

Rateau 12-stage with reduction gear CONDENSING GENERATOR TURBINES

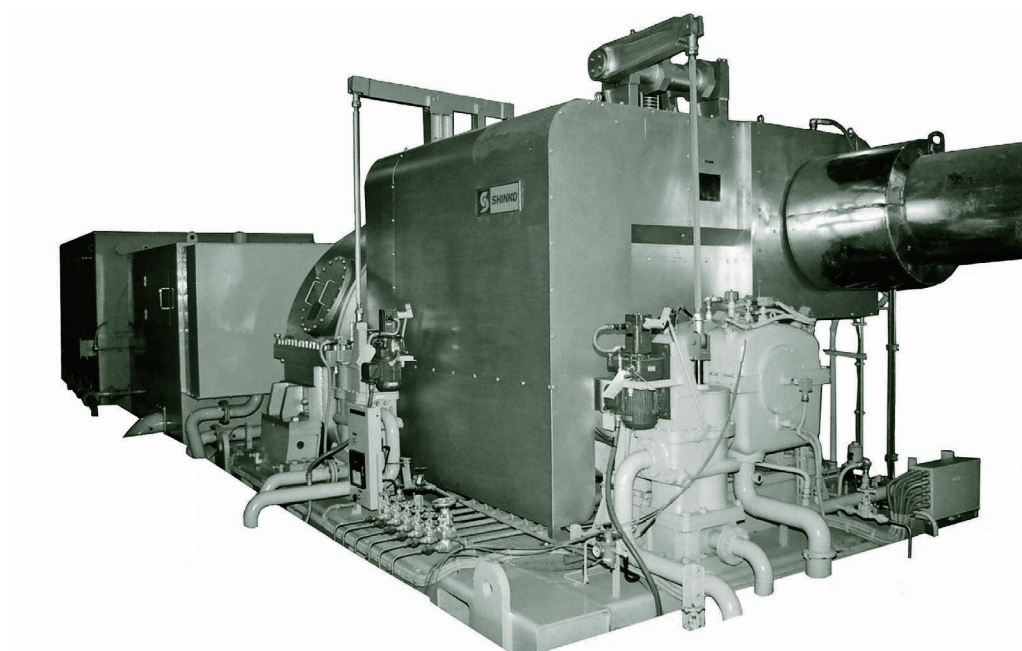
SHINKO DNG120

■ APPLICATIONS

Generators

■ SPECIFICATIONS

Max. output 30000 kW
 Max. exhaust vacuum 710 mmHg
 Gland seal Labyrinth packing
 Lubrication system Forced lubrication
 Control system 4 valve nozzle control

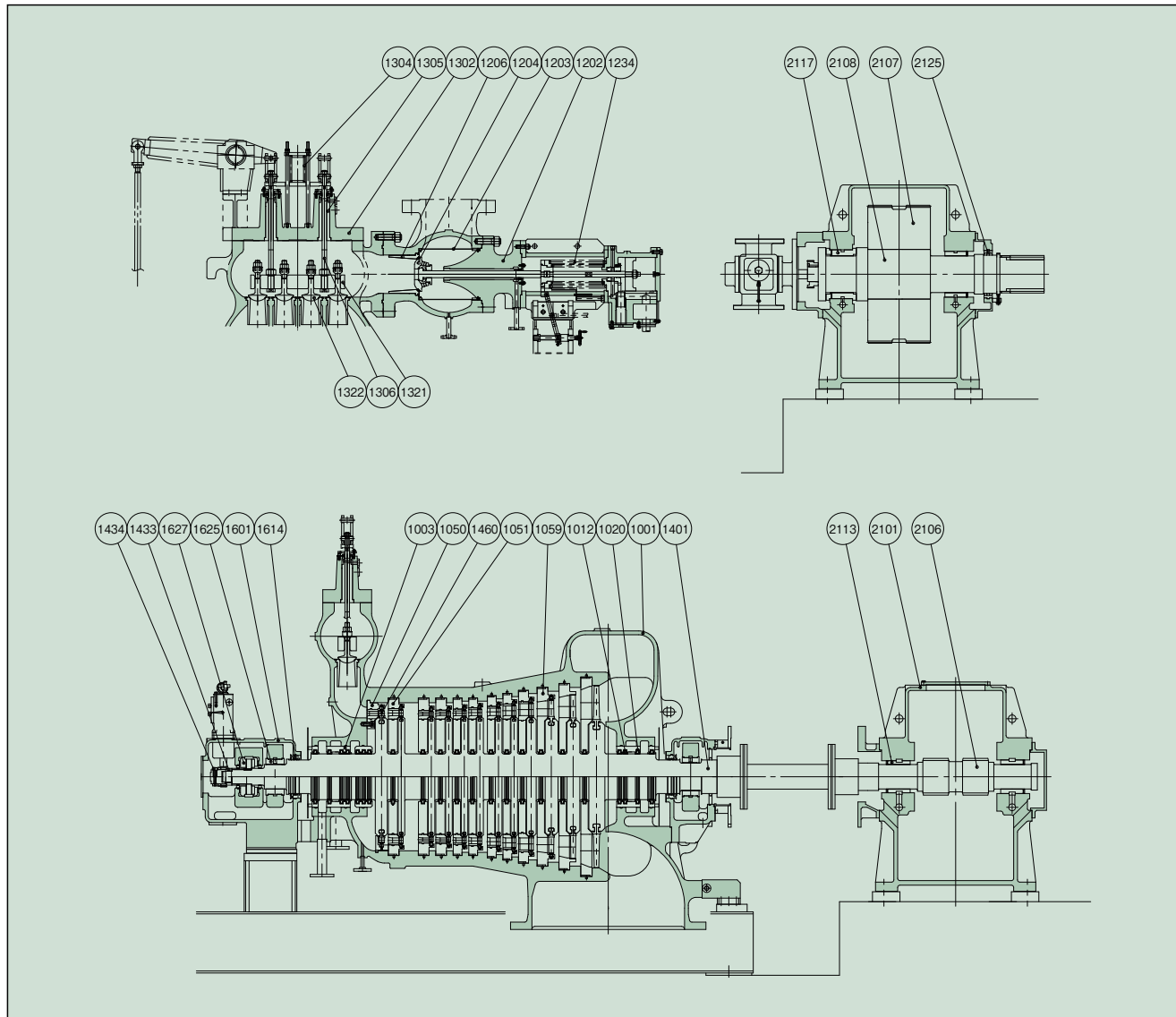


■ GENERAL CHARACTERISTICS

Item	Model	DNG 124(B) (F)	DNG 125(B) (F)	DNG 126(B) (F)	DNG 127(B) (F)
Max. output	(kW)	12000	16000	20000	30000
Speed (turbine shaft)	(rpm)	6000			
Speed (output shaft)	(rpm)	1500, 1800			
Rotation of output shaft		CCW facing turbine toward driven machine			
Max. inlet steam pressure	(MPaG)	7.2			
Max. inlet steam temperature	(℃)	520			
Max. exhaust vacuum	(mmHg)	710			
Steam inlet bore (※)	(mm)	300			
Steam exhaust bore (※)	(mm)	1000 × 1550	1080 × 1590	1020 × 2130	
Lubrication system		Forced lubrication			
Main LO pump	(m³/h × MPaG)	40 × 1.0	45 × 1.0	55 × 1.0	60 × 1.0
Aux. LO pump	(m³/h × MPaG)	30 × 1.0	35 × 1.0	45 × 1.0	50 × 1.0
Governor		Mechanical-hydraulic or electrical-hydraulic type			
AGMA service factor of gear		1.1			
Min. weight(with baseplate) (※) (kg)		32000	34000	38000	40000

(※) : The inlet bore, exhaust bore and weight differs depending on its steam condition and flow.

■ DESIGN & MATERIALS



PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 TURBINE	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 TURBINE
		NAME	JIS				NAME	JIS	
1001	TURBINE CASING	CAST STEEL	SCPH2	1SET	1322	GOVERNOR VALVE	STAINLESS STEEL	SUS420J2	4
1003	PACKING CASE	CARBON STEEL	S35C	1SET	1401	TURBINE ROTOR	Cr-Mo STEEL		1
1012	LABYRINTH PACKING	Ni-Br CASTING		22SETS	1433	OVERSPEED TRIP SHAFT	CARBON STEEL	S35C	1
1020	SPRING	STAINLESS STEEL	SUS304	22SETS	1434	TRIP WEIGHT	Al-Cr-Mo STEEL	SACM645	1SET
1050	NOZZLE PLATE	STAINLESS STEEL WITH CARBON STEEL	SUS403 S25C	1SET	1460	MOVING BLADE	STAINLESS STEEL HEAT-RESISTING STEEL	SUS410J1 SUH616	1SET
1051	NOZZLE DIAPHRAGM	"	"	1SET	1601	BEARING HOUSING	DUCTILE CAST IRON	FCD400	1SET
1059	NOZZLE DIAPHRAGM	STAINLESS STEEL WITH DUCTILE CAST IRON	SUS430 FCD400	1SET	1614	OIL GUARD	BRONZE	CAC407	1SET
1202	EMERGENCY VALVE COVER	CAST STEEL	SCPH2	1	1625	BEARING METAL	WHITE METAL WITH STEEL	WJ2 S25C	1SET
1203	STEAM STRAINER	STAINLESS STEEL	SUS410	1	1627	THRUST BEARING METAL	"	"	1SET
1204	EMERGENCY VALVE	"	SUS420J2	1	2101	REDUCTION GEAR CASING	CAST IRON	FC250	1SET
1206	VALVE SEAT	"	"	1	2106	PINION	Ni-Cr-Mo STEEL	SNCM420	1
1234	SPRING	SPRING STEEL	SUP10	1 SET	2107	WHEEL	Cr-Mo STEEL	SCM420	1
1302	GOVERNOR VALVE CASING COVER	CAST STEEL	SCPH2	1	2108	WHEEL SHAFT	CARBON STEEL	S45C	1
1304	SPRING	SPRING STEEL	SUP10	1	2113	BEARING METAL	WHITE METAL WITH STEEL	WJ2 S25C	1SET
1305	BUSH	Al-Cr-Mo STEEL	SACM645	2	2117	COMBINED BEARING METAL	"	"	1SET
1306	VALVE STEM	"	"	2	2125	OIL GUARD	ALUMINIUM	A5052	1SET
1321	GOVERNOR VALVE LIFTING BEAM	CARBON STEEL	S45C	1					

● Steam Temperature & Materials

Standard materials are shown on the table. However, in the case the steam temperature is more than 425°C, the materials are partially different from the table below:

PART NO.	NAME OF PART	MATERIAL	
		NAME	JIS
1001	TURBINE CASING	Cr-Mo CAST STEEL	SCPH21
1020	SPRING	INCONEL-X	
1050	NOZZLE PLATE	STAINLESS STEEL WITH ALLOY STEEL FORGING	SUS410J1 SFVAF12
1051	NOZZLE DIAPHRAGM	"	"
1202	EMERGENCY VALVE COVER	Cr-Mo CAST STEEL	SCPH21
1204	EMERGENCY VALVE	ALLOY STEEL FORGING	SFVAF12
1206	EMERGENCY VALVE SEAT	"	"
1302	GOVERNOR VALVE CASING COVER	Cr-Mo CAST STEEL	SCPH21
1306	VALVE STEM	HEAT-RESISTING STEEL	SUH616
1321	GOVERNOR VALVE LIFTING BEAM	ALLOY STEEL FORGING	SFVAF12
1322	GOVERNOR VALVE	"	"
1401	TURBINE ROTOR	Cr-Mo-V STEEL	

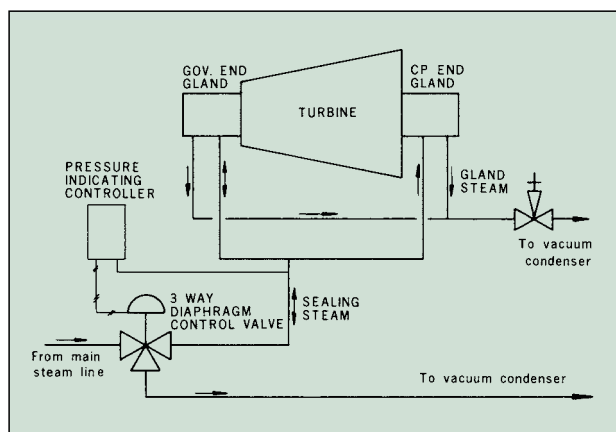
● Governor

A mechanical-hydraulic or an electrical-hydraulic type is employed.

Max. speed regulation	0 ~ 4 %
Max. speed variation	± 0.25 %
Max. speed rise	7 %
Speed range	± 5 %
NEMA class	D

● Gland Seal

The turbine gland is equipped with several sets of labyrinth packing. Since the exhaust steam is led to the vacuum condenser, the coupling end creates a vacuum at all times. And, the governor end is usually under positive pressure, but at times forms a vacuum during a low load of the turbine. Therefore, consideration has been given to prevent air from entering the turbine at any operating conditions using a sealing steam pressure controlling device.

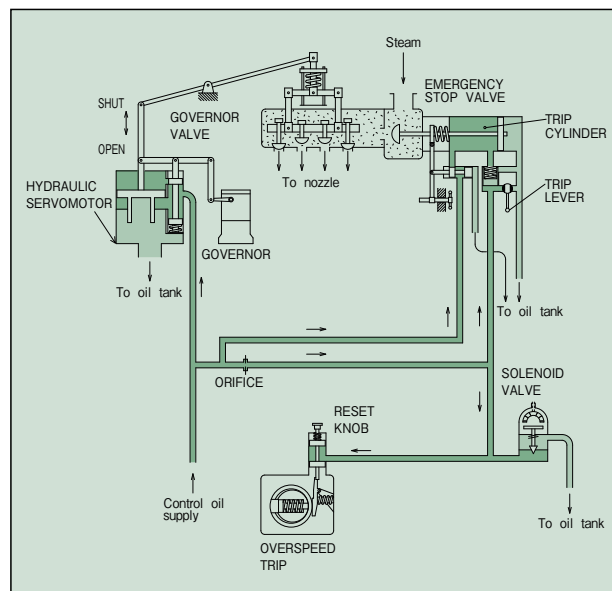


● Emergency Trip Device

For the purpose of safe turbine operation, an overspeed trip and a low pressure LO trip devices are equipped to close the emergency stop valve positioned independently at the steam inlet to stop the turbine automatically.

Actuation of overspeed trip : 110% of rated speed

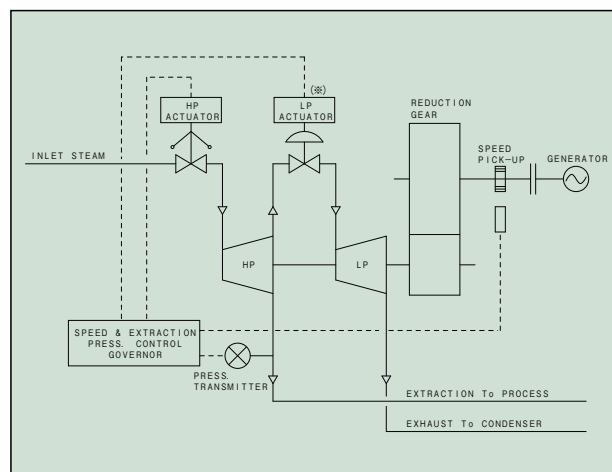
Actuation of low LO press. trip : Below 0.05 MPaG



● Extraction System

An extraction nozzle is provided at suitable intermediate stage of the turbine where a required steam pressure of the extraction steam can be obtained for process lines, feed heaters, and etc.

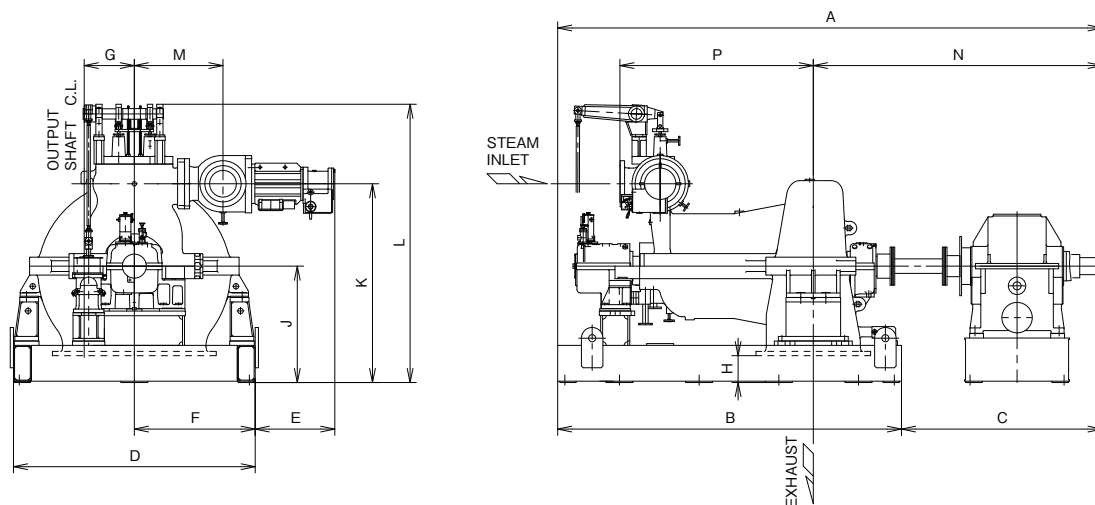
If the extraction pressure should be controlled at turbine side, the actuator shall be provided.



(※) : LP actuator is not provided when the bleeding steam pressure is controlled by the process side.

OUTLINE DIMENSIONS

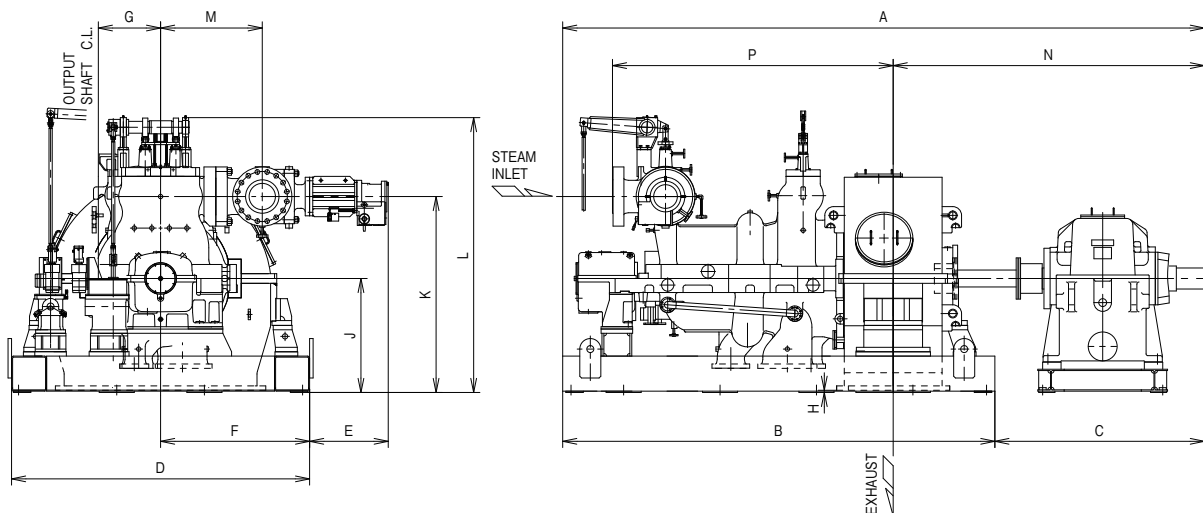
DNG 124,125



Dimensions : mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
DNG 124	6081	3840	2241	2700	889	1350	560	300	1300	2220	3110	990	3226	2160
DNG 125	6191	3900	2291	2800	990	1400	560	275	1300	2220	3110	990	3291	2200

DNG 126,127



Dimensions : mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
DNG 126	7261	4930	2331	3400	900	1700	630	25	1300	2235	3150	1160	3491	3202
DNG 127	7321	4930	2391	3400	900	1700	710	25	1300	2235	3150	1160	3551	3202

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