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**TABLE REGARDING THE QUANTITY OF AIR SUCKED BY GENERATORS,
AT DIFFERENT LEVELS OF VACUUMS**

Generator Item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
15 01 10	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	---	85
15 01 10 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 01 15 LP	4	2.2	1.38	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
15 02 10	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	---	85
15 02 10 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
15 02 15 LP	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
15 03 10	6	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85
15 04 10	6	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04	85
15 05 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 05 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90
15 06 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
15 06 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90
15 07 10 SX	3.5	8.5	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90
VG 03	6	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	---	85
VG 03 LP	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
VG 05 LP	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
FVG 3	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
FVG 5	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
GV 1	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	---	85
GV 2	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	---	85
GV 3	5	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	---	85
PVP 05	6	0.5	0.13	0.11	0.10	0.08	0.06	0.03	0.02	0.01	---	82
PVP 1	5	0.45	0.27	0.25	0.22	0.18	0.12	0.07	0.06	0.03	---	85
PVP 2	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	---	85
PVP 2 M	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	---	85
PVP 2 MM1	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	---	85
PVP 2 MM2	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	---	85
PVP 2 MM3	6	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	---	85
PVP 3	6	1.3	1.03	0.82	0.72	0.61	0.41	0.24	0.15	0.08	---	85
PVP 7 SX	6	3.2	2.58	2.38	2.19	2.02	1.44	0.97	0.86	0.54	0.05	85
PVP 7 SXLP	3	4.5	2.44	2.25	2.07	1.91	1.42	0.95	0.84	0.52	0.04	88
PVP 14 SX	6	4.8	3.75	3.46	3.19	2.95	2.19	1.47	1.29	0.80	0.07	85
PVP 14 SXLP	3	6.9	3.77	3.48	3.20	2.96	2.20	1.48	1.31	0.82	0.07	88
PVP 18 SX	6	6.4	5.00	4.62	4.25	3.93	2.92	1.97	1.75	1.10	0.10	85
PVP 18 SXLP	3	8.6	4.86	4.48	4.12	3.80	2.82	1.90	1.68	1.05	0.09	88
MSVE 3	4	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
MSVE 5	4	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85
MSVE 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90
MSVE 12	3.5	5.5	3.47	2.88	2.72	2.50	2.27	1.83	1.16	0.60	0.05	90
MSVE 20	4	8.0	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90
AVG 18	6	6.4	4.83	4.58	4.04	3.58	2.72	1.90	1.68	1.07	0.10	85
AVG 25	6	9.6	7.00	6.63	5.86	5.18	3.94	2.76	2.44	1.54	0.15	85
M 3	5	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7	5	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85
M 10	5	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14	5	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85
M 18	5	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85
M 3 SSX	5	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85
M 7 SSX	5	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85
M 10 SSX	5	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85
M 14 SSX	5	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85
M 18 SSX	5	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85



TABLE REGARDING THE QUANTITY OF AIR SUCKED BY GENERATORS, AT DIFFERENT LEVELS OF VACUUMS

Generator Item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
MVG 3	5	0.8	0.89	0.69	0.41	0.23	0.18	0.12	0.10	0.07	0.03	85
MVG 7	5	1.3	1.83	1.44	1.11	0.63	0.41	0.25	0.16	0.11	0.05	85
MVG 10	5	1.7	2.55	1.85	1.30	0.75	0.64	0.48	0.30	0.20	0.09	85
MVG 14	5	2.1	3.40	2.45	1.84	1.05	0.88	0.61	0.36	0.24	0.11	85
GVMM 3	5	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
GVMM 7	5	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85
GVMM 10	5	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
GVMM 14	5	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85
MI 3	5	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
MI 7	5	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85
MI 10	5	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
MI 14	5	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85
PVP 12 MX	6	1.5	5.80	4.14	2.76	1.38	0.98	0.78	0.59	0.41	0.23	90
PVP 12 MXLP	3	2.3	5.00	2.27	1.66	1.05	0.88	0.77	0.64	0.42	0.22	86
PVP 25 MX	6	3.0	8.61	6.15	4.10	2.05	1.46	1.17	0.88	0.61	0.35	90
PVP 25 MXLP	3	4.5	9.44	3.77	2.77	1.72	1.58	1.36	1.11	0.72	0.37	86
PVP 40 M	6	3.2	11.6	8.32	5.55	2.77	1.98	1.58	1.19	0.83	0.47	90
PVP 40 MLP	3	4.4	11.4	5.42	3.45	2.19	2.03	1.72	1.34	0.95	0.54	88
PVP 70 M	6	6.6	22.2	15.8	10.5	5.29	3.77	3.02	2.27	1.58	0.90	90
PVP 70 MLP	3	8.9	20.3	9.65	6.15	3.88	3.61	3.05	2.36	1.66	0.94	88
PVP 100 M	6	9.8	30.0	21.4	14.2	7.14	5.10	4.08	3.06	2.14	1.22	90
PVP 100 MLP	3	13.3	26.4	12.5	8.00	5.07	4.70	4.00	3.10	2.20	1.25	88
PVP 140 M	6	13.0	42.2	30.1	20.1	10.0	7.18	5.74	4.31	3.02	1.72	90
PVP 140 MLP	3	17.8	38.3	18.3	11.6	7.37	6.84	5.80	4.50	3.20	1.80	88
PVP 170 M	6	16.3	50.5	36.1	24.0	12.0	8.59	6.87	5.17	3.61	2.06	90
PVP 170 MLP	3	22.2	45.8	21.8	13.8	8.81	8.18	6.94	5.39	3.82	2.16	88
PVP 200 M	6	19.4	55.5	39.6	26.4	13.2	9.44	7.55	5.68	3.97	2.27	90
PVP 200 MLP	3	26.6	52.8	25.2	16.0	10.1	9.44	8.00	6.20	4.40	2.50	88
PVP 250 M	6	24.0	77.7	55.5	37.0	18.5	13.2	10.5	7.90	5.50	3.10	90
PVP 250 MLP	3	33.6	69.4	34.0	23.5	14.0	11.5	9.80	7.60	5.30	3.00	88
PVP 300 M	6	29.0	88.8	63.4	42.3	21.1	15.1	12.0	9.10	6.35	3.63	90
PVP 300 MLP	3	39.3	83.3	41.5	27.5	17.0	14.5	11.4	8.80	6.10	3.40	88
PVP 25 MDX	6	3.2	11.9	8.5	5.7	2.8	2.0	1.6	1.2	0.8	0.5	90
PVP 25 MDXLP	3	4.4	9.7	4.7	3.5	2.2	2.0	1.7	1.4	1.0	0.6	88
PVP 35 MDX	6	4.8	15.8	11.3	7.5	3.8	2.7	2.1	1.6	1.1	0.6	90
PVP 35 MDXLP	3	6.5	13.0	6.2	4.7	3.0	2.7	2.3	1.8	1.3	0.7	88
PVP 50 MDX	6	6.5	18.8	13.5	9.0	4.5	3.2	2.6	1.9	1.4	0.7	90
PVP 50 MDXLP	3	8.6	16.1	7.7	5.8	3.7	3.3	2.8	2.2	1.5	0.8	88
PVP 60 MDX	6	8.2	25.5	18.2	12.2	6.1	4.3	3.5	2.6	1.8	1.0	90
PVP 60 MDXLP	3	11.0	19.3	9.3	7.0	4.4	4.0	3.4	2.7	1.9	1.0	88
PVP 75 MDX	6	9.8	28.6	20.4	13.6	6.8	4.8	3.9	2.9	2.0	1.2	90
PVP 75 MDXLP	3	13.2	22.5	10.8	8.1	5.1	4.6	3.9	3.1	2.2	1.2	88
PVP 150 MD	6	16.0	55.5	39.6	26.5	13.2	9.4	7.5	5.7	4.0	2.3	90
PVP 150 MDLP	3	22.6	47.2	24.5	15.9	10.3	9.3	7.5	4.7	3.2	1.8	88
PVP 300 MD	6	32.0	111.1	79.4	52.9	26.5	19.9	15.1	11.4	7.9	4.5	90
PVP 300 MDLP	3	45.5	94.4	49.0	31.9	20.7	18.6	15.1	9.3	6.5	3.7	88
PVP 450 MD	6	47.8	161.1	115.0	76.7	38.3	27.4	21.9	16.5	11.5	6.6	90
PVP 450 MDLP	3	65.8	138.8	72.7	46.9	30.5	27.4	22.2	13.8	9.6	5.5	88
PVP 600 MD	6	63.2	208.3	148.8	99.2	49.6	35.4	28.3	21.3	14.9	8.5	90
PVP 600 MDLP	3	87.7	186.1	96.7	62.9	40.8	36.8	29.8	18.5	12.9	6.8	88
PVP 750 MD	6	80.0	250.0	180.0	118.8	59.4	42.8	34.2	25.7	18.0	10.2	90
PVP 750 MDLP	3	110.0	222.2	115.5	75.1	48.8	43.9	35.6	22.0	15.4	8.8	88



TABLE REGARDING VACUUM GENERATOR EVACUATION TIME, AT DIFFERENT LEVELS OF VACUUMS

Generator Item	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa)											
	Supp. press. bar	Air consumption NI/s	at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
15 01 10	6	0.9	139	278	472	727	1171	1628	2720	4928	---	85
15 01 10 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 01 15 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
15 02 10	6	0.9	139	278	472	727	1171	1628	2720	4928	---	85
15 02 10 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
15 02 15 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
15 03 10	6	1.6	77	154	261	403	649	902	1506	2730	3876	85
15 04 10	6	1.6	77	154	261	403	649	902	1506	2730	3876	85
15 05 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 05 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90
15 06 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 06 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90
15 07 10 SX	3.5	8.5	18	37	62	92	140	210	410	770	1220	90
VG 03	6	0.9	139	278	472	727	1171	1628	2720	4928	---	85
VG 03 LP	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
VG 05 LP	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
FVG 3	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
FVG 5	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
GV 1	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
GV 2	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
GV 3	5	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85
PVP 05	6	0.5	786	1572	2678	4126	6644	9210	15420	27870	---	82
PVP 1	5	0.45	393	786	1336	2057	3312	4605	7690	13935	19787	85
PVP 2	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2M	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM1	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM2	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM3	6	0.9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 3	6	1.3	104	207	353	544	857	1217	2033	3684	5232	85
PVP 7 SX	6	3.2	33	70	115	173	289	492	796	1418	2532	85
PVP 7 SXLP	3	4.5	34	74	121	200	315	487	760	1348	2410	88
PVP 14 SX	6	4.8	23	49	80	120	200	340	550	980	1750	85
PVP 14 SXLP	3	6.9	24	52	85	140	220	340	530	940	1680	88
PVP 18 SX	6	6.4	18	38	62	93	155	264	420	750	1340	85
PVP 18 SXLP	3	8.6	18	39	64	105	165	255	398	706	1260	88
MSVE 3	4	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
MSVE 5	4	2.2	70	160	260	410	620	910	1500	2620	4490	85
MSVE 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
MSVE 12	3.5	5.5	27	57	100	150	230	350	740	1200	2150	90
MSVE 20	4	8.0	18	37	62	92	140	210	410	770	1220	90
AVG 18	6	6.4	22	44	75	115	185	258	430	798	1107	85
AVG 25	6	9.6	15	30	52	80	128	178	297	538	764	85
M 3	5	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7	5	1.4	61	142	285	563	954	1394	2328	4144	5885	85
M 10	5	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14	5	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18	5	3.6	21	48	98	193	327	478	799	1423	2020	85
M 3 SSX	5	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7 SSX	5	1.4	61	142	285	563	954	1394	2328	4144	5885	85
M 10 SSX	5	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14 SSX	5	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18 SSX	5	3.6	21	48	98	193	327	478	799	1423	2020	85

To calculate the emptying time of a volume **V**, use the following formula: **t₁ = t x V**

t₁ = time to be calculated (ms)

t = time indicated in the table (ms) in the desired degree of vacuum column (-KPa)

V = Volume to be emptied (L)



TABLE REGARDING VACUUM GENERATOR EVACUATION TIME, AT DIFFERENT LEVELS OF VACUUMS

Generator Item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MVG 3	5	0.8	119	274	552	1088	1845	2694	4499	8009	11373	85
MVG 7	5	1.3	58	133	268	529	897	1310	2188	3895	5531	85
MVG 10	5	1.7	41	95	192	379	642	938	1567	2790	3962	85
MVG 14	5	2.1	31	71	144	284	482	704	1175	2092	2971	85
GVMM 3	5	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
GVMM 7	5	1.3	59	137	275	543	921	1344	2245	3997	5676	85
GVMM 10	5	1.7	42	97	195	384	651	951	1589	2828	4016	85
GVMM 14	5	2.1	31	72	146	288	489	714	1193	2124	3016	85
MI 3	5	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
MI 7	5	1.3	59	137	275	543	921	1344	2245	3997	5676	85
MI 10	5	1.7	42	97	195	384	651	951	1589	2828	4016	85
MI 14	5	2.1	31	72	146	288	489	714	1193	2124	3016	85
PVP 12 MX	6	1.5	15	38	85	204	365	559	929	1607	5916	90
PVP 12 MXLP	3	2.3	22	56	120	240	410	650	975	1950	7160	86
PVP 25 MX	6	3.0	10	26	57	137	246	377	626	1083	3986	90
PVP 25 MXLP	3	4.5	16	41	83	165	290	460	690	1380	5070	86
PVP 40 M	6	3.2	7	19	42	101	182	278	462	799	2943	90
PVP 40 MLP	3	4.4	12	28	58	116	158	250	382	764	2820	88
PVP 70 M	6	6.6	4	10	22	53	95	146	242	419	1544	90
PVP 70 MLP	3	8.9	9	21	44	88	120	190	290	580	2150	88
PVP 100 M	6	9.8	3	7	16	39	70	108	179	310	1144	90
PVP 100 MLP	3	13.3	7	16	34	68	93	147	224	448	1650	88
PVP 140 M	6	13.0	2.1	5.3	11.7	28.0	50.2	76.9	127	220	812	90
PVP 140 MLP	3	17.8	3.6	8.4	17.7	35.4	48.3	76.5	116	233	860	88
PVP 170 M	6	16.3	1.7	4.4	9.7	23.4	42.0	64.2	106	184	678	90
PVP 170 MLP	3	22.2	3.0	7.1	14.9	29.9	40.6	64.2	98.0	196	720	88
PVP 200 M	6	19.4	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167	618	90
PVP 200 MLP	3	26.6	2.8	6.5	13.6	27.3	37.2	58.8	89.7	180	665	88
PVP 250 M	6	24.0	1.1	2.9	6.4	15.2	27.3	41.8	69.3	119	442	90
PVP 250 MLP	3	33.6	2.0	4.6	9.6	19.3	26.3	41.5	63.5	127	468	88
PVP 300 M	6	29.0	1.0	2.5	5.5	13.3	23.8	36.5	60.6	104	386	90
PVP 300 MLP	3	39.3	1.7	3.9	8.2	16.4	22.3	35.3	54.0	108	398	88
PVP 25 MDX	6	3.2	7.5	18.8	41.3	99.3	177	271	451	781	2874	90
PVP 25 MDXLP	3	4.4	13.0	33.3	67.2	134	238	376	564	1128	4151	88
PVP 35 MDX	6	4.8	6.5	14.1	31.2	74.9	134	205	340	589	2618	90
PVP 35 MDXLP	3	6.5	9.8	25.2	50.9	101	180	284	427	854	3145	88
PVP 50 MDX	6	6.5	4.7	11.9	26.2	62.8	112	172	285	494	1818	90
PVP 50 MDXLP	3	8.6	7.9	20.3	41.0	82.0	145	229	344	688	2534	88
PVP 60 MDX	6	8.2	3.5	8.8	19.3	46.4	83.0	127	211	365	1343	90
PVP 60 MDXLP	3	11.0	6.6	16.8	34.0	68.0	120	190	285	570	2098	88
PVP 75 MDX	6	9.8	3.1	7.8	17.2	41.4	74.2	113	188	326	1200	90
PVP 75 MDXLP	3	13.2	5.7	14.5	29.2	58.4	103	163	245	490	1805	88
PVP 150 MD	6	16.0	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167	618	90
PVP 150 MDLP	3	22.6	2.9	7.5	15.0	30.1	53.3	84.2	126	252	930	88
PVP 300 MD	6	32.0	0.8	2.0	4.4	10.6	19.1	29.2	48.5	83.9	386	90
PVP 300 MDLP	3	45.5	2.0	5.2	10.5	21.0	37.2	58.7	88.0	176	650	88
PVP 450 MD	6	47.8	0.5	1.4	3.0	7.4	13.2	20.1	33.5	57.9	213	90
PVP 450 MDLP	3	65.8	1.2	3.0	6.2	12.4	22.0	34.7	52.0	104	383	88
PVP 600 MD	6	63.2	0.4	1.0	2.4	5.7	10.2	15.6	25.9	44.8	165	90
PVP 600 MDLP	3	87.7	0.8	2.0	4.1	8.2	14.6	23.1	34.7	69.4	256	88
PVP 750 MD	6	80.0	0.3	0.8	1.8	4.3	7.7	11.8	19.5	33.8	125	90
PVP 750 MDLP	3	110.0	0.5	1.3	2.6	5.2	9.2	14.5	21.7	43.4	160	88

To calculate the emptying time of a volume **V**, use the following formula: **t₁ = t x V**

t₁ = time to be calculated (ms)

t = time indicated in the table (ms) in the desired degree of vacuum column (-KPa)

V = Volume to be emptied (L)

SINGLE-STAGE VACUUM GENERATORS 15 01 10, 15 01 10 LP, 15 01 15 LP and 15 03 10



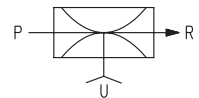
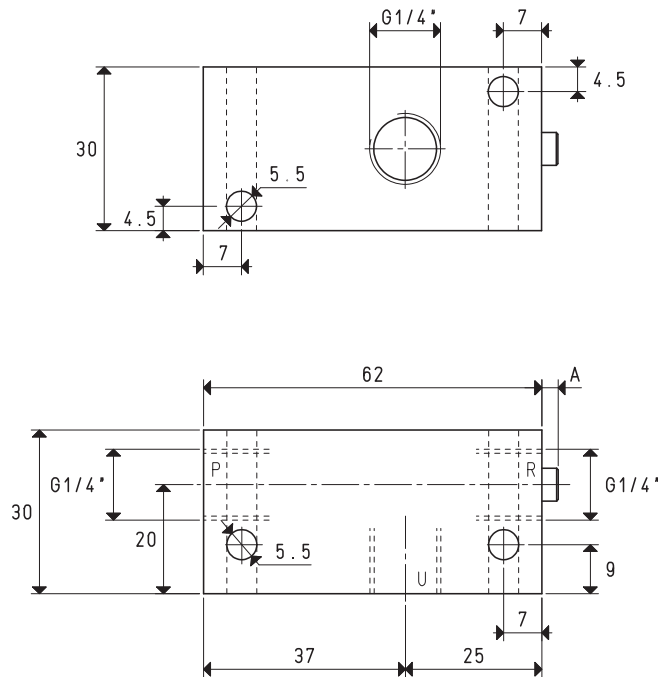
Single-stage vacuum generator operation is based on the Venturi principle.

Supplying the generator with compressed air in P, vacuum will be generated at connection U, while both the supply and the sucked air will be released through R.

By interrupting the air supply in P, the vacuum effect in U will also stop. The optimal air supply pressure is normally 6 bar, but for generators with the letters LP in their item, a pressure lower than 4 bar is sufficient to obtain the best performance. Upon request, the vacuum generators can be supplied with a high sound suppression silencer installed on the R exhaust connection.

The single-stage vacuum generators are generally used to control vacuum cups, for gripping and handling non-porous objects and equipment with low flow rate requirements.

They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION						
Item		15 01 10			15 01 10 LP			15 01 15 LP		
Intake air flow rate	m ³ /h	2.7	2.8	2.9	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40	61	85
Final pressure	mbar abs.	450	300	150	570	390	150	600	390	150
Supply pressure	bar	4	5	6	2	3	4	2	3	4
Optimal supply pressure	bar			6			4			4
Air consumption	NI/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-20 / +100			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			63			62			71
Weight	g			140			130			130
A	mm						3			5

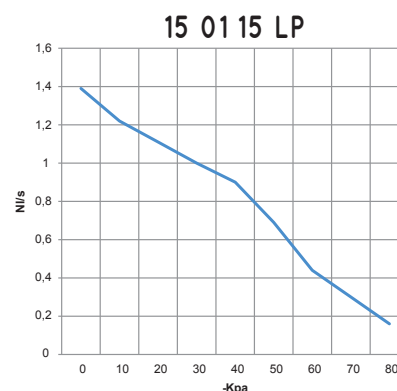
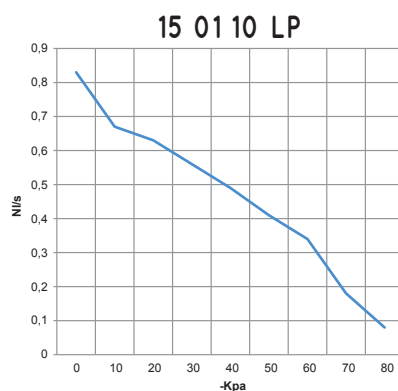
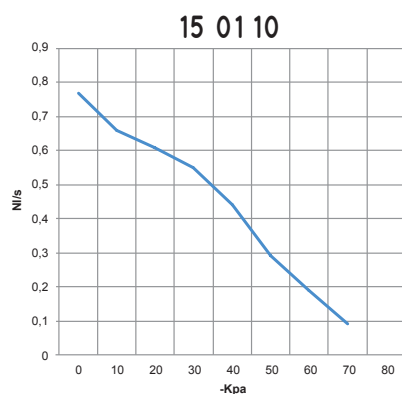
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



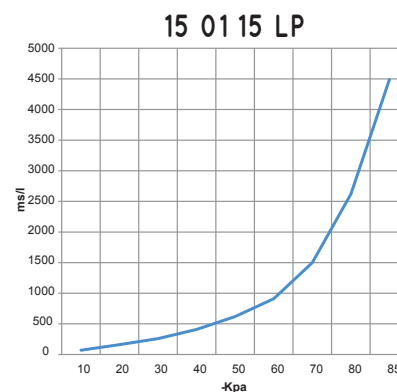
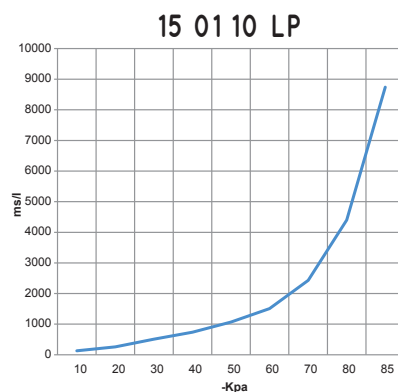
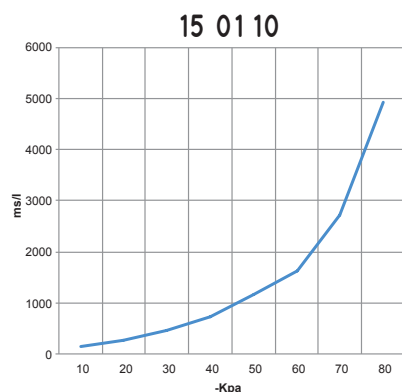
SINGLE-STAGE VACUUM GENERATORS 15 01 10, 15 01 10 LP and 15 01 15 LP

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
15 01 10	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85	
15 01 10 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85	
15 01 15 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

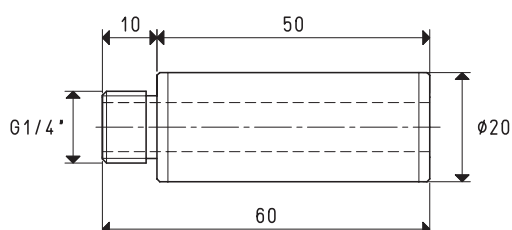


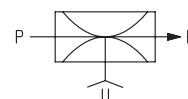
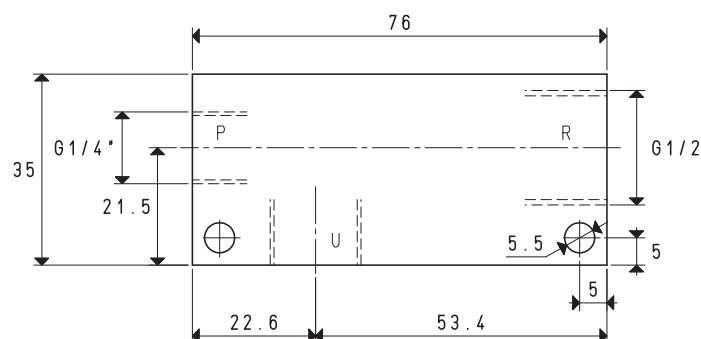
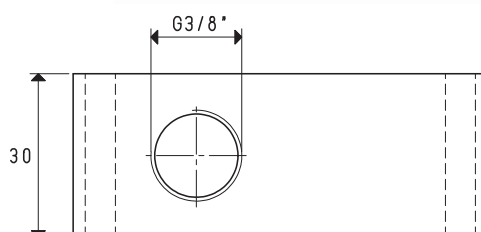
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
15 01 10	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85	
15 01 10 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85	
15 01 15 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85	

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ACCESSORIES UPON REQUEST

Silencer item SSX 1/4"





P=COMPRESSED AIR CONNECTION		R=EXHAUST	U=VACUUM CONNECTION		
Item		15 03 10			
Intake air flow rate	m³/h	4.8	5	5	
Maximum level of vacuum	-KPa	62	78	85	
Final pressure	mbar abs.	380	220	150	
Supply pressure	bar	4	5	6	
Optimal supply pressure	bar			6	
Air consumption	Nl/s	1.1	1.3	1.6	
Operating temperature	°C			-20 / +80	
Noise level at optimal supply pressure	dB(A)			79	
Weight	g			179	

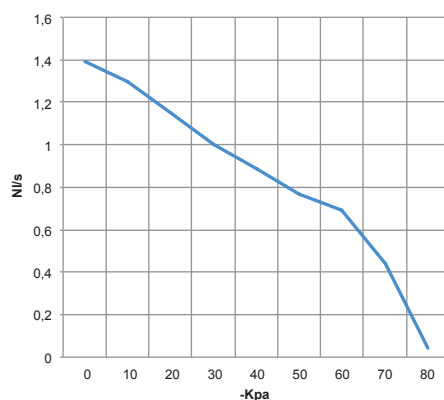
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



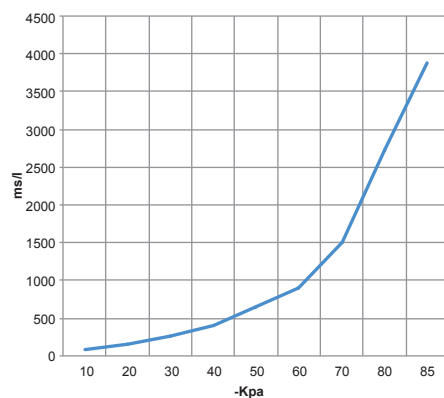
SINGLE-STAGE VACUUM GENERATOR 15 03 10

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
15 03 10	6.0	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04		85

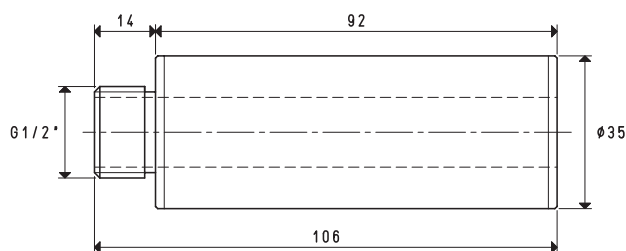
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
15 03 10	6.0	1.6	77	154	261	403	649	902	1506	2730	3876		85

ACCESSORIES UPON REQUEST

Silencer item SSX 1/2"

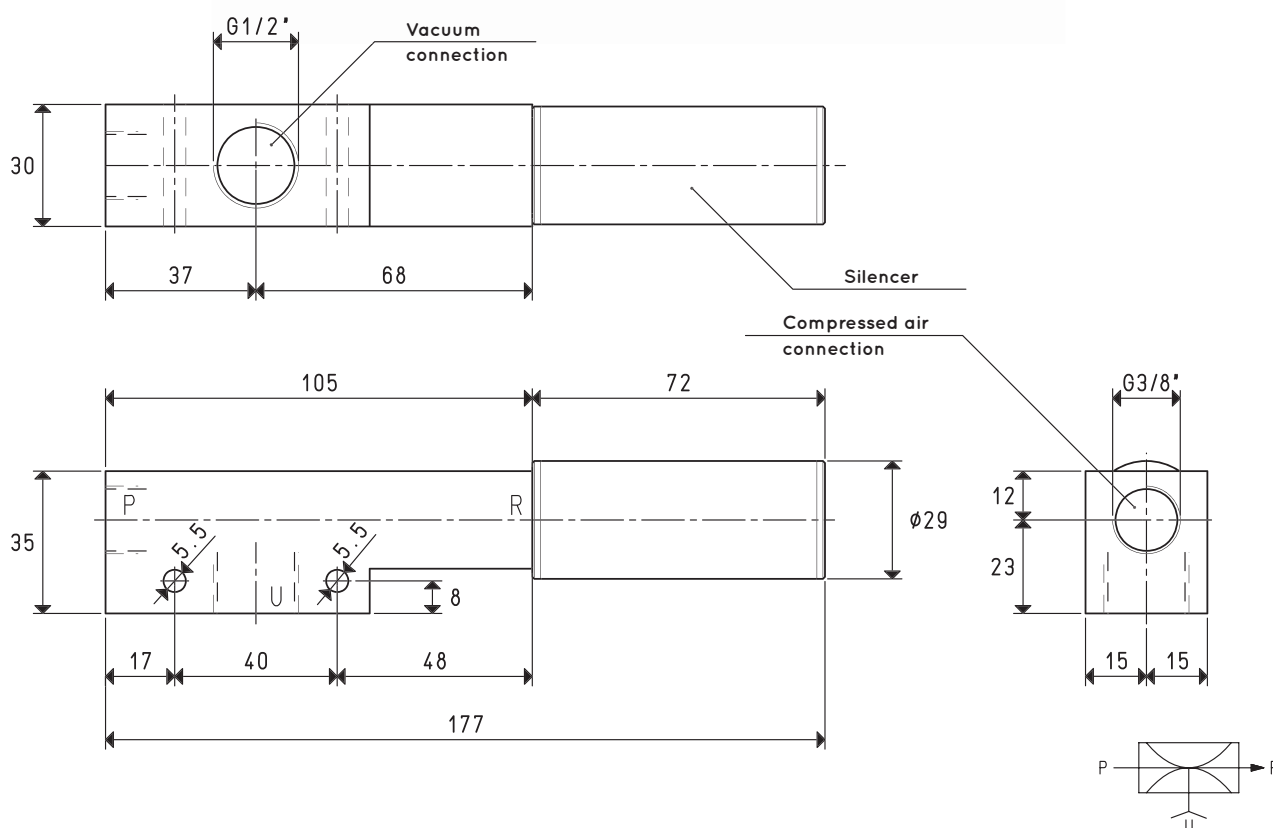


SINGLE-STAGE VACUUM GENERATORS 15 05 08 SX, 15 05 10 SX and 15 07 10 SX

The operation of these single-stage vacuum generators is also based on the Venturi principle. It differs from the generators described above for its increased suction flow rate, lower supply air pressure, lower than 4 bar to obtain the best performance, and for the SSX silencer ... with high acoustic dampening, installed as standard on the R exhaust connection.

They are also used in the automotive sector to control vacuum cups, for the handling and gripping of only slightly porous objects, sheet, wood panel, marble slab and glass and other similar objects.

They are fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		15 05 08 SX			15 05 10 SX		
Intake air flow rate	m ³ /h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Optimal supply pressure	bar			3.5			3.5
Air consumption	NI/s	2.8	3.8	4.3	3.7	5	5.5
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			60			63
Weight	g			310			306
Spare parts		15 05 08 SX			15 05 10 SX		
Silencer	item	SSX 3/8"			SSX 3/8"		

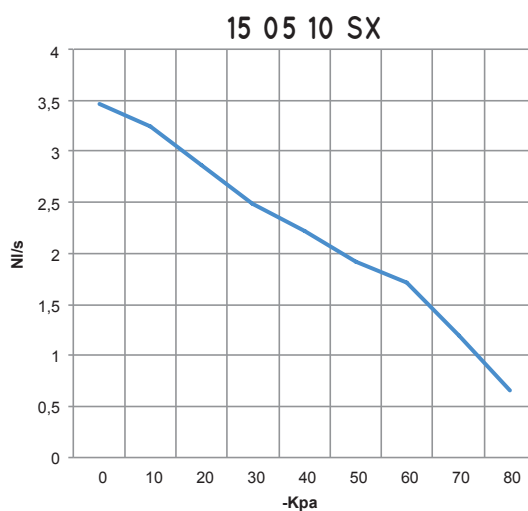
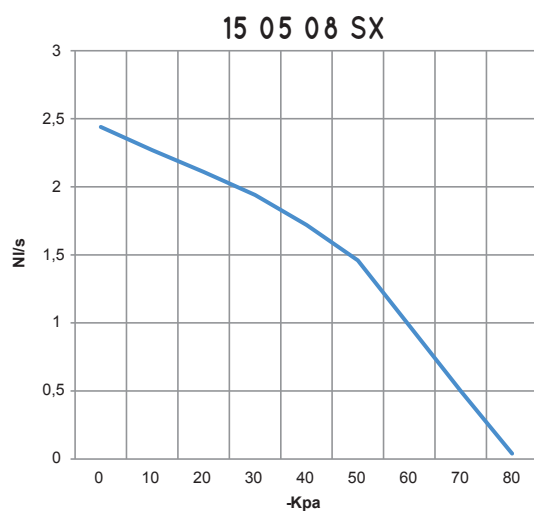
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



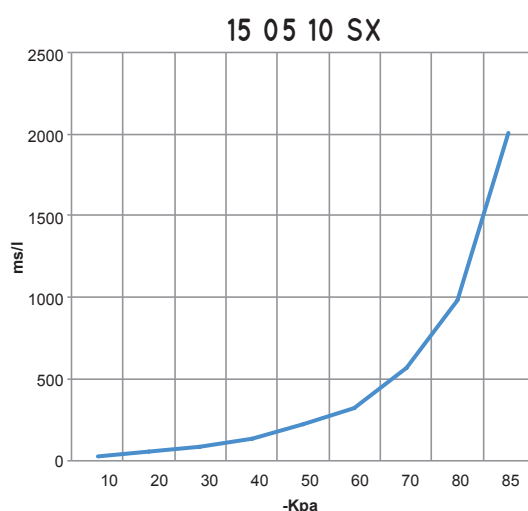
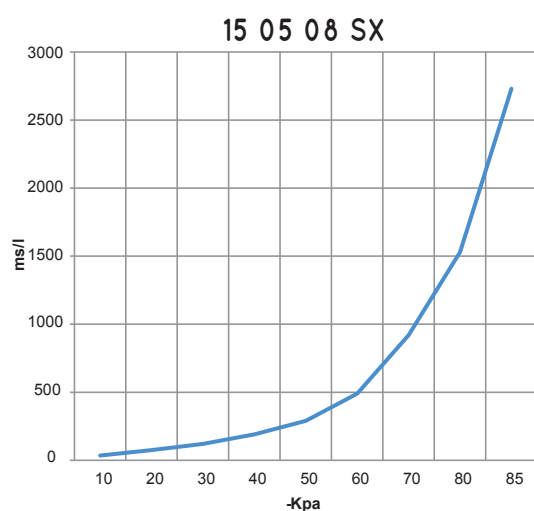
SINGLE-STAGE VACUUM GENERATORS 15 05 08 SX and 15 05 10 SX

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure

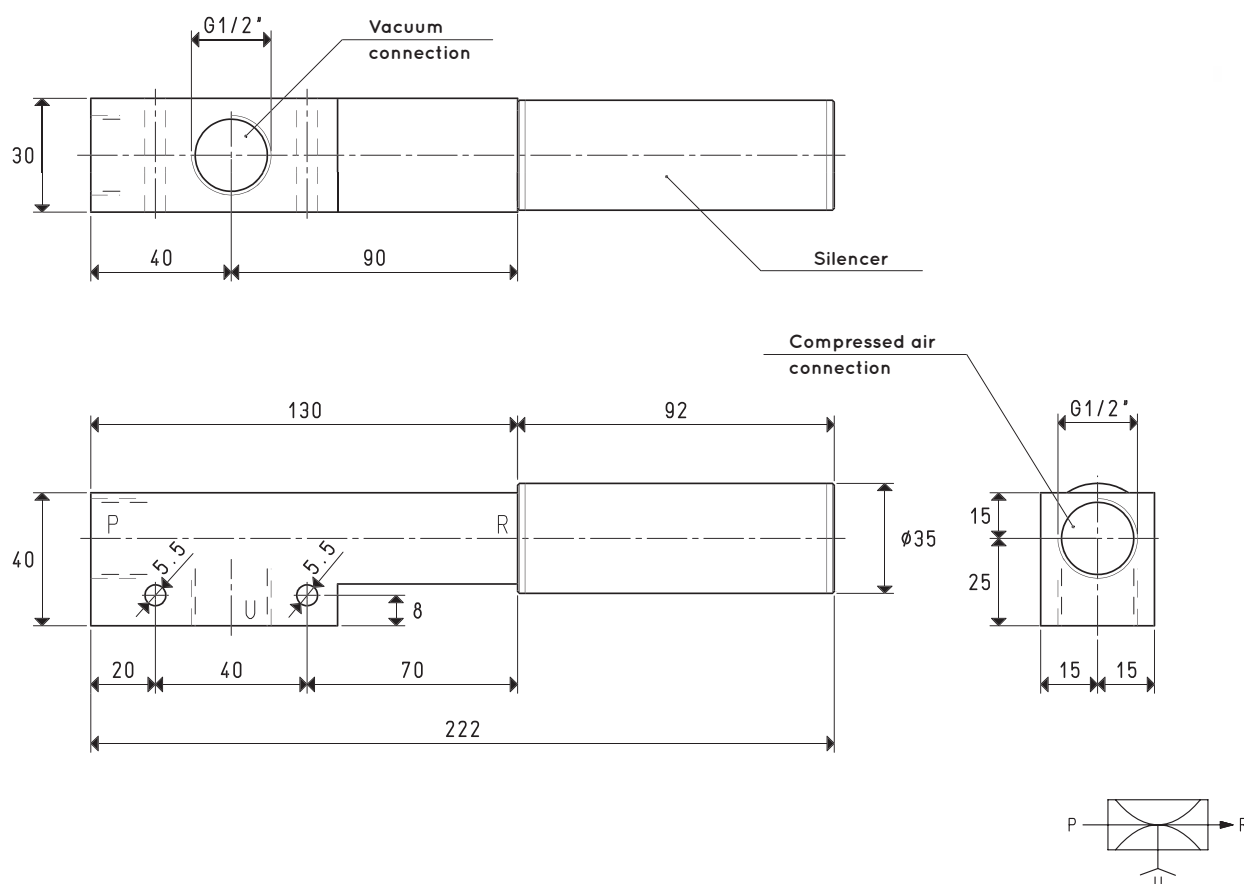
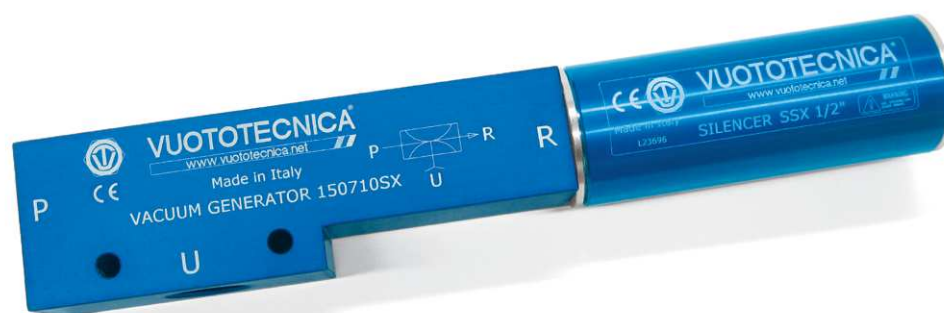


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
15 05 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90	
15 05 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
15 05 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 05 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		15 07 10 SX		
Intake air flow rate	m ³ /h	18	19	20
Maximum level of vacuum	-KPa	40	60	90
Final pressure	mbar abs.	600	400	100
Supply pressure	bar	2	3	3.5
Optimal supply pressure	bar			3.5
Air consumption	NI/s	6.0	7.7	8.5
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			66
Weight	g			355
Spare parts		15 07 10 SX		
Silencer	item	SSX 1/2"		

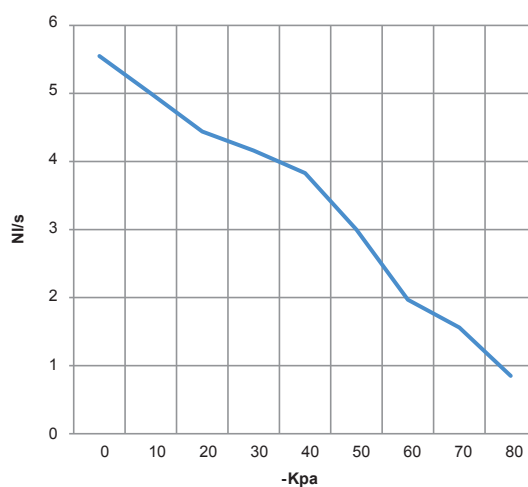
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



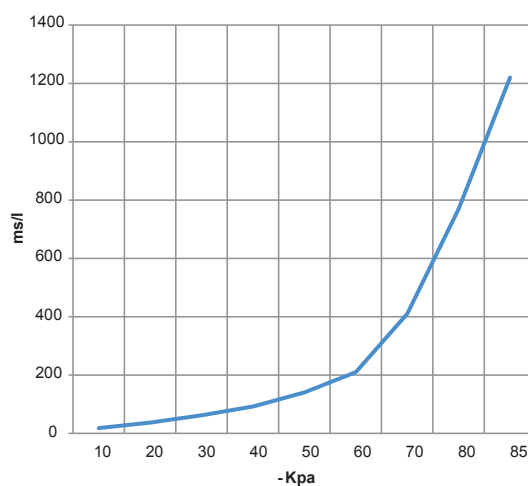
SINGLE-STAGE VACUUM GENERATOR 15 07 10 SX

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
15 07 10 SX	3.5	8.5	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



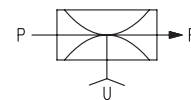
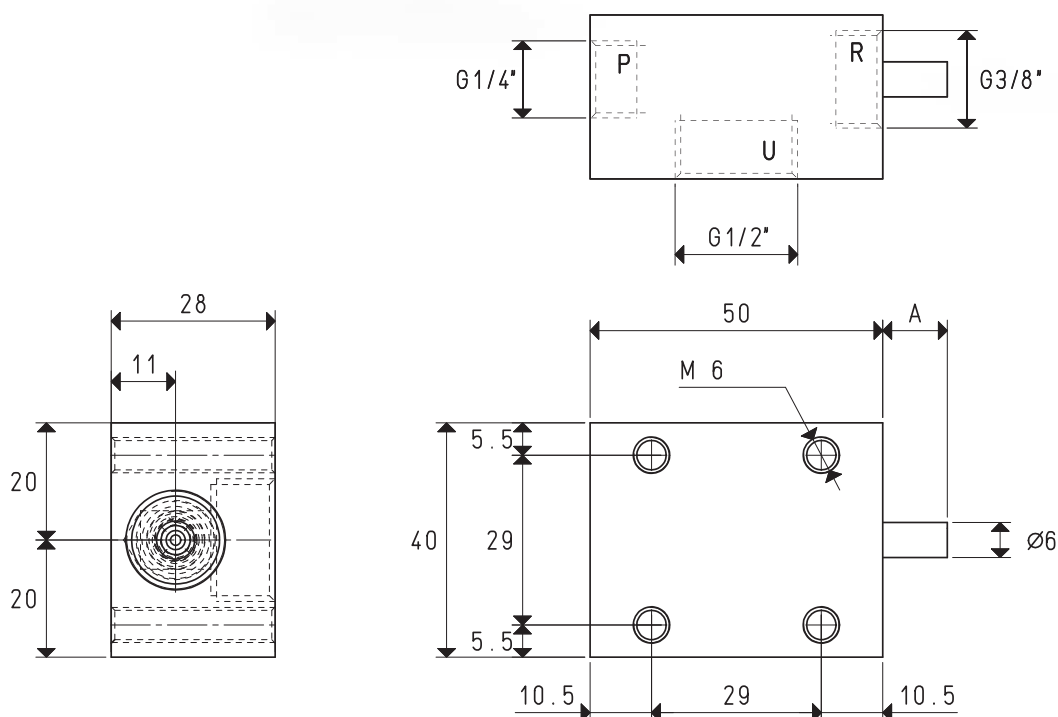
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
15 07 10 SX	3.5	8.5	18	37	62	92	140	210	410	770	1220	90

SINGLE-STAGE VACUUM GENERATORS VG 03, VG 03 LP and VG 05 LP

This series of single-stage vacuum generators, also based on the Venturi principle, can be supplied for optimal supply pressures of 4 or 6 bars. Thanks to their shape, they can be installed directly on the user device and used at the most suitable supply pressure, depending on the desired level of vacuum. They have different capacities and can be used in all gripping systems with vacuum cups, for gripping and handling objects that are not very porous and on equipment with limited capacities. They are available upon request with an SSX 3/8" R high sound suppression silencer, installed on air exhaust R. They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.



3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION					
Item		VG 03			VG 03 LP			VG 05 LP	
Intake air flow rate	m ³ /h	2.7	2.8	2.9	2.6	2.8	3.0	4.8	4.9
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40	61
Final pressure	mbar abs.	450	300	150	570	390	150	600	390
Supply pressure	bar	4	5	6	2	3	4	2	3
Optimal supply pressure	bar			6			4		4
Air consumption	NI/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3	1.7
Operating temperature	°C			-10 / +80			-10 / +80		-10 / +80
Noise level at optimal supply pressure	dB(A)			63			62		71
Weight	g			134			124		124
A	mm			6			9		11

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

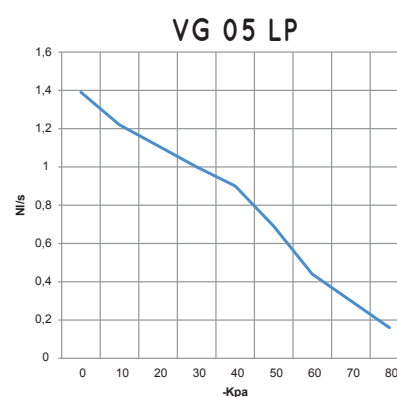
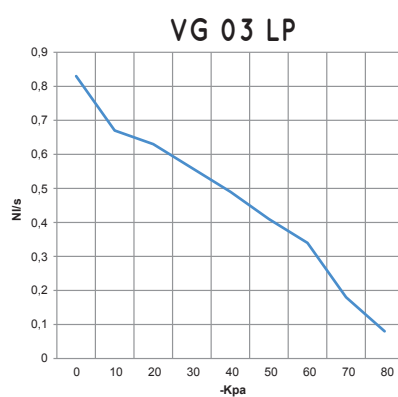
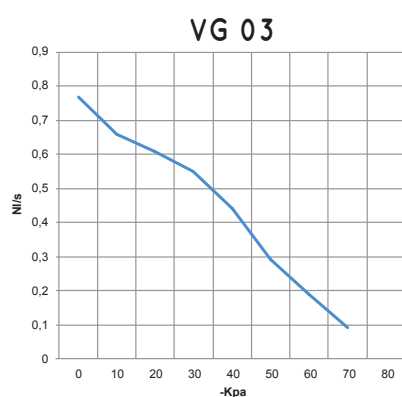
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



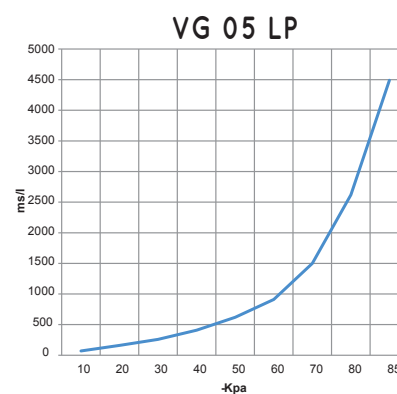
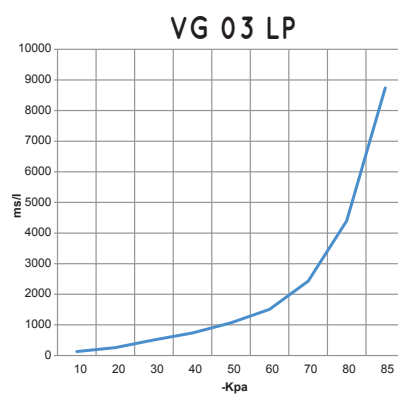
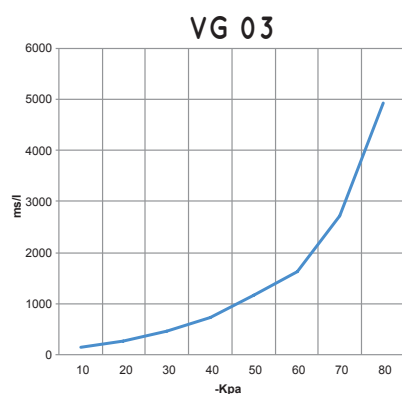
SINGLE-STAGE VACUUM GENERATORS VG 03, VG 03 LP and VG 05 LP

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
VG 03	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85
VG 03 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85
VG 05 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

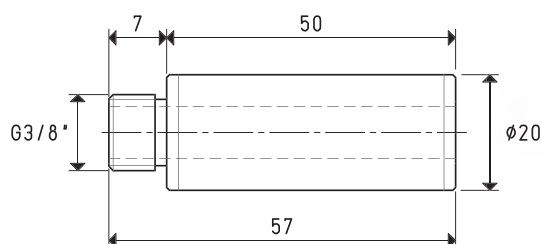


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-kPa	
VG 03	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85	
VG 03 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85	
VG 05 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85	

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ACCESSORIES UPON REQUEST

Silencer item SSX 3/8" R



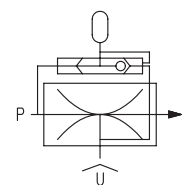
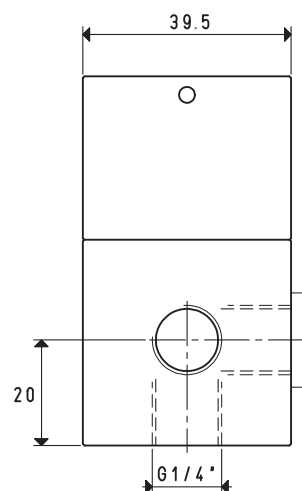
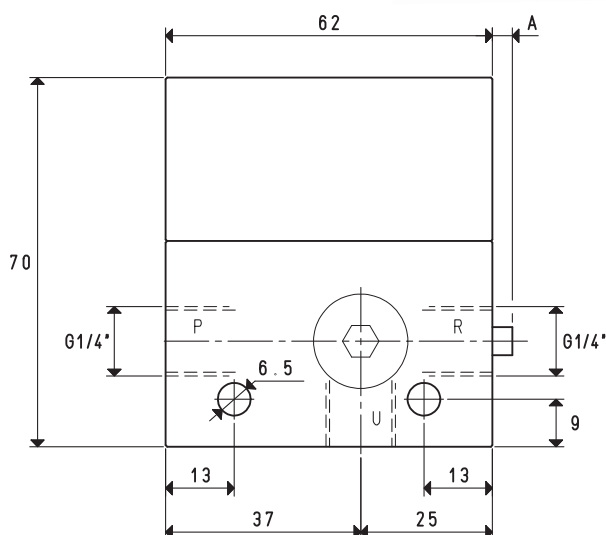
SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR 15 02 10, 15 02 10 LP, 15 02 15 LP and 15 04 10

This single-stage vacuum generator operation is based on the Venturi principle. When the generator is supplied with compressed air in P, the vacuum will be generated at connection U and the supply air with the suctioned air will be discharged in R. During the operating cycle, a chamber inside the generator body will be supplied and, when supply stops in P, the compressed air accumulated in it will be discharged through the U connection, quickly the restoring atmospheric pressure of use.

If when using U, for example, it is connected to a vacuum cup, it will disconnect much faster with this ejector system with respect to the previously described vacuum generators. The optimal air supply pressure is normally 6 bar, but for generators with the letters LP in their item, a pressure lower than 4 bar is sufficient to obtain the best performance. They are fully made with anodised aluminium, with brass or aluminium ejectors, depending on the items.



3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION				
Item		15 02 10			15 02 10 LP			15 02 15 LP
Intake air flow rate	m ³ /h	2.7	2.8	2.9	2.6	2.8	3.0	4.8
Maximum level of vacuum	-KPa	55	70	85	43	61	85	40
Final pressure	mbar abs.	450	300	150	570	390	150	600
Supply pressure	bar	4	5	6	2	3	4	2
Optimal supply pressure	bar			6			4	
Air consumption	NI/s	0.7	0.8	0.9	0.7	0.9	1.2	1.3
Operating temperature	°C			-20 / +80			-20 / +80	
Noise level at optimal supply pressure	dB(A)			63			63	
Weight	g			319			320	
A	mm						3	
Spare parts		15 02 10			15 02 10 LP			15 02 15 LP
Sealing kit	item	00 15 500			00 15 500			00 15 500

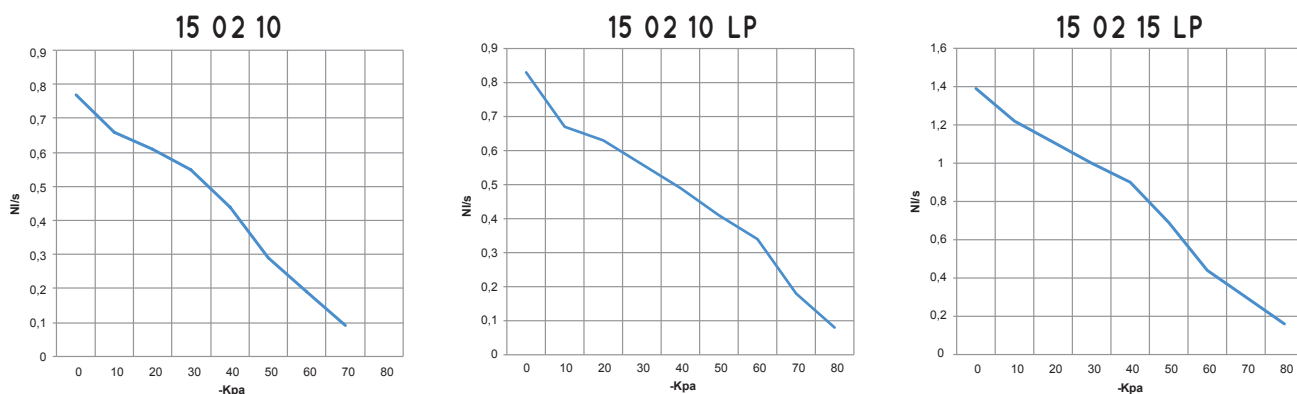
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



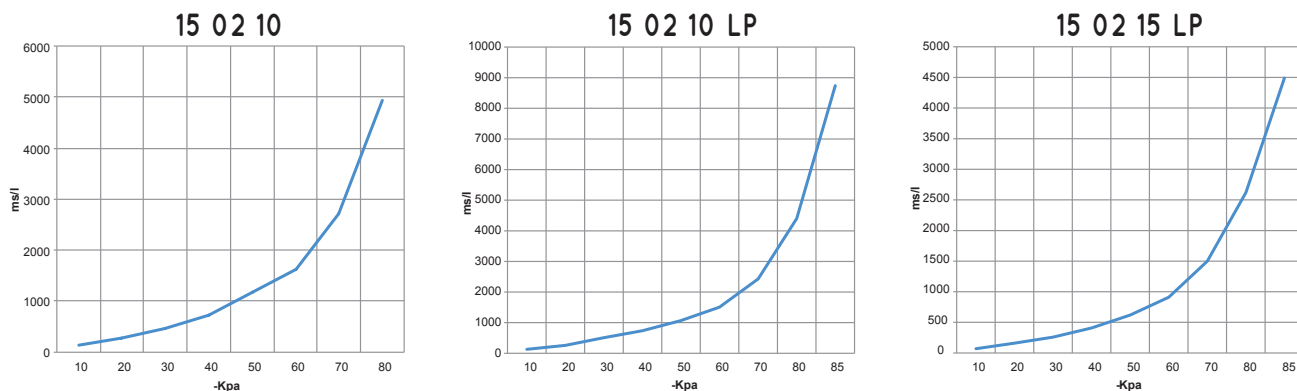
SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR 15 02 10, 15 02 10 LP and 15 02 15 LP

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum -kPa
			0	10	20	30	40	50	60	70	80		
15 02 10	6.0	0.9	0.80	0.66	0.61	0.55	0.44	0.29	0.19	0.09	--	85	
15 02 10 LP	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85	
15 02 15 LP	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

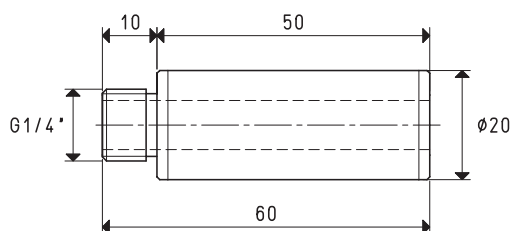


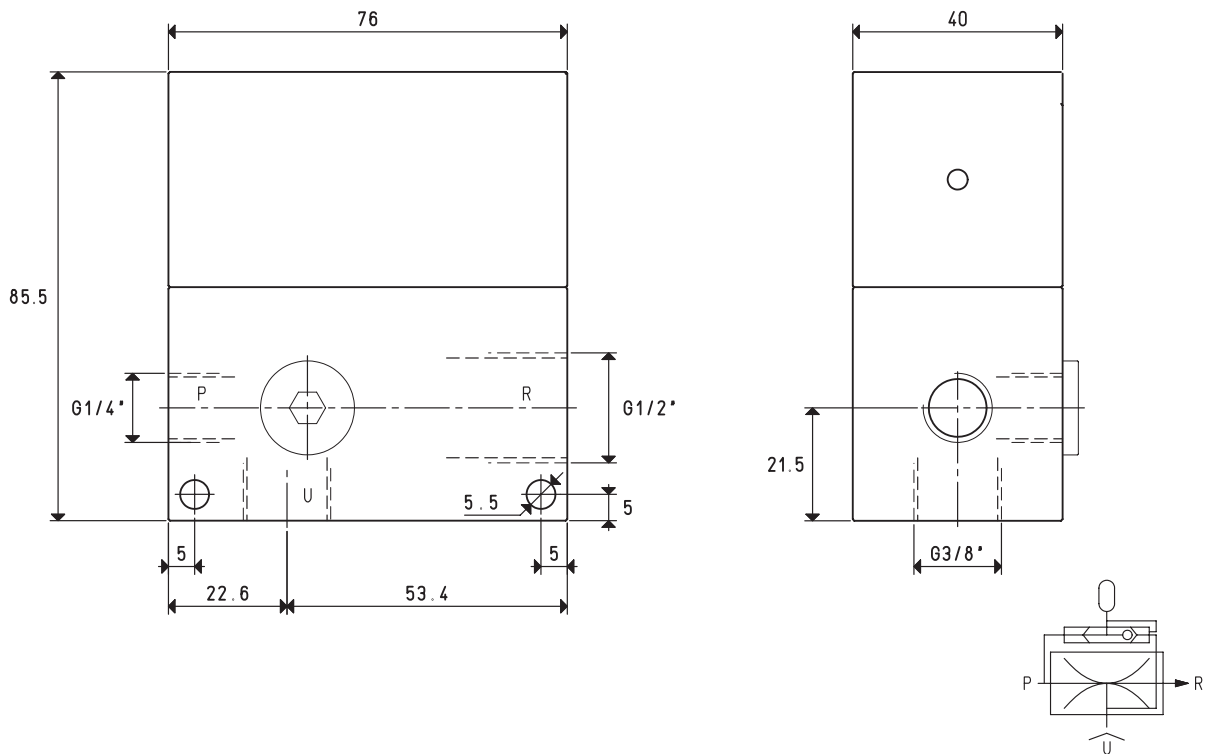
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
15 02 10	6.0	0.9	139	278	472	727	1171	1628	2720	4928	--	85	
15 02 10 LP	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85	
15 02 15 LP	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85	

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ACCESSORIES UPON REQUEST

Silencer item SSX 1/4"





P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		15 04 10		
Intake air flow rate	m ³ /h	4.8	5	5
Maximum level of vacuum	-KPa	62	78	85
Final pressure	mbar abs.	380	220	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	NI/s	1.1	1.3	1.6
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			79
Weight	g			501
Spare parts		15 04 10		
Sealing kit	item			00 15 501

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

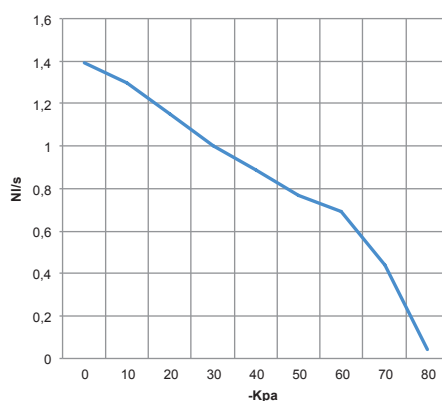
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



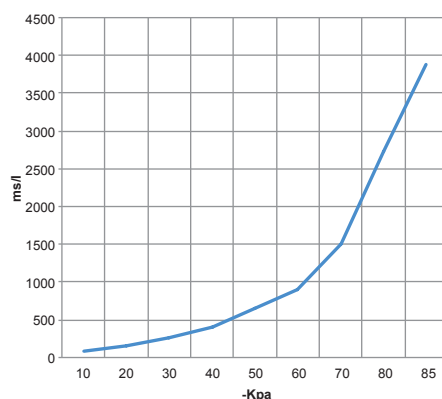
SINGLE-STAGE VACUUM GENERATOR WITH EJECTOR 15 04 10

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
15 04 10	6.0	1.6	1.39	1.30	1.15	1.00	0.89	0.77	0.69	0.44	0.04		85

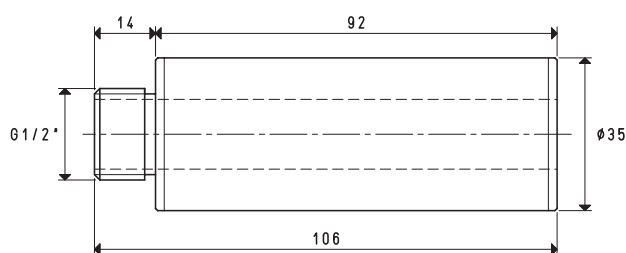
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
15 04 10	6.0	1.6	77	154	261	403	649	902	1506	2730	3876		85

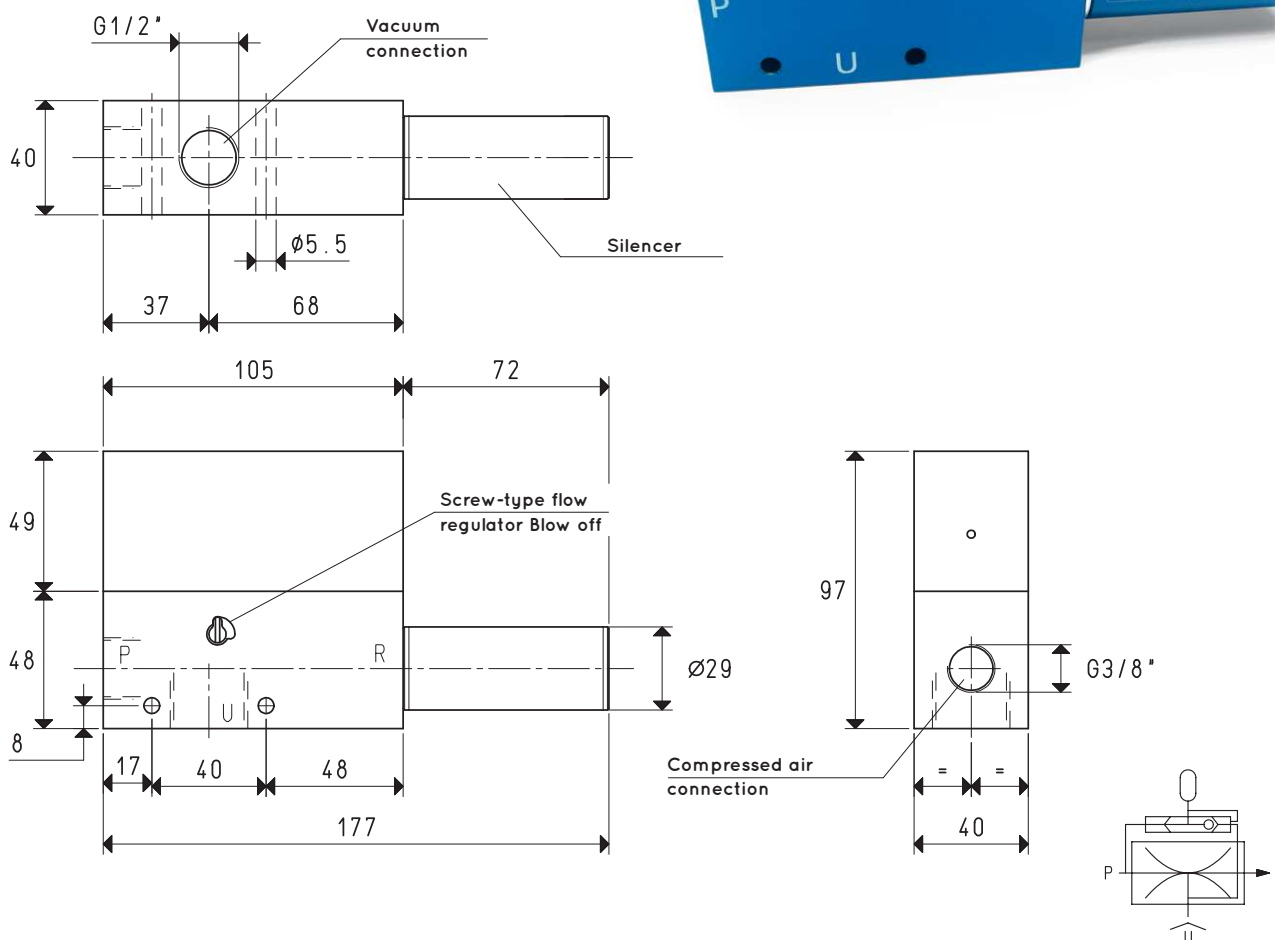
ACCESSORIES UPON REQUEST

Silencer item SSX 1/2"



SINGLE-STAGE VACUUM GENERATOR WITH EJECTOR 15 06 08 SX and 15 06 10 SX

These have the same technical features as 15 05 08 SX and 15 05 10 SX, with the addition of the pneumatic ejector. For the ejection system, air accumulated in a special chamber inside the generator body during the operating cycle is automatically discharged in connection to use U, once supply in P is completed and suitably dosed by means of a screw-type flow regulator, for quick restoration of the atmospheric pressure. Optimal supply pressure is less than 4 bar. A high acoustic dampening silencer, set on exhaust air discharge R, reduces noise to a minimum and is an integral part of the generator. These generators, like the previous ones, are also fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION		R=EXHAUST			U=VACUUM CONNECTION		
Item		15 06 08 SX			15 06 10 SX		
Intake air flow rate	m ³ /h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-kPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Optimal supply pressure	bar			3.5			3.5
Air consumption	NI/s	2.8	3.8	4.3	3.7	5.0	5.5
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			60			63
Weight	g			310			306
Spare parts		15 06 08 SX			15 06 10 SX		
Sealing kit	item	00 15 414			00 15 414		
Silencer	item	SSX 3/8"			SSX 3/8"		

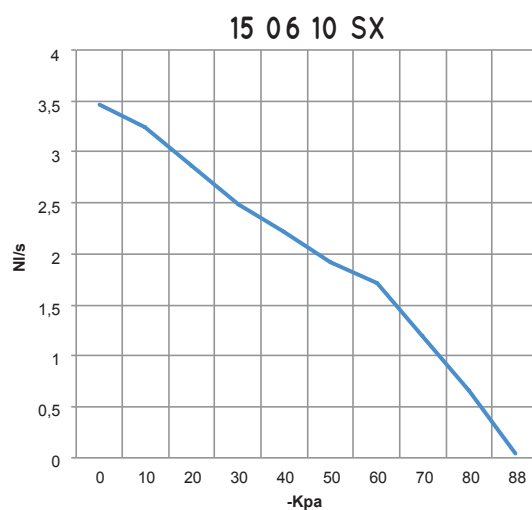
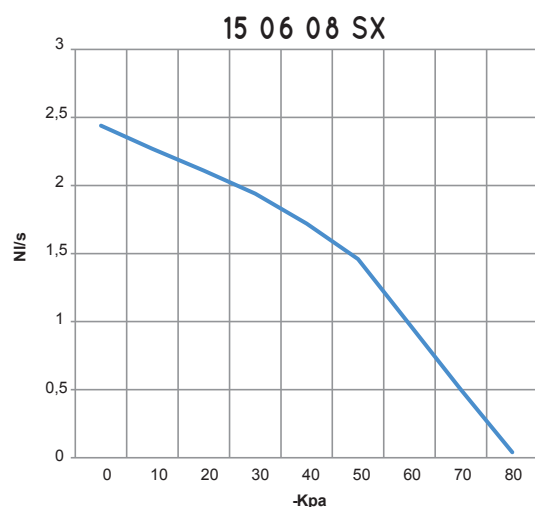
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



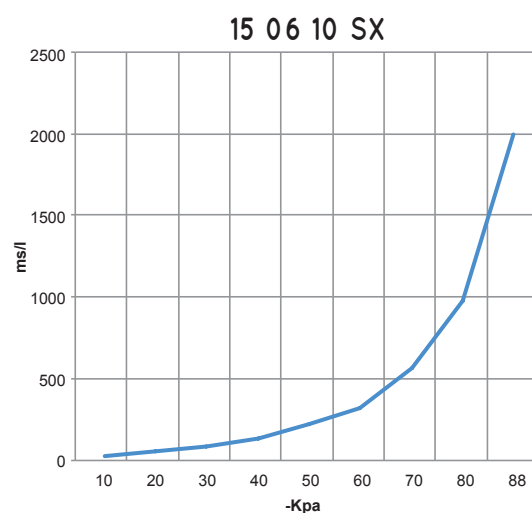
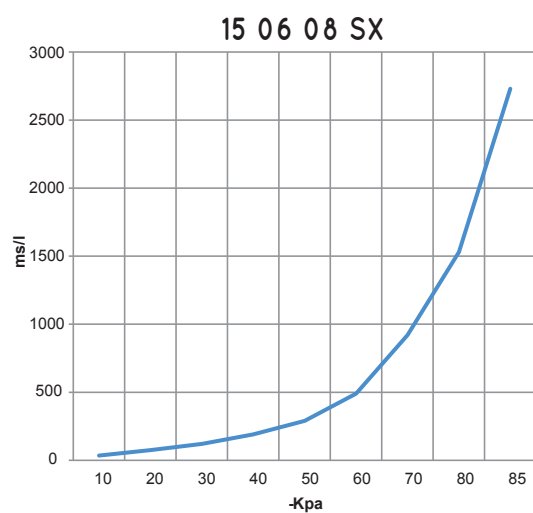
SINGLE-STAGE VACUUM GENERATOR WITH EJECTOR 15 06 08 SX and 15 06 10 SX

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
15 06 08 SX	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90	
15 06 10 SX	3.5	5.5	3.47	3.24	2.86	2.49	2.22	1.92	1.72	1.20	0.65	90	

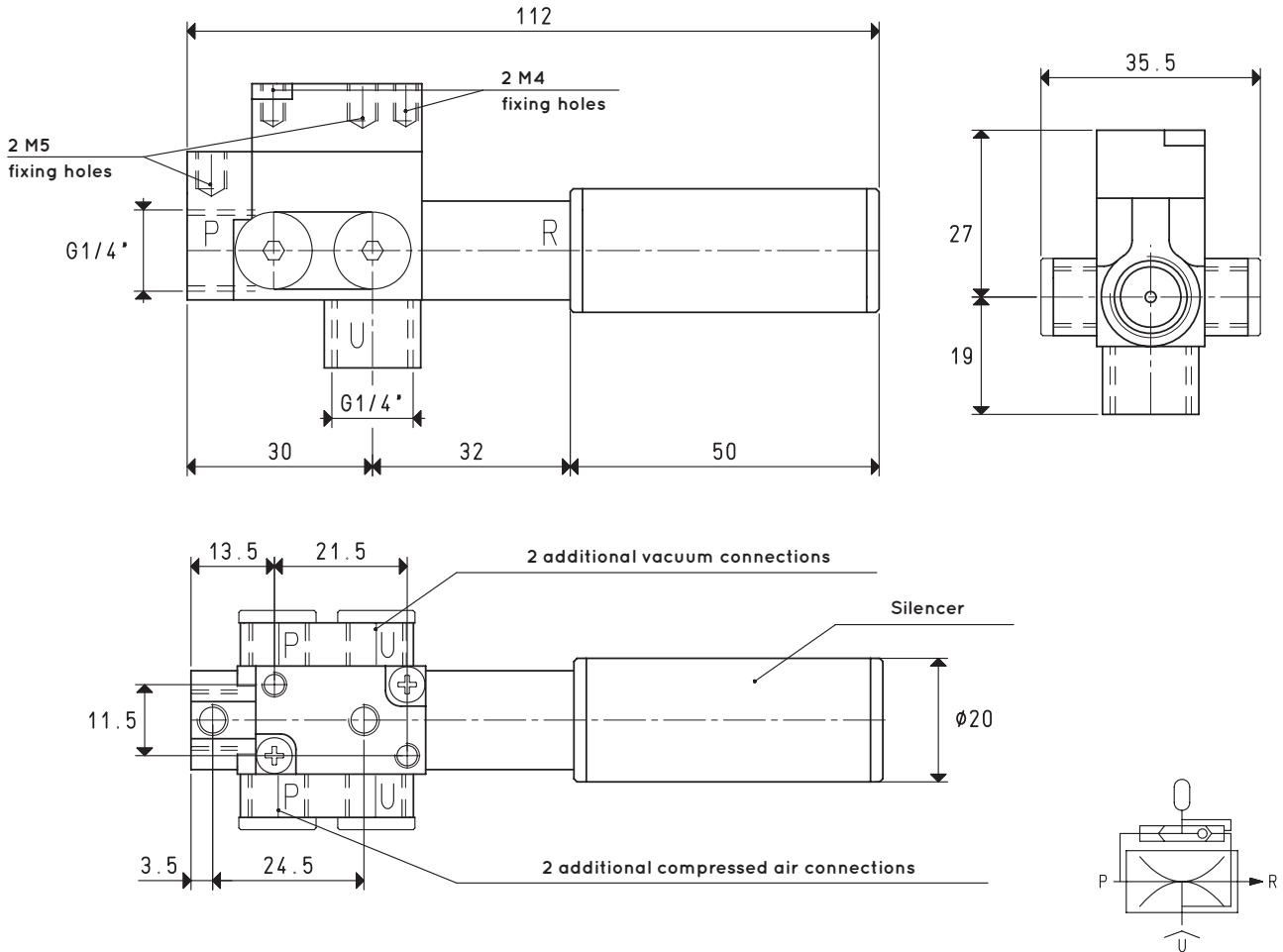
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
15 06 08 SX	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
15 06 10 SX	3.5	5.5	25	54	90	140	220	320	570	980	2012	90

SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR FVG 3 and FVG 5

Specifically designed for very high frequency gripping and release applications, these single-stage vacuum generators are based on the Venturi principle and are equipped with a pneumatic ejector to allow maximum speed in restoring the atmospheric pressure of use. The key features are its considerably reduced weight, supply air pressure of less than 4 bar, low energy consumption, simplicity of installation and low noise level during use, thanks to the high sound dampening silencer installed as standard on the generators. The pneumatic ejector can be deactivated simply by means of a membrane integrated onto the generators. These generators, like the previous ones, are also fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION		R=EXHAUST			U=VACUUM CONNECTION		
Item		FVG 3			FVG 5		
Intake air flow rate	m ³ /h	2.6	2.8	3.0	4.8	4.9	5.0
Maximum level of vacuum	-kPa	43	61	85	40	61	85
Final pressure	mbar abs.	570	390	150	600	390	150
Supply pressure	bar	2	3	4	2	3	4
Optimal supply pressure	bar			4			4
Air consumption	NI/s	0.7	0.9	1.2	1.3	1.7	2.2
Operating temperature	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			68			74
Weight	g			84			86
Spare parts		FVG 3			FVG 5		
Silencer	item	SSX 1/4"			SSX 1/4"		
Sealing kit and reed valves	item	00 15 502			00 15 502		

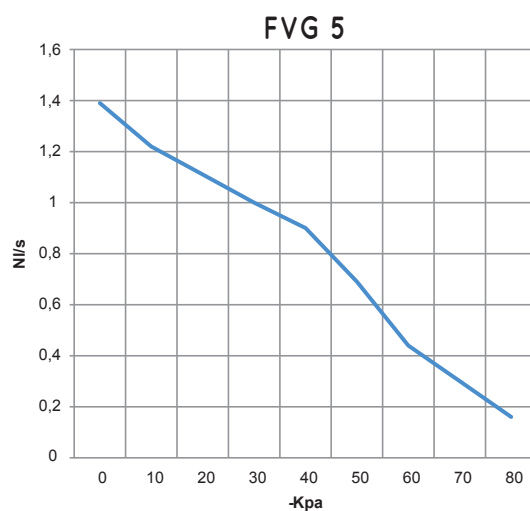
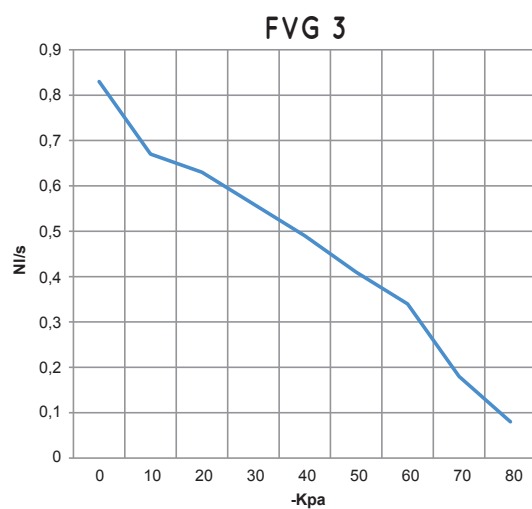
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



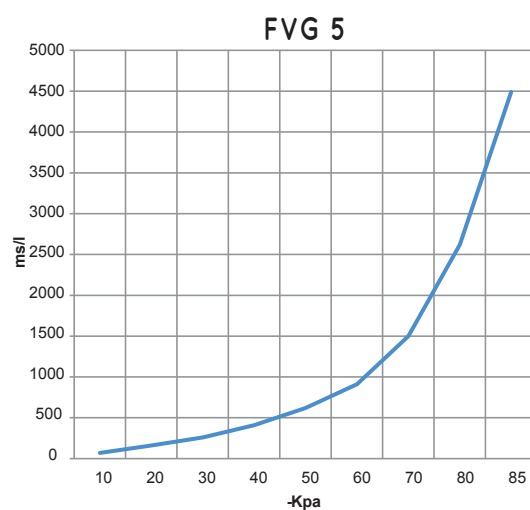
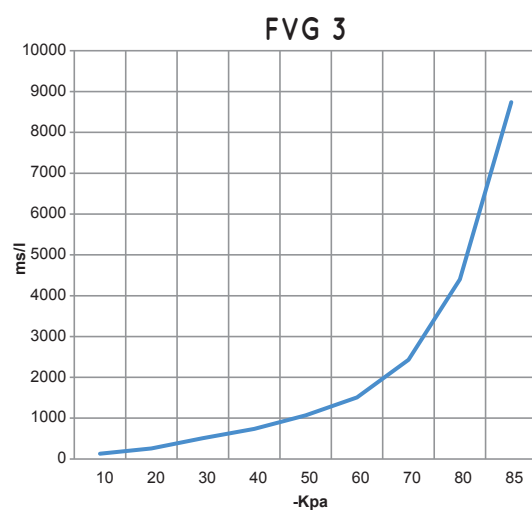
SINGLE-STAGE VACUUM GENERATORS WITH EJECTOR FVG 3 and FVG 5

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
FVG 3	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85	
FVG 5	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85	

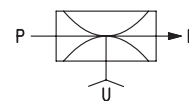
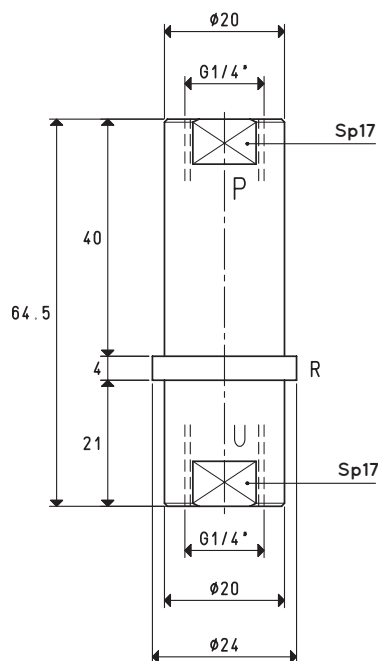
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
FVG 3	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85
FVG 5	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85

IN-LINE SINGLE-STAGE VACUUM GENERATOR PVP 1

This new range of vacuum generators also makes use of the Venturi principle. Their distinctive feature compared with traditional vacuum generators are the two air and vacuum supply connections located in-line on the same axis, while the exhaust connection of the sucked and exhaust air is orthogonal to them and is located on the generator circumference. These vacuum generators are easy to disassemble, thus allowing visibility and access to all the components. The advantages of these generators include reduced overall dimensions, easy maintenance and easy assembly to the vacuum cup supports or to the vacuum cup holders. As a standard, they are equipped with pressed stainless steel suction filter and a special microfibre silencer, which is wrapped around the exhaust connection, making them particularly silent. They are fully made with anodised aluminium.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 1		
Intake air flow rate	m ³ /h	0.9	1.0	1.0
Maximum level of vacuum	-KPa	60	80	85
Final pressure	mbar abs.	400	200	150
Supply pressure	bar	3	4	5
Optimal supply pressure	bar			5
Air consumption	NI/s	0.30	0.35	0.45
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			62
Weight	g			44

Spare parts		PVP 1	
Silencer	item	00 15 114	
Suction filter	item	SP 1/4 I	

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

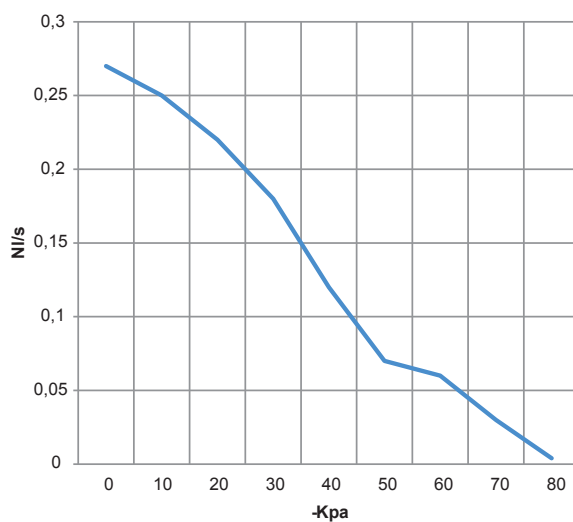
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



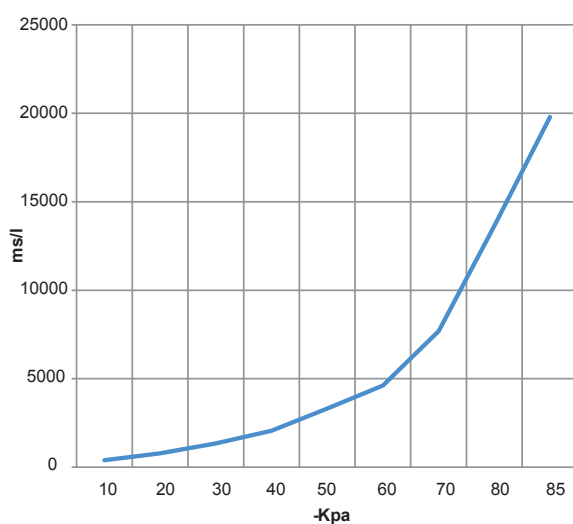
IN-LINE SINGLE-STAGE VACUUM GENERATOR PVP 1

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure									Max vacuum -kPa
			0	10	20	30	40	50	60	70	80	
PVP 1	5.0	0.45	0.27	0.25	0.22	0.18	0.12	0.07	0.06	0.03	--	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

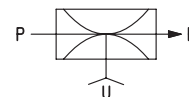
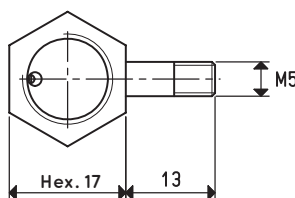
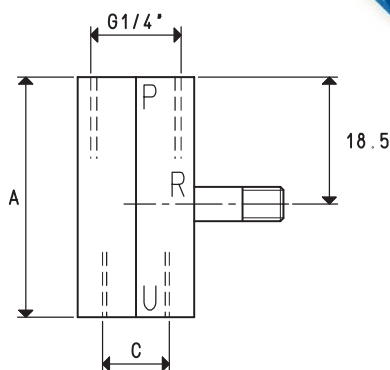


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 1	5.0	0.45	393	786	1336	2057	3312	4605	7690	13935	19787	85

IN-LINE SINGLE-STAGE VACUUM GENERATORS GV 1, GV 2 and GV 3

These vacuum generators also operate based on the Venturi principle. The feature that distinguishes them from classic vacuum generators are the two air supply and the vacuum connections, located on the same axis, while the connection relative to the intake-air discharge and exhaust air connections are set orthogonally to them.

The advantages of this configuration are less bulky dimensions, easy assembly, and ease of maintenance. These vacuum generators can be assembled directly onto the vacuum cup supports or on cup holders. They are fully made with anodised aluminium, except the exhaust nozzle which is made with brass.



P=COMPRESSED AIR CONNECTION		R=EXHAUST			U=VACUUM CONNECTION					
Item		GV1			GV2			GV3		
Intake air flow rate	m ³ /h	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Maximum level of vacuum	-KPa	60	75	85	60	75	85	60	75	85
Final pressure	mbar abs.	400	250	150	400	250	150	400	250	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	NI/s	0.30	0.35	0.45	0.30	0.35	0.45	0.30	0.35	0.45
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			70			70			70
Weight	g			21			20			19
A				30			35			38
C	Ø			M5			G1/8"			G1/4"

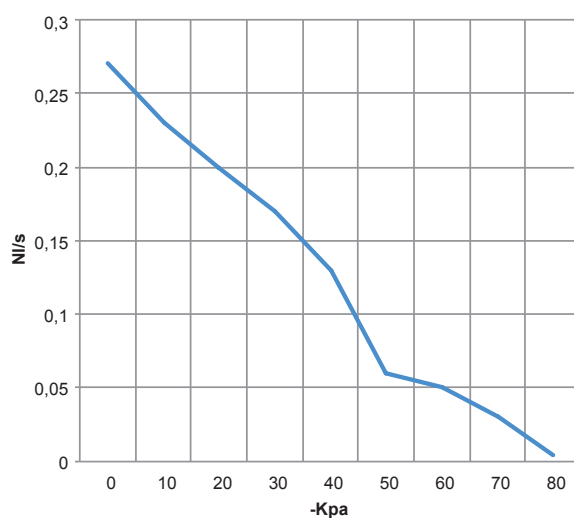
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



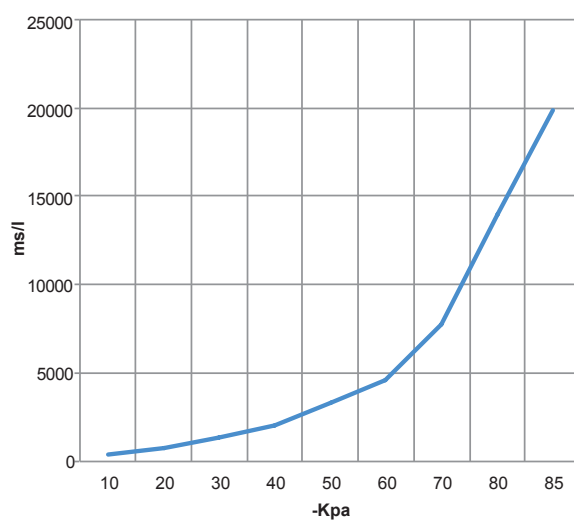
IN-LINE SINGLE-STAGE VACUUM GENERATORS GV 1, GV 2 and GV 3

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
GV1 - GV2 - GV3	5.0	0.45	0.27	0.23	0.20	0.17	0.13	0.06	0.05	0.03	–	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m ³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
GV1 - GV2 - GV3	5.0	0.45	394	788	1339	2063	3322	4617	7711	13973	19841	85

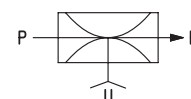
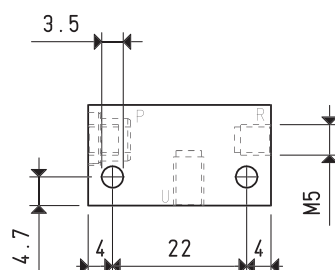
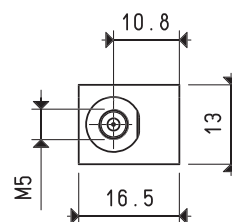
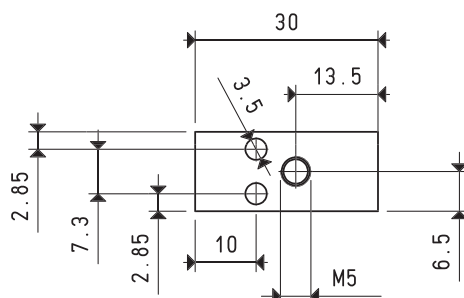
SINGLE-STAGE VACUUM GENERATORS PVP 05, PVP 2 and PVP 3

With their extremely reduced size and high performance, these single-stage vacuum generators operate making use of the Venturi principle. Supplying the generator with compressed air in P, vacuum will be generated at connection U, while both the supply and the sucked air will be released through R. By interrupting the air supply in P, the vacuum effect in U will also stop.

The vacuum generators described on this page are generally used for interconnecting vacuum cups, for gripping and handling non-porous objects and equipment with low flow rate requirements.

They are made with anodised aluminium, with ejectors in aluminium (PVP05) or in brass (PVP2 - PVP3).

Upon request, they can be supplied with a high sound suppression silencer installed on the R exhaust connection.



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION			
Item		PVP 05					
Intake air flow rate	m³/h	0.36	0.42	0.42	0.47	0.50	0.50
Maximum level of vacuum	-KPa	22	33	42	48	61	82
Final pressure	mbar abs.	780	670	580	520	390	180
Supply pressure	bar	1	2	3	4	5	6
Optimal supply pressure	bar						6
Air consumption	NI/s	0.13	0.20	0.27	0.34	0.40	0.50
Operating temperature	°C						-20 / +80
Noise level at optimal supply pressure	dB(A)						70
Weight	g						14

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

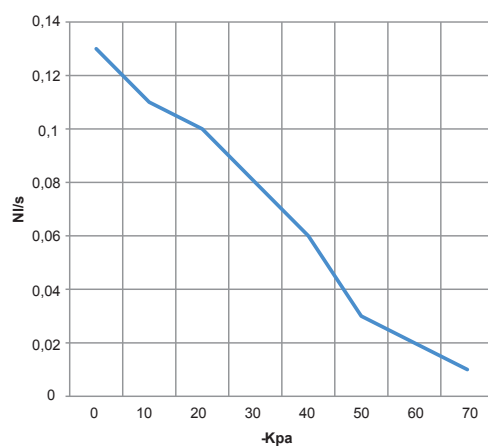
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



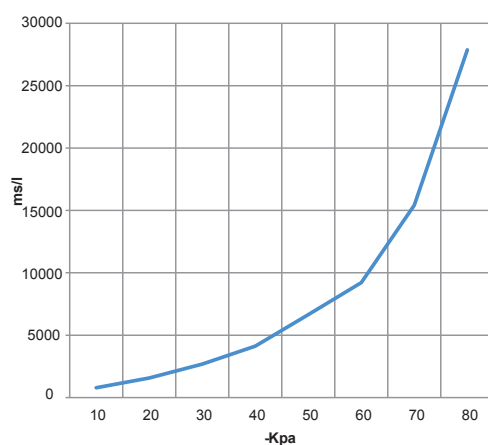
SINGLE-STAGE VACUUM GENERATOR PVP 05

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa
PVP 05	6.0	0.5	0.13	0.11	0.10	0.08	0.06	0.03	0.02	0.01	--	82

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

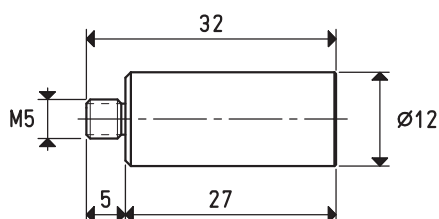


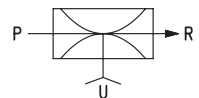
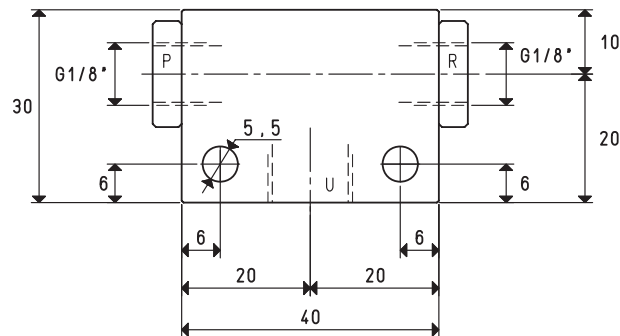
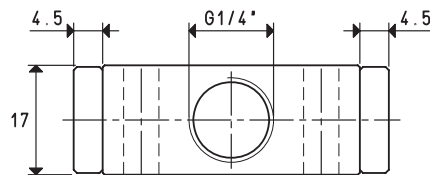
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure								Max vacuum -KPa
			10	20	30	40	50	60	70	80	
PVP 05	6.0	0.5	786	1572	2678	4126	6644	9210	15420	27870	82

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ACCESSORIES UPON REQUEST

Silencer item FB 1





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 2		
Intake air flow rate	m ³ /h	2.8	2.9	3.0
Maximum level of vacuum	-KPa	60	70	85
Final pressure	mbar abs.	400	300	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	NI/s	0.7	0.8	0.9
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			78
Weight	g			70

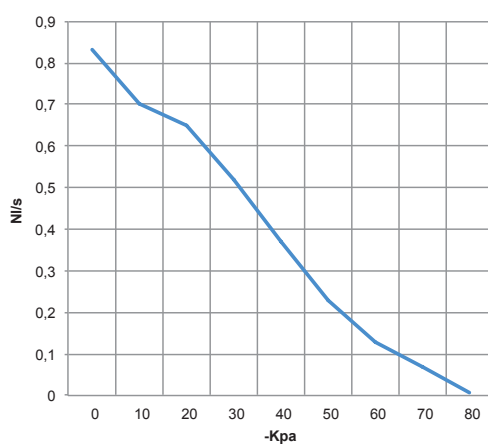
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



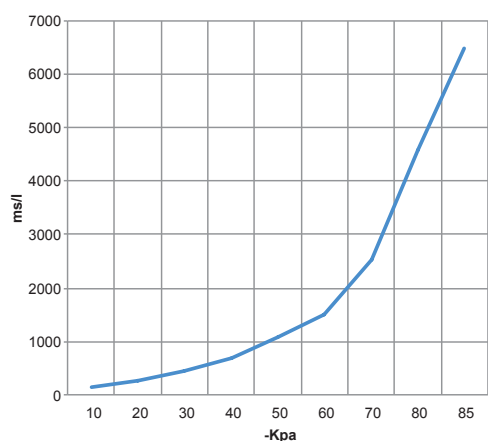
SINGLE-STAGE VACUUM GENERATOR PVP 2

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
PVP 2	6.0	0.9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	–	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

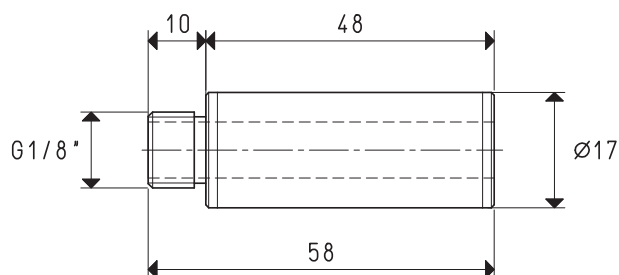


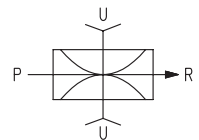
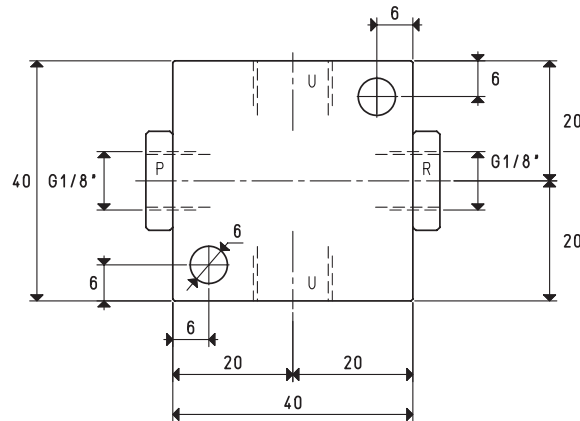
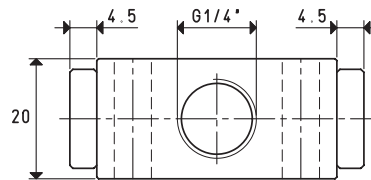
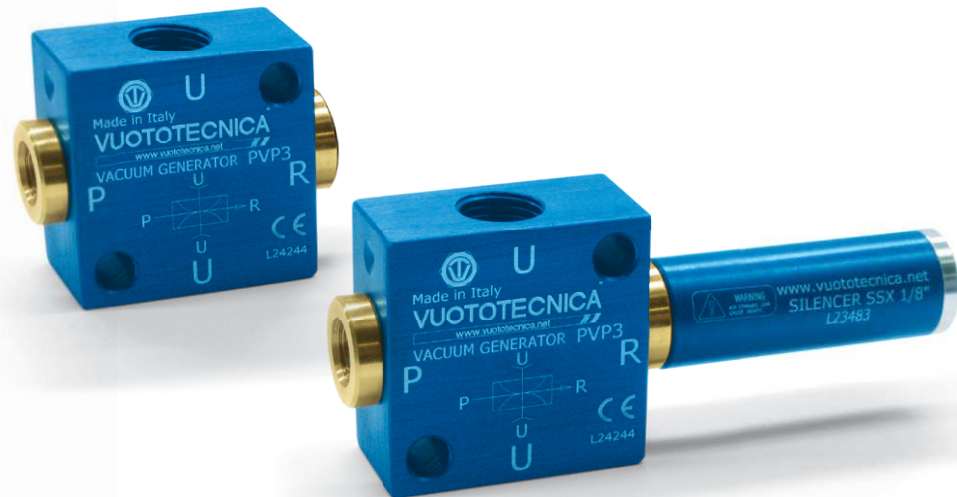
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 2	6.0	0.9	128	257	438	675	1087	1511	2523	4572	6492	85

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ACCESSORIES UPON REQUEST

Silencer item SSX 1/8"





P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		PVP 3		
Intake air flow rate	m ³ /h	3.4	3.5	3.7
Maximum level of vacuum	-KPa	60	70	85
Final pressure	mbar abs.	400	300	150
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	NI/s	1.0	1.1	1.3
Operating temperature	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			80
Weight	g			100

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

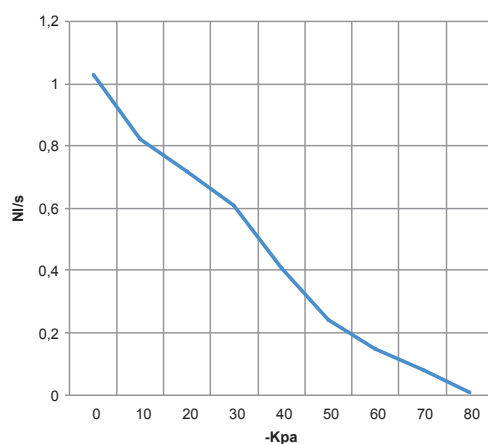
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



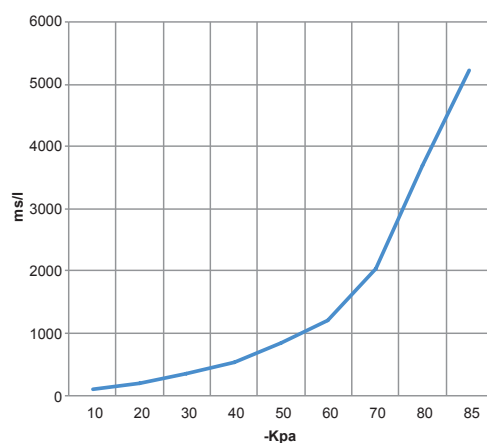
SINGLE-STAGE VACUUM GENERATOR PVP 3

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure									Max vacuum -kPa
			0	10	20	30	40	50	60	70	80	
PVP 3	6.0	1.3	1.03	0.82	0.72	0.61	0.41	0.24	0.15	0.08	—	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

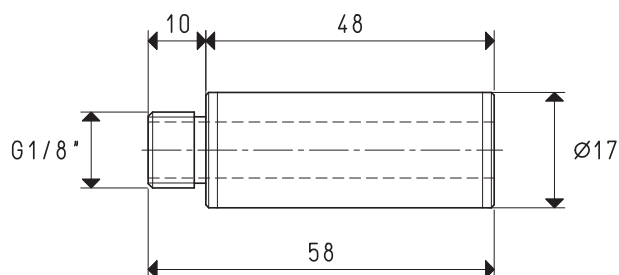


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
PVP 3	6.0	1.3	104	207	353	544	857	1217	2033	3684	5232	85

8

ACCESSORIES UPON REQUEST

Silencer item SSX 1/8"



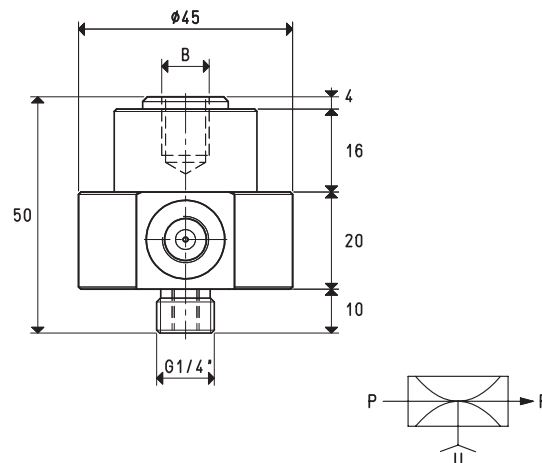
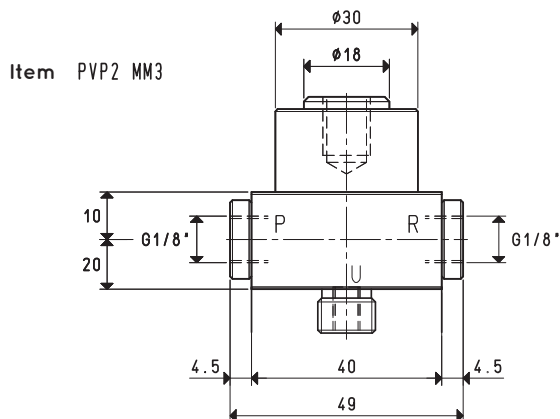
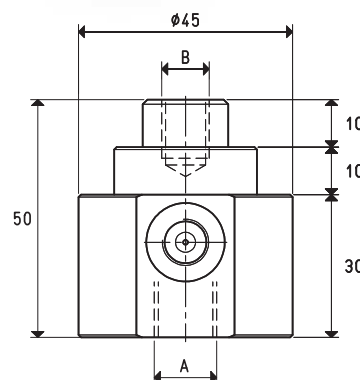
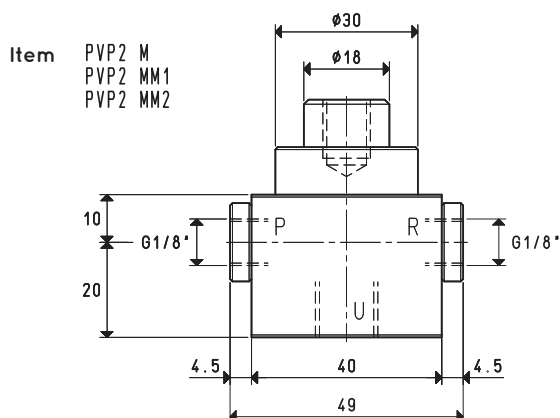
SINGLE-STAGE VACUUM GENERATORS PVP 2 M, PVP 2 MM1, PVP 2 MM2 and PVP 2 MM3

The vacuum generators on this page are based on the same Venturi principle of those previously described and provide the same technical performance. They however differ in their structure.

The vacuum connection U is in fact threaded to allow for assembly of a vacuum cup with male or female support while, on the same axis but on the opposite side, a hole with metric threading allows for the generator to be installed directly on the machine or on the cup holders equipped with springing.

They are fully made with anodised aluminium, with brass ejectors. Equipped with a vacuum cup, these are truly self-contained gripping units. They are suited for vacuum cup operated loaders or handlers, for gripping sheet steel, glass slabs, plastic panels and other similar products.

Upon request, they can be supplied with a high sound suppression silencer installed on the R exhaust connection.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 2 M			PVP 2 MM1			PVP 2 MM2			PVP 2 MM3		
Intake air flow rate	m ³ /h	2.8	2.9	3.0	2.9	2.9	3.0	2.8	2.9	3.0	2.8	2.9	3.0
Maximum level of vacuum	-KPa	60	70	85	60	70	85	60	70	85	60	70	85
Final pressure	mbar abs.	400	300	150	400	300	150	400	300	150	400	300	150
Supply pressure	bar	4	5	6	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6			6
Air consumption	NI/s	0.7	0.8	0.9	0.7	0.8	0.9	0.7	0.8	0.9	0.7	0.8	0.9
Operating temperature	°C			-20 / +80			-20 / +80			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			78			78			78			78
A				G3/8"			G3/8"			G1/4"			-
B				M10			M12			M10			M10
Weight	g			162			162			162			172

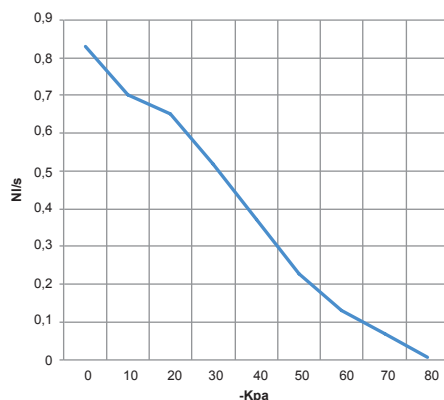
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



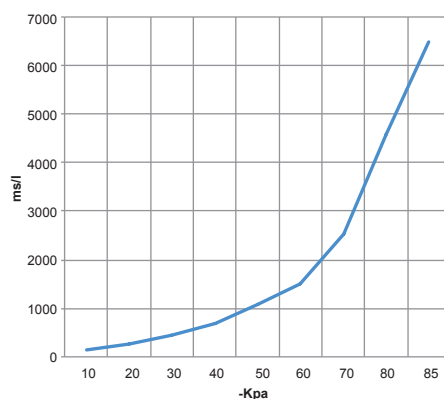
SINGLE-STAGE VACUUM GENERATORS PVP 2 M, PVP 2 MM1, PVP 2 MM2 and PVP 2 MM3

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
PVP 2 M	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM1	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM2	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85
PVP 2 MM3	6.0	0,9	0.83	0.70	0.65	0.52	0.37	0.23	0.13	0.07	--	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

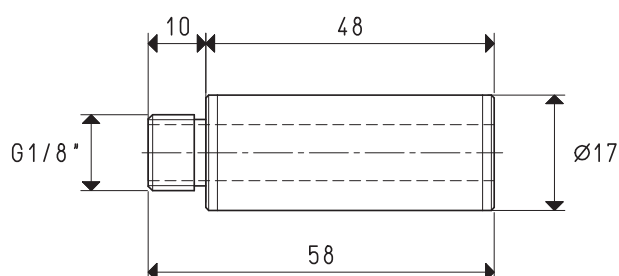


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-kPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-kPa
PVP 2 M	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM1	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM2	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85
PVP 2 MM3	6.0	0,9	128	257	438	675	1087	1511	2523	4572	6492	85

8

ACCESSORIES UPON REQUEST

Silencer item SSX 1/8"



They are supplied as standard with a vacuum gauge for reading the level of vacuum. An additional connection on the body of the generator allows the installation of a vacuum switch for signalling the level of vacuum, or of a pneumatic solenoid valve for a quick restoration of the atmospheric pressure of use. They are fully made with anodised aluminium, with stainless steel ejectors and screws. These vacuum generators can be used for connecting one or more vacuum cups or equipment with flow rate requirements within the shown values and can operate in particularly dusty or damp environments. Available with suction rates between 8.3 and 18 m³/h and supply pressure 4-6 bar, for items SX and 1-3 bar for items SXL.



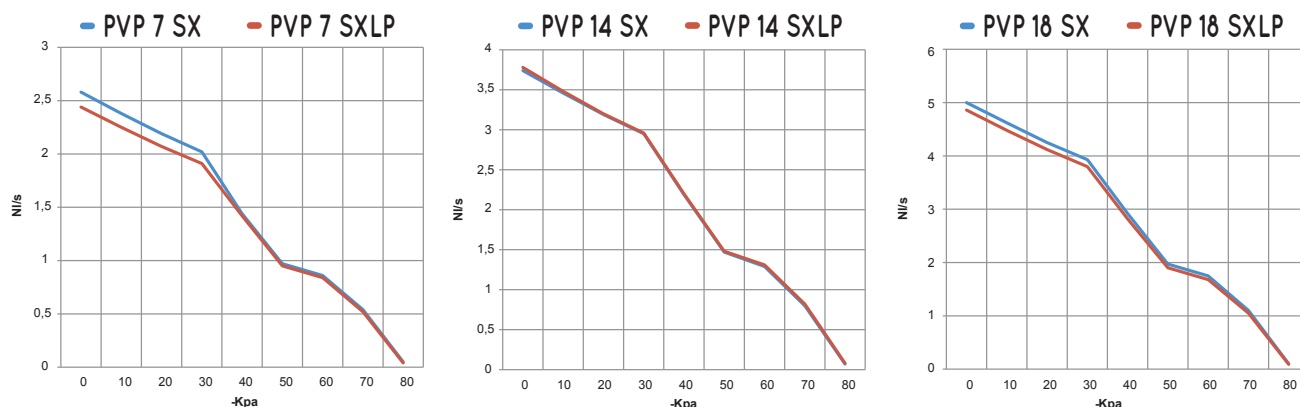
Spare parts		PVP 7 SX / SXLP	PVP 14 SX / SXLP	PVP 18 SX / SXLP
Sealing kit	item	00 15 276	00 15 276	00 15 276
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Silencer	item	SSX 3/4" R	SSX 3/4" R	SSX 3/4" R

8.35



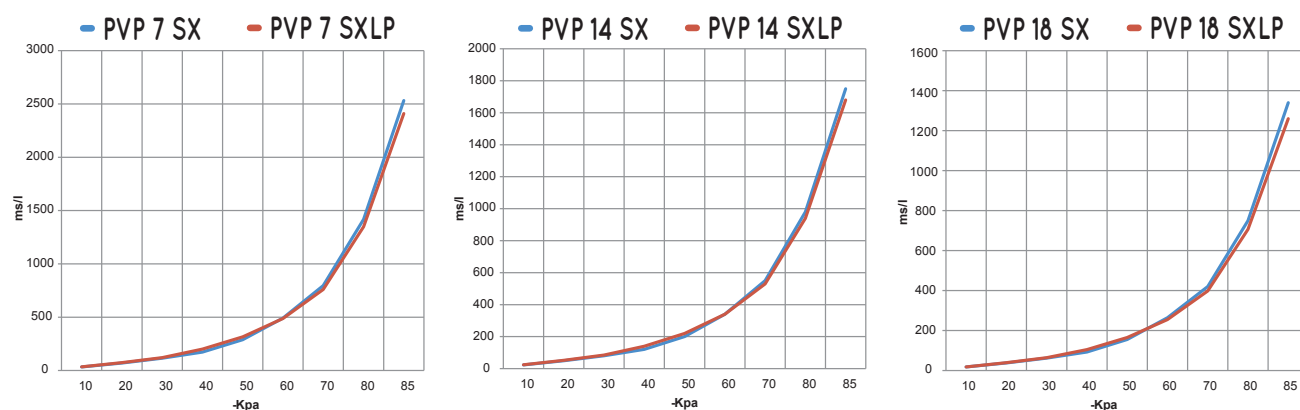
SINGLE-STAGE VACUUM GENERATORS PVP 7 - 14 - 18 SX / SXLP

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 7 SX	6.0	3.2	2.58	2.38	2.19	2.02	1.44	0.97	0.86	0.54	0.05	85	
PVP 14 SX	6.0	4.8	3.75	3.46	3.19	2.95	2.19	1.47	1.29	0.80	0.07	85	
PVP 18 SX	6.0	6.4	5.00	4.62	4.25	3.93	2.92	1.97	1.75	1.10	0.10	85	
PVP 7 SXLP	3.0	4.5	2.44	2.25	2.07	1.91	1.42	0.95	0.84	0.52	0.04	88	
PVP 14 SXLP	3.0	6.9	3.77	3.48	3.20	2.96	2.20	1.48	1.31	0.82	0.07	88	
PVP 18 SXLP	3.0	8.6	4.86	4.48	4.12	3.80	2.82	1.90	1.68	1.05	0.09	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 7 SX	6.0	3.2	33	70	115	173	289	492	796	1418	2532	85
PVP 14 SX	6.0	4.8	23	49	80	120	200	340	550	980	1750	85
PVP 18 SX	6.0	6.4	18	38	62	93	155	264	420	750	1340	85
PVP 7 SXLP	3.0	4.5	34	74	121	200	315	487	760	1348	2410	88
PVP 14 SXLP	3.0	6.9	24	52	85	140	220	340	530	940	1680	88
PVP 18 SXLP	3.0	8.6	18	39	64	105	165	255	398	706	1260	88

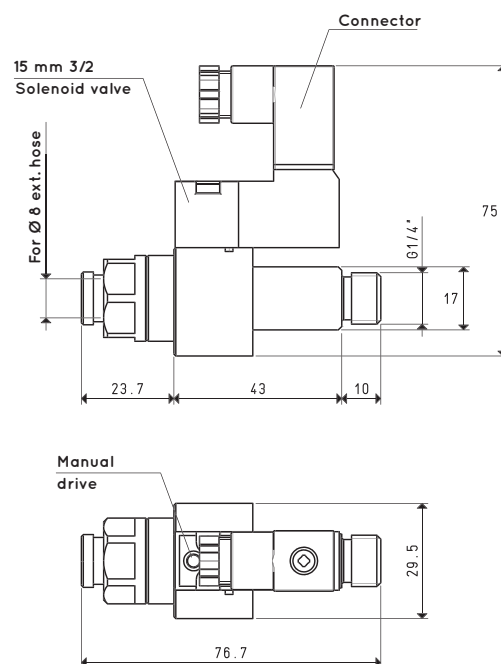
PNEUMATIC COAXIAL SHUTTER VALVES

The function of these solenoid valves is to intercept the compressed air supply to the vacuum generators. Interception through an original coaxial shutter allows the supply of large quantities of air, thus ensuring greater gripping speed of the vacuum cups.

They are composed of an anodised aluminium body with an integrated coaxial shutter, pneumatically operated by a micro solenoid valve with low absorption electric coil, capable of managing operating pressures between 1.5 and 7 bar.

They can be controlled via vacuum switches or simple electrical switches.

Thanks to their compactness, it is also possible to install them directly on the vacuum generators, thus eliminating unnecessary pipes and negative volumes.



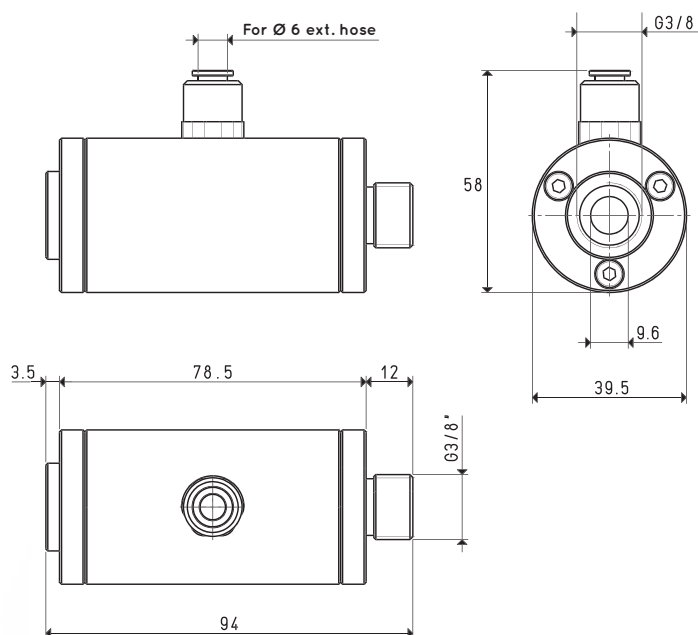
Item	A Ø	Max flow rate at 6 bar l / 1'	Supply pressure bar	Electrical absorption W	Weight g
VPE 00 NC V24CC	G1/8"	350	1.5 ÷ 7	2	110
VPE 00 NO V24CC	G1/8"	350	1.5 ÷ 7	2	110
VPE 01 NC V24CC	G1/4"	500	1.5 ÷ 7	2	100
VPE 01 NO V24CC	G1/4"	500	1.5 ÷ 7	2	100
VPE 02 NC V24CC	G3/8"	600	1.5 ÷ 7	2	100
VPE 02 NO V24CC	G3/8"	600	1.5 ÷ 7	2	100

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

PNEUMATIC SLEEVE VALVE

This particular sleeve valve has been constructed to ensure a faster restoration of the atmospheric pressure inside the vacuum cups when the load is disconnected. When it is pneumatically operated at the end of the cycle, it closes the generator discharge connection, conveying the supply air in the connection of use. In this way, the vacuum cups are immediately detached. It is suitable for generators with capacities not exceeding 15 mc/h and designed especially for series MSVE.

It is made of anodised aluminium, with an integrated silicon sleeve membrane.



Item	Max flow rate of free mouth l / 1'	Servo-control pressure bar	Weight g
07 02 90	600	3 ÷ 8	230

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

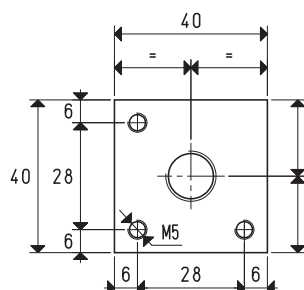
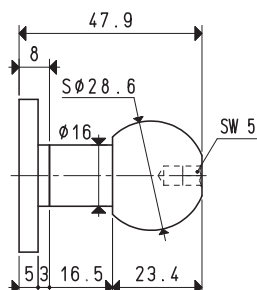


FIXING SUPPORTS FOR SINGLE-STAGE VACUUM GENERATORS

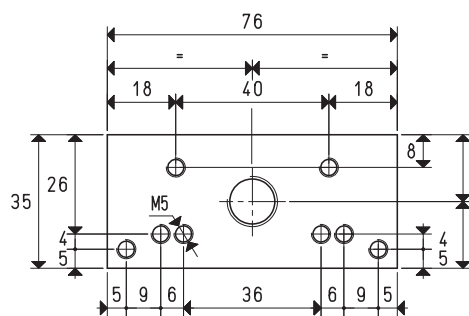
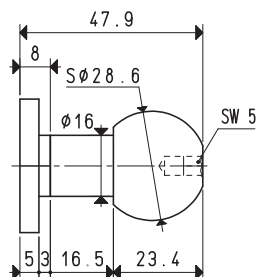
The supports illustrated and described on this page are made in anodised aluminium as a standard but, upon request, they can be supplied in the stainless steel version.

These supports are for fixing the multi-stage vacuum generators to the machine via a cylindrical slotted pin or a ball pin housed in the machine itself.

They are suited for robotic gripping systems and they allow for easy vacuum generator installation on the profiles used in the automotive sector.



Item	By generators	Material	Weight g
FCH 01	PVP 2	aluminium	60
	PVP 3		
FCH 01 INOX	PVP 2	stainless steel	180
	PVP 3		



Item	By generators	Material	Weight g
FCH 02	15 01 10	aluminium	72
	15 02 10		
	15 03 10		
	15 04 10		
	15 05 10		
	15 06 10		
	15 07 10		
FCH 02 INOX	15 01 10	stainless steel	220
	15 02 10		
	15 03 10		
	15 04 10		
	15 05 10		
	15 06 10		
	15 07 10		



3D drawings are available on vuototecnica.net

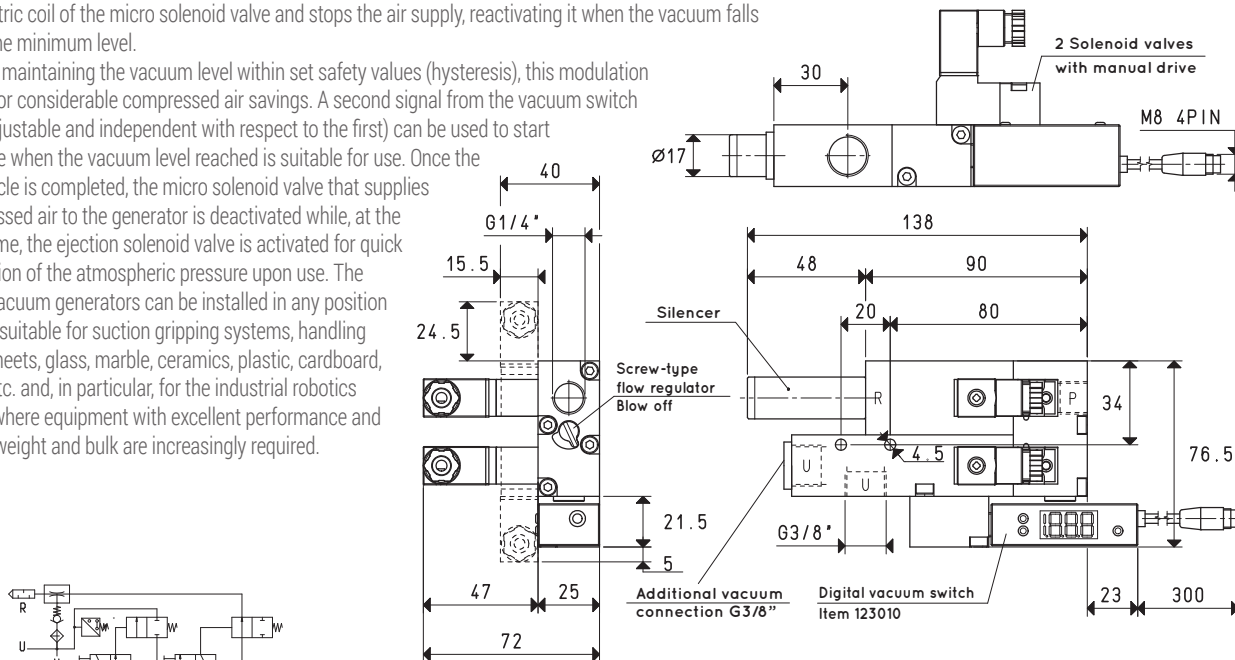
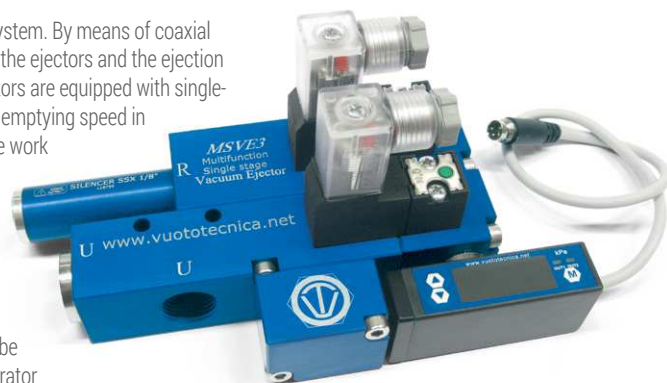
8



SINGLE-STAGE AND MULTI-STAGE VACUUM GENERATORS, MSVE SERIES

The vacuum generators of this new series can fully drive a negative pressure gripping system. By means of coaxial shutters, the original compressed air supply system feeds large quantities of air to both the ejectors and the ejection system, thereby ensuring faster gripping and release of the load. These vacuum generators are equipped with single-stage ejectors, are powered by low pressure (max. 4 bar), and feature an extremely high emptying speed in relation to their suction flow rate. All this allows for increasingly faster high-performance work cycles. Two micro solenoid valves manage the compressed air supply to the vacuum ejector and adjustable discharge blow off. The intensity and duration of the latter are managed through a screw-type flow regulator. The check valve built into the suction connector maintains the vacuum in the event of a power outage. A digital vacuum switch, equipped with a display and commutation LED, manages the compressed air supply and provides a signal to start a cycle under safety conditions. An anodised aluminium distributor with vacuum connectors has an integrated suction filter that can be easily inspected. By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the set maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.

Besides maintaining the vacuum level within set safety values (hysteresis), this modulation allows for considerable compressed air savings. A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the vacuum level reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies compressed air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use. The MSVE vacuum generators can be installed in any position and are suitable for suction gripping systems, handling metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the industrial robotics sector, where equipment with excellent performance and limited weight and bulk are increasingly required.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		MSVE 3			MSVE 5		
Intake air flow rate	m³/h	2.6	2.8	3.0	4.9	5.1	5.1
Maximum level of vacuum	-KPa	40	61	85	40	61	85
Final pressure	mbar abs.	600	390	150	600	390	150
Supply pressure	bar	2	3	4	2	3	4
Air consumption	NI/s	0.7	0.9	1.2	1.3	1.7	2.2
Max quantity of air blown at 4 bar	l/min			650			650
Internal coaxial shutter position of supply				NO			NO
Supply solenoid valve absorption	W			2.0			2.0
Internal coaxial shutter position of ejection				NC			NC
Ejection solenoid valve absorption	W			2.0			2.0
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			40			40
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			48			44
Weight	g			493			493

Spare parts		MSVE 3		MSVE 5	
Digital vacuum switch	item	12 30 10		12 30 10	
NO supply solenoid valve	item	00 07 304		00 07 304	
NC supply and blowing solenoid valve	item	00 15 447		00 15 447	
Silencer	item	SSX 1/8"		SSX 1/8"	

Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.

To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

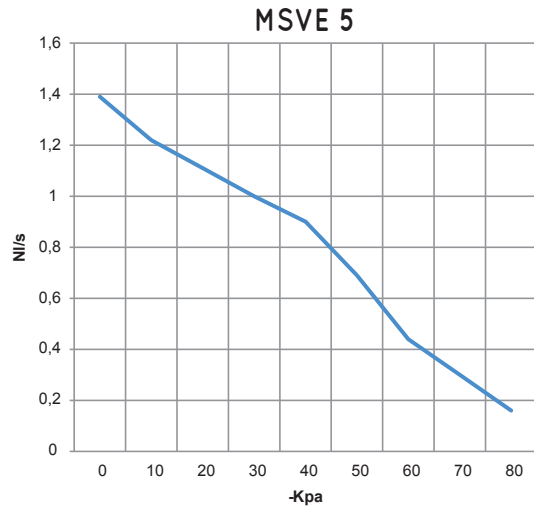
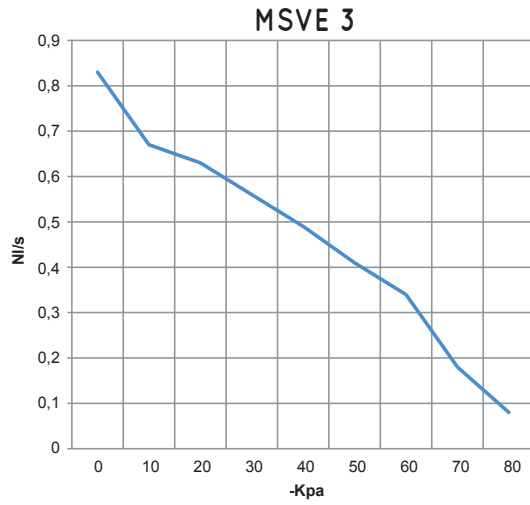
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

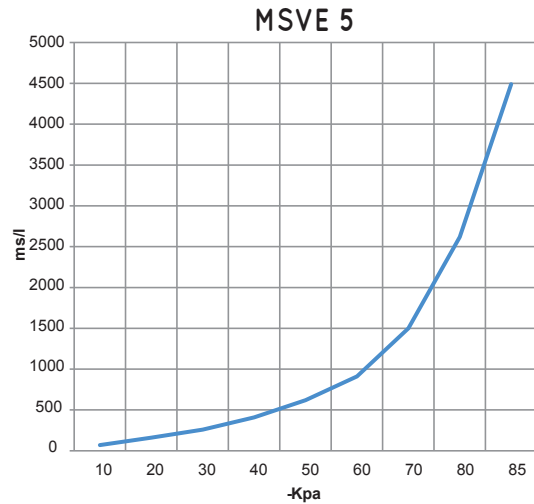
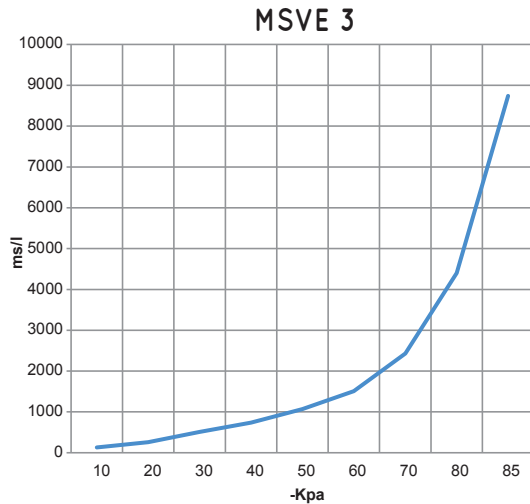
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum -kPa
			0	10	20	30	40	50	60	70	80		
MSVE 3	4.0	1.2	0.83	0.67	0.63	0.56	0.49	0.41	0.34	0.18	0.08	85	
MSVE 5	4.0	2.2	1.39	1.22	1.11	1.00	0.90	0.69	0.44	0.30	0.16	85	

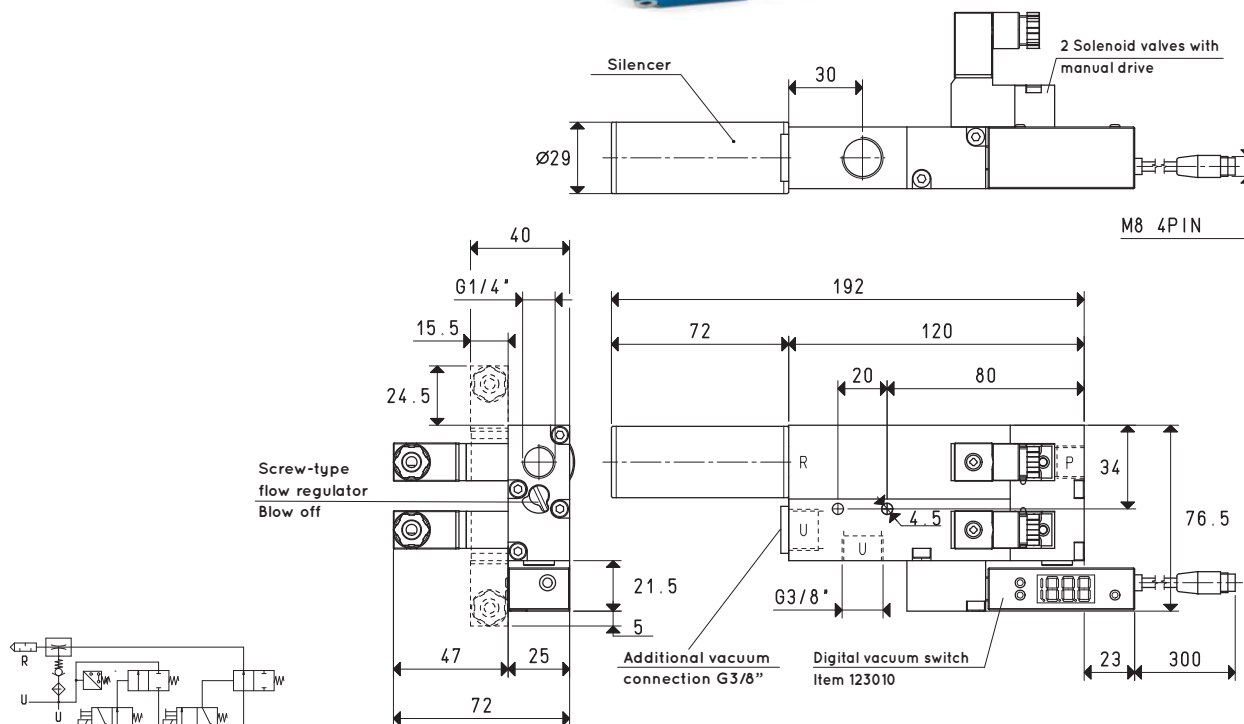
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
MSVE 3	4.0	1.2	130	260	510	740	1070	1510	2430	4400	8740	85	
MSVE 5	4.0	2.2	70	160	260	410	620	910	1500	2620	4490	85	



SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS MSVE 8 and 12



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		MSVE 8			MSVE 12		
Intake air flow rate	m³/h	8.0	8.6	8.8	12.0	12.2	12.5
Maximum level of vacuum	-KPa	40	60	90	40	60	90
Final pressure	mbar abs.	600	400	100	600	400	100
Supply pressure	bar	2	3	3.5	2	3	3.5
Air consumption	NI/s	2.8	3.8	4.3	3.7	5.0	5.5
Max quantity of air blown at 3.5 bar	l/min			600			600
Internal coaxial shutter position of supply				NO			NO
Supply solenoid valve absorption	W			2.0			2.0
Internal coaxial shutter position of ejection				NC			NC
Ejection solenoid valve absorption	W			2.0			2.0
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			40			40
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			53			50
Weight	g			580			620

Spare parts		MSVE 8		MSVE 12	
Digital vacuum switch	item	12 30 10		12 30 10	
NO supply solenoid valve	item	00 07 304		00 07 304	
NC supply and blowing solenoid valve	item	00 15 447		00 15 447	
Silencer	item	SSX 3/8"		SSX 3/8"	

Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.

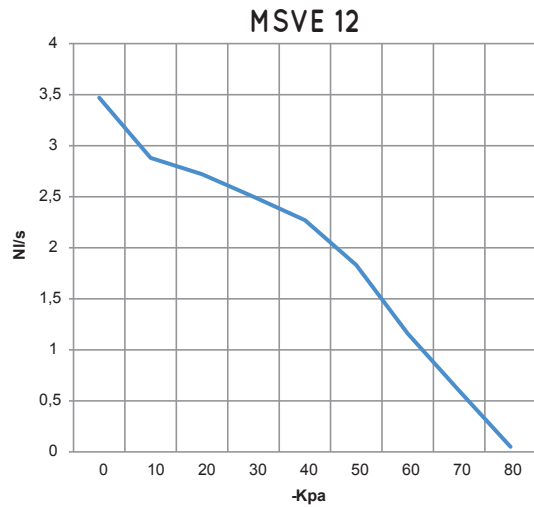
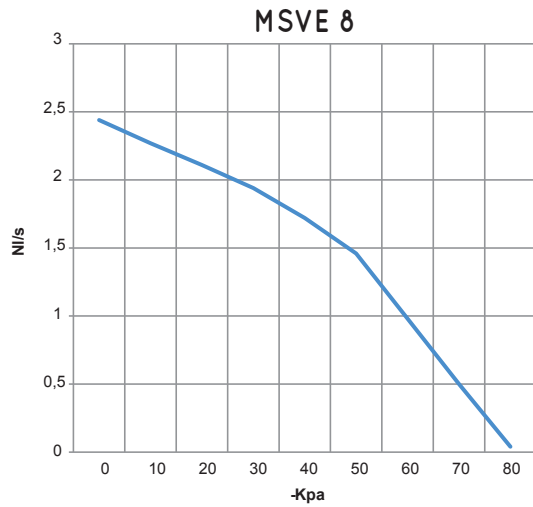
To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

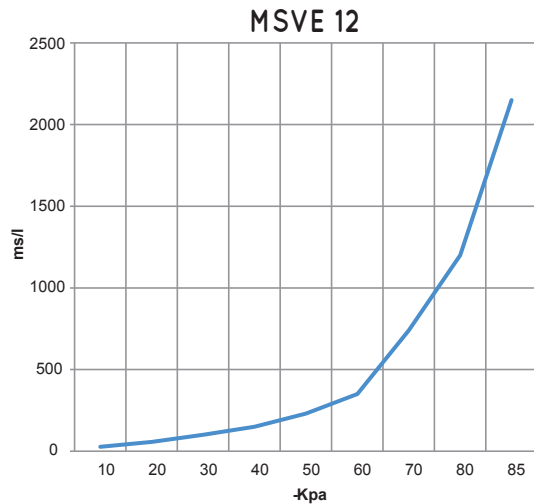
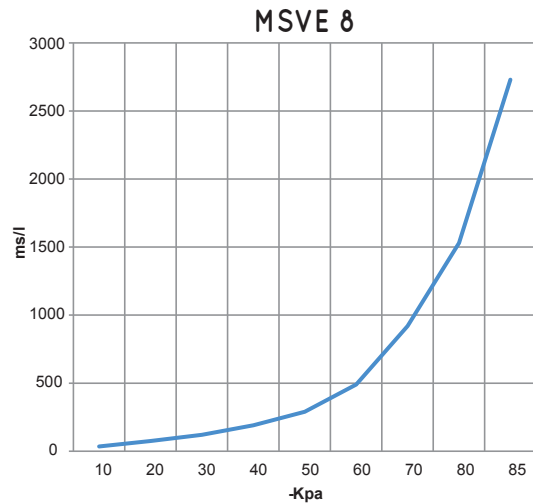
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum -kPa
			0	10	20	30	40	50	60	70	80		
MSVE 8	3.5	4.3	2.44	2.27	2.11	1.94	1.72	1.46	0.98	0.50	0.04	90	
MSVE 12	3.5	5.5	3.47	2.88	2.72	2.50	2.27	1.83	1.16	0.60	0.05	90	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

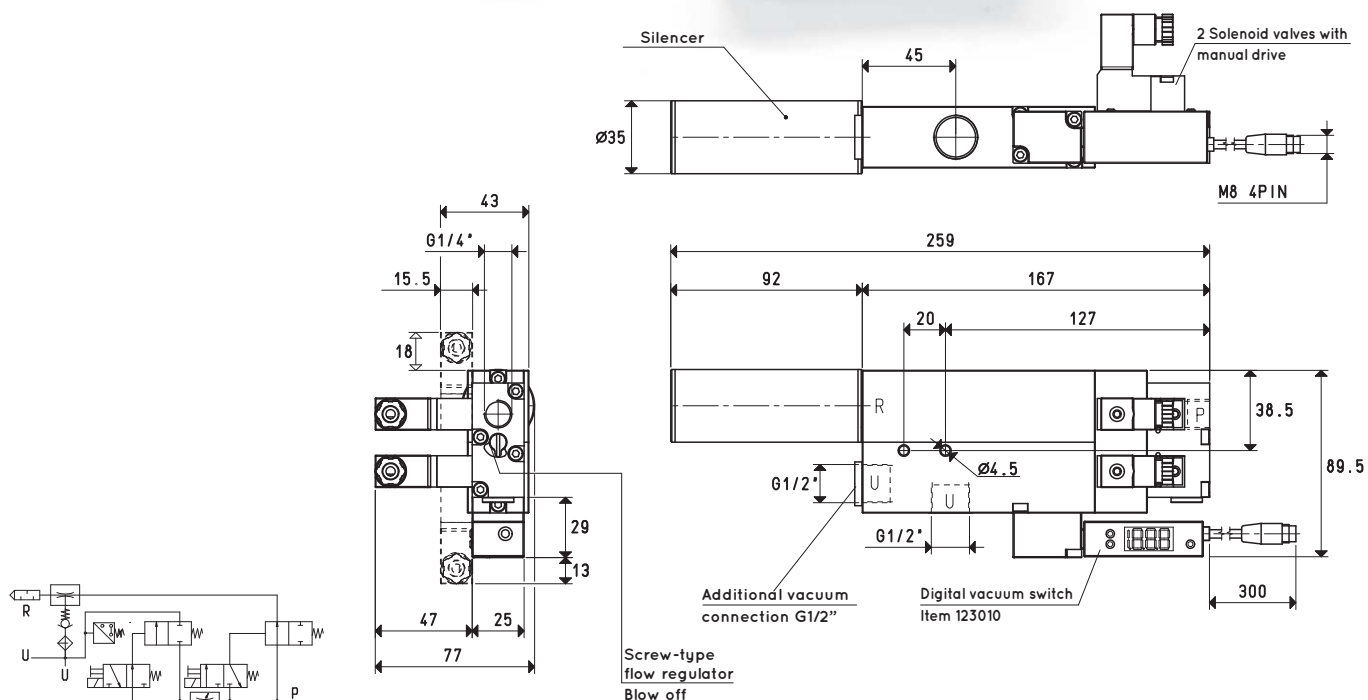


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MSVE 8	3.5	4.3	35	75	120	190	290	490	920	1530	2730	90
MSVE 12	3.5	5.5	27	57	100	150	230	350	740	1200	2150	90



SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS MSVE 20

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

Item		MSVE 20		
Intake air flow rate	m³/h	18	19	20
Maximum level of vacuum	-KPa	40	60	90
Final pressure	mbar abs.	600	400	100
Supply pressure	bar	2	3	4
Air consumption	NI/s	4.9	6.6	8.0
Max quantity of air blown at 4 bar	l/min			650
Internal coaxial shutter position of supply				NO
Supply solenoid valve absorption	W			2.0
Internal coaxial shutter position of ejection				NC
Ejection solenoid valve absorption	W			2.0
Supply voltage	V			24DC
Vacuum switch output				PNP
Degree of protection	IP			40
Temperature of use	°C			-10 / +60
Noise level at optimal supply pressure	dB(A)			70
Weight	kg			1.04

Spare parts		MSVE 20	
Digital vacuum switch	item		12 30 10
NO supply solenoid valve	item		00 07 304
NC supply and blowing solenoid valve	item		00 15 447
Silencer	item		SSX 1/2"

Note: To order a generator with NC supply coaxial shutter, use item code MSVE..NC.

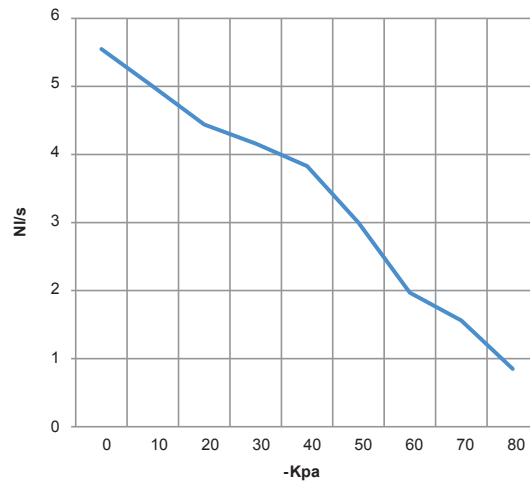
To order a generator without a digital vacuum switch, use item code MSVE..SV.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

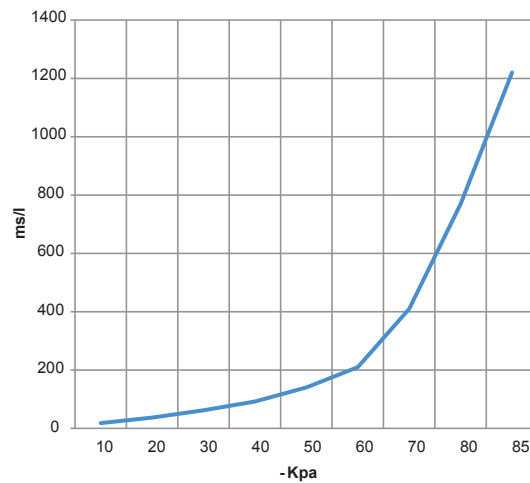
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$ Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			0	10	20	30	40	50	60	70	80	
MSVE 20	4	8	5.55	5.00	4.44	4.16	3.83	3.00	1.97	1.56	0.85	90

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MSVE 20	4	8	18	37	62	92	140	210	410	770	1220	90



SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS SERIES AVG - GENERAL DESCRIPTION

These generators are independent vacuum units capable of driving a vacuum gripping system. They have been specially designed for the AUTOMOTIVE sector and they are equipped with single ejectors that, given the same flow rate as the multi-ejector generators, allow for a quicker grip.

They are provided as standard with a built-in pneumatic energy-saving device.

They are composed of an anodised aluminium mono-block structure, inside of which are installed the ejectors, the servo-controlled slide valve for the compressed air supply and are contained the vacuum chambers as well as the various connections.

The following are instead installed on the outside:

- A bistable impulse solenoid valve for controlling the slide valve.
- A solenoid valve for blowing the ejected compressed air.
- A flow regulator for dosing the ejected compressed air.
- Two silencers for removing noise from the ejected air.
- An aluminium manifold provided with vacuum connections with built-in:
 - A pneumatic vacuum switch for managing the compressed air supply according to the set level of vacuum (energy saving).
 - A check valve for maintaining the vacuum in case of electricity or compressed air failure.
 - A suction filter, easy to inspect through the transparent polycarbonate lid.

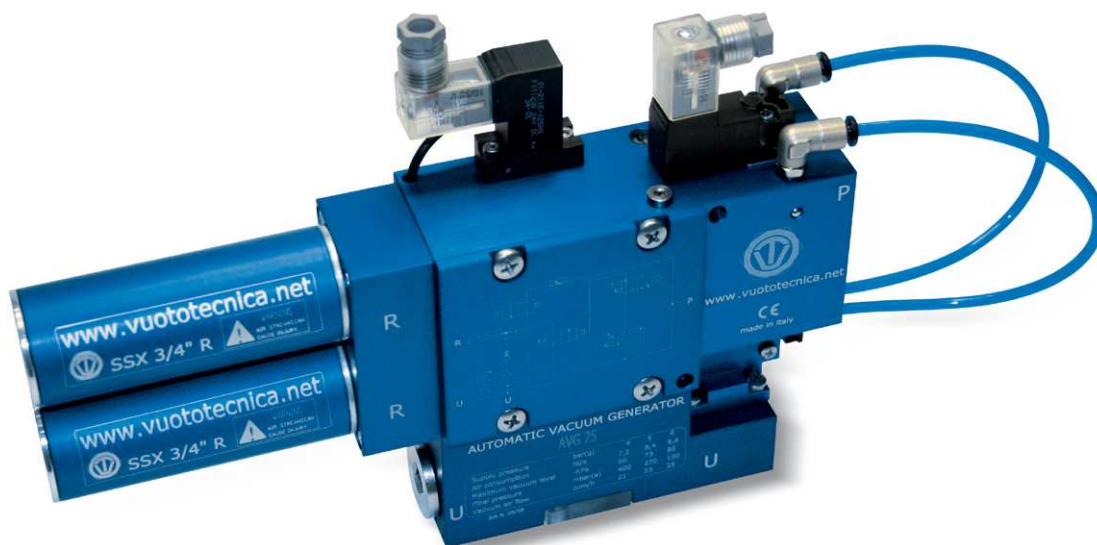
OPERATION

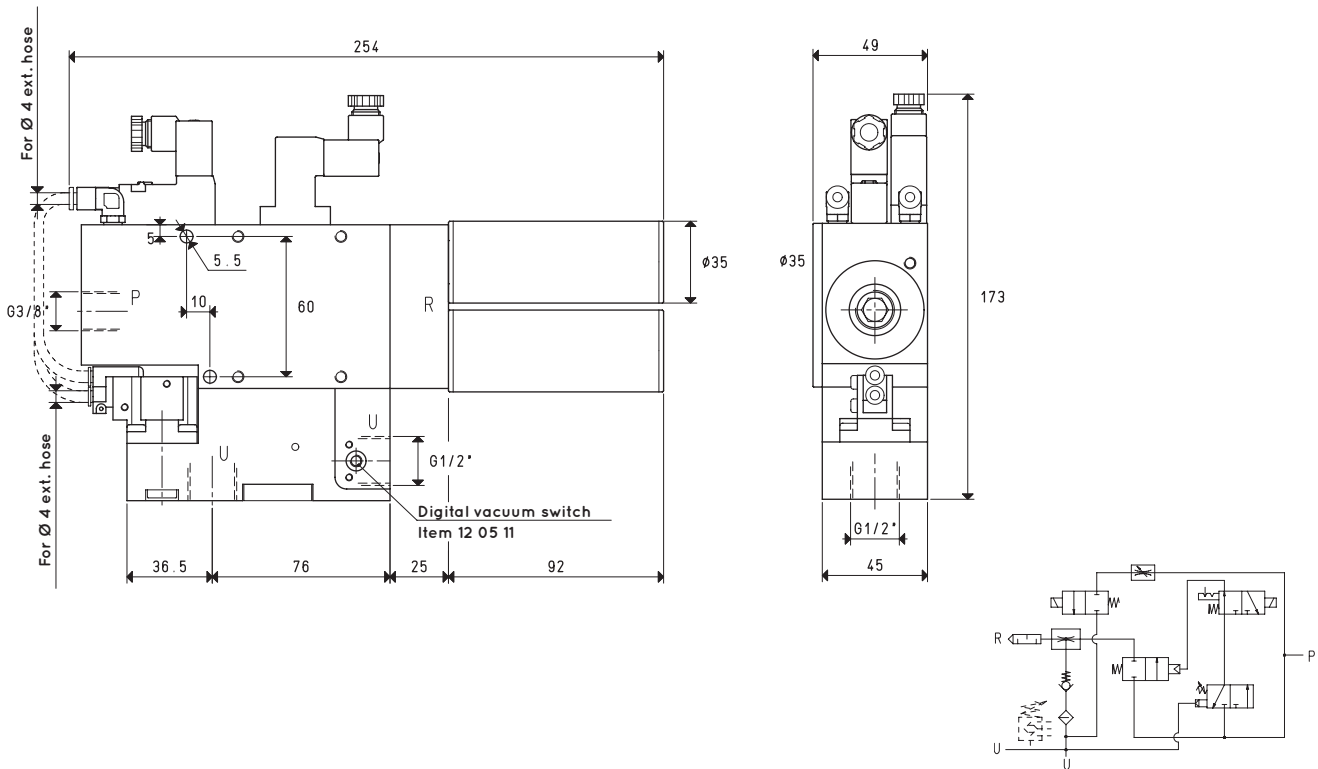
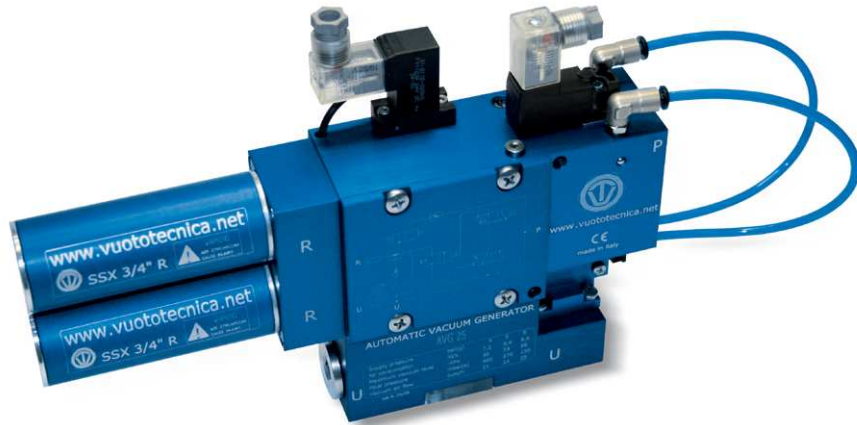
By providing an electric impulse to the two-position solenoid valve, the compressed air supply slide valve will be activated and vacuum will be created at the application. Once the preset maximum value has been reached, the pneumatic vacuum switch acts on the servo-controlled valve and interrupts the compressed air supply, restoring it when the value returns below the minimum value.

Besides maintaining the level of vacuum within preset safety values, this modulation also allows a considerable saving of compressed air and occurs even in the absence of electricity. Once the work cycle is completed, the power supply solenoid valve is deactivated by means of an electrical pulse while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure of use. AVG vacuum generators are fitted for the installation of a digital vacuum switch. Also these vacuum generators can be installed in any position.

SECTORS OF USE

AVG vacuum generators are suitable for suction gripping systems, for the handling of metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the AUTOMOTIVE sector, where equipment with excellent performance and limited size and weight are increasingly required.





P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		AVG 18			AVG 25		
Intake air flow rate	m ³ /h	16.5	17.0	17.4	24.5	25.0	25.2
Maximum level of vacuum	-KPa	60	70	85	60	70	85
Final pressure	mbar abs.	400	300	150	400	300	150
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	4.3	5.3	6.4	6.5	8.0	9.6
Max quantity of air blown at 6 bar	l/min			140			140
Bistable supply solenoid valve	NO/NC			NO/NC			NO/NC
Electrical absorption	W			1			1
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			63			65
Weight	Kg			1.67			1.67

Note: To order a generator with a digital vacuum switch installed, add the letter V to the item code (example: AVG 25 V).

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

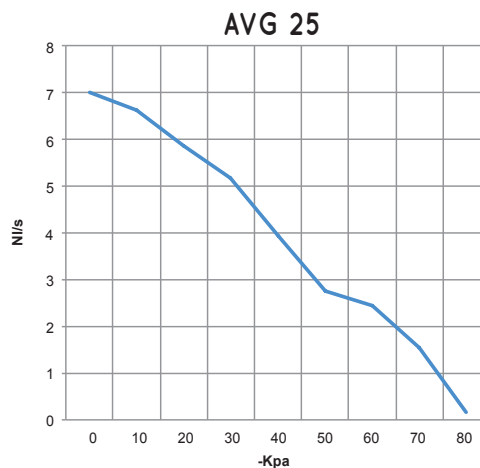
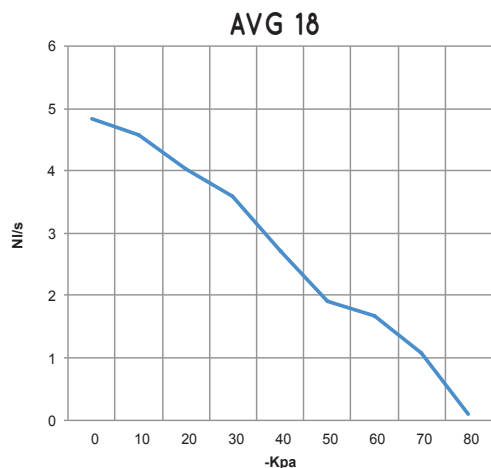
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



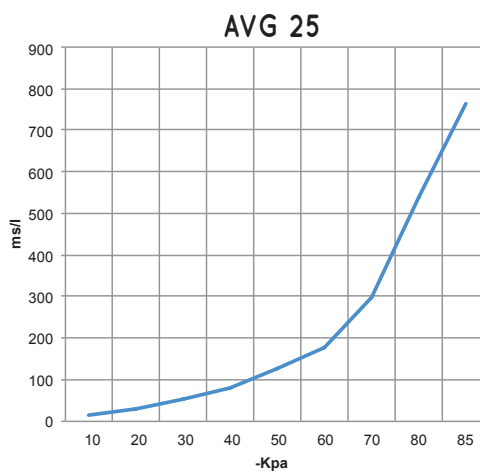
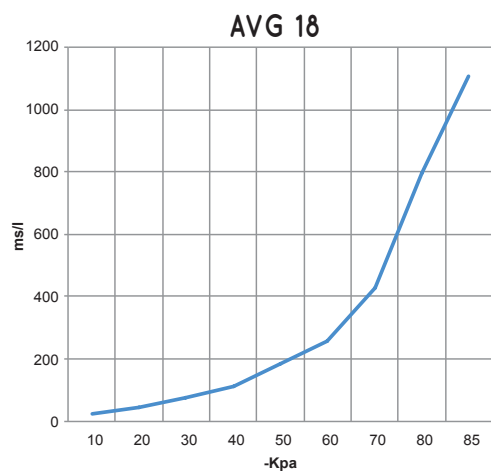
SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS AVG 18 and AVG 25

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
AVG 18	6.0	6.4	4.83	4.58	4.04	3.58	2.72	1.90	1.68	1.07	0.10		85
AVG 25	6.0	9.6	7.00	6.63	5.86	5.18	3.94	2.76	2.44	1.54	0.15		85

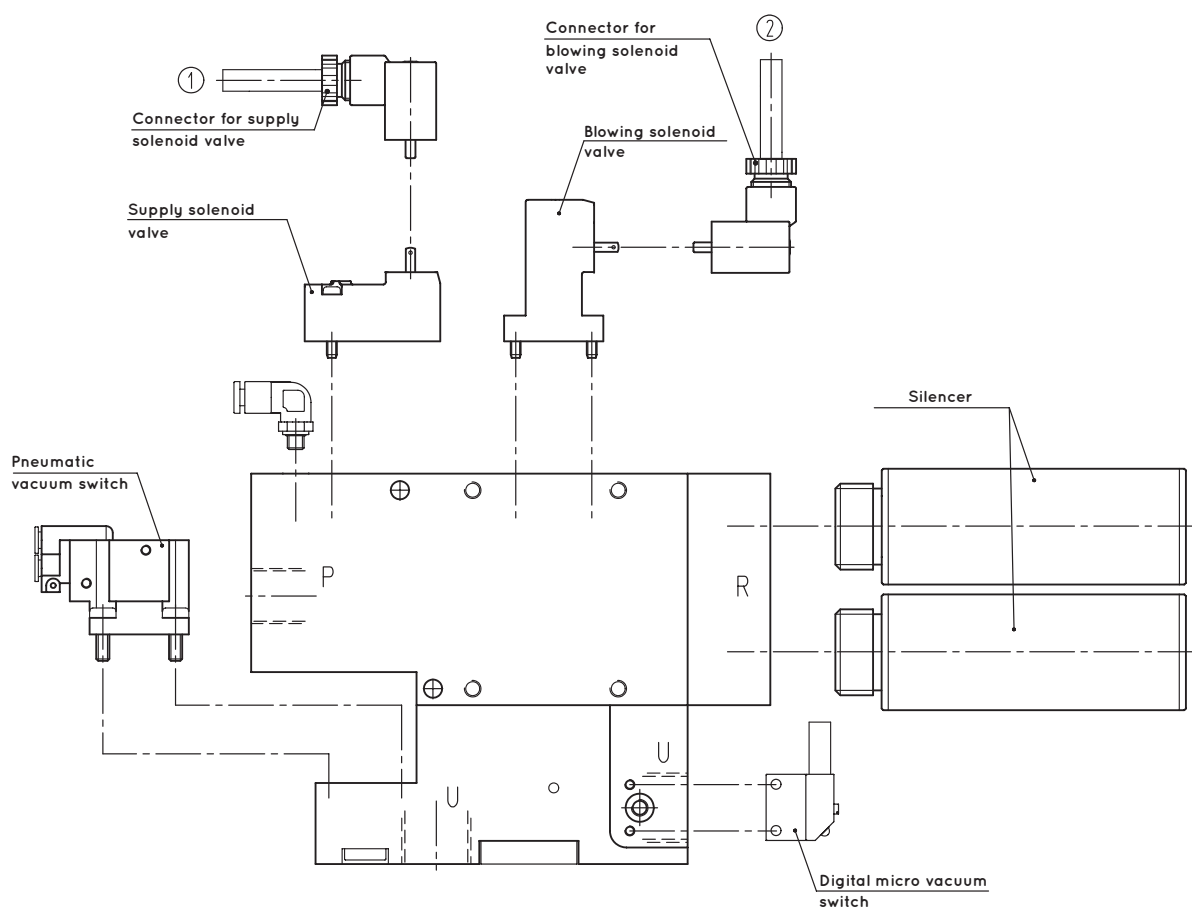
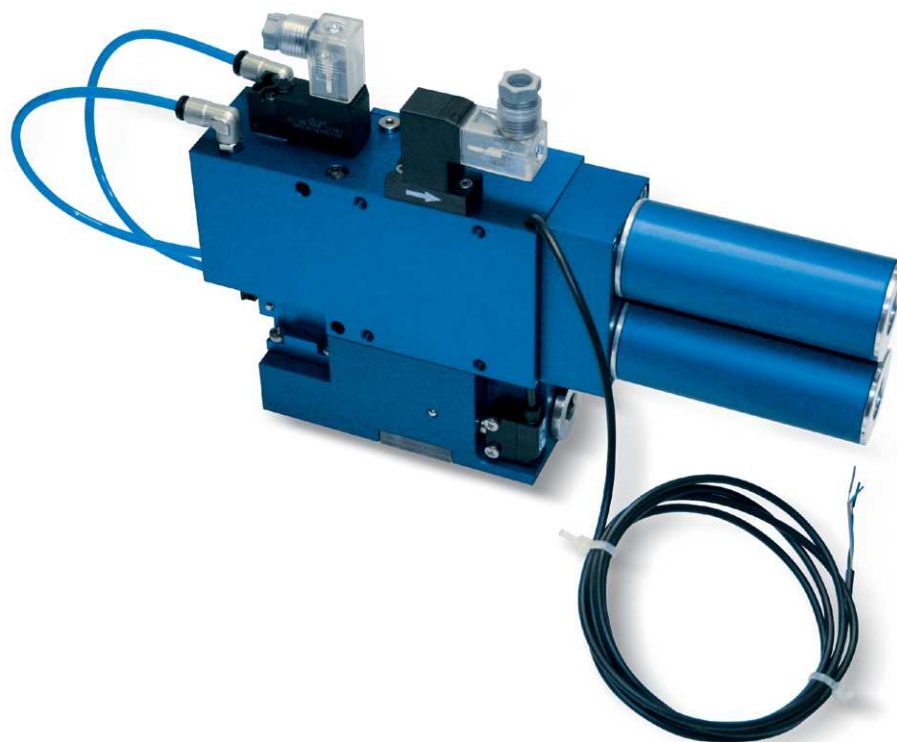
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
AVG 18	6.0	6.4	22	44	75	115	185	258	430	798	1107		85
AVG 25	6.0	9.6	15	30	52	80	128	178	297	538	764		85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item			AVG 18	AVG 25
Sealing kit	item		00 KIT AVG 18	00 KIT AVG 25
Exhaust silencers	item			SSX 3/4 R
Digital micro vacuum switch	item			12 05 11
Bistable supply solenoid valve	item			00 15 297
NC blowing solenoid valve	item			00 15 175





ACCESSORIES AND SPARE PARTS FOR SINGLE-STAGE AND MULTI-FUNCTION VACUUM GENERATORS, SERIES AVG

3D drawings are available on vuototecnica.net

Digital micro vacuum switch

Item	Description
12 05 11	Digital micro vacuum switch



Connector

Item	Description
00 15 157	Connector with LED for solenoid valves



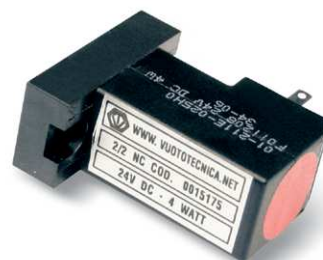
Bistable solenoid valve

Item	Description
00 15 297	Bistable supply solenoid valve



NC solenoid valve

Item	Description
00 15 175	NC blowing solenoid valve



Silencer

Item	Description
SSX 3/4" R	Exhaust silencer



MULTI-STAGE VACUUM GENERATORS - GENERAL DESCRIPTION

Our multi-stage vacuum generators produce a maximum vacuum of 90%, equal to a final level of vacuum of 100 mbar abs., with different suction capacities. They operate by use of compressed air from 1 to 6 bar.

Working principle

Each ejector is based on the Venturi principle: the supply fluid (compressed air) is led high speed by a convergent pipe into the fluid to be extracted (volume of the air to be sucked). This mixture is then led into two or three divergent pipes, where its kinetic energy is transformed into pressure energy for it to enter in the environment at a higher pressure (atmospheric pressure at the exhaust).

Technical features

The main asset of multi-stage vacuum generators is its ability to exploit the kinetic energy of the supply compressed air via several specially dimensioned in-line ejectors, before releasing it in the atmosphere. This system allows, given the same flow rate, a reduced compressed air consumption compared to the single-stage vacuum generators. The suction flow rate is indirectly proportional to the differential between the pressure of the fluid to be sucked and the external (atmospheric) pressure.

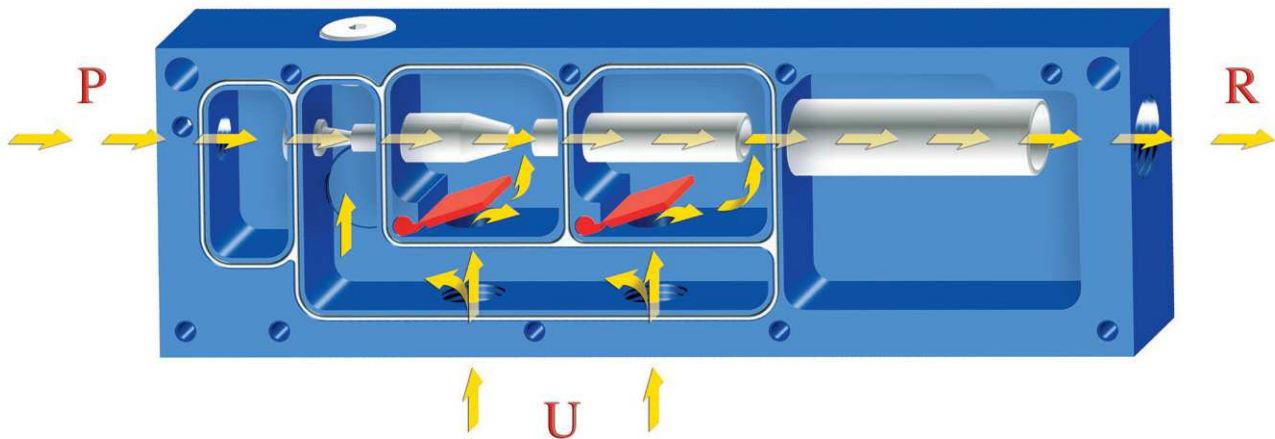
The reduced size and weight make multi-stage vacuum generators compact in relation to their great suction flow rate.

The absence of moving parts make them particularly silent and allow them to be used continuously, without developing heat.

Being supplied exclusively by compressed air, these vacuum generators are explosion-proof and can be used in work environments with temperatures ranging from -20 to +80°C.

They are fully made with stainless materials.

Thanks to all these features, a good filtration of the supply and sucked compressed air is sufficient to make these generators are fully maintenance-free.



P = Compressed air connection
R = Air exhaust
U = Vacuum connection



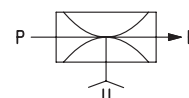
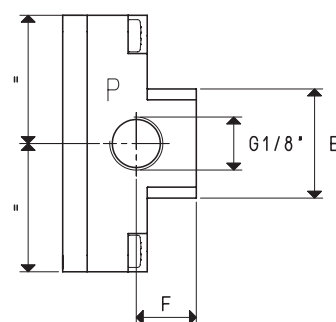
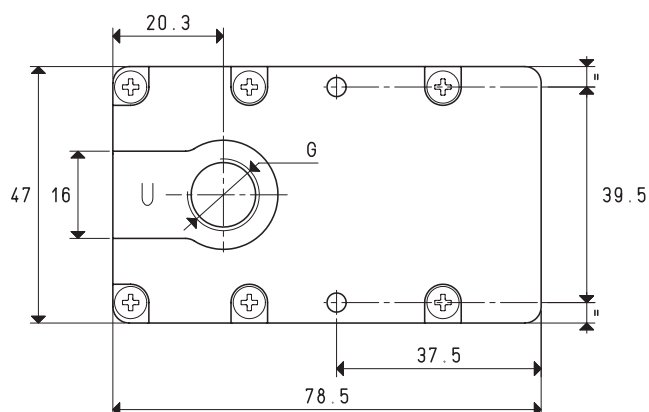
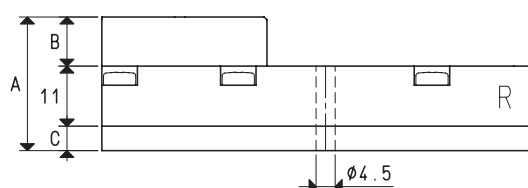
MULTI-STAGE VACUUM GENERATORS SERIES M

These new design vacuum generators feature multiple state of the art ejectors assembled onto small modules. One of their distinctive features is their great suction flow rate compared to their reduced size.

With a compressed air supply of 4 - 5 bar, they can produce a maximum vacuum equal to 85% and a suction flow rate of 3.6 - 18 m³/h, according to the number of modules.

The silencer is built-in.

They are fully made with slightly anodised alloys and can be installed in any position. The multi-stage vacuum generators in this range are suited for interconnecting vacuum cup gripping systems and, in particular, in the industrial robotics sector, which requires equipment with excellent working performance, but with weight and size reduced to the minimum.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		M 3			M 7		
Intake air flow rate	m ³ /h	3	3.4	3.6	5.4	5.8	6.2
Maximum level of vacuum	-kPa	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	NI/s	0.5	0.7	0.8	0.8	1.2	1.4
Operating temperature	°C			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			64			70
Weight	g			109			111
A				24.5			25.5
B				9			10
C				4.5			4.5
E	Ø			20			24
F				11			12
G	Ø			G1/4"			G3/8"
Spare parts		M 3			M 7		
Sealing kit and reed valves	item	00 KIT M 3			00 KIT M 7		
Exhaust silencer	item	00 15 150			00 15 150		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

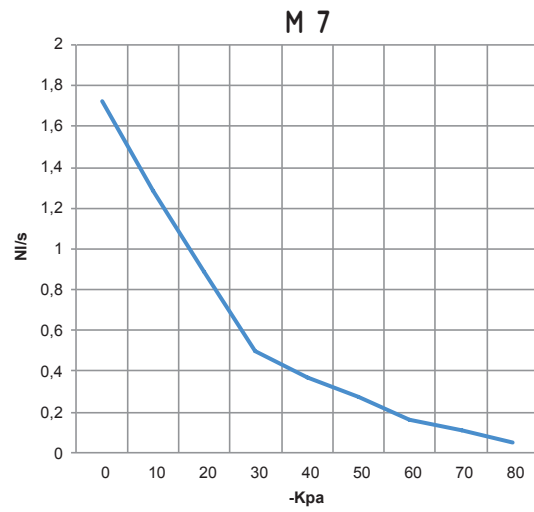
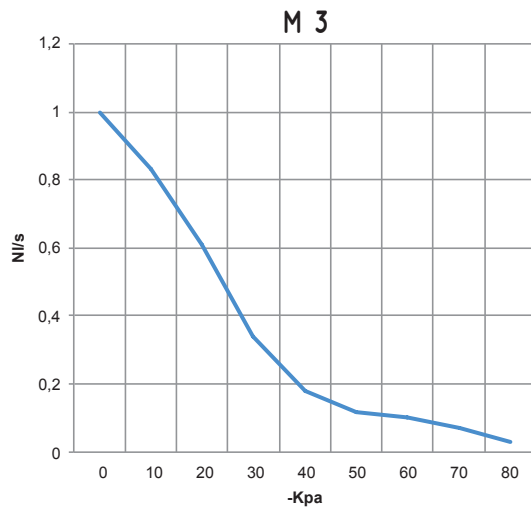
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

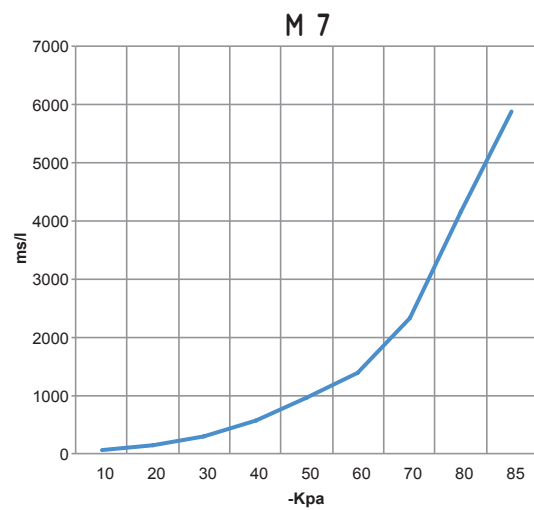
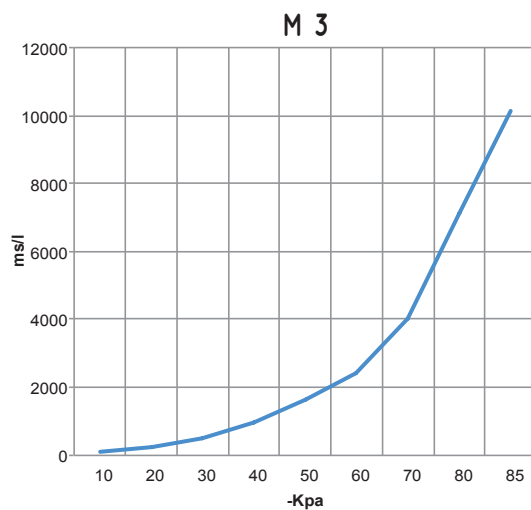
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
M 3	5.0	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85	
M 7	5.0	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

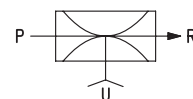
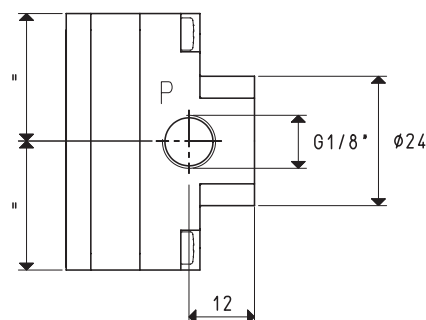
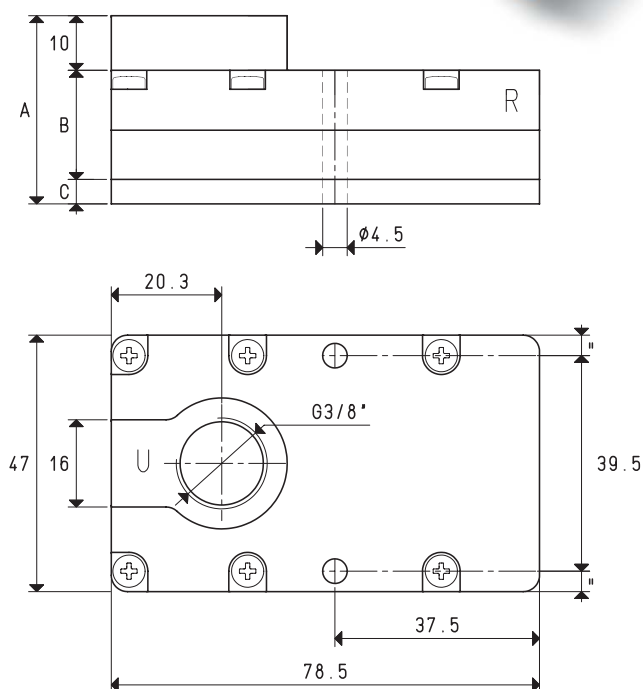


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
M 3	5.0	0.8	106	244	491	969	1642	2398	4004	7128	10122	85	
M 7	5.0	1.4	61	142	285	563	954	1394	2328	4144	5885	85	



MULTI-STAGE VACUUM GENERATORS M 10, M 14 and M 18

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		M 10			M 14			M 18		
Intake air flow rate	m³/h	7.7	8.5	9.4	10.2	11.6	12.6	14.8	16.5	18.0
Maximum level of vacuum	-KPa	62	82	85	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	Nl/s	1.2	1.6	1.9	1.7	2.1	2.5	2.3	2.9	3.6
Operating temperature	°C			-10 / +80			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			72			72			76
Weight	g			144			145			150
A				34.5			34.5			44.5
B				20			20			30
C				4.5			4.5			4.5
Spare parts		M 10			M 14			M 18		
Sealing kit and reed valves	item	00 KIT M 10			00 KIT M 14			00 KIT M 18		
Exhaust silencer	item	N°2 00 15 150			N°2 00 15 150			N°3 00 15 150		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

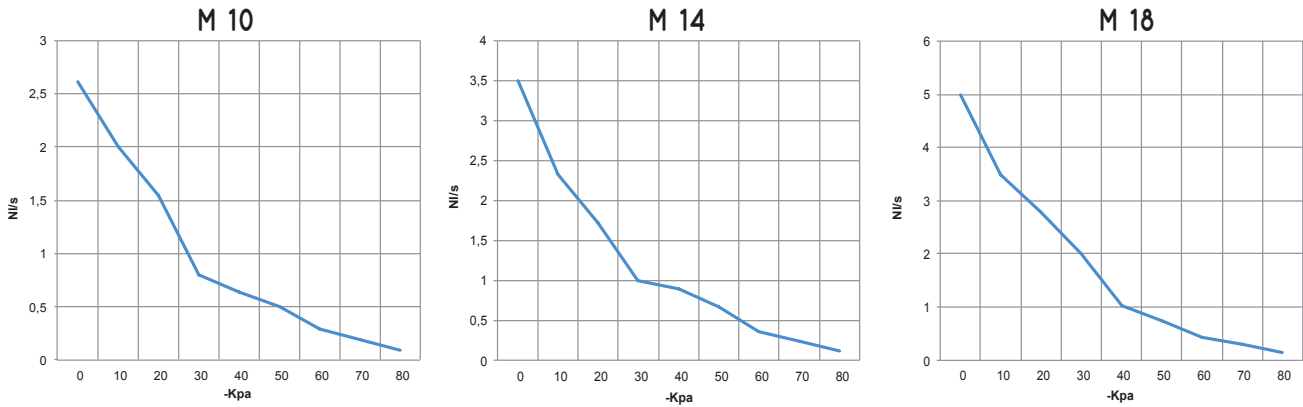
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

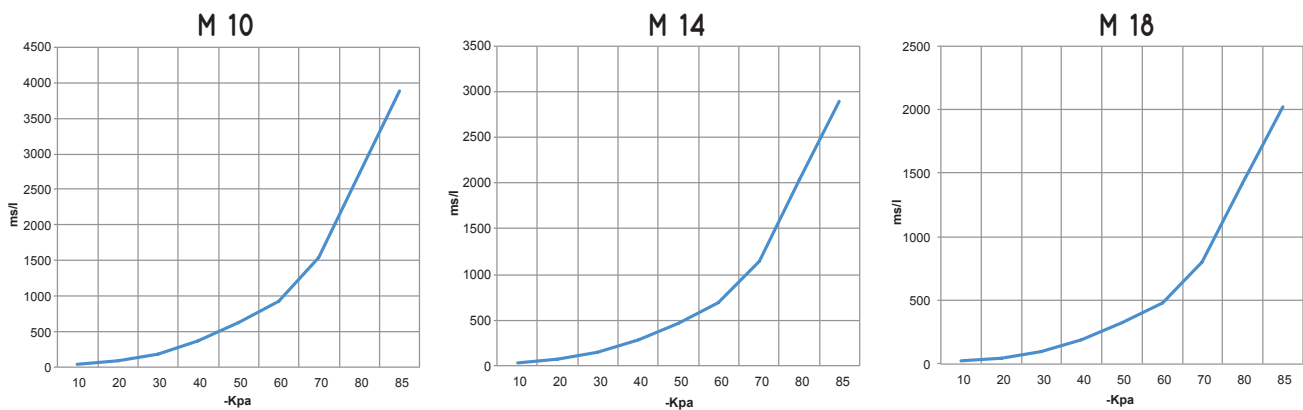
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
M 10	5.0	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85	
M 14	5.0	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85	
M 18	5.0	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85	

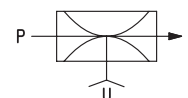
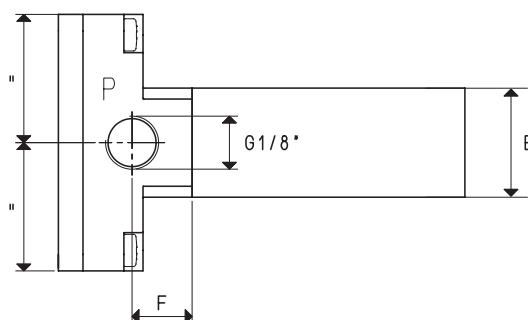
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption l/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
M 10	5.0	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14	5.0	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18	5.0	3.6	21	48	98	193	327	478	799	1423	2020	85



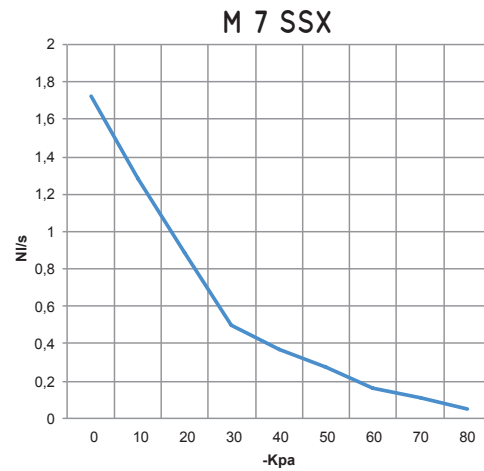
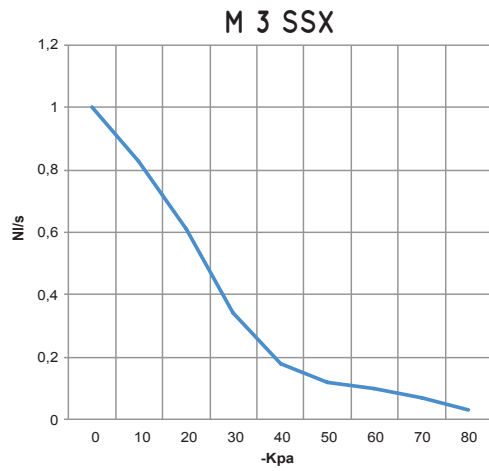
These generators are particularly recommended in work environments where the noise level must be kept within very low values.



Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

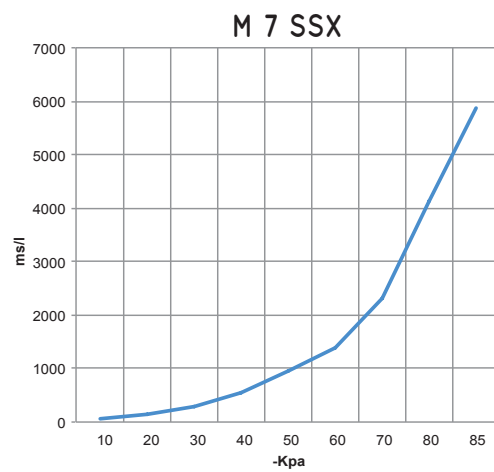
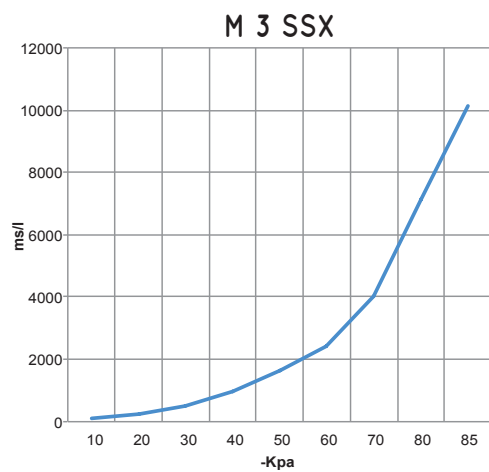
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
M 3 SSX	5.0	0.8	1.00	0.83	0.61	0.34	0.18	0.12	0.10	0.07	0.03	85	
M 7 SSX	5.0	1.4	1.72	1.28	0.89	0.50	0.37	0.27	0.16	0.11	0.05	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

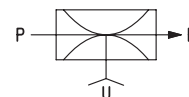
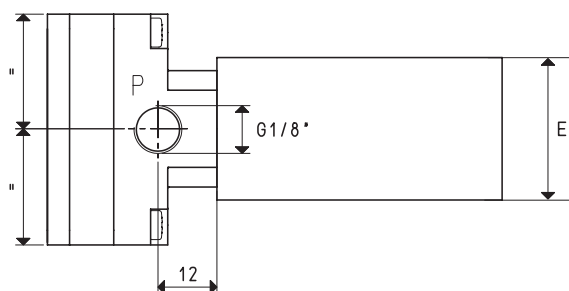
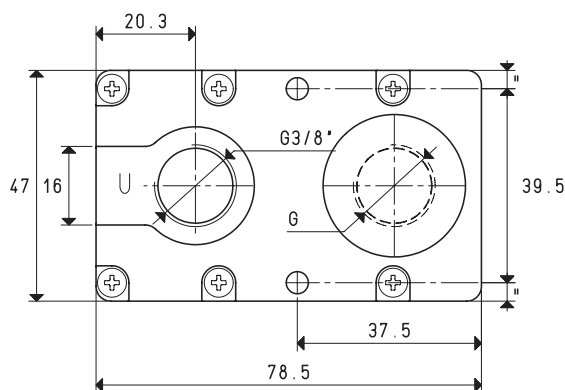
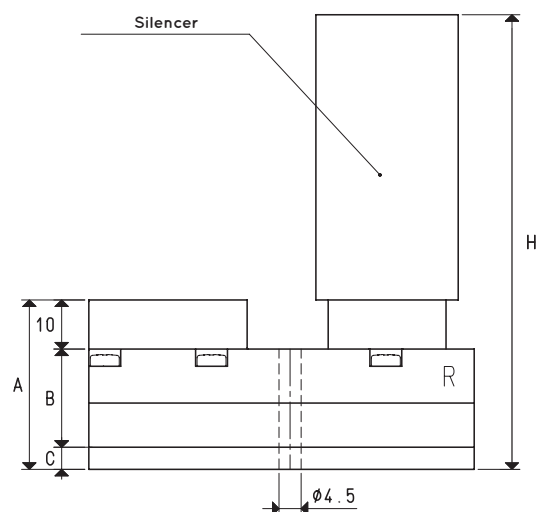


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
M 3 SSX	5.0	0.8	106	244	491	969	1642	2398	4004	7128	10122	85
M 7 SSX	5.0	1.4	61	142	285	563	954	1394	2328	4144	5885	85



MULTI-STAGE VACUUM GENERATORS M 10 SSX, M 14 SSX and M 18 SSX

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		M 10 SSX			M 14 SSX			M 18 SSX		
Intake air flow rate	m ³ /h	7.7	8.5	9.4	10.2	11.5	12.6	14.8	16.5	18.0
Maximum level of vacuum	-KPa	62	82	85	62	82	85	62	82	85
Final pressure	mbar abs.	380	180	150	380	180	150	380	180	150
Supply pressure	bar	3	4	5	3	4	5	3	4	5
Optimal supply pressure	bar			5			5			5
Air consumption	NI/s	1.2	1.6	1.9	1.7	2.1	2.5	2.3	2.9	3.6
Operating temperature	°C			-10 / +80			-10 / +80			-10 / +80
Noise level at optimal supply pressure	dB(A)			60			62			66
Weight	g			144			145			150
A				34.5			34.5			44.5
B				20			20			30
C				4.5			4.5			4.5
E	Ø			29			29			35
G	Ø			G3/8"			G3/8"			G1/2"
H				106.5			106.5			136.5
Spare parts		M 10 SSX			M 14 SSX			M 18 SSX		
Silencer	item	SSX 3/8"			SSX 3/8"			SSX 1/2"		
Exhaust silencer	item	N°2 00 15 150			N°2 00 15 150			N°3 00 15 150		
Sealing kit and reed valves	item	00 KIT M 10			00 KIT M 14			00 KIT M 18		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

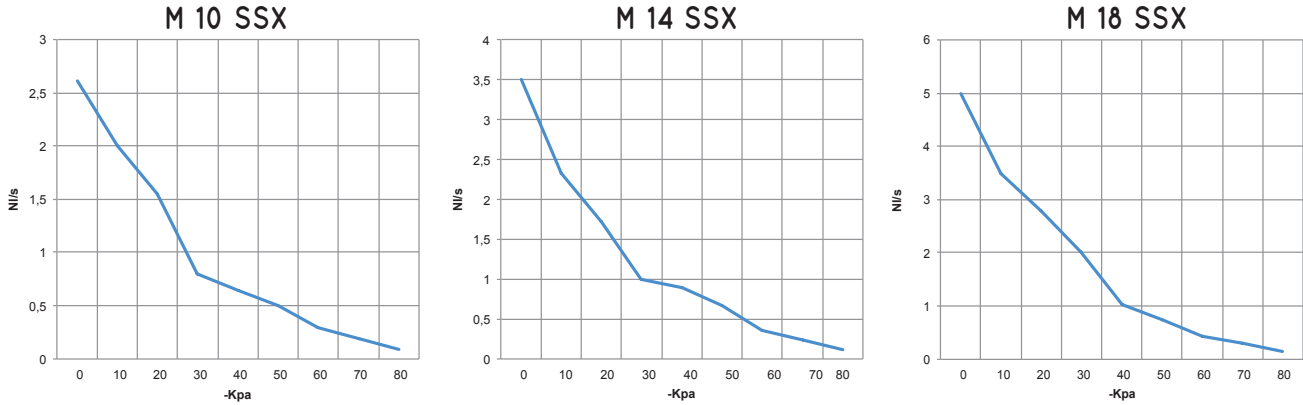
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

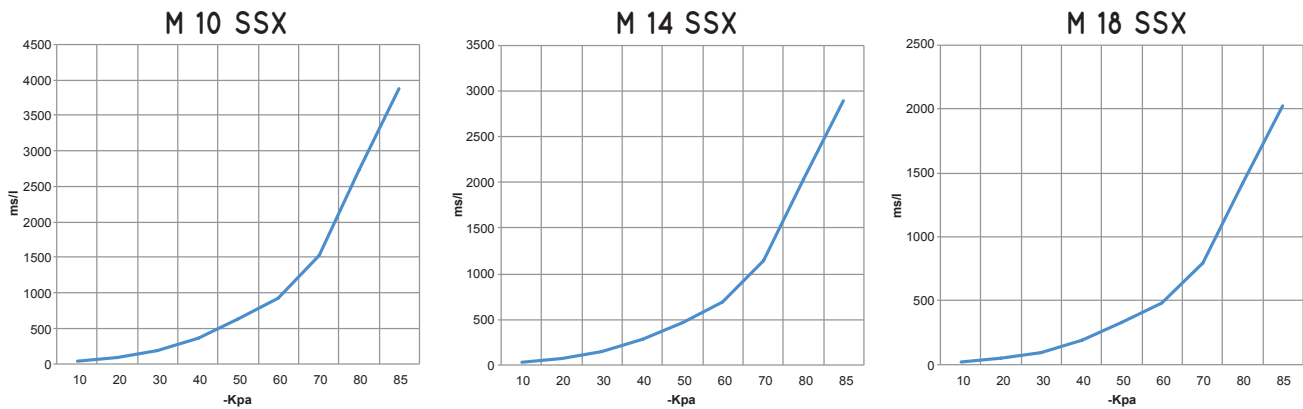
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
M 10 SSX	5.0	1.9	2.61	2.00	1.55	0.80	0.64	0.50	0.29	0.19	0.09	85	
M 14 SSX	5.0	2.5	3.50	2.33	1.72	1.00	0.89	0.67	0.35	0.24	0.11	85	
M 18 SSX	5.0	3.6	5.00	3.50	2.78	2.02	1.02	0.75	0.44	0.30	0.14	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

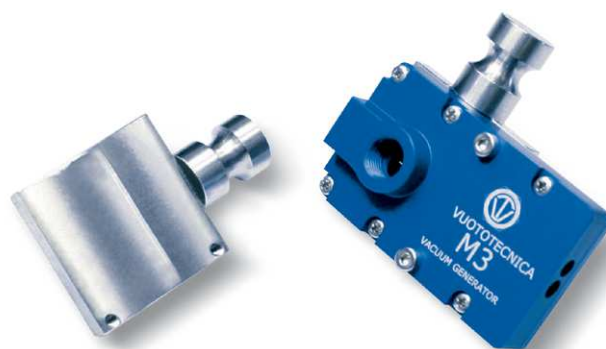
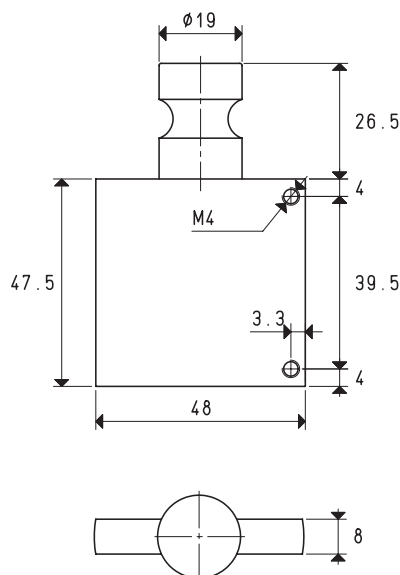


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
M 10 SSX	5.0	1.9	40	93	188	371	629	918	1534	2731	3878	85
M 14 SSX	5.0	2.5	30	69	140	276	469	685	1144	2036	2892	85
M 18 SSX	5.0	3.6	21	48	98	193	327	478	799	1423	2020	85

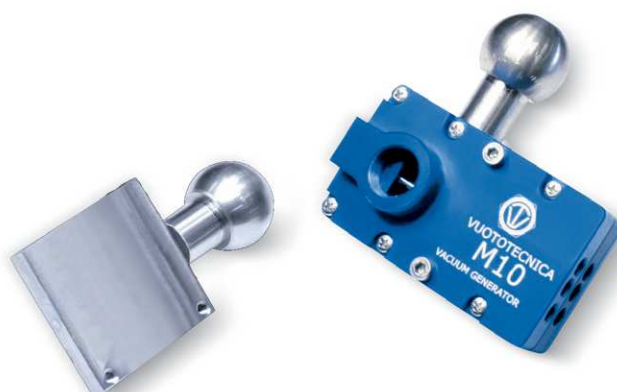
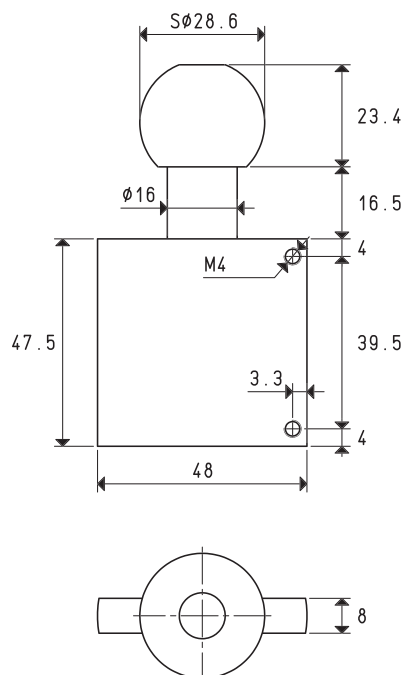


FIXING SUPPORTS FOR MULTI-STAGE VACUUM GENERATORS, SERIES M

The supports illustrated and described on this page are made in anodised aluminium as a standard but, upon request, they can be supplied in the stainless steel version. These supports are for fixing the multi-stage vacuum generators of the series M to the machine via a cylindrical slotted pin or a ball pin housed in the machine itself. They are suited for robotic gripping systems and they allow for easy vacuum generator installation on the profiles used in the automotive sector.



Item	By generators	Material	Weight g
00 FCH 23	M 3 - M 7 - M 10 - M 14 - M 18	aluminium	63
00 FCH 22	M 3 - M 7 - M 10 - M 14 - M 18	stainless steel	191



Item	By generators	Material	Weight g
00 FCH 13	M 3 - M 7 - M 10 - M 14 - M 18	aluminium	85
00 FCH 12	M 3 - M 7 - M 10 - M 14 - M 18	stainless steel	256

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS SERIES MVG - GENERAL DESCRIPTION

These generators are true independent vacuum units that can control an entire vacuum gripping system. Their distinctive features are their compact size and great suction flow rate.

They are composed of a mono-block anodised aluminium structure onto which are assembled:

- A modular and silenced multi-stage vacuum generator.
- A micro solenoid valve for supplying compressed air to the generator.
- A micro solenoid valve for blowing the exhaust compressed air.
- An adjustable flow regulator for dosing the exhaust air.
- A unidirectional check valve, located on the suction inlet, for maintaining the vacuum in case of electricity failure.
- A digital vacuum switch provided with display and commutation LEDs, for managing the compressed air supply and for signalling the safety cycle start-up.
- An anodised aluminium manifold provided with vacuum connections and a built-in filter easy to inspect.

By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the preset maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.

Besides maintaining the level of vacuum within set safety values (hysteresis), this modulation allows for considerable compressed air savings.

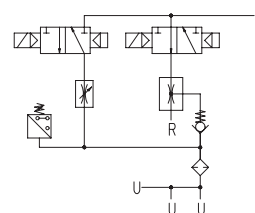
A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the level of vacuum reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use.

The multi-function MVG vacuum generators can be installed in any position and are suitable for suction gripping systems, handling metal sheets, glass, marble, ceramics, plastic, cardboard, wood, etc. and, in particular, for the industrial robotics sector, where equipment with excellent performance but with limited weight and bulk are increasingly required.

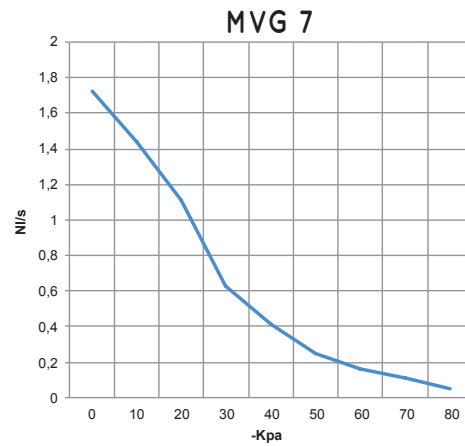
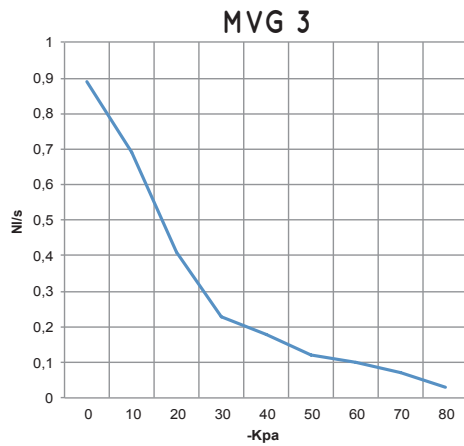




3

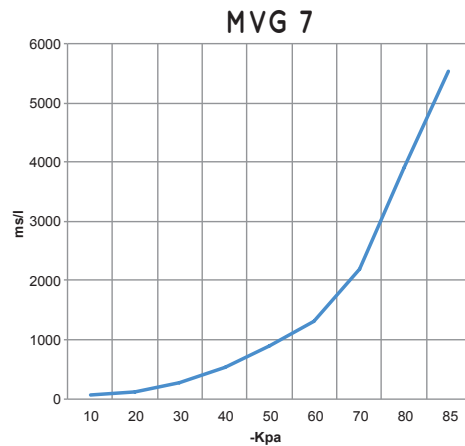
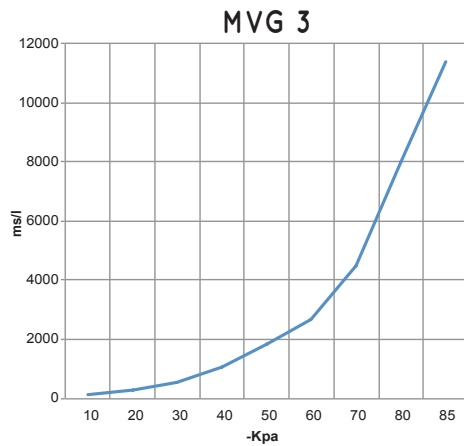
8.62

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa	
MVG 3	5.0	0.8	0.89	0.69	0.41	0.23	0.18	0.12	0.10	0.07	0.03	85	
MVG 7	5.0	1.3	1.83	1.44	1.11	0.63	0.41	0.25	0.16	0.11	0.05	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



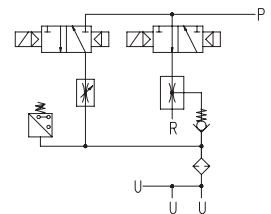
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
MVG 3	5.0	0.8	119	274	552	1088	1845	2694	4499	8009	11373	85	
MVG 7	5.0	1.3	58	133	268	529	897	1310	2188	3895	5531	85	

ACCESSORIES AND SPARE PARTS UPON REQUEST

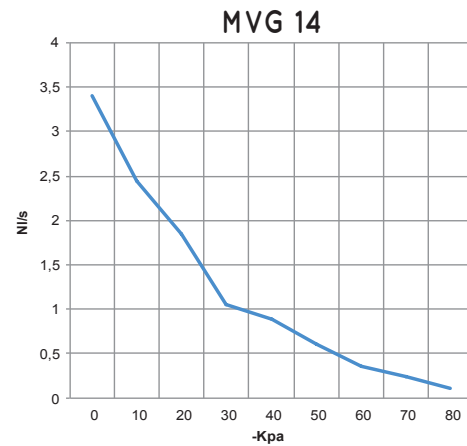
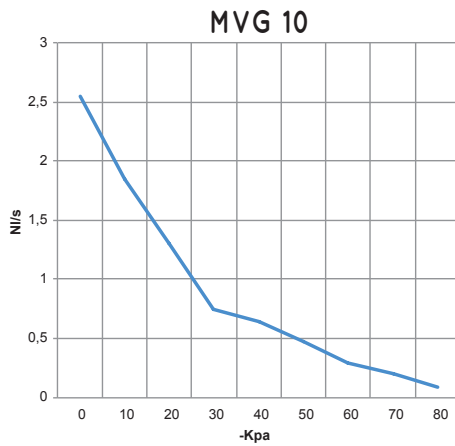
Item		MVG 3	MVG 7
Sealing kit and reed valves	item	00 KIT MVG 3	00 KIT MVG 7
Exhaust silencer	item		00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 436
NC supply solenoid valve	item		00 15 437



3

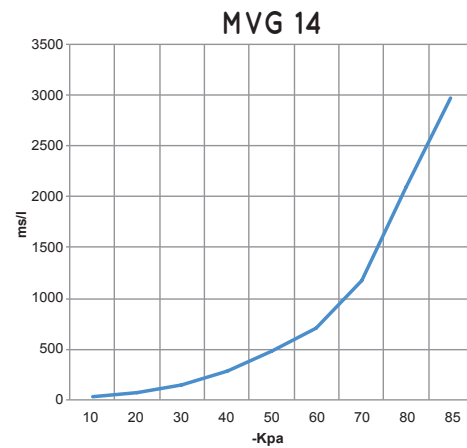
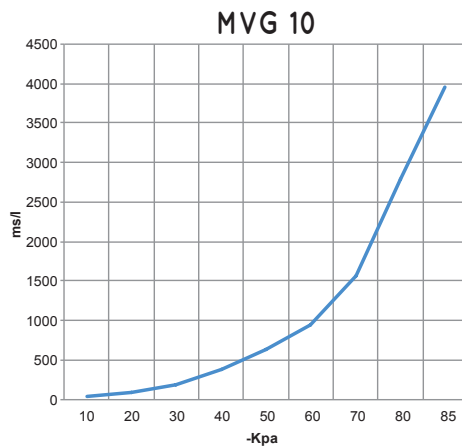
8.64

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
MVG 10	5.0	1.7	2.55	1.85	1.30	0.75	0.64	0.48	0.30	0.20	0.09	85	
MVG 14	5.0	2.1	3.40	2.45	1.84	1.05	0.88	0.61	0.36	0.24	0.11	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
MVG 10	5.0	1.7	41	95	192	379	642	938	1567	2790	3962	85	
MVG 14	5.0	2.1	31	71	144	284	482	704	1175	2092	2971	85	

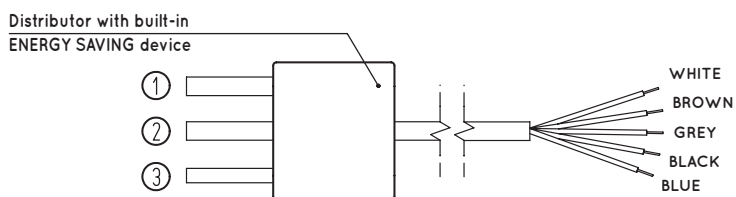
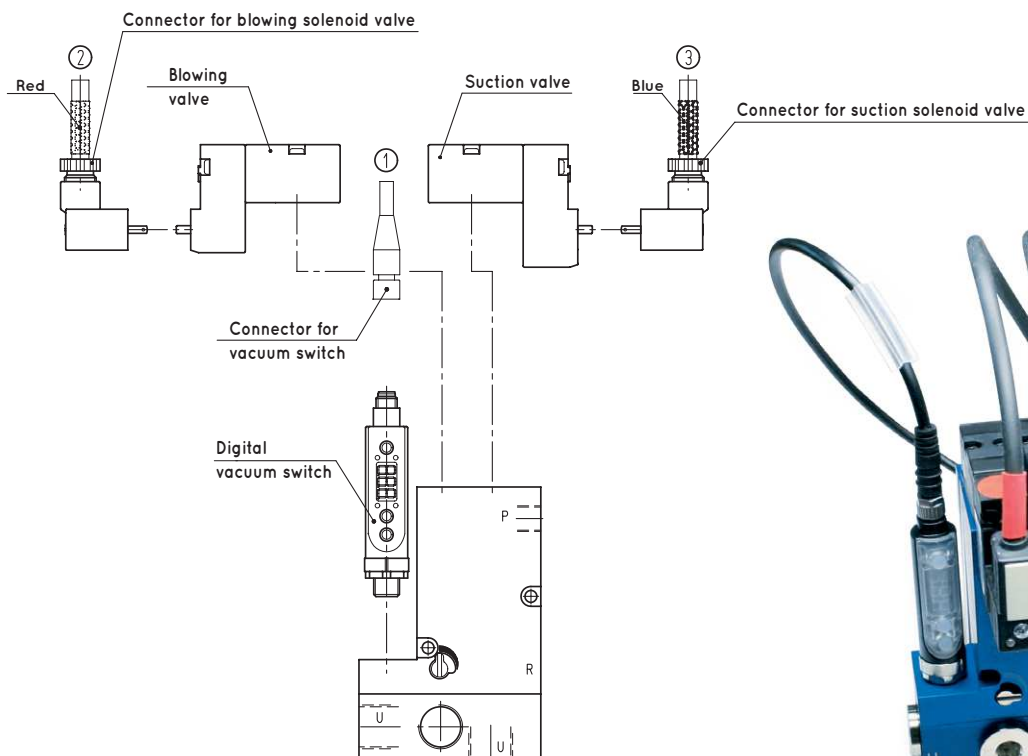
ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MVG 10	MVG 14
Sealing kit and reed valves	item	00 KIT MVG 10	00 KIT MVG 14
Exhaust silencer	item		N°2 00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 436
NC supply solenoid valve	item		00 15 437

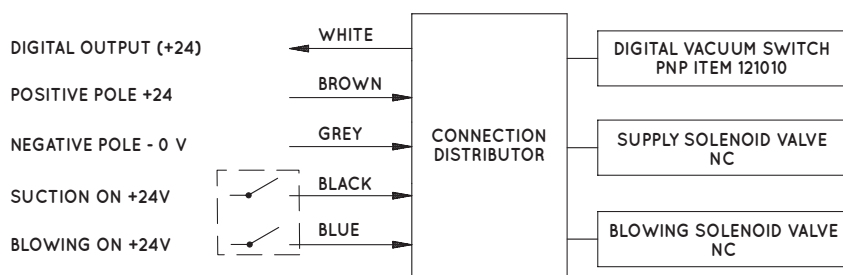


ACCESSORIES AND SPARE PARTS FOR MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS, SERIES MVG

3D drawings are available on vuototecnica.net

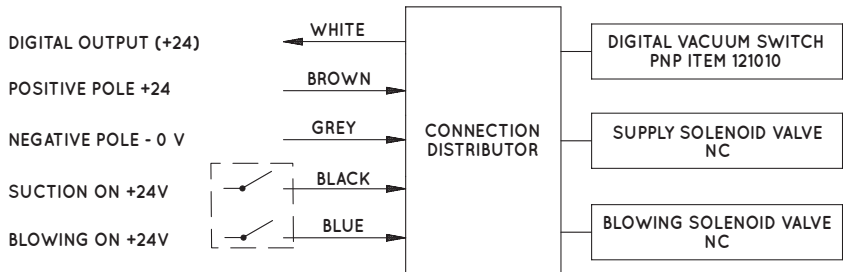


Cable set with built-in energy saving device



Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to: - Digital vacuum switch - NO micro supply solenoid valve - NC micro ejection solenoid valve Cable length - 5 m

Cable set with built-in energy saving device



Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to: - Digital vacuum switch - NC micro supply solenoid valve - NC micro ejection solenoid valve Cable length - 5 m

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves



Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with axial connector for digital vacuum switch



Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with radial connector for digital vacuum switch



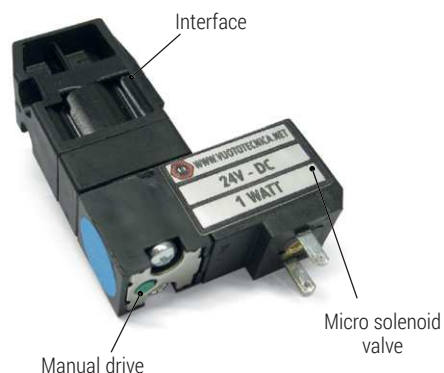


ACCESSORIES AND SPARE PARTS FOR MULTI-STAGE AND MULTI-FUNCTION VACUUM GENERATORS, SERIES MVG

3D drawings are available on vuototecnica.net

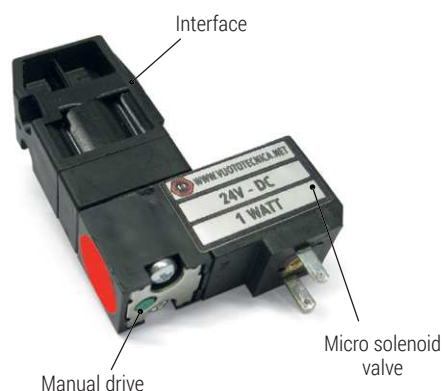
NO micro supply solenoid valve

Item	Description
00 15 436	NO micro solenoid valves with built-in low absorption electrical coil and interface



NC supply and blowing micro solenoid valve

Item	Description
00 15 437	NC micro solenoid valves with built-in low absorption electrical coil and interface



Replacement plate for micro blowing solenoid valve

Item	Description
00 15 178	Replacement plate for micro blowing solenoid valve



Digital vacuum switch

Item	Description
12 10 10	Digital vacuum switch



MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, SERIES GVMM - GENERAL DESCRIPTION

Modular multi-function vacuum generators are true independent vacuum units that offer an entire vacuum control system.

They feature a reduced thickness and weight compared to their suction flow rate and they have been designed to be assembled with screws to one or more intermediate modules MI. The original internal connection system for the compressed air supply allows communication with no need for external manifolds.

This modular system allows increasing the number of independent vacuum units according to the requirements. In fact, you can order a multi-function vacuum generator and the intermediate modules with the desired capacities, already assembled, or you can assemble one or more intermediate modules to the GVMM generator that has already been installed on the machine, without having to make particular modifications. GVMM vacuum generators are composed of an anodised aluminium mono-block with lid, inside of which the silenced multiple ejectors are installed and the vacuum chamber and the compressed air supply connection are contained.

The following are instead installed on the outside:

- A micro solenoid valve for supplying compressed air to the generator.
- A micro solenoid valve for blowing the exhaust compressed air.
- An adjustable flow regulator for dosing the exhaust air.
- A digital vacuum switch provided with display and commutation LEDs, for managing the compressed air supply and for signalling the safety cycle start-up.
- An anodised aluminium or transparent Plexiglass manifold provided with vacuum connections with built-in suction filter, easy to inspect, and a check valve for maintaining the vacuum in case of electricity or compressed air failure.

By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the preset maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.

Besides maintaining the level of vacuum within set safety values (hysteresis), this modulation allows for considerable compressed air savings.

A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the level of vacuum reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use.

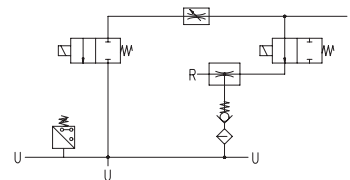
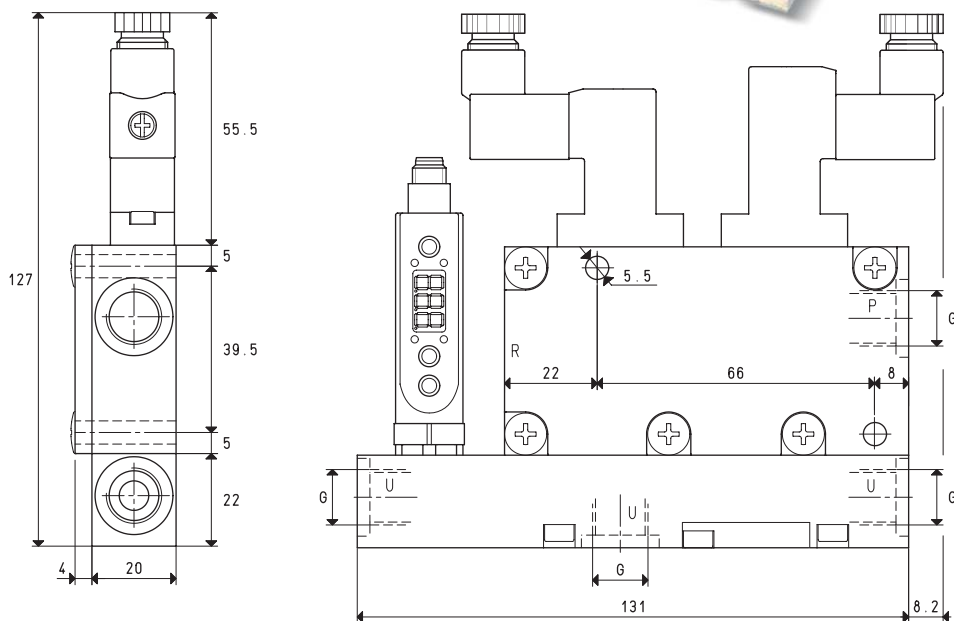
GVMM multi-function vacuum generators can be installed in any position and are suited for interconnecting vacuum gripping systems for handling sheet steel, glass, marble, ceramic, plastic, cardboard, wood, etc., and, in particular, for the industrial robotics sector which requires equipment with excellent performance and several independent vacuum units for controlling several applications but with reduced size and weight.





MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 3 and GVMM 7

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		GVMM 3			GVMM 7		
Intake air flow rate	m³/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	NI/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	g			420			420
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code GVMM .. SV.

To order a generator with NC supply solenoid valve, indicate code GVMM .. NC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

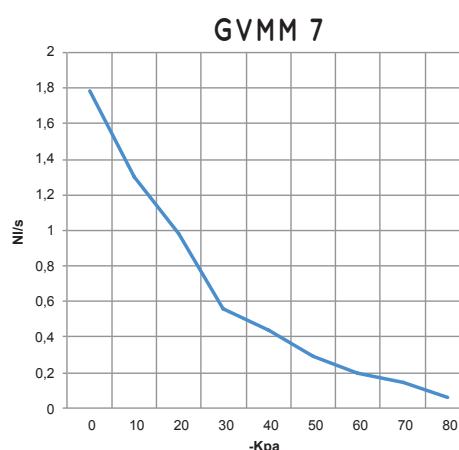
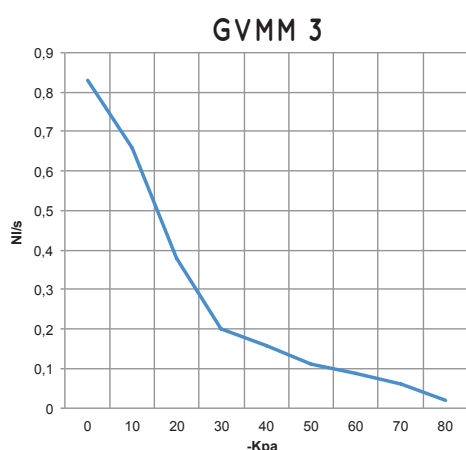
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

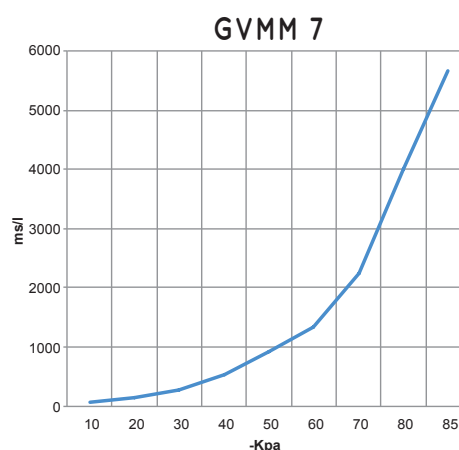
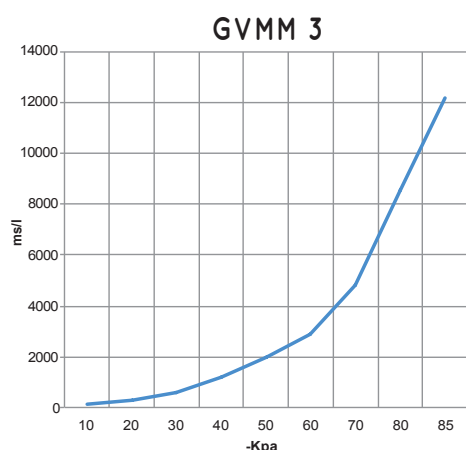
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
GVMM 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85	
GVMM 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-kPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-kPa
GVMM 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
GVMM 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

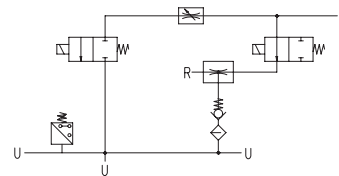
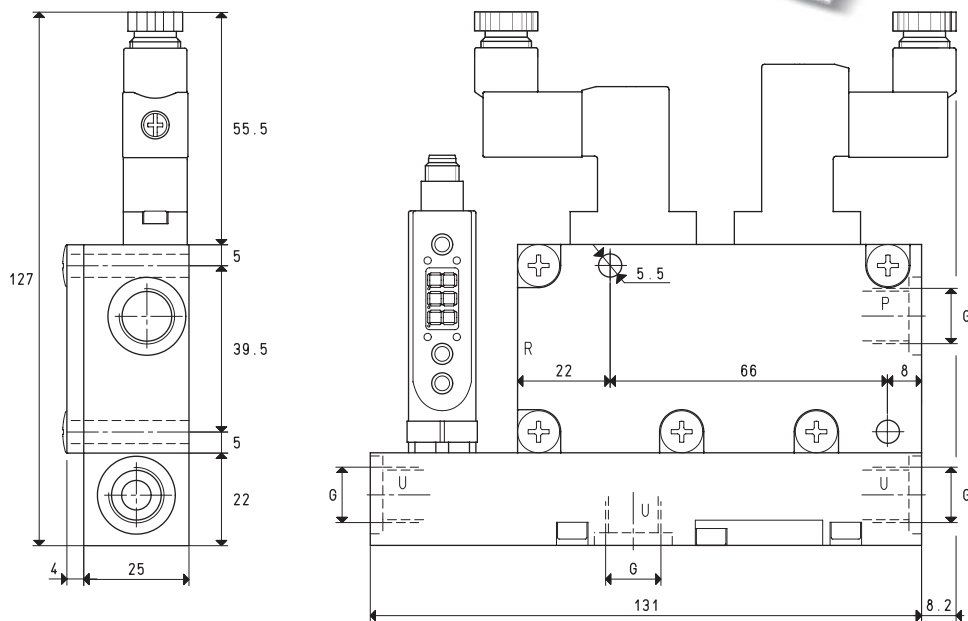
ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		GVMM 3	GVMM 7
Sealing kit and reed valves	item	00 KIT GVMM 3	00 KIT GVMM 7
Exhaust silencer	item		00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 176
NC supply solenoid valve	item		00 15 175



MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 10 and GVMM 14

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		GVMM 10			GVMM 14		
Intake air flow rate	m³/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	NI/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			70			72
Weight	g			460			460
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code GVMM .. SV.

To order a generator with NC supply solenoid valve, indicate code GVMM .. NC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

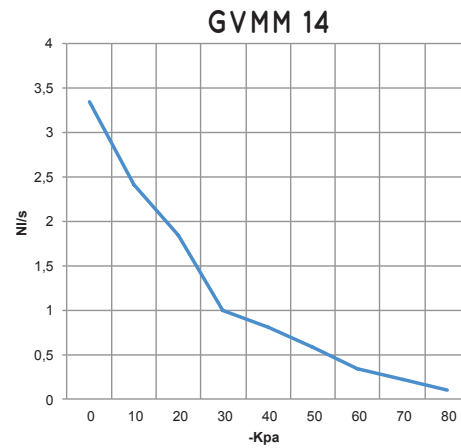
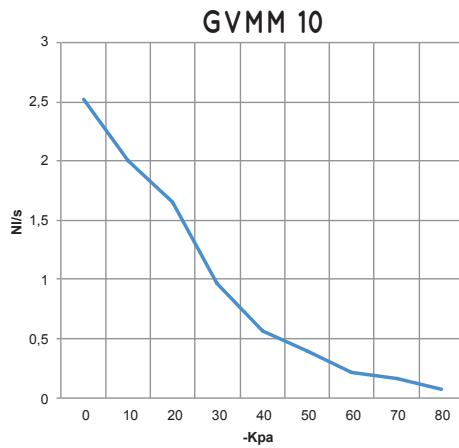
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

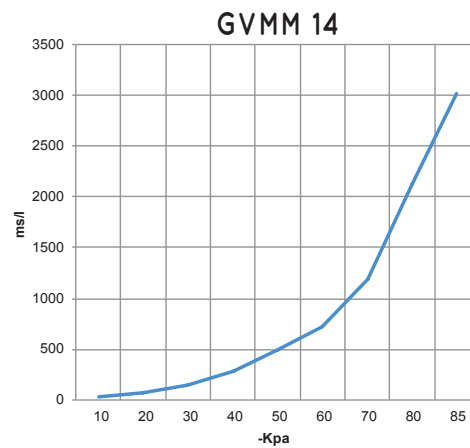
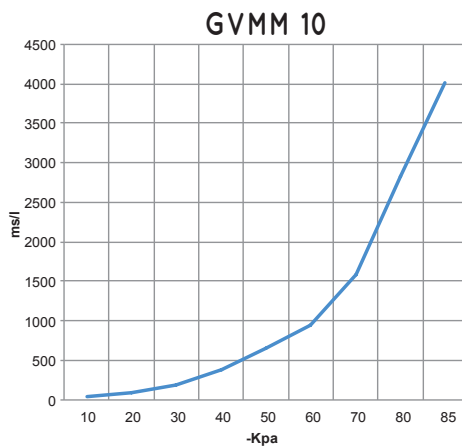
Adapters for GAS - NPT threading available on page 1.130

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
GVMM 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85	
GVMM 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
GVMM 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85	
GVMM 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85	

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		GVMM 10	GVMM 14
Sealing kit and reed valves	item	00 KIT GVMM 10	00 KIT GVMM 14
Exhaust silencer	item		N°2 00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 176
NC supply solenoid valve	item		00 15 175



MULTI-STAGE, MULTI-FUNCTION AND MODULAR INTERMEDIATE VACUUM MODULES SERIES MI - GENERAL DESCRIPTION

Intermediate modules are non-independent multi-stage and multi-function vacuum generators to be assembled to the generators of the GVMM range.

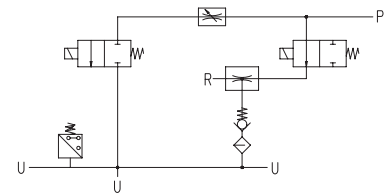
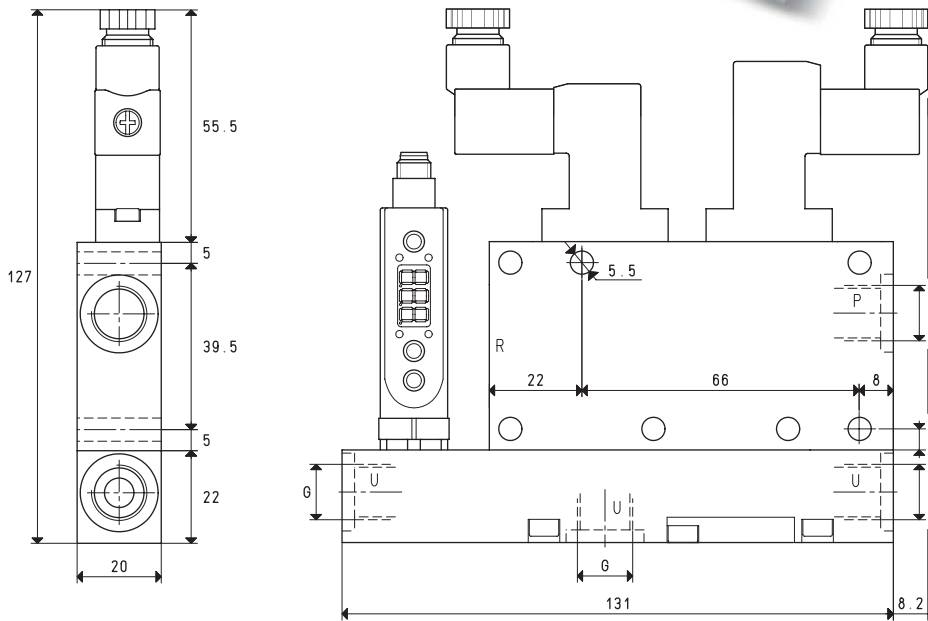
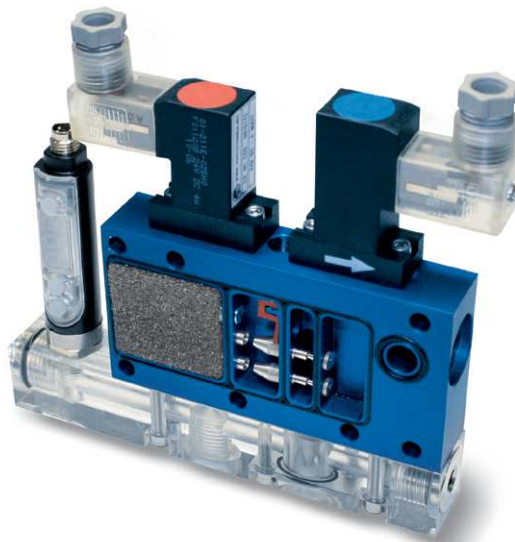
Their thickness and weight are reduced to the maximum compared to their suction flow rate and they have been designed to be enclosed between the lid and the base of the GVMM vacuum generator and fixed with screws. The internal connections for the compressed air supply allow communication between them and the basic generator, with no need for external manifolds.

This way, each module becomes an independent vacuum unit that can control an entire vacuum system.

They can be ordered in the desired amount and flow rate, either already assembled onto the GVMM multi-function vacuum generator, or separately, to be assembled to the GVMM generator previously installed onto the machine. In this case, we suggest ordering a screw kit suitable for the number of modules to be assembled.

MI intermediate vacuum modules are made up of the same elements that compose GVMM generators, except for the lid. They operate and they are used as the GVMM multi-function vacuum generator onto which they are assembled.





P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		MI 3			MI 7		
Intake air flow rate	m³/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	NI/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	g			380			380
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.

To order a generator with NC supply solenoid valve, indicate code MI .. NC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

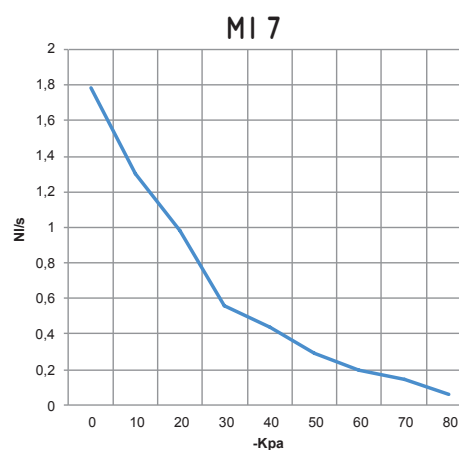
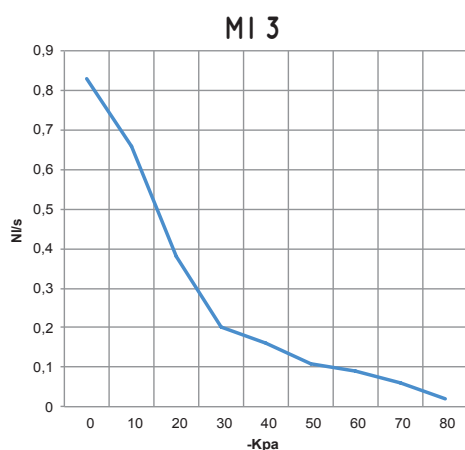
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



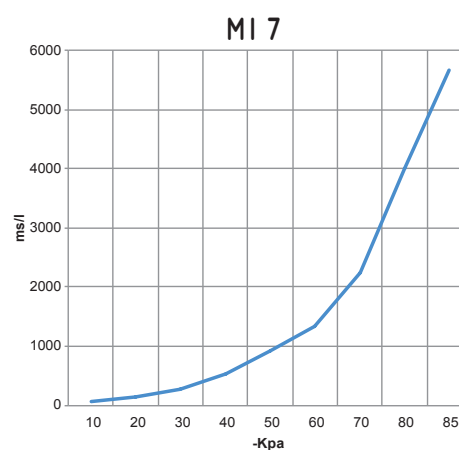
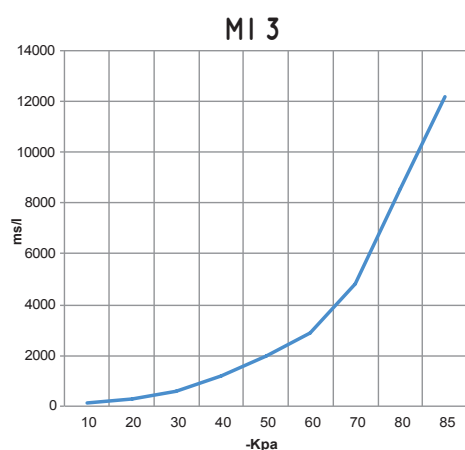
INTERMEDIATE VACUUM MODULES MI 3 and MI 7

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
MI 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85	
MI 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85	

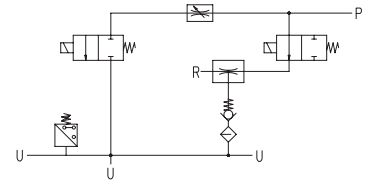
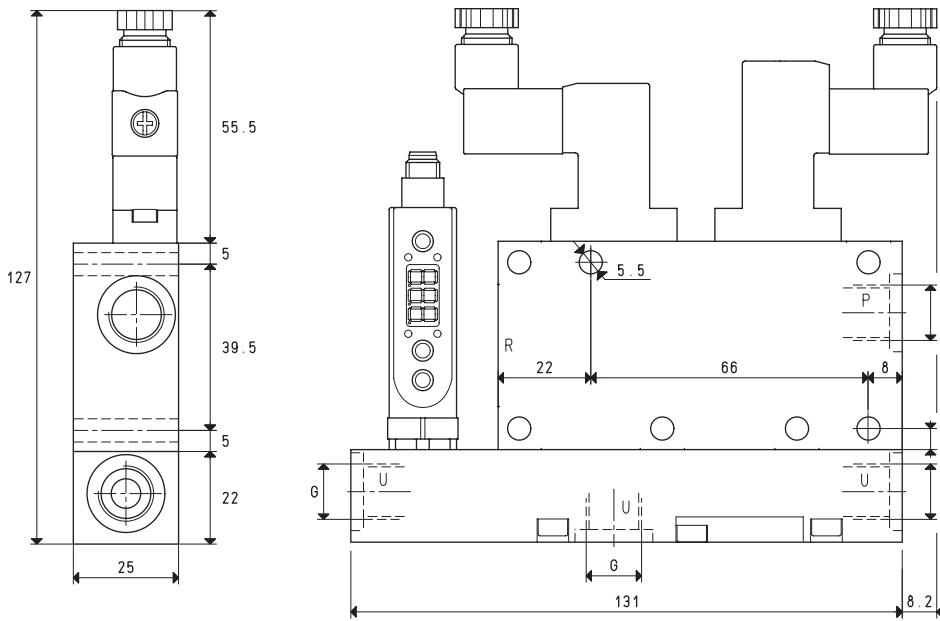
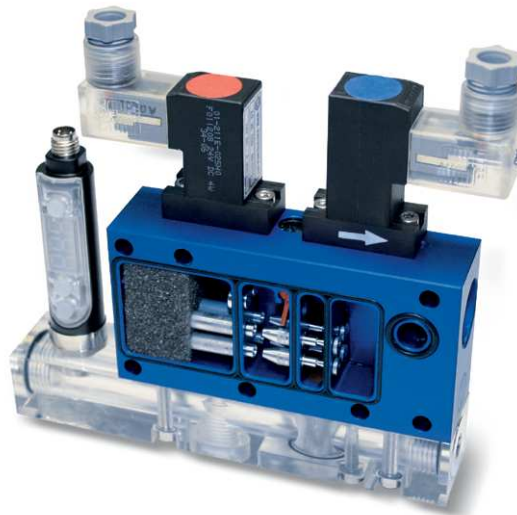
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum -KPa
			10	20	30	40	50	60	70	80	85	
MI 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
MI 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 3	MI 7
Sealing kit and reed valves	item	00 KIT MI 3	00 KIT MI 7
Exhaust silencer	item		00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 176
NC supply solenoid valve	item		00 15 175



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		MI 10			MI 14		
Intake air flow rate	m³/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Optimal final pressure	mbar abs.			150			150
Supply pressure	bar	3	4	5	3	4	5
Air consumption	NI/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			70			72
Weight	g			410			410
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.

To order a generator with NC supply solenoid valve, indicate code MI .. NC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

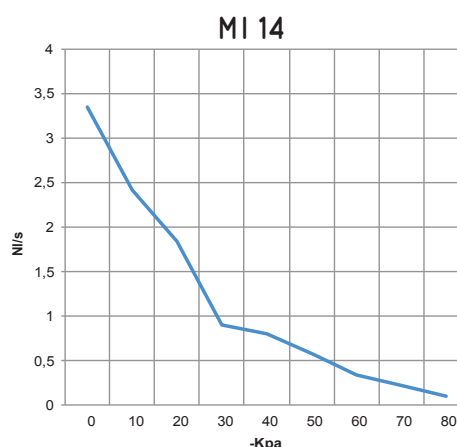
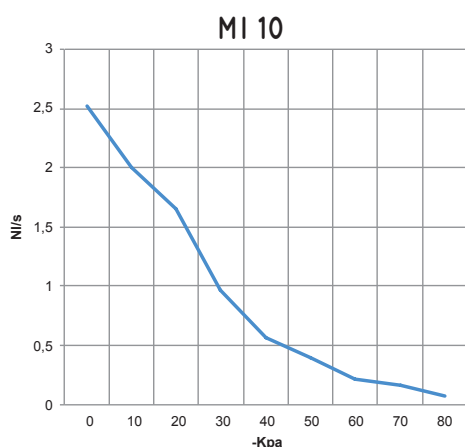
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



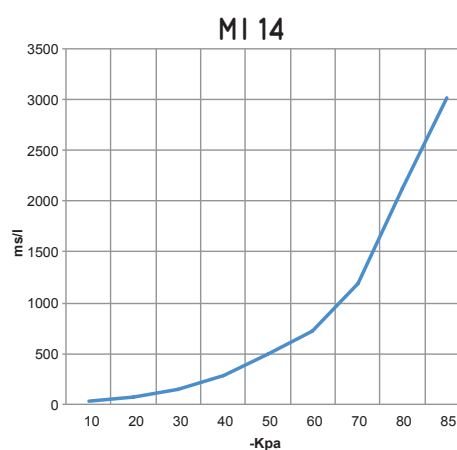
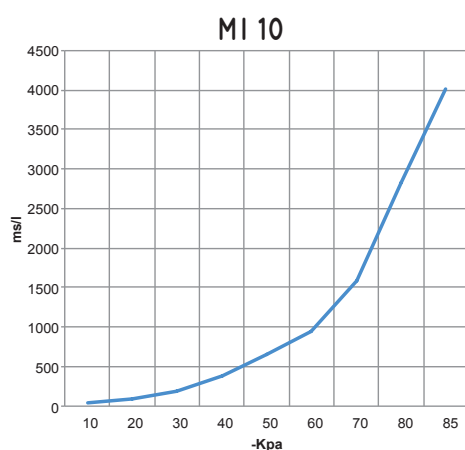
INTERMEDIATE VACUUM MODULES MI 10 and MI 14

Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
MI 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85	
MI 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85	

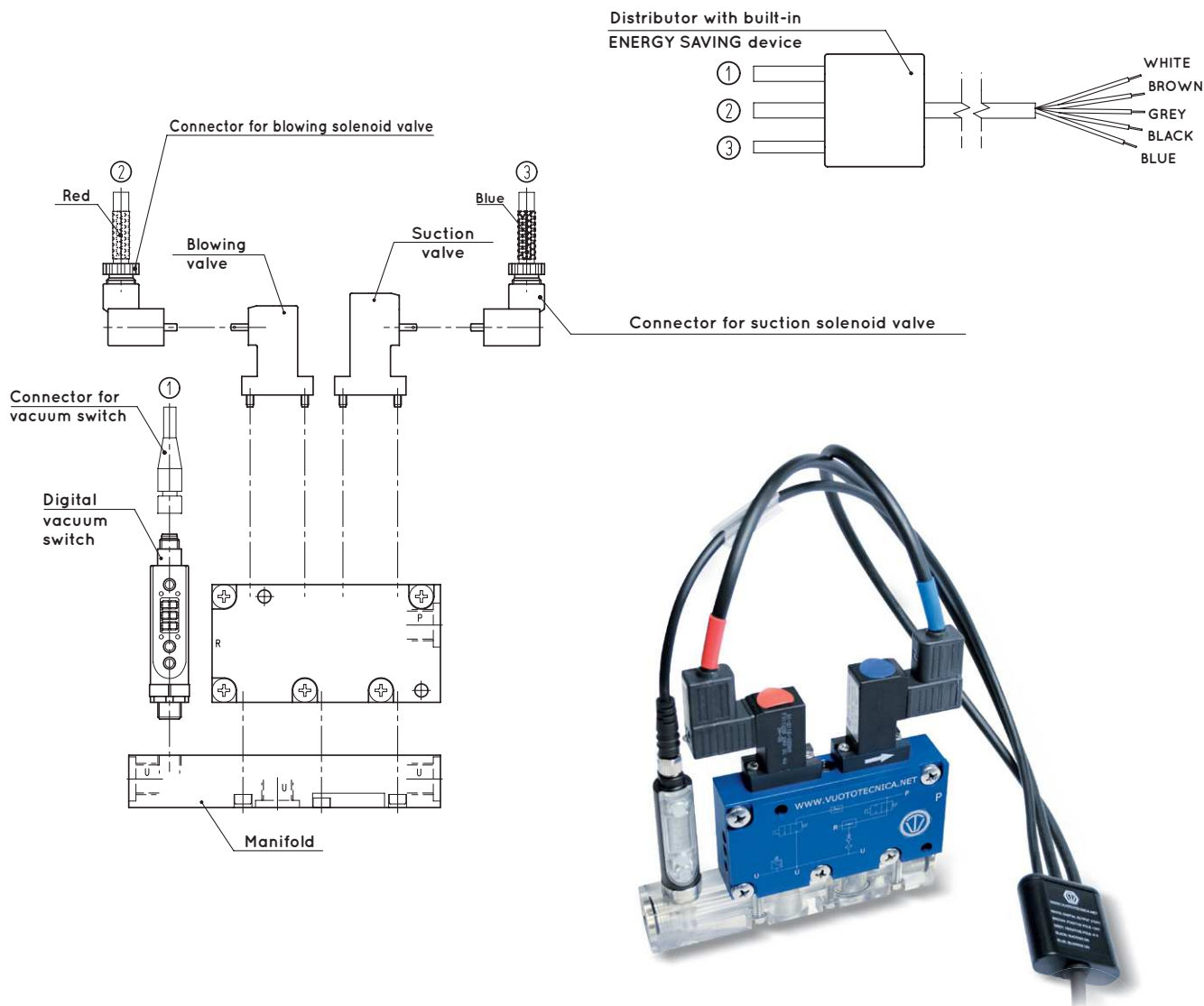
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



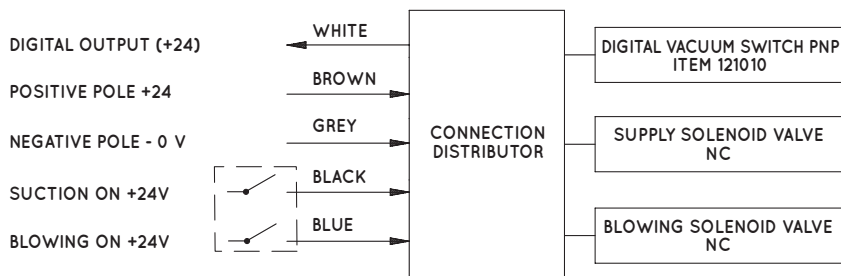
Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MI 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85
MI 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 10	MI 14
Sealing kit and reed valves	item	00 KIT MI 10	00 KIT MI 14
Exhaust silencer	item		N°2 00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 176
NC supply solenoid valve	item		00 15 175



Cable set with built-in energy saving device



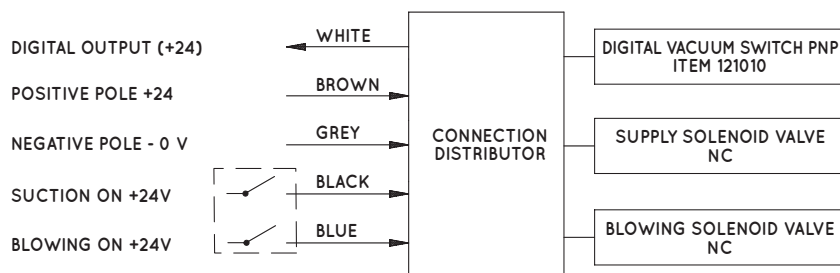
Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to: - Digital vacuum switch - NO micro supply solenoid valve - NC micro ejection solenoid valve Cable length - 5 m





ACCESSORIES AND SPARE PARTS FOR VACUUM GENERATORS AND MODULES SERIES GVMM and MI

Cable set with built-in energy saving device



Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to: - Digital vacuum switch - NC micro supply solenoid valve - NC micro ejection solenoid valve Cable length - 5 m

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves



Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with axial connector, for digital vacuum switches



Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with radial connector, for digital vacuum switches



Digital vacuum switch

Item	Description
12 10 10	Digital vacuum switch



NO micro solenoid valve

Item	Description
00 15 176	NO micro supply solenoid valve - h = 43 mm



NC supply and blowing micro solenoid valve

Item	Description
00 15 175	NC supply and blowing micro solenoid valve - h = 37.5 mm



Plexiglass manifolds

Item	Description
00 15 171	Plexiglass suction manifold for GVMM - MI 3/7
00 15 188	Plexiglass suction manifold for GVMM - MI 10/14

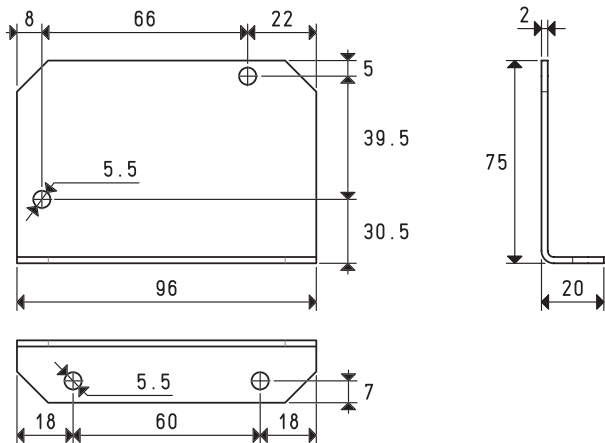


Aluminium manifolds

Item	Description
00 15 174	Aluminium suction manifold for GVMM - MI 3/7
00 15 187	Aluminium suction manifold for GVMM - MI 10/14



Support



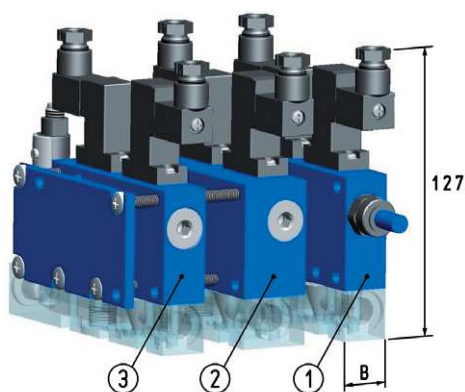
Item	Description
00 15 306	L-shaped fixing support in galvanised steel sheet





MODULAR VACUUM SYSTEMS SET-UP

GVMM multi-function vacuum generators can be assembled with one or more intermediate modules, thus forming a modular vacuum system, featuring a compact shape and reduced size and weight. As a standard, up to 6 vacuum units can be assembled, but using threaded bars instead allows assembling even more.



EXAMPLE OF SET-UP 1

No.	Item	B
1	GVMM 3 - 7	20
2	MI 10 - 14	25
3	MI 3 - 7	20

Total length L= 65

Required screw kit: Item 00 KIT GVMM 02

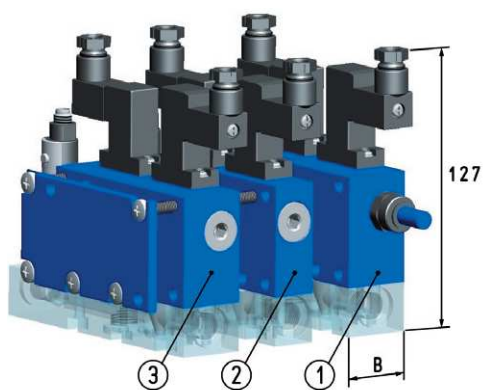
Ordering example:

1 Generator GVMM 3

1 Intermediate module MI 10

1 Intermediate module MI 3

1 kit of stainless steel screws 00 KIT GVMM 02



EXAMPLE OF SET-UP 2 00 KIT GVMM 02

No.	Item	B
1	GVMM 10 - 14	25
2	MI 3 - 7	20
3	MI 10 - 14	25

Total length L= 70

Required screw kit: Item 00 KIT GVMM 03

Ordering example:

1 Generator GVMM 10

1 Intermediate module MI 3

1 Intermediate module MI 10

1 kit of stainless steel screws 00 KIT GVMM 03



STAINLESS STEEL M5 SCREW KIT

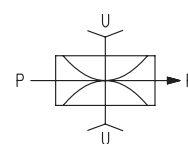
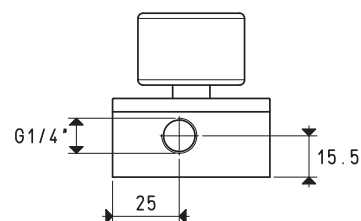
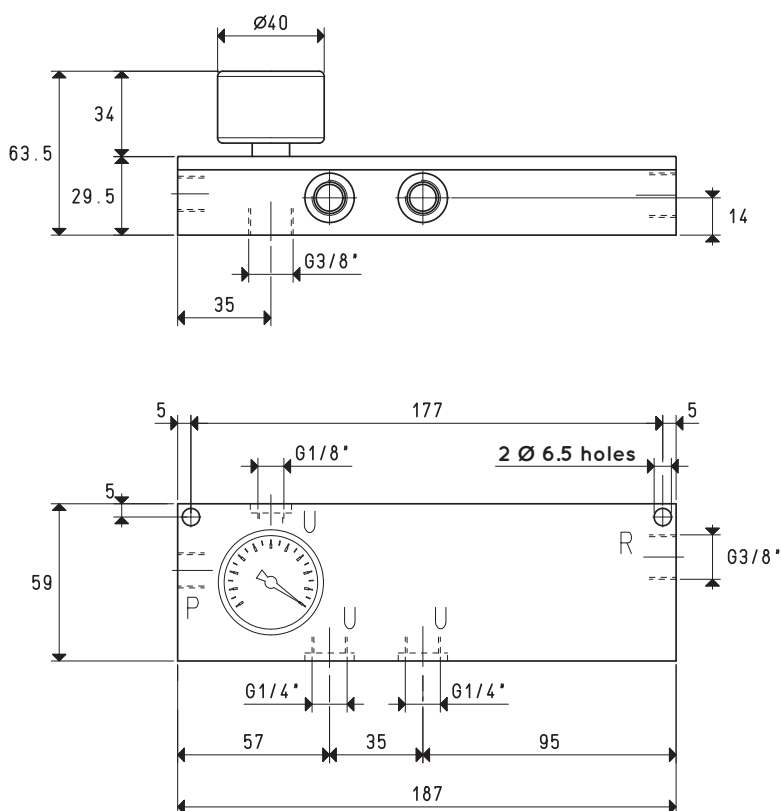
Item	L
00 KIT GVMM 01	45 - 50
00 KIT GVMM 02	60 - 65
00 KIT GVMM 03	70 - 75
00 KIT GVMM 04	80 - 85
00 KIT GVMM 05	90 - 95
00 KIT GVMM 06	100 - 105
00 KIT GVMM 07	110 - 115
00 KIT GVMM 08	120 - 125
00 KIT GVMM 09	130 - 135
00 KIT GVMM 10	140 - 145
00 KIT GVMM 11	150 - 155



MULTI-STAGE VACUUM GENERATORS PVP 12-25 MX / MXLP

This range of multiple ejector vacuum generators offers increased suction flow rate, given the same compressed air consumption, than single-stage models.

Supply pressure goes between 4-6 bar, for items MX and between 1-3 bar, for MXLP. The capacities go from 10.5 to 31 m³/h. They are fully made with anodised aluminium, with stainless steel ejectors and screws. The EPDM seals, the silicon reed valves and the vacuum gauge are provided as standard. They are equipped with additional intake connections for increased points of usage or control tools. The suctioned air discharge connections are threaded to allow for installation, upon request, of "free-flow" SSX high sound damping silencers



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 12 MX			PVP 12 MXLP		
Intake air flow rate	m³/h	16.0	18.0	21.0	10.5	15.5	18.0
Maximum level of vacuum	-kPa	65	85	90	30	61	86
Final pressure	abs. mbar	350	150	100	700	390	140
Supply pressure	bar	4	5	6	1	2	3
Optimal supply pressure	bar			6			3
Air consumption	NI/s	1.0	1.3	1.5	1.1	1.6	2.3
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			65			79
Weight	g			660			660
Spare parts		PVP 12 MX / MXLP					
Sealing kit and reed valves	item	00 KIT PVP 12 MX					
Sound absorption material for exhaust	item	00 15 354					
Vacuum gauge	item	09 03 15					

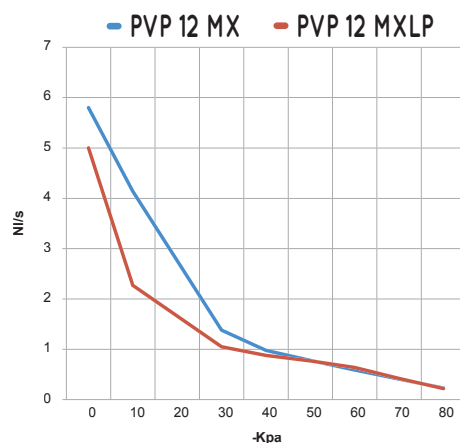
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



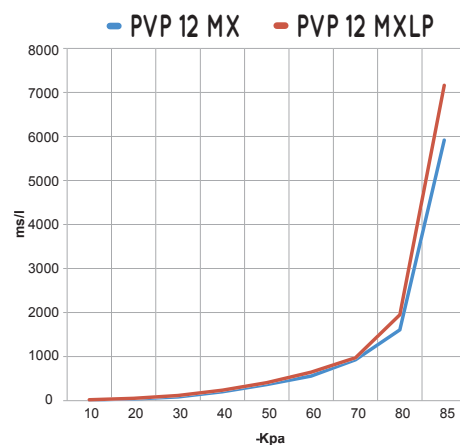
MULTI-STAGE VACUUM GENERATORS PVP 12 MX / MXLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa	
PVP 12 MX	6.0	1.5	5.80	4.14	2.76	1.38	0.98	0.78	0.59	0.41	0.23	90	
PVP 12 MXLP	3.0	2.3	5.00	2.27	1.66	1.05	0.88	0.77	0.64	0.42	0.22	86	

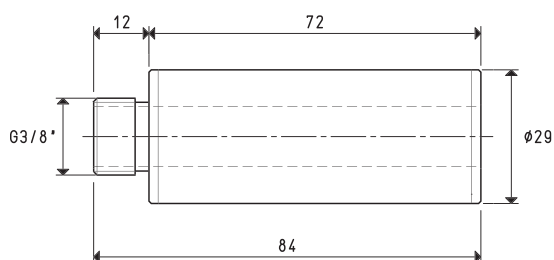
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

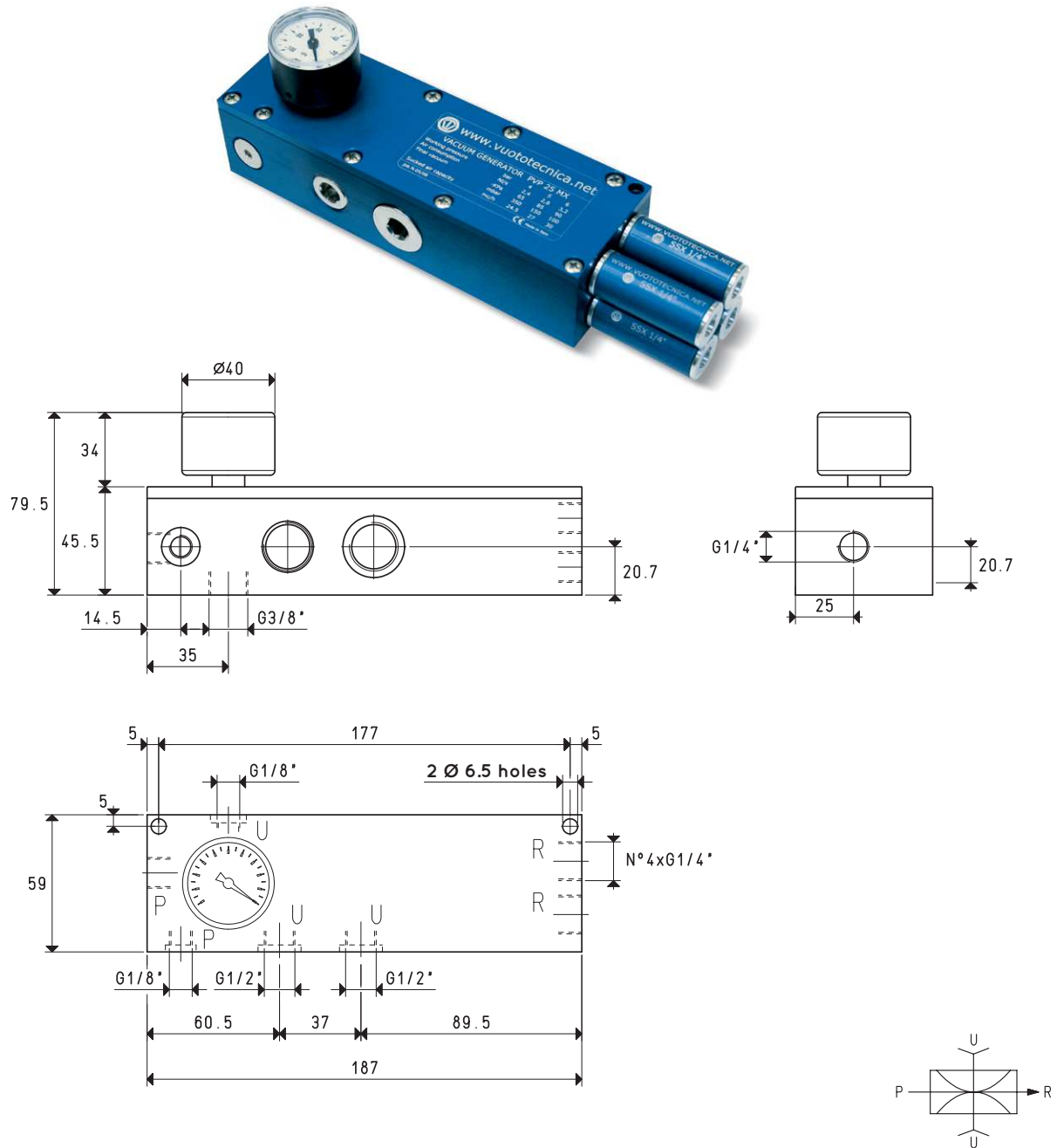


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 12 MX	6.0	1.5	15	38	85	204	365	559	929	1607	5916	90
PVP 12 MXLP	3.0	2.3	22	56	120	240	410	650	975	1950	7160	86

ACCESSORIES UPON REQUEST

Silencer item SSX 3/8"





P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 25 MX			PVP 25 MXLP		
Intake air flow rate	m ³ /h	25.0	28.0	31.0	19.0	27.5	34.0
Maximum level of vacuum	-kPa	65	85	90	30	61	86
Final pressure	abs. mbar	350	150	100	700	390	140
Supply pressure	bar	4	5	6	1	2	3
Optimal supply pressure	bar			6			3
Air consumption	NI/s	2.1	2.6	3.0	2.2	3.2	4.5
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			70			70
Weight	g			960			960

Spare parts		PVP 25 MX / MXLP
Sealing kit and reed valves	item	00 KIT PVP 25 MX
Sound absorption material for exhaust	item	00 15 534
Vacuum gauge	item	09 03 15

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

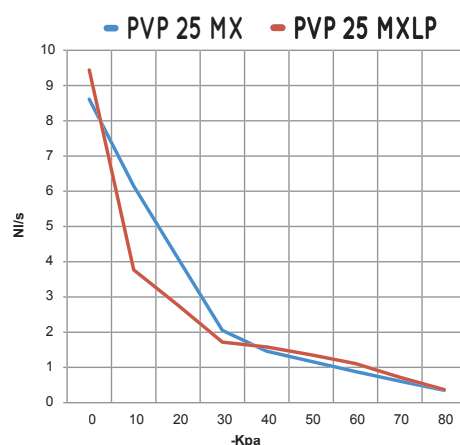
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



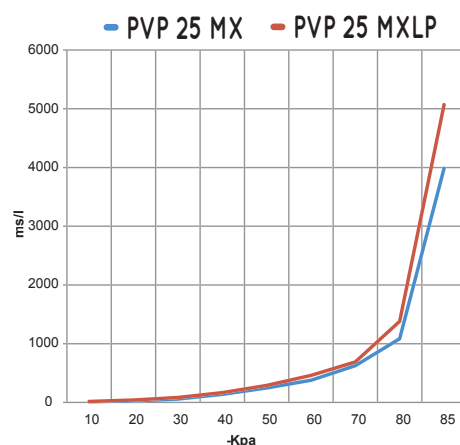
MULTI-STAGE VACUUM GENERATORS PVP 25 MX / MXLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 25 MX	6.0	3.0	8.61	6.15	4.10	2.05	1.46	1.17	0.88	0.61	0.35	90	
PVP 25 MXLP	3.0	4.5	9.44	3.77	2.77	1.72	1.58	1.36	1.11	0.72	0.37	86	

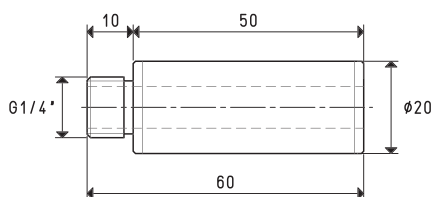
Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 25 MX	6.0	3.0	10	26	57	137	246	377	626	1083	3986	90
PVP 25 MXLP	3.0	4.5	16	41	83	165	290	460	690	1380	5070	86

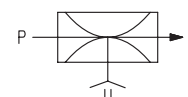
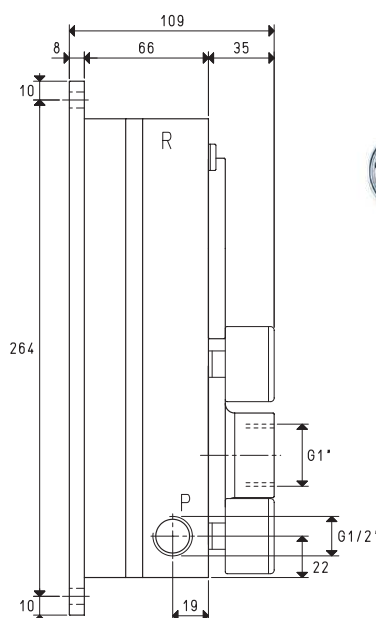
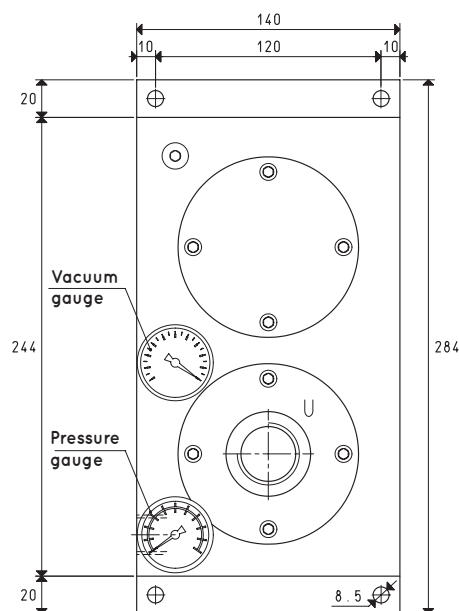
ACCESSORIES UPON REQUEST

4 silencers item SSX 1/4"



MULTI-STAGE VACUUM GENERATORS PVP 40 ÷ 300 M / MLP

Created to be assembled on OCTOPUS gripping systems, this series of generators is available with suction capacities between 24 and 320 m³/h. The supply pressure goes from 4-6 bar for M items and from 1-3 bar for MLP items. Level of vacuum and flow rate can be adjusted according to the supply air pressure. Characterised by their new generation of ejectors, boasting an excellent ratio between the quantity of air consumed and that suctioned, benefiting operational consumption. The silencers are built into all generators. They are fully made with anodised aluminium, with stainless steel ejectors and screws. EPDM or VITON seals and reed valves upon request. Low maintenance and simple scheduled filter cleaning.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 40 M			PVP 70 M			PVP 100 M		
Intake air flow rate	m³/h	36	39	42	65	73	80	88	98	108
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	2.3	2.7	3.2	4.9	5.7	6.6	7.2	8.5	9.8
Temperature of use	°C	-20 / +100			-20 / +100			-20 / +100		
Noise level at optimal supply pressure	dB(A)	67			68			70		
Weight	Kg	4.2			4.2			4.2		
Item		PVP 40 MLP			PVP 70 MLP			PVP 100 MLP		
Intake air flow rate	m³/h	24	35	41	41	56	73	50	80	95
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	2.4	3.4	4.4	4.6	7.0	8.9	6.7	10.2	13.3
Temperature of use	°C	-20 / +100			-20 / +100			-20 / +100		
Noise level at optimal supply pressure	dB(A)	70			72			75		
Weight	Kg	4.2			4.2			4.2		
Spare parts		PVP 40 M / MLP			PVP 70 M / MLP			PVP 100 M / MLP		
Sealing kit and reed valves	item	00 KIT PVP 40 M			00 KIT PVP 70 M			00 KIT PVP 100 M		
Exhaust silencer	item	00 15 110			00 15 110			00 15 110		
Silencer on nozzles	item	00 15 111			00 15 111			00 15 111		
Vacuum gauge	item	09 03 15			09 03 15			09 03 15		
Pressure gauge	item	09 03 25			09 03 25			09 03 25		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

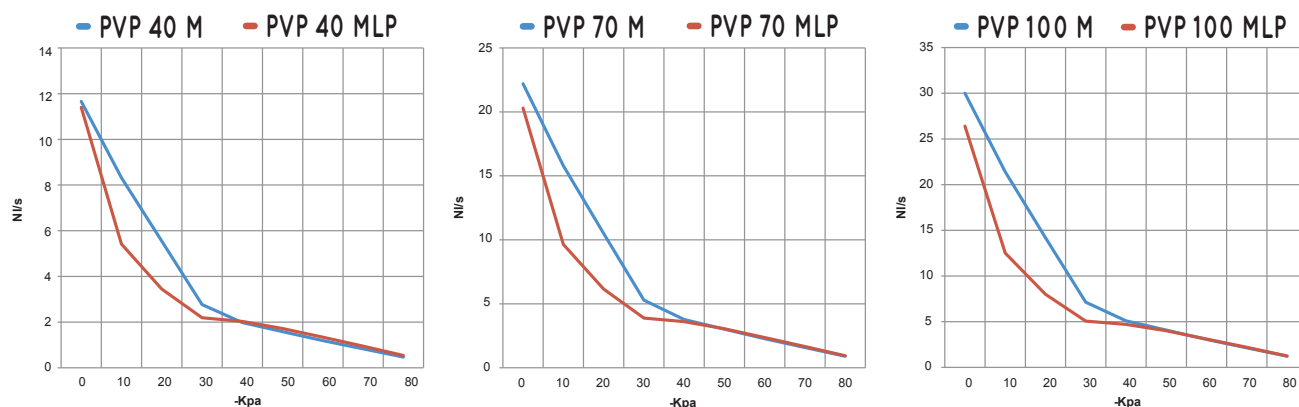
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



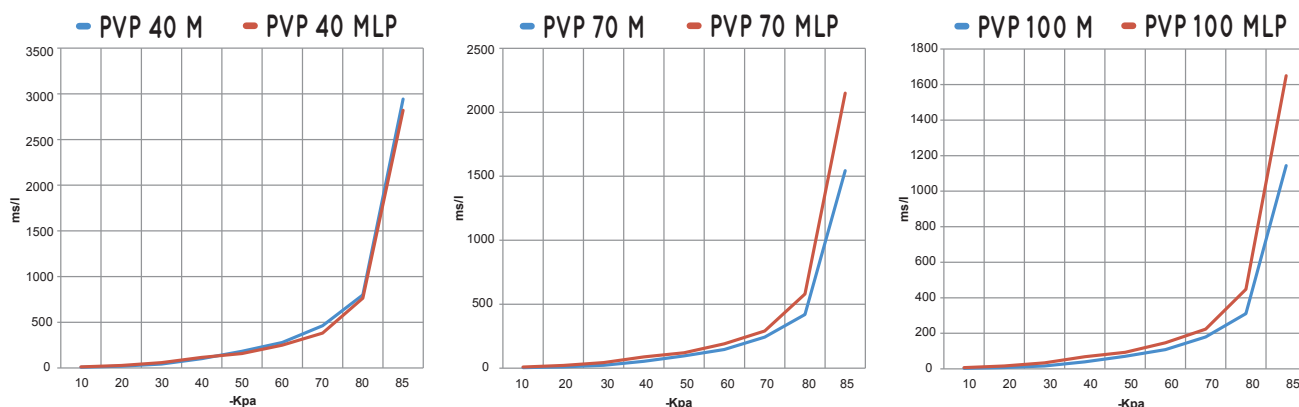
MULTI-STAGE VACUUM GENERATORS PVP 40, PVP 70 and PVP 100 M / MLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

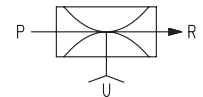
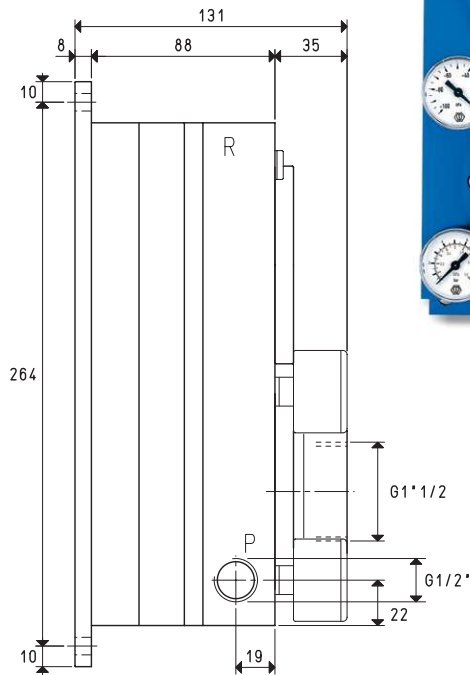
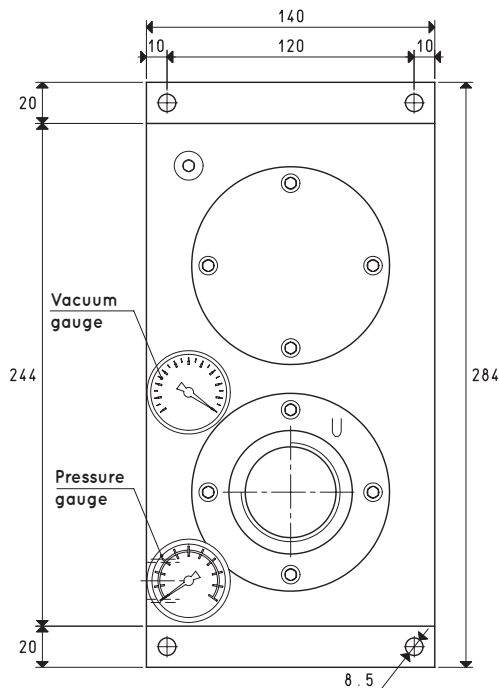


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa	
PVP 40 M	6.0	3.2	11.66	8.32	5.55	2.77	1.98	1.58	1.19	0.83	0.47	90	
PVP 70 M	6.0	6.6	22.20	15.80	10.50	5.29	3.77	3.02	2.27	1.58	0.90	90	
PVP 100 M	6.0	9.8	30.00	21.40	14.20	7.14	5.10	4.08	3.06	2.14	1.22	90	
PVP 40 MLP	3.0	4.4	11.40	5.42	3.45	2.19	2.03	1.72	1.34	0.95	0.54	88	
PVP 70 MLP	3.0	8.9	20.30	9.65	6.15	3.88	3.61	3.05	2.36	1.66	0.94	88	
PVP 100 MLP	3.0	13.3	26.40	12.50	8.00	5.07	4.70	4.00	3.10	2.20	1.25	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 40 M	6.0	3.2	7.7	19.2	42.3	101.6	182.0	278.4	462.3	799.8	2943	90
PVP 70 M	6.0	6.6	4.0	10.1	22.2	53.3	95.5	146.1	242.6	419.7	1544	90
PVP 100 M	6.0	9.8	3.0	7.4	16.4	39.5	70.7	108.2	179.6	310.8	1144	90
PVP 40 MLP	3.0	4.4	12.0	28.0	58.0	116.0	158.0	250.0	382.0	764.0	2820	88
PVP 70 MLP	3.0	8.9	9.0	21.0	44.0	88.0	120.0	190.0	290.0	580.0	2150	88
PVP 100 MLP	3.0	13.3	7.0	16.0	34.0	68.0	93.0	147.0	224.0	448.0	1650	88



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 140 M			PVP 170 M			PVP 200 M		
Intake air flow rate	m³/h	125	140	152	150	168	182	170	188	200
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	9.6	11.4	13.0	12.1	14.2	16.3	14.2	16.9	19.4
Temperature of use	°C			-20 / +100			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			70			71			72
Weight	Kg			5.1			5.1			5.1

Item		PVP 140 MLP			PVP 170 MLP			PVP 200 MLP		
Intake air flow rate	m³/h	73	115	138	80	137	165	105	157	190
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	8.6	13.3	17.8	10.5	16.3	22.2	12.8	20.0	26.6
Temperature of use	°C			-20 / +100			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			75			76			78
Weight	Kg			5.1			5.1			5.1

Spare parts		PVP 140 M / MLP		PVP 170 M / MLP		PVP 200 M / MLP	
Sealing kit and reed valves	item	00 KIT PVP 140 M		00 KIT PVP 170 M		00 KIT PVP 200 M	
Exhaust silencer	item	00 15 110		00 15 110		00 15 110	
Silencer on nozzles	item	N°2 00 15 111		N°2 00 15 111		N°2 00 15 111	
Vacuum gauge	item	09 03 15		09 03 15		09 03 15	
Pressure gauge	item	09 03 25		09 03 25		09 03 25	

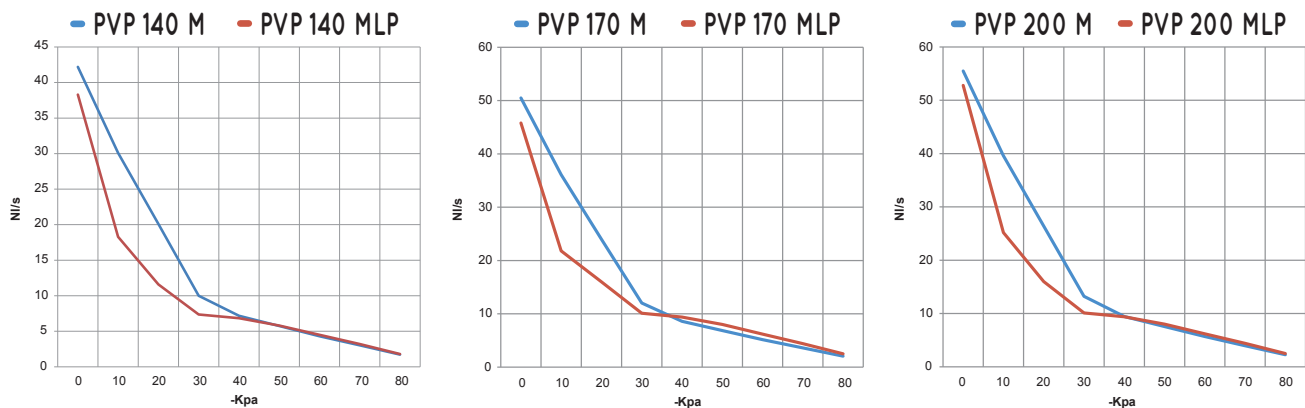
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



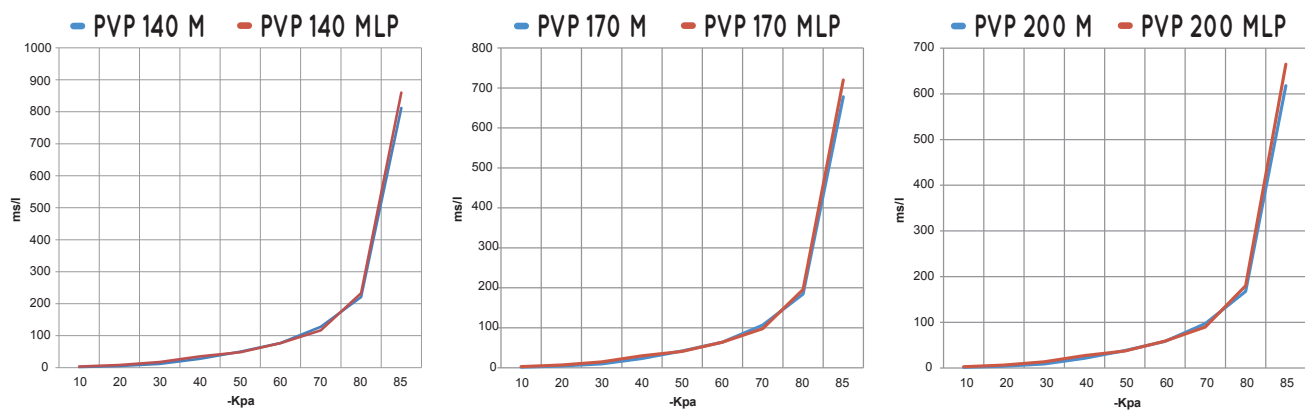
MULTI-STAGE VACUUM GENERATORS PVP 140, PVP 170 and PVP 200 M / MLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

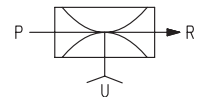
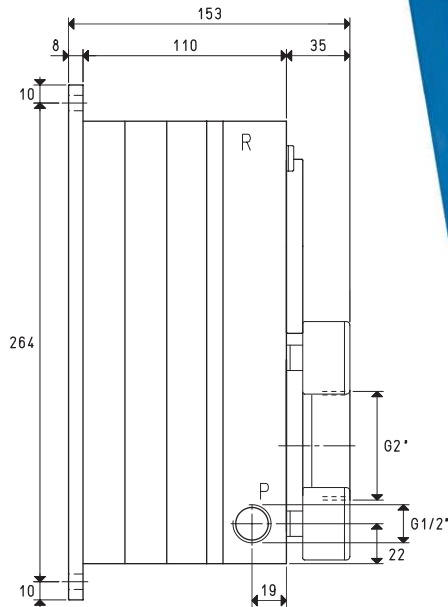
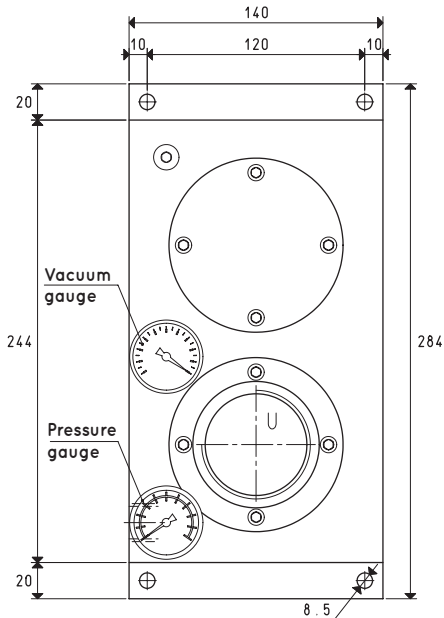


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 140 M	6.0	13.0	42.20	30.10	20.10	10.00	7.18	5.74	4.31	3.02	1.72	90	
PVP 170 M	6.0	16.3	50.50	36.10	24.00	12.03	8.59	6.87	5.17	3.61	2.06	90	
PVP 200 M	6.0	19.4	55.50	39.60	26.40	13.22	9.44	7.55	5.68	3.97	2.27	90	
PVP 140 MLP	3.0	17.8	38.30	18.30	11.60	7.36	6.84	5.80	4.50	3.20	1.80	88	
PVP 170 MLP	3.0	22.2	45.80	21.80	13.80	8.81	8.18	6.94	5.39	3.82	2.16	88	
PVP 200 MLP	3.0	26.6	52.80	25.20	16.00	10.10	9.40	8.00	6.20	4.40	2.50	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
PVP 140 M	6.0	13.0	2.1	5.3	11.7	28.0	50.2	76.9	127.6	220.8	812	90
PVP 170 M	6.0	16.3	1.7	4.4	9.7	23.4	42.0	64.2	106.6	184.5	678	90
PVP 200 M	6.0	19.4	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167.8	618	90
PVP 140 MLP	3.0	17.8	3.6	8.4	17.7	35.4	48.3	76.5	116.8	233.0	860	88
PVP 170 MLP	3.0	22.2	3.0	7.1	14.9	29.9	40.6	64.2	98.0	196.0	720	88
PVP 200 MLP	3.0	26.6	2.8	6.5	13.6	27.3	37.2	58.8	89.7	180.0	665	88



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 250 M			PVP 300 M		
Intake air flow rate	m³/h	224	252	280	240	290	320
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	Nl/s	17.3	20.7	24.0	20.4	24.8	29.0
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			72			74
Weight	Kg			6.0			6.0

Item		PVP 250 MLP			PVP 300 MLP		
Intake air flow rate	m³/h	120	185	250	128	210	300
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	Nl/s	16.0	25.0	33.6	19.1	28.8	39.3
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			77			78
Weight	Kg			6.0			6.0

Spare parts		PVP 250 M / MLP		PVP 300 M / MLP	
Sealing kit and reed valves	item	00 KIT PVP 250 M		00 KIT PVP 300 M	
Exhaust silencer	item	00 15 110		00 15 110	
Silencer on nozzles	item	N°3 00 15 111		N°3 00 15 111	
Vacuum gauge	item	09 03 15		09 03 15	
Pressure gauge	item	09 03 25		09 03 25	

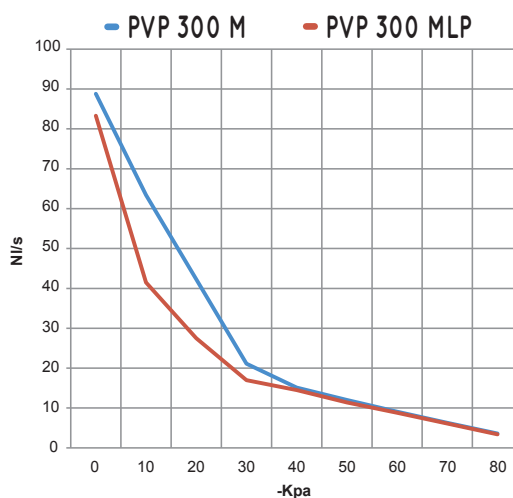
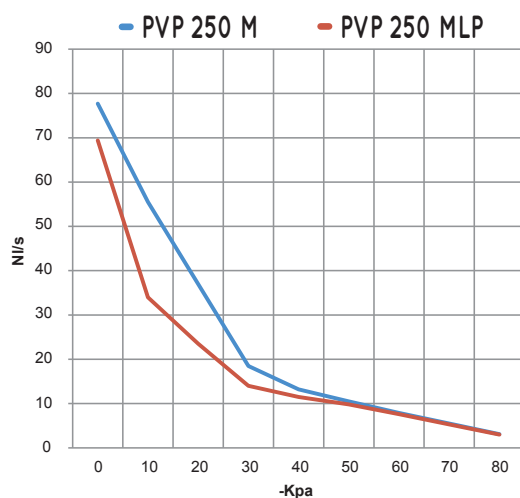
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



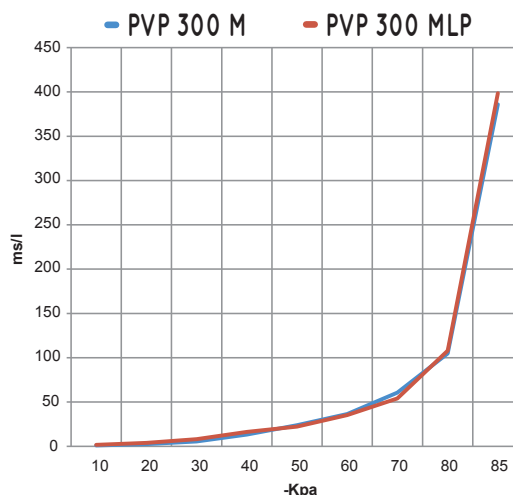
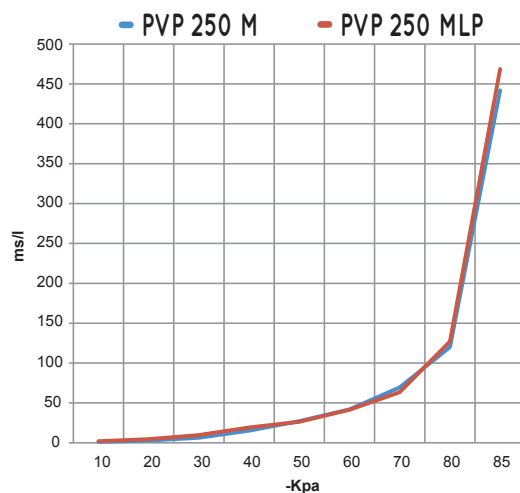
MULTI-STAGE VACUUM GENERATORS PVP 250 and PVP 300 M / MLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

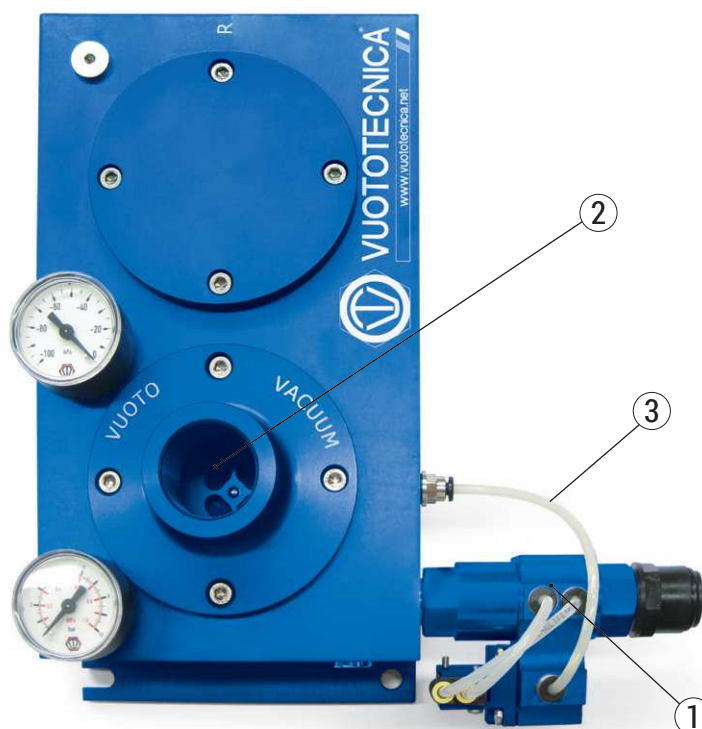


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 250 M	6.0	24.0	77.7	55.5	37.0	18.5	13.2	10.5	7.9	5.5	3.1	90	
PVP 300 M	6.0	29.0	88.8	63.4	42.3	21.1	15.1	12.0	9.1	6.3	3.6	90	
PVP 250 MLP	3.0	33.6	69.4	34.0	23.5	14.0	11.5	9.8	7.6	5.3	3.0	88	
PVP 300 MLP	3.0	39.3	83.3	41.5	27.5	17.0	14.5	11.4	8.8	6.1	3.4	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

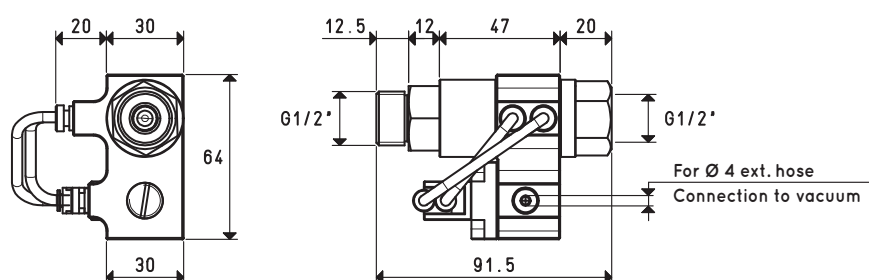


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 250 M	6.0	24.0	1.1	2.9	6.4	15.2	27.3	41.8	69.3	119.9	442.0	90	
PVP 300 M	6.0	29.0	1.0	2.5	5.5	13.3	23.8	36.5	60.6	104.9	386.0	90	
PVP 250 MLP	3.0	33.6	2.0	4.6	9.6	19.3	26.3	41.5	63.5	127.0	468.7	88	
PVP 300 MLP	3.0	39.3	1.7	3.9	8.2	16.4	22.3	35.3	54.0	108.0	398.5	88	



① - COAXIAL SHUTTER SERVO-CONTROLLED SUPPLY VALVE

This is an innovative valve with coaxial shutter, pneumatically driven by the integrated vacuum switch on it, able to intercept the compressed air supply to the vacuum generator, with operating pressures between 1.5 and 7 bar. The vacuum switch has the task of removing and returning a pneumatic signal when a preset and adjustable level of vacuum is reached. The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar. The pneumatic vacuum switch, acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.



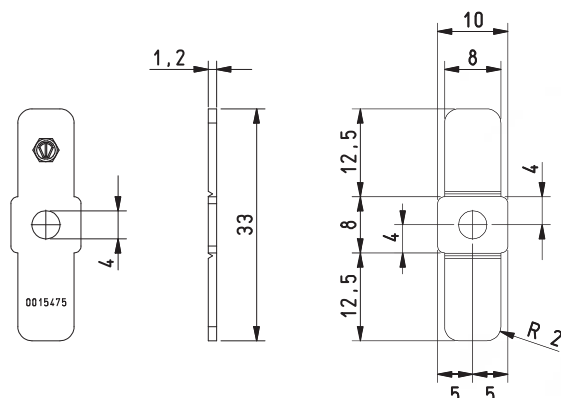
Item	For generator item	Weight g
07 03 71	PVP 40 ÷ 300 M/MLP	355



ACCESSORIES FOR VACUUM GENERATORS PVP 40 ÷ 300 M / MLP

② - REED VALVE KIT FOR CHECK DEVICE ON VACUUM GENERATORS

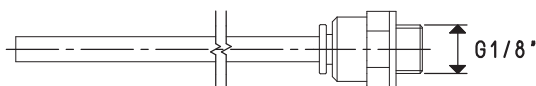
This reed valve kit, specifically designed to be integrated on PVP 40 - 300 M/MLP vacuum generators, has the task of preventing the return of atmospheric air into the vacuum system (tanks, autoclaves, intake systems depression, vacuum cups, etc.), when the generator stops, guaranteeing the seal and maintaining the level of vacuum reached in use.



Item	For generator item	No. pc.	Weight g
00 KIT TRASM-MR	PVP 40 ÷ 300 M/MLP	4	10.5

③ - FLEXIBLE TUBE FOR CONNECTION TO VACUUM

This flexible tube is fitted on one end with a 1/8 "quick-fit coupling, to be screwed onto one of the two vacuum generator connections reserved for the vacuum gauge, while the other free end is inserted into the fitting installed on the pneumatic vacuum switch. The task of this tube is to continuously monitor the value of the level of vacuum reached in use and to transmit it to the vacuum switch.



Item	For supply valve item	Weight g
00 15 496	07 03 71 - 07 04 71	10

COMPLETE KIT FOR ENERGY SAVING DEVICE ES

The three components described above make up an energy saving kit for the compressed air supply ES (Energy Saving System). In fact, the ES device acts directly on the generator, making it operate only within the preset vacuum values, thus limiting compressed air supply consumption; all this entails considerable energy savings.

This kit has been designed for the PVP 40 - 300 M/MLP series of generators.

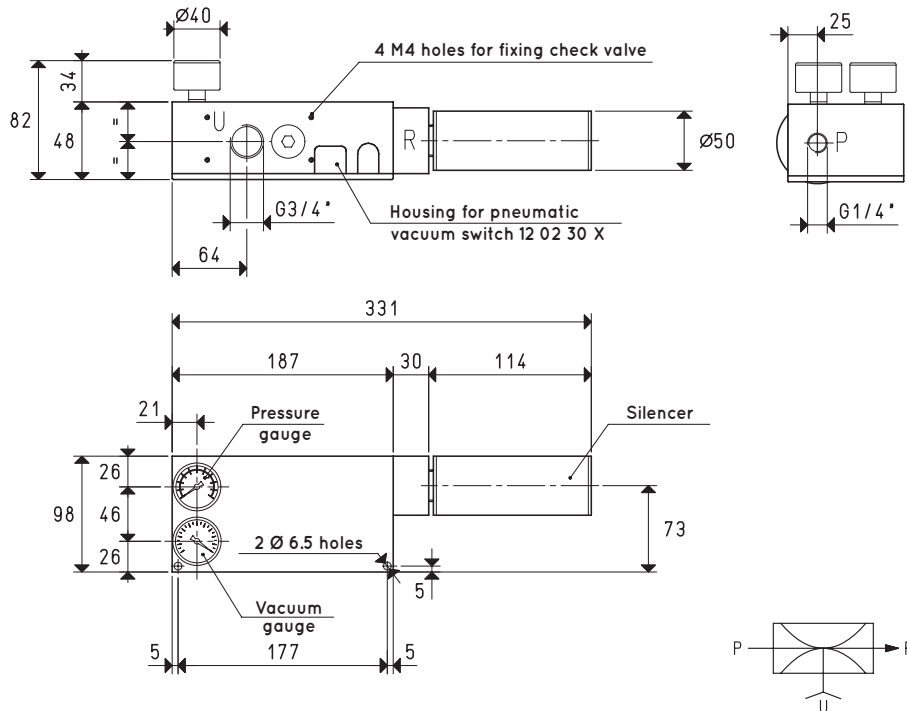


Item	For generator item	Weight g
ES 06	PVP 40 ÷ 300 M/MLP	380

MULTI-STAGE VACUUM GENERATORS PVP 25 ÷ 75 MDX / MDXLP

This line of generators is available with suction rates between 20 and 103 m³/h. The supply pressure goes from 4-6 bar for MDX items and from 1-3 bar for MDXLP items. The maximum level of vacuum is -90 KPa. Characterised by their new generation of ejectors, boasting an excellent ratio between the quantity of air consumed and that suctioned, benefiting operational consumption. They are fully made with anodised aluminium, with stainless steel ejectors and screws. The tightness seal is made from EPDM, while the reed valves are made as standard and in VITON®, upon request. The "free-flow" SSX high sound damping silencers installed as standard on the air exhaust.

They are equipped with additional threaded connections for increased points of usage or for the installation of measurement or control tools. Upon request, can be supplied with a compressed air energy savings kit ES (ENERGY SAVING SYSTEM), composed of a pneumatic vacuum regulator, a pneumatic coaxial shutter supply valve, a check valve and necessary tubing.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 25 MDX			PVP 35 MDX			PVP 50 MDX		
Intake air flow rate	m ³ /h	35	39	43	47	52	57	57	62	68
Maximum level of vacuum	-KPa	65	82	90	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6	4	5	6
Optimal supply pressure	bar			6			6			6
Air consumption	Nl/s	2.3	2.8	3.2	3.4	4.1	4.8	4.7	5.6	6.5
Temperature of use	°C		-20 / + 80			-20 / + 80			-20 / + 80	
Noise level at optimal supply pressure	dB(A)			58			58			60
Weight	Kg			1.71			1.73			1.75

Item		PVP 25 MDXLP			PVP 35 MDXLP			PVP 50 MDXLP		
Intake air flow rate	m ³ /h	20	28	35	26	38	47	31	48	58
Maximum level of vacuum	-KPa	30	64	88	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3	1	2	3
Optimal supply pressure	bar			3			3			3
Air consumption	Nl/s	2.2	3.3	4.4	3.4	5.0	6.5	4.5	6.6	8.6
Temperature of use	°C		-20 / +100			-20 / +100			-20 / +100	
Noise level at optimal supply pressure	dB(A)			62			68			74
Weight	Kg			1.71			1.73			1.75

Spare parts		PVP 25 MDX / MDXLP	PVP 35 MDX / MDXLP	PVP 50 MDX / MDXLP
Sealing kit and reed valves	item	00 KIT PVP 25 MDX	00 KIT PVP 35 MDX	00 KIT PVP 50 MDX
Vacuum gauge	item	09 03 15	09 03 15	09 03 15
Pressure gauge	item	09 03 25	09 03 25	09 03 25
Silencer	item	SSX 3/4"	SSX 3/4"	SSX 3/4"

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

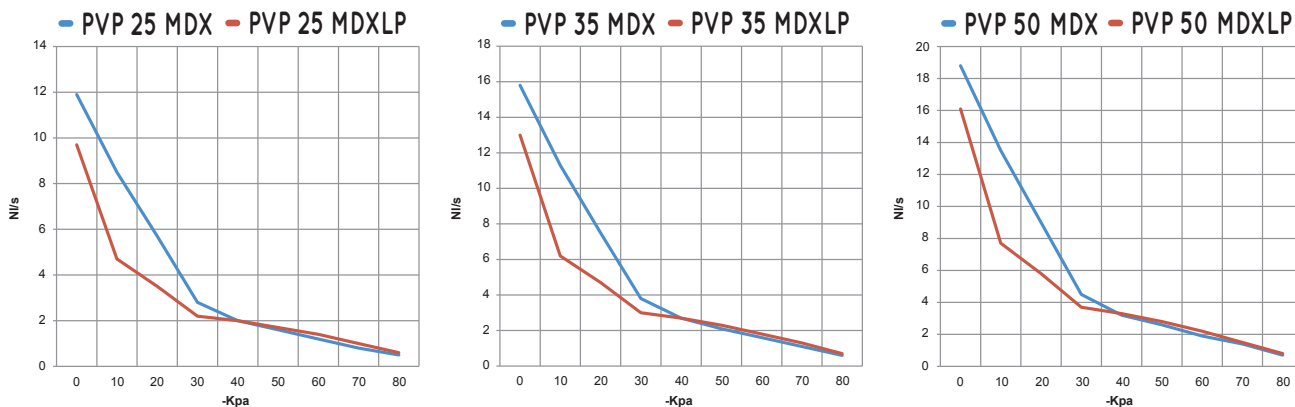
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



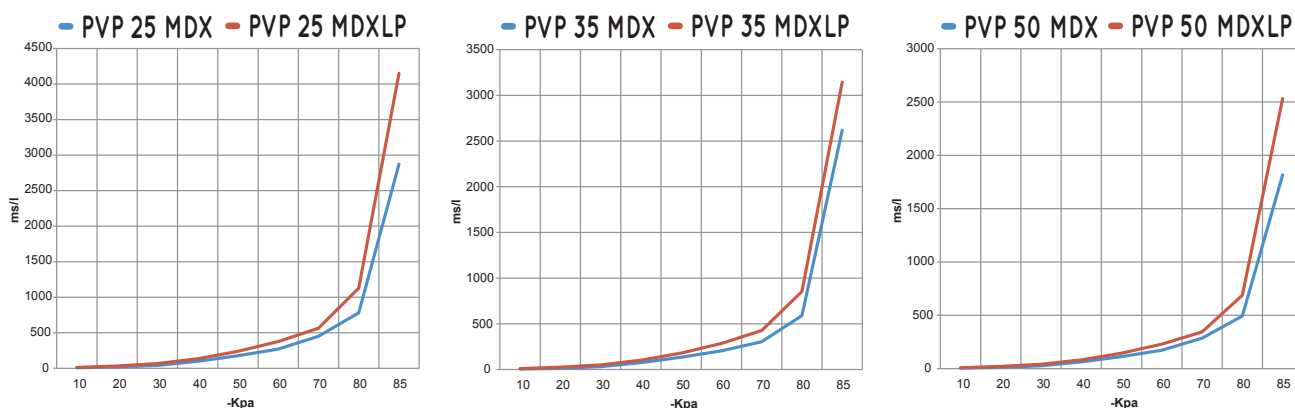
MULTI-STAGE VACUUM GENERATORS PVP 25, PVP 35 and PVP 50 MDX / MDXLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

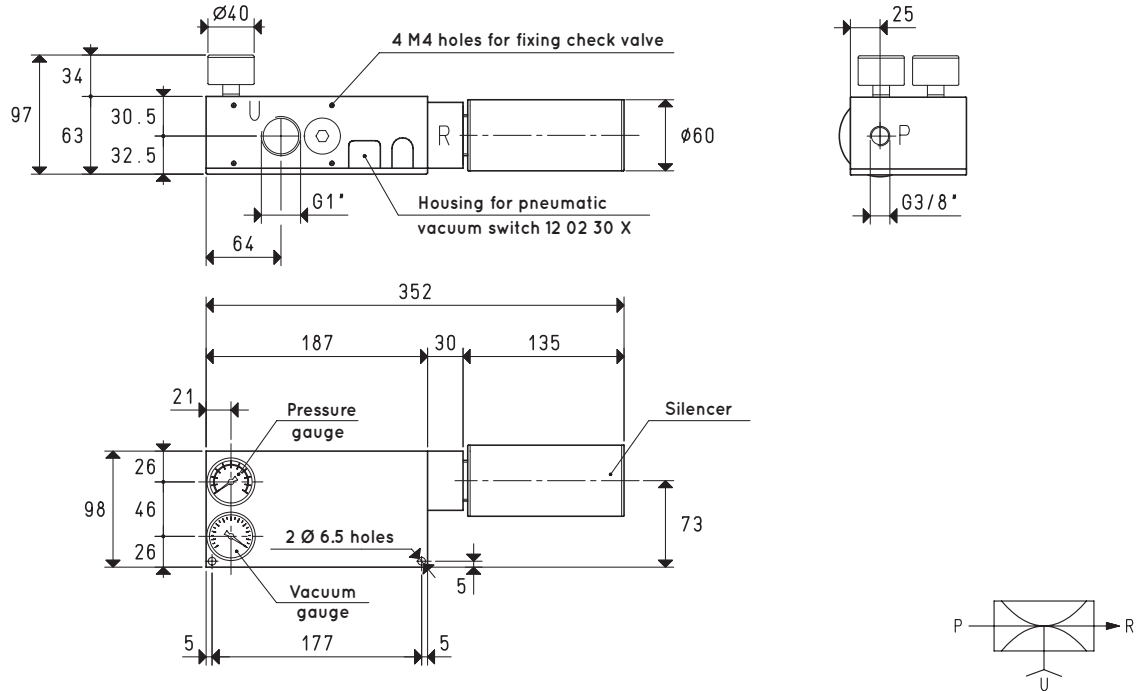


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuum (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 25 MDX	6.0	3.2	11.9	8.5	5.7	2.8	2.0	1.6	1.2	0.8	0.5	90	
PVP 35 MDX	6.0	4.8	15.8	11.3	7.5	3.8	2.7	2.1	1.6	1.1	0.6	90	
PVP 50 MDX	6.0	6.5	18.8	13.5	9.0	4.5	3.2	2.6	1.9	1.4	0.7	90	
PVP 25 MDXLP	3.0	4.4	9.7	4.7	3.5	2.2	2.0	1.7	1.4	1.0	0.6	88	
PVP 35 MDXLP	3.0	6.5	13.0	6.2	4.7	3.0	2.7	2.3	1.8	1.3	0.7	88	
PVP 50 MDXLP	3.0	8.6	16.1	7.7	5.8	3.7	3.3	2.8	2.2	1.5	0.8	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 25 MDX	6.0	3.2	7.5	18.8	41.3	99.3	177.7	271.9	451.4	781.0	2874	90	
PVP 35 MDX	6.0	4.8	5.6	14.1	31.2	74.9	134.0	205.1	340.5	589.1	2618	90	
PVP 50 MDX	6.0	6.5	4.7	11.9	26.2	62.8	112.4	172.0	285.5	494.0	1818	90	
PVP 25 MDXLP	3.0	4.4	13.0	33.3	67.2	134.4	238.0	376.0	564.0	1128.0	4151	88	
PVP 35 MDXLP	3.0	6.5	9.8	25.2	50.9	101.9	180.3	284.9	427.3	854.7	3145	88	
PVP 50 MDXLP	3.0	8.6	7.9	20.3	41.0	82.0	145.3	229.5	344.3	688.5	2534	88	



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION			
Item		PVP 60 MDX			PVP 75 MDX		
Intake air flow rate	m³/h	75	85	92	85	94	103
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	NI/s	5.9	7.0	8.2	7.0	8.4	9.8
Temperature of use	°C			-20 / +80			-20 / +80
Noise level at optimal supply pressure	dB(A)			65			70
Weight	Kg			1.90			1.92
Item		PVP 60 MDXLP			PVP 75 MDXLP		
Intake air flow rate	m³/h	35	57	65	44	70	80
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	NI/s	5.5	8.3	11.0	6.6	9.9	13.2
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			68			70
Weight	Kg			1.90			1.92
Spare parts		PVP 60 MDX / MDXLP			PVP 75 MDX / MDXLP		
Sealing kit and reed valves	item	00 KIT PVP 60 MDX			00 KIT PVP 75 MDX		
Vacuum gauge	item	09 03 15			09 03 15		
Pressure gauge	item	09 03 25			09 03 25		
Silencer	item	SSX 1"			SSX 1"		

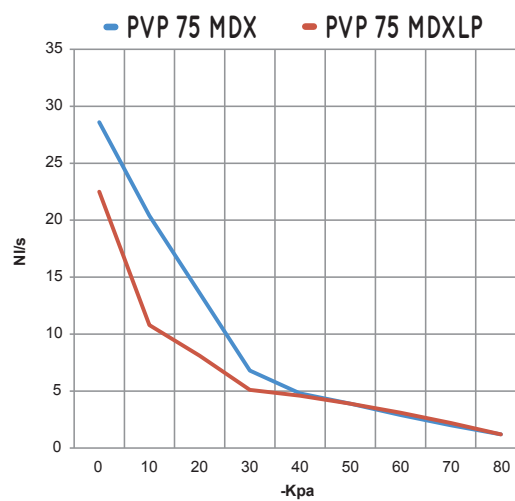
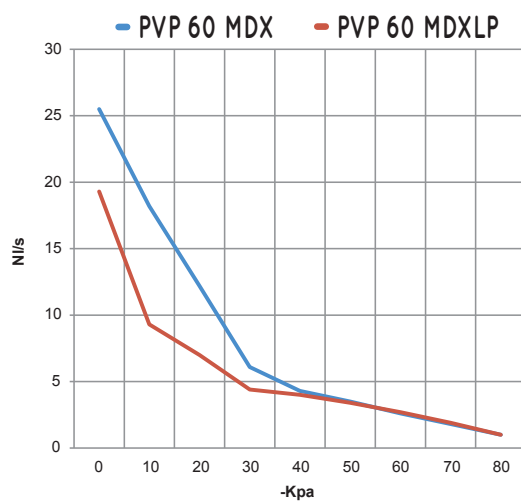
Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



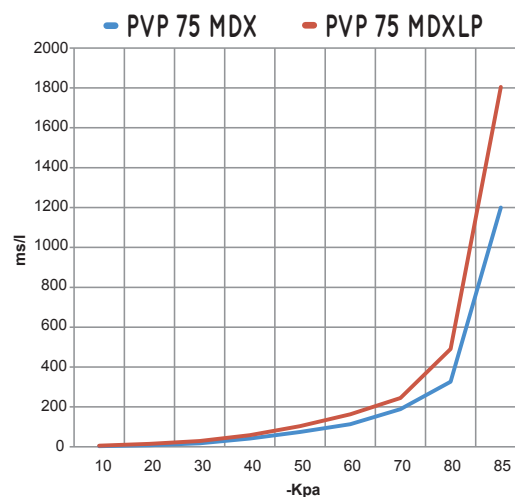
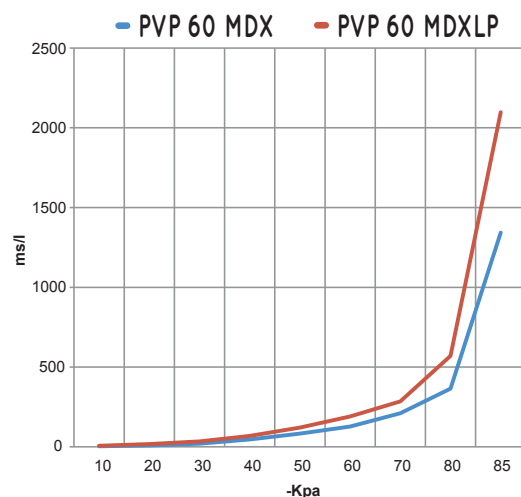
MULTI-STAGE VACUUM GENERATORS PVP 60 and PVP 75 MDX / MDXLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different vacuum levels (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 60 MDX	6.0	8.2	25.5	18.2	12.2	6.1	4.3	3.5	2.6	1.8	1.0	90	
PVP 75 MDX	6.0	9.8	28.6	20.4	13.6	6.8	4.8	3.9	2.9	2.0	1.2	90	
PVP 60 MDXLP	3.0	11.0	19.3	9.3	7.0	4.4	4.0	3.4	2.7	1.9	1.0	88	
PVP 75 MDXLP	3.0	13.2	22.5	10.8	8.1	5.1	4.6	3.9	3.1	2.2	1.2	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

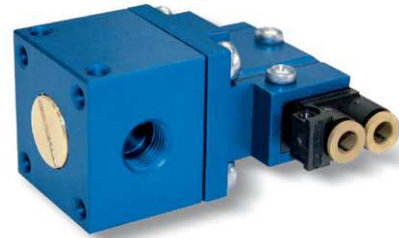
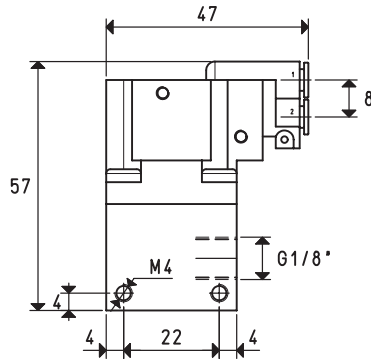


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 60 MDX	6.0	8.2	3.5	8.8	19.3	46.4	83.0	127.0	211.0	365.0	1343	90	
PVP 75 MDX	6.0	9.8	3.1	7.8	17.2	41.4	74.2	113.5	188.4	326.0	1200	90	
PVP 60 MDXLP	3.0	11.0	6.6	16.8	34.0	68.0	120.3	190.0	285.0	570.0	2098	88	
PVP 75 MDXLP	3.0	13.2	5.7	14.5	29.2	58.4	103.4	163.4	245.0	490.3	1805	88	



① - MINI PNEUMATIC VACUUM SWITCH

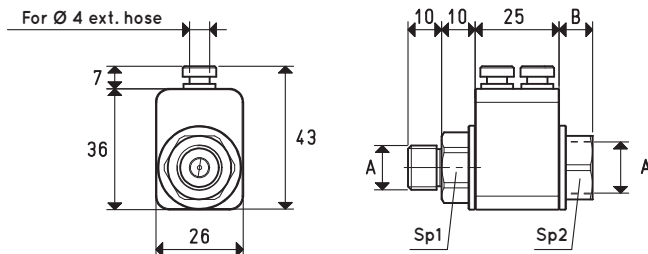
The vacuum switch has the task of removing a pneumatic signal when a specific adjustable level of vacuum is reached. The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar. The pneumatic vacuum switch, installed on the vacuum generators PVP 25 - 75 MDX / MDXLP acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.



Item	For generator item	Weight g
12 01 30 X	PVP 25 ÷ 75 MDX/MDXLP	104

② - COAXIAL SHUTTER SERVO-CONTROLLED SUPPLY VALVE

These coaxial shutter valves, pneumatically driven by a vacuum switch or an alternative source, are able to intercept the compressed air supply to the vacuum generators, with pressures between 1.5 and 7 bar. They must be chosen based on the generator power supply connection and the required air quantity.



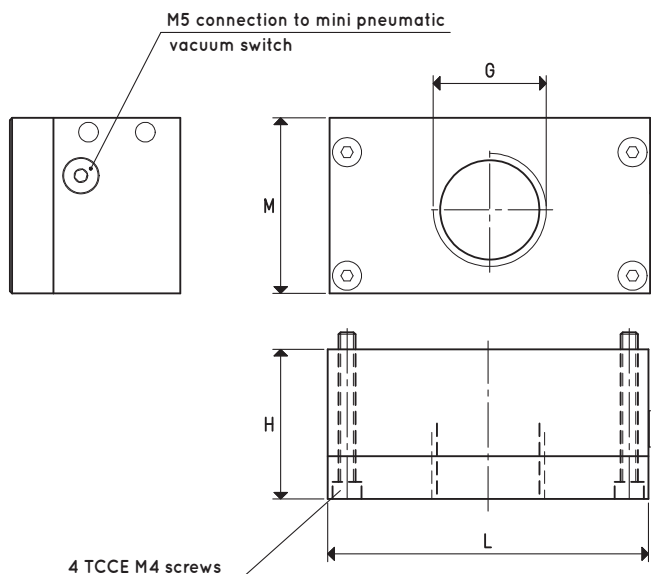
Item	A Ø	B	ch1	ch2	For generator item	Weight g
07 01 71	G 1/4"	10	19	19	PVP 25 ÷ 50 MDX/MDXLP	72
07 02 71	G 3/8"	15	19	19	PVP 50 ÷ 75 MDX/MDXLP	70



③ - MEMBRANE CHECK VALVE

A check valve specially designed to adapt to vacuum generators PVP 25 - 75 MDX / MDXLP.

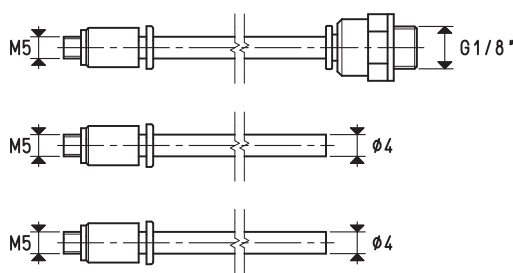
The originality of this valve, besides its shape, consists in its membrane seal component, which is able to guarantee very low pressure drops, rapid intervention and perfect sealing.



Item	G Ø	H	L	M	Weight g	For generator item
10 04 20	G3/4"	35	75	41	165	PVP 25 ÷ 50 MDX / MDXLP
10 05 20	G1"	48	113	58	458	PVP 60 ÷ 75 MDX / MDXLP

④ - FLEXIBLE HOSE KIT WITH FITTINGS

This flexible hose kit is used to connect the mini vacuum switch to the coaxial shutter supply valve and the membrane check valve. The appropriate quick couplings are already assembled at the ends of the tubes, to be screwed to the valve and vacuum switch connections.



Item	For generator item	Weight g
00 15 308	PVP 25 ÷ 75 MDX / MDXLP	16

COMPLETE KIT FOR ENERGY SAVING DEVICE ES



Item	For generator item	Weight g
ES 01	PVP 25 ÷ 50 MDX / MDXLP	475
ES 02	PVP 60 ÷ 75 MDX / MDXLP	998

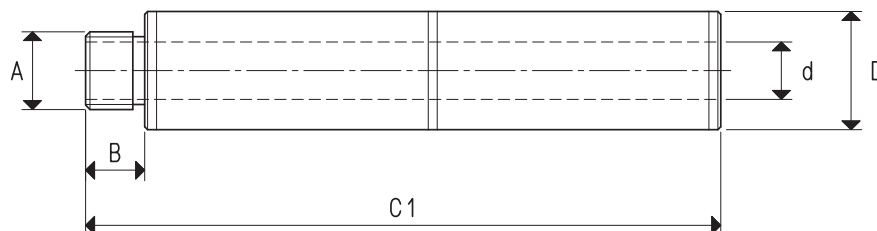
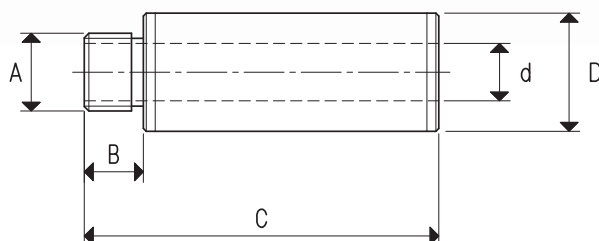
SILENCERS

The use of natural fibre sound absorbing material enclosed in special anodised aluminium casings has allowed creating this new range of silencers that considerably reduce noise made by air at the vacuum generator exhaust.

There are two versions with different lengths: the longer the length, the more noise will be reduced.

Noise reduction: from -13 to -20 dB (A)

Working temperature: from -20 to +100°C



Item	A Ø	B	C	C1	D Ø	d Ø	Weight g
SSX 1/8"	G1/8"	10	58	—	17	7	14
SSX 1/4"	G1/4"	10	60	—	20	10	20
SSX 3/8" R	G3/8"	7	57	—	20	10	17
SSX 3/8"	G3/8"	12	84	—	29	16	52
SSX 1/2"	G1/2"	14	106	—	35	16	96
SSX 3/4" R	G3/4"	14	106	—	35	16	100
SSX 3/4"	G3/4"	14	126	—	50	21	174
SSX 1"	G1"	14	146	—	55	28	240
SSX 1" 1/2	G1" 1/2	30	210	—	80	38	302
SSX 2"	G2"	30	250	—	90	48	372
2SSX 1/8"	G1/8"	10	—	104	17	7	28
2SSX 1/4"	G1/4"	10	—	108	20	10	40
2SSX 3/8"	G3/8"	12	—	154	29	16	104
2SSX 1/2"	G1/2"	14	—	196	35	16	192
2SSX 3/4"	G3/4"	14	—	236	50	21	348
2SSX 1"	G1"	14	—	276	55	28	480



MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 150 ÷ 750 MD / MDLP - GENERAL DESCRIPTION

The special shape of these vacuum generators has allowed obtaining great suction capacities in very limited overall dimensions.

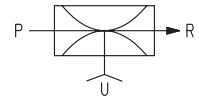
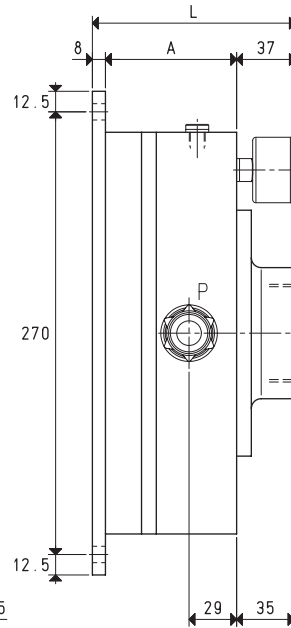
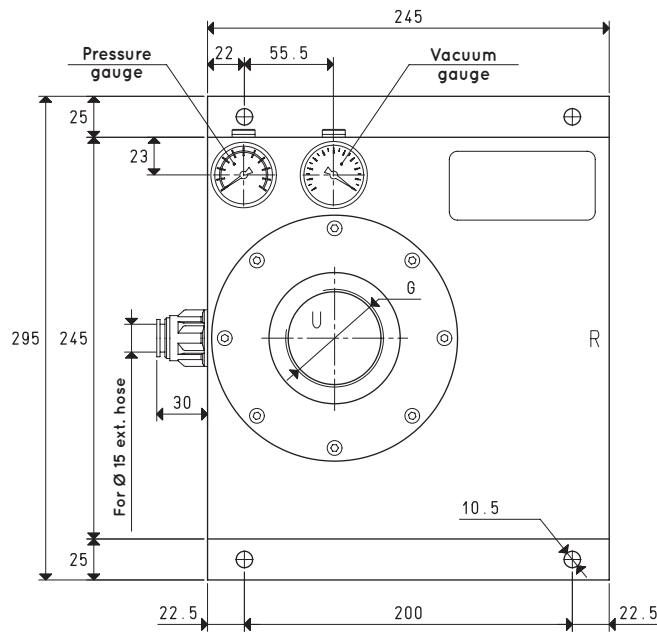
The new design stainless steel ejectors are assembled on modular frames; the overlapping of one or more frames defines the flow rate of the generators. They are supplied with a flow rate ranging from 85 e 900 m³/h and a maximum level of vacuum of -90KPa.

The supply pressure goes from 4-6 bar for MD items and from 1-3 bar for MDLP items. Level of vacuum and flow rate can be adjusted according to the supply air pressure. They are fully made with anodised aluminium.

The sealing gaskets and disc valves are EPDM as standard, but can be supplied in VITON® upon request. Also upon request, an energy saving kit for the compressed air ES (Energy Saving System) can be supplied. It is composed of a pneumatic coaxial shutter valve for supply of the compressed air, an integrated pneumatic vacuum switch, a reed valve kit for the check system and a flexible tube with quick fitting to monitor and transmit the value of the level of vacuum to the vacuum switch.

Perfectly soundproofed with silencers built into all generators, offering extremely quiet operation.





P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION			
Item		PVP 150 MD			PVP 300 MD		
Intake air flow rate	m³/h	160	180	200	320	360	400
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	NI/s	12.1	14.2	16.0	23.2	27.8	32.0
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			72			74
Weight	Kg			7.0			8.0
A				80			100
G	Ø			G1" 1/2			G2"
L				125			145
Item		PVP 150 MDLP			PVP 300 MDLP		
Intake air flow rate	m³/h	85	146	170	190	300	340
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	NI/s	10.5	16.5	22.6	22.5	33.6	45.5
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			76			78
Weight	Kg			7.8			8.8
A				80			100
G	Ø			G1" 1/2			G2"
L				125			145
Spare parts		PVP 150 MD / MDLP			PVP 300 MD / MDLP		
Sealing kit and reed valves	item	00 KIT PVP 150 MD			00 KIT PVP 300 MD		
Exhaust silencer	item	00 15 70			00 15 70		
Silencer on nozzles	item	00 15 71			00 15 72		
Vacuum gauge	item	09 03 15			09 03 15		
Pressure gauge	item	09 03 25			09 03 25		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

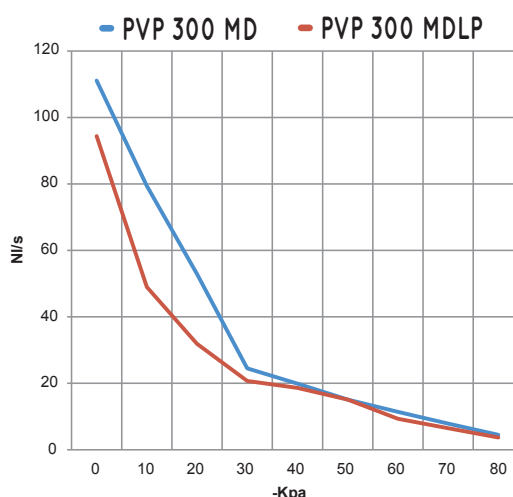
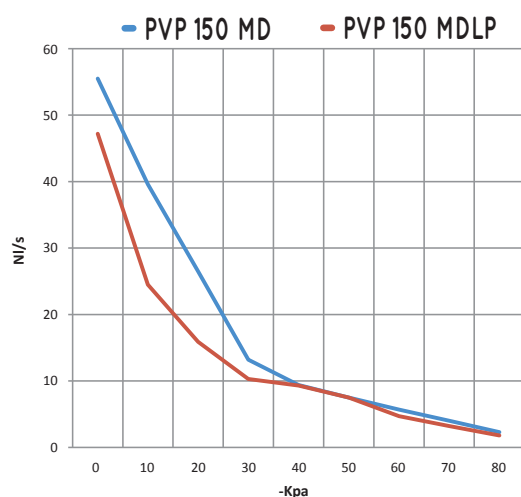
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 150 MDR).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



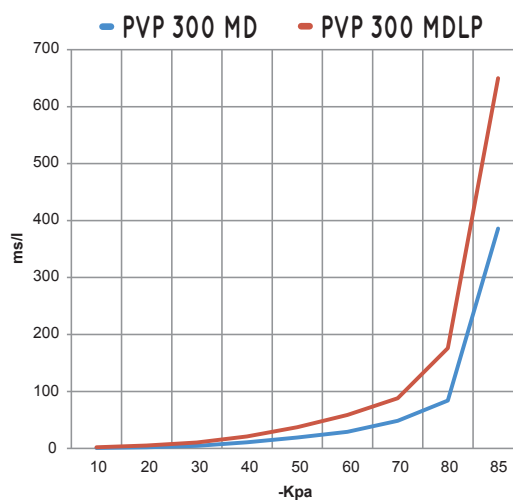
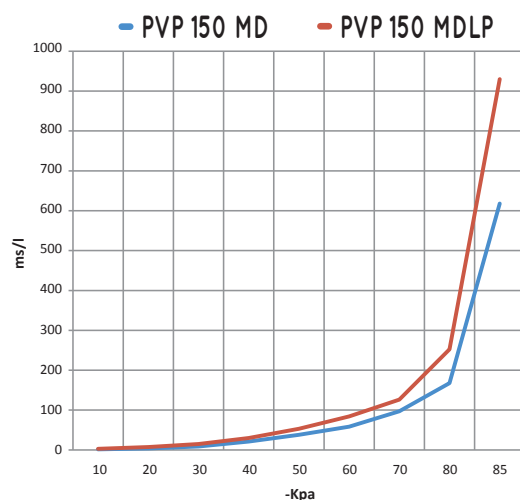
MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 150 and PVP 300 MD / MDLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure



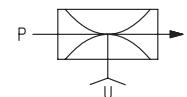
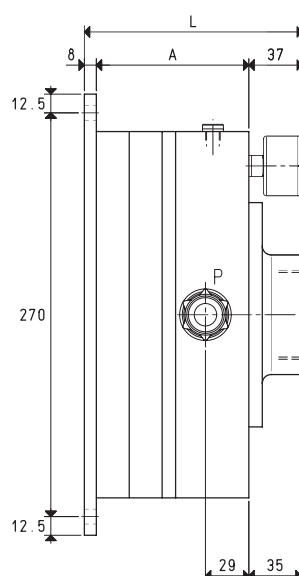
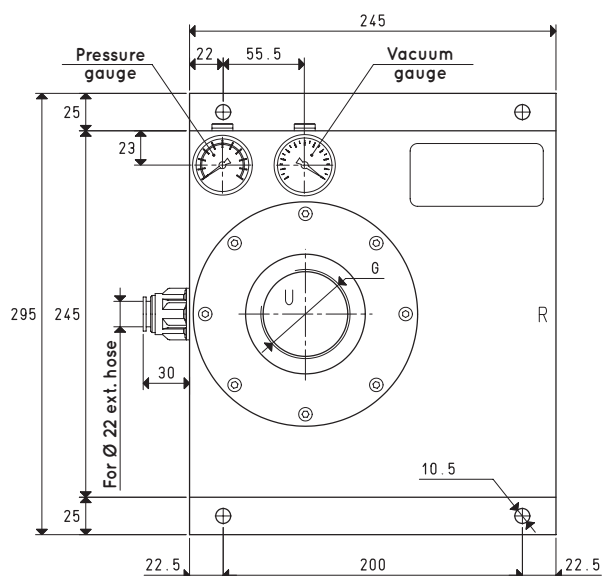
Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa	
PVP 150 MD	6.0	16.0	55.5	39.6	26.5	13.2	9.4	7.5	5.7	4.0	2.3	90	
PVP 300 MD	6.0	32.0	111.1	79.4	52.9	26.5	19.9	15.1	11.4	7.9	4.5	90	
PVP 150 MDLP	3.0	22.6	47.2	24.5	15.9	10.3	9.3	7.5	4.7	3.2	1.8	88	
PVP 300 MDLP	3.0	45.5	94.4	49.0	31.9	20.7	18.6	15.1	9.3	6.5	3.7	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 150 MD	6.0	16.0	1.6	4.0	8.9	21.3	38.2	58.4	97.0	167.8	618	90	
PVP 300 MD	6.0	32.0	0.8	2.0	4.4	10.6	19.1	29.2	48.5	83.9	386	90	
PVP 150 MDLP	3.0	22.6	2.9	7.5	15.0	30.1	53.3	84.2	126.3	252.5	930	88	
PVP 300 MDLP	3.0	45.5	2.0	5.2	10.5	21.0	37.2	58.7	88.0	176.1	650	88	

MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 450 and PVP 600 MD / MDLP



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 450 MD			PVP 600 MD		
Intake air flow rate	m ³ /h	490	530	580	640	700	750
Maximum level of vacuum	-KPa	65	82	90	65	82	90
Final pressure	abs. mbar	350	180	100	350	180	100
Supply pressure	bar	4	5	6	4	5	6
Optimal supply pressure	bar			6			6
Air consumption	NI/s	35.4	40.6	47.8	45.4	56.8	63.2
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			74			78
Weight	Kg			9.1			10.3
A				122			142
G	Ø			G2" 1/2			G3"
L				167			187

Item		PVP 450 MDLP			PVP 600 MDLP		
Intake air flow rate	m ³ /h	250	440	500	330	590	670
Maximum level of vacuum	-KPa	30	64	88	30	64	88
Final pressure	abs. mbar	700	360	120	700	360	120
Supply pressure	bar	1	2	3	1	2	3
Optimal supply pressure	bar			3			3
Air consumption	NI/s	32.0	48.8	65.8	42.0	66.0	87.7
Temperature of use	°C			-20 / +100			-20 / +100
Noise level at optimal supply pressure	dB(A)			80			82
Weight	Kg			9.1			10.3
A				122			142
G	Ø			G2" 1/2			G3"
L				167			187

Spare parts		PVP 450 MD / MDLP		PVP 600 MD / MDLP	
Sealing kit and reed valves	item	00 KIT PVP 450 MD		00 KIT PVP 600 MD	
Exhaust silencer	item	00 15 70		00 15 70	
Silencer on nozzles	item	00 15 71 + 00 15 72		N°2 00 15 72	
Vacuum gauge	item	09 03 15		09 03 15	
Pressure gauge	item	09 03 25		09 03 25	

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

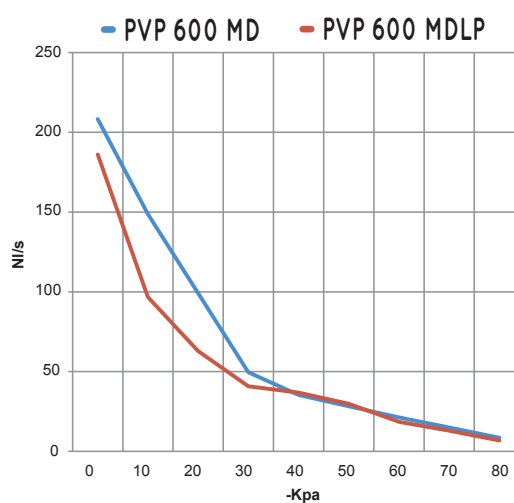
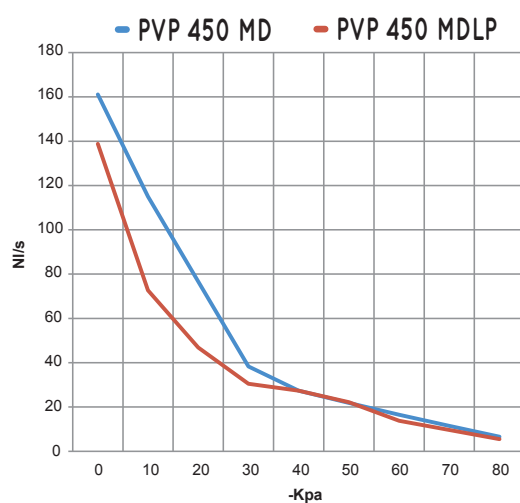
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 450 MDR).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



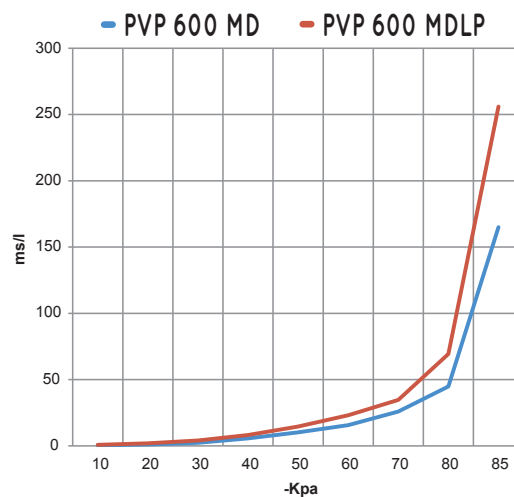
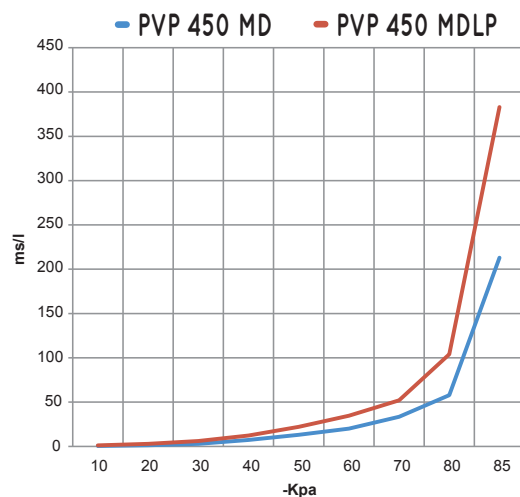
MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 450 and PVP 600 MD / MDLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

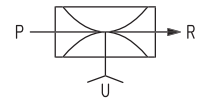
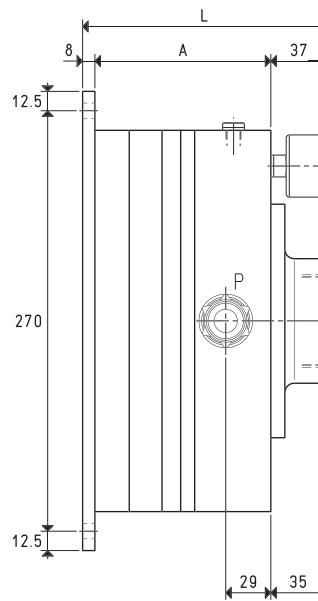
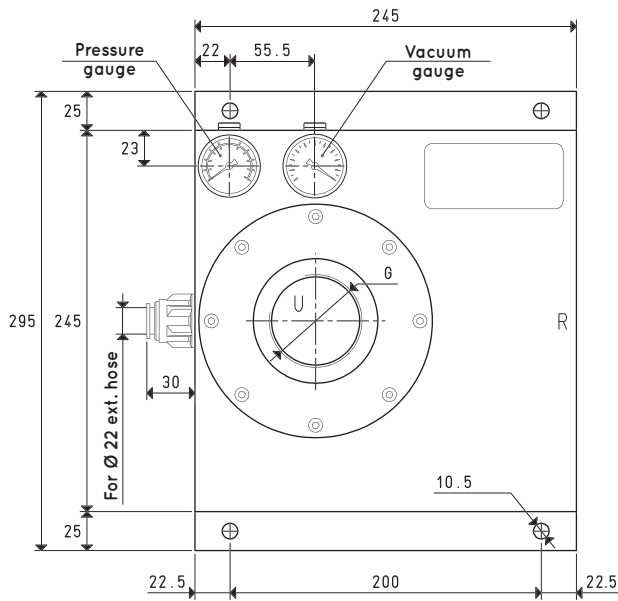


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-kPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-kPa	
PVP 450 MD	6.0	47.8	161.1	115.0	76.7	38.3	27.4	21.9	16.5	11.5	6.6	90	
PVP 600 MD	6.0	63.2	208.3	148.8	99.2	49.6	35.4	28.3	21.3	14.9	8.5	90	
PVP 450 MDLP	3.0	65.8	138.8	72.7	46.9	30.5	27.4	22.2	13.8	9.6	5.5	88	
PVP 600 MDLP	3.0	87.7	186.1	96.7	62.9	40.8	36.8	29.8	18.5	12.9	6.8	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 450 MD	6.0	47.8	0.5	1.4	3.0	7.4	13.2	20.1	33.5	57.9	213	90	
PVP 600 MD	6.0	63.2	0.4	1.0	2.4	5.7	10.2	15.6	25.9	44.8	165	90	
PVP 450 MDLP	3.0	65.8	1.2	3.0	6.2	12.4	22.0	34.7	52.0	104.1	383	88	
PVP 600 MDLP	3.0	87.7	0.8	2.0	4.1	8.2	14.6	23.1	34.7	69.4	256	88	



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVP 750 MD		
Intake air flow rate	m³/h	650	780	900
Maximum level of vacuum	-KPa	65	82	90
Final pressure	abs. mbar	350	180	100
Supply pressure	bar	4	5	6
Optimal supply pressure	bar			6
Air consumption	NI/s	60.5	71.0	80.0
Temperature of use	°C			-20 / +80
Noise level at optimal supply pressure	dB(A)			84
Weight	Kg			12.7
A				164
G	Ø			G3"
L				209

Item		PVP 750 MDLP		
Intake air flow rate	m³/h	420	650	800
Maximum level of vacuum	-KPa	30	64	88
Final pressure	abs. mbar	700	360	120
Supply pressure	bar	1	2	3
Optimal supply pressure	bar			3
Air consumption	NI/s	52.0	82.5	110.0
Temperature of use	°C			-20 / +100
Noise level at optimal supply pressure	dB(A)			85
Weight	Kg			12.7
A				164
G	Ø			G3"
L				209

Spare parts		PVP 750 MD / MDLP		
Sealing kit and reed valves	item	00 KIT PVP 750 MD		
Exhaust silencer	item	00 15 70		
Silencer on nozzles	item	N°2 00 15 72 + 00 15 71		
Vacuum gauge	item	09 03 15		
Pressure gauge	item	09 03 25		

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

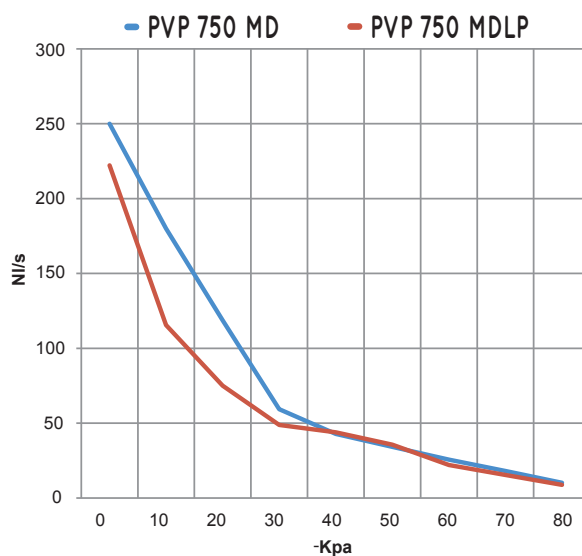
Add the letter R to the item for a generator supplied with an integrated check valve (Example: PVP 750 MDR).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



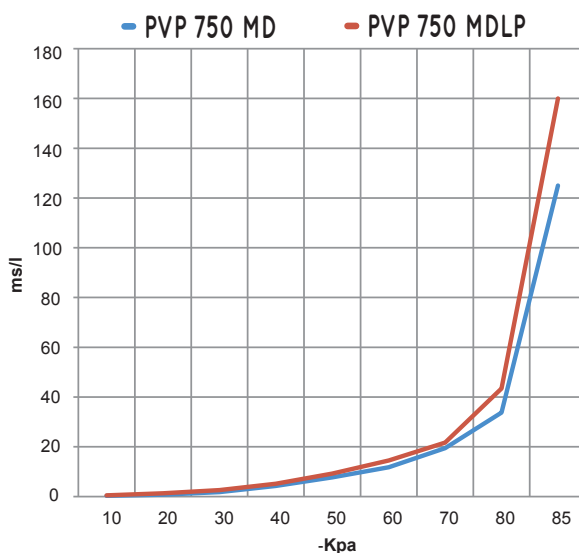
MULTI-STAGE AND MODULAR VACUUM GENERATORS PVP 750 MD / MDLP

Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure

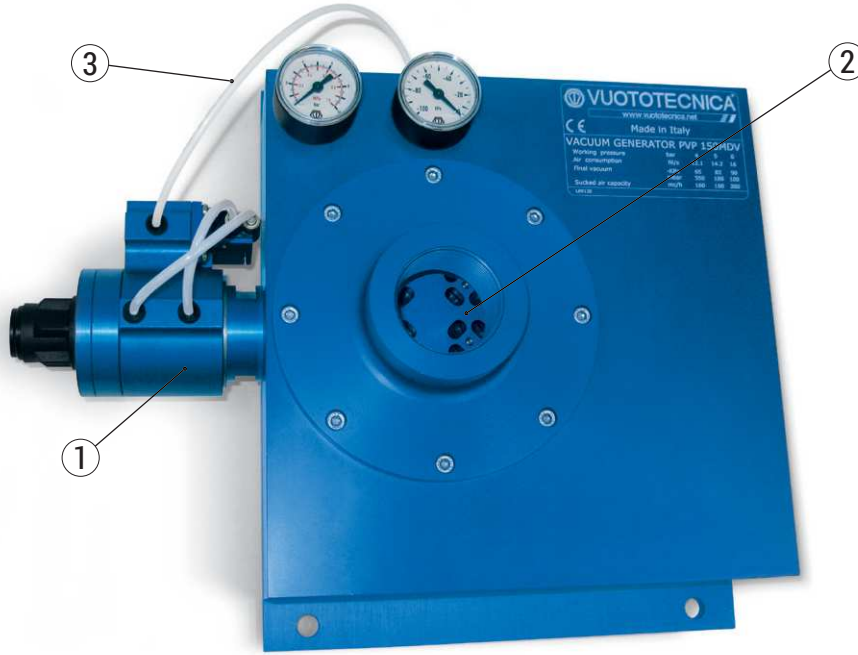


Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa	
PVP 750 MD	6.0	80.0	250.0	180.0	118.8	59.4	42.8	34.2	25.7	18.0	10.2	90	
PVP 750 MDLP	3.0	110.0	222.2	115.5	75.1	48.8	43.9	35.6	22.0	15.4	8.8	88	

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

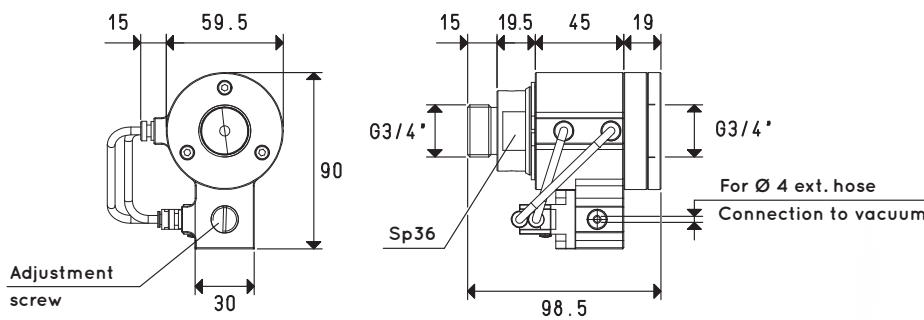


Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa	
PVP 750 MD	6.0	80.0	0.3	0.8	1.8	4.3	7.7	11.8	19.5	33.8	125	90	
PVP 750 MDLP	3.0	110.0	0.5	1.3	2.6	5.2	9.2	14.5	21.7	43.4	160	88	



① - COAXIAL SHUTTER SERVO-CONTROLLED SUPPLY VALVE

This is an innovative valve with coaxial shutter, pneumatically driven by the integrated vacuum switch on it, able to intercept the compressed air supply to the vacuum generator, with operating pressures between 1.5 and 7 bar. The vacuum switch has the task of removing and returning a pneumatic signal when a preset and adjustable level of vacuum is reached. The pressure differential existing between the set maximum value and that of restoring the signal at rest is not adjustable and is equal to about 100 mbar. The pneumatic vacuum switch, acting on the coaxial shutter supply valve automatically maintains the maximum and minimum level of vacuum within the differential value.



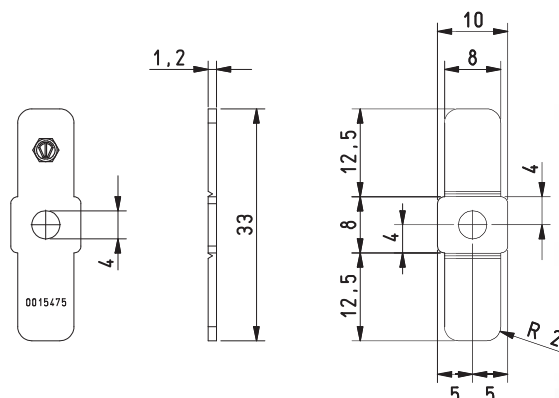
Item	For generator item	Weight g
07 04 71	PVP 150 ÷ 750 MD/MDLP	570



ACCESSORIES FOR VACUUM GENERATORS PVP 150 ÷ 750 MD / MDLP

② - REED VALVE KIT FOR CHECK DEVICE ON VACUUM GENERATORS

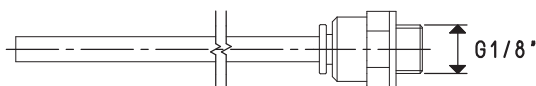
This reed valve kit, specifically designed to be integrated on PVP 150/750 MD/MDLP vacuum generators, has the task of preventing the return of atmospheric air into the vacuum system (tanks, autoclaves, intake systems depression, vacuum cups, etc.), when the generator stops, guaranteeing the seal and maintaining the level of vacuum reached in use.



Item	For generator item	No. pc.	Weight g
00 KIT TRASMD-MDR	PVP 150 ÷ 750 MD/MDLP	6	16

③ - FLEXIBLE TUBE FOR CONNECTION TO VACUUM

This flexible tube is fitted on one end with a 1/8" quick-fit coupling, to be screwed onto one of the two vacuum generator connections reserved for the vacuum gauge, while the other free end is inserted into the fitting installed on the pneumatic vacuum switch. The task of this tube is to continuously monitor the value of the level of vacuum reached in use and to transmit it to the vacuum switch.



Item	For supply valve item	Weight g
00 15 496	07 03 71 - 07 04 71	10

COMPLETE KIT FOR ENERGY SAVING DEVICE ES

The three components described above make up an energy saving kit for the compressed air supply ES (Energy Saving System). In fact, the ES device acts directly on the generator, making it operate only within the preset vacuum values, thus limiting compressed air supply consumption; all this entails considerable energy savings.

This kit has been specifically designed for the PVP 150-750 MD/MDLP series of generators.



Item	For generator item	Weight g
ES 05	PVP 150 ÷ 750 MD/MDLP	596

CONVEYOR ADJUSTABLE VACUUM GENERATORS

Working principle

These vacuum generators operate based on the Venturi principle.

Unlike those previously described, the ejectors with which they are supplied are adjustable, in addition to having a considerably higher flow diameter.

This detail lets them vary the flow rate and level of vacuum of the device, without altering the level of vacuum of the supply air.

The compressed air consumption is also related to the actual performance of the vacuum generator.

Features

The special shape of these adjustable vacuum generators, as well as their straight-flow working principle allow sucking and transferring products of various nature with no interference, just like flow generators, only, unlike these, they allow overcoming much higher level differences.

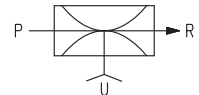
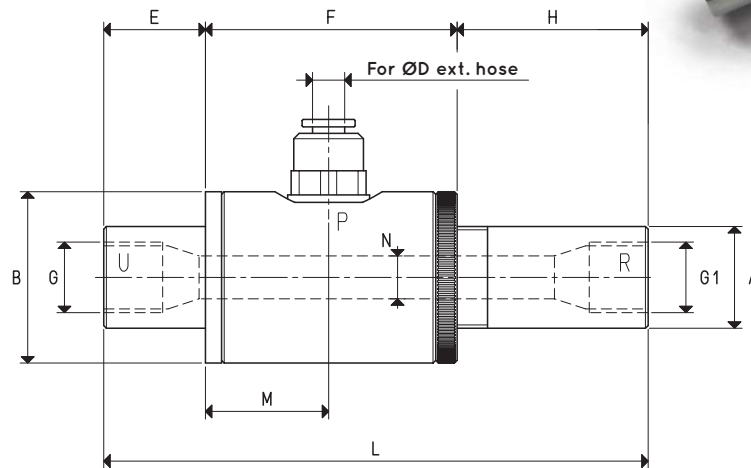
They are suited for transferring powders, granulated products, sawdust, metal chips, dry or liquid food products, etc. They are also recommended for controlling vacuum cups in presence of large amounts of dust or liquids, as well as for sucking fumes, cooling mists, water and oil condensation, etc. The absence of moving parts allows for a continuous use without developing heat.

The noise level, which is quite high for this kind of equipment, can be considerably reduced with a silencer screwed on the exhaust connection.

They do not require electricity, therefore, they can even be used in work environments with hazardous environments where an ignition source would be dangerous.

Available in anodised aluminium and stainless steel.

Thanks to all these features, a good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVR 25	PVR 50
Max quantity of intake air at 5 bar	m³/h	13.0	36.0
Max quantity of air blown at 6 bar	m³/h	33.5	88.0
Maximum level of vacuum	-kPa	80	75
Final pressure	abs. mbar	200	250
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	NI/s	6.1	15.5
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	92	98
Weight	g	150	280
A	Ø	19	26
B	Ø	32	38
D	Ø	6	8
E		19	35
F		47	54
G	Ø	G1/4"	G3/8"
G 1	Ø	G1/4"	G1/2"
H		34	61
L		100	150
M		22	25
N	Ø	6	10

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

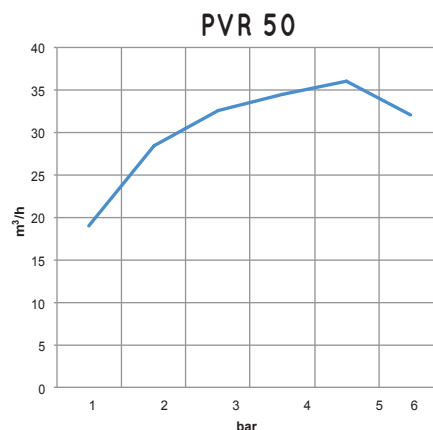
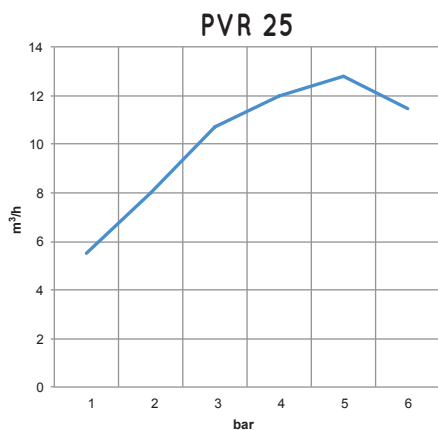
Add the letter I, to the item for a generator supplied in stainless steel (Example: PVR 50 I).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

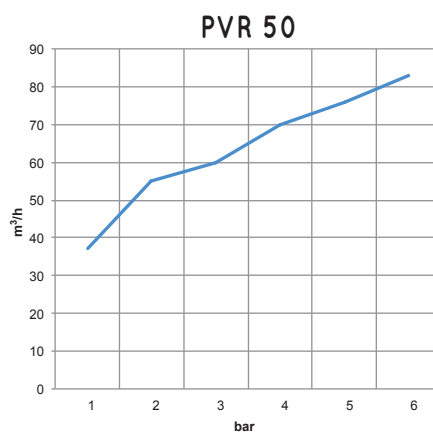
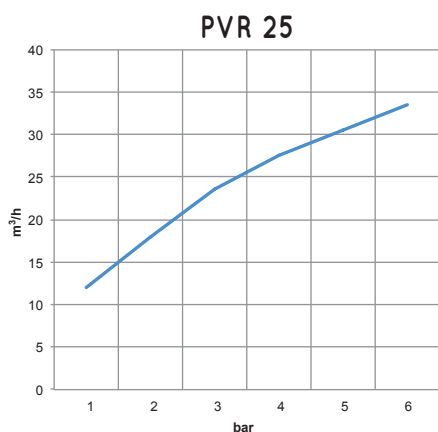


ADJUSTABLE CONVEYOR VACUUM GENERATORS PVR 25 and PVR 50

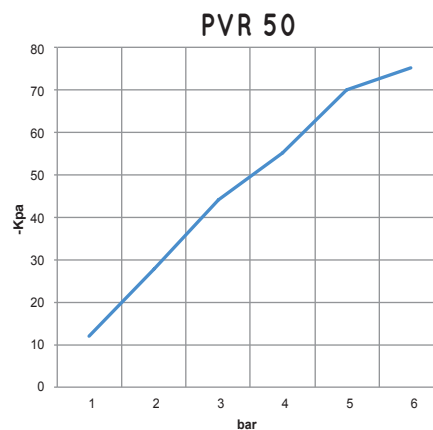
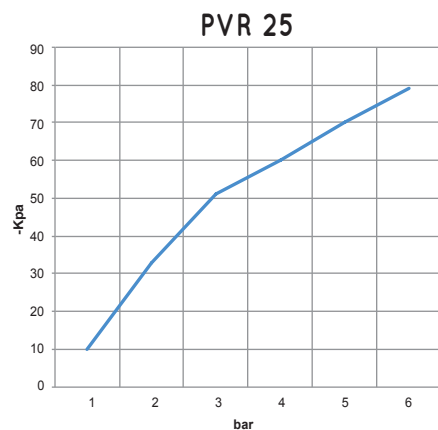
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



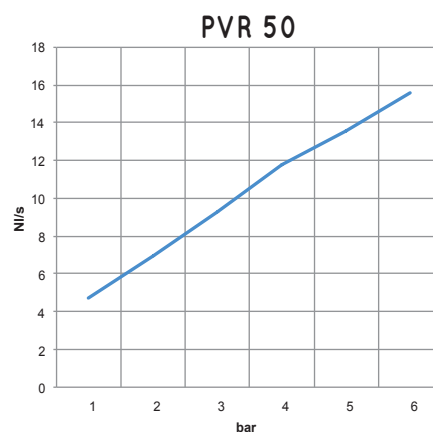
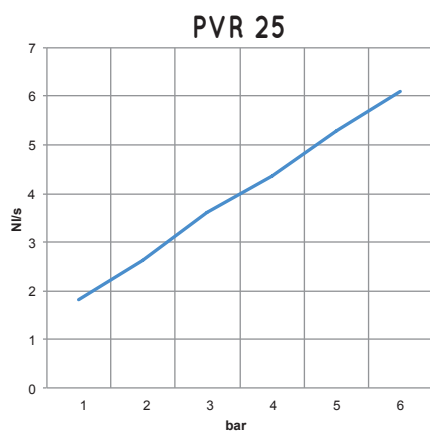
Quantity of air blown (m^3/h) at different supply pressures (bar)

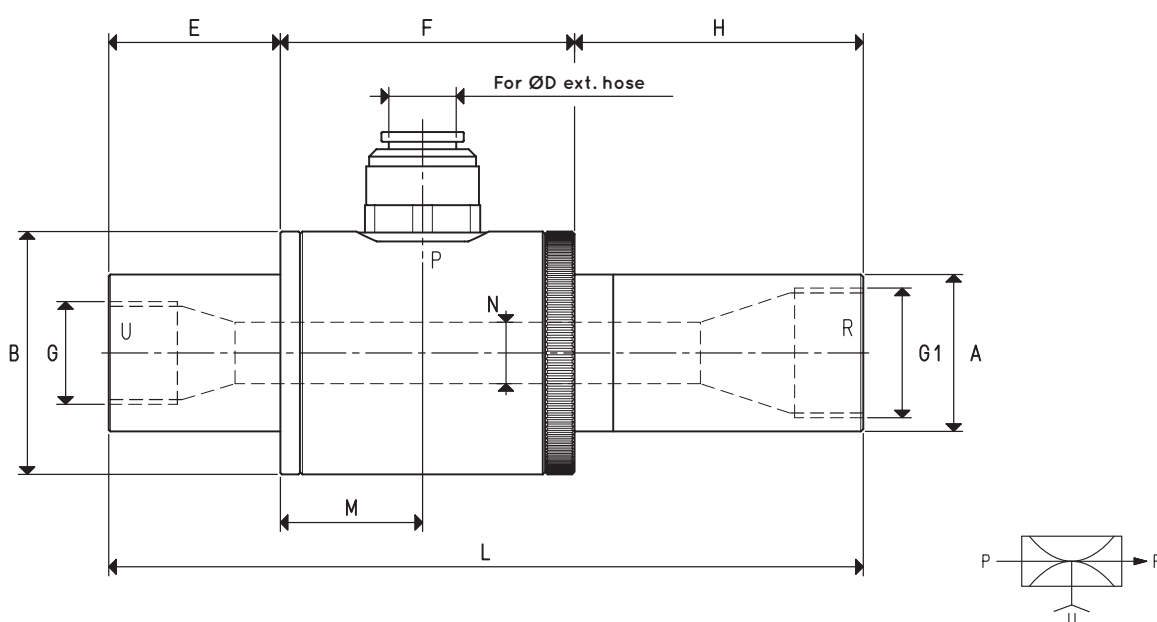


Level of vacuum (-Kpa) at different supply pressures (bar)



Air consumption (NI/s) at different supply pressures (bar)





P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		PVR 100	PVR 200
Max quantity of intake air at 5 bar	m³/h	50	72
Max quantity of air blown at 6 bar	m³/h	129	177
Maximum level of vacuum	-KPa	75	70
Final pressure	abs. mbar	250	300
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	NI/s	22.7	28.3
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	100	104
Weight	g	430	550
A	Ø	32	38
B	Ø	50	57
D	Ø	10	12
E		35	35
F		60	60
G	Ø	G1/2"	G3/4"
G 1	Ø	G3/4"	G1"
H		55	77
L		150	172
M		28	28
N	Ø	12.5	16.0

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

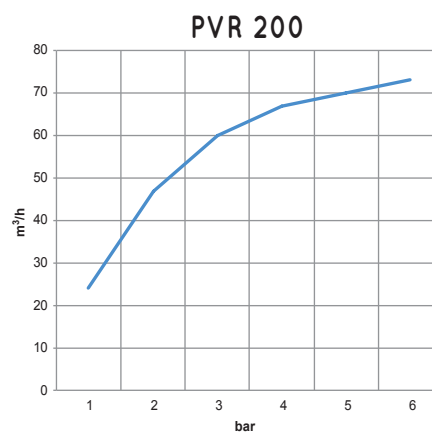
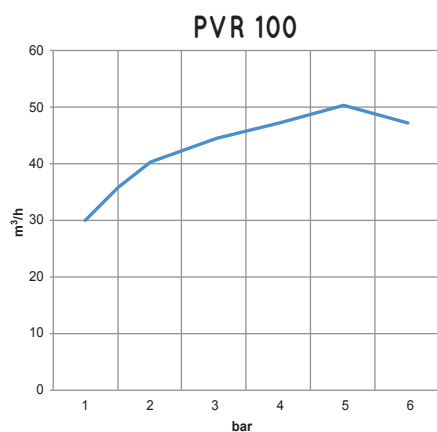
Add the letter I, to the item for a generator supplied in stainless steel (Example: PVR 100 I).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

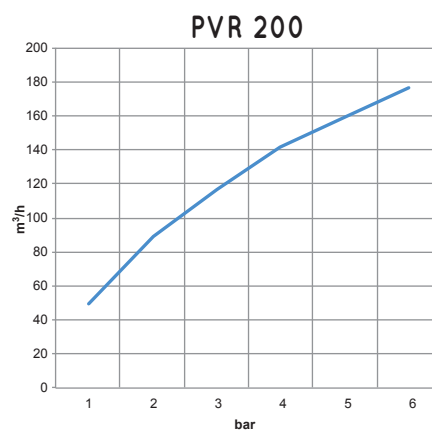
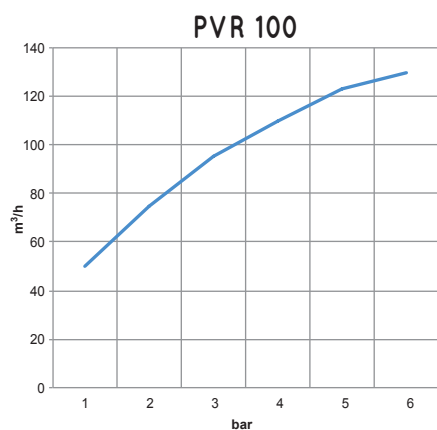


ADJUSTABLE CONVEYOR VACUUM GENERATORS PVR 100 and PVR 200

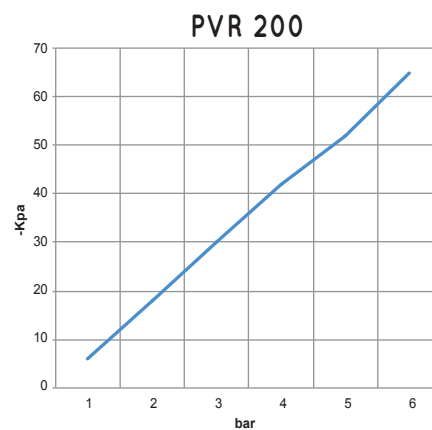
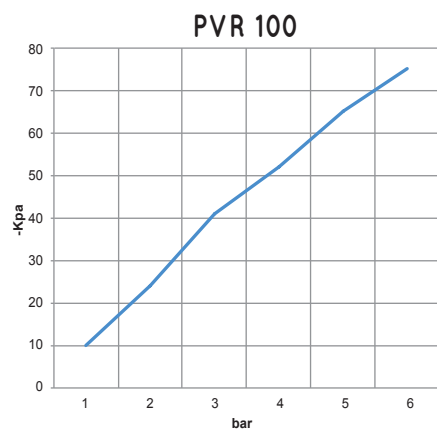
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



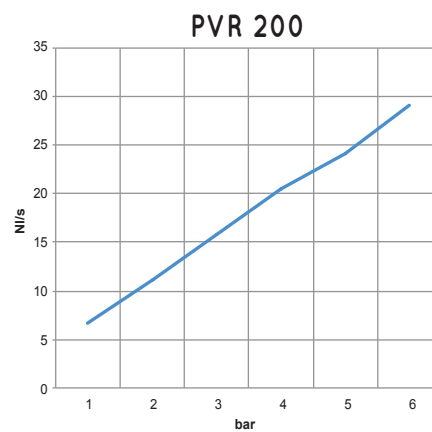
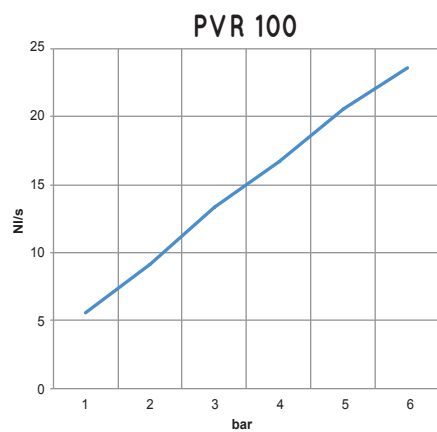
Quantity of air blown (m^3/h) at different supply pressures (bar)



Level of vacuum (-Kpa) at different supply pressures (bar)



Air consumption (NI/s) at different supply pressures (bar)



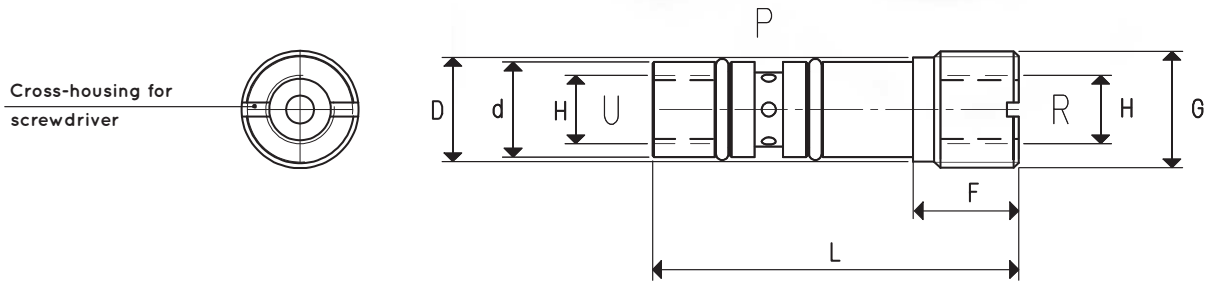
CARTRIDGE VACUUM GENERATORS PVR 1 and PVR 4

These small cartridge vacuum generators can be integrated directly into the gripping elements of packaging machines.

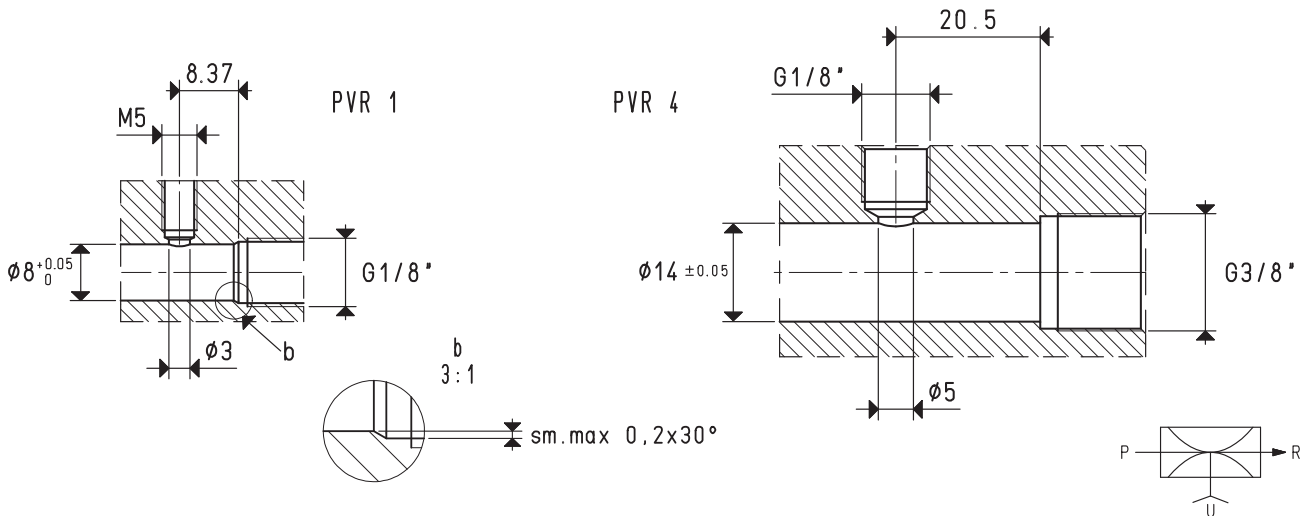
The maximum yield is offered at low compressed air pressures of 2-3 bar, providing levels of vacuums up to -72 KPa and flow rates between 1 and 4 m³/h.

Their particular shape permits the suction of dust or small processing residues, without creating clogging problems.

They are made as standard in anodised aluminium but can also be supplied in stainless steel, upon request.



CREATION OF HOUSING FOR CARTRIDGE INSERTION



P=COMPRESSED AIR CONNECTION		R=EXHAUST		U=VACUUM CONNECTION		
Item		PVR 1			PVR 4	
Intake air flow rate	m³/h	0.6	0.8	0.9	2.7	3.3
Maximum level of vacuum	-KPa	19	41	60	30	72
Final pressure	abs. mbar	810	590	400	700	280
Supply pressure	bar	1	2	3	1	2.5
Air consumption	NI/s	0.3	0.5	0.6	1.7	2.9
Temperature of use	°C	-10 / +80			-10 / +80	
Noise level	dB(A)	68			80	
Weight	g	4			16	
d	Ø	7.8			13.5	
D	Ø	8.7			14.8	
L		26			52	
F		9.3			15	
G	Ø	G1/8"			G3/8"	
H	Ø	M5			G1/8"	

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



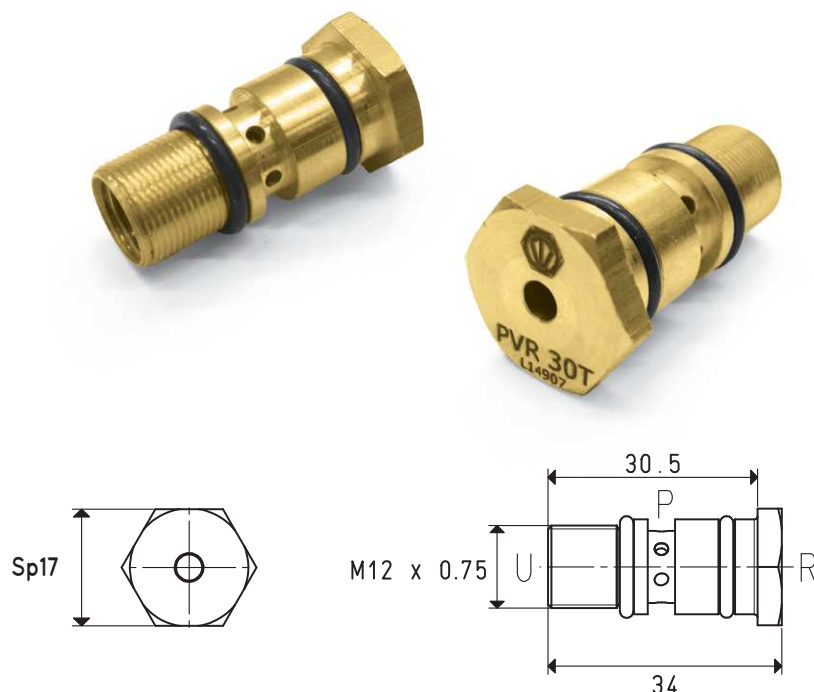
CARTRIDGE VACUUM GENERATOR PVR 3 OT

Also the construction of this cartridge vacuum generator was necessary in order to meet the demand for ever smaller and more performing devices in the packaging sector.

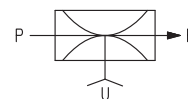
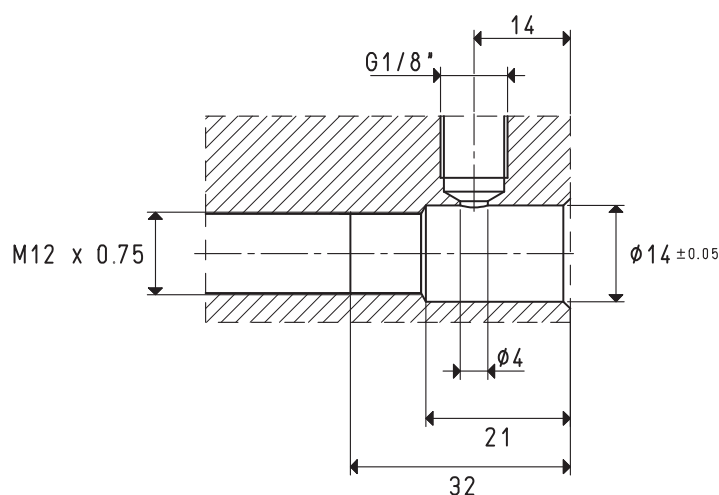
The compressed air supply pressure is between 1 and 3 bar, while the maximum level of vacuum is -52 KPa, with a flow rate of 2.6 m³/h.

Also the shape of these generators, like the previous ones described, allows for the suction of dust and small processing waste without clogging problems.

They are made of brass as standard, but upon request they can also be supplied in different metals.



CREATION OF HOUSING FOR CARTRIDGE INSERTION



Item		PVR 3 OT					
Intake air flow rate	m³/h	2.2	2.6	2.6	2	1.6	
Maximum level of vacuum	-KPa	21	37	52	50	47	
Final pressure	abs. mbar	790	630	480	500	530	
Supply pressure	bar	1	2	3	4	5	
Air consumption	NI/s	1.25	1.8	2.4	3.1	3.6	
Temperature of use	°C			-10 / +60			
Noise level	dB(A)			78			
Weight	g			60			

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

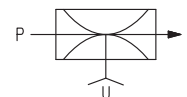
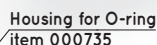
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

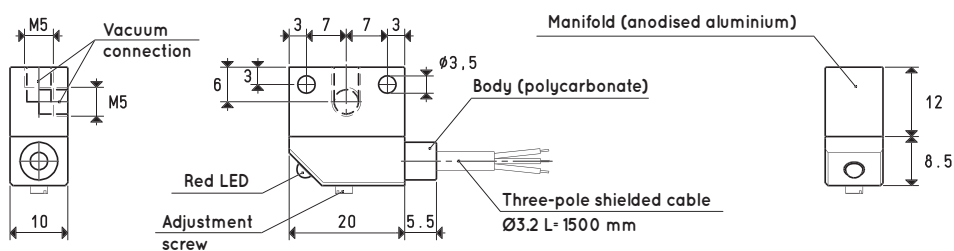
Adapters for GAS - NPT threading available on page 1.130

Also upon request, it is possible to supply a digital micro vacuum switch, item 12 05 11 P, for checking the level of vacuum inside the vacuum cup, and a vacuum gauge item 09 03 15, for direct reading of the level. A good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free. Their use is recommended in particular on vacuum cups for gripping marble and granite, bricks, rusty metal sheets, rough wooden boards and anything else with especially dirty gripping surfaces.



Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

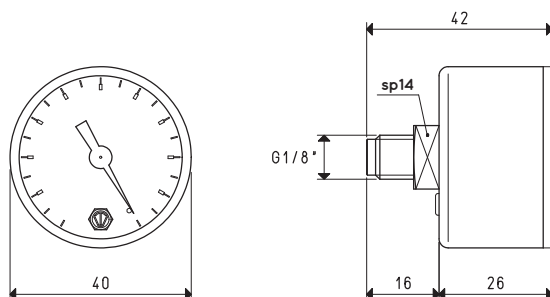
Digital micro vacuum switch



Item	Description
12 05 11 P	Digital micro vacuum switch

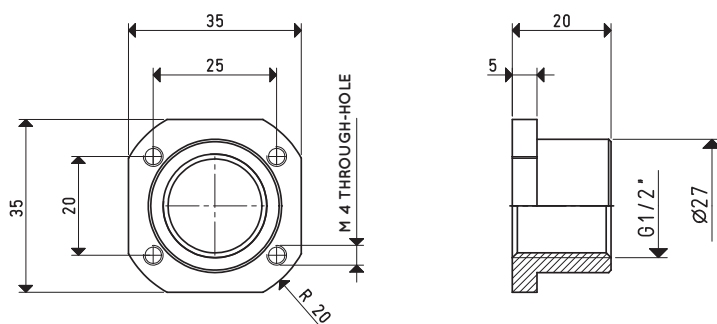


Vacuum gauge



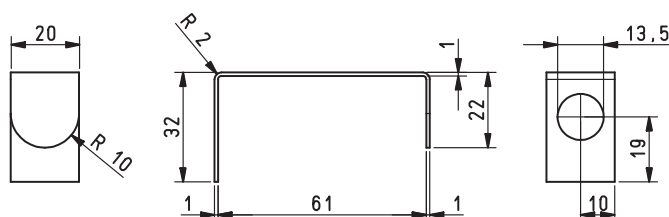
Item	Scale KPa	Double Scale	Admissible error on the scale	Temperature of use	Notes	Material of case	Weight g
09 03 15	0 ÷ -100	--	2.5%	-10 °C ÷ +50 °C			52

Threaded adapter for suction mouth item 00 15 397



SPARE PARTS

Safety protection for exhaust silencer SSX 1/4" item 00 15 341



ACCESSORIES FOR CONVEYOR ADJUSTABLE VACUUM GENERATORS

The noise level of Conveyor adjustable vacuum generators, which is always quite high, can be considerably mitigated by a suitable silencer screwed onto the air exhaust connection. SSX series silencers can be supplied upon specific request. These are suitable for all Conveyor vacuum generators.

The table below shows the codes of the silencers related to the various vacuum generators.

PVR 25 with exhaust silencer SSX 1/4" and vacuum cup 08 53 35 S



PVR 50 with exhaust silencer 2SSX 1/2"



PVR 100 with exhaust silencer SSX 3/4"



Item	Silencer item	Noise reduction dB(A)	Silencer item	Noise reduction dB(A)
PVR 25	SSX 1/4"	-13	2SSX 1/4"	-20
PVR 50	SSX 1/2"	-13	2SSX 1/2"	-20
PVR 100	SSX 3/4"	-13	2SSX 3/4"	-20
PVR 200	SSX 1"	-13	2SSX 1"	-20



VACUUM JET FLOW GENERATORS

Working principle

The compressed air supply blown into a ring chamber concentric to the device, flows at a very high speed towards the centre of the main pipe, thus forming a cyclonic effect. The latter creates a vacuum inside the device and leads a great volume of air towards its outlet.

Therefore, a variation of the air supply pressure will modify the level of vacuum and the amount of sucked air.

Features

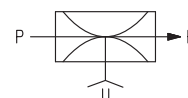
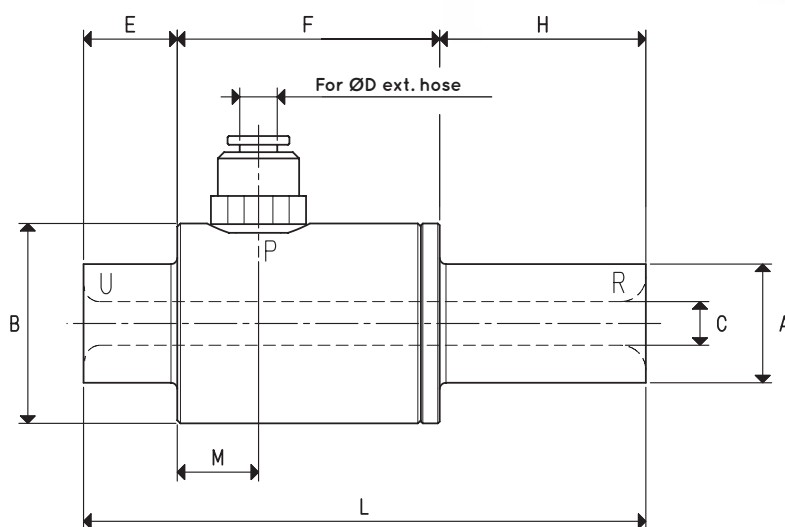
The special shape of the flow generators and their straight-flow working principle allow for the suctioning and handling of various nature products without interference. Vacuum Jets are in fact suitable for the handling of powders, granulated products, sawdust, corn, metal chips, liquid or dry food products, etc., or for extracting fumes, coolant mists, water or oil condensation, etc.

The absence of moving parts allows them to be used continuously, without developing heat.

They do not require electricity; therefore, they can be used in work environments with hazardous environments where an ignition source would be dangerous.

Available in anodised aluminium and stainless steel.

Thanks to all these features, a good filtration of the compressed air supply will be sufficient to make these devices fully maintenance-free.



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		CX 7	CX 10
Max quantity of intake air at 6 bar	m³/h	12.0	28.0
Max quantity of air blown at 6 bar	m³/h	17.6	51.4
Maximum level of vacuum	-KPa	15	22
Final pressure	abs. mbar	850	780
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	Nl/s	1.5	2.3
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	75	84
Weight	g	110	104
A	Ø	19	19
B	Ø	32	32
C	Ø	7	10
D	Ø	6	6
E		15	15
F		42	42
H		33	33
L		90	90
M		13	13

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 10 I).

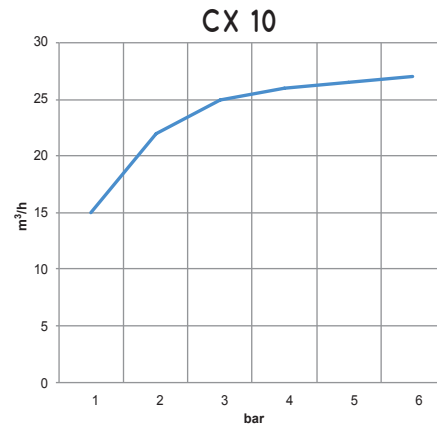
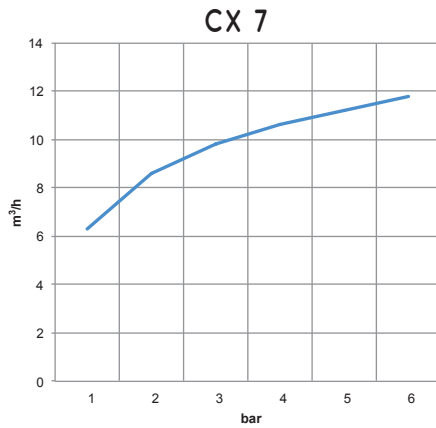
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

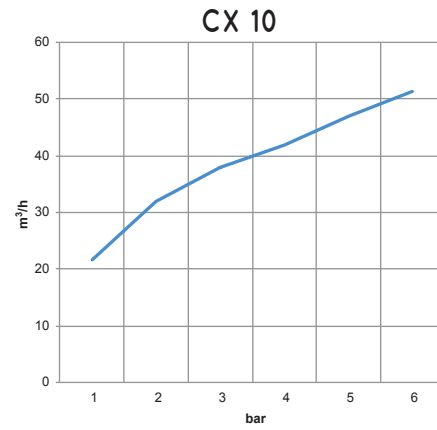
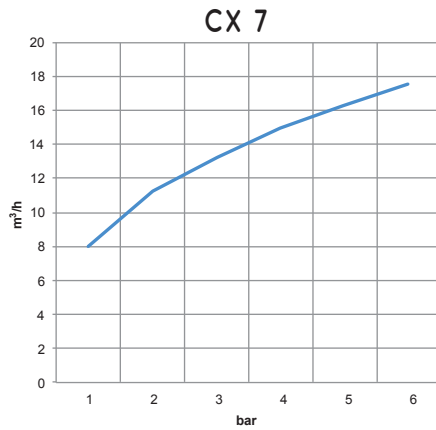
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130

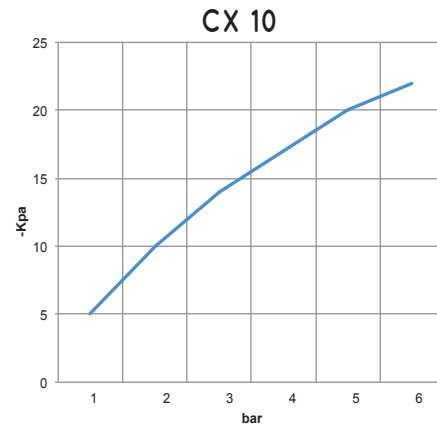
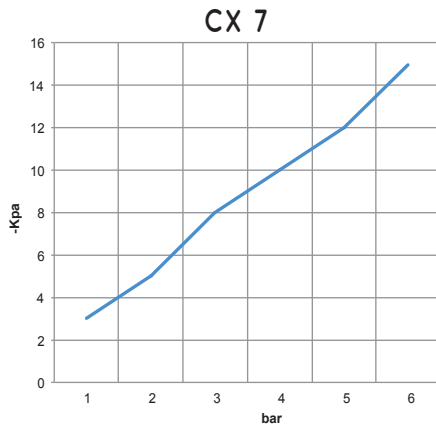
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



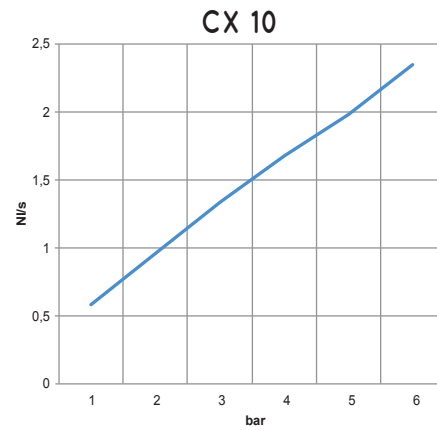
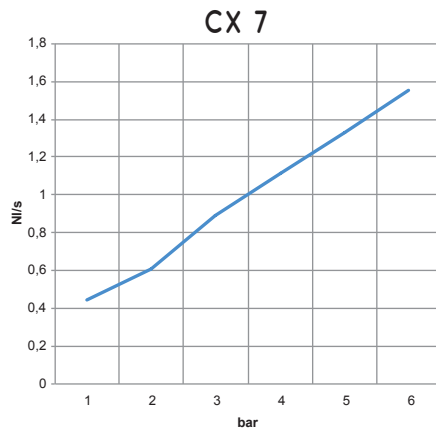
Quantity of air blown (m^3/h) at different supply pressures (bar)



Level of vacuum (-Kpa) at different supply pressures (bar)

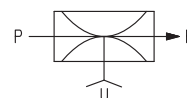
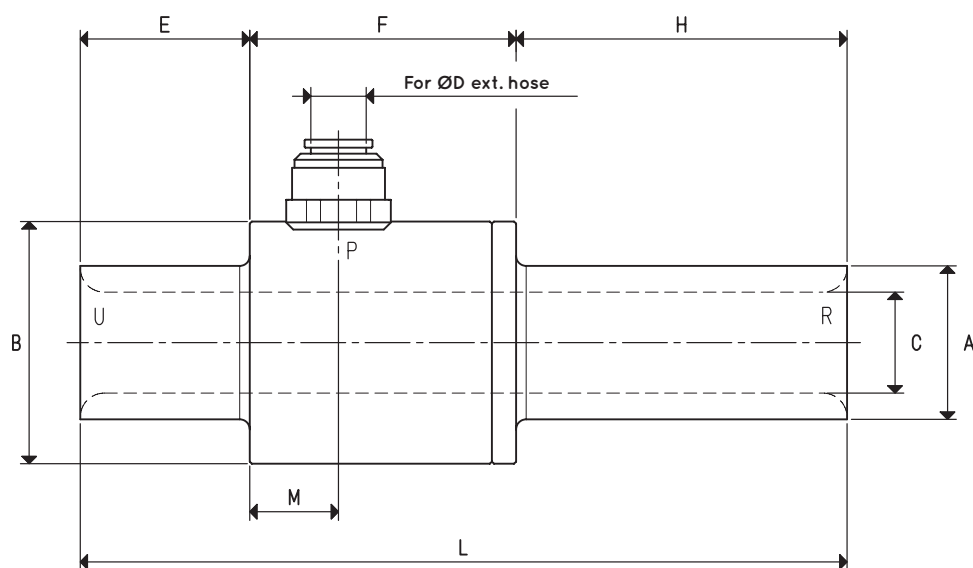


Air consumption (NI/s) at different supply pressures (bar)





FLOW GENERATORS VACUUM JET CX 13 and CX 19



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		CX 13	CX 19
Max quantity of intake air at 6 bar	m ³ /h	50.0	92.0
Max quantity of air blown at 6 bar	m ³ /h	73.7	134.0
Maximum level of vacuum	-KPa	18	16
Final pressure	abs. mbar	820	840
Maximum supply pressure	bar	6	6
Maximum air consumption at 6 bar	NI/s	6.6	11.6
Temperature of use	°C	-20 / +80	-20 / +80
Noise level	dB(A)	88	92
Weight	g	280	500
A	Ø	25	32
B	Ø	45	54
C	Ø	13	19
D	Ø	8	10
E		30	43
F		55	65
H		55	82
L		140	190
M		18	22

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 13 I).

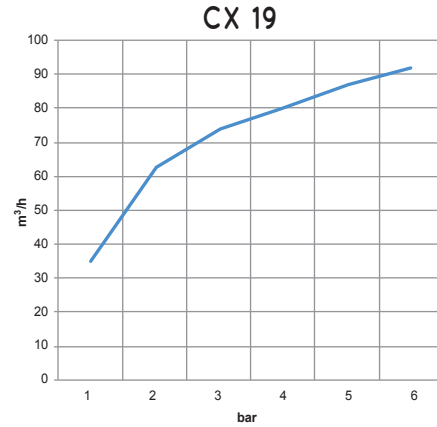
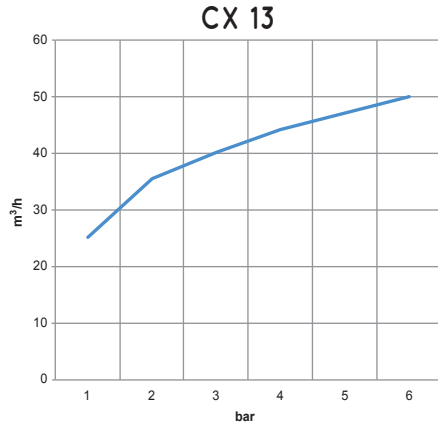
Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

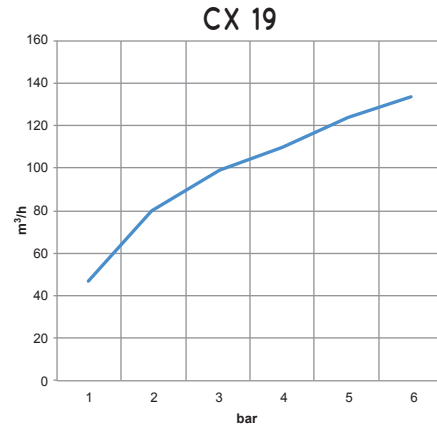
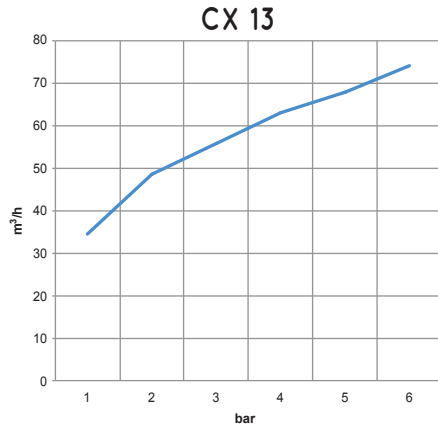
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130

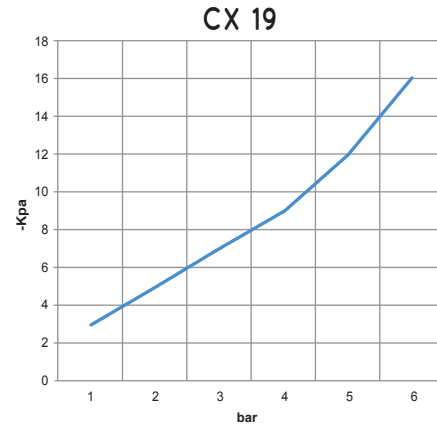
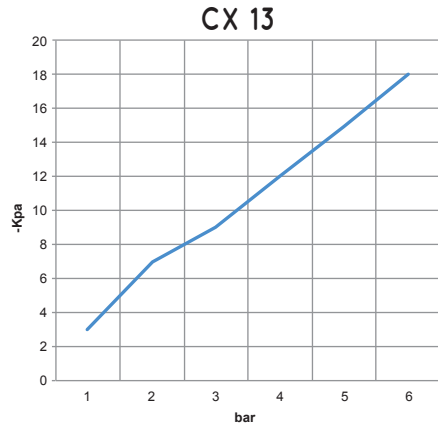
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



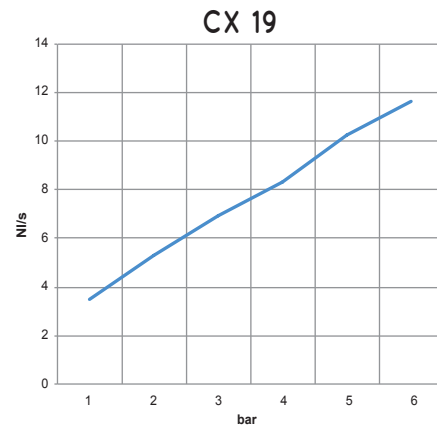
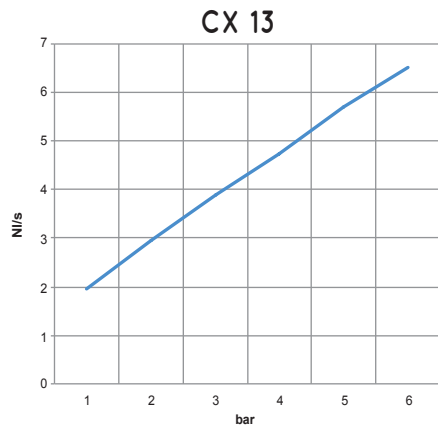
Quantity of air blown (m^3/h) at different supply pressures (bar)



Level of vacuum (-Kpa) at different supply pressures (bar)

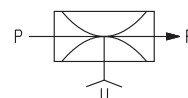
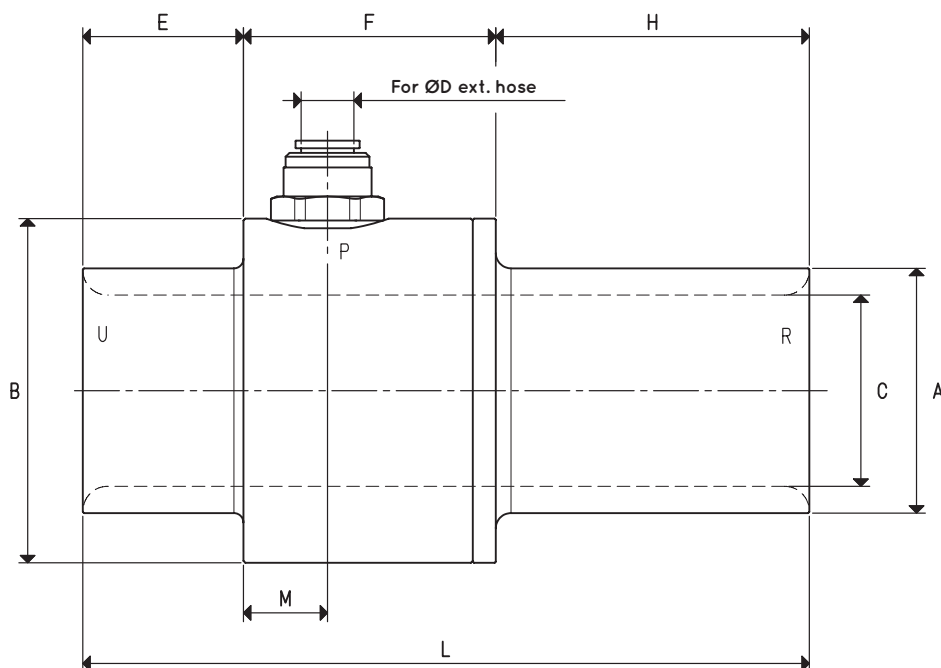


Air consumption (NI/s) at different supply pressures (bar)





FLOW GENERATORS VACUUM JET CX 25, CX 38 and CX 50



P=COMPRESSED AIR CONNECTION

R=EXHAUST

U=VACUUM CONNECTION

Item		CX 25	CX 38	CX 50
Max quantity of intake air at 6 bar	m³/h	150	310	405
Max quantity of air blown at 6 bar	m³/h	210	400	525
Maximum level of vacuum	-KPa	13	10	8
Final pressure	abs. mbar	870	900	920
Maximum supply pressure	bar	6.0	6.0	6.0
Maximum air consumption at 6 bar	NI/s	16.6	25.0	33.3
Temperature of use	°C	-20 / +80	-20 / +80	-20 / +80
Noise level	dB(A)	100	103	103
Weight	g	560	800	1090
A	Ø	38	51	64
B	Ø	60	75	90
C	Ø	25	38	50
D	Ø	10	12	16
E		42	42	42
F		66	66	66
H		82	82	82
L		190	190	190
M		22	22	22

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Add the letter I, to the item for a generator supplied in stainless steel (Example: CX 38 I).

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

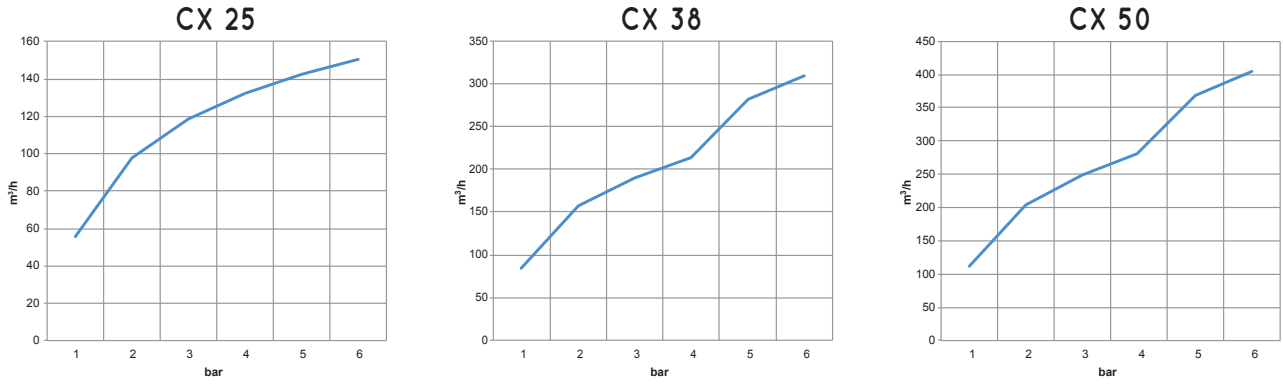
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

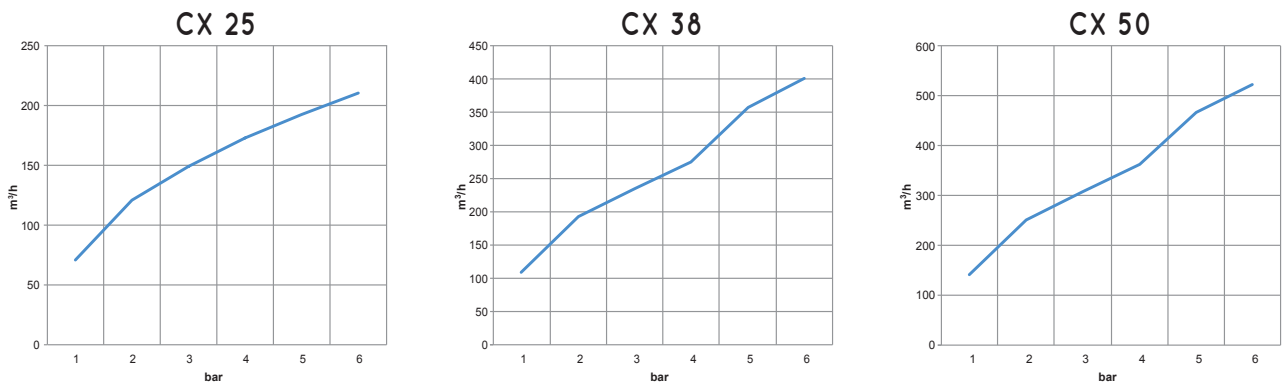
Adapters for GAS - NPT threading available on page 1.130

FLOW GENERATORS VACUUM JET CX 25, CX 38 and CX 50

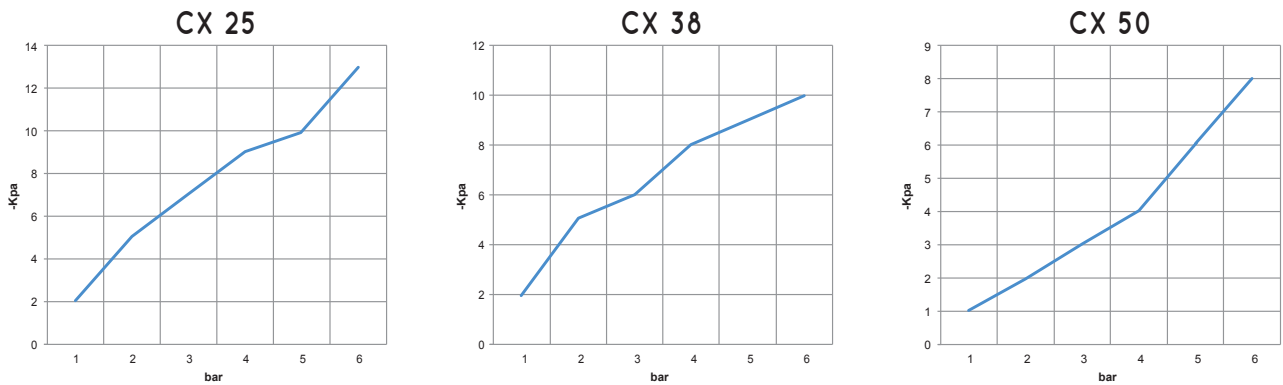
Quantity of air suctioned (m^3/h) at different supply pressures (bar)



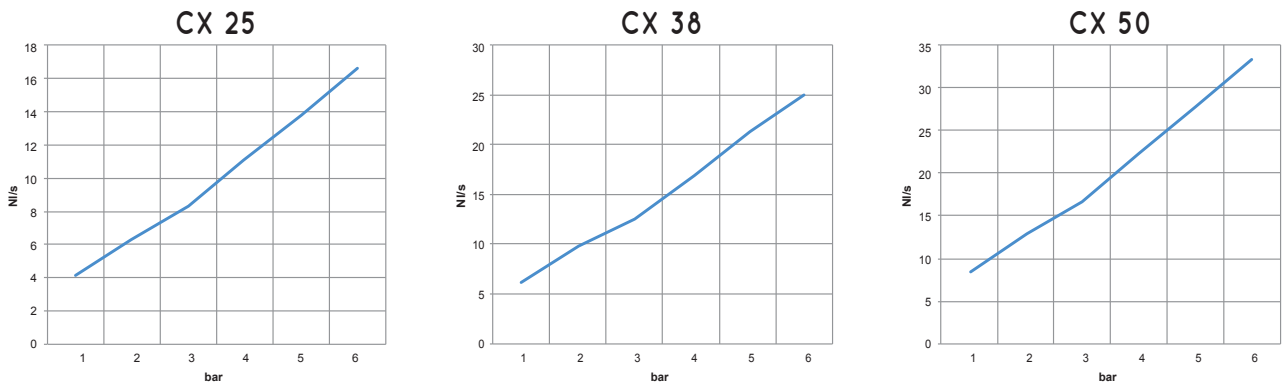
Quantity of air blown (m^3/h) at different supply pressures (bar)



Level of vacuum (-Kpa) at different supply pressures (bar)



Air consumption (Nl/s) at different supply pressures (bar)





MINI PNEUMATIC PUMP SETS DOP 06 and DOP 10

Mini pneumatic pump sets are small independent vacuum-producing units, exclusively supplied with compressed air, with reduced size.

They are composed of:

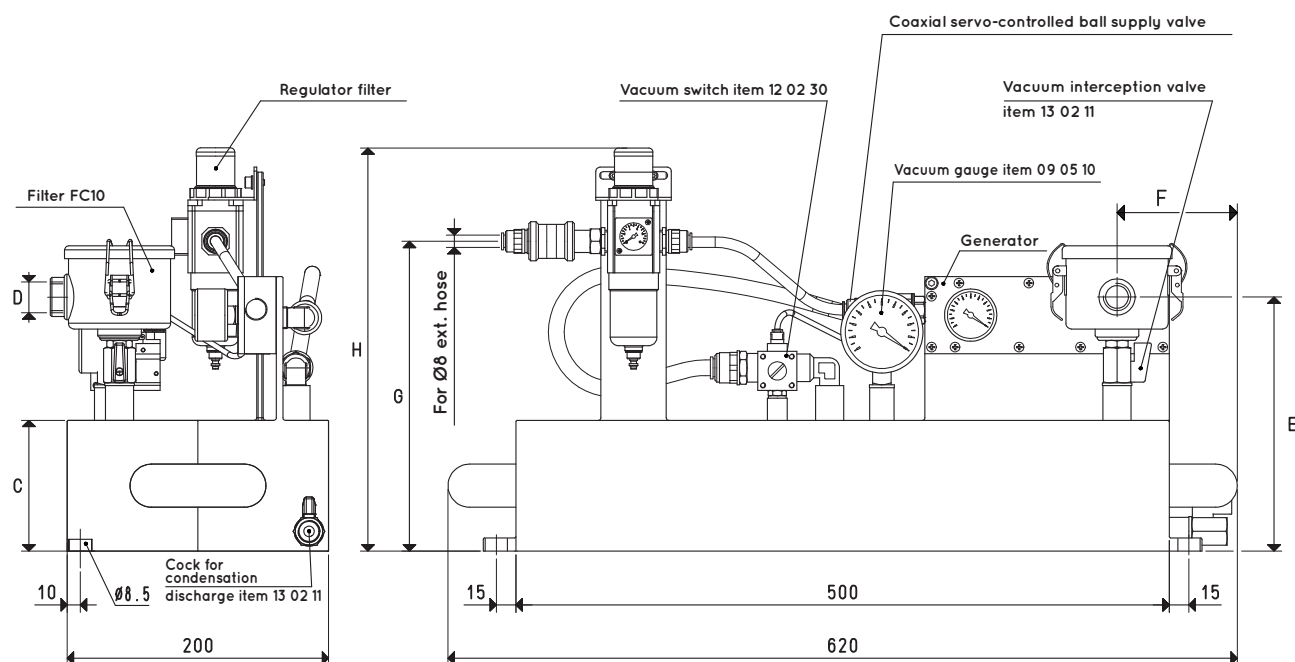
- A small welded sheet steel tank
- A shut off valve to intercept compressed air
- A pressure regulator with filter and pressure gauge
- A compressed air vacuum generator
- A pneumatic drive valve for supplying the vacuum generator operated by the vacuum switch
- A pneumatic vacuum switch for adjusting the level of vacuum
- A vacuum gauge for reading the level of vacuum
- A manual valve for vacuum interception
- A suction filter with FC series paper cartridge
- A cock for condensation drainage from the tank

The level of vacuum, preset via the mini vacuum switch is automatically maintained in the tank.

Mini pneumatic pump sets are suited for equipping fixed or mobile working units that require vacuum, such as:

- Trolleys with vacuum cups for fixing and transporting glass and crystals.
- Vacuum clamping systems for ski maintenance, marble drilling and processing, for polishing objects in pewter, copper, silver, etc.
- Hoists with vacuum cups for lifting television sets and household appliances in general, for glass installation in door and window frames, for feeding sheet metal into presses, etc.

The mini pneumatic pump sets do not require any electrical current but only compressed air at 4-6 bar pressure. Recommended in working environments where ignition sources could cause a fire hazard.



Item	Tank Litres	Generator item	Pneumatic switchgear item	C	D Ø	E	F	G	H	L	Weight Kg
DOP 06 PVP 12 MX	6	PVP 12 MX	DOP 20 90	60	G3/8"	150	95	180	270	620	12.7
DOP 06 PVP 25 MX	6	PVP 25 MX	DOP 20 90	60	G3/8"	150	95	180	270	620	13.0
DOP 10 PVP 12 MX	10	PVP 12 MX	DOP 20 90	100	G3/8"	210	95	240	310	620	12.9
DOP 10 PVP 25 MX	10	PVP 25 MX	DOP 20 90	100	G3/8"	210	95	240	310	620	13.2

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

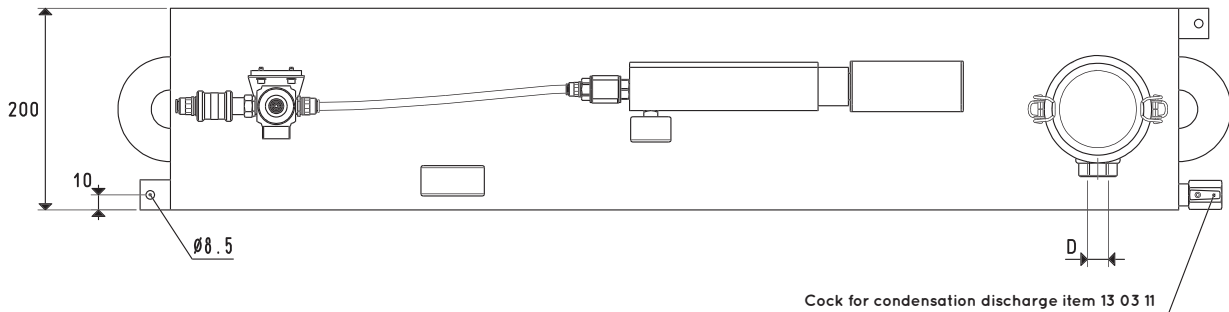
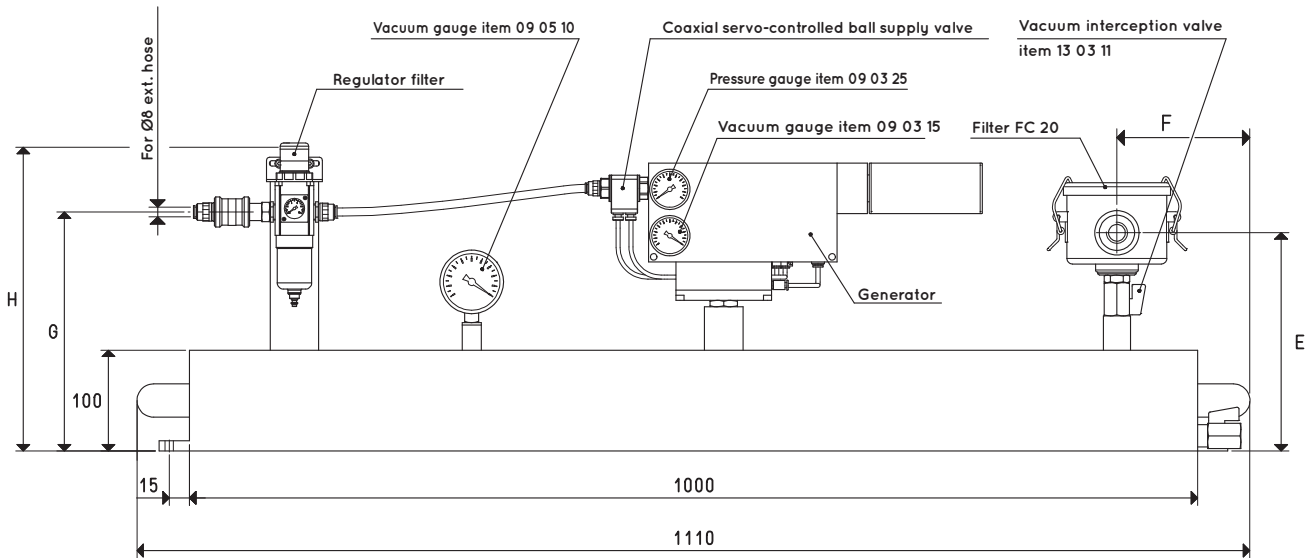
inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130

MINI PNEUMATIC PUMP SETS DOP 20

This mini pump set is set apart from the previously ones for the vacuum generator installed, as well as for the tank volume.

Vacuum generators of the series PVP... MDX ES are in fact equipped with an energy saving device which automatically maintains the preset level of vacuum inside the tank. The other accessories installed, except the vacuum switch and the pneumatically driven valve for vacuum generator supply, are the same installed on DOP 06 and DOP 10. Their intended use is the same as the previously described mini pneumatic pump sets.



Item	Tank Litres	Generator item	Pneumatic switchgear item	D Ø	E	F	G	H	L	Weight Kg
DOP 20 PVP 25 MDX	20	PVP 25 MDX ES	DOP 20 90	G1/2"	225	135	270	340	1110	20.6
DOP 20 PVP 35 MDX	20	PVP 35 MDX ES	DOP 20 90	G1/2"	225	135	270	340	1110	20.7

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.



PNEUMATIC PUMP SETS 25, DOP 50 and DOP 100

Pneumatic pump sets are self-contained vacuum production units, fed exclusively by compressed air.

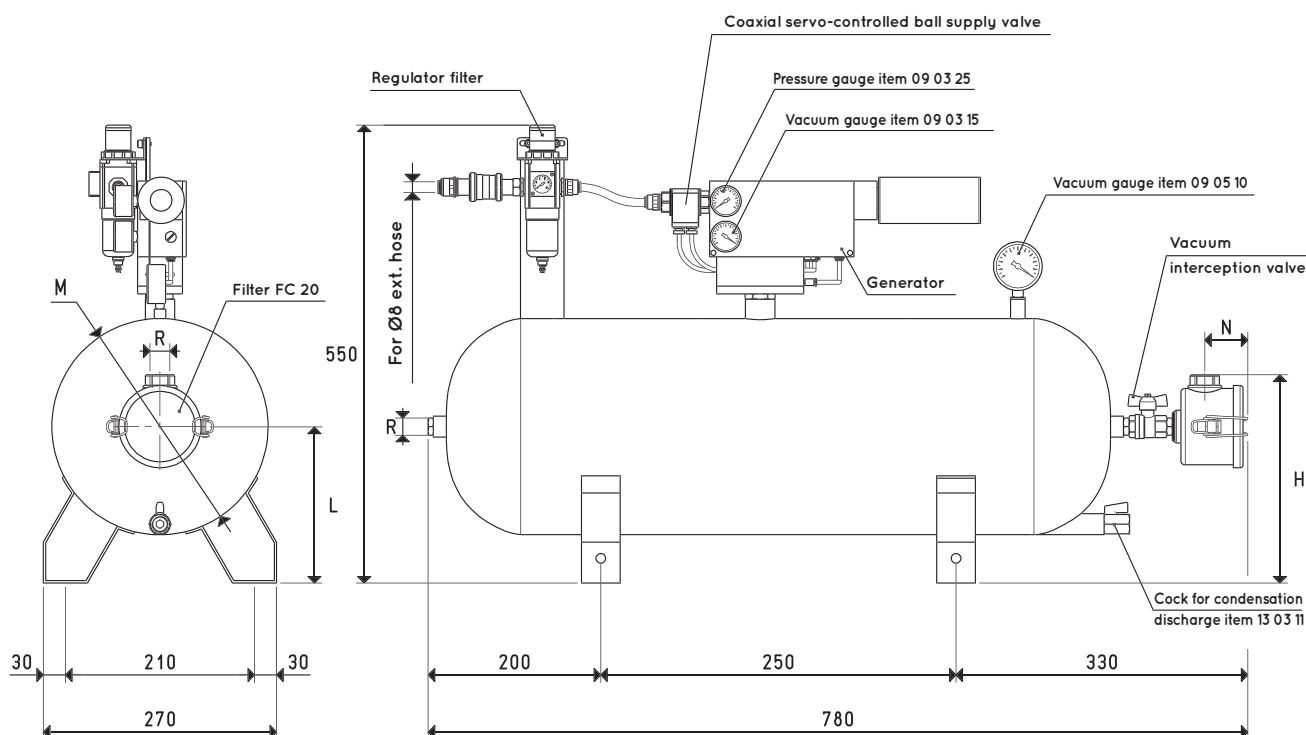
They are composed of:

- A welded sheet steel tank
- A compressed air vacuum generator of the series PVP ... MDX ES, equipped with an energy saving device
- A vacuum gauge for reading the level of vacuum
- A manual valve for vacuum interception
- A suction filter with FC series paper cartridge
- A pressure regulator with filter and pressure gauge
- A shut off valve to intercept compressed air
- A cock for condensation drainage from the tank

The level of vacuum in the tank, previously set with the vacuum switch in the generator, is automatically maintained. The pneumatic pump sets are normally used to handle particularly heavy or valuable loads, as it allows vacuum cups to maintain grip for a certain period of time (varies according to tank capacity) even during unexpected absence of power. These pump sets are recommended for multi-point applications, to centralise vacuum.

In both cases, use of the pump set is especially advantageous under the profile of energy savings as the generator only operates when a vacuum is required by the utility machine.

The pneumatic pump sets do not require any electrical current but only compressed air at 4-6 bar pressure. Recommended in working environments where ignition sources could cause a fire hazard.



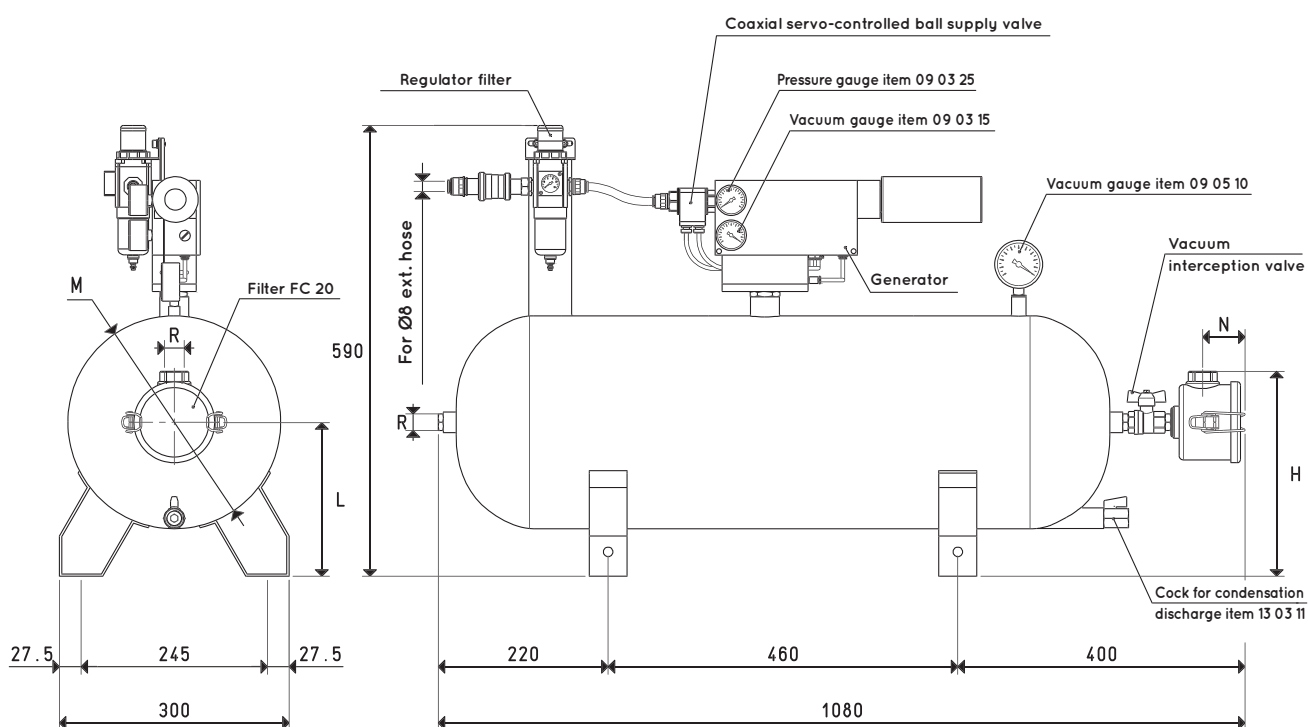
Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 25 PVP 25 MDX	25	PVP 25 MDX ES	DOP 20 90	225	185	240	51	G1/2"	15.9
DOP 25 PVP 35 MDX	25	PVP 35 MDX ES	DOP 20 90	225	185	240	51	G1/2"	16.0

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



Item	Tank	Generator	Pneumatic switchgear	G	H	L	M	N	R	Ø ext. tube	Weight
	Litres	item	item				Ø		Ø	Ø	Kg
DOP 50 PVP 50 MDX	50	PVP 50 MDX ES	DOP 20 90	27.5	245	205	280	51	G1"	8	18.9
DOP 50 PVP 60 MDX	50	PVP 60 MDX ES	DOP 50 90	27.5	245	205	280	51	G1"	12	19.7

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

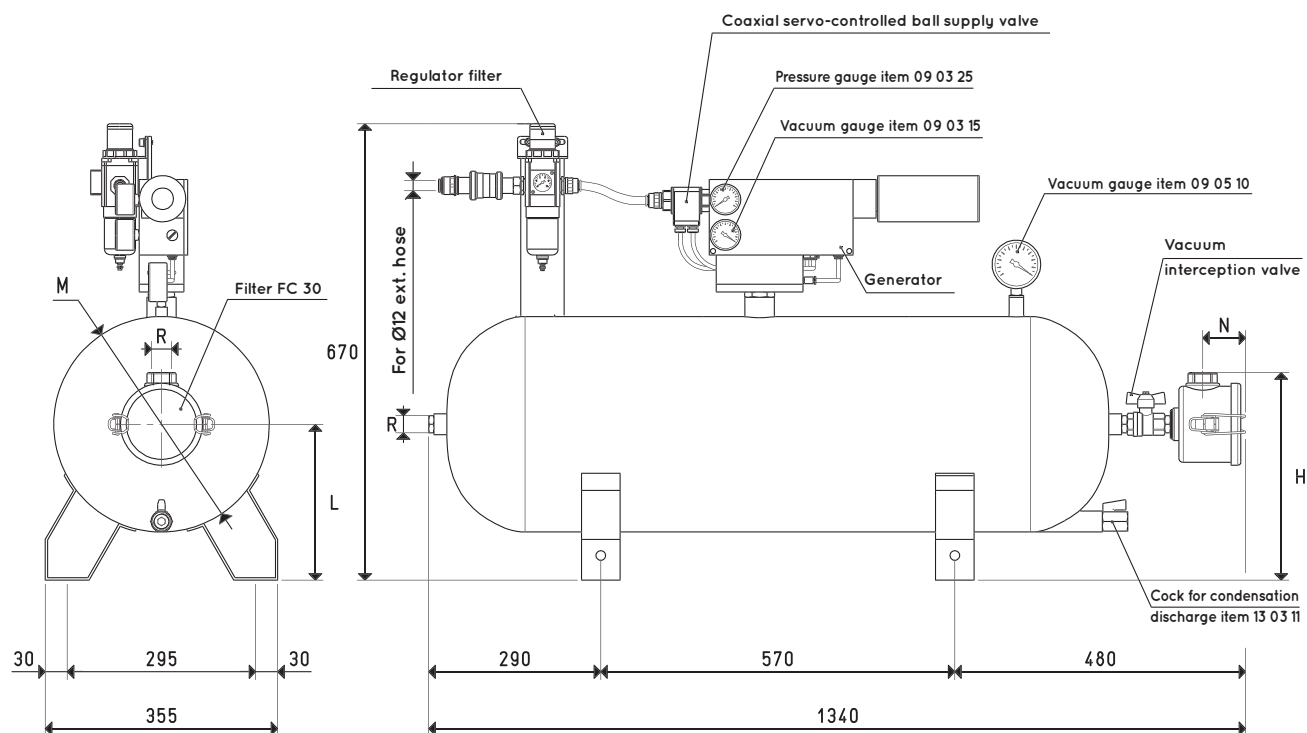
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

$$\text{inch} = \frac{\text{mm}}{25.4} ; \text{pounds} = \frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$$

Adapters for GAS - NPT threading available on page 1.130



PNEUMATIC PUMP SETS DOP 100



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 100 PVP 75 MDX	100	PVP 75 MDX ES	DOP 50 90	300	255	350	41	G2"	31.0

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130

PNEUMATIC PUMP SETS DOP 150 and DOP 300

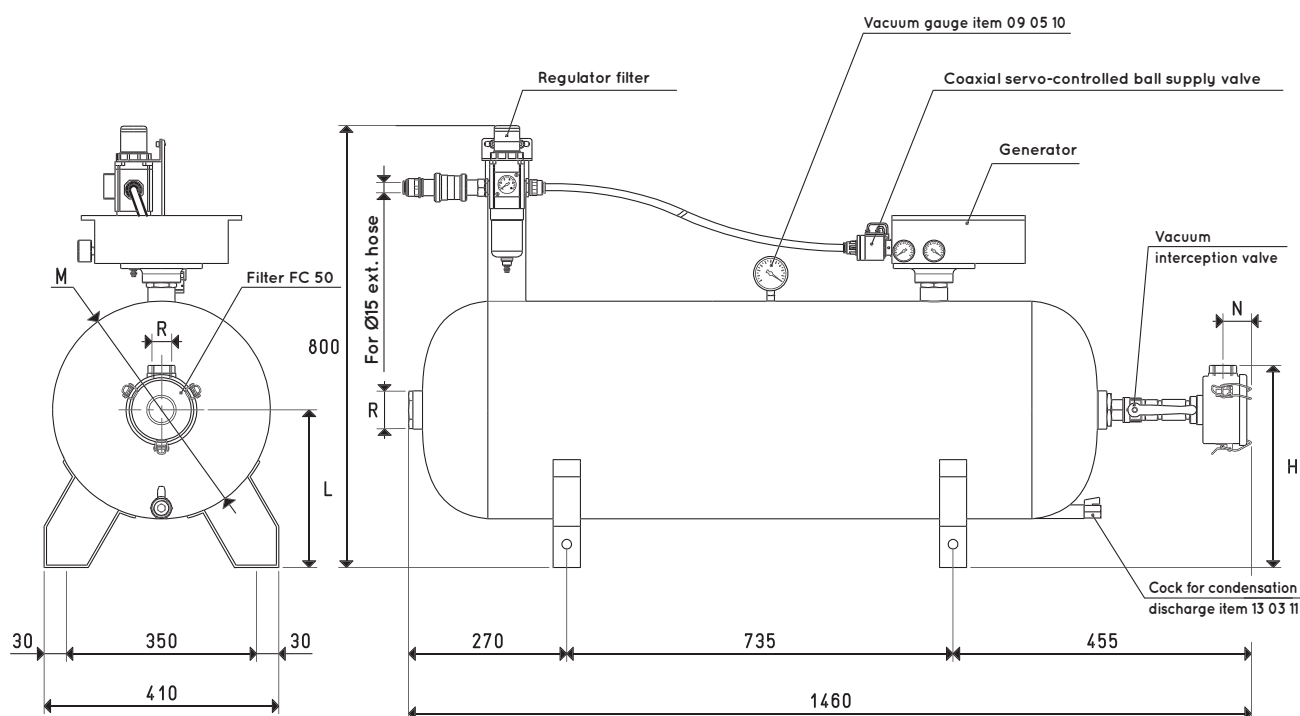
Pneumatic pump sets are self-contained vacuum production units, fed exclusively by compressed air.

They are composed of:

- A welded sheet steel tank
- A compressed air vacuum generator of the series PVP ... MDR ES, equipped with energy saving device
- A vacuum gauge for a direct reading of the level of vacuum in the tank
- A manual valve for vacuum interception
- A suction filter with FC series paper cartridge
- A pressure regulator with filter
- A shut off valve to intercept compressed air
- A cock for condensation drainage from the tank

The level of vacuum in the tank, previously set with the vacuum switch integrated in the pneumatic coaxial shutter supply valve, is fully automatically. The pneumatic pump sets are normally used to handle particularly heavy or valuable loads, as it allows vacuum cups to maintain grip for a certain period of time (varies according to tank capacity) even during unexpected absence of power. They are also recommended for centralising vacuums, for powering multiple utility machines. In both cases, use of the pump set is especially advantageous under the profile of energy savings as the generator only operates when a vacuum is required by the utility machine.

The pneumatic pump sets do not require any electrical energy but only compressed air at 4-6 bar pressure. Recommended in working environments where ignition sources could cause a fire hazard.



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 150 PVP 150 MD	150	PVP 150 MDR ES	DOP 150 90	360	280	400	41	G2"	40.2

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

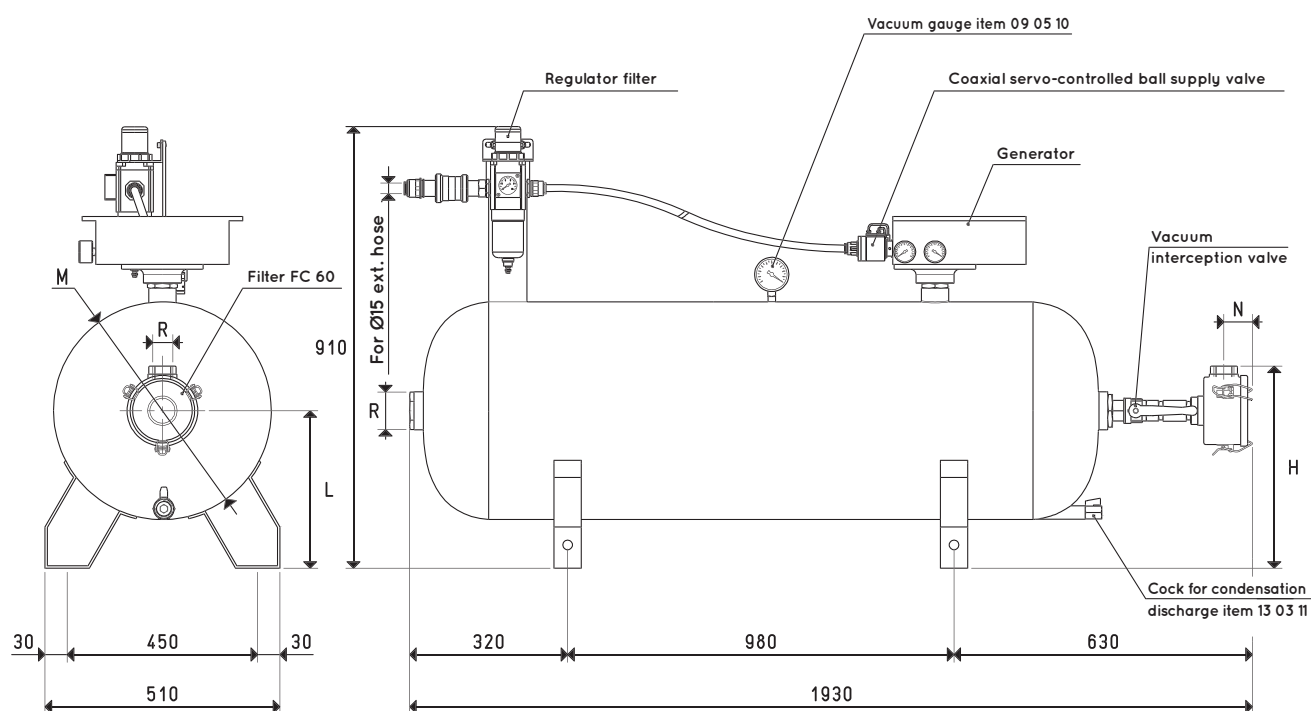
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch = $\frac{\text{mm}}{25.4}$; pounds = $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130



PNEUMATIC PUMP SETS DOP 300



Item	Tank	Generator	Pneumatic switchgear	H	L	M	N	R	Weight
	Litres	item	item			Ø		Ø	Kg
DOP 300 PVP 300 MD	300	PVP 300 MDR ES	DOP 150 90	440	340	500	45	G2"	41.2

Note: Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

PNEUMATIC DEVICES FOR THE POWER SUPPLY OF MINI PNEUMATIC PUMP SETS DOP 06, DOP 10, DOP 20 AND PUMP SETS DOP 25, DOP 50, DOP 100, DOP 150 and DOP 300

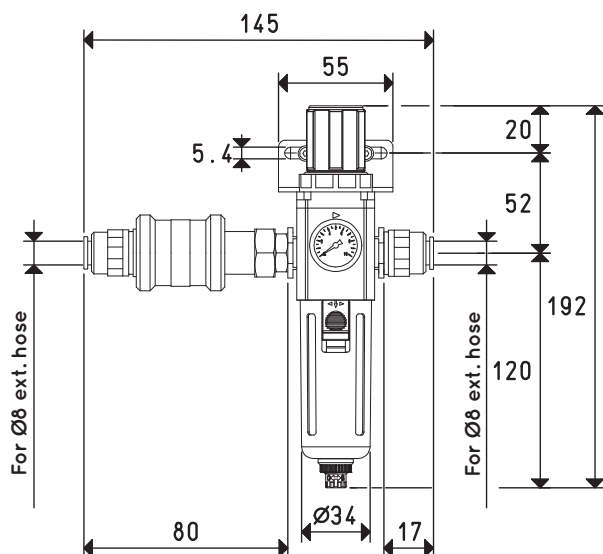
The pneumatic equipment of the mini pump sets and pump sets is sized so as to guarantee the right amount of compressed air supply to the vacuum generators installed on them, at a correct, constant and continuous pressure.

It is composed of:

- A pressure regulator with filter and pressure gauge for regulating compressed supply air
- A metal bracket for fixing the pressure regulator to the support
- A slide valve to intercept compressed air
- Two quick couplings to connect the air supply line and the vacuum generator

They are available in different sizes depending on the vacuum generator installed on the mini pump set or on the pump set.

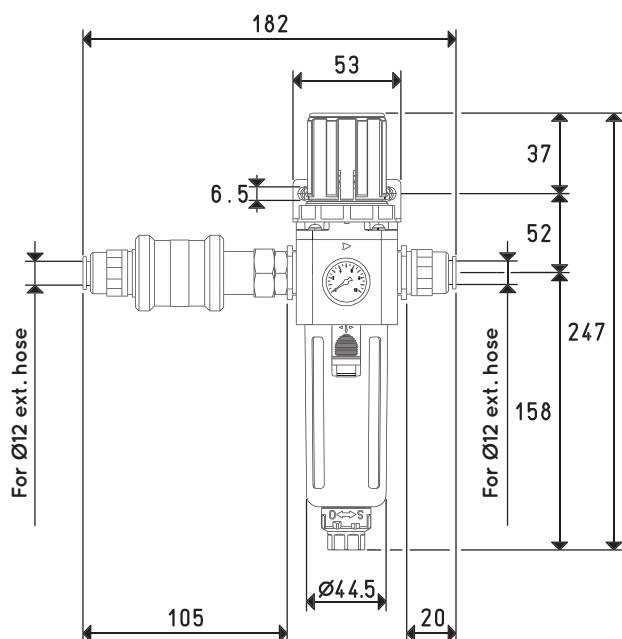
PNEUMATIC DEVICES FOR THE POWER SUPPLY OF MINI PNEUMATIC PUMP SETS DOP 06, DOP 10 and DOP 20



Item	Weight Kg	Suitable for generator item
DOP 20 90	0.36	PVP 12 MX - PVP 25 MX - PVP 25 MDX ES - PVP 35 MDX ES - PVP 50 MDX ES

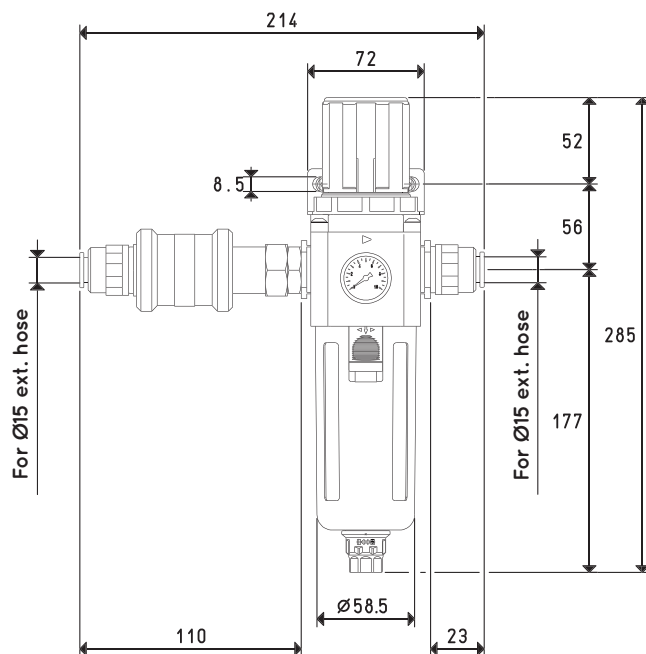


PNEUMATIC DEVICES FOR THE POWER SUPPLY OF PNEUMATIC PUMP SETS DOP 50 and DOP 100

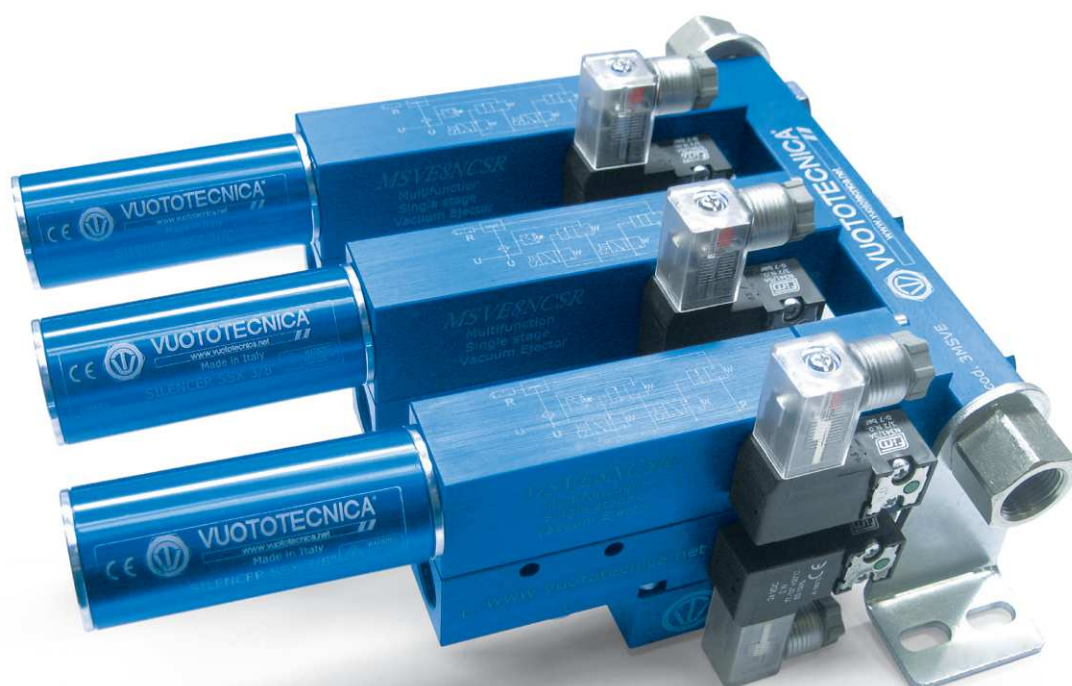


Item	Weight Kg	Suitable for generator item
DOP 50 90	0.72	PVP 60 MDX ES - PVP 75 MDX ES

PNEUMATIC DEVICES FOR THE POWER SUPPLY OF PNEUMATIC PUMP SETS DOP 150 and DOP 300



Item	Weight Kg	Suitable for generator item
DOP 150 90	1.2	PVP 150 MDR - PVP 300 MDR



3MSVE



PVP 750 MDV - COS1

