inca PathFinder

DYNAMIC TRAJECTORY OPTIMIZATION

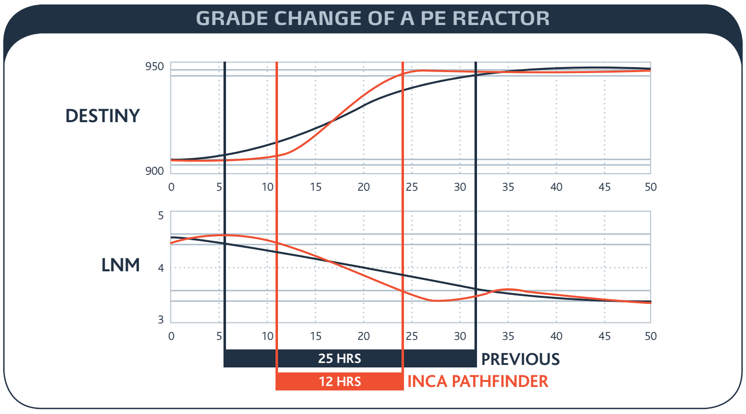
Demand-driven process operations require flexible processing of different feedstocks to produce a flexible set of end products. A prerequisite is to minimize capital that is blocked in stored products and intermediates. A shortened production-to-product delivery cycle also increases capital turnaround. Both these effects directly contribute to an increase of capital productivity.

INCA PathFinder is the IPCOS solution for dynamic trajectory optimization, and has been developed to enhance the flexibility of production operations.

STAY ON THE OPTIMAL TRACK

Faced with the challenge of increasing its capital productivity, the process industry is progressively moving to a demand-driven process operation, in which only those products that are in great demand and that will benefit from a deficit on the market are produced.

SUITABLE FOR A RANGE OF INDUSTRIES



Polymers: The optimal grade change trajectories achieved by INCA PathFinder will reduce the transition cost and make it economically attractive to switch the process to a more profitable operation point. It also enables a flexible process operation strategy that is no longer coupled to a fixed grade slate, but which allows shortcuts between two arbitrary grades. The effect of a grade change optimization on a PE reactor is shown opposite.

HVAC: INCA PathFinder enables the switch between weekend and week operation to be made as efficiently and as quickly as possible.

Glass: INCA PathFinder enables optimal composition changes for glass melters. Temperature profiles in the melter can be generated so that the glass with the old composition is purged as soon as possible and the glass with the new desired composition is produced as quickly as possible.

Refineries: Large crude changes temporarily reduce refinery efficiency. With INCA PathFinder it is possible to perform this crude change efficiently, rapidly and accurately.

TESTED!

Increases your flexibility

IPCOS

inca SUITE

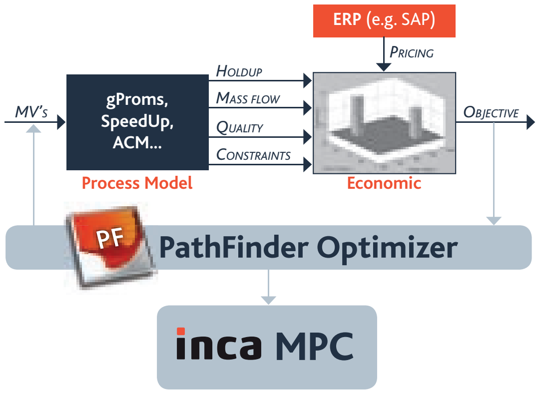
inca PathFinder

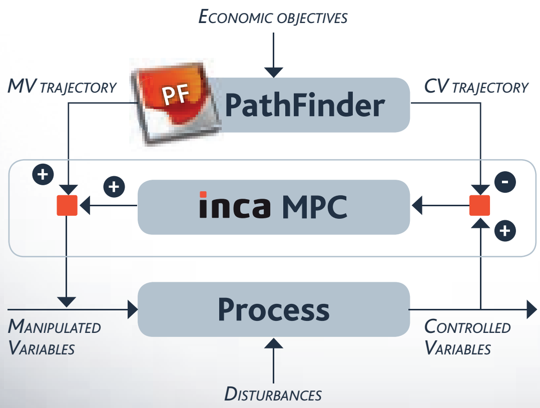
INCA PATHFINDER, THE BENEFITS ARE OBVIOUS:

INCA PathFinder is the only **dynamic optimizer** of its kind on the market.

INCA PathFinder is **a robust and fast solution** for the complex optimization problems that arise from dynamic problem statements.

Through the use of a SSQP (Successive Sequential Quadratic Programming) technique, INCA PathFinder optimizes these problems **30 to 40 times faster than regular optimizers**.





INCA PATHFINDER AT WORK

What do you need to run INCA PathFinder?

A model: INCA PathFinder communicates with most common process simulators such as gProms, SpeedUp, ACM and Hysis or low-end simulators like Simulink. Many companies have developed their own dynamic simulators of their processes; INCA PathFinder connects directly to most of these too. If your company does not have these models, we'll gladly make them for you or have our partners provide them.

Financial information: The optimization problem is steered by financial information, which is collected by INCA PathFinder through a graphical user interface. Operators enter the pricing information in the dedicated interface. Via a direct connection to an ERP system like SAP.

A powerful control system guaranteeing that the optimal trajectories are realized. INCA PathFinder is designed to be used with a high-performance MPC controller. IPCOS' own MPC controller, INCA, is specially designed for this job because it includes a differential mode. In this mode the process inputs and process outputs, as predicted by INCA PathFinder, are sent to the INCA controller, which is then responsible to force the plant to follow the optimal trajectory. This way of operating keeps a lot of the non-linear behavior of the plant outside the control environment.

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