

Area of application

The hydro-mechanical block clamp unit type HBS is designed for medium-sized and large presses exerting a pressure of ca. 500 tons upwards. It is particularly suitable for bottom die clamping and rolling bolster clamping. It is also being used increasingly for top die clamping.

The clamp unit can be fixed to the bed or ram surface or on the inside of the press frame in the case of bolster clamping.

Its use requires dies that have straight clamping edges.

Mode of operation

A hydraulically actuated mechanically locking clamping wedge mechanism transmits its clamping force to a clamping jaw.

In the clamping process, the jaw is forced out of the housing, and clamps the die to the surface of the bed or the slide. The movement sequence is internally controlled.

Movement sequence for applying the clamping force:

- Driving out the clamping jaw up to a point above the clamping edge of the die
- Clamping movement of the clamping jaw.
(release of the clamp unit in reverse order)

Distinguishing features

The clamp unit is fitted with a clamping wedge mechanism. In this system, the clamping force required is transmitted by mechanical components which are actuated by low hydraulic pressure only

during the clamping or release process. The clamping wedge mechanism ensures that the clamp unit is mechanically self-locking when clamping. Nevertheless, a pilot-controlled non-return valve in both the clamping and release ports must secure the clamp unit against vibrations occurring during the production process. Thus, the hydraulic power unit can be switched off in clamped or released condition. Because of this, the clamping force is independent of the compressibility of the compression media, the operating temperatures and the line losses.

In the parked position, the clamping jaw is completely retracted into the housing, and thus protected from damage. The clamping edge of the die is released, and changing dies without interference is assured.

In the case of the dies used, maximum thickness tolerances of ± 1.0 mm are permitted.

Electrical control of the following functions (switches):

- Jaw in clamping position (S4)
- Jaw in retracted position (S5)

Pressure controls by means of a pressure switch on the hydraulic unit advisable.

Advantages

- Mechanical self-locking
- Occupies little space, due to compact dimensions
- Large clamping thickness tolerance
- Central control
- Hydraulic pressure required only during the clamping or release process
- High mechanical load capacity

Construction

The individual components of the clamp unit are made from high-strength steels. The element is secured by two bolts of strength class 10.9 (not included). The thread dimension depends on the type (see technical drawing).

2.110

Technical Data

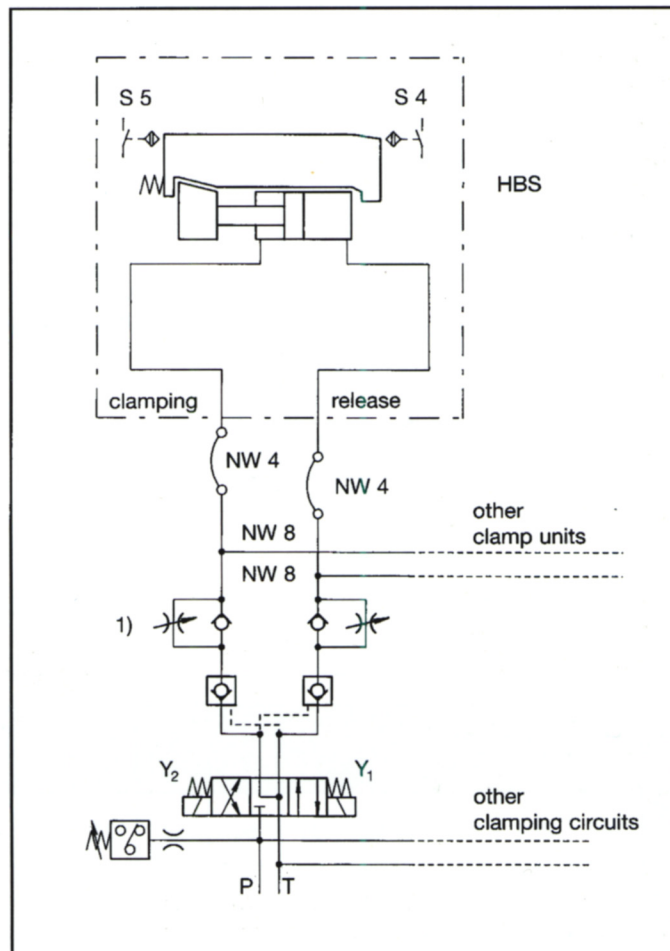
Type		HBS 50	HBS 100	HBS 200
Nominal clamping force	kN	50	100	200
Max. load capacity	kN	80	160	320
Max. operating pressure	bar	110	110	110
Die thickness tolerance	mm	+/- 1,0	+/- 1,0	+/- 1,0
Oil volume required (each process)	clamping	12	54	58
	release	20	79	73
Delivery rate per element	l/min.	0,2 - 0,3	0,6 - 1,2	0,6 - 1,2
Weight	kg (ca.)	25	30	50
Hydraulic connections		G 1/4	G 1/4	G 1/4
Max. operating temperature	°C.	70	70	70
Pressure medium		Hydraulic Oil Standard 3448 ISO Vce (DIN 51519)		
Viscosity		25 - 60 cST/40 °C		
Filter		20 - 25 µm		

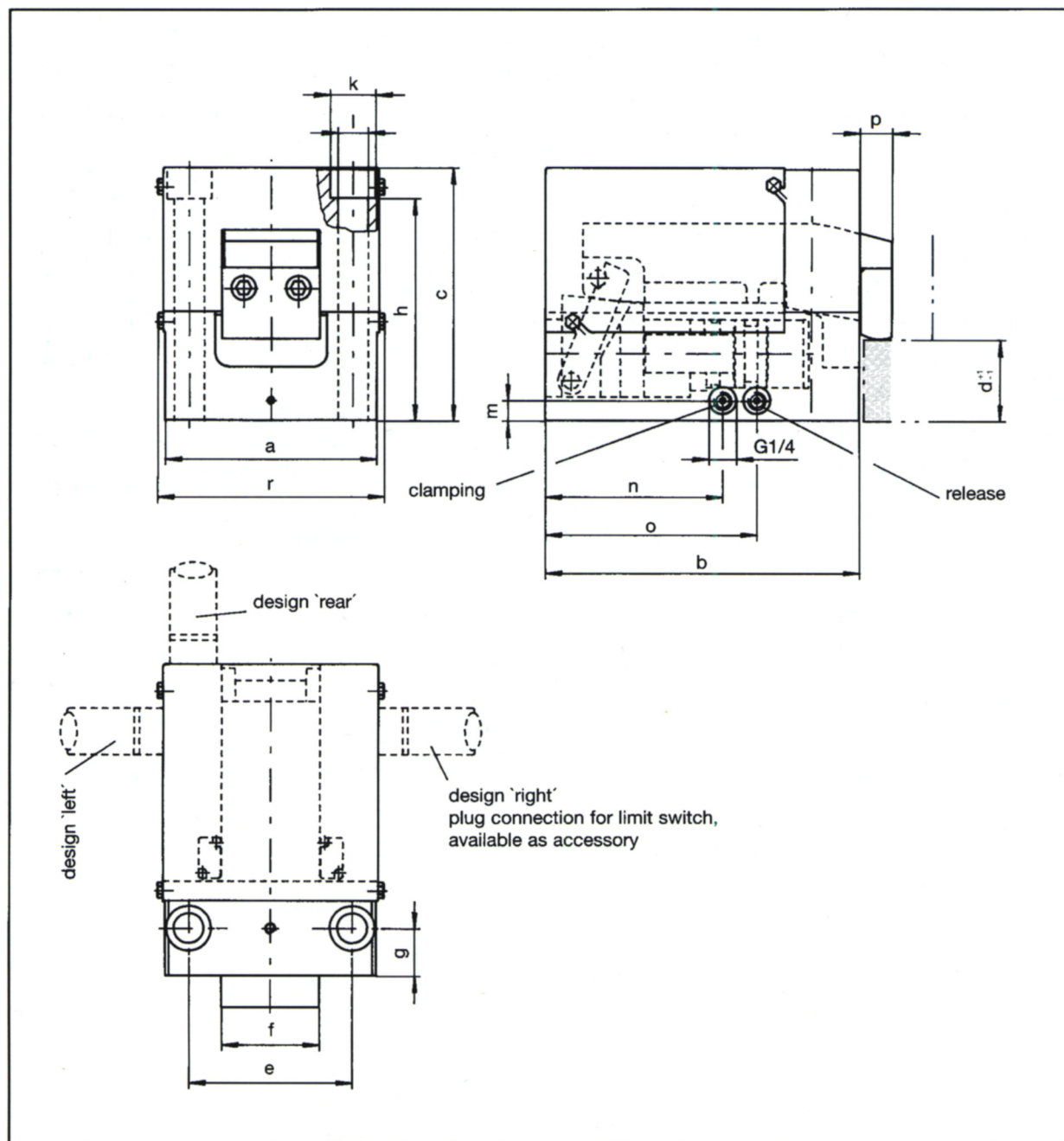
Hydraulic circuit diagram

1) If a pump with a higher delivery rate than necessary is used, the oil flow must be reduced by means of flow regulating valves or one-way restrictors.

Precision position switches

2 inductive proximity switches
PNP contact





Type	a	b	c	d*	e	f	g	h	k	l	m	n	o	p max.	r	Weight (kg)
HBS 50	140	223	158	45-55	100	60	30	138.5	26	17.5	15	116	141	33	151	25
HBS 100	155	232	187	55-65	120	72	35	163.5	33	22	15	132	157	33	166	30
HBS 200	173	233	221	65-85	133	85	40	193.5	40	26	15	127	152	33	184	50

The company reserves the right to make technical changes. * Other clamping thicknesses on request.