BRAKE EQUIPMENT FOR RAILWAY ROLLING STOCK AND UNDERGROUND
Dear friends!

I’m glad to have a chance to address you in this newly published catalogue of MTZ TRANSMASH. For more than 90 years our company has been developing and producing breaking systems and equipment for railway and subway rolling stock. It is no wonder that MTZ TRANSMASH is often identified as a flagship of the national break system manufacturers, because its activity is closely associated with the names of outstanding national inventors of breaking gear – F.P. Kazantsev and I.K. Matrosov.

The inventor’s school built up at the plant facilities and the targeted brake system design bureau formed on its basis in 1961 has been always ensuring the high quality of manufactured equipment. It currently allows us to proudly say that almost all of our basic products have been developed at the level of inventions licensed in the RF and some other countries.

The braking systems under MTZ TRANSMASH trademark have been demonstrating reliability and defect-free performance on the national railways for a long time, but there are new demands in the reality of modern development of the railway transport and right now our company faces great challenges. For advanced railway transport we need breaking systems comprising all control components with capability for diagnostics of the brake equipment, both operating and required for maintenance of the rolling stock. Furthermore, nowadays the customer pays more attention to the aesthetic and ergonomic aspects of equipment. It is especially relevant to the devices and instruments installed in the engine-driver cab.

In particular, I would like to note that quality and reliability of breaking equipment, starting from an individual instrument and to the breaking system of the railway or subway train is a security safeguard of the traffic. Building up our policy of quality assurance and competitive development of its products, MTZ TRANSMASH is guided by requirements of the International Railway Industry Standard (IRIS).

It is worth noting that basically any industrial production brings a potential threat to environment; that is why our company is permanently working on the issues of ecologically safe production process.

Keeping up with the times we are constantly upgrading both technological and management processes, paying great attention to the innovative approach for implementation of our strategic plans.

Today all creative potential of our team is focused on implementation of such plans.

Yours sincerely, N.A. Egorenkov
Director General
JSC MTZ TRANSMASH
valves and other elements of brake systems.

A new phase of the in-house brake equipment manufacture is connected with the name of another gifted Russian inventor, Ivan Matrosov, who developed a classical brake scheme and created several types of freight and passenger air-distributors for the railway and underground rolling stock.

Successful operation of the plant made it possible to equip all domestic freight trains with the automated brake system by 1935.

By the beginning of the Second World War, the plant already had a vast production experience, which enabled to redirect it to the military production in a short period.

In particular, there were designed and produced antiaircraft mountings, manufactured components for the legendary «Katyusha» weapon.

In the postwar period, Russian railroad experts had to solve new tasks: they developed and introduced into mass production air-distributors for the underground and dump cars, emergency braking accelerators and many other devices.

In 1951, Joseph Stalin has signed a decree on the establishment of the Special Design Bureau at the Moscow Brake Plant, after which it became a unique complete-cycle production enterprise – from design to manufacture of finished products.
More than 20 devices were designed in those years. Starting from 1959, the total passenger rolling stock was equipped with the electro-pneumatic brakes, developed and produced at MTZ TRANSMASH.

Another important stage of brake system development falls on the late 1990-s, when the railroad transport became more sophisticated, while travel speed and tonnage of trains was increased. The technological progress brings higher requirements to the automatic brakes. Designers develop and put into operation enhanced electro-pneumatic microprocessor equipment, aimed to increase the speed and safety of transportation and ensure comfort to passengers and increase tonnage of freight trains.

New brake systems for high-speed trains, modern «Yauza» underground trains and other types of the rolling stock are designed.
JSC MTZ TRANSMASH is pursuing with dignity its history by developing new and improving the existing brake systems of railroad and underground rolling stock and combining research, test and production bases. The Special Design Bureau of Brake Systems, which employs highly skilled specialists in the field of brakes of cars and locomotives, electronics and microprocessors, as well as the test engineers of I. K. Matrosov Experimental Brake Laboratory, continuing the work of a constellation of distinguished domestic brake designers, create the up-to-date brake systems.

All the developments of JSC MTZ TRANSMASH are protected by the licenses of the Russian Federation and many other countries. Brake equipment is developed with regard to the specifics of the operation of lengthy Russian railroads, the circulation of rolling stock in the sparsely populated regions of the country, climatic conditions and great temperature range from -60°C to +60°C.

In particular, taking into consideration the Russian landscapes, a combination of stepless and stepwise brake release modes is created to provide the best conditions of braking for heavy long trains on plain lands and the inexhaustibility of brakes operation at steep descents.

In accordance with the plan of development of advanced technology, the Company is carrying on research and development work to produce new promising devices and complete brake systems meeting the up-to-date requirements.

Our design engineers have lately carried on many tests and developed new brake mechanisms:

- Series of 483A-05, 483A-08, 483A-09 и 483A-10 air distributors was approved by the Acceptance Committee. Brake equipment, and in particular, Series 483A air distributors subjected to life tests in the tough conditions of the North and Far East have proved their reliability.

- 483A-05 air distributor is mounted and being tested:
  - on a car under axial load of 27 t/axle;
  - on an articulated flatcar made by «Tatravagonka» Company;

- 483A-05 air distributor is mounted on a «Tatravagonka» gondola car for testing.

- One of the recent large-scale developments in the brake systems of mainline locomotives is the brake system for ЭП20 locomotive, which is to be manufactured at the Novocherkassk Electric-Locomotive Building Plant. The brake system is of modular design and includes all components of brake system: Е.300Т brake equipment module, Е.300F compressor module, disk brakes and BARS WSP (wheel slide protection) system.

- Another recent large-scale work is the development of the module of Е.311 brake equipment for 2ТЭ25А diesel locomotive with induction motor drive made by the Bryansk Machine-Building Plant.

The same module is intended to be used on 2Т325K mainline diesel locomotive with commutator motor drive. The Е.311 brake equipment module has undergone the entire cycle of factory tests and been approved by the Acceptance Committee and the startup and adjusting operations are under way on the locomotive for testing.

It is necessary to emphasize that Е.300Т and Е.311 modules of brake equipment have been developed in Russia for the first time. To the date the brake equipment was delivered to the customer in the form of the units of electro-pneumatic devices or separate brakes parts.
With its strategic objects in mind, JSC MTZ TRANSMASH developed and certified its quality management system for its compliance with the requirements of GOST R ISO 9001-2008. Moreover, the business management system was implemented in accordance with the requirements of IRIS Standard, as well as the ecological management system.

JSC MTZ TRANSMASH has compliance certificates for all of its products subject to mandatory certification, and also a vast range of certificates of voluntary certification.

The Brake Equipment Test Center is accredited with JSC MTZ TRANSMASH in accordance with the established procedure for the right to perform certification tests. The priorities of JSC MTZ TRANSMASH business activities are first of all related to creation of new promising brake equipment, with acceleration of its introduction, quality assurance.

Reliability of brake systems is a warranty of safety at railroads in the age of superhigh-speed, increasing freight turnover, continually growing traffic volume and increasing number of passengers.

Every year the Plant elaborates and implements its Technical Re-equipment Program included in its Business Plan. The policy of the Plant in terms of quality is aimed at the maximum satisfaction of a consumer over the complete life cycle of a project. With its strategic objects in mind, JSC MTZ TRANSMASH developed and certified its quality management system for its compliance with the requirements of GOST R ISO 9001-2008.

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PRINCIPAL MOUNTING ARRANGEMENT OF BRAKE EQUIPMENT FOR LOCOMOTIVE

1. Driver's brake valve controller 130.52
2. Unit (block) of pneumatic devices 130.10
3. Back up control valve 130.20
4. Control circuits switch 130.43
5. Emergency brake valve 130.30
6. Control valve 215
7. Electropneumatic automatic stop valve 153A
8. Arrangement block (unit) of brake equipment for freight type locomotives 010
9. Equalizing reservoir 20l
10. Auxiliary reservoir 20l
11. Brake cylinder
12. Compressor
13. Connecting hose
14. End cock
15. Pressure switch 404
PRINCIPAL MOUNTING ARRANGEMENT OF BRAKE EQUIPMENT FOR PASSENGER CAR

1. Electric brake control valve 305
2. Brake control valve 242-1-01
3. Emergency stop valve 138-1
4. End cock
5. Pipe tee fitting 373P
6. Connection block 368 A
7. Terminal block 317-8
8. Brake linkage regulator (Slack adjuster) RTRP-675 M
9. Auxiliary reservoir
10. Brake cylinder
11. Cylinder valve 132
12. Disconnecting valve
13. Terminal block 315-8
14. Temperature sensor 023
15. Monitoring unit for heating unit 064
PRINCIPAL MOUNTING ARRANGEMENT OF BRAKE EQUIPMENT FOR UNDERGROUND MOTOR CAR

1. Control valve 013А
2. Unit (block) of electropneumatic devices 348
3. Pressure regulator 348-2
4. Electro-pneumatic valve 177
5. Disconnecting valve 154
6. Return valve 161
7. Breakaway valve 363-3М
8. Vibrator valve 144
9. Pressure indicator 115
10. Parking brake control unit 149
11. Main air reservoir 348-2
12. Compressor 076
13. Auxiliary reservoir 077
14. Brake cylinder 108
15. Car body position regulator 003М
16. Changeover valve 109
17. Switching valve 109
18. Emergency valve 398
19. Exhaust valve 131
20. Three-position discharge valve 131

DEVELOPMENT FOR NEW UNDERGROUND TRAIN MODEL 760
PRINCIPAL MOUNTING ARRANGEMENT OF BRAKE EQUIPMENT FOR LOCOMOTIVE TEM31

- Brake control valve unit 010.10
- Electropneumatic brake control unit 130.10
- Remotely controlled electro-pneumatic automatic train stop valve 151D-1
- Remotely controlled locomotive auxiliary brake valve 224D
- Driver’s brake valve controller 224D.100
- Driver’s brake valve controller 130.52
PRINCIPAL MOUNTING ARRANGEMENT OF BRAKE EQUIPMENT FOR FREIGHT CAR

- Brake control valve 483А-05
- End cock
- Auxiliary reservoir
- Automatic proportional empty-and-load device 265 А-1
- Connecting hose Р176
- Brake cylinder
- Brake linkage regulator (Slack adjuster) FTP-675M
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