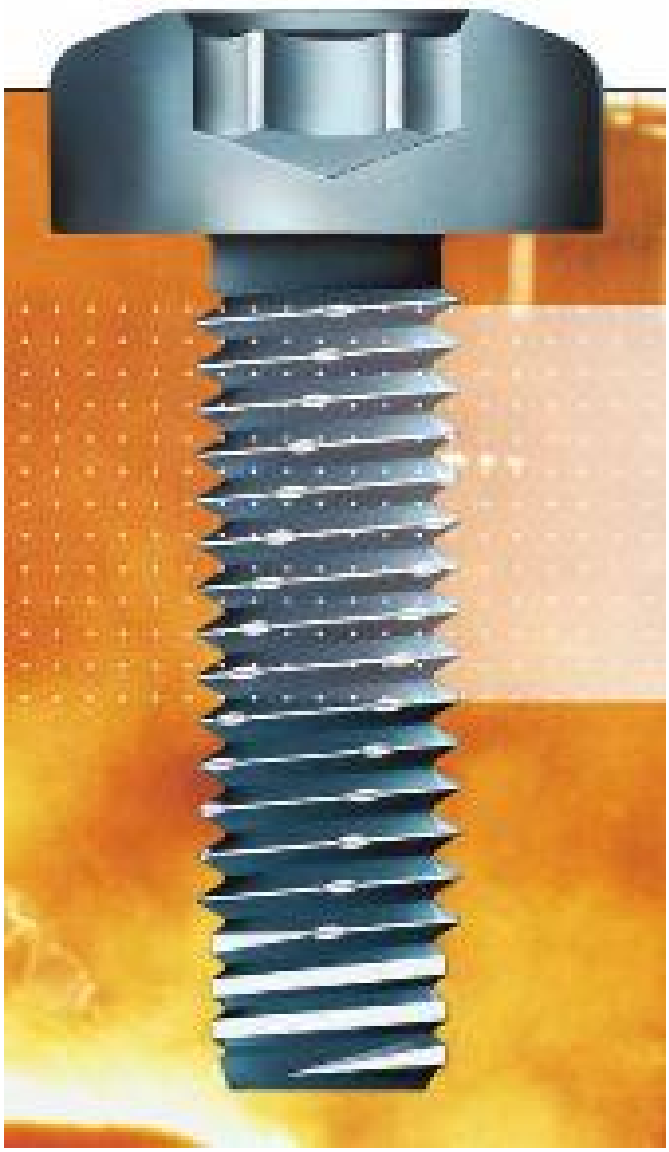
EJOT

EJOT Spiralform®

The thread formers
for metal



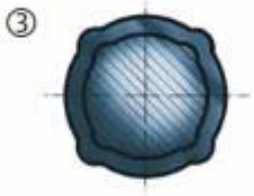
EJOT Spiralform® screws are special fasteners for safe and problem-free screw fixings into metallic materials, especially steel and stainless steel.

Characteristics:

1. Spiralform® thread
EJOT Spiralform® screws have four small lobes that are positioned at 90° around the diameter of the screw and run spirally along the length of the thread. The thread that is formed by the lobes corresponds to metric ISO-standard thread DIN 13, tolerance class 6H.

2.Spiralform® Plus Forming-Point
The Spiralform® Plus-Point and cylindrical thread is designed to achieve low thread forming torque making the initial thread forming process easier.

3. Circular Section
The circular section and small lobes of the Sprialform® thread allow the thread to be formed easily but at the same time ensuring that optimum contact between the screw thread and mating materials is achieved. This results in a consistently high strength process capable joint.



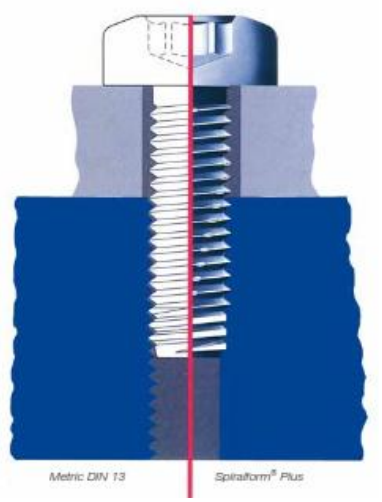
4. Wide range of materials
EJOT Spiralform® screws exist in a range of different strengths and materials (see table).
EJOT Spiralform®

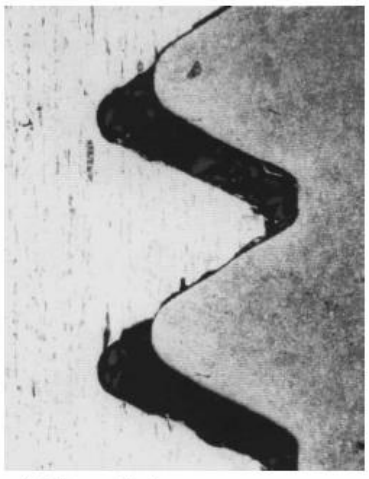
The EJOT Spiralform® product family
The requirements for thread forming screws differ from application to application. Therefore we have developed an EJOT Spiralform® product family which meets the different demands.

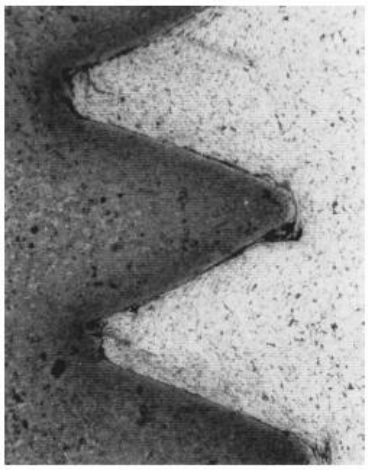
Type	Applications	Versions
Spiralform® 	Steel St 37 to HB 120 (HV 125) the advanced development for low thread forming torques	- case hardened acc. to DIN 7500 DIN EN ISO 7085 respectively *(however min. breaking torque and min. tensile strength according EJOT WN 1361 part 1)** surface hardness min. 450 HV - stainless steel
Spiralform® Plus 	Steel St 37 to HB 120 (HV 125)	

Thread forming - The better economical solution
The unit cost of a traditional metric fastener makes up only 20% of the overall cost of the total screw joint. The remaining 80% of the cost are made up of the cost of thread cutting, deburring and cleaning operations, consumables such as screw taps and pitch gauges, quality control and any rework and rejected parts, not to mention the cost in time of each of these operations.

Thread forming using the EJOT Spiralform® screw on the other hand is far more economical than thread cutting since many of the operations and consumables mentioned above are simply eliminated.




M4 x 16 in a pre-cut thread

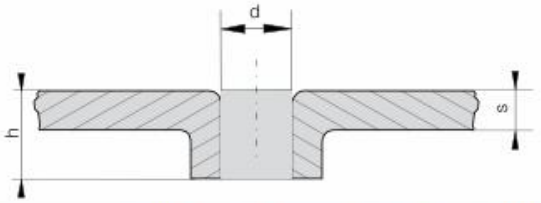

Spiralform® M4 x 16

Design recommendations.
When using the EJOT Spiralform® Plus thread geometry, please ensure sufficient insertion depth for blind holes in particular. The screw point „Plus“ reduces the number of fully load carrying threads by about four (see table below). Spiralform® Plus should be used where sufficient insertion depth and hole clearance are available.

Nominal-Ø	2,5	3,0	3,5	4,0	5,0	6,0	8,0
length of the forming point (max. 4 x P)	1,8	2,0	2,4	2,8	3,2	4,0	5,0

P = pitch
This applies only for the forming point type Plus.

For applications in light weight alloys and die cast materials we advise using the EJOT ALtracs® screw. For thin sheet metals with a thickness of 0,4 mm to 1,0 mm the EJOT FDS® fastener is recommended.

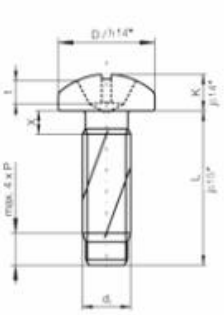
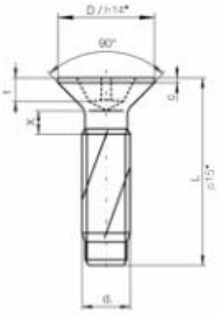
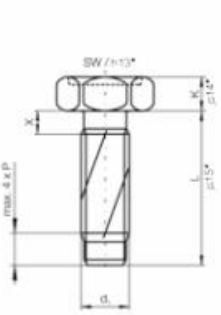
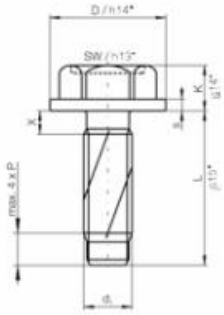


Core hole diameter for sheet metal through drafts in steel HB 110 - 130							
Nominal thread diameter	**M 2,5**	**M 3**	**M 3,5**	**M 4**	**M 5**	**M 6**	**M 8**
Core hole diameter d [mm]	2,25 2,31	2,70 2,76	3,15 3,23	3,60 3,68	4,50 4,58	5,40 5,47	7,30 7,39
Through draught depth	h = (1,5 - 2) s						

Core hole diameter for drilled and punched holes in steel [1]								
Material	**Sheet metal thickness or installation length s [mm]**		**Nominal thread diameter**					
			M 2,5	**M 3**	**M 3,5**	**M 4**	**M 5**	**M 6**	**M 8**
Steel 110 - 130 HV	over	0,5 - 1,5 [2]	2,26 2,20	2,71 2,65	3,175 3,10	3,625 3,55	- -	- -	- -
	over	1,5 - 2,5	2,26 2,20	2,76 2,70	3,175 3,10	3,625 3,55	4,575 4,50	5,475 5,40	- -
	over	2,5 - 4,0	2,31 2,25	2,76 2,70	3,225 3,15	3,675 3,60	4,625 4,55	5,525 5,45	7,34 7,25
	over	4,0 - 6,3	2,36 2,30	2,81 2,75	3,225 3,15	3,725 3,65	4,675 4,60	5,575 5,50	7,44 7,35
	over	6,3 - 10,0	- -	2,81 2,75	3,275 3,20	3,775 3,70	4,725 4,65	5,625 5,55	7,54 7,45
	over	10,0	- -	- -	- -	- -	- -	5,675 5,60	7,59 7,50

1) For screw joints in light weight alloys (Aluminium, Magnesium, and Zinc die-cast) we recommend EJOT ALtracs® screws.
2) For thin sheet metals with a thickness of 0,4 mm to 1,0 mm the EJOT FDS® fastener is recommended.

Designs

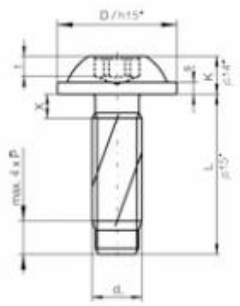
WN 1342	WN 1343	WN 1346	WN 1347
			

H-cross recess | Z-cross recess | TORX® | TORX plus® / AUTOSERT® | Type Plus | Type K

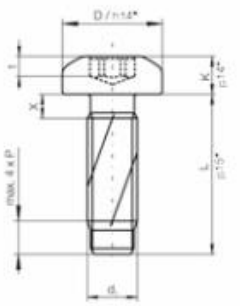
Spiralform®				SF M 2,5	SF M 3	SF M 3,5	SF M 4	SF M 5	SF M 6	SF M 8
	External thread-Ø		d_1	2,50	3,00	3,50	4,00	5,00	6,00	8,00
	Thread pitch		P	0,45	0,50	0,60	0,70	0,80	1,00	1,25
	Thread run-out		X_{max}	0,90	1,00	1,20	1,40	1,60	2,00	2,50
WN 1342	Head-Ø		D	5,00	6,00	7,00	8,00	10,00	12,00	16,00
	Head height		K	2,00	2,40	2,70	3,10	3,80	4,60	6,00
	H-cross-recess	penetration depth	t min.	1,30	1,70	1,74	2,04	2,77	3,03	4,18
			t max.	1,60	2,00	2,24	2,54	3,27	3,53	4,68
	Z-cross-recess	penetration depth	t min.	1,27	1,68	1,65	1,90	2,64	3,02	4,06
			t max.	1,52	1,93	2,11	2,36	3,10	3,48	4,52
	Cross size H/Z			1	1	2	2	2	3	4
WN 1343	Head-Ø		D	4,70	5,60	6,50	7,50	9,20	11,00	14,50
	cyl. head height		c_{max}	0,55	0,55	0,55	0,65	0,75	0,85	0,90
	H-cross-recess	penetration depth	t min.	1,25	1,50	1,40	1,90	2,10	2,80	3,90
			t max.	1,55	1,80	1,90	2,40	2,60	3,30	4,40
	Z-cross-recess	penetration depth	t min.	1,22	1,48	1,34	1,60	2,05	2,46	3,86
			t max.	1,47	1,73	1,80	2,06	2,51	2,92	4,32
	Cross size H/Z			1	1	2	2	2	3	4
WN 1346	Head height		K	1,70	2,00	2,40	2,80	3,50	4,00	5,30
	Width across flats		SW	5,00	5,50	6,00	7,00	8,00	10,00	13,00
WN 1347	Head-Ø		D			8,00	9,00	11,00	13,00	17,00
	Head height		K			3,00	3,40	4,30	5,00	6,60
	Width across flats		SW			6,00	7,00	8,00	10,00	13,00
	Washer thickness		$s^{+0,2}$			0,80	0,80	1,00	1,00	1,00
WN 1321	Head-Ø		D	6,00	7,50	9,00	10,00	11,50	14,50	19,00
	Head height		K	2,10	2,35	2,60	3,05	3,55	4,55	5,90
	Washer thickness		$s^{+0,2}$	0,50	0,60	0,70	0,90	1,05	1,40	1,80
	TORX®			T 8	T 10	T 15	T 20	T 25	T 30	T 40
			$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth		t min.	0,90	1,00	1,10	1,25	1,60	2,00	2,70
			t max.	1,15	1,30	1,40	1,70	2,00	2,40	3,20
	TORX plus® / AUTOSERT®			8 IP	10 IP	15 IP	20 IP	25 IP	30 IP	40 IP
			$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth		t min.	0,90	1,00	1,10	1,30	1,50	1,90	2,60
			t max	1,15	1,30	1,40	1,65	1,90	2,30	3,10

Designs

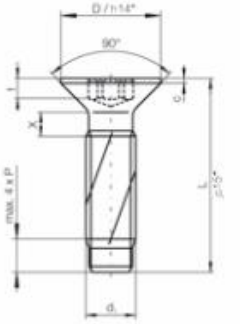
WN 1321



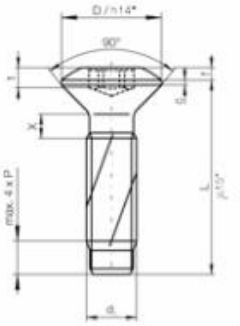
WN 1352



WN 1323



WN 1353



Example of ordering:
Description of EJOT Spiralform® screw with pan head
Z-cross recess, type Plus, Ø 4,0 mm and
length L = 20 mm

EJOT Spiralform® Plus screw WN1342 SF M4 x 20-Z

* see page 8 tolerance

For more information:
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Spiralform®			SF M 2,5	SF M 3	SF M 3,5	SF M 4	SF M 5	SF M 6	SF M 8
	External thread-Ø	d_1	2,50	3,00	3,50	4,00	5,00	6,00	8,00
	Thread pitch	P	0,45	0,50	0,60	0,70	0,80	1,00	1,25
	Thread run-out	X_{max}	0,90	1,00	1,20	1,40	1,60	2,00	2,50
WN 1352	Head-Ø	D	5,00	6,00	7,00	8,00	10,00	12,00	16,00
	Head height	K	2,00	2,40	2,70	3,10	3,80	4,60	6,00
	TORX®		T8	T10	T15	T20	T25	T30	T40
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,90	1,00	1,20	1,40	1,60	2,00	2,70
		t max.	1,15	1,30	1,50	1,80	2,00	2,40	3,20
	TORXplus® / AUTOSERT®		8IP	10IP	15IP	20IP	25IP	30IP	40IP
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,90	1,10	1,10	1,50	1,75	2,20	2,60
		t max	1,10	1,30	1,40	1,80	2,10	2,60	3,10
WN 1323	Head-Ø	D	4,70	5,50	7,30	8,40	9,30	11,30	15,80
	cyl. head height	c_{max}	0,55	0,55	0,65	0,70	0,75	0,85	0,95
	TORX®		T8	T10	T15	T20	T25	T30	T40
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,70	0,75	0,85	1,10	1,15	1,40	1,75
		t max.	0,90	1,10	1,15	1,55	1,55	1,80	2,25
	TORXplus® / AUTOSERT®		8IP	10IP	15IP	20IP	25IP	30IP	40IP
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,70	0,75	0,90	1,10	1,25	1,55	1,85
		t max.	0,90	1,05	1,20	1,45	1,60	2,00	2,40
WN 1353	Head-Ø	D	4,70	5,60	6,50	7,50	9,20	11,00	14,50
	cyl. head height	c_{max}	0,55	0,55	0,55	0,65	0,75	0,85	0,90
		≈f	0,60	0,75	0,90	1,00	1,25	1,00	2,00
	TORX®		T8	T10	T15	T20	T25	T30	T40
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,90	1,00	1,20	1,40	1,60	2,00	2,70
		t max.	1,15	1,30	1,50	1,80	2,00	2,40	3,20
	TORXplus® / AUTOSERT®		8IP	10IP	15IP	20IP	25IP	30IP	40IP
		$A_{Ref.}$	2,40	2,80	3,35	3,95	4,50	5,60	6,75
	Penetration depth	t min.	0,90	1,10	1,10	1,50	1,50	1,90	2,60
		t max.	1,10	1,30	1,40	1,80	1,85	2,30	3,10