JOUCOMATIC

MULTIFUNCTION SPOOL VALVE

air and solenoid air operated

subbase mounted body
according to ISO 5599/1

ATEX

5/2-5/3
Series
541-542-543
Type
ISO sizes 1-2-3

Spool valves intended for use in potentially explosive atmospheres caused by gases, vapours, mists and/or dusts (ATEX directive 94/9/EC)

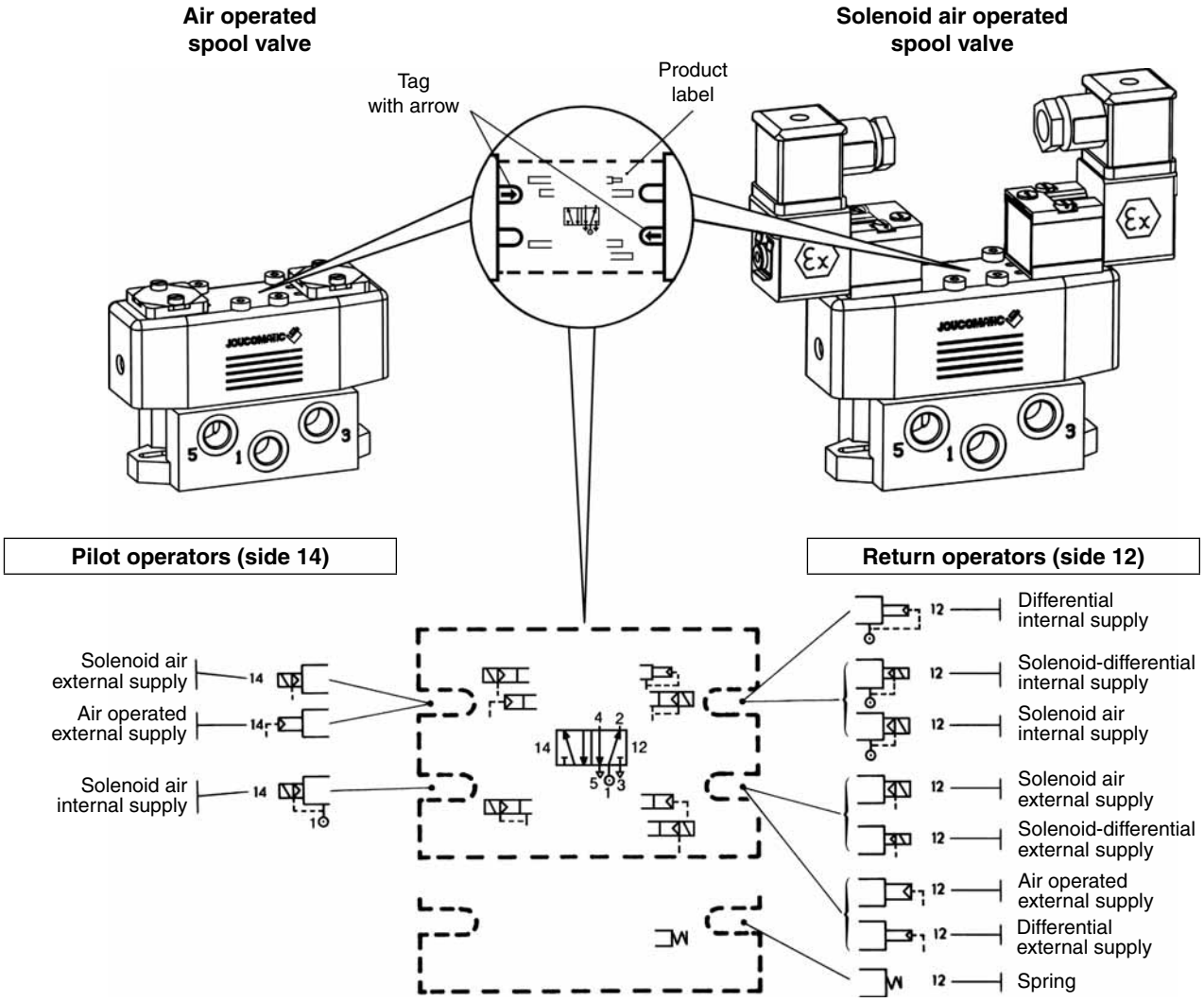
ISO 5599/1 spool valve size 1
solenoid air operated

ISO 5599/1 spool valve size 2
solenoid air operated

ISO 5599/1 spool valve size 3
solenoid air operated

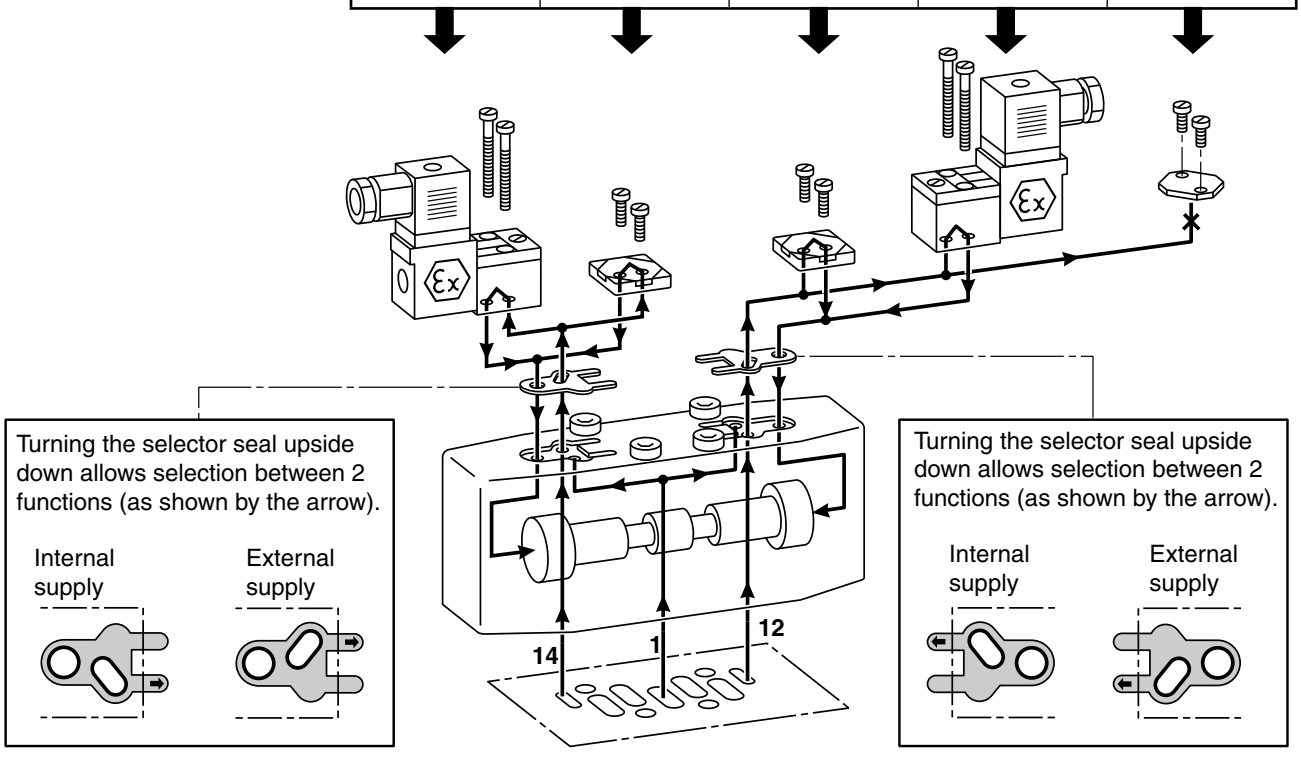
MULTIFUNCTION

Multifunction valves are equipped with 2 pilot selector seals on the top face on both the pilot and the return sides. Each selector seal can be set on 2 positions, allowing internal or external supply to the pilot or return operators in both the air and solenoid air operated versions. External supply allows the valves to operate with a supply pressure ranging from 0 to 12 bar and under vacuum pressure. Each seal includes a tag with an arrow to be set into the notch corresponding to the required pilot function (see below).
Modifications of the function are very simple. The valves are delivered pre-set according to the valve code selected on your order.

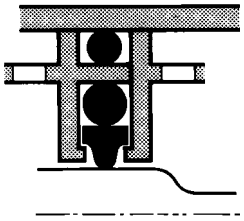


The table below shows the accessories (delivered with the valves) and/or the solenoid valves appropriate for each function. These components can be supplied separately to change the function of the valve.

	function		pilot		return		
	symbols	pilot (14) return (12)	14	14	12 12	12 12	12
5/2		Air operated Spring return		●			●
		Air operated Differential return		●	●		
		Air operated Air return		●	●		
		Solenoid air operated Spring return	●				●
		Solenoid air operated Differential return	●		●		
		Solenoid air operated Air return	●		●		
		Solenoid air operated Solenoid-differential return	●			●	
		Solenoid air operated pilot and return	●			●	
5/3		W1-W2-W3 Air operated		●	●		
		W1-W2-W3 Solenoid air operated	●			●	
			Solenoid valves **189-190-195-374**	Interface **88100074**	Interface **88100074**	Solenoid valves **189-190-195-374**	Blanking plate **88100073**

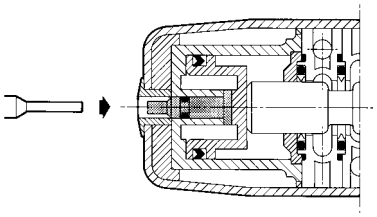


USE WITH NON-LUBRICATED AIR



The ISO-compliant valves will operate satisfactorily with lubricated, non-lubricated or dry air due to their patented, T-shaped oscillating sealing element backed with a cushioning seal.
This sealing assembly maintains a minimum pilot pressure which remains constant even if the valve is switched off for a longer period of time. On restart, the valve's performance will be the same as under continuous operating conditions.
This characteristic ensures safer operation both on valve start-up and during operation.

MANUAL TESTERS INDICATING THE POSITION OF THE SPOOL (OPTION)



On request, the spool valves can be delivered with manual testers to check the position of the spool or move it by manual override.

EASY INSTALLATION

ASCO/JOUCOMATIC offers a complementary range of components which simplify the installation of the ISO-compliant valves:
- Single subbases with side or bottom ports (1) - see pages 7 and 9
- Joinable subbases with bottom ports - see pages 8 and 9

Various accessories complete the range - see page 14

(1)

MULTIFUNCTION SPOOL VALVE

solenoid air operated
subbase mounted body
according to ISO 5599/1

JOUCOMATIC

ATEX

5/2-5/3
Series
541-542-543
Type
ISO sizes 1-2-3

GENERAL

- Spool valves intended for use in potentially explosive atmospheres caused by gases, vapours, mists and/or dusts **(ATEX directive 94/9/EC)**.

CLASSIFICATION

ISO 1-2-3 : Ⓔx II 2 GD **c** Ta 60°C T85°C (T6) (zones 1-21)
ISO 1-3 : Ⓔx II 3 GD **c** Ta 60°C T85°C (T6) (zones 2-22)
Compliance with the Essential Health and Safety Requirements has been assured by compliance with European Standards **EN 13463-1 and prEN 13463-5**.

SPECIFICATIONS

	ISO 1	ISO 2	ISO 3
Fluid	Air or neutral gas, filtered, lubricated or not		
Operating pressure	– 0,950 to +12 bar (with external supply to pilot)		
	+3 to +10 bar (with internal supply to pilot)		
	Can be used with vacuum – 0,950 bar max.		
Pilot pressure	See CHOICE OF EQUIPMENT		
Ambient temperature	– 10°C to +60°C		
Flow (Qv at 6 bar)	1400 l/min (ANR)	2800 l/min (ANR)	4200 l/min (ANR)
Flow coefficients			
- conforming to ISO 6358			
sonic conductance	C = 5,8 x 10^{-8} m^3/s.Pa	C = 1,136 x 10^{-7} m^3/s.Pa	C = 16 x 10^{-8} m^3/s.Pa
absolute static pressure	b = 0,28	b = 0,22	b = 0,34
- conforming to NF E29312			
(l/min)	Kv = 20	Kv = 37,5	Kv = 60
Life	30 million cycles		15 million cycles
Base	ISO 5599/1 sizes 1-2-3 - AFNOR NF E49080		
Subbases	Single subbases ISO/AFNOR NF E49085		
	Joinable subbases ISO/VDMA 24345		

CONSTRUCTION

Cover	Painted steel
Pilot and return assembly	POM (acetal resin)
Seals	NBR (nitrile) and PUR (polyurethane)
Internal parts	POM (acetal resin), light alloy

ELECTRICAL CHARACTERISTICS

pilot	coil size	classification		voltage	consumption inrush	consumption holding	insulation class	protection degree	electrical connection
series 189	PV-m22	II2 GD EEx **m** II T5..T4	~	24V-115V-230V/50Hz	9 VA	5 VA (4 W)	F	IP 65	moulded-in supply cable, rotatable on 360°
			=	24V	4 W				
series 189	size 22 DU	II3 D IP65 T85°C à T100°C	~	24V-115V-230V/50 Hz	6 VA	3,5 VA (2,5 W)	F	IP 65	spade plug size 22 connector, DIN 43650, 11 mm, industry standard B, rotatable by 180°
			=	24V-48V	3 W				
series 190	size 25 DU	II3 D IP65 T85°C à T100°C	~	24V-48V-115V-230V/50 Hz	9 VA	4 VA (3 W)	F	IP 65	spade plug size 30 connector, ISO4400/EN175301-803, form A, rotatable by 90°
			=	12V-24V-48V-110V	3 W				
series 192*	size 30 DU	II3 D IP65 T85°C à T135°C		24V-115V-230V/50 Hz	12 VA	6 VA (4 W)	F	IP 65	spade plug size 30 connector, ISO4400/EN175301-803, form A, rotatable by 90°
				24V	5 W				
series 374	size 22 DU	II2 GD EEx **d** IIB + H2 T6..T4	~	24V-115V-230V/50 Hz	55 VA	23 VA (10,5W)	F	IP 65	Screw terminal coil, explosionproof cable gland on request
			=	24V	11,2 W				
series 195	size 30	II2 G EEx **ia** IIC T6	=	24V		1,6 W	F	IP 65	spade plug size 30 connector, ISO4400/EN175301-803, form A, rotatable by 90°

Solenoid valve 190 is dual voltage (24V~, 12V=) (48V~, 24V=) (115V~, 48V=) (230V~, 110V=)
* Solenoid valve 192 for ISO 3 only

COIL TEMPERATURE CLASSIFICATION TABLES

Solenoid operators for potentially explosive atmospheres

AC (~) coils, zones 1-21 / 2-22

Pn	pilot/ coil		max. ambient °C 1) surface temperature			
(Watt)	189 PV m22	374 NK	T6 85°C	T5 100°C	T4 135°C	T3 200°C
Insulation class **F** (155°C) 100 % E.D.						
4	•				60	
10,5		•			60	

DC (=) coils, zones 1-21 / 2-22

Pn	pilot/ coil		max. ambient °C 1) surface temperature			
(Watt)	189 PV m22	374 NK	T6 85°C	T5 100°C	T4 135°C	T3 200°C
Insulation class **F** (155°C) 100 % E.D.						
4	•			25	80	
11,2		•	25	40	60	

DC (=) coils, zones 1 - 2

Pn	pilot/ coil		max. ambient °C 1) surface temperature			
(Watt)	195 size 30		T6 85°C	T5 100°C	T4 135°C	T3 200°C
Insulation class **F** (155°C) 100 % E.D.						
1,6	•		50			

1) Minimum ambient temperature: -10°C

AC (~) coils, zone 22

Pn	pilot/ coil			max. ambient °C [1] surface temperature			
(Watt)	189 size 22	190 size 25	192(*) size 30	85°C	100°C	135°C	200°C
Insulation class **F** (155°C) 100 % E.D.							
2,5	●			40	60		
3		●		40	60		
4 (*)			●		25	60	

DC (=) coils, zone 22

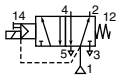
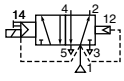
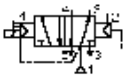
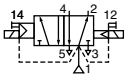
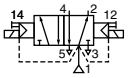
Pn	pilot/ coil			max. ambient °C [1] surface temperature			
(Watt)	189 size 22	190 size 25	192(*) size 30	85°C	100°C	135°C	200°C
Insulation class **F** (155°C) 100 % E.D.							
2,5	●			40	60		
3		●		40	60		
5 (*)			●	25	40	60	

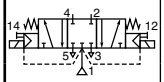
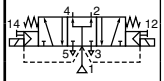
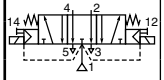
1) Minimum ambient temperature: -10°C

(*) ISO 3 only

CHOICE OF EQUIPMENT

When ordering, please specify: the standard spool valve code and its **ATEX option and the solenoid pilot code**

5/2 symbols	function: solenoid air pilot (14), return (12)	size	response time (ms) energized	response time (ms) de-energized	pilot pressure (bar) min.	pilot pressure (bar) max.	2 codes: spool valve	+	solenoid pilot quantity and code: with standard connnector	(M)
	spring return	ISO 1	25	66	3		**54191023**			
		ISO 2	19	68	2,5	10	**54292023**			
		ISO 3	45	130	3		**54391023**			
	differential return	ISO 1	41	45	3		**54191024**		**PV 18900001**	●
		ISO 2	32	49	2	10	**54292024**	**+ 1x**	**DU 18900001**	●
		ISO 3	71	82	3		**54391024**		**DU 19000005**	×
									DU 19000006	●
	air return	ISO 1	21		1,5		**54191025**		**DU 19000017**	▼
		ISO 2	16	-	1,5	10	**54292025**		**DU 19200001***	×
		ISO 3	28		1,5		**54391025**		**DU 19200002***	●
									DU 19200003*	▼
	solenoid-differential return	ISO 1	16	18	3		**54191026**		**19500017**	●/▼
		ISO 2	15	16	2	10	**54292026**		**NKS374A090**	×
		ISO 3	21	23	3		**54391026**	**+ 2x**	**NKS374A090 MS**	●
	solenoid air return	ISO 1	17	16	1,5		**54191027**			
		ISO 2	16	15	1,5	10	**54292027**			
		ISO 3	26	25	1,5		**54391027**			

5/3 symbols	function: pilot (14), solenoid air return (12)	size	response time (ms) energized	response time (ms) de-energized	pilot pressure (bar) min.	pilot pressure (bar) max.	2 codes: spool valve	+	solenoid pilot quantity and code: with standard connnector	(M)
	Pressure held **W1**	ISO 1	16	17			**54191028**		**PV 18900001**	●
		ISO 2	16	16	3	10	**54292028**		**DU 18900001**	●
		ISO 3	27	26			**54391028**		**DU 19000005**	×
	Pressure applied **W2**	ISO 1	44	18			**54191030**		**DU 19000006**	●
		ISO 2	54	18	3	10	**54292030**		**DU 19000017**	▼
		ISO 3	93	27			**54391029**	**+ 2x**	**DU 19200001***	×
	Pressure release **W3**	ISO 1	17	47			**54191029**		**DU 19200002***	●
		ISO 2	19	61	3	10	**54292029**		**DU 19200003***	▼
		ISO 3	29	28			**54391030**		**19500017**	●/▼
									NKS374A090	×
									NKS374A090 MS	●

(M) Type of manual override on pilot(s) : × : without ● : screwdriver ▼ : impulse ●/▼ : impulse or lock (push-turn type)

* Solenoid valve 192 for ISO 3 only

OPTIONS

- Equipment with manual testers so that the spool position can be checked
- Equipment for use in potentially **explosive atmospheres** caused by dusts or gases (ATEX Directive 94/9/EC)

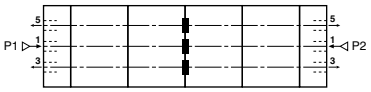
zones	classification ⟨Ex⟩	ATEX option catalogue number ISO 1	ISO 2	ISO 3
2-22	II3GD **c** T 60°C T 85°C (T6)	**612027**	**-**	**612029**
1-21	II2GD **c** IIC T 60°C T85°C (T6)	**612030**	**612090**	**612032**

SUBBASES

description			ports				size	code
type of subbase	type of connection		12-14	1	2-4	3-5		
single subbase ISO 5599/1 AFNOR NFE 49080	side 	tapped	G 1/8	G 1/4	G 1/4	G 1/4		**35500076**
			G 1/8	G 1/4	G 1/4	G 3/8	**ISO 1**	**35500061**
			G 1/8	G 3/8	G 3/8	G 3/8		**35500382**
			G 1/8	G 3/8	G 3/8	G 3/8	**ISO 2**	**35500560**
			G 1/8	G 1/2	G 1/2	G 1/2		**35500562**
			G 1/8	G 1/2	G 1/2	G 1/2	**ISO 3**	**35500171**
			G 1/8	G 3/4	G 3/4	G 3/4		**35500192**
	bottom 	tapped	G 1/8	G 1/4	G 1/4	G 1/4	**ISO 1**	**35500077**
			G 1/2	G 3/8	G 3/8	G 3/8	**ISO 2**	**35500085**
		with couplers	Ø 4 mm	for 8 mm O.D.		G 1/4	**ISO 1**	**35500069**
joinable subbase ISO 5599/1 VDMA 24345	bottom 	subbase	G 1/8	-	G 1/4	-	**ISO 1**	**35500165**
		set of 2 end plates	-	G 3/8	-	G 3/8		**35500166**
		subbase	G 1/8	-	G 3/8	-	**ISO 2**	**35500169**
		set of 2 end plates	-	G 1/2	-	G 1/2		**35500170**
		subbase	G 1/8		G 1/2		**ISO 3**	**35500173**
		set of 2 end plates	-	G 1	-	G 1		**35500174**
		set of 3 plugs on main pressure (1) and exhausts (3-5) for 2 different pressure supplies (see A)					**ISO 1**	**88135521**
							ISO 2	**88135522**
							ISO 3	**88135520**

Set of 2 end plates supplied with 3 plugs (for 1-3-5)

(A) Mounting principle of plug set to allow joinable subbases to be supplied with 2 different pressures.



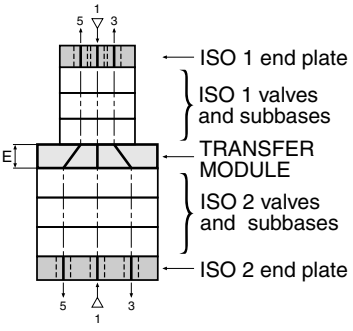
SET OF TRANSFER AND CONNECTION PLATES

• Set of transfer and connection plates to join ISO - VDMA joinable subbases of different sizes:

ISO 1 - ISO 2 set including:
- One transfer module to join ISO-VDMA joinable subbases with ISO 1 and ISO 2 **bottom** ports and connect the supply pressure (1) and exhaust (3-5) ports.
- One ISO 1 end plate (ports 1 - 3 - 5)
- One ISO 2 end plate (ports 1 - 3 - 5)

ISO 1 - ISO 3 set including the parts listed above appropriate for ISO 1 - ISO 3 transfer

ISO 1 - ISO 2 - ISO 3 set including:
- One transfer module to join ISO 1 and ISO 2 subbases
- One transfer module to join ISO 2 and ISO 3 subbases
- One ISO 1 end plate (ports 1 - 3 - 5)
- One ISO 3 end plate (ports 1 - 3 - 5)

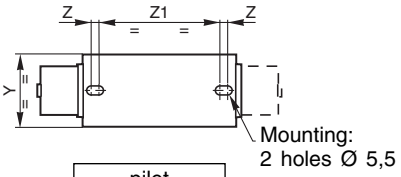
description	type	code	E (mm)	
Set of transfer and connection plates for ISO/VDMA joinable subbases with **bottom** ports	**ISO 1 - ISO 2**	**35500199**	20	
	ISO 1 - ISO 3	**35500194**	32	
	ISO 1 - ISO 2 - ISO 3	**35500204**	20 + 32	

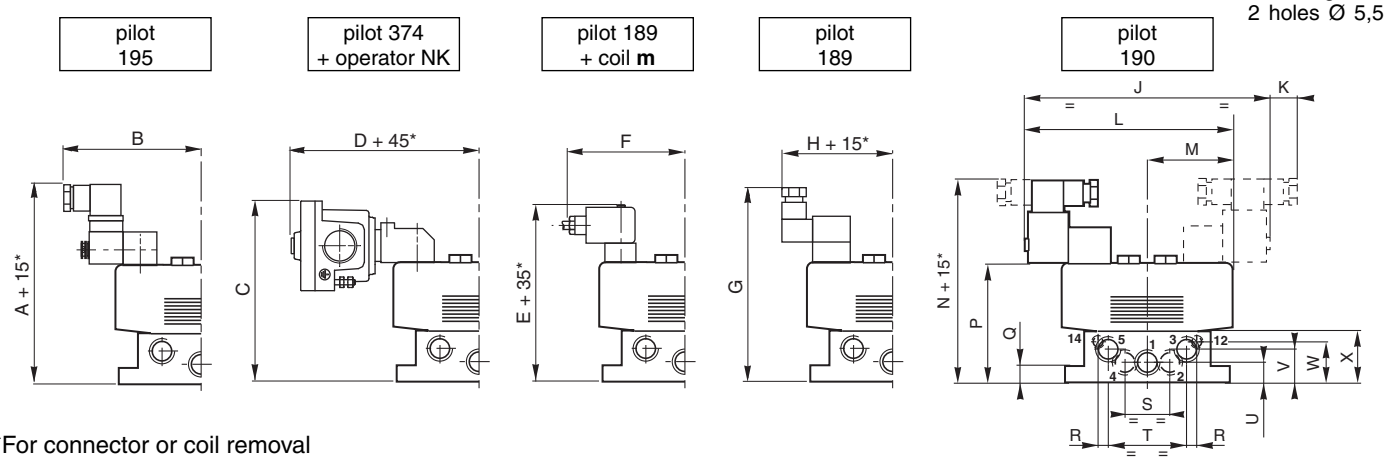
DIMENSIONS (mm)**, WEIGHT** (kg)

ISO 1 - ISO 2 SPOOL VALVES
ON **SINGLE** SUBBASES WITH **SIDE** PORTS

	subbase code	port connections 12-14	1-2-4	3-5
ISO 1	35500076	G 1/8	G 1/4	G 1/4
ISO 1	35500061	G 1/8	G 1/4	G 3/8
ISO 1	35500382	G 1/8	G 3/8	G 3/8
ISO 2	35500560	G 1/8	G 3/8	G 3/8
ISO 2	35500562	G 1/8	G 1/2	G 1/2

pilot	total weight ISO 1 with 1 pilot	ISO 1 with 2 pilots	ISO 2 with 1 pilot	ISO 2 with 2 pilots
189	0,980	1,080	0,955	1,075
189 + coil **m**	1,100	1,320	1,075	1,315
190	1,040	1,200	1,011	1,195
195	1,045	1,210	1,020	1,205
374 + operator NK	1,725	2,570	1,700	2,565





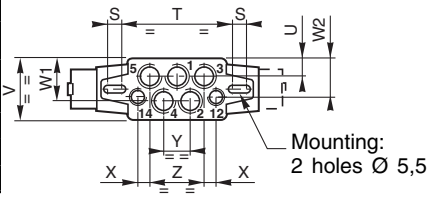
*For connector or coil removal

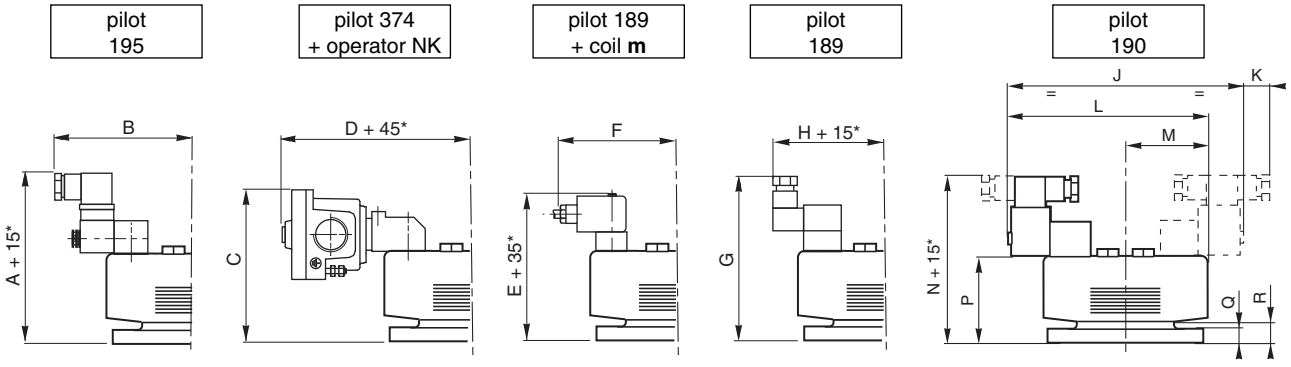
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	Z1
ISO 1	145	105	128	137	128	82	146	88	178	19	150	61	151	78	10	5	26	50	13,5	24	26	36	48	9	80
ISO 2	150	135	134	167	133	112	151	118	198	19	174	75	158	84	13	9	30	56	15	25	30,5	40	57	5	103

ISO 1 - ISO 2 SPOOL VALVES
ON **SINGLE** SUBBASES WITH **BOTTOM** PORTS

	subbase code	port connections 12-14	1-2-4	3-5
ISO 1	35500077	G 1/8	G 1/4	G 1/4
ISO 1	35500069	with couplers Ø4 O.D.	Ø8 O.D.	G 1/4
ISO 2	35500085	G 1/8	G 3/8	G 3/8

pilot	total weight ISO 1 with 1 pilot	ISO 1 with 2 pilots	ISO 2 with 1 pilot	ISO 2 with 2 pilots
189	0,600	0,700	1,098	1,218
189 + bobine **m**	0,720	0,940	1,218	1,458
190	0,660	0,820	1,158	1,338
195	0,665	0,830	1,163	1,348
374 + tête NK	1,345	2,190	1,843	2,700





*For connector or coil removal

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W1	W2	X	Y	Z
ISO 1	125	105	108	137	108	82	126	88	178	19	150	61	131	58	10	16	9	80	13,4	46	31	31	8,5	20	40
ISO 2	144	135	128	167	127	112	144	118	198	19	174	75	152	79	10	35	2	105	15	56	41	37	8,5	29	58

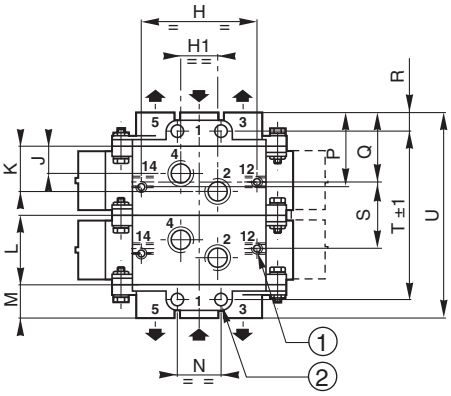
DIMENSIONS (mm), **WEIGHT** (kg)

ISO 1 - ISO 2 SPOOL VALVES
ON **JOINABLE SUBBASES** WITH BOTTOM PORTS ACCORDING TO ISO/VDMA 24345

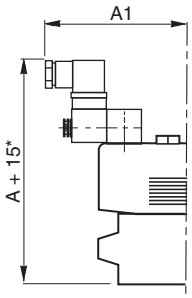
		code	port connections		
			12-14	1-2-4	3-5
ISO 1	subbase	**35500165**	G 1/8	G 1/4	-
ISO 1	2 end plates	**35500166**	-	-	G 3/8
ISO 2	subbase	**35500169**	G 1/8	G 3/8	-
ISO 2	2 end plates	**35500170**	-	-	G 1/2

Set of end plates supplied with 3 plugs (for 1-3-5):
ISO 1 : G 3/8
ISO 2 : G 1/2

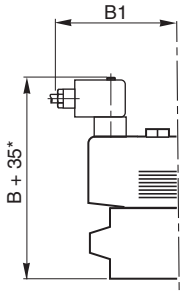
① Mounting: ISO 1 : 4 Ø M5
ISO 2 : 4 Ø M6
② Mounting: ISO 1 : 4 Ø M7
ISO 2 : 4 Ø M9



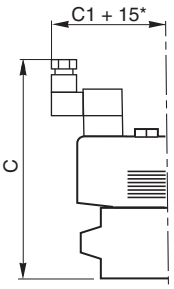
pilot 195



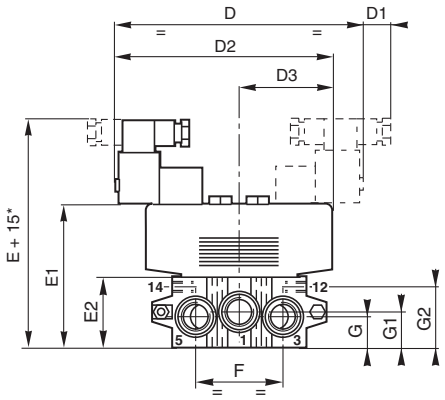
pilot 189 + coil **m**



pilot 189



pilot 190



*For connector or coil removal

	A	A1	B	B1	C	C1	D	D1	D2	D3	E	E1	E2	F	G	G1	G2	H	H1	J	K	L	M	N	P	Q	R
ISO 1	155	105	138	82	156	88	178	19	150	61	161	88	46	56	21	24	36	71	26	20	29	43	22	28	46,5	43,5	11,5
ISO 2	158	135	141	112	159	118	198	19	174	75	164	93	47	68	22	23	37	86	30	23	33	56	26	35	57	54	13,5

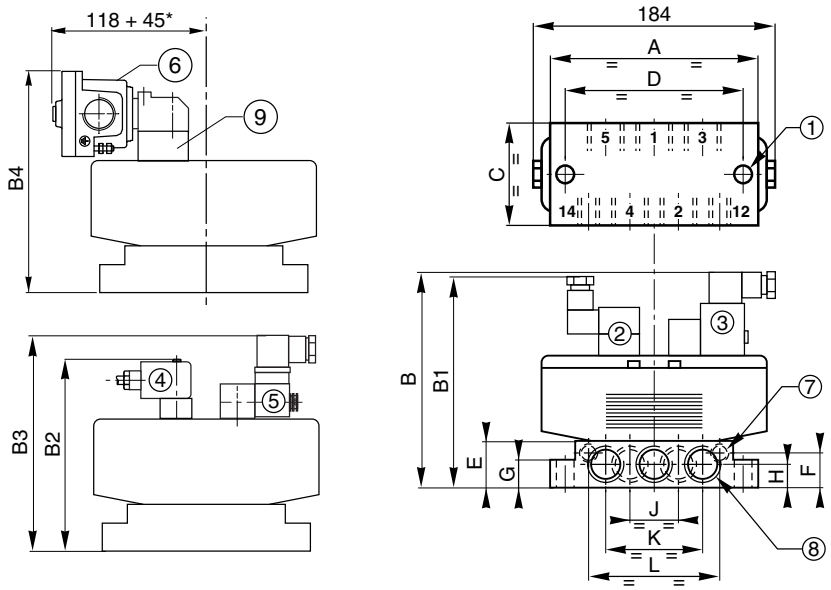
number of subbases ISO 1	U	T±1	S	weight ISO 1 spool valves + 2 pilots + subbases + end plates			
				pilot			
				189	190	189 + m	195
3	173	150	86	2,850	3,200	3,560	3,225
4	216	193	129	3,500	4,000	4,480	4,030
5	259	236	172	4,100	4,700	5,300	4,740
6	302	279	215	4,750	5,500	6,220	5,550
7	345	322	258	5,350	6,200	7,040	6,255
8	388	365	301	6,000	7,000	7,960	7,065

pilot	weight of 1 pilot
189	0,120
189 + coil **m**	0,240
190	0,180
195	0,184

number of subbases ISO 2	V	U±1	T	weight ISO 2 spool valves + 2 pilots + subbases + end plates			
				pilot			
				189	190	189 + m	195
3	220	193	112	3,594	3,954	4,314	3,978
4	276	249	168	4,592	5,072	5,552	5,107
5	332	305	224	5,690	6,290	6,890	6,330
6	388	361	280	6,788	7,508	8,228	7,558
7	444	417	336	7,886	8,726	9,556	8,786
8	500	473	392	8,984	9,944	10,904	10,009

DIMENSIONS (mm)**, WEIGHT** (kg)

ISO 3 SPOOL VALVES
ON **SINGLE** SUBBASES WITH **SIDE** PORTS



1. Mounting: 2 Ø 6,6
2. Solenoid valve series 189
3. Solenoid valve series 190/192
4. Solenoid valve series 189 + coil "**m**"
5. Solenoid valve series 195
6. Solenoid valve series 374 + operator NK
7. 2 ports (12-14): G 1/8
8. 5 ports (1-2-3-4-5): G 1/2 or G 3/4
9. Intermediate subbase code: 88119104 (required for mounting)

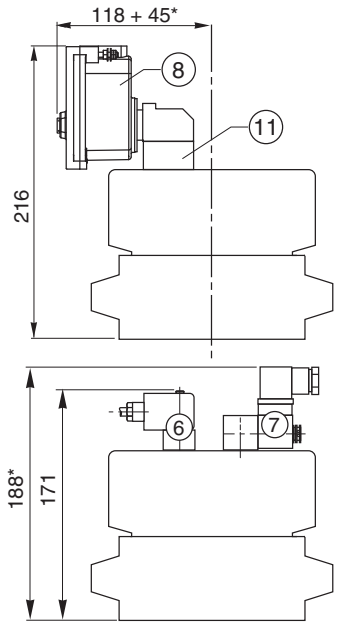
subbase code	connection	dimensions														
		A	B	B1	B2	B3	B4	C	D	E	F	G	H	J	K	L
35500171	G 1/2	149	165	158	147	164	162	71	136	32	22	18	17	32	68	90
35500192	G 3/4	149	183	176	165	182	180	71	136	50	40	18	20	36	80	92

ISO 3 SPOOL VALVES
ON **JOINABLE** SUBBASES WITH BOTTOM PORTS ACCORDING TO ISO/VDMA 24345

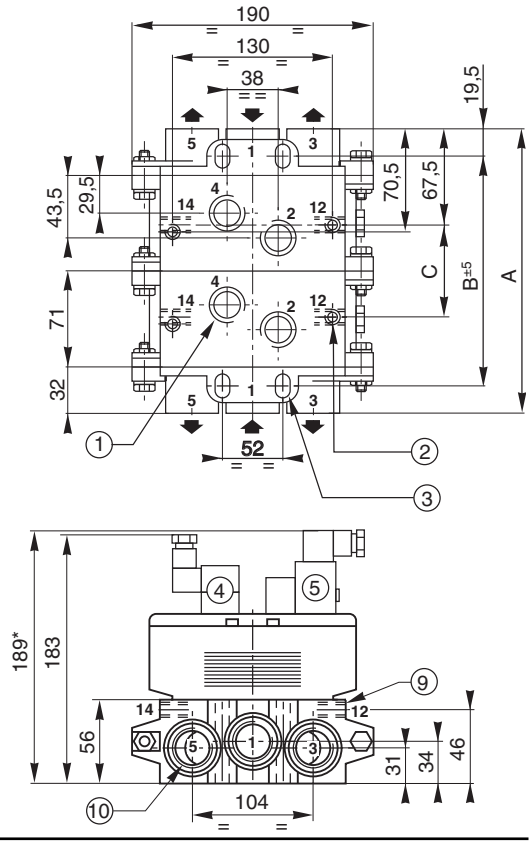
number of subbases	A	B±1	C	weight spool valves + 2 pilots + subbases + end plates			
				pilot			
				189	190	189 + m	195
2	206	167	71	4,140	4,380	4,620	4,400
3	277	238	142	5,740	6,100	6,460	6,125
4	348	309	213	7,340	7,820	8,300	7,850
5	419	381	284	8,940	9,540	10,140	9,580
6	490	451	355	10,540	11,260	11,980	11,321
7	561	522	426	12,140	12,980	13,035	13,035

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

pilot	weight of 1 pilot
189	0,120
189 + coil **m**	0,240
190	0,180
195	0,184
374 + operator NK	0,865



1. 2 ports (4-2) : G 1/2
2. Bottom mounting: 2 holes M8, depth 20
3. Front mounting: 4 holes, width 12
4. Solenoid valve series 189
5. Solenoid valve series 190/192
6. Solenoid valve series 189 + coil "**m**"
7. Solenoid valve series 195
8. Solenoid valve series 374 + operator NK
9. 2 ports (12-14) : G 1/8
10. 3 ports (1-3-5) : G 1
11. Intermediate subbase code: 88119104 (required for mounting)

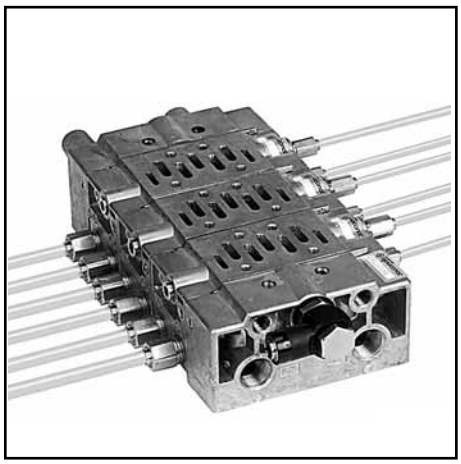


METAL JOINABLE SUBBASES

with **side** ports G 1/4

JOUCOMATIC

5/2-5/3
Series
355
Type
ISO sizes 1 and 2



GENERAL

This connection unit which consists of joinable subbases and accessories has the following 3 principal characteristics:

- Equipment with a **standard** interface for series 541 spool valves complying with international standard ISO 5599/1, size 1.
- Joinable subbases with **side ports**.
- Subbases fitted with selector plates for **integrated piping** of flow paths.

CONNECTION POSSIBILITIES

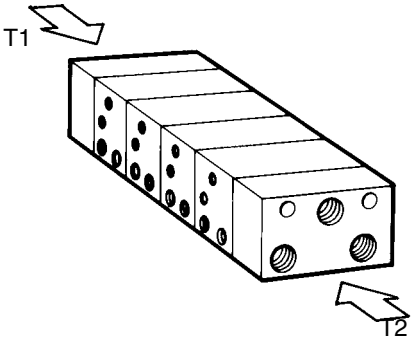
The joinable subbases with side ports offer many advantages:

- Various piping possibilities due to a large number of port connections.
- Simple panel assembly due to improved accessibility to connections.
- Easy maintenance.
- Reduced costs due to the removal of pivoting mounting chassis and a reduction in the number of fittings.
- Possibility of mounting directly onto the body of machines.
- Reduction in tubing lengths giving improved flow rates and response times.

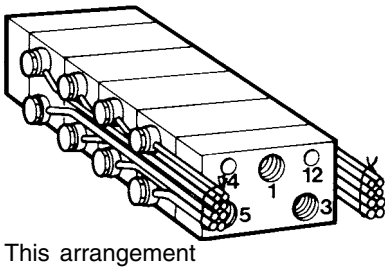
These subbases allow the connection of outlet ports (2-4) and pilot ports (12 and 14) on both side faces as shown below.

The end plates allow the connection of the main pressure supply (1), the common exhausts (3 and 5) and the pilot ports (12 and 14) on face T1 or T2 or on faces T1 and T2.

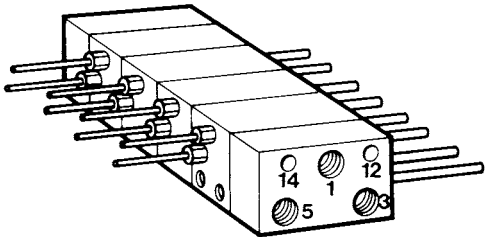
PIPING THROUGH THE END PLATES

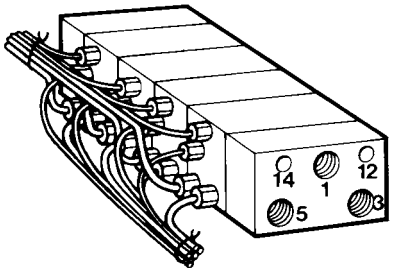


SAMPLE PIPING ARRANGEMENTS



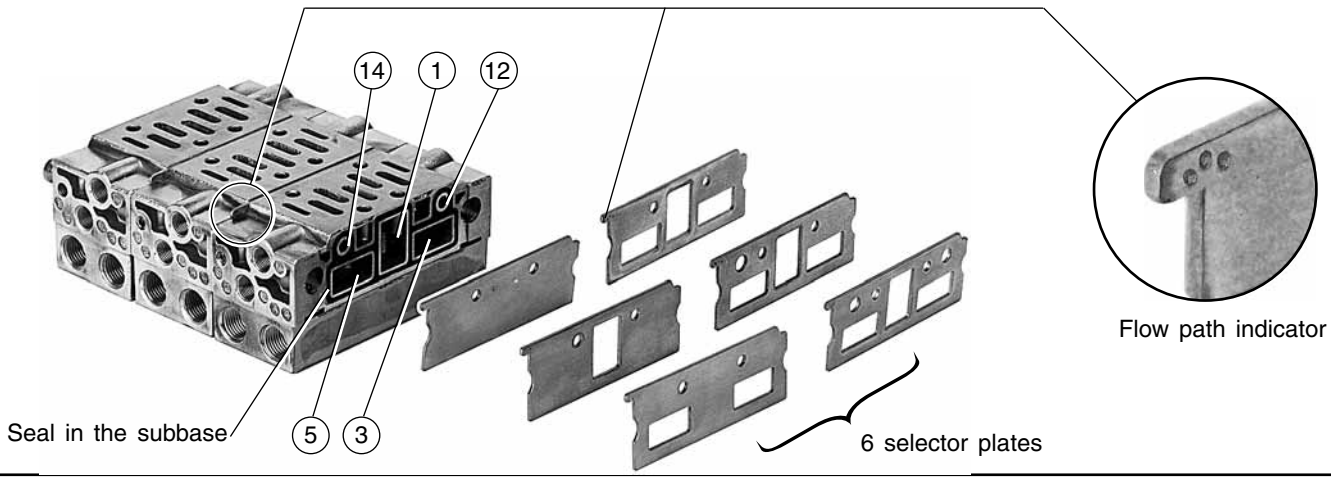
This arrangement allows the use of rotatable fittings



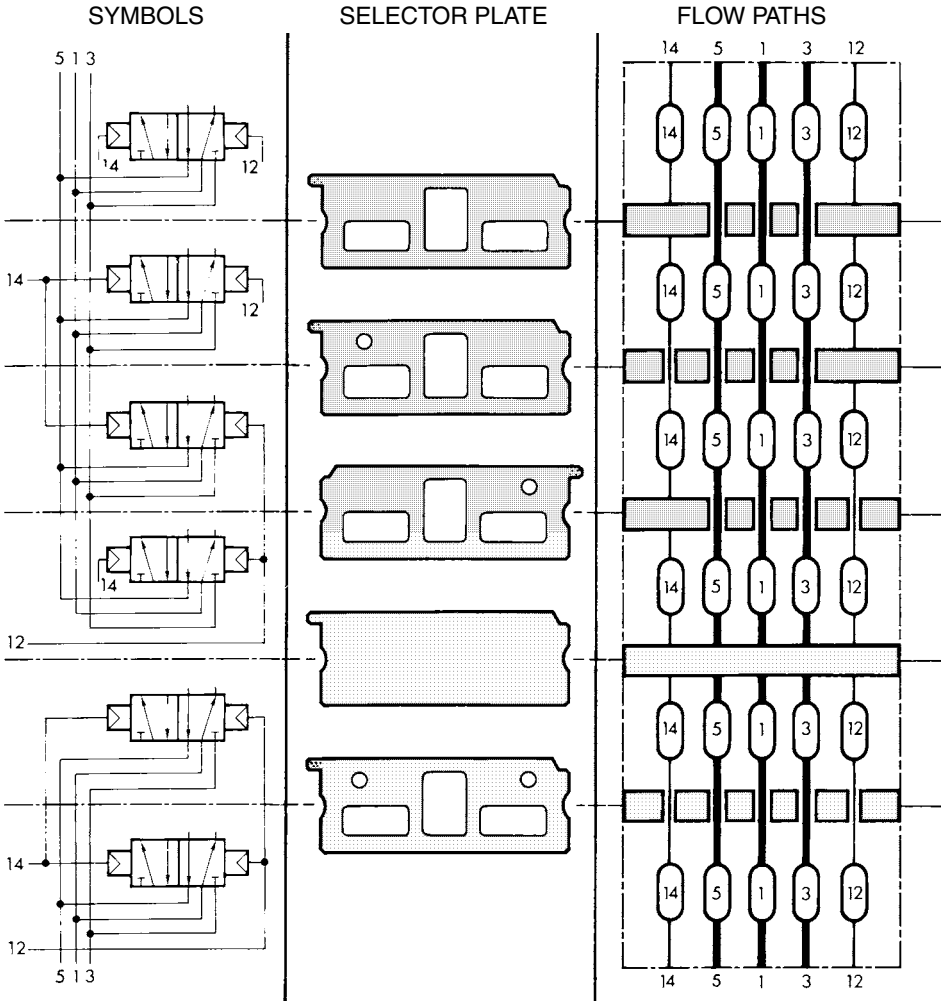


POSSIBLE FLOW PATHS

The subbases have 5 flow paths (1-3-5-12-14) all of which can be connected through the end plates of each manifold assembly..



POSSIBLE FLOW PATHS



The pilots are piped separately to each subbase (plate 1-3-5 supplied with each joinable subbase).

Pilot on side (14) is connected between 2 or more spool valves

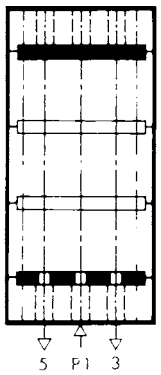
Return on side (12) is connected between 2 or more spool valves (the same plate as above is used, only reversed).

Blanking plate (allows a manifold to be supplied with 2 different pressures).

Allows the inter-connection of both pilots (12 and 14) for 2 or more spool valves placed side by side.

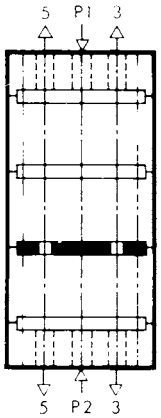
PIPING OF PRESSURE SUPPLY AND EXHAUSTS THROUGH THE END PLATES

STANDARD ASSEMBLY
Pressure supply and exhausts on the same side on one end plate.



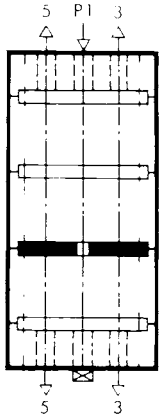
The selector plates supplied as standard with the subbases and end plates allow the assembly as shown above.

Assembly with 2 different pressure supplies and common exhausts on both end plates.



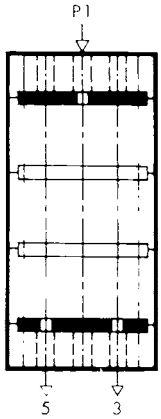
This assembly requires a selector plate with flow connected to ports 3 and 5.

Assembly with 1 pressure supply on 1 end plate and exhausts on both end plates.



This assembly requires a selector plate with flow connected to port 1. The exhausts are blocked, while the common pressure supply is maintained. The supply port on the second end plate must be plugged.

Assembly with 1 pressure supply on 1 end plate and exhausts on the other end plate.



This assembly requires a selector plate with flow connected to port 1 to be mounted on one end plate + a selector plate with flow connected to ports 3 and 5 to be mounted on the other end plate. No ports need to be plugged.

CHOICE OF EQUIPMENT

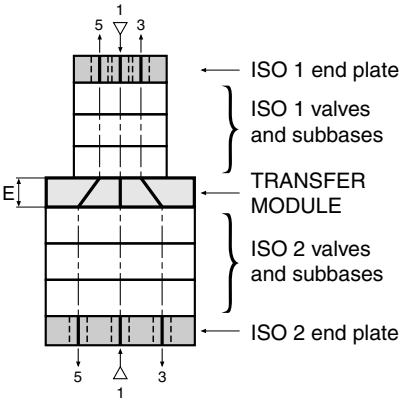
description	parts list	ports					code	
		1-3-5		2-4		12-14	ISO 1	ISO 2
		ISO 1	ISO 2	ISO 1	ISO 2	ISO 1-2		
metal joinable subbase with side ports	1 subbase + 2 seals 1 selector plate (connects ports 1 - 3 - 5) 2 G 1/4 plugs 1 G 1/8 plug 2 assembly diabolos	-	-	G 1/4	G 1/2	G 1/8	**35500088**	**35500102**
set of 2 end plates	2 end plates + 2 seals 1 blank selector plate (no flow) 1 selector plate (connects ports 1 - 3 - 5) 2 assembly diabolos	G 3/8	G 3/4	-	-	G 1/8	**35500087**	**35500101**
blank selector plate (no flow)							**88135501**	**88135506**
selector plate (connects port 1)							**88135512**	**88135513**
selector plate (connects ports 3 and 5)							**88135510**	**88135511**
selector plate (connects ports 1 - 3 - 5)							**88135502**	**88135507**
selector plate (connects ports 1 - 3 - 5 and 1 pilot 12 or 14)							**88135503**	**88135508**
selector plate (connects ports 1 - 3 - 5 and 2 pilots 12 and 14)							**88135504**	**88135509**

SET OF TRANSFER AND CONNECTION PLATES

• Set of transfer and connection plates to join ISO 1 and ISO 2 metal joinable subbases with side ports:

Set including: - One transfer module to join ISO 1 and ISO 2 subbases
- One ISO 2 end plate (ports 1 - 3 - 5 : G 3/4)
- One ISO 1 end plate (ports 1 - 3 - 5 : G 3/8)

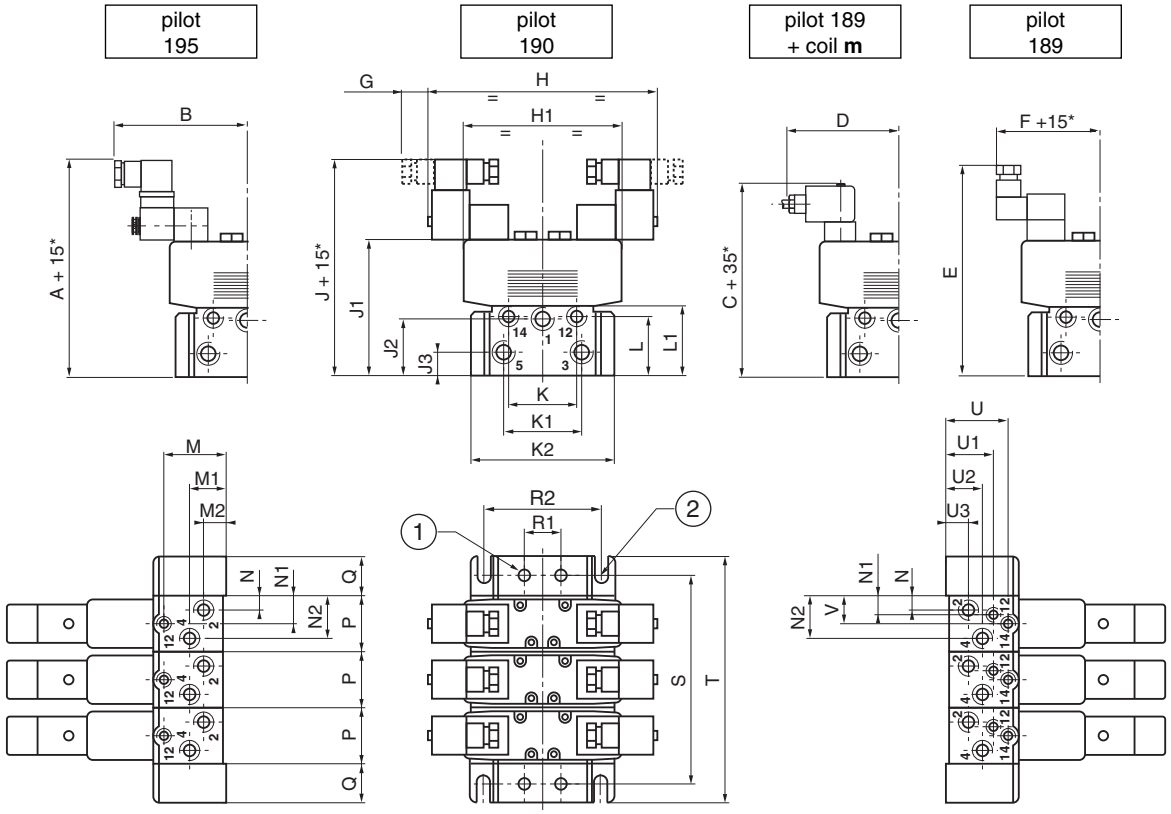
CHOICE OF EQUIPMENT

description	type	code	E (mm)	
Set of transfer and connection plates for metal joinable subbases with **side** ports	**ISO 1 - ISO 2**	**35500390**	30	

ACCESSORIES (see page 14)

DIMENSIONS (mm), WEIGHT (kg)

SPOOL VALVES ON **METAL JOINABLE** SUBBASES
Side ports - **ISO 1-2**



(1) ISO 1 mounting: 4 Ø 7 ; depth 53
(2) ISO 2 mounting: 4 slots Ø 8,5 ; depth 72

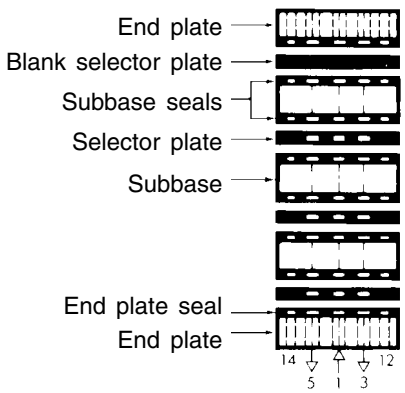
number of ISO 1 subbases	T	S	weight ISO 1 spool valves + 2 pilots + subbases + end plates			
			pilots			
			189	190	189 + m	195
2	146	106	3,66	3,90	4,14	3,92
3	189	149	4,86	5,22	5,58	5,24
4	232	192	6,06	6,54	7,02	6,57
5	275	235	7,26	7,86	8,46	7,90
6	318	278	8,46	9,18	9,9	9,23
7	361	321	9,66	10,50	11,34	10,56
8	404	364	10,86	11,82	12,78	11,88

number of ISO 2 subbases	T	S	weight ISO 2 spool valves + 2 pilots + subbases + end plates			
			pilots			
			189	190	189 + m	195
2	192	168	5,196	5,436	5,676	5,452
3	248	224	6,374	6,734	7,094	6,782
4	304	280	7,652	8,132	8,612	8,196
5	360	336	8,930	9,530	10,130	9,610
6	416	392	10,208	10,928	11,648	11,024
7	472	448	11,888	12,728	13,568	12,840
8	528	504	13,166	14,126	15,086	14,254

	A	B	C	D	E	F	G	H	H1	J	J1	J2	J3	K	K1	K2	L	L1	M	M1	M2	N	N1	N2	P	Q	R1	R2	U	U1	U2	U3
ISO 1	162	105	145	82	163	88	19	178	122	168	95	42	16	53	59	106	44	53	44	13	13	11	17,5	32	43	30	28	-	44	30	13	13
ISO 2	193	137	176	112	194	118	19	239	161	199	126	62	30	62	62	126	72	80	68	36	17	15	18	41	56	40	-	104	68	64	36	17

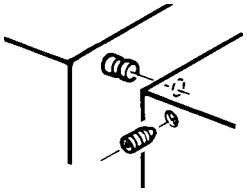
*For connector or coil removal

ASSEMBLY OF SUBBASES

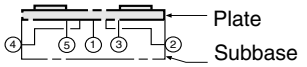
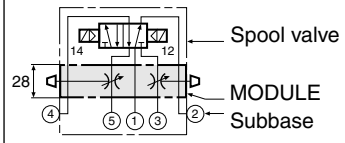
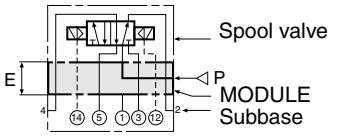
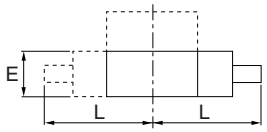
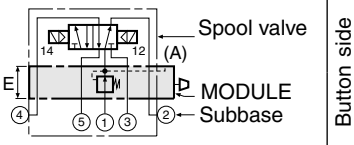
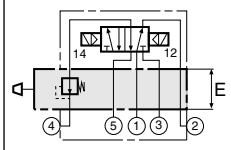
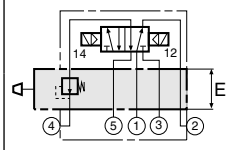
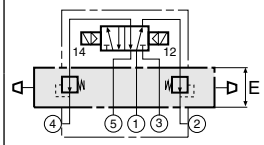


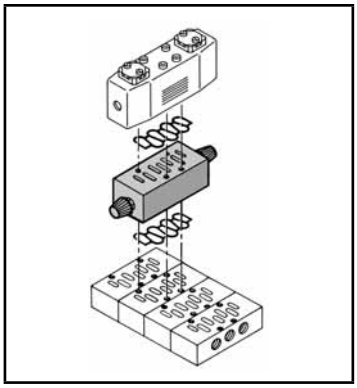
CONNECTION

End plates and subbases are connected together together using a system of diabolos and grub screws.

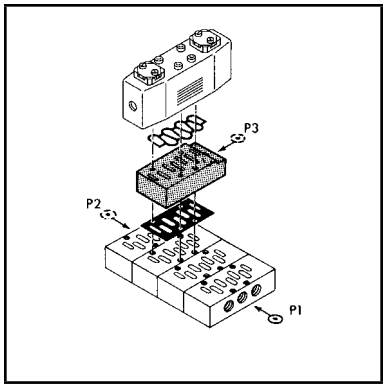


CHOICE OF EQUIPMENT

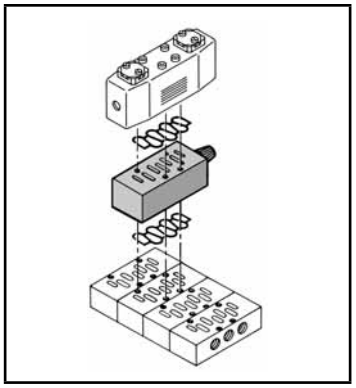
designation			symbol		code ISO 1	code ISO 2	code ISO 3
Blanking plate to cover top face This plate allows later assembly of a spool valve					**88135517**	**88135518**	**88135519**
Sandwich flow regulator This unit, fitted between a subbase and a spool valve, incorporates 2 flow regulators in the exhaust ports 3 and 5. The flow regulators can be used to control the speed of a cylinder Weight: **ISO 1** : 0,230 kg - **ISO 2** : 0,440 kg **- ISO 3** : 1 kg					**34600476**	**34600477**	**34600469**
Separate pressure supply module This unit, fitted between a joinable subbase and a spool valve, allows an individual valve to be supplied at a different pressure than that of the other spool valves. The main pressure feed for the subbases is not blocked when adding this module. Pressure supply port P : G 1/4					**35500118**	**-**	**-**
Sandwich pressure regulator module This module, which is placed between a subbase and a spool valve, is designed to regulate the pressure on the valve's port as follows: - 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  ISO 1 : E=45 mm L=146 mm ISO 2 : E=60 mm L=180 mm ISO 3 : E=67 mm L=208 mm	**on port 1** (pressure supply)	regulator flow at 6 bar: **ISO 1** : 550 l/min weight : 0,387 kg **ISO 2** : 1000 l/min weight : 1,680 kg **ISO 3** : 2000 l/min weight : 2,210 kg		Button side **12**	**34600474**	**34600475**	**34600464**
				Button side **14**	**34600471**	**34600472**	**34600473**
	on port 2	regulator flow at 6 bar: **ISO 1** : 850 l/min weight : 0,387 kg **ISO 2** : 1400 l/min weight : 1,680 kg **ISO 3** : 2700 l/min weight : 2,210 kg			**34600458**	**34600461**	**34600465**
	on port 4	regulator flow at 6 bar: **ISO 1** : 850 l/min weight : 0,387 kg **ISO 2** : 1400 l/min weight : 1,680 kg **ISO 3** : 2700 l/min weight : 2,210 kg			**34600459**	**34600462**	**34600466**
	on ports 2 and 4	regulator flow at 6 bar: **ISO 1** : 850 l/min weight : 0,577 kg **ISO 2** : 1400 l/min weight : 2,400 kg **ISO 3** : 2700 l/min weight : 3,200 kg			**34600460**	**34600463**	**34600467**
Pressure gauge Ø40 (0 - 12 bar)						**34300014**	
G1/8 bracket connection for pressure gauge mounting						**88100617**	



Sandwich
flow regulator



Separate
pressure supply module



Sandwich
pressure regulator module