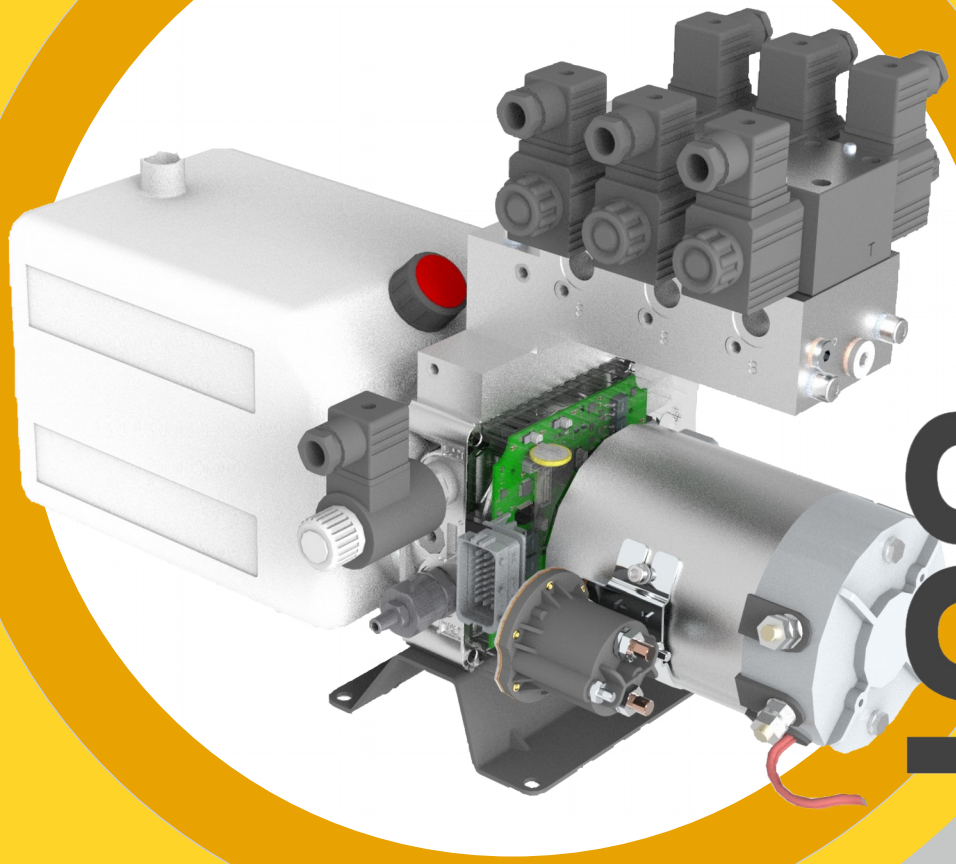


DRAULICS

Mechatronic department

SMART PU – Truck Tyre Changers machine management

SMART PU TTC MACHINE MANAGEMENT

A Truck Tyre Changer intensively handles heavy loads .

It consist of an hydraulic and electrical system including:

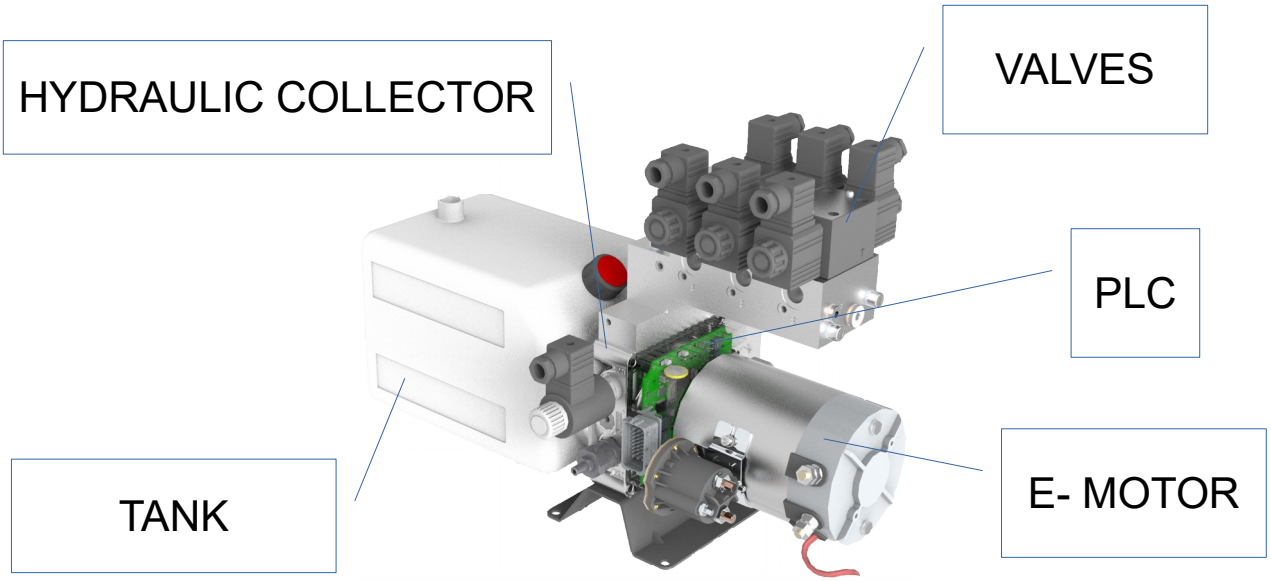
- Frame
- AC hydraulic power pack
- Valves and actuators
- One or more electronic controllers
- A wired Control Unit
- Electric Box
- Sensors (for automated versions)
- Wiring

Using our patented SMART POWER UNIT technology Hydronit offers a “one-stop-shop” solution for semi or full-automatic tire changers .

The Hydronit TTC system is including:

- Hydraulic power pack: to drive all the movements of the machine
- Embedded SIL 2 programmable PLC: with I/O which can be connected to the sensors of the machine
- WiFi: allow the user to connect smartphone/tablet to the machine for diagnostic/statistics. Motion is also possible where allowed by law.
- Ethernet: allow the machine to remote diagnostic
- The control unit can be connected through CAN-BUS: the cable harness is smaller than conventional and easier to handle

Our system is able to manage automated motions of a complete tyre changer from both hydraulic and electric point of view. End User requires less skill to operate the machine. Manufacturer benefits of a consistent reduction of the Total Cost of the machine: a smaller electric box, only one relay for AC motor, less cables, less manpower, less sensors (several sensor are embedded). WIFI and Ethernet allow access to the built-in WEB SERVER for future Smartphone APP control.



SMART PU TTC MACHINE MANAGEMENT

The core of the TTC system is **Smart Power Unit:** The electronic and mechanic architecture is developed in order to meet SIL 2 as per EN61508 : safety is fundamental for any machine automation.

In Truck Tyre Changer , one SMART PU can manage the complete machine, with the following features:

- Automated axis motion through position closed loop for automatich tyre
- Speed management of all axis through pressure compensated proportional valve for higher accuracy

The Embedded Electronic controller allow also the following features:

- Connection with the control unit through a smaller cable or wireless
- preventive maintenance and data logging (for future rental options)
- connection with a smartphone (for example machine control through app)

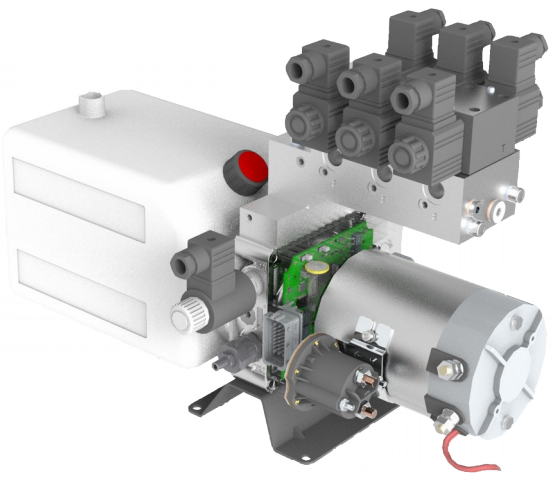
TTC Control Unit:

As option, the TTC system can be controlled by our 7" touchscreen display wich can be connected to the **Smart Power Unit** through a CAN BUS line: The display can show machine status, actual position of each actuator and receive the configuration input from the operator, such as tyre size, tubeless, rim size.

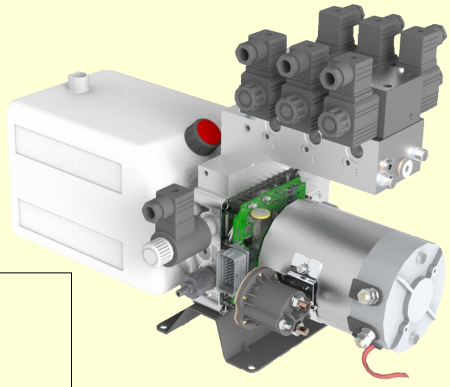
The **Smart Power Unit** is programmable with CODESYS : the manufacture is able to develop its know-how with a popular programming environment.

Our team of Software Engineers is ready to customise our standard software for tyre changers to manufacturer's needs

Our Touchscreen is programmable through a proprietary IDE based on QT which is open-source



SMART PU TTC BLOCK UNIT



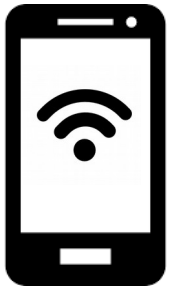
MACHINE INPUT

- keyboard
- Tool-Holder Position sensor
- Tool-holder arm lifting sensor
- Tool rotation Position sensor
- Chuck Position Sensor
- Other Sensors

ETHERNET
Actual Chuck Sensor
HYDRAULIC CIRCUIT
I/O
LOGIC
CODESYS
Carriage position
Temperature Sensor
WI-FI
CAN-BUS

MACHINE OUTPUT

- Hydraulic Spindle
- Tool-holder arm lifting Cylinder
- Tool rotation Cylinder
- Tool-Holder Carriage Cylinder
- Spindle Up/Down



SMART PU TTC OVERALL DIMENSIONS

This is an extract of the full document.
To get the full document, please contact our sales office:
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export@hydronit.com (English, Russian, Polish, German)
vendite@hydronit.com (Italian)

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