

### TURBOCHARGERS – EFFICIENT AND POWERFUL



TAKING RESPONSIBILITY IN A CHANGING WORLD



## **TURBO BY INTEC** THE BRAND FOR TURBOCHARGERS

Turbochargers are used in almost all modern passenger car engines and are increasingly also found in utility vehicle engines. A lack of maintenance or other defective engine components can have a major impact on a turbocharger's durability – and may even cause it to fail. With its turbochargers under the turbo by Intec brand, Motorservice offers high-quality replacement part solutions for any vehicle application.

The product range includes turbochargers for passenger cars, utility vehicles and off-highway applications as well as products relating to turbochargers – a complete product range from a single source. Under the turbo by Intec brand, Motorservice offers its own assortment of replacement products for common turbocharger applications with its turbocharger range – in order to meet market requirements even better. As a result, by replacing the turbocharger on older vehicles, repair shops can respond to the competitive pressure in the passenger car sector with high-quality solutions.

#### turbo by Intec

- Wide range of high-quality turbochargers for many common engine types used in passenger cars / utility vehicles and other applications
- Many years of experience in reconditioning turbochargers
- Reconditioning according to OE specifications (bearing clearance, etc.)
- Use of original spare part kits if available
- The Performance range offers special modifications for rally vehicles and race cars



We provide a comprehensive product portfolio covering a wide range of engines -Some examples of our turbochargers for the aftermarket are listed below:

226120025     PSA     0375Q6     1.6L HDI 90CV       221900183     BMW     11 657 810 189     2.0L TD 140CV       221890171     Volkswagen     04C145701C     1.0L TSI       221900049     Seat     038253056EX     VAG 1.9 TDI       221900156     Audi     031253016T     VAG 1.6 TDI 105CV       22190017     Citroën     0375N1     PSA 1.6 HDI 112 CV       22190016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221890016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221890017     BMW     11 657780758     2.0L TD 140CV       22189018     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221890193     Nissan     1441100016     Renault 1.5L DCI 110CV       221890193     Nissan     1441100016     Renault 1.5L DCI 110CV       221890020     Citroën     037559     PSA 1.3L HDI 75CV       221890021     Ford     181989A     PSA 1.3L HDI 75CV       221890023     Citreën     9204945280     1.6L HUE 115CV       221890024     Renault     7701476880<	ltem no.	Manufacturer	OE ref. no. *	Engines
226120036     BMW     11658519476     2.0L TD 184CV       221890171     Volkswagen     04C145701C     1.0L TSI       221900049     Seat     038253056EX     VAG 1.9 TDI       221900156     Audi     031253016T     VAG 1.6L TDI 105CV       221900152     Citroën     037569     PSA 1.6 HDi 112 CV       22190016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       22180016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221800134     BMW     116577808758     2.0L TD 184CV       22180023     BMW     11657808758     2.0L TD 184CV       22189003     Nissan     1441100Q16     Renault 1.5L DCI 110CV       221890020     Citroën     037569     PSA 2.06 / C1 / C2 / C3, Ford Fiesta 1.4 HDi       221890021     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221890023     Citroën     9304945280     1.6L BlueHDi       22190024     Citroën     9804945280     1.6L BlueHDi       22190025     Renault     7701476880     1.5 L GCI       22190020     Peugeot <th>226120025</th> <th>PSA</th> <th>0375Q6</th> <th>1.6L HDI 90CV</th>	226120025	PSA	0375Q6	1.6L HDI 90CV
221890171     Volkswagen     04C145701C     1.0L TSI       221900196     Audi     031253056EX     VAG 1.9 TDI       221900196     Audi     031253016T     VAG 1.6L TDI 105CV       221900152     Citroën     0375N1     PSA 1.6 HDI 112 CV       22190016     Fiat     71784113     Opel/fat 1.3 ITO-CDT       221900134     BMW     1165 7 794 022     NA7 D20 C       221890131     Audi     031253056T     VAG 2.0 LTD 184CV       22189033     Nissan     1441100Q16     Renault 1.5L DCI 110CV       221890020     Citroën     037569     PSA 2.06 / C1 / (2 / C3, Ford Fiesta 1.4 HDi       221890038     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221890018     Fiat     71724455     Panda / Grande Punto 1.3 CDTI / JTD       221890018     Fiat     717244580     1.5 dCi 85 CV       22190020     Citroën     9804945280     1.6 LBueHDi       221890018     Fiat     7101476880     1.5 LCi 8CI 100 / 150CV	221900183	BMW	11 65 7 810 189	2.0L D 140CV
22190049     Seat     038253056EX     VAG 1.9 TDI       221900196     Audi     031253016T     VAG 1.6L TDI 105CV       221900152     Citroën     0375N1     PSA 1.6 HDI 112 CV       22190016     Fiat     037569     PSA 1.6 HDI 110 CV       22190016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDT       221900134     BMW     1165 7 794 022     Na7 D20 C       221890013     Audi     031253056T     VAG 2.0 UTD 184CV       221890020     Citroën     037569     PSA 2.6Q C/L /C2 /C3, Ford Fiesta 1.4 HDi       221890031     Audi     031253056T     VAG 2.0 UTD 140CV       221890020     Citroën     037569     PSA 2.6Q C/L /C2 /C3, Ford Fiesta 1.4 HDi       221890020     Citroën     037569     PSA 1.3 LHD /SCV       221890020     Citroën     037569     PSA 1.4 HDi       221900219     Ford     1819894     PSA 1.3 LHD /SCV       221890018     Fiat     71724445     Panda /Grande Punto 1.3 CDTI /JTD       221890010     Wetkswagen     04E145703Q     VW GOLF VII 1.2 TSI       221890012	226120036	BMW	11658519476	2.0L TD 184CV
221900196     Audi     03L253016T     VAG 1.6L TDI 105CV       221900152     Citroën     0375N1     PSA 1.6 HDI 112 CV       221900047     Citroën     037569     PSA 1.6 HDI 110 CV       22190016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       22190017     BMW     1165 7794 022     N47 D20 C       22180017     BMW     11657 808758     2.0L TD 184CV       221890037     BMW     031253056T     VAG 2.0L TD 140CV       221890039     Nissan     1441100Q16     Renault 1.5L DCI 110CV       221890020     Citroën     037569     PSA 206/(1/C2/C3, Ford Fiesta 1.4 HDi       2218900219     Ford     1819894     PSA 1.3L HDI 75CV       221890031     Volkswagen     04E145703Q     VW GOLF VII.1.2 TSI       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI //TD       221890019     Korke     9804945280     1.6L BlueHDi       221890021     Renault     7701476880     1.5 dCi 85 CV       221900220     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190023 <td< th=""><th>221890171</th><th>Volkswagen</th><th>04C145701C</th><th>1.0L TSI</th></td<>	221890171	Volkswagen	04C145701C	1.0L TSI
221900152     Citroën     0375N1     PSA 1.6 HDi 112 CV       221900047     Citroën     037569     PSA 1.6 HDi 110 CV       221890016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221900134     BMW     11 65 7 794 022     N47 D20 C       221890013     Audi     031253056T     VAG 2.0.1 TDI 184CV       22189003     Nissan     1441100016     Renault 1.5L DCI 110CV       221890020     Citroën     037569     PSA 206/C1/C2/C3, Ford Fiesta 1.4 HDi       221900219     Ford     1819894     PSA 1.3.H DI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI /JTD       221890032     Citroën     9804945280     1.6.6 BlueHDi       221890016     Renault     7701476880     1.5 dCi 85 CV       221890020     Citroën     9804945280     1.6.1 BlueHDi       221890021     Mercedes-Benz     646 096 01 99     Sprinter 2.11 CDI 100/150CV       221900220     Peugeot     0375P8     PSA 1.6.1 HDI 115CV       22190023     Renault     80137450045     1.51 dCi       221900	221900049	Seat	038253056EX	VAG 1.9 TDI
221900047     Citroën     037569     PSA 1.6 HDI 110 CV       221890016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221900134     BMW     11 65 7 794 022     N47 D20 C       221900134     BMW     1165 7 808758     2.0L TD 184CV       221890031     Audi     03L253056T     VAG 2.0L TDI 140CV       221890030     Nissan     1441100Q1G     Renault 1.5L DCI 110CV       221890020     Citroën     037569     P5A 206/C1/C2/C3, Ford Fiesta 1.4 HDi       22190013     Ford     1819894     P5A 1.3L HDI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       22180003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       22180004     Renault     7701476880     1.5L dCi       22190010     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100 / 150CV       22190020     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190014     Volkswagen     03F145701H     1.2L TSI  2	221900196	Audi	03L253016T	VAG 1.6L TDI 105CV
221890016     Fiat     71784113     Opel/Fiat 1.3 JTD-CDTI       221900134     BMW     11 65 7 794 022     N47 D20 C       226120037     BMW     1165 7 794 022     N47 D20 C       221890131     Audi     03L253056T     VAG 2.0L TD 184CV       221890039     Nissan     1441100Q16     Renault 1.5 L DC1110CV       221890020     Cltroën     037569     P5A 206 / C1 / C2 / C3, Ford Fiesta 1.4 HDi       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       22180003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       221800051     Renault     7701476880     1.6L BlueHDi       22190001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100 / 150CV       221900020     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190020     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       221900220     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920024     Ford     1684949     PSA 1.6L HDI 110CV	221900152	Citroën	0375N1	PSA 1.6 HDi 112 CV
221900134     BMW     11 65 7 794 022     N47 D20 C       226120037     BMW     1165 7 794 022     N47 D20 C       221890131     Audi     03L253056T     VAG 2.0L TD1 140CV       221890093     Nissan     1441100Q16     Renault 1.5L DC1 110CV       221890020     Citroën     037569     PSA 206/C1/C2/C3, Ford Fiesta 1.4 HDi       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI/JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI/JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI/JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI/JTD       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI/JTD       221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       221890051     Renault     7701476880     1.5 dCi 85 CV       221920001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100/150CV       22190023     Renault     7701476880     1.5L dCi       22190024     Renault     80137450045 <td< th=""><th>221900047</th><th>Citroën</th><th>037569</th><th>PSA 1.6 HDi 110 CV</th></td<>	221900047	Citroën	037569	PSA 1.6 HDi 110 CV
226120037     BMW     11657808758     2.0L TD 184CV       221890131     Audi     03L253056T     VAG 2.0L TDI 140CV       221890093     Nissan     1441100Q1G     Renault 1.5L DCI 110CV       221890020     Citroën     0375G9     PSA 206 / C1 / C2 / C3, Ford Fiesta 1.4 HDi       221900219     Ford     1819894     PSA 1.3L HDI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       221890051     Renault     7701476880     1.5 dCi 85 CV       221900053     Renault     80137450045     1.5L dCi       221900053     Renault     80137450045     1.5L dCi       221900263     Renault     80137450045     1.5L dCi       221900210     Peugeot     0375P8     PSA 1.6L HDI 115CV       2219002178     Audi     028145702N     VAG 1.9L TDI 110CV       221900214     Volkswagen     03F145701H     1.2L TSI       22190025     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       22190026	221890016	Fiat	71784113	Opel / Fiat 1.3 JTD-CDTI
221890131     Audi     03L253056T     VAG 2.0L TDI 140CV       221890093     Nissan     1441100Q1G     Renault 1.5L DCI 110CV       221890020     Citroën     0375G9     PSA 206/C1/C2/C3, Ford Fiesta 1.4 HDi       221900219     Ford     1819894     PSA 1.3L HDI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       22180003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       22180061     Renault     7701476880     1.5 dCI 85 CV       221920001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100 / 150CV       221900263     Renault     8013745004S     1.5L dCi       221900270     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190028     Renault     028145702N     VAG 1.4 TFSI 125 CV       22190029     Peugeot     037145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.4 TFSI 125 CV       22190022     Ford     1684949     PSA/Ford 1.6 HDI 90 8 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV	221900134	BMW	11 65 7 794 022	N47 D20 C
221890093     Nissan     1441100Q1G     Renault 1.SL DCI 110CV       221890020     Citroën     0375G9     PSA 206/C1/C2/C3, Ford Fiesta 1.4 HDi       221900219     Ford     1819894     PSA 1.3L HDI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       226120032     Citroën     9804945280     1.6L BlueHDi       221890061     Renault     7701476880     1.5 dCi 85 CV       221900020     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100/150CV       221900263     Renault     80137450045     1.5L dCi       221900270     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190018     Audi     028145702N     VAG 1.9L TDI 110CV       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV <tr< th=""><th>226120037</th><th>BMW</th><th>11657808758</th><th>2.0L TD 184CV</th></tr<>	226120037	BMW	11657808758	2.0L TD 184CV
221890020     Citroën     0375G9     PSA 206/C1/C2/C3, Ford Fiesta 1.4 HDi       221900219     Ford     1819894     PSA 1.31 HDI 75CV       221890018     Fiat     71724445     Panda/Grande Punto 1.3 CDTI/JTD       221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       226120032     Citroën     9804945280     1.6L BlueHDi       22190001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100/150CV       221900263     Renault     7701476880     1.5L dCi       221900263     Renault     8013745004S     1.5L dCi       221900270     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       2219200178     Audi     028145702N     VAG 1.9 TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDI 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV	221890131	Audi	03L253056T	VAG 2.0L TDI 140CV
221900219     Ford     1819894     PSA 1.3L HDI 75CV       221890018     Fiat     71724445     Panda / Grande Punto 1.3 CDTI / JTD       221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       226120032     Citroën     9804945280     1.6L BlueHDi       221890061     Renault     7701476880     1.5 dCi 85 CV       221900263     Renault     8013745004S     1.5L dCi       221900263     Renault     8013745004S     1.5L dCi       221900270     Peugeot     0375P8     PSA 1.6L HDI 115CV       22190014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA / Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900262     Volkswagen     038145702J     VAG 1.9 TDI       221900262     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel	221890093	Nissan	1441100Q1G	Renault 1.5L DCI 110CV
221890018Fiat71724445Panda / Grande Punto 1.3 CDTI / JTD221100003Volkswagen04E145703QVW GOLF VII 1.2 TSI226120032Citroën98049452801.6L BlueHDi221890061Renault77014768801.5 dCi 85 CV22192001Mercedes-Benz646 096 01 99Sprinter 2.1L CDI 100 / 150CV221900263Renault8013745004S1.5L dCi221900220Peugeot0375P8PSA 1.6L HDI 115CV22190014Volkswagen03F145701H1.2L TSI221900178Audi028145702NVAG 1.9L TDI 110CV226120002Ford1684949PSA/Ford 1.6 HDi 90 & 75 CV221900261Ford96770637802.0L TDCI 165CV221900260Peugeot1609652780PSA 2.0L HDI 150CV221900262Volkswagen038145702JVAG 1.9 TDI221900263Rengeot1609652780PSA 2.0L HDI 150CV221900264Hougest1609652780PSA 2.0L HDI 150CV221900265Peugeot1609652780PSA 2.0L HDI 150CV221900264Hougest038145702JVAG 1.9 TDI221900258Opel252010631.4L A14 / B14 140CV221900154Hyundai282012A4001.5L CRDI 110 CV	221890020	Citroën	0375G9	PSA 206 / C1 / C2 / C3, Ford Fiesta 1.4 HDi
221100003     Volkswagen     04E145703Q     VW GOLF VII 1.2 TSI       226120032     Citroën     9804945280     1.6L BlueHDi       221890061     Renault     7701476880     1.5 dCi 85 CV       221920001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100/150CV       221900263     Renault     8013745004S     1.5L dCi       22192001     Volkswagen     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDI 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       22190062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900219	Ford	1819894	PSA 1.3L HDI 75CV
226120032     Citroën     9804945280     1.6L BlueHDi       221890061     Renault     7701476880     1.5 dCi 85 CV       221920001     Mercedes-Benz     646 096 01 99     Sprinter 2.1L CDI 100 / 150CV       221900263     Renault     8013745004S     1.5L dCi       221900220     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA / Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       22190062     Volkswagen     038145702J     VAG 1.9 TDI       22190053     Opel     25201063     1.4L A14 / B14 140CV       22190054     Hyundai     282012A400     1.5L CRDI 110 CV	221890018	Fiat	71724445	Panda / Grande Punto 1.3 CDTI / JTD
221890061Renault77014768801.5 dCi 85 CV221920001Mercedes-Benz646 096 01 99Sprinter 2.1L CDI 100/150CV221900263Renault8013745004S1.5L dCi221900220Peugeot0375P8PSA 1.6L HDI 115CV221920014Volkswagen03F145701H1.2L TSI221900178Audi028145702NVAG 1.9L TDI 110CV226120002Ford1684949PSA / Ford 1.6 HDi 90 & 75 CV226120013Volkswagen03C145701FVAG 1.4 TFSI 125 CV221900261Ford96770637802.0L TDCI 165CV221900260Peugeot1609652780PSA 2.0L HDI 150CV221900258Opel252010631.4L A14/B14 140CV221900154Hyundai282012A4001.5L CRD 110 CV	221100003	Volkswagen	04E145703Q	VW GOLF VII 1.2 TSI
221920001Mercedes-Benz646 096 01 99Sprinter 2.1L CDI 100/150CV221900263Renault8013745004S1.5L dCi221900220Peugeot0375P8PSA 1.6L HDI 115CV221920014Volkswagen03F145701H1.2L TSI221900178Audi028145702NVAG 1.9L TDI 110CV226120002Ford1684949PSA/Ford 1.6 HDi 90 & 75 CV226120013Volkswagen03C145701FVAG 1.4 TFSI 125 CV221900261Ford96770637802.0L TDCI 165CV221900260Peugeot1609652780PSA 2.0L HDI 150CV22190062Volkswagen038145702JVAG 1.9 TDI22190058Opel252010631.4L A14/B14 140CV22190054Hyundai282012A4001.5L CRDI 110 CV	226120032	Citroën	9804945280	1.6L BlueHDi
221900263     Renault     8013745004S     1.5L dCi       221900220     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900262     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221890061	Renault	7701476880	1.5 dCi 85 CV
221900220     Peugeot     0375P8     PSA 1.6L HDI 115CV       221920014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900262     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221920001	Mercedes-Benz	646 096 01 99	Sprinter 2.1L CDI 100 / 150CV
221920014     Volkswagen     03F145701H     1.2L TSI       221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900262     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900263	Renault	8013745004S	1.5L dCi
221900178     Audi     028145702N     VAG 1.9L TDI 110CV       226120002     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900220	Peugeot	0375P8	PSA 1.6L HDI 115CV
226120002     Ford     1684949     PSA/Ford 1.6 HDi 90 & 75 CV       226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221920014	Volkswagen	03F145701H	1.2L TSI
226120013     Volkswagen     03C145701F     VAG 1.4 TFSI 125 CV       221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900178	Audi	028145702N	VAG 1.9L TDI 110CV
221900261     Ford     9677063780     2.0L TDCI 165CV       221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	226120002	Ford	1684949	PSA / Ford 1.6 HDi 90 & 75 CV
221900260     Peugeot     1609652780     PSA 2.0L HDI 150CV       221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14/B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	226120013	Volkswagen	03C145701F	VAG 1.4 TFSI 125 CV
221900062     Volkswagen     038145702J     VAG 1.9 TDI       221900258     Opel     25201063     1.4L A14 / B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900261	Ford	9677063780	2.0L TDCI 165CV
221900258     Opel     25201063     1.4L A14 / B14 140CV       221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900260	Peugeot	1609652780	PSA 2.0L HDI 150CV
221900154     Hyundai     282012A400     1.5L CRDI 110 CV	221900062	Volkswagen	038145702J	VAG 1.9 TDI
	221900258	Opel	25201063	1.4L A14 / B14 140CV
<b>221900309</b> BMW 11658570082 2.0 L B47 D20 A	221900154	Hyundai	282012A400	1.5L CRDI 110 CV
	221900309	BMW	11658570082	2.0 L B47 D20 A

\* The reference numbers given are for comparison purposes only and must not be used on invoices to the consumer. All content including pictures and diagrams is subject to change. For assignment and replacement, refer to the current catalogues or systems based on TecAlliance.



# **TURBOCHARGER DIAGNOSTICS MATRIX**

	Possible causes of failure														
Symptoms	Lack of oil supply to the turbocharger	Unsuitable engine oil / lack of oil maintenance	Foreign particles in engine oil	Foreign bodies in compressor housing or turbine housing	Air filter blocked / suction or pressure lines leaking	Crankcase ventilation or oil return line blocked / faulty	Valve guides, piston rings, engine or cylinder liners are worn / increased blow-by	Fuel system / injection system faulty or incorrectly configured	Boost pressure regulating throttle / valve does not open or close	VTG restricted in its movement	Actuator of regulating throttle / valve / VTG unit faulty	Electrical / electronic control unit of turbocharger faulty	Exhaust system has excessive flow resistance	Exhaust gas leak upstream or downstream of turbine housing	Turbocharger has excessive speed
Compressor impeller / turbine impeller faulty															
Boost pressure too low															
Boost pressure too high															
Turbocharger is making noises															
Black smoke															
Blue smoke															
High oil consumption															
Oil leak in compressor housing															
Oil leak in turbine housing															
Turbocharger overheated															
Increased axial / radial shaft play															
Error message in engine management															
Central nut loose / missing															



#### Operating principle of turbochargers

The exhaust gases produced during combustion drive a turbine, which is connected to the compressor impeller by a shaft. The compressor impeller on the latest and smallest turbochargers rotates at speeds of up to 400,000 revolutions per minute. It compresses the intake air and thus increases the air mass provided to the engine. This enables  $CO_2$  emissions and fuel consumption to be minimised while also increasing performance.





#### turbo by Intec

With its turbochargers under the turbo by Intec brand, Motorservice offers high-quality solutions for any vehicle application.

You can find further information here:



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