



Date: 17th MAY 2023

JAMNAGAR

VE/01/23F01

Erbe Engineering, Inc.

USA

Mail: carmel@erbefilters.com

Dear Sir,

We thank you for your interest in our technology. Based on technical specifications and detailed drawing we have; we are pleased to send you herewith our techno-commercial offer for the following machine.

PLATE BENDING MACHINE 4 ROLLS

In that respect, please find here enclosed quotation corresponding to this machine.:

A	- Roll bending machine iAEHM-4R-L550-DX	17550	USD.
	- Roll bending machine AEHM-4R-L550-DX	15890	USD.
	- Roll bending machine EHM-4R-L550-DX	13960	USD.
	- Roll bending machine HM-4R-L550-DX	10780	USD.
B	- Fumigation Charges	150	USD.
	- Packing Charges	300	USD.
	- Trial run & demonstration	150	USD.
(A+B)	- iAEHM TOTAL (EX-WORKS)	18150	USD.
(A+B)	- AEHM TOTAL (EX-WORKS)	16490	USD.
(A+B)	- EHM TOTAL (EX-WORKS)	14560	USD.
(A+B)	- HM TOTAL (EX-WORKS)	11380	USD.

Delivery period **12-14** weeks. This period will be calculated from the date of received of your PO with advance payment.

We hope this proposal will meet your expectation and do not hesitate to contact us if any further information needed.

Yours sincerely,

Bhavin Solanki

**PLATE ROLLING MACHINE SUITABLE FOR SIZES:**

Shape	Ø Small	Max Length
Cone	1.6"	24"

Sr. No	Item Name	Descriptions	Qty	Unit Rate INR	Total INR
	Cone rolling machine	Machine Type : Cone Rolling Machine, Condition : New, Construction Material: Stainless Steel, Mild steel, Iron, Motor : 2 HP, Extra Service : Machining, Assembly Rolling thickness : 1.5-4.5 mm, Max Rolling Length : 24", Dimension (H x W x L): 1400 x 1200 X 2000 mm, Power : Electrical / Mechanical / Hydraulic / PLC Weight: 960 Kg Approx, Raw material : Metal Sheet, Power Supply : 440 V 3 P+N+E			
1	Configuration HM	<ul style="list-style-type: none"> Machine Operation Would be Control By Hydraulic Hand Operated Valve Hydraulic Component from Inhouse production and local sourcing. Dro for Hydraulic cylinder position indicator 	1	10780/-	10780/-
2	Configuration EHM	<p>In addition to HM configuration</p> <ul style="list-style-type: none"> Machine Operation Would be Control By Mobile Control Panel with more precise control. CE Certified. Hydraulic Component from Well Known Brand Bosch Rexroth, Eaton/ Yuken. Electronic Component from ABB, Siemens, Pizzato. Measuring Instruments From Opkon. Safety interlocks to prevent accidents. 	1	13960/-	13960/-
3	Configuration AEHM	<p>In addition to EHM configuration</p> <ul style="list-style-type: none"> Additional PLC & HMI Configuration along with EHM configuration. PLC & HMI- From Weintek / Omron Quick Change over time from one size to another 	1	15890/-	15890/-
4	Configuration i- AEHM	<p>In addition to EHM configuration</p> <ul style="list-style-type: none"> 10 Inch HMI with WIFI gateway Auto Cone Rolling Features for degree more than 100. Remote Support. Yoke open close with remote. 	1	17550/-	17550/-



Technical Data Sheet 4 - Roll Cone Rolling Machine

Fully Hydraulic, For Cold Bending

Hydraulic Unit	1	No
Hydro motor	2	No
Number of rollers	4	No
Roller material		CK 45
Driven Rollers	2	(Top and bottom rollers)
Rollers drive		Eaton / Yuken Hydro Motor
Operating speed		3000 mm / min
Speed compensation between top and bottom roller		full automatic
Reversing of the roller turning direction		electro-hydraulic
Adjustment length of bottom roller		120 mm
Pressure compensation between top and bottom roller		full automatic
Tilting of the hinged front bearing housing		Hydraulic
Control central, from the mobile		control panel
Weight of the machine approx.		990 kg
<u>Side roller</u>		
Adjustment Side roller can be adjusted		Jointly / Individually
Bearing type		spec. roller bearing
Inclination for cone bending		from the control panel
Drive		Hydro motor
Lubrication		automatic grease
Overload safety device		overload valve
Adjustment range		up to the top roller
<u>Drive of rollers</u>		
Drive		Hydro motor
Reverse moment		electro-hydraulic
Overload protection		By over load valve
<u>Hinged front bearing housing</u>		
Locking of tilting bearing		Mechanical
Housing Adjustment		Hydraulic

TECHNICAL RESERVATIONS: During the manufacturing, planning and the execution, we reserve the right to do all the modifications that we think necessary in order to improve the technical characteristics of the machine.



VE bending roll machines are fully symmetrical pyramid type with both side pre-bending capacity and they allow:

- Flexibility and large range of use
- Optimized lifetime with low maintenance

1- MACHINE STRUCTURE

1.1 MACHINE FRAME

- The rigid bottom frame is made of fabricated profiles which make set-up and machine fixing easier.
- All machine sub-systems are protected by covers ensuring the right protection for the machines as well as the users.
- The working height of this machine has been especially designed for running without a pit.

1.2 ROLLS

- All our machines are normally rolls with selected and identified characteristics.
- The profiling of the rolls can be adapted to user special requests and the final crowning is made in order to better finalize the bending.

2- MACHINE FUNCTIONS

2.1 ROLLS MOTION

- The lower rolls move independently in linear slides:
- Each roll displacement is controlled by high pressure two-way hydraulic jacks (one jack on each end).
- The power transmission is direct for a maximum performance.
- Rolls motion is driven by hydro motor high accuracy.
- Rolls regulation and tilting (conical bending) is carried out by means of hydraulic and its allow an optimal regulation and avoid any future machine adjustment.
- The absence of parts subject to wear reduces at the very least interventions and expense of maintenance.

2.2 ROLLS ROTATION

- Rolls rotation is controlled by gear box with hydraulic motors coupled to shaft ends. This direct transmission ensures a maximum efficiency and reliability with an extremely reduced size.
- The direct hydraulic drive enables a perfect control of rolls rotation speed, especially during pre-bending, in order to produce an optimum result.

2.3 HYDRAULIC CIRCUITS

- A pressure limiter controls any excess pressure in the hydraulic circuits in order to assure a total safety operating.
- All hydraulic components are carefully selected in order to have the best performance and reliability (motor, pump, cylinder, valve ...).

2.4 LUBRICATION

- All machine bearings are lubricated by manually operated pump

3- HYDRAULIC REGULATION

-Roll bending machines equipped with hydraulic regulation system are developed in order to have the best compromise between price, reliability and performance.

-The stroke of the rollers, rollers rotation, tilting of the front bearing housing and the tilting of the top roller are operated hydraulically. For bending, the rollers must be absolutely parallel aligned. A combined hydro mechanical equalizing system is incorporated. For cone bending, the bottom can be inclined directly from the control panel. The rollers can be returned to parallel position by the same



way. It is a major advantage of the hydraulic system that all subsystems are protected by overload valves. Therefore the machine cannot be damaged by overloading.

Controls: Its Vary according to selected component configuration.

The motions are directly driven by hydraulic distributors with progressive flow, manually operated:

- Up / down displacement of front roll
- Up / down displacement of rear roll
- Rotation of the rolls
- Opening / closing of the yoke

The drives are located on the right/left frame at the edge of the machine, which provide the operator with an excellent visual control of his work without having to move around.

4- ROLL FORMING PROCESS

4.1 PRE-BENDING

The force supplied by the jacks and the symmetrical movement of side rolls allow to bend the edges of the sheets easily without handling out. This operation is carried out by clamping the edge of the metal sheet between the top roll and one of the side rolls and by bringing up the second side roll.

According to the operating mode chosen by the operator, the pre-bending operation can be carried out at first or last stage of the forming process.

Flat edges (with mild steel material): about $3 \times e$ (thickness)

4.4 CONE BENDING

- To help the sliding of the sheet during the cone bending process, the machine can be equipped with a treated thrust set up at end the top roll. It is automatically set up by a hydraulic jack during the closing of the top right bearing, but it is retractable during the opening

- Cone bending can be rounded, depending on size and angle, in several passes. Bending is done continuously, with pretending on both ends. An optional attachment, which guides the Conical, is fitted onto the machine frame. To transport the bended plate at the large radius with the driven top and bottom rollers.

Safety device against overload of the machine included

Safety device against tilting of the hinged front Bearing housing when rollers are under pressure included

Document Will Provide Along with machine:

- Hydraulic Circuit Drawing.
- Electrical Circuit Drawing.
- Spare Parts List.
- Schedule of Preventive maintenance



TECHNICAL DIAGRAM

HM CONFIGURATION



EHM CONFIGURATION

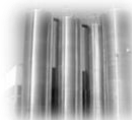


AEHM CONFIGURATION



iAEHM CONFIGURATION





SALE CONDITIONS :

PRICE BASIS : EX WORKS, JAMNAGAR

PACKING : 3% EXTRA

PAYMENT : 40% ADVANCE ALONG WITH PURCHASE ORDER & 40% AGAINST SUCCESSFUL FINAL INSPECTION & 20% AGAINST DISPATCH.

FUMIGATION : 2 % EXTRA

DELIVERY : 12 - 14 WEEKS FROM THE DATE OF RECIEPT OF PURCHASE ORDER ALONG WITH ADVANCE PAYMENT.

OFFER VALIDITY : 30 DAYS.

SUPERVISION TO ASSEMBLY : (if required)

ASSEMBLY & START- UP - 2 TECHNICIANS (ELECTRO-MECHANICAL)

Required Days: 7

Price: 50 USD/- per Day.

For all the duration of the assembling and start-up the customer will give to our technician the full assistance consisting in mechanical & electromechanical people. Assistance of our technicians for the installation and start-up of the machinery when this exceed the programmed time, due to causes that not depending from VE. If the assembling will continue exceeding the days we shall charge each single extra Day at 75 USD /- Per calendar-day

THE OTHER CONDITIONS FOR TECHNICAL ASSISTANCE WILL BE THE FOLLOWING (EXCLUDED):

- PREPAID AIR/2A TRAIN TICKET
- BOARD AND LODGING EXPENSES, ACCOMODATION IN A SUITABLE AND COMFORTABLE PLACE.
- LOCAL TRANSPORTS (TAXI)

PAYMENT: BY BANK TRANSFER

Account Name:	VISHWAMBHARI ENGINEERING	VISHWAMBHARI ENGINEERING
Account No	50200027947992	9429469493
Bank	HDFC BANK	KOTAK BANK
Branch	JAMNAGAR - UDYOGNAGAR	GIDC BRANCH - JAMNAGAR
Swift Code	HDFCINBBXXX	KKBKINBBXXX
IFSC	HDFC0000569	KKBK0002936



GUARANTEE :

- All mechanical equipment whose supply is in this contract is covered by a warranty period, whose duration will be twelve (12) months from completion of start-up or Thirteen (13) months from the date of relevant shipment of said equipment, whichever comes earlier. With particular reference to the payment conditions;
- During the warranty period the VE will repair or replace, at his care and charges, all those machinery and components found faulty due to original imperfections within the terms agreed upon time to time.
- During warranty period assembling services for the repairing and replacement will be at charge of the purchaser according to the VE rates in force at the date of such service.
- The warranty includes all the structural parts of the machinery, but does not extend to the usual wearing parts. The VE is not responsible for the damages caused to the machinery by wrong actions of the purchaser personnel, to the use of un-proper raw materials, to a faulty or negligent use, to an excessive depletion, to damage in transit, improper storage or handling, incorrect or negligent operations or improper maintenance after shipment, or to any other reasons un-dependant from the VE. All bought out items does not come under warranty.
- The Supplier, moreover, shall not be responsible and this guarantee shall not be valid in case of use of spare parts, other than original spares, supplied or advised, by the Supplier and /or any alteration made, other than with the consent of the Supplier.
- The VE will replace or repair the faulty parts within the terms agreed upon time to time and he has the power of requiring the return of the replaced parts from the purchaser. In case the VE forwarded the machinery disassembled, the warranty for a proper working will not become binding if the assembling and start-up have not been carried out by VE's technicians.
- We remain at your complete disposal for any further technical and/or commercial information you might need and, looking forward to hearing from you soon, we remain.

Yours Truly,



VISHWAMBHARI ENGINEERING
WORKS

Mr Bhavin Solanki / Technical Advisor