ScanWill®

More Pressure. More Power

Scanwill Fluid Power ApS – facts & figures

- Founded and localized in Denmark in 2001 by Jesper Will Iversen (owner)
- Production and office facilities located in Albertslund – Copenhagen
- Export >95% of turnover. Exclusive Sales Partners in more than 40 countries
- Germany is ScanWill's largest OEM market >35% of turnover
- Today four employees in Scanwill Fluid Power ApS
- Manufacturing of all parts is outsourced by sub suppliers in Denmark & Germany
- Quality management: ISO 9001 certificated

The ScanWill Intensifier Solution

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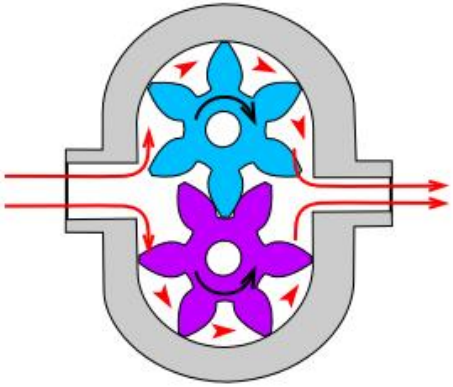
Do you know what a ScanWill intensifier does?

Hydraulic Pump



Inlet pressure range

15 - 200 bar

ScanWill intensifier

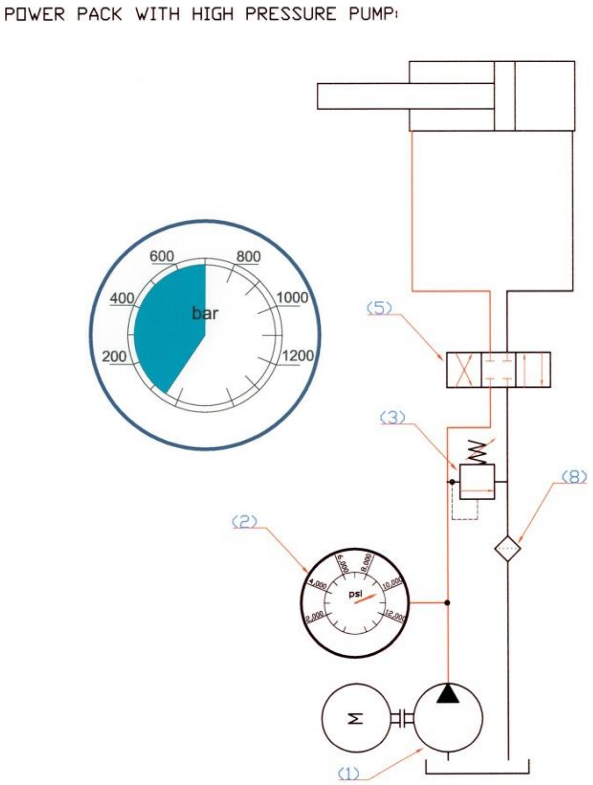
Output pressure range

20 – 4,000 bar

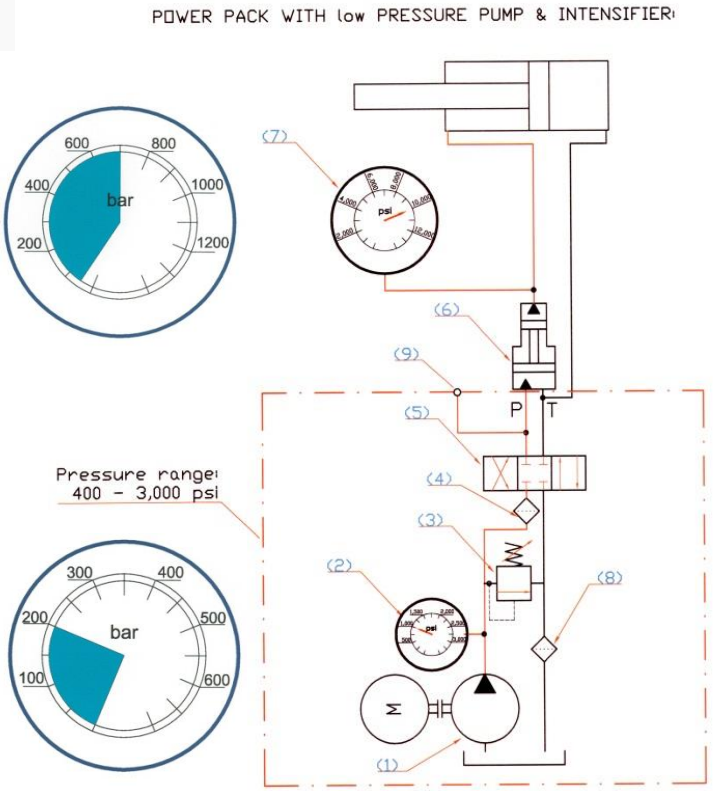
<u>The Scanwill intensifier increases a supplied pump pressure to a higher requested output pressure!</u>

How do we traditionally achieve a higher pressure?

Most Commonly Used Solution: A Standard High Pressure Pump



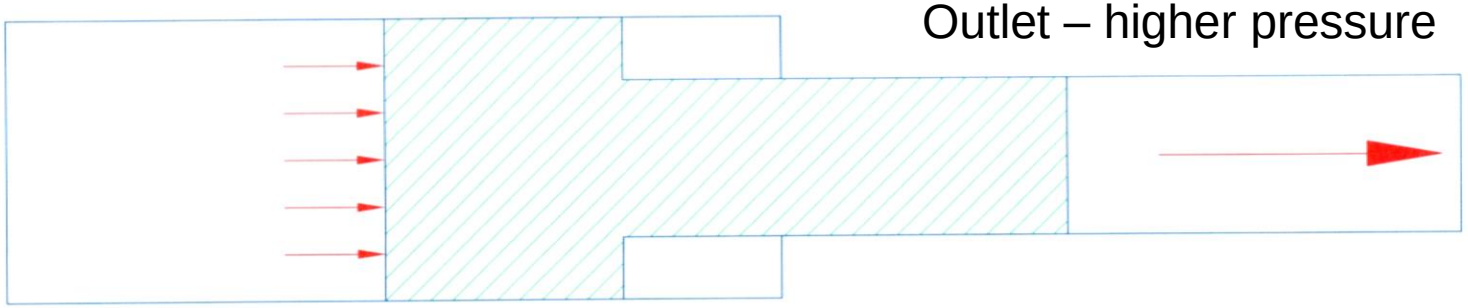
The Future <u>Energy Saving</u> Solution: Add A ScanWill Pressure Intensifier



The basic principle of a ScanWill intensifier

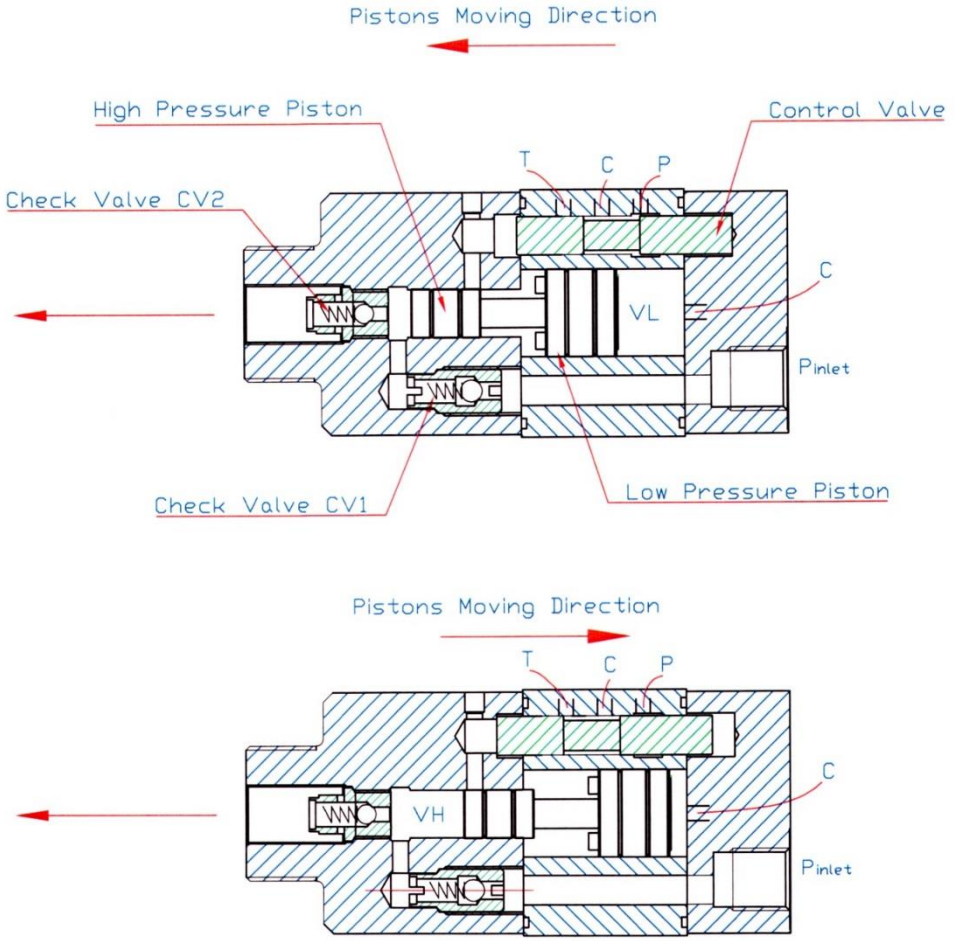
Inlet – low pressure

Outlet – higher pressure



The intensifier function as a small “piston pump” in the system and will constantly deliver flow until the output pressure has been reached.

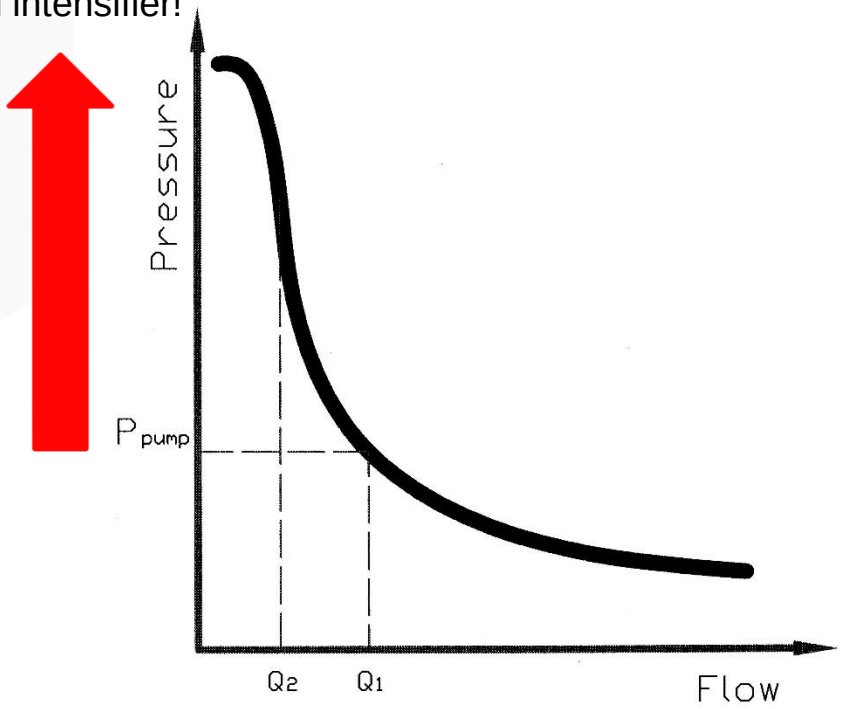
ScanWill added valves and made a compact design…



Piston speed up to 20 Hz.
Hydraulically controlled only!

The general flow-pressure curve

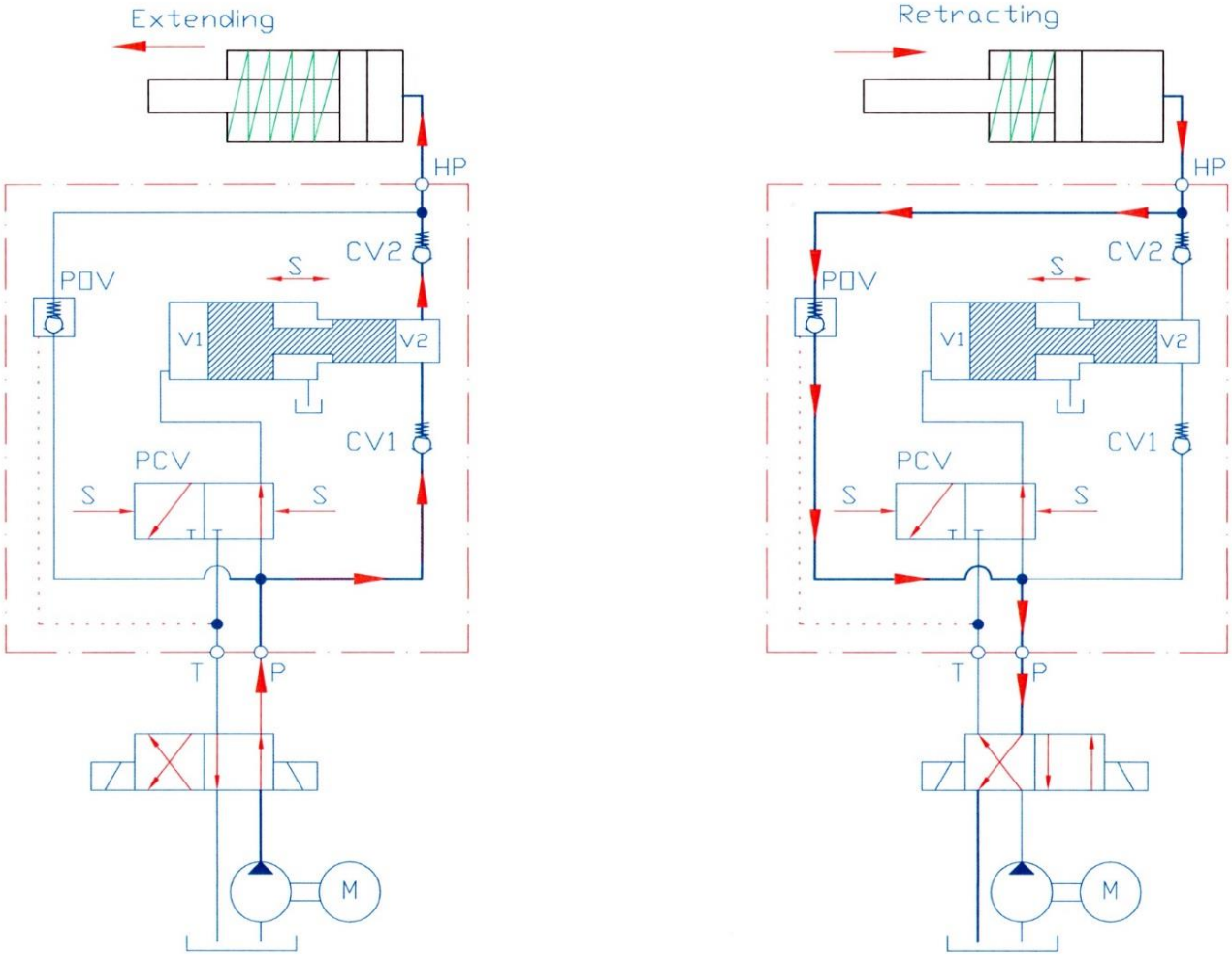
Add-on feature
from intensifier!



- **P_{pump}** = Pump pressure setting
- **Q1** = Flow change from pump flow to intensifier flow
- **Q2** = Calculated average output flow from ScanWill intensifier

Intensifier output pressure equals ratio multiplied by the differential pressure between P & T (P minus T)!

The extending & retracting cycle of ScanWill intensifiers



The ScanWill Hydraulic Intensifiers

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ScanWill intensifier product series

MP-S: In-Line mounting
P_{out} max.: 800 bar
Q_{in} max.: 8 LPM

MP-T: In-Line mounting
P_{out} max.: 800 bar
Q_{in} max.: 15 LPM

MP-M: In-Line mounting
P_{out} max.: 800 bar
Q_{in} max.: 35 LPM

MP-L: In-Line mounting
P_{out} max.: 800 bar
Q_{in} max.: 80 LPM

MP-F: Flange-On mounting
P_{out} max.: 700 bar
Q_{in} max.: 15 LPM

MP-C: CETOP/NG6 mounting
P_{out} max.: 500 bar
Q_{in} max.: 15 LPM

SPECIAL CUSTOM DESIGNS:

MP-2000: In-Line mounting
P_{out} max.: 3,000 bar
Q_{in} max.: 13 LPM

MPL-4000: In-Line mounting
P_{out} max.: 4,000 bar
Q_{in} max.: 30 LPM

Mounting and connection kits:

Mounting brackets for base plate

Nut M28 x 1.5 for fixation

Connection kit for hydraulic block mounting

ScanWill intensifier selecting parameters

What is the:

1) Requested higher output pressure - bar?

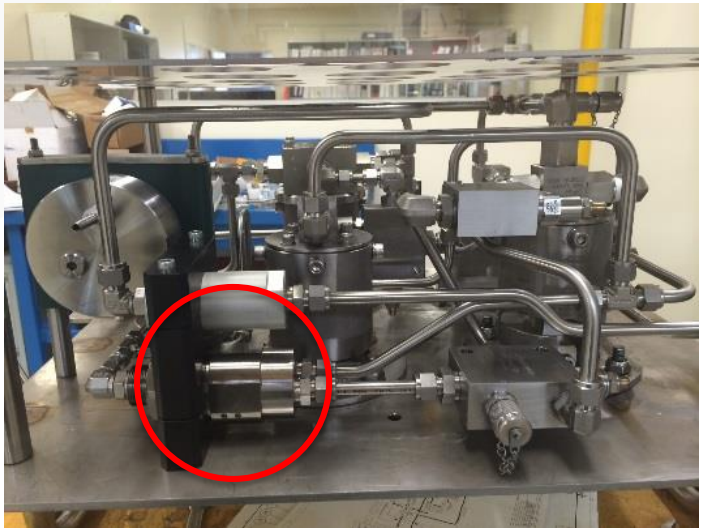
2) Inlet flow - lpm?

3) Inlet pressure bar? To select intensification ratio

4) Mounting options? Flange? NG6/Cetop? Pipe clamp? Brackets…

ScanWill intensifiers technical data

Material:	Cast iron (body) & steel (pistons & valves) Option: Stainless steel
Surface Coating:	Chromite Blue Finish
Minimum inlet flows:	
MP-S, MP-T, MP-C, MP-F, MP-2000:	2 LPM
MP-M:	7 LPM
MP-L, MPL-1400/2000/4000:	15 LPM
Minimum inlet pressure:	15 bar
Temperature Range:	-10 °C to 100 °C
Filtration requirement:	Minimum 10 micron nominal
Fluids:	Standard hydraulic oils Water glycol (min. 5% glycol) Water (stainless steel units only)
Functionality test:	Factory tests – before surface coating/after surface coating



F.A.Q. about ScanWill intensifiers

Is the intensifier a pump?

No!

Does the T-port need to be connected?

Yes, or it will not oscillate.

Can intensifiers operate on fluid ”X”?

If standard hydraulic components are used - then yes! However always ask if special sealing material is required (EPDM, Viton etc.). If it is aggressive fluids check with ScanWill.

Can intensifiers be used for reducing the pressure and/or flow?

No!

Will the intensifiers operate on gas?

No!

Can the intensifiers be traced?

Yes, they are all laser marked with a unique serial number.

ScanWill Technical & Service Support

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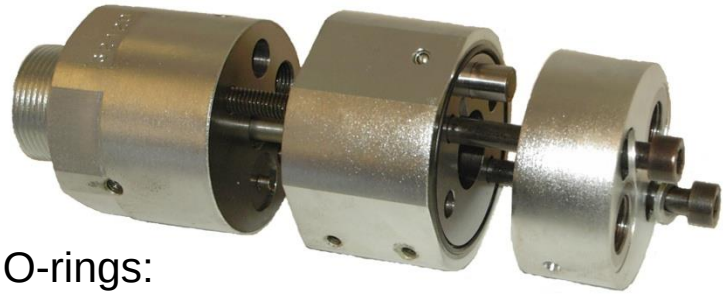
Troubleshooting of ScanWill intensifiers

Contamination in the fluid:	Check valves will not close & bores will be destroyed
Too high inlet pressure:	The two screws holding the body parts together will stretch and the O-rings will come out at the side. Also the BSP connections on the high pressure side must not receive more than 800 bar.
Too high inlet flow:	The unit will over speed and cavitations may occur. Also the check valves will be destroyed.
Too high return flow:	If a relatively large volume is pressurized, and the internal POV is activated, there can for a fraction of time be a very high flow passing back through the intensifier. This may destroy the internal check valves. (Max return flow = max inlet flow!)
Air in the oil:	All kinds of damages can then happen ex. the valves will be destroyed.

If a ScanWill intensifier needs service – what are your options:

Always contact ScanWill Fluid Power for advice and spare parts…

1. Separate the intensifier and clean it thoroughly. Then replace the internal check valves and o-rings
2. or return the intensifier to ScanWill Fluid Power for prompt service

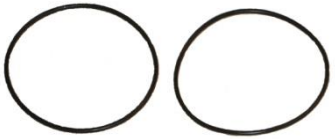


Spare parts:

Valves CV1 & POV:

Valve CV2:

O-rings:



ScanWill intensifiers in short…

Characteristics

- Higher pressure precisely where needed
- Higher pressure by low pressure power source
- Low pressure supply to intensifier
- Intensifiers are compact solutions
- Intensifier fitted directly to cylinder
- Built-in bypass valve and POV
- Just add ScanWill intensifier solution

Advantages

- Low operating pressure in the system
- Use existing installed power source
- Use standard tubing, hoses & valves
- Easy to accommodate where needed
- No need for extra tubing or special parts
- Full flow available at pump pressure
- Use existing equipment for the new task

Benefits

- Energy savings for the total system
- No need of expensive hp components
- Less cost for the total system & higher safety
- Cost savings by installation
- Cost & space savings by installation
- Fast operation until high pressure is reached
- Cost savings by installation

First-fit Applications For ScanWill Intensifiers

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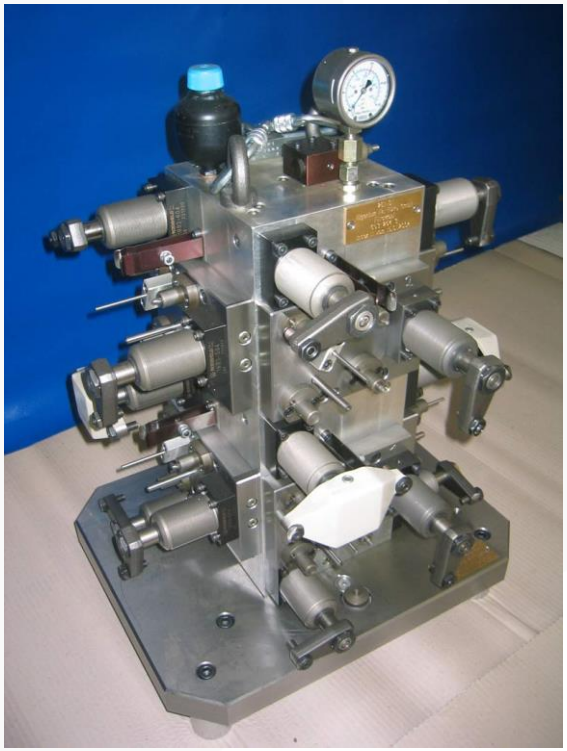
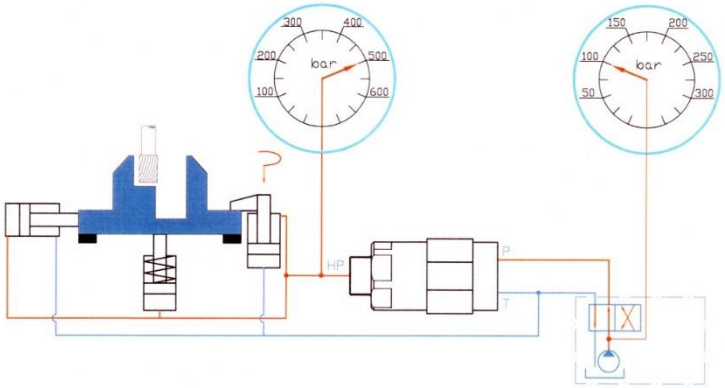
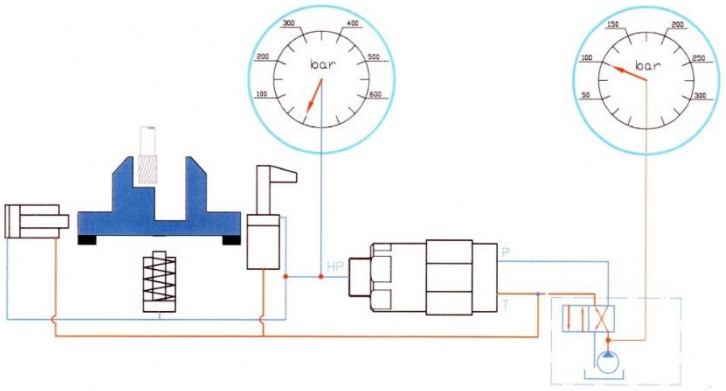
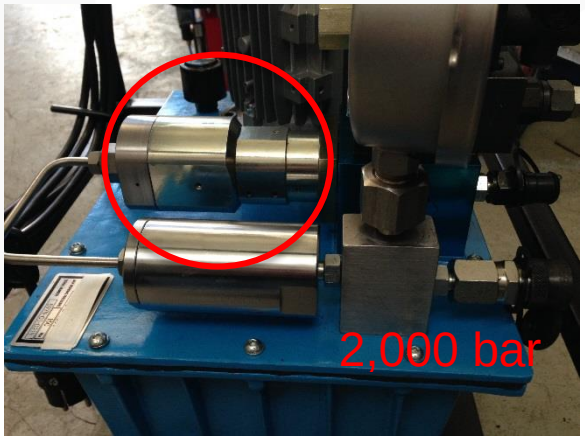
Workholding on machine tools







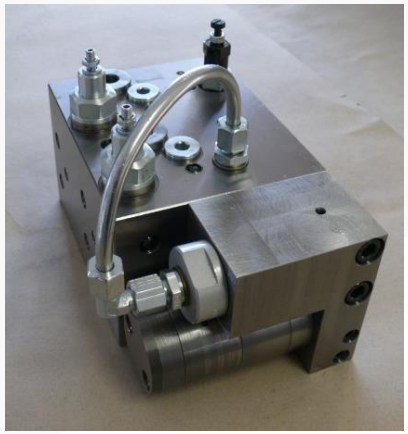
Mobile and stationary bespoke power packs



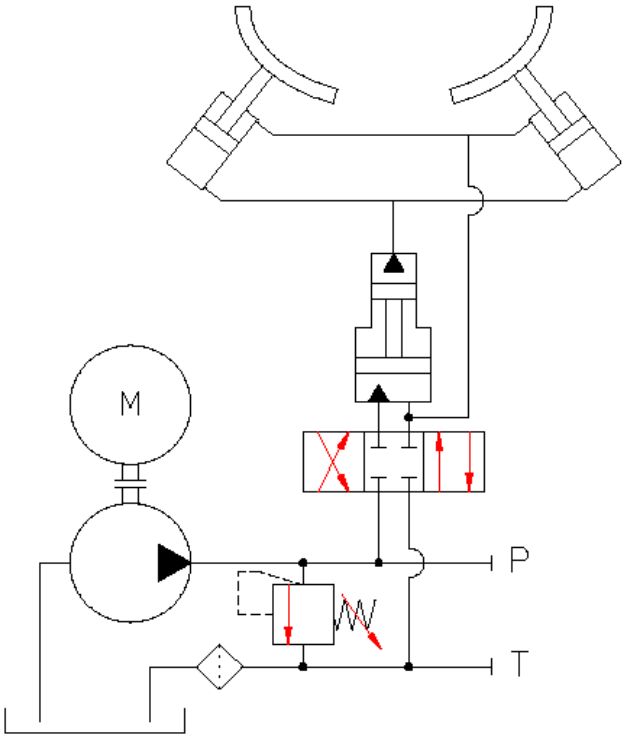
Power packs for bolt tensioning

Pressure range 800 - 3,000 bar

Hydraulic roughnecks – drill pipe clamping

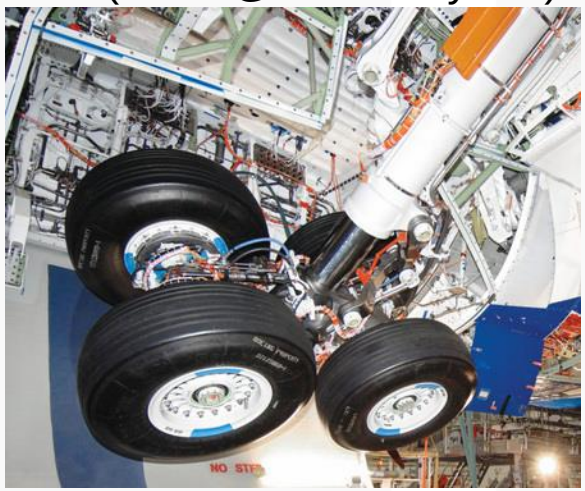


Ex. custom block solution

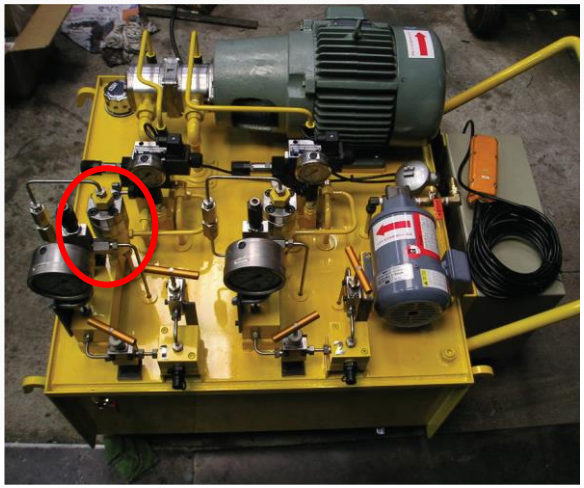


Hydraulic static & impulse testing…

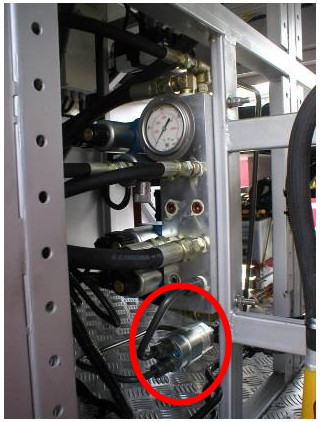
Landing gear testing…
(A380 @12 mio. cycles)



High pressure testing…

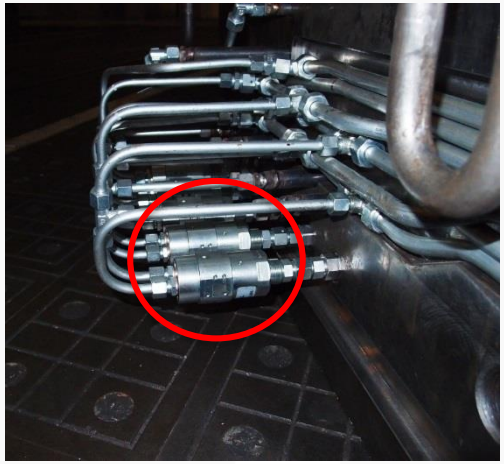


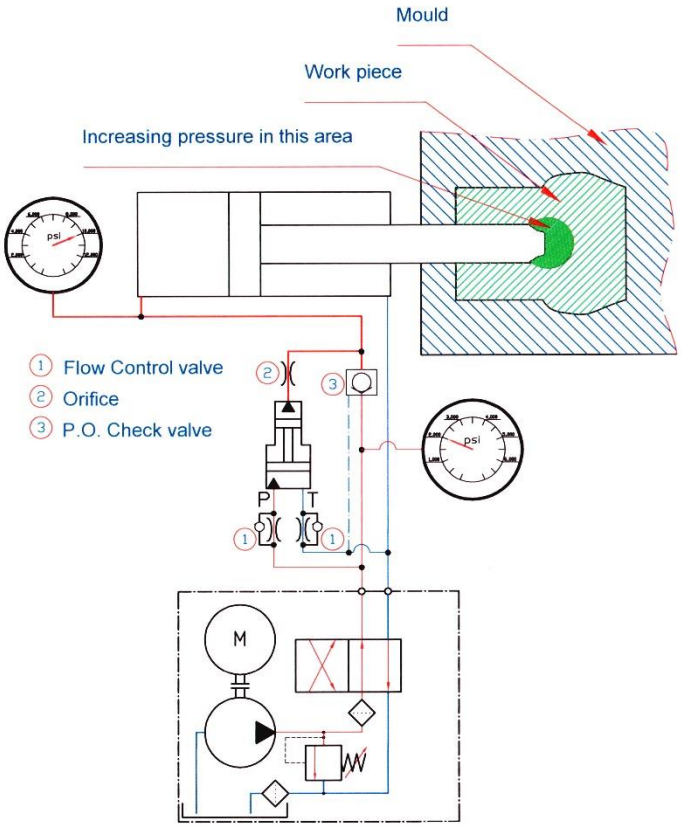
Cylinder pressure testing…



Hose/fitting
pressure testing…

Pressure die casting

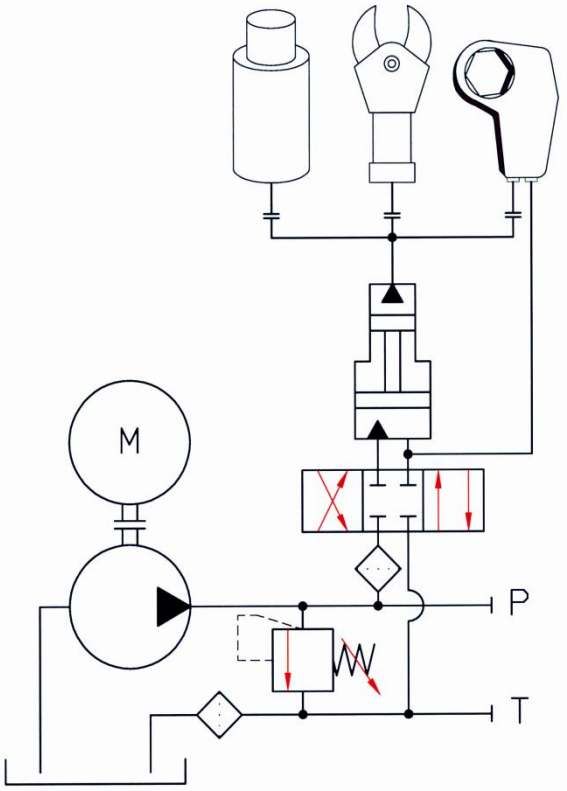




Hydraulic tools

Handheld demolition tools

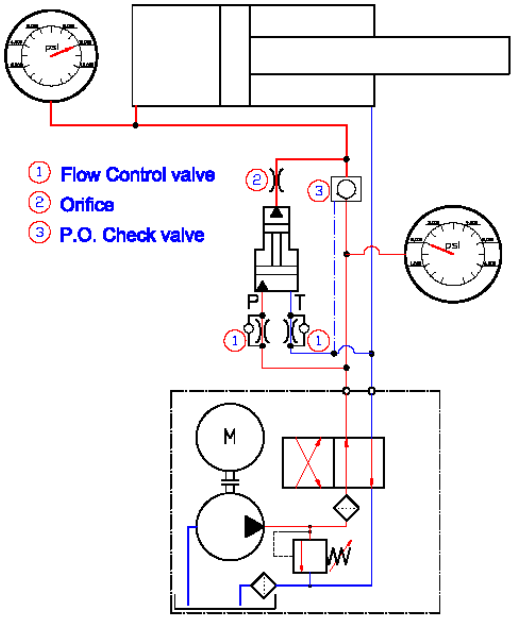
Cutting tools



ROV tools – intensifier panels!

High flow applications – ex. filter presses

Bypass circuit for high flow applications:



ScanWill®

Last Comments!

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Scanwill Intensifiers – sales channels

- **First-fit at Own Equipment Manufactures**
  - Large OEM – series production
  - Small OEM – ad hoc projects
- **Retro-fit at current installations**
  - Direct to end-user (ex. machine work shops, foundries)
  - Through hydraulic service/engineering company
- **Aftermarket**
  - Replacement of ScanWill intensifier
  - Replacement of competitor product

The standard range of ScanWill intensifiers are always in stock for day-to-day shipment!

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Thank You for Your Attention.
Any Questions?