Induction Hardened Spur Gears - Ground

Pressure Angle 20°, Module 1.0, 1.5, 2.0, 2.5, 3.0

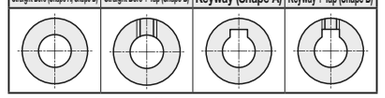
■**Features:** Spur gears with hardened teeth which provide excellent strength, abrasion resistance and high precision. For Rack Gears - Ground, see P.1529.

RoHS

Type			M Material	S Surface Treatment	H Hardness	A Accessory
Straight Bore	Straight Bore + Tap	Keyway, Keyway + Tap				
GEAHBH	GEABH	GEAKBH	EN 1.1191 Equiv.	Black Oxide	Tooth Induction Hardened 51 ~ 55HRC (Depth 1mm or more)	Set Screw (EN 1.7220 Equiv. Black Oxide)

Set Screw is not included in Un-tapped Type products.

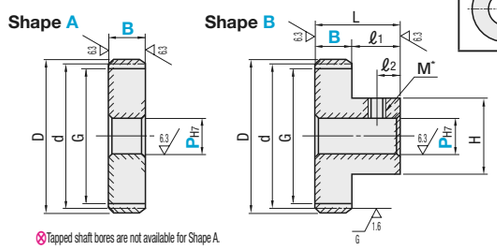
Shaft Bore Specifications (Selectable Gear Shapes)



Keyway Dimension Details P.1498

Positioning of keyway and teeth is not fixed.

Gear Shape



Tapped shaft bores are not available for Shape A.

■Tapped Hole Dimension List

Shaft Bore Dia. PH7	M (Coarse)	Accessory Set Screw
6~12	M4	M4x3
13~17	M5	M5x4
18~30	M6	M6x5
31~45	M8	M8x6
46~56	M10	M10x8

Accuracy Previous JIS B 1702 Class 2 (New JIS B 1702-1 Class 6 Equiv.)

Accuracy before shaft bore machining.

[shaded] part has no surface treatment.

End surface of Shape A may not be surface treated as Shape A is made by cutting the hub of Shape B.

Part Number Type	Module	Number of Teeth	B	Gear Shape	Shaft Hole Dia PH7 (1mm Increment) Straight Bore Straight Bore + Tap	Keyway Keyway + Tap	d Reference Dia.	D Tip Dia.	G Root Dia.	H	L	ℓ1	ℓ2	*1. Allowable Transmission Force (N, m) Bending Strength	Unit Price 1 ~ 10 pc(s). Straight Bore GEAHBH	Straight Bore + Tap GEABH	Keyway Keyway + Tap GEAKBH
Straight Bore (Shape A, Shape B) GEAHBH; Straight Bore + Tap (Shape B) GEABH; Keyway (Shape A) Keyway + Tap (Shape B) GEAKBH	1.0	18	8	A B	6~10	-	18	20	15.5	15	18	10	5	4.76			-
		20			6~11	8N, 10N	20	22	17.5	17				5.57			
		22			8~14	8N~12N	22	24	19.5	18				6.42			
		24					24	26	21.5	20				7.27			
		25					25	27	22.5					7.69			
		26					26	28	23.5					8.12			
		28					28	30	25.5					9.02			
		30			10~17	10N~15N	30	32	27.5	25				9.87			
		32					32	34	29.5					10.79			
		35					35	37	32.5					12.13			
		36					36	38	33.5					12.52			
		40			10~21	10N~18N	40	42	37.5	30				13.07			
		45					45	47	42.5					15.18			
		48					48	50	45.5					16.44			
		50			12~24	12N~18N	50	52	47.5	35				17.23			
		60			12~28	12N~25N	60	62	57.5	40				21.50			
		70					70	72	67.5					25.74			
		80			15~35	15N~30N	80	82	77.5	50				29.98			
		100					100	102	97.5					38.72			
	1.5	15	15		10~12	10N	22.5	25.5	18.75	18	29	14	7	15.11			
		16			10~13	10N, 11N	24	27	20.25	19.5				16.74			
		18			10~15	10N~13N	27	30	23.25	22				20.08			
		20			10~16	10N~14N	30	33	26.25	24				23.51			
		24			12~19	12N~17N	36	39	32.25	28				30.56			
		25			12~21	12N~18N	37.5	40.5	33.75	30				32.39			
		26			12~22	12N~19N	39	42	35.25	32				31.16			
		28			15~25	15N~19N	42	45	38.25	36				34.58			
		30			15~26	15N~23N	45	48	41.25	38				37.84			
		32			15~28	15N~24N	48	51	44.25	40				41.03			
		35			15~29	15N~26N	52.5	55.5	48.75	42				46.51			
		36			15~31	15N~28N	54	57	50.25	45				48.00			
		40			15~35	15N~31N	60	63	56.25	50				54.90			
		45			18~35	18N~31N	67.5	70.5	63.75					63.90			
		48					72	75	68.25					69.20			
		50			18~42	18N~38N	75	78	71.25	60				72.69			
		60			20~42	20N~38N	90	93	86.25					90.68			
		70					105	108	101.25					108.59			

Shaft bore diameter 6.35 is available for Straight Bore and Straight Bore + Tap. Shaft bore diameter 9N is not available for Keyway Bore + Tap.

Specify 10K as P dimension if keyway width of 4.0mm (height 1.8mm) for Keyway + Tap with shaft bore diameter of 10 is desired. P.1498

*1 Allowable Transmission Forces in the table are reference values calculated with prescribed conditions. For conditions, see P. 1498.

For orders larger than indicated quantity, please request a quotation.

■**Module 2.0, 2.5, 3.0**

Part Number Type	Module	Number of Teeth	B	Gear Shape	Shaft Hole Dia PH7 (1mm Increment) Straight Bore Straight Bore + Tap	Keyway Keyway + Tap	d Reference Dia.	D Tip Dia.	G Root Dia.	H	L	ℓ1	ℓ2	*1. Allowable Transmission Force (N·m) Bending Strength	Unit Price 1 ~ 30 pc(s). Straight Bore GEAHBH	Straight Bore + Tap GEABH	Keyway Keyway + Tap GEAKBH
Straight Bore (Shape A, Shape B) GEAHBH; Straight Bore + Tap (Shape B) GEABH; Keyway (Shape A) Keyway + Tap (Shape B) GEAKBH	2.0	15	20	A B	12~17	12N~14N	30	34	25	24	36	16	8	35.81			
		16			12~18	12N~15N	32	36	27	26				39.67			
		18			12~21	12N~18N	36	40	31	30				47.59			
		20			15~22	15N~19N	40	44	35	32				50.67			
		22					44	48	39	36				58.24			
		24			15~26	15N~23N	48	52	43	38				65.86			
		25			15~28	15N~24N	50	54	45	40				69.81			
		28			15~31	15N~28N	56	60	51	45				81.96			
		30			18~35	18N~31N	60	64	55	50				89.70			
		32					64	68	59					97.27			
		36					72	76	67					113.78			
		40			20~42	20N~38N	80	84	75	60				130.13			
		45					90	94	85					151.46			
		48					96	100	91					164.04			
		50			25~42	25N~38N	100	104	95					172.31			
		60			25~45	25N~42N	120	124	115	65				205.60			
	2.5	16	25		15~22	15N~19N	40	45	33.75	32	43	18	9	70.43			
		20			18~28	18N~24N	50	55	43.75	40				98.97			
		24			18~33	18N~30N	60	65	53.75	48				128.63			
		25			20~35	20N~31N	62.5	67.5	56.25	50				136.34			
		28			20~42	20N~38N	70	75	63.75	60				160.07			
		30			20~45	20N~42N	75	80	68.75	65				175.19			
		36			20~49	20N~45N	90	95	83.75	70				222.23			
		40			25~49	25N~45N	100	105	93.75					254.16			
		45			25~52	25N~49N	112.5	117.5	106.25	75				295.82			
		48					120	125	113.75					306.46			
		50			25~56	25N~50N	125	130	118.75	80				321.92			
	3.0	16	30		16~26	16N~23N	48	54	40.5	38	50	20	10	121.71			
		20			20~35	20N~31N	60	66	52.5	50				171.01			
		24			20~40	20N~37N	72	78	64.5	58				222.27			
		25			20~42	20N~38N	75	81	67.5	60				235.60			
		30			25~52	25N~49N	90	96	82.5	75				302.72			
		32					96	102	88.5					328.27			
		36			25~56	25N~50N	108	114	100.5	80				384.01			
		40					120	126	112.5					420.10			

*1 Allowable Transmission Forces in the table are reference values calculated with prescribed conditions. For conditions, see P. 1498.

For orders larger than indicated quantity, please request a quotation.

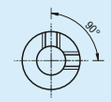
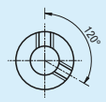
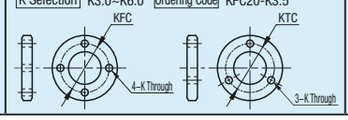
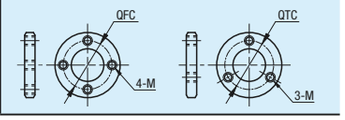
Ordering Example

Part Number	-	Number of Teeth	-	B	-	Gear Shape	-	P
GEAKBH2.0	-	30	-	20	-	A	-	25N
GEABH1.0	-	30	-	8	-	B	-	15

Gear shape will be "B" when not specified.

Alterations

Part Number	-	Number of Teeth	-	B	-	Gears Shape	-	P	-	(KC90, KC120...etc.)
GEAKBH2.0	-	40	-	20	-	B	-	30N	-	KC90

Alterations Code	Set Screw KC90	Set Screw KC120	Side Through Hole KFC, KTC	Side Tapped Hole QFC, QTC
Spec.	Adds another set screw at 90° position. Not applicable to Straight Bore Type. 	Adds another set screw at 120° position. Not applicable to Straight Bore Type. 	Machines through holes on the side surface. (KFC, KTC: 1mm Increment, K: 0.5mm Increment) Applicable to Shape A only. P+K+4≤KFC(KTC)≤G-K-4 K Selection K3.0~K6.0 Ordering Code KFC20-K3.5 	Machines tapped holes on the side surface of the gear (QFC, QTC: 1mm Increment). Applicable to Shape A only. P+M+4≤QFC(QTC)≤G-M-4 M Selection M3 M4 Ordering Code QFC25-M3 The tapped holes go through.