

Digital AC Servo Press

# SDEiIII/SDEWiIII

SERIES



### Lineup

- 1-point SDE-8018i3 / SDE-1120i3 / SDE-1522i3 / SDE-2025i3 / SDE-3030i3
- 2-point SDEW-2025i3 / SDEW-3025i3



# Announcing the Newly Released 3rd Generation Servo Press Series i3

The newly developed "i3" control system offers the ability to achieve high-accuracy forming with improved productivity.

Supports high value-added motion paths



2019



2012



2005



Digital AC Servo Press



Digital AC 2-points Servo Press



# SDE iIII / SDEW iIII SERIES

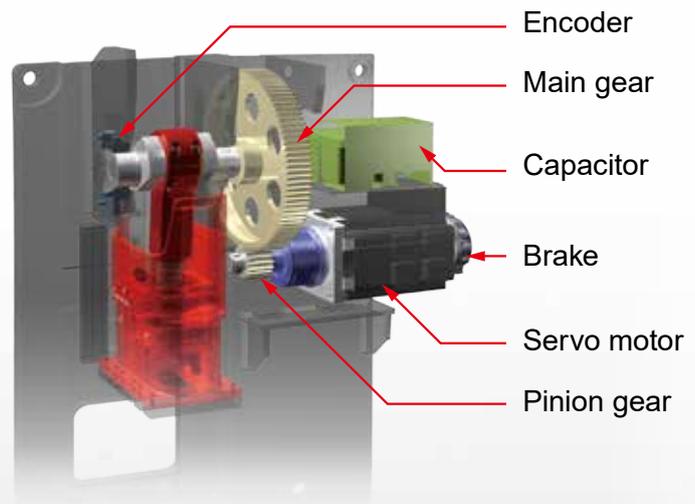
# New Technology of SDE-i3 / SDEW-i3 Series

## 1 "DSDD\*" Servo motor dedicated to DSDD plus crank mechanism

\*DSDD: Digital Servo Direct Drive

### Fusion of servo motor for stamping press machine and proven crank mechanism

High-performance control realizes unprecedented high-quality forming.



### Improved operability

Operation control panel

Swivel Pendant control panel



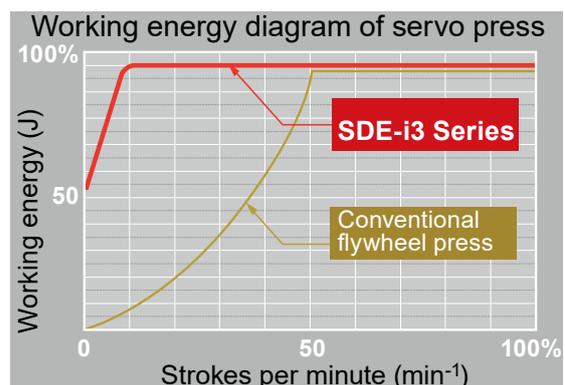
The layout has been redesigned, improving operability.

The pendant control panel, with a 12.1" wide screen, can be rotated to improve visibility and operability.



### Stable, high-quality forming

Compared to flywheel-equipped machines, the SDE-i3 Series, which is driven by a servo motor, can secure working energy in the low speed range, achieving stable, high-quality forming.



# New Technology of SDE-i3 / SDEW-i3 Series

## 2 High value-added forming and improved productivity

### Twelve kinds of motions

By selecting the most optimal motion path according to the product, it is possible to improve formability, accuracy, and reduce cost.

Attached motions:

Crank, link, soft, program, pendulum, high-speed pendulum, coining, repeat, pulse 1\*, pulse 2\*, pulse 1 pendulum\*, pulse 2 pendulum\*

### Unique pulse forming function

#### Pulse 1 motion\*:

The force is applied to the part while moving the slide up and down (a maximum of 200 times in a single process).

#### Pulse 2 motion\*:

The force is applied to the part while changing the slide lowering speed.

\*Optional for SDEW-i3 models

Sample motion screen



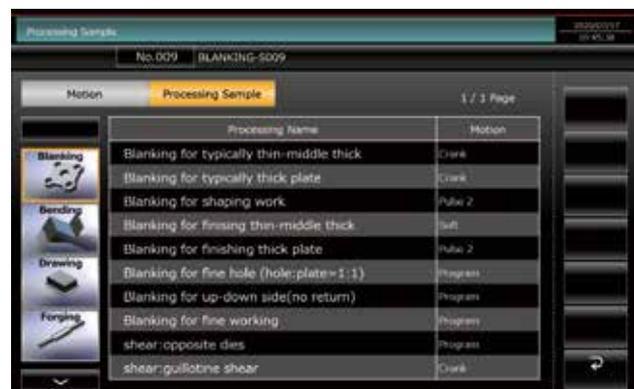
Motion edit screen



### Simple Selectable Motion Programming (SSMP)

- The new standard process sample programming, along with motion sample programming and motion editing, makes the i3 control significantly more simple and easy to program, even for less experienced users.
- High-speed pendulum motion is included as a standard feature. Productivity improved 2 to 7%\*1 compared to the conventional high-speed pendulum motion.
- Pulse 1 and 2 pendulum motions\*2 are included as standard features. Productivity is added to high-value forming.

Processing sample screen



\*1 Depends on the models and conditions

\*2 Optional for SDEW-i3 models

### 3 Newly developed i3 control

#### New original servo controller

The operator interface is greatly improved with the newly designed 3rd generation servo control. It realizes the high-precision and flexible movement unique to a servo stamping press and can handle various types of applications. In terms of operation,

it is easier to use and more visible than conventional machines, contributing to processing, quality, and visualization. In addition, a safety PLC (ISO19062, ISO13892 PLe category 4 compatible) has been added for equipment monitoring along with multi-lingual capability (optional).

#### Improved operability of the screen

Three types of basic operation mode screens are provided for ease of use. Verifying the necessary

information in each operation mode can be done quickly and easily.

##### 1. Production



This screen displays the information necessary for producing the product.

The current values of total counters 1 and 2 and preset counters 1 and 2 can be displayed simultaneously.

In addition, it is possible to monitor changes in load and temperature over time, which are directly related to product accuracy and quality.

##### 2. Trial



This screen displays the information necessary for trial production that repeats trial hitting, evaluation, and setting.

The load waveform, torque waveform curve, machine load factor, etc., can be monitored.

##### 3. Setup



This screen displays comprehensive information for die setting, etc.

The operator can adjust the die height by utilizing the automatic slide adjustment function, monitor pneumatic equipment, control the digital die cushion,\* and operate the Quick Die Change\* system, all on one screen.

\*Optional

# New Technology of SDE-i3 / SDEW-i3 Series

## 4 Improved quality and productivity

### Built-in color graph load/torque monitor as standard equipment

Each i3 control is equipped with the enhanced load/torque monitoring system, which is more advanced than your normal tonnage monitor.

With the touch of the screen, the operator can simply toggle between operating tonnage and machine torque usage.

The operator can also touch the screen to display the load/position and zoom in and out, allowing them to closely analyze the complete waveform.

Curve diagram display of torque waveform



### Improved quality control

Digital pressure gauge is used for pneumatic equipment.

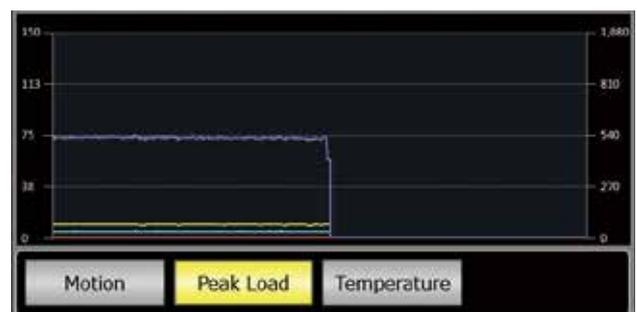
The optimum set pressure of the counter balancer (CBC pressure) is displayed according to the upper die mass (input setting).

In addition, it is possible to confirm changes over time such as peak load and ambient temperature, which can be expected to improve accuracy and quality control.

Display of CBC pressure



Display of peak load transition



## 5 Reduction in setup time

### Automatic slide adjustment as standard equipment

The automatic slide adjustment functions allows the operator to adjust the die height according to a previously programmed job memory setting.

This reduces setup time and eliminates the chance of inputting the wrong setting.

Display of automatic slide adjustment



## 6 "MF Eco machines" with environmental consideration

### AMADA's servo press machines are the first MF Eco machine-certified

AMADA's servo press machines were certified by the Japan Forming Machinery Association as MF Eco machines, or environmentally conscious

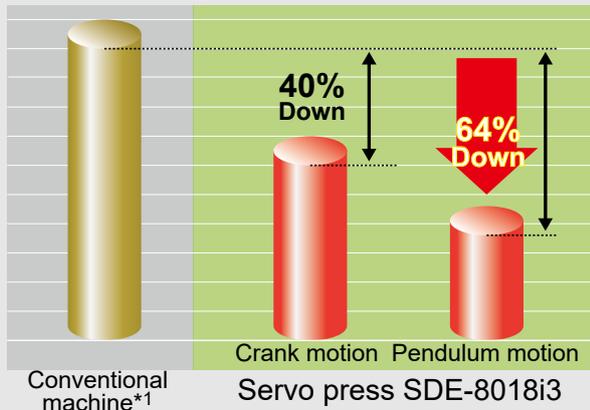
products, which contribute to environmental impact reduction and working environment improvement.



#### 1 Power conservation: Sharp reduction of power consumption

The power load-leveling, energy-saving circuit of the servo presses sharply reduced their power consumption as compared with conventional machines. It contributes to the visualization of power consumption.

Power consumption



ECO monitor screen



#### 2 Resource conservation: Reduction of lubricating oil consumption

Lubricant consumption is reduced by 67%\*2 compared to conventional machines\*1 by abolishing oil pans and adopting a circulating oil lubrication system. \*2 Compared with SDEW-3025i3

\*1 Mechanical stamping press machine of the same class

#### 3 Working environment: Significant reduction of stamping noise

Optimum slide motions help to cut the high decibel range of stamping noise. This reduces noise generation and improves the working environment.

## Other Functions

### Digital die cushion \*optional

The pressure of the die cushion can be automatically adjusted on the Setup Screen by selecting a previously programmed job memory.

Display of digital die cushion



### Built-in die protection system \*optional

- 4ch sensor input detection mode: Touch, contact, feed-failure, grip-failure detection
- Settings can be selected on the setup screen by selecting a previously programmed job memory.
- Equipped with a history function dedicated to the built-in die protection system.

Display of die protection system



# Other Functions

## System Automation

### Coil handling system

Complete turn-key systems with the press and coil handling equipment, designed by the same manufacturer, to meet your specific application.

### Uncoiler

The variable speed of the inverter allows for a gentle start and stop. Prevents the coil from loosening and reduces scratches.

### Straightener

11 work rolls improve material flatness and contribute to leveling reliability. It is also easy to maintain.



Straightener-Feeder **LCC03KR3**



**SDE-2025i3 + LCC03KR3**

## Network-compatible stamping press machines

### Visualization of stamping press operation status and maintenance information by PC

- Digital network connection is possible from general-purpose to servo presses.

- Real-time monitoring of presses connected to the factory network.

- Alarm and maintenance information can be checked and saved in real-time.

Information sharing with external systems

IoT Solution of AMADA Group

### V-factory:

Visualization of operation/production information

### Computer terminal

- Reference of operating information
- Creating daily/monthly reports

### APINES Web server

Visualization software of press shop

- Operation data
- Maintenance data

### Mobile phone/Tablet

- Reference of operating information
- Reference of maintenance information

### Wireless LAN router

### WANMS

Pressure waveform analysis software

### SMAPS

Motion creation and editing software

Automated collection of production/operation data

### Network-compatible stamping press machines



**TP-FX Series**

**SDE-i3/  
SDEW-i3 Series**

**SDE-i3 GORIKI  
Series**

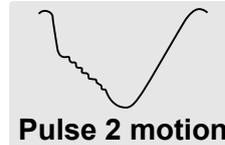
**SWE-i3 Series**

**ALFAS**

# Processing Examples with Sample Workpieces

## Noise and vibration reduction

Machine: **SDE-2025 (SF)**  
 Material: General structural rolled steel  
 (JIS: SS400)  
 Thickness: 10.0 mm  
 Size:  $\phi 50.0$  mm



**SDE Series**

Servo presses "SDE Series" can close to target die clearance through reducing punching speed. As a result, noise can be prevented and a shear surface of 100% is achieved.



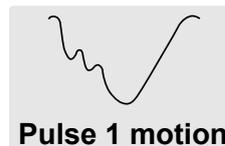
**Conventional machine\***

The conventional machine has a loud punching sound and the working environment is poor.

\* Mechanical stamping press machine of the same class

## High-accuracy processing

Machine: **SDE-2025 (SF)**  
 Material: High-tensile strength steel  
 Thickness: 2.0 mm  
 Size:  $\phi 17.5 \times 53.0$  mm



**SDE Series**

The servo press machine "SDE Series" can form the part without cracking to the last step by the pulse 1 motion profile.

Sample workpieces supplied by Sakaguchi Seisakusyo Co. Ltd.



**Conventional machine\***

The conventional machine cracked the part in the final step.

\* Mechanical stamping press machine of the same class

# Processing Examples with Sample Workpieces

## Construction method conversion and high-precision processing

Machine: **SDE-2025i3 (SF)**  
Material: Low carbon steel  
(JIS: S10C)



**Pulse 1 motion**



Before processing  
Size:

ø17.6 x ø9.2 x 25.8 mm

After processing  
Size:

ø23.2 x ø7.0 x 17.0 mm

Fluid is injected into the center of the material and formed while the fluid is sealed.

This is an example of forging helical gears using internal pressure.

The amount of fluid inside is controlled by "pulse 1 operation" that moves the slide up and down.

As a result, we have developed a fluid pulse forging method (liquid sealing pulse forging method).

The pitch accuracy of the tooth profile part is higher than the gear cutting accuracy by cutting.

## High-precision processing and process reduction

Machine: **SDEW-2025 (SF)**  
Material: High corrosion-resistant  
galvanized steel sheet  
Thickness: 1.8 mm  
Size: ø87.0 x 51.6 mm



**Constant motion**



Sample workpieces supplied by DENSO CORPORATION

This is an example of a motor-case part for automobiles.

Conventionally, the process mainly for large transfer stamping press machine with 8000 kN has been realized by only one servo stamping press machine with 2000 kN by the die circulation press processing system configuration.

The conventional 16 processes can be divided into 4 parts (drawing, ironing, trimming, inner diameter forming), and 4 sets of dies can be used to form with the optimum slide motion for each process.

As a result of achieving high-precision processing with an inner diameter accuracy  $\pm 10 \mu\text{m}$ , cutting and plating processes are no longer required.

## Improved forming quality and high-quality processing

Machine: **SDE-3030 (SF)**  
 Material: Aluminium (JIS: A1100)  
 Thickness: 8.0 mm  
 Size (W x H): 1.2 x 32.6 mm



Heat sink parts



**Program motion**

This is an example of an aluminium heat sink made by extrusion forging by a servo stamping press machine.

The optimum slide motion improved the material flow during forming and realizes load reduction.

By controlling the processing oil and slide moment, it suppresses the processing scratches on heat sink parts.

## Construction method conversion and high-precision processing

Machine: **SDE-2025 (SF)**  
 Material: Aluminium (JIS: A1100)  
 Size:  $\varnothing 25.0 \times 18.0$  mm



Sample workpieces supplied by Takahashi Industries Co., Ltd.



**Pulse 2 motion**

Created a reflector for high-brightness LED lighting only by cold forging with a servo stamping press machine.

A high reflectance within Sa 0.03  $\mu\text{m}$  in surface roughness was achieved without aluminium vapor deposition plating.

Compared to conventional resin and aluminium vapor deposited products, this environmentally friendly process achieves high-brightness, high-quality, high-heat dissipation, and high-durability.

# Dimension Tables for Die Space

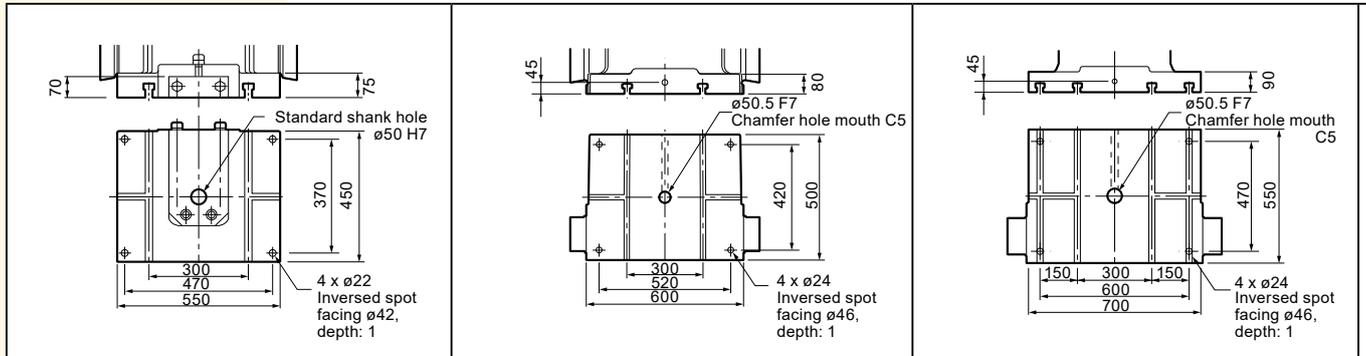
## ■ SDE-i3 Series

**SDE-8018i3**

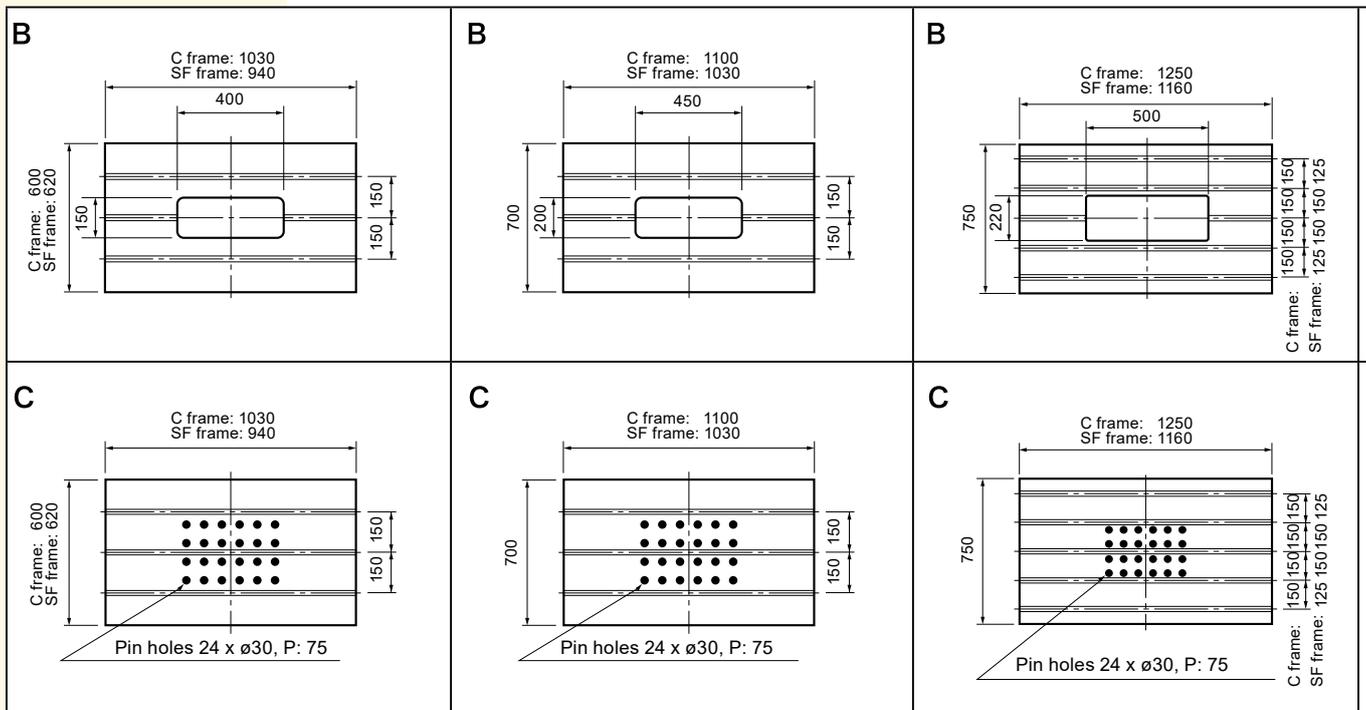
**SDE-1120i3**

**SDE-1522i3** Unit: mm

### Standard slide bottom drawing

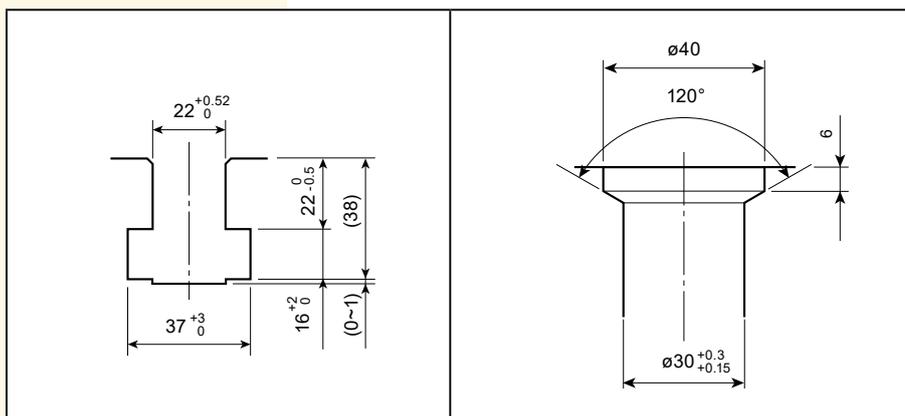


### Bolster plate drawing



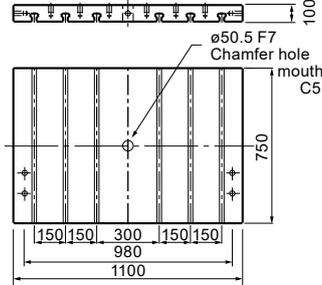
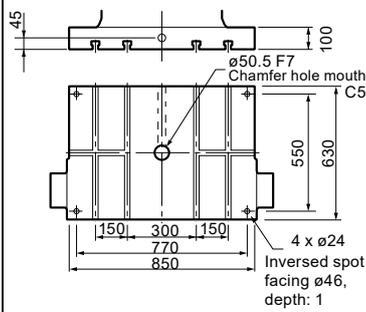
### T-slot details (common)

### Cushion pin hole details



**SDE-2025i3**

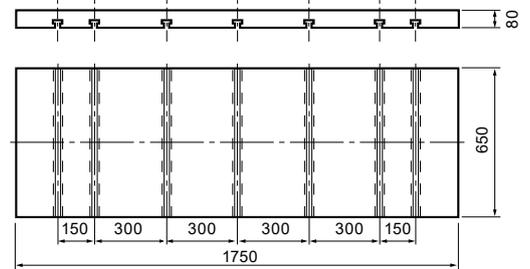
**SDE-3030i3** Unit: mm



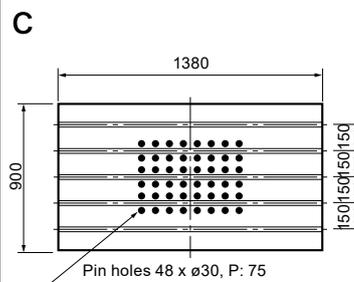
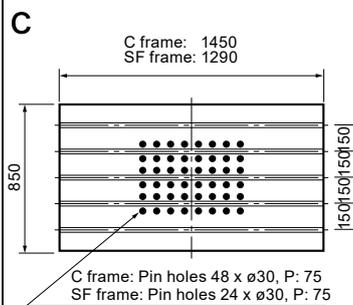
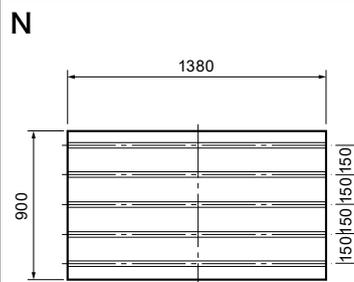
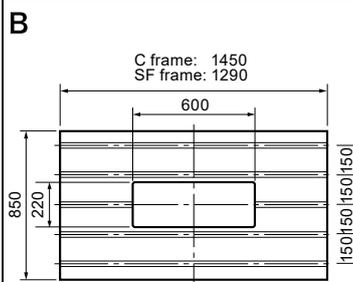
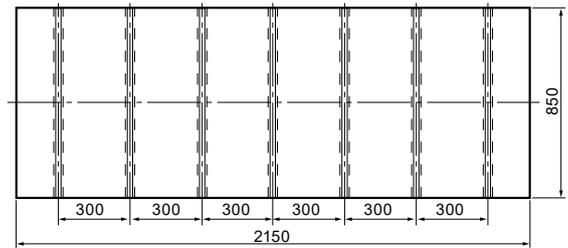
**SDEW-2025i3**

Unit: mm

**Standard slide bottom drawing**

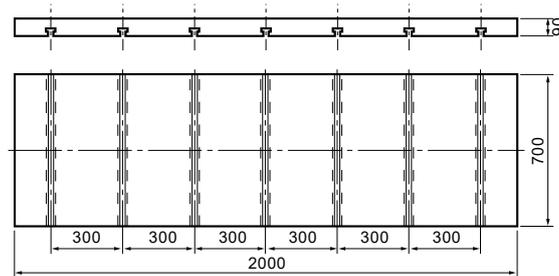


**Bolster plate drawing**

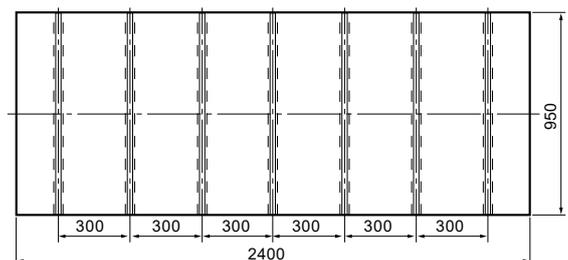


**SDEW-3025i3**

**Standard slide bottom drawing**



**Bolster plate drawing**



# Specifications and Dimension Drawings

## Machine specifications

Machine name	SDE-8018i3		SDE-1120i3		SDE-1522i3		
Model name	SDE8018I3		SDE1120I3		SDE1522I3		
Frame type	C	SF	C	SF	C	SF	
Capacity	kN	800	1100		1500		
Tonnage rating point above BDC	mm	4.8	5.0		5.0		
Side opening*	mm	-	500 x 445	-	620 x 550	-	680 x 540
Continuous no-load stroke rate	min <sup>-1</sup>	~ 80		~ 70		~ 60	
Stroke length	mm	180		200		225	
Die height	mm	350		390		430	
Slide adjustment	mm	80		100		100	
Slide face dimensions (LR x FB)	mm	550 x 450		600 x 500		700 x 550	
Bolster dimensions (LR x FB x T)	mm	1030x600x135	940x620x135	1100x700x150	1030x700x150	1250x750x160	1160x750x160
Main motor (AC servo), continuous rating	kW	25		30		35	

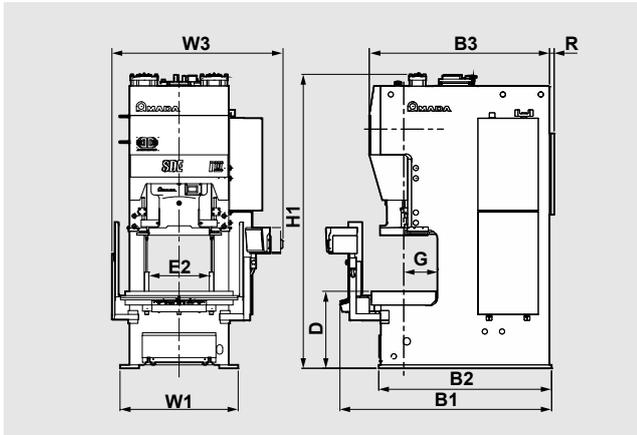
Machine name	SDE-2025i3		SDE-3030i3	
Model name	SDE2025I3		SDE3030I3	
Frame type	C	SF	SF	
Capacity	kN	2000		3000
Tonnage rating point above BDC	mm	5.5		5.5
Side opening*	mm	-	770 x 585	770 x 750
Continuous no-load stroke rate	min <sup>-1</sup>	~ 55		~ 40
Stroke length	mm	250		300
Die height	mm	460		550
Slide adjustment	mm	110		110
Slide face dimensions (LR x FB)	mm	850 x 630		1100 x 750
Bolster dimensions (LR x FB x T)	mm	1450 x 850 x 180	1290 x 850 x 180	1380 x 900 x 200
Main motor (AC servo), continuous rating	kW	40		50

Machine name	SDEW-2025i3		SDEW-3025i3	
Model name	SDEW2025I3		SDEW3025I3	
Frame type	SF		SF	
Capacity	kN	2000		3000
Tonnage rating point above BDC	mm	5.5		5.0
Side opening*	mm	720 x 400		720 x 450
Continuous no-load stroke rate	min <sup>-1</sup>	~ 50		~ 45
Stroke length	mm	250		250
Die height	mm	500		550
Slide adjustment	mm	110		120
Slide face dimensions (LR x FB)	mm	1750 x 650		2000 x 700
Bolster dimensions (LR x FB x T)	mm	2150 x 850 x 180		2400 x 950 x 200
Main motor (AC servo), continuous rating	kW	40		50

These specifications, machinery, equipment, and appearance are subject to change without notice for reason of improvement.

\*Side opening is height above bolster top surface.

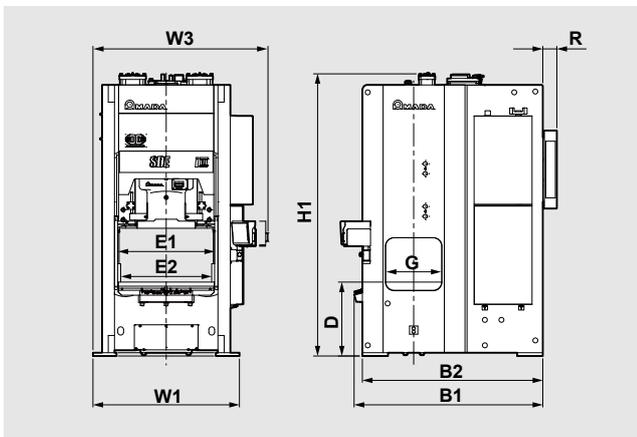
■ Machine outline dimensions



SDE-i3 C frame

Unit: mm

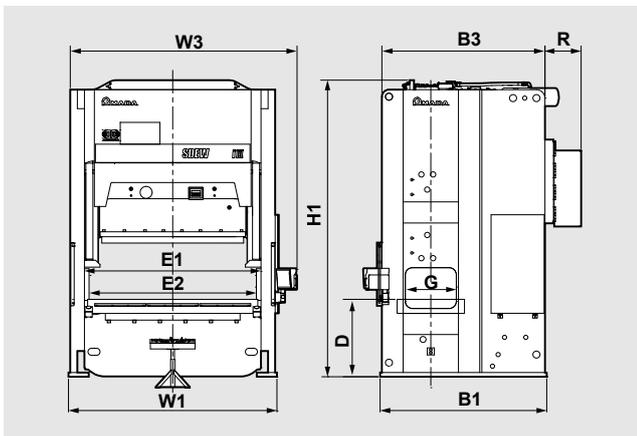
Machine name	SDE-8018i3	SDE-1120i3	SDE-1522i3	SDE-2025i3
W1	1080	1250	1370	1540
B2	1585	1795	2005	2255
H1	2915	3075	3435	3875
D	850	850	900	1000
E2	530	610	700	810
G	310	360	390	435
W3	1705	1865	1985	2130
B1	1940	2285	2455	2750
B3	1605	1895	2090	2350
R	185	38	55	30



SDE-i3 SF frame

Unit: mm

Machine name	SDE-8018i3	SDE-1120i3	SDE-1522i3	SDE-2025i3	SDE-3030i3
W1	1450	1580	1770	1920	2140
B2	1740	1940	2180	2360	2450
H1	2915	3075	3435	3875	4515
D	850	850	900	1000	1055
E1	1030	1120	1170	1300	1400
E2	880	970	1100	1230	1330
G	500	620	680	770	770
W3	1795	1845	2030	2155	2340
B1	1930	2160	2280	2415	-
R	180	50	170	260	520



SDEW-i3 SF frame

Unit: mm

Machine name	SDEW-2025i3	SDEW-3025i3
W1	2880	2940
B1	2350	2350
H1	3775	4215
D	1000	1100
E1	2150	2490
E2	2080	2330
G	720	720
W3	3015	3345
B3	2300	2300
R	195	520

## Machine installation range comparison

Unit: mm				
Size	Machine name	L	W	H
NEW	SDE-2025i3 (SF)	1920	2620	3875
	TP-200EX (Drawing type)	1540	2255	3875
NEW	SDEW-3025i3 (SF)	2940	2810	4215
	TPWL-300 (SF)	2940	2490	4215

\*This illustration compares the installation area of the servo stamping press machines with conventional machines (blue/pink lines).

## Standard accessories

- Large color LCD display
- Die information for 100 dies
- Total counter × 2
- Preset counter × 2
- Position switch × 4
- Overload protector
- Air ejector
- Built-in load monitor
- Auto slide adjustment
- Light curtain (Front)
- Light curtain (Rear)\*

\*SDEW-i3 type only

## Optional accessories

- Automation compatible
- Die lifter
- Automatic clamp
- Side guard
- Rear guard
- Vibration isolator
- Hand pulser
- Built-in die protection system

## Specifications of digital die cushion as option

Machine name	SDE-8018i3		SDE-1120i3		SDE-1522i3		SDE-2025i3		SDE-3030i3
Frame type	C	SF	C	SF	C	SF	C	SF	SF
Capacity kN	63	63	75	63	95	75	140	95	140
Stroke length mm	80	80	80	80	80	80	100	80	100
Pad dimensions (LR x FB) mm	480 x 300	450 x 305	450 x 305	450 x 305	510 x 345	450 x 305	640 x 445	480 x 345	640 x 445

Before using those products, please read the operator's manual carefully and follow all applicable instructions.

- Use of this product requires safeguard measures to suit your work. For details, see the safety guide on the home page.
- The servo presses correspond to the press machines specified in the Ordinance on Industrial Safety and Health. It is necessary to make application for their installation and take any other measure required.
- Options are included in the photos.



- \* Specifications, appearance, and equipment are subject to change without notice for improvement and other purposes.
- \* The official "Model name" for machines and units listed in this catalogue are SDE8018I3, SDE1120I3, SDE1522I3, SDE2025I3, SDE3030I3, SDEW2025I3, and SDEW3025I3.
- \* Use these "Model numbers" when contacting authorities to apply for installation, export, or financing.
- \* In this catalogue, if there is a part with a hyphen in it, like "SDE-8018i3," it is for readability.
- \* The specifications described in this catalogue are for the Japanese market. Please ask your sales person for details.

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## AMADA PRESS SYSTEM CO., LTD.

200 Ishida, Isehara, Kanagawa, 259-1196 Japan  
 Phone: +81-463-91-2800  
 www.amp.amada.co.jp/en

Inquiry

