HIGH-PRECISION MEASURING CENTER FOR SHIPBUILDING AND SHIP REPAIR

JOINT STOCK CORPORATION
SHIPBUILDING & SHIPREPAIR
TECHNOLOGY CENTER

Global measuring practice faced rapidly towards in digital 3D measurements with big scope of software, purposed for solving typical geometrical tasks; this allowed shifting from linear and planar measuring information to high-precision 3D digital information, provided in on-line mode, without any additional calculations and plotting.

High-Precision Measuring Center of JSC SSTC, founded in 2010, carries out research, development of normative documentation and implementation of state-of-the-art measuring technologies of leading global manufacturers based on use of new three-axis systems.

In recent years the laboratory of the center was equipped with wide range of newest measuring devices; each of them is purposed for resolving special dimensional check tasks.

The Center permanently purchases measuring equipment and nowadays possesses such measuring devices:

- High-precision laser tachometers (Leica, Pentax)
- Laser trackers (API, Leica)
- Coordinatograph-manipulator (Metris)
- Laser radar (Metris)
- Laser scanners (Leica, Surphaser)
- Shop positioning system i-Space (Metris)
- Gyrotheodolite (DMT Gyromat 3000)

  Laser projectors (LPT8)
- Shafts centering system (Fixturlaser)
- Two-axis levels (Leica)
- Laser ranger (Leica)

By implementation of coordinate dimensional checks procedures High-Precision Measuring Center resolves the following issues in shipbuilding:

- Development of hull, equipment and pipelines “finished size” manufacturing procedures;
- Metrological support of ship equipment modular installation procedures;
- Digitization of hull structures and ship equipment when carrying out repair, modernization, renovation;
- High-precision check of propellers, antennas and other complex structures;
- Improvement of ships beds and frames manufacturing accuracy, provision of measuring information for robotization of indicated procedures;
- Simplification of assembling stands by excluding stationary measuring datum marks and bases, exclusion of scaffoldings construction for carring out measurements;
- Passage to virtual check assembly of large scaled blocks of ships and drilling rigs, which are assembled afloat; this allows to exclude actual check assembly on special site, search for such site and transportation of blocks on this site, as well as on-site fitting works;
- Marking of holes for ship foundations without patterns;
- Capability to check local deformations and movements of articles in rapid processes, for example during welding or movement of articles;
- Capability to conduct high-precision adjustment of support bases and control datum marks without travelling to sea.

The Center conducted dimensional check of shipbuilding units, such as:

- Hull sections and blocks;
- Foundations;
- Biological shielding units of nuclear power units;
- Ship pipelines;
- Large-scaled high-precision components of ship machinery;
- Support structures of high-precision welding and cutting equipment;
- Port structures etc.

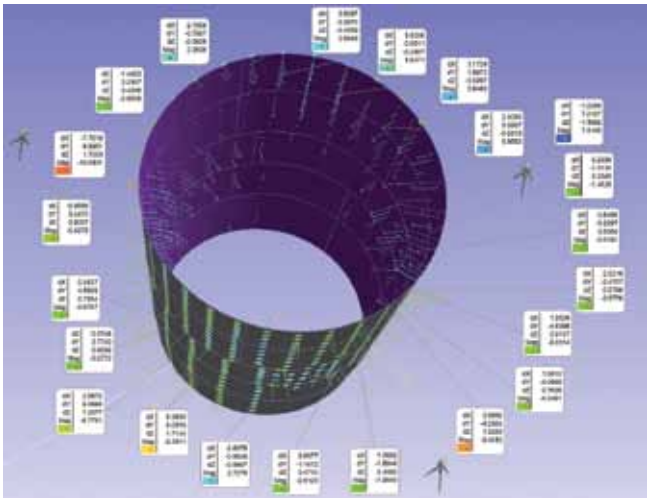
Dimensional checks carried out allowed to significantly increase productivity and cost efficiency of labour, as well as to improve quality and safety of ships under construction or in operation.

JSC SSTC offers services in 3D dimensional checks, purposed for resolving wide range of tasks in other industries:

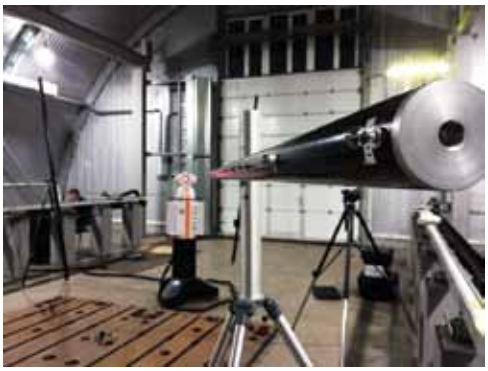
- Carrying out high-precision and technically complicated measurements of geometrical parameters of complex-shaped objects (articles), including automatic record of check results;
- Development of certified unique procedures of dimensional check, based on use of computerized optoelectronic systems;
- Geometrical check of production on all manufacturing stages, starting from preparation to final assembly – in order to exclude accumulated manufacturing errors;
- Metrological studying of engineering documentation with use of newest measuring equipment;
- Monitoring of shape and dimensions of static and dynamic objects;
- Parametrical certification of supporting structures of high-precision technological equipment (machines, robots, thermal cutting machines, etc.);
- Consultation and training on devices and software operation.

Scientific work is an important area of Center's activities:

- Analysis of operational properties of new dimensional check measuring device, available in the market;
- Search for new areas of measuring devices application;
- Issue of standard technical documentation (instructional guidelines, measuring procedures, guiding documents, etc.);
- Correction of existing check works standards.



For conducting scientific, metrological and training activities we have established and continuously improve laboratory facilities in a special building, equipped with vibration-isolating foundations, controlling plates, optical bench, set of measuring and metrological appliances.



High-Precision Measuring Center of JSC SSTC implemented computerized measuring technologies in the following companies:

Smurfit Kappa
Central Astronomical Observatory at Pulkovo
JSC Technoros
CJSC SMM
JSC Admiralty Shipyards
LLS Baltisky zavod - Sudostroenie
JSC Burevestnik
JSC Far Eastern Shipyard Zvezda
Izhorskiye Zavody OMZ Group
JSC Concern Okeanpribor
JSC Metalcomp
JSC Scientific and Production Enterprise Kompensator
JSC Afrikantov OKBM
JSCo PO Sevmash
JSC SPBME Malachite
JSC CDB ME Rubin
JSC SC Zvyozdochka
LLC Company Teplomontazh
LLC SC PE
LLC Technik
JSC Morskoy zavod

7, Promyshlennaya Street, St. Petersburg, 198095, RUSSIA
Phone: +7 (812) 786-2610, Fax: +7 (812) 786-0459
e-mail: inbox@sstc.spb.ru **www.sstc.spb.ru**