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.

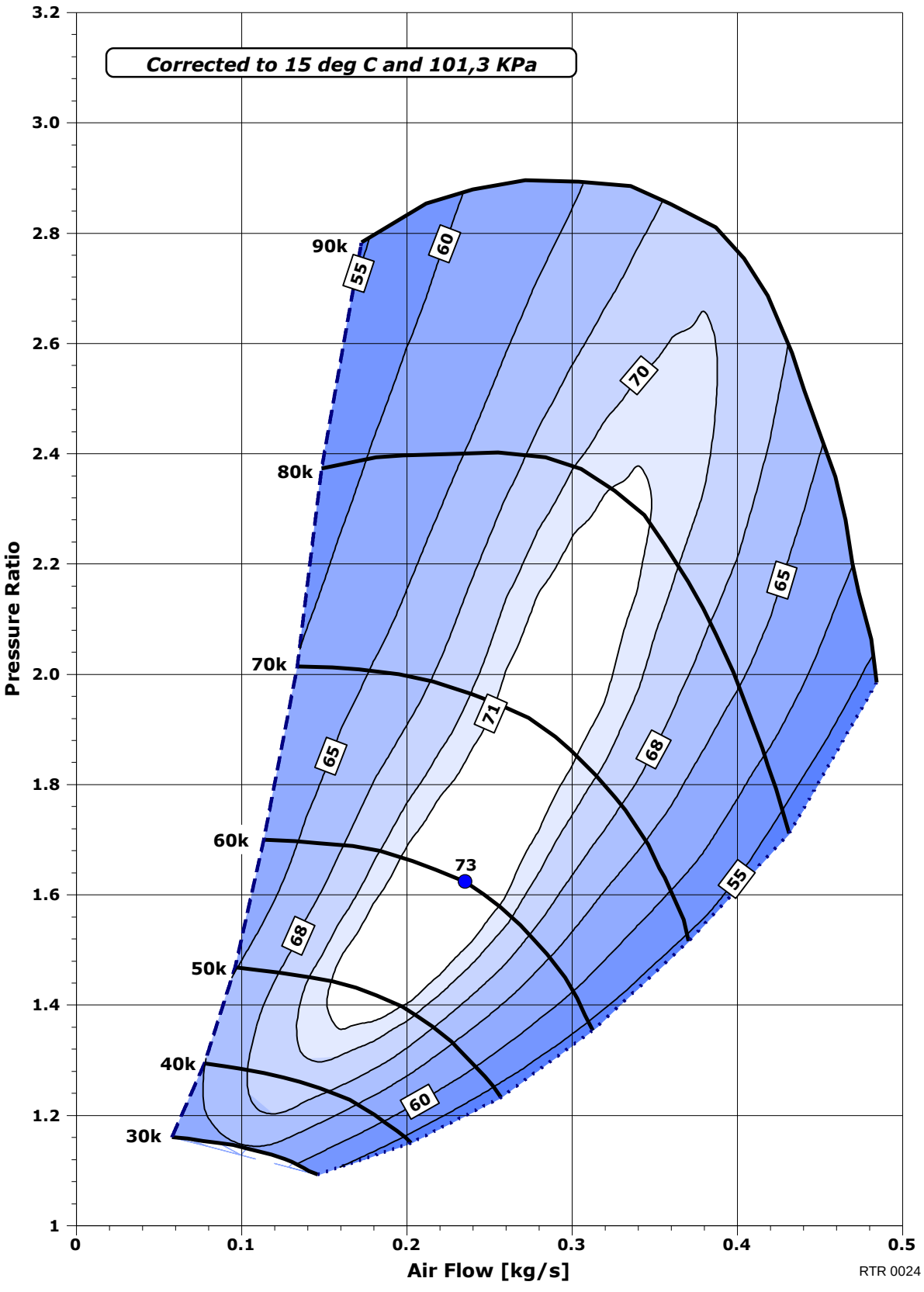
C38 range supercharger

Characteristic	Symbol	C38-61	C38-71	C38-81	C38-91/92
Rotational direction	$Rin_{direction}$	Clockwise rotation, as seen from pulley side			
Power range[1]	P_{range}	200-410kW (272-557hp)	210-455kW (286-620hp)	220-485kW (300-660hp)	260-530kW (354-720hp)
Max mass flow rate	M_{flow}	0.48 kg/s	0.55 kg/s	0.58 kg/s	0.63 kg/s
Max pressure ratio (P_{out}/P_{in})	PR_{max}	2.90	2.82	2.85	2.94
Mass moment of inertia	$I_{Supercharger}$	$9.011 \cdot 10^{-3}$ kg·m²	$9.286 \cdot 10^{-3}$ kg·m²	$9.416 \cdot 10^{-3}$ kg·m²	$9.528 \cdot 10^{-3}$ kg·m²
Drive ratio	N	1:7.5			
Max drive efficiency	η_{max}	97%			
Unit weight	M	6.0 Kg (13.2 lbs)			
Pulley type	-	Fitted with pulley adapter			
Pulley ring diameters available	$Ø_{pulley}$	70, 75, 80, 85, 90, 95, 100, 105, 110 mm 8 rib aluminium - PK profile			
Peak input shaft speed	Rin_{max}	12,000 RPM			
Peak impeller speed	$Rout_{max}$	90,000 RPM			
Min inlet oil temperature	$Toil,in_{min}$	-40°C (-40°F)			
Max inlet oil temperature	$Toil,in_{max}$	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)			

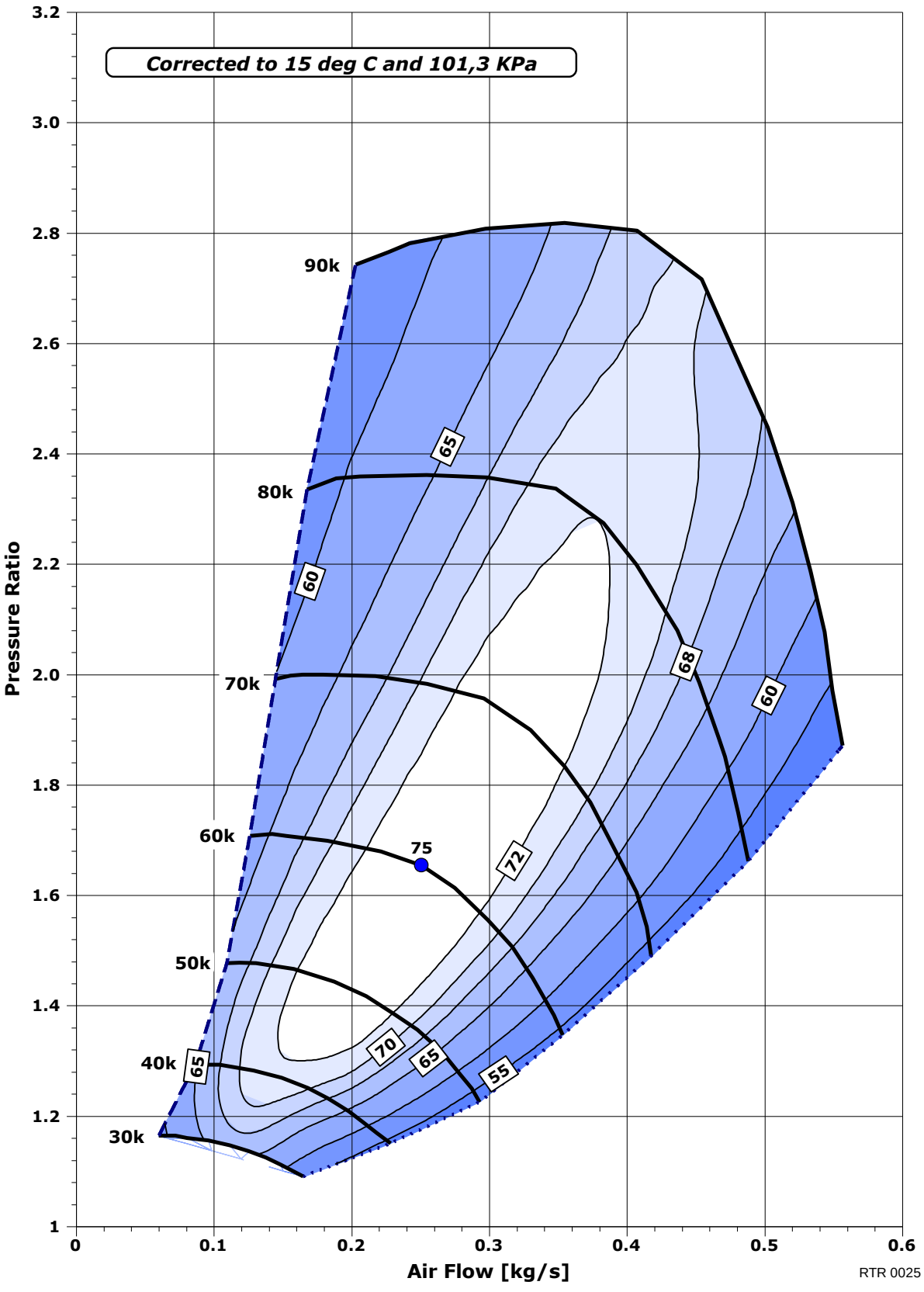
[1] Power output is dependent on engine type, cooling, cam-timing etc.

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

C38-61 Compressor map



C38-71 Compressor map



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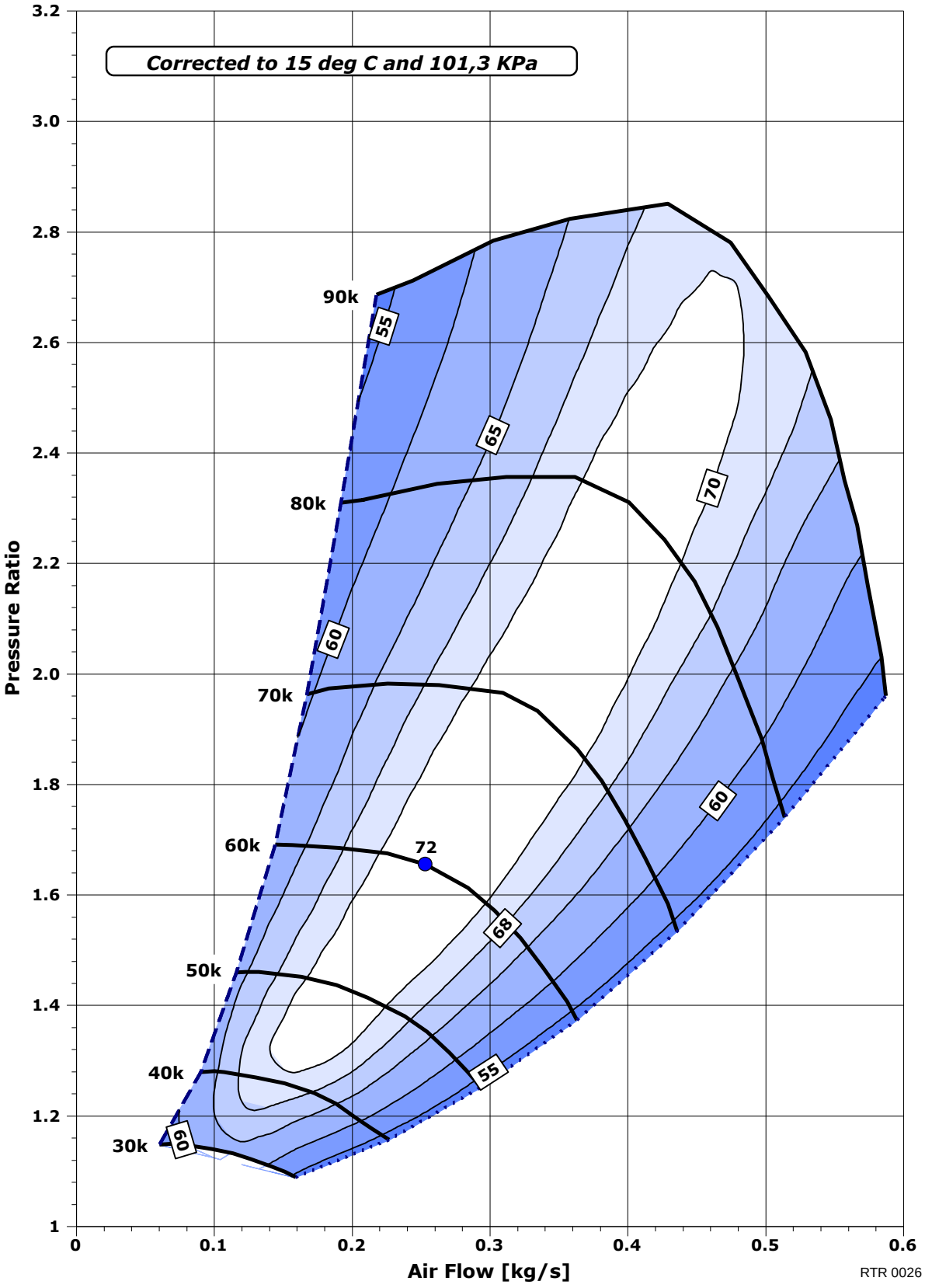
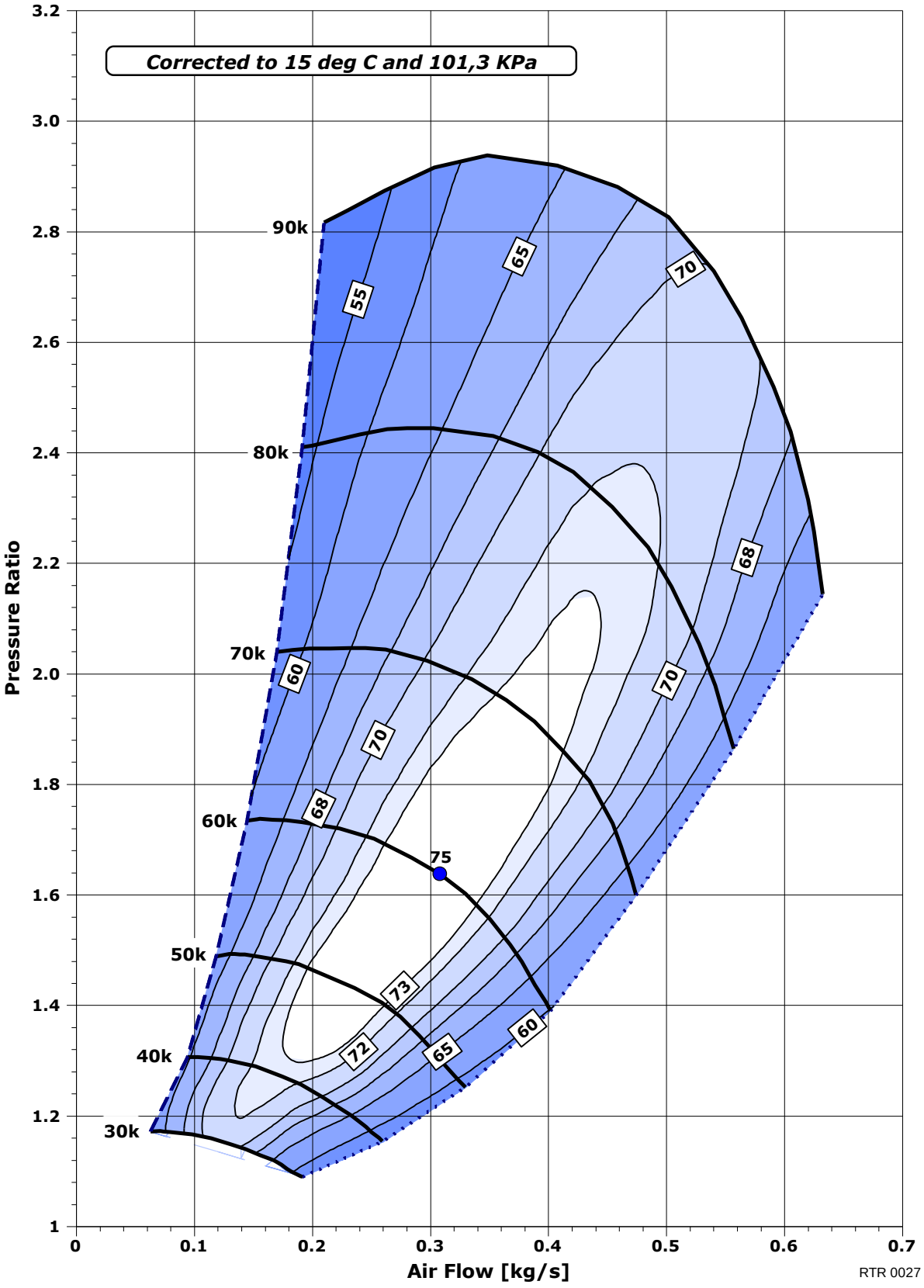
C38-81 Compressor map



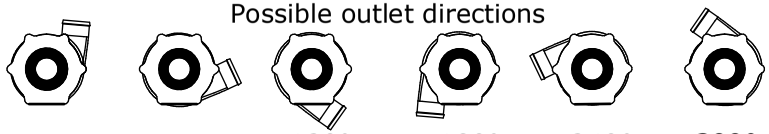
C38-91/92 Compressor map

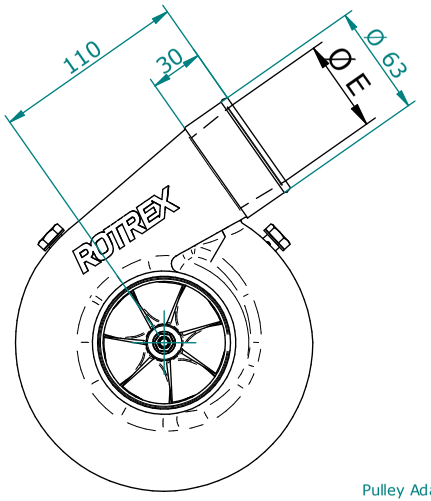


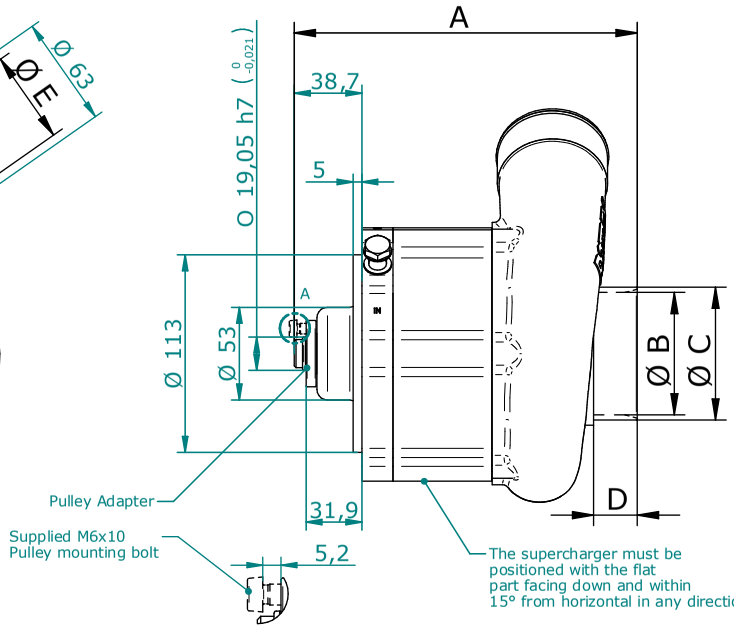
C38 Dimensions

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

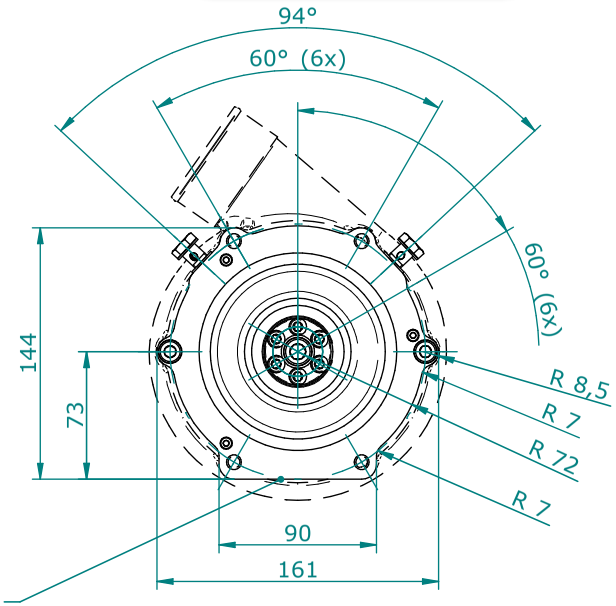
Possible outlet directions

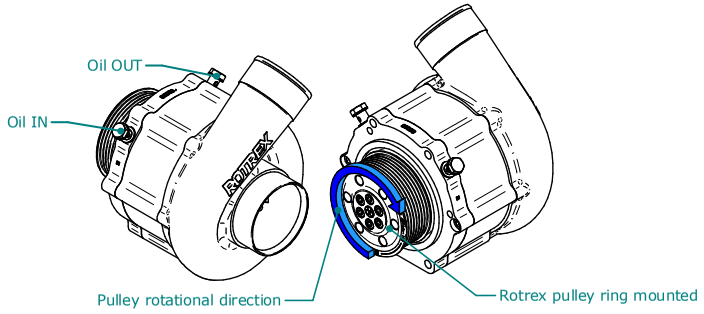






DETAIL A





	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

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

All dimensions in mm unless otherwise specified