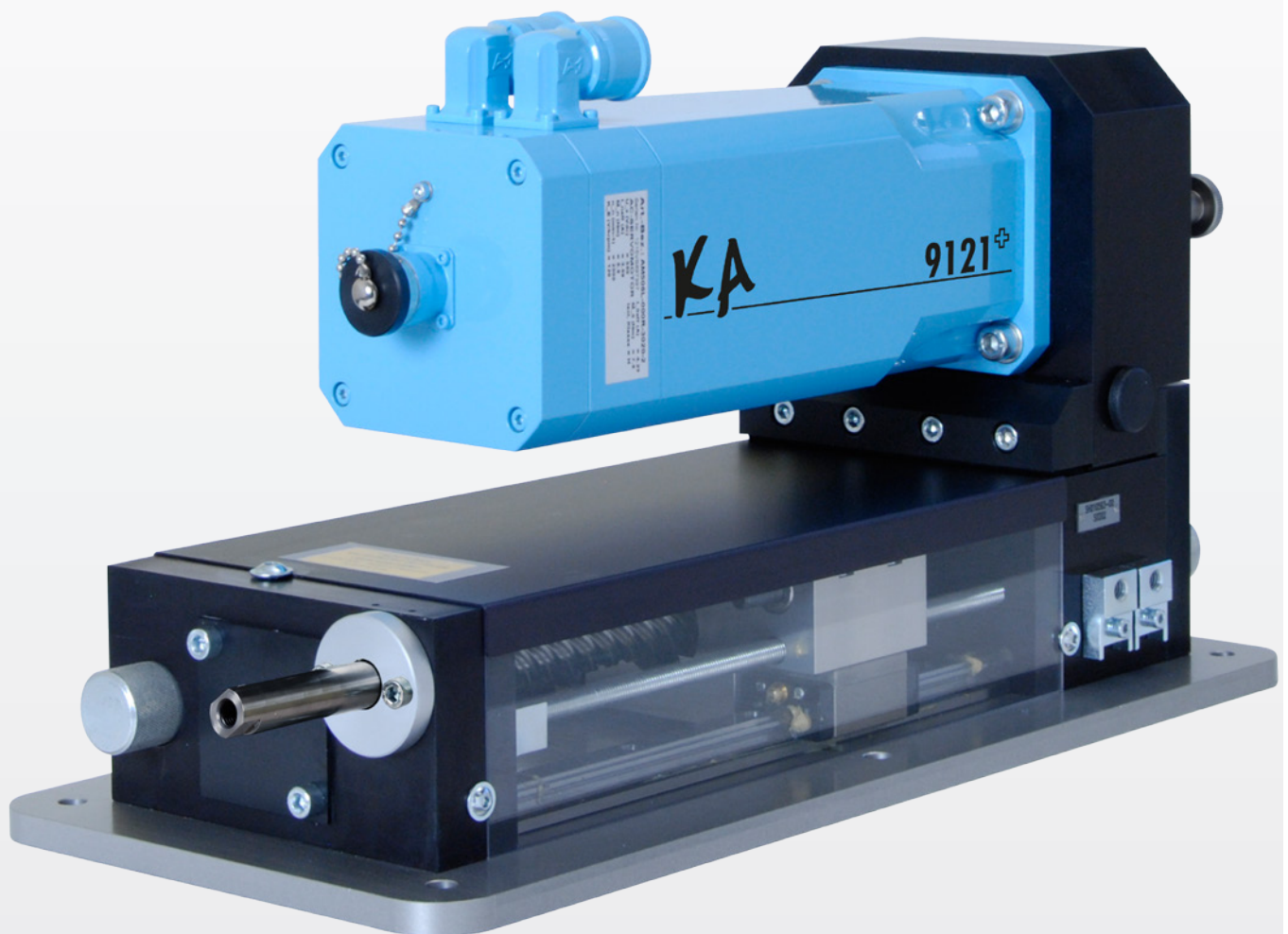


Brake Testing
Brake Emission Testing

Automatic Clutch KA9121⁺

Versatile regulation unit for operation of
vehicle pedals or clutch cylinders



Automatic Clutch KA9121⁺

The automatic clutch KA9121⁺ is a universal positioning device for the actuation of vehicle pedals or hydraulic cylinders. The automatic clutch KA9121⁺ is a high-precision positioning system for linear motions. Modern power

semiconductors (IGBT) and the consequent use of micro-processors result in a compact structure of the control- and power unit. By using an absolute travel measuring system no reference drive is necessary for starting.

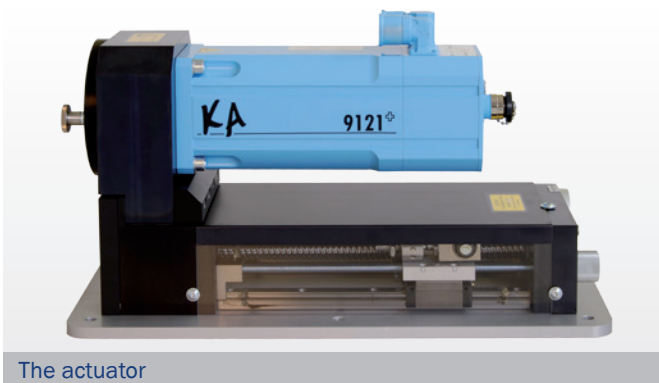


Main features

- Max. shifting travel: 180mm
- Max. shifting force: 1500N (2000N temporarily)
- Max. shifting speed: 0.64m/s
- Resolution and repetitive accuracy: $\leq \pm 0.05\text{mm}$
- Absolute position measuring
- Push and pull operation by 2 connection points
- Limitation of shifting force
- Extended Safety functions:
2-channel emergency stop and STO function
Optional Safely-Limited Speed (SLS)

Benefits and advantages

- Maintenance-free, convection cooled servo-controlled drive
- Mechanical coupling via FLEXBALL[®] cable or steel rod
- Adjustable mechanical stops
- Automatic set-point standardization
- High positioning accuracy
- Use in stand-alone mode possible
- Standard delivery scope includes selectable language modules in English, French or German



The actuator

The actuator

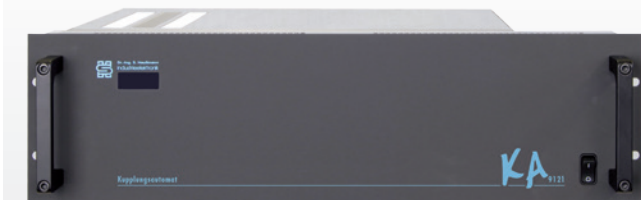
The actuator of the automatic clutch KA9121+ includes a brushless servomotor and an exact linear guide mechanism.



Version with front panel

Version with front panel

The power- and control electronics are mounted in a 3RU-19"-rack. The operation is supported by a large LC-display and a suitable keyboard at the front panel. The rack design allows e.g. the installation even in a 600mm wide switch cabinet.



Version with status code display

Version with status code display

A 3-digit status code display indicates every operating condition. The device is operated and set up through the test bench control or a Miniterminal (MT1). Connecting an external hand terminal (HT9201) allows the use of all operating and diagnostic functions.

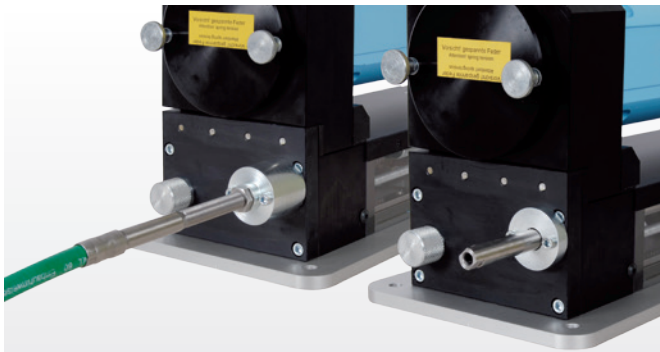


LC-display with suitable keyboard

The operation

Operation and setting-up are supported by a large LC-display with background lighting and a suitable keyboard at the front panel. The control panel and the converter rack can be placed separately at different locations.

Options and accessories for the Automatic Clutch KA9121⁺



Flexball® cable or steel rod

Flexball® cable or steel rod

The variable mechanical design offers a two-sided, mirror-symmetrical coupling possibility for the FLEXBALL® cable or the steel rod.



Force measuring

Force measuring

The optional force measuring equipment is sensing the actuation force directly at the coupling point and makes it available as analog voltage.



Connection for Miniterminal MT1

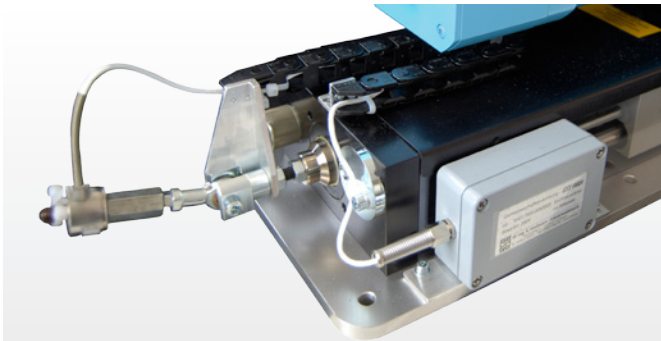
Connection for Miniterminal MT1

The Miniterminal MT1 which is available as an accessory can be plugged directly to the actuator without additional cabling. This allows the operator a direct view to the actuator or coupling point for all setting work.

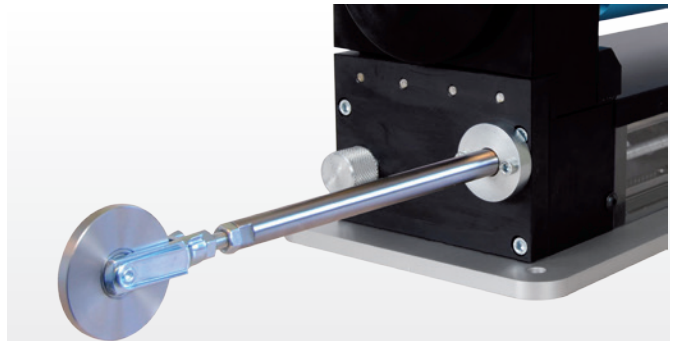
More options

- Maximum force input and actual value output of force (each potential free)
- Fieldbus connections via external modules
- CAN-Interface
- Version for high-speed operation up to 4 m/s

Accessories



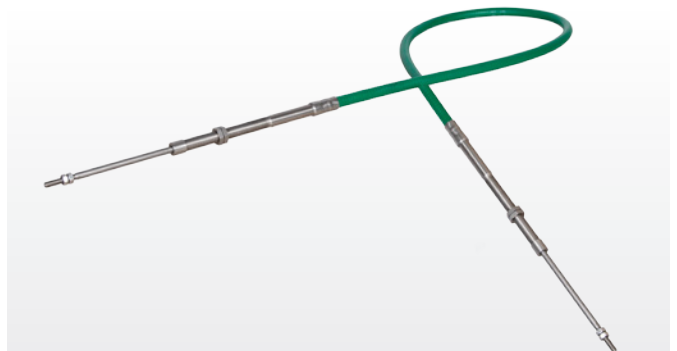
KA9121+ with central rod, adjustment force 2500 N



Steel rod with roller actuation



Hand terminal HT9201



Flexball® cable type DZ60



One hand grease press inclusive grease filling



Miniterminal MT1

Data sheet for the Automatic Clutch KA9121⁺

Actuator (Standard version)

Linear positioning unit with integrated brushless, convection cooled servomotor, absolute travel measuring system.			
Dimensions:	450 mm x 200 mm x 231 mm (L x W x H)		
Weight:	22 kg		
Protection:	IP54		
Shifting travel:	180 mm		
Shifting force ($T_a \leq 70^\circ\text{C}$):	1500N (static) 2000N (temporarily: 60 sec./25% duty cycle)		
Shifting force ($T_a \leq 40^\circ\text{C}$):	2000N (static)		
Shifting force with FLEXBALL® cable DZ60, 1.5m	Travel	Push forces	Pull forces
	160 mm	500 N	1250 N
	180 mm	350 N	850 N
Shifting speed:	0.64m/s max.		
Resolution (actual travel value) and repetitive accuracy:	<±0.05mm		

Temperature range actuator

Admissible range for the standard version:	-20 °C up to max. +70 °C (No condensing humidity allowed)
Option:	-40 °C up to max. +70 °C

Electronics

Control and power unit as a 3RU-19" rack. IGBT-converter for the servomotor. LC-display and keyboard at the front panel for operation of the KA9121 ⁺ . The front panel of the power and control panel is removable.	
Dimensions:	482.6 mm x 307 mm x 3RU (L x W (without plugs) x H)
Weight:	13kg
Protection:	IP20

Temperature range electronics

Admissible range:	0 °C up to max. +40 °C (No condensing humidity allowed)
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Software

The standard software for operating the KA9121+ has the following essential features:	
- Operation of the KA9121+ with	- Analog interface - Binary inputs - Hand terminal - Serial interface (RS232) - Option: CAN (potential free)
- Manual or automatic set-up	
- Max. 32 parameter sets can be stored for the modes of operation accelerator pedal, selector lever or pedal set-point adjuster	
- Diagnostic functions	
- German, English or French language module	

Interfaces to peripheral units

Binary signals	
Relay contact outputs:	50 V / 100 mA
Optocoupler inputs:	15 V up to 24 V
Plug-in connection:	Phoenix MC 1.5/16-STF-3.81
Analog interfaces	
Analog outputs:	0 up to ± 10 V / max. 5 mA
Analog inputs:	0 up to 10 V / > 20 k Ω (each potential free)
Plug-in connection:	Phoenix MC 1.5/16-STF-3.81
Serial interfaces	
Type:	RS232 (potential free)
Plug-in connection:	D-Sub-9
External connection for hand terminal	
Type:	RS422
Plug-in connection:	D-Sub-15
Connection for Miniterminal MT1	
Plug-in connection:	Push-Pull

Power supply

Rated voltage:	3/PE AC 380 V ... 480 V ± 10 %
Frequency:	50 ... 60 Hz
Installed load:	1.4 kVA
Plug-in connection:	6-poles connector pair

Dimensions for the Automatic Clutch KA9121⁺



Order information for the Automatic Clutch KA9121⁺

1. Automatic Clutch KA9121⁺

Order information	
1.1	Automatic clutch type KA9121 ⁺ with control panel, standard version without inserts, incl. all connector pairs and technical manual
1.2	Automatic clutch type KA9121 ⁺ with status code display, standard version without inserts, incl. all connector pairs and technical manual

2. Options:

Order information	
2.1	Extended temperature range for the standard version actuator –40 °C up to +70 °C
2.2	Force measuring with potential free analog output of actual force
2.3	Input maximum force and output value for force (each analog and potential free)
2.4	Field bus connection Profibus (external module)
2.5	Field bus connection CAN
2.6	Foreign language module

3. Accessories:

Order information	
3.1	Steel rod with insert for version without force measuring, 180 mm travel
3.2	Steel rod with insert for version with force measuring, 180 mm travel
3.3	FLEXBALL [®] cable insert for version without force measuring
3.4	FLEXBALL [®] cable insert for version with force measurement
3.5	FLEXBALL [®] cable type DZ60, 1.5 m, 180 mm travel
3.6	FLEXBALL [®] cable type DZ60, customized length
3.7	Miniterminal MT1 incl. connection cable, 1.5 m and connector
3.8	Hand terminal HT9201 incl. connection cable, 3 m and connector
3.9	One hand grease press. incl. grease filling (370 g) for the extended temperature range standard temperature –40 °C ... +70 °C
3.10	Grease refill tube (370 g) for the temperature range –40 °C up to +70 °C
3.11	Spare filter insert for control panel

* FLEXBALL[®] is a registered trademark of the Company DURA Deutschland GmbH

4. Cables:

Order information	
4.1	Connection cable set between control rack and actuator, length 15 m
4.2	Connection cable set between control rack and actuator, length 20 m
4.3	Connection cable set between control rack and actuator, customized length

5. Service:

Order information	
5.1	Installation and commissioning of KA9121+ into electronic cabinet (electronic cabinet not included)



Dr.-Ing. S. Haußmann Industrieelektronik
Ingenieurbüro Dr.-Ing. S. Haußmann

Beutwang 4
72622 Nürtingen
Germany

Phone: +49 7022 9565-0
Fax: +49 7022 9565-501

sales@sh-el.de
www.sh-el.de



QM-System
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