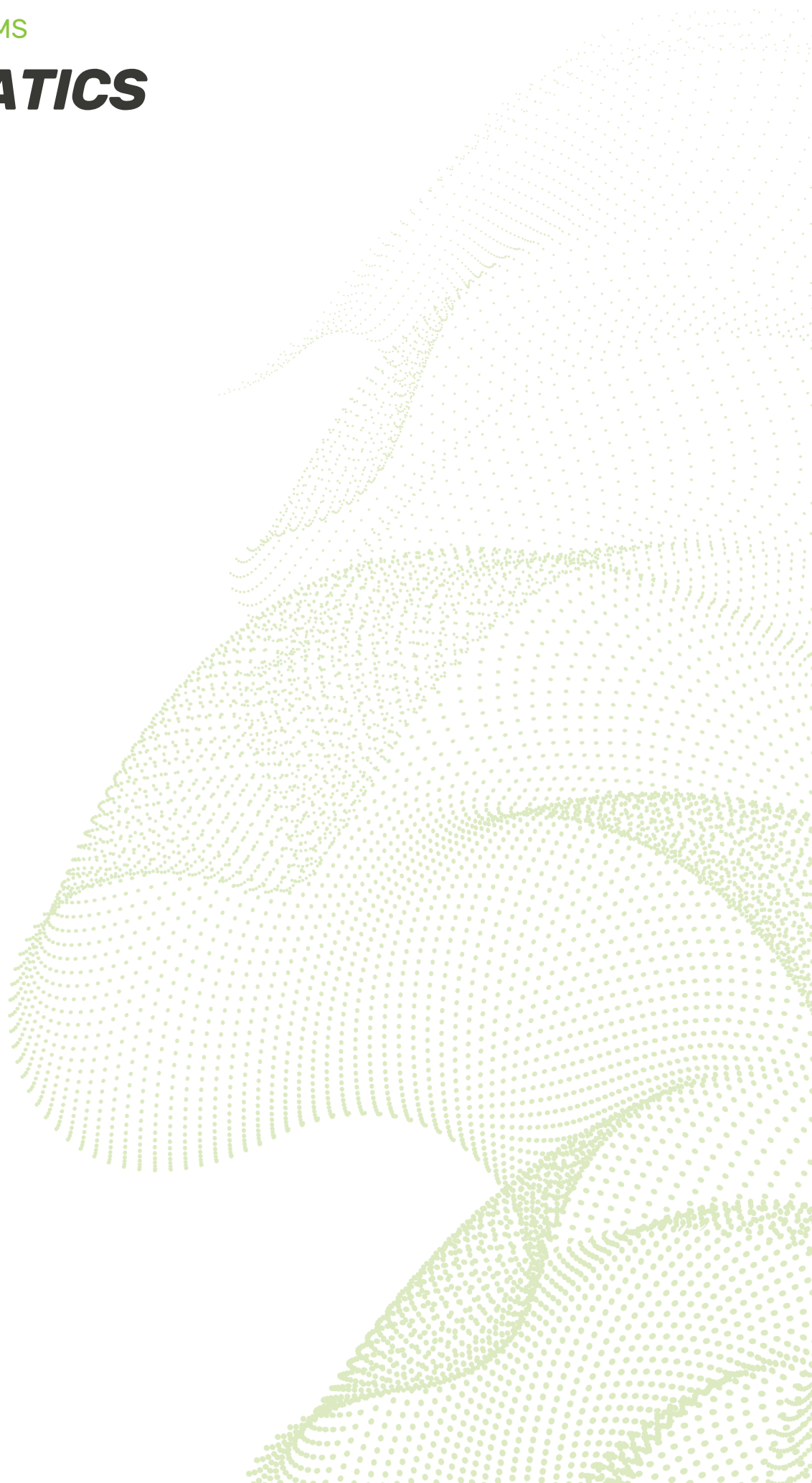


TRAINING SYSTEMS

PNEUMATICS



HRE
Automation

Taking advantage of its more than 40 years' experience in industrial automation and fluids, HRE Automation creates training equipment and systems, perfectly **adapted to the requirements of the current industrial needs.**

In continuous search of excellence in **training systems**, HRE Automation is a specialized supplier of technical equipment in the **industrial automation field.**

It offers:

- Practical equipment
- Pedagogical support (teachware)
- Personal attention

Teachers will easily achieve a high quality theoretical and a real base practical education; since the used equipment is technically the same students will handle at the working environment.

HRE
Automation

HRE Automation

C/ Ibaitarte 21
E-20870 Elgoibar (Gipuzkoa)
Spain



+34 943 742 130



+34 943 742 708



hre@hre.es



<http://www.hre.es>

PNEUMATICS TRAINING SYSTEMS

Pneumatic training trolleys - PLA70	1
Working panels - single/double.....	2
Silent compressor.....	2
Pneumatics level 1	3
Pneumatics level 2	8
Pneumatics complementary elements	11
Electro-pneumatics level 1	15
Electro-pneumatics level 2	18
Electro-pneumatics complementary elements.....	21
Proportional-pneumatic position control	25
Proportional-pneumatic pressure control	27

Pneumatic training trolleys - PLA70

PLA70-1 / PLA70-2

- Dimensions: 1100 mm x 800 x 1960 mm (high).
- Metal structure painted in dark grey color, RAL 7005, to guarantee a long useful life in perfect condition.
- Metal working panel of 950x1050 mm. With Ø5mm bushes every 50mm (horizontally and vertically) for clamping components without using any additional tool. Metal panel with Epoxi plastic paint covering, RAL 7035, to guarantee a long useful life in perfect condition.
- Upper frame of 300x1050mm. for mounting electrical elements and other elements, included in the panel in a vertical position
(Available with one panel PLA70-1 or with two panels PLA70-2).
- Big fixed metal tray under the panels with 4 wheels, 2 of them are lockable.
- **Drawers' cabinet (optional).** Cabinet with three drawers for storing components, central locking with key and safety protection (a single drawer can be opened at the same time). Each drawer has a metal tray to fix the elements.
- Room for **silent compressor (optional, for pneumatic applications)**, 3 holes for support of the compressor feet. (optionally: possibility of locating a second drawers' cabinet in that place)



Single trolley PLA70-1

Fixed mobile structure with one working panel.

Ref. 53952007

Double trolley PLA70-2

Fixed mobile structure with two working panels.

Ref. 53952008

Drawers' cabinet for trolleys PLA70

3 drawers with fixing trays and safety protection with central locking.

Ref. 13028045

The trolley's reference does not include the drawers and the compressor

Working panels

Single /Double

Metal working panel, fully plastic coated, with Ø5mm bushes every 50mm (horizontally and vertically) for clamping components without using any additional tool. Metal panel with Epoxi plastic paint covering, RAL 7035, to guarantee a long useful life in perfect condition. Single or double panels, reclining or supported, on a wooden base covered with formica, or wall panels.

Reclined panel, with upper frame in vertical position, on a wooden base



Single panel, 900x1050

One reclining panel.

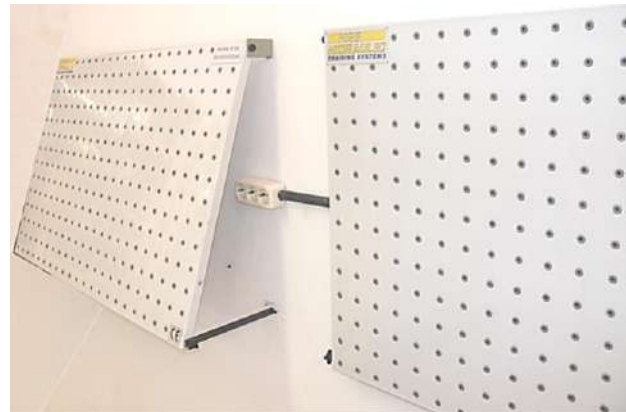
Ref. 53952856

Double panel, 900x1050

Two panels supported.

Ref. 53952855

Wall panel with reclining/folding system



Wall panel, 750x950

Wall panel with reclining /folding system.

Ref. 032084

Silent compressor

Ref. 01521831

Our training equipment can be equipped with the silent compressor (optional). PLA70 training trolleys has a specific location for the compressor, under the tray / next to the cabinet, fixed to the structure of the working bench.



Features:

- Designed to work in classrooms
- Sound level 45 dB at 1 meter
- Flow: 50 litres/min
- Pmax: 8bar
- Tank 15 litres
- Power 0,5 HP
- Automatic stop and start pressure switch
- Air intake filter
- Visual indicator of lubrication oil

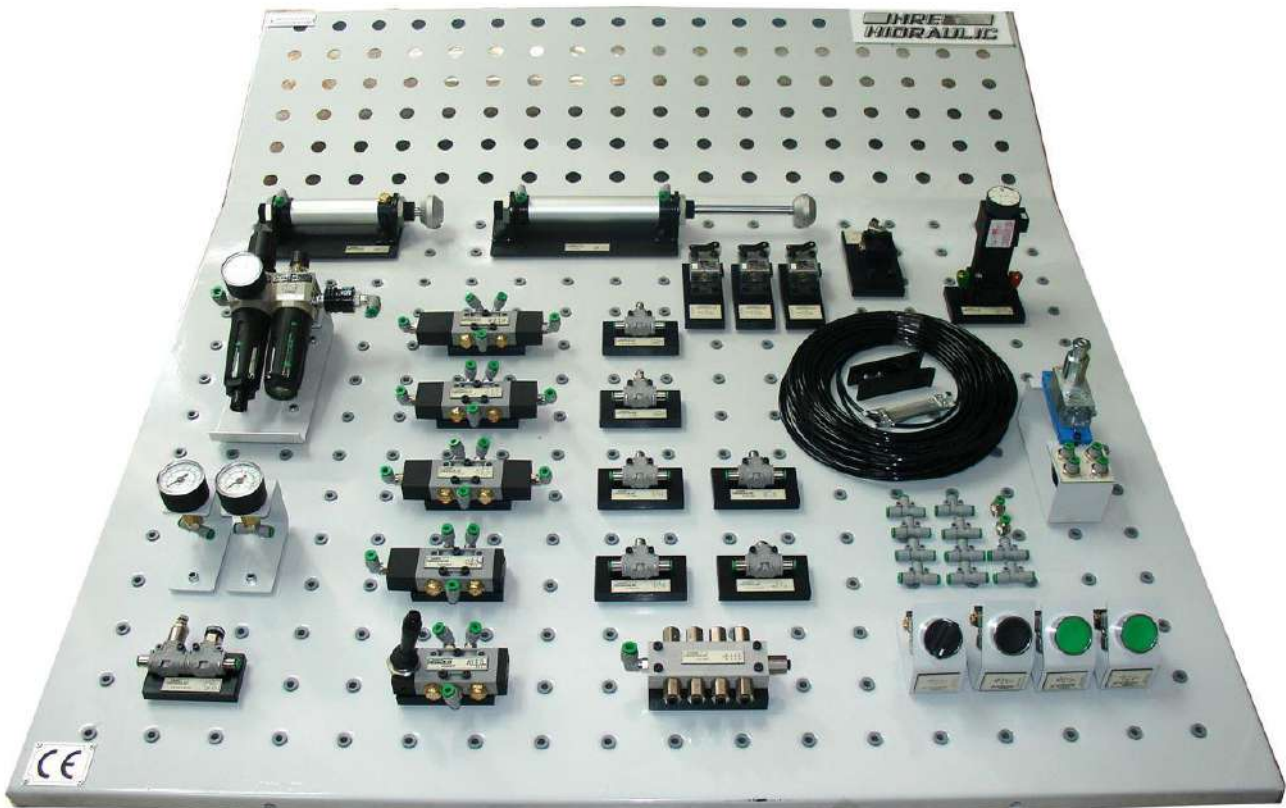
Silent compressor

Specially for working with one/two training panel

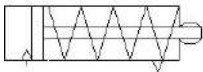
Ref. 01521831

Pneumatics level 1

Ref. 53950430



1



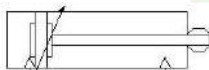
Single acting cylinder

Ø25 x 50 mm stroke, spring return with silencer

Ref. 13024850

Units.1

2



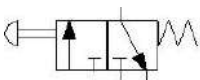
Double acting cylinder

Ø25 x 100 mm stroke, adjustable cushioning

Ref. 13024851

Units.1

3



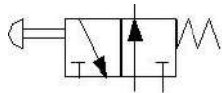
3/2 way valve, NC

3/2 way valve, normally closed, manually operated by push button, spring return

Ref. 13024852

Units.2

4



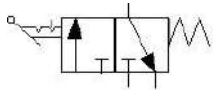
3/2 way valve, NO

3/2 way valve, normally open, manually operated by push button, spring return

Ref. 13024912

Units.1

5



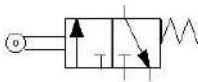
3/2 way valve with selector

3/2 manual valve, operated by selector

Ref. 13024854

Units.1

6



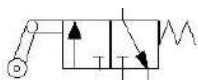
3/2 limit switch, NC

3/2 way roller lever valve, normally closed, spring return

Ref. 13024855

Units.3

7



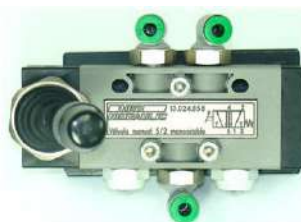
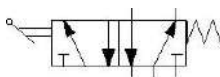
3/2 retractable limit switch, NC

3/2 way retractable roller lever valve, nc, spring return

Ref. 13024856

Units.1

8



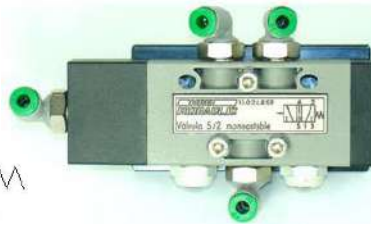
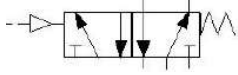
5/2 way lever valve

5/2 manual valve, operated by lever / spring return

Ref. 13024858

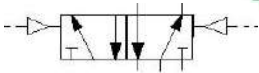
Units.1

9



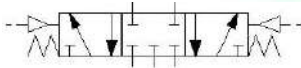
5/2 way single pilot valve
5/2 valve, pneumatically operated / spring return
Ref. 13024859 **Units.1**

10



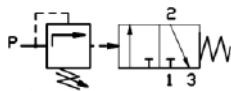
5/2 way double pilot valve
5/2 valve, pneumatically operated by both sides
Ref. 13024860 **Units.2**

11



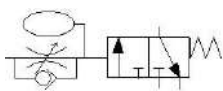
5/3 way double pilot valve, CC
5/3 valve, pneumatically operated by both sides, closed centers
Ref. 13024861 **Units.1**

12



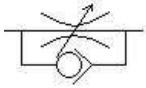
Pressure sequence valve
Setting of pressure manual by rotary knob, flow rate adjustable by throttling
Ref. 13024862 **Units.1**

13



Pneumatic timer, NC
Pneumatic timer valve to the connection, 3/2 NC. Regulation from 0-30 seg.
Ref. 13024863 **Units.1**

14



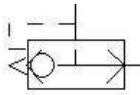
One way flow restrictor

One way flow control valve with check valve, manual adjustment

Ref. 13024864

Units.2

15



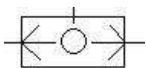
Quick-exhaust valve

Quick - exhaust valve with silencer

Ref. 13024865

Units.1

16



Shuttle valve (OR)

Pneumatic OR logic function

Ref. 13024866

Units.2

17



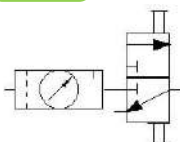
Dual pressure valve (AND)

Pneumatic AND logic function

Ref. 13024867

Units.1

18



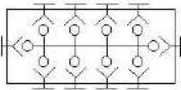
Start up valve: FRL unit

FRL unit: filter+pressure regulator + pressure gauge 0...12 bar + lubricator + 3/2 valve

Ref. 13024868

Units.1

19



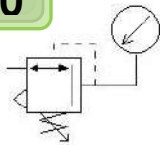
Manifold, 10 way

Distributor block: 1 inlet and 9 outlets with check valves

Ref. 13024869

Units.1

20



Pressure regulator + gauge

Pressure reducing valve with gauge from 0 to 8 bar

Ref. 13024870

Units.1

21



Pressure gauge

0...12 bar, with two Ø4mm. quick fit connections

Ref. 13024871

Units.2

22



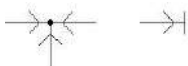
Flexible black pipe, cutter and extractor

25 m. of black pipe, Ø4 mm., + pipe cutter + extractor tool

Ref. 13024913

Units.1

23



T connections and fittings

10 "T" connections and 2 straight fittings, Ø4 mm.

Ref. 13024914

Units.10+2

24

Pneumatic theory book: Modern Pneumatics

Ref. 01509006

Units.1

Workbook: Pneumatics Levels 1 & 2 (vol1)

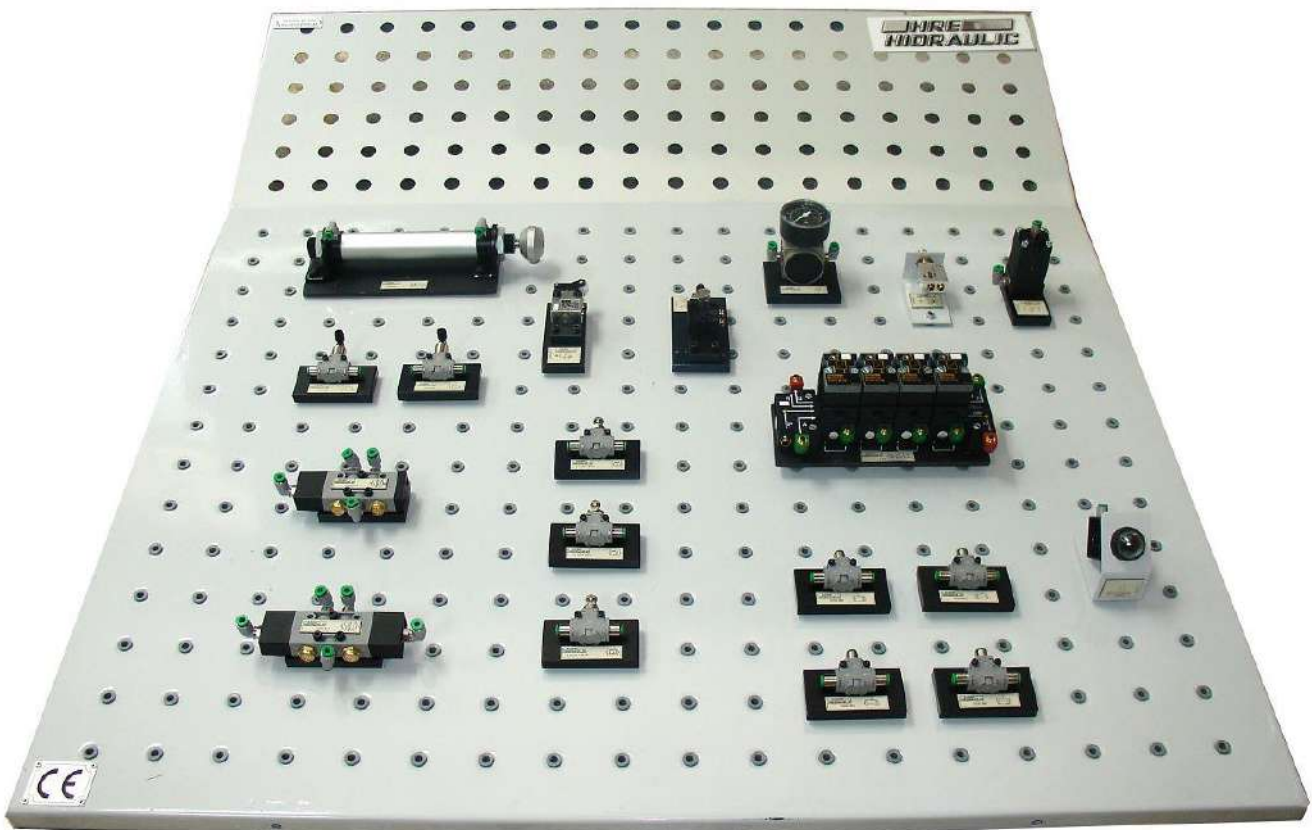
Ref. 01509008

Units.1

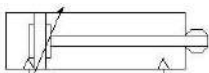
All elements mounted on a base plate with standardized symbols, with Ø4mm fittings and exhaust silencers if necessary.

Pneumatics level 2

Ref. 53950431



1



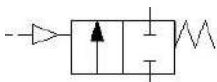
Double acting cylinder

Ø25 x 100 mm stroke,
adjustable cushioning

Ref. 13024851

Units.1

2



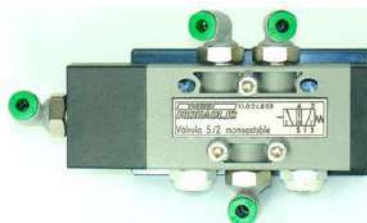
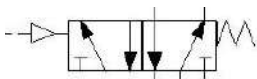
Piloted one way restrictor

2/2 valve, pneumatically
operated / spring return

Ref. 13024878

Units.2

3



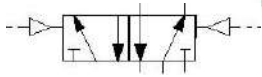
5/2 way single pilot valve

5/2 valve, pneumatically
operated / spring return

Ref. 13024859

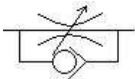
Units.1

4



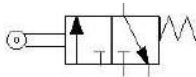
5/2 way double pilot valve
5/2 valve, pneumatically operated by both sides
Ref. 13024860 **Units.1**

5



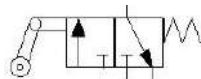
One way flow restrictor
One way flow control valve with check valve, manual adjustment
Ref. 13024864 **Units.3**

6



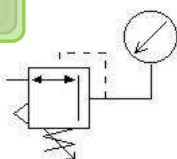
3/2 limit switch, NC
3/2 way roller lever valve, normally closed, spring return
Ref. 13024855 **Units.1**

7



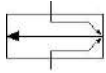
3/2 retractable limit switch, NC
3/2 way retractable roller lever valve, nc, spring return
Ref. 13024856 **Units.1**

8



Low pressure regulator
With pressure gauge from 0 to 4 bar
Ref. 13024872 **Units.1**

9

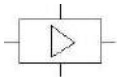


Pneumatic low pressure detector

Low pressure air blow detector

Ref. 13024873 Units.1

10



Pneumatic amplifier

Amplifier for pneumatic low pressure detector

Ref. 13024874 Units.1

11

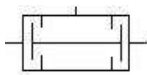


4 step logic sequencer

With auxiliary push button for activate each step. Possibility of serial connection with additional sequencers

Ref. 13024875 Units.1

12



Dual pressure valve (AND)

Pneumatic AND logic function

Ref. 13024867 Units.4

13



Pressure indicator

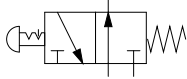
Green color, optical indicator. With Ø4mm. quick fit connection

Ref. 13024890 Units.1

Pneumatics complementary elements

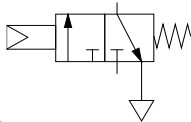
Single ref.

1



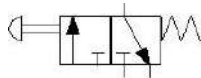
Pneumatic emergency
3/2 way valve, normally open, manually operated by emergency button
Ref. 7438

2



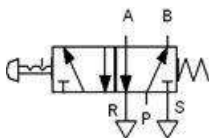
3/2 way single pilot valve, NC
3/2 valve, normally closed, pneumatically operated / spring return
Ref. 7440

3



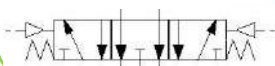
3/2 way manual valve, NC
3/2 manual valve, normally closed, operated by push button / spring return
Ref. 12273

4



5/2 way valve with selector
5/2 manual valve, operated by selector
Ref. 032774

5



5/3 way double pilot valve, OC
5/3 valve, pneumatically operated by both sides, open centers
Ref. 13024916

6

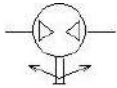


Rotary actuator

30° -180° adjustable angle,
with two proximity detectors
and Ø=4mm male plugs

Ref. 13024917

7



Pneumatic motor

Bi-directional air motor,
auxiliary valve actuated

Ref. 13024929

8

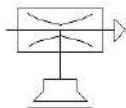


Rodless cylinder

Double acting rodless
cylinder, Ø25 x 300mm stroke,
adjustable cushioning

Ref. 13024889

9

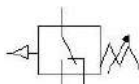


Suction cup with venturi valve

Vacuum generator by venturi
effect with Ø32 mm suction
cup, silencer and Ø4mm. quick
fit connection

Ref. 13028033

10

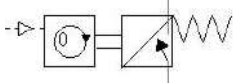


Vacuum switch

Vacuum switch from -0.3 to
- 1bar. Voltage free switched
output

Ref. 13024901

11

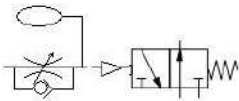


Pneumatic counter

5-digit pneumatic counter with preset. Manual or pneumatic reset

Ref. 13024908

12

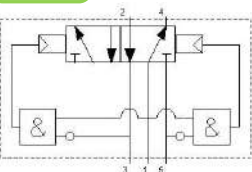


Pneumatic timer, NO

Pneumatic timer valve to the connection, 3/2 NO. Regulation from 0-30 seg.

Ref. 13027957

13

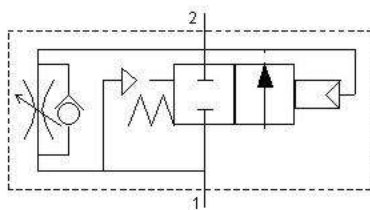


Oscillating valve

Oscillating valve with logic NOT cells incorporated. Pmax = 8bar

Ref. 13028041

14

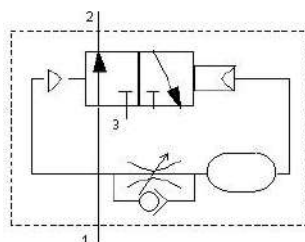


Soft start valve

Flow from 1 to 2: 760l/min and from 2 to 1: 900l/min

Ref. 13027996

15

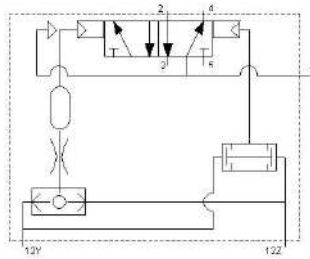


Adjustable pulse transmitter valve

Shorts permanent input signal into a regulated output pulse

Ref. 13024915

11

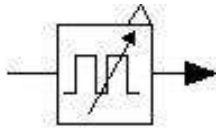


Two-hand safety module

Two-hand control to work in combination with push button valves

Ref. 130249887

12



Pulse generator

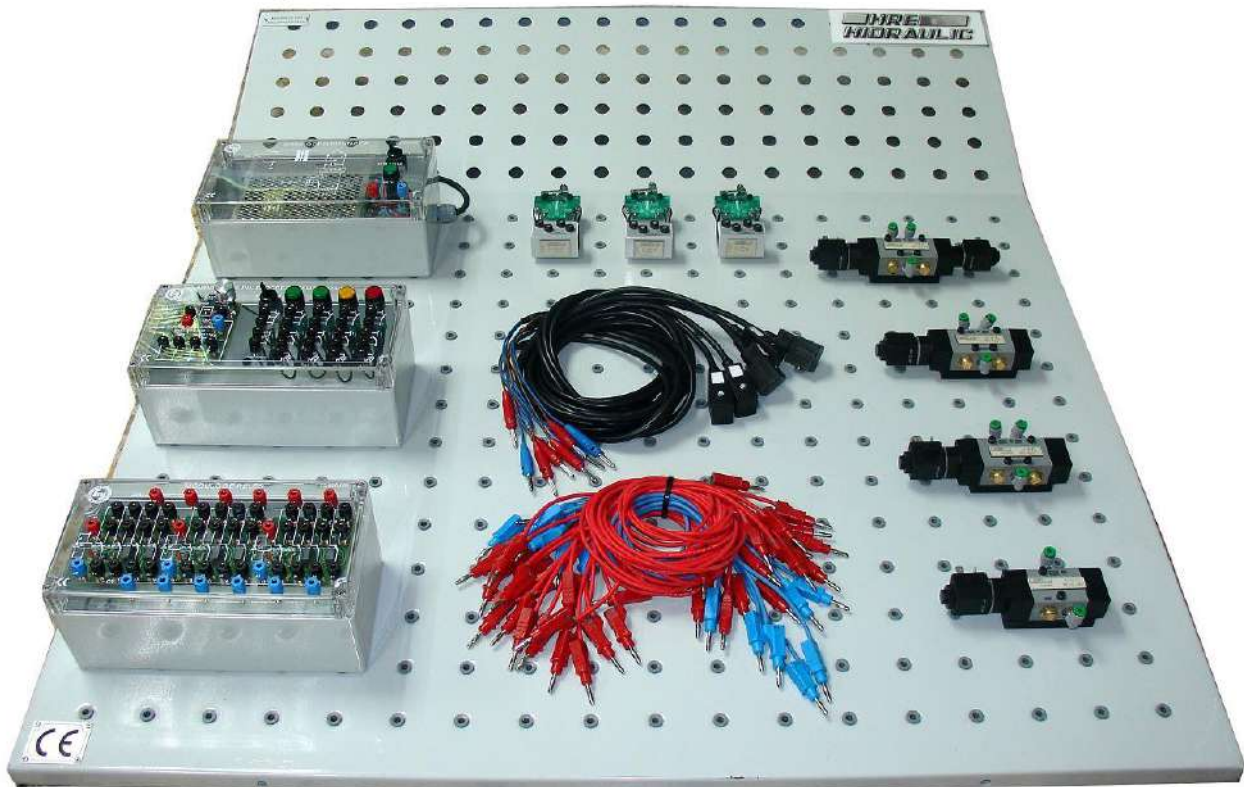
Pneumatic pulse generator. Timing from 0.02 to 8 sec. adjustable

Ref. 13028040

Do not hesitate to ask us for any other element or additional valve, more complementary elements are available with configurations/controls different from those shown in this catalog

Electro-pneumatics level 1

Ref. 53950434



1



Power supply unit.
110-220 VAC/24 VDC, I=5 A. Over load and short circuit protection
 On/Off switch
 On/Off indication lamp
 Electronically stabilized
 Ø=4 mm electronic quick connectors
 Plastic box with printed transparent cover

Ref. 23500965

Units.1

2



Limit switch, with 1 normally closed contact +1 normally opened contact
 Acting by retractable roller, activation direction selectable
 Ø=4 mm female connectors

Ref. 13024919

Units.3

3



Control panel with timer

4 push buttons, 2 green, 1 red, 1 yellow, with 1 normally open + 1 normally closed contacts each

1 switch with 1 normally open + 1 normally closed contacts

1 connection / disconnection electronic timer, 0 to 6 s regulation

4 spark suppressing diodes

4 indicator lights, 2 green, 1 red and 1 yellow

Ø=4 mm quick connectors

Ref. 23500966

Units.1

4



Relays module

3 relay unit with 4 switched contacts each

On/Off light indicator on every relay solenoid

Spark suppressing diode on every solenoid

6 connection divider for + voltage

6 connection divider for - voltage

Ø=4 mm quick connectors

Plastic box printed transparent cover

Ref. 23500968

Units.1

5



Set of connection cables

4 blue cables, 250 mm length

4 red cables, 250 mm length

8 blue cables, 500 mm length,

8 red cables, 500 mm length.

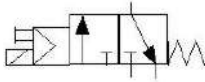
6 red cables, 1500 mm length.

With Ø4 mm male quick connectors

Ref. 23500974

Units.1

6



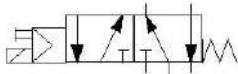
3/2 solenoid valve, 24Vdc solenoid and spring return

3/2 valve, normally closed (NC) with auxiliary manual button

Ref. 13024895

Units.1

7



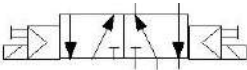
5/2 solenoid valve, 24Vdc solenoid and spring return

5/2 valve, with auxiliary manual button

Ref. 13024896

Units.2

8



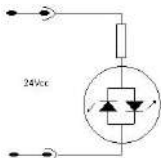
5/2 solenoid valve, 24Vdc solenoids

5/2 valve, bistate, with auxiliary manual buttons

Ref. 13024897

Units.1

9



Connector for solenoid.

Including 2P+G connector, led indicator, cable and male Ø=4 mm quick connectors

Ref.13024899

Units.5

10

Electro pneumatics workbook: Levels 1 & 2 (vol2)

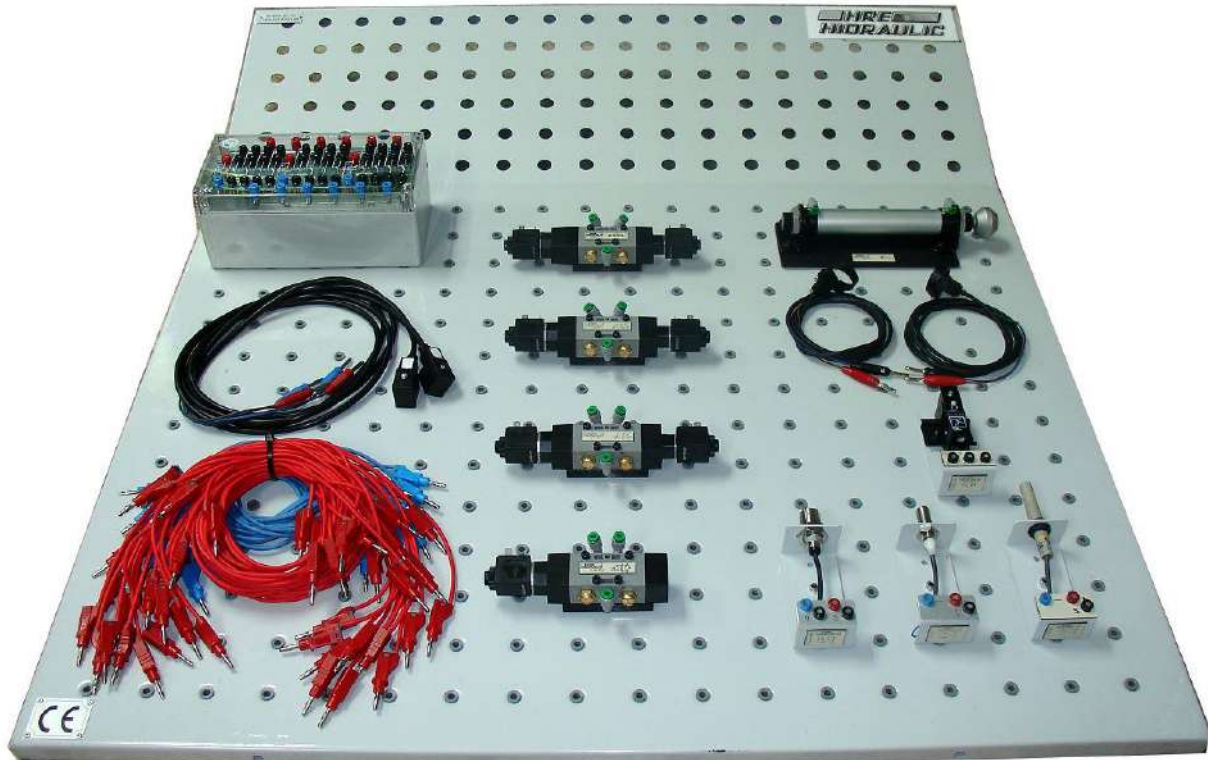
Ref. 01509007

Units.1

All elements mounted on a base plate with standardized symbols, with Ø4mm fittings and exhaust silencers if necessary.

Electro-pneumatics level 2

Ref. 53950435



1



Relays module

3 relay unit with 4 switched contacts each

On/Off light indicator on every relay solenoid

Spark suppressing diode on every solenoid

6 connection divider for + voltage

6 connection divider for - voltage

Ø=4 mm quick connectors

Plastic box printed transparent cover

Ref. 23500968

Units.1

2



Magnetic "reed" sensor

Magnetic not contact cylinder position detector, clamping flange to cylinder Ø25mm and male Ø=4mm quick connectors

Ref. 13024907

Units.2

3



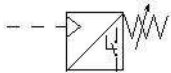
D. effect magnetic cylinder

Ø25 x 100 mm stroke,
adjustable cushioning and
magnetic piston

Ref. 13024911

Units.1

4



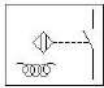
Adjustable pressure switch

Output signal by exchanged
(switched) contact

Ref. 13024900

Units.1

5



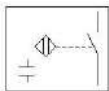
Inductive sensor

Non-contact proximity sensor
M12, nominal sensing 2 mm.

Ref. 13024903

Units.1

6



Capacitive sensor

Non-contact proximity sensor
M12, nominal sensing 4 mm.

Ref. 13024904

Units.1

7



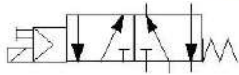
Photoelectric sensor

Non-contact reflex sensor
M18, nominal sensing 100mm.
Output PNP/NPN

Ref. 13024905

Units.1

8



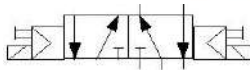
5/2 solenoid valve, 24Vdc solenoid and spring return

5/2 valve, with auxiliary manual button

Ref. 13024896

Units.1

9



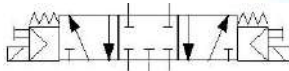
5/2 solenoid valve, 24Vdc solenoids

5/2 valve, bistate, with auxiliary manual buttons

Ref. 13024897

Units.2

10



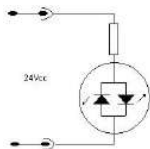
4/3 solenoid valve, 24Vdc solenoids and spring centered

5/3 valve, closed centers, with auxiliary manual buttons

Ref. 13024898

Units.1

11



Connector for solenoid.

Including 2P+G connector, led indicator, cable and male $\varnothing=4$ mm quick connectors.

Ref.13024899

Units.2

12



Set of connection cables

6 red cables, 250mm length

10 red cables, 500mm length

8 red cables, 1500mm length

5 blue cables, 500mm length

4 blue cables, 1500mm length

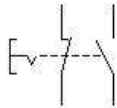
Ref. 23500975

Units.1

Electro-pneumatics complementary elements

Single ref.

1

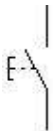


Emergency push button

Push button with interlocking, with 1NO contact and 1 NC contact. Ø4mm sockets

Ref. 23500952

2

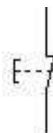


Electric push button NO

Push button green color (start), with 1NO contact. Ø4mm sockets

Ref. 23500953

3



Electric push button NC

Push button black color (stop), with 1NC contact. Ø4mm sockets

Ref. 23500954

4

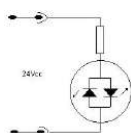


Electric switch

Electric switch, rotary actuation, black color (auto). Ø4mm sockets

Ref. 23500923

5

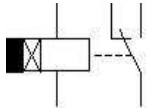


1 Connector for solenoid.

Including 2P+G connector, led indicator, cable and male Ø=4 mm quick connectors

Ref. 13024899

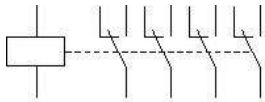
6



Electronic timer

Selectable connection / disconnection time. Setting by potentiometer. Ø4mm sockets
Ref. 23500957

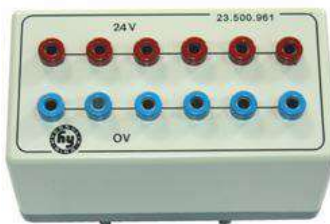
7



Relay module

24Vdc relay, with 4 switched contacts. Ø4mm sockets
Ref. 23500955

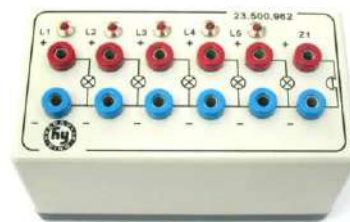
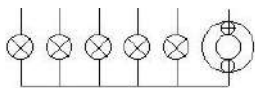
8



Electrical distributor module

6 red connection Ø4mm sockets (24V) and 6 blue connection Ø4mm sockets(0V)
Ref. 23500961

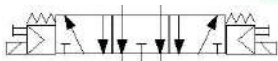
9



Indicator module

With 5 LED lights and 1 buzzer, Ø4mm sockets activations at 24Vdc
Ref. 23500962

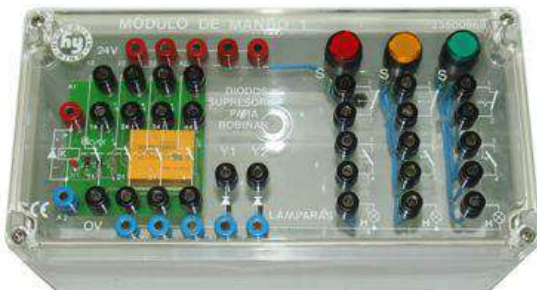
10



4/3 solenoid valve, 24Vdc solenoids and spring centered 5/3 valve, open centers with P closed, with auxiliary manual buttons

Ref. 13024920

11



Control unit and relay

3 push buttons, 1 green, 1 red, 1 yellow, with 1 normally open + 1 normally closed contacts each
 1 relay, with 4 switched contacts.
 1 electrical distributor: 5 red (24V) and 5 blue(0V) connection sockets
 2 spark suppressing diodes
 3 indicator lights, 1 green, 1 red and 1 yellow
 Ø=4 mm quick connectors
Ref. 23500969

12



PLC´s on rack

Programmable logic controllers from the main manufacturers on the market. Different models and I/O configurations of Siemens, Omron...
 Ask for the requirements
Ref. PLC´s on rack

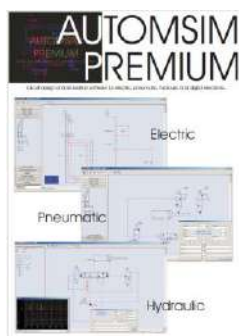
13



Up/Down counter

Electronic settings, two channels: A and B. Preselection value and reset can be manual or electric. Output: 1 switched contact, Ø4mm sockets
Ref. 23500956

14



AUTOMSIM PREMIUM software

Friendly software for the drawing and simulation of electro- hydraulics, and electro pneumatics circuits. Available libraries: Pneumatics, Hydraulics, Electrical and Digital.
 Ask for the licenses **Ref. 47875**

15



Automation Studio design and simulation software Powerful software for the design and simulation of circuits with different automation technologies. Different packages: Pneumatics, Hydraulics, Fluid Power, Electrotechnics, Automation, Premium
Ask for the licenses **Ref. AStudio**

Do not hesitate to ask us for any other element or additional valve, more complementary elements are available with configurations/controls different from those shown in this catalog

Proportional pneumatics position control

Ref. 23505021



1



Proportional controller, adjustable gain

Pneumatic servo valve controller, settings by 5 potentiometers

Ref. 20035

Units.1

2



Double acting cylinder with linear position transducer

Cylinder $\varnothing 25 \times 200$ mm stroke, adjustable cushioning and transducer

Ref. 14609

Units.1

3



5/3 servo valve, closed centers

Proportional control, M5 connector with cable and male $\varnothing=4$ mm quick connectors

Ref. 20034

Units.1

4



Dual power supply

Input 240 VAC
Dual output: +/- 12 Vdc
In plastic box with Ø=4mm plugs

Ref. 26283

Units.1

5



External set-point value generator

Power 12Vdc,
Output 0 +10Vdc by rotating joystick
In plastic box with Ø=4mm plugs

Ref.15413

Units.1

6



Dual display

Visualization of the set point and the feedback. Input from 0 a 10V dc by 4 digits displays

Ref.2309

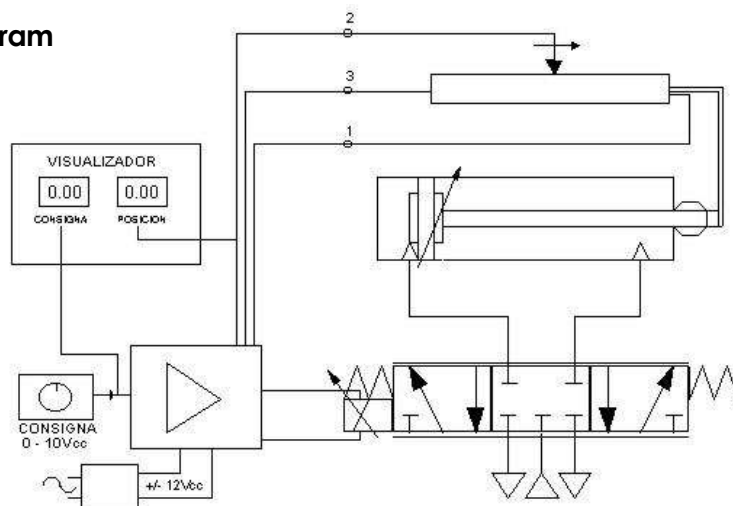
Units.1

7

Proportional pneumatics workbook: Position control

Ref. 034650

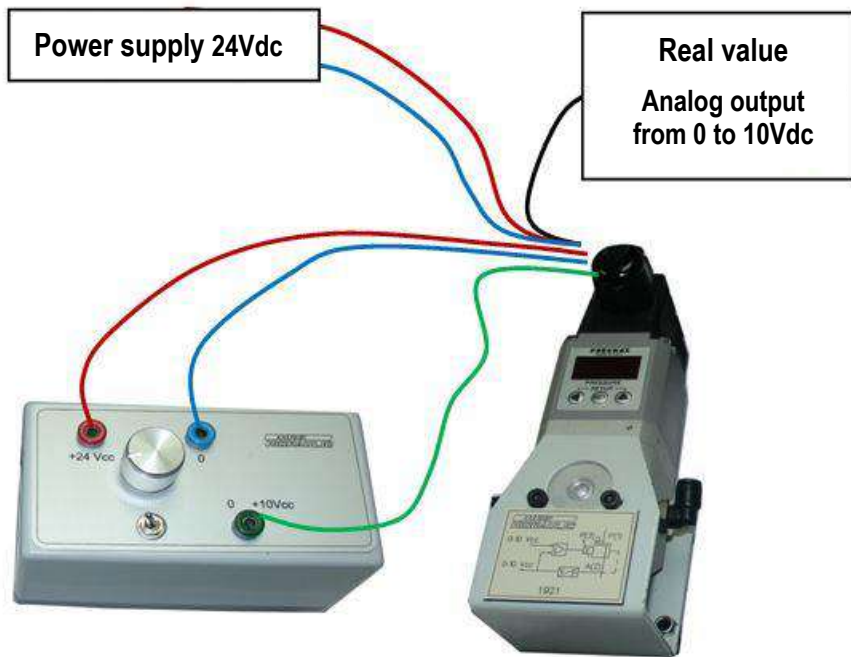
Control diagram



Position control in closed loop

Proporcional pneumatics – pressure control

Ref. 23505022



1



Proportional reducer valve, pressure range from 0 to 9 bar, with display
Built-in pressure transducer for self-regulation of pressure in internal closed loop. Over plate with Ø=4mm plugs
Ref. 38381 **Units.1**

2



External set-point value generator
Power 24Vdc,
Output 0 +10Vdc by rotating joystick
In plastic box with Ø=4mm plugs
Ref.14593 **Units.1**

3

Proportional pneumatics workbook: Pressure control

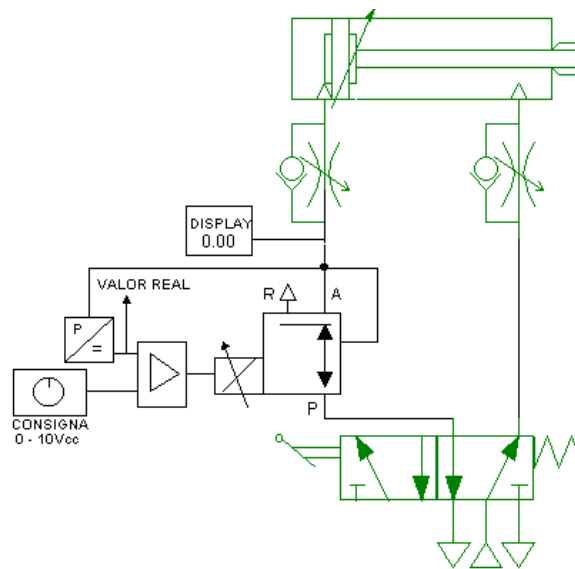
Ref. 034651

Proportional pressure control in closed loop from 0 to 9 bar by a proportional reducing valve with built-in pressure transducer for self-regulation of pressure in internal closed loop.

Self-regulation of pressure by 16-bit microprocessor with 12-bit analog converter and analog pressure transducer, with closed-loop control of outlet pressure with reference pressure

Reference signal by rotary potentiometer of 0...10 Vdc, pressure ratio / set point of 1 bar / volt

Control diagram



Pressure control in closed loop

Elements in green not included in the **Ref. 23505022**



HRE
40 Years

Pol. Ibaizarte 21
20870 Elgoibar, Gip.

(+34) 943 74 21 30
hre@hre.es

www.hre.es