

Intensifier 0.2 - 2.6 l/min

Intensification ratio 1.5 to 7.5, max. operating pressure up to 500 bar
 double acting



Advantages

- Very compact design
- Continuous flow rate
- Leakage compensation
- Pressure regulation low-pressure side
- Expensive high-pressure pump not required
- High-pressure only where needed
- Cost-saving piping

High pressure



Low pressure

Application

The hydraulic intensifiers convert a low input pressure into a higher output pressure according to the intensification ratio. In principle, smaller clamping elements can be used with higher pressure and thus more workpieces can be machined on one fixture.

A single hydraulic cylinder, a complete group of cylinders or a complete hydraulic clamping fixture can be connected to the hydraulic intensifier.

In case of a leakage in the high-pressure area the constant pressure is maintained, as long as low pressure is available.

Description

An oscillating pump piston, that will be automatically reversed in the end positions by a hydraulically-operated valve, is installed in the intensifier. The ratio of the piston areas corresponds to the intensification ratio.

For unhindered flow in the low-pressure range, the pump piston will be bypassed by means of a bypass-line. A pilot-controlled check valve shuts off the high pressure.

Important notes!

The intensifier can produce extremely high hydraulic pressures. The manufacturer of the system must provide effective safety valves for protection against excessive pressures.

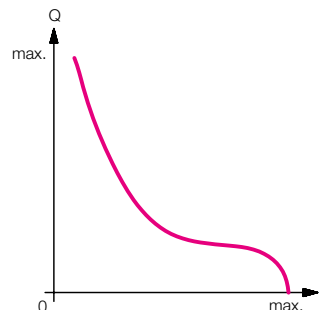
The connection of the intensifier must always be double acting. For oil supply, port R must be depressurised.

Pump piston and valve slide are fit with minimum clearance. In order to permanently secure the function, it is imperative to install a high-pressure filter at the input IN of the intensifier (see hydraulic circuit diagram).

As long as pressure is available at IN, the intensifier has an internal leakage between the ports IN and R.

If no pressure is available at IN, the pressure can drop in the high-pressure area in case of a leakage. By the installation of a pilot-controlled check valve at port H a pressure drop is avoided (see hydraulic circuit diagram). This applies in particular to uncoupled systems (clamping pallets).

Pressure / flow rate diagram



Function

The flow rate is supplied without pressure through input IN via the check valves RV1, RV2 and DV to the output H and thereby to the hydraulic cylinders.

With increasing counter pressure the oscillating pump OP starts working. The flow rate at output H is getting smaller and smaller and is nearly zero when reaching the maximum operating pressure.

The pump holds constant the pressure at H as long as low-pressure is available at IN. Between the ports IN and R there will be leakage of approx. 50 cm³/min, since due to functional reasons the pump elements cannot be sealed without leakage.

To retract the cylinders, port IN will be depressurised and port R pressurised. At the same time, the check valve DV will be opened and enables free return flow.

Single-acting cylinders

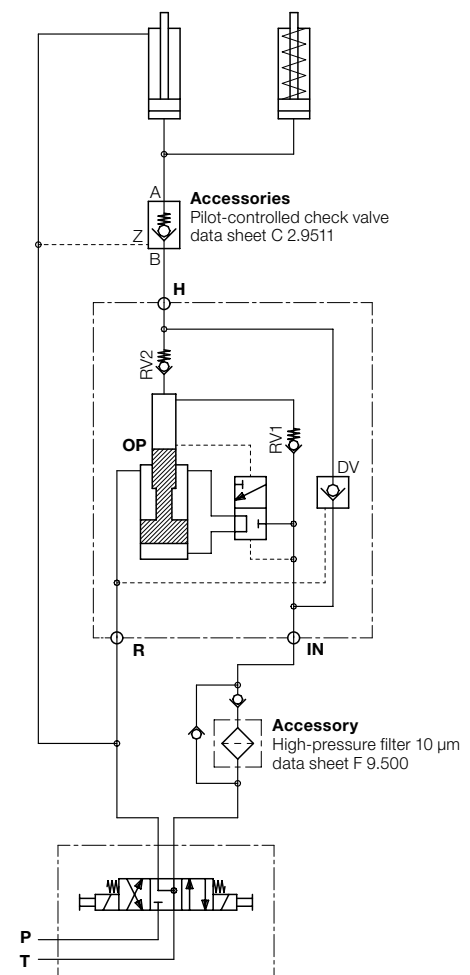
If only single-acting cylinders are connected, a double-acting valve function is required to control the pilot-operated check valves for unclamping (see hydraulic circuit diagram).

Technical data

Low pressure min.	20 bar
max.	see part numbers
High pressure max.	see part numbers
Temperature range	-30 °C...+100 °C
Filtration nominal value	10 µm
Contamination max.	class 19 / 16 as per ISO 4406
Other data	see data sheet A 0.100

Hydraulic circuit diagram

In the hydraulic circuit diagram, the required accessories are represented (see "Important notes").



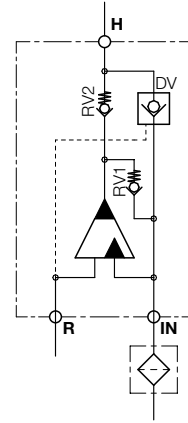
Pipe thread version

Intensification ratio 1.5 to 7.5



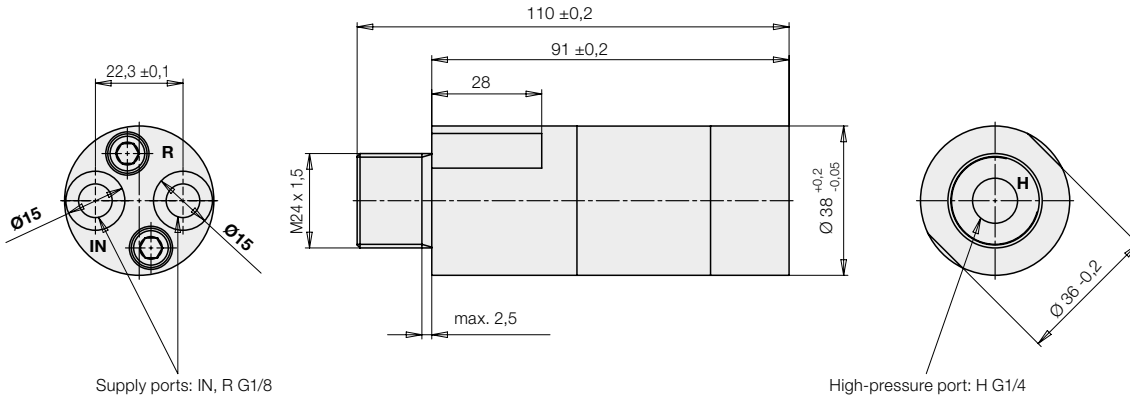
Application

Intensifiers with pipe thread are very compact. They are integrated into the piping of a clamping fixture, specifically where high-pressure is required. Thus the costs for piping can be considerably reduced. For the use on clamping pallets, pay attention to "Important notes" on page 1.



Accessory
High-pressure filter 10 µm
data sheet F 9.500

Size 1



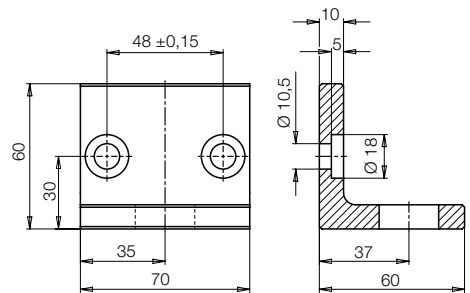
Intensification ratio	2	2.8	3.3	4	4.8	6.2	7.5
Max. operating pressure							
Low pressure IN [bar]	207	178	151	125	104	80	67
High pressure H [bar]	414	500	500	500	500	500	500
Max. flow rate							
Low pressure IN [l/min]	8	8	8	8	8	8	8
High pressure H*) approx. [l/min]	1.5	1.5	0.8	0.6	0.5	0.4	0.2
Weight approx. [kg]	0.75	0.75	0.75	0.75	0.75	0.75	0.75

Part no. 8755120 8755128 8755132 8755140 8755148 8755162 8755175

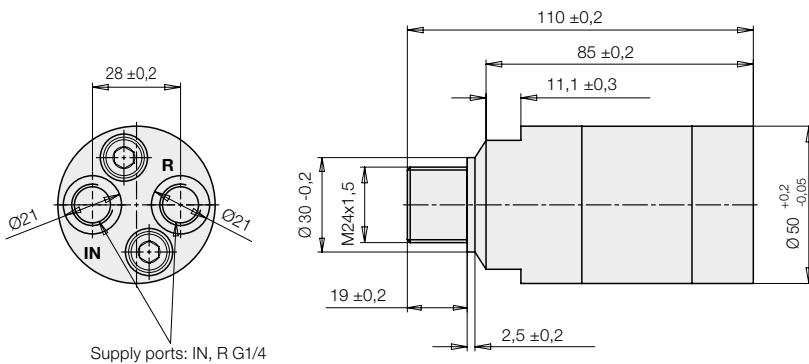
Mounting bracket

usable for both sizes

Part no. 35381035

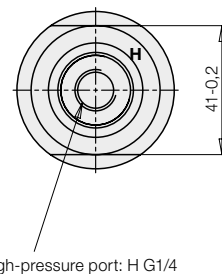


Size 2



Hexagon nut M24 x 1.5 -DIN 936

Part no. 3302104



Intensification ratio	1.5	2	2.8	3.2	4	5	6.6
Max. operating pressure							
Low pressure IN [bar]	207	207	178	156	125	100	75
High pressure H [bar]	311	414	500	500	500	500	500
Max. flow rate							
Low pressure IN [l/min]	8	8	8	15	14	14	13
High pressure H*) approx. [l/min]	2.6	2.4	1.4	1.6	1.3	1	0.4
Weight approx. [kg]	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Part no. 8755015 8755020 8755028 8755032 8755040 8755050 8755066

Example

Intensifier 8755040

Low pressure max. 125 bar
Flow rate max. 14 l/min
High pressure max. 500 bar
Flow rate approx. 1.3 l/min
(at 0.6 x 500 bar = 300 bar counter pressure)

*) Flow rate at output H with a counter pressure of 60 % of the max. operating pressure. With increasing counter pressure the flow rate tends to zero (see page 1).

Manifold-mounting version Intensification ratio 1.5 to 6.6

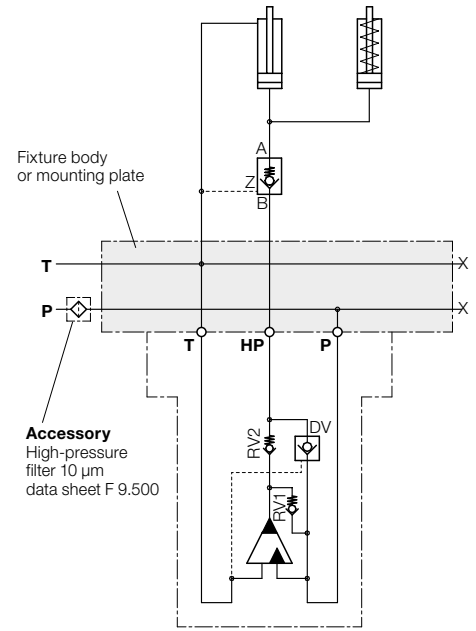


Application

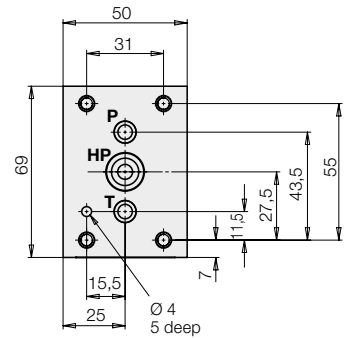
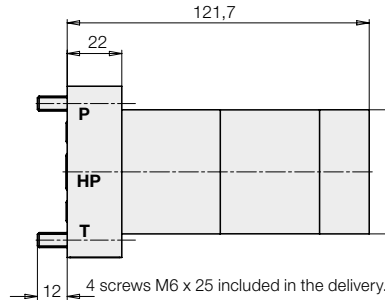
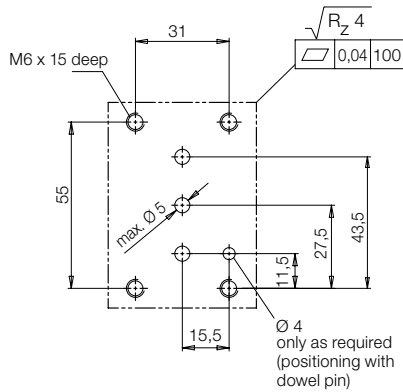
Intensifiers for manifold mounting allow mounting without pipes on special mounting plates or directly on the fixture body provided with drilled channels and a ground manifold-mounting surface.

Important notes

A pressure filter has to be provided in the P line to the intensifier (see hydraulic circuit diagram page 1).
The high-pressure area must be well ventilated to avoid unnecessary prolongation of the clamping time.



Connecting scheme

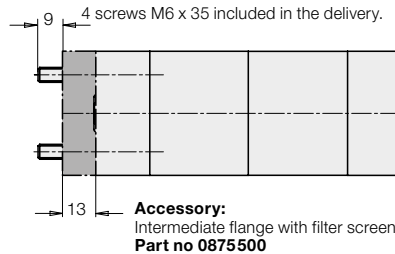


Accessory

Intermediate flange with filter screen

The installed screen disks have a hole Ø of 0.63 m. They are designed to protect the pressure intensifier from larger swarf that has entered the system during pipe assembly or coupling and uncoupling.

The specified pressure filter with filter fineness of 10 µm should be used on the power unit.



Intensification ratio		1.5	2	2.8	3.2	4	5	6.6
Max. operating pressure								
Low pressure IN	[bar]	207	207	178	156	125	100	75
High pressure H	[bar]	311	414	500	500	500	500	500
Max. flow rate								
Low pressure IN	[l/min]	8	12	13	15	14	14	13
High pressure H*) approx.	[l/min]	2.6	2.4	1.4	1.6	1.3	1	0.4
Weight approx.	[kg]	1.85	1.85	1.85	1.85	1.85	1.85	1.85
Part no.		8755615	8755620	8755628	8755632	8755640	8755650	8755666

*) Flow rate at output HP with a counter pressure of 60 % of the max. operating pressure.
With increasing counter pressure the flow rate tends to zero (see page 1).

Example

Intensifier 8755640

Low pressure max. 125 bar
Flow rate max. 14 l/min
High pressure max. 500 bar
Flow rate approx. 1.3 l/min
(at 0.6 x 500 bar = 300 bar counter pressure)

Double-acting function Intensification ratio 1.5 to 5



Application

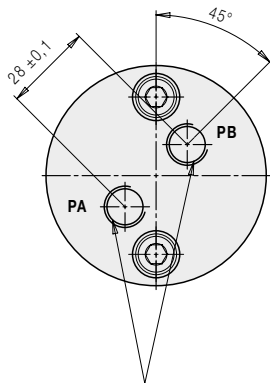
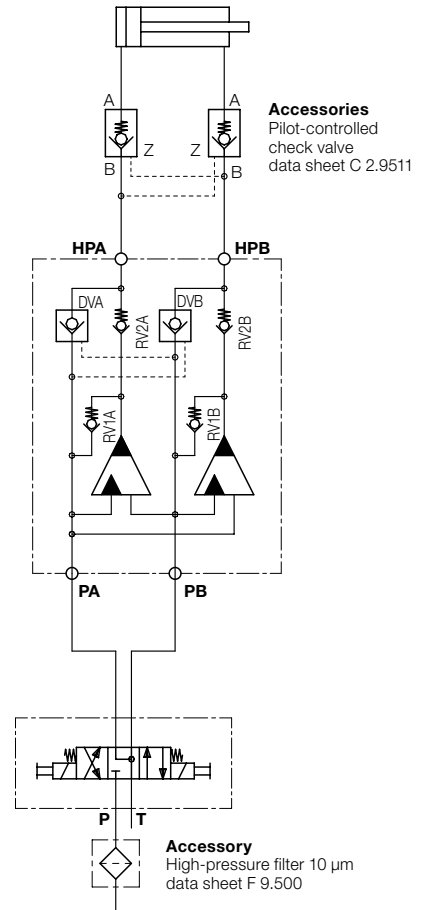
With these intensifiers, double-acting hydraulic cylinders can be supplied with high pressure for extension as well as retraction.

The separate operation of two single-acting cylinders is only possible, if they extend and retract alternately (see hydraulic circuit diagram).

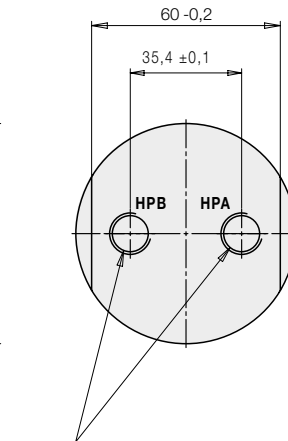
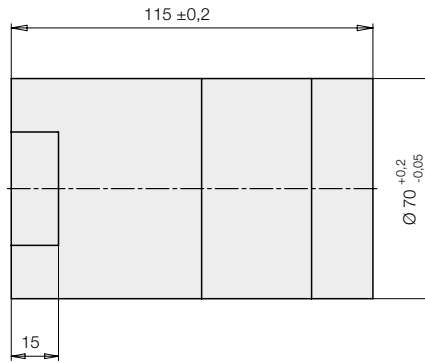
Important notes

The simultaneous pressurisation of both ports is not admissible. While one side is pressurised, the other side must be depressurised.

If constant pressure has to be maintained at the high-pressure ports, independently of the input pressure, one or two additional pilot-operated check valves have to be installed (see hydraulic circuit diagram).



Supply ports: PA, PB G1/4



High-pressure port: HPB, HPA G1/4

Intensification ratio		1.5	2	3.2	4	5
Max. operating pressure						
Low pressure PA,PB	[bar]	207	207	155	125	100
High pressure HPA,HPB	[bar]	311	414	500	500	500
Max. flow rate						
Low pressure PA,PB	[l/min]	8	12	15	14	14
High pressure HPA,HPB*) approx.	[l/min]	2.6	2.4	1.6	1.3	1
Weight approx.	[kg]	3.2	3.2	3.2	3.2	3.2
Part no.		8755515	8755520	8755532	8755540	8755550

Example

Intensifier 8755 540

Low pressure max. 125 bar
Flow rate max. 14 l/min
High pressure max. 500 bar
Flow rate approx. 1.3 l/min
(at 0.6 x 500 bar = 300 bar counter pressure)

*) Flow rate at output HPA or HPB with a counter pressure of 60 % of the max. operating pressure.
With increasing counter pressure the flow rate tends to zero (see page 1).