








## C38 Technical Data Sheet



### OEM Key features

-  **Reliable construction**
-  **Robust and compact design**
-  **No turbo-lag (Instant boost)**
-  **Installation flexibility**
-  **Reduced emission**
-  **Cost efficient solution**
-  **Power range: 200-530kW (272-720hp)**

### GENERAL DESCRIPTION

The C38 is the second most powerful centrifugal supercharger of the Rotrex standard product range. Countless numbers of large scale applications can be boosted by this very efficient, reliable and silent unit which supplies air flow up to 0.63 kg/s.

Impeller speeds of up to 90,000 rpm are achieved through the patented high-speed planetary traction drive which combines small size with exceptional performance and durability.

The very low noise and vibration characteristic as well as the high efficiency of these superchargers set the industry standard for what is achievable.

The C38 range is designed for four stroke gasoline engines with a supercharged output up to 530kW. Where one supercharger is not enough, it is possible to use two units to support large amounts of power in a twin-charger configuration. The C38 is also ideal for the supply of clean pressurized air for other applications such as industrial systems, fuel cell power plants etc.

The ground-breaking compact size enables a very flexible supercharger installation particularly on engine applications with tight space and where weight and size are essential.

The supercharger features an integrated dual-action oil pump that works as a dry sump scavenging pump in addition to being the oil supply pump. The self-contained oil system allows flexible positioning of the supercharger on the vehicle and has the benefit of fitting the supercharger without worrying about tampering with the oil system of the engine or any other accessory.

The Rotrex C-type supercharger has been developed and extensively tested with the special Rotrex traction fluid. To maintain the ultimate level of performance and durability it is very important that the unit is exclusively run with special Rotrex traction fluid. Make sure the inlet oil temperature is within the range specified in the table on the next page. Any deviation from the standard Rotrex oil circuit requires approval from Rotrex.

## C38 range supercharger

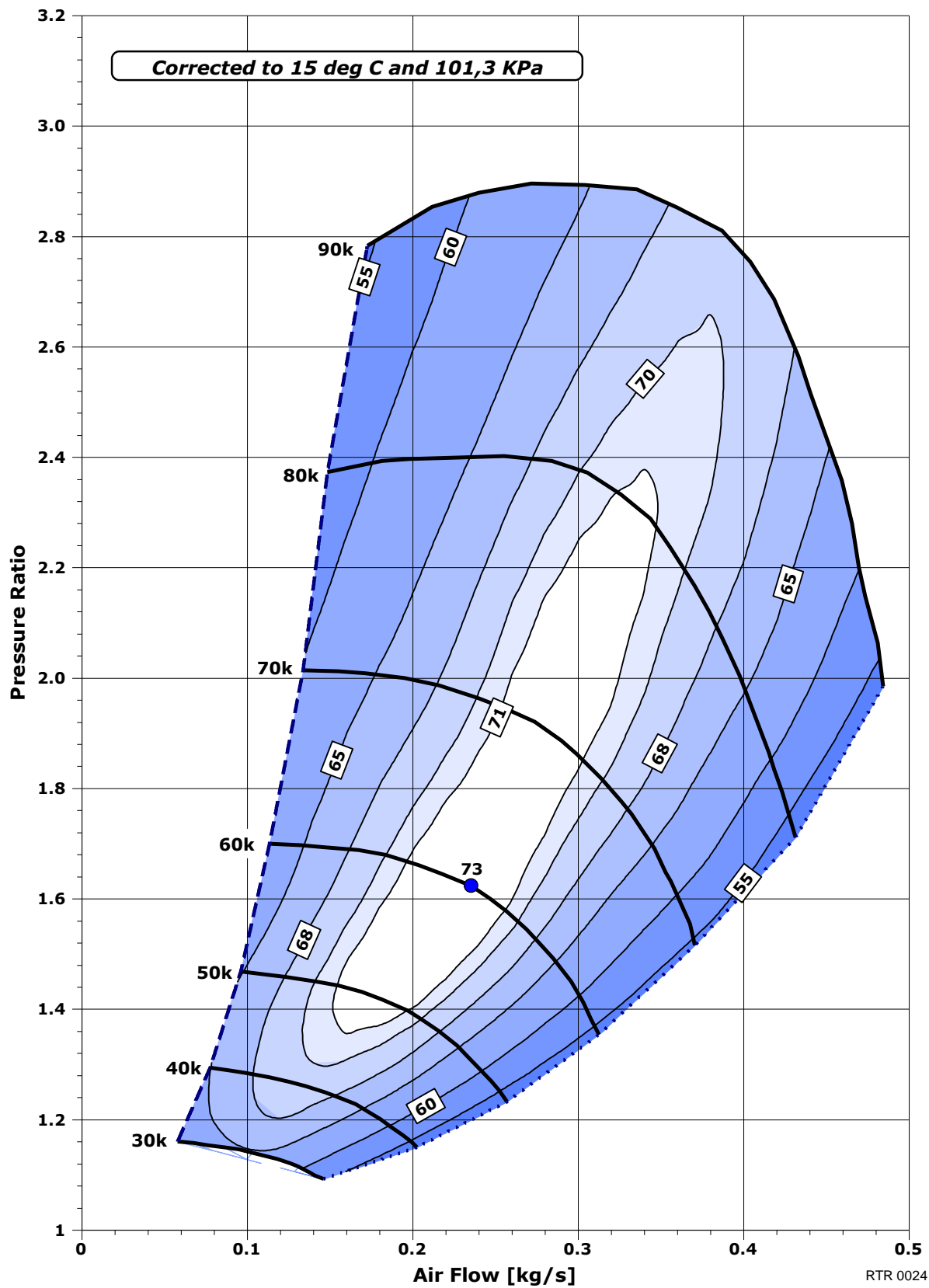
| Characteristic  | Symbol                    | C38-61   | C38-71                                   | C38-81                                   | C38-91/92                                |
|---|---------------------------|--|--|--|--|
| Rotational direction                                    | R <sub>indirection</sub>  | Clockwise rotation, as seen from pulley side                             |  |  |  |
| Power range <sup>[1]</sup>                              | P <sub>range</sub>        | 200-410kW<br>(272-557hp)   | 210-455kW<br>(286-620hp)                 | 220-485kW<br>(300-660hp)                 | 260-530kW<br>(354-720hp)                 |
| Max mass flow rate                                      | M <sub>flow</sub>         | 0.48 kg/s  | 0.55 kg/s                                | 0.58 kg/s                                | 0.63 kg/s                                |
| Max pressure ratio (P <sub>out</sub> /P <sub>in</sub> ) | PR <sub>max</sub>         | 2.90   | 2.82                                     | 2.85                                     | 2.94                                     |
| Mass moment of inertia                                  | I <sub>Supercharger</sub> | 9.011·10 <sup>-3</sup> kg·m <sup>2</sup>                                 | 9.286·10 <sup>-3</sup> kg·m <sup>2</sup> | 9.416·10 <sup>-3</sup> kg·m <sup>2</sup> | 9.528·10 <sup>-3</sup> kg·m <sup>2</sup> |
| Drive ratio   | N                         | 1:7.5  |  |  |  |
| Max drive efficiency                                    | η <sub>max</sub>          | 97%  |  |  |  |
| Unit weight   | M                         | 6.0 Kg (13.2 lbs)  |  |  |  |
| Pulley type   | -                         | Fitted with pulley adapter   |  |  |  |
| Pulley ring diameters available                         | Ø <sub>pulley</sub>       | 70, 75, 80, 85, 90, 95, 100, 105, 110 mm<br>8 rib aluminium - PK profile |  |  |  |
| Peak input shaft speed                                  | R <sub>inmax</sub>        | 12,000 RPM   |  |  |  |
| Peak impeller speed                                     | R <sub>outmax</sub>       | 90,000 RPM   |  |  |  |
| Min inlet oil temperature                               | Toil,in <sub>min</sub>    | -40°C (-40°F)  |  |  |  |
| Max inlet oil temperature                               | Toil,in <sub>max</sub>    | 80°C (176°F)   |  |  |  |
| Mounting torque Pulley ring bolts                       | M6x10                     | 10Nm (7.4 ft-lb)   |  |  |  |
| Mounting torque Bracket bolts                           | M8x85                     | 15Nm (11 ft-lb)  |  |  |  |
| Mounting torque Oil banjo bolts                         | M10x1                     | 21Nm (15.5 ft-lb)  |  |  |  |

[1] Power output is dependent on engine type, cooling, cam-timing etc.

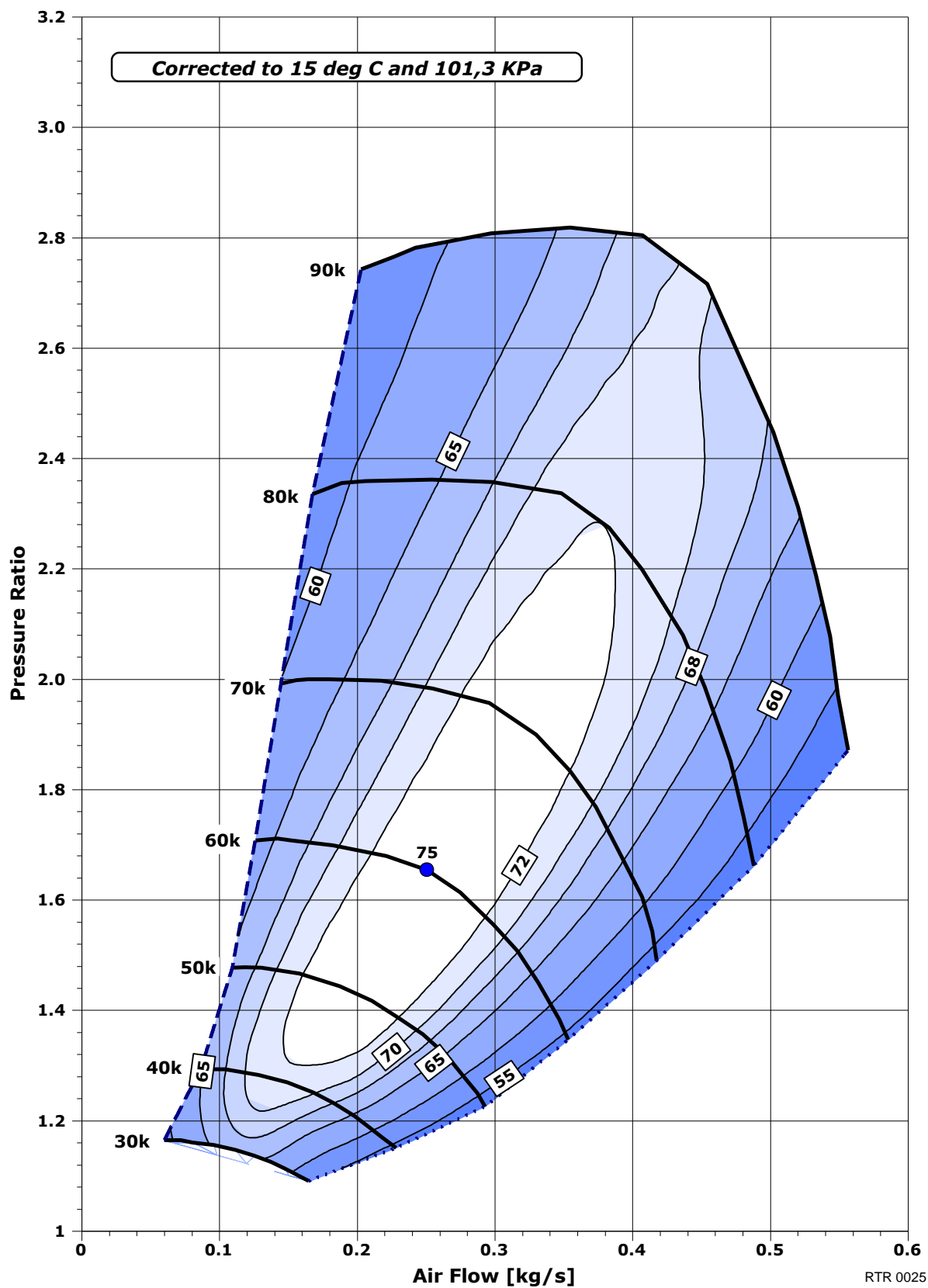
### Conversion Toolbox

|                           |  |  |                      |
|---------------------------|--|--|----------------------|
| Temperature conversion    | $^{\circ}\text{C} = \frac{5}{9} \times (^{\circ}\text{F} - 32)$ OR $^{\circ}\text{F} = \frac{9}{5} \times ^{\circ}\text{C} + 32$ |  |                      |
| Kg/s to lb/min conversion | $\frac{\text{kg}}{\text{s}} = 0.0075 \frac{\text{lb}}{\text{min}}$   | $\frac{\text{lb}}{\text{min}} = \frac{\frac{\text{Kg}}{\text{s}}}{0.0075}$ |                      |
| Kg/s to CFM conversion    | $\text{CFM} = \frac{\text{kg}}{\text{s}} \times 1731.8$  | $\frac{\text{kg}}{\text{s}} = \frac{\text{CFM}}{1731.8}$                   | @15°C and 0.1013 MPa |

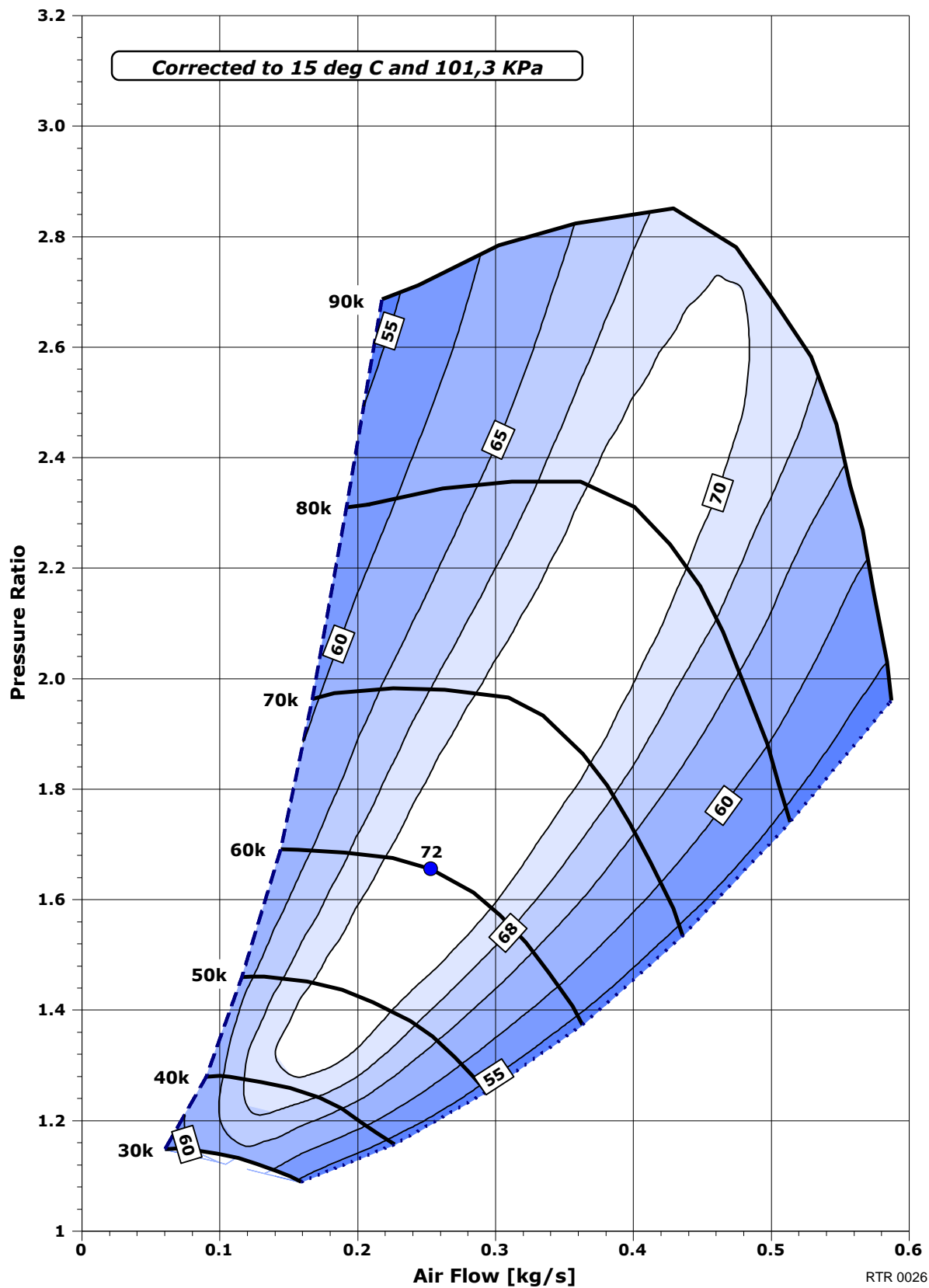
## C38-61 Compressor map



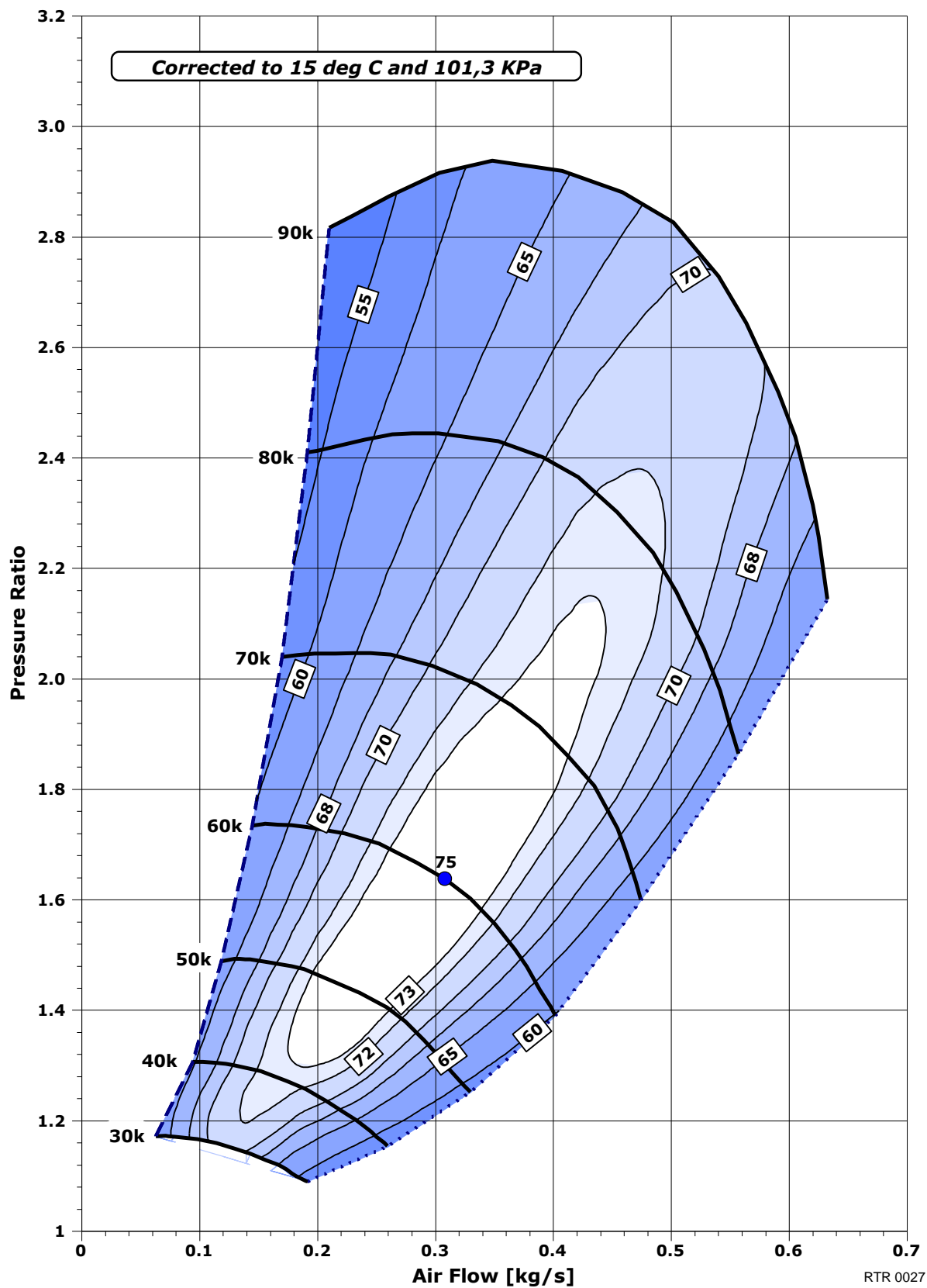
## C38-71 Compressor map



## C38-81 Compressor map



## C38-91/92 Compressor map

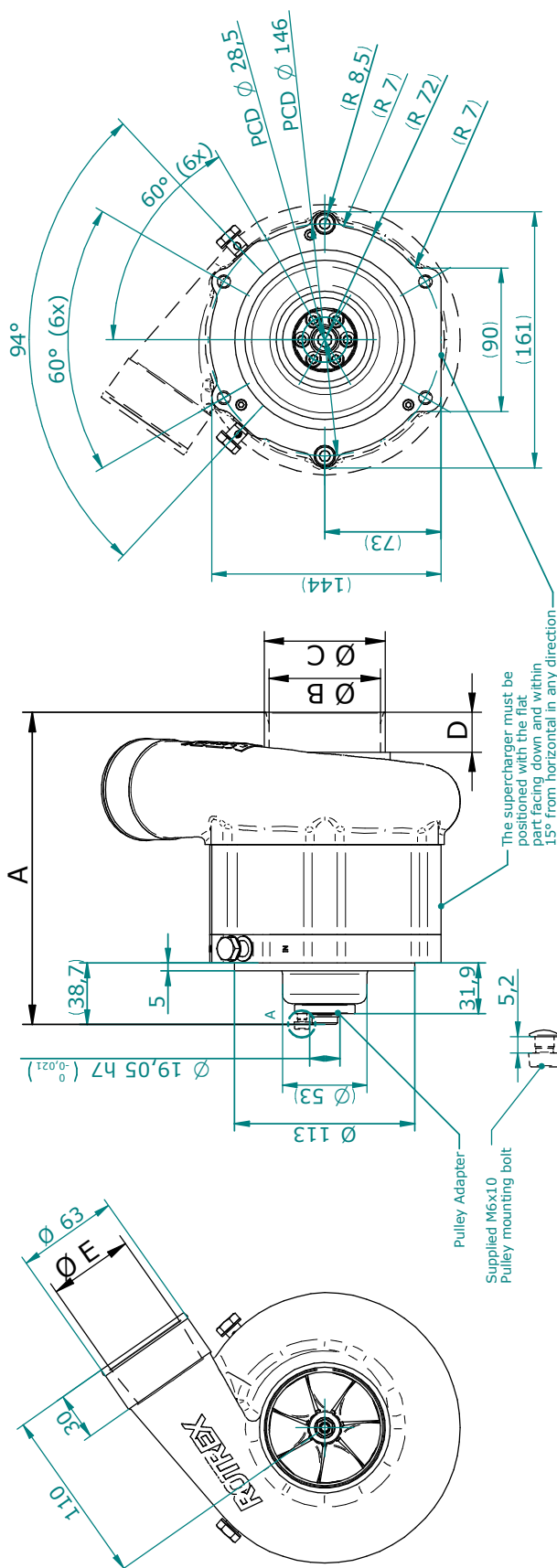
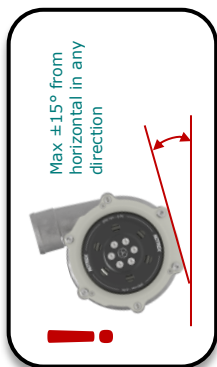
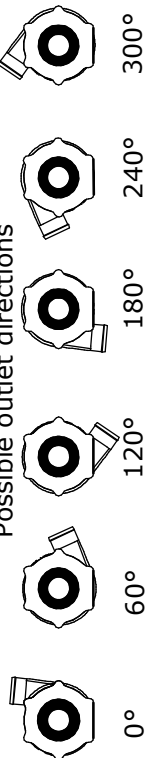




## C38 Dimensions

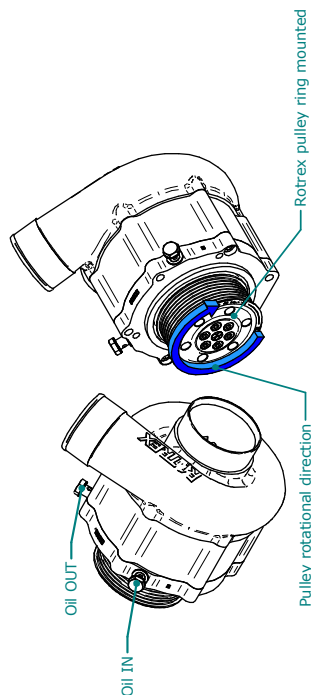
The supercharger can be ordered with the compressor housing mounted in one of six different outlet positions with 60° intervals to allow easy adoption to any application. 0° outlet direction being the Rotrex default

Possible outlet directions



DETAIL A

|        | A   | B  | C  | D  | E  |
|--------|-----|----|----|----|----|
| C38-61 | 188 | 66 | 76 | 25 | 51 |
| C38-71 | 188 | 68 | 76 | 25 | 51 |
| C38-81 | 188 | 70 | 76 | 25 | 51 |
| C38-91 | 196 | 70 | 76 | 25 | 53 |
| C38-92 | 203 | 70 | 89 | 30 | 53 |



All dimensions in mm unless otherwise specified

| Rotrex Pulley ring ø | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 105 | 110 |
|----------------------|----|----|----|----|----|----|-----|-----|-----|
|----------------------|----|----|----|----|----|----|-----|-----|-----|

