Working medium, air quality

Working medium: Dry, filtered compressed air to ISO 8573-1 class 3.4.3.

Recommended air quality for valves

For best possible service life and trouble free operation, ISO 8573-1 quality class 3.4.3 should be used. This means 5µm filter (standard filter) dew point +3°C for indoor operation (a lower dew point should be selected for outdoor operation) and oil concentration 1.0 mg oil/m³, which is what a standard compressor with a standard filter gives.

ISO 8573-1 quality classes

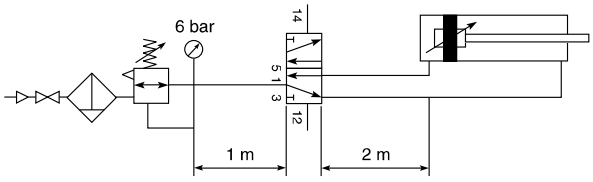
Quality class	Pollution particle size (µm)	Pollution max. concentration (mg/m³)	Water max. press. dew point (°C)	Oil max. concentration (mg/m³)
1	0,1	0,1	-70	0,01
2	1	1	-40	0,1
3	5	5	-20	1,0
4	15	8	+3	5,0
5	40	10	+7	25
6	-	-	+10	-

Typical cylinders speeds which can be achieved with Viking valves and different tube sizes.

In the chart below you can find the suitable valves, tubes etc. for each cylinder size. If you have a tube length over 2 m, choose one tube size larger than in the chart.

Following data is valid:

Supply pressure : min 7,0 bar
Regulator pressure setting : 6,0 bar
Pipe length between air treatment unit and valve : max 1 m
Pipe length between valve and cylinder : max 2 m



Cylinder bore	<20	20-32	40-50	63	80	100	125	160	200
Cylinder port	M5	G1/8	G1/4	G3/8	G3/8	G1/2	G1/2	G3/4	G3/4
Tubing Ext/Int	4/2.7	6/4	8/6	10/8	10/8	12/9	14/11	18/15	20/18
			6/4	8/6	12/9	14/11			
P2LAX	G1/8	G1/8	G1/8	G1/8	G1/8				
P2LBX	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4			
P2LCX			G3/8	G3/8	G3/8	G3/8	G3/8		
P2LDX				G1/2	G1/2	G1/2	G1/2	G1/2	G1/2

Cylinder speed < 0,5 m/s
Cylinder speed < 1 m/s
Oversized
Cylinder speed > 1 m/s

Material specification

P2LAX

Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Lever housing	Acetal plastic
Spool	Aluminium + nitrile rubber
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Stainless steel
Springs	Dacromet® - processed steel, Stainless steel
Lever	Reinforced polyamid plastic
Panel mounting nut	Polycarbonate plastic
Gaiter	Chloroprene rubber
Mounting screws for solenoid	Stainless steel

Accessories

Manifold bar	Anodised aluminium
Pressure bar	Anodised aluminium
Multiple manifolds	Anodised aluminium
End and intermediate blocks	Anodised aluminium

P2LBX

Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Lever housing	Anodised aluminium
Spool	Aluminium + nitrile rubber
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Stainless steel
Springs	Dacromet® - processed steel, Stainless steel
Lever	Steel Zinc Plated
Gaiter	Chloroprene rubber
Mounting screws for solenoid	Stainless steel
Panel Washer	Nitrile
Twist Bush	Acetal
Helix Bush	Brass
Pin	Plated Steel
Twist Housing	Anodised Aluminium
Twist Knob	Polyamide 6
Panel mounting ring	Acetal
Lever Housings	Anodised Aluminium
Lever selector	Zinc Diecast

Accessories

Manifold bar	Anodised aluminium
Pressure bar	Anodised aluminium

P2LCX

Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Spool	Aluminium + nitrile rubber
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Stainless steel
Springs	Dacromet® - processed steel, Stainless steel
Lever	Steel Zinc Plated
Gaiter	Chloroprene rubber
Mounting screws for solenoid	Stainless steel

P2LDX

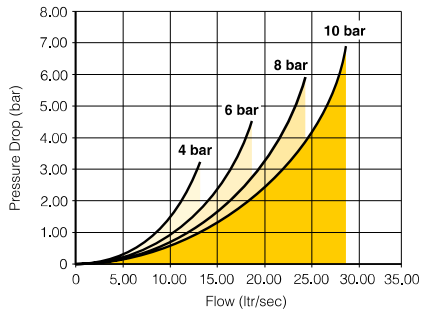
Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Spool	Aluminium + nitrile rubber
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Stainless steel
Springs	Dacromet® - processed steel, Stainless steel
Lever	Steel Zinc Plated
Gaiter	Chloroprene rubber
Mounting screws for solenoid	Stainless steel

Flow characteristics

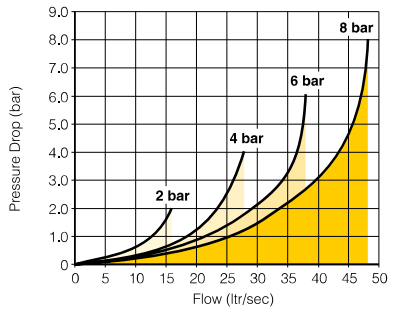
Flow capacities in accordance with ISO6358
All pressures = effective pressure
The curves in the diagram below are typical only

Technical Data P2LAX



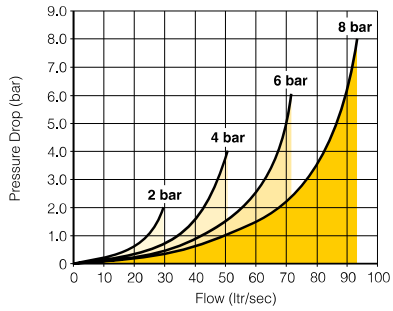
Port size	G1/8
Max operating pressure.	16 bar
Working temperature.	
Air pilot lever solenoid.	-40°C to + 60°C
Air pilot solenoid.	-10°C to + 50°C
Standard and food version.	-40°C to + 60°C
Mobile version.	-40°C to + 60°C
Flow (acc. to ISO 6358)	c = 3,0 Nl/s x bar b = 0,2 Qn = 11,0 l/s Qmax = 19,0 l/s Cv = 0,65

Technical Data P2LBX



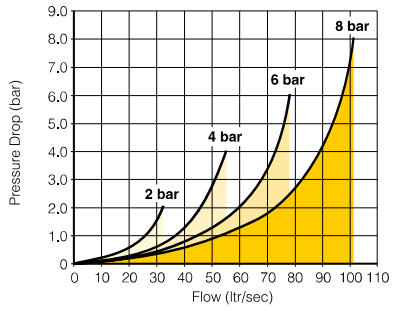
Port size	G1/4
Max operating pressure.	16 bar
Working temperature.	
Air pilot lever solenoid.	-40°C to + 60°C
Air pilot solenoid.	-10°C to + 50°C
Standard and food version.	-40°C to + 60°C
Mobile version.	-40°C to + 60°C
Flow (acc. to ISO 6358)	c = 5,4 Nl/s x bar b = 0,2 Qn = 21,5 l/s Qmax = 38,0 l/s Cv = 1,33

Technical Data P2LCX



Port size	G3/8
Max operating pressure.	12 bar
Working temperature.	
Air pilot lever solenoid.	-40°C to + 60°C
Air pilot solenoid.	-10°C to + 50°C
Standard and food version.	-40°C to + 60°C
Mobile version.	-40°C to + 60°C
Flow (acc. to ISO 6358)	c = 10,3 Nl/s x bar b = 0,22 Qn = 41,0 l/s Qmax = 72,0 l/s Cv = 2,5

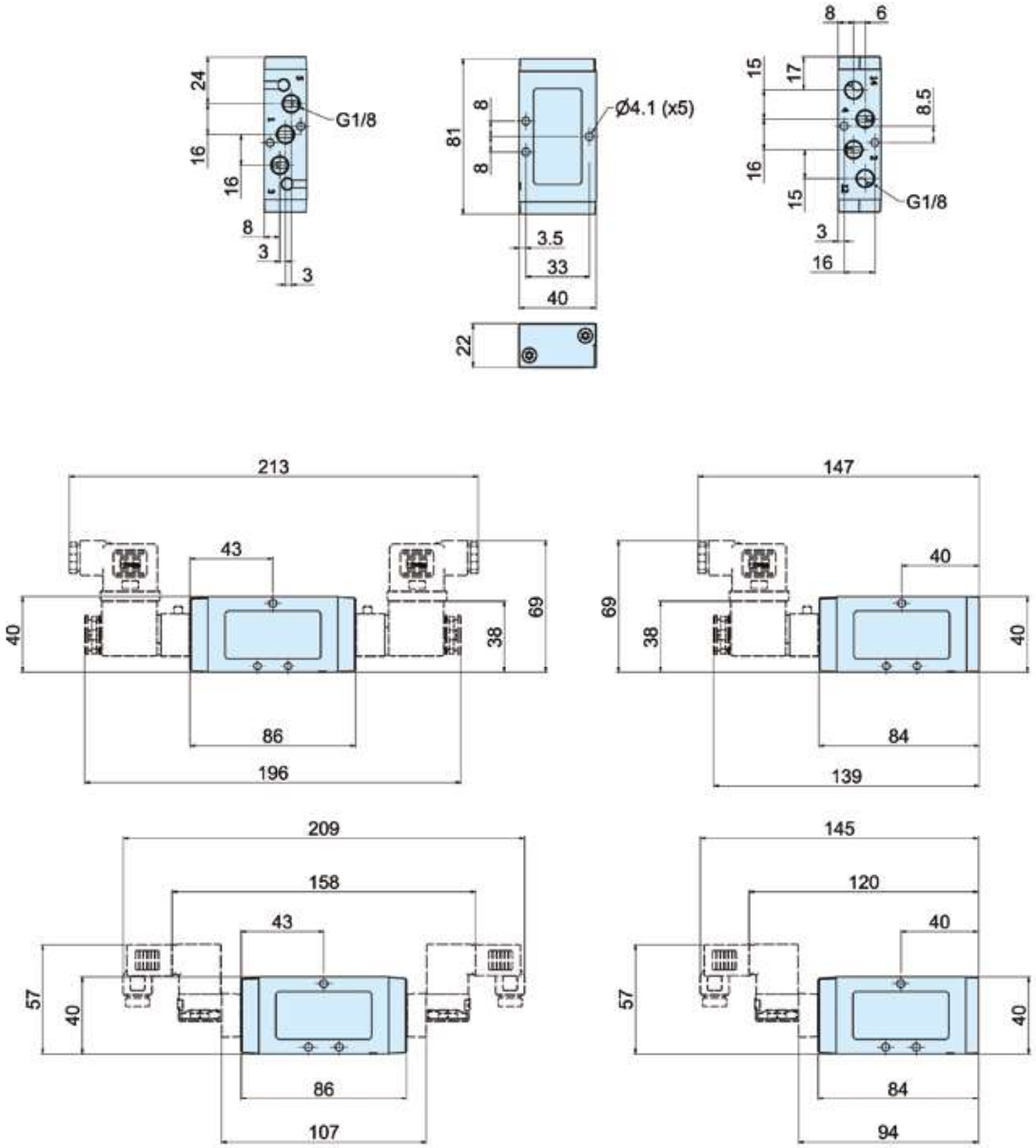
Technical Data P2LDX



Port size	G1/2
Max operating pressure.	12 bar
Working temperature.	
Air pilot lever solenoid.	-40°C to + 60°C
Air pilot solenoid.	-10°C to + 50°C
Standard and food version.	-40°C to + 60°C
Mobile version.	-40°C to + 60°C
Flow (acc. to ISO 6358)	c = 11,3 Nl/s x bar b = 0,3 Qn = 44,3 l/s Qmax = 78 l/s Cv = 2,71

Dimensions

P2LAX... all
5/2 and 5/3 valves



Solenoid valves
Cable plugs must be ordered separately.
One pilot valve is required for each E in the valve order code.

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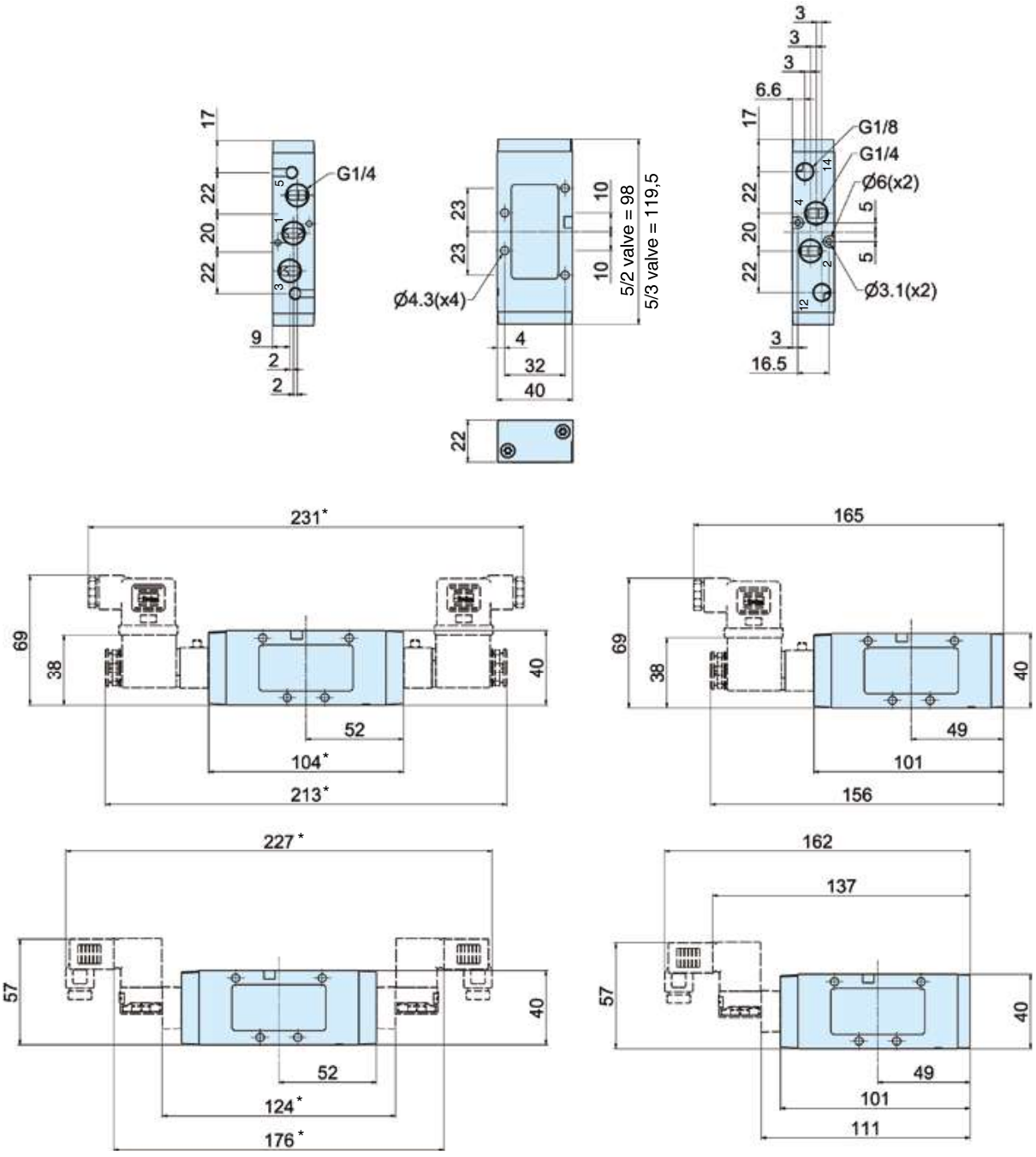
Dimensions

P2LBX... all
5/2 and 5/3 valves



*** Note:** 5/3 valves - add 21.5mm

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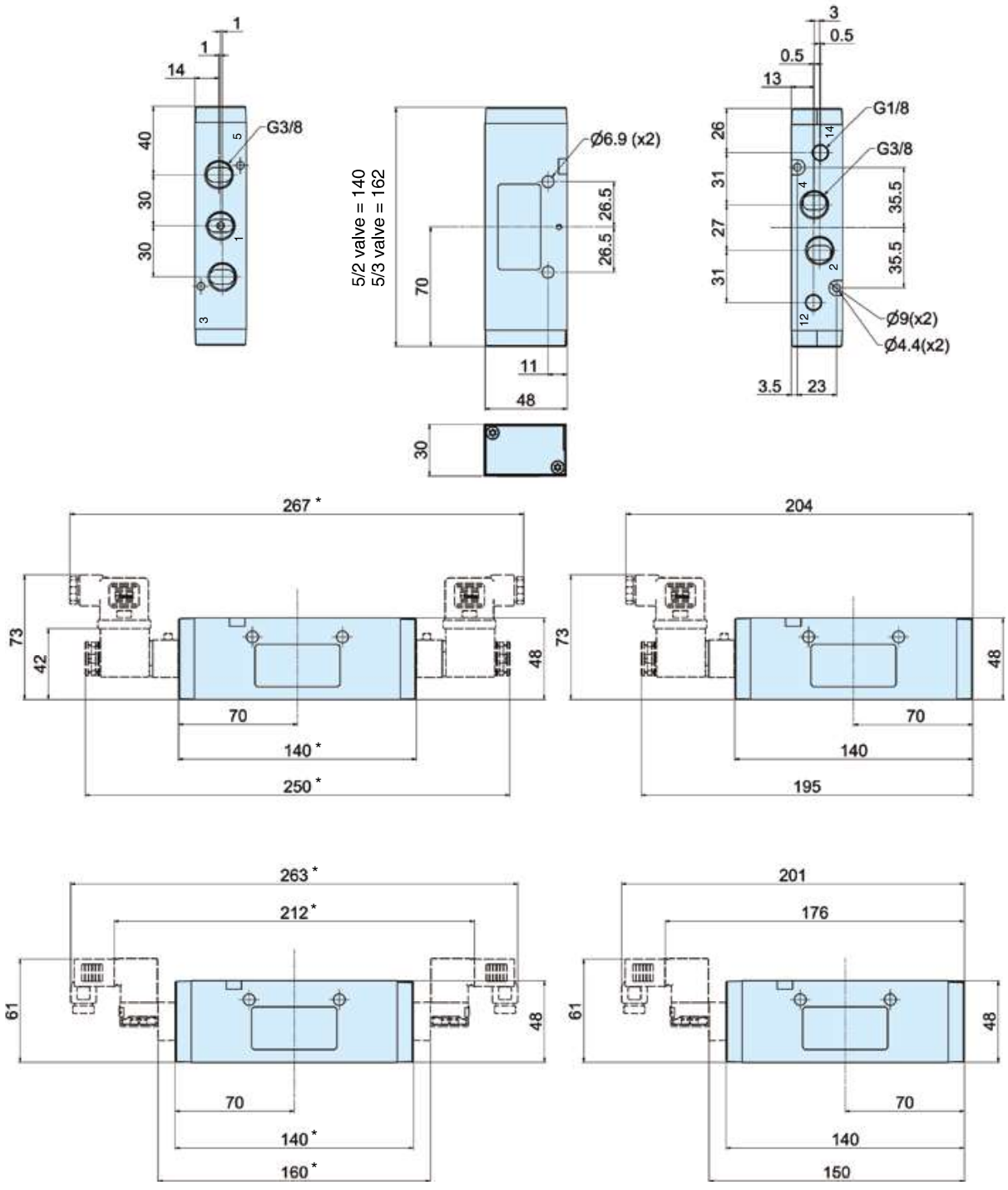
Dimensions

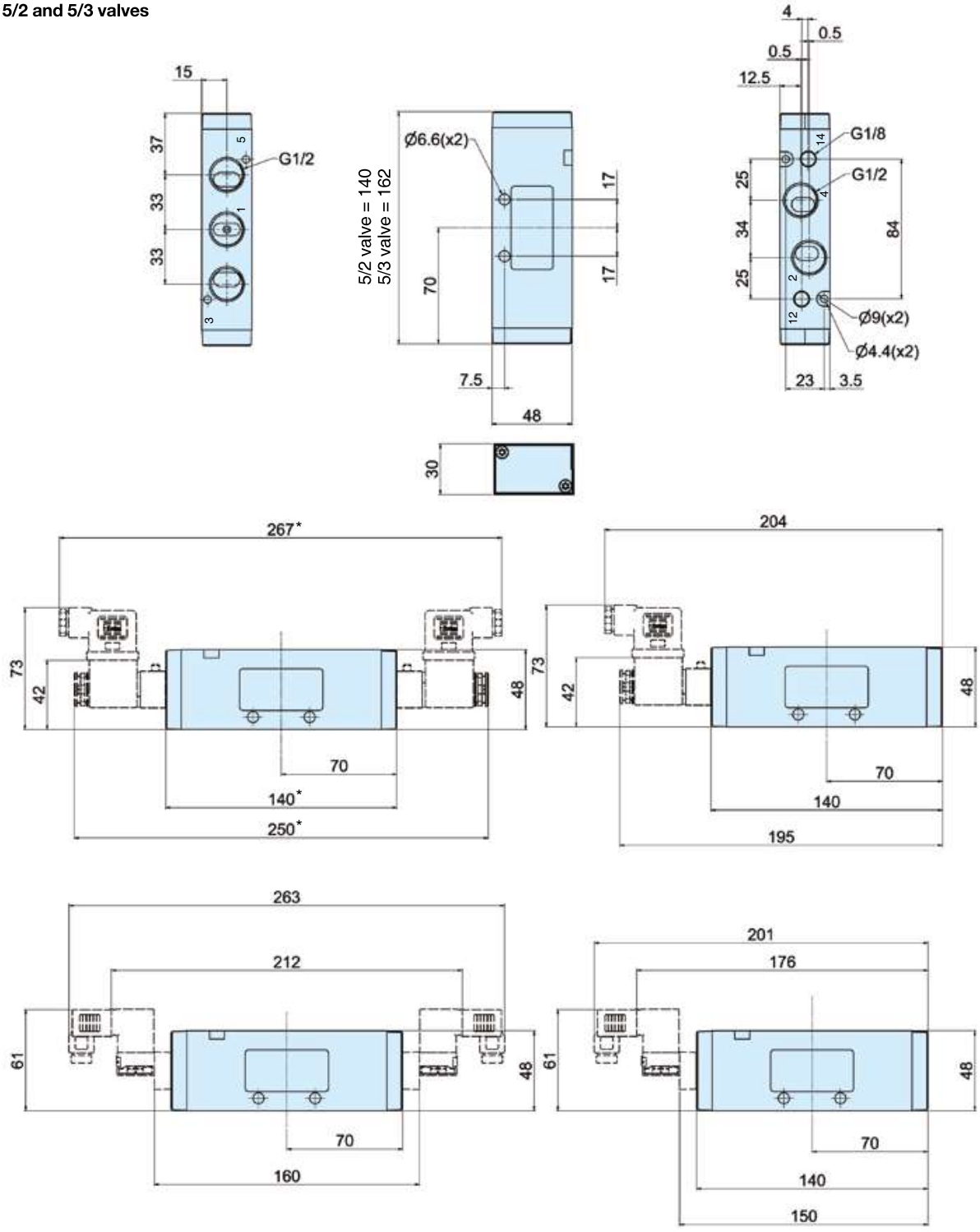
P2LCX... all
5/2 and 5/3 valves



*** Note:** 5/3 valves - add 22.0mm

Dimensions

P2LDX... all
5/2 and 5/3 valves



*** Note:** 5/3 valves - add 22.0mm

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Order chart - Viking Xtreme air pilot & manual valves - Xtreme operating pressure / temperature

P	2	L	A	X	5	1	1	P	S

	Valve family
P2L	Viking inline valve

	Size
A	1/8
B	1/4
C	3/8
D	1/2

	Version
X	Xtreme duty spool

* Xtreme duty spool suitable for
max operating pressure
16 bar. (P2LAX + P2LBX) 12 bar (P2LCX + P2LDX)
Temperature range -40°C to +60°C

	Port thread
11	G1/8
12	G1/4
13	G3/8
14	G1/2
91	1/8 NPT
92	1/4 NPT
93	3/8 NPT
94	1/2 NPT
1N *	Namur G1/4
9N *	Namur 1/4 NPT

* Not available in 3/2 version

Valve type function		
Manual and pneumatic operated		
3		3/2 valve
5		5/2 valve
6		5/3 valve closed centre position
7		5/3 valve pressurised centre
8		5/3 valve vented centre

	Pilot main actuator/return
J ***	Rotary button - 2 positions
P	Air signal
S	Spring (return only)
V	Lever, 2 positions, 90° to ports
Z ***	Lever, 2 positions, in line with ports
1 **	Lever, 3 positions self centred, 90° to ports
2 **	Lever, held 3 positions, 90° to ports
5 ***	Lever, 3 positions, self centered in line with port
6 ***	Lever, 3 positions, held in position in line with port
7 ***	Rotary button - 3 positions held in position

** Not available in 3/2 version

*** Only Available with port threads G1/4 and 1/4 NPT

Shaded part numbers are standard

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Order chart - Viking Xtreme Normal Operating Pressure / Temperature

P	2	L	A	X	5	1	1	E	S	N	D	D	B	4	9

	Valve family
P2L	Viking inline valve

	Size
A	1/8
B	1/4
C	3/8
D	1/2

	Version
X	Xtreme duty spool

	Port thread
11	G1/8
12	G1/4
13	G3/8
14	G1/2
91	1/8 NPT
92	1/4 NPT
93	3/8 NPT
94	1/2 NPT
1N *	Namur G1/4
9N *	Namur 1/4 NPT

* Namur version not available in 3/2 function

	Solenoid pilot type
N	10 bar / -10°C to 50°C
L**	10 bar / -10°C to 50°C

	Solenoid exhaust
D	Vented
N	Captured/tapped M5
X	15mm solenoid vented

Valve type function		
Solenoid operated with internal supply to solenoid		
3		3/2 valve
5		5/2 valve
6		5/3 valve closed centre position
7		5/3 valve pressurised centre
8		5/3 valve vented centre
Solenoid operated with external pilot supply to solenoids through ports 10 & 12 for 3/2 version and through ports 12 & 14 for 5/2 & 5/3 version		
L		3/2 valve
N		5/2 valve
P		5/3 valve closed centre position
Q		5/3 valve pressurised centre
R		5/3 valve vented centre

	Overrides
A*	None
B*	Flush - non locking
C	Flush - locking
D[1]	Extended non-locking
E*	Extended - locking
X	Less 15mm solenoid

* Only available with enclosure 5

[1] 22mm solenoid option

Voltage [2]			
	AC		DC
	60Hz	50Hz	
40	12		
42	24	22	
45			12
47*			12
48*			24
49			24
53	120	110	
57	240	230	
XX	valve less solenoid/coil		

* If 22mm solenoid required on mobile applications use model code no page 16. Alternatively check operating temperature and pressures with our technical department.

[2] Shaded part numbers are available from stock
Unshaded part numbers are available on request but will be subject to minimum order quantities
Otherwise order coil/solenoid and valve separately.

	Pilot main actuator / Return
E	Solenoid operated valve
S	Spring (return only)
P	Press (return only)

	Solenoid enclosure / Lead length
5	15mm, 3 pin Form C/ISO15217 in line with body
B	22mm 3-pin Industrial Form B with coil
N	22mm solenoid pilot less coil
X	Valve less 15mm solenoid
L**	Low power 22mm solenoid (only available with 24V DC)

Shaded part numbers are standard

Parker Hannifin Corporation
Pneumatic Division - Europe

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Order chart - Viking Xtreme Valves - Xtreme operating pressure / temperature

P	2	L	A	X	5	1	1	E	S	H	D	D	B	4	9

	Valve family
P2L	Viking inline valve

	Size
A	1/8
B	1/4
C	3/8
D	1/2

	Version
X	Xtreme duty spool

	Port thread
11	G1/8
12	G1/4
13	G3/8
14	G1/2
91	1/8 NPT
92	1/4 NPT
93	3/8 NPT
94	1/2 NPT

	Valve type function
Solenoid operated with internal supply to solenoid	
3	3/2 valve
5	5/2 valve
6	5/3 valve closed centre position
7	5/3 valve pressurised centre
8	5/3 valve vented centre
Solenoid operated with external pilot supply to solenoids through ports 10 & 12 for 3/2 version and through ports 12 & 14 for 5/2 & 5/3 version	
L	3/2 valve
N	5/2 valve
P	5/3 valve closed centre position
Q	5/3 valve pressurised centre
R	5/3 valve vented centre

	Pilot main actuator / Return
E	Solenoid operated valve
S	Spring (return only)
P	Press (return only)

	Solenoid pilot type
H[1]	16 bar / -40°C to 60°C

[1] Solenoid operated 'H' version supplied with B type enclosure 16 bar solenoid

	Solenoid exhaust
D	Vented
N	Capture/tapped M5

	Overrides
D	Extended non-locking

Voltage [3]			
	AC		DC
	60Hz	50Hz	
40	12		
42	24	22	
45			12
47*			12
48*			24
49			24
53	120	110	
57	240	230	
72			110
XX	valve less solenoid/coil		

* Mobile voltage see page 51 operating parameters

[3] Shaded part numbers are available from stock
Unshaded part numbers are available on request but will be subject to minimum order quantities
Otherwise order coil and valve separately.

	Solenoid enclosure / Lead length
A	22mm Solenoid pilot & 30mm coil Form A
B	22mm Solenoid pilot & 22mm coil Industrial Form B
N	22mm Solenoid pilot less coil

Shaded part numbers are standard

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