

AIRDYNAMIX

DATASHEET OF THE ADX 390 engine



ADX 390 ENGINE

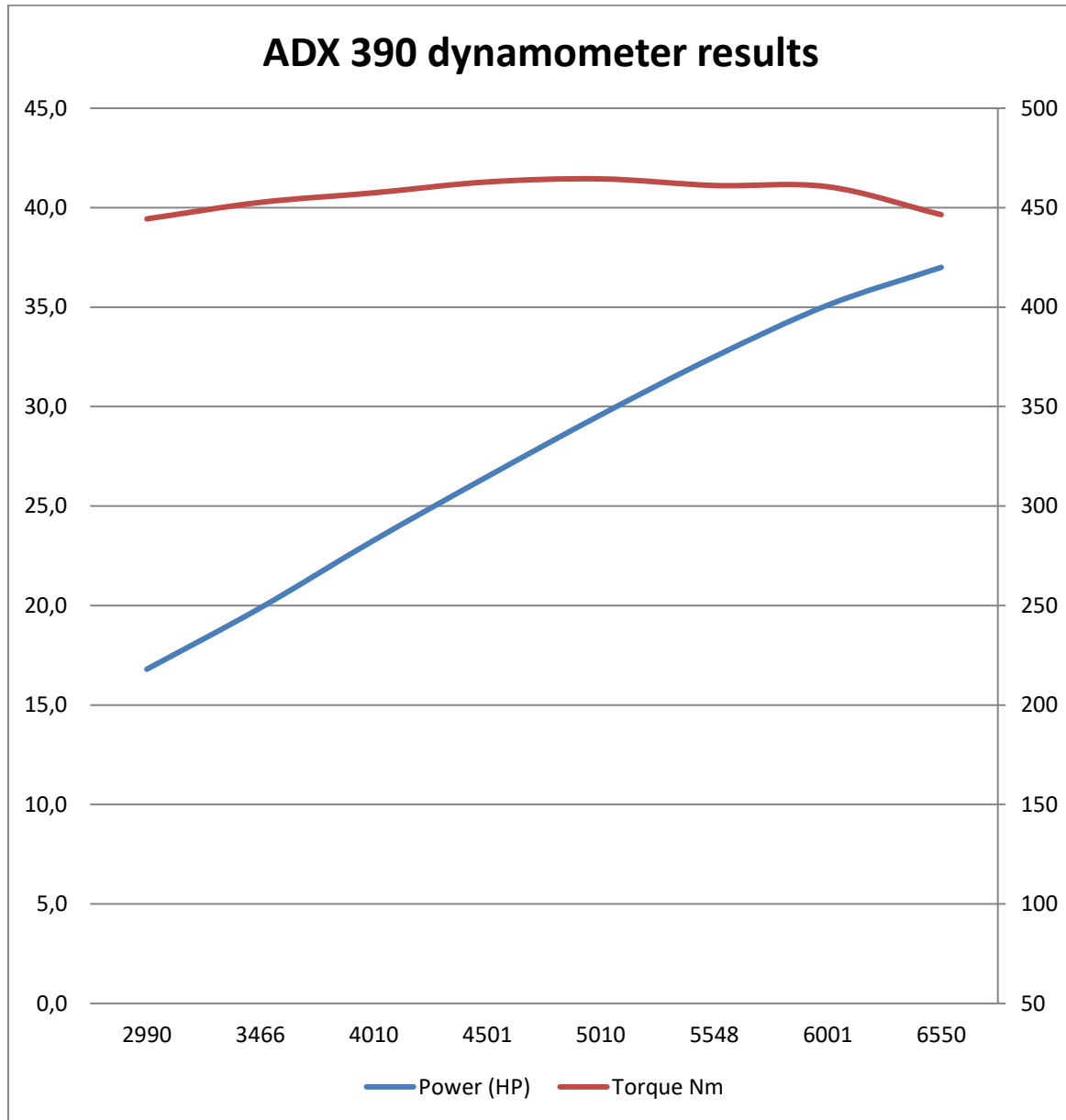
ADX 390 gasoline engine is intended for UAV and microlight systems and offers excellent power to weight ratio. During its development all the knowledge and experience from previous models and over 30 years of experience were applied and improved. The result is powerful, low vibration and very durable engine with improved cooling for easier use. Before being shipped from the factory, each engine is tested and pre-adjusted. **ON DEMAND it can be fully factory broken-in.**

As a result, there is rarely need for the user to make much in the way of adjustments. In general, they require only some minor carburettor adjustments that take into consideration the propellers and mufflers being used. Optional double spark system brings you more efficiency and great level of redundancy to increase a flying safety in case of subsystem failure. This engine can work even with only one ignition for each cylinder pair and power your system safely back to the ground.

TECHNICAL PARAMETERS OF ADX 390

Displacement	390 ccm
Weight	ADX 390 8190grams/ with starter 9675grams/ with starter and generator 101/6/8 -9980grams including ignition) with starter and generator 101/14/20 10580grams including ignitions) Weight of the exhaust system shown in te gallery is 850grams
Bore	52mm
Stroke	38mm
RPM range	1000-8500 ot/min
Max launching acceleration load	20G
Ignition	processor controlled two separate units
Spark plugs	NGK CM-6 optionally Denso U20M-U
Spark plug electrodes gap	0,5-0,7mm
Intake system	Reed valves
Recommended oil	Full synthetic oil for two stroke air cooled engines
Recommended fuel	Automotive gas BA 95 or higher
Fuel mixture oil:gas	1:30(break-in) 1:40 (normal run)
Carburettor	Walbro WB-27
Normal/Max CHT	160/200 degrees of Celsius
Fuel consumption	3,8l/hr @ 3500 RPM 40x16 twinblade propeller
Propeller configuration	Tractor or Pusher
MTBF	280hrs

DYNAMOMETER RESULTS



GENERAL

All AIRDYNAMIX engines are equipped with diaphragm carburetors made by Walbro. (These carburetors are adjusted with two mixture screws that are marked with the letter "H" (for the adjustment of High speed) and by the letter "L" (for the adjustment of idle and the acceleration from idle to full throttle). AIRDYNAMIX engines are equipped with commonly sized special SKF and NSK or NTN ball bearings. The piston con rod is equipped with SKF or KOYO needle bearings. Reed valves used, are professionally made systems used also in automotive industry. All screws and connections are secured by proper Loctite sealant/locker and marked for control.

Each engine as mentioned above is deply controlled and inspected before shipment and check result recorded to its birthcard in our information system as well as all other events and repairs in the future during the engine lifetime.

IGNITION SYSTEM

On ADX 390 engine you can find two/four sets of pre-installed processor controlled ignition with controlled advanced spark timing.

Procesor controlled ignition allows your engine mooth transition, low vibraton level and maximum performance.

Two independedt suppliers of such systém allows us to support you anytime with quick replacements or maintenance units when needed.

OPTIONAL EQUIPMENT

ADX 390 engine can be optionally equipped with additional accessories or modified with new features as shown in the table below.

1. **Rotation Options:** Our engines can be customized to operate in either a clockwise (CW) or counterclockwise (CCW) rotation. This provides flexibility to choose the rotation that best suits your specific system requirements.
2. **Exhaust system:** You can choose between standard SSA compact and direct mount system or specific solution.
3. **Double Spark Plug Heads:** Engines can be equipped with double spark plug heads to increase safety and reliability. This feature ensures that your engine continues to operate in the event of a spark plug failure, offering uninterrupted performance and peace of mind.
4. **Additional Sensor Mounting Position:** Engines could be equipped with an additional sensor mounting position on either the cylinder heads or crankcase. This provides the flexibility to tailor the engine to your exact needs, allowing you to achieve optimal performance and functionality.
5. **Cylinder Head Redesign:** Our engines can be completely redesigned to provide easier cooling or fit into your cowl space. This feature ensures that your engine not only performs at its best, but also fits seamlessly into your system.
6. **Electric Starter:** Engines could be equipped with an electric starter for easy and efficient start-up. This feature saves time and effort, allowing you to focus on your work and get the job done quickly and efficiently.
7. **Automatic Deco Valves:** Engines could be equipped with automatic deco valves, making restarts in the air easy and stress-free. This feature allows you to focus on your flight and enjoy a smoother and more comfortable experience.
8. **Power Generator:** Engines can be designed with brushless generators that provide superior power to meet your specific needs. This feature ensures that you have the power you need to operate all of your equipment, no matter what the situation.
9. **Custom-Made Backplate:** Engines could be designed with a custom-made backplate that offers a mounting points as well as design tailored to your specific needs. This feature ensures that your engine fits seamlessly into your system, providing optimal performance and functionality.
10. **Electronic Fuel Injection:** Engines could be equipped with electronic fuel injection for improved efficiency and performance. This feature ensures that you get the most out of your engine, with increased fuel economy and power.
11. **Belt reduction gear:** Custom designed reduction gear can be installed onto the engine to better suit your needs.

Appendix A – Maintenance periods

Crankshaft has special warranty for 1000hrs or two years which one of terms is reached earlier. If part is properly controlled and replaced according to Table A and damaged before the replacement it is considered warranty case and replaced by AirDynamiX or its service center. New replaced part has warranty period only 6 months

Parts for planned maintenance replacement have to be bought from a supplier, they are not replaced under warranty.

*) where replacement is indicated in shorter period, replacement period also means warranty for that particular part.

GENERAL TBO - 390hrs, Crankshaft 1000hrs

Do the operation in left column every :						
Operation	25hr	50hr	100hrs	250hrs	390hrs	1000Hrs
Deep visual inspection		X				
Spark plug cleaning		X				
Spark plug replacement		X				
Fuel filter replacement		X				
Fuel lines/throttle control check	X					
Piston and cylinders decarbonization		X				
Compression check		X				
Reed valve check		X				
Reed valve replacement			X			
Carburettor filter check/cleaning		X				
Starter and starter wheel check		X				
Starter and starter wheel replacement					X	
Wrist pin and piston rod bearings check		X				
Wrist pin and piston rod bearings replacement					X	
Spark plug cap replacement		X				
Generator rotor replacement (if installed)					X	
Stabilizer replacement					X	
Ignition unit replacement				X		
Crankshaft replacement						X
Bearings replacement					X	
Cylinder and piston replacement				X		

Appendix B – Engine package content

With engine we deliver:

- 1) Engine with spark plugs, carburetors, ignition sensors installed, Airfilters, and in tank fuel filters
- 2) Pack with common accessories:
 - a) 4 pieces of exhaust gaskets
 - b) 8 pieces of exhaust screws
 - c) 6 pieces of propeller screws
 - d) 1 piece of aluminum propeller washer
 - e) 1 piece of the central propeller bolt
 - f) 2 pieces of M10x1 nuts for central propeller bolt



Appendix C

Tightening torque and screw securing:

Whenever you disassemble the engine, screws holding cylinder or cylinder head **MUST** be replaced by new.

Position/ Engine type	Size	Torque	Securing
Heads 70/140/280	M4	6Nm	Loctite 270
Heads 250/195/390/390	M5	10Nm	Loctite 270
Cylinders ALL	M5	10Nm	Loctite 243
Backplate/crankcase 140	M4	5Nm	Loctite 243
Backplate crankcase 97/195	M5	7Nm	Loctite 243
Carburetor ALL	M5	6Nm	Loctite 243
Spark plug	M10x1	12Nm	NONE
Backplate nuts	M6	9Nm	Loctite 243/none
Central propeller bolt 97-195	M8	17,5Nm	NONE
Central propeller bolt 210-390	M10	35Nm	NONE

Sealants and glues used:

For sealing the most surfaces even when gaskets are used we recommend Loctite SI 5699 Grey sealant.

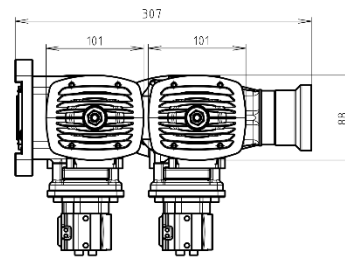
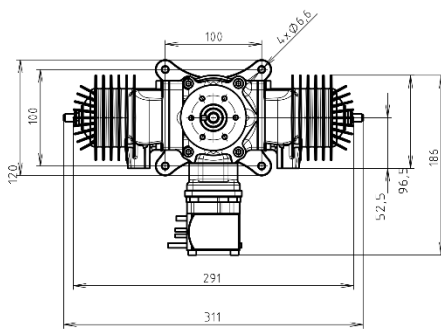
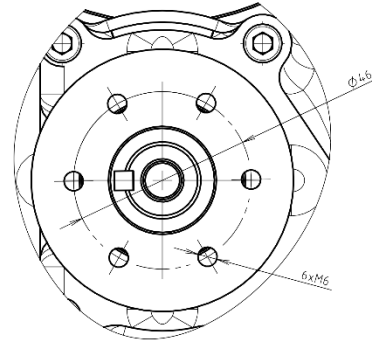
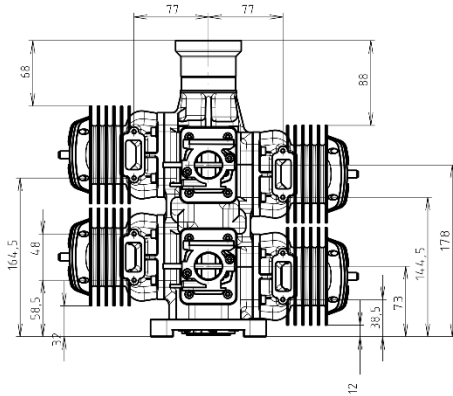
Glues are used to secure screws and bearings. For screws refer to Tightening torque and screw securing:

For the bearings when replaced we recommend to use Loctite 648

Appendix D – dimensions

AIRDYNAMIX ADX 390

without starter



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