Hand in hand for tomorrow

SCHUNK®

Product data sheet

Compensation unit AGM-Z

Precise. Reliable. Modular.

Compensation unit AGM-Z

Modular compensation unit with z-axis flexibility for the compensation of inaccuracies and tolerances as well as differences in height. As part of the AGM product family, the AGM-Z can be flexibly combined with the AGM-XY and AGM-W and therefore always offers the right compensation behavior for a wide range of applications.

Field of application

For handling tasks such as automated machine loading, assembly tasks such as pressing in components or positioning components for joining tasks. For use with magnetic grippers, where reliable compensating is required. Compensation units can be used on robots as well as in stationary applications.

Advantages – Your benefits

Highest bearing load capacity enables the handling of high loads and moments thanks to the ball guide

Maximum flexibility thanks to the modularity of the AGM product family, combinations with XY and W are possible

Locking for switching the unit rigidly in a defined, extended or retracted position

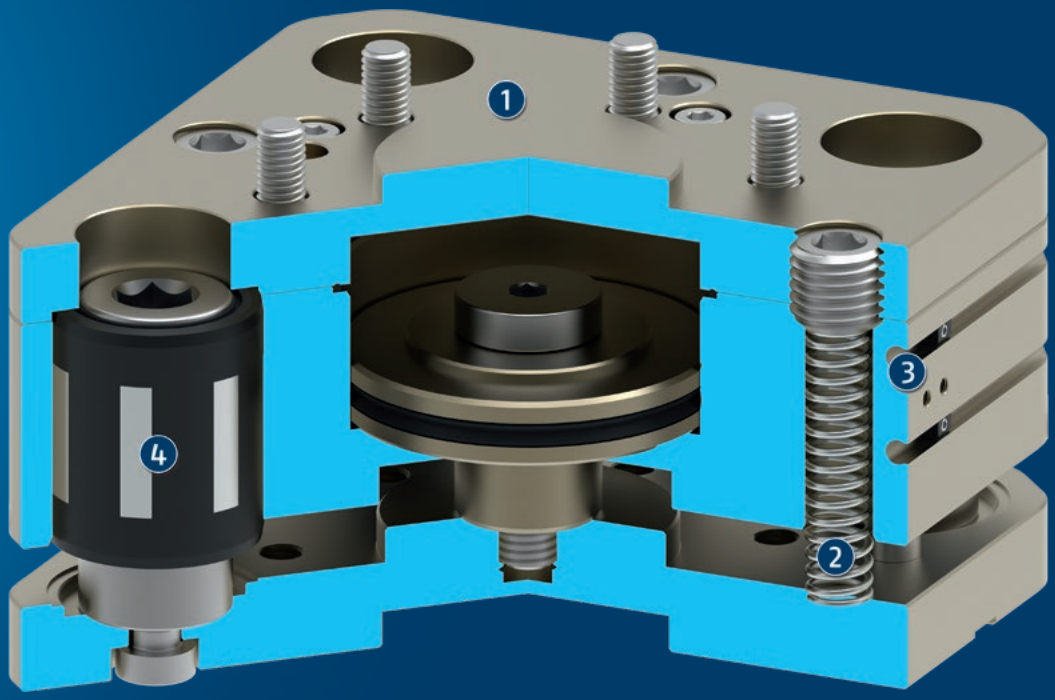
Easily adaptable spring forces by manually reducing the springs

Increased process stability by various sensing options via magnetic switches or inductive proximity switches

Sizes	Handling weight	Compensation Z
Quantity: 8	2.2 .. 275 kg	4 .. 20 mm

Functional description

The AGM-Z offers compensation in the z-axis, for example for removal and storage processes in any spatial orientation. Robust ball guides ensure maximum bearing load capacity when handling high loads and moments. The stiffness of the integrated pressure springs can be adjusted for optimal contact pressure forces during storage. This can be increased by additional actuation of the pneumatic cylinder. The modular and compact design enables combinations to be made, and saves installation height. The retracted and extended positions are monitored by magnetic switches or inductive proximity switches.



① **ISO mounting pattern**
on the robot and tool side, for easy mounting on most types of robots without needing an additional adapter plate

② **Pressure springs**
for adjustable clamping forces during storage

③ **Monitoring groove**
Monitoring of the retracted and extended status

④ **Ball guides**
enables great maximum moments at minimum size

General notes about the series

Guidance system: Ball guides

Monitoring: via magnetic switch or inductive proximity sensor

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Housing: hard anodized aluminum alloy, functional parts made of hardened steel

Scope of delivery: Compensation unit in the ordered variant, elements for mechanical connection and safety information. Product-specific instructions can be downloaded at schunk.com/downloads-manuals.

Warranty: 24 months

Harsh environmental conditions: Please note that use under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service life of the units, and we will not take over any warranty. However, in many cases we can find a solution. Please contact us for assistance.

Handling weight: is the weight of the total load attached to the flange. When designing, the permissible forces and moments have to be paid attention to. Please note that exceeding the recommended handling weight will shorten the lifespan.

Application example

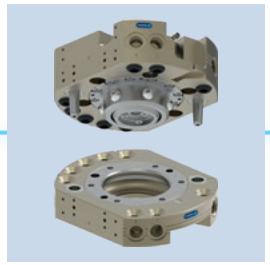
During automated loading and unloading of machine tools, compensation units can effectively compensate for tolerances.

1 Combined compensation unit AGM-XYZ

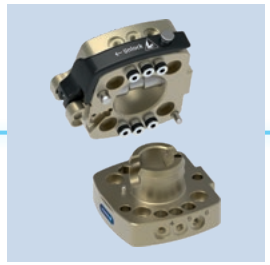
2 Universal gripper EGU

SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Tool changer pneumatic



Manual tool changer

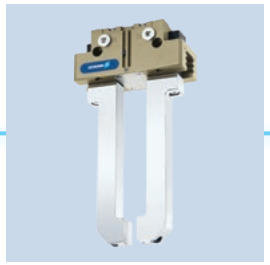
AGM-XY

AGM-W

Inductive proximity switch

Electric magnetic gripper

Universal gripper



Universal gripper

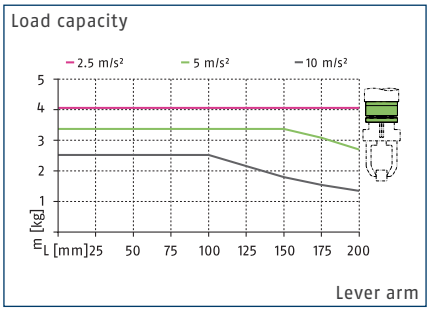
Magnetic switches

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

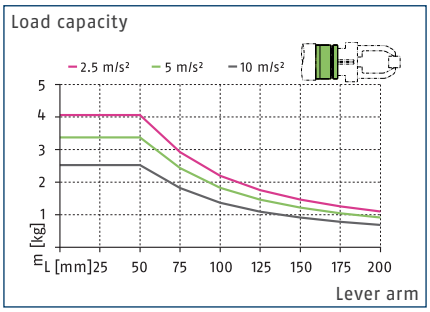
AGM-Z 031

Compensation unit

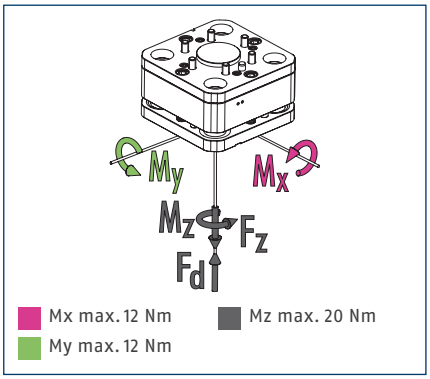
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



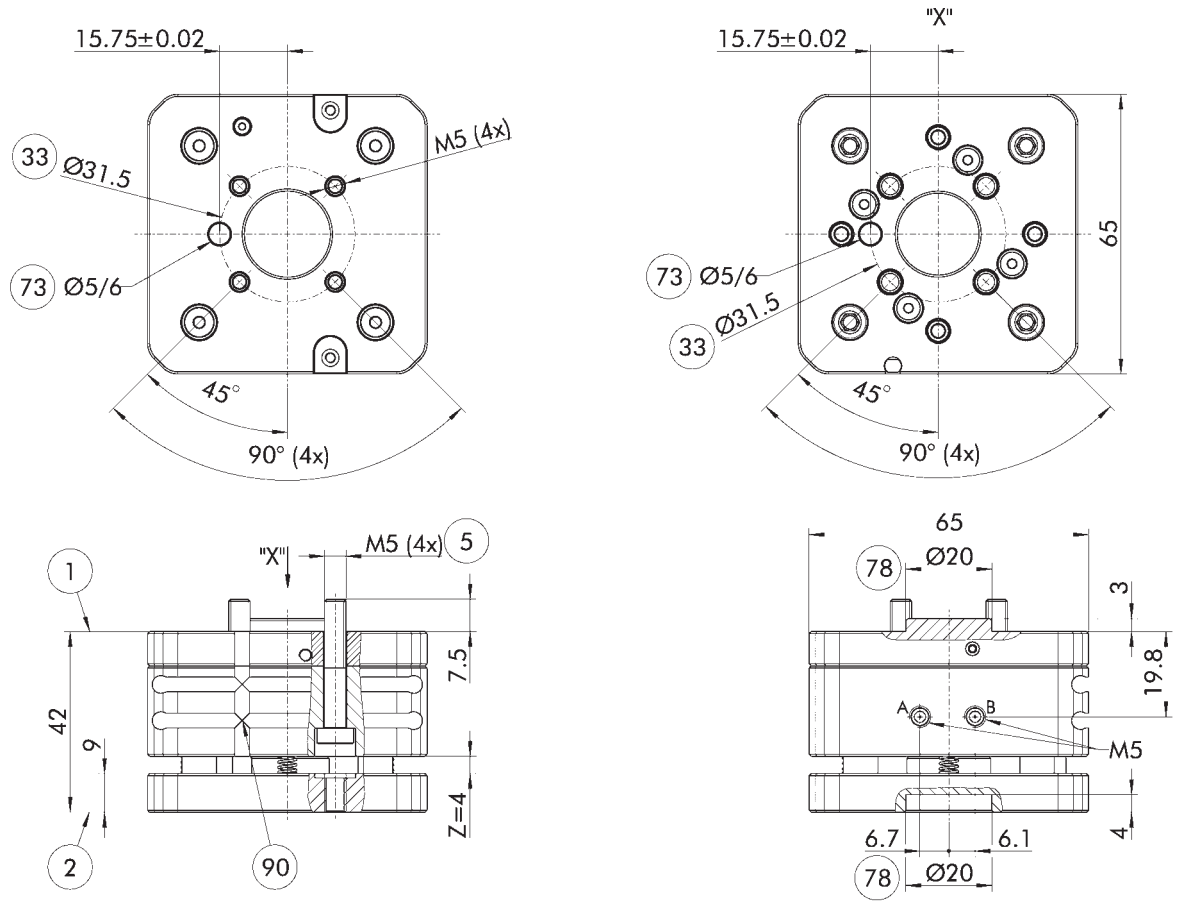
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 031
ID		1575899
Compensation Z	[mm]	4
Recommended handling weight, vertical	[kg]	2.2
Recommended handling weight, horizontal	[kg]	1.5
Locking force retracted at 6 bar	[N]	170
Locking force extended at 6 bar	[N]	270
Min. spring force	[N]	28
Max. spring force	[N]	50
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-31.5-4-M5
Tool-side connection		ISO 9409-1-31.5-4-M5
Weight	[kg]	0.5
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	65 x 65 x 42
Volume determination *	[cm³]	5
Extension/retraction time	[s]	0.08/0.08
Air connections locked and unlocked		M5
Max. eccentric load	[mm]	300
IP protection class		50
Pull force Fz	[N]	100
Pressure force Fd	[N]	200

* Volume determination = fluid consumption per retraction and extension

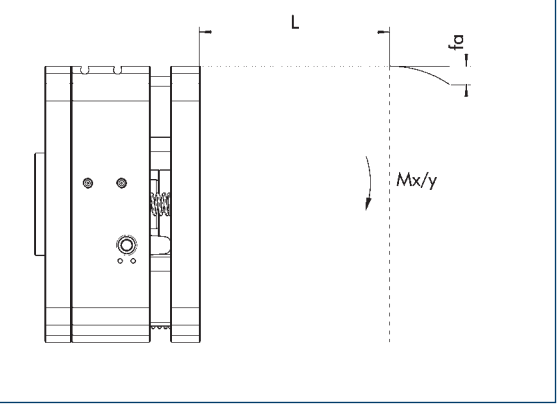
Main view AGM-Z 031



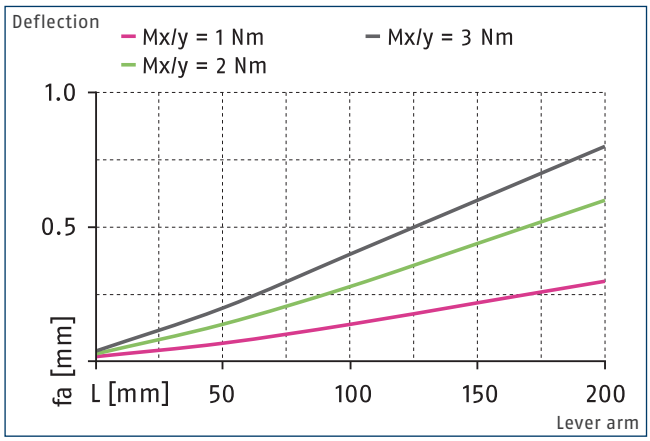
The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked
(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

Deflection

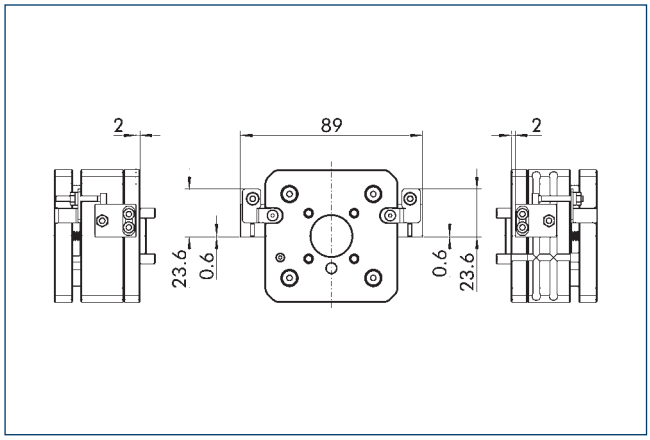


Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

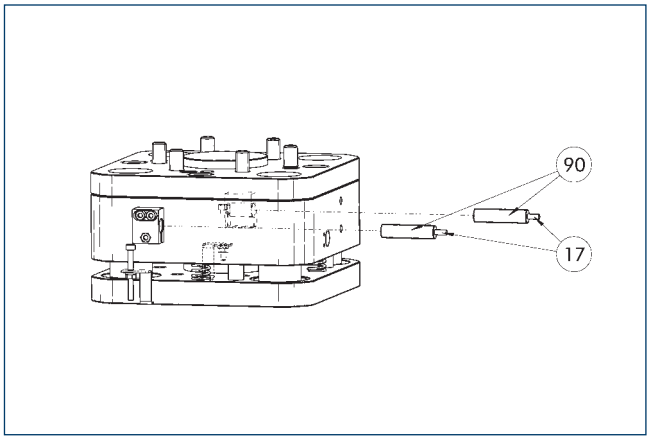


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-031-IN80	1601727	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



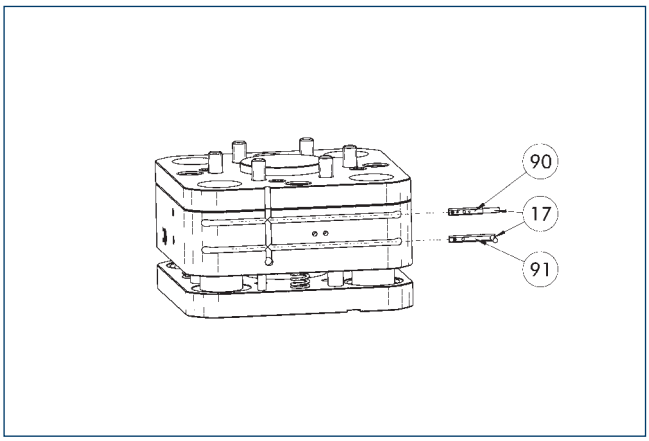
(17) Cable outlet (90) IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-031-IN80	1601727	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



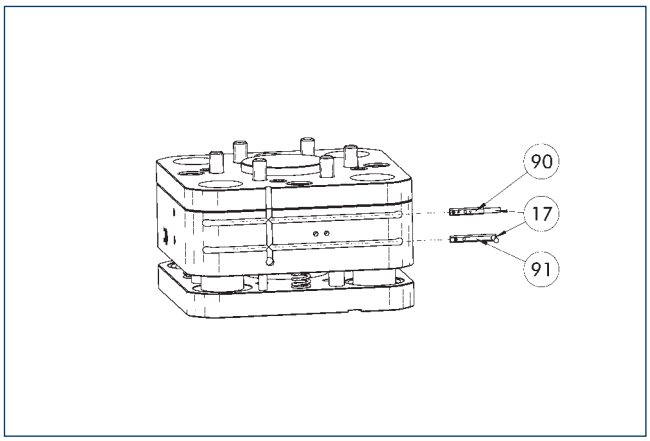
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

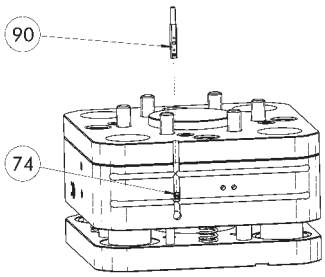
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

AGM-Z 031

Compensation unit

Programmable magnetic switch MMS 22-PI2



(74) Limit stop for sensor

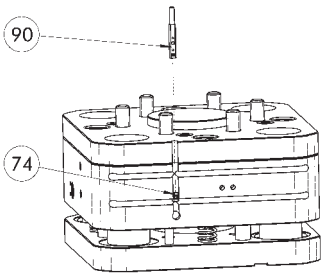
(90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



(74) Limit stop for sensor

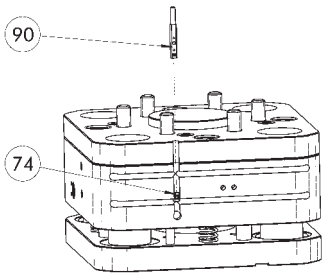
(90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

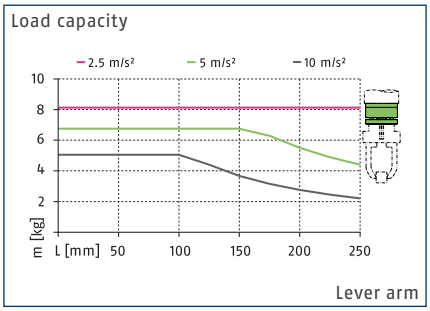
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

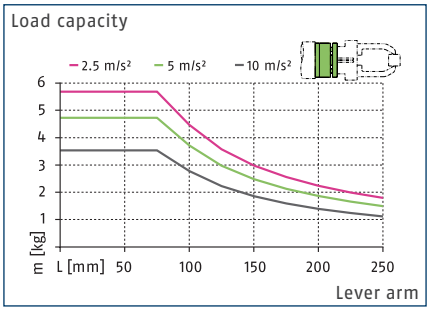
AGM-Z 040

Compensation unit

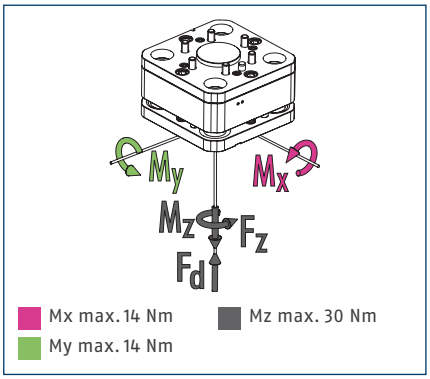
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



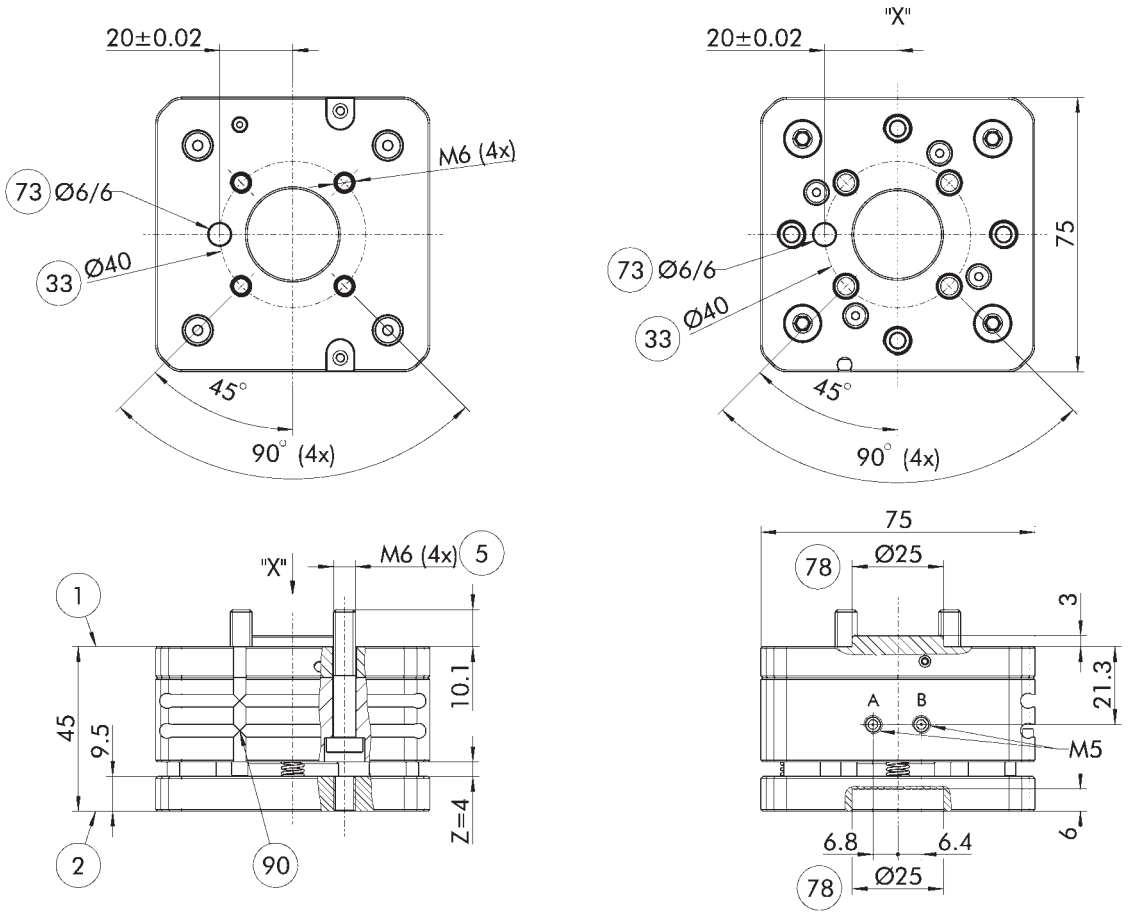
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 040
ID		1575933
Compensation Z	[mm]	4
Recommended handling weight, vertical	[kg]	5
Recommended handling weight, horizontal	[kg]	3
Locking force retracted at 6 bar	[N]	390
Locking force extended at 6 bar	[N]	490
Min. spring force	[N]	24
Max. spring force	[N]	45
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-40-4-M6
Tool-side connection		ISO 9409-1-40-4-M6
Weight	[kg]	0.7
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	75 x 75 x 45
Volume determination *	[cm³]	11
Extension/retraction time	[s]	0.1/0.1
Air connections locked and unlocked		M5
Max. eccentric load	[mm]	200
IP protection class		50
Pull force Fz	[N]	200
Pressure force Fd	[N]	450

* Volume determination = fluid consumption per retraction and extension

Main view AGM-Z 040

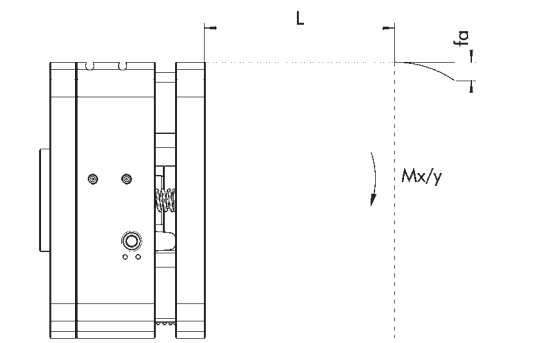


The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

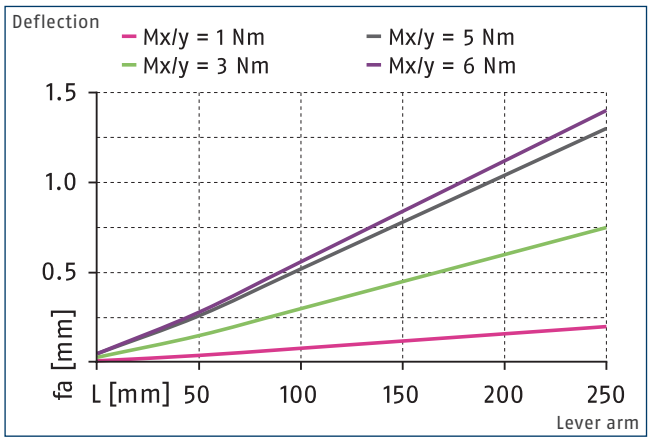
A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

Deflection

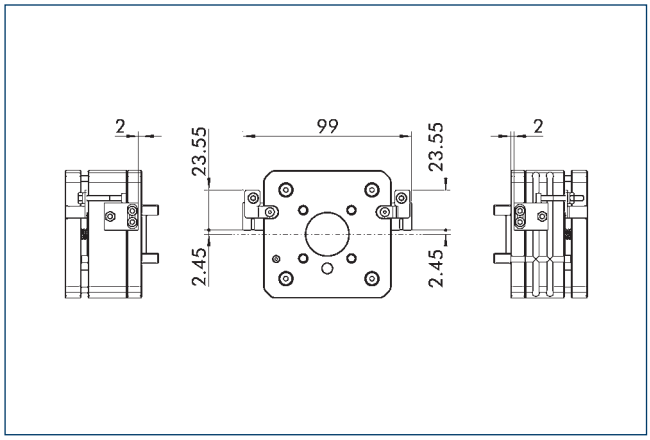


Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

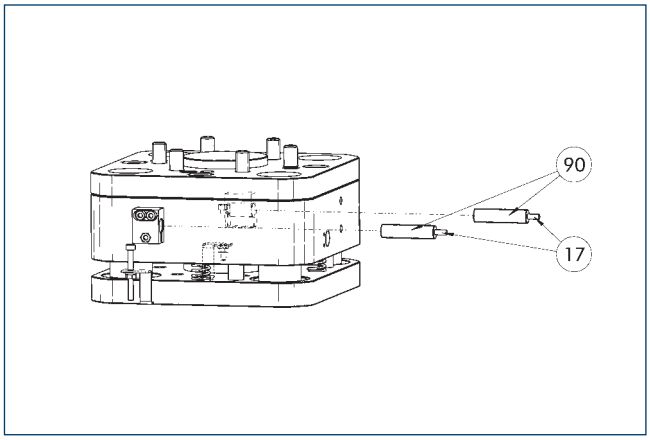


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-040-IN80	1601728	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



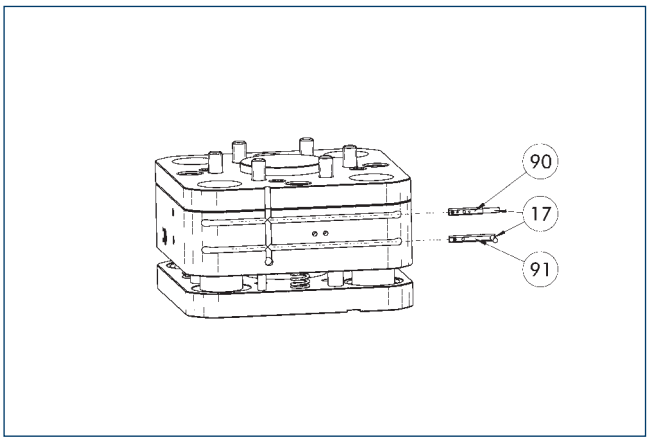
(17) Cable outlet (90) IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-040-IN80	1601728	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



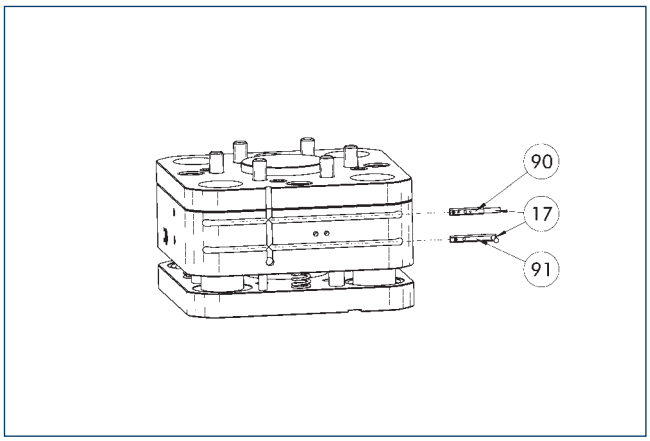
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

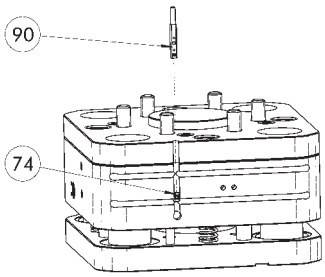
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

AGM-Z 040

Compensation unit

Programmable magnetic switch MMS 22-PI2



74 Limit stop for sensor

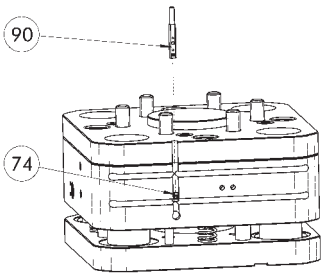
90 MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



74 Limit stop for sensor

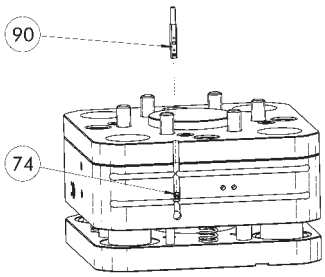
90 MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

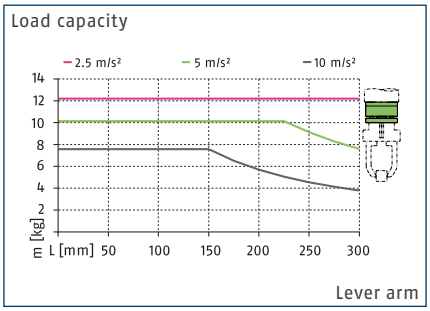
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

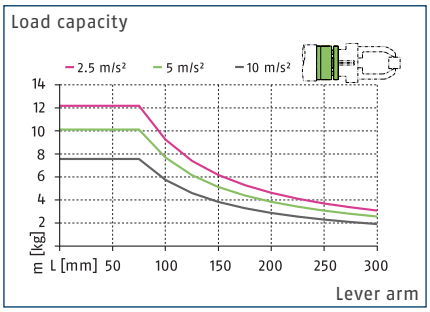
AGM-Z 050

Compensation unit

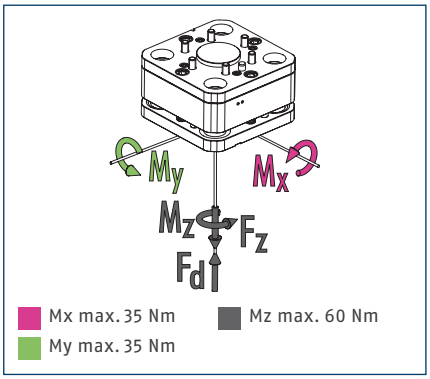
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



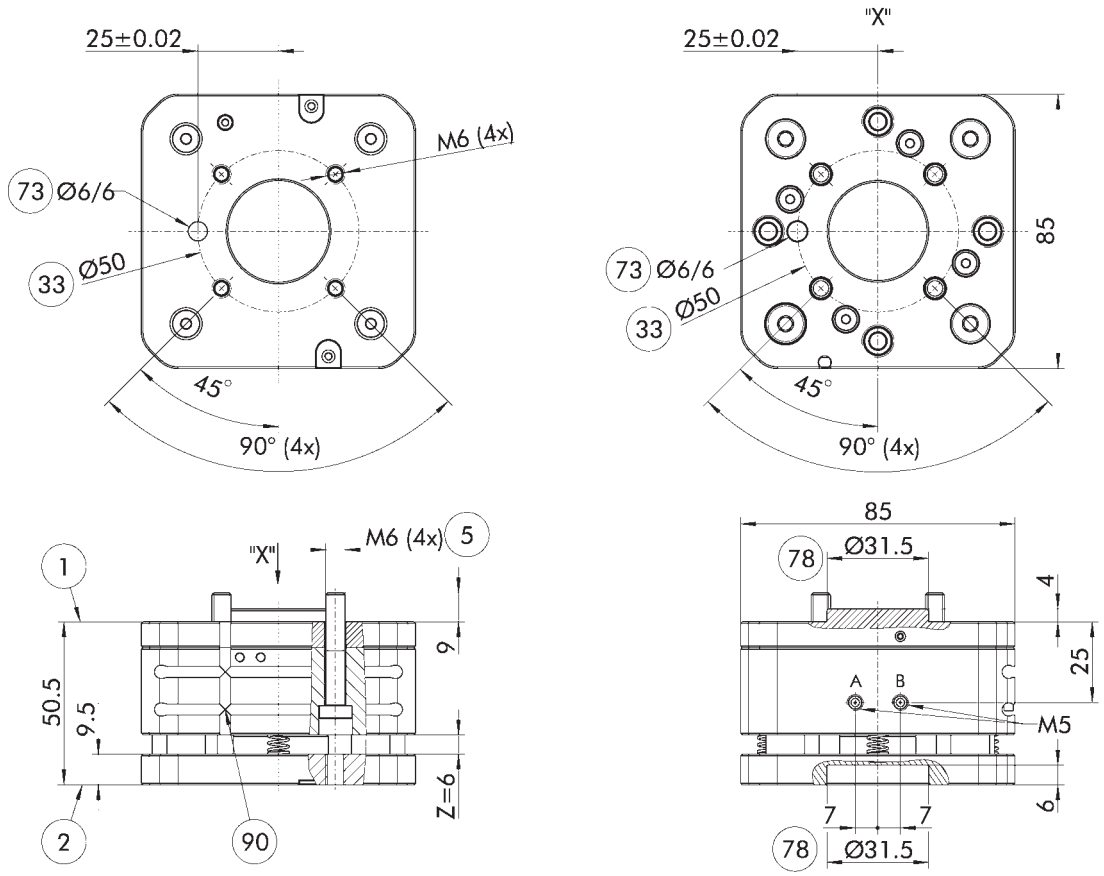
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 050
ID		1575965
Compensation Z	[mm]	6
Recommended handling weight, vertical	[kg]	8.5
Recommended handling weight, horizontal	[kg]	6
Locking force retracted at 6 bar	[N]	550
Locking force extended at 6 bar	[N]	700
Min. spring force	[N]	29
Max. spring force	[N]	65
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-50-4-M6
Tool-side connection		ISO 9409-1-50-4-M6
Weight	[kg]	1
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	85 x 85 x 50.5
Volume determination *	[cm³]	20
Extension/retraction time	[s]	0.15/0.15
Air connections locked and unlocked		M5
Max. eccentric load	[mm]	230
IP protection class		50
Pull force Fz	[N]	300
Pressure force Fd	[N]	900

* Volume determination = fluid consumption per retraction and extension

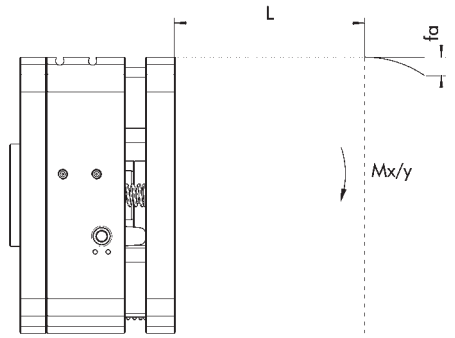
Main view AGM-Z 050



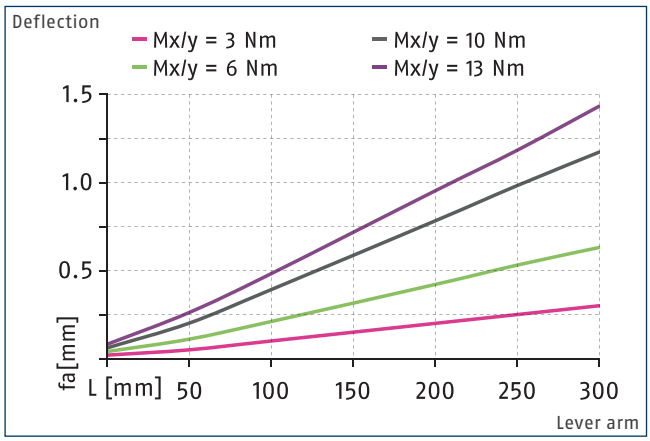
The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked
(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

Deflection

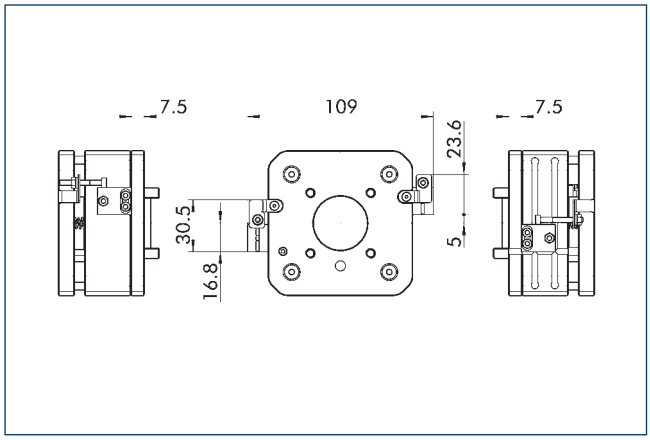


Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

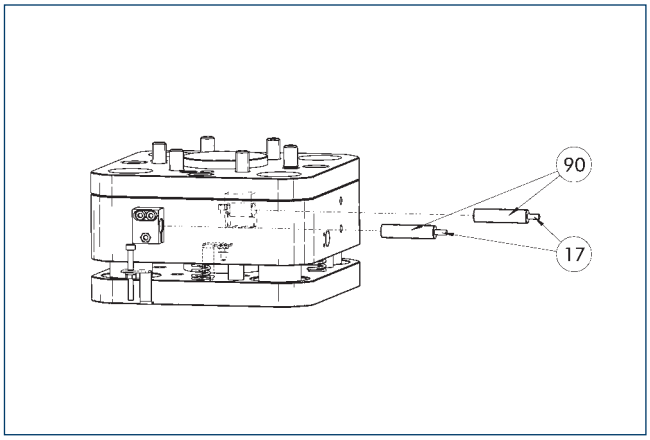


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-050/63-IN80	1601729	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



17 Cable outlet

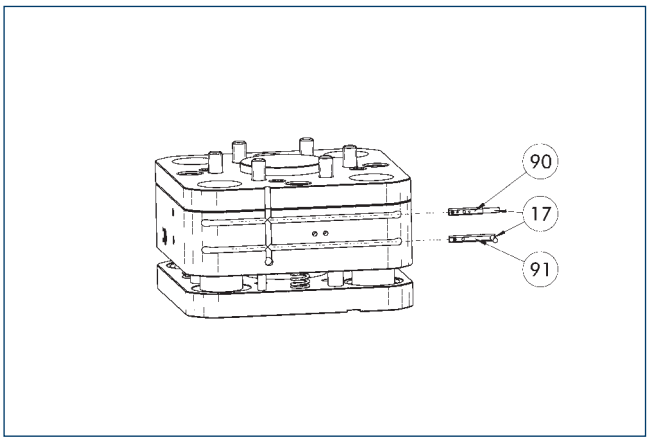
90 IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-050/63-IN80	1601729	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



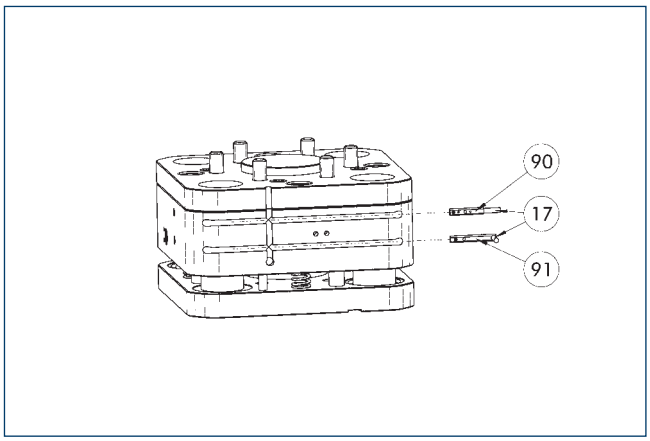
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

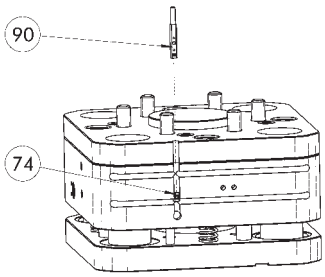
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

AGM-Z 050

Compensation unit

Programmable magnetic switch MMS 22-PI2



74 Limit stop for sensor

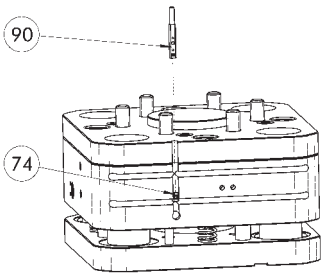
90 MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



74 Limit stop for sensor

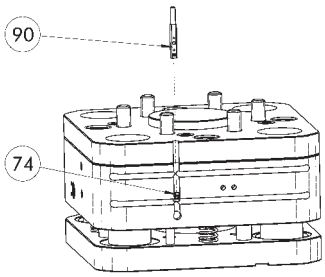
90 MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

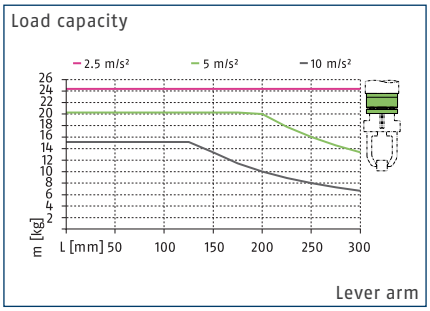
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

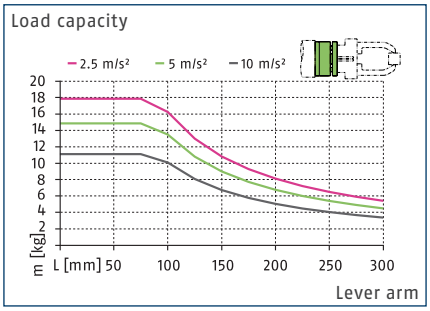
AGM-Z 063

Compensation unit

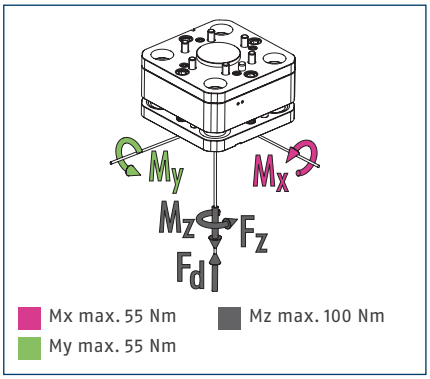
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



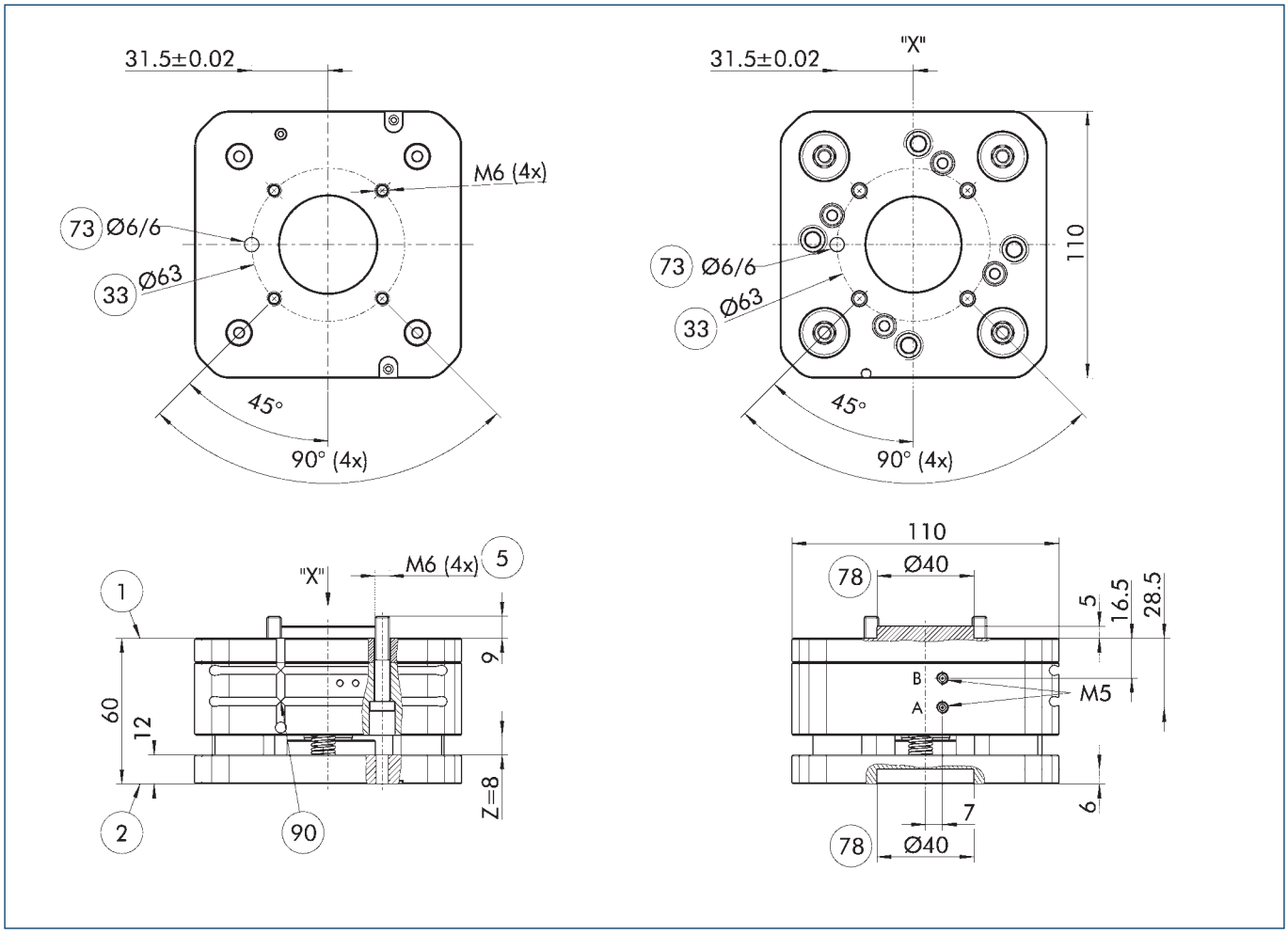
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 063
ID		1575971
Compensation Z	[mm]	8
Recommended handling weight, vertical	[kg]	17.5
Recommended handling weight, horizontal	[kg]	12.5
Locking force retracted at 6 bar	[N]	980
Locking force extended at 6 bar	[N]	1300
Min. spring force	[N]	80
Max. spring force	[N]	125
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-63-4-M6
Tool-side connection		ISO 9409-1-63-4-M6
Weight	[kg]	1.9
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	110 x 110 x 60
Volume determination *	[cm³]	47
Extension/retraction time	[s]	0.15/0.25
Air connections locked and unlocked		M5
Max. eccentric load	[mm]	300
IP protection class		50
Pull force Fz	[N]	600
Pressure force Fd	[N]	1200

* Volume determination = fluid consumption per retraction and extension

Main view AGM-Z 063

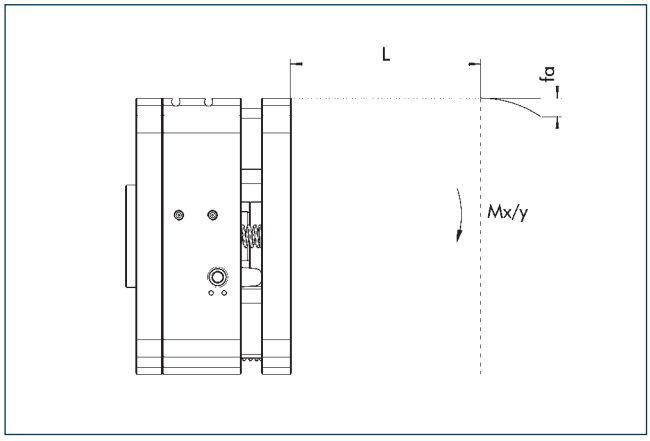


The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

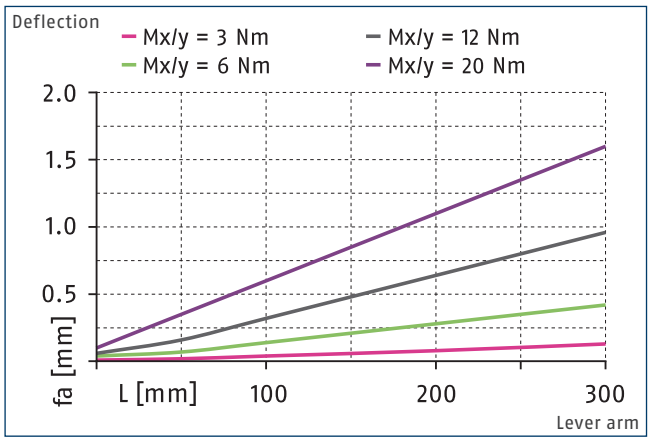
Deflection



AGM-Z 063

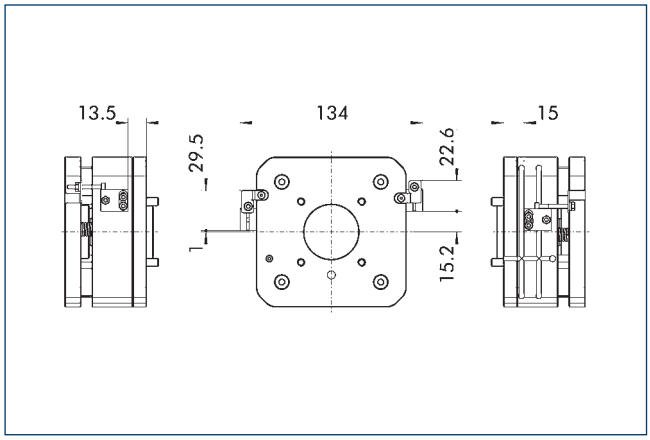
Compensation unit

Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

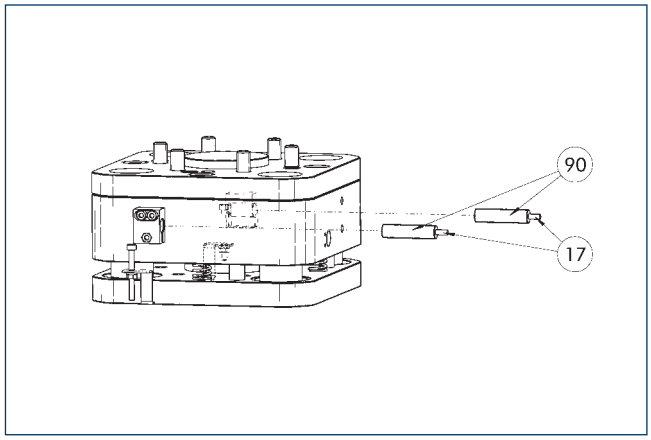


End position monitoring can be mounted with an attachment kit.

Description	ID
Attachment kit for proximity switch	
AS-AGM-Z-050/63-IN80	1601729

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



17 Cable outlet

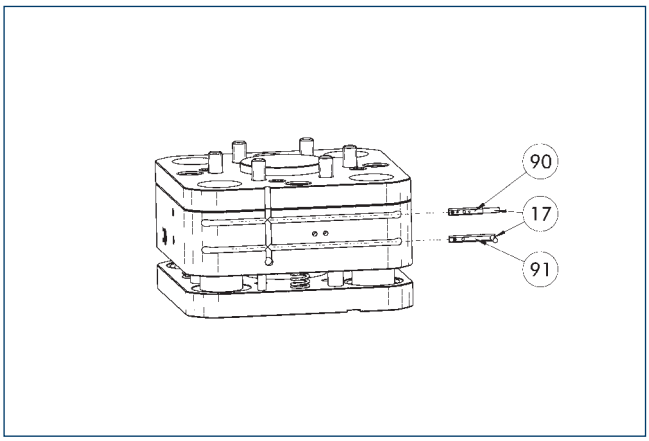
90 IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-050/63-IN80	1601729	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



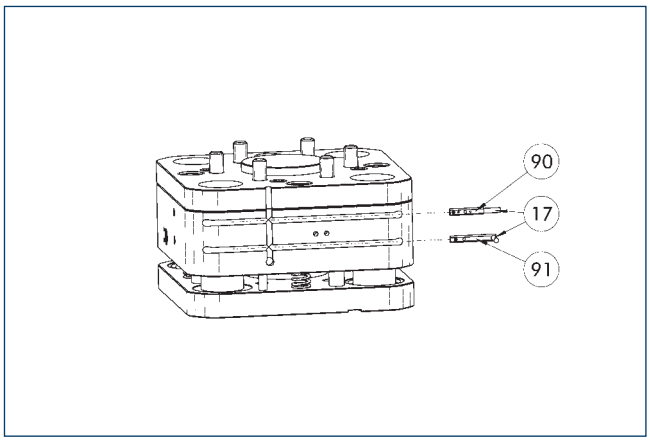
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

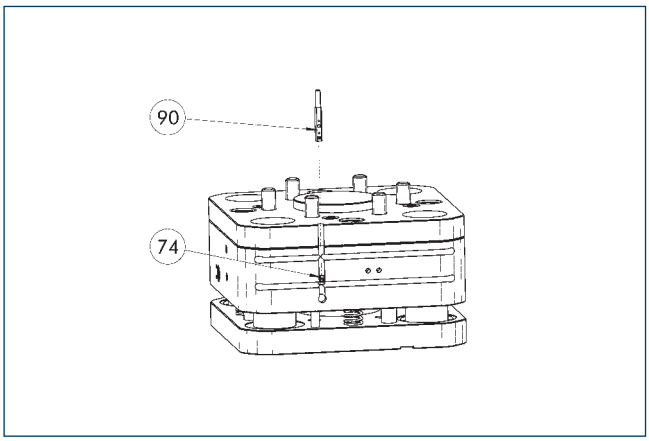
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

AGM-Z 063

Compensation unit

Programmable magnetic switch MMS 22-PI2



(74) Limit stop for sensor

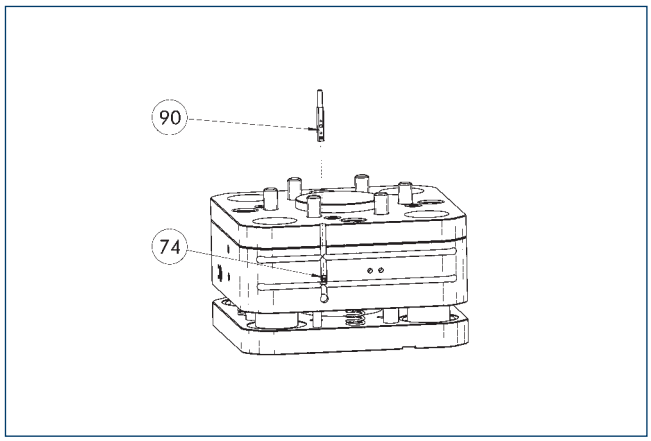
(90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



(74) Limit stop for sensor

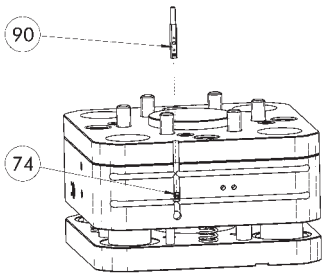
(90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

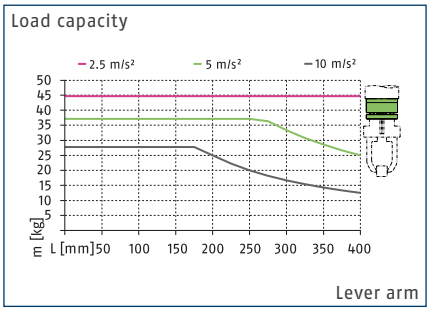
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

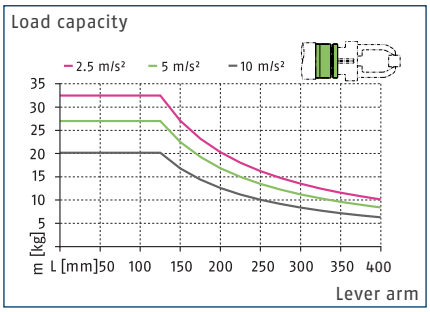
AGM-Z 080

Compensation unit

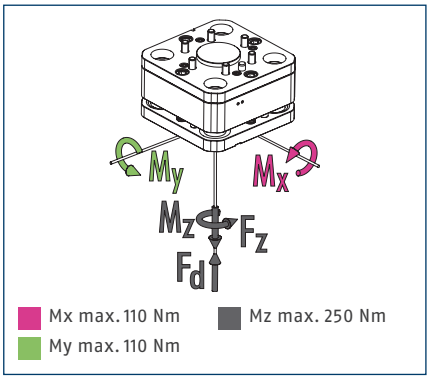
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

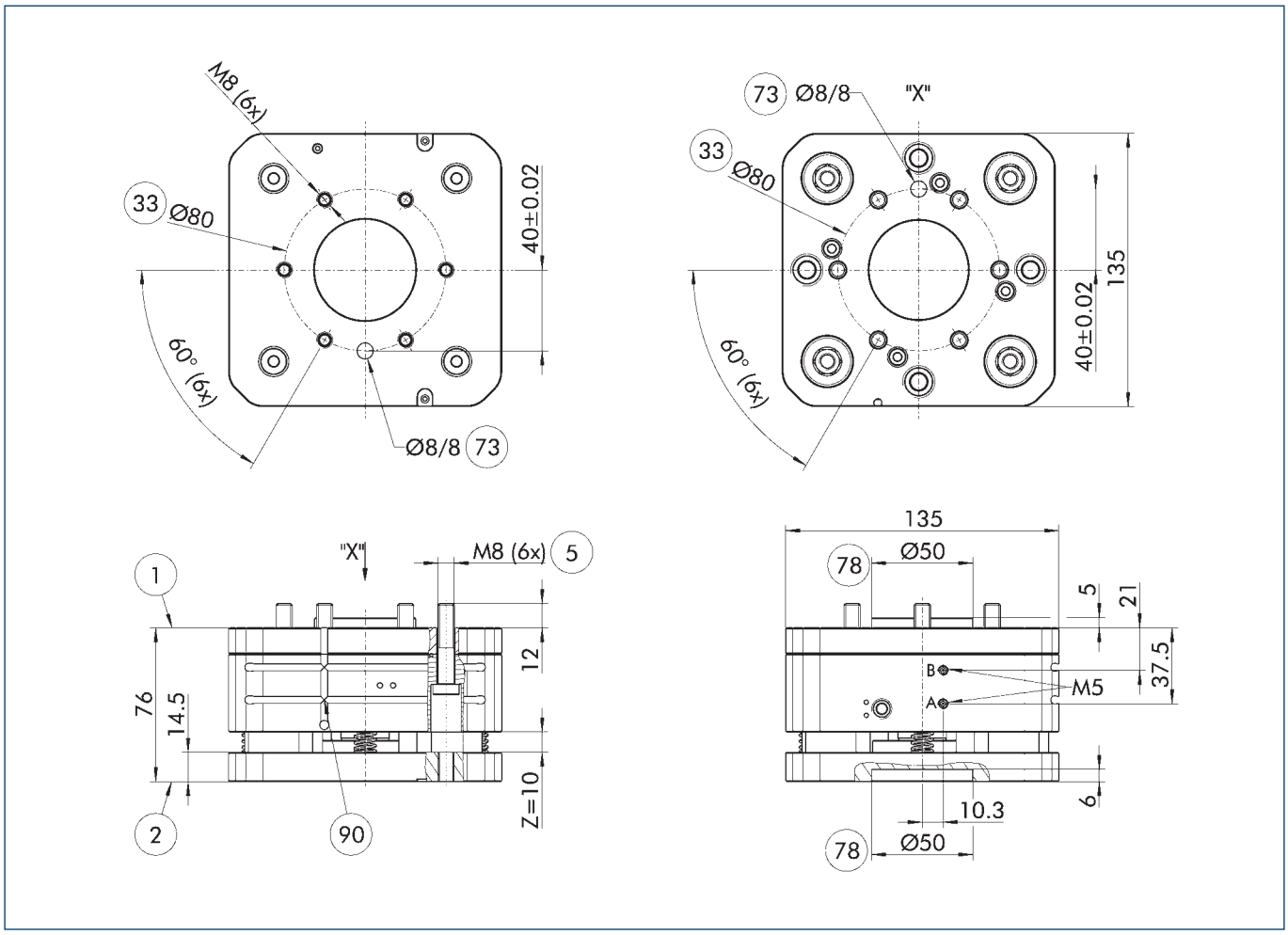
Technical data

Description		AGM-Z 080
ID		1575977
Compensation Z	[mm]	10
Recommended handling weight, vertical	[kg]	35
Recommended handling weight, horizontal	[kg]	24.5
Locking force retracted at 6 bar	[N]	1300
Locking force extended at 6 bar	[N]	1700
Min. spring force	[N]	200
Max. spring force	[N]	300
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-80-6-M8
Tool-side connection		ISO 9409-1-80-6-M8
Weight	[kg]	3.6
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	135 x 135 x 76
Volume determination *	[cm³]	80
Extension/retraction time	[s]	0.2/0.4
Air connections locked and unlocked		M5
Max. eccentric load	[mm]	260
IP protection class		50
Pull force Fz	[N]	1100
Pressure force Fd	[N]	2200

* Volume determination = fluid consumption per retraction and extension

ⓘ Permissible payload depending on the acceleration and the position of the center of gravity, depending on the arrangement and locking method.

Main view AGM-Z 080

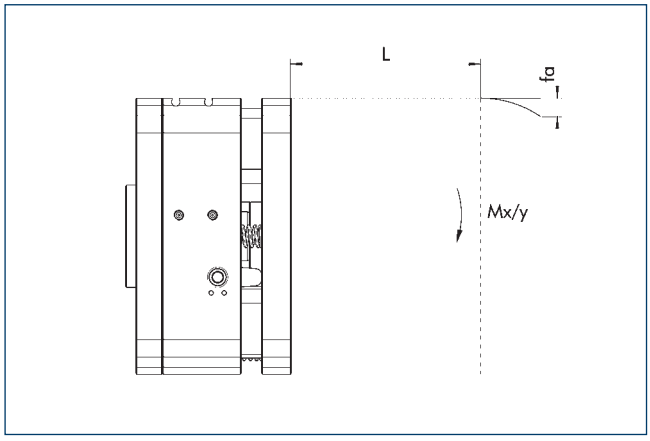


The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

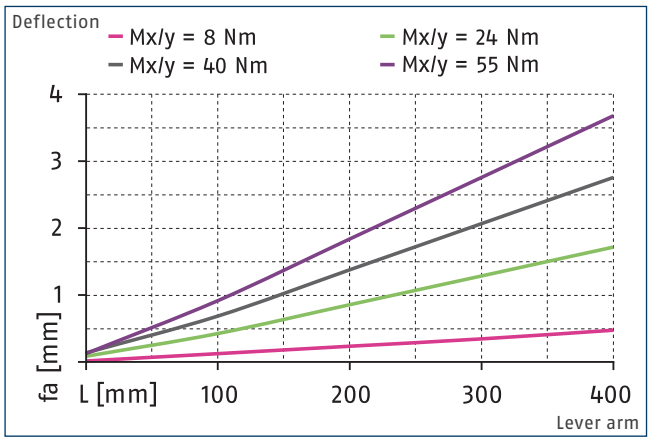
Deflection



AGM-Z 080

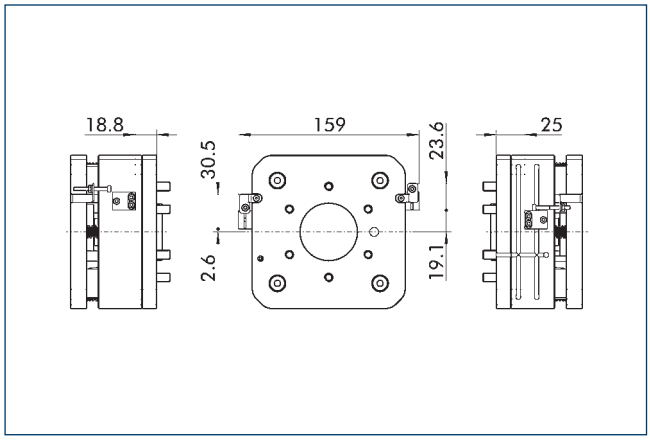
Compensation unit

Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

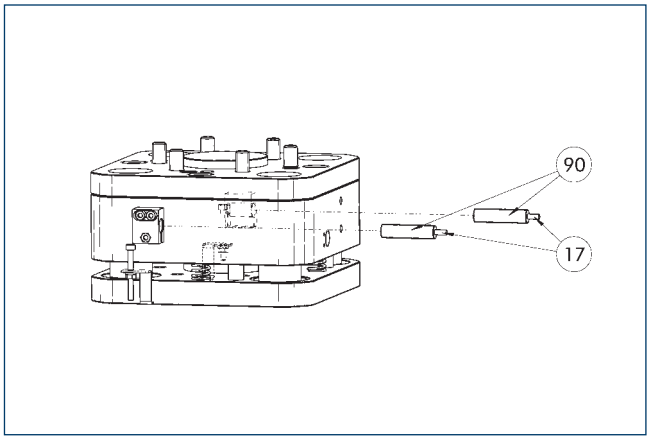


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-080-IN80	1601731	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



17 Cable outlet

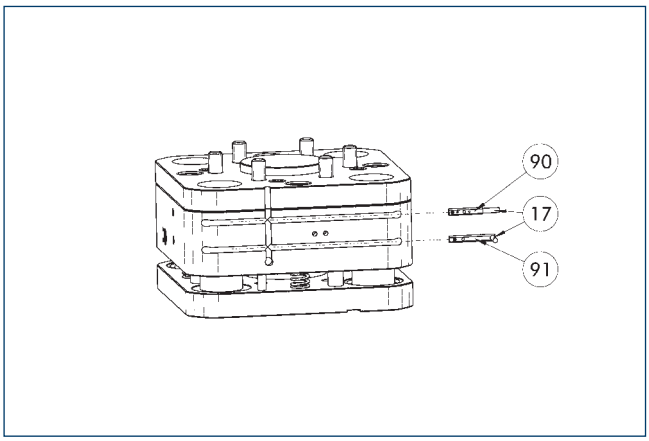
90 IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-080-IN80	1601731	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



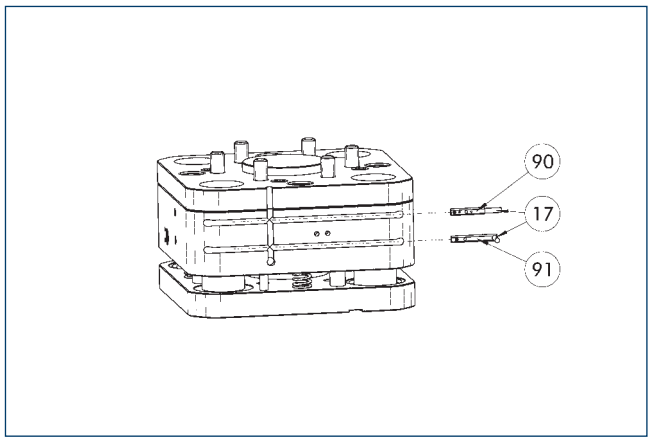
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

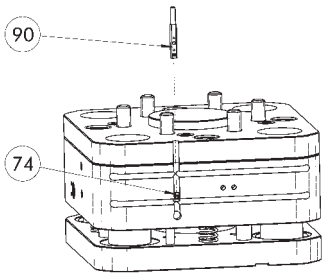
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

AGM-Z 080

Compensation unit

Programmable magnetic switch MMS 22-PI2



(74) Limit stop for sensor

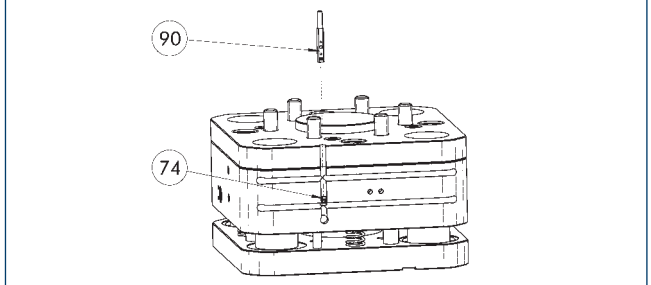
(90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
MMSK 22-PI2-S-PNP-SA	0301188	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



(74) Limit stop for sensor

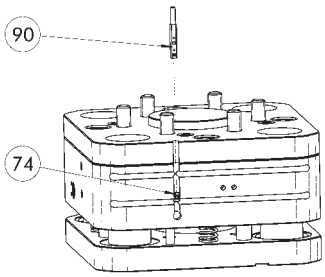
(90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

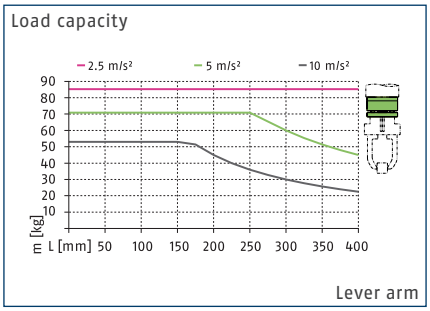
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

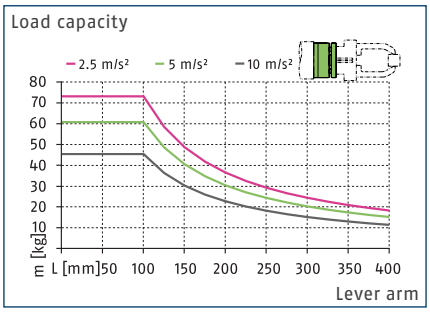
AGM-Z 100

Compensation unit

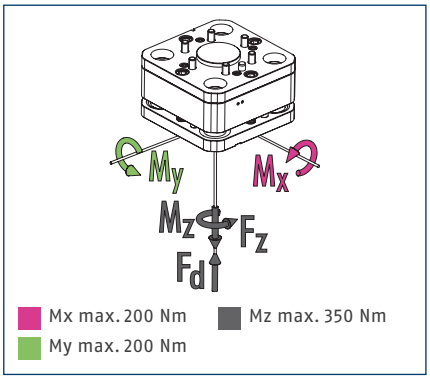
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



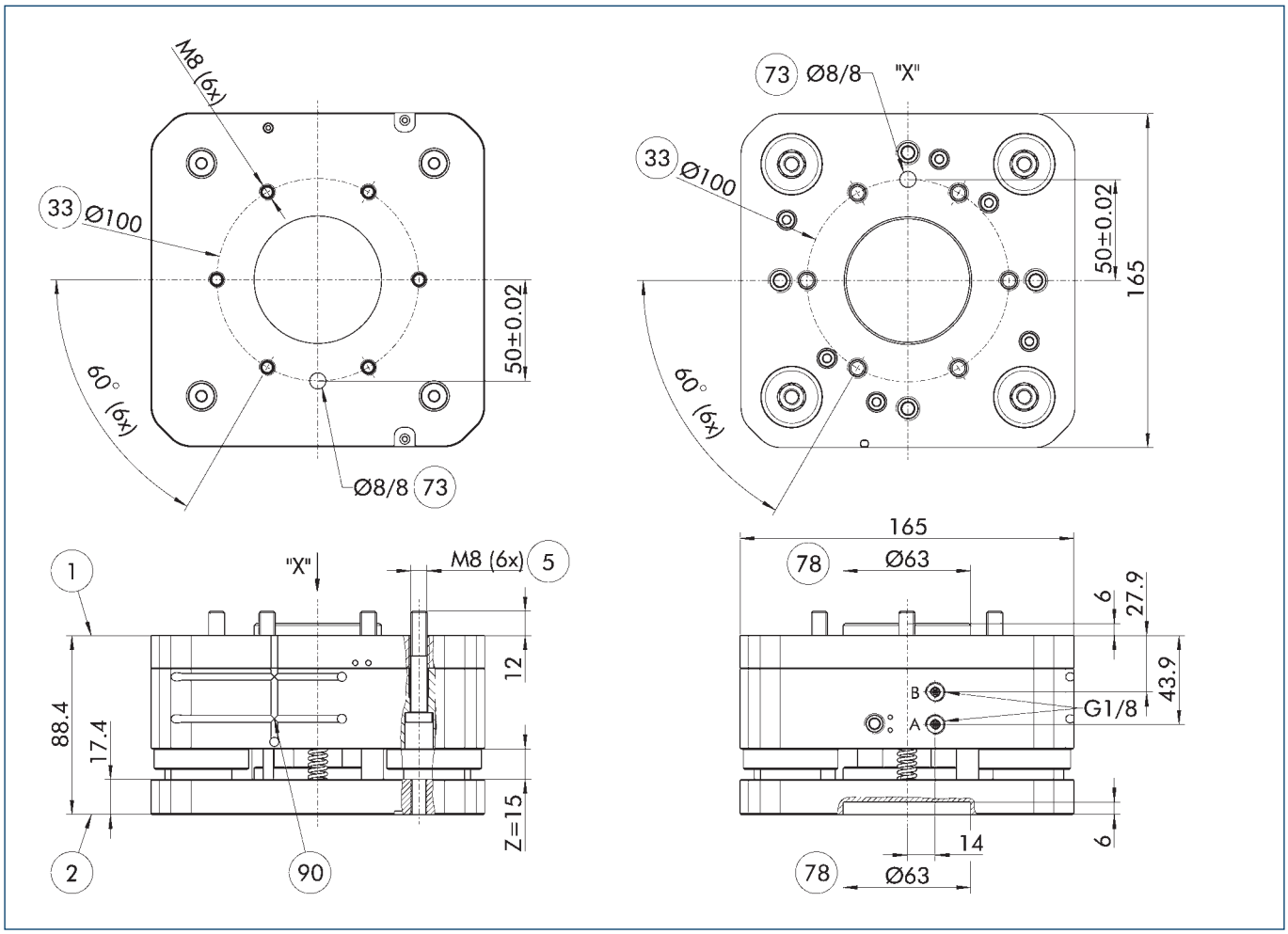
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 100
ID		1575979
Compensation Z	[mm]	15
Recommended handling weight, vertical	[kg]	70
Recommended handling weight, horizontal	[kg]	49
Locking force retracted at 6 bar	[N]	2500
Locking force extended at 6 bar	[N]	3600
Min. spring force	[N]	230
Max. spring force	[N]	700
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-100-6-M8
Tool-side connection		ISO 9409-1-100-6-M8
Weight	[kg]	6
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	165 x 165 x 88.4
Volume determination *	[cm³]	190
Extension/retraction time	[s]	0.4/0.7
Air connections locked and unlocked		G1/8"
Max. eccentric load	[mm]	340
IP protection class		50
Pull force Fz	[N]	2100
Pressure force Fd	[N]	4200

* Volume determination = fluid consumption per retraction and extension

Main view AGM-Z 100



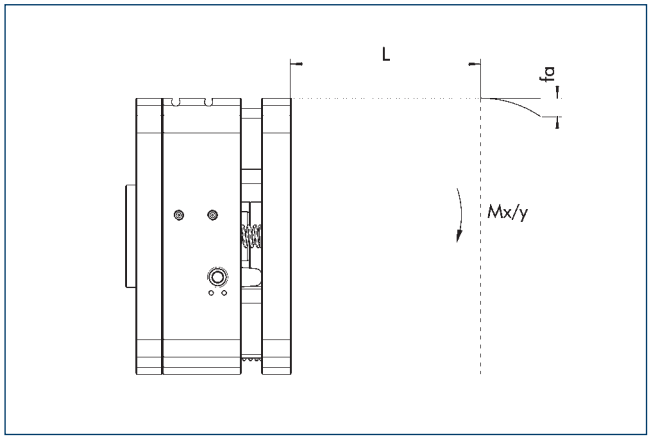
The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws

(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

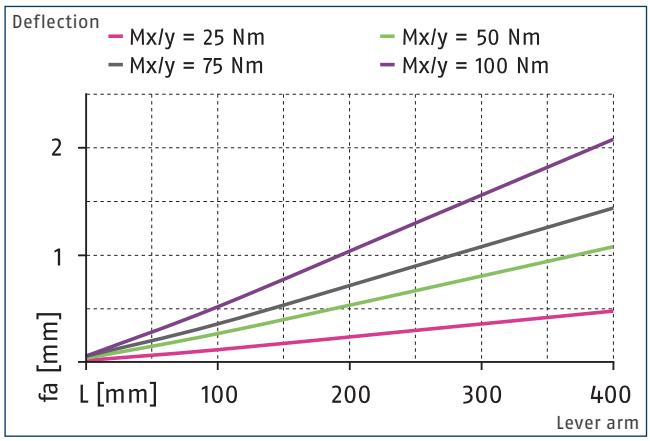
Deflection



AGM-Z 100

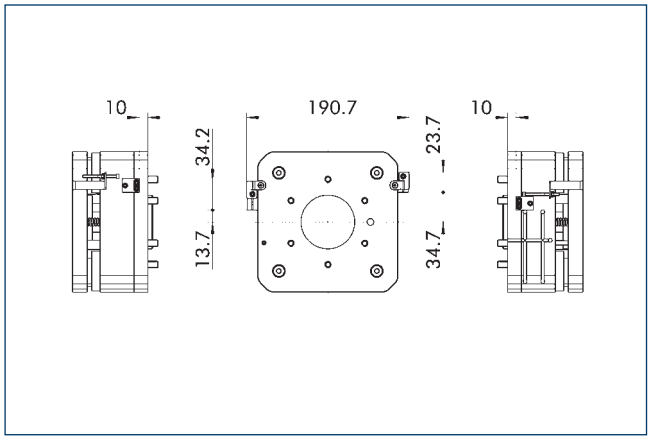
Compensation unit

Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

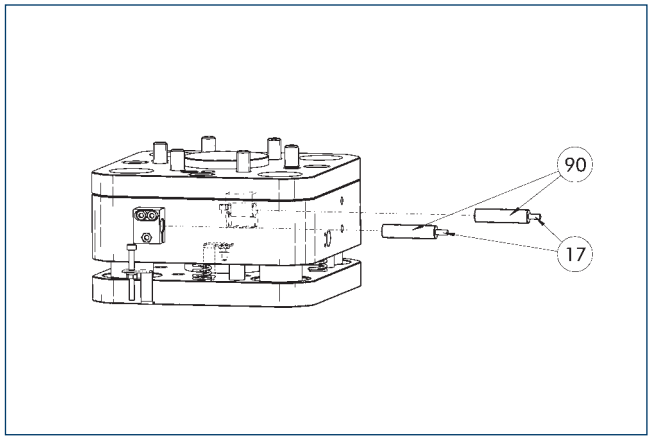


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-100/125-IN80	1601732	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



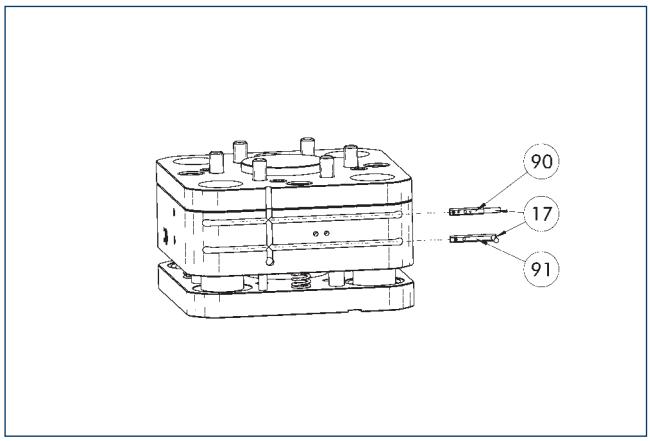
(17) Cable outlet (90) IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-100/125-IN80	1601732	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



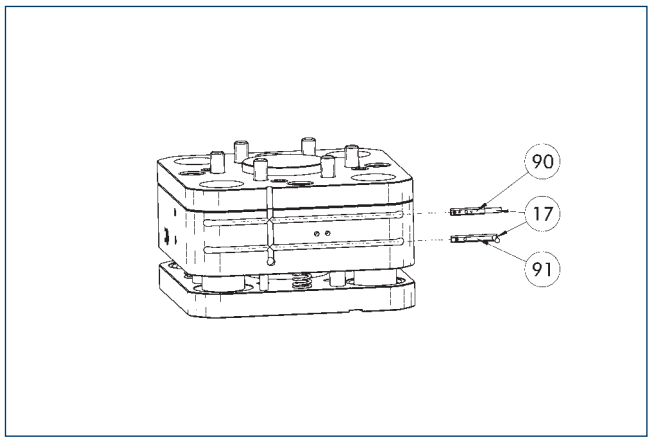
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



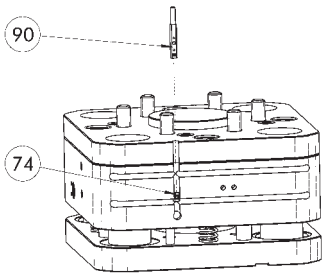
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI2



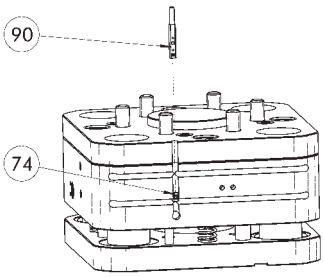
(74) Limit stop for sensor (90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



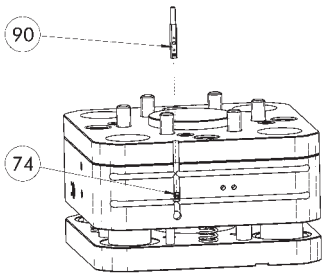
(74) Limit stop for sensor (90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

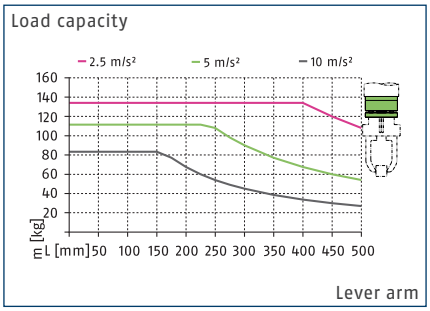
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

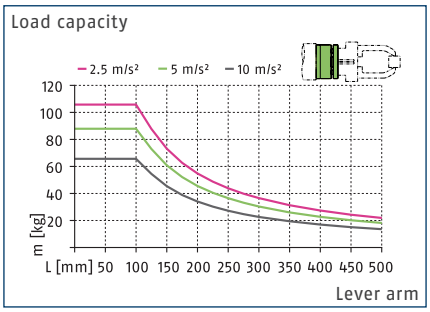
AGM-Z 125

Compensation unit

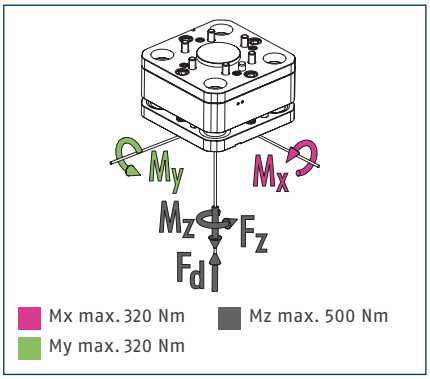
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



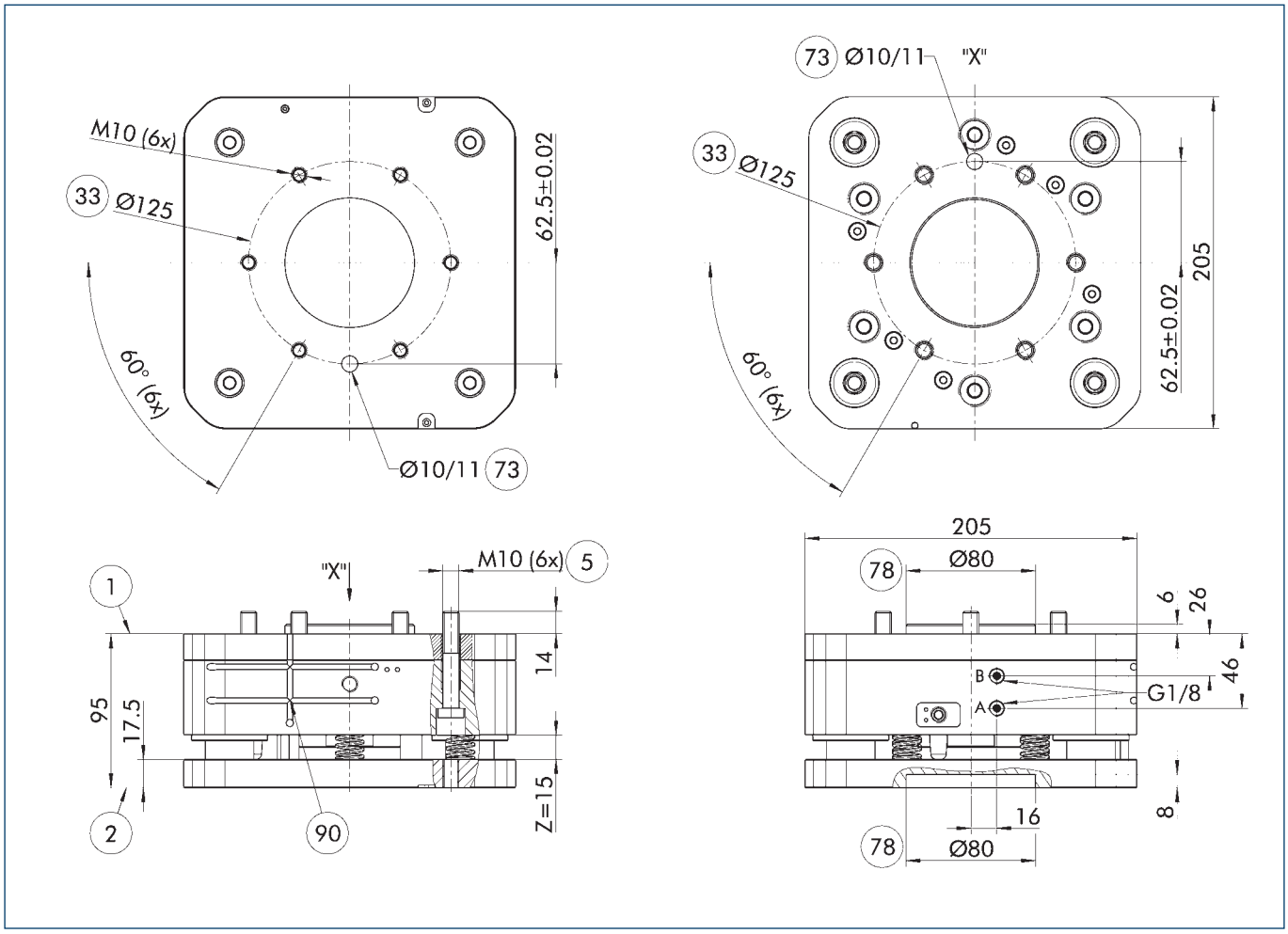
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 125
ID		1575990
Compensation Z	[mm]	15
Recommended handling weight, vertical	[kg]	110
Recommended handling weight, horizontal	[kg]	80
Locking force retracted at 6 bar	[N]	2900
Locking force extended at 6 bar	[N]	4750
Min. spring force	[N]	680
Max. spring force	[N]	1000
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-125-6-M10
Tool-side connection		ISO 9409-1-125-6-M10
Weight	[kg]	9.7
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	205 x 205 x 95
Volume determination *	[cm³]	230
Extension/retraction time	[s]	0.4/0.7
Air connections locked and unlocked		G1/8"
Max. eccentric load	[mm]	700
IP protection class		50
Pull force Fz	[N]	3300
Pressure force Fd	[N]	6600

* Volume determination = fluid consumption per retraction and extension

Main view AGM-Z 125

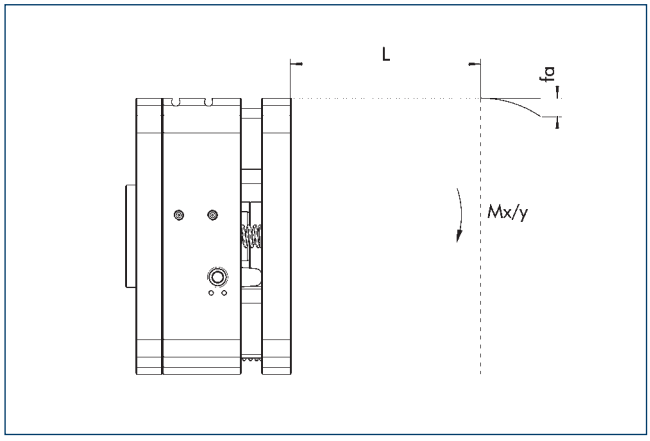


The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

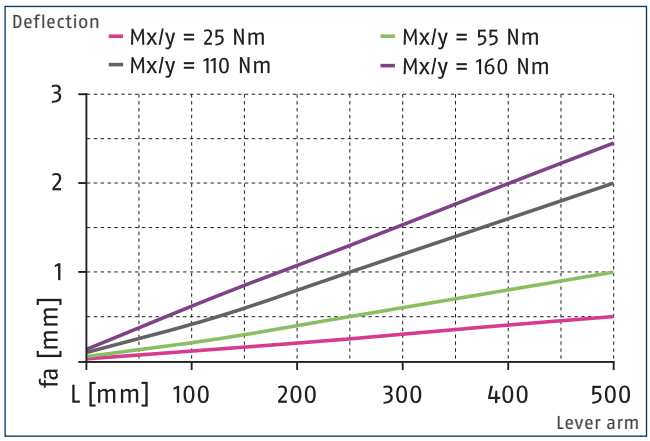
A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

Deflection

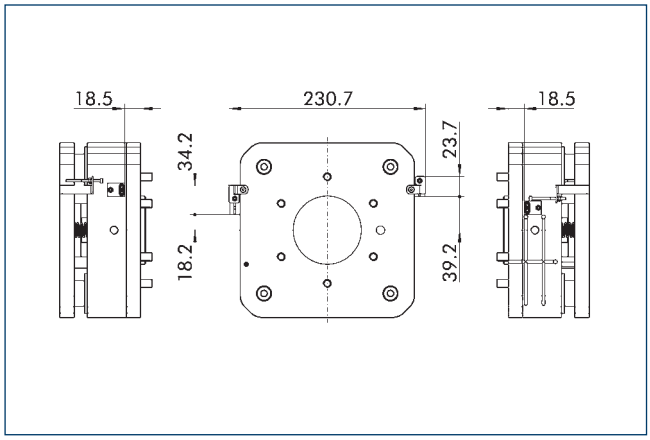


Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

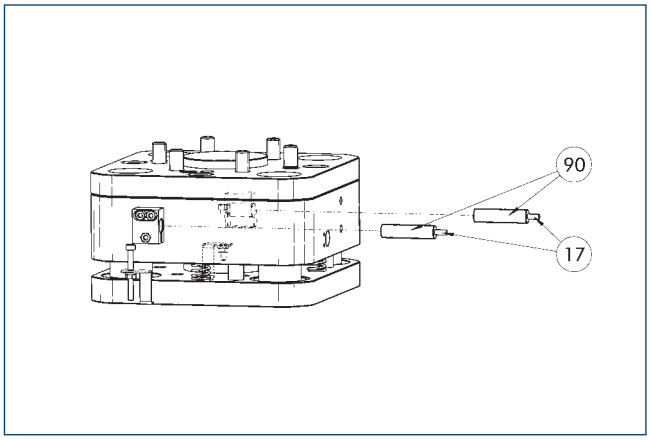


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-100/125-IN80	1601732	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



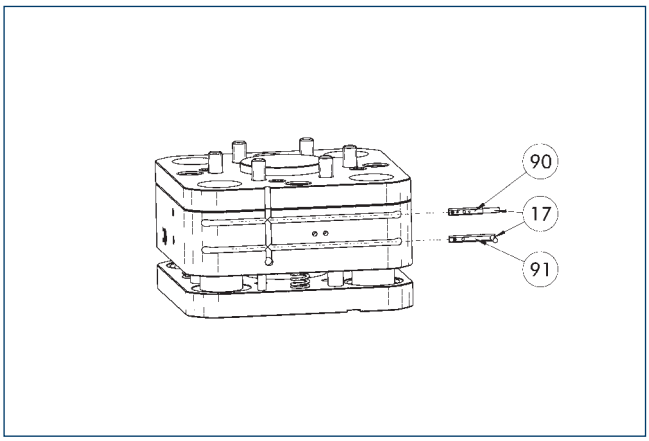
(17) Cable outlet (90) IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-100/125-IN80	1601732	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



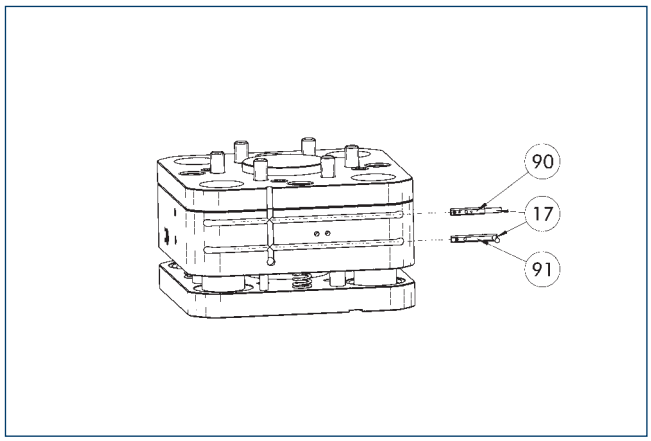
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



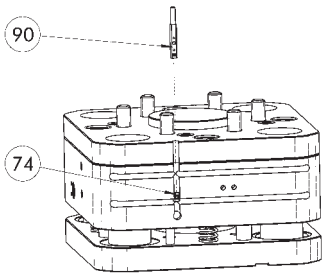
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI2



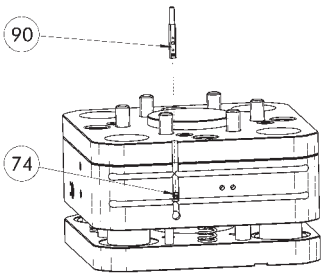
(74) Limit stop for sensor (90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



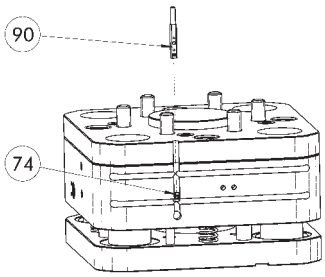
(74) Limit stop for sensor (90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



74 Limit stop for sensor

90 Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

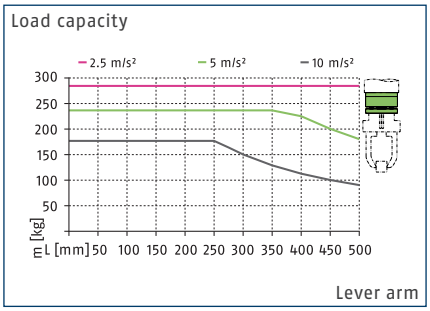
Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

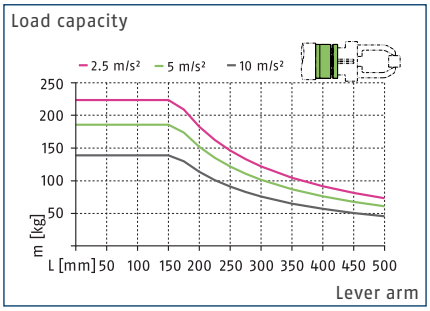
AGM-Z 160L

Compensation unit

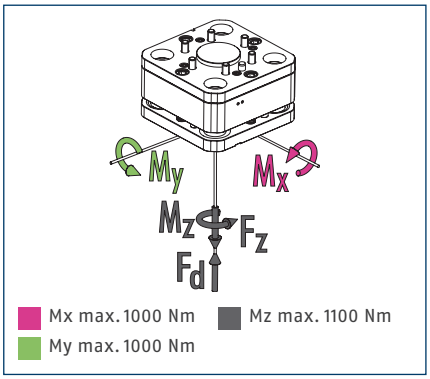
Load diagram – vertical design



Load diagram – horizontal design



Max. loads



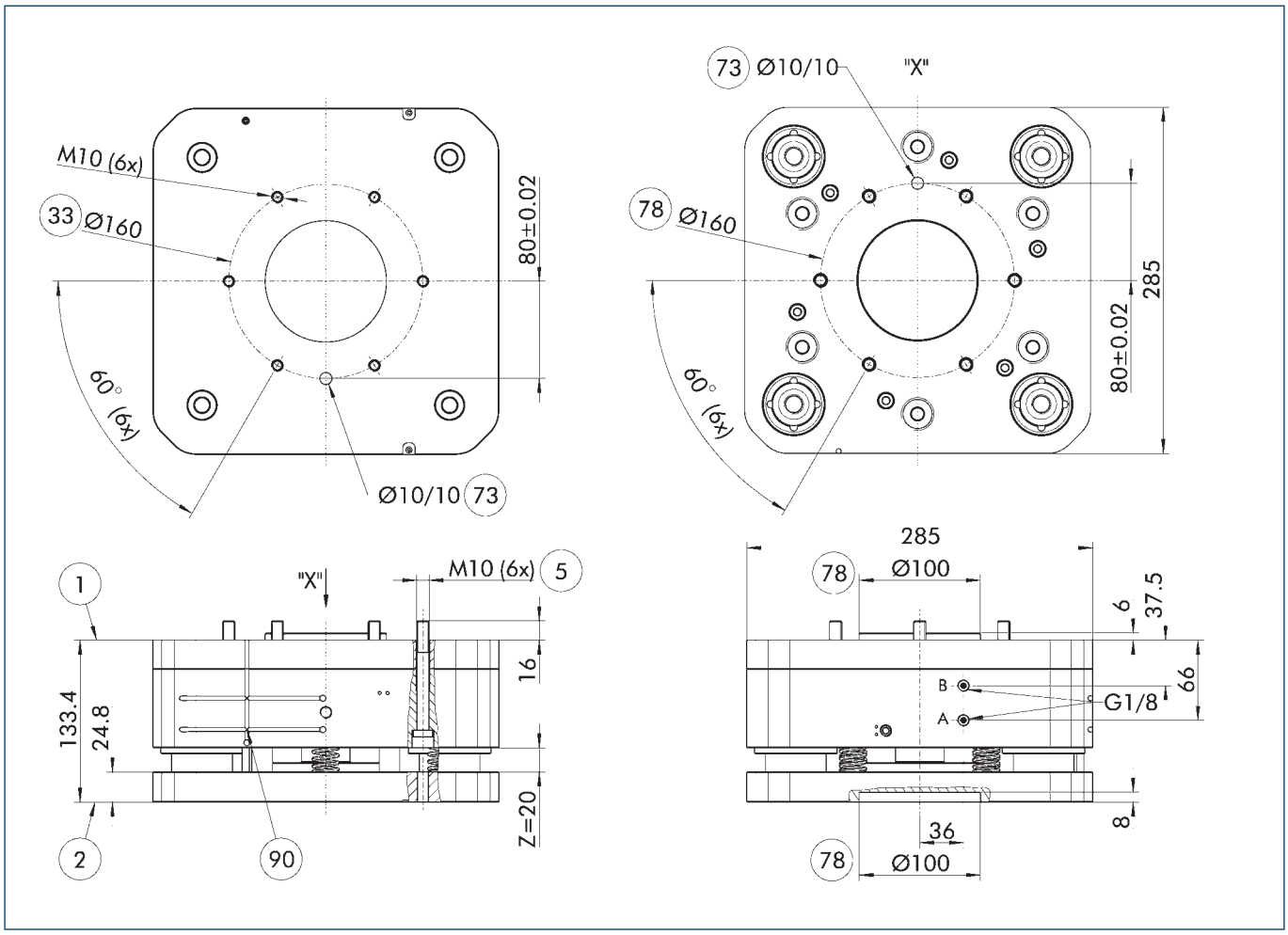
ⓘ This is the sum of all static loads that are permitted to act on the compensation unit.

Technical data

Description		AGM-Z 160L
ID		1575993
Compensation Z	[mm]	20
Recommended handling weight, vertical	[kg]	275
Recommended handling weight, horizontal	[kg]	175
Locking force retracted at 6 bar	[N]	6700
Locking force extended at 6 bar	[N]	9600
Min. spring force	[N]	900
Max. spring force	[N]	1400
Min./nom./max. operating pressure	[bar]	2.5/6/6.5
Repeat accuracy	[mm]	0.02
Robot-side connection		ISO 9409-1-160-6-M10
Tool-side connection		ISO 9409-1-160-6-M10
Weight	[kg]	25.2
Min./max. ambient temperature	[°C]	5/60
Dimensions X x Y x Z	[mm]	285 x 285 x 133.4
Volume determination *	[cm³]	850
Extension/retraction time	[s]	0.5/0.8
Air connections locked and unlocked		G1/8"
Max. eccentric load	[mm]	650
IP protection class		50
Pull force Fz	[N]	6500
Pressure force Fd	[N]	13000

* Volume determination = fluid consumption per retraction and extension

Main view AGM-Z 160L

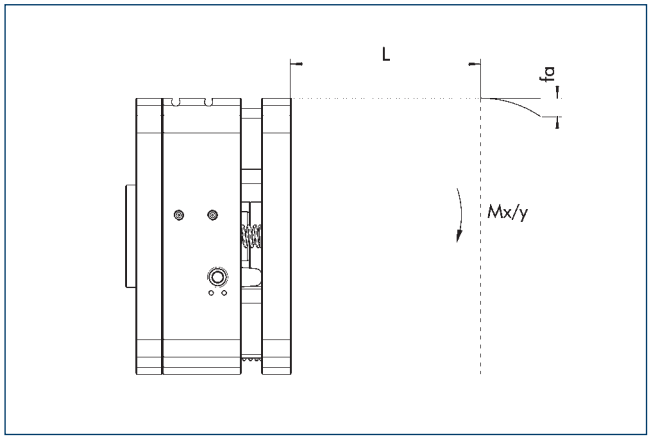


The drawing shows the basic version of the compensation unit in the extended position, without considering any dimensions of the options described below.

A, a Air connection unlocked
B, b Air connection locked

(1) Robot-side connection
(2) Tool-side connection
(5) Through hole for connection with screws
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering
(90) Slot for magnetic switch

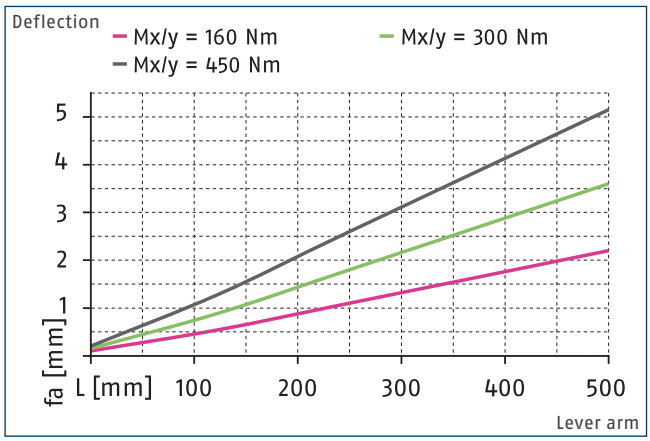
Deflection



AGM-Z 160L

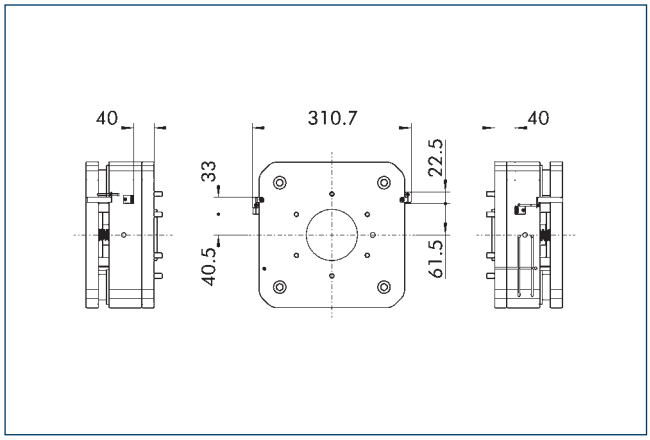
Compensation unit

Deflection diagram – horizontal design



ⓘ The diagram shows the change in the maximum deflection (fa) as a function of the lever arm (L) in the depressurized status and the moments (Mx,y) acting on the additionally attached mass. The diagram does not replace the technical design.

Attachment kit for proximity switch IN 80

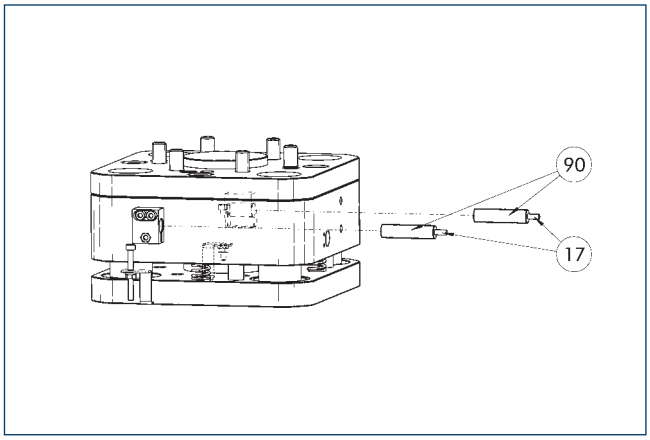


End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-AGM-Z-160L-IN80	1601734	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

IN 80 inductive proximity switches



17 Cable outlet

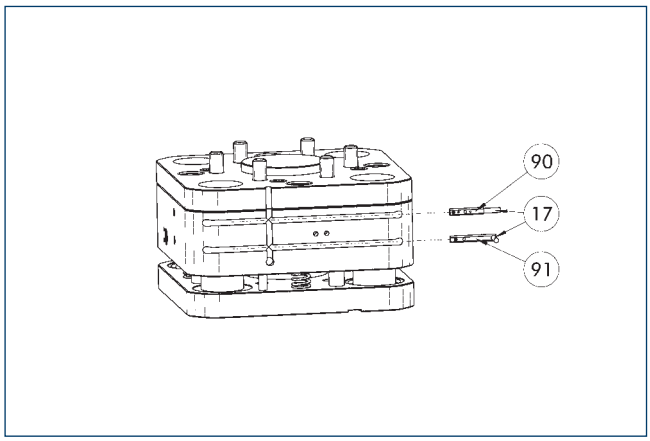
90 IN proximity switch

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-AGM-Z-160L-IN80	1601734	
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



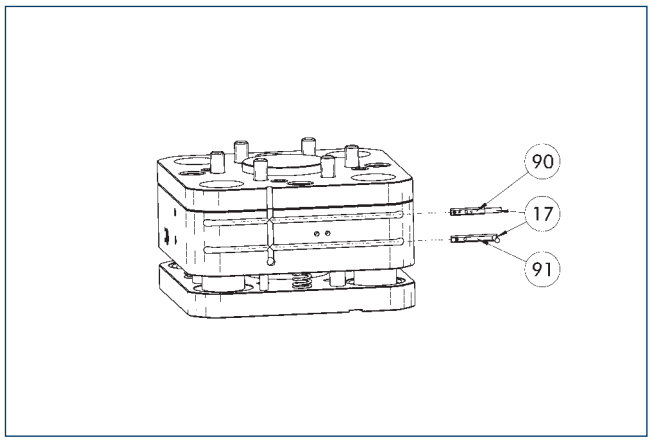
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



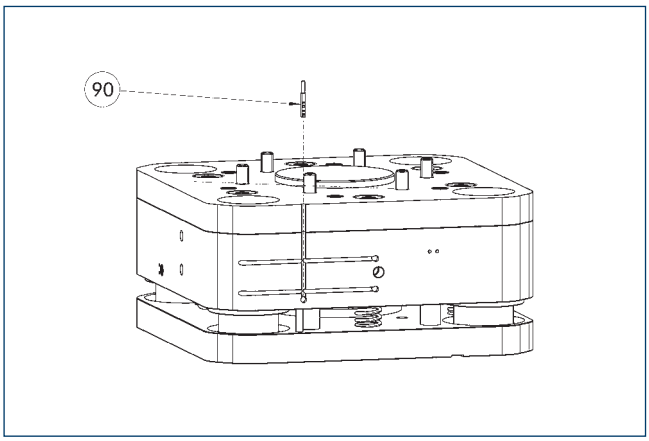
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI2



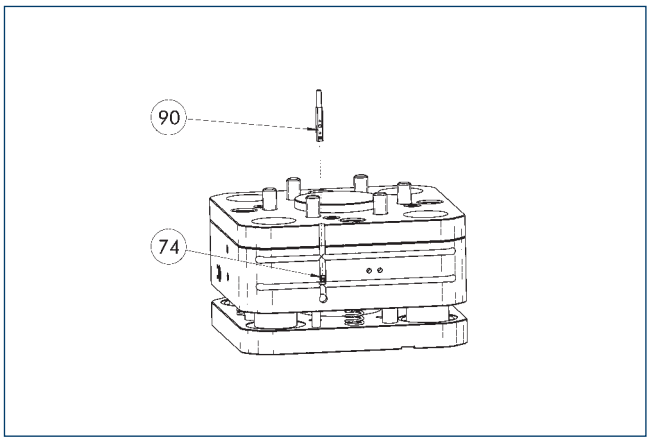
(90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Analog position sensor MMS-A



(74) Limit stop for sensor

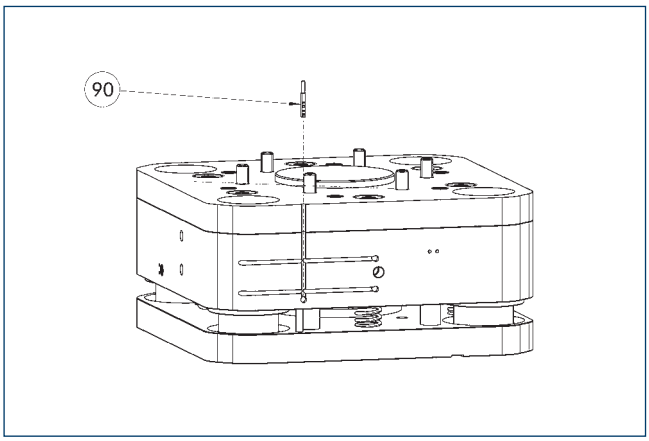
(90) MMS 22-A-... sensor

Non-contact measuring, analog multi-position monitoring for any number of positions, easy to assemble in the C-slot. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the chart provided, teaching is only possible with the ST teaching tools.

Description	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

Magnetic switch MMS 22-IO-Link



(90) Sensor MMS 22-IOL-...

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

Description	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required per compensation unit. Further information and technical data can be found in the catalog chapter sensor systems.

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