
TYPE-CERTIFICATE DATA SHEET

E.140

for

ASz-62IR Series engines

Type Certificate Holder

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

For Models:

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

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I. General**1. Type/ Model**

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. Date of Application

| | | | |
|---------------------------------------|---------------------------------------|----------------------------------|-------------------|
| 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. EASA Type Certification Date

| | | | |
|------------------|-----------------|--------------------|--------------|
| ASz-62IR-16 | ASz-62IR-M18 | ASz-62IR-M18/K9-BB | ASz-62IR-16E |
| 15 February 1978 | 15 Februar 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. EASA 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

None

1.4. Deviations

None

1.5. Environmental Protection

None (nor 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 engines 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-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.) |

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, Coolant, Additives)**8.1 Fuel:**

For all engines model specified in TCDS: Aviation Gasoline, minimum grade 85, up to the standards: ASTM D910, ASTM D7547, DEF STAN 91-90, GOST 1012, WT-10/OBR PR/PD/59.

For ASz-62IR-16E; ASz-62IR-16*; ASz-62IR-M18*; engine models only: Motor Gasoline, minimum grade 95 with a maximum oxygen content of 2,7 % (m/m), up to the standard: PN EN 228, GOST R 51866.

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 |

*- see - Note 2



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. Operating Limitations**1. Temperature Limits**

| °C(°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) | 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 carburetor: | - at rated range: | min 24.5 (3.55) |
| | - at rated range: | max 34.3 (4.97) |
| | - at idle | 14.7 (2.13) |
| Outlet to fuel pump: ASz-62IR-16E | - at rated range: | min 200 (29.00) |
| | - 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. Operating 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

Note 1:

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.

Note 2:

For the engine models ASz-62IR-16 and ASz-62IR-M18 may be used Motor Gasoline, minimum grade 95 with a maximum oxygen content of 2,7 % (m/m), up to the standard: PN EN 228, GOST R 51866 only after the modification of the engine in accordance with Manufacturer Technical Bulletin no. 143/S/2014.



SECTION: ADMINISTRATIVE**I. Acronyms and Abbreviations**

n/a

II. Type Certificate Holder Record

n/a

III. Change Record

| Issue | Date | Changes | TC issue |
|--------------|-----------------|-----------------------|-----------------|
| Issue 01 | 29 March 2010 | Initial Issue | Initial Issue |
| Issue 02 | 14 June 2013 | Miscellaneous changes | |
| Issue 03 | 31 January 2014 | Miscellaneous changes | |
| Issue 04 | 17.07.2014 | Miscellaneous changes | |
| | | | |

[insert rows as needed]

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