Capacity S_{50}	kVA	35		50		70		100		
	Max. Input	kVA	106/122	93/108	124/144		104/120	188/214	158/180	313/371	257/304
	Max. Short Current I_{2CC}	A	17,000	15,000	20,000		17,000	25,000	21,000	33,000	27,000
	Allowable Duty Cycle	%	5.5/4.1	7.1/5.3	8.1/6.0		11.2/8.3	7.0/5.3	9.9/7.6	5.1/3.6	7.6/5.4
	Throat Depth l	mm	400	600	400		600	400	600	400	600
	Throat Gap e	mm	200								
	Max. Electrode Force F_{max}	kN	6			10	6	10			
	Total Stroke *1	mm	75								
	Retracting Stroke	mm	60								
	Working Stroke	mm	20								
	Standard Working Height	mm	900								
	Horn Diameter	mm	60			70	60	70			
	Electrode Holder Diameter	mm	25			32	25	32			
	Tip Diameter	mm	16			20	16	20			
	Electrode Taper		1/10								
	Cooling Water Flow Rate q	ℓ /min	8							10	
	Weld Controller *2		NWC-903-11-R01								
	Program Box		PB-900-11								
	Current Feed Back		Secondary Toroidal Coil								
	Apprx. Mass m	kg	255	305	265	270	320	310	360	360	410

*1: 115mm, 155mm are available(Option), except 61 model(600mm Throat Depth/10kN Eletcrode Force)

*2: KD-1060 is available(Option)

DC Inverter Type Spot Welder

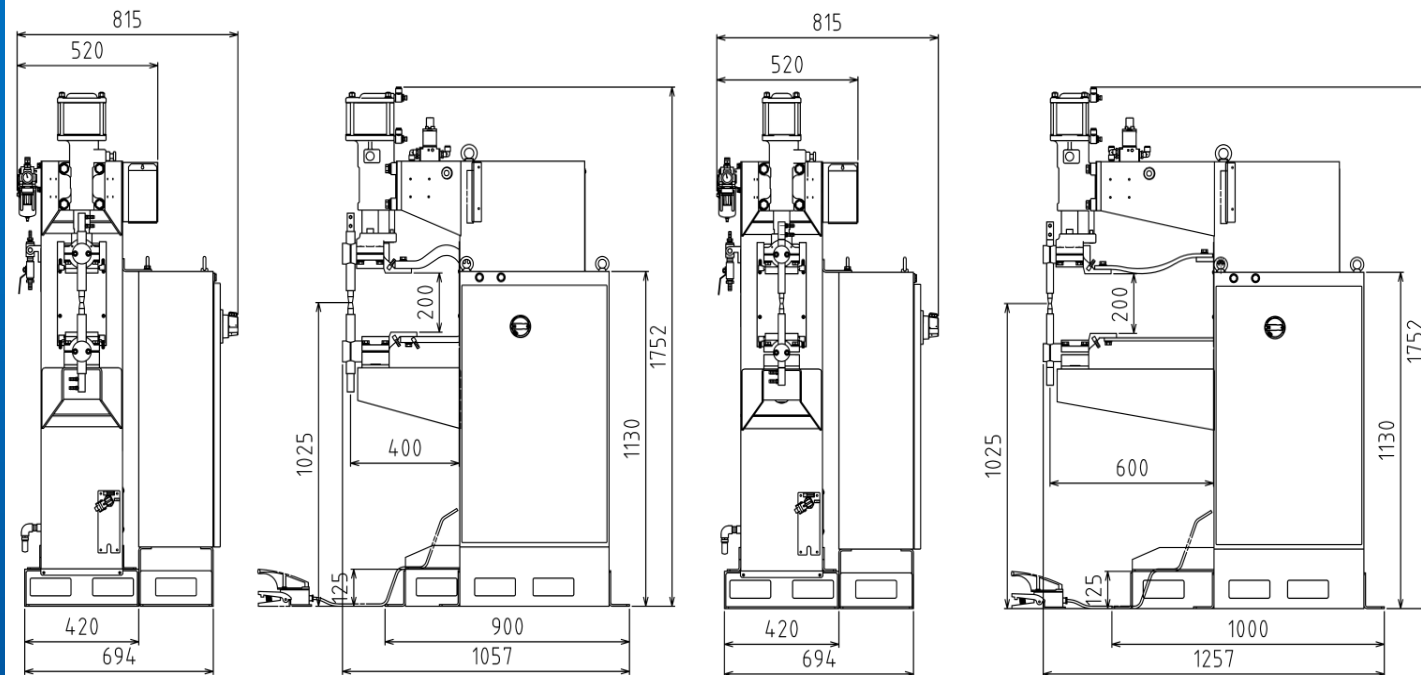


Model											
Model #		NDZ-E50-46BSJ-S-E	NDZ-E50-41BSJ-S-E	NDZ-E50-66BSJ-S-E	NDZ-E70-46BSJ-S-E	NDZ-E70-41BSJ-S-E	NDZ-E70-66BSJ-S-E	NDZ-E70-61BSJ-S-E	NDZ-HA0-41BSJ-S-E	NDZ-HA0-61BSJ-S-E	NDZ-EF0-41BSJ-S-E
Rated Primary Voltage U _{1N}	V	3Φ AC 400									
Rated Frequency U _{1N}	Hz	50/60									
Rated Capacity S ₅₀	kVA	50			70				100		150
Max. Input	kVA	189		180	231		223	223	320	310	405
Max. Short Current I _{2CC}	A	22,000		21,000	27,000		26000	26000	32000	31000	42,000
Allowable Duty Cycle	%	3.5		3.8	4.5		4.9		4.8	5.2	6.8
Throat Depth l ₁	mm	400		600	400		600		400	600	400
Throat Gap e ₁	mm	200									
Max. Electrode Force F _{max}	kN	6	10	6	6	10	6	10	10	10	10
Total Stroke *1	mm	75									
Retracting Stroke	mm	60									
Working Stroke	mm	20									
Standard Working Height	mm	1025									
Horn Diameter	mm	60	70	60	60	70	60	70	70	70	70
Electrode Holder Diameter	mm	25	32	25	25	32	25	32	32	32	32
Tip Diameter	mm	16	20	16	16	20	16	20	20	20	20
Electrode Taper		1/10									
Cooling Water Flow Rate q	ℓ /min	20									
Weld Controller *2		SWIE-1000-WS40-S03-TB-C-E							SWIE-1000-WS80-S03-E2-C-E		
Program Box		PB-1000-11									
Current Feed Back		Primary CT									
Apprx. Mass m	kg	330	335	370	335	340	375	380	375	415	385

*1: 115mm,155mm are available(Option), except 61 model(600mm Throat Depth/10kN Eletcrode Force)

*2: DIT Series are available(Option)

AC Inverter Type Spot Welder

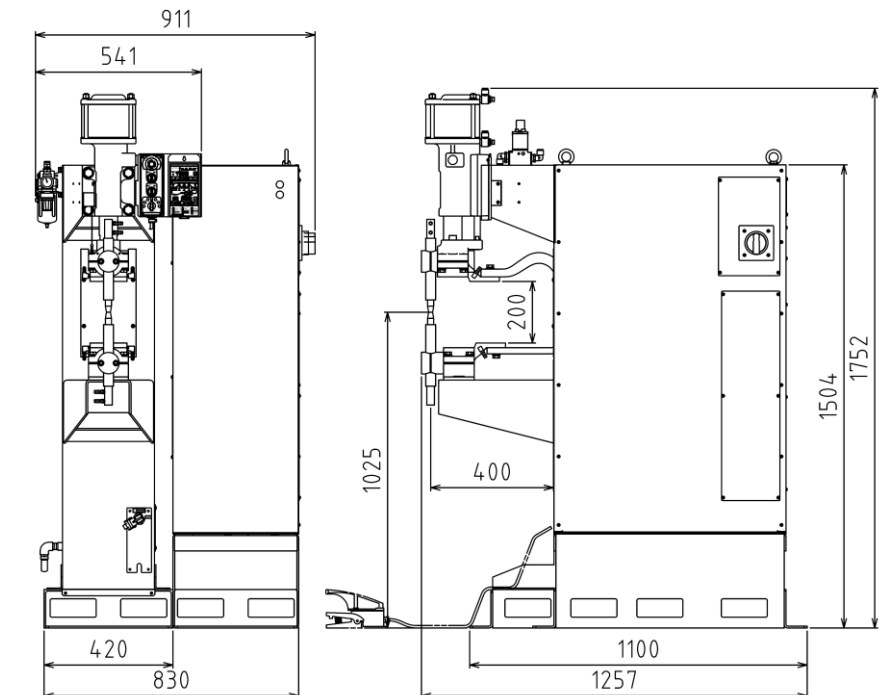


		Model							
Specifications	Model #		NDZ-A50-46BSJ-S-E	NDZ-A50-41BSJ-S-E	NDZ-A50-66BSJ-S-E	NDZ-A70-46BSJ-S-E	NDZ-A70-41BSJ-S-E	NDZ-A70-66BSJ-S-E	NDZ-A70-61BSJ-S-E
	Rated Primary Voltage U_{1N}	V	3 Φ AC 400						
	Rated Frequency U_{1N}	Hz	50/60						
	Rated Capacity S_{50}	kVA	50			70			
	Max. Input	kVA	122/144		106/122	188/214		158/180	
	Max. Short Current I_{2CC}	A	20,000		17,000	25,000		21,000	
	Allowable Duty Cycle	%	8.1/6.1		11.2/8.3	6.9/5.3		9.8/7.5	
	Throat Depth l	mm	400		600	400		600	
	Throat Gap e	mm	200						
	Max. Electrode Force F_{max}	kN	6	10	6	6	10	6	10
	Total Stroke *1	mm	75						
	Retracting Stroke	mm	60						
	Working Stroke	mm	20						
	Standard Working Height	mm	1025						
	Horn Diameter	mm	60	70	60	60	70	60	70
	Electrode Holder Diameter	mm	25	32	25	25	32	25	32
	Tip Diameter	mm	16	20	16	16	20	16	20
	Electrode Taper		1/10						
	Cooling Water Flow Rate q	l/min	20						
	Weld Controller *2		SWIE-1050-WS80-S03-E2B-C-E						
	Program Box		PB-1000-11						
	Current Feed Back		Primary CT						
	Apprx. Mass m	kg	435	440	475	470	475	510	515

注1: 115mm,155mm are available(Optional), except 61 model(600mm Throat Depth/10kN Electrode Force)

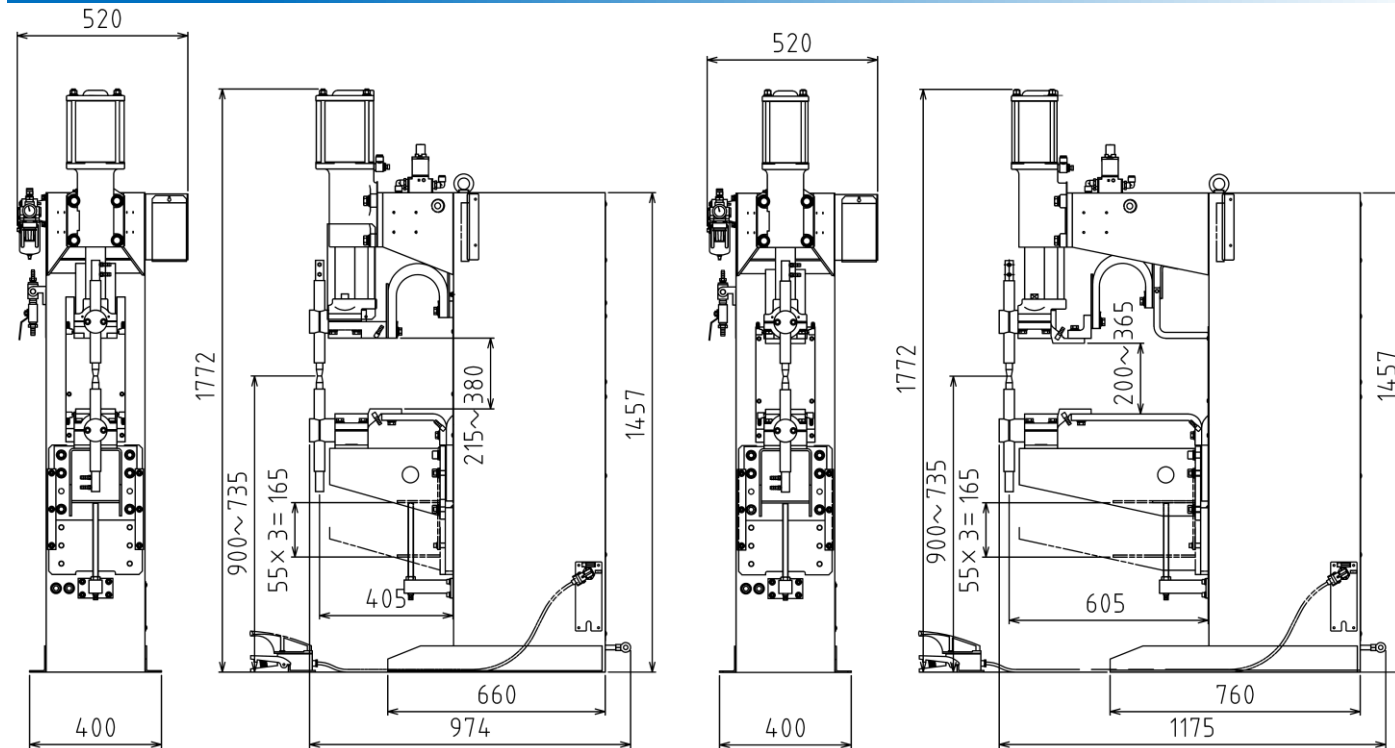
注2: AIT Series are available(Optional)

Capacitor Discharge Type Spot Welder



	Model					
Specifications	Model #		NDZ-CA0-46BSJ-Y-E	NDZ-CA0-41BSJ-Y-E	NDZ-CA0-46BSJ-J-E	NDZ-CA0-41BSJ-J-E
	Rated Primary Voltage U_{1N}	V	1 ϕ AC 200		1 ϕ AC 400	
	Rated Frequency U_{1N}	Hz	50/60			
	Max. Charge Voltage U_{cmax}	V	900			
	Nominal Energy Capacity H	kJ	3			
	Peak of Short Current I_P	A	50,000			
	Standard Welding Frequency N_w		20 times/min			
	Throat Depth l	mm	400			
	Throat Gap e	mm	200			
	Max. Electrode Force F_{max}	kN	6	10	6	10
	Total Stroke	mm	75			
	Retracting Stroke	mm	60			
	Working Stroke	mm	20			
	Standard Working Height	mm	1025			
	Horn Diameter	mm	60	70	60	70
	Electrode Holder Diameter	mm	25	32	25	32
	Tip Diamater	mm	16	20	16	20
	Electrode Taper		1/10			
	Cooling Water Flow Rate q	l/min	10			
	Weld Controller		NCDW-1000-30-A		NCDW-1000-30-J	
	Program Box		PB-900-11			
	Current Control		ENG/CC			
	Approx. Mass m	kg	690	700	690	700

Single-phase AC Type Spot welder (Adjustable Lower Knee)

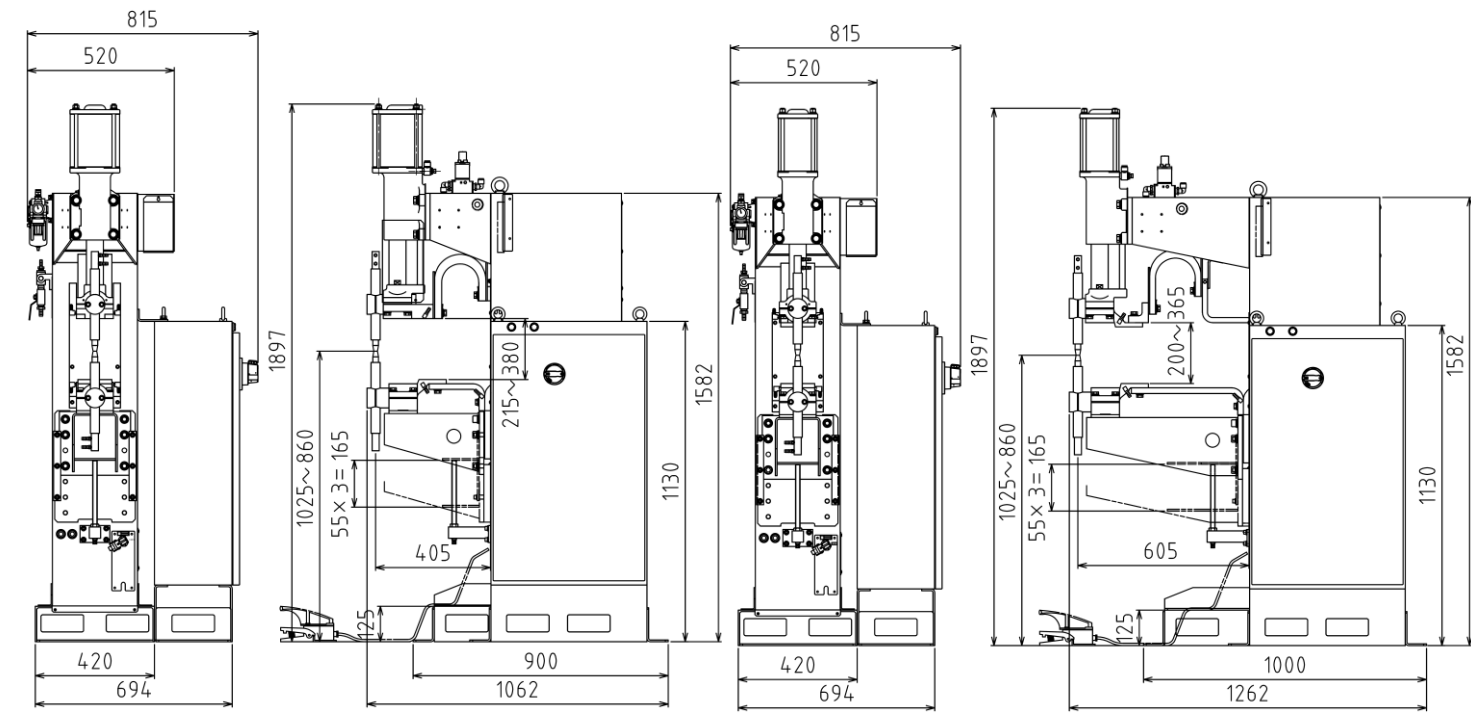


Model																										
Model #		NDZ-070-57K*J*-E					NDZ-070-51K*J*-E					NDZ-070-77K*J*-E					NDZ-100-51K*J*-E					NDZ-100-77K*J*-E				
Rated Primary Voltage U_{1N}		V		1 Φ AC 400																						
Rated Frequency U_{1N}		Hz		50/60																						
Rated Capacity S_{50}		kVA		70												100										
Max. Input		kVA		165/189	154/176	143/163	124/141	165/189	154/176	143/163	124/141	135/154	128/146	120/137	113/129	284/338	265/315	246/293	227/270	237/281	218/259	199/236	180/214			
Max. Short Current I_{2OC}		A		22,000	20,500	19,000	16,500	22,000	20,500	19,000	16,500	18,000	17,000	16,000	15,000	30,000	28,000	26,000	24,000	25,000	23,000	21,000	19,000			
Allowable Duty Cycle		%		11.9/6.9	13.7/7.9	16.0/9.2	21.2/12.2	11.9/6.9	13.7/7.9	16.0/9.2	21.2/12.2	17.8/10.3	19.9/11.5	22.5/13.0	25.6/14.8	8.2/4.4	9.4/5.0	10.9/5.8	12.8/6.9	11.8/6.3	13.9/7.5	16.7/9.0	20.4/10.9			
Throat Depth l		mm		400								600				400				600						
Throat Gap a		mm		215	270	325	380	215	270	325	380	200	255	310	365	215	270	325	380	200	255	310	365			
Max. Electrode Force F_{max}		kN		6				10				6				10				6						
Total Stroke *1		mm		155																						
Retracting Stroke		mm		140																						
Standard Working Height		mm		900																						
Horn Diameter		mm		70																						
Electrode Holder Diameter		mm		32																						
Tip Diameter		mm		20																						
Electrode Taper				1/10																						
Cooling Water Flow Rate q		ℓ /min		8												10										
Weld Controller *2				NWC-903-11-R01																						
Program Box				PB-900-11																						
Current Feed Back				Secondary Toroidal Coil																						
Apprx. Mass m		kg		380				390				400				410				420						

注1: 115mm is available (Option)

注2: KD-1060 is available (Option)

DC Inverter Type Spot Welder (Adjustable Lower Knee)



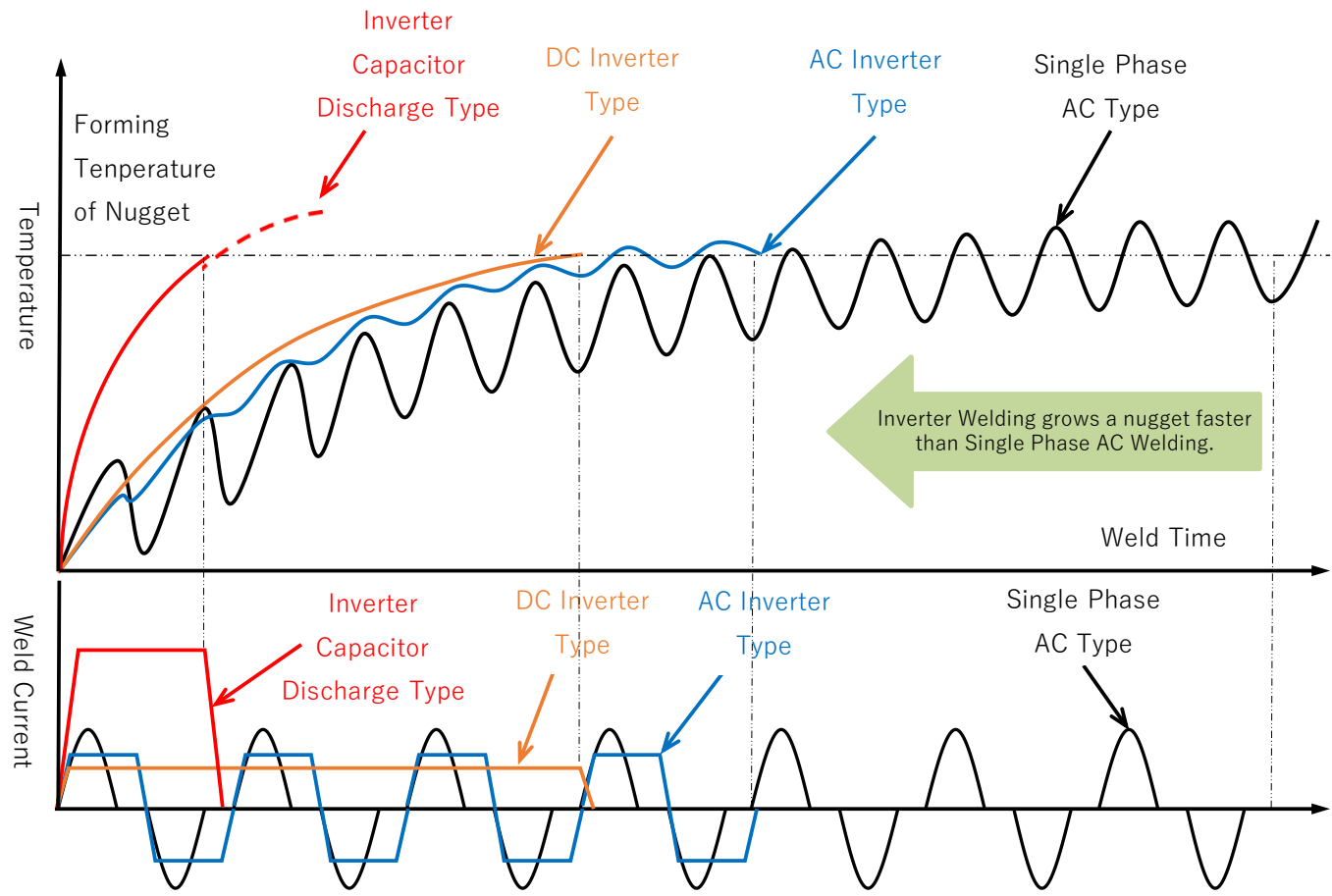
Model																														
Specifications	Model #		NDZ-E75-57KSJ-S-E				NDZ-E75-51K*J-S-E				NDZ-E75-77K*J-S-E				NDZ-HA0-51K*J-S-E				NDZ-HA0-77K*J-S-E				NDZ-EF0-51K*J-S-E							
	Rated Primary Voltage U_{1N}	V	3 Φ AC 400																											
	Rated Frequency U_{1N}	Hz	50/60																											
	Rated Capacity S_{50}	kVA	75												100								150							
	Max. Input	kVA	240				240				231				320				310				405							
	Max. Short Current I_{2CC}	A	28,000				28,000				27,000				32,000				31,000				42,000							
	Allowable Duty Cycle	%	4.8				4.8				5.2				4.9				5.2				6.9							
	Throat Depth ₁	mm	400												600				400				600				400			
	Throat Gap _e	mm	215	270	325	380	215	270	325	380	200	255	310	365	215	270	325	380	200	255	310	365	215	270	325	380				
	Max. Electrode Force F_{max}	kN	6				10				6				10				6				10							
	Total Stroke *1	mm	155																											
	Retracting Stroke	mm	140																											
	Standard Working Height	mm	1025/997.5/970/942.5																											
	Horn Diameter	mm	70																											
	Electrode Holder Diameter	mm	32																											
	Tip Diameter	mm	20																											
	Electrode Taper		1/10																											
	Cooling Water Flow Rate q	ℓ /min	20																											
	Weld Controller *2		SWIE-1000-WS40-S03-TB-C-E												SWIE-1000-WS80-S03-E2-C-E															
	Program Box		PB-1000-11																											
Current Feed Back		Primary CT																												
Apprx. Mass m	kg	360				365				400				400				435				410								

*1: 115mm is available(Optional)

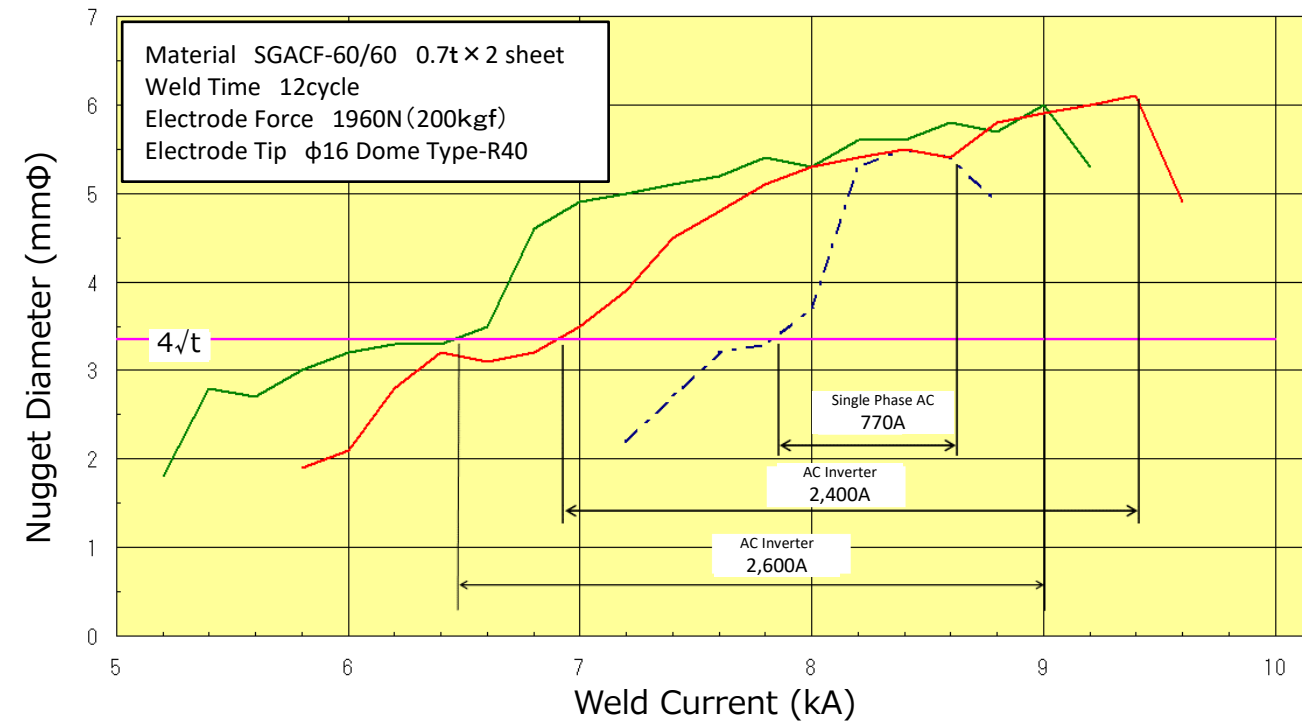
*2: DIT Series are available (Option)

Features of Each Weld Controller

- Correlation of Temperature Rise between Current Waveform and Nugget
As Inverter Type is better Heat Efficiency than Single Phase AC Type, it improves Weld Quality.



Stable Range of Galvanized Steel Sheet



NDZ Model Specification

Note) Some Combinations may not be available depending on selected specifications.

② Transformer Capacity

03	1Φ AC 35kVA
05	1Φ AC 50kVA
07	1Φ AC 70kVA
10	1Φ AC 100kVA
A5	AC-Inverter 50kVA
A7	AC-Inverter 70kVA
E5	DC-Inverter 50kVA(Frequency 1000Hz)
E7	DC-Inverter 70kVA(Frequency 1000Hz) DC-Inverter 75kVA(Frequency 1000Hz)※
EF	DC-Inverter 150kVA(Frequency 1000Hz) DC-Inverter 150kVA(Frequency 1000Hz)※
HA	DC-Inverter 100kVA(Frequency 1800Hz) DC-Inverter 100kVA(Frequency 1800Hz)※
CA	Capacitor Discharge 6 kVA

※Lower Adjustable Knee

③ Identification Specifications

5	35kVA Standard Fixed Lower Knee 75kVA Adjustable Lower Knee
0	50/70/100kVA Standard Fixed Lower Knee 70/100/150kVA Adjustable Lower Knee

④ Throat Depth

4	400mm Fixed Lower Knee
5	400mm Adjustable Lower Knee
6	600mm Fixed Lower Knee
7	600mm Adjustable Lower Knee

⑤ Electrode Force

6	6kN φ60 Horn - φ25 Holder - φ16 Tip(Taper 1/10) 6kN φ60 Horn - φ25 Holder - φ15.875 Tip(MT#2)
7	6kN φ70 Horn - φ32 Holder - φ20 Tip(Taper 1/10)
8	6kN φ70 Horn - φ32 Holder - φ16 Tip(Taper 1/10) 6kN φ70 Horn - φ32 Holder - φ15.875 Tip(MT#2)
1	10kN φ70 Horn - φ32 Holder - φ20 Tip(Taper 1/10) 10kN φ70 Horn - φ32 Holder - φ15.875 Tip(MT#2)
A	10kN φ70 Horn - φ32 Holder - φ16 Tip(Taper 1/10)

① Series

NDZ	NDZ Series
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Model #

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
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⑥ Cylinder Unit

B	Total Stroke 75mm, w/o Spring, Mechanical Stopper Double Stroke
E	Total Stroke 115mm, w/o Spring, Single Stroke
F	Total Stroke 115mm, w/o Spring, Double Stroke by Retract Piston and Sol-Valve
K	Total Stroke 155mm, w/o Spring, Single Stroke
L	Total Stroke 155mm, w/o Spring, Double Stroke by Retract Piston and Sol-Valve

⑩ Revision

A,B,C,D,E,...

⑦ Specification 1 *1

S	Spot
N	Nut
L	Linear Nut
R	Robot Nut
B	Bolt
M	Linear Bolt
T	Robot Bolt

⑧ Specification 2

J	Japan (Japanese)
K	Japan (Japanese), Air Inlet Upward
A	Asia (English)
B	Asia (English), Air Inlet Upward
U	UL/CSA Conformity
W	UL/CSA Conformity, Air Inlet Upward
C	CE
D	CE, Air Inlet Upward

⑨ Power Source

A	200V - 50Hz
B	200V - 60Hz
C	220V - 50Hz
D	220V - 60Hz
E	230V - 50Hz
F	230V - 60Hz
G	380V - 50Hz / 380V ± 15% - 50(60)Hz Capacitor Discharge
H	380V/60Hz
J	400V - 50Hz / 400V ± 15% - 50(60)Hz Capacitor Discharge
K	400V - 60Hz
L	415V - 50Hz / 415V ± 15% - 50(60)Hz Capacitor Discharge
M	440V - 50Hz / 440V ± 15% - 50(60)Hz Capacitor Discharge
N	440V - 60Hz
P	460V - 60Hz / 460V ± 15% - 50(60)Hz Capacitor Discharge
R	480V - 60Hz / 480V ± 15% - 50(60)Hz Capacitor Discharge
S	φ 3 - 400V ± 10%
T	φ 3 - 460V ± 10%
U	φ 3 - 200V ± 10%
W	φ 3 - 230V ± 10%
Y	200V - 50(60)Hz Capacitor Discharge

Selected Items/Option

#	item	備考 note
1	Direction for Air Piping Inlet	Sideways/Upward
2	Flow Meter	Ball Type Flow Indicator on Water Outlet
3	Platen	Upper□130mm-70mm Pitch/Lower□150mm-100mm Pitch
4	Initiation Connector	Harting/Nanaboshi (Power Supply for Feeder is not available if Nanaboshi)
5	Upper/Lower Electrode	For Spot, Nut, Bolt Welding or etc
6	Initiation Switch	Foot Switch or Single Palm Button
7	Program/Display	ProgramBox/Monitor Box
8	Length of Program Cable	3m/5m/10m
9	Ethernet Network Function	Option for Single Phase AC Welder.(Network P.C.B. is required.) Standard Equipped for other Models.
10	Base	125mm Height Base with Fork Lift Holes. Standard Equipped for Inverter or Capacitor Discharge Welders.
11	Feeder Installation	Only for purchasing Dengensha Toa Feeder together

Required Utilities for Installation

Note) Values are just for reference. If there is Regulation or Standard by Local Region/Factory, it shall override below.

Model \ Facility	Power Source				Cooling Water			Air			Installation	
	Voltage	Capacity	Corcuit Breaker	Cable	Flow Rate	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Compressor Capacity	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Anchor Bolt	Ground Wire
NDZ-035-46	1ΦAC400 V (1ΦAC200 V)	35kVA	100A (150A)	22mm ² (38mm ²)	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ² (22mm ²)
NDZ-035-66	1ΦAC400 V (1ΦAC200 V)	35kVA	100A (150A)	22 mm ² (38 mm ²)	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ² (22mm ²)
NDZ-050-46	1ΦAC400 V (1ΦAC200 V)	50kVA	100A (200A)	22mm ² (60mm ²)	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ² (38mm ²)
NDZ-050-41	1ΦAC400 V (1ΦAC200 V)	50kVA	100A (200A)	22mm ² (60mm ²)	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ² (38mm ²)
NDZ-050-66	1ΦAC400 V (1ΦAC200 V)	50kVA	100A (200A)	22mm ² (60mm ²)	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ² (38mm ²)
NDZ-070-41	1ΦAC400 V	70kVA	150A	38mm ²	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-070-61	1ΦAC400 V	70kVA	150A	38mm ²	8ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-100-41	1ΦAC400 V	100kVA	200A	60mm ²	10ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-100-61	1ΦAC400 V	100kVA	200A	60mm ²	10ℓ /min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²

※() for 200V

Model \ Facility	Power Source				Cooling Water			Air			Installation	
	Voltage	Capacity	Corcuit Breaker	Cable	Flow Rate	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Compressor Capacity	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Anchor Bolt	Ground Wire
NDZ-E50-46	3ΦAC400 V	50kVA	100A	22mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²
NDZ-E50-41	3ΦAC400 V	50kVA	100A	22mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²
NDZ-E50-66	3ΦAC400 V	50kVA	100A	22mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²
NDZ-E50-61	3ΦAC400 V	50kVA	100A	22mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²
NDZ-E70-46	3ΦAC400 V	70kVA	100A	38mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-E70-41	3ΦAC400 V	70kVA	100A	38mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-E70-66	3ΦAC400 V	70kVA	100A	38mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-E70-61	3ΦAC400 V	70kVA	100A	38mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	22mm ²
NDZ-HA0-41	3ΦAC400 V	100kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-HA0-61	3ΦAC400 V	100kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-EF0-41	3ΦAC400 V	150kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²

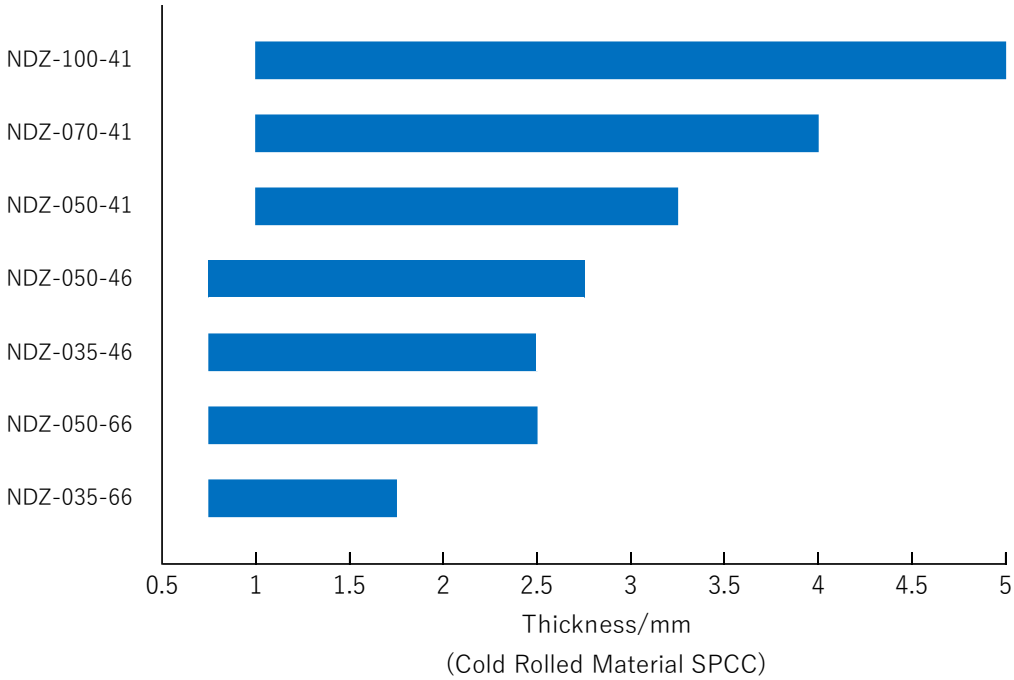
Model \ Facility	Power Source				Cooling Water			Air			Installation	
	Voltage	Capacity	Corcuit Breaker	Cable	Flow Rate	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Compressor Capacity	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Anchor Bolt	Ground Wire
NDZ-A50-46	3ΦAC400 V	50kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A50-41	3ΦAC400 V	50kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A50-66	3ΦAC400 V	50kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A50-61	3ΦAC400 V	50kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A70-46	3ΦAC400 V	70kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A70-41	3ΦAC400 V	70kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A70-66	3ΦAC400 V	70kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²
NDZ-A70-61	3ΦAC400 V	70kVA	200A	60mm ²	20ℓ /min	20.5mm [3/4"]	19mm	1.5kW	13mm [1/2"]	12.7mm	12mm	38mm ²

Model \ Facility	Power Source				Cooling Water			Air			Installation	
	Voltage	Capacity	Corcuit Breaker	Cable	Flow Rate	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Compressor Capacity	O.D. for Hose Insert [Thread Diamater]	Hose I.D.	Anchor Bolt	Ground Wire
NDZ-CA0-46	1ΦAC400 V (1ΦAC200 V)	6kVA	20A (30A)	10 mm ²	10 L/min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²
NDZ-CA0-41	1ΦAC400 V (1ΦAC200 V)	6kVA	20A (30A)	10 mm ²	10 L/min	13mm [1/2"]	12.7mm	1.5kW	13mm [1/2"]	12.7mm	12mm	14mm ²

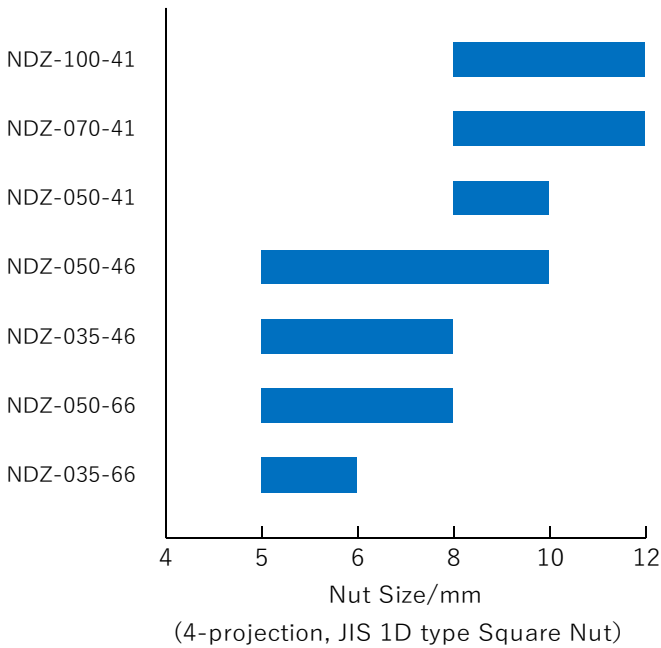
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Weldability

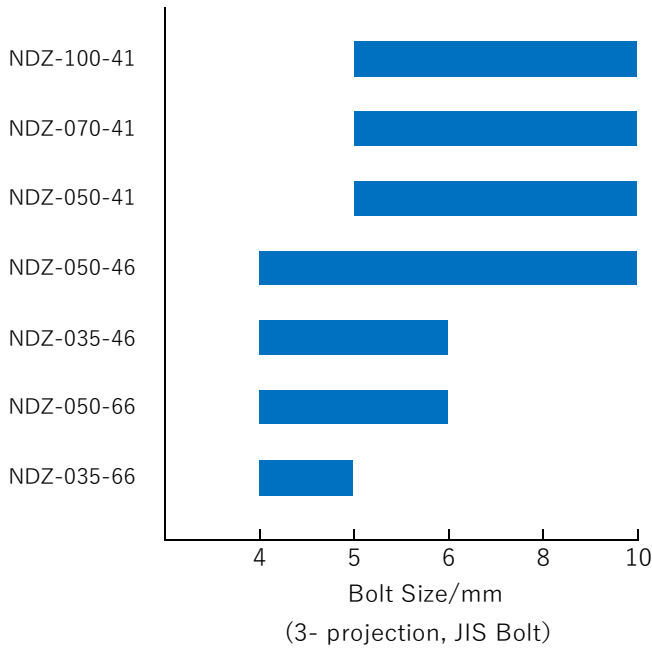
[Spot]



[Nut]



[Bolt]



MEMO

MEMO