



PRONAR RESEARCH AND DEVELOPMENT CENTRE



CHEMICAL TESTS



APPROVAL TESTS



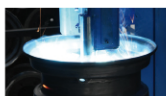
MACHINE NOISE TESTS



POWER HYDRAULICS TESTS



ROPS AND FOPS TESTS



WHEEL TESTS



MATERIAL TESTS



NON-DESTRUCTIVE TESTS



AXLE TESTS



PROTOTYPE TESTS



STATIC AND DYNAMIC TESTS



VEHICLE STABILITY TESTS



ENVIRONMENTAL AND CLIMATIC TESTS



FUEL SYSTEM TESTS



ELECTRICAL QUANTITY TESTS



3D MODEL PRINTING



FEM CALCULATIONS



3D OBJECTS SCANNING



METAL PROCESSING SERVICES



MEASUREMENTS



PRONAR RESEARCH AND DEVELOPMENT CENTRE

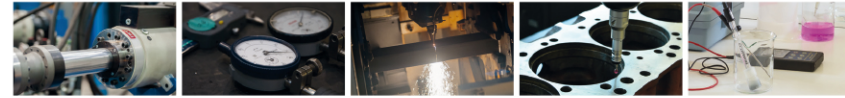
The RDC runs innovative and complementary testing for comprehensive research on crucial parameters of agricultural, forestry and building machinery, automotive vehicles and sub-assemblies.

The RDC provides complete testing of specific products, all in one location, reducing test times and costs.

The RDC performs specialist testing using state-of-art machinery, with unique test equipment, measuring instruments and computer programs that foster innovation and shorten the preparation time for bringing products into production.

Pronar's Research and Development Centre tests:

- Actuators,
- Engines, pumps, distributors of hydraulic pumps,
- Hydraulic line strength (DIN/ISO 6802, DIN/ISO 6803, ISO 8032),
- Loaders and hydraulically driven machinery,
- Load capacity of three-point hitch and power systems of external hydraulics,
- Static protective constructions (CODE 4, CODE 6, CODE 7), hitches and safety devices (R 58 UN ECE),
- Dynamic strength,
- Axle fatigue resistance,
- In-service axles (inert machinery) R 13 UN ECE,
- The impact of welding strain and deformation on axial and radial run-out of wheels and other wheeled-symmetrical assemblies,
- Optimisation of the plastic working parameters of sheet metal in new products (press technology),
- Temperature distribution (thermography),
- Simulation of wheel rim coiling,
- Development of fail-safe technology (non-destructive testing) for disc wheels,
- Diagnosis of prototypes (hydraulic and braking systems),
- Material and joint defects in chambers, using X-rays,



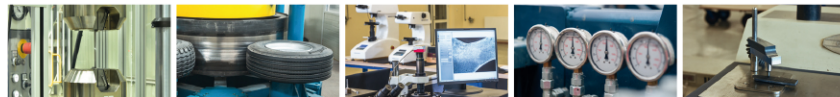
- Material defects, using ultrasonic methods,
- Vehicles and machines in a thermal chamber,
- Electromagnetic compatibility of vehicles and machines,
- ROPS (Roll Over Protective Structures) and FOPS (Falling Object Protective Structures),
- Stability of vehicles (amongst others, R111 UN ECE),
- Fuel systems,
- Plastics of plastics (ISO 1133, PN-EN ISO 1183-1:2013-06 A),
- Electrical quantities,
- Electromagnetic compatibility (R 10 UN ECE),
- Machinery noise (ISO 3744),
- Objects in a salted atmosphere chamber (ISO 9227, ISO 6270),
- Objects in a UV chamber (ISO 16474-2, ISO 4892-2),
- Paint (ISO 2409, ISO 2808, ISO 2812-1,2, ISO 6860, ISO 15184).

The RDC is fitted with:

- A 3D printer, for production of plastic objects based on 3D modelling, for verification of functional features,
- A 3D scanner, for fast verification of prototypes,
- Computing stands, for checking of stress, deformation and transfer distributions of designed objects using FEM (Finite Element Method),
- A 3D laser, for threading and cutting of different types of lines (round, square, rectangular) and steel profiles (T, 2T, H, C, I and L) with very high precision.

The high quality of the RDC's work is ensured by:

- Experienced, qualified, professional staff,
- Modern, innovative machinery,
- The accuracy, precision, repeatability and reproducibility of its measurements and research methods,
- Short waiting times for performance of research services,
- Service quality at the highest international levels.





PRONAR HAS THE FOLLOWING IN ITS OFFER:

- AGRICULTURAL AND MUNICIPAL TRACTORS of various horsepower - from 26 to 265 hpm
- AGRICULTURAL TRAILERS: on single, double and three axle suspension, tandem, tridem; dumpers; mono-coque; manure spreaders; special purpose trailers: animal transportation, chaser bins, biomass transportation, forestry, hook lift, dumpers, power push, low-loading, slurry tanks
- FRONT LOADERS AND ACCESSORIES: front loaders for all types of tractors, silage cutters, buckets, round and square bale grapple, manure forks, pallet forks, spreaders
- GREEN FORAGE MACHINERY: bale wrappers, balers, front loaders and accessories, mowers, rotary rakes, rotary tedders, bale trailers
- MUNICIPAL MACHINES FOR KEEPING THE ROADS DURING SUMMER AND WINTER: road sweepers (Attached and towed), snow ploughs (for tractors, trucks, excavators and wheel-loaders), sand spreaders (for tractors and trucks), snow blowers, multifunction hydraulic arms, cutting heads
- RECYCLING MACHINES: MOBILE TROMMEL SCREENERS, MOBILE SHREDDERS
- TRUCK TRAILERS: TIPPERS, TIPPERS WITH HYDRAULIC SIDE BOARDS, LOW-LOADING
- WHEELS FOR AGRICULTURAL MACHINES: wheels in diameter from 12" to 54" and width from 4.25" to 36"; out of single sheet of steel up to 10 mm thick, wheels are designed for off road use on machines like: tractors, combine harvesters, trailers and sprayers, with the speed up to 65 km/h
- PNEUMATICS AND HYDRAULICS DEPARTMENT
- PLASTICS COMPONENTS
- AXLES AND DRIVELINES
- STEEL SIDEBOARDS
- FUEL AND OILS



PRONAR RESEARCH AND DEVELOPMENT CENTRE

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