

the complete range of solution

90° bend

 $hn = \omega.\sigma_{+}$ $k'n = \omega.KN$ $k'l' = \rho.c$

$$hn = \sigma_{_{ij}}.mn$$

$$mn = P_{\eta \theta_1}.k'l' - Q_{\theta_1 \eta}.k'n$$

$$mn = P_{\eta \theta_1}.\rho.c - Q_{\theta_1 \eta}.co.KN$$

$$mn = P_{\eta\theta_1}, \rho.c - Q_{\theta_1\eta}$$

$$\omega = \frac{P_{\eta\theta_1}, \rho.c}{\frac{\sigma_1}{\sigma_{\eta}} + Q_{\theta_1\eta}, KN}$$



Neutral line

= 5,R x 10³

= pre-spring back inside bend
radius, mm
radius, mm
radius, mm
radius, mm

www.energymission.com

HYDRAULIC **SHEARING**

HYDRAULIC PRESS BRAKE









Energy Mission Machineries (India) Ltd. was established in 1999 with strong vision to deliver most reliable & economical solutions in sheet metal industry. Today Energy Mission is one of the fastest growing company with maximum satisfied customer base in India and Abroad.

WE ARE LEADING MANUFACTURER OF

- → CNC Servo Hybrid & Synchro Press Brakes
- NC / Conventional Hydraulic Press Brakes
- CNC / NC / Conventional Hydraulic Shearing Machines
- Four / Three Roll Plate Rolling Machines
- Hydraulic Iron Workers

- → Hydraulic / NC Busbar Cutting, Bending & Punching Machines
- → Single / Double / Triple Action Deep Drawing Presses
- ◆ CNC Servo H & C Type Presses
- → Punching & Blanking Hydraulic Presses
- ◆ CNC V Grooving Machines

OUR STRENGTH

- 25 years of Experience in Manufacturing
- World Class manufacturing facility spread in 2,50,000 sq.ft
- Production capacity of 1200 machines per annum
- More than 5500+ installation across India & Abroad
- Trained & qualified team of 350+ employees
- ▶ Dedicated team for design & development
- Sales & service network all over India
- Keen quality control on each component & process
- Awarded as "Outstanding Entrepreneur of Year" in Year 2008-09 & Year 2014-15, DR Ambedkar Business
 Excellence Award 2021 - 2022

OUR VISION

We at "Energy Mission" believe to deliver high quality products at competitive price supported by best service support. To achieve this mission, we have developed in-house manufacturing facilities, focused manufacturing processes with in-depth technology know-how, sales network associates across India & abroad. Enthusiastic team of customer care is always ready to rush within shortest time at the doorstep of customer or any requirements. Our skilled workforce has a proven performance record in satisfying diverse needs of customers around the globe.





FLOOR BORING MACHINE

- In house single reference machining Facility ensures required quality parameters.
- CNC Floor Boring machines with Traverse Travel of 9 mtr& 8 mtr.
- Heavy duty 360° Machining position Rotary table



- High-tech CNC lathe with 8 station turret for precise cylinder component machining
- CNC Vertical milling machine with 24 stations auto Turret
- CNC boring machine suitable for Concave & Convex shapes machining.





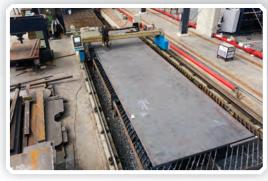
CNC PLANO MILLER

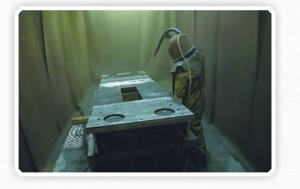
- CNC Plano Milling machines Up to 6 meter bed length
- Multiple head Single reference Machining
- Accurate, repetitive & fast operation reduces Production time & cost



CNC PLASMA CUTTING

- Precise & Fast CNC plasma cutting with X & Y controlled axis suitable for 4 mtr wide & 13 mtr long plates.
- Precise & accurate cutting accelerates manufacturing process.
- Inbuilt Nesting Facility to reduce wastage & production time





SHOT BLASTING UNIT

- Environment Friendly surface preparation Facility to remove rust and corrosive materials from the surface
- Capacity to handle up to 7 mtr. Long Plates & Assembly Structures

PAINT BOOTH UNIT

- Cross Draft type Paint booth facility to make painting & refinishing parts & Fabricated structures
- Suitable for 10 Mtr. Long Plates & Assembly Structures





HYDRAULIC SHEARING MACHINE

RANGE 2 mm to 32 mm LENGTH 1250 mm to 8000 mm

SALIENT FEATURES

- Guillotine type hydraulically variable rake angle design
- Twist free & better cutting result in thin sheets at lower rake angle
- Cutting job accuracy as per DIN Standard
- Higher cutting capacity than rated capacity at higherrake angle
- The stable & robust structure from ultrasonically & tensile tested IS 2062 grade steel
- Rigid box type structure of ram & table with inclined member in direction of resultant force
- Hydraulic & electrical safety interlocks for overloading
- NC up-gradation possible
- Bolted type Square Box assembly for holding cylinder mounting.
- Special guided seal for holding cylinder to avoid leakage.
- All electrical & hydraulic component from reputed make
- Ram guided by six hardened & grounded guide rollers
- Suitable for upgradation with special optional features





HYDRAULIC SHEARING MACHINE



The fastest & easiest Pre calibrated blade clearance setting for burr free cutting.



Electrical panel is made from reputed brand components like SIEMENS/SCHNEIDER/BCH.



Sandwich bolted type square box design for mounting of holding cylinder to facilitate the maintenance.



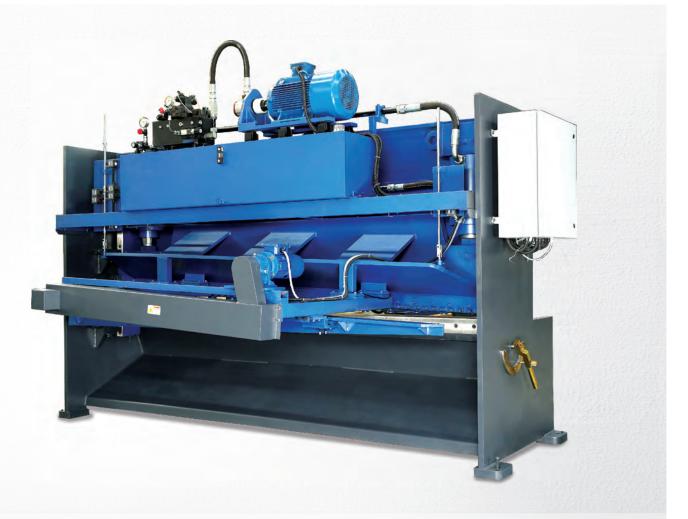
Conveniently located operating Console for machine operations with individual buttons for all operations.



Four edge inter changeable top & bottom Hardened & grounded HcHCr Shearing Blade suitable for MS & SS cutting.



Robust & accurate Backgauge supported by double hardened guides for long life.





Single step motorized back gauge with DRO from HENGSTLER Germany.



High Speed NC back gauge controller from Schneider with VFD



Multi-step motorized back gauge with touch screen DRO from DELTA Taiwan.



Ball Transfer table for fast and smooth handling of sheet.



CNC / NC HYDRAULIC SHEARING MACHINE

RANGE 3 mm to 32 mm LENGTH 1250 mm to 8000 mm

SALIENT FEATURES

- AC Servo Motor & drive for High-speed back gauge movement
- User friendly Colour LCD screen for easy programming
- High-speed back gauge assembly with ball screw & timer belt
- Repeated position accuracy in ±0.1mm
- Multiple back-gauge position with stroke counting on screen
- Automatic Rake angle adjustment by controller
- Automatic Stroke length control by controller
- Automatic back gauge retraction after holding the sheet
- Multi Step positions on back gauge with desired no. of strokes on each position.
- The back gauge is equipped with hardened ball screw & LM Guides



CNC / NC HYDRAULIC SHEARING MACHINE



Cyb Touch 8 - Dedicated CNC / NC Shear controller from Cybelec Switzerland.

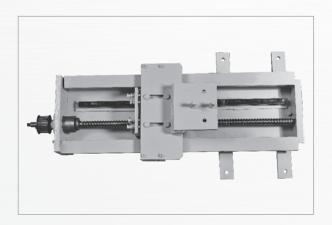


Automatic rack angle adjustment thru controller as per thickness of cutting sheet.



High-speed AC Servo driven Back gauge Assembly.

The timer belt is used for precise synchronized movement to avoid backlash error.



High speed AC servo driven back gauge equipped with hardened & grounded ball screw with LM guides mounted on heavy fabricated channel housing.





High Speed NC back gauge controller from Delta Taiwan with VFD



Cyb Touch 8 - Dedicated CNC Shear controller from Cybelec Switzerland.



DAC-310T - Dedicated NC Shear controller from Delem Netherland



Hydraulic Rear Sheet Support for thin sheet cutting.



CNC / NC HYDRAULIC VALUE ADDITION

CNC / NC SHEARING MACHINE

The CNC / NC Shearing Machine is an advance technology machine for getting more productivity, accuracy & easy operation. The CNC / NC controller offers quick & easy programming of back gauge position & rake angle control.



THE UNIQUE FEATURES OF CNC/NC CONTROLLER SHEARING MACHINE OFFERS

- Automatic rake angle control
- Cutting material selection from controller
- Automatic blade gap adjustment (Available only on CNC Shearing Machine)
- Multi step high speed gauging gives higher productivity
- Auto-retraction back gauge
- Shearing length control on screen
- No skilled labour requirement for accurate Cutting results
- User friendly due to touch screen & bigger font size
- Stroke count & job count is available on screen
- The programs can be back-up by wireless connection to PC (With RF Link)

The CNC / NC controller has X - axis - Back gauge control. The operator can make program with different gauge position. The fast and accurate multi position back gauge system is very efficient and accurate for longer life. It can save different Back Gauge Position. These programs can be saved & recalled again for future use.

HIGH SPEED BACK GAUGE

Our CNC / NC back gauge is high speed, accurate & repeatable. The mechanical assembly of back gauge is driven by AC Servo Drive, hardened ball screws, LM Guides & timer belt. This combination provides the longer service life with trouble free operation.



The LM guide ensures High speed motion with low driving force, high position accuracy & smooth drive. The LM guides are wear resistant hence operation life is more.



The hardened & ground ball screw are designed to take heavy load in high speed movement with smooth run. The backlash error is eliminated.



The back gauge position is achieved by AC Servo Drive. The back gauge position is highly accurate & repeatable.

TWO AXIS GAUGING SYSTEM [OPTIONAL]



The Two Axis CNC / NC package of shearing machine adds more flexibility on back gauge. It is designed to cater the special needs of taper cutting jobs. The back gauge is equipped with two axes CNC / NC gauging system X1 & X2 with individual servo drives for each axis.

The machine is capable of cutting straight as well taper cuts as per dimension fed in controller. It can program

multiple positions on back gauge with desired number of strokes on each position. The back gauge is equipped with Hardened Ball Screw, LM Guides, Timer belt & AC Servo Drive on machine. The back gauge position repeatability is ± 0.1 mm.

Apart from this special feature, it also contains all standard features of CNC / NC controller back gauge.



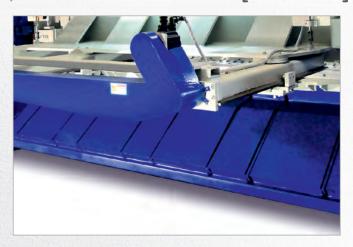
AUTOMATIC BLADE GAP

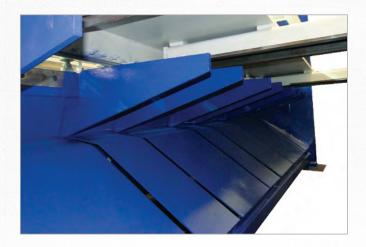
Automatic blade gap adjustment is an advance feature offered on CNC Shearing Machine. The CNC controller adjusts the gap between upper blade & lower blade as per cutting thickness programme done.

The blade gap is pre-calibrated in controller. The machine will not be operated unless the blade gap is changed to set value. This feature eliminates any human error & gives burr free clear cut on sheet. The life of cutting knife is also enhanced due to cutting of sheet at recommended blade gap every time.



REAR SHEET SUPPORT [OPTIONAL]





Rear sheet support is very useful option for thin sheet cutting in larger width with the help of back gauge. When thin sheet is cut in longer width (i.e. approx. > 200mm), the sheet is sagging due to self-weight & the back gauge dimension may vary due to bend in sheet when cutting is done by back gauge.

The rear sheet support provides the support for sheet on backside below back gauge. It is hydraulically operated support, which has selectable option for using it in cycle. The rear support will be in up position when sheet is inserted. Once the sheet is hold by cylinders, the support will go down to facilitate the sheet cutting. Once the cut piece slides out, the rear support will come back to up position for next shot.

EASY MATERIAL HANDLING [OPTIONAL]

The machine can be equipped with ball transfer beds for handling the large steel plates in 16mm thickness and 6300mm width by means of ball transfer bed. This saves manpower and time for handling material, results in higher productivity...



STANDARD ACCESSORIES - HYD

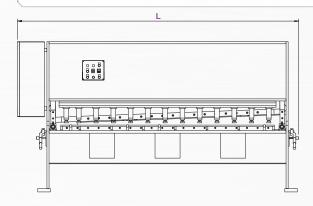
- Electric control panel
- Hardened transfer bars mounted on table
- Rake angle selection through selector switch
- Lever operated blade clearance with calibration
- Fine stroke adjustment rod with limit switch
- Back gauge on double guide rods & ball screw
- Front sheet support
- Squaring arm with steel rule on left side
- Hold down cylinders mounted on machine
- Cutting area illuminated for clear view of blades
- Four edge HCHCr blade suitable to MS & SS mounted on machine**
- Manual back gauge

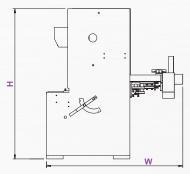
Note: ** Blade are not under warranty.

STANDARD ACCESSORIES - CNC/NC

- Touch screen shear controller from Cybelec / Schneider / Delem
- Electric control panel
- Automatic rake angle adjustment
- Lever operated blade gap adjustment on NC Shear
- * Automatic blade gap adjustment on CNC Shear
- Hardened ground ball screw & LM guides
- Stroke adjustment through screen
- Front sheet support
- Squaring arm with steel rule on left side
- Hardened transfer bars mounted on table
- Hold down cylinders mounted on machine
- Cutting area illuminated for clear view of blades
- Four edge HCHCr Blade suitable to MS & SS mounted on machine**

	Cutting		· ·	ty Thickne		Nominal Rake	Rake	Strokes Per Minute		No of	Holding	9 Down	Packing Dimension	Maria India
Model	Length	M.S. Nomi			S.S Nominal Max.		Angle Range	At Min.	At Max.	No. of Hold	Force	Power	(L x W x H)	Weight (Approx.)
	mm		Rake Angle	Rake Angle	Rake Angle	Angle Degree	Degree	Rake Angle	Rake Angle	Downs	Kg.	HP	mm	Kg.
HFR 215	1500	2	2	1.25	1.25	1°12'	1°12'	16	16		-	3	2000x1000x1250	1300
IFR 220	2000	2	2	1.25	1.25	1°12'	1°12'	12	12	-	-	3	2500x1250x1500	1700
IFR 225	2500	2	2	1.25	1.25	1°12'	1°12'	10	10		-	3	3000x1250x1850	2500
IVR 312	1250	3.15	4	2	3.15	1°30'	0.5-2°	16	11	7	1200	3	1700x1250x1950	2000
IVR 315	1500	3.15	4	2	3.15	1°30'	0.5-2°	15	10	9	1500	3	2200x1250x1950	2500
IVR 320	2000	3.15	4	2	3.15	1°30'	0.5-2°	14	8	11	2000	3	2700x1250x1950	3000
IVR 325	2500	3.15	4	2	3.15	1°30'	0.5-2°	19	11	13	2300	5	3200x1250x2000	3700
IVR 330	3000	3.15	4	2	3.15	1°30'	0.5-2°	18	9	16	2600	5	3700x1400x2100	4250
IVR 340	4000	3.15	4	2	3.15	1°30'	0.5-2°	15	8	20	3200	7.5	4700x1500x2250	6000
IVR 415	1500	4	6	3	4	1°37'	0.5-3°	23	13	9	4500	7.5	2250x1250x2050	3200
IVR 420	2000	4	6	3	4	1°37'	0.5-3°	23	11	11	6200	7.5	2750x1250x2100	3700
IVR 425	2500	4	6	3	4	1°37'	0.5-3°	21	9	13	8000	7.5	3300x1400x2250	4200
IVR 430	3000	4	6	3	4	1°37'	0.5-3°	23	10	16	10000	7.5	3700x1500x2400	5250
IVR 440	4000	4	6	3	4	1°37'	0.5-3°	22	8	20	12000	10	4700x1650x2600	7200
IVR 615	1500	6	8	4	6	1°45'	0.5-3°	23	13	9	6500	10	2250x1300x2100	3250
IVR 620	2000	6	8	4	6	1°45'	0.5-3°	22	10	11	6500	10	2750x1350x2150	4250
IVR 625	2500	6	8	4	6	1°45'	0.5-3°	21	9	13	8500	10	3300x1500x2300	5250
IVR 630	3000	6	8	4	6	1°45'	0.5-3°	20	8	16	10800	10	3800x1650x2500	5750
IVR 640	4000	6	8	4	6	1°45'	0.5-3°	22	9	20	13600	20	4800x1700x2750	8250
IVR 650	5000	6	8	4	6	1°45'	0.5-3°	21	7	24	16500	20	5700x1800x2850	11500
IVR 660	6300	6	8	4	6	1°45'	0.5-3°	18	6	30	19500	20	6700x1900x2950	14500
IVR 815	1500	8	10	6	8	2°	0.5-3°	15	8	9	10500	10	2250x1350x2100	4750
IVR 820	2000	8	10	6	8	2°	0.5-3°	15	6	11	12000	15	2750x1450x2250	5700
IVR 825	2500	8		6	8	2°		18	8	13		20		
IVR 830		8	10	6	8	2°	0.5-3° 0.5-3°	17	6	16	16500	20	3300x1650x2450	6500 7000
IVR 840	3000	8	10	6	8	2°	0.5-3°		5	20	18500 23000	20	3800x1800x2600 4800x1850x2800	9500
	4000 5000	8	10 10	6	8	2°	0.5-3°	15 18	6	24	27000	25	5750x1950x2900	12250
IVR 850		8		6	8	2°			5	30				17000
IVR 860	6300	10	10	8	10		0.5-3° 0.5-3°	15 12	6	9	31000	25 10	6750x2100x3100	
IVR 1015	1500		12			2°					10500		2250x1350x2200	5000
IVR 1020	2000	10	12	8	10	2°	0.5-3°	13	5	11	13000	15	2750x1500x2300	6000
IVR 1025	2500	10	12	8	10	2°	0.5-3°	13	5	13	17500	20	3300x1650x2500	6750
IVR 1030	3000	10	12	8	10	2°	0.5-3°	12	4	16	20000	20	3800x1850x2750	9000
IVR 1040		10	12	8	10	2°	0.5-3°	18	6	20	25000	25	4800x1950x2850	12000
IVR 1050	5000	10	12	8	10	2°	0.5-3°	14	5	24	30000	30	5750x2050x3000	15000
IVR 1060		10	12	8	10	2°	0.5-3°	13	4	30	35000	30	6750x2200x3300	22000
IVR 1320	2000	13	16	10	13	2°	1-3°	13	6	11	16000	25	2850x1800x2600	9000
IVR 1325	2500	13	16	10	13	2°	1-3°	9	5	13	20000	25	3350x1900x2750	10000
IVR 1330	3000	13	16	10	13	2°	1-3°	8	4	16	25000	25	3800x1950x2850	11500
IVR 1340	4000	13	16	10	13	2°	1-3°	7	3	20	30000	30	4800x2000x2950	16000
IVR 1350	5000	13	16	10	13	2°	1-3°	9	4	24	35000	40	5750x2150x3150	21000
IVR 1360	6300	13	16	10	13	2°	1-3°	8	4	30	40000	40	6750x2300x3500	28000
IVR 1620	2000	16	20	13	16	2°	1-3°	9	5	11	20000	30	3000x1900x2800	10500
IVR 1625	2500	16	20	13	16	2°	1-3°	9	4	13	25000	30	3500x2000x2900	12250
IVR 1630		16	20	13	16	2°	1-3°	8	4	16	28000	30	4000x2000x3000	14500
IVR 1640		16	20	13	16	2°	1-3°	6	3	20	33000	30	4800x2050x3100	19000
IVR 1650		16	20	13	16	2°	1-3°	7	3	24	38000	40	5750x2250x3300	26000
VR 1660		16	20	13	16	2°	1-3°	6	3	30	43000	40	6750x2350x3700	31500
VR 2025		20	25	16	20	2°	1-3°	6	3	13	28000	40	3500x2000x3000	16000
VR 2030		20	25	16	20	2°	1-3°	6	2	16	35000	40	4000x2100x3200	19500
VR 2040		20	25	16	20	2°	1-3°	5	2	20	40000	50	4800x2200x3300	23500
VR 2050	5000	20	25	16	20	2°	1-3°	6	3	24	45000	60	5800x2350x3500	30000
IVR 2060	6300	20	25	16	20	2°	1-3°	5	2	28	50000	60	6800x2450x4100	36000
VR 2525	2500	25	30	20	25	2°	1-3°	5	3	13	36000	60	3400x2250x3300	22000
VR 2530	3000	25	30	20	25	2°	1-3°	4	2	16	45000	60	4000x2300x3300	25500
IVR 2540	4000	25	30	20	25	2°	1-3°	5	2	20	50000	75	5000x2300x3500	31000
IVR 2550	5000	25	30	20	25	2°	1-3°	4	2	24	55000	75	6000x2450x3700	36000
IVR 2560	6300	25	30	20	25	2°	1-3°	3	1	28	60000	75	7000x2600x4300	42000







HYDRAULIC PRESS BRAKE

RANGE 30 MT to 600 MT LENGTH 1250 mm to 8000 mm

SALIENT FEATURES

- The stable robust welded steel Frame made of ultrasonically and tensile tested IS 2062 plate as per guidelines of IMTMA standards
- Fast approach & fast return speed to save cycle time, slow pressing speed for better stroke control & bending accuracy, ensures high productivity
- Repeatability for ram position ± 0.05mm
- Compact cylinders & low pressure system due to rear cylinders. Also it gives better rigidity & load carrying capacity against fatigue failure
- Positive synchronisation of cylinders with welded torque tube gives better bending accuracy on both ends
- Moving work station with manual, single cycle & automatic mode for easy operation with emergency stop button
- NC upgradation possible on site
- All electrical & hydraulic component from reputed make
- Hydraulic Cylinders made from seamless honed tube, hardened & grounded chrome plated piston rod fitted with twin type zero leak PU Seals
- Suitable for upgradation with special optional features



HYDRAULIC PRESS BRAKE



Unhardened & ungrounded multi "V" die and semi gooseneck Punch (Single / Segmented) for standard bending requirements. We also provide special tools suitable for complex & customized bending jobs.

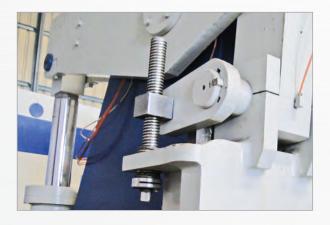


Rigid & Accurate five piece adjustable guides with special wear resistant liners for guiding the ram travel.

Centralized lubrication system with progressive block for all moving parts.



Front operated manual back gauge with two micro adjustment fingers is equipped with lead screws, double rod guides & synchronized by chain drive. Motorized back gauge is optional.



Specially designed ram tilting arrangement to nullify wear & tear effect of pin bush assembly. Hence maintaining bending accuracy for longer time.





Multistap DRO (DELTA)



Quick Relese Clamp



Hardened & Grounded Segmented Die & Punch.



Allen Key Type Clamp



Single step motorized back gauge with DRO from HENGSTLER Germany.



High Speed NC back gauge controller from Schneider with VFD



NC HYDRAULIC PRESS BRAKE

RANGE | 30 MT to 600 MT | LENGTH | 1250 mm to 8000 mm

SALIENT FEATURES

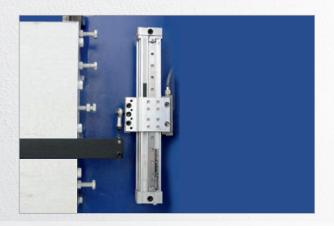
- Suitable for complex job bending
- Quick changeover for sample production & mass production
- → 5.7" Colour graphic LED back light Screen
- Two axis automatic control bending degree (Y Axis)
 back gauge (X-Axis) program
- Multiple bends with different back gauge positions can be programmed
- ◆ 200 programs & 24 bends with individual back gauge positions in one program
- → The back gauge position accuracy is 0.1mm
- Bend angle & depth mode program can be possible
- Programable back gauge retraction
- Programable angle correction & back gauge correction
- ◆ Programable open height on each bend
- Job counter on screen
- Suitable for upgradation with special optional features



NC HYDRAULIC PRESS BRAKE



Cyb Touch 8P - touch screen two axis dedicated press brake controller from Cybelec Switzerland.



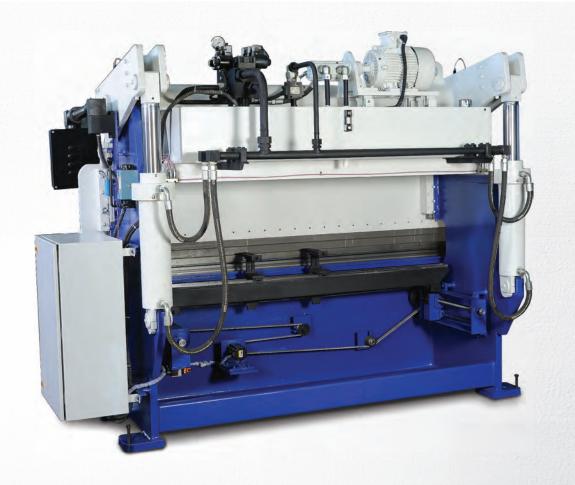
Highly precise 5 micron accuracy guided press brake scale for Y-axis positioning Repeatability for ram position ± 0.03mm



High speed AC servo driven back gauge equipped with hardened & grounded ball screw with LM guides mounted on heavy fabricated channel housing. The timer belt is used for precise synchronized movement to avoid backlash error.



Back gauge finger with micro adjustment mounted on double LM guide for easy, fast & accurate "Z" axis movement across table length.





Force Control Module



Quick Relese Clamp



DA-41T Delem NC Controller



Hardened & Grounded Segmented Die & Punch.



NC VALUE ADDITION

NC PRESS BRAKE

The NC Press Brake is an upgradation of standard press brake with automation for getting more productivity & easy operation. The NC controller offers quick & easy programming of complex bending jobs.

THE UNIQUE FEATURES OF NC CONTROLLER PRESS BRAKE OFFERS

- ◆ Quick & Easy programming
- Higher productivity & Saving on labour
- The program can be made as simple as reading the job drawing.
- Complex bending sequence in one go

- No skilled labour requirement for accurate bending results
- Easy to make samples for special jobs
- User Friendly due to Touch Screen & Bigger Font Size.





The NC controller has 2 axes control i.e. Y-axis - Beam control & X - axis - Back gauge control. It eliminates the need of adjusting bending degrees & marking of bending positions on job. The operator can make program with different degrees & different gauge position. In turn, we can save the time on material handling & job marking. The operator can finish the complete job in one sequence even if different bending degrees & different edge dimensions are required. Hence it is enhancing the productivity of machine.

It can save total 200 product programs & each program having 24 bends. These programs can be saved & recalled again for future use.



THE DETAILED TECHNICAL FEATURES

- Bend angle programming method
- Direct bending degree entry as per job drawing
- Depth Mode degree program is also available
- * The bending edge dimensions can be programmed as per individual bends
- Inside & out side edge dimensions can be defined in the program
- Automatic Bending degree with correction factor for each bend
- Automatic back gauge positions with correction factor on each bend
- Optional hardened tools & Manual / Automatic crowning
- * The programs can be back-up by wireless connection to PC







- Optional Force control for tool safety
- Auto-retraction back gauge feature for special Z bends
- Different job materials can be programmed
- Job count is available on screen
- Different open height on each bend
- Dwell time can be programed
- Pre Programable punch data
- Total 50 top tools can be programed

- Pre Programable die data
- Total 50 bottom tools can be programed

High Speed Back Gauge

Our NC Back Gauge is high speed, accurate & repeatable. The mechanical assembly of back gauge is driven by AC Servo Drive, Hardened Ball Screws, LM Guides & Timer belt. This combination provides the longer service life with trouble free operation.



The LM guide ensures High speed motion with low driving force, high position accuracy & smooth drive. The LM guides are wear resistat hence operation life is more.



The hardened & ground ball screw are designed to take heavy load in high speed movement with smooth run. The backlash error is eliminated



The back gauge position is achieved by AC Servo Drive. The back gauge position is highly accurate & repeatable



BENDING FORCE CHART (TONNES / METRE LENGTH)

HYDRAULIC PRESS BRAKE MACHINE

The capacity of Press Brake is generally defined in tons. Followings contain the details of load calculation in different types of bending methods like Air Bending, Bottoming, Forming etc. There are certain special applications like piercing, straightening etc, which can also be used on press brakes. But these processes need special tools and different load calculations.



AIR BENDING

Air Bending is the most widely used application on press brake. Air Bending is done on three contact lines, two die edge & cone punch edge. The calculation for air bending is as per following.

T Sheet Thickness in MM	0.5mm-8mm	9mm-10mm	12mm or More
V - Die Opening	8T	10T	12T



BOTTOM BENDING

In bottom bending the upper and lower dies are usually made with an include angle of 90 degree to ensure sharp corners on the formed part, In the forming process, the dies strike solidly and squeeze the material at stroke bottom.

This process requires 3 to 5 times the tonnage needed in air bending. Since more tonnage is required bottoming is seldom performed on steel greater than 12 gauge.

The adjustable "V" die opening for bottoming are: V=5 to 6x material thickness

PRESS BRAKE SELECTION GUIDELINES

The basic factors to be considered while selecting a press brake, or calculating the correct setting for operation are:

PARAMETERS	UNIT
Plate Thickness (t)	mm
Ultimate Tensile Strength of Plate (S)	Kg/mm²
Aluminum	25 Kg/mm²
Mild Steel	45 Kg/mm²
Stainless Steel	72 Kg/mm²
Bending Length(L)	mm

PARAMETERS	UNIT
Die Opening (V)	mm
Minimum Internal Radius	mm
Minimum Flange (H)	mm
Bending Correction Force (K)	1.3
Required Tonnage (P)	M. Tones

THE FORCE REQUIRED FOR AIR BENDING CAN BE CALCULATED FROM THE FOLLOWING FORMULA

Load, P (Metric Tones) = $K \times L \times S \times t^2 / 1000 \times V$

Suppose we want to bend 3.15 mm MS (10 Gauge) in 3000mm length, Following are the Calculation. $P = 1.3 \text{ (K)} \times 3000 \text{mm (L)} \times 45 \text{ (S)} \times 3.15^2 / 1000 \text{ (24mm)} = 72 \text{ Metric Tones}$

Suppose if we want to bend 3.15 mm SS (10 Gauge) in 3000mm length, Following are the Calculation. $P = 1.3 (K) \times 3000 \text{mm} (L) \times 72 (S) \times 3.15^2 / 1000 (24 \text{mm}) = 115 \text{ Metric Tones}$

The bending chart also gives the bend radius & minimum bend edge also. The bending chart defines the load required per mm thickness per meter. To use bending chart, select the "V" opening from upper most line and thickness from vertical line, the matrix shows the total load in tons per meter. To achieve total load, this value should be multiplied by the total length of job.

BENDING FORCE CHART

t/V	4	6	8	10	12	16	20	25	32	40	50	63	80	100	125	160	200	250
H (min)	3	4	5.5	6.5	8	10.5	13	16.5	21	26	32.5	41	52	65	81.5	104	130	163
Ri (min)	0.5	0.8	1	1.3	1.5	2	2.5	3.2	4.4	5	6.5	8	10	12	15	20	25	37
0.5	4	3	2					14										
0.8	12	7	5	4											6	1		
1.0		11	8	6	5									1/3				
1.2		18	12	9	7	5							22/2/20		1			
1.5			21	15	12	8	6		1414	200		U.T.S.				R		
2				30	23	16	12	9				.,					<u> </u>	
2.5					39	27	20	14	11							v		
3						43	31	23	16	12						1		
4							60	44	32	23	18			483				
5								76	54	39	23	22						435
6									85	62	45	33	25		47			
8										121	88	70	46	35	148	844		7630
10		The f	orce r	equire	d for a	ir ben	ding c	an be			151	109	79	58	44			
12						owing 1					1	173	124	91	66	50	188	
15		Load	, P = <u>k</u>	L.S.t ²	Metr	ic Tone	es					- //3	213	155	113	81	62	
20			1	000V					1111		45			302	220	158	115	89
25					T-16.				-21	7,8%	1986		337		378	269	187	144

STANDARD ACCESSORIES - HYD

- Electrical control panel with selection of 'AUTO', 'INCH' & 'SINGLE CYCLE AUTO' mode operations
- Movable workstation with pair of foot switch
- Pair of lifting links
- Pair of sheet support
- Fine stroke adjustment rod with limit switch.
- Front operated Manual back gauge with micro setting
- One suitable five way die & Punch of EN-8**(unhardened and ungrounded)
- Centralized lubrication system with flow control valves for adequate lubrication
- Ram tilting arrangement on selected models

STANDARD ACCESSORIES - NC

- Manual, Auto & Program mode selection through screen
- Two axis dedicated CYB TOUCH 8 controller with 5.7" colour touch screen
- 200 jobs X 24 bends program memory
- Movable workstation with pair of foot switch
- High-speed back gauge with AC Servo Drive, High Precision Ball screw, LM Guides & Timer belt
- Highly precise guided press brake scale for Y- axis positioning
- Pair of lifting links
- Pair of sheet support
- One suitable five way die & Punch of EN-8** (unhardened and ungrounded)
- Centralized lubrication system with flow control valves for adequate lubrication
- Ram tilting arrangement on selected models

Note: ** Tools are not under warranty.



CROWNING SYSTEM WITHOUT CROWNING WITH CROWNING

With press brakes, the machine frames tend to deflect during the bending process. Without correction, the top tool does not penetrate the bottom die as deeply across the machine length, especially towards the centre of the press brake. As a result, the bending angle is not constant over the entire length. Crowning systems are characterized by their extremely compact design without any externally moving parts. Control often takes place automatically via a CNC drive motor integrated to the machine controller, eliminating the need for the press brake operator to make adjustments for machine deflection.

The crowning system is intended to overcome the deflection of structure. It is mounted on the bed (lower

beam) of the machine, designed to included stacks of mechanical wedges that could be increased or decreased in height, predominantly in the centre of the machine. This make it possible to increase or decrease the curve in the crowning system to match the natural curve that was the result of deflection in the ram when the machine came under a load.

CNC Crowning ensure the ram and table are parallel during the bending operation. Sheet thickness, Length, Die Opening, and tensile Strength data are entered into the controller, Force and related deflection of the table and ram are automatically determined, preloading is optimally obtained for each bend.

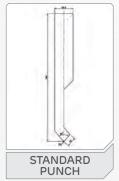


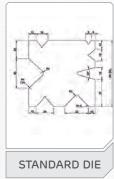
Manual Crowning

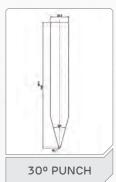


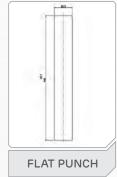
Automatic Crowning

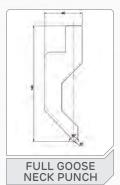
TOOL PROFILES





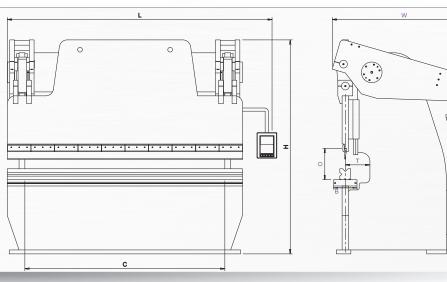








Model	Tonnage	Table Length	Bending	Capacity	Table Width	Clear Pass	Ram Stroke	Open Height	Throat Depth	Approach Pressing Return Speed	Power	Packing Dimensions	Weigh (Approx
	M Ton	mm	mm	mm	mm	mm	mm	mm	mm	mm/s	HP	(L x W x H) mm	Kg
PBR 315	30	1500	2x1500	3x1250	125	1050	100	250	200	37-5-35	3	1700x1150x1900	150
PBR 320	30	2000	2x2000	3x1250	125	1550	100	250	200	37-5-35	3	2200x1150x1900	175
PBR 325	30	2500	1.5x2500	2x2000	125	2050	100	250	200	37-5-35	3	2700x1650x2400	210
PBR 415	40	1500	3 x 1500	4x1250	180	1050	100	250	200	55-7-53	5	1700x1150x1800	180
PBR 420	40	2000	2.5x2000	3x1500	180	1550	100	250	200	55-7-53	5	2200x1150x1800	210
PBR 425	40	2500	2x2500	3x1500	180	2050	100	250	200	55-7-53	5	2700x1150x1900	250
BR 430	40	3000	1.6x3000	2x2500	180	2550	100	250	200	55-7-53	5	3200x150x2000	300
BR 515	50	1500	4x1500	5x1250	180	1050	100	250	200	55-7-53	5	1700x1150x1900	225
BR 520	50	2000	3x2000	4x1500	180	1550	100	250	200	55-7-53	5	2200x1150x1900	260
BR 525	50	2500	2.5x2500	3x2000	180	2050	100	250	200	55-7-53	5	2700x1150x1900	300
BR 530	50	3000	2x3000	2.5x2500	180	2550	100	250	200	55-7-53	5	3200x1150x2000	350
BR 620	65	2000	4x2000	5x1500	180	1550	150	330	200	49-5-33	5	2200x1200x2000	275
BR 625	65	2500	3x2500	4x2000	180	2050	150	330	200	49-5-33	5	2700x1200x2000	325
BR 630	65	3000	2.5x3000	3x2500	180	2550	150	330	200	49-5-33	5	3200x1200x2000	375
BR 640	65	4000	2x4000	2.5x3000	180	3100	150	330	200	49-5-33	5	4200x1250x2400	440
BR 820	80	2000	5x2000	6x1500	180	1550	150	330	200	31-5-34	7.5	2200x1550x2100	370
BR 825	80	2500	4x2500	5x2000	180	2050	150	330	200	31-5-34	7.5	2750x1550x2300	425
BR 830	80	3000	3x3000	4x2500	180	2550	150	330	200	31-5-34	7.5	3250x1550x2300	480
BR 840	80	4000	2.5x4000	3x3000	180	3100	150	330	200	31-5-34	7.5	4250x1650x2500	600
BR 850	80	5000	2x5000	2.5x4000	180	4100	150	330	200	31-5-34	7.5	5300x1650x2500	800
BR 1025	100	2500	5x2500	6x2000	180	2050	150	330	200	29-04-31	10	2700x1550x2300	485
BR 1030	100	3000	4x3000	5x2500	180	2550	150	330	200	29-04-31	10	3250x1550x2300	550
BR 1040	100	4000	3x4000	4x3000	180	3100	150	330	200	29-04-31	10	4250x1650x2500	700
BR 1050	100	5000	2.5x5000	3x4000	180	4100	150	330	200	29-04-31	10	5300x1700x2800	900
BR 1060	100	6000	2x6000	2.5x5000	180	5100	150	330	200	29-04-31	10	6300x1750x2900	1200
BR 1225	125	2500	6x2500	8x2000	230	2050	150	350	300	20-04-41	15	2750x1650x2700	575
BR 1230	125	3000	5x3000	6x2500	230	2550	150	350	300	20-04-41	15	3250x1650x2500	650
BR 1240	125	4000	4x4000	5x3000	230	3100	150	350	300	20-04-41	15	4250x1650x2600	800
BR 1250	125	5000	3x5000	4x4000	230	4100	150	350	300	20-04-41	15	5300x1750x2900	1150
BR 1260	125	6000	2.5x6000	3x5000	230	5100	150	350	300	20-04-41	15	6300x1800x3000	1450
BR 1625	160	2500	8x2500	10x2000	230	2050	150	350	300	25-06-42	15	2750x1800x2500	650
BR 1630	160	3000	6x3000	8x2500	230	2550	150	350	300	25-06-42	15	3250x1800x2600	750
BR 1640	160	4000	5x4000	6x3000	230	3100	150	350	300	25-06-42	15	4300x1800x2700	1050
BR 1650	160	5000	4x5000	5x4000	230	4100	150	350	300	25-06-42	15	5300x1850x3000	1400
BR 1660	160	6000	3x6000	4x5000	230	5100	150	350	300	25-06-42	15	6300x1900x3200	1750
BR 2025	200	2500	10x2500	12x2000	300	2050	200	400	300	22-04-58	20	2850x1900x2600	1000
BR 2030	200	3000	8x3000	10x2500	300	2550	200	400	300	22-04-58	20	3350x2050x2750	1100
BR 2040	200	4000	6x4000	8x3000	300	3100	200	400	300	22-04-58	20	4350x2050x2800	1250
BR 2050	200	5000	5x5000	6x4000	300	4100	200	400	300	22-04-58	20	5350x2100x3100	1550
BR 2060	200	6000	4x6000	5x5000	300	5100	200	400	300	22-04-58	20	6350x2200x3500	1950
BR 2530	250	3000	10x3000	12x2500	300	2550	200	400	300	22-04-58	20	3350x2100x2800	1150
BR 2540	250	4000	8x4000	10x3000	300	3100	200	400	300	22-04-58	20	4350x2000x2900	1300
BR 2550	250	5000	6x5000	5x4000	300	4100	200	400	300	22-04-58	20	5350x2150x3200	1625
BR 2560	250	6000	5x6000	6x5000	300	5100	200	400	300	22-04-58	20	6350x2250x3600	2050
BR 3030	300	3000	12x3000	14x2500	300	2550	200	400	300	22-03-25	25	3350x2150x2900	1250
BR 3040	300	4000	10x3500	12x3000	300	3100	200	400	300	30-06-40	25	4350x2150x2900	1400
BR 3050	300	5000	8x5000	10x4000	300	4100	200	400	300	30-06-40	25	5350x2200x3400	1925
BR 3060	300	6000	6x6000	8x4500	300	5100	200	400	300	30-06-40	25	6350x2300x3800	2200
BR 4030	400	3000	16x3000	20x2500	300	2550	250	500	350	25-05-40	30	3350x2200x3000	1600
BR 4040	400	4000	12x4000	16x3000	300	3100	250	500	350	25-05-40	30	4350x2200x3000	2050
BR 4050	400	5000	10x5000	12x4000	300	4100	250	500	350	25-05-40	30	5350x2250x3600	2450
BR 4060	400	6000	8x6000	10x5000	300	5100	250	500	350	25-05-40	30	6350x2350x4000	2950
BR 5030	500	3000	20x3000	25x2500	300	2550	250	500	350	25-5-30	40	3350x2200x3200	1950
BR 5040	500	4000	16x4000	20x3000	300	3100	250	500	350	25-5-30	40	4500x2200x3300	2350
BR 5050	500	5000	14x5000	16x4000	300	4100	250	500	350	25-5-30	40	5350x2400x3900	2950
BR 5060	500	6000	10x6000	14x5000	300	5100	250	500	350	25-5-30	40	6350x2500x4250	3400
BR 6030	600	3000	25x3000	30x2500	300	2550	250	500	350	25-5-30	50	3350x2200x3300	2400
BR 6040	600	4000	18x4000	25x3000	300	3100	250	500	350	25-5-30	50	4500x2200x3500	2900
BR 6050	600	5000	14x5000	18x4000	300	4100	250	500	350	25-5-30	50	5350x2300x3700	3450
BR 6060	600	6000	12x6000	14x5000	300	5100	250	500	350	25-5-30	50	6350x2600x4350	4100





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Hyd. Deep Drawing Press



NC / Hyd. Press Brake



Hyd. Shearing Machine



Hyd. C & H - Frame Press



Hyd. Press Brake



Busbar Machine



Hyd. Servo Press



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Iron Worker Machine



CNC V Grooving

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