

# F20

Standard High lead : Lead 40  
Origin at opposite of motor

## Robot ordering method

F20 - 20 - BK - 1250 - 3L - SR1-X - 05 - E<sup>Note 1</sup> - R<sup>Note 2</sup> - N - B<sup>Note 1</sup>

Model	Lead designation	Brake	Stroke	Cable length	Applicable controller	Driver	Usable for CE	Regenerative unit	Inputs/Outputs selection	Battery
	40 : 40mm 20 : 20mm 10 : 10mm	No entry : No brakes BK : Brakes provided	Lead 20, 10 : 250 to 1250 (100mm pitch) Lead 40 : 250 to 1450 (100mm pitch)	3L : 3.5m (Standard) 5L : 5m 10L : 10m	SR1-X RDX (see page 52)	-05 : 100W or less -10 : 200W -20 : 400 to 600W	No entry : Standard E : CE specification	No entry : Standard R : RG1	N : NPN P : PNP CC : CC-Link DN : DeviceNet PB : Profibus YC : YC-Link <sup>Note 3</sup>	No entry : None (Incremental specification) B : Battery (Absolute specification)

Note 1 : It will be a customer's choice.  
Note 2 : Optional regenerative unit is required for YAMAHA-designated models and when operating a load with a large inertia.  
Note 3 : Available only for the slave.

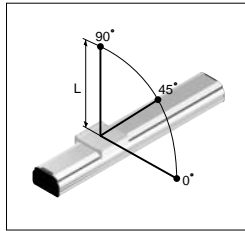
### Basic specifications

AC servo motor output(W)	600		
Repeatability(mm) <sup>Note 1</sup>	+/-0.01		
Deceleration mechanism	Ball screw(Class C7)		
Ball screw lead(mm)	40	20	10
Maximum speed(mm/sec) <sup>Note 2</sup>	2400	1000(1200 <sup>Note 3</sup> )	600
Maximum payload(kg)	Horizontal	60	120
	Vertical	-	25
Rated thrust(N)	Horizontal	234	468
	Vertical	-	936
Stroke(mm)	250 to 1450(100 pitch) <sup>Note 4</sup>		
Cable length(m)	3.5(Standard), 5, 10		
Controller	Horizontal	SR1-X-20 <sup>Note 5</sup>	
	Vertical	SR1-X-20-R	
Robot driver	Horizontal	RDX-20-RBR1	
	Vertical	RDX-20-RBR2	

Note 1 : Repeatability for single oscillation.  
Note 2 : When the stroke exceeds 850mm, although depending on the moving range, the ball screw may resonate (dangerous speed). If such resonance occurs, make an adjustment on the program to reduce the speed, using the maximum speed in the table on the right as a guide.  
Note 3 : To operate the unit at a speed exceeding 1,000mm/sec. (Max. speed) using a lead 20, a regeneration unit RG1 is required.  
Note 4 : Longer than 1250mm stroke can be handled by the high lead specification (Lead 40) only.  
Note 5 : SR1-X-20-R should be used when the high lead specification (Lead 40) is used.

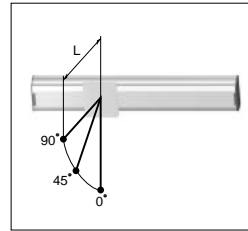
Stroke (mm)	Maximum speed (mm/sec)			Speed setting
	Lead 40	Lead 20	Lead 10	
850	1920	960	480	80%
950	1680	840	420	70%
1050	1440	720	360	60%
1150	1200	600	300	50%
1250	960	480	240	40%
1350	840	-	-	35%
1450	720	-	-	30%

### Tolerable overhang amount<sup>Note</sup>



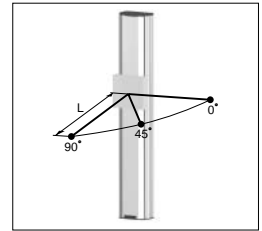
During horizontal use (Unit : mm)

	0 °	45 °	90 °
Lead 40	10kg	928	1899
	20kg	577	1439
	60kg	426	754
Lead 20	50kg	877	1085
	80kg	566	721
	120kg	407	544



During wall installation use (Unit : mm)

	0 °	45 °	90 °
Lead 40	10kg	1669	1875
	20kg	1357	1417
	60kg	1236	731
Lead 20	50kg	1403	658
	80kg	1056	425
	120kg	1049	311



During vertical use (Unit : mm)

	0 °	45 °	90 °
Lead 20	15kg	1331	941
	20kg	993	702
	25kg	816	577
Lead 10	20kg	2043	1444
	30kg	1352	956
	45kg	887	627

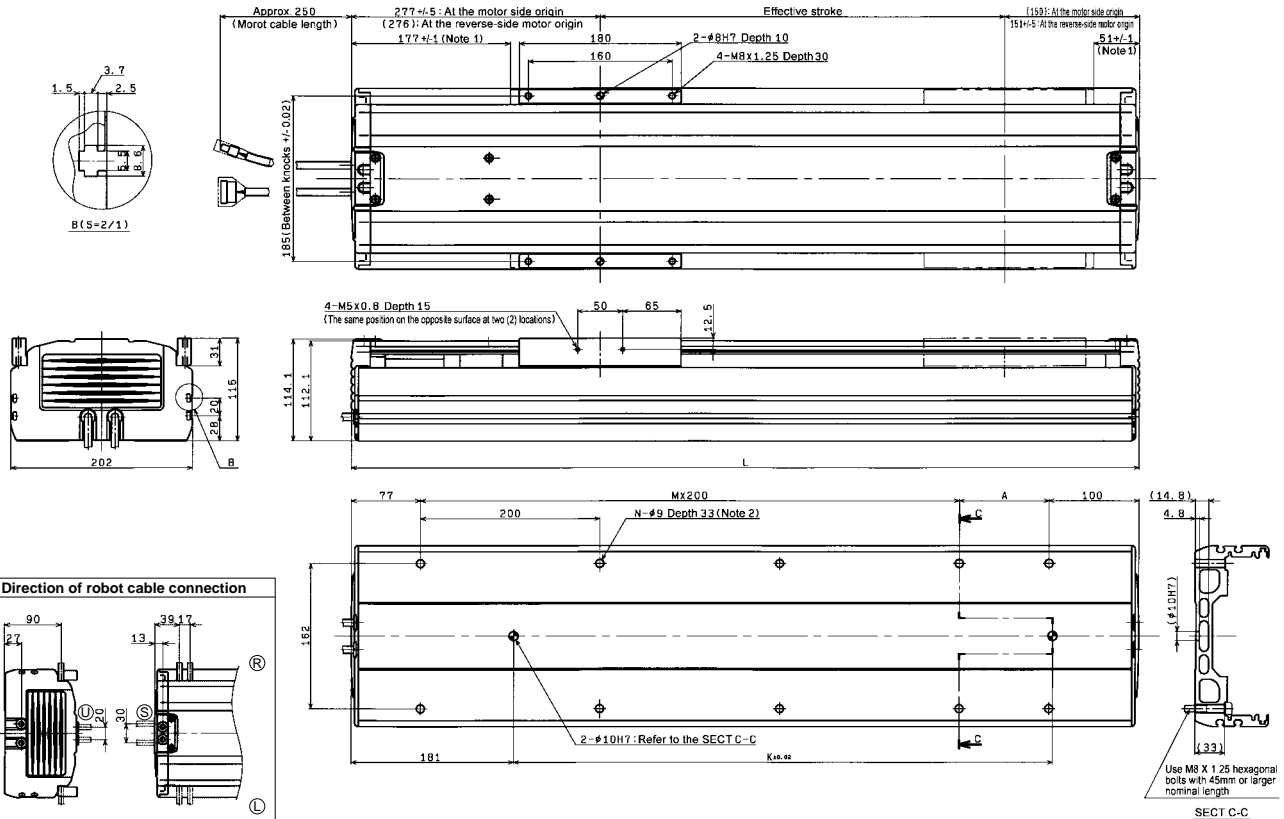
Note : Distance from center of slider top to center of gravity of object being transported.

**Direction of robot cable connection**

Effective stroke	250	350	450	550	650	750	850	950	1050	1150	1250
L	667	767	867	967	1067	1167	1267	1367	1467	1567	1667
A	100	200	100	200	100	200	100	200	100	200	100
M	2	2	3	3	4	4	5	5	6	6	7
N	8	8	10	10	12	12	14	14	16	16	18
K	420	420	600	600	780	780	960	960	1140	1320	1320
Weight(kg) <sup>Note 4</sup>	22.0	23.8	25.7	27.5	29.4	31.2	33.0	34.9	36.7	38.6	40.4

Note 1 : Length from both ends to mechanical stopper position.  
Note 2 : It is not allowed to use a counter bore washer, etc. when installing the main unit.  
Note 3 : The minimum bend radius of the motor cable is R50.  
Note 4 : This is the weight of the model without a brake.  
Note 5 : As the carriage is made of extracted aluminum, its width dimension may slightly differ from the value above.

**High lead type : Lead 40**



Effective stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450
L	677	777	877	977	1077	1177	1277	1377	1477	1577	1677	1777	1877
A	100	200	100	200	100	200	100	200	100	200	100	200	100
M	2	2	3	3	4	4	5	5	6	6	7	7	8
N	8	8	10	10	12	12	14	14	16	16	18	18	20
K	420	420	600	600	780	780	960	960	1140	1320	1320	1320	1320
Weight(kg)(Note 4)	22.0	23.8	25.7	27.5	29.4	31.2	33.0	34.9	36.7	38.6	40.4	42.1	43.9

Note 1 : Length from both ends to mechanical stopper position.  
 Note 2 : It is not allowed to use a counter bore washer, etc. when installing the main unit.  
 Note 3 : The minimum bend radius of the motor cable is R50.  
 Note 4 : This is the weight of the model without a brake.  
 The weight of the model equipped with a brake is 1.5kg heavier than this value.