

FIRST FIVE THOUSAND MANHOLES: NEW CABLE NETWORKS IN MOSCOW

By Vitaliy Kiryushatov

Last year, the Government of Moscow introduced the My Street Programme to redevelop avenues, streets and lanes in all parts of the capital. Sergey Sobyanin, Mayor of Moscow explained what the programme covers, “Redevelopment of the streets includes: installation of cycling routes, upgrading pedestrian footpaths, house fronts and billboards as well as cables entangling many building and streets of Moscow that do not do any justice to the overall view of the city.”

Obviously it is impossible to upgrade all streets at once, not least because this would bring the already congested Moscow total standstill. The decision was therefore taken to start work on a specific selection of streets and lanes including Triumphalnaya Square, Frunzenskaya and Novodevich'ya Embankments, Bolshaya and Malaya Nikitskaya streets, Ordynka, Mytnaya, Tulsкая etc. and seven outbound routes – Schelkovskoe Motorway, Ryazanskiy Prospect, Kashirskoe, Varshavskoe and Mozhaiskoe Motorways, Leningradskiy Prospect and Yaroslavskoe Motorway.

Design and survey works meant that thousands of kilometres of cable needed to be disguised. An underground solution was preferable, but the question was how. The design had to be

reliable and remain operational for the long-term, but still be installed with minimal disruption.

Placing cables inside plastic pipes with PE manholes met these requirements fully. It is the most reliable and practical option as lightweight manholes are easy to assemble and quick to install.

Choice of material is only part of the process. It was also important to find a manufacturer with enough production capacity as well as internal R&D and quality control departments. This was vital as demand for manholes in 2015 alone exceeded 5000 units. The manufacturer also had to be financially strong.

POLYPLASTIC Group was chosen as the major supplier. The company has ten pipe plants, one of which is the Klimovsk Pipe Plant (KPP). This is the largest plant in Europe and can manufacture 100 manholes per day.

The project faced a number of problems, mainly related to the design data conflicting with the real settings as some communications had not been reflected in the survey plan. Engineers from POLYPLASTIC Group solved the problem by working on new manhole designs and the production department remade the units. The manholes that were already



at the site were quickly corrected in-situ by the project technical support team using a hand extruder.

KKSP PE cable manholes are an innovative solution from POLYPLASTIC Group. They were specially designed in collaboration with the City's production and technical departments. The cable manholes are manufactured using SPIROLINE PE pipes with an inner diameter of 1000 mm, no less than 10 mm thick plastic sheets and SDR 13.6 fitting pipes. Each manhole is fitted with at least eighteen 110 mm branches and between 8 and 16 branches with diameter of 63 mm. Each branch has a cap. Galvanized stands and consoles, plus a plastic divider to separate power cables and low-current cables, are found inside each manhole. The top of the manhole also has a welded PE lead with a locking device, so that all gaps are completely sealed. Those manholes that are located under the road have 600 mm diameter neck which allows for installation under a UOP-6 concrete reinforced support plate.

All the materials used to produce the manholes including the pipes and sheets, are of the highest quality and are made in POLYPLASTIC Group plants. Great attention is paid to the appearance and testing of the manholes before they are installed in the city centre. POLYPLASTIC specialists chose red and black for the best appearance. Despite the large volumes required, all the manholes go through strict quality control checks at the laboratory. During the tests each manhole is filled with a minimum of 1 cubic meter of water for 24 hours.

Testing and shipping 100 manholes a day is a precision operation and is currently being done very successfully.

