



Montageanweisung

Ventile





Überblick Durchlässe, Ventile, Gitter und Deckel

Einheit				Zum Anschluss an			
				Stutzen mit Gewinde für Einheiten mit Bajonett-halterungen	Stutzen mit Nut für Einheiten mit Drahtfeder-halterungen		Rohr/ Formteil/ Außen-wand
Zuluft	VTK	Durchlass			VRFI I 	VRFM 	
	VTTB	Durchlass			VRFI I 	VRFM 	
	SHH	Durchlass					Rohr
	KPT	Ventil					Rohr
	KI	Ventil		VRGI I 	VRGI 	VRGM 	
	KIR	Ventil		VRGI I 	VRGI 	VRGM 	
Zu- und Abluft	TAV	Ventil					Rohr



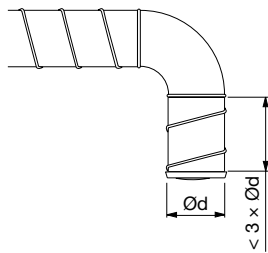
Einheit				Zum Anschluss an					
				Stutzen mit Gewinde für Einheiten mit Bajonett-halterungen			Stutzen mit Nut für Einheiten mit Drahtfeder-halterungen		Rohr/ Formteil/ Außen-wand
Abluft	KVB	Ventil					VRFU 	VRFM 	
	KVG Ø 100–160	Ventil					VRFU 	VRFM 	
	KVG Ø 200	Ventil		VRGU 	VRGL 	VRGM 			
	KU	Ventil		VRGU 	VRGL 	VRGM 			
	KSU	Ventil		VRGU 	VRGL 	VRGM 			
	KPF	Ventil							Rohr
Keine Luft	TLO	Deckel					VRFU 	VRFM 	

* KSUB trägt nur in Verbindung mit dem Stutzen VRGL die Brandzulassung.

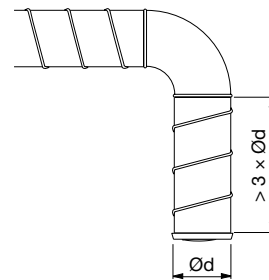


Wann verwendet man die verschiedenen Typen k-Faktor

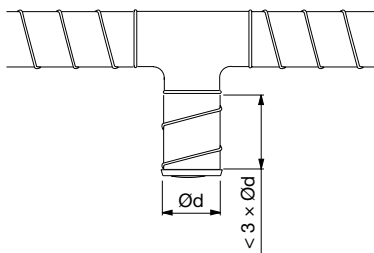
k-factor type: B (Bend 90°)



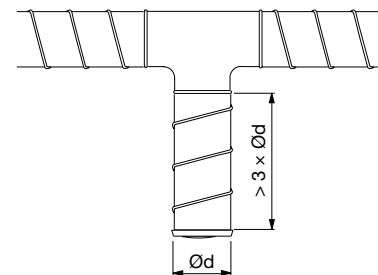
k-factor type: D (Duct)



k-factor type: T (T-piece)



k-factor type: D (Duct)



Erklärungen

Messen von Luftstrom

$$q = k \cdot \sqrt{\Delta p_m} \quad \Delta p_m = \left(\frac{q}{k} \right)^2$$

wo

q	ist	Luftstrom	[l/s]
Δp_m	ist	Messdruckdifferenz	[Pa]
k	ist	Korrektionsfaktor, sehen Tabellen	[-]

Tabellen

a	ist	Einstellung von Ventilscheibe oder -kegel	[mm]
n	ist	Einstellung von Ventilscheibe oder -kegel	[Anzahl Öffnungsumdrehungen]
m	ist	Anschließen der Öffnung	[Anzahl der offenen Löcher]
D	ist	Ventil montiert in einem Rohr	
B	ist	Ventil montiert in einem Bogen 90°	
T	ist	Ventil montiert in einem T-Stück	

WOSP ist ohne Richtungsscheibe

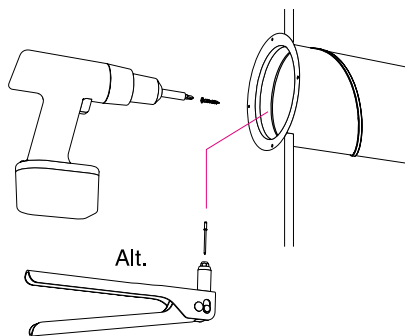
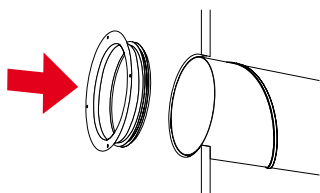
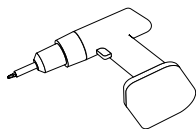
WSP ist mit Richtungsscheibe

👍 ist empfohlene Methode

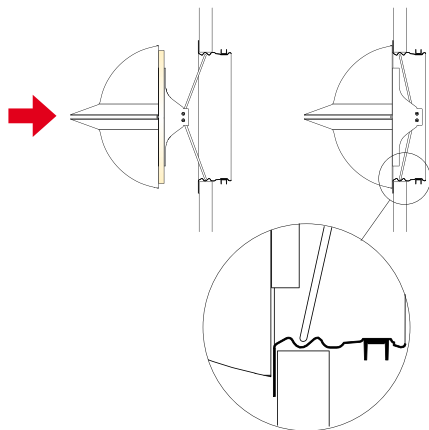
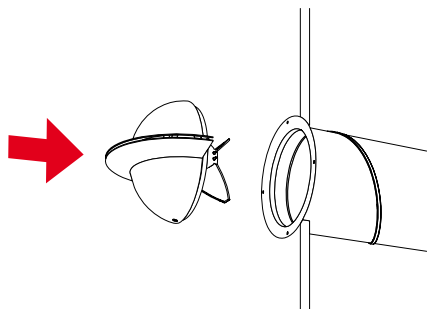
👎 ist nicht empfohlene Methode



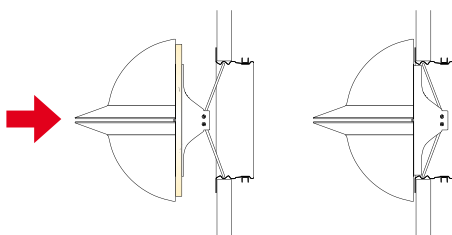
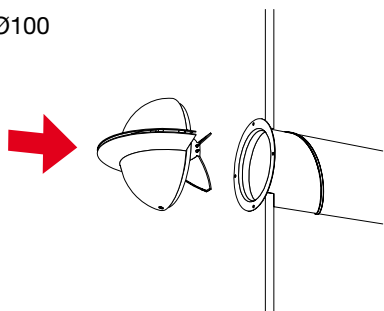
Ventil WTK



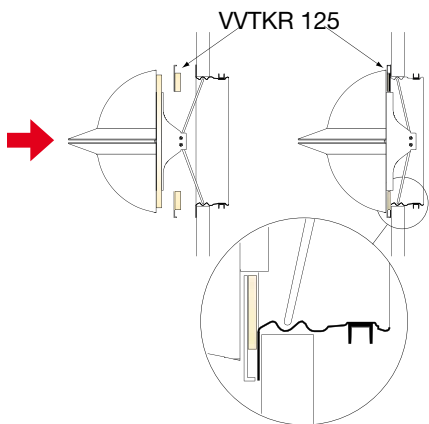
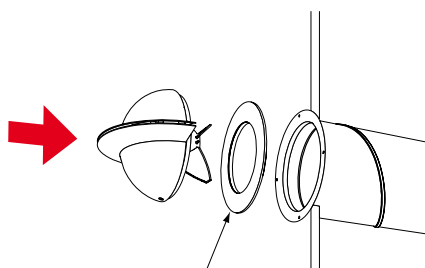
Ø125
Alt 1



Ø100

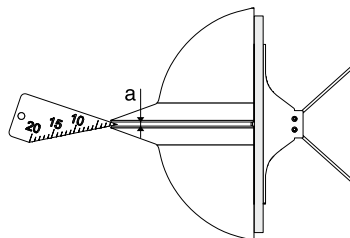
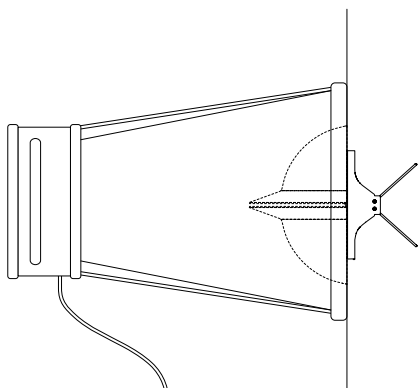
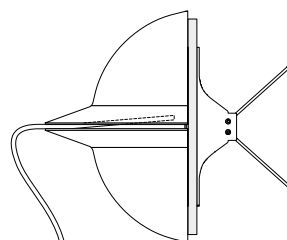
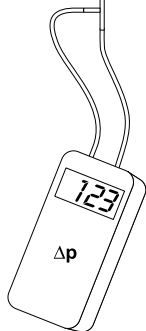
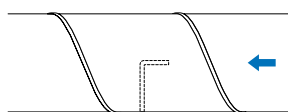
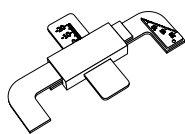


Ø125
Alt 2



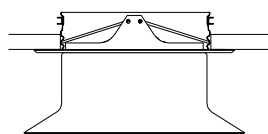
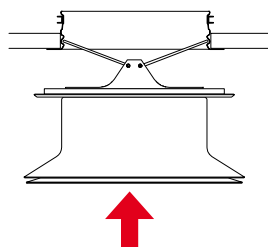
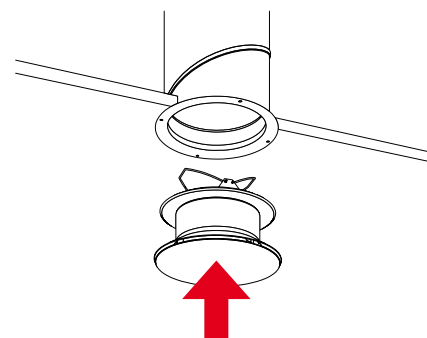
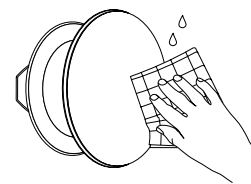
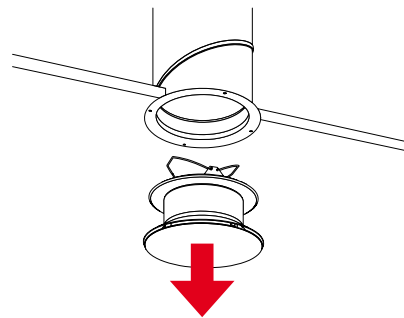
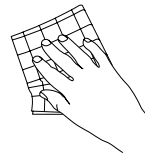


Ventil WTK



Ø mm	Ventil montiert in	Konfiguration a [mm]						
		a	6	8	10	12		
100	Rohr	k	1,14	1,44	1,85	2,48		
		a	6	7	8	10	12	16
125	Rohr	k	1,25	1,51	1,87	2,16	2,73	3,61
		a	6	7	8	10	12	16

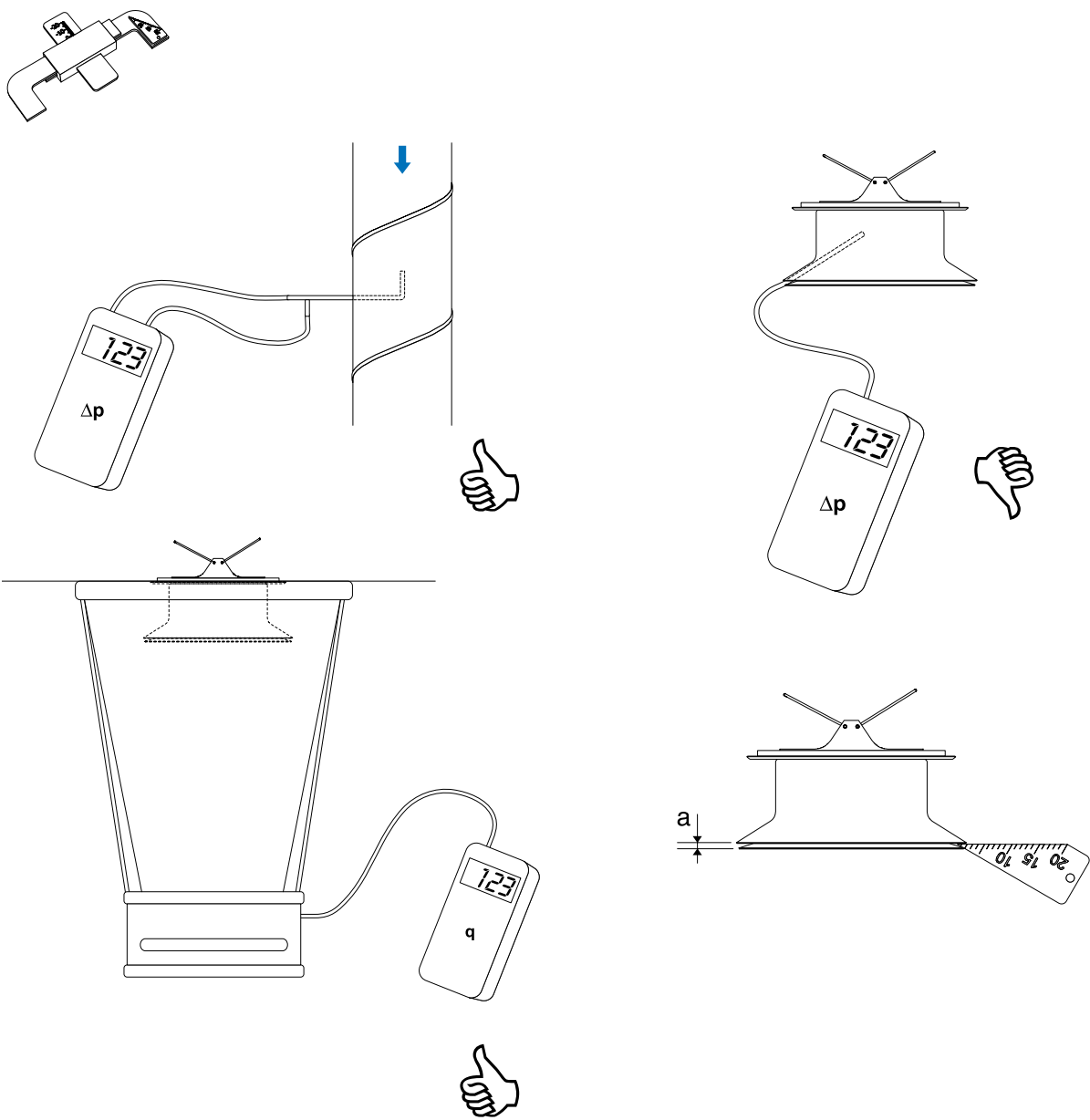
VTTB





Ventil

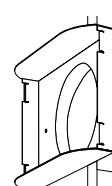
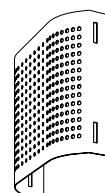
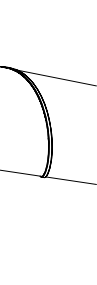
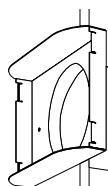
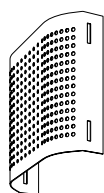
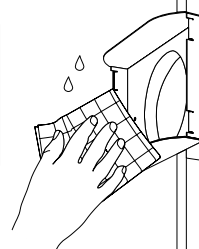
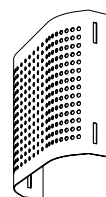
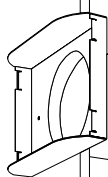
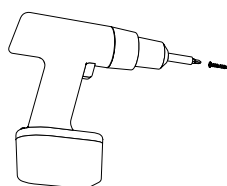
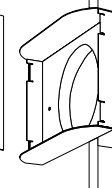
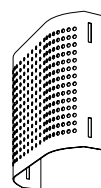
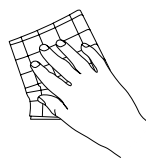
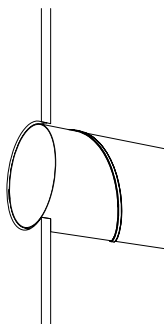
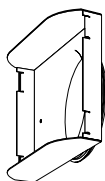
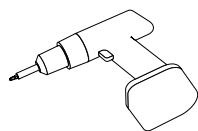
VTTB



Ø mm	Ventil montiert in	Konfiguration a [mm]								
		a	4	5	6	7	8	10	12	16
100	Rohr	k	0,919	0,967	1,17	1,45	1,58	1,89	2,00	3,24
		a	4	5	6	7	8	10	12	16
125	Rohr	k	1,11	1,47	1,69	2,01	2,21	2,72	3,46	4,54
		a	5	8	10	12	16	20		
160	Rohr	k	2,05	2,93	3,51	3,92	5,19	7,20		
		a								

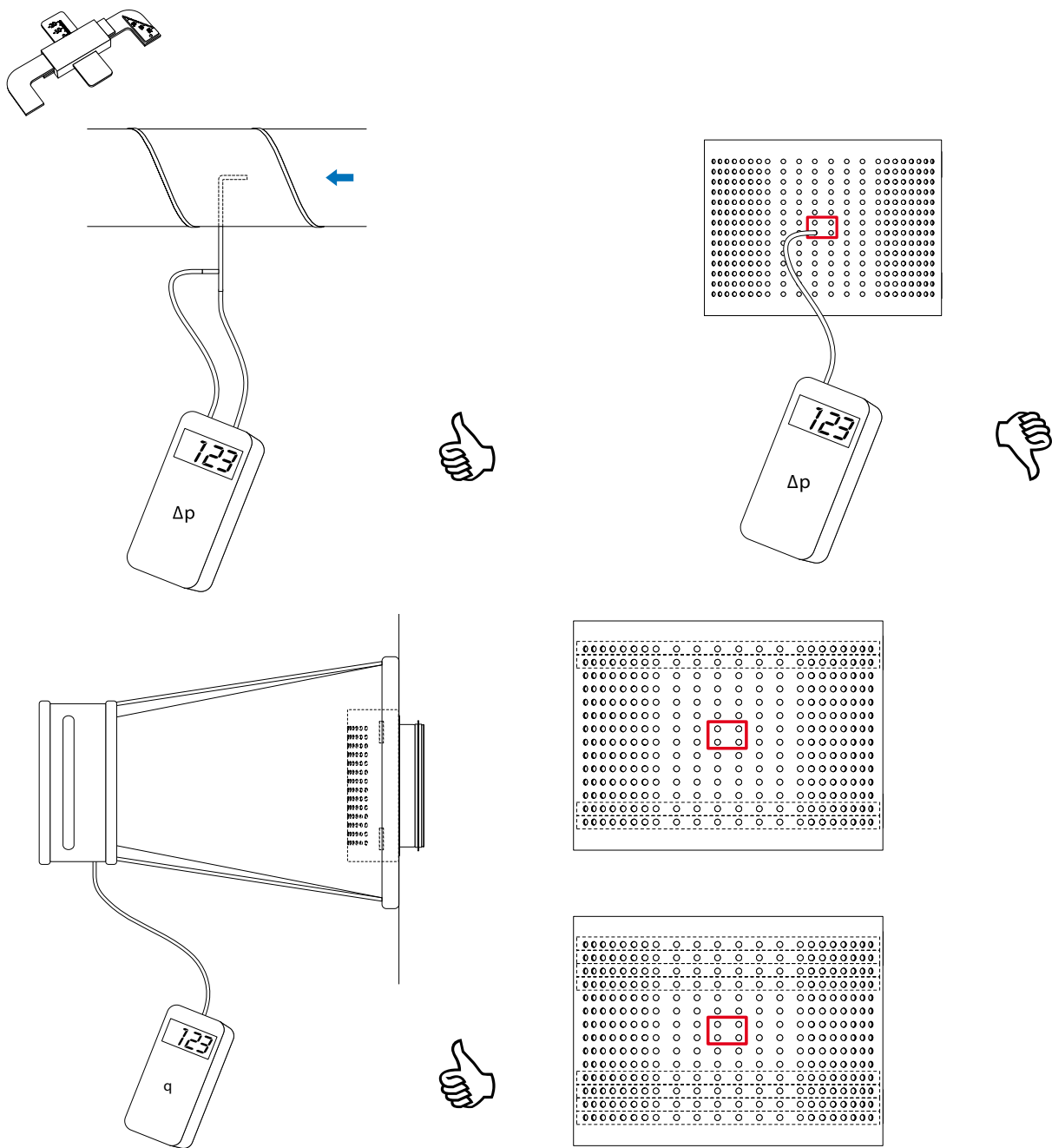


Ventil SHH





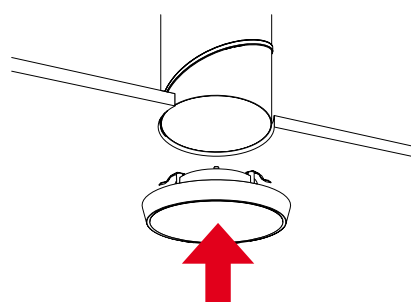
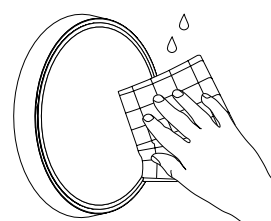
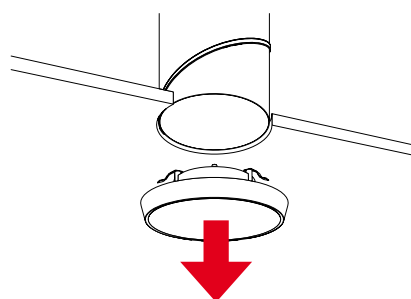
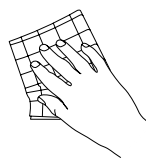
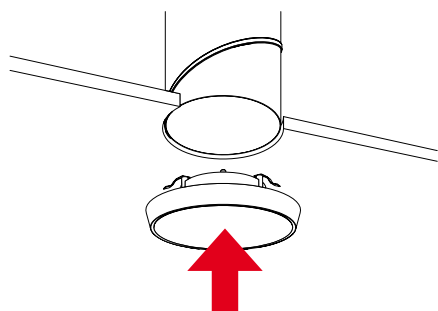
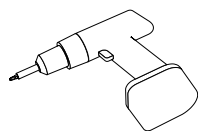
Ventil SHH



Ø mm	Ventil montiert in	Konfiguration n [Anzahl Öffnungsumdrehungen]							
		n	2	4	6	8	10	12	14
100	Duct	k	0,7	1,2	1,7	2,3	2,7	3,1	3,6
		n	2	4	6	8	10	12	14
125	Duct	k	0,7	1,2	1,8	2,3	2,8	3,3	3,9
		n	2	4	6	8	10	12	14

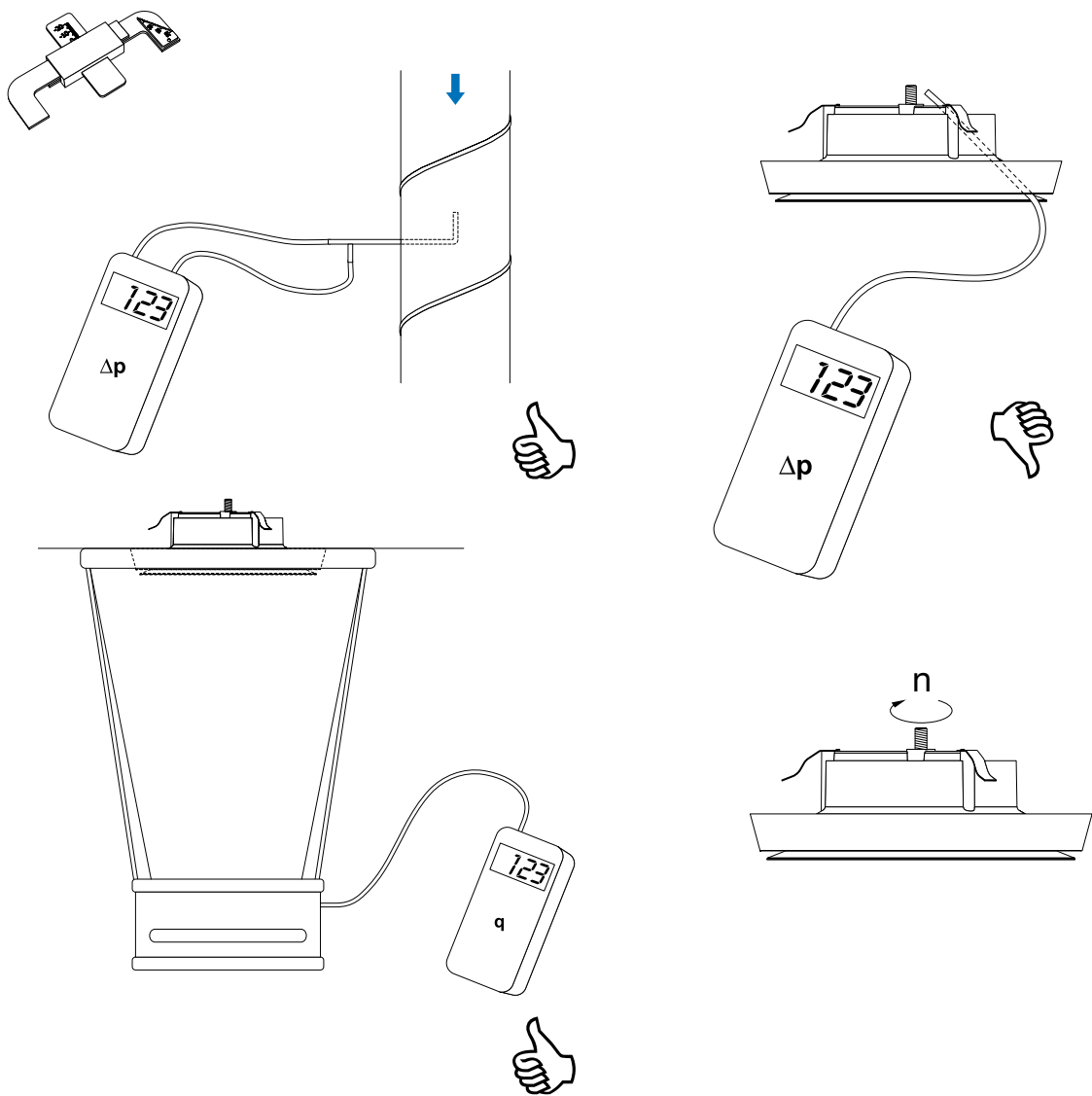


Ventil OPT





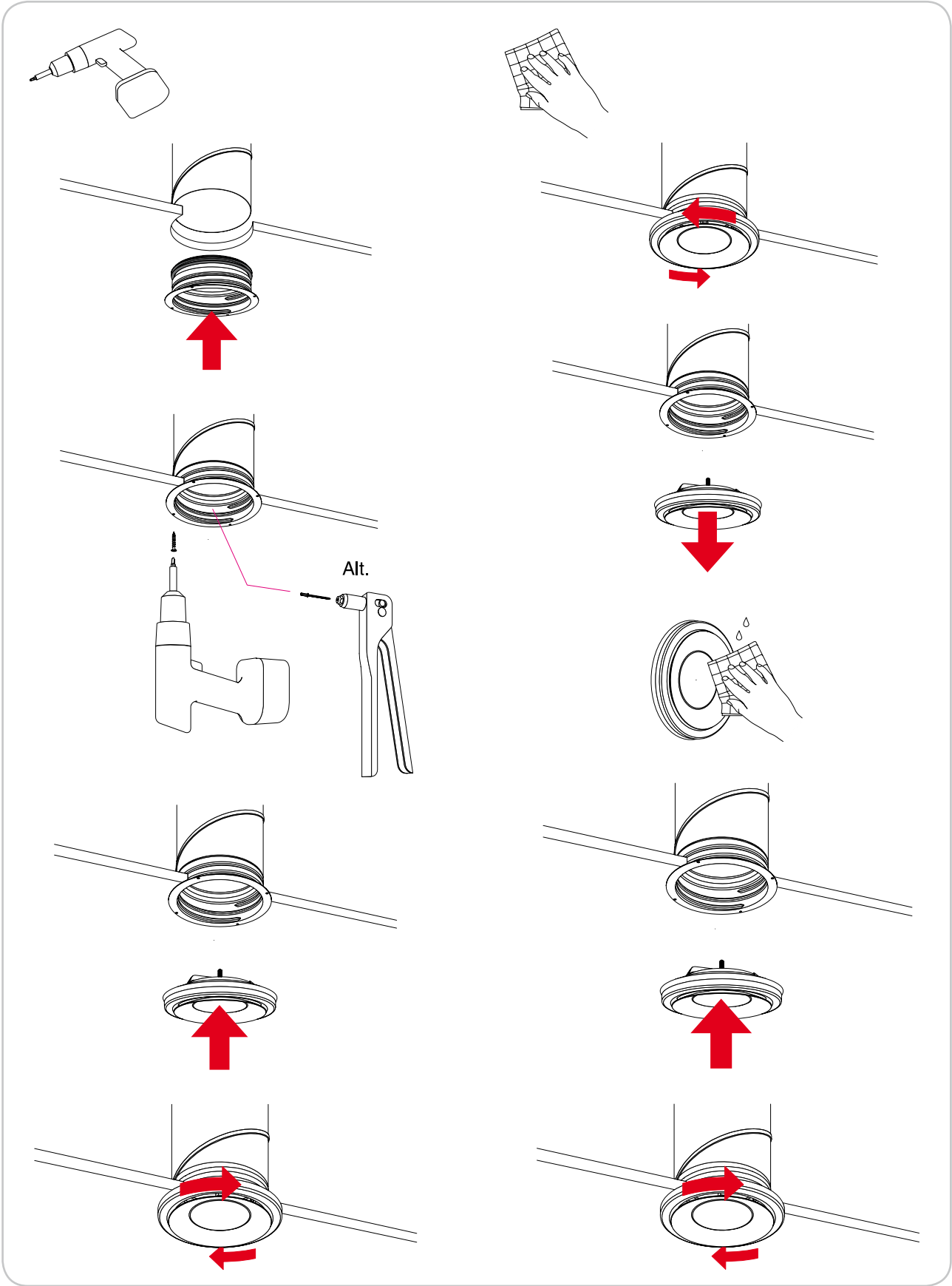
Ventil OPT



Ø mm	Ventil montiert in	Konfiguration n [Anzahl Öffnungsumdrehungen]						
		n	1	2	3	4	6	8
80	Rohr	k	1,08	1,42	1,83	2,30	2,92	3,77
		n	2	3	4	6	8	10
100	Rohr	k	1,12	1,69	2,20	3,36	4,21	4,86
		n	4	5	6	7	8	9
125	Rohr	k	1,23	1,50	1,79	2,09	2,30	2,66
		n	6	8	10	12		
160	Rohr	k	2,34	3,06	3,73	4,35		
		n	7	9	11	13	15	
200	Rohr	k	4,55	5,47	6,35	7,39	8,37	
		n						

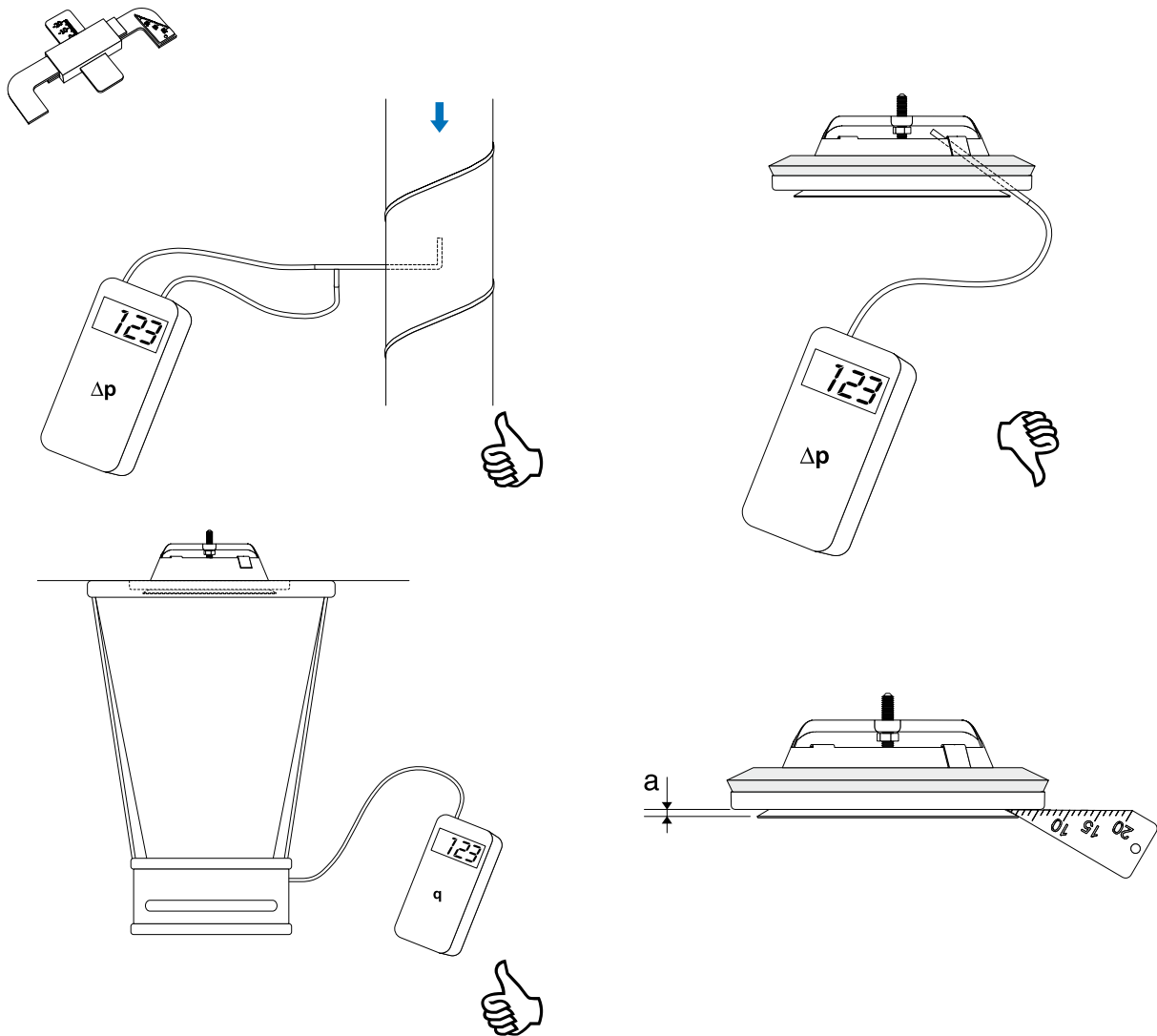


Ventil KI





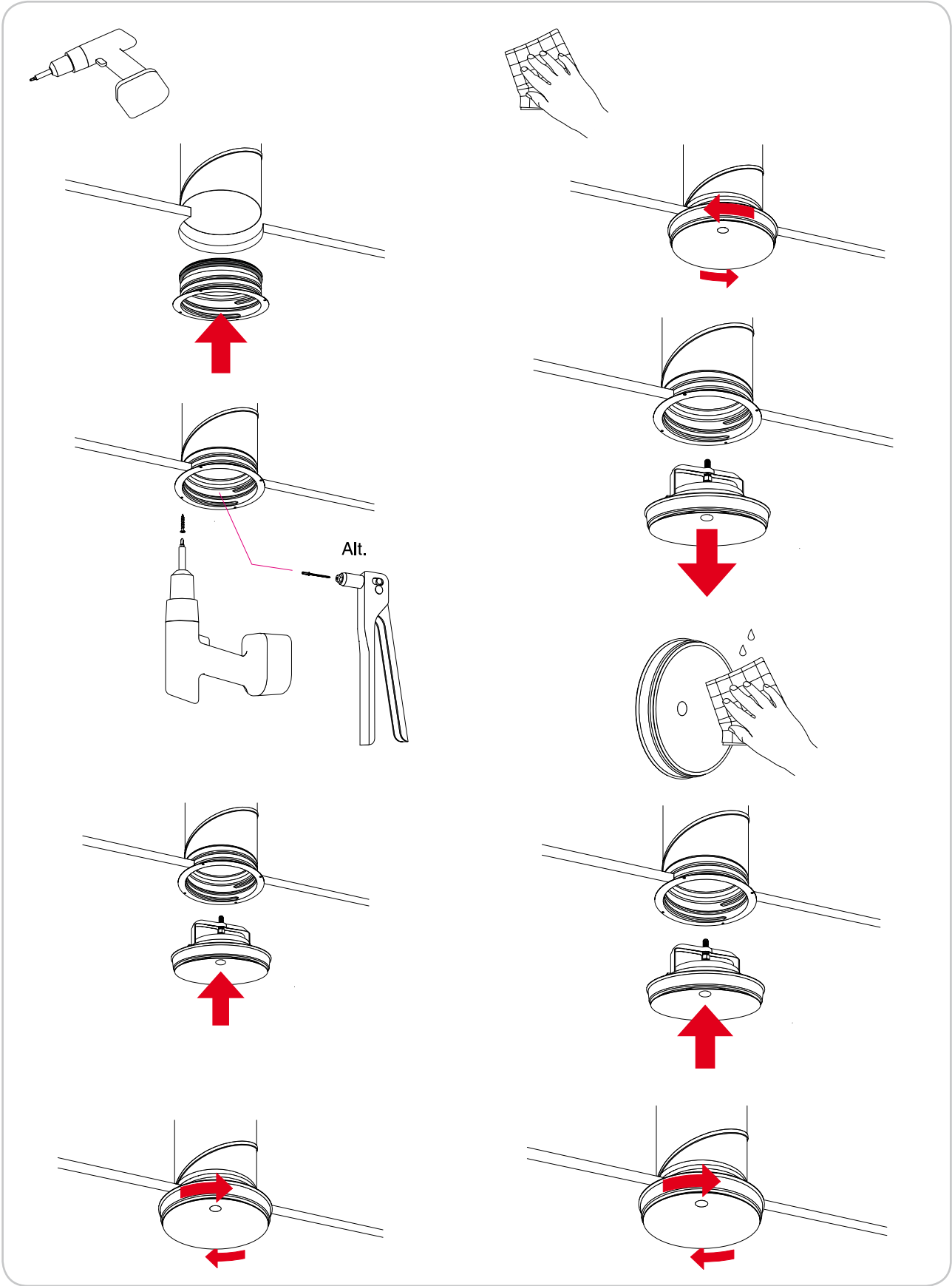
Ventil KI



Ø mm	Ventil montiert in	Konfiguration a [mm]						
80	Rohr	a	2	4	6	9	12	
		k	0,779	1,36	2,05	2,65	2,80	
100	Rohr	a	2	4	6	9	12	
		k	1,00	1,10	2,31	3,19	4,12	
125	Rohr	a	3	5	7	9	12	15
		k	1,23	1,85	2,83	3,74	5,08	6,21
150	Rohr	a	4	6	9	12	15	20
		k	2,35	3,37	4,50	5,74	7,40	10,3
160	Rohr	a	4	6	9	12	15	20
		k	1,66	3,10	4,31	6,04	7,34	10,3
200	Rohr	a	5	6	9	12	15	20
		k	3,66	5,17	7,05	8,00	10,4	12,9

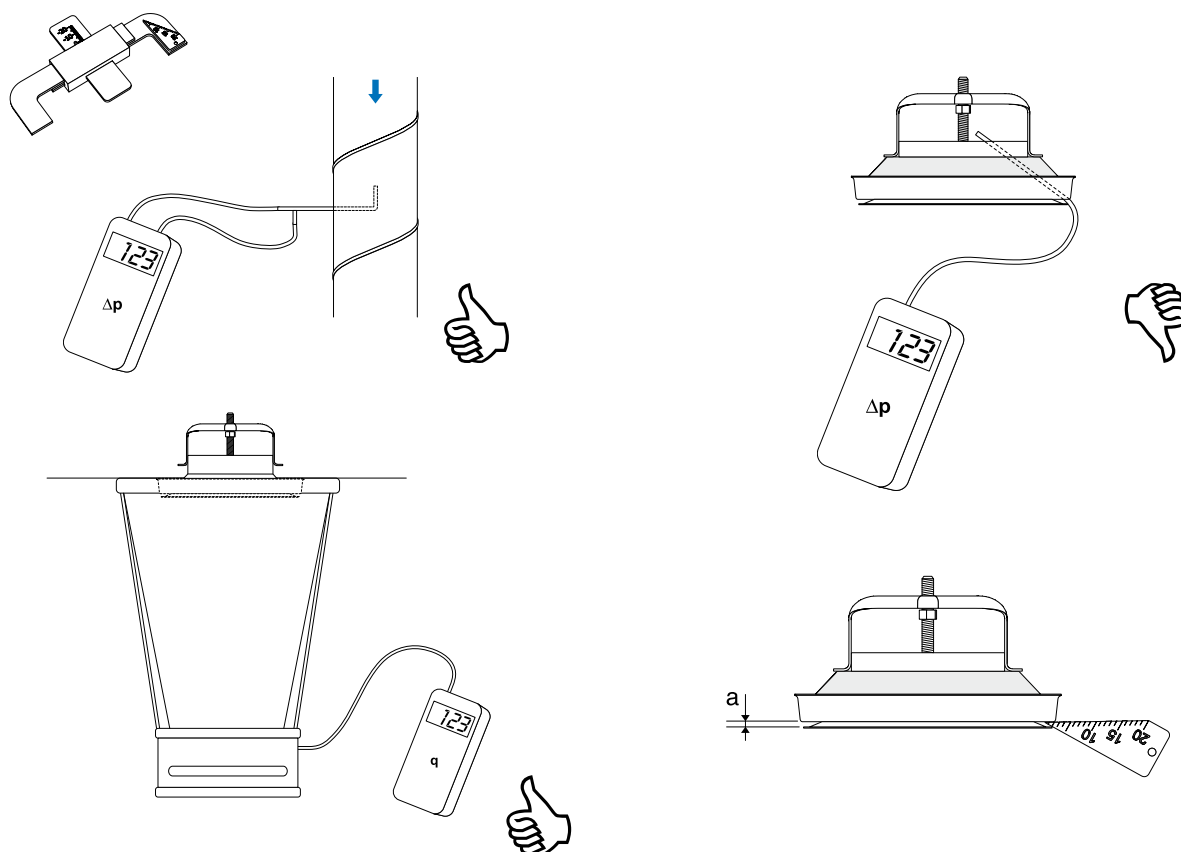


Ventil KIR





Ventil KIR



Ohne Richtungsscheibe

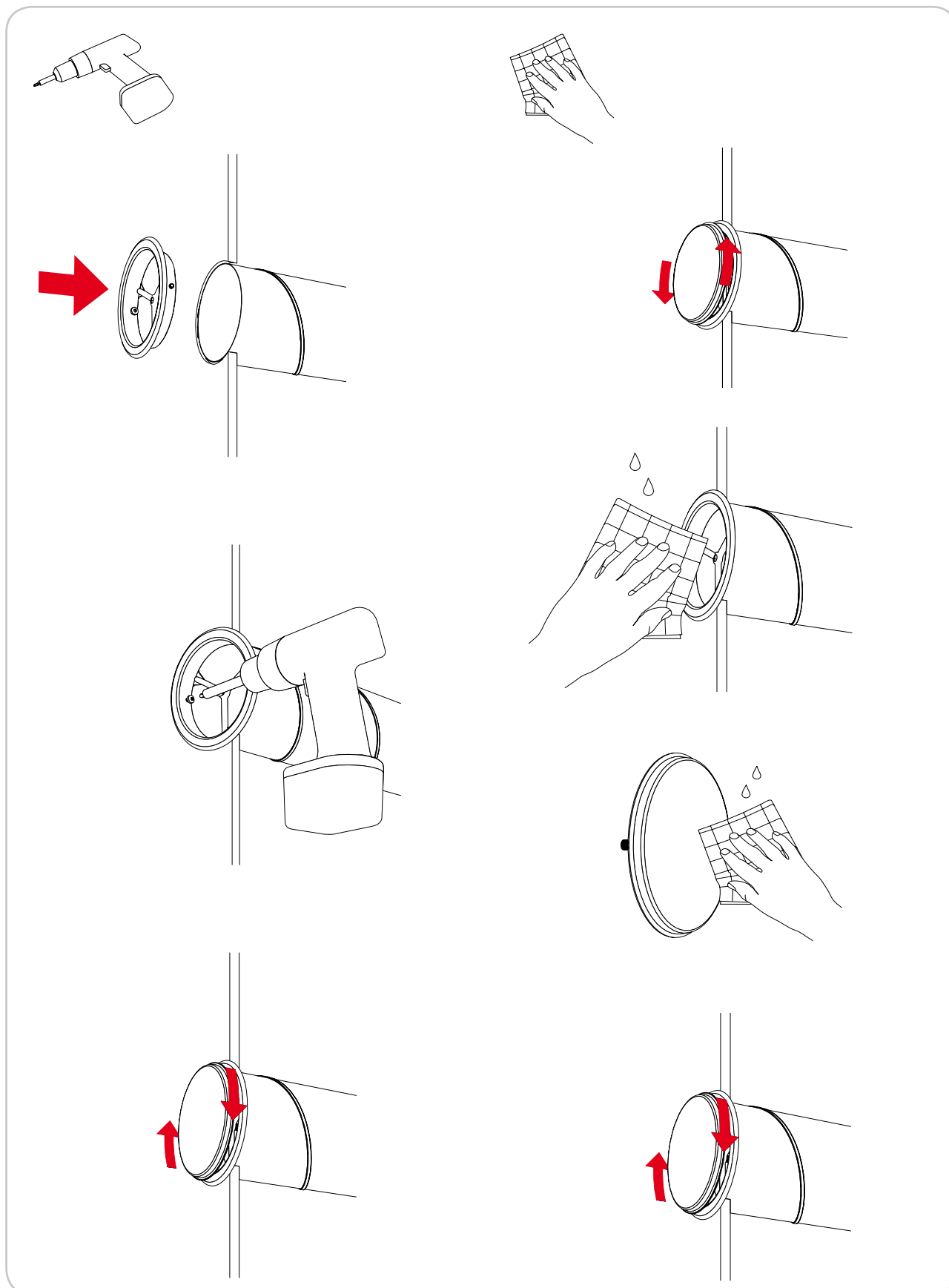
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		a	2	4	6	9	12
100	Rohr	k	1,09	1,56	2,11	2,81	4,31
		a	4	6	9	12	15
125	Rohr	k	1,95	2,99	4,41	5,72	7,41
		a	4	6	10	15	20
160	Rohr	k	2,10	3,74	5,83	9,66	12,8

Mit Richtungsscheibe

Ø mm	Ventil montiert in	Konfiguration a [mm]					
		a	2	4	6	9	12
100	Rohr	k	0,882	1,45	1,75	2,49	2,89
		a	4	6	9	12	15
125	Rohr	k	1,97	2,65	3,40	4,23	4,77
		a	4	6	10	15	20
160	Rohr	k	1,69	2,73	4,39	5,91	7,35

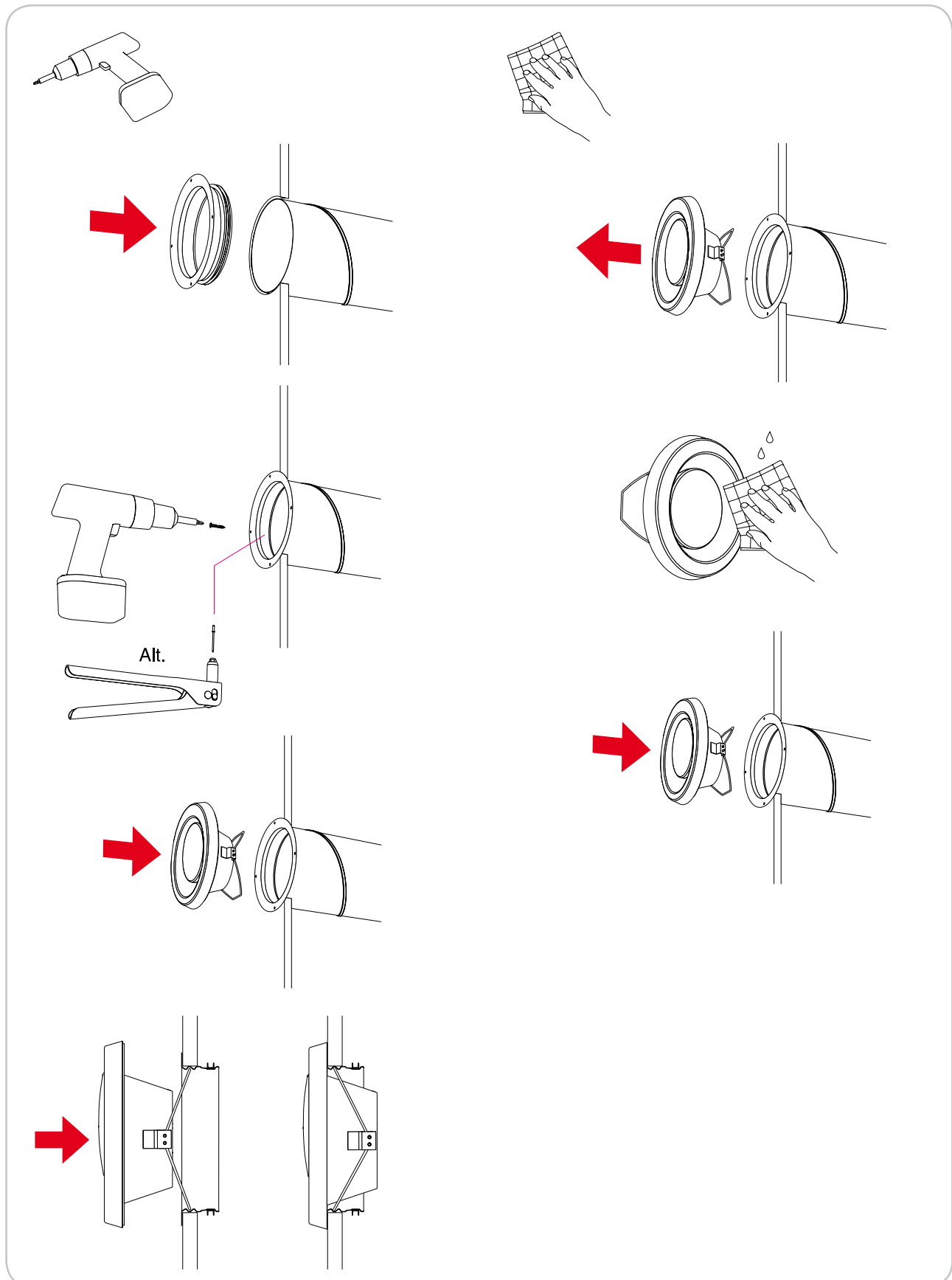


Ventil TAV





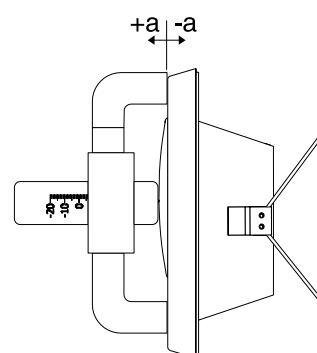
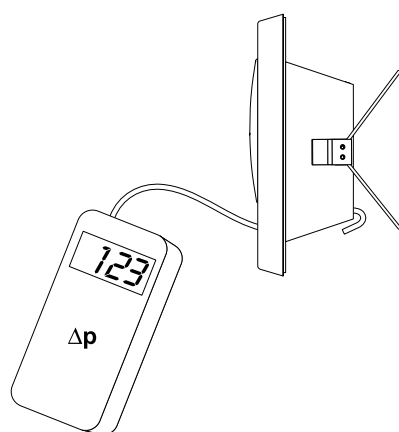
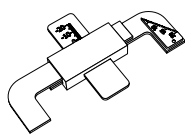
Ventil KVB





Ventil

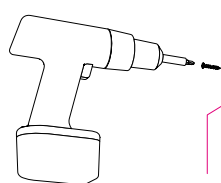
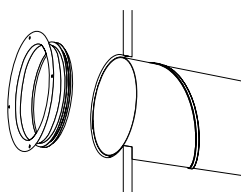
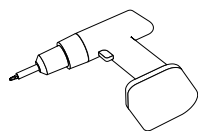
KVB



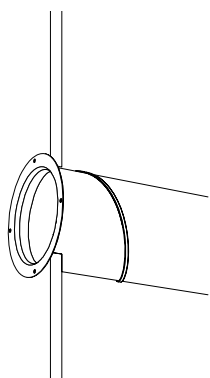
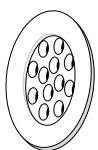
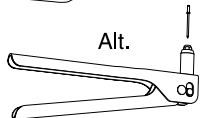
Ø mm	Ventil montiert in	Konfiguration a [mm]						
		a	-11	-9	-6	0	6	9
100	Rohr Bogen 90° T-Stück		0,600	0,693	1,29	1,42	2,16	2,38
		k	0,590	0,655	1,01	1,53	2,12	2,24
			0,606	0,707	1,04	1,55	2,01	–
125	Rohr Bogen 90° T-Stück	a	-18	-12	-6	0	6	
			1,32	1,88	2,47	3,01	3,46	
		k	1,26	1,80	2,46	2,90	3,46	
160	Rohr Bogen 90° T-Stück		1,40	1,81	2,63	3,11	3,72	
		a	-24	-18	-12	-6	0	6
			2,05	2,50	3,31	4,23	5,11	5,73
		k	1,76	2,33	3,15	3,93	4,72	5,29
			–	2,80	3,29	4,04	4,88	5,41



Ventil KDPF

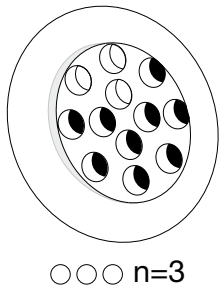
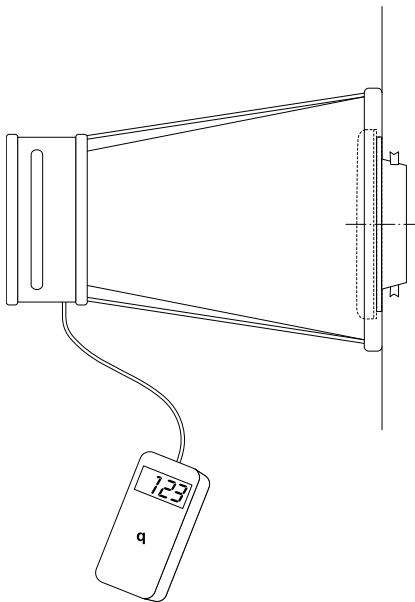
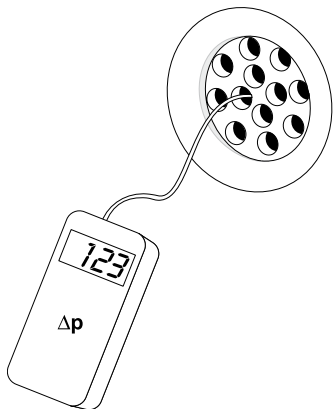
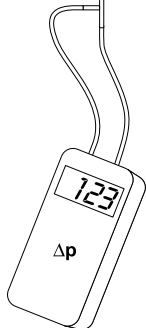
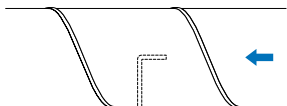
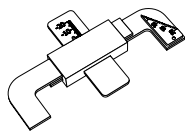


Alt.





Ventil KDPF

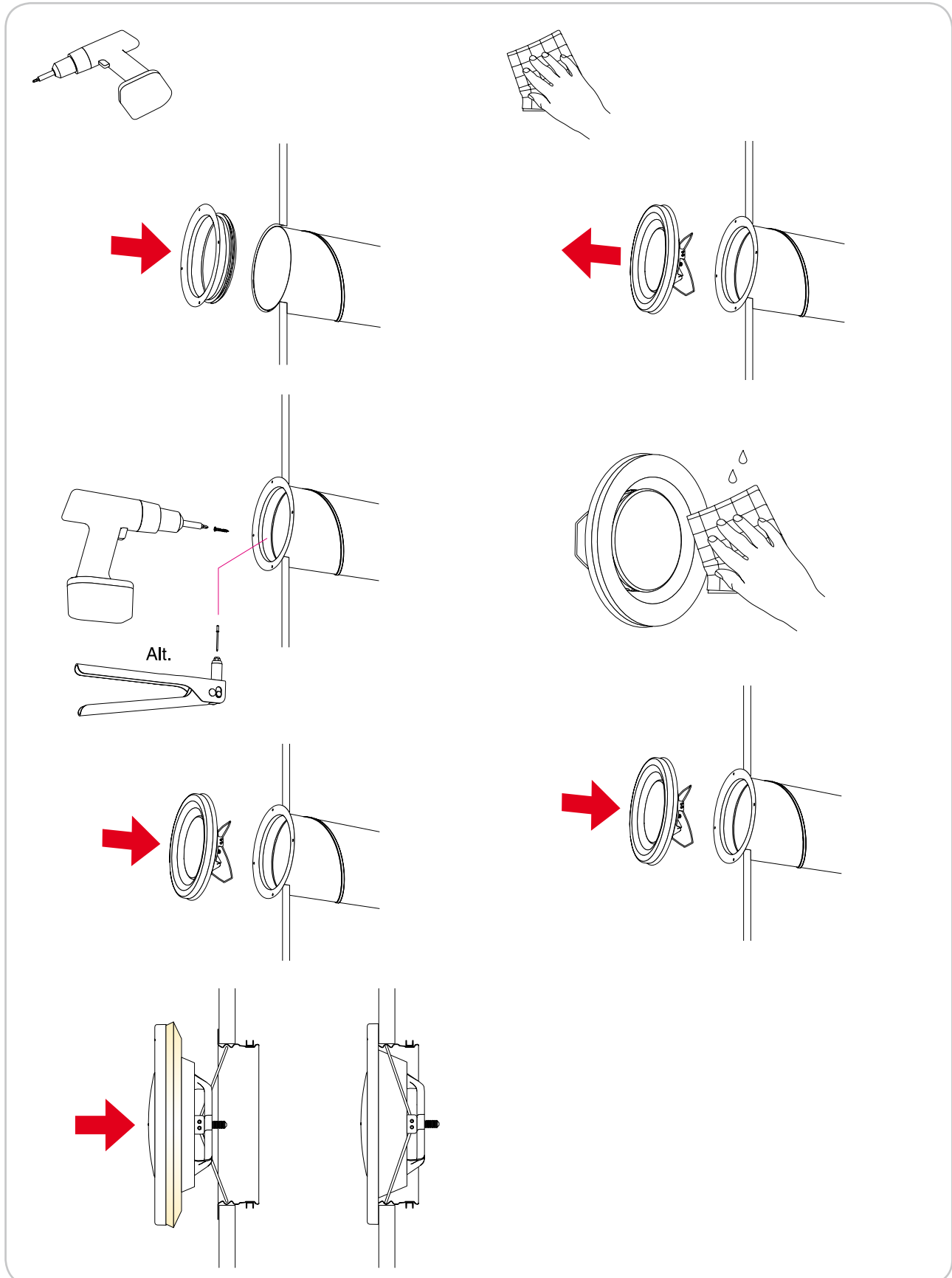


Ø mm	Ventil montiert in	Konfiguration n [Anzahl freier Öffnungen]						
		n	1	2	3	4	5	6
100	Rohr	k	0,24	0,42	0,59	0,80	0,98	1,20
		n	7	8	9	10	11	12
	Rohr	k	1,50	1,60	1,80	2,10	2,30	2,50
		n	13	14	15	16	17	18



Ventil

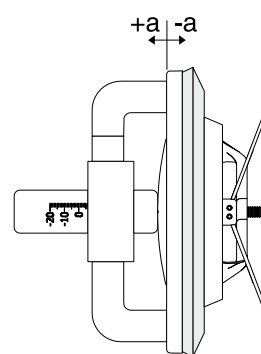
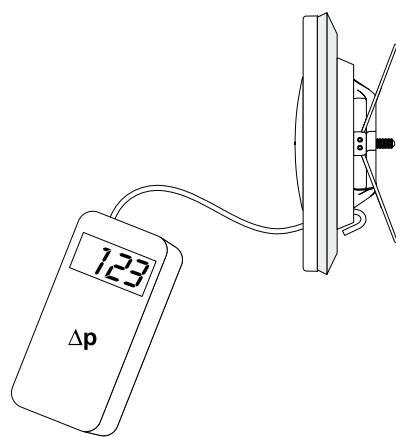
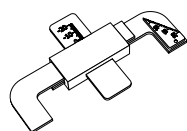
KVG Ø100–160





Ventil

KVG Ø100–160

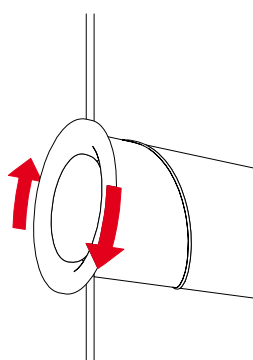
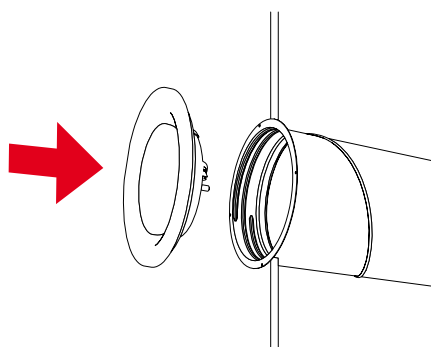
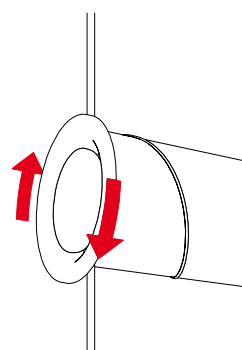
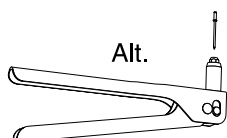
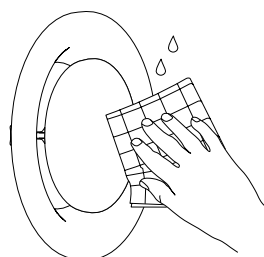
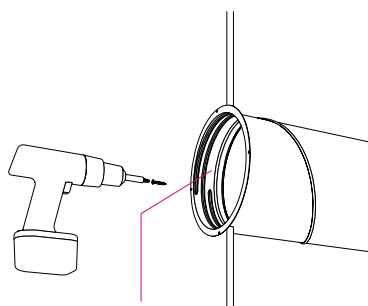
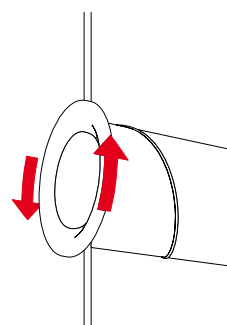
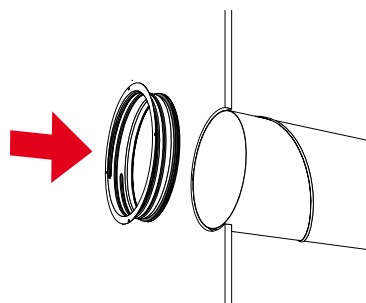
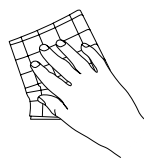
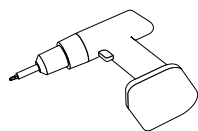


Ø mm	Ventil montiert in	Konfiguration a [mm]							
		a	-9	-5	0	5	8	12	
100	Rohr Bogen 90° T-Stück								
		k	0,577	1,25	1,85	2,39	2,75	3,07	
			0,549	1,15	1,87	2,53	2,86	3,27	
125	Rohr Bogen 90° T-Stück		0,788	1,34	1,78	2,37	2,89	2,99	
		a	-17	-13	-9	-6	-3	0	5
		k	0,736	1,27	1,96	2,41	2,93	3,36	3,96
160	Rohr Bogen 90° T-Stück		4,79	5,85	7,05	8,35	9,75	11,15	12,55
		k	0,651	1,31	2,06	2,49	3,35	3,62	5,03
			1,12	1,94	2,64	2,89	3,06	3,54	4,07
160	Rohr Bogen 90° T-Stück	a	-18	-14	-10	-5	0	6	12
		k	1,05	1,68	2,33	3,50	4,60	5,62	6,58
			1,05	1,71	2,48	3,43	4,35	5,25	6,33
160	Rohr Bogen 90° T-Stück		–	1,91	2,68	3,54	4,40	5,60	6,80



Ventil

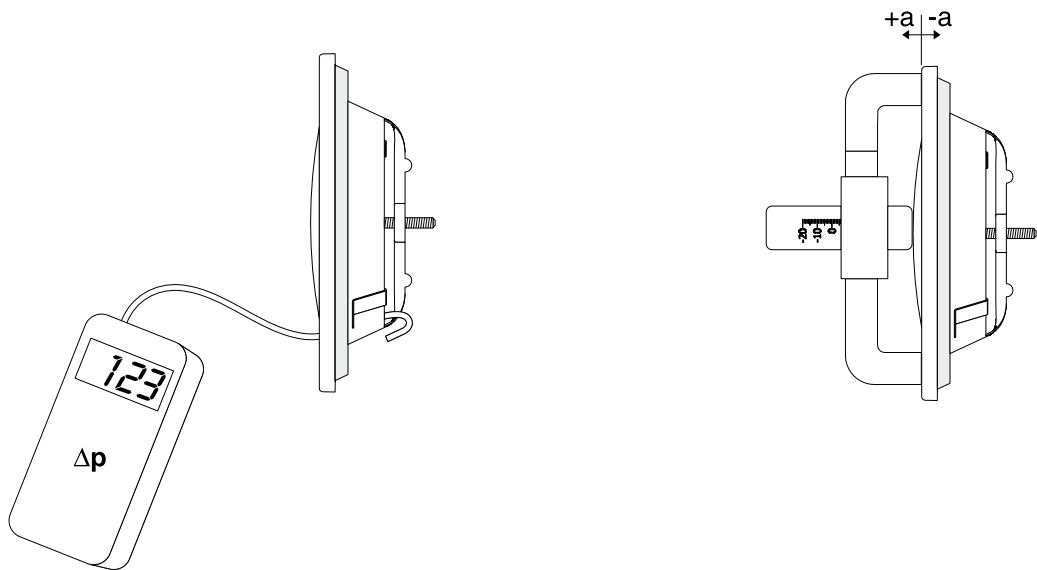
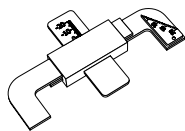
KVG Ø200





Ventil

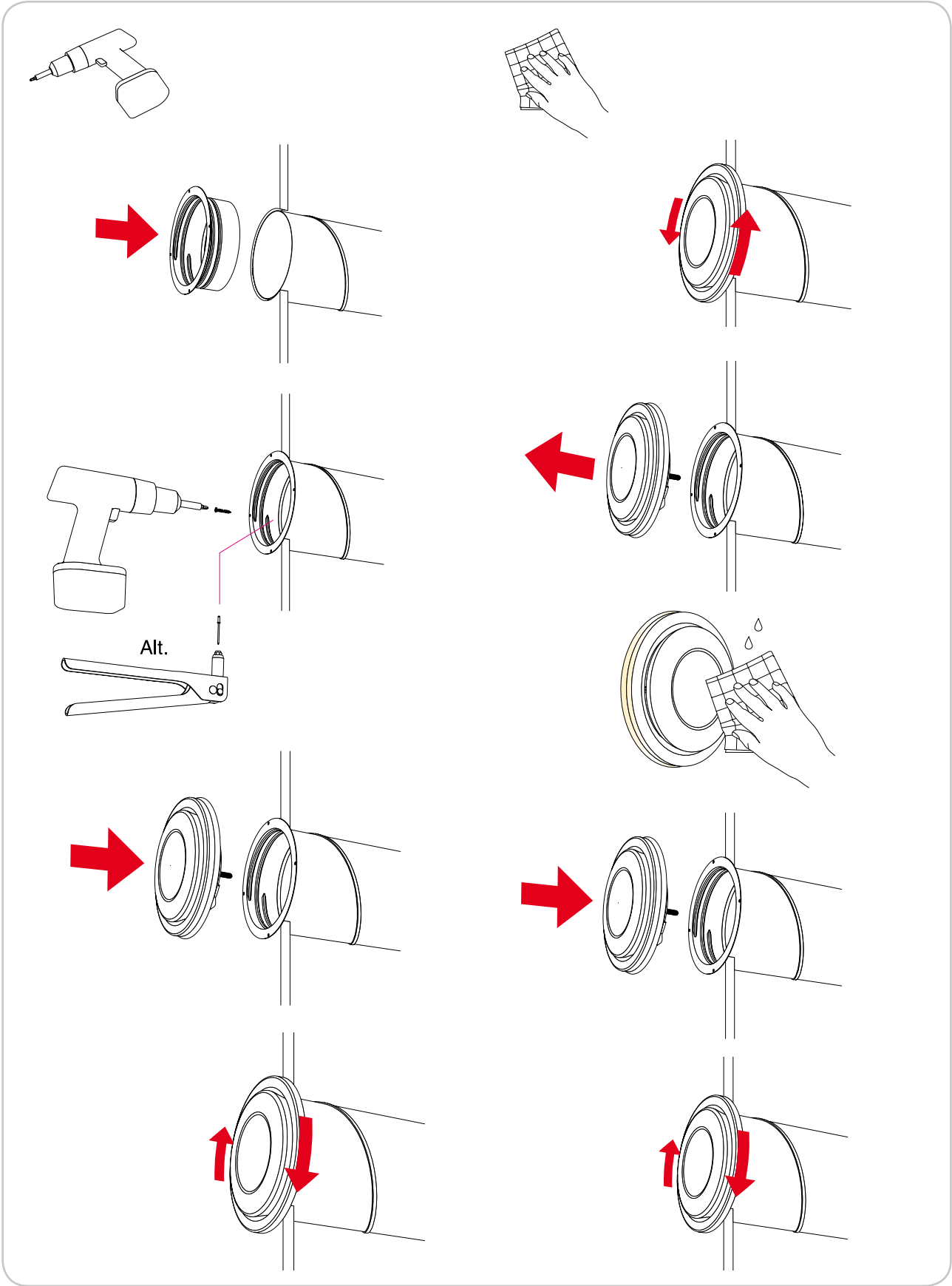
KVG Ø200



Ø mm	Ventil montiert in	Konfiguration a [mm]								
		a	-23	-18	-15	-10	-5	0	10	20
200	Rohr Bogen 90° T-Stück	k	1,94	3,23	3,94	4,94	6,32	7,80	10,0	12,6
			1,86	2,99	3,95	5,08	6,14	7,62	10,1	11,2
			–	3,28	4,02	5,36	6,75	7,57	10,5	12,5

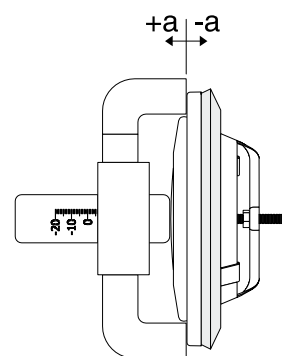
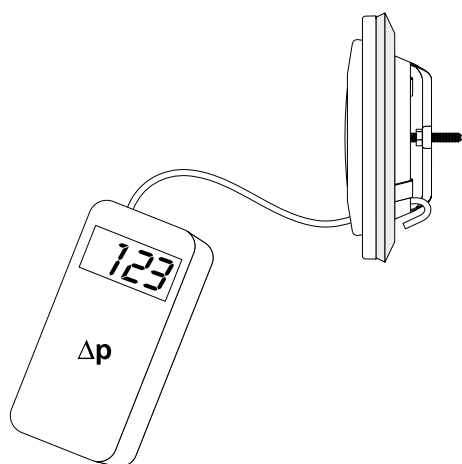
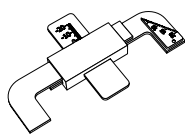


Ventil KU





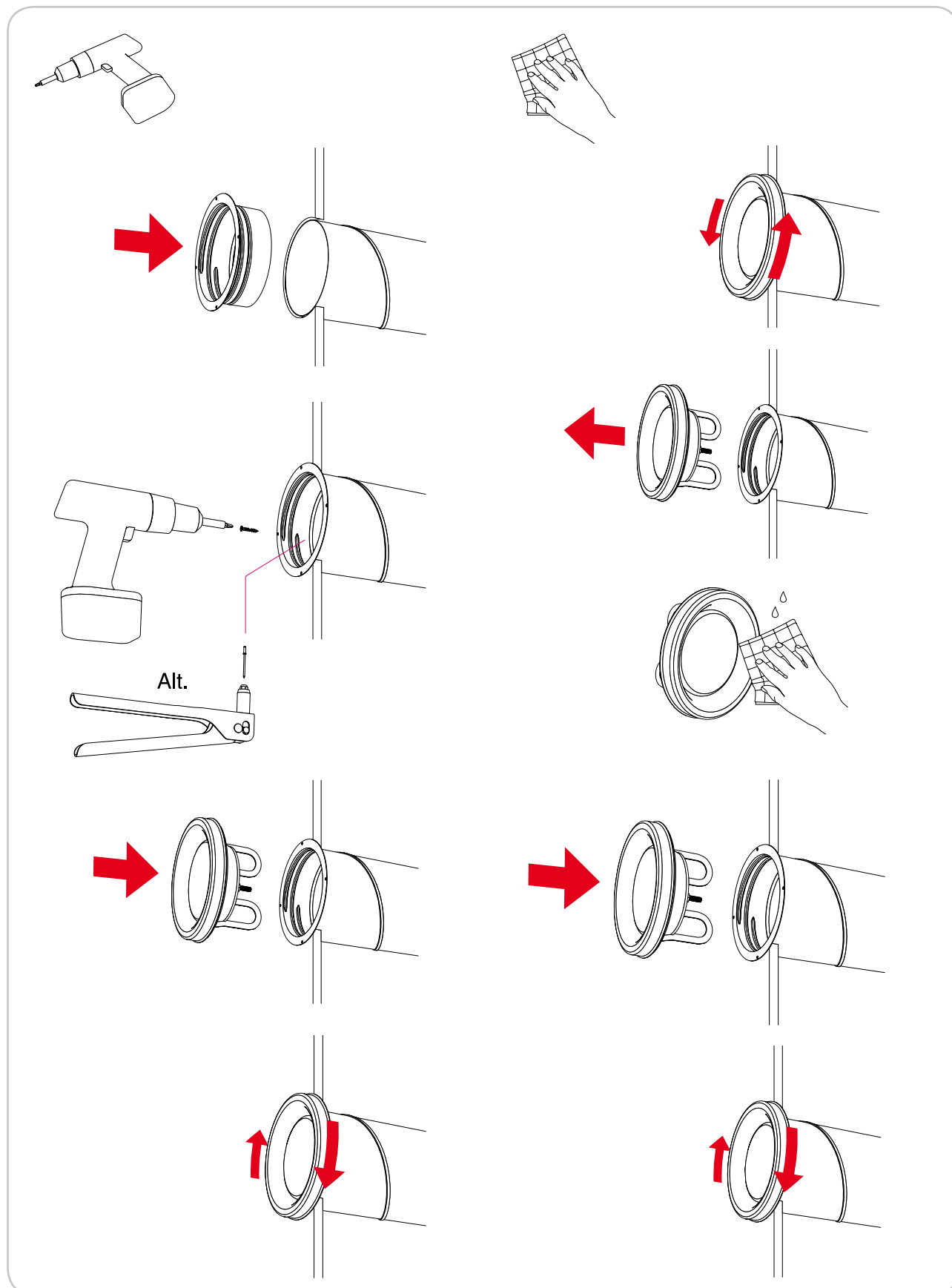
Ventil KU



Ø mm	Ventil montiert in	Konfiguration a [mm]							
		a	-9	-6	-3	0	3	6	
80	Rohr Bogen 90° T-Stück	a	0,679	0,941	1,32	1,59	1,90	2,13	
		k	0,715	1,02	1,23	1,54	1,75	2,06	
			0,732	1,00	1,35	1,54	1,79	1,95	
100	Rohr Bogen 90° T-Stück	a	-12	-9	-5	0	5		
		k	0,560	0,938	1,46	2,00	2,72		
			0,632	1,02	1,44	2,20	2,78		
125	Rohr Bogen 90° T-Stück	a	-17	-15	-12	-9	-6	-3	0
		k	0,681	0,868	1,45	1,72	2,33	2,73	3,31
			0,616	0,854	1,40	1,86	2,35	2,75	3,11
150	Rohr Bogen 90° T-Stück	a	-15	-12	-9	-3	3	9	
		k	1,47	2,12	2,62	3,83	4,82	5,96	
			1,60	2,01	2,61	4,00	4,96	6,61	
160	Rohr Bogen 90° T-Stück	a	-20	-18	-15	-10	-5	0	6
		k	0,833	1,00	1,79	2,66	3,68	4,66	5,92
			0,879	1,09	1,71	2,62	3,63	4,59	5,68
200	Rohr Bogen 90° T-Stück	a	-25	-20	-15	-10	-5	0	10
		k	2,39	3,65	5,02	5,77	7,18	8,39	11,4
			2,39	3,54	4,87	5,70	7,01	8,51	11,1

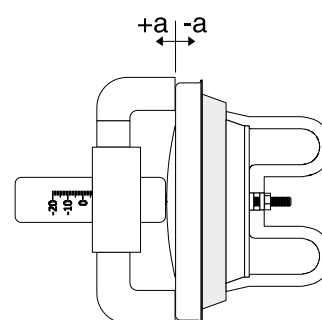
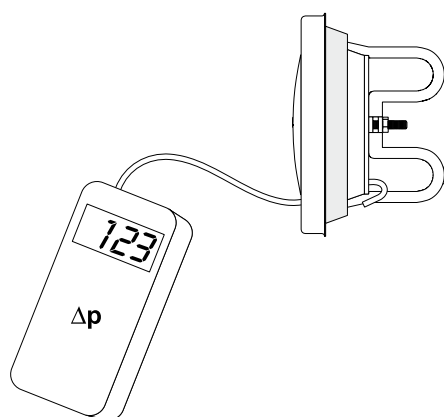
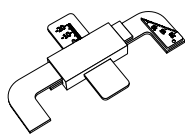


Ventil KSU





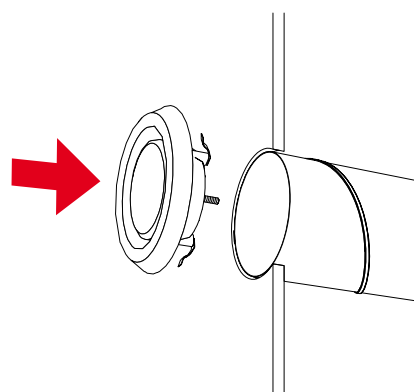
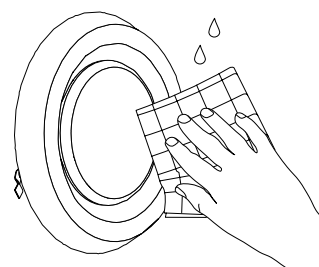
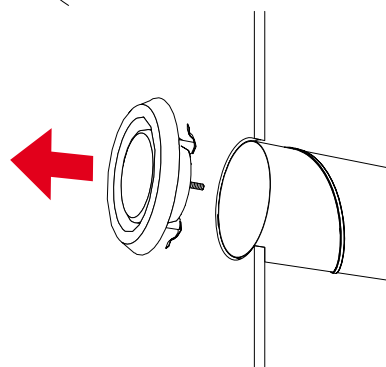
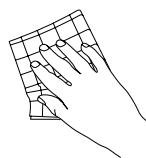
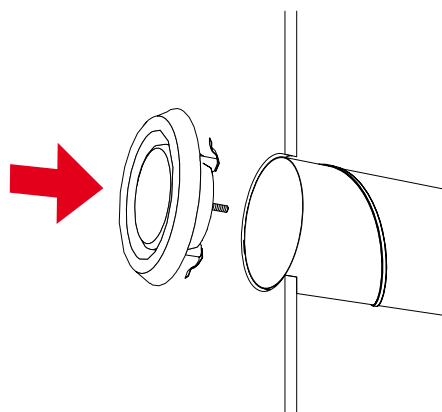
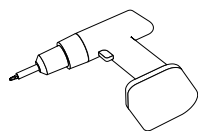
Ventil KSU



Ø mm	Ventil montiert in	Konfiguration a [mm]							
		a	-15	-12	-10	-5	0	5	10
100	Rohr Bogen 90° T-Stück	a	0,459	0,676	0,861	1,36	1,82	2,32	2,75
		k	0,505	0,841	1,00	1,40	1,86	2,35	2,77
			0,576	0,850	1,01	1,42	1,89	2,35	2,66
125	Rohr Bogen 90° T-Stück	a	-10	-5	0	5	10		
		k	1,29	1,93	2,59	3,29	3,91		
			1,24	1,90	2,61	3,33	3,90		
150	Rohr Bogen 90° T-Stück	a	-10	-5	0	5	10	15	
		k	1,81	2,69	3,42	4,48	5,17	6,09	
			2,01	2,75	3,47	4,37	5,29	6,21	
160	Rohr Bogen 90° T-Stück	a	-10	-5	0	5	10	15	
		k	1,80	2,62	3,62	4,57	5,58	6,46	
			1,50	2,50	3,48	4,50	5,39	6,52	
200	Rohr Bogen 90° T-Stück	a	-3	0	5	10	15	20	25
		k	2,02	2,72	3,85	5,19	6,32	7,63	8,72
			1,65	2,62	3,71	5,21	6,07	7,40	8,60
			2,11	3,00	3,90	5,46	6,54	7,80	8,90



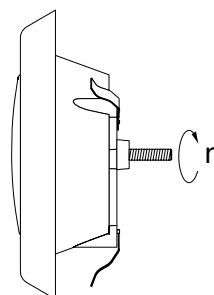
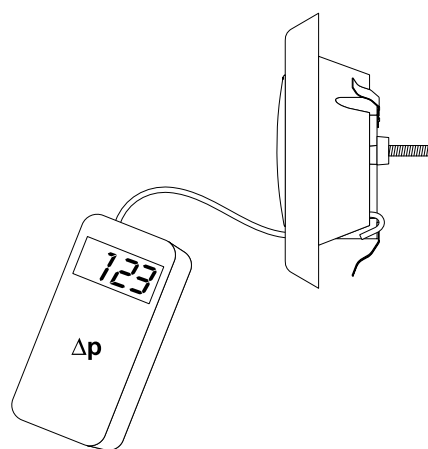
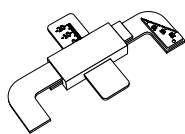
Ventil OPF





Ventil

OPF



Ø mm	Ventil montiert in	Konfiguration n [Anzahl Öffnungsumdrehungen]						
		n	0	3	6	9	12	15
80	Rohr Bogen 90° T-Stück	n	0,489	0,675	1,08	1,07	1,55	1,42
		k	0,517	0,621	0,867	1,10	1,31	1,42
			–	0,715	0,915	1,14	1,18	1,41
100	Rohr Bogen 90° T-Stück	n	0	3	6	9	15	18
		k	1,54	1,71	1,96	2,48	2,91	3,17
			1,58	1,89	2,20	2,62	2,94	3,39
125	Rohr Bogen 90° T-Stück	n	0	3	6	9	12	15
		k	1,76	1,99	2,44	2,89	3,31	3,67
			1,82	1,95	2,42	2,74	3,21	3,56
160	Rohr Bogen 90° T-Stück	n	3	6	9	12	15	18
		k	1,54	2,19	2,78	3,20	3,94	4,46
			1,41	1,97	2,52	3,04	3,63	4,23
200	Rohr Bogen 90° T-Stück	n	3	6	9	12	15	18
		k	1,77	2,57	3,26	4,23	4,93	5,84
			1,78	2,45	3,26	3,48	4,89	5,14
			–	2,53	3,03	3,79	4,55	5,04



TLO

