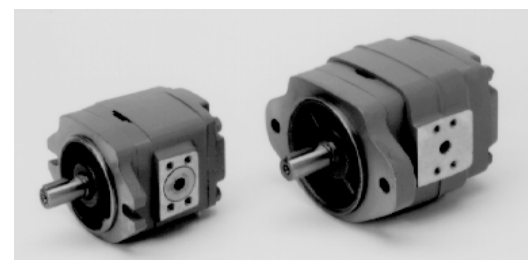
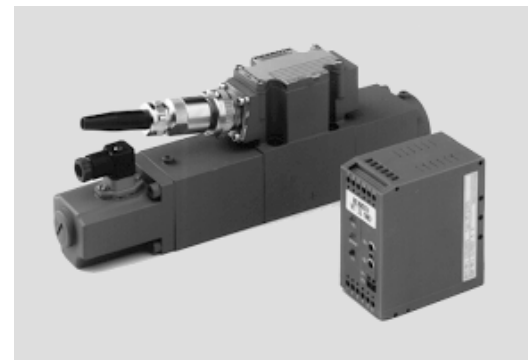
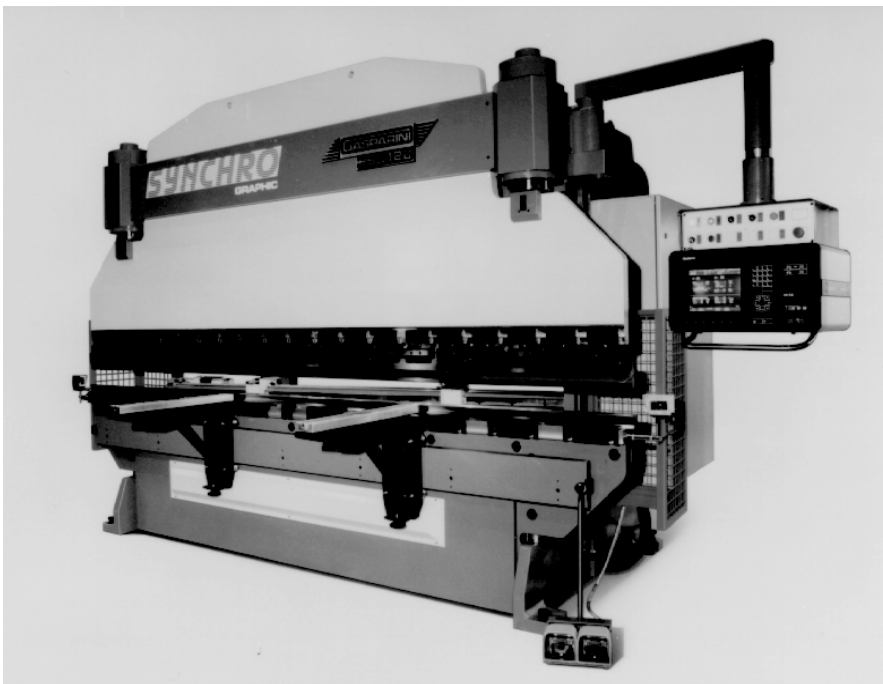


System technology for  
press brakes drives



# General

Modern press brakes are technically mature machines used for the precise bending of metal sheets. The combination of hydraulics in proportional valve technology and flexible CNC controls provide a high degree of automation and therefore enormous cost savings in production.

## Description

CNC press brakes are mainly constructed as downstroke presses. A basic feature of these presses is the direction of force, which acts from the top downwards; this is provided by the two working cylinders. The main tasks of the hydraulic control in conjunction with the CNC is synchronisation and positioning of the two cylinders. Mannesmann Rexroth has designed the hydraulics described especially for this purpose (fig. 3).

The two main control blocks with sandwich plate prefill valves are mounted directly onto the two cylinders (fig. 1). The connection between the cylinder chambers and the hydraulic control does therefore not require any piping. The pump block is located centrally in the direct vicinity of the internal gear pump.

## Features

- Synchronized positioning accuracy 0.01mm
- Operational safety
- Clear and compact design
- Minimized piping
- Ease of servicing
- Compliance with the regulations concerning the prevention of accidents
- Operating pressure up to 315 bar

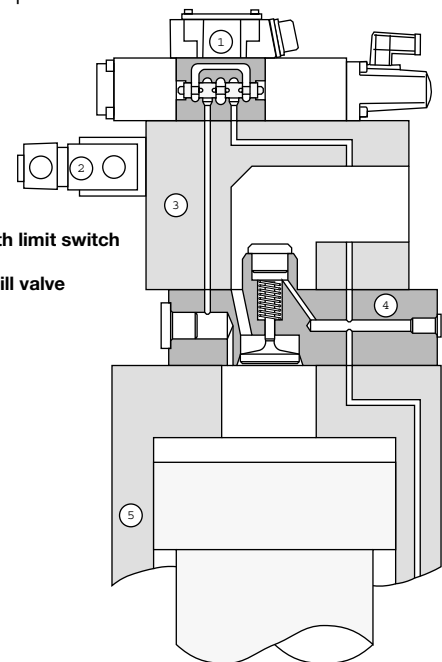
- Available versions :

Size	Nominal flow*	Prefill oil volume*
Size 6	20 L/min	300 L/min
Size 6/10	40 L/min	300 L/min
Size 10	80 L/min	800 L/min

\* per cylinder

Fig. 1

- 1 Proportional valve
- 2 Directional valve with limit switch
- 3 Control block
- 4 Sandwich plate prefill valve
- 5 Cylinder



## Cybelelec and Delem - the partners in the field of CNC controls

Numeric Cybelelec DNC 90 and Delem DA 59 controls (fig. 2) are state-of-the-art technology. They are equipped with 3D colour graphics and enable fast and simple product programming. In conjunction with the hydraulic control from Mannesmann Rexroth, these NC controls offer mature and efficient drive systems for modern press brakes.

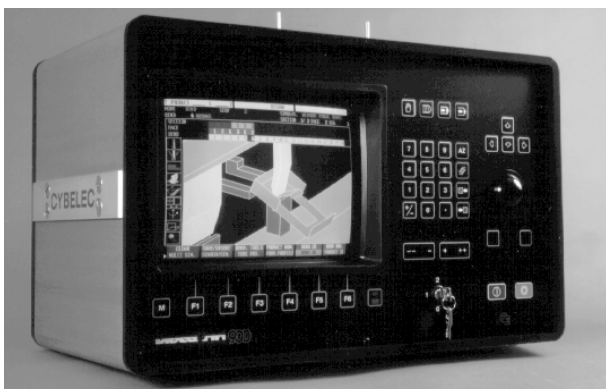


Fig. 2

# Electro-hydraulic synchronisation and positioning systems

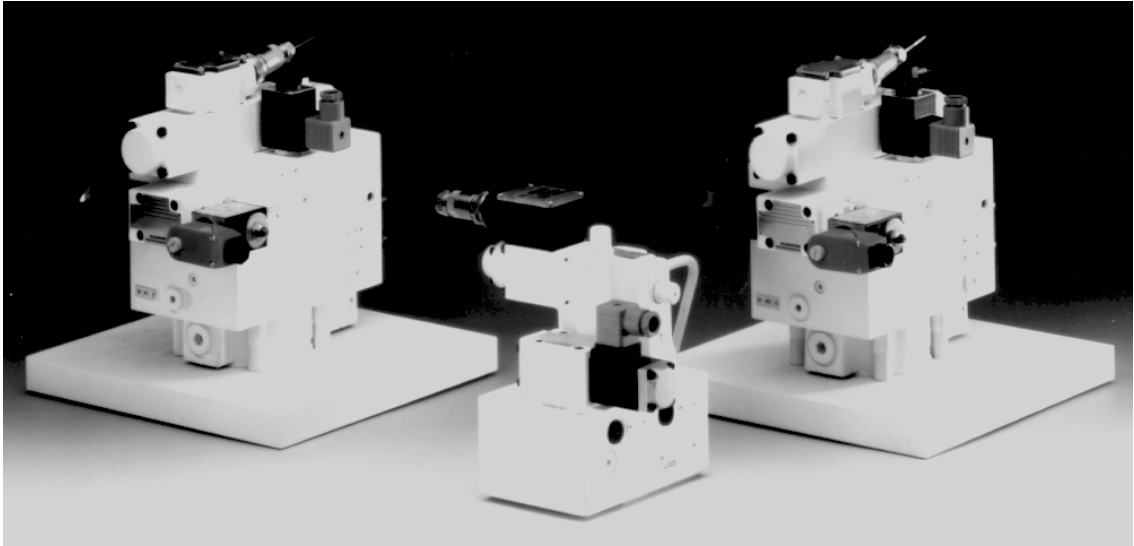
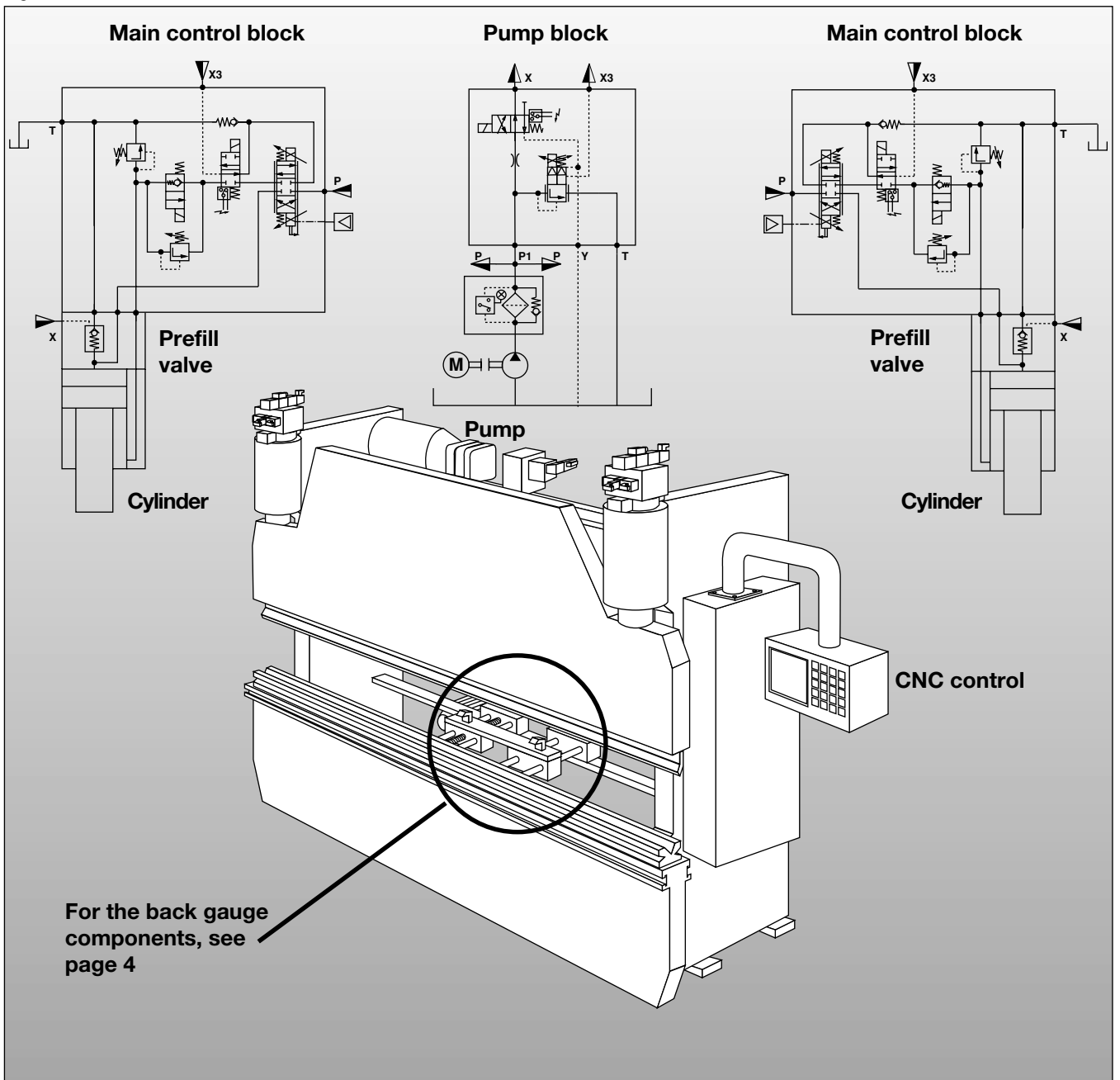


Fig. 3



# Back gauges fitted with components from Deutsche Star and Indramat

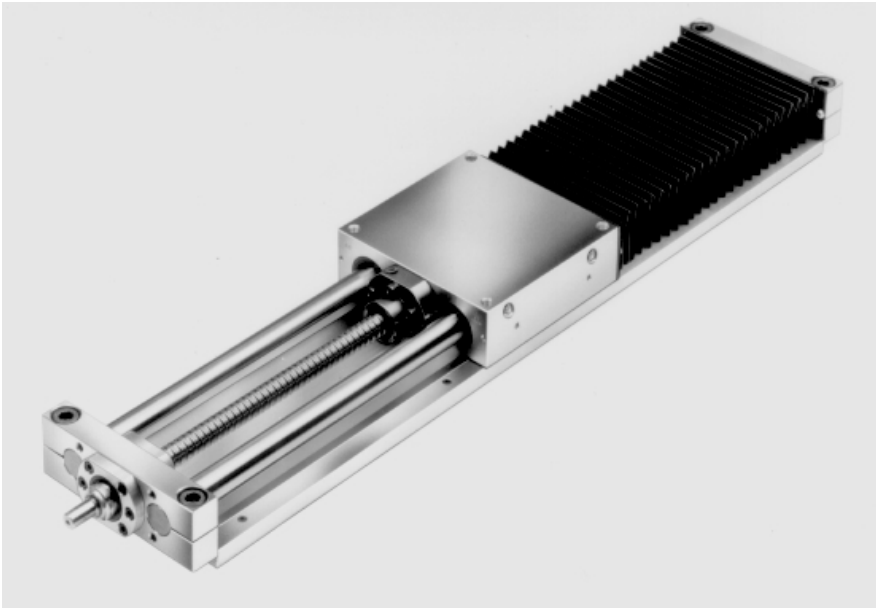


Fig. 4

As a result of their compact, functionally safe design, STAR linear motion slides (fig.4) can be used as universal and space-saving units in press brakes. Delivered as pre-assembled, ready-to-mount units, they save time and money by eliminating user design and assembly effort.

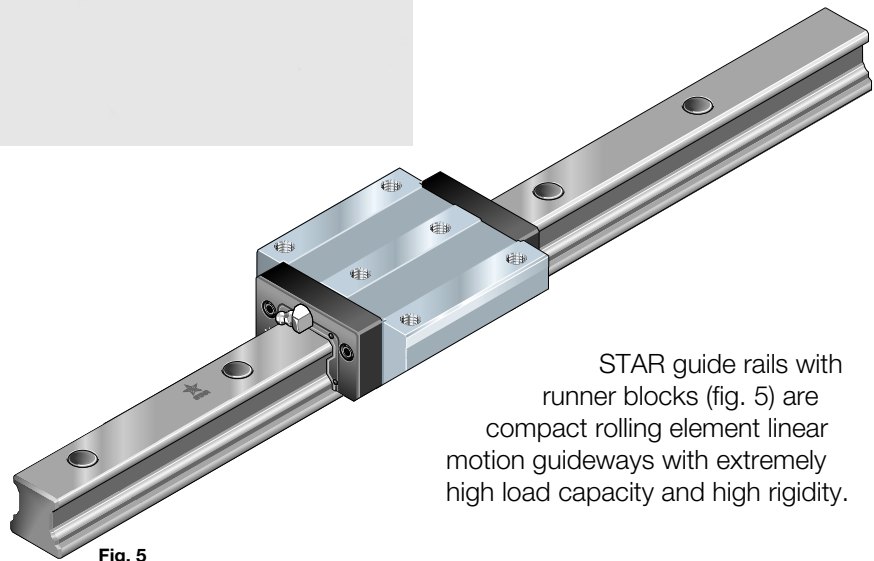


Fig. 5

STAR guide rails with runner blocks (fig. 5) are compact rolling element linear motion guideways with extremely high load capacity and high rigidity.

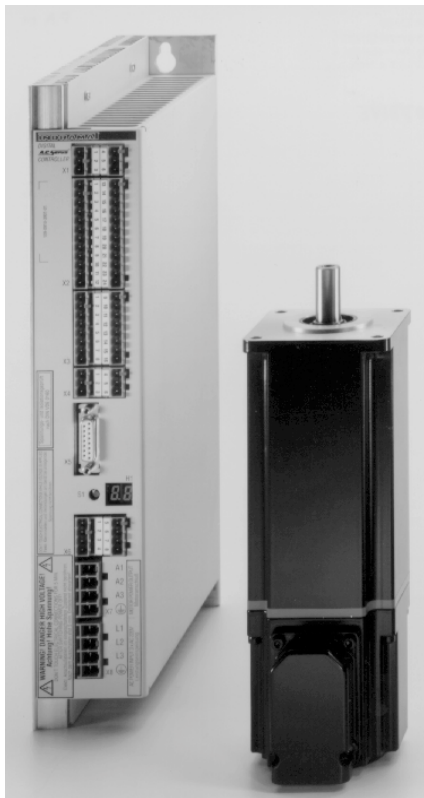


Fig. 6

The digital automation systems ECODRIVE from INDRAMAT (fig. 6) are a cost-effective solution for single or multi-axis drive and control tasks. The optimally matched combinations of the compact DKC control unit and the maintenance-free AC servo-motor, type MKD, are suitable for the use in press brakes - in addition to a multitude of other applications.