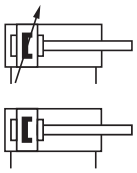
KM/8000/M/EX, ISO cylinder (stainless steel) Magnetic piston, double acting

- Ø 12 ... 25 mm
- High corrosion and acid resistance
- Magnetic piston as standard
- Conforming to ISO 6432
- Suitable for applications in the Food Industry
- Buffer or adjustable cushioning
- Nose mounting nut and piston rod locknut as standard
- These cylinders are applicable in zones 1&2 (gas), 21&22 (dust), ATEX Cat. II 2G und 2D





Technical features

Medium:
Compressed air, filtered, lubricated or non-lubricated

Standard:
ISO 6432

Operation:
Double acting with magnetic piston and buffer or adjustable cushioning

Operating pressure:
1 ... 10 bar (14 ... 145 psi)

Cylinder diameters:
12, 16, 20, 25 mm (buffer)
20, 25 mm (adjustable cushioning)

Strokes:
See page below

Non-standard strokes:
up to 500 mm max. on request

Ambient temperature:
-10° ... +60°C (+14° ... +140°F)

Operating temperature:
-10 ... +80°C max. (+14 ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Equipment marking acc. to ATEX:
II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T120°C Db

Materials:
Cylinder barral: X5 Cr Ni 18 10 (1.4301; AISI 304)
End covers: X10 Cr Ni S 18 9 (1.4305; AISI 303)
Piston rod: X10 Cr Ni S 18 9 (1.4305; AISI 303)
Piston: POM
Buffer: PUR
Piston rod seal: PUR
Piston seal: NBR
'O'-rings: NBR

Technical data

Cylinder Ø (mm)	12	16	20	25
Port size	M5	M5	G1/8	G1/8
Piston rod Ø (mm)	6	6	8	10
Piston rod thread	M6	M6	M6	M10x1,25
Cushion length mm	-	-	19	19
Initial cushion volume (cm3) *1)	-	-	4,4	7,2
Theoretical thrusts at 6 bar outstroke (N)	67,8	120	188	294
Theoretical thrusts at 6 bar instroke (N)	51	104	158	247
Air consumption at 6 bar outstroke (l/cm)	0,008	0,014	0,022	0,035
Air consumption at 6 bar instroke (l/cm)	0,006	0,013	0,019	0,028

*1) For cylinders with adjustable cushioning only

Standard strokes with buffer cushioning

Cylinder Ø (mm)	Stroke length (mm) 10	25	40	50	80	100	125	160	200	250
12	•	•	•	•	•	•	•	•	•	–
16	•	•	•	•	•	•	•	•	•	–
20	•	•	•	•	•	•	•	•	•	•
25	•	•	•	•	•	•	•	•	•	•

with adjustable cushioning

Cylinder Ø (mm)	Stroke length (mm) 10	25	40	50	80	100	125	160	200	250
20	–	•	–	•	•	•	•	•	•	•
25	–	•	–	•	•	•	•	•	•	•

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Explosion protection according ATEX directive 2014/34/EU
EN ISO 80079 Non-electrical equipment for potentally explosive atmospheres

Range of application		All range of application other than mines		
Equipment group		II		
Potentially explosive atmosphere		Mixture of air and gases, vapours, mists → G (gas)		
(compustible materials)		Dust/air - mixture → D (dust)		
Probability risk for a potentially explosive atmosphere		Continuous or long-term or frequent	Occasional	Rarely and briefly
Equipment categories		1	2	3
Equipment safety		very high	high	normal
Gas	Equipment-identification Ex...	Ex II 1G	Ex II 2G	Ex II 3G
	ATEX-zone	Zone 0	Zone 1	Zone 2
Dust	Equipment-identification Ex...	Ex II 1D	Ex II 2D	Ex II 3D
	ATEX-zone	Zone 20	Zone 21	Zone 22

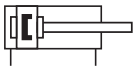
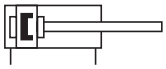
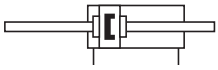
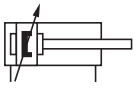
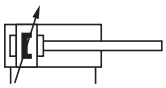
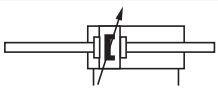
Equipment identification for IMI Norgren pneumatic cylinder: (Example for standard cylinder)

II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T120°C Db

Equipment group:	II	All application other than mines
Equipment categorie:	2	High level of equipment safety
Usability for zones:	G and D	Gas and dust
Explosions groups	IIC and IIIC	Max. ignitability gas- and dust groups
Temperature class for gas:	T4	Max. surface temperature 135°C
Temperature data for dust:	120°C	Max. surface temperature
Equipment Protection Level (EPL)	Gb and Db	Gas and dust, save by normal operation and expected equipment fault

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Cylinder variants

Symbol	Model magnetic piston	Description	Drawing Page
	KM/8000/M/EX	Standard cylinder with integral eye mounting	5
	KM/8000/MF/EX	Cylinder with flat rear cover	5
	KM/8000/M/R/EX	Cylinder with rear eye mounting	6
	KM/8000/M/UR/EX	Cylinder with universal rear eye mounting	6
	KM/8000/MU/EX	Cylinder with extended piston rod piston rod extension 75 mm: KM/8***/MU/EX/stroke/75	5
	KM/8000/JM/EX	Cylinder with double ended piston rod (Ø 16 to 25 mm)	5
	KM/8021/M/EX	Cylinder Ø 20 mm with adjustable cushioning	5
	KM/8026/M/EX	Cylinder Ø 25 mm with adjustable cushioning	5
	KM/8021/M/R/EX	Cylinder Ø 20 mm with adjustable cushioning and rear eye mounting	6
	KM/8026/M/R/EX	Cylinder Ø 25 mm with adjustable cushioning and rear eye mounting	6
	KM/8021/M/UR/EX	Cylinder Ø 20 mm with adjustable cushioning and universal rear eye mounting	6
	KM/8026/M/UR/EX	Cylinder Ø 25 mm with adjustable cushioning and universal rear eye mounting	6
	RM/8021/MU/EX	Cylinder Ø 20 mm with adjustable cushioning and extended piston rod	5
	RM/8026/MU/EX	Cylinder Ø 25 mm with adjustable cushioning and extended piston rod	5
	RM/8021/JM/EX	Cylinder Ø 20 mm with double ended piston rod and adjustable cushioning	6
	RM/8026/JM/EX	Cylinder Ø 25 mm with double ended piston rod and adjustable cushioning	6

Option selector

KM/80★★/★★/★★/EX/★★★

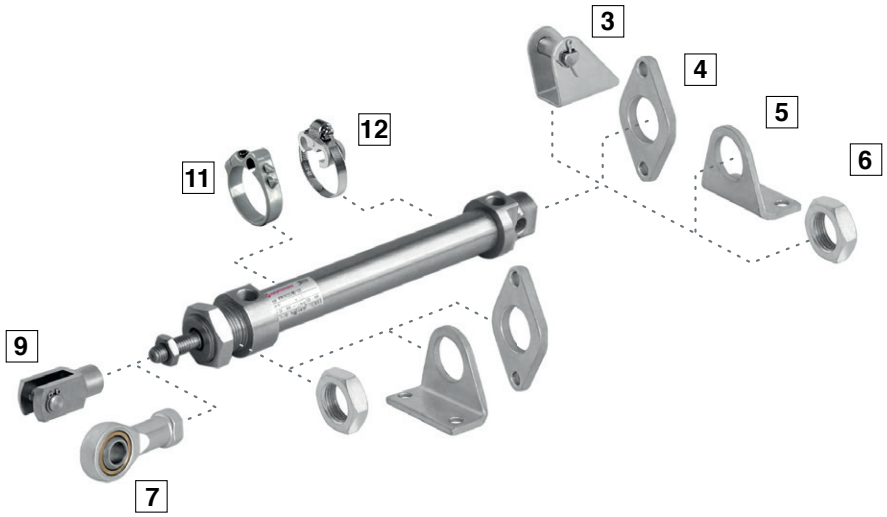
Cylinder Ø (mm) with buffer	Substitute
12	12
16	16
20	20
25	25
Cylinder Ø (mm) with adjustable cushioning	**Substitute**
20	21
25	26

Stroke (mm)	
max. 500	
Mounting variants	**Substitute**
Cylinder with integrated rear eye mounting	R
Cylinder with integrated universal rear eye mounting	UR
Variants	**Substitute**
Standard	M
Flat rear cover	MF
Double ended piston rod	JM
Extended piston rod	MU
KM/8***/MU/EX/***/***	Extension (mm)

Note: Please fill in only the numbers of digits required,e.g. KM/8025/M/EX/50
If option is not required, disregard option position within part number eg. KM/8025/M/EX/50. For combinations of cylinder variants consult our Technical Service. This options selector explains only the cylinder variants. Additional variants/ options are not possible.
See table above.

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Mountings



Model Ø	B, G 4 Page 7	C 5 Page 7	F 9 Page 7	L 3 Page 7	N 6 Page 7	UF 7 Page 7
12	M/P72405	M/P72403	KQM/8012/25	KQM/8012/24	M/P72398	KQM/8012/32
16	M/P72405	M/P72403	KQM/8012/25	KQM/8012/24	M/P72398	KQM/8012/32
20	M/P72406	M/P72404	KQM/8020/25	KQM/8020/24	M/P72399	KQM/8020/32
25	M/P72406	M/P72404	KQM/55433/25	KQM/8020/24	M/P72399	KQM/8032/32

Model Ø	Switch mounting brackets >15 mm stroke 11 Page 10	<15 mm stroke 12 Page 10	Magnetically operated switches Page 8 & 9
12	QM/33/012/22	QM/33/016/23	
16	QM/33/016/22	QM/33/016/23	
20	QM/33/020/22	QM/33/020/23	
25	QM/33/025/22	QM/33/025/23	

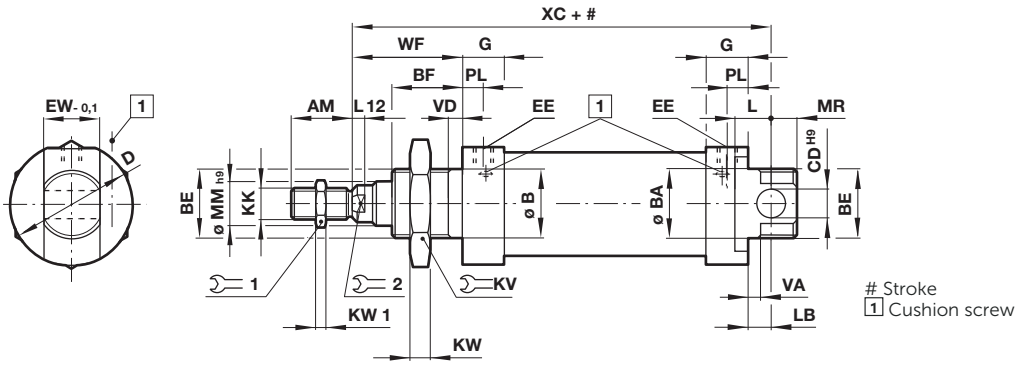
Materials of mountings and accessories standard cylinder

Position	Style	Stainless steel	Position	Style	Stainless steel
3	L	Rear hinge mounting: X 5 Cr Ni 18 10 (1.4301; AISI 304), bolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303), eyebolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303)	7	UF	Body: X 5 Cr Ni 18 10 (1.4301; AISI 304), Inner ring: X 105 Cr Co 18-2 (1.4528), Outer ring: X 10 Cr Ni S 18 9 (1.4305; AISI 303)
4	B, G	Flange mounting: X 5 Cr Ni 18 10 (1.4301; AISI 304)	9	F	Piston rod clevis mounting: X 10 Cr Ni S 18 9 (1.4305; AISI 303), bolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303), eyebolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303)
5	C	Foot mounting: X 5 Cr Ni 18 10 (1.4301; AISI 304)	11 & 12	Bracket for switches	Body POM, screws stainless steel
6	N	Nose nut: X 10 Cr Ni S 18 9 (1.4305; AISI 303)			

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Basic dimensions
KM/8000/M/EX – Cylinder with buffer cushioning / adjustable cushioning

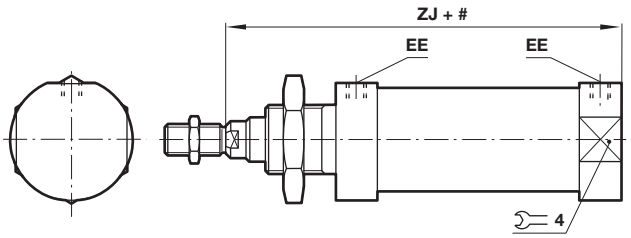
Dimensions in mm
Projection/First angle



Ø	AM	Ø B/BA	BE	BF	Ø CD H9	Ø D	EE	EW -0,1	G	KK	KV	2	KW	Model
12	16	16	M16x1,5	17	6	20	M5	11,9	9,5	M6	22	5	5	KM/8012/M/EX/*
16	16	16	M16x1,5	17	6	20	M5	11,9	9,5	M6	22	5	5	KM/8016/M/EX/*
20	20	22	M22x1,5	20	8	30	G1/8	15,9	15	M8	27	7	8	KM/8020/M/EX/*
25	22	22	M22x1,5	22	8	30	G1/8	15,9	15	M10x1,25	27	9	8	KM/8025/M/EX/*
Ø	KW1	L	L12	LB	Ø MMh9	MR	PL	1	WF	VA/VD	XC	at 0 mm	per 25 mm	Model
12	3	9	3	3	6	8	5,5	10	22	2	75	0,116 kg	0,011 kg	KM/8012/M/EX/*
16	3	9	3	4	6	7	5,5	10	22	2	82	0,137 kg	0,012 kg	KM/8016/M/EX/*
20	4	12	3	3	8	11	8	13	24	2	95	0,306 kg	0,018 kg	KM/8020/M/EX/*
25	5	12	4	7	10	9	8	17	28	2	104	0,383 kg	0,028 kg	KM/8025/M/EX/*

* Please insert standard stroke length.

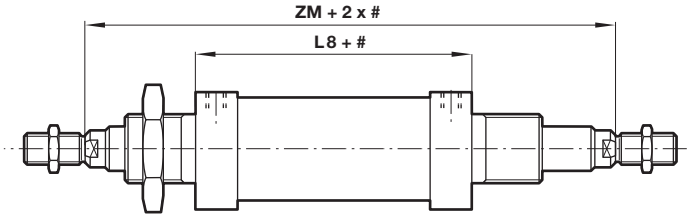
Cylinder variants
KM/8000/MF/EX – Cylinder flat rear cover



Ø	EE	ZJ	4	kg at 0 mm	kg per 25 mm	Model
12	M5	72	17	0,109	0,011	KM/8012/MF/EX/*
16	M5	78	17	0,13	0,012	KM/8016/MF/EX/*
20	G1/8	92	27	0,299	0,018	KM/8020/MF/EX/*
25	G1/8	97	27	0,37	0,028	KM/8025/MF/EX/*

* Please insert standard stroke length.
Note: missing dimensions see standard cylinders

KM/8000/JM/EX – Cylinder with double ended piston rod



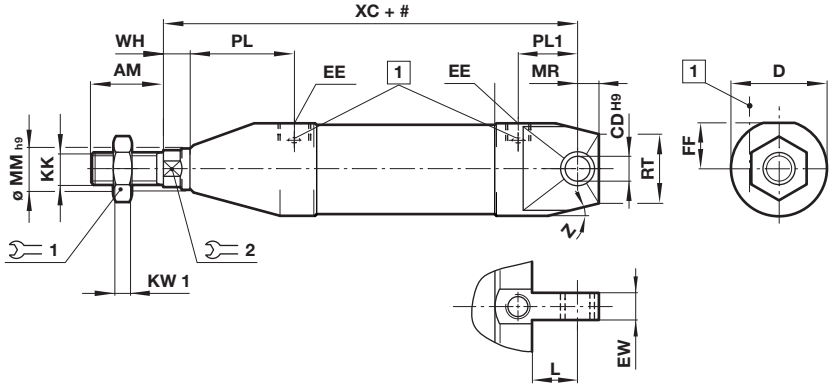
Ø	L8	ZM	kg at 0 mm	kg per 25 mm	Model
16	56	100	0,14	0,018	KM/8016/JM/EX/*
20	68	116	0,36	0,028	KM/8020/JM/EX/*
25	69	125	0,44	0,043	KM/8025/JM/EX/*

* Please insert standard stroke length.
Note: missing dimensions see standard cylinders

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Alternative variants
KM/8000/M/R/EX – Cylinder with rear eye mounting

Dimensions in mm
Projection/First angle

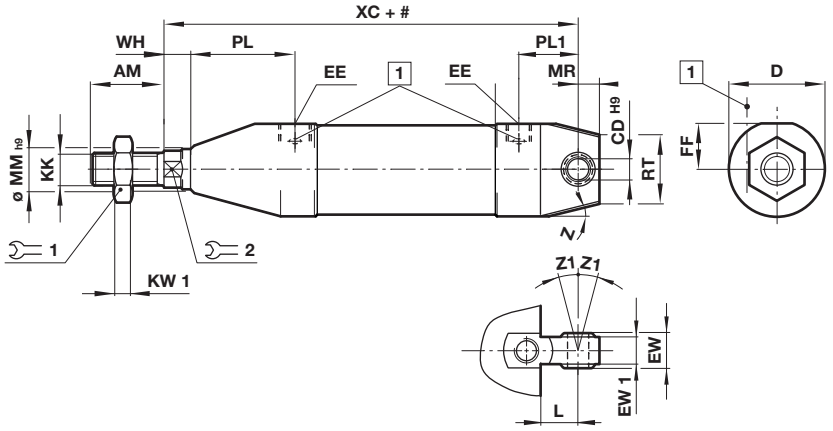


Stroke
1 Cushion screw

Ø	AM	Ø CD H9	Ø D	EE	EW -0,1	FF	KK	L	Ø MM h 9	MR	PL	PL1	RT	WH	XC	Z	1	2	at 0 mm	per 25 mm	Model
12	16	6	20	M5	11,9	9	M6	9	6	11,5	23,5	15,5	10	4	75	5 x 45°	10	5	0,106 kg	0,011 kg	KM/8012/M/R/EX/*
16	16	6	20	M5	11,9	9	M6	9	6	10,5	22,5	15	10	5	82	5 x 45°	10	5	0,130 kg	0,012 kg	KM/8016/M/R/EX/*
20	20	8	30	G1/8	15,9	13,5	M8	12	8	12,5	18,5	18,5	13,5	4	95	30°	13	7	0,300 kg	0,018 kg	KM/8020/M/R/EX/*
25	22	8	30	G1/8	15,9	13,5	M10x1,25	12	10	12,5	19,5	26,5	11,5	6	104	30°	17	9	0,360 kg	0,028 kg	KM/8025/M/R/EX/*

* Please insert standard stroke length.

KM/8000/M/UR/EX – Cylinder with universal rear eye mounting



Stroke
1 Cushion screw

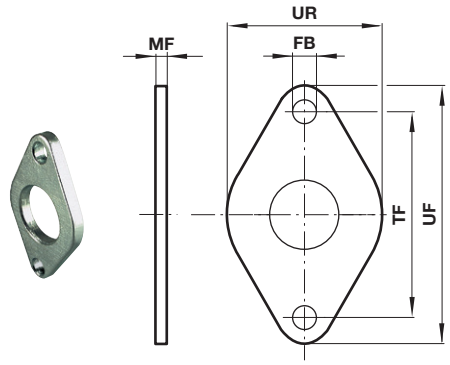
Ø	AM	Ø CD H9	Ø D	EE	EW -0,1	EW1	FF	KK	KW1	L	Ø MM h 9	MR	PL	PL1	RT	WH	XC	Z	Z1	1	2	Model
12	16	6	20	M5	9	6,8	9	M6	3	9	6	11,5	23,5	15,5	–	4	75	5 x 45°	13°	10	5	KM/8012/M/UR/EX/*
16	16	6	20	M5	9	6,8	9	M6	3	9	6	10,5	22,5	15	–	5	82	5 x 45°	13°	10	5	KM/8016/M/UR/EX/*
20	20	8	30	G1/8	12	9	13,5	M8	4	12	8	12,5	20,5	18,5	14	4	95	30°	13°	13	7	KM/8020/M/UR/EX/*
25	22	8	30	G1/8	12	9	13,5	M10x1,25	8	12	10	12,5	25,5	19,5	14	6	104	30°	13°	17	9	KM/8025/M/UR/EX/*

* Please insert standard stroke length.
Weights see talble on top.

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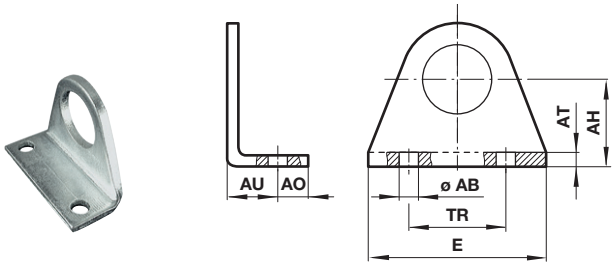
Mountings
Front or rear flange G and B

Dimensions in mm
Projection/First angle



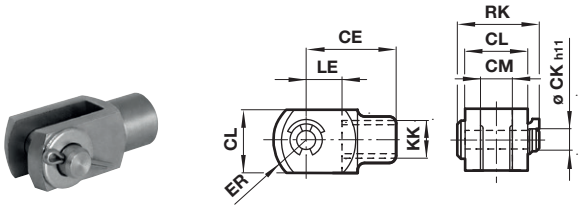
Ø	Ø FB	MF	TF	UF	UR	kg	Model
12/16	5,5	4	40	52	30	0,03	M/P72405
20/25	6,6	5	50	66	40	0,05	M/P72406

Foot C
Conforms to DIN ISO 6432



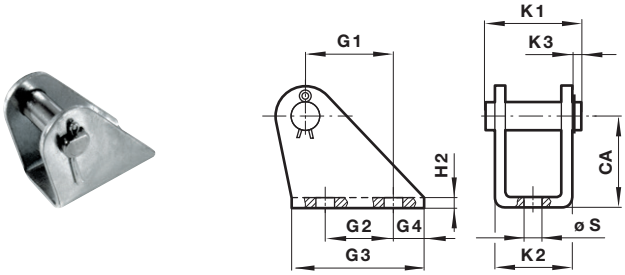
Ø	Ø AB	AH	AO	AT	AU	E	TR	kg	Model
12/16	5,5	20	6	3	13	43	32	0,03	M/P72403
20/25	6,5	25	7,5	4	16	53	40	0,06	M/P72404

Piston rod clevis F
Conforms to DIN ISO 8140



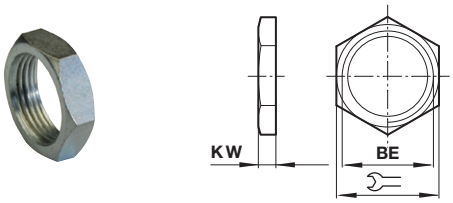
Ø	KK	CE	øCK h11	CL	CM	ER	LE	RK	kg	Model
12/16	M6	24	6	12	6	9,5	12	17,5	0,02	KQM/8012/25
20	M8	32	8	16	8	13	16	22	0,06	KQM/8020/25
25	M10x1,25	40	10	20	10	16	20	28	0,10	KQM/55433/25

Rear hinge L



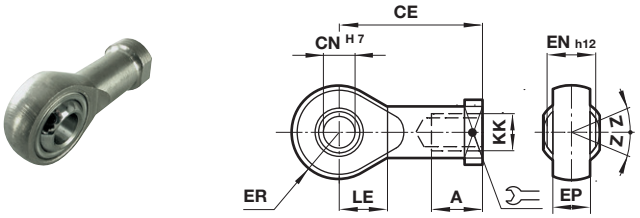
Ø	CA	G1	G2	G3	G4	H2	K1	K2	K3	Ø S	kg	Model
12/16	27	13	15	25	4	3	23	18	3	5,5	0,04	KQM/8012/24
20/25	30	16	20	32	6	4	29,5	24	3	6,6	0,08	KQM/8020/24

Nose nut N



Ø	BE	KW	⌯	kg	Model
12/16	M16x1,5	5	22	0,01	M/P72398
20/25	M22x1,5	8	27	0,02	M/P72399

Universal piston rod eye UF
Conforms to DIN ISO 8139



Ø	KK	AX -1	CE	CNH7	EN-0,1	ER	LE	Z	kg	Model
12/16	M6	12	30	6	9	10,5	10	13°	0,02	KQM/8012/32
20	M8	16	36	8	12	12,5	12	13°	0,05	KQM/8020/32
25	M10x1,25	20	43	10	14	14,5	14	13°	0,08	KQM/8032/32

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— ATEX - Magnetically operating switch, reed contact
— Suitable for all cylinder ranges with magnetic piston
— LED indicator
— CE verificated



Technical features

Operation:
Normal open with LED (yellow)

Switching voltage (Ub):
10 ... 240 V a.c./170 V d.c.

Switching voltage output:
Ub - 2,7 V

Switching current (see graph overleaf):
0,18 A max.

Switching power:
10 W/10 VA max.

Contact resistance:
150 mΩ

Response time:
1,8 ms

Operating temperatur:
-20 ... +50°C (-4 ... +122°F)

Ex-Identification:
II 3G Ex nC IIC T5 Gc X
II 3D Ex tc IIIC T120°C Dc X

Protection rating (EN 60529):
IP67

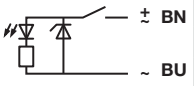
Cable type:
PVC 2 x 0,25 mm²

Cable length:
5 m

Electromagnetic compatibility according to:
EN 60947-5-2

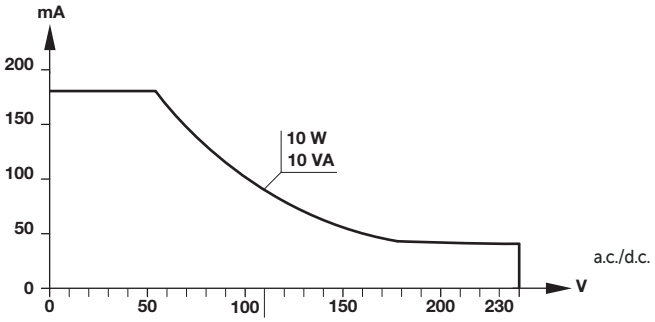
Materials:
Body: plastic
Cable: see table below

Technical data - Reed switches - additional information see data sheet en 4.3.015

Symbol	Voltage (V a.c.)	Voltage (V d.c.)	Current maximum (mA)	Function	Operating temperature (°C)	LED	Protection class	Cable length (m)	Cable type	Weight (g)	Model
	10 ... 240	10 ... 170	180	Closer	-20 ... +50	•	IP67	5	PVC 2 x 0,25	40	M/50/LXU/5V

Color code: BN = brown, BU = blue

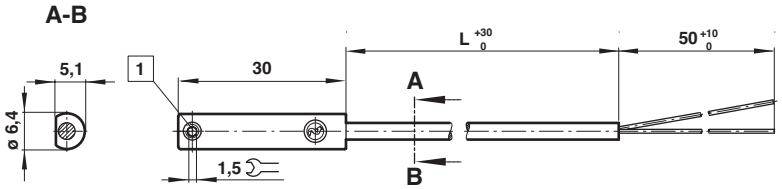
Switching current and switching voltage



Dimensions
Cable length L = 5 m

Dimensions in mm
Projection/First angle





1 Fixing screw

ATTENTION:
The setting of magnetic switches on a cylinder barrel forms an ATEX assembly:
- Each part is separate classified according ATEX for use in potentially explosive atmospheres.
- The resulting range of approved applications for the module corresponds to that of the individual part assigned to the lowest category.
- The result concerns the device category, potentially explosive atmosphere G or D, max. surface temperature and explosion classification if applicable.

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2016 - 5287c) © 2024 Norgren GmbH

- ATEX - Magnetically operating switch, solid state
- Suitable for all cylinder ranges with magnetic piston
- LED indicator
- Resistant, reliable
- switching with a very fast response time
- Particularly suited for use in high levels of vibration
- CE verificated
- UL certificated



Technical features

Operation:
PNP-output with LED (yellow)

Switching voltage (Ub):
10 ... 30 V d.c.

Switching voltage output:
Ub - 2 V

Switching current (see graph):
150 mA max.

Switching power:
4,5 W max.

Response time:
< 0,5 ms

Switching frequency:
1 kHz

Operating temperatur:
-20 ... +50°C (-4 ... +122°F)

Ex-Identification:
II 3G Ex nA IIC T4 Gc X
II 3D Ex tc IIIC T110°C Dc X

Protection rating (EN 60529):
IP67

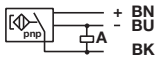
Cable type:
PVC 3 x 0,25 mm2

Cable length:
5 m

Electromagnetic compatibility according to:
EN 60947-5-2

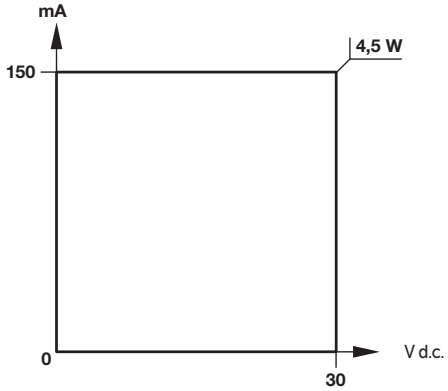
Materials:
Body: plastic
Cable: see table below

Technical data - Reed switches - additional information see data sheet en 4.3.017

Symbol	Voltage (V d.c.)	Current maximum (mA)	Function	Operating temperature (°C)	LED	Protection class	Cable length (m)	Cable type	Weight (g)	Model
	10 ... 30	150	PNP	-20 ... +50	•	IP67	5	PVC 3 x 0,25	40	M/50/EXP/5V

Color code: BK = black, BN = brown, BU = blue

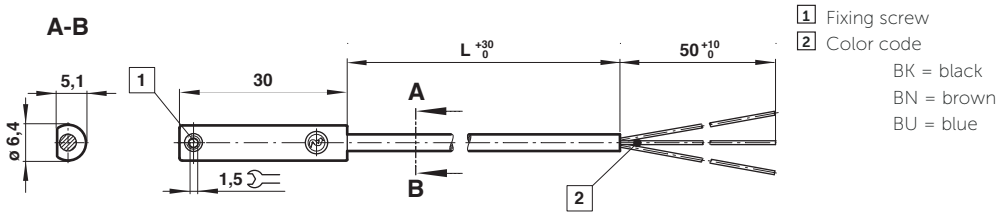
Switching current and switching voltage



Dimensions
Cable length L = 5 m

Dimensions in mm
Projection/First angle





1 Fixing screw
2 Color code
BK = black
BN = brown
BU = blue

ATTENTION:
The setting of magnetic switches on a cylinder barrel forms an ATEX assembly:
- Each part is separate classified according ATEX for use in potentially explosive atmospheres.
- The resulting range of approved applications for the module corresponds to that of the individual part assigned to the lowest category.
- The result concerns the device category, potentially explosive atmosphere G or D, max. surface temperature and explosion classification if applicable.

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Switch mounting brackets - Brackets > 15 mm stroke



1 Magnetically operated switch
2 Switch mounting bracket

Ø	B	R max.	kg	Model
10	8	16	0,01	QM/33/010/22
12	8	18	0,01	QM/33/012/22
16	10	20	0,01	QM/33/016/22
20	10	22	0,01	QM/33/020/22
25	10	24	0,01	QM/33/025/22

Switch mounting brackets - Brackets < 15 mm stroke



1 Magnetically operated switch
2 Switch mounting bracket

Ø	S	T	kg	Model
10	27,5	19,5	0,01	QM/33/010/23
12	28,5	21,5	0,01	QM/33/016/23
16	29,5	23,5	0,01	QM/33/016/23
20	29,5	26	0,01	QM/33/020/23
25	31,5	28,5	0,01	QM/33/025/23

Protection of magnetic switch

1. Install the switch in a way that ensures to protect the switch against mechanical damage, shock or impact from any direction.
2. For an open installation of a magnetic switch onto a cylinder barrel with external tie rods or round cylinders, an additional protection element for the magnetic switch and his cable has to be installed with the mounting element. For the protection element of the housing a separate order for M/P73673 is required.

Roundline cylinder, stroke ≥ 50 mm

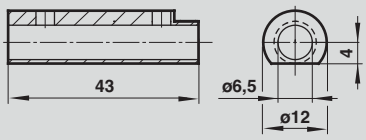


Mounting element for magnetic switch



Protection unit ATEX





Cylinder Ø (mm)	Model	Model
10	QM/33/010/22	M/P73673
12	QM/33/012/22	
16	QM/33/016/22	
20	QM/33/020/22	
25	QM/33/025/22	

Attention: During the assembly the magnetic switch must be completely inserted into the protection element.

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under »**Technical features/ data**«.
Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult Norgren GmbH.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

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