Airborne Systems®

WHERE TECHNOLOGY »TAKES FLIGHT

Military Freefall Canopies

Current Product Offerings

- RA-Series
- Hi-5
- Marauder
- Gemini

RA-Series

RA-Series - Background

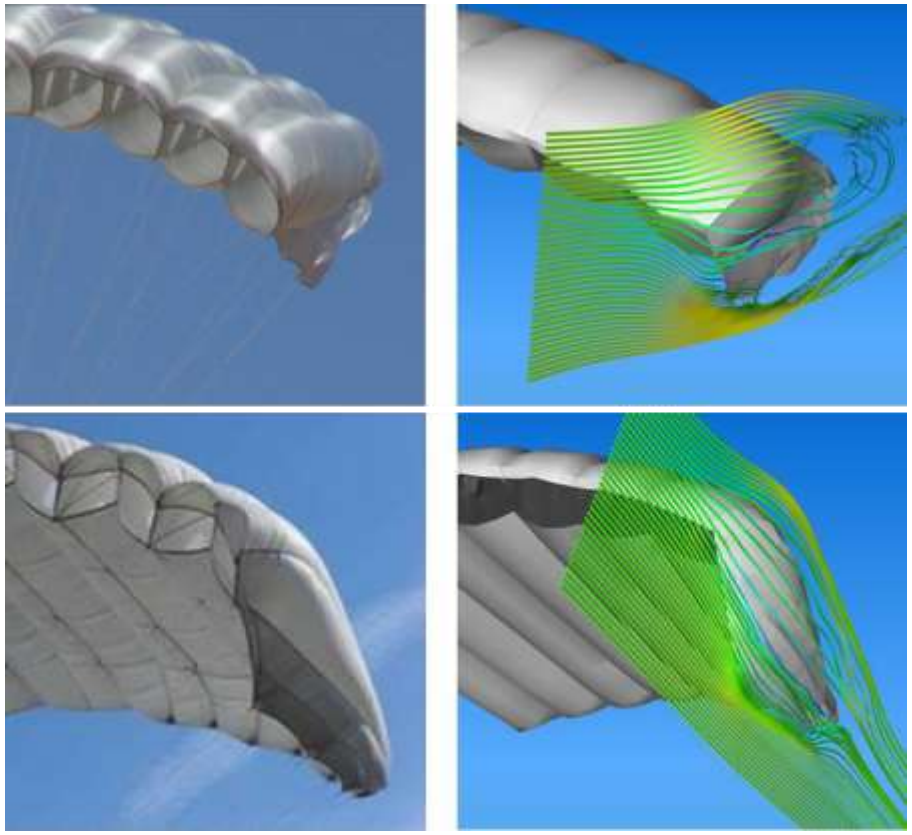
- Para-Flite developed the MC-4, MC-5 and MT-2 for the US Army, Navy and Marine Corps in the early 90's
  - These parachutes were the first main-on-main military parachutes
  - 7-cell canopy, 2.5 glide-ratio, 163 kg maximum AUW
  - Over 20,000 parachutes manufactured since 1997

RA-Series - Background

- In 2000, Airborne Systems started the internal development of a parachute system with the intent of replacing the MC-4 and MC-5
- Based on customers' feedback, the critical desired features were:
  - Static line and free fall capable
  - Capable of carrying heavier loads
  - Must be stable in the turn and deep brake configuration
  - Improved glide ratio
  - Low toggle pressure
  - Reserve canopy must have similar performance to the main canopy

RA-Series Key Features

- Pressurized Stabilizers
  - Elimination of noise
  - More control during the opening
  - Increased lateral stability
  - Less wingtip turbulence
  - More glide performance
  - Stability in deep brakes



RA-Series Key Features

Opening Characteristics

- Soft opening across whole range of altitudes and weights
- Average opening altitude loss ~980 ft
- Average opening Gs: 2-4
- Design Features
  - Magnetic Tailgate to reduce line overs
  - Separate slider grommets for brake lines

RA-Series Key Features

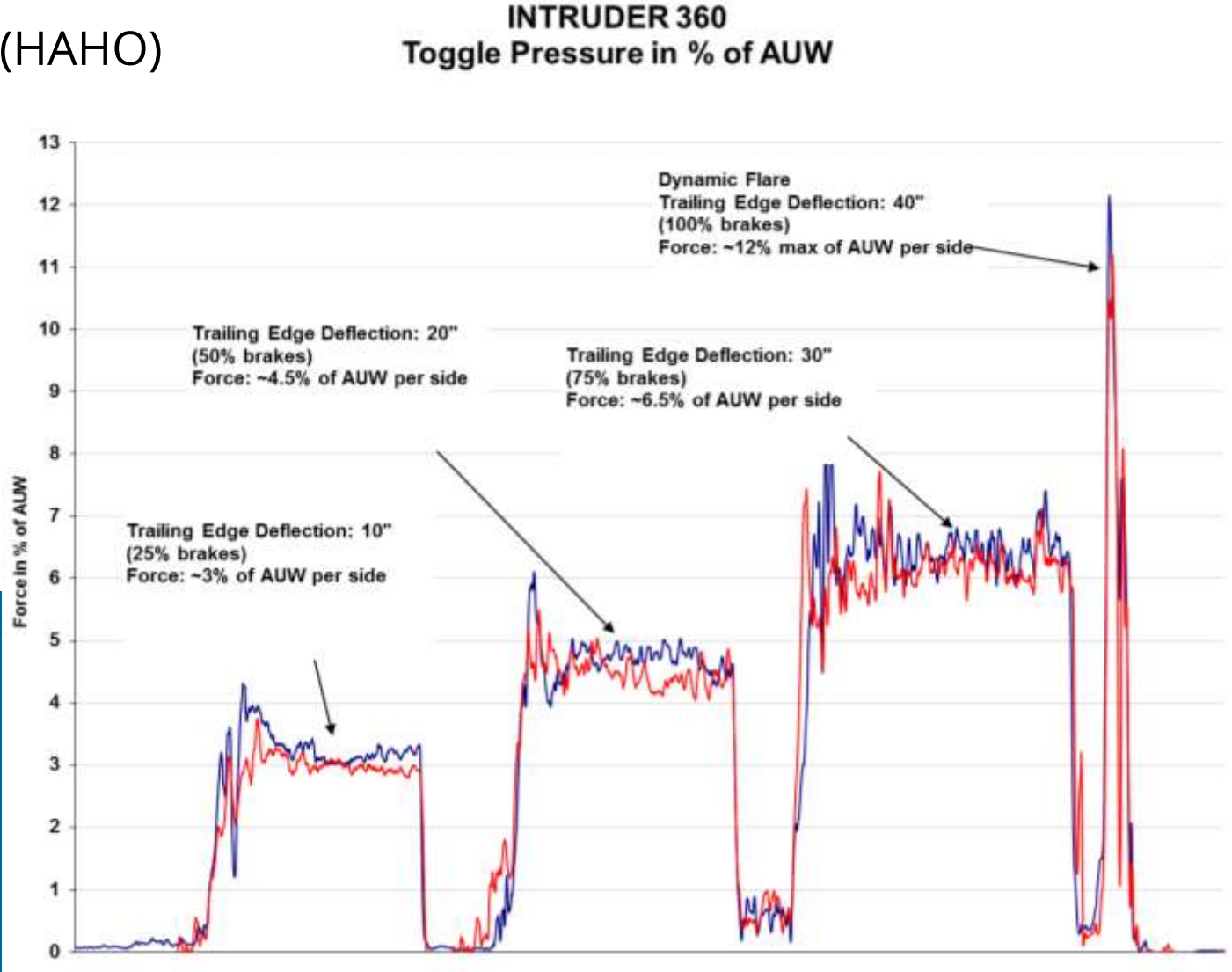
Landing

- Very Stall resistant
- Quick Recovery from Dive
- User friendly handling
- If required stall resistance can be used in low visibility conditions; night landing (video)

RA-Series Key Features

Light Toggle Pressure

- Easy to fly for long durations of time (HAHO)



RA-Series Key Features

Water Variant

- Tail Vents for water drainage
- Loops on nose to hang canopy for drying

RA-Instructor Series

- Scaled down in size to allow highly experienced instructors to land before students.
- Same great trusted performance of full-scale RA-series parachutes

Available Sizes

Size (ft^2)	Max AUW (lb)	Min AUW (lb)	Max Deployment Altitude (ft MSL)	Min deployment Altitude (ft AGL)
270	290	140	25000	3000
300	360	141	25000	3500
360	450	167	25000	3500
I170*	223	125	25000	3500
I190*	232	135	25000	3500
I210*	241	145	25000	3500
I230*	250	155	25000	3500

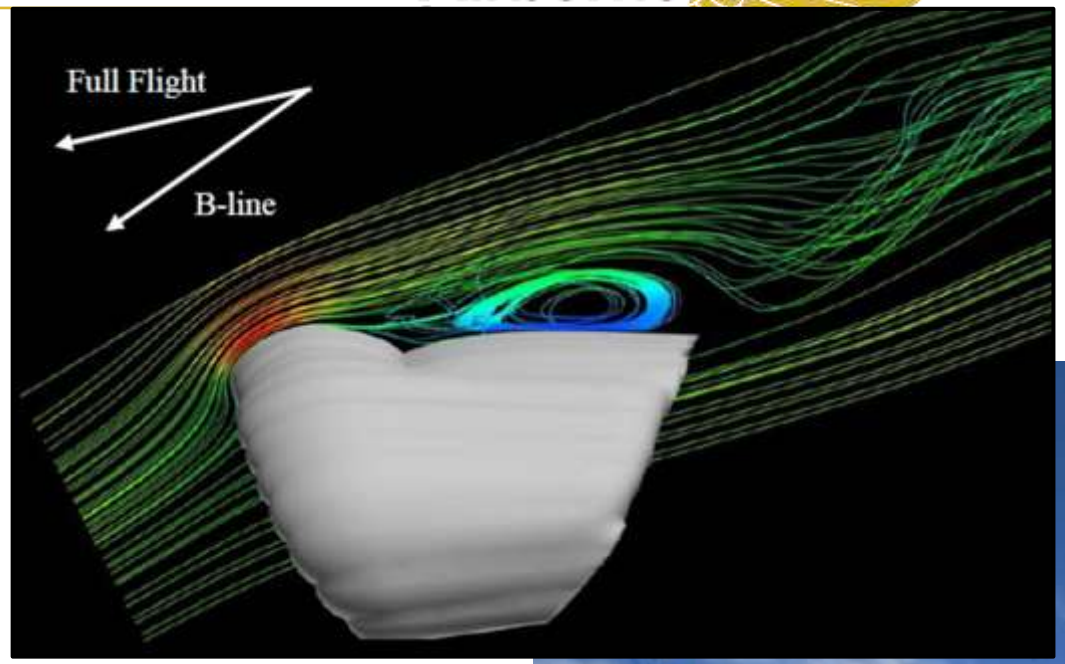
*These sizes are considered our instructor series canopies and all come with the 210R reserve

Hi-5

Hi-5 - Overview

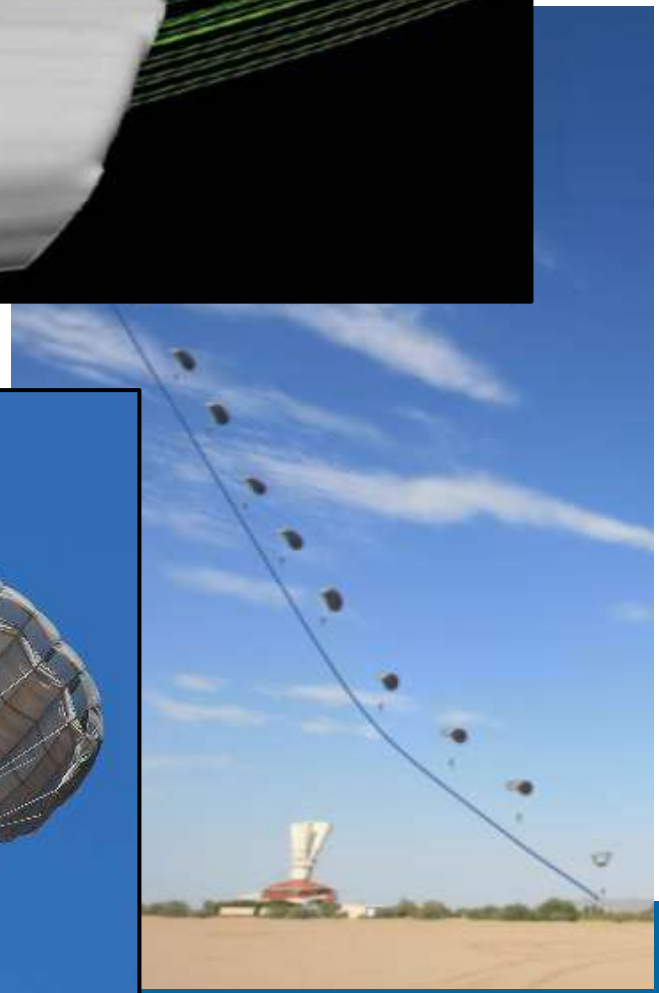
- Selected by the U.S. Marine Corps
- Designed specifically for HAHO missions
- A Main-on-Main system (Main and Reserve with identical flight performance)
- Increased performance over RA-1 (increased glide ratio/higher AUW)
- Silent canopy
- Ease of use and maintenance
- Glide modulation

Hi-5 Key Features



Glide Modulation

- Allows jumpers to modulate glide ratio from approximately 5:1 to 1:1
- Toggles located on front set of risers (only requires light toggle pressure)
- Easier to stay in stack,
- Provides more accurate landings
- Ability to land in smaller drop zones surrounded by obstacles



Hi-5 Key Features

Glide Modulation

- Rapid Descent
- Stacking
- Precision Landing

Hi-5 Key Features

Glide Ratio

- The Hi-5 design is optimized for the highest glide ratio without compromising usability or reliability
- Longer offset during HAHO missions

Hi-5 Specs

300 ft^2

- Max AUW 300lb
- Min AUW 165 lb

370 ft^2

- Max AUW 485 lb
- Min AUW 210 lb

11 Cells

Marauder

Marauder - Background

Airborne Systems developed two families of military canopies:

- The RA (aka Intruder)
- The Hi-5

The Marauder combines the best of both canopies.

- Silent canopy
- Light Toggle Pressure
- Resistant to Stall
- Glide Modulation
- **Easy handling**

Marauder Specs

Size (ft^2)	Max AUW (lb)	Min AUW (lb)	Max Deployment Altitude (ft MSL)	Min deployment Altitude (ft AGL)
270	290	140	25000	3500
300	360	141	25000	3500
360	450	167	25000	3500

Marauder Glide Modulation

Gemini

Gemini - Background

- In 2011, the US Army selected the RA-1 as their new Advanced Ram-Air Parachute System
- In 2018, the US Marine Corps selected the PS-2 as their new Enhanced Multi-Mission Parachute System and started the replacement program of their multi-mission system
- Airborne Systems designed a Military Tandem System based on the technology developed in the RA-1 and PS-2, in response to a requirement for a capacity of an AUW of 300kg

Gemini – Configurations

Gemini 530

- Main on Main configuration meets the 300kg requirement (660lb)

Gemini 430

- Smaller main with Intruder-360R reserve
  - Keep container size smaller for training and light weight jumps
  - TSOd reserve for jumping at civilian dropzones

Gemini - Key Features

- 11 Cell canopy
- Glide modulation
- Stall Resistant
- Pressure stabilizers
- Mini-Ribs in tail
- Very similar to Marauder
- 660 lb max AUW on 530 reserve!

Gemini – TS136

- Structural Requirement: 1023 lb @ 157.5 KIAS (464 kg @ 182 mph, 81.3 m/s)
  - Harshest test we ran:
- Pressure Requirement: 495lb @ 187 KIAS (224.5 kg @ 215.1 mph, 96.2 m/s)
  - We tested up to **735 lb** @ 187 KIAS (333.4 kg @ 215.1 mph, 96.2 m/s)

Figure 3 – Overload test payload and pack

Gemini – TS136