European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

MDM-1 “Fox”

Type Certificate Holder:

ZAKŁADY LOTNICZE
Margański & Mysłowski
Sp. z o.o.
ul. Strażacka 60
43-300 Bielsko-Biała
POLAND

EASA TCDS No. A.039

For variants: MDM-1 “Fox”
MDM-1P “Fox-P”

Issue 02, 14 February 2007

0.I. Table of Content

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0.III. Change Record

Issue	Date	Changes
01	23 June 2005	Transfer from Polish Type Certificate No. BG-197 to the EASA Type Design.
02	14 February 2007	Including the MDM-1P "Fox P" version which was included to the Polish TC No. BG-197 with Certificate of Approval No Z-BG-01/99 on January 12th, 1999. Editorial changes.

Section A: MDM-1 “Fox”

A.I. General

1.	Data Sheet No.:	EASA.039
2.	a) Type: b) Variant:	MDM-1 “Fox” MDM-1 “Fox”
3.	Airworthiness Category:	Sailplane, Aerobatic
4.	Type Certificate Holder:	ZAKŁADY LOTNICZE Margański & Mysłowski Sp. z o.o. ul. Strażacka 60 43-300 Bielsko-Biała POLAND
5.	Manufacturer:	for S/N P-11, P-13÷P-16, 201÷235 : Zakład Remontów i Produkcji Sprzętu Lotniczego Edward Margański ul. Cieszyńska 321 43-300 Bielsko-Biała POLAND from S/N 236 : ZAKŁADY LOTNICZE Margański & Mysłowski Sp. z o.o. ul. Strażacka 60 43-300 Bielsko-Biała POLAND
6.	Polish CAA Certification Date	27 July 1994
7.	This EASA Type Certificate Data Sheet replaces Polish TCDS issue 4 (January 1999) to Type Certificate No. BG-197.	

A.II. Certification Basis

1.	Certification Basis:	Defined 13 February 1985
2.	Airworthiness Requirements:	JAR-22 Change 4, issued on 7 May 1987
3.	Requirements elected to comply:	None
4.	Special Conditions:	None
5.	Exemptions:	1. Stall speed with two person crew exceeds 80 km/h (JAR 22.49) 2. Airbrakes closing force exceeds 20 daN (JAR 22.143)
6.	Equivalent Safety Findings:	None

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: List of drawings, January 19th 1998

2. Description: Two-seat (tandem configuration) aerobatic and trainer glider.
Cantilever mid-wing monoplane with conventional tail unit (fixed stabilizer with elevator, fin and rudder).
All composite glass-epoxy structure. Bipartite tapered wing with Schempp-Hirth airbrakes protruding only from upper surface.
Fixed landing gear - main wheel with disk brake and tail wheel.

3. Equipment: Minimum equipment:
- airspeed indicator,
- altimeter,
- accelerometer,
- 5-points pilot harness,
- parachute or back cushion (8 cm thick) for each crew member.

Standard equipment (besides minimum equipment):
- variometer with compensator,
- pressure compensation vessel,
- bank indicator,
- compass,
- seat cushion.

4. Dimensions:

Span	14,00 m
Wing area	12,34 m²
Aspect Ratio	15,88
Length	7,38 m
Height	2,25 m

5. Launching Hook:

Nose towing hook	TOST E 85 or SZD-III A56 P
CG towing hook (optional)	TOST Europa G 88

6. Weak links: Ultimate Strength: 677 daN (± 10%)

7. Air Speeds:

Manoeuvring Speed	V_A	214 km/h
Never Exceed Speed	V_{NE}	282 km/h
Maximum permitted speeds		
- in rough air	V_{RA}	225 km/h
- in aero-tow	V_T	150 km/h
- in winch launching	V_W	150 km/h

8. Operational Capability: VFR Day

9. Masses:

Max. Mass	530 kg
Max. Empty Mass (without balance mass)	350 kg

10. Centre of Gravity Range:

Empty glider with standard equipment:

Forward Limit	620 mm aft of datum point
Rearward Limit	645 mm aft of datum point

Centre of Gravity operational limits:

Forward Limit	213 mm aft of datum point (22,0% MAC)
Rearward Limit	379 mm aft of datum point (39,0% MAC)

MAC is 971 mm; 0% MAC is 2,1 mm aft of datum.

Datum:	Leading edge and wing-fuselage division plane intersection.
Levelling means:	Leading and trailing points of root chord (1308 mm) at the same level.

11. Seating Capacity: 2

12. Lifetime limitations: Refer to Maintenance Manual

13. Other limitations:

Solo flight is permissible only on front seat.

Cross-country flight (gliding or towed) only with one person crew.

No baggage permitted.

The following kinds of operation are forbidden:
- auto-towing,
- flights in icing conditions,
- night flying,
- cloud flying without turn-and-bank indicator,
- aerobatic in rough air.

Manoeuvring load factor limits:

two person crew	+7,0/-5,0
one person (no more than 100 kg incl. parachute)	+9,0/-6,0

14. Deflection of control surfaces:

Aileron:	- up	22°	± 1°
	- down	17°	± 1°
Elevator:	- up	25°	± 1°
	- down	25°	± 1°
Rudder:	- left	30°	+ 1° / − 2°
	- right	30°	+ 1° / − 2°

A.IV. Operating and Service Instructions

1. Flight Manuals:

Polish:	Instrukcja Użytkowania w Locie Szybowca MDM-1 „Fox”, wydanie III, Październik 1996
Polish:	Instrukcja Użytkowania w Locie Szybowców MDM-1 „Fox” oraz MDM-1P „Fox P”,, wydanie IV, Grudzień 1998
English:	Flight Manual MDM-1 „Fox” issue III, October 1996
English:	Flight Manual MDM-1 „Fox”, MDM-1P „Fox P”, issue IV, December 1998
German:	Flughandbuch MDM-1 „Fox” Ausg. III, Oktober 1996, LBA-anerkannt

2. Maintenance Manual:

Polish:	Opis Techniczny, Instrukcja Obsługi Technicznej, Prace Okresowe, Szybowca MDM-1 „Fox”, wydanie III, Grudzień 1996
English:	Technical Service Manual, Periodic Works, MDM-1 „Fox” issue III, December 1996
German:	Wartungshandbuch MDM-1 „Fox” Ausg. III, Dezember 1996

A.V. Notes

1. Serial Numbers:
   P-11, P-13, P-14, P-15, P-16,
   201 and following
2. All glider outside surfaces must be white painted.
   No registration number or any colour marks on the wings and stabilizer upper surfaces are allowed.

Section B: MDM-1P "FOX-P"

B.I. General

1.	Data Sheet No.:	EASA.A.039
2.	a) Type: b) Variant:	MDM-1 "Fox" MDM-1P "Fox-P"
3.	Airworthiness Category:	Sailplane, Aerobatic or Utility
4.	Type Certificate Holder:	ZAKŁADY LOTNICZE Margański & Mysłowski Sp. z o.o. ul. Strażacka 60 43-300 Bielsko-Biała POLAND
5.	Manufacturer:	for S/N P-13, P-14, P-15, P-16, 201÷235 : Zakład Remontów i Produkcji Sprzętu Lotniczego Edward Margański ul. Cieszyńska 321 43-300 Bielsko-Biała POLAND from S/N 236 : ZAKŁADY LOTNICZE Margański & Mysłowski Sp. z o.o. ul. Strażacka 60 43-300 Bielsko-Biała POLAND
6.	Polish CAA Certification Date:	12 January 1999
7.	This EASA Type Certificate Data Sheet replaces Polish TCDS issue 4 (January 1999) to Type Certificate No. BG-197.	

B.II. Certification Basis

1.	Certification Basis:	
2.	Airworthiness Requirements:	JAR-22 Change 4, issued on May 7th 1987
3.	Requirements elected to comply:	None
4.	Special Conditions:	None
5.	Exemptions:	1. Stall speed in aerobatic version and with two person crew exceeds 80 km/h (JAR 22.49) 2. Airbrakes closing force exceeds 20 daN (JAR 22.143)
6.	Equivalent Safety Findings:	None

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

List of drawings:

MDM-1 Fox	issue January 19th 1998
MDM-1P Fox-P	issue March 1998

2. Description:

Two-seat (tandem configuration) aerobatic and trainer glider.
Cantilever mid-wing monoplane with conventional tail unit (fixed stabilizer with elevator, fin and rudder).
All composite glass-epoxy structure.
Bipartite tapered wing with Schempp-Hirth airbrakes protruding only from upper surface. Exchangeable wingtips - short for Aerobatic and long for Utility version.
Fixed landing gear - main wheel with disk brake and tail wheel.

3. Equipment:

Minimum equipment:
- airspeed indicator,
- altimeter,
- accelerometer,
- 5-points pilot harness,
- parachute or back cushion (8 cm thick) for each crew member.

Standard equipment (besides minimum equipment):
- variometer with compensator,
- pressure compensation vessel,
- bank indicator,
- compass,
- seat cushion.

4. Dimensions:

	Aerobatic	Utility
Span	14,00 m	16,15 m
Wing area	12,34 m²	13,09 m²
Aspect Ratio	15,88	19,92
Length	7,38 m	7,38 m
Height	2,25 m	2,25 m

5. Launching Hook:

Nose towing hook	TOST E 85 or SZD-III A56 P
CG towing hook (optional)	TOST Europa G 88

6. Weak links:

Ultimate Strength: 677 daN (± 10%)

7. Air Speeds:

Manoeuvring Speed	V_A	214 km/h
Never Exceed Speed	V_{NE}	282 km/h
Maximum permitted speeds		
- in rough air	V_{RA}	225 km/h
- in aero-tow	V_T	150 km/h
- in winch launching	V_W	150 km/h

winch launching permissible only with short wingtips

8. Operational Capability:

VFR Day

9. Masses:

	Aerobatic	Utility
Max. Mass	530 kg	535 kg
Max. Empty Mass (without balance mass)	350 kg	355 kg

10. Centre of Gravity Range:

Empty glider with standard equipment:

Forward Limit	620 mm aft of datum point
Rearward Limit	645 mm aft of datum point

Centre of Gravity operational limits:

Forward Limit	213 mm aft of datum point (22,0% MAC)
Rearward Limit	379 mm aft of datum point (39,0% MAC)

MAC is 971 mm for wings with short wingtips
MAC is 938 mm for wings with long wingtips
0% MAC is 2,1 mm aft of datum.

Datum:	Leading edge and wing-fuselage division plane intersection.
Levelling means:	Leading and trailing points of root chord (1308 mm) at the same level.

11. Seating Capacity: 2

12. Lifetime limitations: Refer to Maintenance Manual

13. Other limitations:

Solo flight is permissible only on front seat.

Cross-country flight (gliding or towed) with short wingtips only with one person crew.

No baggage permitted.

The following kinds of operation are forbidden:
- auto-towing,
- winch launching with long wingtips,
- flights in icing conditions,
- night flying,
- cloud flying without turn-and-bank indicator,
- aerobatic in rough air
- full aerobatic with long wingtips.

Manoeuvring load factor limits:

Aerobatic version with short wingtips:

- two person crew	+7,0/-5,0
- one person (no more than 100 kg incl. parachute)	+9,0/-6,0
Utility version with long wingtips	+5,3/-2,65

14. Deflection of control surfaces:

Aileron:	- up	22°	± 1°
	- down	17°	± 1°
Elevator:	- up	25°	± 1°
	- down	25°	± 1°
Rudder:	- left	30°	+ 1° / − 2°
	- right	30°	+ 1° / − 2°

B.IV. Operating and Service Instructions

1. Flight Manual:

   Polish: Instrukcja Użytkowania w Locie
   Szybowców MDM-1 „Fox” oraz MDM-1P „Fox P”,
   wydanie IV, Grudzień 1998

   English: Flight Manual
   MDM-1 „Fox”, MDM-1P „Fox P”,
   issue IV, December 1998

2. Maintenance Manual:

   Polish: Opis Techniczny, Instrukcja Obsługi Technicznej,
   Prace Okresowe, Szybowca MDM-1P „Fox P”,
   wydanie I, Grudzień 1998

   English: Technical Service Manual, Periodic Works,
   MDM-1P „Fox P”
   issue I, December 1998

B.V. Notes

1. Serial Numbers:
   P-11, P-13, P-14, P-15, P-16,
   201 and following
   Previously built MDM-1 “Fox” gliders can be modified into MDM-1P “Fox-P” variant.
2. All glider outside surfaces exposed to sunlight must be white painted apart from registration number and anti-collision marks.