

Modern diesel technology

Latest type-approval results for the growing fleet of RDE-compliant cars

November 2018



About the RDE test

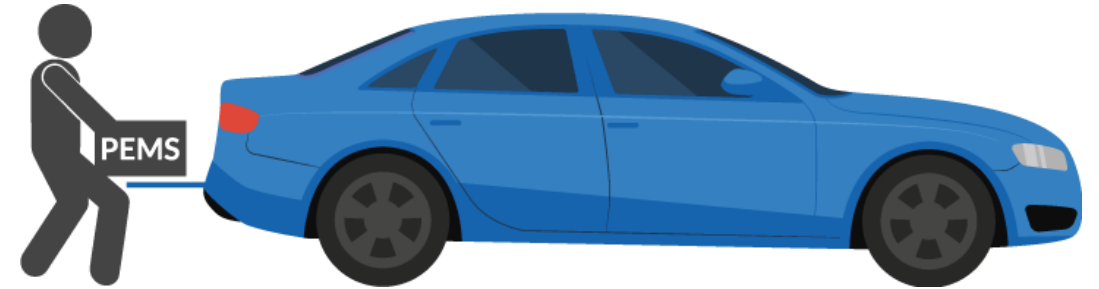
NEW REAL DRIVING EMISSIONS (RDE) TEST

- **The new RDE test ensures that cars deliver low pollutant emissions where it matters**
 - Closing gap: lab vs on-road performance
- **RDE measures the key pollutants, NOx and particles, emitted by cars on the road**
 - Driven over a wide range of conditions using portable emission measuring kits
 - Verifies that legal RDE thresholds for pollutants are not exceeded
- **Came into effect on 1 September 2017**



RDE-COMPLIANT EURO 6 CARS

- Auto makers have made major investments to deliver significant improvements in NOx emissions from RDE-compliant vehicles
- Latest generation of diesel and petrol cars emit very low pollutant emissions on the road, under new RDE test
- RDE-compliant cars will play a strong role in helping cities move towards compliance with EU air quality targets
- Need to differentiate between old diesel fleet and RDE vehicles



Latest RDE approval results

LATEST RDE APPROVAL RESULTS

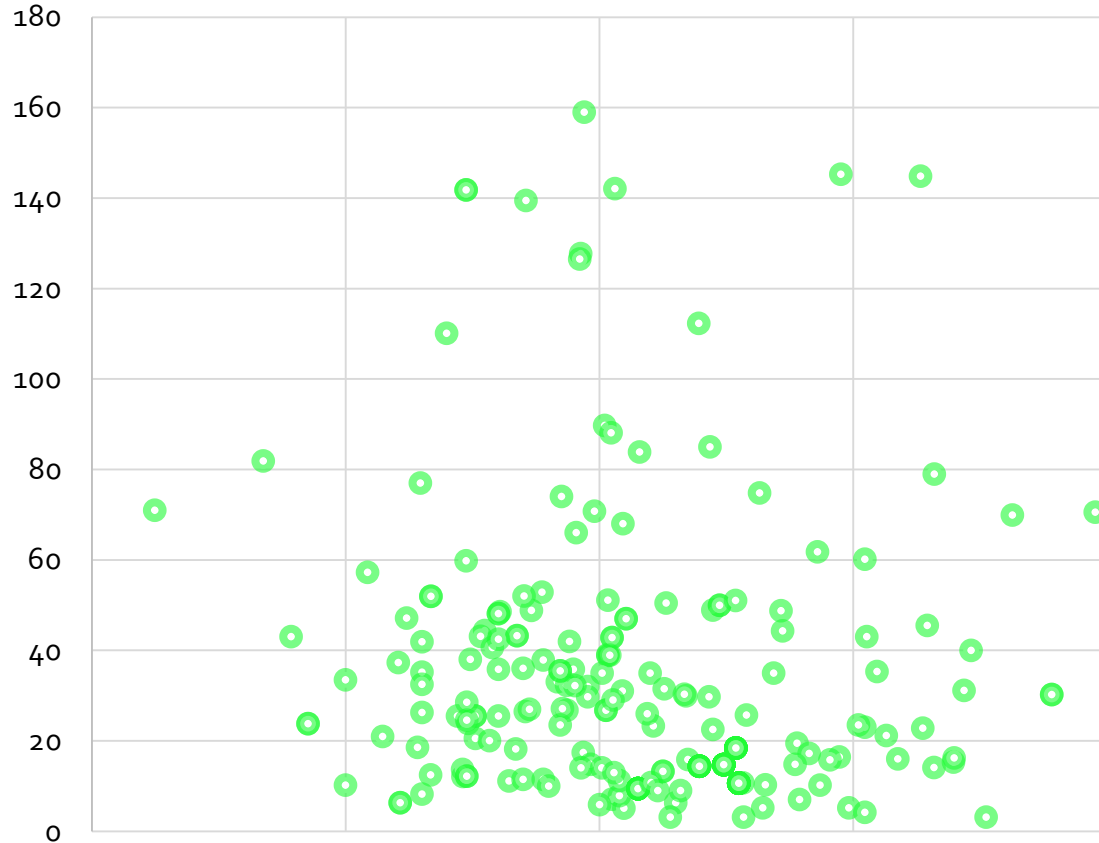
- **Latest industry-wide RDE approvals show very low NOx**
 - Both during total RDE trip (city, rural and motorway driving) and urban RDE
 - Urban trip is more challenging than total RDE trip, but data is showing excellent performance (below the Euro 6 NOx limit) in urban environments
- **Increasing availability of RDE-compliant Euro 6 diesels**
 - February 2018: RDE data for 14 diesel types (ie each type representing a 'family' of similar vehicles, so a multitude of models available on the market)
 - October 2018: RDE data for 270 diesel types (x 19 in the space of 8 months!)
- **These data are not driven by car manufacturers, results are generated (on the road) by drivers of the approval authorities!**

LATEST RDE APPROVAL RESULTS

October 2018: data for 270 RDE-compliant diesel vehicle types

NOx total [mg/km]

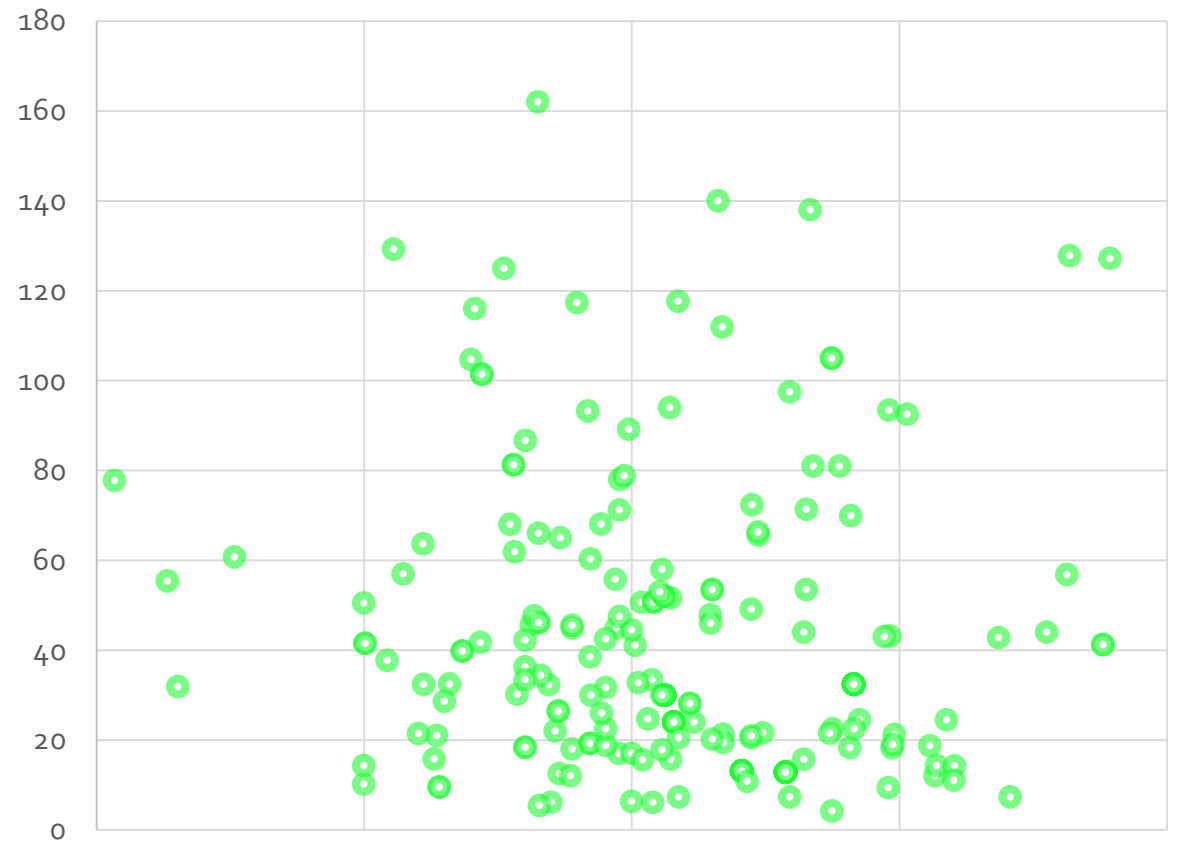
Total RDE



→ PN total [#km]

NOx total [mg/km]

Urban RDE



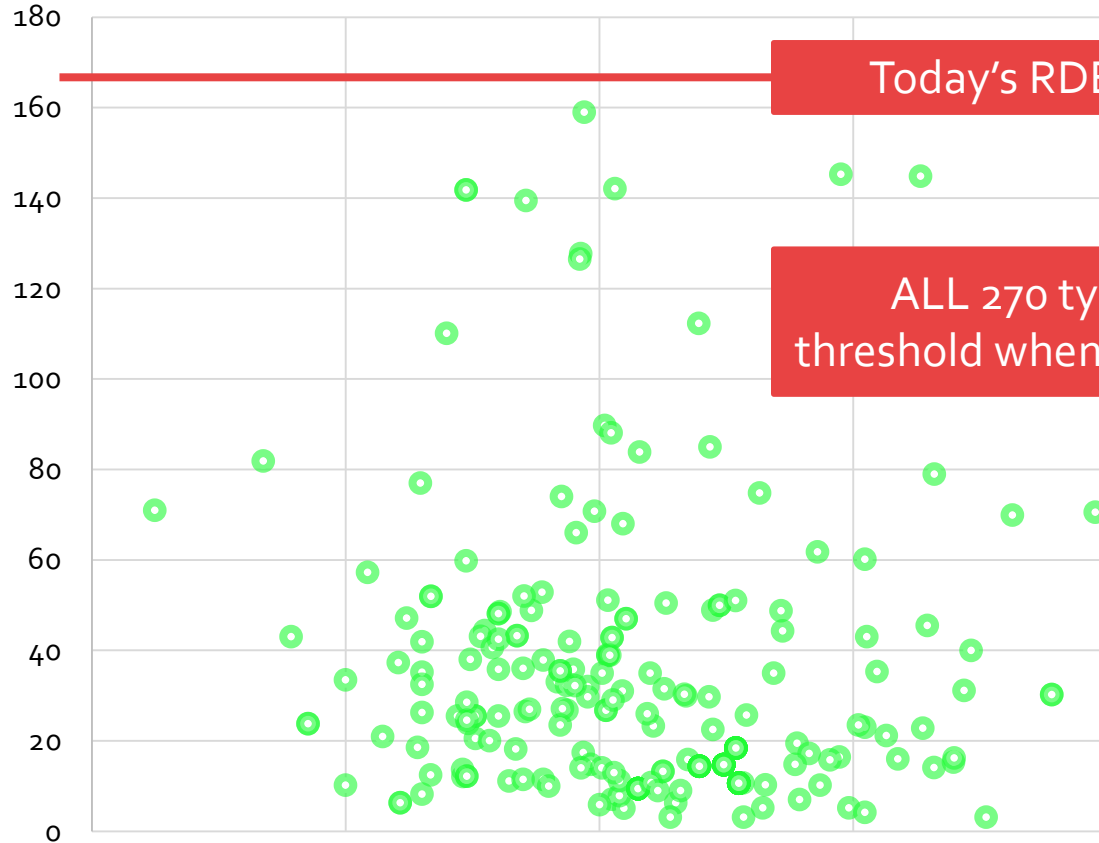
→ PN total [#km]

LATEST RDE APPROVAL RESULTS

October 2018: data for 270 RDE-compliant diesel vehicle types

NOx total [mg/km]

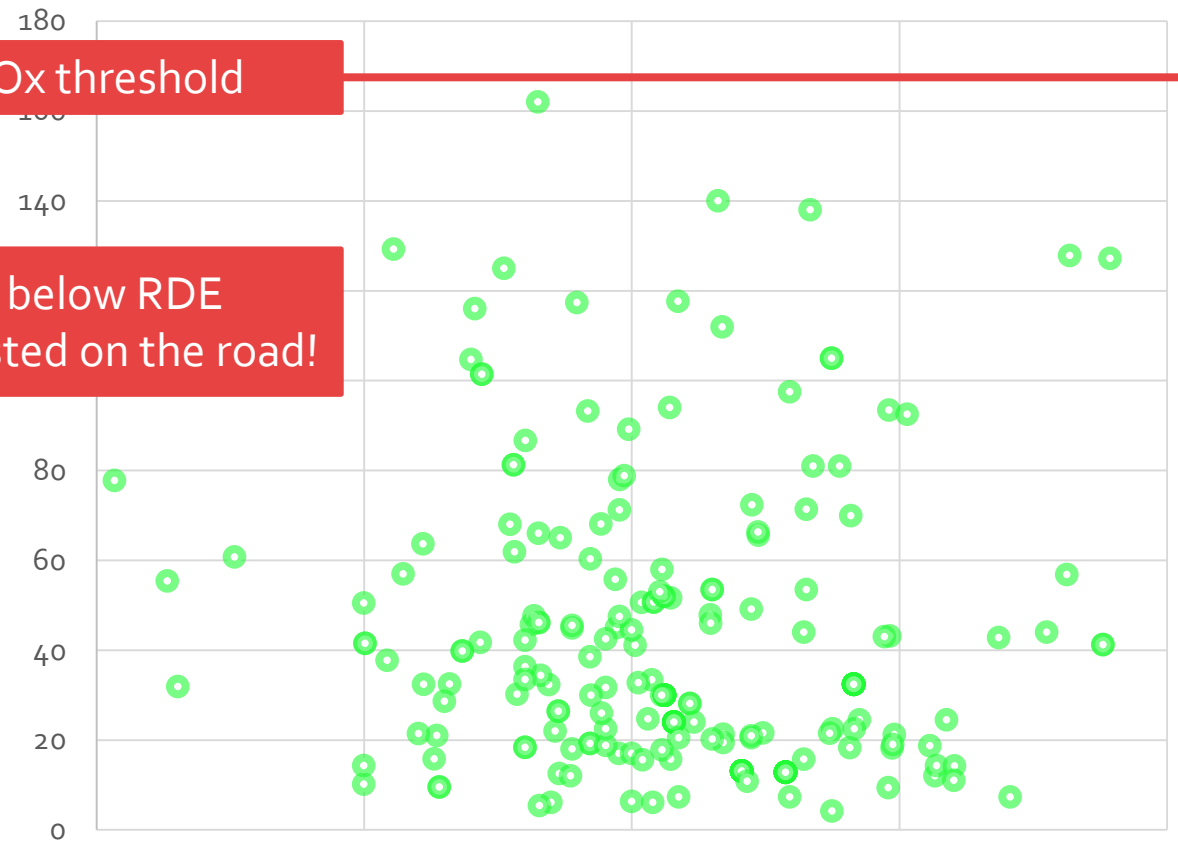
Total RDE



→ PN total [#km]

NOx total [mg/km]

Urban RDE



→ PN total [#km]

Today's RDE NOx threshold

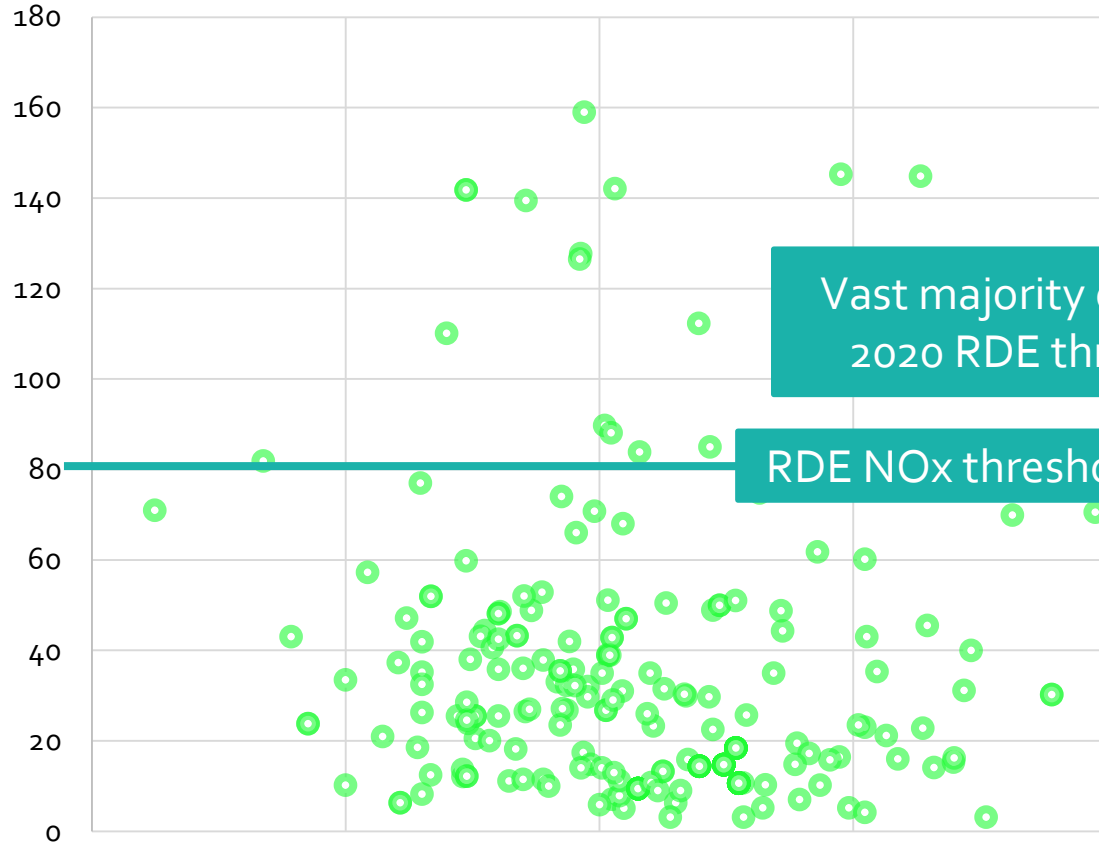
ALL 270 types below RDE threshold when tested on the road!

LATEST RDE APPROVAL RESULTS

October 2018: data for 270 RDE-compliant diesel vehicle types

NOx total [mg/km]

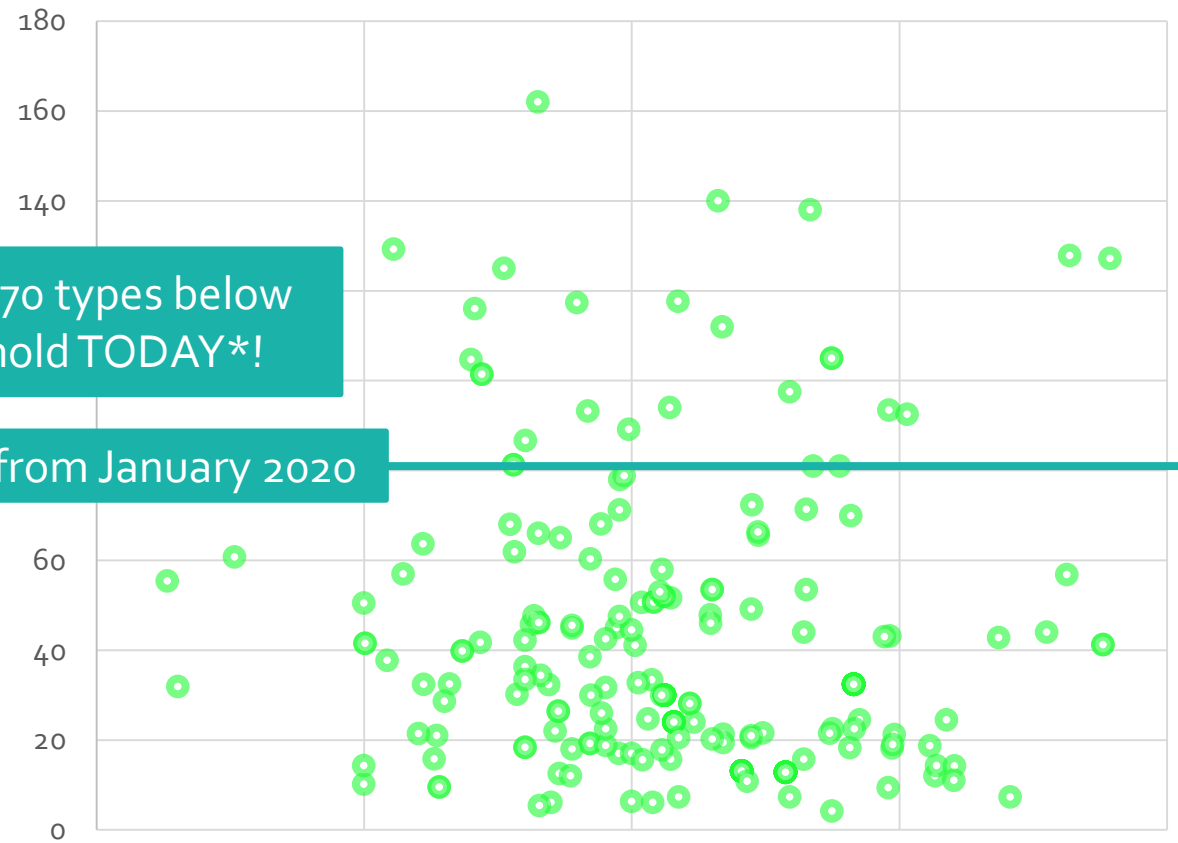
Total RDE



→ PN total [#km]

NOx total [mg/km]

Urban RDE



→ PN total [#km]

Vast majority of 270 types below 2020 RDE threshold TODAY*!

RDE NOx threshold from January 2020

(*) Meeting 2020 RDE threshold today does not equate to full type approval to RDE step 2, as all RDE step 2 legal requirements are not ready yet.