# Comparison between Retrotec and Minneapolis Gauges

| DG-700 Gauge | DM32 Gauge |
|---|---|
|  |  |
| A pouch-style case that protects the DG700. | Padded 'lunch box' style case for carrying the gauge and all the accessories also acts as a gauge stand. |
|  |  |
| To start the test, press ON, then 10 clicks on 5 keys. Device and Range are shown as character codes. Settings are not saved. | To start the test, tap the Power Button. Device and Range are shown as color image. Settings are saved. |

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The Energy Conservatory (TEC) DG700 was released in 2003, while the Retrotec DM32 gauge was released 10 years later in 2013. While the DG700 was advanced for its day, the Retrotec DM-2 which was released in 2006 had many advanced features such as menu driven defaults but was hampered by having many similar features to the DG700. The DM32 was launched in 2013 with the intention of being the world class gauge that would communicate with computers over WiFi, CAT5 or USB. The touchscreen was incorporated to eliminate training time and errors caused by failing to remember gauge codes. The DM32 quickly became the market leader forcing TEC to design a new gauge from scratch to compete which is the DG1000 which will be released half way through 2016 if all goes to plan.

The Retrotec DM-2 is slightly more advanced and has many more features than the DG700 but the two gauges could be considered to be equivalent and currently sell for the same price. The DM32 and DG1000 are also somewhat similar and with WiFi sell for the same price but Retrotec gives the option of buying the non WiFi version which can be updated at any time in future. Retrotec's DM32 is more like an iPhone whereas the DM1000 if more like a small tablet.

Both manufacturers use sensors from the same manufacturer so the specs are nearly identical for the

DM-2, DG700, DM32 and DG1000. The firmware will make slight differences but essentially the accuracy is +/- 15 of reading which is extremely good when it is considered that gauge accuracy is usually quoted as a % of full scale. All 4 of these gauges are incredibly accurate so that at this stage in test fan evolution the test fan accuracy still struggles to achieve a consistent 5% accuracy under lab conditions and often only 10% under field conditions where wind will affect not only the building pressure but also the ability of the test fan to ready accurately. To this end, the Retrotec Models 300, 5000 and 6000 have guide fins around the pressure pickups that cut the effect of the wind in half and since every part is injection molded (an industry first) they have much more accuracy potential built into the design.

The following tables will give the user a sense of differences between the DG700 and the DM32. This is not really a fair comparison since clearly the DM32 is a far more evolved gauge but when the DG1000 is released, they will be on an equal footing with some pluses and minuses on both sides. Right now, it's an unfair competition. Both the DM-2 and DG700 will be sold at substantial discounts over the next few years to move out existing inventory in a market that clearly prefers the new smart phone style of device.
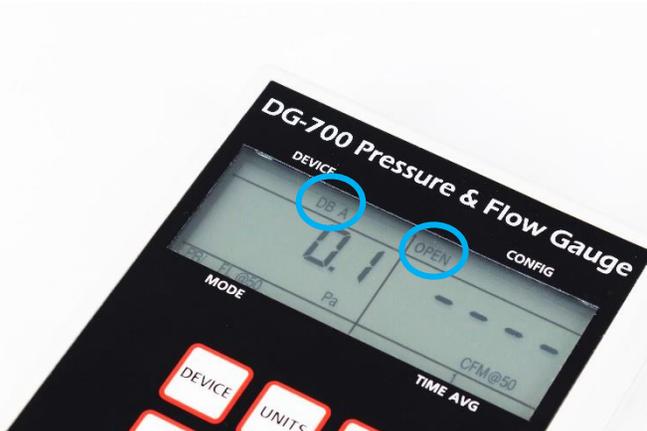
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Velcro loops mount to a speed control plate that will clamp to a door.



Rubber non-skid pads, a belt clip and super magnets are the attachment options.



Uses six AA batteries.



Built-in Lithium-ion battery recharged from a USB charger in the office or vehicle.

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# Gauge specs

Accuracy: **1% of reading, or 0.15 Pa**

Cruise Control: **0, 25, 50 and 75 Pa unless WiFi Link used.**

Duct testing results: **Flow in CFM. Other units available by connecting to WiFi add-on.**

Compatible duct testing Devices:

**TEC Duct Blaster or Tru-Flow Grid**

Accuracy: **1% of reading, or 0.25 Pa.**
Cruise Control: **any pressure.**

Duct testing results: **Flow in CFM, CFM/sq ft, CFM/100 sq ft & CFM/1000 sq ft**

Compatible duct testing Devices:

**Retrotec Model 240, 340, 350 DucTesters
TEC Duct Blaster or Tru-Flow Grid**

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## Hardware

| | **DG-700** gauge | **DM32** gauge |
|---|---|---|
| Weight | 17 Oz | 12 Oz/340g |
| Size | 7.5 x 4 x 1.5 inches | 5.70 x 3.73 x 1.4 in<br>14.5 × 9.5 × 3.5 cm |
| Ergonomics | Rectangular; for two hand operation | Smart phone style for one hand operation |
| Tube connections | No color coding, barbed Brass fittings | Color coded custom medical style fittings |
| Screen | Monochrome, mechanical depress buttons | Color touch screen |
| Battery life | 20 to 30 hours claimed. Retrotec test got 8 to 9 hours on 6 new Alkaline batteries. | 8 hours on WiFi. Smart phone style rechargeable batteries from car, computer or wall charger. |
| Calibration | Non accredited laboratory, except from Germany | ISO 17025 accredited laboratory |
| Calibration interval | 2 years | 5 years |
| Networking | Three pieces of adapter & cables needed;<br>Serial cable to serial-CAT5 adapter to CAT5 cable to network | |
| Recharge while on WiFi | No | Yes |
| Option WiFi range without a router | 2 or 3 floors in a house depending on interference and obstructions. | |

## User Interface

|  | **DG-700** gauge | **DM32** gauge |
|---|---|---|
| Overall user experience and training | Cryptic operation requires training | Intuitive operation requires no training |
|  | No quick guide for gauge, 37 Page Manual | 4 Page Quick Guide and Manual |
| Smart features | No;<br>Unintentional errors more likely | Yes;<br>Unintentional errors less likely |
| Device/ Range/Setting selection | Keypad sequences;<br>Memorization required. | Visual icons;<br>No memorization required. |
| Memory saves settings | No;<br>All previously used settings erased. | Yes;<br>Returns to previous used settings. |
| Universality | No; includes TEC devices | Yes;<br>Includes devices of all blower door equipment manufacturers |

## Software

|  | **DG-700** gauge | **DM32** gauge |
|---|---|---|
| Firmware updates, over the internet | No | Yes; New features continuously added;<br>Free updates forever |
| PC Testing software | TECTITE;<br>Requires secondary TEC Log software to perform multiple fan tests;<br>Requires TEC Log data export back to TECTITE to generate report;<br>Gauge serial number requires manual entry | FanTestic;<br>Fully automated standalone software with live real time results and report generation;<br>For up to 50 multiple fan tests;<br>Gauge serial number recorded automatically |
| Simulation PC software;<br>Full remote operation, presentation display, etc. | Yes;<br>Need to purchase WiFi option | Yes;<br>"Virtual Gauge" PC software included, can operate via Ethernet, USB |
| WiFi | Added box that fits on top of gauge | Can be added internally over the Internet |

## Test functions

| Feature of Gauge | TEC | | | Retrotec | | |
|---|---|---|---|---|---|---|
| | DG700 $845 | DG700 with WiFi Link $1105 | DG1000 $1450 available soon | DM-2 $500 | DM32 $1050 | DM32 WFI $1350 |
| Set to any pressure | No | 0-100 Pa | Yes | Yes | Yes | Yes |
| Jog pressure target | No | No | unknown | Yes | Yes | Yes |
| Capture baseline | Yes | Yes | Yes | Yes | Yes | Yes |
| Visual confirmation of device/range setting | No | No | Yes | No | Yes | Yes |
| Get results from all makes of Devices | No | No | No | Yes, except 300, 4000, 5000 & 6000 | Yes | Yes |
| HOLD results | No | No | Yes | Yes | Yes | Yes |
| Change n value for holes, ducts or houses | No | No | unknown | Yes | Yes | Yes |
| All @ pressures | 25, 50 & 75 | 25, 50 & 75 | unknown | Yes | Yes | Yes |
| Windows ("Virtual Gauge" software | No | No | No | No | Yes with cable | Yes |
| Ethernet connectivity | No | 2 gauges on one cable | yes | No | At least 24 gauges on one 330 foot cable | |
| Time Average, seconds | 1, 5, 10, 30, long term | 1, 5, 10, 30, long term | unknown | 1, 5, 10, 30, long term | 1, 5, 10, 30, long term | 1, 5, 10, 30, long term |

| WiFi comparison | | DG700 gauge with WiFi Link & iTEC-700 software | DG1000 available soon | DM32 WiFi gauge |
|---|---|---|---|---|
| Hardware Feature | Create WiFi hotspot | Yes | Yes (built-in) | Yes (built-in) |
| | Join WiFi network | Yes | Yes (built-in) | Yes (built-in) |
| Software | Android app | No | Available soon | Yes |
| | iOS (Apple) app | Yes ("iTEC-700" software) | Available soon | Yes |
| | Windows Phone app | No | Available soon | Yes |
| | Windows | No | Available soon | Yes |
| Software Feature | Configure WiFi settings from gauge | No | Available soon | Yes |

## Results/Units available

| Result | Units | T EC | | | Retrotec | | |
|---|---|---|---|---|---|---|---|
| | | DG700 gauge | DG700 with WiFi Link | DG1000 available soon | DM-2 | DM32 | DM32 WFI |
| Pressure | Pa | Yes | Yes | Yes | Yes | Yes | Yes |
| | psf | No | No | No | Yes | Yes | Yes |
| | in WC | Yes | No | Yes | Yes | Yes | Yes |
| Flow | cfm | Yes | Yes | Yes | Yes | Yes | Yes |
| | l/s | Yes | Yes | Yes | Yes | Yes | Yes |
| | $m^3/h$ | Yes | Yes | Yes | Yes | Yes | Yes |
| | $m^3/s$ | No | No | Yes | Yes | Yes | Yes |
| Flow/Area | $cfm/ft^2$ | No | Yes | Yes | Yes | Yes | Yes |
| | $cfm/100ft^2$ | No | Yes | Yes | Yes | Yes | Yes |
| | $cfm/1000ft^2$ | No | No | | Yes | Yes | Yes |
| | $(m^3/h)/m^2$ | No | No | | Yes | Yes | Yes |
| | $(l/s)/m^2$ | No | No | | Yes | Yes | Yes |
| Air Changes | /h | No | Yes (@ 50 Pa only) | Yes (@ 50 Pa only) | Yes | Yes | Yes |
| EqLA | $ft^2$ $in^2$ $cm^2$ | No | No | unknown | Yes | Yes | Yes |
| EfLA | $ft^2$ $in^2$ $cm^2$ | No | No | unknown | Yes | Yes | Yes |
| EqLA/Area | $ft^2/ft^2$ | No | No | unknown | Yes | Yes | Yes |
| | $in^2/ft^2$ | No | No | unknown | Yes | Yes | Yes |
| | $cm^2/m^2$ | No | No | unknown | Yes | Yes | Yes |
| EfLA/Area | $ft^2/ft^2$ | No | No | unknown | Yes | Yes | Yes |
| | $in^2/ft^2$ | No | No | unknown | Yes | Yes | Yes |
| | $in^2/100ft^2$ | No | No | unknown | Yes | Yes | Yes |
| | $cm^2/m^2$ | No | No | unknown | Yes | Yes | Yes |