

Area of application

The hydro-mechanical swing-clamp unit type SSEV is designed for medium-sized and large presses exerting a pressure of ca. 500 tonnes upwards. It is basically only suitable for top die clamping.

Rigidly installed on the press ram bracket, it requires dies that have clamping edges with U-recesses.

Mode of operation

The tie rod is brought to the clamping position by a maximum 20° swing movement. A hydraulically actuated but mechanically locking toggle mechanism then transmits its clamping force to the tie rod.

Whereas the clamping force is developed purely mechanically, the swing movement of the tie rod is effected by means of two single-acting hydraulic cylinders.

The mechanical locking effected in the clamping position is automatic and can only be cancelled by means of hydraulic pressure.

Movement sequence for applying the clamping force:

- Swinging the tie rod
 - Clamping stroke of the tie rod
- (release of the clamp unit in reverse order)

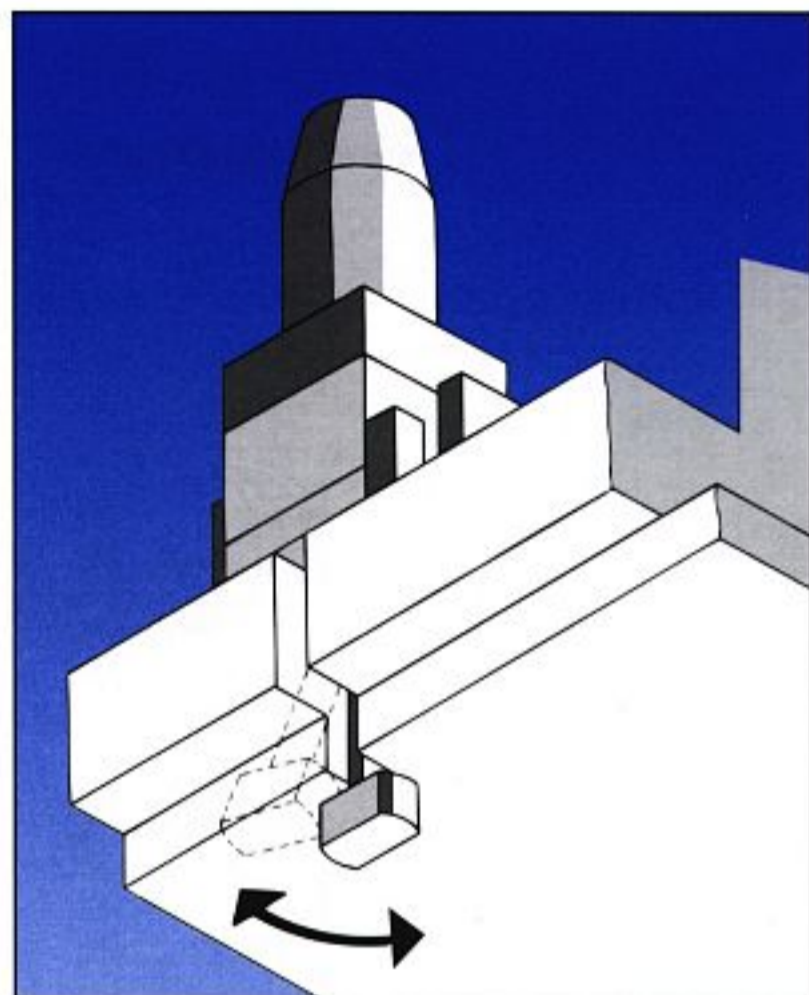
Distinguishing features

The clamp unit is fitted with the well-proven Optima toggle 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 force is constantly and directly controlled by the patented *Optima "Aktivator"*. For this to function there must not be any hydraulic pressure on the clamp unit. In this type of control, the clamp units are connected to the machine control system via electrical switches (precision position switches). If the clamping force is reduced, the tie rod is broken and, in the event of plastic deformations at the clamping point, an electrical signal is produced and passed to the machine control system. Irregularities of this kind thus result in the machine being stopped.

On release, the tie rod swings completely out of the die area, and thus considerably simplifies access to the work area. Changing a die without interfering edges is thus possible.

Due to the standard fitting with a pre-clamping block, die thickness tolerances up to ± 0.5 mm are permitted.



Electrical control of the following functions (switches):

- Tie rod swung out (S5)
- Continuous monitoring of clamping force (S6)
- Tie rod swung in (S7)

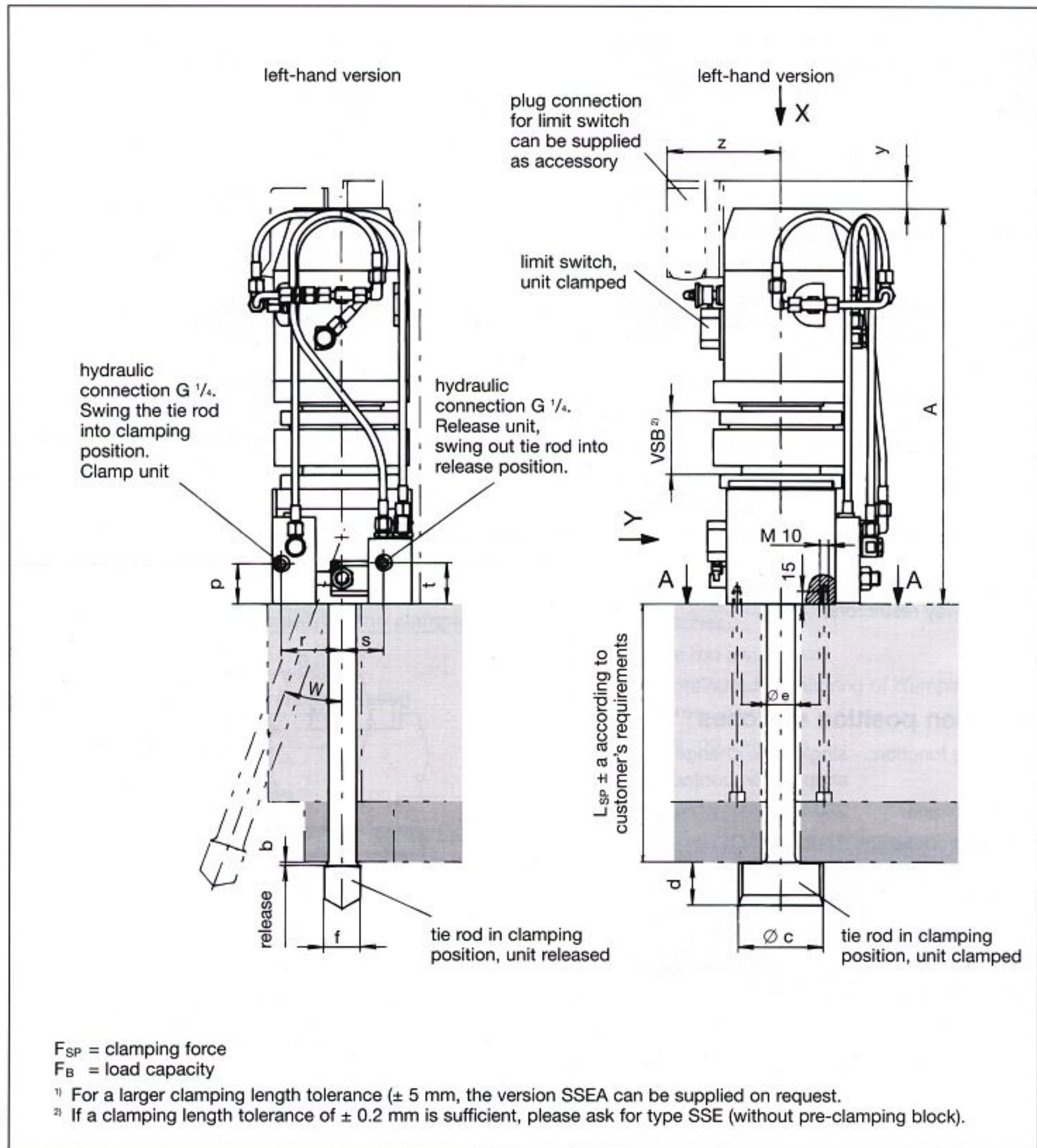
Advantages

- Mechanical self-locking
- Maximum safety due to continuous monitoring of clamping force by means of the "Aktivator"
- Central control
- Hydraulic pressure only necessary during the clamping or release process
- High mechanical load capacity.

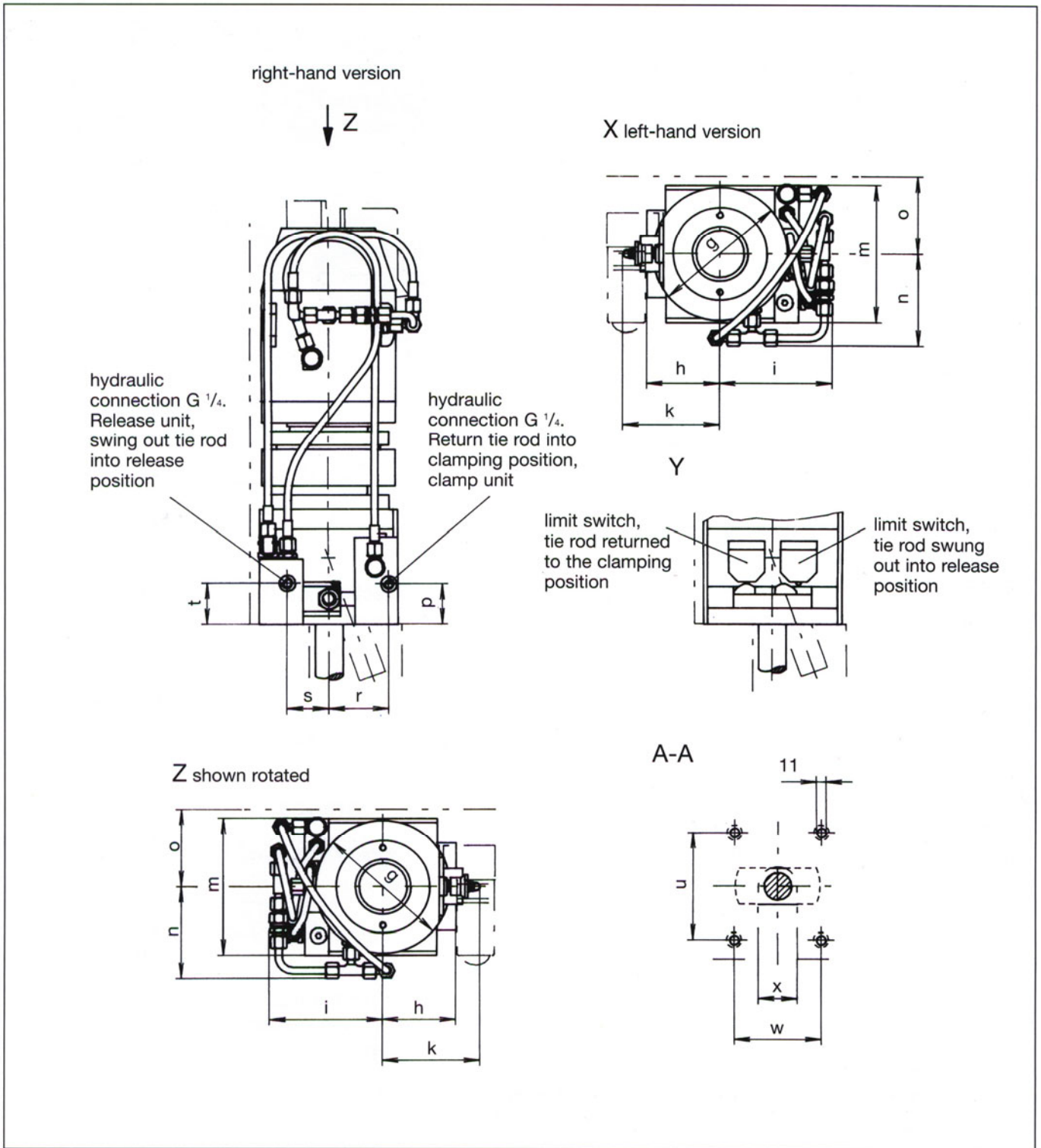
Construction

The clamp unit has a forged and gunmetal-finish tie rod. The individual components of the toggle mechanism are made of hardened steels.

The clamp unit is secured by four bolts, of strength class 10.9 (not included in the supply). The thread dimension depends on the type (see technical drawing).



Type	F_{SP} [kN]	F_B [kN]	W max.	A max.	a^0	b ca.	c	d	e	f	g	h
SSEV 100	100	125	20°	390	$\pm 0,5$	3,5	80	45	32	36	130	68
SSEV 200	200	250	20°	471	$\pm 0,5$	3,5	98	50	32	42	155	82



The company reserves the right to make technical changes.

i	k max.	m	n	o min.	p	r	s	t	u	w	x	y	z	Weight [kg]
119	112	128	92	75	45	56	36	44	80	70	40	20	162	40
162	114	160	107	90	47	69,5	48	48	125	100	46	32	166	60

Technical data

Type		SSEV 100	SSEV 200
Nominal clamping force	kN	100	200
Set pressure	bar	100	100
max. load capacity	kN	125	250
max. operating pressure (min. set pressure + 20 bar)	bar	140	140
Release stroke	mm (ca.)	3.5	3.5
Die thickness tolerance	mm	+/- 0.5	+/- 0.5
Oil volume required (each process)	clamping	115	231
	release	81	215
Delivery rate per unit ¹⁾	l/min.	1.0 - 1.5	1.5 - 2.0
Weight	kg (ca.)	40	60
Hydraulic connections		see drawing	
max. operating temperature	°C	70	
Pressure medium		Hydraulic oil DIN 51524 - HLP (ISO DIN 51519)	
Viscosity		25 - 60 cST/40° C	
Filter		20 - 25 µm	

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

Switching function: single-pole change-over snap-action contact

Supply voltage: 250 V AC

Switching capability: 2A/230 V AC
5A/ 24 V DC

Contacts: screw connection

Cable lead-in: armoured cable 9

For a water- and oil-tight installation, we recommend cable screw joints, in conjunction with a protective sleeve.

Hydraulic circuit diagram

