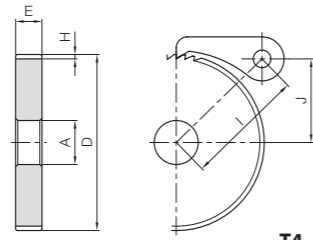




Specifications	
Tooth groove angle	60°
Material	S45C
Heat treatment	Gear teeth induction hardened *
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coating

* Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).



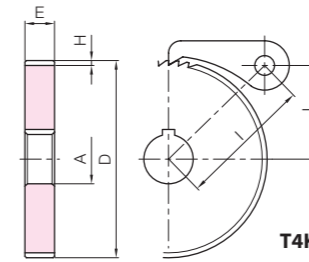
Characteristics of Pawls and Ratchets

- A simple structure used to restrict the rotational direction in one-way.
- The tips of pawls and the teeth of ratchets are induction hardened and therefore have superior durability.

Catalog Number	Pitch	No. of teeth	Shape	Bore		Outside dia.	Face width	Hub width	Total length	Tooth height	Center distance	Mounting height	Allowable torque (N·m)		Weight (kg)
				A	B								Bending strength	Bending strength	
SRT2/3-50 SRT2/3-60 SRT2/3-80 SRT2/3-100	2.09	50	T4	10		33.3					33.84	15.67	3.07	0.31	0.035
		60		10		40				35.51	19	4.10	0.42	0.053	
		80		12	—	53.3	6	—	6	1	39.48	25.67	6.00	0.61	0.096
		100		12		66.6					44.11	32.33	8.24	0.84	0.15
SRT1-50 SRT1-60 SRT1-80 SRT1-90 SRT1-100	3.14	50	T4	12		50					45.48	23.4	14.7	1.50	0.16
		60		15		60				48.24	28.4	19.5	1.99	0.24	
		80		15	—	80	12	—	12	1.6	54.73	38.4	29.4	3.00	0.44
		90		15		90					58.35	43.4	34.5	3.52	0.56
		100		15		100					62.16	48.4	39.4	4.02	0.70
SRT2-30 SRT2-40 SRT2-50 SRT2-60	6.28	30	T4	15		60					61.23	26.9	29.0	2.96	0.28
		40			80					66.23	36.9	49.2	5.02	0.53	
		50			100	15	—	15	3.1		72.28	46.9	70.8	7.22	0.85
		60			120						79.14	56.9	94.3	9.61	1.24
SRT3-30 SRT3-40 SRT3-50	9.42	30	T4	15		90					76.32	40	92.6	9.44	0.86
		40		20	—	120	20	—	20	5	85.15	55	158	16.1	1.58
		50		20		150					95.52	70	229	23.3	2.54
SRT4-30 SRT4-40 SRT4-50	12.57	30	T4	20		120					95.74	52.6	226	23.0	1.89
		40			160	25	—	25	7.4		108.03	72.6	385	39.3	3.53
		50			200						122.37	92.6	559	57.0	5.66

[Caution on Product Characteristics] ① The bore may slightly vary due to the effect of heat treatment. When using with the indicated hole diameter, provide machining with a reamer or the like before use.

J Series



To order J Series products, please specify: **Catalog No. + J + BORE.**

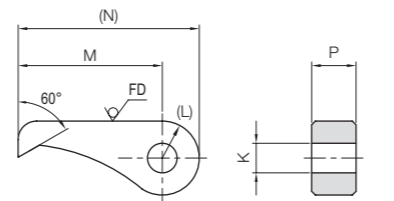
Bore H7	* The product shapes of J Series items are identified by background color.																					
	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50				
Keyway Js9	—																					
Screw size	4×1.8				5×2.3				6×2.8				8×3.3				10×3.3		12×3.3		14×3.8	
Catalog Number	—																					
SRT2/3-50J BORE																						
SRT2/3-60 J BORE																						
SRT2/3-80 J BORE																						
SRT2/3-100 J BORE																						
SRT1-50 J BORE																						
SRT1-60 J BORE																						
SRT1-80 J BORE																						
SRT1-90 J BORE																						
SRT1-100 J BORE																						
SRT2-30 J BORE																						
SRT2-40 J BORE																						
SRT2-50 J BORE																						
SRT2-60 J BORE																						
SRT3-30 J BORE																						
SRT3-40 J BORE																						
SRT3-50 J BORE																						
SRT4-30 J BORE																						
SRT4-40 J BORE																						
SRT4-50 J BORE																						

- [Caution on J series] ① Cancellation is not possible for made-to-order products. See page 42 for lead times and allowable order quantities. See page 44 for other precautions.
 ② Number of pieces we can process for one order is 1 to 20 units. For larger orders, please request a price and delivery quote.
 ③ Black oxide is not re-applied after hole and key secondary operations.
 ④ Keyways are made according to JIS B1301 standards, Js9 tolerance. Also note that tooth phase matching is not performed.

SRT-C Pitch 2.09~12.57
Ratchet Pawls



Specifications	
Tooth angle	60°
Material	S45C
Heat treatment	Pawl induction hardened
Pawl hardness	50 to 60HRC
Surface treatment	Black oxide coating



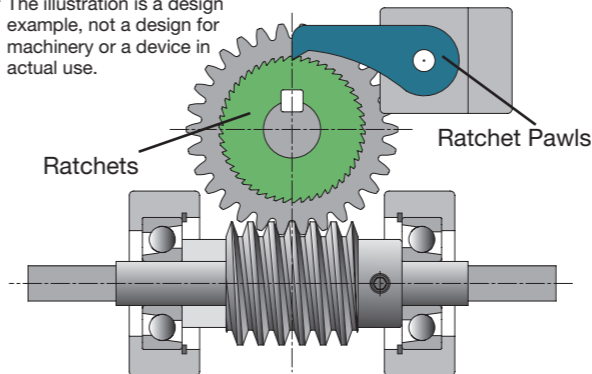
* FD has a forged finish surface.

Catalog Number	Shape	K	(L)	M	(N)	P	Weight (kg)
SRT2/3-C	T5	5	(8)	30	(38)	6	0.020
SRT1-C		8	(10)	39	(49)	12	0.057
SRT2-C		10	(12.5)	55	(67.5)	15	0.13
SRT3-C		12	(15)	65	(80)	20	0.23
SRT4-C		13	(18)	80	(98)	25	0.38

- [Caution on Product Characteristics] ① SRT2/3-C is a lost wax product that uses S45C-equivalent material.
 ② The ratchet pawl is for preventing reverse rotation. It cannot be used for feeding or indexing.

Application Examples

* The illustration is a design example, not a design for machinery or a device in actual use.



Example: ratchets used for complete reverse prevention of worm gears

Bending Strength of Ratchets

The allowable transmission force F_b (N) of ratchets is the value calculated by the following formula.

$$F_b = \sigma_b \cdot \frac{b \cdot c^2}{6} \cdot \frac{1}{h} \cdot \frac{1}{S_F}$$

Also, the SRT Ratchet's allowable torque T (N·m) for bending strength is calculated by the following formula.

$$T = F_b \cdot r_t$$

Where

- σ_b : Bending stress → Assumed 225.55MPa (23kgf/mm²)
- b : Face width mm → Dimension Table ratchet face width E
- c : Root length mm
→ $e = h \times \tan\left(60 - \frac{360}{\text{No. of teeth}}\right)$ is the calculation
- h : Depth of teeth mm → Dimension Table ratchet tooth depth H
- S_F : Safety factor → Assumed 2
- r_t : Tooth root radius mm

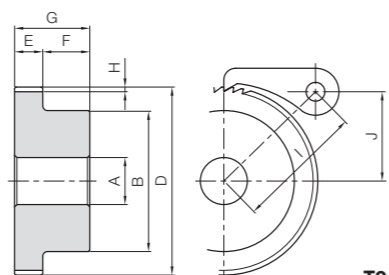
$$\rightarrow r_t = \frac{\text{Outside dia. } D - 2h}{2000} \text{ is the calculation}$$

For information on misprints in the catalog, please visit our website.



Specifications	
Tooth groove angle	60°
Material	S45C
Heat treatment	Gear teeth induction hardened *
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coating

* Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).



T9

Characteristics of Pawls and Ratchets

- A simple structure used to restrict the rotational direction in one-way.
- The tips of pawls and the teeth of ratchets are induction hardened and therefore have superior durability.

Catalog Number	Pitch	No. of teeth	Shape	Bore	Hub dia.	Outside dia.	Face width	Hub width	Total length	Tooth height
				A	B	D	E	F	G	H
SRTB2/3-50 (Made to Order)	2.09	50	T9	10	25	33.3	6	10	16	1
SRTB2/3-60 (Made to Order)		60		10	30	40				
SRTB2/3-80 (Made to Order)		80		12	35	53.3				
SRTB2/3-90 (Made to Order)		90		12	40	60				
SRTB2/3-100 (Made to Order)		100		12	40	66.6				
SRTB1-50 (Made to Order)	3.14	50	T9	12	35	50	12	12	24	1.6
SRTB1-60 (Made to Order)		60		15	40	60				
SRTB1-80 (Made to Order)		80		15	50	80				
SRTB1-90 (Made to Order)		90		15	50	90				
SRTB1-100 (Made to Order)		100		15	50	100				
SRTB2-30 (Made to Order)	6.28	30	T9	15	50	60	15	14	29	3.1
SRTB2-40 (Made to Order)		40			60	80				
SRTB2-50 (Made to Order)		50			60	100				
SRTB2-60 (Made to Order)		60			65	120				
SRTB3-30 (Made to Order)		9.42			30	T9				
SRTB3-40 (Made to Order)	40		20	80	120					
SRTB3-50 (Made to Order)	50		20	85	150					
SRTB4-30 (Made to Order)	12.57	30	T9	20	90	120	25	18	43	7.4
SRTB4-40 (Made to Order)		40			90	160				
SRTB4-50 (Made to Order)		50			100	200				

Center distance	Mounting height	Allowable torque (N·m)		Weight (kg)	Catalog Number
		Bending strength	Bending strength		
I	J				
33.84	15.67	3.07	0.31	0.067	SRTB2/3-50 (Made to Order)
35.51	19	4.10	0.42	0.10	SRTB2/3-60 (Made to Order)
39.48	25.67	6.00	0.61	0.16	SRTB2/3-80 (Made to Order)
41.73	29	7.11	0.73	0.21	SRTB2/3-90 (Made to Order)
44.11	32.33	8.24	0.84	0.24	SRTB2/3-100 (Made to Order)
45.48	23.4	14.7	1.50	0.24	SRTB1-50 (Made to Order)
48.24	28.4	19.5	1.99	0.34	SRTB1-60 (Made to Order)
54.73	38.4	29.4	3.00	0.61	SRTB1-80 (Made to Order)
58.35	43.4	34.5	3.52	0.73	SRTB1-90 (Made to Order)
62.16	48.4	39.4	4.02	0.87	SRTB1-100 (Made to Order)
61.23	26.9	29.0	2.96	0.47	SRTB2-30 (Made to Order)
66.23	36.9	49.2	5.02	0.82	SRTB2-40 (Made to Order)
72.28	46.9	70.8	7.22	1.14	SRTB2-50 (Made to Order)
79.14	56.9	94.3	9.61	1.59	SRTB2-60 (Made to Order)
76.32	40	92.6	9.44	1.40	SRTB3-30 (Made to Order)
85.15	55	158	16.1	2.17	SRTB3-40 (Made to Order)
95.52	70	229	23.3	3.22	SRTB3-50 (Made to Order)
95.74	52.6	226	23.0	2.75	SRTB4-30 (Made to Order)
108.03	72.6	385	39.3	4.38	SRTB4-40 (Made to Order)
122.37	92.6	559	57.0	6.72	SRTB4-50 (Made to Order)

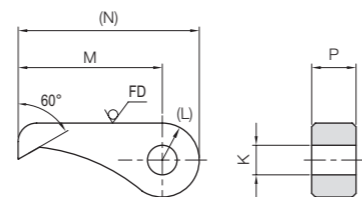
- [Caution on Product Characteristics] ① For the ratchet with SRTB hub, pay attention to the orientation of the teeth with respect to the hub. Items with opposite orientation can be made to order.
② The bore may slightly vary due to the effect of heat treatment. When using with the indicated hole diameter, provide machining with a reamer or the like before use.

[Precautions for Made to Order Products] ① Prices and lead times for Made to Order products require separate estimates. Contact your dealer.

SRT-C Pitch 2.09~12.57 Ratchet Pawls



Specifications	
Tooth angle	60°
Material	S45C
Heat treatment	Pawl induction hardened
Pawl hardness	50 to 60HRC
Surface treatment	Black oxide coating



* FD has a forged finish surface.

T5

Catalog Number	Shape	K	(L)	M	(N)	P	Weight (kg)
SRT2/3-C	T5	5	(8)	30	(38)	6	0.020
SRT1-C		8	(10)	39	(49)	12	0.057
SRT2-C		10	(12.5)	55	(67.5)	15	0.13
SRT3-C		12	(15)	65	(80)	20	0.23
SRT4-C		13	(18)	80	(98)	25	0.38

- [Caution on Product Characteristics] ① SRT2/3-C is a lost wax product that uses S45C-equivalent material.
② The ratchet pawl is for preventing reverse rotation. It cannot be used for feeding or indexing.

Application Examples

* The illustration is a design example, not a design for machinery or a device in actual use.

Example: ratchets used for complete reverse prevention of worm gears

Bending Strength of Ratchets

The allowable transmission force F_b (N) of ratchets is the value calculated by the following formula.

$$F_b = \sigma_b \cdot \frac{b \cdot e^2}{6} \cdot \frac{1}{h} \cdot \frac{1}{S_F}$$

Also, the SRT Ratchet's allowable torque T (N·m) for bending strength is calculated by the following formula.

$$T = F_b \cdot r_f$$

Where

- σ_b : Bending stress → Assumed 225.55MPa (23kgf/mm²)
- b : Face width mm → Dimension Table ratchet face width E
- e : Root length mm
→ $e = h \times \tan\left(60 - \frac{360}{\text{No. of teeth}}\right)$ is the calculation
- h : Depth of teeth mm → Dimension Table ratchet tooth depth H
- S_F : Safety factor → Assumed 2
- r_f : Tooth root radius mm
→ $r_f = \frac{\text{Outside dia. } D - 2h}{2000}$ is the calculation