

# BEIER MACHINERY CO., LTD

## HDPE Pipe Production Line

Pipe Sizes: 54" Inside Diameter with Four Wall Thicknesses



(All the pictures are only for reference)

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We are pleased to offer you the following based on our enclosed general terms and conditions of delivery and sale.

**1. Project evaluation: An extrusion line for the production of 54” I.D. HDPE pipe with four different pipe wall thicknesses.**

**1.1. General information:**

Raw material & formulation	HDPE resin – All the material should be thoroughly mixed.
Melt capacity	Maximum 1300-1600 kg/hr (depending upon pipe dimension and the HDPE material)
Central height:	1950 mm
Haul-off speed:	0.03-0.6 m/min
Quantity of color stripes	8 lines
Operation direction	From right to left (face to the operation panel)
Machine color	Standard color: RAL7016 (Anthracite grey) ; RAL9002 (Grey white)
Picture of the final product	

**Pipe specifications and dimensions: Provided by the customer.**

Inside Pipe Diameter	Inside Pipe Diameter	Pipe Thickness	Pipe Thickness	HDS Stress	Pressure Rating	Pressure Rating
(in)	(mm)	(in)	(mm)		(psi)	(bar)
54	1372	1.77	45	1000	63	4.3
54	1372	2.25	57	1000	80	5.5
54	1372	2.84	72	1000	100	6.9
54	1372	3.60	91	1000	125	8.6

**1.2 Work conditions (Provided by the customer)**

Warehouse/Workshop	Construction of foundations, construction works, earthworks, and wall works. Supply of cranes, fork-lifts or other lifting equipment. Mounting materials and tools; Dimension: 80m (length) × 3.5m (width) × 3m (height)
Temperature/ Humidity	0-35°C / ≤85%

Power supply	<p>Supply voltage: 3*480V+N+PE;          Voltage tolerance: +5%/-5%;          Control voltage: 24VDC+220VAC;          Frequency: 60HZ+-2%          Electrical supply at the site is to be discussed and the exact electrical requirements confirmed, prior to ordering.          With CSA or UL requirement</p>
Wire/cables/water hose	<p>Wires/cables from the power supply to the control cabinets of this production line. All electrical cables from the control cabinets to each piece of equipment.          Water hose: Supply water to the machines and reservoirs.</p>
Cooling Water	<p>Without dissolved or suspended minerals as phosphor, sulphur, iron, etc.          Inflow temperature T1: max. 15°C;          Outflow temperature T2: T2=T1+5°C;          Hardness: 5-8°dH;          Reflux: without pressure</p>
Lubrication oil:	Exxon mobile
Compressor	Supply compressed air
Ancillary staff	1 Person

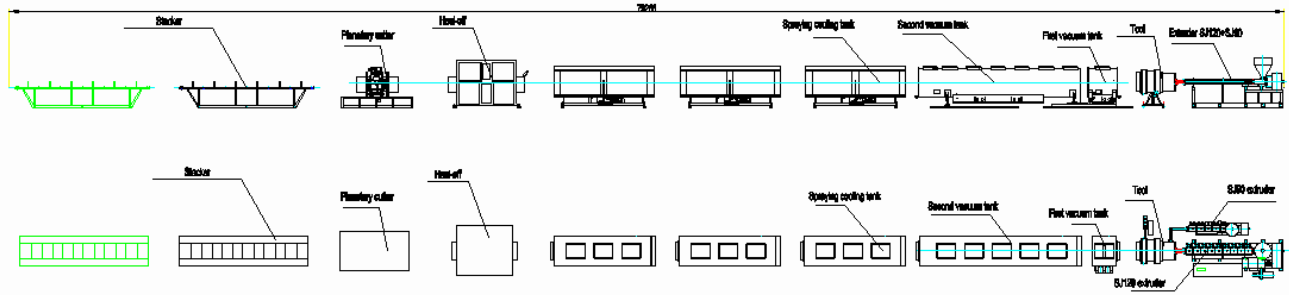
### 1.3 Energy consumption

Installation power	1280 KW
Cooling Water	50 M <sup>3</sup> /hr
Compressed air	0.6 m <sup>3</sup> /min. 0.4~0.8 Mpa

### 1.4 Commercial terms

Project	HDPE pipe production line (I.D: 54" x 4 wall thicknesses)
Price	FOB Shanghai port
Payment terms	50% down payment by wire transfer 50% by Wire transfer before delivery and after inspection
Delivery time	120 working days from the date of receiving the down payment.
Packaging	Wood pallets covered by plastic film
Warranty period	13 months from the date of the bill of lading

### 1.5 Flow line



### 1.6 Machinery list and prices (quoted in USD)


No.	Name	Qty.		
1	Vacuum feeder 800 kg/h (in and out)	4 sets		
2	Plastic hopper dryer	2 sets		
3	BRD90/38 single screw extruder	2 sets		
4	Die Head with the necessary dies, cores, calibration sleeves and die head cart	1 set		
5	Die temperature controller	1 set		
6	Co-extruder 30/25	1 set		
7	BR-VT/1600/3 Vacuum calibration tank 1	1 set		
	BR-VT/1600/9 Vacuum calibration tank 2	1 set		
8.1	BR-SB/1600/6 Spray cooling tank (Half-ring)	1 set		
8.2	BR-SB/1600/6 Spray cooling tank (Roller)	2 sets		
9	Roundness rectification system	3 sets		
10	BR-HC/1600/12 Haul-off & Pulling winch	1 set		
11	BR-CF/1600 Planetary saw cutter	1 set		
12	BR-TR/1600/6 Stacker	2 sets		
	Total amount EX Works INCOTERMS 2000			
	Inland transportation cost to Shanghai port (8*40'GP+1*40'HQ)			
	Packaging cost			
	Total FOB Shanghai port			


#### Remarks:

Beier Machinery can set-up the extrusion line for testing, before shipment to the customer. All costs relating to the test materials and compounds are the responsibility of the customer.

Technical data

No	Name	Photo of machine	Technical specifications
1	<p><b>Vacuum feeders for loading the HDPE material into the extruders</b></p>		<p>Rated transmission capacity: 800 kg/h</p>
		<p>Motor power: 4 KW                      Hose diameter: <math>\Phi</math> 50mm                      Hopper : stainless steel                      Maximum air volume: 2 M<sup>3</sup>/min</p>	
2	<p><b>Plastic hopper dryers for drying the material's surface moisture</b></p>		<p>Load capacity: 800 kg</p>
		<p>Power of the air-blower: 0.75 KW                      Heating power: 24 KW</p>	
3	<p><b>BRD90/38 single screw grooved feed throat extruder</b></p>		<p>Melt capacity: Maximum 680-850 kg/h, depending on the pipe size and HDPE material</p>

		<p><b>Screw :</b>  Diameter of the screw: <math>\Phi 90</math> mm  L/D: 38/1  Material of the screw: 38CrMoAl  Surface treatment: Nitriding processing, thickness: 0.4~0,7mm, Polished.  Maximum screw speed: 94 rpm</p> <p><b>Barrel:</b>  Material of the Barrel: 38CrMoAlA  Inner processing: nitrided thickness of: 0.4~ 0.7 mm  Heating mode: Cast aluminum + stainless steel covers  Heating power: <math>8.5 \text{ KW} \times 7 = 59.5 \text{ KW}</math>  Cooling method: air blow  Cooling power: <math>0.55 \text{ KW} \times 7 = 3.85 \text{ KW}</math></p> <p><b>Drive motor:</b>  Motor power: 250 KW DC, Motor: SIMO</p> <p><b>Electrical components:</b>  Speed regulator: Eurothem (Parker)  PLC extrusion line control system: Siemens with 10.4" touch screen HMI.  Air Switch: LG  Relay: Omron  Temperature controller: Siemens</p> <p><b>Self protection system:</b>  Over current protection of the motor  Over pressure protection of the screw.</p>
<p>4</p>	<p><b>Die Head and tooling for producing 54" I.D. pipe as per the sizing chart in section 1.1 of this quotation.</b></p>	 <p><b>Method:</b> Single layer die. Die pins and die cores are changeable for producing the required 54" I.D. pipe with four different wall thicknesses.</p>

		<p>Die Body: Made from 40Cr. with the inner surface polished.          Calibration sleeve: Bronze: One for each size of pipe.          Type of die head support: Motorized die head cart, with rollers.          Heat control zones: 45          Maximum heating power: 400 KW          Extruded identification marking lines: 8  <b>Die Design Advantage:</b> The material in the die will be completely melted allowing the pipe's pressure grade will be maximized. The design and treatment of the die tunnel results in low melt temperatures with high melt pressures.</p>
<p>5</p>	<p><b>Die temperature controller</b></p>	<div data-bbox="598 734 1018 1146" data-label="Image">  </div> <p><b>To control the die temperature</b></p> <p><b>Die temperature controller:</b></p> <ol style="list-style-type: none"> <li>1. Temperature range: normal temperature 250°C. Media: JD320 heat conductive oil.</li> <li>2. Oil pump power: 0.75KW, heat oil flow: 70-80 L/min</li> <li>3. Motor power: 11 KW. Hot oil pressure: 0.15-0.20Mpa</li> <li>4. Cooling type: (water-oil) indirect cooling, cooling water flow: 80 L/min</li> <li>5. Temperature control precision: <math>\pm 1^{\circ}\text{C}</math> Operating mode: PID auto running.</li> <li>6. Oil tank volume: 15 L with oil level control and liquid switch.</li> <li>7. Protection mode: Reverse phase-overload, over temperature-stop, feeding oil-sensor cut off, by-pass loop-over temperature automatic cut-off.</li> </ol> <p><b>Configuration:</b></p> <ul style="list-style-type: none"> <li>High efficiency hot oil pump with stainless steel piping</li> <li>Stainless steel electrical heating pipe and LG air switch</li> <li>Schneider contactor</li> <li>Standard oil cooler</li> <li>Temperature protection</li> <li>Multi-functional die temperature computer controller</li> </ul>

<p>6</p>	<p><b>Co- extruder SJ30/25 for producing identification markings</b></p>		<p>Melt capacity: 3kg/h</p>
		<p><b>Screw:</b>  Diameter of the screw: 30 mm  L/D: 25:1  Material of the screw: 38CrMoA1A.  Surface treatment: Nitride with a thickness of 0.4~0,7 mm and polished</p> <p><b>Barrel:</b>  Material of the barrel: 38CrMoA1A  Inner processing: nitride with thickness: 0.4 ~ 0.7mm  Heating zones: 2 zones  Heating mode: Cast aluminum with stainless steel covers  Heating power: 1.2 KW × 2 = 2.4 KW  Cooling method: air blower  Cooling power: 0.04 KW × 2 = 0.08 KW</p> <p><b>Drive motor:</b>  Motor power: AC 3 KW</p> <p><b>Electric suppliers :</b>  Inverter: ABB  Contactor: Schneider  Air Switch: Schneider  Indicator lamp and button: Schneider  Relay: Omron  Temperature controller: Omron</p>	





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**Vacuum tanks**

**Type of Chamber:**

Double

**Dimensions:**

Length: 2.5 m + 10.5 m

**Vacuum pumps:**

Hydroseal vacuum pump

Power: 5.5 KW \* 3 + 5.5 KW \* 4

**Water pumps:**

Power: 7.5 KW x \* 4 + 7.5 KW x \* 4

**Three direction adjustment:**

Forward and Backward : ±1200 mm, driven by a hydraulic system

Up and down: ±50 mm manual screw adjustment

Left and right : ±50 mm manual screw adjustment

**Inside pipe holders**

Nylon half-round supporting plates

**Tank material:**


Main body stainless steel,



Front/back sealing device and nylon plate holder: Q235 galvanized steel.

Water level adjustment: stainless steel floating ball,

Water temperature adjustment: Inflation type automatic mechanical regulator.

Pipeline: Galvanized pipe and stainless steel valve connections

		<p>Sprayers: ABS.          Large volume water filter which ensures no blockage of the water spray.  <b>Vacuum meter</b>          Quantity: 2          Vacuum degree gauges: 0.03-0.06 Mpa</p>
<p>8</p>	<p><b>Spray cooling tanks</b></p>	<div data-bbox="550 443 1061 831" data-label="Image">  </div> <div data-bbox="1077 443 1497 862" data-label="Text"> <p>Cooling water spray system          Water level control system</p> </div> <p><b>Dimensions:</b>          Length: 6000 mm</p> <p><b>Tank Materials :</b>          Main body: Stainless steel with PVC viewing windows          Front/back sealing device: Q235 galvanized steel          Water level adjustment: stainless steel floating ball          Water temperature adjustment: Inflation type automatic mechanical regulator, with water temperature gauge.          Pipeline: Galvanized pipe and stainless steel valve connections          Sprayers: ABS.          Large volume water filter which ensures no blockage of the water sprayers.</p> <p><b>Inside pipe holder</b>          Nylon rollers</p> <p><b>Water pumps:</b>          Power: 7.5 KW x 2</p>

			<p>Pneumatic pressure Frequency inverter control</p>
<p>9</p>	<p><b>Haul-off (12 claws)</b></p>	<p><b>HAUL-OFF</b> Claw length: 2500 mm Maximum traction force: 300000 N Maximum traction speed: 0.03-0.6 m/min Motor power: 0.55 KW × 12 Traction Range:800-1600 mm</p> <p><b>Electrical system:</b> Schneider or LG Inverter: Hitachi or ABB Pneumatic downward pressure uses V type high friction coefficient heavy duty rubber blocks.</p>	
<p>10</p>	<p><b>Planetary cutter</b></p>	 <p><b>Cutter:</b> Motor power: 13 KW Diameter of the saw: 270 mm Saw material : Hard alloy steel Maximum cutting thickness: 100 mm Maximum cutting range: 800 -1600 mm</p> <p><b>Electrical system:</b> Schneider or LG</p>	<p>PLC controlled Soundless cutting With changeable hold-down clamps.</p>

11	<b>Stacker (with rollers)</b>		Final pipe support
		Length: 9,000 mm Up and down: ±90 mm	

**2.2. Spare parts included in the price**

No.	Name	Qty.	Application
<b>Machinery parts:</b>			
1	Oil seals	2 pcs	Gearbox high-speed shaft
2	Screw unload tool	1 set	Unload screw
3	Sprayers	10 pcs.	Vacuum tank and spray tank
4	Silicon seals	10 m	
5	Rubber blocks	10 pcs.	Haul-off
6	Blade	1 pc	Cutter
7	Dust collect bag filter	1 pc.	
8	Air pipe	5 m	
9	Vacuum pump sealing rings	5 pcs	Vacuum pump
10	Water pump sealing rings	5 pcs	Water pump
<b>Electrical parts:</b>			
1	Thermocouples 3m	5 pcs	Extruder
2	AC contactor	1 pc	Electric cabinet
3	Breaker	1 pc	
4	Potentiometer	1 pc	

### **3. After-sales service**

#### **3.1 Technical documents**

All labels on machines and lay-out drawings, electrical diagrams and user manuals, will be in English.

#### **3.2. Arrangement for inspection, installation and testing**

- a. After all the ordered equipment has been delivered to the customer's factory; the Buyer is responsible for all preparation work, e.g. electrical supply, water supply, labor and cranes, etc.
- b. BEIER will prepare visa applications for their engineers, who are responsible for the supervision of the machine installation and testing at the Buyer's factory.
- c. The Buyer will buy a round-trip air ticket for the engineers, if the visa application is approved. The buyer is also responsible to bear expenses generated, e.g. visa formalities, meals, accommodation and an allowance of USD125.00 per day for each engineer.
- d. Engineers will give free training to personnel in the buyer's factory.
- e. If the buyer does not request installation and commissioning by the Seller's engineers within four months from the date of the bill of lading, it will be taken that all the supplied equipment has been successfully tested by the buyer.

#### **3.3. Quantity and quality guarantee**

##### **a. Quantity/Quality Discrepancy to destination port during transportation:**

In case of quality/quantity discrepancies to the destination port the customer should file claims within 30 days from the arrival of the goods at their destination. The insurance company and the shipping company will be responsible for any discrepancies or product damage caused by the shipping company or other transportation organizations.

##### **b. Guarantee period and after-sales services: 13 months from the date of the bill of lading.**

During this guarantee period, BEIER will provide spare parts at no charge in cases of quality discrepancy caused by us. If the malfunctions are caused by incorrect operation of the equipment, BEIER will provide the buyer spare parts at cost price.

##### **c. Long-term service:**

BEIER will charge the buyer cost price of spare parts beyond one year and provide long-term technical guidance.

#### **3.4. Validity:** Three months from the quotation date.

Kind Regards,

Rich Kim

**Beier Machinery Co., Ltd.**