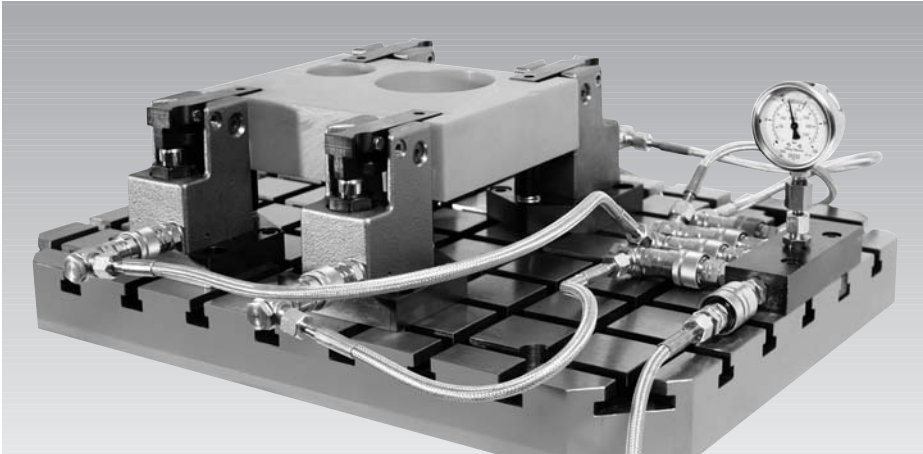


## **matrix - Hydraulic Workpiece Clamping System** clamping sets with hand slide clamps single acting, max. operating pressure 200 bar



### **Advantages**

- Direct clamping on the machine tool table
- No additional fixture costs
- Economic, especially with small batch sizes
- Clamping sets immediately ready for use
- Workpiece supports individually adaptable
- High precision of the workpieces by milling an exact reference system on the machine
- Workpiece supports for free loading and unloading
- Simple adaptation for parts families by displacement of the clamping elements
- 2 sizes available
- Clamping with minimum deformation by exact adjustment and uniform clamping forces
- Simple production of hydraulic fixtures
- Maintenance-free elements
- Saving compared with individual purchase

### **Application**

*matrix* clamping sets with hand slide clamps are especially indicated for clamping of plates, shafts and other workpieces with simple contours directly on the machine tool table. Construction of a clamping fixture is not required. Preparations are limited to place and adapt the integrated supports and stops. For repeated parts use of a workpiece-specific base plate can be useful.

*matrix* allows the flexible adaptation of very different workpieces and offers all advantages of hydraulic workpiece clamping.

### **Description**

Clamping sets with 3 or 4 simple acting hand slide clamps with integrated workpiece support and all required parts to clamp workpieces hydraulically directly on the machine table.

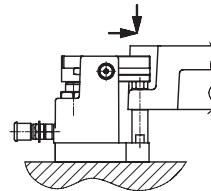
*matrix* consists of:

- Hand slide clamps with integrated support
- Distributor bar with pressure gauge
- High-pressure hoses with coupling
- Fixing parts
- Hydraulic clamping pump (optional)
- Clamping and support unit (optional)

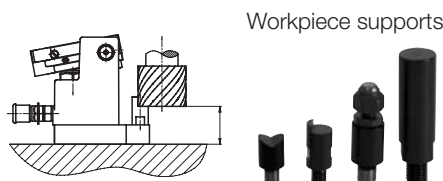
### **Function**

The lever of the hand slide clamp as per data sheet B 1.8234 is manually pushed over the clamping point. Then hydraulic clamping is effected and the force of the hydraulic cylinder is deviated by 180°.

A further advantage is the high clamping force and the fact that clamping can be made in relatively small recesses and special clamping levers with special shape and length can be easily manufactured.



After positioning of the hand slide clamps the screwed-in support bolts can be milled vertically and horizontally.



Thereby *matrix* allows an exact reference system directly on the machine.

If required, further work supports can be used at critical points (see accessories page 2).

### **Important notes**

Considerable injuries can be caused to fingers in the effective area of the clamping arm. Therefore the clamping pump must only be operated when the clamping levers are in clamping position.

Operating conditions, tolerances and other data see data sheet A 0.100.



网址: [www.fdzc.net](http://www.fdzc.net) 联系人: 程家雄 手机: 13601809714

联系电话: 021-51872743

E-mail: [chengff@sh163.net](mailto:chengff@sh163.net)

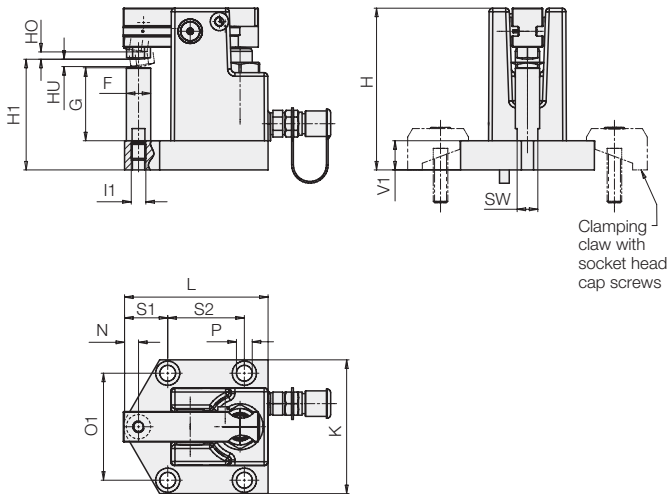
**Imbers**  
**Technical data and**  
**dimensions**

**Part-nos. and parts included in the clamping sets**

Clamping force at 200 bar Part-No.:		6 [kN]				10 [kN]			
		4415-300	4415-320	4415-330	4415-340	4415-400	4415-420	4415-430	4415-440
	Hand slide clamp 4412-992	3	3	4	4				
	Hand slide clamp 4412-995					3	3	4	4
	Hydraulic clamping pump 8804-006	1			1	1			1
	Hydraulic oil, 1 litre 9895-001	1			1	1			1
	Hand lever 0990-103	1			1	1			1
	Locking flange 3533-466	1			1	1			1
	Distributor bar 2360-219	1	1	1	1	1	1	1	1
	Hose 500 mm long 9375-616	2	2	2	2	2	2	2	2
	Hose 750 mm long 9375-636	1	1	2	2	1	1	2	2
	Hose 1000 mm long 9375-619	1	1	1	1	1	1	1	1
	Hose 2500 mm long 9375-623	1	1	1	1	1	1	1	1
	Clamping claw 3533-462	8	8	8	8	8	8	8	8
	Support bolts D20 3443-675	3	3	4	4				
	Support bolts D38 3443-676					3	3	4	4
	Screw-in plug 3610-006	4	4	4	4	4	4	4	4
	Tube male stud coupling 9208-003	8	8	8	8	8	8	8	8
	Swivel banjo coupling 9208-004	3	3	3	3	3	3	3	3
	Couplings and Dust caps 9384-106								
	Dust caps 9384-300	3	3	4	3	3	3	4	3
	Coupling nipples and Dust caps 9384-206								
	Dust caps 9384-400								

Components of clamping elements

**Hand slide clamp**



**Clamping unit**

Part-No.:	4412-992	4412-995
Clamping force at 200 bar [kN]	6	10
Oil volume clamping [cm <sup>3</sup> ]	5	8
F [mm]	20	38
G [mm]	60	62
H [mm]	133	140
H1 [mm]	91	95
HO [mm]	6	6
HU [mm]	6	6
I1 [mm]	M12	M20
K [mm]	110	130
L [mm]	118	146
N [mm]	11,5	20
O1 [mm]	88	108
P [mm]	13	13
S1 [mm]	35,5	39
S2 [mm]	63	94
V1 [mm]	24	24
SW [mm]	17	30

网址: [www.fdzc.net](http://www.fdzc.net) 联系人: 程家雄 手机: 13601809714

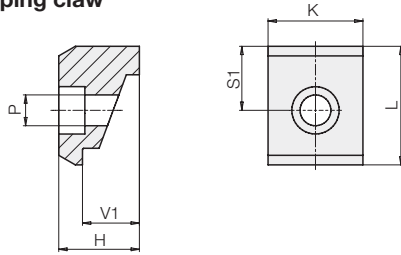
联系电话: 021-51872743

E-mail: [chengff@sh163.net](mailto:chengff@sh163.net)

## Technical characteristics

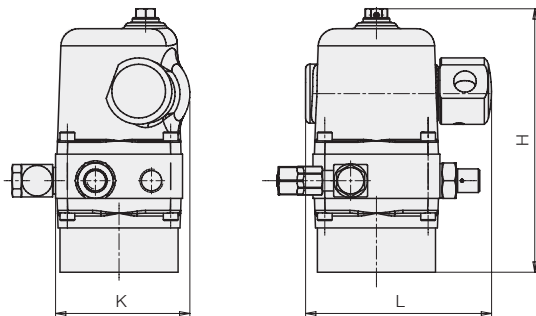
### Dimensions

#### Clamping claw



Clamping claw		Part-no. 3533-462
H	[mm]	34
K	[mm]	40
L	[mm]	50
P	[mm]	13
S1	[mm]	27
V1	[mm]	24

#### Hydraulic clamping pump



Hydraulic clamping pump		Part-no. 8804-006
Max. operating pressure	[bar]	200
Oil volume V	[cm <sup>3</sup> ]	300
Oil volume, usable	[cm <sup>3</sup> ]	150
Displacement per stroke	[cm <sup>3</sup> ]	4
Weight	[kg]	6,1
H	[mm]	178
K	[mm]	91
L	[mm]	126

The *matrix* clamping sets with hydraulic clamping pumps are supplied with hand lever 0990-103 as well as 1 litre hydraulic oil HLP 32.

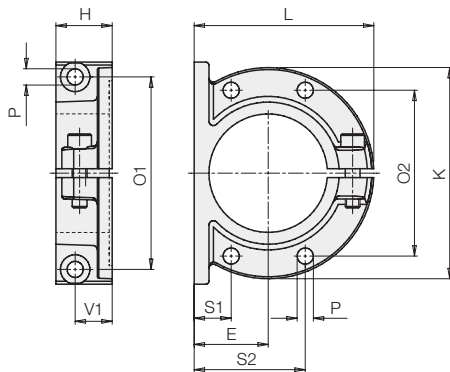
#### Accessories

Suitable hand lever	<b>Part-no. 0990-103</b>
Suitable foot pedal	<b>Part-no. 0990-102</b>

Further variants, data and accessories see data sheets D 8.800 and D 8.817.

#### Locking flange

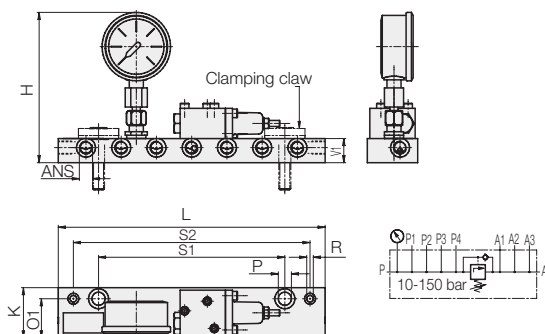
for hydraulic clamping pump



Locking flange		Part-no. 3533-466
E	[mm]	50
H	[mm]	38
K	[mm]	143
L	[mm]	121
O1	[mm]	130
O2	[mm]	112
P	[mm]	11
S1	[mm]	25
S2	[mm]	75
V1	[mm]	25

Further flanges and accessories see data sheet D8.800.

#### Distributor bar



Part-No.:	Distributor bar without sequence valve	Distributor bar with sequence valve
	2360-219	2360-218
Min. sequence pressure	[bar]	30
Connecting thread ANS	6 x G1/4	9 x G1/4
H	[mm]	approx. 150
K	[mm]	approx. 150
L	[mm]	50
O1	[mm]	150
P	[mm]	265
R	[mm]	39
S1	[mm]	39
S2	[mm]	13
V1	[mm]	13
	[mm]	6,5
	[mm]	6,5
	[mm]	80
	[mm]	185
	[mm]	235
	[mm]	120
	[mm]	235
	[mm]	24
	[mm]	24

#### Description

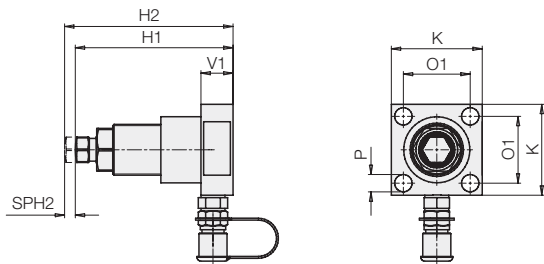
Sequence valves are used in power workholding for pressure-dependent sequence controls.

In *matrix* systems the functions extending and locking of the support elements is controlled by the sequence valve.

## Accessories:

### Support element

for additional support points



### Support element

Adm. support force at 200 bar

Part-No.:	5.6 kN 4412-989	10 kN 4412-990
Off-position of the bolt	retracted	extended
Support stroke SPH2 [mm]	8	16
Operating pressure, min. [bar]	50	100
H1 [mm]	118	122
H2 [mm]	126	106
K [mm]	68	75
O1 [mm]	50	57
P [mm]	13	7
V1 [mm]	24	24

## Description

Hydraulic work supports are used to provide a self-adjusting rest for the workpiece during the machining operations. They compensate the workpiece surface irregularities, also deflection and vibration under machining loads. The support plunger moves with spring force against the workpiece.

Off-position retracted:

The bolt contacts the workpiece by hydraulic pressure.

Off-position extended:

Bolt is retracted by the workpiece.

## Other accessories:

Pressure switch	see data sheet F 9.731
Hydraulic high-pressure hoses	see data sheet F 9.360
Fittings, hydraulic oil, seamless precision steel tubes	see data sheet F 9.300
Pressure gauge,	
Hydraulic intensifier	see data sheet D 8.755
Distributor, quadruple	Part-no. 3534-395