

- **Single acting, force-balance operating principle**
- **Excellent dynamic response, short positioning time and negligible positioning error**
- **Field adjustable for valve strokes between 14 mm. and 102 mm. (1/2 in and 4 in)**
- **Single feedback cam with three standard characteristics**
- **Convenient, no range spring changing required and accurate means of split-ranging the signal and/or the valve action**
- **Compatible with all spring and diaphragm-operated control valves**
- **Set and forget reliability**
- **Complies with relevant international standards for test procedures and environmental protection against harsh plant conditions**



---

## FEATURES

---

Model W-PP, the pneumatic valve positioner of the P3300 Series of field mounting instruments, ensures that the control valve plug position is always directly proportional to the pneumatic input signal, regardless of diaphragm actuator hysteresis, packing-box friction or off-balance force on the valve plug.

The valve responds to infinitely small changes in the controller output signal when process lags require the use of wide proportional band.

Problems usually associated with plant instability due either to oversized valves or non-linear trim characteristics are minimized by selecting one of the three feedback cam alternative positions.

By-pass option allows positioner to be removed without disturbing the control valve operation.

Turn-down ratio 4 to 1 by a single controller output signal split ranging for sequential operation of two or more control valves is standard.

Excellent dynamic response and stroking speed are assured by a standard booster relay which can be adjusted to match all sizes actuators.

## FUNCTIONAL SPECIFICATIONS

### Input pressure range

0.2 - 1 bar, 20 - 100 kPa, 3 - 15 psi  
0.4 - 2 bar, 40 - 200 kPa, 6 - 30 psi

### Auxiliary supply pressure

1.4 - 4 bar, 140 - 400 kPa,  
20 - 60 psi

### Start point and span adjustments

Separate, internal, continuous

### Split-range

Any value down to 25% of specified input range

### Stroke length

Any value between 14 mm and 102 mm (1/2 in and 4 in) providing feedback lever rotation is 50°

### Output to actuator

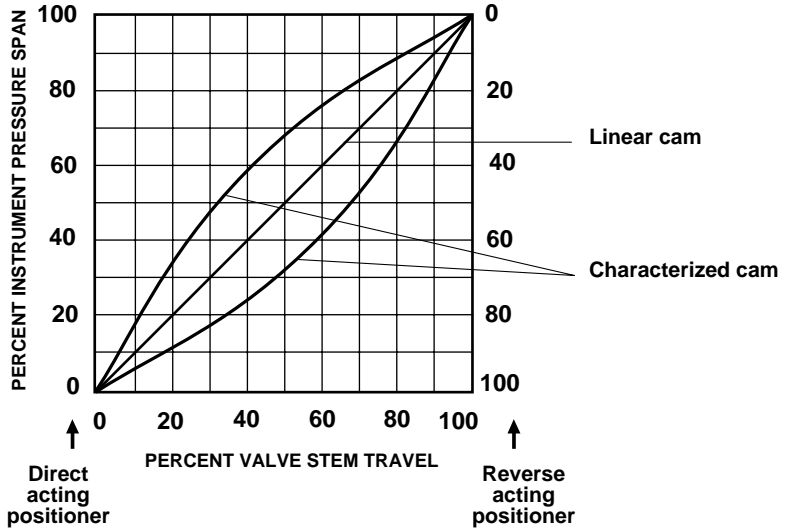
Up to 95% of auxiliary supply pressure, direct or reverse acting

### Cam characteristics

See figure on right hand side

Supply	Auxiliary supply consumption (static) (*) NI/h (scfm)	Flow capacity (dynamic) NI/h (scfm) as input pressure	
		Increases	Decreases
140 kPa (1.4 bar or 20 psi)	380 - 800 (0.23 - 0.48)	up to 9000 (5.54)	up to 9000 (5.54)
400 kPa (4 bar or 60 psi)	665 - 1400 (0.40 - 0.84)	up to 15600 (9.6)	up to 9000 (5.54)

(\*) Static consumption varied according to the actual size of the associated P-A series actuators (245 - 1930 cm<sup>2</sup>, 38 - 300 in<sup>2</sup>) and stroking speed required.



## Operating conditions

	Auxiliary supply min. and max.	Temperature °C (°F)		Relative humidity %	Barometric pressure	Vibration (IEC 654-3)
		with instrument air supply	with natural gas supply			
<b>Reference</b>	140 and 400 kPa ± 1% 1.4 and 4 bar ± 1% 20 and 60 psi ± 1%	Any value between +15 and +35 ± 2K (+59 and +95 ± 3)		60 ± 25%	96 kPa ± 10% 960 mbar ± 10% 720 mmHg ± 10%	None
<b>Normal (1)</b>	140 and 400 kPa ± 5% 1.4 and 4 bar ± 5% 20 and 60 psi ± 5%	-25 to +85 (-13 to +185)	-20 to +55 (-4 to +131)	0 to 100 condensing permissible	Atmospheric pressure	Severity class: steady state •f = 1 to 10 Hz displ. 1.5 mm-acc. 0.5g •f = 10 to 60 Hz displ. 0.15 mm •f = 60 to 500 Hz-acc. 2g
<b>Operative limits (2)</b>	140 and 400 kPa ± 15% 1.4 and 4 bar ± 15% 20 and 60 psi ± 15%	-43 and +100 (-45 and +212)	-20 and +80 (-4 and +176)			
<b>Transport and storage (2)</b>	Not applicable					

(1) Performance stated under "Operating influences"

(2) No damage

## PERFORMANCE SPECIFICATIONS

Unless otherwise stated performance specifications are given at reference environmental condition, 20 to 100 kPa or 40 to 200 kPa input pressure standard ranges, with standard linear cam and direct acting positioner. **All errors are quoted as percentage of the associated actuator stroke.** Test procedures are in accordance with relevant international standards.

### Accuracy

± 1% (includes combined effects of non-linearity, hysteresis and repeatability).

**Terminal based linearity:** ± 0.5%

**Repeatability:** better than 0.3%

**Hysteresis:** better than 0.5%

**Indication accuracy:** ± 2% f.s. d.

### Operating influences

**Ambient temperature over the range**

- 25 to + 85°C: better than ±0.3%/10K

**Auxiliary supply:** ±0.9%/10 kPa

**Humidity and barometric pressure:**  
no influence

**kentintrol**

## PHYSICAL SPECIFICATIONS

### Materials

#### Case and by-pass assembly

- Standard: die-cast aluminium alloy (GD Al Si 12) epoxy coated.
- Optional: AISI 316 ss

#### Case cover

- Standard: P.T.B. 20 - glass fibre reinforced polibutylentereftalathe Impact - resistant self-extinguishing polyester with master batch colour beige RAL 1001
- Optional: AISI 316 ss

#### Input bellows

- Standard : brass
- Optional: AISI 316 ss

**Flapper/Nozzle:** AISI 303 ss.

**Cam and Feedback lever:**

AISI 304 ss

**Spring:** AISI 302 ss

**Internal connections :** AISI 316 ss

#### Identification tag

AISI 316 ss permanently mounted - 20 characters max  
(legend to be specified)

### Gauges

Brass with stainless steel case or AISI 316 ss, as specified

### Optional extras

#### Positioner by-pass switch

Externally operated

#### Gauges

Ext. dia 42 mm indication on 260° (66 mm long) scale.

- Supply and Output:  
0 - 4 bar / 0 - 400 kPa / 0-60 psi
- Instrument  
0 - 1,4 bar / 0 - 140 kPa/0-20 psi

**Mounting plate for proprietary actuator (\*) :** as specified

#### Airset with/without gauge

#### Natural gas auxiliary supply

For applications where instrument air is not available

Earth connection must be wired to a good earth point

### Environmental protection

#### Wet and dust-laden atmospheres

The instrument is weatherproof and completely enclosed to IP 55

according to IEC 529

### Pneumatic connections

#### Supply, output and instrument

1/4 in NPT female

#### Natural gas exhaust

1/2 in NPT female

### Net weight

2.5 kg approx. without optional extras

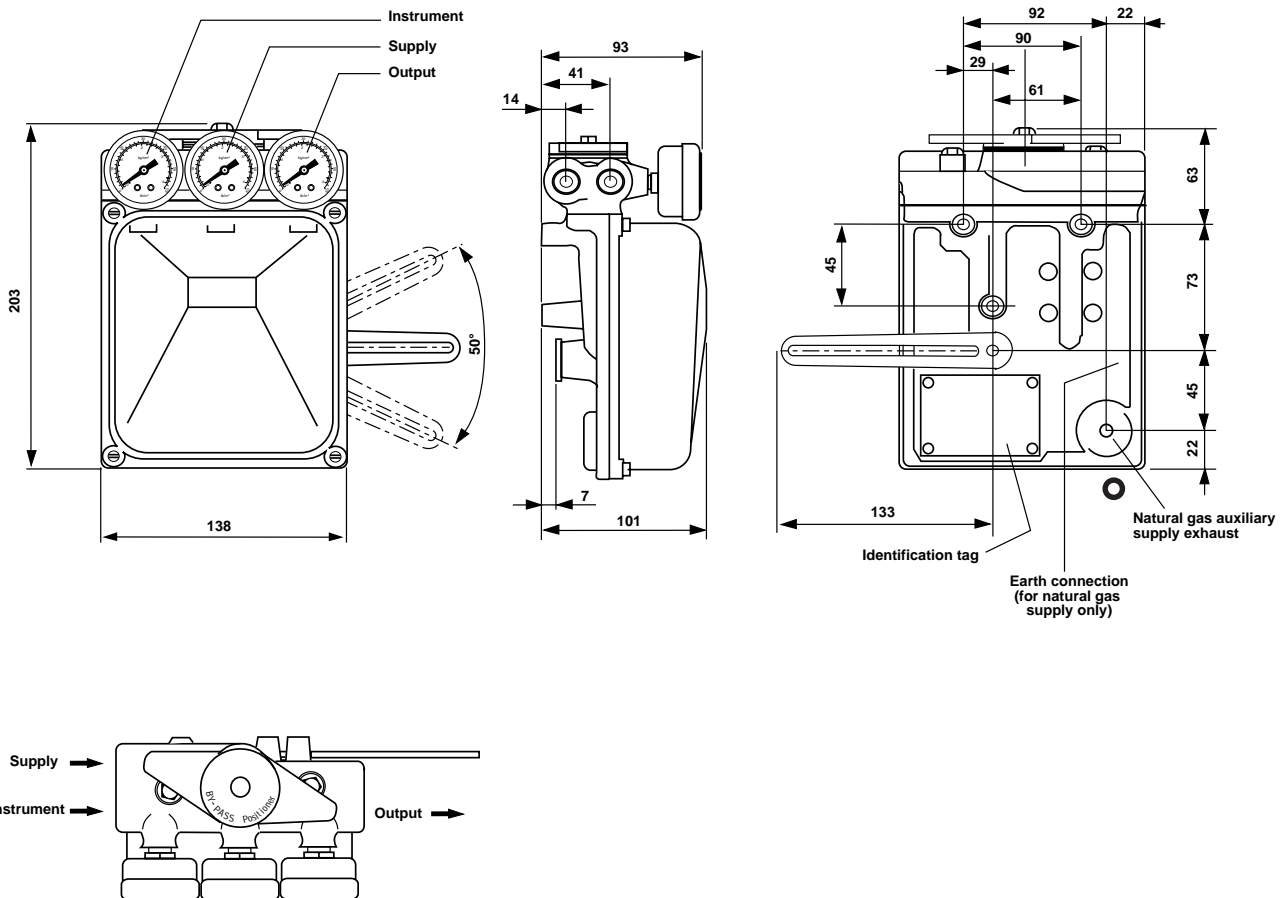
### Packing

Cardboard box

(\*) Standard mounting plate for W-PP positioner is supplied with P-A Series diaphragm actuators

## DIMENSIONS

(not for construction unless certified)

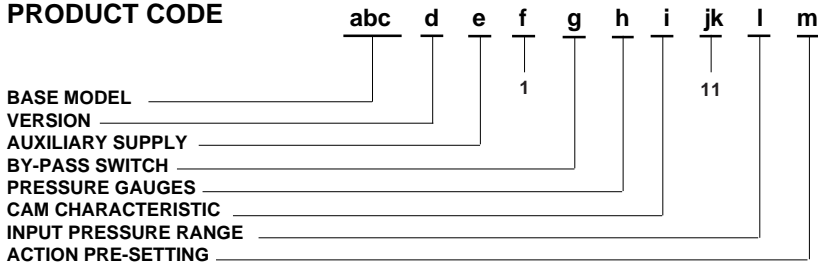


**kentintrol**

# ORDERING INFORMATION

Select one character or set of characters from each category and specify complete catalog number.

## PRODUCT CODE



<b>abc</b>	<b>BASE MODEL</b>	<b>Code</b>
	Pneumatic valve positioner	<b>WPP</b>

<b>d</b>	<b>VERSION</b>		
	<b>Input bellows and relevant parts</b>	<b>Case</b>	<b>Case cover</b>
	Brass	Aluminium	Polyester
	AISI 316 ss	Aluminium	Polyester
	AISI 316 ss	AISI 316 ss	AISI 316 ss
			<b>1</b>
			<b>3</b>
			<b>5</b>

<b>e</b>	<b>AUXILIARY SUPPLY</b>	
	Instrument air	<b>1</b>
	Dry natural gas	<b>5</b>

<b>f</b>		
	Use code	<b>1</b>

<b>g</b>	<b>BY-PASS SWITCH</b> (Not recommended for split range or reverse action applications)	
	Without	<b>1</b>
	With	<b>2</b>

<b>h</b>	<b>PRESSURE GAUGES</b>		
	<b>Input/Output</b>	<b>Supply</b>	<b>Material of gauges</b>
	No / No	No	- -
	Yes / Yes	No	Brass with ss case
	Yes / Yes	Yes	Brass with ss case
	Yes / Yes	No	AISI 316 ss
	Yes / Yes	Yes	AISI 316 ss
			<b>1</b>
			<b>2</b>
			<b>3</b>
			<b>4</b>
			<b>5</b>

<b>i</b>	<b>CAM CHARACTERISTIC</b>	
	Standard	<b>1</b>

<b>jk</b>		
	Use code	<b>11</b>

<b>l</b>	<b>INPUT PRESSURE RANGE</b>	
	3 to 15 psi	<b>1</b>
	20 to 100 kPa	<b>2</b>
	0.2 to 1 bar	<b>3</b>
	6 to 30 psi	<b>5</b>
	40 to 200 kPa	<b>6</b>
	0.4 to 2 bar	<b>7</b>

<b>m</b>	<b>ACTION PRE-SETTING</b> (reversible on site)	
	Direct action (increasing input pressure increases output pressure)	<b>0</b>
	Reverse action (increasing input pressure decreases output pressure)	<b>5</b>

	<b>OPTIONAL EXTRAS</b> (supplied loose)	
	Airset 0 to 4 bar - 400 kPa - 60 lb/in	<b>1899111016</b>
	50 mm gauge 0 to 60 lb/in	<b>1899160003</b>