

Application
Standard Ball Screw Type <b>GTH/GTY/ETH</b>
Standard Belt Type <b>ETB/M</b>
Cleanroom Ball Screw Type <b>ECH Series</b>
Cleanroom Belt Type <b>ECB</b>
Reference

# Memo

Blank area for notes.



# ECH Series

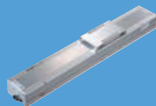
## Clean Room/Ball Screw

### CONTENTS

#### Standard/Ball Screw

MEDIUM

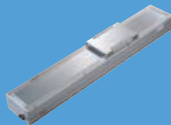
**ECH14**



Width 135mm  
Max. stroke 1050mm .....087  
Recommended payload 110kg

LARGE

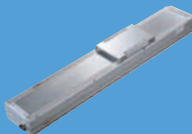
**ECH17**



Width 170mm  
Max. stroke 1250mm .....087  
Recommended payload 120kg

LARGE

**ECH22**

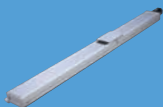


Width 220mm  
Max. stroke 1500mm .....087  
Recommended payload 150kg

#### Long Stroke Ball Screw Actuator

LARGE

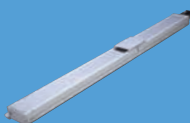
**ECH17M**



Width 170mm  
Max. stroke 2200mm .....087  
Recommended payload 120kg

LARGE

**ECH22M**



Width 220mm  
Max. stroke 2400mm .....087  
Recommended payload 130kg

# Spec Index of Electric Actuator

## ECH Ball Screw Actuator-Clean Room

Env.	Drive Type	Model No.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec (C7)		Maximum Payload(kg)		Max. Speed* <sup>1</sup> (mm/s)
						Outer Dia.(mm)	Lead(mm)	Horizontal	Vertical	
Clean Room	Ball screw	ECH14	200W	135	±0.005	16	5	95	27	300
							10	75	18	600
							20	35	7	1200
							32	15	-	1920
		ECH14	400W	135	±0.005	16	5	110	33	300
							10	88	22	600
							20	40	10	1200
							32	30	8	1920
		ECH17	400W	170	±0.005	20	5	120	40	300
							10	110	30	600
							20	75	14	1200
							40	22	7	2400
		ECH17	750W	170	±0.005	20	5	120	50	300
							10	120	40	600
							20	83	25	1200
							40	43	12	2400
ECH22	750W	220	±0.005	20	25	5	150	55	300	
					25	10	150	45	600	
					25	25	105	20	1500	
					20	40	43	12	2400	

\*1:The highest speed is based on the maximum servo motor's rpm (3600).

\*2:Written here is the standard storke's maximum safe speed. If over this speed, it may casue serious virbration.

## Long Stroke Ball Screw Actuator

Env.	Drive Type	Model No.	Motor Output (w)	Width (mm)	Repeatability (mm)	Ball Screw Spec		Maximum Payload(kg)		Max. Speed* <sup>1</sup> (mm/s)
						Outer Dia.(mm)	Lead(mm)	Horizontal	Vertical	
Standard Environment	Ball screw	ECH17M	400W	170	±0.005	16	5	110	33	300
							10	90	22	600
							20	40	10	1200
							32	30	8	1920
		ECH17M	750W	170	±0.005	16	5	120	40	300
							10	95	25	600
							20	50	15	1200
							32	35	12	1920
		ECH22M	750W	220	±0.005	20	5	130	50	300
							10	130	40	600
							20	85	25	1200
							40	43	12	2400

\*1:The highest speed is based on the maximum servo motor's rpm (3000 or 3600).

\*2:Max RPM is based on limitations of the ballnut or suggested servo motor limits.

\*3:Max speed is based on max RPM of the ballscrew before whipping occurs. This could permanently damage the ballscrew.

Stroke(mm) & Maximum Speed (mms) <sup>2</sup>																				Speed										Page	
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
300													275	250	225	200	175	150	125	100											
600													550	500	450	400	350	300	250	200											
1200													1100	1000	900	800	700	600	500	400											
1920													1760	1600	1440	1280	1120	960	800	640											
300													275	250	225	200	175	150	125	100											
600													550	500	450	400	350	300	250	200											
1200													1100	1000	900	800	700	600	500	400											
1920													1760	1600	1440	1280	1120	960	800	640											
300																267	250	225	200	175	150										
600																533	500	450	400	350	300										
1200																1067	1000	900	800	700	600										
2400																2133	2000	1800	1600	1400	1200										
300																267	250	225	200	175	150										
600																533	500	450	400	350	300										
1200																1067	1000	900	800	700	600										
2400																2133	2000	1800	1600	1400	1200										
300																275	250	225	200	175	150	125	100								
600																550	500	450	400	350	300	250	200								
1500																1375	1250	1125	1000	875	750	625	500								
2400														2200	2000	1800	1600	1400	1200	1000	800	600									

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Stroke(mm) & Maximum Speed (mms) <sup>2</sup>																								Speed										Page
Stroke	800	850	900	950	1000	1100	1200	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400				
300									283	267	250	233	217	200	183	175	150	125	100	75	50	25												
600									567	533	500	467	433	400	367	350	300	250	200	150	100	50												
1200									1133	1067	1000	933	867	800	733	700	600	500	400	300	200	100												
1920									1813	1707	1600	1493	1387	1280	1173	1120	960	800	640	480	320	160												
300									283	267	250	233	217	200	183	175	150	125	100	75	50	25												
600									567	533	500	467	433	400	367	350	300	250	200	150	100	50												
1200									1133	1067	1000	933	867	800	733	700	600	500	400	300	200	100												
1920									1813	1707	1600	1493	1387	1280	1173	1120	960	800	640	480	320	160												
300									283	267	250	233	225	217	208	200	175	150	125	100	75	50												
600									567	533	500	467	450	433	417	400	350	300	250	200	150	100												
1200									1133	1067	1000	933	900	867	833	800	700	600	500	400	300	200												
2400									2267	2133	2000	1867	1800	1733	1667	1600	1400	1200	1000	800	600	400												

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Repeat  
-ability  
**±0.005  
mm**

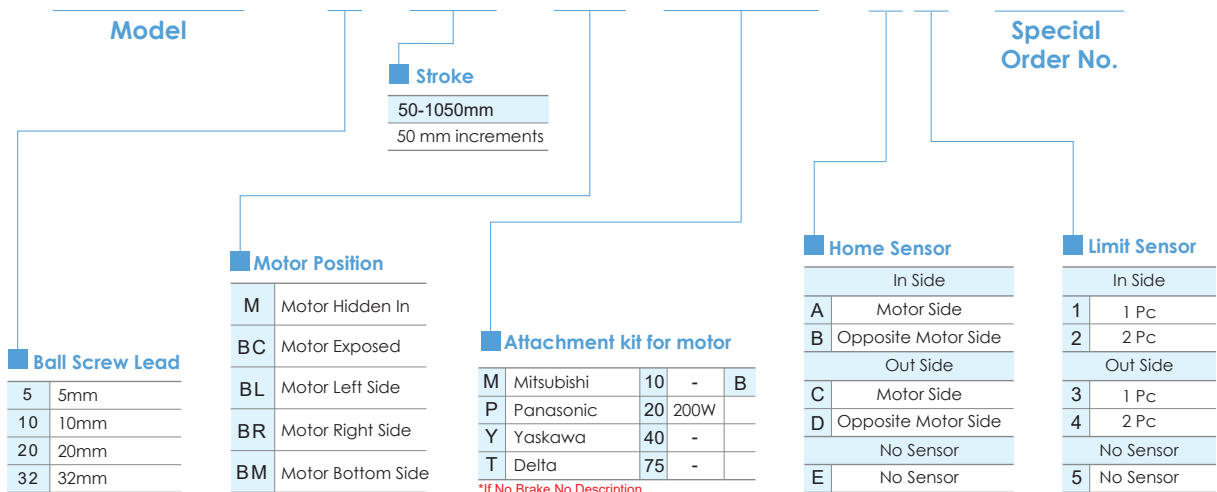
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH14 - L5 - 50 - M - M20B - C4 - 0001



\*If No Brake, No Description.

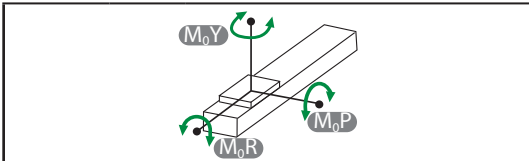
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø16 & C7 Rolled Ballscrews				
		Lead		mm	5	10	20	32	
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600	
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	1920	
		Basic dynamic load rating Ca		N	8042	6300	4152	7326	
		Basic static load rating Coa		N	15088	11596	7439	14157	
		Load factor			1.2	1.35	1.35	1.75	
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	25832			
			1000 Km of travel		N	11991			
			10000 Km of travel		N	5565			
	<b>Fixed bearing</b>	Static horizontal		N	58342				
		Basic dynamic load rating Cr		N	3040				
	<b>Common Spec</b>	Static load rating Cor		N	7100				
		Repeatability		mm	±0.005				
	<b>Common Spec</b>	Start torque		N.cm	11				
		Allowable input torque		N.m	3.1				
		Maximum acceleration		m/s <sup>2</sup>	10				
		Friction coefficient			0.03				
		Stroke (increments)		mm	50-1050 (50 increments)				
		Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

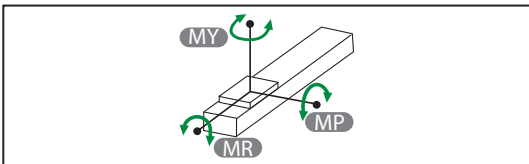
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



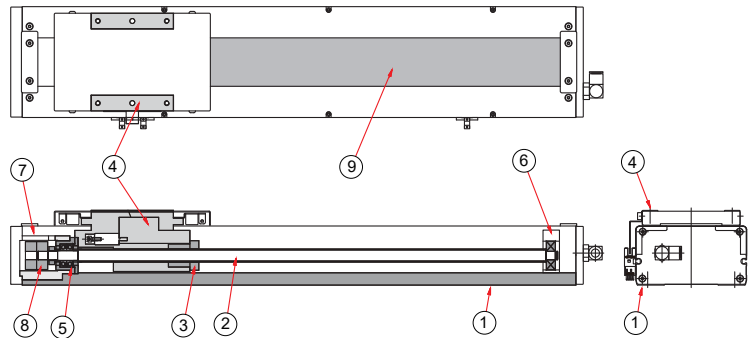
<b>M<sub>0Y</sub></b>	N.m	551
<b>M<sub>0P</sub></b>	N.m	552
<b>M<sub>0R</sub></b>	N.m	485

**Dynamic Loading Moment**



Travel	km	100	1000	10000
<b>MY</b>	N.m	222.8	103.4	48
<b>MP</b>	N.m	222.8	103.4	48
<b>MR</b>	N.m	221.4	102.8	47.7

**Parts list**



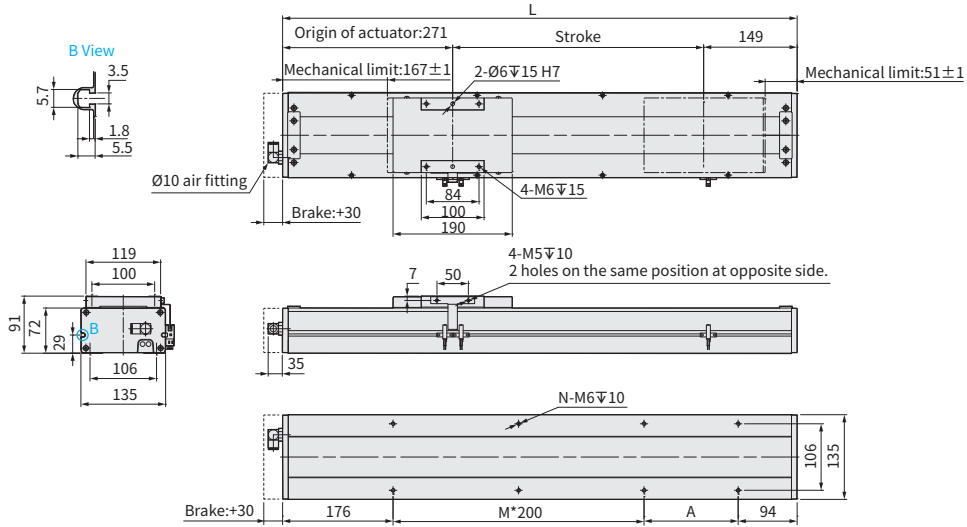
No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430

**M** Motor Inside



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Unit : mm



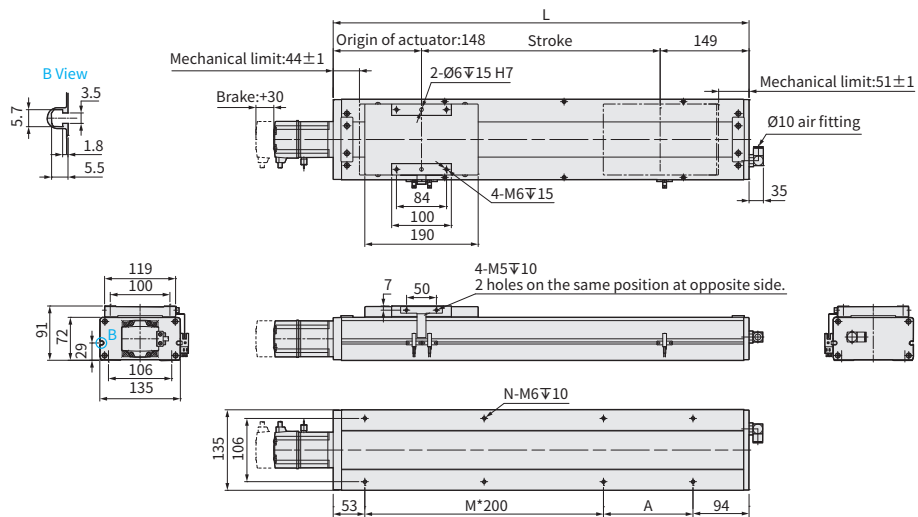
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050				
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062				
L	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470				
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200				
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5				
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14				
KG	11.5	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.5	21.1	21.7	22.3	22.9	23.5				
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100						
	Lead 10											600	550	500	450	400	350	300	250	200					
	Lead 20											1200	1100	1000	900	800	700	600	500	400					
	Lead 32											1920	1760	1600	1440	1280	1120	960	800	640					

**BC** Motor Exposed



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Unit : mm



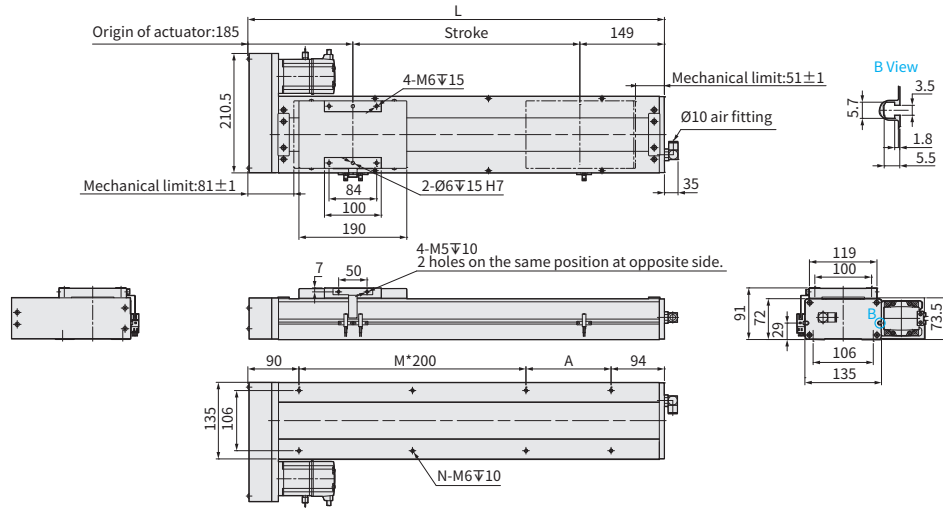
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050				
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062				
L	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347				
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200				
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5				
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14				
KG	10.5	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5				
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100						
	Lead 10											600	550	500	450	400	350	300	250	200					
	Lead 20											1200	1100	1000	900	800	700	600	500	400					
	Lead 32											1920	1760	1600	1440	1280	1120	960	800	640					

**BR** Motor Right Side



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Unit : mm



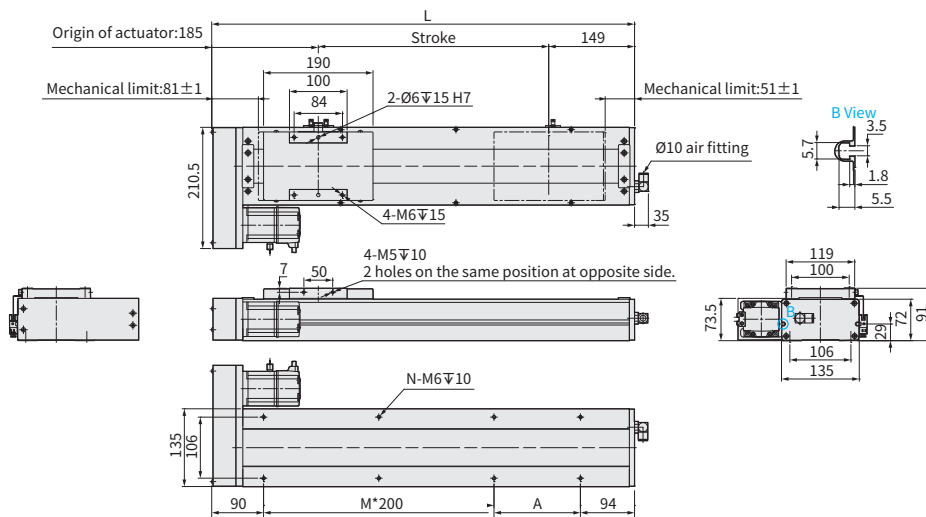
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050									
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062									
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384									
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200									
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5									
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14									
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3									
Linear Speed mm/s	Lead 5											300											275	250	225	200	175	150	125	100
	Lead 10											600											550	500	450	400	350	300	250	200
	Lead 20											1200											1100	1000	900	800	700	600	500	400
	Lead 32											1920											1760	1600	1440	1280	1120	960	800	640

**BL** Motor Left Side



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Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050									
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062									
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384									
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200									
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5									
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14									
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3									
Linear Speed mm/s	Lead 5											300											275	250	225	200	175	150	125	100
	Lead 10											600											550	500	450	400	350	300	250	200
	Lead 20											1200											1100	1000	900	800	700	600	500	400
	Lead 32											1920											1760	1600	1440	1280	1120	960	800	640



# ECH14

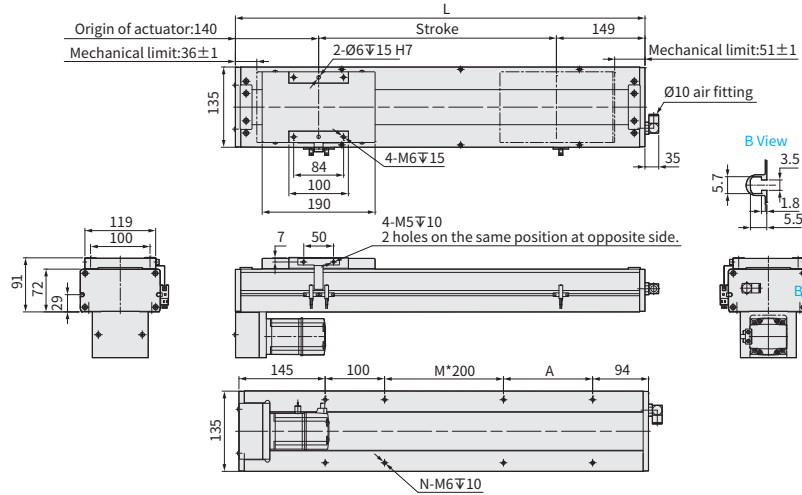
► Clean Room ► Ball Screw Drive

BM Motor Bottom

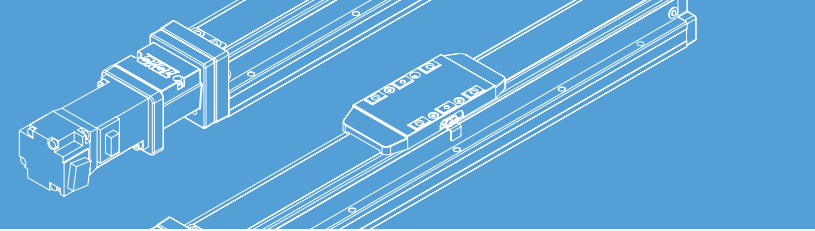


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Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050							
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062							
L	339	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14							
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3							
Linear Speed mm/s	Lead 5	300										275										250	225	200	175	150	125	100
	Lead 10	600										550										500	450	400	350	300	250	200
	Lead 20	1200										1100										1000	900	800	700	600	500	400
	Lead 32	1920										1760										1600	1440	1280	1120	960	800	640



# Memo

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

**ECH Series**

ECH14

ECH17

ECH22

ECH17M

ECH22M



Repeat  
-ability  
**±0.005  
mm**

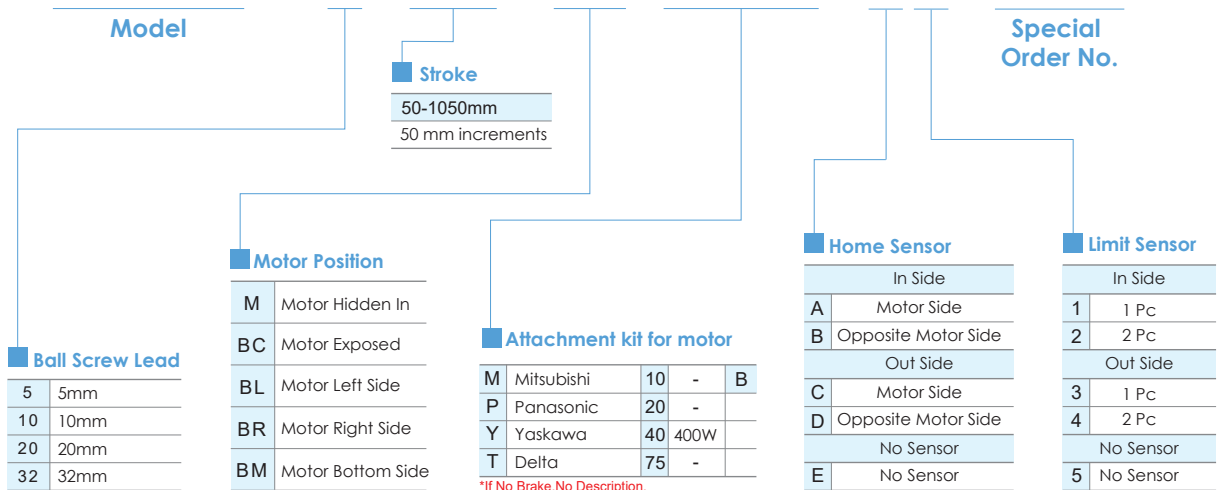
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH14 - L5 - 50 - M - M40B - C4 - 0001



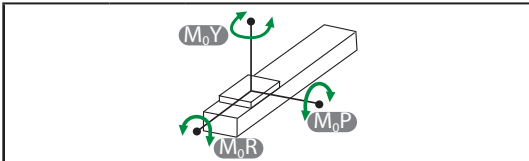
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø16 & C7 Rolled Ballscrews				
		Lead		mm	5	10	20	32	
		Maximum Rotating speed <sup>*1</sup>		rpm	3600	3600	3600	3600	
		Maximum linear speed <sup>*1</sup>		mm/s	300	600	1200	1920	
		Basic dynamic load rating Ca		N	8042	6300	4152	7326	
		Basic static load rating Coa		N	15088	11596	7439	14157	
		Load factor			1.2	1.35	1.35	1.75	
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	25832			
			1000 Km of travel		N	11991			
			10000 Km of travel		N	5565			
	<b>Fixed bearing</b>	Static horizontal		N	58342				
		Basic dynamic load rating Cr		N	3040				
	<b>Common Spec</b>	Static load rating Cor		N	7100				
		Repeatability		mm	±0.005				
	<b>Common Spec</b>	Start torque		N.cm	11				
		Allowable input torque		N.m	3.1				
		Maximum acceleration		m/s <sup>2</sup>	10				
		Friction coefficient			0.03				
		Stroke (increments)		mm	50-1050 (50 increments)				
		Ambient temperature <sup>*2</sup>		°C	0~+40				

※ For extreme temperatures: -20C ~80C special greases are required.

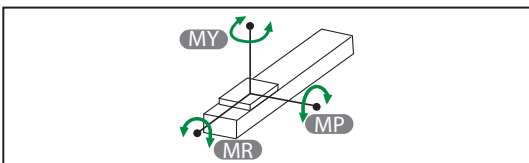
\*The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

**Static Loading Moment**



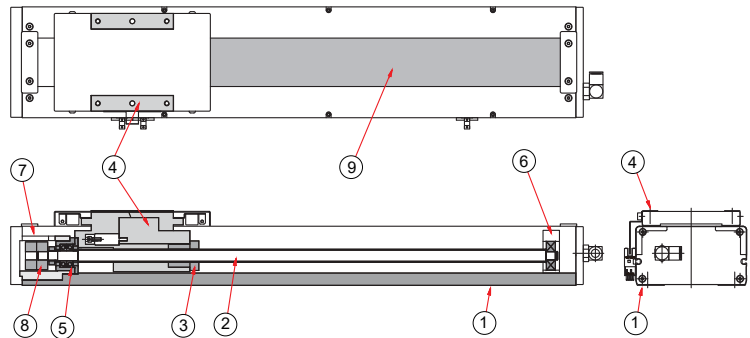
<b>M<sub>0Y</sub></b>	N.m	551
<b>M<sub>0P</sub></b>	N.m	552
<b>M<sub>0R</sub></b>	N.m	485

**Dynamic Loading Moment**



Travel	km	100	1000	10000
<b>MY</b>	N.m	222.8	103.4	48
<b>MP</b>	N.m	222.8	103.4	48
<b>MR</b>	N.m	221.4	102.8	47.7

**Parts list**



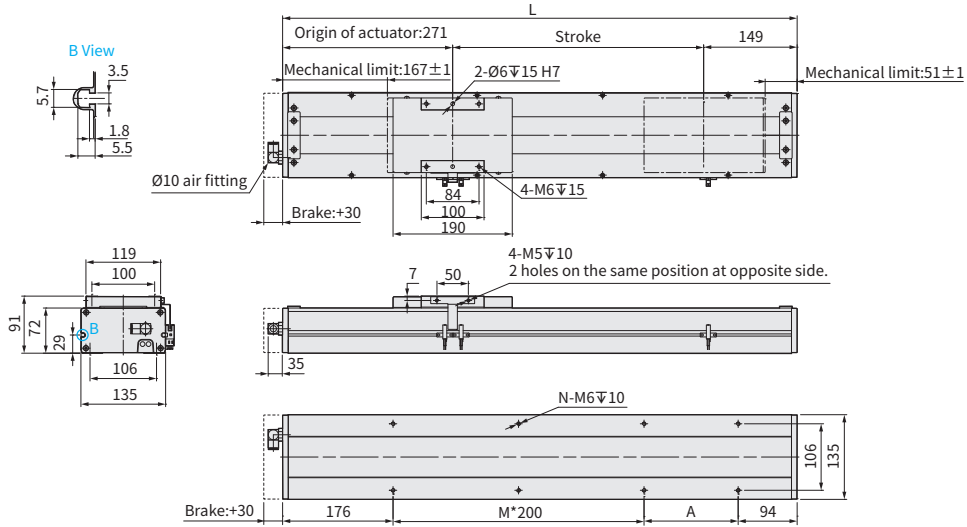
No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430

**M** Motor Inside



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



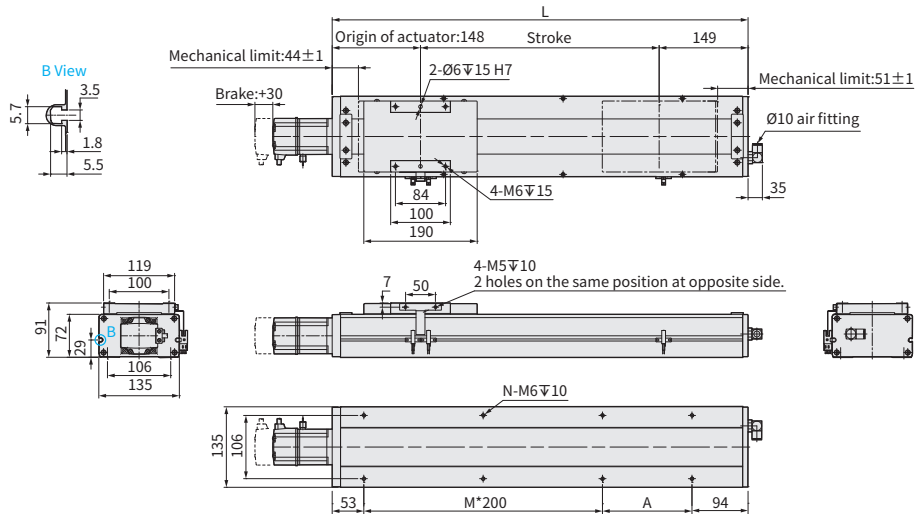
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050				
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062				
L	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470				
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200				
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5				
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14				
KG	11.5	12.1	12.7	13.3	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.5	21.1	21.7	22.3	22.9	23.5				
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100						
	Lead 10											600	550	500	450	400	350	300	250	200					
	Lead 20											1200	1100	1000	900	800	700	600	500	400					
	Lead 32											1920	1760	1600	1440	1280	1120	960	800	640					

**BC** Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

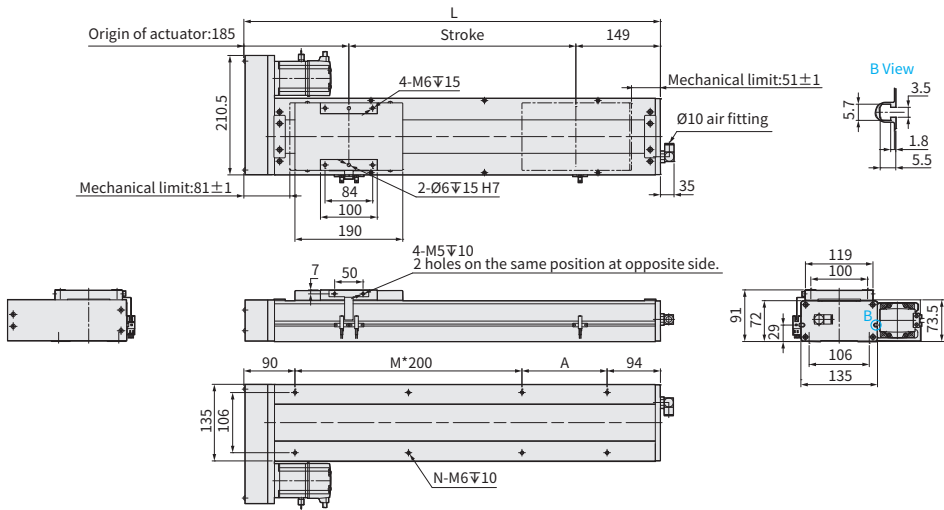
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050				
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062				
L	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297	1347				
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200				
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5				
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14				
KG	10.5	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	21.9	22.5				
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100						
	Lead 10											600	550	500	450	400	350	300	250	200					
	Lead 20											1200	1100	1000	900	800	700	600	500	400					
	Lead 32											1920	1760	1600	1440	1280	1120	960	800	640					

**BR** Motor Right Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

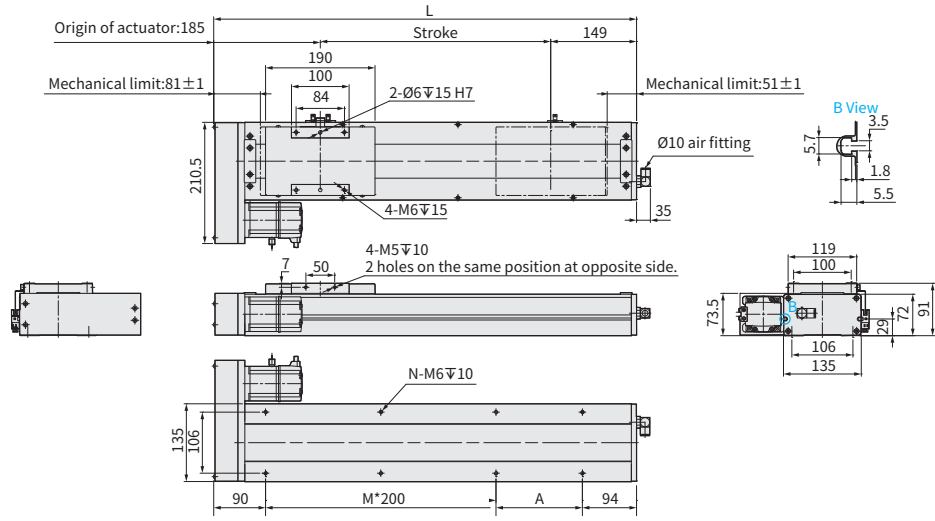
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050		
Limit Stroke ( $\pm 1$ )	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062		
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384		
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200		
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5		
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14		
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3		
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100				
	Lead 10											550	500	450	400	350	300	250	200				
	Lead 20											1100	1000	900	800	700	600	500	400				
	Lead 32											1760	1600	1440	1280	1120	960	800	640				

**BL** Motor Left Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050		
Limit Stroke ( $\pm 1$ )	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062		
L	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384		
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200		
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5		
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14		
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3		
Linear Speed mm/s	Lead 5											275	250	225	200	175	150	125	100				
	Lead 10											550	500	450	400	350	300	250	200				
	Lead 20											1100	1000	900	800	700	600	500	400				
	Lead 32											1760	1600	1440	1280	1120	960	800	640				

ECH Series

- ECH14
- ECH17
- ECH22
- ECH17M
- ECH22M

# ECH14

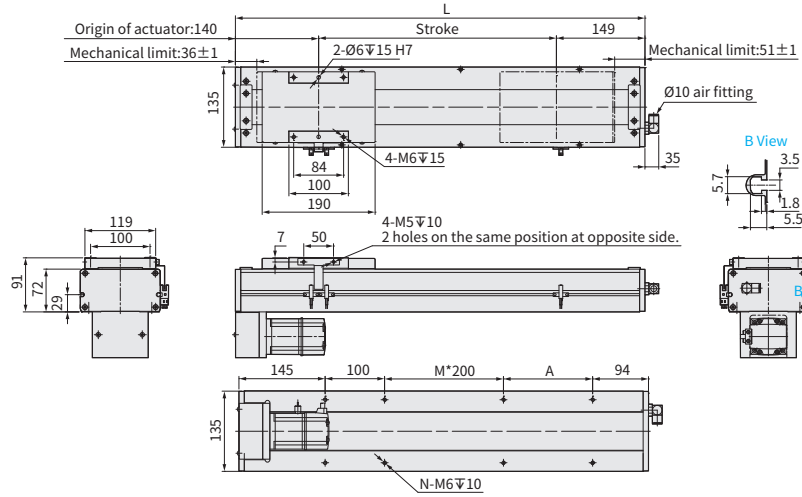
► Clean Room ► Ball Screw Drive

BM Motor Bottom

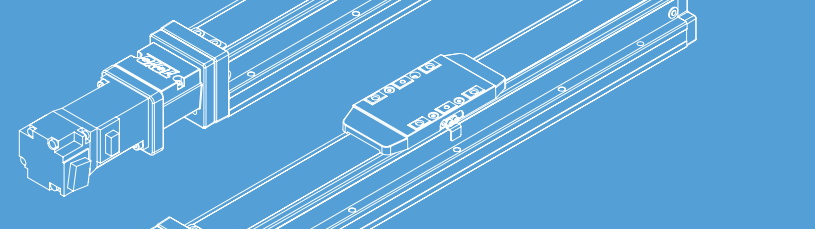


Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050							
Limit Stroke (±1)	62	112	162	212	262	312	362	412	462	512	562	612	662	712	762	812	862	912	962	1012	1062							
L	339	389	439	489	539	589	639	689	739	789	839	889	939	989	1039	1089	1139	1189	1239	1289	1339							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14							
KG	10.9	11.52	12.14	12.76	13.38	14	14.62	15.24	15.86	16.48	17.1	17.72	18.34	18.96	19.58	20.2	20.82	21.44	22.06	22.68	23.3							
Linear Speed mm/s	Lead 5	300										275										250	225	200	175	150	125	100
	Lead 10	600										550										500	450	400	350	300	250	200
	Lead 20	1200										1100										1000	900	800	700	600	500	400
	Lead 32	1920										1760										1600	1440	1280	1120	960	800	640



# Memo

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

**ECH Series**

ECH14

ECH17

ECH22

ECH17M

ECH22M





Repeat  
-ability  
**±0.005  
mm**

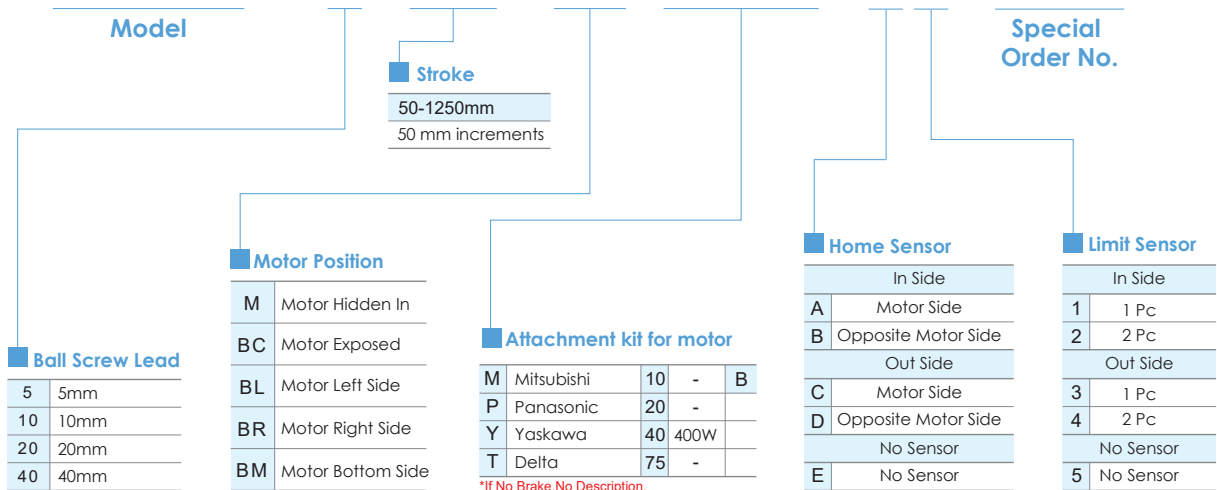
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH17 - L5 - 100 - BC - M40B - C 4 - 0001



\*If No Brake, No Description.

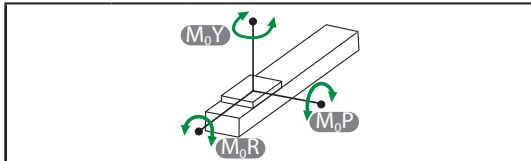
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø20 & C7 Rolled Ballscrews			
		Lead		mm	5	10	20	40
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	2400
		Basic dynamic load rating Ca		N	13428	11224	5673	9654
		Basic static load rating Coa		N	29671	24457	11191	20271
		Load factor			1.2	1.35	1.75	1.75
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel	N	40407			
			1000 Km of travel	N	18755			
			10000 Km of travel	N	8706			
	<b>Fixed bearing</b>	Static horizontal		N	86491			
		Basic dynamic load rating Cr		N	3380			
	<b>Common Spec</b>	Static load rating Cor		N	7600			
		Repeatability		mm	±0.005			
	Start torque		N.cm	14				
	Allowable input torque		N.m	4.5				
	Maximum acceleration		m/s <sup>2</sup>	10				
	Friction coefficient			0.03				
	Stroke (increments)		mm	50-1250 (50 increments)				
	Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

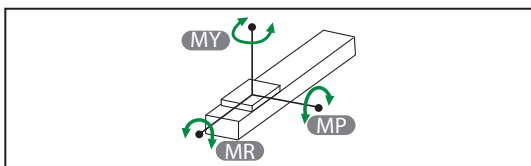
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



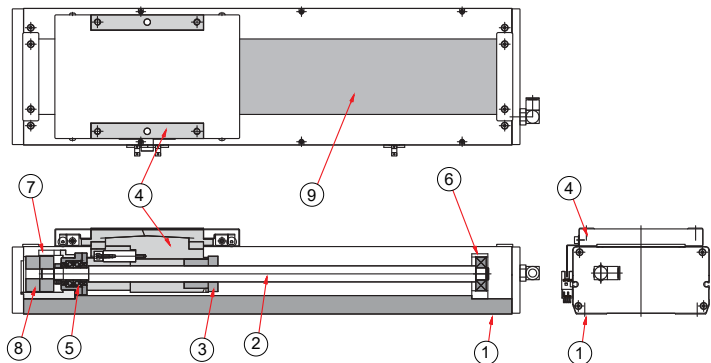
<b>M<sub>0Y</sub></b>	N.m	1032
<b>M<sub>0P</sub></b>	N.m	1034
<b>M<sub>0R</sub></b>	N.m	908

**Dynamic Loading Moment**



<b>Travel</b>	km	<b>100</b>	<b>1000</b>	<b>10000</b>
<b>MY</b>	N.m	365.9	169.8	78.8
<b>MP</b>	N.m	365.9	169.8	78.8
<b>MR</b>	N.m	448.6	208.2	96.7

**Parts list**



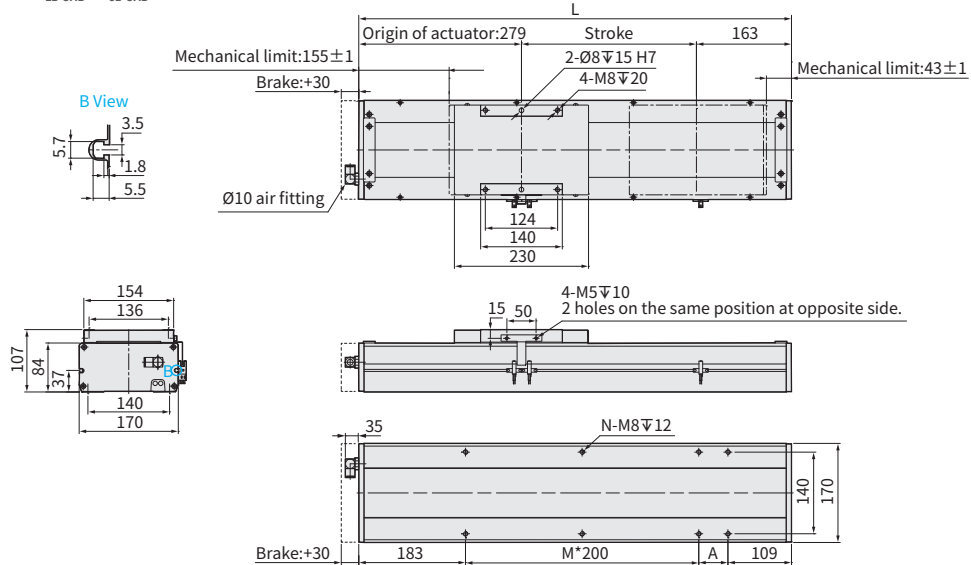
No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430

**M** Motor Inside



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



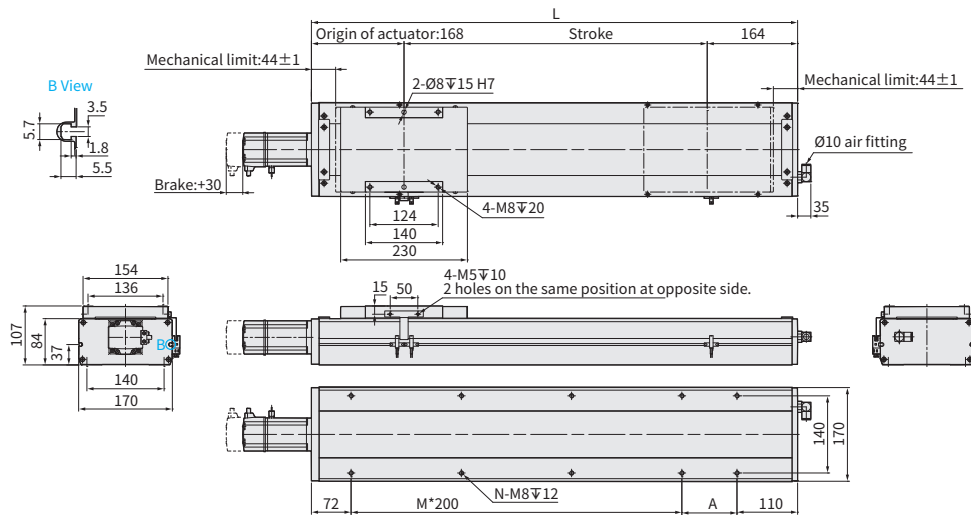
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250							
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264							
L	492	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342	1392	1442	1492	1542	1592	1642	1692							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16							
KG	12.44	13.24	14.04	14.84	15.65	16.45	17.26	18.06	18.86	19.67	20.47	21.28	22.08	22.88	23.69	24.49	25.29	26.1	26.9	27.7	28.51	29.31	30.12	30.92	31.72							
Linear Speed mm/s	Lead 5																267	250	225	225	200	200	175	175	150	150						
	Lead 10																533	500	450	450	400	400	350	350	300	300						
	Lead 20																1067	1000	900	900	800	800	700	700	600	600						
	Lead 32																2133	2000	1800	1800	1600	1600	1400	1400	1200	1200						

**BC** Motor Exposed



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



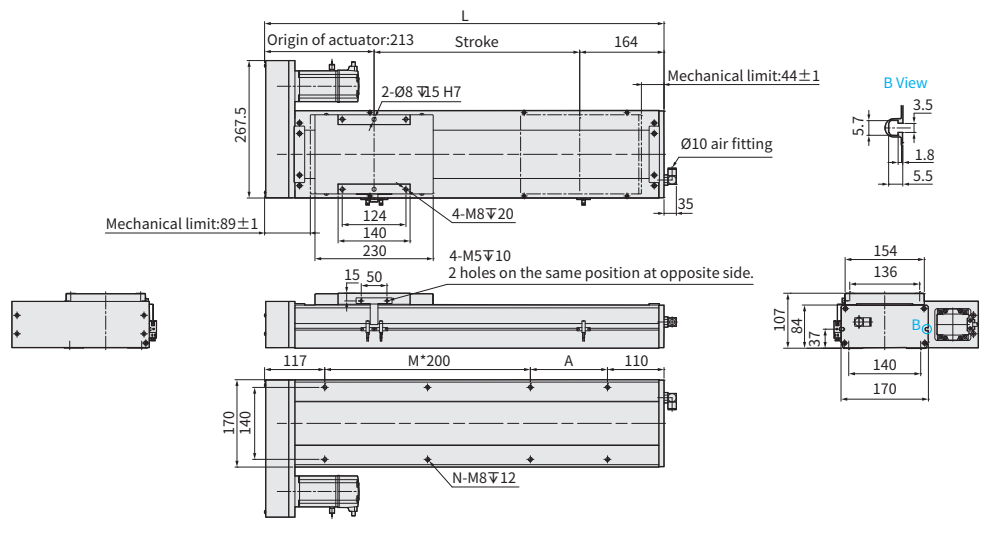
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250							
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264							
L	382	432	482	532	582	632	682	732	782	832	882	932	982	1032	1082	1132	1182	1232	1282	1332	1382	1432	1482	1532	1582							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16							
KG	11.84	12.62	13.4	14.18	14.96	15.74	16.52	17.3	18.08	18.85	19.63	20.41	21.19	21.97	22.75	23.53	24.31	25.09	25.87	26.65	27.43	28.21	28.99	29.77	30.55							
Linear Speed mm/s	Lead 5																267	250	225	225	200	200	175	175	150	150						
	Lead 10																533	500	450	450	400	400	350	350	300	300						
	Lead 20																1067	1000	900	900	800	800	700	700	600	600						
	Lead 32																2133	2000	1800	1800	1600	1600	1400	1400	1200	1200						

**BR** Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



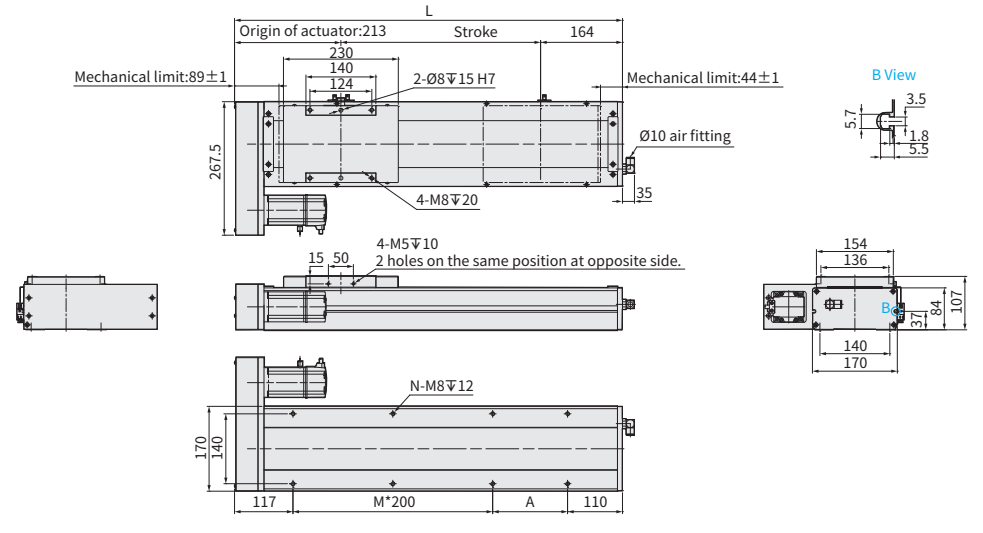
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250										
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264										
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627										
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200										
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6										
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16										
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45										
Linear Speed mm/s	Lead 5															300																			
	Lead 10															600																			
	Lead 20															1200	533	500	450	450	400	400	350	350	300	300									
	Lead 32															2400	1067	1000	900	900	800	800	700	700	600	600	2133	2000	1800	1800	1600	1600	1400	1400	1200

**BL** Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250										
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264										
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627										
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200										
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6										
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16										
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45										
Linear Speed mm/s	Lead 5															300																			
	Lead 10															600																			
	Lead 20															1200	533	500	450	450	400	400	350	350	300	300									
	Lead 32															2400	1067	1000	900	900	800	800	700	700	600	600	2133	2000	1800	1800	1600	1600	1400	1400	1200

# ECH17

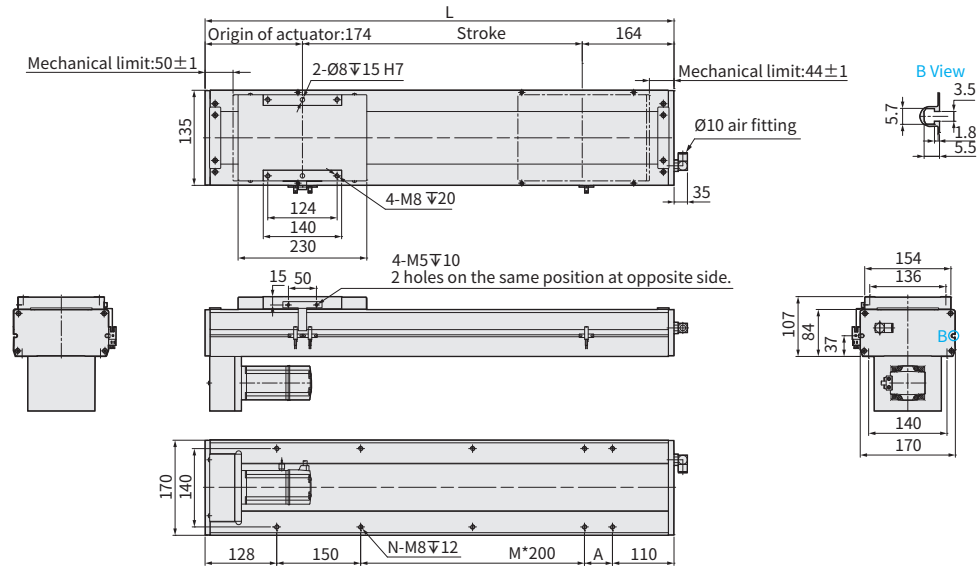
► Clean Room ► Ball Screw Drive

BM Motor Bottom

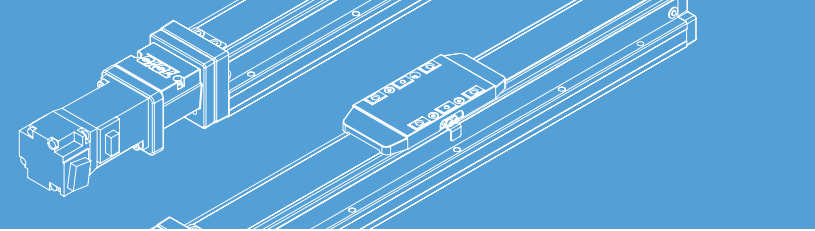


Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250																					
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264																					
L	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588																					
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200																					
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5																					
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16																					
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45																					
Linear Speed mm/s	Lead 5																300																													
	Lead 10																600																													
	Lead 20																1200	267	250	225	225	200	200	175	175	150	150																			
	Lead 32																2400	533	500	450	450	400	400	350	350	300	300	1067	1000	900	900	800	800	700	700	600	600	2133	2000	1800	1800	1600	1600	1400	1400	1200



# Memo

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

**ECH Series**

ECH14

**ECH17**

ECH22

ECH17M

ECH22M

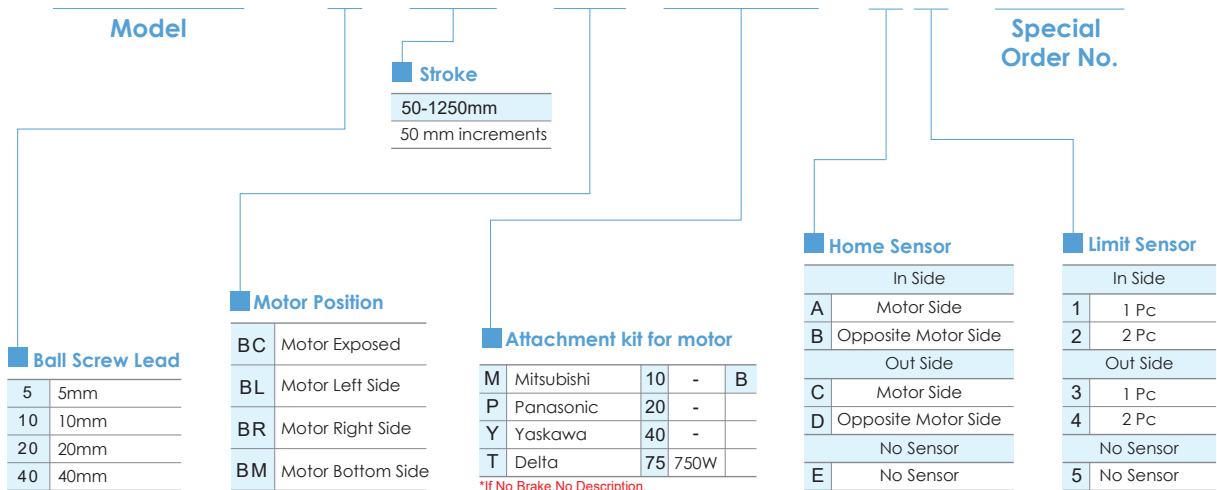
Repeat  
-ability  
**±0.005  
mm**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH17 - L5 - 50 - BC - M75B - C4 - 0001



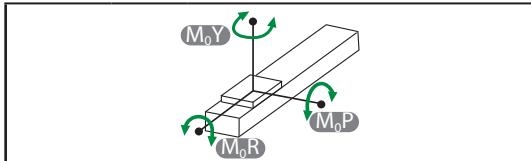
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø20 & C7 Rolled Ballscrews				
		Lead		mm	5	10	20	40	
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600	
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	2400	
		Basic dynamic load rating Ca		N	13428	11224	5673	9654	
		Basic static load rating Coa		N	29671	24457	11191	20271	
		Load factor			1.2	1.35	1.75	1.75	
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	40407			
			1000 Km of travel		N	18755			
			10000 Km of travel		N	8706			
	<b>Fixed bearing</b>	Static horizontal		N	86491				
		Basic dynamic load rating Cr		N	3380				
	<b>Common Spec</b>	Static load rating Cor		N	7600				
		Repeatability		mm	±0.005				
	Start torque		N.cm	14					
	Allowable input torque		N.m	4.5					
	Maximum acceleration		m/s <sup>2</sup>	10					
	Friction coefficient			0.03					
	Stroke (increments)		mm	50-1250 (50 increments)					
	Ambient temperature <sup>※2</sup>		°C	0~+40					

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

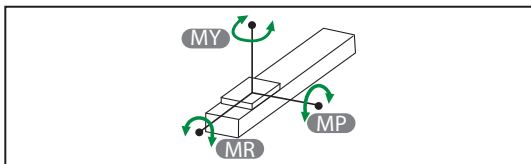
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



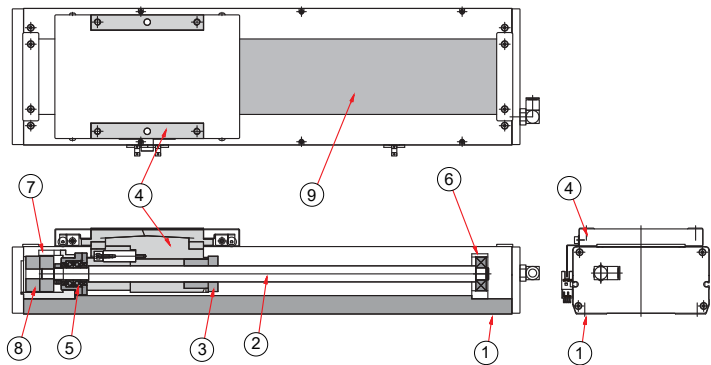
<b>M<sub>0Y</sub></b>	N.m	1032
<b>M<sub>0P</sub></b>	N.m	1034
<b>M<sub>0R</sub></b>	N.m	908

**Dynamic Loading Moment**



<b>Travel</b>	km	<b>100</b>	<b>1000</b>	<b>10000</b>
<b>MY</b>	N.m	365.9	169.8	78.8
<b>MP</b>	N.m	365.9	169.8	78.8
<b>MR</b>	N.m	448.6	208.2	96.7

**Parts list**



No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430

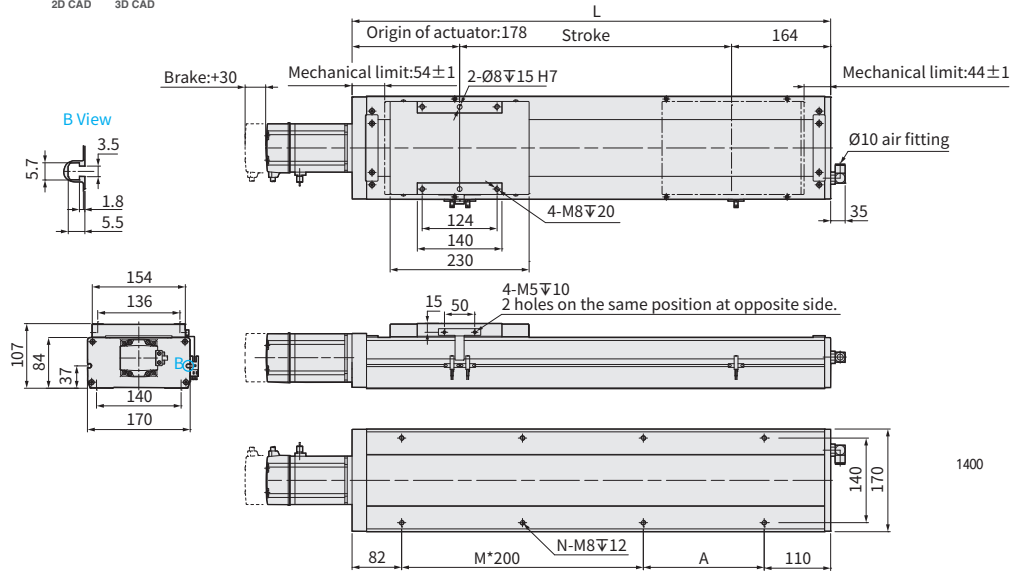


BC Motor Inside



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Unit : mm



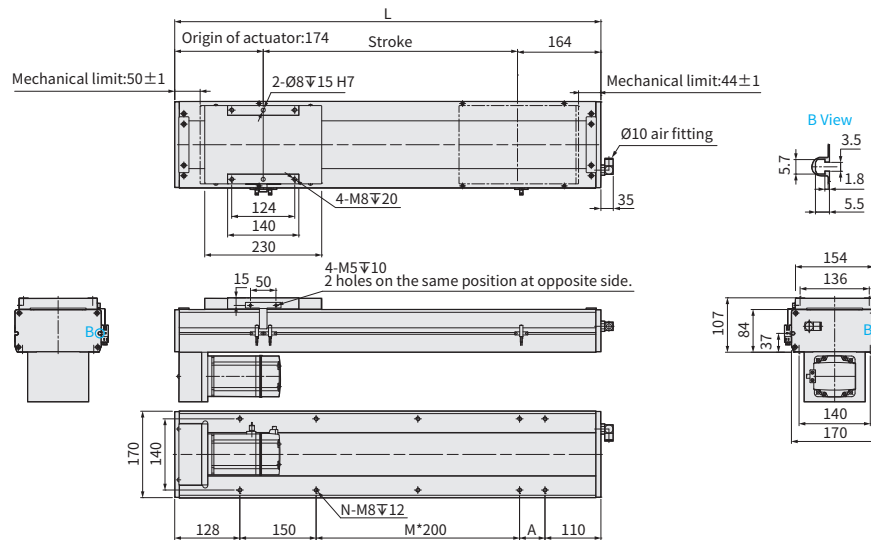
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250							
Limit Stroke (±1)	69	119	169	219	269	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269							
L	392	442	492	542	592	642	692	742	792	842	892	942	992	1042	1092	1142	1192	1242	1292	1342	1392	1442	1492	1542	1592							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16							
KG	11.84	12.62	13.4	14.18	14.96	15.74	16.52	17.3	18.08	18.85	19.63	20.41	21.19	21.97	22.75	23.53	24.31	25.09	25.87	26.65	27.43	28.21	28.99	29.77	30.55							
Linear Speed mm/s	Lead 5																267	250	225	225	200	200	175	175	150	150						
	Lead 10																533	500	450	450	400	400	350	350	300	300						
	Lead 20																1067	1000	900	900	800	800	700	700	600	600						
	Lead 32																2133	2000	1800	1800	1600	1600	1400	1400	1200	1200						

BM Motor Bottom Side



Download CAD data at [www.toyrobot.com](http://www.toyrobot.com)

Unit : mm



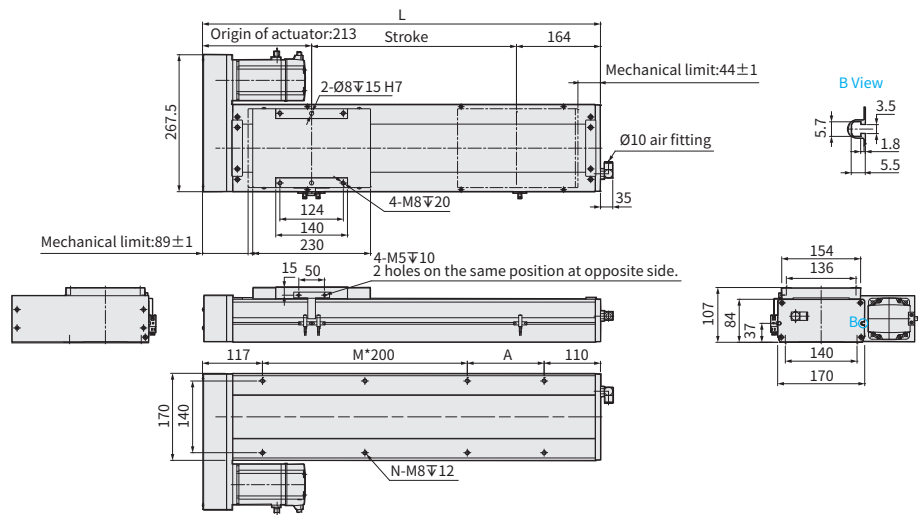
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250							
Limit Stroke (±1)	69	119	169	219	269	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269							
L	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438	1488	1538	1588							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5							
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16							
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45							
Linear Speed mm/s	Lead 5																267	250	225	225	200	200	175	175	150	150						
	Lead 10																533	500	450	450	400	400	350	350	300	300						
	Lead 20																1067	1000	900	900	800	800	700	700	600	600						
	Lead 32																2133	2000	1800	1800	1600	1600	1400	1400	1200	1200						

**BR** Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



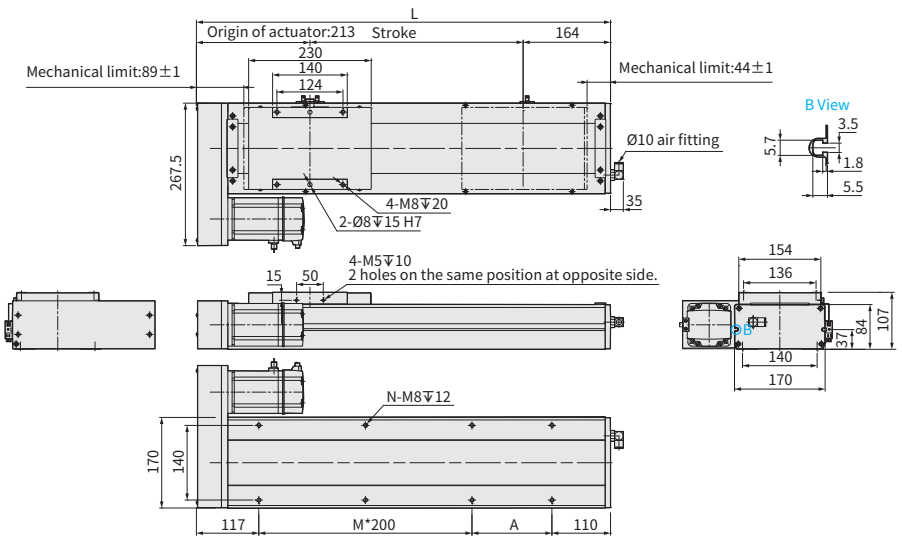
Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250						
Limit Stroke (±1)	69	119	169	219	269	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269						
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627						
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200						
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6						
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16						
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45						
Linear Speed mm/s	Lead 5															300															
	Lead 10															600															
	Lead 20															1200	267	250	225	225	200	200	175	175	150	150					
	Lead 32															2400	533	500	450	450	400	400	350	350	300	300					

**BL** Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250						
Limit Stroke (±1)	69	119	169	219	269	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269						
L	427	477	527	577	627	677	727	777	827	877	927	977	1027	1077	1127	1177	1227	1277	1327	1377	1427	1477	1527	1577	1627						
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200						
M	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6						
N	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16						
KG	12.61	13.39	14.17	14.96	15.74	16.53	17.31	18.1	18.88	19.67	20.45	21.24	22.02	22.81	23.59	24.38	25.17	25.95	26.74	27.52	28.31	29.09	29.88	30.66	31.45						
Linear Speed mm/s	Lead 5															300															
	Lead 10															600															
	Lead 20															1200	267	250	225	225	200	200	175	175	150	150					
	Lead 32															2400	533	500	450	450	400	400	350	350	300	300					



Repeat  
-ability  
**±0.005  
mm**

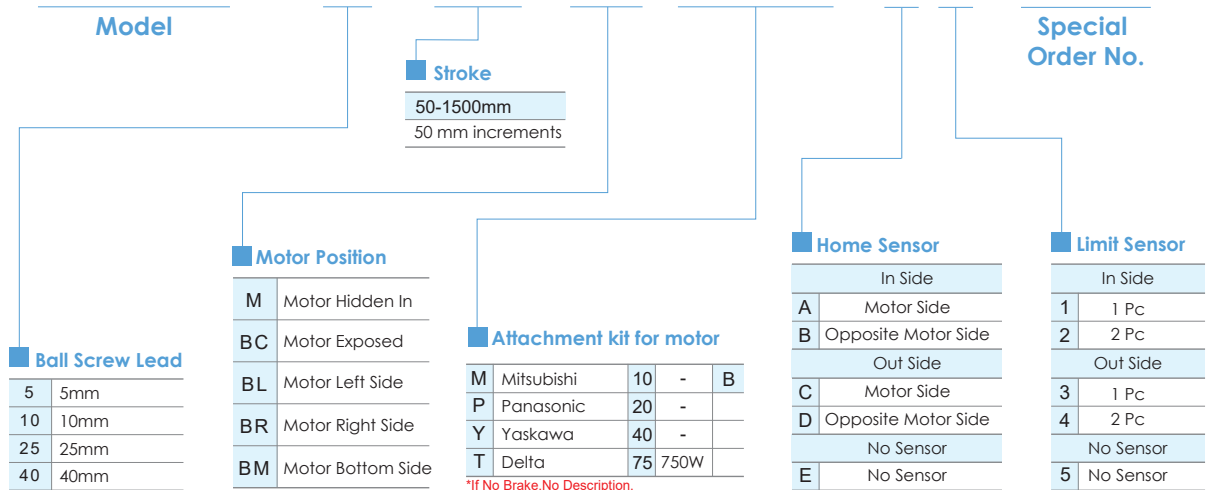
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

**ECH22 --L 10 - 50 - M - M75B -C 4 - 0001**



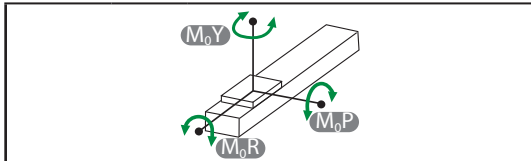
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø25 & C7 Rolled Ballscrews			
		Lead		mm	5	10	25	40
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1500	2400
		Basic dynamic load rating Ca		N	12048	11962	6153	9654
		Basic static load rating Coa		N	29725	29560	14032	20271
		Load factor			1.2	1.35	1.35	1.75
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel	N	55747			
			1000 Km of travel	N	25876			
			10000 Km of travel	N	12010			
	<b>Fixed bearing</b>	Static horizontal		N	119837			
		Basic dynamic load rating Cr		N	8240			
	<b>Common Spec</b>	Static load rating Cor		N	17900			
		Repeatability		mm	±0.005			
	Start torque		N.cm	17				
	Allowable input torque		N.m	8.4				
	Maximum acceleration		m/s <sup>2</sup>	10				
	Friction coefficient			0.03				
	Stroke (increments)		mm	50-1500 (50 increments)				
	Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

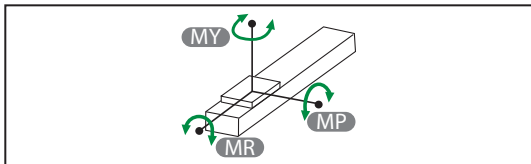
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



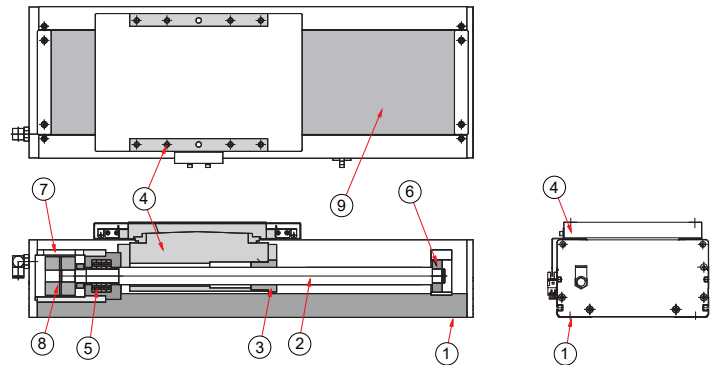
<b>M<sub>0Y</sub></b>	N.m	2052
<b>M<sub>0P</sub></b>	N.m	2052
<b>M<sub>0R</sub></b>	N.m	1810

**Dynamic Loading Moment**



<b>Travel</b>	km	<b>100</b>	<b>1000</b>	<b>10000</b>
<b>MY</b>	N.m	883.4	410	190.3
<b>MP</b>	N.m	883.4	410	190.3
<b>MR</b>	N.m	847.3	393.3	182.5

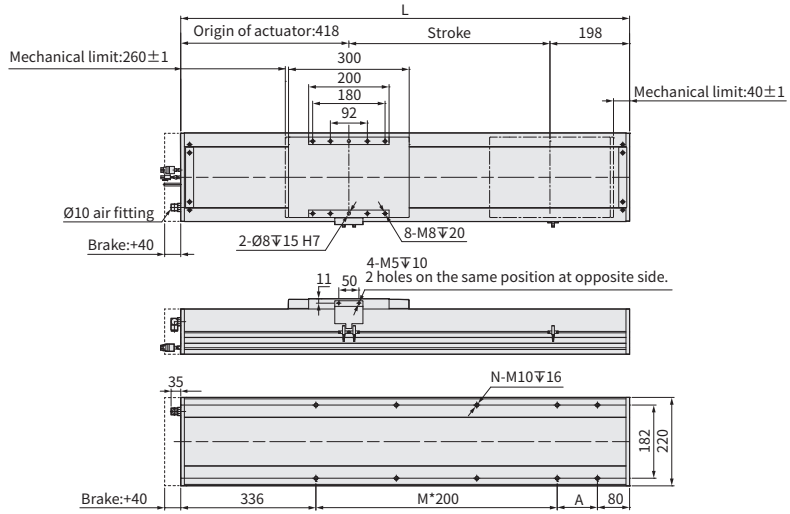
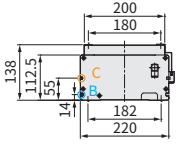
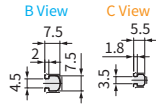
**Parts list**



No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430

**M** Motor Inside   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

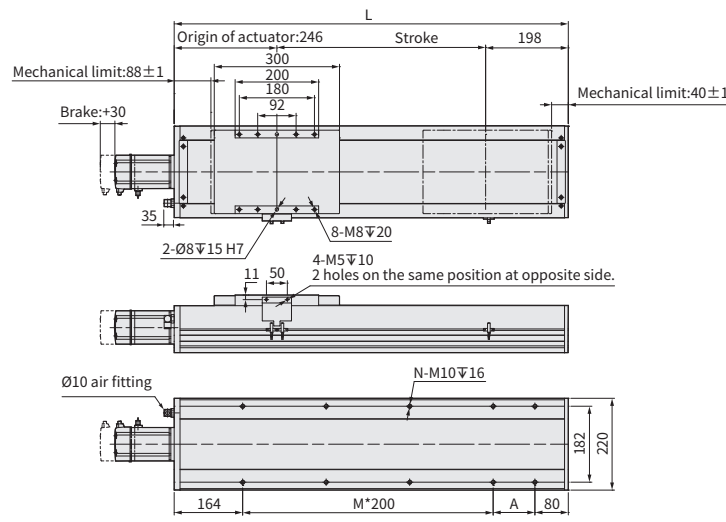
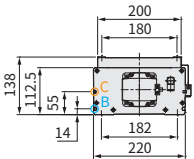
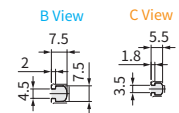
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500					
Limit Stroke (±1)	66	116	166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516					
L	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116					
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100					
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8					
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20					
KG	29.75	31.22	32.69	34.16	35.63	37.1	38.57	40.04	41.51	42.98	44.45	45.92	47.39	48.86	50.33	51.8	53.27	54.74	56.21	57.68	59.15	60.62	62.09	63.56	65.03	66.5	67.97	69.44	70.91	72.38					
Linear Speed mm/s	Lead 5																300		275		250		225		200		175		150		125		100		
	Lead 10																600		550		500		450		400		350		300		250		200		
	Lead 25																1500		1375		1250		1125		1000		875		750		625		500		
	Lead 40																2400		2200		2000		1800		1600		1400		1200		1000		800		600

**BC** Motor Exposed   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

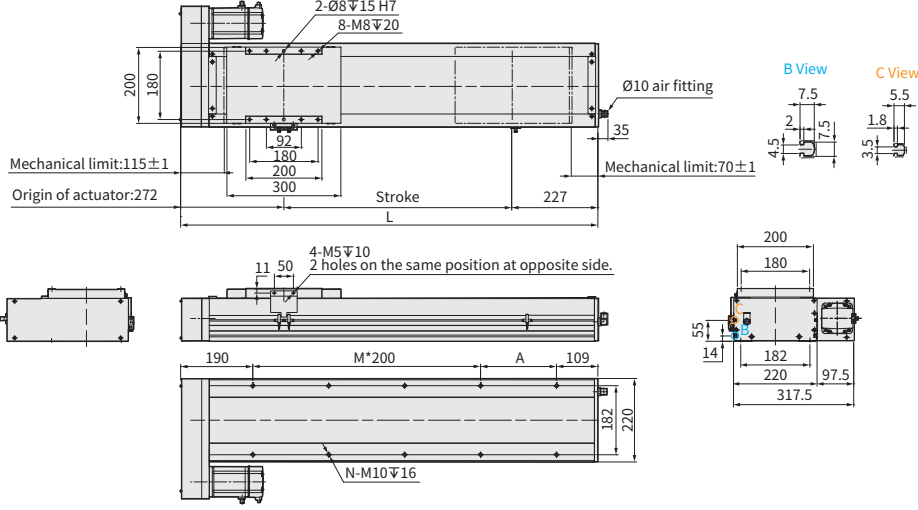
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500					
Limit Stroke (±1)	66	116	166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366	1416	1466	1516					
L	494	544	594	644	694	744	794	844	894	944	994	1044	1094	1144	1194	1244	1294	1344	1394	1444	1494	1544	1594	1644	1694	1744	1794	1844	1894	1944					
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100					
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8					
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20					
KG	27.5	28.96	30.42	31.88	33.34	34.8	36.26	37.72	39.18	40.64	42.1	43.56	45.02	46.48	47.94	49.4	50.86	52.32	53.78	55.24	56.7	58.16	59.62	61.08	62.54	64	65.46	66.92	68.38	69.84					
Linear Speed mm/s	Lead 5																300		275		250		225		200		175		150		125		100		
	Lead 10																600		550		500		450		400		350		300		250		200		
	Lead 25																1500		1375		1250		1125		1000		875		750		625		500		
	Lead 40																2400		2200		2000		1800		1600		1400		1200		1000		800		600

**BR** Motor Right Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

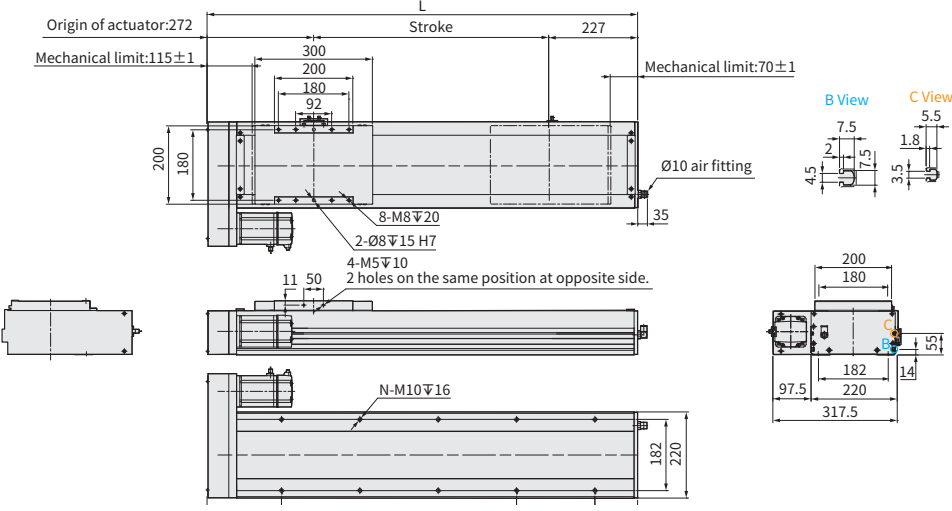
Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500						
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514						
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999						
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100						
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8						
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20						
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	65.56	68.02	69.48	70.94						
Linear Speed mm/s	Lead 5																	300		275		250		225		200		175		150		125		100		
	Lead 10																	600		550		500		450		400		350		300		250		200		
	Lead 25																	1500		1375		1250		1125		1000		875		750		625		500		
	Lead 40																	2400		2200		2000		1800		1600		1400		1200		1000		800		600

**BL** Motor Left Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500						
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514						
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999						
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100						
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8						
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20						
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	65.56	68.02	69.48	70.94						
Linear Speed mm/s	Lead 5																	300		275		250		225		200		175		150		125		100		
	Lead 10																	600		550		500		450		400		350		300		250		200		
	Lead 25																	1500		1375		1250		1125		1000		875		750		625		500		
	Lead 40																	2400		2200		2000		1800		1600		1400		1200		1000		800		600

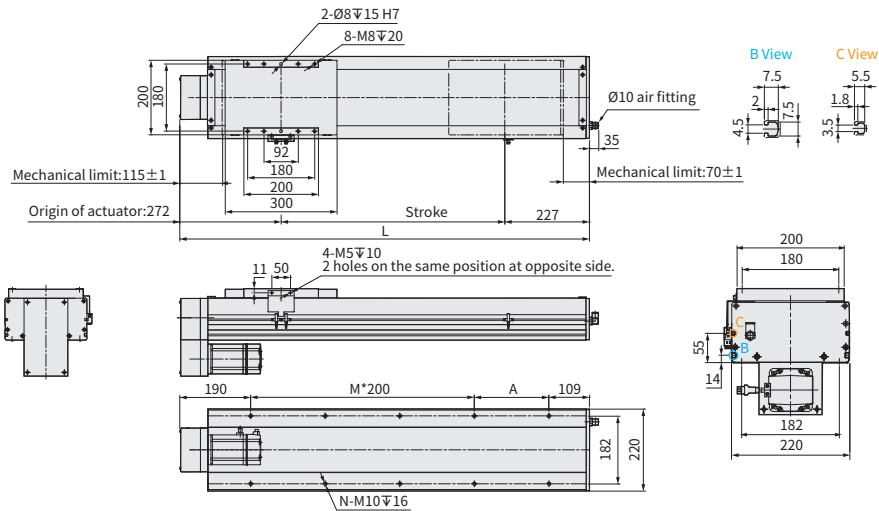
**ECH Series**  
 ECH14  
 ECH17  
 ECH22  
 ECH17M  
 ECH22M

BM Motor Bottom



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500				
Limit Stroke (±1)	64	114	164	214	264	314	364	414	464	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514				
L	549	599	649	699	749	799	849	899	949	999	1049	1099	1149	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999				
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100				
M	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8				
N	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20				
KG	28.6	30.06	31.52	32.98	34.44	35.9	37.36	38.82	40.28	41.74	43.2	44.66	46.12	47.58	49.04	50.5	51.96	53.42	54.88	56.34	57.8	59.26	60.72	62.18	63.64	65.1	66.56	68.02	69.48	70.94				
Linear Speed mm/s	Lead 5																300																	
	Lead 10																600																	
	Lead 25																1500																	
	Lead 40																2400	2200		2000		1800		1600		1400		1200		1000		800		600

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

# Memo

**ECH Series**

ECH14

ECH17

**ECH22**

ECH17M

ECH22M



# ECH17M

▶ Clean Room ▶ Ball Screw Drive

Repeat  
-ability ↗  
**±0.005  
mm**

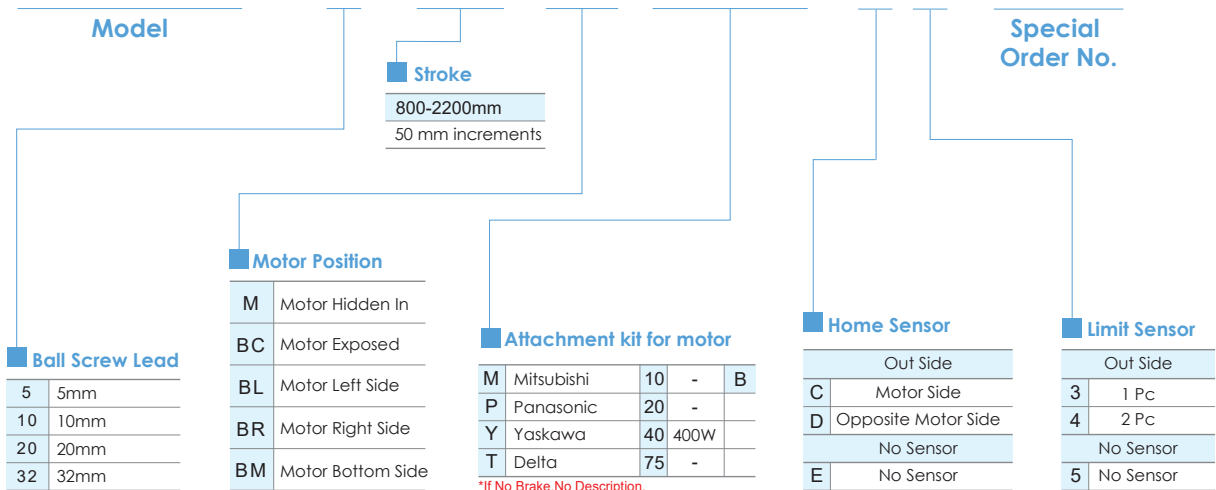
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH17M - L5 - 800 - M - M40B - C4 - 0001



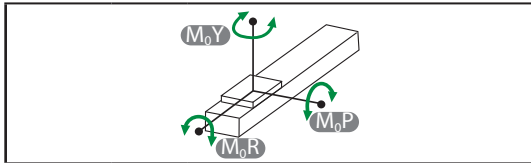
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø16 & C7 Rolled Ballscrews				
		Lead		mm	5	10	20	32	
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600	
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	1920	
		Basic dynamic load rating Ca		N	8042	6300	4152	7326	
		Basic static load rating Coa		N	15088	11596	7439	14157	
		Load factor			1.2	1.35	1.35	1.75	
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	25832			
			1000 Km of travel		N	11991			
			10000 Km of travel		N	5565			
	<b>Fixed bearing</b>	Static horizontal		N	58342				
		Basic dynamic load rating Cr		N	3040				
	<b>Common Spec</b>	Static load rating Cor		N	7100				
		Repeatability		mm	±0.005				
	<b>Common Spec</b>	Start torque		N.cm	14				
		Allowable input torque		N.m	4.5				
		Maximum acceleration		m/s <sup>2</sup>	10				
		Friction coefficient			0.03				
		Stroke (increments)		mm	800-2200 (50 increments)				
		Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

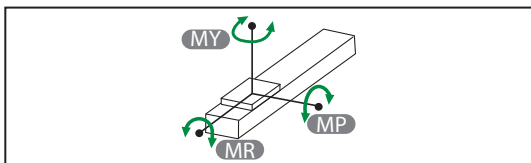
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



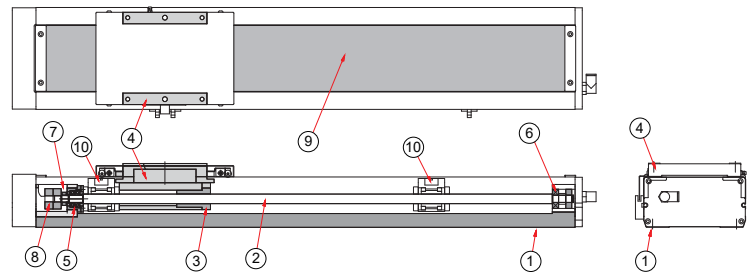
<b>M<sub>0Y</sub></b>	N.m	605
<b>M<sub>0P</sub></b>	N.m	448
<b>M<sub>0R</sub></b>	N.m	448

**Dynamic Loading Moment**



<b>Travel</b>	km	<b>100</b>	<b>1000</b>	<b>10000</b>
<b>MY</b>	N.m	222.8	103.4	48
<b>MP</b>	N.m	222.8	103.4	48
<b>MR</b>	N.m	300.7	139.6	64.8

**Parts list**



No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430
10	Support Slide	AL6463

# ECH17M

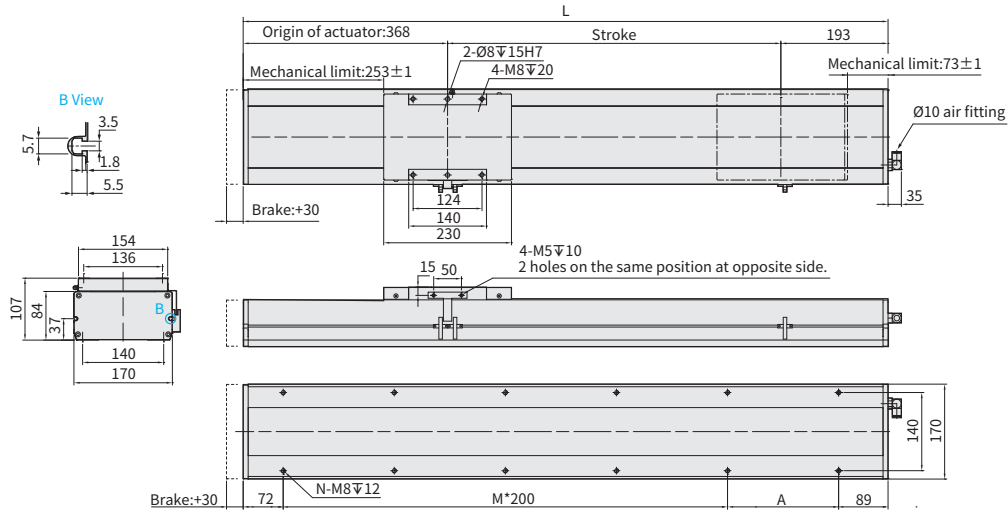
► Clean Room ► Ball Screw Drive

M Motor Inside



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Unit : mm



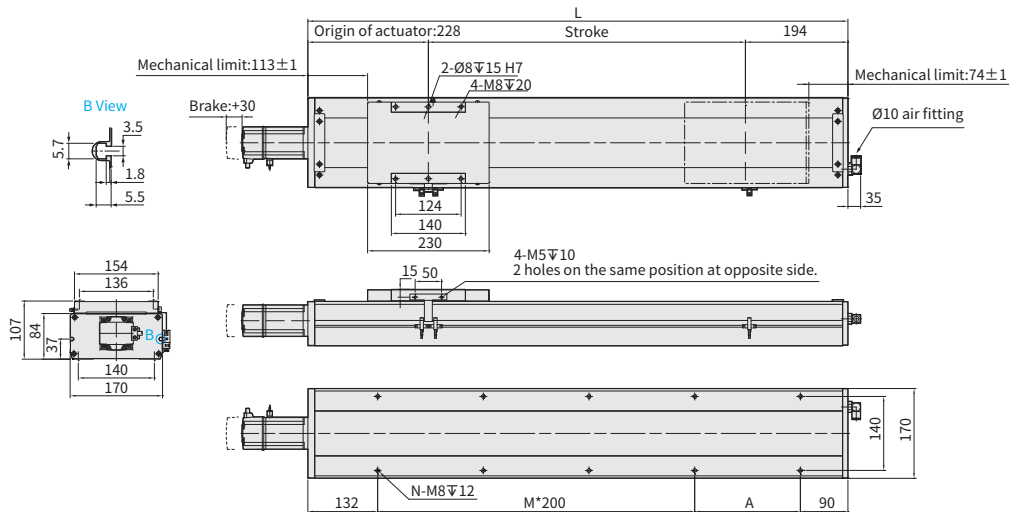
Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205
L	1361	1411	1461	1511	1561	1611	1661	1711	1761	1811	1861	1911	1961	2011	2061	2111	2161	2211	2261	2311	2361	2411	2461	2511	2561	2611	2661	2711	2761
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12
N	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28
KG	32.59	33.3	34.01	34.72	35.42	36.13	36.84	37.54	38.25	38.96	39.67	40.38	41.09	41.8	42.51	43.22	43.93	44.64	45.35	46.06	46.77	47.48	48.19	48.9	49.61	50.32	51.03	51.74	52.45
Linear Speed mm/s	Lead 5	300										283	267	250	233	217	200	183	175										
	Lead 10	600										567	533	500	467	433	400	367	350										
	Lead 20	1200										1133	1067	1000	933	867	800	733	700										
	Lead 32	1920										1813	1707	1600	1493	1387	1280	1173	1120										

BC Motor Exposed



Download CAD data at [www.toyrobot.com](http://www.toyrobot.com)

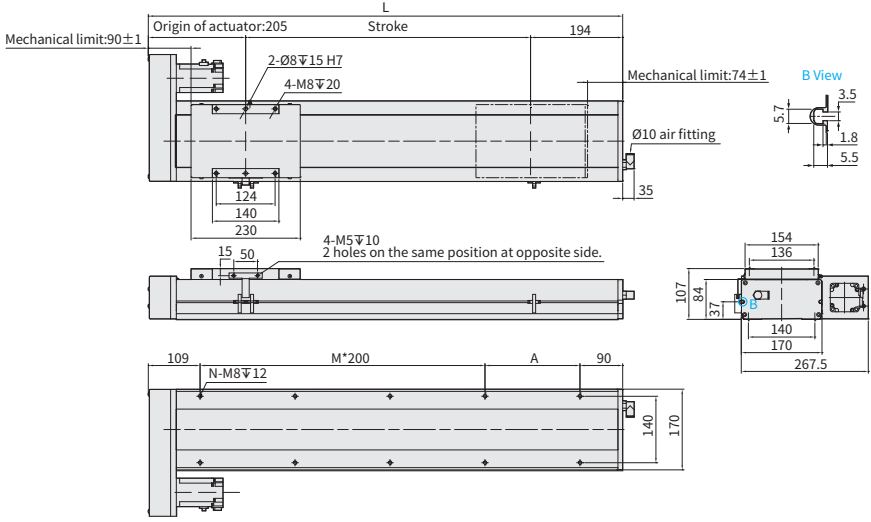
Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205
L	1222	1272	1322	1372	1422	1472	1522	1572	1622	1672	1722	1772	1822	1872	1922	1972	2022	2072	2122	2172	2222	2272	2322	2372	2422	2472	2522	2572	2622
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	31.71	32.4	33.09	33.77	34.46	35.15	35.84	36.53	37.21	37.9	38.59	39.28	39.97	40.66	41.35	42.04	42.73	43.42	44.11	44.8	45.49	46.18	46.87	47.56	48.25	48.94	49.63	50.32	51.01
Linear Speed mm/s	Lead 5	300										283	267	250	233	217	200	183	175										
	Lead 10	600										567	533	500	467	433	400	367	350										
	Lead 20	1200										1133	1067	1000	933	867	800	733	700										
	Lead 32	1920										1813	1707	1600	1493	1387	1280	1173	1120										

**BR** Motor Right Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

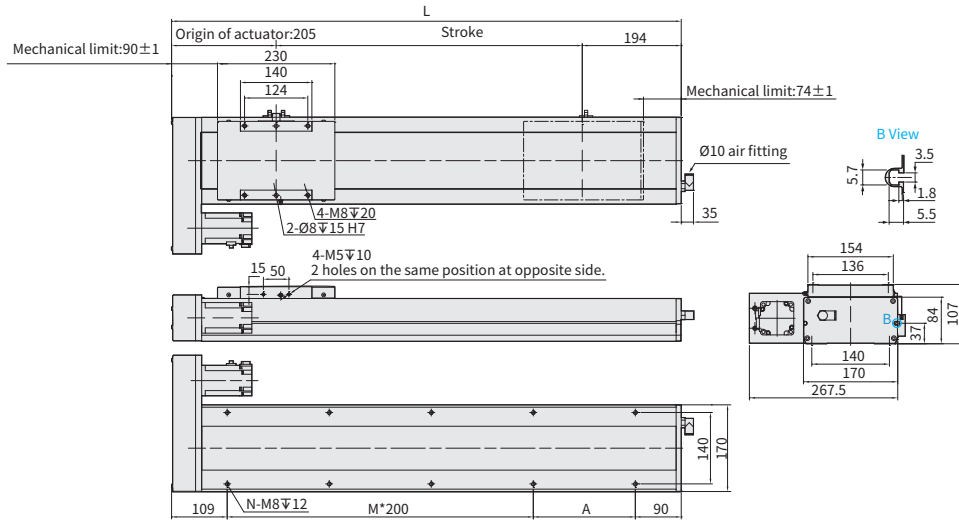
Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205
L	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999	2049	2099	2149	2199	2249	2299	2349	2399	2449	2499	2549	2599
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7
Linear Speed mm/s	Lead 5	300																											
	Lead 10	600																											
	Lead 20	1200																											
	Lead 32	1920																											

**BL** Motor Left Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205
L	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999	2049	2099	2149	2199	2249	2299	2349	2399	2449	2499	2549	2599
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7
Linear Speed mm/s	Lead 5	300																											
	Lead 10	600																											
	Lead 20	1200																											
	Lead 32	1920																											

ECH Series

- ECH14
- ECH17
- ECH22
- ECH17M
- ECH22M

# ECH17M

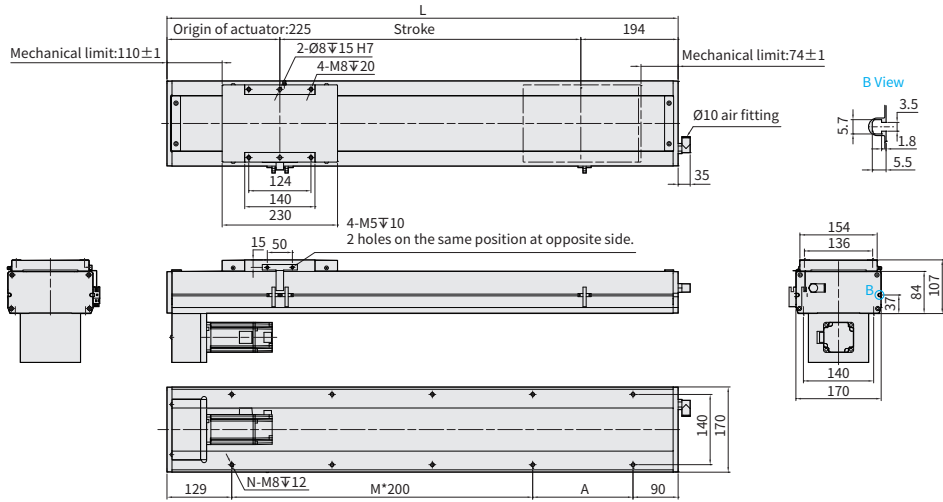
▶ Clean Room ▶ Ball Screw Drive

BM Motor Bottom



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200																																
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205																																
L	1219	1269	1319	1369	1419	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619																																
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200																																
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11																																
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26																																
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7																																
Linear Speed mm/s	Lead 5																300																283	267	250	233	217	200	183						175						150						125				
	Lead 10																600																567	533	500	467	433	400	367						350						300						250				
	Lead 20																1200																1133	1067	1000	933	867	800	733						700						600						500				
	Lead 32																1920																1813	1707	1600	1493	1387	1280						1173						1120						960					

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

# Memo

**ECH Series**

ECH14

ECH17

ECH22

**ECH17M**

ECH22M

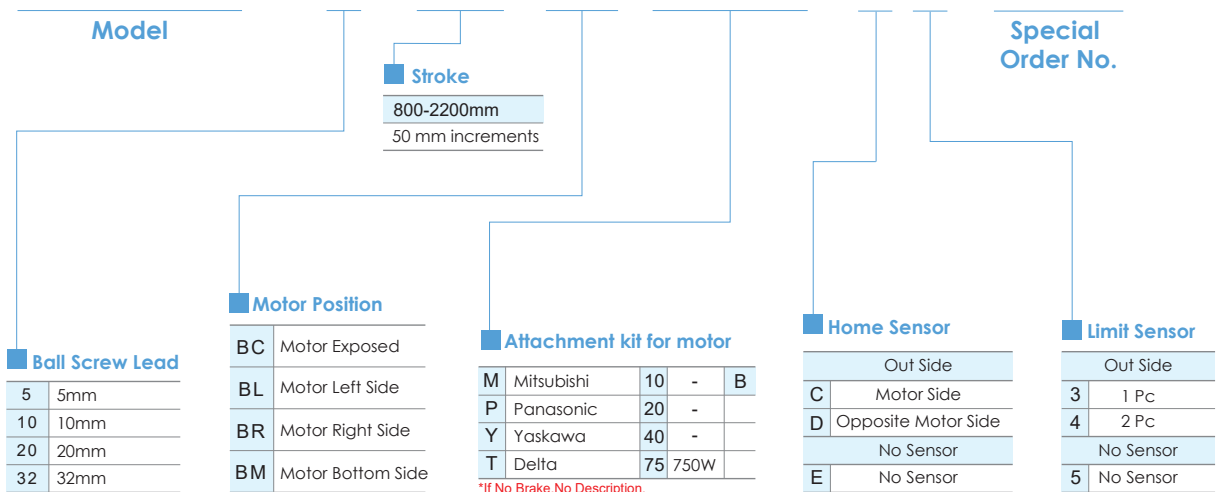
Repeat  
-ability ↗  
**±0.005  
mm**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH17M - L 5 - 800 - BC - M75B - C 4 - 0001



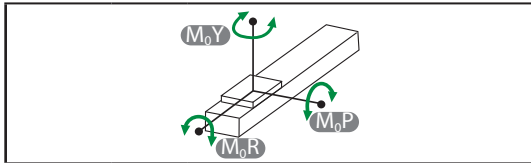
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø16 & C7 Rolled Ballscrews				
		Lead		mm	5	10	20	32	
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600	
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	1920	
		Basic dynamic load rating Ca		N	8042	6300	4152	7326	
		Basic static load rating Coa		N	15088	11596	7439	14157	
		Load factor			1.2	1.35	1.35	1.75	
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	25832			
			1000 Km of travel		N	11991			
			10000 Km of travel		N	5565			
	<b>Fixed bearing</b>	Static horizontal		N	58342				
		Basic dynamic load rating Cr		N	3040				
	<b>Common Spec</b>	Static load rating Cor		N	7100				
		Repeatability		mm	±0.005				
	<b>Common Spec</b>	Start torque		N.cm	14				
		Allowable input torque		N.m	4.5				
		Maximum acceleration		m/s <sup>2</sup>	10				
		Friction coefficient			0.03				
		Stroke (increments)		mm	800-2200 (50 increments)				
		Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

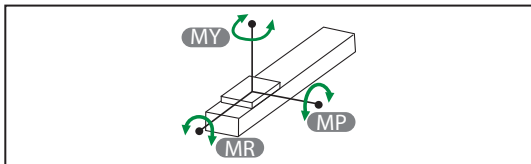
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



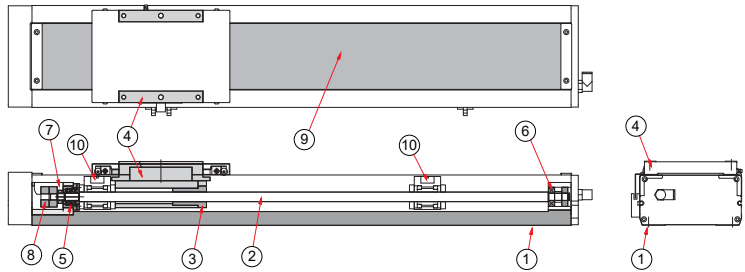
<b>M<sub>0Y</sub></b>	N.m	605
<b>M<sub>0P</sub></b>	N.m	448
<b>M<sub>0R</sub></b>	N.m	448

**Dynamic Loading Moment**



<b>Travel</b>	km	<b>100</b>	<b>1000</b>	<b>10000</b>
<b>MY</b>	N.m	222.8	103.4	48
<b>MP</b>	N.m	222.8	103.4	48
<b>MR</b>	N.m	300.7	139.6	64.8

**Parts list**



No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430
10	Support Slide	AL6463

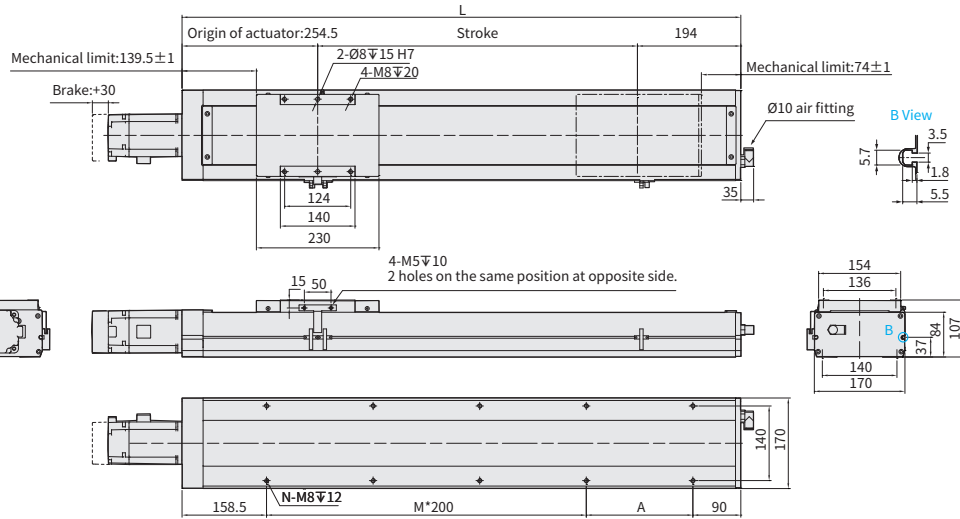


# ECH17M

▶ Clean Room ▶ Ball Screw Drive

BC Motor Exposed   Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

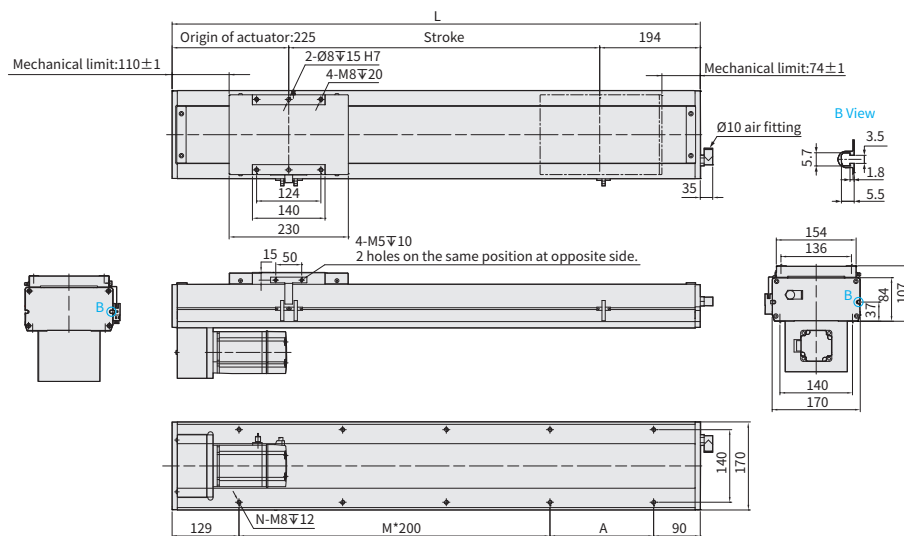
Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200																																										
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205																																										
L	1248.5	1288.5	1348.5	1388.5	1448.5	1498.5	1548.5	1598.5	1648.5	1698.5	1748.5	1798.5	1848.5	1898.5	1948.5	1998.5	2048.5	2098.5	2148.5	2198.5	2248.5	2298.5	2348.5	2398.5	2448.5	2498.5	2548.5	2598.5	2648.5																																										
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200																																										
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11																																										
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26																																										
KG	31.71	32.4	33.09	33.77	34.46	35.15	35.84	36.53	37.21	37.9	38.59	39.28	39.97	40.66	41.35	42.04	42.73	43.42	44.11	44.8	45.49	46.18	46.87	47.56	48.25	48.94	49.63	50.32	51.01																																										
Linear Speed mm/s	Lead 5																300												283	267	250	233	217	200	183												175												150												125
	Lead 10																600												567	533	500	467	433	400	367	350												300												250											
	Lead 20																1200												1133	1067	1000	933	867	800	733	700												600												500											
	Lead 32																1920												1813	1707	1600	1493	1387	1280	1173	1120												960												800											

BM Motor Bottom Side   Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

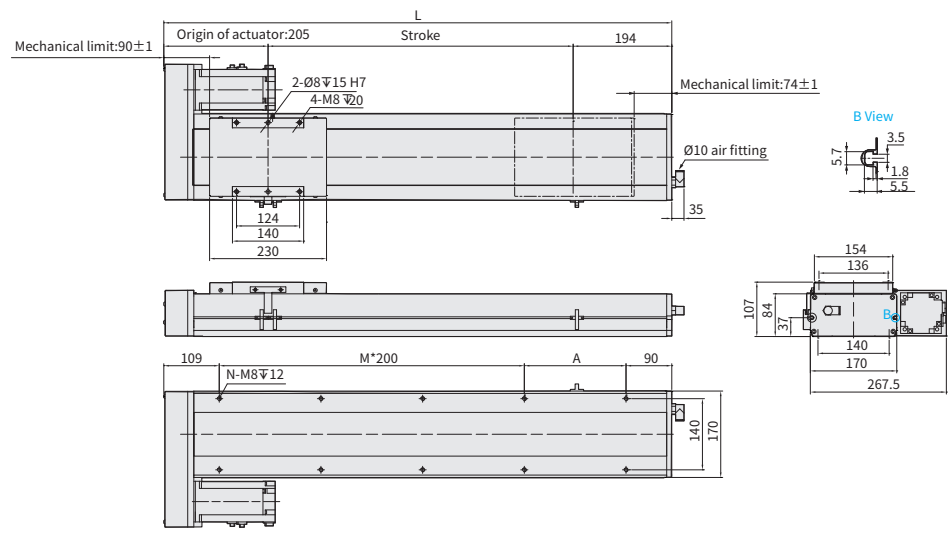
Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200																															
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205																															
L	1219	1269	1319	1369	1419	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619																															
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200																															
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11																															
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26																															
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7																															
Linear Speed mm/s	Lead 5																300												283	267	250	233	217	200	183	175												150												125
	Lead 10																600												567	533	500	467	433	400	367	350												300												250
	Lead 20																1200												1133	1067	1000	933	867	800	733	700												600												500
	Lead 32																1920												1813	1707	1600	1493	1387	1280	1173	1120												960												800

**BR** Motor Right Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

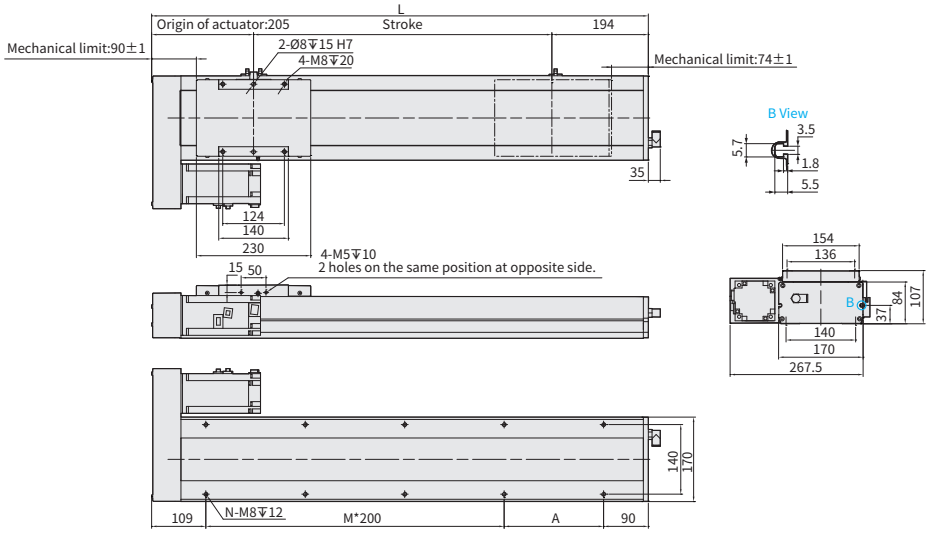
Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200							
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205							
L	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999	2049	2099	2149	2199	2249	2299	2349	2399	2449	2499	2549	2599							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11							
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26							
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7							
Linear Speed mm/s	Lead 5	300																									283	267	250	233	217	200	183	175	150	125
	Lead 10	600																									567	533	500	467	433	400	367	350	300	250
	Lead 20	1200																									1133	1067	1000	933	867	800	733	700	600	500
	Lead 32	1920																									1813	1707	1600	1493	1387	1280	1173	1120	960	800

**BL** Motor Left Side   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200							
Limit Stroke (±1)	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205							
L	1199	1249	1299	1349	1399	1449	1499	1549	1599	1649	1699	1749	1799	1849	1899	1949	1999	2049	2099	2149	2199	2249	2299	2349	2399	2449	2499	2549	2599							
A	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200							
M	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11							
N	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26							
KG	33.15	33.85	34.54	35.23	35.93	36.62	37.32	38.01	38.7	39.4	40.1	40.8	41.5	42.2	42.9	43.6	44.3	45	45.7	46.4	47.1	47.8	48.5	49.2	49.9	50.6	51.3	52	52.7							
Linear Speed mm/s	Lead 5	300																									283	267	250	233	217	200	183	175	150	125
	Lead 10	600																									567	533	500	467	433	400	367	350	300	250
	Lead 20	1200																									1133	1067	1000	933	867	800	733	700	600	500
	Lead 32	1920																									1813	1707	1600	1493	1387	1280	1173	1120	960	800

ECH Series  
 ECH14  
 ECH17  
 ECH22  
 ECH17M  
 ECH22M

Repeat  
-ability ↗  
**±0.005  
mm**

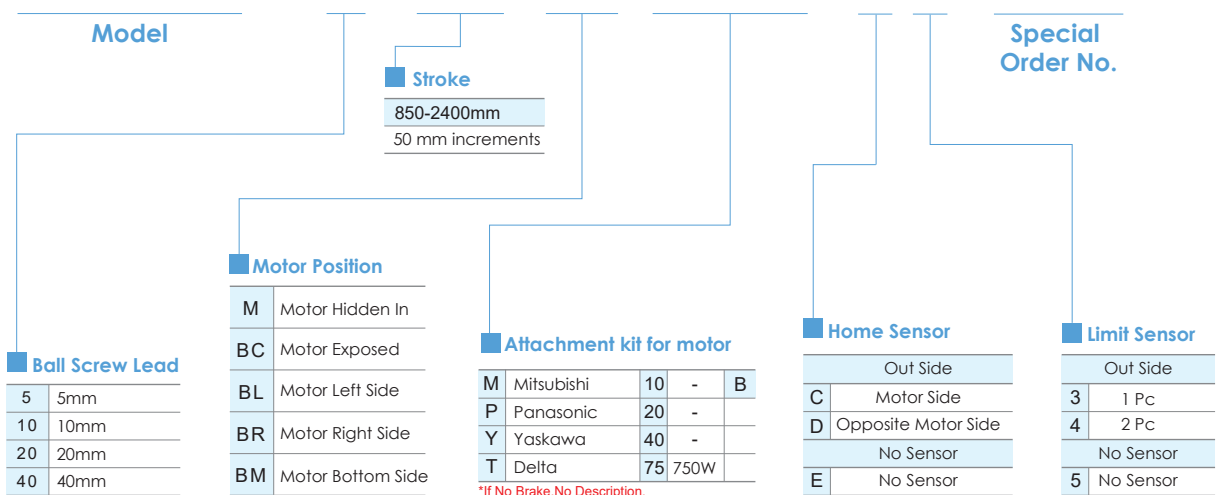
**Clean  
Room**



Please consult our company website for a detailed description on selection requirements and nominal life calculations.

## Ordering Method

# ECH22M - L10 - 850 - M - M75B - C 4 - 0001



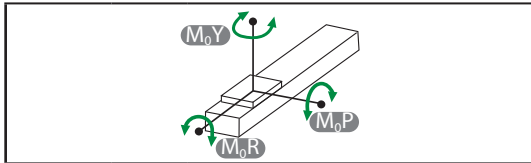
**Specification**

<b>Item</b>	<b>Ball screw</b>	Outer dia. & Precision grade		mm	Ø20 & C7 Rolled Ballscrews			
		Lead		mm	5	10	20	40
		Maximum Rotating speed <sup>※1</sup>		rpm	3600	3600	3600	3600
		Maximum linear speed <sup>※1</sup>		mm/s	300	600	1200	2400
		Basic dynamic load rating Ca		N	13428	11224	5673	9654
		Basic static load rating Coa		N	29671	24457	11191	20271
		Load factor			1.2	1.35	1.35	1.75
	<b>Linear Guide</b>	Dynamic horizontal	100 Km of travel		N	40407		
			1000 Km of travel		N	18755		
			10000 Km of travel		N	8706		
	<b>Fixed bearing</b>	Static horizontal		N	86491			
		Basic dynamic load rating Cr		N	3380			
	<b>Common Spec</b>	Static load rating Cor		N	7600			
		Repeatability		mm	±0.005			
	Start torque		N.cm	17				
	Allowable input torque		N.m	8.4				
	Maximum acceleration		m/s <sup>2</sup>	10				
	Friction coefficient			0.03				
	Stroke (increments)		mm	850-2400 (50 increments)				
	Ambient temperature <sup>※2</sup>		°C	0~+40				

※1 The maximum rotating and linear speed has changed due to differences in the lead. The ball screw has a slightly axial runout with a longer stroke and the speed must turn down. ( Please read the diagram below for dimensions of the linear speed)

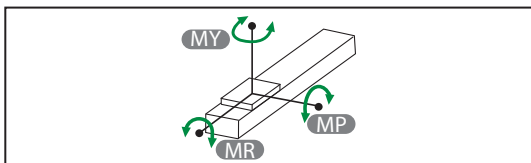
※2 For extreme temperatures: -20C ~80C special greases are required.

**Static Loading Moment**



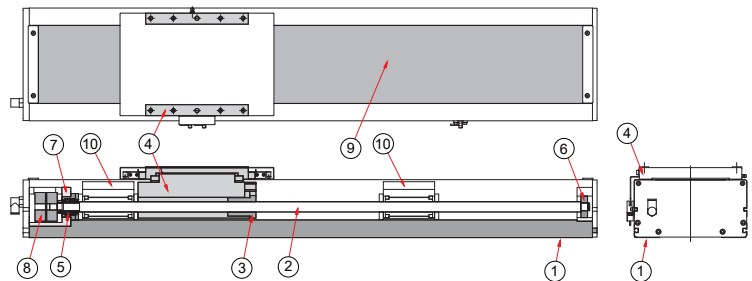
<b>M<sub>0Y</sub></b>	N.m	1254
<b>M<sub>0P</sub></b>	N.m	1254
<b>M<sub>0R</sub></b>	N.m	1254

**Dynamic Loading Moment**



Travel	km	100	1000	10000
<b>MY</b>	N.m	627.2	291.1	135.1
<b>MP</b>	N.m	627.2	291.1	135.1
<b>MR</b>	N.m	627.2	291.1	135.1

**Parts list**



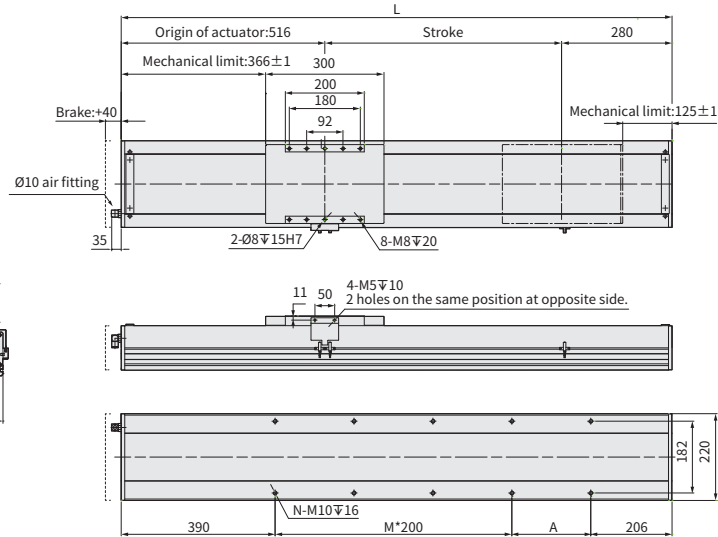
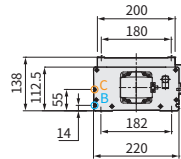
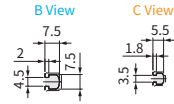
No.	Part Description	Material
1	Base Extrusion	AL6463
2	Ball Screw	S45C
3	Ball Screw Nut	S45C
4	Carriage	AL6463
5	High-speed Bearing	Steel
6	Ball Bearing	SUJ2
7	Fixed Support Block-Inline Motor Mounting Bracket	AL6463
8	Coupling-Clamping	AL6061
9	Steel Belt	SUS430
10	Support Slide	AL6463

# ECH22M

▶ Clean Room ▶ Ball Screw Drive

**M** Motor Inside   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

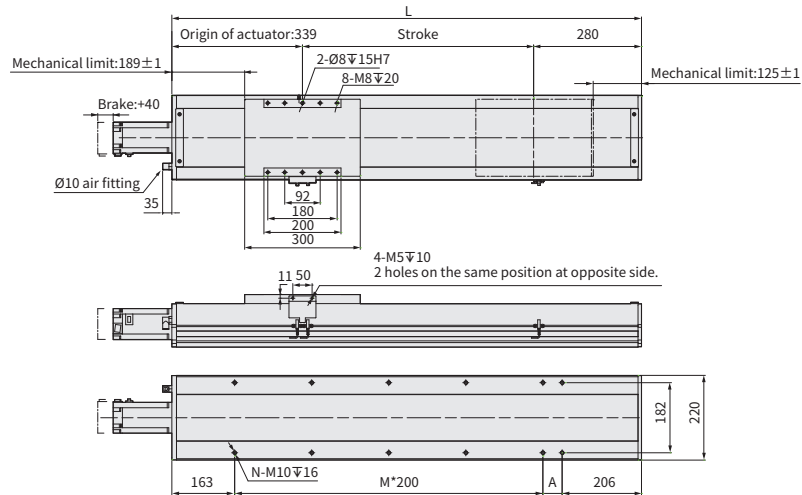
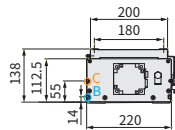
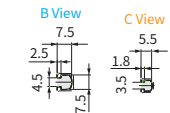
Unit : mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400				
Limit Stroke (±1)	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	2255	2305	2355	2405				
L	1646	1696	1746	1796	1846	1896	1946	1996	2046	2096	2146	2196	2246	2296	2346	2396	2446	2496	2546	2596	2646	2696	2746	2796	2846	2896	2946	2996	3046	3096	3146	3196				
A	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200				
M	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12				
N	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28				
KG	58.51	59.87	61.23	62.59	63.95	66.31	66.67	68.03	69.39	70.75	72.11	73.47	74.83	76.19	77.55	78.91	80.27	81.63	82.99	84.35	85.71	87.07	88.43	89.79	91.15	92.51	93.87	95.23	96.59	97.95	99.31	100.67				
Linear Speed mm/s	Lead 5	300																283	267	250	233	225	217	208	200										175	150
	Lead 10	600																567	533	500	467	450	433	417	400										350	300
	Lead 20	1200																1133	1067	1000	933	900	867	833	800										700	600
	Lead 40	2400																2267	2133	2000	1867	1800	1733	1667	1600										1400	1200

**BC** Motor Exposed   [Download CAD data at www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



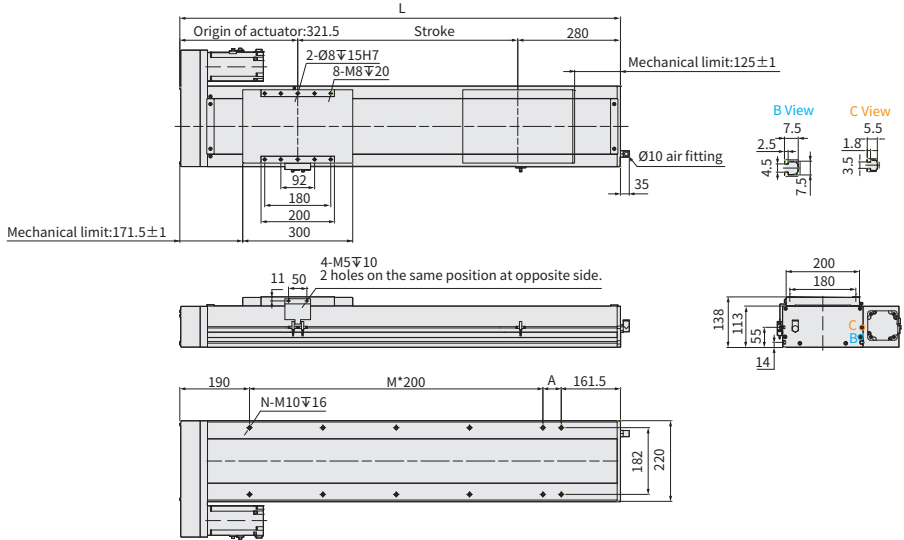
Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400				
Limit Stroke (±1)	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	2255	2305	2355	2405				
L	1469	1519	1569	1619	1669	1719	1769	1819	1869	1919	1969	2019	2069	2119	2169	2219	2269	2319	2369	2419	2469	2519	2569	2619	2669	2719	2769	2819	2869	2919	2969	3019				
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50				
M	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13				
N	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30				
KG	56.01	57.37	58.73	60.09	61.45	62.81	64.17	65.53	66.89	68.25	69.61	70.97	72.33	73.69	75.05	76.41	77.77	79.13	80.49	81.85	83.21	84.57	85.93	87.29	88.65	90.01	91.37	92.73	94.09	95.45	96.81	98.17				
Linear Speed mm/s	Lead 5	300																283	267	250	233	225	217	208	200										175	150
	Lead 10	600																567	533	500	467	450	433	417	400										350	300
	Lead 20	1200																1133	1067	1000	933	900	867	833	800										700	600
	Lead 40	2400																2267	2133	2000	1867	1800	1733	1667	1600										1400	1200

**BR** Motor Right Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



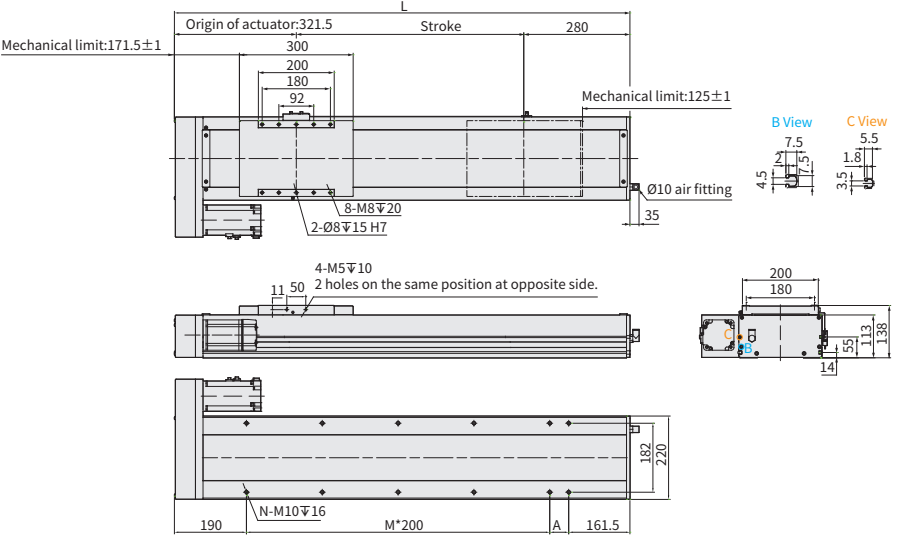
Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400
Limit Stroke (±1)	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	2255	2305	2355	2405
L	1451.5	1501.5	1551.5	1601.5	1651.5	1701.5	1751.5	1801.5	1851.5	1901.5	1951.5	2001.5	2051.5	2101.5	2151.5	2201.5	2251.5	2301.5	2351.5	2401.5	2451.5	2501.5	2551.5	2601.5	2651.5	2701.5	2751.5	2801.5	2851.5	2901.5	2951.5	3001.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	59.51	60.87	62.23	63.59	64.95	66.31	67.67	69.03	70.39	71.75	73.11	74.47	75.83	77.19	78.55	79.91	81.27	82.63	83.99	85.35	86.71	88.07	89.43	90.79	92.15	93.51	94.87	96.23	97.59	98.95	100.31	101.67
Linear Speed mm/s	Lead 5																	300											175			150
	Lead 10																	600											350			300
	Lead 20																	1200											700			600
	Lead 40																	2400											1400			1200

**BL** Motor Left Side



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400
Limit Stroke (±1)	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	2255	2305	2355	2405
L	1451.5	1501.5	1551.5	1601.5	1651.5	1701.5	1751.5	1801.5	1851.5	1901.5	1951.5	2001.5	2051.5	2101.5	2151.5	2201.5	2251.5	2301.5	2351.5	2401.5	2451.5	2501.5	2551.5	2601.5	2651.5	2701.5	2751.5	2801.5	2851.5	2901.5	2951.5	3001.5
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50
M	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13
N	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30
KG	59.51	60.87	62.23	63.59	64.95	66.31	67.67	69.03	70.39	71.75	73.11	74.47	75.83	77.19	78.55	79.91	81.27	82.63	83.99	85.35	86.71	88.07	89.43	90.79	92.15	93.51	94.87	96.23	97.59	98.95	100.31	101.67
Linear Speed mm/s	Lead 5																	300											175			150
	Lead 10																	600											350			300
	Lead 20																	1200											700			600
	Lead 40																	2400											1400			1200

# ECH22M

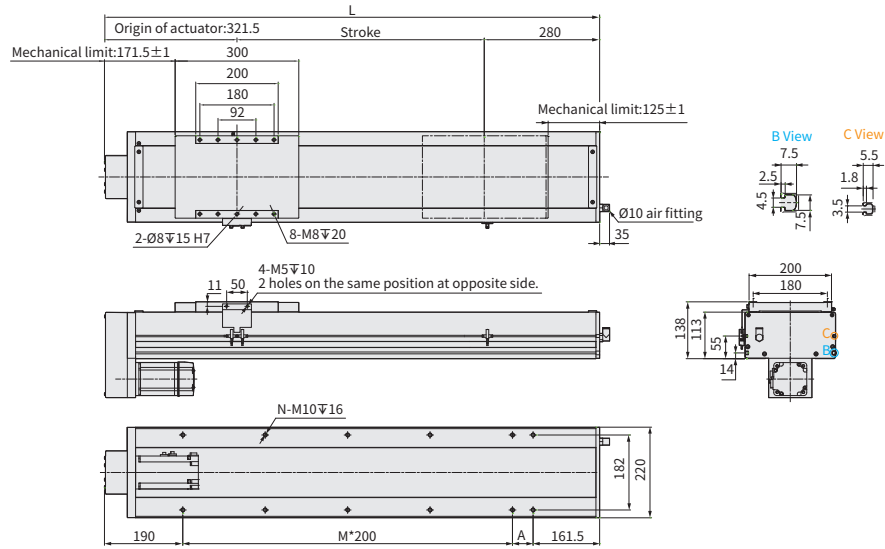
▶ Clean Room ▶ Ball Screw Drive

BM Motor Bottom



Download CAD data at [www.toyorobot.com](http://www.toyorobot.com)

Unit : mm



Stroke	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400					
Limit Stroke (±1)	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	2255	2305	2355	2405					
L	1451.5	1501.5	1551.5	1601.5	1651.5	1701.5	1751.5	1801.5	1851.5	1901.5	1951.5	2001.5	2051.5	2101.5	2151.5	2201.5	2251.5	2301.5	2351.5	2401.5	2451.5	2501.5	2551.5	2601.5	2651.5	2701.5	2751.5	2801.5	2851.5	2901.5	2951.5	3001.5					
A	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100	150	200	50					
M	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13				
N	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	24	26	26	26	26	28	28	28	28	30				
KG	59.51	60.87	62.23	63.59	64.95	66.31	67.67	69.03	70.39	71.75	73.11	74.47	75.83	77.19	78.55	79.91	81.27	82.63	83.99	85.35	86.71	88.07	89.43	90.79	92.15	93.51	94.87	96.23	97.59	98.95	100.31	101.67					
Linear Speed mm/s	Lead 5																283	267	250	233	225	217	208											175			150
	Lead 10																567	533	500	467	450	433	417											350			300
	Lead 20																1133	1067	1000	933	900	867	833											700			600
	Lead 40																2267	2133	2000	1867	1800	1733	1667											1400			1200

Application

Standard  
Ball Screw Type  
**GTH / GTY / ETH**

Standard  
Belt Type  
**ETB / M**

Cleanroom  
Ball Screw Type  
**ECH Series**

Cleanroom  
Belt Type  
**ECB**

Reference

# Memo

**ECH Series**

ECH14

ECH17

ECH22

ECH17M

ECH22M

