BOSSARD
Proven Productivity

ecosyn®-IMX

Direct assembly into stainless steel

«ecosyn®-IMX screws are made of corrosion-resistant steel and are hard enough to form a metric thread in stainless steels.»

ECOSYN®-IMX

Direct assembly into stainless steel

ecosyn®-IMX screws simplify your manufacturing processes, increase the level of connection reliability and have a proven corrosion resistance.

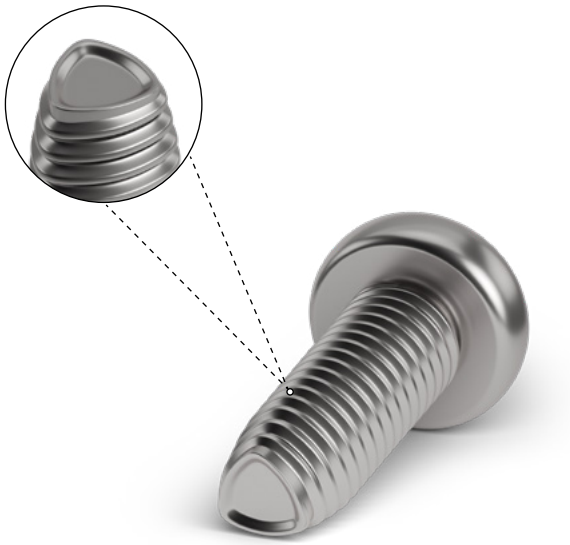
Multifunctional in all areas

Fasteners not only have to be capable of being installed economically, but often they must also meet other criteria such as safety or corrosion resistance. Multifunctional fasteners are indispensable in a lean production.

That is why the ecosyn®-IMX combines all the functions and advantages of a thread-forming screw with a stainless steel screw:

By using quenched and tempered martensitic stainless steel in screw production, ecosyn®-IMX screws can also be assembled into stainless steels, such as 1.4301 / AISI 304. Thanks to the proven corrosion resistance of ecosyn®-IMX, use combined with stainless steel components is of particular interest.

The ecosyn®-IMX screws offer savings in component production as well as in assembly due to the elimination of safety elements. Complex and expensive corrosion protection coatings are also no longer necessary. In addition, ecosyn®-IMX screws are magnetic, unlike DIN 7500 made of A2 steel. This allows them to grip the bit better.



Trilobular cross-section DIN7500

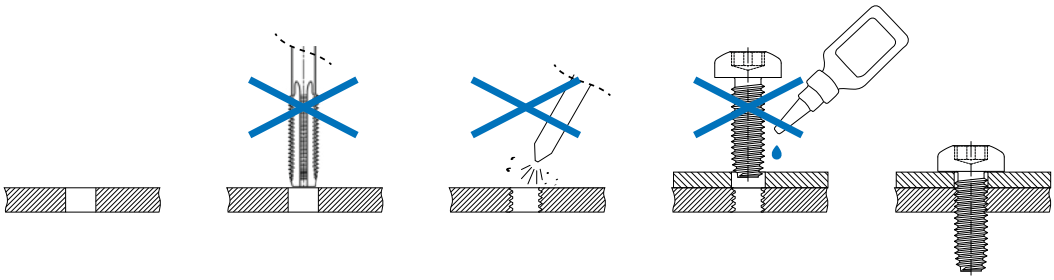
The advantages

- Can be used in stainless steels
- Resistance against vibration loosening
- No thread cutting
- Higher load-bearing capacity due to strain hardening of the nut material
- Compatible with metric screw threads
- High corrosion resistance (comparable to INOX A2)

Please consult your local Bossard E-Shop for the current range and dimensions. Other types on request.

Cost reduction

By using ecosyn®-IMX screws, you are spared thread cutting in production as well as the downstream work, such as the cleaning process.

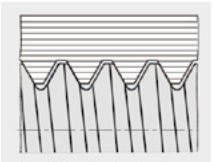


Drill pilot hole | No need for tapping | No cleaning | No thread locking necessary | Tighten screw

Higher load capacity

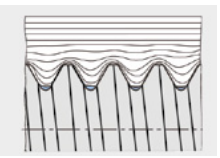
The so-called "grain flow" from the microstructure is deflected in the thread area. This causes strain hardening of the nut thread. The thread thus becomes more load-bearing and the connection is protected against vibration-inducted loosening.

INOX screw with 6 g thread tolerance



Cut nut thread with the necessary thread play

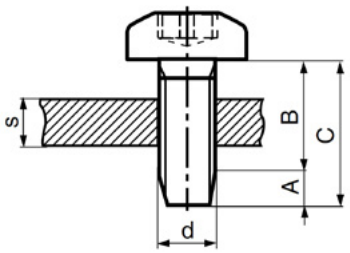
ecosyn®-IMX screw



Hardened and play-free nut thread

Design of the pilot holes

Please note that the pilot hole diameter depends on the material hardness, material thickness and hole manufacturing methodology. In addition, thread-forming screws have a tapered lead thread. This makes assembly easier as it aligns the screw and begins to form the thread. This not fully load-bearing area A is 4xP (P = thread pitch).



A Conical screw end of max. 4xP
B Usable thread length
C Overall length
d Hole diameter (H11)
s Material thickness

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Reference value for hole geometry into stainless steel

Punching processes can harden the edge layer of the pilot hole. To ensure a process-reliable use, practical assembly tests are required.

Material thickness s	M2.5	M3	M4	M5
mm	Pilot hole diameter d (tolerance H11)			
1	2.25			
2	2.3	2.75		
3	2.35	2.8	3.7	4.6
4		2.85	3.75	4.65
5			3.8	4.7
6				4.75

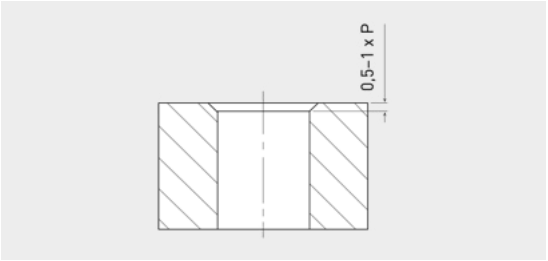
All recommendations are always to be checked via practical assembly tests.

Selection of hole geometries

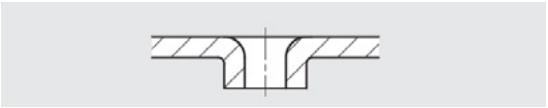
Common production methods

- Punching
- Laser cutting
- Drilling (recommended chamfer 0.5 - 1.0xP)
- Sheet metal through hole according to ~DIN 7952-1
  Increase the thread engagement for thin sheets.
  No countersinking necessary.

A missing countersink can pull material into the clamped part creating uneven surfaces and gaps.



45° countersinking recommended for drilled holes

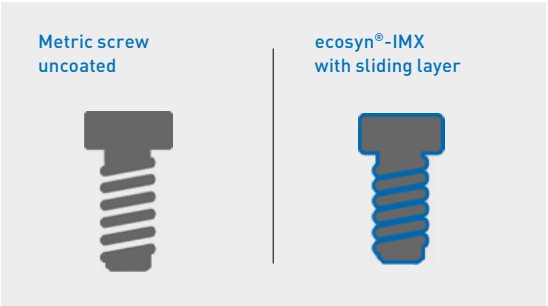


Punched through hole

Assembly and application

For the assembly, we recommend a driving tool with a process-reliable shutdown function. The recommended assembly speed is 400 rpm. The tightening torque is determined in practical applications.

Repeat assembly or maintenance work is not a problem for ecosyn®-IMX. However, if you are missing a screw during maintenance, simply replace it with a commercially available metric screw with the same properties. However, check whether an additional securing system is required. To ensure the process reliability during repeat assemblies, these requirements should be taken into consideration during screw connection tests.



A transparent sliding film facilitates screwing in the screw and ensures the necessary process reliability. The hexabular socket drive allows for the optimal force transmission and is ideal for automated assembly processes.

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Product range overview

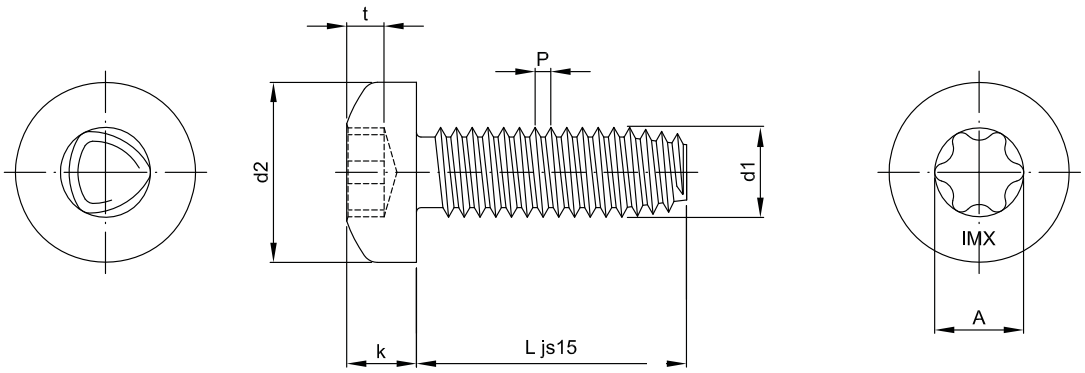
● **BN 349** | Thread-forming pan head screw ecosyn®-IMX

INOX with sliding coating (head according to ISO 14583, hexalobular socket according to ISO 10664)

d_1(mm)	M2.5	M3	M4	M5
d_2 max. (mm)	5	5.6	8	9.5
k max. (mm)	2.1	2.4	3.1	3.7	
	X8	X10	X20	X25
t max. (mm)	1.04	1.27	1.66	1.91
Thread pitch P (mm)	0.45	0.5	0.7	0.8
A ~(mm)	2.4	2.8	3.95	4.5
Breaking torque* min. (Nm)	1.2	2.1	4.5	9.4

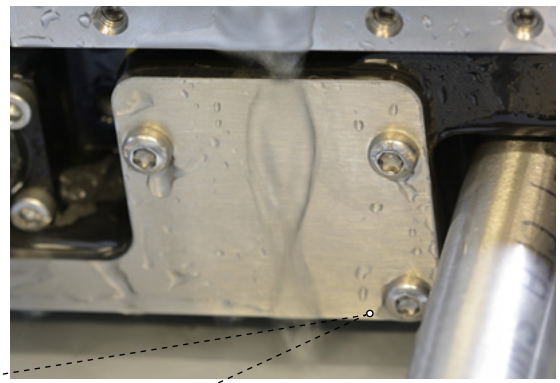
*The forming torque must always be less than the minimum breaking torque

Length	L	M2.5	M3	M4	M5
js15	8	●	●	●	●
	10	●	●	●	●
	12	●	●	●	●
	16		●	●	●
	20			●	●
	25				●



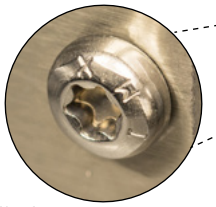
Areas of application

ecosyn®-IMX screws made of a martensitic, quenched and tempered stainless steel are especially intended for direct assembly in corrosion resistant thin sheet metal (INOX A2, etc.). The screws can be assembled into all plastically, deformable materials with a maximum hardness range from 135 HV to 250 HV. Stress corrosion cracking is possible in aggressive environments and with and certain material combinations.



Some application examples:

- Sheet metal constructions
- Covers
- Brackets
- Profile connections
- Application for the apparatus engineering and ventilation systems



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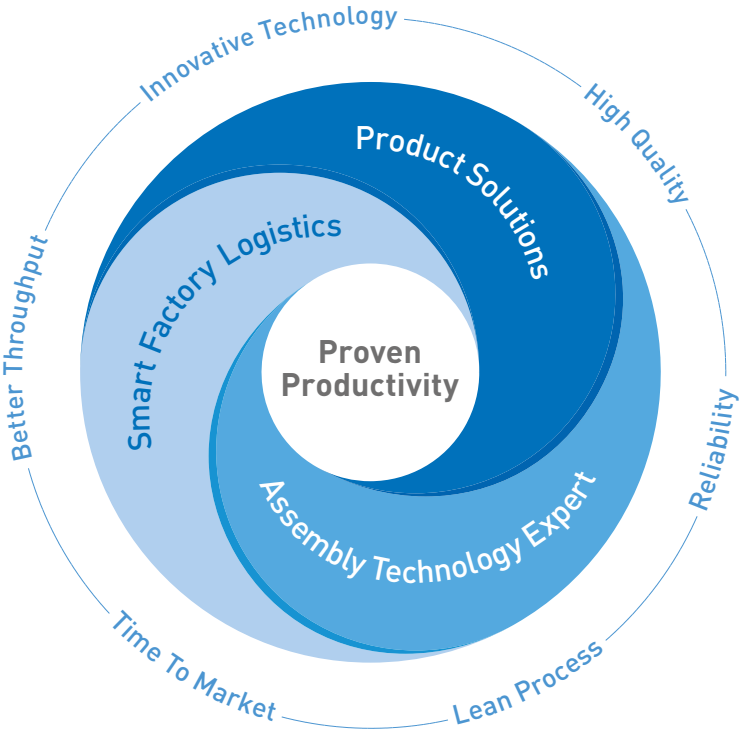
PROVEN PRODUCTIVITY – A PROMISE TO OUR CUSTOMERS

The strategy for success



From years of cooperation with our customers we know what achieves proven and sustainable impact. We have identified what it takes to strengthen the competitiveness of our customers. Therefore we support our customers in three strategic core areas.

Firstly, when finding optimal **Product Solutions**, that is in the evaluation and use of the best fastening part for the particular function intended in our customers' products.

Second, our **Assembly Technology Expert** services deliver the smartest solutions for all possible fastening challenges. Our services cover from the moment our customers developing a new product, to assembly process optimization as well as fastening technology education for our customers' employees.

And thirdly, optimising our clients' productions in a smart and lean way with **Smart Factory Logistics**, our methodology, with intelligent logistics systems and tailor-made solutions.

Understood as a promise to our customers, "Proven Productivity" contains two elements: Firstly, that it demonstrably works. And secondly, that it sustainably and measurably improves the productivity and competitiveness of our customers.

And this for us is a philosophy which motivates us every day to always be one step ahead.

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