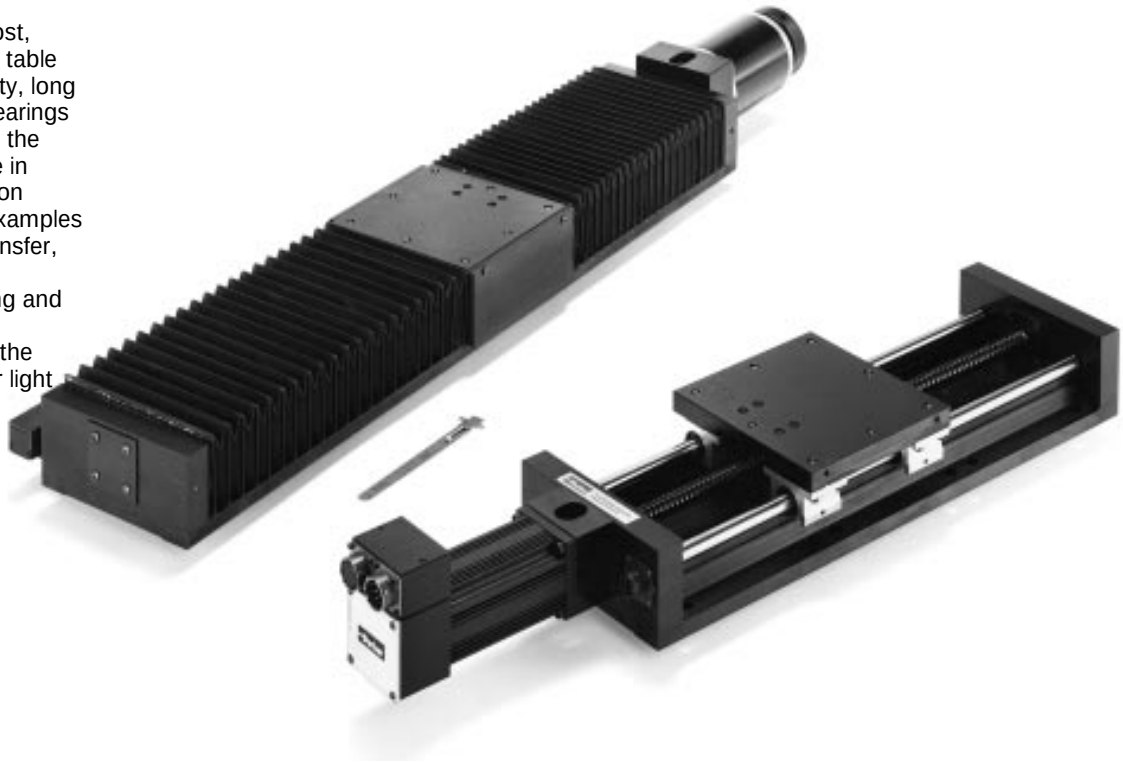
500000ST Series

Versatility

Designed as a low-cost, multi-functional linear table with high load capacity, long life round rail linear bearings and rolled ball screw, the 500000ST is at home in industrial or automation applications. A few examples are welding, parts transfer, gantry units, cutoff machines, part loading and fluid dispensing. Add optional bellows and the positioner is ready for light duty machining.

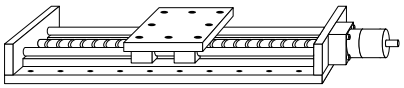


500000ST Series

	500004ST	500006ST	500008ST	500010ST	500012ST	500014ST	500016ST	500018ST
Travel – inches (mm)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)	18 (450)
Life* @ Listed Specifications – x 1 million in (km)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)
Positional Accuracy** – x 0.001 in (µm)	1.0 (20)	1.5 (30)	2.0 (40)	2.5 (50)	3.0 (60)	3.5 (70)	4.0 (80)	4.5 (90)
Positional Repeatability – x 0.001 in (µm)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)
Straight Line Accuracy** – x 0.001 in (µm)	0.8 (20)	1.2 (30)	1.5 (38)	1.5 (38)	1.5 (38)	1.9 (48)	2.3 (58)	2.7 (69)
Flatness Accuracy** – x 0.001 in (µm)	0.8 (20)	1.2 (30)	1.5 (38)	1.5 (38)	1.5 (38)	1.9 (48)	2.3 (58)	2.7 (69)
Max Screw Speed – rps	50	50	50	50	50	50	50	50
Max Acceleration – in/sec^2 (m/sec^2)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)
Duty Cycle – % of motion to dwell cycle	100%	100%	100%	100%	100%	100%	100%	100%
Direct Loading* – lbs (kgf) Normal	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)
Inverted	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)
Side	168 (76)	168 (76)	168 (76)1	68 (76)	168 (76)	168 (76)	168 (76)	168 (76)
Axial Loading – lbs (kgf) Smooth Operation***	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)
Input Inertia**** – 10^{-3} oz-in-sec^2 (10^{-6} kg-m-sec^2)	2.40 (1,73)	2.77 (1,99)	3.13 (2,25)	3.49 (2,52)	3.86 (2,77)	4.22 (3,04)	4.31 (3,11)	4.95 (3,56)
Maximum Running Torque – oz-in (N-m)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)
Maximum Breakaway Torque – oz-in (N-m)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)
Drive Screw Efficiency – %	75	75	75	75	75	75	75	75
Coefficient of Linear Bearing Friction	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Carriage Weight – lbs (kgf)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)
Longitudinal Span between Bearing Truck Centers (d1) – in (mm)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)
Lateral Span between Bearing Rail Centers (d2) – in (mm)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)
Bearing Rail Center to Carriage Mounting Surface (da) – in (mm)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)
Table Weight - lbs (kgf)	13.2 (6,0)	14.2 (6,5)	15.3 (6,9)	16.5 (7,5)	17.8 (8,2)	19 (8,6)	20.3 (9,2)	21.5 (9,8)

**See page B59 for Life/Load Performance ratings. Compression, tension and side loads values for 500000ST are the same as for 500000ET and 500000PD Series.*
*** Over total table travel*
**** For applications with vibration, consult factory for axial load capacity.*
***** Based on 5 pitch (0.2 inch lead) ballscrew.*

Parker Hannifin Corporation
Daedal Division
Harrison City, Pennsylvania



Quality Design in Imperial or Metric Mounting

The top and base are constructed of aluminum alloy and are protected with a black anodize surface finish. The top and bottom mounting surfaces are precision ground to assure flatness and all mounting holes are fitted with locking steel threaded inserts to prevent mounting bolts from working loose. The linear ways are centerless ground rails and recirculating ball bearing bushings. The drive train is a precision rolled 0.2" lead (5 pitch) ball screw. For higher speeds, a 0.5" lead (2 pitch) ball screw is available. *Note: travel is reduced by 2 inches when equipped with 2 pitch ball screw. Please see chart on page B57.* Both the 0.2" lead and 0.5" lead ball screws incorporate a preloaded dual nut design to virtually eliminate backlash. All models are available in both Imperial and metric mounting.

Options:

Motor Couplings

A wide range of coupling styles and bores are available to match your motor requirements. Bellows-style couplings offer the lowest radial wind-up, while the aluminum and stainless steel helix couplers offer good wind up characteristics and high durability at a lower cost.

Motor Mounts

The standard motor mount is designed for an industry standard NEMA 23 motor flange with shaft lengths between 0.65 to 0.85 inches. An optional NEMA 34 frame motor mount is available, accepting motors with an industry standard NEMA 34 flange and shafts with lengths from 1.0 to 1.25 inches.

Limit and Home Switches

Limit switches provide a signal when the table is approaching the end of travel and is used to command the motor to stop. The Home sensor provides a fixed reference point to which the table can always return. Refer to page B78 for Limit and Home switch details.

Either mechanical reed switch or optical sensor type limit and home switch assemblies are available. The mechanical reed switch option can be supplied either inboard (mounted inside the nominal table width) or outboard (mounted on the side of the table). The inboard version does not increase table width; however, it is more difficult to adjust. While the outboard style adds approximately 1.5" to the width, they are easily adjusted. The optical sensor limit and home option is mounted outboard and provides excellent repeatability.

Linear Encoders

This option mounts to the side of the table and is used to give direct positional feedback of the carriage. Imperial resolution of 0.0001 inch and metric resolutions of 0.001 mm are available. Refer to page B80 for linear encoder details.

Way Covers

This option protects the linear bearings and ball screws from dirt, chips and other contaminates. These bellows enclose the top and sides of the table and are suitable for light machining applications.

500020ST	500022ST	500024ST	500030ST	500036ST	500042ST	500048ST	500054ST	500060ST
20 (500)	22 (550)	24 (600)	30 (750)	36 (900)	42 (1050)	48 (1200)	54 (1350)	60 (1500)
100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)	100 (2540)
5.0 (100)	5.5 (110)	6.0 (120)	7.5 (150)	9.0 (180)	10.5 (210)	12 (240)	13.5 (270)	15 (300)
±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)	±0.2 (±5)
3.0 (76)	3.0 (76)	3.0 (76)	4.2 (107)	4.5 (114)	5.7 (145)	6.0 (152)	7.2 (183)	7.5 (191)
3.0 (76)	3.0 (76)	3.0 (76)	4.2 (107)	4.5 (114)	5.7 (145)	6.0 (152)	7.2 (183)	7.5 (191)
45	39	34	23	16	18	14	12	10
772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)	772 (20)
100%	100%	100%	100%	100%	100%	100%	100%	100%
200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)	200 (90)
100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)	100 (45)
168 (76)	168 (76)	168 (76)	168 (76)	168 (76)	168 (76)	168 (76)	168 (76)	168 (76)
160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)	160 (73)
5.31 (3,82)	5.67 (4,09)	6.04 (4,34)	7.13 (5,15)	8.22 (5,91)	18.69 (13,4)	20.89 (15,0)	23.07 (16,6)	25.27 (18,2)
24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)	24 (0,17)
26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)	26 (0,19)
75	75	75	75	75	75	75	75	75
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)	2.26 (1,02)
4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)	4.4 (111,8)
3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)	3.9 (99,1)
1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)	1.06 (26,9)
22.7 (10,3)	23.9 (10,8)	25.0 (11,3)	28.5 (12,9)	32.1 (14,6)	37.6 (17,1)	41.6 (18,9)	45.6 (20,7)	49.7 (22,5)

500000ST Series

How to Order

Order Example

5	06	020	ST	–	M	S	–	D2	L3	C2	M2	E3	W1

Model Series 5

Table Width

6 in 150 mm 06

Table Travel*

4 in	100 mm	004	22 in	550 mm	022
6 in	150 mm	006	24 in	600 mm	024
8 in	200 mm	008	30 in	750 mm	030
10 in	250 mm	010	36 in	900 mm	036
12 in	300 mm	012	42 in	1000 mm	042
14 in	350 mm	014	48 in	1200 mm	048
16 in	400 mm	016	54 in	1375 mm	054
18 in	450 mm	018	60 in	1525 mm	060
20 in	500mm	020			

* Maximum travels are based on D2 drive screw selection. Travels may be less when selecting other drive screws. Refer to drawing charts for actual travel.

Table Style ..... ST

Mounting

Imperial ..... E

Metric ..... M

Grade

Standard Grade ..... S

Drive Type

Free Travel D1

0.20 in Lead (5 Pitch) Rolled Ballscrew D2

0.50 in Lead (2 Pitch) Rolled Ballscrew D3

Limit/Home

No Limit/Home Switches L1

Magnetic Limit/Home Switches–Inboard
(Not available on 4" travel tables) L2

Magnetic Limit/Home Switches–Outboard L3

Optical Limit/Home Sensors–Outboard L4

Motor Coupling

No Coupling C1

0.25 in Bore, Helix, Aluminum C2

0.25 in Bore, Helix, Stainless Steel C3

0.25 in Bore, Bellows C4

0.375 in Bore, Helix, Aluminum C5

0.375 in Bore, Helix, Stainless Steel C6

0.375 in Bore, Bellows C7

Motor Mount

No Motor Mount M1

23 Frame Size M2

34 Frame Size M3

Encoder

No Encoder E1

Linear Encoder, Imperial, 0.0001 in Resolution E2

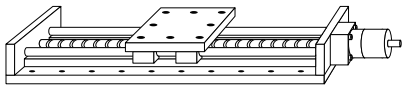
Linear Encoder, Metric 1.0 µm Resolution E3

Way Covers

No Bellows (Open) W1

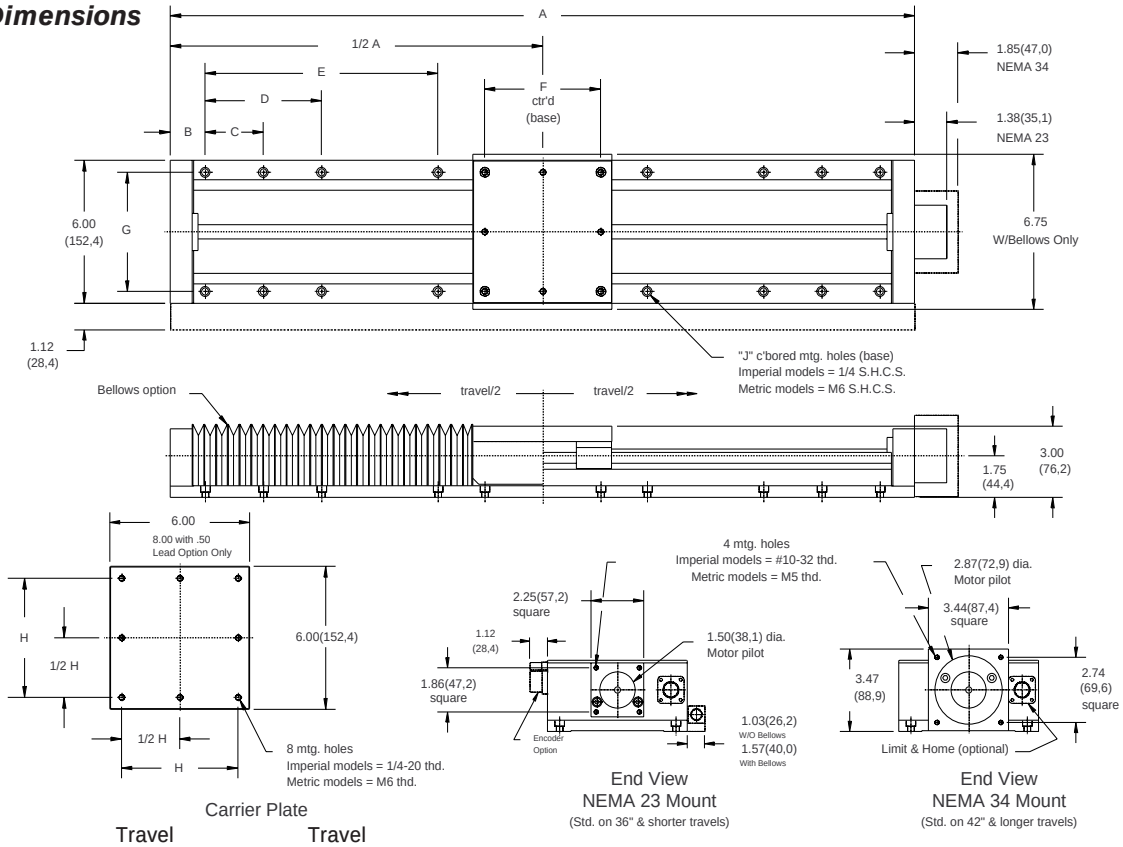
Bellows* W2
[Overall travel will be shorter with this selection;
refer to dimensional drawings for actual table travel.]

Parker Hannifin Corporation
Daedal Division
Harrison City, Pennsylvania



506000ST Dimensions

in (mm)



Carrier Plate

End View
NEMA 23 Mount
(Std. on 36" & shorter travels)

End View
NEMA 34 Mount
(Std. on 42" & longer travels)

	Model	Travel D1 & D2	Travel w/Bellows D1 & D2	Travel D3	Travel w/Bellows D3	A	B	C	D	E	F	G	H	Quantity J
Imperial	506004ST-E	4 in	2.1 in	2 in	—	12 in	1.5 in	—	—	—	5 in	5 in	5 in	8
	506006ST-E	6 in	4 in	4 in	2	14 in	1.5 in	—	—	—	5 in	5 in	5 in	8
	506008ST-E	8 in	5.2 in	6 in	3.2	16 in	1.5 in	—	—	—	5 in	5 in	5 in	8
	506010ST-E	10 in	7.2 in	8 in	5.2	18 in	1.5 in	—	—	—	5 in	5 in	5 in	8
	506012ST-E	12 in	8 in	10 in	6 in	20 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506014ST-E	14 in	9.8 in	12 in	7.8 in	22 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506016ST-E	16 in	12 in	14 in	10 in	24 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506018ST-E	18 in	13 in	16 in	11 in	26 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506020ST-E	20 in	14.5 in	18 in	12.5 in	28 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506022ST-E	22 in	13.1 in	20 in	11.1 in	30 in	1.5 in	5 in	—	—	5 in	5 in	5 in	12
	506024ST-E	24 in	18 in	22 in	16 in	32 in	1.5 in	5 in	10 in	—	5 in	5 in	5 in	16
	506030ST-E	30 in	22.3 in	28 in	20.3 in	38 in	1.5 in	5 in	10 in	—	5 in	5 in	5 in	16
	506036ST-E	36 in	27 in	34 in	25 in	44 in	1.5 in	5 in	10 in	—	5 in	5 in	5 in	16
	506042ST-E	42 in	31.6 in	40 in	29.6 in	50 in	1.5 in	5 in	15 in	—	5 in	5 in	5 in	16
	506048ST-E	48 in	36.3 in	46 in	34.3 in	56 in	1.5 in	5 in	15 in	—	5 in	5 in	5 in	16
	506054ST-E	54 in	41 in	52 in	39 in	62 in	1.5 in	5 in	15 in	25 in	5 in	5 in	5 in	20
	506060ST-E	60 in	45.6 in	58 in	43.6 in	68 in	1.5 in	5 in	15 in	25 in	5 in	5 in	5 in	20
Metric	506004ST-M	100 mm	53,3 mm	50 mm	—	304,8 mm	39,9 mm	—	—	—	125 mm	125 mm	125 mm	8
	506006ST-M	150 mm	101,6 mm	100 mm	50,8 mm	355,6 mm	40,3 mm	—	—	—	125 mm	125 mm	125 mm	8
	506008ST-M	200 mm	132,1 mm	150 mm	81,3 mm	406,4 mm	40,7 mm	—	—	—	125 mm	125 mm	125 mm	8
	506010ST-M	250 mm	182,9 mm	200 mm	132,1 mm	457,2 mm	41,1 mm	—	—	—	125 mm	125 mm	125 mm	8
	506012ST-M	300 mm	210,8 mm	250 mm	152,4 mm	508,0 mm	41,5 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506014ST-M	350 mm	249,0 mm	300 mm	198,1 mm	558,8 mm	66,9 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506016ST-M	400 mm	304,8 mm	350 mm	254,0 mm	609,6 mm	42,3 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506018ST-M	450 mm	330,2 mm	400 mm	279,4 mm	660,4 mm	67,7 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506020ST-M	500 mm	368,3 mm	450 mm	317,5 mm	711,2 mm	43,1 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506022ST-M	550 mm	408,9 mm	500 mm	281,9 mm	762,0 mm	68,5 mm	125 mm	—	—	125 mm	125 mm	125 mm	12
	506024ST-M	600 mm	457,2 mm	550 mm	406,4 mm	812,8 mm	43,9 mm	125 mm	250 mm	—	125 mm	125 mm	125 mm	16
	506030ST-M	750 mm	566,4 mm	700 mm	515,6 mm	965,2 mm	120,1 mm	125 mm	250 mm	—	125 mm	125 mm	125 mm	16
	506036ST-M	900 mm	685,8 mm	850 mm	635,0 mm	1117,6 mm	46,3 mm	125 mm	250 mm	—	125 mm	125 mm	125 mm	16
	506042ST-M	1050 mm	802,6 mm	1000 mm	751,8 mm	1270,0 mm	122,5 mm	125 mm	375 mm	—	125 mm	125 mm	125 mm	16
	506048ST-M	1200 mm	922,0 mm	1150 mm	871,2 mm	1422,4 mm	48,7 mm	125 mm	375 mm	—	125 mm	125 mm	125 mm	16
	506054ST-M	1350 mm	1041,4 mm	1300 mm	990,6 mm	1574,8 mm	74,9 mm	125 mm	375 mm	625 mm	125 mm	125 mm	125 mm	20
	506060ST-M	1500 mm	1158,2 mm	1450 mm	1107,4 mm	1727,0 mm	101,0 mm	125 mm	375 mm	625 mm	125 mm	125 mm	125 mm	20