1. Small size, firm, high precision.
2. Combination of small cylinder and circular linear guide.
3. Parallelism: 30μm, perpendicularity: 50μm.
4. Double cylinder design, 2 times output force.
5. Large load moment.
6. Adjustable travel (with adjustable travel device).
7. Magnetic switch can be installed.

Specifications

Model	NMXQ6	NMXQ8	NMXQ12	NMXQ16	NMXQ20	NMXQ25
Bore size (mm)	Φ6×2 (Equate to Φ8)	Φ8×2 (Equate to Φ11)	Φ12×2 (Equate to Φ17)	Φ16×2 (Equate to Φ22)	Φ20×2 (Equate to Φ28)	Φ25×2 (Equate to Φ35)
Use fluid	Air (to be filtered by 40μm filter element)					
Action mode	Double action					
Maximum operating pressure	0.7MPa					
Minimum operating pressure	0.15MPa					
Ambient and fluid temperature	-10 to 60℃ (No freezing)					
Piston speed (mm/s)	50~500 (Adjuster option/Metal stopper: 50 to 200)					
Cushion	Rubber buffer (standard), hydraulic buffer, none(Shock absorber)					
Stroke length tolerance(mm)	$^{+1}_{0}$					
Lubrication	Non-lube					
Pipe size	M5×0.8				1/8"	

Note: If lubrication is required, please use turbine No.1 oil ISO VG32.

Selection table

Model		Bore size (mm)
Standard type	Symmetric type	
NMXQ6	NMXQ6L	6
NMXQ8	NMXQ8L	8
NMXQ12	NMXQ12L	12
NMXQ16	NMXQ16L	16
NMXQ20	NMXQ20L	20
NMXQ25	NMXQ25L	25

Standard stroke (mm): 10 20 30 40 50 75 100 125 150

Adjuster option: Rubber stopper (Extension end, Retraction end, Both ends); Shock absorber (Extension end, Retraction end, Both ends); Metal stopper (Extension end, Retraction end, Both ends)

Functional option: With buffer, With end lock, Axial piping type

Magnetic switch: A93(V), A96(V), M9N(V), M9B(V), M9P(V), F9NW

Combination and collocation

Stroke adjuster \ Function options	Without	F	R	P	FR	FP
Without	○	○	○	○	○	○
AS, CS	○	○	○	○	○	○
AT, CT	○	○	×	×	×	×
A, C	○	○	×	×	×	×
BS	○	×	○	○	×	×
BT	○	○	×	×	×	×
B	○	×	×	×	×	×

○: available, ×: not available.

Ordering code

NMXQ 12 L — 50 AS FR — M9N □

Bore size

Symmetric type

Blank	Standard type
L	Symmetric type

Stroke

Adjuster option

Blank	Without adjuster	Without
AS	Extension end rubber stopper	Extension end
AT	Retraction end rubber stopper	Retraction end
A	Double end rubber stopper	Both ends
*BS	Extension end absorber	Extension end
*BT	Retraction end absorber	Retraction end
*B	Double absorber	Both ends
CS	Extension end metal stopper	Extension end
CT	Retraction end metal stopper	Retraction end
C	Double metal stopper	Both ends

* With shock absorber is not available in NMXQ6 series.

Functional option

Blank	Standard type
F	With buffer
*R	With end lock
P	Axial piping type
*FR	With buffer and end lock
FP	With buffer, Axial piping type

* With end lock is not available in NMXQ6 series.

Magnetic switch

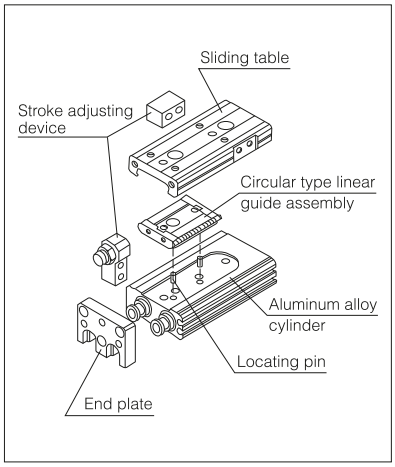
Blank	without magnetic switch

* Wire length representation mark: no mark -0.5m, L-3m, Z-5m.

Number of magnetic switches

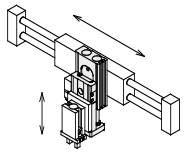
Blank	2 pcs.
S	1 pc.
n	n pcs.

Cylinder and table combination

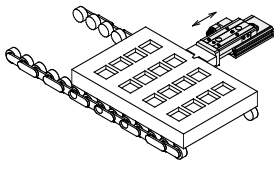


Application examples

Picking action



Precision positioning



Theoretical output force table

Design of double cylinder cylinder: Stretch, Shrink

(Unit: N)

Bore size (mm)	Action direction	Compression area (mm²)	Use pressure (Mpa)					
			0.2	0.3	0.4	0.5	0.6	0.7
Φ6×2	Stretch	57	11	17	23	29	34	40
	Shrink	42	8	13	17	21	25	29
Φ8×2	Stretch	101	20	30	40	51	61	71
	Shrink	75	15	23	30	38	45	53
Φ12×2	Stretch	226	45	68	90	113	136	158
	Shrink	170	34	51	68	85	102	119
Φ16×2	Stretch	402	80	121	161	201	241	281
	Shrink	302	60	91	121	151	181	211
Φ20×2	Stretch	628	126	188	251	314	377	440
	Shrink	471	94	141	188	236	283	330
Φ25×2	Stretch	982	196	295	393	491	289	687
	Shrink	756	151	227	302	378	454	529

Note: theoretical output force(N)=pressure(MPa)×compression area (mm²).

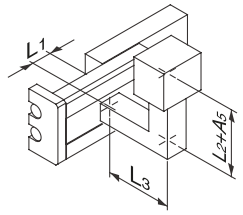
Selection method of pneumatic slide table

Model Selection Steps	Formula/Data	Selection Examples

1 Operating Conditions

Enumerate the operating conditions considering the mounting position and workpiece configuration.
Check that the load weight does not exceed the maximum allowable load weight and that the average operating speed does not exceed the operating speed range.

- Model to be used
- Type of cushion
- Workpiece mounting position
- Mounting orientation
- Average operating speed Va (mm/s)
- Load mass W (kg): Fig. (1), Table (2)
- Overhang Ln (mm) Fig. (2)



Cylinder: NMXQ16-50
Cushion: Rubber stopper
Workpiece table mounting
Mounting: Horizontal wall mounting
Average operating speed:
Va = 300 [mm/s]
Load mass: W = 1 [kg]
L1 = 10 mm
L2 = 30 mm
L3 = 30 mm

2 Kinetic Energy

Find the kinetic energy E (J) of the load.

Find the allowable kinetic energy Ea (J).

Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.

$E=\frac{1}{2}\cdot W(\frac{V}{1000})^2$

Collision speed $V=\frac{1.4}{※}\cdot Va$

※) Correction factor (Reference values)

Ea = K · Emax

Workpiece mounting coefficient K: Fig.(3)

Max. allowable kinetic energy Emax: Table (1)

Kinetic energy (E) ⩽ Allowable kinetic energy (Ea)

$E=\frac{1}{2}\times1(\frac{420}{1000})^2=0.088$

V=1.4×300=420

Ea=1×0.11=0.11

Can be used based on E=0.088 ⩽ Ea=0.11

3 Load Factor

3-1 Load Factor of Load Mass

Find the allowable load mass Wa (kg).
Note) No need to consider this load factor in the case of using perpendicularly in a vertical position. (Define α1=0.)
Find the load factor of the load weight α1.

Wa = K · β · Wmax
Workpiece mounting coefficient K: Fig. (3)
Allowable load mass coefficient β: Graph (1)
Max. allowable load mass Wmax: Table (2)
α1 = W/Wa

Wa=1×1×4=4
K=1
β=1
Wmax=4
α1=1/4=0.25

3-2 Load Factor of Static Moment

Find the static moment M (N·m).

Find the allowable static moment Ma (N·m).

Find the load factor α2 of the static moment.

M=W×9.8(Ln+An)/1000
Correction value of moment center position distance An: Table (3)

Ma=K·Y·Mmax
Workpiece mounting coefficient K: Fig. (3)
Allowable moment coefficient Y: Graph (2)
Maximum allowable moment Mmax: Table (4)

α2=M/Ma

Yawing

Examine My.
My=1×9.8(10+30)/1000=0.39
A3=30

May=1×1×18=18
Mymax=18
K=1
Y=1

α2=0.39/18=0.022

Rolling

Examine Mr.
Mr=1×9.8(30+10.5)/1000=0.39
A6=10.5

Mar=36
Mymax=36
K=1
Y=1

α'2=0.39/36=0.011

3-3 Load Factor of Dynamic Moment

Find the dynamic moment Me (N·m).

Find the allowable dynamic moment Mea (N·m).

Find the load factor α3 of the dynamic moment.

$Me=1/3\cdot We\times9.8\frac{(Ln+An)}{1000}$
Collision equivalent to impact We = δ·W·V
δ: Bumper coefficient
Rubber stopper without adjuster = 4/100
Shock absorber = 1/100
Metal stopper = 16/100
Correction value of moment center position distance An: Table (3)

Mea = K·Y·Mmax
Workpiece mounting coefficient K: Fig. (3)
Allowable moment coefficient Y: Graph (2)
Max. allowable moment Mmax: Table (4)

α3=Me/Mea

Pitching Examine Mep.

$Mep=1/3\times16.8\times9.8\times\frac{(30+10.5)}{1000}=2.2$

We=4/100×1×420=16.8
A2=10.5
Meap=1×0.7×18=12.6
K=1
Y=0.7
Mpmax=18
α3=2.2/12.6=0.17

Yawing Examine Mey.

$Mey=1/3\times16.8\times9.8\times\frac{(30+24.5)}{1000}=3.0$

We=16.8
A4=24.5
Meay=12.6(Same value as Meap)
α'3=3.0/12.6=0.24

3-4 Sum of Load Factors

Use is possible if the sum of the load factors does not exceed 1.

∑αn=α1+α2+……+αn⩽1

∑αn=α1+α2+α'2+α3+α'3
=0.25+0.022+0.011+0.17+0.24=0.693⩽1
And it is possible to use.

Fig. (1)
Load Mass: W (kg)

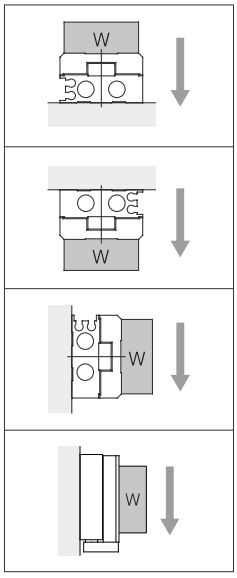
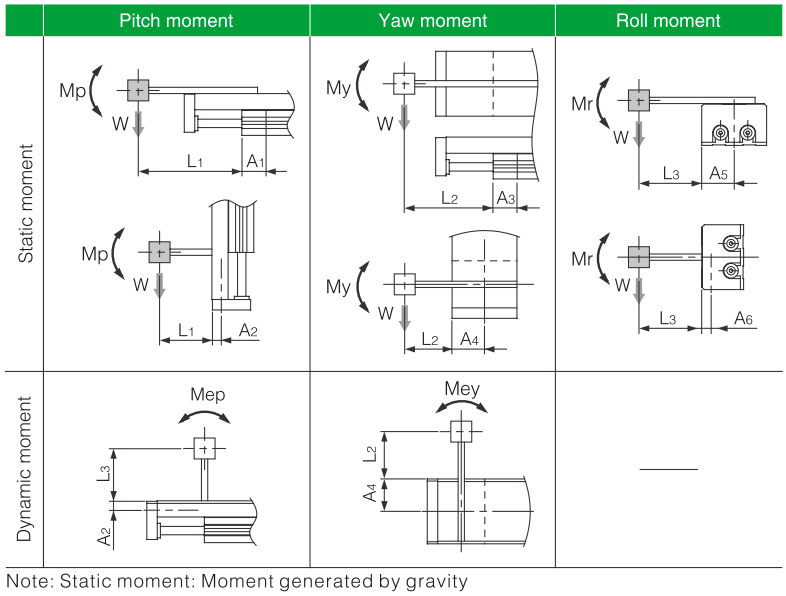


Fig. (2) Overhang: Ln (mm), Correction Value of Moment Center Position Distance: An (mm)



Note: Static moment: Moment generated by gravity
Dynamic moment: Moment generated by impact when colliding with stopper

Fig. (3) Workpiece Mounting Coefficient: K

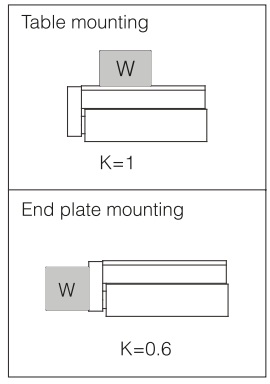


Table (1) Maximum Allowable Kinetic Energy: Emax (J)

Model	Allowable kinetic energy			
	Without adjuster	Adjuster option		
		Rubber stopper	Shock absorber	Metal stopper
NMXQ6	0.018	0.018	-	0.009
NMXQ8	0.027	0.027	0.054	0.013
NMXQ12	0.055	0.055	0.11	0.027
NMXQ16	0.11	0.11	0.22	0.055
NMXQ20	0.16	0.16	0.32	0.080
NMXQ25	0.24	0.24	0.48	0.12

⚠Caution The maximum operating speed for metal stopper is 200 mm/s.

Table (2) Maximum Allowable Load Mass: Wmax (kg)

Model	Maximum allowable load mass
NMXQ6	0.6
NMXQ8	1
NMXQ12	2
NMXQ16	4
NMXQ20	6
NMXQ25	9

Graph (1) Allowable Load Mass Coefficient: β

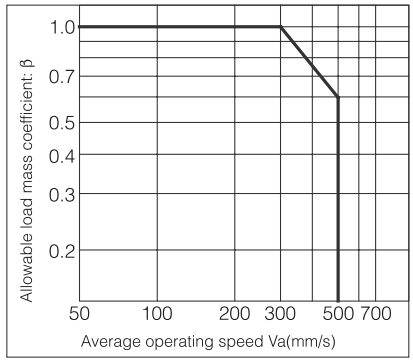
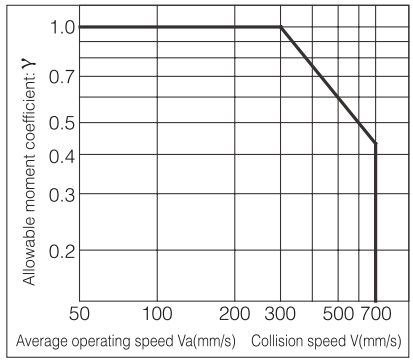


Table (3) Correction Value of Moment Center Position Distance: An (mm)

Model	Correction value of moment center position distance (Refer to Figure (2).)												
	A1, A3									A2	A4	A5	A6
	Stroke (mm)												
	10	20	30	40	50	75	100	125	150				
NMXQ6	14.5	14.5	14.5	18.5	18.5	-	-	-	-	6	13.5	13.5	6
NMXQ8	16.5	16.5	18.5	20.5	28	28.5	-	-	-	7	16	16	7
NMXQ12	21	21	21	25	25	34	34	-	-	9	19.5	19.5	9
NMXQ16	27	27	27	27	30	33	42.5	42.5	-	10.5	24.5	24.5	10.5
NMXQ20	29.5	29.5	29.5	29.5	33.5	37.5	53.5	55	56.5	14	30	30	14
NMXQ25	35.5	35.5	35.5	35.5	43	43	50	64	64	16.5	37	37	16.5

Note: For A2, A4, A5 and A6, there is no difference in the corrected values due to the stroke.

Graph (2) Allowable Moment Coefficient: γ



Note: Use the average operating speed when calculating static moment.
Use the collision speed when calculating dynamic moment.

Table (4) Maximum Allowable Moment: Mmax (N·m)

Model	Pitch/Yaw moment: Mpmax/Mymax									Roll moment: Mrmax								
	Stroke (mm)									Stroke (mm)								
	10	20	30	40	50	75	100	125	150	10	20	30	40	50	75	100	125	150
NMXQ6	1.4	1.4	1.4	2.8	2.8	-	-	-	-	3.5	3.5	3.5	5.1	5.1	-	-	-	-
NMXQ8	2.0	2.0	2.8	3.7	7.9	7-.9	-	-	-	5.1	5.1	6.0	6.9	7.4	7.4	-	-	-
NMXQ12	4.7	4.7	4.7	7.2	7.2	15	15	-	-	11	11	11	13	13	14	14	-	-
NMXQ16	13	13	13	13	18	23	42	42	-	31	31	31	31	36	41	41	41	-
NMXQ20	19	19	19	19	27	36	84	84	84	47	47	47	47	57	66	75	75	75
NMXQ25	32	32	32	32	52	52	78	140	140	81	81	81	81	110	110	130	130	130

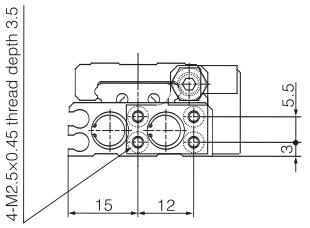
Symbol

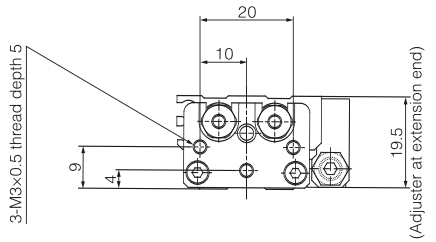
Symbol	Definition	Unit
An (n=1 to 6)	Correction value of moment center position distance	mm
E	Kinetic energy	J
Emax	Allowable kinetic energy	J
Ln (n=1 to 3)	Overhang	mm
M (Mp, My, Mr)	Static moment (Pitch, Yaw, Roll)	N·m
Ma (Map, May, Mar)	Allowable static moment (Pitch, Yaw, Roll)	N·m
Me (Mep, Mey)	Dynamic moment (Pitch, Yaw)	N·m
Mea (Meap, Meay)	Allowable dynamic moment (Pitch, Yaw)	N·m
Mmax (Mpmax, Mymax, Mrmax)	Max. allowable moment (Pitch, Yaw, Roll)	N·m
V	Collision speed	mm/s

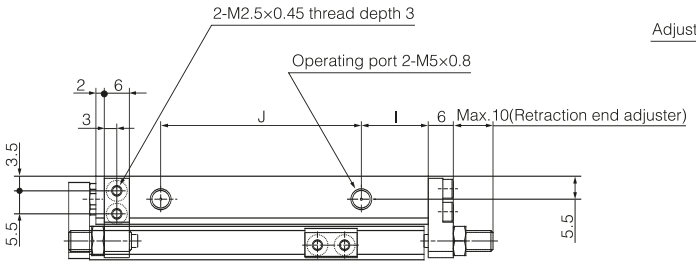
Symbol	Definition	Unit
Va	Average operating speed	mm/s
W	Load mass	kg
Wa	Allowable load mass	kg
We	Weight equivalent to impact	kg
Wmax	Max. allowable load mass	kg
α	Load factor	-
β	Allowable load mass coefficient	-
γ	Allowable moment coefficient	-
K	Workpiece mounting coefficient	-

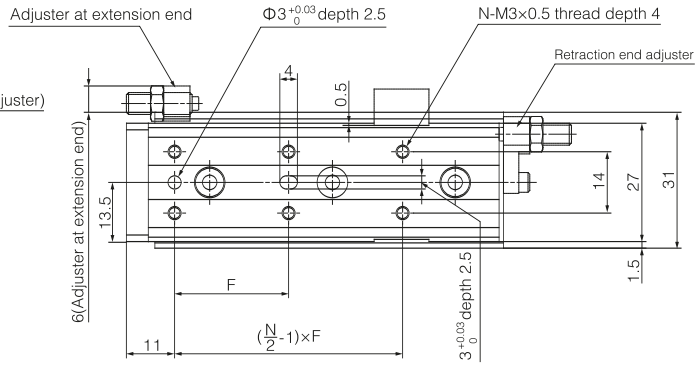
Dimensions

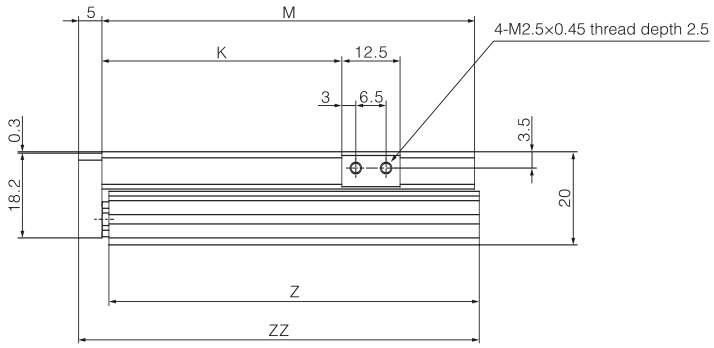
Basic type(NMXQ 6)



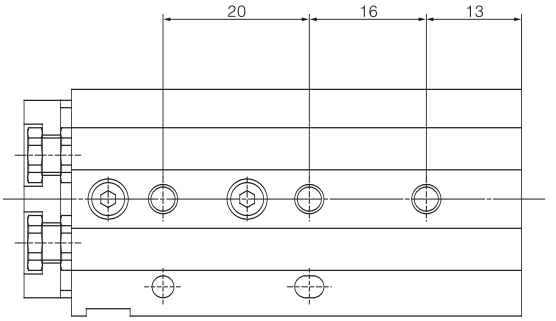


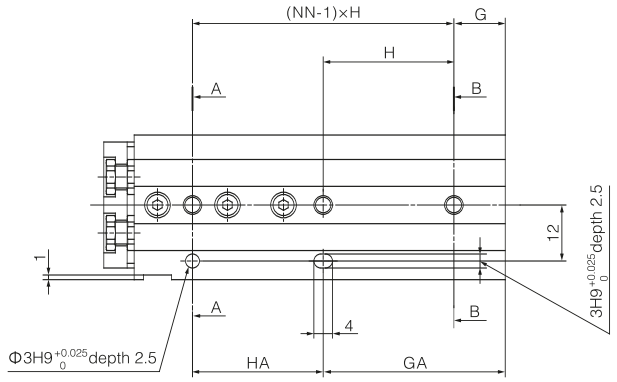


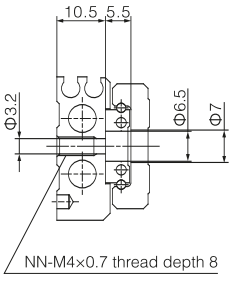




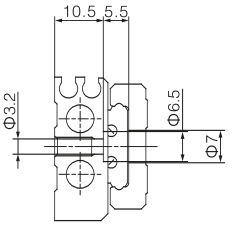
Bottom view of NMXQ6-30







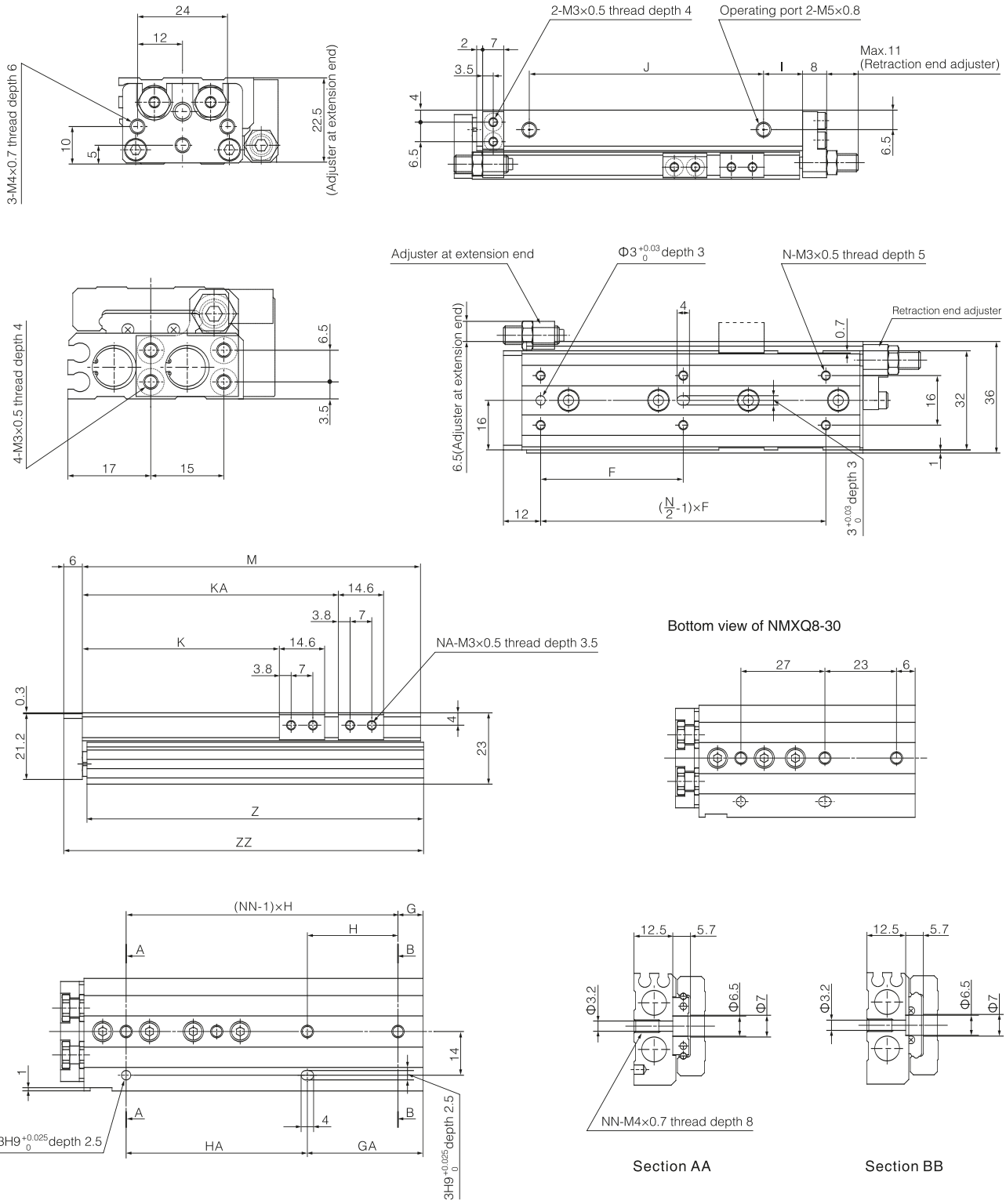
Section AA



Section BB

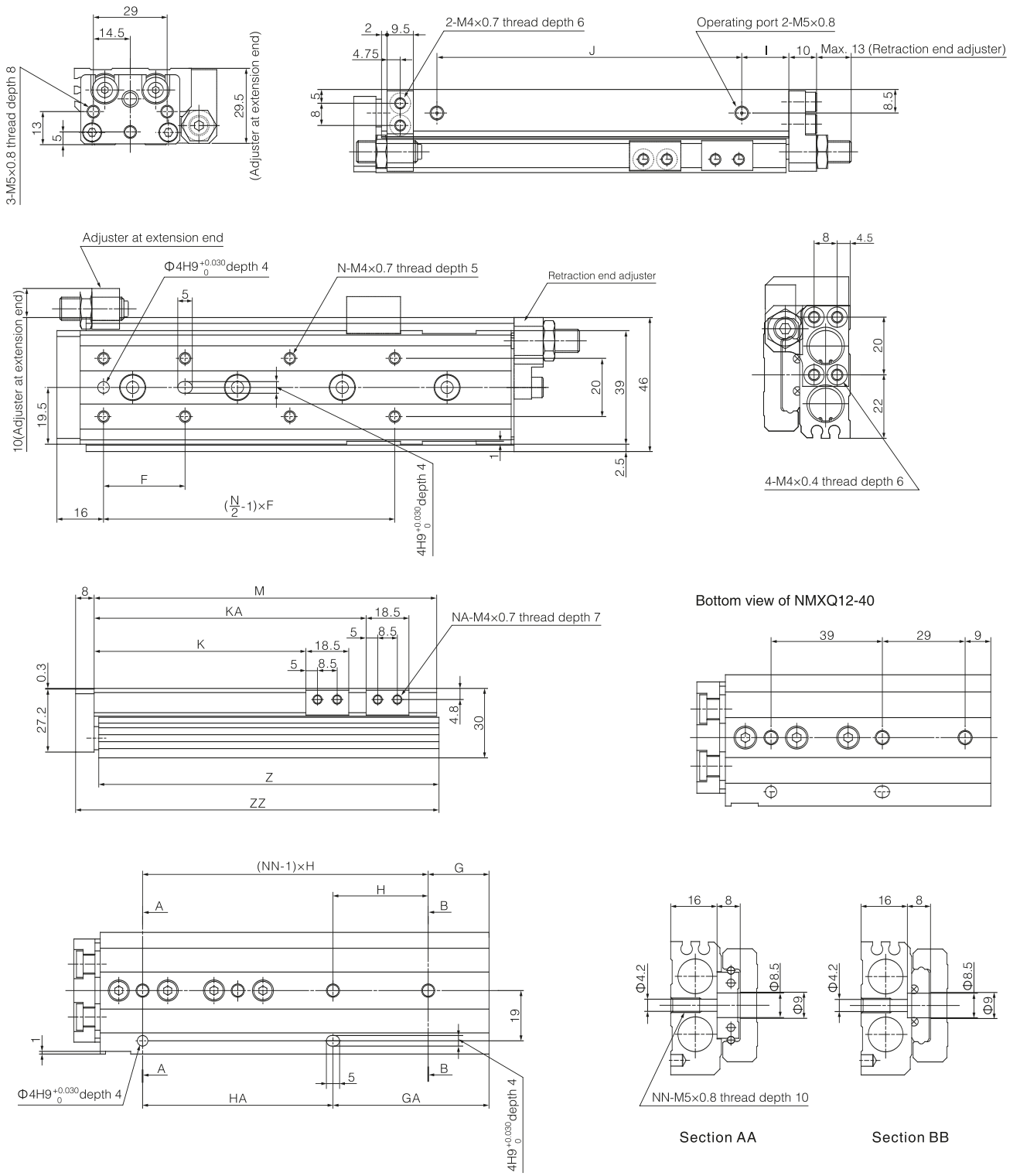
Model	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
NMXQ6-10	22	4	6	23	2	13	16	9	17	21.5	42	41.5	48
NMXQ6-20	25	4	13	26	2	13	26	9	27	31.5	52	51.5	58
NMXQ6-30	21	6	-	-	3	29	20	9	37	41.5	62	61.5	68
NMXQ6-40	26	6	11	28	3	39	28	16	48	51.5	80	79.5	86
NMXQ6-50	27	6	21	28	3	49	28	9	65	61.5	90	89.5	96

Basic type(NMXQ 8)



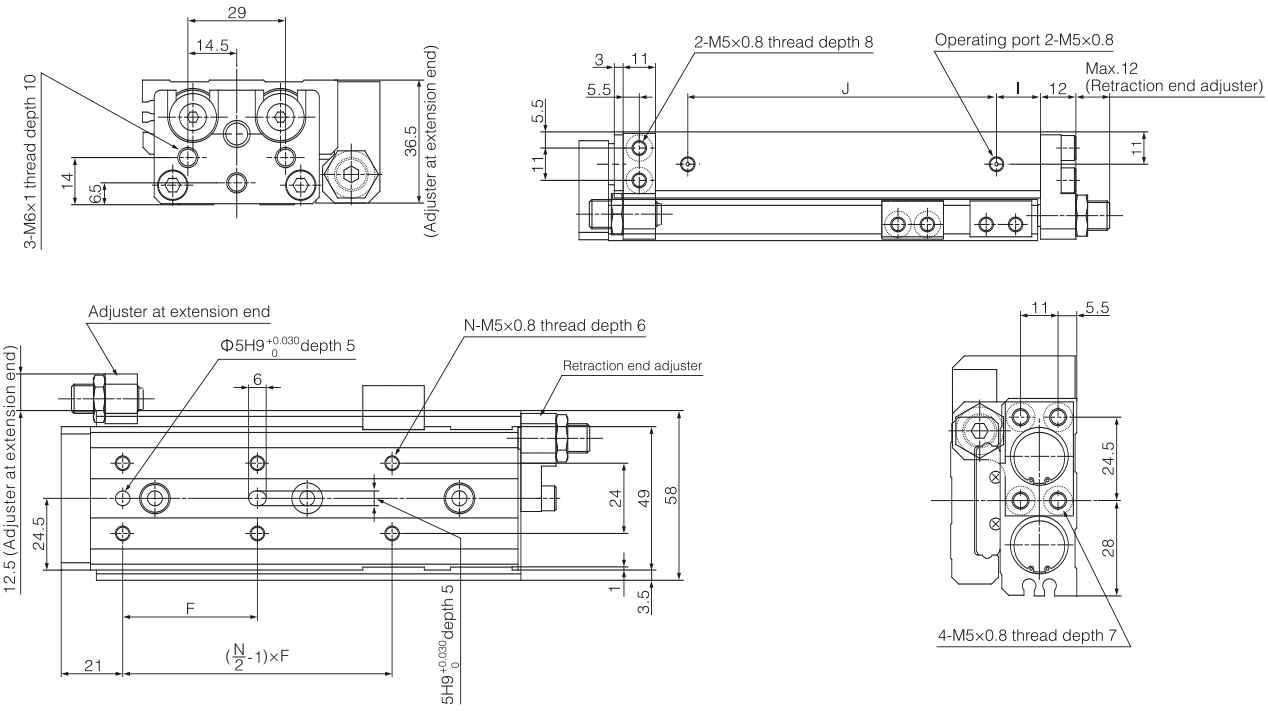
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
NMXQ8-10	25	4	7	25	2	13	19	11	17	23.5	-	4	46	45.5	53
NMXQ8-20	25	4	14	28	2	14	28	10	28	33.5	-	4	56	55.5	63
NMXQ8-30	26	6	-	-	3	29	27	12	40	43.5	-	4	70	69.5	77
NMXQ8-40	32	6	8	31	3	39	31	14	52	53.5	-	4	84	83.5	91
NMXQ8-50	46	6	8	29	4	37	58	13	78	63.5	82.5	8	109	108.5	116
NMXQ8-75	50	6	31	30	4	61	60	12	105	88.5	112.5	8	135	134.5	142

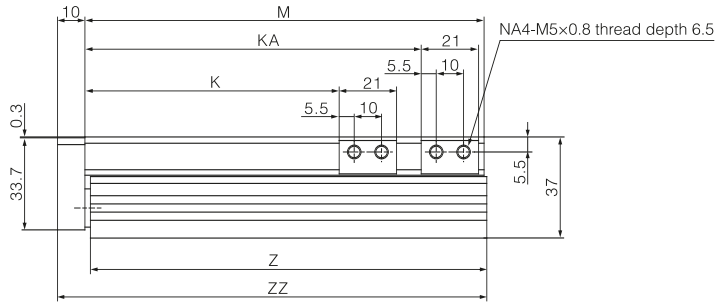
Basic type(NMXQ 12)



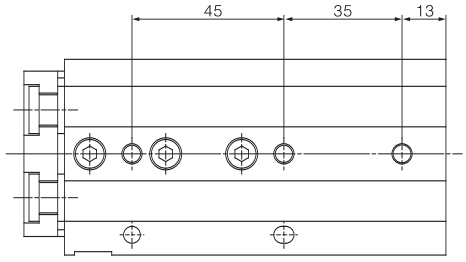
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
NMXQ12-10	28	4	18	32	2	18	32	12	34	26.5	-	4	67	66	76
NMXQ12-20	28	4	18	32	2	18	32	12	34	36.5	-	4	67	66	76
NMXQ12-30	38	4	20	40	2	20	40	14	42	46.5	-	4	77	76	86
NMXQ12-40	34	6	-	-	3	38	39	15	58	56.5	-	4	94	93	103
NMXQ12-50	34	6	9	39	3	48	39	13	70	66.5	-	4	104	103	113
NMXQ12-75	36	8	23	36	4	59	72	17	110	91.5	117.5	8	148	147	157
NMXQ12-100	36	10	12	36	5	84	72	17	135	116.5	142.5	8	173	172	182

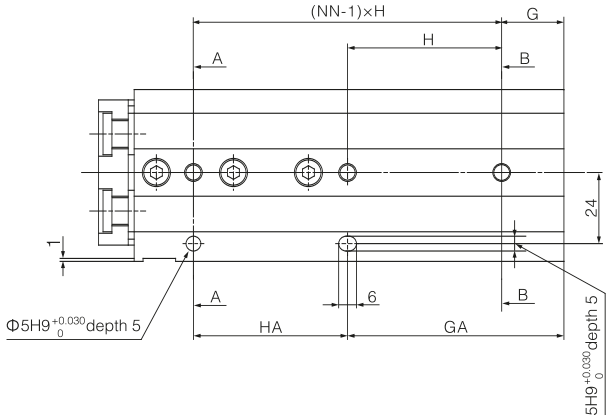
Basic type(NMXQ 16)

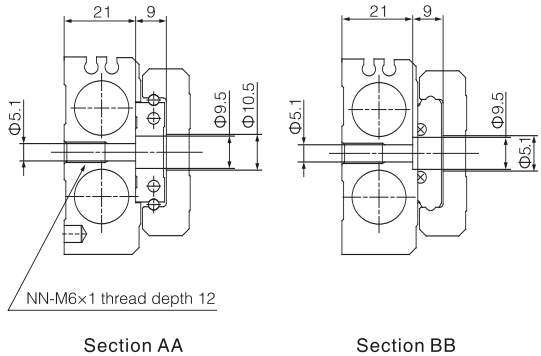




Bottom view of NMXQ16-50

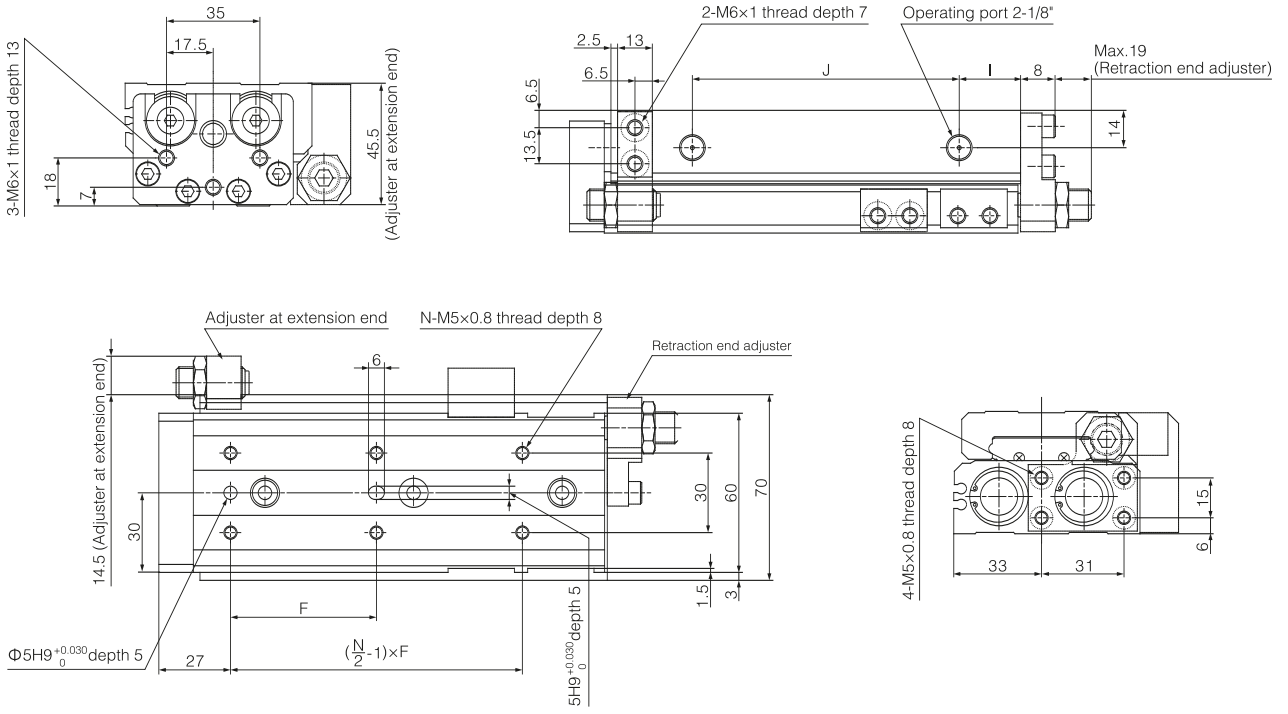




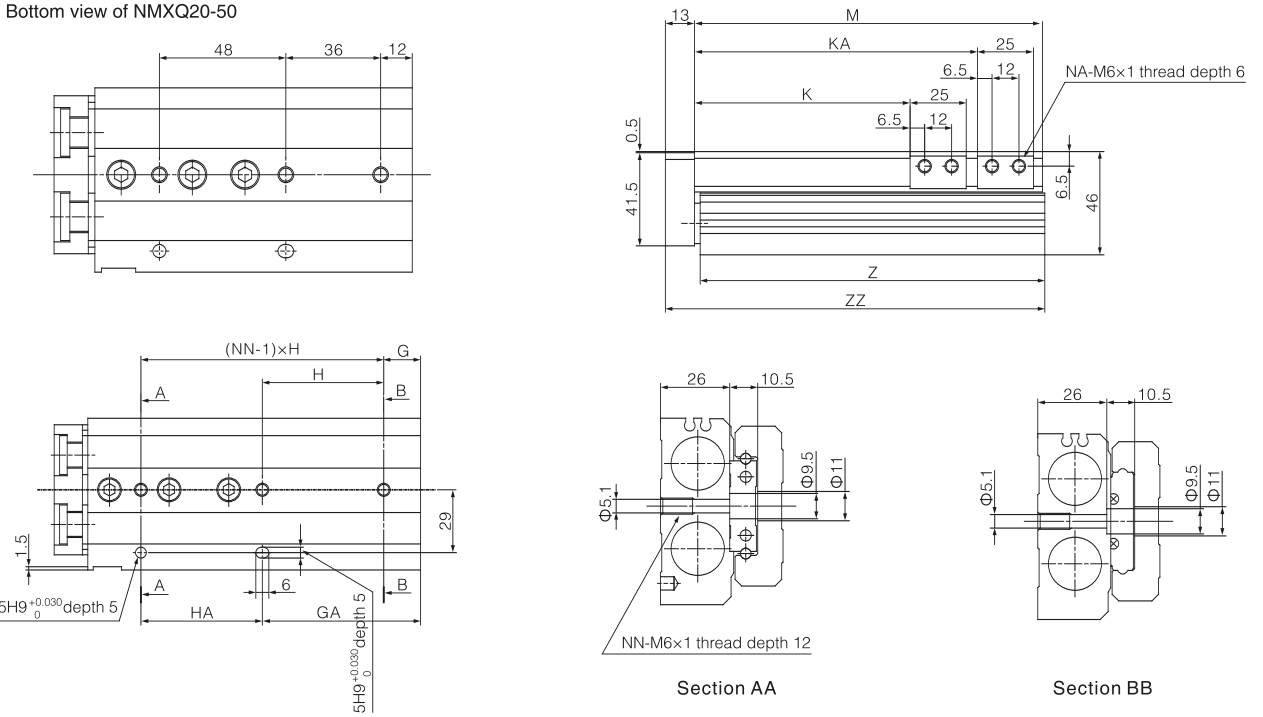


Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
NMXQ16-10	38	4	18	39	2	18	39	12	40	28	-	4	78	77	89
NMXQ16-20	38	4	18	39	2	18	39	12	40	38	-	4	78	77	89
NMXQ16-30	48	4	19	48	2	19	48	12	50	48	-	4	88	87	99
NMXQ16-40	58	4	19	58	2	19	58	12	60	58	-	4	98	97	109
NMXQ16-50	40	6	-	-	3	48	45	20	68	68	91	8	114	113	125
NMXQ16-75	46	6	21	52	3	73	52	15	105	93	123	8	146	145	157
NMXQ16-100	44	8	36	44	4	80	88	18	145	118	166	8	189	188	200
NMXQ16-125	44	10	17	44	5	105	88	23	165	143	191	8	214	213	225

Basic type(NMXQ 20)

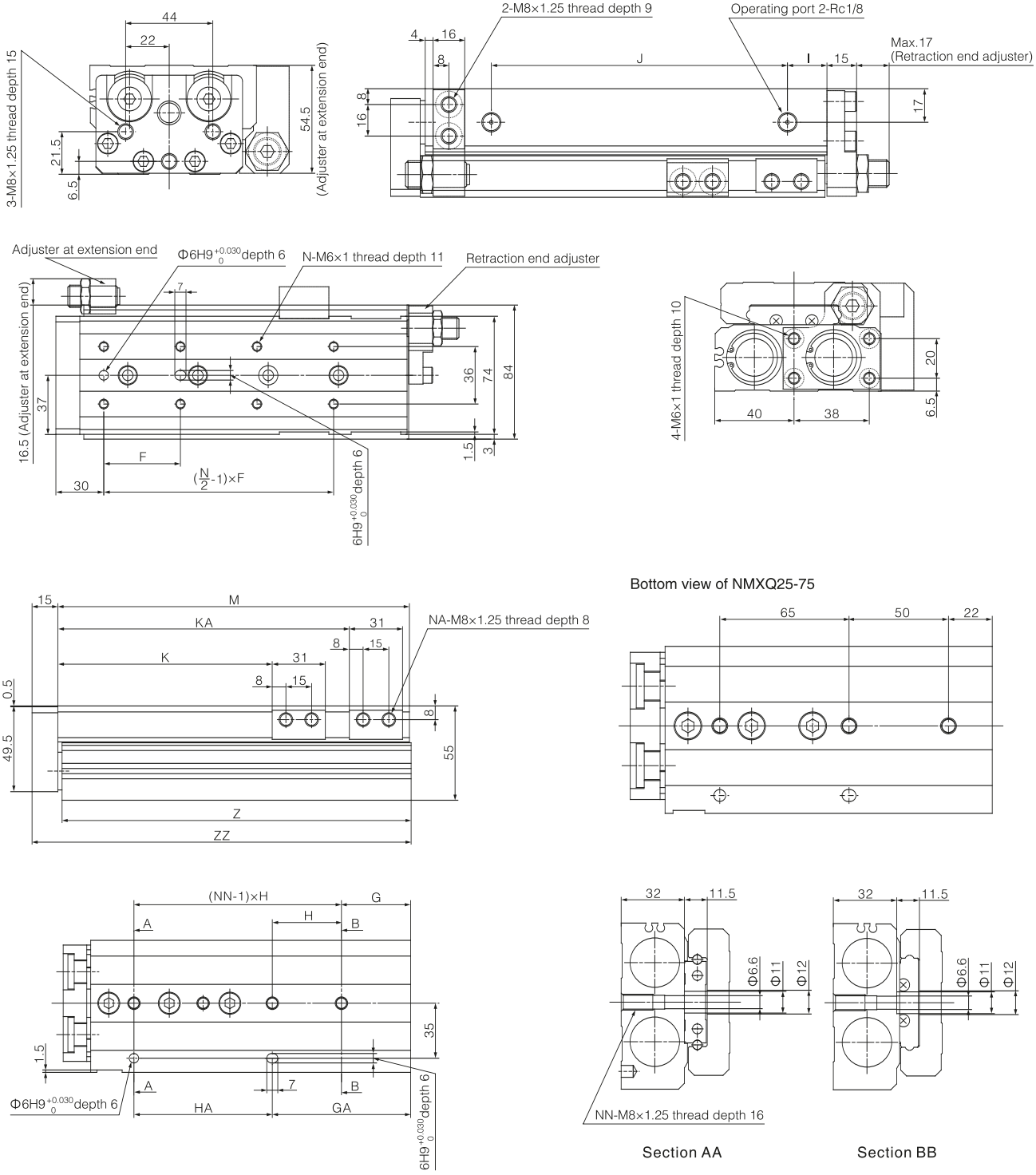


Bottom view of NMXQ20-50



Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
NMXQ20-10	45	4	22	46	2	18	50	16	46	31	-	4	94	92.5	108
NMXQ20-20	40	4	22	46	2	18	50	16	46	41	-	4	94	92.5	108
NMXQ20-30	48	4	22	46	2	18	50	16	46	51	-	4	94	92.5	108
NMXQ20-40	58	4	22	56	2	22	56	16	56	61	-	4	104	102.5	118
NMXQ20-50	42	6	-	-	3	48	48	18	72	71	-	4	122	120.5	136
NMXQ20-75	55	6	17	56	3	73	56	23	100	96	126	8	155	153.5	169
NMXQ20-100	50	8	18	56	4	74	112	25	155	121	183	8	212	210.5	226
NMXQ20-125	55	8	37	59	4	96	118	18	190	146	211	8	240	238.5	254
NMXQ20-150	62	8	56	62	4	118	124	21	215	171	239	8	268	266.5	282

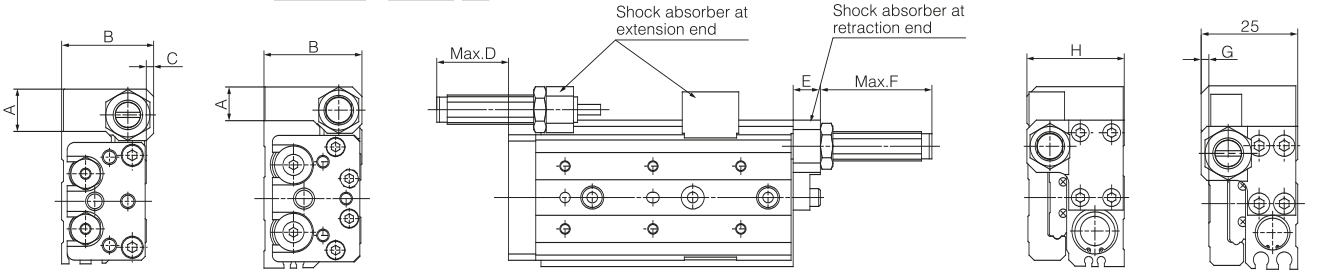
Basic type(NMXQ 25)



Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
NMXQ25-10	55	4	23	55	2	23	55	16	56	35	-	4	107	105.5	123
NMXQ25-20	46	4	23	55	2	23	55	16	56	45	-	4	107	105.5	123
NMXQ25-30	55	4	23	55	2	23	55	16	56	55	-	4	107	105.5	123
NMXQ25-40	65	4	23	65	2	23	65	16	66	65	-	4	117	115.5	133
NMXQ25-50	75	4	32	80	2	32	80	16	90	75	-	4	141	139.5	157
NMXQ25-75	60	6	-	-	3	72	65	31	100	100	-	4	166	164.5	182
NMXQ25-100	48	8	44	44	4	88	88	20	150	125	170	8	205	203.5	221
NMXQ25-125	60	8	31	66	4	97	132	18	205	150	223	8	258	256.5	274
NMXQ25-150	65	8	56	66	4	122	132	18	230	175	248	8	283	281.5	299

Function options

B-With shock absorber NMXQ [Bore size] – [Stroke] [ ] BS, BT, B

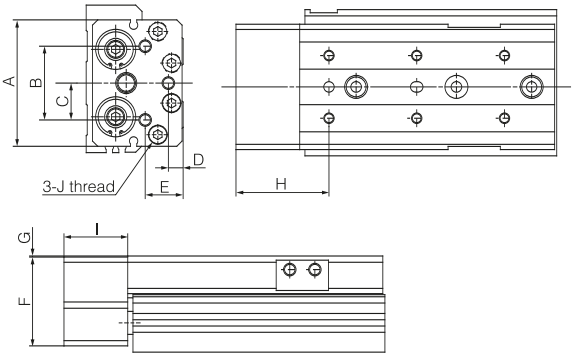


NMXQ 8・20 NMXQ 12・16・25 NMXQ 12・16・25 NMXQ 8・20

With shock absorber

Model	Adjust stroke range		A	B	C	D	E	F	G	H
	Front	After								
NMXQ8	20	20	11.5	25	2	23	8	32	2	25
NMXQ12	18	18	10	29.5	-	18	10	30	-	29.5
NMXQ16	22	22	12.5	36.5	-	20	12	34	-	36.5
NMXQ20	35	35	16	46.5	0.5	35	13	54	0.5	46.5
NMXQ25	35	35	16.5	54.5	-	29	15	52	-	54.5

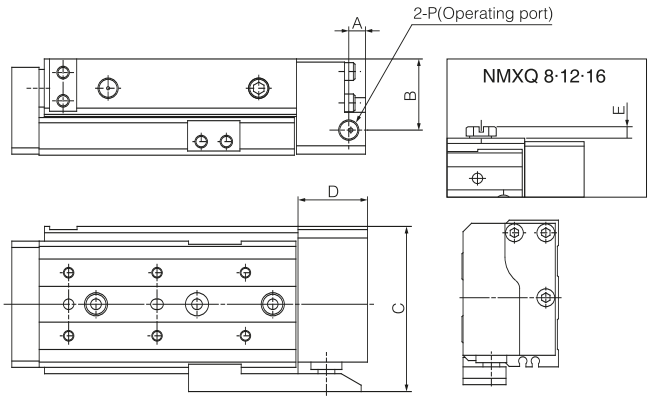
F-with spring buffer NMXQ [Bore size] – [Stroke] [ ] F



With spring buffer

Model	A	B	C	D	E	F	G	H	I	J
NMXQ6	30	16	8	4	8	19.2	0.3	28	22	M3×0.5 depth 5
NMXQ8	34	24	12	5	10	22.2	0.3	28.5	22.5	M4×0.7 depth 6
NMXQ12	43	29	14.5	5	13	29.2	0.3	37	29	M5×0.8 depth 8
NMXQ16	54	42	21	6.5	15.5	35.7	0.3	41	30	M6×1 depth 10
NMXQ20	60	35	17.5	7	18	42.5	0.5	44.5	30.5	M6×1 depth 12
NMXQ25	74	44	22	6.5	21.5	49.5	0.5	50	35	M8×1.25 depth 15

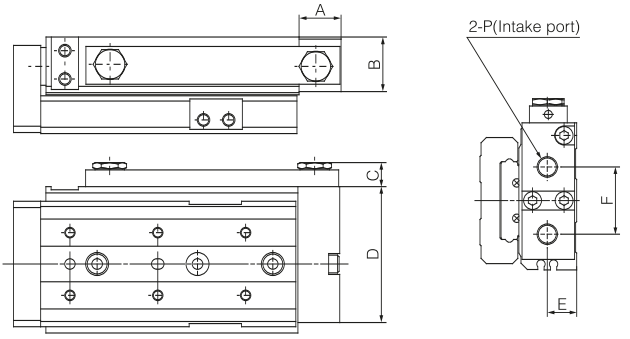
R- With end lock NMXQ [Bore size] – [Stroke] [ ] R



With end lock

Model	A	B	C	D	E	P
NMXQ8	4	17.5	40.5	16	3	M5×0.8
NMXQ12	5	22	51	22	3	M5×0.8
NMXQ16	6	29	65.5	25	3	M5×0.8
NMXQ20	8	34	78.5	33	-	1/8"
NMXQ25	8	40	94	37	-	1/8"

P-Axial piping type NMXQ [Bore size] – [Stroke] [ ] P



Axial piping type

Model	A	B	C	D	E	F	P
NMXQ6	12	12.5	6.3	26	5.5	12	M5×0.8
NMXQ8	12	14.5	6.3	31	6.5	15	M5×0.8
NMXQ12	13	16.5	6.3	41	8.5	20	M5×0.8
NMXQ16	14	21	6.3	52	11	26	M5×0.8
NMXQ20	20	26	11.5	65	14	32	1/8"
NMXQ25	20	32	11.5	79	17	40	1/8"