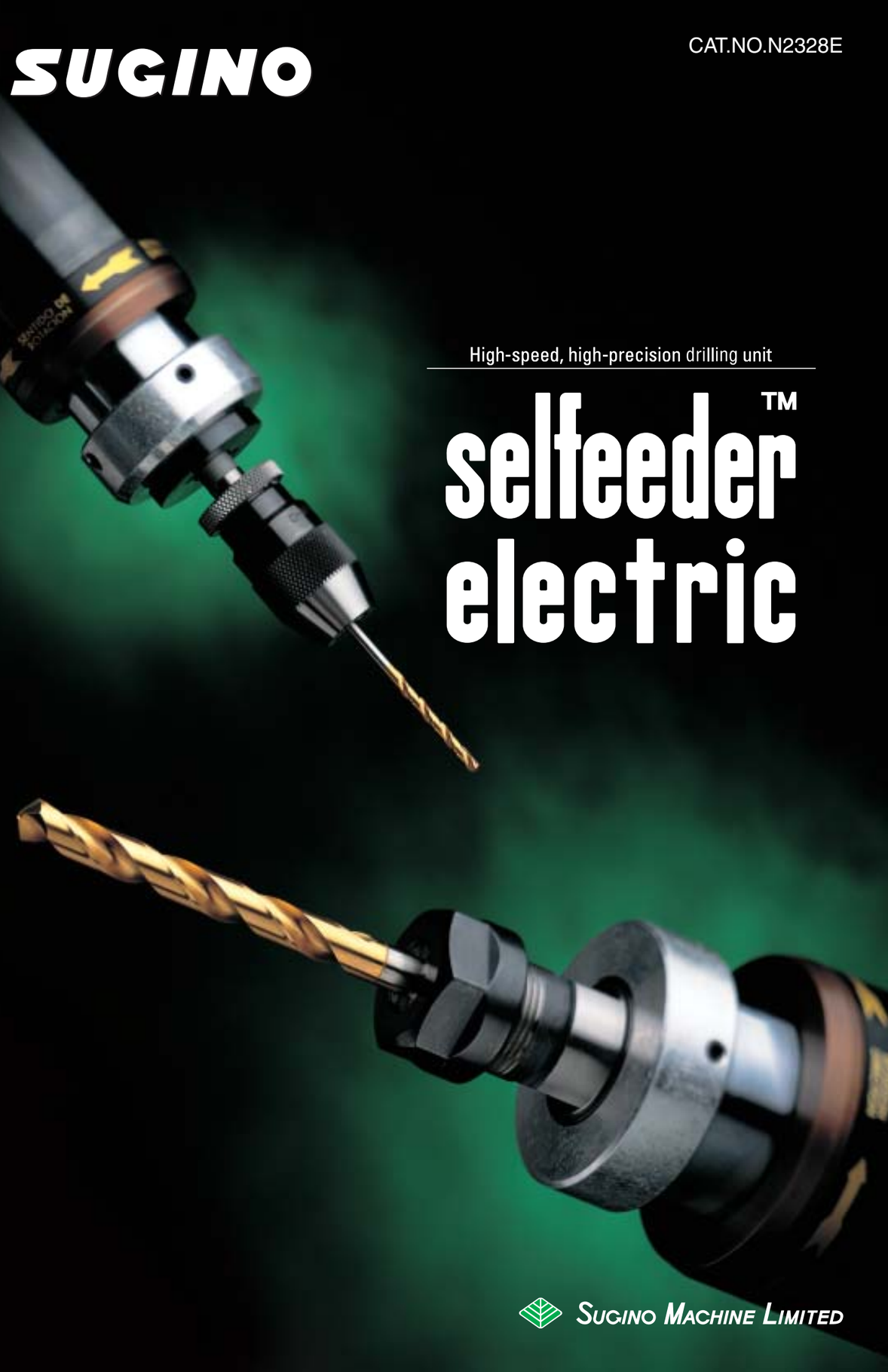
SUGINO

CAT.NO.N2328E

High-speed, high-precision drilling unit

selfeeder™ electric



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201108 YD

SUGINO MACHINE LIMITED

The Best seller of Drilling unit
Selfeeder electric

The Electric series, designed with latest technology for high-speed and high-precision operation. These feature maximum durability, wide variety with enhanced rigidity and reinforced functions without sacrifacing compactness.

① Enhanced rigidity
The guide bar held firmly in the box-shaped frame minimizes the eccentric forwarding of the unit. Thus, rigidity is enhanced.
Precise drilling is possible due to min. eccentricity of the ram when the spindle is moving forward.

② Reinforced function
A double waterproofing measure (slinger and rotary seal) is provided in the spindle section to protect the bearings inside for standard JT spindle. The ram is equipped as standard with a hold back mechanism to prevent the ram from dropping when the air supply is cut off.(Option for ES6–ES7)
Easy maintenance and max. safety are also assured.

ES
SERIES

CONTENTS

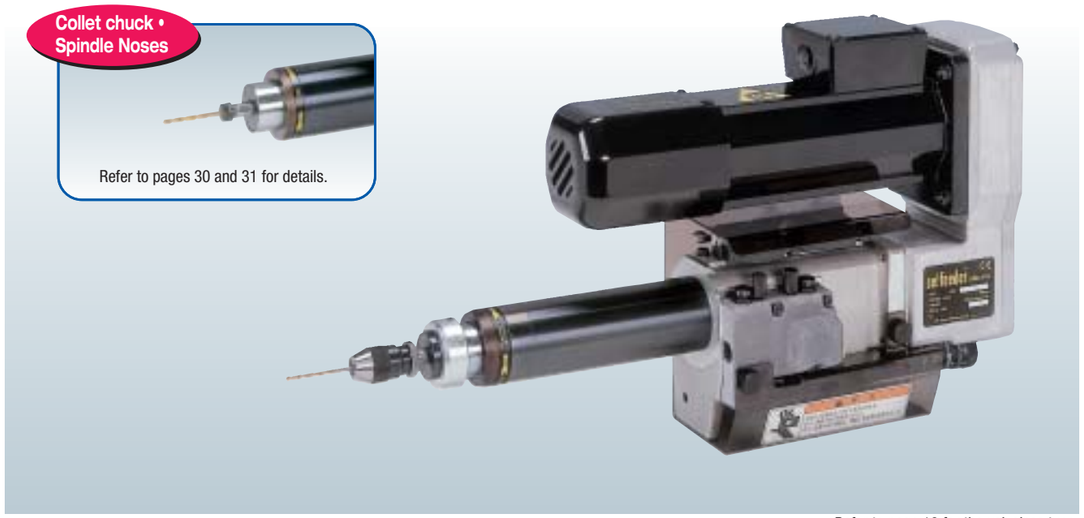
ES2

Carbon Steel φ5

Aluminium φ7.5

Smallest and lightest Selfeeder

Drills small-diameter holes at 12,000min^{-1}



Refer to page 18 for the valveless type.

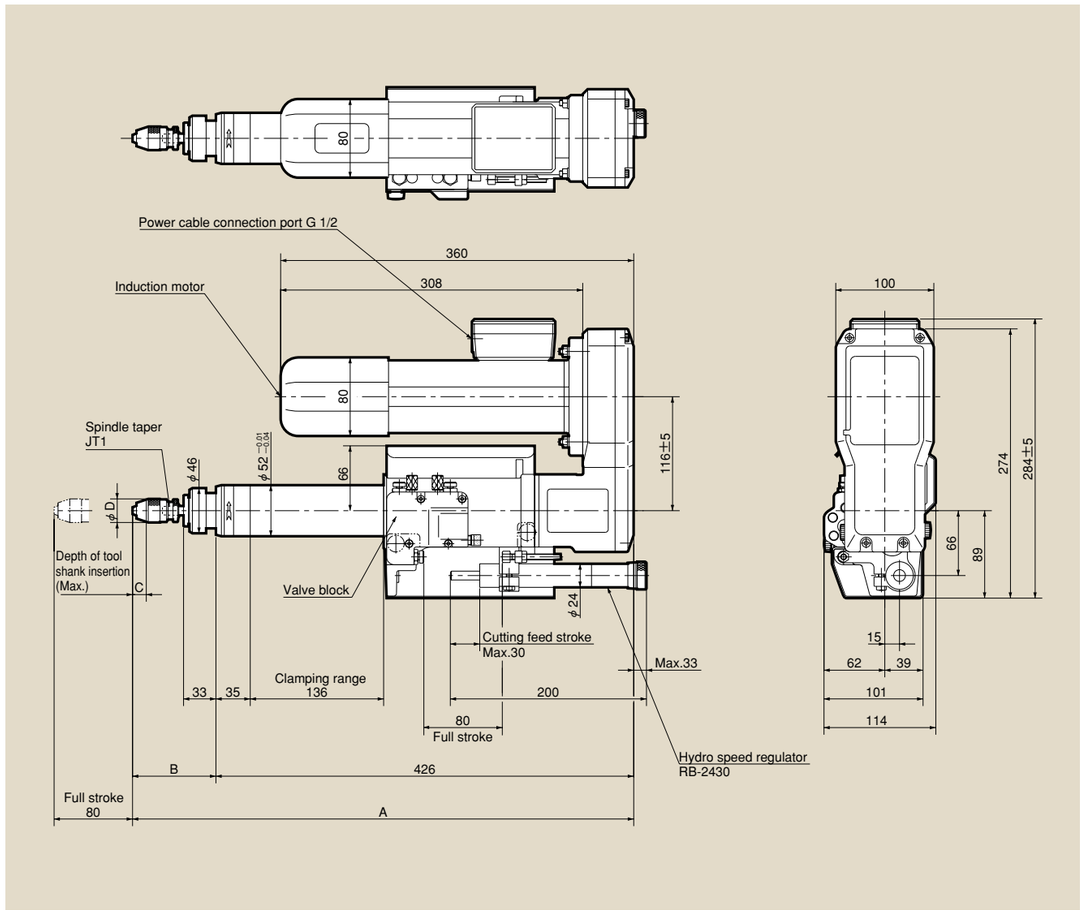
Capacity

Operating air pressure : 0.6MPa

Specs. / Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Output	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min^{-1}	min^{-1}	mm	mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES2–3100	10,000	12,000	3 (keyless drill chuck)	2.5	1	1	–	–	–	80	0~30	0.2	2	590	2	14
ES2–3085	8,500	10,000		3	1	1	–	–	–							
ES2–3060	6,000	7,200		3.5	1.5	1.5	–	–	–							
ES2–6045	4,500	5,400	6.5	4	2	2	3	1.5	1.5							
ES2–6030	3,000	3,600		5	3	2.5	4	2.5	2							
ES2–6020	2,000	2,400		6	4.5	4	5	3	3							
ES2–6014	1,400	1,700		7.5	6	5	5.5	4	4							

Notes
1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-2430 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary.
(Optional hydro speed regulator types: RB-2460, R-2442A, R-2462A, and R-2482A)
4. The maximum weight of the attachment for downward drilling is 2.5kg.
5. AL*··· Aluminium, FC*···Cast iron, ST*··· Carbon steel, Wgt*··· Weight
6. When ordering, please specify the voltage and frequency of the motor.
7. Please use the collet chuck spindle noses when the hardness of the carbide drill and tool shank is higher than that of a general high speed steels.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D
ES2–3100	511	85	14	24
ES2–3085				
ES2–3060				
ES2–6045	513	87	30	32
ES2–6030				
ES2–6020				
ES2–6014				

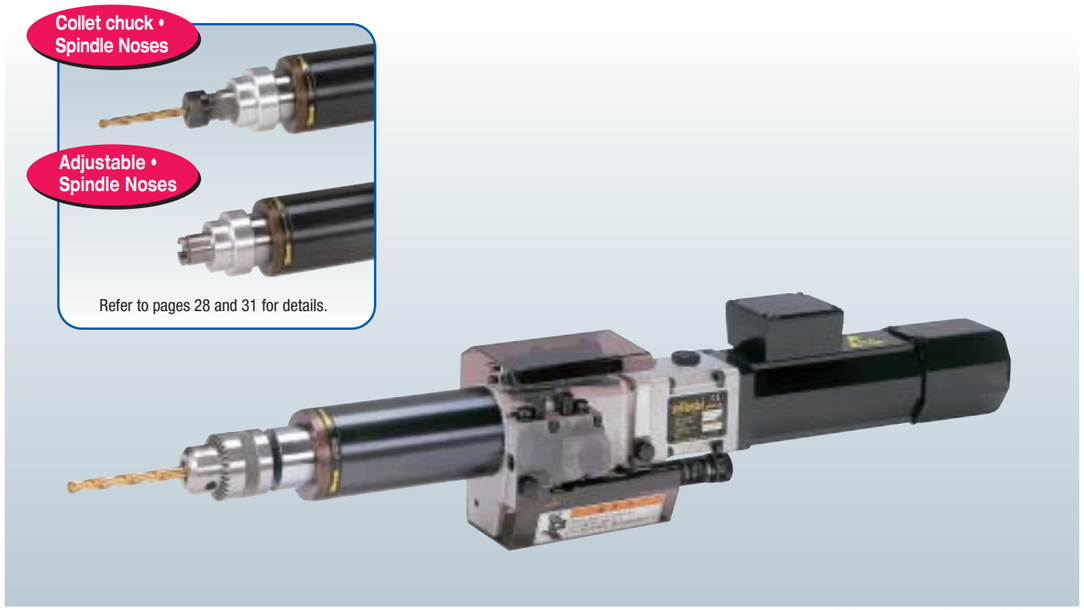
Narrow-pitched twin drill head

ES3C

Carbon Steel φ8

Aluminium φ11

Slim cylindrical type with concentric rotary shaft and drill
This type is most suited to downward drilling.



Refer to page 18 for the valveless type.

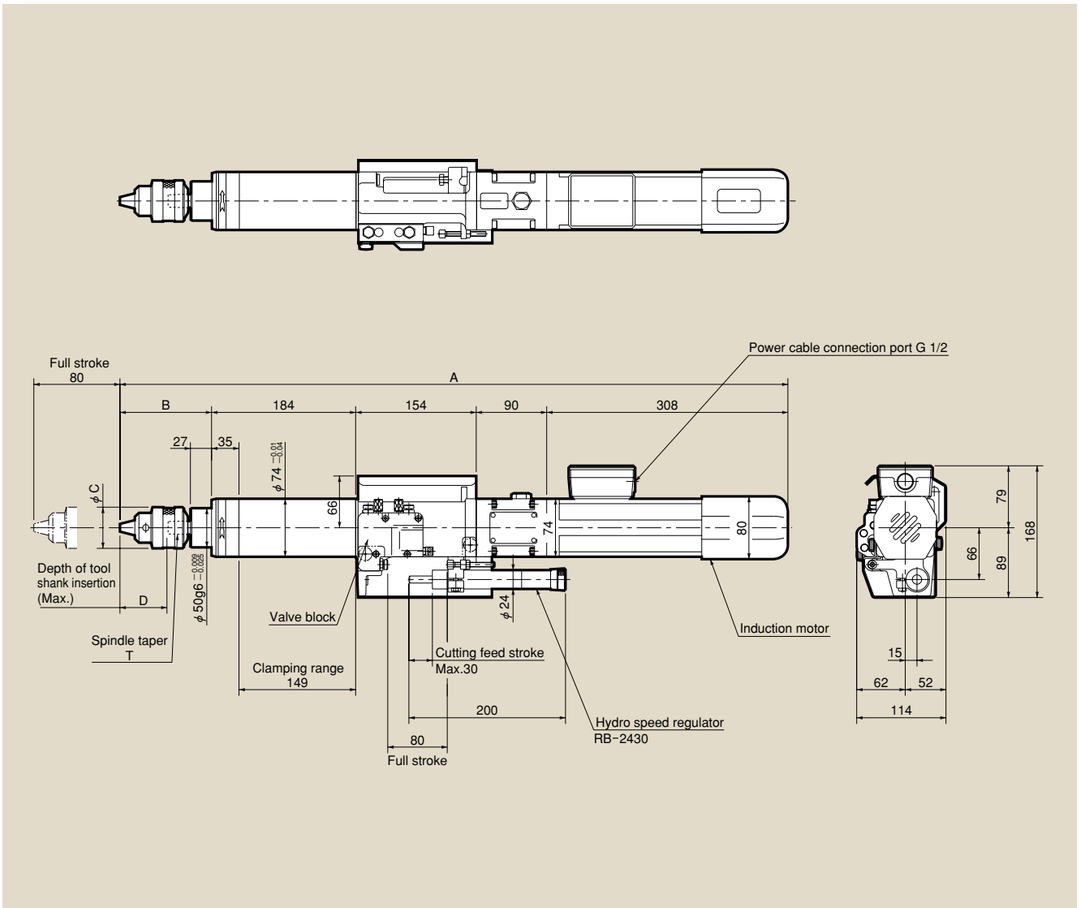
Capacity

Operating air pressure : 0.6MPa

Specs. / Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Out put	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES3C-6030L	3,000	3,600	6.5	5	2.5	2	4	2.5	2	3	2	2	–	–	–	80	0~30	0.2	2	1200	3~4	16
ES3C-6022L	2,200	2,600		6	4.5	4	5	3.5	3	3.5	2.5	2	–	–	–							
ES3C-1314L	1,400	1,700	13	7.5	6	5	5.5	4	4	4	3.5	3.5	3	2.5	2							
ES3C-1309L	900	1,100		8	7	6	6	5	4.5	4.5	4	4	4	3.5	3							
ES3C-1305L	550	650		11	8.5	8	8	6	5.5	6	5	4.5	5	4	3.5							

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-2430 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary.
(Optional hydro speed regulator types: RB-2460, R-2442A, R-2462A, and R-2482A)
4. The maximum weight of the attachment for downward drilling is 12kg.
5. AL*··· Aluminium, FC*···Cast iron, ST*··· Carbon steel, Wgt*··· Weight
6. When ordering, please specify the voltage and frequency of the motor.
7. Please use the collet chuck spindle noses when the hardness of the carbide drill and tool shank is higher than that of a general high speed steels.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D	T
ES3C-6030L	817	81	32	30	JT1
ES3C-6022L					
ES3C-1314L	853	117	52.5	60	JT6
ES3C-1309L					
ES3C-1305L					

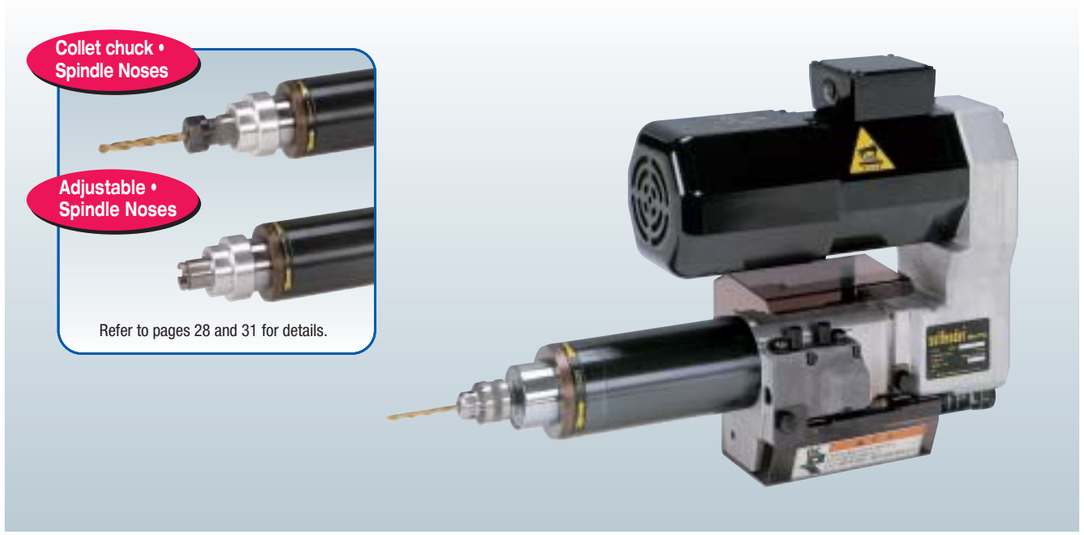
Off-set drill head(Collet chuck type)

ES3P

Carbon Steel φ9

Aluminium φ13.5

A 0.35kW motor is employed to enhance the drilling power, and ideal for high speed drilling.



Different motor specifications are used for the European market.
Refer to page 18 for the valveless type.

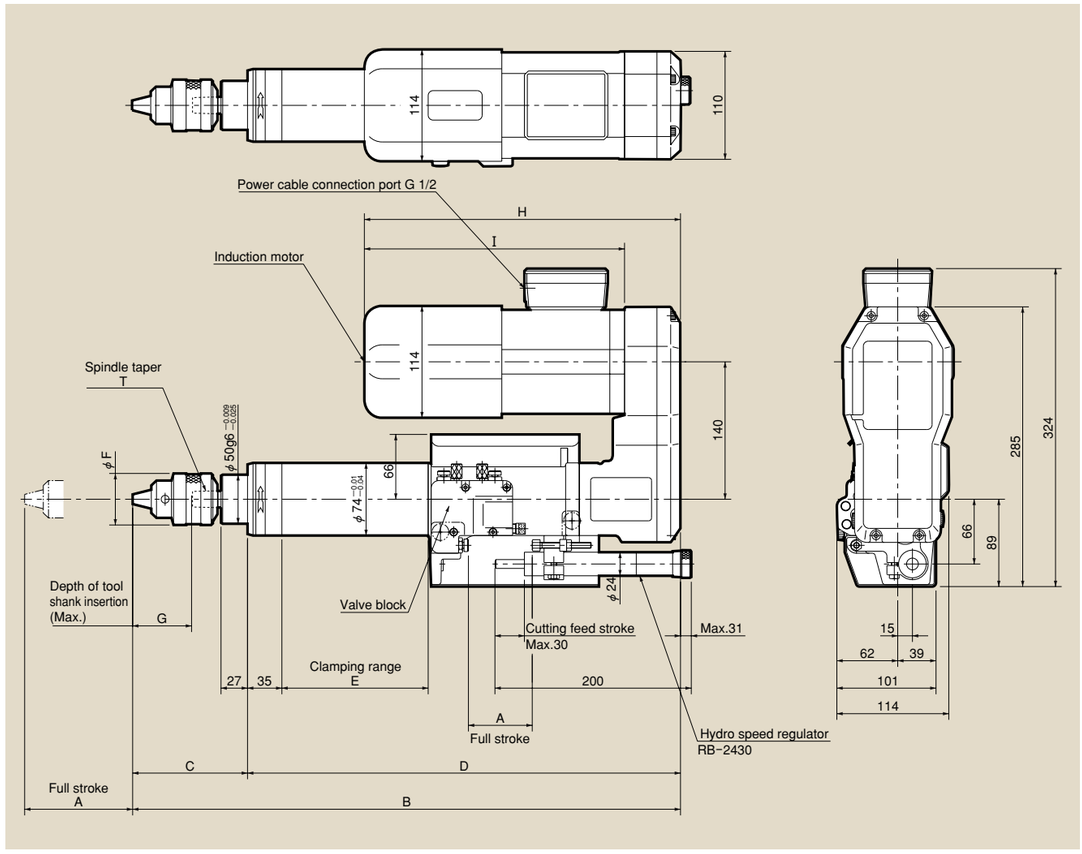
Capacity

Operating air pressure : 0.6MPa

Specs. / Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Out put	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES3P-3075L	7,500	9,000	3 (keyless drill chuck)	3	1.5	1.5	–	–	–	–	–	–	–	–	–	80	0~30	0.35	2	1200	3~6	20
ES3P-3075LL																150						23
ES3P-3060L	6,000	7,200		4	1.5	1.5	–	–	–	–	–	–	–	–	–	80						20
ES3P-3060LL																150						23
ES3P-6049L	4,900	5,900	6.5	5	2	2	4	2	2	–	–	–	–	–	–	80						20
ES3P-6049LL																150						23
ES3P-6034L	3,400	4,100		6	3	3	4.5	3	3	4	3	3	–	–	–	80						20
ES3P-6034LL																150						23
ES3P-1326L	2,600	3,200	13	7.5	3.5	3.5	6	3.5	3.5	5	3.5	3.5	4	3.5	2.5	80			6			20
ES3P-1326LL																150						23
ES3P-1318L	1,800	2,200		8.5	5	4	7	4.5	3.5	6	4	3.5	5	3.5	2.5	80						20
ES3P-1318LL																150						23
ES3P-1314L	1,400	1,700		9.5	6	5.5	7	5.5	5	6	5	3.5	5	4	2.5	80						21
ES3P-1314LL																150						24
ES3P-1310L	1,000	1,200		10	7.5	7	7.5	6.5	5	6.5	5.5	4	5	4	3	80						21
ES3P-1310LL																150						24
ES3P-1307L	700	800		11.5	9	8	8.5	6.5	5.5	6.5	5.5	4.5	5	4.5	3.5	80						21
ES3P-1307LL																150						24
ES3P-1306L	600	700		13	10	8.5	8.5	6.5	5.5	6.5	5.5	4.5	5	4.5	3.5	80						21
ES3P-1306LL																150						24
ES3P-1305L	500	600		13.5	10.5	9	8.5	7	6	7	5.5	5	5	4.5	3.5	80						21
ES3P-1305LL																150						24

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-2430 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary. (Optional hydro speed regulator types: RB-2460, R-2442A, R-2462A, and R-2482A)
4. The maximum weight of the attachment for downward drilling is 12kg.
5. AL*…Aluminium, FC*…Cast iron, ST*…Carbon steel, Wgt*…Weight
6. When ordering, please specify the voltage and frequency of the motor.
7. Please use the collet chuck spindle noses when the hardness of the carbide drill and tool shank is higher than that of a general high speed steels.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D	E	F	G	H	I	T
ES3P-3075L ES3P-3060L	80	520	79	441	149	24	14	322	265	JT1
ES3P-6049L ES3P-6034L		522	81			32	30			
ES3P-1326L ES3P-1318L		558	117			52.5	60	387	330	JT6
ES3P-1314L ES3P-1310L ES3P-1307L ES3P-1306L ES3P-1305L										
ES3P-3075LL ES3P-3060LL	150	660	79	581	219	24	14	322	265	JT1
ES3P-6049LL ES3P-6034LL		662	81			32	30			
ES3P-1326LL ES3P-1318LL		698	117			52.5	60	387	330	JT6
ES3P-1314LL ES3P-1310LL ES3P-1307LL ES3P-1306LL ES3P-1305LL										

For speeds other than those in the capacity table

The following speeds are also available upon request.

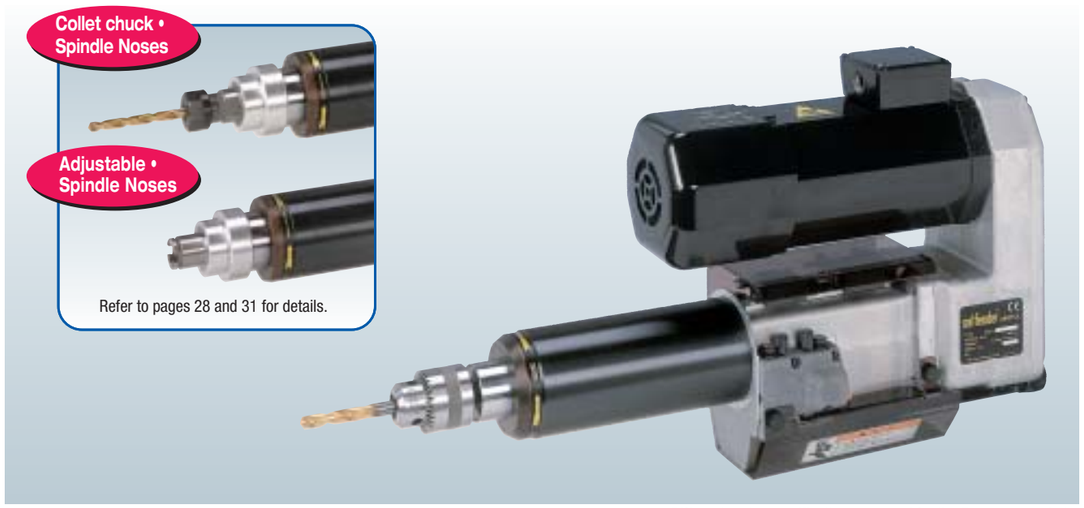
Motor	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz
	min⁻¹	min⁻¹
0.35kW 2P	5,400	6,500
	4,300	5,200
	3,000	3,600
	2,100	2,500
	1,500	1,800
0.35kW 6P	2,500	3,000
	2,000	2,400
	1,800	2,100
	1,600	1,900
	1,100	1,300
	850	1,100

ES4P

Carbon Steel φ12

Aluminium φ18

0.55kW and 0.75kW motors are employed, and ideal for lower-speed drilling.
Multiple spindle heads can be attached in this series.



Different motor specifications are used for the European market.
Refer to page 18 for the valveless type.

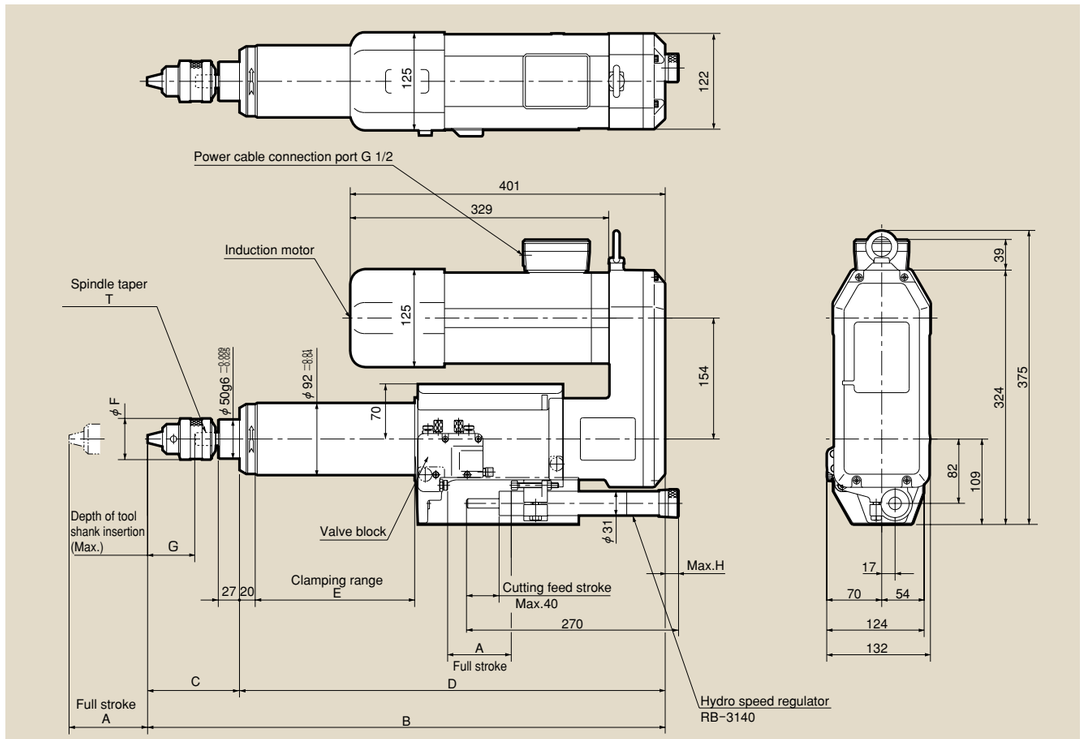
Capacity

Operating air pressure : 0.6MPa

Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	5 Spindles AL*	5 Spindles FC*	5 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Out put	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES4P-6061	6,100	7,300	6.5	5	1.5	1.5	–	–	–	–	–	–	–	–	–	–	–	–	100	0〜40	0.75	2	1800	6〜10	31
ES4P-6061L																			200						36
ES4P-6045	4,500	5,400		5.5	2	2	5	2	2	4	2	2	–	–	–	–	–	–	100						31
ES4P-6045L																			200						36
ES4P-1330	3,000	3,600	13	7	3.5	3	6.5	3	3	5.5	3	3	5	3	3	4	2.5	2	100						31
ES4P-1330L																			200						36
ES4P-1320	2,000	2,400		9	5	4.5	7.5	4.5	4	6.5	4	4	6	3.5	3.5	5	3	3	100						31
ES4P-1320L																			200						36
ES4P-1314	1,400	1,700		10	6	6	8	6	5.5	7	5	4	6	4	4	5	3.5	3	100						31
ES4P-1314L																			200						36
ES4P-1311	1,100	1,400		11	8	7	8.5	6.5	5.5	7	5.5	4.5	6	4	4	5	3.5	3	100		0.55	4			31
ES4P-1311L																			200						36
ES4P-1308	850	1,000		12	10	8	9.5	7.5	6	8	6	5	6.5	4.5	4	5.5	3.5	3	100						31
ES4P-1308L																			200						36
ES4P-1306	600	700		14	11.5	9	10.5	7.5	6.5	8	6	5.5	7	5.5	5	6	4	3.5	100						31
ES4P-1306L																			200						36
ES4P-1304	480	550		16	13	11	11	8	6.5	8	6.5	5.5	7	5.5	5	6	4.5	3.5	100						35
ES4P-1304L																			200						40
ES4P-1303	320	380		17.5	14	11	11	8	7	8	6.5	6	7	5.5	5	6	4.5	3.5	100						35
ES4P-1303L																			200						40
ES4P-1302	210	250		18	14.5	12	11.5	8.5	7	8.5	7	6	7	6	5	6.5	5	4	100						35
ES4P-1302L																			200						40

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-3140 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary.
(Optional hydro speed regulator types: RB-3160, R-3182A, and R-31132A)
4. The maximum weight of the attachment for downward drilling is 15kg.
5. AL*…Aluminium, FC*…Cast iron, ST*…Carbon steel, Wgt*…Weight
6. When ordering, please specify the voltage and frequency of the motor.
7. Please use the collet chuck spindle noses when the hardness of the carbide drill and tool shank is higher than that of a general high speed steels.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D	E	F	G	H	T
ES4P-6061 ES4P-6045	100	623	81	542	203	32	30	50	JT1
ES4P-1330 ES4P-1320 ES4P-1314 ES4P-1311 ES4P-1308 ES4P-1306		659	117			52.5	60		JT6
ES4P-1304 ES4P-1303 ES4P-1302		753		636				0	
ES4P-6061L ES4P-6045L	200	823	81	742	303	32	30	50	JT1
ES4P-1330L ES4P-1320L ES4P-1314L ES4P-1311L ES4P-1308L ES4P-1306L		859	117			52.5	60		JT6
ES4P-1304L ES4P-1303L ES4P-1302L		953		836				0	

For speeds other than those in the capacity table

The following speeds are also available upon request.

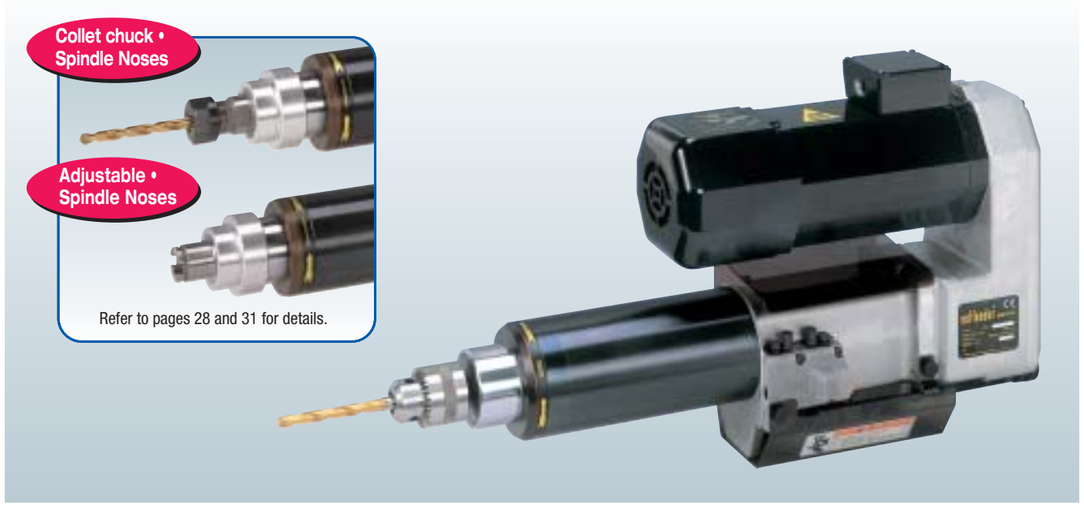
Motor	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz
	min⁻¹	min⁻¹
0.75kW 2P	5,200	6,200
	3,800	4,600
	2,300	2,800
	1,700	2,100
	1,200	1,400
0.55kW 4P	3,000	3,600
	2,600	3,100
	2,200	2,700
	1,900	2,300
	1,500	1,800
	1,000	1,200
	700	850
0.55kW 4P Reduction gear built into unit body	650	750
	550	650
	410	490
	250	300

ES5

Carbon Steel φ13.5

Aluminium φ20.5

Round-body type Selfeeder for higher torque and greater thrust
Compact special-purpose machines can be designed.



Different motor specifications are used for the European market.
Refer to page 18 for the valveless type.

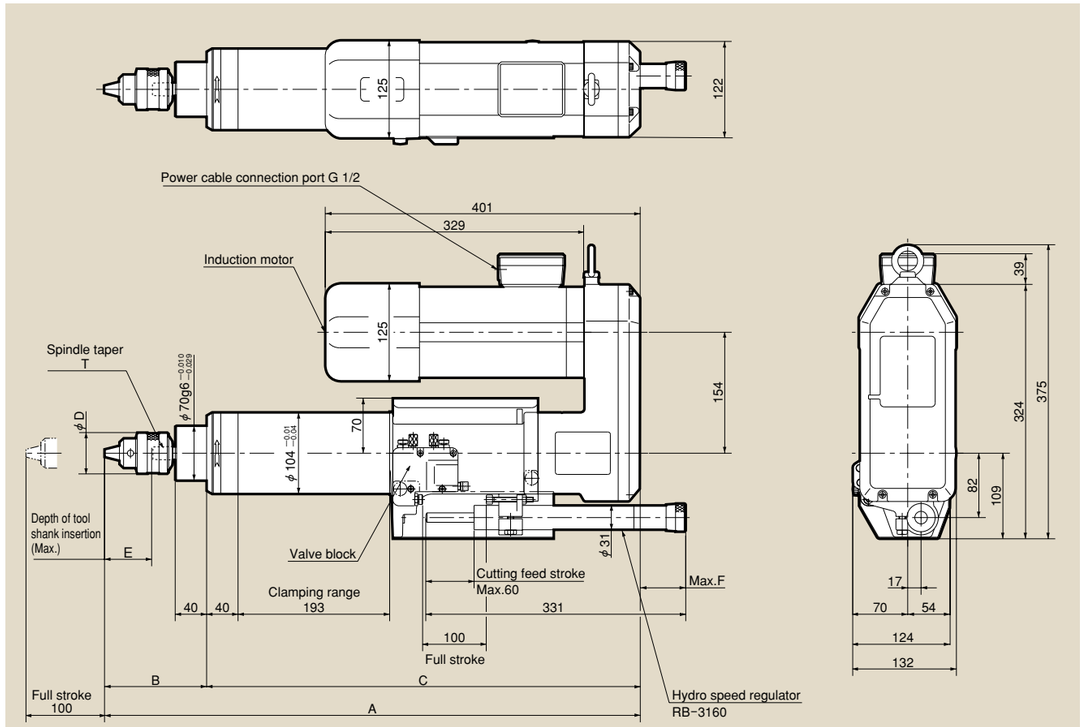
Capacity

Operating air pressure : 0.6MPa

Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	5 Spindles AL*	5 Spindles FC*	5 Spindles ST*	6 Spindles AL*	6 Spindles FC*	6 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Output	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES5-6061	6,100	7,300	6.5	5	1.5	1.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	100	0~60	0.75	2	2,400	7~12	36
ES5-6045	4,500	5,400		5.5	2	2	5	2	2	4	2	2	–	–	–	–	–	–	–	–	–							
ES5-1330	3,000	3,600	13	8	3.5	3	7	3	3	6.5	3	3	6	3	3	5	3	3	5	3	3							
ES5-1320	2,000	2,400		11	5	4.5	8	5	4.5	7	4	4	6.5	4	4	6	3.5	3.5	5.5	3.5	3.5							
ES5-1314	1,480	1,700		12	6.5	6	9	6	5.5	7	5.5	5	6.5	4.5	4	6	3.5	3.5	5.5	3.5	3.5							
ES5-1311	1,100	1,400		12	8	7.5	9	7	6	7.5	5.5	5	6.5	4.5	4	6	3.5	3.5	5.5	3.5	3.5			0.55	4			
ES5-1308	850	1,000		13	10	9	10	7.5	6	8	6	5.5	6.5	5	4	6.5	4	3.5	5.5	3.5	3.5							
ES5-1306	600	700		14	12.5	10.5	11.5	8	7	8	6	6	7	6	5	6.5	4	4	6	4	4							
ES5-1304	480	550		16	14	12	13	8.5	7	9	7	6	8	6.5	5	6.5	5	4	6	4	4							40
ES5-1303	320	380		18.5	16	13	13.5	10	7.5	10	7.5	6.5	8.5	6.5	5	7	6	5	7	5	4.5							
ES5-1302	210	250		20.5	16.5	13.5	14	10	8	10	7.5	6.5	8.5	6.5	5.5	7	6	5	7	5.5	4.5							

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-3160 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary.
(Optional hydro speed regulator types: RB-3140, R-3182A, and R-31132A)
4. The maximum weight of the attachment for downward drilling is 25kg.
5. AL*···Aluminium, FC*···Cast iron, ST*···Carbon steel, Wgt*···Weight
6. When ordering, please specify the voltage and frequency of the motor.
7. Please use the collet chuck spindle noses when the hardness of the carbide drill and tool shank is higher than that of a general high speed steels.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D	E	F	T
ES5-6061 ES5-6045	646	94	552	32	30	91	JT1
ES5-1330 ES5-1320 ES5-1314 ES5-1311 ES5-1308 ES5-1306	682	130		52.5	60		JT6
ES5-1304 ES5-1303 ES5-1302	776		646			0	

For speeds other than those in the capacity table

The following speeds are also available upon request.

Motor	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz
	min⁻¹	min⁻¹
0.75kW 2P	5,200	6,200
	3,800	4,600
	2,300	2,800
	1,700	2,100
	1,200	1,400
0.55kW 4P	3,000	3,600
	2,600	3,100
	2,200	2,700
	1,900	2,300
	1,500	1,800
	1,000	1,200
	700	850
0.55kW 4P Reduction gear built into unit body	650	750
	550	650
	410	490
	250	300

ES6

Carbon Steel φ19

Aluminium φ24

Base type high-rigidity unit with a maximum motor output of 2.2 kW Promises powerful drilling.

Different motor specifications are used for the European market. The ES6 is not equipped with a built-in control valve for forward and return movement. Refer to page 18.

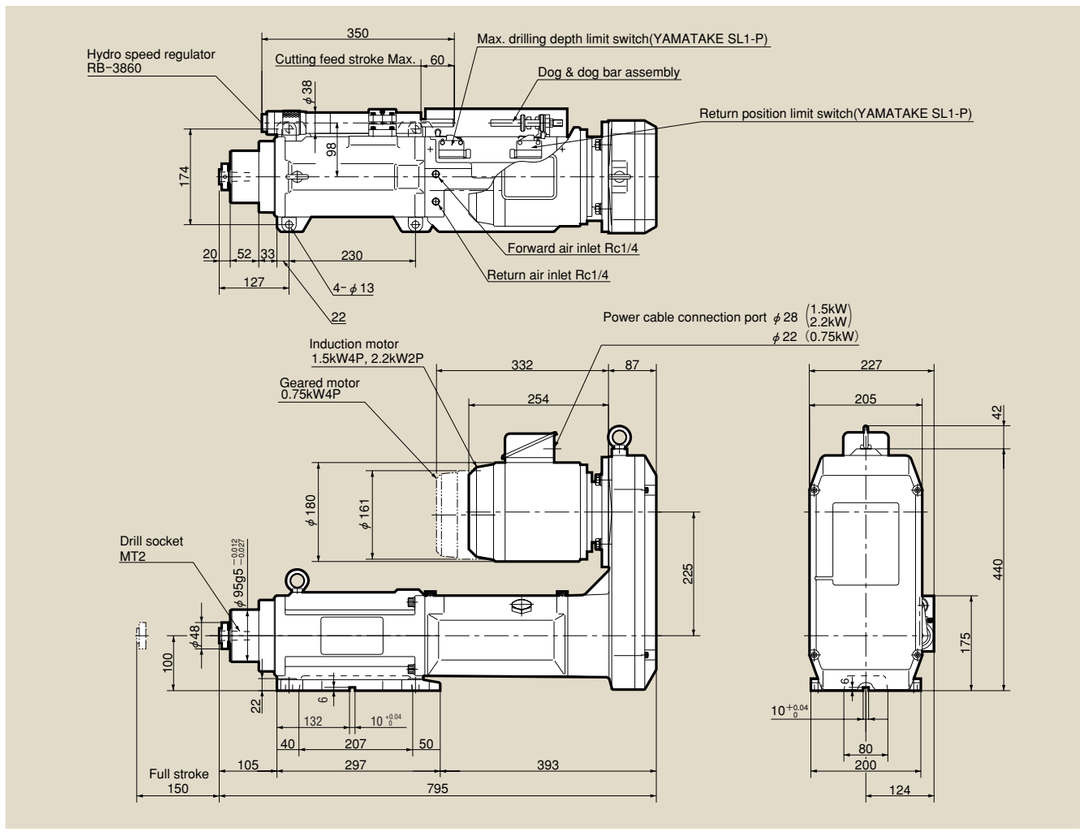
Capacity

Operating air pressure : 0.6MPa

Specs. / Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	5 Spindles AL*	5 Spindles FC*	5 Spindles ST*	6 Spindles AL*	6 Spindles FC*	6 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Output	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES6-2435	3,500	4,200		9	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–							
ES6-2422	2,200	2,700		12	4	4	11	4	4	9.5	4	4	8.5	4	4	8	4	4	7.5	4	4			2.2	2			
ES6-2414	1,400	1,700		14	6.5	6	14	6.5	6	12	6.5	6	10	6.5	6	9.5	6.5	6	9	6.5	6							
ES6-2411	1,100	1,300		16	9	8	13.5	8.5	8	11	8.5	8	9.5	8	7	9	7.5	6.5	8.5	7	6							
ES6-2408	850	1,000		18	11	10.5	14.5	11	10	13	10	8	11	9	7.5	10	8	7	9	7.5	6			1.5	4			
ES6-2407	700	850	MT2	19	14	12.5	15.5	12.5	11	13.5	10.5	9	12	9.5	7.5	10.5	8	7	9	7.5	6	150	0~60			5,200	14	100
ES6-2406	550	650		20	16	15	17	14	12	15	12	9	13	9.5	7.5	10.5	8	7	9	7.5	6							
ES6-2405	500	600		18.5	14	13	13.5	11	9.5	11.5	9.5	8	10	8	7.5	9	7.5	7	8.5	7	6							
ES6-2404	400	480		19	15	13.5	15	12	10.5	13	10	9	11.5	9	7.5	10	8	7	9	7.5	6			0.75 (Geared motor)	4			
ES6-2403	350	430		20	18	16	15.5	13	11	13.5	10.5	9	12	9.5	7.5	10.5	8	7	9	7.5	6							
ES6-2402	220	270		24	21	19	18	15.5	13	15.5	12	9	13	9.5	7.5	10.5	8	7	9	7.5	6							

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The RB-3860 is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary. (Optional hydro speed regulator type: R-3810OAC)
4. The maximum weight of the attachment for downward drilling is 50kg.
5. The ram hold back mechanism is optional.
6. See pages 28 and 31 for details on the adjustable spindle nose unit and Collet Chuck spindle nose unit.
7. AL*…Aluminium, FC*…Cast iron, ST*…Carbon steel, Wgt*…Weight
8. When ordering, please specify the voltage and frequency of the motor.

Dimensions(mm)



Note: The ES6 is equipped with max. drilling depth limit switch and return position limit switch (YAMATAKE SL1-P)

6 Spindle drill head (adjustable spindle nose type) with guide bars

For speeds other than those in the capacity table

The following speeds are also available upon request.

Motor	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz
	min⁻¹	min⁻¹
2.2kW	2,500	3,000
	1,700	2,100
	1,100	1,300
1.5kW 4P	3,200	3,800
	2,500	3,000
	2,000	2,400
	1,700	2,100
	1,200	1,500
0.75kW 4P Geared motor	750	900
	600	750
	250	300

ES7

Carbon Steel φ28

Aluminium φ40

Large unit with a maximum motor output of 3.7kW and thrust of 9400N

This type drills large-diameter holes (φ 28 steel)

Different motor specifications are used for the European market. The ES7 is not equipped with a built-in control valve for forward and return movement. Refer to page 18.

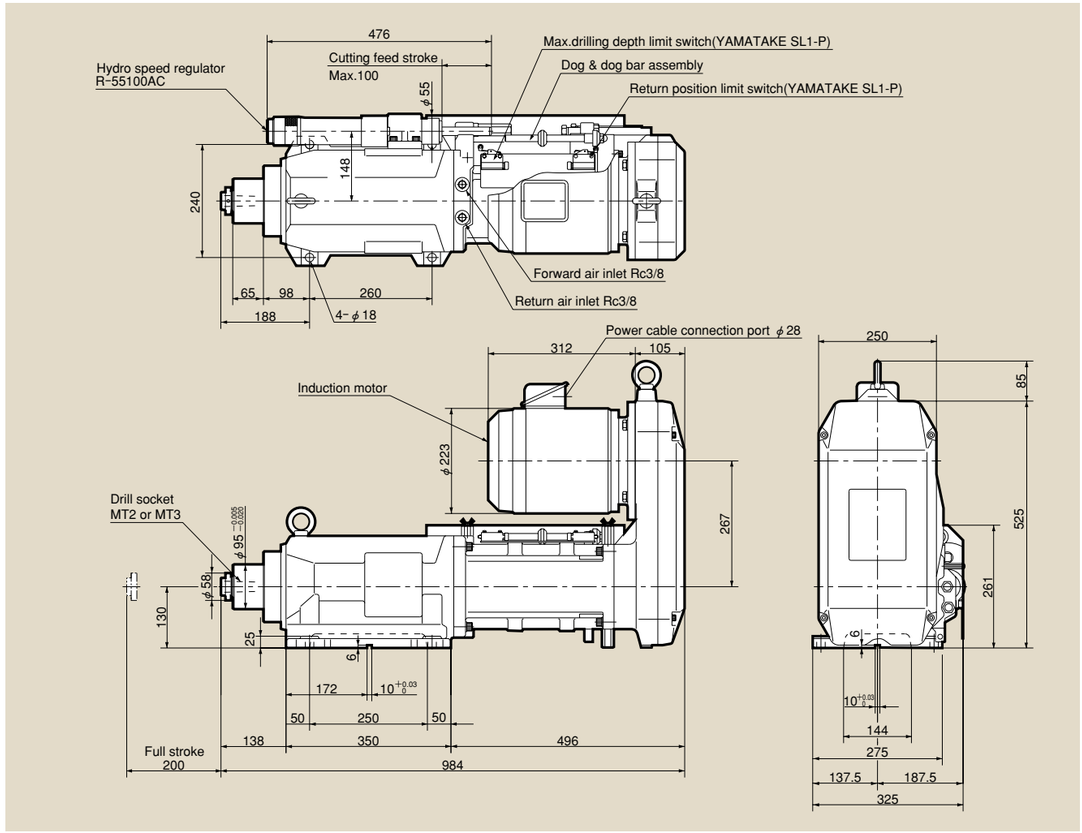
Capacity

Operating air pressure : 0.6MPa

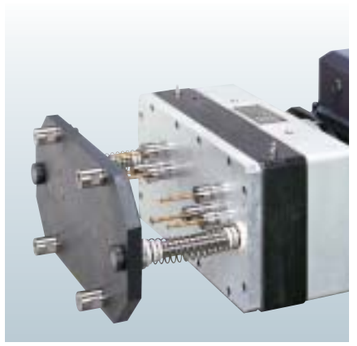
Specs. / Models	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz	Chuck Capacity	Max.drill size 1 Spindle AL*	1 Spindle FC*	1 Spindle ST*	2 Spindles AL*	2 Spindles FC*	2 Spindles ST*	3 Spindles AL*	3 Spindles FC*	3 Spindles ST*	4 Spindles AL*	4 Spindles FC*	4 Spindles ST*	5 Spindles AL*	5 Spindles FC*	5 Spindles ST*	6 Spindles AL*	6 Spindles FC*	6 Spindles ST*	Stroke Max.	Stroke Cutting feed stroke	Motor Output	Motor No.of Pole	Thrust	Air Consumption	Wgt*
	min⁻¹	min⁻¹	mm	mm			mm			mm			mm			mm			mm			mm	mm	kW	P	N	L/stroke	kg
ES7–3229	2,900	3,500	MT2 or MT3	11	4	3	8	4	3	8	4	3	8	4	3	8	4	3	8	4	3	200	0~100	3.7	4	9,400	58	210
ES7–3222	2,200	2,700		13	5	4	11	5	4	11	5	4	10	5	4	9	5	4	9	5	4							
ES7–3215	1,500	1,800		17	7	6	16	7	6	14	7	6	12.5	7	6	11	7	6	10	7	6							
ES7–3210	1,000	1,200		20	14	12	15	12	10	13	10	9	11	9	8	11	8	7	10	8	7			2.2	6			
ES7–3206	650	800		25	19	16	20	15	13	16	12	11	13	10	9	12	10	9	11	9	8							
ES7–3205	500	600		31	24	21	23	17	15	18	14	12	15	12	11	14	11	9	13	10	8							
ES7–3203	340	410		40	32	28	28	21	18	24	17	13	18	14	11	17	12	9.5	16	11	8.5							

Notes 1. Model selection should be done from the above chart, based on workpiece specifications, material hardness, diameter of hole and cutting speed.
2. The drilling capacity shown above is for a depth equivalent to the drill diameter times two.
3. The R-55100AC is installed as a standard type hydro speed regulator. Specify an optional hydro speed regulator as necessary. (Optional hydro speed regulator type: R-55150AC)
4. The maximum weight of the attachment for downward drilling is 100kg.
5. When ordering , specify your requirement for the ram hold back mechanism, which requires additional machining in Sugino's factory.
6. See pages 28 and 31 for details on the adjustable spindle nose unit and Collet chuck spindle nose unit.
7. AL*…Aluminium, FC*…Cast iron, ST*…Carbon steel, Wgt*…Weight
8. When ordering, please specify the voltage and frequency of the motor.

Dimensions(mm)



Note: The ES7 is equipped with max. drilling depth limit switch and return position limit switch (YAMATAKESL1-P).



6-Spindle drill head with bush plate

For speeds other than those in the capacity table

The following speeds are also available upon request.

Motor	Spindle speed (no-load) 50Hz	Spindle speed (no-load) 60Hz
	min⁻¹	min⁻¹
3.7kW 4P	1,000	1,200
	750	900
	500	600
2.2kW 6P	2,600	3,200
	1,900	2,300
	1,500	1,800

Air Pressure Control Circuits

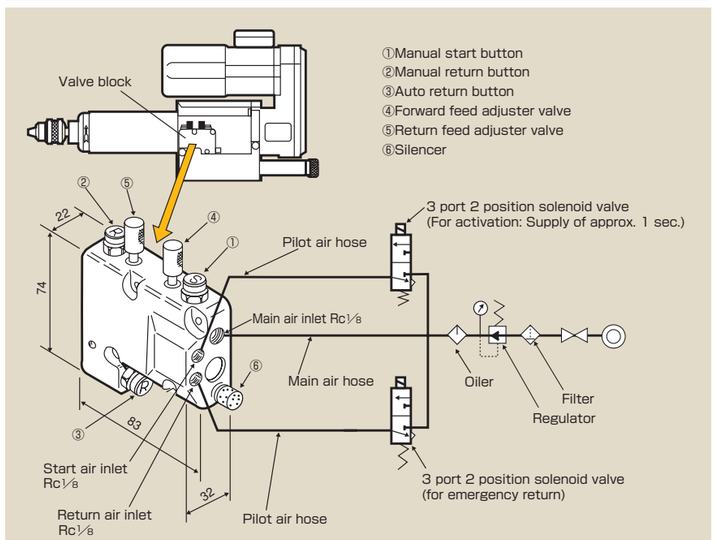
Standard Specifications
(With valve block)

The standard types are equipped with a built-in valve for the control of forward and return movements of the Selfeeder (electric).

Standard types

ES2	ES4P
ES3C	ES5
ES3P	

Drive Circuit Diagram



Notice: Pneumatic equipments to the valve block are provided by customer.

Valveless Specifications
(With air connecting block)

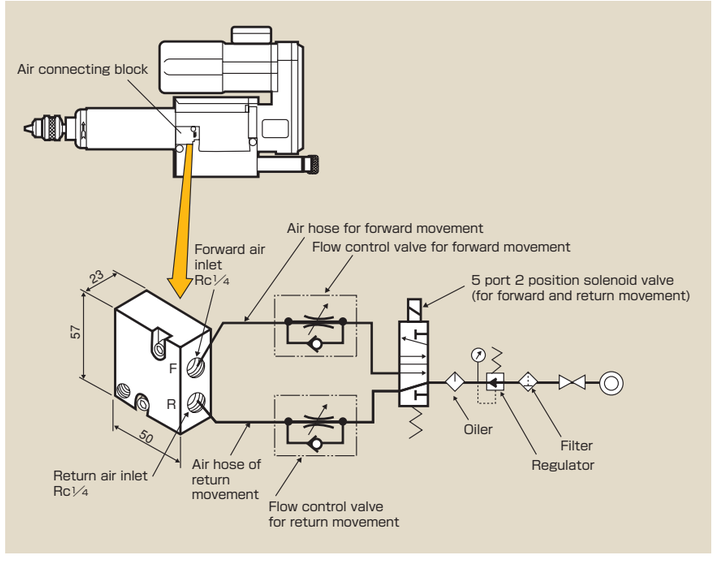
The valveless types are designed for economic efficiency, with a simplified control mechanism eliminating the forward and return manual operation.

These types are changed to the standard types by installing the valve block in position.

- Selfeeders having a model number with 'A' at the end employ valveless specifications.

E.g. : ES3C-1314LA
ES5-1303A

Drive Circuit Diagram

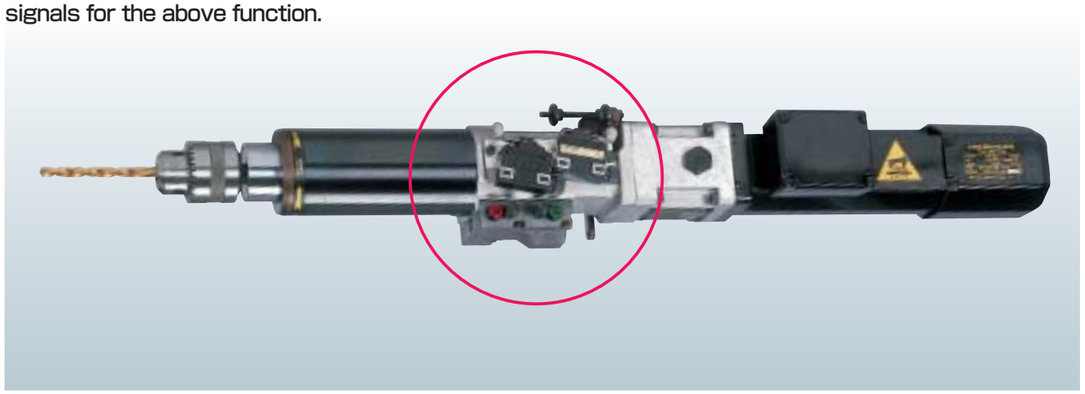


Notice : Pneumatic equipments to the air connecting block are provided by customer.

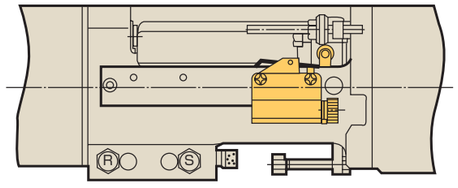
Notes 1. Be sure to use the meter-in flow control valve to control the speed in forward and return movement for the ES2 to the ES5.
2. Use the meter-in flow control valve with the ES6 and the meter-out flow control valve with the ES7.
Refer to the drive circuit diagram for the valveless type.

Operate-Signal Kits

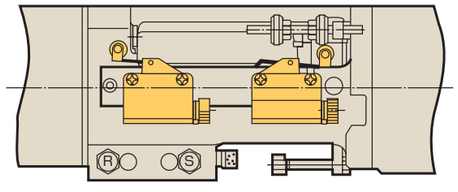
The Operate-Signal Kit is designed to precisely monitor the operating condition of the Selfeeder (electric) for the management of the synchronized operation of the Selfeeder with other relative devices (such as an index table and auto clamping unit). The Operate-Signal Kit transmits electric signals for the above function.



Application example 1 - Check of return position



Application example 2 - Check of maximum drilling depth and return position



Limit switch used is YAMATAKE(SL1-P). Specify it in case other brand of limit switch is required.

Models of Operate-Signal kits and Specifications

Applicable Operate-Signal Kit changes according to model of Selfeeder.

Model No.	Types of Detection	Applicable Selfeeder (Electric)
OSK-80-EM	Check of return position	ES2 ES3C-L ES3P-L
OSK-80-WM	Check of max. drilling depth & return position	
OSK-100-EM	Check of return position	ES4P ES5
OSK-100-WM	Check of max. drilling depth & return position	
OSK-150-EM	Check of return position	ES3P-LL
OSK-150-WM	Check of max. drilling depth & return position	
OSK-200-EM	Check of return position	ES4P-L
OSK-200-WM	Check of max. drilling depth & return position	

Step Controller

Measures must be taken to prevent the wear and fracture of the drill in such machining processes as drilling a hole with a depth exceeding 5 to 6 times the drill diameter.
Step-feed machining is the most effective way of preventing such problems.
Sugino's Step Controller MCB-1, equipped with timers, secures the optimum cutting condition and operates Selfeeders in the step-feed and inching drilling.

Features

1.Optimum cutting conditions can be freely specified.
The controller is equipped with three timers, which realizes fine adjustment of drilling conditions. Fine inching feed is possible through timer adjustment.
2.Light weight and small size
As can be seen from the photo on the right, the controller is space-efficient and can be installed in a corner of the drill operation panel.
3.Complete variety of ontput signals
Automated drilling is easily realized with various types of output signals such as for start point, maximum drilling depth, and in-process checking.

Applicable Selfeeder types

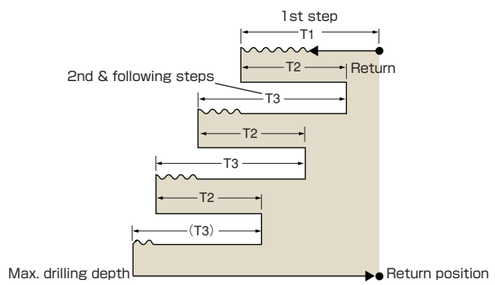
ES2-A	ES3C-A	ES3P-A
ES4P-A	ES5-A	ES6
ES7		

The Step Controller can be connected with your present Selfeeder model.
Please contact your Sugino dealer for details on the arrangement.

Drilling motion

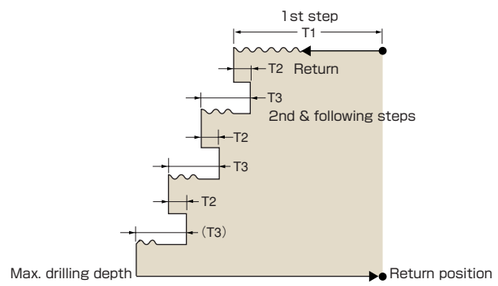
Step Feed Pattern

The 1st step, T1, completes the first step and the 2nd and following steps are controlled by T3 which drills little by little in the optimum cutting condition. The return timer, T2, helps the Selfeeder work immediately on the next step without returning it to the machine zero point, thus performing efficient deep hole drilling.

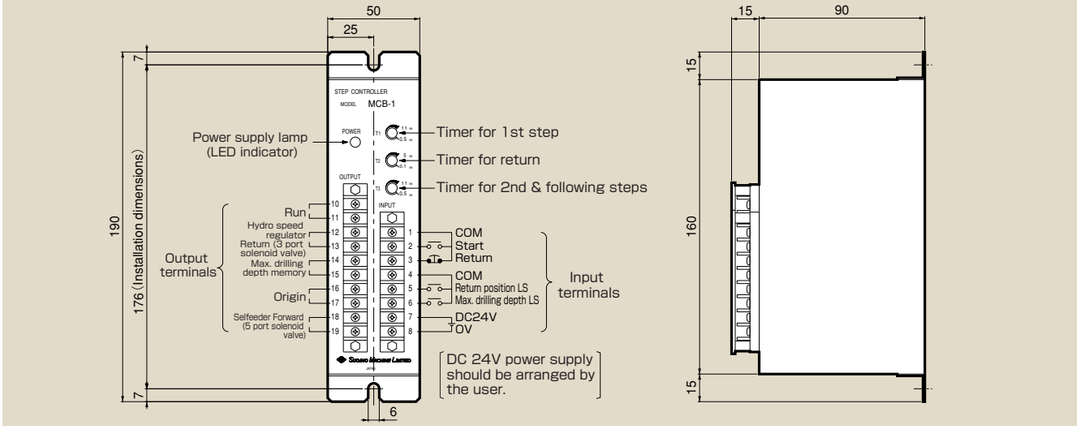


Inching Feed Pattern

Inching feed results from setting the return timer, T2, at a short period. Chips are broken down and the cutting torque on the cutting blade is reduced, extending the life of the blade.



Dimensions(mm)

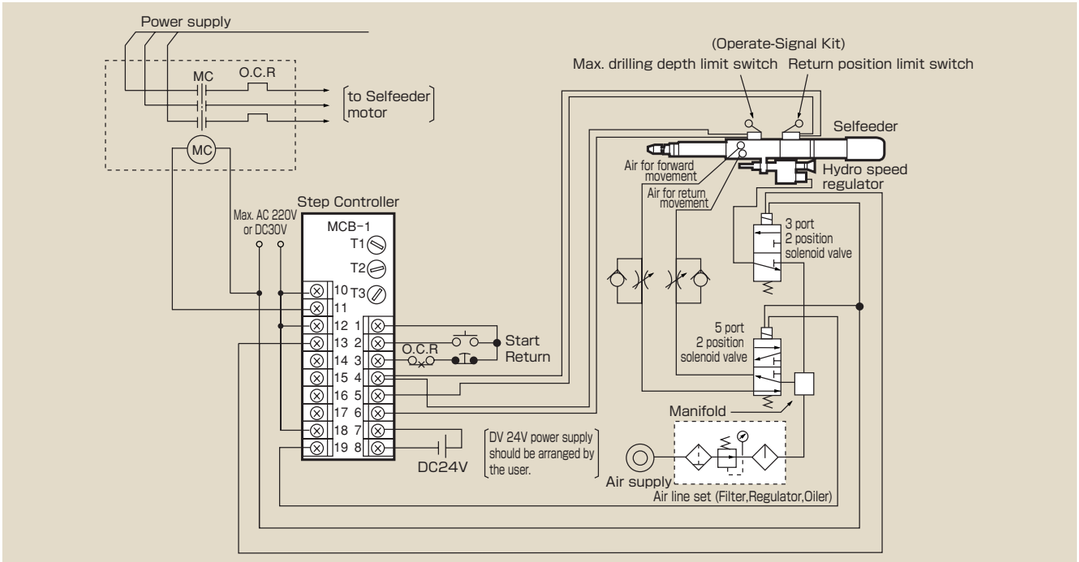


	Specs.		
Power Supply	DC24V, ripple5% or below, 4.8W		
Timer set range	T1 : 1st step	0.5~11sec ±20%	
	T2 : Return	0.1~ 5sec ±20%	
	T3 : 2nd & following steps	0.5~11sec ±20%	
Input signal	Start	No-voltage contact signal DC24V internally supplied	
	Return		
	LS to check return position		
	LS to check max. drilling depth		

		Specs.	
Output signal	Run	Contact capacity AC220V DC 30V 1A (resistance load)	
	Hydro speed regulator return		
	Max. drilling depth memory		
	Origin		
	Selfeeder forward		
Operating environment	Temp.	0℃~40℃	
	Humidity	RH85% or below, without dew condensation	
Applicable no. of Selfeeders		1unit	

Note: Use the Step Controller MCB-1 by installing it in the control cabinet. Note that the controller is not waterproof.

Electric and air circuit



Notes 1. The solenoid valves in the above application are designed for AC200V. Transformer (200V→100V) is required for AC100V use.
2. The solenoid valve and Operate-Signal Kit above application are not attached with the step cotroller MCB-1 as standard accessories. Other air devices are to be provided by customer.

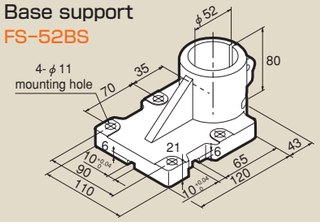
Step Controller

Flex Stands

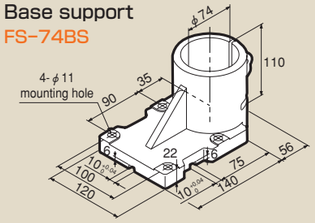
The Flex stand is a jig for fixing a round-body type Selfeeder at a desired angle of operation.

Dimensions(mm)

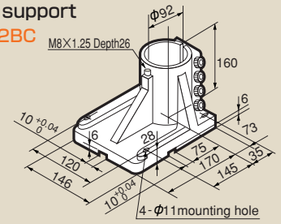
Base support
FS-52BS



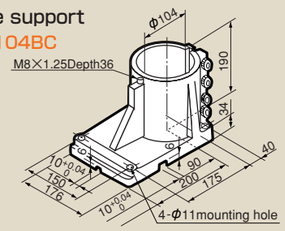
Base support
FS-74BS



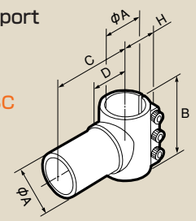
Base support
US-92BC



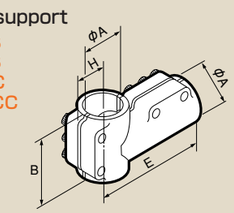
Base support
US-104BC



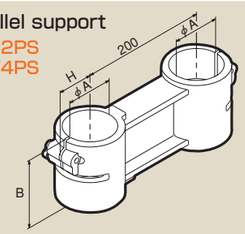
Swivel support
FS-52SS
FS-74SS
US-92SC
US-W104SC



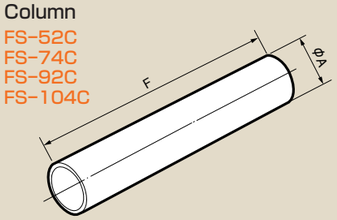
Column support
FS-52CS
FS-74CS
US-92CC
US-104CC



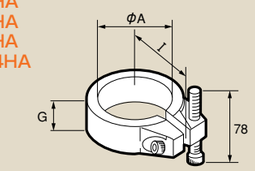
Parallel support
FS-52PS
FS-74PS



Column
FS-52C
FS-74C
FS-92C
FS-104C



Height adjuster
US-52HA
US-74HA
US-92HA
US-104HA



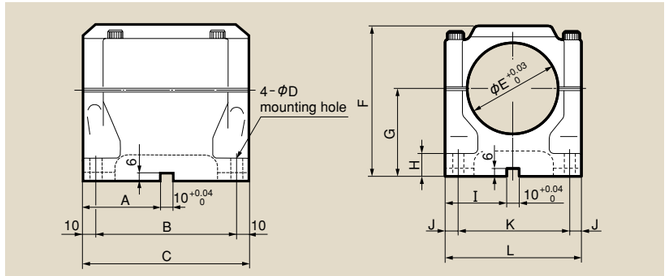
Dimensions(mm)

Model	A	B	C	D	E	F	G	H	I	Applicable Selfeeders
FS-52 US-52	52	80	115	40	120	500	30	43	52	ES2
FS-74 US-74	74	110	135	45	140	600	30	56	65	ES3C、ES3P
FS-92 US-92	92	160	215	60	205	800	34	70	78	ES4P
FS-104 US-104	104	190	250	70	248	1,000	38	77	95	ES5

Level Clamps

Level clamp is a jig for installating a round-body type Selfeeder electric parallel with the machine base. According to the difference of the center height, 2 types are provided.

Dimensions(mm)



Dimensions(mm)

Model	A	B	C	D	E	F	G	H	I	J	K	L	Applicable Selfeeders
LC-52	30	50	70	6.5	52	95	60	14	35	8	64	80	ES2
LC-52H						135	100						
LC-74	60	110	130	9	74	120	70	18	50	10	90	110	ES3C、ES3P
LC-74H						150	100						
LC-92	65	120	140	9	92	127	70	20	61	10	112	132	ES4P
LC-92H						178	120						
LC-104	90	170	190	11	104	148	80	20	70	10	130	150	ES5
LC-104H						188	120						

Application example

Flex stand FS-92 type H set

Standrill

Standrill is a highly precise automatic drilling stand equipped with the up-down height adjustable function and head swing mechanism for flexible use. Various motions such as standard Dwell and step drilling are free to select. This features make the Standrill most suitable for drilling of small volume and assorted parts and for secondary machining process after machining center.

Specifications

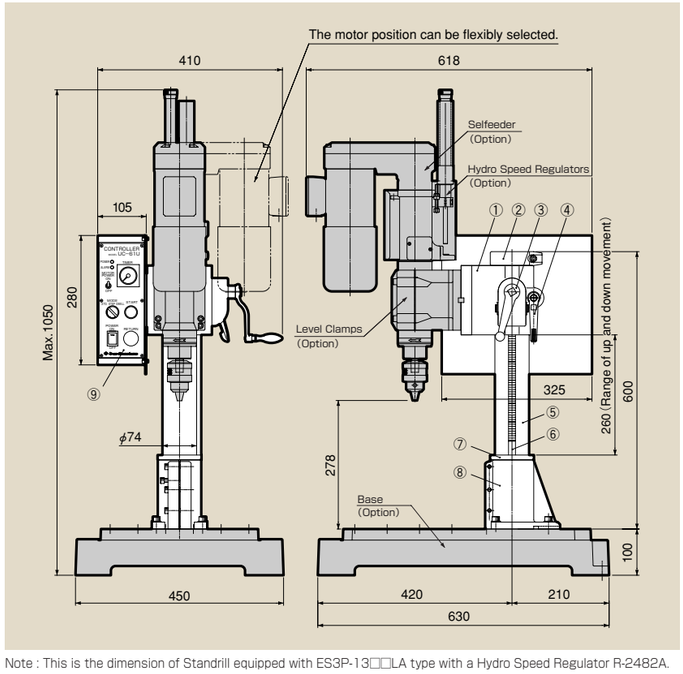
Model No.	SSD−74
Applicable Selfeeder	Selfeeder《electric》(Valveless spec) ・ES2-A ・ES3C-A, ES3P-A ・ES4P-A
Up-down stroke of the unit	Max.260mm
Allowable unit weight	Max.45kg

■Controller UC-61

Power source	Motor voltage	Three phase AC voltage to match the motor.
	Control voltage	Single phase AC 200V (50/60Hz)
Motion selection	Standard/Dwell/Step-feed	
Dwell/Step timer set	0.05～ 1.2 sec 0.3 ～ 3 sec 4 way 1.2 ～12 sec selectable 3 ～30 sec	
Input signal	Start	Non contact signal (DC24V internal supply)
	Return	
Output signal	1 Cycle end	Contact capacity AC220V DC30V 1A(Resistance load)

Notes 1. Applicable electromagnetic contactor is different in each Selfeeder model. Specify the model No. of the Selfeeder, the voltage , frequency , and rated amperage of the motor.
2. 5 port 2 position and 3 port 2 position solenoid valves supplied are for coil rating of DC24V.

Dimensions(mm)



Note : This is the dimension of Standrill equipped with ES3P-13□□LA type with a Hydro Speed Regulator R-2482A.

■Option

No.	Product Name	Specification and content
1	Selfeeder swinging prevention guide bar	When selfeeder《electric》is moved up and down, the guide bar prevent it from swinging.
2	Handy operation button	Button switch for start-up and emergency return.
3	Counter	Preset type 6 digits counter

Note: For detailed information, please contact Sugino sales office.

◀Breakdown of Standrill complete set

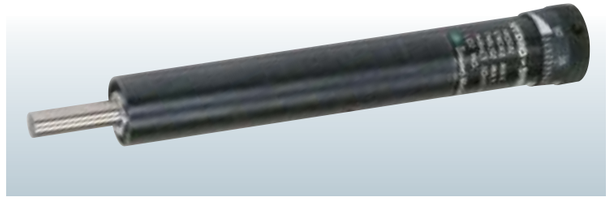
①	Bracket
②	Stopper
③	Handle
④	Clamping lever
⑤	Column (FS-74C)
⑥	Rack
⑦	Rack stop color
⑧	Base support
⑨	Controller (UC-61)

Hydro Speed Regulators

The hydro speed regulator is an oil-operated feed speed control unit. The feed speed of the air cylinder is controlled to a desired one. The regulator is available in two different types, to suit the control patterns. Select a type from the spring return type and air return type.
Hydro speed regulator with skip motion model is optimal for machining the piping materials.

RB type
Spring return type

In the hydro speed regulator RB type, the piston rod is automatically returned to its original position by the built-in spring when the piston rod is no longer loaded.



Features

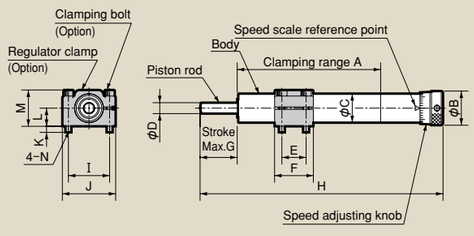
1. Compact and handy size realize free direction of installation.
2. The completely sealed structure eliminates the need for resupplying the unit with operating oil and realizes stable speed control over a long time.
3. Stable feed speed is obtained as variation of the controlled speed is very little against sudden load changes.
4. Feed is controlled with ease by the speed adjusting knob.

Specifications

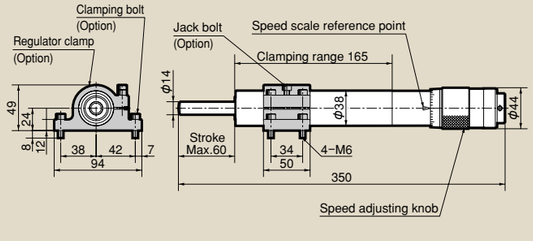
Model	Max. Stroke	Load Range	Range of Speed Control for Each Thrust	Permissible impact Energy	Wgt (Main Body Only)
	mm	N	mm/sec	J	kg
RB−2412	12	98～ 490	F= 98N 0.2～20 F= 290N 0.3～30 F= 490N 0.4～35	1.47	0.35
RB−2430	30	200～1,500	F= 200N 0.1～ 5 F= 490N 0.2～25 F= 980N 0.3～40 F=1,500N 0.4～50	2.45	0.41
RB−2460	60				0.58
RB−3140	40	490～2,900	F= 490N 0.1～10 F=1,500N 0.2～25 F=2,200N 0.3～35 F=2,900N 0.5～40	3.92	0.95
RB−3160	60				1.20
RB−3860	60	2,200～5,400	F=2,200N 0.2～15 F=3,700N 0.3～25 F=5,400N 0.4～30	5.88	1.80

Notes 1. Special models other than those in the above table are also available upon request.
2. The regulator clamp is an optional item.

■RB−2412、RB−2430、RB−2460
RB−3140、RB−3160



■RB−3860

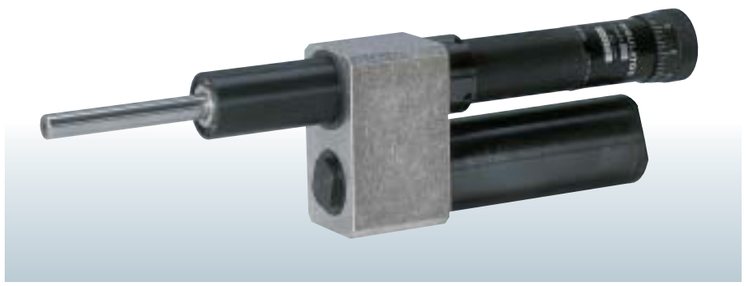


Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
RB−2412	93	28	24	9	20	32	12	160	34	44	5	15	30	M5
RB−2430	115						30	200						
RB−2460	196						60	311						
RB−3140	150	36	31	12	24	40	40	270	42	58	7	20	40	M6
RB−3160	190						60	331						

R-A type

Air return type

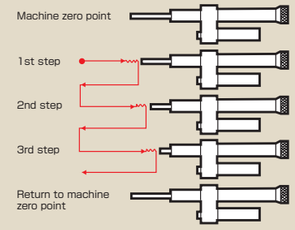
In the hydro speed regulator R-A type, the position of the piston rod is maintained even if it is no longer loaded and the piston rod is returned to its original position by supplying external compressed air. Effective for step feed motion.



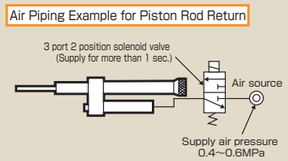
Features

1. With the position of the piston rod maintained along the stroke as desired, efficient step feeding is possible.
2. Some models feature a long stroke for expanded application purposes.

Step Feeding Example



Air Piping Example for Piston Rod Return

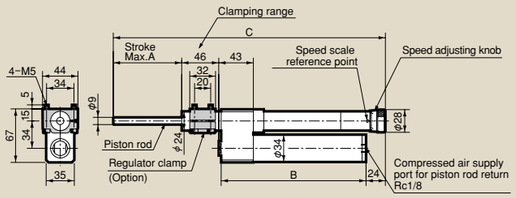


Specifications

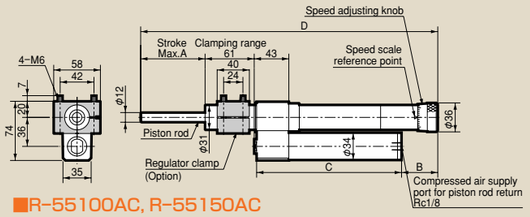
Model	Max. Stroke	Load Range	Range of Speed Control for Each Thrust	Permissible impact Energy	Wgt (Main Body Only)
	mm	N	mm/sec	J	kg
R-2442A	40	200～1,500	F= 200N 0.3～ 5 F= 980N 0.5～25 F=1,500N 0.8～30	2.45	1.3
R-2462A	60				1.4
R-2482A	80				1.5
R-3182A	80	490～2,900	F= 490N 0.3～12 F=2,200N 0.5～25 F=2,900N 0.8～30	3.92	2.2
R-31132A	130				2.8
R-38100AC	100	2,200～5,400	F=2,200N 0.3～15 F=3,700N 0.5～25 F=5,400N 0.8～30	5.88	4.2
R-55100AC	100	3,900～9,800	F=3,900N 0.2～15 F=9,800N 0.6～35	9.8	7.3
R-55150AC	150				8.1

Notes 1. A regulator clamp is provided as a standard part with the R-38100AC,R-55100AC and R-55150AC. The clamp cannot be removed from the mechanism.
2. Special models other than those in the above table upon request.

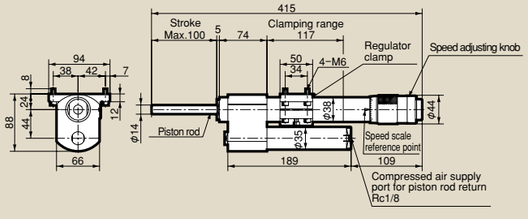
■R-2442A, R-2462A, R-2482A



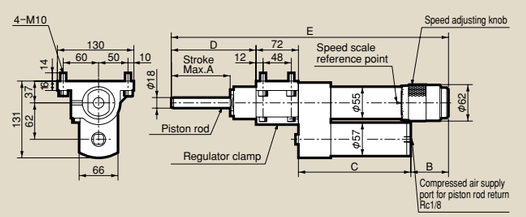
■R-3182A, R-31132A



■R-38100AC



■R-55100AC, R-55150AC



Model	A	B	C
R-2442A	40	127	240
R-2462A	60		260
R-2482A	80	180	333

Model	A	B	C	D
R-3182A	80	39	180	363
R-31132A	130	34	255	483

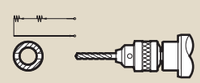
Model	A	B	C	D	E
R-55100AC	100	64	191	148	476
R-55150AC	150	81	216	198	568

RB-SKtype,R-ASKtype

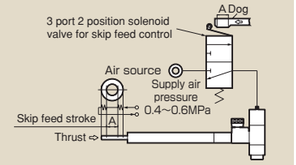
Skip Motion type

Hydro Speed Regulator, RB-SK type and R-ASK can change the controlling speed high from to low as well as low to high by air signal.

Example of feed controlling



Example of air pipe configuration for skip feed control

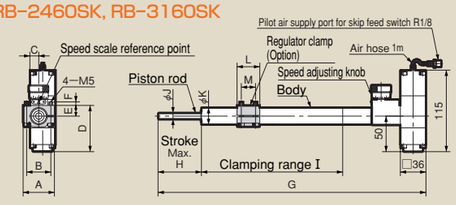


Specifications

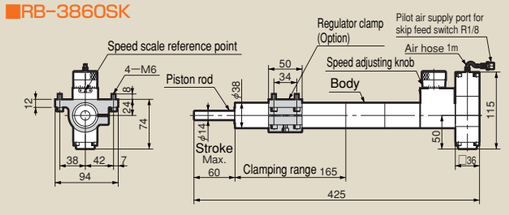
Model	Piston rod return type	Max. Stroke	Skip feed stroke	Load Range	Range of speed Control for Each Thrust at low-speed feed	Permissible impact Energy	Wgt (Main Body Only)
		mm		N	mm/sec	J	kg
RB-2460SK	Spring return type	60	Range: 10mm more within Max. stroke range	200～1,500	F= 200N 0.3～ 5 F= 490N 0.3～25 F= 980N 0.5～40 F=1,500N 0.8～50	2.45	1.2
RB-3160SK		60		490～2,900	F= 490N 0.3～10 F=1,500N 0.3～25 F=2,200N 0.5～35 F=2,900N 0.8～40	3.92	1.8
RB-3860SK		60		2,200～5,400	F=2,200N 0.3～15 F=3,700N 0.5～25 F=5,400N 0.8～30	5.88	2.6
R-2462ASK	Air return type	60		200～1,500	F= 200N 0.3～ 5 F= 980N 0.5～25 F=1,500N 0.8～30	2.45	1.9
R-3182ASK		80		490～2,900	F= 490N 0.3～12 F=2,200N 0.5～25 F=2,900N 0.8～30	3.92	2.5
R-38100ASKC		100		2,200～5,400	F=2,200N 0.3～15 F=3,700N 0.5～25 F=5,400N 0.8～30	5.88	4.5

Note: 1. The speed at the high speed feed (skip feed) varies to the thrust. The speed is corresponding to the maximum level for each thrust shown in the above table.
2. A regulator clamp is provided as a standard part with the R-38100ASKC. The clamp cannot be removed from the mechanism.

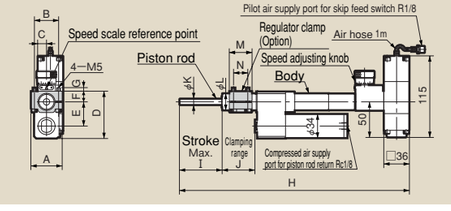
■RB-2460SK, RB-3160SK



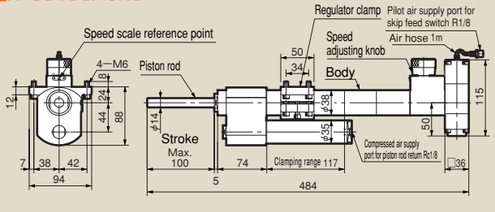
■RB-3860SK



■R-2462ASK, R-3182ASK



■R-38100ASKC



Model	A	B	C	D	E	F	G	H	I	J	K	L	M
RB-2460SK	44	34	12.5	65	15	5	377	60	196	9	24	32	20
RB-3160SK	58	42	0	70	20	7	398	60	190	12	31	40	24

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
R-2462ASK	44	34	12.5	67	34	15	5	323	60	46	9	24	32	20
R-3182ASK	58	42	0	74	36	20	7	424	80	61	12	31	40	24

Adjustable Spindle Noses

Adjustable spindle noses are applicable to all models of the Selfeeder electric series except the ES2.

Please specify the adjustable spindle nose when ordering your Selfeeder.
Sugino supplies adjustable spindle noses other than those shown below, upon request.

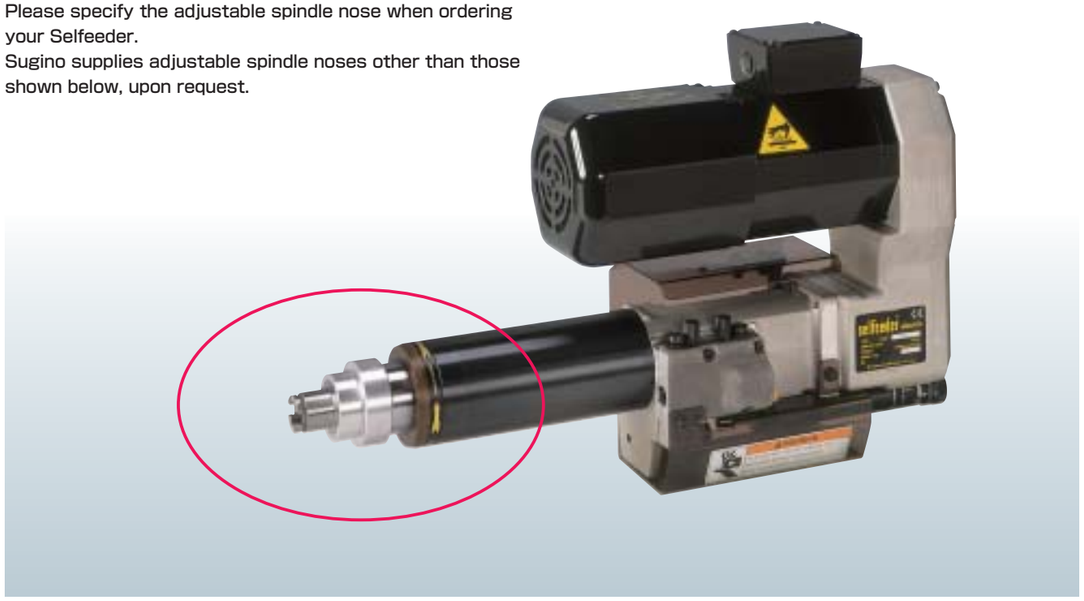


Fig.1

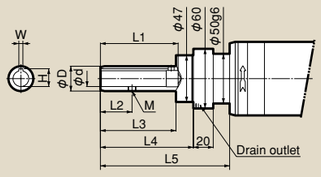
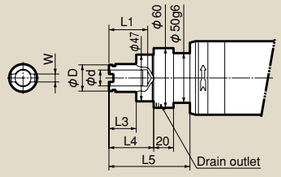


Fig.2



Applicable Selfeeders	Fig. No.	Spindle Nose Model No.	d	D	H	W	L1	M	L2	L3	L4	L5
ES3C ES3P	1	BILZ16	16H6 $^{+0.011}_{0}$	25g6 $^{-0.007}_{-0.020}$	17.3	5 $^{+0.145}_{+0.070}$	74	M6×1	34	74	91.5	128
		BILZ20	20H6 $^{+0.013}_{0}$	32g6 $^{-0.009}_{-0.025}$	21.3		77			77	94.5	131
		BILZ25	25H6 $^{+0.013}_{0}$	37g6 $^{-0.009}_{-0.025}$	26.7	6 $^{+0.145}_{+0.070}$	85	M8×1.25	38	89	106.5	143
	2	KH-14E	14 $^{+0.010}_{+0.005}$	22.0 $^{0}_{-0.1}$	—	8C10 $^{+0.138}_{+0.080}$	38	—	—	27.5	45	81.5
		KH-16E	16 $^{+0.010}_{+0.005}$	26.4 $^{0}_{-0.1}$		8C10 $^{+0.138}_{+0.080}$	43			27.5	45	81.5
		KH-22E	22 $^{+0.010}_{+0.005}$	32.4 $^{0}_{-0.1}$		10C10 $^{+0.138}_{+0.080}$	58			51.5	69	105.5
ES4P	1	BILZ16	16H6 $^{+0.011}_{0}$	25g6 $^{-0.007}_{-0.020}$	17.3	5 $^{+0.145}_{+0.070}$	74	M6×1	34	74	91.5	128
		BILZ20	20H6 $^{+0.013}_{0}$	32g6 $^{-0.009}_{-0.025}$	21.3		77			77	94.5	131
		BILZ25	25H6 $^{+0.013}_{0}$	37g6 $^{-0.009}_{-0.025}$	26.7	6 $^{+0.145}_{+0.070}$	85	M8×1.25	38	89	106.5	143
	2	KH-14E	14 $^{+0.010}_{+0.005}$	22.0 $^{0}_{-0.1}$	—	8C10 $^{+0.138}_{+0.080}$	38	—	—	27.5	45	81.5
		KH-16E	16 $^{+0.010}_{+0.005}$	26.4 $^{0}_{-0.1}$		8C10 $^{+0.138}_{+0.080}$	43			27.5	45	81.5
		KH-22E	22 $^{+0.010}_{+0.005}$	32.4 $^{0}_{-0.1}$		10C10 $^{+0.138}_{+0.080}$	58			51.5	69	105.5

Notes 1. Dimensions of spindle shown here are as per recommendation of NT Tool Co.Ltd..
2. Spindle noses of KH-E model are applicable to the quick change stub holder of KH-A or KH-E model of NT Tool Co.Ltd..
3. Adjustable spindle noses cannot be used in Selfeeders with a specified speed above 5,000min^{-1}.
4. Adjust the direction so that the drain outlet facing downward, when installing selfeeder 《electric》 in a horizantol position.
5. Specific products other than shown above are also available upon your requests.

Fig.3

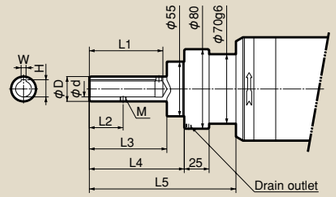


Fig.4

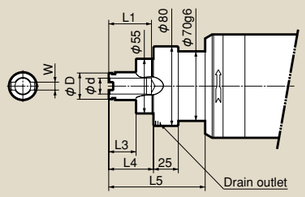


Fig.5

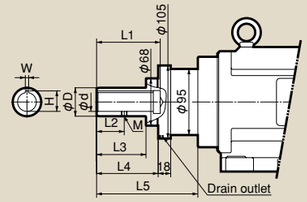
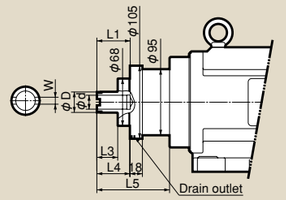


Fig.6



Applicable Selfeeders	Fig. No.	Spindle Nose Model No.	d	D	H	W	L1	M	L2	L3	L4	L5
ES5	3	BILZ16	16H6 $^{+0.011}_{0}$	25g6 $^{-0.007}_{-0.020}$	17.3	5 $^{+0.145}_{+0.070}$	74	M6×1	34	74	91.5	143.5
		BILZ28	28H6 $^{+0.013}_{0}$	40g6 $^{-0.009}_{-0.025}$	29.7	6 $^{+0.145}_{+0.070}$	85	M8×1.25	38	88	105.5	157.5
	4	KH-16E	16 $^{+0.010}_{+0.005}$	26.4 $^{0}_{-0.1}$	—	8C10 $^{+0.138}_{+0.080}$	43	—	—	30	47.5	99.5
		KH-25E	25 $^{+0.010}_{+0.005}$	37.4 $^{0}_{-0.1}$		10C10 $^{+0.138}_{+0.080}$	63			52	69.5	121.5

Notes 1. Dimensions of spindle shown here are as per recommendation of NT Tool Co.Ltd..
2. Spindle noses of KH-E model are applicable to the quick change stub holder of KH-A or KH-E model of NT Tool Co.Ltd..
3. Adjustable spindle noses cannot be used in Selfeeders with a specified speed above 5,000min^{-1}.
4. Adjust the direction so that the drain outlet facing downward, when installing selfeeder 《electric》 in a horizantol position.
5. Specific products other than shown above are also available upon your requests.

Applicable Selfeeders	Fig. No.	Spindle Nose Model No.	d	D	H	W	L1	M	L2	L3	L4	L5
ES6	5	BILZ28	28H6 $^{+0.013}_{0}$	40g6 $^{-0.009}_{-0.025}$	29.7	6 $^{+0.145}_{+0.070}$	99	M8×1.25	38	83	100.5	157.5
	6	KH-32E	32 $^{+0.010}_{+0.005}$	43.8 $^{0}_{-0.1}$	—	10C10 $^{+0.138}_{+0.080}$	83	—	—	30	47.5	104.5
ES7	5	BILZ28	28H6 $^{+0.013}_{0}$	40g6 $^{-0.009}_{-0.025}$	29.7	6 $^{+0.145}_{+0.070}$	99	M8×1.25	38	83	100.5	170.5
	6	KH-32E	32 $^{+0.010}_{+0.005}$	43.8 $^{0}_{-0.1}$	—	10C10 $^{+0.138}_{+0.086}$	83	—	—	30	47.5	117.5

Notes 1. Dimensions of spindle shown here are as per recommendation of NT Tool Co.Ltd..
2. Spindle noses of KH-E model are applicable to the quick change stub holder of KH-A or KH-E model of NT Tool Co.Ltd..
3. Adjust the direction so that the drain outlet facing downward, when installing selfeeder 《electric》 in a horizantol position.
4. Specific products other than shown above are also available upon your requests.

Collet Chuck Spindle Noses

Collet chuck spindle noses are applicable to ER Collet of REGO-FIX Co.Ltd.. and provided for all models of the Selfeeder electric series.

Please specify the spindle nose when ordering your Selfeeders. Sugino supplies collet chuck spindle noses other than those described below.

Fig.1

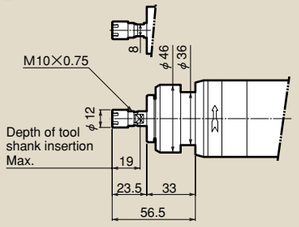


Fig.2

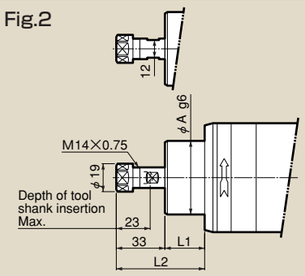


Fig.3

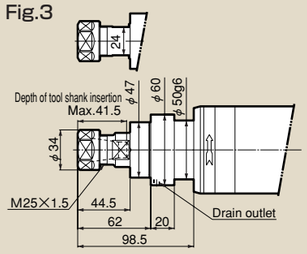


Fig.4

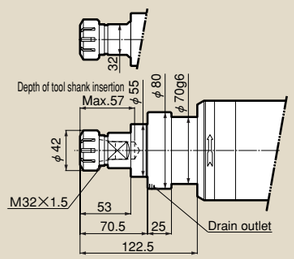
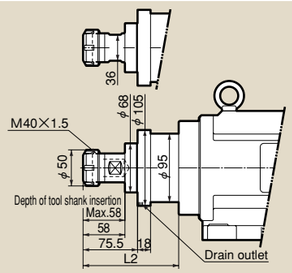


Fig.5



Applicable Selfeeders			Fig. No.	Spindle Nose Model No.	Chucking Range	L1	L2	A
ES2			1	ER8	0.5～5	—	—	—
ES3C–L			3	ER20	1～13	—	—	—
ES3P–	3075L/LL 6049L/LL	3060L/LL	2	ER11	0.5～7	27	60	50
ES3P–	6034L/LL 1318L/LL 1310L/LL 1306L/LL	1326L/LL 1314L/LL 1307L/LL 1305L/LL	3	ER20	1～13	—	—	—
ES4P–	6061/L	6045/L	2	ER11	0.5～7	27	60	50
ES4P–	1330/L 1314/L 1308/L 1304/L 1302/L	1320/L 1311/L 1306/L 1303/L	3	ER20	1～13	—	—	—
ES5–	6061	6045	2	ER11	0.5～7	40	73	70
ES5–	1330 1314 1308 1304 1302	1320 1311 1306 1303	4	ER25	1～16	—	—	—
ES6			5	ER32	1～20	—	132.5	—
ES7			5	ER32	1～20	—	145.5	—

Notes 1. Dimensions of spindle shown here are as per recommendation of ER collet of REGO-FIX Co.Ltd..
2. Collet, Collet nut and spanner are not supplied as standard ones. Please order if required.
3. Adjust the direction so that the drain outlet facing downward, when installing selfeeder 〈electric〉 in a horizantol position.

Drill Heads

We can provide our customers with any type of drill head according to the customers' requirements of spindle pitch, spindle shape and so on.

Standard heads

Spindle center distance adjustable type

Spindle center distance fixed type

Quick change "Catch-Clip" type

Custom made heads

34-spindle drill head

Coolant holder

Milling head