

PUMPING - EVACUATING - MIXING - EVAPORATING

ELMRIDGE 'TGK Series' Gas-Jet (Steam) Ejectors are a reliable and inexpensive means of developing vacuum in the range of 20 to 27 in-Hg (3 to 10 in-Hg abs). Steam is discharged through the Ejector nozzle, emerging at a high velocity, creating a zone of lower pressure contained within the Suction Chamber of the Ejector. The secondary or Suction fluid (gas or vapor), is drawn to this lower pressure zone, where the momentum of the Motive Steam is transferred to the Suction fluid, causing the Suction fluid to be pumped. 'TGK Series' Gas-Jet Ejectors have been designed for the optimal combination of obtainable vacuum and Suction Flow versus Motive Steam consumption. Operating characteristics (Steam Motive / Air Suction), for standard models are shown below, and special units are also available to meet your specifications. Standard materials of construction are Bronze/Brass, Cast Iron/Steel, 316L Stainless Steel, and Alloy 20. Other materials are available upon request. Flanged connections are standard, however, other connection styles are available.



Table 1 Suction Capacity (lb/hr of 70 Deg. F Dry air) for TGK Series Steam-Jet Ejectors using 100 psig Dry Sat. Steam (Atmospheric Discharge)

Model	Steam Consumption (lb/hr)	Absolute Pressure (in-Hg abs.)									
		3	3.25	3.5	4	4.5	5	6	7	8	10
TGK2	94	6.90	8.80	10.5	14.8	17.3	19.4	23.2	27.2	31.1	36.2
TGK3	123	9.40	12.1	14.3	20.2	23.6	26.5	31.6	37.2	42.4	49.5
TGK4	156	11.9	15.3	18.2	25.6	30.0	33.6	40.1	47.2	53.8	62.8
TGK5	196	14.9	19.1	22.8	32.0	37.4	42.0	50.2	59.0	67.2	78.5
TGK6	241	18.1	23.2	27.6	38.6	45.5	51.0	60.8	71.5	81.5	95.1
TGK7	285	21.6	27.6	32.9	46.2	54.1	60.6	72.4	85.0	97.0	113
TGK8	335	25.5	32.6	38.8	54.5	63.8	71.5	85.4	99.8	114	133
TGK9	390	29.4	37.7	44.8	63.0	73.9	82.5	98.8	116	132	154
TGK10	478	36.5	46.6	55.5	78.0	91.4	102	122	143	163	191
TGK11	572	44.3	56.5	67.2	94.5	110	124	148	174	198	232
TGK12	713	54.8	70.1	83.3	117	137	153	183	215	246	287
TGK13	875	66.4	85.0	101	142	166	186	222	262	298	348
TGK14	1050	79.5	102	121	170	199	223	266	313	356	416
TGK15	1243	94.0	120	143	201	235	264	315	370	422	493
TGK16	1453	110	141	167	235	275	308	368	432	494	575

PUMPING GASES

SEE INDIVIDUAL DIMENSIONAL DRAWINGS BY CONNECTION STYLE

APPLICATION EXAMPLE

Table 2 Approx. Evacuation Time (min. per 100 cu-ft of 70 Deg. F Dry Air) to Given Vacuum for TGK Series Steam-Jet Ejectors using 100 psig Dry Sat. Steam (Atmospheric Discharge)

Model	Steam Consumption (lb/hr)	Absolute Pressure (in-Hg abs.)								
		2.5	3.0	3.5	4.0	5.0	6.0	8.0	10	12
TGK2	94	13.2	11.3	9.56	9.25	8.24	7.50	6.14	5.17	4.28
TGK3	123	9.62	8.28	7.30	6.78	6.03	5.43	4.48	3.78	3.13
TGK4	156	7.60	6.54	5.76	5.35	4.76	4.28	3.54	2.99	2.47
TGK5	196	6.09	5.22	4.60	4.28	3.81	3.43	2.83	2.39	1.98
TGK6	241	5.03	4.32	3.81	3.54	3.15	2.83	2.34	1.98	1.64
TGK7	285	4.20	3.61	3.18	2.96	2.63	2.37	1.96	1.65	1.37
TGK8	335	3.56	3.06	2.70	2.51	2.23	1.84	1.66	1.40	1.16
TGK9	390	3.10	2.66	2.34	2.18	1.94	1.75	1.45	1.22	1.01
TGK10	478	2.50	2.14	1.89	1.75	1.56	1.29	1.06	0.980	0.810
TGK11	572	2.06	1.77	1.56	1.45	1.29	1.16	0.960	0.810	0.670
TGK12	713	1.66	1.43	1.26	1.17	1.04	0.935	0.772	0.650	0.540
TGK13	875	1.35	1.16	1.02	1.950	0.845	0.760	0.628	0.530	0.438
TGK14	1050	1.15	0.982	0.865	0.805	0.717	0.645	0.533	0.450	0.372
TGK15	1243	0.970	0.832	0.754	0.682	0.606	0.545	0.451	0.380	0.314
TGK16	1453	0.830	0.710	0.627	0.583	0.519	0.466	0.386	0.325	0.269

EXAMPLE 1:

It is required to evacuate a 1500 cubic foot vessel to a 3.0 in-Hg abs. vacuum in a period of 15 minutes using 100 psig steam.

- As the tabulated data is based on evacuation times for a 100 cu-ft volume, the corresponding time allowable to evacuate a 100 cu-ft volume is:

$$100 \times (15 / 1500) = 1.0 \text{ minutes}$$

- From table TGK-2, the TGK14 ejector operating with 100 psig steam will evacuate a 100 cubic foot volume to a 3.0 in-Hg abs. vacuum in a time of 0.98 minutes.

