

# HYDRAULIC CLAMPING TECHNOLOGY

## Hydraulic hollow piston cylinder | double acting

### Operating pressure max. 350 bar/min 100 bar

Hydraulic hollow piston cylinders can solve many clamping problems because they can also be used as pulling cylinders due to the hollow piston combined with a tie rod. The double action principle allows short stroke times and high retraction forces, i.e. clamping forces in the reverse stroke direction.

### Technical characteristics

- Piston with through-hole and with internal thread
- 2 fastening threads at the base
- Lateral hydraulic connections

### CUSTOMER DESIGNED Models

If you need a special cylinder for your application – customer designed Models are available. PLEASE LET US KNOW!

### Important note

The operating pressure should not exceed 250 bar if the piston is actuated without a counter force.

### Recommended accessories (separate Order)


2 straight screw connectors D8S-R1/4




Cylindrical version



Block version

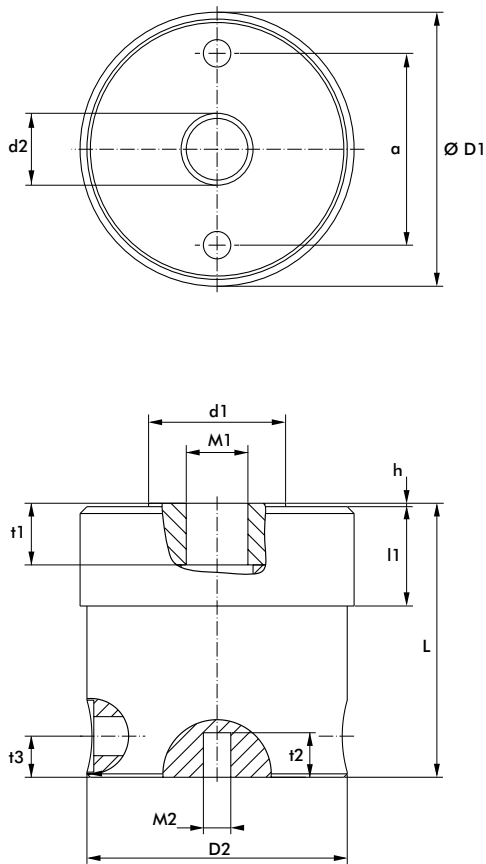
Model no. cylindrical version	Clamping force at 100 bar		Repair kit	Stroke* S max. [mm]	Piston surface area		Oil consumption		Connection G 2x	Weight ~ [kg]	
	forward stroke [kN]	back stroke [kN]			forward stroke [cm <sup>2</sup> ]	back stroke [cm <sup>2</sup> ]	forward stroke [cm <sup>3</sup> ]	back stroke [cm <sup>3</sup> ]			
		7411-2			8,6	5,9	7411-2-00	10			8,8
	7412-2	12,9	8,3	7412-2-00	15	13,2	8,4	21,1	13,4	G1/4	1,5
	7413-2	18,1	12,7	7413-2-00	24	18,4	15,0	44,1	36,0	G1/4	2,0
	7414-2	26,2	20	7414-2-00	24	26,7	20,4	64,1	49,0	G1/4	2,6

block version		Clamping force at 100 bar		Repair kit	Stroke* S max. [mm]	Piston surface area		Oil consumption		Connection G 2x	Weight ~ [kg]
		forward stroke [kN]	back stroke [kN]			forward stroke [cm <sup>2</sup> ]	back stroke [cm <sup>2</sup> ]	forward stroke [cm <sup>3</sup> ]	back stroke [cm <sup>3</sup> ]		
	723D38102-2	8,6	5,9			7411-1-00	10	8,8	6,0		
	723D48152-2	12,9	8,3	7412-1-00	15	13,2	8,4	21,1	13,4	G1/4	1,8
	723D57242-2	18,1	12,7	7413-1-00	24	18,4	15,0	44,1	36,0	G1/4	2,5
	723D68242-2	26,2	20	7414-1-00	24	26,7	20,4	64,1	49,0	G1/4	3,1

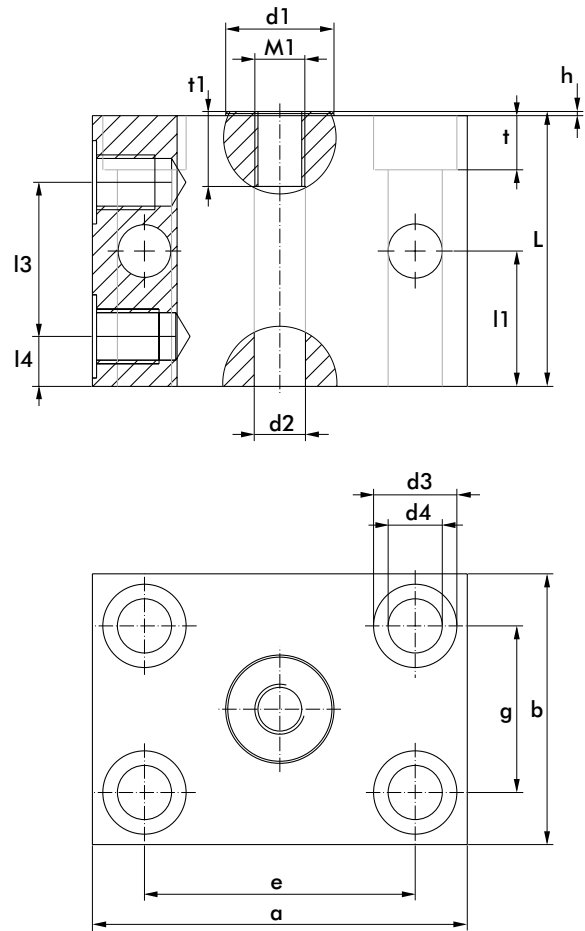
# HYDRAULIC CLAMPING TECHNOLOGY

Hydraulic hollow piston cylinder | double acting

Cylindrical version 74...



Block version 723D...



Model no. cylindrical version	a	b	d1	d2	d3	d4	D1	D2	e	g	h	l1	l3	l4	L	M1	M2	t	t1	t2	t3
	[mm]																				
7411-2	40	-	25	12,3	-	-	60	56	-	-	1	25	-	-	66	M12x1,5	M8	-	18	12	12
7412-2	48	-	35	17	-	-	72	66	-	-	1	33	-	-	72	M16x1,5	M8	-	18	13	12
7413-2	56	-	40	21	-	-	80	76	-	-	1	29	-	-	80	M20x1,5	M10	-	18	13	12
7414-2	60	-	45	25	-	-	90	84	-	-	1	29	-	-	90	M24x1,5	M10	-	18	13	12

block version	a	b	d1	d2	d3	d4	D1	D2	e	g	h	l1	l3	l4	L	M1	M2	t	t1	t2	t3
723D38102-2	90	65	25	12,3	20	13	-	-	65	40	1	32,5	37	12	66	M12x1,5	-	13	18	-	-
723D48152-2	100	75	35	17	20	13	-	-	76	45	1	35,5	41	12	72	M16x1,5	-	13	18	-	-
723D57242-2	110	85	40	21	20	13	-	-	86	55	1	39,5	50	12	80	M20x1,5	-	13	18	-	-
723D68242-2	110	85	45	25	20	13	-	-	86	55	1	39,5	50	12	80	M24x1,5	-	13	18	-	-

# HYDRAULIC CLAMPING TECHNOLOGY

Pressure converter | pneumatic-hydraulic | single acting

**Operating pressure max. 225 bar, 230 bar**  
**Ratio 1:32, 1:33**

Compressed air from the mains is converted into hydraulic high pressure by these pressure converters. Without this converting facilities, many clamping problems cannot be solved at all or only at high costs.

## Technical characteristics

- The large oil tank automatically supplies the system with fresh oil according to the needs.
- Hydraulic piston with guide rings.
- The backstroke is produced by spring retraction. This offers the advantage of low air consumption and a single valve system.
- The moving parts are made of corrosion protected materials.

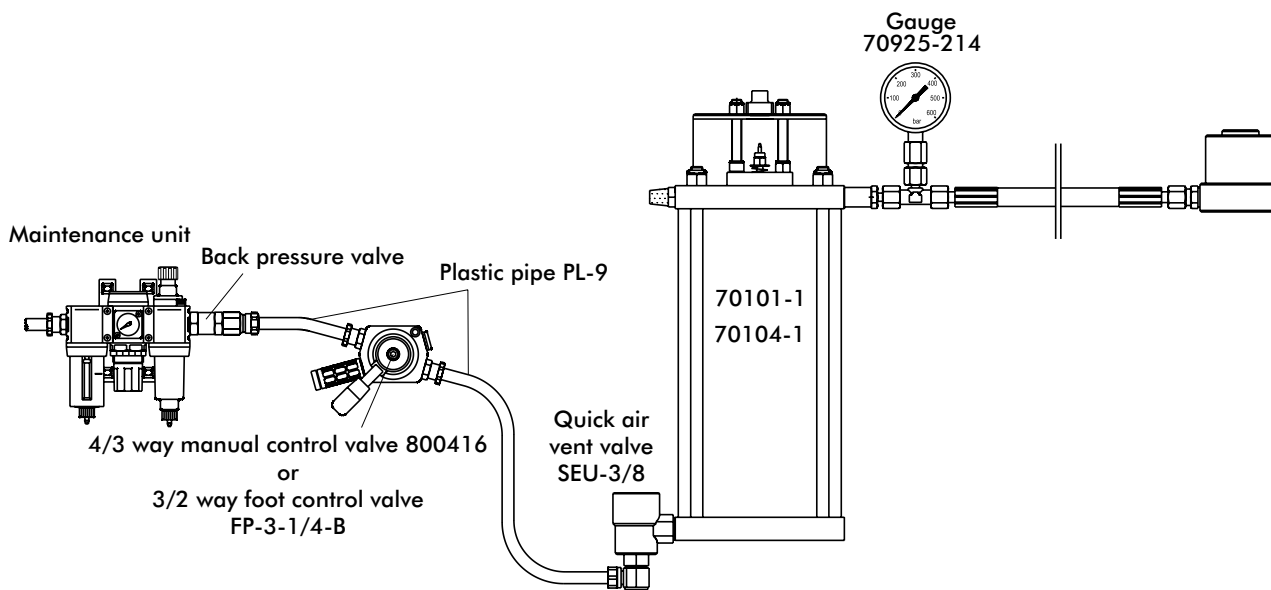
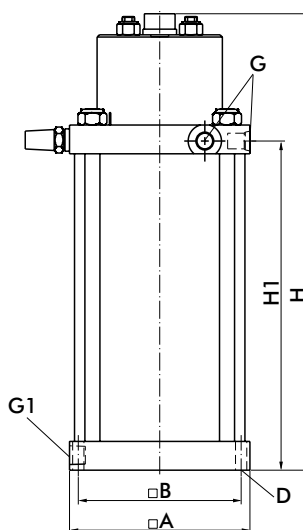
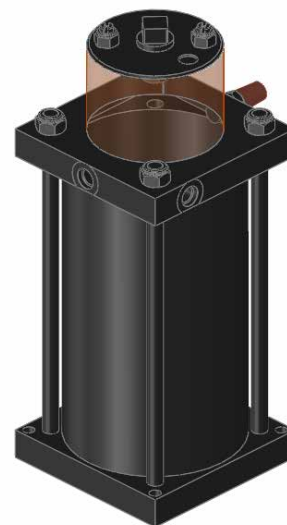
Contrary to hydraulic pumps, the maximum output of the pressure converter is restricted to one stroke. The amount of oil required per stroke is calculated as follows:

$$\text{Cylinder number} \times \text{piston surface} \times \text{stroke}$$

**ATTENTION: A reserve of 20% should be taken into account!**

## Included accessories

- Connecting nipple R-1/4-1/4NPT (Air side)
- Adapter SAE4-1/4NPT (Oil side)
- Straight screw connection D8L-1/4NPT (Oil side)



Model no.	Ratio	Air pressure		Air consumption	max. operating	Oil quantity/	oil volume	A	B	D	H	H1	Connection		Weight
		min	max.	at 6 bar	max.	stroke	(Reservoir)						Oil side	Air side	
		[bar]	[bar]	[l/hub]	[bar]	[cm³]	[cm³]	[mm]	[mm]	[mm]	[mm]	[mm]	G	G1	[kg]
70101-1	1:33	3	7	5	230	16	170	115	103,2	7,2	295	210	SAE 4	1/4NPT	4.5
70104-1	1:32	3	7	16	225	64	690	165	146	8,6	435	335	SAE 4	1/4NPT	11

# HYDRAULIC CLAMPING TECHNOLOGY

Pressure converter | pneumatic-hydraulic | single acting

**Operating pressure max. 210 bar**

**Ratio 1:32**

Compressed air from the mains is converted into hydraulic high pressure by these pressure converters. Without this converting facilities, many clamping problems cannot be solved at all or only at high costs.

## Technical characteristics

- Metal oil tank with oil level indicator
- Fast backstroke by the 2.air line
- Works in vertical and horizontal position

**CUSTOMER BUILD VERSIONS (E. G. HIGHER PRESSURE, HIGHER OIL QUANTITY/STROKE) POSSIBLE.**

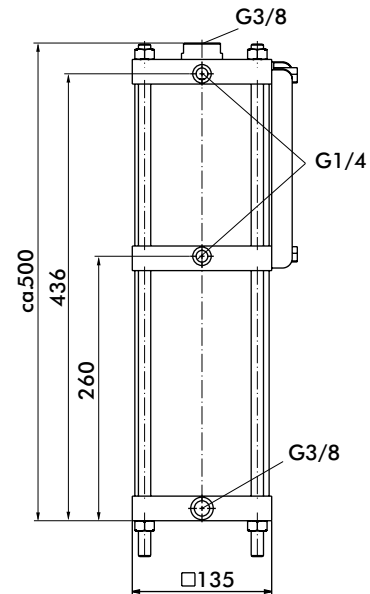
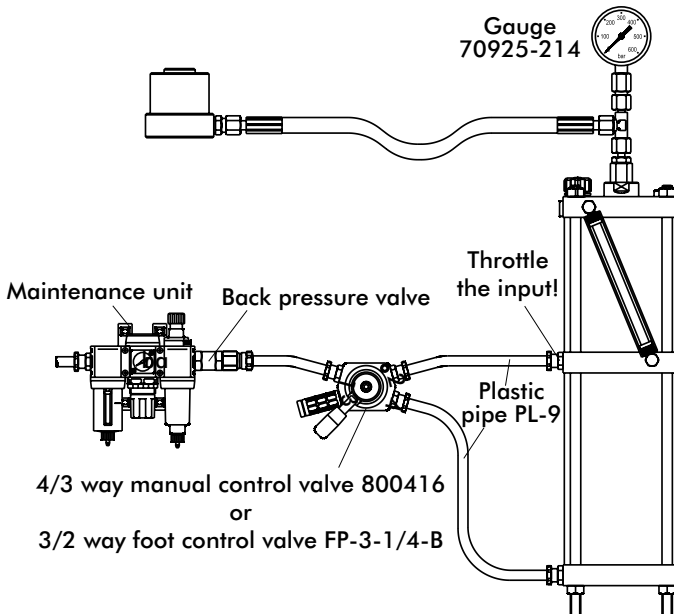
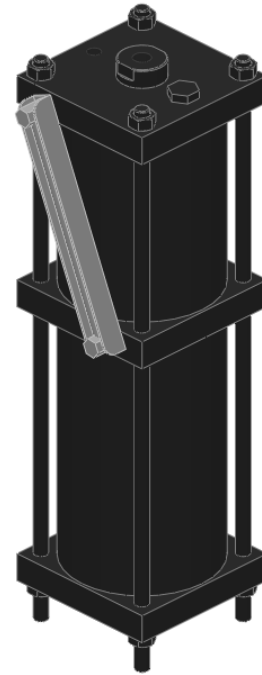
Contrary to hydraulic pumps, the maximum output of the pressure converter is restricted to one stroke. The amount of oil required per stroke is calculated as follows:

$$\text{Cylinders number} \times \text{piston surface} \times \text{stroke}$$

**ATTENTION: A reserve of 20% should be taken into account!**

Included accessories

- Screw connection CK-1/4-PK9 (Air side)
- Screw connection CK-3/8-PK9 (Air side)
- Adapter GWR-3/8-1/4 (Oil side)
- Screw connection D8L-1/4 (Oil side)



Model no.	Air pressure		Air consumption		Operating pressure max. [bar]	Oil quantity/ stroke [cm <sup>3</sup> ]	Oil volume (reservoir) [cm <sup>3</sup> ]	A [mm]	H [mm]	H1 [mm]	H2 [mm]	Connection				Weight [kg]
	Ratio	min. [bar]	max. [bar]	at 6 bar [l/stroke]								G	G1	G2	G3	
70104-2	1:30	3	7	16	210	64	690	135	ca. 500	260	436	G3/8	G1/4	G1/4	G3/8	11

# HYDRAULIC CLAMPING TECHNOLOGY

## Air hydraulic pump

**Operating pressure max. 210 bar/700 bar**

**Conversion ratio 1:30, 1:100**

Compact Air-hydraulic-pump for single acting hydraulic tools. This air hydraulic pump can activate a higher number of clamping cylinders simultaneously due to the tank volume of 1600 cm<sup>3</sup>. The compact lightweight design allows to set up the pumps wherever required. Actuating by foot control valve.

### Technical features

- Switching on the pump and releasing the hydraulic systems pressure is carried out by foot valve activation
- integrated back pressure valve prevents pressure loss in the clamping circuit
- In case of a pressure drop > 10 bar within the pressure circuit, the pump automatically restarts to pump oil in Order to restore the set pressure
- Reservoir made of aluminium

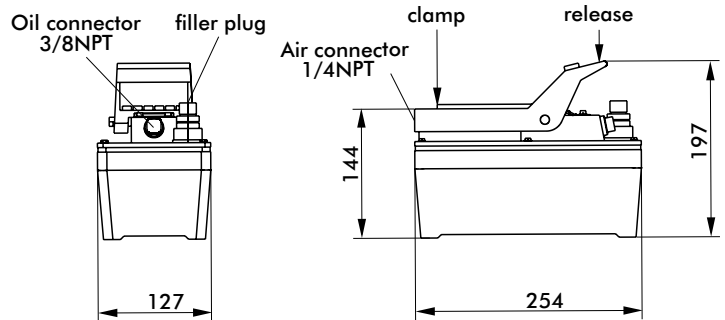
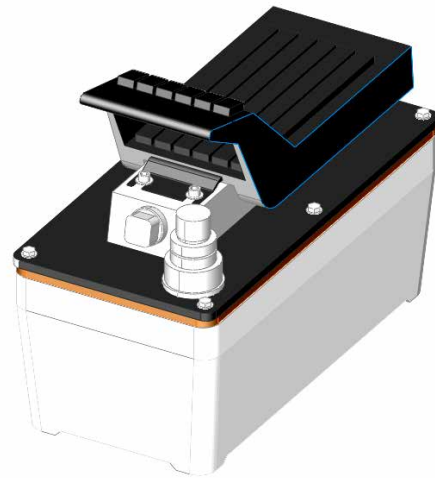
### Included accessories

1 Transition nipple **R1/4-1/4 NPT**

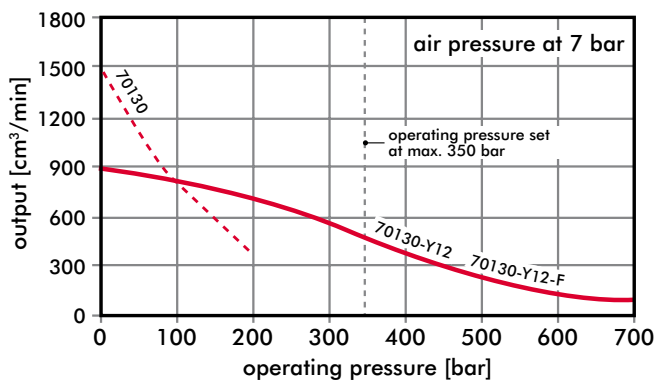
1 Reducing nipple **PTRS-1/4 NPT**

1 Straight screw connector

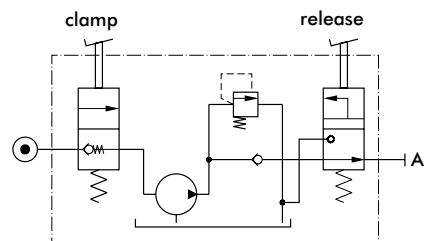
**D8S-1/4 NPT**



### Output characteristics



### Schematic diagram



Model no.	actuating by	Ratio	oil capacity [cm <sup>3</sup> ]	usable oil capacity [cm <sup>3</sup> ]	Air inlet pressure		max. operating pressure [bar]	Air consumption at 6 bar [m <sup>3</sup> /min]	Sound level [dB(A)]	Weight [kg]
					min. [bar]	max. [bar]				
<b>70130</b>	foot control	1:30	1720	1600	3	7	210	0,5	72	6,5
<b>70130-Y12</b>	foot control	1:100	1720	1600	3	7	700	0,5	72	6,5

# HYDRAULIC CLAMPING TECHNOLOGY

## Air hydraulic pump

**Operating pressure max. 700 bar**

**Conversion ratio 1:100**

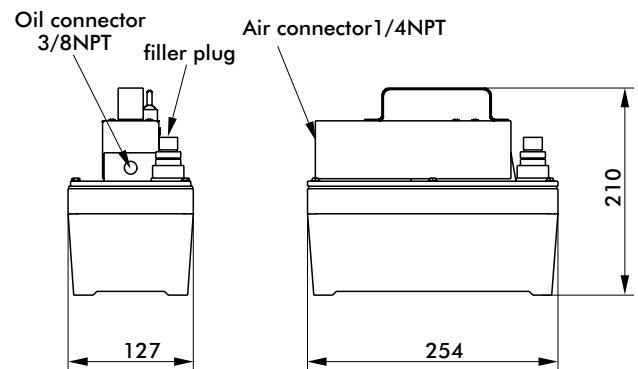
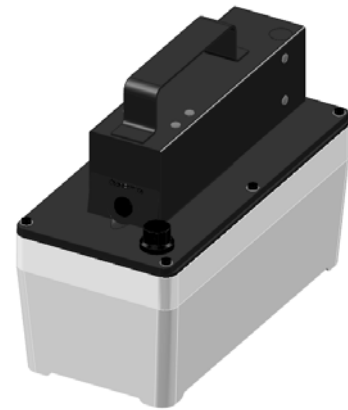
Compact Air-hydraulic-pump for single acting hydraulic tools. This air hydraulic pump can activate a higher number of clamping cylinders simultaneously due to the tank volume of 1600 cm<sup>3</sup>. The compact lightweight design allows to set up the pumps wherever required. Actuating by remote control valve.

### Technical features

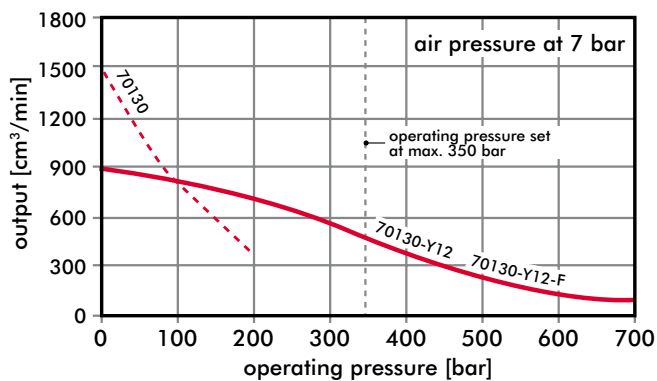
- Switching on the pump and releasing the hydraulic systems pressure is carried out by remote control activation
- integrated back pressure valve prevents pressure loss in the clamping circuit
- In case of a pressure drop > 10 bar within the pressure circuit, the pump automatically restarts to pump oil in Order to restore the set pressure
- Reservoir made of aluminium

### Included accessories

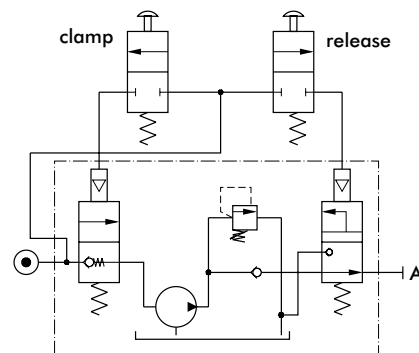
- Transition nipple **R 1/4-1/4 NPT**
- Reducing nipple **PTRS-1/4 NPT**
- Straight screw connector **D8S-1/4 NPT.**



### Output characteristics



### Schematic diagram



Model no	actuating by	Ratio	Reservoir oil capacity	usable oil capacity	Air inlet pressure		max. operating max.	Air consumption bei 6 bar	Sound level [dB(A)]	Weight [kg]
			[cm <sup>3</sup> ]	[cm <sup>3</sup> ]	min. [bar]	max. [bar]				
<b>70130-Y12-F</b>	remote control	1:100	1720	1600	3	7	210	0.5	72	8,3

# HYDRAULIC CLAMPING TECHNOLOGY

## Air hydraulic pump

**Operating pressure max. 700 bar**

**Conversion ratio 1:100**

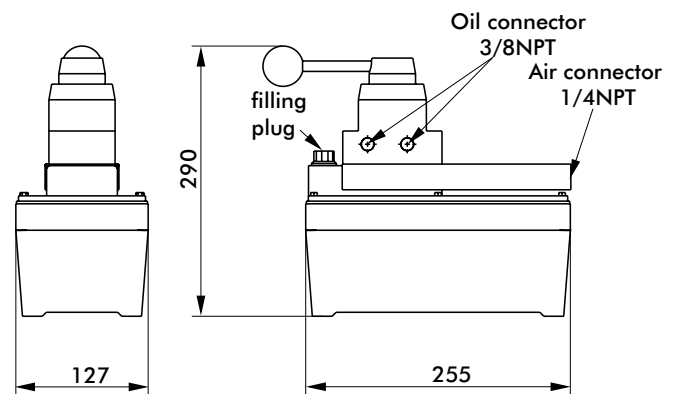
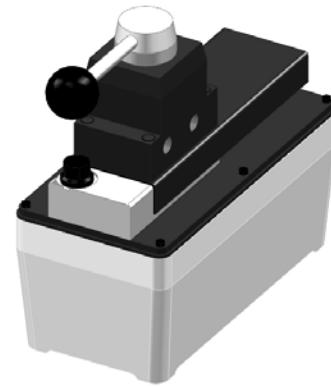
Compact Air-hydraulic-pump for single- and double acting hydraulic tools. This air hydraulic pump can activate a higher number of clamping cylinders simultaneously due to the tank volume of 1600 cm<sup>3</sup>. The compact lightweight design allows to set up the pumps wherever required. Actuating by manual control valve.

### Technical features

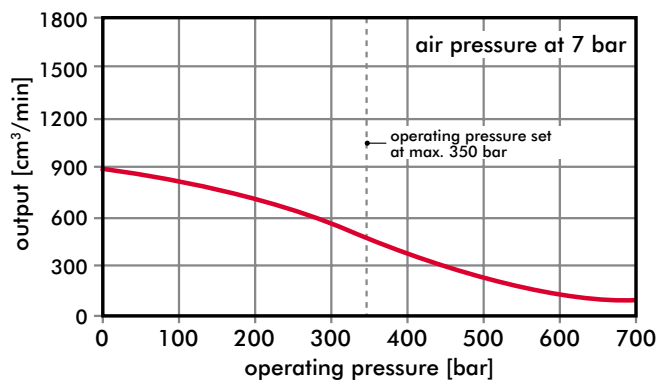
- Switching on the pump and releasing the hydraulic systems pressure is carried out by manual control valve activation
- integrated back pressure valve prevents pressure loss in the clamping circuit
- In case of a pressure drop > 10 bar within the pressure circuit, the pump automatically restarts to pump oil in Order to restore the set pressure
- Reservoir made of aluminium

### Included accessories

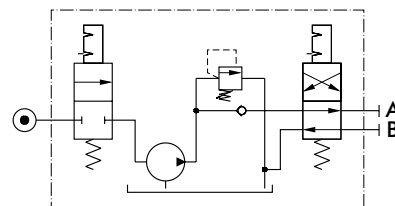
- 1 transition nipple **R 1/4-1/4 NPT**
- 2 reducing nipple **PTRS-1/4 NPT**
- 2 straight screw connector **D8S-1/4 NPT**.



### Output characteristics



### Schematic diagram



Model no.	actuating by	Ratio	oil capacity	usable oil capacity	Air inlet pressure		max. operating pressure.	Air consumption at 6 bar	Sound level	Weight
			[cm <sup>3</sup> ]	[cm <sup>3</sup> ]	min. [bar]	max. [bar]				
<b>70130-Y12-H</b>	manual valve	1:100	1720	1600	3	7	700	0,5	72	8,4

# HYDRAULIC CLAMPING TECHNOLOGY

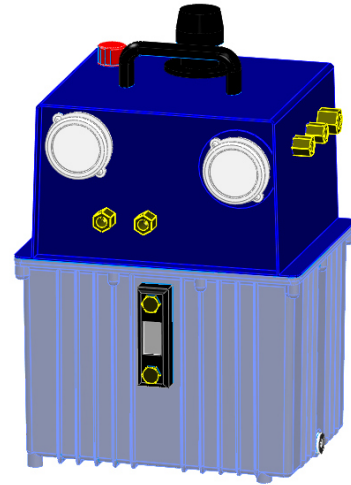
## Air hydraulic pump

**Operating pressure max. 150 bar/360 bar/600 bar**  
**Conversion ratio 1:25/1:60/1:1000**

These air hydraulic pumps are designed for various hydraulic applications, especially for intermittent operation. By connecting a 3/2- way or 4/2-way pneumatic valve, the built-in hydraulic valves for stroke and backstroke can be actuated. The pumps are complete, and only have to be connected to the existing compressed air supply.

### Technical characteristics

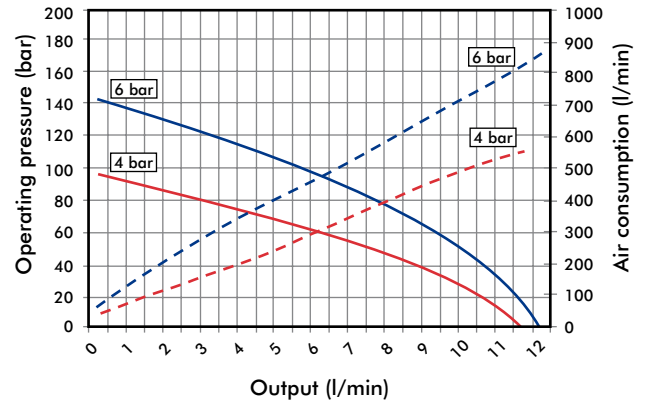
- Double piston pump-therefore pressure build-up almost pulsation free
- Compact pump - low required space
- 3 different conversion ratios available
- integrated back pressure valve prevents pressure loss in the clamping circuit
- In case of a pressure drop > 10 bar within the pressure circuit, the pump automatically restarts to pump oil in Order to restore the set pressure



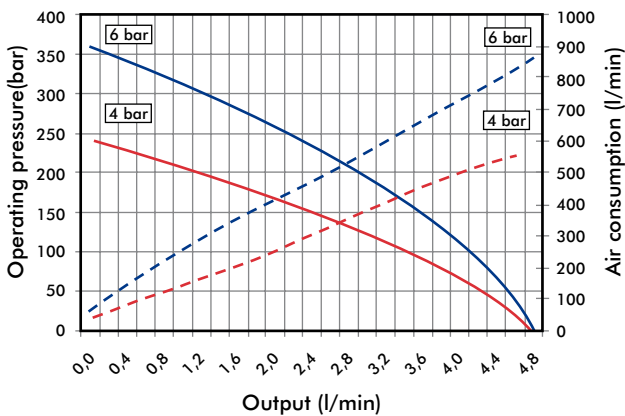
### Recommended accessories (separate Order)

- 1 4/2-ways manual-control-valve **800416**
- 1 3/2-way-foot-control-valve **FP-3-1/4-H**
- 2 screw-in connections **CK-1/4-PK6**
- 1 screw-in connections **CK-3/8-PK9**

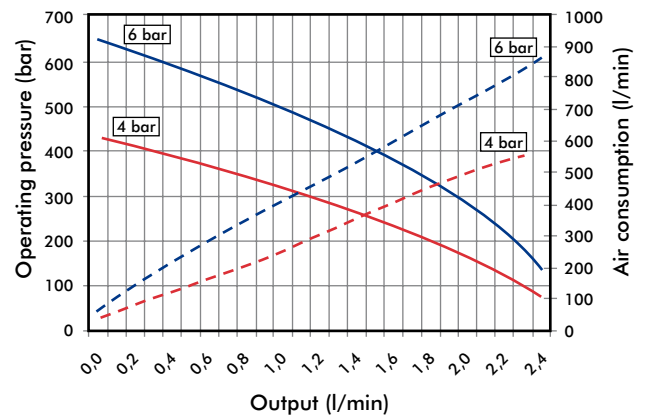
713D1505.-1



713D3605.-1



713D6005.-1



Model no. double acting	Ratio	max. operating pressure	Reservoir oil quantity	usable oil quantity	Air inlet pressure		Connection oil side	Sound level [dB(A)]	Weight [kg]
		[bar]	[l]	[l]	min. [bar]	max. [bar]			
713D15051-1	1:25	150	8	5,5	1,5	6	2xG1/4	65	31
713D36051-1	1:60	360	8	5,5	1,5	6	2xG1/4	65	31
713D60051-1	1:100	600	8	5,5	1,5	6	2xG1/4	65	31

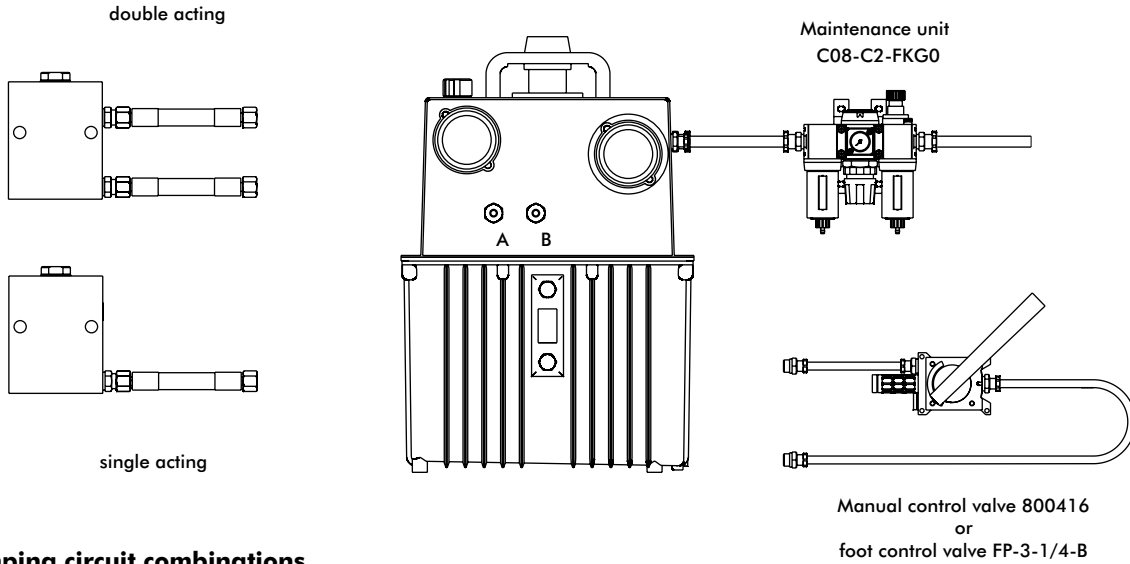


# HYDRAULIC CLAMPING TECHNOLOGY

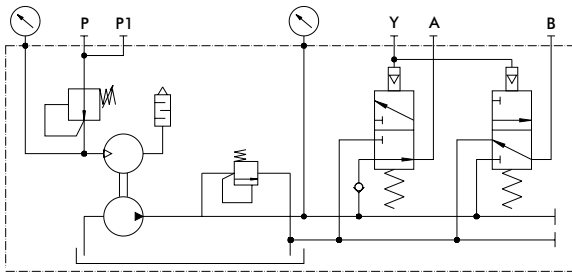
Air hydraulic pump

## Connection diagram:

in this connection diagram you can see an air hydraulic pump, double action, with pneumatic control. On a single action design, the connection B does not apply.



## Clamping circuit combinations



1 clamping circuit\*, double action\*  
713D15051-1, 713D36051-1, 713D60051-1

\* Pumps with more circuits, with electrically controlled valves, positioning circuit or accumulator control unit circuit are also available.

