



**KUNZ AIRCRAFT RECOVERY EQUIPMENT**

# **KUNZ RLB Recovery Lift Bag System**

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KUNZ Recovery Lift Bags RLB meet and exceed international regulations and recommendations for inflatable lifting bags, e.g. ICAO Doc 9137-AN/898 Part 5.



**Easy** to understand,  
simple to **control**,  
**fast** to operate



The set-up of the entire KUNZ RLB system is easy to understand and simple to control. It provides the highest standard of operational safety and comfort for the operator, so he can concentrate on the recovery operation.

**KUNZ HiSpeed Pneumatic Controller (PC)** to control RLB inflation processes are equipped with pressure indicator gauges, safety relief valves and 'deadmantype' inflation/deflation valves for each compartment. The operator is fully aware of the pressure in each compartment during the recovery operation. The inlet and outlet pressure is 7 bar, which enables to inflate the volume of the RLB compartment in very short time - thus keeps the period of instability (until drop threads are tensioned) as short as possible. Inflation above the max. operation pressure is prevented by means of safety relief valves set at 0.5 bar (7.2 psi).

**KUNZ HiSpeed Pneumatic Controller** inflate compartments more than 10 times faster as any other system in the market.



Recovery Lifting Bag	Number of layers / compartments	Inflation Time* [Minutes]
RLB 11-3	3 / 3	0.6
RLB 11-5	5 / 5	0.8
RLB 11-10	10 / 10	1.6
RLB 11-15	15 / 15	2.3
RLB 14-5	5 / 5	1.1
RLB 14-10	10 / 10	2.1
RLB 14-15	15 / 15	3.2
RLB 18-s	4 / 4	1.3
RLB 31-5	5 / 5	2.5
RLB 31-10	10 / 10	5
RLB 31-15	15 / 15	7.5
RLB 30-14	12 / 14	6.2
RLB 30-17	15 / 17	7.8
RLB 47-5	5 / 5	3.7
RLB 47-10	10 / 10	7.5
RLB 47-15	15 / 15	11
RLB 45-17	15 / 17	11.2

## INFLATION TIMES — KUNZ RLB Recovery Lifting Bags



\* Based on KUNZ RLB 30-3, KUNZ Inflation Hoses 10 m, KUNZ High Speed Pneumatic Controller and KUNZ Air Compressor REC 43.



# Guaranteed lifting stability

KUNZ STANDS FOR THE HIGHEST QUALITY AND RELIABILITY, therefore does not recommend nor sell 'single element' bags and consoles without individual control units for each compartment.

Burst pressure of KUNZ RLB is 3,5 bar (50 psi) at 20 dgr. C.

**KUNZ RLB** consists of a multiple of compartments vulcanized one upon the other. Thus, during the entire lifting process the best possible stability in vertical and horizontal direction is guaranteed. Arc movement of up to 15° is achievable.



KUNZ RLB are made of rubber coated webbing with more than 70,000 drop threads woven in a square meter to guarantee high vertical and horizontal stability of the KUNZ RLB when inflated. The rubber coating is very flexible, weather proof and resistant to many chemicals. It will not be affected by fuel and most hydraulic fluids. All seams are covered and coated with rubber for durability and long life time.

# Easily placed



KUNZ RLB can be easily placed below the aircraft, because of the very low height.



**KUNZ AIR HOSES** to connect the KUNZ RLB to the HiSpeed Pneumatic Controller and from there to the air supply source are made of highly visible, yellow coloured hoses of 10 m, 15 m or 20 m length each. Because of the uniform safety couplings in accordance to DIN3238 the hoses can be coupled one to the other to create the required length.



**KUNZ RLB air inlet valves** are made of brass and the couplings are of the safety lock design. They are easy to change in case of damage.

Each KUNZ RLB is packed in a valise/carrier bag with loops for easy handling and transportation. It is also used as a protective layer under the RLB if in operation. In addition, protection pads made of 10 mm rubber with high density and high protection factor against cuts are provided as top layer.



For storage and transportation the RLB comes optionally in wooden boxes

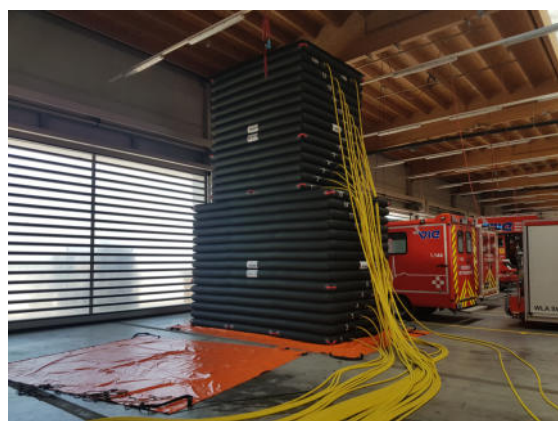
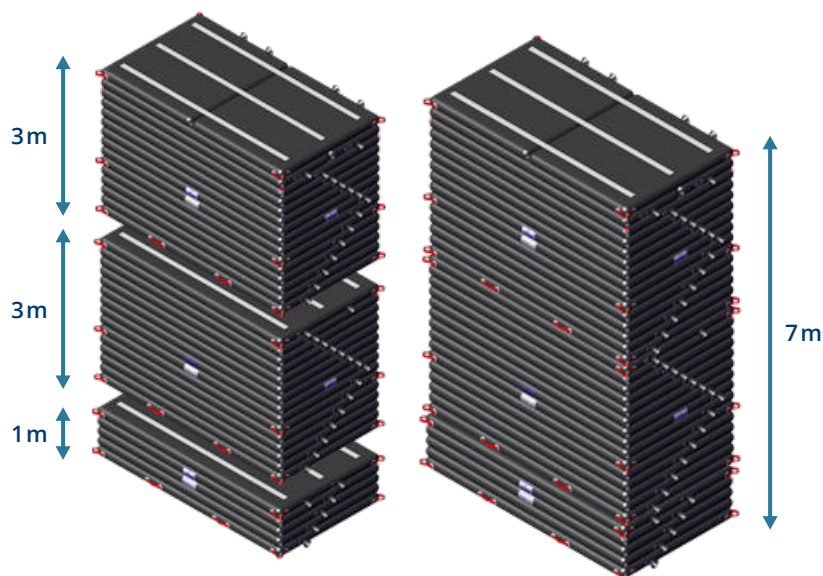


or special steel container.

## Overview: Accessory Equipment

### KUNZ Recovery Lifting Bags

Proven design which can reach a **lifting height of up to 7m**.



### KUNZ RLB 18-s

The KUNZ RLB 18-s with its special shape allows to cover **aircraft types where the bag zone at the wing position, between fuselage and engines is limited**, such as for example at A350 and Embraer.



Top view



Side view

### KUNZ RLB 11-3

The RLB 11-3 is designed for usage on narrow body aircraft types where the space under the wing position between fuselage and engines is insufficient **for the standard RLB** with 30t capacity. The RLB 11-3 is placed on top of the RLB 30t at wing position and allows therefore to also cover these types of aircraft.



## Overview: Accessory Equipment

### KUNZ Vacuum Ejector

Guarantees a rapid evacuation of the air from the RLB compartments after recovery action. Two versions are available, integrated in the PC housing or as a mobile version. A high performance silencer avoids exhaust noise.



KUNZ Mobile Vacuum Ejector

### KUNZ Cyclone-type Condensate Trap

For reduction of air humidity and increase of the RLB lifetime, available as option.



### KUNZ Self-adjusting Contour Elements

KUNZ contour elements for use on recovery lifting bags or recovery trailers for a best possible contour adaption to aircraft fuselage- and wing profile.



### KUNZ Hose Reel

KUNZ designed this hose reel for a fast unwinding and take-up of inflation hoses in case of an aircraft recovery. Hoses are connected to each other and easy reeled up by a crank handle. Several hose reels can be stacked on each other and they are transportable by a fork lift.



## Overview:

### KUNZ RLB Recovery Lifting Bags

	11-3	18-s
Lifting capacity at 0.5 bar (7.2 psi)	11.1t	18.2t
Lifting height approx.	60cm	80cm
Dimensions, inflated (LxWxH) in m	1.61 x 1.61 x 0.6	2.70/1.90 x 1.78 x 0.8
Contact surface	22200cm <sup>2</sup>	36400cm <sup>2</sup>
Number of layers	3	4
Number of lifting compartments	3	4
Number of contour compartments	0	0
Weight	40kg	80kg



RLB 11-3



RLB 18-s

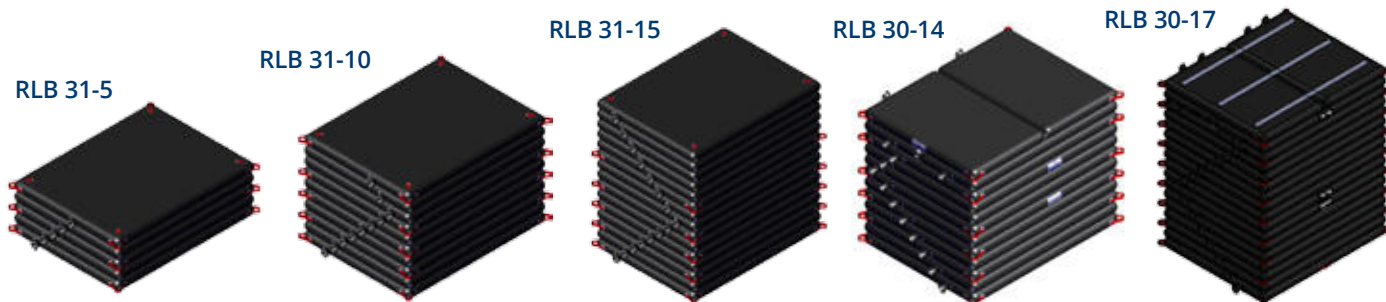
	5-8
Lifting capacity at 0.5 bar (7.2 psi)	5.83t
Lifting height approx.	160cm
Dimensions, inflated (LxWxH) in m	1.0 x 1.0 x 1.60
Contact surface	11660cm <sup>2</sup>
Number of layers	8
Number of lifting compartments	8
Number of contour compartments	0
Weight	45kg



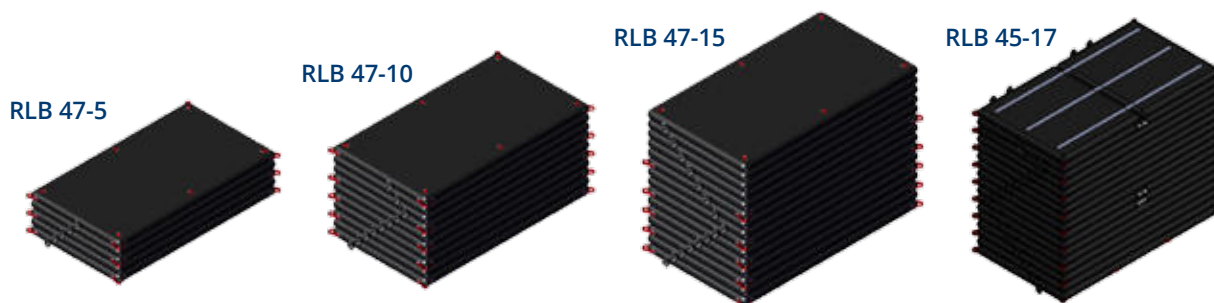
RLB 5-8

	11-5	11-10	11-15
Lifting capacity at 0.5 bar (7.2 psi)	11t	11.1t	11t
Lifting height approx.	1m	2m	3m
Dimensions, inflated (LxWxH) in m	1.49 x 1.49 x 1.0	1.49 x 1.49 x 2.0	1.49 x 1.49 x 3.0
Contact surface	22201 cm <sup>2</sup>	22201 cm <sup>2</sup>	22201 cm <sup>2</sup>
Number of layers	5	10	15
Number of lifting compartments	5	10	15
Number of contour compartments	0	0	0

	14-5	14-10	14-15
Lifting capacity at 0.5 bar (7.2 psi)	14t	14t	14t
Lifting height approx.	1m	2m	3m
Dimensions, inflated (LxWxH) in m	2.02 x 1.61 x 1.0	2.02 x 1.61 x 2.0	2.02 x 1.61 x 3.0
Contact surface	28310cm <sup>2</sup>	28310cm <sup>2</sup>	28310cm <sup>2</sup>
Number of layers	5	10	15
Number of lifting compartments	5	10	15
Number of contour compartments	0	0	0



	31-5	31-10	31-15	30-14	30-17
Lifting capacity at 0.5 bar (7.2 psi)	31.7t	31.7t	31.7t	30.1t	30.1t
Lifting height approx.	100cm	202cm	305cm	242cm	305cm
Dimensions, inflated (LxWxH) in m	2.92 x 2.39 x 1.0	2.92 x 2.39 x 2.02	2.92 x 2.39 x 3.05	2.92 x 2.39 x 2.42	2.92 x 2.39 x 3.05
Contact surface	63400cm <sup>2</sup>	63400cm <sup>2</sup>	63400cm <sup>2</sup>	60800cm <sup>2</sup>	60800cm <sup>2</sup>
Number of layers	5	10	15	12	15
Number of lifting compartments	5	10	15	10	13
Number of contour compartments	0	0	0	4	4
Weight	120kg	245kg	365kg	320kg	370kg



	47-5	47-10	47-15	45-17
Lifting capacity at 0.5 bar (7.2 psi)	47.6t	47.6t	47.6t	45.1t
Lifting height approx.	100cm	202cm	305cm	305cm
Dimensions, inflated (LxWxH) in m	4.32 x 2.39 x 1.0	4.32 x 2.39 x 2.02	4.32 x 2.39 x 3.05	4.32 x 2.39 x 3.05
Contact surface	95200cm <sup>2</sup>	95200cm <sup>2</sup>	95200cm <sup>2</sup>	92600cm <sup>2</sup>
Number of layers	5	10	15	15
Number of lifting compartments	5	10	15	13
Number of contour compartments	0	0	0	4
Weight	170kg	340kg	510kg	515kg



	31-3	30-C5	47-3	45-C5
Lifting capacity at 0.5 bar (7.2 psi)	31.7t	30.1t	47.6t	45.1t
Lifting height approx.	60cm	60cm	60cm	60cm
Dimensions, inflated (LxWxH) in m	2.92 x 2.39 x 0.6	2.92 x 2.39 x 0.6	4.32 x 2.39 x 0.6	4.32 x 2.22 x 0.6
Contact surface	63400cm <sup>2</sup>	60800cm <sup>2</sup>	95200cm <sup>2</sup>	92600cm <sup>2</sup>
Number of layers	3	3	3	3
Number of lifting compartments	3	1	3	1
Number of contour compartments	0	4	0	4
Weight	75kg	80kg	100kg	105kg



## Other KUNZ leading edge equipment for aircraft recovery:

- KUNZ Self-adjusting Contour Elements
- Tethering Equipment and Dynamometers
- Recovery Compressors
- Lifting Sling Assemblies for all aircraft sizes
- Trakmat Ground Reinforcement Mat
- AETS Aircraft Emergency Towing System
- Recovery Dollies for flat tire scenarios
- Recovery Trailer for MLG or NLG collapsed scenarios
- Recovery Equipment Training

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## **KUNZ RLB Recovery Lift Bag System**

- KUNZ RLB Recovery Lift Bags are in use with more than 100 airports, airlines, aviation authorities and military customers.
- Made in Germany
- Effective and modern design
- Proven lifetime >25 years



Your leading supplier for high quality  
**AIRCRAFT RECOVERY EQUIPMENT.**