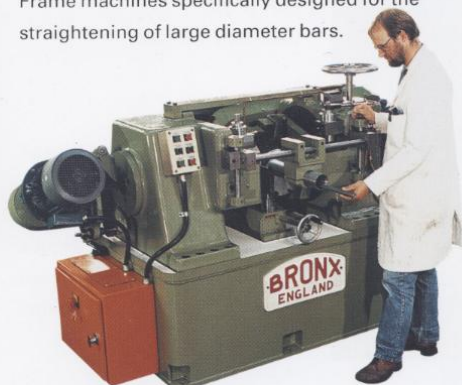


**BAR STRAIGHTENING AND
BAR POLISHING MACHINES**



Bronx manufactures a range of machines for straightening bar ranging in diameter from 1.5mm up to 300mm. Depending on the diameter and application, different types of straightener are offered - from the two roll BR.O series which handle bar from 1.5mm up to 25mm, through a range of vertical two roll PBR.V series, to Ring Frame machines specifically designed for the straightening of large diameter bars.



BR.O series bar straightener

Bronx offer the complete installation, comprising straightening machine together with appropriate handling equipment to ensure safe and efficient operation.

All adjustments on the larger machines are motorised and a computer aided setting system can be used for roll positioning.

Bronx has developed a range of high speed multi-roll machines for working in high efficiency, bar integrity inspection lines.



PBR.V.6 vertical 2 roll bar straightener



HDT.6-S multi roll machine



PBR.9 series ring frame machine

BAR STRAIGHTENING AND BAR POLISHING MACHINES



Bronx Precision Bar Straightening Machines have brought new standards of straightness and surface finish, together with controlled surface hardness, to the steel industry and are found in most major steelworks throughout the World. We continually work on research and development of these machines to improve their performance and enhance the customer's productivity.

APPLICATIONS

Bright Bars Centreless turned or drawn bars are straightened and polished to a high degree in one pass

Bars precision straightened from end to end

Black Bars As rolled bar ovality rounded up and held to a constant diameter over the whole length

Bars precision straightened from end to end
Scale removed and surface finish greatly improved

Thick Walled Tube Ideal for precision straightening and rounding up of all types of thick walled tubes

ADVANTAGES

High Productivity

- High throughput speeds of over 50 metres/min
- Automatic handling equipment allowing one man operation
- High overall operating efficiency
- Very rapid size changing facilities
- Quick roll changing equipment

Low surface work hardening

- When machines are fitted with hydraulic roll load control, materials which are normally susceptible to work hardening during cold working, may be straightened without adversely affecting the physical characteristics

Bronx manufactures 2-roll bar straightening machines for straightening bars from 1.5mm up to 300mm diameter.

For straightening small 1.5mm to 25mm diameter bars and semi-finished shafts, a range of three machines with their rolls horizontally disposed side by side are available – BR.0, BR.00 and BR.000.

The PBR.V. range of machines from PBR.V.0 to PBR.V.6 are specially designed to handle medium sized bars up to 108mm diameter. These machines have the rolls

disposed one above the other with the basic construction being a four column design. They have a heavy cast iron base which carries the bottom work roll. This base is connected to the crown plate by tubular columns, which have pre-stressed tie rods accurately pre-stressed to a pre-determined level by means of special hydraulic nuts to ensure maximum rigidity.

The top roll, equipped with motorised vertical adjustment, is mounted on a heavy steel platen with four long sleeves, which slide up and down the four columns to ensure maximum rigidity, irrespective of the position of the top roll.

Height adjustment is made using two precision worm and screw jactuators units positioned directly above the bearing housings of the top work roll, so that the effects of off-centre loading as the bar

by means of a ratchet spanner.

The work rolls are manufactured from special forged alloy steel, heat treated to an established surface hardness. The rolls are mounted in taper roller bearings and driven by means of universal drive shafts from totally enclosed reduction gear boxes. Each roll is driven individually and has its own main drive motor.

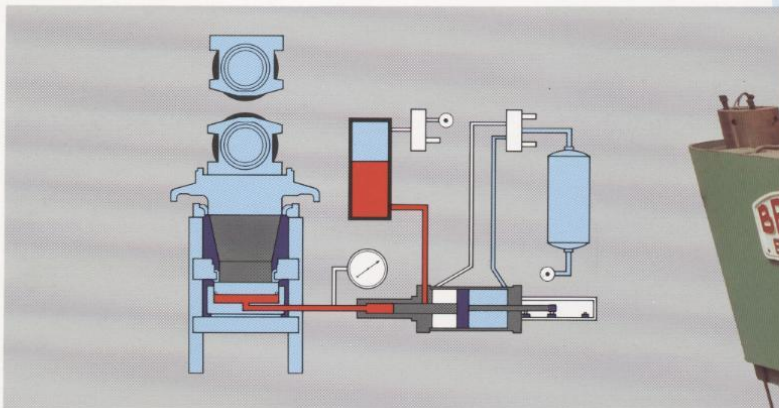
The guide bars are mounted on gates, which pivot around the columns and enable rapid and easy access for changing the guides and inspection of the work roll surfaces. The guide bar assemblies are provided with vertical and lateral adjustment. A full set of guides is supplied to cover the range of bar diameters within the capacity of the machine. A self-contained system, for spraying a suitable lubricant on to the

arduous and all elements of the equipment are subjected to high shock and dynamic loading.

The Ring Frame allows the machine to be supported close to the point of application of the load, thus ensuring stability. The straightening load and the turning moment imposed by the bar on the work rolls is contained within the Ring Frame itself, so that overall machine rigidity and stability is of a very high order.

The Ring Frames are manufactured from heavy steel fabrications connected together by a top and bottom beam. The bottom beam carries the bottom roll and the platen for the top roll slides down the window of the Ring Frame, in tapered press type gibs.

Vertical adjustment is by four heavy duty worm and screw jactuators, so



enters and leaves the machine are eliminated.

In order to eliminate backlash in the main screws, the complete top roll assembly is balanced, using an air cylinder positioned on the crown plate.

The angular adjustment for both top and bottom rolls is identical as well as inter-changeable, and comprises a specially developed precision knuckle joint located at the outside edge of the roll carrier, to minimise the turning moment applied to the angular adjustment mechanism, thus ensuring maximum rigidity. Angular adjustment is carried out

work rolls, is included and comprises a pump, oil reservoir, filter and spray pipe.

The Bronx Ring Frame series PBR-RF machines are designed to straighten large diameter bars above 100mm diameter. Straightening of large rolled bars in a mill environment is



as to hold the top roll parallel, when subjected to off-centre loading, as bars enter and leave the machine.

The guide bars are mounted on swing down beams at the front and rear of the machine, the swing down being by means of hydraulic cylinders. The gates are locked into position by means of hydraulic latches.

HYDRAULIC ROLL LOAD CONTROL

Some materials, such as, ball bearing quality steels, may have their mechanical properties adversely affected when subjected to a cold working process, for example, straightening. To enable these materials to be straightened in a controlled manner, Bronx developed a unique roll load control device.

The primary function of this device, is to enable the operator to accurately pre-set the load applied to the bar, as it passes through

the work rolls of the machine. This load is accurately and automatically maintained irrespective of irregularities in the diameter of the material being straightened.

The device consists of a large diameter hydraulic ram supporting the bottom work roll and oil is supplied to this ram at high pressure by an air/oil intensifier system. The maximum load is pre-set by varying the air pressure to the air/oil intensifier system. Any irregularities in the bar diameter will push the bottom roll down, but the pressure will not increase because of the large volume of air in the air receiver.

For straightening some materials it may be desirable to by-pass the hydraulic roll load control system by switching it off.

ROLL CHANGING

Occasionally it is necessary to remove the work rolls from the machine to carry out re-furbishment. Special jigs can be supplied to the PBR.V range, that fit on to the swing out guide bar beams in place

of the guide bar carrier. This allows the rolls to be swung clear of the machine frame for subsequent removal by overhead crane.

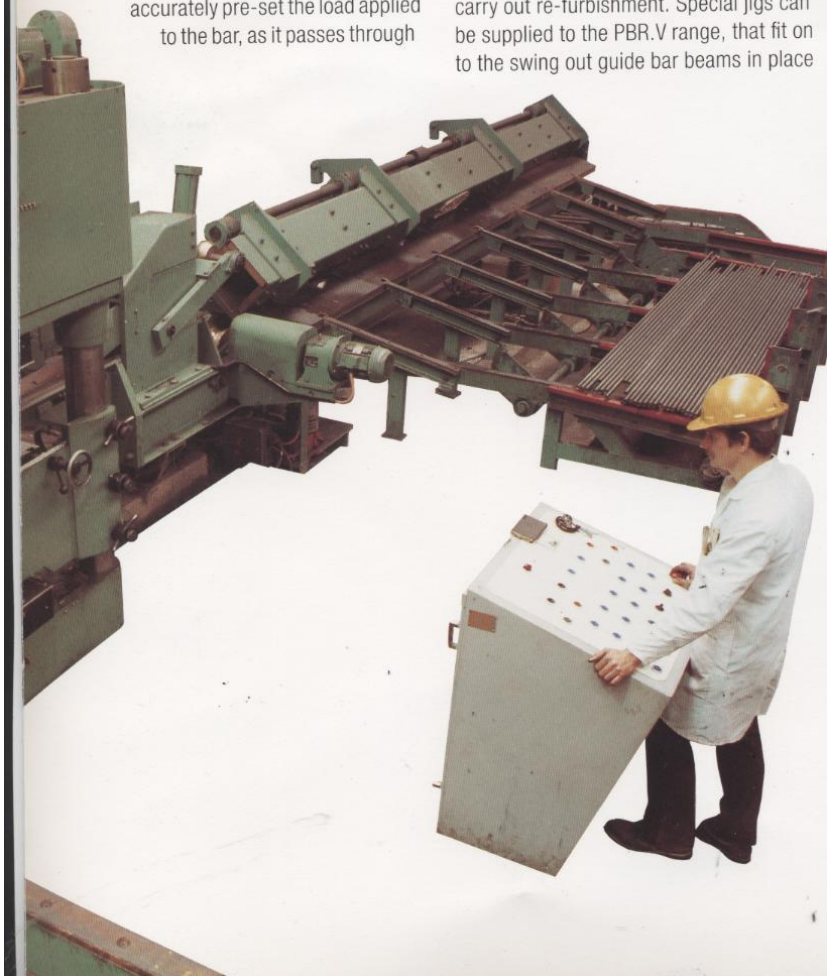
On the PBR Ring Frame machines special arrangements are made to allow the rolls to be changed. On both machine ranges roll changing can be carried out during one working shift.

HANDLING EQUIPMENT

To complement this range of sophisticated straightening machines it is essential that equally efficient handling equipment is used. Not only must the handling equipment be efficient, it must comply with the highest safety standards.

Bronx has a basic range of standard handling equipment which has been developed over many years of experience and expertise. The Company also tailor makes handling equipment to fit the customer's own specific requirements and workshop layout.

All Bronx handling equipment is suitable for automatic operations enabling the straightening process to be controlled from a single workstation and control panel.



BRONX
ENGLAND

CAPACITY

YIELD STRENGTH													
	BR000	BR00	BR0	MAXIMUM BAR DIAMETER MM									
				PBRV0	PBRV2	PBRV3	PBRV4	PBRV5	PBRV6	PBR 7RF	PBR 8RF	PBR 9RF	PBR 10RF
30/40 Kg/mm ²	8	16	25	32	38	44	57	82	108	133	152	200	300
40/50 Kg/mm ²	7	14	22	28	35	41	53	73	96	127	152	183	270
50/60 Kg/mm ²	7	13	21	26	33	38	50	68	90	118	151	171	252
60/70 Kg/mm ²	6	12	20	25	31	36	47	64	85	112	143	163	241
70/80 Kg/mm ²	6	12	19	24	29	35	45	61	80	107	135	154	229
80/90 Kg/mm ²	6	11	18	23	28	33	43	59	77	102	130	148	220
MINIMUM BAR DIAMETER MM	1.5	3	5	5	5	6	10	16	19	22	25	35	50
STANDARD STRAIGHTENING SPEED METRE/MIN	15	27	27	15 & 30	15 & 30	15 & 30	15 & 30	15 & 30	15 & 30	1.5 TO 30	1.5 TO 30	1.5 TO 30	1.5 TO 30
MOTOR POWER 2 MOTORS EACH	1	3	7.5	5/10	10/20	12.5/25	15/30	30/60	40/80	10/200 D.C.	12.5/250 D.C.	20/400 D.C.	30/600 D.C.

NOTE: The above capacities are for guidance only. Machine capacities can be varied to suit particular requirements by altering motor powers and roll profiles. Straightening speeds are indicative only and can be varied depending upon the quality of material to be straightened. It is possible to provide all machines with either single speed, two speed or variable speed D.C. drives. However, on large machines, variable speed drives are recommended. We reserve the right to alter machine specifications without notification.