

USE AND MAINTENANCE MANUAL

IDENTIFICATION OF SUPPLIED COMPONENTS	
IDLERS AND ROLLERS FOR BELT CONVEYORS	
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INDEX:

- 1) Regulations and general information
 - 1.1) “INSTRUCTION MANUAL” document identification
 - 1.2) Document aims
 - 1.3) General precautions and manufacturer responsibility limits
 - 1.4) Manufacturer identification information.
- 2) Obligations and duties.
 - 2.1) Employer duties.
 - 2.2) Obligations in case of service.
 - 2.3) Regulation abidance obligations.
 - 2.4) Obligations in case of malfunction and potential dangers
 - 2.5) Conveyor’s manufacturer obligations
 - 2.6) User obligations
- 3) General work injury prevention instructions
- 4) Product description
- 5) Storage and installation
- 6) Ordinary maintenance

1) REGULATIONS AND GENERAL INFORMATION



DANGER / ATTENTION

This symbol is used to identify operations which require particular attention. Thus information alongside this symbol must be respected before proceeding to the above-mentioned operations.



CAUTION / WARNING

This symbol is used to provide useful indications in the execution of some operations or interesting information. It is recommended that the indications provided be followed before proceeding to the above-mentioned operations.

1.1 “INSTRUCTION MANUAL” document identification

The instruction manual is a document which is issued by UGOMRULLI srl company and it is an integral part of the supply of rollers. It is unequivocally identifiable in order to allow the traceability and any necessary future references.

All reproduction and diffusion rights of the present manual and related information or attached documentation are confidential.

1.2 Document aims

The aim of this instruction manual is to provide the client and staff who will install Dugom “ROLLERS AND IDLERS FOR BELT CONVEYORS” and who will be responsible for the maintenance of the conveyors, with the information required for the correct installation and the best condition maintenance.



Ensure that the safety precautions have been read, understood and followed by all the staff responsible for the Dugom conveyor rollers installation and conveyor maintenance.

1.3) General precautions and manufacturer responsibility limits

Every interaction between the worker and the Dugom “rollers and idlers for belt conveyors”, in terms of the expected use and the entire lifecycle of the roller, has been thoroughly and exhaustively analysed by the company during the design, construction and writing of the instruction manual phases. Despite this, clearly nothing can substitute experience, appropriate training and “common sense” of those who install the rollers and/or maintain the conveyors.

Not following the precautions or specific warnings in this manual, the improper use of all or part of the goods or the use of unauthorised spare parts, violate all safety regulations in relation to the design, construction and expected use of the goods and relieve DUGOMRULLI from any responsibility in the case of damage to persons or things.

DUGOMRULLI is therefore not responsible for the failure of the user in not observing the safety precautions outlined in this manual.

Instruction manual safekeeping.

This document is an integral part of the supply and must be downloaded from the DugomRulli web site www.dugomrulli.it, kept and used for all the operative life of the product even if conceded to third parties.

1.4) Manufacturer identification information

The identification of the DUGOMRULLI srl company as the manufacturer of the Dugom “rollers and idlers for belt conveyors” is in accordance with the legislation in force via the following acts:


- Branding plate of the rollers themselves.
- Instruction manual

2) OBLIGATIONS AND DUTIES

2.1) Employer duties

The employer is responsible for the diffusion of the present document to all staff who interact with the Dugom “rollers and idlers for belt conveyors”.

2.2) Obligations in case of service

 Workers who are called upon to interact with the Dugom “rollers and idlers for belt conveyors” must read and learn the present manual before carrying out any intervention, and adopt the relative specific safety instructions.

2.3) Regulation abidance obligations

Workers must, however, necessarily adopt and abide by general work injury prevention regulations prescribed by the destination country's instructions and legislation.

2.4) Obligations in case of malfunction and potential dangers

- Workers must notify their direct superiors of any malfunction or circumstance which could generate any possible risk to workers or facilities.

2.5) Conveyor's manufacturer obligations

- The conveyors must incorporate suitable guards and safety devices to prevent
 - a) Crushing, Shearing, Entanglement, Wrapping or Trapping hazards;
 - b) Ejection of parts, Slip, trip and fall hazards;
 - c) unexpected start up or unexpected overrun;
 - d) errors of fitting.See the corresponding International and National Standards such as ISO 1819:1977, DIN15220 etc.

2.6) User obligations



The user must inform the conveyor supplier in reasonable time, or, in the case of direct supply, DUGOMRULLI srl, of any anomalous situation observed during the functioning of the rollers.

It is severely forbidden for the user and/or third parties to make changes of any type to the present technical document.

DUGOMRULLI srl is not responsible for the malfunction and/or dangers due to the failure to observe what is mentioned above.

3) GENERAL WORK INJURY PREVENTION INSTRUCTIONS

Users and workers are obliged to respect work injury prevention regulations, both at legal and company level, and in particular must respect the following points:



All the operational staff must not be under the influence of sedatives, drugs or alcohol.



All the operational staff must wear individual protective devices.

4) PRODUCT DESCRIPTION

Terminology

The rollers and the idlers are the essential support of the belt conveyors, enabling their movement and giving them the appropriate shape.

The rollers and the idlers are installed on a conveyor frame, which is not part of DUGOMRULLI supply.

DESCRIPTION AND USE

Permanently lubricated Dugom “rollers and idlers for belt conveyors” are typically manufactured for the use in bulk handling belt conveyors.

THE ROLLERS

DugomRulli offers a wide range of rollers gathered into series according to the type of bearings. Within each series the rollers are further parted according to their diameter.

- The choice of the series and the most suitable diameter for each type of use, should consider various factors, in particular, the daily working hours , the speed of the conveyor, the specific weight, the size and, in general, the characteristics of the handled material and, finally, the environmental conditions of the site where the plant will be installed.

The carrying capacity and the speed of the conveyor are the first data to be considered for a preliminary dimensioning of the rollers and relevant structures (supports and throughs). On DugomRulli site an open access tool is available for the calculation of the load on individual rollers and support structure.

The conveyor belt speed also affects the choice of the diameter of the rollers, which, regardless of the load capacity of the bearings, should not exceed 600 RPM (See catalog MR06, Chapter M01 p. 5 Table 6).

Depending on the specific weight and lumps of the material loads calculated as above, shall be enhanced at least as suggested in the DugomRulli catalogue MR06 (Chapter M01 p. 5 Table 4).

The choice of the series of rollers to be installed should also consider the characteristics of the conveyed material and the environmental conditions of the site. Table 5 page 5 Chapter M01 (Catalogue MR06) recommends the minimum load increment, to be considered according to the environmental conditions and daily hours of work. A further increase can be necessary in presence of highly abrasive materials (eg. coke) or chemically aggressive materials (eg. Phosphates).

The number of such adverse conditions prevent from making a specific recommendations chart. Sometimes a special coating (such as rubber or polyurethane) of the tube would be necessary.

Basically, the concept is that, the larger the bearing is, the larger and thus more effective the protection is.

The expected normal functioning temperature range is from -10oC to +90oC. Different working conditions should be notified upon the PO.

- Dugom “rollers for belt conveyors”, can be made of steel or plastic. Steel rollers can be coated with polyurethane, rubber, etc. These are non-conductors and do not allow dissipation of electrostatic charges through the frame.

TROUGHS AND SUPPORTS

The rollers are linked to the frame of the conveyor by means of supports and transoms.

DugomRulli offers a wide range of conveyor troughs with 2 or 3 idle rollers, different side rollers angles, different load capacity and for different belt widths from 300 up to 1,600 mm.

Dugom troughs have a “self-cleaning shape” being made of a reverse V-beam and properly contoured side and central brackets which help to prevent spilled materials from jamming the rollers (see catalogue MR07, chapter M10, page 5).

- The same precautions should be taken when troughs are built by the manufacturer of the conveyor. It is highly recommended to keep the needed distance between the lower generating line of the lower rollers and the steel angle of the frame according to the rules, particularly in the case of U-beams..

5) STORAGE AND INSTALLATION

STORAGE BEFORE INSTALLATION

The conveyors are often installed on the worksite. In this case, the rollers must be kept in the original packaging for the whole storage period.

The packaging has been designed in order to prevent oxidation and damage during the transportation, and in order to prevent any damage to the workers when opening.



The packages may be not stackable.

Packages should be kept indoors during transport and subsequent storage.

ASSEMBLY:

Assembly does not require special tools.

Most rollers are inserted in the slots of the trough (drop in).

Others are fixed by bolts.



Disassembly too does not require the use of any special tools and must always be done when the belt is stationary and the motor is shut-off.



ATTENTION



Workers who carry out the installation must wear individual protective devices.



Keep clear from the belt during verification operations which require that the belt be put in motion.

6) Ordinary maintenance

The rollers are permanently lubricated and cannot be re-lubricated.

The free rotation of the rollers can be made difficult by

- the interposition of material, in particular between the rollers and their support, which prevents or slows down the rotation.
- the seizure/breakage of the bearings.

It is the role of the maintenance service to regularly inspect the system, and in particular:

- a. to ensure that there is no accumulation of material which prevents the rotation of the rollers.
- b. To check the wear and tear of the rollers while considering the following:
 - b1) The rollers were chosen according to the project duration indicated by the supplier of the conveyor. Once that duration period has expired, the installed rollers should be replaced, or at least subject to periodical checks.
 - b2) The rollers whose bearings begin to deteriorate lose smoothness and show anomalous wear and tear of the shell which is visible to the naked eye (first sign).
 - b3) Damaged bearings are noisy and this noise can be heard by the maintenance worker (second sign).

Rollers which are apparently damaged must be disassembled while the system is stationary (see above) and replaced.



Special construction does not allow the restoring of the product. Any repair work is therefore excluded as the original features of the roller cannot be restored.