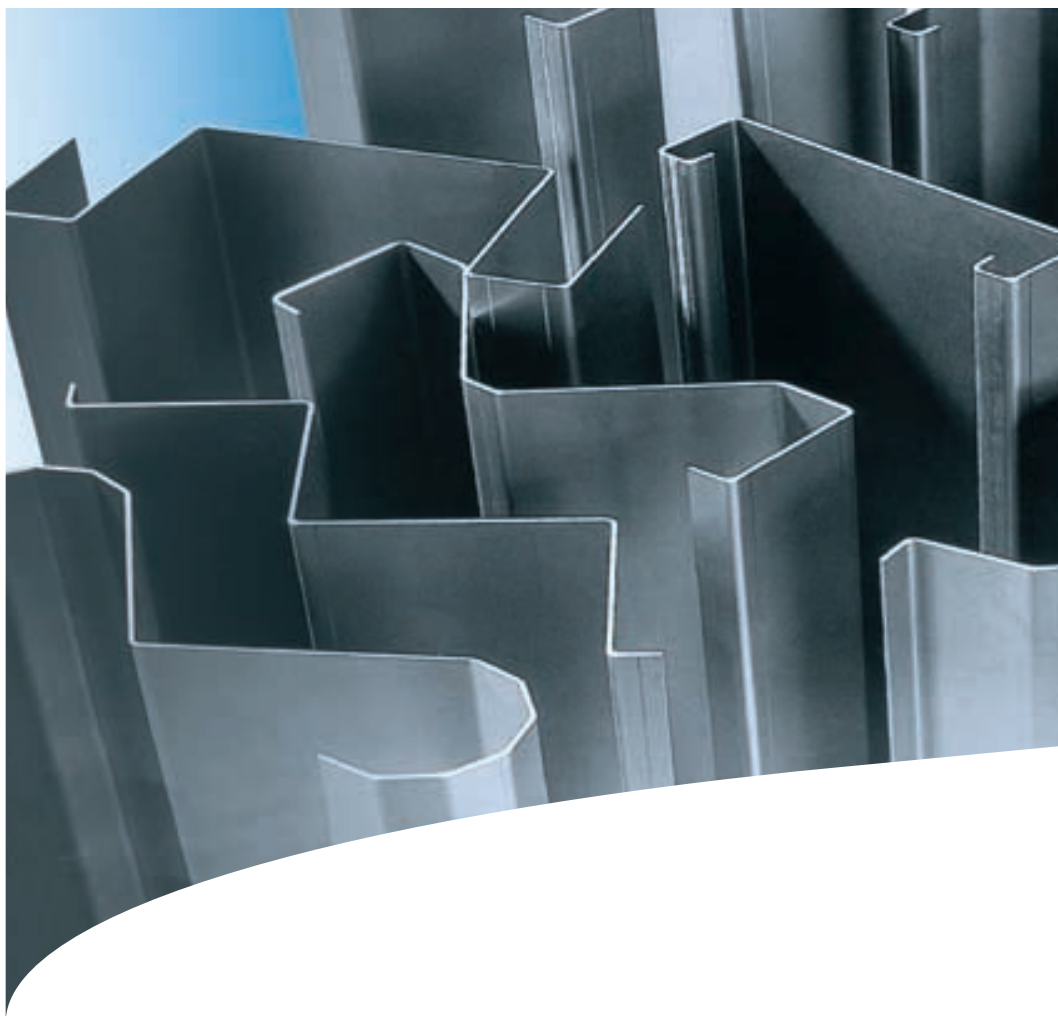


# FINN-POWER

- PUNCHING
- LASER CUTTING
- ▶ **BENDING**
- INTEGRATED PUNCHING & SHEARING
- INTEGRATED PUNCHING & LASER CUTTING
- FLEXIBLE MANUFACTURING SYSTEMS



## ***X SERIES PRESS BRAKE***

# TRUE FINN-POWER MACHINE VALUES

X-Brake presents FINN-POWER's entry level bending technology. Even though the machine is the most economic one in our wide product range it features all the fundamental basic values every Finn-Power machine is famous of – Productivity. Innovation. Reliability.

X-Brake is a servo hydraulic synchronized CNC press brake controlled by Delem 65W. Ease of use and precision are key words to describe working with x-Brake.

X-Brake has been designed for demanding production work. The frame is a rigid welded construction with an additional frame for position measuring. Stress relief has been performed by vibration method. FEM calculated deflection of the upper beam is compensated by a reliable hydraulic crowning system.

High precision servo hydraulic controlled ram movement and robust back gauge solutions guarantee work piece quality day after day, year after year.

**X-Brake – a FINN-POWER entry level machine**



FINN-POWER X-BRAKE RANGE	X50-2000	X100-3200	X160-3200	X160-4000	X250-320	X250-4000
Press tonnage	50 t	100 t	160 t	160 t	250 t	250 t
Total working length	2,000 mm	3,200 mm	3,200 mm	4,000 mm	3,200 mm	4,000 mm
Back gauge BG2 (X, R -axis)	std	std	std	std	std	std
Back gauge BG4 (xX, R, Z1 & Z2- axis)	x	x	x	x	x	x
Hydraulic crowning	–	std	std	std	std	std
European style clamping	std	std	std	std	std	std
Quick clamping (push-pull handle) intermediates	std	std	std	std	std	std
Rotate handle intermediates	x	x	x	x	x	x
Oil and E-Cabinet cooling	x	x	x	x	x	x
Delem DA 65W control	std	std	std	std	std	std

Valid from 01.12.2005, x available, – not available, std standard

## Quality starts with the choice of components

Based on decades long experience in machine tool building FINN-POWER has gathered a deep and valuable knowledge in understanding and testing component quality. X-Brake makes no exception in FINN-POWER's policy of mounting only adequate, high quality components.

All the machining and assembly work, as well as testing, is carried out by skilled professionals.

*FINN-POWER uses only high quality components.  
To mention a few examples:*

### Control system

DELEM, Holland

### Proportional valves

HOERBIGER, Germany

### High speed ball screws and linear guides

REXROTH-STAR, Germany

### AC Servo motors and servo motor drivers

SANYO DENKI, Japan

### Digital Readout

HEIDENHAIN, Germany

### O-ring, Dust-ring

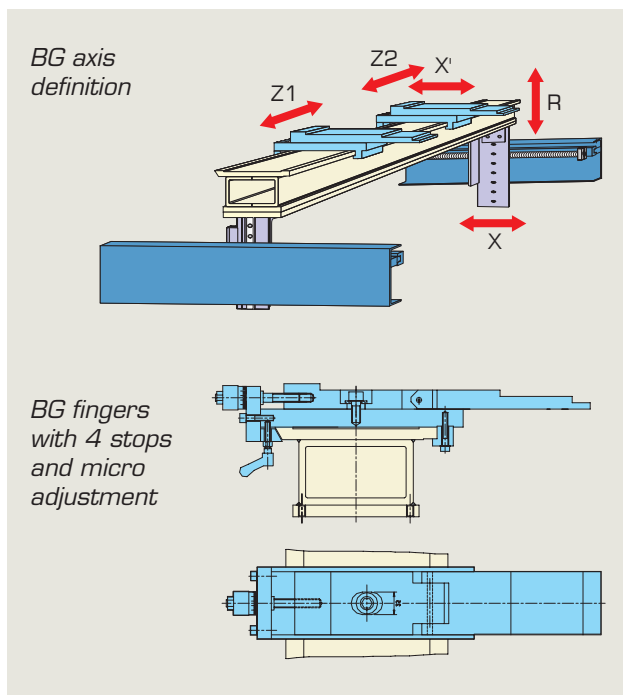
BUSASK+LUYKEN, Germany

### Import oil pipes

PARKER, USA

## RIGID BACK GAUGE SOLUTIONS

Standard X-Brake configuration includes a two-axis Back Gauge. Both axes, X and R are CNC controlled. Two hinging fingers with quick clamping bars can be manually moved along the bending length. For easy alignment they are individually micro adjustable. A third and a fourth finger are available optionally.



For higher productivity and flexibility the X-Brake can be equipped with a four-axis BG4. In addition to the standard X- and R-axis also Z1 and Z2 axis are individually programmable. Setup times are thus reduced remarkably in small series production. BG4 is a valuable option also when several short tool set-ups are required to finish a work piece.



Standard BG2



Optional 3rd and 4th finger

Below: Optional BG4



## STATE OF THE ART HYDRAULIC SYSTEM

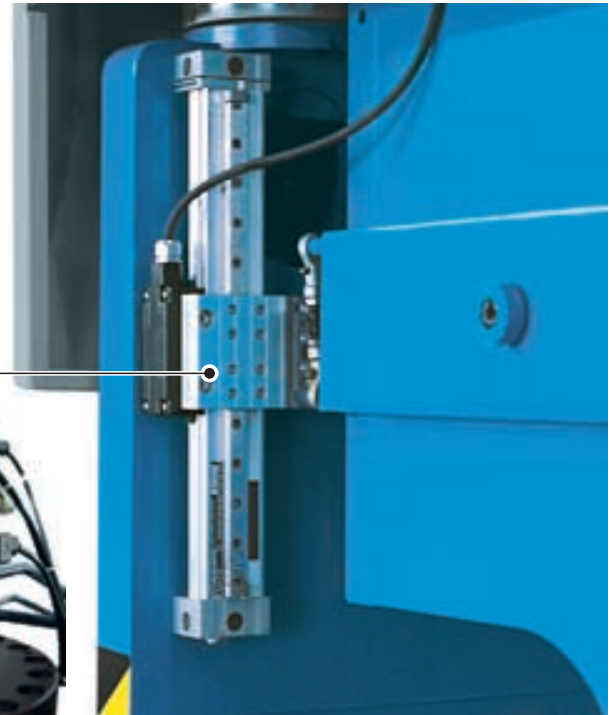
### Servo hydraulic ram drive

The smooth and precise functioning of the ram is realized by applying servo hydraulic drive system. Both cylinders are equipped with separate hydraulic blocks and servo valves. The parallelism of the upper tool results as a sum of the sophisticated CNC control, servo hydraulic drive system and high precision position measurement.

*High precision  
Heidenhein linear scales*

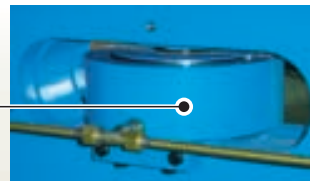
*Hoerbiger  
servo hydraulics*

*Hydraulics with  
optional cooler*



### Hydraulic CNC crowning

The lower beam features a sandwich construction and a CNC-controlled hydraulic crowning from 100t upwards. This reliable system compensates the deformation of the upper beam under stress thus resulting in fast setup times and accurate bending angles.



## WORKING WITH X BRAKE

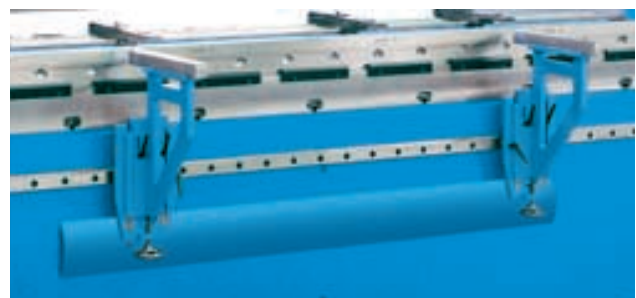
The standard configuration of X-Brake offers a productive and ergonomic press brake to work with.

### Front supports

X-Brake has as standard two front supports fixed by screws. Movable front supports mounted on linear guide are optional. Both versions are adjustable in height.

*Standard  
front support*

*Movable  
front support  
as option*







X-Brake mounts European style tooling system combined with stroke lengths and throat dimensions that enable the utilization of versatile tooling and thus offer a perfect match for the needs of flexible production. The upper tool clamping includes intermediates with adjustment key, safety adaptation and a push-bull fast clamping bar.

The lower tool clamping is based on a 60 mm wide table designed for the use of single V-dies or 4-V dies. In addition a adaption bar and t-slot adapter belong to the standard configuration so that self centering 2-V dies can be used as well.

The hydraulic CNC crowning system in the lower frame contributes significantly to ease of use of X-Brake.

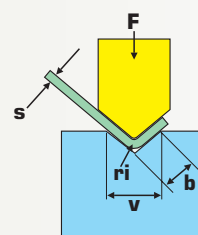
On request FINN-POWER can offer high quality standard tool packages, designed for different kinds of application needs.

• Intermediates as standard

**Air Bending Tonnage Chart**

<b>v</b> mm	4	6	8	10	12	16	20	25	32	40	50	63	80	100	125	160	200	250
<b>b</b> mm	3	4	5.5	7	8.5	11	14	18	22	28	35	45	55	71	89	113	140	175
<b>ri</b> mm	0.6	1	1.3	1.6	2	2.6	3.3	4	5	6.5	8	10	13	16	20	26	33	41
<b>s</b> mm																		
0.5	4	3																
0.8	10	7	5	4														
1		10	8	6	5													
1.2		14	11	9	7	6												
1.5			17	13	11	9	7											
2				24	20	15	12	10										
2.5					31	23	19	15	12									
3						34	27	21	17	13								
4							48	38	30	24	19							
5								60	47	37	30	24						
6									67	54	43	34	27					
8										95	76	61	48	38				
10											119	95	75	60	48			
12												136	107	86	69	54		
15													168	134	107	84	67	
20														239	191	149	119	95

= corresponding tonnage for optimum v-opening  
Rm= 42 kN/cm<sup>2</sup>



**F** = tons per metre of workpiece  
**s** = material thickness  
**ri** = inside radius of formed part  
**v** = V-die opening  
**b** = minimum flange

## HIGH PERFORMANCE CNC CONTROL

Delem controls are world wide known for their reliability and ease of use. X-Brake is equipped with a sophisticated Windows® Based Delem 65W with 2D graphical user interface.



User interface with 2D graphical programming



### DELEM DA65W CNC control

- ▶ Y Axis: Control the movement of the ram (Y1, Y2)
- ▶ X Axis: Control the forward and backward movement of the back gauge (X).
- ▶ R Axis: Control the upward and downward movement of the back gauge (R).
- ▶ Z Axis: Control of the sideways movement of the back gauge fingers (Z1&Z2)
- ▶ H Axis: Hydraulic crowning compensation (H).
- ▶ 10.4" TFT high resolution color LCD display 640 x 480 pixels, 16 bit, 2D Graphical

### Programming

- ▶ 2D Windows® OS, Operator selectable languages
- ▶ Soft key selection, menu driven or fast key selection
- ▶ Bending steps programming: direct angle programming data input
- ▶ Automatic bending sequence and positioning of all axes (including back gauge retraction)
- ▶ Automatic blank length calculation (DIN 6935) and automatic tonnage calculation
- ▶ Automatic calculation of the angle correction
- ▶ Program parameters of every bending sequence
- ▶ Length of the plate to be bent (Tonnage calculation)
- ▶ Back gauge retraction
- ▶ Position of the top dead centre of the ram
- ▶ The change point of the ram from fast approach speed to work speed
- ▶ Data storage: 64 Mb memory capacity
- ▶ 99 programs can be stored in the control, each program can contain 99 steps and each step can be repeated 99 times
- ▶ 198 kinds of tooling parameters 99 kinds of punches, 99 kinds of dies
- ▶ Machine time and piece counter



## **FINN-POWER IN BRIEF**

*FINN-POWER Oy and its worldwide network of subsidiaries and representatives specialize in advanced sheet metal working technology. The company was established in 1969.*

*Following the introduction of its first hydraulic turret punch press in 1983 FINN-POWER has developed a modular product range for punching, laser cutting and bending, for solutions integrating right angle shearing and laser cutting with punching, and for automation of the entire material flow of your sheet metal working process.*

*Flexibly yours®*



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