

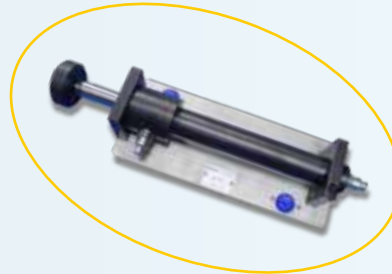
HYDROTRAINER-200

Hydraulics - Electro-hydraulics

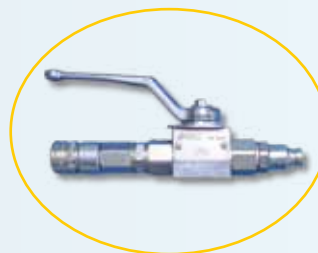
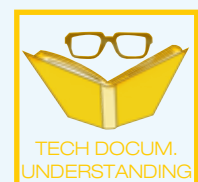
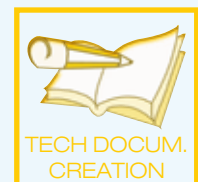
Hydraulics and electro-hydraulics within your reach



Develop the SKILLS...



Implements and controls hydraulic
and electrohydraulic circuits



Industrial components
on panel fastening plate

From basic hydraulics
to proportional
electro-hydraulics



In the following TECHNOLOGIES...





■ HYDROTRAINER-200 - Hydraulics - Electro-hydraulics

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 to 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

The moving frame within the HYDROTRAINER-200 system has a double sided assembly panel with tables sufficiently large for performing practical work at ease on either sides.

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

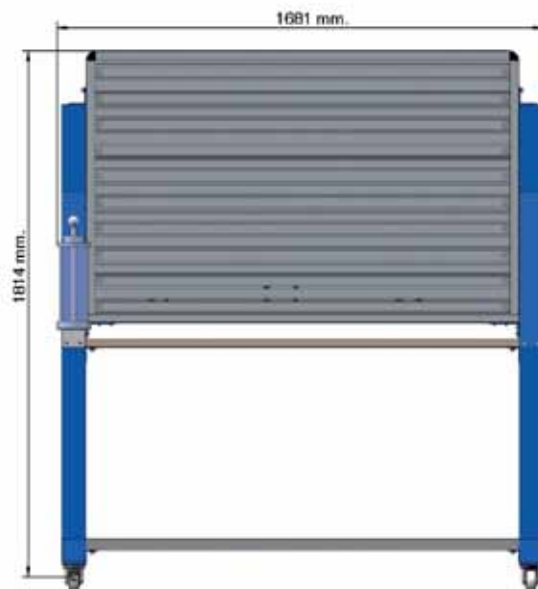
It includes a glass for volumetric measurements on each side of the panel.

The lower section has a support shelf for holding the hydraulic powerpack 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.



Fixing to the panel



Each component includes a fixing system devised in such a way as to aid the quick and simple preparation of the practical exercises.

Kits

HYDROTRAINER-200 has 5 standard kits defined to cover training requirements at different educational levels. Also, the user can configure personalised sets to meet their needs or complement a previously purchased kit.

STANDARD KITS	
SAI9506	HYD-201: Hydraulics level I kit
SAI9507	HYD-202: Hydraulics level II kit
SAI9508	HYD-203: Electro-hydraulics kit
SAI9511	HYD-206: Proportional hydraulics: level I kit
SAI9512	HYD-207: Proportional hydraulics: level II kit





■ HYDROTRAINER-200 - With this system you could...

HYDROTRAINER-200 comes up with different practical activities targeting skills in the technologies featuring in the table (below).

TECHNOLOGIES	
SKILLS	HYDRAULICS
	ANALYSIS
	TROUBLESHOOT.
	DESIGNING
	TECH DOCUM. CREATION
	INSTALLATION AND ASSEMBLY
	TECH DOCUM. UNDERSTANDING
	OPERATION



eLEARNING-200

Find out more about the theory behind the technologies developed in HYDROTRAINER-200 with our eLEARNING-200 courses.

RELATED eLEARNING-200 COURSES

Introduction to electricity (SMC-102)

DC electricity (SMC-103)

AC electricity (SMC-104)

Solid state (SMC-105)

Sensors technology (SMC-108)

Hydraulics / electrohydraulics (SMC-111)

**See eLEARNING-200 chapter for more information*



- This shows how the HYDROTRAINER-200 is suitable to develop skills in the specific technology.
- This shows that HYDROTRAINER-200 can help develop skills in the specific technology even though there are other more appropriate products in the range.

■ HYDROTRAINER-200 - Extra equipment

There are other products in the range to complement HYDROTRAINER-200.

• autoSIM-200



autoSIM-200 is software that can design and simulate pneumatic, electro-pneumatic, hydraulic circuits, etc. It is also used for programming them plus monitoring and control of pre-defined 2D and 3D models.

**See autoSIM-200 chapter for more information.*

■ HYDROTRAINER-200 - Configuration

Getting the right HYDROTRAINER-200 configuration is as easy as:

• Steps to follow

- 1.- Select the panel and the necessary extras.
- 2.- Select the chosen standard kits or the personalised configuration.
- 3.- In the event of preferring a personalised configuration, select the references chosen for the composition.





■ HYDROTRAINER-200 - Standard kits

HYD-201: Hydraulics level I kit
HYD-202: Hydraulics level II kit
HYD-203: Electro-hydraulics kit
HYD-206: Proportional hydraulics: level I kit
HYD-207: Proportional hydraulics: level II kit

		HYD KITS				
Ref.	Description	201	202	203	206	207
Actuators						
SAI9239	Double-acting cylinder		1			
SAI9225	Double-rod cylinder					1
SAI9210	Double-acting differential hydraulic cylinder	1				
SAI9300	Cylinder with transducer for linear analogue position					1
SAI9230	Counterweight with lateral fixing to the panel		1			
SAI9220	Hydraulic motor		1			1
Pressure control valves						
SAI9202	Pressure relief valve	2				
SAI9279	Pressure relief valve with fixing to the panel rail. Sequence valve		1			
SAI9218	Pilot-operated pressure relief valve. Sequence valve		1			
SAI9219	3-way pressure reducing valve		1			
SAI9301	Proportional pressure relief valve, direct control				1	
SAI9305	Pilot-operated proportional pressure relief valve					1
Flow valves						
SAI9204	Shut-off valve with scale	1				
SAI9205	One way flow control valve	1				
SAI9211	Non-return line valve	1				
SAI9203	Non-return choke valve	1				
SAI9208	Pressure compensated one-way non-return valve	1				
SAI9213	Piloted non-return valve	1				
Distribution valves						
SAI9217	Distribution valve 2/2	1				
SAI9282	Distribution valve 3/2	1				
SAI9212	Distribution valve 4/2	1				
SAI9214	4/3 Manual acting valve, spring centered	1				
SAI9253	Distribution valve 2/2 roller driven		1			
SAI9224	Distribution solenoid valve 4/2			1		
SAI9226	Distribution solenoid valve 4/3			1		
SAI9302	Proportional distribution valve 4/3				1	
SAI9304	Pilot-operated proportional distribution valve 4/3				1	
SAI9308	Proportional distribution valve 4/3 with position sensor					1

Ref.	Description	HYD KITS				
		201	202	203	206	207
Connection parts and accessories						
SAI9216	Set of 12 hoses with quick-fit female connectors	1				
SAI9240	Set of 10 hoses with quick-fit female connectors		1			
SAI9206	Cross distributor	1				
SAI9207	T distributor with pressure gauge	2				
SAI9209	Distributor plate with pressure gauge, 4 outlets	1	1			
SAI9221	Membrane accumulator with safety block		1			
SAI9233	Set of tubes for load losses simulation	1				
Control modules, sensors and electrical accessories						
SAI9040	Power supply			1		1
SAI9042	Set of pushbuttons			1		1
SAI9041	Set of 3 relays			1		2
SAI9046	Set of cables with electric connector 4 mm.			1		1
SAI9272	Set of connectors + cable for solenoids			1		
SAI9231	Electric end of stroke			3		4
SAI9229	Pressure switch			1		
SAI9271	Cable for pressure gauge			1		
SAI9309	Power supply module for two proportional coils				1	
SAI9303	Set of connectors for proportional coils				1	1
SAI9310	Digital amplifier cards PZD-PWD for proportional coils					1
SAI9311	Generator of external setpoints					1
SAI9312	Tachometer					1
SAI9313	Analogue position transducer for motor					1
SAI9314	Pressure transducer with digital indicator					1
Didactic support						
SAI9552	Hydraulics Electro-hydraulics. User's and practical manual	1	1	1		
SAI9563	Proportional Hydraulics level I. User's and practical manual				1	
SAI9565	Proportional Hydraulics level II. User's and practical manual					1



**DON'T FORGET TO ADD AN ASSEMBLY PANEL,
HYDRAULIC UNIT AND EXTRAS**

SAI9280	Hydraulic rolling table with double face panel
SAI9256	Hydraulic pump for one workstation
SAI9261	Hydraulic pump for two workstations
SAI9260	Set of drawers with lock





■ HYDROTRAINER-200 - Customized kits

The available hydraulic and electro-hydraulic components are listed below, by category.

Assembly panel, hydraulic unit and extras



SAI9280 - Hydraulic rolling table with double face panel

- The vertical panel means you can work on both sides.
- External panel dimensions: 1500x940x25 mm
- It includes a coated white top for horizontal work, 1500 x 800 mm.
- The lower section features a 1500x800 mm metal shelf containing two component storage drawer blocks and the hydraulic pump.
- 4-wheel support, two of them with brake.
- Total dimensions: 1681x800x1814 mm.

Hydraulic pump

SAI9256 - Hydraulic pump for one workstation

SAI9261 - Hydraulic pump for two workstations

- Maximum operation pressure: 60 bar.
- 70 litres metal oil tank.
- Gear pump flow rate: 5,5 l/min
- It includes required oil, P and T connection blocks, emergency stop and start – stop push buttons.
- External dimensions: 530x800x580 mm.



SAI9260 - Set of drawers with lock

- 3-drawer block with slide guides to house components.
- Lockable with key.
- External dimensions: 440x800x550mm.

SAI9274 - Hose support accessory (x2)

- Stainless steel made, the set includes two units, one for each side of the panel.
- It is equipped with lateral fixing system to the panel.



Didactic support

SAI9552 - Hydraulics Electro-hydraulics. User's and practical manual

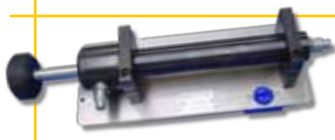
SAI9553 - Theoretical concepts manual

SAI9563 - Proportional Hydraulics level I. User's and practical manual

SAI9565 - Proportional Hydraulics level II. User's and practical manual

Actuators

SAI9239 - Double-acting cylinder



- In steel, $\varnothing 32/\varnothing 16 \times 200$ mm stroke.
- Area ratio 1.33:1.
- It includes two quick-fit male connectors R 1/4".
- Includes threaded cam at the end of the rod.



SAI9225 - Double-rod cylinder



- In steel, $P_{max.} = 150$ bar.
- Diameter $\varnothing 16 \times \varnothing 32 \times \varnothing 16 \times 300$ mm stroke.
- It includes two quick-fit male connectors R 1/4".
- Includes threaded cam at the end of the rod.



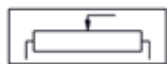
SAI9210 - Double-acting differential hydraulic cylinder



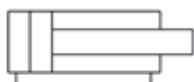
- In steel, $\varnothing 32/\varnothing 22 \times 200$ mm stroke.
- Includes threaded cam at the end of the rod.
- It includes two quick-fit male connectors R 1/4".



SAI9300 - Cylinder with transducer for linear analogue position



- Diameter 32mm. Stroke: 200mm.
- Resistance $R = 5$ K Ω .
- With cables and 4 mm security terminals. Cable length: 1,5 m.
- It includes two quick-fit male connectors R 1/4".



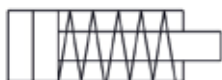
SAI9230 - Counterweight with lateral fixing to the panel



- With lateral fixing system to the panel.
- Weight: 18kg.
- Double-acting cylinder $\varnothing 20/\varnothing 12 \times 150$ mm stroke.
- It includes transparent methacrylate screen for safety.
- It includes two quick-fit male connectors R 1/4".



SAI9245 - Single acting cylinder



- Steel construction, $\varnothing 32/\varnothing 16 \times 160$ mm stroke
- Includes threaded cam at the end of the rod.
- It includes one quick-fit male connectors R 1/4".



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" and fixing system to the assembly panel.



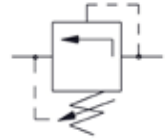


Pressure control valves

SAI9202 - Pressure relief valve



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



SAI9279 - Pressure relief valve with fixing to the panel rail. Sequence valve

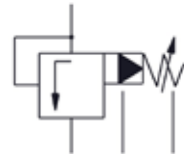


- Direct guide control with damping.
- Control pressure: 2÷64 bar.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.

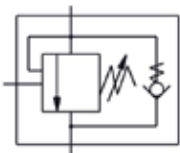


SAI9218 - Pilot-operated pressure relief valve. Sequence valve

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



SAI9223 - Overcentre valve

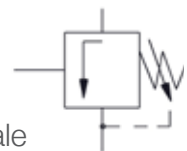


- Load control valve.
- Manual adjustment.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.

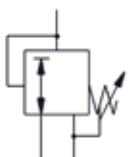


SAI9283 - Pilot actuated pressure relief valve

- Direct control.
- Pressure regulation: 2÷64bar.
- Maximum flow rate: 25 l/min.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.



SAI9219 - 3-way pressure reducing valve



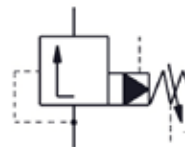
- Direct control.
- Pressure regulation 2÷64 bar.
- With relief function as well.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.



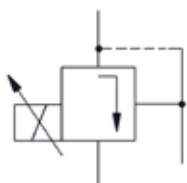


SAI9244 - Pilot controlled pressure reducing valve

- Attending to the flow direction this valve may work as a pressure relief valve: P → A: pressure reducing valve. A → P: pressure relief valve.
- Regulation pressure: 0 ÷ 64 bar.
- With pre-activation chamber. Maximum flow rate: 40 l/min.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Manually adjustable. Standardised valve TN6.



SAI9301 - Proportional pressure relief valve, direct control

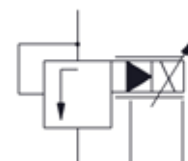


- Direct control.
- Max. Pressure: 105 bar.
- Proportional coil for 0-0,8 A.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *A connector for SAI9303 proportional coil is required.*

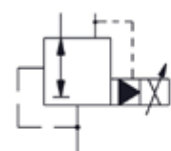


SAI9305 - Pilot-operated proportional pressure relief valve

- Pressure regulation 0 ÷ 64 bar.
- Q_{max.} = 60 l/min.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *A connector for SAI9303 proportional coil is required.*



SAI9318 - Proportional pressure reducing valve. Pilot operated



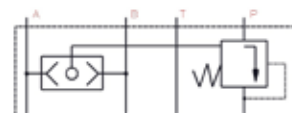
- Attending to the flow direction this valve may work as a pressure relief valve: P → A: pressure reducing valve. A → P: pressure relief valve.
- Pressure regulation: 0 ÷ 64 bar. With pre-activation chamber.
- Maximum flow rate: 40 l/min.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Adjustment using a proportional coil. Standardised valve TN6.
- *A connector for SAI9303 proportional coil is required.*



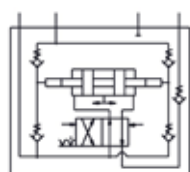
SAI9259 - Differential valve - Pressure compensator



- Modular assembly under TN6 size directional control valve.
- ΔP: 5 bar.
- Constant flow rate due to the pressure balance between P and A or P and B.



SAI9242 - Pressure intensifier 1:4 with piloted by-pass check valve



- Pressure intensifier rate: 1:4
- Piloted non-return valve included for by-pass function.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.





Flow valves

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".



SAI9205 - Two way flow control valve



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



SAI9211 - Non-return line valve



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



SAI9203 - Non-return choke valve



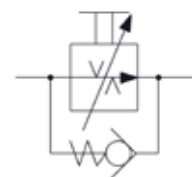
- Manual adjustment by rotary control.
- One quick-fit male connector and one quick-fit female connector, R 1/4".



SAI9208 - Pressure compensated one-way non-return valve



- Manual adjustable via graduated scale.
- Nominal flow rate: 3,2 l/min.
- Mounted on anodized aluminium base plate with male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.



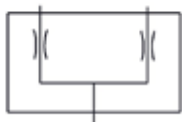


SAI9213 - Piloted non-return valve

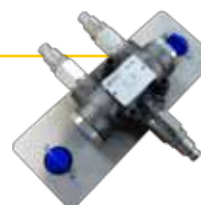
- With internal drainage.
- Cartridge type, for line assembly.
- Two quick-fit male connectors and one quick-fit female connector, R 1/4".



SAI9222- Flow divider valve



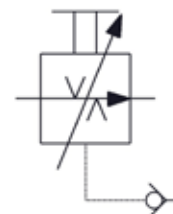
- This valve divides the input flow in two equal parts.
- Nominal flow rate: 6l/min.
- Maximum flow rate: 38 l/min.
- With male anti-leakage quick-fit connectors R1/4"



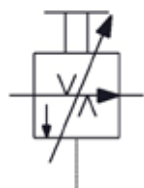
SAI9262 - 2 way pressure compensated flow control valve with "minimess" connection



- 2 way flow control valve. Hydrostatic compensation. "Minimess" connection.
- Nominal flow rate: 3,2 l/min.
- Manually adjustable via graduated scale.
- Standardised valve TN6.



SAI9247 - 3 way pressure compensated flow control valve



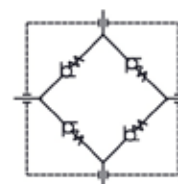
- Flow control valve. Hydrostatic compensation. 3 way. Externally piloted.
- Nominal flow rate: 3,2 l/min.
- Manually adjustable via graduated scale.
- Standardised valve TN6.



SAI9250 - Pressure compensated flow control valve with rectifier module



- 2 way flow control valve. Hydrostatic compensation. "Minimess" connection. Rectifier circuit including four non-return valves for bidirectional operation.
- Nominal flow rate: 3,2 l/min.
- Manually adjustable via graduated scale.
- Standardised valve TN6.



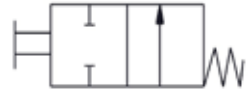


Distribution valves



SAI9217 - Distribution valve 2/2

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



SAI9282 - Distribution valve 3/2



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



SAI9212 - Distribution valve 4/2

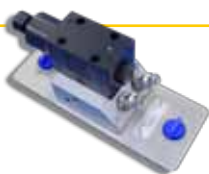
- Manual drive. Spring reset.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.



SAI9214 - 4/3 Manual acting valve, spring centered



- Manual drive. Spring reset. P and T connected in central position.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.



SAI9253 - Distribution valve 2/2 roller driven

- Roller driven. Spring reset.
- Normally open.
- Includes cam and accessories for cylinder assembly.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.



SAI9243 - 4/2 directional control valve, with mechanical interlock



- Mechanical locking manual override.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.





SAI9215 - 4/3 directional control valve. Manually operated. Closed mid-positions

- Lever operated valve. Spring centered. A, B, P and T closed in central position.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.



SAI9241 - 4/3 distribution valve. A, B, T linked in mid-position



- Lever operated valve. Spring-centered. A, B and T connected in central position. P closed in central position.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.



SAI9224 - Distribution solenoid valve 4/2

- Electric drive. Spring reset.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *Connector for SAI9272 coil required.*



SAI9273 - 4/2 solenoid valve with closed mid-position



- 4 lines closed at rest.
- Electric drive. Spring reset.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *Connector for SAI9272 coil required.*

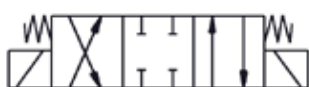


SAI9275 - 4/2 solenoid valve, with mechanical interlocking

- Mechanical interlock. Electrically operated in both sides, biestable.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *Connectors for SAI9272 coil required.*



SAI9226 - Distribution solenoid valve 4/3



- Electric drive and spring centring.
- Closed centre.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.
- *Connectors for SAI9272 coil required.*





Distribution valves



SAI9227 - 4/3 solenoid valve with relieving mid-position

- Electrically operated. Solenoids and spring centered. A-B-T linked. P closed in central position.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.

**Connectors for SAI9272 coils required.*



SAI9228 - 4/3 solenoid valve with PT-connected in mid-position



- Electrically operated: 24VDC solenoids and spring centered. P-T linked. A-B closed in central position.
- Mounted on anodized aluminium base plate with three male anti-leakage quick-fit connectors R 1/4".
- Standardised valve TN6.

**Connectors for SAI9272 coils required.*



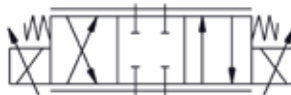
SAI9281 - 4/3 solenoid valve, A-B-P linked. T closed in mid-position.

- Electrically operated. Solenoids and spring centered. A-B-P linked. T closed in central position.
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.

**Connectors for SAI9272 coils required.*



SAI9302 - Proportional distribution valve 4/3



- Direct control, spring centring. Closed centres.
- Nominal flow rate: 6 l/min.
- Pmax. = 315 bar.
- Coils at 24V, 0~0.85 A.
- On base plate with 4 quick-fix male connectors, R 1/4".
- Standardised valve TN6.

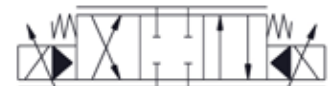
**Connectors for SAI9303 coils required.*



SAI9304 - Pilot-operated proportional distribution valve 4/3

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

**Connectors for SAI9303 coils required.*



SAI9308 - Proportional distribution valve 4/3 with position sensor



- Direct control. Spring centring. Closed centres.
- Nominal flow rate: 6 l/min.
- Pmax. = 315 bar.
- With LVDT runner position sensor
- On base plate with three quick-fit male connectors R 1/4".
- Standardised valve TN6.

**Connectors for SAI9303 coils required.*



Connection parts and accessories

SAI9216 - Set of 12 hoses with quick-fit female connectors



- 8 pieces NW6 x 500 mm long.
- 4 pieces NW6 x 1000 mm long.



SAI9240 - Set of 10 hoses with quick-fit female connectors



- 8 pieces NW6 x 500 mm long.
- 2 pieces NW6 x 1000 mm long.



SAI9206 - Cross distributor

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



SAI9207 - T distributor with pressure gauge

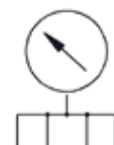


- Pressure gauge $\varnothing 63$, 0÷60 bar.
- Glycerine damping.
- 3 exits at 90°, two quick-fit male connectors and one female R 1/4".



SAI9209 - Distributor plate with pressure gauge, 4 outlets

- Diameter pressure gauge $\varnothing 63$, 0÷60 bar, on base plate.
- Glycerine damping.
- With four quick-fit male connectors, R 1/4".



SAI9221 - Membrane accumulator with safety block



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



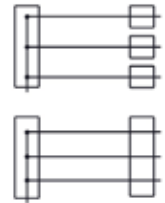


Connection parts and accessories

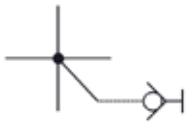
SAI9233 - Set of tubes for load losses simulation



- It includes two quick-fit male connectors R 1/4".
- 3 different diameters with the same length.
- 3 different lengths with the same diameter.



SAI9254 - Cross distributor with minimex connection



- Four 90° connections and measurement point for "minimex" hose.
- 4 anti-leakage quick-fit connectors included, R 1/4", 3 male and 1 female.



SAI9255 - "Y" distributor

- With three Y connections.
- Includes two male quick connectors and a female R 1/4" connector.



SAI9252 - Pressure gauge with "minimex" connection



- Manometer $\varnothing 63\text{mm}$, P: 0÷100 bar.
- Glycerine damping.
- 500 mm length hose included. "Minimex" connector included.



SAI9238 - 1 - 9 l/min flow-meter

- Measurement range: 1 – 9 l/min.
- Transparent body with scale.
- Male and female anti-leakage quick-fit connectors, R 1/4".



Control modules, sensors and electrical accessories



SAI9040 - Power supply

- Voltage input 110V - 240VAC.
- Output: 24VDC / 5A.
- Short-circuit protection.
- Input switch and LED display.
- Built-in power cable.
- $\varnothing 4$ mm terminals for snap connection cables.
- Insulating box with screen printed lid.

SAI9042 - Set of pushbuttons

- 2 pushbuttons with spring return.
- 2-position selector.
- Electric female connectors $\varnothing 4$ mm.
- Insulating box with screen printed lid.



SAI9041 - Set of 3 relays

- It includes three relays with coil 24V and 4 switchable contacts.
- LED activated relay display.
- Electric female connectors $\varnothing 4$ mm.
- Insulating box with screen printed lid.

SAI9046 - Set of cables with electric connector 4 mm.

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

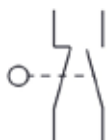


SAI9272 - Set of connectors + cable for solenoides



- Male connectors $\varnothing 4$ mm.
- Cable 1.5 m.
- Ready to connect in solenoid vale coils.
- It includes 3 units (1 black connector and 2 grey connectors).
- LED indicators.

SAI9231 - Electric end of stroke

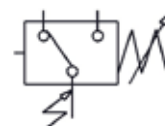


- Retractable roller driven.
- 1 contact NO.1 contact NC.
- Transparent body and roller with reversible position.
- Female connectors $\varnothing 4$ mm.



SAI9229 - Pressure switch

- Output via switched potential-free contact.
- Pressure adjustable between 0 - 40 bar. Max. Pressure: 125bar.
- *Cable for SAI9271 pressure switch required.*

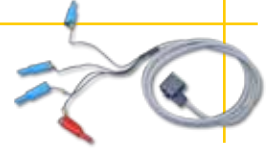




Control modules, sensors and electrical accessories

SAI9271 - Cable for pressure gauge

- Ready to connect to pressure switch.
- Male connectors $\varnothing 4$ mm.
- Cable length: 1.5 m.
- LED indicators.

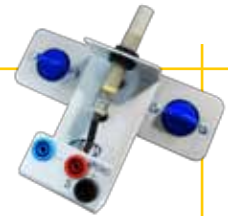


SAI9287 - In line pressure filter

- 10 μ cartridge. B10=75. Max. Pressure: 10 bar.
- With electrical clogging indicator.
- Includes electrical connector with two LEDs (red, green) and output switched by free voltage contact.
- On base plate with three quick-fit male connectors R 1/4".

SAI9276 - Inductive sensor

- Adjustable detection distance: 2 mm.
- M12, possibility of adjusting the detection distance.
- Transistorised output, with indicator LED.
- Three socket safety wiring on screen printed plate for correct connection.

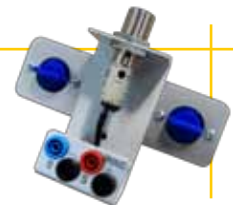


SAI9277 - Capacitive sensor

- Adjustable detection distance: $\varnothing 4$ mm.
- M12, possibility of adjusting the detection distance.
- Transistorised output, with indicator LED.
- Three socket safety wiring on screen printed plate for correct connection.

SAI9278 - Optical sensor

- Adjustable detection distance: 100 mm.
- M18, possibility of adjusting the detection distance.
- Transistorised output, with indicator LED.
- Four socket safety wiring on screen printed plate for correct connection.



SAI9309 - Power supply module for two proportional coils



- Potentiometer for controlling the output intensity to coils a or b.
- Dither frequency on/off switch and Dither frequency value adjustment.
- $I_{max} = 0.9$ A per coil.
- 2 ammeters for displaying the current via coils a or b.
- Overload electronic internal protection.



SAI9303 - Set of connectors for proportional coils

- Connectors with LED indicators (screen type). Long. 1.5 m.
- It includes 2 units (1 grey connector and 1 black connector).

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. Internal and external set point introduction possibility.
- Acceleration / deceleration slopes.
- PID digital regulator.
- \varnothing 4 mm security terminals.
- 1 Software license included for PC. 1 communication cable included (PC – card).



SAI9311 - Generator of external setpoints



- With multi-turn potentiometer, output current $0 \sim \pm 10$ VDC.
- In screen printed insulating box, with connections by means of $\varnothing 4$ mm coloured safety sockets.

SAI9312 - Tachometer



- For mounting on the motor and obtaining a voltage value in proportion with the rotation speed (speed control).
- Output $0 \sim \pm 10$ VDC. Bidirectional.
- With coupling for piston motor SAI9220.
- \varnothing 4 mm security terminals.



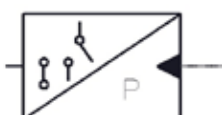
SAI9313 - Analogue position transducer for motor



- For mounting on the motor and obtaining a voltage value in proportion to the rotation angle. (Position control).
- Output $0 \sim 10$ VDC. Bidirectional.
- $R = 4.7 \text{ K}\Omega$.
- With coupling for piston motor SAI9220.
- $\varnothing 4$ mm security terminals.



SAI9314 - Pressure transducer with digital indicator



- Pressure range = $0 \sim 64$ bar.
- Output $4 \sim 20$ mA.
- Built-in pressure switch function.

