

European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET**

SZD-52 "Krokus"

Type Certificate Holder:

Zakład Szybowcowy „Jeżów”
Henryk Mynarski
ul. Długa 93
58-521 Jeżów Sudecki
POLAND

EASA TCDS No. A.441

For variants: SZD-52-3 "Krokus S"
 SZD-52-4 "Krokus"

Issue 01, 14 February 2007

0.I. Table of Content

SECTION 0:

- 0.I. Table of Content
- 0.II. List of Effective Pages
- 0.III. Change Record

SECTION A: SZD-52-3 "Krokus S"

- A.I. General
- A.II. Certification Basis
- A.III. Technical Characteristics and Operational Limitations
- A.IV. Operating and Service Instructions
- A.V. Notes

SECTION B: SZD-52-4 "Krokus"

- B.I. General
- B.II. Certification Basis
- B.III. Technical Characteristics and Operational Limitations
- B.IV. Operating and Service Instructions
- B.V. Notes

0.II. List of effective Pages:

Page	0-1	A-1	A-2	A-3	A-4	B-1	B-2	B-3							
Issue	01	01	01	01	01	01	01	01							

0.III. Change Record

Issue	Date	Changes
01	14 September 2006	Transfer from Polish Type Certificate No. BG-144/1 to the EASA Type Design

Section A: SZD-52-3 "Krokus S"

A.I. General

1. Data Sheet No.: EASA.A.441
2. a) Type: SZD-52 "Krokus"
b) Variant: SZD-52-3 "Krokus S"
3. Airworthiness Category: Sailplane, JAR 22 - Utility
4. Type Certificate Holder: Zakład Szybowcowy „Jeżów”
Henryk Mynarski
ul. Długa 93
58-521 Jeżów Sudecki
POLAND
5. Manufacturer: Przedsiębiorstwo Doświadczalno-Produkcyjne
Szybownictwa „PZL - Bielsko”
ul. Cieszyńska 325
43-300 Bielsko-Biała
POLAND
6. Polish CAA Certification Date February 13, 1985 (TC No. BG-144)
7. The EASA Type Certificate replaces Polish Type Certificate No. BG-144/1,
which replaced the BG-144 on March 25, 2002, due to TC transfer from PDPSz "PZL-Bielsko".

A.II. Certification Basis

1. Certification Basis: Defined 13 February 1985
2. Airworthiness Requirements: JAR-22, Amendment 2, issued September 13, 1982
3. Requirements elected to comply: None
4. Special Conditions: None
5. Exemptions:
 - JAR-22.25(b) Minimum weight of occupant with parachute is 65 kg instead of required 55 kg.
 - JAR-22.73(a) A dive angle is about 37° with MTOW, V_{NE} and airbrakes extended. If weight is 370 kg (without water ballast) the dive angle is 45°. Aerobatics and cloud flying with water ballast are forbidden.
 - JAR-22.207 There is no stall warning with rear C.G. position, when airbrakes are extended or in turning. The glider doesn't meet also JAR-22.207(d) requirements in such cases. The exemption was permitted because of good flying qualities during stall and recovery, and little loss of altitude.
 - JAR-22.221 Behaviour of glider in spinning is not clear. In most CG positions it's impossible to make a five turns spin. Recovering from spin and spiral comply with requirements. In Flight Manual the intentional spinning was forbidden.
 - JAR-22.411(a) Control system stretch is 37-38 % for elevator and 26-28 % for rudder instead of required 25 %. Lower control system stiffness has no disadvantageous effect on controllability and aero-elasticity.
 - JAR-22.595 There is no attachment point for the parachute ripcord.
 - JAR-22.655 Tests were made only during flight tests according to Polish regulations PZTC SL, point 2-18.
 - JAR-22.683
 - JAR-22.697(c) Airbrakes retracting at $V_A=176$ km/h needs a hand force slightly exceeding required 20 daN. 20 daN appears at 160 km/h. Increased forces don't make airbrakes using difficult.
 - JAR-22.1529 Not all information required in this point is described in Maintenance Manual. Information relating to repairs is included to separate Repairs Manual.
6. Equivalent Safety Findings: None

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Drawing No. SZD-523-00-10-00.
2. Description: Single seat, standard class glider. Cantilever high-wing monoplane with T-shaped tail unit (fixed stabilizer with elevator, fin and rudder). All composite glass-epoxy structure. Bipartite double-tapered wing with plate airbrakes protruding from upper surface. Retractable main landing gear with disk brake and without shock absorbers; fixed tail wheel. Integral water ballast tanks in wings.
3. Equipment: Standard equipment:
 - airspeed indicator,
 - altimeter,
 - compass,
 - bank-and-turn indicator,
 - rate-of-climb indicator,
 - towing hook,
 - pilot safety belts.
4. Dimensions:

Span	15,00 m
Wing area	10,30 m ²
Aspect Ratio	21,8
Length	7,00 m
Height	1,55 m
5. Launching Hook: SZD III A 56 P
6. Weak links: Ultimate Strength: 677 daN ($\pm 10\%$)
7. Air Speeds:

Manoeuvring Speed	V_A	176 km/h
Never Exceed Speed	V_{NE}	255 km/h
Maximum permitted speeds		
- in rough air	V_{RA}	200 km/h
- in aero-tow	V_T	140 km/h
- landing gear operating	V_{LO}	240 km/h
8. Operational Capability: VFR Day,
Cloud flying
9. Masses:

Max. Mass with water ballast	480 kg
Max. Mass without water ballast	370 kg
Empty Mass	248 kg
10. Centre of Gravity Range: Empty glider with standard equipment:

Forward Limit	620 mm aft of datum point
Rearward Limit	640 mm aft of datum point

Centre of Gravity operational limits:

Forward Limit	217 mm aft of datum point (20,0% MAC)
Rearward Limit	374 mm aft of datum point (42,0% MAC)

MAC is 715 mm; 0% MAC is 74 mm behind the datum.
Datum: Leading edge and wing-fuselage division plane intersection.
Levelling means: Leading and trailing points of root chord (900 mm) at the same level.

11. Seating Capacity: 1
12. Lifetime limitations: Refer to Maintenance Manual
13. Other limitations: Aerobatic and cloud flying are permissible only without water ballast.
Intentional spinning is forbidden.
14. Deflection of control surfaces:
- | | | | |
|-----------|---------|-----|------|
| Aileron: | - up | 20° | ± 1° |
| | - down | 14° | ± 1° |
| Elevator: | - up | 30° | ± 1° |
| | - down | 20° | ± 1° |
| Rudder: | - left | 30° | ± 2° |
| | - right | 30° | ± 2° |

A.IV. Operating and Service Instructions

1. Flight Manual:
- Polish: Instrukcja Użytkowania w Locie,
Szybowiec SZD-52-3 „Krokus S”,
wydanie II z dnia 20.12.1984 r.
2. Maintenance Manual:
- Polish: Szybowiec SZD-52-3 „Krokus S”,
Opis Techniczny,
Instrukcja Obsługi Technicznej z Terminarzem
Prac Okresowych,
wydanie z dnia 26.11.1984 r.
3. Repairs Manual:
- Polish: Instrukcja napraw szybowców laminatowych
SZD-52-3 „Krokus S” i SZD-52-4 „Krokus”,
wydanie I, 1984 r.

A.V. Notes

1. Serial Numbers:
X-138,
X-139.
2. All glider outside surfaces exposed to sunlight must be white painted apart from registration number and anti-collision marks.

Section B: SZD-52-4 "Krokus"

B.I. General

1. Data Sheet No.: EASA.A.441
2. a) Type: SZD-52 "Krokus"
b) Variant: SZD-52-4 "Krokus"
3. Airworthiness Category: Sailplane, JAR 22 - Utility
4. Type Certificate Holder: Zakład Szybowcowy „Jeżów”
Henryk Mynarski
ul. Długa 93
58-521 Jeżów Sudecki
POLAND
5. Manufacturer: Przedsiębiorstwo Doświadczalno-Produkcyjne
Szybownictwa „PZL - Bielsko”
ul. Cieszyńska 325
43-300 Bielsko-Biała
POLAND
6. Polish CAA Certification Date: February 13, 1985 (TC No. BG-144)
7. The EASA Type Certificate replaces Polish Type Certificate No. BG-144/1,
which replaced the BG-144 on March 25, 2002, due to TC transfer from PDPSz "PZL-Bielsko".

B.II. Certification Basis

1. Certification Basis: Defined 13 February 1985
2. Airworthiness Requirements: JAR-22, Amendment 2, issued September 13, 1982
3. Requirements elected to comply: None
4. Special Conditions: None
5. Exemptions: The same as SZD-52-3 (look at A.II.5.)
6. Equivalent Safety Findings: None

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Drawing No. SZD-524-00-10-00.
2. Description: Single seat, 15 m class glider. Cantilever high-wing monoplane with T-shaped tail unit (fixed stabilizer with elevator, fin and rudder). All composite glass-epoxy structure. Bipartite double-tapered wing with flaps and plate airbrakes protruding from upper surface. Retractable main landing gear with disk brake and without shock absorbers; fixed tail wheel. Integral water ballast tanks in wings.
3. Equipment: Standard equipment:
 - airspeed indicator,
 - altimeter,
 - compass,
 - bank-and-turn indicator,
 - rate-of-climb indicator,
 - towing hook,
 - pilot safety belts.
4. Dimensions:

Span	15,00 m
Wing area	10,30 m ²
Aspect Ratio	21,8
Length	7,00 m
Height	1,55 m
5. Launching Hook: SZD III A 56 P
6. Weak links: Ultimate Strength: 677 daN ($\pm 10\%$)
7. Air Speeds:

Manoeuvring Speed	V _A	176 km/h	
Never Exceed Speed	V _{NE}	255 km/h	flaps at $-12^\circ \div 0^\circ$
Maximum permitted speeds			
- with flaps extended	V _{FE}	236 km/h	flaps at $2^\circ \div 7^\circ$
- in rough air	V _{RA}	200 km/h	
- in aero-tow	V _T	140 km/h	
- landing gear operating	V _{LO}	240 km/h	
8. Operational Capability: VFR Day,
Cloud flying
9. Masses:

Max. Mass with water ballast	480 kg
Max. Mass without water ballast	370 kg
Empty Mass	256 kg
10. Centre of Gravity Range: Empty glider with standard equipment:

Forward Limit	620 mm aft of datum point
Rearward Limit	640 mm aft of datum point

Centre of Gravity operational limits:

Forward Limit	217 mm aft of datum point (20,0% MAC)
Rearward Limit	374 mm aft of datum point (42,0% MAC)

MAC is 715 mm; 0% MAC is 74 mm behind the datum.
Datum: Leading edge and wing-fuselage division plane intersection.
Levelling means: Leading and trailing points of root chord (900 mm) at the same level.
11. Seating Capacity: 1
12. Lifetime limitations: Refer to Maintenance Manual

13. Other limitations: Aerobatic and cloud flying are permissible only without water ballast.
Aerobatic is permissible only with flaps at "0" position.
Intentional spinning is forbidden.
14. Deflection of control surfaces:
- | | | | |
|-----------|---------|-----|------|
| Aileron: | - up | 20° | ± 1° |
| | - down | 14° | ± 1° |
| Elevator: | - up | 30° | ± 1° |
| | - down | 20° | ± 1° |
| Rudder: | - left | 30° | ± 2° |
| | - right | 30° | ± 2° |
| Flaps: | - up | 12° | ± 1° |
| | - down | 7° | ± 1° |

B.IV. Operating and Service Instructions

1. Flight Manual:
- Polish: Instrukcja Użytkowania w Locie,
Szybowiec SZD-52-4 „Krokus”,
wydanie II z dnia 20.12.1984 r.
2. Maintenance Manual:
- Polish: Szybowiec SZD-52-4 „Krokus”,
Opis Techniczny,
Instrukcja Obsługi Technicznej z Terminarzem
Prac Okresowych,
wydanie z dnia 26.11.1984 r.
3. Repairs Manual:
- Polish: Instrukcja napraw szybowców laminatowych
SZD-52-3 „Krokus S” i SZD-52-4 „Krokus”,
wydanie I, 1984 r.

B.V. Notes

1. Serial Numbers:
X-140,
X-142.
2. All glider outside surfaces exposed to sunlight must be white painted apart from registration number and anti-collision marks.