

A large, stylized graphic element in the bottom left corner, consisting of a white 'L' shape with a red arrow pointing towards the bottom right, set against a red background.

FIRE VENTILATION SYSTEMS FIRE DAMPERS AND FIRE VALVES



downloadable models
on the website
under the designer zone tab



» **EIS60, ES120**

- » Fire resistance class: EI60 ($v_e i \leftrightarrow o$)S, E120 ($v_e i \leftrightarrow o$)S.
- » Certificate of constancy of performance 1396-CPR-0097.
- » Dampers certified for compliance with EN 15650.
- » Dampers qualified under EN 13501-3 and tested under EN 1366-2.
- » Narrow louvered cut-off dampers.
- » KTB ATEX 2014/34/UE

9.1 | Application

mcr WIP/S multi-blade cut-off dampers are designed for use in general ventilation systems, where those systems pass through construction partitions mcr WIP/S fire dampers are intended for use especially in systems, where the components such as a silencer, bend or supply and extract grille are installed downstream of the fire damper, as the partition does not protrude beyond the damper casing.

During a fire, they preserve the fire resistance rating of the construction partition that the ventilation and air conditioning ducts are routed through. Furthermore, they prevent the spreading of fire, smoke and fire gasses to the remaining part of the building which is not on fire. During normal system operation, the louvers are open. In case of fire, the louver closes. Admissible flow velocity in the connected duct is 12 m/s.

In the version designed for explosion hazard zones (EX version), the dampers can be operated in gas explosion hazard zone 1 inside and outside ventilation ducts and in dust explosion hazard zone 21 outside these ducts. The dampers have been certified in compliance with the ATEX directive 94/9/EC and meet the requirements of group II category 2G and 2D:

- » II 2G Ex h IIC T6...T5 Gb
 - » II 2D Ex h IIIC T72...95°C Db
- Ambient temperature: T_a : -20°... +50°C

9.2 | Design

casing

trigger control mechanism
(e.g. actuator with a return spring)

casing made
of non-flammable panels

louvers (damper blade)



mcr WIP/S | Multi-blade cut-off fire dampers for comfort ventilation systems

mcr WIP/S cut-off dampers consist of a casing with a rectangular cross-section, multiple moving damper blades - louvers rotating on their own axes and a trigger control mechanism which is tripped remotely or automatically by tripping a thermoelectric trigger. The damper casing is made of galvanized steel sheets or stainless steel sheets. Its integral part is a flange made of boards with a fire resistance rating. The inner side of the fire damper casing is equipped with an intumescent gasket. The casing total length is 140 mm.

The louver surface is covered with galvanized or stainless steel sheets. Each louver with a thickness of 15 mm is filled with a plaster board with fire protection properties. The damper blades revolve on their own axes, which consist of two steel pins.

Dampers are made with 50 mm flanges that enable the correct installation of dampers in ventilation ducts. In a circular duct, the damper is made as a square with a circular "bare end" connection.

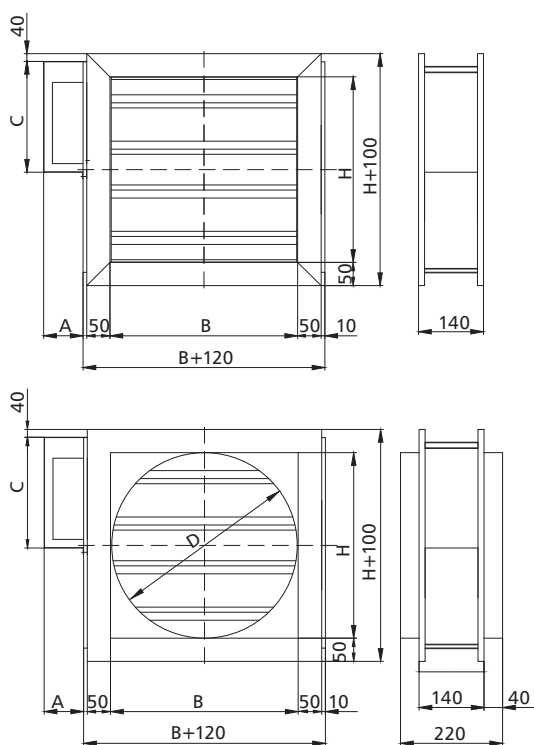
9.3 | Versions

9.3.1 | Damper closing and opening with an actuator

During normal operation, the cut-off louvers of the fire damper remain open. In case of fire, the louvers close automatically or remotely when the power supply is cut off.

The mcr WIP/S dampers are equipped with a trigger control mechanism in the form of BFL, BFN, BF, BF-TL, QT.Ex, MLF, MF series axial actuator with a return spring, supplied with 24 V AC/DC or 230 V AC, with a 72°C thermoelectric trigger (optionally it is possible to use triggers with the nominal tripping temperature of 95°C). Actuators are equipped with limit switches used to monitor the position of the louver.

Dampers with actuators: analog BFL, BFN, BF, MLF, MF, digital BF-TL, QT.Ex explosion-proof actuators close as a result of the thermoelectric trigger tripping or power supply cut-off as a result of the actuator return spring action. The dampers open when power supply voltage is applied to the actuator terminals.



dimensions in [mm]

insert symmetrically against the wall axis

mechanism	A	C
BFN/MLF	125	325
BFL	125	275
BF/MF	125	325
BF24TL-ST	125	275
QT.Ex	125	400

9.4 | Dimensions

Rectangular dampers:

- » nominal width B: from 120 mm to 1000 mm
- » nominal height H from 160 mm to 1000 mm
- » maximum single damper cross-section surface up to 1 m².

Apart from the standard dimensions, fire dampers may be manufactured with intermediate dimensions (at 1 mm increments within the given ranges). The exception are dampers whose height value falls within the 36-54 ranges, e.g. 136-154, 236-254... Square dampers may also be additionally equipped with round connection collars allowing for so called "bare end" connection to round ducts.

9.5 | Installation

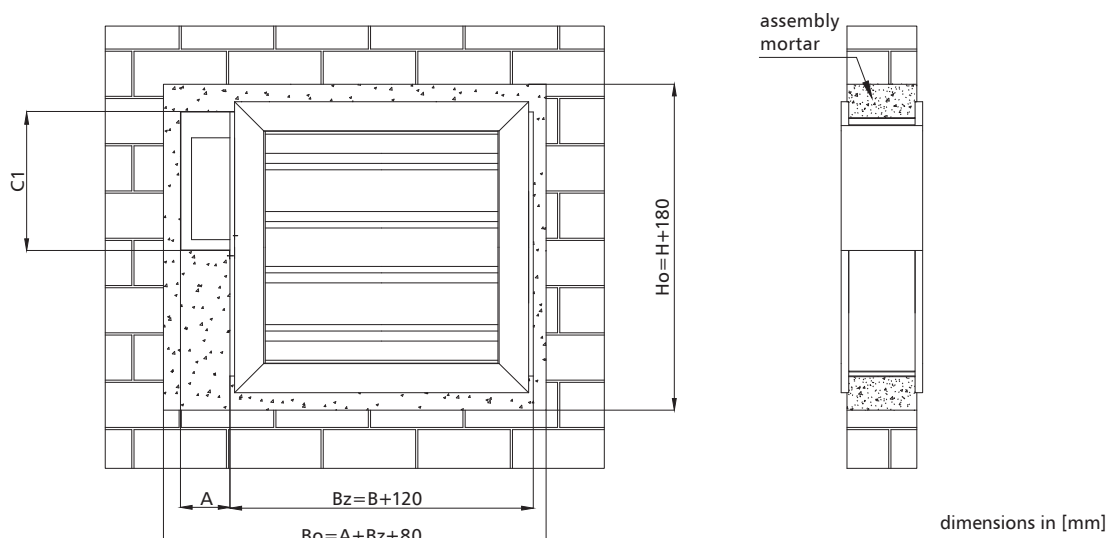
mcr WIP/S rectangular dampers are rated EI60(v_e i↔o)S and EI120(v_e i↔o)S if installed in concrete partitions with a thickness of at least 120 mm, partitions made of full bricks or aerated concrete blocks with a thickness of at least 120 mm.

9.5.1 | Preparation of installation openings

The minimum dimensions of the installation opening that permits correct installation of the mcr WIP/S damper is:

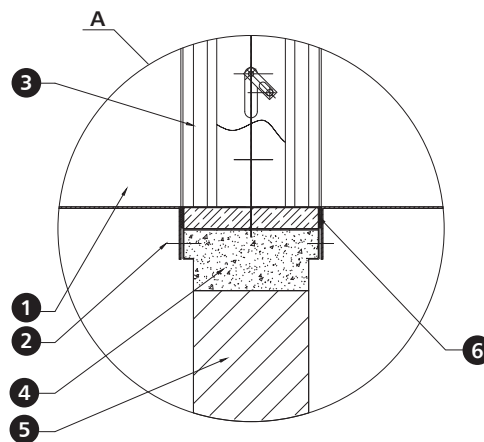
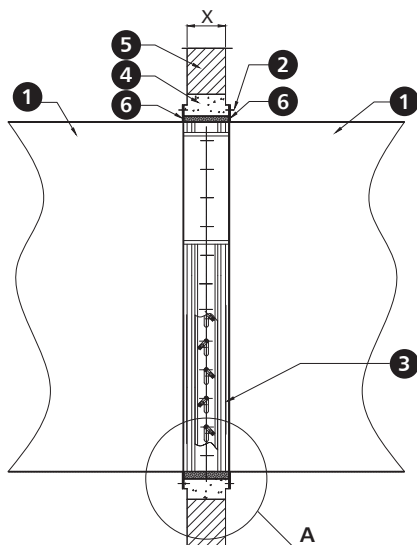
$$B_o = (A + B_z + 80) \text{ mm}$$

$$H_o = (H + 180) \text{ mm}$$



mechanism	BF	BFL	BFN	MF	MLF	QT.Ex
C1 [mm]	325	335	325	325	325	400
A [mm]	125	125	125	125	125	125

9.5.2 | Sample installation in concrete or masonry walls



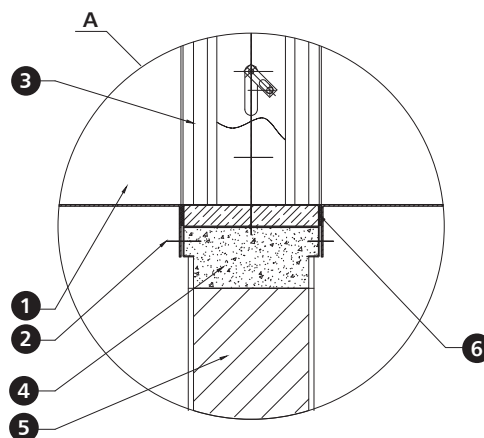
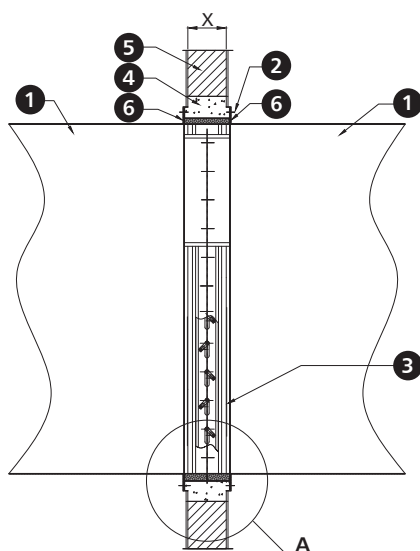
dimensions in [mm]

- 1. ventilation duct
- 2. ST4.2 x 16 sheet metal screw
- 3. mcr WIP/S fire damper
- 4. assembly mortar*
- 5. masonry wall

- 6. heat resistant gasket
- X. wall thickness

* Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

9.5.3 | Sample installation in concrete block or full brick walls



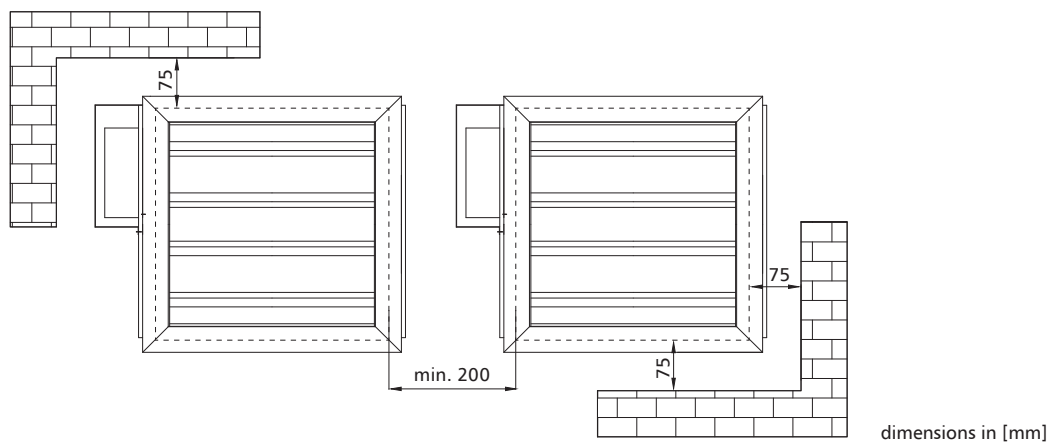
dimensions in [mm]

- 1. ventilation duct
- 2. ST4.2 x 16 sheet metal screw
- 3. mcr WIP/S fire damper
- 4. assembly mortar*
- 5. wall of concrete blocks or full bricks

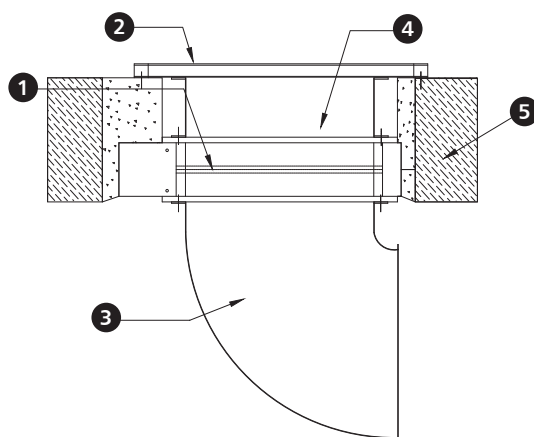
- 6. heat resistant gasket
- X. wall thickness

* Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

» Minimum distance between systems and partitions



» Example applications - installation with a masking element



- 1. mcr WIP/S fire damper
- 2. masking element
- 3. ventilation duct

- 4. duct - ventilation straight connection piece
- 5. wall, floor slab

If a mcr WIP/S damper is used, the application of louvers (no single-blade design) it is possible to use the space in front of and behind the damper for such system elements as a masking grille or a silencer with additional attenuation barrier or to route a duct along the wall using a duct bend or reduction.

9.6 | mcr WIP/S rectangular dampers technical parameters

B – nominal width [mm]
H – nominal height [mm]

v – velocity [m/s]
S_k – duct cross-section [m²]
S_e – damper active cross-section [m²]

Q – flow [m³/h]
d_p – pressure drop [Pa]
L_{WA} – damper noise level [dB]

			height H [mm]														
			200					250					300				
			S_k [m ²]	S_e [m ²]	Q [m³/h]	d _p [PA]	L _{WA} [dB]	S_k [m ²]	S_e [m ²]	Q [m³/h]	d _p [PA]	L _{WA} [dB]	S_k [m ²]	S_e [m ²]	Q [m³/h]	d _p [PA]	L _{WA} [dB]
width B [mm]	200	v [m/s]	0.040	0.034	490	6	26	0.050	0.043	612	6	26	0.06	0.051	734	6	27
		6			734	13	36			918	13	37			1 102	13	37
		8			979	24	44			1 224	23	44			1 469	22	45
		10			1 224	37	49			1 530	36	50			1 836	35	50
	250	4	0.050	0.043	612	6	26	0.063	0.053	765	6	27	0.075	0.064	918	6	28
		6			918	13	37			1 148	13	38			1 377	13	38
		8			1 224	23	44			1 530	23	45			1 836	22	46
		10			1 530	36	50			1 913	36	51			2 295	35	51
	300	4	0.060	0.051	734	6	27	0.075	0.064	918	6	28	0.09	0.077	1 102	6	28
		6			1 102	13	37			1 377	13	38			1 652	13	39
		8			1 469	23	45			1 836	23	46			2 203	22	46
		10			1 836	36	51			2 295	36	52			2 754	35	52
	350	4	0.070	0.060	857	6	27	0.088	0.074	1 071	36	52	0.105	0.089	1 285	5	29
		6			1 285	13	38			1 607	13	39			1 928	12	39
		8			1 714	22	45			2 142	22	46			2 570	22	47
		10			2 142	35	51			2 678	35	52			3 213	34	52
	400	4	0.080	0.068	979	6	28	0.100	0.085	1 224	6	29	0.12	0.102	1 469	5	29
		6			1 469	13	38			1 836	13	39			2 203	12	40
		8			1 958	22	46			2 448	22	47			2 938	22	47
		10			2 448	35	52			3 060	35	53			3 672	34	53
450	4	0.090	0.077	1 102	6	28	0.113	0.096	1 377	6	29	0.135	0.115	1 652	5	30	
	6			1 652	13	39			2 066	13	40			2 479	12	40	
	8			2 203	22	46			2 754	22	47			3 305	22	48	
	10			2 754	35	52			3 443	35	53			4 131	34	54	
500	4	0.100	0.085	1 224	5	28	0.125	0.106	1 530	5	29	0.15	0.128	1 836	5	30	
	6			1 836	12	39			2 295	12	40			2 754	12	40	
	8			2 448	22	46			3 060	22	47			3 672	21	48	
	10			3 060	34	52			3 825	34	53			4 590	33	54	
550	4	0.110	0.094	1 346	5	29	0.138	0.117	1 683	5	30	0.165	0.140	2 020	5	31	
	6			2 020	12	39			2 525	12	40			3 029	12	41	
	8			2 693	22	47			3 366	22	48			4 039	22	49	
	10			3 366	34	53			4 208	34	54			5 049	34	54	
600	4	0.120	0.102	1 469	5	29	0.150	0.128	1 836	5	30	0.18	0.153	2 203	5	31	
	6			2 203	12	40			2 754	12	41			3 305	12	41	
	8			2 938	22	47			3 672	22	48			4 406	21	49	
	10			3 672	34	53			4 590	34	54			5 508	33	54	
650	4	0.130	0.111	1 591	5	30	0.163	0.138	1 989	5	30	0.195	0.166	2 387	5	31	
	6			2 387	12	40			2 984	12	41			3 580	12	41	
	8			3 182	22	48			3 978	22	49			4 774	21	49	
	10			3 978	34	53			4 973	34	54			5 967	33	55	
700	4	0.140	0.119	1 714	5	30	0.175	0.149	2 142	5	31	0.21	0.179	2 570	5	31	
	6			2 570	12	40			3 213	12	41			3 856	12	42	
	8			3 427	22	48			4 284	22	49			5 141	21	49	
	10			4 284	34	54			5 355	34	55			6 426	33	55	
750	4	0.150	0.128	1 836	5	30	0.188	0.159	2 295	5	31	0.225	0.191	2 754	5	31	
	6			2 754	12	40			3 443	12	41			4 131	12	42	
	8			3 672	21	48			4 590	21	49			5 508	21	49	
	10			4 590	33	54			5 738	33	55			6 885	32	55	
800	4	0.160	0.136	1 958	5	30	0.200	0.170	2 448	5	31	0.24	0.204	2 938	5	31	
	6			2 938	12	41			3 672	12	42			4 406	12	42	
	8			3 917	21	48			4 896	21	49			5 875	21	49	
	10			4 896	33	54			6 120	33	55			7 344	32	55	
850	4	0.170	0.145	2 081	5	30	0.213	0.181	2 601	5	31	0.255	0.217	3 121	5	31	
	6			3 121	12	40			3 902	12	41			4 682	11	42	
	8			4 162	21	48			5 202	21	49			6 242	20	49	
	10			5 202	32	54			6 503	32	55			7 803	31	55	
900	4	0.180	0.153	2 203	5	30	0.225	0.191	2 754	5	31	0.27	0.230	3 305	5	31	
	6			3 305	12	41			4 131	12	42			4 957	11	42	
	8			4 406	21	48			5 508	21	49			6 610	20	50	
	10			5 508	32	54			6 885	32	55			8 262	31	55	
1000	4	0.200	0.170	2 448	5	31	0.250	0.213	3 060	5	32	0.3	0.255	3 672	5	32	
	6			3 672	12	41			4 590	12	42			5 508	11	43	
	8			4 896	21	49			6 120	21	50			7 344	20	50	
	10			6 120	32	54			7 650	32	55			9 180	31	56	

B – nominal width [mm]
H – nominal height [mm]

v – velocity [m/s]
S_k – duct cross-section [m²]
S_e – damper active cross-section [m²]

Q – flow [m³/h]
d_p – pressure drop [Pa]
L_{WA} – damper noise level [dB]

		height H [mm]															
		350					400					450					
		v [m/s]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]
width B [mm]	200	4	0.070	0.060	857	6	27	0.080	0.068	979	5	27	0.090	0.077	1 102	5	28
		6			1 285	13	38			1 469	12	38			1 652	12	38
		8			1 714	22	45			1 958	22	45			2 203	22	46
		10			2 142	35	51			2 448	34	51			2 754	34	52
	250	4	0.088	0.074	1 071	6	28	0.100	0.085	1 224	5	28	0.113	0.096	1 377	5	29
		6			1 607	13	39			1 836	12	39			2 066	12	39
		8			2 142	22	46			2 448	22	46			2 754	22	47
		10			2 678	35	52			3 060	34	52			3 443	34	53
	300	4	0.105	0.089	1 285	6	29	0.120	0.102	1 469	5	29	0.135	0.115	1 652	5	30
		6			1 928	13	40			2 203	12	40			2 479	12	40
		8			2 570	22	47			2 938	22	47			3 305	22	48
		10			3 213	35	53			3 672	34	53			4 131	34	54
	350	4	0.123	0.104	1 499	5	29	0.140	0.119	1 714	5	29	0.158	0.134	1 928	5	30
		6			2 249	12	40			2 570	12	40			2 892	12	41
		8			2 999	22	47			3 427	21	48			3 856	21	48
		10			3 749	34	53			4 284	33	53			4 820	33	54
	400	4	0.140	0.119	1 714	5	30	0.160	0.136	1 958	5	30	0.180	0.153	2 203	5	31
		6			2 570	12	40			2 938	12	41			3 305	12	41
		8			3 427	22	48			3 917	21	48			4 406	21	49
		10			4 284	34	54			4 896	33	54			5 508	33	54
	450	4	0.158	0.134	1 928	5	30	0.180	0.153	2 203	5	31	0.203	0.172	2 479	5	31
		6			2 892	12	41			3 305	12	41			3 718	12	42
		8			3 856	22	48			4 406	21	49			4 957	21	49
		10			4 820	34	54			5 508	33	54			6 197	33	55
	500	4	0.175	0.149	2 142	5	30	0.200	0.170	2 448	5	31	0.225	0.191	2 754	5	32
		6			3 213	12	41			3 672	12	42			4 131	12	42
		8			4 284	21	48			4 896	21	49			5 508	21	50
		10			5 355	33	54			6 120	33	55			6 885	33	55
	550	4	0.193	0.164	2 570	5	31	0.220	0.187	2 693	5	31	0.248	0.210	3 029	5	32
		6			3 856	12	42			4 039	12	42			4 544	12	43
		8			5 141	22	49			5 386	21	49			6 059	21	50
		10			6 426	34	55			6 732	33	55			7 574	33	56
	600	4	0.210	0.179	2 570	5	31	0.240	0.204	2 938	4	28	0.270	0.230	3 305	5	32
		6			3 856	12	42			4 406	8	37			4 957	12	42
		8			5 141	21	49			5 875	14	44			6 610	21	50
		10			6 426	33	55			7 344	32	55			8 262	32	56
	650	4	0.228	0.193	2 785	5	32	0.260	0.221	3 182	5	32	0.293	0.249	3 580	5	32
		6			4 177	12	42			4 774	12	42			5 370	12	43
		8			5 569	21	50			6 365	21	50			7 160	21	50
		10			6 962	33	55			7 956	32	56			8 951	32	56
	700	4	0.245	0.208	2 999	5	32	0.28	0.238	3 427	5	32	0.315	0.268	3 856	5	33
		6			4 498	12	42			5 141	12	43			5 783	12	43
		8			5 998	21	50			6 854	21	50			7 711	21	51
		10			7 497	33	56			8 568	32	56			9 639	32	56
	750	4	0.263	0.223	3 213	5	32	0.3	0.255	3 672	5	32	0.338	0.287	4 131	5	33
		6			4 820	12	42			5 508	12	43			6 197	12	43
		8			6 426	21	50			7 344	21	50			8 262	21	51
		10			8 033	32	56			9 180	32	56			10 328	32	57
	800	4	0.280	0.238	3 427	5	32	0.32	0.272	3 917	5	33	0.360	0.306	4 406	5	32
		6			5 141	12	43			5 875	11	43			6 610	11	42
		8			6 854	21	50			7 834	20	50			8 813	20	50
		10			8 568	32	56			9 792	31	56			11 016	31	56
	850	4	0.298	0.253	3 641	5	32	0.34	0.289	4 162	5	32	0.383	0.325	4 682	5	31
		6			5 462	11	42			6 242	11	43			7 023	11	42
		8			7 283	20	50			8 323	19	50			9 364	19	49
		10			9 104	31	56			10 404	30	56			11 705	30	55
	900	4	0.315	0.268	3 856	5	32	0.360	0.306	4 406	6	35	0.405	0.344	4 957	5	31
		6			5 783	11	43			6 610	12	44			7 436	11	42
		8			7 711	20	50			8 813	26	54			9 914	19	49
		10			9 639	31	56			11 016	30	56			12 393	30	55
	1000	4	0.350	0.298	4 284	5	33	0.400	0.340	4 896	5	33	0.450	0.383	5 508	5	31
		6			6 426	11	43			7 344	11	43			8 262	11	42
		8			8 568	20	51			9 792	19	51			11 016	19	49
		10			10 710	31	56			12 240	30	57			13 770	30	55

B – nominal width [mm]
H – nominal height [mm]

v – velocity [m/s]
S_k – duct cross-section [m²]
S_e – damper active cross-section [m²]

Q – flow [m³/h]
d_p – pressure drop [Pa]
L_{WA} – damper noise level [dB]

		height H [mm]															
		500					550					600					
		v [m/s]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]
width B [mm]	200	4	0.100	0.085	1 224	5	28	0.110	0.094	1 346	5	28	0.120	0.102	1 469	5	28
		6			1 836	12	39			2 020	12	39			2 203	12	39
		8			2 448	21	46			2 693	21	46			2 938	21	46
		10			3 060	33	52			3 366	33	52			3 672	32	52
	250	4	0.125	0.106	1 530	5	29	0.138	0.117	1 683	5	29	0.150	0.128	1 836	5	29
		6			2 295	12	40			2 525	12	40			2 754	12	40
		8			3 060	21	47			3 366	21	47			3 672	21	47
		10			3 825	33	53			4 208	33	53			4 590	32	53
	300	4	0.150	0.128	1 836	5	30	0.165	0.140	2 020	5	30	0.180	0.153	2 203	5	30
		6			2 754	12	40			3 029	12	41			3 305	12	41
		8			3 672	21	48			4 039	21	48			4 406	21	48
		10			4 590	33	54			5 049	33	54			5 508	32	54
	350	4	0.175	0.149	2 142	5	30	0.193	0.164	2 356	5	30	0.210	0.179	2 570	5	30
		6			3 213	12	41			3 534	12	41			3 856	11	41
		8			4 284	21	48			4 712	21	49			5 141	20	48
		10			5 355	32	54			5 891	32	54			6 426	31	54
	400	4	0.200	0.170	2 448	5	31	0.220	0.187	2 693	5	31	0.240	0.204	2 938	5	31
		6			3 672	12	41			4 039	12	42			4 406	11	42
		8			4 896	21	49			5 386	21	49			5 875	20	49
		10			6 120	32	54			6 732	32	55			7 344	31	55
	450	4	0.225	0.191	2 754	5	31	0.248	0.210	3 029	5	32	0.270	0.230	3 305	5	31
		6			4 131	12	42			4 544	12	42			4 957	11	42
		8			5 508	21	49			6 059	21	50			6 610	20	50
		10			6 885	32	55			7 574	32	55			8 262	31	55
	500	4	0.250	0.213	3 060	5	31	0.275	0.234	3 366	5	32	0.300	0.255	3 672	5	32
		6			4 590	11	42			5 049	12	43			5 508	11	43
		8			6 120	22	51			6 732	21	50			7 344	20	50
		10			7 650	32	55			8 415	32	56			9 180	31	56
	550	4	0.275	0.234	3 672	5	32	0.303	0.257	4 039	5	32	0.330	0.281	4 406	5	32
		6			5 508	12	43			6 059	12	43			6 610	11	43
		8			7 344	21	50			8 078	21	50			8 813	20	50
		10			9 180	32	56			10 098	32	56			11 016	31	56
	600	4	0.300	0.255	3 672	5	32	0.330	0.281	4 039	5	32	0.360	0.306	4 406	5	32
		6			5 508	11	43			6 059	11	43			6 610	11	43
		8			7 344	20	50			8 078	20	50			8 813	19	50
		10			9 180	31	56			10 098	31	56			11 016	30	56
	650	4	0.325	0.276	3 978	5	33	0.358	0.304	4 376	5	33	0.390	0.332	4 774	5	33
		6			5 967	12	43			6 564	11	43			7 160	11	43
		8			7 956	21	51			8 752	20	51			9 547	19	51
		10			9 945	31	56			10 940	31	57			11 934	30	57
	700	4	0.350	0.298	4 284	5	33	0.385	0.327	4 712	5	33	0.420	0.357	5 141	5	33
		6			6 426	11	43			7 069	11	44			7 711	11	44
		8			8 568	20	51			9 425	20	51			10 282	19	51
		10			10 710	31	56			11 781	31	57			12 852	30	57
	750	4	0.375	0.319	4 590	5	33	0.413	0.351	5 049	5	33	0.450	0.383	5 508	5	33
		6			6 885	11	43			7 574	11	44			8 262	11	44
		8			9 180	20	51			10 098	20	51			11 016	19	51
		10			11 475	31	57			12 623	31	57			13 770	30	57
800	4	0.400	0.340	4 896	5	32	0.440	0.374	5 386	5	33	0.480	0.408	5 875	5	33	
	6			7 344	11	43			8 078	11	44			8 813	10	44	
	8			9 792	19	51			10 771	19	51			11 750	19	51	
	10			12 240	30	56			13 464	30	57			14 688	29	57	
850	4	0.425	0.361	5 202	5	32	0.468	0.397	5 722	5	33	0.510	0.434	6 242	4	33	
	6			7 803	10	43			8 583	10	44			9 364	10	43	
	8			10 404	19	50			11 444	19	51			12 485	18	51	
	10			13 005	29	56			14 306	29	57			15 606	28	57	
900	4	0.450	0.383	5 508	5	32	0.495	0.421	6 059	5	33	0.540	0.459	6 610	4	33	
	6			8 262	10	43			9 088	10	44			9 914	10	41	
	8			11 016	19	50			12 118	19	51			13 219	18	49	
	10			13 770	29	56			15 147	29	57			16 524	28	54	
1000	4	0.500	0.425	6 120	5	32	0.550	0.468	6 059	5	34	0.600	0.510	7 344	4	34	
	6			9 180	10	43			9 088	10	44			11 016	10	44	
	8			12 240	19	50			12 118	19	52			14 688	18	52	
	10			15 300	29	56			15 147	29	58			18 360	28	57	

B – nominal width [mm]
H – nominal height [mm]

v – velocity [m/s]
S_k – duct cross-section [m²]
S_e – damper active cross-section [m²]

Q – flow [m³/h]
d_p – pressure drop [Pa]
L_{WA} – damper noise level [dB]

		height H [mm]															
		650					700					750					
		v [m/s]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]	S _k [m²]	S _e [m²]	Q [m³/h]	d _p [Pa]	L _{WA} [dB]
width B [mm]	200	4	0.130	0.111	1 591	5	29	0.140	0.119	1 714	5	29	0.150	0.128	1 836	5	29
		6			2 387	12	39			2 570	11	39			2 754	11	40
		8			3 182	21	47			3 427	20	47			3 672	20	47
		10			3 978	32	53			4 284	31	52			4 590	31	53
	250	4	0.163	0.138	1 989	5	30	0.175	0.149	2 142	5	30	0.188	0.159	2 295	5	30
		6			2 984	12	40			3 213	11	40			3 443	11	40
		8			3 978	21	48			4 284	20	48			4 590	20	48
		10			4 973	32	54			5 355	31	53			5 738	31	54
	300	4	0.195	0.166	2 387	5	30	0.210	0.179	2 570	5	30	0.225	0.191	2 754	5	31
		6			3 580	12	41			3 856	11	41			4 131	11	41
		8			4 774	21	49			5 141	20	48			5 508	20	49
		10			5 967	32	54			6 426	31	54			6 885	31	55
	350	4	0.228	0.193	2 785	5	31	0.245	0.208	2 999	5	31	0.263	0.223	3 213	5	31
		6			4 177	11	41			4 498	11	41			4 820	11	42
		8			5 569	20	49			5 998	19	49			6 426	19	49
		10			6 962	31	55			7 497	30	54			8 033	30	55
	400	4	0.260	0.221	3 182	5	31	0.280	0.238	3 427	5	31	0.300	0.255	3 672	5	32
		6			4 774	11	42			5 141	11	42			5 508	11	42
		8			6 365	20	49			6 854	19	49			7 344	19	50
		10			7 956	31	55			8 568	30	55			9 180	30	55
	450	4	0.293	0.249	3 580	5	32	0.315	0.268	3 856	5	32	0.338	0.287	4 131	5	32
		6			5 370	11	42			5 783	11	42			6 197	11	43
		8			7 160	20	50			7 711	19	50			8 262	19	50
		10			8 951	31	56			9 639	30	56			10 328	30	56
	500	4	0.325	0.276	3 978	5	32	0.350	0.298	4 284	5	32	0.375	0.319	4 590	5	32
		6			5 967	11	43			6 426	11	43			6 885	11	43
		8			7 956	20	50			8 568	19	50			9 180	19	51
		10			9 945	31	56			10 710	30	56			11 475	30	56
	550	4	0.358	0.304	4 774	5	33	0.385	0.327	4 712	5	33	0.413	0.351	5 049	5	33
		6			7 160	11	43			7 069	11	43			7 574	11	43
		8			9 547	20	51			9 425	19	51			10 098	19	51
		10			11 934	31	57			11 781	30	56			12 623	30	57
	600	4	0.390	0.332	4 774	5	33	0.420	0.357	5 141	5	33	0.450	0.383	5 508	5	33
		6			7 160	11	44			7 711	11	44			8 262	11	44
		8			9 547	20	51			10 282	19	51			11 016	19	51
		10			11 934	31	57			12 852	30	57			13 770	30	57
	650	4	0.423	0.359	5 171	5	33	0.455	0.387	5 569	5	33	0.488	0.414	5 967	5	33
		6			7 757	11	44			8 354	10	43			8 951	10	44
		8			10 343	19	51			11 138	19	51			11 934	19	51
		10			12 929	30	57			13 923	29	57			14 918	29	57
	700	4	0.455	0.387	5 569	5	33	0.490	0.417	5 998	5	33	0.525	0.446	6 426	5	34
		6			8 354	11	44			8 996	10	44			9 639	10	44
		8			11 138	19	51			11 995	19	51			12 852	19	52
		10			13 923	30	57			14 994	29	57			16 065	29	57
	750	4	0.488	0.414	5 967	5	34	0.525	0.446	6 426	5	34	0.563	0.478	6 885	5	34
		6			8 951	11	44			9 639	10	44			10 328	10	44
		8			11 934	19	52			12 852	19	52			13 770	19	52
		10			14 918	30	57			16 065	29	57			17 213	29	58
800	4	0.520	0.442	6 365	5	33	0.560	0.476	6 854	4	29	0.600	0.510	7 344	4	34	
	6			9 547	10	44			10 282	7	37			11 016	10	44	
	8			12 730	19	51			13 709	11	43			14 688	18	52	
	10			15 912	29	57			17 136	28	54			18 360	28	57	
850	4	0.553	0.470	6 763	4	33	0.595	0.506	7 283	4	34	0.638	0.542	7 803	4	34	
	6			10 144	10	43			10 924	10	44			11 705	10	44	
	8			13 525	18	51			14 566	18	52			15 606	18	52	
	10			16 907	28	57			18 207	28	57			19 508	28	58	
900	4	0.585	0.497	7 160	4	33	0.630	0.536	7 711	4	33	0.675	0.574	8 262	4	34	
	6			10 741	10	43			11 567	10	44			12 393	10	44	
	8			14 321	18	51			15 422	17	51			16 524	17	52	
	10			17 901	28	57			19 278	27	57			20 655	27	58	
1000	4	0.650	0.553	7 956	4	33	0.700	0.595	8 568	4	34	0.750	0.638	9 180	4	34	
	6			11 934	10	43			12 852	10	44			13 770	10	45	
	8			15 912	18	51			17 136	17	52			18 360	17	52	
	10			19 890	28	57			21 420	27	58			22 950	27	58	

B – nominal width [mm]
H – nominal height [mm]

v – velocity [m/s]
S_k – duct cross-section [m²]
S_e – damper active cross-section [m²]

Q – flow [m³/h]
d_p – pressure drop [Pa]
L_{WA} – damper noise level [dB]

		height H [mm]																			
		800					850					900					1000				
	v	S _k	S _e	Q	d _p	L _{WA}	S _k	S _e	Q	d _p	L _{WA}	S _k	S _e	Q	d _p	L _{WA}	S _k	S _e	Q	d _p	L _{WA}
	[m/s]	[m ²]	[m ²]	[m ³ /h]	[Pa]	[dB]	[m ²]	[m ²]	[m ³ /h]	[Pa]	[dB]	[m ²]	[m ²]	[m ³ /h]	[Pa]	[dB]	[m ²]	[m ²]	[m ³ /h]	[Pa]	[dB]
200	4			1 958	5	29			2 081	5	29			2 203	5	29			2 448	5	29
	6			2 938	11	39			3 121	11	40			3 305	10	39			3 672	10	40
	8	0.160	0.136	3 917	19	47	0.170	0.145	4 162	19	47	0.180	0.153	4 406	19	47	0.200	0.170	4 896	19	47
	10			4 896	30	53			5 202	30	53			5 508	29	53			6 120	29	53
250	4			2 448	5	30			2 601	5	30			2 754	5	30			3 060	5	30
	6	0.200	0.170	3 672	11	40	0.213	0.181	3 902	11	41	0.225	0.191	4 131	10	40	0.250	0.213	4 590	10	41
	8			4 896	19	48			5 202	19	48			5 508	19	48			6 120	19	48
	10			6 120	30	54			6 503	30	54			6 885	29	54			7 650	29	54
300	4			2 938	5	31			3 121	5	31			3 305	5	31			3 672	5	31
	6	0.240	0.204	4 406	11	41	0.255	0.217	4 682	11	41	0.270	0.230	4 957	10	41	0.300	0.255	5 508	10	42
	8			5 875	19	49			6 242	19	49			6 610	19	49			7 344	19	49
	10			7 344	30	54			7 803	30	55			8 262	29	54			9 180	29	55
350	4			3 427	5	31			3 641	5	31			3 856	4	31			4 284	4	31
	6	0.280	0.238	5 141	10	41	0.298	0.253	5 462	10	42	0.315	0.268	5 783	10	41	0.350	0.298	6 426	10	42
	8			6 854	19	49			7 283	19	49			7 711	18	49			8 568	18	49
	10			8 568	29	55			9 104	29	55			9 639	28	55			10 710	28	55
400	4			3 917	5	31			4 162	5	32			4 406	4	31			4 896	4	32
	6	0.320	0.272	5 875	10	42	0.340	0.289	6 242	10	42	0.360	0.306	6 610	10	42	0.400	0.340	7 344	10	42
	8			7 834	19	49			8 323	19	50			8 813	18	49			9 792	18	50
	10			9 792	29	55			10 404	29	55			11 016	28	55			12 240	28	56
450	4			4 406	5	32			4 682	4	32			4 957	4	31			5 508	4	32
	6	0.360	0.306	6 610	10	42	0.383	0.325	7 023	10	42	0.405	0.344	7 436	10	42	0.450	0.383	8 262	10	42
	8			8 813	19	50			9 364	18	50			9 914	17	50			11 016	17	50
	10			11 016	29	56			11 705	28	56			12 393	27	55			13 770	27	56
500	4			4 896	5	32			5 202	4	32			5 508	4	32			6 120	4	32
	6	0.400	0.340	7 344	10	43	0.425	0.361	7 803	10	43	0.450	0.383	8 262	10	42	0.500	0.425	9 180	10	43
	8			9 792	19	50			10 404	18	50			11 016	17	50			12 240	17	50
	10			12 240	29	56			13 005	28	56			13 770	27	56			15 300	27	56
550	4			5 386	5	33			5 722	4	33			6 059	4	32			6 732	4	33
	6	0.440	0.374	8 078	10	43	0.468	0.397	8 583	10	43	0.495	0.421	9 088	10	43	0.550	0.468	10 098	10	43
	8			10 771	19	51			11 444	18	51			12 118	17	50			13 464	17	51
	10			13 464	29	57			14 306	28	56			15 147	27	56			16 830	27	57
600	4			5 875	5	33			6 242	4	33			6 610	4	33			7 344	4	33
	6	0.480	0.408	8 813	10	44	0.510	0.434	9 364	10	43	0.540	0.459	9 914	10	43	0.600	0.510	11 016	10	44
	8			11 750	19	51			12 485	18	51			13 219	17	51			14 688	17	51
	10			14 688	29	57			15 606	28	57			16 524	27	57			18 360	27	57
650	4			6 365	5	33			6 763	4	33			7 160	4	33			7 956	4	34
	6	0.520	0.442	9 547	10	44	0.553	0.470	10 144	10	44	0.585	0.497	10 741	10	44	0.650	0.553	11 934	10	44
	8			12 730	19	52			13 525	18	51			14 321	17	51			15 912	17	52
	10			15 912	29	57			16 907	28	57			17 901	27	57			19 890	27	57
700	4			6 854	4	33			7 283	4	33			7 711	4	33			8 568	4	33
	6	0.560	0.476	10 282	10	44	0.595	0.506	10 924	10	44	0.630	0.536	11 567	9	43	0.700	0.595	12 852	9	44
	8			13 709	18	51			14 566	17	51			15 422	17	51			17 136	17	51
	10			17 136	28	57			18 207	27	57			19 278	26	57			21 420	26	57
750	4			7 344	4	34			7 803	4	33			8 262	4	33			9 180	4	34
	6	0.600	0.510	11 016	10	44	0.638	0.542	11 705	10	44	0.675	0.574	12 393	9	44	0.750	0.638	13 770	9	44
	8			14 688	18	52			15 606	17	51			16 524	17	51			18 360	17	52
	10			18 360	28	57			19 508	27	57			20 655	26	57			22 950	26	57
800	4			7 834	4	34			8 323	4	34			8 813	4	33			9 792	4	34
	6	0.640	0.544	11 750	10	44	0.680	0.578	12 485	10	44	0.720	0.612	13 219	9	44	0.800	0.680	14 688	9	44
	8			15 667	18	52			16 646	17	52			17 626	17	52			19 584	17	52
	10			19 584	28	58			20 808	27	58			22 032	26	57			24 480	26	58
850	4			8 323	4	34			8 843	4	33			9 364	4	34			10 404	4	34
	6	0.680	0.578	12 485	10	44	0.723	0.614	13 265	9	44	0.765	0.650	14 045	9	44	0.850	0.723	15 606	9	45
	8			16 646	17	52			17 687	17	52			18 727	17	52			20 808	17	52
	10			20 808	27	58			22 109	26	57			23 409	26	58			26 010	26	58
900	4			8 813	4	34			9 364	4	34			9 914	4	34			11 016	4	34
	6	0.720	0.612	13 219	10	45	0.765	0.650	14 045	9	44	0.810	0.689	14 872	9	45	0.900	0.765	16 524	9	44
	8			17 626	17	52			18 727	17	52			19 829	17	52			22 032	16	52
	10			22 032	27	58			23 409	26	58			24 786	26	58			27 540	25	58
1000	4			9 792	4	34			10 404	4	34			11 016	4	33			12 240	4	34
	6	0.800	0.680	14 688	9	44	0.850	0.723	15 606	9	44	0.900	0.765	16 524	9	44	1.000	0.850	18 360	9	44
	8			19 584	17	52			20 808	16	52			22 032	15	51			24 480	15	52
	10			24 480	26	58			26 010	25	58			27 540	24	57			30 600	24	58

The mcr WIP/S fire damper selection program is available at www.mercor.com.pl, in the Designer Zone.

9.7 | Estimated weights of mcr WIP/S dampers for rectangular ventilation ducts [kg]

		width B [mm]									
		200	250	300	400	500	600	700	800	900	1000
height H [mm]	200	10	10	10	10	15	17	18	19	22	25
	250	10	10	11	11	16	18	18	21	24	27
	300	10	11	11	12	17	20	21	23	26	28
	350	11	11	11	16	18	21	23	26	28	30
	400	12	12	14	18	19	21	25	29	30	33
	500	15	16	17	19	20	23	27	32	33	35
	600	17	18	20	21	23	26	30	35	37	39
	700	18	18	21	23	25	28	32	35	38	40
	800	20	21	22	24	29	35	37	41	43	49
	900	22	25	25	28	33	35	39	43	49	52
	1000	23	29	32	33	36	42	43	47	53	60

The table shows the weights of dampers with RST-KW1 trigger control mechanisms or actuators

9.8 | Accessories

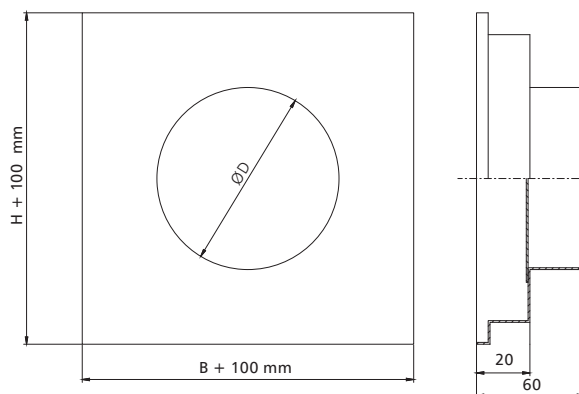
9.8.1 | mcr KRP connection stub

mcr KRP connection stubs are used to connect a circular ventilation duct to a rectangular damper. The connection is a „bare end“ pipe. The diameter of the stub pipe is 2 mm smaller than the diameter of the ventilation duct.

Dimensions:

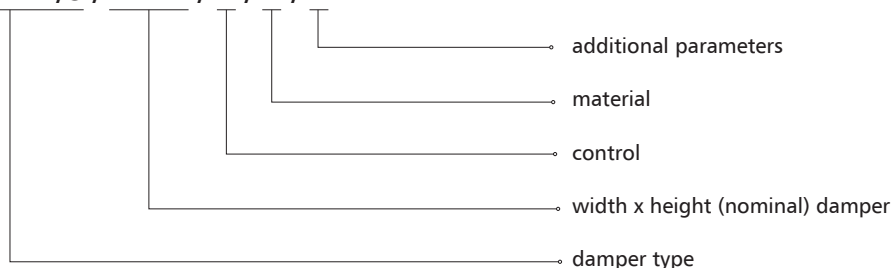
BxH - damper dimensions [mm]

ØD - diameter of the connection duct [mm]



9.9 | Marking

mcr WIP/S / B x H / 1 / 2 / 3



1 - control:

» trigger and control mechanism – BF24-TN axial

BF24-TN – actuator with a return spring, U = 24 V AC/DC

BF230-TN – actuator with a return spring, U = 230 V AC

BF24TL-TN-ST (with the BKN230-24MP option) – actuator with a return spring, U = 24 V, MP Bus digital control

BF24-TN-ST (with the BKN230-24 option) – actuator with a return spring, for the SBS Control system

BFL24-T – actuator with a return spring, U = 24 V AC/DC

BFL230-T – actuator with a return spring, U = 230 V AC

BFL24-T-ST (with the BKN230-24 option) – actuator with a return spring, for the SBS Control system

BFN24-T – actuator with a return spring, U = 24 V AC/DC

BFN230-T – actuator with a return spring, U = 230 V AC

BFN24-T-ST (with the BKN230-24 option) – actuator with a return spring, for the SBS Control system

MF24T1 – actuator with a return spring, U = 24 V AC/DC

MF230T1 – actuator with a return spring, U = 230 V AC

MLF24T1 – actuator with a return spring, U = 24 V AC/DC

MLF230T1 – actuator with a return spring, U = 230 V AC

QT.Ex 24-FT.Ex – explosion proof actuator with a return spring in the Ex version, U = 24 V AC/DC

QT.Ex 230-FT.Ex – explosion proof actuator with a return spring in the Ex version, U = 230 V AC/DC

2 - material

[no symbol] – galvanized steel, Zn 275 g/m² coating

KN – stainless steel

KK – 1.4404 acid-proof steel

3 - additional parameters

» Thermoelectric and thermal triggers

[no symbol] – 72°C trigger

ZBAT95 – thermoelectric trigger for 95°C

T93-95 – thermal trigger for 95°C

T2-95 (MLF/MF) – thermal trigger for 95°C

FT.Ex-72 – thermoelectric trigger for 72°C

FT.Ex-95 – thermoelectric trigger for 95°C

» Damper axis of rotation

[no symbol] – horizontal axis of rotation

PP_D – vertical axis of rotation – mechanism at the bottom of the damper

PP_G – vertical axis of rotation – mechanism at the top of the damper

» Design standard

[no symbol] – left damper

KP – right damper

» Damper casing

BU – earth pin

NOTE: separate additional parameters entered with the "/" sign

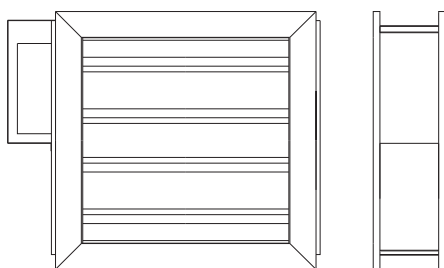
example marking:

mcr WIP/S 400 x 400 BFL24-T

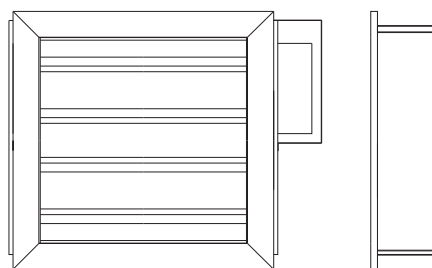
EIS60 louvered cut-off damper with a 24 V actuator with limit switches.

9.9.1 | Design standard

» left damper standard



» right damper



reverse installation possible

Chapter 18 in Technical Catalogue - power supply and control (p. 350) contains the following information:
- technical specifications and connection diagrams for the trigger control mechanisms supporting the damper.



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