

## Main parts of steam turbine

1.Life of main parts of the existing steam turbines depends on operating conditions and circumstances. Deterioration of main parts will affect plant operation seriously since it take nearly one year to manufacture these parts.

2.In order to minimize plant outage, we would strongly recommend to stock necessary main parts as per the following table.

### 3.Recommended spare parts

Item	Durable period	Recommended replacement timing	Munufacturing lead time (FOB)
(1)Turbine rotor(Including braid)	20~25 years	15~20 years	8 months
(2)Diaphragm, Nozzle	15~20 years	15~20 years	6 months
(3)Bearing	10~15 years	10 years	6 months
(4)Reduction gear	15~20 years	15 years	6 months
(5)Main stop valve,Governing valve, Casing valve	10~15 years	10 years	5 months
(6)Others	10~15 years	10 years	2~5 months

#### (1) Turbine rotor(Including braid)

- Rotor
- Braid
- Governor drive gear, Main oil pump drive gear

#### (2) Diaphragm and Nozzle

- Diaphragm
- Nozzle
- Bolt for diaphragm

#### (3) Bearing

- Bearing for reducing gear
- Bearing for turbine rotor

#### (4) Reduction gear

- Gear coupling for reducing gear

#### (5) Main stop valve,Governing valve, Casing valve

#### (6) Others

### 4.Others

NO.	Item	Content	Standard	Munufacturing	Measures
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			consumable period (year)	lead time	
4-1	Pin for regulation device	•Damage and wear measures	(6~10)	2 months	Preparation and replacement of spare parts
4-2	Reamer bolts & nuts for coupling	•Damage and wear measures	(15)	2 months	Preparation and replacement of spare parts
4-3	Element for pressure control device	•Damage and wear measures	(15)	4 months	Preparation and replacement of spare parts
4-4	Labyrinth packing	•Measures of rupture, damage and wear	(15)	4 months	Preparation and replacement of spare parts
4-5	Pilot piston for regulating device	•Damage and wear measures	(10)	3 months	Preparation and replacement of spare parts
4-6	Bolt & set screw for diaphragm	•Deterioration measures of bolt & set screw Note. Internal in turbine casing	After 60,000~80,000 HRS (10~15)	2 months	Preparation and replacement of spare parts
4-7	Air vent pin for regulating device	•Wear of pin & oil leakage measures	(10)	1.5 months	Preparation and replacement of spare parts
4-8	Taper pin & spring for emergency tripping device	•Taper pin's wear and deterioration measures	(10)	1.5 months	Preparation and replacement of spare parts
4-9	Pin & spring for over speed tripping device	•Measures of wear and corrosion and damage of trip pin •Measures of wear-out and deterioration of spring	(10)	1.5 months	Preparation and replacement of spare parts
4-10	Solenoid valve ass'y for tripping device	•Coil or valve replacement	(10)	2 months	Preparation and replacement of spare parts
4-11	Power rotor & idler rotor for screw oil pump	•Measures of damage & wear of gear	(15)	4 months	Preparation and replacement of spare parts
4-12	Display for electronic governor	•Display failure	30,000 HRS	2 months	Preparation and replacement of spare parts
4-13	Hydraulic amplifier	•Damage and wear measures	EVERY 2 YEARS or after 16,000 HRS	4 months	Preparation and replacement of spare parts
4-14	Electronic	•Deterioration	(10)	5 months	Preparation and

	governor				replacement of spare parts
4-15	Screw & gear for regulation device	•Corrosion & wear measures	(15)		Preparation and replacement of spare parts

## 5.Valves

NO.	Item	Content	Standard consumable period (year)	Munufacturing lead time	Measures
5-1	Valve & bush for main stop valve	•Measures of corrosion, wear & damage of gland	(15)	4 months	Preparation and replacement of spare parts
5-2	Valve, valve spindle & bush for Governing valve	•Damage and wear measures	(10)	4 months	Preparation and replacement of spare parts
5-3	Plate spring for main stop valve	•Failure of dimension due to wear-out	(4)	1.5 months	Preparation and replacement of spare parts
5-4	Guide sleeve for governing valve	•Grinding or new manufacturing of piston protection cylinder •Setting of bush by processing of the middle cylinder crown	(10)	2 months	Preparation and replacement of spare parts
5-5	Pin for governing valve feedback link	•Damage and wear measures	(6~10)	2 months	Preparation and replacement of spare parts (Structural modification in part)
5-6	Piston for servomotor	•Measures of wear and damage and oil leakage of piston	(10)	2 months	Preparation and replacement of spare parts
5-7	Strainer & set bolt for main stop valve	•Damage measures of strainer •Measures of damage and printing of bolt Note 1. Weld repair or replacement of parts of strainer	(10~15)	3 months	Repair or preparation for spare parts and replacement
5-8	Spring for main stop valve	•Deformation and deterioration measures	(15)	2 months	Preparation and replacement of spare parts
5-9	Casing bolt nut & washer				