



fresmak 0-MAK



Zero Point Clamping



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Fresmak was founded in 1967 focused on manufacturing **high pressure vices**.

Nowadays, it has a **wide range** of clamping solutions and exports to over **50 countries** worldwide.

Above all, **Fresmak** are **people**. **Highly trained** professionals with a constant attitude to improve and innovate in all processes; from planning right up to its implementation at customers facilities.

 **Specialist in clamping solutions**


fresmak
ARNOLD


fresmak
BLOCK-SC


fresmak
0-MAK

 **A strategic location for a fast and efficient service**

 **Commercial network**

Germany · USA · Spain · France · Netherlands
Ireland · Italy · United Kingdom · Czech Republic

 **Clients**

Germany · Argentina · Australia · Austria · Belgium
Brazil · Canada · Chile · Colombia · Denmark
USA · Slovakia · Slovenia · Spain · Estonia · France
Finland · Greece · Holland · Hungary · India
Iceland · Ireland · Italy · Luxembourg · Mexico
Norway · Peru · Poland · Portugal · United
Kingdom · Czech Republic · Dominican Republic
Romania · Russia · Singapore · Sweden · Taiwan
Turkey · Ukraine · Venezuela

At Fresmak **INNOVATION** is not an option is **OUR ATTITUDE**



Values that make us different

Experience



Fresmak is the **first high pressure vice manufacturer** in the world, focused ever since exclusively on clamping through an interactive sharing with its clients.

This has allowed **Fresmak** to acquire a degree of knowledge and experience that guarantees its customers the **best solution** for clamping their workpieces.

Specialization



Fresmak has a wide and **complete range** of clamping solutions, both standard and customized.

The company is constantly **investing in R + D + i** and is involved in innovation projects, both nationally and internationally, where it is considered a specialist in clamping.

Service



Fresmak offers a **direct and individual attention** to all its customers.

It also answers quickly and flexibly to offers as well as to orders, as it has **95% of the standard product in its warehouse**.

Repair and maintenance service are also available for customers.

Keys that help Fresmak become a worldreference in clamping solutions



- ✓ **Absolute expertise in the product.**
- ✓ **A team of highly qualified and experienced people.**
- ✓ **Latest technology.**
- ✓ **Constant R & D investment.**

O-MAK

O-MAK, Fresmak zero point clamping system.

Fresmak launches the positioning and clamping system **O-MAK**. An easy, precise and quick changing system.

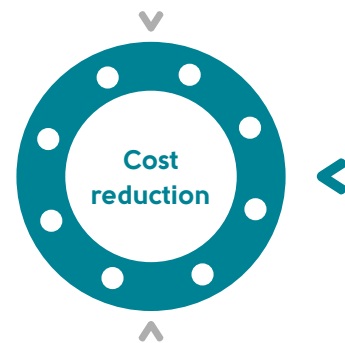
The **O-MAK** system reduces set-up time, increasing working time and productivity and, **saving time and cost** in your machining.

Its **high clamping power and the way it is applied**, avoids vibrations and chatter while machining, **extending the life of the tool**.

Other clamping elements like vices, blocks, fixtures, or workpieces, can be mounted on the **O-MAK** by using nipples at the bottom, so that they can be changed repeatedly, quickly and **at a low cost**.



Easy ⊕ Precise ⊕ Quick



▣ EASY

Easy to mount on a base plate. A H7 slot has to be machined on the base plate to accommodate the **O-MAK** cylinder.

▣ PRECISE

O-MAK offers a high repeatability. The system aligns and holds the vice, block, fixture or workpiece on the table. The **O-MAK** will position it on the plate with a repeatability of 0,005 mm and a holding power of up to 55kN.

▣ QUICK

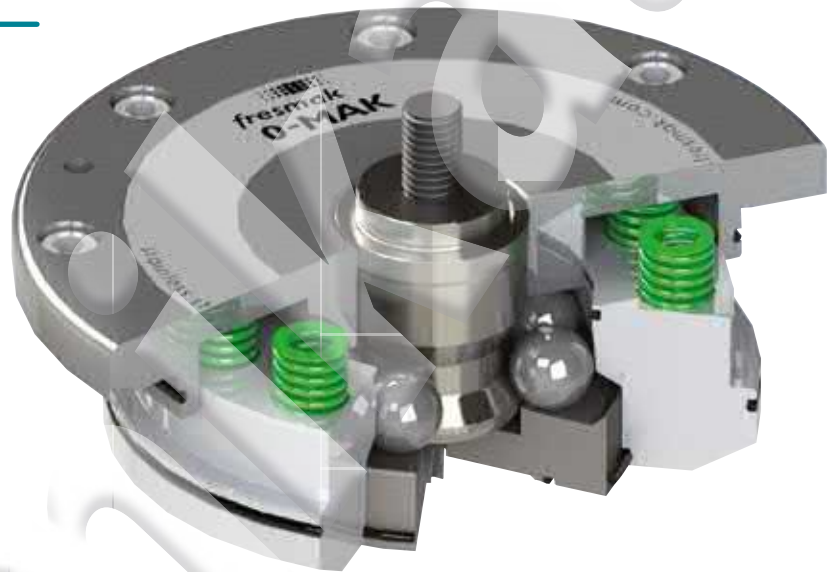
Once the nipples are located at the bottom of the vice or workpiece, positioning and clamping are achieved in seconds.

Applications

O-MAK flexibility allows its use in a number of machines, such as machining centres, lathes and so on. Very much recommended in automation processes by using robots.

It is also very much used for large components as those in the aerospace industry.

It has a compact design and a low profile when fitted into the base plates. This feature makes the **O-MAK** very much used in die and mould industry.



Functioning

O-MAK clamping power is achieved mechanically by springs located inside the cylinder. This power is transmitted to the nipples through a number of balls.

The system remains always clamped. By using compressed air (6 bar) the system opens. Its special design allows high clamping power without the need of any extra air feed (turbo).

Clamping power pulls down the vice, block, fixture or workpiece making a perfect contact with the **O-MAK** cylinder ground surface. This pull down system is irreversible and will not allow the nipple fly out.



Components

> All components are made of stainless Steel and hardened 60HRC.

O-MAK

⊕ Features

> The **O-MAK** clamping system is mechanically actuated, without turbo. When clamped, the holding power is between 10 kN and 20 kN and a side retaining power of 25 kN and 55 kN depending on the size. Pneumatically operated for the opening process for loading the workpiece and releasing it once the machining process is over. Needs 6 bar pressure.

> Centering repeatability of 0,005 mm.

> Su diseño compacto, tamaño reducido y altura mínima, no restan apenas recorrido vertical a las máquinas, lo que deja una gran altura para la pieza de trabajo.

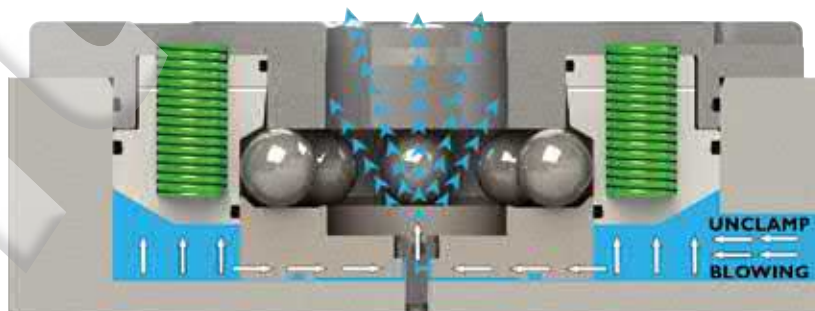
> Thus, 5 side machining can be performed without any collision risk.

> The whole system remains always closed when stand by or machining process. Air feed is needed to open the system.



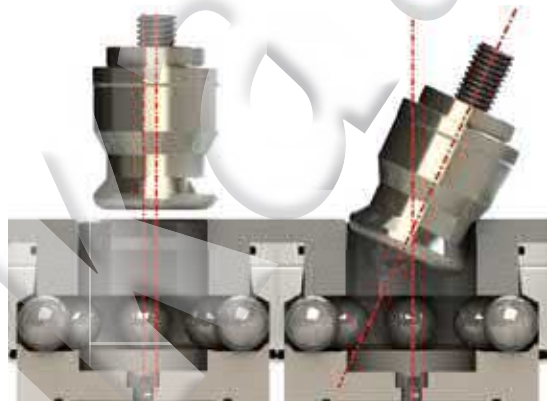
> 4 keynuts at 90° available for unitary use and for work-piece positioning at 90°.

> Integrated cleaning system by blowing air. The air is supplied through the normal connection for the opening operation.



> The geometry of the nipple, together with the chamfer in the center hole provides an easy run in and out of the nipple.

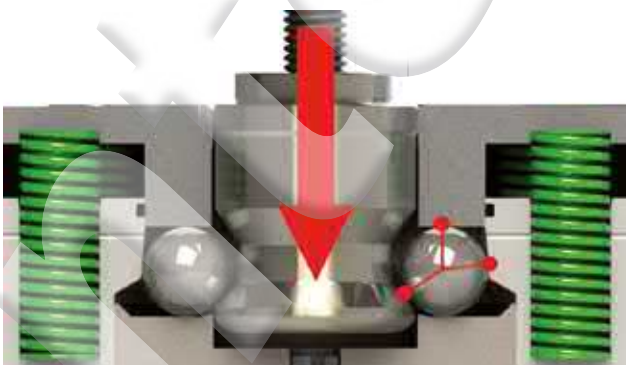
> Balls are free inside their cavity. This prevents snagging in case of dirt.



> Optimized power transmission caused by the contact of every ball in just three points within one of each of the inclined surfaces that generate the clamping power.

> **O-MAK** is a closed system. Clamping through spring assembly and unclamping by means of compressed air. Absolutely irreversible. This feature provides safety while machining.

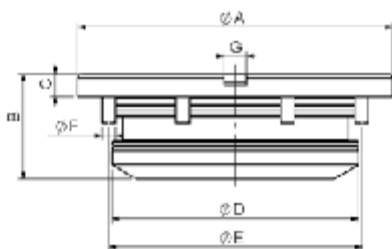
> Safety system for unclamping in case of breakdown. Patent Pending.



O-MAK

Component parts and accessories

> Cylinders



- Mechanical clamping effect by compressed springs.
- Pneumatic opening.
- Working pressure 6 bar.
- No turbo needed.
- Air blowing for inside cleaning as standard.
- Repeatability 0,005 mm.
- K-slot for easy aligning as standard.

> Features table

Size	Ref.	Holding power kN	Retaining power kN	Weight Kg.
MAK10	260000010	10	25	1,1
MAK10 4x90°*	261000010	10	25	1,1
MAK20	260000020	20	55	2,4
MAK20 4x90°*	261000020	20	55	2,4

* Keynuts 4x90°.

> Dimensions table

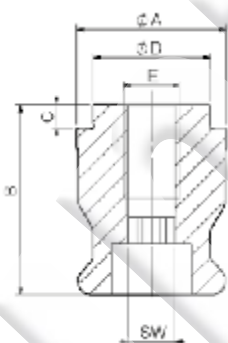
Size	Ref.	ØA	B	C	ØD	ØE	F	G
MAK10	260000010	112	37	10	78	92	8xM6	
MAK10 4x90°*	261000010	112	37	10	78	92	8xM6	10F6
MAK20	260000020	138	49	10	108	120	8xM6	
MAK20 4x90°*	261000020	138	49	10	108	120	8xM6	10F6

* Keynuts 4x90°.

> Nipples



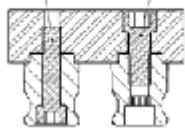
- Stainless Steel hardened nipples.
- 4 different types:
 - Zero point nipple in 2 axis (red).
 - Positioning nipple in 1 axis (blue).
 - Locking nipple (green).
 - Protecting nipple, to protect the cilinder when is not being used.



Size	Ref.	Type	ØA	B	C	ØD	E	SW	Weight Kg.
O-MAK 10	296004010	Zero point nipple	22	31	3	15	M8	8	0,1
	296005010	Positioning nipple	22	31	3	15	M8	8	0,1
	296006010	Locking nipple	21,7	31	3	15	M8	8	0,1
	296007010	Protecting nipple	21,8	28,5			M8		0,1
O-MAK 20	296004020	Zero point nipple	32	40,6	5	25	M12	10	0,2
	296005020	Positioning nipple	32	40,6	5	25	M12	10	0,2
	296006020	Locking nipple	31,7	40,6	5	25	M12	10	0,2
	296007020	Protecting nipple	31,8	37,6			M12		0,2

> Locking bolts

Bottom attachment bolt Above attachment bolt

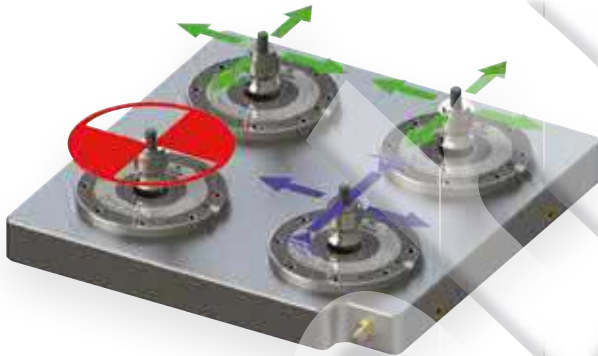


- DIN 912 quality 12.9 bolts.
 - Above attachment bolt.
 - Bottom attachment bolt.

Size	Set up	Ref.	Top screw	Weight Kg.
MAK 10	Bottom	905210090	M6x35	0,01
	Top		M8 *	
MAK 20	Bottom	996040125	M10x45	0,04
	Top		M12 *	

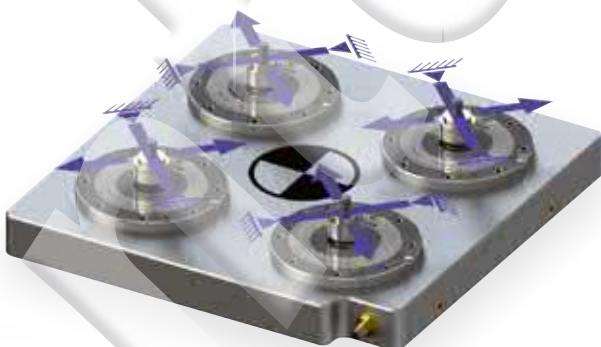
* The length of the screw depends on the set up of the final user.

> NIPPLES COMBINATION:



> Usual combination

- The usual combination for an optimal centering of the work piece is as follows.
- Red nipple is centering in 2 axis.
- Blue nipple is positioning in 1 axis.
- Green nipples are locking nipples.



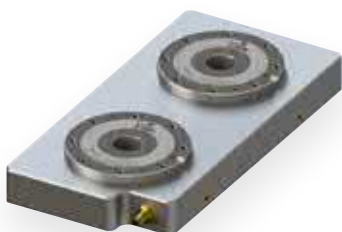
> Combination for heavy machining

- Just to avoid thermal deformations the use of 4 positioning nipples (blue) is very much recommendable. Reference will always remain in the center of the plate.

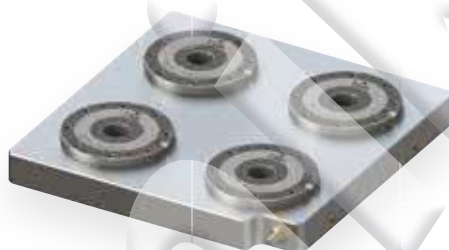
> Base plates and tombstones

- Base plate made out of Steel.
- Repeatability 0,005 mm.
- Infeed and connections for a quick pneumatic switch.
- Designed with holes and k-slots for an easy assembly on the machine.
- Plates and tombstones can be designed as per customers requirements on demand.

> Double plate



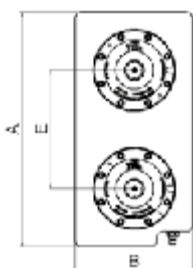
> Quadruple plate



> Cube 4x6



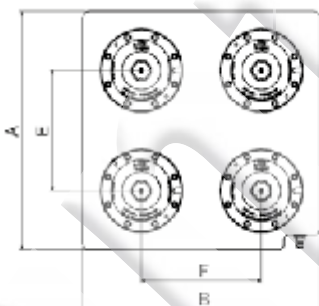
> Double plate



Size	Ref.	Holding power kN	Retaining power kN	Weight Kg.
MAK10	286102010	2 x 10	2 x 25	17
MAK20	286102020	2 x 20	2 x 55	25

Size	Ref.	A	B	C	D	E
MAK10	286102010	396	196	40	10	200
MAK20	286102020	396	196	53	10	200

> Quadruple plate



Size	Ref.	Holding power kN	Retaining power kN	Weight Kg.
MAK10	286104010	4 x 10	4 x 25	34
MAK20	286104020	4 x 20	4 x 55	50

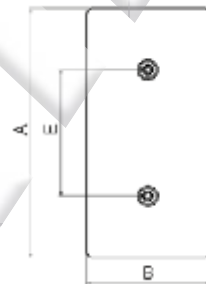
Size	Ref.	A	B	C	D	E	F
MAK10	286104010	396	396	40	10	200	200
MAK20	286104020	396	396	53	10	200	200

> Assembly plates for the nipples

- Base plates design to locate the nipples in one side and the fixture in the other side.
- The distance between nipples according to the distances of the O-MAK on the base plate.
- Made out of high resistance aluminum or Steel.

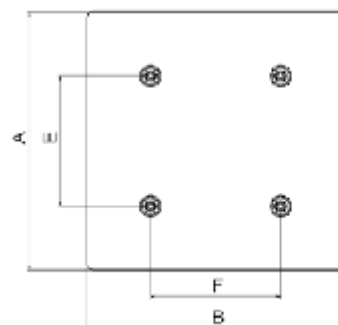
> Double plate

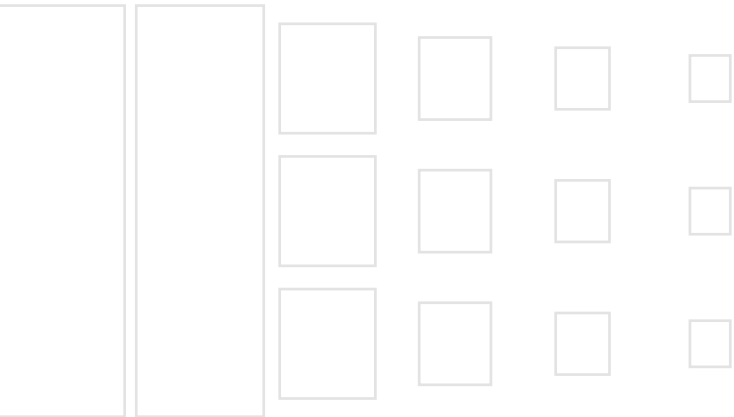
Size	Ref.	A	B	C	E	Material	Weight Kg.
O-MAK 10	286212010	396	196	28	200	Steel	17
	286222010	396	196	28	200	Alluminum	7
O-MAK 20	286212020	396	196	38	200	Steel	25
	286222020	396	196	38	200	Alluminum	9



> Quadruple plate

Size	Ref.	A	B	C	E	F	Material	Weight Kg.
O-MAK 10	286214010	396	396	28	200	200	Acero	34
	286224010	396	396	28	200	200	Aluminio	12
O-MAK 20	286214020	396	396	38	200	200	Acero	47
	286224020	396	396	38	200	200	Aluminio	17





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