

Performance Comparisons

The gas turbine performance comparison chart has long been a popular feature of the magazine, and is a very useful tool when trying to select a suitable turbine for a particular model. To make this selection process easier we have redesigned the chart, rating the turbines by their power output rather than efficiency, and also highlighting those turbines currently being produced over those that have been discontinued, but which may well still be available second-hand.

To further clarify the chart the decision has been taken to use only Newtons for the thrust figure, as this is usually used by the manufacturer as part of the engine description, as well as using only metric figures for weight and fuel capacity, albeit with conversion factors also included for ease of conversion.

We hope that the new layout does what is intended and makes the chart both simpler to use and more useful to all model jet pilots.

KEY:

- = Discontinued Model
- = New Engine Test
- = Tested previously

NOTES

1. RPM figures shown are the maximum specified by the manufacturer.

2. Exhaust gas temperature (EGT) is nominal as the actual EGT varies substantially depending on the exact position of the sensor.

NB

See HYBL Turbines, updated note from current test results: (*) This is a Turbine Inlet Temperature (approx. 150°C higher than max. EGT)

3. The maximum thrust figures are shown in Newtons, as this is the figure commonly used by manufacturers to describe a particular engine. Conversion factors are; a) To convert to Kg, divide the Newton figure by 9.81. To convert to Lb, divide the Newton figure by 4.45.

4. To convert cc to US fl. oz. multiply the cc figure by 0.0338.

5. To convert Litres to U.S Quart multiply the Litre figure by 1.06.

6. To convert Kg to Lb, multiply the Kg figure by 2.20

7. The thrust to weight ratio is calculated by taking the thrust figure of the engine and dividing this by the total weight of the engine, ancillaries and fuel for 5 minutes at full power.

8. TSFC (Thrust Specific Fuel Consumption) – the lower the figure the more efficient the engine.

9. The weight of the engine includes all parts attached, such as starter, mounting lugs and temperature sensor, etc.

10. The weight of ancillaries includes ECU, pump, valves etc, and a notional ECU battery weight has been included for those engines that are supplied without a battery.

Engine	Date Tested	Max RPM (Note 1)	EGT (max thrust) °C (Note 2)
JetCat P20-SX	Apr-12	245,000	621
KingTech K-45G	Jul-15	170,000	674
Wren MW44 Gold	Jun-06	195,000	570
Arles JF50 Bee	Oct-03	175,000	537
Behotec J55HP	Feb-04	160,000	620
JetCat P60-SE	Jan-10	165,000	610
JetCat P60	Dec-06	165,000	695
Simjet 1200	Dec-02	160,000	510
Jet Central Super Bee	Jul-06	180,000	600
Funsonic FS-60	Jan-05	165,000	564
Kingtech K-60G	Jun-14	161,000	452
Wren MW54 Mk III	Jul-05	160,000	585
PST J600R	Mar-05	162,000	630
Heward Microjets Wasp 2 H20	Feb-06	148,000	717
Wren MW54Super Sport	Apr-05	160,000	599
KingTech K80E	Mar-09	146,000	521
Jets Munt VT80	Feb-12	150,000	600
Behotec J66HP	May-02	120,353	542
Wren 80 Jubilee	Apr-13	160,000	655
Graupner G-Booster 80+	Dec-07	165,000	712
Jets Munt Merlin 90G	Jan-09	152,000	597
JetCat P80-SE	May-09	124,500	585
Wren 100 KPro	Oct-11	160,000	664
Hawk 100R	Oct-06	175,000	766
Jet Central Falcon	Apr-06	126,000	689
JetCat P90-Rxi	Jun-13	130,000	615
Jets Munt M100XBL	Oct-13	152,000	677
Jet Central Rabbit	Jul-12	152,000	676
Robbe RP120	Jul-12	115,000	N/A
JetCat P120-SE	Sep-07	123,100	561
BF B100F	Jul-12	125,000	785
JetCat P120-SX	Mar-10	119,000	559
JetCat P140-RX	Dec-11	125,000	682
Jets Munt Merlin 140	Jun-11	130,000	600
Kingtech 140	Jul-12	123,000	586
Wren XL200	Jul-07	120,830	747
Jetcraft 130+	Jul-12	119,000	720
Frank TJ-70/16	Apr-04	120,000	588
Wren 160K Pro	Jul-12	123,000	588
JetCat P160-SX	Oct-08	126,000	744
Simjet Nexus 3600 AES GE	Feb-06	118,000	605
Jets Munt Merlin 160G	Mar-06	118,600	727
Kingtech K-170F	Aug-11	123,000	674
Jet-Italia Pulse 17	Jul-12	118,000	730
Behotec JB-180GE	Jan-10	123,000	658
Jetcat P180-RX	Jul-12	126,000	699
HYBL H16	Feb-15	122,000	820*
evoJet B180vx	Jul-12	124,000	750
Kingtech K-180G	Aug-13	123,000	603
Hawk 190R	Jul-12	131,000	782
PBS Velká Bíteš TJ20	Feb-13	119,000	495
Kingtech K-210G	Oct-14	121,500	620
Jetcat P200	Nov-09	112,000	598
AMT Olympus HP	Apr-14	108,500	833
Behotec JB220	Dec-14	123,000	662
Jetcat P200-SX	Nov-09	112,000	615

(All figures are corrected to Standard Atmosphere conditions (15 degrees C, 1013.25 millibars)

Maximum Thrust Newtons (Note 3)	Fuel flow at max. thrust cc per minute (Note 4)	5-minute max thrust fuel required - Litres (Note 5)	5-minute max thrust fuel load Kg (Note 6)	Engine weight Kg (Note 6)	Ancillary weight Kg (Note 6)	Installed weight w/5 mins fuel at max thrust-Kg (Note 6)	Thrust to weight ratio (Note 7)	TSFC Efficiency Index gms/sec/N (Note 8)
24.5	105	0.53	0.43	0.37	0.21	1.0	2.47	0.0565
45.4	198	0.99	0.81	0.76	0.37	1.9	2.39	0.0589
46.5	176	0.88	0.72	0.68	0.30	1.7	2.78	0.0516
49.5	206	1.03	0.84	0.92	0.52	2.3	2.22	0.0568
50.0	213	1.06	0.87	0.76	0.55	2.2	2.34	0.0582
57.4	300	1.50	1.23	0.87	0.48	2.6	2.27	0.0733
58.0	282	1.41	1.15	0.87	0.70	2.7	2.17	0.0664
60.1	216	1.08	0.88	1.04	0.82	2.7	2.23	0.0492
60.8	247	1.23	1.01	0.96	0.50	2.5	2.51	0.0554
61.8	220	1.10	0.90	0.75	0.61	2.3	2.78	0.0487
62.1	313	1.57	1.28	0.88	0.42	2.6	2.46	0.0664
62.8	238	1.19	0.97	1.03	0.35	2.3	2.73	0.0519
62.8	246	1.23	1.00	1.14	0.65	2.8	2.29	0.0535
76.5	284	1.42	1.16	1.03	0.39	2.6	3.02	0.0507
77.5	313	1.57	1.28	0.96	0.35	2.6	3.05	0.0552
80.0	347	1.74	1.42	1.31	0.47	3.2	2.54	0.0593
84.4	258	1.29	1.05	1.01	0.20	2.3	3.81	0.0415
85.1	334	1.67	1.36	1.34	0.55	3.3	2.66	0.0536
86.2	373	1.87	1.52	1.09	0.31	2.9	3.02	0.0577
90.8	385	1.93	1.57	1.01	0.43	3.0	3.07	0.0579
95.6	351	1.75	1.43	1.01	0.33	2.8	3.51	0.0501
96.0	364	1.82	1.49	1.49	0.40	3.4	2.89	0.0518
98.0	372	1.86	1.52	1.13	0.37	3.0	3.33	0.0517
98.1	290	1.45	1.19	1.62	0.34	3.2	3.17	0.0404
103.0	483	2.42	1.97	1.51	0.60	4.1	2.57	0.0641
103.6	417	2.09	1.70	1.66	0.38	3.7	2.82	0.0536
105.7	416	2.08	1.70	1.00	0.28	3.0	3.61	0.0547
106.0	389	1.95	1.59	1.09	0.45	3.1	3.45	0.0479
118.3	500	2.50	2.04	1.80	0.55	4.4	2.75	0.0552
122.5	412	2.06	1.68	1.54	0.63	3.9	3.23	0.0460
124.1	487	2.44	1.99	1.27	0.53	3.8	3.34	0.0518
124.1	442	2.21	1.81	1.46	0.40	3.7	3.44	0.0487
142.1	545	2.73	2.23	1.60	0.30	4.1	3.53	0.0523
144.9	525	2.63	2.15	1.30	0.30	3.7	3.94	0.0494
144.9	598	2.99	2.44	1.72	0.41	4.6	3.23	0.0530
149.9	548	2.74	2.24	1.79	0.40	4.4	3.45	0.0500
157.3	674	3.37	2.75	1.76	0.55	5.1	3.17	0.0563
157.7	599	3.00	2.45	1.62	0.55	4.6	3.47	0.0519
158.0	648	3.24	2.65	1.65	0.45	4.7	3.39	0.0527
159.5	584	2.92	2.39	1.56	0.49	4.4	3.66	0.0500
161.9	536	2.68	2.19	1.71	0.47	4.4	3.77	0.0452
165.7	637	3.19	2.60	1.87	0.35	4.8	3.49	0.0526
168.4	713	3.57	2.91	1.73	0.43	5.1	3.37	0.0565
169.5	652	3.26	2.66	1.68	0.49	4.8	3.57	0.0507
171.4	589	2.95	2.41	1.70	0.55	4.7	3.75	0.0470
174.4	690	3.45	2.82	1.64	0.39	4.8	3.67	0.0542
177.1	497	2.49	2.03	1.71	0.38	4.1	4.38	0.0468
180.6	769	3.85	3.14	1.70	0.51	5.4	3.44	0.0547
181.7	765	3.83	3.13	1.74	0.42	5.3	3.50	0.0562
186.3	504	2.52	2.06	2.80	0.36	5.2	3.64	0.0358
200.9	669	3.35	2.73	2.13	0.49	5.4	3.83	0.0447
207.2	789	3.95	3.22	1.80	0.41	5.4	3.89	0.0521
211.8	801	4.00	3.27	2.45	0.48	6.2	3.47	0.0531
226.5	845	4.23	3.45	3.10	0.80	7.4	3.14	0.0487
230.6	806	4.03	3.29	1.71	0.55	5.6	4.23	0.0449
234.1	791	3.95	3.23	2.50	0.51	6.3	3.82	0.0447