

## SELFEEDER REVO

**SUGINO**  
SUPER! TECHNOLOGY

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CAT NO. N5007E

Sugino

## SELFEEDER REVO SERIES

High speed, high precision and high efficiency unit



**SUGINO**  
SUPER! TECHNOLOGY

Servo feed drilling unit

# Model MSR2

Small aperture, high position accuracy, controllable feed speed, high precision, high cost performance

- Max.** 12000 rpm
- Small hole machining
- Light and compact structure
- Round body
- Second origin

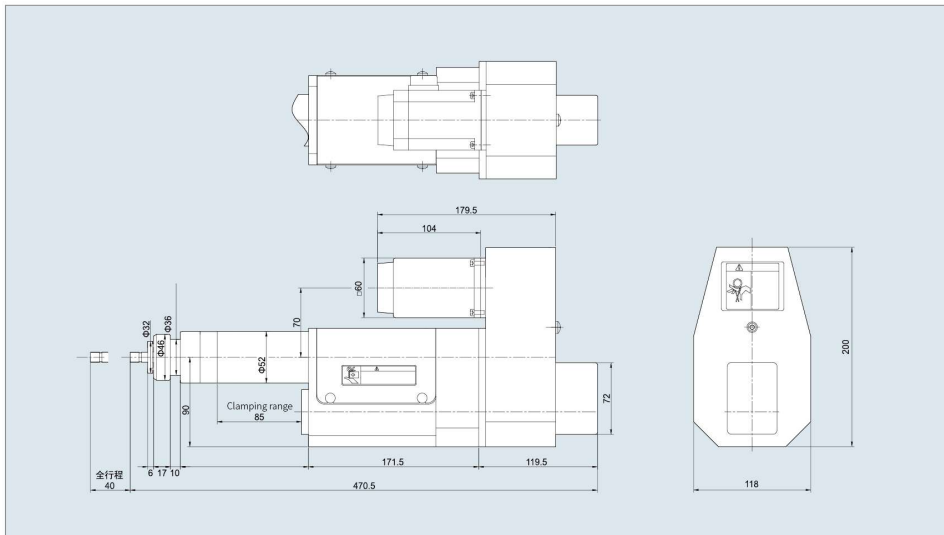


### Specifications and Parameters

Parameters	Spindle specifications	Spindle speed (No-load)	Maximum drilling diameter			Stroke	Motor specifications		Feed thrust	Weight
			Aluminum	Cast iron	Steel		Spindle	Feed		
Model	----	min <sup>-1</sup>	mm			mm	kW	kW	N	Kg
MSR2-5120	ER8	0~12,000	4	2.5	2.5	40	0.4 Servo	0.1 Servo	400	11
		0~10,000								
		0~8,000								
		0~5,000								

- Notes: 1. Refer to the above table for selecting the appropriate cutting speed according to the workpiece shape, the material hardness, the drill diameter and the material.  
 2. The maximum drilling diameter in the table refers to the value when the hole depth is twice the diameter.  
 3. Cutting feed stroke is determined by the stroke of ball screw, the stroke of MSR2 is 40mm.  
 4. Only single spindle machining applicable to this motor.

### Dimensions (mm)



Refer to page 16 for electrical system drawing

Servo feed drilling unit

# Model MSR3

High position accuracy, controllable feed speed, high precision, high cost performance

- Max.** 7500 rpm
- Small hole and deep hole machining
- Mounting multi-spindle head
- Long stroke
- Light and compact structure
- Second origin

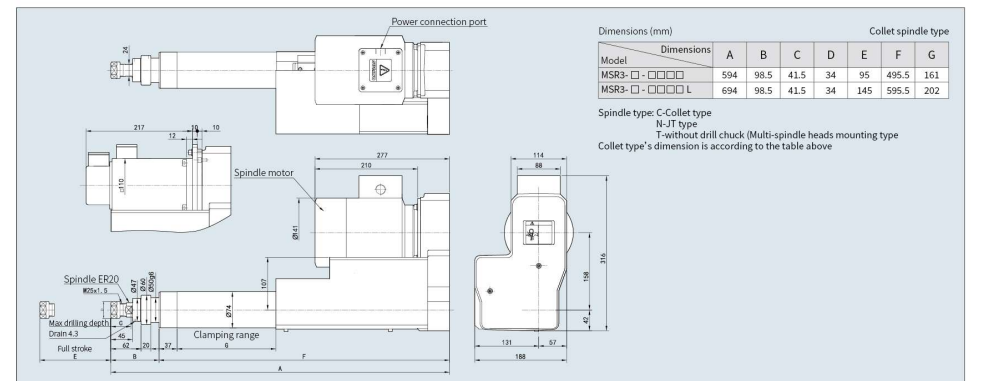


### Specifications and Parameters

Parameters	Spindle speed (No-load)	Maximum drilling diameter												Motor specifications					
		1 spindle			2 spindles			3 spindles			4 spindles			Stroke	Spindle	Feed	Fast feed speed	Feed thrust	Weight
		Aluminum	Cast iron	Steel	Aluminum	Cast iron	Steel	Aluminum	Cast iron	Steel	Aluminum	Cast iron	Steel						
Model	min <sup>-1</sup>	mm												mm	kW	kW	mm/s	N	kg
MSR3-2-6075(L)(B)	7,500	3	2	1	-	-	-	-	-	-	-	-	-	95 (145)	0.37	0.4 Servo	Max. 250	1,450	23 (26)
MSR3-2-6055(L)(B)	5,500	4	2.5	1.5	4	2.5	1.5	-	-	-	-	-							
MSR3-2-6040(L)(B)	4,000	5.5	4	2	5	4	2	4	3.5	2	3.5	3	2						
MSR3-2-6030(L)(B)	3,000	7	5	3	6	5	3	5	4	3	4	3.5	3						
MSR3-2-1330(L)(B)	3,000	7	5	3	6	5	3	5	4	3	4	3.5	3						
MSR3-2-1318(L)(B)	1,800	9	7.5	5	7	5.5	5	6	5	4	5.5	4	3.5						
MSR3-6-1325(L)(B)	2,500	7	5.5	3.5	5.5	4.5	3.5	4.5	3.5	3	4	3	2.5						
MSR3-6-1318(L)(B)	1,800	7.5	6	5	6	5	4	5	4	3.5	5	3.5	3						
MSR3-6-1313(L)(B)	1,300	8	7	6	6.5	5.5	5	6	5	4	5.5	4.5	3.5						
MSR3-6-1306(L)(B)	600	11.5	9	8	8.5	7	7	7	5.5	4.5	5.5	4.5	3.5						

- Notes: 1. Refer to the above table for selecting the model according to the workpiece shape, the material hardness, the drill diameter and the speed (cutting speed).  
 2. The maximum drilling diameter in the table refers to the value when the hole depth is twice the diameter. 3. Cutting feed stroke is determined by the stroke of ball screw, the maximum stroke is 145mm. 4. Please indicate the required motor voltage and frequency when ordering. 5. "B" stands for feed motor with brake, which is the specification for the spindle bearing greater than 2kg when mounted vertically. 6. This table takes ER20 spindle as an example. 7. The Dimension shows the recommended standard E20 spindle.  
 8. Sugino can also provide power heads beyond those listed in the above table. Please contact business outlets for more.

### Dimensions (mm)



Refer to page 23 for quick change spindle specifications and page 16 for electrical system drawing.

Maximum drilling diameter (mm)

Aluminum  
Ø4

Steel  
Ø2.5

Maximum drilling diameter (mm)

Aluminum  
Ø11.5

Steel  
Ø8

Boring and milling power head

Servo drilling power head

Servo synchronous taper

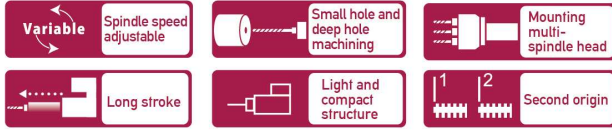
Pneumatic drilling power head

Associated products

## Servo feed drilling unit

# Model MSR3P

Variable spindle, adjustable feed speed, multiple machining modes, high precision

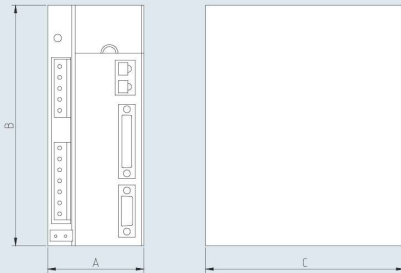


### Specifications and Parameters

Parameters	Spindle speed (No-load) min <sup>-1</sup>	Maximum drilling diameter												Stroke mm	Motor specifications			Feed thrust N	Weight kg
		1 spindle			2 spindles			3 spindles			4 spindles				Spindle kW	Feed kW			
		Alum	Castiron	Steel	Alum	Castiron	Steel	Alum	Castiron	Steel	Alum	Castiron	Steel						
Model																			
MSR3P-1375(L)(B)	0~7500	8	7	6	7	5	4	5	4	3	4	3.5	2.5	95 (145)	1.8 Servo	0.4 Servo	1450	24 (27)	
MSR3P-1330(L)(B)	0~3000	13	11	10	10	7	6	8	5.5	5	6	4.5	4						

**Notes:** 1. Refer to the above table for selecting the model according to the workpiece shape, the material hardness, the drill diameter and the speed (cutting speed).  
 2. The maximum drilling diameter in the table refers to the value when the hole depth is twice the diameter.  
 3. Cutting feed stroke is determined by the stroke of ball screw, the maximum stroke is 145mm.  
 4. Please indicate the required motor voltage and frequency when ordering.  
 5. "B" stands for feed motor with brake, which is the specification for the spindle bearing greater than 2kg when mounted vertically.  
 6. This table takes ER20 spindle as an example. 7. The Physical Dimension shows the recommended standard E20 spindle. 8. Sugino can also provide power heads beyond those listed in the above table. Please contact business outlets for more.

### Servo Driver Dimensions (mm)



Dimensions	A	B	C	Applicable model
Model				
SJC-AP200-0R4	45	170	179	MSR3(L)/MSR3P(L)
SJC-AP200-1R5	67		180	SSTR3/SSTR5/MSR3P(L)
SJC-AP200-1R5	67	170	180	SSTR3S
SJC-AP200-2R0	92	230	190	SSTR5S
SJC-AP200-0R4	45	170	170	MSR3S(L)
RZH201F5-VV2	40	160	165	MSR2
RZH401F5-VV2				MSR2/SSTR2

Note: Different models have different shapes, refer to relevant instructions for specific mounting dimensions.

# mechafeed selffeeder revo®

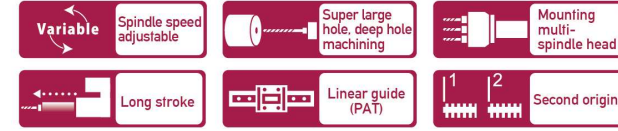
Equipped with Sugino customized servo controller, without the need for PLC, with compact structure, multiple machining modes available, capable of corresponding to the complex machining environment, thus greatly improving the drilling accuracy and machining efficiency.

Refer to page 23 for quick change spindle specifications and page 16 for electrical system drawing.

## Servo feed drilling unit

# Model MSR5

Super large aperture, high hardness, high strength, high precision hole machining Suitable for multiple materials, compound machining.

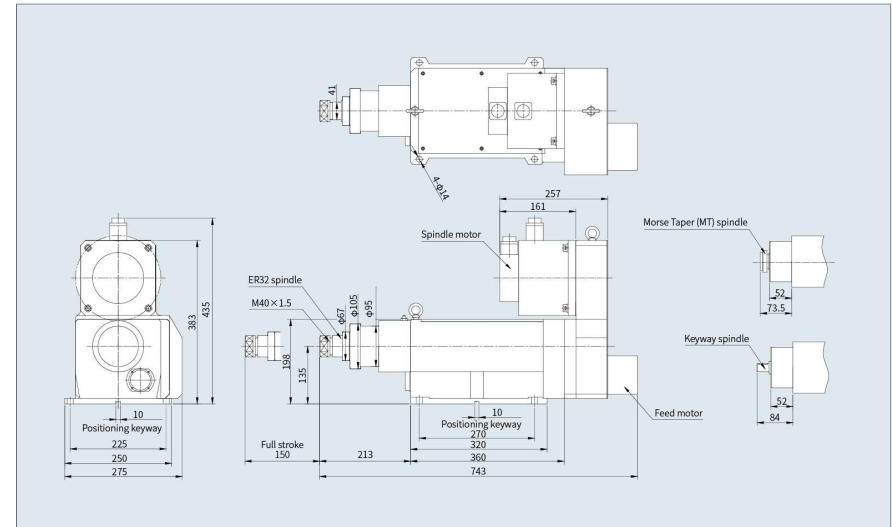


### Specifications and Parameters

Parameters	Spindle speed (No-load) min <sup>-1</sup>	Maximum drilling diameter												Mass mm	Motor specifications			Feed thrust N	Weight kg
		1 spindle			2 spindles			3 spindles			4 spindles				Spindle kW	Feed kW			
		Alum	Castiron	Steel	Alum	Castiron	Steel	Alum	Castiron	Steel	Alum	Castiron	Steel						
Model																			
MSR5-2420(B)	0~2000	24	18	16	21	13	11	17	10	9	14	9	8	150	4.0 Servo	0.75 Servo	5500	85	
MSR5-2412(B)	0~1200	24	22	20	23	16	14	22	13	12	18	11	10						

**Notes:** 1. Refer to the above table for selecting the model according to the workpiece shape, the material hardness, the drill diameter and the speed (cutting speed).  
 2. The maximum drilling diameter in the table refers to the value when the hole depth is twice the diameter.  
 3. Cutting feed stroke is determined by the stroke of ball screw, the maximum stroke is 150mm.  
 4. "B" stands for feed motor with brake, if any other machining method other than horizontal mounting is required, please indicate "B" (feed motor with brake) behind the model number when ordering.  
 5. Please indicate the required motor voltage and frequency when ordering.  
 6. This table takes ER32 spindle as an example, the Dimension is recommended standard ER32 spindle. 7. The above table shows the machining parameters for standard steel 45.

### Dimensions (mm)

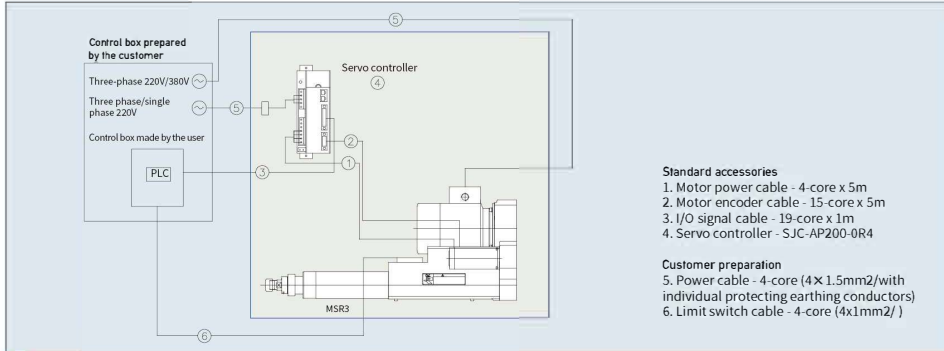


Maximum drilling diameter (mm)  
Aluminum φ13  
Steel φ10

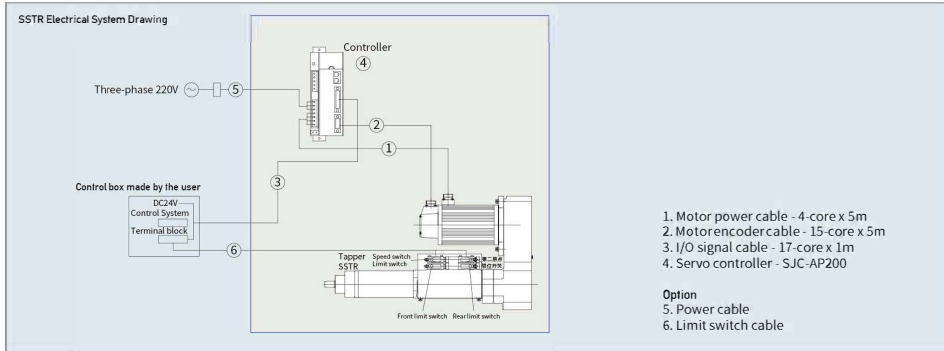
Maximum drilling diameter (mm)  
Aluminum φ24  
Steel φ20

Boring and milling power head  
Servo drilling power head  
Servo synchronous tapper  
Pneumatic drilling power head  
Associated products

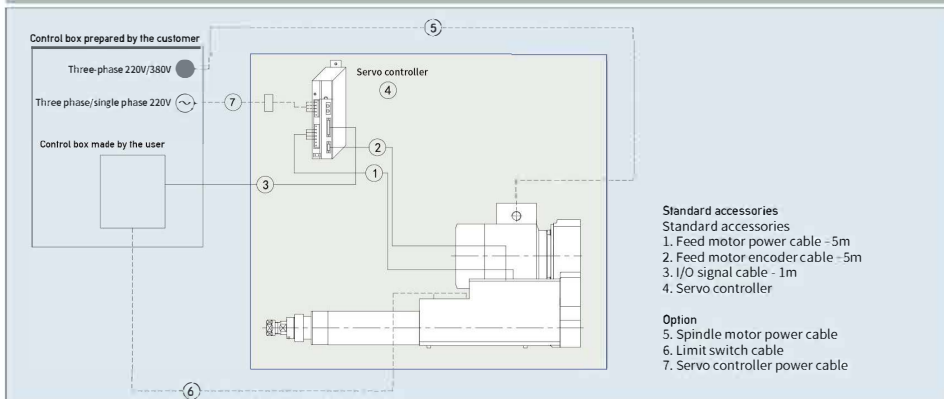
To MSR series



To SSTR series



Servo electric diagram to MSR and SSTR series



Servo system developed by Sugino applies to multiple machining environments with easy operation. Please contact Sugino business outlets for more.

Pneumatic feed drilling unit  
**Model SRV2**

The smallest and lightest model in the series, reflecting the true value of small aperture machining



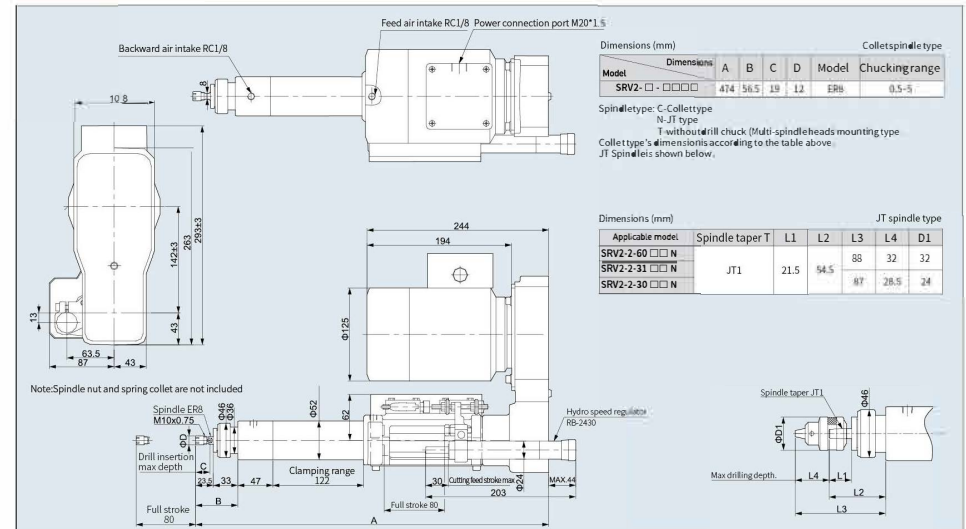
Specifications and Parameters

Operating air pressure: 0.6MPa

Parameters	Spindle speed (No-load)	Drill chuck capacity	Maximum drilling diameter			Stroke			Power	Poles	Feed Thrust	Air consumption	Weight		
			1 spindle	2 spindles		Full stroke	Cutting Stroke	Power						Poles	Feed Thrust
Model	50Hz	mm	Aluminum	Cast iron	Steel	Aluminum	Cast iron	Steel	mm	mm	kW	P	N	L/Stk	kg
SRV2-2-3100	10,000	3 (非钥匙锁紧型)	2	1.5	1	-	-	-	80	0-30	0.25	2	600	2-3	14
SRV2-2-3075	7,500	3	3	2	1	-	-	-							
SRV2-2-6051	5,100	6.5	4	3	1.5	4	3	1.5							
SRV2-2-6030	3,000	6.5	6.5	5	3	5	4	3							
SRV2-2-6020	2,000	6.5	7	6	4.5	6	5	3.5							
SRV2-2-6014	1,400	6.5	8	7	6	6	5	3.5							

Notes: 1. Refer to the above table for selecting the model according to the workpiece shape, the material hardness, the drill diameter and the speed (cutting speed).  
2. The maximum drilling diameter in the table refers to the value when the hole depth is twice the diameter.  
3. The cutting feed stroke is determined by the stroke of the hydraulic damper, and the standard auxiliary hydraulic damper is Model RB-2430. Refer to page 20 if other models are required.  
4. Please indicate the required motor voltage and frequency when ordering.  
5. This table takes JT spindle as an example.  
6. The Physical Dimension shows the recommended standard ER8 spindle.

Dimensions (mm)



Refer to the Physical Dimension of this page for spring collet spindle specifications.

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Maximum tapping capacity

Aluminum Q8

Steel D6

Boring and milling power head

Servo power head

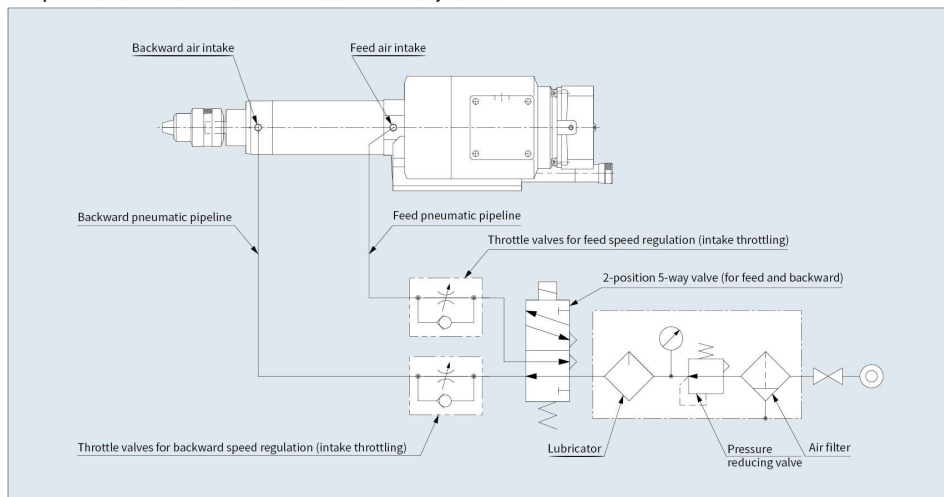
Servo synchronous taper

Pneumatic drilling power head

Associated products

### Pneumatic control circuits

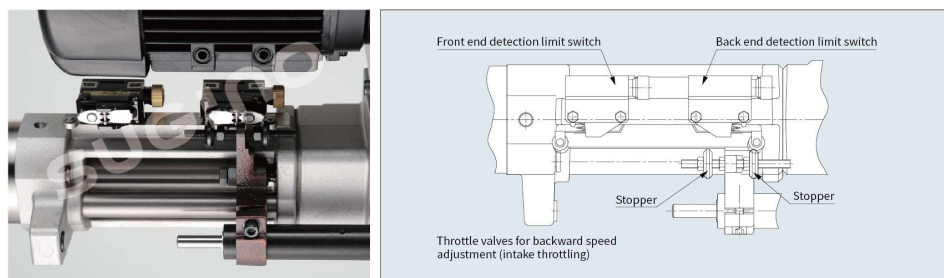
The power head is built in with forward and backward cylinders



- Notes:
1. Please provide 0.4-0.6MPa working pressure.
  2. Customers need to prepare various pneumatic components including air source.
  3. Because the piston areas on the forward and backward sides of the power head are different, please use the intake throttling check valve to control the loop.

### Operate-Signal Kits

The supporting components used to check the forward and backward end positions of the power head, which can be used as a control signal for synchronous operation with other associated devices.



Note: The motor adopts "SL1-P" limit switch made by Yamatake.

## selffeeder revo®

revo®, the high precision drilling power head, uses the latest international new technology to provide customers with durable and high cost performance power head for high speed and high precision hole machining

# Options

The drilling power head coming out of the "Sugino" technology, capable of adapting to multiple machining requirements, achieving high precision and high efficiency product machining.

### Multi-spindle heads

Sugino can provide various drilling and tapping heads according to customers' special requirements on spindle spacing, spindle number and spindle shape.

#### Spindle spacing adjustable (drilling)



#### Spindle body replacement



#### Spindle spacing fixed



#### Spindle spacing fixed



#### Spindle spacing adjustable (tapping)



#### Spindle spacing fixed, narrow spacing drilling head



### Mirror finishing tool, Superroll

The surface finish of RZ0.1-0.8µm can be achieved in one feed, indicating that it is a super finishing tool for improving wear resistance and fatigue strength of workpiece.



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## Hydro speed regulators

Hydraulic damper is a hydraulic feed speed control device which can freely adjust the cutting feed from low to high. There are two types of return, namely the spring return and air return, which are alternative as per actual use. In addition, Sugino also has progressive hydraulic damper for pipe machining

### RB

Spring return type

When the load on the piston rod of RB hydraulic damper is unloaded, the piston rod automatically returns to its original position.



### Feature

1. Compact structure, free mounting direction.
2. The fully enclosed structure without the need for adding working oil can maintain long-term stable control.
3. The change of control speed caused by rapid load change is very small, enabling stable feed speed.
4. Feed speed can be easily adjusted by speed adjusting knob.

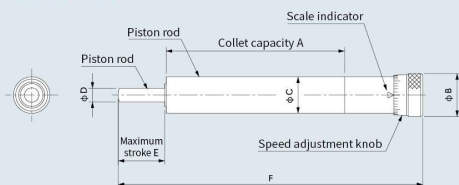
## Parameters

Model	Maximum stroke	Load range	Speed control range for various thrusts	Allowable impact energy	Mass (Body)						
	mm		N		mm/sec	J	kg				
RB-2412	12	98~490	F= 98N 时 0.2~20 F= 290N 时 0.3~30 F= 490N 时 0.4~35	1.47	0.35						
RB-2430	30		200~1,500			F= 200N 时 0.1~5 F= 490N 时 0.2~25 F= 980N 时 0.3~40 F=1,500N 时 0.4~50	2.45	0.41			
RB-2460	60					490~2,900			F= 490N 时 0.1~10 F=1,500N 时 0.2~25 F=2,200N 时 0.3~35 F=2,900N 时 0.5~40	3.92	0.58
RB-3140	40								1.20		
RB-3160	60										

Sugino can also provide dampers beyond those listed in the above table. Please contact business outlets for more.

## Physical Dimensions (mm)

RB-2412, RB-2430, RB-2460  
RB-3140, RB-3160



Model	Dimensions (mm)					
	A	B	C	D	E	F
RB-2430	115				30	200
RB-2460	196	28	24	9	60	311
RB-2412	93				12	160
RB-3140	150				40	270
RB-3160	190	36	31	12	60	311

### R-A

Air return type

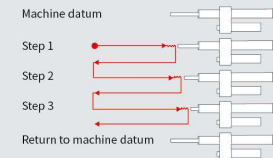
Even when the load on the piston rod of the R-A hydraulic damper is removed, the piston rod remains in its original position and can only be returned by providing compressed air, which enables easy feed control for step drilling.



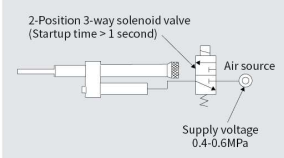
### Feature

1. The piston rod can stop at any time on the stroke, achieving efficient step feed.
2. Some models have an extended stroke and can be used for a variety of purposes.

#### Example of step feed



#### Example of air line coupling for piston rod return



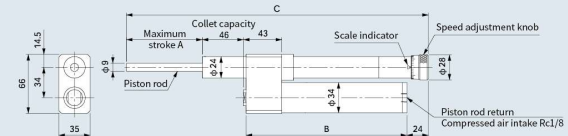
## Parameters

Model	Maximum stroke	Load range	Speed control range for various thrusts	Allowable impact energy	Mass (Body)
	mm		N		mm/sec
R-2442A	40	200~1,500	F= 200N 时 0.3~5 F= 980N 时 0.5~25 F=1,500N 时 0.8~30	2.45	1.3
R-2462A	60		1.5		
R-2482A	80				
R-3182A	80		490~2,900		F= 490N 时 0.3~12 F=2,200N 时 0.5~25 F=2,900N 时 0.8~30

Sugino can also provide dampers beyond those listed in the above table. Please contact business outlets for more.

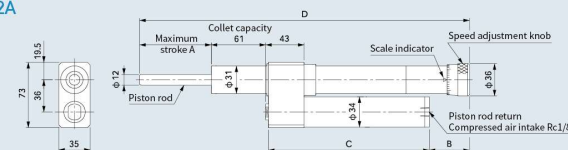
## Physical Dimensions (mm)

R-2442A, R-2462A, R-2482A



Model	Dimensions (mm)			
	A	B	C	D
R-2442A	40	127	240	-
R-2462A	60		260	-
R-2482A	80	180	333	-
R-3182A	80	39	180	363

R-3182A



## Flex Stands

The universal fastening bracket can fix the power head at any angle.



## Physical Dimensions (mm)

**Base bracket**  
FS-52BS

**Base bracket**  
FS-74BS

**Base bracket**  
US-104BC

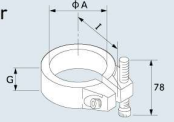
**Swivel bracket**  
FS-52SS  
FS-74SS  
US-W104SC

**Column bracket**  
FS-52CS  
FS-74CS  
US-104CC

**Parallel bracket**  
FS-52PS  
FS-74PS

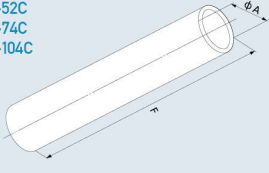
## Height regulator

US-52HA  
US-74HA  
US-104HA



## Column

FS-52C  
FS-74C  
FS-104C



## Dimensions (mm)

Modelmark	A	B	C	D	E	F	G	H	I	Applicable model
FS-52 US-52	52	80	115	40	120	500	30	43	52	SRV2 MSR2
FS-74 US-74	74	110	135	45	140	600	30	56	65	SRV3 MSR3 SSTR3
FS-104 US-104	104	190	250	70	248	1,000	38	77	95	SRV5 SSTR5

## Level Clamps

The parallel collet can mount the drilling power head parallel to the base. There are high and low types depending on the spindle height.



## Physical Dimensions (mm)

**Dimensions (mm)**

Model mark	A	B	C	D	E	F	G	H	I	J	K	L	Applicable model
LC-52					95	60		14	35	8	64	80	SRV2 MSR2
LC-52H	30	50	70	6.5	135	100							
LC-74					120	70		18	50	10	90	110	SRV3 MSR3 SSTR3
LC-74H	60	110	130	9	150	100							
LC-104					148	80		20	70	10	130	150	SRV5 SSTR5
LC-104H	90	170	190	11	188	120							

## Adjustable Spindle Noses

Quick change spindle is applicable to SRV, MSR, SSTR series power heads. Please indicate the spindle model and type (e.g. KH-14E) when ordering quick change spindles. Sugino can provide various quick change spindle journals according to customer requirements.



## Physical Dimensions (mm)

**Figure 1**

**Figure 2**

**Figure 3**

**Figure 4**

Dimensions (mm)		Applicable model	No.	Model	d	D	H	W	L1	M	L2	L3	L4	L5	
SRV3-x-xxxx(L)S	1	BILZ16	16H6	$^{+0.011}_0$	$25g6$	$^{+0.007}_{-0.020}$	17.3	$5$	$^{+0.145}_{+0.070}$	81	M6x1	34	74	91.5	128
		BILZ25	25H6	$^{+0.013}_0$	$37g6$	$^{+0.009}_{-0.025}$	26.7	$6$	$^{+0.145}_{+0.070}$	85	M8x1.25	38	89	106.5	143
SRV3-x-xxxx(L)S MSR3-x-xxxx(L)S	2	KH-14E	14	$^{+0.010}_{+0.005}$	$22$	$^{+0.009}_{-0.1}$	-	$8C10$	$^{+0.138}_{+0.080}$	38	-	-	27.5	45	81.5
		KH-16E	16	$^{+0.010}_{+0.005}$	$26.4$	$^{+0.1}_{-0.1}$	-	$8C10$	$^{+0.138}_{+0.080}$	43	-	-	-	-	-
		KH-22E	22	$^{+0.010}_{+0.005}$	$32.4$	$^{+0.1}_{-0.1}$	-	$10C10$	$^{+0.138}_{+0.080}$	65	-	-	-	51.5	69
SRV5-x-xxxxS	3	BILZ28	28H6	$^{+0.013}_0$	$40g6$	$^{+0.009}_{-0.025}$	29.7	$6$	$^{+0.145}_{+0.070}$	85	M8x1.25	38	88	105.5	157.5
		KH-22E	22	$^{+0.010}_{+0.005}$	$32.4$	$^{+0.1}_{-0.1}$	-	$10C10$	$^{+0.138}_{+0.080}$	65	-	-	-	51.5	69
SRV5-x-xxxxS	4	KH-25E	25	$^{+0.010}_{+0.005}$	$37.4$	$^{+0.1}_{-0.1}$	-	$10C10$	$^{+0.138}_{+0.080}$	63	-	-	52	69.5	121.5

Note: quick change spindle journal is not applicable to power head with rated speed over 5,000min-1.

## ER single spindle tapper head

Applicable to single spindle tap chuck of Models SSTR3, SSTR5 and SSTR6, with higher collet precision.



## Physical Dimensions (mm)

ITCR-100CC, 100FC, 1TDR-160FC, 220FC

1TC-570RFC (Made in Japan)

## Parameters

Model	Machining capacity	Screw tap Holding mechanism	Dimensions code						Applicable to synchronous tapping power head
			A	B	C	D	E	F	
ITCR-100CC	M1 ~ M3	Centering	16	33	22	115	119	ER16	SSTR3
1TC-570RFC	M1 ~ M3	Centering	15-28	22	80	101.5	-	ER11	SSTR3
ITCR-100FC	M3 ~ M12	Floating	16	33	22	115	119	ER16	SSTR3
1TDR-160FC	M8 ~ M16	Floating	20	40	34	120	124	ER20	SSTR5、6
1TDR-220FC	M12 ~ M22	Floating	22	54	42	132	136	ER25	SSTR5、6

※ Made in Japan