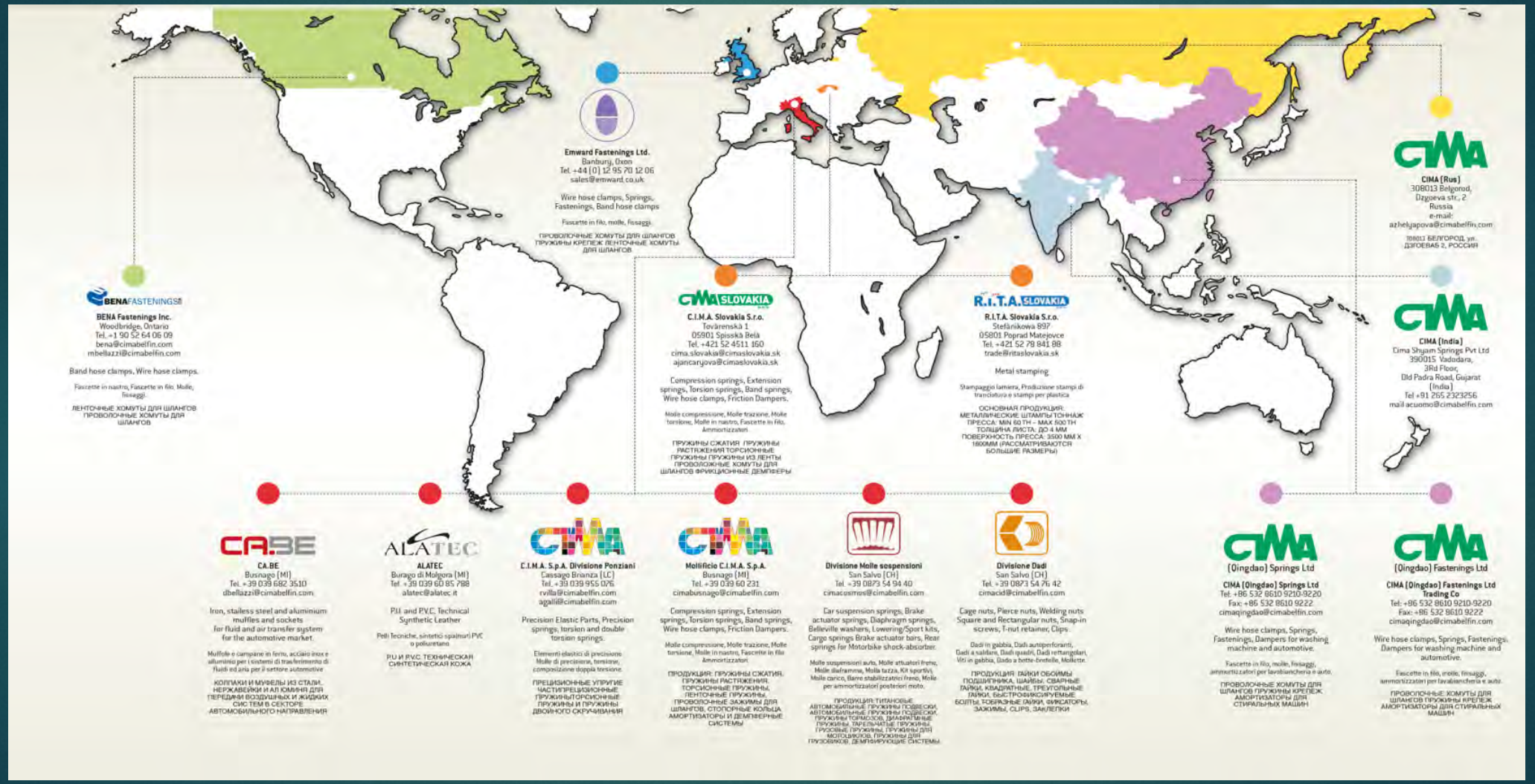
CIMA S.p.A.

INDEX

GLOBAL PRESENCE



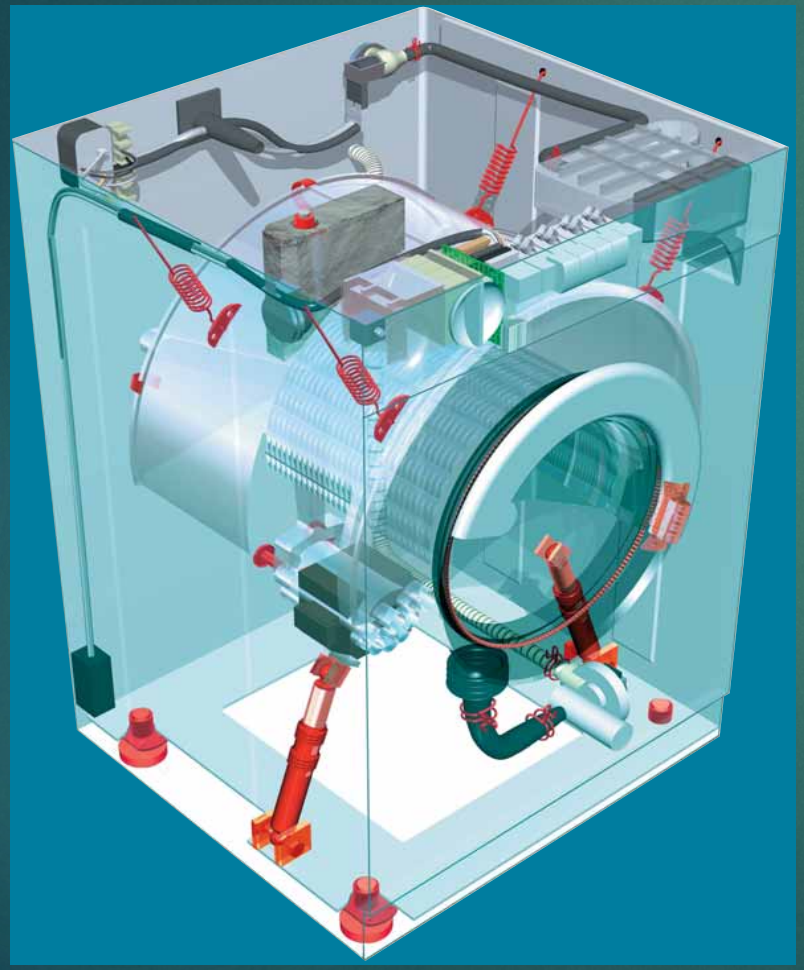
VISION

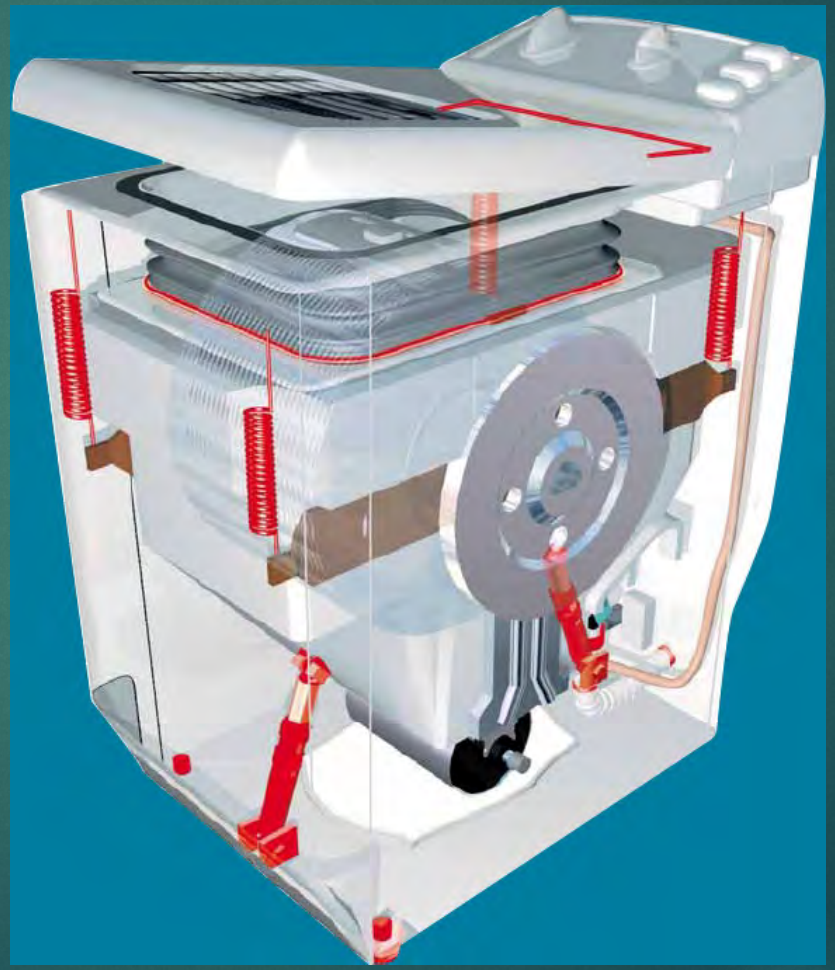
To be the No. 1 in the Worldwide market for dampers and suspension springs production (household appliance)

AABSAL
Alladio
Atlant
Beko
Bosch
Candy
Chuangwei
Daewoo
Ebac
Edesa
Electrolux
F&P
Galanz
Geli
General Electric
Girbau
Haier
Hisense
IFB
IT Wash - Sangiorgio
LGE
Little Swan
Midea
Miele
Panasonic
Samha
Samsung
Sanyo
Vestel
Whirlpool

RANGE OF PRODUCTS

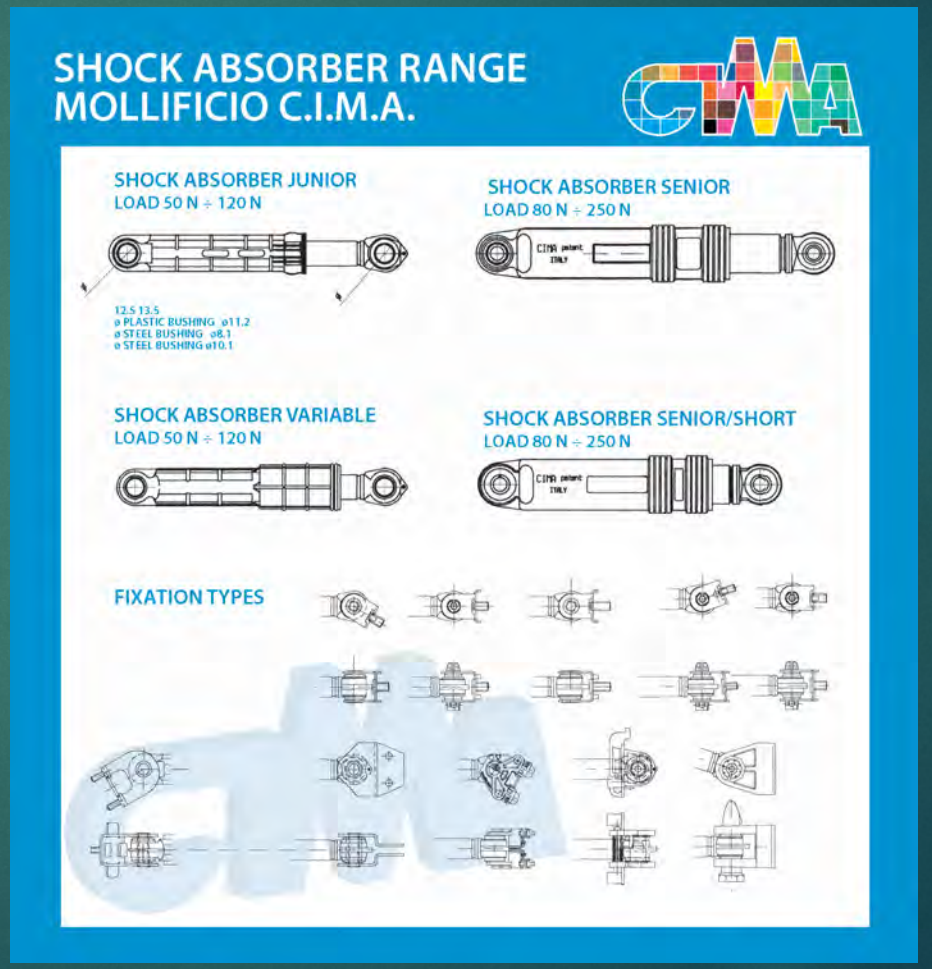
SHOCK-ABSORBERS AND DAMPING SYSTEMS





RANGE OF PRODUCTS

SHOCK-ABSORBERS AND DAMPING SYSTEMS



RANGE OF PRODUCTS

HOSE CLAMPS AND WIRE SPRINGS

RANGE OF PRODUCTS

FORMED SPRING IN BAND AND CLAMPING RINGS

RANGE OF PRODUCTS

CAPS, SOCKETS, QUICK FASTENINGS, PUNCHES AND DIES

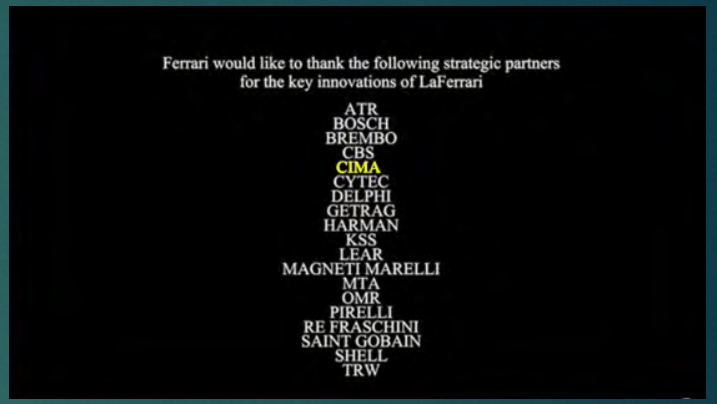
RANGE OF PRODUCTS

AGRICULTURAL SPRINGS, DIE SPRINGS, DIAPHRAGM SPRINGS FOR CLUTCHES, SUSPENSION SPRINGS FOR CARS AND BRAKE SPRINGS FOR LORRIES




RANGE OF PRODUCTS

TITANIUM SUSPENSION SPRINGS FOR *LaFerrari*



ANNUAL VOLUME OF PRODUCT SOLD

Home appliance market	Slovakia	China	Italy
Junior dampers	19.000K	24.158K	
Free Stroke dampers		1.568K	
Senior dampers	550K		
Wire dampers		0K	2.400K
Suspension springs	23.300K	1.324K	
Gasket springs	1.950K	204K	
Hose Clamps		7.596K	40.000K
Torsion bar	1.550K		
Feet/Legs		1.375K	

TECHNOLOGY

Production lines for Dampers in-house

10 lines dedicated to the production of "Junior dampers"
2 lines for the production of "Free Stroke Model"

Production lines for suspension springs

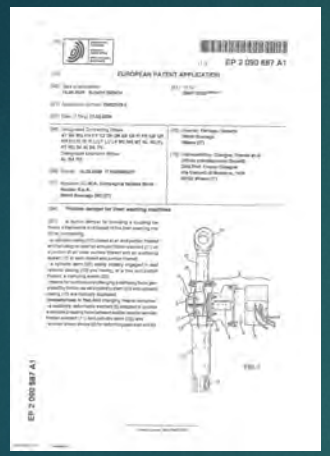
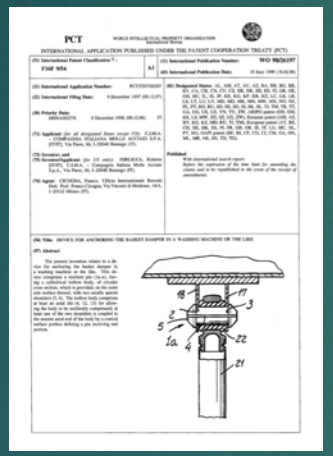
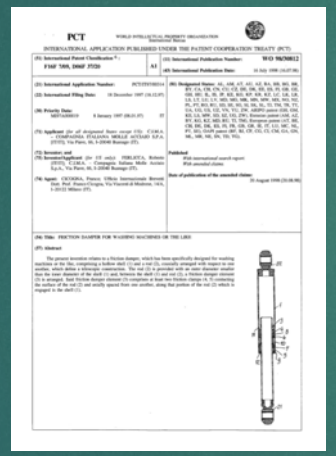
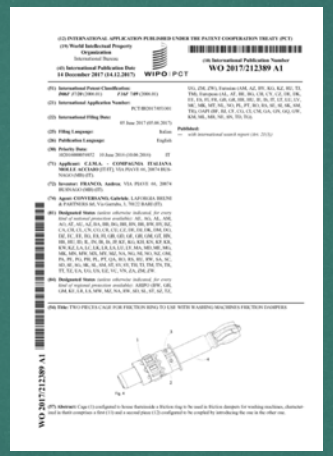
14 lines for tensioning springs (Designed by ourselves)
6 lines for tensioning springs
4 Machines for spiral springs + 2 special machines for the assembly (designed by ourselves)
3 Machines for gasket ring.
1 Machine for torsion bar
15 Machines for hose clamps

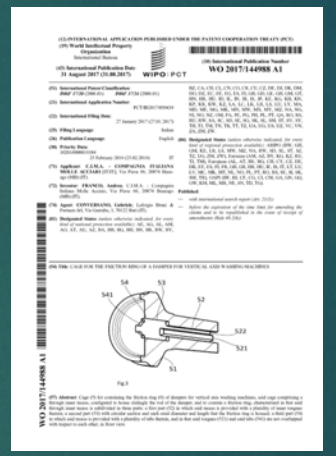
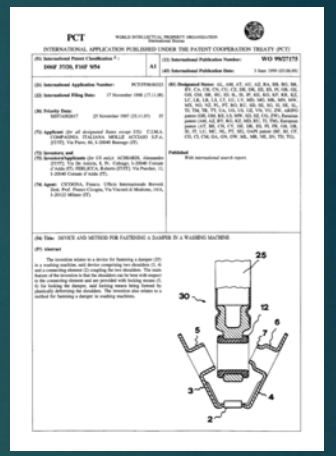
TD & RD - damping systems

C.I.M.A. is a leading Worldwide manufacturer of shock-absorbers for washing machines since the end of 90s and we have the capability and capacity to meet the specific customers demands all over the world.

Satisfaction and Customization are the guide lines for the developing of new projects and this is the reason why C.I.M.A. has filed several patents that regards not only the shock-absorber but also a lot of components utilized in the washing machines.

Below, just few examples of patents filed in these years.

The R&D department is also well supported by the versatility of the technical department, therefore, once focalized an idea it becomes "easy" to develop the new product either during the phase of engineering and the mass production because we design by ourselves most of the tooling and machines we use to produce and test the products.

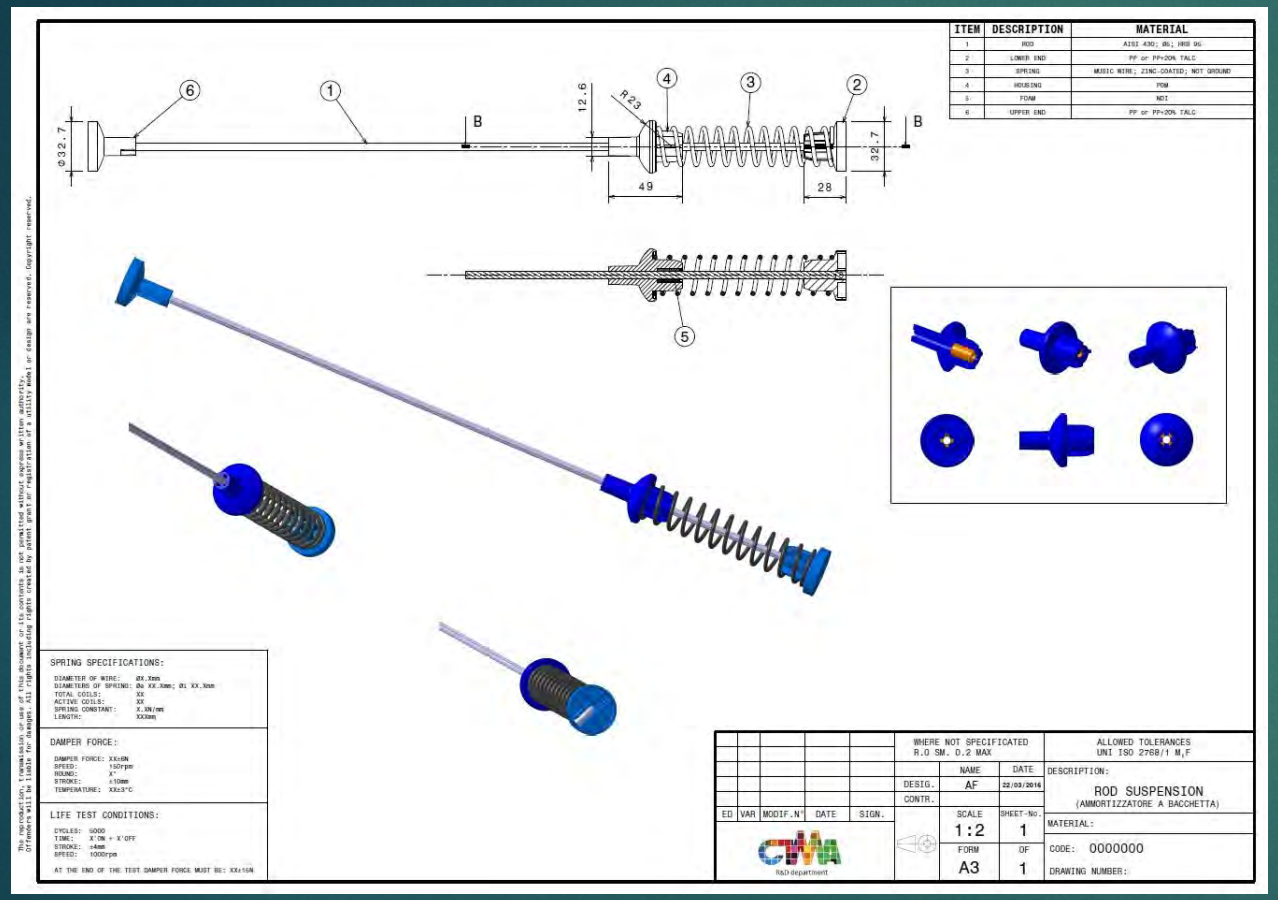
C.I.M.A., in fact, has a great number of lines (manual / automatic / semi-automatic) to produce shock-absorbers for HAWM and increasing our knowledges consequently the lines are continuously improved.

NEW PROJECTS

- Piston Rod
- Free Stroke “Wave”
- Spring leg
- Hinge Damper
- I-damper

NEW PROJECTS

PISTON ROD



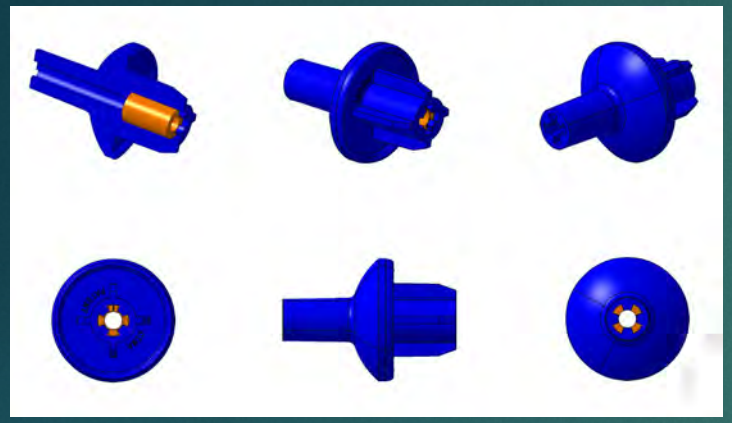
This new concept for the product named "ROD SUSPENSION" comes from the application of many years of experience on the production of Shock Absorbers for Front Loading Washing Machines.

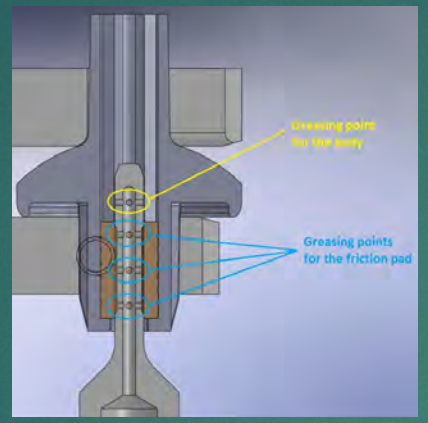
We have applied the same technology because the interaction between a PU Pad, a Metal Piston and the grease, is the best way to dissipate vibrations during the movement of the washing machine: in this way we can assure the same quality using our great experience in Front Loading Dampers.

Developing this product we have filed two new patents.

NEW PROJECTS

PISTON ROD



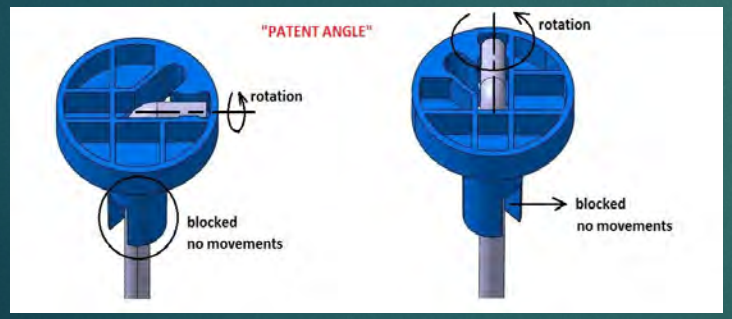


BODY

It is the heart of the Piston Rod. We have studied a particular geometry for it: this geometry allows to produce this body very fast and in only one piece.

Into this body we put a small Friction Pad (PU foam), the same material we already use for standard Shock Absorbers from several years.

Using different combinations of grease and raw materials for rod and plastics, we are able to offer customized solutions and to meet the specific customers demands.



UPPER END

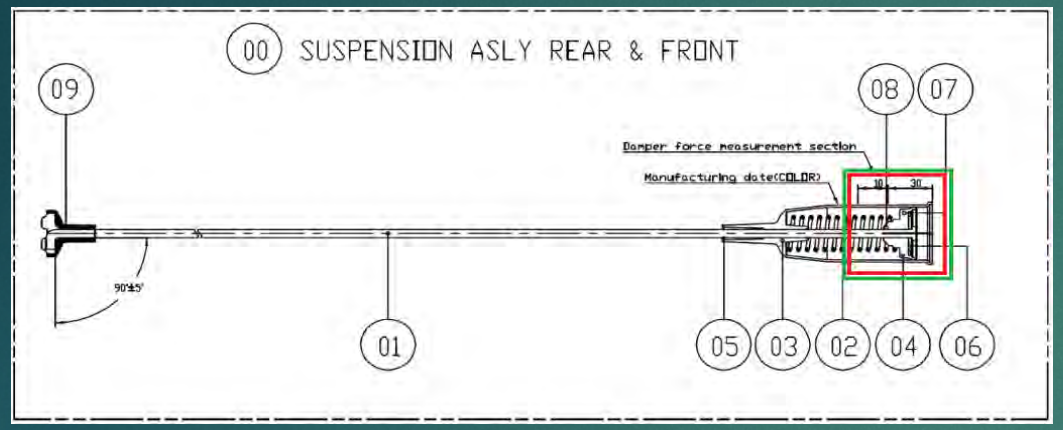
It is a strategical component for the production and for the service.

This geometry allows to fix and remove very fast the component from the rod preserving the functionality and the quality of the join.

NEW PROJECTS

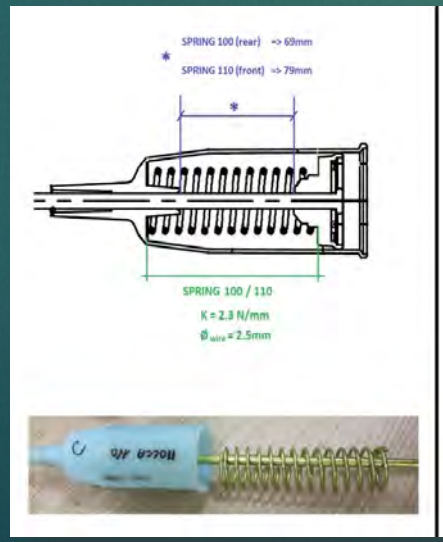
PISTON ROD

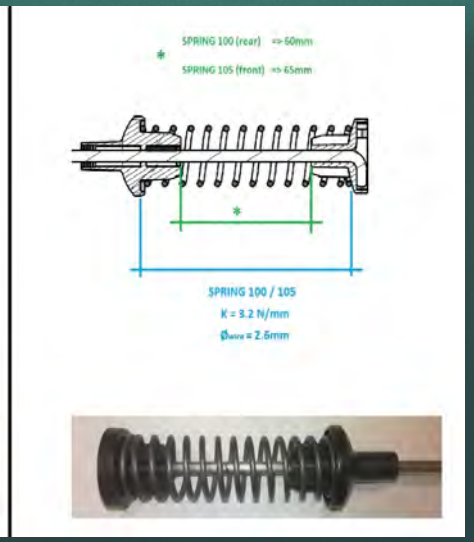
Shortly, we have developed our solution for IFB starting from the technical specifications shown in the IFB's drawing N° TL311MXSAR000/DEVEP. Rev.A (16/06/2014) and we have also deeply analyzed the real behavior in our laboratory.



-SPECIFCATIONS-

1. This part is used as a suspension's part of full-automatic washing machine.
2. (03)Sliding part(range reference) of housing shouldn't have scratches, unevenness.
3. Detailed specification must be submitted from specification.
4. Initial damper force(1.5~2.3Kg) : when sliding is fitted with housing and move 4mm/sec with a speed, The initial damper force(value of 11 times) of 30~40mm section must be range of. (After preliminary movement 10 times , measure.)
5. Durability test
   - When operate 2,000 cycles as following order as 1 cycle, something there is no exist problem.
     5 Min ON ⇒ 5 Min OFF (total time : 10Min)
     Number of vibrators 750~800 rpm , Stroke : 10mm, Section : 30~40 mm
6. (01)Around cap shouldn't have sticking of foreign substance, etc(grease, oil)
7. (04)Support rod shouldn't get bent after assembling.
8. When packing and delivering, shouldn't have a variation, breakdown.
9. When sliding the housing within the sliding range, shouldn't have noise of strangeness.

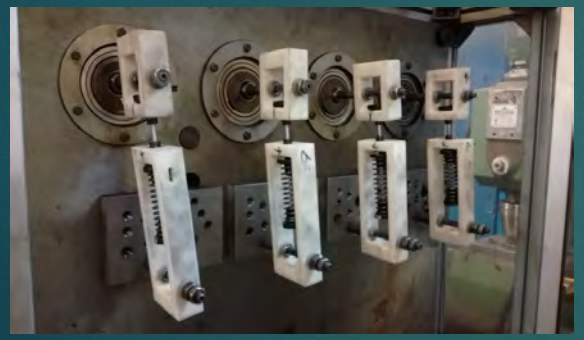




NEW PROJECTS

PISTON ROD

Once we have found the right combination of components, we have prepared some samples and we have tested our solution either in the laboratory and in the washing machine.



PISTON ROD CIMA

Test #1

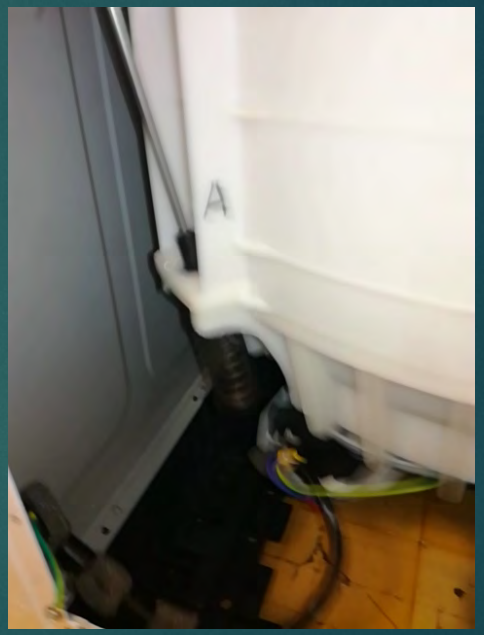
- Compare vibration levels between SAMCO CASE TYPE and CIMA HYBRID

Equipment & Instrumentation

- Washing machine TL-RDW 6,5kg AQUA
- SPM engineering laboratories
- 3 laser pointers

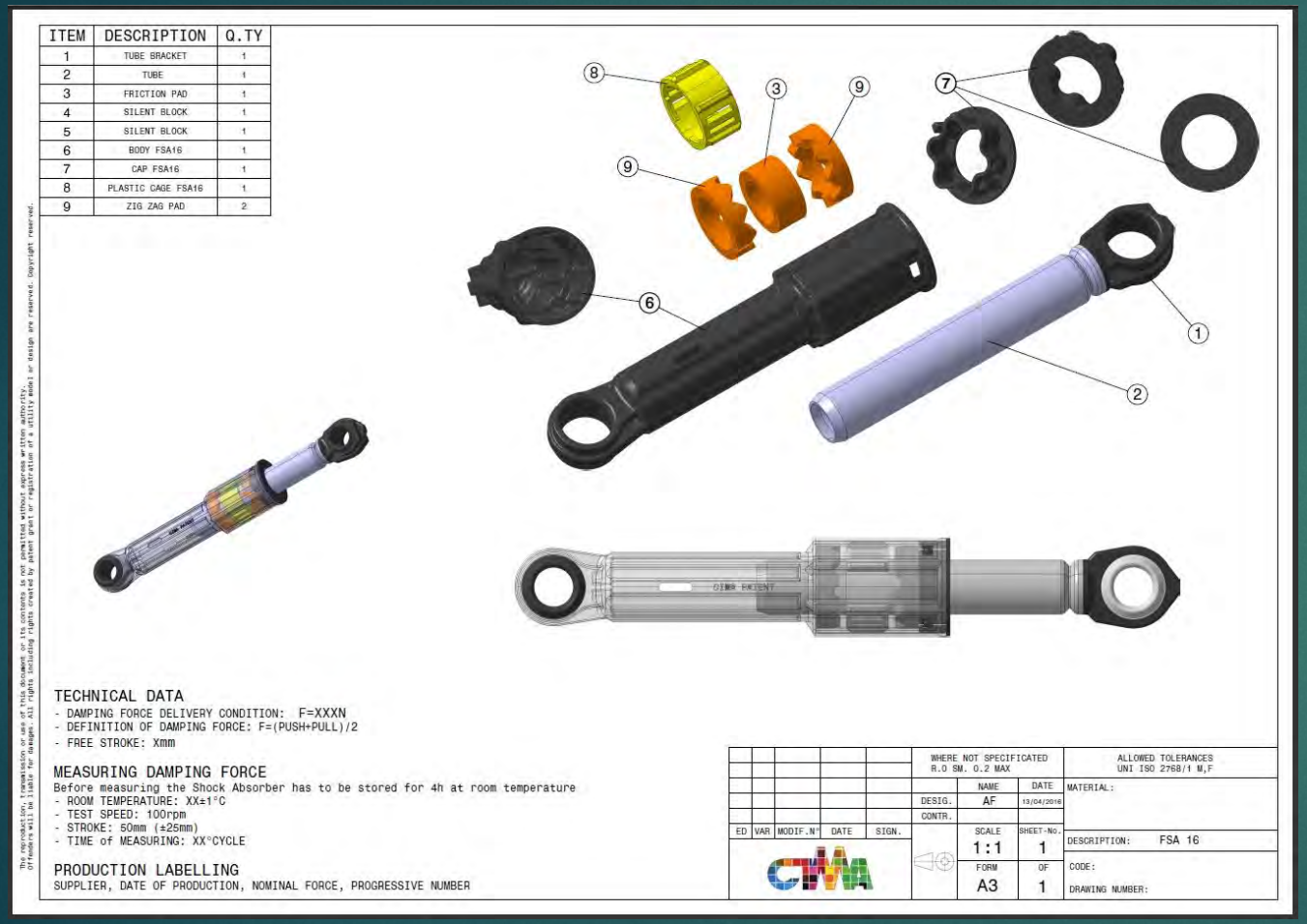
Test conditions

- Unbalance: W=1,1kg ; H= ½ tub
- Spin cycle
- Repeate the test 5 times



NEW PROJECTS

FREE STROKE "WAVE"



ITEM	DESCRIPTION	Q.TY
1	TUBE BRACKET	1
2	TUBE	1
3	FRICTION PAD	1
4	SILENT BLOCK	1
5	SILENT BLOCK	1
6	BODY FSA16	1
7	CAP FSA16	1
8	PLASTIC CAGE FSA16	1
9	ZIG ZAG PAD	2

TECHNICAL DATA
- DAMPING FORCE DELIVERY CONDITION: F=XXXN
- DEFINITION OF DAMPING FORCE: F=(PUSH+PULL)/2
- FREE STROKE: Xmm

MEASURING DAMPING FORCE
Before measuring the Shock Absorber has to be stored for 4h at room temperature
- ROOM TEMPERATURE: XX±1°C
- TEST SPEED: 100rpm
- STROKE: 50mm (±25mm)
- TIME of MEASURING: XX°CYCLE

PRODUCTION LABELLING
SUPPLIER, DATE OF PRODUCTION, NOMINAL FORCE, PROGRESSIVE NUMBER

ED	VAR	MODIF.N°	DATE	SIGN.

WHERE NOT SPECIFICATED R.O SM. 0.2 MAX

ALLOWED TOLERANCES UNI ISO 2768/1 M,F

	NAME	DATE
DESIG.	AF	13/04/2016
CONTR.		

MATERIAL:

SCALE	SHEET-No.
1:1	1
FORM	OF
A3	1

DESCRIPTION: FSA 16

CODE:

DRAWING NUMBER:

We have changed the design of all plastic components obtaining a reducing of the weight and an improving of the geometry.

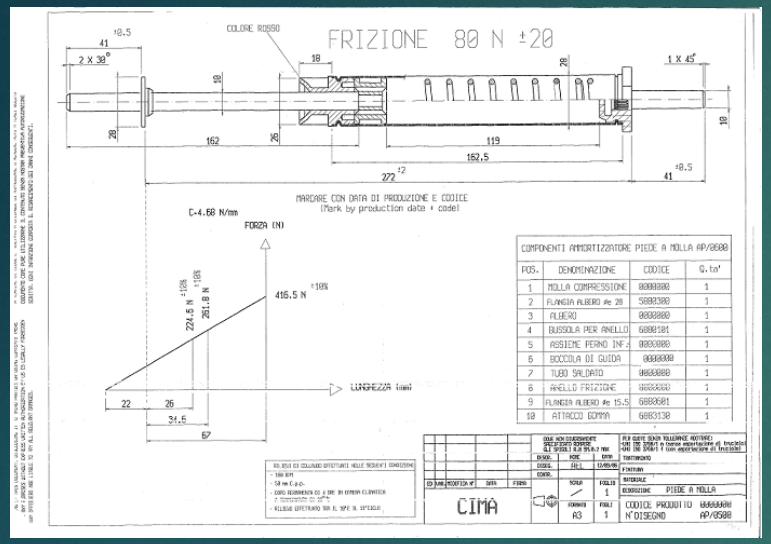
The body and the cap, in fact, have a particular shape which is similar to a wave around the vertical axis. This geometry allows to have a perfectly constant thickness without corners, edges and angles.

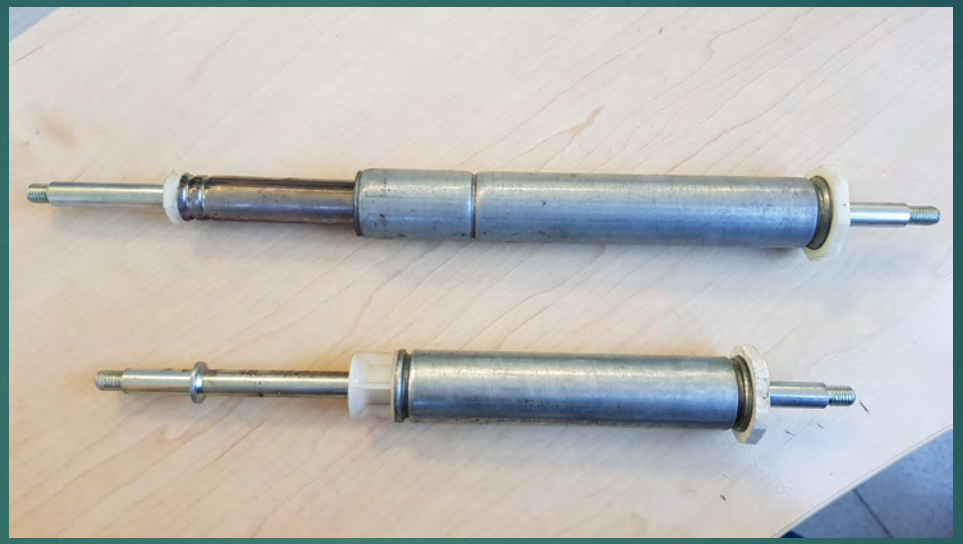
It means to have:
- an homogeneous plastic shrinkage
- absence of internal balls and cold junctions

It also means that the gap between the tube and the body is very small, therefore we will reduce vibrations and noise.

NEW PROJECTS

SPRING LEG



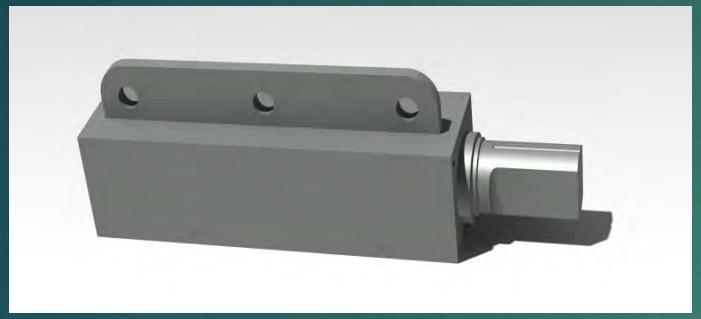


In the last few years many customers have asked us to redesign and develop the "SPRING LEGS". The use of these dampers, instead of the standard ones, allows more efficient production, a smaller footprint and improved performance of the washing machines.

These solutions are particularly adaptable to machines that require higher loads and very stable wash drums with minimum vibration but also machines that require a long life cycle, guaranteeing around 20 years of operation.

NEW PROJECTS

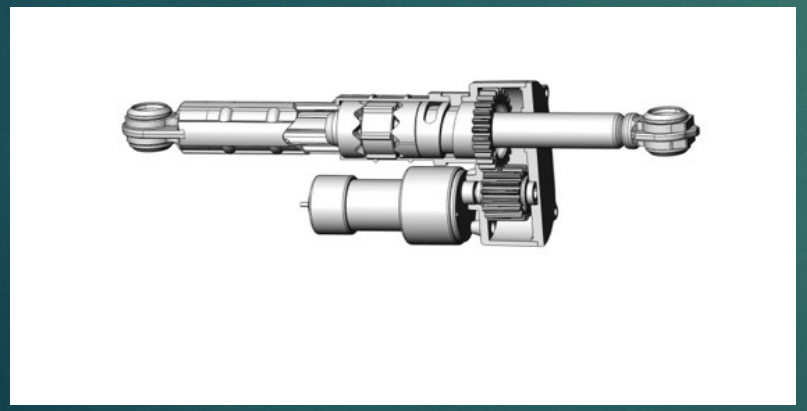
HINGE DAMPER



The function of this hinge damper is to facilitate the closing of the door lid of a Top Loading machine creating a soft closing effect and also to facilitate its opening. The goal is to create a solution that is economically feasible to improve the performance of the common hinges available, thus reducing the resetting angle and increase the utilized force. We are developing this solution together with another company that specializes in the cookware appliances industry with whom we have a very strong relationship.

NEW PROJECTS

ELECTRONICAL DAMPER



Noise and Vibrations have always been the main criteria for the developing of damping system products.

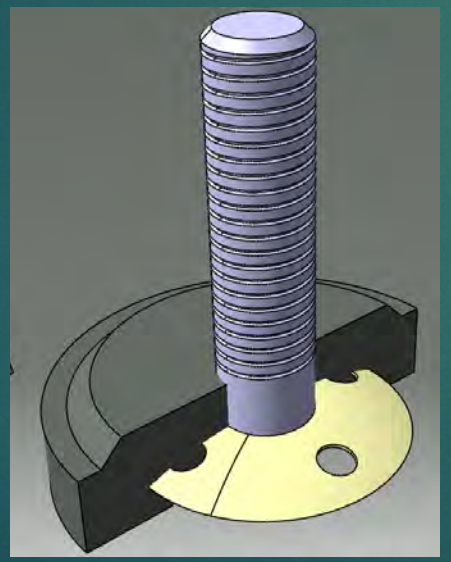
In the last 10 years, Cima has always confronted these challenges, researching various solutions offered by available electro-mechanical dampers technology .

Illustrated here are the last innovative versions created in collaboration with third companies specialized in electro-mechanical components, with whom we've been cooperating for several years.

NEW PROJECTS

FEET

The feet of a washing machine are a very important component for its' stability and to dampen the vibrations, but this component is often underestimated.



Through our R &D, we have various technical solutions under consideration that we can develop together with our clients.

Thank you

CIMA S.p.A.
HQ Via Piave 66, 20874 Busnago (MB) TEL+39 039/60231
info@cimabelfin.com www.cimabelfin.com