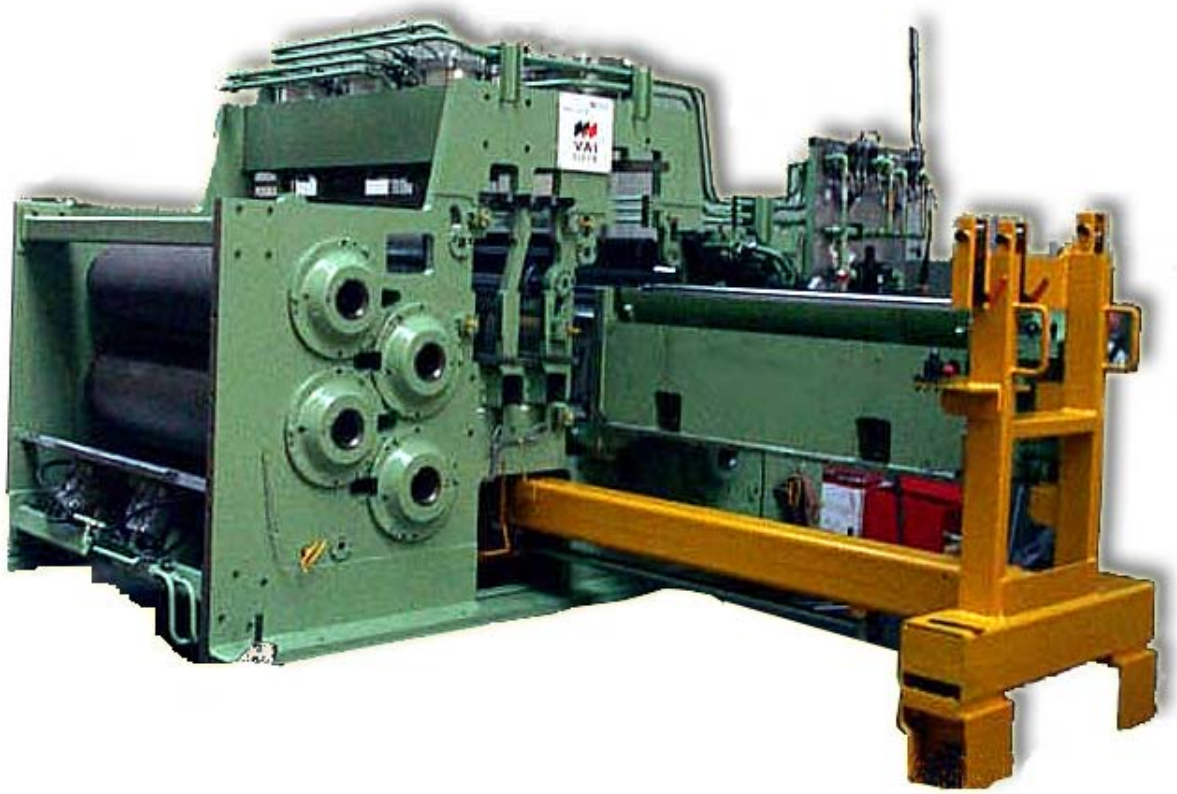
OPERATING & MAINTENANCE MANUAL

AA 6510 – FARROKH-SHAHR

VAI CLECIM



ELECTROLYTIC TINNING LINE 1400 mm
TENSION LEVELLER

VAI
CLECIM

AA 6510 –
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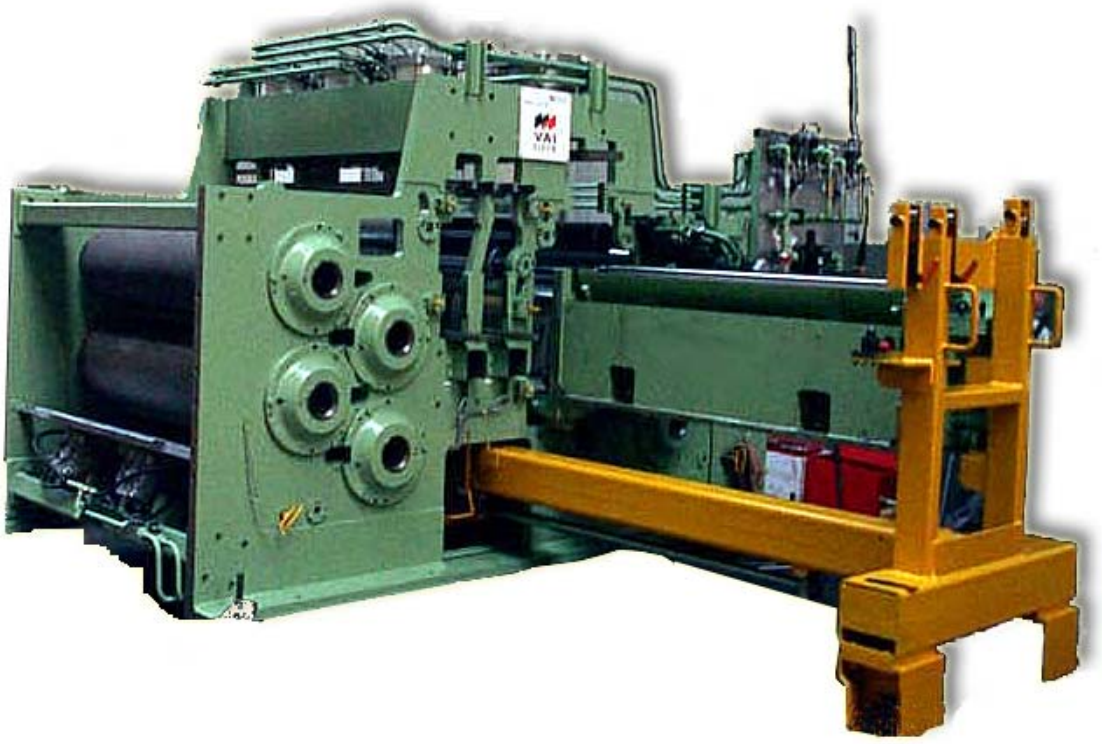

ELECTROLYTIC TINNING LINE
1400 MM TENSION LEVELLER

OPERATING & MAINTENANCE MANUAL

TECHNICAL FEATURES OF THE PLANT

MATERIALS TO BE PROCESSED

Cold rolled steel strips to manufacture tin plate.

Strip characteristics:

Width: .....550 to 1100 mm

Thickness:

- Simple reduction .....0,15 to 0,50 mm

Yield point:

- For simple reduction.....350 to 750 N/mm^2

DESIGN OF THE PLANT

Location In the line process section

Maximum speed (m/mn).....280

Leveling tension (N) 65 000

Elongation rate (%).....0 to 1

Strip tension

-Before entry bridle (N).....11340

-After exit bridle (N) 8800

Max strip speed at leveling stand closing (m/mn) : 80

Motors characteristics

-Main drive..... 100 kW / 0-1228 RPM

-Elongation drive ..... 5 kW / 0-975 RPM

ARRANGEMENT

The leveling operation is carried out by successive run of the strip:

- Through the leveller unit including four flexion units:

  Two fixed top roll and chock assemblies with a quick opening device by means of pneumatic cylinders,

  . Two movable bottom roll and chock assemblies ;

- Through an anti cross bow: (*OPTION*)

  . One lower chock assemblies ;

- Through a multi roll device including:

  A fixed top roll and chock assemblies with a quick opening device by means of pneumatic cylinders,

  A movable bottom rolls and chock assemblies.

This equipment is located in the stand housings. It can be dismounted on the operator side. Tension is delivered by means of two tension bridles located on both sides of the stand; each tension bridle is equipped with tension generator rolls.

These two tension bridles are interconnected and driven through the gearbox. The gearbox includes two inputs:

- one for the main motor,
- one for the elongation drive
- One tensiometer roll is installed inside the leveling unit at the exit side after the multi-roll unit

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LIST OF ITEMS (U. E.)

MECHANICAL EQUIPMENT

ITEM	DESIGNATION
1350	Leveling stand and changing equipment with tensiometer roll
	Tension bridles and snubber roll
	Gear boxes with lubrication

TECHNICAL DATA

TENSION LEVELLER HOUSING (Y48 342)

Material ..... Steel

UPPER LEVELING UNIT (Y48 573)

Quantity 2

Beam material ..... Steel

Type of quick opening ..... drive Pneumatic cylinder

Cylinder quantity ..... 3per beam unit

Cylinder size

Diameters (mm) 200/40

Stroke (mm) 50

WORK ROLLS

Quantity per beam unit 1

Diameters

New (mm) 20

Worn (mm) 19

Face length (mm) 1400

INTERMEDIATE ROLLS

Quantity per beam unit 2

Diameters

New (mm) 30

Worn (mm) 29

Face length (mm) 1400

BACK-UP ROLLS

Quantity per beam unit ..... 3 rows of 6 = 18

Diameter

New (mm) 47

Worn (mm) 46

Face length (mm) 115

LOWER LEVELING (Y48 574)

Quantity 2

Beam material ..... Steel

Type of intermesh adjustment ..... Screw jack driven by electrical motor

SCREW JACK

Quantity ..... 2 per beam unit

Ratio 24

Stroke (mm) 100

Capacity (ton) 2.5

Raise for one worn rotation (mm) 0,25

MOTOR

Type ..... A.C. gear brake motor

Quantity ..... 1 per beam unit

Motor power (KW) 0,785

Rotation speed (RPM) 174

Gear ratio 7,63

Work rolls

Quantity per beam unit 1

Diameters

New (mm) 20

Worn (mm) 19

Face length (mm) 1400

INTERMEDIATE ROLLS

Quantity per beam unit 2

Diameters

New (mm) 30

Worn (mm) 29

Face length (mm) 1400

BACK-UP ROLLS

Quantity per beam unit ..... t3 rows of 6 = 18

Diameter

New (mm) 47

Worn (mm) 46

Face length (mm) 115

UPPER MULTI ROLL UNIT (Y48 575)

Quantity 1

Beam material .....Steel

Type of quick opening drive ..... Pneumatic cylinder

Cylinder quantity.....3

CYLINDER SIZE

Diameter (mm).....320/ 63

Stroke (mm).....50

WORK ROLLS

Quantity per unit 4

Diameter

New (mm) 40

Worn (mm) 39

Face length (mm) 1400

INTERMEDIATE ROLLS

Quantity per unit 5

Diameter

New (mm) 40

Worn (mm) 39

Face length (mm) 1400

BACK-UP ROLLS

Quantity per unit ..... 6 rows of 6 = 36

Diameter

New (mm) 47

Worn (mm) 46

Face length (mm) 115

LOWER MULTI ROLL CASSET (Y48 576)

Quantity 1

Casset material ..... Steel

Clamping type..... Please refer lower multi roll beam

WORK ROLLS

Quantity per casset 5

Diameter

New (mm)..... 40

Worn (mm)..... 39

Face length (mm) 1400

Intermediate rolls

Quantity per casse t6

DIAMETER

New (mm)..... 40

Worn (mm)..... 39

Face length (mm) 1400

BACK-UP ROLLS

Quantity per casset ..... 7 rows of 6 = 42

Diameter

New (mm)..... 47

Worn (mm)..... 46

Face length (mm) 115

CRADDLE MULTI ROLL (Y48 409)

Quantity 1

Beam and cradle material .....Steel

Vertical adjustment drive

Type .....Screw jack driven by electrical motor

SCREW JACK

Quantity 2

Ratio 24

Stroke (mm).....100

Capacity (t) 10

Raise for 1 worn rotation (mm).....0,5

MOTOR

Type.....A.C. gear brake motor

Quantity 1

Motor power (KW)
.....0,5

Rotation speed (RPM) 51

Gear ratio.....24,47

Tilting adjustment drive

Type.....Screw jack driven by electrical motor

SCREW JACK

Quantity 1

Ratio 24

Stroke (mm).....50

Capacity (t) 5

Raise for 1 worn rotation (mm).....0,33

MOTOR

Type..... A.C. gear brake motor

Quantity 1

Motor power (KW) 0,9

Rotation speed (RPM).....90

Gear ratio..... 21,8

CLAMPING/UNCLAMPING OF THE MULTI ROLL CASSET

Clamping type..... spring washers

Unclamping type..... Hydraulic cylinders and manual pump

HYDRAULIC CYLINDERS

Quantity 4

Diameter (mm).....47

Stroke (mm).....14

DEFLECTOR ROLLS

Quantity 5

Diameter (mm).....150

Face length (mm) 1400

Roll material..... Chrome plated steel

Hardness (VICKERS) .....900 to 1000

TENSIOMETER ROLL

QUANTITY

Entry side of exit bridle 1

Roll ..... Same as above pos. 2.9.

LOAD CELLS

Type ..... NOBEL's Load Cell Kiss, cylindrical shape

Quantity per each rolls 2

ITEM N° 1350

TENSION BRIDLES, SNUBBER ROLL

GENERAL

Purpose: To deliver strip tension.

Type: Speed matched rolls by means of gears.

Removal of the tension rolls on operator side.

Assembly and sub/assembly drawings:

Y48 940 - Y48 943 - Y48 944

TECHNICAL DATA

BRIDLE ROLL

Type.....Plain steel roll mounted in anti friction bearing

QUANTITY

Entry bridle 4

Exit bridle.....4

DIAMETER

New (mm) 350

Worn (mm) 345

Barrel length (mm) 1400

Coating ..... Tungsten carbide

SNUBBER ROLLS

Quantity 2

Diameter (mm) 200

Material ..... Steel

Covering ..... Acrylo Nitril

Covering face (mm) 500

Actuation ..... Pneumatic cylinder

Cylinder quantity ..... 2 x 2

Cylinder size (mm) ..... Dia. 160/ 40 - stroke 40

BRIDLE ROLLS DRIVE

Type ..... Gear coupling with spacer

MAXIMUM STRIP TENSION DELIVERED

ENTRY BRIDLE

Entry side (N) 11340

Exit side (N) 55 000

EXIT BRIDLE

Entry side (N) 65 000

Exit side (N) 8800

ITEM N° 1350

GEAR BOXES WITH LUBRICATION

GENERAL

Purpose: Transmission of the movement from the main motor and elongation motor to the bridle rolls.

- -Mechanical connection between the entry and exit bridle.

Type:

- Main gearbox with built-in differential unit.
- Individual distribution gearboxes (rigid drive) connected with internal gear couplings.

TECHNICAL DATA

MAIN DRIVE

Coupling ..... Gear type

ELONGATION DRIVE

Coupling ..... Gear type

MAIN GEAR BOX

Quantity 1

ELONGATION GEAR REDUCER

Type ..... Planetary

Ratio 38.4

DISTRIBUTION BOX

Quantity 2