DGL Series

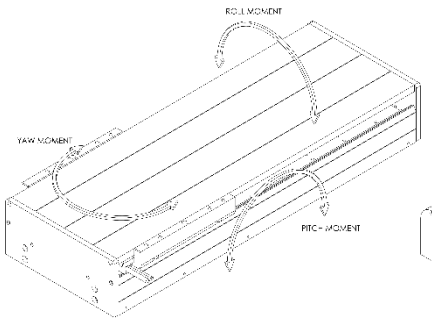
Double Guide Linear Motor Stage

- **Linear motor positioning system**
- **Excellent force/size ratio**
- **Precise homing**
- **Modular design**

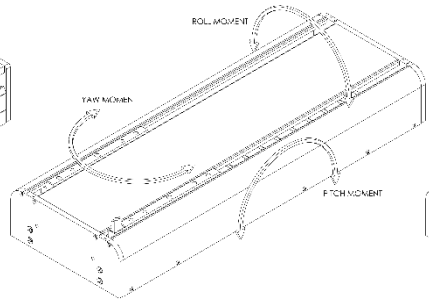
DGL Series

Features

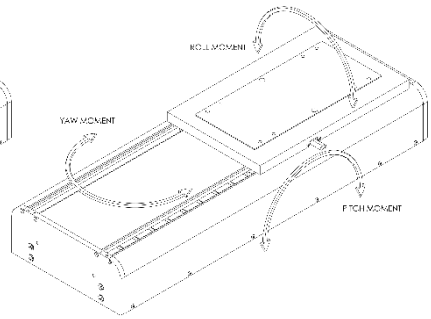
- Direct drive, zero cogging, zero backlash ironless linear motor
- Linear encoder options of 1µm, 0.5µm, 0.2µm and 0.1µm
- Dual size 12 (miniature), size 15 & size 20 linear guidance rails
- High accelerations (up to 10) and speeds (up to 5m/s)
- Smooth motion at low speeds (low velocity ripple)



(Standard Cover)



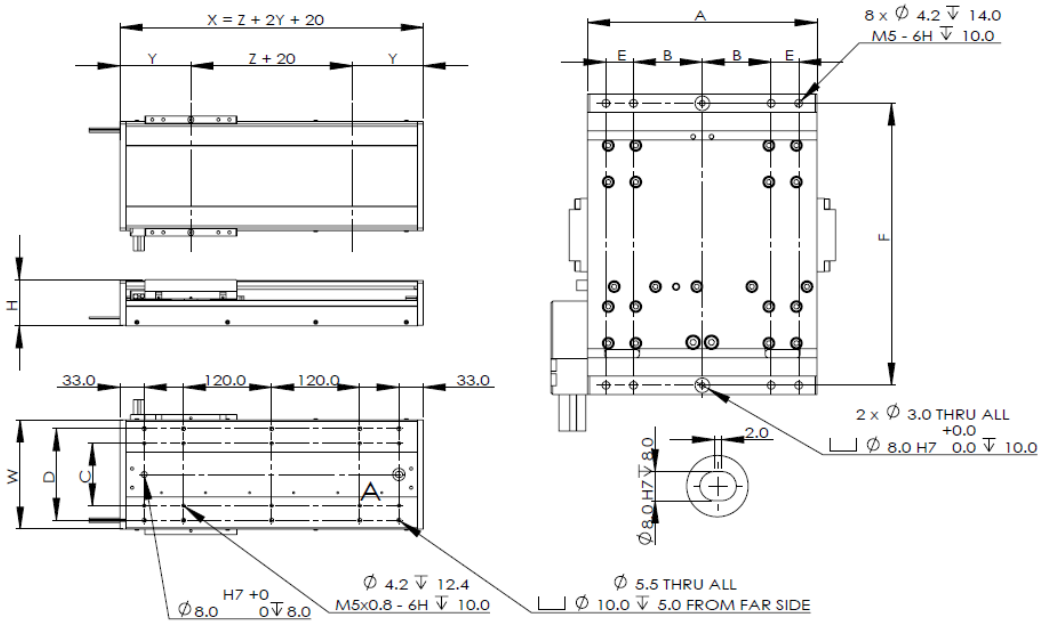
(Conventional Cover)



(Clean Room Cover)

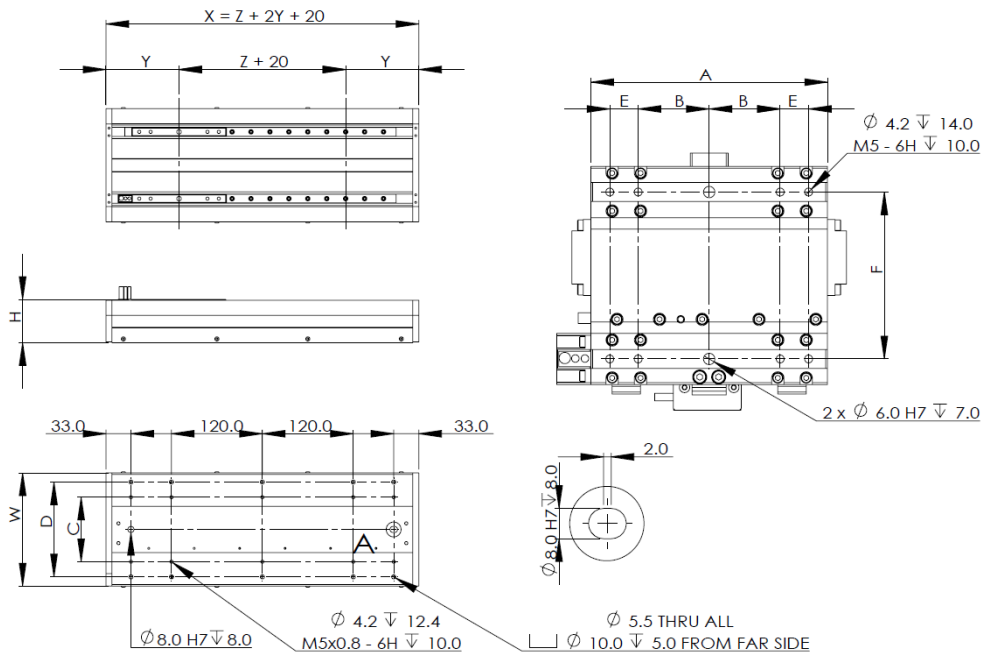
DGL Type 1: Standard Cover

Dimensional Drawing



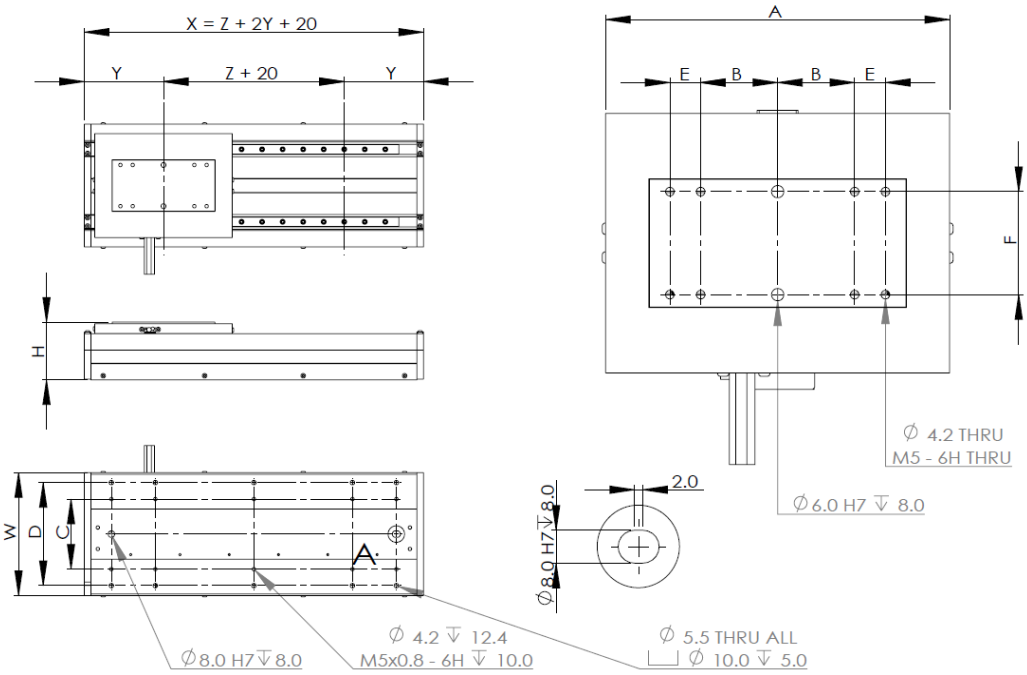
DGL Type 2: Conventional Cover

Dimensional Drawing



DGL Type 3: Clean Room Cover

Dimensional Drawing



DGL Series Information

MODEL	MOTOR		Cover Type	SIZE												Moving Mass (Kg)	Encoder Resolution Option
				Caririage Length (A) (mm)	Carriage Mounting Hole (B) (mm)	Base Mounting Hole (C) (mm)	Base Mounting Hole (D) (mm)	Carriage Mounting Hole (E) (mm)	Carriage Mounting Hole (F) (mm)	Module Height (H) (mm)	Module Width (W) (mm)	Module Length (X) (mm)	Hard Stopper Position (Y) (mm)	Effective Stroke (Z) (mm)			
DGL150	AUM2	S2	S	125	37.5	85	125	15	154	63	149	Z+2Y+20	96.5	From 100 to 1200		0.93	DGL150 series AT201=0.1μm AT202=0.2μm AT205=0.5μm AT410=1.0μm AT4sincos=1vpp DGL180/200/250 series R2201=0.1μm R4102=0.2μm R2205=0.5μm RH100=1.0μm R41sincos=1vpp R41sincos=1vpp
			C						88	57						0.78	
			CR	167.5					50	70						1.46	
		S3	S	125					154	63						0.95	
			C						88	57						0.8	
			CR	167.5					50	70						1.48	
		S4	S	125					154	63						0.97	
			C						88	57						0.82	
			CR	167.5					50	70						1.5	
	ACM1	S30	S	180	47			26	154	76			125			1.72	
			C						88	70						1.57	
			CR	222.5					50	83						2.25	
		L30	S	240	77				154	76			155			2.55	
			C						88	70						2.4	
			CR	282.5					50	83						3.08	
DGL180	AUM3	S2	S	180	47	120	160		191	88.7	184		126			2	
			C						115	78						1.25	
			CR	222.5					75	94						2.15	
		S3	S	240	77				191	88.7			156			2.6	
			C						115	78						1.62	
			CR	282.5					75	94						2.92	
		S4	S	240					191	88.7			156			2.86	
			C						115	78						1.87	
			CR	282.5					75	94						3.18	
	ACM1	S50	S	180	47				191	88.7			150			2.45	
			C						115	78						1.7	
			CR	222.5					75	94						2.6	
		L50	S	240	77				191	88.7			180			3.67	
			C						115	78						2.68	
			CR	282.5					75	94						3.99	
DGL200	AUM4	S2	S	180	47	136	175		213	91.7	206		130			2.19	
			C						137	83.5						1.46	
			CR	222.5					99	99.5						2.82	
		S3	S	240	77				213	91.7			160			2.64	
			C						137	83.5						1.89	
			CR	282.5					99	99.5						3.97	
		S4	S	240					213	91.7			160			2.94	
			C						137	83.5						1.98	
			CR	282.5					99	99.5						4.37	
	ACM1	S80	S	180	47				213	91.7			150			3.21	
			C						137	83.5						2.48	
			CR	222.5					99	99.5						3.84	
		L80	S	240	77				213	91.7			180			4.41	
			C						137	83.5						3.45	
			CR	282.5					99	99.5						5.84	
	ACM2	S1	S						213	107			180			3.91	
		S2		370	142								245			6.05	
	ACM3	S1		240	77								180			5.01	
		S2		370	142								245			6.95	
DGL250	AUM5	S2	S	240	77	166	232		257	120.2	250		180			5.62	
		S3		370	142								245			7.25	
		S4											245			7.97	
	ACM1	S100		180	47					100			156			4.74	
		L100		240	77								186			7.09	
	ACM4	S1								120.2			185			10.54	
		S2		370	142								245			18.39	

Performance Parameter

Acceleration	G	10
Velocity(1µm resolution)	m/s	5 (40µm scale pitch and 20MHz counter frequency)
Velocity(0.5µm resolution)		2.5 (20µm scale pitch and 20MHz counter frequency)
Velocity(0.1µm resolution)		1.3 (20µm scale pitch and 20MHz counter frequency)
Velocity(Analogue)		8 (40µm scale pitch and 200kHz input frequency)
		4 (20µm scale pitch and 200kHz input frequency)
[1]Straightness	µm	±3µm/25mm, NTE±8µm/300mm
[1]Flatness		±3µm/25mm, NTE±8µm/300mm
Repeatability(1µm resolution)		±3µm (40µm scale pitch)
Repeatability(0.5µm resolution)		±1.5µm (20µm scale pitch)
Repeatability(0.1µm resolution)		±1µm (20µm scale pitch)
Repeatability(Analogue)		±5 counts

1. All measurement taken when module is mounted on a 5micron flat granite table.

Bearing Parameters

Module			Specifications			
			Maximum bearing load	Recommended row moment	Recommended pitch moment	Recommended yaw moment
			N	Nm	Nm	Nm
DGL150	AUM2	S2	2480	109	108	108
		S3				
		S4				
	ACM1	S30	3944	173	236	236
		L30			355	355
DGL180	AUM3	S2		213	236	236
		S3			355	355
		S4			355	355
	ACM1	S50			236	236
		L50			355	355
DGL200	AUM4	S2		256	236	236
		S3			355	355
		S4			355	355
	ACM1	S80			236	236
		L80			355	355
	ACM2	S1			355	355
		S2			473	473
	ACM3	S1			355	355
		S2			473	473
DGL250	AUM5	S2		345	236	236
		S3			355	355
		S4			355	355
	ACM1	S100			236	236
		L100			355	355
	ACM4	S1	9360	795	842	842
		S2			1123	1123

Part Numbering (Rapid Delivery Series)

Model	Coil Type	[1]Sensor Type	[1]Hall Option	[2]Cable Length (m)	[2]Effective Stroke (mm)	Encoder Option (type)	[3]Cover Option (type)	[4]Rail (type)
DGL 150,180,200,250	Refer to information table	J, K	H9D, NH	3.0	200 – 1200	ATxxx Rxxxx	S, C, CR, B,N	T, B, I

1. Sensor Type. **J=Thermostat (standard)**, K=Thermocouple. Hall Option. **H9D=DSUB 9 pins (standard)**, NH=Without hall sensor.
2. For customized cable length and stroke length, please contact us (the longest length now is 8000mm).
3. Cover Option. S=standard cover, C= conventional cover, B= bellow cover, CR= cleanroom cover, N= no cover.
4. Rail. T= THK linear guide, B= Bosch linear guide, I = IKO linear guide. For applications that have specific straightness and flatness requirements, precision class (H\P) is available.

Example: DGL180-AUM3-S2-J-H9D-3.0-300-R10-S-T