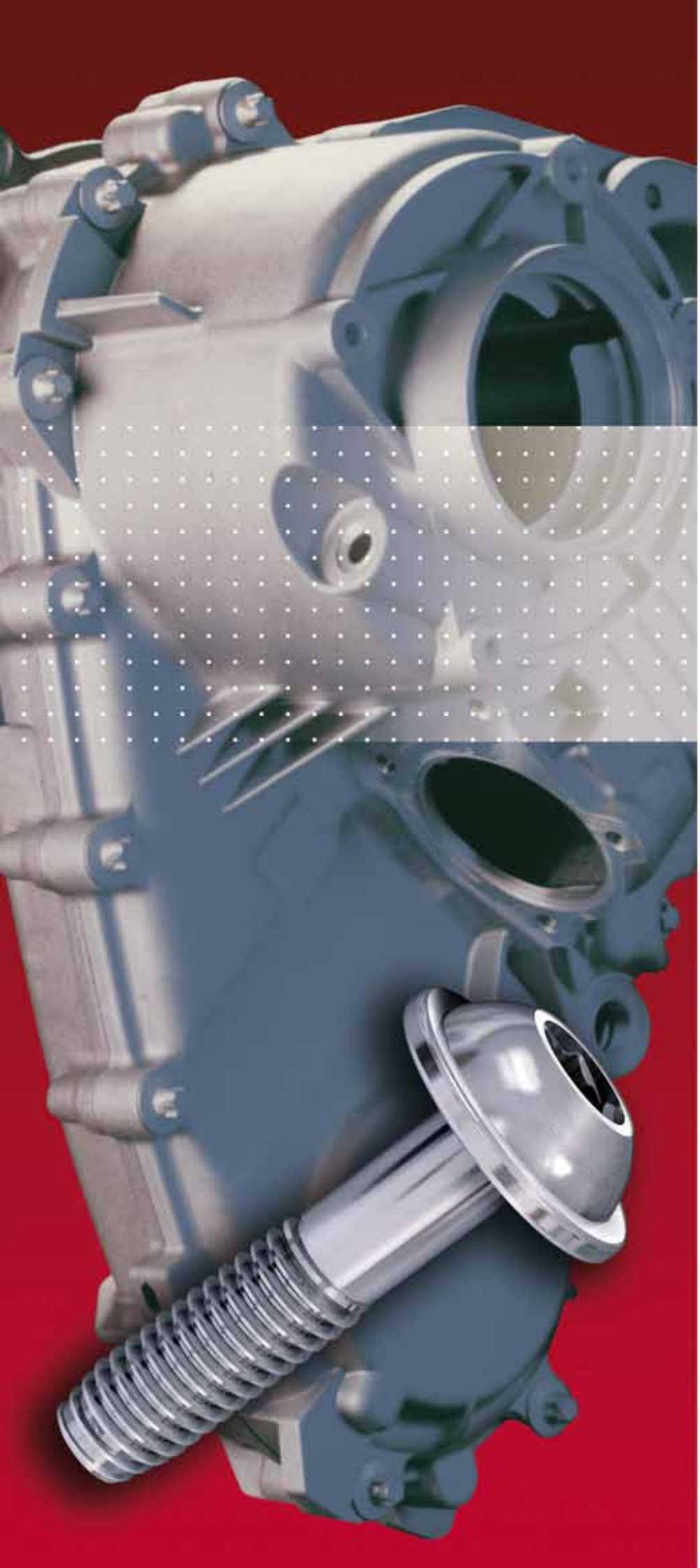

EJOT ALtracs® Plus

The Selftapping Fastener for Light Alloys

ATF The Quality Connection

Imprint
Editor:
EJOT GmbH & Co. KG
Industrial Fasteners Division
D-57334 Bad Laasphe
Germany

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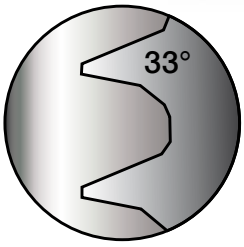
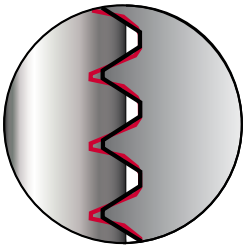
D-57339 Erndtebrück

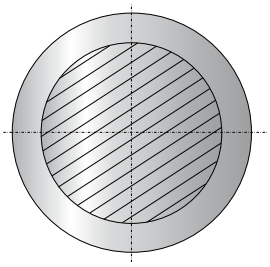
EJOT ALtracs® Plus screws are thread-forming fasteners developed for maximum strength values in light alloy assemblies and other non-ferrous metals such as zinc, copper, brass etc., up to 140 HB.



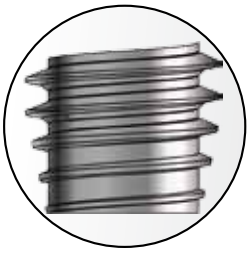
flank angle of 33°



metric compatibility



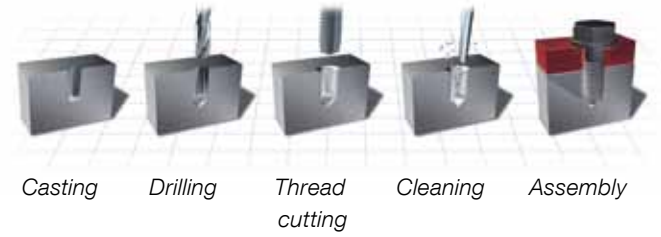
circular thread
cross section



conical
thread forming zone

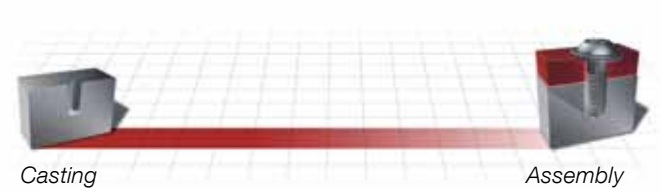
Comparison of Total Costs

Metric Screw



Casting *Drilling* *Thread cutting* *Cleaning* *Assembly*

ALtracs® Plus Screw



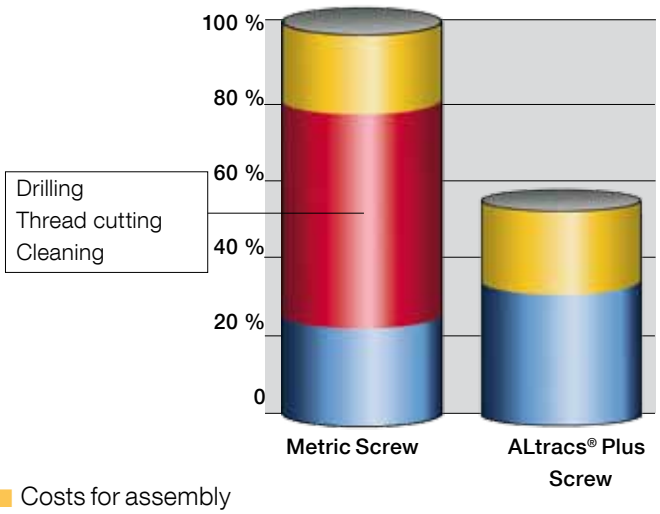
Casting *Assembly*

ALtracs® Plus vs. Metric Threads

Compared to metric screws cost savings of up to 40% can be achieved with threadforming fasteners.

Self-tapping screws can be directly assembled into cast holes as opposed to the pre-drilling, thread cutting and subsequent cleaning of metal chips necessary for metric screws. This financial and time expense can be saved with the use of self-tapping fasteners.

An ALtracs® Plus screw joint achieves strength values which are comparable to the metric screw joint strength value 10.9.



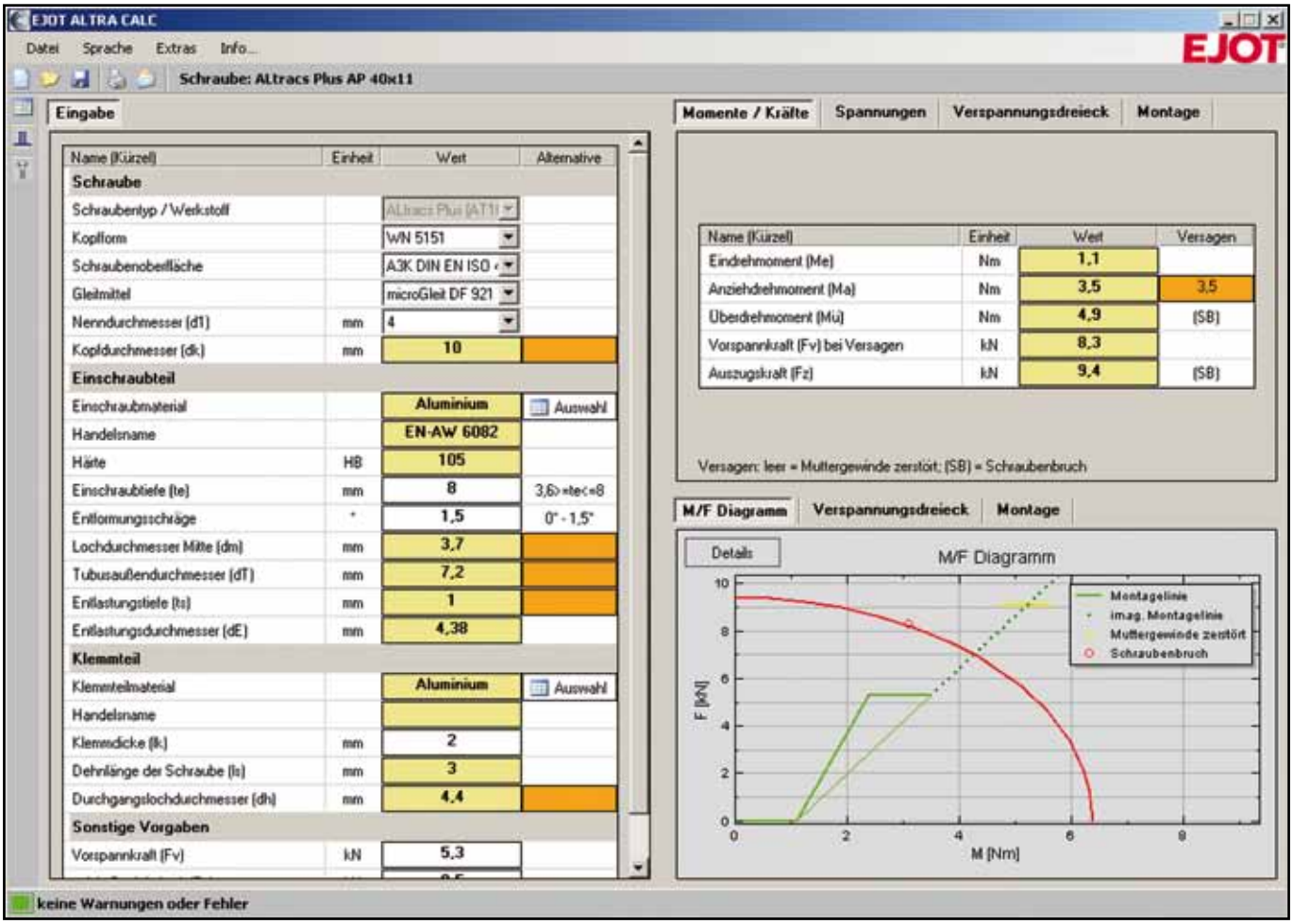
- Costs for assembly
- Costs for handling / processing
- Costs for material

ALtracs® Plus vs. other Thread-Forming Screws

ALtracs® Plus can be directly assembled into cast holes - additional drilling due to high casting tolerances is usually not necessary. The ability of compensating for bigger hole tolerances also leads to a certain immunity against casting flaws like drill drift and porosity.

Due to the high thread engagement per thread, shorter installation depths are possible without any drawbacks concerning the quality of the joint - consequently shorter core pins for casting can be used.

All this leads to cost savings at the casting tools and longer service intervals.



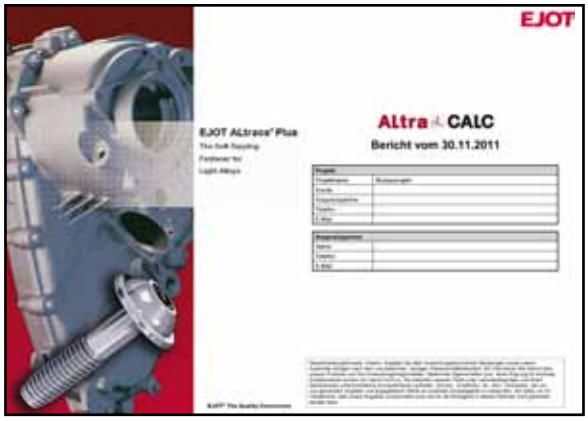
Clamp load oriented design in light metal

With the ALtra CALC prognosis programme, you can theoretically estimate screw joints in light metal. By taking the mechanical properties of the mating material and the screw surface into account, a prognosis of the torque, clamp load and failure mode is carried out.

In accordance with VDI 2230, a clamp load oriented design is possible.

The results are documented in an extensive report.

The EJOT prognosis programme enables dimensioning of screw joints for the future. That adds safety during the design stage.
A practical test with the components can be done in the EJOT APPLITEC.



ALtra CALC test report

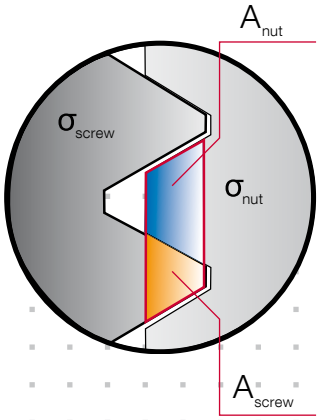
Thread Design

Thread Flank Design

The thread design plays a key roll for direct assemblies into light alloy.

In order to maximise the overall performance of the screw joint, the load capacity of the female thread needs to be improved.

Different material strengths of steel and alloy require a specific design of the steel screw for use in light alloy.

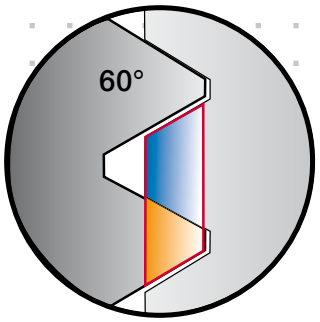


Material strength ratio light alloy assemblies:

$$\frac{\sigma_{screw}}{\sigma_{nut}} \approx \frac{3}{1}$$

An optimum stability ratio between male and female thread requires:

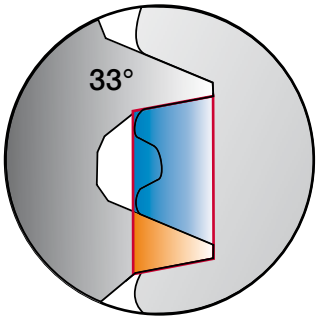
$$\frac{A_{nut}}{A_{screw}} \approx \frac{3}{1}$$



60° Thread

A screw joint with a 60° flank angle allows only a stability ratio of:

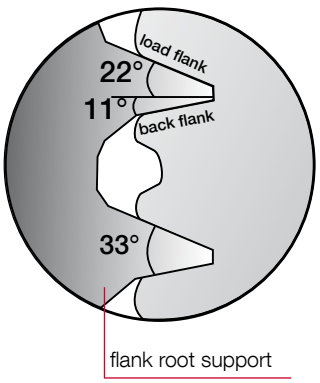
$$\frac{A_{nut}}{A_{screw}} \approx \frac{1{,}5}{1}$$



ALtracs® Plus Thread

The ALtracs® thread geometry achieves a desirable stability ratio of:

$$\frac{A_{nut}}{A_{screw}} \approx \frac{3}{1}$$

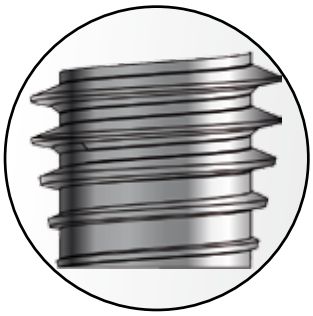


The thread flank angle of 33° forms a considerably stronger female thread in the alloy compared to a 60° thread. The female thread in the weaker alloy material is strengthened by the larger thread root formed by the ALtracs® Plus thread form. This ensures that the desired balanced stability ratio has been achieved for optimum strength.

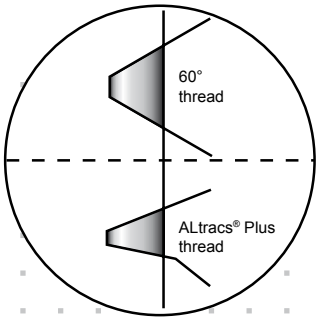
The asymmetric thread flank results in an optimal material displacement and creates a large thread engagement area between the screw thread and the mating material. In addition the flank root support gives extra stability to the thread in high clamp load conditions. The flank root support is specifically designed to allow unhindered material flow during the thread forming process.

Thread Forming Zone

The conical thread forming zone enables good alignment and easy insertion of the ALtracs® Plus fastener.

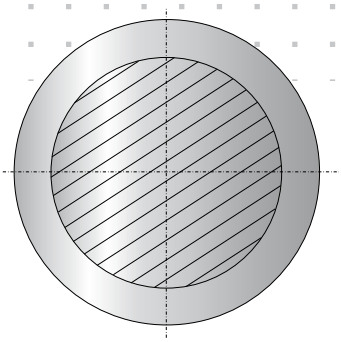


The forming zone in conjunction with the 33° flank angle generates lower installation torque due to the small displacement volume.



Thread Cross Section

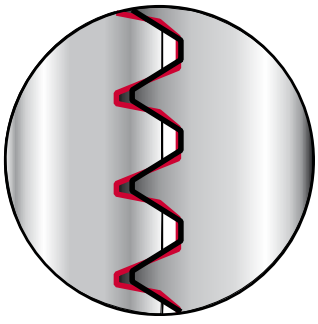
The circular cross section is designed for maximized thread engagement compared to non-circular cross sections or tapped metric threads. The ALtracs® Plus geometry has a favourable influence on load capacity and long-term stability.



Metric Compatibility

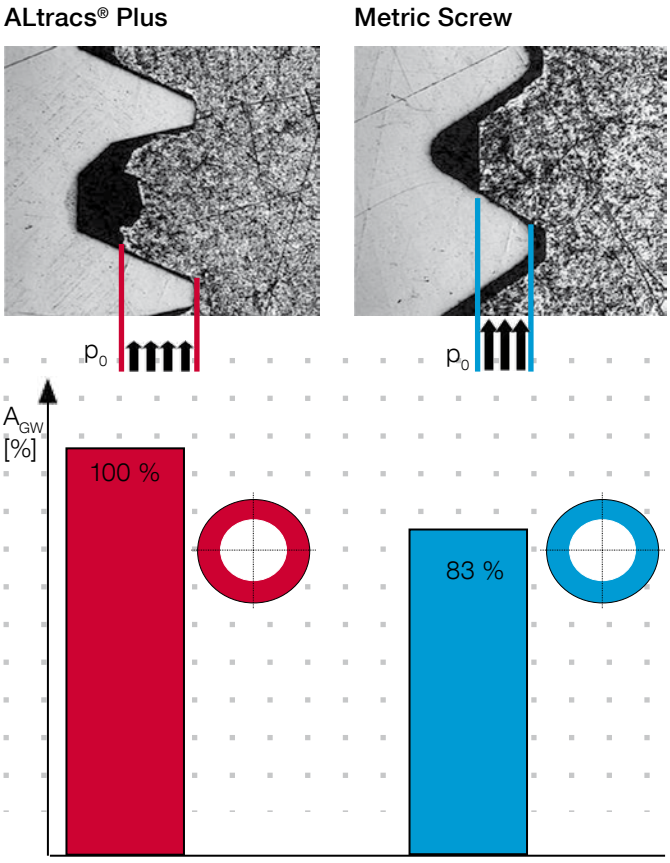
The thread pitch and dimensions ensure metric compatibility and a common metric screw can be used in case of future maintenance or repair.

ALtracs® Plus and metric screws of the same diameter are completely interchangeable if required



ALtracs® Plus thread
metric thread

Load-Carrying Capacity Compared to Metric Fasteners



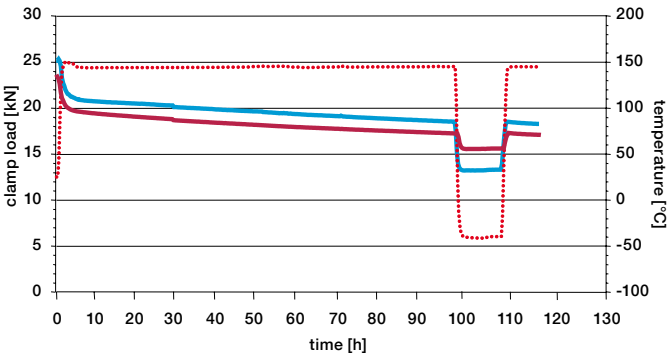
A_{th} = thread engagement
p_0 = surface load

ALtracs® Plus forms a tight-fitting female thread in light metal alloy. Compared to pre-cut metric threads with a minus tolerance at the bolt and a plus tolerance at the female thread ALtracs® Plus achieves a higher thread engagement per thread pitch.

Along with the **geometrically reinforced female thread** the result is a higher load capability of every single ALtracs® Plus turn of thread compared to pre-cut metric screw joints.

The ALtracs® Plus thread withstands high dynamic stress conditions without extra locking features (e.g. lokking patch, under-head profiles).

Load Retention of ALtracs® Plus vs. Metric Threads



Material: EN AC-46000 (AlSi9Cu3)
Hole diameter: tapped metric thread M8
die cast hole ø 7,6 mm
Tightening torque: 37 Nm

— ALtracs® Plus AP 80
— metric screw 10.9, M8
..... graph temperature

Neutral test institutes certify adequate values for EJOT ALtracs® Plus screws compared to high strength screw joints grade 10.9 concerning clamp load torque and fatigue limit.

Assemblies of ALtracs® Plus in aluminium die cast

a) with **equal** tightening torque show:

- comparable clamp load
- equal or better break loose torque
- equal or better long term behavior; that is similar loss of clamp load under temperature and dynamic stress as high strength screw joints according to VDI 2230, class 10.9
- higher pull-out force

b) with **higher** tightening torque (to compensate for the installation torque) show:

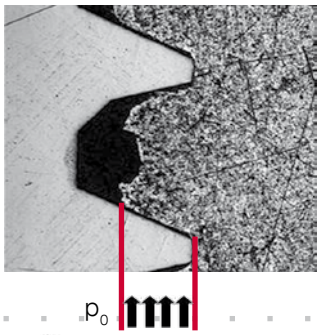
- higher clamp load
- higher break loose torque
- higher pull-out force

Application Alfa Romeo 159,
by courtesy of Meridian Technologies Inc.

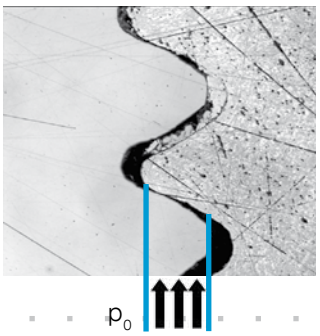
Meridian
TECHNOLOGIES INC.

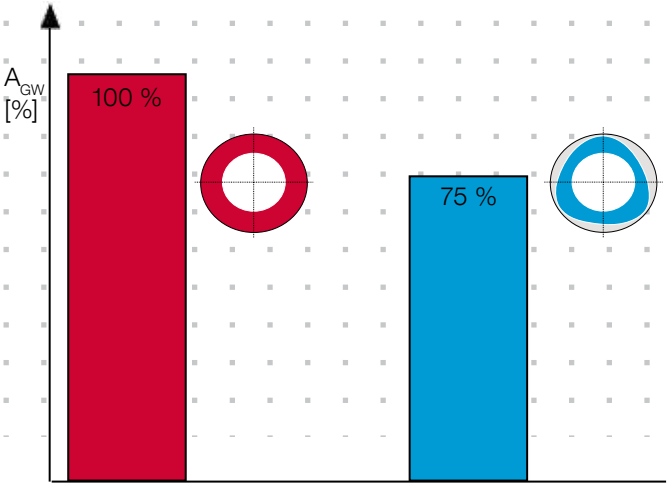
Load Capacity
Compared to non-circular Fasteners

ALtracs® Plus



Non-circular Screw





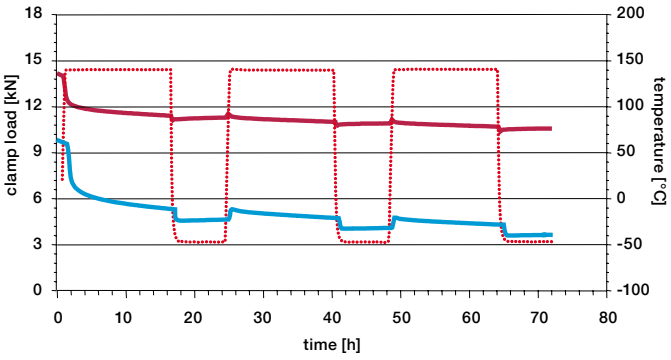
A_{th} = thread engagement
p_0 = surface load

Due to the ALtracs® Plus thread form the **mating material properties are used most effectively**.

This means:

- high assembly safety due to high stripping torque
- high and stable clamp loads due to reinforced female thread flank
- minor creeping due to larger thread flank engagement during thermal/dynamic stress
- possible reduction of insertion depth, resulting shorter screws, smaller component sizes, less weight, and reduced wear and tear of the die casting tools.
- excellent repeat assembly properties
- high vibration resistance

Load Retention of ALtracs® Plus vs. Non-circular Threads



Material: EN AC-46000 (AlSi9Cu3)
Hole diameter: 5,6 mm (blind hole)
Tightening torque: 12,5 Nm

ALtracs® Plus AP 60
selftapping screw M6
graph temperature

Unlike various other thread designs, the ALtracs® Plus thread with its circular cross section is completely engaged and can be fully loaded. In conjunction with the higher load capacity of the **geometrically reinforced female thread** this leads to:

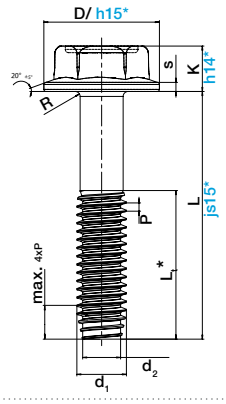
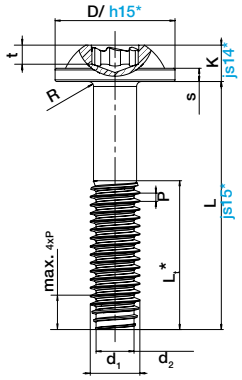
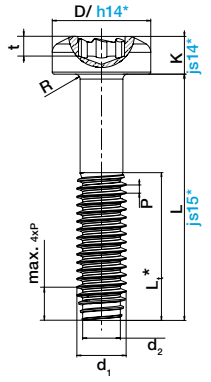
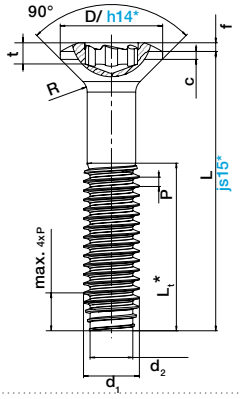
- improved stripping torque
- improved clamp load
- improved long-term behavior (remaining clamp load, dynamic safety)
- improved break loose torque
- improved pull out force

Test results for ALtracs® Plus show advantages of up to 60% in remaining clamp load compared to other self-tapping fasteners, especially under thermal and dynamic stress.

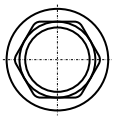
Application Audi,
by courtesy of TCG Unitech

TCG

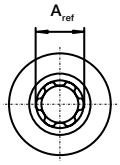
Designs

WN 5117	WN 5151	WN 5152	WN 5153
			

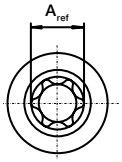
Drives



Hexagon Flange Head

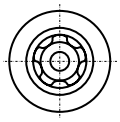


TORX PLUS® / AUTOSERT®



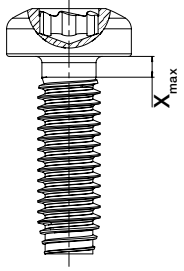
TORX®

Security Drive



Tamper Resistant TORX PLUS®

Thread run-out of full thread



EJOT ALtracs® Plus																
Nominal Ø		**16**	**18**	**20**	**22**	**25**	**30**	**35**	**40**	**50**	**60**	**[70]**	**80**	**[90]**	**100**	**120**	**140**
External thread-Ø	d_1	1,60	1,80	2,00	2,20	2,50	3,00	3,50	4,00	5,00	6,00	7,00	8,00	9,00	10,00	12,00	14,00
Core-Ø	d_2	1,12	1,32	1,45	1,61	1,88	2,30	2,66	3,02	3,87	4,59	5,56	6,23	7,20	7,86	9,86	11,86
Thread pitch	P	0,35	0,35	0,40	0,45	0,45	0,50	0,60	0,70	0,80	1,00	1,00	1,25	1,25	1,50	1,75	2,00
Thread run-out	X_{max}	0,70	0,70	0,80	0,90	0,90	1,00	1,20	1,40	1,60	2,00	2,00	2,50	2,50	3,00	3,50	4,00

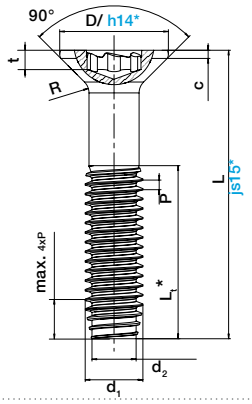
WN 5147													
Head-Ø	D	**no manufacturing at present**						11,50	14,00	upon request	18,00	upon request	
Width across flats	SW							8,00	10,00		13,00		
Head height	K							4,80	5,50		7,50		
Washer thickness	s							1,00	1,10		1,20		
Radius	R_{max}							0,40	0,50		0,70		

WN 5151													
Head-Ø	D	upon request	5,00	5,50	6,00	7,50	9,00	10,00	11,50	14,50	upon request	19,00	upon request
Head height	K		1,50	1,60	2,00	2,25	2,50	2,90	3,40	4,40		5,70	
Washer thickness	s		0,60	0,60	0,60	0,70	0,80	1,00	1,20	1,60		2,00	
Radius	R_{max}		0,30	0,30	0,30	0,40	0,40	0,50	0,50	0,60		0,80	
TORX PLUS® / AUTOSERT®			6IP	7IP	8IP	10IP	15IP	20IP	25IP	30IP		40IP	
	A_{Ref}		1,75	2,05	2,40	2,80	3,35	3,95	4,50	5,60		6,75	
Penetration depth	t min.		0,65	0,70	0,90	1,00	1,10	1,30	1,50	1,90		2,60	
	max.		0,85	0,85	1,10	1,30	1,40	1,65	1,85	2,30		3,10	

TORX PLUS®/AUTOSERT® is used as a standard recess.
All TORX® recesses from size 8 are available with combi recess.
Other recesses on request.

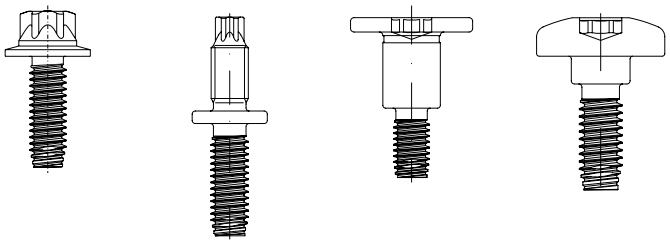
Example of Ordering:
Description of EJOT ALtracs® Plus screws with TORX PLUS®/AUTOSERT® recess, nominal Ø 6,0 mm and thread length 25 mm, shaft length 18 mm WN5151
EJOT ALtracs® Plus screw WN5151, AP 60 x 25/18

WN 5154



*** see page 14 tolerance**

Specials / Examples



Material:

- through hardened steel AT10 according WN5161, part 2 (analog metric, steel grade 10.9)
- stainless steel grade A2 / A4

Chrome VI Free Platings:

- zinc clear / blue passivated*
- zinc / thick film passivation*
- ZnFe or ZnNi / transparent passivated* (with or without black top coat)
- ZnNi / black passivated*
- zinc flake coatings (for example DELTA PROTEKT)

* Additional sealing possible

Lubrication as Standard
(Dimensions Ø < 3 mm upon request)

Different platings and special design upon request.

More information at the EJOT Hotline:
phone +49 2751 529-123
fax +49 2751 529-559
e-mail: hotline@ejot.de

EJOT ALtracs® Plus																	
Nominal Ø		**16**	**18**	**20**	**22**	**25**	**30**	**35**	**40**	**50**	**60**	**[70]**	**80**	**[90]**	**100**	**120**	**140**
External thread-Ø	d_1	1,60	1,80	2,00	2,20	2,50	3,00	3,50	4,00	5,00	6,00	7,00	8,00	9,00	10,00	12,00	14,00
Core-Ø	d_2	1,12	1,32	1,45	1,61	1,88	2,30	2,66	3,02	3,87	4,59	5,56	6,23	7,20	7,86	9,86	11,86
Thread pitch	P	0,35	0,35	0,40	0,45	0,45	0,50	0,60	0,70	0,80	1,00	1,00	1,25	1,25	1,50	1,75	2,00
Thread run-out	X_{max}	0,70	0,70	0,80	0,90	0,90	1,00	1,20	1,40	1,60	2,00	2,00	2,50	2,50	3,00	3,50	4,00

WN 5152														
Head-Ø	D	upon request	4,00	4,40	5,00	6,00	7,00	8,00	10,00	12,00	upon request	16,00	upon request	
Head height	K		1,50	1,60	2,00	2,40	2,70	3,10	3,80	4,60		6,00		
Radius	R_{max}		0,30	0,30	0,30	0,40	0,40	0,50	0,50	0,60		0,80		
TORX plus® / AUTOSERT®			6IP	7IP	8IP	10IP	15IP	20IP	25IP	30IP		40IP		
	A_{Ref}		1,75	2,05	2,40	2,80	3,35	3,95	4,50	5,60		6,75		
Installation depth t	min.		0,65	0,70	0,90	1,10	1,10	1,50	1,75	2,20		2,60		
	max.		0,85	0,85	1,10	1,30	1,40	1,80	1,90	2,60		3,10		

WN 5153														
Head-Ø	D	upon request	3,80	4,40	4,70	5,60	6,50	7,50	9,20	11,0	upon request	14,50	upon request	
Cyl. head height	c_{max}		0,35	0,45	0,55	0,55	0,55	0,65	0,75	0,85		0,90		
Calotte height	≈ f		0,50	0,60	0,60	0,75	0,90	1,00	1,25	1,00		2,00		
Radius	R_{max}		0,50	0,60	0,70	0,80	1,00	1,00	1,30	1,60		2,00		
TORX plus® / AUTOSERT®			6IP	7IP	8IP	10IP	15IP	20IP	25IP	30IP		40IP		
	A_{Ref}		1,75	2,05	2,40	2,80	3,35	3,95	4,50	5,60		6,75		
Installation depth t	min.		0,65	0,70	0,90	1,10	1,10	1,50	1,50	1,90		2,60		
	max.		0,85	0,85	1,15	1,30	1,40	1,80	1,85	2,30		3,10		

WN 5154														
Head-Ø	D	upon request	3,80	4,40	4,70	5,50	7,30	8,40	9,30	11,30	upon request	15,80	upon request	
Cyl. head height	c_{max}		0,35	0,45	0,55	0,55	0,65	0,70	0,75	0,85		0,95		
Radius	R_{max}		0,50	0,60	0,70	0,80	0,95	1,00	1,30	1,60		2,00		
TORX plus® / AUTOSERT®			6IP	7IP	8IP	10IP	15IP	20IP	25IP	30IP		40IP		
	A_{Ref}		1,75	2,05	2,40	2,80	3,35	3,95	4,50	5,60		6,75		
Installation depth t	min.		0,50	0,70	0,70	0,80	0,95	1,10	1,25	1,55		1,90		
	max		0,65	0,85	0,90	1,05	1,20	1,45	1,60	2,00		2,40		

Manufacturing Range

Nominal Value [mm]								
Tolerance		over 3	over 6	over 10	over 18	over 30	over 50	over 80
	to 3	to 6	to 10	to 18	to 30	to 50	to 80	to 120
h 14	0 - 0,25	0 - 0,30	0 - 0,36	0 - 0,43	0 - 0,52			
h 15	0 - 0,40	0 - 0,48	0 - 0,58	0 - 0,70	0 - 0,84			
js 14	± 0,12	± 0,15	± 0,18	-	-	-	-	-
js 15	± 0,20	± 0,24	± 0,29	± 0,35	± 0,42	± 0,50	± 0,60	± 0,70

EJOT ALtracs® Plus Screw	16	18	20	22	25	30	35	40	50	60	70	80	90	100	120	140
External-Ø d_1	1,6	1,8	2,0	2,2	2,5	3,0	3,5	4,0	5,0	6,0	7,0	8,0	9,0	10,0	12,0	14,0
External-Ø tolerance	±0,04	±0,04	±0,04	±0,04	±0,05	±0,05	±0,05	±0,06	±0,06	±0,07	±0,07	±0,07	±0,09	±0,09	±0,09	±0,09
Core-Ø tolerance	+0,12	+0,12	+0,12	+0,12	+0,14	+0,14	+0,14	+0,16	+0,16	+0,18	+0,18	+0,18	+0,22	+0,22	+0,22	+0,22
Partial thread L-toler.	-0,70	-0,70	-0,80	-0,90	-0,90	±0,50	±0,60	±0,70	±0,80	±1,00	±1,00	±1,25	±1,25	±1,50	±1,75	±2,00

For full tread please note run-out x_{max}.
Manufacturing range and thread length (figures in dark-grey field = thread length).
Partical thread length for counter sunk heads on request or in the EJOT Service Area under www.ejot.com.

EJOT ALtracs® Plus Screw	16	18	20	22	25	30	35	40	50	60	70	80	90	100	120	140
d_1 [mm]	1,6	1,8	2,0	2,2	2,5	3,0	3,5	4,0	5,0	6,0	7,0	8,0	9,0	10,0	12,0	14,0
Length L [mm]																
3,5 ± 0,24	3,5															
4 ± 0,24	4	4	4													
4,5 ± 0,24	4,5	4,5	4,5	4,5												
5 ± 0,24	5	5	5	5	5											
6 ± 0,24	5	6	6	6	6	6										
7 ± 0,29	5	6	6	7	7	7	7									
8 ± 0,29	5	6	6	7	8	7	8	8								
9 ± 0,29	5	6	6	7	8	7	9	9								
10 ± 0,29	5	6	6	7	8	9	9	10	10							
12 ± 0,35	5	6	6	7	8	9	11	10	12	12						
14 ± 0,35	5	6	6	7	8	9	11	12	12	14	14					
16 ± 0,35	5	6	6	7	8	9	11	12	15	14	16	16				
18 ± 0,35		6	6	7	8	9	11	12	15	14	16	18	18			
20 ± 0,42			6	7	8	9	11	12	15	18	16	19	20	20		
22 ± 0,42				7	8	9	11	12	15	18	21	19	21	22		
25 ± 0,42					8	9	11	12	15	18	21	24	21	23	25	
30 ± 0,42						9	11	12	15	18	21	24	27	23	28	30
35 ± 0,50							11	12	15	18	21	24	27	30	28	32
40 ± 0,50								12	15	18	21	24	27	30	36	32
50 ± 0,50									15	18	21	24	27	30	36	42
60 ± 0,60										18	21	24	27	30	36	42
70 ± 0,60											21	24	27	30	36	42
80 ± 0,60												24	27	30	36	42
90 ± 0,70													27	30	36	42
100 ± 0,70														30	36	42

≙ min. length (counter sunk head length "L" + 0,6 x d_1)

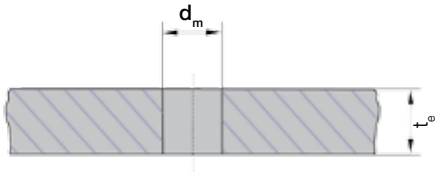
≙ max. length

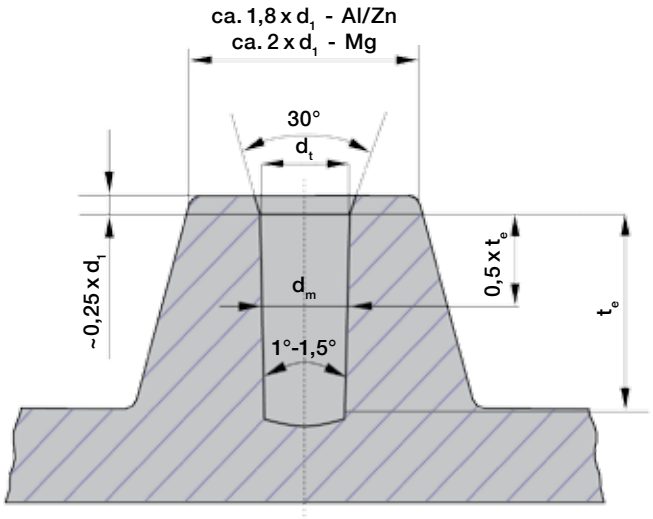
with alternative thread forming zone available

Manufacturing range does not necessarily indicate stock items.

Special length on request!

Design Recommendations





d_1 = nominal diameter of screw
d_m = hole diameter middle
d_t = hole diameter top
t_e = insertion depth

All indications in mm.
For pre-hole design please choose d_m **or** d_t

Recommendation for cast, drilled, punched or extruded pre-holes in aluminum, magnesium, zinc, copper, brass, bronce up to hardness of 140 HB

Hard-ness	50-85 HB			75-115 HB				110-140 HB		
t_e	1,0 x d_1	1,5 x d_1	2,0 x d_1	0,5 x d_1	1,0 x d_1	1,5 x d_1	2,0 x d_1	0,5 x d_1	1,0 x d_1	1,5 x d_1
d_1	**d_m**	**d_m** [d_t]	**d_m** [d_t]	**d_m**	**d_m**	**d_m** [d_t]	**d_m** [d_t]	**d_m**	**d_m**	**d_m** [d_t]
1,6	1,46	1,48 [1,51]	t_{emax}= 1,5 x d_1	1,46	1,48	1,49 [1,52]	t_{emax}= 1,5 x d_1	1,48	1,49	1,51 [1,54]
1,8	1,63	1,65 [1,69]	t_{emax}= 1,5 x d_1	1,63	1,65	1,67 [1,71]	t_{emax}= 1,5 x d_1	1,65	1,67	1,68 [1,72]
2,0	1,83	1,85 [1,89]	t_{emax}= 1,5 x d_1	1,83	1,85	1,87 [1,91]	t_{emax}= 1,5 x d_1	1,85	1,87	1,89 [1,93]
2,2	1,98	2,00 [2,04]	2,03 [2,09]	1,98	2,00	2,03 [2,07]	t_{emax}= 1,5 x d_1	2,00	2,03	2,05 [2,09]
2,5	2,20	2,25 [2,30]	2,30 [2,37]	2,20	2,25	2,30 [2,35]	2,35 [2,42]	2,25	2,30	2,35 [2,40]
3,0	2,65	2,70 [2,76]	2,75 [2,83]	2,65	2,70	2,75 [2,81]	2,80 [2,88]	2,70	2,75	2,80 [2,86]
3,5	3,10	3,15 [3,22]	3,20 [3,29]	3,10	3,15	3,20 [3,27]	3,25 [3,34]	3,15	3,20	3,25 [3,32]
4,0	3,55	3,60 [3,68]	3,65 [3,75]	3,55	3,60	3,65 [3,73]	3,70 [3,80]	3,60	3,65	3,70 [3,78]
5,0	4,40	4,50 [4,60]	4,60 [4,73]	4,40	4,50	4,60 [4,70]	4,70 [4,83]	4,50	4,60	4,70 [4,80]
6,0	5,30	5,40 [5,52]	5,50 [5,66]	5,30	5,40	5,50 [5,62]	5,60 [5,76]	5,40	5,50	5,60 [5,72]
7,0	6,20	6,30 [6,44]	6,40 [6,58]	6,20	6,30	6,40 [6,64]	6,60 [6,78]	6,30	6,40	6,60 [6,74]
8,0	7,00	7,20 [7,36]	7,40 [7,61]	7,00	7,20	7,40 [7,56]	7,50 [7,71]	7,20	7,40	7,50 [7,66]
9,0	7,90	8,10 [8,28]	8,30 [8,54]	7,90	8,10	8,30 [8,48]	8,40 [8,64]	8,10	8,30	8,40 [8,59]
10,0	8,80	9,00 [9,20]	9,20 [9,46]	8,80	9,00	9,20 [9,40]	9,40 [9,66]	9,00	9,20	9,40 [9,60]
12,0	10,60	10,80 [11,04]	11,00 [11,31]	10,60	10,80	11,00 [11,24]	11,20 [11,51]	10,80	11,00	11,20 [11,44]
14,0	12,30	12,60 [12,87]	12,90 [13,27]	12,30	12,60	12,90 [13,17]	13,20 [13,57]	12,60	12,90	13,20 [13,47]

Effect of Surface Treatments

Different surface treatments lead to varying friction coefficients. Therefore we recommend assembly tests with screws including definite plating.

Recommended Pre-hole Tolerances

d_1	pre-hole tolerance
1,6 - 2,0	± 0,03
2,2 - 3,5	± 0,04
4,0 - 5,0	± 0,05
6,0 - 7,0	± 0,07
8,0 - 14,0	± 0,10

Advice for Insertion Depth t_e

- safe assembly process (excl. forming point screw) — min. 0,5 x d_1
- vibration safe screw joint (incl. forming point screw) — min. 1,5 x d_1
- high-strength screw-joint (property class 10.9) (incl. forming point screw) — min. 2,0 x d_1

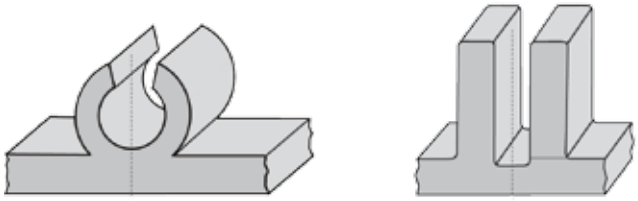
Insertion depth > 2,5 x d_1 is not recommended.

Advice for Assembly

Pneumatic or EC-screw drivers are mandatory for the assembly process and should run between 320 - 800 rpm. It is recomended to check out slower or faster assembly speeds prior to production.
Fastening can be carried out using common tightening strategies (controlled by torque or torque/angle or yield strength) Torque/angle or yield strength controlled tightening needs consideration during screw joint design (screw fracture).

Assembly in Extruded Profiles

- Our extensive data base can assist during design process.
  Please contact EJOT.
- Installation depth $t_e \geq 1{,}5 \times d_1$



The stated design recommandations are suitable for light alloys and other non-ferrous metals with tensile strength ≤ 470 MPa, hardness ≤ 140 HB. Higher material hardness requires an increased hardness of the thread point. In this case we recommend an inductive hardened ALtracs® Plus screw (EJOT® HardTip).

The detailed hole sizes in the previous table are based on laboratory tests. Due to possible deviations from these values in reality, tests on actual parts prior to start of production are recommended. EJOT is running extensive test facilities, the EJOT® APPLITEC, in order to carry out those evaluations.

Our application engineers are pleased to assist your design team in their planning, developing and assembling needs in order to arrive with a high quality product, assembled in the most cost effective way.

Please contact the ATF Application Engineers or our Product Management for application engineering support.

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Your system partner

Test bench at APPLITEC

Training

Design Consultation

A major consideration of today's product manufacture is the basic need to be cost competitive. Significant in achieving this objective is the design process. No other part of the cost structure is influenced more than by design.

Generally speaking, the development of a product, which represents about 10% of the overall costs, determines about 70% of the costs for the final product.

Here the cost responsibility of the design engineer beccomes evident, because he should think about the adequate fastening technology already during the product conception stage. It is known that an alternation of the part during the production stage is much more expensive than an optimisation during the design conception stage.

To assist our customers in this process EJOT offers support during the design stage through comprehensive application engineering services. These services provide accurate information on product performance and result in design recommendations that can be used safely on the production line.

Consequent Application Engineering

The daily work with our customers and their application queries greatly influences our understanding of fastening technology and opens up possibilities for innovation. This way we consequently improve our products to meet customer demands and needs.

In addition to highly-qualified engineers and application-engineering consultants our our application laboratory, the EJOT® APPLITEC, is at your disposition. Here we carry out a series of tests on the customer components and also develop new fastening solutions.

Our knowledge is passed on to our customers and this way supports their effort towards more rational fastening and assembly.

Detailed test reports, technical advice on site, acknowledged seminars and technical publications show our Know-How.

Test report

Logistic and Data Exchange

It is our aim to keep procurement and warehousing costs as low as possible by simultaneously offering product availability and quality.

With respect to simplified procuring processes, EJOT offers a variety of cost reducing procedures and services. The continued analysis of our customers' demands and advanced logistics procedures lead to high availability of our products.

Quality for Automated Assembly

High lot purity of the screws results in minimal malfunctions and higher availability of the machines. Standard quality is not sufficient anymore.

The grade of purity offered by EJOMAT® Quality is 10 times higher than the usual standard quality which means less assembly down time costs:
EJOMAT®, quality that pays for itself.

EJOT Sales Organization

In addition to EJOT companies throughout Europe a growing number of Licensees in North & South America and Asia ensures the global availibility of products and local support.

Contact details can be found on our homepage www.ejot.com.

GFA GLOBAL FASTENER ALLIANCE

Modern PPS-systems lead to high accuracy in supply and short through put times

EJOMAT® for fully automated assembly