Premium Series Press Brakes

Business Development Department

December 2020

Premium Series

APES Servo Belt&Pulley System

APES-Servo Ball Screw System

Premium Series CNC Press Brakes

100% Electrical Press Brakes

APES Electrical Press Brakes family have 6 models on 2 series.
APES SERVO is Belt&Pulley model and APES BS is Ball Screw model:

APES SERVO 31100

* High Accuracy
* High Efficiency
* Low Operation Cost
* Low Energy Consumption

APES BS 13036

* No Maintenance
* No Cylinder
* No Hydraulics
* No Oil

100% Electrical Press Brakes

In traditional hydraulic press brakes, since the power comes from the cylinders which are placed on both sides of the machine, the requested bending angle is not achieved in the middle section of the sheet and to catch the requested bending angle, the crowning system which can work throughout the bending process is needed.

Why Electrical Press Brake?

Energy Saving:

- Less energy consumption and less material waste = Less CO2
- 60 % less energy consumption in average compare to the traditional Hydraulic Press Brakes
- High energy-saving

Efficiency:

- High efficiency = Less machine usage for the same production volume
- 30 % less processing time in average and short installation time
- Easy programming and high precision = less material waste

ENERGY SAVE

ECOLOGY

100% ELECTRIC

SILENT WORKING

Why Electrical Press Brake?

Low Maintenance Cost:

- No hydraulic oil = no damaging waste
- Compare to the Hydraulic machines, there are less precious and critical parts
- Easiness of cooling
- Operational Safety

Part Quality:

- O-Type body design, and highly repeatable precision thanks to servo-electrical drivers and different tool systems

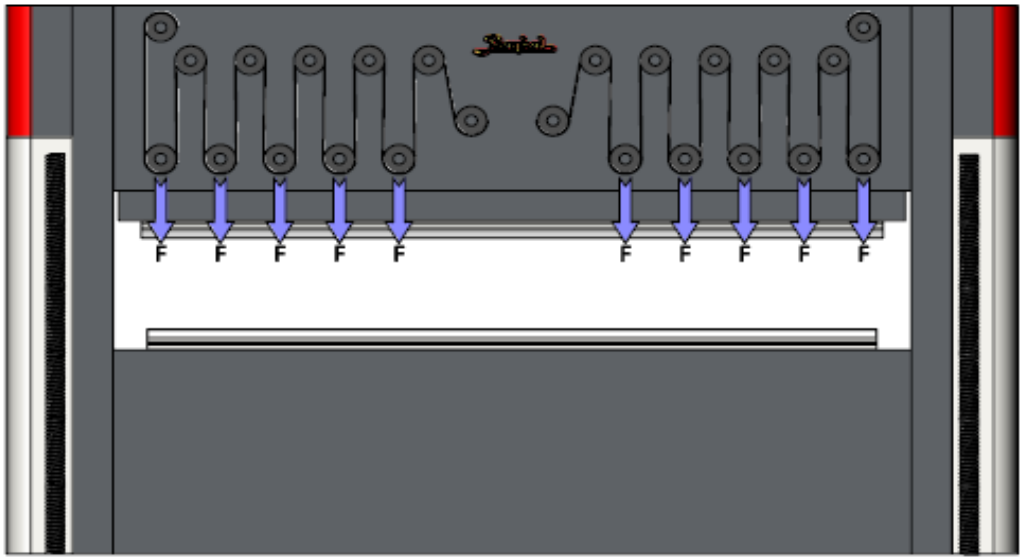
Flexibility:

- There is no limitation of throat gap for the long parts

Why Electrical Press Brake?

THE BELT AND PULLEY MECHANISM

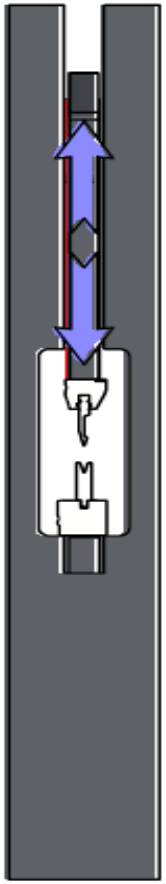
The belt and pulley drive system works with two synchronized servo motors which transfer the force to the upper beam from belt and pulley movements. During the movement of the upper beam, servo motors coil the belt to the main pulley and apply the bending force with even distribution of tonnage across the entire bed length, which allows eliminating almost any need for crowning in the system.



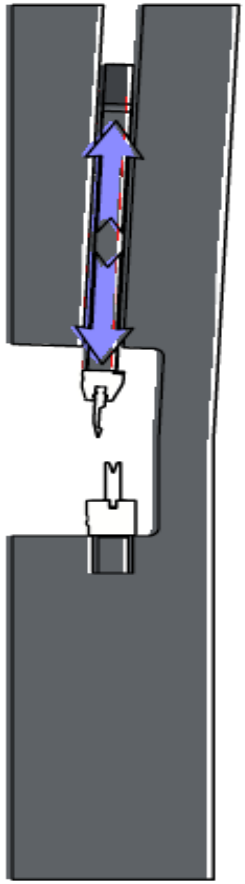
That's why crowning systems are optional for APES SERVO due to the material being used. The return force, which is mechanical for the upper beam, comes from the springs which are located on both sides of the machine, which provides up to %50 energy savings and low CO^2 emissions.

Why Electrical Press Brake?

O-Type Body



C-Type Body



FRAME DESIGN

Baykal Electric Press Brakes have more rigid mechanical construction because of **O-Type** body system. The body has no deformation as C-Type body systems at high pressure applications. With this system high precision bending results archived.

APES Servo Electric Press Brake “Belt&Pulley”

Please check out the video on official **Baykal Youtube account**:
https://youtu.be/fnXcp6imz3c

BAYKAL APES - Servo Electric Press Brakes
Baykal Machinery ·

APES Servo Electric Press Brake “Belt&Pulley”

APES Servo Electric Press Brake “Belt&Pulley”

APES Servo works with servo electric drive system that uses belt and pulley drive system, which makes APES SERVO standout against a standard hydraulic press brake.

- Up to 100 tons
- Up to 3100 mm
- 60% Energy Save
- 0% Oil
- 30% Shorter Cycle Times

APES Servo Electric Press Brake "Belt&Pulley"

APES Servo Electric Press Brakes run with %100 electric power comparing with conventional and hybrid press brakes. That means there is no usage of harmful hydraulic oil, opening and closing valves and dwell point, which bring easy maintenance and more than 30% productivity.

APES SERVO 31100

Model		APES SERVO "BELT&PULLEY"			
No	#	15040	20050	26080	31100
Bending Length	mm	1,530	2,040	2,550	3,050
Bending Force	Tons	40	50	80	100
Motor Output	kW	11	11	11	11
Inside Frames	mm	1790	2300	2810	3350
Daylight opening	mm	590/(505*)	590/505*	590/505*	590/505*
Max. Stroke	mm	300/(240*)	300/240*	300/240*	300/240*
Bed Height	mm	930/(1015*)	930/1015*	930/1015*	930/1015*
Approach	mm/s	170	150	90	75
Working	mm/s	10/20**	10/20**	10/20**	10/20**
Return	mm/s	170	150	90	75
Approximate Weight	Kgs	4800	5600	6400	7200

* With Promecam Clamping combination.
** Accordance with local regulations, except for Robotic use.
Legal Notice: Machines built with CE-safety conformity are available as option.
Design and specifications are subject to change without notice.

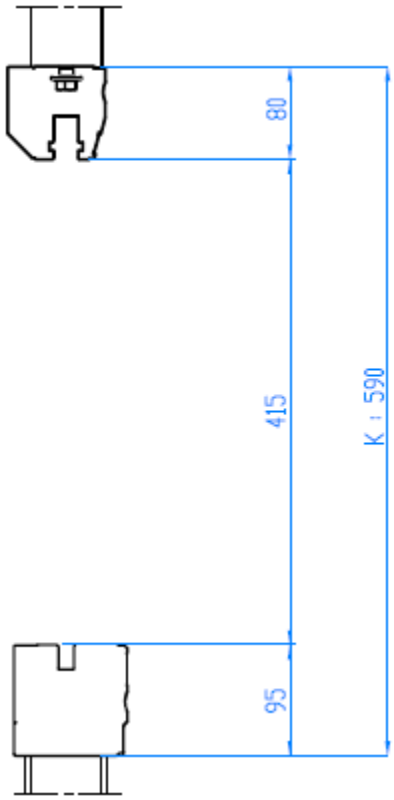
APES Servo Electric Press Brake "Belt&Pulley"

Standard Features and Equipment	
Control Unit	Esa S 675W Touch Screen (2D)
Backgauge	X+R Axis Backgauge (Driven by Servo Motors and Drives)
Backgauge Range	X=750mm R=160mm
Backgauge Fingers	2 Pieces Flat Backgauge Fingers
Front Arms	2 Pieces Front Support Arms with Brushes
Crowning	CNC Crowning Standard on APES 26080&31100
Tools & Clamping	Promecam Clamping
Security	Back and Side Covers with Switch

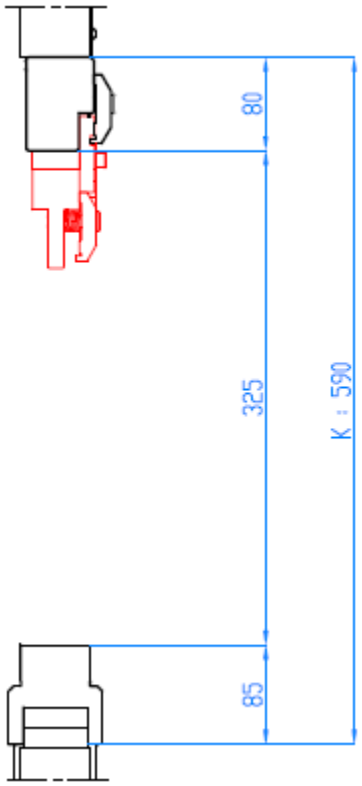
Additional Equipment	
Backgauge Options	X+R+Z1+Z2 AXIS X+R+X5+Z1+Z2 AXIS X1+X2+R1 / R2+Z1+Z2 AXIS
Backgauge Finger	Additional Backgauge Finger (1 Unit)
Security Options	AKAS II (FMSC PLC) AKAS III-P-Motorized (FMSC PLC)
Control Unit Options	Esa S 675W Touch Screen (3D) Delem DA-66T Touch Screen Delem DA-69T Touch Screen
Crowning Option	CNC Crowning optional on APES 15040&20050
Clamping Options	Hydraulic Clamping Pneumatic Clamping Quick Release Clamping
Support Arms Options	Additional Front Support Arms (1 Unit) CNC Sheet Follower (1 Unit)

APES Servo Electric Press Brake “Belt&Pulley”

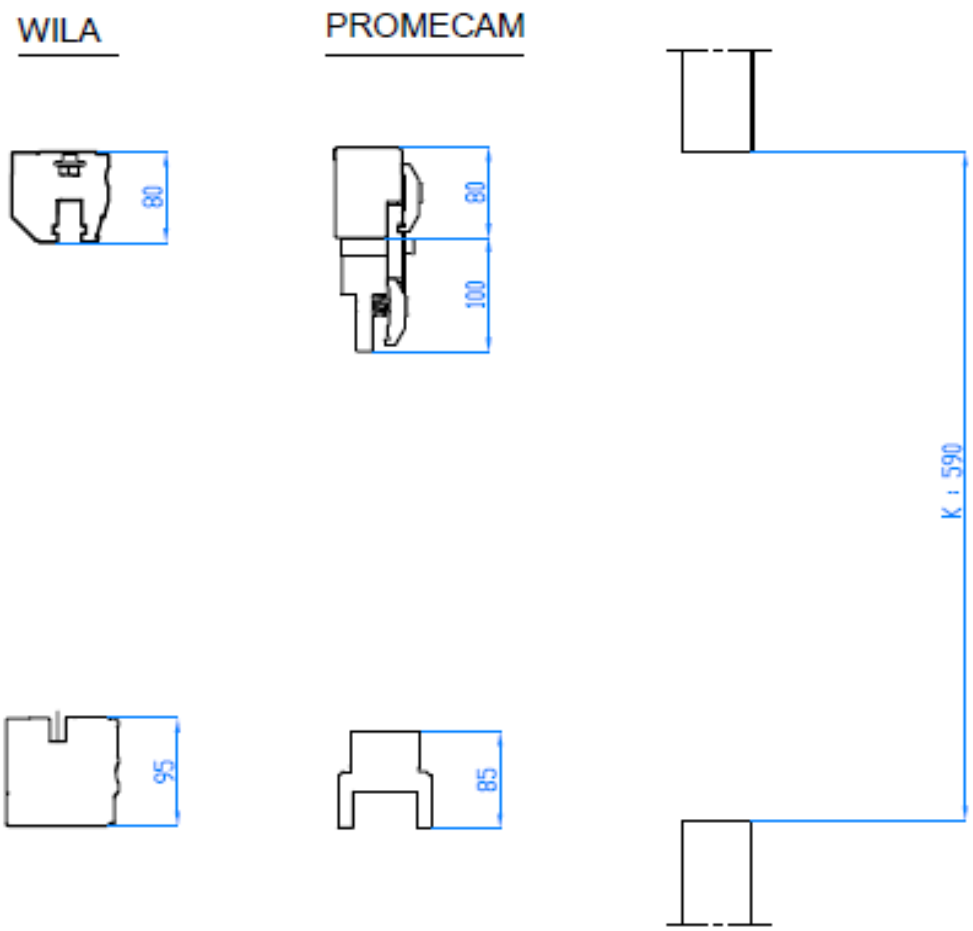
Wila Clamping System Dimensions



Promecam System Dimensions



Clamping Systems Combinations for
APES Servo Electric Press Brake “Belt&Pulley”



APES Servo Electric Press Brake “Ball Screw”

Please check out the video on official **Baykal Youtube account**:
https://youtu.be/si9VbFOh21w

APES Servo Electric Press Brake “Ball Screw”

APES Servo Electric Press Brake “Ball Screw”

- Up to 36 tons
- Up to 1300 mm
- 60% Energy Save
- 0% Less Oil
- 30% Shorter Cycle Times

APES Servo Electric Press Brake “Ball Screw”

APES Servo Electric Press Brake "Ball Screw"

New Generation Ball screw on Direct Drive motor produces High Torque with extremely less consumption. This High Torque motor Mechanism provides High Energy Saving and no need hydraulic oil. Baykal APES BS Electric Press Brake consumes energy while top beam movement only.

APES BS 13036

Model	APES SERVO "BALL SCREW"		
No	#	9020	13036
Bending Lenght	mm	900	1300
Bending Force	Tons	20	36
Daylight opening	mm	375	375
Max. stroke adjustment	mm	150	150
Approach	mm/s	150	150
Working	mm/s	10/20**	10/20**
Return	mm/s	150	150

* Accordance with local regulations, except for Robotic use.

Legal Notice: Machines built with CE-safety conformity are available as option. Design and specifications are subject to change without notice.

APES Servo Electric Press Brake "Ball Screw"

Standard Features and Equipment	
Control Unit	Esa S 675W Touch Screen (2D)
Backgauge	X+R Axis Backgauge (Driven by Servo Motors and Drives)
Backgauge Range	X=750mm R=160mm
Backgauge Fingers	2 Pieces Flat Backgauge Fingers
Front Arms	2 Pieces Front Support Arms with Brushes
Tools & Clamping	Promecam Clamping / Standard Top and Bottom Tools
Security	Back and Side Covers with Switch

Additional Equipment	
Backgauge Option	X+R+Z1+Z2 AXIS
Backgauge Finger	Additional Backgauge Finger (1 Unit)
Security Options	AKAS II (FMSC PLC)
	AKAS III-P-Motorized (FMSC PLC)
Control Unit Options	Esa S 675W Touch Screen (3D)
	Delem DA-66T Touch Screen
	Delem DA-69T Touch Screen
Crowning Option	CNC Crowning
Clamping Options	Hydraulic Clamping
	Pneumatic Clamping
	Quick Release Clamping
Support Arms Options	Additional Front Support Arms (1 Unit)
	CNC Sheet Follower (1 Unit)

Standard Equipments

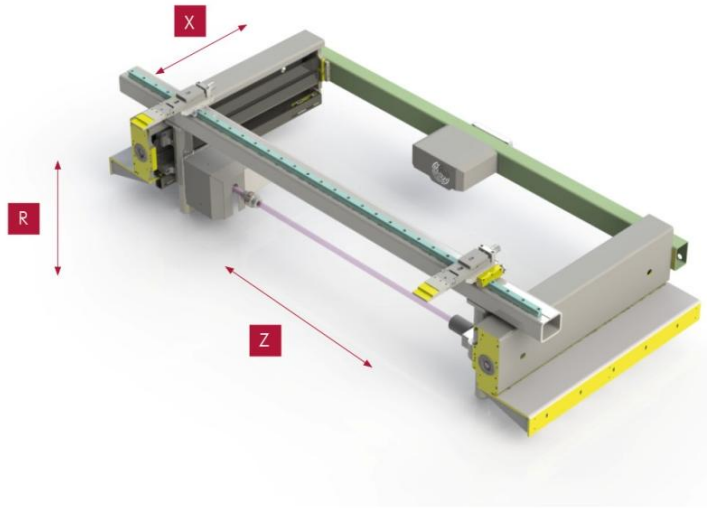
STANDARDS	BELT&PULLEY	BALL SCREW
Backgauge	X+R Axis	X+R Axis
Tools & Clamping	Promecam	Promecam
Security	Back and Side Covers with Switch	
Control Unit	Esa S 675W(2D)	Esa S 675W(2D)
Front Arms	With Brushes	With Brushes
Crowning	CNC*	-
New Arm Design	Yes	Yes

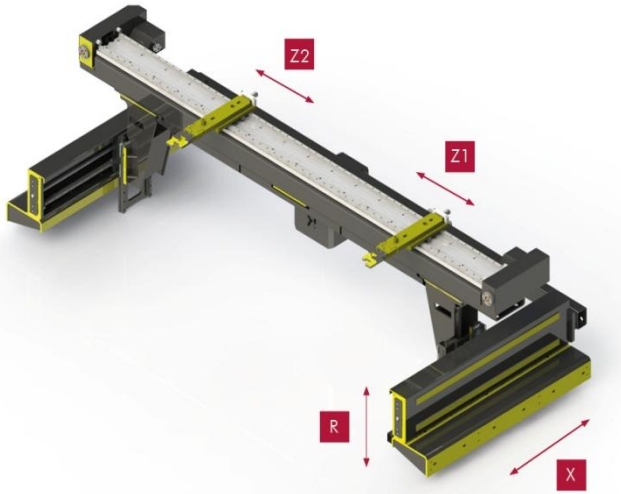
* Standard on APES 26080&31100, Optional on APES 15040&20050

Advanced Backgauge Solutions

BACKGAUGE AXIS	BELT&PULLEY	BALL SCREW
X-R AXIS	Standard	Standard
X+R+Z1+Z2	Optional	N/A
X+R+X5+Z1+Z2	Optional	N/A
X1+X2+R1+R2+Z1+Z2	Optional	N/A

Advanced Backgauge Solutions



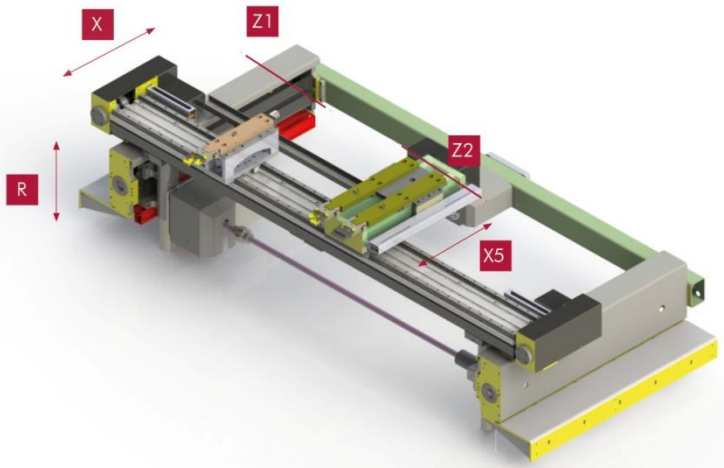


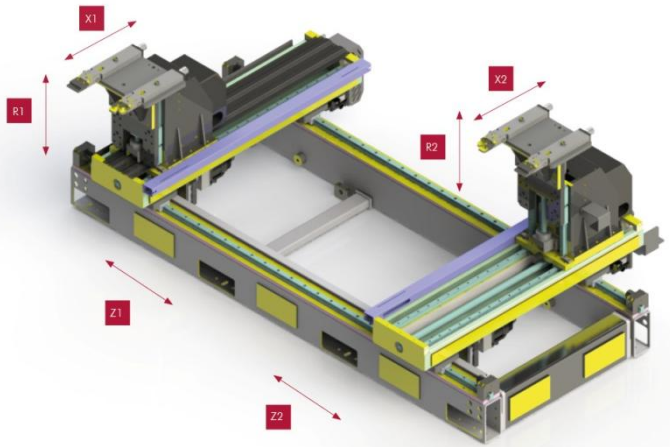
X-R AXIS			
	X-Axis	R-Axis	Z-Axis
RANGE	750 mm	160 mm	Manuel
PRECISION	± 0.03 mm	± 0.05 mm	Manuel
SPEED	350 mm/s	240 mm/s	Manuel

X+R+Z1+Z2 AXIS *			
	X-Axis	R-Axis	Z-Axis
RANGE	750 mm	160 mm	Variable
PRECISION	± 0.03 mm	± 0.05 mm	± 0.05 mm
SPEED	350 mm/s	240 mm/s	1000 mm/s

* Not suitable for **APES Servo** “Ball Screw” Models

Advanced Backgauge Solutions





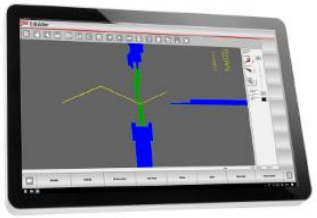
X+R+X5+Z1+Z2 AXIS *				
	X-Axis	X5-axis	R-Axis	Z-Axis
RANGE	750 mm	± 125 mm	160 mm	Variable
PRECISION	± 0.03 mm	± 0.05 mm	± 0.05 mm	± 0.05 mm
SPEED	350 mm/s	240 mm/s	240 mm/s	1000 mm/s

X1+X2+R1+R2+Z1+Z2 AXIS *			
	X1-X2 Axis	R1-R2 Axis	Z1-Z2 Axis
RANGE	750 mm	160 mm	Variable
PRECISION	± 0.03 mm	± 0.05 mm	± 0.05 mm
SPEED	350 mm/s	240 mm/s	1000 mm/s

* Not suitable for **APES Servo** “Ball Screw” Models

Advanced CNC Controller Options

Features	**Delem DA-66T**	**Delem DA-69T**	**Esa S 675W**
Screen	17 inch	17 inch	21″ TFT LCD
Resolution	1280 x 1024 pixels	1280 x 1024 pixels	1920 x 1080 pixels
Operating System	Windows CE	Windows CE	Windows 10
Characteristics	2D	3D	Standard 2D Optional 3D
Offline Software	Lite Version	Standard	Standard

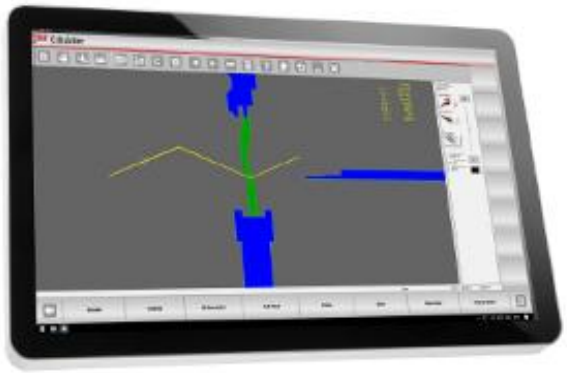


Esa S 675W 2D CNC Touch Screen Controller

The S675 W is top-of-the-line CNC Controller for press brakes. It offers highest performance with 21'' multi-touch screen for the best operating experience you'll ever have. A totally renewed interface, specifically designed for multi touch screen.

- Interactive 2D graphic editor for workpieces and tools data entry.
- 2D graphic display of machine frame, work-piece and tools.
- 2D automatic identification of the best bending sequence.
- Automatic calculation of bending force and force limitation as a function of the maximum tool load.
- Complete offline programming of tools and programs by means of a standard PC.

Standard on APES SERVO
Optionally 3D



Delem DA-66T 2D CNC Touch Screen Controller

The DA-66T offers 2D programming that includes automatic bend sequence calculation and collision detection. Full 3D machine set-up with multiple tool stations giving true feedback on the product feasibility and handling. Highly effective control algorithms optimize the machine cycle and minimize set-up time. This makes using press brakes easier, more efficient and more versatile than ever.

Optional on APES SERVO

- 2D graphical programming
- 3D visualization in production mode
- 17" high resolution color TFT
- Full Windows application suite
- USB keyboard & mouse interface
- Sensor bending & correction interface
- 2D Profile-T Lite offline software

Delem DA-69T 3D CNC Touch Screen Controller

The DA-69T offers 2D as well as 3D programming that includes automatic bend sequence calculation and collision detection. Full 3D machine set-up with multiple tool stations giving true feedback on the product feasibility and handling.

Highly effective control algorithms optimize the machine cycle and minimize set-up time. This makes using press brakes easier, more efficient and more versatile than ever.

- 3D graphical programming
- 3D visualization in production mode
- 17" high resolution color TFT
- Full Windows application suite
- USB keyboard & mouse interface
- Sensor bending & correction interface
- 3D Profile-T offline software

Optional on APES SERVO

Crowning Systems

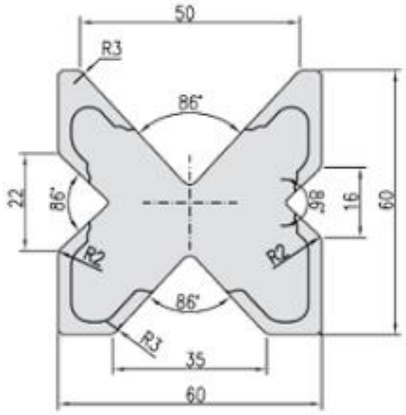
CROWNING	CNC	Manual
APES BS	Optional	Optional
APES SERVO 15040-20050	Optional	Optional
APES SERVO 26080-31100	Standard	N/A

Tool Clamping Systems

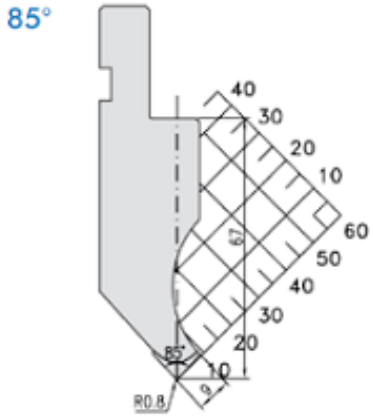
Promecam (Standard)

World most popular clamping system enable to use segmented tooling and wide variety of tool options.

Top and Bottom Tools



Top Tool: BS 10100 (H: 67mm)
Material: 42CrMo4-100 ton / mt
INDUCTION HRC 52 - 55
Induction Depth 2 - 3 mm



Top Tool: BS 10100 (H: 67mm)
Material: 42CrMo4-100 ton / mt
INDUCTION HRC 52 - 55
Induction Depth 2 - 3 mm

Quick Release Clamping (Optional)

Wila (Optional)

Wila New-Standard Tool Holders make it possible to change tools very quickly.

NEW STANDARD PRO	NSCL-I-HC-CNC	NSCR-I-HC-CNC
		
NEW STANDARD PREMIUM	NSCL-II-HC-CNC	NSCR-II-HC-CNC
		

Rolleri Clamping Systems (Optional)

ROL200 represents the patented system created by Rolleri for a safe, vertical tool change for Promecam tools.

Hydraulic upper fast clamping system with front clamp for Promecam tools, 150mm length, Max. load 1000 kN/m

Pneumatic upper fast clamping system with front clamp for Promecam tools, 150mm length, Max. load 1000 kN/m

Front Arms

Front Arms with Brushes (Standard)

Sliding front arms with brushes, stopper and height adjustment for the material with smooth surfaces.

CNC Sheet Following Arms (Optional)

CNC sheet following arms decrease the bending time considerably and lead perfect bending results.

Automation Options

New Design CNC Control Unit Arm (Standard)

All our premium Press Brakes are equipped with height adjustable control arm system; operator comfort and easy to use the control unit achieved.

Laser Angle Measurement System (Optional)

%100 correct and precise bending is much easier with laser angle measurement system.

Fiessler Akas II-LC-FMSC PLC (Optional):

Front safety protection complies with CE regulations and prevent operator injuries. .

Fiessler Akas III-LC-FMSC PLC (Optional):

With motorized height adjustment Akas, machine adjustments can be made faster.

Rear Guards

Sliding Door System (Standard)

Sliding door system prevents operator injuries and with the help of its window , operator can see inside during maintenance and operation.

Motorized Rear Safety System (Optional)

Motorized rear safety system to prevent operator injuries and with the help of its window , operator can see inside during maintenance and operation.

Baykal Social Media Accounts

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	**linkedin.com/company/baykal-makine/**
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THANK YOU

Business Development Department
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