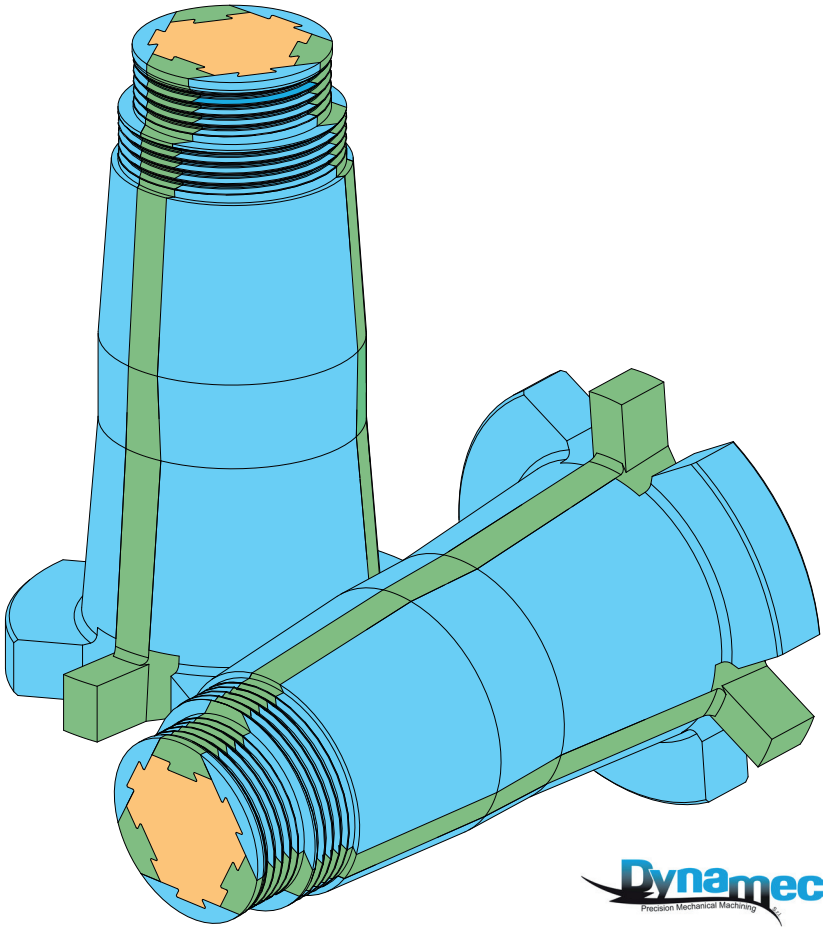
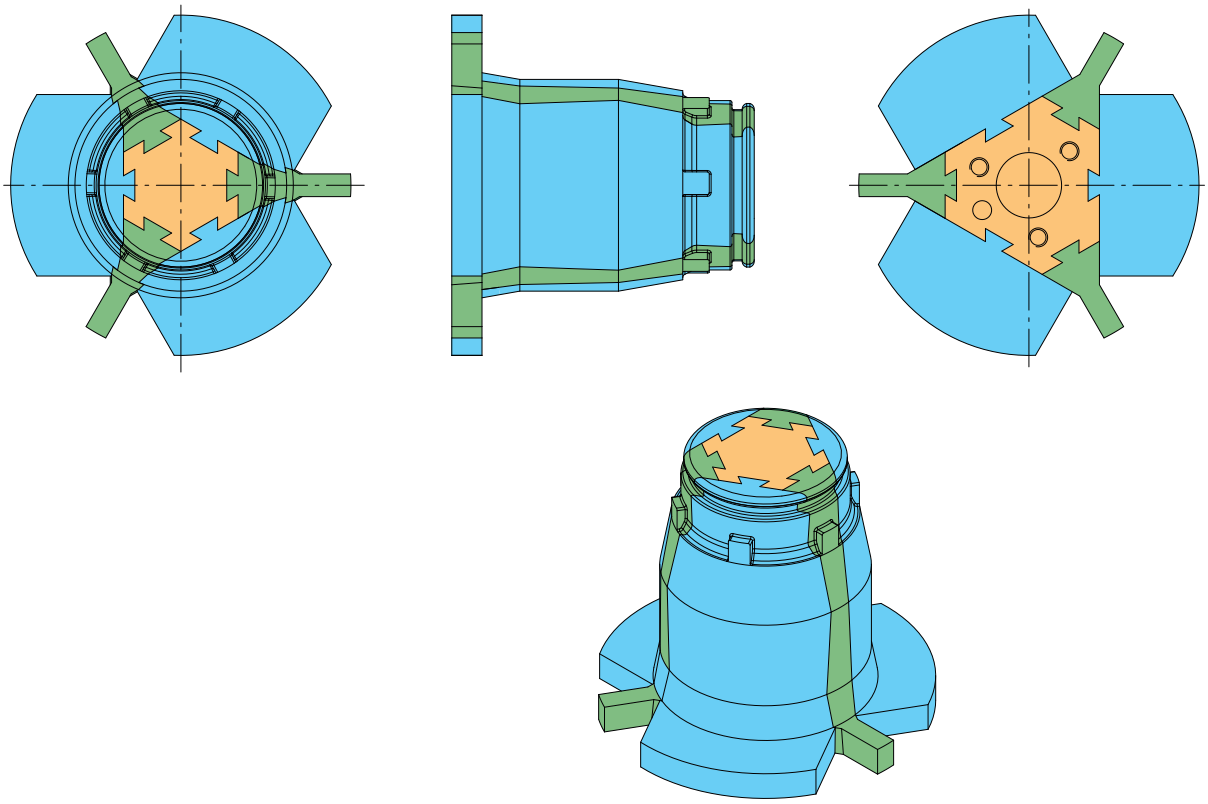
ERMANNO BALZI



COLLAPSIBLE CORES



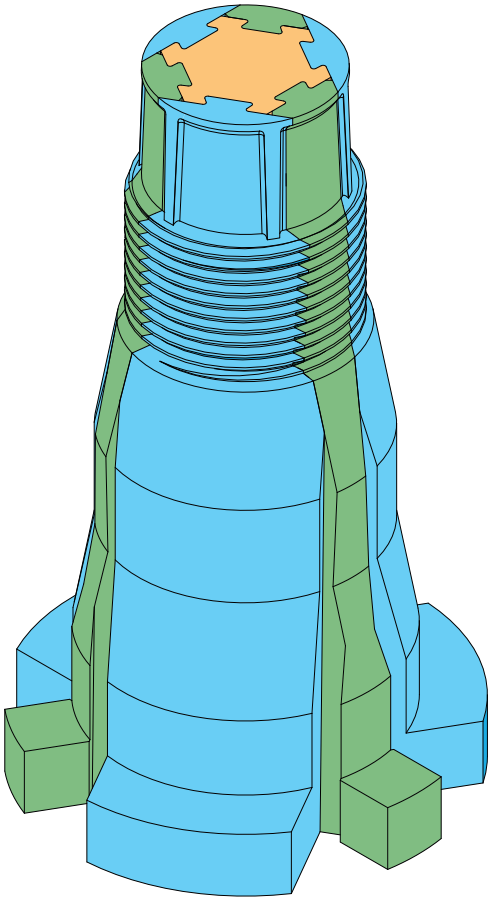
CHARACTERISTICS

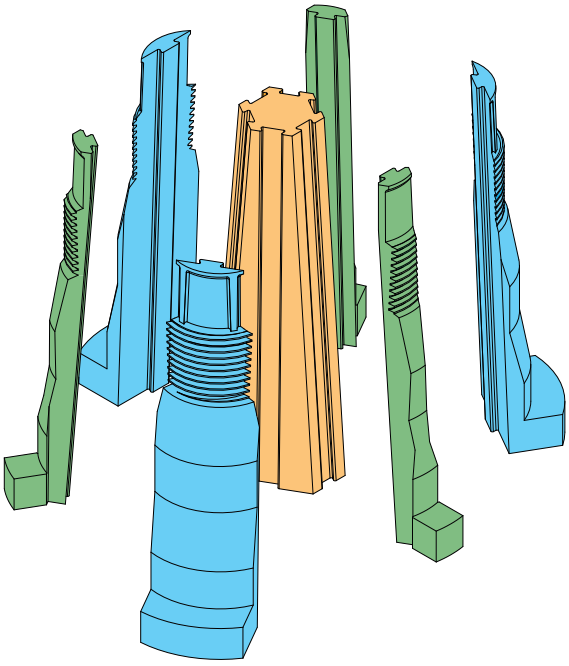
1. SUITABLE FOR ALL THERMOPLASTIC MATERIALS;
2. ALSO SUITABLE FOR DIECASTING AND THERMOSETTING MATERIALS;
3. UNDERCUTS UP TO 12% OF THE DIAMETER;
4. DIMENSIONS: FROM Ø 8 MM UP TO Ø 400 MM;
5. POSSIBILITY TO COOL THE CENTRAL CORE.

ADVANTAGES OF MECHANICAL COLLAPSIBLE CORES

1. COMPACT DESIGN;
2. CYCLE TIME REDUCTION;
3. CAN BE PRODUCED IN DIFFERENT MATERIALS AND WITH DIFFERENT COATINGS ACCORDING TO SPECIFIC DEMANDS;
4. LIMITED WEAR OF THE FOLDING SEGMENTS;
5. POSSIBILITY TO REPLACE THE SEGMENTS IN CASE OF FAILURE.

MECHANICAL COLLAPSIBLE CORES





THE MECHANICAL COLLAPSIBLE CORES ARE MADE OF AN INNER CORE AND SOME SEGMENTS CONNECTED BY A PROPERLY DESIGNED GUIDING SYSTEM. DURING THE EJECTION PHASE THE SEGMENTS SLIDE ALONG THE INNER CORE PERFORMING A RADIAL MOVEMENT WHICH ALLOWS TO RELEASE AN INTERNAL UNDERCUT. INTERNAL UNDERCUTS ON ROUND, SQUARE OR OVAL PARTS CAN BE EASILY RELEASED DURING THE EJECTION PROCESS. MULTI START THREADS OR A COMBINATION OF RIGHT- AND LEFT-HANDED THREADS CAN ALSO BE RELEASED.

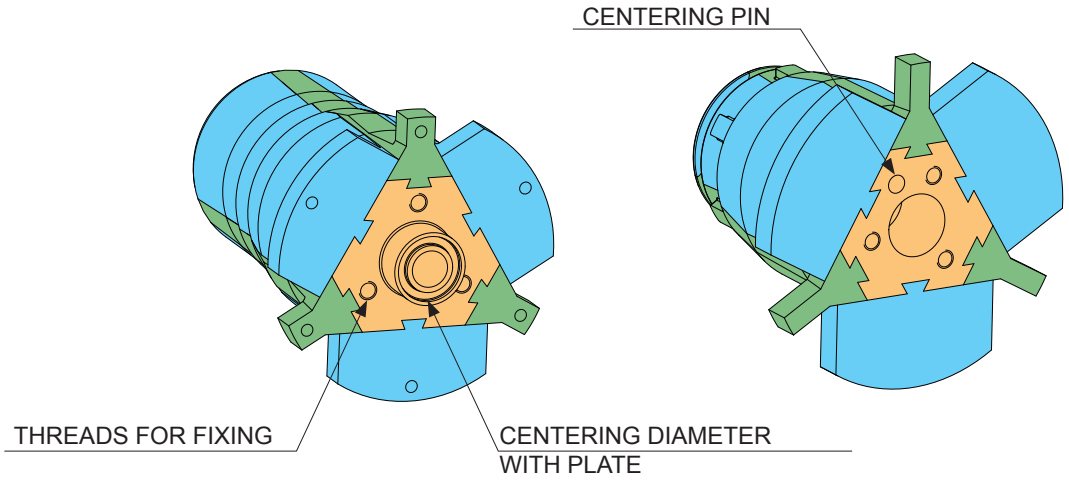
THE DIMENSIONAL STABILITY OF PARTS INJECTED USING MECHANICAL COLLAPSIBLE CORES MEETS THE HIGHEST REQUIREMENTS. AN ACCURACY OF ±0,02 MM CAN BE ACHIEVED FOR BOTH FLATNESS AND ROUNDNESS.

FIXING SYSTEM

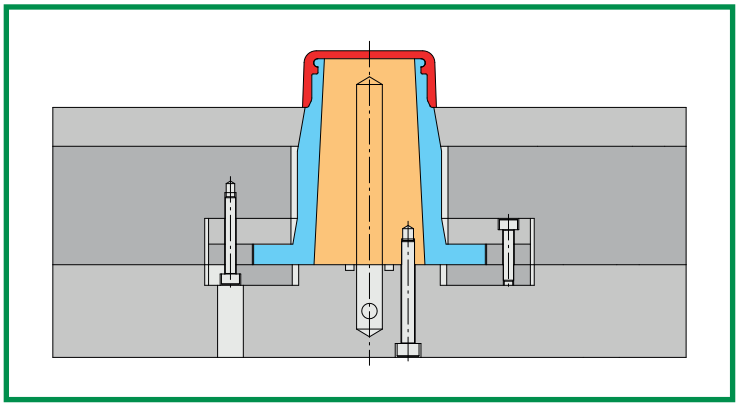
OUR COLLAPSIBLE CORES ARE CONNECTED TO THE PLATE BY THE MEANS OF N°3 SCREWS. THE ALIGNMENT OF THE CORE IS GUARANTEED BY THE MECHANICAL COUPLING H7 – G6 BETWEEN CORE AND PLATE. IN CASE OF NOT ROUND SHAPES WE PERFORM THE ORIENTATION WITH A DOWEL PIN TO GUARANTEE HIGH PRECISION.

LENGTH OF THE COLLAPSIBLE CORES

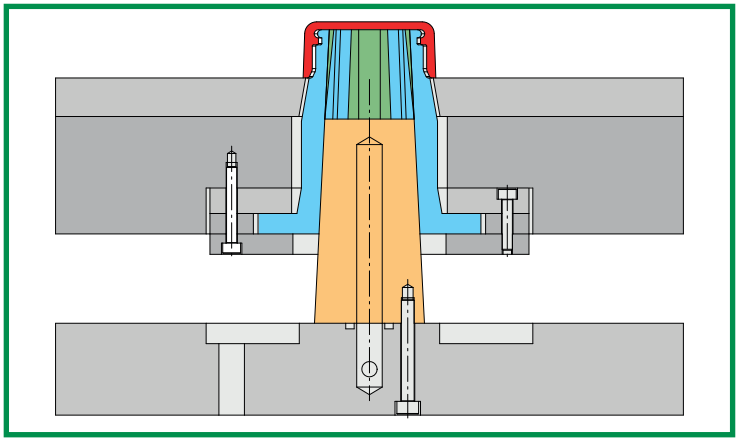
OUR COLLAPSIBLE CORES ARE DESIGNED ACCORDING TO THE SPECIFIC APPLICATION ALLOWING TO KEEP THE LENGTH AS SHORT AS POSSIBLE.



DEMOULDING SEQUENCE

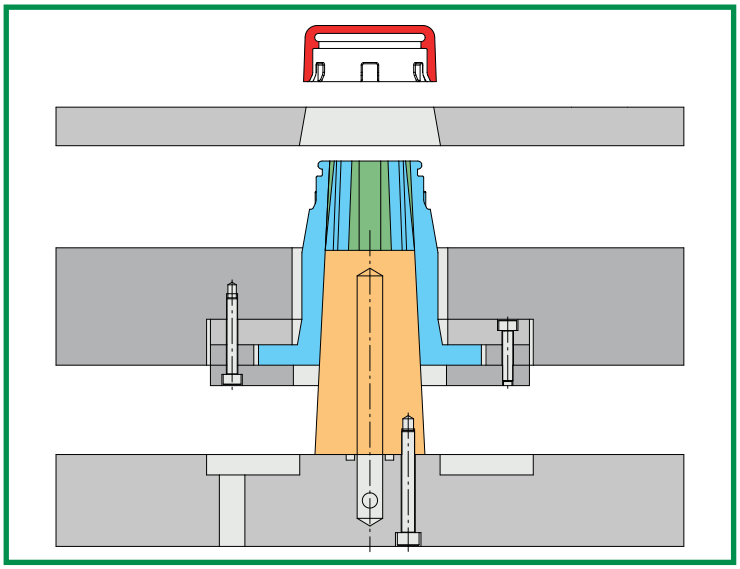


MOULD OPENING



FIRST STROKE

THE CENTRAL CORE STAYS IN POSITION WHILE THE SEGMENTS MOVE FORWARDS AND FOLD RELEASING THE UNDERCUT.



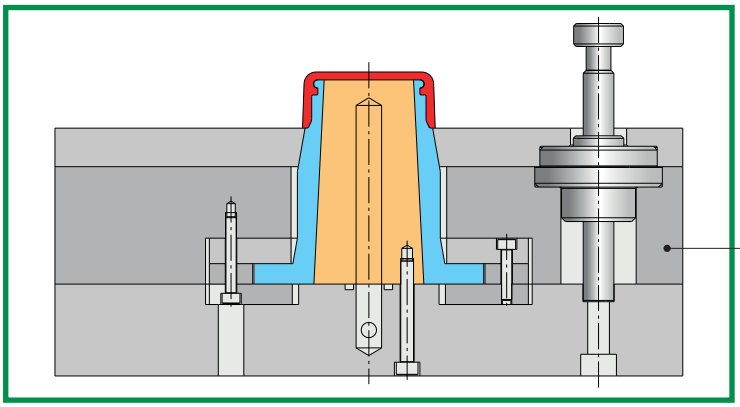
SECOND STROKE

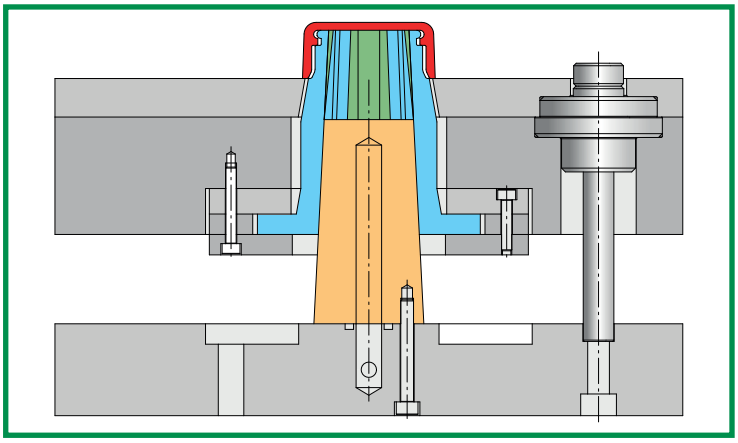
THE PLATE HOLDING THE SEGMENTS STOPS WHILE THE EJECTION PLATE MOVES FORWARD EJECTING THE PART.

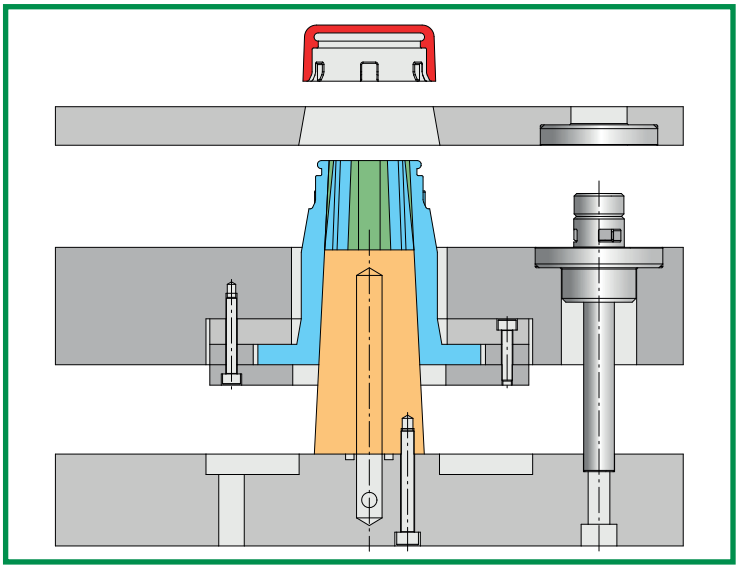
DEMOULDING SEQUENCE WITH AS SYSTEM

THE "**AS**" DOUBLE EJECTION DEVICE IS SET TO ALLOW BODY AND FLANGE TO HOOK IN CASE OF LOW PLANARITY OF THE PLATES WHERE THE SYSTEM IS INSTALLED. THIS SETTING CAN GENERATE A DELAY IN THE MOVEMENT OF THE TRAILED PLATE (0,15 MM FOR AS-12 AND 0,20 MM FOR AS-16 AND AS-32).

IF THIS DELAY COULD BE CRITICAL FOR YOUR APPLICATION IT IS POSSIBLE TO ORDER THE MODEL CODE AS-..T WITH TIGHTER SETTING (0,05 MM).



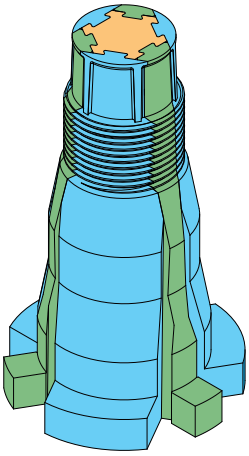




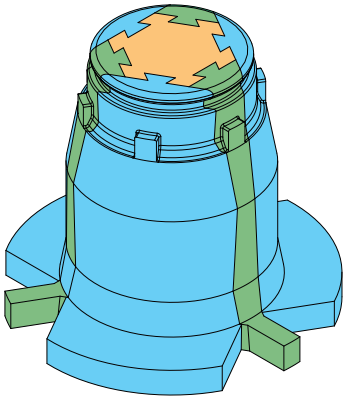
APPLICATION EXAMPLES

THE COLLAPSIBLE CORES ARE DESIGNED ON DEMAND ACCORDING TO THE SHAPE OF THE INJECTED PART. STARTING FROM PART 3D (WITH SHRINKAGE) WE DEVELOP THE BEST SOLUTION FOR THE UNDERCUT RELEASE.

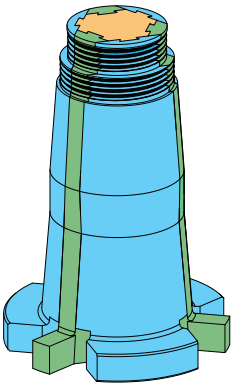
THE COLLAPSIBLE CORES CAN BE PRODUCED WITH DIFFERENT MATERIALS AND COATINGS ACCORDING TO THE SPECIFIC APPLICATION.



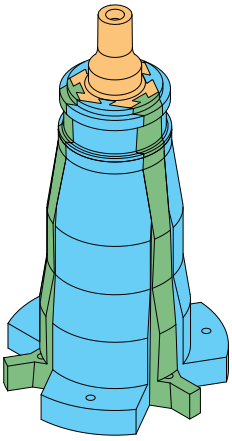
COLLAPSIBLE CORE WITH THREAD AND CYLINDRICAL AREA



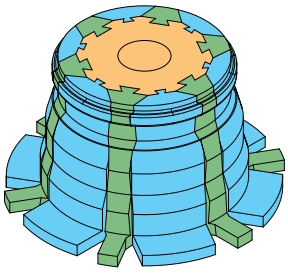
COLLAPSIBLE CORE WITH TEETH ON THE SEGMENTS



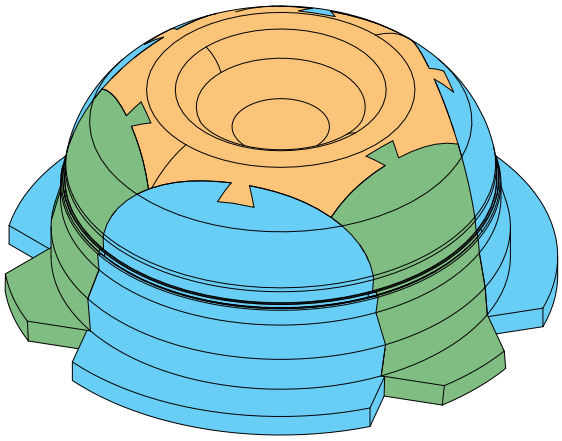
COLLAPSIBLE CORE WITH DOUBLE THREAD



COLLAPSIBLE CORE WITH PROTRUDING PIN



COLLAPSIBLE CORE WITH 12 SEGMENTS



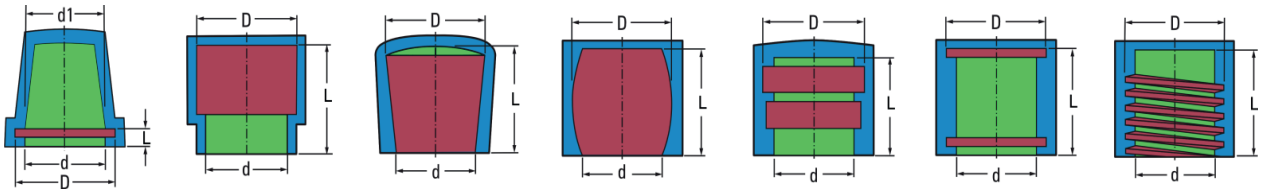
COLLAPSIBLE CORE DIAMETER 230 mm

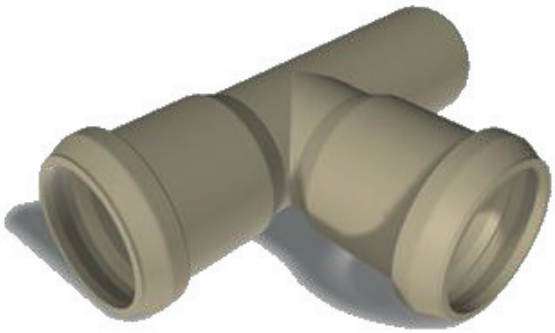
APPLICATION EXAMPLES

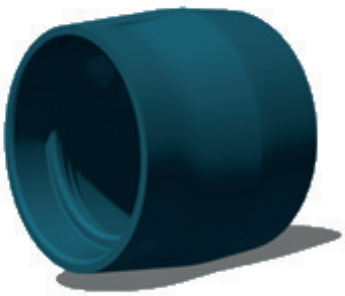
THE DRAWINGS BELOW SHOW TYPICAL APPLICATIONS WHERE THE UNDERCUT VALUE IS THE DIFFERENCE BETWEEN THE DIAMETER “**D**” AND “**d**”.

THE DIMENSION “**L**” IS CRUCIAL TO DEFINE THE MAXIMUM VALUE OF THE UNDERCUT.

THE BIGGER IS THE RATIO BETWEEN “**L**” AND “**D**” THE SMALLER THE UNDERCUT WE WILL BE ABLE TO RELEASE.







CASE STUDY

ITEMS DESCRIPTION	UNIT	WITH UNSCREWING MOLD	WITH COLLAPSIBLE CORE
Cycle time	sec	18	18
Time required for unscrew the part	sec	4	-
Overrall time	sec	22	18
Pieces produced (for hour)	pz/h	164	200
Number of pieces to be produced (target)	pezzi	1000000	
Processing time for the target	h	6111	5000
Hourly rate	€/h	50	
Production costs	€	305556	250000
Cost savings with collapsible cores	€	55556	

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