

HYDROTRAINER-200

Hydraulics - Electro-hydraulics

Hydraulics and electro-hydraulics within your reach

Why HYDROTRAINER-200?



- All components included are industrial which guarantees real learning and future prediction.
- Flexibility. HYDROTRAINER-200 is designed in various standard layouts which also enables personalisation according to the requirements of each user.
 - Hydraulics: Level I
 - Hydraulics: Level II
 - Electro-hydraulics
 - Proportional hydraulics: Level I
 - Applications in proportional hydraulics: Level II
- The design of the frame supports doubled-sided panels which allow the groups of students to carry out practical exercises at the same time.
- The equipment is supplied with a complete set of documentation and teaching support to assist students during the learning process.



Transparent hydraulics

In addition to the descriptions given, we have a wide range of transparent components.

Check for availability.





Training system in hydraulic/ electro-hydraulic technology

Hydraulic drives continue to be used in numerous applications in automated industry. With HYDROTRAINER-200 you will be able to meet all your training requirements in the technology related with these drives.

Designed using top-quality industrial materials it has everything required in order to start working from the very first day.

■ Table / moving assembly frame



- SAI9280 Hydraulic rolling table with double face panel.

The moving frame within the HYDROTRAINER-200 system has a dual-station assembly panel with various tables sufficiently large for performing the practical work at ease on both sides of the panel.

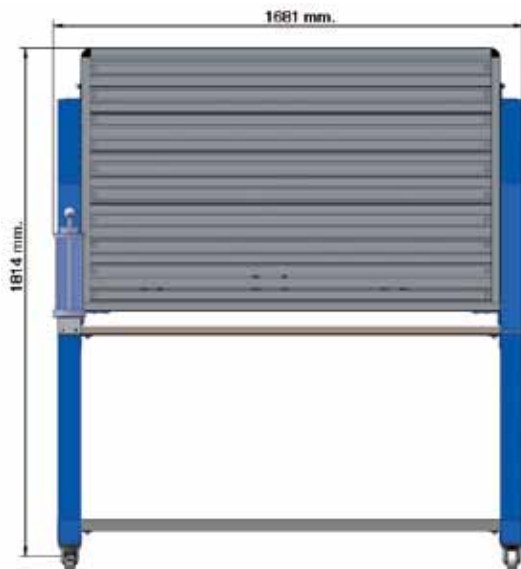
It is assembled on four wheels, two of which have a brake, which enables moving and holding it in the classroom simply and comfortably.

It includes 1 glass for volumetric measurements on each side of the panel.

The lower section has a support shelf for holding the hydraulic set and storage drawers for components.

■ Dimensions

HYDROTRAINER-200 has a large enough design for working at ease. The measurements are given in mm below.



■ Hermetic connections



The hoses, as well as the different devices, are connected to each other with a system of quick-fit self-sealing connectors.

This system guarantees a maximum level of tightness whereby ZERO DRIPPING occurs even during connection/disconnection operations whilst the set is in operation.

■ Hose support



- **SAI9274** Hose support accessory

The HYDROTRAINER-200 equipment has a support accessory for positioning all the hoses quickly and effortlessly.

■ Fixing to the panel



Each component includes a fixing system with a specific design for each panel devised in such a way as to aid the quick and simple preparation of the practical exercises.

■ Hydraulic pump



- **SAI9256** Hydraulic pump for one workstation
- **SAI9261** Hydraulic pump for two workstations

HYDROTRAINER-200 offers the option of equipping the frame with various hydraulic pumps both for one and two workstations.

It includes P and T sets, emergency stop pushbutton and start and stop pushbuttons.

■ Set of storage drawers



- **SAI9260** Set of drawers with lock

One of the options offered by the system is a set of metal drawers where all components can be easily stored. Another can be added for the second workstation in the gap left free in the base.



SAI9506 HYD-201: Composition of hydraulics level I

The composition of hydraulics level I is the ideal starting point for hydraulic technology. This enables studying the function of the base hydraulic components such as:

- Pressure relief valves.
- Distribution valves.
- Hydraulic cylinders.
- etc.

It includes the components featured below:

It is also possible to study the operation of basic circuits such as:

- Differential circuits
- Circuits for the analysis of resistance to the flow of fluid.
- etc.

SAI9202 Pressure relief valve



Direct control.
Pressure regulation 2÷64 bar.
It includes quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 2

SAI9206 Cross distributor



4 exits at 90°, with three quick-fit male connectors and one female R 1/4".

Quantity: 1

SAI9203 Non-return choke valve



Manual adjustment by rotary control.
One quick-fit male connector and one quick-fit female connector, R 1/4".

Quantity: 1

SAI9207 T distributor with pressure gauge



Pressure gauge ø63, 0÷60 bar.
3 exits at 90°, two quick-fit male connectors and one female R 1/4".

Quantity: 2

SAI9204 Shut-off valve with scale



Scale from 0 to 90°.
One quick-fit male connector and one quick-fit female connector, R 1/4".

Quantity: 1

SAI9208 Pressure compensated one-way non-return valve



Manual adjustable via graduated scale. Qmax. = 3.2 l/min.
On base plate with two quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

SAI9205 One way flow control valve



Manual adjustment by rotary control.
One quick-fit male connector and one quick-fit female connector, R 1/4".

Quantity: 1

SAI9209 Distributor plate with pressure gauge, 4 outlets



Diameter pressure gauge ø63, 0÷60 bar, on base plate.
Glycerine damping.
With four quick-fit male connectors, R 1/4".

Quantity: 1

SAI9210 Double-acting differential hydraulic cylinder



In steel, diameter $\varnothing 32/\varnothing 22$ x 200 mm stroke.
Extra fixing with rear nut. Includes threaded cam at the end of the rod and two quick-fit male connectors R 1/4".

Quantity: 1

SAI9211 Non-return line valve



One quick-fit male connector and one quick-fit female connector, R 1/4".

Quantity: 1

SAI9212 Distribution valve 4/2



Manual drive.
Spring reset.
On base plate with four quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

SAI9213 Piloted non-return valve



With internal drainage for line assembly.
Two quick-fit male connectors and one quick-fit female connector, R 1/4".

Quantity: 1

SAI9214 Distribution valve 4/3



Manual drive. Spring reset.
On base plate with four quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

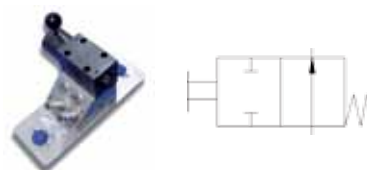
SAI9216 Set of 12 hoses with quick-fit female connectors



8 pieces TN6 x 500 mm long.
4 pieces TN6 x 1000 mm long.

Quantity: 1

SAI9217 Distribution valve 2/2



Manual drive. Spring reset.
On base plate with two quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

SAI9233 Set of tubes for load losses simulation



They include 8 quick-fit male connectors, R 1/4".
3 different diameters with the same length.
3 different lengths with the same diameter.

Quantity: 1

SAI9282 Distribution valve 3/2



Manual drive. Spring reset.
On base plate with three quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1



SAI9507 HYD-202: Composition of hydraulics level II

The composition of hydraulics level II is complementary to level I in mastering hydraulic technology. It includes advanced features of hydraulic systems such as:

- Hydraulic motors.
- Accumulators.
- Counterweights for traction and compression exercises.
- etc.

It includes the components featured below:

SAI9209 Distributor plate with pressure gauge, 4 outlets



Pressure gauge $\varnothing 63$, 0÷100 bar.
Glycerine damping.
With 4 quick-fit male connectors R 1/4".
Quantity: 1

SAI9219 3-way pressure reducing valve



Direct control. Pressure regulation 2÷64 bar.
With relief function as well.
On base plate with three quick-fit male connectors R 1/4".
Standardised valve TN6.
Quantity: 1

SAI9279 Pressure relief valve with rail. Sequence valve



Direct guide control with damping.
Control pressure: 2÷64 bar.
On base plate with three quick-fit male connectors R 1/4".
Standardised valve TN6.
Quantity: 1

SAI9218 Pilot-operated pressure relief valve Sequence valve



Indirect guide control.
Control pressure: 2÷64 bar.
Standardised valve TN6. On base plate with 4 quick-fit male connectors, R 1/4".
Quantity: 1

SAI9220 Hydraulic motor



Gerotor system. Cubic capacity: 12,5 cm³/rev.
With steering wheel mounted on the axis.
Includes two quick-fit male connectors, R 1/4".
Quantity: 1

This enables performing exercises on:

- Speed change.
- Flow control at the actuator inlet and outlet.
- Study of the accumulators.
- etc.

SAI9239 Double-acting cylinder



In steel, diameter $\varnothing 32/\varnothing 16 \times 200$ mm stroke.
Area ratio 1.33:1.
It includes two quick-fit male connectors R 1/4".
Quantity: 1

SAI9253 Distribution valve 2/2 roller driven



Roller driven. Spring reset.
Normally open.
On base plate with two quick-fit male connectors R 1/4".
Standardised valve TN6.
Quantity: 1

SAI9230 Counterweight with lateral fixing to the panel



With lateral fixing system to the panel.
It includes 1 double-acting cylinder $\varnothing 20/\varnothing 12 \times 150$ mm stroke with two quick-fit male connectors R 1/4".
It includes transparent plexiglass screen for safety.
Quantity: 1

SAI9221 Membrane accumulator with safety block



T.U.V. type including two shutoff valves and safety valve tared above the working level.
Volume: 0.7 dm³.
Charged with nitrogen, P load: 20 bar.
Includes 3 quick-fit male connectors, R 1/4".
Quantity: 1

SAI9221 Set of 10 hoses with quick-fit female connectors



8 pieces TN6 x 500 mm long.
2 pieces TN6 x 1000 mm long.
Quantity: 1

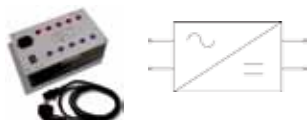
SAI9508 HYD-203: Composition of electro-hydraulics

The composition of electro-hydraulics is complementary to composition HYD-201 and combines hydraulics elements with drives and electric control circuits. This ensures that hydraulic actuators can be controlled with pushbuttons, ends of strokes, etc.

It is also possible to analyse safety on both an electric and mechanical level in these systems.

It includes the components featured below:

SAI9040 Power supply



Voltage input 220V / 110V.
Output: 24V / 5A.
Short-circuit protection.
Input switch and LED display.
Built-in power cable.

Quantity: 1

SAI9042 Set of pushbuttons



2 pushbuttons with spring return.
2-position selector.
Electric female connectors 4 mm.

Quantity: 1

SAI9041 Set of 3 relays



It includes three relays with coil 24V and 4 switchable contacts.
LED activated relay display.
Electric female connectors 4 mm.

Quantity: 1

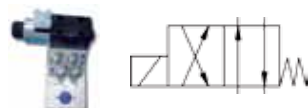
SAI9046 Set of cables with electric connector 4 mm.



5 red cables 1.5 m.
5 black cables 1 m.
10 black cables 0.5 m.
5 blue cables 0.25 m.

Quantity: 1

SAI9224 Distribution solenoid valve 4/2



Electric drive 24 VDC.
Spring reset.
On base plate with four quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

SAI9226 Distribution solenoid valve 4/3



Electric drive 24 VDC and spring centring.
Closed centre.
On base plate with four quick-fit male connectors R 1/4".
Standardised valve TN6.

Quantity: 1

SAI9272 Set of connectors + cable for solenoides



Male connectors 4 mm.
Cable 1.5 m.
1 black connector and 2 grey ones.
LED indicators.

Quantity: 1

SAI9231 Electric end of stroke



Retractable roller driven.
1 contact NO.
1 contact NC.
Transparent body.
Female connectors 4 mm.

Quantity: 3

SAI9229 Pressure switch



Output via switched potential-free contact.
Pressure adjustable between 0 and 40 bar.

Quantity: 1

SAI9271 Cable for pressure gauge



Male connectors 4 mm.
Cable length: 1.5 m.
1 black connector.
LED indicators.

Quantity: 1



SAI9511 HYD-206: Composition of proportional hydraulics: level I

The composition of proportional hydraulics is ideal for learning how to operate proportional control systems such as:

- Proportional coils and valves.
- Hysteresis cycles.
- Outline of characteristic curves I-P and I-Q.
- etc.

It includes the components featured below:

SAI9309 Power supply module for two proportional coils

Potentiometer for controlling the output intensity to coil a or b.
I max. = 0.9 A per coil.
2 ammeters for displaying the current via coil a or b.

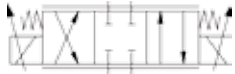
Quantity: 1

SAI9303 Set of connectors for proportional coils

Connectors with LED indicators (screen type). Long. 1.5 m.
1 grey connector.
1 black connector.

Quantity: 1

SAI9302 Proportional distribution valve 4/3



Direct control, spring centring. Closed centre.
Pmax. = 315 bar.
Coils at 24V, 0~0.85 A.
On base plate with 4 quick-fix male connectors, R 1/4".
Standardised valve. Rated size 6 (TN6).

Quantity: 1

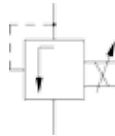
SAI9304 Pilot-operated proportional distribution valve 4/3



Indirect control, spring centring. Closed centre.
Pmax. = 210 bar.
Coils at 24V, 0~0.85 A.
On base plate with 4 quick-fix male connectors, R 1/4".
Standardised valve. Rated size 10 (TN10).

Quantity: 1

SAI9304 Proportional pressure relief valve, direct control



Direct control.
Qmax. = 1 l/min.
Pmax. = 15 bar.
On base plate with 3 quick-fix male connectors, R 1/4".
Standardised valve. Rated size 6 (TN6).

Quantity: 1

SAI9512 HYD-207: Applications in proportional hydraulics: level II

The fundamental concepts of proportional hydraulics are put into practice in proportional hydraulics applications. That is why work is performed on:

- Movements of linear and rotating masses in open loop and closed loop.
- Positioning of hydraulic motors.
- Study of PID controllers, etc.

It includes the components featured below:

SAI9040 Power supply



Voltage input 220V / 110V.
Output: 24V / 5A.
Short-circuit protection.
Input switch and LED display.
Built-in power cable.

Quantity: 1

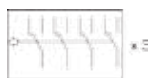
SAI9042 Set of pushbuttons



2 pushbuttons with spring return.
2-position selector.
Electric female connectors 4 mm.

Quantity: 1

SAI9041 Set of 3 relays



It includes three relays with coil 24V and 4 switchable contacts.
LED activated relay display.
Electric female connectors 4 mm.

Quantity: 1

SAI9046 Set of cables with electric connector 4 mm.

5 cables 1.5 m.
5 cables 1 m.
10 cables 0.5 m.
5 cables 0.25 m.

Quantity: 1

SAI9310 Digital amplifier cards PZD-PWD for proportional coils



For the control and regulation of systems with proportional solenoid valves. Controlled by microprocessor without potentiometers, input, reading and graphic display of parameters by PC.

Quantity: 1

SAI9308 Proportional distribution valve 4/3 with position sensor



Direct control. Spring centring.
Closed centre.
Pmax. = 210 bar. Q = 3 l/min.
On base plate with 4 quick-fix male connectors, R 1/4".
Standardised valve TN6.

Quantity: 1

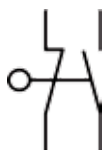
SAI9225 Double-rod cylinder



In steel, Pmax. = 100 bar.
ø16 x ø32 x ø16 x 300 mm stroke.

Quantity: 1

SAI9231 Electric end of stroke



Transparent body.
Retractable roller driven.
1 contact NO, 1 contact NC.
Wiring sockets ø = 4mm.

Quantity: 1

SAI9300 Cylinder with transducer for linear analogue position



Stroke 225 mm. Resistance R = 5 KΩ.
With connector and cable.
This includes connector, cable and cylinder adaptation system.

Quantity: 1

SAI9311 Generator of external setpoints



With multi-turn potentiometer, output current 0 ~ ±10 VDC.

Quantity: 1

SAI9220 Hydraulic motor



Gerotor system. Cubic capacity: 12.5 cm³/rev.
With steering wheel mounted on the axis.
Includes two quick-fit male connectors, R 1/4".

Quantity: 1

SAI9312 Tachometer



For mounting on the motor and obtaining a voltage value in proportion with the rotation speed (speed control).
Output 0 ~ 10 VDC.
With coupling for piston motor.

Quantity: 1

SAI9313 Analogue position transducer for motor



For mounting on the motor and obtaining a voltage value in proportion to the rotation angle. (Position control).
R = 4.7 KΩ.
With coupling for piston motor.

Quantity: 1

SAI9314 Pressure transducer with digital indicator



Pressure range = 0 ~ 100 bar.
Output 4 ~20 mA.
Built-in pressure switch function.

Quantity: 1

SAI9305 Pilot-operated proportional pressure relief valve



Pmax.: 220 bar.
Qmax. = 20 l/min.
On base plate with 3 quick-fit male connectors, R 1/4".
Standardised valve TN6.

Quantity: 1