The high tension material supports the aircraft that the advanced technology concentrated.

Nippon Koshuha's high tension material and constant elasticity material are indispensable in a wide field such as the motor, tools, and aircraft parts. The high tension material that appears from excellent manufacturing technology is represented by the following two. Precipitation hardening stainless steel possesses good corrosion resistance, heat resistance, and high strength, and can be used as spring, bolt, and aircraft component. Maraging steel possesses good weldability in addition to high toughness and strength, and can be used as spring, tool, and parts for high speed rotor. Constant elasticity material has the characteristic into which elasticity modulus does not change by a surrounding temperature change, and can be used as parts for spring scale, clock, precision instrument.

Springs manufactured from special alloy wire

Bolts and cold forging products manufactured from Maraging steel and nickel span C

High tension material					
Class	Grade	Equivalent alloy	Principal chemical composition	characteristic	Example of usage
Precipitation hardening stainless steel	**KTA17-7**	17-7PH	17Cr-7Ni-1Al-Fe	Corrosion resistance equal with the stainless steel High strength	Spring, Ring, Washer, Aircraft components
	KTA17-4	17-4PH	17Cr-4Ni-3Cu-Nb-Fe		
	KTA15-5	15-5PH	15Cr-5Ni-3Cu-Nb-Fe		
	KTA13-8	PH13-8MO	13Cr-8Ni-2Mo-Fe		Spring, aircraft components
Maraging steel	**KMS18-14**	-	18Ni-4Mo-8Co-Ti-Al-Fe	High strength and high toughness Good heat resistance up to 400℃ Good cold workability Good weldability	High strength spring, High speed rotor, Tool.
	KMS18-17	-	18Ni-4.5Mo-8Co-Ti-Al-Fe		
	KMS18-20	-	18Ni-5Mo-8.5Co-Ti-Al-Fe		
	KMS18-22	-	18Ni-4Mo-12Co-Ti-Al-Fe		
	KMS18-24	-	18Ni-4Mo-12.5Co-Ti-Al-Fe		

Constant elasticity material									
Class	Grade	Equivalent alloy	Principal chemical composition	modulus of longitudinal elasticity G(N/mm^2)	modulus of transverse elasticity E(N/mm^2)	Mechanical property			Example of usage
						Tensile strength(N/mm^2)	Elongation (%)	Hardness	
Wataru elastic material	**KTA-EL**	ELINVAR	36Ni-12Cr-1.5Mn-1.5Si-2W-Fe	78,400～83,300	-	740	30	HV230	Spring
	KTA-NSC	Ni-SPAN-C	42Ni-5.5Cr-2Ti-Al-Fe	176,400～196,000	68,600～73,500	590～1,370	-	HRC42	