

Mechatronic department

**file:
SMART PU – Electric Pallet Lift
machine management**

tuorpu.fi

SMART PU FFI, MACHINE MANAGEMENT



An Electric Pallet Lift can be a complex automation system and have sometimes operator on board

It is composed of an hydraulic and electrical system that can include:

- Frame
- Battery
- Lifting cylinder
- Valves
- AC or DC Hydraulic power pack
- One or more electronic controllers
- A communication system (radio, wired)
- HMI (such as operator panel)
- Sensors
- Cable Harness
- Wi-Fi

Using our patented SMART POWER UNIT technology Hydronit offers a “one-stop-shop” solution for Electric Pallet Lift.

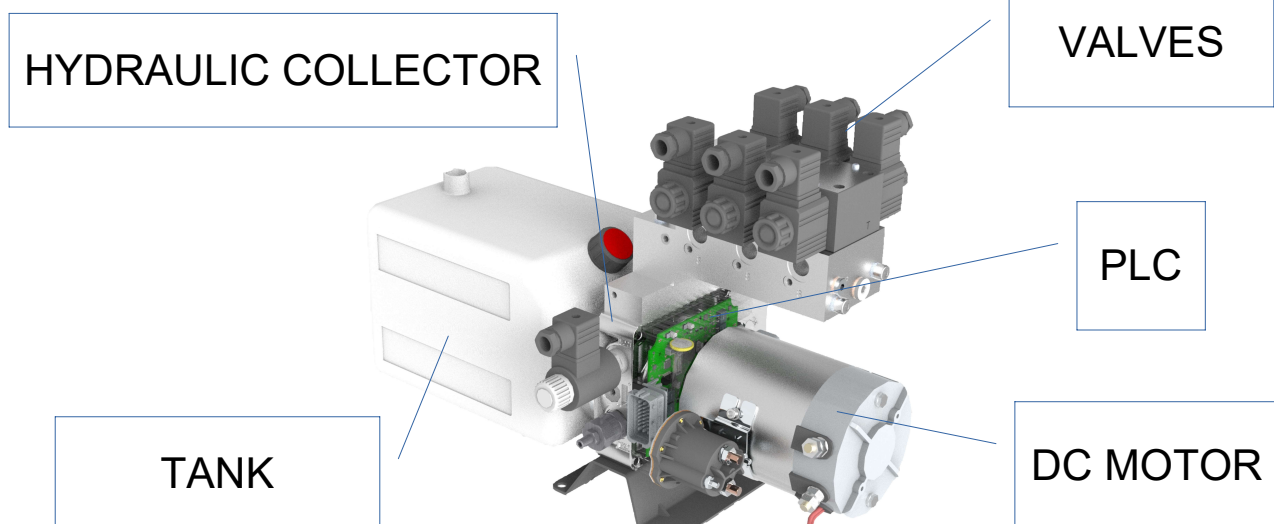
The Offer is including:

- SMART POWER UNIT
 - Hydraulic power pack
 - Embedded SIL 2 programmable PLC
 - Embedded Sensors (see data sheet)
 - WiFi – CAN – Ethernet
- A touchscreen display – Ethernet
- IDE (development and maintenance environment)



One SMART POWER UNIT is able to fully manage one lift from both hydraulic and electric point of view. It allows a consistent reduction of the TCO of the machine reducing assembly time since several sensors are embedded. It Integrates a wide number of I/O which can direct-drive valves both on-off or proportional.

The Smart Power Unit is programmable by CoDeSys



SMART PU FPI, MACHINE MANAGEMENT



A Smart Power Unit is equipped with all the hydraulic, electric and electronic features required to fully manage a complete complex machine (see full data sheet). The electronic and mechanic architecture is developed in order to meet SIL 2 (safety integrity level) as per EN61508 for or PI c as per EN13849

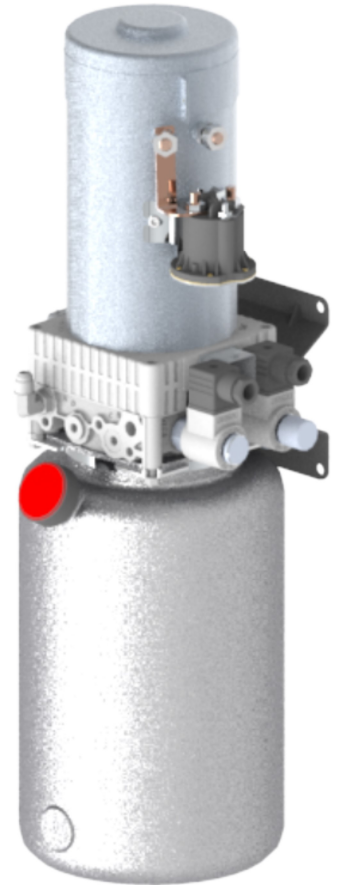
The smart Power Unit is ready to operate 48VDC, with the related cable harness downsizing (and cost saving)

The smart power unit is programmable with



In a Electric pallet lift machine, one SMART PU can manage the complete machine , with the following features:

- drive the complete hydraulics thanks to electric motor, pump and embedded valves. The hydraulic scheme correspond with the strictly necessary circuit to lift and lower the vertical mast.
- The same electronic controller can manage proportional valves
- Detects load, thanks to embedded pressure sensor
- Detect actual temperature of the fluid (optional)
- Up to 12 embedded sensors/buttons for the machine operation, such as UP/DOWN and Emergency switches, end strokes proximity switches , machine ground pressure, wheel forks status, battery status and so on



The Embedded Electronic controller allow also the following features:

- preventive maintenance and data logging (for future rental options)
- connection with a smartphone (for example machine control through app)



HMI (optional):

The Smart-Power-Unit range can be completed by a touchscreen display which is connected to the PLC through a CANOPEN network.

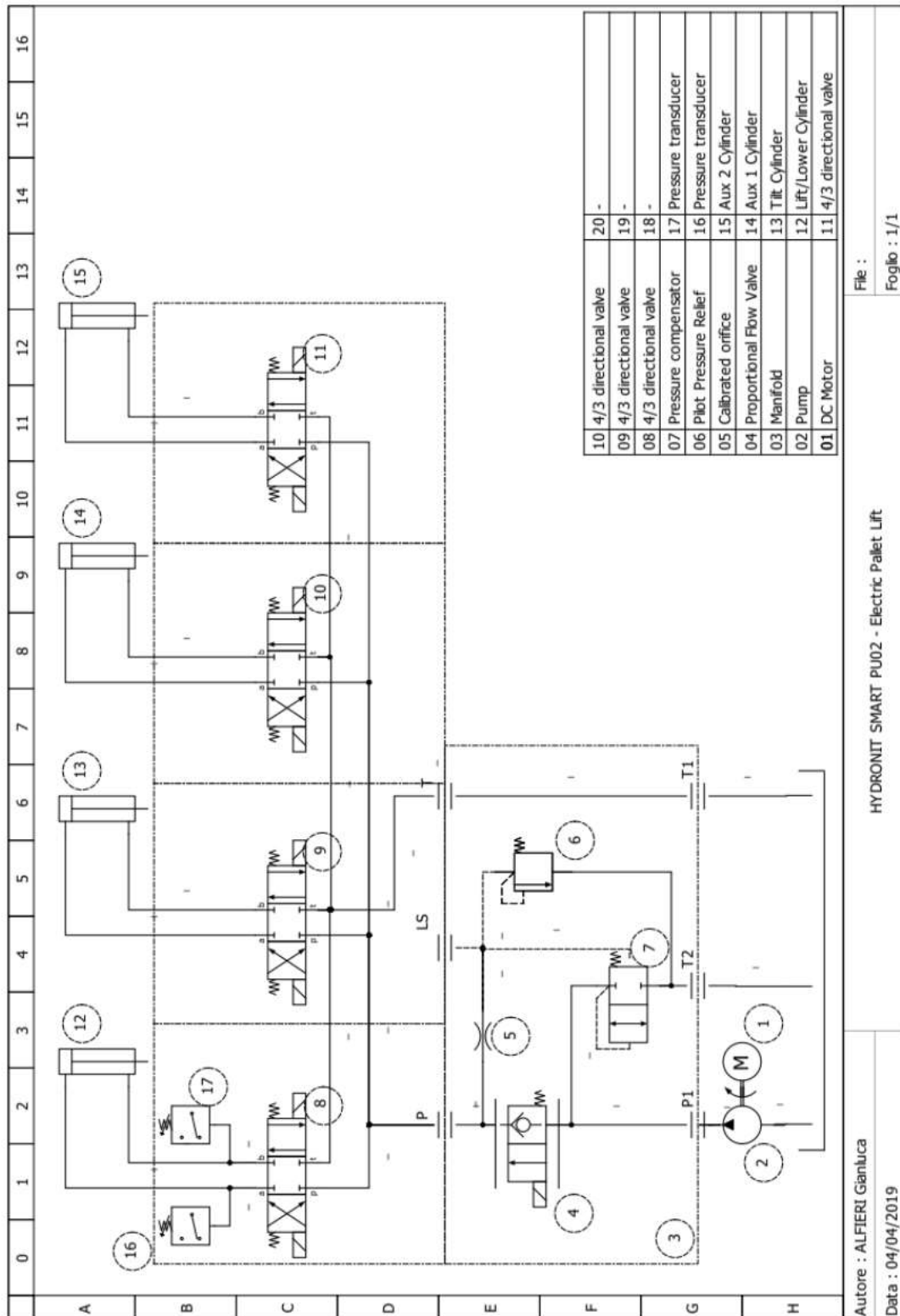
Our Touchscreens are programmable through a proprietary IDE based on QT which is open-source.



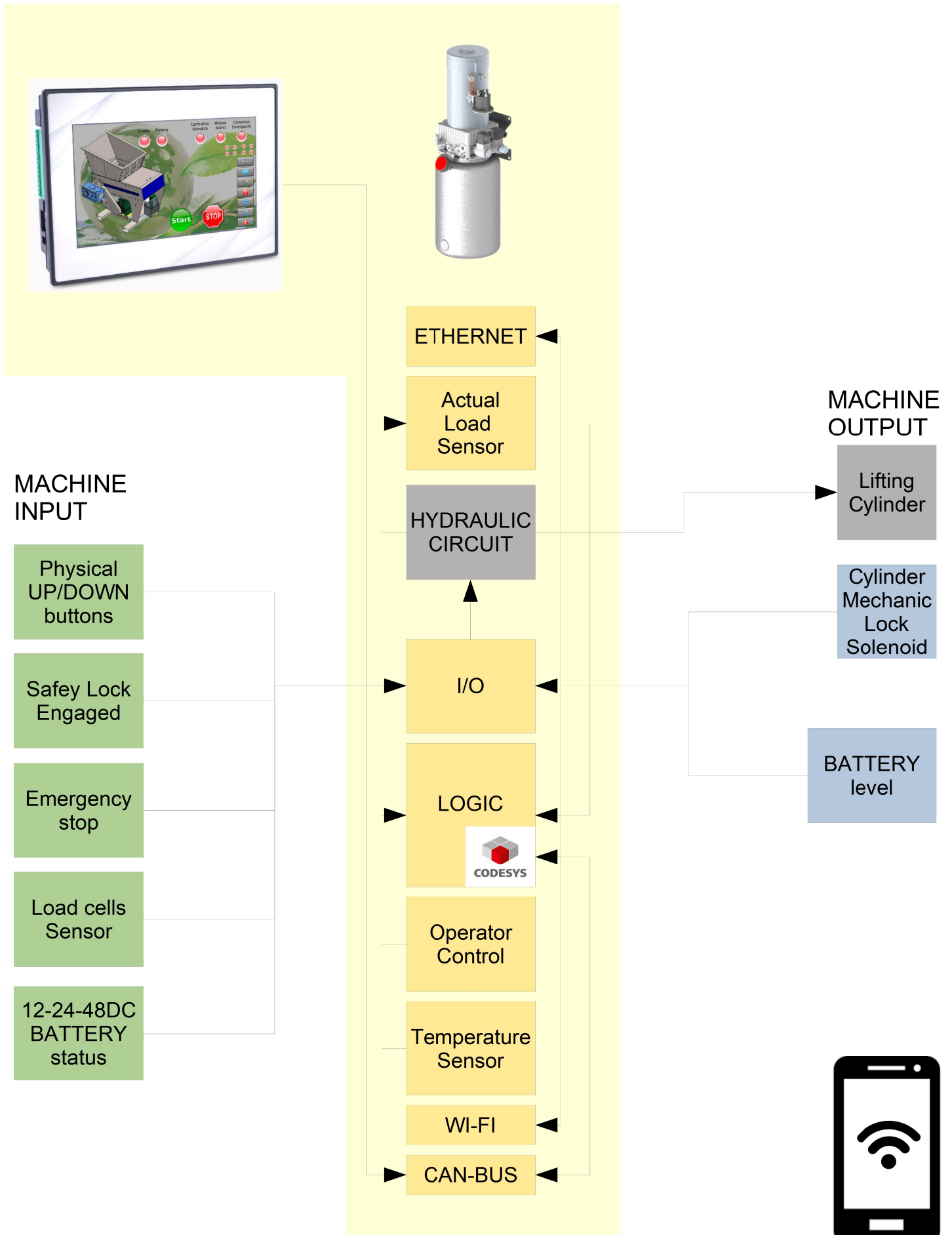
SMART PU FPI . three speed drive

HYDRAULIC SCHEME of the SPU EPL

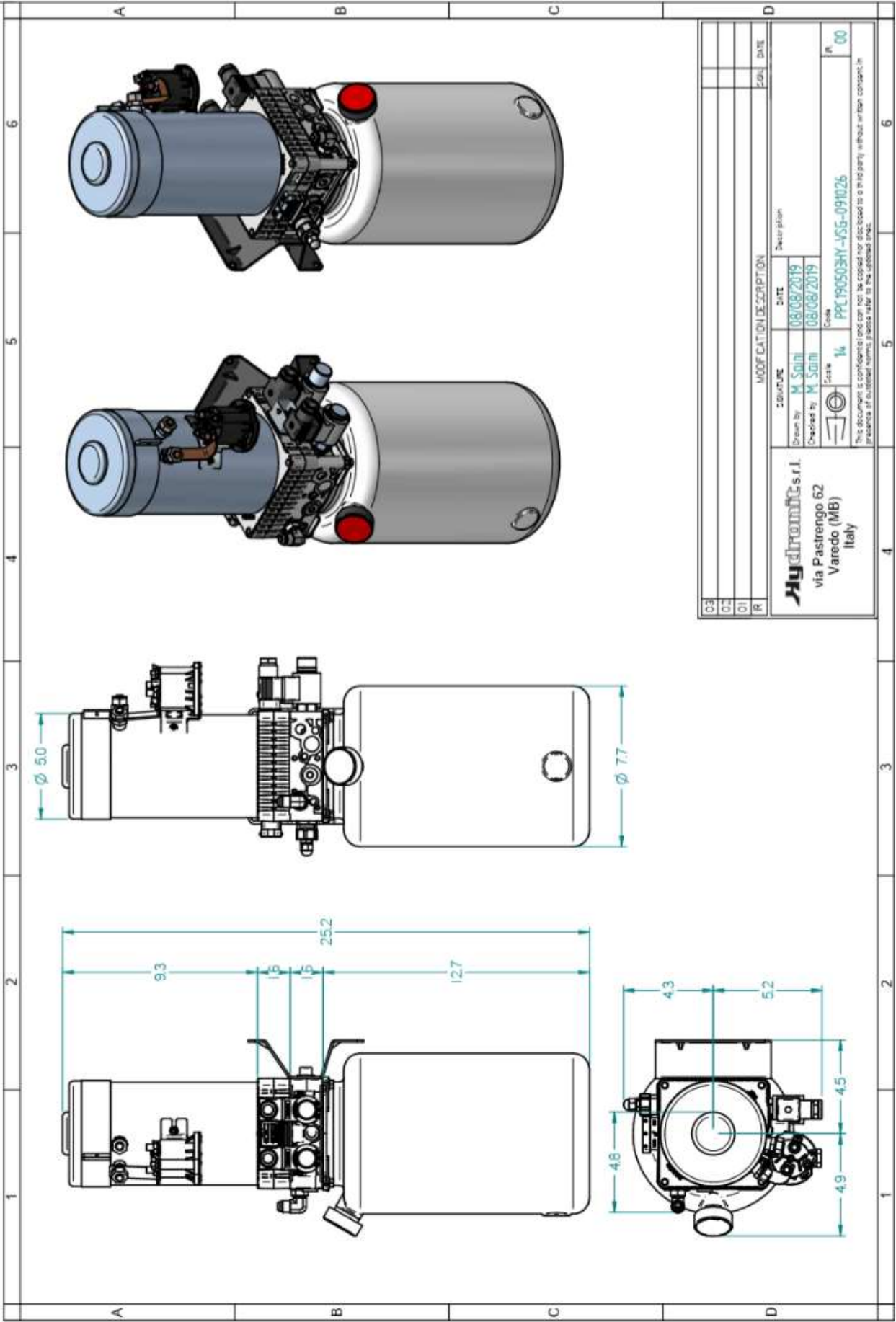
the scheme allow several functions: Lift/Lower with pressure control, Tilt, etc..



SMART PU FPI BLOCK UNIT



SMART PU FPI, OVERALL DIMENSIONS



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