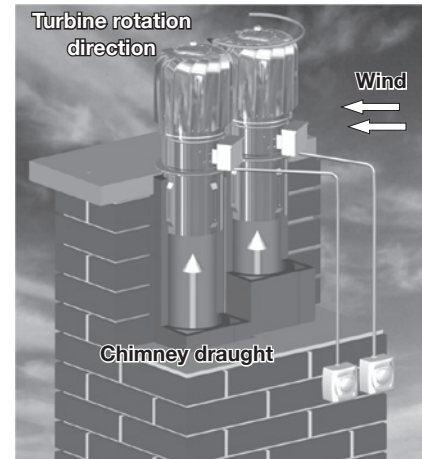


### PICTURE



### FUNCTION PRINCIPLE



### DESCRIPTION

Rotary chimney cowl Hybrid Turbowent Tulipan is a device, which, in a dynamic way, uses force of the wind to increase chimney draught, it is also equipped with a low power, brushless electric motor used to stabilize it. The turbine always rotates in the same direction no matter of the wind strength or its direction. It is to be mounted on gravitation based ventilation duct endings.

When the wind speed is too small to achieve the desired efficiency, electric motor speeds the turbine up, when it is too strong it slows the turbine down. When the wind speed is strong enough to achieve the rotation speed set on the steering device, motor does not work, and cowl works just like the ordinary Turbowent Tulipan.

This solution is reserved in the RP Patent Office

Speed controller voltage	24VDC
Rotating unit	ball bearing system
Maximal power consumption	0,3A
Average power consumption	~0,13A
Average input power	3W
Adjusting range:	0-500 rev/min
Recommended power supply	24VDC, 1A
Ambient temperature	from -30 °C to +70°C

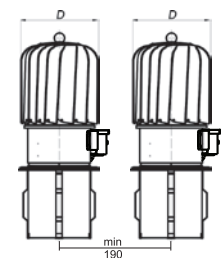
Sound pressure level A at a distance of 4 m from cowl (for rotation speed n)			Sound pressure level LWA (for min. rotation speed) acc. to PN-EN ISO 3741:2003	
Diameter	L <sub>pAmin</sub> for n=90	L <sub>pAmax</sub> for n=270	Diameter	L <sub>WA</sub>
Ø150	8 dB	15 dB	Ø150	26 dB

### DESTINATION

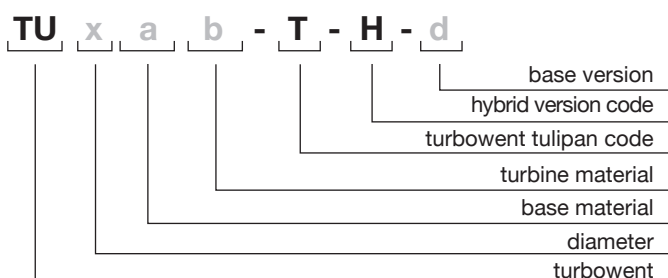
- when there are wind fluctuations on the chimney duct ending, caused by its bad location
- when there is an unfavorable terrain configuration, with strong and frequent winds
- when there is a lack of chimney draught or it is too weak
- in order to improve the natural (gravitation) ventilation

### MEASUREMENTS

Diameter	Turbine diameter D [mm]
Ø150	~ 188



### DENOTATIONS / PRODUCT CODES

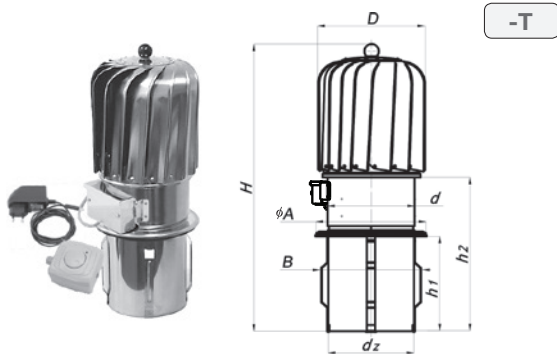


### MATERIALS

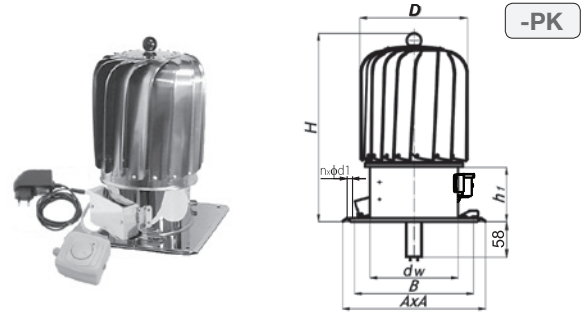
Destination	W	W	W	W - ventilation ducts
	-	-	-	-
Base material	-	-	-	D - smoke ducts
	CH	CH	-	CH - chrome-nickel sheet 1.4301
	-	-	-	OC - galvanised steel sheet
Turbine material	-	-	ML	ML - chrome-nickel powder coated
	-	CH	-	CH - chrome-nickel sheet 1.4301
	-	-	ML	ML - powder coated
	AL	-	-	AL - aluminum

**TURBOWENT - VERSIONS OF BASES**

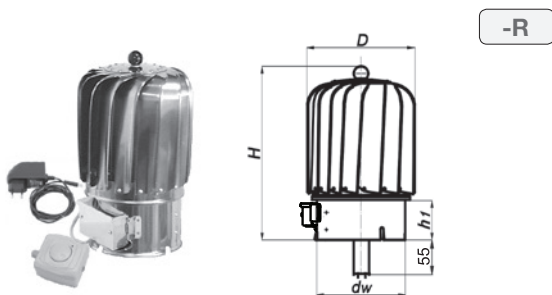
**1. FORCE-IN MOUNTING BASE**



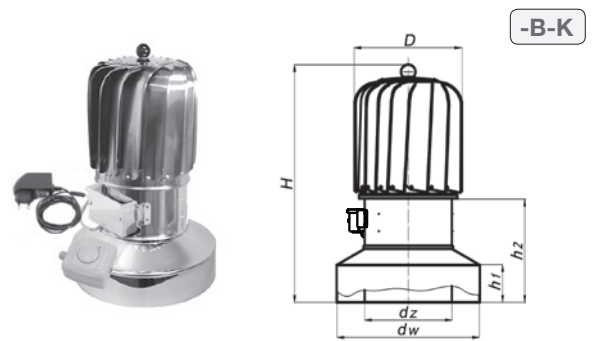
**2. SQUARE BASE**



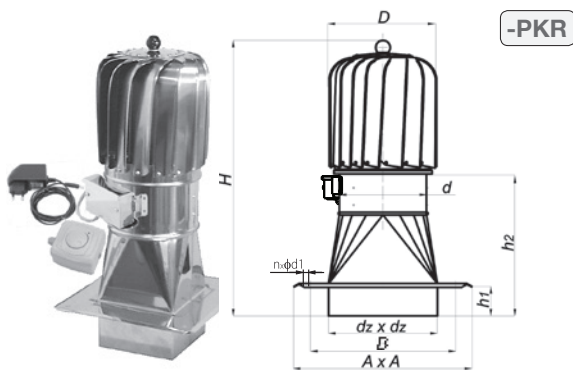
**3. DISMOUNTABLE BASE**



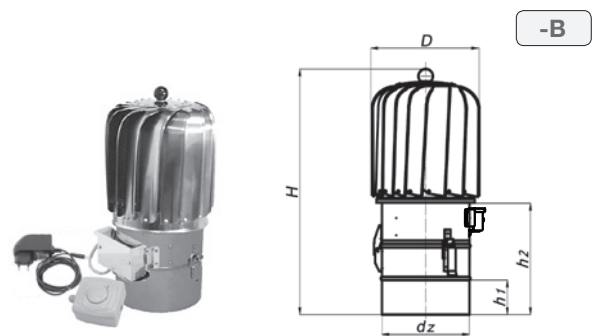
**4. BASE WITH INSULATION CLOSING**



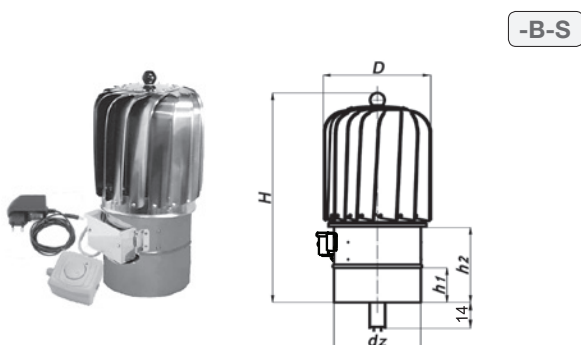
**5. PKR - TYPE REDUCING BASE**



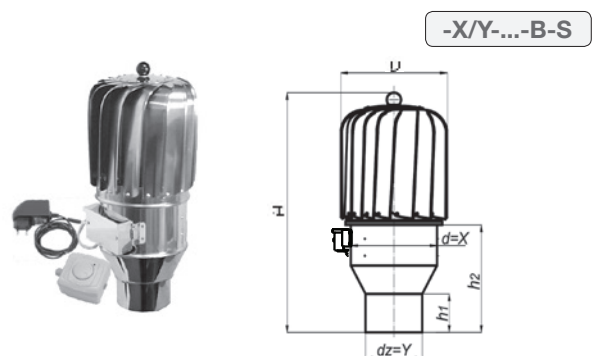
**6. INLET PIPE OPENABLE**



**7. INLET PIPE NOT OPENABLE**



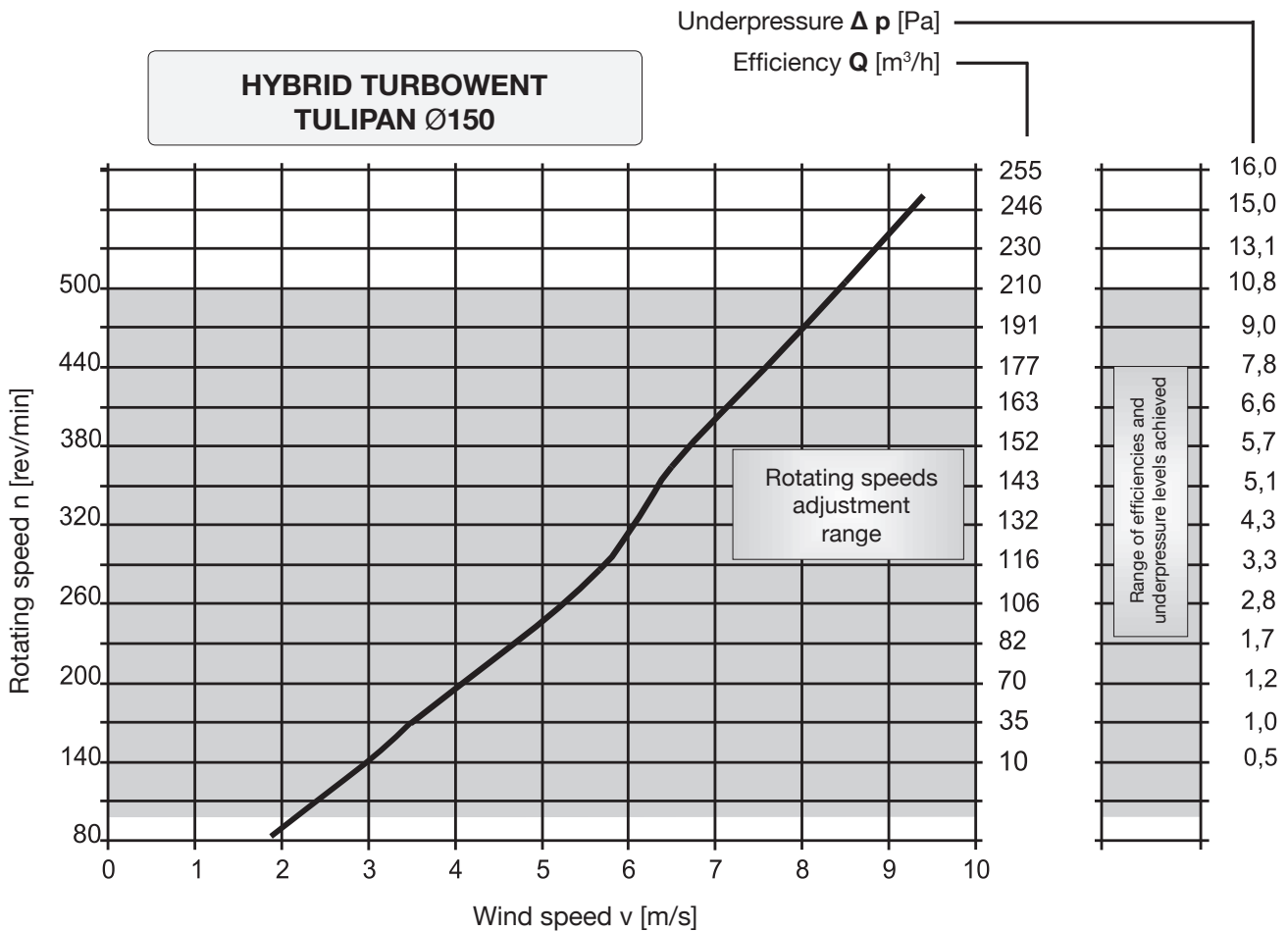
**8. INLET PIPE REDUCED**



### MEASUREMENTS TABLE FOR VARIOUS INLET DIAMETERS

Ø 150	Dimensions [mm]										Weight [kg]	
	Base version	D	dw	dz	H	h1	h2	A	B	d1		Amount n
- T	~188	-	144.0	477	157	244	187	158	6.2	-	-	2.40
-PK	~188	149.0	-	333	100	-	250	208	6.2	4	-	2.15
-R	~188	150.4	-	337	107	-	-	-	-	-	-	2.00
-B-K	~188	253.3	151.7	427	70	197	-	-	-	-	-	2.70
-PKR	~188	-	140.0	429	60	200	250	187	6.2	4	-	3.30
-B	~188	-	152.0	422	60	196	-	-	-	-	-	2.40
-B-S	~188	-	152.0	376	60	147	-	-	-	-	-	2.20
-X/Y-...-B-S	~188	-	Y	427	60	194	-	-	-	-	-	2.35

### AIRFLOW CHARTS

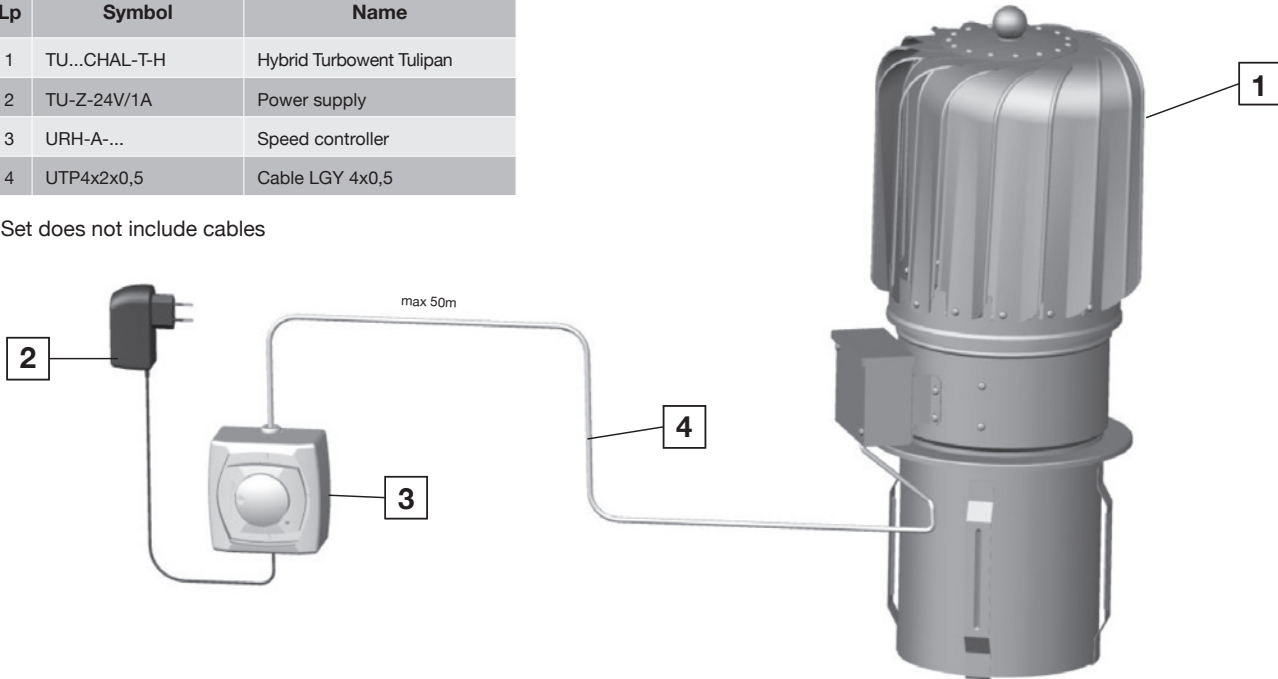


### CONNECTING DIAGRAM

#### 1. HYBRID TURBOWENT TULIPAN - STANDARD

Lp	Symbol	Name
1	TU...CHAL-T-H	Hybrid Turbowent Tulipan
2	TU-Z-24V/1A	Power supply
3	URH-A-...	Speed controller
4	UTP4x2x0,5	Cable LGY 4x0,5

\* Set does not include cables

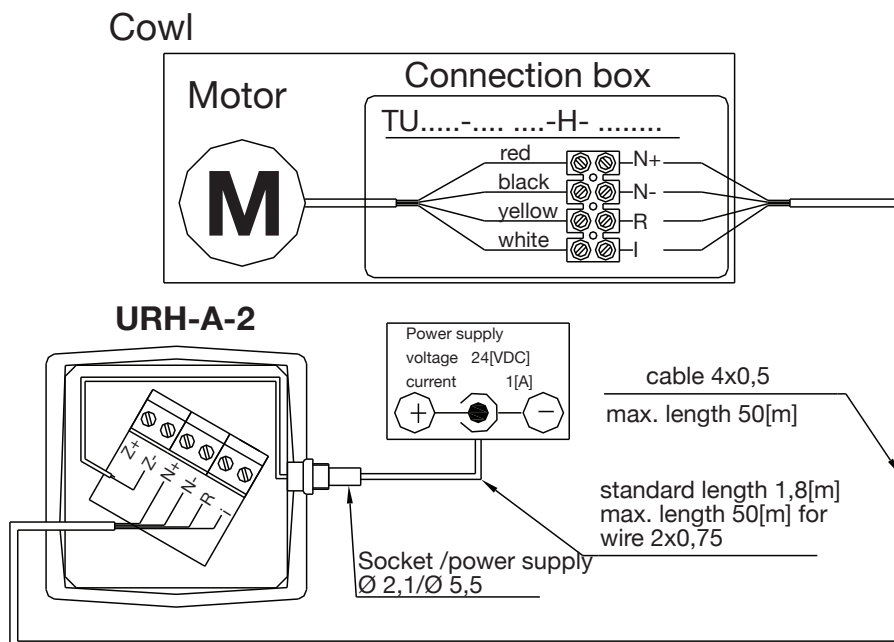


This set of elements is a standard equipment of a hybrid cowl.\*

### ELECTRICAL DIAGRAM

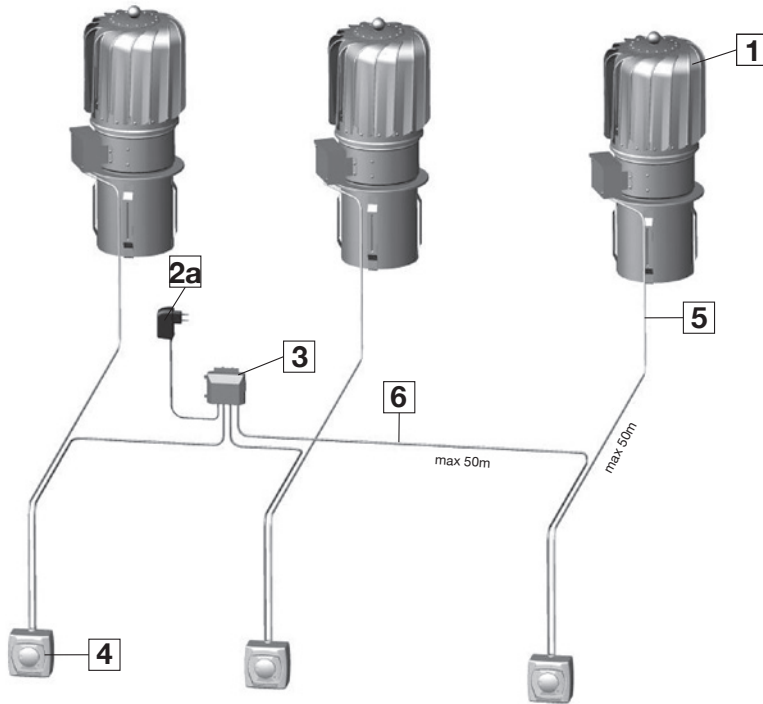
#### 1. STANDARD VERSION

##### STANDARD connection



### ELECTRICAL DIAGRAM

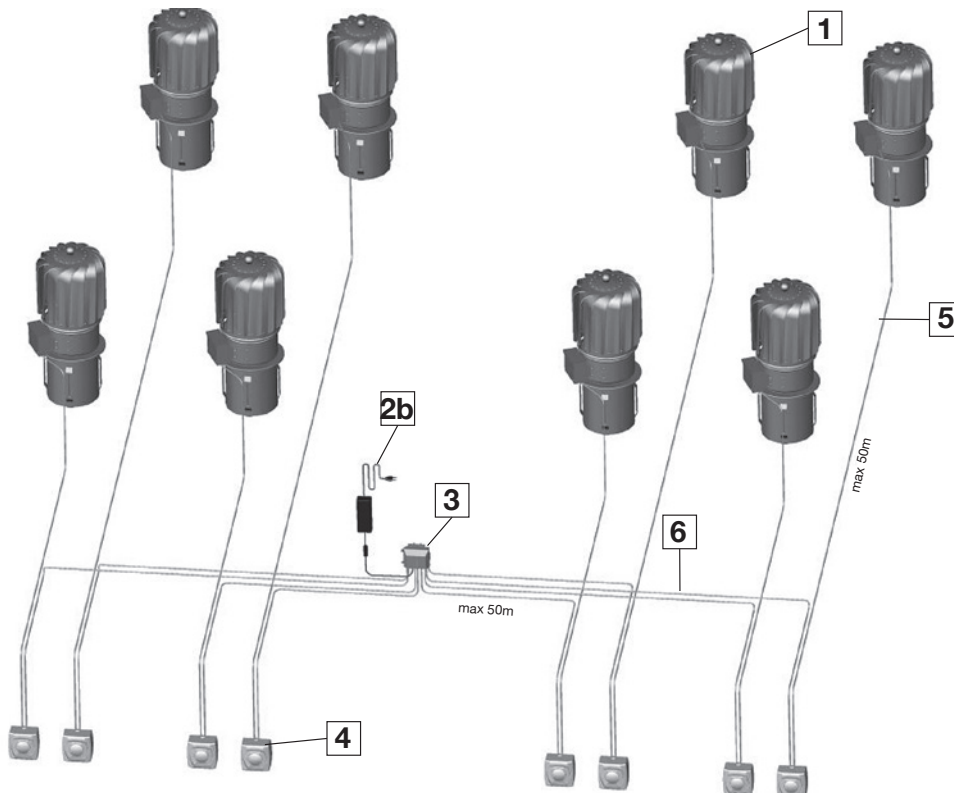
#### 2. HYBRID TURBOWENT TULIPAN - STANDARD - (FROM 1 TO MAX. 4 PIECES)



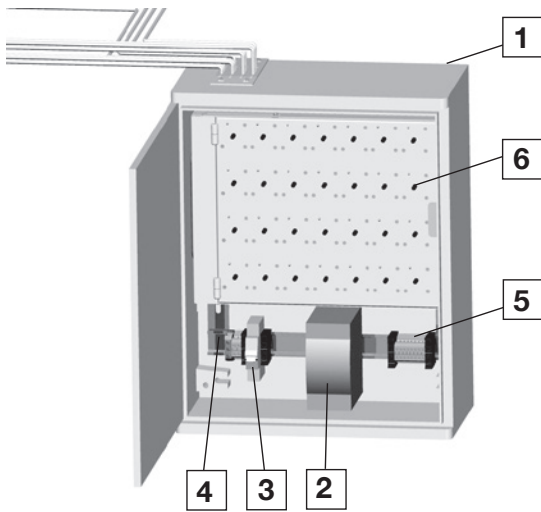
Lp	Symbol	Name
1	TU...CHAL-T-H-(BZ)	Hybrid Turbowent Tulipan (BZ)
2a	TU-Z-24V/1A	Power supply [VDC] (rys.2)
2b	TU-Z-24V/2,7A	Power supply [VDC] (rys.3)
3	TU-RZ-(8wy)	Power supply splitter
4	URH-A-...	Speed controller
5	UTP4x2x0,5	Cable LGY 4x0,5
6	LGY2x0,75	Cable LGY 2x0,75

\* Set does not include cables  
(BZ) - without power supply

#### 3. HYBRID TURBOWENT TULIPAN - STANDARD - (FROM 1 TO MAX. 8 PIECES)



## 4. ELECTRIC CABINET



### TU-SZSTER-I-(12)\*

Lp	Symbol	Pieces
1	Electric cabinet /400x300x200/	1
2	Power supply SDR-120-24	1
3	Safety fuse 4A "C"	1
4	Terminal block 230V AC	1
5	Terminal block 24V DC	1
6	Cowl speed controller URH-A-...*	12 max

\*amount of URH-A-... according to the order

### TU-SZSTER-II-(28)\*

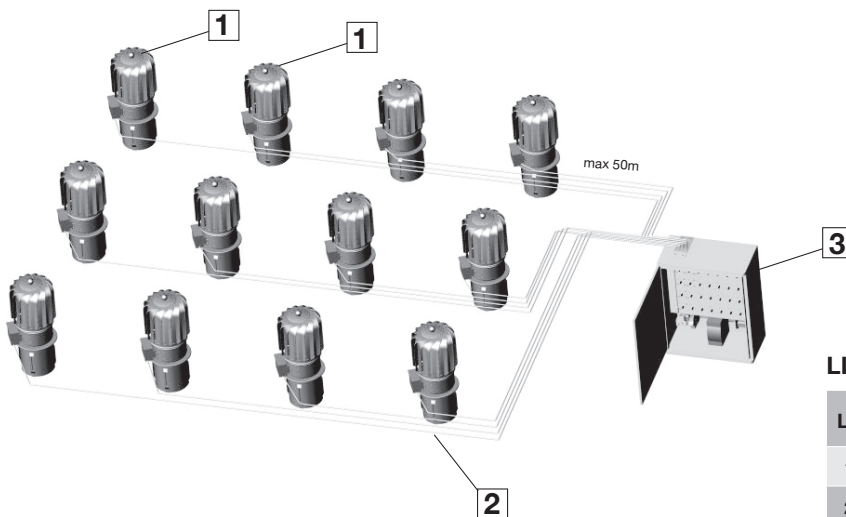
Lp	Symbol	Pieces
1	Electric cabinet /500x400x200/	1
2	Power supply SDR-240-24	1
3	Safety fuse 6A "C"	1
4	Terminal block zasilania 230V AC	1
5	Terminal block zasilania 24V DC	1
6	Cowl speed controller URH-A-...*	28 max

\*amount of URH-A-... according to the order

### TU-SZSTER-III-(54)\*

Lp	Symbol	Pieces
1	Electric cabinet /700x500x250/	1
2	Power supply SDR-120-24	1
3	Safety fuse 10A "C"	1
4	Terminal block zasilania 230V AC	1
5	Terminal block zasilania 24V DC	1
6	Cowl speed controller URH-A-...*	54 max

\*amount of URH-A-... according to the order



### LIST FOR 2÷12 COWLS

Lp	Symbol	Name
1	TU...CHAL-T-H...(BZ/BRO)	Hybrid Turbowent Tulipan
2	LGY 4x0,5	Cable LGY 4x0,5
3	TU-SZSTER-I-(12)	Electric cabinet

### LIST FOR 2÷28 COWLS

Lp	Symbol	Name
1	TU...CHAL-T-H...(BZ/BRO)	Hybrid Turbowent Tulipan
2	LGY 4x0,5	Cable LGY 4x0,5
3	TU-SZSTER-II-(28)	Electric cabinet

### LIST FOR 2÷54 COWLS

Lp	Symbol	Name
1	TU...CHAL-T-H...(BZ/BRO)	Hybrid Turbowent Tulipan
2	LGY 4x0,5	Cable LGY 4x0,5
3	TU-SZSTER-III-(54)	Electric cabinet