

Stretching & Stretch-Forming Machine

CAPABILITY SHEET · STRETCH STRAIGHTENING & STRETCH FORMING · ENGINEERED TO ORDER

THE ONE IDEA

PRINCIPLE	A press controls force. A stretcher must control STRAIN. The same pull yields one alloy and barely moves another, so what is set and held is permanent elongation, not tonnes.
WHY	Metal keeps a record of how it was made. Pulling the whole length past its yield point makes every fibre give way at once, so the section stops remembering its old shape and its residual stress evens out.

JOB ONE · STRETCH STRAIGHTENING

WHAT	Extruded sections, bar and rolled plate pulled past yield to remove bow, camber and twist, and to even out the residual stress that would otherwise appear later as distortion on the machining bed.
STANDARD	The stretch is part of the material specification, not a finishing touch: an aluminium temper such as T651 or T351 records that the product was stress relieved by stretching.

JOB TWO · STRETCH FORMING

WHAT	Sheet gripped at both ends, stretched past yield and wrapped over a form block, so the contour taken is the die's rather than the material's and springback is nearly eliminated.
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THE MACHINE

ARRANGEMENT	Fixed head and moving head on a tension-tied bed; self-energising wedge gripping jaws; synchronised hydraulic pull cylinders and power pack; closed-loop elongation control with load recording; optional de-twisting head and form-block mounting.
CAPACITY	250 to 2,500 tonnes of pull, from the largest cross-section multiplied by the yield strength of the strongest alloy, plus margin. Calculated from your product, never chosen from a catalogue.
THE WINDOW	Useful permanent set runs from about 0.5% to 3%: below it the shape returns, above it the metal necks and loses ductility. Elongation is counted from the instant load first registers, once the slack is out.
FOUNDATION	The whole pull is reacted between the two heads, so the bed and its foundation are a tension tie and part of the machine. A bed that breathes under load is measured as stretch the workpiece never received.
GRIPPING	Self-energising wedge jaws tighten as the pull rises. Holding hard enough not to slip without marking the ends is the hardest sub-problem; jaw sets match the section family.

SCOPE & STATUS

BOUNDARY	The stretching machine as a machine in its own right. The 500 tonne stretcher supplied inside an aluminium extrusion line belongs to the Neometrix 10,000 tonne extrusion plant scope.
TO QUOTE	Largest cross-section and profile family; alloys and tempers; lengths handled; the job; rate, floor, headroom and foundation depth.
STATUS	Neometrix has quoted against successive stretching machine requirements across the 250 to 2,500 tonne class, for stretch-straightening of extruded sections and plate and for stretch forming of contoured skins, and engineers the class to order; no delivered machine of this class is claimed.

DEFENCE PROGRAMMES DESK

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Figures describe the machine class Neometrix engineers to order and are not a quotation. Capacity, bed length, jaw sets and foundation loads are established against the customer's product at design review. ISO 9001 / ISO 14001. © Neometrix Defence Limited.