

Parallel grippers
 Double acting
 Magnetic piston
 • 10 to 25 mm

Ideal for general purpose gripping applications
Smooth, accurate movement
Long, uninterrupted service life
Low weight
Compact size
Integral magnets for positional feedback



Technical data

Medium:
 Compressed air, filtered, lubricated or non-lubricated
 Operation:
 Double acting, parallel, magnetic piston
 Operating pressure:
 1 to 7 bar
 (Ø 10 mm 1,8 to 7 bar, Ø 16 mm 1,2 to 7 bar)
 Operating temperature:
 0°C to +60°C
 * Air supply must be dry enough to avoid ice formation at temperatures below +2°C
 Mounting:
 Mounting holes on three faces
 Gripping repeatability:
 +/- 0,01 mm
 Mechanical life:
 ~ 5 million cycles before maintenance may be necessary

Materials

Body: aluminium alloy
 Top plate: carbon steel
 Fingers: carbon steel
 External screws: carbon steel
 Elastomers: nitrile

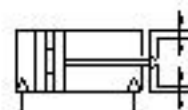
Ordering information

To order a gripper with an effective closing grip force of up to 25,5N at 5 bar quote:
M/160344/M/12

Order magnetically operated switches separately

Accessories

Switch M/344 2





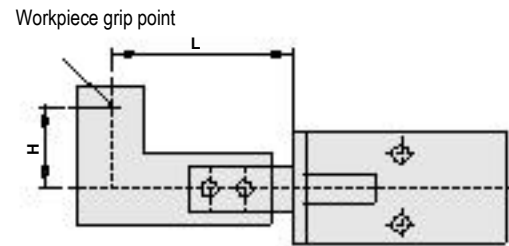
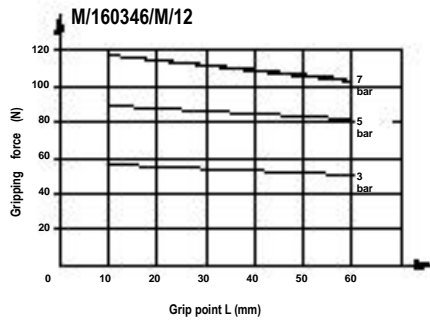
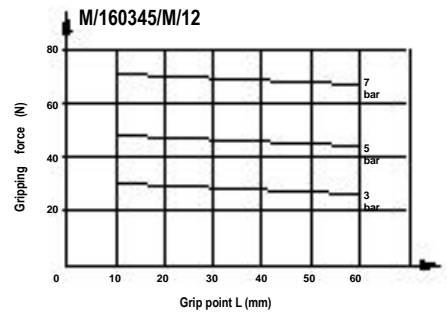
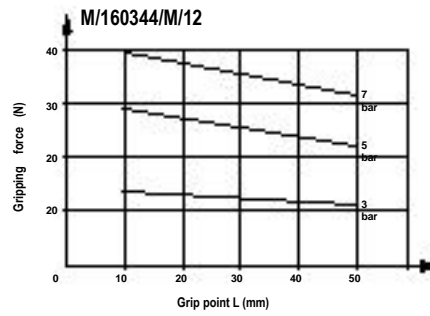
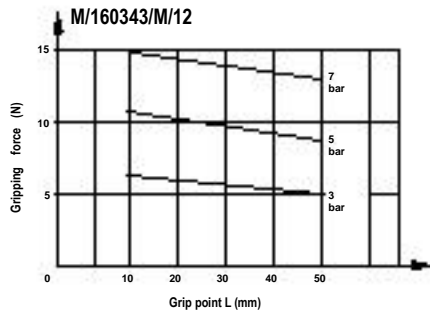
Standard models • Effective gripping force • Air consumption

Model	Effective gripping force (N) at 5 bar*		Air consumption (cm ³) at 5 bar**
	Opening	Closing	
M/160343/M/12	14,6	9,4	0,3
M/160344/M/12	34,0	25,5	1,5
M/160345/M/12	60,9	45,7	3,3
M/160346/M/12	87	67	6,4

* Grip point L = 30 mm

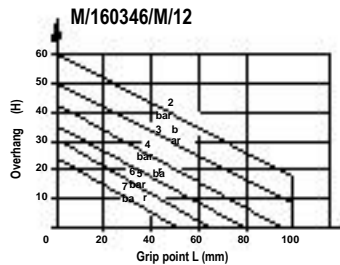
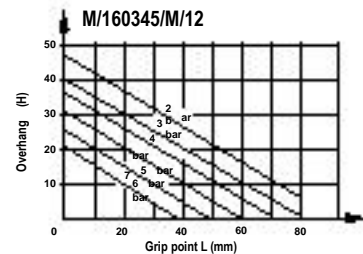
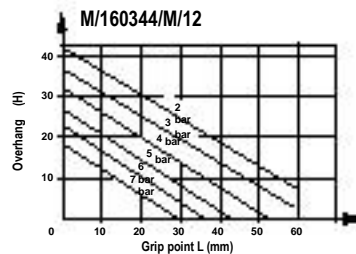
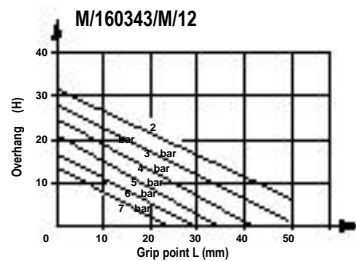
** per cycle

Theoretical closing gripping forces



Effective closing gripping forces = Theoretical closing gripping force x 0,85

Grip point limitation range



Criteria of workpiece weight

When chucking a workpiece, weight should be within the range between 1/10 and 1/20 of the above gripping force.

When chucking and then moving a workpiece, the workpiece may protrude or drop. Therefore, workpiece weight should be less than the above mentioned value. (Reference value is 1/30-1/50)

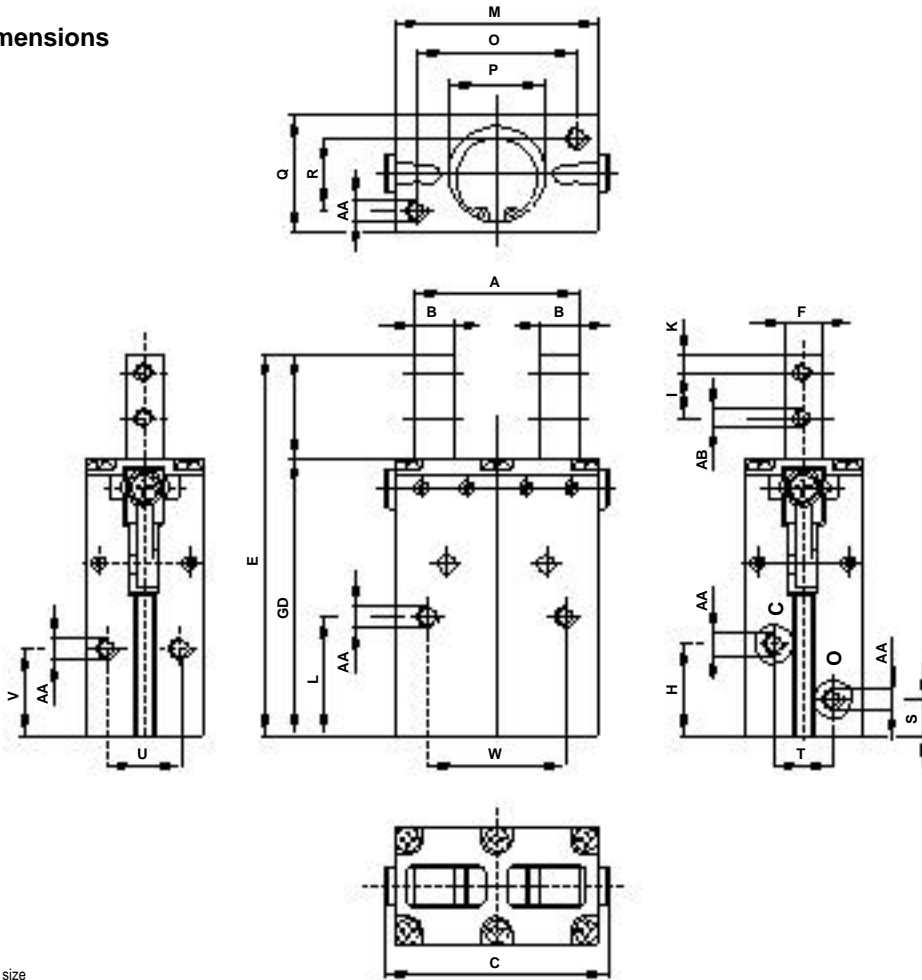
Weight depends on the operational condition, such as material and shape of workpiece or claw, speed and direction of moving workpiece (straight advance, rotation or swing, etc.)

Switches with LED indication

Model	2-wire solid state	3-wire solid state	Voltage V d.c.	Current max.	Temperature °C	LED	Features	Cable length	Cable type	Straight cable connection	90° elbow cable connection
M/344/EAU/1APV			10 ... 28	20 mA	0° ... +60°	⌈	-	1 m	PVC	-	⌈
M/344/EAU/1PV			10 ... 28	20 mA	0° ... +60°	⌈	-	1 m	PVC	⌈	-
M/344/EAU/3APV			10 ... 28	20 mA	0° ... +60°	⌈	-	3 m	PVC	-	⌈
M/344/EAU/3PV			10 ... 28	20 mA	0° ... +60°	⌈	-	3 m	PVC	⌈	-
		M/344/EAN/1APV	4,5 ... 28	50 mA	0° ... +60°	⌈	NPN	1 m	PVC	-	⌈
		M/344/EAN/1PV	4,5 ... 28	50 mA	0° ... +60°	⌈	NPN	1 m	PVC	⌈	-
		M/344/EAN/3APV	4,5 ... 28	50 mA	0° ... +60°	⌈	NPN	3 m	PVC	-	⌈
		M/344/EAN/3PV	4,5 ... 28	50 mA	0° ... +60°	⌈	NPN	3 m	PVC	⌈	-



Dimensions



* Port size

	A	B	C	D	E	F	G	H	I	K
M/160343/M/12	10 17 + 1,6 / -0,2 (open) 13 ± 0,4 (closed)	4,5	25 max	16,5	59,5	5,5 - 0,03	43	15	6	3
M/160344/M/12	16 26 + 2,3 (open) 18 + 0,6 / -0,2 (closed)	6,5	37,5 max	19	71	7 - 0,03	52	17,5	8	3
M/160345/M/12	20 36 + 1,5 / -0,9 (open) 24 + 0,1 / -0,9 (closed)	8,5	49 max	23	83,5	8 - 0,04	60,5	20	10	4
M/160346/M/12	25 42 + 1,0 / -0,7 (open) 28 ± 0,4 (closed)	10	57,5 max	27	95	10 - 0,03	68	23	12	5

	L	M	O	P	Q	R	S	T	U	V
M/160343/M/12	10	20	23	17	• 11 + 0,05 deep 1,5	16	10	7,5	10	10
M/160344/M/12	16	23	34	26	• 17 + 0,05 deep 1,5	22	14	7,5	12	14
M/160345/M/12	20	26	45	35	• 21 + 0,05 deep 1,5	26	16	8	13	16
M/160346/M/12	25	30	52	40	• 26 + 0,05 deep 1,5	32	20	9	18	20

	W	AA	AB	AC	kg
M/160343/M/12	10	18	M3 x 0,5	M3 x 0,5 deep 5	M3 x 0,5 0,05
M/160344/M/12	16	24	M5 x 0,8	M4 x 0,7 deep 7	M3 x 0,5 0,12
M/160345/M/12	20	30	M5 x 0,8	M5 x 0,8 deep 8	M4 x 0,7 0,22
M/160346/M/12	25	36	M5 x 0,8	M6 x 1,0 deep 10	M5 x 0,8 0,37

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 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.

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.

Parallel grippers - precision
Double acting
Magnetic piston
• 8 to 50 mm

Ideal for applications demanding accuracy and precise repeatability

Smooth, accurate movement

Long, uninterrupted service life

Low weight

Compact size

Integral magnets for positional feedback



Technical data

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Double acting, parallel, magnetic piston

Operating pressure:

7 bar maximum - see page 2 for minimum operating pressures

Operating temperature:

+0°C to +60°C

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Mounting:

Mounting holes on three faces

Gripping repeatability:

+/- 0,01 mm

Accuracy to centre:

+/- 0,07 mm

Mechanical life:

~ 5 million cycles before maintenance may be necessary

Operating frequency:

120 cycles per minute maximum

Materials

Body: aluminium alloy

Fingers: stainless steel

Guide rail: stainless steel

Elastomers: nitrile

Ordering information

To order a gripper with an effective closing grip force of up to 26N at 5 bar quote:

M/160356/M/12

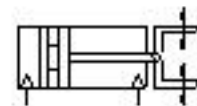
Order magnetically operated switches separately

Accessories

Switch M/344

See page

3



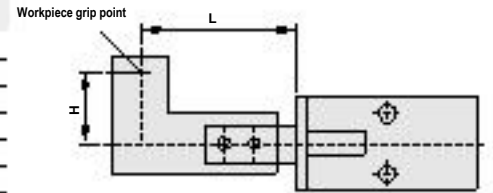


Standard models • Effective gripping force • Minimum operating pressure • Air consumption

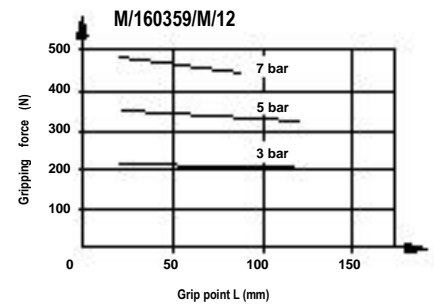
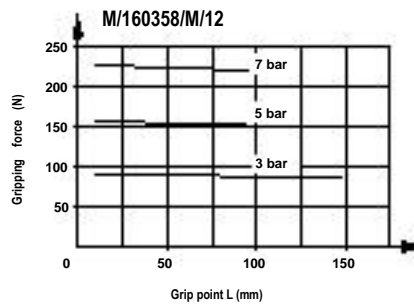
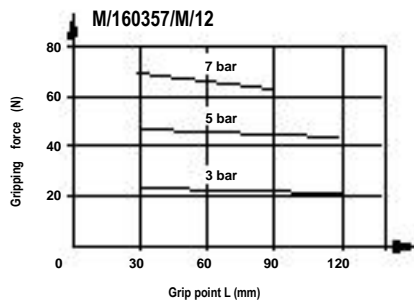
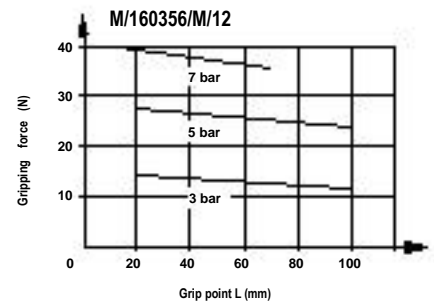
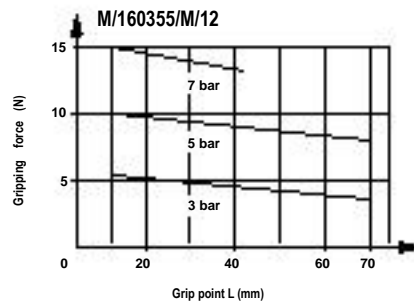
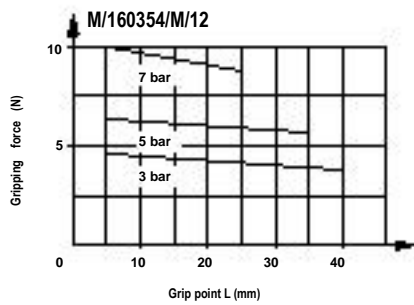
Model	Effective gripping force (N) at 5 bar*		Minimum operating pressure in bar	Air consumption (cm ³) at 5 bar**
	Opening	Closing		
M/160354/M/12	9,9	5,8	2,2	0,15
M/160355/M/12	15	9,4	2,0	0,41
M/160356/M/12	39	26	1,2	1,6
M/160357/M/12	60	45	1,0	3,7
M/160358/M/12	176	157	1,0	16,4
M/160359/M/12	414	347	1,0	61,0

* Grip point L = 30 mm

** per cycle

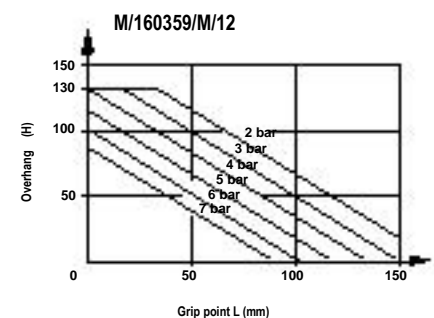
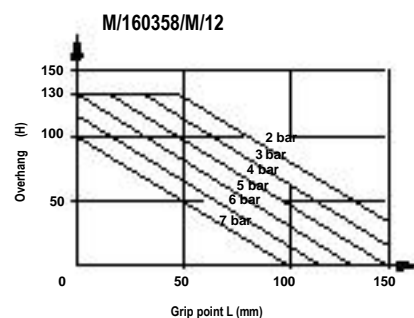
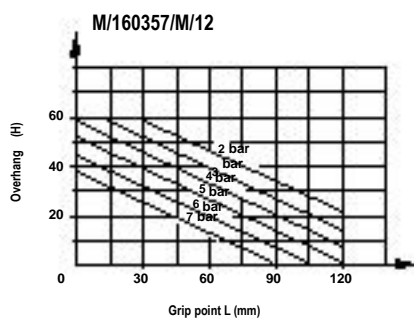
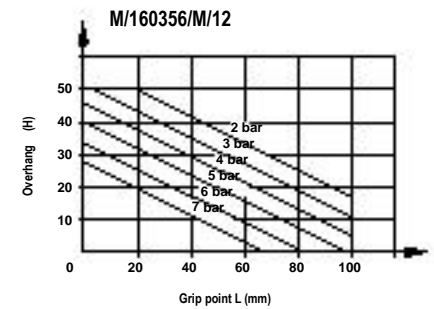
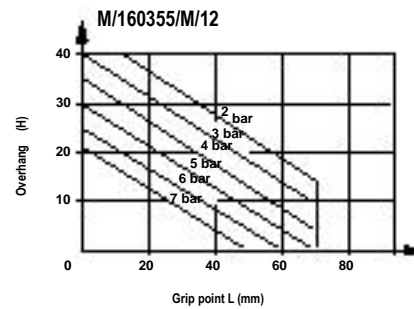
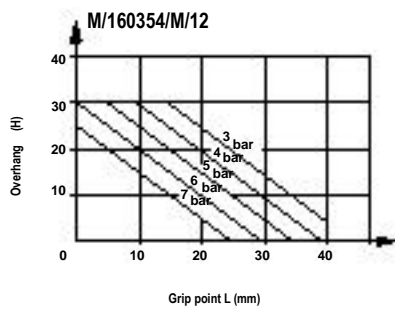


Theoretical closing gripping forces



Effective closing gripping forces = Theoretical closing gripping force x 0,85

Grip point limitation range



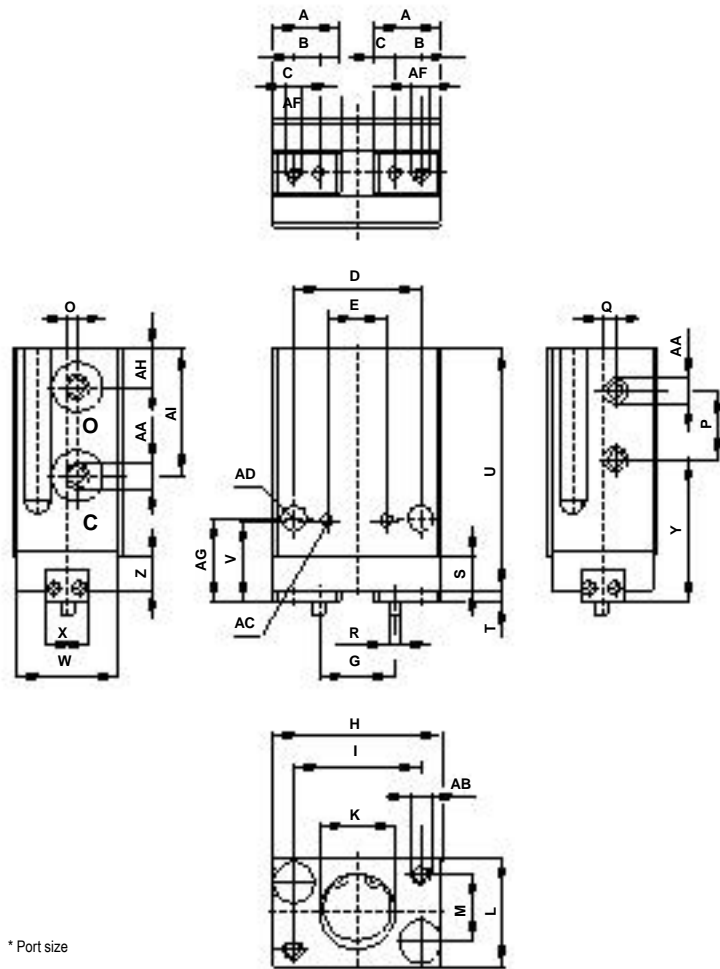


Switches with LED indication

Model	2-wire solid state	3-wire solid state	Voltage V d.c.	Current max.	Temperature °C	LED	Features	Cable length	Cable type	Straight cable connection	90° elbow cable connection
M/344/EAU/1APV			10 ... 28	20 mA	0° ... +60°	▣	-	1 m	PVC	-	▣
M/344/EAU/1PV			10 ... 28	20 mA	0° ... +60°	▣	-	1 m	PVC	▣	-
M/344/EAU/3APV			10 ... 28	20 mA	0° ... +60°	▣	-	3 m	PVC	-	▣
M/344/EAU/3PV			10 ... 28	20 mA	0° ... +60°	▣	-	3 m	PVC	▣	-
	M/344/EAN/1APV		4,5 ... 28	50 mA	0° ... +60°	▣	NPN	1 m	PVC	-	▣
	M/344/EAN/1PV		4,5 ... 28	50 mA	0° ... +60°	▣	NPN	1 m	PVC	▣	-
	M/344/EAN/3APV		4,5 ... 28	50 mA	0° ... +60°	▣	NPN	3 m	PVC	-	▣
	M/344/EAN/3PV		4,5 ... 28	50 mA	0° ... +60°	▣	NPN	3 m	PVC	▣	-

Dimensions

M/160354/M/12

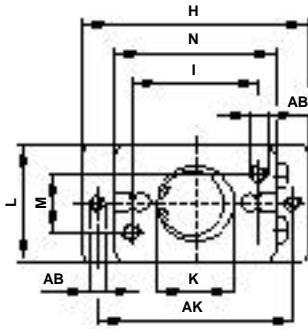
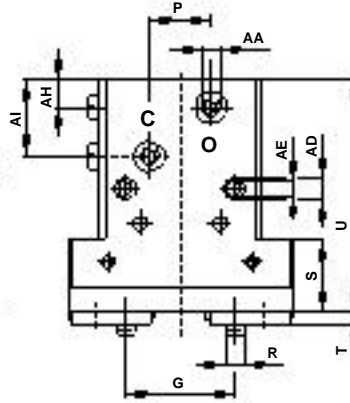
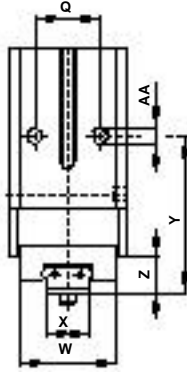
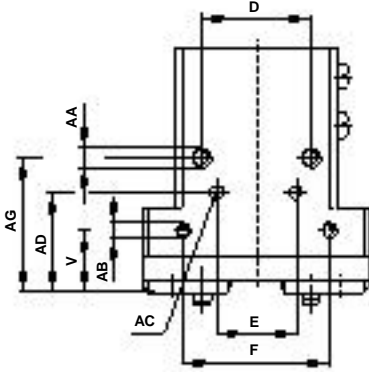
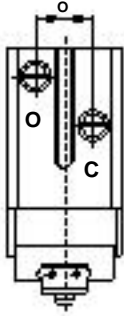
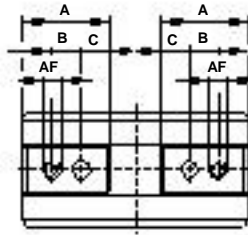


* Port size

	•	A	B	C	D	E	G		H	I	K
M/160354/M/12	8	8	3	2,5	15	7 ± 0,03	9 + 1,5 (open) 5 + 0,5 (closed)		20	15	• 9 + 0,05 deep 1
	•	L	M	N	O	P	Q	R	S	T	U
M/160354/M/12	8	13 ± 0,05	8	-	1,2	8	1,5	• 1,5 - 0,03	4	1,5	28,5
	•	V	W	X	Y	Z	AA	AB	AC	AD	
M/160354/M/12	8	9,7	12	5 ± 0,025	17	4	M3 x 0,5	M2,5 x 0,45 deep 4	• 1,5 + 0,02 deep 1	• 3,2	
	•	AF	AG	AH	AI	AL	kg				
M/160354/M/12	8	M2 X 0,4 deep 3,5	10	5	15	M3 X 0,5 deep 3	0,02				



M/160355/M/12
M/160356/M/12
M/160357/M/12
M/160358/M/12

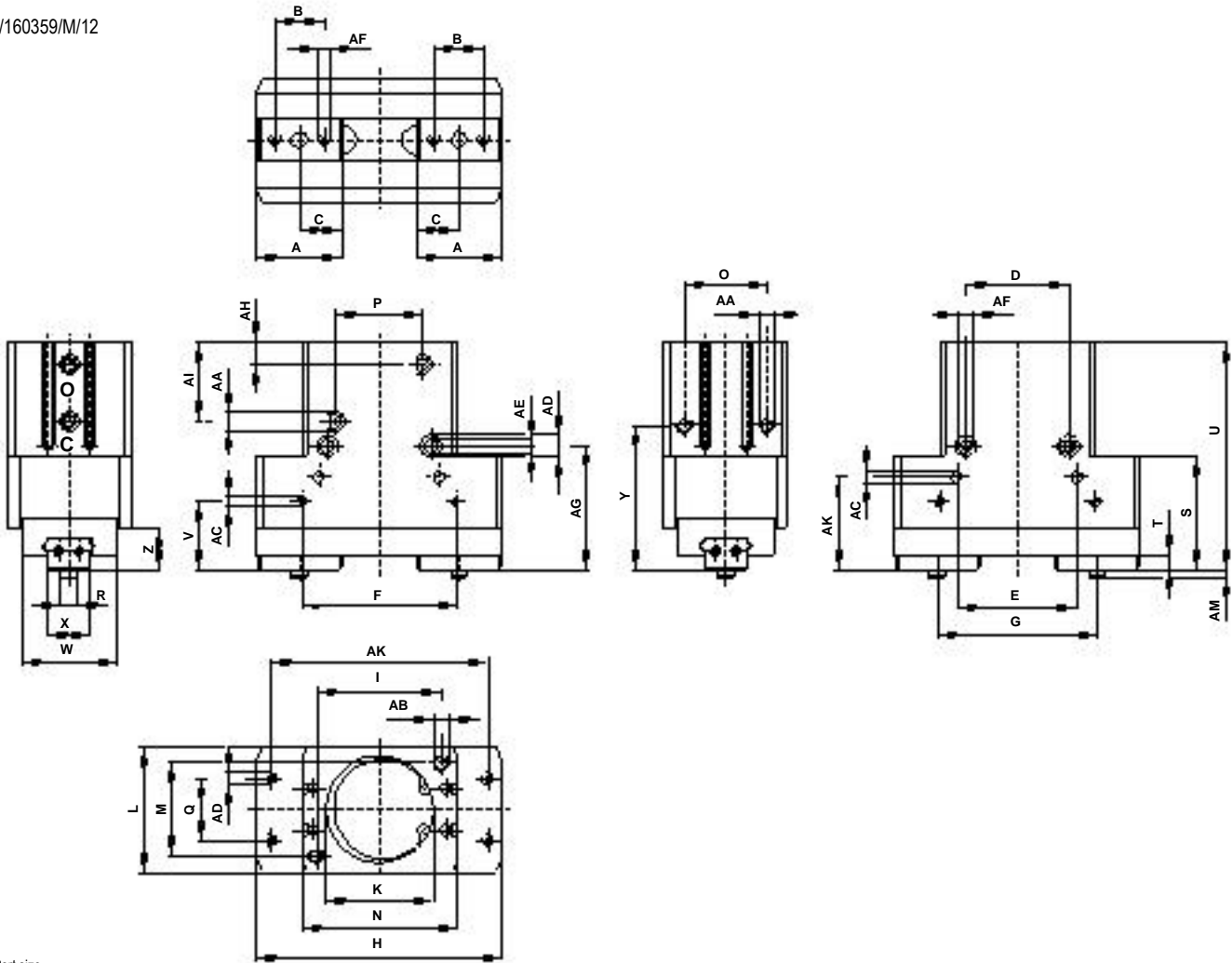


* Port size

•	A	B	C	D	E	F	G	H	I	K	
M/160355/M/12	10	14,7	5	4,5	17	12 ± 0,03	20	15,5 + 1,5 (open) 9 + 0,5 (closed)	36	17	• 11 + 0,05 deep 1,5
M/160356/M/12	16	20	8	6	24	16 ± 0,03	30	22 + 1,8 (open) 12 + 1,3 (closed)	50	26	• 17 + 0,05 deep 1,5
M/160357/M/12	20	24	8	8	30	22 ± 0,03	40	30 + 2,4/-0,5 (open) 16 + 1,4 (closed)	62	35	• 21 + 0,05 deep 1,5
M/160358/M/12	32	31	14	9,5	30	30 ± 0,03	50	41 + 1,80 (open) 19 + 1,30 (closed)	85	40	• 34 + 0,050 deep 2
•	L	M	N	O	P	Q	R	S	T	U	
M/160355/M/12	10	20 ± 0,05	10	23	9	7	12	• 3 - 0,03	12,5	1,5	47,5
M/160356/M/12	16	25 ± 0,05	14	34	12	15	15	• 4 - 0,03	15	2	54
M/160357/M/12	20	32 ± 0,05	16	45	16	17	18	• 5 - 0,03	20	3	64
M/160358/M/12	32	40 ± 0,05	30	52	20	20	20	• 6 - 0,03	31	4	79
•	v	W	X	Y	Z	AA	AB	AC	AD	AE	
M/160355/M/12	10	11	17	7 ± 0,025	29	6	M3 x 0,5	M3 x 0,5 deep 4,5	• 2,5 + 0,02 deep 2,5	M4 x 0,7 deep 6	• 3,4
M/160356/M/12	16	14	20	9 ± 0,025	36	8	M5 x 0,8	M4 x 0,7 deep 5	• 3 + 0,02 deep 3	M4 x 0,7 deep 6	• 3,4
M/160357/M/12	20	17	27	12 ± 0,025	43	8	M5 x 0,8	M4 x 0,7 deep 7	• 4 + 0,02 deep 3,5	M5 x 0,8 deep 8	• 4,2
M/160358/M/12	32	20	32	15 ± 0,025	53	13	M5 x 0,8	M8 x 1 deep 9	• 5 + 0,03 deep 4	M6 x 1 deep 9	• 5,2
•	AF	AG	AH	AI	AK	AL	AM	AN	AO	kg	
M/160355/M/12	10	M3 x 0,5 deep 4	24	7,5	17	30	M3 x 0,5 deep 5	M3 x 0,5 deep 6	16	M3 x 0,5 deep 5	0,08
M/160356/M/12	16	M4 x 0,7 deep 5	31	7,5	19	42	M4 x 0,7 deep 6	M4 x 0,7 deep 7	21	M3 x 0,5 deep 5	0,16
M/160357/M/12	20	M5 x 0,8 deep 7	37	7,5	21	54	M5 x 0,8 deep 8	M5 x 0,8 deep 9	27,3	M4 x 0,7 deep 6	0,33
M/160358/M/12	32	M6 x 1 deep 9	46	9	28,5	70	M6 x 1 deep 8	M6 x 1 deep 9	31	M5 x 0,8 deep 8	0,66



M/160359/M/12



* Port size

M/160359/M/12	•	A	B	C	D	E	F	G	H	I	K	
	50	41	24	20,5	50	58 ± 0,03	75	77 + 1,8/-0,2 (open)	41 + 0,4 (closed)	119	60	• 52 + 0,05 deep 3
M/160359/M/12	•	L	M	N	O	P	Q	R	S	T	U	
	50	60 ± 0,05	45	75	40	42	30	• 8 - 0,02	55	7,5	110	
M/160359/M/12	•	V	W	X	Y	Z	AA	AB	AC	AD	AE	
	50	33	46	20 -0,025	70	20	Rc1/8	M6 X 1 deep 12	• 6 + 0,03 deep 7	M8 x 1,25 deep 12	• 11 deep 6,5	
M/160359/M/12	•	AF	AG	AH	AI	AK	AL	AM	AN	AO	AP	kg
	50	M6 x 1 deep 12	60	11	38	105	M8 x 1,25 deep 12	4	45	M5 x 0,8 deep 8	M8 x 1,25 deep 15	1,85

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 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.

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.

Parallel grippers - low profile

Double acting

Magnetic piston

• 8 to 12 mm

Ideal for applications where operating space is restricted**Smooth, accurate movement****Long, uninterrupted service life****Low weight****Compact size****Integral magnets for positional feedback****Technical data**

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operating pressure:

M/160364/M/12: 2 to 7 bar

M/160365/M/12: 1,5 to 7 bar

Operating temperature:

0°C to +60°C

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Mounting:

Mounting holes on three faces

Gripping repeatability:

+/- 0,07mm

Accuracy to centre:

+/- 0,1mm

Materials

Body: aluminium alloy

Fingers: carbon steel

Bearings: stainless steel

Elastomers: nitrile

Ordering information

To order a gripper with an effective closing grip force of up to 16,7N at 5 bar quote:

M/160364/M/12

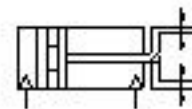
Order magnetically operated switches separately

Accessories

Switch M/344

See page

2





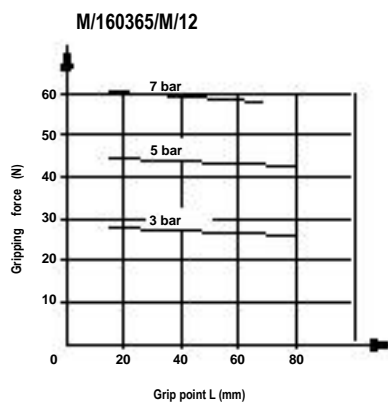
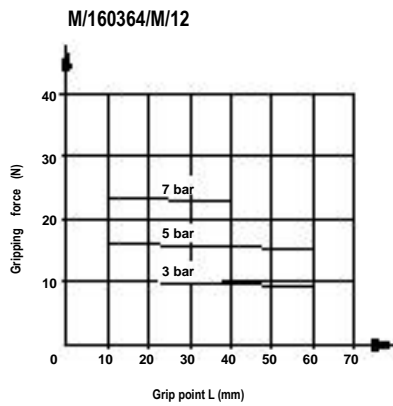
Standard models • Effective gripping force • Air consumption

Model	Effective gripping force (N) at 5 bar*		Air consumption (cm ³) at 5 bar**
	Opening	Closing	
M/160364/M/12	16,7	16,7	1,4
M/160365/M/12	44	44	4,3

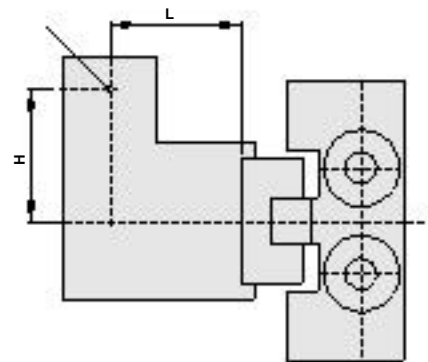
* Grip point L = 30 mm

** per cycle

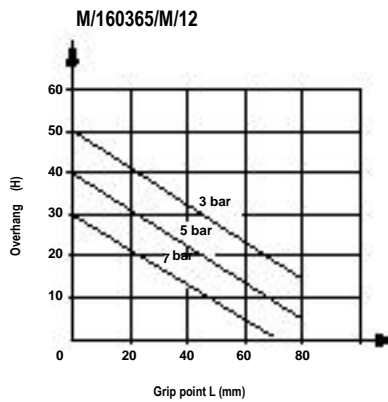
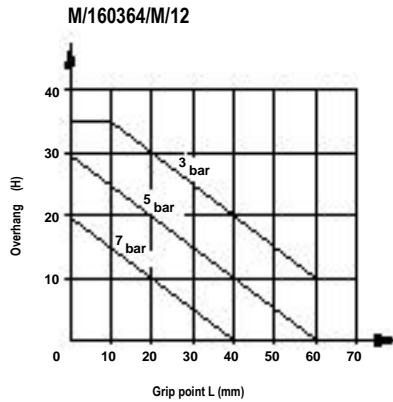
Theoretical gripping forces



Workpiece grip point



Grip point limitation range

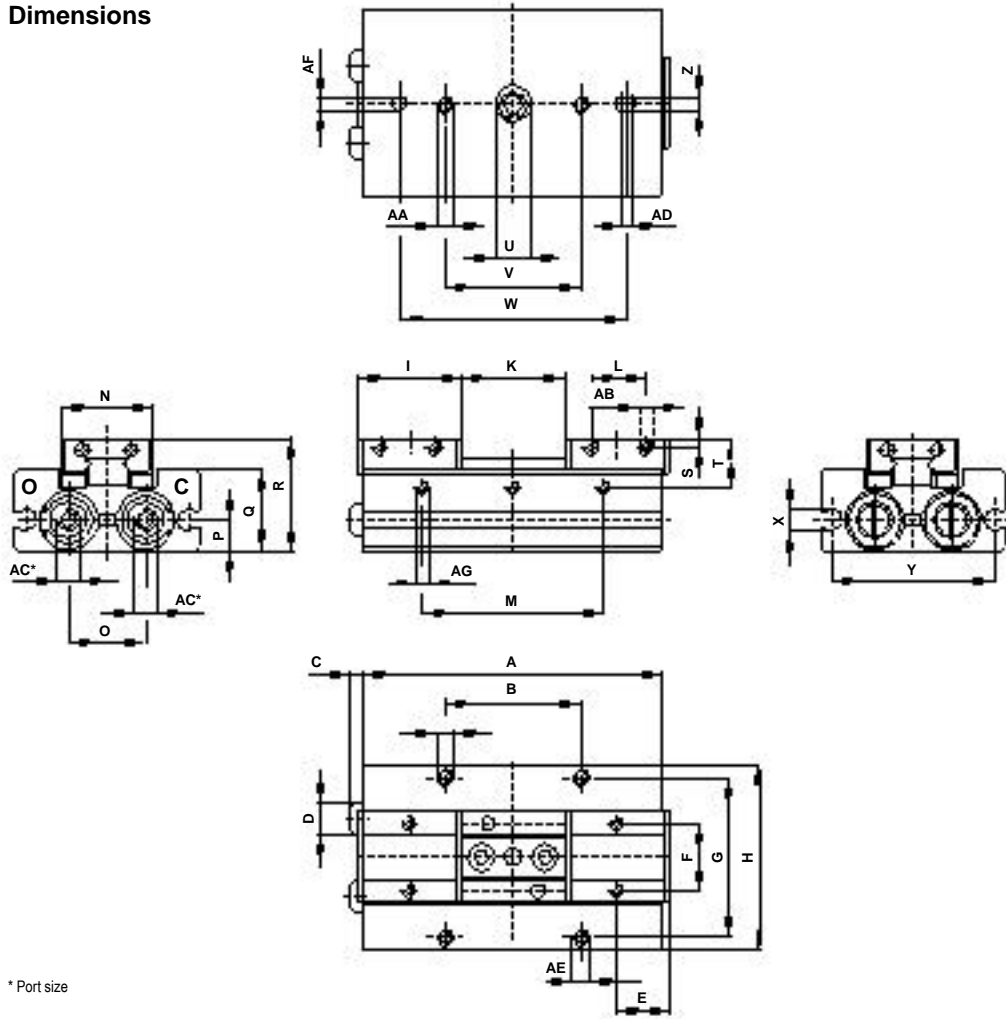


Switches with LED indication

Model	Voltage V d.c.	Current max.	Temperature °C	LED	Features	Cable length	Cable type	Straight cable connection	90° elbow cable connection
M/344/EAU/1APV	10 ... 28	20 mA	0° ... +60°	☐	-	1 m	PVC	-	☐
M/344/EAU/1PV	10 ... 28	20 mA	0° ... +60°	☐	-	1 m	PVC	☐	-
M/344/EAU/3APV	10 ... 28	20 mA	0° ... +60°	☐	-	3 m	PVC	-	☐
M/344/EAU/3PV	10 ... 28	20 mA	0° ... +60°	☐	-	3 m	PVC	☐	-
M/344/EAN/1APV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	1 m	PVC	-	☐
M/344/EAN/1PV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	1 m	PVC	☐	-
M/344/EAN/3APV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	3 m	PVC	-	☐
M/344/EAN/3PV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	3 m	PVC	☐	-



Dimensions



* Port size

	•	A	B	C	D	E	F	G	H	I	K
M/160364/M/12	8	52	32	2,5	• 5	8,1	13	26	32	16,2	17 +1,7/-0,5 (open) 1 +0,7/-1,0 (closed)
M/160365/M/12	12	66	30	3	• 7	11,4	15	35	41	22,8	23 +1,9/-0,5 (open) 1 +0,9/-1,0 (closed)
	•	L	M	N	O	P	Q	R	S	T	U
M/160364/M/12	8	10	24	17	12	5	13	19	2	8,5	• 8 + 0,05 deep 1
M/160365/M/12	12	12	40	20	17	7	18	25	2	11	• 8 + 0,05 deep 1
	•	V	W	X	Y	Z	AA	AB	AC	AD	AE
M/160364/M/12	8	24	40	• 5	27	2,5 + 0,03 deep 2,5	M3 x 0,5 deep 5	M2,5 x 0,45 deep 3	M3 x 0,5	2	M3 x 0,5 deep 5
M/160365/M/12	12	30	50	• 5	36	3 + 0,03 deep 3	M4 x 0,7 deep 8	M3 x 0,5 deep 3	M5 x 0,8	2	M4 x 0,7 deep 6
	•	AF	AG	kg							
M/160364/M/12	8	• 2,5 + 0,03 deep 2,5	M3 x 0,5 deep 5	0,09							
M/160365/M/12	12	• 3 + 0,03 deep 3	M3 x 0,5 deep 5	0,2							

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Parallel grippers - three jaw
Double acting
Magnetic piston
• 16 to 20 mm

Ideal for gripping spheres or components with circular faces

Smooth, accurate movement

Long, uninterrupted service life

Low weight

Compact size

integral magnets for positional feedback



Technical data

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Double acting, three jaw parallel, magnetic piston

Operating pressure:

2 to 7 bar

1,5 to 7 bar M/160386/M/12

Operating temperature:

+0°C to +60°C

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Mounting:

Mounting holes on base

Gripping repeatability:

+/- 0,01 mm

Mechanical life:

~ 5 million cycles before maintenance may be necessary

Operating frequency:

200 cycles per minute maximum

Materials

Body: aluminium alloy

Top plate: carbon steel

Fingers: carbon steel

External screws: carbon steel

Elastomers: nitrile

Ordering information

To order a gripper with an effective closing grip force of up to 20N at 5 bar quote:

M/160385/M/12

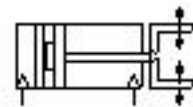
Order magnetically operated switches separately

Accessories

Switch M/344

See page

2





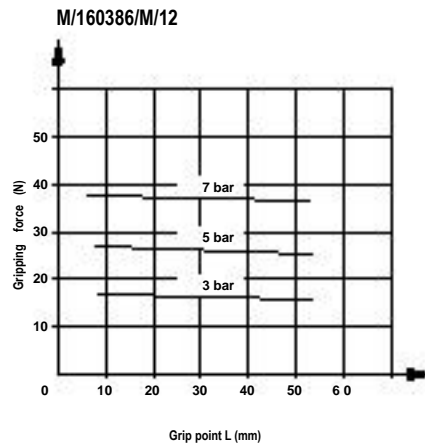
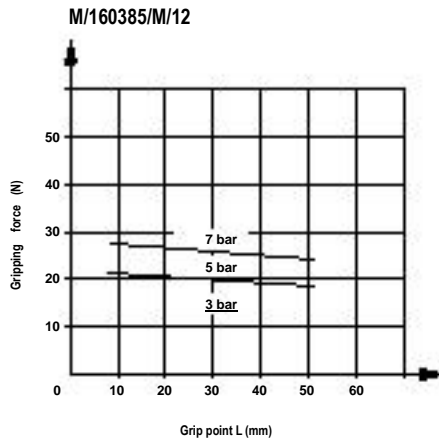
Standard models • Effective gripping force • Air consumption

Model	Effective gripping force (N) at 5 bar*		Air consumption (cm ³) at 5 bar**
	Opening	Closing	
M/160385/M/12	27	20	1,4
M/160386/M/12	36	27	3,3

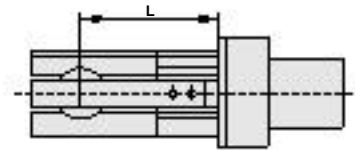
* Grip point L = 30 mm

** per cycle

Theoretical closing gripping forces



Workpiece grip point



Criteria of workpiece weight

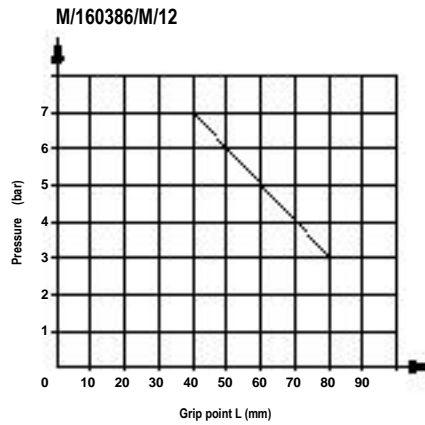
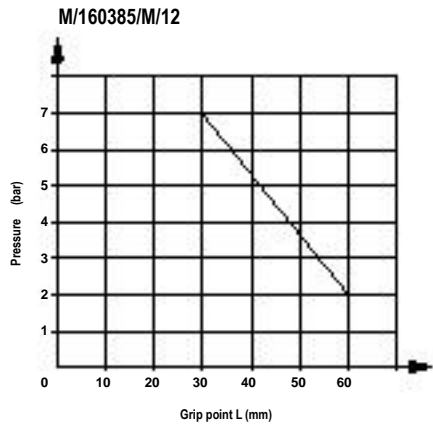
When chucking a workpiece, weight should be within the range between 1/10 and 1/20 of the above gripping force.

When chucking and then moving a workpiece, the workpiece may protrude or drop. Therefore, workpiece weight should be less than the above mentioned value. (Reference value is 1/30-1/50)

Weight depends on the operational condition, such as material and shape of workpiece or claw, speed and direction of moving workpiece (straight advance, rotation or swing, etc.)

Effective closing gripping forces = Theoretical closing gripping force x 0,85

Grip point limitation range

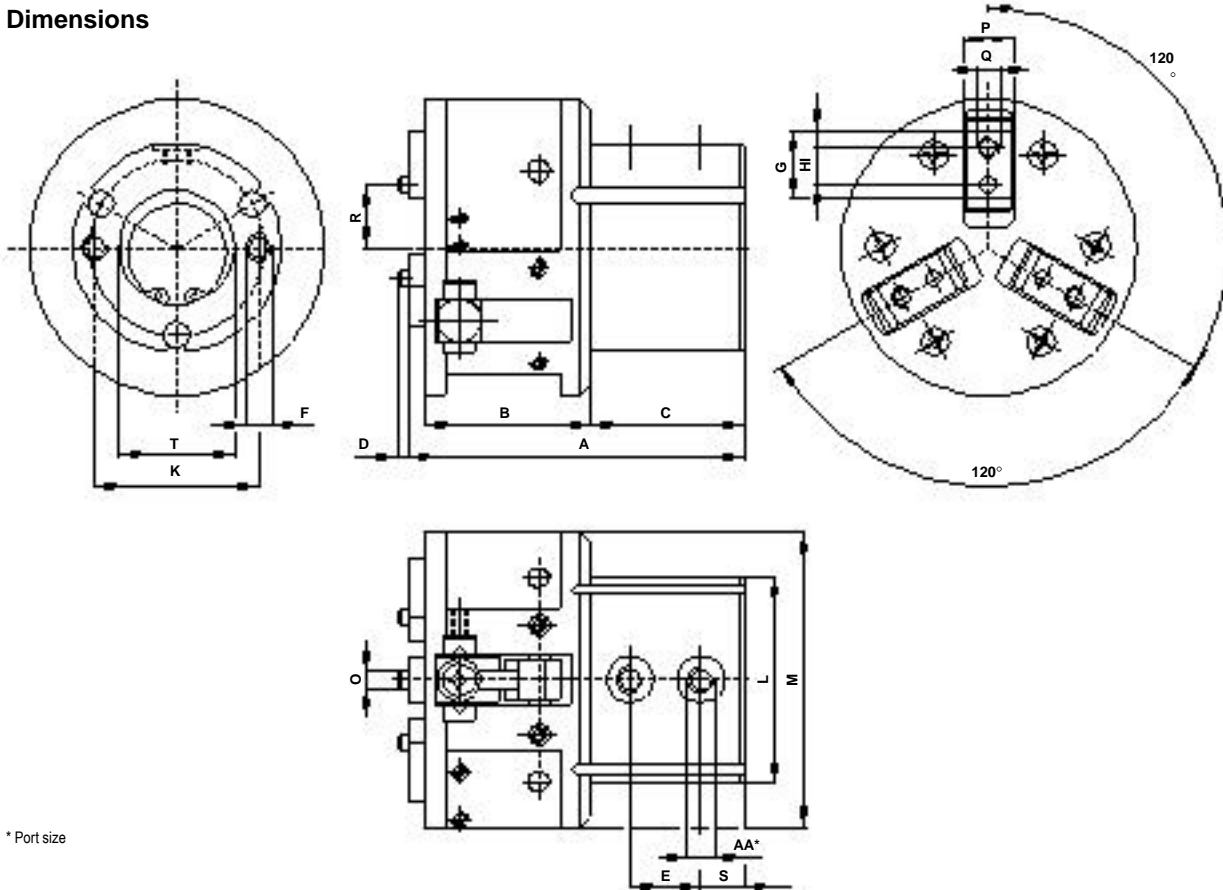


Switches with LED indication

Model	2-wire solid state	3-wire solid state	Voltage V d.c.	Current max.	Temperature °C	LED	Features	Cable length	Cable type	Straight cable connection	90° elbow cable connection
M/344/EAU/1APV			10 ... 28	20 mA	0° ... +60°	☑	-	1 m	PVC	-	☑
M/344/EAU/1PV			10 ... 28	20 mA	0° ... +60°	☑	-	1 m	PVC	☑	-
M/344/EAU/3APV			10 ... 28	20 mA	0° ... +60°	☑	-	3 m	PVC	-	☑
M/344/EAU/3PV			10 ... 28	20 mA	0° ... +60°	☑	-	3 m	PVC	☑	-
		M/344/EAN/1APV	4,5 ... 28	50 mA	0° ... +60°	☑	NPN	1 m	PVC	-	☑
		M/344/EAN/1PV	4,5 ... 28	50 mA	0° ... +60°	☑	NPN	1 m	PVC	☑	-
		M/344/EAN/3APV	4,5 ... 28	50 mA	0° ... +60°	☑	NPN	3 m	PVC	-	☑
		M/344/EAN/3PV	4,5 ... 28	50 mA	0° ... +60°	☑	NPN	3 m	PVC	☑	-



Dimensions



* Port size

	•	A	B	C	D	E	F	G	H	I	K
M/160385/M/12	16	53	23	27	2	12,5	M4 x 0,7 deep 7	10	5	2,5	24
M/160386/M/12	20	61,5	30,5	28	2	13	M5 x 0,8 deep 8	12,5	7	3,0	30
	•	L	M	O	P	Q	R	S	T	AA	kg
M/160385/M/12	16	• 32	• 42	• 3 - 0,005	7 - 0,03	M3 x 0,5	9,5 + 0,9/-0,4 (open) 5,5 + 0,9/-0,4 (closed)	7,5	• 17 + 0,05 deep 1,5	M5 x 0,8	0,16
M/160386/M/12	20	• 38	• 54	• 3 - 0,005	8 - 0,04	M4 x 0,7	13 + 1,6/-0,4 (open) 7 + 1,2/-0,4 (closed)	8	• 21 + 0,05 deep 1,5	M5 x 0,8	0,28

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Parallel grippers - long stroke

Double acting

Magnetic piston

• 12 to 25 mm

Ideal for handling wide components

Smooth, accurate movement

Long, uninterrupted service life

Low weight

Compact size

Integral magnets for positional feedback

**Technical data**

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operating pressure:

2 to 7 bar

Operating temperature:

0°C to +60°C

* Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Mounting:

Mounting holes on two faces

Materials

Body: aluminium alloy

Piston rods: stainless steel

External nuts: carbon steel

Elastomers: nitrile

Ordering information

To order a gripper with an effective closing grip force of up to 55N at 5 bar quote:

M/160395/M/12

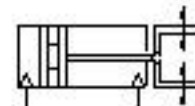
Order magnetically operated switches separately

Accessories

Switch M/344

See page

2





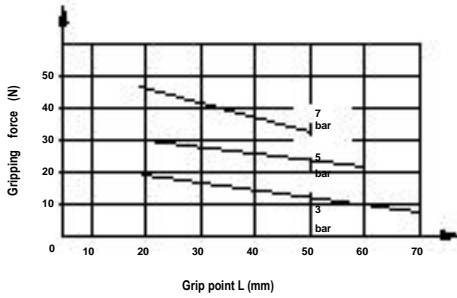
Standard models • Effective gripping force • Air consumption

Model	Effective gripping force (N) at 5 bar*		Air consumption (cm ³) at 5 bar**
	Opening	Closing	
M/160394/M/12	27	27	4,0
M/160395/M/12	55	55	9,5
M/160396/M/12	85	85	18,8
M/160397/M/12	135	135	38,0

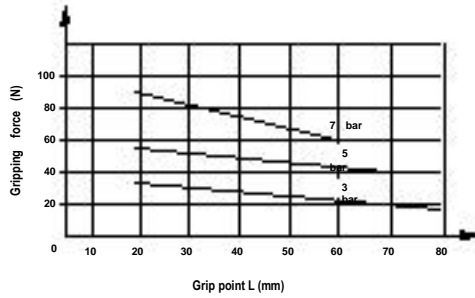
* Grip point L = 30 mm
** per cycle

Effective gripping forces

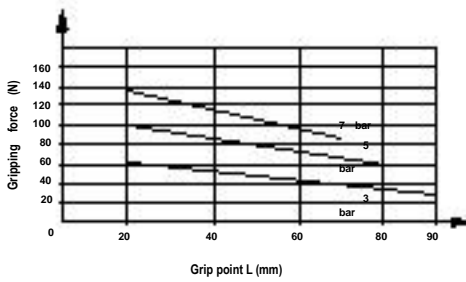
M/160394/M/12



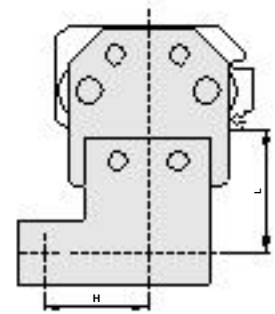
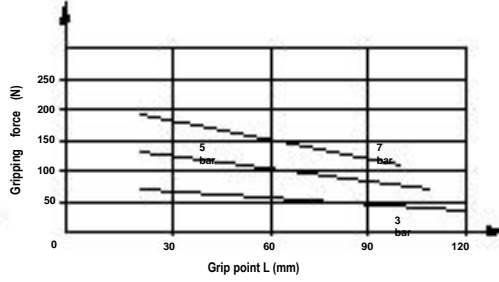
M/160395/M/12



M/160396/M/12

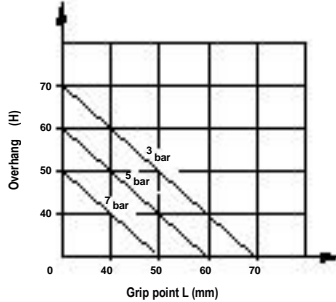


M/160397/M/12

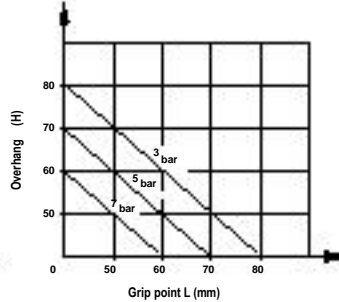


Grip point limitation range

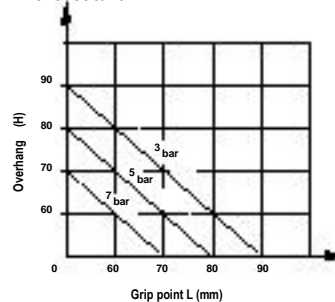
M/160394/M/12



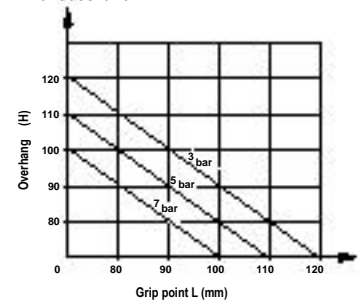
M/160395/M/12



M/160396/M/12



M/160397/M/12

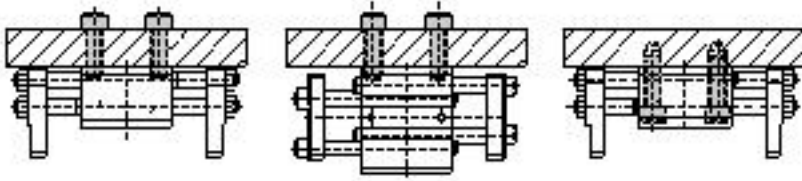


Switches with LED indication

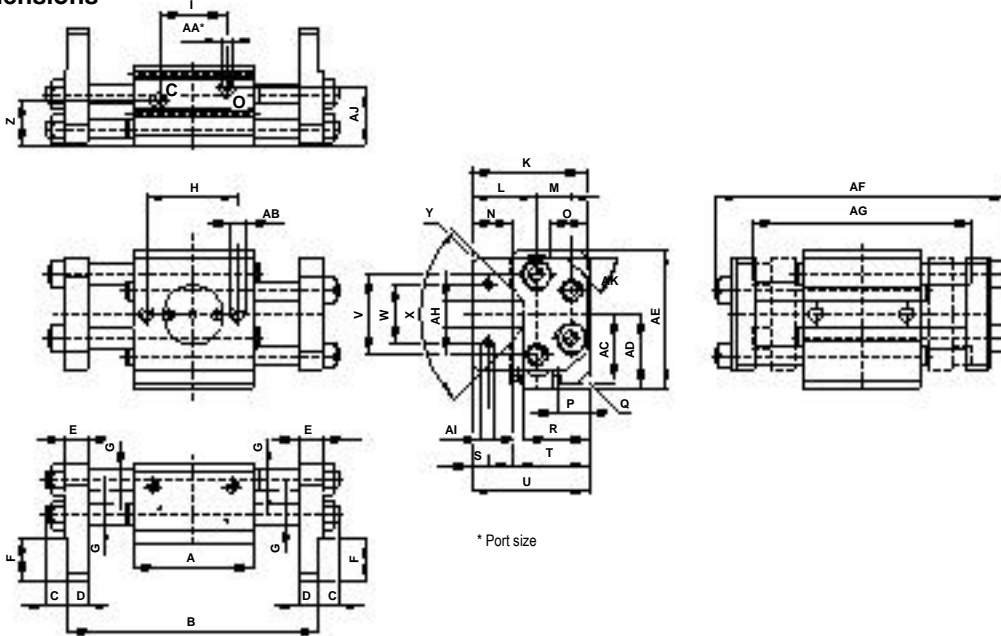
Model	2-wire solid state	3-wire solid state	Voltage V d.c.	Current max.	Temperature °C	LED	Features	Cable length	Cable type	Straight cable connection	90° elbow cable connection
M/344/EAU/1APV			10 ... 28	20 mA	0° ... +60°	☐	-	1 m	PVC	-	☐
M/344/EAU/1PV			10 ... 28	20 mA	0° ... +60°	☐	-	1 m	PVC	☐	-
M/344/EAU/3APV			10 ... 28	20 mA	0° ... +60°	☐	-	3 m	PVC	☐	☐
M/344/EAU/3PV			10 ... 28	20 mA	0° ... +60°	☐	-	3 m	PVC	☐	-
		M/344/EAN/1APV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	1 m	PVC	-	☐
		M/344/EAN/1PV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	1 m	PVC	☐	-
		M/344/EAN/3APV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	3 m	PVC	-	☐
		M/344/EAN/3PV	4,5 ... 28	50 mA	0° ... +60°	☐	NPN	3 m	PVC	☐	-



Mounting examples



Dimensions



* Port size

•	A	B	C	D	E	F	G	H	I	K			
M/160394/M/12	12	44	84,4 + 1,4/-1,0 (open) 60 + 1,0/-0,9 (closed)	6,5	6	8	12	• 6	34	21	38,5		
M/160395/M/12	16	50	102,4 + 1,4/-1,0 (open) 70 + 1,0/-1,8 (closed)	8	8	10	13,5	• 8	38	28	43,5		
M/160396/M/12	20	60	124,4 + 1,5/-1,1 (open) 84 + 1,1/-1,9 (closed)	10,5	10	12	21	• 10	46	34	58		
M/160397/M/12	25	66	145 + 1,5/-1,1 (open) 94,6 + 1,1/-1,9 (closed)	11	12	14	26	• 10 & Ø 12	52	39	67,5		
•	L	M	O	P	Q	R	S	T	U	V			
M/160394/M/12	12	21	11,5	15	9,5	3,5	24	4	27	39	29		
M/160395/M/12	16	23,5	14	15	11	3,5	27	5	32	45	34		
M/160396/M/12	20	33	17,5	-	16	5	32,5	8	40	59	40		
M/160397/M/12	25	41	18,5	-	16,5	10	35,5	10	44	69	49		
•	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	
M/160394/M/12	12	20	90°	1	16	M5 x 0,8	M5 x 0,8	22,7	27	50	99	76	16
M/160395/M/12	16	20	90°	1	19,5	M5 x 0,8	M6 x 1	27,5	32,5	60	123	93	9,5
M/160396/M/12	20	30	90°	3	23	M5 x 0,8	M8 x 1,25	34	37	70	147	112	14
M/160397/M/12	25	30	90°	3	25	M5 x 0,8	M10 x 1,5	40,5	44	84	169	124	14
•	AI	AJ	AK	kg									
M/160394/M/12	12	M4 x 0,7	20	30°	0,23								
M/160395/M/12	16	M5 x 0,8	23,5	30°	0,40								
M/160396/M/12	20	M6 x 1	29	45°	0,76								
M/160397/M/12	25	M8 x 1,25	31	45°	1,10								

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