

N023080

N037120

Multi position airless cylinder set



- Simple solution ready for operation
- Highly dynamic electro-magnetic direct drive with integrated bearings position sensors and temperature monitoring
- High dynamic and position repeatability
- Long working life
- Simple programming by using the MPAC – configurator software

Technical data

Version

Multiposition cylinder set with guide unit
NP01-..x.../MR

Multiposition cylinder set without guide unit
NP01-..x.../M

Logic supply

Light duty: 24 or 48 V d.c.

Heavy duty: 24, 48 or 72 V d.c.

Force

Light duty: 44N max.

Heavy duty: 100N max.

Velocity

2.5 ms

Acceleration

Light duty: 131 ft/s² (40 m/s²)

Heavy duty: 180 ft/s² (55 m/s²)

Strokes

See page 2

Repeatability

±0.0039 (±0.1 mm)

Max. stator temperature

149°F (65°C)

Protection rating

IP67

Materials

Stator/slider: chromium steel, POM

Guide block, driver, mounting plate: aluminium anodized

Linear ball bearing: stainless steel

Guide rod: steel inductive hardened

Wiper: nitrile rubber

Standard strokes

Model	Max. Lengths inch (mm)										
	2.0 (050)	3.94 (100)	4.33 (110)	5.51 (140)	6.30 (160)	7.87 (200)	10.24 (260)	10.63 (270)	12.60 (320)	13.39 (340)	14.17 (360)
Light duty with guide	●	●				●			●		
Heavy duty with guide	●	●				●			●		
Light duty without guide			●	●				●		●	
Heavy duty without guide		●			●		●				●

Options selector

N0*****/**/****/S**

Size	Substitute	Connection cable between motor and controller	Substitute
Light duty	23080	6.5 ft (2 m)	2
Heavy duty	37120	13 ft (4 m)	4



Unit	Substitute	Max. strokes (mm)	
With guide	IR	Light duty with guide	0 ...12.6 (0 ... 320)
Without guide	II	Heavy duty with guide	0 ...12.6 (0 ... 320)
		Light duty without guide	0 ...13.4 (0 ... 340)
		Heavy duty without guide	0 ...14.2 (0 ... 360)




Ordering information

To order a light duty multi position airless cylinder set with guide, 200 mm stroke and 4 m connection cable between motor and controller quote: **N023080/IR/200/S4**

N023080
N037120
Multi position airless cylinder set

Standard equipment

Multi position airless cylinder set with guide – Maximum stroke inch (mm)		Multi position airless cylinder set without guide – Maximum stroke inch (mm)	
			
N023080/IR/050/S2.../S4	2.0 (50)	N023080/II/110/S2.../S4	4.33 (110)
N023080/IR/100/S2.../S4	3.94 (100)	N023080/II/140/S2.../S4	5.51 (140)
N023080/IR/200/S2.../S4	7.87 (200)	N023080/II/270/S2.../S4	10.63 (270)
N023080/IR/320/S2.../S4	12.60 (320)	N023080/II/340/S2.../S4	13.39 (340)
N037120/IR/050/S2.../S4	2.0 (50)	N037120/II/100/S2.../S4	3.94 (100)
N037120/IR/100/S2.../S4	3.94 (100)	N037120/II/160/S2.../S4	6.30 (160)
N037120/IR/200/S2.../S4	7.87 (200)	N037120/II/260/S2.../S4	10.24 (260)
N037120/IR/320/S2.../S4	12.60 (320)	N037120/II/360/S2.../S4	14.17 (360)

Multi position servo controller with software	Connector cable between airless cylinder and controller	Power supply
		
Part number	Cable length	Part number
NE1100-MP	NSK01-D/M-02 0.08 (2 m) NSK01-D/M-04 0.16 (4 m)	NS01-72/300

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.

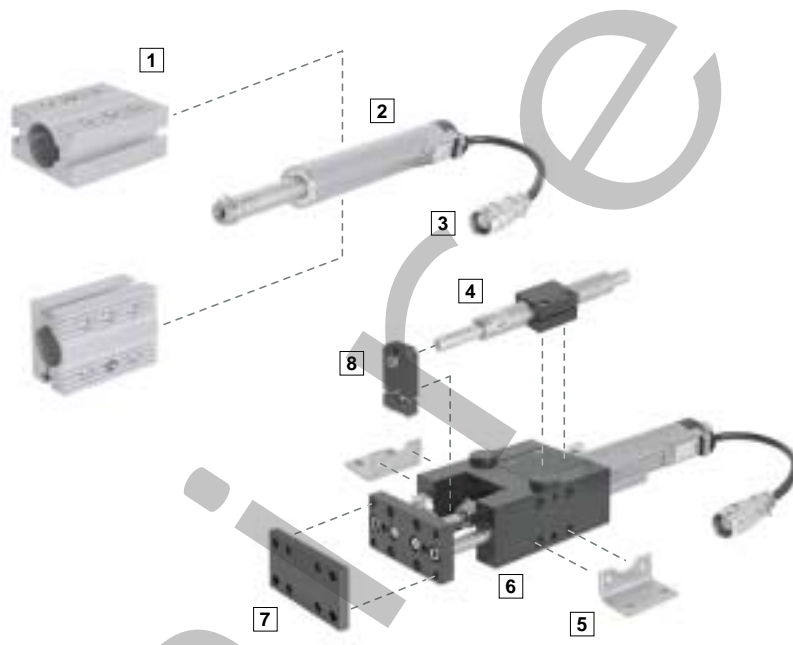
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

Actuators

N023080
N037120

Multi position airless cylinder set



- 1 Flange mounting
- 2 Airless cylinder
- 3 Metallic M23 round connector IP67
- 4 Mag spring
- 5 Foot mounting
- 6 Airless cylinder with guide unit
- 7 Adaptor plate
- 8 Assembly kit for mag spring

Mountings and accessories

Airless cylinder (with guide)	Maximum stroke inch (mm)	Airless cylinder (without guide)	Maximum stroke inch (mm)
NP01-23x80/50x110-MR	2.0 (50)	NP01-23x80/50x110-M	4.3 (110)
NP01-23x80/80x140-MR	3.94 (100)	NP01-23x80/80x140-M	5.5 (140)
NP01-23x80/210x270-MR	7.9 (200)	NP01-23x80/210x270-M	10.6 (270)
NP01-23x80/280x340-MR	12.60 (320)	NP01-23x80/280x340-M	13.4 (340)
NP01-37x120/20x100-MR	2.0 (50)	NP01-37x120/20x100-M	3.9 (100)
NP01-37x120/80x160-MR	3.94 (100)	NP01-37x120/80x160-M	6.3 (160)
NP01-37x120/180x260-MR	7.9 (200)	NP01-37x120/180x260-M	10.2 (260)
NP01-37x120/280x360-MR	12.60 (320)	NP01-37x120/280x360-M	14.2 (360)

Flange mounting	Foot mounting	Adaptor plate (combination pick and place)	Assembly kit for magnetic spring	Magnetic spring
Actuator	Part number	Part number	Part number	Part number
Light duty	NPF01-23 x 50	QA/8032/21	M/P73677	QM/023080/22
Heavy duty	NPF01-37 x 100	QA/8032/21	-	QM/023080/22
				NP01-20x60/10N
				NP01-20x60/20N
				NP01-20x140/10N
				NP01-20x140/20N
				NP01-20x220/10N
				NP01-20x220/20N

Electrical data

Servo controller NE1100-MP

Number of motor channels	1
Max. current output per phase	5 A
Logic supply	24 V d.c.
Power consumption logic	10 W
Motor supply	72 V d.c.
Digital inputs	8
Digital outputs	8
Interface	RS-232C
Interface optional	Fieldbus
Width	13" (330 mm)
Height	2.8" (70 mm)
Depth	7.0" (179 mm)
Weight	5.5 lb (2.5 kg)
Case	IP40
Storage temperature	-13° ... 158°F (-25 ... 70°C)
Operating temperature	32° ... 122°F (0 ... 50°C)
Max. case temperature	149°F (65°C)

Power supply NS01-72/30

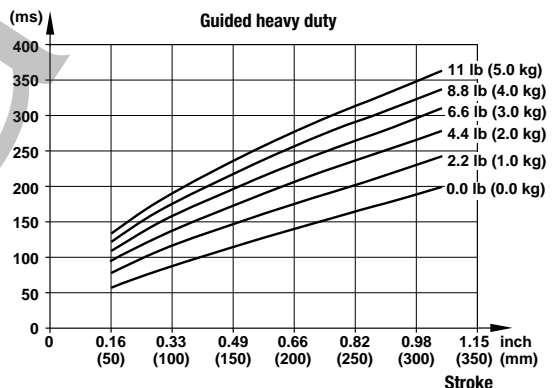
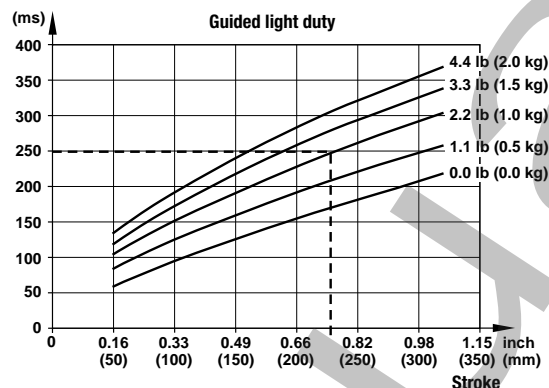
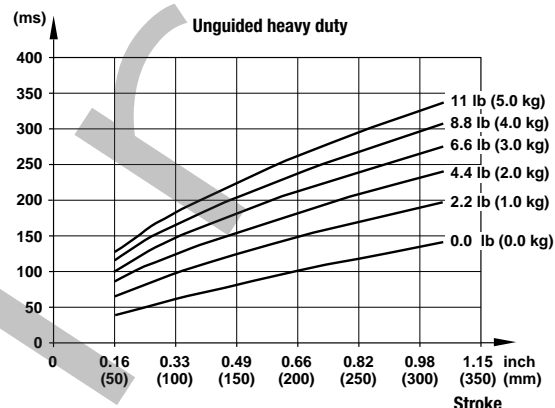
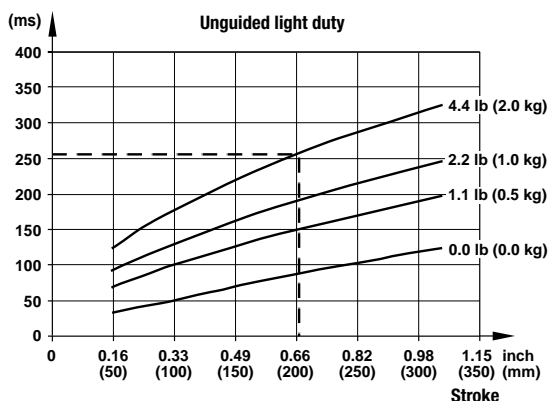
Output power	300 W
Input voltage	93 ... 123 / 187 ... 264 V a.c.
Input frequency	47 ... 63Hz
Input current full load 230	3.3 A
Input current full load 115V	5.4 A
Inrush current max. 230V	70 A
Internal fuse	6.3 AT
Output voltage range	72 ... 76 V d.c.
Output current	4 A d.c.
Hold-up time full load	30 ms
Overvoltage protection	140% U out
Operating temperature range	13° ... 158°F (-25 ... 70°C)
Power reduction above 50°C	2% / °C
Storage temperature range	13° ... 185°F (-25 ... 85°C)
Humidity (not betauend)	95% rel. H max.
Switching frequency	67 kHz typ.
Efficiency	>85%
Output voltage indicator	LED
Isolation input-output	3,000 V a.c. (1 minute)
Isolation input-case	2,000 V a.c. (1 minute)
Isolation output-case	500 V a.c. (1 minute)
Safety class (IEC 536)	Class 1
Safety standard meets	IEC 950
	EN 60950
	CE certificate for SELV
Conducted EMI according to	EN55022 class B
	EN55011 class B
	FCC - B
Electromagnetic susceptibility ENC	EN61000-4-2 4 kV/8 kV
	EN61000-4-3 10 kV
	EN61000-4-4 2 kV
	EN61000-4-6 10 kV
	EN61000-4-8 20 A/m
Case	Steel / IP20
Mounting	DIN-rail TS35
	EN50022

**N023080
N037120**

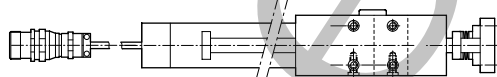
Multi position airless cylinder set

To calculate a move time for payloads added to the actuator

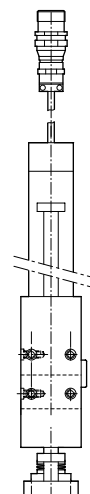
- 1) On the horizontal axis, find the stroke length of the desired move.
- 2) Move up vertically to intersect with the curve for the desired added payload.
- 3) Move horizontally to the left and read the total move time from the vertical axis.



x-x configuration



y-y configuration



Moving mass in x-x or y-y configuration

Airless cylinder (with guide)	Maximum stroke inch (mm)	Moving mass lb (kg)
NP01-23x80/50x110-MR	2.0 (50)	1.1 (0.503)
NP01-23x80/80x140-MR	4.0 (100)	1.3 (0.600)
NP01-23x80/210x270-MR	7.9 (200)	1.8 (0.819)
NP01-23x80/280x340-MR	12.5 (320)	2.2 (1.020)
NP01-37x120/20x100-MR	2.0 (50)	2.3 (1.060)
NP01-37x120/80x160-MR	4.0 (100)	2.84 (1.290)
NP01-37x120/180x260-MR	7.9 (200)	3.7 (1.699)
NP01-37x120/280x360-MR	12.5 (320)	4.7 (2.114)

Airless cylinder (without guide)	Maximum stroke inch (mm)	Moving mass lb (kg)
NP01-23x80/50x110-M	4.3 (110)	0.3 (0.135)
NP01-23x80/80x140-M	5.5 (140)	0.4 (0.171)
NP01-23x80/210x270-M	10.6 (270)	0.6 (0.271)
NP01-23x80/280x340-M	13.4 (340)	0.7 (0.330)
NP01-37x120/20x100-M	4.0 (100)	1.0 (0.460)
NP01-37x120/80x160-M	6.3 (160)	1.3 (0.600)
NP01-37x120/180x260-M	10.2 (260)	1.8 (0.829)
NP01-37x120/280x360-M	14.2 (360)	2.3 (1.064)

Attention: It is important to add the gravity force for mounting in y-y configuration

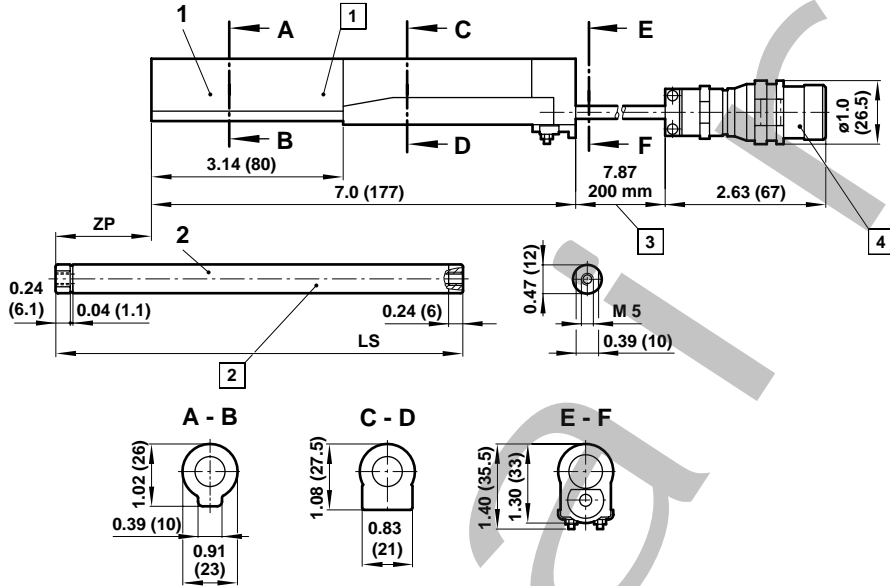
Actuators

N023080

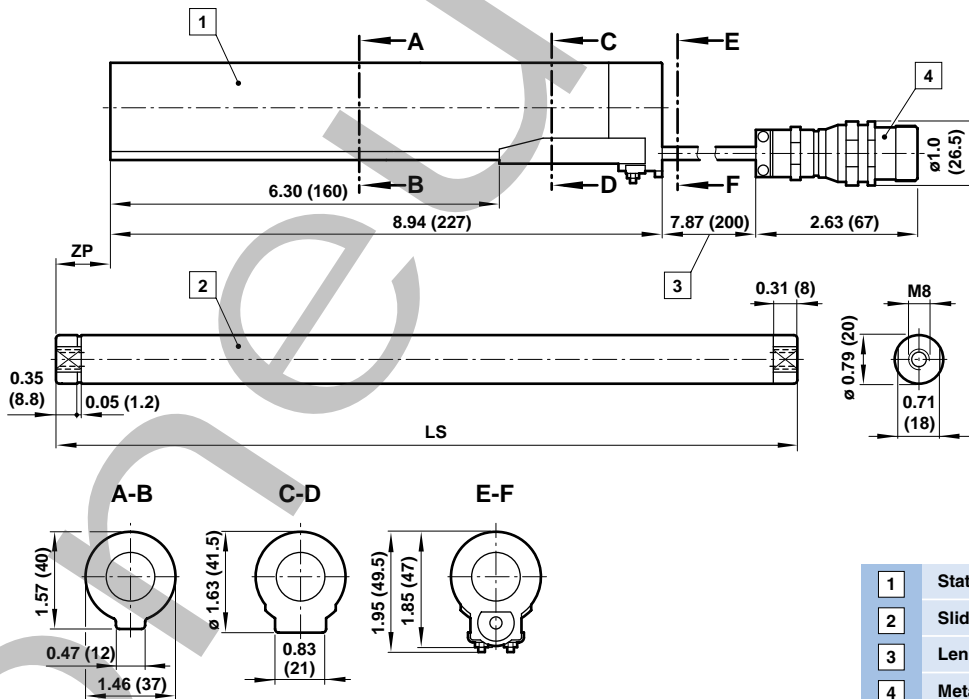
N037120

Multi position airless cylinder set

Airless cylinder (without guide) NP01-23x80/.../M



Airless cylinder (without guide) NP01-37x120/.../M



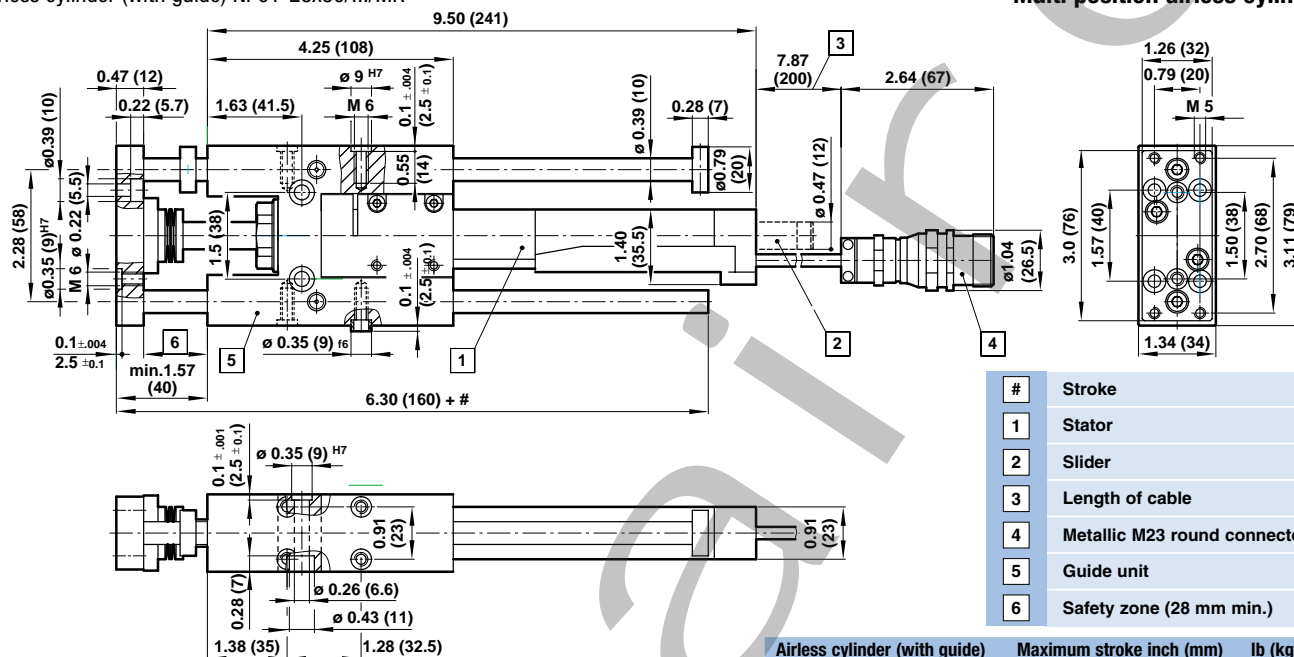
- 1 Stator
- 2 Slider
- 3 Length of cable
- 4 Metallic M23 round connector IP67

Airless cylinder (without guide)	Maximum stroke inch (mm)	LS	ZP	lb (kg)
NP01-23x80/50x110-M	4.3 (110)	7.48 (190)	1.97 (50)	14 oz (0.400)
NP01-23x80/80x140-M	5.5 (140)	10.63 (270)	4.53 (115)	15.4 oz (0.436)
NP01-23x80/210x270-M	10.6 (270)	13.78 (350)	5.12 (130)	1.2 (0.536)
NP01-23x80/280x340-M	13.4 (340)	16.54 (420)	6.50 (165)	1.3 (0.595)
NP01-37x120/20x100-M	4.0 (100)	9.45 (240)	2.36 (60)	2.7 (1.200)
NP01-37x120/80x160-M	6.3 (160)	11.81 (300)	3.54 (90)	3.0 (1.340)
NP01-37x120/180x260-M	10.2 (260)	15.55 (395)	5.31 (135)	3.5 (1.569)
NP01-37x120/280x360-M	14.2 (360)	19.69 (500)	7.48 (190)	4.0 (1.804)

**N023080
N037120**

Multi position airless cylinder set

Airless cylinder (with guide) NP01-23x80/.../MR

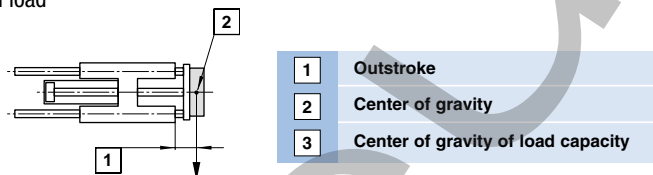


#	Stroke
1	Stator
2	Slider
3	Length of cable
4	Metallic M23 round connector IP67
5	Guide unit
6	Safety zone (28 mm min.)

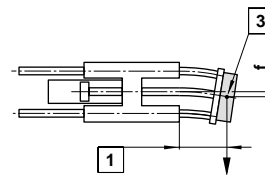
Airless cylinder (with guide)	Maximum stroke inch (mm)	lb (kg)
NP01-23x80/50x110-MR	2.0 (50)	3.0 (1.341)
NP01-23x80/80x140-MR	4.0 (100)	3.0 (1.438)
NP01-23x80/210x270-MR	8.0 (200)	4.0 (1.657)
NP01-23x80/280x340-MR	12.5 (320)	4.1 (1.858)

Dimensions in inches (mm)

Maximum load

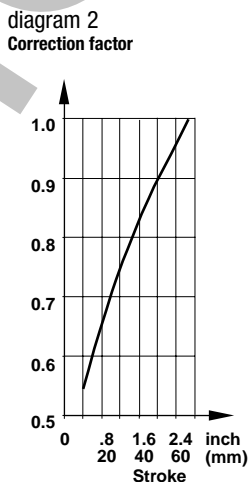
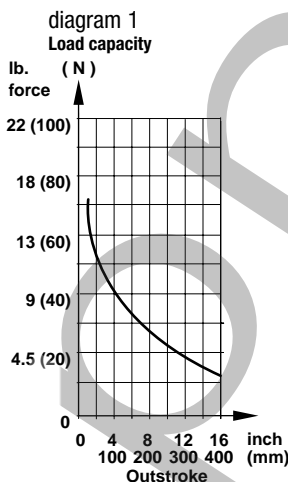


Maximum load capacity is dependent on the outstroke of a horizontally installed guide unit. In the case of short stroke operation, the load capacity figures taken from the diagram must be multiplied by the correction factor (diagram 2). In the curves of load capacity (diagram 1), the short stroke corrections have already been taken into account for an outstroke > 60 mm.



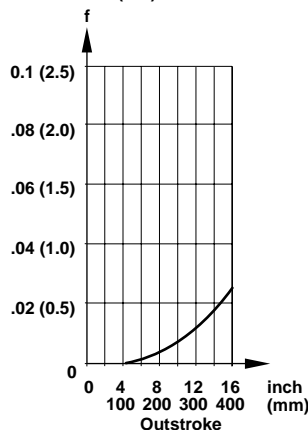
The total deflection of guide rods will be determined by the addition of that due to own weight (diagram 3) and that due to load capacity (diagram 4).

Maximum load capacity depending on outstroke

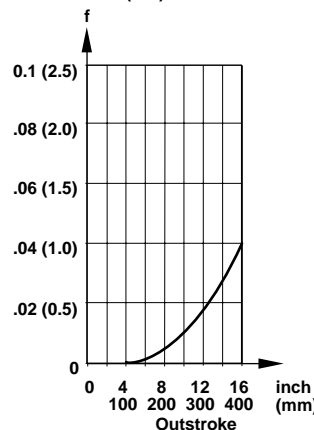


Reduction of load capacity for short-stroke operation

Deflection caused by own weight



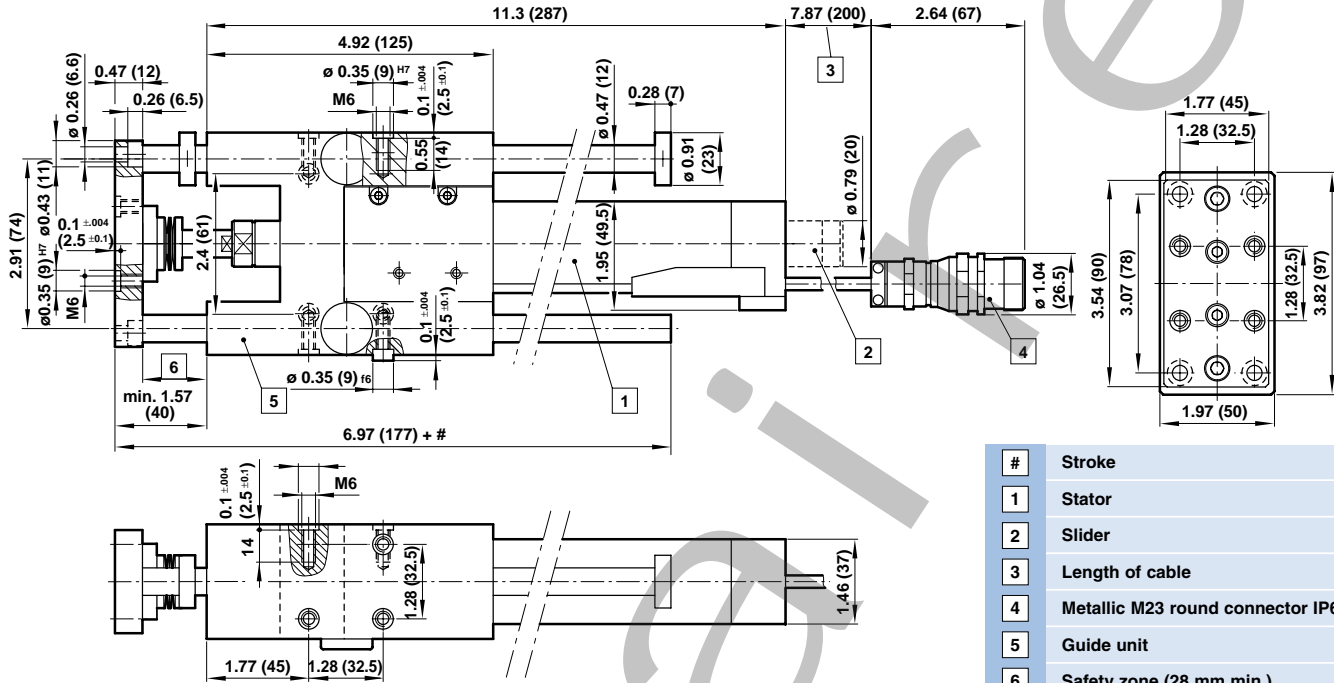
Deflection caused by a load of 10 N



In the case of shock load applications, the figures given in the diagrams above must be reduced by a factor of 2.

Actuators

Airless cylinder (with guide) NP01-37x120/.../MR

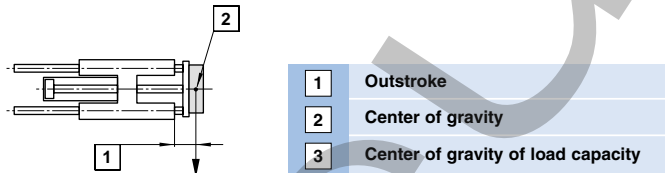


#	Stroke
1	Stator
2	Slider
3	Length of cable
4	Metallic M23 round connector IP67
5	Guide unit
6	Safety zone (28 mm min.)

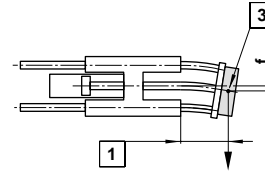
Dimensions in inches (mm)

Airless cylinder (with guide)	Maximum stroke inch (mm)	lb (kg)
NP01-37x120/20x100-MR	2.0 (50)	2.3 (1.060)
NP01-37x120/80x160-MR	4.0 (100)	2.8 (1.290)
NP01-37x120/180x260-MR	8.0 (200)	3.7 (1.699)
NP01-37x120/280x360-MR	12.5 (320)	4.7 (2.114)

Maximum load

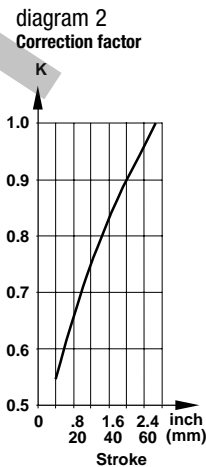
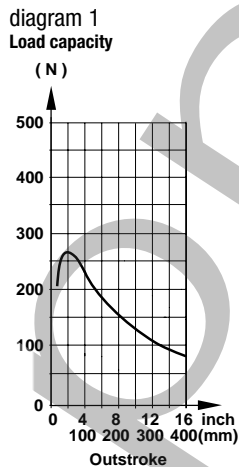


Maximum load capacity is dependent on the outstroke of a horizontally installed guide unit. In the case of short stroke operation, the load capacity figures taken from the diagram must be multiplied by the correction factor (diagram 2). In the curves of load capacity (diagram 1), the short stroke corrections have already been taken into account for an outstroke > 60 mm.



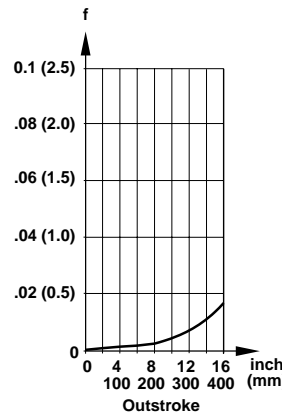
The total deflection of guide rods will be determined by the addition of that due to own weight (diagram 3) and that due to load capacity (diagram 4).

Maximum load capacity depending on outstroke

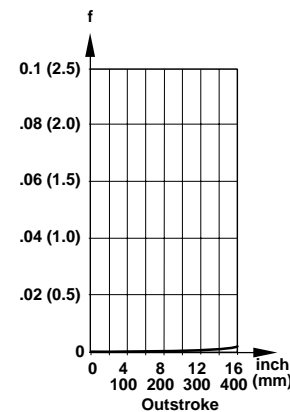


Reduction of load capacity for short-stroke operation

Deflection caused by own weight
diagram 3
Deflection (mm)



Deflection caused by a load of 10 N
diagram 4
Deflection (mm)

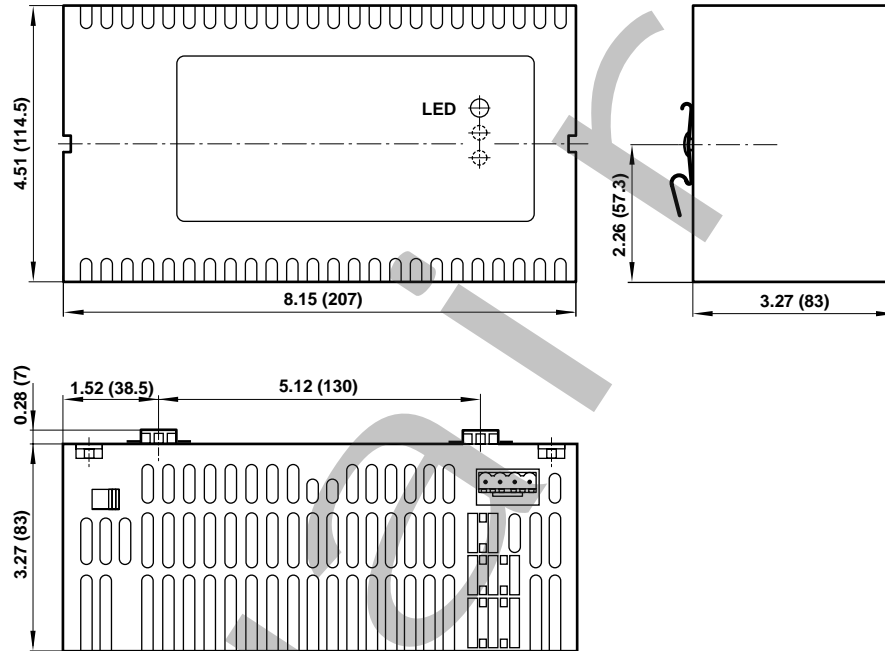


In the case of shock load applications, the figures given in the diagrams above must be reduced by a factor of 2.

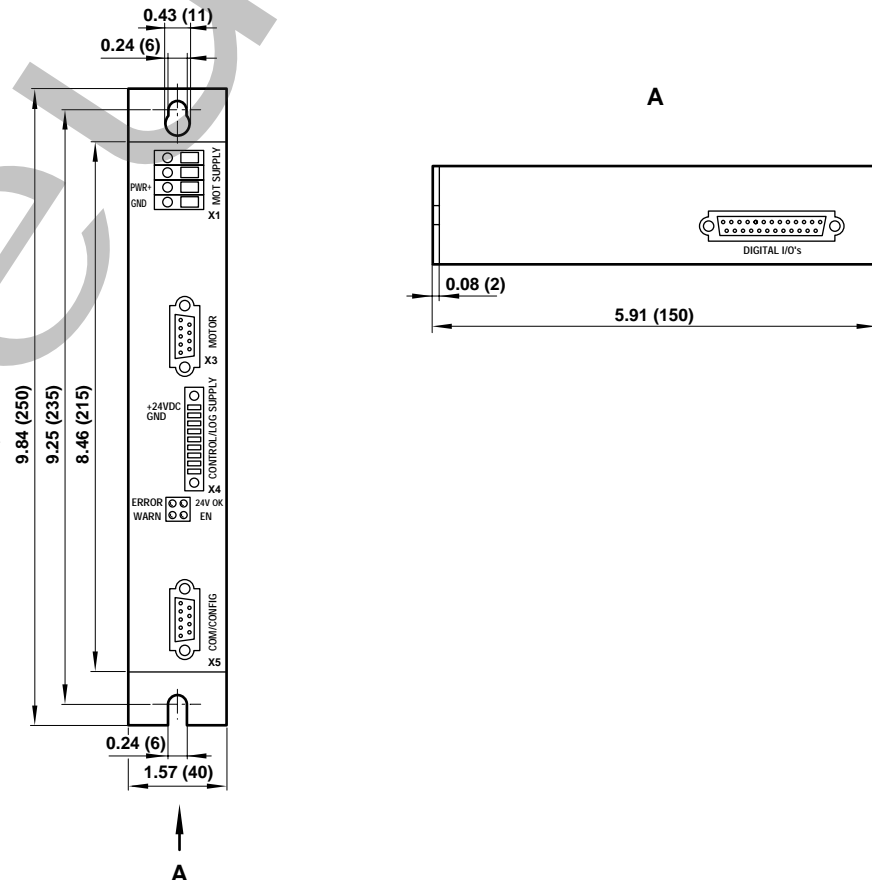
N023080
N037120

Multi position airless cylinder set
Dimensions in inches (mm)

Power supply
NS01-72/300



Multi position servo controller with software
NE1100-MP



Actuators

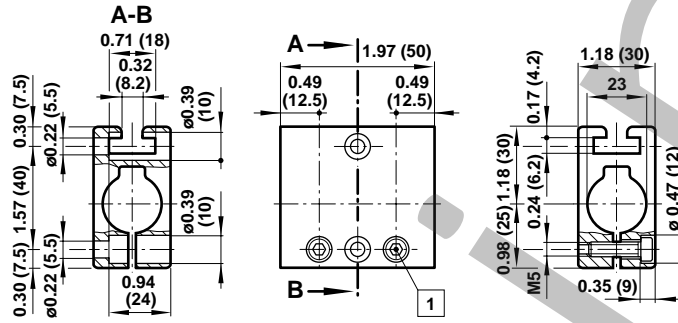
N023080
N037120

Multi position airless cylinder set

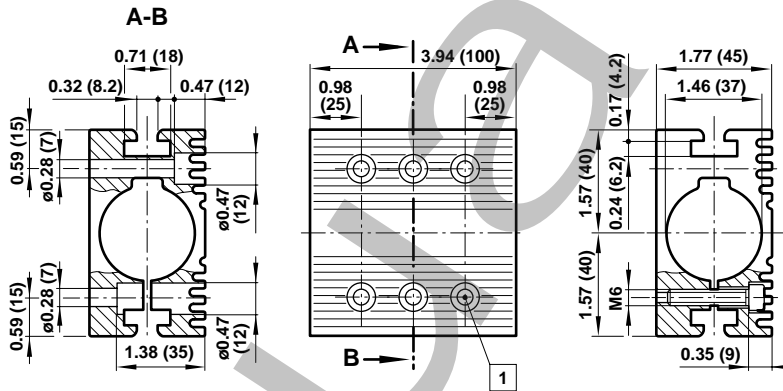
Dimensions in inches (mm)

Optional flange mounting for airless cylinder without guide unit

NPF01-23x50

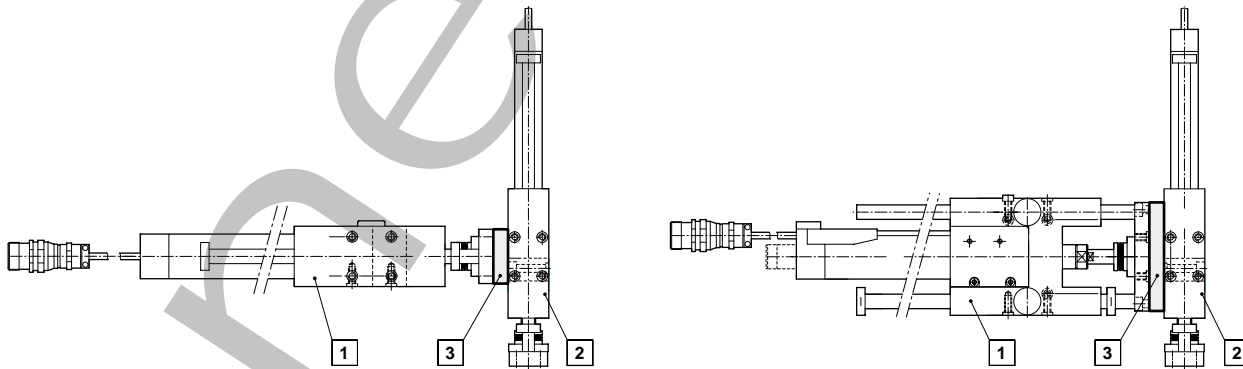


NPF01-37x100

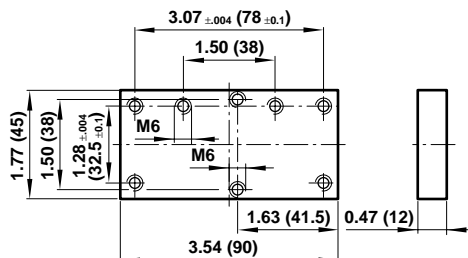


1 Tightening torque max. 2Nm

Optional adaptor plate for multi position airless cylinder set with guide



M/P73677



- 1 Multi position airless cylinder N037120
- 2 Multi position airless cylinder N023080
- 3 Adaptor plate

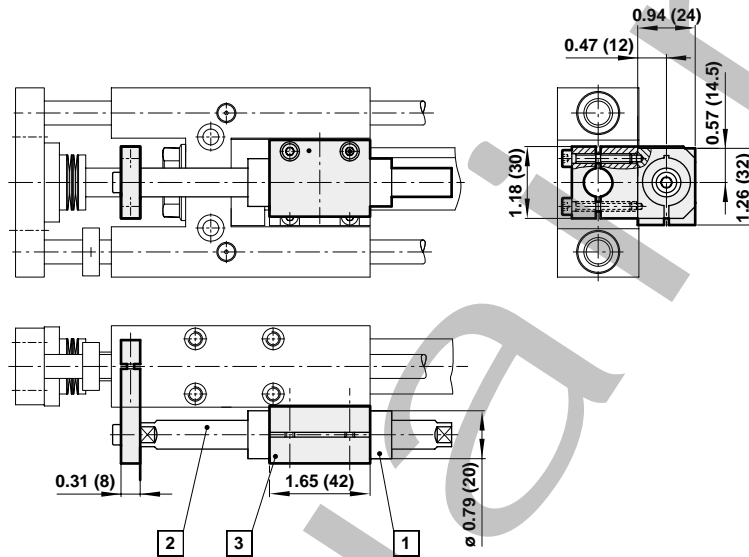
N023080
N037120

Multi position airless cylinder set

Dimensions in inches (mm)

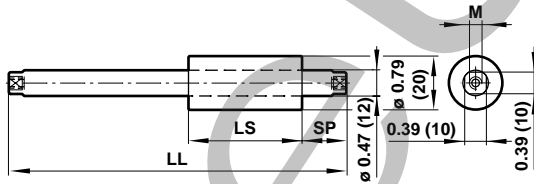
Optional assembly kit for magnetic spring

QM/023080/22



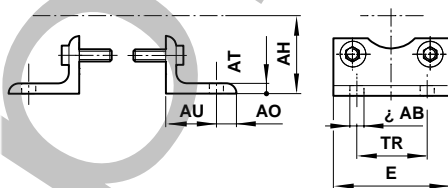
- | | |
|---|--------------|
| 1 | Stator |
| 2 | Slider |
| 3 | Assembly kit |

Optional magnetic spring



Model	Stroke inch (mm)	Force	L	L1	SP	lb (kg)
NP01-20x60/10N	2.17 (55)	10 N	2.36 (60)	5.12 (130)	1.38 (35)	0.35 (0.16)
NP01-20x60/20N	2.17 (55)	20 N	2.36 (60)	5.12 (130)	1.38 (35)	0.35 (0.16)
NP01-20x140/10N	5.31 (135)	10 N	5.51 (140)	8.27 (210)	1.38 (35)	0.75 (0.34)
NP01-20x140/20N	5.31 (135)	20 N	5.51 (140)	8.27 (210)	1.38 (35)	0.75 (0.34)
NP01-20x220/10N	8.46 (215)	10 N	8.66 (220)	11.41 (290)	1.38 (35)	1.12 (0.51)
NP01-20x220/20N	8.46 (215)	20 N	8.66 (220)	11.41 (290)	1.38 (35)	1.12 (0.51)

Optional foot mounting style C for airless cylinder with guide unit



Model	Ø AB	AH	AO	AT	AU	E	TR	lb (kg)
QA/8032/21	0.26 (6.6)	1.06 (27)	0.24 (6)	0.16 (4)	0.63 (16)	1.42 (36)	0.87 (22)	0.07 (0.03)