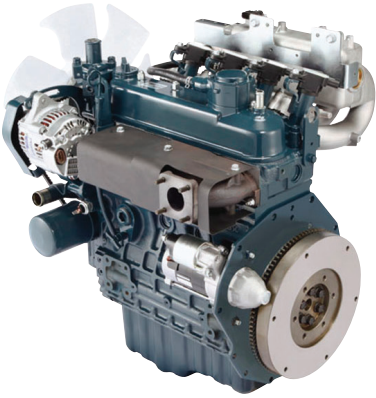


Kubota® *Worth its Weight in Reliability*



Kubota
Power | Reliability



- **Kubota engines for all fuel types, LPG/Gasoline and Diesel**
- **The engine makes up 1/4 of the cost of a cleaning machine –**
Don't sacrifice reliability for a component this critical to your operations.
- **Designed specifically for use in industrial applications –**
Not an adapted automotive design.
- **Internal protected and lubricated gear driven valve-train**
 - No timing belt, pulleys, or tensioner (maintenance)
 - High reliability
- **Non-interference design**
- **Cast iron engine block and head for less thermal stress and long-life**
- **Based on diesel design = Heavy Duty!**
- **Global parts and service support**

Kubota® engines on all SW8000™, Proterra™, CS7000™ and SC8000™ models.

Smart cleaning.

A Nilfisk-Advance Brand

 **Advance**

Engine Feature Comparison Table

| Engine Attribute | Advance with Kubota® | Other Competitors | Kubota® Advantage |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engine Valve Timing Mechanism – Coordination of motion of pistons and valves | Internally geared camshaft. Lubricated and protected from dirt and designed for the life of the engine. | External timing belt. Exposed to dirty application conditions that can compromise belt life. Periodic replacement is required, or there is a risk of catastrophic failure. | Higher reliability and uptime. Reduced maintenance. No risk of catastrophic damage to valves due to timing belt failure. Designed to run reliably in tough industrial applications. |
| Potential for Pistons to Contact Valves – Interference Design | Due to internal lubricated camshaft gears have minimal risk of valve train timing failure. | If timing belt slips or breaks, extensive damage to the valves, cylinder head, pistons, crankshaft, and bearings may occur, resulting in expensive repairs. | Virtually no risk of unplanned and expensive engine down time and repair due to timing issues. |
| Engine Head and Block Material – | Cast iron block and head with comparable thermal expansion rates reducing stress on head gaskets and cylinder head bolts. | Cast iron block with aluminum cylinder head have differing thermal expansion rates, placing greater stress on the head gasket. | A Kubota design cast iron cylinder head mated to the cast iron cylinder block is better suited to industrial applications for long-term durability. Whereas typical automotive-based engine designs are optimized for higher maximum power output, reduced weight, and minimal production cost (aluminum head/cast iron block). Kubota's use of common materials between the cylinder head and block reduces stresses in the gasketed joints resulting in long-life. This minimizes the likelihood of random head gasket failures and associated downtime in high hour usage applications. |
| Crankshaft Bearings and Cylinder Block | High capacity crankshaft bearings and cylinder block designed for diesel engine loads for long life. | Crankshaft bearings and block optimized for lighter duty automotive usage of gasoline. | Kubota main bearings are more heavy duty in design since they are based on the diesel platform; this provides greater reliability and longer life. More rigid engine structure on engine block (since borrowed from diesel) results in less radiated noise and vibration. |
| Parts and Service Availability | World renowned for their reliability and for their parts and service network when needed. | Limited support network, but does not carry the same reliability nor service access reputation. | Well established quality reputation and service network to stand behind their products. |

Ask about our leasing options.

©2013 Nilfisk-Advance, Inc. Form L3315A 7-15-13



14600 21st Avenue North
 Plymouth, MN 55447-3408
www.advance-us.com
 Phone 800-214-7700
 Fax 800-989-6566

240 Superior Boulevard
 Mississauga, Ontario, Canada L5T 2L2
www.nilfisk-advance.ca
 Phone 800-668-8400
 Fax 800-263-5111

