

**SPECIFICATIONS****FLUID
PRESSURE**

- : Air or neutral gas, filtered, lubricated or not
- : Can be used with vacuum – 0.950 bar max.
- 0.950 to +12 bar (with external supply to pilot)
- +3 to +10/12 bar (with internal supply to pilot)

PILOT PRESSURE

- min. : 1.5 to 3 bar according to return operator
- max. : 12 bar (10 bar with solenoid pilots)

AMBIENT TEMPERATURE

- : –10°C, +60°C

FLOW (Qv at 6.3 bar)

- : 4200 l/min (ANR)

FLOW COEFFICIENTS

- conforming to ISO 6358

- : $C = 16 \times 10^{-8} \text{ m}^3/\text{s} \cdot \text{Pa}$ (sonic conductance)

- $b = 0.34$ (absolute static pressure)

- : $KV = 60$ (l/min)

RESPONSE TIME

- : See table CHOICE OF EQUIPMENT

LIFE

- : 15 millions of cycles (in normal operating conditions)

BASE

- : ISO 5599/01 - Size 3

PORTS

- : By subbases G 1/2 - G 3/4

SUBBASES

- : Single subbases ISO/AFNOR NF E49085

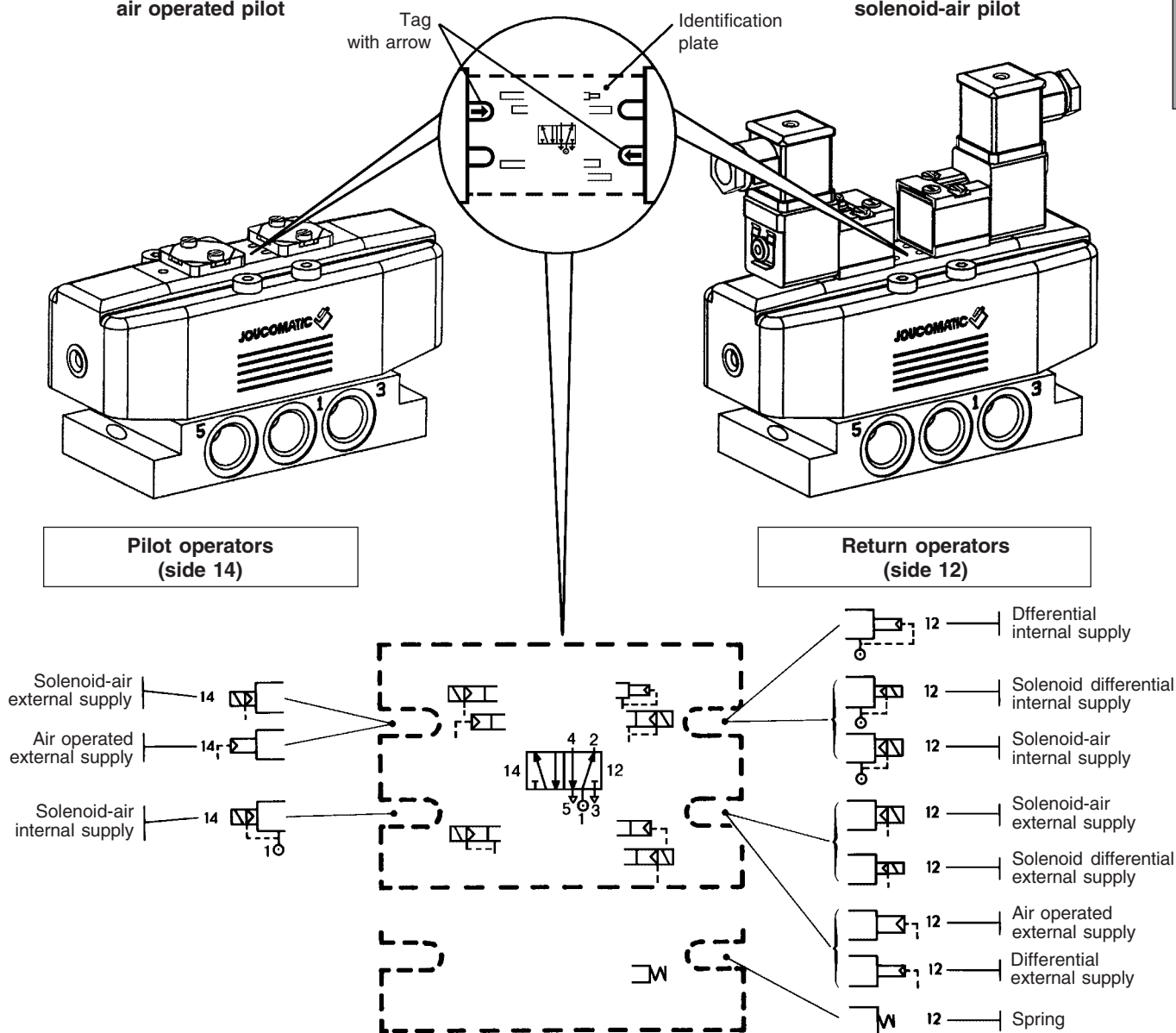
- : Joinable subbases ISO/VDMA 24345

**MULTIFUNCTION**

Multifunction valves are equipped with 2 pilot selector seals located on the upper part, on both sides : pilot and return. Each selector can be set in 2 positions to allow internal or external supply to the operators : air operated or solenoid-air pilot or return.

External supply enables the valves to be used with a fluid pressure ranging from 0 to 12 bar and with vacuum.

For this, it is only necessary to position the arrow of the selector into the notch matching the diagram of the required function (see below). Functions can be modified at will. The valves are delivered with the selector pre-set on the position corresponding to the function requested on order (see table choice of equipment).

**Valve with
air operated pilot****Valve with
solenoid-air pilot****5**



SPECIFICATIONS

FLUID
PRESSURE

: Air or neutral gas, filtered, lubricated or not
: +3 to +10 bar (with internal supply to pilot)
+3 to +12 bar (with solenoid valve series 192)
- 0.950 to +12 bar (with external supply to pilot)
Can be used with vacuum - 0.950 bar max.

PILOT PRESSURE
AMBIENT TEMPERATURE
FLOW (Qv at 6.3 bar)

: See table CHOICE OF EQUIPMENT
: - 10°C, +60°C
: 4200 l/min (ANR)

FLOW COEFFICIENTS

- conforming to ISO 6358

: $C = 16 \times 10^{-8} \text{ m}^3/\text{s} \cdot \text{Pa}$ (sonic conductance)
b = 0,34 (absolute static pressure)

- conforming to NF E29312

: KV = 60 (l/min)

RESPONSE TIME

: See table CHOICE OF EQUIPMENT

LIFE

: 15 millions of cycles (in normal operating conditions)

BASE

: ISO 5599/01 - Size 3

PORTS

: By subbases G 1/2 - G 3/4

SUBBASES

: Single subbases ISO/AFNOR NF E49085
Joinable subbases ISO/VDMA 24345



1 = Pressure 12 = Return
2-4 = Outlets 14 = Pilot
3-5 = Exhausts

CONSTRUCTION

Painted steel cover

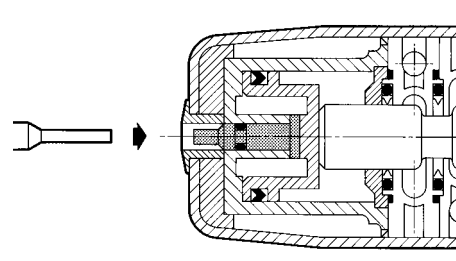
Pilot or return casing : acetal resin (POM)

Sealing : nitrile (NBR) and polyurethane (PUR)

Internal parts : light alloy and acetal resin (POM)

Multifunction pilot by selector seal

Without or with manual testers checking the spool position
or its manual override



CHOICE OF EQUIPMENT 5/2

5/2	FUNCTIONS	Response time (ms)		Pressure of the pilot fluid (in bar)		VALVE		2 CODES + Quantity & code SOLENOID PILOT
		Ener-gized	De-ener-gized	min.	max.	WITHOUT manual tester	WITH manual testers	
	Pilot (14) Return (12) Solenoid-air pilot - Spring return	90	115	3	10	543 91 023	543 91 006	Manual override: ▼ : impulse 190 00 022 with connector (LED) +1x 190 60 005 with M12 connection 190 00 018 without connector
	Solenoid-air pilot - Differential return	75	90	3	10	543 91 024	543 91 007	
	Solenoid-air pilot - Air operated return	35	-	1,5	10	543 91 025	543 91 008	
	Solenoid-air pilot - Solenoid differential return	35	-	3	10	543 91 026	543 91 009	190 00 022 with connector (LED) +2x 190 60 005 with M12 connection 190 00 018 without connector
	Solenoid-air pilot and return	35	-	1,5	10	543 91 027	543 91 010	

CHOICE OF EQUIPMENT 5/3

5/3		Response time (ms)		Pressure of the pilot fluid (in bar)		2 CODES		Quantity & code SOLENOID PILOT
Symbols	Functions	Ener-gized	De-ener-gized	min.	max.	WITHOUT manual tester	WITH manual testers	
	Pressure held W1 Solenoid-air operated	90	115	3	10	543 91 028	543 91 011	Manual override: ▼ : impulse 190 00 022 with connector (LED) + 2x 190 60 005 with M12 connection 190 00 018 without connector
	Pressure applied W2 Solenoid-air operated	60	115	3	10	543 91 029	543 91 014	
	Pressure release W3 Solenoid-air operated	90	115	3	10	543 91 030	543 91 012	

ELECTRICAL CHARACTERISTICS OF PILOTS

Type of solenoid valve	Voltages		Consumption		Insulation class	Protection degree	Electrical connection
			Inrush	Hold			
Series 189	~	24V-115V-230V-50 Hz	6 VA	3,5VA(2,5W)	F	IP 65	Connector rotatable x 180° CM 8 (Pg 9P)
	=	24V	2,5 W				
Series 190	~	24V-48V-115V-230V-50 Hz	9 VA	4VA(3W)	F	IP 65	Connector ISO 4400 rotatable x 90° - CM 10 (Pg 11P) with simplified connection
	=	12V-24V-48V-110V	3 W				

The solenoid valve series 190 is dual-voltage (24V ~, 12V =) (48V ~, 24V =) (115V ~, 48V =) (230V ~, 110V =)

OPTIONS

SOLENOID PILOTS

- Solenoid valve pilot 3/2 series 192 in 3 versions : 1-standard 2-with solenoid head and waterproof metal enclosure (see P512) 3-complying with European standards EEx "d", "m" or "me" for use in explosive atmospheres (see P595)
- Solenoid valve series 189 certified EEx "m" (see P593)
- Solenoid valve intrinsically safe series 630/ia or 195/ia certified EEx "i" (see P590 - P592)
- Solenoid valves series 189 - 190 with double pulse coil (see P514)
- Connector with cable outlet, 2 m long (see P515)
- Connector with transil protection (see P515-4)
- Solenoid valve with built-in visual indicator and protection :

Solenoid valve **without** connector + Connector with built-in visual indicator and VDR/RC protection

Type of solenoid valve	(M)	CODE solenoid valve without connector	CODE (~ / =)			
189 NC	●	189 00 002	24V	48V	115V	230V
190 NC	×	190 00 013	881 22 603	881 22 604	881 22 605	881 22 608
	●	190 00 014				
	▼	190 00 018				
192 NC (1)	×	192 00 022	881 22 405	881 22 406	881 22 407	881 22 410
	●	192 00 023				
	▼	192 00 024				

(M) Type of manual override on pilot(s) : × : without ● : screwdriver ▼ : impulse

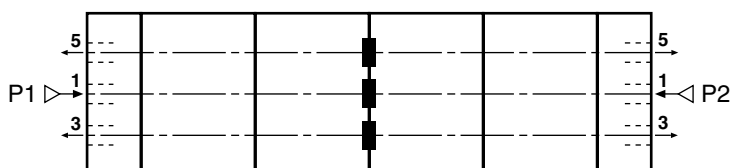
(1) Solenoid valve series 192 - 3/2 NC - Ø 2.1mm with exhaust in subbase

SUBBASES AND ACCESSORIES (see overleaf)

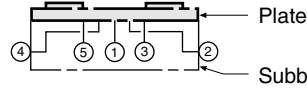
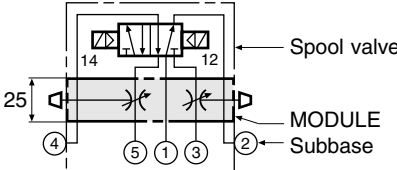
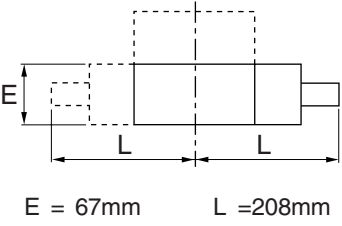
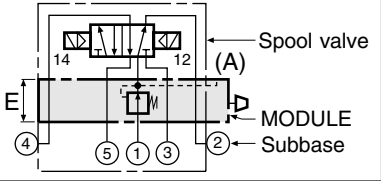
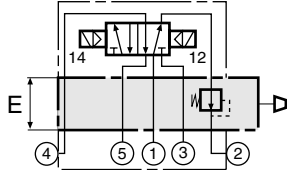
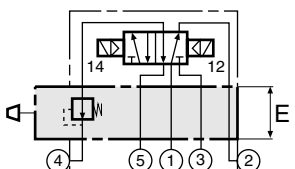
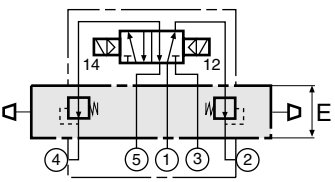
SUBBASES ISO 3

DESCRIPTION - TYPE			CODES
Single subbase	Single subbase with side port	G 1/2	355 00 171
		G 3/4	355 00 192
Joinable subbases ISO - VDMA	Joinable subbase with bottom port G 1/2 (orifices 12 and 14 with side port G 1/8)		355 00 173
	Set of 2 end plates ; ports 1-3-5 : G 1 (supplied with 3 plugs)		355 00 174
	Set of 3 plugs for main pressure (1) and exhausts (3-5) ports for supply with 2 different pressures (see below)		881 35 520
Set of transfer plate and connections for joinable subbases			see page P570-18 and P570-29

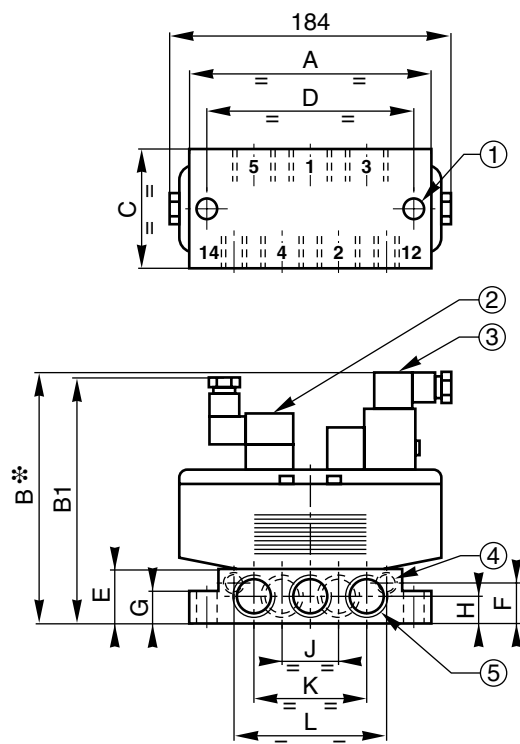
The concept of mounting plug sets enables joinable subbases to be supplied with 2 different pressures.



ACCESSORIES ISO3

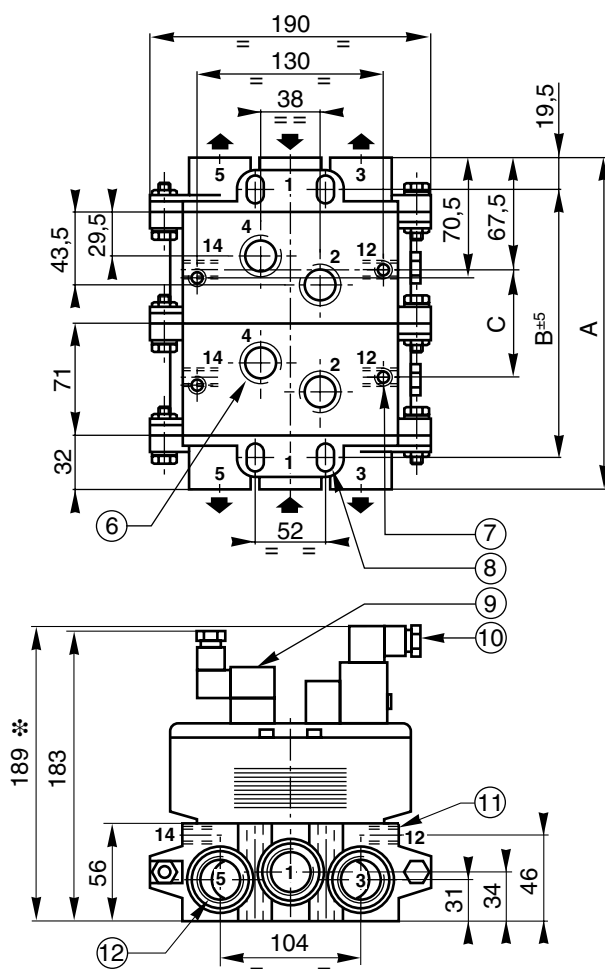
Designation			Symbol	CODES
Blanking plate to cover interface ISO2 This plate allows later assembly with a spool valve.				881 35 519
Flow regulator sandwich This unit, fitted between the subbase and the valve, incorporates 2 flow regulators in the exhaust ports 3 and 5. Flow regulators can be used to control the speed of a double acting cylinder. Weight : 0,230kg				346 00 469
Sandwich pressure regulator module This module, which is placed between a subbase and a spool valve, is designed to regulate the pressure and the port according to: - Adjustable pressure: 0.5 to 10 bar - G1/8 (A) port on top for pressure gauge connection - Locking adjustment knob of "Pull-Turn-Push" type  E = 67mm L = 208mm	on port 1 (supply pressure)	regulator flow at 6 bar: 2000 l/min weight: 2.210kg		346 00 464
	on port 2	regulator flow at 6 bar: 2700 l/min weight: 2.210kg		346 00 465
	on port 4	regulator flow at 6 bar: 2700 l/min weight: 2.210kg		346 00 466
	on ports 2 and 4	regulator flow at 6 bar: 2700 l/min weight: 3.200kg		346 00 467
Gauge Ø40 (0 - 12 bar)				343 00 014
G1/8 bracket connection for pressure gauge mounting				881 00 617

DIMENSIONS AND WEIGHTS

VALVES ON **SINGLE** SUBBASE WITH SIDE PORTS (ISO/AFNOR)

Dimensions	Subbases	
	G 1/2	G 3/4
A	149	149
B	165 *	183 *
B1	158	176
C	71	71
D	136	136
E	32	50
F	22	40
G	18	18
H	17	20
J	32	36
K	68	80
L	90	92

- ① Mounting : 2 Ø 6.6
 ② Solenoid valve series 189
 ③ Solenoid valve series 190/192
 ④ 2 ports (12-14) : G 1/8
 ⑤ 5 ports (1-2-3-4-5) : G 1/2 or G 3/4
 * dimensions with pilot 192
 + 15 mm for plug removal

VALVES ON **JOINABLE** SUBBASES WITH BOTTOM PORTS (ISO/VDMA)

Number of subbases	A	B ± 5	C	Weights (kg)	
				Valves + 2 pilots + subbases + end plates	
				Pilots 189	Pilots 190
2	206	167	71	4,140	4,260
3	277	238	142	5,740	5,860
4	348	309	213	7,340	7,460
5	419	380	284	8,940	9,060
6	490	451	355	10,540	10,660
7	561	522	426	12,140	12,260

Weight of pilot : 189 = 0.120 Kg 190 = 0.180 Kg

Set of end plates supplied with 3 plugs G 1 (for 1-3-5)

- ⑥ 2 ports (4-2) : G 1/2
 ⑦ Bottom mounting : 2 holes M8 Ø 20
 ⑧ Front mounting : 4 holes Ø 12
 ⑨ Solenoid valve series 189
 ⑩ Solenoid valve series 190/192
 ⑪ 2 ports (12-14) : G 1/8
 ⑫ 3 ports (1-3-5) : G 1
 * dimensions with pilot 192
 + 15 mm for plug removal