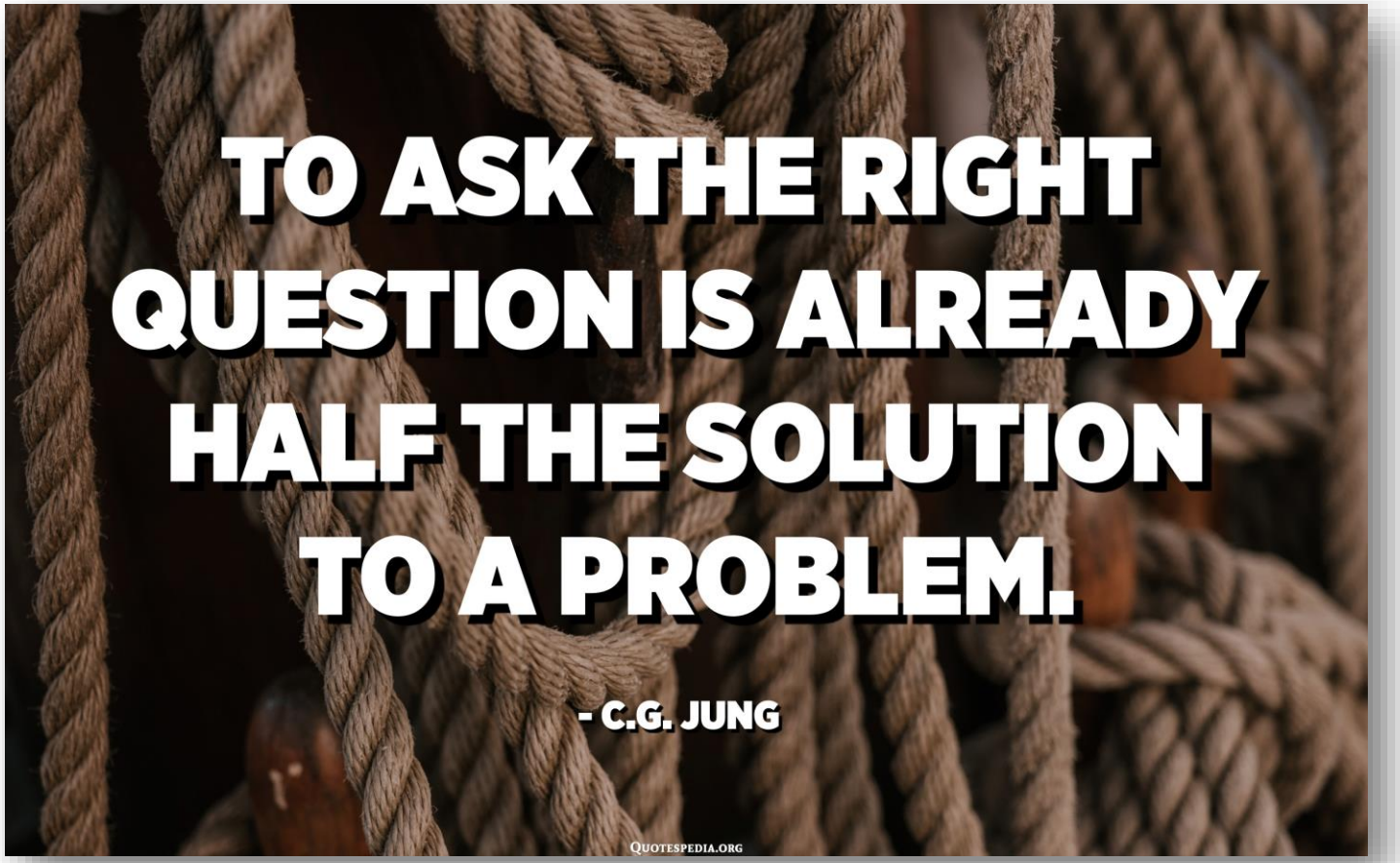
MetalForming LIVE

JULY 2022

Optimizing Press-Stroke Rate Without Investing a Lot of Money!

Optimizing Press Stroke Rate (SPM)
Without Investing a Lot of Money



https://www.quotespedia.org/authors/c/carl-gustav-jung/to-ask-the-right-question-is-already-half-the-solution-to-a-problem-c-g-jung/

Optimizing Press Stroke Rate (SPM)
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WHAT IS THE ACTUAL COST OF A PART?

- Machines cost and maintenance
- Tooling cost and maintenance
- Downtime
- Energy consumed
- Scrap
- Process
- Others…

https://www.oneillinois.com/stories/2018/11/13/follow-the-money-down-the-drain

Optimizing Press Stroke Rate (SPM)
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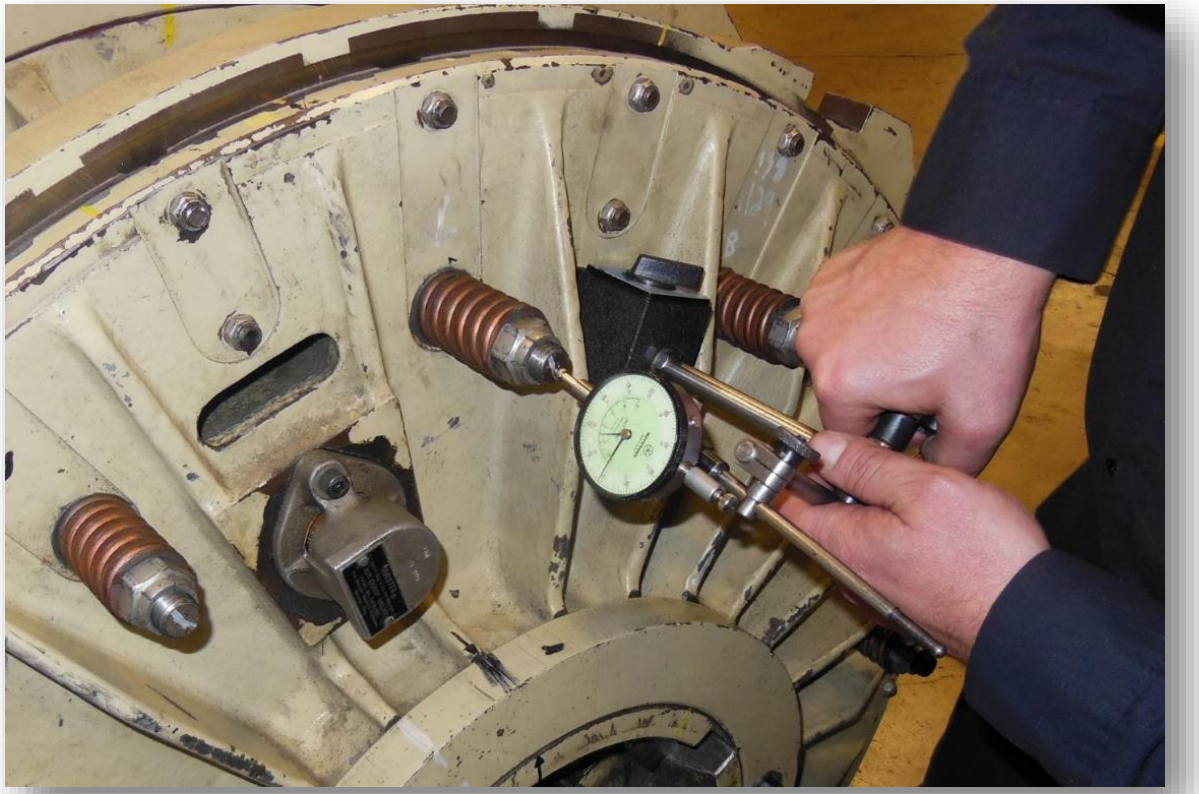
USE AND MAINTAIN THE EQUIPMENT PROPERLY

- **PERIODIC MAINTENANCE PROPERLY DOCUMENTED**
- **GOOD UNDERSTANDING OF PRESS CAPABILITIES AND LIMITATIONS**



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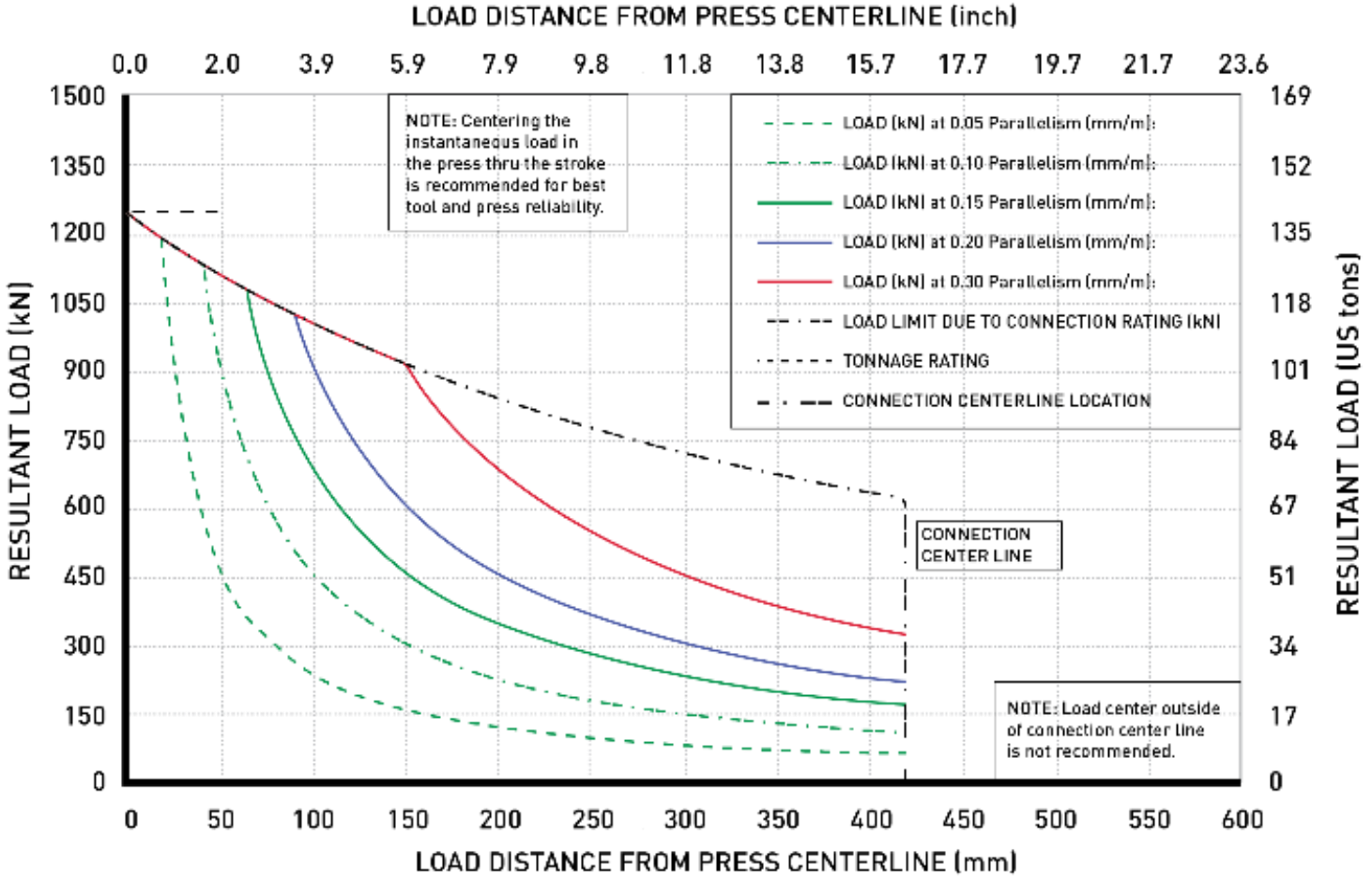
DESIGN AND MAINTAIN TOOLS ACCORDING TO THE PROCESS

- PROPER TOOL STEELS AND COATINGS
- PROPER CUSHION SYSTEMS
- BALANCED LOADS
- PROPER PRESS SPEEDS



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WHAT IS THE IMPACT OF DOWNTIME?

- 60 minute die change
- 2 die changes per day
- 5 days a week
- 52 weeks per year

31,200 minutes used for die change

468,000 parts per year at 15 SPM

https://www.oneillinois.com/stories/2018/11/13/follow-the-money-down-the-drain

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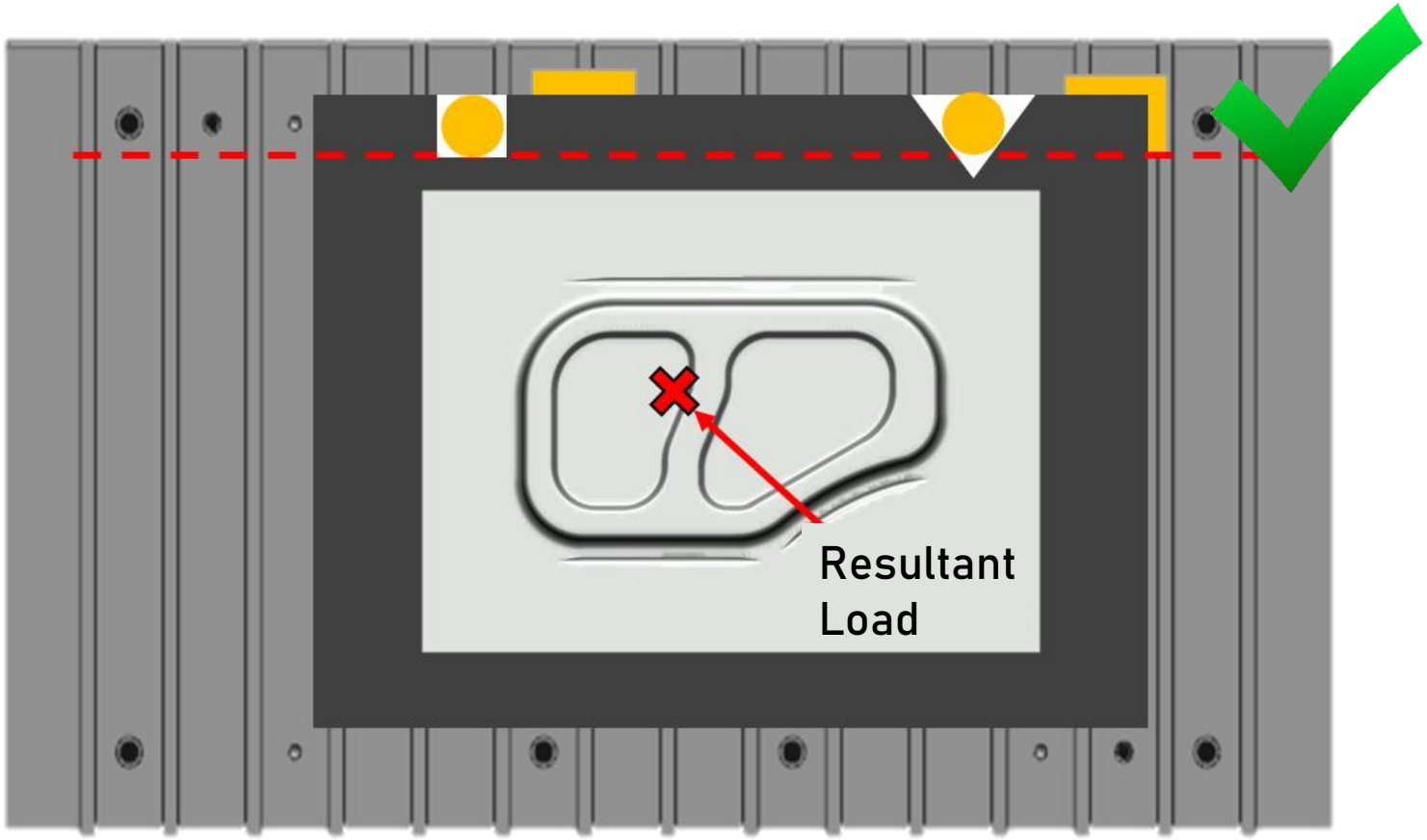
CONSISTENT DIE LOCATION AND CONSISTENT PROCESS (LUBRICATION, MATERIAL, ETC.)



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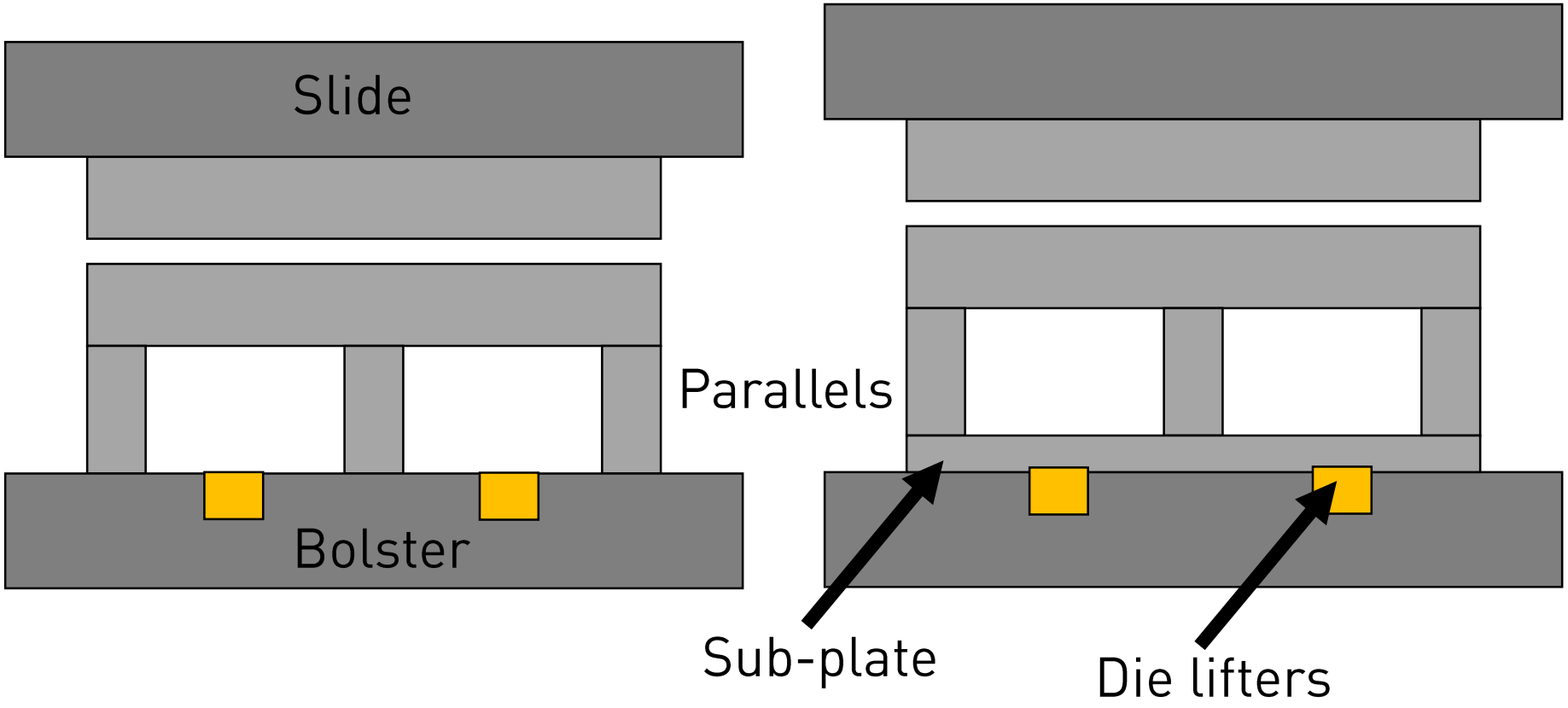
TOOL DESIGN TO SPEED UP DIE CHANGE PROCESS



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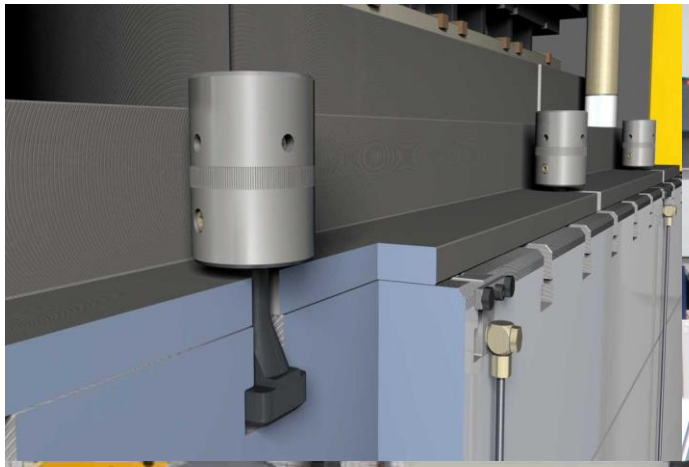
QUICK DIE CHANGE

- **NEXT COIL READY**
- **NEXT TOOL READY**
- **QUICK JOB SETUP**



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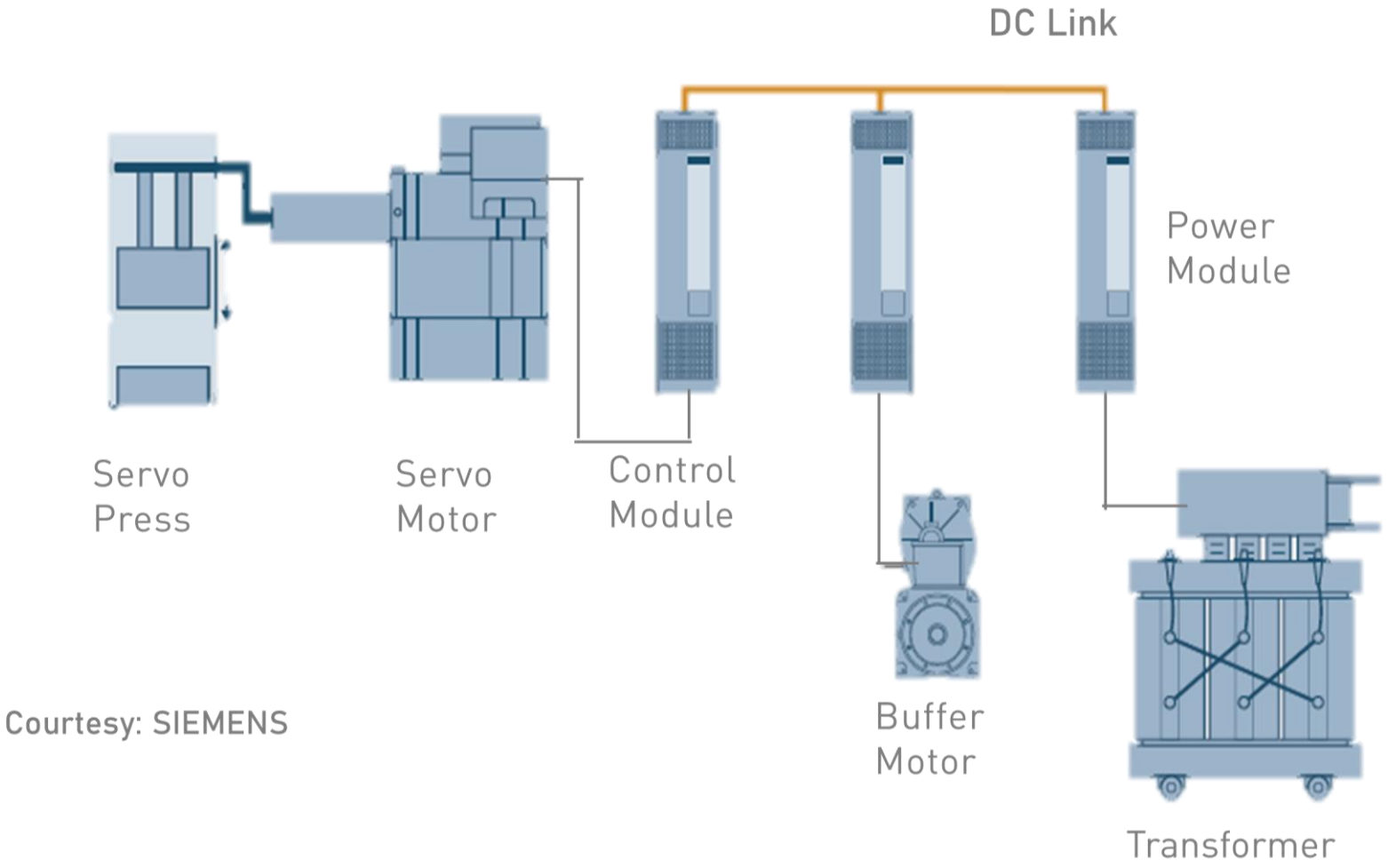
ENERGY EFFICIENT SYSTEMS CAN HELP TO REDUCE ELECTRICITY COSTS



Courtesy: SIEMENS

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USE CONVEYORS TO EVACUATE THE SCRAP AND SEPARATE IT PROPERLY

https://www.thefabricator.com/stampingjournal/article/stamping/how-custom-scrap-handling-eased-3-stampers-out-of-a-pinch

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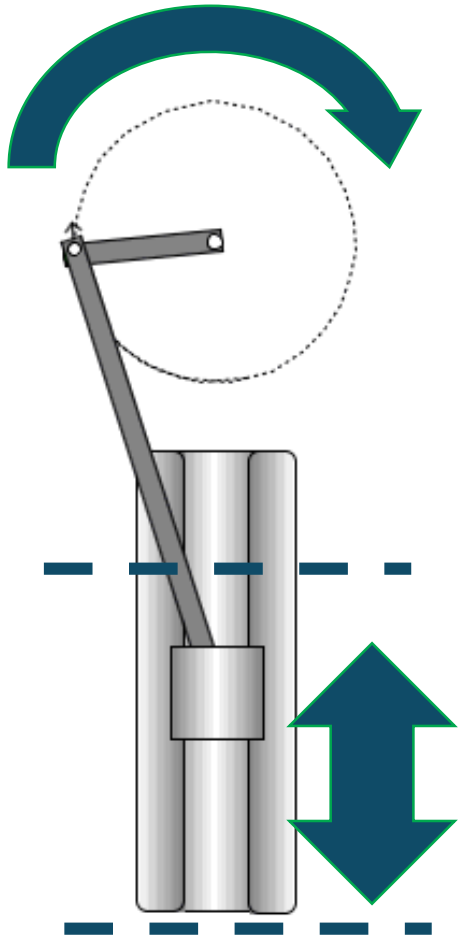
SIMULATION SOFTWARE LOCATES THE PROCESS IN THE SPACE



START LOOKING AT DISTANCE OFF BOTTOM AND NOT ONLY AT PRESS ANGLES

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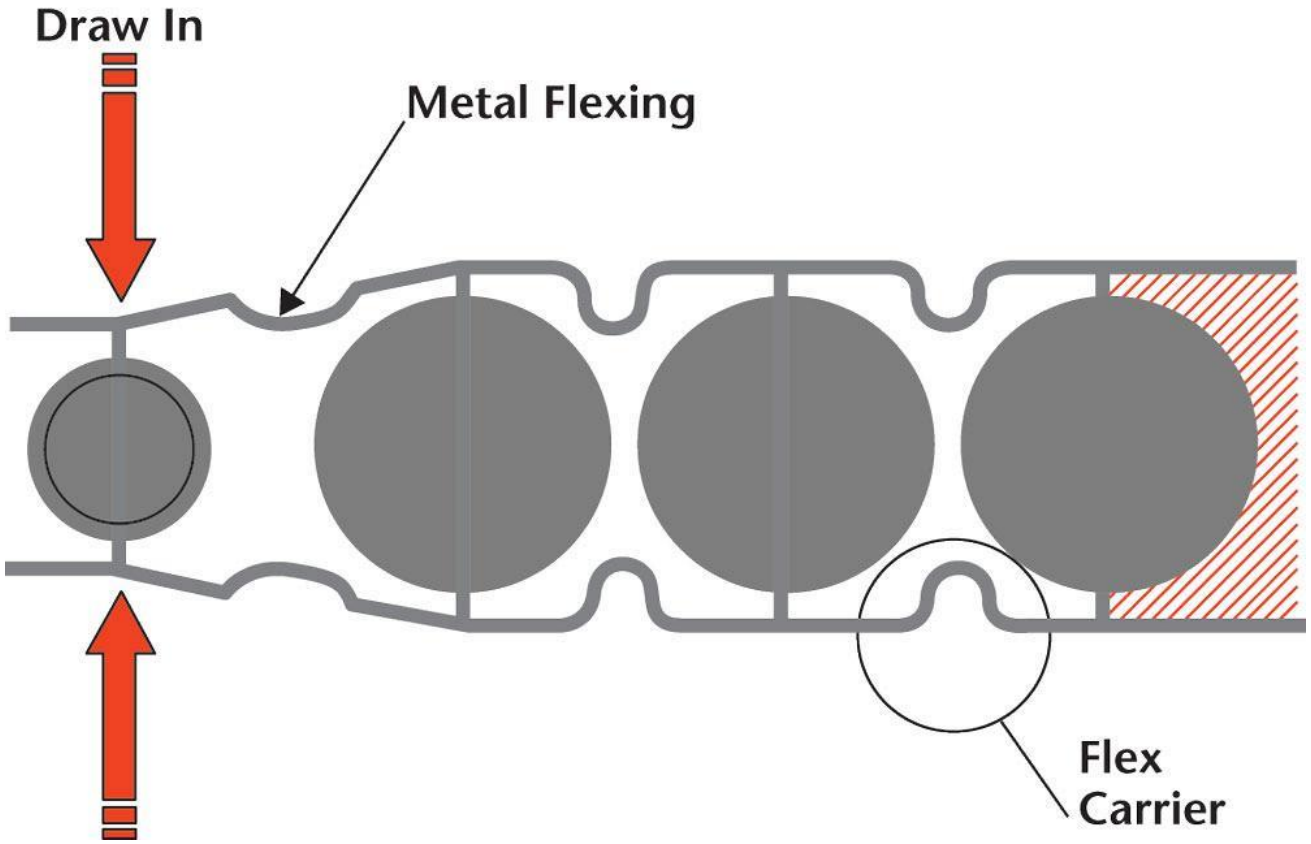
DESIGN THE STRIP LAYOUT FLEXIBLE ENOUGH TO AVOID FRACTURES AND STIFF ENOUGH TO MINIMIZE OSCILLATIONS



https://www.thefabricator.com/stampingjournal/article/stamping/die-science-carrier-design-for-progressive-dies-part-ii

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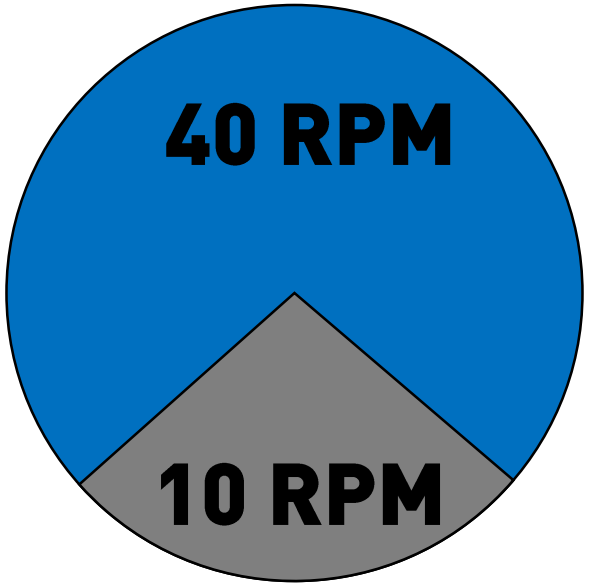
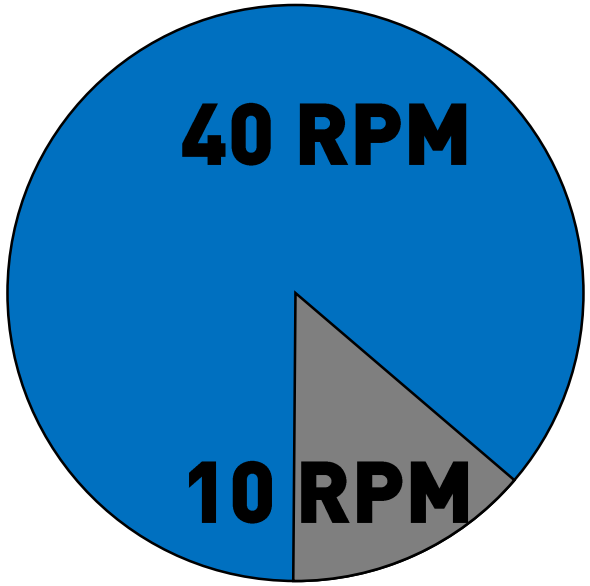
DESIGN MOTION PROFILES WITH THE PROCESS IN MIND

- **SLOW DOWN**
- **PULSATING**
- **PENDULUM**



28 SPM



32 SPM

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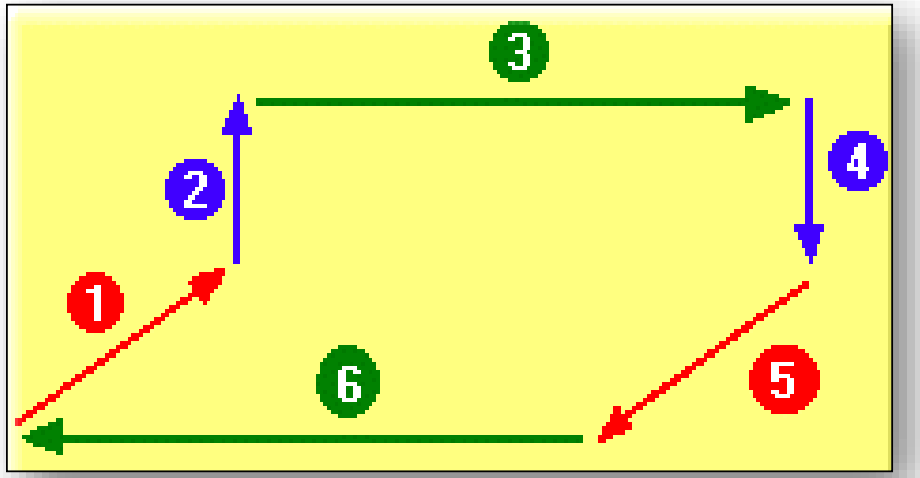
BALANCE MAX SPEED IN EACH AXIS



MOTION	MAX SPM
1	20
2	20
3	20
4	20
5	20
6	20

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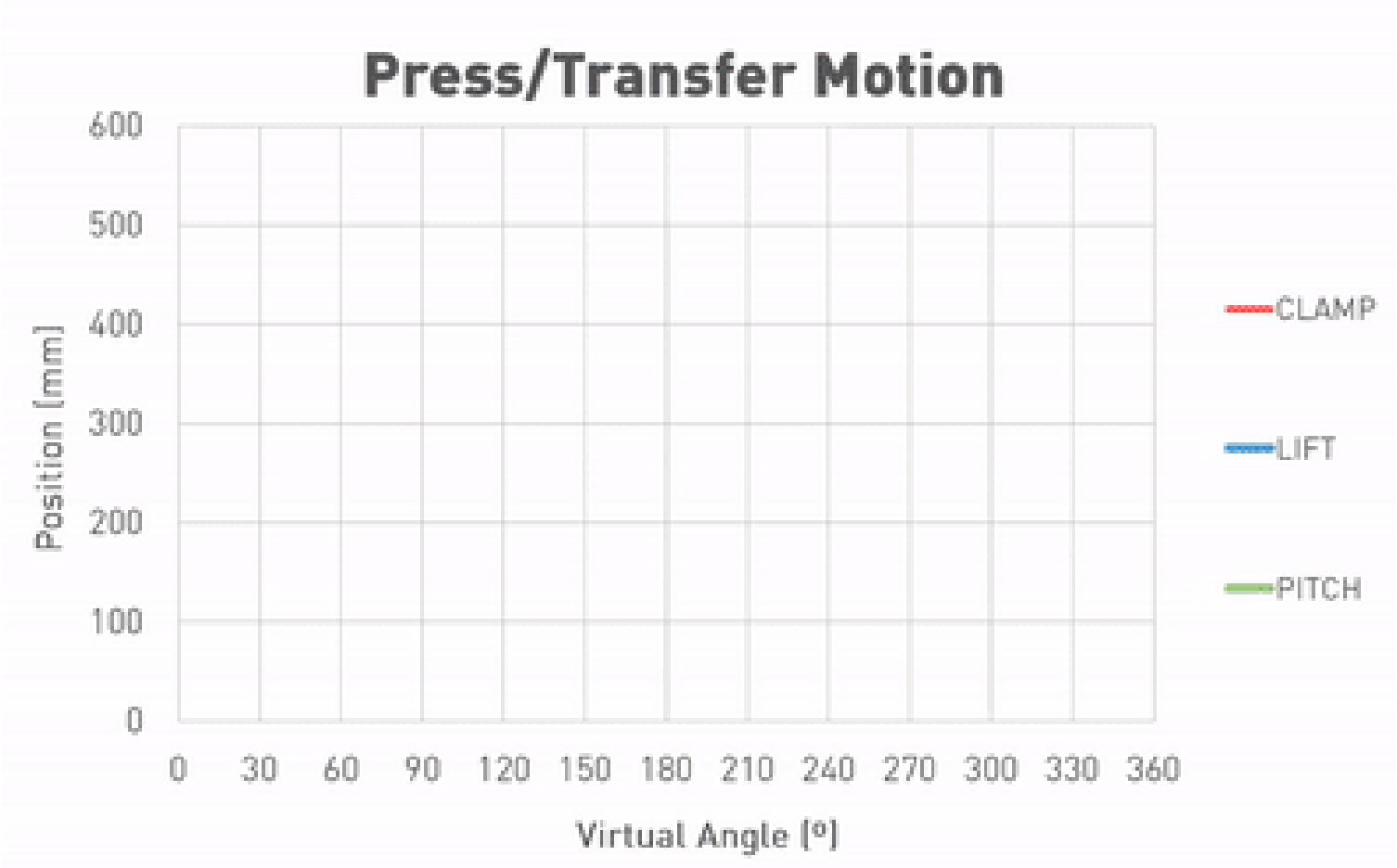
ROUND PROFILE CORNERS IF POSSIBLE (OVERLAP TRANSFER ANGLES)



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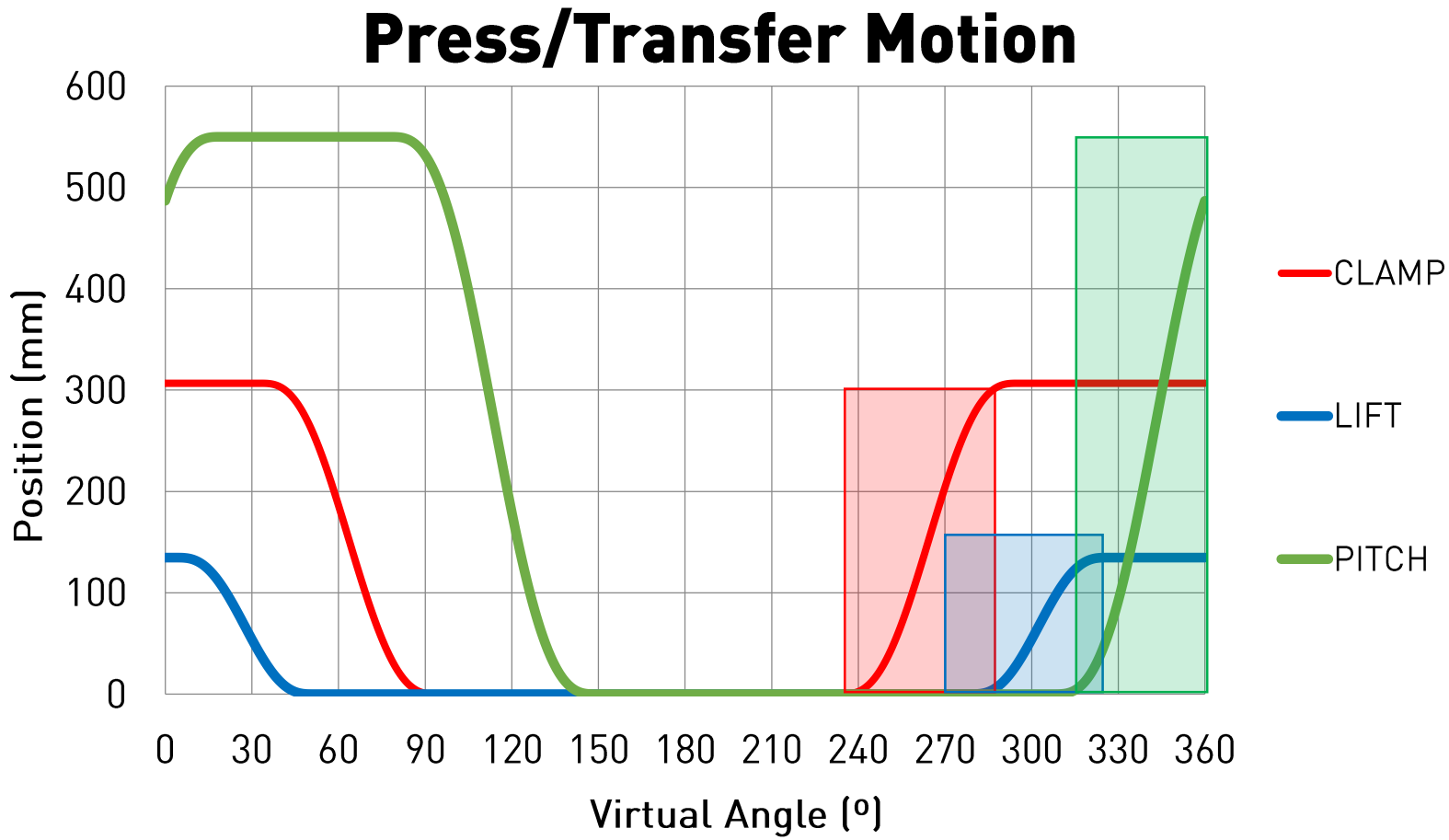

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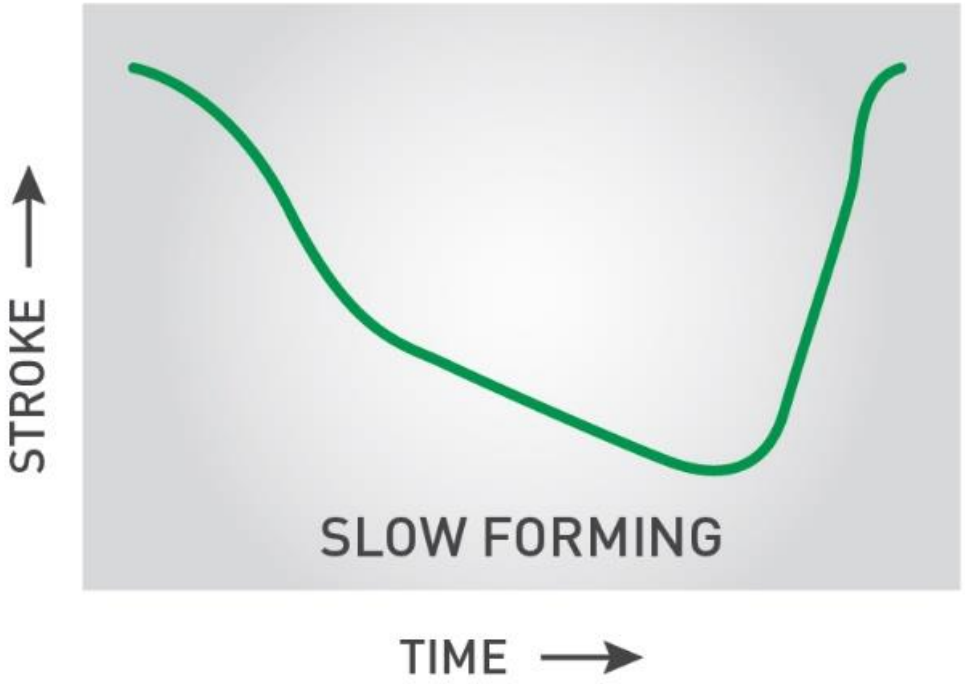
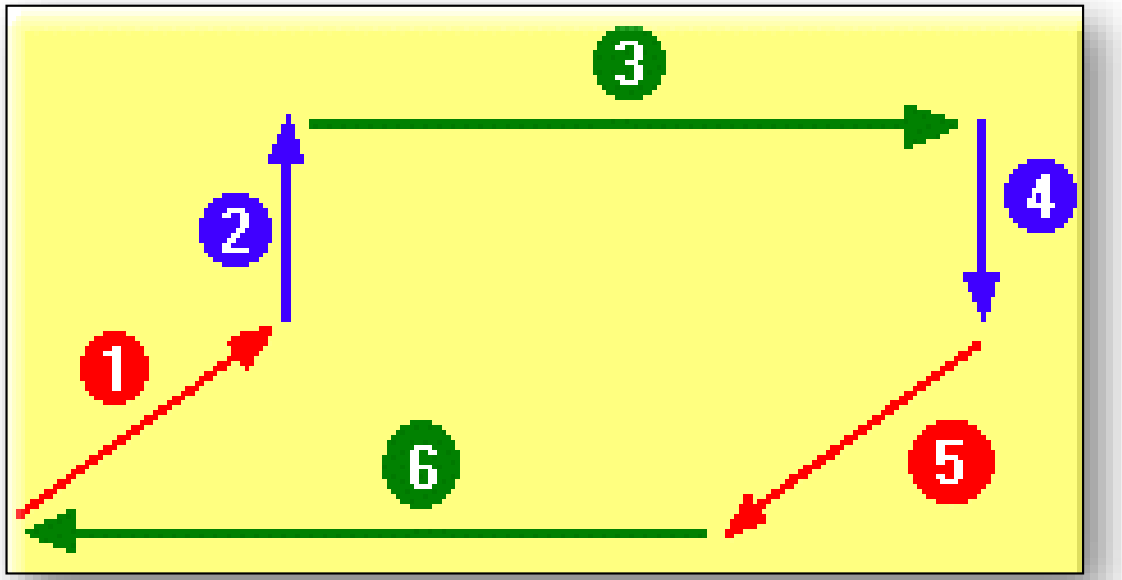
OPTIMIZE AND COUPLE MOTION PROFILES





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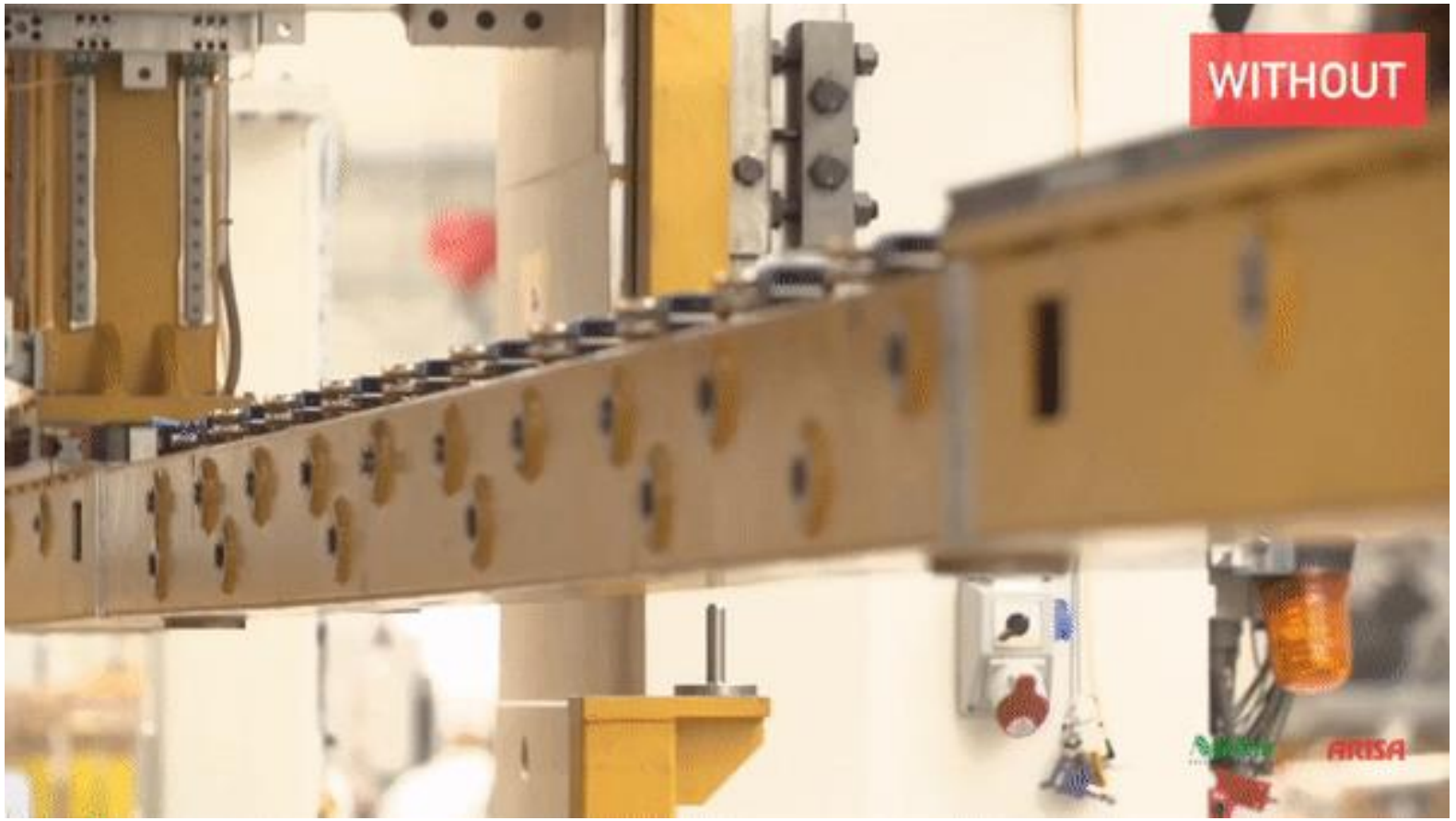
REDUCE TRANSFER BAR VIBRATIONS



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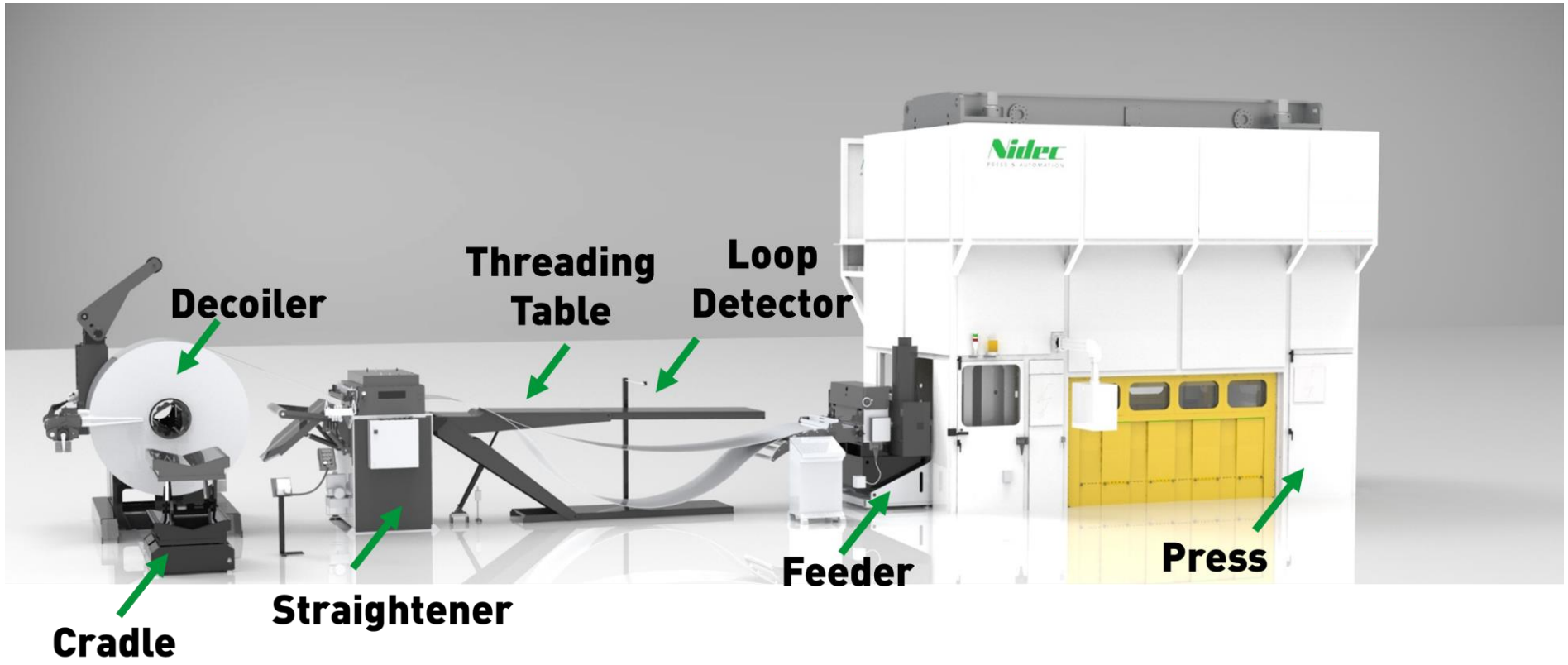
AN INTEGRATED SYSTEM SAVES SETUP TIME



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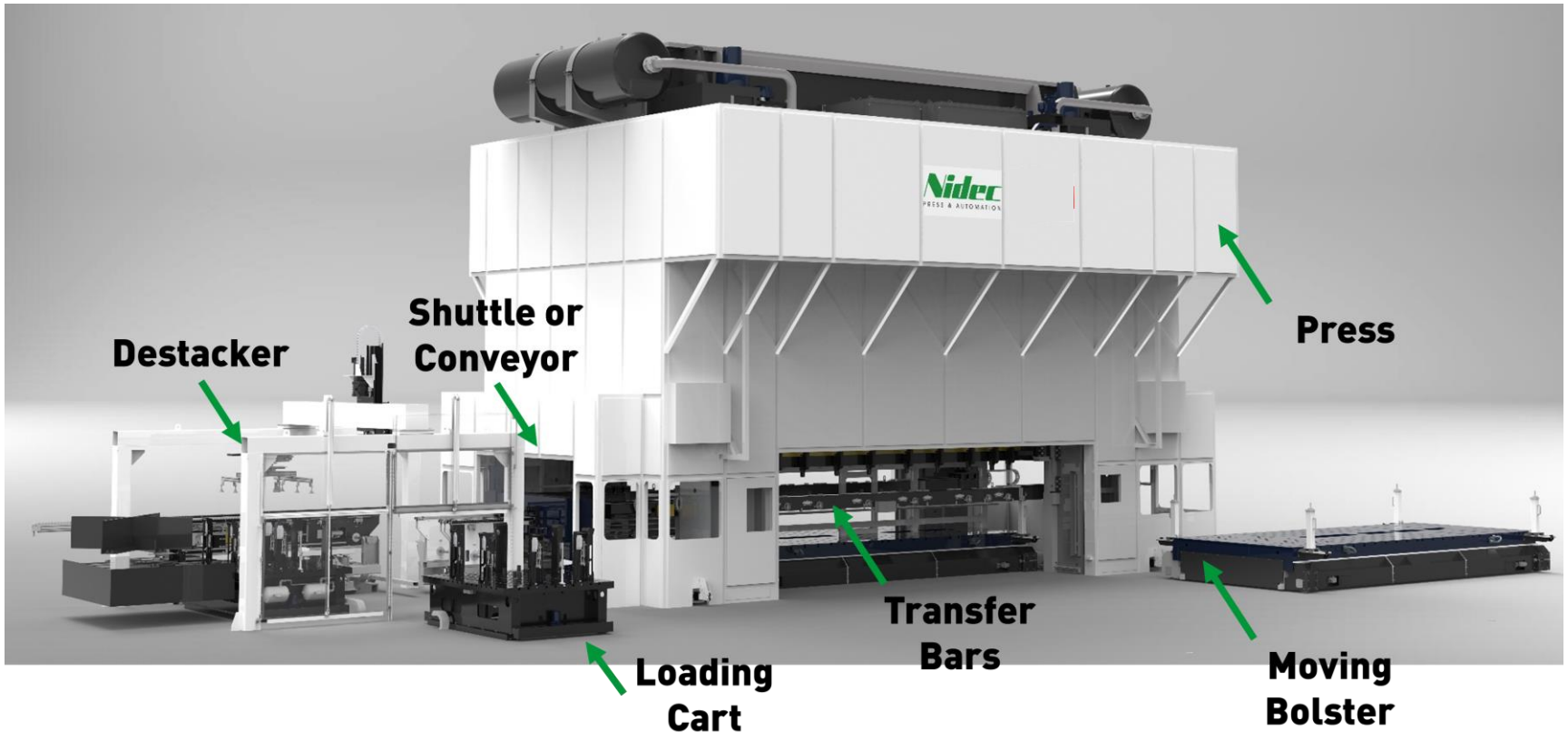
THE MOST IMPORTANT PART IS MISSING



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HUMAN FACTOR