PAAB WV-131

Pneumatic positioner

PI-Air WV-131

- Robust construction
- Large positioning capacity
- Hysteresis better than 0.5%
- 0-position can be set from outside
- Easily accessible positioning regulator
- Many adaptment options for cylinders

Picture shows positioner PAAB WV-131 mounted on pneumatic cylinder according to ISO 15552

Description

The PAAB WV-131 is an evolution of the popular WV-121 and is developed and manufactured in Säffle, Sweden. The majority of our customers can be found in the steering and regulation sector; thanks to universal interface combined with documented high level of quality, we also have customers in several other branches.

Applications

The pneumatic positioner WV-131 is used for operating Wind boxes, Inlet Guiding Vanes, Dampers, Valves, Throttles etc., and generally where air is used as acting force and the control signal is air.

Construction

WV-131 is a powerful unit with Zero adjustments easy accessible from the outside of the positioner. Many adaptment options are available for cylinders according to ISO 15552.

The positioner WV-131 can be built together with a pneumatic cylinder to a compact unit. The signal from a pneumatic controller is compared to the position of the cylinder rod and by means of a slide valve the pressure in the cylinder is changed so that a balance position is gained between signal and cylinder rod. The actuator is working in both directions, resulting in that all available pressure is used for actuating force.

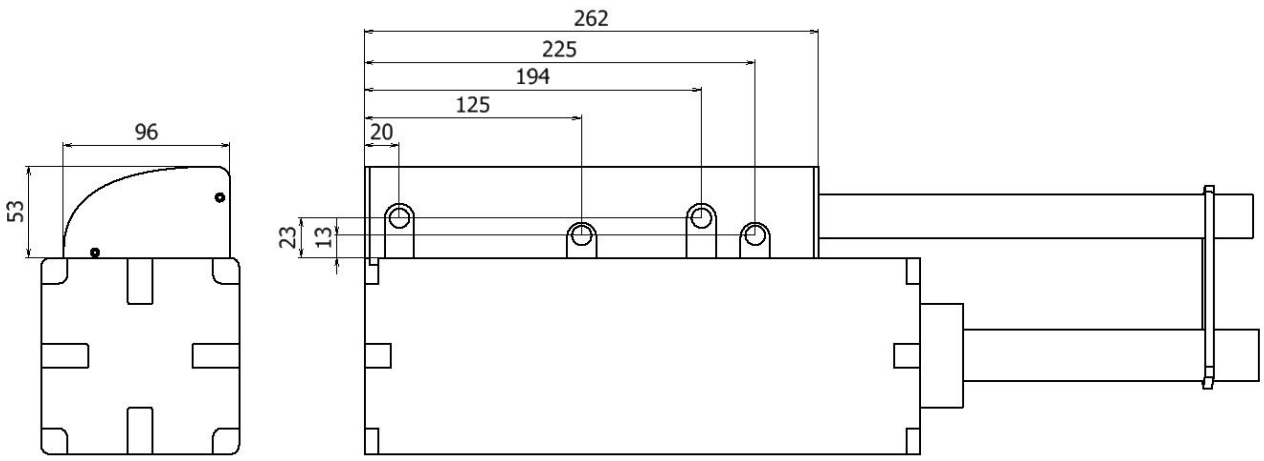
With different mounting kits it is possible to mount the positioner on most types of cylinders available on the market.

Technical specification WV-131

Cylinder diameter	80 mm	100 mm	125 mm	160 mm
Piston speed	26 mm/s	17 mm/s	8 mm/s	2 mm/s
Actuating force at 7 kp/cm2	300 kp	470 kp	730 kp	1200 kp
Piston rod diameter	25 mm	25 mm	25 mm	40 mm
Thread	M20x1,5	M20x1,5	M36x2	M36x2

Stroke length	Min. stroke 150 mm Max. stroke 600 mm, for other lengths consult PAAB Tekno Trading
Air supply	5 - 7 kp/cm2
Air consuption	25 l/min.
Signal range	0,2 - 1,0 kp/cm2 (3-15 psi) Split range (Option)
Function	Linear - increased signal gives an outgoing rod movement
Hystereses	Better than 0,5 %
Working temperature	-20 ... +70 °C, option -20 ... +100 °C
Air connection	R1/8” internal thread
Protection class	IP 54

Dimensions



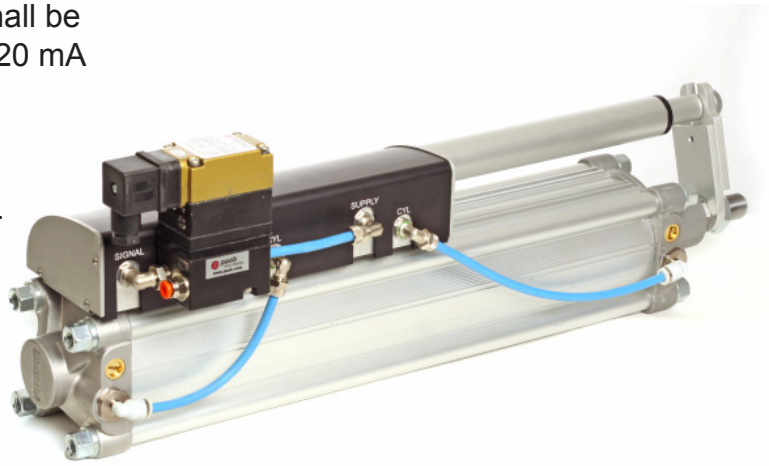
Actuator WV-131 with mounted I/P transducer ATEX-approval as option

Application range

I/P transducers are used when the actuator shall be controlled via an analogue control signal of 4-20 mA or 0-10 Vdc.

I/P transducer TD7800 is completely insensitive to vibrations and mounted position. Thanks to the internal feedback it has very high accuracy.

The I/P transducer i also available with ATEX approval, model TDEI7800.



Design

The supply of compressed air is internally connected between the actuator and the I/P transducer. Zero-point and span are easily accessible from the exterior of the I/P transducer.

Electrical connection	DIN 43650
Air connection	Tube, Ø6/4 mm
Case	Chromat treated aluminium
Trim	Stainless steel, brass, zinc-plated steel
Elastomers	Buna N
Finish	Epoxy powder coating
Position effect	No measurable effect
Supply pressure effect	No measurable effect
Vibration effect	No measurable effect
Temperature effect	+0, 04 % per °C

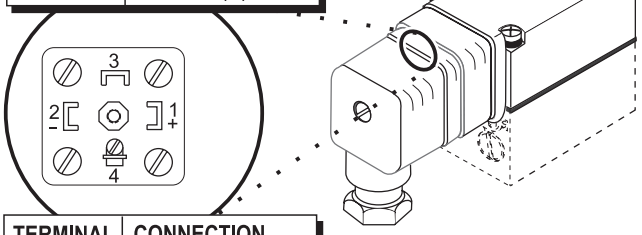
Technical specification

Supply pressure	4…7 bar
Protection class	IP65
ATEX approval	EEx ia IIB T4, II 1G(T4)
Input range	4…20 mA , 0-10 Vdc
Output range	0,2…1 bar
Temperature range	-20…+70° C
Hysteresis and repeatability	<0, 1 % full scale

Electrical connection

DIN Connector (Current Unit)

TERMINAL	CONNECTION
1	Positive (+)
2	Negative (–)
3	Not Used
4	Ground (⏚)



TERMINAL	CONNECTION
1	(+) Signal
2	(–) Supply/Signal
3	(+) Supply
4	(⏚) Ground

DIN Connector (Voltage Unit)

Profile cylinders - ISO 15552
Piston rod cylinder - standard
Ø 32 - 125 mm

Ports: G 1/8 - G 1/2 ● double-acting ● with magnetic piston ● cushioning: pneumatically, adjustable ● piston rod: external thread ● silicone free ● heat resistant

Standards	ISO 15552
Compressed air connection	Internal thread
Working pressure min/max	1.5 bar/10 bar
Ambient temperature min/max	-10° C/+120° C
Medium temperature	-10° C/+120° C
Medium	Compressed air
Max particle size	50 µm
Oil content of compressed air	0 mg/m^3 - 5 mg/m^3
Pressure for determing piston forces	6,3 bar

Materials:

Cylinder tube	Anodized aluminium
Piston rod	Stainless steel
Front cover	Die-cast aluminium
End cover	Die-cast aluminium
Seal	Fluorocaoutchouc
Nut por piston	Galvanized steel
Scraper	Fluorocaoutchouc

Technical Remarks

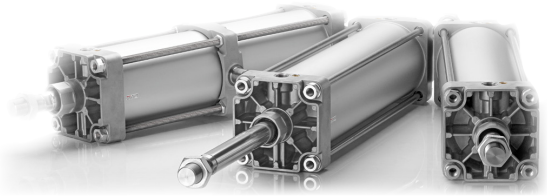
► The pressure dew point must be att least 15° C under ambient and medium temperature and may not exceed 3° C
► The oil content of compressed air must remain constant during the life cycle
► Use only approved oils

Piston ø	mm	32	40	50	63	80
Retracting piston force	N	435	660	1035	1765	2855
Extracting piston force	N	505	790	1235	1960	3165
Cushioning length	mm	11.5	15	17	16.5	19.5
Cushioning energy	J	4.8	9	15	27	54
Weight 0 mm stroke	kg	0.5	0.65	1.06	1.42	2.37
Weight +10 mm stroke	kg	0.022	0.032	0.047	0.054	0.085
Stroke max	mm	1600	1900	2100	2500	2800

Piston ø	mm	100	125
Retracting piston force	N	4635	7220
Extracting piston force	N	4945	7725
Cushioning length	mm	19.5	22
Cushioning energy	J	88	140
Weight 0 mm stroke	kg	3.51	6.72
Weight +10 mm stroke	kg	0.1	0.15
Stroke max	mm	2800	2750

Profile cylinders - ISO 15552
Tie rod cylinder - standard
Ø 160 - 320 mm

Ports: G 3/8 - G 1 ● double-acting ● with magnetic piston ● cushioning: pneumatically, adjustable ● piston rod: external thread ● ATEX optional



Standards	ISO 15552
Compressed air connection	Internal thread
Working pressure min/max	1.5 bar/10 bar
Ambient temperature min/max	-20° C/+80° C
Medium temperature	-20° C/+80° C
Medium	Compressed air
Max particle size	50 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Pressure for determing piston forces	6,3 bar

Materials:

Cylinder tube	Anodized aluminium
Piston rod	Stainless steel
Seal	Acrylonitrile Butadiene Rubber
Nut por piston	Galvanized steel
Scraper	Acrylonitrile Butadiene Rubber
Tie-rods	Stainless steel

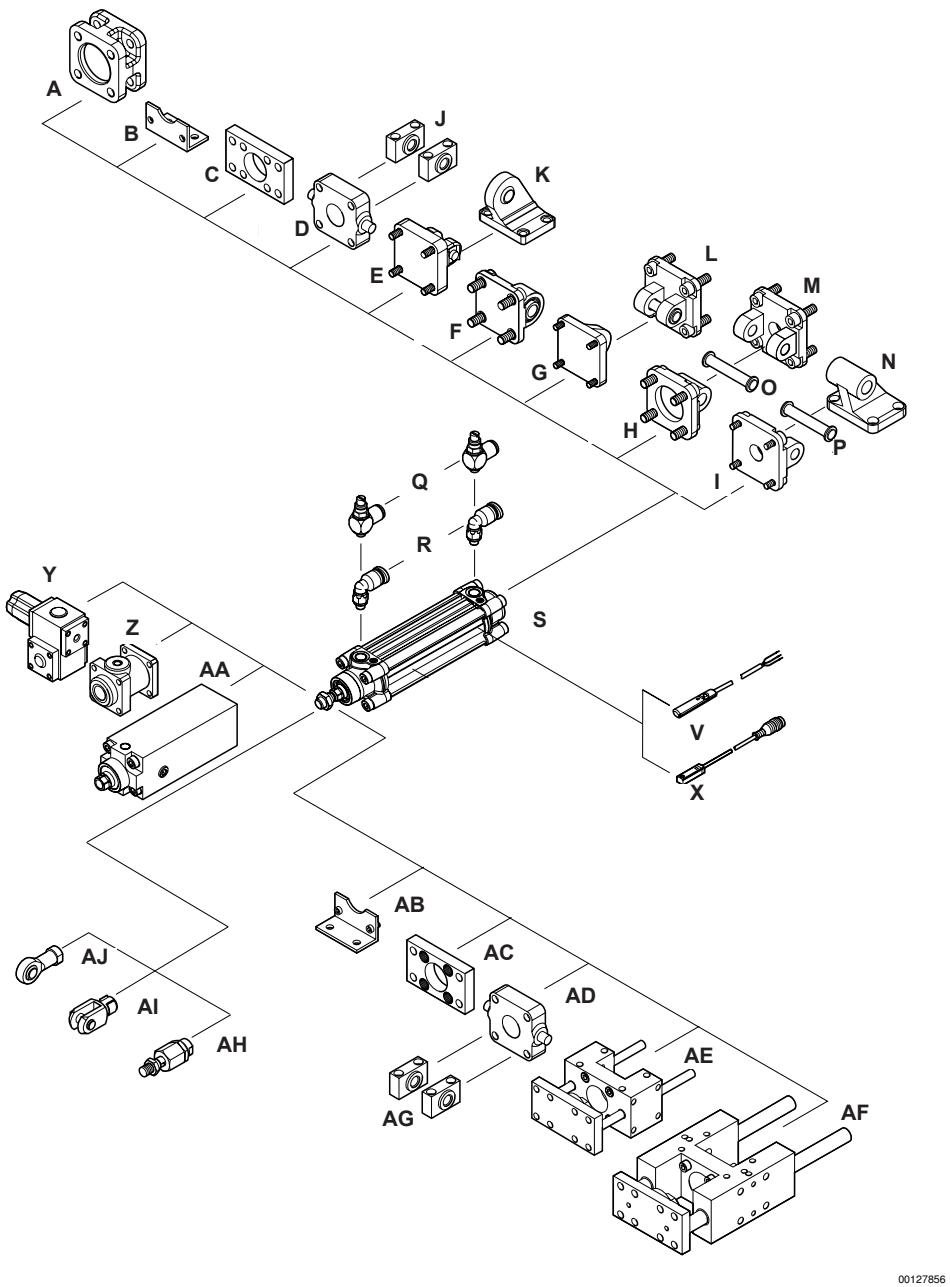
Technical Remarks

► The pressure dew point must be att least 15° C under ambient and medium temperature and may not exceed 3° C
► The oil content of compressed air must remain constant during the life cycle
► Use only approved oils
► Clamping piece for magnetic field sensor necessary
► ATEX ID: II 2G c IIB T4 II 2D c IP65 T125°C X

Piston ø	mm	160	200	250	320
Retracting piston force	N	11650	18640	29124	47778
Extracting piston force	N	12436	19416	30337	49705
Cushioning length	mm	50	50	64	55
Cushioning energy	J	160	170	180	190
Weight 0 mm stroke	kg	11.6	14.5	30	61.4
Weight +10 mm stroke	kg	0.268	0.32	0.38	1.18
Stroke max	mm	2700	2700	2500	2500
Material front cover		Die-cast aluminum	Die-cast aluminum	Aluminum chill casting	Aluminum chill casting

Accessories - ISO 15552
Piston rod cylinder - standard
Tie rod cylinder - standard

Overview drawing



NOTE:
This overview drawing is only for orientation to see where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

Accessories - ISO 15552
Feed back indicators

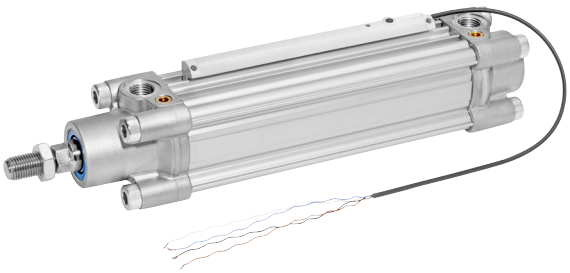
Feed back indicator type SM6-AL - measuring range 107 - 1007 mm

With cable ● Plug, M8x1, 4-pin ● With distance measuring sensor, range 107 - 1007 mm

Ambient temperature min/max	-20° C/+70° C
Protection class	IP65, IP67
Output signal	0-10Vdc, 4-20mA
Quiescent current(without load)	< 35mA
Current signal	4-20mA
Max load(analog current output)	500 ohm
DC operating voltage min/max	15 V - 30V
Residual ripple	< 10%
Sampling interval	1,15 ms
Resolution max measuring range	typ. 0,03% FSR
Repetitive precision max measuring range	typ. 0,06% FSR
Linearity deviation	0,5mm
Sampling speed, partial stroke	1,5 m/s
Sampling speed, full stroke	3 m/s
Display	2 LED
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g/11 ms
Materials:	
Housing	Aluminium
Cable sheath	Polyurethane
End caps	Polyamide

Feed back indicator type SM6 - measuring range 32 - 256 mm

With cable ● Plug, M8x1, 4-pin ● With distance measuring sensor, range 32 - 256 mm

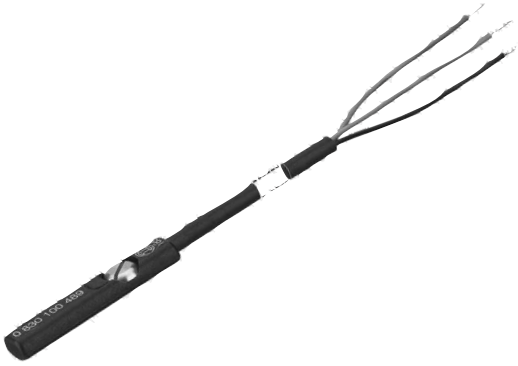


Ambient temperature min/max	-20° C/+70° C
Protection class	IP67
Output signal	0-10Vdc, 4-20mA
Quiescent current(without load)	< 25mA
Current signal	4-20mA
Max load(analog current output)	500 ohm
DC operating voltage min/max	15 V - 30V
Residual ripple	< 10%
Sampling interval	1 ms
Resolution max measuring range	0,05 mm
Repetitive precision max measuring range	0.1 mm
Linearity deviation	0,3mm
Sampling speed	3 m/s
Display	LED, yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g/11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane

Accessories - ISO 15552
Limit switches

Limit switch type ST6

6 mm groove ● with cable ● without wire and ferrule, tin-plated



Ambient temperature min/max	-25° C/+70° C
Protection class	IP69K
Type of contact	Reed, PNP, NPN
Switching point precision	+/- 0,1 mm
Switching capacity	3 W / 3 VA
Vibration resistance	10-55 Hz, 1 mm
Shock resistance	30 g / 11 ms
DC operating voltage min/max	15 V - 30V
Residual ripple	< 10%
Sampling interval	1,15 ms

Materials:

Housing	Polyamide
Cable sheath	Polyurethane