

Messrs. _____

**The brief guide to
ECO Bender Series in 3
categories (Class E,C and O)**



Opton Co.,Ltd.

Ver. 1

1.All models in ECO-bender series are widely lined in 3-class of E,C and O to meet client demand.

For the models smaller than type 15, pneumatic power is facilitated for some driving mechanisms. (Class-E exempted.)

(1) Features of Class-O (Standard)

This is an extended version of world-most-reputed model for initial-cost oriented specification

- ① AC servo motor employed for DBB, POB and DOB (for All models)
- ② Standard “hydraulic On/Off” implemented for chuck, clamp-die, pressure-die , booster, bending head L/R and chuck/mandrel Up/Down.
- ③ Energy consumption and noise of larger model than the type 25 are reduced to 1/2 or lower of those of the old MS-series

(2) Features of Class-C (New version)

This precision model of new generation version is uniquely designed by Opton with superior ECO-oriented performance, low per-bend cost-oriented and less than 1/3 electricity cost against the model of category O above

- ① AC servo motor mounted for DBB,POB, DOB and the bending head for all models
- ② Press-die and booster operated by DDV Hydraulic pump with N/C

Other mechanism driven by standard hydraulic power

DDV Hydraulic
servo pump



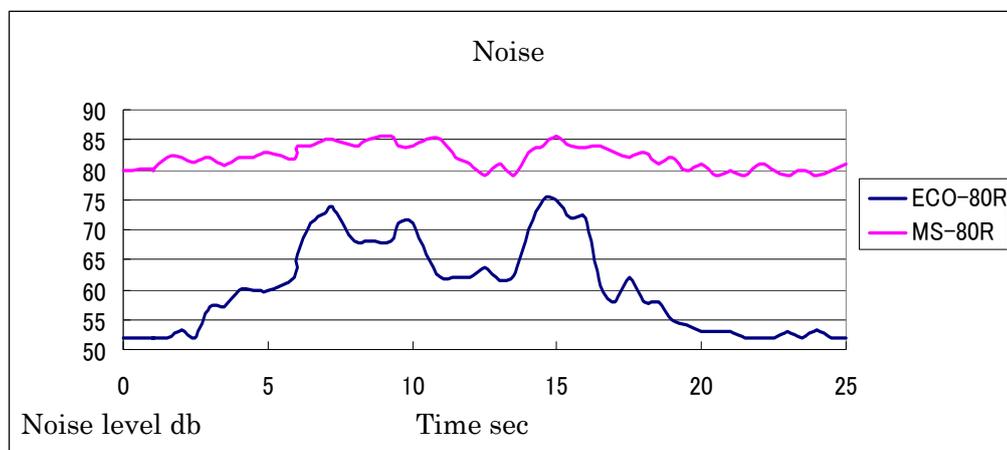
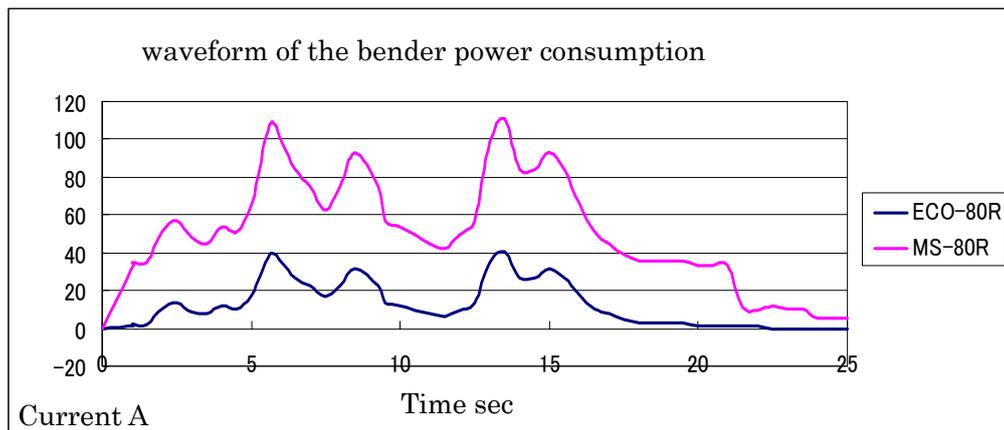
- ③ Electricity consumption and noise level at 1/3 or lower of those of MS seires (Refer the chart below)

(3) Features of Class-C (Super New version)

Global ECO-oriented version with AC servo motor for all axis drive with maintaining same performance as those of the class C.

- ① AC servo motor with N/C for all drives of DBB, POB, DOB, Clamp-/press-die, booster, chuck and mandrel.
- ② Skill-less version. All axial motions by N/C, with additional features of 軸N C制 maximized data storage and reproducibility of old machining data
- ③ Less than 1/3 electricity cost against the model of category O above (refer the chart below.)

power consumption and noise during bending process



Features common in all series

2. Machines compacted for floor space reduced by 40%

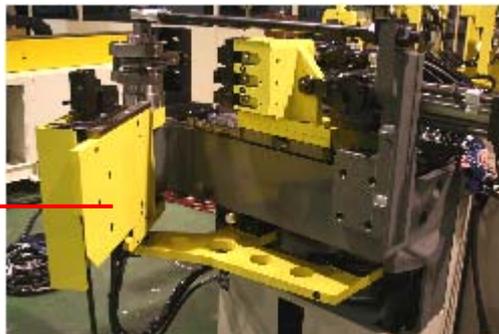
- ① Safety cover is designed smart for one-touch removal and mounting.

- ② The machine size is reduced in width and length from those of MSO series with the machine effective length available by every 500mm.

3. Features of DOB, DBB and POB mechanism.

High-performance AC servo motors are built in for DOB, DBB and POB in all models

- ① For DOB gearing mechanism, the patented-linkage mechanism is employed that has achieved high-accuracy DOB with smaller bending head without using the expandable chains in the mechanism of [AC servo motor → Reduction gear → patented linkage mechanism→Center shaft →bending tool].



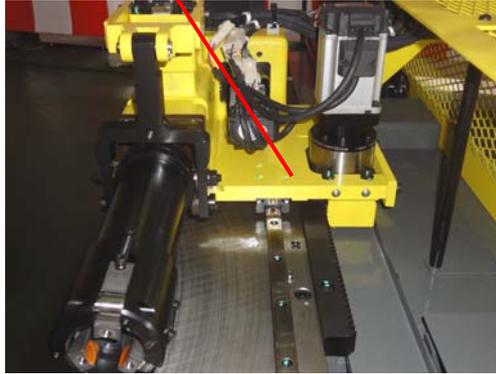
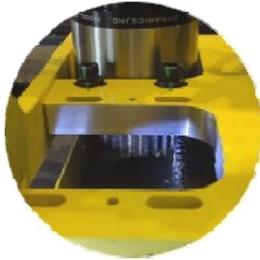
DOB
gearing mechanism

Compacted &
highly rigid DOB head

- ② For DBB gearing mechanism, without using the expandable chains in the mechanism of [AC servo motor → rack & pinion gearing → carriage base, accurate and rigid the rack & pinion mechanism is employed to achieve precision and durability of the motion.

Simultaneously pressurized motion of DBB at DOB process works very effective towards mandrel-free bending and/or elimination of flatness of work pieces

Rack & pinion for
DBB



DBB
gearing mechanism

- ③ POB mechanism employs AC servo motor and timing belt to turn the chuck spindle. No specific advantage is claimed against other type of mechanism.

4. Features of clamp-die, pressure-die, booster and mandrel device

- ① Clamp die employs parallel sliding mechanism instead of toggled one with newly designed motion control and has realized a remarkable advantage of accessibility without sacrificing machining tact time to large- and small-R bending with standard molds. For the class C & E, wider application and skill-less operation is designed to meet by implanting numerical control.
- ② For the class C & E, press-die and booster is numerically controlled to improve tact time, bending accuracy as well as flatness.
- ③ Mandrel unit has N/C operated vertical and horizontal traversing. Mounting/dismounting and position adjustment of mandrel can be held in the machine front. These have achieved elimination of set-up time and idle rear space of the machine.

5. Newly-designed roll wiper free from rapid wear and experienced calibration in conventionally design

- ① Against an average of 2000 bending for re-grinding and 10000 for replacing with conventional type of wiper, the wipers ex-Opton have enjoyed 10-over year reputation from Toyota a car Giant and many other big names for their lives 10-time longer and/or 3+ years operation with no replacement
- ② With newly designed roll wiper, further profit-oriented production can be expected with the advantages seen in wiper cost reduction, longer production with stable quality, skill-less operation and enhanced machine-run time.



Newly designed wiper for super durability

6. Compatibility of molds and machining data

- ① The molds prepared for the machine series MC, MS and MSO ex-Opton can also be reused by inserting simple spacers.
- ② Machining data are compatible. The data in cassette tape and floppy disk can be transferred to USB memory for new machine application through the convertor ex-Opton

7.Feature of the newly designed N/C

- ① Easier set-up is made supported by colored 3D display of design of part, molds and dimensional data.
- ② Thanks to the icon indication on the latest panel computer and touch panel, visibility and operability are enhanced.
- ③ Interfacing is facilitated with non-contact 3D pipe profiler 「Clouodforma-PT」 for automatic compensation of the bending data.
- ④ The total management can be made for production control, operation control of the bender machine and bending data. Interfacing to 「Bendmaster」 a powerful software tool for production management.

For starting your feasibility study

For starting a study on ECO Bender series, followings are offered:
Please pick up any one below that most suites your initial interest.

- 1.Opton staff visit to an inquirer is proposed to make more documentary presentation of the ECO-series.
- 2.Opton factory visit by an inquirer is most welcome where ECO benders are exhibited for demonstration.
- 3.Opton staff is pleased to make a visit to an inquirer for the best proposal upon Opton's receipt of inquirer's product information covering the title, OD, thickness, material, Q'ty of production, repetitiveness of production etc.

Opton stays always ready to meet anyone above.