ONX Control
CONTROL SYSTEMS & ENGINEERING

PROCESS SOLUTION · CUT-TO-LENGTH
FLYING SAW · FLYING SHEAR
CODESYS · ETHERCAT

ONX FLYINGSHEAR

Cut on the fly. Exactly to length.

A flying saw / flying shear that cuts pipe, profile, sheet and wire to length without stopping the line. PC-based, built on CODESYS and EtherCAT.



180 m/min
Line speed achieved in the field*

±0.5 mm
Cut-length tolerance*

60 cuts/min
Cycle rate*

1 ms
Profile calculation and axis control in the EtherCAT cycle

Why ONX FlyingShear?

On stop-and-cut lines the line slows down, stops and accelerates again for every single cut. ONX FlyingShear cuts on the move: the carriage matches line speed, cuts at zero relative speed and returns in time for the next piece.

Non-stop production

Cuts without stopping the line. Cutting is triggered by measured position, not by time, so length holds even when line speed changes.

Length accuracy

Line travel carried over from each cycle is passed to the next segment, so length errors never accumulate. Encoder filtering and length calibration included.

Knows its own limits

Maximum line speed and minimum cut length are calculated live for each recipe; the working stroke is optimised automatically from the measured cut time.

Commission at your desk

A virtual axis and a virtual line let you test the full cycle before the machine is even built — less time on site.

PC-based, no motion card

No separate motion controller card: CODESYS runs on an industrial PC, while servos and I/O share a single EtherCAT network.

Clear diagnostics

Bit-coded error and warning codes, a process status text and an operator message — read the cause of a fault right on the screen.

Applications

Anything that flows and is cut to length

- Flying saw on pipe / profile lines
- Roll-formed profiles
- Sheet and strip cut-to-length
- Wire and bar
- Cable trays
- Roof / façade panels
- Plastic and aluminium extrusion
- Retrofit of existing flying shear lines

* Best values achieved in the field on ONX Control projects; they were not achieved together on a single machine. Achievable speed, tolerance and cycle rate are largely set by the mechanics (carriage mass, stroke, drive train, measuring wheel). Source: onxcontrol.com

Catch. Sync. Cut. Return.



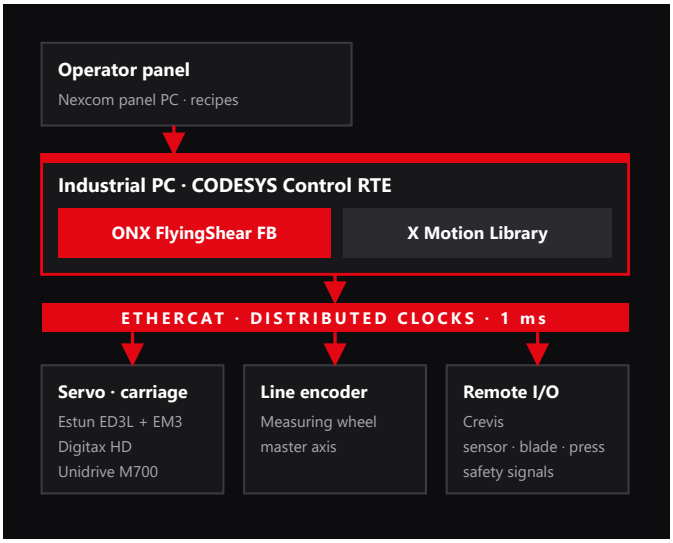
01
Wait & catch
Waits at the start, then accelerates to line speed on an S-curve as the cut point nears.

02
Sync & cut
Carriage speed matches line speed; the cut window opens and the saw, shear or press cuts.

03
Release
Once the cutter leaves the material, sync is released and the carriage decelerates smoothly.

04
Return & count
Returns at a speed set by the servo limit; length is measured, count increments.

ONX SYSTEM ARCHITECTURE



No separate motion card: motion control runs in the soft PLC on the industrial PC, with every device on one EtherCAT network and one time base.

TECHNICAL SUMMARY

Platform	CODESYS V3.5 · Control RTE / SoftPLC
Communication	EtherCAT, CiA402 servo drives
Line measurement	Encoder (32-bit) or built-in virtual line
Profile	7 segments, 5th-order polynomial
Cutter	Saw · shear · press
Protection	Device-bound licence, compiled library

ONE SOURCE, ONX PRODUCTS

FS — ONX FlyingShear FB
The flying saw / shear core: profile, length, limits, optimisation and error handling.

XM — X Motion Library ONX
EtherCAT axis layer: power, homing, jog, absolute positioning, electronic gearing, licensing.

CS — CODESYS OFFICIAL SYSTEM PARTNER
Control RTE, SoftMotion and EtherCAT master; licensing and technical support.

SV — Servo systems ESTUN · CONTROL TECHNIQUES
Estun ED3L / EM3, Digitax HD, Unidrive M700 and Unimotor hd; sized for your carriage.

PC — Industrial PC & panel NEXCOM
IPC running CODESYS Control RTE, plus operator panel.

IO — Remote I/O CREVIS
EtherCAT I/O for sensors, blade/press valves and safety.

DELIVERY PACKAGE

- Compiled **X_FlyingShear** library and device licence
- Working sample project and operator screen
- User and commissioning manual
- Commissioning and cut-test record sheet

Motor sizing
Servo selection from carriage mass and motion profile.

Retrofit
Lines with legacy motion cards or PLCs; mechanics mostly retained.

Camera length check
Measures cut length at line end and feeds corrections back.

On-site commissioning
In planned downtime, with comparative cut tests.

Talk to our engineers about your flying shear.

For preliminary sizing and an architecture proposal, this is all we need:

Material & cross-section · Line speed range · Cut length range · Tolerance · Carriage mass · stroke · Cutter type · Existing control system

QUOTES & CONSULTATION
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