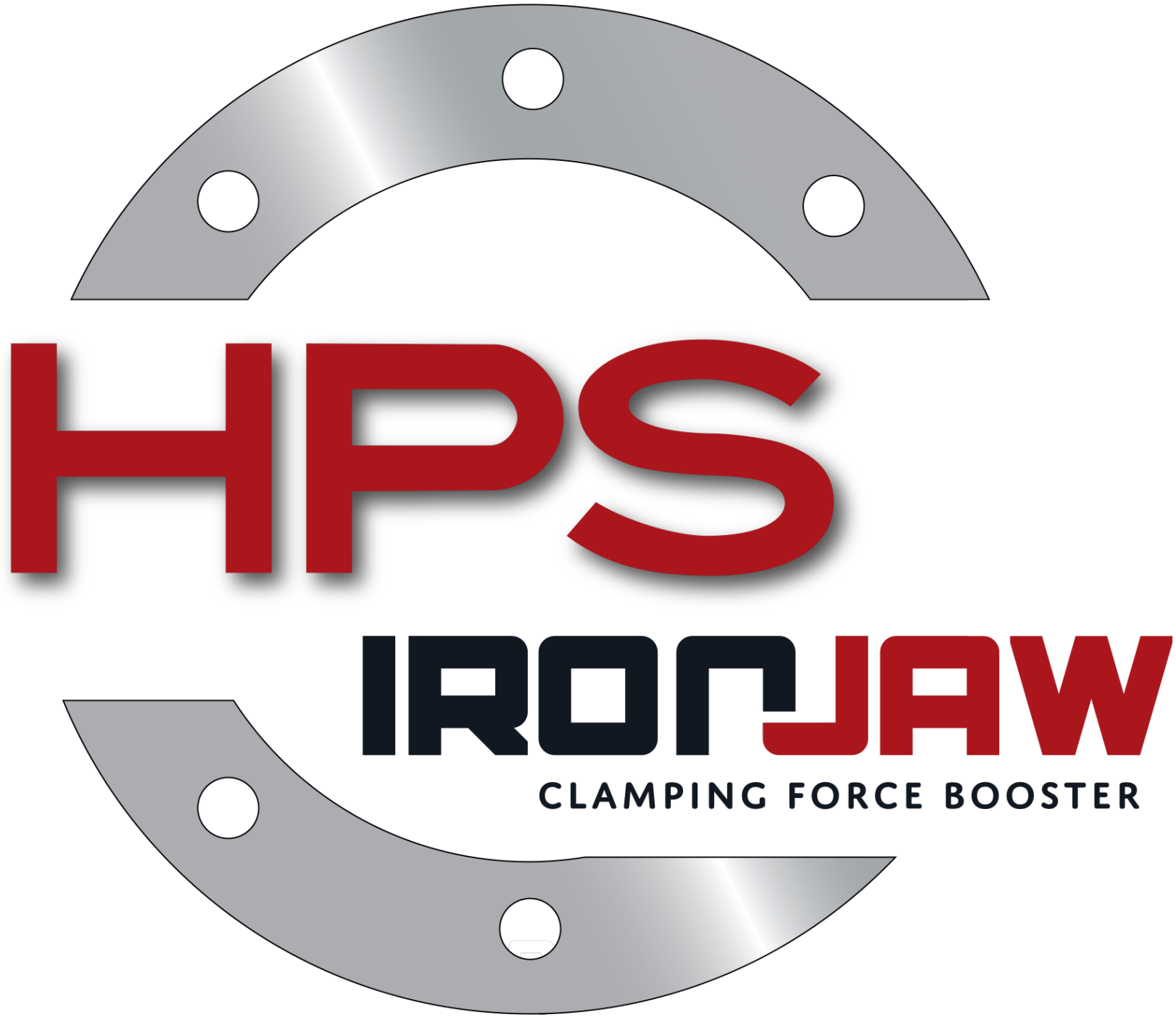
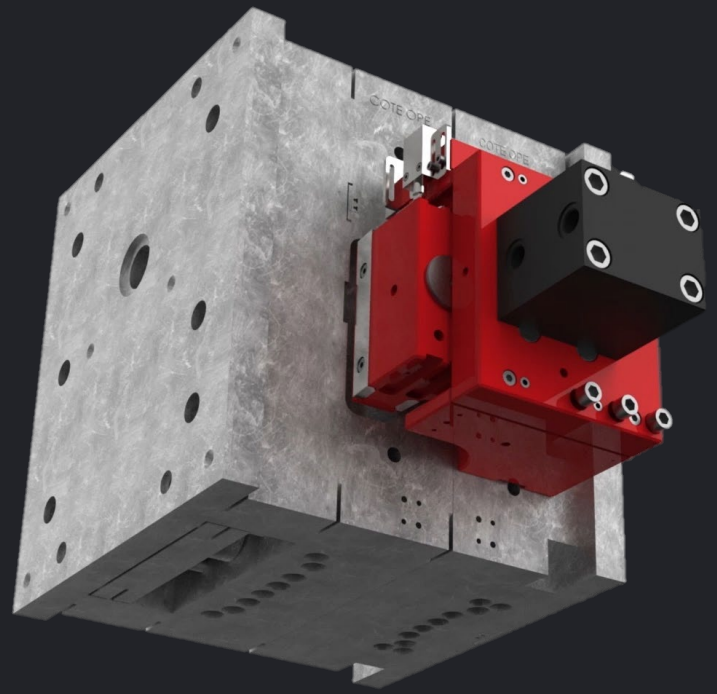

HPS
IRONJAW
CLAMPING FORCE BOOSTER

IRONJAW®

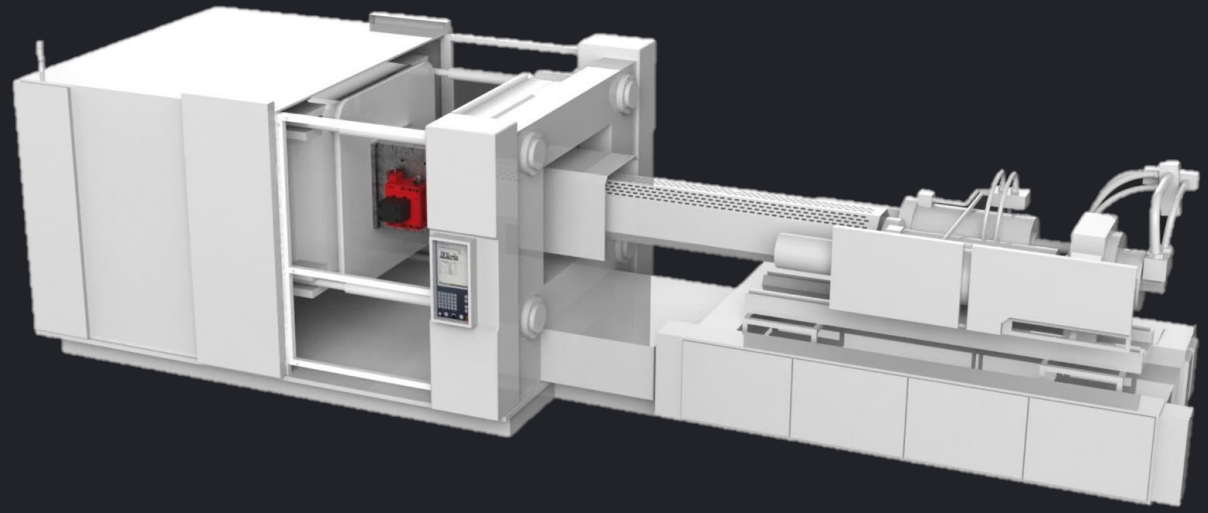
THE FIRST CLAMPING FORCE BOOSTER IN THE WORLD

IRONJAW® BOOSTS THE CLAMPING FORCE IN UP TO +60%

IRONJAW® ALLOWS PLASTIC RAW MATERIAL SAVINGS



It attaches to your Injection Mold



Compatible with all Injection Molding Machines

IRONJAW

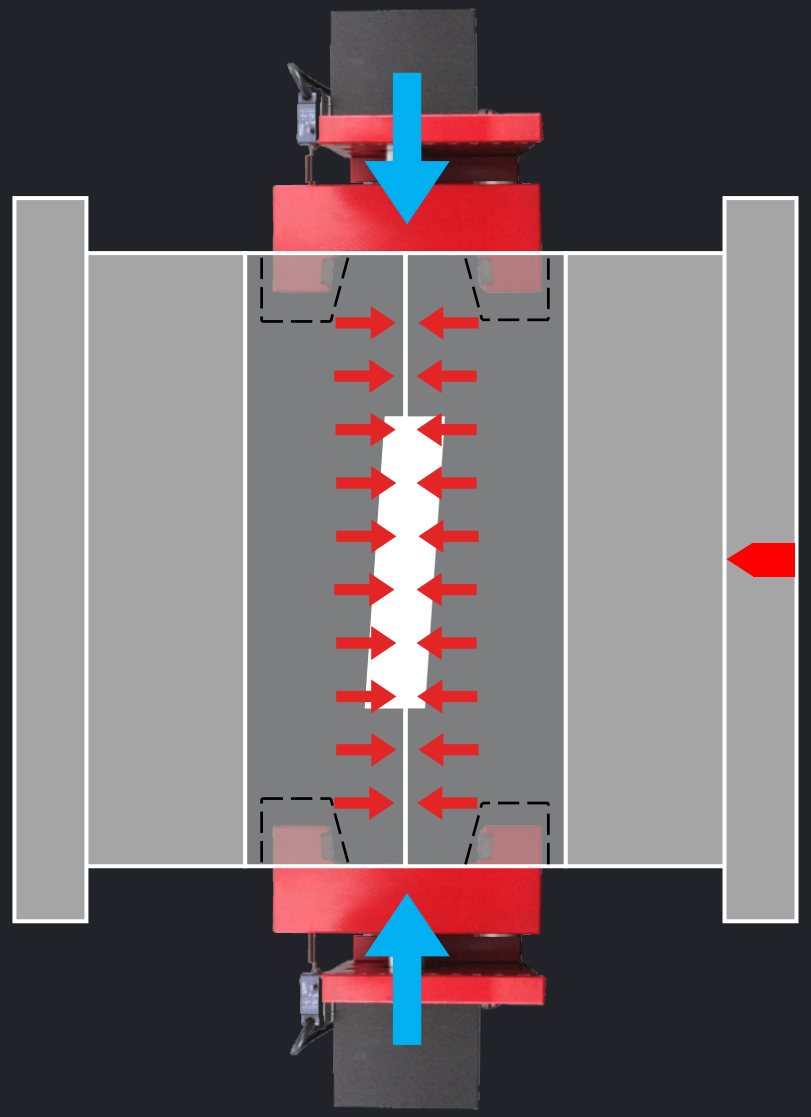
Watch IRONJAW® video:

HOW DOES IRONJAW® WORK?

IRONJAW® GIVES ADDITIONAL CLAMPING FORCE

IRONJAW® PRINCIPLE

- IRONJAW® clamps the tool plates thanks to the notches added on the mold / tool
- IRONJAW® is increasing the mold closing better than the Injection Molding Machine can do as the force is applied straight on the split line
- When pressure will increase in the cavity, IRONJAW® will take part of it, allowing so to increase the global clamping force up to 60% (maximum boost ever done is 4000 ton)

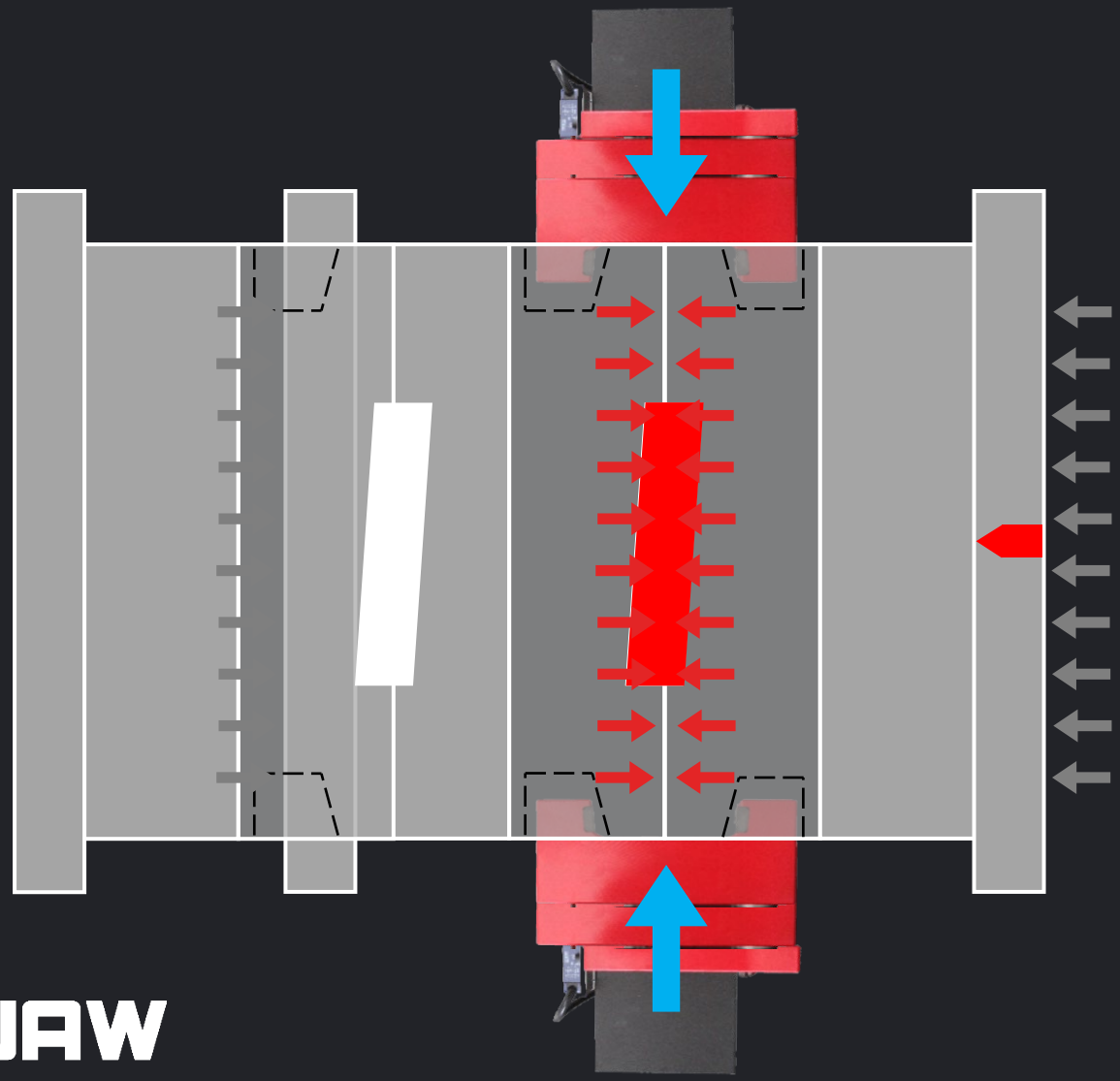


IRONJAW

INSTALLATION – IMM PROGRAM (MOLDING CYCLE)

EXAMPLE OF IRONJAW® INTEGRATION ON IMM INJECTION MOLDING CYCLE

1. Open mold outlet - Ejection output.
2. Retract ejectors.
3. Closure mold.
4. Press lock.
5. IRONJAW® Locking with specific **press program to keep constant pressure throughout its operation** (advanced Jaw control, IRONJAW® in locked position).
6. Holding pressure + Injection.
7. Cooling.
8. IRONJAW® Unlocking with specific **press program to keep constant pressure throughout its operation** (Jaw control back, IRONJAW® in unlocked position).
9. Unlocking press + opening mold.
10. Molded part ejection + Robot part plug.



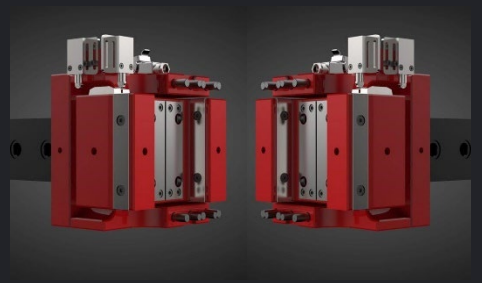
IRONJAW

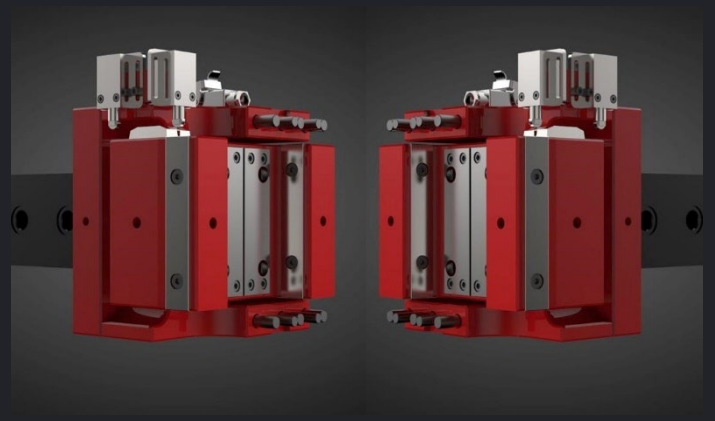
IRONJAW® KITS SIZES

4 DIFFERENT KITS SIZES

S
+ **50** ton

M
+ 100 ton





L
+ **250** ton

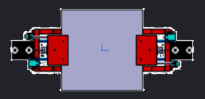
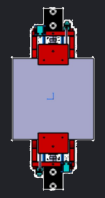
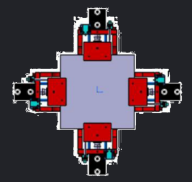
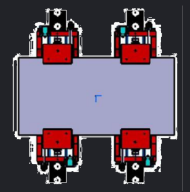
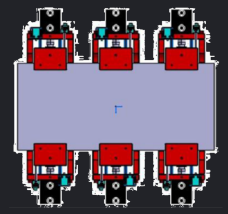
XL
+ **400** ton

1 Kit = 2 IRONJAW® Units

IRONJAW

IRONJAW® IMPLEMENTATION

MODULAR

KIT IRONJAW®	S	S	S	M	L	XL
Kits quantity	1	1	2	2	3	10
Boost by kit	+50 tons	+50 tons	+50 tons	+100 tons	+250 tons	+400 tons
						
BOOST IRONJAW® in tons	+50	+50	+100	+200	+750	+4000

IRONJAW® is interchangeable between different molds and machines

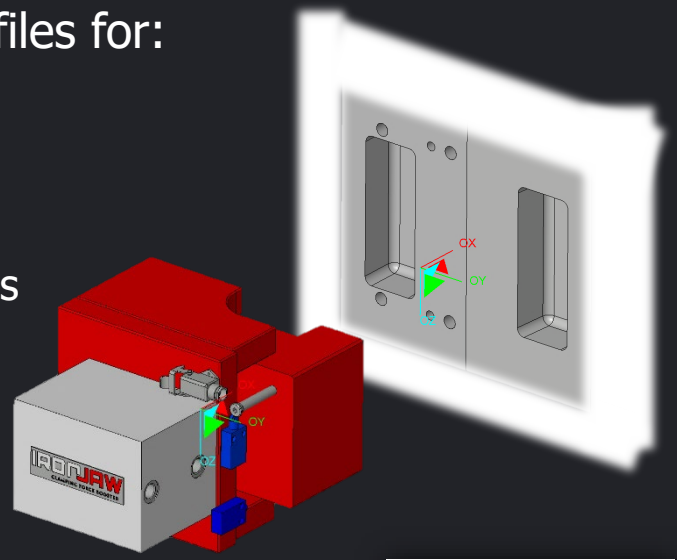
IRONJAW

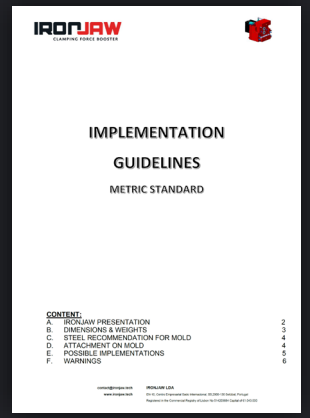
MOLD PREPARATION FOR IRONJAW®

EASY

During mold preparation you will use

- IRONJAW® 3D stp files for:
  - Notches
  - Threaded holes
  - Holes for dowel pins




IRONJAW
CLAMPING FORCE BOOSTER

IMPLEMENTATION

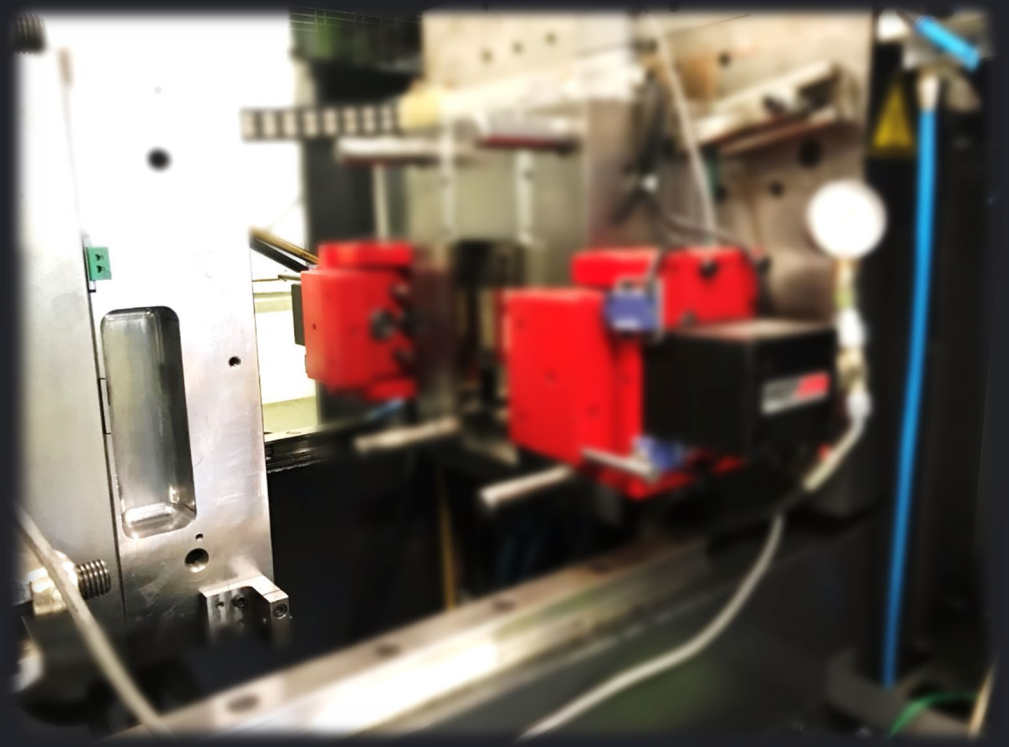
GUIDELINES

METRIC STANDARD

CONTENT:

A.	IRONJAW PRESENTATION	2
B.	DIMENSIONS & WEIGHTS	3
C.	STEEL RECOMMENDATION FOR MOLD	4
D.	ATTACHMENT ON MOLD	4
E.	POSSIBLE IMPLEMENTATIONS	5
F.	WARNINGS	6

- Guidelines for Implementation



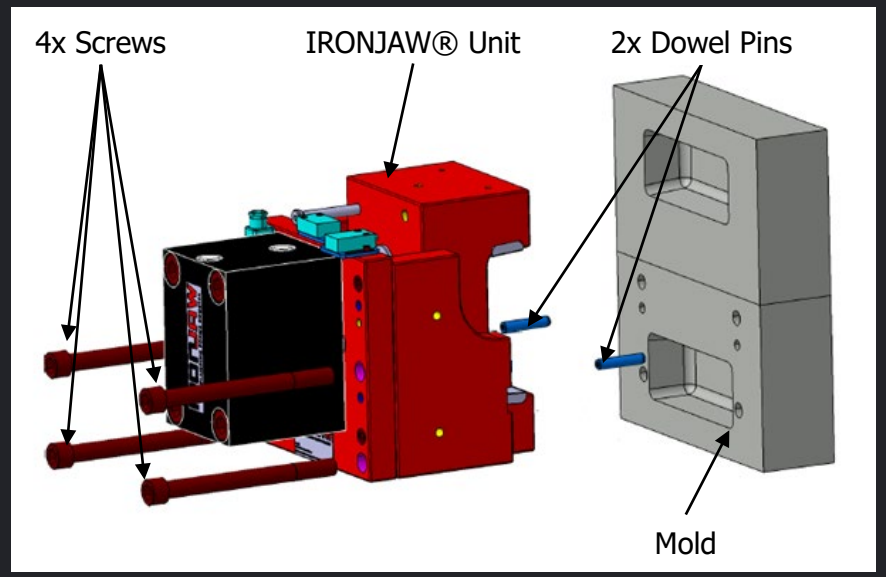
IRONJAW

IRONJAW® INSTALLATION

PLUG & PLAY

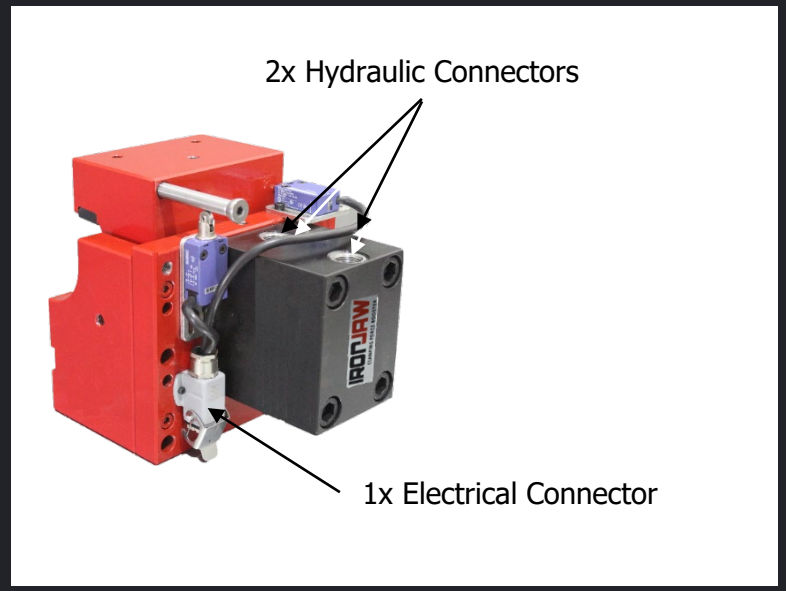
ATTACH

- 4x screws
- 2x dowel pins



CONNECT

- 1x Electrical Connector
- 2x Hydraulic Connectors



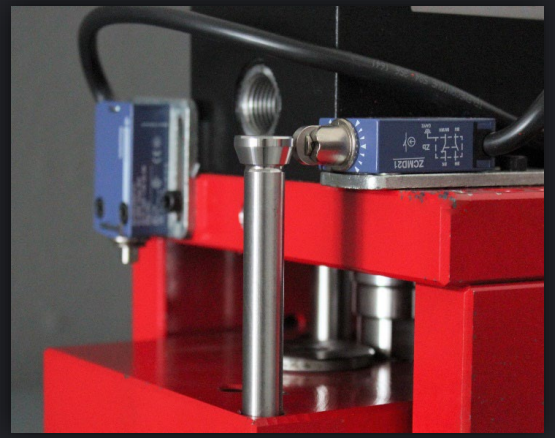
IRONJAW

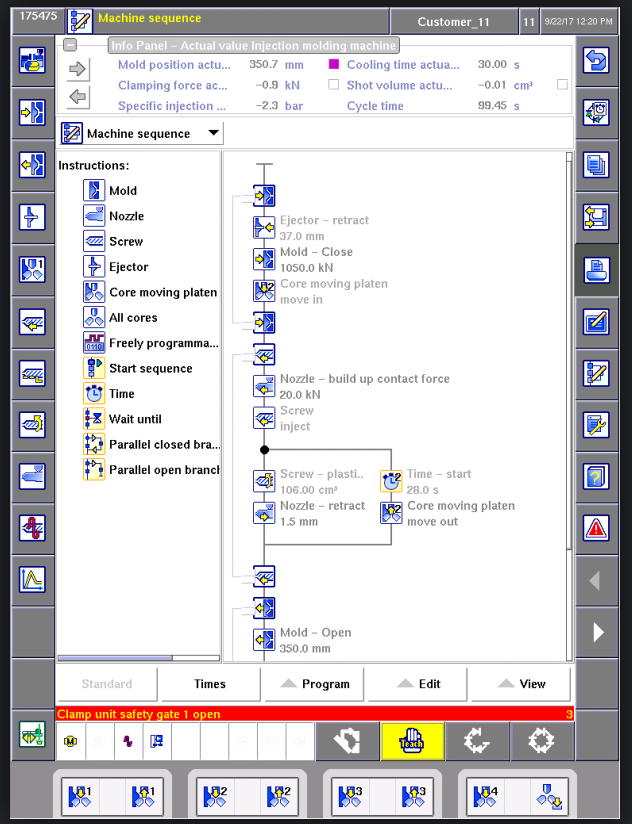
IRONJAW® USE

SIMPLE

PLUG & PLAY

- Connected to the IMM hydraulic lines
- Piloted like an hydraulic mold core
  - Position Signal: 2x Microswitches





NO MAINTENANCE

IRONJAW

BENEFITS OF IRONJAW®

REDUCE INVESTMENTS

CAPITAL

Save 60% on your investment budget

Access to new businesses

Save 60% on your expansion projects

Build simpler and cheaper molds

REDUCE YOUR INVESTMENTS

- Buy smaller new IMM than conventionally required
- Produce bigger parts with your current machines
- Increase the maximum available tonnage of your injection plant by 60%
- Build smaller infrastructures
- Dismiss hot runners or sequential injection systems

IRONJAW

BENEFITS OF IRONJAW®

REDUCES PRODUCTION COSTS

OPERATIONS

Plastic Raw Material Savings

Save €10.000 / month / IMM

Increase your Turnover

Reduce your costs

REDUCE YOUR PRODUCTION COSTS

- Better mold closing = smaller thickness
- Design parts with smaller thicknesses
- Downgrade your resins = cheaper with higher viscosity
- Use your molds with smaller Injection Molding Machines at Lower Hourly Rates
- Increase number of cavities of your tools
- Do not limit your Injection Speed (increase your injection speed)
- Less Energy Consumption
- Lower Maintenance Costs

IRONJAW

BENEFITS OF IRONJAW®

IMPROVE YOUR PERFORMANCE

OTHER INTERESTS	IMPROVE YOUR PERFORMANCE
Quality	• Flash killer
Technical	• Allow non symmetrical injection (2K parts, unconventional geometries, family parts, hybrid parts, …)
Lightweight	• Reduce part thicknesses
Interchangeability	• Multi-molds and multi-IMM

IRONJAW

BENEFITS OF IRONJAW®

MONEY SAVER

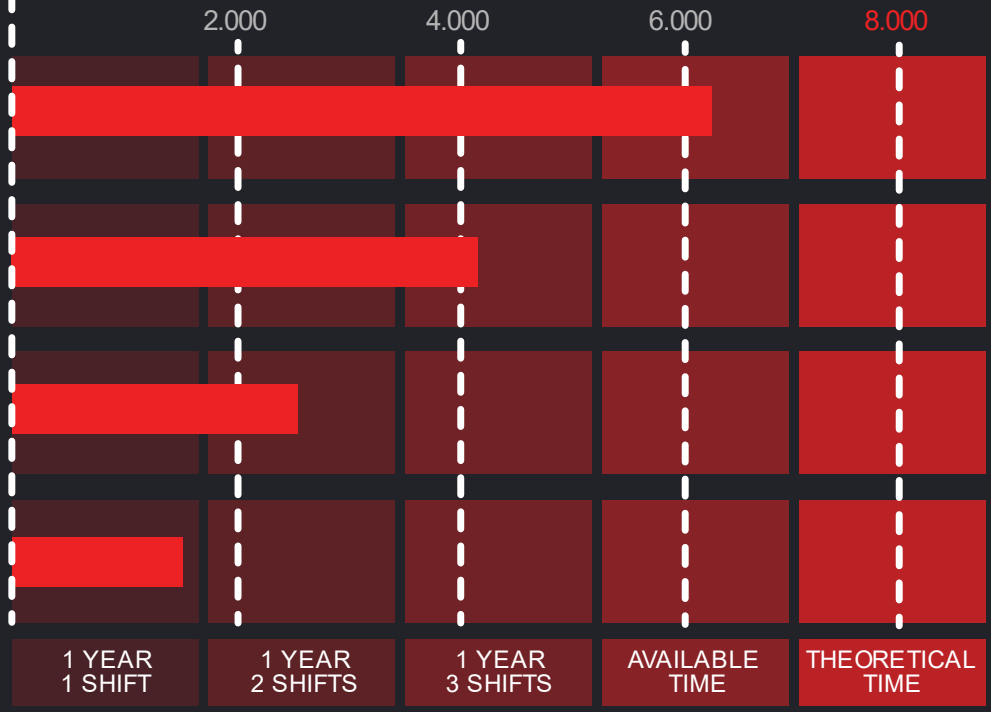
IRONJAW® is available in

4 different standard kit sizes

S	+50 tons
M	+100 tons
L	+250 tons
XL	+400 tons

Typical IRONJAW® ROI / Kit Size

in hours



R.O.I. IN UNDER 12 MONTHS

Average R.O.I. = 6 MONTHS

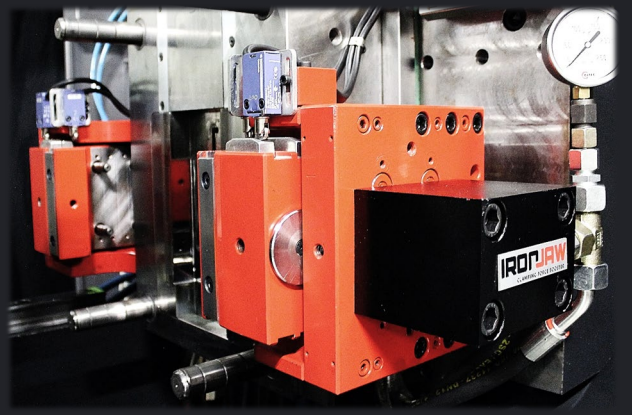
IRONJAW

IRONJAW® DEMOS

WE SHOW IN LIVE IRONJAW® EFFICIENCY

IN PARTNERSHIP WITH ROCTOOL

- Private demonstrations on request
- Place : Le Bourget du Lac (France - 1 hour from Geneva)
- 160 tons press with mold equipped with IRONJAW® kit **S** (+50 tons)



IN PARTNERSHIP WITH Chris-France Plastique

- Private Visits on request
- Place : Oyonnax (France – 1 hour from Geneva)
- 1800 tons press with mold equipped with IRONJAW® kit **XL** (+400 tons)

IRONJAW

IRONJAW® DEMOS

WE SHOW IN LIVE IRONJAW® EFFICIENCY

1. MOLD RUNNING IN CYCLE

- Injection machine [160 tons];
- Initial clamping force setting = 160 tons
- 1 IRONJAW® S Kit installed but not activated

2. DECREASE CLAMPING FORCE

- – 10 tons steps (from 160 to 110)

Observe

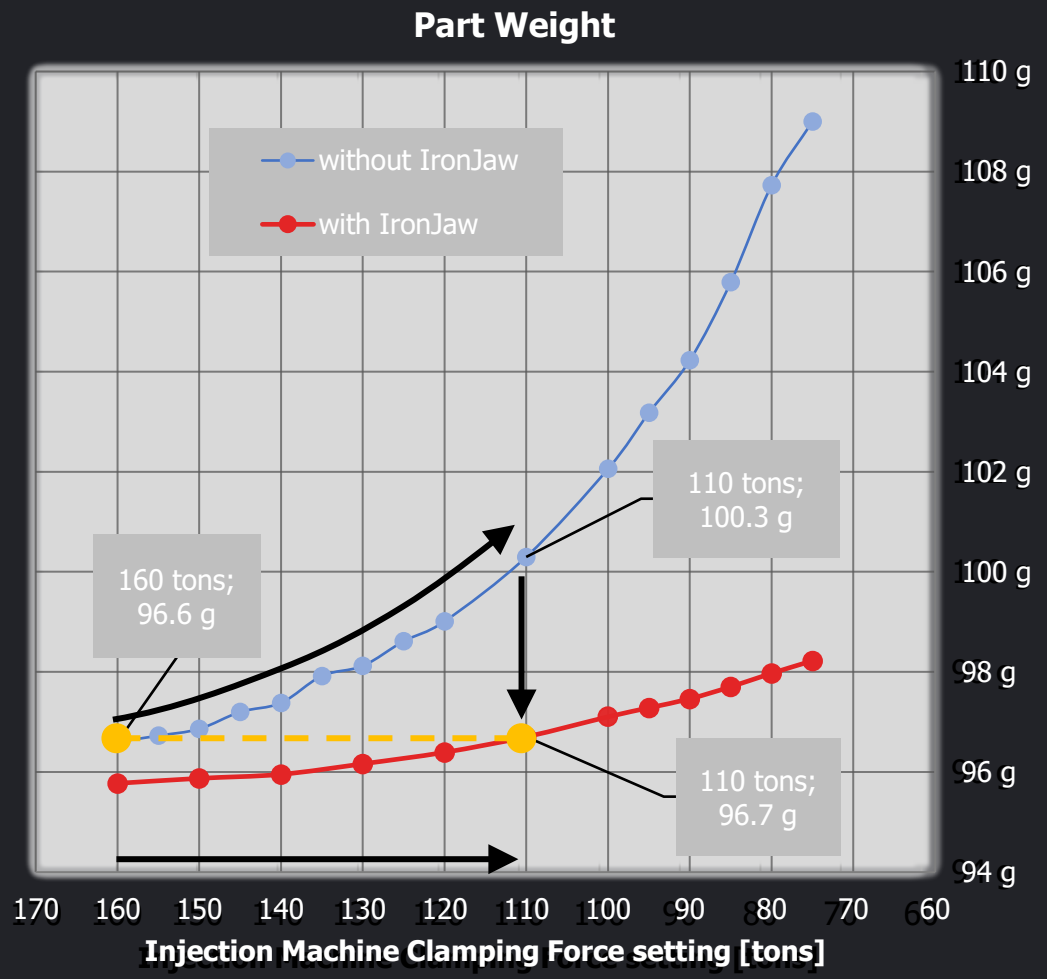
- Progressive thickness & weight increase (blue trend)
- Flash appeared

3. ACTIVATE IRONJAW®

- + 50 tons boost
- Injection machine setting untouched

Observe

- Thickness & weight restored (red trend)
- Flash eliminated



IRONJAW

IRONJAW® DEMOS

WE SHOW IN LIVE IRONJAW® EFFICIENCY

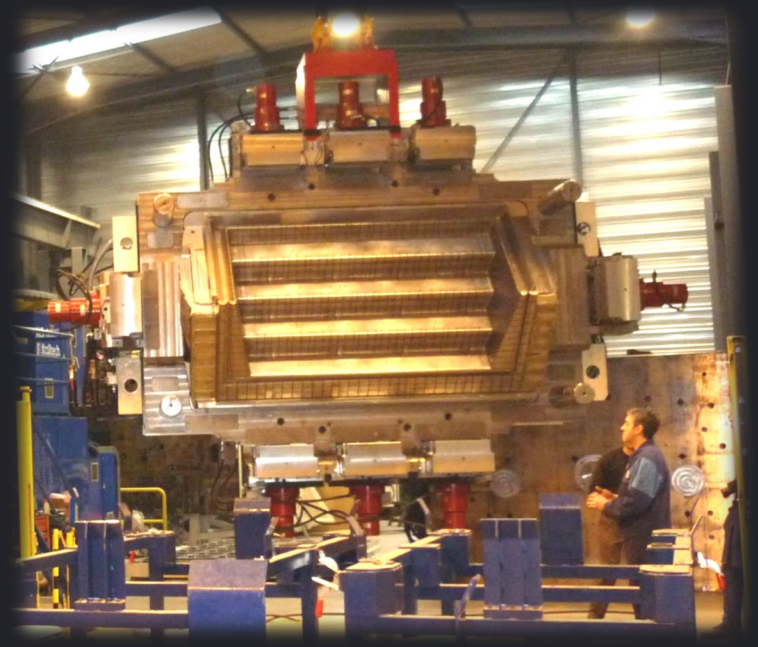
FLASHES REMOVAL

- **Part without IRONJAW®**
  - Clamping Force applied: 100 Ton
  - Part weight: 105,25 g
  - Huge Flashes
- **Part with IRONJAW® S + 50 ton**
  - Clamping Force applied: 100 Ton + 50 Ton of boost with IRONJAW® S
  - Same injection parameters
  - Part weight: 97,67 g (**-7%**)
  - **No Flash**

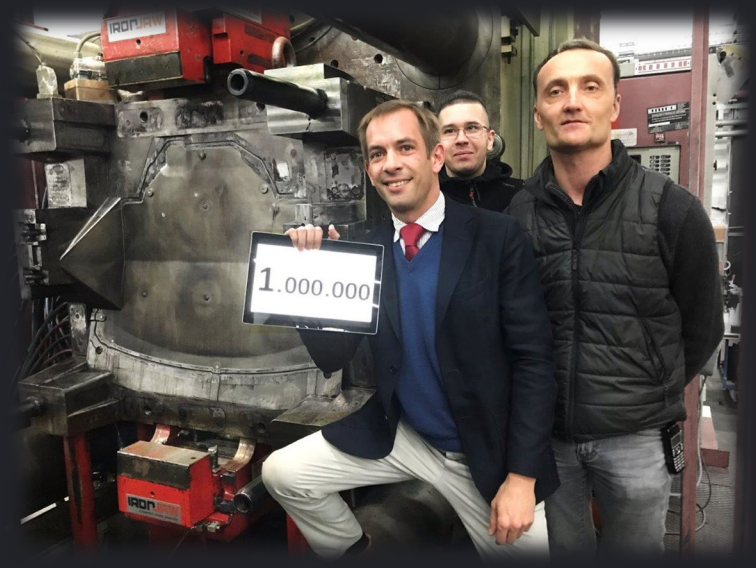
IRONJAW

IRONJAW® FACTS

ACHIEVEMENTS | TESTEMONIALS



Largest IRONJAW® boost ever | +4000 ton



1.000.000-shot IRONJAW® | +400 ton

"The IRONJAW® technology has lived up to its promise of boosting power and reliability.
The Return On Investment is excellent"

Regis Morand
CEO, Chris-France Plastique

"It's the only real big news in molding technologies in years.
This is why I invested in IRONJAW®"

Alex Guichard
Co-Founder and Board Member, IRONJAW
Founder and CEO, Revology
Founder, RocTool

IRONJAW

IRONJAW® FACTS

ACHIEVEMENTS | TESTEMONIALS

Part without IRONJAW®

- IMM Clamping Force in Production: 1300 Ton – Part OK
- IMM Clamping Force reduced to 900 Ton - Part KO with flashes and lacks of plastic

900T

Pièce KO

Part with IRONJAW®

- Clamping Force applied by IMM: 900 Ton
- Boost applied: 250 Ton with 1 IRONJAW® L Kit
- Result: **NO FLASH – PART FULLY INJECTED**

900T+250T

Pièce OK

With the kind authorization of GSK Auto Parts

IRONJAW

CUSTOMER SUPPORT

WE ASSIST AT EACH STAGE

- **ECONOMICAL STUDY**
    - Potential production savings calculation with IRONJAW®
- **IRONJAW® IMPLEMENTATION**
    - Implementation feasibility study in mold
    - 3D step files provided with Implementation Guide Line
    - Design Validation
- **IRONJAW® TEST**
    - Private demos
    - Test in converter condition in your own facility through conditional sale
    - Test Protocol provided
    - Presence on converter site for support

IRONJAW

CUSTOMER SUPPORT

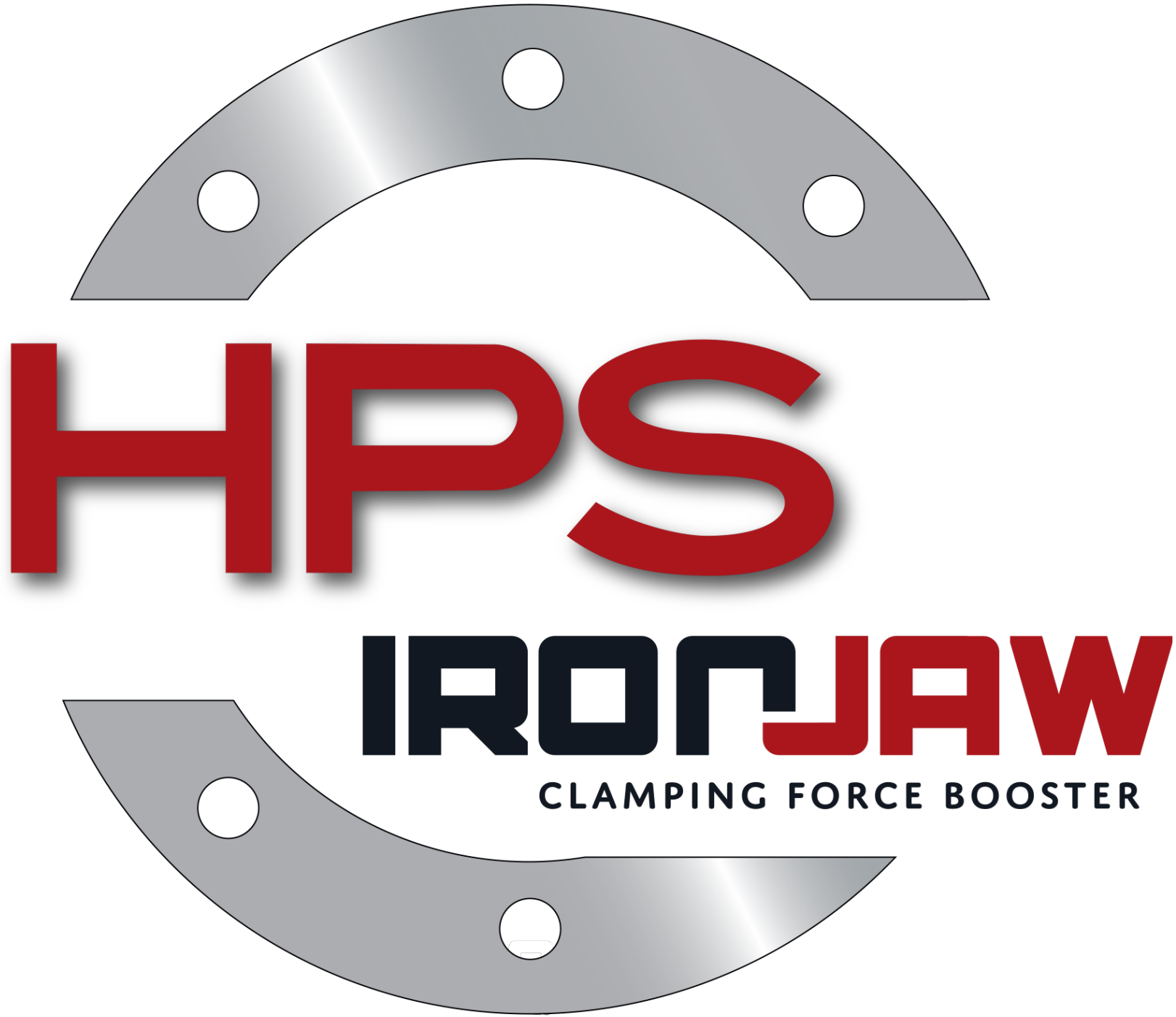
WE ASSIST AT EACH STAGE

- **IRONJAW® INSTALLATION**
  - Installation & Use Guide Line provided
  - Assistance & Training
  - Presence on site for installation on mold
  - Presence on site for injection machine set up and first try-out
- **IRONJAW® DEPLOYMENT**
  - Design office training
  - Mold design validation
- **AFTER SALES**
  - No maintenance required
  - In case of damage, spare parts available in each country through distributors
  - Parts manual provided
  - Repair kit available

IRONJAW

IRONJAW

IRONJAW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