

Rateau 7-stage with reduction gear BACK PRESSURE GENERATOR TURBINES

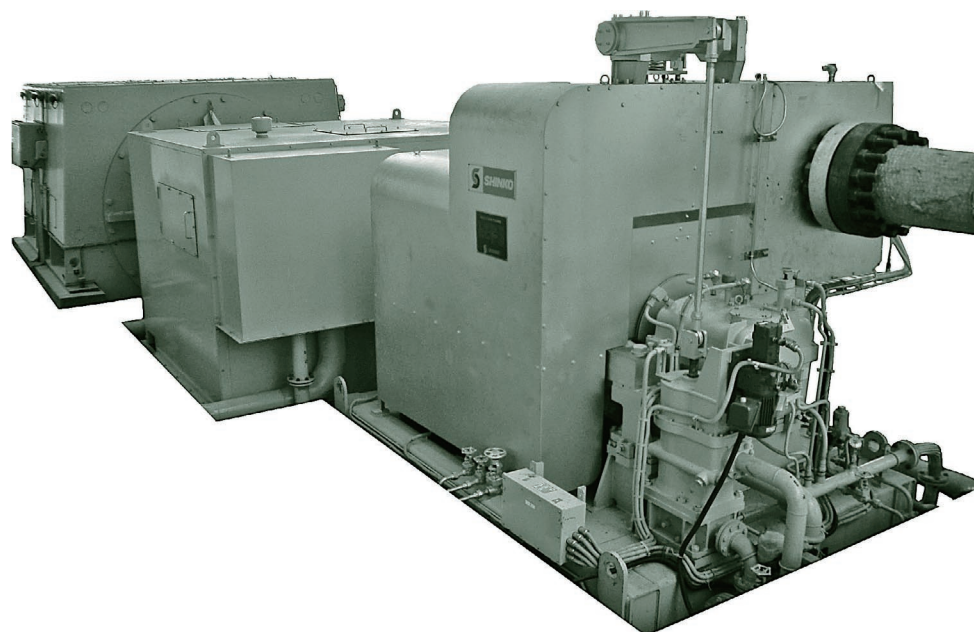
SHINKO DNG70

■ APPLICATIONS

Generators

■ SPECIFICATIONS

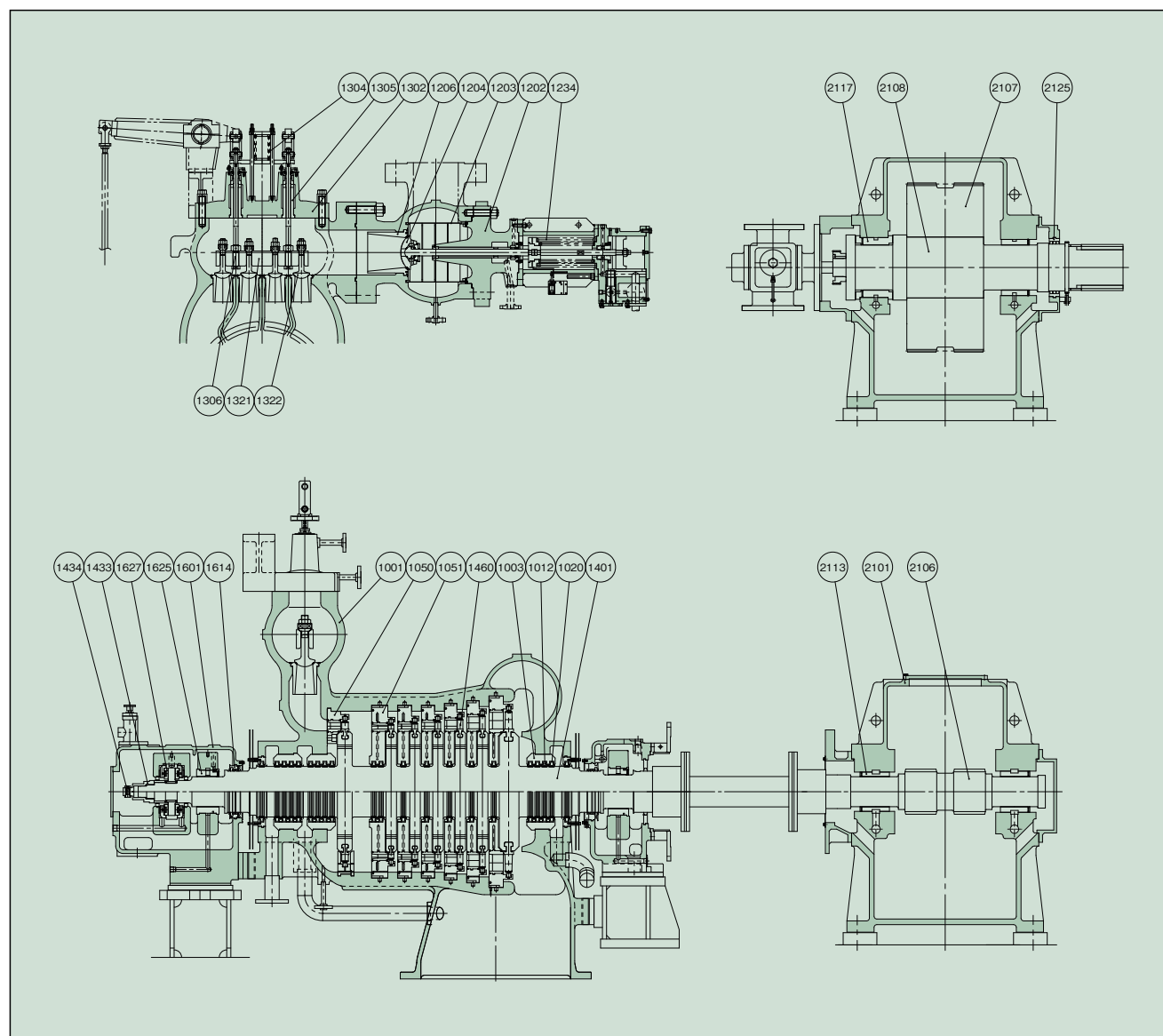
Max. output 30000 kW
 Max. exhaust steam pressure .. 0.5 MPaG
 Gland seal Labyrinth packing
 Lubrication system Forced lubrication
 Control system 4 valve nozzle control



■ GENERAL CHARACTERISTICS

Item	Model	DNG 76	DNG 77
Max. output	(kW)	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	(°C)	520	
Max. exhaust steam pressure	(MPaG)	0.5	
Steam inlet bore	(mm)	300	
Steam exhaust bore	(mm)	800	
Lubrication system		Forced lubrication	
Main LO pump	(m ³ /h x MPaG)	55 x 1.0	60 x 1.0
Aux. LO pump	(m ³ /h x MPaG)	45 x 1.0	50 x 1.0
Governor		Mechanical-hydraulic or electrical-hydraulic type	
AGMA service factor of gear		1.1	
Min. weight (with baseplate)	(kg)	21000	21000

■ 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		21SETS	1433	OVERSPEED TRIP SHAFT	CARBON STEEL	S35C	1
1020	SPRING	STAINLESS STEEL	SUS304	21SETS	1434	TRIP WEIGHT	Al-Cr-Mo STEEL	SACM645	1SET
1050	NOZZLE PLATE	STAINLESS STEEL WITH CARBON STEEL	SUS403 S25C	1SET	1460	MOVING BLADE	HEAT-RESISTING STEEL	SUH616	1SET
1051	NOZZLE DIAPHRAGM	"	"	1SET	1601	BEARING HOUSING	DUCTILE CAST IRON	FCD400	1SET
1202	EMERGENCY VALVE COVER	CAST STEEL	SCPH2	1	1614	OIL GUARD	BRONZE	CAC407	1SET
1203	STEAM STRAINER	STAINLESS STEEL	SUS410	1	1625	BEARING METAL	WHITE METAL WITH STEEL	WJ2 S25C	1SET
1204	EMERGENCY VALVE	"	SUS420J2	1	1627	THRUST BEARING METAL	"	"	1SET
1206	VALVE SEAT	"	"	1	2101	REDUCTION GEAR CASING	CAST IRON	FC250	1SET
1234	SPRING	SPRING STEEL	SUP10	1SET	2106	PINION	Ni-Cr-Mo STEEL	SNM420	1
1302	GOVERNOR VALVE CASING COVER	CAST STEEL	SCPH2	1	2107	WHEEL	Cr-Mo STEEL	SCM420	1
1304	SPRING	Si-Cr SPRING STEEL	SWOSC-V	1	2108	WHEEL SHAFT	CARBON STEEL	S45C	1
1305	BUSH	Al-Cr-Mo STEEL	SACM645	2	2113	BEARING METAL	WHITE METAL WITH STEEL	WJ2 S25C	1SET
1306	VALVE STEM	"	"	2	2117	COMBINED BEARING METAL	"	"	1SET
1321	GOVERNOR VALVE LIFTING BEAM	CARBON STEEL	S45C	1	2125	OIL GUARD	ALUMINIUM	A5052	1SET

● 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

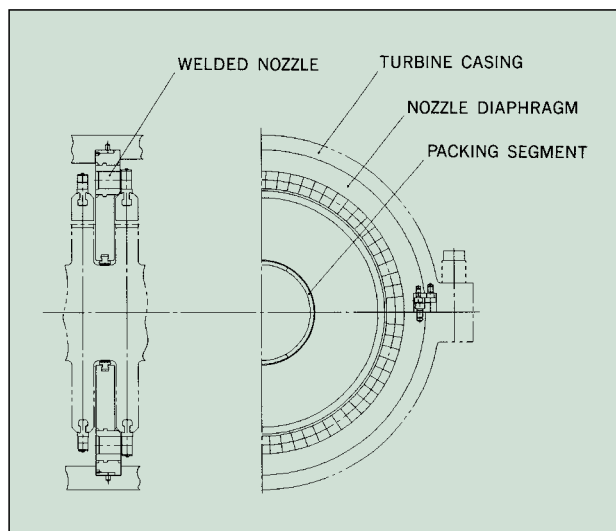
A mechanical-hydraulic or an electrical-hydraulic type is employed.

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. And, the leaking steam is led to the gland condenser.

● Nozzle and Diaphragm

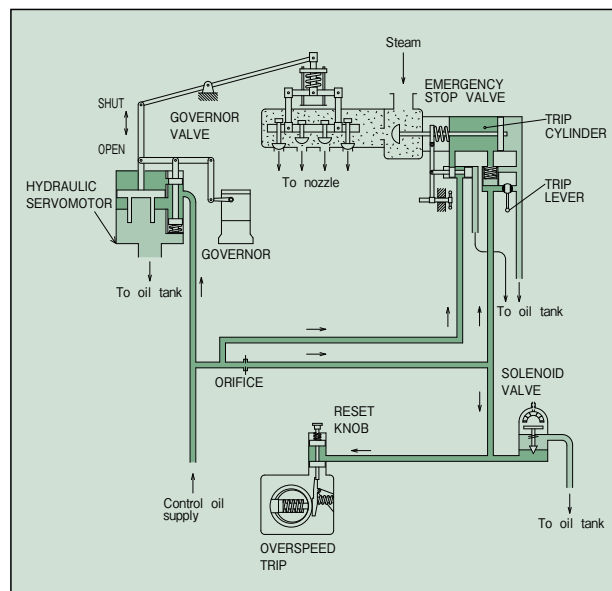


● Emergency Trip Device

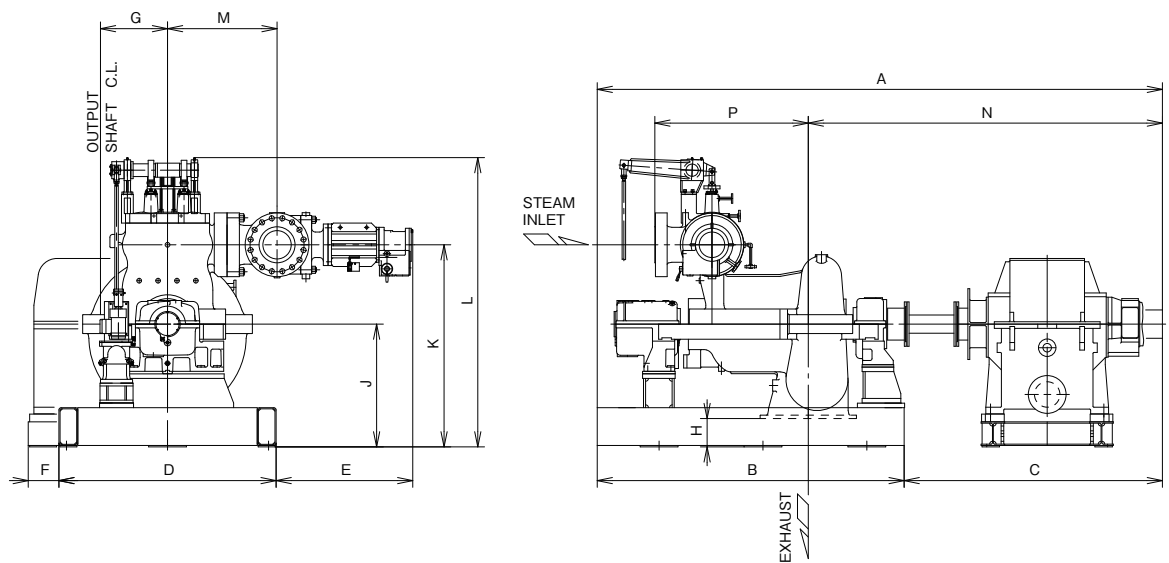
For the purpose of safe turbine operation, an overspeed trip and a low pressure LO trip devices are equipped to close the emergency stop valve positioned independently at the steam inlet to stop the turbine automatically.

Actuation of overspeed trip : 110% of rated speed

Actuation of low LO press. trip : Below 0.05 MPaG



■ OUTLINE DIMENSIONS



Dimensions : mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
DNG 76	5866	3250	2616	2300	1447	175	630	300	1300	2140	3060	1160	3631	1625
DNG 77	5986	3250	2736	2300	1447	325	710	300	1300	2140	3060	1160	3751	1625

Note : P is a value of 1500Lb