
WAMGROUP®

BUCKET ELEVATOR'S RANGE

EXTRA HEAVY DUTY RANGE	
BELT TYPE	CHAIN TYPE
EHN	EHR

HEAVY DUTY RANGE	
EI	EIS

MEDIUM DUTY RANGE	
EC	EF

BUCKET ELEVATOR'S SECTORS OF APPLICATION

EHN

1000	**Building & Construction**
1100	Ready Mix Concrete & Precast Concrete Production
1400	Asphalt Mixing (recycled asphalt and aggregates)
3000	**Plastics & Chemicals**
3500	Fertilizers, Pesticides, Insecticides Processing
4000	**Heavy Industries**
4100	Cement, Lime, Gypsum Processing
4200	Crushing Plant, Mining Plant, Quarry Plant, Screening Plant
4300	Foundries
4400	Glass Processing
6000	**Renewable Energy**
6200	Biomass Handling & Biogas

EHR

1000	**Building & Construction**
1100	Ready Mix Concrete & Precast Concrete Production
4000	**Heavy Industries**
4100	Cement, Lime, Gypsum Processing
4200	Crushing Plant, Mining Plant, Quarry Plant, Screening Plant
4300	Foundries

BUCKET ELEVATOR'S SECTORS OF APPLICATION

EI

1000	**Building & Construction**
1400	Asphalt Mixing (hot and cold filler)
2000	**Feed & Food**
2301	Sugar Processing
2303	Salt Processing
3000	**Plastics & Chemicals**
3100	Plastics Raw Material Processing
3200	Plastics Processing
3300	Rubber Processing
3400	Recycling
3600	Detergents, Soap Processing
4000	**Heavy Industries**
4400	Glass Processing
5000	**Environmental Technology**
5100	Municipal Waste Water Treatment (Dried sludge)
5200	Industrial WWT (Dried sludge)
5500	Dust Filtration Plants
6000	**Renewable Energy**

EIS

1000	**Building & Construction**
1200	DryMix Building Materials Processing
1500	Chemical Ad-Mixtures for Building & Construction

BUCKET ELEVATOR'S SECTORS OF APPLICATION

EC

2000	**Feed & Food**
2200	Animal Feed Milling
4000	**Heavy Industries**
4500	Port Technology (grain terminals)

EF

2000	**Feed & Food**
2100	Flour Milling
2200	Animal Feed Milling
2302	Cocoa & Chocolate Processing

EHN

EHN L – PRODUCT DESCRIPTION

EHN L is a multi purpose low speed belt bucket elevator suitable for extra heavy duties and continuous applications.
It is suitable for conveying a variety of dry – free flowing products having maximum grain size of 50mm and, according to the application, several configurations are available:

- Anti abrasive in mild steel
- Anti abrasive in Aisi 304/316
- Atex II 3D T4 in mild steel
- Atex II 3D T4 in Aisi 304/316
- High temperature (110°C) in mild steel
- High temperature (180°C) in mild steel
- High temperature (110°C) in Aisi 304/316
- High temperature (180°C) in Aisi 304/316

EHN L – MAIN FEATURES

- Capacities up to 258 m³/h
- Discharge heights up to 60 m
- Free flowing products with size up to 50 mm
- Belt speed of 1,5 m/s

EHN V – PRODUCT DESCRIPTION

EHN L is a multi purpose high speed belt bucket elevator suitable for extra heavy duties and continuous applications.
It is suitable for conveying a variety of dry – free flowing products having maximum grain size of 50mm and, according to the application, several configurations are available:

- Anti abrasive in mild steel
- Anti abrasive in Aisi 304/316
- Atex II 3D T4 in mild steel
- Atex II 3D T4 in Aisi 304/316
- High temperature (110°C) in mild steel
- High temperature (180°C) in mild steel
- High temperature (110°C) in Aisi 304/316
- High temperature (180°C) in Aisi 304/316

EHN V – MAIN FEATURES

- Capacities up to 310 m³/h
- Discharge heights up to 60 m
- Free flowing products with size up to 50 mm
- Belt speed of 1,8 m/s

EHN: HEAD SECTION

CASING:

Manufactured in mild steel (or Aisi) shaped plates, stiffened with thick section bars for increasing rigidity.
The cap is made in two semi-covers for easy inspection and maintenance operations.
One inspection hatch is set near discharge chute for chute position adjusting and another one is set on the back for inspection.
Head is designed with poligonal shape and high thickness plates.
Flanges for de-dusting connection are always included and provided on both sides, with blind flange.

ADJUSTABLE DISCHARGE CHUTE:

Adjustable chute made by a rubber section or polyzene plate, to be regulated for avoiding product comeback.

HEAD ROLLER:

Having slightly conical shape for helping belt centering and diamond rubber coating for ensuring an optimal grip with belt.
Shaft is joined to the roller by means of tapered lock.
Special rubber is used for high temperature applications.

EHN: FOOT SECTION

CASING:

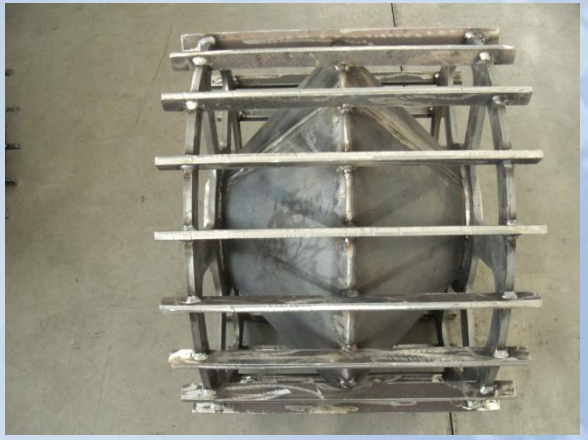
Manufactured in mild steel (or Aisi) shaped plates bolted together for an optimal rigidity of the strucure.
The central element is linked to the roller and sliding on the below section for allowing tensioning operations.
Two hinged ports are set on the bottom part of the section for cleaning operations, a third inspection door is set on the back.
Flange for de-dusting connection is always included on top of the section between the legs openings, with blind flange.

BELT TENSIONING SYSTEM:

Tensioning system is manual and made by a pair of screws which adjust roller's position upward / downward in order to meet the right belt tension.
Upon request springs can be added to keep a more constant tension.

FOOT ROLLER:

Having slightly conical shape for helping belt centering, it is made by bars assembled into a squirrel cage shape for avoiding product deposit in between belt and roller.
Shaft is welded to the roller.
Two cones are welded inside the roller to minimize product deposit and strength roller's structure.



EHN: TRUNKING SECTION

STANDARD TRUNKING:

Manufactured in mild steel (or Aisi) shaped panels. Each casing is made by four bent panels bolted together.
Panels thickness is 3mm for all sizes.
Standard trunking is available in sections of 2,0m – 1,5m – 0,5m.

SPACING ELEMENT:

Their function is to connect the two legs of the elevator for increase rigidity of the whole structure; they are set every 6m of height.

TRUNKING FOR BELT MISALIGNMENT SENSORS:

When belt misalignment sensors are included, they come along with this special casing made to house sensors.

INSPECTION TRUNKING:

One inspection trunking is always included in the standard scope of supply.
Inspection trunking is made with a bolted panel with handle, openable by unscrewing fastening bolts.
It is used also for buckets installation and maintenance.

EHN: INSPECTION DOORS

HEAD SECTION:

Head section is equipped with n.2 inspection doors with handle, one is set on left side of discharge chute, and one on the back.

Head cap is made of two parts which can be easily removed giving full access to the head roller.

INTERMEDIATE SECTION:

N.1 inspection casing is set as standard component, it is made by a panel with handle bolted to the trunking. Additional inspection casing can be added upon request.

Inspection casing is also used for installing buckets on the belt during assembly operations.

FOOT SECTION:

Foot sections is equipped with n.3 inspection ports with handle; two of them are hinged hatches set on front and rear side of the foot designed for allowing cleaning operations.

The third inspection port is bolted and located on the back of the foot section.

EHN: SURFACE FINISHING

HOT GALVANIZING:

Used as standard finishing for mild steel surfaces, all parts are immerged into a hot zinc pool according to EN ISO 1461.

PAINTING (applicable only up to 50°C applications):

Upon request different painting cycles are available for mild steel surfaces:

- Type 1: for internal parts
  (sand blasting + epoxy primer 60µm)
- Type 2: for indoor installation
  (sand blasting + epoxy primer 40µm + poliurethane finishing 40µm)
- Type 3: C3-M UNI ISO 12944 for industrial environment
  (sand blasting + epoxy primer 80µm + poliurethanic finishing 2x 40µm)
- Type 4: C5M-M UNI ISO 12944 for industrial/marine environment, 5-15 years expected life
  (sand blasting + epoxy zinc primer 60µm + epoxy layer 80µm + acrylic finishing 2x 50µm)
- Type 5: C5M-H UNI ISO 12944 for industrial/marine environment, > 15 years expected life
  (sand blasting + epoxy zinc primer 60µm + epoxy layer 80µm + acrylic finishing 3x 60µm)

Color can be selected within RAL7035 (light grey), RAL 7040 (window grey), RAL 5010 (gentian blue), RAL 9010 (pure white), RAL 9001 (cream white), RAL 2004 (orange)

MICRO SHOT BLASTING:

Used as standard finishing for Aisi 304/316 surfaces, all parts are shot blasted to remove impurities and marks leaving a well homogeneous color and high quality aesthetic result .

EHN: BEARINGS AND SEALS

HEAD BEARINGS:

Dismountable plummer block type with roller bearing and integrated seals.

FOOT BEARINGS:

Dismountable squared flange type with roller bearings and integrated seals.

SHAFT SEALS:

Packing gland seals and felt for EH series.

EHN: BUCKETS

DIN 15234 STEEL BUCKETS:

Pressed and welded steel bucket available in the following configurations:

- standard thickness
- standard thickness + reinforced borders
- increased thickness + reinfroced borders

ATLAS NYLON BUCKETS:

Injection moulded bucket with heavy reinforced lip and corners with a thickened back for bolt holding. Excellent chemical resistance.
Atlas Nylon bucket is available up to size EHN 61 included.

FASTENING BOLTS:

Buckets are fastened to the belt by screws with self locking nuts, or with double nut in case of high temperatures.
Available in mild steel or Aisi 304

EHN: BELTS

BELTS TYPE:

According to the application and the configuration of the elevator, different belt types are available.
Belts are always supplied already holed, ready for buckets installation.
Class is defined according to speed and installed power, cover type is selected according to the configuration required between the following types:

- anti abrasive
- anti oil
- anti static / self estinguish
- high temperature (110°C and 180°C)

Starting from class 1000 metallic core belts are available.

BELT CLAMPS:

Belt junction is made during on site installation by means of steel clamps, always included in the scope of supply in the required quantity.
After belt has been junctioned, the part in excess must be trimmed.

When Aisi 304 configuration is selected belt clamps are supplied in Aisi 304.

EHN: DRIVE UNITS

DIRECT DRIVE:

Typical drive unit is made by an helical bevel geared motor directly coupled to elevator's shaft.

Various power sizes are available according to the model of elevator selected.

Motor data: 4 poles – 400V – 50Hz – IP55 – insulation F

COUPLINGS:

Starting from 18,5kW installed power included, gearbox and motor are connected by an hydraulic coupling, with gearbox directly coupled to elevator's shaft.

Starting from 75,0kW installed power included, a mechanical coupling is provided for connecting the gearbox to the elevator's shaft.

REACTION ARM / BASEMENT:

Reaction arms or basements are always included when drive unit is supplied. They are designed according to the size and type of drive supplied.

Safety guards are provided for all rotating parts when present.

Standard supply includes MOTOVARIO / GSM brand drives, upon request other brands can be evaluated.

EHN: DRIVE UNIT OPTIONS

AUXILIARY DRIVE:

Upon request auxiliary drives are available starting from installed powers of 18,5kW included.

Auxiliary drive is made by a secondary geared motor flanged to the main gearbox with the function to reduce the output speed to about 1/15 of the nominal speed for allowing maintenance and inspection operations on belt and buckets.

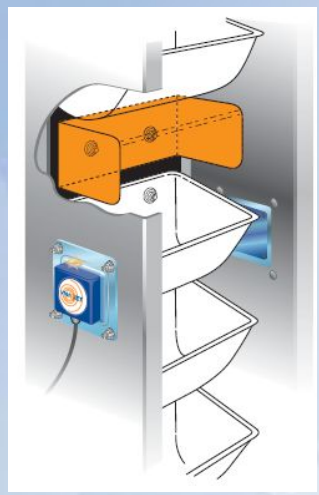
EHN: SENSORS

BELT MISALIGNMENT SENSORS:

Made by a couple of inductive sensors complete with supporting frame, to be bolted on dedicated casing. According to the elevator's height one or two couples can be set.

Sensors are supplied already set up at our worskhop, no on site calibration is required.

Standard sensor brand IFM type IM5135



STEEL TARGETS:

Steel targets are supplied as standard component when belt misalignment sensors are included and buckets material is different from steel.
They're set in place of a bucket for allowing the detection by the sensors. Quantity is defined according to bucket elevator's height.

EHN: SENSORS

ROTATION SENSOR:

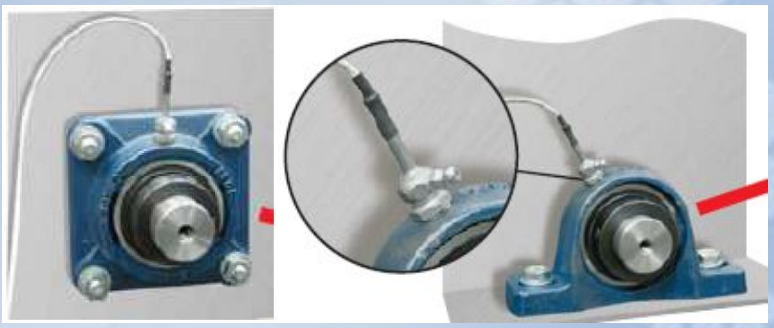
Inductive rotation sensor complete with supporting frame to be screwed to foot's shaft. It detects the rotation of the lower roller and, by consequence, an eventual belt break.

Standard sensor brand IFM type II5676

TEMPERATURE SENSORS:

Temperature probe to be bolted to bearing housing. It is applicable to head and foot bearings and detects the temperature of the bearing.

Standard sensor brand STIF type GST100J



EHN: ACCESSORIES

INSPECTION PLATFORM:

In galvanized mild steel including railings, for maintenance operations.
Ladder not included.

ANTI WEAR SHIELDS:

Bolted replaceable plates in anti wear steel set on loading and discharge chutes.

EHN: ACCESSORIES

PROTECTION CARTERS ON MOVING PARTS:

Bolted protection carters set on head and foot shaft, protecting moving parts from direct contact.

EHN: QUALITY AND CHECKS

Bucket elevators components are always checked and tested according to the following criteria:

- Finishing visual check
- Welding visual check
- Quantity check according to general arrangement drawing
- Drive unit run test and absorption check
- Belt misalignment set up (if supplied)

Specific inspection tests and checks can be performed upon request if previously agreed with our sales department.

EHN: PACKING

Bucket elevators are supplied in parts to be assembled on site. Each component is packed as follows:

- Head and foot sections are packed on custom made wooden pallets and covered by plastic film
- Trunkings are packed on euro pallets and held by metallic strips
- Belt, buckets and miscellaneous are set into boxes and packed on euro pallets, covered by plastic film

Upon request and when applicable according to overall height, bucket elevator can be supplied fully assembled and set up at our workshop.
In this case bucket elevator is not packed, and it's simply laid on wooden saddles.

EHN: DOCUMENTATION AND LABELS

Along with readiness of goods a set of technical documents (soft copy) is given for installation and maintenance operations. Standard documentation includes the following:

- Installation and maintenance manual
- Spare parts manual
- General assembly drawing and detailed drawing of head section with drive unit
- Sensors dedicated installation and maintenance catalogues
- Drive unit components maintenance catalogue
- Declaration of incorporation
- Machine datasheet

Upon request and where applicable, it is possible to include material certificates of steel and components.

Each bucket elevator is supplied with PVC nameplates showing the main identification data.

Drive unit is including manufacturer's nameplate with main electrical and performance data.

EHR

EHR – PRODUCT DESCRIPTION

EHR is a multi purpose double chain bucket elevator suitable for extra heavy duties and continuous applications, equipped with drive toothed sprockets. It is suitable for conveying a variety of dry – free flowing and, according to the application, several configurations are available:

- Anti abrasive in mild steel
- Anti abrasive in Aisi 304/316
- High temperature (110°C) in mild steel
- High temperature (110°C) in Aisi 304/316
- High temperature (200°C) in mild steel
- High temperature (200°C) in Aisi 304/316

EHR – MAIN FEATURES

- Capacities up to 158 m^3/h
- Discharge heights up to 60 m
- Free flowing products with size up to 50 mm
- Chain speed from between 1,2 - 1,3 m/s

EHR: HEAD SECTION

CASING:

Manufactured in mild steel (or Aisi) shaped plates, stiffened with thick section bars for increasing rigidity.
The cap is made in two semi-covers for easy inspection and maintenance operations.
One inspection hatch is set near discharge chute for chute position adjusting and another one is set on the back for inspection.
Head is designed with poligonal shape and high thickness plates.
Flanges for de-dusting connection are always included and provided on both sides, with blind flange.

ADJUSTABLE DISCHARGE CHUTE:

Adjustable chute made by a rubber section or polyzene plate, to be regulated for avoiding product comeback.

HEAD SPROCKETS:

Chain elevators are equipped with n.2 sprockets which spread motion to chains.

Head sprockets are toothed, number of teeth depends on the size of elevator. with central hollow for guiding chains

Shaft is joined to the roller by means of a locking assembly.

EHR: FOOT SECTION

CASING:

Manufactured in mild steel (or Aisi) shaped plates bolted together for an optimal rigidity of the strucure.
The central element is linked to the roller and sliding on the below section for allowing tensioning operations.
Two hinged ports are set on the bottom part of the section for cleaning operations, a third inspection door is set on the back.
Flange for de-dusting connection is always included on top of the section between the legs openings, with blind flange.

CHAIN TENSIONING SYSTEM:

Tensioning system is manual and made by a pair of screws, having each one a spring for keeping a more constant tension. Acting on the screws roller's position is adjusted upward / downward in order to meet the right chains tension.

FOOT SPROCKETS:

Chain elevators are equipped with n.2 idler sprockets driven by chains. Both sprockets are smooth.
Shaft is joined to the roller by means of a locking assembly

EHR: TRUNKING SECTION

STANDARD TRUNKING:

Manufactured in mild steel (or Aisi) shaped panels. Each casing is made by four bent panels bolted together.
Panels thickness is 3mm for all sizes.
Standard trunking is available in sections of 2,0m – 1,5m – 0,5m.

SPACING ELEMENT:

Their function is to connect the two legs of the elevator for increase rigidity of the whole structure; they are set every 6m of height.

INSPECTION TRUNKING:

One inspection trunking is always included in the standard scope of supply.
Inspection trunking is made with a bolted panel with handle, openable by unscrewing fastening bolts.
It is used also for buckets installation and maintenance.

EHR: INSPECTION DOORS

HEAD SECTION:

Head section is equipped with n.2 inspection doors with handle, one is set on left side of discharge chute, and one on the back.

Head cap is made of two parts which can be easily removed giving full access to the head roller.

INTERMEDIATE SECTION:

N.1 inspection casing is set as standard component, it is made by a panel with handle bolted to the trunking. Additional inspection casing can be added upon request.

Inspection casing is also used for installing buckets on the belt during assembly operations.

FOOT SECTION:

Foot sections is equipped with n.3 inspection ports with handle; two of them are hinged hatches set on front and rear side of the foot designed for allowing cleaning operations.

The third inspection port is bolted and located on the back of the foot section.

EHR: SURFACE FINISHING

HOT GALVANIZING:

Used as standard finishing for mild steel surfaces, all parts are immerged into a hot zinc pool according to EN ISO 1461.

PAINTING (applicable only up to 50°C applications):

Upon request different painting cycles are available for mild steel surfaces:

- Type 1: for internal parts
  (sand blasting + epoxy primer 60µm)
- Type 2: for indoor installation
  (sand blasting + epoxy primer 40µm + poliurethane finishing 40µm)
- Type 3: C3-M UNI ISO 12944 for industrial environment
  (sand blasting + epoxy primer 80µm + poliurethanic finishing 2x 40µm)
- Type 4: C5M-M UNI ISO 12944 for industrial/marine environment, 5-15 years expected life
  (sand blasting + epoxy zinc primer 60µm + epoxy layer 80µm + acrylic finishing 2x 50µm)
- Type 5: C5M-H UNI ISO 12944 for industrial/marine environment, > 15 years expected life
  (sand blasting + epoxy zinc primer 60µm + epoxy layer 80µm + acrylic finishing 3x 60µm)

Color can be selected within RAL7035 (light grey), RAL 7040 (window grey), RAL 5010 (gentian blue), RAL 9010 (pure white), RAL 9001 (cream white), RAL 2004 (orange)

MICRO SHOT BLASTING:

Used as standard finishing for Aisi 304/316 surfaces, all parts are shot blasted to remove impurities and marks leaving a well homogeneous color and high quality aesthetic result .

EHR: BEARINGS AND SEALS

HEAD BEARINGS:

Dismountable plummer block type with roller bearing and integrated seals.

FOOT BEARINGS:

Dismountable squared flange type with roller bearings and integrated seals.

SHAFT SEALS:

Packing gland seals and felt for EH series.

EHR: BUCKETS

DIN 15234 STEEL BUCKETS:

Pressed and welded steel bucket with special holes pattern suitable for chains link, available in the following configurations:

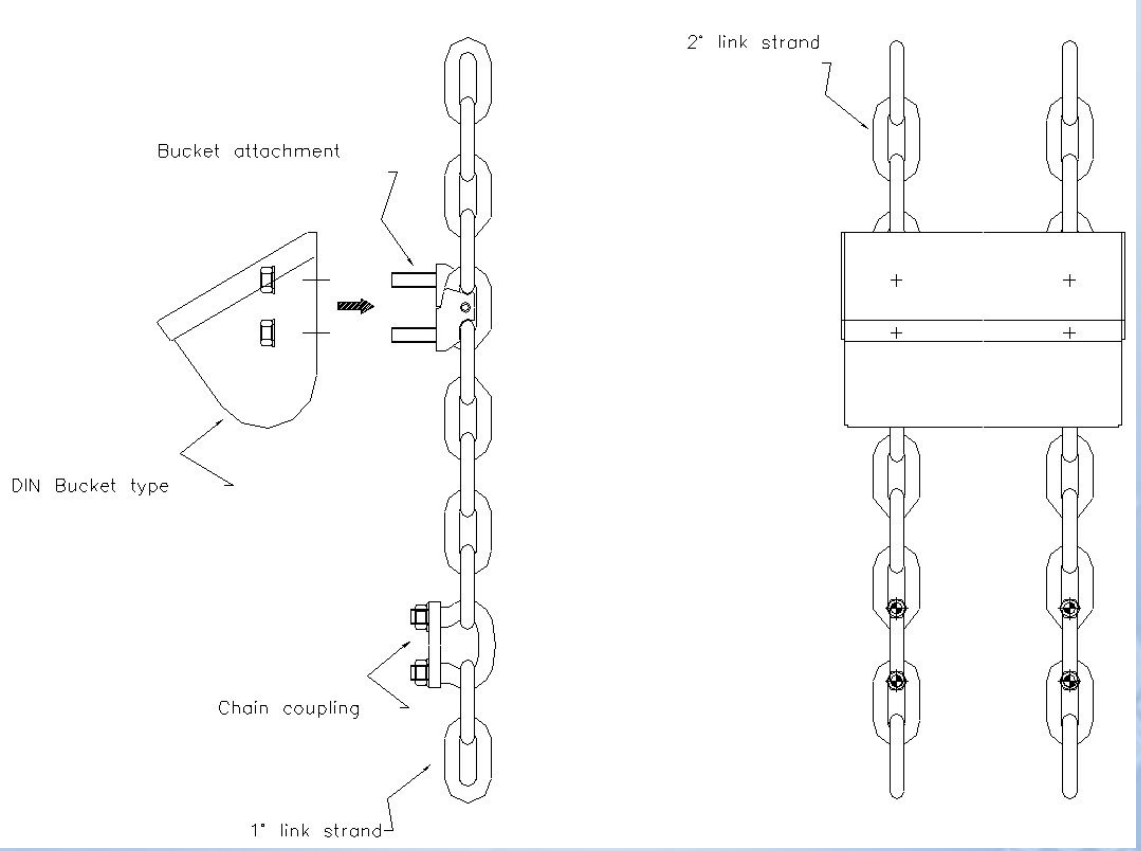
- standard thickness
- standard thickness + reinforced borders
- increased thickness + reinfroced borders

EHR: CHAINS AND CHAIN FASTENERS

EHR CHAINS:

Double chain type DIN 22252 in hardened steel alloy, available in two configurations:

- Type “HD1” CrNi / NiCrMo alloy case hardened for medium-highly abrasive products
- Type “HD2” in CrNi / NiCrMo alloy with increased case hardening depth for extremely abrasive products



EHR: DRIVE UNITS

DIRECT DRIVE:

Typical drive unit is made by an helical bevel geared motor directly coupled to elevator's shaft.

Various power sizes are available according to the model of elevator selected.

Motor data: 4 poles – 400V – 50Hz – IP55 – insulation F

COUPLINGS:

Starting from 18,5kW installed power included, gearbox and motor are connected by an hydraulic coupling, with gearbox directly coupled to elevator's shaft.

Starting from 55,0kW installed power included, a mechanical coupling is provided for connecting the gearbox to the elevator's shaft.

REACTION ARM / BASEMENT:

Reaction arms or basements are always included when drive unit is supplied. They are designed according to the size and type of drive supplied.

Safety guards are provided for all rotating parts when present.

Standard supply includes gearbox brand ROSSI and ROSSI / ELVEM motor, upon request other brands can be evaluated.

EHR: DRIVE UNIT OPTIONS

AUXILIARY DRIVE:

Upon request auxiliary drives are available starting from installed powers of 18,5kW included.

Auxiliary drive is made by a secondary geared motor flanged to the main gearbox with the function to reduce the output speed to about 1/15 of the nominal speed for allowing maintenance and inspection operations on belt and buckets.

EHR: SENSORS

ROTATION SENSOR:

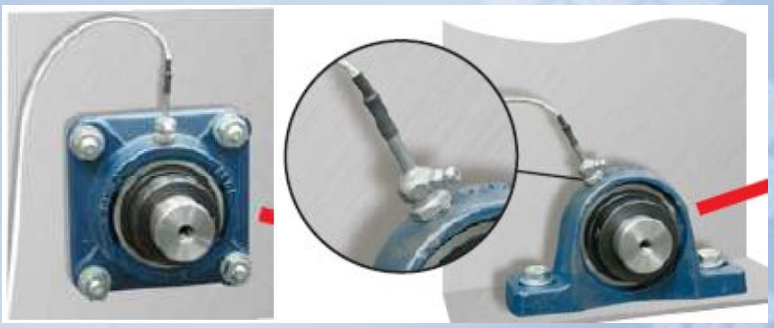
Inductive rotation sensor complete with supporting frame to be screwed to foot's shaft. It detects the rotation of the lower roller and, by consequence, an eventual belt break.

Standard sensor brand IFM type II5676

TEMPERATURE SENSORS:

Temperature probe to be bolted to bearing housing. It is applicable to head and foot bearings and detects the temperature of the bearing.

Standard sensor brand STIF type GST100J



EHR: ACCESSORIES

INSPECTION PLATFORM:

In galvanized mild steel including railings, for maintenance operations.
Ladder not included.

ANTI WEAR SHIELDS:

Bolted replaceable plates in anti wear steel set on loading and discharge chutes.

EHR: ACCESSORIES

PROTECTION CARTERS ON MOVING PARTS:

Bolted protection carters set on head and foot shaft, protecting moving parts from direct contact.

EHR: QUALITY AND CHECKS

Bucket elevators components are always checked and tested according to the following criteria:

- Finishing visual check
- Welding visual check
- Quantity check according to general arrangement drawing
- Drive unit run test and absorption check
- Belt misalignment set up (if supplied)

Specific inspection tests and checks can be performed upon request if previously agreed with our sales department.

EHR: PACKING

Bucket elevators are supplied in parts to be assembled on site. Each component is packed as follows:

- Head and foot sections are packed on custom made wooden pallets and covered by plastic film
- Trunkings are packed on euro pallets and held by metallic strips
- Belt, buckets and miscellaneous are set into boxes and packed on euro pallets, covered by plastic film

Upon request and when applicable according to overall height, bucket elevator can be supplied fully assembled and set up at our workshop.
In this case bucket elevator is not packed, and it's simply laid on wooden saddles.

EHR: DOCUMENTATION AND LABELS

Along with readiness of goods a set of technical documents (soft copy) is given for installation and maintenance operations. Standard documentation includes the following:

- Installation and maintenance manual
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- Machine datasheet

Upon request and where applicable, it is possible to include material certificates of steel and components.

Each bucket elevator is supplied with PVC nameplates showing the main identification data.

Drive unit is including manufacturer's nameplate with main electrical and performance data.


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