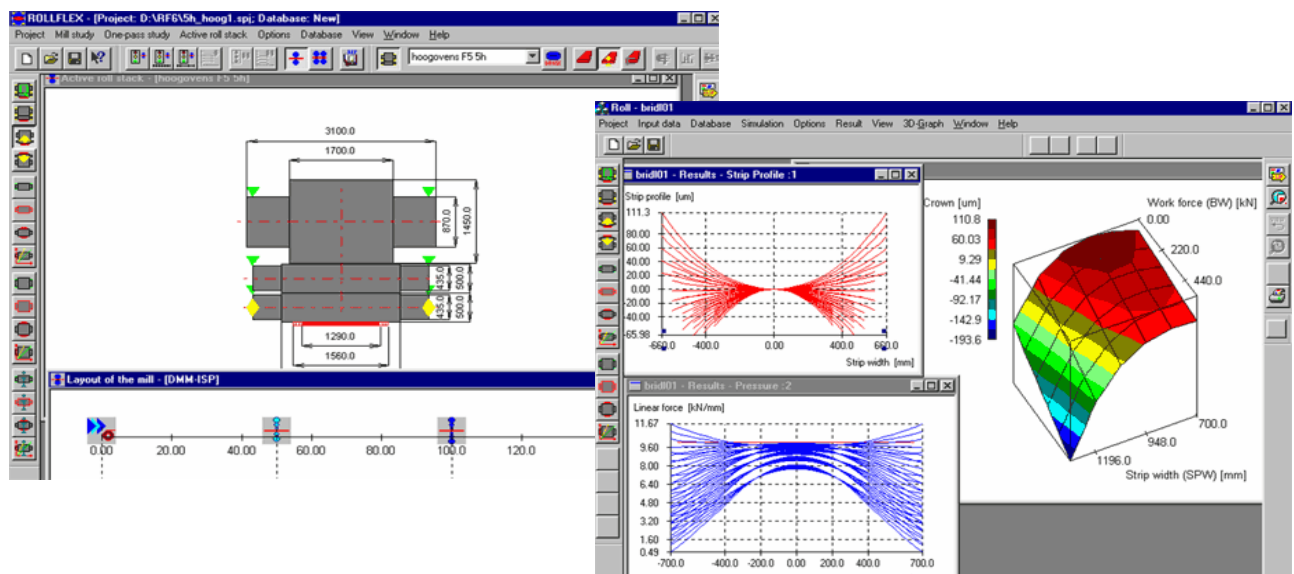


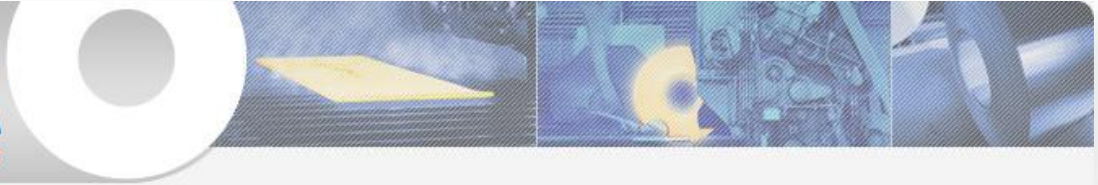
Flatness and Profile Prediction and Control

Software for off-line prediction or on-line control of hot or cold rolled strips and plates profile and for waviness elimination

RollFlex – off-line software tool for calculation of the roll stacks deformation and calculation of the flat products cross profile

- ➔ Study of various actuators influence for 2h, 3h, 4h and 6h stands:
 - bending forces
 - axial shifting
 - rolls grinding
- ➔ Bending forces, axial shifting and rolls grinding optimization



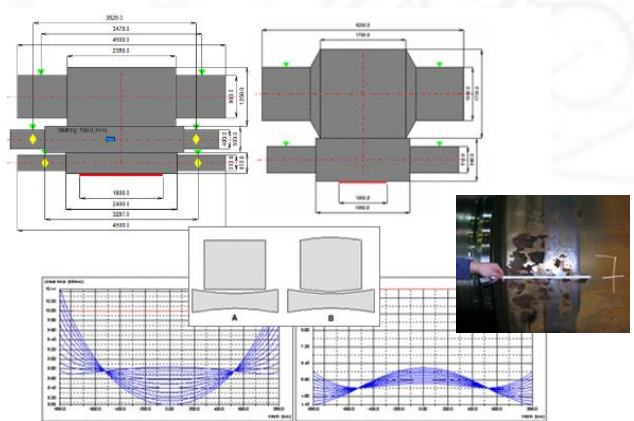
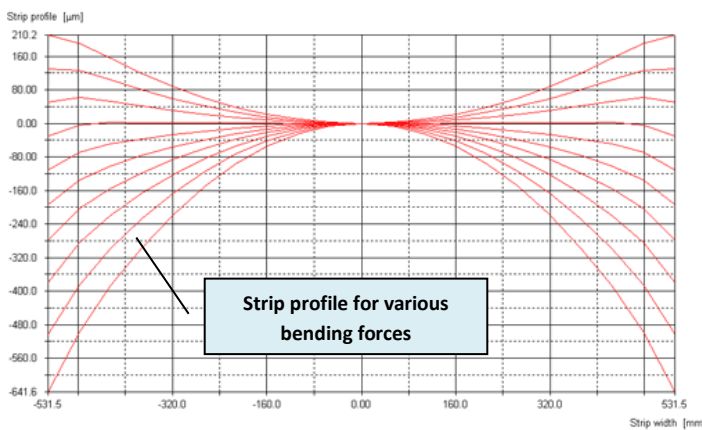
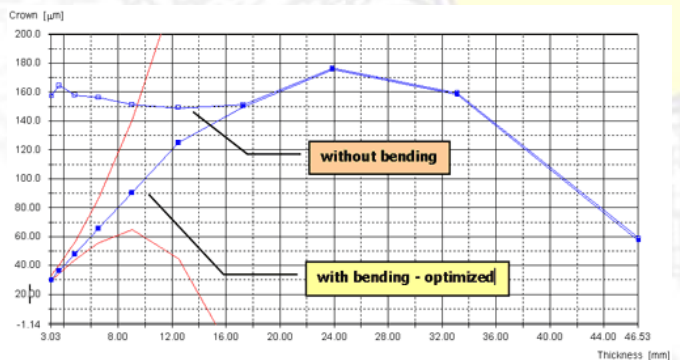


Audit of rolling technology focused on the profile and flatness of strips and plates

Audit of technology = analysis of current technological conditions of rolling, computer simulations, parametric studies or process measurements resulting in proposals of technological measures to achieve the desired profile or to suppress unwanted waviness of hot or cold rolled flat products.

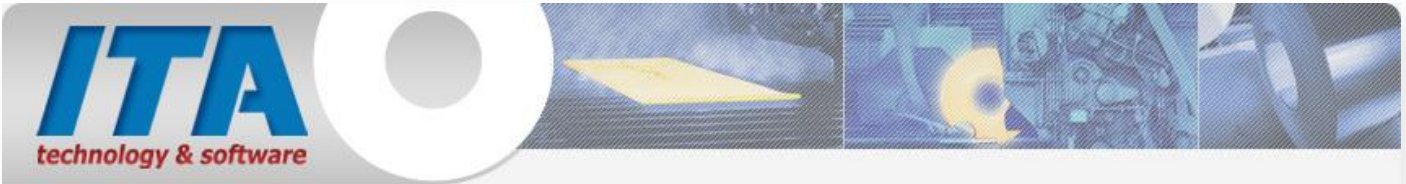
Audit of technology can take into account effects of the following actuators:

- optimization of bending forces
- modification of grinding of rolls
- axial shifting of rolls
- section cooling of work rolls
- modification of pass schedule



References:

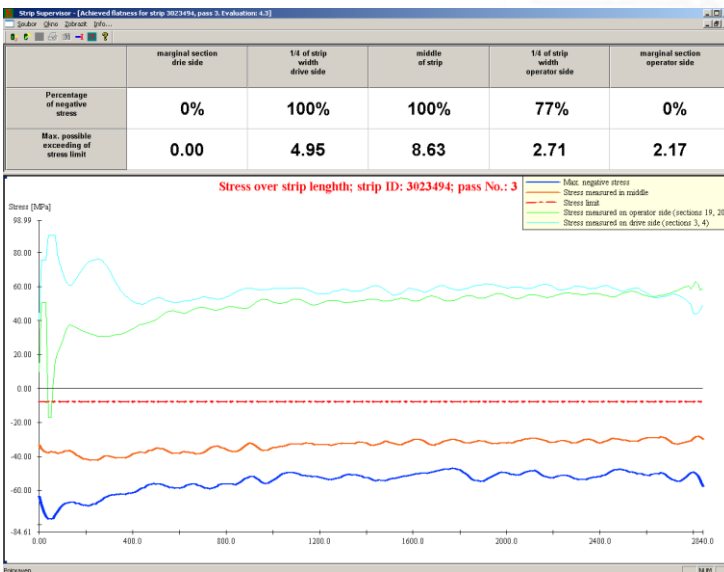
- Modification of L2 control system, grinding of rolls and tapers on the Hot Strip Mill P1500 in Liberty Ostrava, Czech Republic
- Modification of reference curves for stressometer, grinding of rolls and pass schedule to reduce waviness of strips on the 4-h cold reversing mill in GO Steel Frýdek-Místek, Czech Republic
- Design of new grinding and modification of pass schedule for hot rolling of Al sheets on the 2-h reversing roughing mill in Al Invest Břidličná, Czech Republic
- Design of new grinding of work roll to reduce high crown, AMAG Ranshofen, Austria
- Design of optimum roll grinding for cold rolling of narrow multilayered strips, Heraeus Hanau, Germany



StripSupervisor – specialized processor of rolling data for evaluation of strip flatness and other quality parameters

StripSupervisor is specialized software designed to collect technological data of cold strip rolling, to process, to display and to store them in a unified database

- to monitor technological parameters of rolling process,
- to monitor influences of technological parameters on strip flatness,
- to eliminate the influence of human factor on the quality of the strip,
- to calculate the global quality parameters.



StripSupervisor collects, processes graphically and statistically and archives the following technological information:

- *strip thickness,*
- *longitudinal stresses and their relation to strip waviness,*
- *changes of the reference curve,*
- *tension forces,*
- *rolling speed,*
- *intensity of sectional cooling.*

Particular records of technological data are supplemented by information about operators in service at the time of rolling.

StripSupervisor enables to study Influences of technological variables on quality of the strip in terms of flatness and profile.

