



PA

*Do you require a more specific
solution for your bends?*

PA is the solution!

adira
innovation works >>>



HISTORY

ADIRA is a worldwide recognised supplier of solutions for sheet metal forming. Since its foundation in 1956, the company has been called to provide the most innovative, reliable and competitive solutions throughout the world. Our biggest asset is now a vast technical field experience that comes with the worldwide recognition as a trustful player, capable of delivering consistent quality products but always in constant search for solutions to increase our customers' competitiveness and providing innovative value-added solutions. ADIRA keeps a relationship of proximity and permanent improvement with its customers.

By investing a substantial part of his turnover in RD ADIRA keeps itself in the crest of the wave of innovation and, therefore is capable of providing a wide range of solutions that include products as the last generation of ecofriendly and full electrical press brakes, hydraulic and hybrid press brakes up to 3000 tons as single machines or tandem, variable and swing beam hydraulic shears, and integrated robotized production lines.

ADIRA has recently launched the world's largest metal 3D printer leading the Additive Manufacturing area. The new AddCreator system, integrating the modular chamber concept, offers a true industrial applicability!



ADIRA WORLDWIDE

The vast majority of ADIRA's production is exported to more than 60 markets. Our solutions cover markets technically demanding as northern European markets, or as big as the US or emerging like South America, Asian and African markets.

Worldwide we are happy to announce having references in companies like: NASA, US Navy, Boeing, Mitsubishi, Bombardier, Cessna, Air France, Tap Air Portugal, Bosch, Siemens, Motorola, Arcelor Mittal, Efacec, Alfa Laval, Thyssen, Carrier, SSAB, Caterpillar and so many others...

The company is ISO 9001 certified and all the products comply with the Machinery Directive 2014/35/CE.





PORTFOLIO

Being specialized in sheet metal manufacturing solutions and in order to cover the majority of our customer's requirements in this area, ADIRA developed the following portfolio:

Bluebender: last generation, ecofriendly, and full electrical Press Brakes.

Greenbender: the intelligent Press Brake using Hybrid technology and full automation.

Hydraulic and hybrid synchronized press brakes: up to 4 meters and 220 tons.

Heavy Hydraulic Press Brakes - PH Line: from 4 to 12 meters and tandem solutions.

Hydraulic shears: from 3 meters up to 9 meters size.

Press Brakes Solutions



bluebender
BB | ELECTRIC



PA | HYDRAULIC



PF | HYBRID



greenbender
GB | GREENDYNAMIC



PH | HEAVY DUTY

Shears



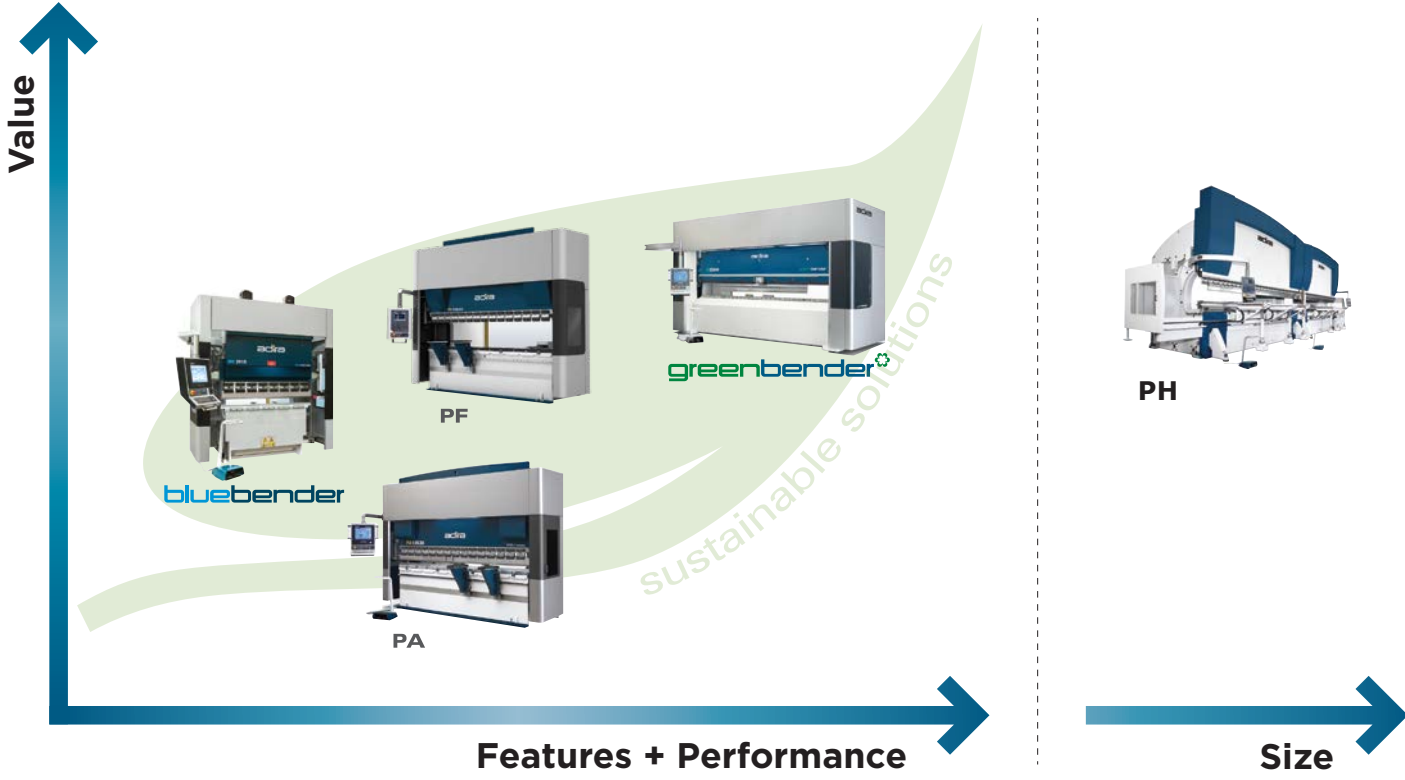
GH | VERSATILE



GV | HEAVY DUTY

For more information look at www.adira.com / adira@adira.pt

SUSTAINABLE BENDING SOLUTIONS





APPLICABILITY



PA



VIDEO LINK

The big number of accessories and optional equipment for the PA machine makes this model a solution for a wide range of industries. For your commodity ADIRA decided to simplify and make a:

PA Basic provided with a pack of optional equipment that makes it the best solution for starting companies or job shops. This machine covers both civil construction and metal forming where flexibility, user friendly and general purpose are key factors for success.

PA Plus comes with a package that allows each customer to create his "perfect solution", using a tailor made combination of accessories and optionals. This makes the PA Plus the solution for industries where high production, high level of automation or low set up times are key factors for success.



DISTINCTIVE FEATURES



01
Revolutionary structural concept "HEXA-C®"

02
Semi-hybrid solution with **Greendrive System**



03
High open height, stroke and throat depth

04
Safety system by LazerSafe



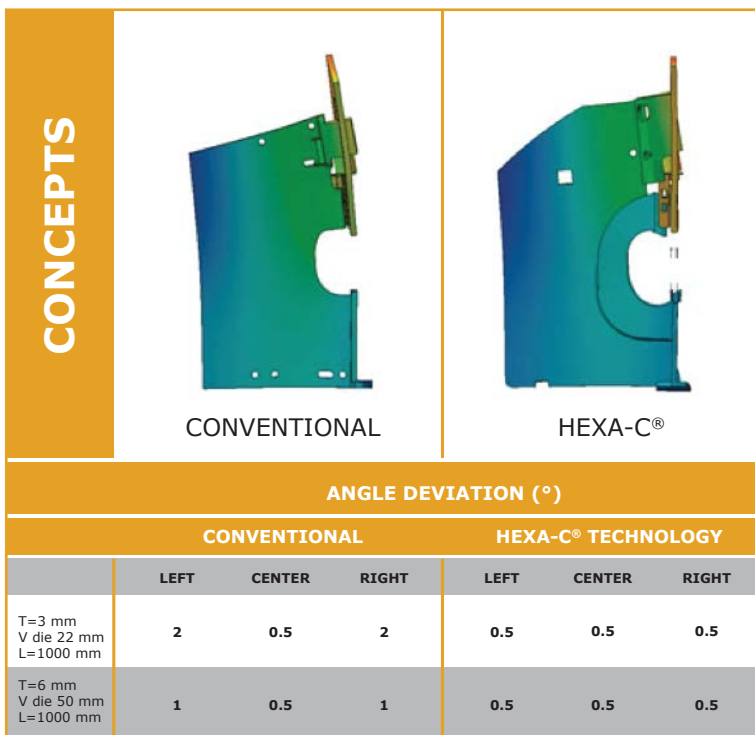
05
User-friendly operation

06
Wide range of configurations



07
Sturdiness and reliability

08
Multi-axes back gauge, fast and accurate



STRUCTURAL CONCEPT HEXA-C®

Adira presents a different concept of C-frames, named HEXA C®, which ensures that the beams (movable and fixed) remain aligned in any load condition contrary to what occurs in conventional C-structures.

>>> Improved bending accuracy because the movable beam remains perfectly aligned with the fixed beam.

>>> Largest immunity to structure torsion effects in case of off-centre bending.

ELECTRIC AND HYDRAULIC CIRCUIT



The electric and hydraulic components used in the ADIRA machines come from multi-national suppliers that not only ensure the best quality but, by having a worldwide distribution, also provide our customers with availability of parts supply. We currently use brands like: Eckerle, Hoerbiger, Schneider and LazerSafe.



MODELS

Available in six standard models

Ranging from 135 to 220 tons / 3 to 4 mts

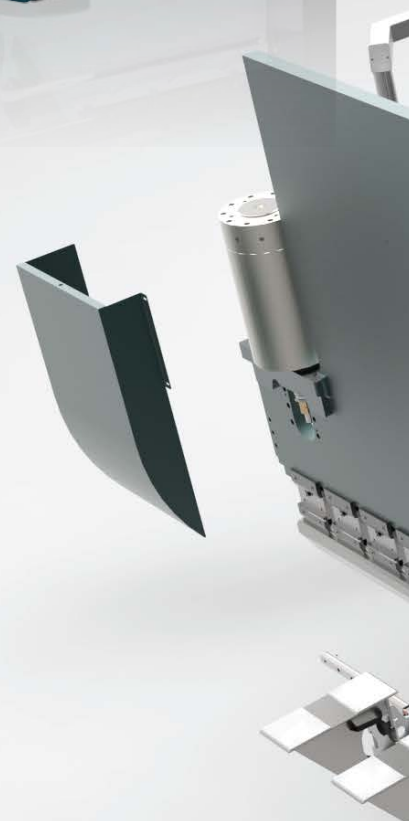
Advantages? Applicability?

Please check out our list of accessories and optional equipment.

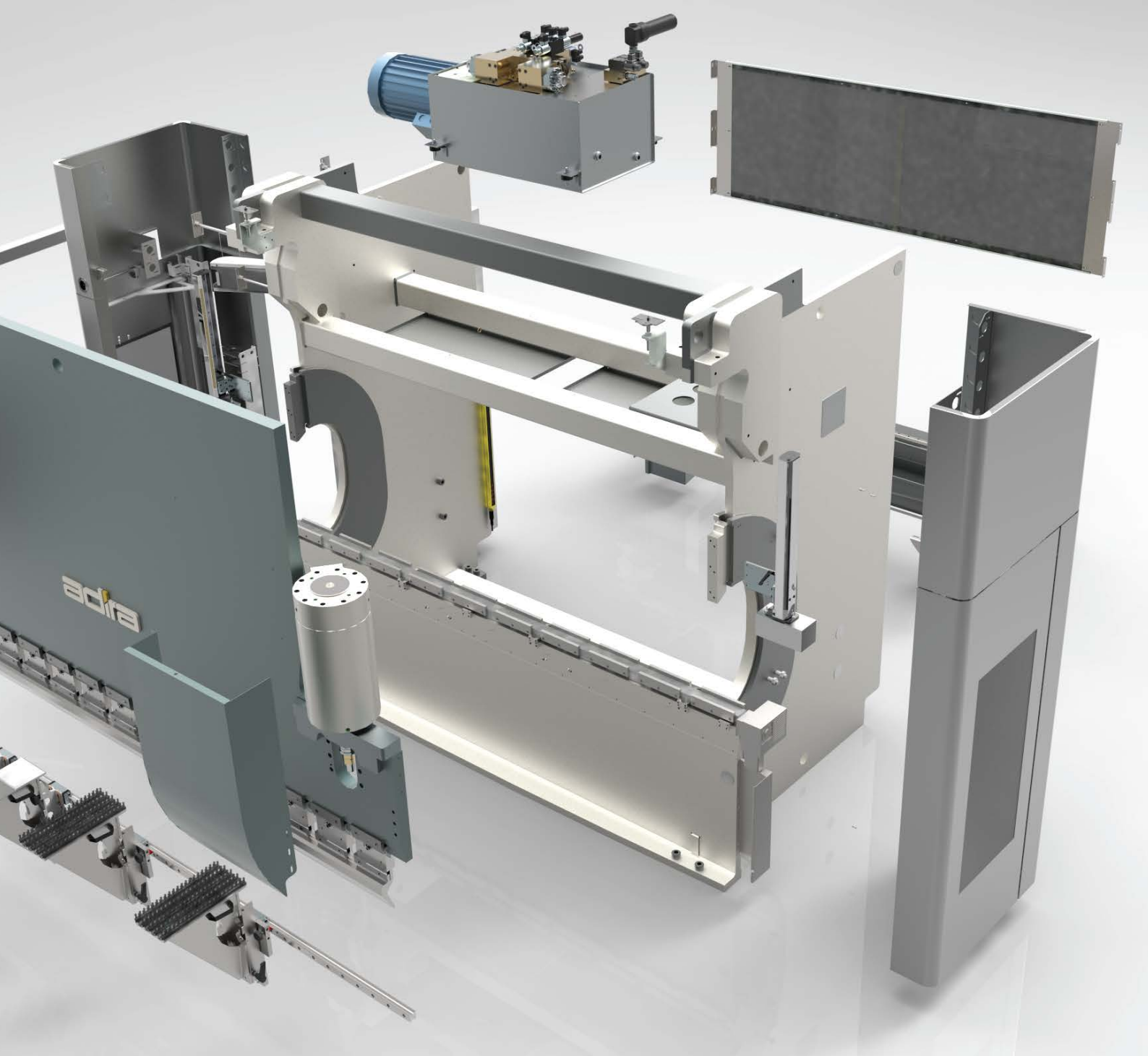


HIGHLIGHTS:

- >>> Revolutionary structural concept "Hexa-C®"
- >>> Semi-hybrid solution with **Greendrive System**
- >>> High open height, stroke and throat depth
- >>> Safety system by laser (single beam)
- >>> User-friendly operation
- >>> Multi-axes back gauge, fast and accurate
- >>> Wide range of configurations
- >>> Sturdiness and reliability



MODULAR DESIGN >>>





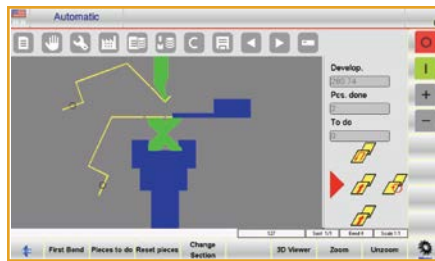
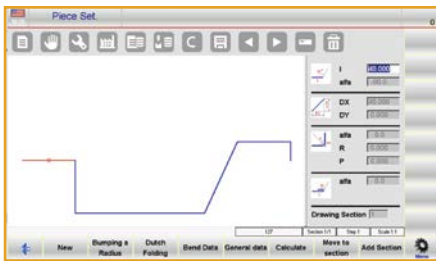
PA BASIC

Designed with a HEXA-C® frame that ensures a perfect guiding on the upper beam even when under load and manufactured per the strictest standards, the PA Basic press brake is, even so, an affordable investment solution.

ADCONTROL25

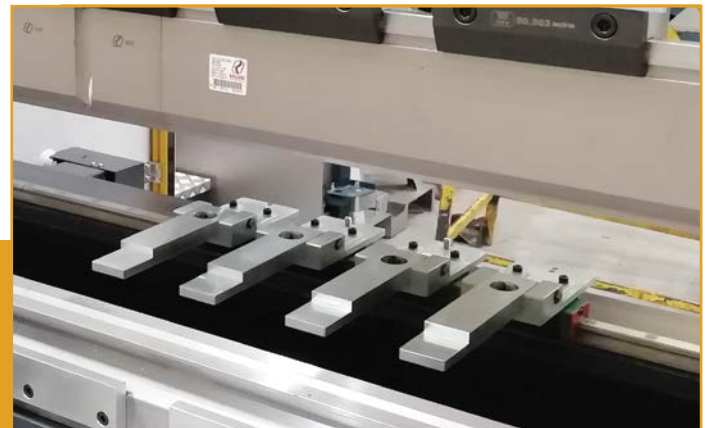
15" Touch screen, 2D programming with sequence optimization.

Backup and update of programs and tools by LAN or USB, 2 ports RS232.



BACK GAUGE

Back gauge fixed to the side frames of the machine, with numerically controlled axes: X and R (with 4 fingers)



Standard back gauge

OTHER STANDARD EQUIPMENT



LazerSafe single beam



CNC crowning table



Front support arms on rail



Maintenance tool box



PA BASIC OPTIONALS

CNC



CYBELEC MODEVA PAC (up to 6 axes)



DELEM DA58T (up to 4 axes)

AXES



Z1/Z2 AXES



PA+

Equipped with a HEXA-C® frame that ensures bending accuracy and with an efficient designed hydraulic circuit, PA Plus is an energy saver (Greendrive System) when compared to other hydraulic synchronized machines. The PA Plus can be the answer to a wide variety of solutions by adding different options and accessories!

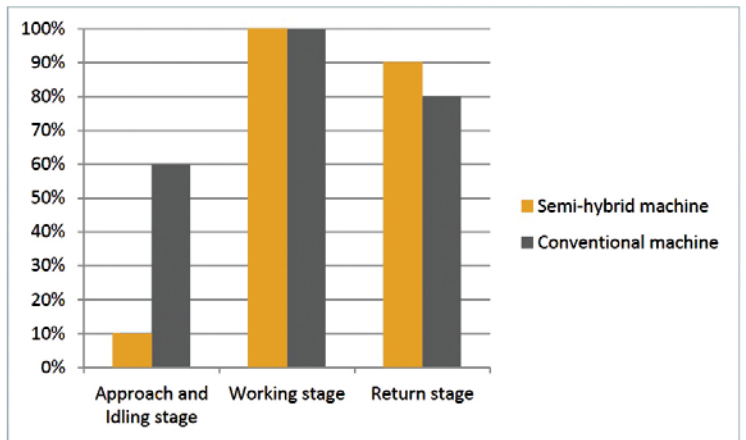
GREENDRIVE SYSTEM

The System makes the variation of the main electric motor rotation, enabling:

- >>> Increase of the return speed (decrease of the work cycle).
- >>> Residual motor rotation whenever the machine is idle.
- >>> Important reduction of the energy consumption.

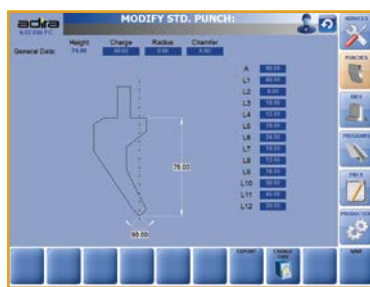
Graphic comparing consumption between a conventional machine and a Semi-Hybrid.

Average Energy Consumption in %



ADCONTROL60

15" Touch screen, 2D programming with sequence optimization. Backup and update of programs and tools by LAN or USB, 2 ports RS232.



BACK GAUGE

Back gauge fixed to the side frames of the machine, with numerically controlled X, R and Z1/Z2 axes.



Standard back gauge with Z1/Z2



OTHER STANDARD EQUIPMENT



LazerSafe single beam



CNC crowning table



Front support arms on rail



Reversible punch-holders with manual quick clamp



Maintenance tool box



PA PLUS OPTIONALS

CNC



Modeva 19T
(2D e 3D)
(NC Evolutive)



Delem DA 66T (2D)
and DA 69T (3D)
(NC Evolutive)

IRIS BLOCK LASER

- >>> Wide protection of the bending area.
- >>> Speed change approach/work at 2 mm of the die.
- >>> Increase of the work cycle.
- >>> Important time economy along the 8 work hours.
Please see chart:

	Speed Change	Working Speed	1 Cycle Time	5 Cycle Time	Times Save in 8 Hours
Laser Safety Conventional	12 mm	10 mm/s	1.2 s	6 s	40 min
Laser Safety Iris	2 mm	10 mm/s	0.2 s	1 s	



ANGLE MEASUREMENT SYSTEMS



Digital level gauge

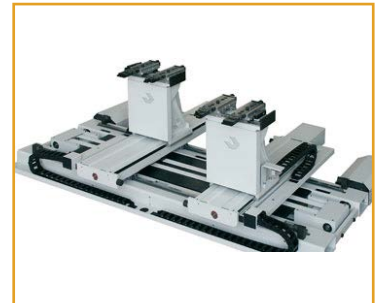


IRIS PLUS: angle measurement system (integration only with Adcontrol 60)

BACK GAUGE



X/X1 axis



ATF tower back gauge

CLAMPING SYSTEMS



Wila clamping systems (with STL available)



Pneumatic Teda clamping system

HANDLING SYSTEMS



Front support arms on rail (with brushes and height adjustment)



Bending followers

AVAILABLE OPTIONS

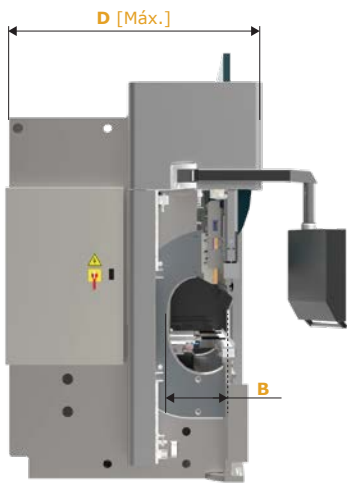


	MODEL	
	PA BASIC	PA PLUS
	X	STD
	STD	X
TABLE		
CNC crowning table	STD	STD
Table for 60 mm base dies "table kit standard"	STD	STD
Table for Wila/Amer type dies "table Kit III"	OP	OP
Table 180 mm for multi V dies "table Kit II"	OP	OP
Crowning table with hydraulic clamp. Wila Pro	X	OP
Pneumatic clamping for 60 mm base dies	X	OP
Pneumatic clamping for Wila/Amer type dies	X	X
PUNCH CLAMPING		
Punch-holders with quick manual clamp "Adira"	STD	STD
Reversible punch-holders "Adira"	OP	STD
Punch-holders "Adira/USA"	OP	OP
Hydraulic clamping of the punch Wila Pro	X	OP
Hydraulic clamping of the punch Wila Pro USA	X	OP
Pneum. punch clamp. with front insertion Teda	X	OP
HANDLING SYSTEMS		
Front support arms on rail without height adj.	STD	STD
Front support arms with height adj. & brushes	OP	OP
Extra front support arm on rail	OP	OP
Extra front support arm on rail with height adj.	OP	OP
Bending follower (AQ1)	X	OP
Second bending follower (AQ2)	X	OP
BACK GAUGE		
Back gauge X / R	STD	X
Back gauge X / R / Z1 / Z2	OP	STD
Back gauge X / X1 / R / Z1 / Z2	X	OP
Towers back gauge X1 / X2 / R1 / R2 / Z1 / Z2	X	OP
2 Extra back gauge fingers	STD	OP
Anti-collision finger	OP	OP
SAFETY & ANGLE MEAS.		
With CE safety	STD	STD
Without CE safety	OP	X
Laser safety LZS - LG	STD	STD
Laser safety IRIS	X	OP
Laser safety IRIS PLUS (Angle measurement)	X	OP
CONTROLS		
CYB MODEVA PAC	OP	X
CYB MODEVA 19T (2D & 3D)	X	OP
ESA ADCONTROL25	STD	X
ESA ADCONTROL60	X	STD
DELEM DA58T	OP	X
DELEM DA66T (2D)	X	OP
DELEM DA69 (3D)	X	OP
LEDS		
Leds (smart placing) ESA	X	OP
Leds (smart placing) WILA	X	OP
OTHERS		
Front lighting	STD	STD
Robot interface	X	OP
2 Machines in tandem	X	OP
Adaptation for high temperatures	OP	OP
Adaptation for low temperatures	OP	OP
Air conditioning in electric cabinet	OP	OP
Special paint	OP	OP
Standard tool kit	OP	OP
Special tools	OP	OP
Digital bevel gauge	X	OP

STD: STANDARD | OP: OPTIONAL | X: NOT AVAILABLE



TECHNICAL FEATURES

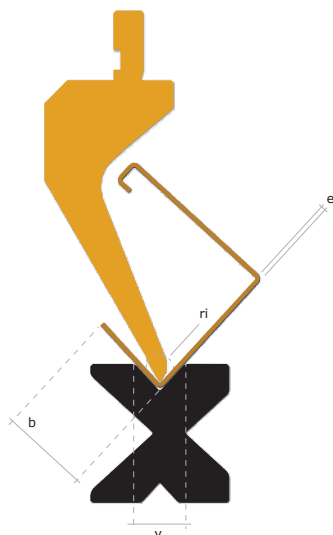


PA BASIC		13530	13540	16030	16040	22030	22040
Capacity	kN	1350	1350	1600	1600	2200	2200
Bending length	mm	3000	4000	3000	4000	3000	4000
Distance between housings	mm	2550	3150	2550	3150	2550	3150
Max stroke	mm	260	260	260	260	260	260
Open height without tools (A)	mm	500	500	500	500	500	500
Throat depth (B)	mm	400	400	400	400	400	400
Motor power	kW	15	15	15	15	15	15
Approach speed	mm/s	150	150	150	150	130	130
Working speed	mm/s	10	10	10	10	8	8
Return speed	mm/s	100	100	100	100	85	85
Stroke of axis X	mm	625	625	625	625	625	625
Speed of axis X	mm/s	500	500	500	500	500	500
Stroke of axis R	mm	200	200	200	200	200	200
Speed of axis R	mm/s	50	50	50	50	50	50
Stroke of axes Z1/Z2	mm	2150	2750	2150	2750	2150	2750
Speed of axis Z1/Z2	mm/s	400	400	400	400	400	400
Min. machine length	mm	3950	4980	3950	4980	3950	4980
Max. machine length (C)	mm	4700	5780	4700	5780	4700	5780
Max. width (D)	mm	2180	2180	2180	2180	2180	2180
Max. height (E)	mm	2960	3120	2960	3120	3050	3120
Transportation height	mm	2750	2880	2750	2880	2830	2880
Approx. weight	Kg	9100	11500	9300	11700	11200	13500
Height of work station (F)	mm	930	930	930	930	930	930



PA PLUS		13530	13540	16030	16040	22030	22040
Capacity	kN	1350	1350	1600	1600	2200	2200
Bending length	mm	3000	4000	3000	4000	3000	4000
Distance between housings	mm	2550	3150	2550	3150	2550	3150
Max stroke	mm	260	260	260	260	260	260
Open height without tools (A)	mm	500	500	500	500	500	500
Throat depth (B)	mm	400	400	400	400	400	400
Motor power	kW	15	15	15	15	15	15
Approach speed.	mm/s	150	150	150	150	130	130
Work Speed	mm/s	10	10	10	10	8	8
Return Speed	mm/s	150	150	150	150	130	130
Stroke X axis	mm	625	625	625	625	625	625
Speed X axis	mm/s	800	800	800	800	800	800
Stroke R axis	mm	200	200	200	200	200	200
Speed R axis	mm/s	200	200	200	200	200	200
Approx. stroke Z1/Z2 axes	mm	2150	2150	2150	2750	2150	2750
Speed Z1/Z2 axes	mm/s	800	800	800	800	800	800
Stroke X/X1 axis	mm	± 100	± 100	± 100	± 100	± 100	-/100
Speed X/X1 axis	mm/s	100	100	100	100	100	100
Min machine length	mm	3950	3950	3950	4980	3950	4980
Max. machine length (C)	mm	4700	4700	4700	5780	4700	5780
Max width (D)	mm	2180	2180	2180	2180	2180	2180
Max height (E)	mm	2960	2960	2960	3120	3050	3120
Height for transportation	mm	2750	2750	2750	2880	2830	2880
Approx weight	Kg	9100	9300	9300	11700	11200	13500
Height of Workstation (F)	mm	930	930	930	930	930	930

TECHNICAL BENDING SHEET



HOW TO SELECT A PRESS BRAKE

The most important factors to consider in the selection of a press brake are:

- Maximum sheet length to be bent;
- Maximum size of the flange to be bent that should be removed sideways through the machine frames;
- Machine stroke;
- Required tonnage.

CALCULATION OF THE REQUIRED TONNAGE

The air bending is the method normally used since it requires less bending tonnage and allows for different bending angles with the same tools just by changing that bending depth. To obtain sharp edges the bottoming should be used. This method requires a much higher force than that required by the air bending and also special tools for each angle to perform. This procedure is generally used only on thin gauge material for 90 angles. The following chart helps calculating the necessary bending tonnage for air bending.

v	6	8	10	12	16	20	22	25	32	40	50	63	80	90	100	110	125	140	160	200	250	320	400	500		
b	4	5,5	7	8,5	11	14	15,5	17,5	22	28	35	44	56	63	70	78	88	98	112	140	175	224	280	350		
ri	1	1,3	1,6	2	2,5	3,5	3,5	4	5	6,5	8	10	13	14	16	17	20	22	25	31	35	50	63	78		
e	0,8	8	6	4																						
1,0	14	9	7	5																						
1,25		19	12	9	6																					
1,5			18	14	10	7																				
2,0				28	19	14	12	11																		
2,5					32	23	21	18	13																	
3,0						36	32	27	19	15																
4,0								52	38	28	21															
5,0									63	47	35	26														
6,0										72	53	39	29													
6,5										84	62	46	34													
7,0										104	76	56	41	36												
8,0											105	77	56	48	42											
10												130	94	80	70	62	53	46								
12														123	107	94	80	69	59							
14																134	114	98	83	63						
16																	155	133	112	84						
18																		175	147	107	83					
20																			188	140	106	78				
25																					234	175	128	98		
30																							266	193	146	112

Tonnage required per meter, in tons, for air bending mild steel.

Tensile strength of 400 to 450 N/mm² (=45 Kg/mm²).

The dark yellow figures are the recommended V openings and follow the rule:

$V = 8 \times e$, for $e \leq 10$ mm; $V = 10 \times e$, for $e \geq 12$ mm.

For other materials, correct the value proportionally according to the new tensile strength.

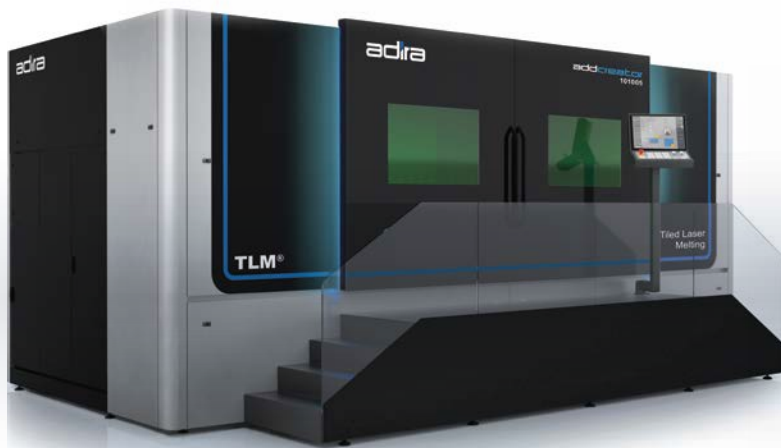
Ex: For aluminum with 200 N/mm² (=20 Kg/mm²) divide the value in the chart by 2.

For stainless steel with 700 N/mm² (=70 Kg/mm²) multiply the value in the chart by 1,6.

AUTOMATION



ADDITIVE MANUFACTURE



AC | addcreator
3D PRINTING



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