BPL 50 bipolar plate line with two-sided material feeding.

MASS PRODUCTION OF METAL BIPOLAR PLATES FOR FUEL CELLS.

USING FORMING SYSTEMS AND DIE TECHNOLOGY FROM SCHULER.

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SOLUTIONS FROM SCHULER FOR METAL BIPOLAR PLATES.

As a manufacturer of leading technologies in all areas of forming technology, Schuler offers systems for the mass production of metal bipolar plates for fuel cells. The knuckle-joint press based on the Triton series for the BPL 25 and BPL 50 variants has been specially adapted to the requirements for the manufacture of bipolar plates by forming, for example to minimize the deflection of the bed and slide. Thanks to the use of knuckle joint kinematics, a lower deflection of the machine is achieved. Since a knuckle joint is never moved in the extended position, there is no need for a soft oil cushion for hydraulic overload protection, which increases the rigidity of the machine. Depending on customer requirements, the machine is driven by either a conventional flywheel or innovative servo technology. A unique feature of the BPL 50 concept is the two-sided material feeding which enables both halves of the bipolar plates to be manufactured in a single stroke. By positioning the stamping die steps directly underneath the pressure points, a deflection of the complete table and slide can be avoided. The higher productivity also provides economic advantages. Besides the required automation features such as a coil line and part handling, Schuler and its subsidiary Aweba also offer the die technology for bipolar plates, thereby combining all the advantages into a "single source" solution. The BPL flex variant is based on a hydraulic press and is especially suitable for large-format bipolar plates or separator plates for electrolyzers.

TECHNICAL DATA

Model	BPL 50	BPL 25	BPL flex
Press type	knuckle-joint press with servo or flywheel drive	knuckle-joint press with servo or flywheel drive	hydraulic press
Material feed	two-sided	one-sided	one-sided
Designed for ... bipolar plates per year	up to 20 mio.	up to 10 mio.	up to 5 mio.
Designed for ... fuel cell stacks per year	up to 50,000	up to 25,000	up to 12,500
Press force [kN]	up to 25,000	up to 20,000	as per customer requirements
Bed length [mm]	4,000	2,500	as per customer requirements
Bed width [mm]	1,200	1,200	as per customer requirements
Die installation height [mm]	600	600	as per customer requirements
Max. slide stroke [mm]	250	120	100
Stroke rate [1/min]	10 to 60	10 to 60	10 to 40
Deflection of bed & slide [mm/m]	< 0.05	< 0.05	< 0.05

Subject to technical changes.

BENEFITS

- Manufacture up to 60 bipolar plates per minute
- Equipment for high capacity production of up to 20 million bipolar plates per year, sufficient for approx. 50 000 fuel cell stacks
- Ability to process pre-coated material
- Forming system, coil line, part handling and die technology from a single source
- With over 180 years of experience, Schuler is your ideal partner over the entire process chain

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MORE INFORMATION

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