

		H6	H7	H8	H9	Applicable part	Functional classification	Application example				
Parts can move relative to each other.	Clearance fit	Loose fit			c9	Part which accommodates a particularly wide gap, or a moving part which requires a gap Part which accommodates a wide gap to facilitate assembly Part which requires an appropriate gap even at high temperatures	Part which for functional reasons requires a large gap Expands. Large positional error. Long fitting length	Piston ring and piston ring groove Fitting by means of a loose set pin				
		Loose roll fit			d9	Part which accommodates a wide gap, or which requires a wide gap	Cost needs to be reduced. Manufacturing cost Maintenance cost	Crank web and pin bearing (side) Exhaust valve box and spring bearing sliding part Piston ring and piston ring groove				
		Loose fit	e7	e8	e9	Part which accommodates a fairly wide gap, or a moving part which requires a gap Fairly wide gap and well lubricated bearing Bearing subjected to high temperature, high speed, and high load (high-degree forced lubrication)	Regular rotating or sliding part (Must be well lubricated.)	Fitting of exhaust valve seat Main bearing for crankshaft Regular sliding part stripper bolt MSB (e9)				
		Roll fit	f6	f7	f7	f8	Fitting which provides an appropriate clearance and permits movement (high-quality fitting). Regular normal-temperature bearing lubricated with grease or oil	Regular fitting part (is often disassembled)	Part where a cooled exhaust valve box is inserted Regular shaft and bushing Link device lever and bushing			
		Tightrollfit	g5	g6			Continuously rotating part of a precision machine under light load Fitting with a narrow gap and which permits movement (spigot, positioning) High-precision sliding part	Part requiring precision motion with almost no gap	Link device pin and lever Key and key groove Precision control valve rod Guide lifter pin (g6)			
Parts cannot move relative to each other.	Transition fit	Sliding fit	h5	h6	h7	h8	h9	Fitting which allows movement by hand when a lubricant is used (high-quality positioning) Special high-precision sliding part Unimportant stationary part	Difficult to disassemble without damaging the part.	Fitting force alone is insufficient for transmitting force	Fitting of rim and boss Fitting of gears in a precision gear device Dowel pin MSTH (h7)	
		Push fit	h5	h6	js6			Installation part which is compatible with a very small tightening interference High-precision positioning which locks both parts in place while unit is in use Fitting which can be assembled/disassembled using a wooden or lead hammer			Fitting two coupling flanges Governor path and pin Fitting of gear rim and boss	
		Striking	js5	k6				Fitting which requires an iron hammer or hand press for assembly/disassembly (A key or other device is required in order to prevent inter-part shaft rotation.) Precision positioning			Fitting of gear pump shaft and casing Reamer bolt	
			k5	m6				Assembly/disassembly are the same as the above. Precision positioning which permits no gap at all			Reamer bolt Dowel pin MSTM (m6) Fastening of hydraulic device pistons and shafts Fitting of coupling flange and shaft	
		Light press fit	m5	n6				Fitting which requires considerable force for assembly/disassembly Precision stationary fitting (A key or other device is required for high-torque transmission purposes.)			Fitting of flexible shaft coupling and gear (passive side) Precision fitting Punch SPAS, etc. (m5) Insertion of suction valve and valve guide Die MHD, etc. (m5)	
	Interference fit	Press fit	n5	p6				Fitting which requires large force for assembly/disassembly (A key or other device is required for high-torque transmission purposes.) However, only light press-fitting force is required for press-fitting when both parts are non-ferrous parts. Fastened using the standard press-fitting for fastening a ferrous part to a ferrous, bronze, or copper part	Difficult to disassemble without damaging the part.	Fitting force along is sufficient for transmitting small force	Fitting force is capable of transmitting considerable force	Insertion of suction valve and valve guide Straight die MSD, etc. (r5) Fixing a gear and shaft together (small torque) Dowel pin MST (p6) Flexible coupling shaft and gear (drive side)
			p5	r6				Assembly/disassembly are the same as the above. Shrinkage press fitting, cold press fitting or forced press fitting is required for large parts				Coupling and shaft
			r5	s6				Permanent assembly in which parts are both tightly fastened together and will not be disassembled, and which requires shrinkage press fitting, cold press fitting, or forced press fitting. For light alloys, only ordinary press fitting is required.				Fitting and fixing a bearing bushing Insertion of suction valve and valve seat Fixing a coupling flange and shaft together (large torque) Fixing a drive gear rim and boss together Fitting and fixing a bearing bushing
			t6	u6								
			x6									

† The items printed in red in the Application example are press die parts presented in this catalog



1.1 Fitting with regularly used hole adopted as reference

Reference hole	Shaft tolerance range class																			
	Clearance fit			Transition fit			Close fit													
H6				g5	h5	js5	k5	m5	n6*	p6*										
H7			f6	g6	h6	js6	k6	m6	n6	p6*	r6*	s6	t6	u6	x6					
H8			e7	f7	h7	js7														
H9			d9	e9																
H10	b9	c9	d9																	

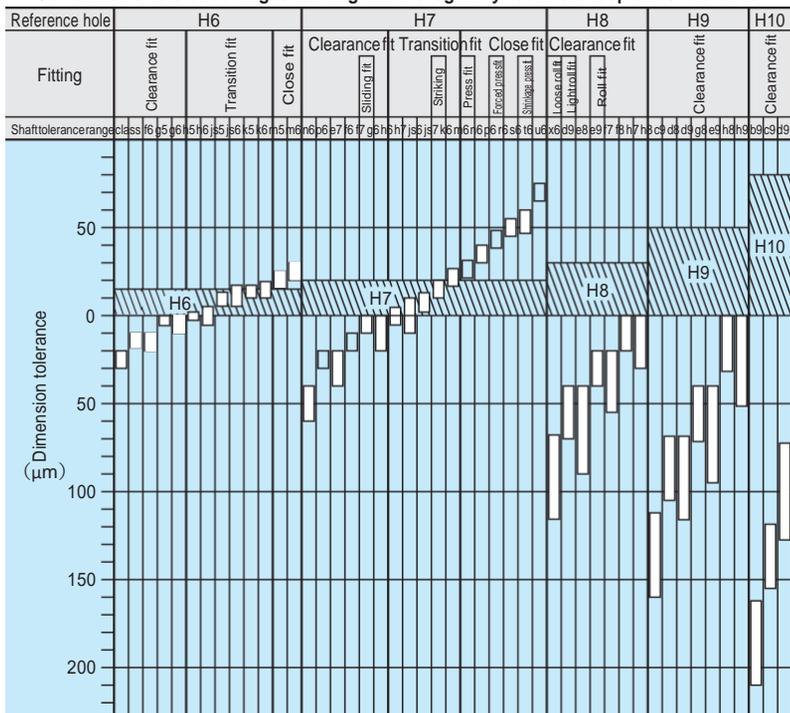
Note: * Exceptions for these fittings may arise depending on the dimensional sectioning scheme.

1.1 Fitting with regularly used shaft adopted as reference

Reference shaft	Hole tolerance range class																			
	Clearance fit			Transition fit			Close fit													
h5				H6	JS6	K6	M6	N6*	P6											
h6			F6	G6	H6	JS6	K6	M6	N6	P6*	R7	S7	T7	U7	X7					
h7			E7	F7	H7															
h8			D8	E8	F8	H8														
h9			D8	E8		H8														
	C9	D9	E9			H9														
	B10	C10	D10																	

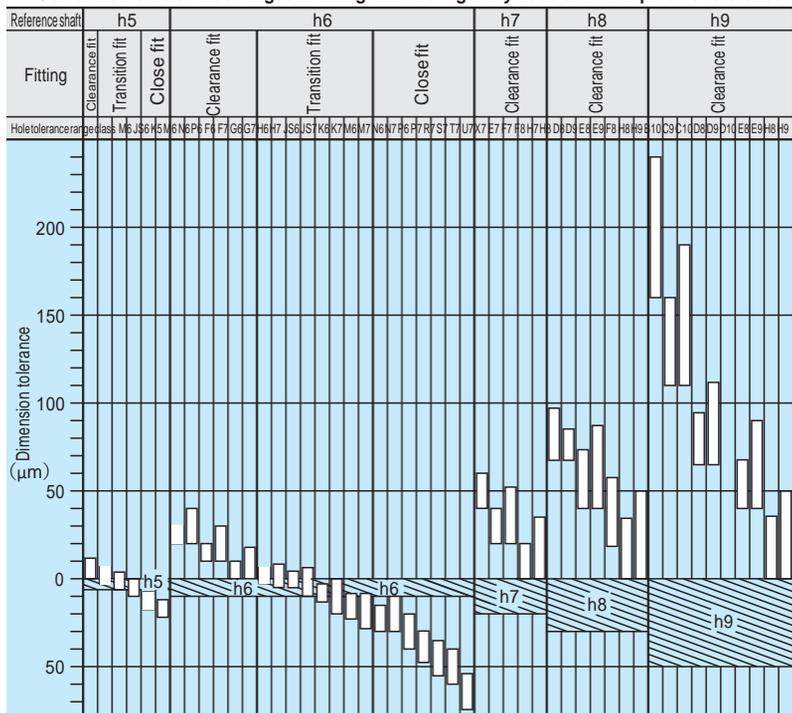
Note: * Exceptions for these fittings may arise depending on the dimensional sectioning scheme.

1.2 Correlation of tolerance ranges in fitting with the regularly used hole adopted as reference



* Cases in which the measurement exceeds the reference dimension in the above table (18mm) but does not exceed 30mm.

1.2 Correlation of tolerance ranges in fitting with the regularly used shaft adopted as reference



* Cases in which the measurement exceeds the reference dimension in the above table (18mm) but does not exceed 30mm.