



# MORAVAN AVIATION

## ZLIN 143 LSi Primary/Advanced Training, Touring and Business Flying Aircraft



High Quality, Extremely Responsive, Very Rugged  
Construction - our tradition since 1934



# MORAVAN AVIATION

Dear Sir / Madam,

MORAVAN AVIATION s.r.o. aircraft manufacturer has the honour to present an information on its basic and advanced training aircraft ZLIN Z 143 LSi to your kind perusal.

Our co-ordinated team is ready to participate by advice and technical aid on choice of aircraft instrumentation and equipment, ground equipment, pilots and aircraft engineer training and operation of the aircraft.

We hope that your expert staff will evaluate all the following information provided through this documents positively, which allows us to reach the progress of our mutual relationship.

Upon receiving of more specific data of your kind inquiry, we will have a chance to be more detailed in our response, and unfold the general edition of this offer to equip further technical supplements, required adjustments, etc.



# MORAVAN AVIATION s.r.o.

MANUFACTURER OF **ZLIN** ALL-METAL TRAINING, TOURING AND AEROBATIC AIRCRAFT



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MORAVAN AVIATION s.r.o. is Czech aircraft manufacturer with the long tradition in production of training, sporting, aerobatic, utility and touring aircraft bearing the name ZLIN which were delivered to over 60 countries worldwide. Since 1934 more than 5,600 aircraft have left the company production facilities.

The present production of ZLIN airplanes which are **best known for their great flight characteristics** includes the latest modifications to all-metal Z 40 series airplane with piston engines, the Z 242 L, Z 142 C, Z 143 L and Z 143 LSi.

Our **ZLIN Z 242 L training and fully aerobatic** two seater, is modernized version of Z 142 C aircraft (still in production) powered by a 200 HP Lycoming engine. This aircraft is able to perform aerobatic maneuvers +6 -3,5 g and in conjunction with **well-balanced controls** and its **IFR** capability for an affordable price moves it ahead of any other aircraft available today. Its maneuverability makes it an attractive machine not only for aviation enthusiasts. More, thanks to **Acceleration Monitoring Unit (AMU-1)** installed on the Z 242 L as a standard we were able to extend the aircraft's fatigue life (for example to **11.000 hours** at one of the leading flight schools in CANADA).

**Delightful, light, crisp and responsive** handling qualities best describe the four seater **ZLIN Z 143 L**. With its 235HP Lycoming engine, **autopilot** and IFR capabilities this aircraft is demanded not only for pilot training but also for cross country, business and family flying purposes. Ability to modify this aircraft to the two seats long range version in just a couple of hours is demanded option.



To provide the best services to all of our customers flying ZLIN aircraft or wishing to own one, MORAVAN AVIATION s.r.o. is expanding a worldwide **ZLIN Distributor** network and **ZLIN Authorized Service Center** network. Contact us if you were interested in being a part of the team behind the ZLINS in your country.

We believe that there is a big potential in the small aircraft market, both in civil and military sectors for the aircraft whose aerobatic versions have **6 times won a Title of The Absolute World Aerobatics Champion**.



## ZLIN Z 143 LSi Performance & Specification

...FROM THE PRESS...

"With our expert aerobatic instructor, we have taken **aerobatic experts class** as well as beginners and taught them new tricks. Side-by-side seats really provide the instructor the ability to judge the student's mental as well as physical condition during the lessons. .... not only that, but ZLIN is **built to military specifications and is very stout.**" – Craig Johnston



"I have previously owned an aerobatic ZLIN Z 242 L and recently upgraded to the Z 143 L. Having owned, operated and flown dozens of other aircraft over the past thirty years I have found the ZLIN to **have the lightest, most well-balanced controls and delightful flying characteristics.**" – Spencer Lane

"..... we could find **not a single bit of paint run or overspray in the complex scheme.**" – Private Pilot Magazine

"My plane is being serviced by an extremely qualified airplane inspector/ mechanic with 25 years of experience. He said this is the **best built plane he has ever seen** from another country. .... When I fly with my wife and my son I am betting everything on this special machine." – Robert Blazer, USA



Series of  
Z 242 Ls  
in service  
with the  
Mexican Navy



## ZLIN Z 143 LSi Performance & Specification

Moravan Aviation s.r.o. a company with tradition of building a small airplanes since 1934 introduces a current production of a versatile airplane ZLIN Z 143 LSi **designed for the pilots who want more** than straight flying from point A to point B.

ZLIN Z 143 LSi is improved successor of Z 143 L both based on the previous types Z 42 / Z 142 and Z 43, of which more than 750 pieces were made. The production of the type Z 143 L started in 1994. The new ZLIN Z 143 LSi was introduced in 2004.

**Z 143 LSi is improved, more user friendly aircraft with the details** such as canopy ejection system, main spar filled with nitrogen, **Concorde's RG battery** (option), enough headroom and legroom for your comfort, **excellent visibility**, mass-balanced controls and other which help you to **be in absolute control** of the aircraft and make you feel more secure flying it than any other single engine aircraft. Thanks to its Bendix RSA type **fuel injection system** the new Z 143 LSi is capable of **advanced maneuvers and unlimited spins** and unlike the L-version pilot is **not required** to read the carburetor temperature during the flight.

The ZLIN Z 143 LSi is designed for:

- **Air taxi, touring, family and light business flying** (for fast and save transfers between a remote areas or business places - with additional fuel tank (long range version) the flight range reaches 2759 km, able to land on rough surfaces)
- **Basic and advanced training in civil or military air schools.** (side-by-side seats provide the instructor the ability to judge the student's mental as well as physical condition during the lessons. More, the craftsmanship of people behind the ZLIN make the airplane comply with most military specification and is very rugged)
- **Ground observation, naval and coast patrol** (e.g. monitoring pipelines with optional built-in recording devices such as standard or infrared camera)
- **Night and IFR training and flying** (great flight characteristics and additional instruments make the ZLIN easy to fly at night or low visibility conditions)
- **Optional glider and banner towing**

The plane can be operated in Normal and Utility categories, within load limitations of +4.4 / -1.76 g factor. Is certified for maneuvers such as **Steep turn, Lazy Eight, Chandelle** (all in angle of bank max. 90<sup>0</sup>), **unlimited spins** and many more. The aircraft is **EASA Type Certified** for all countries of European Union. Czech Republic is a member of EU.

### GENERAL DESCRIPTION OF THE PLANE

The Z 143 LSi is a single engine, four-seat, low wing, cantilever monoplane of whole metal structure. Unlike the airplanes fully made of composite materials ZLIN is built to provide great ability to access any vital part of the airplane for **easy check and repairs**. Operating expanses are kept low thanks to replaceability of the parts.



The seat arrangement is 2 + 2. Each seat contains energy-absorbing materials for even higher safety. Side-by-side seating offers **incredible visibility** from the canopy to all passengers useful for recognition flights, patrolling and search on the ground. It is powered by a world premier TEXTRON LYCOMING piston engine, type IO-540-C4D5 giving the plane more than sufficient power of 235 hp through a three-blade, hydraulic pitch controlled, constant-speed propeller, **Mühlbauer** type MTV-9-B/195-45a with diameter 1950mm.

The Aircraft complies with the very strict noise regulations FAR Part 36 and ICAO Annex 16 Chapter 10.

### FUSELAGE

The fuselage is of mixed structure. The central supporting part is a latticework creating almost a **safety cage around the pilot** and the passengers, being welded of **steel tubes** and covered by a body made of hard light alloy sheets and glass-fiber composite. There is a baggage compartment behind the seats for up to 60kg load. The rear part is a semimonocoque construction. The **forward sliding canopy** is making it easy to enter and exit the airplane. **Canopy ejection system** is a standard safety feature of our aircraft. The **main spar is nitrogen - pressurized** with pressure indicator on the instrument panel - simple **safety feature** very appreciated by every pilot.



# ZLIN Z 143 LSi Performance & Specification

## WING

The wing covered with hard light alloy sheets is of all-metal structure provided with a main and an auxiliary spar. Two wing halves are attached to the fuselage by **three massive bolts**. The wing flaps and ailerons are slotted, all-metal, and identical in construction and dimensions therefore exchangeable. The ailerons are provided with fixed balance tabs all with other controls making the plane to be **extremely responsive**. The wing ends are terminated with **composite wing tips to reduce the induced drag**.

## EMPENNAGE

All parts are of a strong all-metal cantilever structure covered with hard aluminum sheet. Both **the rudder and the elevator are partially mass-balanced** helping the pilot to take the control of the plane even in worse flight condition. The elevator is provided with two balance **tabs**, the one being **controllable for longitudinal trim**. That way you can fly with "two fingers" all day long without plane "wondering around". The rudder is provided with a fixed balance tab.

## LANDING GEAR

The non-retractable, tricycle landing gear consists of the main landing gear and the nose gear. The main landing gear wheels are equipped with hydraulic disc-brakes including **automatic clearance adjustment**. Thanks to its structure the landing gear is also designed for **landing on grassy strips**.

## CONTROL SYSTEM

The aircraft is provided with dual stick-type and rudder controls. For our smaller size customers each airplane is equipped with **longitudinally adjustable pedals**. For airplane's better response the elevator and ailerons are **tie-rod operated**, the rudder is tie-rod and additional cable operated. The nose wheel is coupled with the rudder control. The aircraft is equipped with **elevator and rudder trims**, ailerons are trimmed by fixed tabs.

## ELECTRICAL SYSTEM

The electrical system is of single-wire type (+ pole). The nominal DC voltage is 28 V. The primary power source is the 1600 W generator (alternator). The power source is secured by a **second battery** to guarantee internal power supply for emergency landing. As an auxiliary power source serves a 19 Ah capacity **Concorde's RG** battery. All electrical systems and equipment are protected by circuit breaker switches.

## AVIONICS

Avionics packages based on Honeywell (Bendix King Silver Crown) equipment, available in option.

## GUARANTEE AND WARRANTY

MORAVAN AVIATION s.r.o. provides warranty on main aircraft structures, on the assumption of normal use of the plane, of **1000 flight hours or for a two years** period after acceptance, whichever comes first.

MORAVAN AVIATION s.r.o. guarantees technical service for a lifetime of 6.000 flight hours for the airframe with respect to operational limitations and maintenance procedures, 24 months for engine under Lycoming warranty card, 12 months for propeller under Mühlbauer warranty card and 18 months for Bendix King avionics under B/K warranty card.

The safe **lifetime period will be prolonged** based on operational and technical structure conditions. For this purpose our technicians teamed up with **Aeronautical Research and Test Institute in Czech Republic** and developed **Acceleration Monitoring Unit** allowing us to monitor flight loads during operation (standard in Z 242 L).



## TECHNICAL SERVICE

All technical information concerning the plane manufactured by MORAVAN AVIATION s.r.o. are distributed by bulletin service. **Pilot and technician training** of customer's staff is organized at MORAVAN AVIATION s.r.o. training center.



# ZLIN Z 143 LSi Performance & Specification

## Engine

Manufacturer	TEXTRON Lycoming, USA		
Type	IO-540-C4D5		

## Power

max take-off 175 kW	235 HP	2400 RPM
max continuous 175 kW	235 HP	2400 RPM
cruising 75 % MC 130 kW	175 HP	2200 RPM
cruising 60% MC 104 kW	140 HP	2000 RPM

## Aircraft Dimensions

Wing span	10.14 m	33.25 ft
Length	7.58 m	24.86 ft
Height	2.91 m	9.55 ft
Wheel track	2.44 m	8.01 ft

## Oil capacity

Oil capacity (Engine)	max.	11.4 l	12 US qts
	min.	5.7 l	6 US qts

## Fuel consumption

Nominal values alt 0 m ISA as provided by engine manufacturer

cruising 75% MC	55,0 l/h	14.6 US gal/h
cruising 60% MC	39 l/h	10,3 US gal/h

## NORMAL

## UTILITY

## Airspeeds

Maximum level speed	260 km/h	140 kt	266 km/h	144 kt
Cruising 75% MC, 6000 ft	243 km/h	125 kt	249 km/h	135 kt
Cruising 60% MC, 6000 ft	223 km/h	120 kt	230 km/h	124 kt
Stall Speed (IAS, flaps 37°)	100 km/h	54 kt	91 km/h	49 kt
Max climb speed	4.9 m/s	965 ft/min	7.4 m/s	1457 ft/min

## Take-off distances

ALT 0 m ISA, max continuous PWR, dry concrete RWY, flaps „TAKE OFF“

Take-off run	295 m	968 ft	170 m	558 ft
Take-off distance to 15 m (50 ft)	640 m	2100 ft	450 m	1476 ft

## Landing distances

Landing run	380 m	1247 ft	305 m	1001 ft
Landing distance from 15 m (50 ft)	765 m	2510 ft	590 m	1936 ft

## Ceiling

Service Ceiling	4170 m	13681 ft	5700 m	18701 ft
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# ZLIN Z 143 LSi Performance & Specification

	<b>NORMAL</b>		<b>UTILITY</b>	
<b>Range &amp; Endurance</b> (ALT 3030 m, 10000 ft)				
75% engine power	1040 km 4h 30min	562 NM	430 km 1h 50min	232 NM
60% engine power	1110 km 5h 10min	599 NM	460 km 2h 5min	248 NM

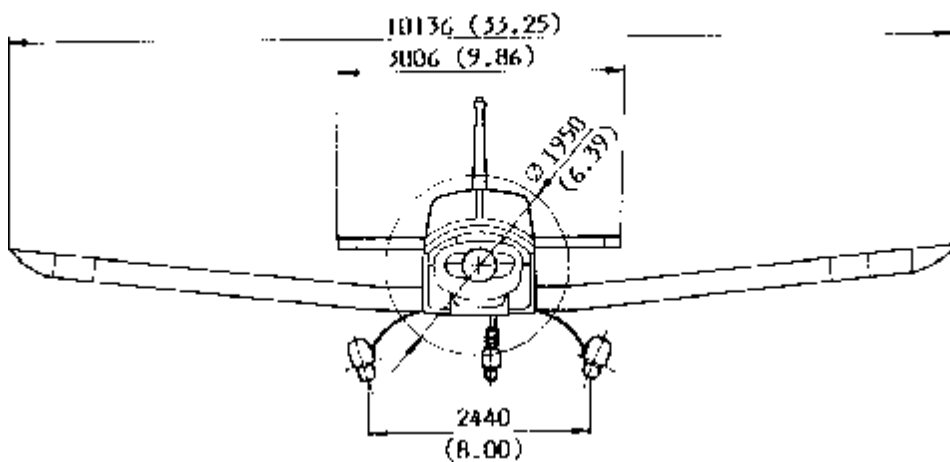
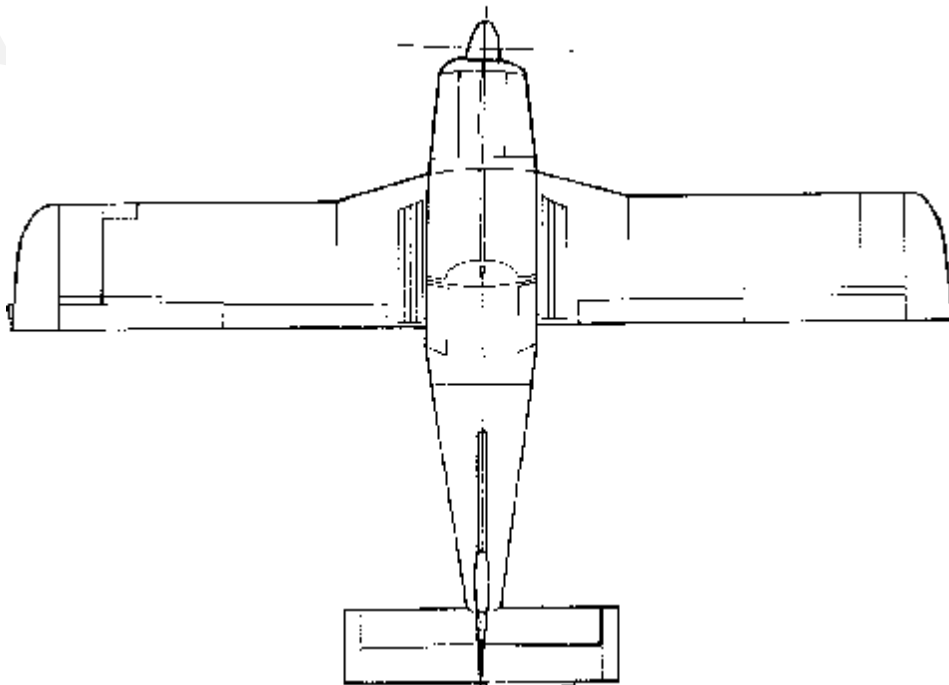
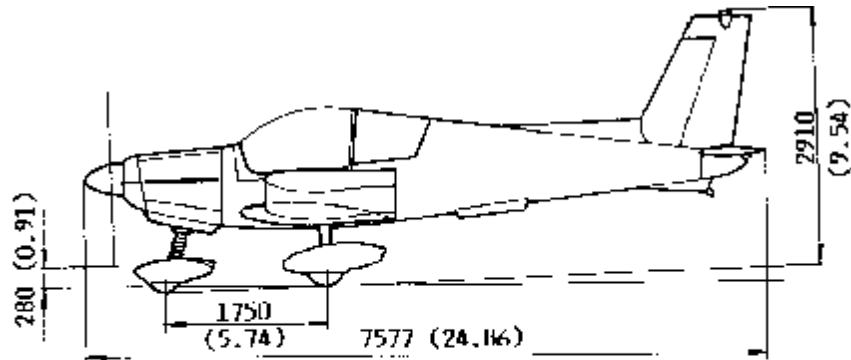
<b>Weights</b> Empty weight of aircraft increases with additional equipment.				
Empty weight +/- 2%	855 kg	1885lbs	855 kg	1885 lbs
Maximum take off weight	1350 kg	2976 lbs	1080 kg	2380 lbs
Crew: 2 pilots	200 kg	441 lbs	200 kg	441 lbs
PAX: 2 passengers	200 kg	441 lbs	-	-
Baggage: back lockable compartment	60 kg	132 lbs	-	-
Baggage: cabin compartment	20 kg	44 lbs	-	-

<b>Fuel capacity</b>				
Main fuel tanks	2 x 61 l	2 x 16.1 US gal	2 x 61 l	2 x 16.1 US gal
Auxiliary fuel tanks	2 x 51 l	2 x 13.4 US gal	-	-





# ZLIN Z 143 LSi Performance & Specification





# ZLIN Z 143 LS*i*

## 1. Standard Aircraft

### Power Plant & Accessories

Lycoming IO-540-C4D5 Engine 235 HP @ 2400 rpm, certified for 100 LL fuel  
Mühlbauer MTV Propeller, 3 blades constant speed  
Dual ignition  
Propeller spinner  
Dry air filter, Engine oil cooler  
Electric starter  
Engine mounts with dampers  
Stainless steel exhaust silencers

### Electrical System

CONCORDE's RG battery 24 volt, 19 Ah  
Emergency T & B indicator power supply  
External auxiliary power supply  
Fused avionics circuits  
Master switch, Alternator  
Rocker switches & circuit breakers

### Fuel System (indicators in metrics)

2 x 61 litres (16.1 US Gal.) Main tanks (wing roots)  
2 x 51 litres (13.4 US Gal.) Auxiliary tanks (wing tips)  
Fuel pump (engine driven)  
Fuel pump (electric)  
Individual fuel tank drains

### Engine Instruments

Quadruple fuel gauge  
Oil temperature / pressure / Fuel pressure (°C, kPa)  
Systems Annunciator lights  
C.H.T. indicator and E.G.T. gauge  
Voltammeter  
Engine RPM indicator  
Manifold pressure indicator  
Heated Pitot tube, static pressure & ram pressure probes

### Flight Instruments

Air speed indicator (knots)  
Stall warning horn, Altimeter (ft.)  
Vertical speed indicator (ft./min.)  
Turn and Bank Coordinator  
Magnetic compass  
Aircraft clock

### Controls

Nose wheel /dual rudder control pedals  
Dual toe activated brakes

Dual stick controls (tie rod operated)  
Push/pull engine throttle control  
Push/pull propeller speed control  
Push/pull mixture control  
Fuel selector (left/right/both)  
3 position flap actuating lever  
Rudder and elevator trim controls  
Parking brake

### Interior

4 place, 2 + 2 configuration  
Adjustable Pilot and Copilot seats (fireproof)  
Adjustable cabin ventilation, Cabin heater  
Enunciator panel glare shield  
Electrical & Avionic Circuit Breakers  
Metal instrument panel with removable subpanels  
Map & Storage pockets, Cabin Lighting  
Baggage compartment & Net  
Canopy lock

### Exterior

Anodized aluminum skin  
Standard white paint scheme (polyurethane DuPont)  
Fixed tricycle nose-type landing gear with wheel covers  
Steerable Nose Wheel  
Mitas tires, Wheel Fairing  
Hydraulic disk brake system  
Oleo nose wheel strut with shimmy damper  
Wing & Fuselage quick release access panels  
Lockable, Key operated baggage door  
Heated Pitot system  
Pitot tube cover and Static openings blinders

### Fire Protection & Safety Features

Ejection canopy with dual quick release handles  
Four-point seat-belts (4 pcs)  
Fireproof hoses in engine compartment  
Firewall  
Main spar pressure gauge  
ELT E-01

### Documentation (in English language)

Flight Manual  
Engine and Propeller Operator's Manual  
Service and Maintenance Manual  
Spare Parts Catalogue  
Export Certificate of Airworthiness (if applicable)



# ZLIN Z 143 LSi

## 2. Instrument Packages

### Standard VFR Day Package (in accordance with EASA, ICAO and CAA CZ):

Included in the price of standard aircraft.

KY 96A	COMM
KT 76C	XPNDR
AK 350	Altitude Encoder
DavidClark	Headsets H 10-36 (2 pcs)

### Optional Changes available

### Optional IFR BASIC Package (in accordance with EASA, ICAO and CAA CZ):

GMA 340	Audio-MKR-Voice IC (incl. CI 102)
KX 155A	COMM1-NAV1-GS1 (incl. CI 292-1, CI 158C, CI 507)
KI 204	Indicator
KY 96A	COMM2 (CI 122)
KR 87	ADF (incl. KA 44B)
KI 227	ADF Indicator
KT 76C	XPNDR (incl. KA 61)
KN 62A	DME (incl. KA 61)
AK 350	Altitude Encoder
SCOTT	Outside Air Thermometer
DavidClark	Headsets H 10-36 (2 pcs)
UI 5934D-3	2 <sup>nd</sup> Altimeter
AIM 205 -1BL	Directional Gyro (electric)
AIM 1200	1 <sup>st</sup> Attitude Gyro (electric)
AIM 1200	2 <sup>nd</sup> Attitude Gyro (electric)
Alternative Static Pressure Source	
Cabin and Instruments lighting	
Halogen taxiing and landing lights (left wing)	
Position and beacon lights, Strobe lights	

### Optional Changes available





# ZLIN Z 143 LS*i*

## **3. Instruments on request**

- |      |   |      |  |
|------|---|------|--|
| 3.1  | Attitude Gyro (electric) LUN 1241.A8G8W or AIM 1200                             |      | G load. It is recommended when airplane is often rented or used by pilots other than owner.) |
| 3.2  | Directional Gyro (electric) AIM 205-IBL   | 3.14 | Fuel System indicators in gallons  |
| 3.3  | Vacuum gyroscopic system  | 3.15 | Alternate static pressure source   |
| 3.4  | ELT Pointer 3000-10AF or Artex ME406  | 3.16 | G-Meter  |
| 3.5  | Engine Hours Recorder HOBBS   | 3.17 | Audio panel GMA 340 or KMA 28  |
| 3.6  | Outside Air Thermometer Scott   | 3.18 | Comm/Nav/GPS GNS 430 or GNS 530  |
| 3.7  | 2 <sup>nd</sup> Airspeed Indicator LUN 1106.J3B5                                | 3.19 | Transponder GTX 327 or GTX 330 or KT 73 Mode S   |
| 3.8  | 2 <sup>nd</sup> Altimeter UI 5934D-3  | 3.20 | EHSI Color Display KI 825  |
| 3.9  | 2 <sup>nd</sup> Magnetic Compass LUN 1224                                       | 3.21 | Distance Measuring Equipment (DME) KN 62A, KN 63   |
| 3.10 | 2 <sup>nd</sup> Turn Coordinator S-TEC 6407-28L                                 | 3.22 | Nav/Comm/GS KX 155A or KX 165A   |
| 3.11 | 2 <sup>nd</sup> Vertical Speed Indicator LUN 1144.A3B1                          | 3.23 | Radio Magnetic Indicator (RMI) KI 229 and more   |
| 3.12 | Autopilot System S-TEC 55   |      |  |
| 3.13 | AMU 1.01 Acceleration monitoring unit (Records number of landings, flight time, |      |  |

## **4. Cockpit Accessories on request**

- 4.1 Canopy Shade Curtains front, back or both (recommended into hot weather conditions)
- 4.2 Blind Flying Curtains for IFR Training
- 4.3 Instrument Lighting
- 4.4 2<sup>nd</sup> Intercom Pushbutton
- 4.5 Hot Mike Switch
- 4.6 Carpets
- 4.7 Optional leather and colors of interior
- 4.8 Sliding Canopy Window – left, right, both (recommended into hot weather conditions)
- 4.9 DavidClark Headsets H 10-30 (2-plug's)
- 4.10 Fire extinguisher
- 4.11 Electric socket for external GPS on the instrument panel

## **5. Aircraft Accessories and Spare Parts on request on request**

- |      |   |      |  |
|------|---|------|--|
| 5.1  | Carburetor engine, less 7.500 EUR   | 5.12 | Aircraft tow bar   |
| 5.2  | FLIR surveillance camera  | 5.13 | Winter Operation Equipment                                   |
| 5.3  | Optional graphic paint scheme (four-layer metallic system DuPont)   | 5.14 | Canopy Cover   |
| 5.4  | Glider Towing Device with External Rear View Mirror   | 5.15 | Engine Winter Coating  |
| 5.5  | Glider Towing Winch Device  | 5.16 | Anchoring Device and/or Chocks                               |
| 5.6  | Good Year tires (instead of Mitas tires)  | 5.17 | Maintenance Jack Stands                                      |
| 5.7  | Exhaust silencer made from INCONEL (material used in F1 racing cars)  | 5.18 | Brake Filling Device   |
| 5.8  | Halogen taxiing and landing lights (left or both wings)   | 5.19 | Heating of Passenger Compartment                             |
| 5.9  | Position and beacon lights, Strobe lights   | 5.20 | Protecting Seat Covers                                       |
| 5.10 | 500 FH Recommended Spare Parts Set (with delivery of the airplane in a container these and more spares could be shipped with airplane lowering the price for their separate shipping) | 5.21 | Placement of customer's registration signs (painted/printed) |
| 5.11 | Engine & propeller wrenches   | 5.22 | Ferry Flight Fuel  |
|      |   | 5.23 | Aircraft Packing Into Container (1 a/c in 40" container)     |
|      |   | 5.24 | Pilot Type Rating and/or Engineer Type Rating Training       |
|      |   | 5.25 | Airplane Assembly by Manufacturer at Place of Delivery       |



# ZLIN Z 143 LSi

## 6. General Purchase Conditions (depend on specific contract):

- 6 months usual delivery lead time since receiving downpayment. The delivery time is valid for first airplane in case of sale of more airplanes. Delivery terms EXW Otrokovice (Incoterms 2000).
- Price valid for 1-3 airplanes
- Payment conditions:
  - 30% downpayment from the total price when signing the contract
  - 20% downpayment from the total price within 45 days from signing the contract
  - 30% downpayment from the total price within 90 days from signing the contract
  - 20% before delivery
- Warranty 2 years or 1000 flight hours on main aircraft structures
- Financial plan available to qualifying customers
- Irrevocable Letter of Credit acceptable as well (add 2% to the total price)

### Contact information:

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