

# Servo electric press SDE-Series



Blanking technology

Bending technology

Forming technology

Deep drawing technology

Coining technology

Progressive die technology



## The all-rounder – pressing, deep drawing, bending, coining and stamping on only one machine

### The revolution in pressing technology

The unique new drive concept of the SDE creates new impulses in pressing technology. Complicated workpieces that were previously difficult to produce or could not be produced cost-effectively, are astonishingly simple to produce with the SDE.

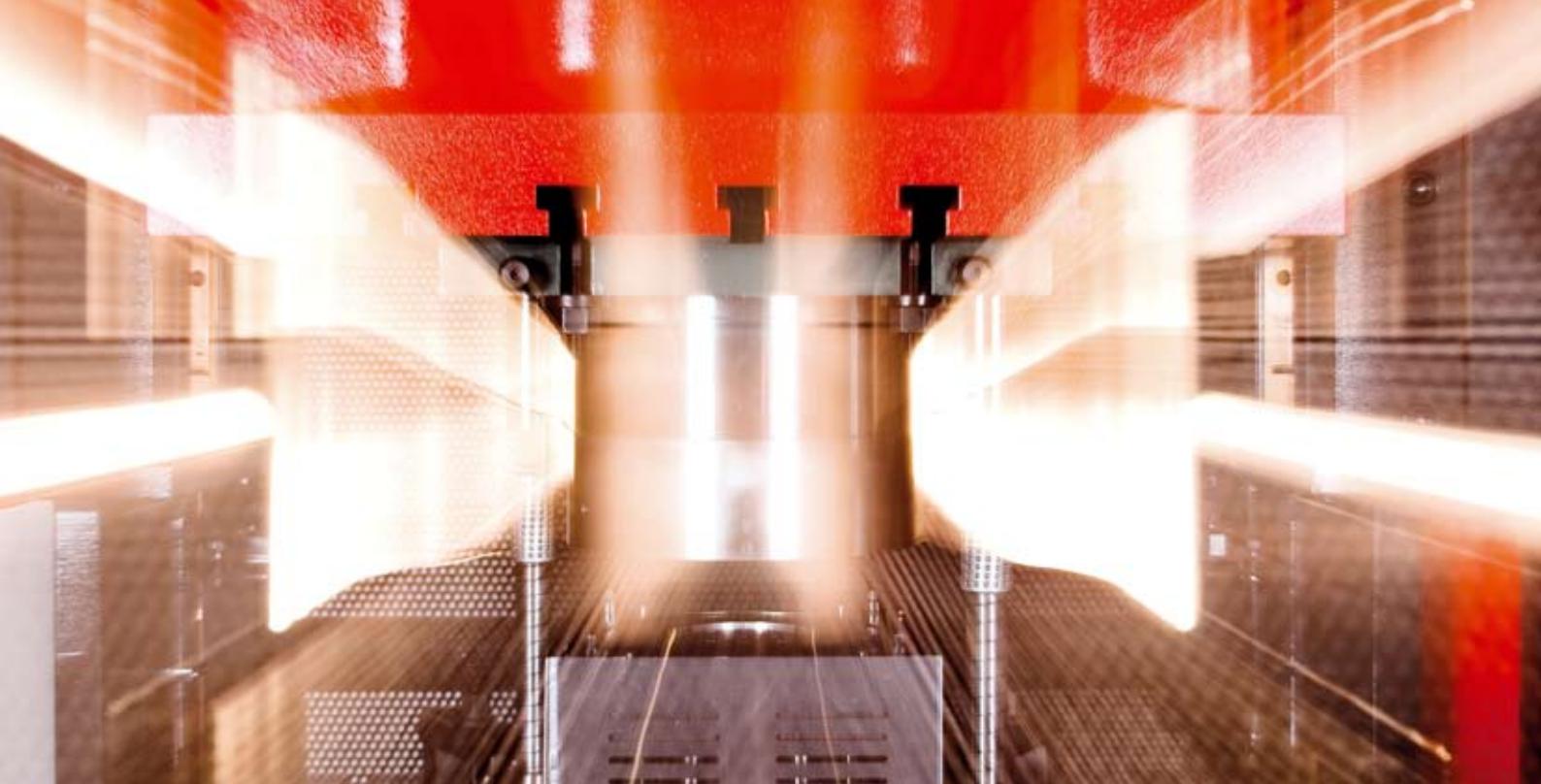
Various sizes (800 to 3000 kN) enable an extremely wide operational spectrum. Minimal service and maintenance effort ensure low operational costs.

Metal forming companies, sheet metal works and users of progressive dies can use the multifunctional SDE press to replace several single purpose presses. This achieves optimal utilization and profit maximization.

The oil-free, highly dynamic and high-torque servo electric drives are the key to convincing efficiency, more flexibility and increased benefit. Precise controllability and special characteristics allow to penetrate production-technical dimensions that were previously not possible or could only be achieved with great effort.

The energy utilization concept of the SDE reduces electrical consumption and delivers maximum performance at the same time. The high production precision and flexible controllability delight every machine operator.





## A concentration of competence

- Significantly lower energy requirements compared to conventional systems
- Lower service and maintenance costs due to oil-free operation
- Increase in production output compared to conventional press systems
- Precise controllability with higher repeat accuracy
- Temperature-independent drive – not viscosity-dependent and therefore very accurate
- Lower component warming – therefore higher accuracy
- Excellent suitability for processing difficult materials
- Sensitive “tryout” characteristics – motion patterns can even be tested under load
- At least a 2 to 4-fold increase in tool service life
- Multifunctionality for increased utilization

For decades AMADA has been a highly respected production guarantor in the field of blanking, deep drawing and forming technology.

More than 55,000 installed systems worldwide approve our competence in this technology segment. By listening to customers, AMADA is able to continuously develop new solutions for even more productivity, greater cost effectiveness, increased efficiency and optimal production quality.

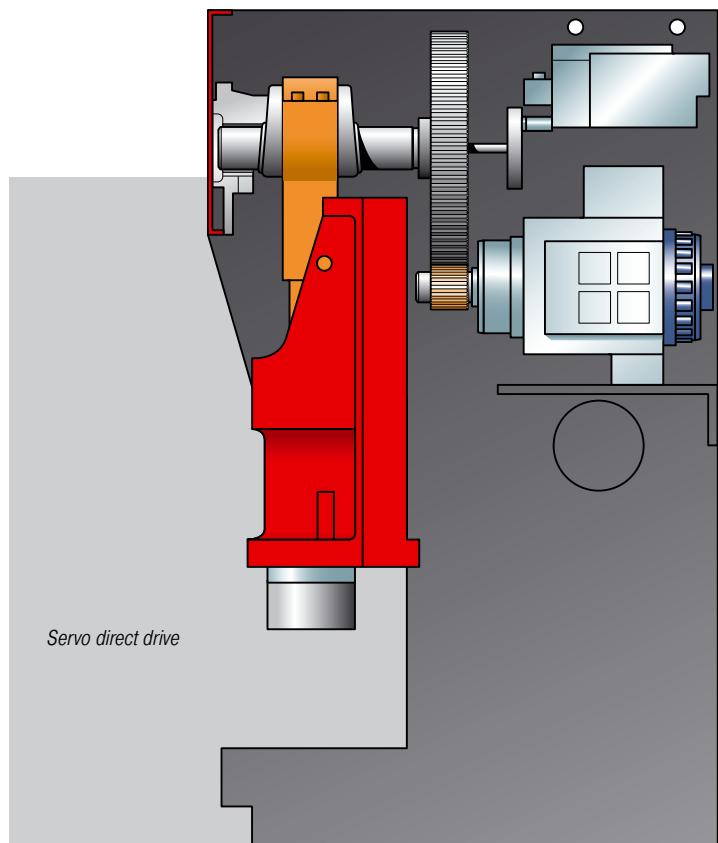


## Focus on what really matters

By developing the SDE press machines, AMADA has made a decisive step in combining several work processes – such as blanking, fine blanking, deep drawing, coining etc. – into one machine. Furthermore, the efficient energy management of the SDE press is not only saving energy resources but also saves several thousand Euros per year. The productivity, level of utilization and the efficiency of the new systems are currently unique. That is why SDE presses are the ideal replacement for both mechanical AND hydraulic press systems. The user therefore has more flexibility and profitability.

The servo drive combines both the advantages of mechanical and hydraulic drives into one single machine. The stroke sequence adapts itself optimally to the material behaviour.

The pressure holding position, retraction of the ram and renewed pressing can be easily programmed and enables optimal automatic production processes.



## Unrivalled precision and excellent value

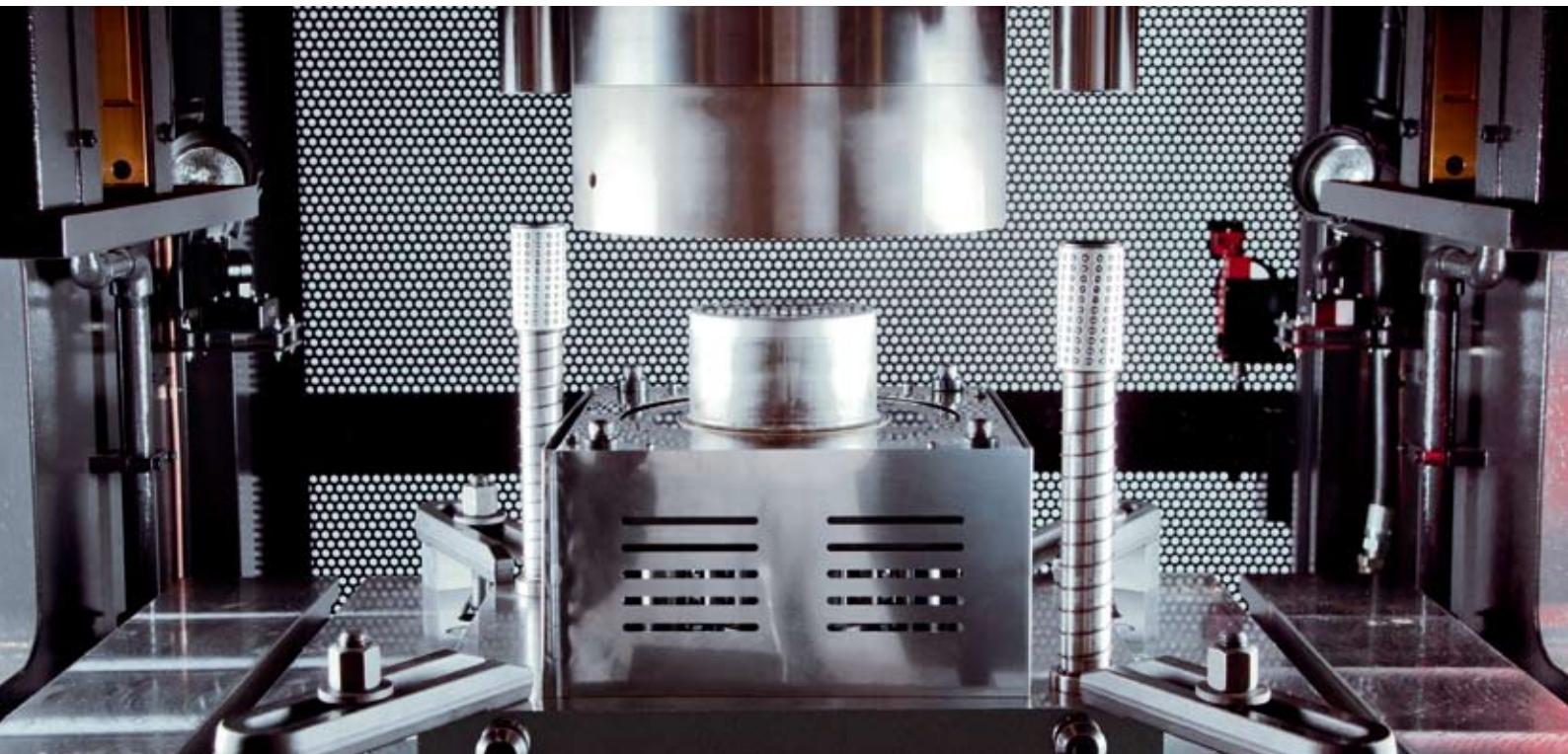
SDE presses do not have maintenance-intensive mechanical components (such as belt drive, flywheel, hydraulic coupling and brake).

Avoiding maintenance-intensive hydraulics leads to further considerable savings potential: together with low maintenance requirements, improved

availability and higher efficiency, energy consumption was also of utmost importance during the conception of the SDE.

Energy must only be supplied when the machine is actually at work. The innovative drive concept buffers the energy generated during the braking of the drive and uses it when accelerating again. In comparison to

hydraulic drive variants and depending on the field of application, energy savings of up to 90 percent are possible!



Using freely programmable process-sequences, up to 30 percent less pressing force is required. Depending on the task, progressive dies are able to manage with less production steps, can be made smaller and are therefore more cost-efficient.

# Multifunctionality for added value

## TRYOUT

Setting up and insertion of tools is considerably simplified. Setup and production conditions are transferable 1:1. The stroke sequence is set up using a sensitive electronic handwheel and can be directly transferred to the production process.

- Time and cost savings
- Fast production start
- Optimal machine and tool protection

## COINING

The work piece can be coined in several process steps. Parts can also be used directly as function parts. Even difficult geometries can be produced with high precision.

- Optimal accuracy
- High wear resistance
- Reduction of press force to a minimum
- Minimal energy requirements
- Lower wear on tools

## PROGRESSIVE DIE PRODUCTION

Depending on the task, up to 30 percent fewer process steps are required. Respectable savings during the production are the result. In order to increase the productivity, the machine can work using the pendulum motion method.

- Shorter process times
- Reduction of tool maintenance
- Key cost savings – both in tool manufacturing and the production process

## DEEP DRAWING

Faster processing is possible in comparison to conventional systems. Freely-programmable motion sequences push deep drawing to the limits. Even difficult materials are suitable. Lower energy yield than conventional systems.

- Reduction of rejects to a minimum = more good parts
- Increase of draw and yield strength
- High part quality
- Low part warming = optimal dimensional accuracy
- Low tool costs

## BLANKING

Work pieces in larger quantities, with high quality requirements, can be processed easier and faster. Cutting impact damping is not necessary.

- High precision
- Minimal energy requirements
- Ideally adapted press force
- Lower wear on tools
- Considerable noise reduction

## SELECTIVE SLOW DOWN

The targeted work stroke deceleration enables a considerably improved deep draw-result. The material tapers considerably less and the tendency to tear is decreased. The productivity increases.

- Parts temperature e.g.  $\leq 40^{\circ}\text{C}$  instead of  $\geq 100^{\circ}\text{C}$  (easier workpiece lubrication = higher accuracy)
- High part quality
- Reduction of rejects to a minimum = more good parts

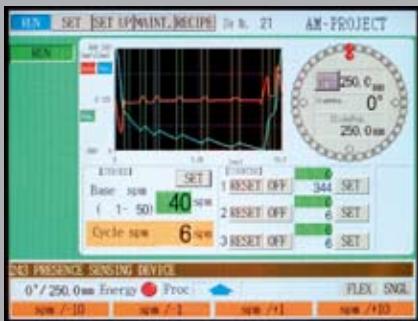
## FINE BLANKING

“Overlapping” with the fine blanking segment. All suitable materials can be punched with a high fraction cut. Because of the programmable stroke sequence, cutting impact damping is not necessary.

- Precision and quality gain
- Minimal energy requirements
- Reduction of press force to a minimum
- Lower wear on tools
- Considerable noise reduction



## creative, flexible and productive than ever before



Control with stroke sequence profile



Control

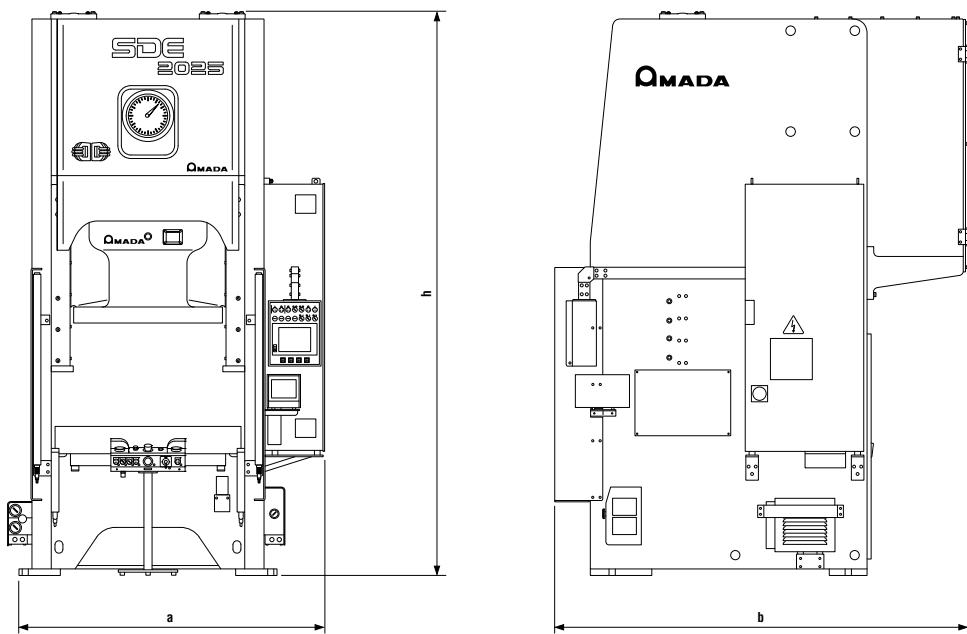


Electronic handwheel

Controlling the SDE presses is user-friendly and the operation is intuitive. Essential setup and settings information are available directly by pressing a button. Programming for the specific tool takes place interactively in various modes.

The basic equipment of the controller is:

- Memory for 399 programmes or tools
- 5 different programme cycles
- 9 preset stroke sequences
- Operator panel with electronic handwheel
- Separate "load monitor" for protecting the machine and tools against overload
- Possible integration of strip and feed systems as well as other peripherals
- Digital speed display and angle or position representation
- Graphical representation of stroke sequence with diverse setting options
- Easy parameterization of the ram motion characteristics



Note: the drawing shows an SDE-2025 ES with components that are not supplied as standard.

Technical data SDE-	8016 ES	1118 ES	1520 ES	2025 ES	3040 ES	Features
Press capacity (kN)	800	1100	1500	2000	3000	<ul style="list-style-type: none"> <li>■ Servo electric drive</li> <li>■ Press control</li> <li>■ Pneumatic die cushion</li> <li>■ Load monitor – overload protection for machine and tool</li> <li>■ Operator panel with electronic hand wheel for interactive programming</li> <li>■ Vibration dampening setup</li> <li>■ Machine safeguarding according to CE regulations – Light curtain</li> </ul>
Tool installation height (mm)	320	350	400	450	550	
Slide area (mm)	700 x 460	800 x 520	900 x 580	1000 x 650	1300 x 900	
Slide adjustment (mm)	80	90	100	110	120	
Stroke length (mm)	160	180	200	250	400	
Stroke speed (1/min)	0-80	0-70	0-60	0-50	0-30	
Max. speed (1/min)	0-140	0-160	0-130	0-110	0-80	
Die cushion size (mm)	410 x 260	480 x 300	540 x 340	640 x 440	760 x 550	
Die cushion press capacity (kN)	63	80	100	141	159	
Die cushion stroke (mm)	70	80	80	100	130	
Max. upper die weight (kg)	300	350	500	1000	1300	
Main motor drive power (kW)	25	35	40	40	50	
Connected load (kVA)	21	21	26	35	69	
Dimensions						
Table size (mm)	900 x 600	1000 x 680	1150 x 760	1250 x 840	1700 x 1200	
Lateral frame opening (mm)	440 x 300 (250*)	500 x 320 (270*)	560 x 380 (330*)	620 x 420 (370*)	1000 x 570 (520*)	
Floor space a x b (mm)	1610 x 2340	1730 x 2330	1930 x 2620	2060 x 2790	2782 x 3160	
Height h (mm)	2820	3040	3300	3800	5040	
Control						
Number of programmes or tools			399			
Number of programming modes			5			
Preset example-programmes			9			
Number of user-programmable steps in "Free Motion Mode"			20			

\*height above the table

Technical modifications reserved. Information on accuracy according to VDI/DGQ 3441.

Workpiece precision and material thickness to be processed are also dependent on production conditions, material, type of workpiece, its pretreatment, table size as well as the location of the work area.

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