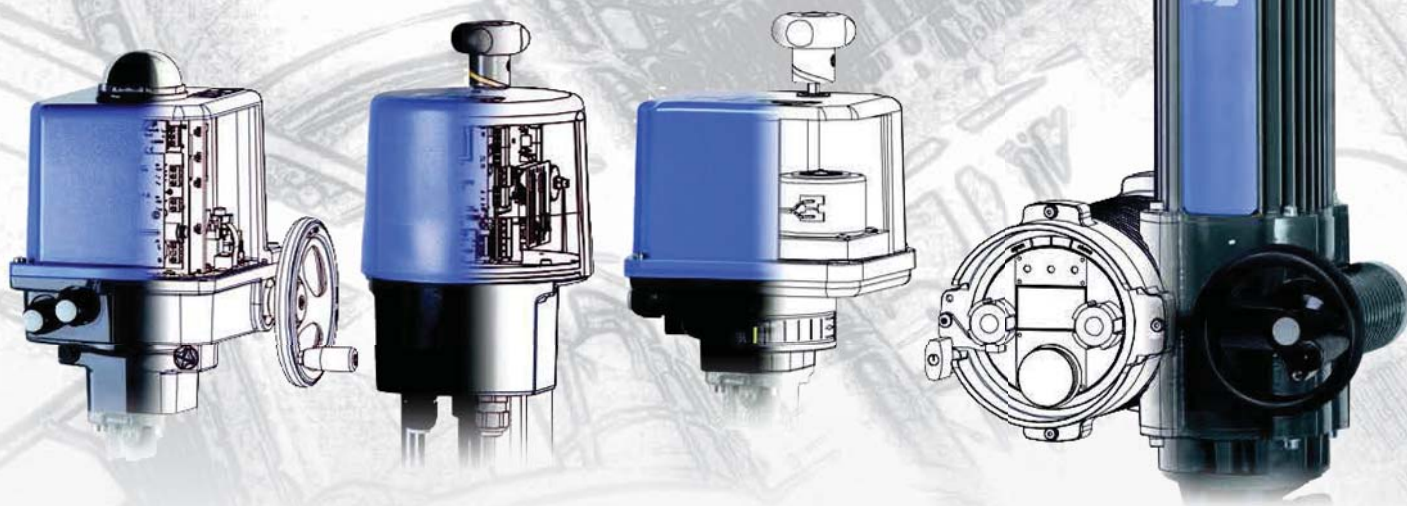


PSQ/PSQ-AMS
Quarter-turn
actuators
50 Nm - 1000 Nm

PSL/PSL-AMS
Linear actuators
1 kN - 25 kN

PSR
Quarter-turn
actuators
25 Nm - 50 Nm

PSM
Programmable
multi-turn actuator
for advanced con-
trol operations,
currently up to 60
Nm



- PSQ52
- PSQ67
- PSQ77
- PSQ102/
-AMS11/-AMS12
- PSQ202/
-AMS11/-AMS12
- PSQ502/-AMS12
- PSQ702/-AMS13
- PSQ1002/-AMS13

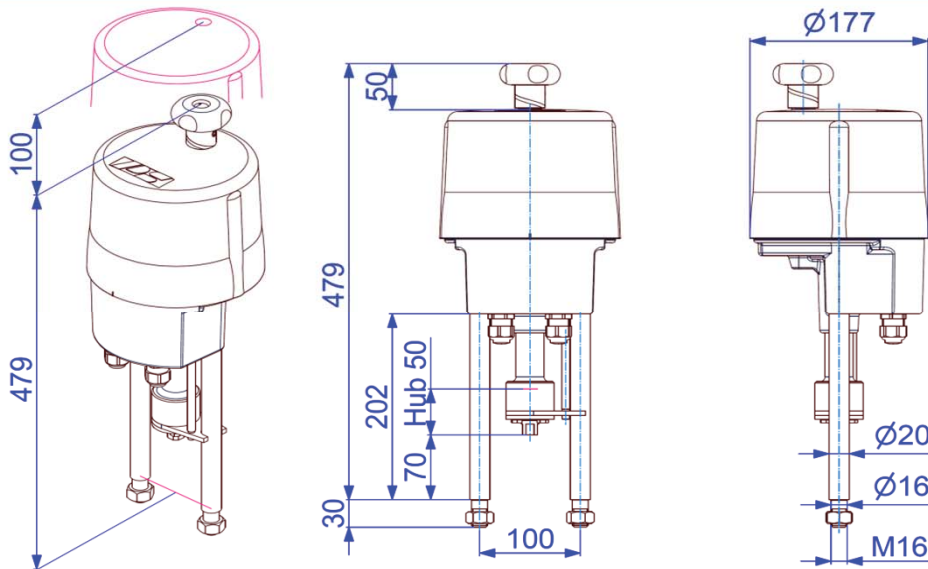
- PSL201
- PSL202/-AMS11
- PSL204/
-AMS11/-AMS12
- PSL208/-AMS11
- PSL210/
-AMS11/-AMS12
- PSL214/-AMS12
- PSL320/-AMS13
- PSL325/-AMS13

- PSR25
- PSR45
- PSR-S30
- PSR-S50

- PSM60

Electric Linear Actuator

PSL 202



Dimensions are valid for connections M8-M12 only!

2kN

Force

0,25 - 1,4 mm/s

Velocity

max. 50 mm

Stroke

Modulating Actuator

Class C

EN 15714-2

Enclosure IP65

EN 60529

Velocity	0,5 mm/s [50Hz] / 0,6 mm/s [60Hz]				0,45 mm/s
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident-No.	5900-404	5900-405	5900-406		•
Frequency [Hz]	50 / 60	50 / 60	50 / 60		-
Rated Current [A]	0,08 / 0,09	0,15 / 0,18	0,75 / 0,87		0,3
max. Power Consumption [VA]	37 / 40	37 / 40	37 / 40		24
Duty Cycle IEC 60034-1	S2 30min / S4 80% ED @ 25°C				dito
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)				dito
Motor Protection	blockable				Multifuse
Velocity	0,25 mm/s [50Hz] / 0,3 mm/s [60Hz]				0,45 mm/s
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident-No.	•	•	•		
Frequency [Hz]	50 / 60	50 / 60	50 / 60		
Rated Current [A]	0,04 / 0,05	0,08 / 0,09	0,38 / 0,43		
max. Power Consumption [VA]	28,2 / 29,4	28,2 / 29,4	28,2 / 29,4		
Duty Cycle IEC 60034-1	S2 30min / S4 80% ED @ 25°C				
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)				
Motor Protection	blockable				
Velocity	1,4 mm/s [50Hz] / 1,7 mm/s [60Hz]				0,45 mm/s
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident-No.	•	•	•	•	•
Frequency [Hz]	50 / 60	50 / 60	50 / 60	50 / 60	-
Rated Current [A]	0,11 / 0,09	0,22 / 0,18	1,05 / 0,88	0,06 / 0,05	1,0
max. Power Consumption [VA]	44 / 40	44 / 40	44 / 40	62 / 54	41
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25°C				
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)				
Motor Protection	Thermo switch				Multifuse

• = available

PSL 202

PSL 202.1

PSL 202.2

Electric Linear Actuator

PSL 204

4,5 kN

Force

0,5 - 1,4 mm/s

Velocity

max. 50 mm

Stroke

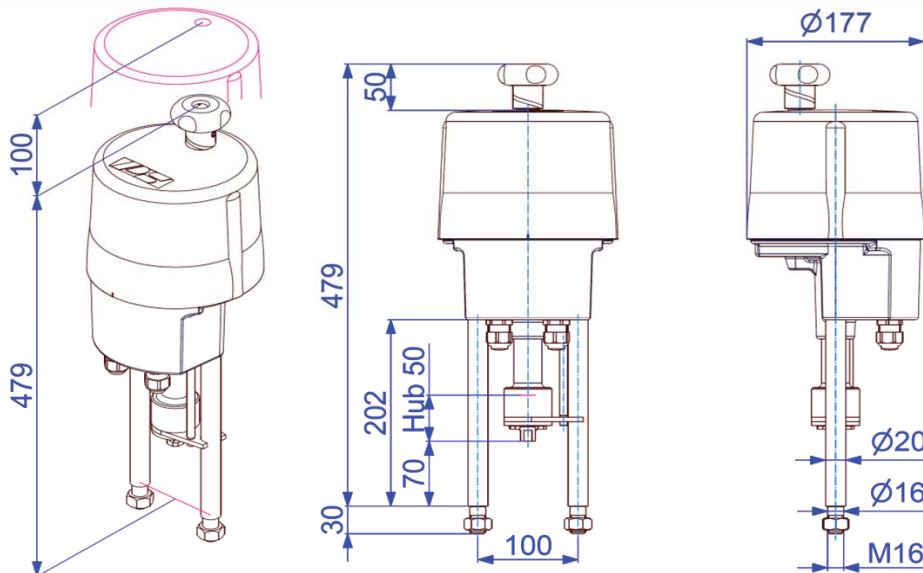
Modulating Actuator

Klasse C

EN 15714-2

Enclosure IP65

EN 60529

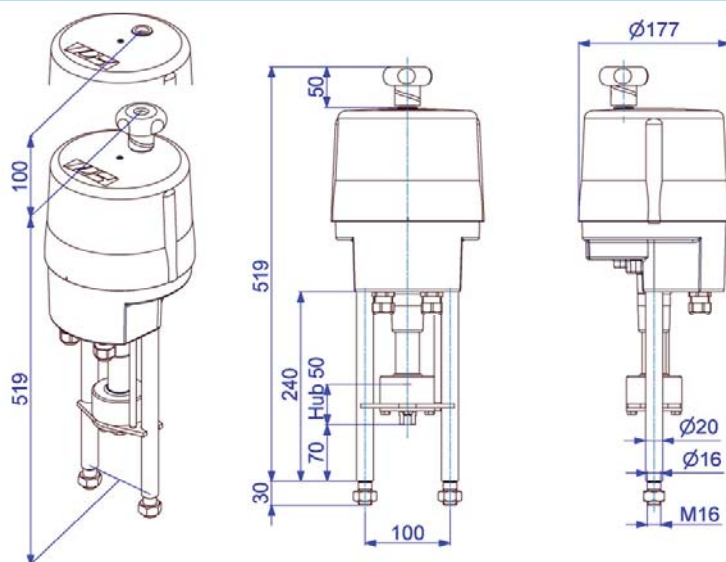


Dimensions are valid for connections M8-M12 only!

Velocity	0,5 mm/s [50Hz] / 0,6 mm/s [60Hz]					PSL 204
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC	
Ident- No.	5900-407	5900-408	5900-409			
Frequency [Hz]	50 / 60	50 / 60	50 / 60			
Rated Current [A]	0,11 / 0,12	0,22 / 0,25	1,0 / 1,2			
max. Power Consumption [VA]	44 / 47	44 / 47	44 / 47			
Duty Cycle IEC 60034-1	S2 30min / S4 80% ED @ 25°C					
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)					
Motor Protection	Thermo switch					
Velocity	1,0 mm/s [50Hz] / 1,2 mm/s [60Hz]				1,00 mm/s	PSL 204.1
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC	
Ident- No.	•	•	•		•	
Frequency [Hz]	50 / 60	50 / 60	50 / 60		-	
Rated Current [A]	0,23 / 0,21	0,46 / 0,42	2,2 / 2,01		1,0	
max. Power Consumption [VA]	72 / 68	72 / 68	72 / 68		41	
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25°C					
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)					
Motor Protection	Thermo switch				dito	
					Multifuse	
Velocity	1,4 mm/s [50Hz] / 1,7 mm/s [60Hz]				24 VDC	PSL 204.2
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC	
Ident- No.	•	•	•	•		
Frequency [Hz]	50 / 60	50 / 60	50 / 60	50 / 60		
Rated Current [A]	0,27 / 0,23	0,54 / 0,45	2,5 / 2,2	0,12 / 0,09		
max. Power Consumption [VA]	81 / 72	81 / 72	81 / 72	102 / 85		
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25°C					
Ambient Temperature [°C]	-20°C to +80°C (S2) / -20°C to +60°C (S4)					
Motor Protection	Thermo switch					

• = available

Electric Linear Actuator



Dimensions are valid for connections M16 only!

PSL 208/210

8/10 kN
Force

0,45 - 1,0 mm/s
Velocity

max. 50 mm
Stroke

Modulating Actuator
Class C
EN 15714-2

Enclosure IP65
EN 60529

Velocity	0,65 mm/s [50Hz] / 0,78 mm/s [60Hz]				0,5 mm/s
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident- No.	•	•	•	•	•
Frequency [Hz]	50 / 60	50 / 60	50 / 60	50 / 60	-
Rated Current [A]	0,22 / 0,23	0,43 / 0,45	2 / 2,3	0,13	1,0
max. Power Consumption [VA]	51 / 53	51 / 53	51 / 53	50	41
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25° C				
Ambient Temperature [°C]	-20 to +80 (S2) / -20 to +60 (S4)				
Motor Protection	Thermo switch				Multifuse

PSL 208

Velocity	1,0 mm/s [50Hz] / 1,2 mm/s [60Hz]				
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident- No.	•	•	•	•	
Frequency [Hz]	50 / 60	50 / 60	50 / 60	51 / 60	
Rated Current [A]	0,26	0,52	2,5	0,2	
max. Power Consumption [VA]	60	60	60	80	
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25° C				
Ambient Temperature [°C]	-20 to +80 (S2) / -20 to +60 (S4)				
Motor Protection	Thermo switch				

PSL 208.1

Velocity	0,45 mm/s [50Hz] / 0,54 mm/s [60Hz]				0,35 mm/s
Power Supply [V]	230 VAC 1~	115 VAC 1~	24 VAC 1~	400 V 3~	24 VDC
Ident- No.	•	•	•		•
Frequency [Hz]	50 / 60	50 / 60	50 / 60		-
Rated Current [A]	0,22 / 0,23	0,43 / 0,45	2 / 2,3		1
max. Power Consumption [VA]	51 / 53	51 / 53	51 / 53		41
Duty Cycle IEC 60034-1	S2 30min / S4 50% ED @ 25° C				dito
Ambient Temperature [°C]	-20 to +80 (S2) / -20 to +60 (S4)				
Motor Protection	Thermo switch				Multifuse

PSL 210

• = available

Potentiometer for position feedback

PD 210

Potentiometer kit for PSL Mod.4

Position Transmitter for PSL/PSQ/PSR

High Quality Potentiometer
"Made in Switzerland"

200.000
Movements

Excellent linearity
 $\pm 0.4\%$

Required for accessory
PSPT and PSAP



Scope of delivery

Potentiometer
Pinion*
Cable
Mounting kit (lever, spring, screw, nut, washer)

Required potentiometer ----- Used accessory/ option	PD210 1 x 1k Ω	PD2 210 2 x 1k Ω	PD210 100 Ω , 200 Ω , 500 Ω , or 2k Ω	Options
Position Transmitter PSPT02 or PSPT03	x			
Positioner PSAP.2A	x			
Positioner PSAP.3	x			
Position feedback (connection terminal)	x		x	
Position feedback (connection terminal) and using PSAP or PSPT at the same time		x		
Using PSPT and PSAP.2A at the same time		x		

Position Feedback 2-wire-type	PSPT02	PSPT02
Output Signal	4-20 mA	
Impedance	<6000 Ω	
Ambient Temperature	-20°C to +80°C	
Ident. No.	1000-096	

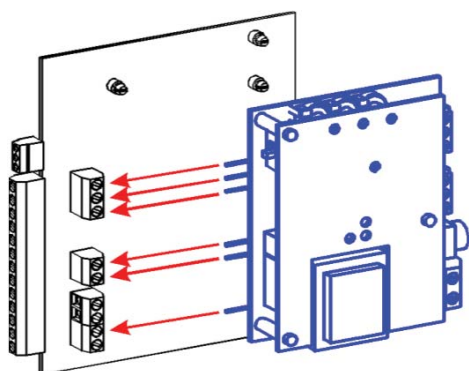
Position Feedback 3-wire-type	PSPT03	PSPT03
Output Signal	0(4) - 20 mA	
Impedance	<6000 Ω	
Ambient Temperature	-20°C to +80°C	
Ident. No.	1000-097	

General TECHNICAL DATA

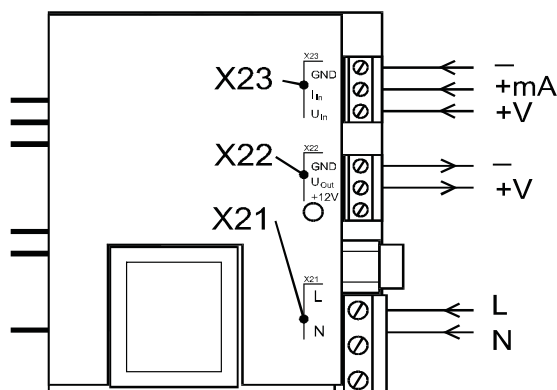
Power Supply:	230/115/24 VAC 50/60 Hz
Max. Switching Current:	1,0 A~ Standard 5,0 A~ for special type "-R" (required for actuators with 24VAC Supply and a rated current more than 1A)
Input from Actuator:	Potentiometer 1000 Ω ¹⁾
Impedance:	I in: 100 Ω / U in: 50 k Ω U out: > 10 k Ω
Sensitivity Range:	$\pm 0,5\%$ to $\pm 5\%$
Allowed Ambient Temperature:	-20°C to +60°C (Actuator ambient temperature)



Installation



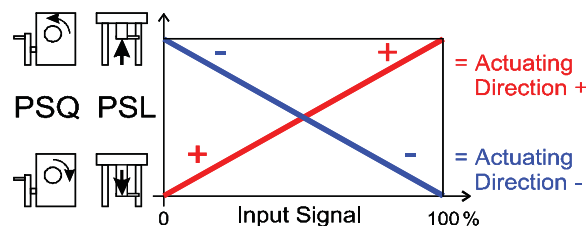
Wiring



Settings

Actuating Direction:
The correlation between input signal and direction of actuator travel has to be set by a switch.

Example: Actuating Direction "+": 4 mA = CLOSE / 20 mA = OPEN
Actuating Direction "-": 20 mA = CLOSE / 4 mA = OPEN



Internal Amplification:

The actual valve position is transmitted to the positioner card via a 1000 W-potentiometer 1).
At actuators PSL, the number of teeth of the potentiometer pinion has to be selected to meet the valve stroke in mm.
To calibrate the potentiometer travel to the actual valve travel, internal amplification of the positioner has to be adjusted.
This is possible for 50% to 100% of the potentiometer travel.

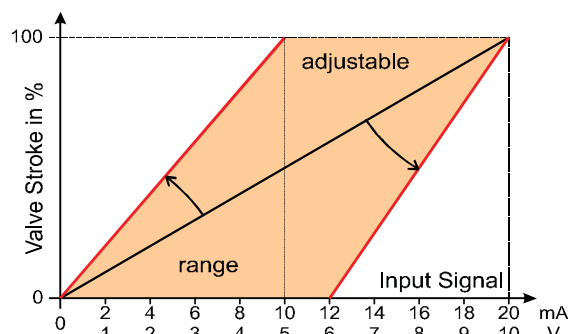
Split Range:

Split Range allows to correlate the valve travel to a portion of the full input signal range. E.g. input signal range 4-12 mA or 12-20 mA.

Safety Function (only PSAP.3):

In the case of failure of the input signal, the actuator will travel to a preadjusted safety position. These positions are selectable by a jumper:

- Open valve	- Stop actuator	- Close valve
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Positioner Types and TECHNICAL DATA

	PSAP.2A	PSAP.2A-R	PSAP.3	PSAP.3-R
Input Signal Range	0(4)-20mA / 0(2)-10V		4-20mA / 2-10V	
Output Signal Range	0-10V		0(4)-20mA / 0-10V	
Safety Function	-		Yes	
Power Supply	230VAC	115VAC	24VAC	230VAC
Ident. - Nr.	1000-047	1000-051	1000-061	1000-059
Ident. - Nr. "- R"			1000-055	
				1000-093
				1000-327
				1000-336

PSL/AMS is the smart actuator solution of PS Automation GmbH for linear actuators up to 25 kN thrust. PSL/AMS includes enhanced electronics with an embedded micro-controller with flash memory that controls and monitors the entire valve function.

Closing tight and recognizing disturbances

PSL/AMS comprises positioner and active feedback function, automatic commissioning as well as comprehensive diagnostics functions. A special logic ensures that the valve is closed tightly even when adverse control signals are received. Precise tracking of the actual position ensures that messy valve seats can be recognized.

Speed-controlled actuation

The output is generated by a 24 VDC motor, which is controlled by the electronics via pulse width modulation (PWM), i.e. it is operated at variable speed. Absolute-coded feedback is done with a precision potentiometer.

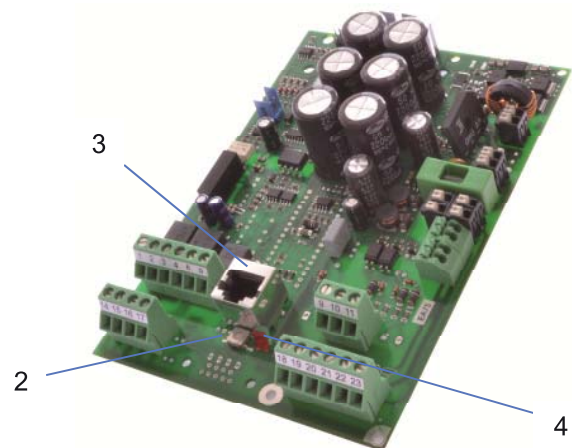
Parameterisation by Software

Our concept of monitoring current and voltage permits adaptation of the actuator functions to the process conditions in many ways. Via our communication software PSCS it is possible to adjust valve-specific details, actuation thrust/torque and speed, to configure alerts, and choose the valve curve between linear, logarithmic and freely programmable.

PSL/AMS is more than an actuator with integrated positioner. The standard set already comes with many intelligent functions. Modular accessories provide additional benefits.

- 1 The mechanical part of the PSL/AMS consists of the components of PSL standard actuators with their well-proven components, namely a robust spur gear with trapezoidal thread. All actuators are lubricated for life and therefore maintenance-free.
- 2 Automatic commissioning is started in a userfriendly way by a pushbutton.
- 3 Via our communication software PSCS it is possible to adjust valve-specific details, actuation thrust/torque and speed, to configure alerts, and to do a freely programmable valve curve correction.

- 4 All operating conditions or fault functions are signalled by two LEDs and allow a quick status control at any time.



Optional Accessories

- 5 The local control PSC.2 allows onsite operation and can also be used to set most of the actuator-specific values. The display of actual position, messages and parameters of the actuator is in full text.
- 6 The fail-safe device PSCP is based on super-capacitors, so that a safety position in case of loss of power supply can be freely defined without any mechanical alterations to the actuator.
- 7 Various field bus interfaces or a Bluetooth module can be supplied as an option.



We care for actuation.

Technical Data

		PSL202 AMS11	PSL204 AMS11 AMS12	PSL208 AMS11	PSL210 AMS11 AMS12	PSL214 AMS12	PSL320 PSL325 AMS13	
Thrust	kN	2,3	4,5	8	10	14	25	
	lb _f	520	1000	1800	2250	3150	5600	
Stroke	mm	50	50	50 opt. 65	50 opt. 65	50 opt. 65	60 100 (24V)	
Pillar distance	mm	100	100	100	100	100	155	
Manual override		Handwheel knob						Handwheel
Handwheel dia.	mm	59	59	59	59	59	100	
Weight approx.	kg	7	7	10	10	12	20	
Velocity (independent of supply freq.)	mm/s	0,45 - 0,9	0,45 - 0,9	0,3 - 0,7	0,2 - 0,35	0,65 - 1,3	0,2 - 0,4	
			2,25 - 4,5		0,85 - 1,7			
Power supply		24 V, 115 V, 230 V AC 50/60Hz, 24 VDC						
Motor protection		electronic motor current monitoring with safety cut -off						
Duty cycle as per IEC 60034-1,8		S2 30min S4 50% ED a 25°C						
Permitted ambient temperature		-20 to +60°C						
Mounting position		Any position, except cover pointing downwards						
Conduit entries M20x1,5		2 pcs.					3 pcs.	
Control options (standard)		Analogue signal, split range, 24V binary						
Input and Output signals (standard)		0 (4) - 20 mA, 0 (2) - 10 V						
Enclosure acc. to EN 60529		IP 65 ¹⁾ IP 67 for stroke 65 mm (PSL208, PSL210, PSL214)					IP 65	
Cover material		Polycarbonat Cast aluminium for stroke 65 mm or IP 67 version					Deep drawn steel	
Gear case material		High quality aluminium die casting						
Pillar and feedback rod material		Stainless steel DIN 1.4104						

Remarks:

1) Upgradable to IP67

[illegible]

PSL/AMS linear actuators from PS Automation are mature and proven, robust and completely maintenance free.

Countless variations are possible and all of them are lubricated for life.

With a PSL/AMS from PS Automation, the specialist for valve actuators, the only costs to consider are acquisition and operating costs. There are no maintenance costs.