

Rateau 4-stage with reduction gear BACK PRESSURE GENERATOR TURBINES

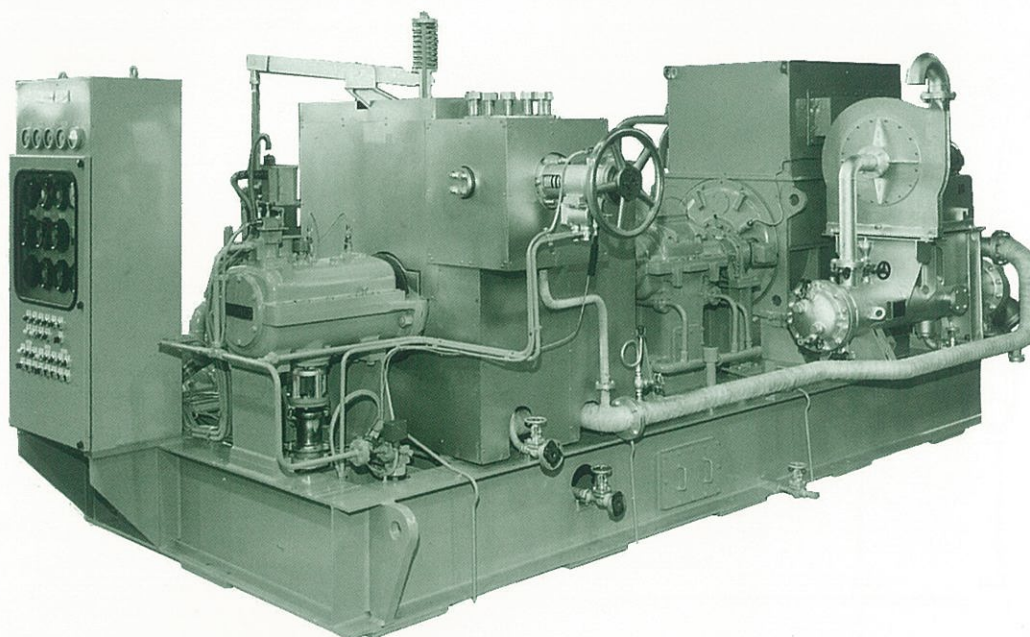
SHINKO DNG40

■ APPLICATIONS

Generators
Shredders
Pumps
Others

■ SPECIFICATIONS

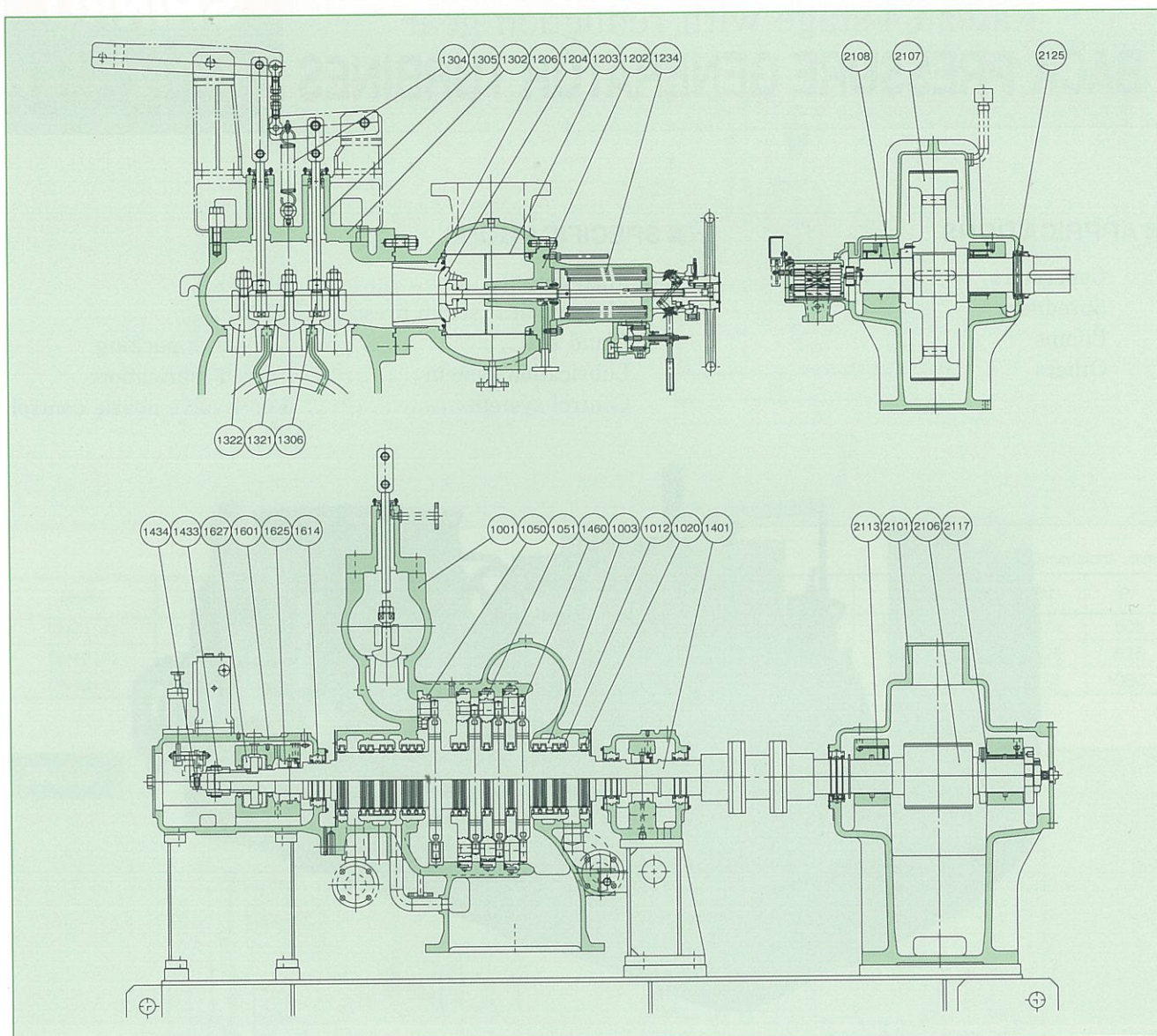
Max. output 10000 kW
Max. exhaust steam pressure .. 2.5 MPaG
Gland seal Labyrinth packing
Lubrication system Forced lubrication
Control system 3 or 4 valve nozzle control



■ GENERAL CHARACTERISTICS

Item	Model	DNG41	DNG42	DNG43	DNG41A	DNG42A	DNG43A
Max. output	(kW)	4000	6000	10000	4000	6000	10000
Speed (turbine shaft)	(rpm)	10000	9000	7000	10000	9000	7000
Speed (output shaft)	(rpm)	900 ~ 3600					
Rotation of output shaft		CCW facing turbine toward driven machine					
Max. inlet steam pressure	(MPaG)	6.2					
Max. inlet steam temperature	(°C)	510					
Max. exhaust steam pressure	(MPaG)	0.5			2.5		
Steam inlet bore	(mm)	200	250	300	200	250	300
Steam exhaust bore	(mm)	400	500	600	400	500	600
Lubrication system		Forced lubrication					
Main LO pump	(m ³ /h x MPaG)	20 x 0.8	25 x 0.8	35 x 1.0	20 x 0.8	25 x 0.8	35 x 1.0
Aux. LO pump	(m ³ /h x MPaG)	20 x 0.8	25 x 0.8	30 x 1.0	20 x 0.8	25 x 0.8	30 x 1.0
Governor		Mechanical-hydraulic or electrical-hydraulic type					
AGMA service factor of gear		1.1 ~ 2.0					
Min. weight (with baseplate)	(kg)	12000	14200	25000	12000	14200	25000

■ 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	3 or 4
1003	PACKING CASE	CARBON STEEL	S35C	1SET	1401	TURBINE ROTOR	Cr-Mo STEEL		1
1012	LABYRINTH PACKING	Ni-Br CASTING		17SETS	1433	OVERSPEED TRIP SHAFT	CARBON STEEL	S35C	1
1020	SPRING	STAINLESS STEEL	SUS304	17SETS	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	SUS410J1	1SET
1051	NOZZLE DIAPHRAGM	"	"	1SET	1601	BEARING HOUSING	CAST IRON	FC200	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	FC200	1SET
1234	SPRING	Si-Cr SPRING STEEL	SWOSC-V	1SET	2106	PINION	Ni-Cr-Mo STEEL	SNCM439	1
1302	GOVERNOR VALVE CASING COVER	CAST STEEL	SCPH2	1	2107	WHEEL	FORGED STEEL	SF640B	1
1304	SPRING	Si-Cr SPRING STEEL	SWOSC-V	1	2108	WHEEL SHAFT	"	SF540A	1
1305	BUSH	Al-Cr-Mo STEEL	SACM645	2	2113	BEARING METAL	WHITE METAL WITH STEEL	WJ2 S25C	1SET
1306	VALVE STEM	"	"	2	2117	THRUST BEARING METAL	"	"	1SET
1321	GOVERNOR VALVE LIFTING BEAM	CARBON STEEL	S45C	1	2125	OIL GUARD	BRONZE	CAC407	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
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.

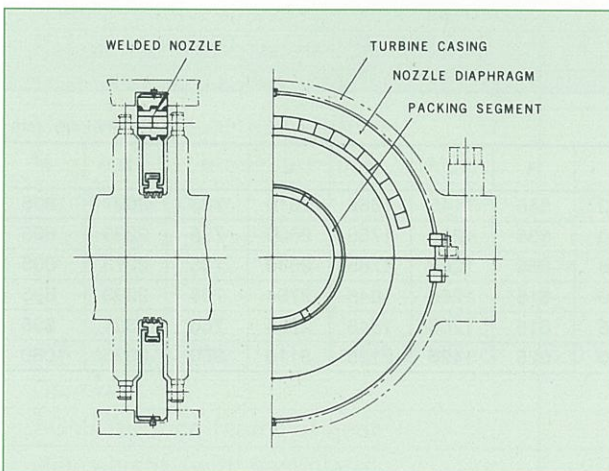
Max. speed regulation	0 ~ 4 %
Max. speed variation	± 0.25 %
Max. speed rise	7 %
Speed range	± 5 %
NEMA class	D

● Gland Seal

As shown below, the turbine gland is equipped with several sets of labyrinth packing. And, the leaking steam is led to the gland condenser.

MODEL	LABYRINTH PACKING	
	GOVERNOR SIDE	COUPLING SIDE
DNG	8 Sets	5 Sets
DNG-A	9 Sets	6 Sets

● Nozzle and Diaphragm

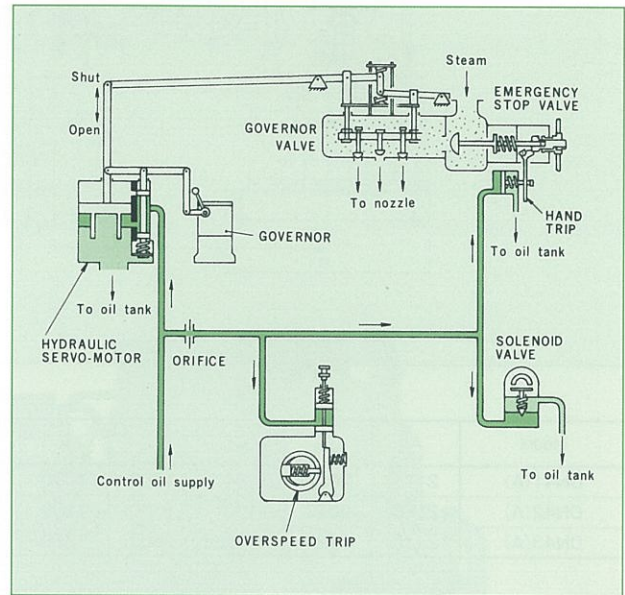


● Emergency Trip Device

For the purpose of safe turbine operation, an over speed 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.

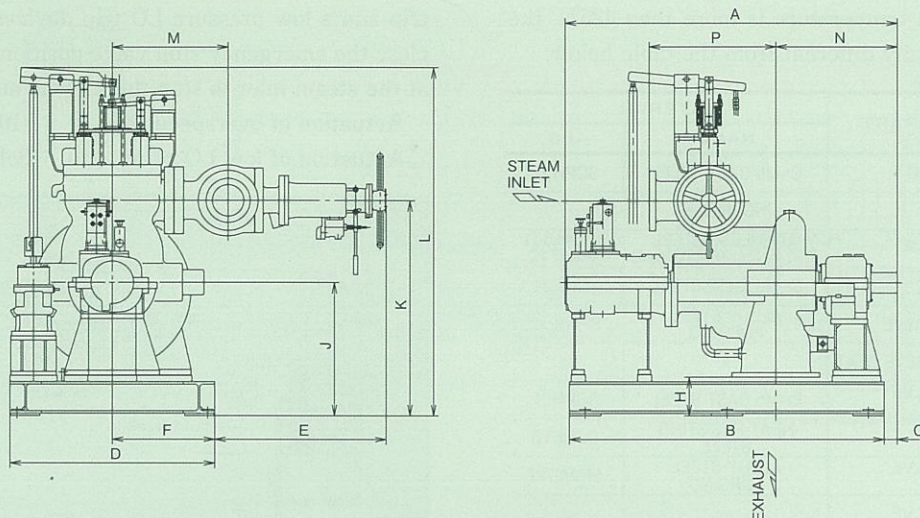
Actuation of overspeed trip : 110% of rated speed

Actuation of low LO press. trip : Below 0.05 MPaG



■ OUTLINE DIMENSIONS

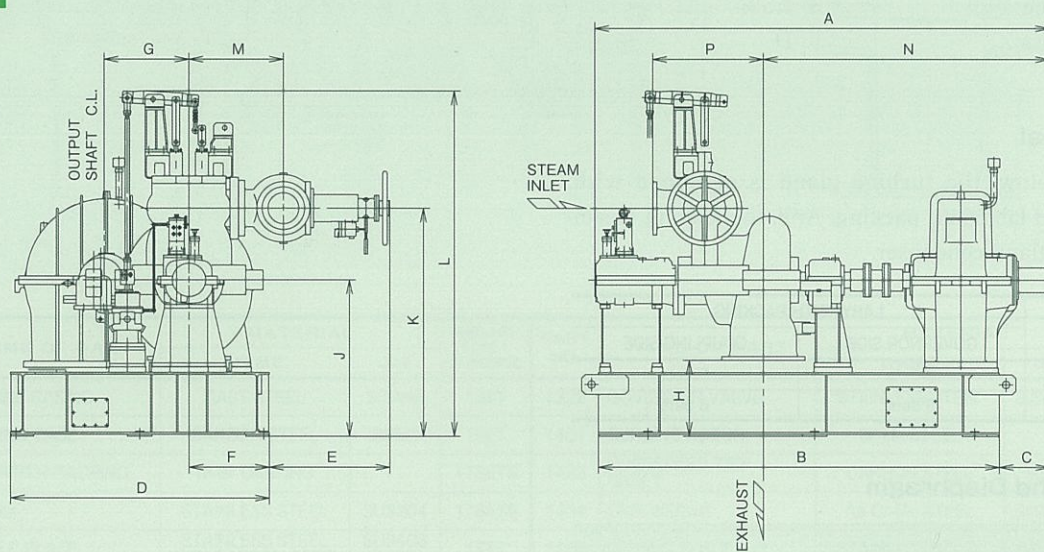
DN(A)



Dimensions : mm

Model	A	B	C	D	E	F	H	J	K	L	M	N	P
DN41(A)	2111	2000	84	1300	1090	650	245	845	1365	2210	735	774	805
DN42(A)	2188	2060	100	1300	1100	650	315	965	1545	2494	745	825	875
DN43(A)	2415	2220	(-10)	1600	1260	800	185	985	1685	2670	950	875	1080

DNG(A)



Dimensions : mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
DNG41(A)-50	3434	3200	207	2100	1090	650	513	545	1145	1665	2510	735	2097	805
55	3570	3200	343	2100	1090	650	570	635	1235	1755	2600	735	2233	805
65	3610	3200	383	2100	1090	650	668	665	1265	1785	2630	735	2273	805
DNG42(A)-55	3662	3250	384	2100	1100	650	570	615	1265	1845	2794	765	2299	895
65	3687	3250	409	2100	1100	650	668	615	1265	1845	2794	765	2324	895
DNG43(A)-70	4730	3900	405	2400	1260	800	560	625	1425	2125	3110	950	2975	1080