# **iBend** PRESS BRAKE

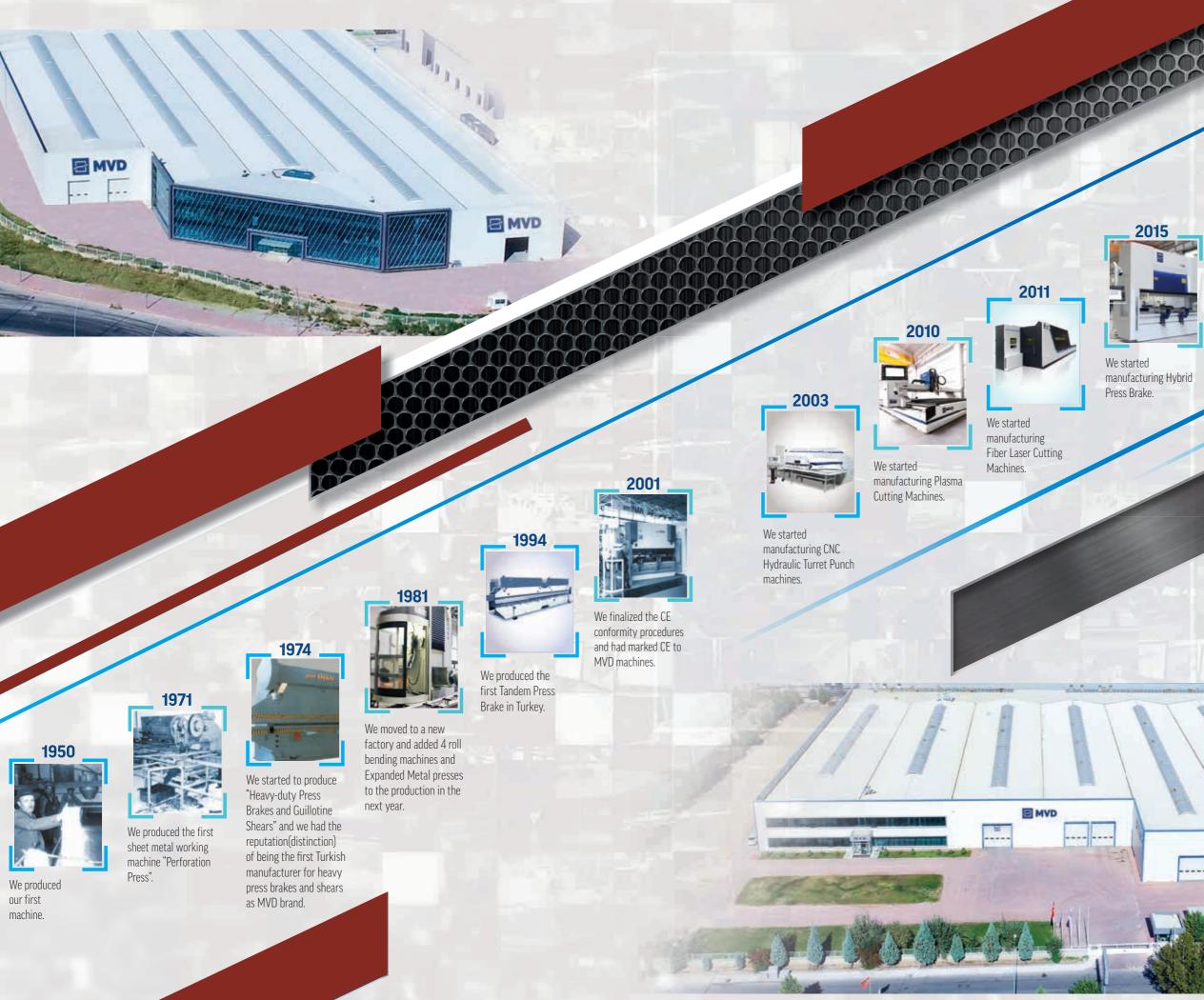
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We established the Research and Development Center certified by the Ministry of Industry and Technology.

#### **2018**



We started manufacturing Servo Press Brake.



# iBend PRESS BRAKE

# **iBend** HYDRAULIC PRESS BRAKE

Quality and service support is accepted as principle. Designing and Manufacturing are based on reliability, durability and precision. Machines are easy to use and are built to be ready for user errors. Machines are designed and analyzed with 3-D computer programs, manufactured as welded steel construction, "stress relieved", precisely machined in moving column CNC machining centres, equipped with world-known equipments and presented to the customers use after quality control.



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#### ESA 5630



10" Touch

Software

2D Graphic Screen

With Offline PC

ESA 640 - 15", 2D ESA 650 - 15", 2D

#### **DELEM DA-53T**



Numerical / 2D Screen With Offline PC Software

DELEM DA-58T - 15", 2D DELEM DA-66T - 17", 2D

#### **CYBELEC CybT8 PS**

7" Touch Numerical / 2D Screen With Offline PC Software

CYBELEC CybT12 - 12", 2D CYBELEC CybT15- 15", 2D



Standard X axis back gauge



Standard Magnetic linear scales (0,005mm precision)

#### **Standard Features**

1. Y1,Y2,X CNC 3 Axes

2. 210mm Stroke, 410mm Throat Depth

3. ESA \$530 CNC Control Unit

4.  $\pm$  0,03mm accuracy AC motorized with inverter, back gauge.

5. Manual Promecam punch tool holder 6. MVD special narrow bottom table

(European type)

7. Standard punch tools ( H: 67, 85°, R:08 ) 8. Standard die tools ( 60x60mm, 4 Vee V=16-22-35-50mm, 85°, H:60)

9. High quality and precision linear scales 10. LED illumination on RAM

#### **Optional Features**

- 1. R axis back gauge
- Sliding front sheet support arms
  Wide bottom table for Multi Vee dies

4. Anti-deflection crowning with original Wila wedges

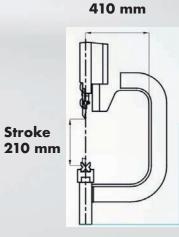
5. AKAS or DSP front laser safety systems

**Stroke** 

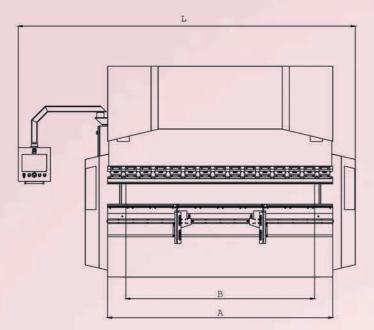
- 6. Rear Safety
- 7. Additional back gauge fingers



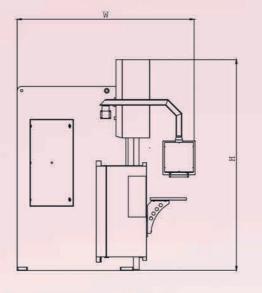
Standard Manual Promecam Punch tool holder



Throat



Front view

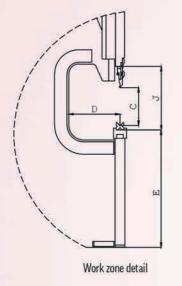


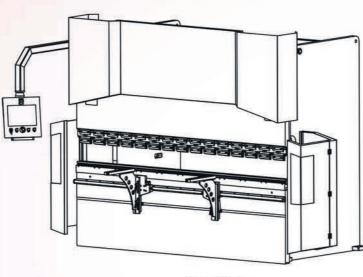
Side view

# A Series - Technical Specifications

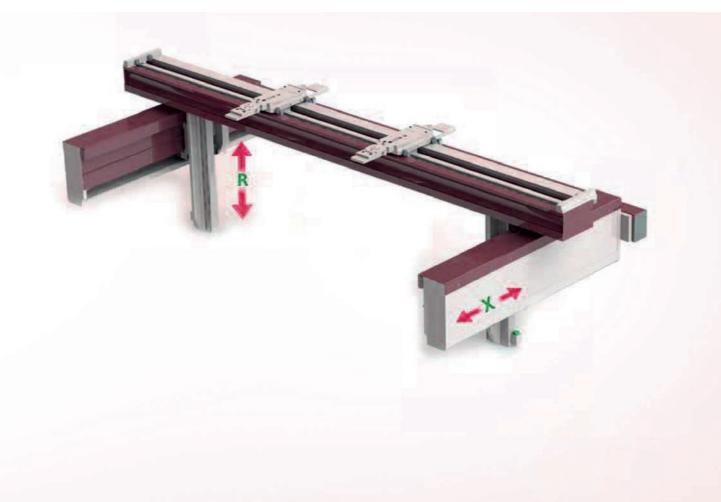
Machine	A Bending Force	Bending Lenght	Distance between columns	Stroke	Daylight	Throat	Table Height	Mach	ine Dimens	sions		Speed		0il tank	Weight	Main motor
Туре	Ton	Ton A B C		C	J	D E		Length x Width x Height (L x W x H)			Approach Speed	Return Speed	Bending Speed	Lt	kg	kW
		mm	mm	mm	mm	mm	mm	mm			mm/s	mm/s	mm/s			
A40	40	1250	1100	210	415	410	885	3060	2195	2730	150	120	10	95	3400	4
A60	60	2100	1600	210	415	410	870	3660	2175	2820	160	135	10	170	4290	5,5
AOU	60	2600	2150	210	415	410	870	4210	2175	2820	160	135	10	170	4790	5,5
A100	100	2600	2150	210	415	410	905	4220	2230	2855	200	135	10	170	6150	7,5
AIUU	100	3100	2600	210	415	410	905	4670	2230	2855	200	135	10	180	6650	7,5
	135	3100	2600	210	415	410	905	4690	2340	2795	210	130	10	180	7200	11
A135	135	3700	3200	210	415	410	905	5290	2340	2850	210	130	10	180	9200	11
	135	4100	3600	210	415	410	905	5590	2440	2950	210	130	10	180	9750	11
	175	3100	2600	210	415	410	945	4705	2430	2840	180	130	10	180	8400	15
A175	175	3700	3200	210	415	410	945	5305	2430	2840	180	130	10	180	9800	15
	175	4100	3600	210	415	410	945	5600	2530	2950	180	130	10	180	10250	15
	220	3100	2600	210	415	410	880	4720	2415	2805	180	140	10	290	10000	18,5
A220	220	3700	3200	210	415	410	930	5320	2415	2805	180	140	10	290	11400	18,5
	220	4100	3600	210	415	410	930	5620	2515	2905	180	140	10	290	11800	18,5

\*For dimension details please look at left page. \*\*Technical specifications may change without advance notice.





Perspective view





ESA 650 - 15", 2D ESA 660W - 19", 3D \*.dxf

15" Touch

Software

**2D Graphic Screen** 

With Offline PC



15" Multi Touch Color 2D Graphic Screen With Offline PC Software

DELEM DA-53T- 10", Numerical / 2D DELEM DA-66T- 17 ", 2D



12" Touch 2D Graphic Screen With Offline PC Software

CYBELEC CybT8- 7", Numerical / 2D CYBELEC CybT15- 15", 2D



Standard

Front sheet

support arms



**Standard** Optic linear scales (0,005mm precision)

#### **Standard Features**

1. Y1,Y2,X CNC 3 Axes

2. 260mm Stroke, 410mm Throat Depth

3. ESA S630 CNC Control Unit

4. ±0,03mm accuracy SERVO motorized back gauge X=750mm

5. Quick clamp Promecam punch tool holder

6. Sliding front sheet support arms

7. MVD special narrow bottom table (European type)

8. GIVI optic linear scales

9. Standard punch tools (H: 67, 85°, R:08)

10. Standard die tools (60x60mm, 4 Vee

V=16-22-35-50mm, 85°, H:60)

11. LED illumination on RAM

#### **Optional Features**

- 1. X to 2-4-6-8 axis back gauge options
- 2. Wide bottom table for Multi Vee dies.

3. Anti-deflection crowning with original Wila wedges

4. AKAS or DSP front laser safety systems

- 5. Rear Safety
- 6. Additional back gauge fingers

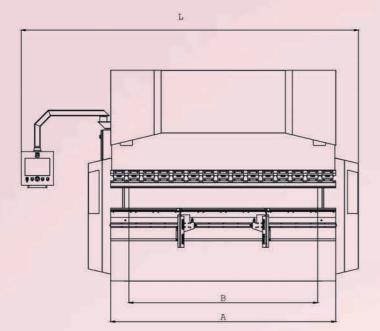


**Standard** Quick clamp Promecam Punch tool holder

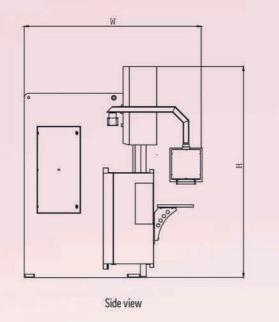
Throat

410 mm

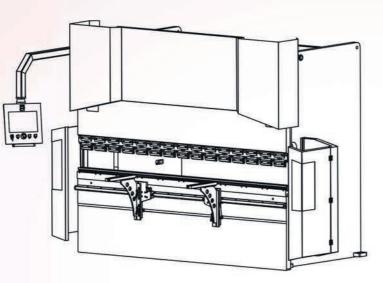




Front view



Work zone detail



Perspective view

## **B** Series - Technical Specifications

Machine	Bending Force	Bending Lenght	Distance between columns	Stroke	Daylight	Throat	Table Height	Macl	hine Dime	nsions		Speed		0il tank	Weight	Main motor
Туре	Ton	A	В	C	J	D	E	Length x Width x Height (L x W x H)			Approach Speed	Return Speed	Bending Speed	Lt	kg	kW
		mm	mm mm		mm	mm	mm		mm		mm/s	mm/s	mm/s			
B40	40	1250	1100	260	465	410	880	3060	2080	2820	150	120	10	95	3500	4
B60	60	2100	1600	260	465	410	870	3660	2175	2905	160	135	10	170	4560	5,5
DUU	60	2600	2150	260	465	410	890	4210	2175	2905	160	135	10	170	5010	5,5
B100	100	2600	2150	260	465	410	885	4220	2230	2950	200	135	10	170	6430	7,5
DIOU	100	3100	2600	260	465	410	905	4670	2230	2950	200	135	10	180	6780	7,5
	135	3100	2600	260	465	410	940	4690	2340	2980	210	130	10	180	7750	11
B135	135	3700	3200	260	465	410	955	5290	2340	2995	210	130	10	180	9400	11
	135	4100	3600	260	465	410	955	5590	2440	2990	210	130	10	180	10000	11
	175	3100	2600	260	465	410	955	4700	2430	2975	180	130	10	180	8850	15
B175	175	3700	3200	260	465	410	955	5300	2430	2990	180	130	10	180	10500	15
	175	4100	3600	260	465	410	955	5600	2530	2980	180	130	10	180	11050	15
	220	3100	2600	260	465	410	955	4720	2430	2998	180	140	10	290	10400	18,5
B220	220	3700	3200	260	465	410	970	5320	2430	3045	180	140	10	290	11950	18,5
	220	4100	3600	260	465	410	970	5620	2530	3035	180	140	10	290	12750	18,5
	270	3100	2600	260	465	410	960	4840	2500	3040	150	120	10	290	12300	22
B270	270	3700	3200	260	465	410	960	5440	2500	3040	150	120	10	290	13500	22
	270	4100	3600	260	465	410	960	5640	2500	3040	150	120	10	290	14300	22
	320	3100	2600	260	485	410	955	4860	2490	3080	150	110	10	290	13700	22
	320	3700	3200	260	485	410	955	5460	2490	3085	150	110	10	290	14500	22
B320	320	4100	3600	260	485	410	955	5660	2490	3085	150	110	10	290	15300	22
	320	5100	4200	260	485	410	1030	6660	2570	3210	150	110	10	290	20500	22
	320	6100	5100	260	485	410	1060	7560	2570	3440	150	110	10	290	25000	22

\*For dimension details please look at left page. \*\*Technical specifications may change without advance notice.





#### **ESA S650**





15" Touch 2D Graphic Screen With Offline PC Software



17" Multi Touch Color 2D Graphic Screen With Offline PC Software

ESA 660W - 19", 3D \*.dxf

DELEM DA-69T- 17", 3D\*.dxf



CYBELEC CybT12- 12 ", 2D

15" Touch 2D Graphic Screen With Offline PC Software





Standard X+R Axes Back Gauge

Standard Manual Crowning (Original WILA Wedges)

#### **Standard Features**

1. Y1,Y2,X,R CNC 4 Axes

2. 310mm Stroke, 410mm Throat Depth

3. ESA S640 CNC Control Unit

4. ± 0,03 mm accuracy SERVO motorized back gauge. X=750mm, R=250mm

5. Quick clamp Promecam punch tool holder

6. Sliding front sheet support arms

7. Manuel Anti-deflection crowning with original Wila wedges.

8. MVD special narrow bottom table (European type)

9. GIVI optic linear scales

10. Standard punch tools (H: 67, 85°, R:08) 11. Standard die tools (60x60mm, 4 Vee

V=16-22-35-50mm, 85°, H:60)

12. LED illumination on RAM

#### **Optional Features**

1. X+R to 4-6-8 axis back gauge options

2. Rolleri Rol200 hydraulic punch clamping 3. Wila hydraulic clamping

4. Wide bottom table for Multi Vee dies.

5. Motorized Anti-defifiection crowning with original Wila wedges 6. 1.000mm X axis travel

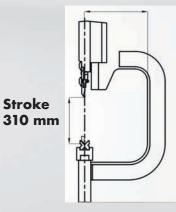
**Stroke** 

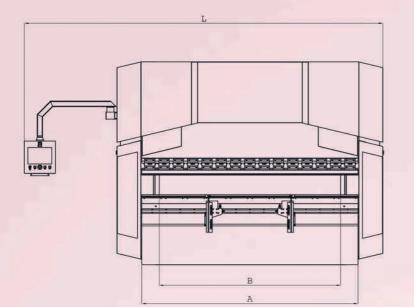
7. AKAS or DSP front laser safety systems

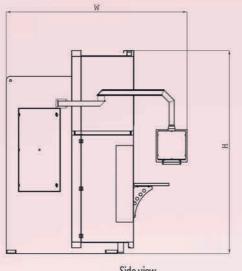
8. Rear Safety

9. Additional back gauge fingers

#### Throat 410 mm

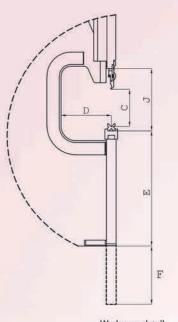


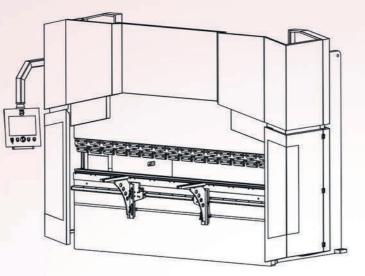




Side view

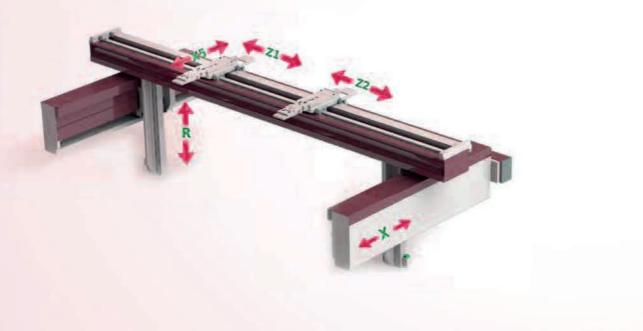
Front view





Perspective view





# C Series - Technical Specifications

Machine	Bending Force	Bending Lenght	Distance between columns	Stroke	Day light	Throat	Table Height	PIT	Machine Dimensions				Speed		0il tank	Weight	Main motor kW
Type	Ton	A	В	С	Ĵ	D	E	F	Length x Width x Height (L x W x H)		Approach Speed	Return Speed	Bending Speed	Lt	kg		
		mm	mm	mm	mm	mm	mm	mm		mm		mm/s	mm/s	mm/s			
C100	100	2600	2150	310	515	410	890	-	4220	2230	2950	200	135	10	180	6950	7,5
0100	100	3100	2600	310	515	410	905	-	4670	2230	2950	200	135	10	180	7300	7,5
	135	3100	2600	310	515	410	935	*	5150	2650	2950	210	130	10	180	8350	11
C135	135	3700	3200	310	515	410	945		5750	2650	2950	210	130	10	180	10000	11
	135	4100	3600	310	515	410	945	2	6150	2650	2995	210	130	10	180	10600	11
	175	3100	2600	310	515	410	935	-	5150	2650	2950	180	130	10	180	9700	15
C175	175	3700	3200	310	515	410	945	2	5750	2650	2950	180	130	10	180	11350	15
	175	4100	3600	310	515	410	945	-	6150	2650	2995	180	130	10	180	11900	15
	220	3100	2600	310	515	410	940	2	5180	2650	2950	180	140	10	290	11300	18,5
	220	3700	3200	310	515	410	965	-	5780	2650	3040	180	140	10	290	12850	18,5
C220	220	4100	3600	310	515	410	965	2	6180	2650	3040	180	140	10	290	13650	18,5
	220	5100	4200	310	515	410	995	-	7180	2650	3090	180	140	10	290	17000	18,5
	220	6100	5100	310	515	410	995	-	8180	2650	3090	180	140	10	290	21700	18,5
	270	3100	2600	310	515	410	950	-	5200	2650	3040	150	120	10	290	13300	22
C270	270	3700	3200	310	515	410	955	-	5800	2650	3040	150	120	10	290	14500	22
	270	4100	3600	310	515	410	955	-	6200	2650	3040	150	120	10	290	15300	22
	320	3100	2600	310	535	410	955	-	5300	2655	3070	150	110	10	290	14700	22
	320	3700	3200	310	535	410	955		5750	2655	3080	150	110	10	290	15500	22
C320	320	4100	3600	310	535	410	955		6150	2655	3130	150	110	10	290	16800	22
	320	5100	4200	310	535	410	1045		7150	2655	3140	150	110	10	290	21500	22
	320	6100	5100	310	535	410	1065		8150	2655	3170	150	110	10	290	26000	22
	400	3100	2600	310	535	510	1015	-	5150	2685	3400	100	80	8	400	18700	30
	400	3700	3200	310	535	510	975		5750	2685	3400	100	80	8	400	20700	30
	400	4100	3600	310	535	510	985		6150	2700	3400	100	80	8	400	22500	30
C400	400	5100	4200	310	535	510	980		7150	2700	3400	100	80	8	400	25500	30
	400	6100	5100	310	535	510	1055		8150	2700	3600	100	80	8	400	33000	30
	400	8100	7100	310	535	510	815	1300	10150	2785	3750	100	80	8	400	45000	30
	500	3700	3200	310	535	510	1035		5750	2735	3400	80	70	8	500	24100	37
	500	4100	3600	310	535	510	1025	-	6150	2740	3400	80	70	8	500	26300	37
C500	500	5100	4200	310	535	510	1055	-	7150	2750	3650	80	70	8	500	30000	37
	500	6100	5100	310	535	510	965	1350	8200	2750	3900	80	70	8	500	39500	37
	500	8100	7100	310	535	510	750	1800	10200	2750	4000	80	70	8	500	55500	37

\*For dimension details please look at left page. \*\*Technical specifications may change without advance notice.

# **D** Series



**ESA S650 CNC** Control Unit 15" Color Touch 2D Graphic Screen With Offline PC Software



#### **MORE CNC CONTROLLER RECOMMENDATIONS**

#### **ESA S650**



3D Graphic Screen \*.dxf import/ export With Offline PC Software

19" Touch



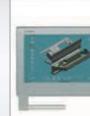
#### **DELEM DA-66T**



Screen \*.dxf im-With 3D Offline

DELEM DA-58T- 15" 2D DELEM DA-66T- 17" 2D

#### **CYBELEC Visitouch 19MX**



19" Touch 3D Graphic Screen \*.dxf import/export With Offline PC Software

CYBELEC CybT15PS- 15" 2D







Standard Sliding front support arms With hand wheel adjustment

#### **Standard Features**

1. Y1,Y2,X,R CNC 4 Axes 2. 310mm Stroke, 410mm Throat Depth 3. ESA S640 CNC Control Unit 4. ± 0,03 mm accuracy SERVO motorized back gauge. X=750mm, R=250mm 5. Quick clamp Promecam punch tool holder 6. Sliding front sheet support arms 7. Manuel Anti-deflection crowning with original Wila wedges. 8. MVD special narrow bottom table (European type) 9. GIVI optic linear scales 10. Standard punch tools (H: 67, 85°, R:08) 11. Standard die tools ( 60x60mm, 4 Vee V=16-22-35-50mm, 85°, H:60) 12. LED illumination on RAM

#### **Optional Features**

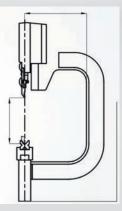
- 1. X+R to 4-6-8 axis back gauge options
- 2. Rolleri Rol200 hydraulic punch clamping
- 3. Wila hydraulic clamping
- 4. Wide bottom table for Multi Vee dies.

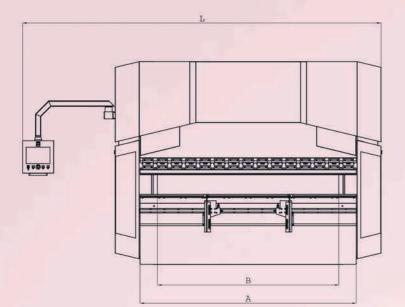
5. Motorized Anti-defifiection crowning with original Wila wedges 6. 1.000mm X axis travel

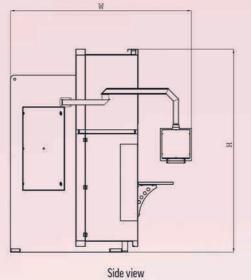
- 7. AKAS or DSP front laser safety systems
- 8. Rear Safety
- 9. Additional back gauge fingers

Throat 510 mm

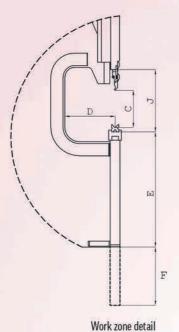


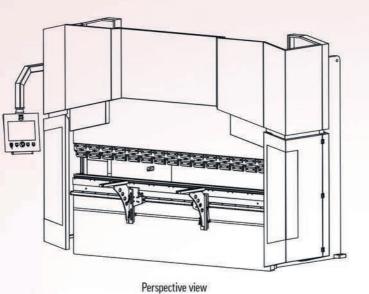


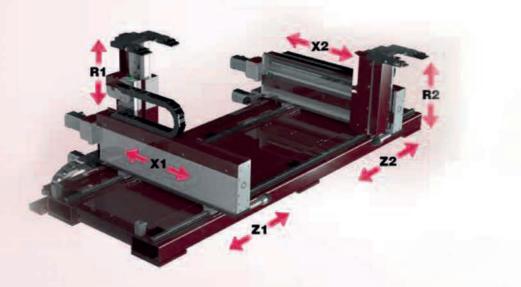




Front view







## D Series - Technical Specifications

Machine	Bending Force	Bending Lenght	Distance between columns	Stroke	Daylight	Throat	Table Height	PIT	Mac	nine Dime	nsions		Speed		0il tank	Weight	Main motor
Machine Type	Ton	A	В	С	J	D	E	F	Length	x Width (L x W x I	x Height H )	Approach Speed	Return Speed	Bending Speed	Lt	kg	kW
		mm	mm	mm	mm	mm	mm	mm		mm		mm/s	mm/s	mm/s			
D100	100	2600	2150	410	615	510	890	-	4220	2230	3050	200	135	10	180	7150	7,5
DIOU	100	3100	2600	410	615	510	905		4670	2230	3050	200	135	10	180	7500	7,5
	135	3100	2600	410	615	510	935		5300	2815	3100	210	130	10	180	8950	11
D135	135	3700	3200	410	615	510	945		5900	2815	3100	210	130	10	180	10600	11
	135	4100	3600	410	615	510	945	122	6300	2815	3100	210	130	10	180	11350	11
	175	3100	2600	410	615	510	935		5300	2775	3155	180	130	10	180	10300	15
D175	175	3700	3200	410	615	510	945		5900	2775	3155	180	130	10	180	11950	15
	175	4100	3600	410	615	510	945		6300	2775	3155	180	130	10	180	12650	15
	220	3100	2600	410	615	510	965	144	5300	2795	3250	180	140	10	290	12050	18,5
	220	3700	3200	410	615	510	965		5900	2795	3250	180	140	10	290	13600	18,5
D220	220	4100	3600	410	615	510	965		6300	2795	3250	180	140	10	290	14600	18,5
	220	5100	4200	410	615	510	995		7300	2795	3300	180	140	10	290	17600	18,5
	220	6100	5100	410	615	510	995	-	8300	2795	3300	180	140	10	290	22300	18,5
	270	3100	2600	410	615	510	950	-	5300	2765	3250	150	120	10	290	14150	22
D270	270	3700	3200	410	615	510	955		5900	2765	3250	150	120	10	290	15350	22
	270	4100	3600	410	615	510	955		6300	2765	3250	150	120	10	290	16350	22
	320	3100	2600	410	635	510	960		5300	2755	3250	150	110	10	290	15800	22
	320	3700	3200	410	635	510	960		5900	2755	3250	150	110	10	290	16600	22
D320	320	4100	3600	410	635	510	1010		6300	2765	3350	150	110	10	290	17900	22
	320	5100	4200	410	635	510	1025		7300	2785	3350	150	110	10	290	22600	22
	320	6100	5100	410	635	510	1055		8300	2785	3350	150	110	10	290	27100	22
	400	3100	2600	410	635	510	1015		5300	2775	3600	100	80	8	400	19800	30
	400	3700	3200	410	635	510	975		5900	2775	3600	100	80	8	400	22000	30
D400	400	4100	3600	410	635	510	975	1	6300	2790	3600	100	80	8	400	23850	30
	400	5100	4200	410	635	510	975		7300	2790	3600	100	80	8	400	26650	30
	400	6100	5100	410	635	510	1055	-	8300	2790	3730	100	80	8	400	34000	30
	400	8100	7100	410	635	510	815	1300	10150	2790	3750	100	80	8	400	46000	30
	500	3700	3200	410	635	510	1025		5900	2730	3625	80	70	8	500	25500	37
	500	4100	3600	410	635	510	1025		6300	2740	3625	80	70	8	500	27950	37
D500	500	5100	4200	410	635	510	1055	-	7300	2755	3650	80	70	8	500	31500	37
	500	6100	5100	410	635	510	965	1350	8200	3150	3900	80	70	8	500	41000	37
	500	8100	7100	410	635	510	750	1800	10200	3200	3950	80	70	8	500	57000	37
	600	4100	3200	410	675	610	995		6300	3125	4050	80	80	8,5	550	34000	45
D600	600	5100	4200	410	675	610	995	-	7300	3260	4050	80	80	8,5	550	37000	45
	600	6100	5100	410	675	610	995	1520	8350	3260	4050	80	80	8,5	550	49000	45
	600	8100	7100	410	675	610	750	1350	10300	3250	4050	80	80	8,5	550	68000	45
	800	4100	3200	410	675	610	750	1200	6300	3200	4150	75	70	6	780	44000	45
D800	800	6100	5100	410	675	610	750	1800	8300	3250	4150	75	70	6	780	62000	45
	800	8100	7100	410	675	610	750	1800	10500	3250	4150	75	70	6	780	87000	45
Diago	1000	4100	3200	510	775	610	750	1400	6400	3650	4150	70	65	6	1000	70000	45
D1000	1000	6100	5100	510	775	610	750	1800	8400	3650	4350	70	65	6	1000	76000	45
	1000	8100	7100	510	775	610	750	2400	10500	3650	4750	70	65	6	1000	105000	45
D1250	1250	6100	5000	510	775	610	750	2200	8500	3650	4850	70	55	6	1000	92000	55
	1250	8100	7100	510	775	610	750	2600	10600	3650	4850	70	55	6	1000	130000	55
D1500	1500	6100	5000	510	775	610	750	2300	8600	3900	4950	70	55	6	1300	111000	75
	1500	8100	6500	510	775	610	750	2600	10700	3900	4950	70	55	6	1300	153000	75
D2000	2000	6100	4500	510	775	610	750	2300	8600	4050	5050	70	60	5	1700	152000	90
	2000	8100	6500	510	775	610	750	2700	10700	4050	5050	70	60	5	1700	210000	90

\*For dimension details please look at left page. \*\*Technical specifications may change without advance notice.

# BACK GAUGE Options

0,03mm accuracy,
High speed,
Strong structure,
Linear scales,
Ball bearing system without backlash,
3 step fingers with micrometric adjustment
Robust design againts hard impacts

## **X AXIS** Back gauge



A Series High accuracy A/C inverter motor back gauge B Series High accuracy MITSUBISHI SERVO Motor X travel 750mm



X travel 750mm, R travel 250mm Linear guided strenghtened R axis



X travel 750mm, R travel 250mm, X5 travel 200mm (+-100mm) Z1,Z2 travel along the back gauge bar



X travel 750mm, R travel 250mm Z1,Z2 travel along the back gauge bar

# **X1, X2, R1, R2, Z1, Z2** ATF BACK GAUGE



6 Axes tower type Robust design against impacts

# **SAFETY** OPTIONS

# **ANND**



MSD FRONT LASER SAFETY















# **TOP TOOL** CLAMPINGS

Easy tool changing Fast Vertical tool changing Safe tool changing Options for different needs Strong and durable

## WILA NSCL HYDRAULIC PUNCH CLAMPING



Tools are not included with Wila clamping

## **TEDA / EUROSTAMP** PNEUMATIC PUNCH CLAMPING



# MANUAL PROMECAM CLAMPING

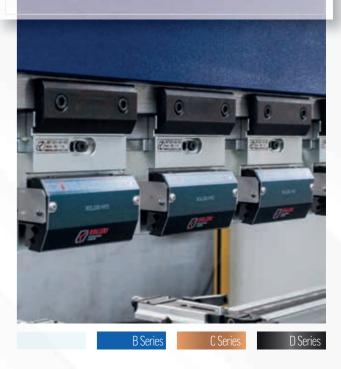


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## **ROLLERI ROL 200** HYDRAULIC PUNCH CLAMPING



# **T-CHANNEL** PUNCH CLAMPING



# **CROWNING & BOTTOM TOOL** CLAMPINGS



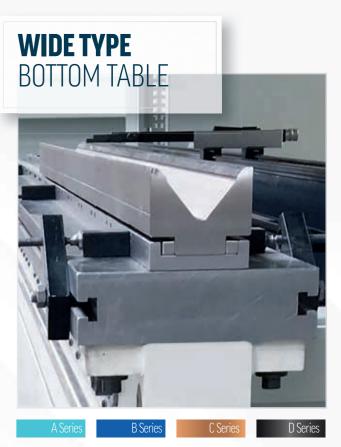
60mm or 90mm European type die holder



<section-header>



Tools are not included with Wila clamping



150mm, 240mm, 320mm, ...

D Series

## **WILA / AMERICAN** MANUAL DIE HOLDER



# **OTHER** OPTIONS



**B** Series

D Series

C Series



### MITUTOYO ANGLE MEASUREMENT DEVICE







# PNEUMATIC THIN SHEET SUPPORT ARMS



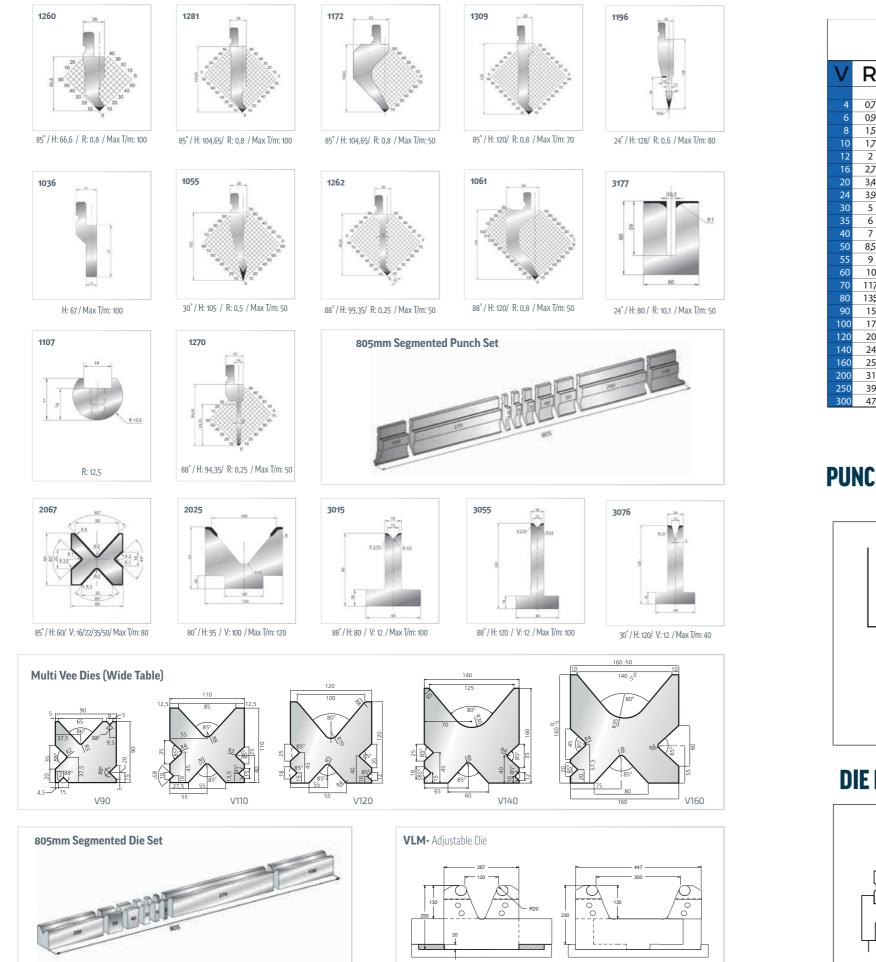
B Series C Series D Series

### **CABIN COOLER** AC COOLING SYSTEM





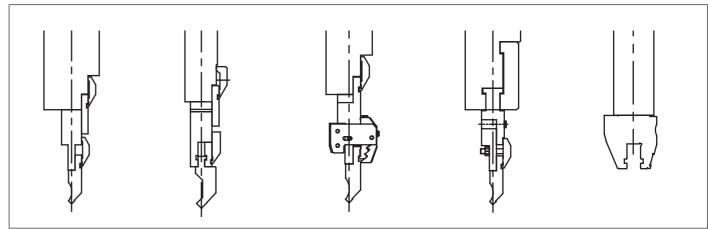
500mm to 1.500mm



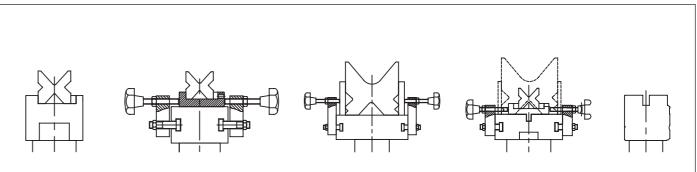
V (mm): 77 - 177 / 65 - 180 / 120 - 300 / 150 - 400

#### R B 0,5 0,8 4 105 2,6 6,9 106 5,5 8 4,1 6,5 1 12 15 2 25 3 0,7 106 153 8 115 18 65 95 145 26 55 8 12 215 26 0,9 3,9 15 52 17 65 2 2,7 7,8 8 12 215 335 10,4 6 9 16 25 36 3,4 13 7,5 13 20 29 3,9 156 106 17 24 19 17 5 20 14 6 23 7 26 15 8,5 9 32 36 10 39 117 45 135 52 15 58 17 65 20 78 24 91 25 104 TS: Tensile Strength 31 130 (Mild Steel 42 kg/mm<sup>2</sup>) 39 163 47 195

## **PUNCH** Holders



## **DIE** Holders



		Bending Chart											
	4	5	6	8	10	12	15	20	25	30			
				E	<b>_ S</b> <sup>2</sup> ≿	x 2 x	TS _	t	on/m				
					1	.4 x \	<b>v</b>	-	,				
+	52												
T	43	67											
	34	54	77										
	30	46	66										
	26	40	58	103									
	21	32	46	82	120								
		30	42	75	117								
		27	39	69	107								
			33	59	92	132							
			29	52	80	116	180						
				46	71	103	160						
				41	64	93	144						
					54	77	120						
						66	103	183					
							90	160	250				
							72	128	200				
								102	160	230			
								85	133	192			