European Aviation Safety Agency

EASA

TYPE-CERTIFICATE
DATA SHEET

Number : E.140
Issue : 03
Date : 31 January 2014
Type : WSK “PZL- KALISZ” SA
ASz-62IR Series engines

Models
ASz-62IR-16
ASz-62IR-M18
ASz-62IR-M18/K9-BB
ASz-62IR-16E

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I. General

1. Type / Models:

ASz-62IR / ASz-62IR-16; ASz-62IR-M18; ASz-62IR-M18/K9-BB; ASz-62IR-16E;

2. Type Certificate Holder:

WSK "PZL- KALISZ" S.A.
ul. Częstochowska 140
62 – 800 Kalisz
Poland

EASA ADOA reference: AP025

3. Manufacturer:

WSK "PZL- KALISZ" S. A.

4. Certification Application Date:

ASz-62IR-16	ASz-62IR-M18	ASz-62IR-M18/K9-BB	ASz-62IR-16E
Before 15 February 1978 [1)]	Before 15 February 1978 [1)]	Before 15 May 2001 [1)]	31 September 2010

Note :1) Dedicated application dates had not been recorded

5. Certification Date:

ASz-62IR-16	ASz-62IR-M18	ASz-62IR-M18/K9-BB	ASz-62IR-16E
15 February 1978	15 February 1978	15 May 2001	14 June 2013

EASA type certificate for these models is granted in accordance with article 2 paragraph 3(a) of EU Commission Regulation 17002/2003 replacing CAO-Poland Type Certificate CB-116.

II. Certification Basis

1.1. Airworthiness Standards:

ASz-62IR-16; ASz-62IR-M18; ASz-62IR-M18/K9-BB	FAR 33, effective October 31, 1974, Amendment 33-1 to 33-6, inclusive.
ASz-62IR-16E	FAR 33, effective October 31, 1974, Amendment 33-1 to 33-6, inclusive. CS-E Amendment 2; effective December 18, 2009; CS-E.20; CS-E.25; CS-E.30; CS-E.50; CS-E.60; CS-E.70; CS-E.80; CS-E.90; CS-E.100; CS-E.110; CS-E.130; CS-E.135; CS-E.150; CS-E.210; CS-E.250; CS-E.350; CS-E.360; CS-E.370; CS-E.390; CS-E. 400; CS-E.440; CS-E.450.

1.2 Special Conditions (SC):

None

1.3. Equivalent Safety Findings (ESF):

None

1.4. Deviations:

None

1.5 Environmental Standards:

None (not required for piston engines)

III. Technical Characteristics

1. Type Design Definition:

List of design of ASz-62IR-16 engine (Doc. no SC-62-03; SZ-62-03);
List of design differences between ASz-62IR-16 and ASz-62IR-M18 engine (Doc. no SC-62-17; SZ-62-17);
List of design differences between ASz-62IR-M18 and ASz-62IR-M18/K9-BB engine (Doc. no SC-K9-05; SZ-K9-05);
List of design differences between ASz-62IR-16 and ASz-62IR-16E engine (Doc. no SC-62-19; SZ-62-19);

2. Description:

The ASz-62IR series engine is a nine – cylinder, four stroke, air cooled, supercharged, single row radial engine with rotation of crankshaft and propeller clockwise viewed from rear.

Displacement:	29.87 dm^3 (1823 cu. in.)
Bore x stroke:	155.5 / 174.5 mm (6.10 / 6.87 in.)
Compression ratio:	6.4
Gear ratio:	0.687 : 1 (reduction gear)

3. Equipment:

See latest revision of: Description, Operation and Service Manual

4. Dimensions:

	ASz-62IR-16; ASz-62IR-16E	ASz-62IR-M18; ASz62IR-M18/K9-BB;
Overall Length mm (in)	1328 mm (52.28 in.)	1130 mm (44.49 in.)
Overall Diameter mm (in)	1380 mm (54.33 in.)	1380 mm (54.33 in.)

5. Dry Weight:

ASz-62IR-16	ASz-62IR-M18	ASz-62IR-M18/K9-BB	ASz-62IR-16E
591 kg	578 kg	581 kg	591 kg
1302 lb	1274 lb	1280 lb	1302 lb

6. Ratings:

Rating	ASz-62IR-16; ASz-62IR-16E	ASz-62IR-M18	ASz-62IR-M18/K9-BB
Take-off (5 min), full throttle at sea level pressure altitude	721 kW (980 hp) at 140 kPa (41.3 in. Hg) at 2200 rpm	721 kW (980 hp) at 140 kPa (41.3 in. Hg) at 2200 rpm	842 kW (1145 hp) at 167 kPa (49.2 in. Hg) at 2300 rpm
Maximum continuous at sea level pressure altitude	591 kW (804 hp) at 120 kPa (35.4 in. Hg) at 2100 rpm	591 kW (804 hp) at 120 kPa (35.4 in. Hg) at 2100 rpm	686 kW (930 hp) at 140 kPa (41.3 in. Hg) at 2150 rpm
Maximum continuous at 1500 m (4921 ft) pressure altitude	605 kW (823 hp) at 120 kPa (35.4 in. Hg) at 2100 rpm	605 kW (823 hp) at 120 kPa (35.4 in. Hg) at 2100 rpm	711 kW (967 hp) at 140 kPa (41.3 in. Hg) at 2150 rpm

7. Carburettor:

ASz-62IR-16	ASz-62IR-M18	ASz-62IR-M18/K9-BB
AKM-62IRA	AKM-62IRA	AKM-62IRA

8. Fluids (Fuel/Oil/Additives):

8.1 Fuel: For all engine models specified in TCDS: Aviation Gasoline, minimum grade 85, up to the standards: ASTM-D-910-75, MIL-G-5572F, DERD.2485, GOST 1012-72, WT-11/OBR PR/PD/59.

For ASz-62IR-16E engine model only: Motor Gasoline, minimum grade 95 with a maximum oxygen content of 2,7 % (m/m), up to the standard: PN EN 228

8.2 Oil:

Mineral aircraft engine oils	Dispersing oils	Non-ash dispersing oils
With 20 cSt/100°C or 100 SUS/210°F viscosity and the minimum viscosity index 80, according to standards	DERD 2450 D-80 and D-100; AIR 3570 Grade 80D and Grade 100D; MIL-L-22851 D type II and type IIG; 3-GP-320-1080 and 3-GP-321 Grade 120; BA-PO-114 type B and type C; FSD MO741:266	GOST 21743-76; DERD 2472 B/O and DED 2472C; AIR 3560D Grade 100; MIL-L-6082E; 3-GP-100C; FSD MO 741:0586

9. Aircraft Accessory Drives:

The ASz-62IR-16 engine model

Designation	Rotation direction	Speed ratio to crankshaft	Max. Torque Nm (in.-lb)	Max. Overhang moment Nm (in.-lb)
Starter RIM-U-24IR	CCW	1:1	1078.73 (9547.46)	23.04 (203.97)
Magneto BSM-9 or BSM-9F	CCW	1.125:1	3 (26.56)	3.97 (35.15)
Carburettor AKM-62IRA	n/a	n/a	n/a	n/a
Fuel pump BNK-12BK	CCW	1:1	1.96 (17.36)	0.6 (5.29)
Oil pump MSz-8A	CW	1.125:1	9.61 (85.06)	12.75 (112.83)
Propeller governor R-9SM2	CCW	1.114:1	3.53 (31.25)	n/a
Generator GSN-3000M – optional accessory	CW	2.52:1	14.32 (126.72)	12.06 (106.76)

The ASz-62IR-M18; ASz-62IR-M18/K9-BB engine model

Designation	Rotation direction	Speed ratio to crankshaft	Max. Torque Nm (in.-lb)	Max. Overhang moment Nm (in.-lb.)
Starter RIM-U-24IR	CCW	1:1	1078.73 (9547.46)	23.04 (203.97)
Magneto BSM-9 or BSM-9F	CCW	1.125:1	3 (26.56)	3.97 (35.15)
Carburettor AKM-62IRA	n/a	n/a	n/a	n/a
Fuel pump BNK-12BK	CCW	1:1	1.96 (17.36)	0.6 (5.29)
Oil pump MSz-8M	CW	1.125:1	7.06 (62.49)	1.96 (17.36)
Propeller governor R-9SM2	CCW	1.114:1	0.36 (2.60)	n/a
Generator GSN-3000M – optional accessory	CW	2.52:1	14.32 (126.72)	12.06 (106.76)

The ASz-62IR-16E engine model

Designation	Rotation direction	Speed ratio to crankshaft	Max. Torque Nm (in.-lb)	Max. Overhang moment Nm (in.-lb)
Starter RIM-U-24IR	CCW	1:1	1078.73 (9547.46)	23.04 (203.97)
Magneto BSM-9 or BSM-9F	CCW	1.125:1	3.00 (26.55)	3.97 (35.15)
Fuel pump P-503C	CW	0,825:1	3.00 (26.55)	4.0 (35.40)
Oil pump MSz-8A	CW	1.125:1	9.61 (85.06)	12.75 (112.83)
Propeller governor R-9SM2	CCW	1.114:1	3.53 (31.25)	n/a
Generator GSN-3000M – optional accessory	CW	2.52:1	14.32 (126.72)	12.06 (106.76)

IV. Operational Limitations

Temperature limits ^{0}C(^{0}F):

	ASz-62IR-16	ASz-62IR-M18	ASz-62IR-M18/K9-BB	ASz-62IR-16E
Cylinder head (measured under rear spark plugs) – max 15 min.	245 (473)	245 (473)	245 (473)	245 (473)
Cylinder head (measured under rear spark plugs) – max. 5 hours.	235 (455)	235 (455)	235 (455)	235 (455)
Oil inlet - for oil viscosity 120 SUS at 210°F – max 3 min.	95 (203)	95 (203)	95 (203)	?? (???)
Oil inlet - for other oil types – max 3 min.	85 (185)	85 (185)	85 (185)	85 (185)
Oil inlet – max. 5 hours	80 (176)	80 (176)	80 (176)	80 (176)

2. Pressure Limits:

2.1 Fuel Pressure Limits kPa (psi) :

Inlet to carburettor:
- at rated range: min 24.5 (3.55)
- at rated range: max 34.3 (4.97)
- at idle: 14.7 (2.13)

Outlet of fuel pump: - at rated range: min 200 (29.00)
ASz-62IR-16E - at rated range: max 700 (101.53)

2.2 Oil Pressure Limits kPa (psi):

Oil pressure in rear cover:
- at rated range: min 390 (56,9)
- at rated range: max 490(71.1) – for ASz-62IR-16;
- at rated range: max 490 (71.1) – for ASz-62IR-M18;
- at rated range: max 590 (85.3) – for ASz-62IR-M18/K9-BB;
- at rated range: max 490 (71.1) – for ASz-62IR-16E;
- at idle: 147 (21.3)

V. Operational and Service Instructions

	Installation Manual	Operation Instruction	Maintenance and Inspection Instruction	Service Instruction
ASz-62IR-16	WT-62.01.01K	WT-62.02.01	WT-62.03.01K	WT-62.04.01K
ASz-62IR-M18	WT-62.01.01K	WT-62.02.01	WT-62.03.01K	WT-62.04.01K
ASz-62IR-M18/K9-BB	WT-62.01.03	WT-62.02.03	WT-62.03.03	WT-62.04.03
ASz-62IR-16E	WT-62E.01.01K	WT-62E.02.01	WT-62E.03.01K	WT-62E.04.01K

VI. Notes

For the software of the electronic fuel injection system installed in the ASz-62IRE model Level D of ED-12B/DO-178B had been shown.

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