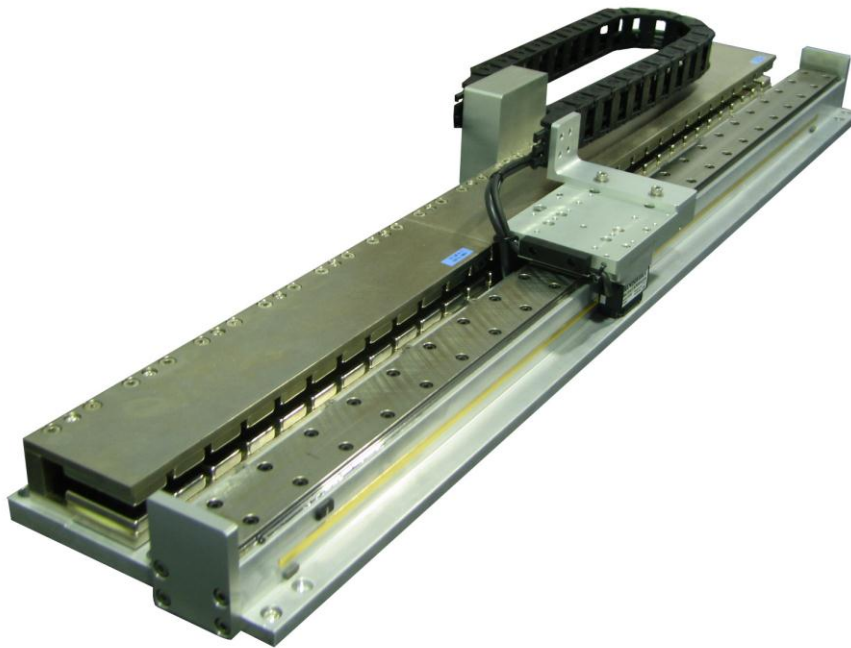


WGL Series

Wide Guides Linear Motor Module

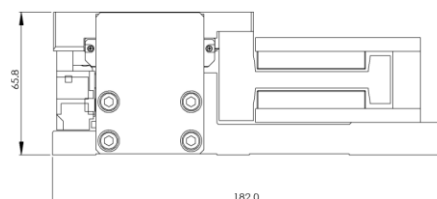
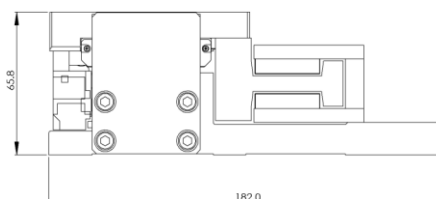
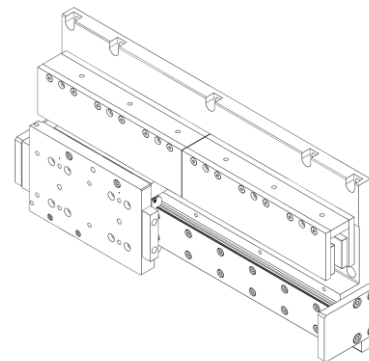


- Direct drive
- Zero cogging
- Zero backlash ironless linear motor
- Choice of linear encoder resolutions of up to 1um
- Simple design with fewer parts
- Rexroth corrosion resistant wide guide recirculating linear guide

WGL138 Series AUM3

Features

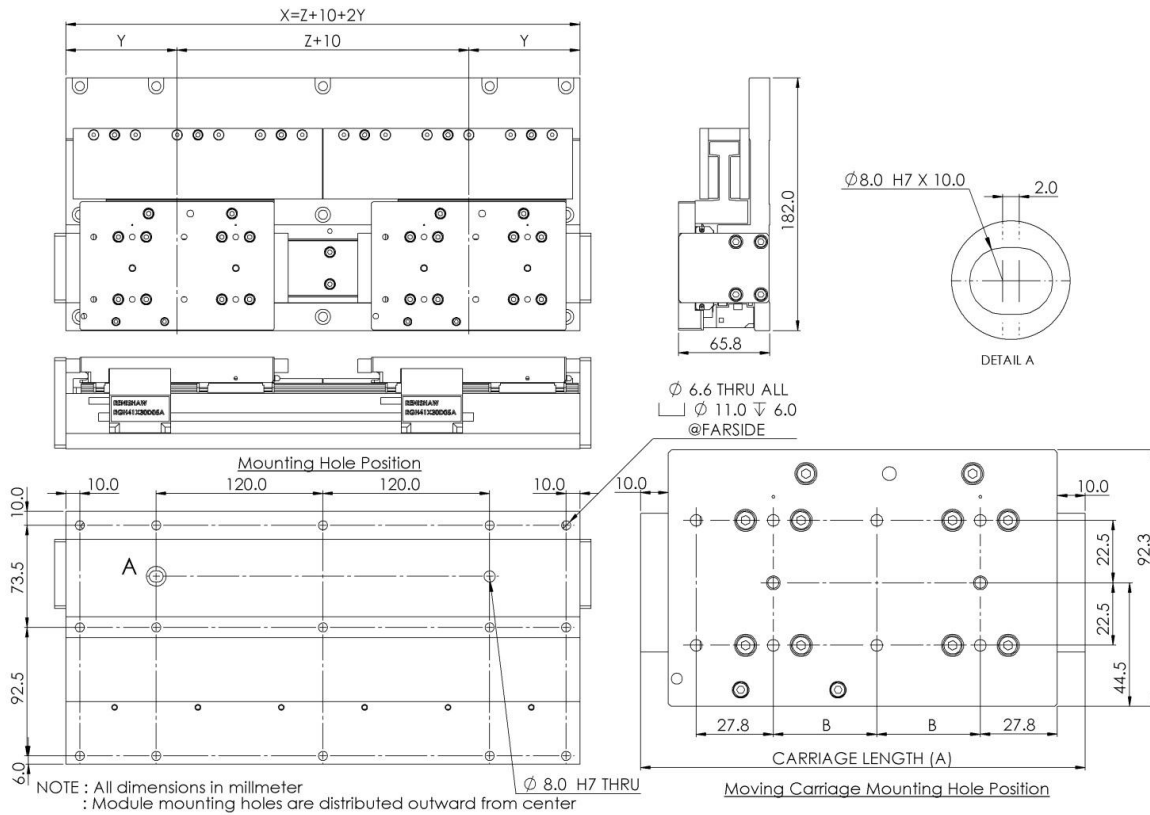
- Direct drive, zero cogging, zero backlash ironless linear motor
- Linear encoder options of 5µm, 1µm, and 0.1µm
- THK size 15 linear guidance rails
- High accelerations (up to 10) and speeds (up to 5m/s)
- Smooth motion at low speeds (low velocity ripple)



Motor Parameter

Model	AUM3-S2		AUM3-S3		AUM3-S4		
	Unit	Series	Parallel	Series	Parallel	Series	Parallel
Performance parameter	N	72		108		144	
	lb	16.1		24.2		32.3	
Continuous Force, coil @100°C	N	288		432		576	
	lb	64.6		96.9		129.2	
Peak Force	N	10.24		12.54		14.48	
	lb/SqRt(W)	2.3		2.81		3.25	
Motor Constant	W	49.4		74.1		98.8	
Continuous Power	W	790.8		1186.2		1581.6	
Peak Power	mm	60		60		60	
Electrical Cycle	in	2.362		2.362		2.362	
	V	330		330		330	
Max Bus Voltage	°C	125		125		125	
Max. Coil Temperature	W/ °C	0.66		0.99		1.32	
Thermal Dissipation Constant	A	2.3	4.6	2.3	4.6	2.3	4.6
Continuous Current	A	9.2	18.4	9.2	18.4	9.2	18.4
Peak Current	N/Amp	31.4	15.7	47.1	23.6	62.8	31.4
Force Constant	Lb/A	7	3.5	10.6	5.3	14.1	7
	V/m/s	36.3	18.1	54.4	27.2	72.5	36.3
Back EMF Constant	V/in/s	0.92	0.46	1.38	0.69	1.84	0.92
	mH	6.26	1.57	9.39	2.35	12.52	3.13
Inductance	Ohms	9.4	2.35	14.1	3.53	18.8	4.7
Terminal Resistance @ 25°C	ms	0.67	0.67	0.67	0.67	0.67	0.67
Electrical Time Constant	Kg	0.45		0.68		0.91	
	lb	0.99		1.496		2.002	
Coil Mass	mm	121		181		241	
	in	4.76		7.13		9.49	
Coil Length	Kg	1					
	lb	2.2					
Track Mass (per 120mm)	N	0					
Magnetic Attraction							

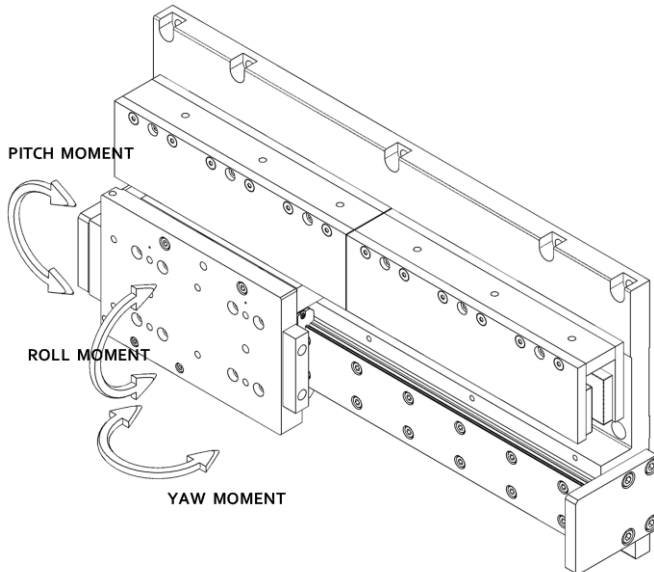
Dimensional Drawing



Model	Coil Type	Effective Stroke (Z) (mm)	Overall Length -- (X)	Carriage Length -- (A)	Module Height -- (mm)	Moving Mass -- (Kg)	Module Mass -- (Kg)	Hard Stopper Position (Y) (mm)	Carriage Mounting Hole (B) (mm)
WGL138 AUM3	S2	200	386	160	65.8	1.3	9.2	88	37.25
		300	486				10.9		
		400	586				13.2		
		500	686				15.6		
		600	786				17.4		
		1000	1186				26.1		
		1200	1386				30.2		
	S3	200	446	220	65.8	1.7	11.4	118	67.25
		300	546				12.5		
		400	646				14.9		
		500	746				17.3		
		600	846				19.1		
		1000	1246				27.8		
		1200	1446				31.8		
	S4	200	506	280	65.8	2.1	12.6	148	97.25
		300	606				14.2		
		400	706				16.7		
		500	806				19		
		600	906				20.8		
		1000	1306				29.5		
		1200	1506				33.6		

Bearing Parameters

Specifications	Unit	S2	S3	S4
Maximum bearing load	N	1824	1824	1824
Recommended row moment	Nm	17.6	17.6	17.6
Recommended pitch moment	Nm	135.9	245.3	354.8
Recommended yaw moment	Nm	135.9	245.3	354.8



Performance Parameter

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

Part Numbering (Rapid Delivery Series)

Example: WGL138-AUM3-S-S2-J-3.0- 300-RE-1.0-T

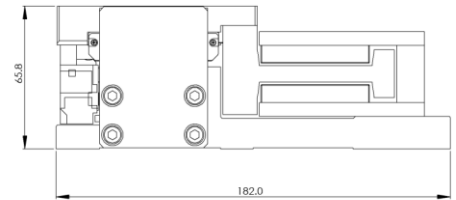
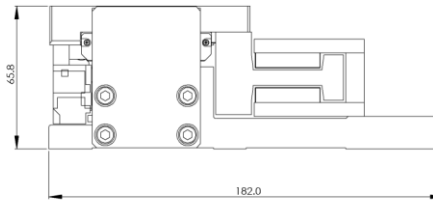
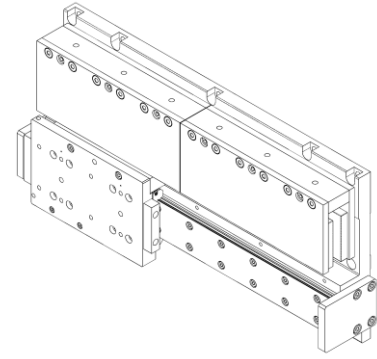
WGL 138	Motor (type)	Connection Type	Motor Size	Sensor Type	Cable Length (m)	Effective Stroke (mm)	Encoder Option (type)	Encoder Resolution (micron, μ)	Rail (type)
	AUM3	P,S	S2,S3,S4	J, K	3.0	¹ 200 – 1200	RE, ⁴ MII	0.1, 1.0, 5.0	² T

- For customized stroke length (up to 2.7m), please contact us.
- For applications that have specific straightness and flatness requirements, precision class (P) is available. Please contact us for more details.
- All measurement taken when module is mounted on a 5micron flat granite table.
- With external Micro Photo sensor (Panasonic PM series)

WGL138 Series AUM4

Features

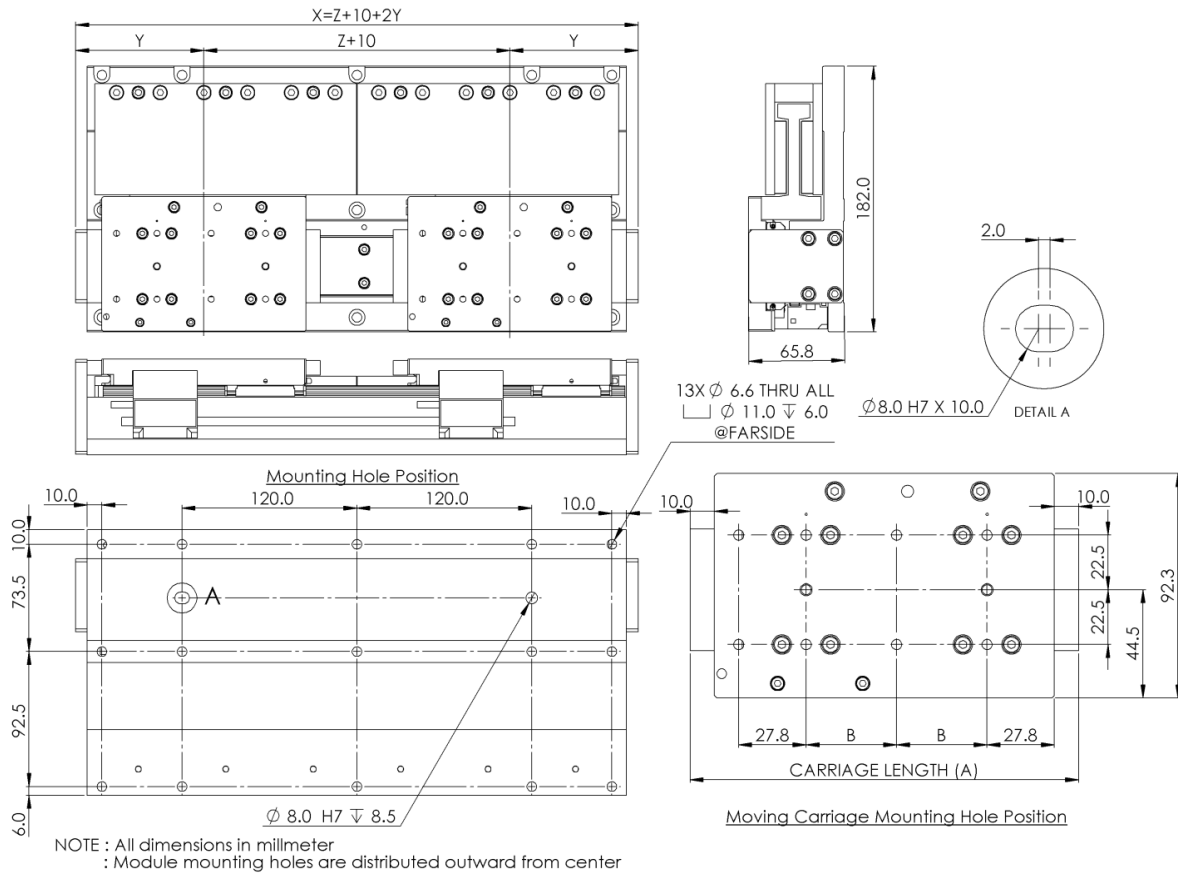
- Direct drive, zero cogging, zero backlash ironless linear motor
- Linear encoder options of 5µm, 1µm, and 0.1µm
- THK size 15 linear guidance rails
- High accelerations (up to 10) and speeds (up to 5m/s)
- Smooth motion at low speeds (low velocity ripple)



Motor Parameter

Model	Unit	AUM4-S2		AUM4-S3		AUM4-S4	
		Series	Parallel	Series	Parallel	Series	Parallel
Continuous Force, coil @100°C	N	112		168		224	
	lb	25.1		37.7		50.2	
Peak Force	N	624		936		1248	
	lb	139.9		209.9		279.9	
Motor Constant	N/SqRt (W)	15.83		19.38		22.38	
	lb/SqRt(W)	3.55		4.35		5.02	
Continuous Power	W	50.1		75.1		100.2	
Peak Power	W	1554.8		2332.2		3109.6	
Electrical Cycle	mm	60		60		60	
	in	2.362		2.362		2.362	
Max Bus Voltage	V	330		330		330	
Max. Coil Temperature	°C	125		125		125	
Thermal Dissipation Constant	W/ °C	0.67		1		1.34	
Continuous Current	A	2.3	4.6	2.3	4.6		
Peak Current	A	13	56	13	26	13	26
Force Constant	N/Amp	48	24	72	36	96	48
	Lb/A	10.8	5.4	16.1	8.1	21.5	10.8
Back EMF Constant	V/m/s	55.4	27.7	83.1	41.6	110.9	55.4
	V/in/s	1.41	0.7	2.11	1.06	2.82	1.41
Inductance	mH	7	1.75	10.5	2.63	14	3.5
Terminal Resistance @ 25°C	Ohms	9.2	2.3	13.8	3.45	18.4	4.6
Electrical Time Constant	ms	0.76	0.76	0.76	0.76	0.76	0.76
Coil Mass	Kg	0.56		0.89		1.19	
	lb	1.24		1.97		2.62	
Coil Length	mm	121		181		241	
	in	4.76		7.13		9.49	
Track Mass (per 120mm)	Kg	1.77					
	lb	3.89					
Magnetic Attraction	N	0					

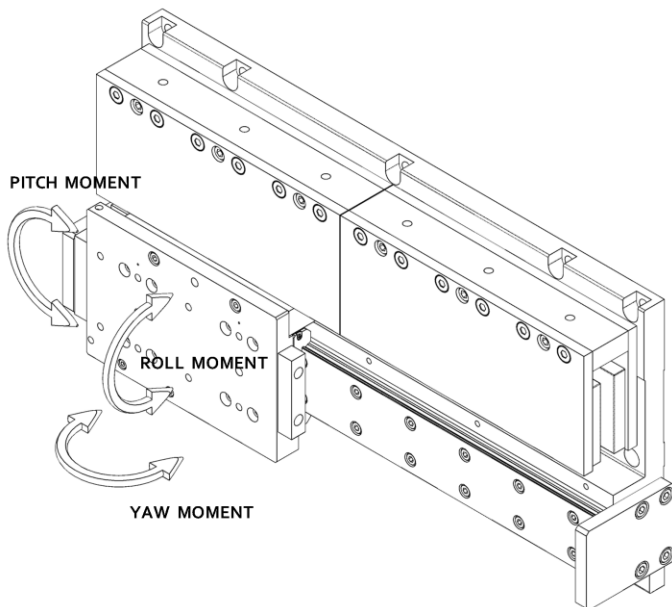
Dimensional Drawing



Model	Coil Type	Effective Stroke (Z) (mm)	Overall Length -- (X)	Carriage Length -- (A)	Module Height -- (mm)	Moving Mass -- (Kg)	Module Mass -- (Kg)	Hard Stopper Position (Y) (mm)	Carriage Mounting Hole (B) (mm)
WGL138 AUM4	S2	200	386	160	65.8	1.4	11.8	88	37.25
		300	486				13.9		
		400	586				17		
		500	686				20.1		
		600	786				22.4		
		1000	1186				33.9		
		1200	1386				39.1		
	S3	200	446	220	65.8	1.9	14	118	67.25
		300	546				16.1		
		400	646				19.2		
		500	746				22.3		
		600	846				24.6		
		1000	1246				36.1		
		1200	1446				41.4		
	S4	200	506	280	65.8	2.5	15.7	148	97.25
		300	606				17.8		
		400	706				20.9		
		500	806				24		
		600	906				26.2		
		1000	1306				37.7		
		1200	1506				43		

Bearing Parameters

Specifications	Unit	S2	S3	S4
Maximum bearing load	N	1824	1824	1824
Recommended row moment	Nm	17.6	17.6	17.6
Recommended pitch moment	Nm	135.9	245.3	354.8
Recommended yaw moment	Nm	135.9	245.3	354.8



Performance Parameter

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

Part Numbering (Rapid Delivery Series)

Example: **WGL138-AUM4-S-S2-J-3.0- 300-RE-1.0-B**

WGL 138	Motor (type)	Connection Type	Motor Size	Sensor Type	Cable Length (m)	Effective Stroke (mm)	Encoder Option (type)	Encoder Resolution (micron, μ)	Rail (type)
	AUM4	P,S	S2,S3,S4	J, K	3.0	¹ 200 – 1200	RE, ⁴ MII	0.1, 1.0, 5.0	² T

- For customized stroke length (up to 2.7m), please contact us.
- For applications that have specific straightness and flatness requirements, precision class (P) is available. Please contact us for more details.
- All measurement taken when module is mounted on a 5micron flat granite table.
- With external Micro Photo sensor (Panasonic PM series)