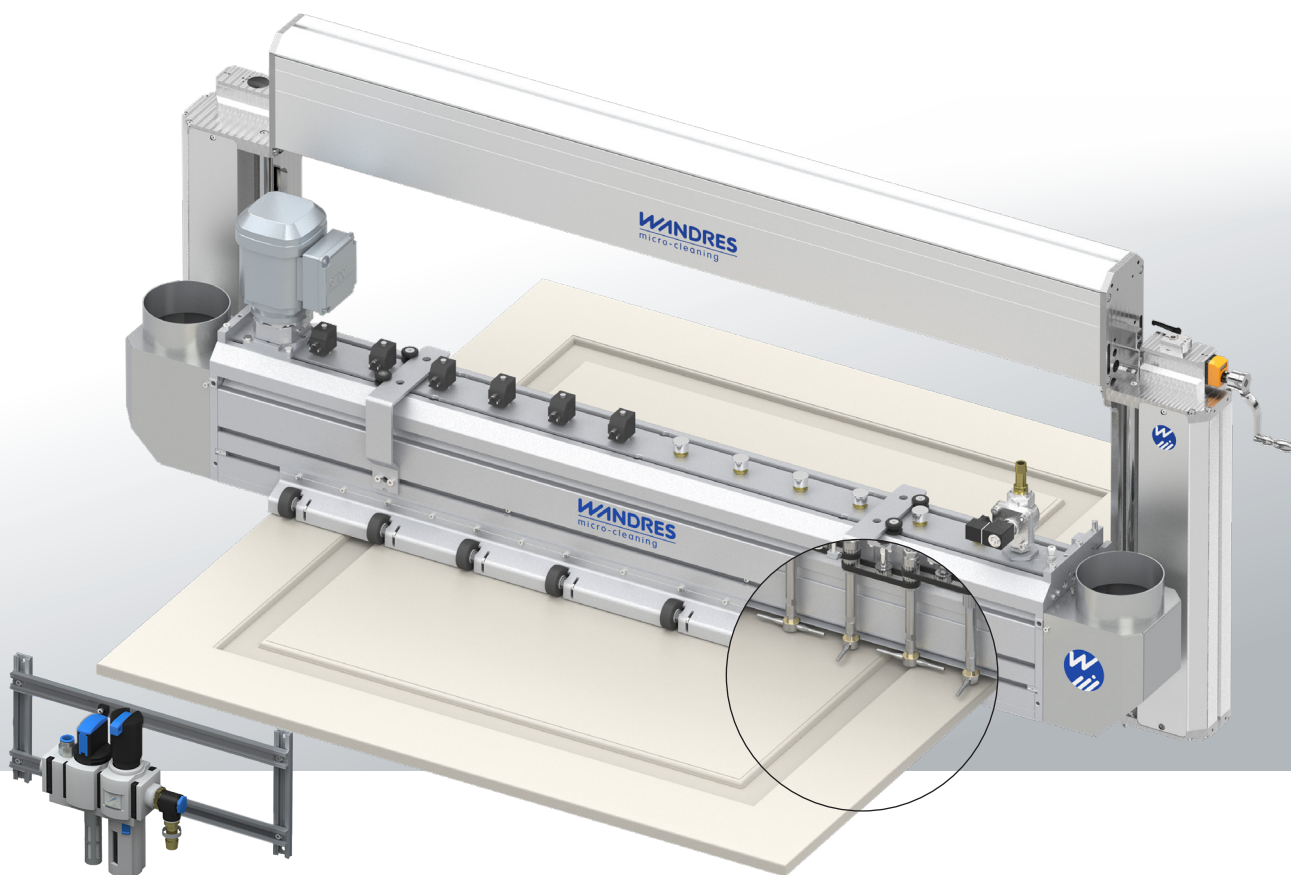


Combi Tornado Channel Una H-TKRO 200..

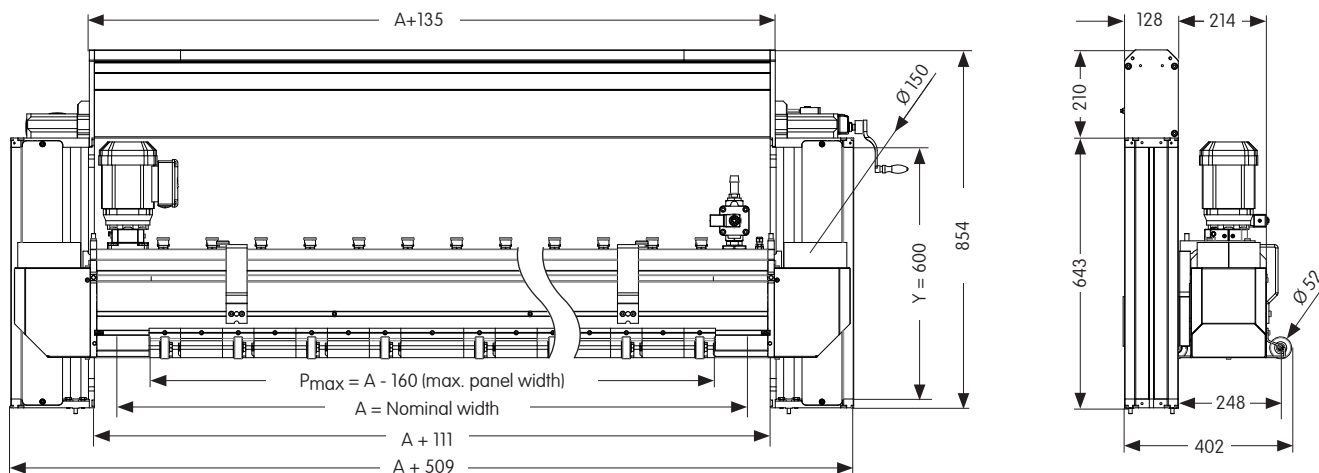


Brief description

The Combi Tornado Channel Una H-TKRO 200.. is ideal for the cleaning of sanded or structured surfaces prior to the final lacquering process, before coating or applying thermofoils. The rotating Tornado nozzles are synchronized electrically and driven via timing belts. The cleaning circles of the Tornado nozzles overlap thus providing for a highly efficient cleaning with compressed air.

Technical details

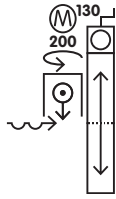
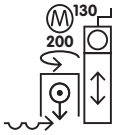
- U-shaped channel with angles at the infeed and at the outfeed to guide the air and oblong holes at the bottom
- Electrically driven, rotating compressed air nozzles with mechanical or electrical individual valves
- 1 or 2 suction connections \varnothing 150 mm facing upwards
- Incoming compressed air regulator with filter, pressure regulator and on-off valve for the compressed air supply (standard)
Electrical/pneumatic cabinets are available as an option
- Adjustment frame VEG 130 with mechanical height adjustment, optionally with electrical and/or pneumatic height adjustment with a short ($Y = 350$ mm) or a long column ($Y = 600$ mm)



Values in mm

Una H-TKRO 200/350/A

Una H-TKRO 200/600/A



* if compressed air supply is 6 bar and if all Tornado nozzles are activated

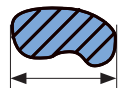
Order no.

2 4 5 2 -

2 4 5 3 -

		Nominal width A in mm	Nominal width A in inch	Number of Tornado nozzles	Number of Suction connections	Number of Pressure rollers	Compressed air consumption m³/min*	
- 003	- 003	400	15.75	3	1	-	0.15	
- 004	- 004	520	20.47	4	1	-	0.20	
- 005	- 005	650	25.59	5	1	6	0.25	
- 058	- 058	700	27.55	5	1	6	0.25	
- 006	- 006	850	33.46	6	1	8	0.30	
- 045	- 045	900	35.43	7	1	6	0.35	
- 007	- 007	1000	39.37	8	1	6	0.40	
- 008	- 008	1100	43.31	9	1	6	0.45	
- 031	- 031	1200	47.24	9	1	6	0.45	
- 009	- 009	1300	51.18	10	1	6	0.50	
- 030	- 030	1400	55.11	11	1	8	0.55	
- 010	- 010	1500	59.05	12	2	8	0.60	
- 011	- 011	1650	64.96	13	2	8	0.65	
- 059	- 059	1700	66.92	14	2	8	0.70	
- 012	- 012	1750	68.89	14	2	8	0.70	
- 032	- 032	1900	74.80	15	2	8	0.75	
- 013	- 013	2000	78.74	16	2	8	0.80	
- 033	- 033	2100	82.67	17	2	8	0.85	
- 014	- 014	2200	86.61	18	2	10	0.90	
- 056	- 056	2300	90.55	19	2	10	0.95	with profile reinforcement
- 015	- 015	2500	98.42	21	2	10	1.05	
- 050	- 050	2700	106.30	22	2	12	1.10	
- 016	- 016	2750	108.20	23	2	12	1.15	
- 060	- 060	2800	110.23	23	2	12	1.15	
- 036	- 036	2900	114.17	24	2	12	1.20	
- 017	- 017	3000	118.11	25	2	12	1.25	
- 018	- 018	3200	125.98	27	2	14	1.35	
- 039	- 039	3400	133.85	28	2	14	1.40	

Suitable for particles with max. feret diameter 7 mm



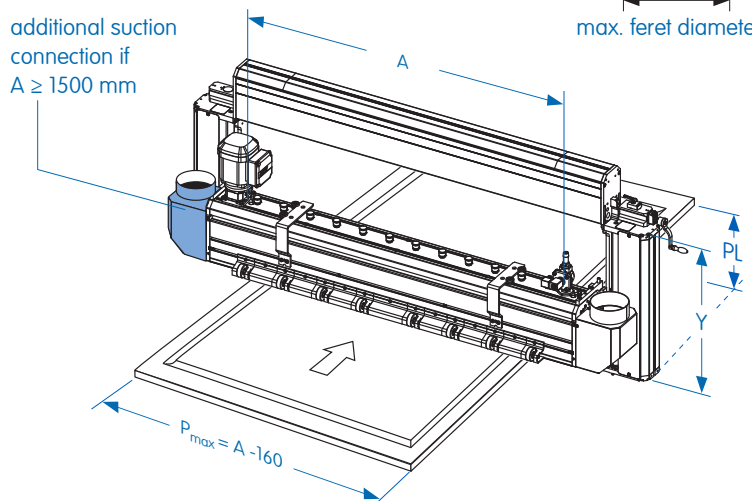
max. feret diameter

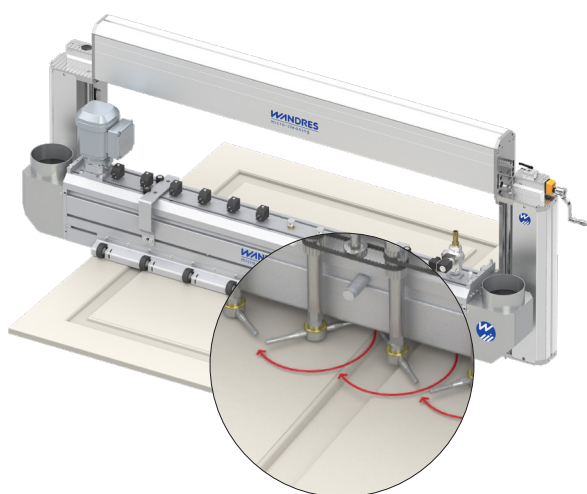
Ordering example

The subject panel has a max. width of $P_{max} = 1300$ mm
 Minimum nominal width of the Tornado Channel is $A_{min} = P_{max} + 160$ mm = 1460 mm
 The most suitable Tornado Channel has a nominal width $A = 1500$ mm
 Order no. 2453-010 describes Una H-TKRO 200/600/1500

Explanation

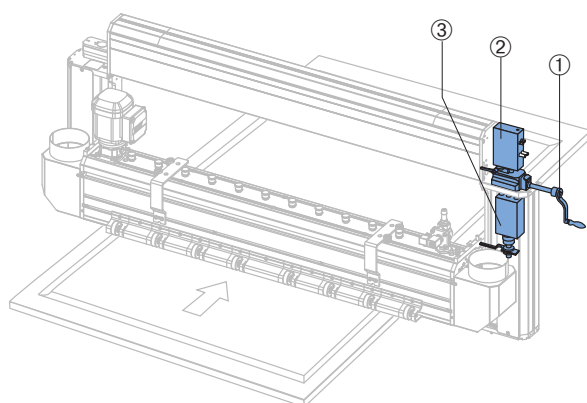
- A nominal width
- PL pass line = distance between mounting area and lower panel surface
- P_{max} max. panel width = $A - 160$ mm
- Y nominal measure of adjustment frame





Functional description

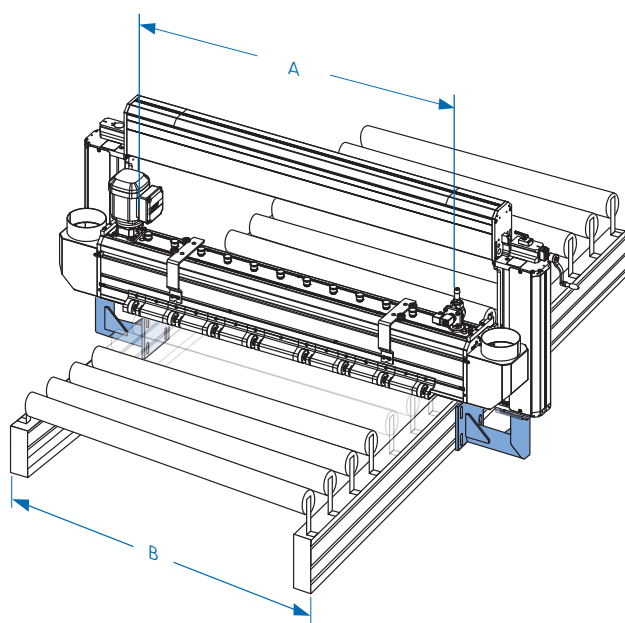
The rotating Tornado nozzles are synchronised electrically. And driven via timing belts. They turn at a constant high speed. Compressed air exits the Tornado nozzles at several times the speed of sound. This air jet removes particles and dust from flat and structured surfaces. The contaminating debris are propelled towards the suction systems. Cleaning areas of the nozzles overlap, so that the complete surface is cleaned in an extremely efficient manner.



Height adjustment

An adjustment frame provides for a simple adjustment of the Tornado Channel to the panel's thickness.

- ① HVM: Manual adjustment via a crank (standard)
- ② HVE: An electrical actuator (option) provides for an automatic thickness adjustment in combination with the overall control of the line.
- ③ HVP: This is an additional option where pneumatic cylinders remove the cleaning unit rapidly from the subject surface e.g. in crash situations. Both the mechanical and the electrical height adjustment may be combined with this pneumatic quick adjustment.



Integration into roller conveyors

The Combi Tornado Channel can be integrated easily into existing roller conveyors made by Homag. The cleaning system is attached to the roller conveyor via mounting brackets (4160483) that can be supplied as an option.

Nominal width of the Tornado Channel depends on the roller conveyor width B.

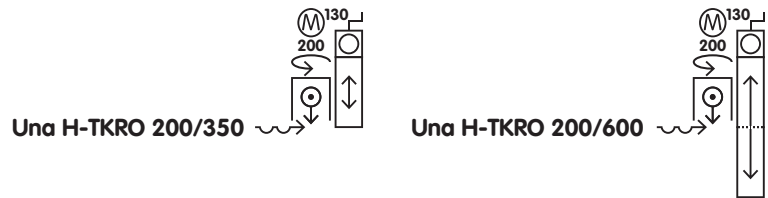
$$B \text{ (width of roller conveyor)} = A - 300 \text{ (-40/+25) mm}$$

If you have a roller conveyor width of 1200 mm, you should choose a Tornado Channel with nominal width A=1500 mm, i.e.

order no. 2453-010

Una H-TKRO 200/600/1500.

Technical data



Electrical details

Drive Tornado nozzles	1 x 0.75 kW SEW MOVIMOT motor, IP 54, UL-compatible 50 - 60 Hz; 380 – 500 V; 1.9 A
Rotation sensor	Break contact DC-PNP on Harting plug, 2 impulses/rotation
Sensor connection	24 V DC; 1.0 A; Control via Harting plug 24 V DC; Signal for TKR on/off 24 V DC; 0.5 A; signal for main valve Tornado Channel on/off 24 V DC; max. load 0.09 A; operating signal 24 V DC; max. load 0.6 A; signal „ready for operation“
Main valve Tornado Channel	2/2 directional valve; 1 x 24 V DC; 11 W
Magnetic valves Tornado nozzles	24 V DC / 0.5 A each
Electrical height adjustment (HVE)	24 V DC; 150 W (AG 02); 35 W (PSE); control via PLC
Pneumatic quick adjustment (HVP)	5/3 directional valve; 2 x 24 V DC; 2.4 W

Pneumatic details

Compressed air quality	filtered (particle size < 40µm), oil free (residual oil < 1.5 mg/m ³ at 24° C)
Compressed air connection	1 x G 3/4 female thread; 6 bar
Compressed air consumption	50 l/min per Tornado nozzle; total consumption see table on page 2

Suction requirements

	A < 1500 mm	A ≥ 1500 mm
Suction connection	1 x Ø 150 mm	2 x Ø 150 mm
Suction capacity	1 x 30 m ³ /min	2 x 30 m ³ /min
Operating parameters	min. -500 Pa vacuum; min. 28 m/s (measured at suction connection)	

Acoustic emission

Max. sound pressure level	approx. 85 dB(A) if all Tornado nozzles are activated Acoustic emission depends on surface features and the dimensions of the subject panel.
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Transport speed

Max. transport speed	30 m/min, if speed exceeds 30 m/min, some particles may remain in recesses
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Dimensions

Minimum panel length	$L_{\min} = 300$ mm
Panel width	$P_{\max} = A - 160$ mm; $P_{\min} = 75$ mm (upon request)
Distance Tornado Channel to surface	TCD = 4 mm

Technical information is subject to changes

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