

King Racing for Subaru



*Michele Abbate - SCCA Championship Winning GRR Racing E-Force Supercharged Scion FRS

SUBARU WRX STi EJ20, EJ22, EJ25,
SUBARU BRZ FA20,
SUBARU XV FB20, SUBARU H6 EZ30

Push your EJ & FA/FB boxer engine to the max.

King XPG main + rod bearings are the key!

The Subaru FA boxer engine is the next generation in the evolution of the wildly successful EJ series of engines. While Subaru made many improvements to this generation, some problem areas reveal themselves when pushing the FA to its limits.

King Engine Bearings has been helping to build stronger and more reliable EJ engines for years now, so it made sense for us to apply this experience to the new FA engine platform.



Highly modified FA engines can suffer from issues similar to the EJ series, such as low oil pressure and oil starvation causing premature rod bearing failure.

After thorough analysis, King determined that a complete redesign of the main bearings would allow for increased oil delivery to the rods while reducing leakage. By incorporating exclusive King features like Elliptix™ oil ingress and 360 degree oil grooves, oil starvation is all but eliminated.

Plus, King's SmartLug™ main bearing design shuts the leakage path and resolves one of the weakest links in high output EJ/FA/FB engines.

The result is a more reliable engine that can handle the higher loads produced in race winning, championship engines.

King's XPG bearings are the key to reliable high performance EJ and FA/FB engines.

Design Features for King XPG Series

Main Bearings

Lugless™

Thrust bearings have no locating lug to eliminate oil leak path.

360° U-Groove™

Full groove #1 & 3 main bearings (in addition to #5) enable 360 degree oiling of rod bearings.

Tri-Metal pMax Black™ Construction

Hardened lead-tin-copper overlay with multi-layer Secure-Bond adhesion provides 17% greater load capacity and superior structural integrity.

Bull's Eye Wall Tolerance™

All XPG shells are produced to $\pm 0.0001"$ wall tolerance for exact and consistent oil clearance.

RadialLock™ Crush Height

Optimum crush height value, determined by King's ENSIM™ power modeling analytical & design software. Ensures optimal press fit for better heat transfer and reduced fretting.

Narrowed Bearing Lengths

Enabling to clear large fillet cranks.

Additional Oil Hole

(Position 2 and 4)
A third oil hole provides additional lubrication and oil film thickness in the critical high load area.

Rod Bearings

EccentriX™

An optimized eccentricity value reached through elasto-hydrodynamic analysis and dynamic calculations

Bull's Eye Wall Tolerance™

Engine	King Set Number	Shell Number	Qty	Position	Crankshaft Diameter	Housing Diameter	Bearing Length	Max Wall Thickness
SUBARU WRX STi EJ20, EJ22, EJ25 (Phase 2)	CR4125XPG STD, STDx, .026, 0.25, 0.5 Suits 52mm journal	C4125/PRG	4 Pairs		2.0466-2.0472 51.983-51.998	2.1654-2.1661 55.001-55.018	0.6496 16.499	0.0591 1.501
	MB5382XPG STD, STDx, .026, 0.25, 0.5 Suits engines with thrust in #5 position	M5382/1PRG	2 Pairs	1,3	2.3616-2.3622 59.984-59.999	2.5197-2.5205 64.000-64.021	0.7480 18.999	0.0789 2.004
		M5220/2PRG	2 Pairs	2,4	2.3616-2.3622 59.984-59.999	2.5197-2.5205 64.000-64.021	0.5950 15.113	0.0789 2.004
		*F5382/PRG	1 Pair	5	2.3616-2.3622 59.984-59.999	2.5197-2.5205 64.000-64.021	0.9040 22.961	0.0789 2.004
	MB5739XPG STD, STDx, .026 Housing Bore + .002"	M5739/1PRG	2 Pairs	1,3	2.3616-2.3622 59.984-59.999	2.5216-2.5225 64.048-64.071	0.7480 18.999	0.0798 2.026
		M5739/2PRG	2 Pairs	2,4	2.3616-2.3622 59.984-59.999	2.5216-2.5225 64.048-64.071	0.5945 15.100	0.0798 2.026
		F5739/PRG	1 Pair	5	2.3616-2.3622 59.984-59.999	2.5216-2.5225 64.048-64.071	0.9063 23.020	0.0798 2.026
	MB5740XPG STD, STDx, .026 Housing Bore + .005"	M5740/1PRG	2 Pairs	1,3	2.3616-2.3622 59.984-59.999	2.5246-2.5255 64.124-64.147	0.7480 18.999	0.0813 2.065
		M5740/2PRG	2 Pairs	2,4	2.3616-2.3622 59.984-59.999	2.5246-2.5255 64.124-64.147	0.5945 15.100	0.0813 2.065
		F5740/PRG	1 Pair	5	2.3616-2.3622 59.984-59.999	2.5246-2.5255 64.124-64.147	0.9063 23.020	0.0813 2.065
SUBARU WRX Sti EJ20, EJ22, EJ25 (Phase 1)	CR4280XP STD, STDx, .025, 0.25, 0.5 Suits 48mm journal size	C4280-PR	4 Pairs		1.8891-1.8898 47.983-48.000	2.0077 / 2.0083" 50.995-51.010	0.6142 15.600	0.0590 1.498
	MB5220XP STD, STDx, .025, 0.25, 0.5 Suits engines with thrust in #3 position	M5220/1PR	2 Pairs	1,5	2.3616-2.3622 59.984-59.999	2.5195-2.5202 63.995-64.013	0.75 19.05	0.079 2.006
		M5220/2PR	2 Pairs	2,4	2.3616-2.3622 59.984-59.999	2.5195-2.5202 63.995-64.013	0.5945 15.100	0.079 2.006
		F5220/PR	1 Pair	3	2.3616-2.3622 59.984-59.999	2.5195-2.5202 63.995-64.013	0.8669 22.019	0.079 2.006
SUBARU BRZ FA20 Toyota GT86 / Scion FRS 4U-GSE	CR4616XPG STD, STDx, .025, 0.25, 0.5	C4616-PR	4 Pairs		1.9676-1.9685 49.976-50.000	2.0881 53.038	0.6082 15.448	0.0587 1.490
	MB5745XPG STD, STDx, .025, 0.25, 0.5	M5745/1-PR	2 Pairs	1,3	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.6881 17.477	0.0989 2.512
		M5745/2-PR	2 Pairs	2,4	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.5677 14.419	0.0989 2.512
		MK5745-PR	1 Pair	5	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.9050 22.987	0.0989 2.512
SUBARU XV FB20	CR4622XP STD, 0.25	C4622XP-PR	4 Pairs		1.8888-1.8898 47.975-48.000	2.0079-2.0094 51.000-51.038	0.5929 15.059	0.0586 1.488
	MB5745XPG STD, STDx, .025, 0.25, 0.5	M5745/1-PR	2 Pairs	1,3	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.6881 17.477	0.0989 2.512
		M5745/2-PR	2 Pairs	2,4	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.5677 14.419	0.0989 2.512
		MK5745-PR	1 Pair	5	2.6765-2.6775 67.985-68.009	2.8755 73.037	0.9050 22.987	0.0989 2.512
SUBARU H6 EZ30	CR6874XP STD, 0.25, 0.5	C6874-PR	6 Pairs		2.0466-2.0472 51.983-51.998	2.1673 55.049	0.6102 15.499	0.0592 1.503
	MB7772XP STD, 0.25, 0.5	M7772/1PR	3 Pairs	1,3,5	2.5194-2.5200 63.992-64.008	2.6799 68.069	0.6732 17.099	0.0786 1.996
		M7772/2PR	3 Pairs	2,4,6	2.5194-2.5200 63.992-64.008	2.6799 68.069	0.5629 14.297	0.0786 1.996
		F7772-PR	1 Pair	7	2.5194-2.5200 63.992-64.008	2.6799 68.069	0.8307 21.099	0.0786 1.996



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