



# Contents

<b>ROOF FANS</b> .....	<b>3</b>
TKC 300 A/B/C .....	4
TKC 400 A/B/C .....	4
TKS 300 A/B/C .....	5
TKS 400 A/B/C .....	5
TKV/TKH 300 A/B/C .....	6
TKV/TKH 400 A/B/C/D .....	6
TKV/TKH 560 A1 .....	7
TKV/TKH 560 B1 .....	7
TKV/TKH 560 B3 .....	8
TKV/TKH 660 B1 .....	8
TKV/TKH 660 B3 .....	9
TKV/TKH 760 A1 .....	9
TKV/TKH 760 B1 .....	10
TKV/TKH 760 B3 .....	10
TKV/TKH 960 A1 .....	11
TKV/TKH 960 A3 .....	11
TKV/TKH 960 B1 .....	12
TKV/TKH 960 B3 .....	12
TKV/TKH 960 C1 .....	13
TKV/TKH 960 C3 .....	13
TKV/TKH 960 D3 .....	14
TKV/TKH 960 J1 .....	14
TKV/TKH 960 J3 .....	15

<b>ACCESSORIES</b> .....	<b>16-17</b>
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<b>GENERAL FAN FACTS</b> .....	<b>18-19</b>
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# ROOF FANS THAT FITS EVERYWHERE



## The wide range of roof fans from Östberg

We have three different types of roof fans, TKC, TKS och TKV/H for air volumes up to 13.300 m<sup>3</sup>/h. They have good performances and are easy to install. Great importance has been placed in making them easy to clean and maintain as all our roof fans have the added benefit of a swing-out motor and impeller assembly.

Our roof fans are manufactured from galvanized sheet steel which can be polyester plastic coated.

### HIGH QUALITY AND SAFETY OF OPERATION

Each fan has a high quality external rotor motor with a backward curved impeller guaranteeing a long and safe operation life. The ball bearing motor is fully speed controllable as well as being protected in accordance with IP 44.

### TKC AND TKS

TKC and TKS with horizontal discharge are identical except for the duct connection. TKC has a circular connection and TKS has a square one. TKC and TKS can be used even when they are not operating continuously.

There are two sizes of TKC and TKS available each with 3 different capacities.



*All our roof fans are provided with a swing-out motor and impeller. A simple handgrip makes inspection and cleaning easy!*



### TKV/TKH

Our new, unique and patent pending roof fans you can easily modify for either horizontal or vertical outlet. Equally easy to clean and maintain.

They achieve a higher airflow compared to the previous models but with even lower sound levels.

The new roof fans TKV/TKH are available in 6 sizes between 3 and 9 capacities of each size.



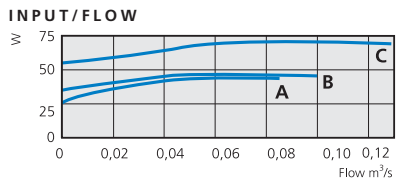
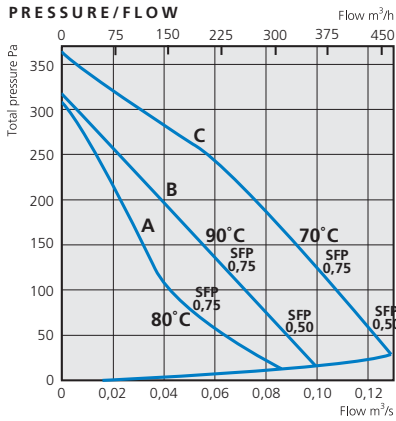
# TKC 300 A/B/C

# TKC 400 A/B/C

Circular roof fan with circular connection and swing-out



## TKC 300 A/B/C



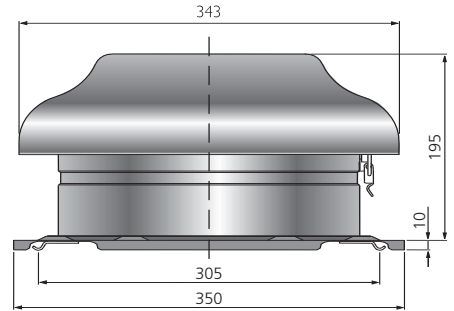
### ACCESSORIES

Roof curb and silencer TG, see page 16

### TECHNICAL DATA

TKC 300	A	B	C
Voltage, V/Hz	230/50	230/50	230/50
Current, A	0,19	0,20	0,31
Input, W	44	45	71
Speed, rpm	1700	2250	2460
Weight, kg	4,1	4,1	4,1
Wiring diagram	4040002	4040002	4040001
Capacitor, $\mu F$	2	5	2
Insulation class, motor	F	F	F
Motor protection	IP 44	IP 44	IP 44

### DIMENSIONS (mm)

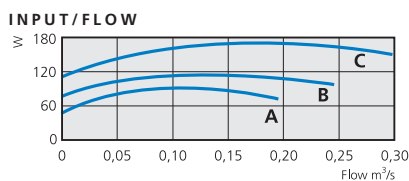
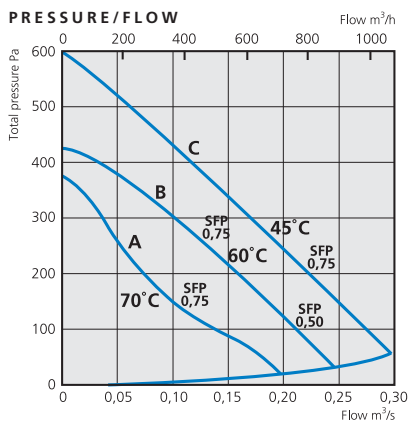


### SOUND DATA

TKC 300 A, 32 l/s 155 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	28	56	48	33	44	48	52	48	39	33	
Inlet		55	37	47	50	49	47	44	34	19	
Inlet with TFU		46	34	41	42	38	37	30	16	9	
TKC 300 B, 53 l/s 150 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	34	62	48	38	50	54	59	56	48	39	
Inlet		61	42	50	57	55	54	52	44	31	
Inlet with TFU		52	40	43	49	44	43	37	25	12	
TKC 300 C, 70 l/s 217 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	39	67	48	40	54	58	64	62	54	45	
Inlet		65	46	53	60	59	58	57	49	38	
Inlet with TFU		56	43	47	52	49	47	42	31	20	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

## TKC 400 A/B/C



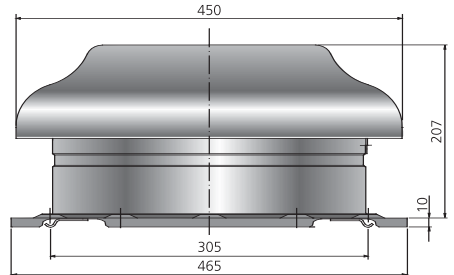
### ACCESSORIES

Roof curb and silencer TG, see page 16

### TECHNICAL DATA

TKC 400	A	B	C
Voltage, V/Hz	230/50	230/50	230/50
Current, A	0,42	0,50	0,76
Input, W	91	113	172
Speed, rpm	1850	2580	2420
Weight, kg	5,5	5,5	5,5
Wiring diagram	4040002	4040001	4040001
Capacitor, $\mu F$	4	4	2
Insulation class, motor	F	F	F
Motor protection	IP 44	IP 44	IP 44

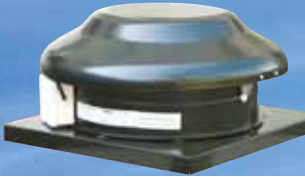
### DIMENSIONS (mm)



### SOUND DATA

TKC 400 A, 110 l/s 135 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	37	65	42	44	56	60	60	57	51	38	
Inlet		65	46	58	60	59	57	52	44	30	
Inlet with TFU		55	41	52	50	48	42	31	25	17	
TKC 400 B, 150 l/s 230 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	44	72	44	47	63	66	67	65	60	48	
Inlet		72	50	61	68	67	64	59	53	40	
Inlet with TFU		61	44	54	57	55	48	38	35	27	
TKC 400 C, 180 l/s 300 Pa	$L_{pA}$	$L_{WA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	48	76	48	48	61	69	72	70	63	57	
Inlet		71	54	62	64	67	63	58	57	48	
Inlet with TFU		61	49	55	53	58	49	42	40	35	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

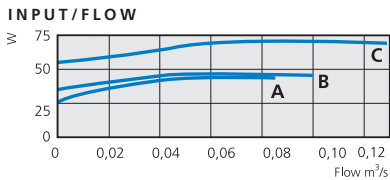
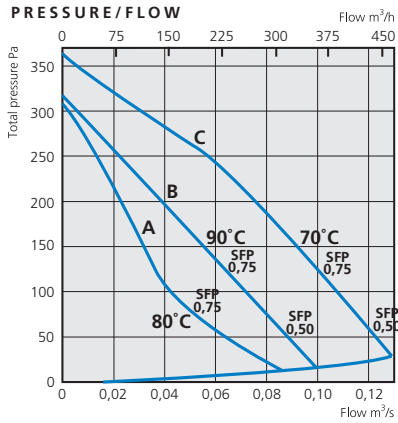


# TKS 300 A/B/C

# TKS 400 A/B/C

Circular roof fan with square connection and swing-out

## TKS 300 A/B/C



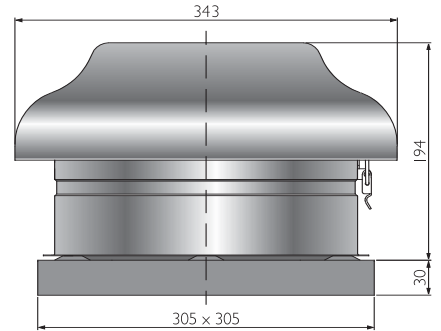
### ACCESSORIES

Roof curb TFU, see page 16

### TECHNICAL DATA

TKS 300	A	B	C
Voltage, V/Hz	230/50	230/50	230/50
Current, A	0,19	0,20	0,31
Input, W	44	45	71
Speed, rpm	1700	2250	2460
Weight, kg	4,1	4,1	4,1
Wiring diagram	4040002	4040002	4040001
Capacitor, µF	2	5	2
Insulation class, motor	F	F	F
Motor protection	IP 44	IP 44	IP 44

### DIMENSIONS (mm)

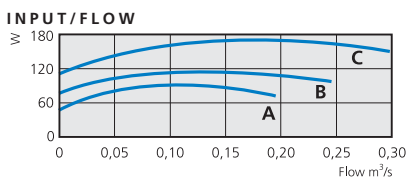
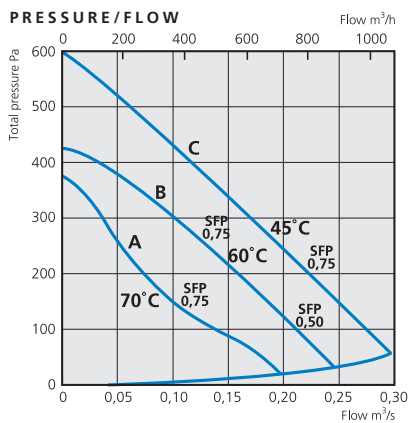


### SOUND DATA

TKS 300 A, 32 l/s 155 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	28	56	48	33	44	48	52	48	39	33
Inlet		55	37	47	50	49	47	44	34	19
Inlet with TFU		46	34	41	42	38	37	30	16	9
TKC 300 B, 53 l/s 150 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	34	62	48	38	50	54	59	56	48	39
Inlet		61	42	50	57	55	54	52	44	31
Inlet with TFU		52	40	43	49	44	43	37	25	12
TKC 300 C, 70 l/s 217 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	39	67	48	40	54	58	64	62	54	45
Inlet		65	46	53	60	59	58	57	49	38
Inlet with TFU		56	43	47	52	49	47	42	31	20

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

## TKS 400 A/B/C



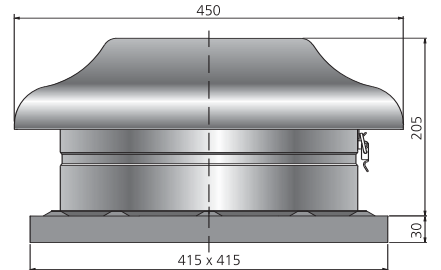
### ACCESSORIES

Roof curb TFU, see page 16

### TECHNICAL DATA

TKS 400	A	B	C
Voltage, V/Hz	230/50	230/50	230/50
Current, A	0,42	0,50	0,76
Input, W	91	113	172
Speed, rpm	1850	2580	2420
Weight, kg	5,5	5,5	5,5
Wiring diagram	4040002	4040001	4040001
Capacitor, µF	4	4	2
Insulation class, motor	F	F	F
Motor protection	IP 44	IP 44	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKS 400 A, 110 l/s 135 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	37	65	42	44	56	60	60	57	51	38
Inlet		65	46	58	60	59	57	52	44	30
Inlet with TFU		55	41	52	50	48	42	31	25	17
TKC 400 B, 150 l/s 230 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	44	72	44	47	63	66	67	65	60	48
Inlet		72	50	61	68	67	64	59	53	40
Inlet with TFU		61	44	54	57	55	48	38	35	27
TKC 400 C, 180 l/s 300 Pa	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment at 10 m	48	76	48	48	61	69	72	70	63	57
Inlet		71	54	62	64	67	63	58	57	48
Inlet with TFU		61	49	55	53	58	49	42	40	35

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

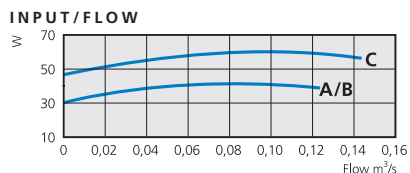
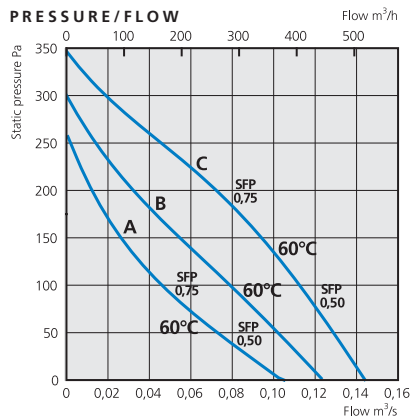
# TKV/TKH 300 A/B/C

# TKV/TKH 400 A/B/C/D

Rectangular roof fan with square connection and swing-out. European Patent Application no. 08170376.1



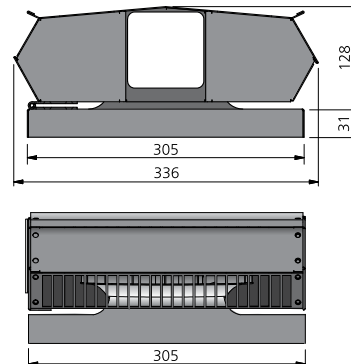
## TKV/TKH 300 A/B/C



### TECHNICAL DATA

TKV/TKH 300	A	B	C
Voltage, V/Hz	230/50	230/50	230/50
Current, A	0,18	0,18	0,26
Input, W	41	42	60
Speed, rpm	1690	2050	2510
Weight, kg	4,9	4,9	4,9
Wiring diagram	4040002	4040002	4040001
Capacitor, µF	2	4	2
Insulation class, motor	F	F	F
Motor protection	IP 44	IP 44	IP 44

### DIMENSIONS (mm)

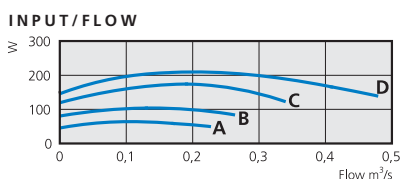
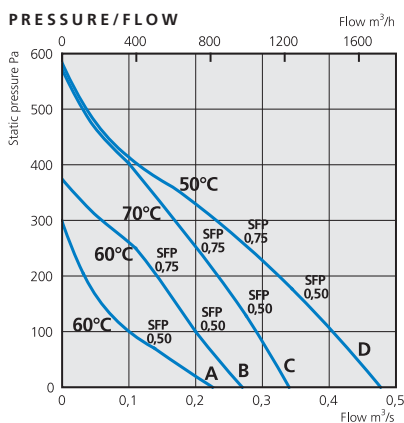


### SOUND DATA

TKH/TKV 300 A, 60 l/s 75 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	28	56	32	36	51	50	50	49	43	33
Inlet		60	48	52	54	54	48	48	44	33
TKH/TKV 300 B, 80 l/s 100 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	35	63	37	39	58	55	57	56	52	44
Inlet		65	52	56	60	59	54	55	55	48
TKH/TKV 300 C, 95 l/s 150 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	40	68	40	44	61	60	62	61	57	53
Inlet		69	56	60	64	63	59	60	58	56

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

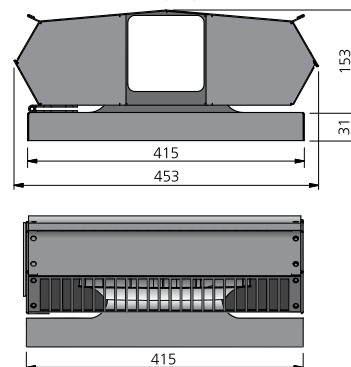
## TKV/TKH 400 A/B/C/D



### TECHNICAL DATA

TKV/TKH 400	A	B	C	D
Voltage, V/Hz	230/50	230/50	230/50	230/50
Current, A	0,28	0,45	0,77	0,94
Input, W	63	103	176	215
Speed, rpm	1750	2510	2420	2280
Weight, kg	7,4	7,4	8,3	8,5
Wiring diagram	4040002	4040001	4040001	4040001
Capacitor, µF	4	3	4	5
Insulation class, motor	F	F	F	F
Motor protection	IP 44	IP 44	IP 44	IP 44

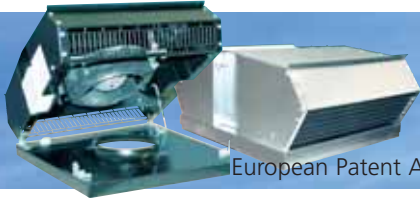
### DIMENSIONS (mm)



### SOUND DATA

TKH/TKV 400 A, 100 l/s 100 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	34	62	34	41	51	56	55	57	50	35
Inlet		66	50	57	60	60	57	54	48	38
TKH/TKV 400 B, 150 l/s 190 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	45	73	42	47	61	68	66	68	65	51
Inlet		75	56	62	70	70	67	64	62	53
TKH/TKV 400 C, 190 l/s 260 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	50	78	43	47	59	71	72	74	70	65
Inlet		78	57	61	67	73	70	71	70	68
TKH/TKV 400 D, 240 l/s 290 Pa	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment	52	80	45	49	62	73	74	76	71	66
Inlet		80	60	65	70	76	72	70	70	69

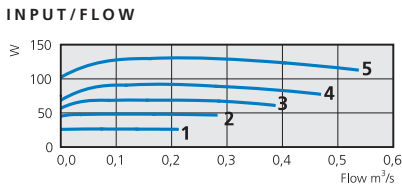
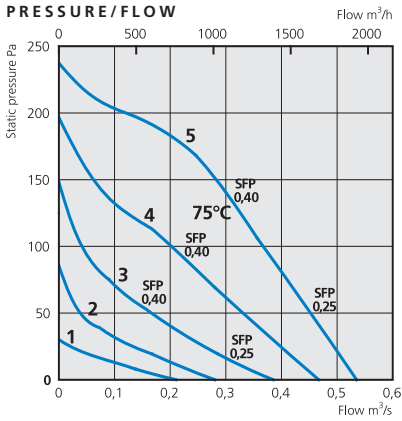
N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.



# TKV/TKH 560 A1 TKV/TKH 560 B1

European Patent Application no. 08170376.1. Rectangular roof fan with square connection and swing-out

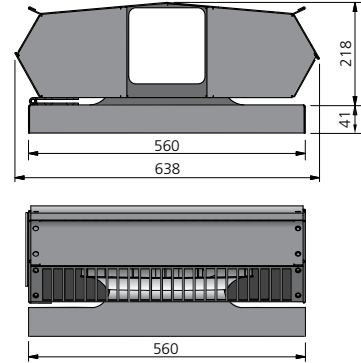
## TKV/TKH 560 A1



### TECHNICAL DATA

TKV/TKH 560	A1
Voltage, V/Hz	230/50
Current, A	0,57
Input, W	128
Speed, rpm	1280
Weight, kg	15
Wiring diagram	4040001
Capacitor, $\mu F$	5
Insulation class, motor	F
Motor protection	IP 44

### DIMENSIONS (mm)

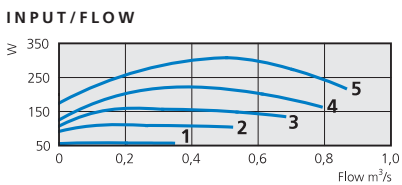
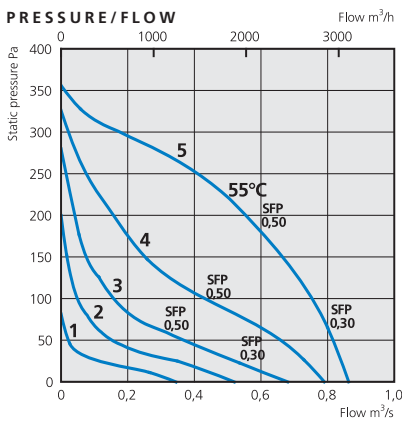


### SOUND DATA

TKV/TKH 560 A1	$L_{pA}$	$L_{wA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 320 l/s 135 Pa	43	71		43	58	63	65	65	64	59	51
5. Inlet 230 V, 320 l/s 135 Pa		69		59	63	62	62	55	57	53	42
4. Inlet 165 V, 220 l/s 95 Pa		63		55	58	57	56	50	52	46	37
3. Inlet 135 V, 155 l/s 55 Pa		57		50	50	49	50	43	44	37	34
2. Inlet 110 V, 120 l/s 30 Pa		51		43	44	47	43	39	38	34	33
1. Inlet 80 V, 90 l/s 15 Pa		44		30	36	39	36	31	34	32	33

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

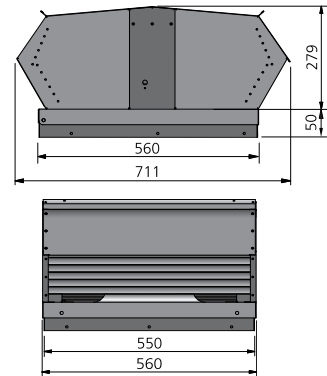
## TKV/TKH 560 B1



### TECHNICAL DATA

TKV/TKH 560	B1
Voltage, V/Hz	230/50
Current, A	1,45
Input, W	308
Speed, rpm	1260
Weight, kg	24
Wiring diagram	4040005
Capacitor, $\mu F$	6
Insulation class, motor	F
Motor protection	IP 44

### DIMENSIONS (mm)



### SOUND DATA

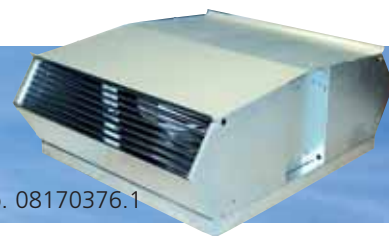
TKV/TKH 560 B1	$L_{pA}$	$L_{wA}$	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 450 l/s 240 Pa	48	76		46	58	67	69	72	71	64	56
5. Inlet 230 V, 450 l/s 240 Pa		73		54	62	63	64	66	67	63	55
4. Inlet 165 V, 330 l/s 125 Pa		65		49	55	55	58	58	58	53	44
3. Inlet 135 V, 240 l/s 75 Pa		57		44	48	49	52	51	49	43	36
2. Inlet 110 V, 180 l/s 45 Pa		51		41	42	43	45	43	40	35	33
1. Inlet 80 V, 135 l/s 25 Pa		42		32	34	34	36	32	30	32	32

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

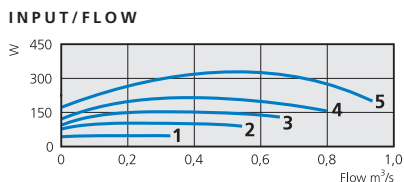
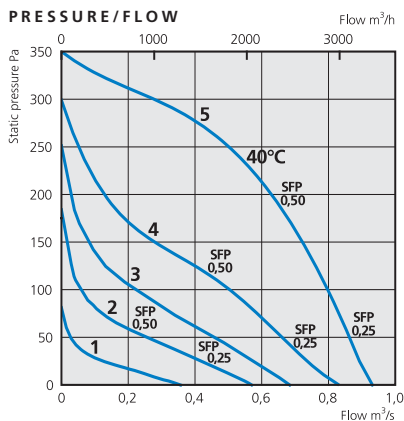
# TKV/TKH 560 B3

# TKV/TKH 660 B1

Rectangular roof fan with square connection and swing-out. European Patent Application no. 08170376.1



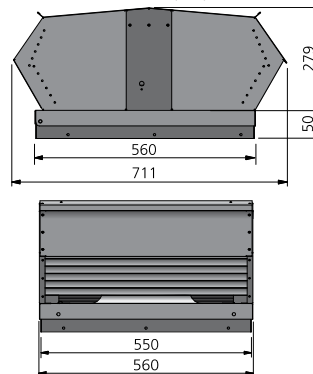
## TKV/TKH 560 B3



### TECHNICAL DATA

<b>TKV/TKH 560</b>	<b>B3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	0,59
<b>Input, W</b>	332
<b>Speed, rpm</b>	1290
<b>Weight, kg</b>	24
<b>Wiring diagram</b>	40400040
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

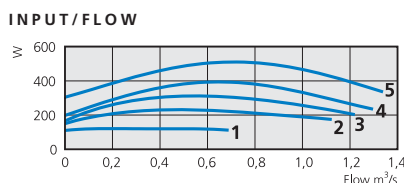
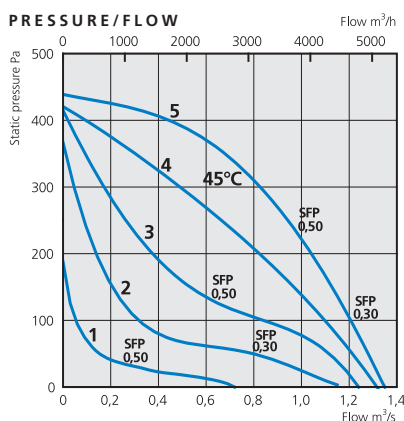


### SOUND DATA

TKV/TKH 560 B3	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 450 l/s 240 Pa	<b>49</b>	<b>77</b>	41	55	64	67	72	72	66	57
5. Inlet 400 V, 450 l/s 240 Pa	<b>81</b>	68	76	76	73	72	70	67	60	
4. Inlet 240 V, 420 l/s 120 Pa	74	59	68	70	65	65	63	59	52	
3. Inlet 185 V, 330 l/s 80 Pa	<b>70</b>	59	66	64	62	61	58	53	46	
2. Inlet 145 V, 270 l/s 50 Pa	<b>65</b>	54	61	59	58	56	52	47	39	
1. Inlet 95 V, 170 l/s 20 Pa	<b>56</b>	45	52	50	49	46	40	35	28	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

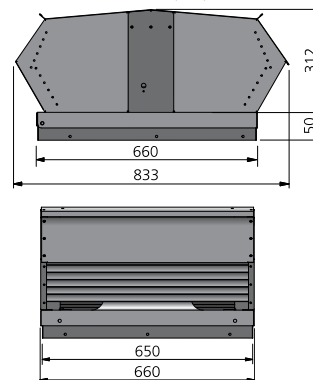
## TKV/TKH 660 B1



### TECHNICAL DATA

<b>TKV/TKH 660</b>	<b>B1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	2,5
<b>Input, W</b>	510
<b>Speed, rpm</b>	1350
<b>Weight, kg</b>	41
<b>Wiring diagram</b>	40400005
<b>Capacitor, µF</b>	12
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKV/TKH 660 B1	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 1000 l/s 220 Pa	<b>51</b>	<b>79</b>	46	59	70	71	75	73	68	62
5. Inlet 230 V, 1000 l/s 220 Pa	<b>78</b>	59	66	71	69	70	71	68	60	
4. Inlet 165 V, 890 l/s 175 Pa	<b>73</b>	55	64	65	65	68	66	62	54	
3. Inlet 135 V, 740 l/s 120 Pa	<b>69</b>	57	63	61	61	63	62	56	47	
2. Inlet 110 V, 560 l/s 70 Pa	<b>64</b>	56	56	56	57	56	53	48	40	
1. Inlet 80 V, 360 l/s 30 Pa	<b>56</b>	50	49	49	48	46	42	38	34	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

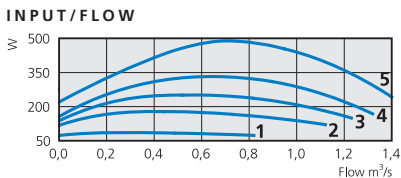
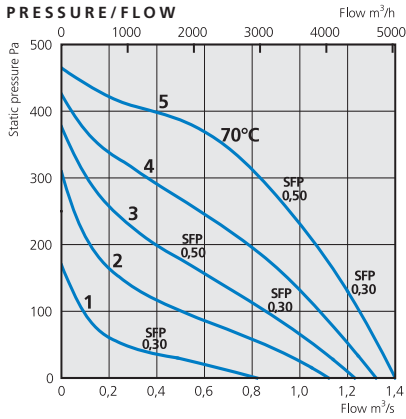




# TKV/TKH 660 B3 TKV/TKH 760 A1

European Patent Application no. 08170376.1. Rectangular roof fan with square connection and swing-out

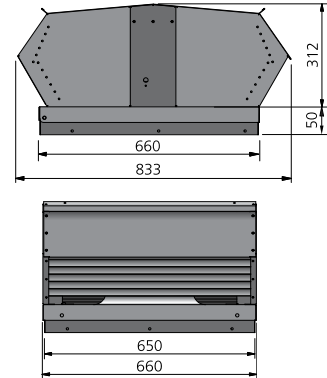
## TKV/TKH 660 B3



### TECHNICAL DATA

<b>TKV/TKH 660</b>	<b>B3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	1,13
<b>Input, W</b>	488
<b>Speed, rpm</b>	1360
<b>Weight, kg</b>	42
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

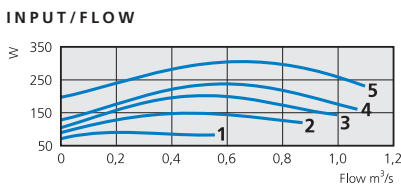
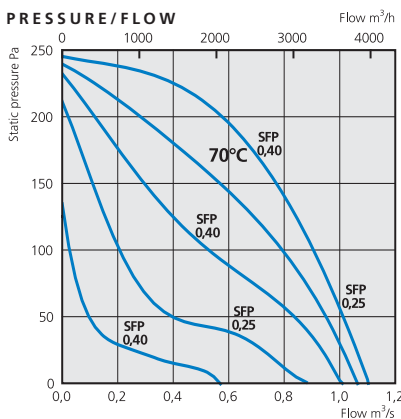


### SOUND DATA

TKV/TKH 660 B3	L <sub>pA</sub>	L <sub>wA</sub>	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 950 l/s 255 Pa	<b>52</b>		<b>80</b>	45	58	69	70	75	75	68	61
<b>5.</b> Inlet 400 V, 950 l/s 255 Pa			<b>77</b>	58	66	69	68	71	71	68	59
<b>4.</b> Inlet 240 V, 825 l/s 190 Pa			<b>73</b>	57	65	65	65	68	66	61	53
<b>3.</b> Inlet 185 V, 700 l/s 135 Pa			<b>68</b>	51	59	60	60	62	60	55	47
<b>2.</b> Inlet 145 V, 575 l/s 90 Pa			<b>63</b>	48	56	55	55	56	53	50	38
<b>1.</b> Inlet 95 V, 380 l/s 40 Pa			<b>52</b>	41	43	46	46	44	42	35	23

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

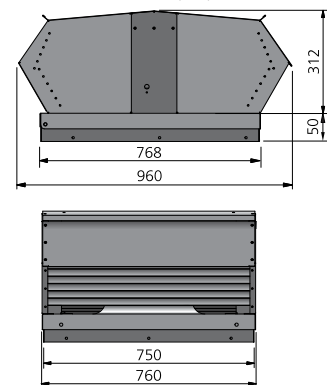
## TKV/TKH 760 A1



### TECHNICAL DATA

<b>TKV/TKH 760</b>	<b>A1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	1,38
<b>Input, W</b>	306
<b>Speed, rpm</b>	920
<b>Weight, kg</b>	48
<b>Wiring diagram</b>	4040005
<b>Capacitor, µF</b>	8
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

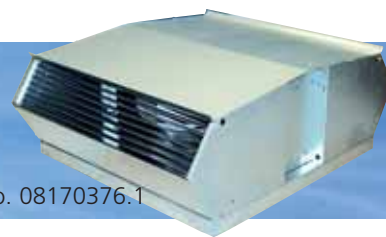
TKV/TKH 760 A1	L <sub>pA</sub>	L <sub>wA</sub>	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 770 l/s 150 Pa	<b>41</b>		<b>69</b>	38	53	53	58	66	63	58	50
<b>5.</b> Inlet 230 V, 770 l/s 150 Pa			<b>71</b>	56	63	66	64	63	63	59	51
<b>4.</b> Inlet 165 V, 700 l/s 125 Pa			<b>69</b>	54	61	63	61	60	60	56	45
<b>3.</b> Inlet 135 V, 580 l/s 85 Pa			<b>65</b>	52	58	59	57	55	55	53	38
<b>2.</b> Inlet 110 V, 450 l/s 45 Pa			<b>58</b>	48	50	53	50	48	50	49	28
<b>1.</b> Inlet 80 V, 290 l/s 20 Pa			<b>47</b>	38	42	41	39	34	34	24	19

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

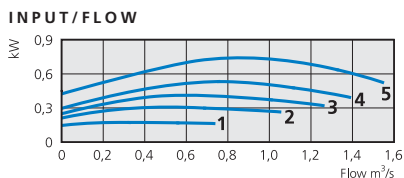
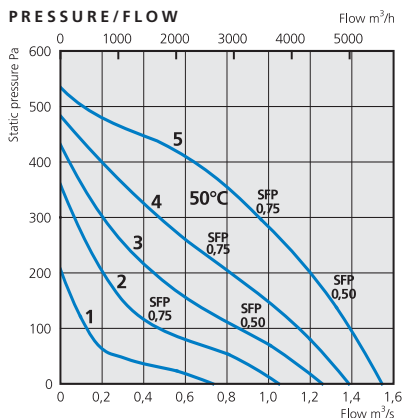
# TKV/TKH 760 B1

# TKV/TKH 760 B3

Rectangular roof fan with square connection and swing-out. European Patent Application no. 08170376.1



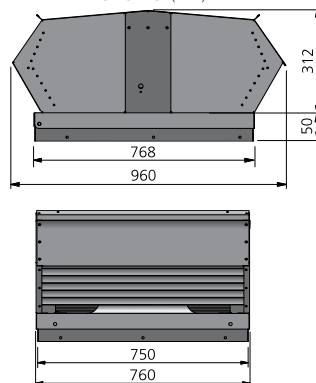
## TKV/TKH 760 B1



### TECHNICAL DATA

<b>TKV/TKH 760</b>	<b>B1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	3,4
<b>Input, kW</b>	0,74
<b>Speed, rpm</b>	1240
<b>Weight, kg</b>	51
<b>Wiring diagram</b>	4040005
<b>Capacitor, µF</b>	16
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

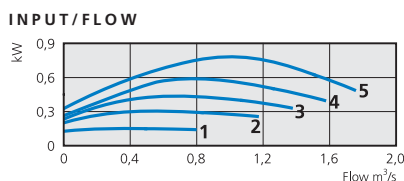
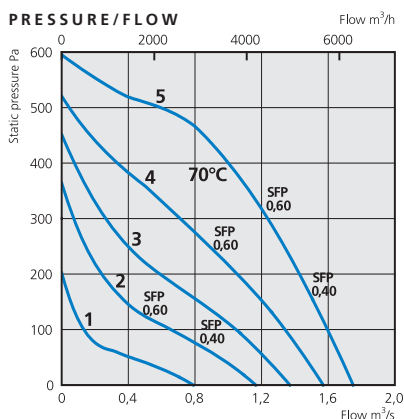


### SOUND DATA

TKV/TKH 760 B1	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 1100 l/s 240 Pa	51	79	46	61	64	69	75	73	68	61
5. Inlet 230 V, 1100 l/s 240 Pa		80	62	69	74	73	71	73	67	63
4. Inlet 165 V, 930 l/s 170 Pa		75	55	66	69	68	66	68	62	59
3. Inlet 135 V, 780 l/s 115 Pa		71	56	62	65	63	62	62	58	50
2. Inlet 110 V, 630 l/s 75 Pa		64	52	57	58	56	55	55	53	42
1. Inlet 80 V, 430 l/s 35 Pa		56	46	48	51	48	45	50	44	35

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

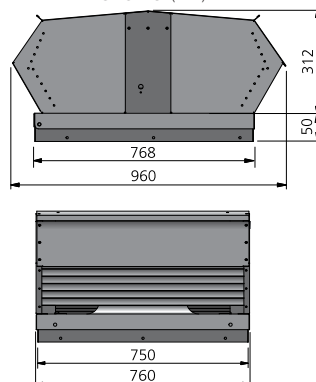
## TKV/TKH 760 B3



### TECHNICAL DATA

<b>TKV/TKH 760</b>	<b>B3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	1,5
<b>Input, kW</b>	0,81
<b>Speed, rpm</b>	1350
<b>Weight, kg</b>	51
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKV/TKH 760 B3	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 1200 l/s 325 Pa	53	81	47	63	67	70	77	76	70	62
5. Inlet 400 V, 1200 l/s 325 Pa		83	64	71	77	76	74	75	71	65
4. Inlet 240 V, 970 l/s 230 Pa		77	60	67	71	70	69	70	65	60
3. Inlet 185 V, 830 l/s 150 Pa		74	57	65	68	68	66	66	60	60
2. Inlet 145 V, 630 l/s 100 Pa		72	55	62	66	66	63	62	63	51
1. Inlet 95 V, 450 l/s 45 Pa		60	49	50	54	51	48	52	55	29

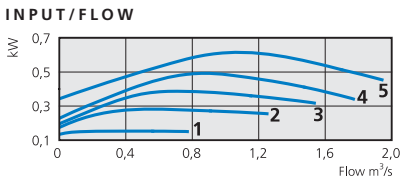
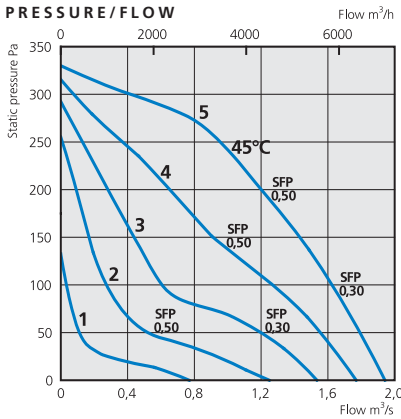
N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.



# TKV/TKH 960 A1 TKV/TKH 960 A3

European Patent Application no. 08170376.1. Rectangular roof fan with square connection and swing-out

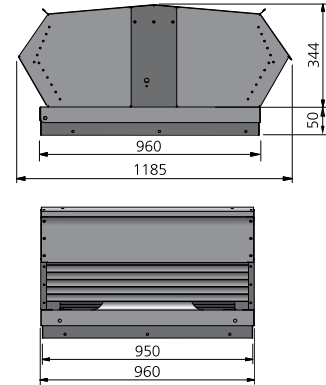
## TKV/TKH 960 A1



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>A1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	3,00
<b>Input, kW</b>	0,62
<b>Speed, rpm</b>	890
<b>Weight, kg</b>	70
<b>Wiring diagram</b>	4040005
<b>Capacitor, µF</b>	12
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

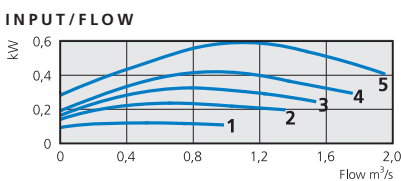
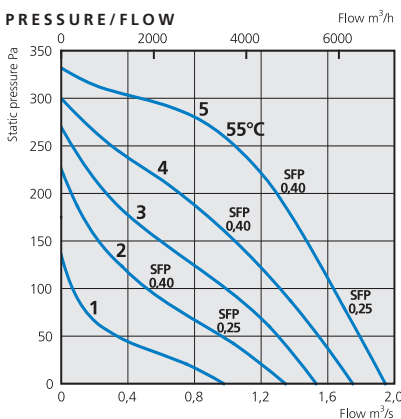


### SOUND DATA

TKV/TKH 960 A1	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 770 l/s 150 Pa	<b>50</b>	<b>78</b>	47	64	70	71	74	70	64	61
<b>5.</b> Inlet 230 V, 770 l/s 150 Pa	<b>74</b>	63	67	64	65	69	67	60	52	
<b>4.</b> Inlet 165 V, 700 l/s 125 Pa	<b>70</b>	61	61	61	62	65	63	56	47	
<b>3.</b> Inlet 135 V, 580 l/s 85 Pa	<b>66</b>	59	57	56	56	60	57	49	40	
<b>2.</b> Inlet 110 V, 450 l/s 45 Pa	<b>57</b>	49	49	49	49	50	47	38	30	
<b>1.</b> Inlet 80 V, 290 l/s 20 Pa	<b>45</b>	36	40	39	37	37	32	29	28	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

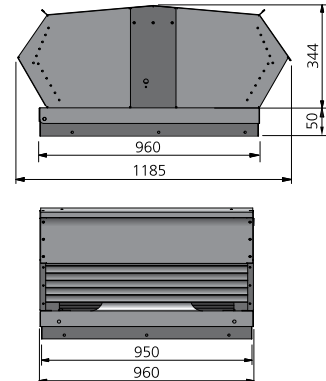
## TKV/TKH 960 A3



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>A3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	1,30
<b>Input, kW</b>	0,59
<b>Speed, rpm</b>	900
<b>Weight, kg</b>	69
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

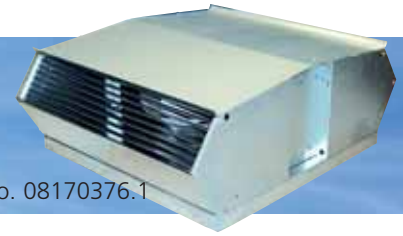
TKV/TKH 960 A3	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 1450 l/s 160 Pa	<b>52</b>	<b>80</b>	48	64	71	73	76	72	69	63
<b>5.</b> Inlet 400 V, 1450 l/s 160 Pa	<b>74</b>	55	64	63	64	69	68	61	54	
<b>4.</b> Inlet 240 V, 1250 l/s 110 Pa	<b>69</b>	53	60	59	60	65	63	57	47	
<b>3.</b> Inlet 185 V, 1060 l/s 85 Pa	<b>65</b>	52	54	55	56	60	58	53	41	
<b>2.</b> Inlet 145 V, 890 l/s 60 Pa	<b>59</b>	49	48	51	50	54	52	46	34	
<b>1.</b> Inlet 95 V, 600 l/s 30 Pa	<b>50</b>	39	43	42	41	43	44	32	28	

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

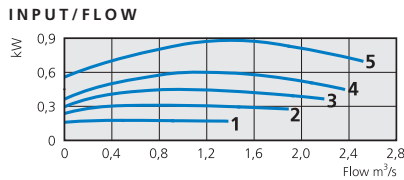
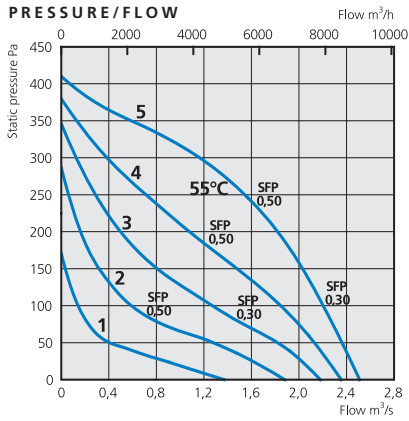
# TKV/TKH 960 B1

# TKV/TKH 960 B3

Rectangular roof fan with square connection and swing-out. European Patent Application no. 08170376.1



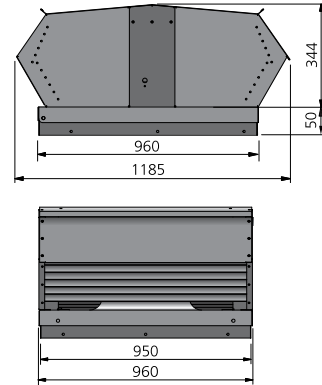
## TKV/TKH 960 B1



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>B1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	4,3
<b>Input, kW</b>	0,88
<b>Speed, rpm</b>	870
<b>Weight, kg</b>	81
<b>Wiring diagram</b>	4040005
<b>Capacitor, µF</b>	25
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

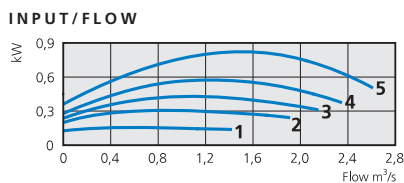
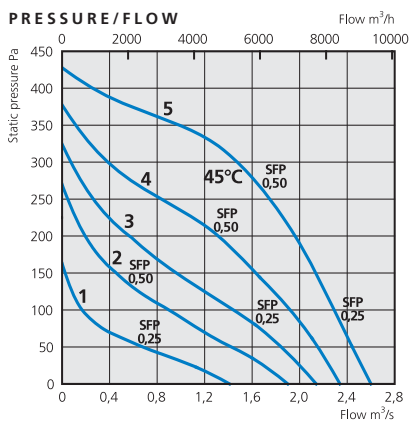


### SOUND DATA

TKV/TKH 960 B1	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 1800 l/s 200 Pa	<b>52</b>	<b>80</b>	52	64	71	73	76	72	65	60
5. Inlet 230 V, 1800 l/s 200 Pa		<b>76</b>	59	66	65	66	71	70	62	56
4. Inlet 165 V, 1525 l/s 150 Pa		<b>72</b>	57	62	61	62	67	65	57	50
3. Inlet 135 V, 1275 l/s 100 Pa		<b>67</b>	54	59	57	57	62	59	52	42
2. Inlet 110 V, 1000 l/s 65 Pa		<b>61</b>	51	55	52	52	56	52	44	33
1. Inlet 80 V, 700 l/s 35 Pa		<b>53</b>	41	50	44	42	45	40	31	21

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

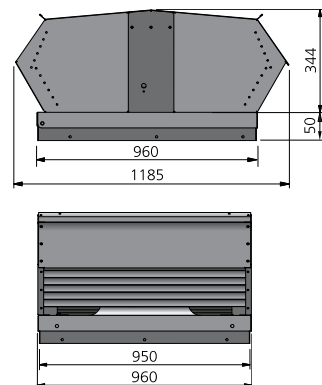
## TKV/TKH 960 B3



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>B3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	1,90
<b>Input, kW</b>	0,82
<b>Speed, rpm</b>	890
<b>Weight, kg</b>	80
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKV/TKH 960 B3	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 1820 l/s 235 Pa	<b>53</b>	<b>81</b>	52	66	72	74	76	72	66	61
5. Inlet 400 V, 1820 l/s 235 Pa		<b>76</b>	60	67	66	66	71	70	62	55
4. Inlet 240 V, 1550 l/s 165 Pa		<b>71</b>	58	62	62	62	67	65	57	49
3. Inlet 185 V, 1300 l/s 115 Pa		<b>67</b>	57	58	58	58	63	60	52	43
2. Inlet 145 V, 1100 l/s 80 Pa		<b>62</b>	54	53	54	53	57	54	47	36
1. Inlet 95 V, 800 l/s 40 Pa		<b>53</b>	45	45	45	43	47	41	32	23

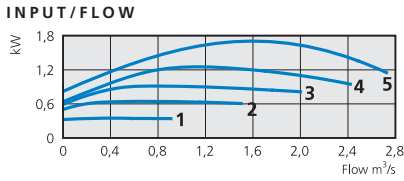
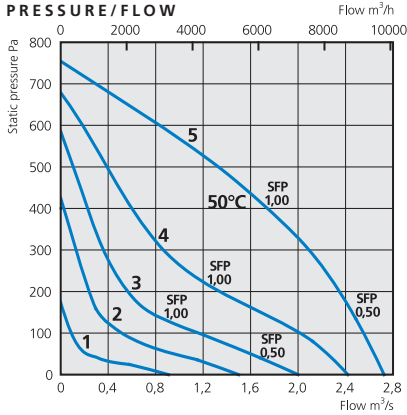
N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.



# TKV/TKH 960 C1 TKV/TKH 960 C3

European Patent Application no. 08170376.1. Rectangular roof fan with square connection and swing-out

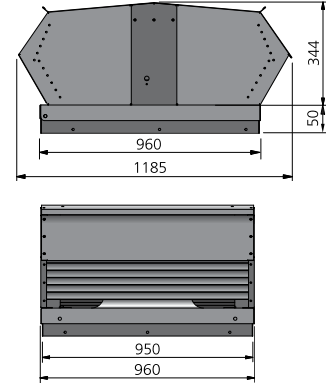
## TKV/TKH 960 C1



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>C1</b>
<b>Voltage, V/Hz</b>	230/50
<b>Current, A</b>	8,20
<b>Input, kW</b>	1,69
<b>Speed, rpm</b>	1260
<b>Weight, kg</b>	78
<b>Wiring diagram</b>	4040005
<b>Capacitor, µF</b>	25
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

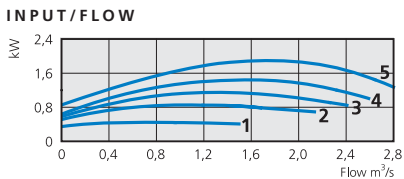
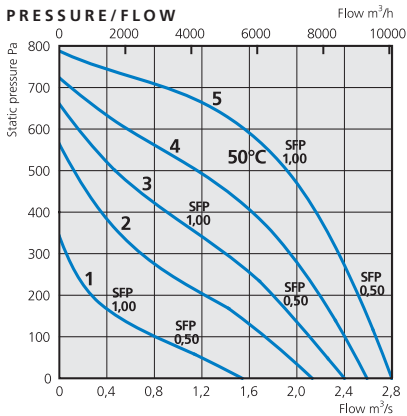


### SOUND DATA

TKV/TKH 960 C1	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 2190 l/s 260 Pa	<b>63</b>	<b>91</b>	56	70	83	83	86	84	83	79
5. Inlet 230 V, 2190 l/s 260 Pa		<b>83</b>	62	71	74	74	78	78	73	67
4. Inlet 165 V, 1710 l/s 150 Pa		<b>76</b>	55	66	65	66	71	70	63	58
3. Inlet 135 V, 1300 l/s 85 Pa		<b>68</b>	51	60	58	60	64	61	56	45
2. Inlet 110 V, 960 l/s 50 Pa		<b>62</b>	51	54	51	55	56	52	51	38
1. Inlet 80 V, 580 l/s 25 Pa		<b>55</b>	41	49	43	51	45	47	36	35

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

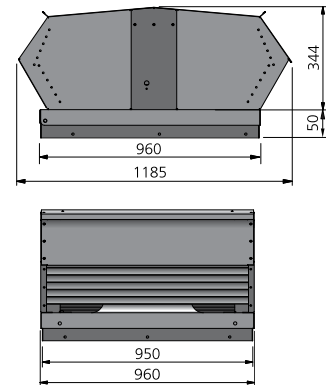
## TKV/TKH 960 C3



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>C3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	3,8
<b>Input, kW</b>	1,88
<b>Speed, rpm</b>	1400
<b>Weight, kg</b>	77
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

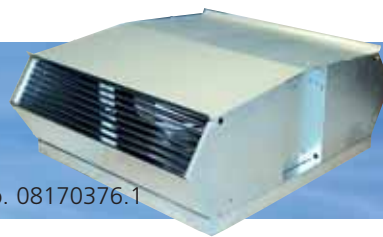
TKV/TKH 960 C3	L <sub>pA</sub>	L <sub>WA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 2200 l/s 380 Pa	<b>64</b>	<b>92</b>	58	71	85	85	87	84	78	72
5. Inlet 400 V, 2200 l/s 380 Pa		<b>86</b>	64	71	78	76	80	81	76	69
4. Inlet 240 V, 1950 l/s 295 Pa		<b>83</b>	60	69	72	73	78	78	71	64
3. Inlet 185 V, 1700 l/s 230 Pa		<b>79</b>	58	67	67	69	74	74	66	60
2. Inlet 145 V, 1450 l/s 160 Pa		<b>74</b>	55	64	63	65	70	68	61	53
1. Inlet 95 V, 1000 l/s 80 Pa		<b>65</b>	53	53	55	59	61	56	50	39

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

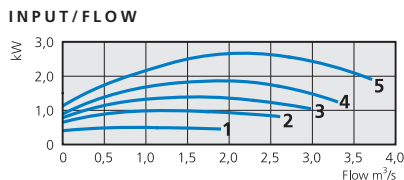
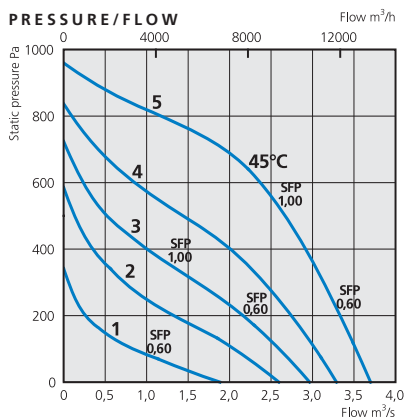
# TKV/TKH 960 D3

# TKV/TKH 960 J1

Rectangular roof fan with square connection and swing-out. European Patent Application no. 08170376.1



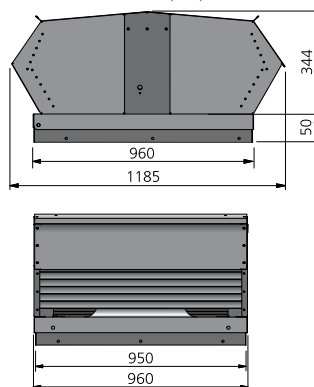
## TKV/TKH 960 D3



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>D3</b>
<b>Voltage</b> , V/Hz	400/50
<b>Current</b> , A	5,00
<b>Input</b> , kW	2,67
<b>Speed</b> , rpm	1330
<b>Weight</b> , kg	83
<b>Wiring diagram</b>	4040004
<b>Capacitor</b> , µF	-
<b>Insulation class</b> , motor	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)

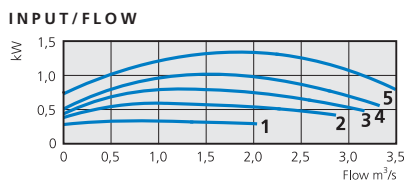
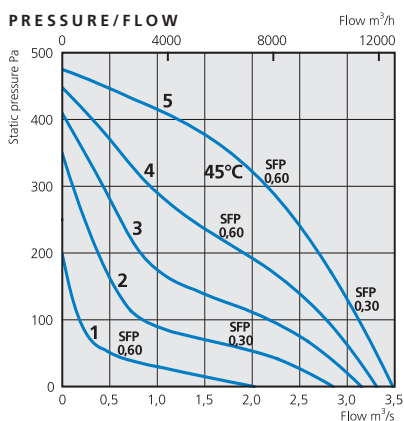


### SOUND DATA

TKV/TKH 960 D3	L <sub>pA</sub>	L <sub>wA</sub>	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 3000 l/s 360 Pa	<b>65</b>			62	73	85	86	88	86	82	72
<b>5.</b> Inlet 400 V, 3000 l/s 360 Pa			<b>89</b>	70	76	82	81	83	83	77	71
<b>4.</b> Inlet 240 V, 2550 l/s 260 Pa			<b>84</b>	66	73	75	75	77	78	71	66
<b>3.</b> Inlet 185 V, 2200 l/s 190 Pa			<b>79</b>	62	70	71	70	73	74	66	62
<b>2.</b> Inlet 145 V, 1850 l/s 130 Pa			<b>73</b>	57	64	64	63	67	67	60	53
<b>1.</b> Inlet 95 V, 1250 l/s 60 Pa			<b>63</b>	52	53	56	54	58	56	52	40

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

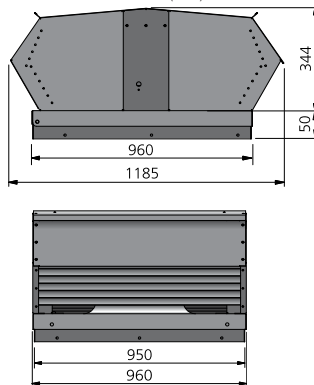
## TKV/TKH 960 J1



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>J1</b>
<b>Voltage</b> , V/Hz	230/50
<b>Current</b> , A	6,60
<b>Input</b> , kW	1,35
<b>Speed</b> , rpm	870
<b>Weight</b> , kg	86
<b>Wiring diagram</b>	4040005
<b>Capacitor</b> , µF	30
<b>Insulation class</b> , motor	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKV/TKH 960 J1	L <sub>pA</sub>	L <sub>wA</sub>	tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 230 V, 2500 l/s 240 Pa	<b>56</b>		<b>84</b>	68	69	74	77	80	76	70	64
<b>5.</b> Inlet 230 V, 2500 l/s 240 Pa			<b>82</b>	65	71	73	72	78	75	67	61
<b>4.</b> Inlet 165 V, 2180 l/s 175 Pa			<b>75</b>	60	65	65	65	72	68	59	53
<b>3.</b> Inlet 135 V, 1790 l/s 125 Pa			<b>70</b>	56	59	62	61	67	61	55	44
<b>2.</b> Inlet 110 V, 1350 l/s 75 Pa			<b>63</b>	51	57	54	52	57	51	48	33
<b>1.</b> Inlet 80 V, 1005 l/s 30 Pa			<b>56</b>	41	54	46	43	46	39	30	23

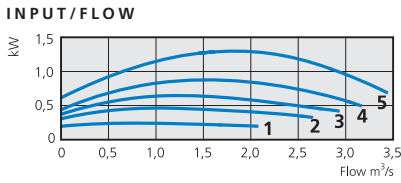
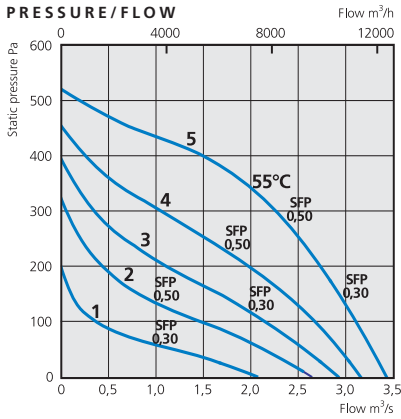
N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.



# TKV/TKH 960 J3

European Patent Application no. 08170376.1. Rectangular roof fan with square connection and swing-out

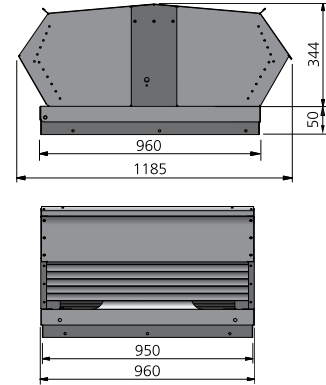
## TKV/TKH 960 J3



### TECHNICAL DATA

<b>TKV/TKH 960</b>	<b>J3</b>
<b>Voltage, V/Hz</b>	400/50
<b>Current, A</b>	3,50
<b>Input, kW</b>	1,32
<b>Speed, rpm</b>	890
<b>Weight, kg</b>	85
<b>Wiring diagram</b>	4040004
<b>Capacitor, µF</b>	-
<b>Insulation class, motor</b>	F
<b>Motor protection</b>	IP 44

### DIMENSIONS (mm)



### SOUND DATA

TKV/TKH 960 J3	L <sub>pA</sub>	L <sub>wA</sub> tot dB (A)	63	125	250	500	1K	2K	4K	8K
Environment 400 V, 2600 l/s 235 Pa	<b>57</b>	<b>85</b>	56	68	75	79	80	77	71	65
<b>5.</b> Inlet 400 V, 2150 l/s 235 Pa		<b>82</b>	62	71	74	73	77	75	68	64
<b>4.</b> Inlet 240 V, 2150 l/s 175 Pa		<b>77</b>	60	67	69	69	73	69	63	59
<b>3.</b> Inlet 185 V, 1900 l/s 125 Pa		<b>74</b>	58	63	66	65	69	65	61	51
<b>2.</b> Inlet 145 V, 1530 l/s 100 Pa		<b>68</b>	55	58	61	60	64	59	58	45
<b>1.</b> Inlet 95 V, 1180 l/s 50 Pa		<b>59</b>	47	49	51	50	54	53	41	37

N.B! Sound data measured according to ISO, measurement according to AMCA may result in deviated values. See General Fan Facts on page 18-19.

# ACCESSORIES

## ROOF CURB AND SILENCER, TG

The top mounting plate, TGÖ is designed for used with our roof fan TKC for mounting on a one family house.

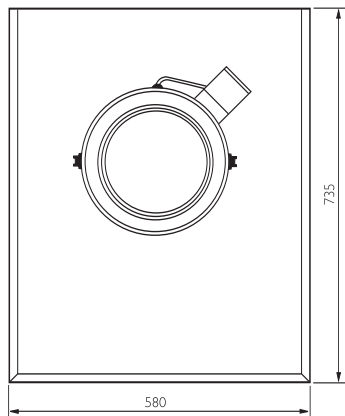
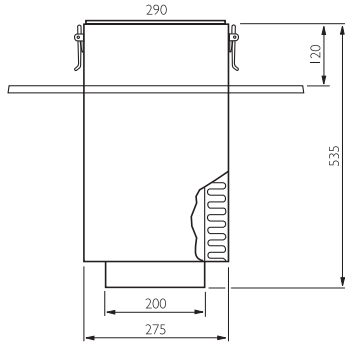
TGÖ is manufactured in polyester plastic coated galvanized plastic sheet steel and is available plain or profiled. The profiled version is for use with concrete roof tiles.

The top mounting plate is provided with a "shackle lock" for securing TKC roof fan (with a circular connection). A cable of two meters is provided as standard, as well as 30 mm insulation. TGÖ must be mounted at right angles to the roof, irrespective of the roof inclination.

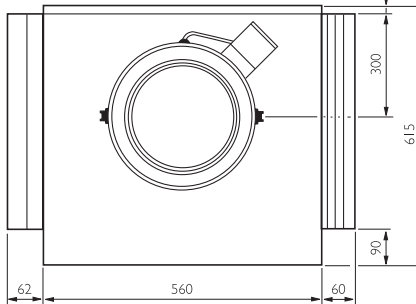
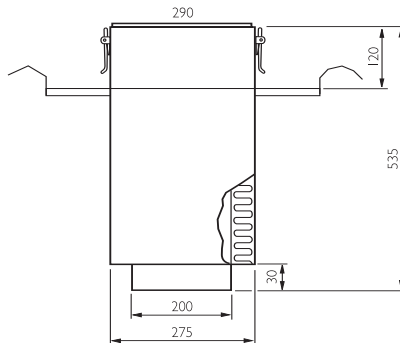


The bottom fixing plate, TGU, is manufactured from galvanized sheet steel.

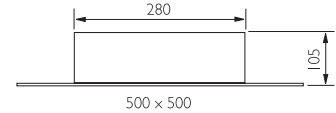
TGÖ PLAIN DIMENSIONS (mm)



TGÖ PROFILE DIMENSIONS (mm)



TGU DIMENSIONS (mm)



## ROOF COWL, TH

TH comprises of the cowl THC (300/400), a roof curb THÖ and a bottom fixing plate TGU. The roof cowl and curb are manufactured

from polyester plastic coated galvanized sheet steel. TGU is manufactured from galvanized sheet steel. THÖ is available either plain or profiled.





## ROOF CURB, TF

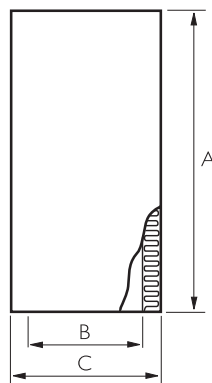
Our acoustic curb TFU is manufactured from galvanized sheet steel and has 50 mm of sound absorbing insulation the face of which is coated for ease of cleaning. A plastic conduit for the power cable is included as stan-

dard for the sizes up to 760. The TF is available in two lengths, 600 mm or 900 mm.

A bottom fixing plate with a circular connection is also available as an accessory.

### DIMENSIONS (mm)

TYPE	A	B	C
TFU 300/600	600	□ 190	□ 295
TFU 300/900	900	□ 190	□ 295
TFU 400/600	600	□ 290	□ 395
TFU 400/900	900	□ 290	□ 395
TFU 560/900	900	□ 402	□ 506
TFU 660/900	900	□ 502	□ 606
TFU 760/900	900	□ 602	□ 706
TFU 960/900	900	□ 805	□ 910
TFU 1060/900	900	□ 905	□ 1010



# GENERAL FAN FACTS

## DESCRIPTION

- The fan is used for transportation of “clean” air, meaning not intended for fire-dangerous substances, explosives, grinding dust, soot, etc.
- The fan is equipped with an asynchronous external rotor induction motor with maintenance-free sealed ball-bearings.
- The capacitor has finite lifetime and should be exchanged after 45.000 hours of operation (about 5 years) to secure maximum function. Defective capacitor can cause damage.
- To achieve maximum life time for installations in damp or cold environments, the fan should be operating continuously.
- The fan can be installed outside or in other damp environments. Make sure that the fan-house is equipped with drainage.
- The fan is used at the voltages/frequencies according to the product label.

## INSTALLATION

- The fan must be installed according to the air direction label on the fan.
- The fan must be connected to duct or equipped with a safety grille.
- The fan should be installed in a safe way and make sure that no foreign objects are left behind.
- The fan should be installed in a way that makes service and maintenance easy.
- The fan should be installed in a way that vibrations can not be transfused to duct or building.
- To regulate the speed, a transformer, a triac or a frequency converter can be connected.
- A wiring diagram is applied on the inside of the junction box or separately enclosed.

- The fan must be installed and connected electrically in the correct way grounded.
- Always use the internal thermo-contact, see wiring diagram.
- Electrical installations must be made by an authorized electrician.
- Electrical installations must be connected to a locally situated tension free switcher or by a lockable head switcher.

## OPERATION

When starting, make sure that:

- the current does not exceed more than +5 % of what is stated on the label.
- the connecting voltage is in between +6% to -10% of the rated voltage.
- no noise appears when starting the fan.
- the rotation direction at 3-phase motors are according to the label.

## HOW TO HANDLE

- The fan must be transported in its packing until installation. This prevents transport damages, scratches and the fan from getting dirty.
- Attention, look out for sharp edges and corners.

## MAINTENANCE

- Before service, maintenance or repair begins, the fan must be tension free and the impeller must have stopped.
- Consider the weight of the fan when removing or opening larger fans to avoid jamming and contusions.
- The fan must be cleaned when needed, at least once per year to maintain the capacity and to avoid unbalance which may cause unnecessary damages on the bearings.

- The fan bearings are maintenance-free and should be renewed only when necessary.
- When cleaning the fan, high-pressure cleaning or strong dissolvent must **not** be used.
- Cleaning should be done without dislodging or damaging the impeller.
- Make sure that there is no noise from the fan.

## FAULT DETECTION

1. Make sure that there is tension to the fan.
2. Cut the tension and verify that the impeller is not blocked.
3. Check the thermo-contact/motor protector. If it is disconnected the cause of overheating must be taken care of, not to be repeated. To restore the manual thermo-protector the tension will be cut for a couple of minutes. Larger motors than 1,6 A may have manual resetting on the motor. If it has automatic thermo-protector the resetting will be done automatically when the motor is cold.
4. Make sure that the capacitor is connected, (single phase only) according to the wiring diagram.
5. If the fan still does not work, the first thing to do is to renew the capacitor.
6. If nothing of this works, contact your fan supplier.
7. If the fan is returned to the supplier, it must be cleaned, the motor cable undamaged and a detailed nonconformity report enclosed.

## WARRANTY

The warranty is only valid under condition that the fan is used according to this “Directions for use”.

## Temperature of transported air

In pressure/flow diagrams or in the table of technical data there are facts about highest temperature of transported air. All motors have insulation class F which means that the thermal contact disconnects the power when the winding temperature is maximum 155°C. At this winding temperature the life time of the ball-bearings is not optimal. This is why the ambient

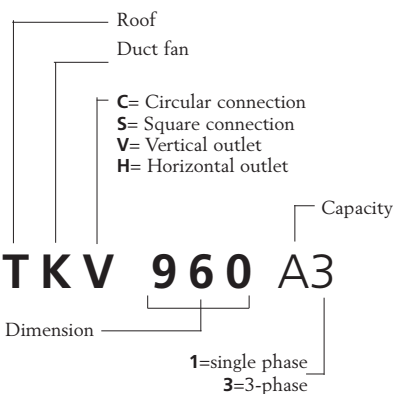
temperature is shown at a lower winding temperature so the life time of ball-bearings becomes optimal.

The winding temperature varies in the diagrams and depending on differences in power/current consumption. The temperatures in our diagrams are given at the highest winding temperature.

## Specific fan power SFP

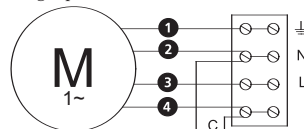
A roof fan should have a good SFP (Specific Fan Power). The SFP is a measurement for the size of the total power at a specific flow/pressure and is calculated in kW/m<sup>3</sup> /second.

## Key to model types

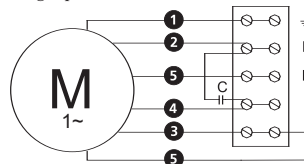


## Wiring diagrams

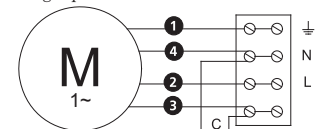
4040001  
Single phase



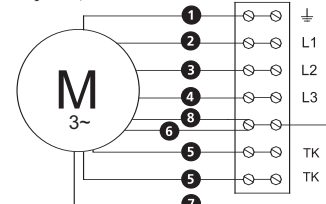
4040005  
Single phase with outdrawn thermo-contact



4040002  
Single phase



4040004  
3-phase, 400V



- (M) = Fan Motor
- (M2) = Fan Motor
- (M3) = Rotor Motor
- 1 = Yellow/Green
- 2 = Black
- 3 = Blue
- 4 = Brown
- 5 = White (TW)
- 6 = Orange
- 7 = Grey
- 8 = Red

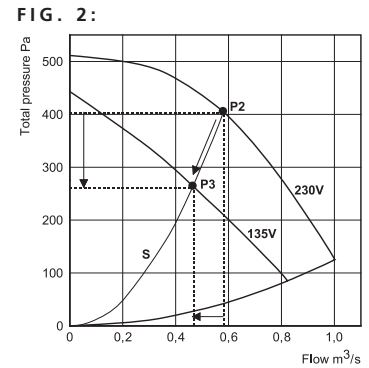
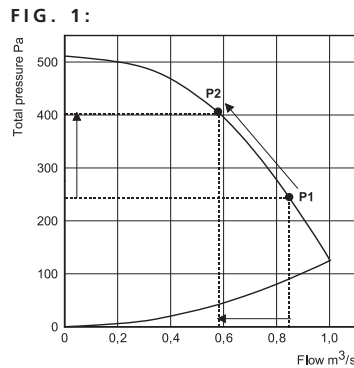
## Pressure/flow-curves explanation

**FIG. 1:**  
The fan curve describes the capacity of the fan, i.e. the flow of the fan at different pressures at a certain input voltage.

The fan diagram has the pressure in Pascal, Pa, on the vertical axis and the flow in cubic metres per second, m<sup>3</sup>/s, on the horizontal axis.

The point on the fan curve showing the current pressure and flow is called the fans working point. In our example it is marked with P.

If the pressure increases in the ducts, the working point moves along the fan curve and hence a lower flow is obtained. In the example the working point would move from P1 to P2.



**FIG. 2:**  
The system line describes the total behaviour of a ventilation system (ducts, silencers and valves etc.).

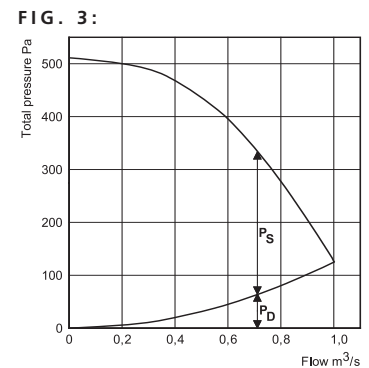
Along this system line, S, the working point is moved from P2 to P3 as the rotational speed is changed.

Distinct voltage steps with eg. a transformer produces different fan curves, 135 V and 230 V, indicated in the example.

**FIG. 3:**  
Our fan curves present the total pressure in Pascal. Total pressure = Static + Dynamic pressure.

The static pressure is the pressure of the fan compared to the atmospheric pressure. It is this pressure that shall overcome the pressure losses of the ventilation system.

The dynamic pressure is a calculated pressure that arises at the outlet of the fan, and is mostly due to air velocity. The dynamic pressure thus describes how the fan is working. The dynamic pressure is presented with a curve, starting at origo, that increases with increased flow. A high dynamic pressure can with wrong duct connection produce a high pressure loss. If the pressure loss in the system is known, a fan whose difference between the total and the dynamic pressure corresponds to the pressure loss in the system must be found.

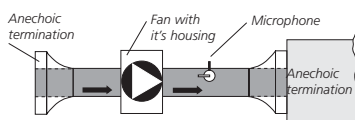


## Sound data explanation

### SOUND DATA IN THIS BROCHURE IS BASED ON FOLLOWING DEFINITIONS:

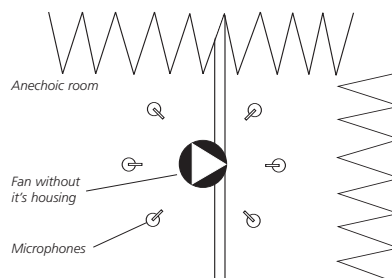
The points for which the sound data is presented are along the system line defined by the pressure and flow stated in the sound data table for each fan. There are three types of sound in these tables; inlet- and outlet sound are measured in duct, while the surrounding sound is measured outside the fan and duct system. For all these types of sound, the sound power levels are presented in octave bands. For the surrounding sound, also the sound pressure level has been calculated. Measurements are made according to ISO 3741 for surrounding sound, or ISO 5136 for sound measured to duct.

Sound measurements at C.A Östberg are made according to ISO-standards and with the fans in their housings because this is close to reality values.



**ISO-method:** Measurement is made in duct with specified design and non-reflecting connection. Measurements and calculations are made in 1/1 octave band.

Measurements of the fan without its housing resolves in lower sound. The trade association ASHRAE in USA, is stated in Application of Manufacturers Sound Data, that the result of sound measurements of a fan without its housing is 5-10 dB lower in octave bands from 250 Hz and lower than a fan in its housing.



**AMCA-method:** Measurement is made of the fan without its housing in an anechoic room, which results in lower sound level.

### ACCURACY OF MEASUREMENT

When developing the measurement method for the sound power level to duct, the International Standards Organisation, ISO, also analysed the inaccuracy of measurement in different octave band (90 % accuracy).

Octave band (Hz)	63	125	250	500
Inaccuracy (dB)	+5,0	+3,4	+2,6	+2,6

Octave band (Hz)	1000	2000	4000	8000
Inaccuracy (dB)	+2,6	+2,9	+3,6	+5,0

### THE SOUND POWER LEVEL

The sound power level, Lw(A) is used to calculate the sound from the whole ventilation system. This system can be a composition of grilles, dampers and diffusers for example.

The sound power level is a measured value according to standards, and it does not tell how

the sound appears as the sound power is independent of the characteristics of the placement of the fan. In order to resemble the human ear, the A-filter is used indicated with Lw(A) measured in dB(A).

### THE SOUND PRESSURE LEVEL

The sound pressure level, Lp or Lp(A), tells how the human ear registers the sound. It is dependent on the sound power level, distance from the source, restrictions of the propagation and the acoustic characteristics of the room.

The sound pressure level is presented for a room with an equivalent absorption area of 20 m<sup>2</sup>. 7 dB difference correspond to a distance of ca 3 m, where the sound is emitted in a semi spherical propagation.

The sound pressure level can be calculated:  
 $L_p = L_w + 10 \log (Q/4\pi r^2 + 4/A)$

- A= is the room's equivalent absorption area
- Q= is the propagation type:  
 Q=1 is spherical propagation  
 Q=2 is semi spherical propagation  
 Q=4 is quarter spherical propagation.

For the free field case, i.e. from a roof fan, the sound pressure level is calculated as:  
 $L_p = L_w + 10 \log Q/4\pi r^2$

With Lw(A) tot at 63dB(A), a distance of 5 meters, semi spherical propagation and free field case, the result will be:  
 $L_p(A) = 63 + 10 \log 2/4\pi 5^2 = 63 - 22 = 41 \text{ dB(A)}$   
 And at 10 meters:  
 $L_p(A) = 63 + 10 \log 2/4\pi 10^2 = 63 - 28 = 35 \text{ dB(A)}$



## ÖSTBERG

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