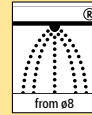
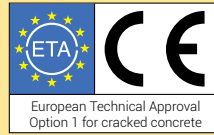
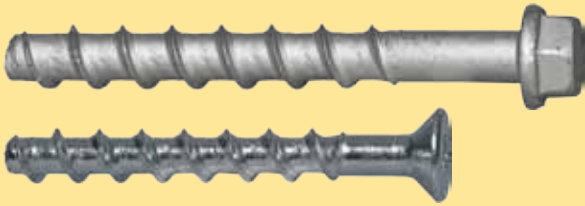
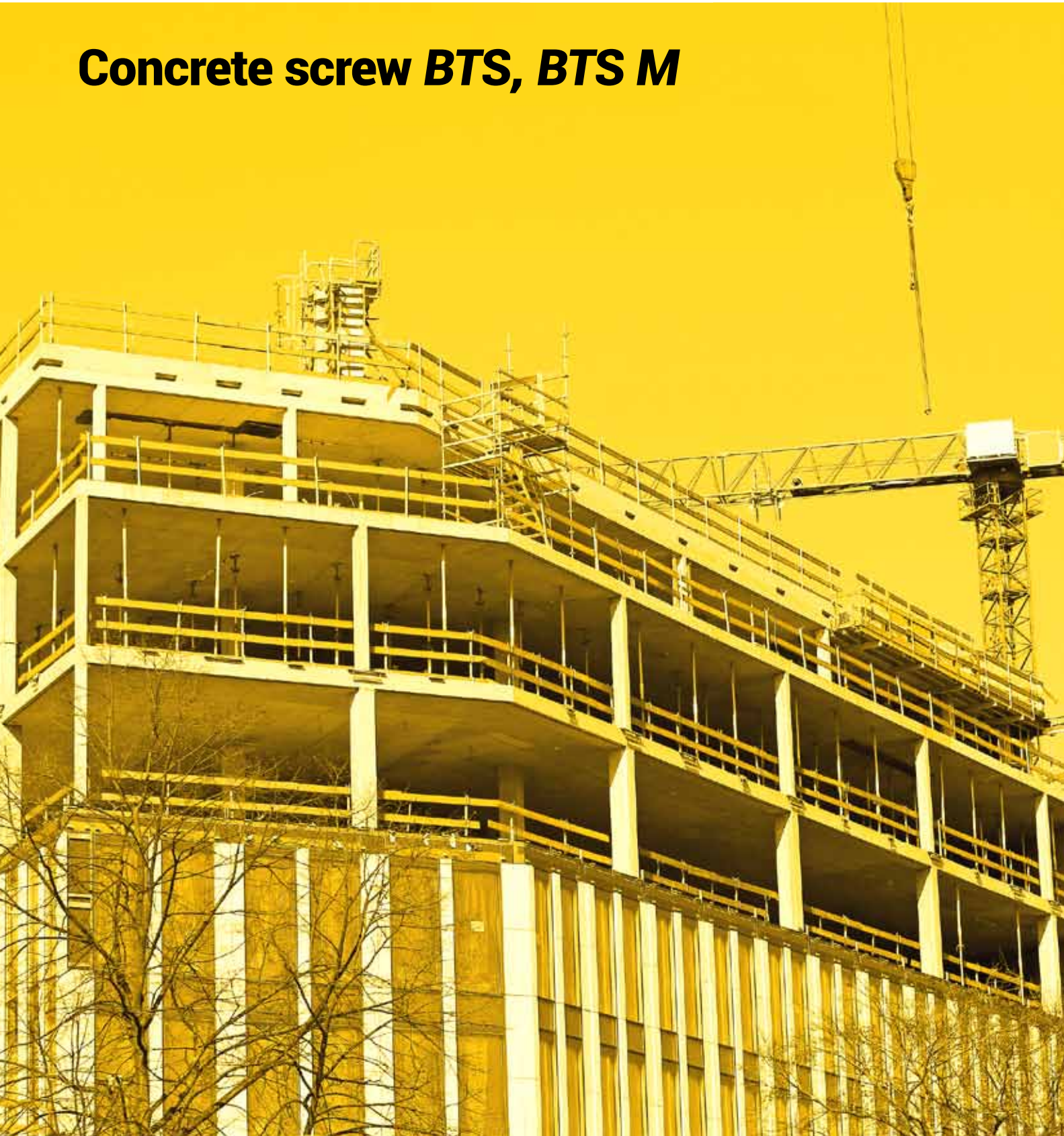


CELO

Made in Germany



Concrete screw *BTS, BTS M*




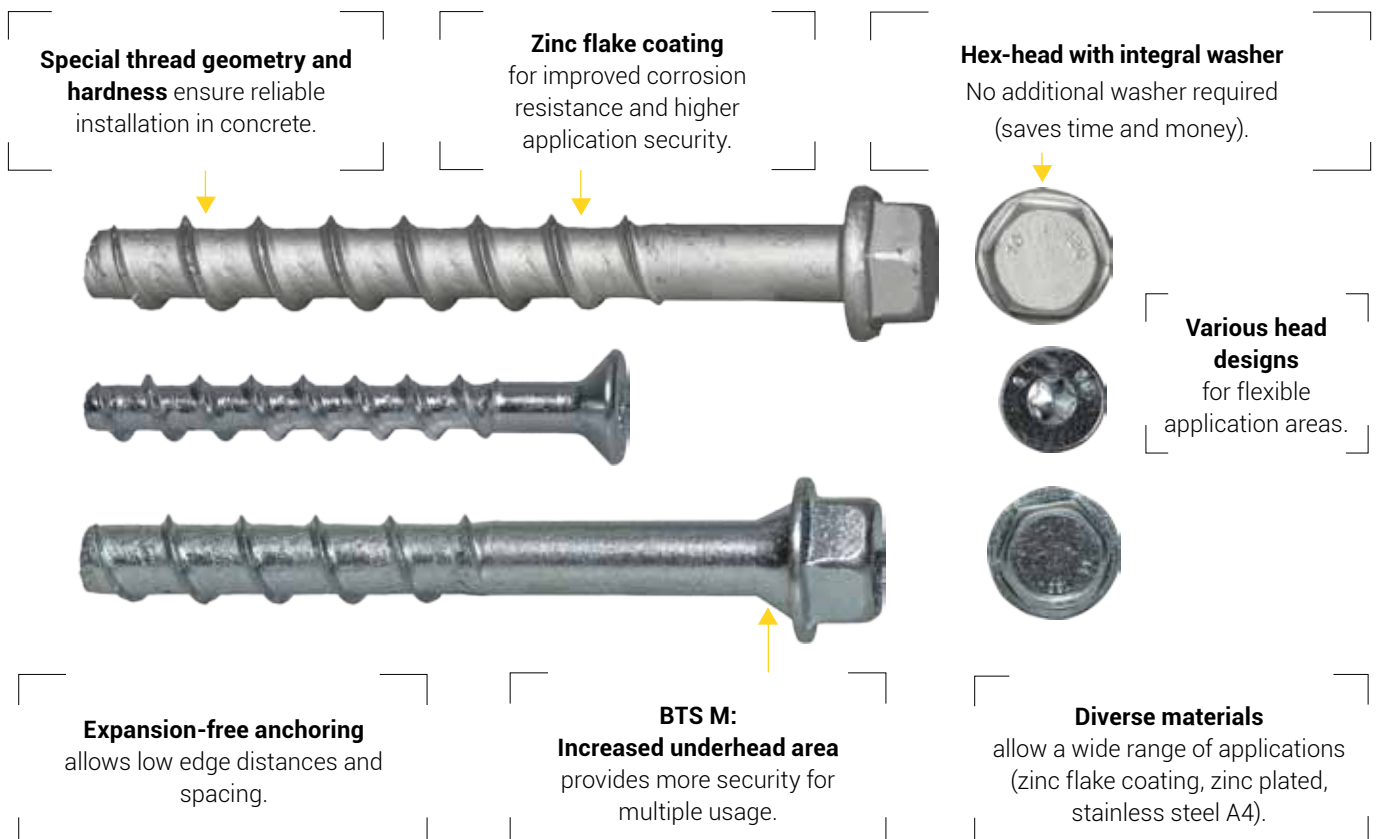
Product advantages – BTS, BTS M

BTS:

- ▶ **Concrete screw BTS with Option 1 for a wide variety of heavy-duty applications**
The BTS is suitable for a wide variety of fixing applications due to the approval in cracked and non-cracked concrete.
- ▶ **Fire resistance class R 120**
For even more safety in case of fire.
- ▶ **Usage under seismic action (C1)**
BTS can be used in seismic areas.
- ▶ **Variable**
Because of three setting depths and adjustability
- ▶ **High loads combined with an easy application**
Use an impact wrench for a fast installation.
- ▶ **Extensive range**
Thanks to various head designs, materials, diameters and lengths.

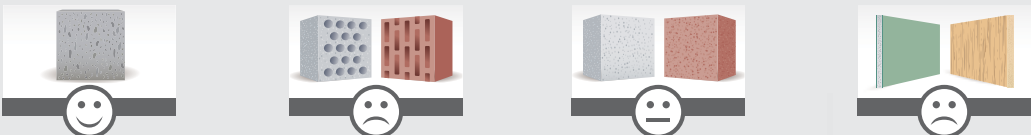






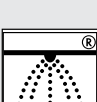

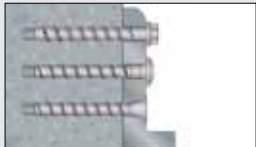
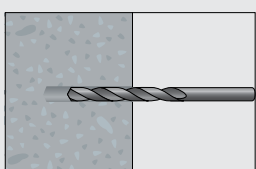
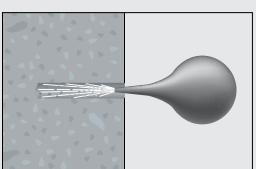
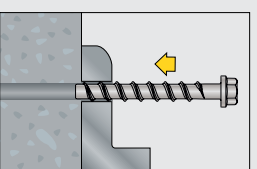
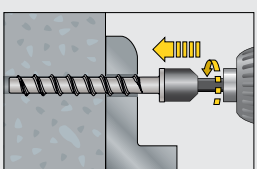
BTS M:

- ▶ **German approval for temporary construction site facilities**
Suitable for the use in fresh concrete (cracked and non-cracked) and for outdoor applications like inclined supports, guardrails and scaffoldings.
- ▶ **Reusable**
Special concrete screw BTS M is used especially for temporary fixings and can be reused several times.
- ▶ **One tube gauge included in every box** 
With the supplied tube gauge you can check the reusability (The BTS M may only be reused if max. 3 threads can penetrate into the tube gauge).



Concrete screw *BTS, BTS M*

Profile – *BTS, BTS M*

Suitable building materials				
Category	Concrete screw for application in cracked and non-cracked concrete			Concrete screw for temp. construction site facilities
Assortment	<div> BTS B: Zinc flake coating and stainless steel A4  </div> <div> BTS ST: Zinc plated and stainless steel A4  </div>			BTS M: Zinc plated 
Sizes	6, 8, 10, 14			14
Approvals and certificates	BTS B 8, 10, 14; BTS ST 8, 10    			BTS M 14 
Typical applications	 BTS in concrete (Metal construction) <div> Suitable for through-mounting fixings such as: <ul style="list-style-type: none"> ▶ Fences ▶ Cable trays ▶ Attaching steel structures ▶ Cantilevers ▶ Profiles ▶ Racks ▶ Temporary constructions ▶ Railings </div>			BTS M: <ul style="list-style-type: none"> ▶ (Inclined) supports ▶ Guardrails ▶ Site facilities
Mounting	<div>  1. Drill hole </div> <div>  2. Clean hole </div> <div>  3. Push BTS through the fixture into the hole </div> <div>  4. Apply required setting torque (impact wrench) </div>			



Cable trays, pipe installations



Railings, banisters



BTS M: Inclined supports / site facilities

Range – BTS, BTS M



Type BTS B:

zinc flake coating



Type BTS B:

stainless steel A4



BTS B with hex-head and integral washer (Head Ø: BTS 8: Ø 16,2 mm; BTS 10: Ø 20,0 mm; BTS 14: Ø 30,0 mm)

Type	Art-No ZnAl-coating	Art-No A4	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	Drive	Packing	
									[pcs]	[pcs]
8-50/-	9ZG850BTSB	–	8	55/65/75	45/55/65	50	5/-/-	SW 13	50	250
8-70/5	9ZG870BTSB	–	8	55/65/75	45/55/65	70	25/15/5	SW 13	50	250
8-80/15	9ZG880BTSB	9X880BTSB	8	55/65/75	45/55/65	80	35/25/15	SW 13	50	250
8-90/25	9ZG890BTSB	–	8	55/65/75	45/55/65	90	45/35/25	SW 13	50	250
10-60/-	9ZG1060BTSB	–	10	65/85/95	55/75/85	60	5/-/-	SW 15	50	250
10-90/5	9ZG1090BTSB	9X1090BTSB	10	65/85/95	55/75/85	90	35/15/5	SW 15	40	200
10-100/15	9ZG10100BTSB	9X10100BTSB	10	65/85/95	55/75/85	100	45/25/15	SW 15	40	200
10-120/35	9ZG10120BTSB	–	10	65/85/95	55/75/85	120	65/45/35	SW 15	40	200
10-140/55	9ZG10140BTSB	–	10	65/85/95	55/75/85	140	85/65/55	SW 15	30	150
10-160/75	9ZG10160BTSB	–	10	65/85/95	55/75/85	160	105/85/75	SW 15	30	150
10-180/95*	9ZG10180BTSB	–	10	65/85/95	55/75/85	180	125/105/95	SW 15	20	100
10-200/115*	9ZG10200BTSB	–	10	65/85/95	55/75/85	200	145/125/115	SW 15	20	80
10-240/155*	9ZG10240BTSB	–	10	65/85/95	55/75/85	240	185/165/155	SW 15	20	80
10-280/195*	9ZG10280BTSB	–	10	65/85/95	55/75/85	280	225/205/195	SW 15	20	80
14-80/-	9ZG1480BTSB	–	14	85/110/125	75/100/115	80	5/-/-	SW 21	20	100
14-110/-	9ZG14110BTSB	–	14	85/110/125	75/100/115	110	35/10/-	SW 21	20	100

* With large washer acc. ISO7094 (DIN 440) for woodworking

¹⁾ ZnAl-coating = zinc flake coating



Type BTS ST:

zinc plated



Type BTS ST:

stainless steel A4



BTS ST with countersunk head (Head-Ø: BTS ST 8: Ø 19,5 mm; BTS ST 10: Ø 21,5 mm)

Type	Art-No zinc plated	Art-No A4	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	Recess	Packing	
									[pcs]	[pcs]
8-80/15	9880BTSST	9X880BTSST	8	55/65/75	45/55/65	80	35/25/15	TX 40	50	250
10-90/5	91090BTSST	9X1090BTSST	10	65/85/95	55/75/85	90	35/15/5	TX 50	40	200



BTS M zinc plated, 1 tube gauge per box included (Head-Ø: 14-80: 28 mm; 14-130: 32 mm)

Type	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	Drive	Packing	
								[pcs]	[pcs]
14-80/5	91480BTSMB	14	85	75	80	5	SW 22	20	100
14-130/15	914130BTSMB	14	85/100/125	75/90/115	130	55/40/15	SW 24	15	75

Loads and installation parameters – BTS, BTS M

Loads and installation parameters (values are valid for BTS in carbon steel and stainless steel)

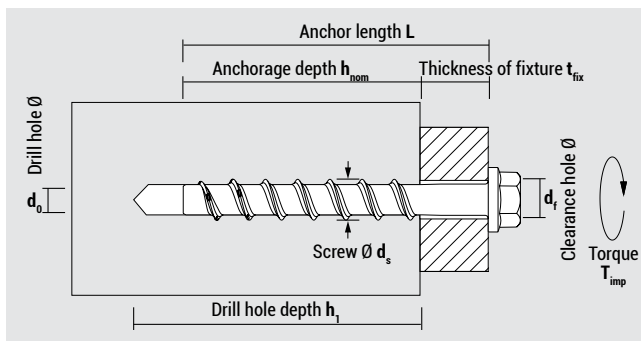
			BTS 8			BTS 10			BTS 14		
Drill hole Ø	d ₀	[mm]	8			10			14		
Thread Ø	d _s	[mm]	10,6			12,6			16,6		
Ø of clearance hole in fixture	d _f ≤	[mm]	12			14			18		
Anchorage depth	h _{nom}	[mm]	45	55	65	55	75	85	75	100	115
Permissible tension load in cracked concrete ^{1), 2), 3)}											
C20/25	N _{per}	[kN]	2,4	4,3	5,7	4,3	7,9	9,6	7,6	12,0	15,1
Permissible tension load in non-cracked concrete ^{1), 2), 3)}											
C20/25	N _{per}	[kN]	3,6	5,7	7,6	5,7	9,5	11,9	10,6	16,9	21,2
Permissible shear load in cracked concrete											
C20/25	V _{per}	[kN]	3,5	4,8	6,4	4,8	15,9	19,2	7,6	24,1	30,3
Permissible shear load in non-cracked concrete											
C20/25	V _{per}	[kN]	5,0	6,8	9,0	6,8	19,4	19,4	10,6	32,0	32,0
Permissible bending moment	M _{per}	[Nm]	15			32			106		
Spacing and edge distance											
Spacing ⁴⁾	s _{ct,N}	[mm]	105	129	156	129	180	204	174	237	276
Edge distance ⁴⁾	c _{ct,N}	[mm]	53	65	78	65	90	102	87	119	138
Minimum spacing ⁴⁾	s _{min}	[mm]	40	50	50	50	50	50	50	70	70
Miniumum edge distance ⁴⁾	c _{min}	[mm]	40	50	50	50	50	50	50	70	70
Minimum thickness of structural part	h _{min}	[mm]	100	100	120	100	130	130	130	150	170
Maximum installation torque for impact wrench	T _{imp} ≤	[Nm]	300			400			500		

¹⁾ Permissible loads for single anchor without influence of spacing and edge distance

²⁾ Load figures include the resistances' partial safety factors as per approval and a partial factor on the action of $\gamma_F = 1,4$.

³⁾ For higher concrete strengths up to C50/60 the values increase by max. 55% compared with C20/25.

⁴⁾ Interim values between S_{cr} and S_{min} / C_{cr} and C_{min} may be interpolated linearly. S_{min} and C_{min} must not be underrun.



Loads and installation parameters (Values valid for BTS M)

		BTS M 14-80/5	BTS M 14-130/15			
Drill hole Ø	d_0 [mm]	14	14			
Thread Ø	d_s [mm]	16,6	16,6			
Ø of clearance hole in fixture	$d_{f \leq}$ [mm]	18	18			
Anchorage depth	h_{nom} [mm]	75	75	90	115	
Minimum thickness of structural part	h_{min} [mm]	150	150	195	200	225
Permissible load in cracked and non-cracked concrete^{1), 2)}						
C8/10	F_{per} [kN]	4,0	4,0	8,0	10,0	11,3
C12/15	F_{per} [kN]	4,7	4,7	8,7	12,0	14,0
C16/20	F_{per} [kN]	5,3	5,3	9,3	13,3	16,0
Spacing and edge distance						
Minimum spacing	s_{min} [mm]	320	320	390	500	500
Minimum edge distance in load direction	$c_{1,min}$ [mm]	105	105	130	165	165
Minimum edge distance vertical to load direction	$c_{2,min}$ [mm]	160	160	195	250	250
Maximum installation torque for impact wrench	$T_{imp} \leq$ [Nm]	450	450			

¹⁾ Permissible load in all directions for single anchor without influence of spacing and edge distance

²⁾ Load figures include the resistances' partial safety factors as per approval and a partial factor on the action of $\gamma_F = 1,5$.



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