

**MOL Group**

**TECHNICAL SPECIFICATION  
INSTRUMENTATION**

**List of booklets**

**MGs-M-REF-I-LI**

Rev 1.00.01



**Release list**

Rev.	Date	Description	Edited	Verified	Approved
0.00.00	20.01.2006	Basic release			
0.00.01	28.03.2006	Issued for comments			
0.00.02	31.03.2006	Issued for comments MS-22.1			
0.00.03	10.04.2006	Issued for comments			
0.00.04	27.04.2006	Issued for comments			
0.00.05	31.05.2006	Issued for comments			
<b>1.00.00</b>	<b>30.11.2011</b>	<b>General issue</b>	<b>Mária Kocsmárszki</b>	<b>László Pallagi</b>	
<b>1.0.01</b>	<b>31.01.2014</b>	<b>General review</b>		<b>I Kovács</b>	



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## 1 Preface

The specifications MGS-M-REF-I of MOL Group „Technical specifications - Instrumentation“ is an organic part of MOL Group specification system.

*Legend:* MGS - M/S – REF - T/M/C/I/E – x.x

<b>„MGS“</b>	<b>MOL Group Standards.</b>
<b>“M”</b>	<b>MOL (Danube, Tisza, Zala) Refineries,</b>
<b>“S”</b>	<b>Slovnaft Bratislava Refinery.</b>
<b>“REF”</b>	<b>Refining.</b>
<b>“T”</b>	Technology,
<b>“M”</b>	Mechanical,
<b>“C”</b>	Civil,
<b>“I”</b>	<b>Instrumentation,</b>
<b>“E”</b>	Electrical installations.
<b>x.x</b>	Serial number of the book.

The specifications MGS-M-REF-I contains the most important technical requirements regarding the instrumentation installations and instrumentation equipment for technological objects in MOL Group hungarian refineries.

Purpose of standard MGS-I is to specify and to complete technical requirements which are defined in valid legislation of Hungarian republic, dealing with instrumentation installations and instrumentation equipment, with technical requirements, accepted specific needs and MOL experiences in scope of preparation, projection, purchasing, delivery, installation, commissioning, operation, maintenance and liquidation of instrumentation installations and instrumentation equipment in company technological objects.

Target of standard MGS-M-REF-I is to ensure uniform solution for instrumentation installations and instrumentation equipment for new, reconstructed, modernized or integrated company technological objects or only parts of these objects, which are prepared and realized at different conditions and different time horizons.

## 2 Assignment of obligation

Standard MGS-M-REF-I is obligatory for all Slovnaft a.s. and MOL Group employees, as well as for all external subjects, which take part in at preparation, projecting, delivery, installation, commissioning, operation, maintenance, repairing and liquidation of instrumentation installations and instrumentation equipment, which are solved by this standard.

## 3 Related standards

List of related Hungarian technical standards is presented in the chapter MGS-M-REF-I-4.

## 4 Substitution of previous standards

Standard MGS-M-REF-I Technical specifications - Instrumentation substitutes all previous version of MOL or MOL GROUP standards (MGS-I or MSI booklets and chapters).

## 5 Standard work out







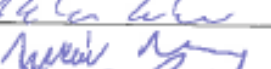

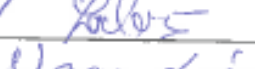





Standard MGS-M-REF-I Technical specifications - Instrumentation has been worked out and commissioned by MOL Group instrumentation experts (nominated as standardization team members) in corporation of ProCoPlan Automation Engineering & Main Contractor Ltd. ([www.procoplan.hu](http://www.procoplan.hu)).

**6 Signatory sheet**





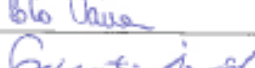



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**General review 2014**

**Note:** Modifications on MGSM-REF-I books prepared by MOL expert team members, approved by Head of PE MOL according to ORG\_1\_G1\_DS2\_MOL1, version No. 2

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**7 Book Breakdown**

Description	Identifier	Kötet	Rev.:
List of booklets	MGS-M-REF-I-LI	A	1.00.01
Requirements on the contents of Project Specifications	MGS-M-REF-I-1	A	1.00.00
Requirements on the contents of Basic Design Documents	MGS-M-REF-I-2	A	1.00.00
Instrumentation requirements for package units	MGS-M-REF-I-3	A	1.00.00
General Specification for design of Instrumentation	MGS-M-REF-I-4	A	1.00.01
Specification for instrumentation items	MGS-M-REF-I-5	A	1.00.01
Temperature measuring Instruments	MGS-M-REF-I-5.1	A	1.00.01
Pressure measuring instruments	MGS-M-REF-I-5.2	A	1.00.01
Differential pressure measuring instruments	MGS-M-REF-I-5.3	A	1.00.01
Flow measuring instruments	MGS-M-REF-I-5.4	A	1.00.01
Restriction-type flow measuring instruments	MGS-M-REF-I-5.4.1	A	1.00.01
Vortex-type flow measuring instruments	MGS-M-REF-I-5.4.2	A	1.00.01
Coriolis Mass flowmeters	MGS-M-REF-I-5.4.3	A	1.00.01
Annubar-type flow measuring instruments	MGS-M-REF-I-5.4.4	A	1.00.01
Turbine-type flow instruments	MGS-M-REF-I-5.4.5	A	1.00.01
Ultrasonic-type flow measuring instruments	MGS-M-REF-I-5.4.6	A	1.00.01
Inductive-type flow measuring instruments	MGS-M-REF-I-5.4.7	A	1.00.01
Rotameter-type flow measuring instruments	MGS-M-REF-I-5.4.8	A	1.00.01
Positive displacement flow measuring instruments	MGS-M-REF-I-5.4.9	A	1.00.01
Thermal dispersion-type flow measuring instruments	MGS-M-REF-I-5.4.10	A	1.00.01
Level measuring	MGS-M-REF-I-5.5	A	1.00.01
Level measuring instruments	MGS-M-REF-I-5.5.1	A	1.00.01
Differential pressure transmitters for level measuring	MGS-M-REF-I-5.5.2	A	1.00.01
Radioactive level measuring instruments	MGS-M-REF-I-5.5.3	A	1.00.00
Radar gauges	MGS-M-REF-I-5.5.4	A	1.00.00
Valves	MGS-M-REF-I-5.6	A	1.00.01
Control valves	MGS-M-REF-I-5.6.1	A	1.00.01
On/Off valves	MGS-M-REF-I-5.6.2	A	1.00.01
Analyzers	MGS-M-REF-I-5.7	A	1.00.01
Process Control Systems	MGS-M-REF-I-6	A	1.00.01
Integrated Control Systems	MGS-M-REF-I-6.0	A	1.00.00
Requirements for DCS System	MGS-M-REF-I-6.1	A	1.00.01
Requirements for Safety Instrumented System	MGS-M-REF-I-6.2	A	1.00.01
Requirements for PLC System	MGS-M-REF-I-6.3	A	1.00.00
Requirements for Advanced Process Control	MGS-M-REF-I-6.4	A	1.00.00
Requirements for Field Instrumentation Maintenance System	MGS-M-REF-I-6.5	A	1.00.00
Requirements for machinery protection and monitoring systems of rotating machine	MGS-M-REF-I-6.6	A	1.00.00
RIS connection	MGS-M-REF-I-6.7	A	1.00.00
Requirements related to the development of an on-line analytical diagnostic and maintenance network	MGS-M-REF-I-6.8	A	1.00.00
Alarm System and HMI display design and implementation	MGS-M-REF-I-6.9	A	1.00.00
Design of gas alarm systems	MGS-M-REF-I-6.10	A	1.00.00
Specification of instrumentation equipment	MGS-M-REF-I-7	A	1.00.00
Requirements of the instrumentation engineering documents	MGS-M-REF-I-8	A	1.00.00

<b>Description</b>	<b>Identifier</b>	<b>Kötet</b>	<b>Rev.:</b>
Tag naming rules and P&ID symbols for instrumentation	MGS-M-REF-I-10	A	1.00.00
Technical requirement for erection materials & their use	MGS-M-REF-I-12	A	1.00.01
Junction box specification	MGS-M-REF-I-12.1	A	1.00.00
Instrument cable specification	MGS-M-REF-I-12.2	A	1.00.00
Fiber-optic cable specification	MGS-M-REF-I-12.3	A	1.00.00
Technical requirements for cable supports	MGS-M-REF-I-12.4	A	1.00.00
Specifications for Electric Heat Tracing Materials of Instrumentation Items	MGS-M-REF-I-12.5	A	1.00.00
Protective box specification	MGS-M-REF-I-12.6	A	1.00.00
Design of electrical power supply and earthing system	MGS-M-REF-I-12.7	A	1.00.00
Configuration of hook-up piping	MGS-M-REF-I-12.8	A	1.00.00
Technical requirements for erecting instrument cables	MGS-M-REF-I-12.10	A	1.00.01
Requirements of instrument air supply systems	MGS-M-REF-I-12.11	A	1.00.00
Technical requirements of satellite control rooms (SCR)	MGS-M-REF-I-12.13	A	1.00.00
Requirements on checking	MGS-M-REF-I-13	A	1.00.00
Requirements of Factory Acceptance Test (FAT)	MGS-M-REF-I-13.1	A	1.00.00
Requirements of Site Acceptance Test (SAT)	MGS-M-REF-I-13.2	A	1.00.00
Checking of instruments and devices before installation (Laboratory-1)	MGS-M-REF-I-13.3	A	1.00.00
Mechanical checking	MGS-M-REF-I-13.4	A	1.00.00
Pre-commissioning examinations of the control system (Laboratory-2)	MGS-M-REF-I-13.5	A	1.00.00
Operational tests	MGS-M-REF-I-13.6	A	1.00.00
Starting, running test, measuring	MGS-M-REF-I-13.7	A	1.00.00
Check list	MGS-M-REF-I-13.8	A	1.00.00
Vendor documentation for instrumentation devices and equipment	MGS-M-REF-I-15	A	1.00.00
Interfaces	MGS-M-REF-I-16	A	1.00.00
Instrumentation/Electrical Interface	MGS-M-REF-I-16.1	A	1.00.00
Instrumentation/Mechanical Interfaces	MGS-M-REF-I-16.2	A	1.00.00
Requirements for heater control & safety shut-down	MGS-M-REF-I-21	A	1.00.00
Definition of requirements for the control and safety shutdown of centrifugal, reciprocating and screw compressors	MGS-M-REF-I-22	A	1.00.00
Definition of requirements for the control and safety shutdown of centrifugal compressors	MGS-M-REF-I-22.1	A	1.00.00
Definition of requirements for the control and safety shutdown of reciprocating compressors	MGS-M-REF-I-22.2	A	1.00.00
Definition of requirements for the control and safety shutdown of multi-stage screw compressors	MGS-M-REF-I-22.3	A	1.00.00
Protection and instrumentation of pumps	MGS-M-REF-I-23	A	1.00.01
Protection and instrumentation of conventional pumps	MGS-M-REF-I-23.1	A	1.00.01
Requirements for Vacuum Pumps & Instrumentation	MGS-M-REF-I-23.2	A	1.00.01
Protection and instrumentation of Canned type pumps	MGS-M-REF-I-23.3	A	1.00.01
Instrumentation requirements for special technological equipment	MGS-M-REF-I-24	A	1.00.00
Instrumentation requirements for air coolers	MGS-M-REF-I-24.1	A	1.00.00
Frequency Converter	MGS-M-REF-I-24.4	A	1.00.00
Technical requirements for special valves	MGS-M-REF-I -25	A	1.00.00
Safety valves for gas breakthrough	MGS-M-REF-I -25.1	A	1.00.00
Technical requirements on emergency isolation valves	MGS-M-REF-I -25.2	A	1.00.00



Description	Identifier	Kötet	Rev.:
Relief valves for high-pressure systems	MGS-M-REF-I -25.3	A	1.00.00
On/off dampers (for combustion air, flue gas, etc.)	MGS-M-REF-I -25.4	A	1.00.00
Motor operated valves and their control	MGS-M-REF-I -25.5	A	1.00.00
Requirements for Tank Farm Instrumentations	MGS-M-REF-I -26	A	1.00.00
Requirements for Tank Farm Level Instruments	MGS-M-REF-I -26.1	A	1.00.00
Requirements for Tank Farm Level Gauging Systems	MGS-M-REF-I -26.2	A	1.00.00
Requirements on Route Assignment (Line-Up) Systems	MGS-M-REF-I-26.4	A	1.00.00
Requirements on Oil Storage & Transfer Systems (OMS, Oil Movement Systems)	MGS-M-REF-I-26.5	A	1.00.00
Requirements on Tank Farm Data Management Systems	MGS-M-REF-I-26.6	A	1.00.00
Requirements for LPG Sphere Instrumentation	MGS-M-REF-I-26.7	A	1.00.00
Requirements for Field-Installed Bus Systems	MGS-M-REF-I -28	A	1.00.00
Requirements for Foundation Fieldbus Systems	MGS-M-REF-I -28.1	A	1.00.00
Sample documentation of detail engineering documents for instrumentation	MGS-M-REF-I-30	B	1.00.00
List of Contents, Declaration & Preamble Sheets of Engineering Statement	MGS-M-REF-I-30.1	B	1.00.00
Technical Description & Erection Instructions	MGS-M-REF-I-30.2	B	1.00.00
Piping & Instrumentation (P&I) Diagrams	MGS-M-REF-I-30.3	B	1.00.00
Summary Datasheet for Instrumentation (Schedule)	MGS-M-REF-I-30.4	B	1.00.00
System Configuration Diagram of Instrumentation	MGS-M-REF-I-30.5	B	1.00.00
Logic Diagrams	MGS-M-REF-I-30.6	B	1.00.00
Shut-Down & Alarm Set-Points	MGS-M-REF-I-30.7	B	1.00.00
Logic Narrative	MGS-M-REF-I-30.8	B	1.00.00
Instrument Specifications	MGS-M-REF-I-30.9	B	1.00.00
Grounding Diagram for Instrumentation System	MGS-M-REF-I-30.10	B	1.00.00
Equipment Specifications	MGS-M-REF-I-30.11	B	1.00.00
Specification of Erection Materials (cables, junction boxes)	MGS-M-REF-I-30.12	B	1.00.00
List of Erection Materials	MGS-M-REF-I-30.13	B	1.00.00
Loop Drawings	MGS-M-REF-I-30.14	B	1.00.00
Cabling Diagrams	MGS-M-REF-I-30.15	B	1.00.00
Cable Schedule	MGS-M-REF-I-30.16	B	1.00.00
Wiring Diagrams	MGS-M-REF-I-30.17	B	1.00.00
Control Room Layout & Cable Routing	MGS-M-REF-I-30.18	B	1.00.00
Field Layout Drawings & Routings	MGS-M-REF-I-30.19	B	1.00.00
Power Supply for Instrumentation	MGS-M-REF-I-30.20	B	1.00.00
Hook-up Drawings	MGS-M-REF-I-30.21	B	1.00.00
Instrument Air Supply	MGS-M-REF-I-30.22	B	1.00.00
Instrumentation/Electric Interface	MGS-M-REF-I-30.23	B	1.00.00
List of Process & Utility Connections	MGS-M-REF-I-30.24	B	1.00.00
ICS I/O Assignment, ICS I/O List	MGS-M-REF-I-30.25	B	1.00.00
Information for Software Configuration	MGS-M-REF-I-30.26	B	1.00.00
Non-priced Requisition for Cost Estimation	MGS-M-REF-I-30.27	B	1.00.00
Information for FIR System	MGS-M-REF-I-30.28	B	1.00.00