
INTEGRATED MANAGEMENT SYSTEMS MANUAL



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INTEGRATED MANAGEMENT SYSTEMS

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Demirer Kablo is a global cable systems manufacturer

We are manufacturing cable systems up to 500 kV and providing cable laying, installation of terminations and joints, testing, supervision and commissioning services all over the world. This makes us a turnkey contractor on a global scale .

With our cable systems installed in 6 continents and more than 50 countries including United States, Germany, United Kingdom, Italy, India, Russia, Saudi Arabia, Australia, Pakistan and Nigeria, we are touching the lives of hundreds of millions of people whose energy needs we strive to meet.

Demirer Kablo is the choice of the leaders of the sector

Since 1982, we are providing cable systems to many major transmission companies and industry giants, always exceeding our customers' expectations. Our references include Bahrain Electricity & Water Authority (EWA), Qatar General Electricity & Water Corporation (KAHRAMAA), Dubai Electricity and Water Authority (DEWA), United Kingdom Power Networks (UKPN), Électricité de France (EDF), Moscow United Electric Grid Company (MOESK), Turkey Electricity Transmission Company (TEİAŞ), Iraq Ministry of Electricity (MOE), Algeria National Society for Electricity and Gas (SONELGAZ), E.ON, Vattenfall, Reliance Energy, Siemens, Hyundai, Alstom, Worley Parsons and Chevron.

Demirer Kablo is one of the largest HV/EHV cable manufacturers

To date, we have manufactured more than 30.000 km of cables. Our factory in Bozüyük, with its record of manufacturing more than 8.000 km of high and extra high voltage cables, is among the few factories in the world that have manufactured such cables in the highest quantity. Our annual production capacity may reach processing 18.000 tons of copper equivalent, depending on the types of cables manufactured.

- 1954** Foundation of Kavel Kablo, manufacturer of telecommunication cables, in Istanbul
- 1982** Foundation of Demirer Kablo in Bozuyuk
- 1983** Start of production with 35kV medium voltage cables
- 1985** Acquisition of Demirer Kablo's majority shares by Saudi Cable Company (SCC)
- 1986** First export with the sale of 20kV cables to Iraq
- 1987** Acquisition of Kavel Kablo by SCC
- 1990** First high voltage cable production (69 kV)
- 1990** Start of the fiber optic cables production by Kavel Kablo
- 1993** Start of 154 kV high voltage cables production
- 1994** Raise of SCC share in Demirer Kablo to 100%
- 1994** Installation of the 2nd CDCC line
- 1994** Acquisition of ISO 9001 certificate
- 1995** Start of 220 kV extra high voltage cables production
- 1997** Relocation of Kavel Kablo factory near Demirer Kablo factory in Bozuyuk
- 1997** Commissioning of 154 kV joints which were the first accessories manufactured by Demirer Kablo
- 2002** Reach of total produced HV cable length to 3000 km
- 2002** First export to the American continent, to United States of America
- 2003** Start of 380 kV high voltage cables development
- 2003** Acquisition of the ISO 14001 Environmental Management System Certificate
- 2005** Merger of Demirer Kablo and Kavel Kablo under the Demirer Kablo name
- 2005** Completion of Iceland project which was the first turnkey project in Europe
- 2006** Acquisition of the OHSAS 18001 Certificate
- 2007** First 380 kV turnkey project award from TEİAŞ in Turkey
- 2008** Installation of the 3rd CDCC line
- 2009** Completion of 380 kV long term prequalification test with success
- 2009** Completion and energization of the first 380 kV project
- 2011** Reach of total produced HV/EHV cable length to 7000 km
- 2012** Finalization of sixth 380 kV turnkey project
- 2014** Reach of total produced HV/EHV cable length to 8000 km
- 2014** Commissioning of aluminum sheathing line
- 2015** Start of accessories production with LSR technology in newly established modern accessories factory in Bozuyuk

Demirer Kablo, as a manufacturer of power cable systems, manufactures also cable accessories and provides installation services for these systems besides manufacturing power cables.

Power Cables

EXTRA HIGH VOLTAGE (EHV) and HIGH VOLTAGE (HV) POWER CABLES



EHV/HV cables can be manufactured at following voltage levels:

- 290 / 500 (550) kV
- 220 / 380 (420) kV
- 190 / 330 (362) kV
- 127 / 220 (245) kV
- 87 / 150 (170) kV
- 76 / 132 (145) kV
- 64 / 110 (123) kV
- 38 / 66 (72.5) kV

MEDIUM VOLTAGE (MV) POWER CABLES

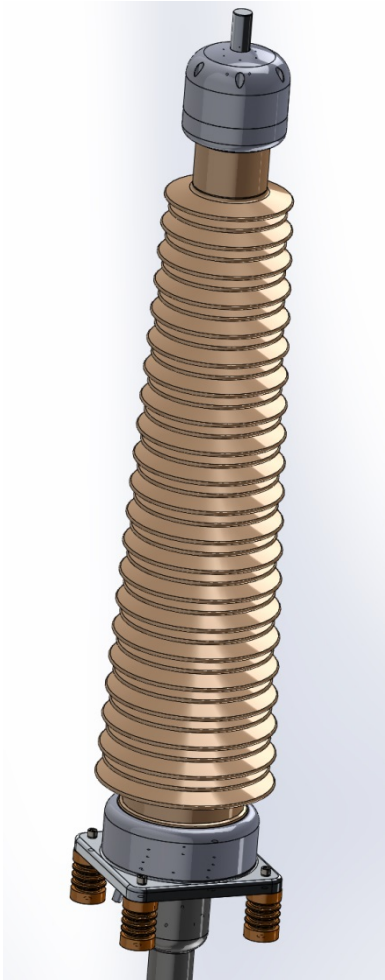


MV cables can be manufactured at following voltage levels:

- 18 / 30 kV
- 12 / 20 kV
- 8.7 / 15 kV
- 6 / 10 kV
- 3.6 / 6 kV

Power cables can be manufactured with copper or aluminium conductors and with various metallic sheaths in accordance with customer demands.

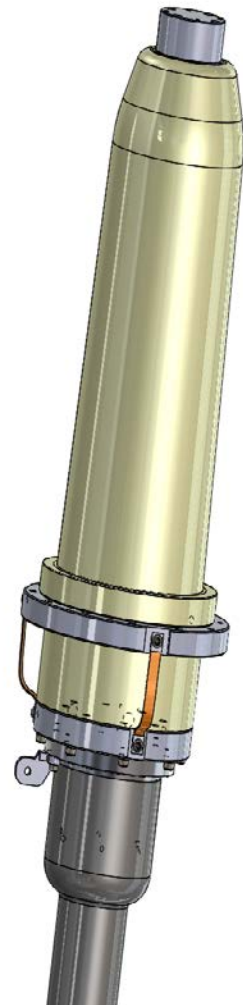
Power Cable Accessories



Porcelain Outdoor Termination

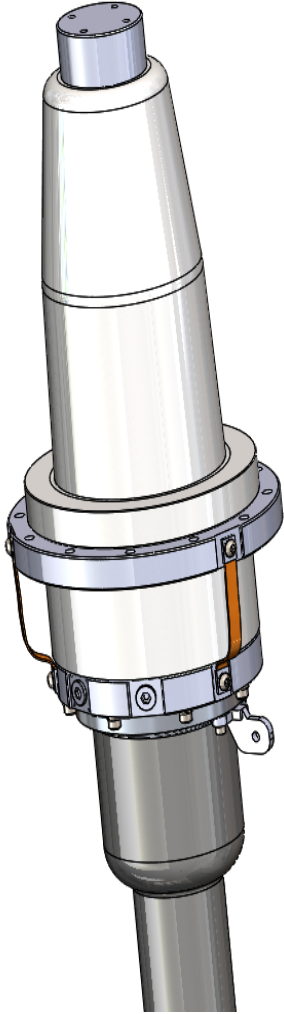


Composite Outdoor Termination



Conventional SF₆ / Transformer Termination

Power Cable Accessories



Dry Type SF₆ /
Transformer
Termination

Having 25 years of cable accessories manufacturing experience, following up latest trends and developments in materials and manufacturing technology and implementing them in its own production; today, Demirer Kablo is manufacturing HV cable accessories capable of fulfilling the most demanding requirements and highest expectations in terms of quality and long term performance.

- Use of silicon rubber prefabricated slip-on elements enabling short installation times, excellent electrical & mechanical long time behavior and low failure risk on-site.
- Computer based field distribution calculation enabling optimal material utilization and minimum dimensions.
- IEC compliant voltage and PD tests in factory enabling fault recognition before delivery.
- Identical stress cones for all types of terminations & common design for GIS and transformer sealing ends enabling moderate mold costs, economic storage, fast delivery time, standardization and international compatibility.



Joint

Installation Services

SYSTEM DESIGN

System Design is the basis of a project. In Demirer Kablo, we firstly design the cable according to the data provided by the customer. Critical design factors affecting the cable’s current carrying capacity and losses such as the depth of cables and the distance between phases are then finalized. A route survey executed by our professional crew enables us to specify the cable cutting lengths and joint locations and finally the proper cable system configuration is selected and projected. These cable system configurations are Both-End Bonding, Single-Point Bonding and Cross Bonding. More detailed information regarding these configurations can be found in pages 73 and 74 in the “MNG.CAT.PUB.001.00 - Catalogue” and at the following address: <http://demirerkablo.com/services/system-design.aspx>

PROJECT EXECUTION

Supply of equipment

After producing the cables and accessories in its high-tech factories, Demirer Kablo also provides the transportation of these products to project sites upon request.



Lashing



Loading



Sea Transport



Land Transport



Unloading

Civil Works

Demirer Kablo is capable of all kinds of civil works related to cable system installation including the excavation of cable trenches, construction of cable galleries, piping, horizontal directional drilling and backfilling.



Excavation of Trenches



Cable Gallery



Piping



Horizontal Directional Drilling



Backfilling

Cable Laying

Cable laying is one of the most crucial works at site. In order not to encounter any problems, excavation and piping must have been done. First, the drum is placed at the proper side of route according to the slope. Then, cable pulling winch having an appropriate power level is placed at the opposite side. Cable rollers are placed in order to prevent the cable contact the ground. With a proper steel rope and applying the proper power, cable laying is carried out. In case of demand, experienced Demirer Kablo staff may supervise the contractor's cable laying works



Orientation of Cable Drum



Start of Cable Laying



Cable Pulling Winch



Cable Pulling



End of Cable Pulling

Jointing and Terminating

Jointing and terminating are high precision works and are to be handled by experienced staff. In Demirer Kablo, joints and terminations are installed by experienced jointers in clean environment according to the installation instructions. As an accessories manufacturer, Demirer Kablo is able to install all kinds of high voltage cable accessories.



Loading of Container



Jointing Container



Inside of Container



Pulling Cable into Joint Bay



Jointing



Jointing



Complete Joint with Coffin Box



Backfilling



Vertical Placing of Cable



Scaffolding



Insertion of Silicone Stress Cone Over Cable



Final Preparation before Insulator Fixing



Insertion of Insulator



Insertion of Insulator



Insertion of Insulator



Insertion of Insulator



Installed Termination



Installed Termination

Testing and Commissioning

Field Tests

Field tests whose performance depend on customer requests and relevant standards, are as follows:

- Visual control of the materials installed and the overall project
- Phase checking
- Measurement of the capacitances between the metallic sheaths (or shielding) and conductors
- Measurement of DC resistances of the conductors
- Measurement of DC resistances of the metallic sheaths and metallic shielding
- Measurement of insulation resistance of XLPE insulation
- Measurements of zero-sequence impedances
- Measurements of positive sequence impedances
- Function tests on the cross-bonding system
- DC voltage test on non-metallic sheaths
- Measurements of maximum attenuation for fiber optic cables

HV / AC Test

The whole system is tested by the HV/AC test after performance of site tests. Voltage level specified in IEC 60840 and IEC 62067 according to the subject system is applied for 1 hour.



After successful performance of the field tests and the HV / AC test, site is surveyed with the customer and any deficiencies are remedied. Finally, grid voltage is applied to the system for 24 hours and the system becomes ready for commissioning.

As a cable manufacturer, Demirer Kablo is placed in electric transmission segment of electric power industry.

Electricity utilities; electrical contractors; standardization, supervision and regulatory bodies; government agencies like ministries of energy and municipalities; suppliers, copper and cross-linked polyethylene (XLPE) manufacturers being in the first place; freight forwarders and various consulting firms whose services are obtained, and other cable and wire manufacturers compose the large part of our business environment.

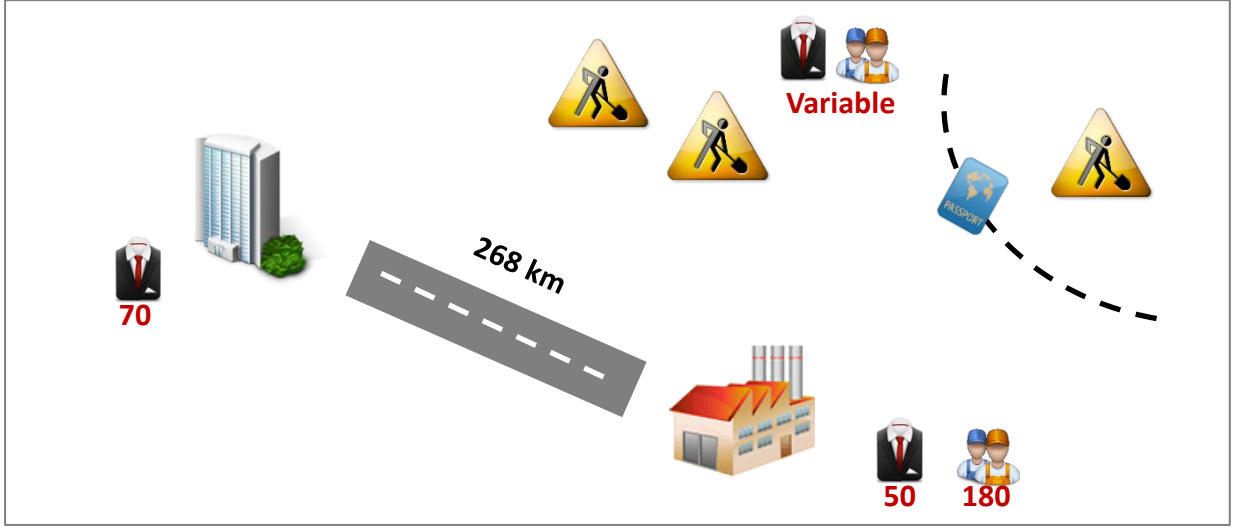
Electricity utilities who are the most important actors in undergrounding electric transmission lines and electrical contractors installing energy transmission systems in oil & gas, mining and construction projects compose the customer portfolio of Demirer Kablo.

Electrical equipment standards are internationally defined by the International Electrotechnical Commission (IEC). Besides, American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), British Standards Institution (BSI) and Association for Electrical, Electronic & Information Technologies (VDE) and Turkish Standards Institute (TSE) are also used.

Demirer Kablo is audited by relevant ministries regarding occupational health & safety and tax, and by relevant certification bodies as required by the management systems that are implemented. In addition, our customers can also audit our company at will.

Type and long-term prequalification tests of our products are conducted at internationally accredited test laboratories and our own laboratory is also used for type tests under supervision of accredited companies

Demirer Kablo is a member of various associations and work groups formed by cable and wire manufacturers both at the national and international level and attends conferences, seminars and fairs related to the sector. International Cablemakers Federation (ICF), Turkish Cable and Conductor Manufacturers Association, Turkish Foreign Trade Association (TurkTrade) and Electrical, Electronics and Services Exporters Association (Turkish Electro Technology - TET) affiliated with Istanbul Mineral and Metals Exporters Associations (İMMİB) are among the associations Demirer Kablo is a member of. Furthermore, Demirer Kablo attends the Jicable forums which are the most important meeting of the cable industry at the international level, and also ICF, CRU and Integer meetings, various fairs and cable projects conducted by TET.



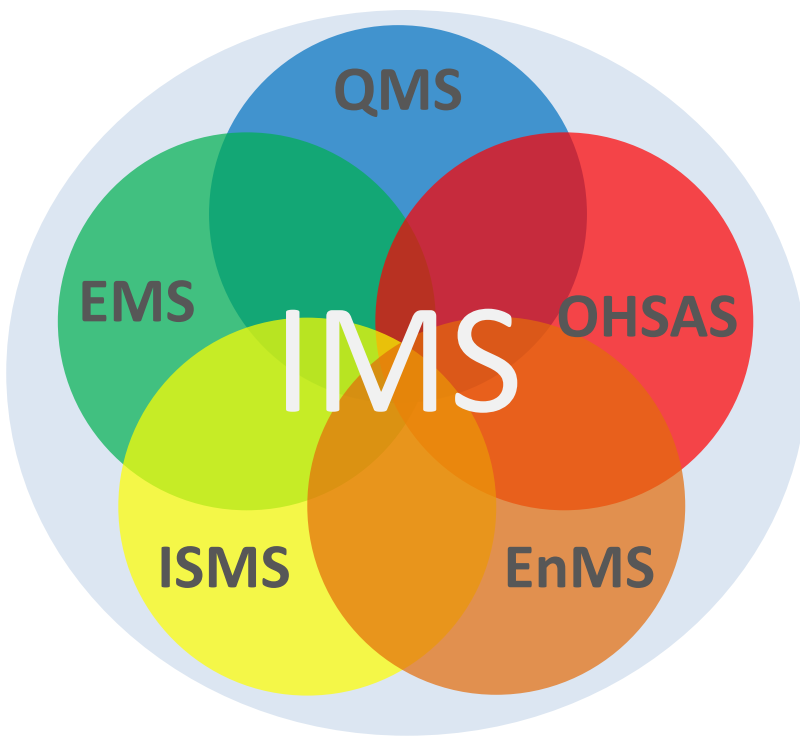
Demirer Kablo operates in two locations; its headquarters located in Istanbul's Beşiktaş district and its manufacturing facilities located in Bilecik's Bozüyük town. Apart from these, we also have temporarily established site offices.

Details regarding our organization can be found in «HRS.CHR.PUB.001.00 – Organizational Chart».

Demirer Kablo has about 300 employees, about 70 of them working in headquarters, and the rest in manufacturing facilities. All personnel in headquarters and about 50 percent in manufacturing facilities are white collar employees.

Management systems implemented in an integrated manner in Demirer Kablo are as follows:

TS EN ISO 9001:2015	Quality Management System (QMS)
TS 18001:2014	Occupational Health and Safety Management System (OHSAS)
TS EN ISO 14001:2015	Environmental Management System (EMS)
TS EN ISO 50001:2013	Energy Management System (EnMS)
TS ISO/IEC 27001:2013	Information Security Management System (ISMS)



Scope

All of these management systems are implemented in all our units.

There are no exceptions in any of the management systems that we are implementing.

Integrated Management Systems Guide

In order to ensure that our documents verifying the requirements of the management systems and the relevant chapters in these documents can be easily found, «MN.TBL.PUB.001.00 – Integrated Management Systems Guide» is used as a guide indicating these documents and chapters with reference to the relevant articles of the standards.

Index

The descriptions of the terms and concepts in the documentation can be found in «MN.TBL.PUB.002.00 – Integrated Management Systems Index».

- QMS ■ OHSAS ■ EMS ■ ISMS ■ EnMS

Demirer Kablo as a legal entity

- Consistent provision of products and services that meet customer and applicable statutory and regulatory requirements
 - Improvement of customer satisfaction
 - Ensuring continual improvement
 - Ensuring risk and process based management
 - Improvement of performance
- Prevention of injuries and ill health in all workplaces
 - Keeping all workplaces in safe and sanitary conditions
- Prevention of pollution and damage to the environment due to company activities
 - Effective and efficient use of natural resources
 - Minimization of waste generation
 - Disposal of generated waste
- Reduction of energy consumption
 - Use of more energy-efficient products and applications
- Protection of confidentiality of its information
 - Prevention of loss of information and the storing information complete up-to-date
 - Ensuring that information is only accessible for authorized personnel within the company
 - Provision of uninterrupted access to information required for proper business conduct

Customers

- Consistent provision of products and services that meet their own and applicable statutory and regulatory requirements
- Provision of own satisfaction

Suppliers

- Specification of product and service requirements

Demirer Kablo employees, other personnel working at Demirer Kablo workplaces and the companies employing them

- Participation to quality processes
 - Prevention of injuries and ill health
 - Protection of confidentiality of personal data
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Regulatory and supervisory bodies

- Compliance with legislation
 - Compliance with occupational health and safety legislation
 - Compliance with environmental legislation
 - Compliance with energy legislation
 - Compliance with information security legislation
-

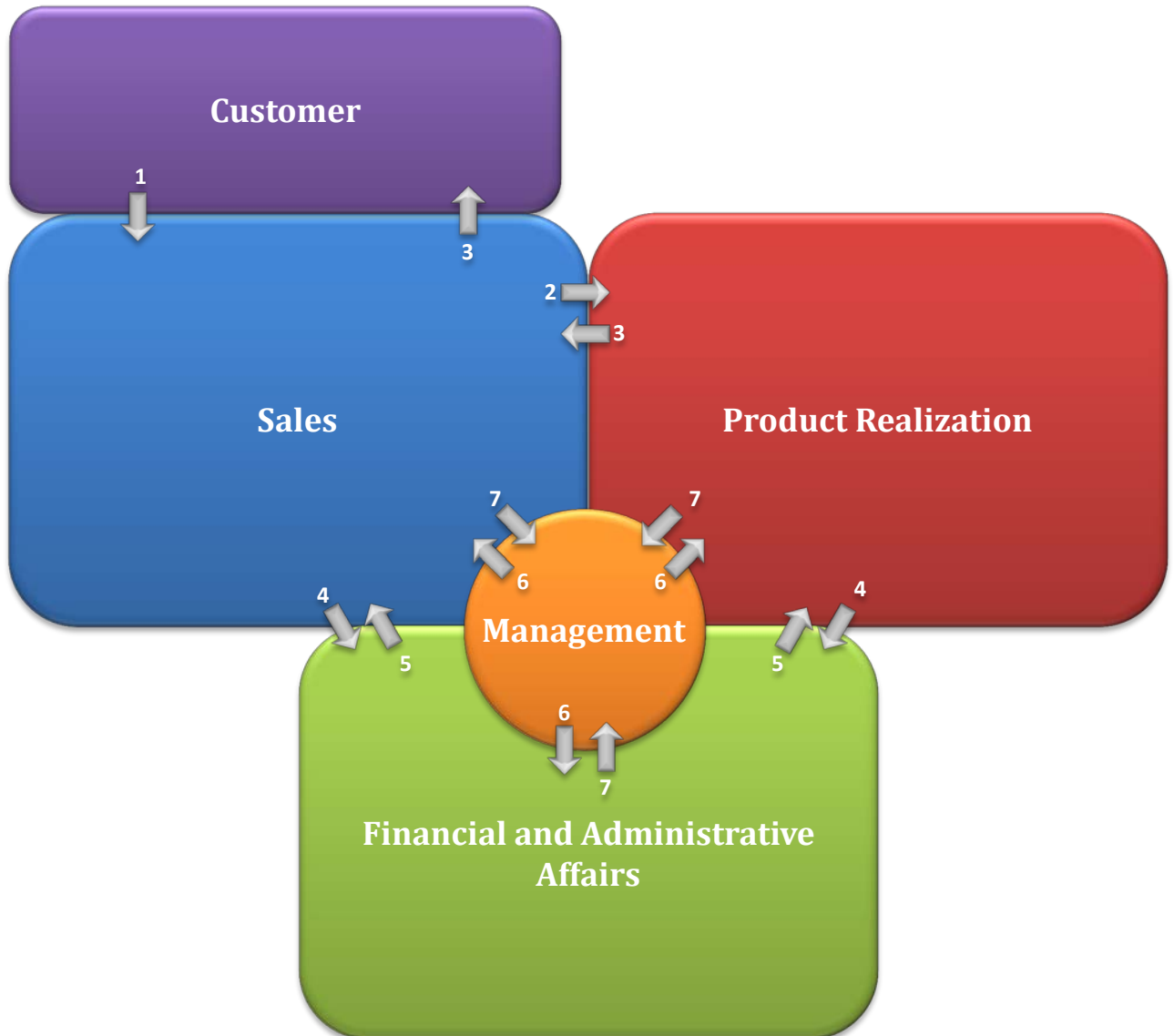
Individuals and organizations whose information is accessible for Demirer Kablo, customers and suppliers being in the first place

- Protection of confidentiality of its information
-

Individuals and organizations who have access to Demirer Kablo's information

- Provision of uninterrupted access to information required for proper business conduct

There are four main processes implemented in Demirer Kablo. These are Management, Sales, Product Realization and Financial and Administrative Affairs. Main interactions of these processes are given below.



- 1 Order
- 2 Internal Order
- 3 Product
- 4 Requests, Feedback
- 5 Financial and Administrative Services
- 6 Decisions
- 7 Reports, Feedback

Processes under main processes and their abbreviations are as follows:

<u>Management</u>	<u>MN</u>	<u>Sales</u>	<u>SA</u>
Risk Management	RM	Marketing	MR
Resource Management	RS	Tendering	TN
Continual Improvement	CI	Project Management	PM
Audit	AU	Customer Services	CS
Quality Management	QM		
<u>Product Realization</u>	<u>PR</u>	<u>Financial & Administrative</u>	<u>FA</u>
Design	DS	Finance	FI
Production Planning	PP	Accounting	AC
Procurement	PO	Human Resources	HR
Production	PU	Information Technologies	IT
Site Services	SS	Document Management	DM
Quality Control	QC	Occ. Health and Safety	HS
Maintenance & Calibration	MC	Information Security	IS
Product Development	PD	Communication	CM
		Environmental Management	EM
		Energy Management	EN

There is a procedure with the same name for all main processes and processes under them. Procedures and instructions regarding subprocesses and activities are referred to in the procedures that they are connected.

General diagrams indicating the interactions between the processes are given below. All interactions and their characteristics are defined in relevant procedures.

