

**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**

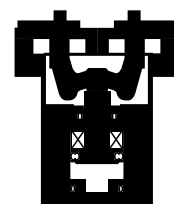
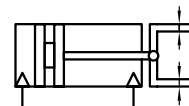
Order magnetically operated switches separately

### Accessories

Switch M/344

See page

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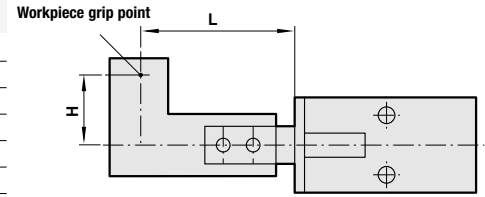




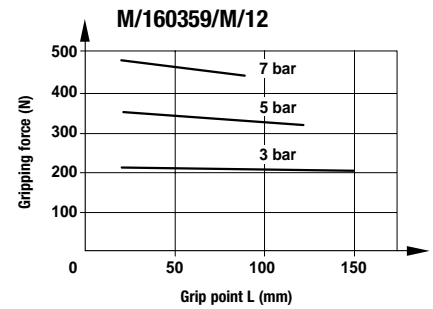
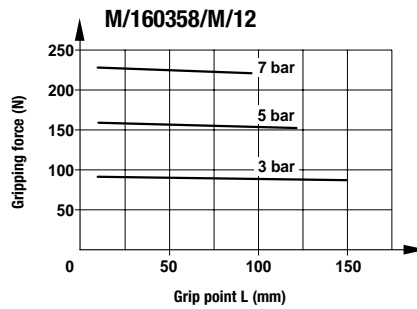
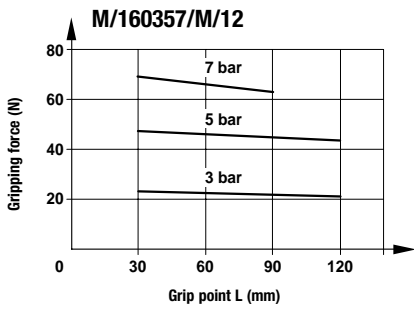
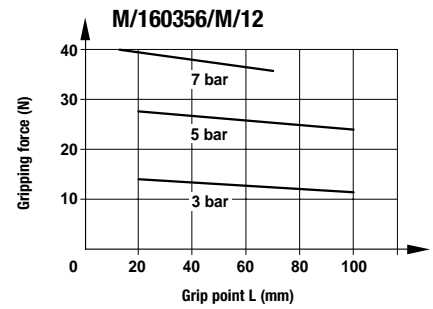
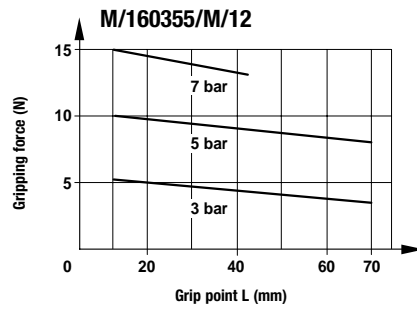
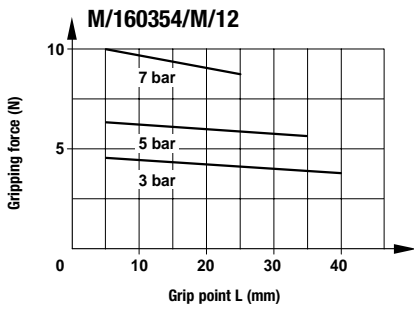
**Standard models • Effective gripping force • Minimum operating pressure • Air consumption**

Model	Effective gripping force (N) at 5 bar*		Minimum operating pressure in bar	Air consumption (cm <sup>3</sup> ) 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

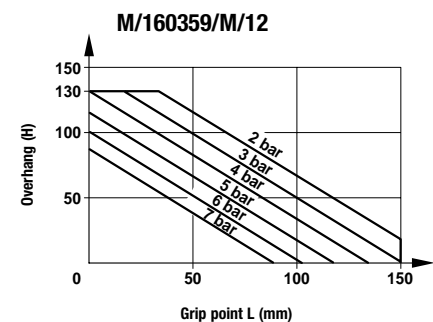
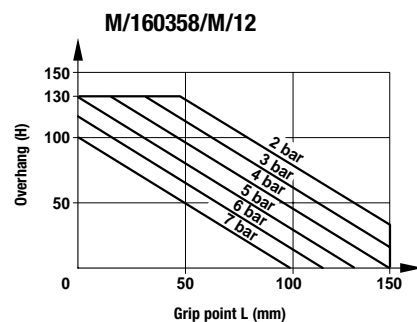
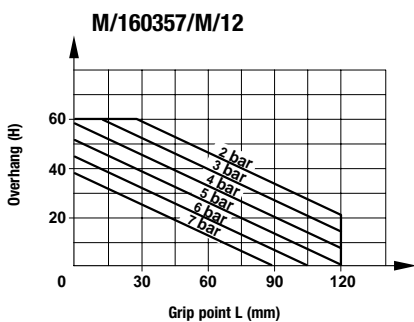
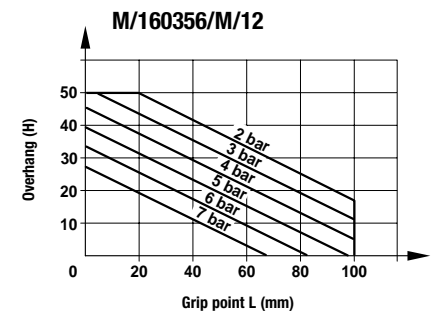
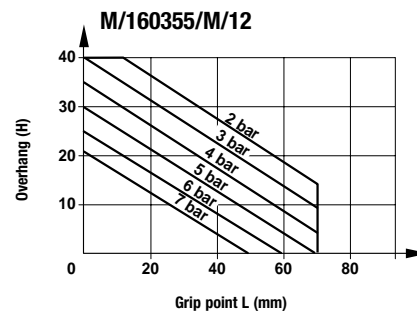
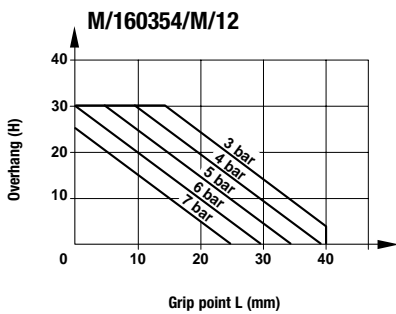


**Theoretical closing gripping forces**



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

**Grip point limitation range**

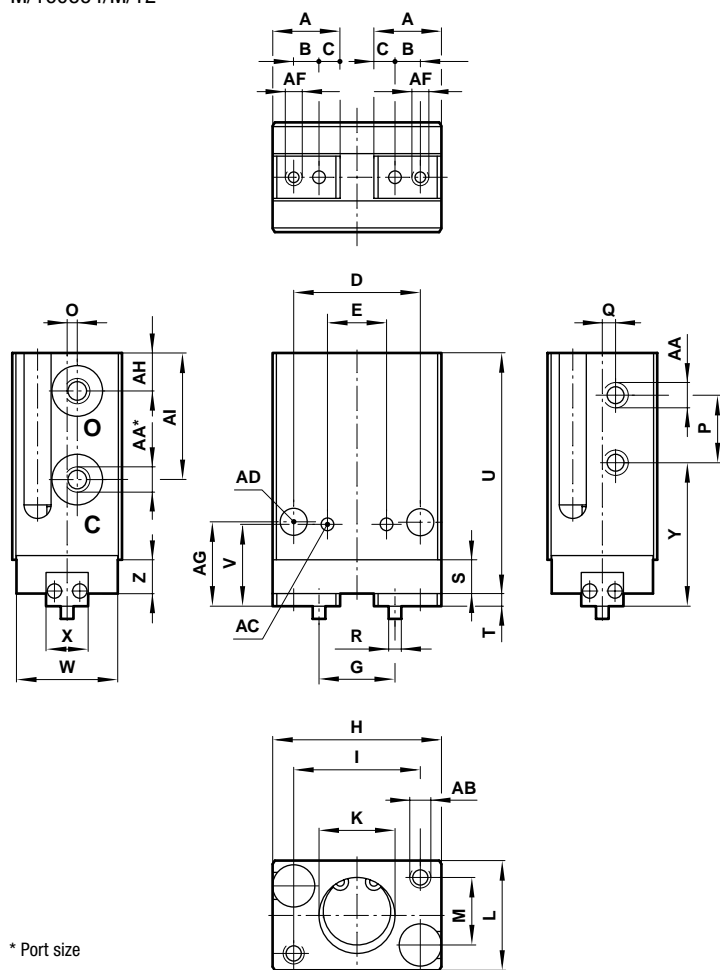




### Switches with LED indication

Model	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	●	–
M/344/EAP/1APV	4,5 ... 28	50 mA	0° ... +60°	●	PNP	1 m	PVC	–	●
M/344/EAP/1PV	4,5 ... 28	50 mA	0° ... +60°	●	PNP	1 m	PVC	●	–
M/344/EAP/3APV	4,5 ... 28	50 mA	0° ... +60°	●	PNP	3 m	PVC	–	●
M/344/EAP/3PV	4,5 ... 28	50 mA	0° ... +60°	●	PNP	3 m	PVC	●	–

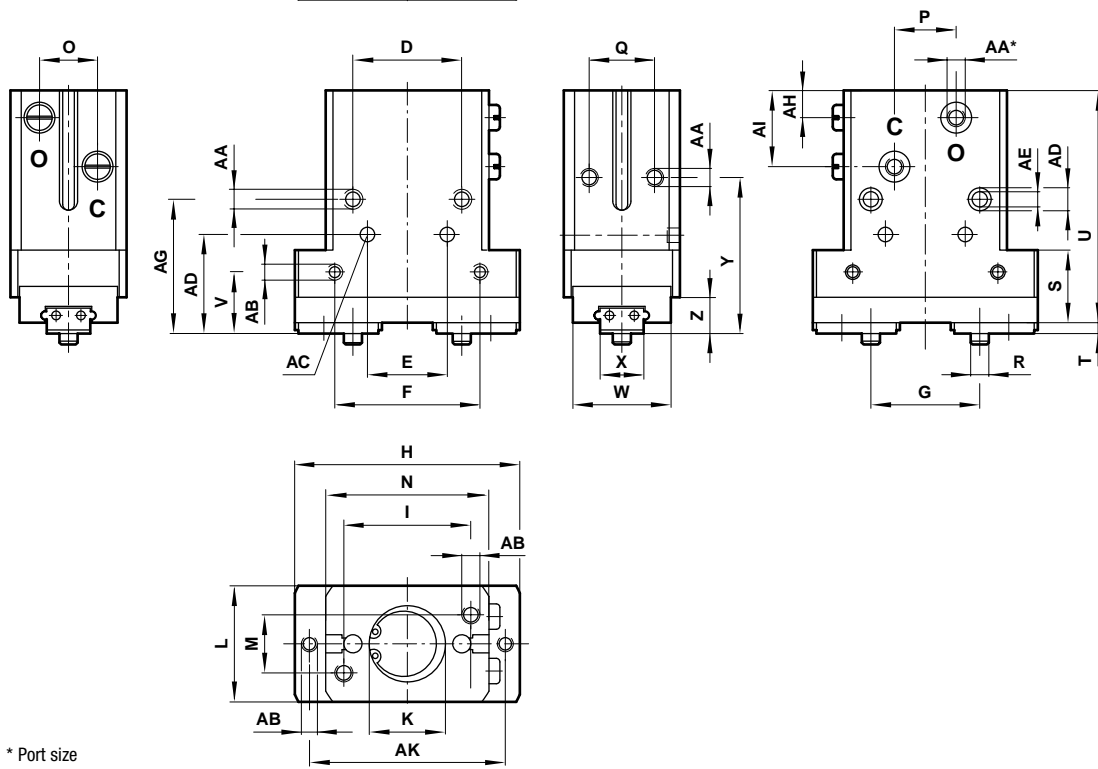
### M/160354/M/12



	Ø	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	Ø 9 + 0,05 deep 1	
	Ø	L	M	N	O	P	Q	R	S	T	U
M/160354/M/12	8	13 ± 0,05	8	-	1,2	8	1,5	Ø 1,5 - 0,03	4	1,5	28,5
	Ø	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	Ø 1,5 + 0,02 deep 1	Ø 3,2	
	Ø	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

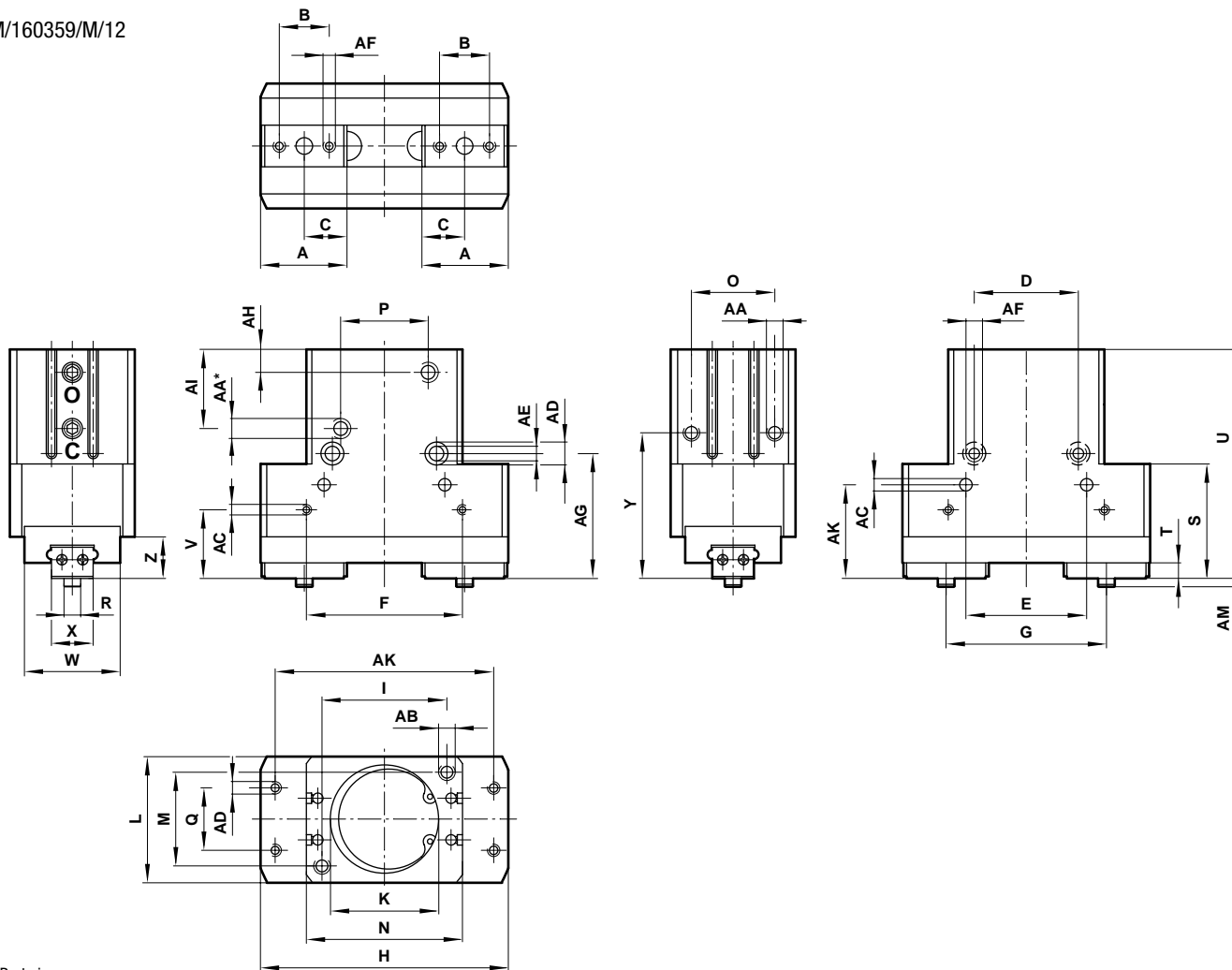


\* Port size

	Ø	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	Ø 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	Ø 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	Ø 21 + 0,05 deep 1,5
M/160358/M/12	32	31	14	9,5	30	30 ± 0,03	50	41 + 1,8 (open)	19 + 1,3 (closed)	85	40	Ø 34 + 0,05 deep 2
	Ø	L	M	N	O	P	Q	R	S	T	U	
M/160355/M/12	10	20 ± 0,05	10	23	9	7	12	Ø 3 - 0,03	12,5	1,5	47,5	
M/160356/M/12	16	25 ± 0,05	14	34	12	15	15	Ø 4 - 0,03	15	2	54	
M/160357/M/12	20	32 ± 0,05	16	45	16	17	18	Ø 5 - 0,03	20	3	64	
M/160358/M/12	32	40 ± 0,05	30	52	20	20	20	Ø 6 - 0,03	31	4	79	
	Ø	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	Ø 2,5 + 0,02 deep 2,5	M4 x 0,7 deep 6	Ø 3,4	
M/160356/M/12	16	14	20	9 ± 0,025	36	8	M5 x 0,8	M4 x 0,7 deep 5	Ø 3 + 0,02 deep 3	M4 x 0,7 deep 6	Ø 3,4	
M/160357/M/12	20	17	27	12 ± 0,025	43	8	M5 x 0,8	M4 x 0,7 deep 7	Ø 4 + 0,02 deep 3,5	M5 x 0,8 deep 8	Ø 4,2	
M/160358/M/12	32	20	32	15 ± 0,025	53	13	M5 x 0,8	M8 x 1 deep 9	Ø 5 + 0,03 deep 4	M6 x 1 deep 9	Ø 5,2	
	Ø	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

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