

# MF30/MF30D



APPLICATION  
Compact  
single-axis robots  
TRANSERO  
Single-axis robots  
FLIP-X  
Linear motor  
single-axis robots  
PHASER  
Cartesian  
robots  
XX-X  
SCARA  
robots  
YK-XG  
Pick & place  
robots  
YP-X

## Ordering method

Single carriage model

**MF30** [ ] [ ] [ ] [ ] [ ] **SR1-P** **20** [ ] **R** [ ]

Model	Cable carrier entry location	Optional cable carrier for users <sup>Note 2</sup>	Option	Stroke	Cable length	Controller	Driver	Usable for CE	Regenerative unit	I/O selection
MF30: Incremental MF30A: Semi-absolute <sup>Note 1</sup>	RH: Horizontal, right LH: Horizontal, left RW: Wall hanging, right LW: Wall hanging, left	No entry: None S: S type M: M type L: L type	Origin position: None: Standard Z: R side Grease type: None: Standard GC: Clean	100 to 4000 (100mm pitch)	3L: 3.5m (Standard) 5L: 5m 10L: 10m	SR1-P TS-P <sup>Note 3</sup> RDP <sup>Note 4</sup>		No entry: Standard E: CE making	R: RG1 (SR1-P)	N: NPN P: PNP CC: CC-Link DN: DeviceNet PB: Profibus YC: YC-Link <sup>Note 5</sup>

Double carriage model

**MF30D** [ ] [ ] [ ] [ ] [ ] **RCX221HP** [ ] **R** [ ] [ ]

Model	Installing direction	Optional cable carrier for users <sup>Note 2</sup>	Option	Stroke	Cable length	Controller	Usable for CE	Regenerative unit	I/O selection 1	I/O selection 2
MF30D: Incremental MF30AD: Semi-absolute <sup>Note 1</sup>	H: Horizontal installation W: Wall hanging installation	No entry: None S: S type M: M type L: L type	Grease type: None: Standard GC: Clean	150 to 3750 (100mm pitch)	3L: 3.5m (Standard) 5L: 5m 10L: 10m	RCX221HP SR1-P (2 units) <sup>Note 3</sup> TS-P (2 units) <sup>Note 3</sup> RDP (2 units) <sup>Note 3</sup>	No entry: Standard E: CE making	R: RG2 (RCX221HP)	N: NPN P: PNP CC: CC-Link DN: DeviceNet PB: Profibus EN: Ethernet YC: YC-Link <sup>Note 6</sup>	No entry: None N1: OP.DIO24/16 (NPN) P1: OP.DIO24/17 (PNP) EN: Ethernet

Note 1. Semi-absolute models are supported by the SR1-P, TS-P and RCX221. For the details of the semi-absolute model, please refer to P.018.  
RDP has an incremental model only.  
Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.  
Note 3. To find TS-P, RDP selection options, see the ordering method listed on each controller's page (TS-P: P.355, RDP: P.365).  
Note 4. When using the SR1-P, TS-P or PDP to control a double-carriage robot, two units are required.  
Note 5. Available only for the slave.  
Note 6. Available only for the master.

Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P. 427.

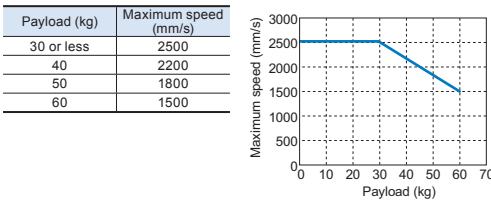
## Specifications<sup>Note</sup>

Model	MF30	MF30D
Driving method / Shaft diameter	Steel cored linear motor with ferrit magnet	
Repeatability (μm)	+/- 5	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed <sup>Note 2</sup> (mm/sec)	2500	
Rated thrust (N)	125	
Maximum payload <sup>Note 1</sup> (kg)	60	
Stroke (mm)	100 to 4000 (100mm pitch)	150 to 3750 (100mm pitch)
Linear guide	4 rows of circular arc grooves x 2 rail	
Maximum cross-section outside dimensions (mm)	W150 x H80 (except the cable carrier section)	
Total length (mm)	Stroke+310	Stroke+560
Cable length (m)	Standard: 3.5 / Option: 5.10	

Note. A vertical model (with brake) is not available with the PHASER series.  
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.

Note 1. Maximum payload per carriage.

Note 2. Table of maximum speed



## Allowable overhang<sup>Note</sup>

Horizontal installation (Unit: mm)			
	A	B	C
10kg	3364	2485	1284
20kg	2298	1265	694
30kg	2060	859	507
40kg	1570	600	310
50kg	1265	400	180
60kg	1070	350	135

Wall installation (Unit: mm)			
	A	B	C
10kg	1290	1320	2730
20kg	650	610	1750
30kg	430	360	1460
40kg	205	230	610
50kg	145	175	470
60kg	105	140	380

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

## Static loading moment

(Unit: N-m)		
MY	MP	MR
373	373	328

## Controller

Controller	Operating method
SR1-P-20-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX221HP-R	/O point trace
TS-P220-R	Pulse train control
RDP-20-RBR1	

## Cable carrier entry location

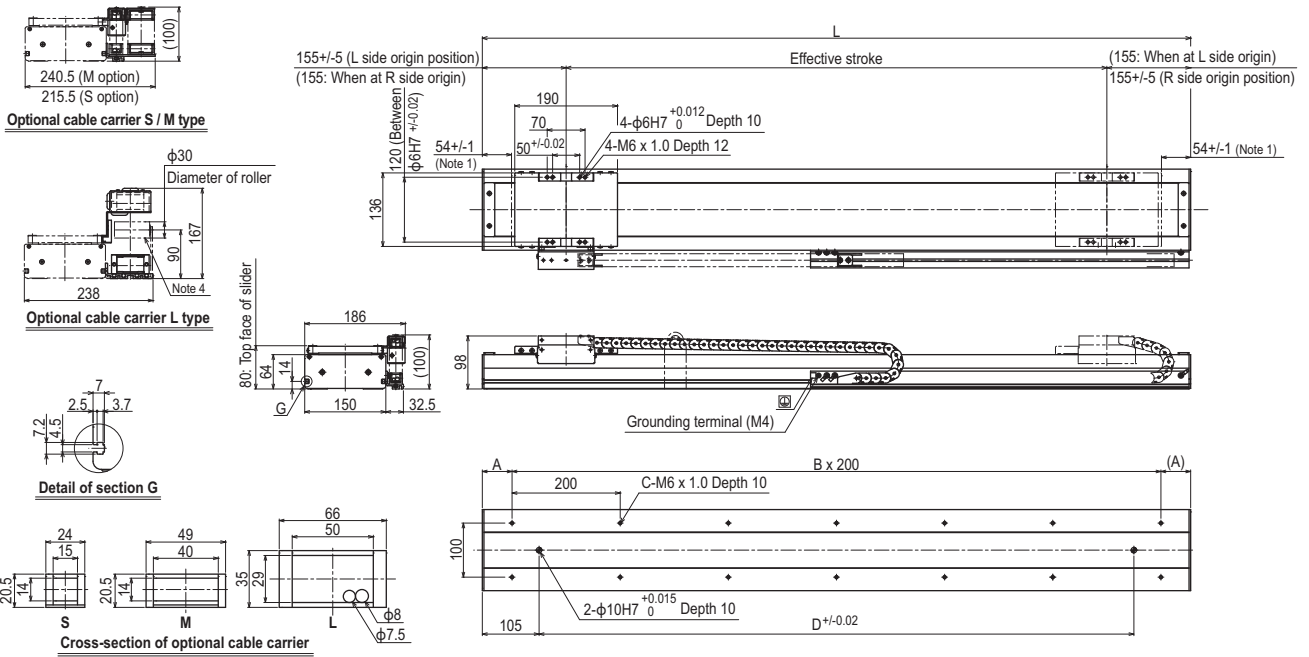
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

## Optional cable carrier for users

Cable and air tube guide  
S: φ8 flexible cable x 1, φ4 air tube x 1  
M: φ8 flexible cable x 2, φ6 air tube x 2  
L: φ8 flexible cable x 2, φ8 air tube x 3

Space for optional cable for users

## MF30 single carriage horizontal mount model **RH**



Note1. Distance from both ends to the mechanical stopper.

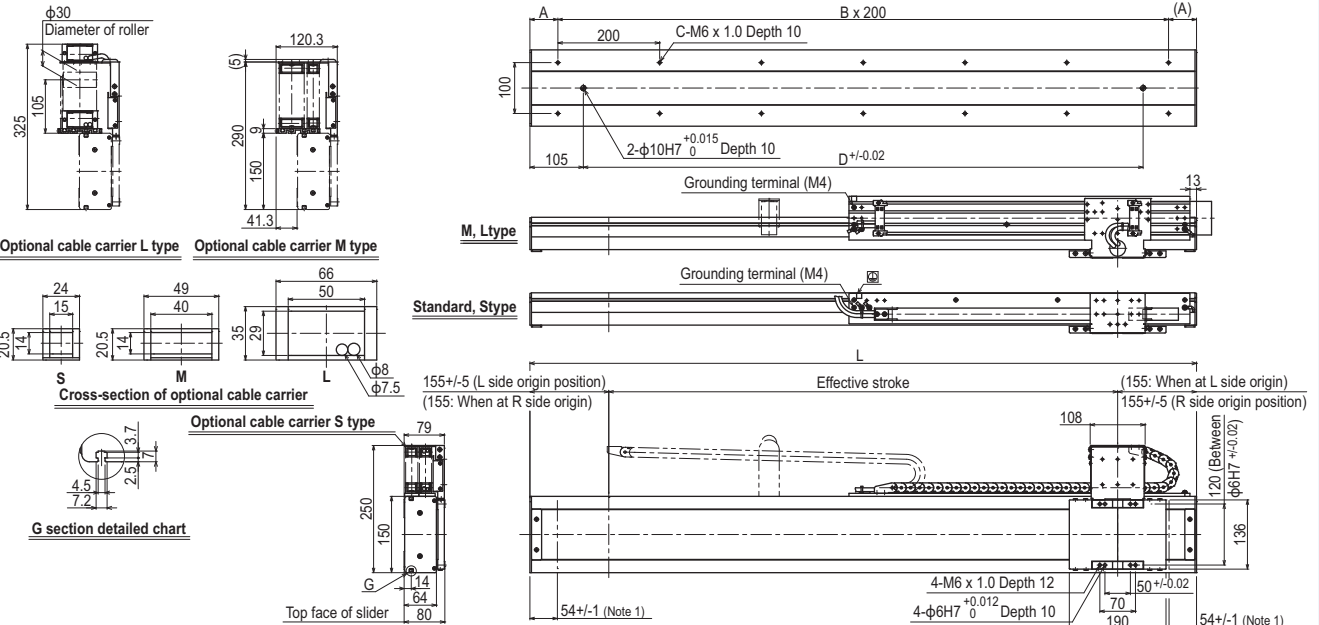
Note2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

Note3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

Note4. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000		
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310		
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21		
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44		
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100		
Weight (kg)	9	10	10	12	13	13	15	16	17	18	18	20	22	23	25	27	28	30	32	33	35	36	38	40	41	43	44	46	48	50	52	54	56	58	61	62	64	66	68	71	72	76

## MF30 single carriage wall mount model **RW**



Note1. Distance from both ends to the mechanical stopper.

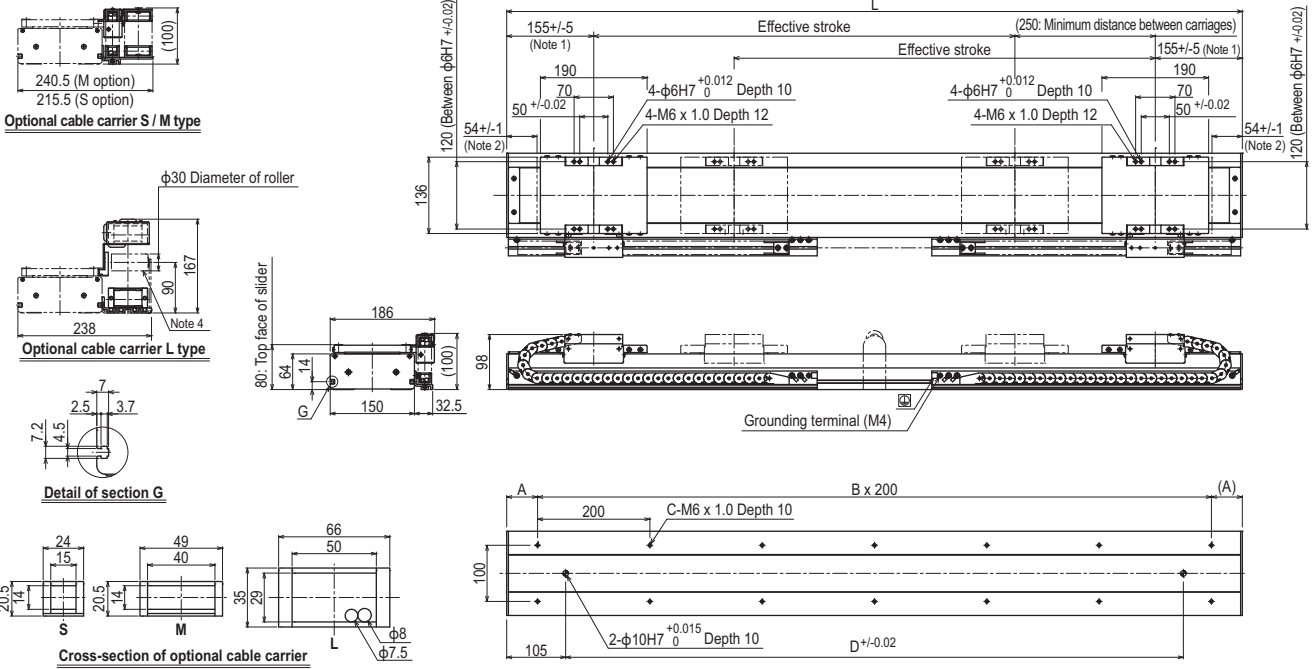
Note2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.

Note3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

Note4. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000		
L	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310		
A	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21		
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44		
D	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100		
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020	2070	2120	2170		
Weight (kg)	9	10	10	12	13	13	15	16	17	18	18	20	22	23	25	27	28	30	32	33	35	36	38	40	41	43	44	46	48	50	52	54	56	58	61	62	64	66	68	71	72	76

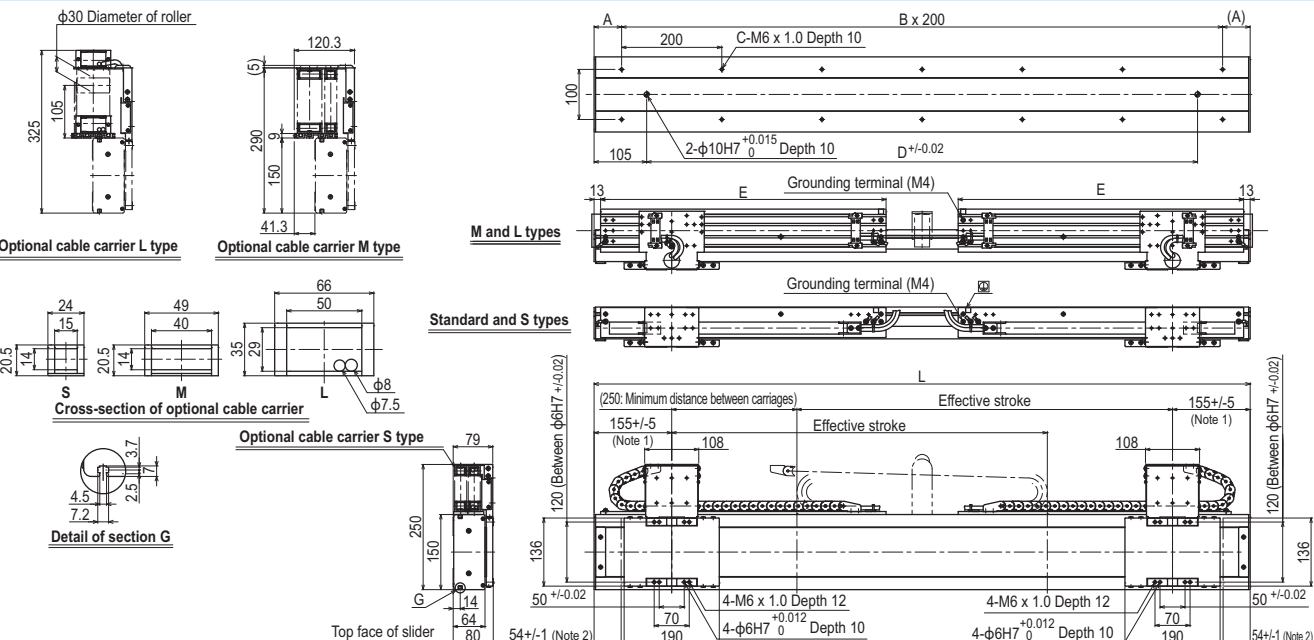
MF30D double carriage horizontal mount model **H**



Note1. Position of table carriage when returned to the origin.  
Note2. Distance from both ends to the mechanical stopper.  
Note3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.  
Note4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750		
L	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310		
A	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	
C	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	
D	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100		
Weight (kg)	17.6	19.3	21.0	22.8	24.5	26.2	27.9	29.6	31.3	33.0	34.7	36.3	37.9	39.4	41.6	43.3	44.5	46.7	48.4	50.1	51.9	53.6	55.3	57.0	58.7	60.4	62.1	63.8	65.5	67.2	68.9	70.6	72.3	74.0	75.7	77.4	79.1		

MF30D double carriage wall mount model **W**



Note1. Position of table carriage when returned to the origin.  
Note2. Distance from both ends to the mechanical stopper.  
Note3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.  
Note4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.

Effective stroke	150	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	3550	3650	3750		
L	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010	2110	2210	2310	2410	2510	2610	2710	2810	2910	3010	3110	3210	3310	3410	3510	3610	3710	3810	3910	4010	4110	4210	4310		
A	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55	105	55
B	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	
C	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	
D	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100		
E	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	1020	1070	1120	1170	1220	1270	1320	1370	1420	1470	1520	1570	1620	1670	1720	1770	1820	1870	1920	1970	2020		
Weight (kg)	17.6	19.3	21.0	22.8	24.5	26.2	27.9	29.6	31.3	33.0	34.7	36.3	37.9	39.4	41.6	43.3	44.5	46.7	48.4	50.1	51.9	53.6	55.3	57.0	58.7	60.4	62.1	63.8	65.5	67.2	68.9	70.6	72.3	74.0	75.7	77.4	79.1		