



# INDUSTRIAL HYDRAULICS

**PRODUCT OVERVIEW**





# INDUSTRIAL

PUMPS .....	2
VALVES, PRESSURE .....	10
VALVES, FLOW .....	12
VALVES, CARTRIDGES .....	13
VALVES, DIRECTIONAL CONTROL .....	14
VALVES, CHECK .....	23
LOGIC ELEMENTS .....	24
VALVES, STACK .....	26
VALVES, PROPORTIONAL .....	30
CYLINDERS.....	40
ELECTRONICS .....	43
ACCESSORIES.....	46

# 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	8W 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 / CK1		■	■		■	■	■
CPK		■	■				■

### FEATURES ++

MONITORED **M** - see dedicated section at page 20

EXPLOSION PROOF **D\*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)

DS3 SPECIAL VERSIONS: **UL** certified coils - **R** fixing screws as 4WE6\*6X Rexroth

# 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	320 bar	350 bar
p max high pressure vers.	420 bar	420 bar	420 bar	-
Q max	150 l/min	300 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	■	■	■	■
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### VERSIONS

MONITORED **M** - see dedicated section at page 20

EXPLOSION PROOF **D\*K\*** - see catalogue 41 515

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

HIGH PRESSURE VERSION **H**

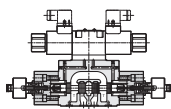
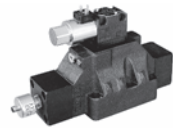
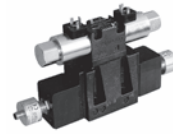
### FEATURES ++

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)

# 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.

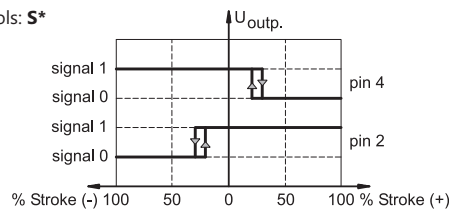
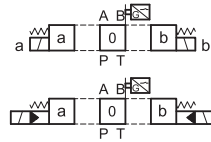
COIL TYPE: **D12** 12V DC - **D24** 24V DC - **D110** 110V DC - **D220** 220V DC

**K1** DIN 43650 connection



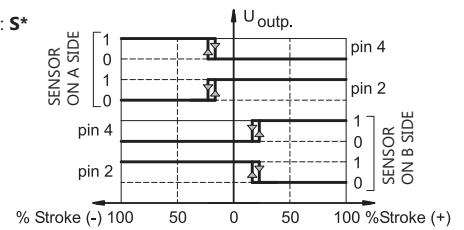
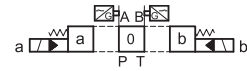
## RO

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



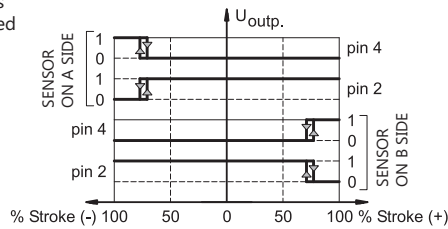
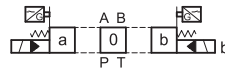
## MO

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

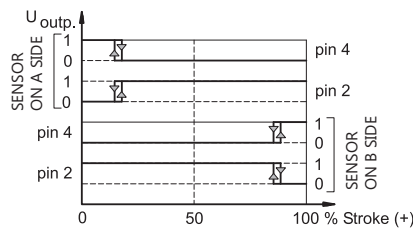
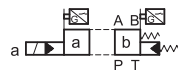


## MAB

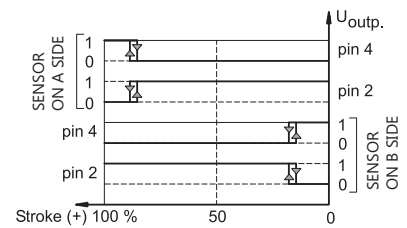
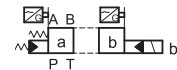
2 sensors  
2 external  
positions  
monitored  
spools: **S\***

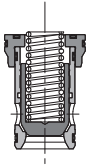


2 positions  
monitored  
spools: **SA\*, TA\***



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





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)

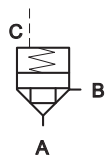
### FEATURES ++

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

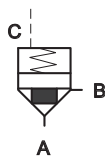
OPTIONS: **LL** low leakage (not available for QS 0.5 and LC16-PS\*)

### SYMBOLS

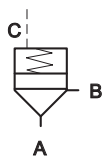
LC\*QS



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

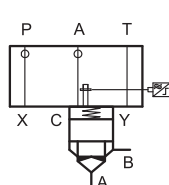
MONITORING: PNP type NO, closed position monitored, 24V DC

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

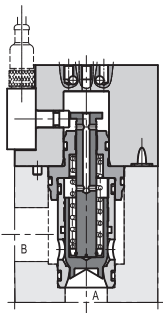
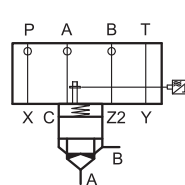
OPTIONS: **LL** low leakage

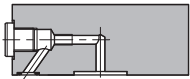
### SYMBOLS

LCM\*D



LCM\*Z



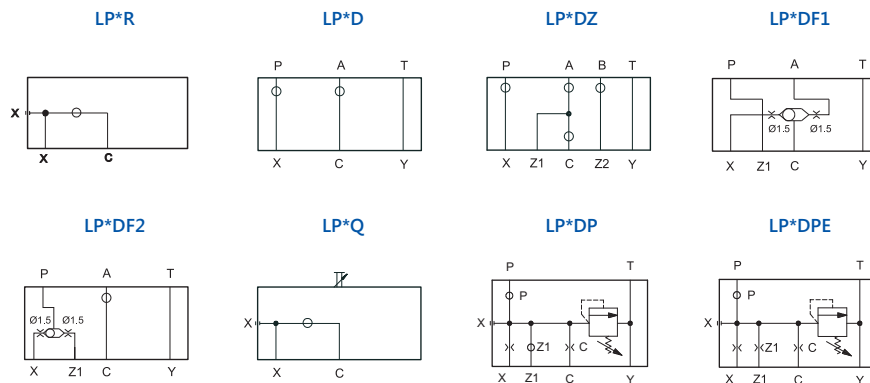


MODEL CODE	LP*					
CATALOGUE	48 900					
SIZE (ND)	16	25	32	40	50	63
TYPE	covers					
<b>TYPE</b>						
R	■	■	■			■
D	■	■	■	■	■	■
DZ	■	■	■	■		
DF1	■	■	■	■	■	
DF2	■	■	■	■		
Q	■	■	■	■	■	■
DP4	■	■	■	■	■	■
DP6	■	■	■	■	■	■
DPE4	■	■	■	■	■	
DPE6	■	■	■	■	■	

### 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



# PROPORTIONAL VALVES PRESSURE CONTROL



MODEL CODE	CRE	PRED3	PRED3G	PRED3J	PRE3	PRE3G
CATALOGUE	<b>81 100</b>	<b>81 210</b>	<b>81 220</b>	<b>81 230</b>	<b>81 240</b>	<b>81 250</b>
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	80 ms	100 ms
resp. time 100 → 0%	40 ms	40 ms	40 ms	40 ms	40 ms	35 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	<b>81 310</b>	<b>81 320</b>	<b>81 330</b>	<b>81 310</b>	<b>81 320</b>	<b>81 330</b>	<b>81 310</b>	<b>81 320</b>	<b>81 330</b>
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								
Q max	200 l/min			400 l/min			500 l/min		

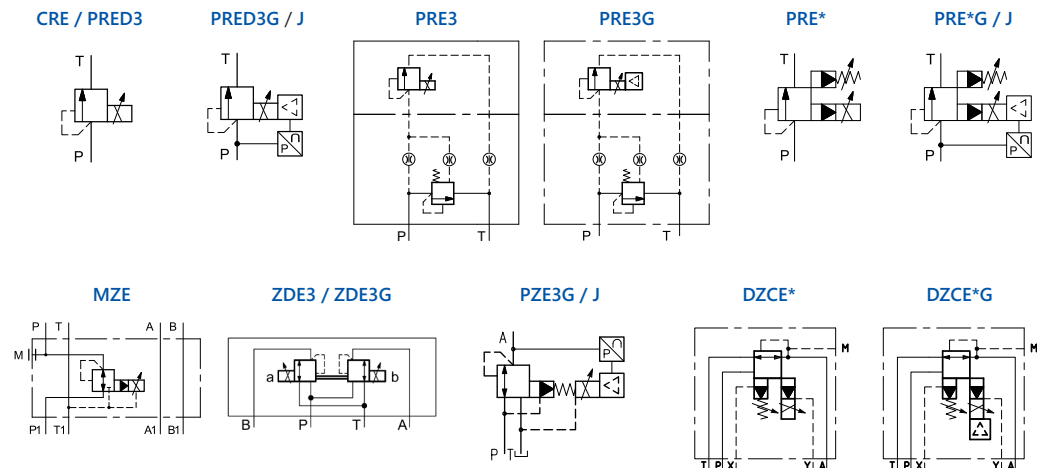
### PERFORMANCES

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		

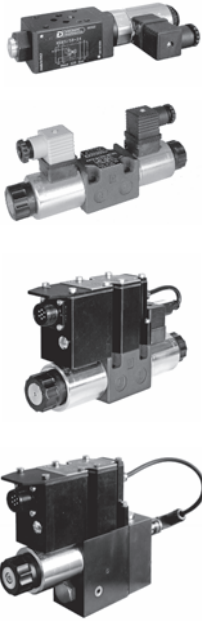
■ **PRE\*(D)\*K\*** ex-proof versions of PRED3, PRE3, PRE\* available, cat. 81315

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	PZE3	PZE3G	PZE3J	ZDE3	ZDE3G
CATALOGUE	81 500	81 501	81 502	81 503	81 510	81 520
SIZE (ND)	06	06		06		
SIZE ISO	4401-03	4401-03		4401-03		
TYPE	reducing	three-port pressure reducing, pilot operated			reducing, direct operated	
	modular, pilot op.		with OBE	with OBE and pressure feedback		with OBE
p max	320 bar	350 bar			100 bar	
Q max	30 l/min	50 l/min			15 l/min	

#### PERFORMANCES

hysteresis	< 3%	< 5%	< 3%	< 1%	< 4%	< 3%
resp. time 0 → 100%	100 ms	90 ms	90 ms	90 ms	30 ms	20 ms
resp. time 100 → 0%	80 ms	90 ms	90 ms	40 ms	30 ms	20 ms

#### ■ MZE

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

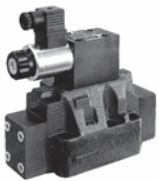
#### ■ PZE3, PZE3G, PZE3J

PRESSURE ADJ. RANGE: **025** 0 ÷ 25 bar - **070** 0 ÷ 70 bar - **140** 0 ÷ 140 bar - **210** 0 ÷ 210 bar - **310** 0 ÷ 310 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	three-port pressure reducing / relieving valve					
p max	350 bar					
Q max	150 l/min		300 l/min		500 l/min	

#### PERFORMANCES

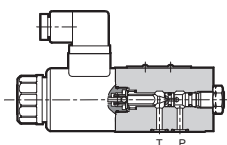
hysteresis	< 4%	< 2%	< 4%	< 2%	< 4%	< 2%
resp. time 0 → 100%	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
resp. time 100 → 0%	50 ms	50 ms	50 ms	50 ms	50 ms	50 ms

■ **DZCE\*K\*** ex-proof versions 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

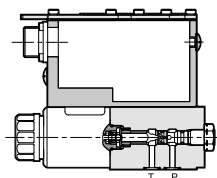


#### ■ PROPORTIONAL CONTROL

COIL CONNECTION: **K1** DIN 43650 style

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

## G

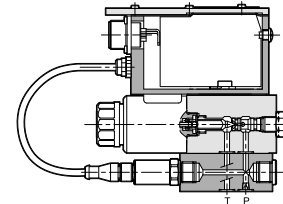


#### ■ ON-BOARD ELECTRONICS

main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, 0 - 10V  
**E1** current, 4 - 20 mA  
 PIN C: **A** external enable  
**B** internal enable  
**C** 0V monitor

## J



#### ■ OBE + PRESSURE TRANSDUCER

main connection 24V DC, 6 pin +PE

REF. SIGNAL: **E0** voltage, 0 - 10V  
**E1** current, 4 - 20 mA  
 PIN C: **A** external enable  
**B** internal enable  
**C** 0V monitor

# 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				
$\Delta p$	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 ++

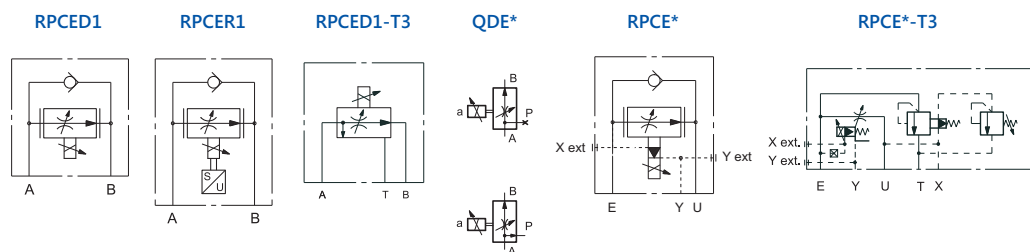
QDE\* are suitable both as restrictive or as bypass flow control, depending on the ports realized on the mounting surface.

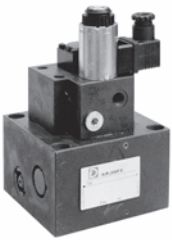
COILS: power supply **D12** 12V DC - **D24** 24V DC

OPTIONS: **CM** boot manual override (QDE3 only)- **CS** screw manual override (QDE3 only)- **CK1** knob

**W7** Zinc-nickel (salt spray resistance up to 600 hours) (QDE\* only)

### 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	
$\Delta p$	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)	■

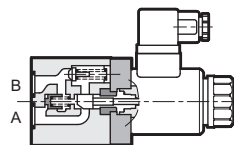
#### FEATURES ++

**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

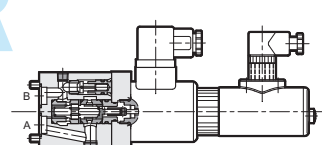
## E



#### PROPORTIONAL CONTROL

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

## R

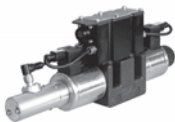
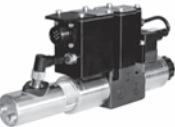
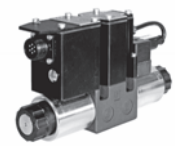
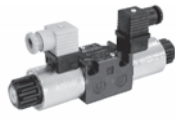


#### POSITION TRANSDUCER

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		180 l/min	

### PERFORMANCES

hysteresis	< 6 %	< 6 %	< 3 %	< 6 %	< 3 %	< 1,5 %	< 0,2 %	
response time 0 → 100 %	50 ms	50 ms	25 ms	50 ms	50 ms	30 ms	20 ms	40 ms
response time 100 → 0 %	40 ms	40 ms	20 ms	40 ms	30 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		■						
CK1	■	■		■				

### FEATURES ++

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

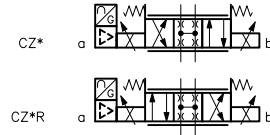
FAIL SAFE POSITION: **FS** available for valves type 'J' with spools type Z

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.

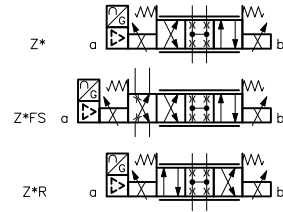
## CZ\*

OVERLAP JUMP  
for DSE\*G only



## Z\*

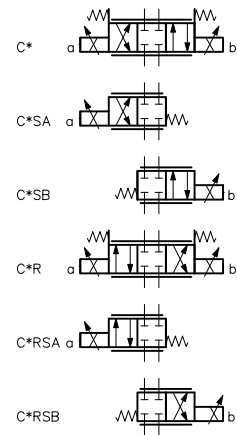
ZERO OVERLAP  
for DSE\*J only



## C\*

CLOSED CENTRE

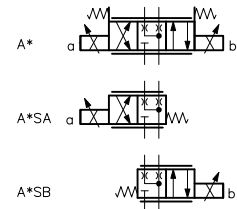
\*SB scheme available only on valves without on-board electronics.



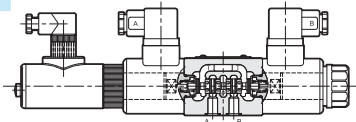
## A\*

OPEN CENTRE

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



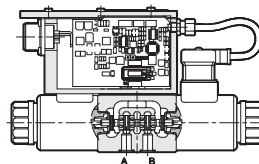
## F



### POSITION TRANSDUCER

LVDT connection: 4 pin M12 PG7  
supply: 18 - 36 V DC  
output: 2 - 10 V

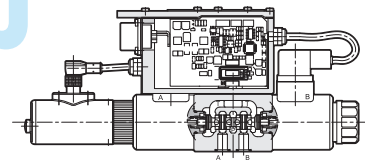
## G



### ON-BOARD ELECTRONICS

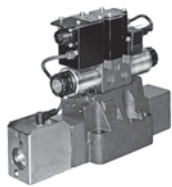
main connection 24V DC, 6 pin +PE  
REF. SIGNAL: **E0** voltage,  $\pm 10V$  or 0 - 10V  
**E1** current, 4 - 20 mA  
PIN C: **A** external enable  
**B** internal enable  
**C** 0V monitor

## J



### OBE + POSITION TRANSDUCER

main connection 24V DC, 6 pin +PE  
REF. SIGNAL: **E0** voltage,  $\pm 10V$  or 0 - 10V  
**E1** current, 4 - 20 mA  
PIN C: **A** external enable  
**B** internal enable  
**C** 0V monitor



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	30 ms	80 ms	50 ms	100 ms	70 ms	200 ms	100 ms
response time 100 → 0 %	40 ms	15 ms	50 ms	25 ms	70 ms	55 ms	120 ms	150 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	2800 l/min

### PERFORMANCES

hysteresis	< 0,5 %				
response time 0 → 100 %	40 ms	35 ms	45 ms	100 ms	100 ms
response time 100 → 0 %	35 ms	30 ms	35 ms	140 ms	140 ms

### NOMINAL FLOW AT 10 BAR ΔP

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

### FEATURES ++

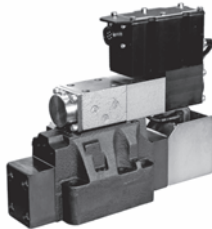
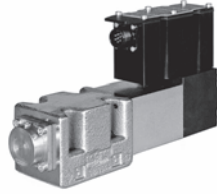
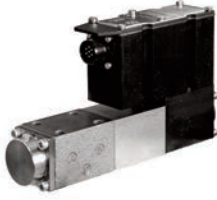
EXPLOSION PROOF **DS(P)E\*K\*** see datasheet 83 510

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) - **CK1** knob (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.



MODEL CODE	DXE3J	DXE5J
CATALOGUE	<b>85 120</b>	<b>85 220</b>
SIZE (ND)	6	10
CETOP	03	05
ISO 4401	4401-03	4401-05
TYPE	high response servo-proportional valves	
p max	350 bar	350 bar
Q max	70 l/min	100 l/min

#### PERFORMANCES

hysteresis	< 0,2%	< 0,2%
response time 0 → 100 %	< 10 ms	< 20 ms
frequency response (± 10%) amplitude at -3dB phase lag at 90°	85 Hz 100 Hz	30 Hz 80 Hz

#### NOMINAL FLOW AT Δp 70 bar

1, 2, 5	■	
10	■	
20	■	
40	■	
60		■
100		■

#### FEATURES ++

FAIL SAFE TYPE **F1** closed centre - **F3** open centre - **FC** cross position  
SURFACE FINISH: **W7** Zinc-Nickel (salt spray resistance up to 600 hours)

MODEL CODE	DXRE5RJ	DXRE7J	DXRE8J	DXRE10J	DXRE11J
CATALOGUE	<b>85 330</b>				
SIZE (ND)	10	16	25	32	35
CETOP	R05	07	08	10	10+
ISO 4401	4401-05-05	4401-07	4401-08	4401-10	4401-10+
TYPE	pilot operated servo proportional valves				
p max	350	350	350	350	350
Q max	180	450	850	1600	3500

#### PERFORMANCES FOR ZERO OVERLAP SPOOLS

response time 0 → 100 %	25	25	30	50	50
frequency response (± 10%) amplitude at -3dB phase lag at 90°	40 60	35 50	30 45	20 35	20 35
100	■				
120		■			
220		■			
250			■		
400			■		
800				■	
1000					■

#### PERFORMANCES FOR POSITIVE OVERLAP SPOOLS

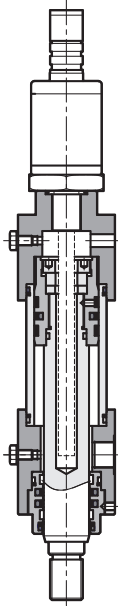
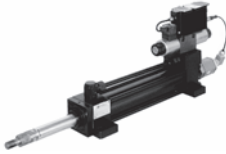
hysteresis	< 0,1 %				
response time 0 → 100 %	20 ms	20 ms	30 ms	120 ms	120 ms

#### FEATURES ++

PILOT / DRAIN: **I** internal - **E** external (always verify application cases on valve datasheet)  
ALTERNATIVE SURFACE FINISH: **W7** Zinc-nickel (salt spray resistance up to 600 hours) upon request.

DXRE11J is the high flow version of DXRE10J with oversized ports.

# 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, front - **H** swinging, front - **L** swinging, mid - **N** swinging, rear - **P** tie rods, front - **Q** tie rods, back

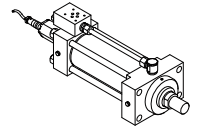
SENSORS: Wide range of transducers available, **M3** 0 ÷ 10 V - **M3A** ±10 V  
**M2** 4 ÷ 20 mA - **M8** 20 ÷ 4 mA - **M6** CAN-open - **M1** SSI, digital  
**MP** ProfiBus. Further types upon request.

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

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

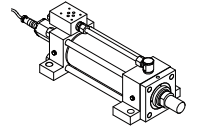
## A

flanged  
ME5



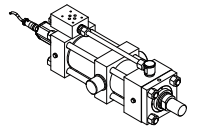
## G

feet  
MS2



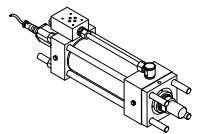
## H L N

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-M	EDM-J	EWM-A-SV	EWM-A-PV
CATALOGUE	<b>89 120</b>	<b>89 251</b>	<b>89 255</b>	<b>89 610</b>	<b>89 620</b>
TYPE	single amplifier	for proportional valves in open loop	for proportional valves in closed loop without OBE	for servovalves	for proportional valves in open loop
MOUNTING	on-board	rail mounting		rail mounting	
configuration	by hands/software	software		by hands	software
IP grade	IP 65/67	IP 20		IP 20	
power supply	10 - 30 V DC	9 - 36 V DC	24 V DC	18 - 30 V DC	12 - 30 V DC
reference signal	0 ÷ 10 V 0 ÷ 5 V 4 ÷ 20 mA	0 ÷ 10 V ± 10 V 4 ÷ 20 mA	± 10 V 4 ÷ 20 mA	± 10 V	0 ÷ 10 V; ± 10 V 4 ÷ 20 mA 8 digital binary

#### ■ EDC

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

#### ■ EDM-M

VERSION: **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

#### ■ EDM-J

For valves type F. Each card is set and combined with its valve in factory, with univocal serial number.

#### ■ EWM-A-SV

CONFIGURATION: DIL switches and trimmers inside the casing. 5 DIL switches allow to set a current value from 0 to 200 mA, with increments of 10 mA. (10, 20, 30 ... etc.).

#### ■ EWM-A-PV

CARD FUNCTIONS: To be set via software: **A-PV** analogue ± 10V or 4 ÷ 20 mA (one channel, 2 solenoids) - **2A-PV** analogue 0 ÷ 10V or 4 ÷ 20 mA (two independent channels) - **D-RI** digital, 8 pre-set values, selectable by 3 digital inputs (8 binary targets). For both single or dual solenoids proportional valve either.



MODEL CODE	EWM-S-AA	EWM-ST-AA	EWM-S-AD	EWM-SP-DAD	EWM-SP-DAD
CATALOGUE	<b>89 410</b>	<b>89 411</b>	<b>89 420</b>	<b>89 440</b>	<b>89 445</b>
TYPE	card for closed loop systems				
CONTROL	position controller			position, pressure, both	
MOUNTING	rail mounting				
IP grade	IP 20				
power supply	12 - 30V DC	12 - 30V DC	24 - 30 V DC	24 - 30 V DC	24 - 30 V DC
reference signal	analogue	analogue	analogue	Profibus DP	ProfiNet / EtherCat

#### OUTPUT

<b>E</b>	± 10 V differential 4 ÷ 20 mA	4 ÷ 20 mA	± 10 V differential 4 ÷ 20 mA	± 10 V differential 4 ÷ 20 mA	± 10 V differential 4 ÷ 20 mA
<b>M*</b>	-	500 ÷ 2600 mA	-	-	-

#### FEEDBACK

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

#### ■ EWM-S-AA / EWM-ST-AA

Position controller for systems with analogue sensor. The EWM-ST-AA has been designed for steam turbine applications, with dedicated parameters.

#### ■ EWM-S-AD

Position controller for systems with digital position feedback, it can work with analogue also.

#### ■ EWM-SP-DAD

Position controller for closed loop systems for position, pressure or both position and pressure control. It works with a digital sensor for positioning, and one or two analogue sensors for pressure sensing. Embedded interface for Profibus DP or ProfiNet communication.

All these modules have to be programmed via software. USB port on front panel. Free download of the software EWMPC and PLC configuration files from our site. Sampling time of the control loop: 1 ms.



MODEL CODE	EWM-MS-AA	EWM-2SS-DAD	EWM-2SS-DAD
CATALOGUE	89 450	89 470	89 475
TYPE	card for closed loop systems		
CONTROL	synchro 2 / 6 axes	synchro 2 axes	synchro 2 axes
MOUNTING	rail mounting		
IP grade	IP 20		
power supply	12 - 30 V DC	24 V DC	24 V DC
reference signal	0 ÷ 10 V 4 ÷ 20 mA	Profibus DP	ProfiNet / EtherCat

#### OUTPUT

E	± 10 V differential 4 ÷ 20 mA	± 10 V differential 4 ÷ 20 mA	± 10 V differential 4 ÷ 20 mA
M2	500 ÷ 2600 mA	-	-

#### FEEDBACK

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

#### ■ EWM-MS-AA

**FUNCTIONS:** MASTER/MASTER position control (2 axes); MASTER/SLAVE position control, for up 6 axes. If the synchronisation controller is active, it overrides the position control process. INDEPENDENT POSITIONING by separate commands position. One card per axis to be driven is needed.

#### ■ EWM-2SS-DAD SYSTEM

2 axes synchronized positioning via Fieldbus (Profibus, ProfiNet, EtherCat). Fieldbus card embedded. MASTER/SLAVE or MASTER/MASTER. Motion profile (speed and position) via Fieldbus. One card per system (2 axes) needed.

All these modules have to be programmed via software. USB port on front panel. Free download of the software EWMPC and .GSD file from our site.



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	0 ÷ 10 V 4 ÷ 20 mA
Q input	-	±10 V 4 ÷ 20 mA

#### OUTPUT

E	-	±10 V differential 4 ÷ 20 mA
M1	500 ÷ 2600 mA	-

#### FEEDBACK

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

#### ■ EWM-P-AA

For proportional pressure reducing and pressure relief valves. The power amplifier is embedded. The reference signal is transferred directly 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 the set point limits of the differential pressures has not to exceed.

All these modules have to be programmed via software. USB port on front panel. Free download of the EWMPC software from our site. Sampling time of the control loop: 1 ms.



MODEL CODE	EDCPC	LINPC-USB
CODE	<b>3898301001</b>	<b>89 850</b>
TYPE	software kit	test device
for	ECL, ECF, EDC	proportional valves with LIN-bus interface type G, J, X series 20, 30 and 31

**■ 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.

**■ LINPC-USB**

The kit contains a test device with embedded connection cable 7 pin and the USB cable for connection to the PC. The dedicated software of each valve series is available for free download from our web site. No additional power supply is required: the device uses the supply source from the 7 pin system cable.

MODEL CODE	EWMPC/20	EBC
TYPE	free-download software	
for	EWM cards series 20 proportional valves	proportional valves with LIN-bus interface type G, J, X series 30 and 31 EDM-M, EDM-J cards series 30

**■ EWMPC**

Software for parameterization of EWM series 20 cards. Compliant for OS Windows 7, 8 and 10. Card connection via USB port, with USB 2.0 cable A – B (standard USB printer cable).

**■ EBC**

Software for parameterization and diagnostic of:




- Diplomatic proportional valves with LIN-bus interface type G, J and X, series 30 and 31. To be combined with LINPC tool.
- Diplomatic EDM-M and EDM-J cards, series 30.

Compliant for OS Windows 7, 8 and 10.

Card connection via USB port, with USB 2.0 cable A – micro B.



#### PRODUCTION PLANTS

-  Duplomatic MS (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:

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or simply scan this QR code



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