



INDUSTRIAL HYDRAULICS

PRODUCT OVERVIEW



The Real Alternative

ABOUT THIS GUIDE

This guide is intended for a smart overview of our industrial hydraulics and let you find quickly the product you need.

data sheet ref.

main characteristics, available versions and options are shown together for quick comparison.

A brief description of the features follows.

The highlighted letter that precedes the description is the same letter that identifies the option in the identification code, in the data sheet, for an easy reference.

Not all the options are available for all versions: always verify technical data, details and availability in the technical data sheet.

MODEL CODE	E4	DSP7	ES	DSP10
SARACOLA	41 400	41 420	41 480	41 440
SIZE (mm)	10	10	10	10
1/2" NPT	10, 100	10	100	10
ISO 4401	10	10	10	10
TYPE	solenoide	solenoide	solenoide	solenoide
p max	210 bar	300 bar	200 bar	200 bar
Q max (pilot pressure 500 bar)	100 l/min	400 l/min	400 l/min	400 l/min
Q max	150 l/min	100 l/min	100 l/min	100 l/min
PROOLS				
SA 52 SA 64				
SA 52				
SA 64 SA 2				
SA 2 SA 2				
SA 1 SA 1				
SA 2 SA 2 SA 4 SA 4				
SA 2 SA 2				
SA 2 SA 2				
SA 2 SA 2				
SA 2 SA 2				
COIL TYPE				
100V AC				
24V DC				
24V DC				
24V DC				
COIL CONNECTIONS				
KT				
KT (DLZ) and COIL				
MANUAL OVERRIDE				
CS				

You can find data sheets always up-to-date in various languages by scanning this QR code with your smartphone



or on our webpages at:

www.diplomatic.com/products

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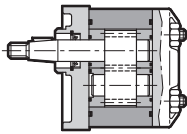
INDUSTRIAL ■

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PUMPS

GEAR PUMPS



MODEL CODE

GP* - external gear

CATALOGUE

11 100

PUMP SIZE	DISPLACEMENT	MAX FLOW RATE at 1500 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]

GP1

0013	1,3	2,0	250	6000
0020	2,0	3,0		5000
0027	2,7	4,0		
0034	3,4	5,1	230	4000
0041	4,1	6,1		
0051	5,1	7,6		
0061	6,1	9,1	200	3800
0074	7,4	11,1		
0091	9,1	13,6	180	2600

GP2

0070	7,0	10,5	250	4000
0095	9,5	14,2		3000
0113	11,3	16,9	230	4000
0140	14,0	21,0		
0158	15,8	23,7	210	3600
0178	17,8	26,7		
0208	20,8	31,2	180	3200
0234	23,4	35,1		3000
0279	27,9	41,8	170	2500

GP3

0207	20,7	31,0	230	3500
0225	22,5	33,7		
0264	26,4	39,6		
0337	33,7	50,5	220	3000
0394	39,4	59,1		
0427	42,7	64,0	210	2800
0514	51,4	77,1	200	2400
0600	60,0	90,0	190	2800
0696	69,6	104,4	170	2500
0776	77,6	116,4	160	2300
0876	87,6	131,4	140	2000

FEATURES ++

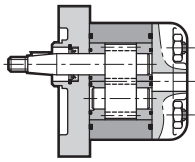
ROTATION: **R** clockwise - **L** counterclockwise - **D** reversible (for single pumps only)

MOUNTING FLANGE: **9** rectangular shape 4 holes - **0** SAE J744 2 holes

SHAFT END: **7** tapered w. key - **5** cylindrical w. key - **0** cylindrical w. key SAE-J744 - **1** SAE-J744 splined

HYDRAULIC CONNECTIONS: **F** flanged - **B** BSP threaded ports - **U** UNF threaded ports

OTHER: see catalogue for **F/M/R** through shaft - **H** high pressure



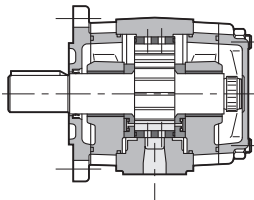
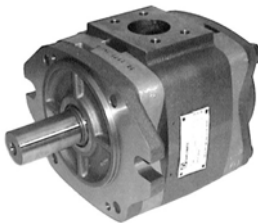
MODEL CODE **1P - external gear**

CATALOGUE **11 110**

PUMP SIZE	DISPLACEMENT [cm ³ /rev]	MAX FLOW RATE at 1500 rpm [l/min]	MAX OPERATING PRESSURE [bar]	MAX ROTATION SPEED [rpm]
1P				
1,6	1,1	1,6	230	6000
2	1,3	2,0		
2,5	1,6	2,4		
3,3	2,1	3,2		
4,2	2,7	4,0	210	5000
5	3,2	4,8		
5,8	3,7	5,6		
6,7	4,2	6,4		
7,5	4,8	7,2	190	3500
9,2	5,8	8,7		
11,5	8,0	11,9	160	2100

FEATURES ++

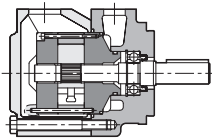
ROTATION: clockwise. MOUNTING FLANGE: rectangular shape 4 holes. SHAFT END: tapered w. key
HYDRAULIC CONNECTIONS: BSP threaded



MODEL CODE **IGP* - internal gear**

CATALOGUE **12 100**

PUMP SIZE	DISPLACEMENT [cm ³ /rev]	MAX FLOW RATE at 1500 rpm [l/min]	MAX OPERATING PRESSURE [bar]	MAX ROTATION SPEED [rpm]
IGP3				
003	3.6	5.4	330	3600
005	5.2	7.8		
006	6.4	9.6		
008	8.2	12.3		
010	10.2	15.3		
IGP4				
013	13.3	19.9	330	3600
016	15.8	23.7		3400
020	20.7	31.0		3200
025	25.4	38.1	300	3000
032	32.6	48.9	250	2800
IGP5				
032	33.1	49.6	315	3000
040	41.0	61.5		2800
050	50.3	75.4	280	2500
064	64.9	97.3	230	2200
IGP6				
064	64.1	96.1	300	2600
080	80.7	121.0	280	2400
100	101.3	151.9	250	2100
125	126.2	189.3	210	1800



MODEL CODE **IGP - internal gear**

CATALOGUE **12 100**

PUMP SIZE	DISPLACEMENT	MAX FLOW RATE at 1500 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]

IGP7

125	125,8	188,7	300	2200
160	160,8	241,2	280	2000
200	202,7	304,0	250	1800
250	251,7	377,5	210	

■ **FEATURES ++**

ROTATION: **R** clockwise - **L** counterclockwise

MOUNTING FLANGE: **0** SAE 2 - **1** SAE 4 (IGP7 only). SHAFT END: cylindrical w. key

HYDRAULIC CONNECTIONS: flanged SAE J518 c code 61

OTHER: see catalogue for **DOUBLE PUMPS**

MODEL CODE **DF* - fixed displacement**

CATALOGUE **13 100**

PUMP SIZE	DISPLACEMENT	MAX FLOW RATE at 1500 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]

DFP1

05	18,0	26,1	210	2700
08	27,4	39,4		
11	36,4	52,6		
12	39,5	58,7	160	
14	45,9	69,6	140	

DFP2

12	40,1	58,8	210	2500
14	45,4	65,7		
17	55,2	80,2		
19	60,1	88,7		
21	67,5	99,8		

DFP3

21	69,0	101,4	210	2400
25	81,6	120,1		
30	97,7	141,2		
35	112,7	167,2		
38	121,6	177,3		

DFP4

42	138,6	203,4	175	2200
47	153,5	222,7		
50	162,2	234,0		
57	183,4	267,0		
60	193,4	285,0		

■ **FEATURES ++**

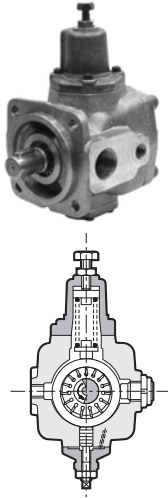
TYPE: **P** single pump - **DP** double pump - **C** shaft end cartridge - **CC** cover end cartridge

ROTATION: **R** clockwise - **L** counterclockwise

MOUNTING FLANGE: ISO. SHAFT END: cylindrical w. key. Other upon request

HYDRAULIC CONNECTIONS: SAE J518 flanged.

OTHER: see catalogue for **OUTLET PORTS POSITION**



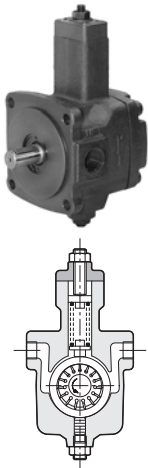
MODEL CODE **PVD - direct variable displacement**

CATALOGUE **14 100**

PUMP SIZE	DISPLACEMENT	MAX FLOW RATE at 1450 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]
PVD				
25	17,9	25,0	120	1800
28	22,1	29,0	100	
35	26,9	36,2		
45	34,5	45,9		
56	42,8	58,0		
72	53,1	72,5		
90	69,0	91,3		
145	105,5	145,0		

FEATURES ++

ROTATION: clockwise. MOUNTING: **K** rectangular shape 4 holes w. shaft end tapered w. key
H ISO 3019/2 w. cylindrical shaft end w. key. HYDRAULIC CONNECTIONS: BSP threaded/SAE flanged
 PRESSURE COMPENSATOR: mechanical, direct
 OTHER: **Q** flow adjuster - see catalogue for **MULTIPLE PUMPS**



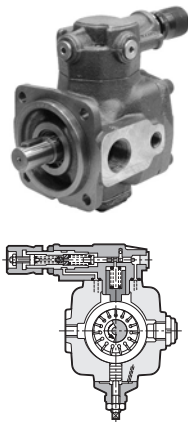
MODEL CODE **PVE - direct variable displacement**

CATALOGUE **14 110**

PUMP SIZE	DISPLACEMENT	MAX FLOW RATE at 1800 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]
PVE				
006	6,6	12,0	70	1800
011	11,1	20,0		
016	16,6	30,0		
023	22,2	40,0		

FEATURES ++

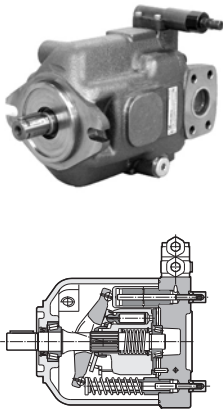
ROTATION: clockwise. MOUNTING FLANGE: **9** rectangular shape 4 holes - **0** SAE J744 2 holes
 SHAFT END: cylindrical w. key SAE-J744. HYDRAULIC CONNECTIONS: BSP threaded
 PRESSURE COMPENSATOR: mechanical, direct. **PC2** up to 35 bar - **PC3** up to 70 bar



MODEL CODE **PVA - piloted variable displacement**

CATALOGUE **14 200**

PUMP SIZE	DISPLACEMENT	FLOW RATE at 1450 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]
PVA				
22	16	23,2	160	1800
28	20	29,0		
35	25	36,2		
45	31,5	45,6		



MODEL CODE **PVA - piloted variable displacement**

CATALOGUE **14 200**

PUMP SIZE	DISPLACEMENT	FLOW RATE at 1450 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]
56	40	58,0	160	1800
72	50	72,5		
90	63	91,3	150	
115	80	116,0		
145	100	145,0		

■ FEATURES ++

ROTATION: clockwise. MOUNTING FLANGE: ISO 3019/2 4 holes

SHAFT END: cylindrical w. key. HYDRAULIC CONNECTIONS: BSP threaded / SAE flanged

PRESSURE COMPENSATOR: hydraulic, piloted.

OTHER: **Q** flow adjuster - **M** Dual pressure value selection device - see catalogue for **MULTIPLE PUMPS**

MODEL CODE **VPPM - medium pressures**

CATALOGUE **16 100**

PUMP SIZE	MAX DISPLACEMENT	FLOW RATE at 1500 rpm	MAX OPERATING PRESSURE	MAX ROTATION SPEED
	[cm ³ /rev]	[l/min]	[bar]	[rpm]

VPPM

029	29	43,5	280	3000
046	46	69,0		2600
073	73	109,5		2200
087	87	131,9	250	1850

■ FEATURES ++

ROTATION: **R** clockwise - **L** counterclockwise

MOUNTING FLANGE: **5** ISO 3019/2 - **0** SAE J744 2 holes

SHAFT END: **5** cylindrical w. key ISO 3019/2 - **0** cylindrical w. key SAE-J744 - **1** SAE-J744 splined

HYDRAULIC CONNECTIONS: **S** SAE flange w. metric bolts suction/delivery, drainage BSP threaded

T SAE flange w. UNF bolts suction/delivery, drainage UNF threaded

REGULATORS:

PC pressure

PCR remote-controlled pressure

PCX with external pressure control devices

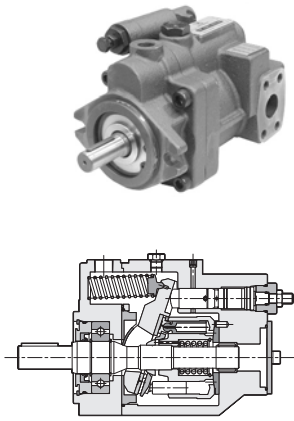
PQC pressure and flow rate

PQCES integrated proportional flow and pressure control

PQNC power

PQNCES power, with integrated proportional flow and pressure control

OTHER: see catalogue for **MULTIPLE PUMPS**



MODEL CODE **VPPL - low-medium pressures**

CATALOGUE **16 200**

PUMP SIZE	MAX DISPLACEMENT [cm ³ /rev]	FLOW RATE at 1500 rpm [l/min]	MAX OPERATING PRESSURE [bar]	MAX ROTATION SPEED [rpm]
008	8	12	210	2000
016	16	24		
022	22	33		
036	36	54		
046	46	69	280	1800
070	70	105		
100	100	150		

FEATURES ++

ROTATION: clockwise

MOUNTING FLANGE: **0** SAE-2 (VPPL 008, 016, 022, 036, 046) - **1** SAE-4 (VPPL 070, 100)

SHAFT END: cylindrical w. key SAE-J744

HYDRAULIC CONNECTIONS: **S** SAE flange w. metric bolts suction/delivery, drainage BSP threaded - **B** BSP threaded ports (VPPL-008)

REGULATORS:

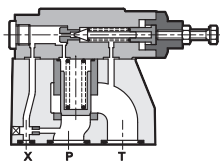
PC5, PC6 pressure

PCR remote-controlled pressure

PCX5, PCX6 with external pressure control devices

PQC pressure and flow rate

PRESSURE VALVES IN-LINE SUBPLATE



MODEL CODE	CD1-W	RM2-W	RM3-W	RQ5-W	RQM5-W	RQ7-W	RQM7-W
CATALOGUE	21 200	21 210	21 210	21 220	21 230	21 220	21 230
SIZE (ND)	6	8	10	15		25	
port THREAD	1/4" NPT	3/8" BSP	1/2" BSP	P: 3/4" BSP	T: 1" BSP	P: 1 1/4" BSP	T: 1 1/2" BSP
TYPE	piloting	relief	relief	relief	relief venting	relief	relief venting
p max	350 bar						
Q max	3 l/min	50 l/min	75 l/min	250 l/min		400 l/min	

PRESSURE ADJ. RANGE

up to 70 bar	■	■	■	■	■	■	■
up to 140 bar	■	■	■				
up to 210 bar	■	■	■	■	■	■	■
up to 350 bar	■	■	■	■	■	■	■

FEATURES ++

VENTING TYPE: **A, B, C, D, G** (RQM* only)

OPTIONS: **M** adjustment knob; **CM** boot (RQM* only)

COILS: power supply **DC** 12V, 24V, 48V, 110V, 220V; **AC** 12V, 24V, 48V, 110V, 220V; F110, F220 - DIN 43650 connector

MODEL CODE	RQ3-P	RQM3-P	RQ5-P	RQM5-P	RQ7-P	RQM7-P
CATALOGUE	21 300	21 310	21 300	21 310	21 300	21 310
SIZE (ND)	10		25		32	
SIZE ISO 6264	06		08		10	
TYPE	relief	relief venting	relief	relief venting	relief	relief venting
p max	350 bar					
Q max	200 l/min		400 l/min		500 l/min	

FEATURES ++

EXPLOSION PROOF **K*** see catalogue 21 515

VENTING TYPE: **A, B, C, D, G** (RQM* only)

COILS: power supply **DC** 12V, 24V, 48V, 110V, 220V; **AC** 12V, 24V, 48V, 110V, 220V; F110, F220 - DIN 43650 connector

PRESSURE ADJ. RANGE: **3** up to 70 bar - **5** up to 210 bar - **7** up to 350 bar

OPTIONS: **M** adjustment knob; **CM** boot (solenoid op. only)

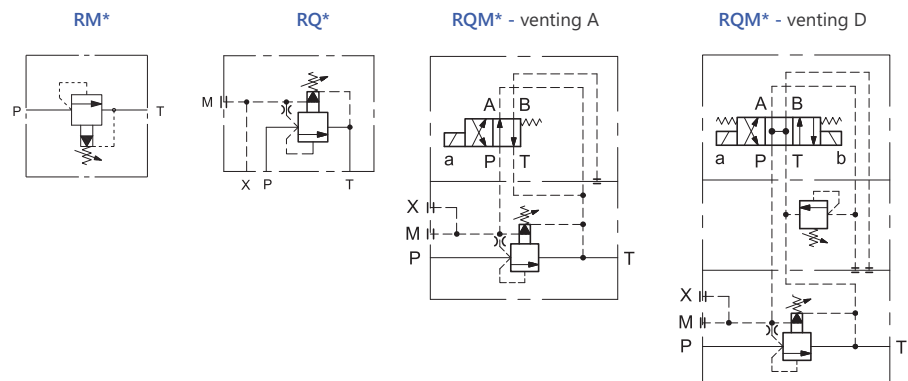
VENTING TYPE

A venting with de-energized solenoid - **B** venting with energized solenoid

C two pressure settings, highest with energized solenoid - **D** two pressure settings, venting with de-energized solenoid

G three pressure settings, highest with de-energized solenoid

SYMBOLS





MODEL CODE	MRQA		RQR5-P		RQR7-P		RQR7-P	
	MRQA/C	RQR3-P	RQRM3-P	RQA5-P	RQAM5-P	RQA7-P	RQAM7-P	RQAM7-P
CATALOGUE	21 400	21 410	21 420	21 410	21 420	21 410	21 420	
SIZE (ND)	6	10		25		32		
SIZE ISO 6264	03	06		08		10		
TYPE	unloading	unloading	unloading + venting	unloading	unloading + venting	unloading	unloading + venting	
p max	350 bar							
Q max	40 l/min	200 l/min		400 l/min		500 l/min		
PRESSURE ADJ. RANGE								
up to 70 bar	■	■	■	■	■	■	■	■
up to 210 bar	■	■	■	■	■	■	■	■
up to 280 bar	■	■	■	■	■	■	■	■

VERSIONS

R remote piloting - A or /C embedded check valve (w.subplate - non ISO mounting)

FEATURES++

PUMP SWITCH: 1 75% of set value - 2 63% of set value (no MRQA)

OPTIONS: I internal drainage (RQ*M-P only) - M adjustment knob - CM boot (solenoid op. only)

COILS: power supply DC 12V, 24V, 48V, 110V, 220V; AC 12V, 24V, 48V, 110V, 220V; F110, F220 - DIN 43650 connector

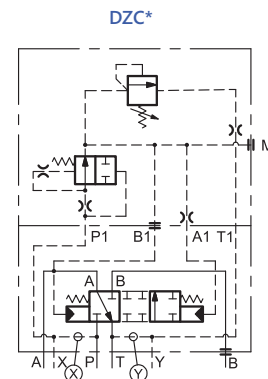
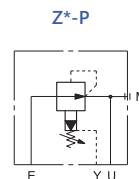
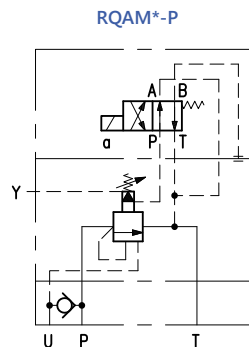
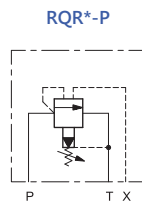
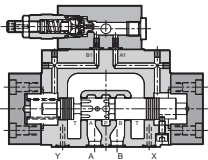


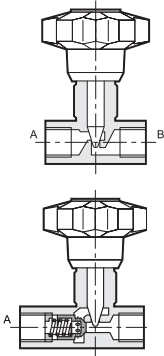
MODEL CODE	Z3-P		Z5-P		ZC2		DZC5		DZC5R		DZC7		DZC8	
	22 300		22 300		24 300		24 310		24 310		24 310		24 310	
SIZE (ND)					6		10		16		25			
SIZE (ISO)	5781-06		5781-08		5781-03		P05, 4001-05		4401-07		4401-08			
TYPE	reducing 2-way		reducing 2-way		reducing + relieving		reducing + relieving		reducing + relieving		reducing + relieving			
p max	250 bar				350 bar									
Q max	40 l/min		110 l/min		25 l/min		150 l/min		300 l/min		500 l/min			
PRESSURE ADJ. RANGE														
up to 70 bar					■		■		■		■		■	
up to 140 bar					■		■		■		■		■	
up to 210 bar	■		■		■		■		■		■		■	

FEATURES++

Z*-P OPTIONS: R reduced drainage - C check valve U→E w. cracking pressure 0.5 bar

DZC* OPTIONS: I internal pilot/drainage - E external pilot/drainage - K1 adjustment knob



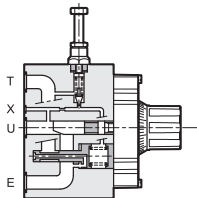
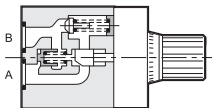


MODEL CODE RS* - throttle

CATALOGUE	31 200						
*	2	3	4	5	6	7	8
port THREAD	1/4" BSP	3/8" BSP	1/2" BSP	3/4" BSP	1" BSP	1 1/4" BSP	1 1/2" BSP
TYPE	throttle						
p max	400				320		
Q nom	15	30	50	80	150	200	220

MODEL CODE RSN* - throttle check

CATALOGUE	31 210						
*	2	3	4	5	6	7	8
port THREAD	1/4" BSP	3/8" BSP	1/2" BSP	3/4" BSP	1" BSP	1 1/4" BSP	1 1/2" BSP
TYPE	throttle check						
p max	400				320		
Q nom	15	30	50	80	150	200	220
Q free max	35	80	150	200	300	400	500



MODEL CODE	RPC1	RPC1-T3	RPC2	RPC2-T3	RPC3	RPC3-T3
CATALOGUE	32 200	32 250	32 300	32 350	32 300	32 350
SIZE (ND)	6		10		16	
SIZE ISO 6263	03		06		07	
TYPE	2-way pressure and temperature compensated	3-way pressure and temperature compensated	2-way pressure and temperature compensated	3-way pressure and temperature compensated	2-way pressure and temperature compensated	3-way pressure and temperature compensated
p max	250		320		250	
Δp	10 bar	12 bar	10 bar		12 bar	
Q min contr.	0,025 l/min	0,035 l/min	0,05 l/min	0,06 l/min	0,12 l/min	0,13 l/min

CONTROLLED FLOW

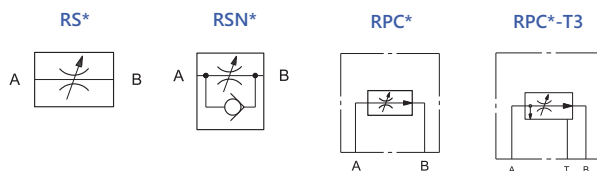
0.5	■					
1; 4; 10; 16	■	■				
22	■	■	■			
30	■					
38			■			
50				■		
70			■			
100					■	
150					■	■

FEATURES ++

RPC*: **C** check valve - **X** check valve + anti jump P port (RPC1 only) - **M** single turn knob - **RC** compensating stroke governor (RPC2 and RPC3)

RPC*-T3: **O** pressure relief valve 10 ÷ 210 bar (RPC2-T3 and RPC3-T3) - **M** single turn knob

SYMBOLS





MODEL CODE	CR	PRK10	DBV	PCK06-P	PCK06-PT
CATALOGUE	21 100	21 111	21 120	21 140	22 140
seat type	D-10E	SAE-10	D-10E	D-10D	
port THREAD	ø20,6	7/8-14 UNF-2B	M30 x 1,5	ø20,6	
TYPE	direct	pilot	direct	NO compensator	NC compensator
p max	350	350	380	350	
Q max	50	120	120	40	

■ PRESSURE ADJ. RANGES

CR: **2** up to 25 bar - **3** up to 70 bar - **4** up to 140 bar - **5** up to 210 bar - **6** up to 350 bar

PRK10: **070** 6 ÷ 70 bar - **140** 6 ÷ 140 bar - **210** 6 ÷ 210 bar - **350** 6 ÷ 350 bar

DBV: **35** up to 35 bar - **50** up to 50 bar - **80** up to 80 bar - **100** up to 100 bar - **160** up to 160 bar - **200** up to 200 bar

PCK06: **V** variable 7 ÷ 33 - **4** 4 bar - **8** 8 bar

PCK06: **V** variable 7 ÷ 33 - **4** 4 bar - **8** 8 bar



MODEL CODE	RS*-I - throttle				
CATALOGUE	31 200				
*	2	3	4	5	6
port THREAD	M20x1,5	M20x1,5	M27x2	M33x2	M42x2
TYPE	throttle				
p max	320				
Q nom	15	30	50	80	150

MODEL CODE	RSN*-I - throttle check			
CATALOGUE	31 210			
*	2	3	4	5
port THREAD	M20x1,5	M27x2	M33x2	M42x2
TYPE	throttle check			
p max	320			
Q nom	15	30	50	80
Q free max	35	80	150	200

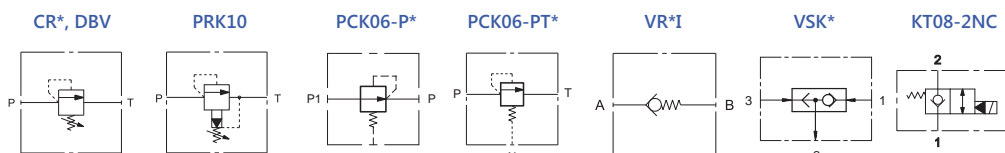


MODEL CODE	VR2-I	VR5-I	VR7-I	VSK1	VSK2	KT08
CATALOGUE		45 100		45 110	45 110	43 100
port THREAD	1/4"	3/4"	1" 1/4	slip-in ø11,75 mm	M12x1	3/4-16 UNF
TYPE	check valve			shuttle	shuttle	solenoid, poppet
p max	320	250	250	350	350	350
Q max	50	150	300	20	3	50

■ FEATURES ++

VR*-I CRACKING PRESSURE: **1** 0.5 bar - **3** 5 bar - **4** 10 bar

KT08: **NO** normally open - **NC** normally closed - ELECTRICAL OPTIONS same as DL3 valve, see at DIRECTIONAL VALVES.





DIRECTIONAL VALVES

SOLENOID - DIRECT OPERATED



MODEL CODE	DL2	DS3	DL3	DL3B	DS5	DL5	DL5B
CATALOGUE	41 100	41 150	41 211	41 220	41 310	41 330	41 335
SIZE	04	06		10			
ISO 4401 / CETOP	02	03		05			
TYPE	Standard	Standard	Compact version	8 W Low consumption	Standard	Compact version	Compact version
p max	250 bar	350 bar	280 bar	280 bar	320 bar	320 bar	320 bar
Q max	20 l/min	100 l/min	50 l/min	60 l/min	150 l/min	125 l/min	125 l/min

SPOOLS

S1; S2; S3; S4	■	■	■	■	■	■	■
S5; S6; S7; S8		■			■		
S9 to S29		■			■		
SA* ; SB*	■	■	■	■	■	■	■
RSA* ; RSB*		■					
TA ; TB	■	■	■	■	■	■	■
TA02 ; TB02		■	■	■	■	■	■
TA23 ; TB23		■	■		■	■	■
TA/TB 30; TA/TB 33		■					
RK		■	■	■	■		
RK1; RK02; 1RK		■			■		

COIL TYPE

D12	■	■	■		■	■	■
D14		■	■				
D24	■	■	■	■	■	■	■
D28		■	■			■	■
D48		■	■				
D110; D125; D220		■			■		
A24; A48; A110; A230		■	■		■	■	
F110; F220		■			■		
R110; R220	■		■				

COIL CONNECTIONS

K1	■	■	■	■	■	■	■
K2		■	■				■
K4			■				
K7		■	■				■
K7D (diode)		■	■				■
K8			■				

MANUAL OVERRIDES

CM		■	■		■	■	■
CH		■	■				
CP		■					■
CK		■	■			■	■
CPK		■					■

■ FEATURES ++

MONITORED **M** - see dedicated section at page 18

EXPLOSION PROOF **K*** see catalogue 41 515

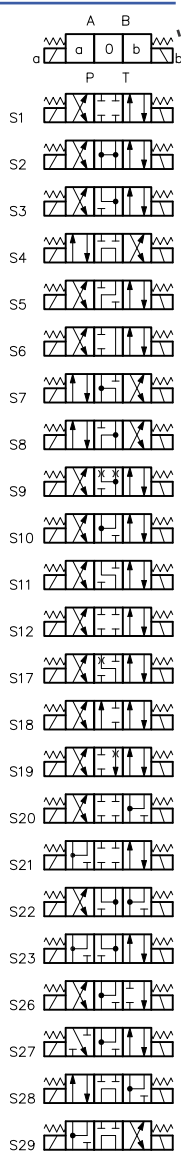
SOFT-SHIFT **F / S**

EXTERNAL DRAIN **Y** available for ISO 4401-05 sizes

ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours)

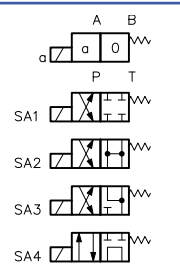
S*

2 solenoids
3 positions
spring offset



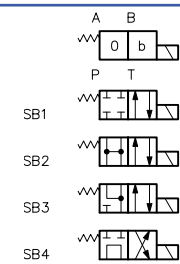
RSA*

1 solenoid side A
2 positions
(external + middle)
with spring offset



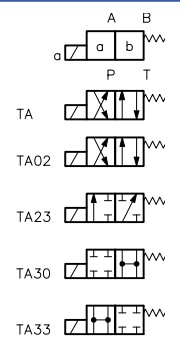
RSB*

1 solenoid side B
2 positions
(external + middle)
with spring offset



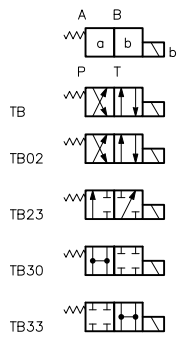
TA*

1 solenoid side A
2 external positions
with spring offset



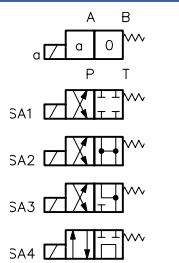
TB*

1 solenoid side B
2 external positions
with spring offset



SA*

1 solenoid side A
2 positions
(middle + external)
with spring offset



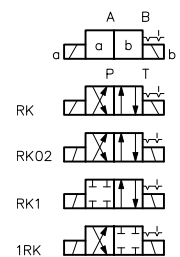
SB*

1 solenoid side B
2 positions
(middle + external)
with spring offset



RK

2 solenoids
2 positions
with detent





DIRECTIONAL VALVES

SOLENOID - PILOT OPERATED



MODEL CODE	E4	DSP7	E5	DSP10
CATALOGUE	41 400	41 420	41 400	41 440
SIZE (ND)	10	16	25	32
CETOP	05, R05	07	08	10
ISO 4401	05	07	08	10
TYPE	solenoid	solenoid	solenoid	solenoid
p max	320 bar	350 bar	280 bar	280 bar
p max high pressure vers.	420 bar	420 bar	420 bar	-
Q max	150 l/min	100 l/min	600 l/min	1100 l/min

SPOOLS

S1; S2; S3; S4	■	■	■	■
S5; S18	■		■	
S6 to S12	■	■	■	
S20; S21		■		
SA1; SB1	■	■	■	■
SA2/SB2 To SA4/SB4		■		■
TA ; TB;	■	■	■	■
TA02; TB02	■	■	■	■
TA23 ; TB23	■	■	■	
RK; RK02; RK002	■	■	■	■

COIL TYPE

D12; D24	■	■	■	■
D48; D110; D220	■	■	■	■
A24; A48; A110; A230	■	■	■	■
F110; F220	■	■	■	■

COIL CONNECTIONS

K1	■	■	■	■
K7 (D12 and D24 coil)	■	■	■	■

MANUAL OVERRIDE

CM		■	■	
----	--	---	---	--

VERSIONS

MONITORED **M** - see dedicated section at page 18

EXPLOSION PROOF **KD2** - see catalogue 41515

HYDRAULIC OPERATED VERSIONS **C** described in the valves datasheets

HIGH PRESSURE VERSION **H**

FEATURES ++

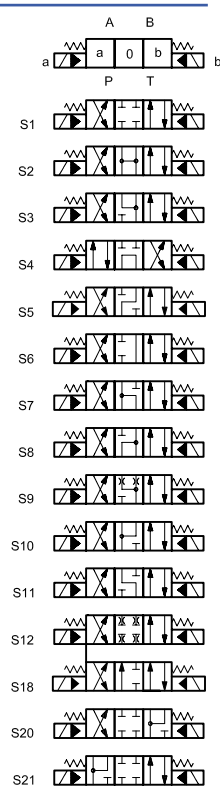
PILOT / DRAINAGE **I** internal - **Z** internal with pressure reducing - **C** internal with built-in backpressure valve - **E** external (always verify application cases on valve datasheet)

OPTIONS: **C** stroke control - **D** shifting speed control - **G** stroke + shifting control - **P***, **PF** restrictor subplate

ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours)

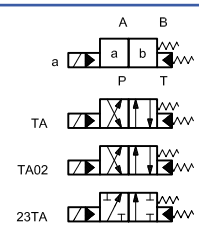
S*

2 solenoids
3 positions
spring offset



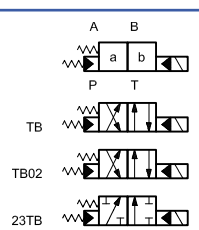
TA*

1 solenoid side A
2 external positions
with spring offset



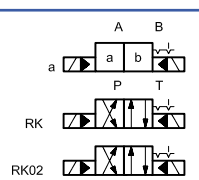
TB*

1 solenoid side B
2 external positions
with spring offset



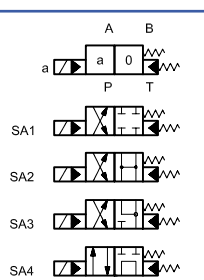
RK

2 solenoids
2 positions
with detent



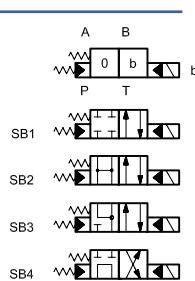
SA*

1 solenoid side A
2 positions
(middle + external)
with spring offset



SB*

1 solenoid side B
2 positions
(middle + external)
with spring offset





MODEL CODE	DSH3		DSH3L		DSR3L		DSA3		DSC3		DSH5		DSA5	
CATALOGUE	41 600		41 605		41 610		41 620		41 630		41 600		41 620	
SIZE (ND)					06								10	
CETOP					03								05	
ISO 4401					03								05	
TYPE	lever		lever compact		roller cam		air		hydraulic		lever		air	
p max					350 bar								320 bar	
Q nom	75 l/min		60 l/min		75 l/min		75 l/min		75 l/min		150 l/min		120 l/min	

SPOOLS

S1; S2; S3; S4	■	■			■	■	■	■	■	■	■	■	■	■
S5 to S23							■	■	■	■	■	■	■	■
SA1; SA2; SA3; SA4	■						■	■	■	■	■	■	■	■
SB1; SB2; SB3; SB4							■	■	■	■	■	■	■	■
TA	■	■		■	■	■	■	■	■	■	■	■	■	■
TA02, TA23	■						■	■	■	■	■	■	■	■
TB							■	■	■	■	■	■	■	■
TB02, TB23							■	■	■	■	■	■	■	■
TAK	■	■									■			
TAK02, TAK23	■													
SK1; SK2; SK3; SK4	■	■									■			
SAK1; SAK2; SAK3; SAK4	■										■			
R						■								
RK								■	■	■				■
RK1, RK02; 1RK								■	■	■				■

FEATURES ++

DSR3 VERSIONS: **L** compact - **H** heavy duty - **R** two roller (DSR3L only)

DSH* / DSH3L ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours)



MODEL CODE	ECA	ECB1	ECB2	ECD	ECH
CATALOGUE	49 000				
TYPE	EN 175301-803:2006 form A				
version	2 poles + GND	2 poles + GND + LED (led ON = energized)		bridge rectifier	RC damping circuit
supply	AC/DC	AC/DC		AC	AC/DC
voltage	up to 230 V	10 to 50 V	70 to 250 V	up to 230 V	up to 230 V
coil type	AC or DC	AC or DC	AC or DC	CCR or RAC	AC or DC

FEATURES ++

ECA COLOR : **B** black - **A** gray

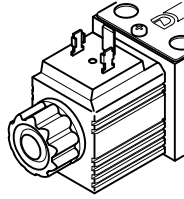


MODEL CODE	ECL	ECF
CATALOGUE	49 300	49 310
TYPE	power saving device	rapid energizing
plug	EN 175301-803 connector	
power supply	8 to 30 V DC	24 to 30 V DC
max current	6A	

For 12 and 24V DC coils

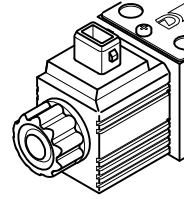
K1

DIN 43650
(standard)



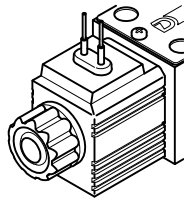
K2

AMP Junior



K4

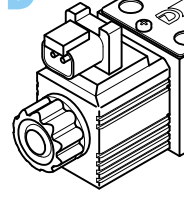
outgoing cables



K7, K7D

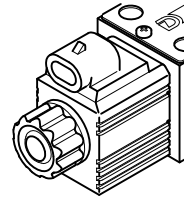
for male connector
DEUTSCH DT06-2S

K7D with internal
diode to avoid
voltage peaks



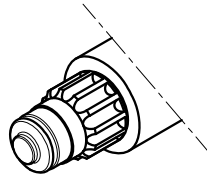
K8

AMP Super Seal



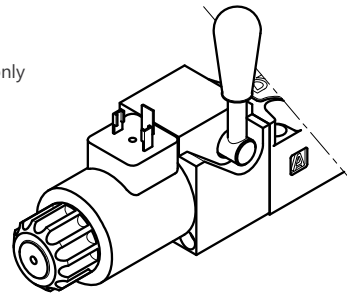
CM

Boot



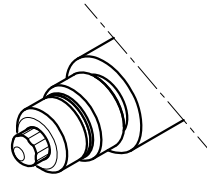
CH

Lever
DC valves only



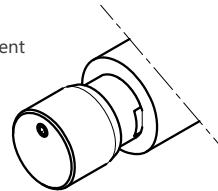
CP

Push
DC valves only



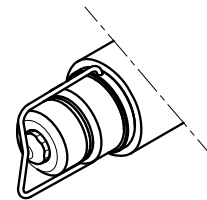
CK

Knob, with detent
DC valves only



CPK

Push with detent
DC valves only



DIRECTIONAL VALVES

SOLENOID-MONITORED



MODEL CODE	DS3M	DS5M	DSP5M DSP5RM	DSP7M	DSP8M	DSP10M
CATALOGUE	41 505					
SIZE	6	10		16	25	32
CETOP	03	05	P05, R05	07	08	10
ISO 4401	03	05	05	07	08	10
TYPE	direct op.	direct op.	pilot op.	pilot op.	pilot op.	pilot op.
p max	350 bar	320 bar		350 bar	350 bar	350 bar
Q max	80 l/min	120 l/min	150 l/min	300 l/min	600 l/min	1100 l/min

FEATURES ++

The compliance of these valves with the CE safety requirements has been verified by TÜV Sud.

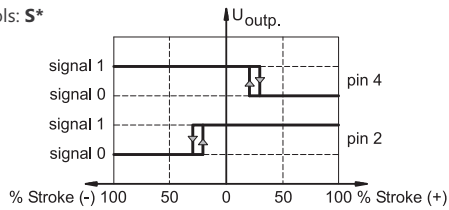
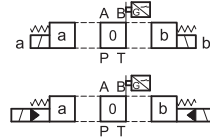
COIL TYPE: **D12** 12V DC - **D24** 24V DC - **D110** 110V DC - **D220** 220V DC

K1 DIN 43650 connection



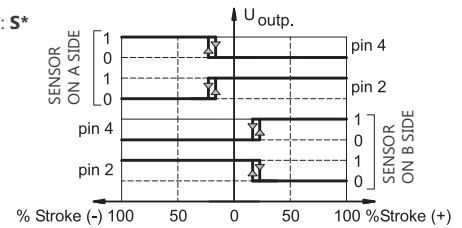
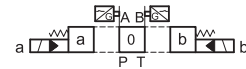
R0

1 sensor
middle
position
monitored
spools: **S***



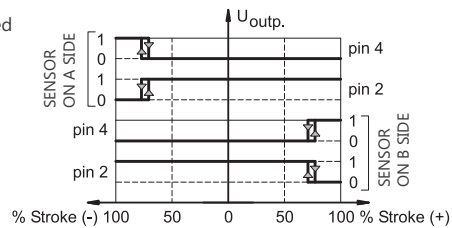
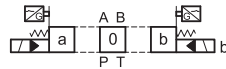
MO

2 sensors
middle
position
monitored
spools: **S***

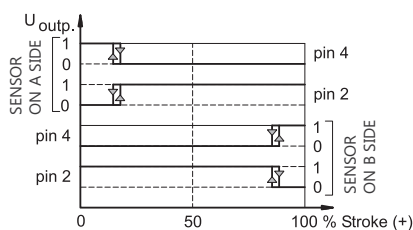


MAB

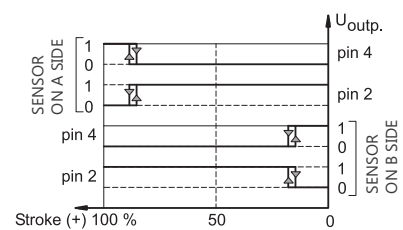
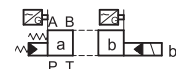
2 sensors
2 external
positions
monitored
spools:
S*



2 positions
monitored
spools:
SA*, TA*



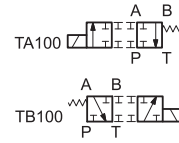
2 positions
monitored
spools: **SB*, TB***



AVAILABLE SPOOLS/MONITORED POSITIONS

	S*	SA* SB*	TA TA100	TA02	TB TB100	TB02	RK
DS3M							
RO	■						
MA		■	■	■	■		
MB		■	■	■	■		
DS5M							
RO	■						
MA		■	■	■	■	■	
MB		■	■	■	■	■	
DSP*M							
RO	■						
MA		■	■		■		■
MB		■	■		■		■
M0	■						
MAB	■	■	■		■		

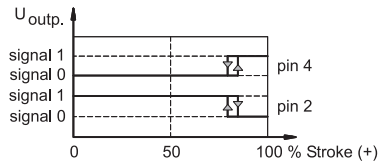
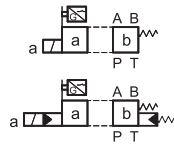
SPECIALS



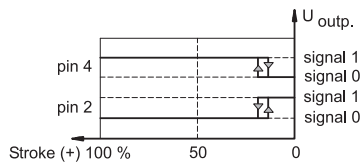
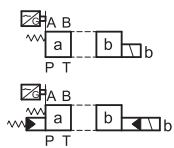
Refer to the 'solenoid operated' section for standard spools, and to the datasheet n° 41505 for the full range of available spools.

MA

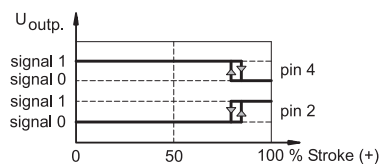
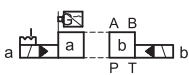
1 sensor
spools:
SA*, TA*
actuated position
monitored



spools:
SB*, TB*
initial position
monitored

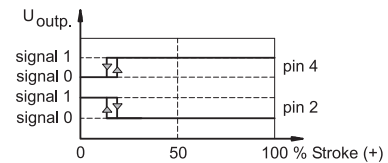
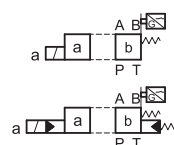


spools: **RK**
'A' position
monitored

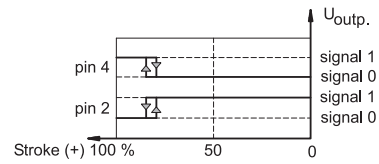
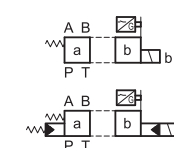


MB

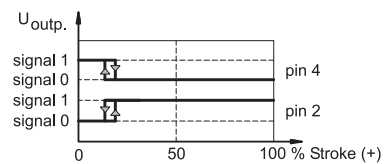
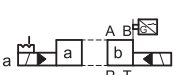
1 sensor
spools:
SA*, TA*
initial position
monitored

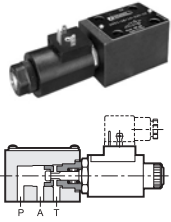


spools:
SB*, TB*
actuated position
monitored



spools: **RK**
'B' position
monitored





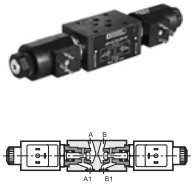
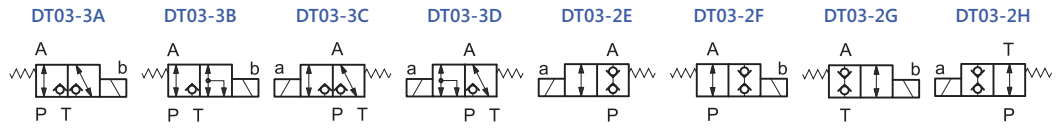
MODEL CODE **DT03-3A DT03-3B DT03-3C DT03-3D DT03-2E DT03-2F DT03-2G DT03-2H**

CATALOGUE	42 200							
Size (ISO)	4401-03							
TYPE	subplate mounting, 3-way solenoid operated				subplate mounting, 2-way solenoid operated			
p max	250 bar							
Q max	12 l/min	25 l/min	25 l/min	25 l/min	25 l/min	12 l/min	25 l/min	25 l/min

■ **FEATURES ++**

SUPPLY VOLTAGES: direct current **12V-CC** 12 V - **24V-CC** 24 V; alternating current **24RAC** 24 V - **110RAC** 110V - **220RAC** 220 V
 RESTRICTORS PLUG ON P LINE: **D08** orifice Ø0.8 - **D10** orifice Ø1

■ **SYMBOLS**



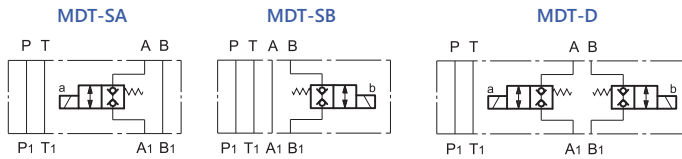
MODEL CODE **MDT-SA MDT-SB MDT-D**

CATALOGUE	42 250		
Size (ISO)	4401-03		
TYPE	modular version		
p max	250 bar		
Q max	25 l/min	25 l/min	25 l/min

■ **FEATURES ++**

SUPPLY VOLTAGES: direct current **12V-CC** 12 V - **24V-CC** 24 V; alternating current **110RAC** 110V - **220RAC** 220 V

■ **SYMBOLS**





MODEL CODE	VD*-W							
CATALOGUE	45 200							
*	2	3	4	5	6	7	8	9
port THREAD	1/4" BSP	3/8" BSP	1/2" BSP	3/4" BSP	1" BSP	1 1/4" BSP	1 1/2" BSP	2" BSP
TYPE	check							
p max	400 bar				320 bar			
Q nom	25 l/min	40 l/min	75 l/min	125 l/min	200 l/min	280 l/min	650 l/min	850 l/min

■ FEATURES ++

CRACKING PRESSURE: **1** 0.35 bar - **2** 2bar - **T4** 4 bar - **3** 6 bar - **4** 10 bar



MODEL CODE	VR3-P	VR5-P	VR7-P	VP3-P*-MU	VP5-P*-MU
CATALOGUE	45 300			46 300	
port dimensions	3/8" BSP	3/4" BSP	1" 1/4 BSP	ISO 5781-06	ISO 5781-08
TYPE	check			p.o. check	
p max	350 bar	350 bar	250 bar	320 bar	320 bar
Q max	100 l/min	200 l/min	400 l/min	50 l/min	100 l/min

■ VR*-P FEATURES ++

CRACKING PRESSURE : **1** 0.5 bar - **3** 5 bar - **4** 10 bar

■ VP*-P*-MU FEATURES ++

CRACKING PRESSURE: **2** 3.5 bar - **3** 5 bar

OPTION: **P** decompression device

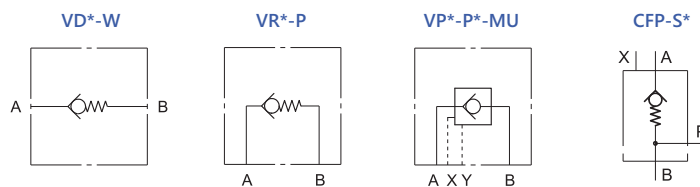


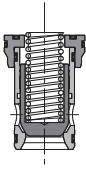
MODEL CODE	CFP-S*						
CATALOGUE	46 400						
*	032	040	050	063	080	100	125
Size (ND)	32	40	50	63	80	100	125
TYPE	filling valves						
p max	350 bar						
Q max	160 l/min	250 l/min	400 l/min	600 l/min	1000 l/min	1600 l/min	2500 l/min

■ FEATURES ++

OPTION: **0** without pre-opening **1** with pre-opening (not available for ND 125)

■ SYMBOLS





MODEL CODE **LC***

CATALOGUE **48 900**

SIZE (ND)	16	25	32	40	50	63
TYPE	ISO 7368 slip-in cartridge valves					
p max	420					
Q max QS	250 l/min	500 l/min	900 l/min	1300 l/min	2000 l/min	3000 l/min
Q max QD	200 l/min	450 l/min	800 l/min	1100 l/min	1700 l/min	2700 l/min
Q max PS	200 l/min	400 l/min	900 l/min	1000 l/min	1500 l/min	2500 l/min

TYPE

QS0.5	■	■	■	■	■	
QS2	■	■	■	■	■	■
QD4	■	■	■	■	■	
PS1						■
PS2	■	■	■	■	■	

VERSIONS

QS flow control (1:1,66) - **QD** flow control with damping nose (1:1,66) - **PS** pressure control (1:1)

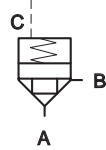
FEATURES ++

CRACKING PRESSURE: **0.5** 0,5 bar - **1** 1 bar (ND 63 only) - **2** 2 bar - **4** 4 bar

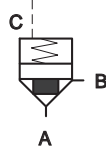
OPTIONS: **LL** low leakage (not available for QS 0.5 and LC16-PS2)

SYMBOLS

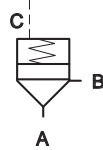
LC*QS



LC*QD



LC*PS



MODEL CODE **LCM***

CATALOGUE **48 900**

SIZE (ND)	16	25	32	40	50
TYPE	ISO 7368 slip-in cartridge valves				
p max	350				
Q max QS	250 l/min	500 l/min	900 l/min	1300 l/min	2000 l/min

FEATURES ++

The compliance of these valves with the CE safety requirements has been verified by TÜV Sud.

CRACKING PRESSURE: 4 bar

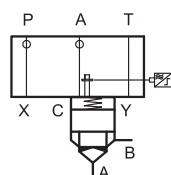
MONITORING: PNP type NO, closed position monitored, 24V DC

COVER FUNCTION: **D** check valve - **Z** piloting of other cartridges

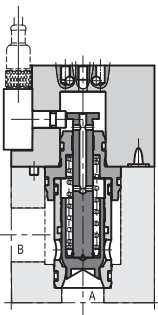
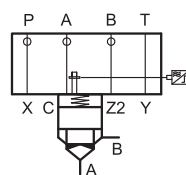
OPTIONS: **LL** low leakage

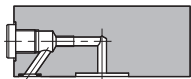
SYMBOLS

LCM*D



LCM*Z





MODEL CODE	LP*					
CATALOGUE	48 900					
SIZE (ND)	16	25	32	40	50	63
TYPE	covers					
TYPE						
R	■	■	■			■
D	■	■	■	■	■	■
DZ	■	■	■	■		
DF1	■	■	■	■	■	
DF2	■	■	■	■		
Q	■	■	■	■	■	■
DP4	■	■	■	■	■	■
DP6	■	■	■	■	■	■
DPE4	■	■	■	■	■	
DPE6	■	■	■	■	■	

FUNCTIONS

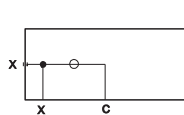
R directional control and check valve with external pilot x - **D** directional control and check valve

DZ directional control with possibility to pilot other cartridges in line - **DF1** directional control and check with double pilot line - **DF2** directional control and check with priority piloting from two external lines

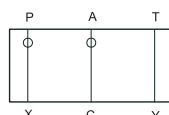
Q flow control - **DP4** pressure control with a built-in relief valve set 140 bar - **DP6** pressure control with a built-in relief valve set 350 bar - **DPE4** pressure control by means of proportional valve set 140 bar - **DPE6** pressure control by means of proportional valve set 350 bar

SYMBOLS

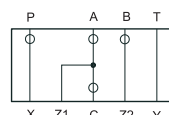
LP*R



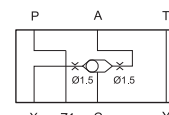
LP*D



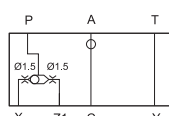
LP*DZ



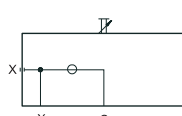
LP*DF1



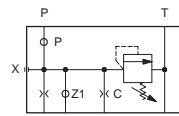
LP*DF2



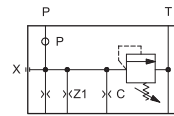
LP*Q



LP*DP

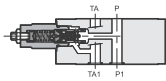


LP*DPE



■ STACK VALVES OVERVIEW

All modular valves with screw adjustment may be provided with **ADJUSTMENT KNOB**, with the exception of the valves size ISO 4401-02. Some valves may be provided with alternative surface finishes. Contact our sales dept. for more detailed information.



MODEL CODE	PRM2	MCD	MRQ	PRM5	PRM7	PBM3
CATALOGUE	61 100	61 200	61 220	61 310	61 410	61 260
SIZE	4	6	6	10	16	6
ISO 4401 / CETOP	02	03	03	05	07	03
TYPE	relief, direct operated		relief, pilot operated			backpressure
p max	320 bar	350 bar	350 bar	350 bar	350 bar	350 bar
Q max	20 l/min	50 l/min	75 l/min	120 l/min	300 l/min	50 l/min
Q max free lines		75 l/min				75 l/min

VERSIONS

PT; SP (P → T)	■	■	■	■	■	
SAT (A → T)		■	■	■		
BT; SBT (B → T)	■	■	■	■		
DT (A and B → T)	■	■	■	■		
SB (B → A)		■	■			
D, cross (A→B and B → A)		■	■	■		
B→ B1						■

■ PRESSURE ADJ. RANGES

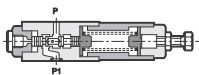
PRM2 : **4** 63 ÷ 125 bar - **5** 80 ÷ 210 bar - **6** 125 ÷ 350 bar

MCD, MRQ: **2** up to 25 bar - **3** up to 70 bar - **4** up to 140 bar - **5** up to 210 bar - **6** up to 350 bar

PRM5: **070** 6 ÷ 70 bar - **140** 6 ÷ 140 bar - **210** 6 ÷ 210 bar - **350** 6 ÷ 350 bar

PRM7: **4** 15 ÷ 160 bar - **5** 15 ÷ 250 bar - **6** 15 ÷ 315 bar

PBM3: **2** up to 25 bar - **3** up to 70 bar - **4** up to 140 bar



MODEL CODE	MZD	Z4M	PZM7	MSD	SD4M
CATALOGUE	62 200	62 300	62 410	63 200	63 300
SIZE	6	10	16	6	10
ISO 4401 / CETOP	03	05	07	03	05, R05
TYPE	reducer			sequence	
p max	350 bar	320 bar	350 bar	350 bar	320 bar
Q max	50 l/min	80 l/min	250 l/min	50 l/min	80 l/min
Q max free lines	75 l/min	100 l/min		75 l/min	100 l/min

VERSIONS

I; P (reduction in P)	■	■	■	■	■
A (reduction in A)	■	■	■		
B (reduction in B)	■	■			

■ PRESSURE ADJ. RANGES

MZD, variable **2** 3 ÷ 35 bar - **3** 10 ÷ 70 bar - **4** 30 ÷ 140 bar - **5** 50 ÷ 280 bar . MZD, fixed: **20**, **25** and **30** bar

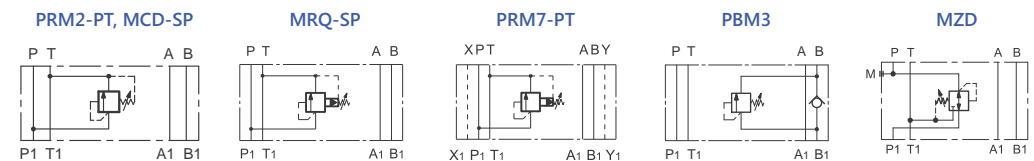
Z4M: **3** 5 ÷ 70 bar - **4** 8 ÷ 140 bar - **5** 10 ÷ 210 bar - **6** 15 ÷ 320 bar

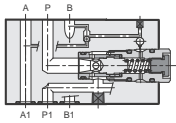
PZM7: Z4M: **3** 15 ÷ 100 bar - **5** 15 ÷ 250 bar

MSD: **3** 10 ÷ 70 bar - **4** 30 ÷ 140 bar - **5** 50 ÷ 280 bar

SD4M: **3** up to 70 bar - **4** up to 140 bar - **5** up to 210 bar

■ SYMBOLS

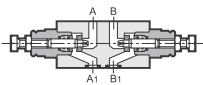




MODEL CODE	PCM3-P	PCM3-PT	PCM5-P	PCM5-PT	PCM8-P	PCM8-PT
CATALOGUE	63 310		63 320		63 520	
SIZE	6		10		25	
ISO 4401 / CETOP	03		05		08	
TYPE	2-way compensator	3-way compensator	2-way compensator	3-way compensator	2-way compensator	3-way compensator
p max	350 bar		320 bar		350 bar	
Q max	40 l/min		100 l/min	110 l/min	300 l/min	

■ PRESSURE ADJ. RANGES

V variable 7 to 33 bar (PCM3 only) - 4 4 bar - 5 5 bar



MODEL CODE	QTM2	MERS	QTM5	QTM7
CATALOGUE	64 100	64 200	64 310	64 410
SIZE	4	6	10	16
ISO 4401 / CETOP	02	03	05	07
TYPE	flow restrictor			
p max	320 bar	350 bar	350 bar	350 bar
p cracking	0,4 bar	0,5 bar	0,5 bar	0,7 bar
Q max	30 l/min	50 l/min	120 l/min	250 l/min

METER OUT

SA (on line A)	■	■	■	■
SB (on line B)	■	■	■	
D (on line A and B)	■	■	■	■

METER IN

RSA (on line A)		■ (G)	■	
RSB (on line B)		■ (G)	■	
RD (on line A and B)		■	■	

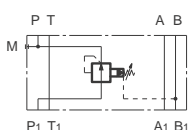
■ MERS FEATURES ++

G* VERSION: the valve body does not provide the OR seats.

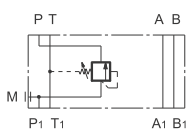
The mounting interface is achieved by interposition of an OR subplate, included. The control of flow (meter-in or meter-out) depends on the way of assembly the valve on the subplate.

The G version is available with SA, SB and D configurations.

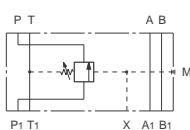
Z4M*-A, PZM7-PA



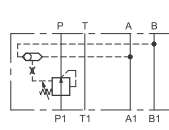
MSD



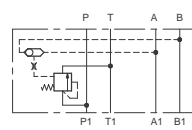
SD4M



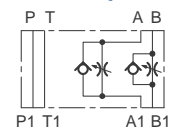
PCM*-PV



PCM*-PT



MERS-D, QTM*-D

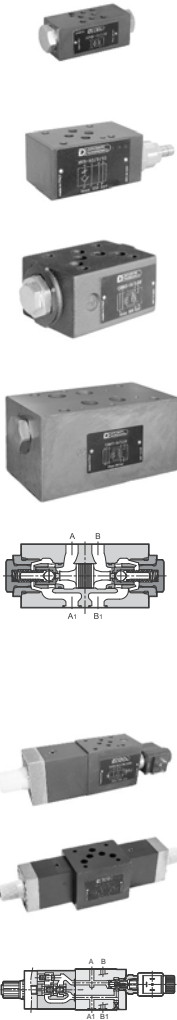




STACK VALVES

CHECK VALVES

FLOW CONTROL



MODEL CODE	CHM2	MVR	MVR-RS/P	MVPP	VR4M	CHM5	CHM7
CATALOGUE	65 100	65 200	65 210	65 250	65 300	65 360	65 410
SIZE	4	6			10	16	
ISO 4401 / CETOP	02	03			05	07	
TYPE	pilot operated	check valve	w. restrictor	pilot operated	check valve,	pilot operated	pilot operated
p max	320 bar	350 bar			320 bar	320 bar	350 bar
p cracking	2 bar	0,5; 3; 5 bar	1 bar	3 bar	0,5; 8 bar	2 bar	2 bar
Q max	30 l/min	50 l/min			100 l/min	120 l/min	300 l/min
Q max free lines		75 l/min					

CHECK VALVE

SP, P (on line P)		■	■		■		
SA (on line A)	■	■		■		■	■
SB (on line B)	■	■		■		■	■
ST (on line T)		■			■		
D (on line A and B)	■	■		■		■	■
PT, SPT (on line P and T)		■					

MODEL CODE	RPC1*M	RPC1*4M	RLM3
CATALOGUE	66 200	66 300	66 260
SIZE	6	10	6
ISO 4401 / CETOP	03	05	03
TYPE	adjustment compensated in flow and temperature		solenoid speed control
p max	250 bar	250 bar	250 bar
Q max free lines	65 l/min	120 l/min	65 l/min
Q reverse free	40 l/min	40 l/min	-

METER OUT

A (on line A)	■	■	■
B (on line B)	■	■	
D (on line A and B)	■	■	
T (on line T)	■		■

METER IN

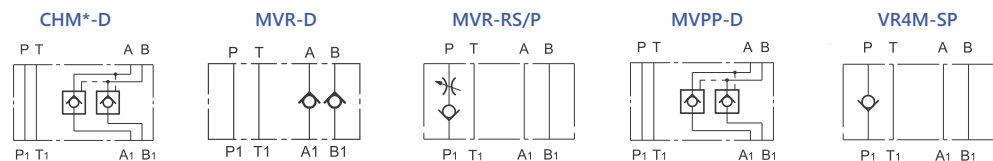
P (on line P)	■		
PCT3 (on line P w. adj on T)	■		

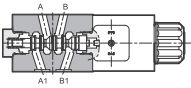
FEATURES ++

FLOW ADJUSTMENT RANGE: **K** body only (without flow control valve). **1** 1 l/min - **4** 4 l/min - **10** 10 l/min - **16** 16 l/min - **22** 22 l/min - **30** 30 l/min.

RLM3 ONLY: for **A** normally open - **C** normally closed solenoid valve.
ELECTRICAL OPTIONS same as DL3 valve, see at DIRECTIONAL VALVES.

SYMBOLS





MODEL CODE	MDS3	KTM3	MDF3	MDT
CATALOGUE	41 251	43 100	41 270	42 250
SIZE	6			
ISO 4401 / CETOP	03			
TYPE	directional	NC and NA, poppet	shut-off	poppet directional
p max	350 bar	350 bar	350 bar	250 bar
Q max	50 l/min	40 l/min	50 l/min	25 l/min

■ MDS3 ++

AVAILABLE SPOOLS: **S1, S12, SA1, SA12, SA21, SB1, SB12, RSA1, RSB1, TA, TB, TA31, TB31**. See spools schemes at DIRECTIONAL VALVES.

POWER SUPPLY: **DC** 12V, 24V, 28V, 48V, 110V, 220V; **AC** 24V, 48V, 110V, 220V

COIL CONNECTION: **K1** DIN 43650 - **K2** AMP Junior (D12 and D24 only) -

K7 Deutsch (D12 and D24 only)

OPTIONS: **F** soft shift (DC versions w. dedicated spools *12 only)

MANUAL OVERRIDES: **CM** boot - **CP** push - **CPK** push w. detent

■ KTM3 ++

NO normally open - **NC** normally closed

VERSIONS: **P** delivery interception on P line - **PT** interception on P-T lines -

D outgoing interception on A and B lines - **RD** incoming interception on A and B lines - **SB** outgoing interception on B line

OPTIONS: **CM** boot

ELECTRICAL OPTIONS same as DL3 valve, see at DIRECTIONAL VALVES.

■ MDF3 ++

A initial position open - **C** initial position closed

POWER SUPPLY: **DC** 12V, 24V, 48V, 110V, 220V - DIN 43650 connections.

■ MDT ++

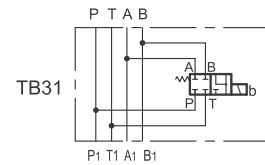
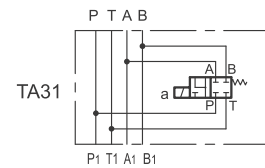
A initial position open - **C** initial position closed

VERSIONS: **SA** control on line A - **SB** control on line B - **D** control on lines A and B

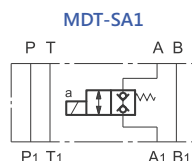
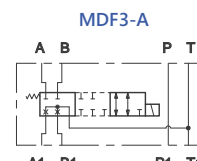
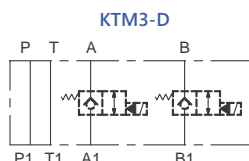
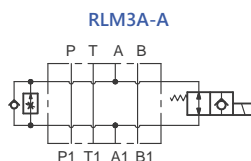
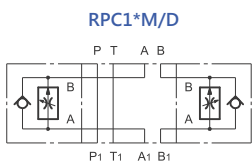
SUPPLY VOLTAGES: direct current **12V-CC** 12 V - **24V-CC** 24 V; alternating current

110RAC 110V - **220RAC** 220 V - DIN 43650 connections.

■ MDS3 SPECIALS



Refer to the 'solenoid operated' section for standard spools.





PROPORTIONAL VALVES PRESSURE CONTROL



MODEL CODE	CRE	PRED3	PRED3G	PRED3J	PRE3	PRE3G
CATALOGUE	81 100	81 210	81 220	81 230	81 240	81 250
SIZE (ND)	cartridge	06				
SIZE ISO / CETOP	-	4401-03				
TYPE	relief, direct op.	relief direct operated	relief direct operated with OBE.	relief with OBE and pressure feedback	relief pilot operated	relief pilot operated with OBE.
p max	350 bar	350 bar			350 bar	
Q max	1,5 l/min	3 l/min			40 l/min	

PERFORMANCES

hysteresis	< 5%	< 5%	< 3%	< 1%	< 5%	< 3%
resp. time 0 → 100%	80 ms	80 ms	60 ms	60 ms	60 ms	60 ms
resp. time 100 → 0%	40 ms	40 ms	40 ms	40 ms	40 ms	40 ms

PRESSURE ADJ. RANGE

up to 70 bar	■	■	■		■	■
up to 140 bar	■	■	■	■	■	■
up to 210 bar		■	■	■	■	■
up to 250 bar	■					
up to 350 bar		■	■	■	■	■

MODEL CODE	PRE10	PRE10G	PRE10J	PRE25	PRE25G	PRE25J	PRE32	PRE32G	PRE32J
CATALOGUE	81 310	81 320	81 330	81 310	81 320	81 330	81 310	81 320	81 330
SIZE (ND)	10			25			32		
SIZE ISO	6264-06			6264-08			6264-10		
TYPE	relief	relief with OBE	relief with OBE and press. feedback	relief	relief with OBE	relief with OBE and press. feedback	relief	relief with OBE	relief with OBE and press. feedback
p max	350 bar			350 bar			350 bar		
Q max	200 l/min			400 l/min			500 l/min		

PERFORMANCES

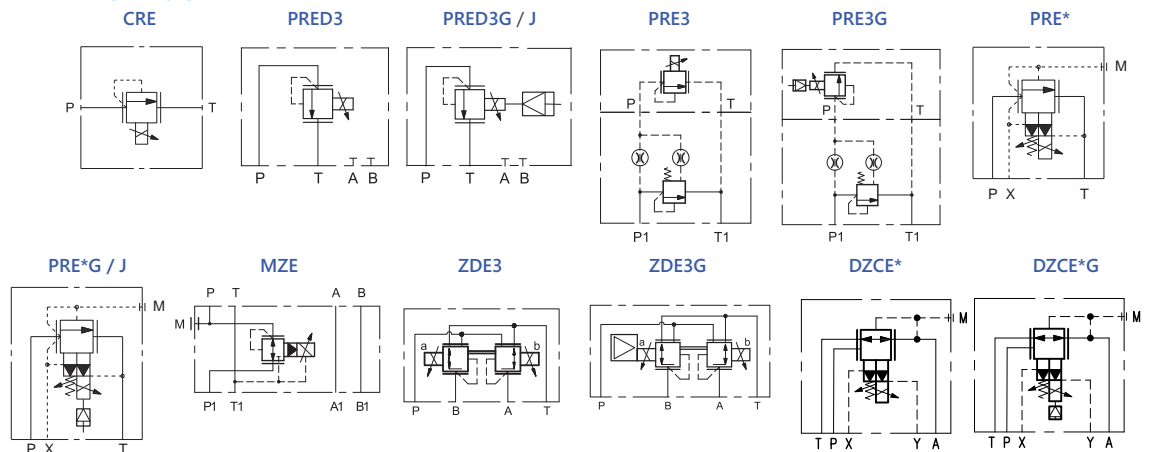
hysteresis	< 5%	< 3%	< 1%	< 5%	< 3%	< 1%	< 5%	< 3%	< 1%
resp. time 0 → 100%	60 ms			60 ms			60 ms		
resp. time 100 → 0%	40 ms			40 ms			40 ms		

FEATURES ++

PRED3, PRE3, PRE*: **PRE*(D) K*** ex-proof version available, cat. 81315

PRESSURE ADJ. RANGE: **070** up to 70 bar - **140** up to 140 bar - **210** up to 210 bar - **350** up to 350 bar

SYMBOLS





MODEL CODE	MZE	ZDE3	ZDE3G
CATALOGUE	81 500	81 510	81 520
SIZE (ND)	06	06	
SIZE ISO	4401-03		
TYPE	modular , reducing, pilot operated	reducing, direct operated	reducing, direct op. with OBE
p max	320 bar	100 bar	
Q max	30 l/min	15 l/min	

PERFORMANCES

hysteresis	<3%	< 4%	< 3%
resp. time 0 →100%	100 ms	30 ms	30 ms
resp.time 100 →0%	80 ms	30 ms	20 ms

■ MZE

PRESSURE ADJ. RANGE: **3** 7 ÷ 70 bar - **4** 7.5 ÷ 150 bar - **5** 8 ÷ 230 bar

■ ZDE3, ZDE3G

VERSIONS: **ZDE3K*** ex-proof version available, cat. 81515 - **D** pressure reduction in A and B - **SA** pressure reduction in A (solenoid on side B) no ZDE3G - **SB** pressure reduction in B (solenoid on side A)

EXTRA COIL CONNECTION: **K7** Deutsch (no ZDE3G)

OPTIONS: **CM** boot manual override - **CS** screw manual override



MODEL CODE	DZCE5	DZCE5G	DZCE7	DZCE7G	DZCE8	DZCE8G
CATALOGUE	81 600	81 610	81 600	81 610	81 600	81 610
SIZE (ND)	10		16		20	
SIZE ISO	4401-05, R05, P05		4401-07		4401-08	
TYPE	3 port pressure reducing / relieving valve					
p max	350 bar					
Q max	150 l/min		300 l/min		500 l/min	

PERFORMANCES

hysteresis	< 4%	< 2%	< 4%	< 2%	< 4%	< 2%
resp. time 0 →100%	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
resp.time 100 →0%	50 ms	50 ms	50 ms	50 ms	50 ms	50 ms

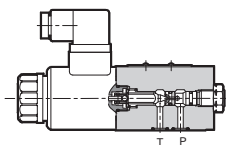
■ FEATURES++

DZCE*K* ex-proof version available, cat. 81605

PRESSURE ADJ. RANGE: **070** 1 ÷ 70 bar - **140** 1 ÷ 140 bar - **210** 1 ÷ 210 bar - **300** 1 ÷ 300 bar

OPTIONS: **I** internal pilot /drain - **E** external pilot /drain

E

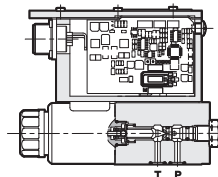


■ PROPORTIONAL CONTROL

COIL CONNECTION: **K1** DIN 43650 style

POWER SUPPLY: **D12** 12V DC - **D24** 24V DC.

G

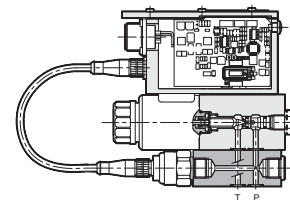


■ ON.BOARD ELECTRONICS

main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, 0 - 10V
E1 current, 4 - 20 mA

J



■ OBE + PRESSURE TRANSDUCER

main connection 24V DC, 6 pin +PE **A**

REF. SIGNAL: **E0** voltage, 0 - 10V
E1 current, 4 - 20 mA



PROPORTIONAL VALVES

FLOW CONTROL



MODEL CODE	RPCED1	RPCER1	RPCED1-T3	QDE3	QDE5
CATALOGUE	82 200	82 250	82 210	82 220	82 220
SIZE (ND)	6			6	10
SIZE ISO / CETOP	6263-03			6263-03	4401-05
TYPE	2-port compensated	2-port compensated + LVDT	3-port compensated	2 or 3-port compensated	2 or 3-port compensated
p max	250 bar				
Δp	10 bar		8 bar	4 and 8 bar	8
Q min controlled	0,025 l/min		0,5 l/min	0,4 l/min	2 l/min

PERFORMANCES

hysteresis	< 6 %	< 2,5 %	< 6 %	< 6 %	< 6 %
response time 0 → 100 %	60 ms	180 ms	60 ms	70 ms	
response time 100 → 0 %	80 ms	150 ms	80 ms	-	-

CONTROLLED FLOW

1,5 ; 4; 8	■	■	■		
14				■	
16	■	■	■		
20				■	
25	■	■	■		
30				■	
40				■	
80					■

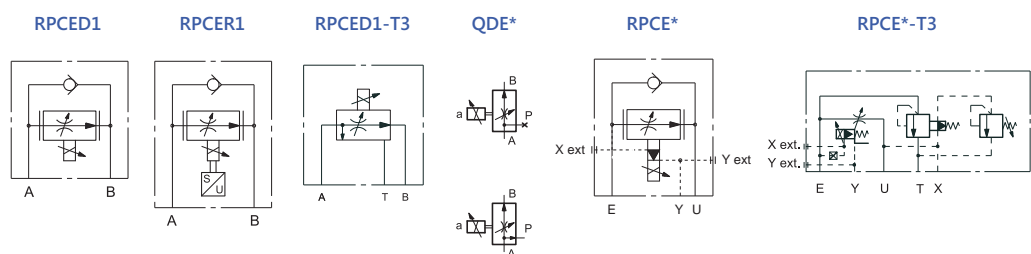
FEATURES ++

QDE*: QDE* are suitable both as restrictive or as bypass flow control, depending on the ports realized on the mounting surface.

COILS: power supply **D12** 12V DC - **D24** 24V DC

OPTIONS: **CM** boot manual override (QDE3 only)- **CS** screw manual override (QDE3 only)- **CK** knob with detent

SYMBOLS





MODEL CODE	RPCE2	RPCE2-T3	RPCE3	RPCE3-T3
CATALOGUE	82 300		82 450	
SIZE ISO / CETOP	6263-06		6263-07	
TYPE	2-port compensated	3-port compensated	2-port compensated	3-port compensated
p max	250 bar		250 bar	
Δp	10 bar		10 bar	
Q min contr.	0,2 lt/min	0,5 l/min	0,5 l/min	1,5 l/min

PERFORMANCES

hysteresis	< 8 %			
response time 0 → 100 %	250 ms		250 ms	
response time 100 → 0 %	120 ms		120 ms	

CONTROLLED FLOW

35 (G only)	■			
37	■			
72	■			
80		■		
100			■ (G)	■

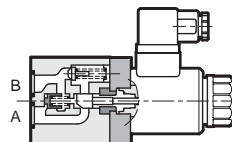
FEATURES ++

G differential gain. Available only in RPCE2 at 35 l/min and in RPCE3 at 100 l/min.

RPCE*: **E** external pilot

RPCE*-T3: **E** external pilot - **M** unloading device

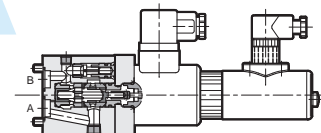
E



PROPORTIONAL CONTROL

COIL CONNECTION: DIN 43650 style
POWER SUPPLY: **D24** 24V DC

R



POSITION TRANSDUCER

COIL CONNECTION: **K1** DIN 43650 style
LVDT CONNECTION: 4 pin M12 PG7
SUPPLY: 18 - 36 V DC
OUTPUT: 2 - 10 V



PROPORTIONAL VALVES

DIRECTIONAL CONTROL



MODEL CODE	DSE3B	DSE3	DSE3G	DSE5	DSE5G	DSE3F	DSE3J	DSE5J
CATALOGUE	83 215	83 210	83 220	83 260	83 270	83 240	83 230	83 280
SIZE (ND)	06		10		06		10	
CETOP	03		05, R05		03		05	
ISO 4401	03		05		03		05	
TYPE	direct operated - open loop				direct operated - closed loop			
	compact version	standard	with OBE	standard	with OBE	with LVDT	with LVDT + OBE	with LVDT + OBE
p max	350 bar		320 bar		350 bar		320 bar	
Q max	40 l/min		90 l/min		40 l/min	80 l/min	180 l/min	

PERFORMANCES

hysteresis	< 6 %	< 6 %	< 3 %	< 6 %	< 3 %	< 1,5 %	< 0,2 %	
response time 0 → 100 %	50 ms	50 ms	55 ms	50 ms	55 ms	30 ms	20 ms	45 ms
response time 100 → 0 %	40 ms	40 ms	30 ms	40 ms	60 ms	25 ms	20 ms	30 ms
frequency resp. (± 10%) magnitude at -3dB	-	-	-	-	-	-	40 Hz	35 Hz
phase lag at 90°	-	-	-	-	-	-	50 Hz	35 Hz

NOMINAL FLOW (Δp 10 bar)

01R		■	■				■	
4		■	■				■	
8	■	■	■			■		
12							■	
16	■	■	■			■		
16/08		■	■					
26	■	■	■			■		
26/13		■	■					
30				■	■		■	
30/15							■	
50								■
60				■	■			
60/30				■	■			
75								■
70/35								■

COIL TYPE

D12	■	■		■		■		
D14	■	■		■				

CONNECTIONS

K1	■	■		■		■		
K7	■	■						
K11			■		■		■	■

MANUAL OVERRIDES

CM	■	■	■					
CS		■	■					
CH		■						
CK	■	■		■				

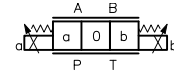
FEATURES ++

EXPLOSION PROOF **DS(P)E*K*** see datasheet 83 510

FAIL SAFE POSITION: **FS** available for valves type 'J' with spools type Z

DSE5 EXTERNAL DRAIN **Y** mounting surface ISO 4401-05-05-0-05 - **L** mounting surface ISO 4401-05-06-0-05

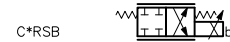
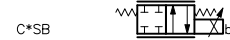
ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours) upon request.



C*

CLOSED CENTRE

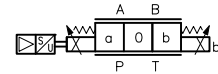
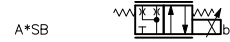
*SB scheme available only on valves without on-board electronics.



A*

OPEN CENTRE

*SB scheme available on low cost and standard valves only.



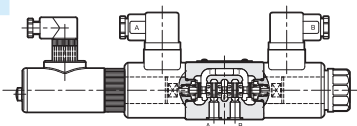
Z*

ZERO OVERLAP

for DSE^J only



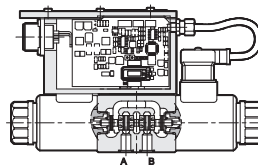
F



POSITION TRANSDUCER

LVDT connection: 4 pin M12 PG7
 SUPPLY: 18 - 36 V DC
 OUTPUT: 2 - 10 V

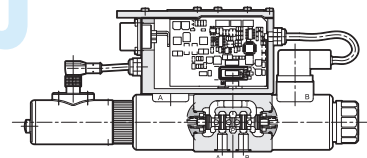
G



ON BOARD ELECTRONICS

main connection 24V DC, 6 pin +PE
 REF. SIGNAL: **E0** voltage, dual $\pm 10V$
 mono 0 - 10 V
E1 current, 4 - 20 mA

J

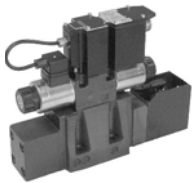


OBE + POSITION TRANSDUCER

main connection 24V DC, 6 pin +PE
 REF. SIGNAL: **E0** voltage, dual $\pm 10V$
 mono 0 - 10 V
E1 current, 4 - 20 mA

PROPORTIONAL VALVES

DIRECTIONAL CONTROL



MODEL CODE	DSPE5	DSPE5G	DSPE7	DSPE7G	DSPE8	DSPE8G	DSPE10	DSPE10G
CATALOGUE	83 310	83 320	83 310	83 320	83 310	83 320	83 310	83 320
SIZE (ND)	10		16		25		32	
CETOP	P05, R05		07		08		10	
ISO 4401	05		07		08		10	
TYPE	pilot operated, for open loop							
	standard	with OBE	standard	with OBE	standard	with OBE	standard	with OBE
p max	350 bar							
Q max	180 l/min		450 l/min		800 l/min		1600 l/min	

PERFORMANCES

hysteresis	< 4 %	< 2 %	< 4 %	< 2 %	< 4 %	< 2 %	< 4 %	< 2 %
response time 0 → 100 %	50 ms	35 ms	80 ms	55 ms	100 ms	75 ms	200 ms	140 ms
response time 100 → 0 %	40 ms	25 ms	50 ms	35 ms	70 ms	50 ms	120 ms	160 ms

NOMINAL FLOW at 10 bar Δp

80, 80/40	■	■						
100			■	■				
150, 150/75			■	■				
200					■	■		
300, 300/150					■	■		
350							■	■
500, 500/250							■	■

MODEL CODE	DSPE5J	DSPE7J	DSPE8J	DSPE10J	DSPE11J
CATALOGUE	83 330				
SIZE (ND)	10	16	25	32	35
CETOP	P05, R05	07	08	10	10+
ISO 4401	05	07	08	10	10+
TYPE	closed loop with LVDT + OBE				
p max	350 bar				
Q max	180 l/min	450 l/min	800 l/min	1600 l/min	2500 l/min

PERFORMANCES

hysteresis	< 0,5 %				
response time 0 → 100 %	25 ms	25 ms	30 ms	100 ms	140 ms
response time 100 → 0 %	40 ms	50 ms	70 ms	100 ms	200 ms

NOMINAL FLOW AT 10 BAR ΔP

80, 80/40	■				
100		■			
150, 150/75		■			
200			■		
300, 300/150			■		
350				■	
500, 500/250				■	
800					■

■ FEATURES ++

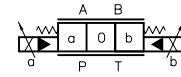
EXPLOSION PROOF **DS(P)E*K*** see datasheet 83 510

PILOT / DRAIN **I** internal - **Z** internal pilot with pressure reducing - **E** external (always verify application cases on valve datasheet)

MANUAL OVERRIDE: **CM** boot - **CS** screw (on DSPE* only)

ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours) upon request.

DSPE11J is the high flow version of DSPE10J, with oversized ports.

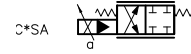


C*

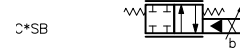
CLOSED CENTRE



*SA scheme available on DSPE5G, DSPE7G, DSPE5J and DSPE7J



*SB scheme available on DSPE8G, DSPE8J and DSPE10G

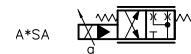


A*

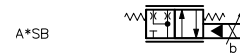
OPEN CENTRE



*SA scheme available on DSPE5G, DSPE7G, DSPE5J and DSPE7J



*SB scheme available on DSPE8G, DSPE8J and DSPE10G



R*

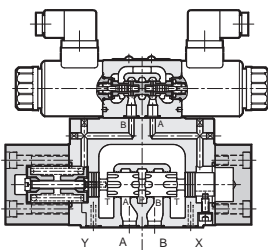
REGENERATIVE



not available on size 05



E

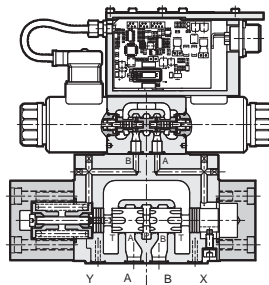


■ PROPORTIONAL CONTROL

COIL CONNECTION: **K1** DIN 43650 style

POWER SUPPLY: **D12** 12V DC - **D24** 24V DC.

G



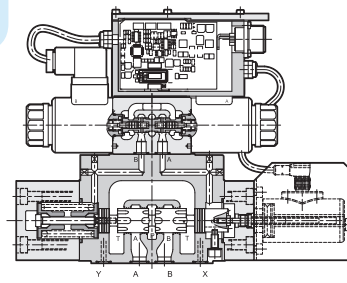
■ ON.BOARD ELECTRONICS

main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, dual $\pm 10V$
mono 0 - 10 V

E1 current, 4 - 20 mA

J

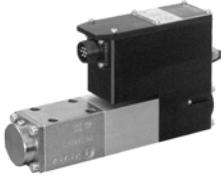


■ OBE + POSITION TRANSDUCER

main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, dual $\pm 10V$
mono 0 - 10 V

E1 current, 4 - 20 mA



MODEL CODE	DXE3J
CATALOGUE	85 120
SIZE (ND)	6
CETOP	03
ISO 4401	4401-03
TYPE	spool / sleeve
p max	350 bar
Q max	70 l/min

PERFORMANCES

hysteresis	< 0,2%
response time 0 → 100 %	< 10 ms
frequency response (± 10%) magnitude at -3dB phase lag at 90°	85 Hz 100 Hz

NOMINAL FLOW AT Δp 70 bar

5	■
10	■
20	■
40	■

FEATURES ++

FAIL SAFE TYPE **F1** closed centre - **F3** open centre - **FC** cross position

SPOOLS: **LZ** Zero overlap (slightly overlapped) for low leakage - **LU** Zero overlap (slightly underlapped) for higher gain



MODEL CODE	DXPE5RJ	DXPE7J	DXPE8J	DXPE9J	DXPE10J	DXPE11J
CATALOGUE	85320					
SIZE (ND)	10	16	25	27	32	35
CETOP	R05	07	08	08 +	10	10+
ISO 4401	4401-05-05	4401-07	4401-08	4401-08 +	4401-10	4401-10+
TYPE	pilot operated servo proportional valves					
p max	350	350	350	280	350	350
Q max	180	450	850	1000	1600	2600

PERFORMANCES FOR ZERO OVERLAP SPOOLS

response time 0 → 100 %	25	25	30	35	90	100
frequency response (± 10%) magnitude at -3dB phase lag at 90°	40 60	35 50	30 45	25 40	10 20	10 20
100	■					
200		■				
350			■			
400				■		
600					■	
900						■

PERFORMANCES FOR POSITIVE OVERLAP SPOOLS

hysteresis	< 0,1 %					
response time 0 → 100 %	40	60	80	80	120	130

FEATURES ++

PILOT / DRAIN: **I** internal - **E** external (always verify application cases on valve datasheet)

OBE TYPE: **A** external enable signal - **B** internal enable signal - **C** Bosch type - **OV** pin C internal

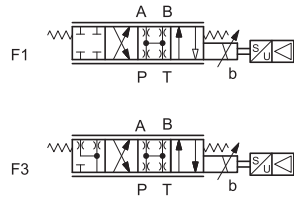
ALTERNATIVE SURFACE FINISHES: **W7** Zinc-Nickel (salt spray resistance up to 600 hours) upon request.

DXPE9J and DXPE11J are high flow versions of DXPE8J and DXPE10J respectively, with oversized ports.

LZ LU

ZERO OVERLAP
with linear flow
characteristic

DIRECT OPERATED



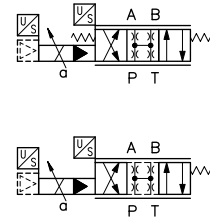
LZ*

ZERO OVERLAP

with linear flow
characteristic

Z*TA

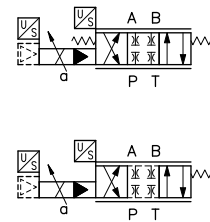
PILOT OPERATED



LC*

CLOSED CENTRE,
POSITIVE OVERLAP

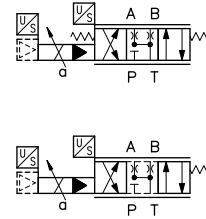
with linear flow
characteristic



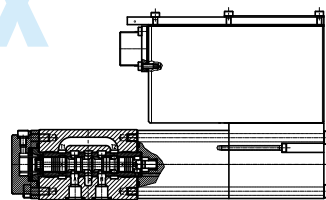
LA*

OPEN CENTRE
POSITIVE OVERLAP

with linear flow
characteristic



X



SERVO PROPORTIONAL OBE + POSITION TRANSDUCER

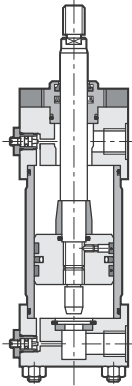
main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, $\pm 10V$

E1 current, 4 - 20 mA

ACTUATORS

ISO 6020-2 CYLINDERS



MODEL CODE **HC2**
 CATALOGUE **71 000**

TYPE	Hydraulic actuators according to ISO 6020-2
p max continuous	160 bar
p max operating	210 bar
p peak	250 bar
stroke	max 5000 mm
speed	standard 0,5 m/s low friction 15 m/s

FEATURES

SINGLE / DOUBLE ROD available
HCK2 ex-proof version available, see catalogue.

MOUNTING STYLE: **A** flange, front - **B** flange, rear - **C** clevis, female - **D** clevis, male - **F** spheric swivel - **G** feet - **H** swinging, front - **L** swinging, mid - **N** swinging, rear - **P** tie rods, front - **Q** tie rods, back - **R** tie rods, front and back - **T** threaded holes, front - **U** threaded holes, rear

SENSORS: As option. **FP** PNP proximity sensor - **FMR** reed magnetic sensors - **FMH** Hall effect magnetic sensors

ALTERNATIVE ROD THREAD: **W** female - **X** male, light - **Y** female, light

SEALS: **K** standard nitrile+polyurethane - **M** low friction nitrile+PFTE - **V** high temperature / viton+PFTE

CUSHIONING: **0** without - **1** front - **2** back - **3** both front and back

BREATHERS: **0** without - **S** with, both front and back

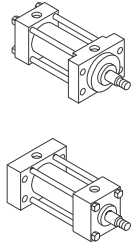
CONNECTIONS POSITION: four position available, see related datasheet.

ROD / BORE AVAILABILITY

ROD diameter (mm)	BORE (mm)									
	25	32	40	50	63	80	100	125	160	200
12	■									
14		■								
18	■	■	■							
22		■	■	■						
28			■	■	■					
36				■	■	■				
45					■	■	■			
56						■	■	■		
70							■	■	■	
90								■	■	■
110									■	■
140										■

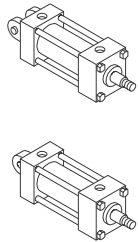
A B

flanged
 ME5
 ME6



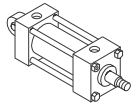
C D

clevis
 MP1
 MP3



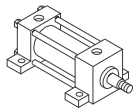
F

swivel joint
 MP5



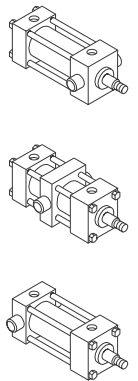
G

feet
 MS2



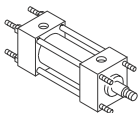
H L N

swinging
 MT1
 MT2
 MT4



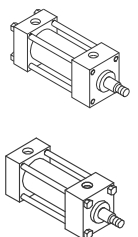
P Q R

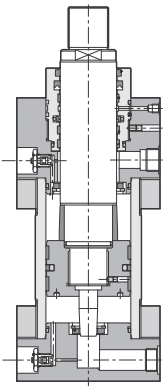
tie rods
 MX1
 MX2
 MX3



T U

threaded holes
 MX5
 MX6





MODEL CODE	HC3	
CATALOGUE	71 200	
TYPE	Hydraulic actuators according to ISO 6022	
p max continuous	250 bar	
p max operating	320 bar	
stroke	max 5000 mm	
speed	standard 0,5 m/s low friction 15 m/s	

■ FEATURES

SINGLE / DOUBLE ROD available

HCK3 ex-proof version available, see catalogue.

MOUNTING STYLE: **A** flange, front - **B** flange, rear - **D** clevis, male -

F spheric swivel - **L** swinging, mid

SENSORS: As option. **FP** PNP proximity sensor - **FMR** reed magnetic sensors - **FMH** Hall effect magnetic sensors

ALTERNATIVE ROD THREAD: **W** female

SEALS: **K** standard nitrile+polyurethane - **M** low friction nitrile+PFTE -

V high temperature / viton+PFTE

CUSHIONING: **0** without - **1** front - **2** back - **3** both front and back

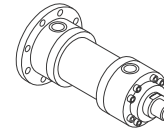
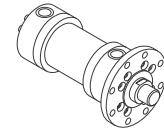
BREATHERS: **0** without - **S** with, both front and back

DRAIN: **0** without - **E** external, with port on the front end

CONNECTIONS POSITION: four position available, see related datasheet.

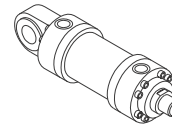
A B

flanged
MF3
MF4



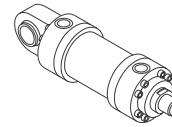
D

clevis
MP3



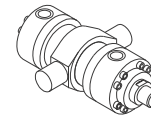
F

swivel joint
MP5



L

swinging
MT4

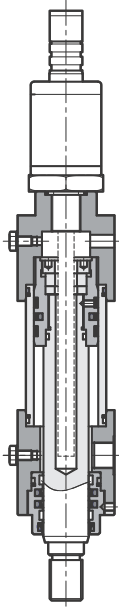


■ ROD / BORE AVAILABILITY

(*) bores not foreseen in the ISO 6022 standard

		BORE (mm)													
		50	63	80	100	125	140*	160	180*	200	250	320	400		
ROD diameter (mm)	32	36	■												
	40	45		■											
	50	56			■										
	63	70				■									
	80	90					■								
	90	100						■							
	100	110							■						
	110	125								■					
	125	140									■				
	160	180										■			
	200	220											■		
250	280												■		

ACTUATORS SERVOCYLINDERS



MODEL CODE	HCX*	HCX3*
CATALOGUE	71 100	71 300
TYPE	Servocylinders	
	according to ISO 6020-2	according to ISO 6022
p max continuous	160 bar	250 bar
p max operating	210 bar	320 bar
max stroke	5000 mm	5000 mm
max speed	standard 0,5 m/s	low friction 15 m/s
bore	Ø40 mm to Ø200 mm	Ø50 mm to Ø400 mm
rod	Ø22 mm to Ø140 mm	Ø32 mm to Ø280 mm

■ FEATURES

SINGLE / DOUBLE ROD available

MOUNTING STYLE: **A** flange, front - **G** feet - **H** swinging, front - **L** swinging, mid - **N** swinging, rear - **P** tie rods, front - **Q** tie rods, back

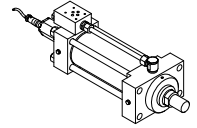
SENSORS: Wide range of transducers available, **M3** 0 ÷ 10 V - **M3A** ±10 V
M2 4 ÷ 20 mA - **M8** 20 ÷ 4 mA - **M6** CAN-open - **M1** SSI, digital
MP ProfiBus. Other upon request.

VALVE MOUNTING SURFACE: **3** ISO 4401-03 - **5** 4401-05 - **04** ISO 10372 (servovalves) - **9** custom

SEALS: low friction nitrile+PFTE or **V** high temperature viton+PFTE

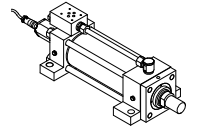
A

flanged
ME5



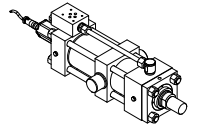
G

feet
MS2



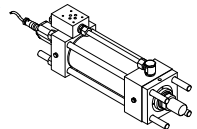
H L N

swinging
MT1
MT2
MT4



P Q R

tie rods
MX1
MX2
MX3



■ ROD / BORE AVAILABILITY

		BORE (mm)							
		40	50	63	80	100	125	160	200
ROD diameter (mm)	22	■	■						
	28	■	■	■					
	36		■	■	■				
	45			■	■	■			
	56				■	■	■		
	70					■	■	■	
	90						■	■	■
	110							■	■
140								■	



MODEL CODE	EDC	EDM	EWM-RL	EWM-A-SV
CATALOGUE	89 120	89 250	89 600	89 610
TYPE	Power amplifiers			
	single amplifier	proportional valves	fast /slow control	servovalves
MOUNTING	on-board	rail mounting	rail mounting	
IP grade	IP 65/67	IP 20	IP 20	
power supply	10 - 30 V DC	10 - 30 V DC	12 - 30 V DC	18 - 30 V DC
reference signal	0 ÷ 10 V 0 ÷ 5 V 4 ÷ 20 mA	0 ÷ 10 V ± 10 V 4 ÷ 20 mA	8 binary selections	± 10 V

EDC / EDM

Both EDM and EDC are configurable on site by means of keys inside the card or using the relevant software kit, via serial port.

EDM VERSIONS: **1** for single solenoid valves - **2** for dual solenoid valves - **3** 2 channels - independent control of 2 solenoids

MAX CURRENT : **1** 860 mA - **2** 1200 mA - **3** 1600 mA - **4** 1880 mA - **5** 2600 mA

PWM: **1** 100 Hz - **2** 200 Hz - **3** 300 Hz - **4** 400 Hz - **5** 500 Hz (EDC only)

EWM-A-SV

OUTPUT VALUES CONFIGURATION: The standard parameterisation of the current output value is up to the customer, who had to set the DIL switches inside the module. The 5 DIL switches allow to set a current value from 0 to 200 mA, at increments of 10 mA. (10, 20, 30 ... etc.). Otherwise, on request, Diplomatic can deliver the card already set.



MODEL CODE	EWM-S-BA	EWM-S-BI	EWM-S-AA	EWM-S-AD	EWM-S-DAD	EWM-SP-DAD
CATALOGUE	89 400	89 400	89 410	89 420	89 430	89 440
TYPE	card for closed loop systems					
CONTROL	position controller			position+speed	position + pressure	
MOUNTING	rail mounting					
IP grade	IP 20					
power supply	12 - 30 V DC					
reference signal	8 binary selection	0 ÷ 10 V 4 ÷ 20 mA	0 ÷ 10 V 4 ÷ 20 mA	Profibus DP	Profibus DP	

OUTPUT

E0 ±10 V diff.	■	■	■	■	■	■
E1 4 ÷ 20 mA	■	■	■	■	■	■
M2 1, 1,6 or 2,6 A	■	■	■			

FEEDBACK

voltage 0 ÷ 10	■		■		■	■
current 4 ÷ 20 mA		■	■		■	■
digital, SSI				■	■	■

EWM-S-B*

You can PROGRAM up to 8 position points and related velocities.

EWM-S-A*

The axis position is determined by an ANALOGUE COMMAND VALUE

EWM-S-DAD, EWM-SP-DAD

Designed for high accuracy positioning systems, these cards have a Profibus interface for communication from/to the PLC that sends the data for positions and speeds. The same card accept feedback values both analogue and digital .

The SP version has an additional integrated control for UP OF 2 ANALOGUE PRESSURE SENSORS, for pressure limitation.

All these modules contain a digital PID controller that guarantees the reproducibility of the setting. The DECELERATION CURVE, RAMPS and LINEARIZATION may be adjusted finely, via software.

Sampling time of the control loop: 1 ms.



MODEL CODE	EWM-MS-AA	EWM-SS-DAD
CATALOGUE	89 450	89 460
TYPE	card for closed loop systems	
CONTROL	synchro 2 axes	synchro 2 to 9 axes
MOUNTING	rail mounting	
IP grade	IP 20	
power supply	12 - 30 V DC	
reference signal	0 ÷ 10 V 4 ÷ 20 mA	Profibus DP and Canbus
speed signal	0 ÷ 10 V	-

OUTPUT

E0 ±10 V diff.	■	■
E1 4 ÷ 20 mA	■	■
M2 1, 1,6 or 2,6 A	■	

FEEDBACK

voltage 0 ÷ 10	■	■
current 4 ÷ 20 mA	■	■
digital, SSI		■

■ EWM-MS-AA

synchronizes two actuators in a master/slave configuration of the axes, with an overriding synchronization control on the positioning; 1 card per axis is needed.
Sampling time of the control loop: 1 ms.

■ EWM-SS-DAD SYSTEM

system for synchronization of max 9 axes. The system consists of 1 fieldBUS card and 1 card for each axis to be synchronized. The field card is a Profibus interface for communication from/to the PLC that sends and receives the data for motion. The 1st axis card should be set as MASTER, and linked to the next (SLAVE) of the chain via Can-bus. The synchronization control corrects the speed of the slave axes.
Sampling time of the control loop: 2 to 5 ms.



MODEL CODE	EWM-P-AA	EWM-PQ-AA
CATALOGUE	89 500	89 550
TYPE	card for closed loop systems	
CONTROL	pressure	pressure + flow
MOUNTING	rail mounting	
IP grade	IP20	
power supply	12 - 30 V DC	
reference / p signal	0 ÷ 10 V 4 ÷ 20 mA	
Q input	-	±10 V differential

OUTPUT

E0 ±10 V diff.		■
E1 4 ÷ 20 mA		■
M2 1, 1,6 or 2,6 A	■	

FEEDBACK

voltage 0 ÷ 10	■	■
current 4 ÷ 20 mA	■	■

■ EWM-P-AA

Used to control proportional pressure reducing and pressure relief valves. The power amplifier is embedded. The reference signal is directly transferred to the pressure valve and the closed loop compensates just the linearity failures.

■ EWM-PQ-AA

For zero-overlap control valves. The p/Q controller automatically switches between flow and pressure control modes to assure that the set point limits for the differential pressure has not to exceed.

All these modules contain a digital PID controller that guarantees the reproducibility of the setting. The DECELERATION CURVE, RAMPS and LINEARIZATION may be adjusted finely, via software.
Sampling time of the control loop: 1 ms.



MODEL CODE	CANPC-USB	LINPC-USB
CODE	3898101002	3898501001
TYPE	software kit	
for	proportional valves type G	proportional valves type J

■ CANPC-USB

The kit is made of software CD, drivers, cable with 5 pin connector, USB cables and adaptor CAN/USB. The software allows customized set-up for current values, PWM frequencies, ramps, and diagnostic information.

■ LINPC-USB

The kit is made of software CD, cables for connection with the computer, start-up box with integrated plug 6 pin+PE, drivers.

The control box acts as interface between PC and electronic card to allow customization of the valve parameters via software; it can drive the valve, choosing the direction and speed of movement: this way you can test the response of the valve control input, and diagnose failures, malfunctions, simulating the valve working.

The software allows customization of deadband compensation, gain adjustment, scaling of the signals, ramps.



MODEL CODE	EDCPC	EDMPC	EWMPC
CODE	3898301001	3898201010	3898401001
TYPE	software kit		
for	EDC amplifier	EDM amplifier	EWM cards

■ EDCPC

The kit is made of software CD, drivers, cable USB/serial port and an adaptor with serial port that should be plugged on the amplifier.

■ EDMPC, EWMPC

The kit are made of software CD and cables RS232 / USB for connection with the computer. All the parameters of these cards can be set via software only .

All our softwares can be downloaded free from the download section of our internet site, www.diplomatic.com



ACCESSORIES

PLATES



MODEL CODE	PM RQ3*	PM RQ5*	PM RQ7*	PM RQA5*	PM SZ3*	PM SZ5*
CATALOGUE	51 000					
PATTERN	ISO 6264-06	ISO 6264-08	ISO 6264-10	-	ISO 5781-06	ISO 5781-08
TYPE	for pressure valves - ports on rear					
p max	350 bar	350 bar	350 bar	350 bar	320 bar	320 bar
PORT THREAD						
P, E	1/2" BSP	1" BSP	1 1/4" BSP	3/4" BSP	1/2" BSP	1" BSP
T	3/4" BSP	1/4" BSP	1 1/4" BSP	3/4" BSP		
X	1/4" BSP			-	1/4" BSP	
Y	-	-	-	-	1/4" BSP	
U	-	-	-	3/4" BSP	1/2" BSP	1" BSP

MODEL CODE	PM RPC1*	PM RPC2*	PM RPCQ2*	PM RPC3*	PM RPCQ3*
CATALOGUE	51 000				
PATTERN	ISO 6263-03	ISO 6263-06-05	ISO 6263-06-07	ISO 6263-07-09	ISO 6263-07-11
TYPE	for flow control valves				
p max	250 bar	320 bar	320 bar	250 bar	250 bar
PORT THREAD					
A, B	3/8" BSP	-			
E, U	-	1/2" BSP	1/2" BSP	1" BSP	1" BSP
T	-	-	1/2" BSP		1" BSP
X			1/4" BSP		1/4" BSP
PORT POSITION					
rear	■	■	■	■	■
side	■				



MODEL CODE	PM MD	PM D4	PM E4	PM E07	PM E5	
CATALOGUE	51 000					
PATTERN	ISO 4401-03	ISO 4401-05	CETOP P05	ISO 4401-07	ISO 4401-08	
TYPE	for directional valves					
p max	350 bar	320 bar	320 bar	350 bar	350 bar	
PORT THREAD						
A, B, P, T	3/8" BSP	3/8" BSP	1/2" BSP	3/4" BSP	1" BSP	1 1/2" BSP
X, Y	-	-	-	1/4" BSP	1/4" BSP	1/4" BSP
PORT POSITION						
rear	■	■		■	■	
side	■		■	■	■	■



MODEL CODE	PE-MD	PE- C/PA	PE- C/PB	PE-D4/M	PC-D4
CATALOGUE	59 000				
SIZE ISO 4401	03	03	03	05	05 to 03
TYPE	blanking	cross PA /BT	cross PB/AT	blanking	conversion
p max	350 bar				



MODEL CODE	P2D	P2T	P4D-D*	P4D*
CATALOGUE	52 000		53 000	
FOR SIZE	ISO 4401-03		ISO 4401-03	ISO 4401-05
TYPE	modular subplates			
Q max	50 l/min		100 l/min	100 l/min
PORT SIZE				
P, A, B, T low	3/8" BSP		see options	
T up	1/2" BSP			
material	cast iron			
stations	1	2	1	1

■ P2* FEATURES ++

OPTIONS: **F** threaded ports, additional T port - **I** intermediate type with threaded bores and additional T port - **Z** designed for installation of an ISO 4401-03 pressure reducing valve - **M*** built-in pressure relief valve

■ P4* FEATURES ++

D3 mounting surface ISO 4401-03 (CETOP 03) , A and B side ports 3/8" BSP - **D3P** mounting surface ISO 4401-03 (CETOP 03) and A and B rear ports 1/2" BSP - **F** mounting surface ISO 4401-05 (CETOP 05) , A and B side ports 1/2" BSP - **P** mounting surface ISO 4401-05 (CETOP 05) and A and B rear ports 3/8" BSP - **M*** built-in pressure relief valve (4 ranges available)



MODEL CODE	P2A*	P2X*
CATALOGUE	52 100	52 110
FOR SIZE	ISO 4401-03	
TYPE	multi-station manifold	
PORTS	side	rear
p max	210 bar	350 bar
Q max	50 l/min	100 l/min
PORT THREAD		
A, B	3/8" BSP	1/2" BSP
P, T	1/2" BSP	1/2" BSP
material	aluminium	cast iron
stations	2 to 8	2, 4 or 6

■ P2X* FEATURES ++

M with seat for pressure relief cartridge valve. See related datasheet for details.



MODEL CODE	FSI	FST	FPH	FPM	FPHM	FRT	FRC
CATALOGUE	95 100	95 110	95 210	95 220	95 230	95 150	95 160
TYPE	suction filters		pressure filters			return filters	
mounting	submerged	flanged	online		subplate	above reservoir flanged	above reservoir online
differential p max	1 bar	1 bar	20 bar 210 bar (cart. 5 µm)	21 bar	210 bar	3 bar	3 bar
working pressure	-	-	420 bar	210 bar	315 bar	3 bar	7 bar

FILTRATION

metal wire mesh 90 µm	■	■	-	-	-	-	-
fiber 05 µm	-	-	■	■	■	-	-
fiber 10 µm	-	-	■	■	■	■	-
fiber 25 µm	-	-	■	■	■	■	■
paper 10 µm	-	-	-	-	-	■	■
paper 25 µm	-	-	-	-	-	-	■

AVAILABLE SIZES / FLOWRATE RANGE (l/min)

ISO 4401-03	-	-	-	-	12 - 16	-	-
ISO 4401-05	-	-	-	-	22 - 28	-	-
3/8" BSP	9	-	-	-	-	-	-
1/2" BSP	14	-	10 - 33	25 - 60	-	18 - 30	-
3/4" BSP	25	-	19 - 65	35 - 80	-	50 - 85	65 - 75
1" BSP	45	-	40 - 105	40 - 100	-	65 - 130	-
1 1/4" BSP	75	70	88 - 230	-	-	150 - 210	-
1 1/2" BSP	100	-	120 - 320	-	-	160 - 290	180 - 200
2" BSP	160	-	-	-	-	280 - 430	-
2 1/2" BSP	250	-	-	-	-	-	-
3" BSP	350	-	-	-	-	-	-
2 1/2" SAE	-	100	-	-	-	-	-
3" SAE	-	200	-	-	-	-	-
4" SAE	-	300	-	-	-	-	-

ACCESSORIES

Clogging indicator, visual		VS/10	VPM/10	VPM/10	VM/10	VR/10	VR/10
Clogging indicator, electric		ES/10	-	-	-	ER/11	ER/11
Clogging indicator, visual+electric		-	EPM/10	EPM/10	EM/10	-	-
Filter element (spare part)		FSTE	FPHE	FPME	FPHME	FRTE	FRCE

■ FEATURES++

BYPASS VALVE: FRT, FRC pressure opening 1,7 bar. FPH, FPM: **0** without - **B** with (Bypass valve not available with cartridge fiber 05 µm).

FILTER ELEMENT: Available as spare parts too for all filters. FRC, FPM : **S** standard - **L** long lasting



MODEL CODE	M63*R	M63*PF
CATALOGUE	91 000	
TYPE	pressure gauges - according to EN 837-1	
mounting	1/4"BSP radial connection	1/4"BSP flange connection
p max	end scale value for short period	

■ FEATURES++

GAUGE SCALE: **006** 0 ÷ 6 bar - **010** 0 ÷ 10 bar - **016** 0 ÷ 16 bar - **025** 0 ÷ 25 bar - **060** 0 ÷ 60 bar - **100** 0 ÷ 100 bar
160 0 ÷ 160 bar - **250** 0 ÷ 250 bar - **400** 0 ÷ 400 bar.

PF Flange connection available from 060 to 400 only.



MODEL CODE	PS*2	PS*4	PS*6	PS*8
CATALOGUE	91 100			
TYPE	pressure switch, piston			
p max	350 bar		650 bar	
p adjustment range	3 - 35 bar	6 -140 bar	10 - 350 bar	20 - 630 bar

■ FEATURES++

MOUNTING **P** ISO 4401-03 subplate - **T** threaded port 1/4" BSP



MODEL CODE	PTH			
CATALOGUE	92 100			
TYPE	pressure transducers			
p nom	40 bar	100 bar	250 bar	400 bar
p max	80 bar	200 bar	500 bar	800 bar
p burst	240 bar	500 bar	1000 bar	1400 bar
hysteresis	± 0.2% of nominal pressure			
precision	0.5% of nominal pressure			
repeatability	± 0.05% of nominal pressure			

■ FEATURES++

HYDRAULIC CONNECTION: threaded port 1/4" BSP with integrated seal (DIN 3852)

OUTPUT SIGNAL: **1** current 4-20 mA - **0** voltage 0-10 V

ELECTRICAL CONNECTION: **K10** mini DIN 43650 - **K12** M12 (upon request only)

LOOKING FOR CAD MODELS ?

3D & 2D CAD models of most of our products are available on line on PARTCommunity website.

To download a file you have to create an account. This action is required only once and is completely free of charge.

Once logged in, a configurator will guide you through the choice of the right version of the component you are interested in.

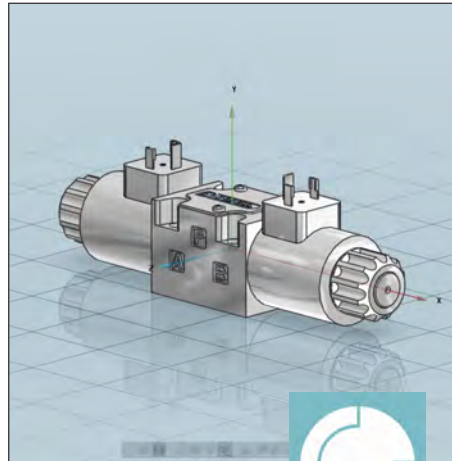
You can download for SolidWorks, Solid Edge, Autodesk Inventor, Autocad, CATIA, NX, Creo, and many others CAD systems.

Visit our 3D catalogue by scanning this QR code with your smartphone



or on the web, at:

www.diplomatic.com/3D



The Real Alternative

VISION

Being recognized as **THE REAL ALTERNATIVE** in the hydraulic market, providing our customers solutions and services which represent an actual competitive advantage.

MISSION

- To provide a wide range of **PRODUCTS** in order to fulfill the customers' needs
- To grant best in the market **DELIVERY TIMES**
- To further expand the **SALES & SERVICE NETWORK** all over the world
- To support our partners sharing **COMPETENCE** and pooling **EXPERTISE**



Innovation and growth

The company Duplomatic was **established in 1952** in Busto Arsizio (VA), Italy to produce an innovative system: the hydraulic copying unit. In those years these devices were revolutionary and contributed to the evolution of the machine tool sector.

From the **beginning of the '60s** the company started to **produce and sell hydraulic components** and systems, which were immediately welcomed by the industry sector.

In the late '80s the whole hydraulic range was renewed and completed by adding new components such as **proportional valves** which appeared on the catalogue **since 1987**.

The company has always been striving to guarantee the **quality of the products** along with the efficiency of the production chain, being thus able to offer many of its most popular items with **short delivery times**.

Since 2010 Duplomatic Oleodinamica operates in a **modern facility**, close to Milan, which counts 10'000 square meters and where **more than 130 employees work**.




In 2011 it has been acquired **Continental Hydraulics**, a company well established in the United States' hydraulics market which counts around 90 employees.

In 2015 another facility in **Shanghai (China)** has been set up in order to serve specifically the far east market.

Nowadays Duplomatic Oleodinamica is able to produce more than **1 million components per year** offering a **wide product range** interchangeable with the ones of the big players.



PRODUCTION PLANTS

-  Duplomatic Oleodinamica (Italy)
-  Duplomatic Hydraulics Shanghai
-  Continental Hydraulics (U.S.A.)

SALES NETWORK

- Main Distributor

Our sales network covers 55 countries in the World. With a partner located at each corner of the Globe we can be always at your side.

The number of partners, distributors sales and assistance points is constantly growing.

To find your closest distributor please visit our website at:

www.duplomatic.com/network

or simply scan this QR code



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