FORGING AND EXTRUSION PRESSES

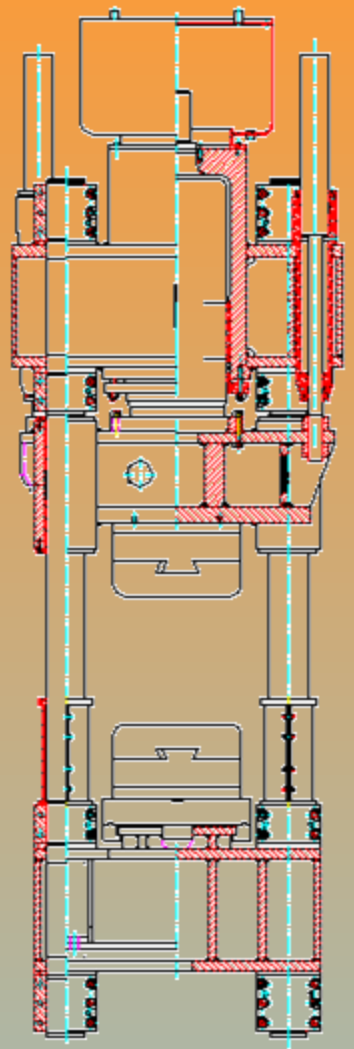
CARCO®
Large diameter seals and packings

BIG HYDRAULIC PRESSES HAVE A VERY LONG LIFE, SOMETIMES MORE THAN 50 YEARS.

THEY FORGE AND EXTRUDE:
- STEEL
- ALUMINIUM
- COPPER
- BRASS
- BRONZE

OLD PRESSES ARE WATER-OPERATED, RECENT PRESSES ARE OIL-OPERATED. PRESSURE IS 250-300 BAR.

NO LEAKAGE IS ADMITTED.
HEAVY OIL LEAKAGE REACHING THE HOT FORGING CAN CAUSE A FIRE.



FORGING PRESSES ARE VERTICAL AND HAVE ONE OR MORE MAIN RAMS.

MAIN RAMS ARE PLUNGER CYLINDERS WITH ROD SEAL.

ROD SEAL IS A VEE-PACKING MADE OF FABRIC RUBBER (NITRILE + COTTON).

FORGING PRESSES HAVE SIDE CYLINDERS TO LIFT THE PRESS AFTER FORGING DOWNSTROKE.

SIDE CYLINDERS USUALLY HAVE VEE-PACKINGS OR COMPOSITE SEALS ON PISTON AND PISTON ROD.

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VEE-PACKING LIFE IS CRITICAL IN <u>OPEN DYE FORGING</u> PRESSES.

DUE TO WEAR OF BRONZE BUSHING AND IRREGULAR SHAPE OF FORGING, DURING FORGING DOWNSTROKE THE MAIN RAM TENDS TO MISALIGN AND VEE-PACKING GETS STRONG LATERAL THRUST AND SHOCK LOADS.

THE CLEARANCE BETWEEN RAM AND GLAND RING GETS LARGER WITH RISK OF VEE-PACKING EXTRUSION.

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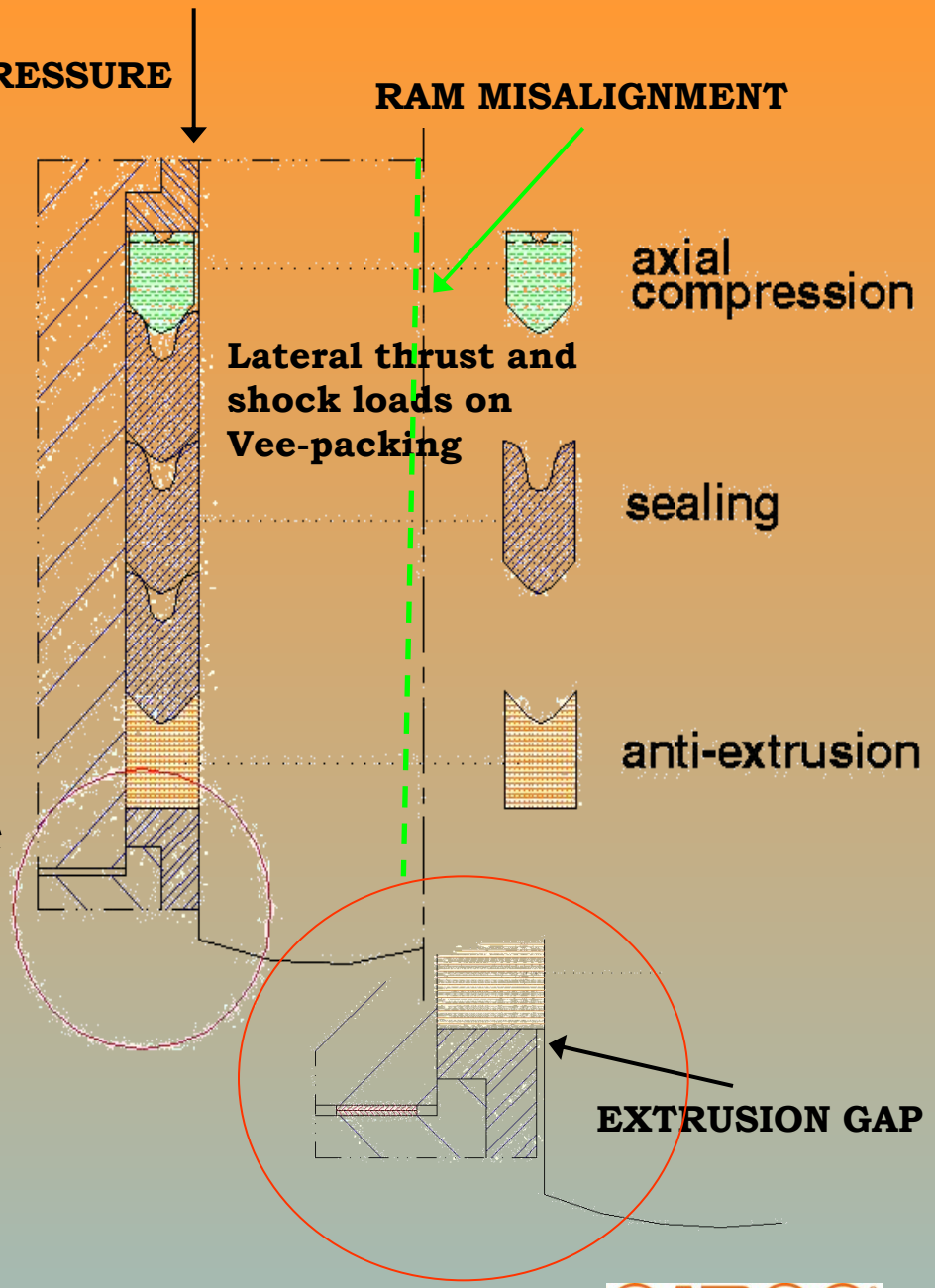
VEE-PACKING FAILURE MEANS PRESS DOWNTIME.

IT TAKES ABOUT 1 DAY TO REPLACE THE MAIN RAM VEE-PACKING.

DUE TO DIRTY ENVIRONMENT, RAM SURFACE IS USUALLY ROUGH AND SCRATCHED, CAUSING VEE-PACKING LIFE TO BE SHORTER.

VEE-PACKING HAS TO BE EXTREMELY ROBUST TO WITHSTAND THESE VERY SEVERE WORKING CONDITIONS.



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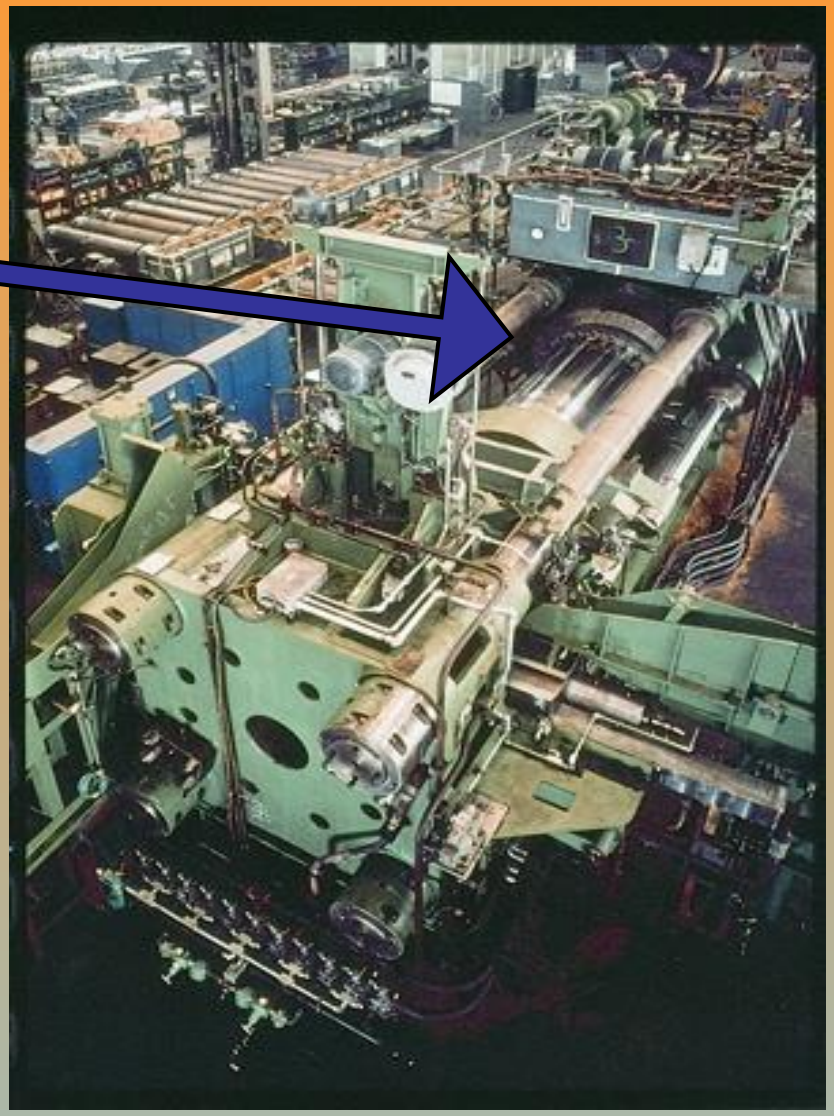
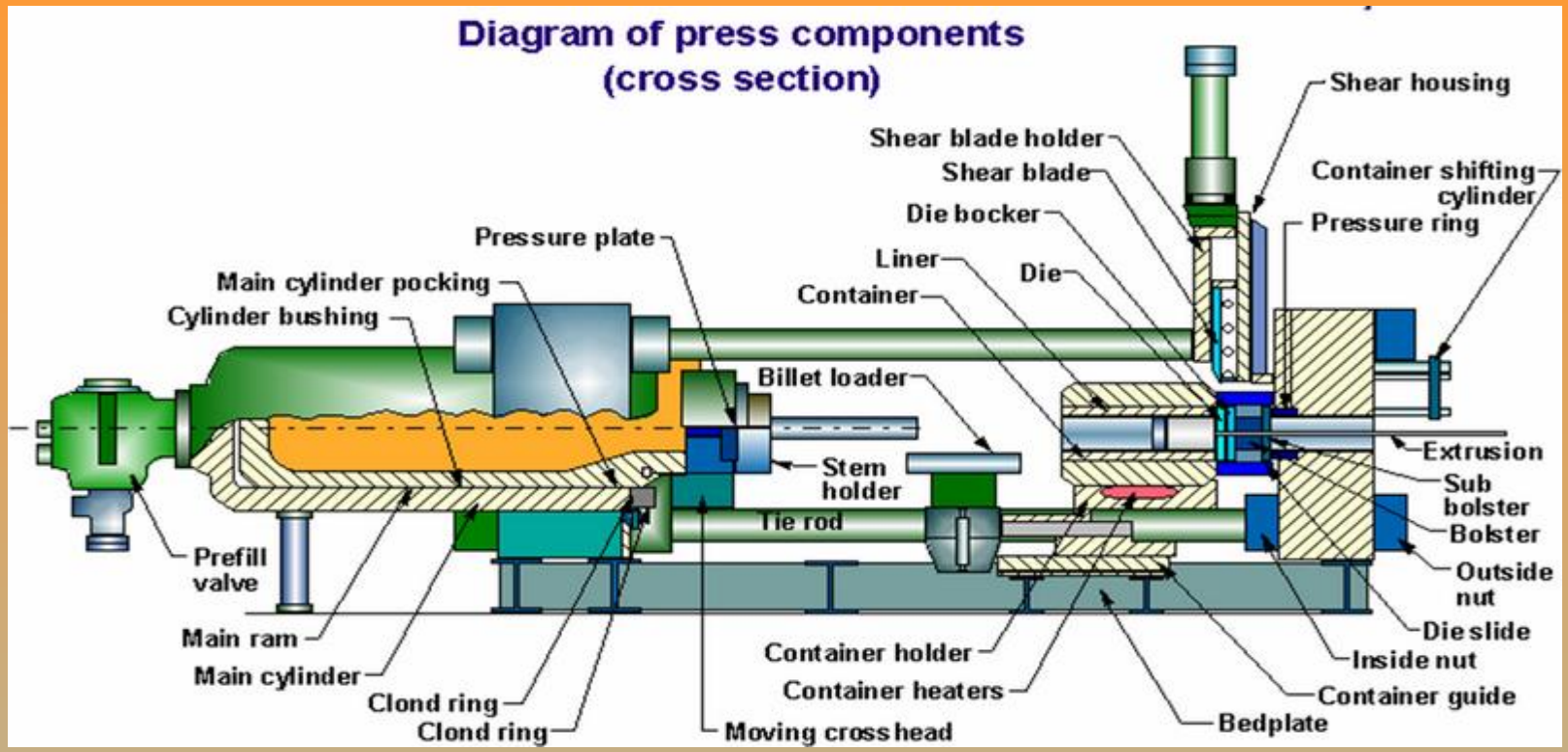
EXTRUSION PRESSES ARE HORIZONTAL AND HAVE ONE MAIN RAM.



MAIN RAM PUSHES A HOT CYLINDRICAL BILLET OF ALUMINIUM (OR OTHER METAL) THROUGH A SHAPED DIE.

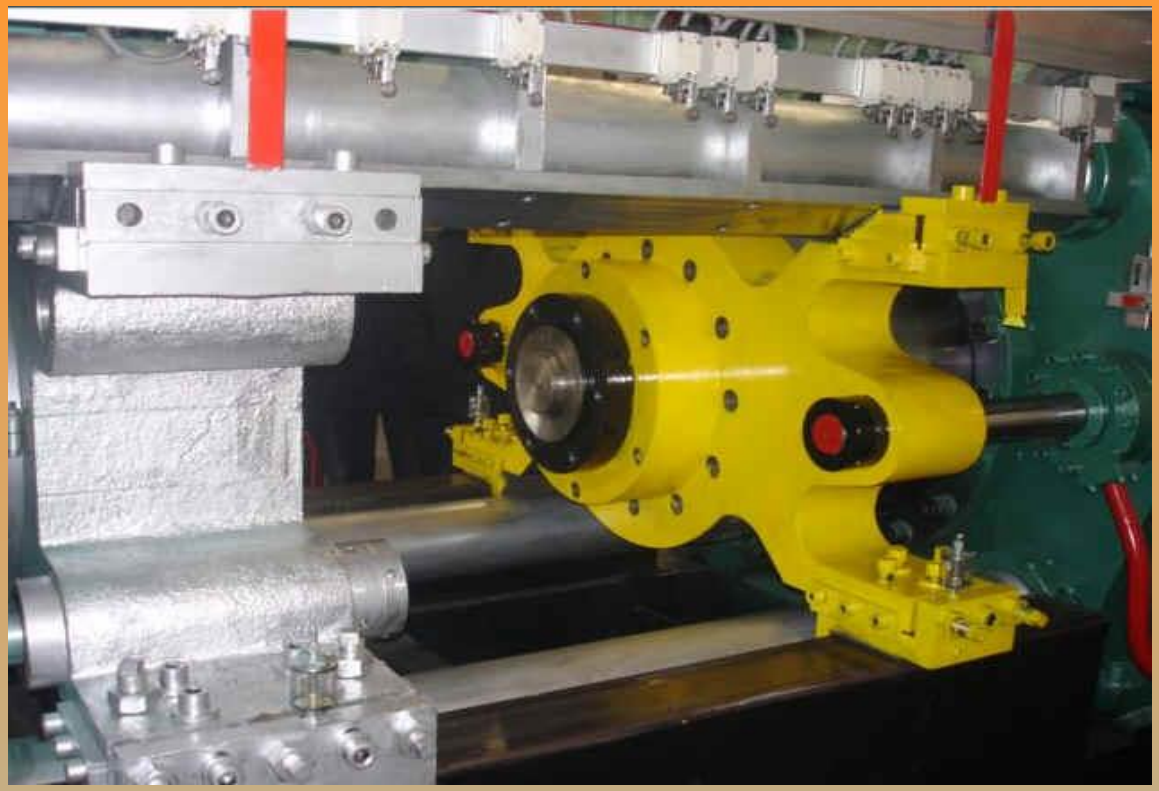
MAIN RAM IS A PLUNGER CYLINDER WITH ROD SEAL. ROD SEAL IS A VEE-PACKING MADE OF FABRIC RUBBER (NITRILE + COTTON).



EXTRUSION PRESSES HAVE PULL-BACK CYLINDERS TO PULL THE MAIN RAM AFTER EXTRUSION STROKE.

THERE ARE ALSO CONTAINER CYLINDERS KEEPING THE DIE IN CORRECT POSITION.

THESE CYLINDERS CAN BE SINGLE OR DOUBLE EFFECT AND SEALS ARE VEE-PACKINGS OR COMPOSITE SEALS.



MAIN RAM CAN MISALIGN DURING ALUMINIUM EXTRUSION DUE TO WEAR OF BRONZE BUSHING.

THE CLEARANCE AROUND THE MAIN RAM WILL BE MAXIMUM ON TOP AND ZERO ON BOTTOM AS MAIN RAM LOWERS DUE TO GRAVITY.

ABOVE WORKING CONDITIONS AFFECT HEAVILY THE LIFE OF THE VEE-PACKING.

CARCO STARTED SUPPLYING LARGE VEE-PACKINGS FOR BIG PRESSES MORE THAN 30 YEARS AGO.

NORTH OF ITALY MEANS A LONG TRADITION IN METAL FORGING AND METAL EXTRUSION WITH A LARGE NUMBER OF HYDRAULIC PRESSES.

SOME OF THEM ARE VERY OLD WITH PLENTY OF PROBLEMS; IN THE WORST CASES THE LIFE OF VEE-PACKING WAS NOT MORE THAN A FEW WEEKS, CAUSING FREQUENT PRESS STOPS, PRODUCTION LOSS AND HIGH COSTS.

PRESS REVAMPING IS EXPENSIVE AND REQUIRES WEEKS.

THE SOLUTION WAS THE SUPPLY OF OUR CARCOTEX/SP VEE-PACKINGS, GIVING THE CUSTOMER THE CHANCE TO FORGE AND EXTRUDE FOR MUCH LONGER TIME WITHOUT BREAKS AND POSTPONE PRESS REVAMPING FOR YEARS.

OUR EXPERTISE ENABLE US TO RECOMMEND A VARIETY OF CUSTOMIZED SOLUTIONS WITH CARCOTEX/SP DEPENDING ON PRESS CONDITIONS.

COMBINING EXPERTISE AND QUICK DELIVERY TIME, CARCO IS THE WORLDWIDE LEADING MANUFACTURER OF LARGE VEE-PACKINGS FOR BIG HYDRAULIC PRESSES.

CARCOTEX/SP VEE-PACKING FOR MAIN RAM

- ***GREEN MALE RING MADE OF HARD RUBBER – EASY MACHINING FOR ANY STACK HEIGHT – RADIAL AND CIRCUMFERENTIAL GROOVES FOR HOMOGENEOUS PRESSURE DISTRIBUTION***
- ***FABRIC RUBBER INTERMEDIATE RINGS MANUFACTURED WITH FIRST QUALITY RAW MATERIALS AND VULCANIZED ACCURATELY TO AVOID SHRINKAGE.***
- ***FEMALE RING MADE OF THICKER FABRIC RUBBER AND EXTRA REINFORCEMENT IN KEVLAR FIBRE TO PREVENT EXTRUSION IN CASE OF LARGE CLEARANCE.***

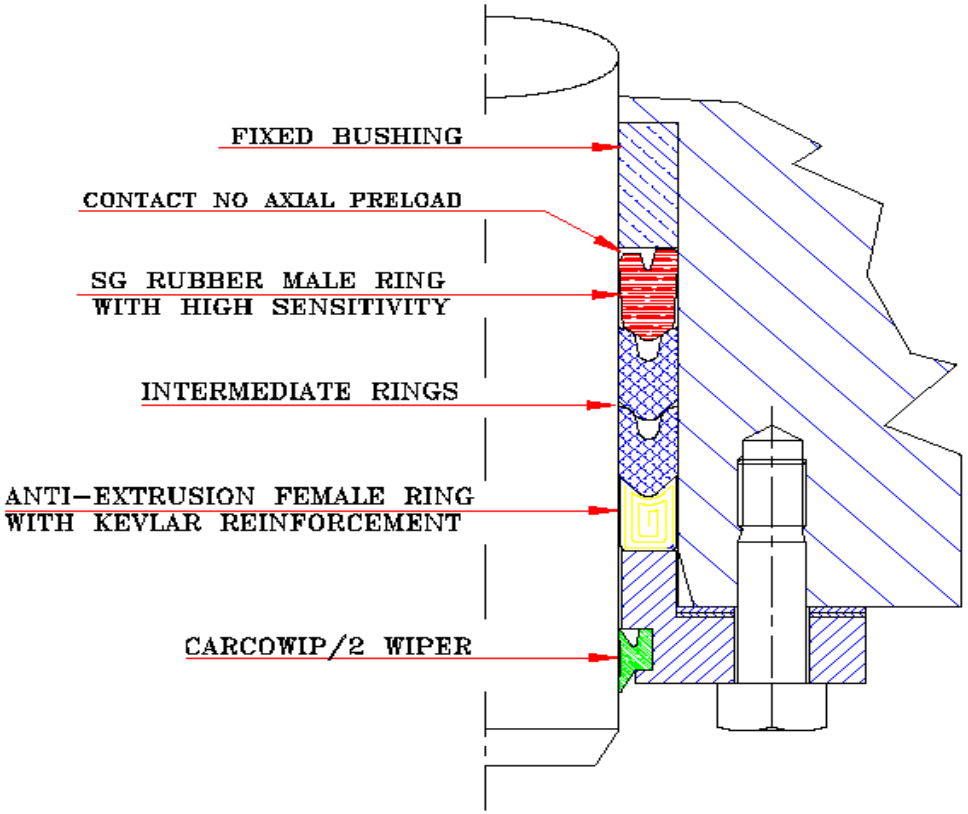
CARCOTEX/SP IS FITTED WITH AXIAL PRELOAD

- ***FEMALE RING IS AVAILABLE ALSO IN NYLON TO GET THE BEST EXTRUSION RESISTANCE.***
- ***EXTREMELY LARGE CLEARANCE IN OLD PRESSES REQUIRES A SPECIAL NYLON FEMALE RING: SELF-ALIGNING TYPE (SA).***
- ***CARCOTEX/SP VEE-PACKINGS ARE USUALLY SUPPLIED SPLIT – INTERMEDIATE RINGS HAVE THE TYPICAL OVERLENGHT TO CLOSE THE 45° CUT WITH COMPRESSION.***

CARCOTEX/SP IS SUPPLIED READY FOR FITTING, NO CUT ON SITE.

THIS IS POSSIBLE THANKS TO NO <u>SHRINKAGE</u> OF FABRIC.

CARCOTEX/SP/SG VEE-PACKING FOR MAIN RAM



CARCOTEX/SP/SG IS RECOMMEDED FOR:

- PRESSURE CYCLES
- VERY LARGE RAM MISALIGNMENT
- BAD SURFACE ROUGHNESS WITH SCRATCHES
- ASYMMETRIC MALE RING PROFILE FOR CORRECT PRESSURE ENERGIZING

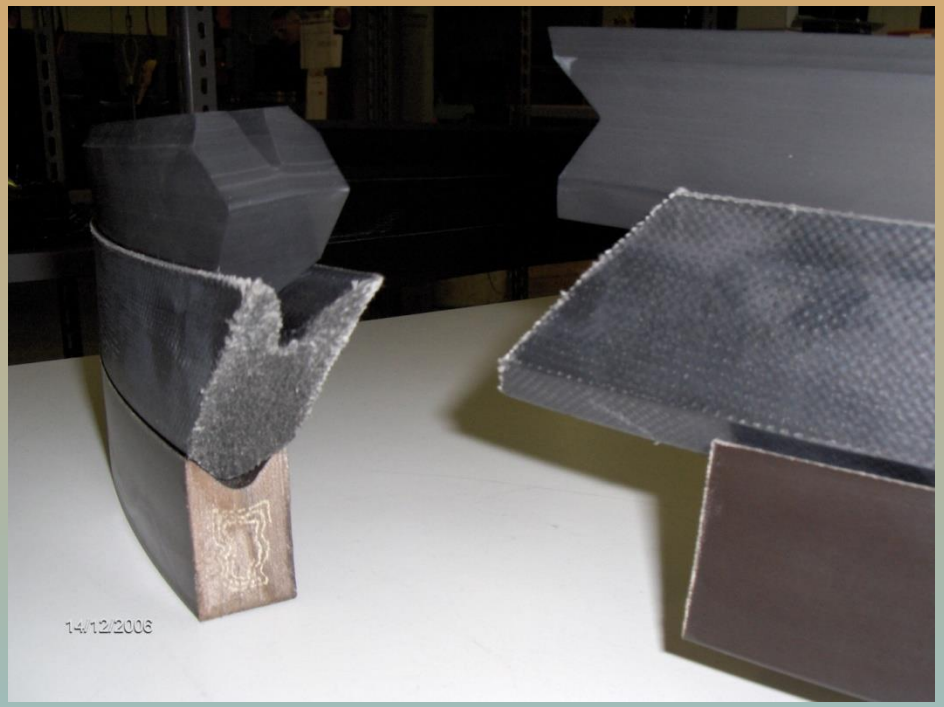
CARCOTEX/SP/SG IS FITTED <u>WITHOUT</u> AXIAL PRELOAD

CARCOTEX/SP/SG MALE RING IS FLEXIBLE AND PRESSURE RESPONSIVE, THAT IS WHY SP/SG DOES NOT REQUIRE FITTING PRELOAD.

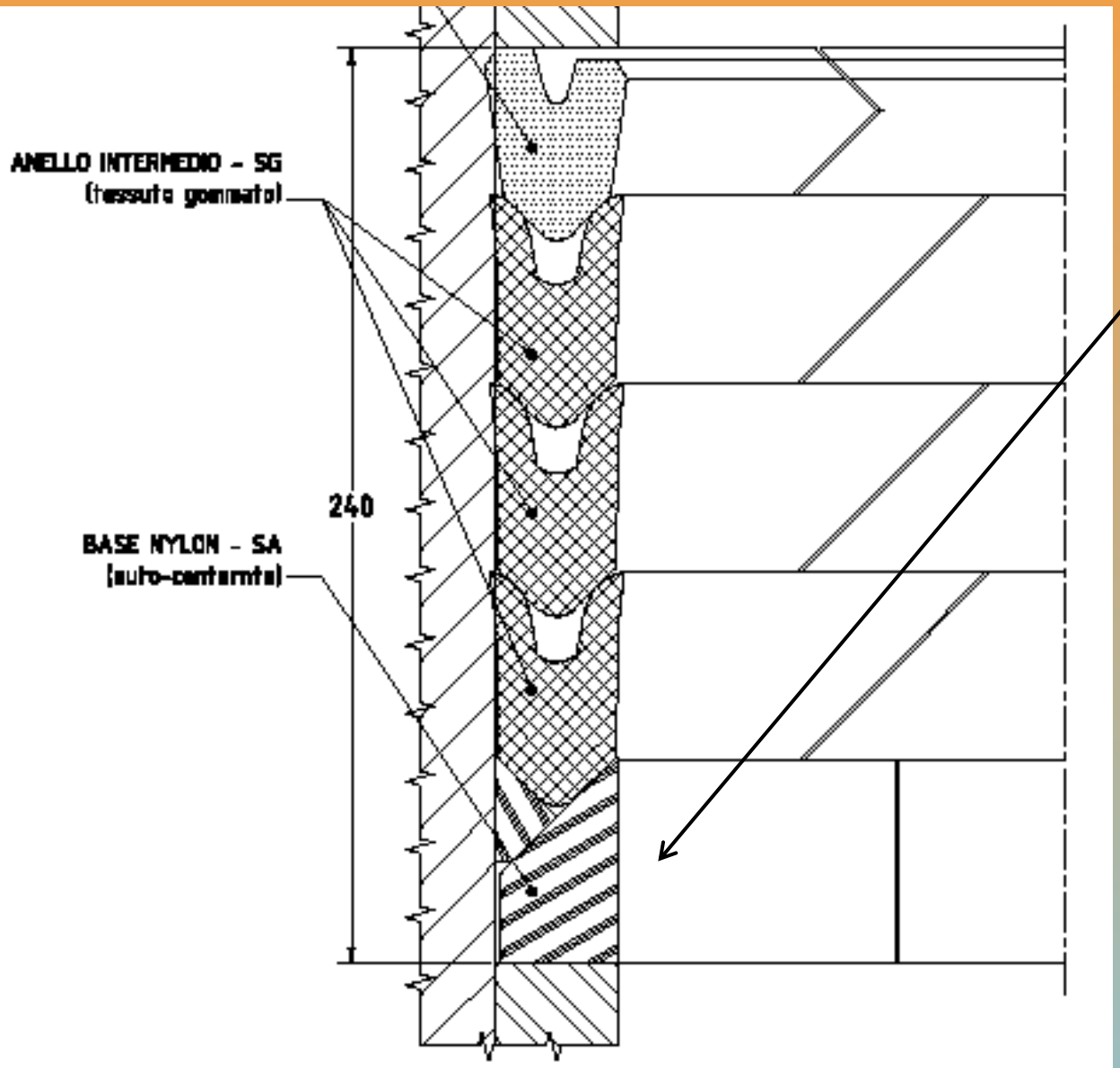
THE MALE RING SECTION IS LARGER THAN THE INTERMEDIATE RING.

MALE RING IS ABLE TO HOLD THE PRESSURE EVEN IN CASE OF VERY LARGE CLEARANCE IN BOTH VERTICAL AND HORIZONTAL PRESSES.

THE SP/SG MALE RING IS VERY EFFICIENT AND THE VEE-PACKING STACK HEIGHT CAN BE REDUCED TO 1+1+1.



CARCOTEX/SP/SG WITH SELF-ADJUSTING FEMALE RING (SA)



SPECIAL SELF-ALIGNING FEMALE RING MADE OF NYLON TO RESIST EVEN THE LARGEST EXTRUSION GAP IN OLD PRESSES.

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CARCOWIP AND CARCOWIP/2 SCRAPERS ARE USUALLY SUPPLIED WITH CARCOTEX/SP AND CARCOTEX/SP/SG VEE-PACKINGS.

WE RECOMMED TO HAVE A DRAIN BETWEEN CARCOTEX AND CARCOWIP/2.

INSIDE EVERY CARCOTEX/SP & SP/SG PACKING BOX:

- ***CERTIFICATE STATING THE RECOMMENDED FITTING PRELOAD TO PREVENT EXCESSIVE SEAL FRICTION.***
- ***FITTING INSTRUCTIONS.***

CARCOTEX/UN AND CARCOTEX/SG ARE USUALLY FITTED IN THE SIDE CYLINDERS OF THE PRESS:

- ***CARCOTEX/UN – PISTON SEAL (SINGLE OR DOUBLE EFFECT) AND ROD SEAL.***
- ***CARCOTEX/SG – ROD SEAL.***

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BIGGEST PRESSES WORLDWIDE ARE OUR REFERENCES

- ***Nos. 5 CARCOTEX/SP/SPLIT DELIVERED TO FRANCE FOR ONE OF THE BIGGEST METAL FORGING PRESS OF THE WORLD, MAKING CLOSED DYE FORGING OF NICKEL ALLOY AIRCRAFT TURBINES (AIRBUS + BOEING).***
  THE PRESS HAS GOT 4 RAMS DIAMETER mm 2160 AND ITS PRESSING FORCE IS 40.000 TONS.

- ***Nos. 6 CARCOTEX/SP/SG/SPLIT DELIVERED TO ITALY FOR THE BIGGEST METAL FREE FORGING PRESS OF THE WORLD.***
  THE PRESS HAS GOT 6 RAMS DIAMETER mm 2050 AND ITS PRESSING FORCE IS 100.000 TONS.

MORE INFORMATION AVAILABLE ON

www.carco.it

Problem solving is a challenge we enjoy.