

DHV TESTREPORT EN 926-2:2013+A1:2021

UP TRANGO X SM

Type designation UP Trango X SM
Type test reference no DHV GS-01-2763-23
Holder of certification [UP International GmbH](#)
Manufacturer [UP International GmbH](#)
Classification C
Winch towing Yes
Number of seats min / max 1 / 1
Accelerator Yes
Trimmers No


BEHAVIOUR AT MIN WEIGHT IN FLIGHT (75KG)
Test pilots

Josef Bauer

No release

BEHAVIOUR AT MAX WEIGHT IN FLIGHT (100KG)

Harald Buntz

No release

Inflation/take-off
Rising behaviour Easy rising, some pilot correction is required

Special take off technique required No

Landing
Special landing technique required No

Speeds in straight flight

Trim speed more than 30 km/h Yes
Speed range using the controls larger than 10 km/h Yes
Minimum speed Less than 25 km/h

Control movement

Symmetric control pressure Increasing
Symmetric control travel 40 cm to 55 cm

Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30°
Collapse occurs No

Pitch stability operating controls during accelerated flight
Collapse occurs No

Roll stability and damping
Oscillations Reducing

Stability in gentle spirals
Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive

Initial response of glider (first 180°) en : keine unmittelbare Reaktion
Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of turn decreasing)
Turn angle to recover normal flight Less than 720°, spontaneous recovery

Symmetric front collapse

Entry Rocking back less than 45°
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°

Immediate reduction of rate of turn
 Spontaneous exit (g force decreasing, rate of turn decreasing)
 720° to 1 080°, spontaneous recovery
 Rocking back less than 45°
 Spontaneous in less than 3 s
 Dive forward 30° to 60°

Change of course Keeping course
Cascade occurs No
Folding lines used no

Keeping course
No
no

Unaccelerated collapse (at least 50 % chord) **B**

B

Entry Rocking back less than 45°
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°
Change of course Keeping course
Cascade occurs No
Folding lines used no

Rocking back less than 45°
Spontaneous in less than 3 s
Dive forward 30° to 60°
Keeping course
No
no

Accelerated collapse (at least 50 % chord) **B**

B

Entry Rocking back less than 45°
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°
Change of course Entering a turn of less than 90°
Cascade occurs No
Folding lines used no

Rocking back less than 45°
Spontaneous in less than 3 s
Dive forward 30° to 60°
Keeping course
No
no

Exiting deep stall (parachutal stall) **A**

A

Deep stall achieved Yes
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 0° to 30°
Change of course Changing course less than 45°
Cascade occurs No

Yes
Spontaneous in less than 3 s
Dive forward 0° to 30°
Changing course less than 45°
No

High angle of attack recovery **C**

A

Recovery Spontaneous in 3 s to 5 s
Cascade occurs No

Spontaneous in less than 3 s
No

Recovery from a developed full stall **B**

B

Dive forward angle on exit Dive forward 30° to 60°
Collapse No collapse
Cascade occurs (other than collapses) No
Rocking back Less than 45°
Line tension Most lines tight

Dive forward 30° to 60°
No collapse
No
Less than 45°
Most lines tight

Small asymmetric collapse **B**

A

Change of course until re-inflation 90° to 180°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°
Re-inflation behaviour Spontaneous re-inflation
Total change of course Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No
Cascade occurs No
Folding lines used no

Less than 90°
Dive or roll angle 15° to 45°
Spontaneous re-inflation
Less than 360°
No (or only a small number of collapsed cells with a spontaneous re inflation)
No
No
no

Large asymmetric collapse **B**

C

Change of course until re-inflation 90° to 180°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°
Re-inflation behaviour Spontaneous re-inflation
Total change of course Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No
Cascade occurs No
Folding lines used no

90° to 180°
Dive or roll angle 45° to 60°
Spontaneous re-inflation
Less than 360°
No (or only a small number of collapsed cells with a spontaneous re inflation)
No
No
no

Small asymmetric collapse accelerated **A**

A

Change of course until re-inflation Less than 90°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°
Re-inflation behaviour Spontaneous re-inflation
Total change of course Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No
Cascade occurs No

Less than 90°
Dive or roll angle 15° to 45°
Spontaneous re-inflation
Less than 360°
No (or only a small number of collapsed cells with a spontaneous re inflation)
No
No

Folding lines used	no	no
Large asymmetric collapse accelerated	B	C
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 45° to 60°
Re-inflation behaviour	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs	No	No
Cascade occurs	No	No
Folding lines used	no	no
Directional control with a maintained asymmetric collapse	C	A
Able to keep course	Yes	Yes
180° turn away from the collapsed side possible in 10 s	Yes	Yes
Amount of control range between turn and stall or spin	25 % to 50 % of the symmetric control travel	More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	No	No
Low speed spin tendency	A	A
Spin occurs	No	No
Recovery from a developed spin	B	A
Spin rotation angle after release	Stops spinning in 90° to 180°	Stops spinning in less than 90°
Cascade occurs	No	No
B-line stall	C	C
Change of course before release	Changing course less than 45°	Changing course less than 45°
Behaviour before release	Remains stable without straight span	Remains stable without straight span
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occurs	No	No
Big ears	A	B
Entry procedure	Standard technique	Standard technique
Behaviour during big ears	Stable flight	Stable flight
Recovery	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Big ears in accelerated flight	A	A
Entry procedure	Standard technique	Standard technique
Behaviour during big ears	Stable flight	Stable flight
Recovery	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Stable flight
Alternative means of directional control	A	A
180° turn achievable in 20 s	Yes	Yes
Stall or spin occurs	No	No
Any other flight procedure and/or configuration described in the user's manual		
No other flight procedure or configuration described in the user's manual		



DHV TESTREPORT LTF

UP TRANGO X SM

Type designation UP Trango X SM
Type test reference no DHV GS-01-2763-23
Holder of certification [UP International GmbH](#)
Manufacturer [UP International GmbH](#)
Classification C
Winch towing Yes
Number of seats min / max 1 / 1
Accelerator Yes
Trimmers No



BEHAVIOUR AT MIN WEIGHT IN FLIGHT (75KG)

BEHAVIOUR AT MAX WEIGHT IN FLIGHT (100KG)

Test pilots



Josef Bauer

Harald Buntz

No release

No release

Inflation/take-off

Rising behaviour Easy rising, some pilot correction is required

Easy rising, some pilot correction is required

Special take off technique required No

No

Landing

Special landing technique required No

No

Speeds in straight flight

Trim speed more than 30 km/h Yes

Yes

Speed range using the controls larger than 10 km/h Yes

Yes

Minimum speed Less than 25 km/h

25 km/h to 30 km/h

Control movement

Symmetric control pressure Increasing

Increasing

Symmetric control travel 40 cm to 55 cm

45 cm to 60 cm

Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30°

Dive forward less than 30°

Collapse occurs No

No

Pitch stability operating controls during accelerated flight

Collapse occurs No

No

Roll stability and damping

Oscillations Reducing

Reducing

Stability in gentle spirals

Tendency to return to straight flight Spontaneous exit

Spontaneous exit

Behaviour exiting a fully developed spiral dive

Initial response of glider (first 180°) en : keine unmittelbare Reaktion

Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of turn decreasing)

Spontaneous exit (g force decreasing, rate of turn decreasing)

Turn angle to recover normal flight Less than 720°, spontaneous recovery

720° to 1 080°, spontaneous recovery

Symmetric front collapse

Entry Rocking back less than 45°

Rocking back less than 45°

Recovery Spontaneous in less than 3 s

Spontaneous in less than 3 s

Dive forward angle on exit Dive forward 30° to 60°

Dive forward 30° to 60°

Change of course Keeping course

Keeping course

Cascade occurs No

No

Folding lines used no

no

Unaccelerated collapse (at least 50 % chord)	B	B
Entry Rocking back less than 45°		Rocking back less than 45°
Recovery Spontaneous in less than 3 s		Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°		Dive forward 30° to 60°
Change of course Keeping course		Keeping course
Cascade occurs No		No
Folding lines used no		no
Accelerated collapse (at least 50 % chord)	B	B
Entry Rocking back less than 45°		Rocking back less than 45°
Recovery Spontaneous in less than 3 s		Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 30° to 60°		Dive forward 30° to 60°
Change of course Entering a turn of less than 90°		Keeping course
Cascade occurs No		No
Folding lines used no		no
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved Yes		Yes
Recovery Spontaneous in less than 3 s		Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 0° to 30°		Dive forward 0° to 30°
Change of course Changing course less than 45°		Changing course less than 45°
Cascade occurs No		No
High angle of attack recovery	C	A
Recovery Spontaneous in 3 s to 5 s		Spontaneous in less than 3 s
Cascade occurs No		No
Recovery from a developed full stall	B	B
Dive forward angle on exit Dive forward 30° to 60°		Dive forward 30° to 60°
Collapse No collapse		No collapse
Cascade occurs (other than collapses) No		No
Rocking back Less than 45°		Less than 45°
Line tension Most lines tight		Most lines tight
Small asymmetric collapse	B	A
Change of course until re-inflation 90° to 180°		Less than 90°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°		Dive or roll angle 15° to 45°
Re-inflation behaviour Spontaneous re-inflation		Spontaneous re-inflation
Total change of course Less than 360°		Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)		No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No		No
Cascade occurs No		No
Folding lines used no		no
Large asymmetric collapse	B	C
Change of course until re-inflation 90° to 180°		90° to 180°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°		Dive or roll angle 45° to 60°
Re-inflation behaviour Spontaneous re-inflation		Spontaneous re-inflation
Total change of course Less than 360°		Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)		No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No		No
Cascade occurs No		No
Folding lines used no		no
Small asymmetric collapse accelerated	A	A
Change of course until re-inflation Less than 90°		Less than 90°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°		Dive or roll angle 15° to 45°
Re-inflation behaviour Spontaneous re-inflation		Spontaneous re-inflation
Total change of course Less than 360°		Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)		No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No		No
Cascade occurs No		No
Folding lines used no		no
Large asymmetric collapse accelerated	B	C
Change of course until re-inflation 90° to 180°		90° to 180°
Maximum dive forward or roll angle Dive or roll angle 15° to 45°		Dive or roll angle 45° to 60°
Re-inflation behaviour Spontaneous re-inflation		Spontaneous re-inflation
Total change of course Less than 360°		Less than 360°
Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)		No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs No		No
Cascade occurs No		No
Folding lines used no		no
Directional control with a maintained asymmetric collapse	C	A
Able to keep course Yes		Yes
180° turn away from the collapsed side possible in 10 s Yes		Yes

Amount of control range between turn and stall or spin	25 % to 50 % of the symmetric control travel	More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	No	No
Low speed spin tendency	A	A
Spin occurs	No	No
Recovery from a developed spin	B	A
Spin rotation angle after release	Stops spinning in 90° to 180°	Stops spinning in less than 90°
Cascade occurs	No	No
B-line stall	C	C
Change of course before release	Changing course less than 45°	Changing course less than 45°
Behaviour before release	Remains stable without straight span	Remains stable without straight span
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occurs	No	No
Big ears	A	B
Entry procedure	Standard technique	Standard technique
Behaviour during big ears	Stable flight	Stable flight
Recovery	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Big ears in accelerated flight	A	A
Entry procedure	Standard technique	Standard technique
Behaviour during big ears	Stable flight	Stable flight
Recovery	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Stable flight
Alternative means of directional control	A	A
180° turn achievable in 20 s	Yes	Yes
Stall or spin occurs	No	No
Any other flight procedure and/or configuration described in the user's manual		
No other flight procedure or configuration described in the user's manual		