



DGC SERIES

- ▶ Linear motor positioning system
- ▶ Short lead time
- ▶ High price-performance ratio
- ▶ Easy installation

Introduction

Akribis DGC series uses linear motor direct drive system. Compact module with dual linear guides, linear motor, encoder feedback, and aluminum housing.

Four standard sizes of products are available: DGC90, DGC130, DGC175 and DGC210.

The linear motors used in the DGC are the AQM and AKM series with and without iron cores, the AQM series are economical linear motors with a better price/performance ratio and the AKM is a high thrust series with a higher power density and a more compact structure for the same requirements.

The DGC series is more suitable for point-to-point rapid positioning, achieving micron-level repeatable positioning accuracy.

F_{cn} (Continuous Force) = 60.8N~722.6N

F_{pk} (Peak Force) = 153.1N~1610.5N









Features

- ▶ Economical dual guide linear motor stage
- ▶ Built-in flat type linear motors with iron core
- ▶ Stroke from 100mm to 1400mm, customizable
- ▶ Optional resolution of 0.05 μ m, 0.5 μ m or 1 μ m
- ▶ Encoder grating, magnetic grating optional
- ▶ Aluminium profile base, fewer parts, economical configuration

Applications

Suitable for point to point micron level fast positioning, can meet 2m/s or even higher speed, accept customization.

For example: electronic semiconductors, photovoltaic and lithium batteries, glass and LCD panels, medical equipments, industrial printing machines, laser processing, precision assembly and other equipment and production lines, where high speed and high precision positioning is required for handling situations.

Linear Module Series	Linear Motor Series	■ Continuous Force (F_{cn}) ■ Peak Force (F_{pk}) Unit: N						Stroke (mm)	Repeatability (μ m)	Page
		50	100	500	1000	1500	2000			
 DGC90	 AQM24	AQM24-B1		60.8		153.1			100 ~ 800	103
		AQM24-B2		108.4		241.6				
 DGC130	 AKM30	AKM30-B1		216.8		483.2		100	Optical scale up to ± 3	105
		AKM30-B2		361.3		805.3				
 DGC175	 AKM50	AKM50-B2		542.0		1207.9		~ 1400	Magnetic scale up to ± 5	108
		AKM50-B3-D67		722.6		1610.5				
 DGC210	 AKM50	AKM50-B3-D67		542.0		1207.9		1400		109
		AKM50-B4		722.6		1610.5				

Note:

ⓘ Longer stroke available upon request.

★ Products can be customized to meet specific working environments, please contact cust-service@akribis-sys.com.

DGC90 Series

DGC90 Series		
Motor Specifications	Unit	Value
Motor	-	AQM24-B1
Continuous Force	N	60.8
Peak Force	N	153.1
Force Constant $\pm 10\%$	N/Arms	24.3
Back EMF Constant $\pm 10\%$	Vpeak/(m/s)	19.8
Mechanical Specifications	Unit	Value
Linear Guide	-	12#
Resolution	μm	Magnetic scale: 1.0
		Optical scale: 0.5/0.05
Repeatability	μm	Magnetic scale: ± 5
		Optical scale: ± 3
Straightness	$\mu\text{m}/\text{mm}$	$\pm 10/300$
Maximum Velocity	m/s	1.5
Rated Payload ¹	kg	7
No-load Moving Mass	kg	1.7
Mounting Orientation	-	Horizontal or side orientation

¹ Rated payload based on 1.5m/s velocity and continuous force 100% duty.
Module load capacity can be better based on actual condition, please contact sales engineer.

Ordering Part Number (OPN)

DGC90-S01-Q10A0F1-A2

Model:

DGC90

Termination:

1: Flying Leads
2: DSUB

Cable Length:

A: 0.5m
B: 3.0m

Cover Type:

S: Standard (Clear Anodized)

Scale Type:

1: Steel tape, 11ppm/K
7: Magnetic Tape, 17ppm/K

Effective Stroke:¹

01: 100mm
02: 200mm
03: 300mm
04: 400mm
05: 500mm
06: 600mm
07: 700mm
08: 800mm

Encoder Type:

AD0: ABA20 (0.05 μm)
A0F: ABI21 (0.5 μm)
S1E: MAGNET (1.0 μm)

Motor Type:

Q10: AQM24-B1-J (Peak Force: 153.1N)

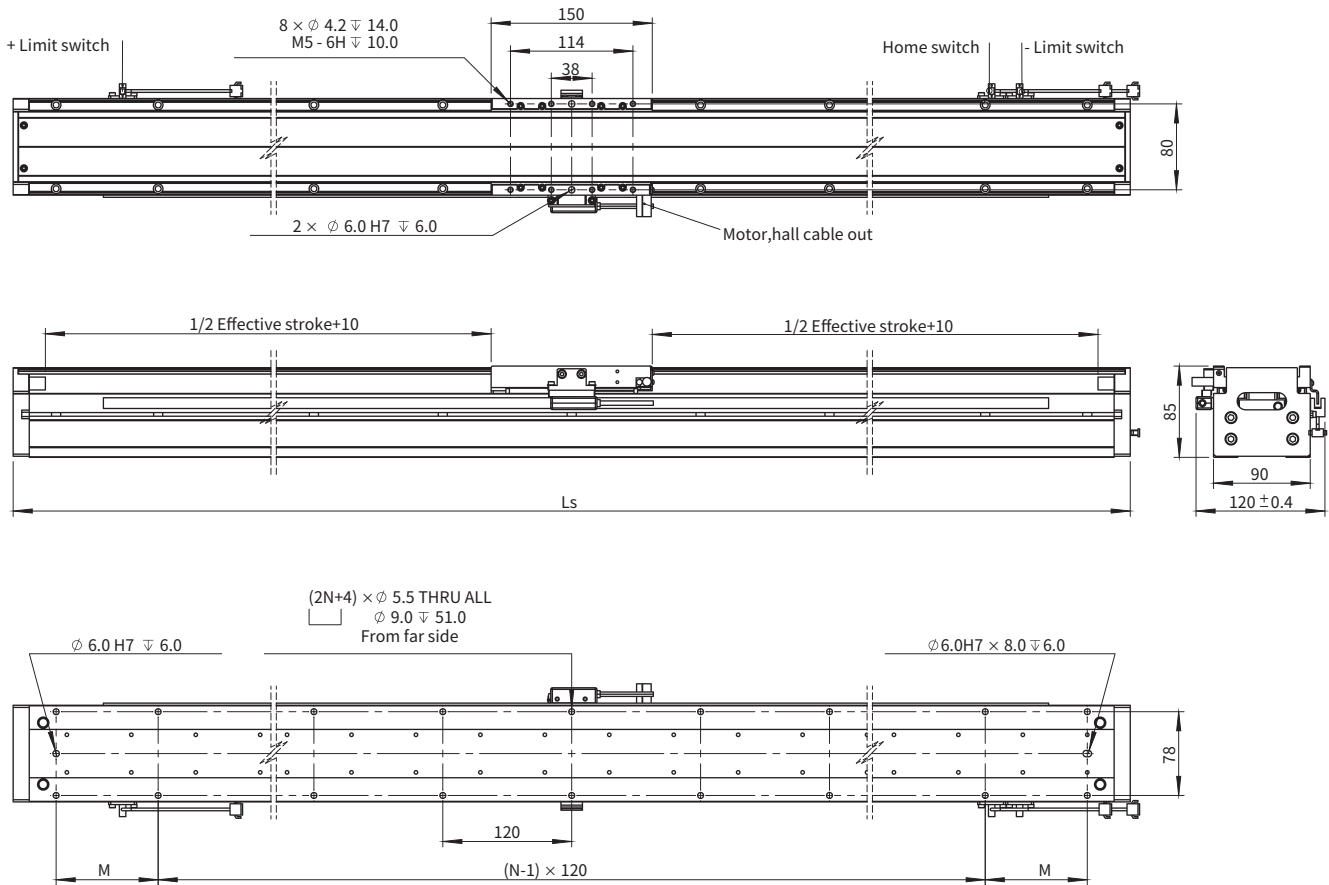
Note:

¹ Standard stroke in intervals of 100mm only. For more options, please contact Akribis sales engineers.

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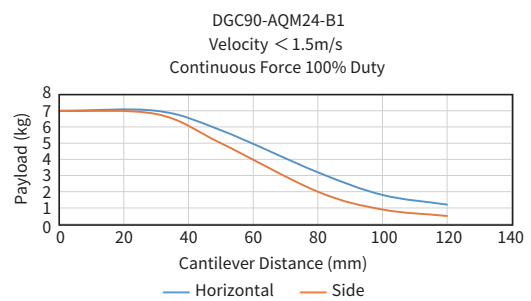
DGC90 Series

■ DGC90-AQM24-B1 Dimensional Drawing



Effective Stroke(mm)	Module Length L_s (mm)	N	M (mm)	Module Mass (kg)
100 *	340	1	130	6.5
200	430	3	55	7.5
300	530	3	105	8.5
400 *	640	5	40	9.5
500	730	5	85	10.5
600	830	7	15	11.5
700	930	7	65	12.5
800	1030	7	115	13.5

■ Cantilever-Payload Curve



DGC130 Series

DGC130 Series			
Motor Specifications	Unit	Value	
Motor	-	AKM30-B1	AKM30-B2
Continuous Force	N	108.4	216.8
Peak Force	N	241.6	483.2
Force Constant $\pm 10\%$	N/Arms	23.0	45.9
Back EMF Constant $\pm 10\%$	Vpeak/(m/s)	18.7	37.5
Mechanical Specifications	Unit	Value	
Linear Guide	-	15#	
Resolution	μm	Magnetic scale: 1.0	
		Optical scale: 0.5/0.05	
Repeatability	μm	Magnetic scale: ± 5	
		Optical scale: ± 3	
Straightness	$\mu\text{m}/\text{mm}$	$\pm 10/300$	$\pm 10/300$
Maximum Velocity	m/s	3	3
Rated Payload ¹	kg	15	25
No-load Moving Mass	kg	2.7	4.6
Mounting Orientation	-	Horizontal or side orientation	

¹ Rated payload based on 2m/s velocity and continuous force 100% duty.
Module load capacity can be better based on actual condition, please contact sales engineer.

Ordering Part Number (OPN)

DGC130-S01-K01A0F1-A2

Model:

DGC130

Termination:

1: Flying Leads
2: DSUB

Cable Length:

A: 0.5m
B: 3.0m

Cover Type:

S: Standard (Clear Anodized)

Scale Type:

1: Steel tape, 11ppm/K
7: Magnetic Tape, 17ppm/K

Effective Stroke:¹

01: 100mm
02: 200mm
03: 300mm
04: 400mm
05: 500mm
06: 600mm
07: 700mm
08: 800mm
09: 900mm
10: 1000mm
11: 1100mm
12: 1200mm

Encoder Type:

AD0: ABA20 (0.05 μm)
A0F: ABI21 (0.5 μm)
S1E: MAGNET (1.0 μm)

Motor Type:

K01: AKM30-B1-J (Peak Force: 241.6N)
K03: AKM30-B2-J (Peak Force: 483.2N)

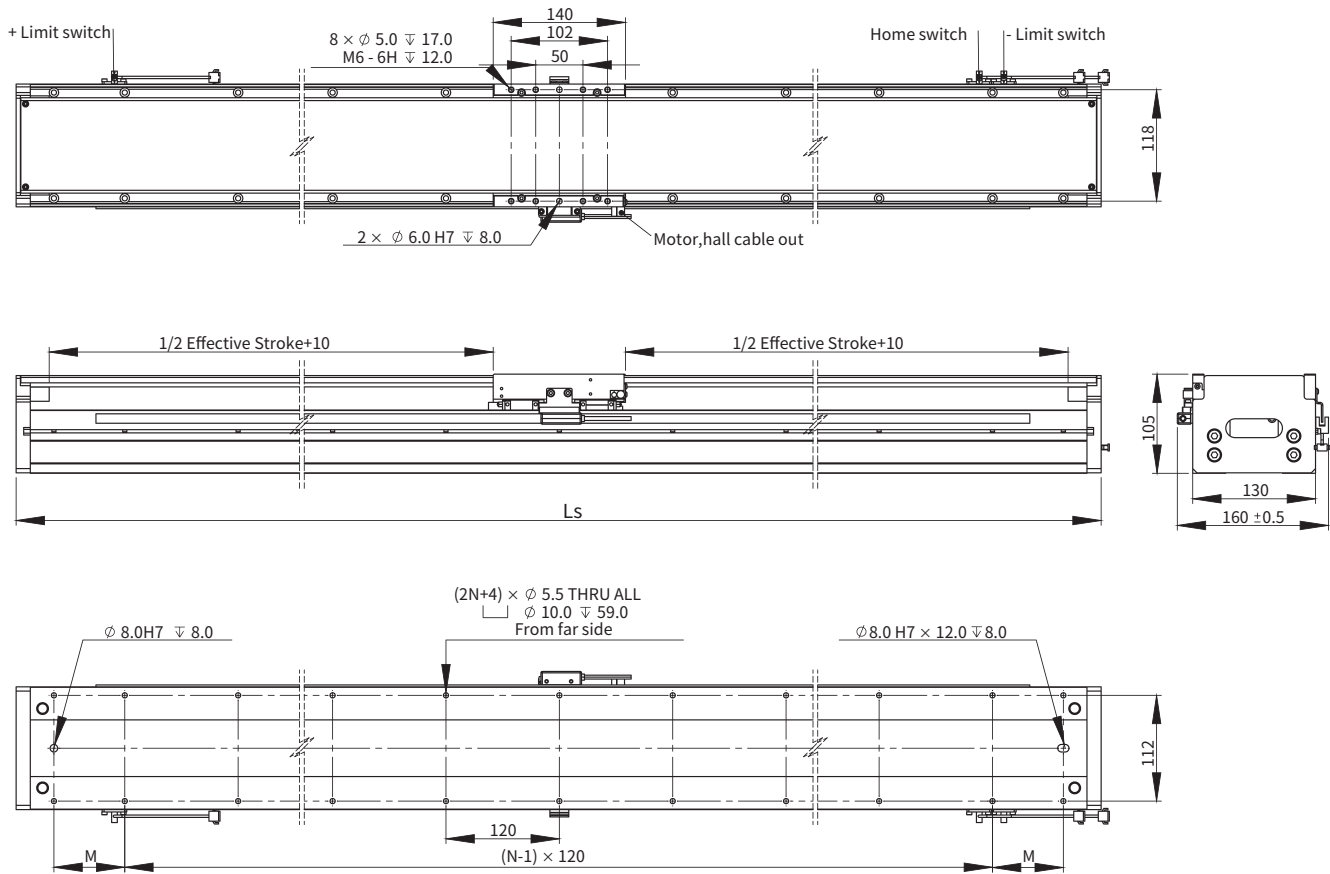
Note:

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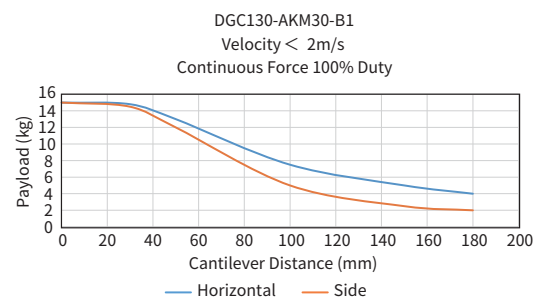
DGC130 Series

■ DGC130-AKM30-B1 Dimensional Drawing

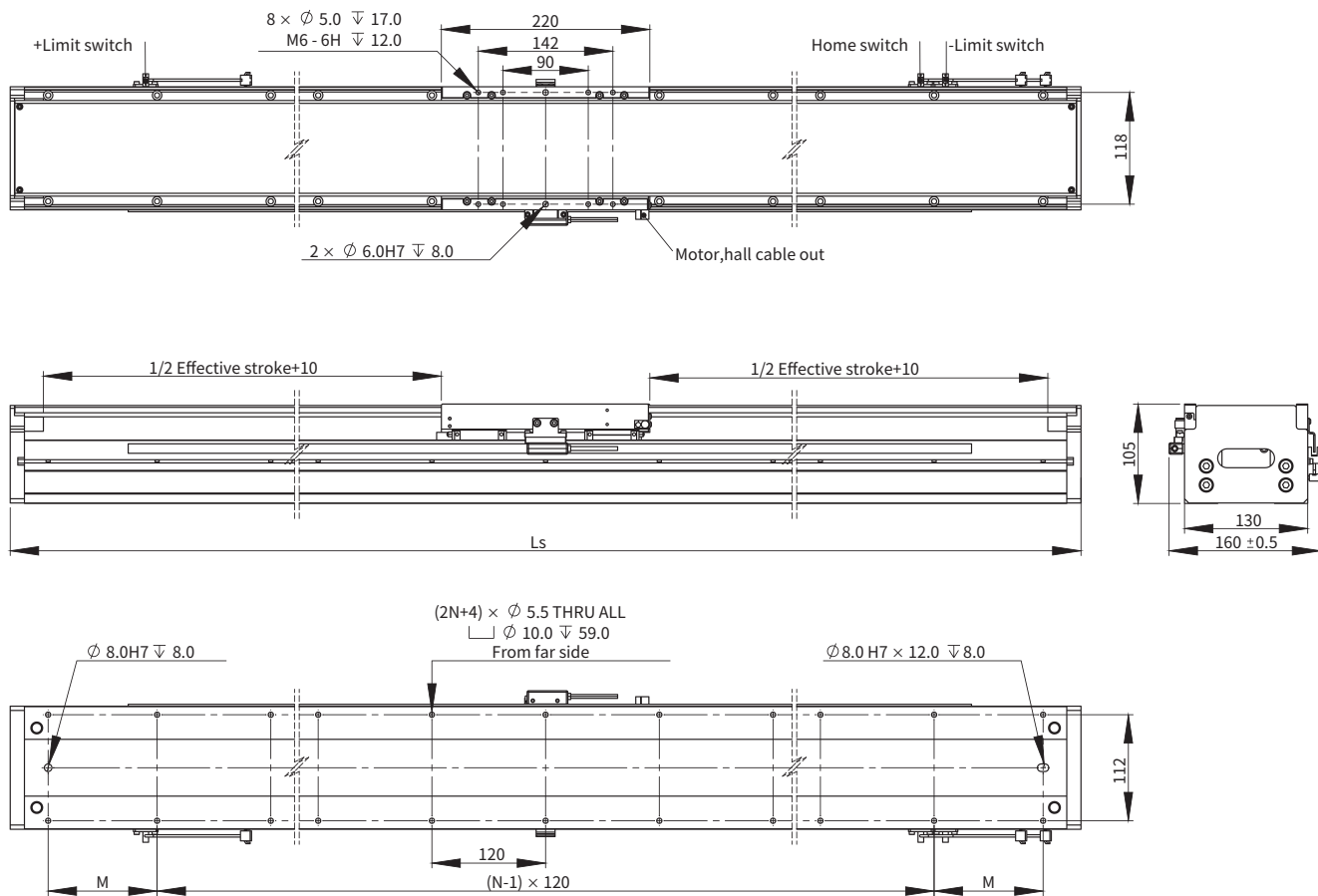


Effective Stroke(mm)	Module Length L_s (mm)	N	M (mm)	Module Mass (kg)
100	330	1	125	8.2
200	430	3	55	9.7
300	530	3	105	11.2
400	630	5	35	13.1
500	730	5	85	14.6
600	830	7	15	16.2
700	930	7	65	17.8
800	1030	7	115	19.3
900	1130	9	45	21.0
1000	1230	9	95	22.6
1100	1330	11	25	24.3
1200	1430	11	75	25.7

■ Cantilever-Payload Curve

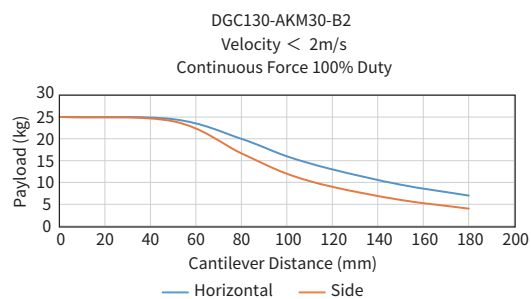


■ DGC130-AKM30-B2 Dimensional Drawing



Effective Stroke(mm)	Module Length Ls (mm)	N	M (mm)	Module Mass (kg)
100	410	3	45	11.3
200	510	3	95	12.8
300	610	5	25	14.4
400	710	5	75	16.1
500	810	5	125	17.7
600	910	7	55	19.4
700	1010	7	105	20.9
800	1110	9	35	22.5
900	1210	9	85	24.2
1000	1310	11	15	25.9
1100	1410	11	65	27.4
1200	1510	11	115	29.0

■ Cantilever-Payload Curve



DGC175 Series

DGC175 Series			
Motor Specifications	Unit	Value	
Motor	-	AKM50-B2	AKM50-B3-D67
Continuous Force	N	361.3	542.0
Peak Force	N	805.3	1207.9
Force Constant ±10%	N/Arms	76.5	57.0
Back EMF Constant ±10%	Vpeak/(m/s)	62.5	47.0
Mechanical Specifications	Unit	Value	
Linear Guide	-	20#	
Resolution	μm	Magnetic scale: 1.0	
		Optical scale: 0.5/0.05	
Repeatability	μm	Magnetic scale: ±5	
		Optical scale: ±3	
Straightness	μm/mm	±10/300	±10/300
Maximum Velocity	m/s	3	3
Rated Payload ^①	kg	50	60
No-load Moving Mass	kg	7.6	10.2
Mounting Orientation	-	Horizontal or side orientation	

① Rated payload based on 2m/s velocity and continuous force 100% duty.
Module load capacity can be better based on actual condition, please contact sales engineer.

Ordering Part Number (OPN)

DGC175-S01-K22ABF1-A2

型号:

DGC175

Termination:

1: Flying Leads
2: DSUB

Cable Length:

A: 0.5m
B: 3.0m

Cover Type:

S: Standard (Clear Anodized)

Scale Type:

1: Steel tape, 11ppm/K
7: Magnetic Tape, 17ppm/K

Effective Stroke:^①

01: 100mm
02: 200mm
03: 300mm
04: 400mm
05: 500mm
06: 600mm
07: 700mm
08: 800mm
09: 900mm
10: 1000mm
11: 1100mm
12: 1200mm
13: 1300mm
14: 1400mm

Encoder Type:

AD0: ABA20 (0.05μm)
ABF: ABI51X (0.5μm)
S1E: MAGNET (1.0μm)

Motor Type:

K22: AKM50-B2-J (Peak Force: 805.3N)
K26: AKM50-B3-D67-J (Peak Force: 1207.9N)

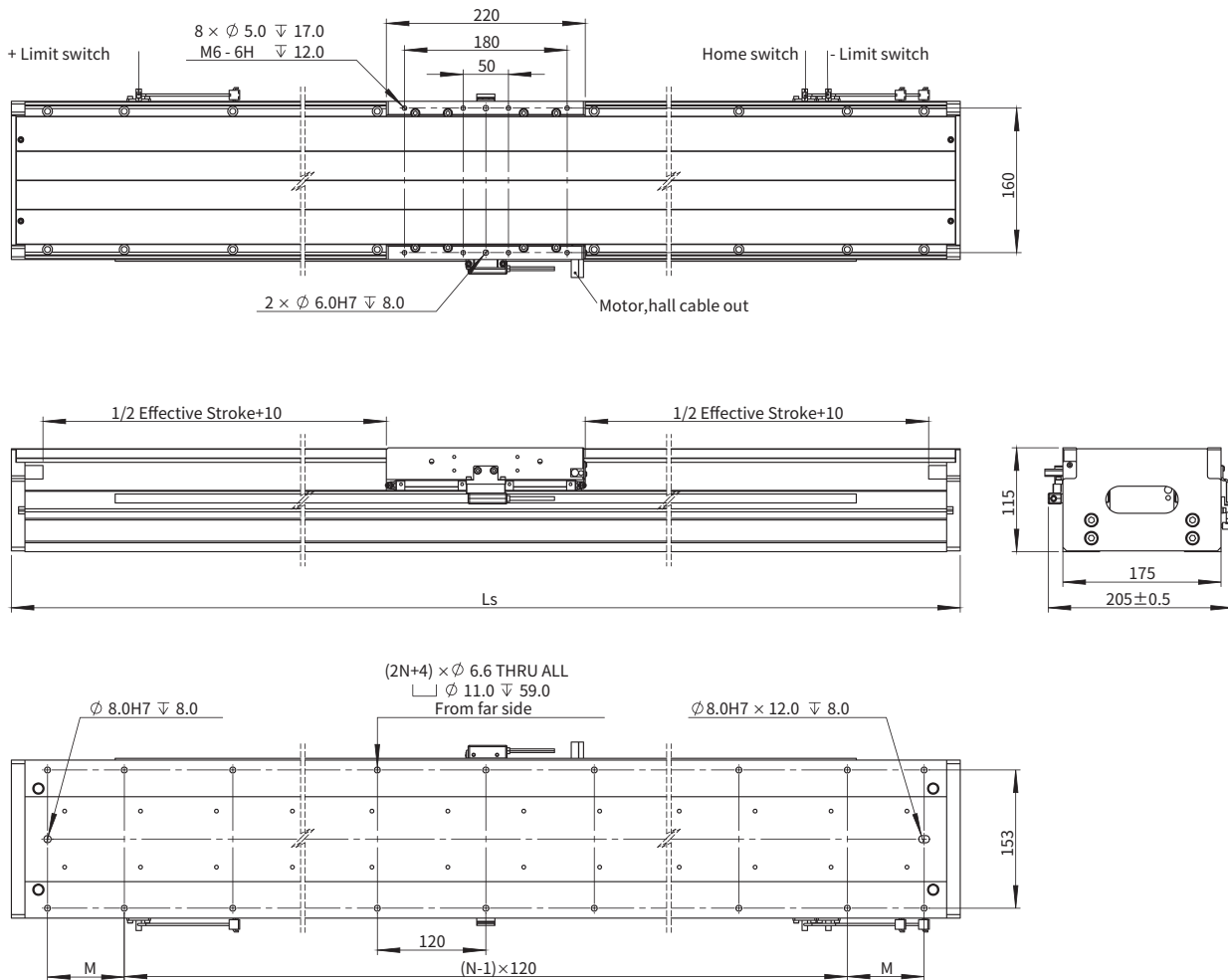
Note:

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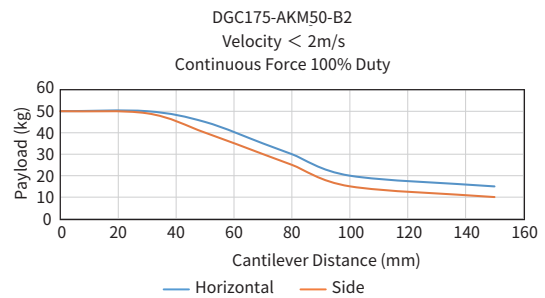
DGC175 Series

■ DGC175-AKM50-B2 Dimensional Drawing

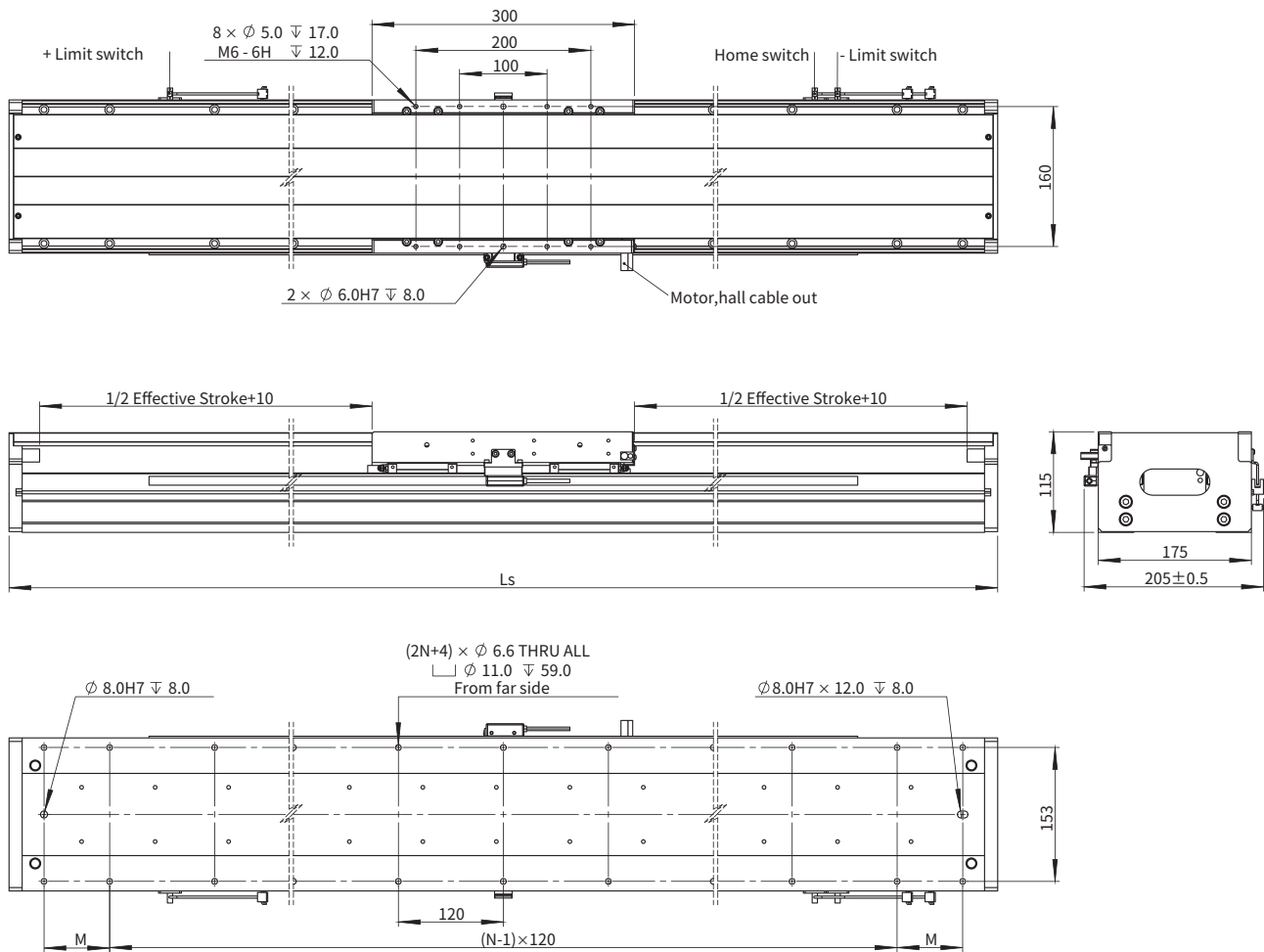


Effective Stroke(mm)	Module Length L_s (mm)	N	M (mm)	Module Mass (kg)
100	410	3	45	15.5
200	510	3	95	16.8
300	610	5	25	18.4
400	710	5	75	20.1
500	810	5	125	22.2
600	910	7	55	23.4
700	1010	7	105	25.0
800	1110	9	35	26.7
900	1210	9	85	28.8
1000	1310	9	135	30.0
1100	1410	11	65	31.7
1200	1510	11	115	33.5
1300	1610	13	45	34.9
1400	1710	13	95	36.7

■ Cantilever-Payload Curve

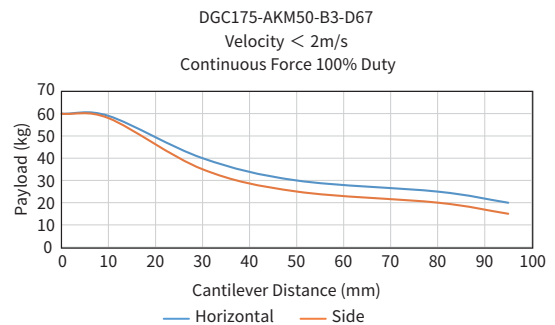


■ DGC175-AKM50-B3-D67 Dimensional Drawing



Effective Stroke(mm)	Module Length Ls (mm)	N	M (mm)	Module Mass (kg)
100	490	3	85	19.0
200	590	3	135	20.7
300	690	5	65	22.5
400	790	5	115	24.4
500	890	7	45	25.7
600	990	7	95	27.3
700	1090	9	25	29.2
800	1190	9	75	30.6
900	1290	9	125	32.7
1000	1390	11	55	34.0
1100	1490	11	105	35.8
1200	1590	13	35	37.2
1300	1690	13	85	39.3
1400	1790	13	135	40.5

■ Cantilever-Payload Curve



DGC210 Series

DGC210 Series			
Motor Specifications	Unit	Value	
Motor	-	AKM50-B3-D67	AKM50-B4
Continuous Force	N	542.0	722.6
Peak Force	N	1207.9	1610.5
Force Constant $\pm 10\%$	N/Arms	57.0	76.5
Back EMF Constant $\pm 10\%$	Vpeak/(m/s)	47.0	62.5
Mechanical Specifications	Unit	Value	
Linear Guide	-	25#	
Resolution	μm	Magnetic scale: 1.0	
		Optical scale: 0.5/0.05	
Repeatability	μm	Magnetic scale: ± 5	
		Optical scale: ± 3	
Straightness	$\mu\text{m}/\text{mm}$	$\pm 10/300$	$\pm 10/300$
Maximum Velocity	m/s	3	3
Rated Payload ¹	kg	60	70
No-load Moving Mass	kg	11.6	14.2
Mounting Orientation	-	Horizontal or side orientation	

¹ Rated payload based on 2m/s velocity and continuous force 100% duty.
Module load capacity can be better based on actual condition, please contact sales engineer.

Ordering Part Number (OPN)

DGC210-S01-K26ABF1-A2

Model:

DGC210

Termination:

1: Flying Leads
2: DSUB

Cable Length:

A: 0.5m
B: 3.0m

Cover Type:

S: Standard (Clear Anodized)

Scale Type:

1: Steel tape, 11ppm/K
7: Magnetic Tape, 17ppm/K

Effective Stroke:¹

01: 100mm
02: 200mm
03: 300mm
04: 400mm
05: 500mm
06: 600mm
07: 700mm
08: 800mm
09: 900mm
10: 1000mm
11: 1100mm
12: 1200mm
13: 1300mm
14: 1400mm

Encoder Type:

AD0: ABA20 (0.05 μm)
ABF: ABI51X (0.5 μm)
S1E: MAGNET (1.0 μm)

Motor Type:

K26: AKM50-B3-D67-J (Peak Force: 1207.9N)
K24: AKM50-B4-J (Peak Force: 1610.5N)

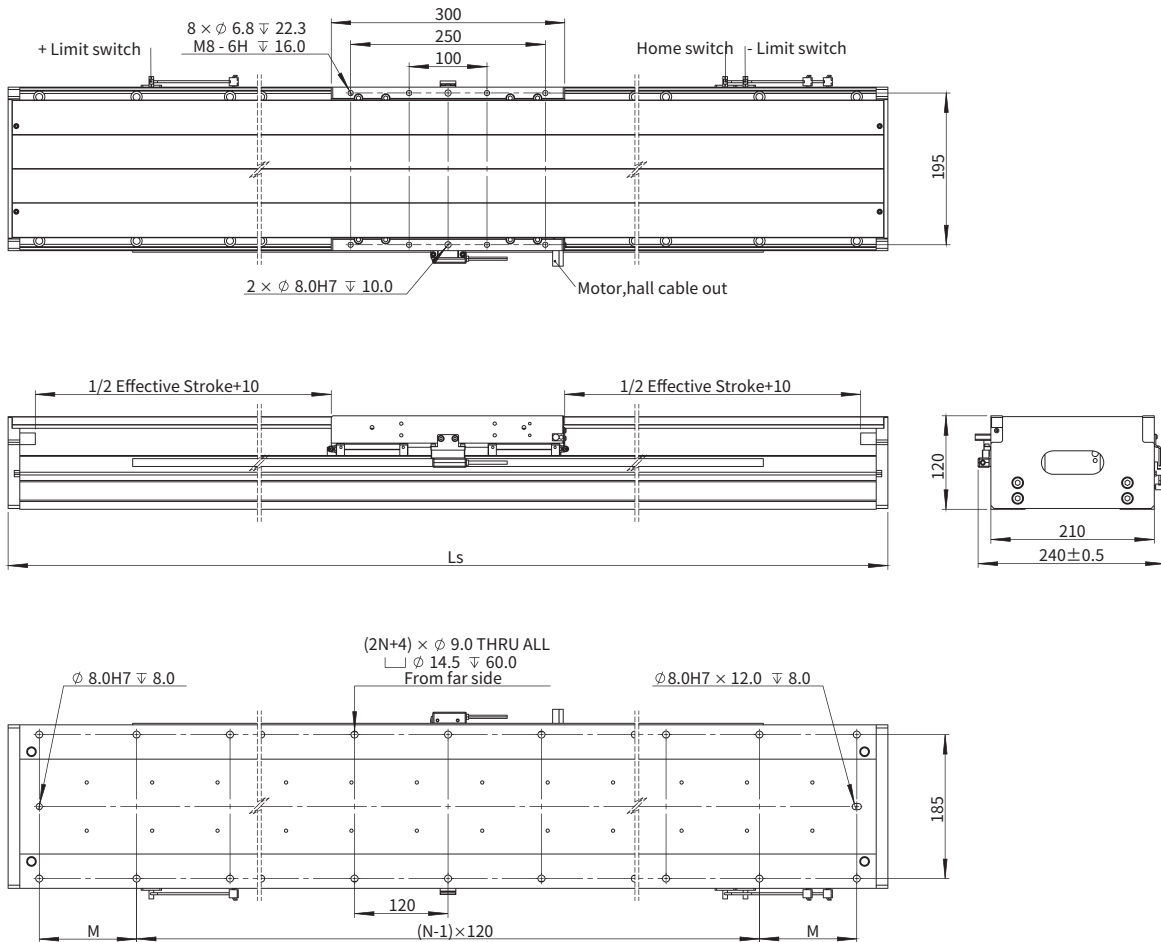
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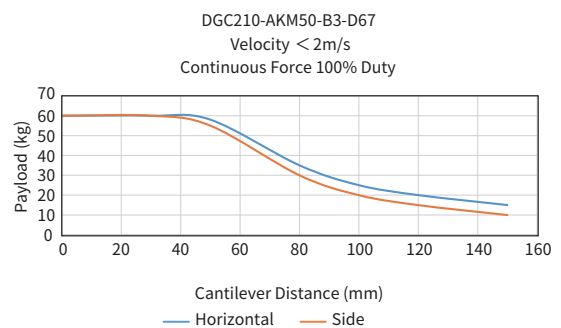
DGC210 Series

■ DGC210-AKM50-B3-D67 Dimensional Drawing

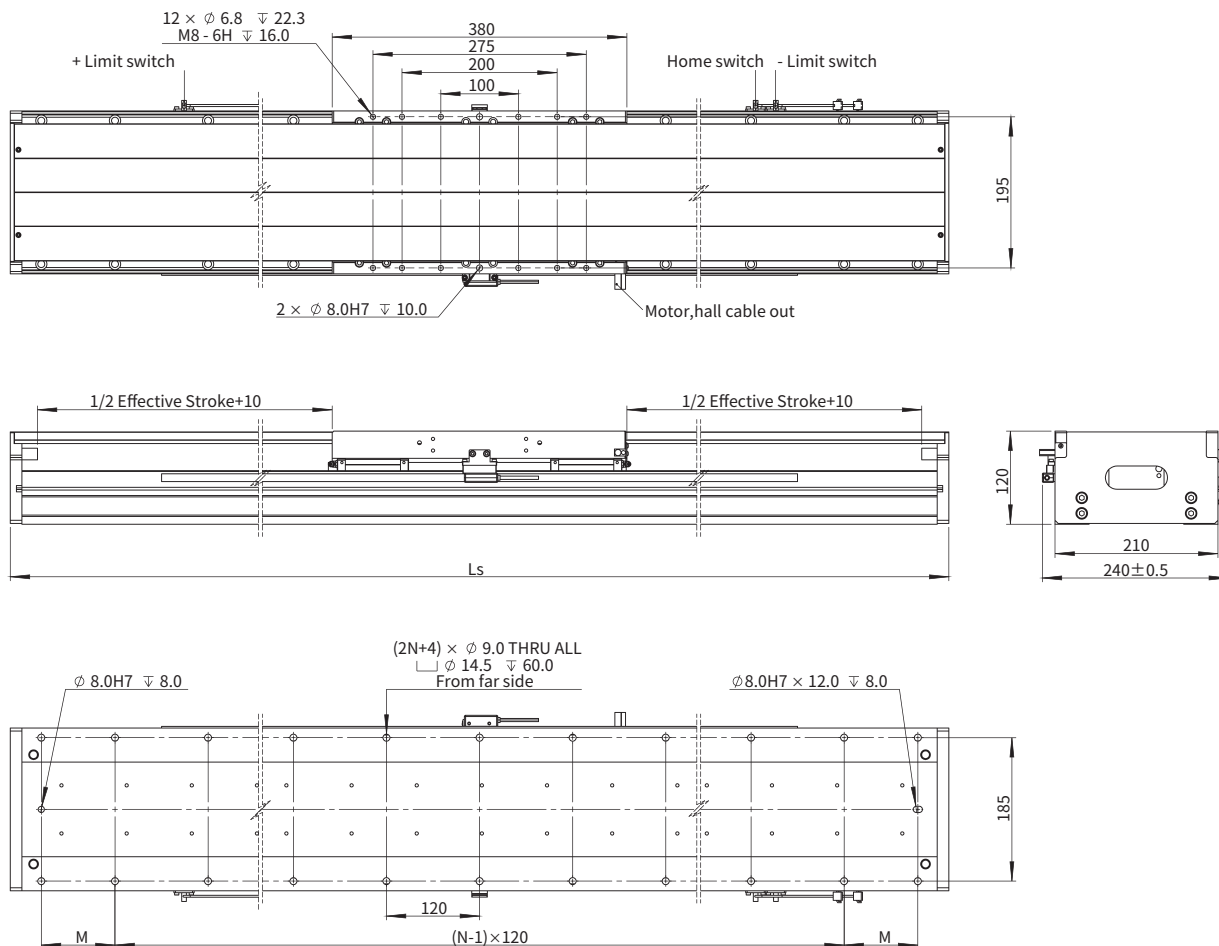


Effective Stroke(mm)	Module Length Ls (mm)	N	M (mm)	Module Mass (kg)
100	490	3	85	22.4
200	590	3	135	24.4
300	690	5	65	26.5
400	790	5	115	28.8
500	890	7	45	30.4
600	990	7	95	32.4
700	1090	9	25	34.5
800	1190	9	75	36.3
900	1290	9	125	38.7
1000	1390	11	55	40.3
1100	1490	11	105	42.5
1200	1590	13	35	44.3
1300	1690	13	85	46.7
1400	1790	13	135	48.3

■ Cantilever-Payload Curve



■ DGC210-AKM50-B4 Dimensional Drawing



Effective Stroke(mm)	Module Length Ls (mm)	N	M (mm)	Module Mass (kg)
100	570	3	125	26.6
200	670	5	55	28.8
300	770	5	105	30.6
400	870	7	35	32.7
500	970	7	85	34.7
600	1070	7	135	36.9
700	1170	9	65	38.7
800	1270	9	115	41
900	1370	11	45	42.6
1000	1470	11	95	44.9
1100	1570	13	25	46.7
1200	1670	13	75	49.1
1300	1770	13	125	50.7
1400	1870	15	55	52.7

■ Cantilever-Payload Curve

