

# Spur Gears

Pressure Angle 20°, Module 3.0

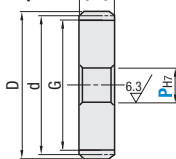
Spur Gears – Pressure Angle 20°, Module 3.0



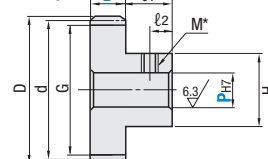
Type			Material	Surface Treatment	Accessories
Straight Bore	Straight + Tap	Keyway / Keyway + Tap			
GEAHB	GEAB	GEAKB	1045 Carbon Steel or Equivalent	—	Set Screw (4137 Alloy Steel Black Oxide)
GEAHHB	GEABB	GEAKBB			
GEAHBG	GEABG	GEAKBG			
GEAHS	GEAS	GEAKS	304 Stainless Steel	—	Set Screw (304 Stainless Steel)

Gear Shape

A Shape



B Shape



Shaft Bore Specifications (Selectable Gear Shapes)			
Straight Bore (Shape A / B)	Straight Bore + Tap (Shape B)	Keyway (Shape A)	Keyway + Tap (Shape B)

- Keyway Dimension Details P.1469.
- Positioning of keyway and teeth are not fixed.
- Set Screw is not included in Non-tapped Type products.
- Shaft bores with set screws are not available for Shape A.

Accuracy: Previous JIS B 1702 Class 4 (New JIS B 1702-1 Class 8 Equivalent)

Part Number	Number of Teeth	B	Gear Shape	Shaft Bore Dia. P <sub>17</sub> 1 mm Increment		d Reference Dia.	D Tip Dia.	G Root Dia.	H	L	L <sub>1</sub>	L <sub>2</sub>	M (Coarse)	**Allowable Transmission Force (N-m) Bending Strength									
				Straight Bore	Keyway Keyway+Tap									1045 Carbon Steel or Equivalent	304 Stainless Steel								
(Selectable Gear Shapes)	12	3.0	A	8-17	8N-12N	36	42	28.5	27	48	18	9	M5	66.64	38.03								
	13			8-22	8N-16N	39	45	31.5						76.44	43.62								
	14			8-24	8N-19N	42	48	34.5						86.47	49.34								
	15			8-28	8N-23N	45	51	37.5						96.73	55.20								
	16			8-32	8N-27N	48	54	40.5						107.14	61.14								
	17			8-33	8N-28N	51	57	43.5						117.74	67.19								
	18			8-38	8N-33N	54	60	46.5						128.51	73.33								
	19			8-42	8N-36N	57	63	49.5						139.39	79.54								
	20			8-44	8N-37N	60	66	52.5						150.40	85.83								
	21			8-40	8N-35N	63	69	55.5						161.48	92.15								
	22			8-42	8N-36N	66	72	58.5						172.73	98.57								
	23			8-44	8N-37N	69	75	61.5						183.99	104.99								
	24			8-46	8N-39N	72	78	64.5						195.41	111.51								
	25			8-48	8N-40N	75	81	67.5						206.89	118.06								
	26			10-53	10N-44N	78	84	70.5						218.39	124.63								
	27			10-58	10N-47N	81	87	73.5						230.05	131.28								
	Straight Bore (Shape A / Shape B)			28	3.0	B	10-58	10N-47N						84	90	76.5	70	48	18	9	M6	241.75	137.96
				29			8-33	8N-28N						87	93	79.5						253.47	144.65
				30			8-33	8N-28N						90	96	82.5						265.20	151.33
				31			8-33	8N-28N						96	102	88.5						288.95	164.89
				32			8-33	8N-28N						99	105	91.5						300.84	171.68
				33			8-33	8N-28N						102	108	94.5						312.90	178.55
				34			8-33	8N-28N						105	111	97.5						324.54	185.37
				35			8-33	8N-28N						108	114	100.5						336.92	192.26
				36			8-33	8N-28N						114	120	106.5						361.19	206.11
				37			8-33	8N-28N						117	123	109.5						373.36	213.06
				38			8-33	8N-28N						120	126	112.5						385.49	219.98
Straight Bore + Tap		39	3.0	B			12-63	12N-50N	126	132	118.5	80	48	18	9	M6						409.88	233.90
	40	12-65			12N-50N	132	138	124.5	434.50	247.95													
	41	20-65			20N-50N	135	141	127.5	446.76	254.94													
	42	20-65			20N-50N	138	144	130.5	459.10	261.99													
	43	20-65			20N-50N	144	150	136.5	483.84	276.10													
	44	20-65			20N-50N	147	153	139.5	496.22	283.17													
	45	20-65			20N-50N	150	156	142.5	508.67	290.27													
	46	20-65			20N-50N	153	159	145.5	520.97	297.30													
	47	20-65			20N-50N	156	162	148.5	533.34	304.35													
	48	20-65			20N-50N	162	168	154.5	558.25	318.57													
	49	20-65			20N-50N	165	171	157.5	570.80	325.73													
	50	20-65			20N-50N	168	174	160.5	583.41	332.92													
Keyway (Shape A) Keyway + Tap (Shape B)	51	3.0	B	25-68	25N-50N	171	177	163.5	85	48	18	9	M6	595.82	340.01								
	52			25-68	25N-50N	174	180	166.5						608.28	347.12								
	53			25-68	25N-50N	180	186	172.5						633.37	361.43								
	54			25-68	25N-50N	186	192	178.5						658.65	375.86								
	55			25-68	25N-50N	189	195	181.5						671.06	382.94								
	56			25-68	25N-50N	192	198	184.5						683.49	390.07								
	57			25-68	25N-50N	195	201	187.5						695.94	397.24								
	58			25-68	25N-50N	198	204	190.5						708.41	404.46								
	59			25-68	25N-50N	204	210	196.5						754.40	432.78								
	60			25-68	25N-50N	207	213	199.5						766.87	439.99								
	61			25-68	25N-50N	210	216	202.5						779.34	447.24								

Shaft bore diameter 9N is not available for Keyway Bore + Tap. Select 10K as P dimension if you request keyway width of 4.0 mm (height 1.8 mm) for Keyway + Tap with shaft bore diameter of 10. P.1469

\*\* Allowable Transmission Forces in the table are reference values calculated based on conditions shown on P.1469.

# Spur Gears

Pressure Angle 20°, Module 3.0, continued

**Part Number Example**  
 GEAHB3.0 - 15 - 30 - B - 8  
 GEAKBG3.0 - 30 - 30 - A - 10N

**Part Number Alterations**  
 GEAHB3.0 - 30 - 30 - A - 20 - KFC40 - K6.0

Ⓢ Tooth shape will be "B" when not specified.

(KC90 / KC120 / TPC / DHL / DHR / WDH / LFC / LTC / KFC / KTC / QFC / QTC)

Alterations	Set Screw	Tapped Hole Dimension	Stepped Hole	Both Ends Stepped Bore
Code	KC90 / KC120	TPC	DHL / DHR	WDH
Spec.	KC90: Adds another set screw at 90° position. KC120: Adds another set screw 120° at position. Ⓢ Not applicable to Shape A. Ⓢ Not applicable to Straight Bore Type.	Changes the tapped hole dimension. Ordering Code: TPC4 Ⓢ Not applicable to Shape A. Ⓢ Not applicable to Straight Bore Type.	Changes shaft bores to stepped bores. (Z: 1 mm Increment / J: 0.1 mm Increment) Ordering Code: DHL-Z20-J4.0 Ⓢ Applicable to Straight Bore Type Only.	Changes shaft bores to both ends stepped hole. (Q, R, S, T: 1 mm Increment) Ⓢ S, T≥3 Ordering Code: WDH-Q10-R10-S5-T5 Ⓢ Applicable to Straight Bore Type Only.

Alterations	Side Slotted Hole	Side Through Hole	Side Tapped Hole
Code	LFC / LTC	KFC / KTC	QFC / QTC
Spec.	Machines slotted holes on the side surface (30°) (LFC / LTC: 1 mm Increment) Ⓢ Applicable to Shape A only. Ⓢ P+C+4≤LFC(LTC)≤G-C-4 M Selection: M3 / M4 / M5 / M6 Ordering Code: LFC20-M3	Machines through holes on the side surface. (KFC/KTC 1 mm increment / K:0.5mm Increment) -M Selection: K3.0-K6.0 A Shape Ⓢ P+K+4≤KFC(KTC)≤G-K-4 Ordering Code: KFC20-K3.5 B Shape Ⓢ P+K+4≤KFC(KTC)≤H-K-4 Ⓢ H+K+4≤KFC(KTC)≤G-K-4 Ordering Code: KFC20-K3.5	Machines tapped holes on the side surface of the gear. (QFC/QTC: 1 mm Increment) A Shape (K Shape Applicable) Ⓢ P+M+4≤QFC(QTC)≤G-M-4 M Selection: M3/M4 Tap hole depth M x 2.0 (When B < M x 2.0, it penetrates) Ordering Code: QFC25-M3 Ⓢ Tapped Hole Depth Mx1.5 (When B<Mx1.5, Through)

Alterations	Hub Shortening	Side Through Hole
Code	BS	SRG
Spec.	Cuts the hub length in 0.5mm increments Ordering Code: BS6.5 Ⓢ Not available for K / A shape Ⓢ Straight Bore Type: 0≤BS≤L1 Ⓢ Straight Bore + Tap Type: BS=0; M+3≤BS≤L1 Ⓢ Keyway + Tap Type: BS=0; M+3≤BS≤L1 Ⓢ When BS=0, there are no tapped holes	≥3.5mm, 0.5mm increments Ordering Code: SRG7 Ⓢ Applicable to shaft bore specifications DHL, DHR only. Ⓢ Use retainer ring groove standards for Z dimension Ⓢ n≤J-SRG-m

Alterations	Teeth Root Alignment	Side Tapped Hole
Code	GBA	ZFC / ZTC
Spec.	Adjust the tap to align with the gear's teeth root and key groove Ordering Code: GBA Ⓢ Applicable for teeth number 19 or more.	Machines counterbore holes on the side surface of the hub side. U Selection: U3 / U4 / U5 / U6 For B Shape, if selection of reference sides are necessary. Use LL for L side, and RR for R side. Ⓢ Only available for Standard Type Ⓢ Not applicable for K Shape