

#### General

The 2000 series solenoid valves have been developed to meet requirements for electronically controlled pneumatic systems and / or serial control systems already used in all manufacturing sectors.

They have been designed to be easily assembled into groups or manifolds and include integral electrical connection to facilitate simple and speedy integration into a control system. The series comprises a range of products classified according to type, size and performance. There are tree main sizes, 10mm., 18 mm. and 26 mm., with each size further divided into 3 types " LINE ", " FLAT " and "VDMA" or "BASE".

The 10mm. and 18 mm. 24 VDC range of valves includes a range of accessories for the production of manifolded valve assemblies with integral electrical connections. Modules are available in two or four station variants for flexibility and are supplied to IP40 or alternatively IP65 environmental protection.

#### **Construction characteristics**

acteristics	2100	2400	2600			
Central body	Extruded alu	minium bar with chemical nic	kel treatment			
	an	d PTFE (polytetrafleurethyler	ne)			
Connection plates	s Technopolymer Zincalloy Die-cast alu					
Operators	Technopolymer					
Spool		Aluminium 2011				
Piston seals	(	Dil resistant nitrile rubber - NB	R			
Spool seals	0	il resistant nitrile rubber - HNE	BR			
Springs	Stainless steel AISI 302					
Piston	Aluminium 2011 Technopolymer					

#### Use and maintenance

The average life of the valve exceeds 50.000.000 cycles when used under optimum conditions.

Adequate lubrication reduces seals wear, just as proper filtering of supply air prevents the build-up of dirt that can cause malfunction. Ensure the valve is used within our recommended criteria for pressure and temperature. In dirty or dusty environments, the exhaust ports should be protected.

A seal kit including the spool is available for overhauling the valve. This operation does not require a skilled worker, although a particular care should be taken when reassembling the valve.

#### Ordering codes for minature solenoid valves **Series 2100:**

The 10 mm. miniature solenoid valve with 0,7 mm. orifice has been selected for piloting this series of valves (see Series 300). This results in low response times and reduced power consumption. The valve can be supplied with the coil upward or downward depending on the application.

Codes are as follows:

#### Coil upward code

01 = miniature sol. 12 VDC 90°conn. with led

21 = miniature sol. 12 VDC line conn. with led

02 = miniature sol. 24 VDC 90°conn. with led

22 = miniature sol. 24 VDC line conn. with led

#### Coil downward code

11 = miniature sol. 12 VDC 90° conn. with led

31 = miniature sol. 12 VDC line conn. with led

12 = miniature sol. 24 VDC 90°conn. with led

32 = miniature sol. 24 VDC line conn. with led

91 = miniature sol. 12 VDC for integral electrical connections

92 = miniature sol. 24 VDC for integral electrical connections

### Serie 2400/2600:

The 15 mm miniature solenoid valve with 1,1 mm. orifice has been selected for piloting this series of valves (see Series 300). This results in low response times and reduced power consumption. The valve can be supplied with the coil upward or downward depending on the application.

Codes are as follows:

## Coil upward code

Coil downward code 01 = miniature sol. 12 VDC 11 = miniature sol. 12 VDC 02 = miniature sol. 24 VDC 12 = miniature sol. 24 VDC 05 = miniature sol. 24 VAC 15 = miniature sol. 24 VAC 06 = miniature sol. 110 VAC 16 = miniature sol. 110 VAC 07 = miniature sol. 230 VAC 17 = miniature sol. 230 VAC

08 = miniature sol. 24 VDC 1W 18 = miniature sol. 24 VDC 1W Downward

09 = miniature sol. 24 VDC Earth faston 19 = miniature sol. 24 VDC Earth faston Downward

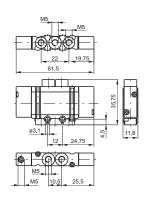
$\Psi$	Well-tried component	- The product is a well-tried product for a safety-related application according to ISO 13849-1 The relevant basic and well-tried safety principles according
<b>B</b> <sub>10d</sub>	50.000.000	ISO 13849-2 for this product are fulfilled.  - The suitability of the product for a precise application must be verified and confirmed by the user.

## Pneumatic - Spring

Ordering code

2115.52.00.19





Weight gr. 30 Minimum piloting pressure 2 bar

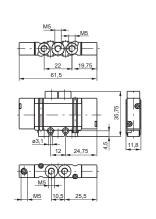
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size	
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

#### Pneumatic - Differential

Ordering code

2115.52.00.16





Weight gr. 28 Minimum piloting pressure 2 bar

14 - 5 1 3

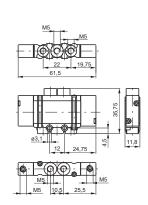
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size	
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

## Pneumatic - Pneumatic

Ordering code

2115.52.00.18





Weight gr. 30 Minimum piloting pressure 2 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5



#### Solenoid - Spring / Solenoid - Differential

#### Ordering code

# 2115.52.00. 2.00

PILOTING COIL VOLTAGE

9=Solenoid - Spring 36=Solenoid - Differential

> 01=12 VDC 90°conn. with led 21=12 VDC line conn. with led 02=24 VDC 90°conn. with led

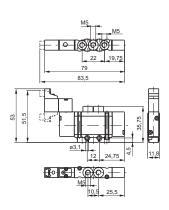
22=24 VDC line conn. with led 11=12 VDC 90°conn. with led Ø downward

31=12 VDC line conn. with led downward

12=24 VDC 90° conn. with led

32=24 VDC line conn. with led





Weight gr. 42 Minimum working pressure 2 bar



Weight gr. 40 Minimum operating pressure 2 bar

Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p = 1$ (NI/min)	Orifice size (mm)	Working ports size	
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

### Solenoid - Solenoid

## Ordering code

## 2115.52.00.35.

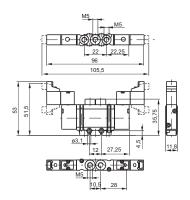
COIL VOLTAGE 01=12 VDC 90°conn. With led 21=12 VDC line conn. with led 02=24 VDC 90°conn. with led 22=24 VDC line conn. with led 11=12 VDC 90°conn. with led

V 31=12 VDC line conn. with led

12=24 VDC 90° conn. with led downward

32=24 VDC line conn. with led downward





Weight gr. 52 Minimum working pressure 2 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size	
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

#### Pneumatic - Pneumatic

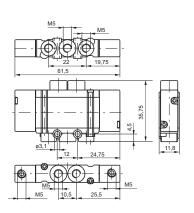
#### Ordering code

#### 2115.53. 3.18

FUNCTION 31=Closed centres

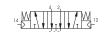
32=Open centres 33=Pressured centres





Weight gr. 32 Minimum working pressure 2,5 bar

14 W 11 V 1 3 12





Operational	Fluid	Max working pressure (bar)	Temperature °C	(NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5	M5

## Solenoid - Solenoid

## Ordering code

## 2115.53. 35.

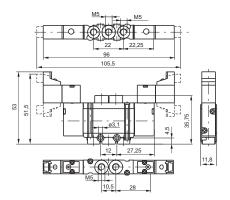
FUNCTION

31=Closed centres
32=Open centres
33=Pressured centres
COIL VOLTAGE
01=12 VDC 90°conn. with led
21=12 VDC line conn. with led
02=24 VDC 90° conn. with led
22=24 VDC line conn. with led
11=12 VDC 90° conn. with led
downward

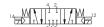
31=12 VDC line conn. with led downward 12=24 VDC 90° conn. with led downward

32=24 VDC line conn. with led downward





Weight gr. 54 Minimum working pressure 2,5 bar







Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5	M5

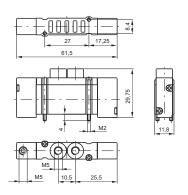


#### Pneumatic - Spring

Ordering code

2135.52.00.19





Weight gr. 32 Minimum piloting pressure 2 bar



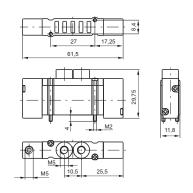
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5

#### Pneumatic - Differential

Ordering code

2135.52.00.16





Weight gr. 30 Minimum piloting pressure 2 bar



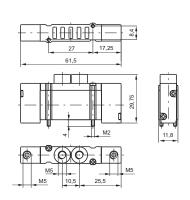
	Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size	
ch	characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

#### Pneumatic - Pneumatic

Ordering code

2135.52.00.18





Weight gr. 32 Minimum piloting pressure 2,5 bar

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Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5

#### Solenoid - Spring / Solenoid - Differential

#### Ordering code

#### \_\_\_\_\_

# 2135.52.00.**₽**.**♥**

PILOTING
39=Solenoid - Spring
36=Solenoid - Differential
COIL VOLTAGE
01=12 VDC 90°conn. with led
21=12 VDC line conn. with led
02=24 VDC 90°conn. with led

22=24 VDC line conn. with led 11=12 VDC 90°conn. with led downward

31=12 VDC line conn. with led downward

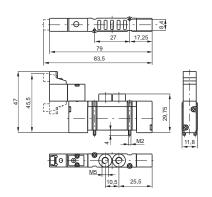
12=24 VDC 90° conn. with led downward

32=24 VDC line conn. with led downward

91=12 VDC for integral electrical connections downward

92=24 VDC for integral electrical connections downward





Weight gr. 38 Minimum working pressure 2 bar



Weight gr. 36 Minimum operating pressure 2 bar

Ор	erational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size	
cha	aracteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5	

## Solenoid - Solenoid

## Ordering code

## 2135.52.00.35.

COIL VOLTAGE

01=12 VDC 90°conn. with led
21=12 VDC line conn. with led
02=24 VDC 90°conn. with led
22=24 VDC line conn. with led
11=12 VDC 90°conn. with led

31=12 VDC line conn. with led

downward

12=24 VDC 90°conn. with led

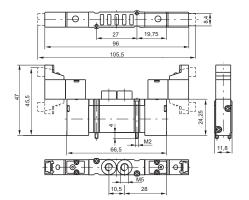
downward

32=24 VDC line conn. with led downward

91=12 VDC for integral electrical connections downward

92=24 VDC for integral electrical connections downward





Weight gr. 50 Minimum working pressure 1,5 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5	M5



#### Pneumatic - Pneumatic

#### Ordering code

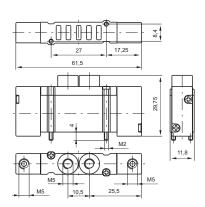
## 2135.53. 3.18

FUNCTION

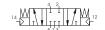
B 31=Closed centres

32=Open centres 33=Pressured centres





Weight gr. 28 Minimum working pressure 2 bar







For dimension "A" see ordering code

Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5	M5

## Solenoid - Solenoid

## Ordering code

## 2135.53. 35.

FUNCTION 31=Closed centres 32=Open centres 33=Pressured centres COIL VOLTAGE 01=12 VDC 90°conn. with led 21=12 VDC line conn. with led 02=24 VDC 90°conn. with led 22=24 VDC line conn. with led 11=12 VDC 90°conn. with led downward

31=12 VDC line conn. with led downward V 12=24 VDC 90° conn. with led

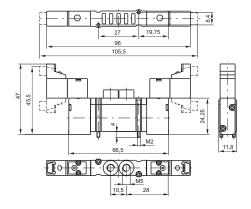
downward 32=24 VDC line conn. with led downward

91=12 VDC for integral electrical connections downward

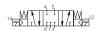
92=24 VDC for integral electrical

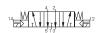
connections downward





Weight gr. 52 Minimum operating pressure 2,5 bar







For dimension "A" see ordering code

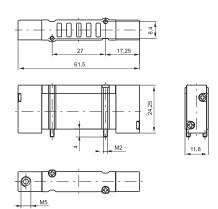
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5	M5



Ordering code

2141.52.00.19





Weight gr. 24 Minimum piloting pressure 2 bar



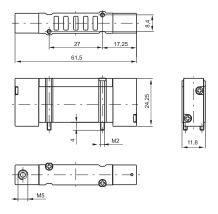
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/ min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5

#### Pneumatic - Differential

Ordering code

2141.52.00.16





Weight gr. 22 Minimum piloting pressure 2 bar



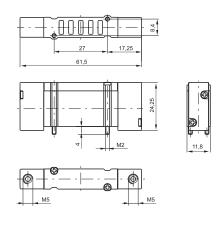
Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p = 1$ (NI/ min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5

## Pneumatic - Pneumatic

Ordering code

2141.52.00.18





Weight gr. 26 Minimum piloting pressure 1,5 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/ min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5



#### Solenoid - Spring / Solenoid - Differential

#### Ordering code

2141.52.00. 2.00



9=Solenoid - Spring 36=Solenoid - Differential

COIL VOLTAGE 01=12 VDC 90°conn. with led 21=12 VDC line conn. with led

02=24 VDC 90°conn. with led 22=24 VDC line conn. with led 11=12 VDC 90°conn. with led downward

31=12 VDC line conn. with led

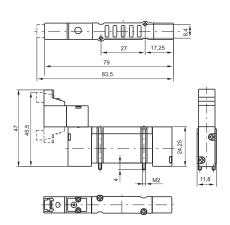
downward 12=24 VDC 90° conn. with led

32=24 VDC line conn. with led

91=12 VDC for integral electrical

92=24 VDC for integral electrical





Weight gr. 38 Minimum working pressure 2 bar



Weight gr. 36 Minimum working pressure 2 bar

Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/ min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5

### Miniature solenoid - Miniature solenoid

## Ordering code

## 2141.52.00.35.

COIL VOLTAGE 01=12 VDC 90°conn. with led 21=12 VDC line conn. with led 02=24 VDC 90°conn. with led 22=24 VDC line conn. with led 11=12 VDC 90°conn. with led

31=12 VDC line conn. with led V

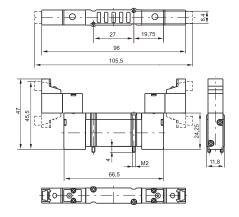
12=24 VDC 90° conn. with led downward

32=24 VDC line conn. with led downward

91=12 VDC for integral electrical connections downward

92=24 VDC for integral electrical connections downward





Weight gr. 48 Minimum working pressure 1,5 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	250 NI/min	mm 2,5

## Size 10 mm BASE

Pneumatic - Pneumatic

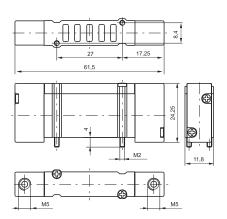
# Ordering code

2141.53. 3.18

FUNCTION 31=Closed centres

32=Open centres 33=Pressured centres





Weight gr. 28 Minimum working pressure 2 bar

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	Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/ min)	Orifice size (mm)
	characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5

## Solenoid - Solenoid

## Ordering code

## 2141.53. 35.

FUNCTION 31=Closed centres • 32=Open centres 33=Pressured centres COIL VOLTAGE 01=12 VDC 90°conn. with led 21=12 VDC line conn. with led 02=24 VDC 90°conn. with led 22=24 VDC line conn. with led 11=12 VDC 90°conn. with led

downward 31=12 VDC line conn. with led downward V

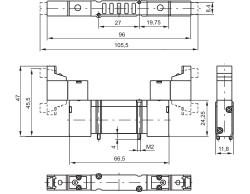
> 12=24 VDC 90° conn. with led downward

32=24 VDC line conn. with led downward

91 = 12 VDC for integral electrical

connections downward 92=24 VDC for integral electrical connections downward





Weight gr. 52 Minimum working pressure 2,5 bar



Operational	Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/ min)	Orifice size (mm)
characteristic	Filtered and lubricated air or not	7 bar	-5 - +50	180 NI/min	mm 2,5





## Ordering code

2140.01

TYPE

0=modular BASE without cartridge

4=modular BASE c/w with 4 mm tube cartridges

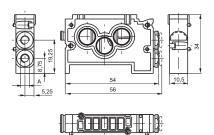
5=modular BASE c/w with M5 cartridges

7=modular BASE c/w with M7x1 car-tridges

Weight gr. 22

For dimension "A" see ordering code



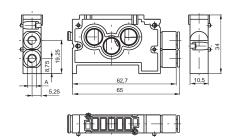


Modular base for "BASE" version, with 6mm tube cartridges

Ordering code

2146.01





Weight gr. 22

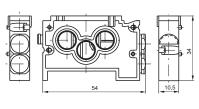
For dimension "A" see ordering code

#### Modular base for "FLAT" version

Ordering code

2130.01







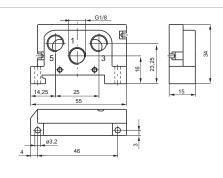
Weight gr. 28

# Right inlet base

Ordering code

2140.02





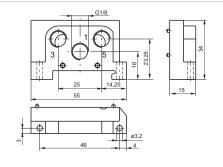
Weight gr. 18

#### Left inlet base

Ordering code

2140.03

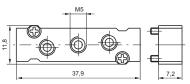




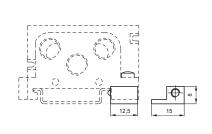
Weight gr. 18











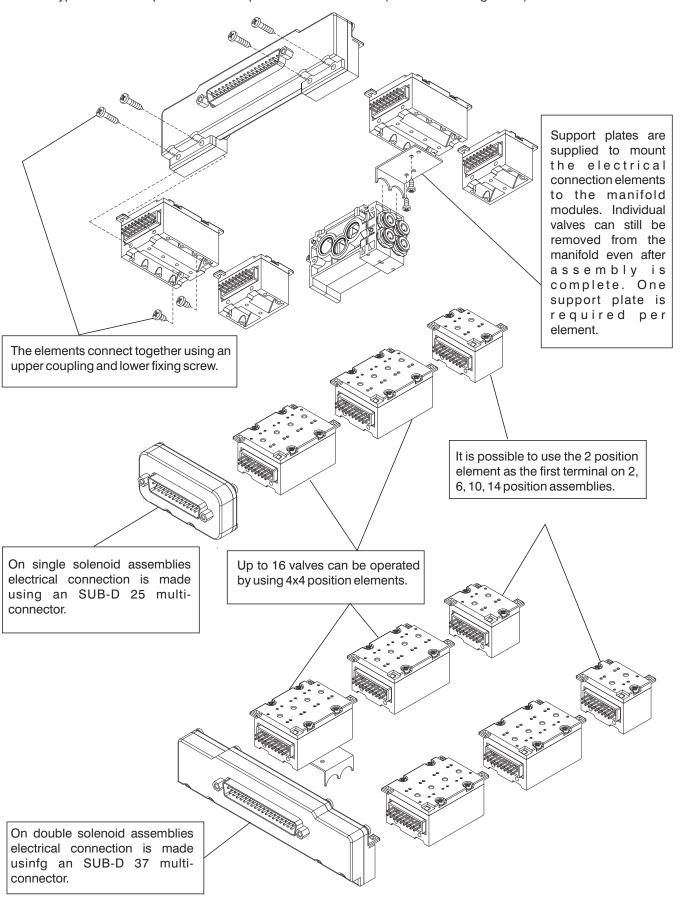




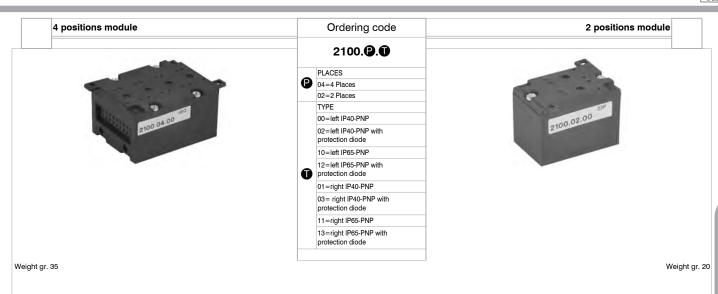


The integral electrical design for the series 2400 valve is extremely flexible, allowing the production of pre-wired solenoid valve manifolds, the configuration of which can be determined at the point of assembly. The 24 VDC, 12 VDC (equivalent PNP) modules are available with 2 or 4 positions. The system assembled is designed for an IP40 - IP65 protection.

Coil type 91 or 92 is required for the multipin electrical connection (see valve ordering codes).



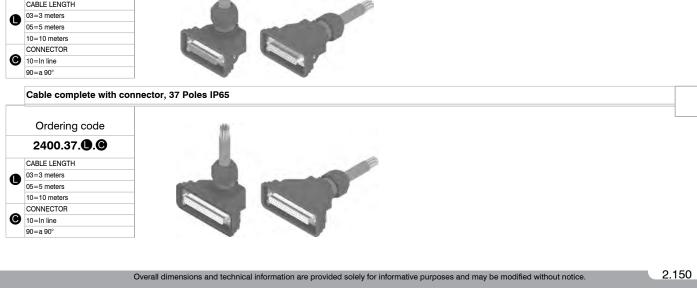






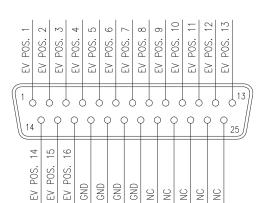








#### SUB-D 25 CONTACTS CONNECTOR



#### SUB-D 37 CONTACTS CONNECTOR

