

Catalog No. of Hub dia. Pitch dia. Outside dia. Face width Hub width Neb thickness Web O.D. Allowable torque (N·m)



	Specifications
Precision grade	JIS grade N8 (JIS B1702-1: 1998
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	_
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

- The precision grade of F Series products is
- equivalent to the value shown in the table.

 Bushing material: S45C, screw material: SCM435

Features of F Series

Racks

Bevel Gears

Screw

Other Gearboxes

130

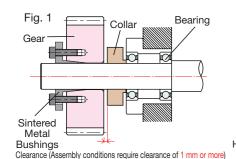
- · No rattling of shaft and gear when fastening
- · Freely positionable mounting for easy meshing of teeth
- · Easily mounted and removed for repeated
- · The bushing slips when overloaded to reduce damage to the gears.

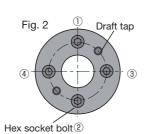
Mounting Method and Precautions

- 1) Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter
- (2) Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenumbased oil or oil with additives, as this may cause reduced fastening torque or slippage.
- 3 Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side.
- 4 Use a torque wrench to fasten bolts on opposite sides when tightening.
- First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
- (5) If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by

Catalog	No. of	riub uia.	i itori dia.	Outside dia.	acc wider	riab widir	TTCO BIICHIICOS	TICD O.D.	7 diowabic to	orque (ra m)
Number	teeth	В	С	D	Е	F	(H)	(I)	Bending strength	Surface durability
SS1.5-26	26	32	39	42					28.2	2.06
SS1.5-27	27	34	40.5	43.5					29.7	2.23
SS1.5-28	28	36	42	45					31.2	2.41
SS1.5-29	29	37	43.5	46.5					32.7	2.60
SS1.5-30	30	38	45	48					34.2	2.79
SS1.5-32	32	40	48	51					37.3	3.19
SS1.5-34	34	40	51	54					40.4	3.63
SS1.5-35	35	42	52.5	55.5					41.9	3.85
SS1.5-36	36	45	54	57					43.5	4.09
SS1.5-38	38	45	57	60					46.6	4.58
SS1.5-40	40	45	60	63					49.8	5.10
SS1.5-42	42	45	63	66					52.9	5.40
SS1.5-44	44	45	66	69					56.1	5.72
SS1.5-45	45	45	67.5	70.5					57.7	5.88
SS1.5-46	46	45	69	72					59.3	6.04
SS1.5-48	48	45	72	75					62.4	6.37
SS1.5-50	50	45	75	78					65.7	6.69
SS1.5-52	52	50	78	81					68.9	7.02
SS1.5-54	54	50	81	84			_	_	72.1	7.35
SS1.5-55	55	50	82.5	85.5					73.7	7.51
SS1.5-56	56	50	84	87	15	10			75.3	7.68
SS1.5-58	58	50	87	90					78.5	8.01
SS1.5-60	60	50	90	93					81.8	8.34
SS1.5-62	62	55	93	96					85.0	8.67
SS1.5-64	64	55	96	99					88.3	9.00
SS1.5-65	65	55	97.5	100.5					89.9	9.17
SS1.5-66	66	55	99	102					91.5	9.33
SS1.5-68	68	55	102	105					94.8	9.66
SS1.5-70	70	55	105	108					98.0	10.0
SS1.5-72	72	55	108	111					101	10.3
SS1.5-75	75	60	112.5	115.5					106	10.8
SS1.5-76	76	60	114	117					108	11.0
SS1.5-80	80	60	120	123					114	11.7
SS1.5-84	84	60	126	129					121	12.3
SS1.5-85	85	60	127.5	130.5					123	12.5
SS1.5-88	88	60	132	135					128	13.0
SS1.5-90	90	60	135	138					131	13.3
SS1.5-95	95	60	142.5	145.5					139	14.2
SS1.5-100	100	60	150	153			9	125	147	15.0
SS1.5-120	120	70	180	183			10	153	180	18.4
SS1.5-150	150	180	225	228					192	19.6

^{*} For the backlash of each product, please refer to the dimension table of the





■ Removal Method and Precautions

- 1) Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
- 2 Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is
- (3) The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the

To order F Series products, please specify: Catalog Number + F + BORE + A.

Во	ore A			* The	produc	t shape	es of F	Series	items a	re iden	tified by	y backo	round	color.		
Catalog	Number	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
SS1.5-26	6 F Bore A	S1MA														
SS1.5-27	7 F Bore A	S1MA														
SS1.5-28	8 F Bore A	S1MA	S1MA													
SS1.5-29	9 F Bore A	S1MA	S1MA													
SS1.5-30	0 F Bore A	S1MA	S1MA													
	2 F Bore A		S1MA	S1MA	S1MA	S1MA										
	4 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA									
	5 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
	6 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-38	8 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-40	0 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-42	2 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-4 ⁴	4 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-45	5 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-46	6 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-48	8 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-50	0 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
	2 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-54	4 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-55	5 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-56	6 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-58	8 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-60	0 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-62	2 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-64	4 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-65	5 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-66	6 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-68	8 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-70	0 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-72	2 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-75	5 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-76	6 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-80	0 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-8 ⁴	4 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-85	5 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-88	8 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-90	0 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-95	5 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-10	00 F Bore A				S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA			
SS1.5-12	20 F Bore A				S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
	0 F Bore A									S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
	re A	10		14	15	16	17	18	19		22	25	28	30	32	35
ef. slipping	g torque N·m	18	23	37	39	42	45	48	49	97	110	124	141	149	163	173
Ref. thrus	st load kN	3.59	3.76	5.21	5.1	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88
ntered Metal	L	1	0			1	2						14			
Bushings	K	29	31	36	37	38	39	40	42	46	47	51	53	56	58	61
-	J		2						_	3						
learance							7						39			
	G	2	5	l												
otal Length	G Otv	3				3	/									-
tal Length Hex	Qty	3	3		-					4						
socket	Qty Size	3				M4:				4			M5×18			
Hex socket bolt	Qty	3	3	38	3.			45	49	71	71	81		93	97	106



No. of Hub dia. Pitch dia. Outside dia. Face width Hub width Web thickness Web O.D. Allowable torque (N-m)



	Specifications
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
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Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operatio

- The precision grade of F Series products is
- equivalent to the value shown in the table.

 Bushing material: S45C, screw material: SCM435

Catalog

Features of F Series

Racks

Bevel Gears

Screw

Other Gearboxes Products

- · No rattling of shaft and gear when fastening
- · Freely positionable mounting for easy meshing of teeth
- · Easily mounted and removed for repeated
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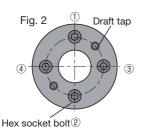
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- 1) Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter
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- the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
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Number	teeth	В	С	D	Е	F	(H)	(I)	Bending strength	Surface durability
SS2-23	23	37	46	50					56.3	3.86
SS2-24	24	38	48	52					59.8	4.24
SS2-25	25	40	50	54					63.3	4.64
SS2-26	26	42	52	56					66.8	5.04
SS2-27	27	45	54	58					70.4	5.45
SS2-28	28	45	56	60					73.9	5.89
SS2-29	29	47	58	62					77.5	6.33
SS2-30	30	50	60	64					81.1	6.80
SS2-32	32	50	64	68					88.4	7.78
SS2-34	34	50	68	72					95.7	8.84
SS2-35	35	52	70	74					99.3	9.39
SS2-36	36	55	72	76					103	9.96
SS2-38	38	55	76	80					111	11.2
SS2-40	40	55	80	84					118	12.5
SS2-42	42	55	84	88					125	13.8
SS2-44	44	55	88	92					133	15.2
SS2-45	45	55	90	94					137	16.0
SS2-46	46	55	92	96			-	-	140	16.7
SS2-48	48	55	96	100					148	18.3
SS2-50	50	55	100	104					156	19.9
SS2-52	52	55	104	108					163	21.7
SS2-54	54	55	108	112	20	10			171	23.4
SS2-55	55	55	110	114					175	24.4
SS2-56	56	55	112	116					179	25.3
SS2-58	58	60	116	120					186	27.3
SS2-60	60	60	120	124					194	29.3
SS2-62	62	60	124	128					202	31.5
SS2-64	64	60	128	132					209	33.7
SS2-65	65	60	130	134					213	34.8
SS2-66	66	60	132	136					217	36.0
SS2-68	68	60	136	140					225 232	38.4 40.8
SS2-70	70	60 60	140 144	144 148					240	
SS2-72	72 75	60	150	154					252	43.3 47.3
SS2-75 SS2-76	76	60	150	156					252	48.6
	80	60	160	164				136	271	54.3
SS2-80 SS2-84	84	70	168	172				140	287	60.2
SS2-85	85	70	170	174				146	291	61.7
SS2-88	88	70	176	180				150	302	66.5
SS2-90	90	70	180	184			12	156	310	69.7
SS2-95	95	70	190	194				166	330	78.2
SS2-95	100	70	200	204				176	291	72.7
SS2-100 SS2-120	120	90	240	244				210	357	108
332-120	120	90	2 4 0	Z 11				210	JJ/	100

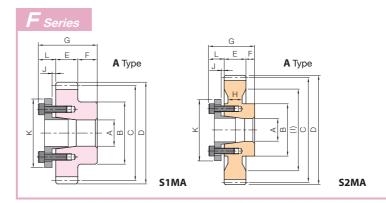
* For the backlash of each product, please refer to the dimension table of the original product.

Bushings



■ Removal Method and Precautions

- 1) Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
- 2 Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
- 3 The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the



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Вс	Bore A * The product shapes of F Series items are identified by background color.															
Catalog	Number	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
SS2-23	F Bore A	S1MA														
SS2-24	F Bore A	S1MA														
SS2-25	F Bore A	S1MA	S1MA													
SS2-26	F Bore A	S1MA	S1MA	S1MA	S1MA											
SS2-27	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA									
SS2-28	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	04111						
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA		CARAR					
	F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA		C1848	CINA	CIMA	CINAN	
	F Bore A	S1MA	S1MA	S1MA S1MA	S1MA	S1MA S1MA	S1MA S1MA	S1MA S1MA	S1MA S1MA	S1MA	S1MA		S1MA	S1MA S1MA	S1MA S1MA	
	F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA S1MA	S1MA S1MA	S1MA S1MA	S1MA		S1MA	
	F Bore A			S1MA S1MA	S1MA S1MA	S1MA	S1MA S1MA	S1MA S1MA	S1MA							
	F Bore A F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
	F Bore A			S1MA												
SS2-62	F Bore A			S1MA												
SS2-64	F Bore A			S1MA												
SS2-65	F Bore A			S1MA												
SS2-66	F Bore A			S1MA												
SS2-68	F Bore A			S1MA												
SS2-70	F Bore A			S1MA												
SS2-72	F Bore A			S1MA												
	F Bore A								S1MA							
	F Bore A								S1MA							
	F Bore A								S2MA	S2MA	S2MA	S2MA				
	F Bore A								S2MA							
	F Bore A								S2MA							
	F Bore A								S2MA							
	F Bore A			<u> </u>	<u> </u>				S2MA	S2MA	S2MA S2MA	S2MA	S2MA	S2MA	S2MA	
	F Bore A F Bore A								S2MA S2MA	S2MA S2MA			S2MA S2MA	S2MA S2MA	S2MA S2MA	
	F Bore A								S2MA	S2MA						
	ore A	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
	ig torque N⋅m	23	37	39	42	45	48	49	97	110	124	141	149	163	173	725
	st load kN	3.76	5.21	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
			J.Z I	3.10			3.20	3.12	9.00	9.90	9.90		9.09	10.1	9.00	
Sintered Metal	L	10	26	27	1		40	42	10	47	F1	14	F.	F0	61	19
Bushings	K	31	36	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance	J	2								3						
Total Length	G	40			4	2						44				49
Hex	Qty	3							4							6
socket	Size	M4×12			M4:	×15						M5×18				M6×25
					2.0							7.0				13.7
bolt	Tightening torque N·m				3.9							7.8				13./

Product Precautions

Clearance (Assembly conditions require clearance of 1 mm or more)

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Racks

Other Gearboxes Products

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No. of Hub dia. Pitch dia. Outside dia. Face width Hub width Web thickness Web O.D. Allowable torque (N·m)

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■ Features of F Series

Racks

CP Racks & Pinions

Bevel Gears

Screw

Other Gearboxes Products

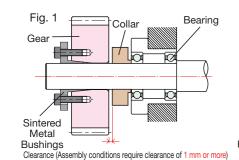
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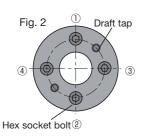
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- 4 Use a torque wrench to fasten bolts on opposite sides when tightening.
- First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
- (5) If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Oatalog	INO. OI									. 1 ()
Number	teeth	В	С	D	Е	F	(H)	(I)	Bending strength	Surface durability
SS2.5-22	22	44	55	60					103	6.99
SS2.5-23	23	46	57.5	62.5					110	7.71
SS2.5-24	24	48	60	65					117	8.47
SS2.5-25	25	50	62.5	67.5					124	9.26
SS2.5-26	26	55	65	70					130	10.1
SS2.5-27	27	60	67.5	72.5					137	10.9
SS2.5-28	28	60	70	75					144	11.7
SS2.5-29	29	62	72.5	77.5					151	12.6
SS2.5-30	30	65	75	80					159	13.6
SS2.5-32	32	70	80	85					173	15.6
SS2.5-34	34	70	85	90					187	17.7
SS2.5-35	35	70	87.5	92.5					194	18.8
SS2.5-36	36	70	90	95					201	20.0
SS2.5-38	38	70	95	100			_	_	216	22.4
SS2.5-40	40	70	100	105					230	24.9
SS2.5-42	42	70	105	110					245	27.6
SS2.5-44	44	70	110	115					260	30.5
SS2.5-45	45	70	112.5	117.5					267	31.9
SS2.5-46	46	70	115	120	25	12			274	33.5
SS2.5-48	48	70	120	125	23	12			289	36.7
SS2.5-50	50	70	125	130					304	40.0
SS2.5-52	52	70	130	135					319	43.5
SS2.5-54	54	70	135	140					334	47.2
SS2.5-55	55	70	137.5	142.5					341	49.1
SS2.5-56	56	70	140	145					349	51.0
SS2.5-58	58	70	145	150					364	55.0
SS2.5-60	60	70	150	155			(10)	(127)		59.1
SS2.5-62	62	80	155	160				130	394	63.4
SS2.5-64	64	80	160	165				131	409	67.8
SS2.5-65	65	80	162.5	167.5				134	416	70.1
SS2.5-66	66	80	165	170				140	424	72.4
SS2.5-68	68	80	170	175			15	140	439	77.2
SS2.5-70	70	80	175	180				146	454	82.1
SS2.5-72	72	80	180	185				151	469	87.1
SS2.5-75	75	80	187.5	192.5				159	492	95.0
SS2.5-76	76	80	190	195				160	499	97.7
SS2.5-80	80	80	200	205			(10)	(177)		90.9
SS2.5-90	90	90	225	230			(10)	(202)	505	117

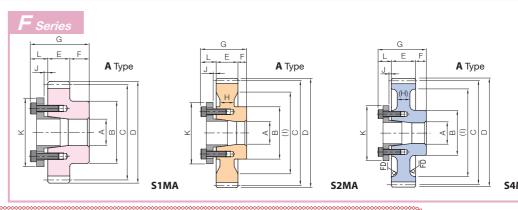
^{*} For the backlash of each product, please refer to the dimension table of the original product.





Removal Method and Precautions

- 1) Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
- 2 Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is
- (3) The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the



To order F Series products, please specify: Catalog Number + F + BORE + A.

Para A		+ -	Fl	J 4 I		- 0		! -! 4!	£ :	1		~	
Bore A			The prod										
Catalog Number	15	16	17	18	19	20	22	25	28	30	32	35	40
SS2.5-22 F Bore A		S1MA											
SS2.5-23 F Bore A	S1MA	S1MA	S1MA	S1MA									
SS2.5-24 F Bore A		S1MA	S1MA	S1MA	S1MA								
SS2.5-25 F Bore A		S1MA	S1MA	S1MA	S1MA								
SS2.5-26 F Bore A		S1MA	S1MA	S1MA	S1MA								
SS2.5-27 F Bore A		S1MA	S1MA	S1MA	S1MA								
SS2.5-28 F Bore A		S1MA	S1MA	S1MA	S1MA								
SS2.5-29 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS2.5-30 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	64848	64344	64144	64111	
SS2.5-32 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-34 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-35 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
552.5-36 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-38 F Bore A						S1MA							
SS2.5-40 F Bore A						S1MA S1MA							
SS2.5-42 F Bore A						S1MA							
SS2.5-44 F Bore A SS2.5-45 F Bore A						S1MA							
SS2.5-45 F Bore A SS2.5-46 F Bore A						S1MA							
SS2.5-48 F Bore A						S1MA							
SS2.5-50 F Bore A						S1MA							
SS2.5-50 F Bore A						S1MA							
SS2.5-54 F Bore A						S1MA							
SS2.5-55 F Bore A						S1MA							
SS2.5-56 F Bore A						S1MA							
SS2.5-58 F Bore A						S1MA							
SS2.5-60 F Bore A						0111111	0111111	S4MA	S4MA	S4MA	S4MA	S4MA	
SS2.5-62 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-64 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-65 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-66 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-68 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-70 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-72 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-75 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-76 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-80 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	S4MA
SS2.5-90 F Bore A										S4MA	S4MA	S4MA	S4MA
Bore A	15	16	17	18	19	20	22	25	28	30	32	35	40
lef. slipping torque N·m	39	42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
intered Metal L			12						14				19
Bushings K	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance J			3,7	10	12	10	3					_ J1	, ,
			40						E1				F.C
otal Length G			49				4		51				56
Vith hex Qty						1	4						6
socket Size			M4×15						M5×18				M6×25
Bolt Tightening torque N-m			3.9						7.8				13.7
Bushing weight (g)	40	41	43	45	49	71	71	81	84	93	97	106	237

Precautions for Standard Machined Products



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Catalog No. of Hub dia. Pitch dia. Outside dia. Face width Hub width Web thickness Web O.D. Allowable torque (N·m)

	Specifications
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	_
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operatio

- The precision grade of F Series products is
- equivalent to the value shown in the table.

 Bushing material: S45C, screw material: SCM435

■ Features of F Series

Racks

CP Racks & Pinions

Bevel Gears

Screw

Other Gearboxes Products

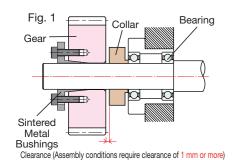
- · No rattling of shaft and gear when fastening
- · Freely positionable mounting for easy meshing of teeth
- · Easily mounted and removed for repeated
- · The bushing slips when overloaded to reduce damage to the gears

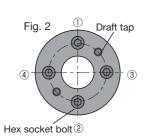
Mounting Method and Precautions

- 1) Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the
- ② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenumbased oil or oil with additives, as this may cause reduced fastening torque or slippage.
- 3 Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
- 4 Use a torque wrench to fasten bolts on opposite sides when tightening.
- First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
- (5) If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog	140. 01	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Web thickness	Web O.D.	. Allowable 1	torque (N·m)
Number	teeth	В	С	D	Е	F	(H)	(I)	Bending strength	Surface durability
SS3-19	19	45	57	63					144	8.88
SS3-20	20	50	60	66					155	9.95
SS3-21	21	52	63	69					167	11.1
SS3-22	22	54	66	72					178	12.3
SS3-23	23	56	69	75					190	13.6
SS3-24	24	58	72	78					202	14.9
SS3-25	25	60	75	81					214	16.3
SS3-26	26	65	78	84					226	17.7
SS3-27	27	65	81	87					237	19.2
SS3-28	28	70	84	90					250	20.7
SS3-29	29	70	87	93					262	22.3
SS3-30	30	75	90	96			-	-	274	24.0
SS3-32	32	75	96	102					298	27.4
SS3-34	34	80	102	108					323	31.2
SS3-35	35	80	105	111					335	33.1
SS3-36	36	80	108	114					348	35.2
SS3-38	38	80	114	120					373	39.4
SS3-40	40	80	120	126					398	44.0
SS3-42	42	80	126	132					423	48.9
SS3-44	44	80	132	138	30	15			449	54.0
SS3-45	45	80	135	141	50	'			461	56.6
SS3-46	46	80	138	144					474	59.4
SS3-48	48	80	144	150					500	65.0
SS3-50	50	80	150	156			(10)	(123)	525	70.9
SS3-52	52	80	156	162				126	551	77.1
SS3-54	54	80	162	168				132	577	83.6
SS3-55	55	80	165	171			16	131	590	86.9
SS3-56	56	80	168	174				134	602	90.3
SS3-58	58	80	174	180			(4.0)	144	628	97.3
SS3-60	60	80	180	186			(10)	(153)	654	105
SS3-62	62	80	186	192				150	680	112
SS3-64	64	80	192	198				158	588	99.9
SS3-65	65	80	195	201				161	599	103
SS3-66	66	90	198	204			1.	160	610	107
SS3-68	68	90	204	210			16	170	632	114
SS3-70	70	90	210	216				176	654	121
SS3-72	72	90	216	222				182	675	129
SS3-75	75	90	225	231				190	708	141
SS3-76	76	90	228	234			(10)	190	719	145
SS3-80	80	90	240	246			(10)	(213)	763	162

^{*} For the backlash of each product, please refer to the dimension table of the original product.





Removal Method and Precautions

- 1) Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
- 2 Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is
- (3) The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the

To order F Series products, please specify: Catalog Number + F + BORE + A.

**************************************	***********												
Bore A						Series							
Catalog Number	15	16	17	18	19	20	22	25	28	30	32	35	40
SS3-19 F Bore A	S1MA												
SS3-20 F Bore A	S1MA	S1MA	S1MA	S1MA									
SS3-21 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-22 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-23 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA			ļ					
SS3-24 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-25 F Bore A						S1MA	S1MA						
SS3-26 F Bore A						S1MA	S1MA	S1MA					
SS3-27 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA			
SS3-28 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-29 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-30 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-32 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	04111
SS3-34 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-35 F Bore A	-					S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-36 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-38 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-40 F Bore A	-							S1MA	S1MA	S1MA	S1MA S1MA	S1MA	S1MA
SS3-42 F Bore A								S1MA	S1MA	S1MA	-	S1MA	S1MA
SS3-44 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-45 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA S1MA
SS3-46 F Bore A								S1MA	S1MA S1MA	S1MA S1MA	S1MA S1MA	S1MA	S1MA
SS3-48 F Bore A						-		S1MA	_	S4MA	S4MA	S1MA	S4MA
SS3-50 F Bore A								S4MA S2MA	S4MA S2MA	S2MA	S2MA	S4MA S2MA	S2MA
SS3-52 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-54 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-55 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-56 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-58 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	S4MA
SS3-60 F Bore A								S2MA	S2MA	S2MA	S2MA		S2MA
SS3-62 F Bore A SS3-64 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA S2MA	S2MA
								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-65 F Bore A SS3-66 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-68 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-70 F Bore A	<u> </u> 			<u> </u>				S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-70 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-72 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-76 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-80 F Bore A										S4MA	S4MA	S4MA	S4MA
Bore A	15	16	17	18	19	20	22	25	28	30	32	35	40
Ref. slipping torque N·m		42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN													
	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
ntered Metal L			12						14				19
Bushings K	37	38	39	40	42	46	47	51	53	56	58	61	71
clearance J							3						
otal Length G			57						59				64
Vith hex Qty						4	4						6
socket Size			M4×15						M5×18				M6×25
Bolt Tightening torque N·m			3.9						7.8				13.7
Bushing weight (g)	40	41	43	45	49	71	71	81	84	93	97	106	237
Jasining Weight (g)	 4 0	41	43	43	サブ	/ 1	/ 1	01	04	73	71	100	23/

Precautions for Standard Machined Products



Racks