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# TYPE-CERTIFICATE DATA SHEET

NO. EASA.A.616

for  
**JS-MD Single**

Type Certificate Holder

**M&D Flugzeugbau GmbH & Co. KG**

Streeker Straße 5 b  
26446 Friedeburg  
Germany

For models: **JS-MD 1C**  
**JS-MD 3**



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**SECTION A:                    JS-MD 1C**

**A.I   General**

1. Type/ Model/ Variant
  - 1.1 Type: JS-MD Single
  - 1.2 Model: JS-MD 1C
  
2. Airworthiness Category Sailplane and powered Sailplane (self-sustaining)  
CS-22 - Utility
  
3. Manufacturer M&D Flugzeugbau GmbH & Co. KG  
Streeker Straße 5 b  
26446 Friedeburg  
Germany
  
4. EASA Type Certification Application Date 07.05.2014
5. EASA Type Certification Date 01.06.2017

**A.II   EASA Certification Basis**

1. Reference Date for determining the applicable requirements 07.05.2014
2. Airworthiness Requirements Certification Specifications for Sailplanes and Powered Sailplanes (CS 22), Amendment 2 issued 5th of March 2009
3. Requirements elected to comply Standards for Structural Substantiation of Sailplane and Powered Sailplane Components consisting of Glass or Carbon Fibre Reinforced Plastics, issued July 1991  
Guidelines concerning proof of compliance for the electrical system of powered sailplanes, issued September 1992
  
4. Special Conditions None
5. Exemptions None
6. Equivalent Safety Findings None
7. Environmental Protection ICAO Annex 16 (details refer to TCDSN EASA.A.616)  
CS-34.1 Fuel Venting



### **A.III Technical Characteristics and Operational Limitations**

1. Type Design Definition Description  
According to MD01-DWL-00-001\_R15 or later approved revisions  
The JS-MD 1C is an all composite, single-seat sailplane with conventional T-tail.  
Or, with jet-engine installed, an all composite, powered, self-sustaining, single-seat sailplane with retractable jet-engine mounted behind the cockpit in the fuselage and conventional T-tail.  
For both configurations the wing is split in center and either 18m or 21m span outer wing including winglets. The wing is equipped with flaperons over nearly all wing span and Schempp-Hirth type airbrakes on the upper wing surface.  
The main landing gear is retractable, the tail wheel is fixed.
  
2. Equipment  
Min. Equipment:  
  
Airspeed indicator, 50 to 350 km/h  
Altimeter  
4-point symmetrical seat harness  
Operating placards  
Control surface gap seals (Mylar seals) on all control surfaces  
Outside air temperature (when flying with water ballast)  
Magnetic compass (when Jet Sustainer installed)  
Turn and bank indicator or artificial horizon (when flying in clouds)  
Variometer to indicate vertical speed (when flying in clouds)
  
3. Dimensions  

Span	18,00 m	21,00 m
Wing area	11,83 m <sup>2</sup>	13,16 m <sup>2</sup>
Length	7,10 m	7,10 m
Height	1,50 m	1,50 m
  
4. Engine (optional)
  - 4.1 Model MD-TJ42
  - 4.2 Type Certificate EASA.E.099
  - 4.3 Limitations max power 97,000 RPM
  - 4.4 Maximum Continuous Power 205 N at 80,000 RPM
  
5. Fuel capacities (when Jet Sustainer installed)/Battery
  - 5.1 Tank in the fuselage 42 l
  - 5.2 Tank in right wing None
  - 5.3 Tank in left wing None
  - 5.4 Non-usable fuel 0.4 l



6.	Launch Procedures	Aero tow Winch launch		
7.	Launching Hooks	CG Hook Tost G88 TCDS 60.230/2 Nose Hook Tost E22 NTS 11.402/9		
8.	Weak Links	for winch launch for aerotow	max. 825 daN max. 935 daN	
9.	Load Factors	Max positive up to Max negative up to Max positive up to Max negative up to Max with airbrake extended positive up to	203 Km/h IAS 203 Km/h IAS 270 Km/h IAS 270 Km/h IAS 270 Km/h IAS	+5,3 -2,65 +4,0 -1,5 +3,5
10.	Indicated Air Speeds	Never Exceed Speed Manoeuvring Speed Maximum permitted speeds - with flaps set 1 & 2 - with flaps set 3 - with flaps set 4&5 - with flaps set L - in rough air - for Winch launching (18m) - for Winch launching (21m) - for aerotowing - for gear operation - for engine operation - for engine extended	$V_{NE}$ $V_A$ $V_{FE}$ $V_{FE}$ $V_{FE}$ $V_{FE}$ $V_{RA}$ $V_W$ $V_W$ $V_T$ $V_{LO}$ $V_{PO}$ $V_{PE}$	270 Km/h 203 km/h 270 km/h 230 km/h 165 km/h 160 km/h 203 km/h 150 km/h 140 km/h 180 km/h 180 km/h 140 Km/h 250 Km/h
11.	Approved Operations Capability	VFR-Day only Cloud flying according to Flight Manual (with 18 m wing span configuration and without water ballast only) Aerobatic manoeuvres according to Flight Manual (with 18 m wing span configuration and without water ballast only)		
12.	Maximum Masses	Wing span Max. Mass Max. T/O Mass Aero-tow Max. T/O Mass Winch launch Cloud flying (no water ballast) Non-lifting parts	18 m 600 kg 600 kg 600 kg 482 kg 350 kg	21 m 720 kg 720 kg 600 kg Not approved 325 kg



- |                                 |  |        |        |
|---------------------------------|--|--------|--------|
| 13. Centre of Gravity Range     | Wing span  | 18 m   | 21 m   |
|                                 | Fwd  | 244 mm | 269 mm |
|                                 | Aft  | 375 mm | 375 mm |
| 14. Datum                       | The datum is defined as the wing leading edge at the wing root rib   |        |        |
| 15. Levelling Means             | Attitude for weighing is defined with the aft fuselage boom forward of the fin positioned at gradient of 1000:25 |        |        |
| 16. Control Surface Deflections | see JS-MD 1C Aircraft Maintenance Manual   |        |        |
| 17. Minimum Flight Crew         | 1  |        |        |
| 18. Lifetime limitations        | see JS-MD 1C Aircraft Maintenance Manual and JS-MD 1C Jet Sustainer Maintenance Manual Supplement                |        |        |



#### **A.IV Operating and Service Instructions**

1. Flight Manual JS-MD 1C AIRCRAFT FLIGHT MANUAL, dated 15.05.2017 or later EASA approved revision  
JS-MD 1C Jet Sustainer Flight Manual Supplement, dated 16.05.2017 or later EASA approved revision (when Jet Sustainer installed)
2. Maintenance Manual JS-MD 1C Aircraft Maintenance Manual, dated 17.05.2017 or later revision  
JS-MD 1C Jet Sustainer Maintenance Manual Supplement, dated 17.05.2017 or later revision (when Jet Sustainer installed)
3. Structural Repair Manual JS-MD Aircraft Repair Manual, dated 10.02.2017 or later revision
4. Operating Manual and Maintenance Manual for Engine  
MD-TJ42 Operating and Maintenance Manual, 18.05.2016 or later EASA approved revision
5. Operating Manual for the Launching Hooks  
Manual for the TOST Release latest revision





## **A.V Notes**

1. Manufacturing is confined to industrial production.
2. All parts exposed to sun radiation –except the areas for markings and registration –must have a white colour surface.



**SECTION B: JS-MD 3**

**B.I General**

1. Type/ Model/ Variant
  - 1.1 Type: JS-MD Single
  - 1.2 Model: JS-MD 3
2. Airworthiness Category Sailplane and powered Sailplane (self-sustaining)  
CS-22 - Utility
3. Manufacturer M&D Flugzeugbau GmbH & Co. KG  
Streeker Straße 5 b  
26446 Friedeburg  
Germany
4. EASA Type Certification Application Date 28.10.2016
5. EASA Type Certification Date 18.07.2019

**B.II EASA Certification Basis**

1. Reference Date for determining the applicable requirements 28.10.2016
2. Airworthiness Requirements Certification Specifications for Sailplanes and Powered Sailplanes (CS 22), Amendment 2, issued 5th of March 2009
3. Requirements elected to comply Standards for Structural Substantiation of Sailplane and Powered Sailplane Components consisting of Glass or Carbon Fibre Reinforced Plastics, issued July 1991 Guidelines concerning proof of compliance for the electrical system of powered sailplanes, issued September 1992
4. Special Conditions None
5. Exemptions None
6. Equivalent Safety Findings None
7. Environmental Protection ICAO Annex 16 (details refer to TCDSN EASA.A.616)  
CS-34.1 Fuel Venting



### **B.III Technical Characteristics and Operational Limitations**

1. **Type Design Definition Description**

According to MD10-DWL-00-001-R02 or later approved revisions.  
The JS-MD 3 is an all composite, single-seat sailplane with conventional T-tail.  
Or, with jet-engine installed, an all composite, powered, self-sustaining, single-seat sailplane with retractable jet-engine mounted behind the cockpit in the fuselage and conventional T-tail.  
For both configurations the wing is split in center and either 15m or 18m span outer wing including winglets. The wing is equipped with flaperons over nearly all wing span and Schempp-Hirth type airbrakes on the upper wing surface.  
The main landing gear is retractable, the tail wheel is fixed.
  
2. **Equipment**

Min. Equipment:

  - Airspeed indicator, 50 to 300 km/h
  - Altimeter
  - 4-point symmetrical seat harness
  - Operating placards
  - Control surface gap seals (Mylar seals) on all control surfaces
  - Outside air temperature (when flying with water ballast)
  - Magnetic direction indication (when Jet Sustainer installed)
  - Jet Display Unit (when Jet Sustainer installed)
  - Turn and bank indicator or artificial horizon (when flying in clouds)
  - Variometer to indicate vertical speed (when flying in clouds)
  
3. **Dimensions**

Span	15,00 m	18,00 m
Wing area	8,75 m <sup>2</sup>	9,95 m <sup>2</sup>
Length	6,86 m	6,86 m
Height	1,35 m	1,35 m
  
4. **Engine (optional)**
  - 4.1 Model MD-TJ42
  - 4.2 Type Certificate EASA.E.099
  - 4.3 Limitations max power 97,000 RPM
  - 4.4 Maximum Continuous Power 205 N at 80,000 RPM



5. Fuel capacities (when Jet Sustainer installed)

5.1	Tank in the fuselage	22,2 l
5.2	Tank in right wing	None
5.3	Tank in left wing	None
5.4	Non-usable fuel	0,33 l

6. Launch Procedures                      Aero tow  
Winch launch

7. Launching Hooks                      CG Hook Tost G88 TCDS 60.230/2  
Nose Hook Tost E22 NTS 11.402/9

8. Weak Links                              for winch launch                      max. 750 daN  
for aero tow                              max. 600 daN

9. Load Factors                              Max positive up to                      207 Km/h IAS    +5,3  
Max negative up to                      207 Km/h IAS    -2,65  
Max positive up to                      280 Km/h IAS    +4,0  
Max negative up to                      280 Km/h IAS    -1,5  
Max with airbrake extended positive up to    280 Km/h IAS    +3,5

10. Indicated Air Speeds                      Never Exceed Speed                       $V_{NE}$     280 Km/h  
Manoeuvring Speed                       $V_A$     207 km/h  
Maximum permitted speeds  
- with flaps set 1 & 2                       $V_{FE}$     280 km/h  
- with flaps set 3                               $V_{FE}$     230 km/h  
- with flaps set 4&5                           $V_{FE}$     165 km/h  
- with flaps set L                               $V_{FE}$     160 km/h  
- in rough air                                   $V_{RA}$     207 km/h  
- for Winch launching (15m)                   $V_W$     150 km/h  
- for Winch launching (18m)                   $V_W$     150 km/h  
- for aerotowing                               $V_T$     180 km/h  
- for gear operation                           $V_{LO}$     180 km/h  
- for engine operation                           $V_{PO}$     140 Km/h  
- for engine extended                           $V_{PE}$     250 Km/h



11. Approved Operations Capability VFR-Day only  
Cloud flying according to Flight Manual (with 15 m and 18 m wing span configuration without water ballast only)  
Aerobatic manoeuvres according to Flight Manual (with 15 m and 18 m wing span configuration without water ballast only)
12. Maximum Masses
- |                                 |        |        |
|---------------------------------|--------|--------|
| Wing span                       | 15 m   | 18 m   |
| Max. Mass                       | 525 kg | 600 kg |
| Max. T/O Mass Aero-tow          | 525 kg | 600 kg |
| Max. T/O Mass Winch launch      | 525 kg | 600 kg |
| Cloud flying (no water ballast) | 418 kg | 418 kg |
| Aerobatics (no water ballast)   | 418 kg | 418 kg |
| Non-lifting parts               | 320 kg | 313 kg |
13. Centre of Gravity Range
- |           |        |        |
|-----------|--------|--------|
| Wing span | 15 m   | 18 m   |
| Fwd       | 270 mm | 270 mm |
| Aft       | 390 mm | 398 mm |
14. Datum The datum is defined as the wing leading edge at the wing root rib
15. Levelling Means Attitude for weighing is defined with the aft fuselage boom forward of the fin positioned at gradient of 1000:18
16. Control Surface Deflections see JS-MD 3 Aircraft Maintenance Manual
17. Minimum Flight Crew 1
18. Lifetime limitations see JS-MD 3 Aircraft Maintenance Manual and JS-MD 3 Jet Sustainer Maintenance Manual Supplement



#### **B.IV Operating and Service Instructions**

1. Flight Manual JS-MD 10 AIRCRAFT FLIGHT MANUAL, dated 24.04.2019 or later EASA approved revision  
JS-MD 10 Jet Sustainer Flight Manual Supplement, dated 08.02.2019 or later EASA approved revision (when Jet Sustainer installed)
2. Maintenance Manual JS-MD 10 Aircraft Maintenance Manual, dated 31.05.2019 or later revision  
JS-MD 10 Jet Sustainer Maintenance Manual Supplement, dated 14.03.2019 or later revision (when Jet Sustainer installed)
3. Structural Repair Manual JS-MD Aircraft Repair Manual, dated 12.06.2019 or later issue
4. Operating Manual and Maintenance Manual for Engine  
MD-TJ42 Operating and Maintenance Manual, 19.11.2018 or later EASA approved revision
5. Operating Manual for the Launching Hooks  
TOST Operating Manual - Europa G 88 Safety Releases\_Issued February 1989\_ revision 4\_March 2001 or latest available revision  
TOST Operating Manual - Tow Release E22\_Issued October 2002\_revision 1\_May 2003 or Latest available revision



## **B.V** Notes

1. Manufacturing is confined to industrial production.
2. All parts exposed to sun radiation –except the areas for markings and registration –must have a white colour surface.



**SECTION C: ADMINISTRATIVE SECTION**

**C.I Acronyms & Abbreviations**

n/a

**C.II Type Certificate Holder Record**

M&D Flugzeugbau GmbH & Co. KG  
Streeker Straße 5 b  
26446 Friedeburg  
Germany

**C.III Change Record**

<b>Issue</b>	<b>Date</b>	<b>Changes</b>	<b>TC Issue No. &amp; Date</b>
Issue 01	01 June 2017	Initial Issue	Initial Issue, 01 June 2017
Issue 02	27 October 2017	Clarification as pure Sailplane and powered sailplane (self-sustaining)	
Issue 03	07 February 2019	Correction of Type Design Definition, Launch Procedures added, Aerobatic manoeuvres added	
Issue 04	18 July 2019	Addition of Model JS-MD 3	18 July 2019

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