Scanwill
Fluid Power ApS

The **MP-Series** of Hydraulic Pressure Intensifiers

- Hydraulic Workholding on Machine Tools
- Static and Impulse Testing Equipment
- Hydraulic Power Packs
- Stone Chrushing Machines
- Subsea R.O.V.'s
- Hydraulic Construction Tools
- Press Applications
- Demolition Tools
- Pressure Die Casting Machines
- Quick Die Changing Equipment

The **Function** of the MP-Series

The Function

The MP-Series of hydraulic pressure intensifiers are reciprocating, and will automatically increase a supplied pressure to a higher end pressure.

Fig. 1 shows the basic principle of the intensifiers, consisting of a piston arrangement and a Piston Control Valve, PCV. The position of the pistons will at the end of every stroke prompt a signal S to the PCV, which makes this change position, ensuring the pistons are moving in the opposite direction. This cycle will continue until the end pressure has been reached. At this point the pistons stop, and will now only move to maintain the end pressure.

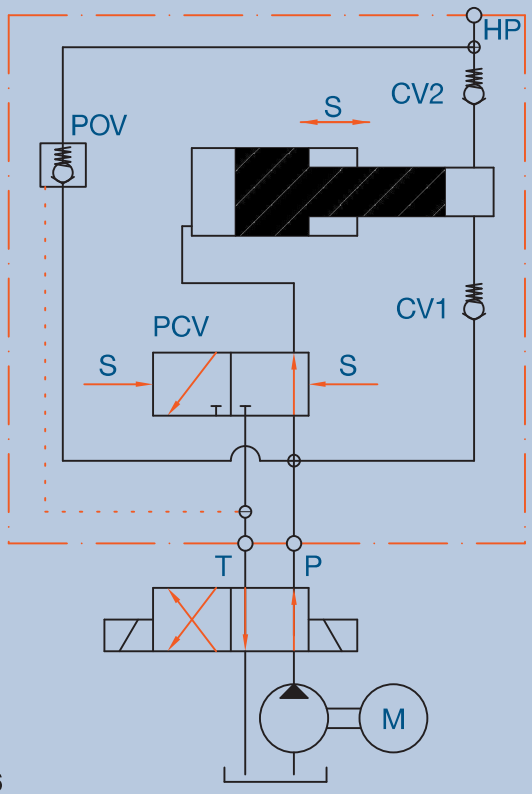


Fig. 1

General Data

Material:	Cast Iron and steel (also available in stainless steel)
Surface coating:	Chromit blue finish
Fluids:	Recognised hydraulic fluids and water glycol (water and other fluids are possible)
Filtration:	10 µ nominal, maximum 19/16 according to ISO 4406

The Cycle

When a hydraulic fluid is supplied to the P-connection of the intensifier and the T-connection is connected to tank, the oil will be directed through the check valves CV1 and CV2 to the high pressure connection HP. If the internal pilot operated check valve POV is incorporated the oil will go straight to the HP connection. In this situation all the flow supplied goes to the high pressure side ensuring a fast filling of the system.

When pump pressure has been reached, the intensifier pistons will deliver the flow to the high pressure side, and continue to do so until the required end pressure has been reached. The pistons then stop, and will only move to make up for a pressure loss due to leakage or consumption. A general flow-pressure curve for the intensifier is shown in Fig.2.

For evacuating the high pressure side the internal POV is used. This valve is opened by directing the supplied pressure to the T-port and connecting the P-port to tank. This allows the oil from the high pressure side to flow directly back to tank.

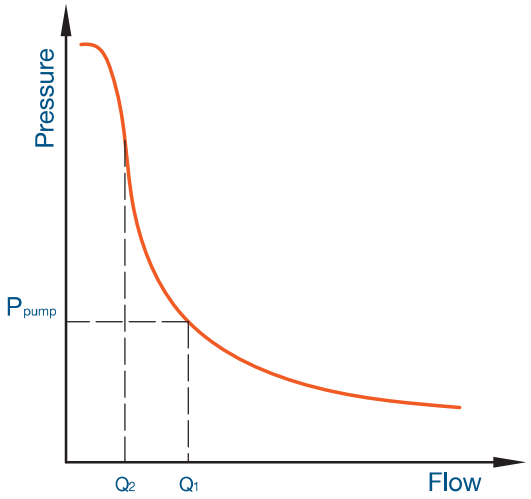
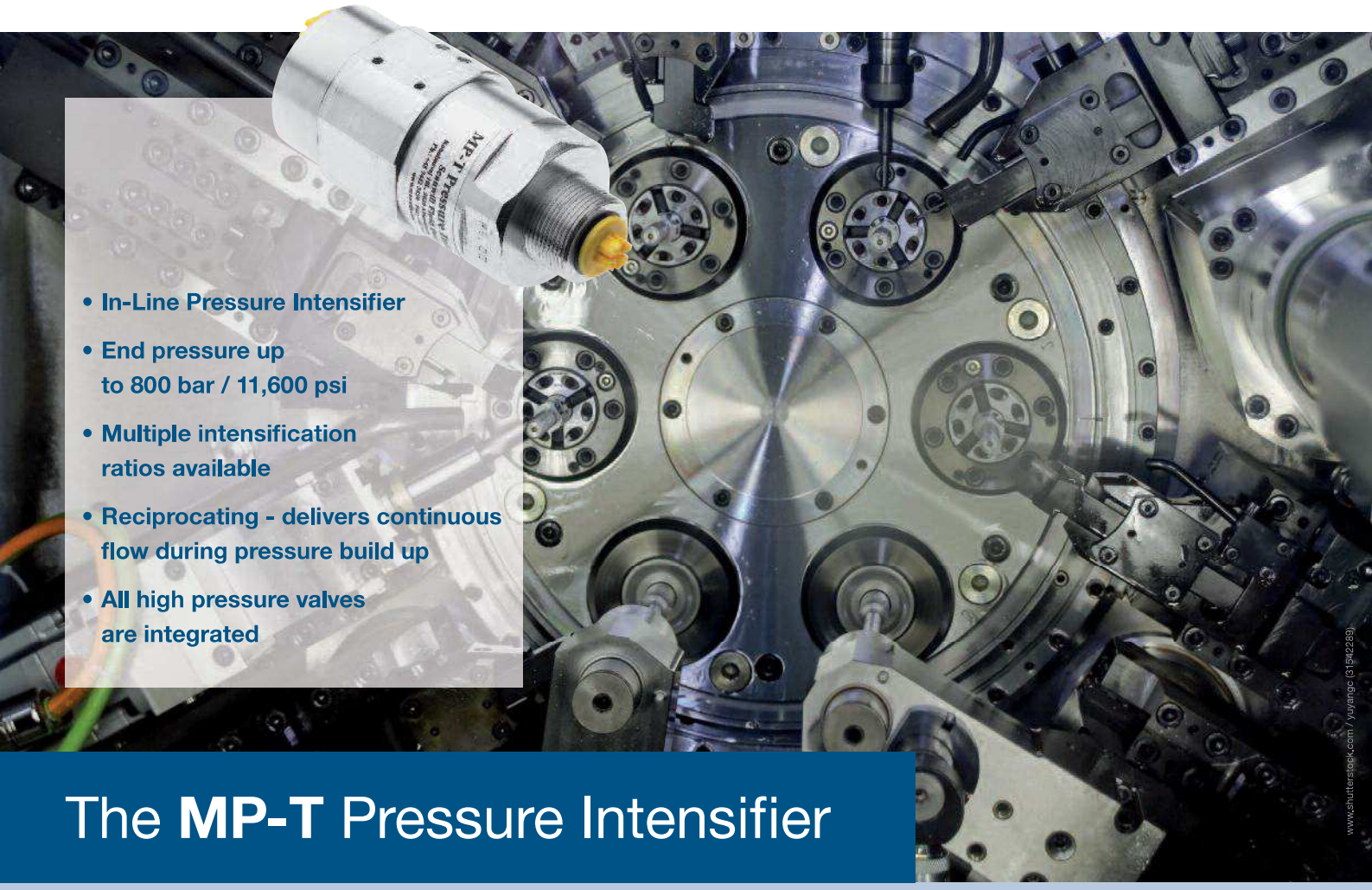


Fig. 2

The **Cycle** and **Overview**

Intensifier Model	Mounting	Max. Inlet flow (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output pressure (bar / psi)	Details
MP-T	in-line	15 / 4.0	200 / 3,000	800 / 11,600	page 4
MP-C	cetop /NG6	15 / 4.0	200 / 3,000	500 / 7,250	page 5
MP-F	flange on	15 / 4.0	200 / 3,000	700 / 10,000	page 6
MP-M	in-line	35 / 9.3	200 / 3,000	800 / 11,600	page 7
MP-L	in-line	80 / 21.0	200 / 3,000	800 / 11,600	page 8
MP-2000	in-line	12 / 3.0	200 / 3,000	3,000 / 43,500	page 9
MPL-1400	in-line	25 / 6.5	200 / 3,000	2,400 / 20,300	page 10
MPL-2000	in-line	25 / 6.5	200 / 3,000	2,800 / 40,600	page 10
MPL-4000	in-line	25 / 6.5	200 / 3,000	4,000 / 60,000	page 10

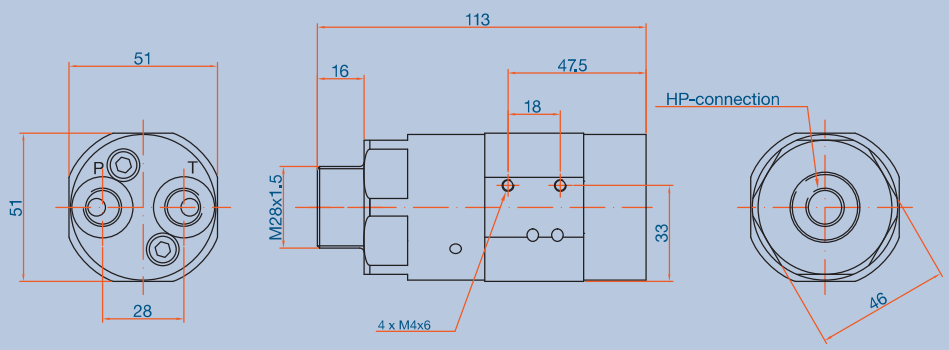


- **In-Line Pressure Intensifier**
- **End pressure up to 800 bar / 11,600 psi**
- **Multiple intensification ratios available**
- **Reciprocating - delivers continuous flow during pressure build up**
- **All high pressure valves are integrated**

The **MP-T** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
1.5	8.0 / 2.1	0.8 / 0.21	0.3 / 0.08	200 / 2,900	300 / 4,350
2.0	8.0 / 2.1	0.8 / 0.21	0.2 / 0.08	200 / 2,900	400 / 5,800
3.4	15.0 / 4.0	2.2 / 0.58	0.5 / 0.13	200 / 2,900	680 / 9,860
4.0	14.0 / 3.7	1.8 / 0.47	0.4 / 0.10	200 / 2,900	800 / 11,600
5.0	14.0 / 3.7	1.4 / 0.37	0.3 / 0.08	160 / 2,320	800 / 11,600
7.0	13.0 / 3.4	1.1 / 0.29	0.2 / 0.05	114 / 1,653	800 / 11,600
9.0	13.0 / 3.4	0.7 / 0.19	0.1 / 0.03	89 / 1,290	800 / 11,600

Weight: 1.3 kg



Dimensions in mm

Also available with M24x1.5 thread.

Ordering Code *

MP-T - - -

POV	
No	S
Yes	P

	Supply side	High press. side
G	G1/4“	G1/4
U	7/16-20 UNF	9/16-20 UNF

Intensification						
1.5	2.0	3.4	4.0	5.0	7.0	9.0

Example

MP-T with POV, intensifi cation 5.0 and BSP connections: MP-T-P-5.0-G

* First decide whether the pilot operated check valve, POV, is required, then decide the intensification ratio (i), and finally decide the connections (BSP or UNF).

- Cetop DO3 / NG6 Pressure Intensifier
- End pressure up to 500 bar / 7,000 psi
- Multiple intensification ratios available
- Reciprocating - delivers continuous flow during pressure build up
- All high pressure valves are integrated including a p.o. check valve

The **MP-C** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
1.5	8.0 / 2.1	0.8 / 0.21	0.3 / 0.08	200 / 2,900	300 / 4,350
2.0	8.0 / 2.1	0.8 / 0.21	0.2 / 0.08	200 / 2,900	400 / 5,800
3.4	15.0 / 4.0	2.2 / 0.58	0.5 / 0.13	147 / 2,132	500 / 7,250
4.0	14.0 / 3.7	1.8 / 0.47	0.4 / 0.10	125 / 1,812	500 / 7,250
5.0	14.0 / 3.7	1.4 / 0.37	0.3 / 0.08	100 / 1,450	500 / 7,250
7.0	13.0 / 3.4	1.1 / 0.29	0.2 / 0.05	71 / 1,036	500 / 7,250
9.0	13.0 / 3.4	0.7 / 0.19	0.1 / 0.03	56 / 806	500 / 7,250

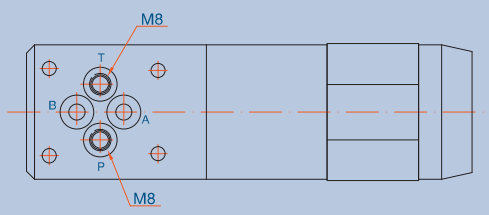
Weight : 2.7 kg

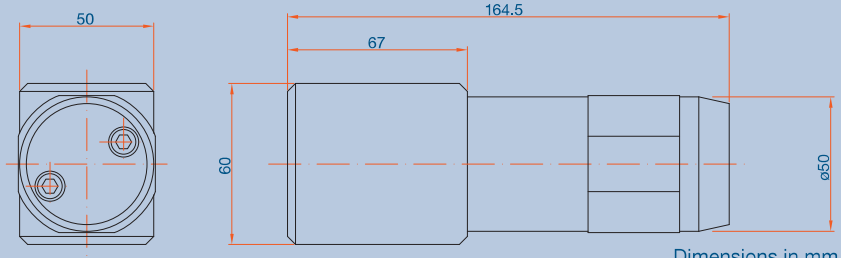
Ordering code

Intensification						
1.5	2.0	3.4	4.0	5.0	7.0	9.0

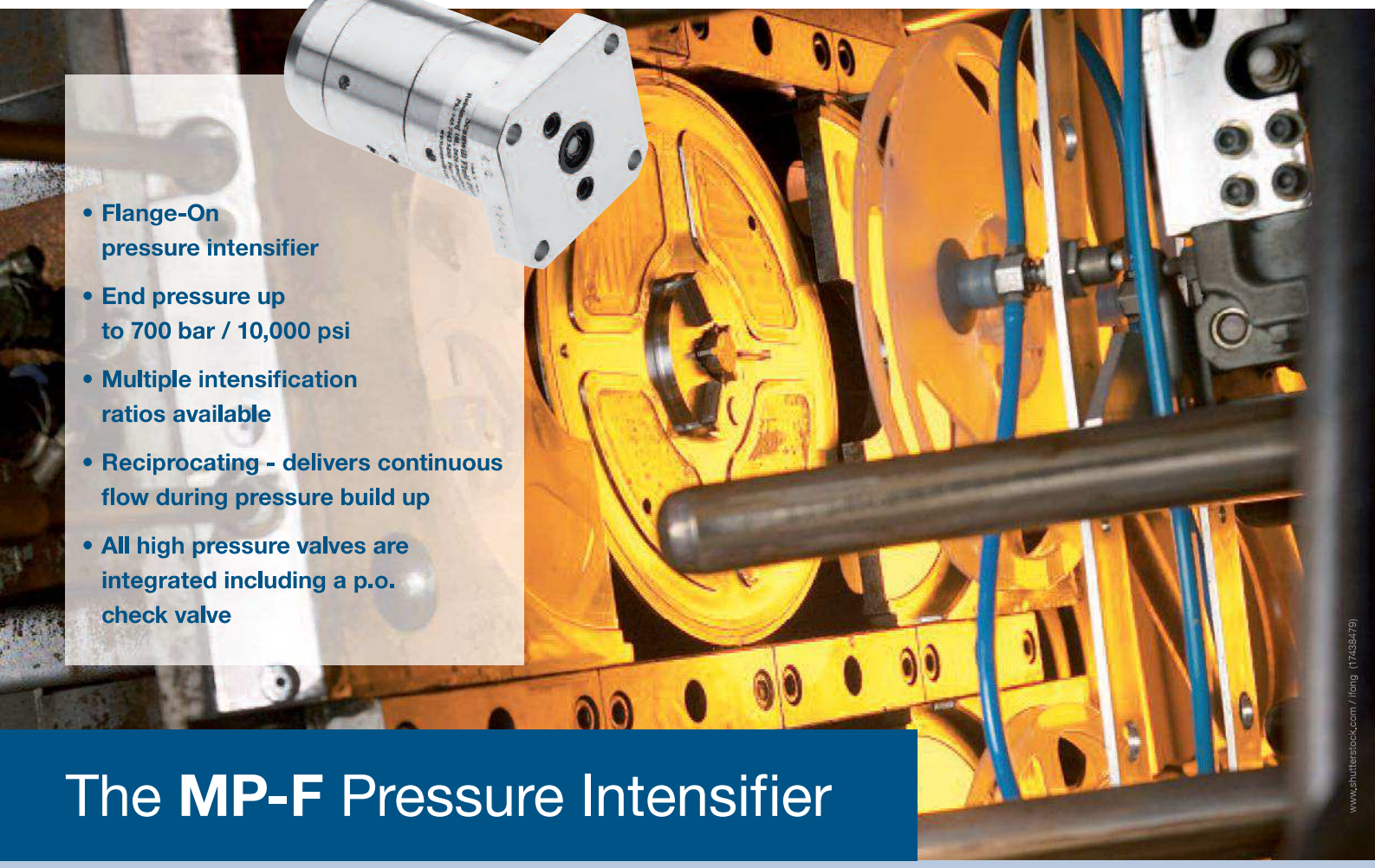
Example

MP-C with intensification 4.0: MP-C-4.0





Dimensions in mm

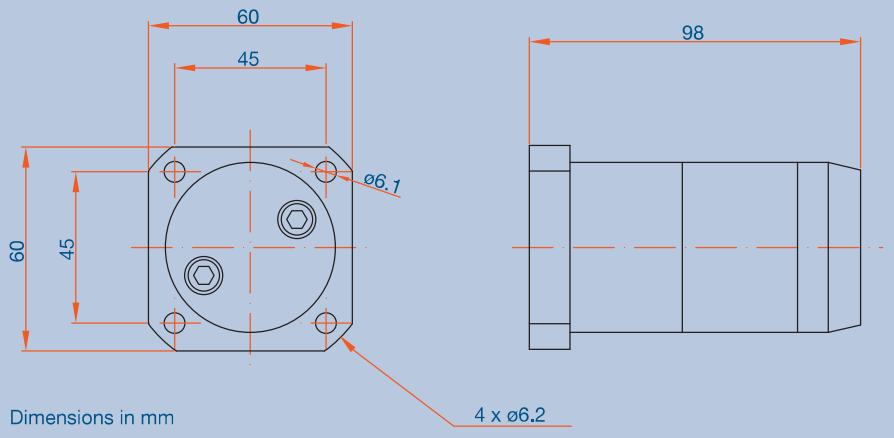


- **Flange-On pressure intensifier**
- **End pressure up to 700 bar / 10,000 psi**
- **Multiple intensification ratios available**
- **Reciprocating - delivers continuous flow during pressure build up**
- **All high pressure valves are integrated including a p.o. check valve**

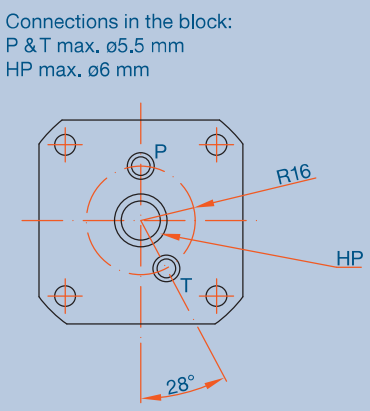
The **MP-F** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
2.0	8.0 / 2.1	0.8 / 0.21	0.2 / 0.08	200 / 2,900	400 / 5,800
3.4	15.0 / 4.0	2.2 / 0.58	0.5 / 0.13	200 / 2,900	680 / 9,860
4.0	14.0 / 3.7	1.8 / 0.47	0.4 / 0.10	175 / 2,538	700 / 10,150
5.0	14.0 / 3.7	1.4 / 0.37	0.3 / 0.08	140 / 2,030	700 / 10,150
7.0	13.0 / 3.4	1.1 / 0.29	0.2 / 0.05	100 / 1,450	700 / 10,150

Weight : 1.4 kg



Dimensions in mm

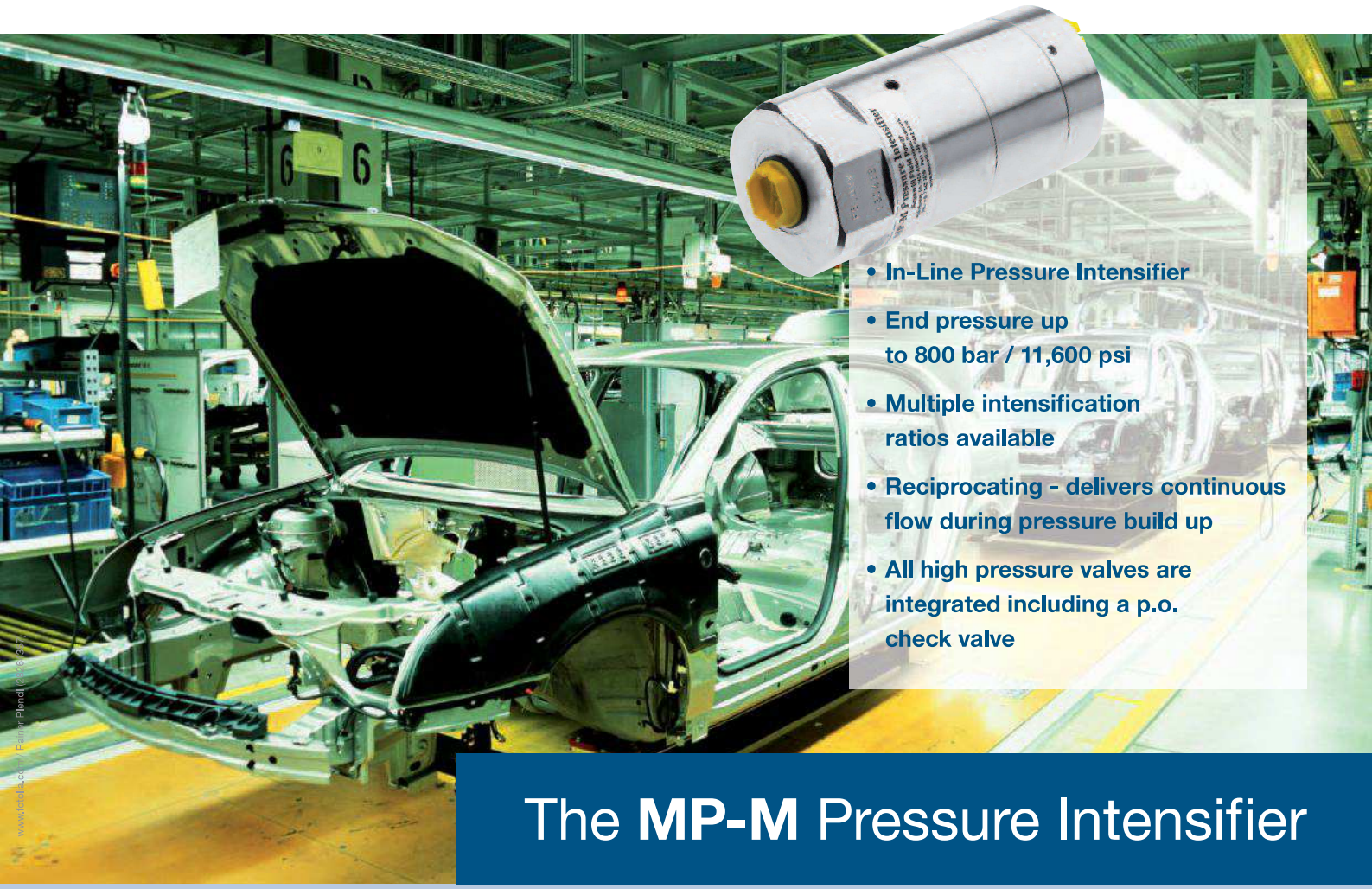


Ordering code

Intensification				
2.0	3.4	4.0	5.0	7.0

Example

MP-F with intensification 3.4: MP-F-3.4

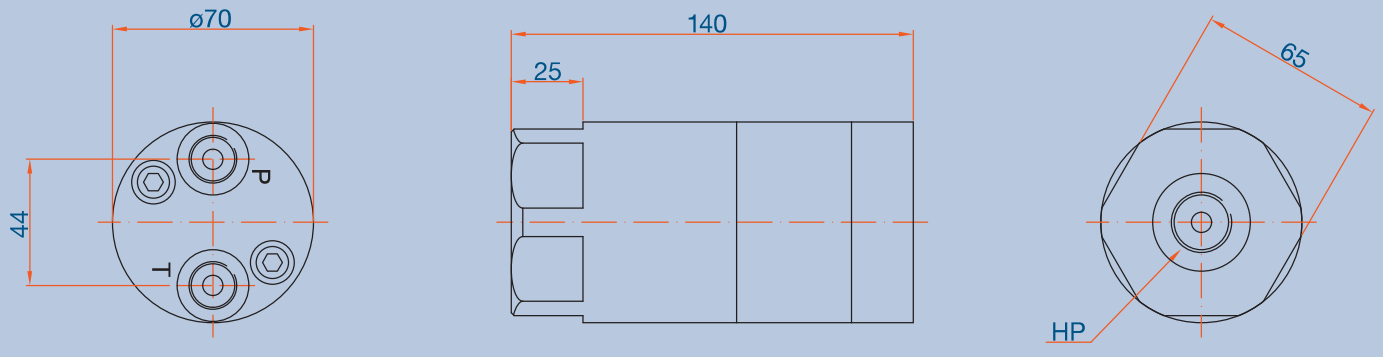


- In-Line Pressure Intensifier
- End pressure up to 800 bar / 11,600 psi
- Multiple intensification ratios available
- Reciprocating - delivers continuous flow during pressure build up
- All high pressure valves are integrated including a p.o. check valve

The **MP-M** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
1.8	25.0 / 6.6	5.0 / 1.32	1.5 / 0.39	200 / 2,900	360 / 5,220
3.4	35.0 / 9.3	5.0 / 1.32	2.8 / 0.74	200 / 2,900	680 / 9,860
4.0	35.0 / 9.3	4.0 / 1.06	2.4 / 0.63	200 / 2,900	800 / 11,600
5.0	35.0 / 9.3	3.5 / 0.93	1.9 / 0.50	160 / 2,030	800 / 11,600
7.0	35.0 / 9.3	3.0 / 0.80	1.3 / 0.34	114 / 1,450	800 / 11,600

Weight : 3.5 kg



P & T: G3/8" (3/8" BSP)
HP: G1/2" (1/2" BSP)

Dimensions in mm

Ordering code

Intensification				
1.8	3.4	4.0	5.0	7.0

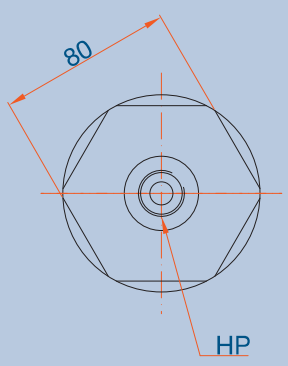
Example
MP-M with intensification 7.0: MP-M-7.0

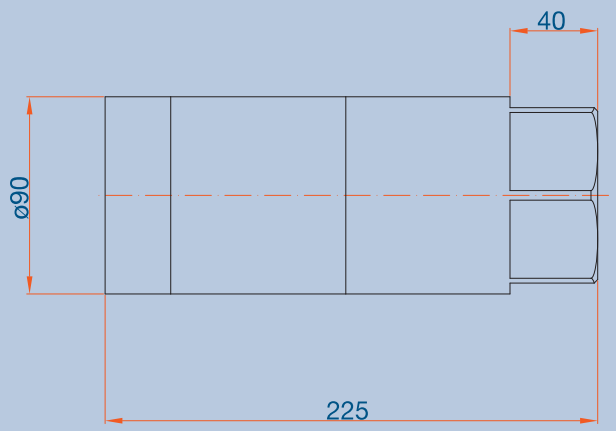
- In-Line Pressure Intensifier
- End pressure up to 800 bar / 11,600 psi
- Multiple intensification ratios available
- Reciprocating - delivers continuous flow during pressure build up
- All high pressure valves are integrated including a p.o. check valve

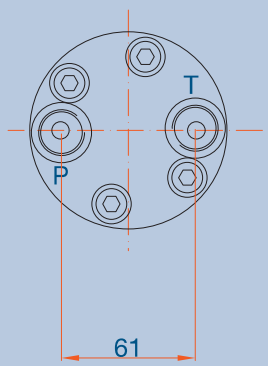
The **MP-L** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
2.0	50.0 / 13.22	5.0 / 1.32	2.0 / 0.52	200 / 2,900	400 / 5,800
3.4	80.0 / 21.16	17.8 / 4.71	13.0 / 3.44	200 / 2,900	680 / 9,860
4.0	80.0 / 21.16	14.7 / 3.89	11.0 / 2.91	200 / 2,900	800 / 11,600
5.0	80.0 / 21.16	11.6 / 3.06	8.0 / 2.33	160 / 2,320	800 / 11,600
7.0	80.0 / 21.16	8.4 / 2.22	6.3 / 1.67	114 / 1,653	800 / 11,600

Weight : 9.0 kg







Dimensions in mm

Connections: G1/2" (1/2"BSP)

Ordering code

Intensification				
2.0	3.4	4.0	5.0	7.0

Example

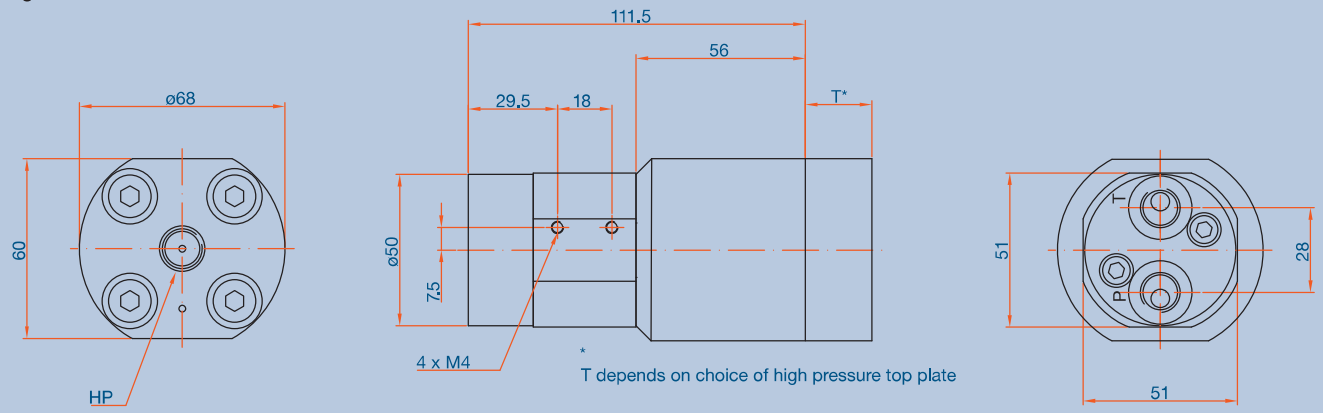
MP-L with intensification 4.0: MP-L-4.0

- **In-Line Pressure Intensifier**
- **End pressure up to 2,000 bar / 29,000 psi (higher pressures possible)**
- **Multiple intensification ratios available**
- **Reciprocating - delivers continuous flow during pressure build up**
- **All high pressure valves are integrated**

The **MP-2000** Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
7.0	13.0 / 3.40	1.1 / 0.29	0.2 / 0.05	200 / 2,900	1,400 / 20,300
10.0	12.0 / 3.17	0.7 / 0.18	0.2 / 0.05	200 / 2,900	2,000 / 29,000
13.0	10.0 / 2.64	0.5 / 0.13	0.1 / 0.02	154 / 2,233	2,000 / 29,000
16.0	10.0 / 2.64	0.4 / 0.10	0.1 / 0.02	125 / 1,812	2,000 / 29,000

Weight : 2.7 kg



Dimensions in mm

Ordering code

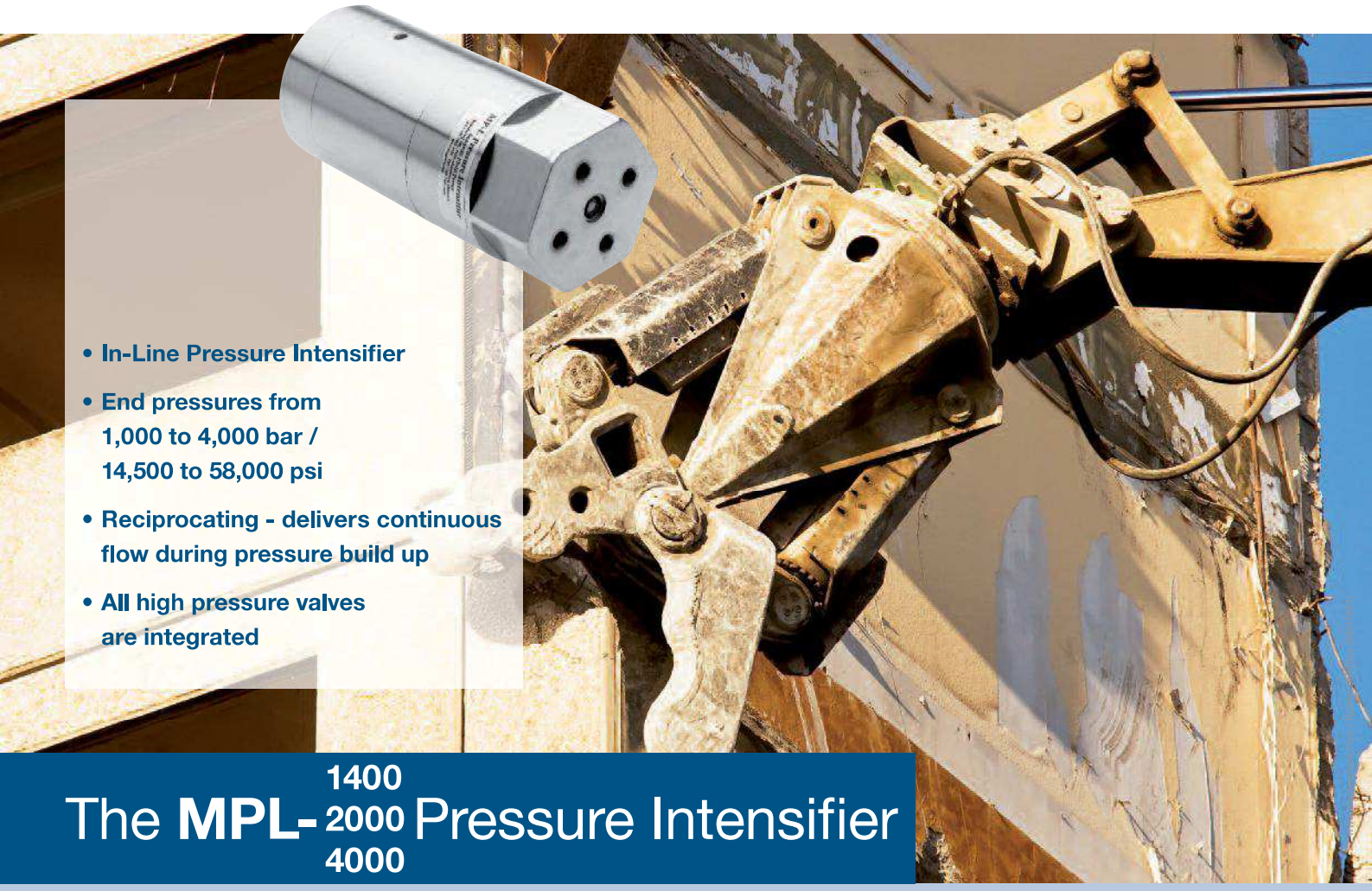
MP-2000 - - -

POV	
Yes	S
No	P

Intensification			
7.0	10.0	13.0	16.0

Example

MP-2000 with the POV integrated and intensification 10.0: MP-2000-P-10.0

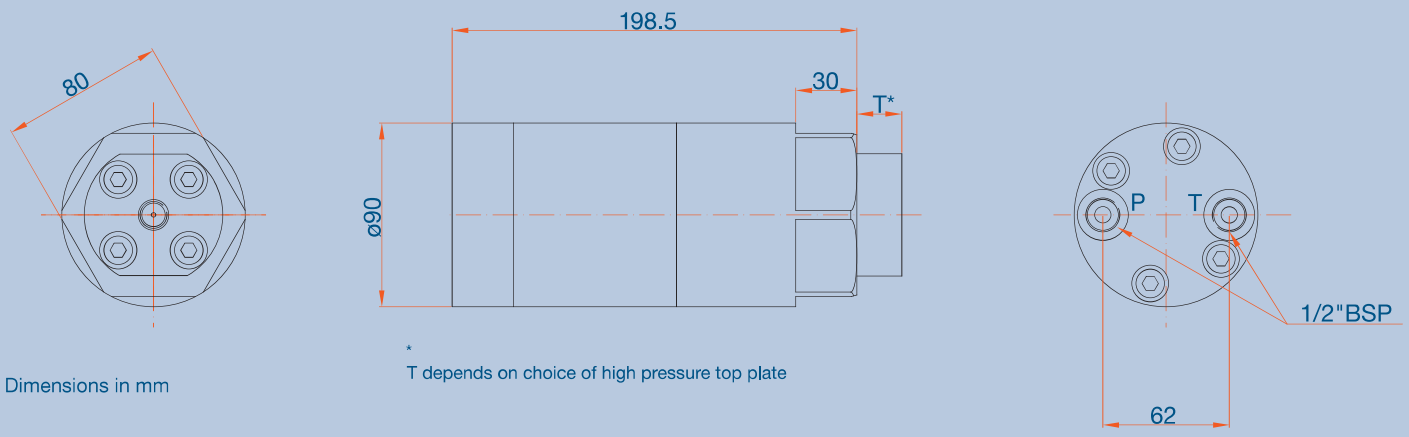


- In-Line Pressure Intensifier
- End pressures from 1,000 to 4,000 bar / 14,500 to 58,000 psi
- Reciprocating - delivers continuous flow during pressure build up
- All high pressure valves are integrated

The MPL-1400 2000 4000 Pressure Intensifier

Ratio (i)	Max. Inlet flow (LPM / GPM)	Outlet Flow Q1 (LPM / GPM)	Outlet Flow Q2 (LPM / GPM)	Max. Supply Pressure (bar / psi)	Max. Output Pressure (bar / psi)
MPL-1400:					
7.0:1	50.0 / 13.1	8.0 / 2.1	5.9 / 1.5	200 / 3,000	1,400 / 20,300
MPL-2000:					
14.0:1	30.0 / 7.8	5.0 / 1.3	2.9 / 0.8	200 / 3,000	2,800 / 40,600
MPL-4000:					
20.0:1	30.0 / 7.8	4.0 / 1.0	2.0 / 0.5	200 / 3,000	4,000 / 58,000

Weight : 9.0 kg



Dimensions in mm

* T depends on choice of high pressure top plate

Specials

The MP-T series of hydraulic pressure intensifiers is ideal for making specials, to meet the market demands. Below are two examples on specials made for customers.

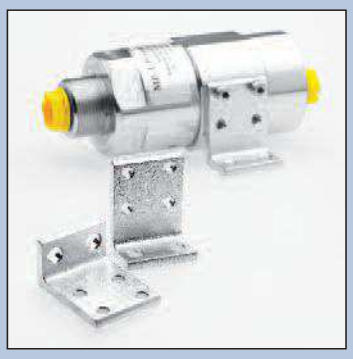
The MP-T-R pressure intensifier
is based on the MP-T series, but modified to be inserted in a rotating application, where it rotates at 1,500 rpm, while intensifying a supplied pressure of 30 Bar to 210 Bar.

The MPM-F pressure intensifier
is a made to meet the space requirements of a customer for hydraulic tongs in the off shore industry

Specials and Accessories

Accessories

M-Kit
The M-Kit consists of two mounting brackets, used to fasten the intensifier to a base plate.



M-Nut
The M-Nut is a M28 x 1.5 Nut used for mounting the MP-T pressure intensifier.

Connection Kit
Connection Kits are available for mounting the intensifiers directly to a hydraulic block, The P and T connection is then supplied directly through the Connection Kit, eliminating the need for tubing.

Cetop DO3 / NG6 top plate
The Cetop DO3 / NG6 top plate is for closing the top of the MP-C pressure intensifier.

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