

JOHN DEERE 9.0L LINER

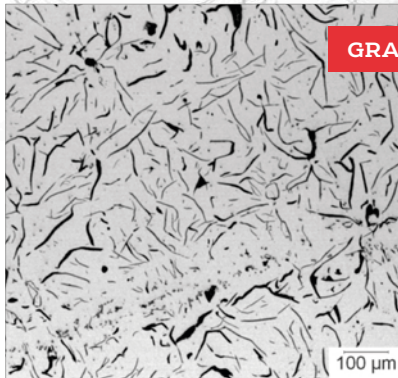
The brand-new **FP-R530609 liner** in FP Diesel's cylinder kits is made from a **specialty formulated ductile cast iron**, designed and tested to withstand the high cylinder pressures found in John Deere 9.0L - TIER 2, 3, IT4 & FT4 engines. While the FP-R530609 liner has an **ultra-thin wall of just 4.8mm**, it can handle **pressures up to 190 bar**.

FP DIESEL'S DUCTILE IRON VS. COMPETITOR'S GRAY IRON

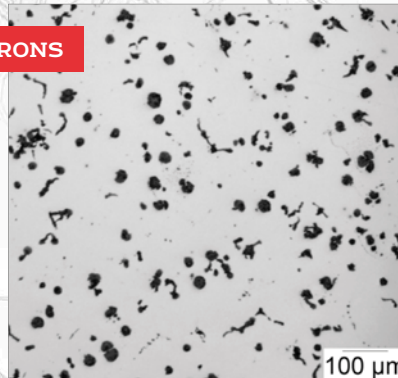
SAME LOOKS. DIFFERENT LEAGUE.

While there's no clear visual difference in comparison to gray iron liners from competitors, the FP-R530609 liners sport a **much greater load bearing capacity** and an **increased tensile strength**. A microscopic view of FP Diesel's liner versus competitors shows the unique make-up of ductile iron.

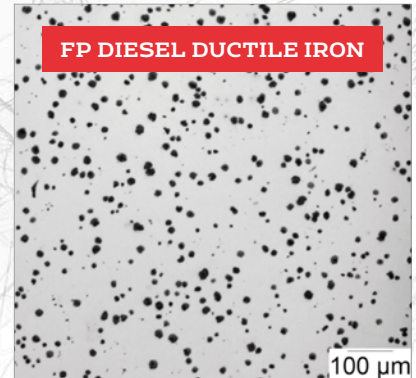
Gray Iron:	Class 35:	241 MPa (35,000 psi)
	Class 40:	276 MPa (40,000 psi)
	Class 45:	310 MPa (45,000 psi)
	Class 50:	330 MPa (47,800 psi)
	Bainitic Alloy:	380 MPa (55,000 psi)
Ductile Iron (FP Diesel 9.0L Liner):	Compacted Graphite Iron:	550 MPa (80,000 psi)
	FPR530609 Liner:	700 MPa (100,000 psi)



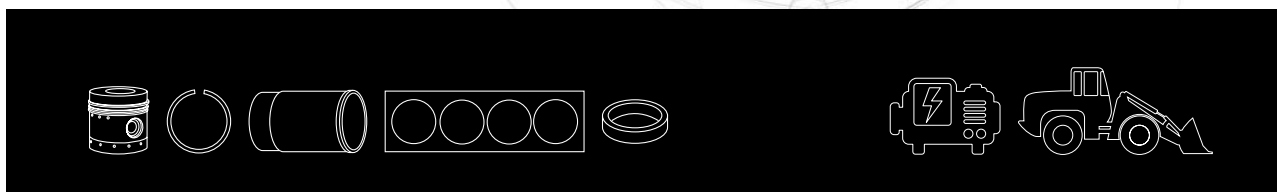
250MPa Tensile
 Supplier 1 (USA)
 Supplier 2 (USA)
 Supplier 3 (Germany)



550MPa Tensile
 Supplier 4 (USA)



700MPa Tensile
FP Diesel FP-R530609



Gray Iron: A type of cast iron with a graphitic microstructure.

- **Mostly used when stiffness is required**
- **Less tensile strength**

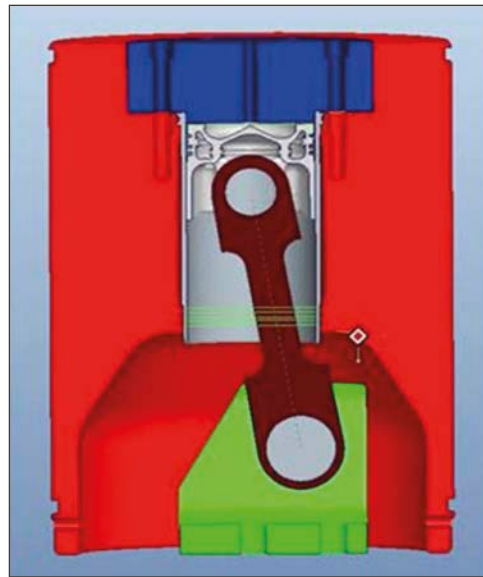
FP Diesel's ductile iron: A type of cast iron rich in graphite with nodular graphite inclusions.

- **Fatigue resistant**
- **Impact resistant**
- **Tension resistant**

PULSATOR TEST* SETUP

The **peak combustion load** on the piston crown is **21,000 kg** during engine operation.

- **Load applied to piston crown for this test is 35,380 kg, 10x per second**



GRAY IRON

(suppliers 1, 2 & 3)

PULSATOR TEST

170.000 Cycles

GRAY IRON

(supplier 4)

PULSATOR TEST

1.400.000 Cycles

FP DIESEL

PULSATOR TEST

3.000.000 Cycles

CONCLUSION

3 out of 4 competitors only offer common gray iron liners that can't withstand peak firing pressures and could fail prematurely and break. This is what differentiates the FP Diesel ductile liner from aftermarket competitors.

*All tests were performed in an internal lab. Full test will be provided upon request: fpdiesel.emea@FMmotorparts.com

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