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Datasheet for ABC Diesel Engine type DZC

Operational circumstances based on ISO–conditions (ISO 3046-I).

ABC reserves the right to alter the technical data without prior notice.

DEFINITION

DZC: Medium speed engine, turbocharged & intercooled, available in Anti-clock and Clock rotation.

BASIC DATA

Cycle: 4 stroke, single acting.
Cylinders: 6-8 in line.
Bore: 256 mm.
Stroke: 310 mm.
Swept volume: 6 cylinders: 95.7 liters.
8 cylinders: 127.6 liters.
Compression ratio: 12.1: 1
Injection: Direct, mechanical.
One pump per cylinder.

PRESSURES

Brake mean effective pressure (bar)

rpm	720	750	800	900	1000
DZC	18.1	17.9	17.3	16.6	16.6

Maximum combustion pressure (bar)

rpm	720	750	800	900	1000
DZC	114	111	109	109	114

Lubricating oil pressure (bar)
(SAE 30 - 75ºC)

rpm	Idle speed		720	900
	300	330	750	1000
6DZC	2 – 2.5	2.5 - 3	4.85	5
8DZC	1.75	2	4.85	5

ROTATION SPEED

Piston speed (m/s)

rpm	720	750	800	900	1000
DZC	7.4	7.7	8.2	9.3	10.3

Fire speed: 120 rpm.

WORKING TEMPERATURES (ºC)

	Normal	Alarm	Stop
HT-cooling	80-85	90	95
Luboil (LT)	71-75	80	85
Luboil (HT)	76-81	85	90

MASS MOMENT OF INERTIA

6DZC including flywheel: 145 kgm^2
8DZC including flywheel: 181 kgm^2
Data based on standard version.

FUEL CONSUMPTION

g/kWh (g/HPh)

rpm	720	750	800	900	1000
6DZC	189 (139)	186 (137)	187 (138)	189 (139)	190 (140)
8DZC	188 (139)	188 (139)	188 (139)	191 (141)	193 (142)

For fuel oil:
- net heat value of 42700 kJ/kg,
- without engine-driven pumps,
- tolerance: + 5%.

OIL CONSUMPTION

6-8DZC: 0.7 g/kWh (0.5 g/HPh)

HEAT REMOVAL

(kW_{th} / kW_{eng})

Jacket cooling water:
6DZC: 0.28 **8DZC:** 0.305

Charge air cooling water:

rpm	cyl	120	135	150	166	179
720	6	---	---	---	0.248	0.253
	8	---	---	---	0.237	0.252
750	6	---	0.234	0.242	0.248	0.253
	8	---	---	0.216	0.237	0.250
900	6	0.158	0.177	0.194	0.213	---
	8	---	0.161	0.176	0.190	---
1000	6	0.189	0.212	0.237	0.262	---
	8	---	0.208	0.232	0.240	---

Lubricating oil:

rpm	cyl	120	135	150	166	179
720	6	---	---	---	0.098	0.092
	8	---	---	---	0.095	0.090
750	6	---	0.115	0.106	0.098	0.092
	8	---	---	0.100	0.095	0.092
900	6	0.129	0.122	0.114	0.106	---
	8	---	0.122	0.114	0.106	---
1000	6	0.121	0.114	0.106	0.099	---
	8	---	0.118	0.110	0.104	---

FLOW OF FLUIDS

High Temperature circuit: (m^3/h)

rpm	720	750	800	900	1000
6DZC	36	39	43	48	54
8DZC	52	54	57	64	72

Low Temperature circuit: (m^3/h)

rpm	720	750	800	900	1000
6-8DZC	43	45	48	54	60

Lubricating oil: (m^3/h)
(SAE 30 - 75ºC)

rpm	720	750	800	900	1000
Pump capacity	31	32	33.8	38	42
6DZC	19.3	19.5	19.7	19.8	20.2
8DZC	23	23.5	23.6	23.8	24

AIR & EXHAUST GAS

Inlet air flow: (m^3/s)

rpm	cyl	120	135	150	166	179
720	6	---	---	---	1.74	1.83
	8	---	---	---	2.37	2.52
750	6	---	1.61	1.71	1.82	1.90
	8	---	2.10	2.29	2.48	2.62
900	6	1.64	1.79	1.95	2.12	---
	8	2.20	2.44	2.66	2.91	---
1000	6	1.97	2.13	2.29	2.47	---
	8	2.62	2.87	3.14	3.42	---

Exhaust gas flow: (m^3/s)

rpm	cyl	120	135	150	166	179
720	6	---	---	---	3.82	4.08
	8	---	---	---	4.51	4.76
750	6	---	3.40	3.69	4.00	4.26
	8	---	3.95	4.34	4.73	4.98
900	6	3.47	3.83	4.21	4.61	---
	8	4.72	5.20	5.68	6.22	---
1000	6	4.11	4.52	4.94	5.38	---
	8	5.22	5.72	6.20	6.72	---

Exhaust gas temperatures: (ºC)
a = Temperature at cylinder
b = Temperature before turbine
c = Temperature after turbine

6DZC:

rpm	tº	120	135	150	166	179
720	a	---	---	---	390	405
	b	---	---	---	500	520
	c	---	---	---	375	385
750	a	---	365	380	395	405
	b	---	460	485	505	525
	c	---	345	365	380	385
900	a	375	390	400	410	---
	b	475	495	515	530	---
	c	345	360	375	395	---
1000	a	385	400	410	420	---
	b	485	505	525	540	---
	c	355	370	390	410	---

8DZC:

rpm	tº	120	135	150	166	179
720	a	---	---	---	400	410
	b	---	---	---	465	480
	c	---	---	---	345	350
750	a	---	375	385	400	410
	b	---	430	450	465	480
	c	---	325	335	345	350
900	a	375	390	400	410	---
	b	470	490	510	520	---
	c	340	360	380	390	---
1000	a	385	395	410	430	---
	b	470	490	510	525	---
	c	360	375	390	405	---

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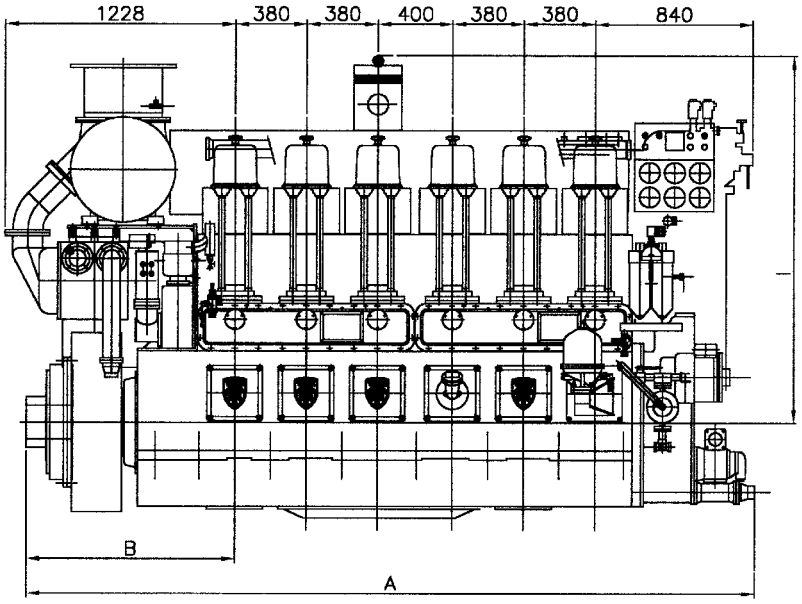
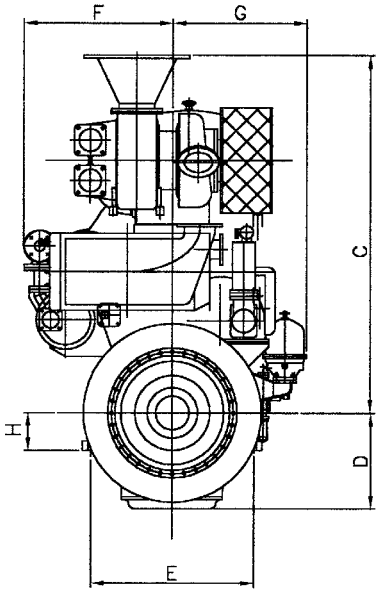
TYPE OF ENGINE	rpm	POWER OF THE ENGINE (ISO 3046 – I)		NOMINAL POWER OF GENSETS DZC			
				50 Hz electric 3 phase		60 Hz electric 3 phase	
		kW	HP	P_W (kW)	P_n (kVA)	P_W (kW)	P_n (kVA)
6 DZC–720–166	720	954	1297	---	---	907	1134
6 DZC–720–181	720	1032	1403	---	---	975	1218
6 DZC–750–120	750	721	979	685	856	---	---
6 DZC–750–135	750	810	1101	770	962	---	---
6 DZC–750–150	750	900	1224	855	1069	---	---
6 DZC–750–166	750	995	1353	945	1182	---	---
6 DZC–750–179	750	1065	1448	1012	1292	---	---
6 DZC–800–173	800	1104	1500	---	---	---	---
6 DZC–900–120	900	864	1175	---	---	821	1026
6 DZC–900–135	900	972	1322	---	---	923	1154
6 DZC–900–150	900	1080	1468	---	---	1026	1283
6 DZC–900–166	900	1194	1623	---	---	1135	1419
6 DZC–1000–120	1000	960	1305	912	1140	---	---
6 DZC–1000–135	1000	1080	1468	1027	1283	---	---
6 DZC–1000–150	1000	1200	1632	1140	1426	---	---
6 DZC–1000–166	1000	1326	1803	1260	1575	---	---
8 DZC–720–166	720	1272	1729	---	---	1209	1511
8 DZC–720–181	720	1376	1870	---	---	1300	1624
8 DZC–750–120	750	961	1306	913	1141	---	---
8 DZC–750–135	750	1081	1469	1027	1284	---	---
8 DZC–750–150	750	1200	1632	1140	1426	---	---
8 DZC–750–166	750	1326	1803	1260	1575	---	---
8 DZC–750–179	750	1420	1931	1349	1686	---	---
8 DZC–800–173	800	1472	2000	---	---	---	---
8 DZC–900–135	900	1296	1762	---	---	1232	1539
8 DZC–900–150	900	1440	1958	---	---	1369	1711
8 DZC–900–166	900	1592	2165	---	---	1513	1891
8 DZC–1000–135	1000	1440	1958	1369	1711	---	---
8 DZC–1000–150	1000	1600	2176	1521	1901	---	---
8 DZC–1000–166	1000	1768	2404	1680	2100	---	---





TYPE	Mass (kg)*	A (mm)	B (mm)	C (mm)	D (mm)		E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
					Shallow	Deep					
6 DZC	10620	3886	1112	1902	508	650	870	795	715	200	1950
8 DZC	13905	4681	1112	1902	508	650	870	795	715	200	1950

* Flywheel, vibration damper and coolers are included.

Conversion factors used: 1 metric HP = 0.736 kW; Generator efficiency: $\eta G = 0.95$; Power factor: $\cos \varphi = 0.8$

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