



open in
PartShelf24



Smoke Control Damper

NEO-V

in libraries of
Fluid Desk
Building Information Modeling

EI 120 ($v_{ewd}-h_{owd}-i \leftrightarrow o$) **S1500**
C₁₀₀₀₀ AA multi
EN 1366-10:2011
EN 12101-8:2011

Certificate of Constancy
of Performance

CE 1391-CPR-2021/0047

Damper tightness class: 4
Casing tightness class: C
EN-1751:2014

EUROPEAN PATENT NO. 3061503

FUNCTION

The NEO-V smoke control dampers are designed for smoke control systems in buildings outfitted with a one-stage evacuation scenario based on the fire-affected zone separation principle. The dampers meet the requirements for buildings where in the event of a fire the affected zone should be isolated from the other zones, and the escape routes should be protected by means of mechanical smoke control system. The performance criteria are satisfied in case of fire from inside to outside of damper as well as outside to inside or both, respectively.

APPLICATION

The NEO-V dampers can be used in multi compartment systems and should be activated automatically. The dampers may be used in smoke control systems as well as in combined smoke control and environmental systems. Dampers installation is allowed within a duct passing through a vertical building partition or directly in vertical building partition. The NEO-V dampers are designed for use in systems over the range from the negative pressure of 1500 Pa up to a positive pressure of 500 Pa.

DESCRIPTION

The NEO-V consists of:

- rectangular casing made of galvanized steel sheet alternatively stainless or acid proof steel
- movable damper blades made of fire resistant board
- combination of smoke and fire proof seals of damper blade
- control mechanism and optional EMS module enabling fire damper assessment with the TZ tester.



SELECTION

DIMENSIONS AND BASIC CHARACTERISTICS OF NEO-V DAMPER

H \ L	100	150	200	250	300	315	350	400	450	500	550	600	630	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	Number of blades	
200	120	180	240	300	360	378	420	480	540	600	660	720	756	780	840	900	960	1020	1080	1140	1200	1260	1320	1380	1440	2	S
	511	569	626	684	742	759	799	857	914	972	1029	1087	1121	1144	1202	1260	1317	1375	1432	1490	1547	1605	1662	1720	1778	M	
250	130	195	260	325	390	410	455	520	585	650	715	780	819	845	910	975	1040	1105	1170	1235	1300	1365	1430	1495	1560	3	S
	651	731	811	892	972	996	1052	1132	1213	1293	1373	1454	1502	1534	1614	1694	1775	1855	1935	2015	2096	2176	2256	2337	2417	M	
300	180	270	360	450	540	567	630	720	810	900	990	1080	1134	1170	1260	1350	1440	1530	1620	1710	1800	1890	1980	2070	2160	3	S
	745	825	905	986	1066	1090	1146	1226	1307	1387	1467	1548	1596	1628	1708	1788	1869	1949	2029	2110	2190	2270	2350	2431	2511	M	
315	155	233	310	388	465	488	543	620	698	775	853	930	977	1008	1085	1163	1240	1318	1395	1473	1550	1628	1705	1783	1860	4	S
	818	921	1024	1127	1230	1261	1333	1436	1539	1642	1745	1848	1910	1951	2054	2157	2260	2363	2466	2569	2672	2775	2878	2981	3084	M	
350	190	285	380	475	570	599	663	760	855	950	1045	1140	1197	1235	1330	1425	1520	1615	1710	1805	1900	1995	2090	2185	2280	4	S
	884	987	1090	1193	1296	1327	1399	1502	1605	1708	1811	1914	1976	2017	2120	2223	2326	2429	2532	2635	2738	2841	2944	3047	3150	M	
400	240	360	480	600	720	756	840	960	1080	1200	1320	1440	1512	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640	2760	2880	5	S
	978	1081	1184	1287	1390	1421	1493	1596	1699	1802	1905	2008	2070	2111	2214	2317	2420	2523	2626	2729	2832	2935	3038	3141	3244	M	
450	250	375	500	625	750	788	875	1000	1125	1250	1375	1500	1575	1625	1750	1875	2000	2125	2250	2375	2500	2625	2750	2875	3000	5	S
	1118	1244	1369	1495	1621	1658	1746	1872	1998	2124	2249	2375	2450	2501	2626	2752	2878	3004	3129	3255	3381	3507	3632	3758	3884	M	
500	300	450	600	750	900	945	1050	1200	1350	1500	1650	1800	1890	1950	2100	2250	2400	2550	2700	2850	3000	3150	3300	3450	3600	5	S
	1212	1338	1463	1589	1715	1752	1840	1966	2092	2218	2343	2469	2545	2595	2721	2846	2972	3098	3223	3349	3475	3601	3726	3852	3978	M	
550	310	465	620	775	930	977	1085	1240	1395	1550	1705	1860	1953	2015	2170	2325	2480	2635	2790	2945	3100	3255	3410	3565	3720	6	S
	1351	1500	1648	1797	1945	1990	2094	2242	2390	2539	2687	2836	2925	2984	3133	3281	3430	3578	3726	3875	4023	4172	4320	4469	4617	M	
600	360	540	720	900	1080	1134	1260	1440	1620	1800	1980	2160	2268	2340	2520	2700	2880	3060	3240	3420	3600	3780	3960	4140	4320	6	S
	1445	1594	1742	1891	2039	2084	2188	2336	2485	2633	2781	2930	3019	3078	3227	3375	3524	3672	3821	3969	4117	4266	4414	4563	4711	M	
630	350	525	700	875	1050	1103	1225	1400	1575	1750	1925	2100	2205	2275	2450	2625	2800	2975	3150	3325	3500	3675	3850	4025	4200	7	S
	1547	1718	1890	2061	2232	2283	2403	2574	2745	2917	3088	3259	3362	3430	3601	3772	3944	4115	4286	4457	4628	4799	4971	5142	5313	M	
650	370	555	740	925	1110	1166	1295	1480	1665	1850	2035	2220	2331	2405	2590	2775	2960	3145	3330	3515	3700	3885	4070	4255	4440	7	S
	1585	1756	1927	2098	2270	2321	2441	2612	2783	2954	3125	3297	3399	3468	3639	3810	3981	4152	4324	4495	4666	4837	5008	5179	5351	M	
700	420	630	840	1050	1260	1323	1470	1680	1890	2100	2310	2520	2646	2730	2940	3150	3360	3570	3780	3990	4200	4410	4620	4830	5040	7	S
	1679	1850	2021	2192	2364	2415	2535	2706	2877	3048	3219	3391	3493	3562	3733	3904	4075	4246	4418	4589	4760	4931	5102	5273	5445	M	
750	430	645	860	1075	1290	1355	1505	1720	1935	2150	2365	2580	2709	2795	3010	3225	3440	3655	3870	4085	4300	4515	4730	4945	5160	8	S
	1818	2012	2206	2400	2594	2652	2788	2982	3176	3370	3563	3757	3874	3951	4145	4339	4533	4727	4921	5115	5308	5502	5696	5890	6084	M	
800	480	720	960	1200	1440	1512	1680	1920	2160	2400	2640	2880	3024	3120	3360	3600	3840	4080	4320	4560	4800	5040	5280	5520	5760	8	S
	1912	2106	2300	2494	2688	2746	2882	3076	3270	3464	3657	3851	3968	4045	4239	4433	4627	4821	5015	5209	5402	5596	5790	5984	6178	M	
850	490	735	980	1225	1470	1544	1715	1960	2205	2450	2695	2940	3087	3185	3430	3675	3920	4165	4410	4655	4900	5145	5390	5635	5880	9	S
	2052	2269	2485	2702	2918	2983	3135	3352	3568	3785	4001	4218	4348	4435	4651	4868	5084	5301	5518	5734	5951	6168	6384	6601	6817	M	
900	540	810	1080	1350	1620	1701	1890	2160	2430	2700	2970	3240	3402	3510	3780	4050	4320	4590	4860	5130	5400	5670	5940	6210	6480	9	S
	2146	2363	2579	2796	3012	3077	3229	3446	3662	3879	4095	4312	4442	4529	4745	4962	5179	5395	5612	5828	6045	6262	6478	6695	6911	M	
950	550	825	1100	1375	1650	1733	1925	2200	2475	2750	3025	3300	3465	3575	3850	4125	4400	4675	4950	5225	5500	5775	6050	6325	6600	10	S
	2285	2525	2764	3003	3243	3315	3482	3721	3961	4200	4439	4679	4822	4918	5157	5397	5636	5875	6115	6354	6593	6832	7071	7310	7549	M	
1000	600	900	1200	1500	1800	1890	2100	2400	2700	3000	3300	3600	3780	3900	4200	4500	4800	5100	5400	5700	6000	6300	6600	6900	7200	10	S
	2380	2619	2858	3098	3337	3409	3576	3816	4055	4294	4534	4773	4916	5012	5252	5491	5730	5970	6210	6450	6690	6930	7170	7410	7650	M	
1050	610	915	1220	1525	1830	1922	2135	2440	2745	3050	3355	3660	3843	3965	4270	4575	4880	5185	5490	5795	6100	6405	6710	7015	7320	11	S
	2519	2781	3043	3305	3567	3646	3829	4091	4353	4615	4877	5140	5297	5402	5664	5926	6188	6450	6712	6974	7236	7498	7760	8022	8284	M	
1100	660	990	1320	1650	1980	2079	2310	2640	2970	3300	3630	3960	4158	4290	4620	4950	5280	5610	5940	6270	6600	6930	7260	7590	7920	11	S
	2613	2875	3137	3399	3661	3740	3923	4185	4447	4709	4972	5234	5391	5496	5758	6020	6282	6544	6806	7068	7330	7592	7854	8116	8378	M	
1150	670	1005	1340	1675	2010	2111	2345	2680	3015	3350	3685	4020	4221	4355	4680	5025	5360	5695	6030	6365	6700	7035	7370	7705	8040	12	S
	2753	3037	3322	3607	3892	3977	4176	4461	4746	5031	5316	5600	5771	5885	6170	6455	6739	7024	7309	7594	7879	8164	8449	8734	9019	M	
1200	720	1080	1440	1800	2160	2268	2520	2880	3240	3600	3960	4320	4536	4680	5040	5400	5760	6120	6480	6840	7200	7560	7920	8280	8640	12	S
	2847	3131	3416	3701	3986	4071	4270	4555	4840	5125	5410	5694	5865	5979	6264	6549	6833	7118	7403	7688	7973	8258	8543	8828	9113	M	

Legend:

L – damper width [mm] S – effective area [dm²]

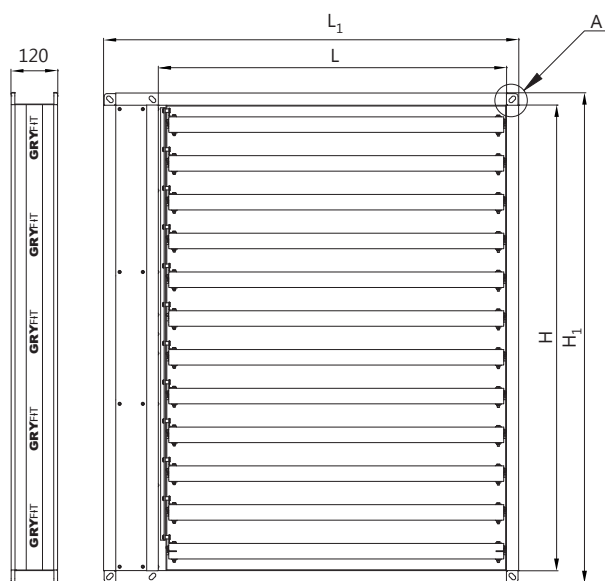
H – damper height [mm] M – weight [kg]

For dimensions not listed in this table, assembly of fire dampers in batteries maybe considered.

NEO-V dampers may be manufactured with 5 mm step of L dimension.

Attention! Fields shaded in grey are beyond the dimensional range.

DIMENSIONS OF NEO-V DAMPER WITH SDG-15 ACTUATOR

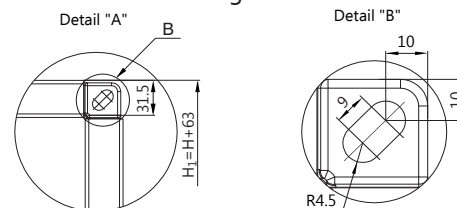


Legend:

L [mm] - damper width, H [mm] - damper height

L₁ [mm] – overall damper width, H₁ [mm] – overall damper height

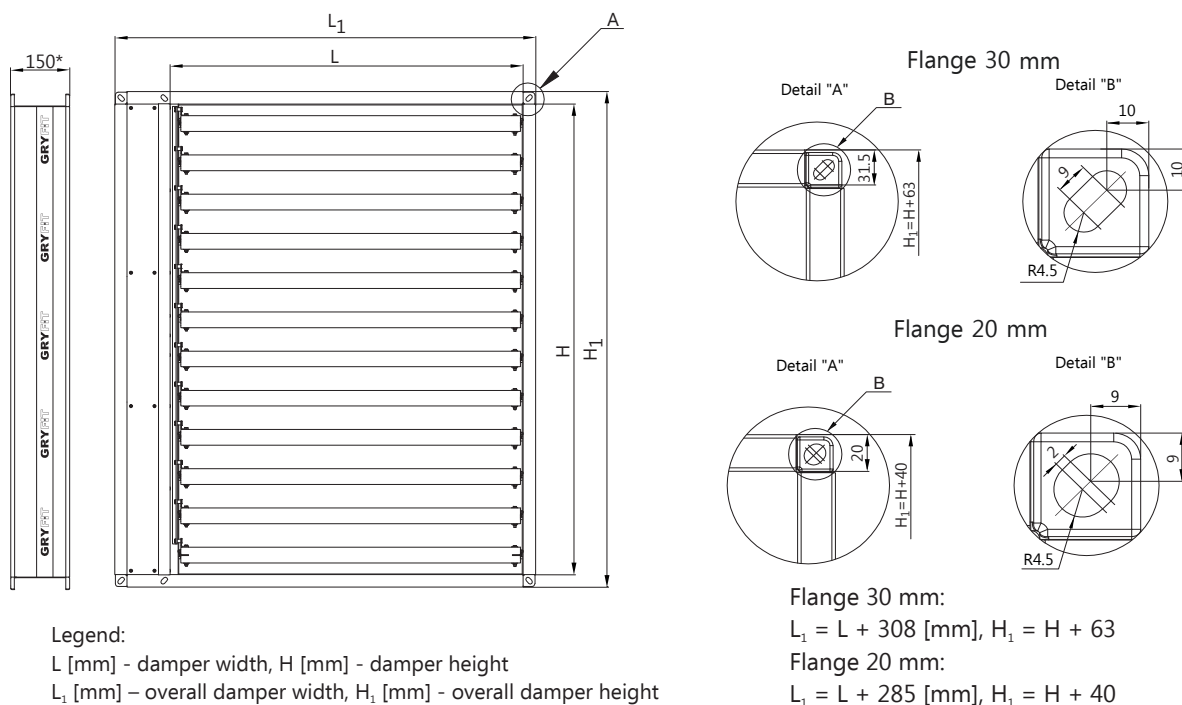
Flange 30 mm





SELECTION

DIMENSIONS OF NEO-V DAMPER WITH MECHANISM H



SELECTION

PRESSURE DROP AND SOUND POWER LEVEL

Example no. 1

Parameters known:

Parameters required:

Results:

NEO-V damper of LxH=300x700 [mm]

ΔP [Pa], L_{WA} [dB(A)], L_{WNC} [dB], L_{WOKT} [dB] for 500 [Hz] octave at the velocity V=4 [m/s] referred to the nominal size of the damper

ΔP=13x2,0=26 [Pa] for L=300 [mm] taken from Table 1

L_{WA}=34+3,2=37,2 [dB(A)] for L=300 [mm] taken from Table 1

L_{WNC}=37,2-5,0=32,2 [dB]

L_{WOKT}=37,2-5,0=32,2 [dB] for 4 [m/s], 500 [Hz] taken from Table 3

Example no. 2

Parameters known:

Parameters required:

Results:

NEO-V damper of LxH=700x300 [mm]

ΔP [Pa], L_{WA} [dB(A)], L_{WNC} [dB], L_{WOKT} [dB] for 500 [Hz] octave at the velocity V=4 [m/s] referred to the nominal size of the damper

ΔP=15 [Pa]

L_{WA}=35 [dB(A)]

L_{WNC}=35-5=30 [dB]

L_{WOKT}=35-5=30 [dB] for 4 [m/s], 500 [Hz] taken from Table 3

Note:

Replacement of dimension of L [mm] with H [mm] will result in reduction of pressure drop ΔP [Pa] and acoustic power level L_{WA} [dB(A)]

Example no. 3

Parameters known:

Parameters required:

Results:

NEO-V damper of LxH=200x300 [mm]

ΔP [Pa], L_{WA} [dB(A)], L_{WNC} [dB], L_{WOKT} [dB] for 500 [Hz] octave at the velocity V=4 [m/s] referred to the nominal size of the damper

ΔP=15x3,3=49,5 [Pa] for L=200 [mm] taken from Table 1

L_{WA}=35+5,5=40,5 [dB(A)] for L=200 [mm] taken from Table 1

L_{WNC}=40,5-5=35,5 [dB]

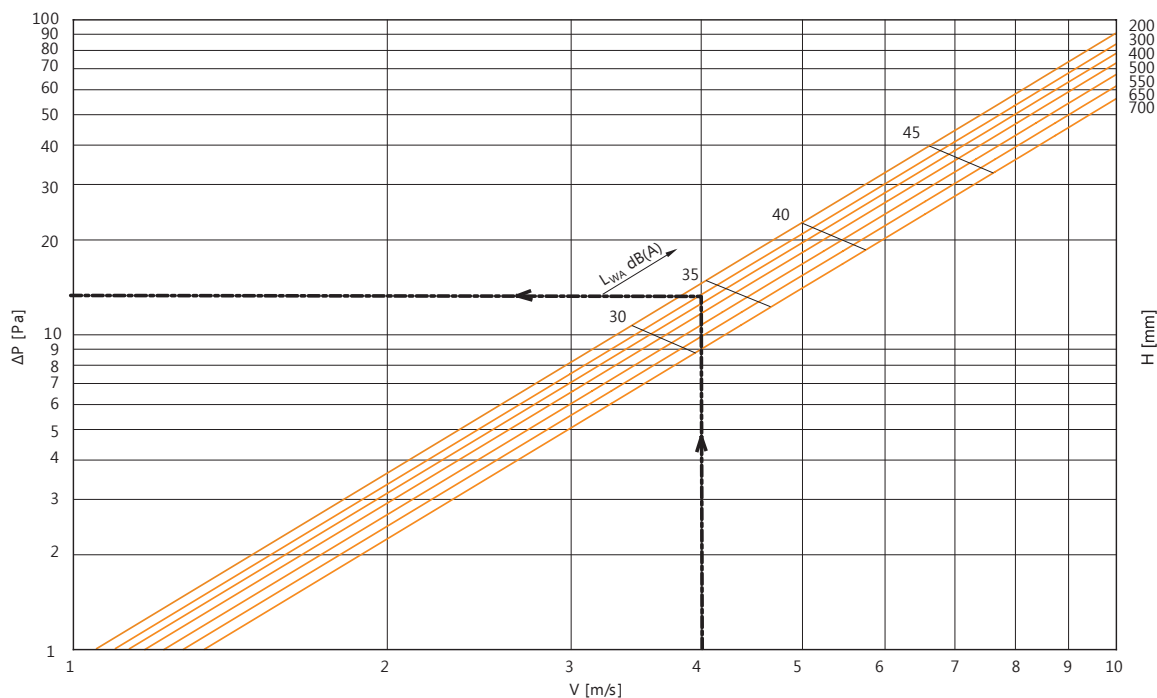
L_{WOKT}=40,5-5,0=35,5 [dB] for 4 [m/s], 500 [Hz] taken from Table 3



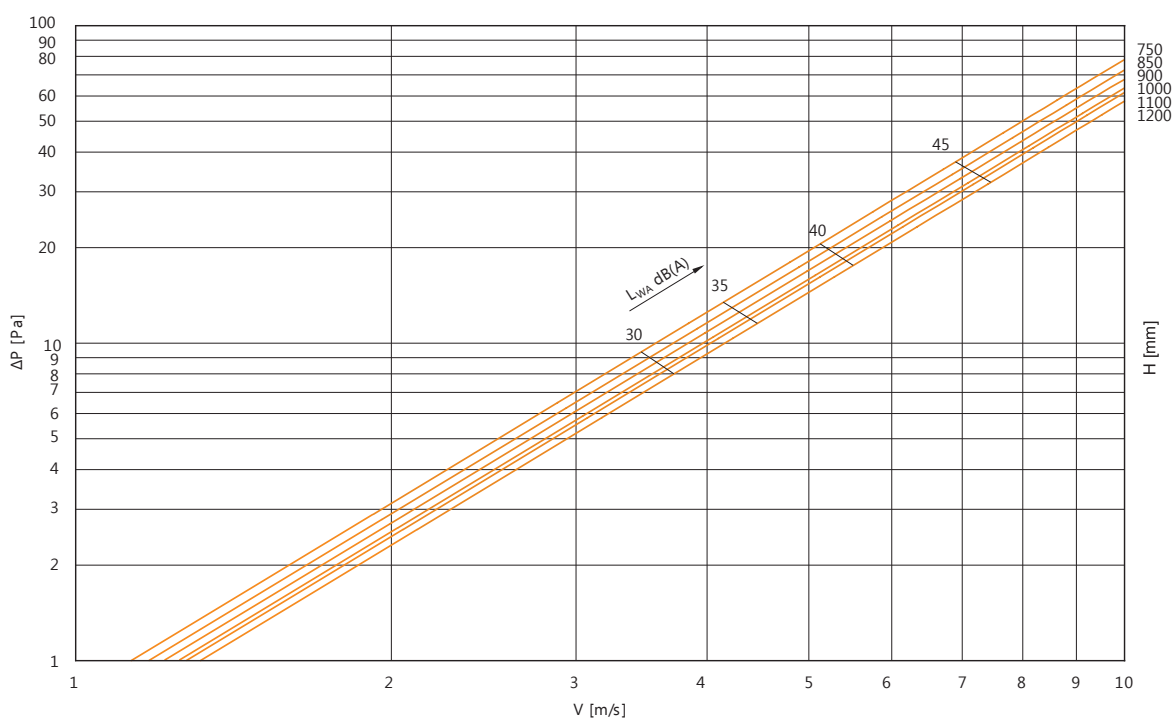
SELECTION

PRESSURE DROP AND SOUND POWER LEVEL

Pressure drop ΔP [Pa] in the function of air velocity V [m/s] with consideration of acoustic power L_{WA} [dB(A)] for the NEO-V damper of $L=700$ and H in the range of $200 \div 700$ [mm]– assembly with TRA grille at the ends of the ducts.



Pressure drop ΔP [Pa] in the function of air velocity V [m/s] with consideration of acoustic power L_{WA} [dB(A)] for the NEO-V damper of $L=700$ and H in the range of $750 \div 1200$ [mm]– assembly with TRA grille at the ends of the ducts.

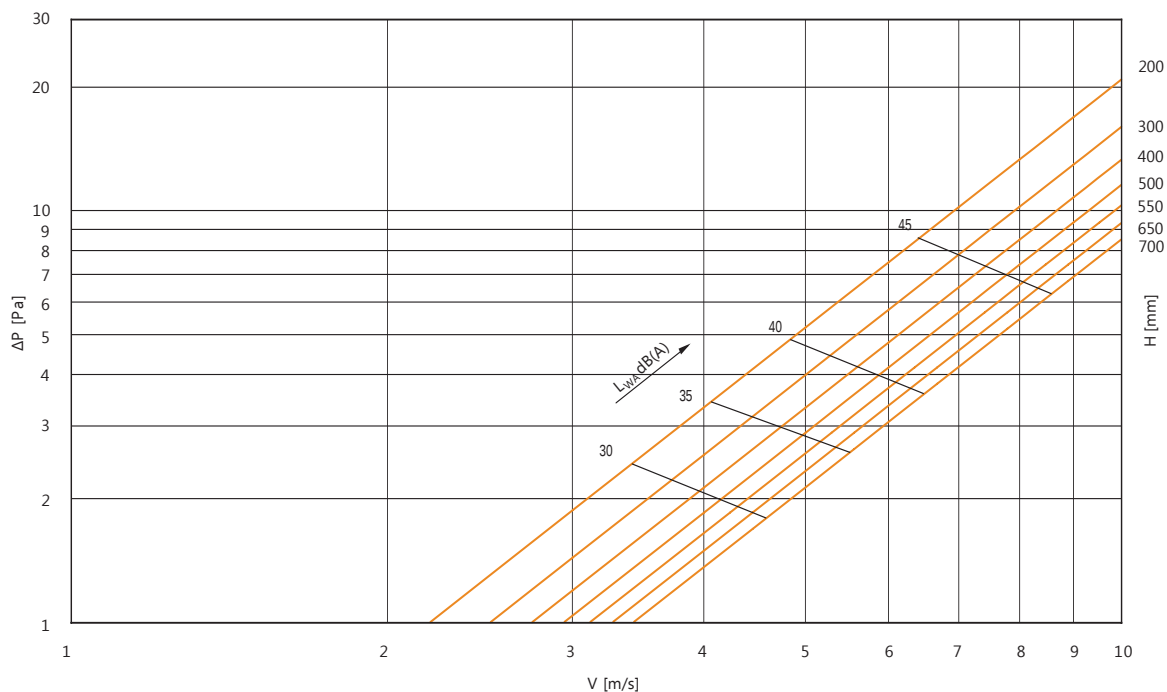




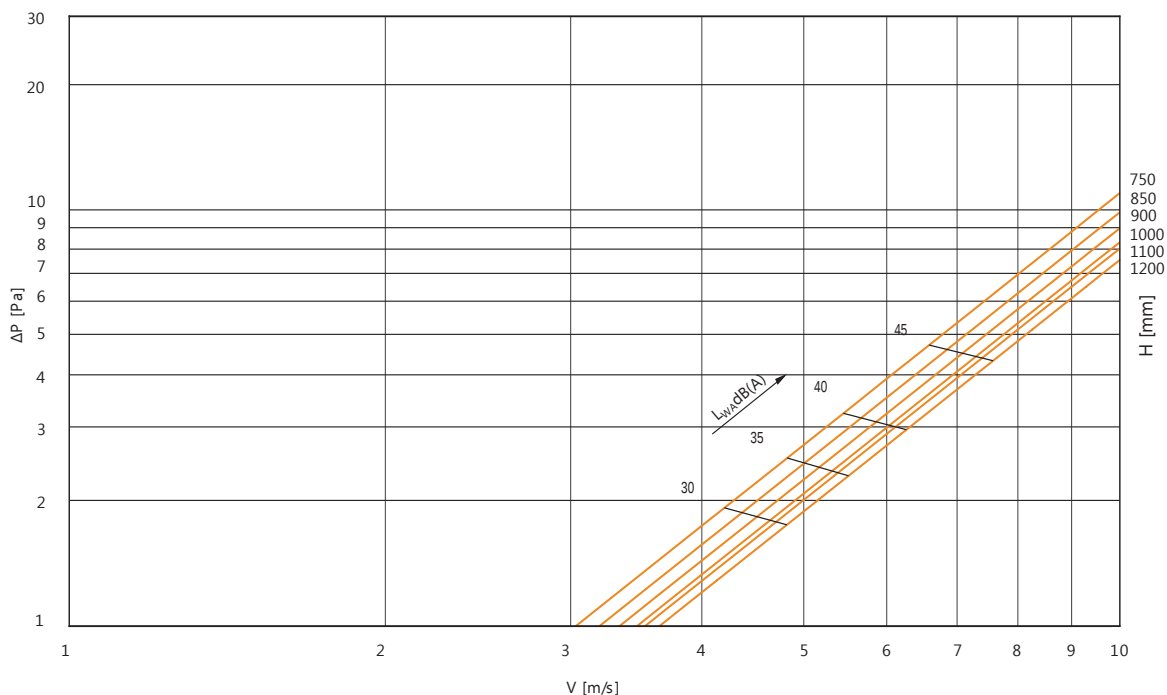
SELECTION

PRESSURE DROP AND SOUND POWER LEVEL

Pressure drop ΔP [Pa] in the function of air velocity V [m/s] with consideration of acoustic power L_{WA} [dB(A)] for the NEO-V damper of $L=700$ and H in the range of $200 \div 700$ [mm].



Pressure drop ΔP [Pa] in the function of air velocity V [m/s] with consideration of acoustic power L_{WA} [dB(A)] for the NEO-V damper of $L=700$ and H in the range of $750 \div 1200$ [mm].





SELECTION

PRESSURE DROP AND SOUND POWER LEVEL

Table 1.

L [mm]	Aerodynamic and acoustic correction for dampers of other dimensions L [mm]	
	$\Delta P \times \zeta$	LW+
200	3,3	5,5
250	2,2	4,2
300	2,0	3,2
315	2,0	3,2
350	1,8	2,8
400	1,7	2,2
450	1,5	2,2
500	1,5	2,2
550	1,4	2,2
600	1,4	2,2
630	1,0	0,0
650	1,0	0,0
700	1,0	0,0
750	1,0	0,0
800	1,0	-1,5
850	0,8	-1,5
900	0,8	-0,5
1000	0,8	-0,5
1100	0,8	-0,5
1200	0,8	-0,5

Table 3.

Correction for octave in [dB]							
V [m/s]	63	125	250	500	1000	2000	4000
4	12	18	7	-5	-19	-25	-37
5	10	13	7	-5	-14	-23	-33
6	7	8	5	-5	-12	-16	-27
7	5	6	2	-4	-10	-15	-24
8	2	5	1	-4	-10	-11	-21
9	1	3	-1	-5	-7	-11	-19
10	-2	2	-4	-5	-7	-9	-16

Note:

1. Measurements have been made in accordance with the following standards: PN-ISO 5135: 2000, PN EN-ISO 3741: 2011, PN EN 1751: 2002
2. Intermediate values may be determined by interpolation.
3. Automatic verification of aerodynamic and acoustic characteristics in VENTPACK.

Table 2.

Local resistance coefficient ζ for L=700 [mm]																						
H [mm]	200	250	300	315	350	400	450	500	550	600	630	650	700	750	800	850	900	950	1000	1050	1150	1200
ζ	2,65	1,85	1,45	1,33	1,25	1,18	1,15	1,10	1,08	1,02	0,95	0,86	0,80	0,75	0,71	0,71	0,65	0,63	0,59	0,58	0,50	0,50

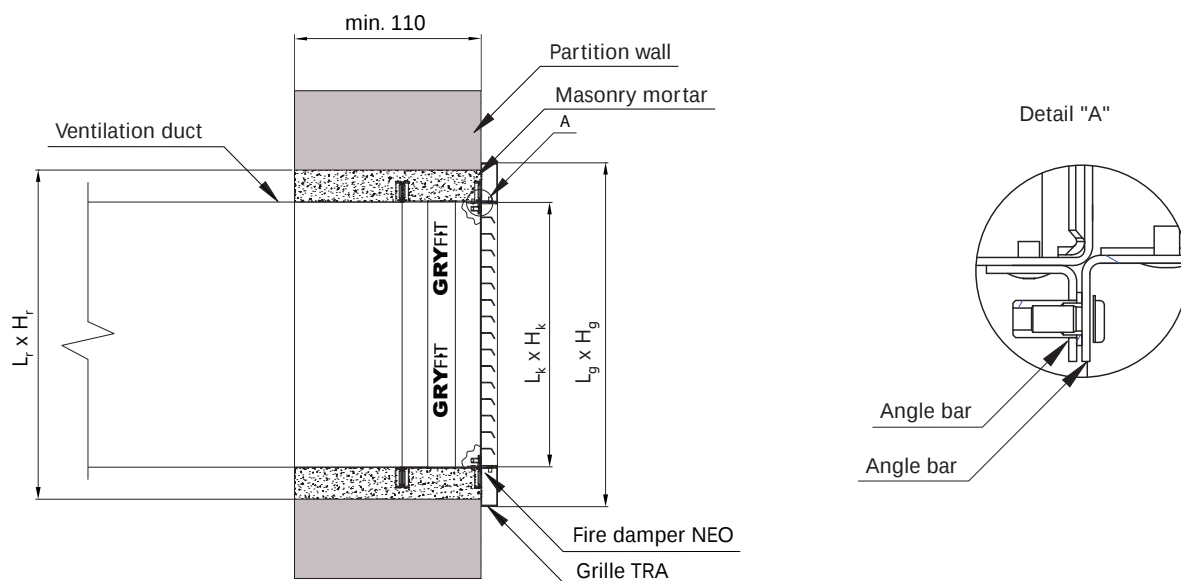
Legend:

- L [mm] – length of NEO-V damper
- H [mm] – height of NEO-V damper
- V [m/s] – air velocity referred to nominal size of NEO-V damper
- ΔP [Pa] – total pressure loss
- ζ – local resistance coefficient
- ρ [kg/m³] – air density (1,2 at 20°C)
- L_{WA} [dB(A)] – sound power level after frequency-dependent correction of A-type
- L_{WNC} [dB] – sound power level as per the graph NC $L_{WNC} = L_W - 5$
- L_{WOKT} [dB] – sound power level in octave bands $L_{WOKT} = L_{WA} + \text{correction taken from Table 1}$
- f [Hz] – octave frequency

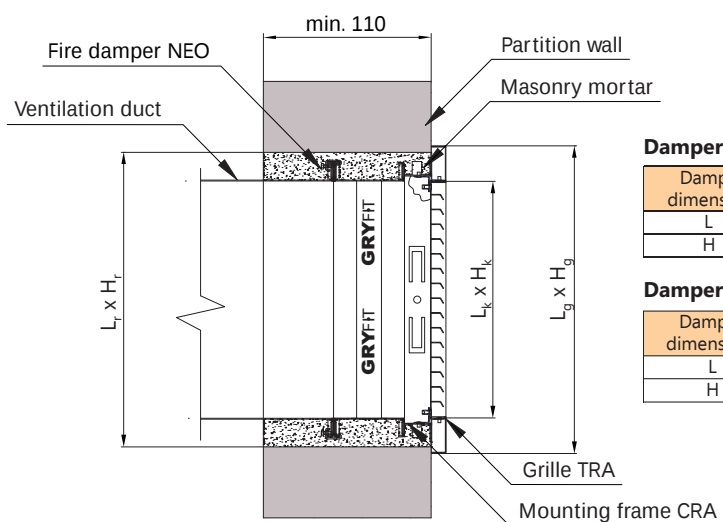


METHOD OF INSTALLATION

INSTALLATION OF NEO-V WITH TRA GRILLE



INSTALLATION OF NEO-V WITH TRA GRILLE AND CRA MOUNTING FRAME

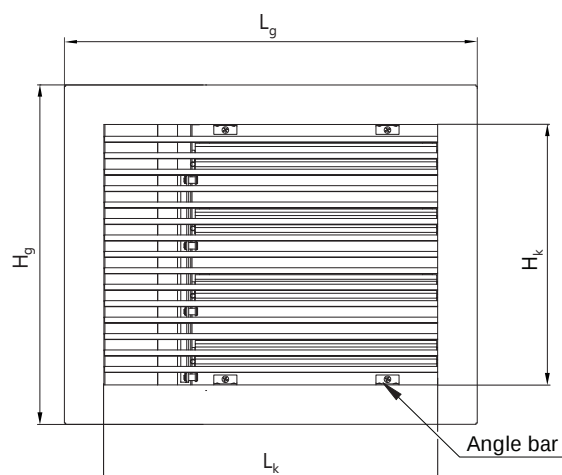


Dampers with SDG-15 actuator

Damper dimensions	Dimensions of opening	Dimensions of TRA grille	Outside dimension of TRA grille
L	$L_r = L + 255$	$L_k = L + 165$	$L_g = L + 285$
H	$H_r = H + 90$	$H_k = H$	$H_g = H + 120$

Dampers with mechanism H

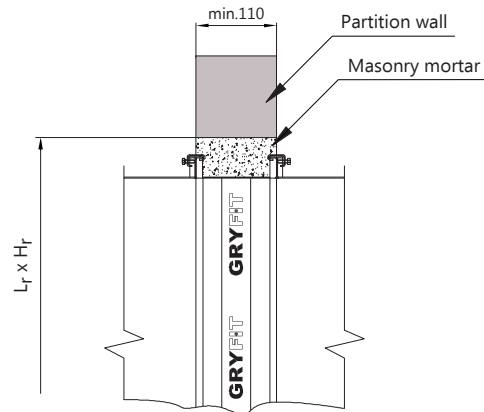
Damper dimensions	Dimensions of opening	Dimensions of TRA grille	Outside dimension of TRA grille
L	$L_r = L + 335$	$L_k = L + 245$	$L_g = L + 365$
H	$H_r = H + 90$	$H_k = H$	$H_g = H + 120$





METHOD OF INSTALLATION

INSTALLATION OF NEO-V WITH VENTILATION DUCT CONNECTED ON BOTH SIDES

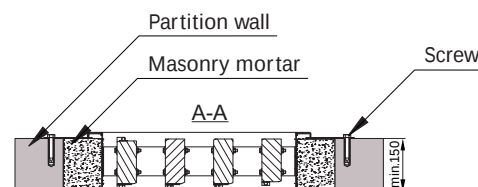
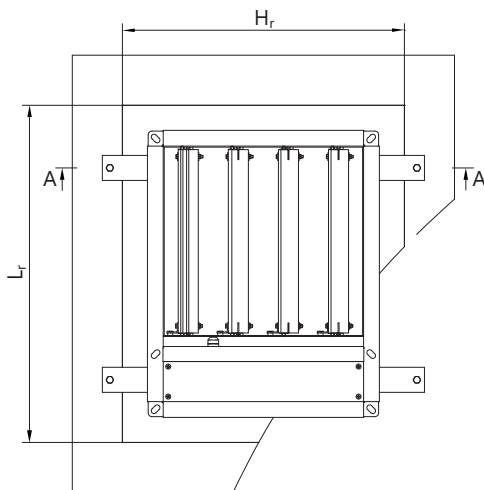


INSTALLATION OF NEO-V IN HORIZONTAL PARTITION



NEO-V damper may be mounted in the horizontal partition with use of 4 flat bars fastened by means of steel expansion anchors.

Dimensions (L_r, H_r) of mounting opening are the same as in case of installation of the damper in vertical partition wall made of concrete or bricks.



Legend: **Dampers with SDG-15 actuator**

$L_r = L + 255$, $H_r = H + 90$

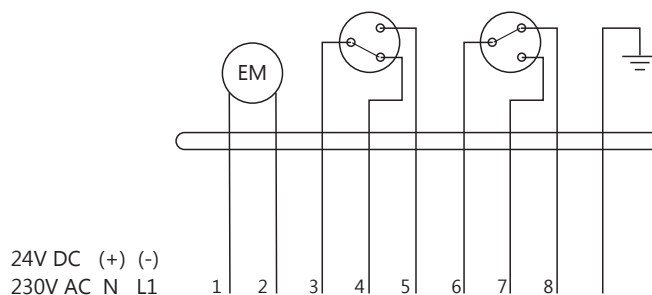
Dampers with mechanism H

$L_r = L + 335$, $H_r = H + 90$



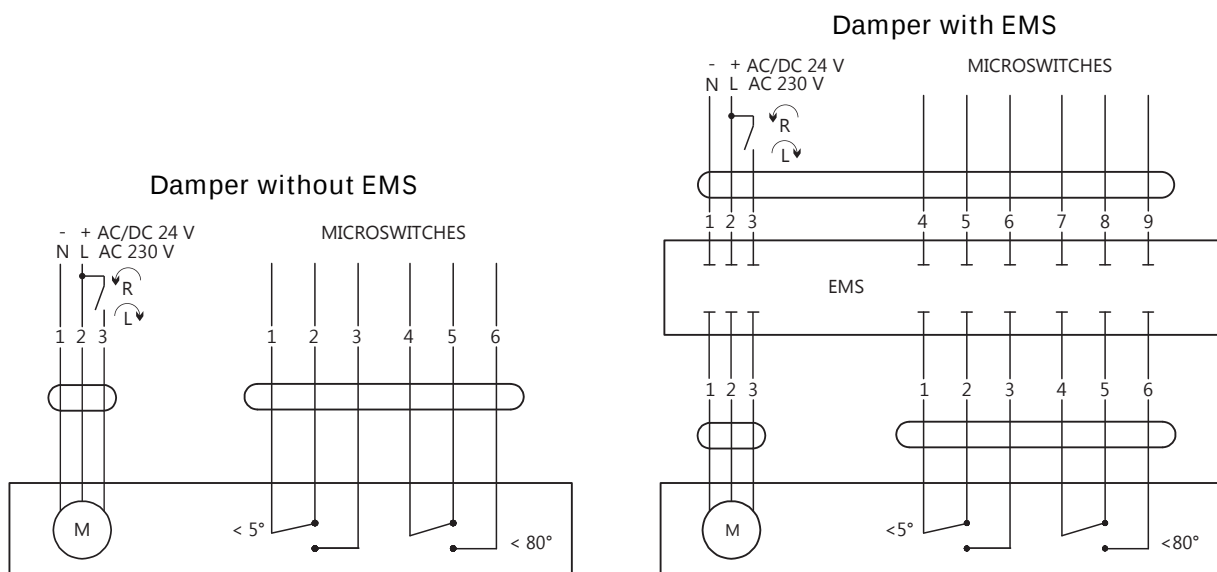
ELECTRICAL WIRING DIAGRAMS

NEO-V WITH ELECTRO-MAGNET AND MICROSWITCHES



ELECTRO-MAGNET CHARACTERISTICS		
Supply voltage	24/48 V DC impulse	230 V AC impulse
Power input	3,5 W	5,5 VA

NEO-V WITH SDG-15 ACTUATOR



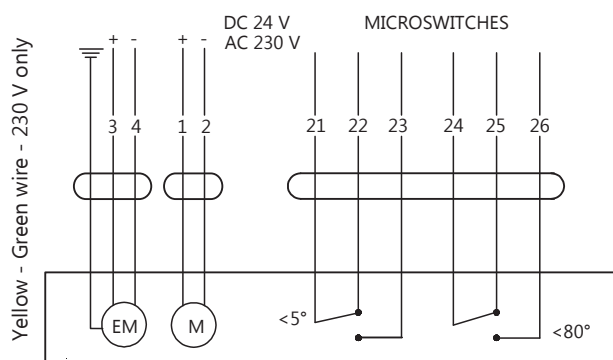
ACTUATOR CHARACTERISTICS		
Actuator type	SDG-15-24	SDG-15-230
Supply voltage	24 V AC/DC	230 V AC
Power consumption Motor (Motion)	7 W	7 W
Power consumption Standby (end position)	1,5 W	1,5 W
Running time Motor	<30 s	<30 s
Torque motor	15 Nm	15 Nm
Protection class	IP54	IP54
Sound power level Motor	47 dB(A)	47 dB(A)



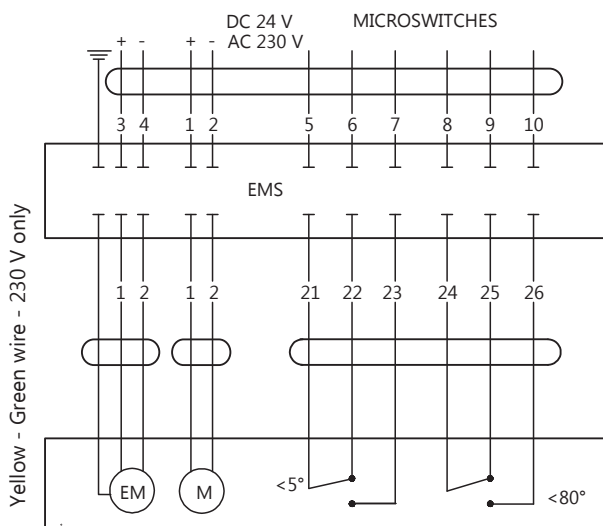
ELECTRICAL WIRING DIAGRAMS

NEO-V WITH ELECTRO-MAGNET AND ACTUATOR

Damper with mechanism H



Damper with mechanism H and EMS



ELECTRO-MAGNET CHARACTERISTICS

Supply voltage	24/48 V DC impulse	230 V AC impulse
Power input	3,5 W	5,5 VA

ACTUATOR CHARACTERISTICS

Actuator type	FDG-8-24	FDG-8-230
Supply voltage	24 V AC/DC	230 V AC
Power input during tensioning the spring	3,5 W	9,2 VA
Time of movement – engine	55-71 s	55-71 s
Time of movement – spring	21 s	21 s
Torque motor	8 Nm	8 Nm
Protection class	IP54	IP54
Sound power level – actuator	47 dB(A)	47 dB(A)
Sound power level – spring	52 dB(A)	52 dB(A)

EXAMPLE OF SPECIFICATION AND PURCHASE ORDER



Enquiry

NEO-V smoke control damper with rectangular flange connection, dimensions: LxH=400x400 [mm], equipped with SDG-15-24 actuator, running time: < 30 [s], power consumption in motion 7 [W] with EMS module suitable for connection of TZ-5 tester.

GRYFIT quotation

NEO-V, EI 120 ($v_{ewd}-h_{owd}-i \leftrightarrow o$) S1500 C₁₀₀₀₀ AA multi, LxH=400x400, Galvanized steel, KP30 + SDG-15-24 + EMS