Teknisk datablad

AT-HP
Injeksjonslim med høy yteevne

Metakrylatinjeksjonsmørtel til innfesting med høy styrke av gjengestang i betong.
AT-HP™ har høy styrke, bred anvendelse og er enkel å bruke.
Inneholder ikke styren og epoksy.

Festing av bjelkesko på teglstein

Festing av stolpesko på betong

Egenskaper

Materiale

- Lim av metakrylatharpiks, herder og mineralske tilslag. Uten styren
- Gjengestang: galvanisert stål og rustfritt stål A4-70

Fordeler

- Høye laster
- Lav MAL-kode
- Montasje i fuktige hull tillatt
- Forsegler det borede hullet helt
- Spenningsfri innfesting
- Reduserte kant- og innbyrdes ankeravstander
- Innliming av armeringsjern
- Nesten luktfri

Anvendelse

Skjøter

- Betong C20-C50 uten sprekker
- Porebetong
- Hule og massive murstein

Bruksområder

- Stål- og metallkonstruksjoner
- Skinnesystemer
- Fasader
- Gjengestangs- og armeringsjernkoblinger
- Stenger
- Balkonger
- Lagerreoler
- Maskiner
- Markiser
- Betong uten sprekker

Teknisk data

Références

Art. nr.	Product information						
	DB nr.	NOBB nr.	Grey color	Beige color	Content [ml]	Vekt [kg]	Packaging qty [pcs]
ATHP300BG-DK	2099761	56432785	-	-	300	0.575	12

Design resistance – Tension – NRd [kN] – hef = 8d – Carbon steel 5.8

Art. nr.	Design resistance – h_{ef} = 8d – Carbon steel 5.8							
	Tension - N_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	10.7	12	12	12
AT-HP + LMAS M10	-	-	-	-	15.9	17.8	19.3	19.3
AT-HP + LMAS M12	8.4	8.8	9	9.2	21.7	24.3	26.7	28
AT-HP + LMAS M16	15	15.6	16.1	16.4	34.3	38.4	42.2	44.6
AT-HP + LMAS M20	-	-	-	-	50.2	56.3	61.8	65.3
AT-HP + LMAS M24	-	-	-	-	67.5	75.6	83.1	87.8

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Tension – NRd [kN] – hef = 12d – Carbon steel 5.8

Art. nr.	Design resistance – h_{ef} = 12d – Carbon steel 5.8							
	Tension - N_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	12	12	12	12
AT-HP + LMAS M10	-	-	-	-	19.3	19.3	19.3	19.3
AT-HP + LMAS M12	12.7	13.2	13.5	13.8	28	28	28	28
AT-HP + LMAS M16	22.5	23.4	24.1	24.5	51.4	52.7	52.7	52.7
AT-HP + LMAS M20	-	-	-	-	75.4	82	82	82
AT-HP + LMAS M24	-	-	-	-	101.3	113.4	118	118

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Tension – NRd [kN] – hef = 8d – Stainless steel A4-70

Art. nr.	Design resistance – h_{ef} = 8d – Stainless steel A4-70							
	Tension - N_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	10.7	12	13.2	13.9
AT-HP + LMAS M10	-	-	-	-	15.9	17.8	19.6	20.7
AT-HP + LMAS M12	8.4	8.8	9	9.2	21.7	24.3	26.7	28.2
AT-HP + LMAS M16	15	15.6	16.1	16.4	34.3	38.4	42.2	44.6
AT-HP + LMAS M20	-	-	-	-	50.2	56.3	61.8	65.3
AT-HP + LMAS M24	-	-	-	-	67.5	75.6	83.1	87.8

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Tension – NRd [kN] – hef = 12d – Stainless steel A4-70

Art. nr.	Design resistance – h_{ef} = 12d – Stainless steel A4-70							
	Tension - N_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	13.9	13.9	13.9	13.9
AT-HP + LMAS M10	-	-	-	-	21.9	21.9	21.9	21.9
AT-HP + LMAS M12	12.7	13.2	13.5	13.8	31.6	31.6	31.6	31.6
AT-HP + LMAS M16	22.5	23.4	24.1	24.5	51.4	57.6	58.8	58.8
AT-HP + LMAS M20	-	-	-	-	75.4	84.4	92	92
AT-HP + LMAS M24	-	-	-	-	101.3	113.4	124.6	131.7

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Shear – VRd [kN] – hef = 8d – Carbon steel 5.8

Art. nr.	Design resistance – h_{ef} = 8d – Carbon steel 5.8							
	Shear - V_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	7.2	7.2	7.2	7.2
AT-HP + LMAS M10	-	-	-	-	12	12	12	12
AT-HP + LMAS M12	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
AT-HP + LMAS M16	30	31.2	31.2	31.2	31.2	31.2	31.2	31.2
AT-HP + LMAS M20	-	-	-	-	48.8	48.8	48.8	48.8
AT-HP + LMAS M24	-	-	-	-	70.4	70.4	70.4	70.4

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Shear – VRd [kN] – hef = 12d – Carbon steel 5.8

Art. nr.	Design resistance – h_{ef} = 12d – Carbon steel 5.8							
	Shear - V_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	7.2	7.2	7.2	7.2
AT-HP + LMAS M10	-	-	-	-	12	12	12	12
AT-HP + LMAS M12	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
AT-HP + LMAS M16	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2
AT-HP + LMAS M20	-	-	-	-	48.8	48.8	48.8	48.8
AT-HP + LMAS M24	-	-	-	-	70.4	70.4	70.4	70.4

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Shear – VRd [kN] – hef = 8d – Stainless steel A4-70

Art. nr.	Design resistance – h_{ef} = 8d – Stainless steel A4-70							
	Shear - V_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	8.3	8.3	8.3	8.3
AT-HP + LMAS M10	-	-	-	-	12.8	12.8	12.8	12.8
AT-HP + LMAS M12	16.9	17.6	18.1	18.4	19.2	19.2	19.2	19.2
AT-HP + LMAS M16	30	31.2	32.1	32.7	35.3	35.3	35.3	35.3
AT-HP + LMAS M20	-	-	-	-	55.1	55.1	55.1	55.1
AT-HP + LMAS M24	-	-	-	-	79.5	79.5	79.5	79.5

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Shear - VRd [kN] – hef = 12d – Stainless steel A4-70

Art. nr.	Design resistance – h_{ef} = 12d – Stainless steel A4-70							
	Shear - V_{Rd} [kN]							
	Cracked concrete				Non-cracked concrete			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + LMAS M8	-	-	-	-	8.3	8.3	8.3	8.3
AT-HP + LMAS M10	-	-	-	-	12.8	12.8	12.8	12.8
AT-HP + LMAS M12	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
AT-HP + LMAS M16	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3
AT-HP + LMAS M20	-	-	-	-	55.1	55.1	55.1	55.1
AT-HP + LMAS M24	-	-	-	-	79.5	79.5	79.5	79.5

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Bending moment – MRd [Nm] – Concrete

Art. nr.	Design resistance – Bending moment – M_{Rd} [Nm]	
	Carbon steel 5.8	Stainless steel A4-70
AT-HP + LMAS M8	15.2	16.7
AT-HP + LMAS M10	29.6	34
AT-HP + LMAS M12	52.8	59
AT-HP + LMAS M16	133.6	149.4
AT-HP + LMAS M20	260.8	291
AT-HP + LMAS M24	448.8	502.6

Concrete :
1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

Design resistance – Tension – NRd [kN] – Rebar

Art. nr.	Design resistance – N_{Rd} – Carbon steel 5.8 [kN]							
	Non-cracked concrete							
	h_{ef} = 8d				h_{ef} = 12d			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + Ø8	6.3	7	7.7	8.1	9.4	10.5	11.5	12.2
AT-HP + Ø10	10.5	11.7	12.9	13.6	15.7	17.6	19.3	20.4
AT-HP + Ø12	14.1	15.8	17.3	18.3	21.1	23.6	26	27.4
AT-HP + Ø14	19.1	21.4	23.6	24.9	28.7	32.2	35.3	37.3
AT-HP + Ø16	23.2	26	28.6	34.8	34.8	39	42.8	52.2
AT-HP + Ø20	36.3	40.6	44.6	47.2	54.4	61	66.9	70.8
AT-HP + Ø25	52.3	58.6	64.4	68	78.5	87.9	96.6	102.1

Design resistance – Shear – VRd [kN] – Rebar

Art. nr.	Design resistance – V_{Rd} – Carbon steel 5.8 [kN]							
	Non-cracked concrete							
	h_{ef} = 8d				h_{ef} = 12d			
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60
AT-HP + Ø8	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
AT-HP + Ø10	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
AT-HP + Ø12	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
AT-HP + Ø14	28	28	28	28	28	28	28	28
AT-HP + Ø16	36.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7
AT-HP + Ø20	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3
AT-HP + Ø25	90	90	90	90	90	90	90	90

Design resistance – Bending moment – MRd [Nm] – Rebar

Art. nr.	Design resistance – Bending moment – M_{Rd} [Nm]
AT-HP + Ø8	22
AT-HP + Ø10	43.3
AT-HP + Ø12	74.7
AT-HP + Ø14	118.7
AT-HP + Ø16	176.7
AT-HP + Ø20	345.3
AT-HP + Ø25	674.7

Montering

Herdetid

Mortar temperature Tmortar [°C)	Base material temperature Tbase material [°C]	Gel time (working time) in dry/wet concrete tgel [min]	Curing time in dry/wet concrete tcure [h; min]
+5°C	-5°C to -1°C	15min	9h
+5°C	0°C to 4°C	12min	4h
+5°C	5°C to 9°C	9min	1,5h
+10°C	10°C to 19°C	4min	60min
+20°C	20°C to 29°C	1min	30min
+30°C	30°C and above	<1min	20min

Concerning the version of the mortar with changing color proof, after the minimum curing time the blue colored injection mortar changed into grey. The curing color proof is available for standard version of the mortar only and the curing color proof is working above 5°C.

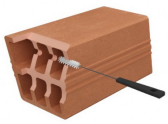
Drilling methods

Solid brick/concrete	Percussion/hammer drilling
Hollow/perforated brick	Rotation drilling
Aerated concrete	Percussion/hammer drilling

Teknisk datablad

AT-HP
Injeksjonslim med høy yteevne

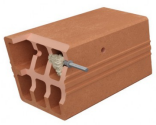
Bor hullet



Rengjør hullet med stålbørste og blåsepumpe (blås 5x, børst 4x og blås 5x)

Sett inn en hylse

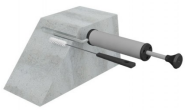
OBS: Trykk først ut klebemørtelen til den får en jevn farge. Trykk deretter inn mørtel i hullet



Sett inn gjengestangen forsiktig med en roterende bevegelse, og la klebemørtelen herde

Skru fast emnet

Bor hullet



Rengjør hullet med stålbørste og blåsepumpe (blås 5x, børst 4x og blås 5x)

Fyll opp hullet 1/2 - 2/3 med klebemørtel ved å pumpe fra bunnen og ut

Sett inn LMAS-ankeret med en roterende bevegelse og la mørtelen tørke

Sett på emnet og spenn det fast med en kalibrert momentnøkkel

Installation parameters – Concrete

Art. nr.	Installation parameters - Concrete					
	Ø drilling [d_0] [mm]	Max. fixture hole Ø [d_f] [mm]	Drilling depth (8d) [h_0=h_{ef}=8d] [mm]	Drilling depth (12d) [h_0=h_{ef}=12d] [mm]	Wrench size [SW]	Installation torque [T_{inst}] [Nm]
AT-HP + LMAS M8	10	9	64	96	13	10
AT-HP + LMAS M10	12	12	80	120	17	20
AT-HP + LMAS M12	14	14	96	144	19	30
AT-HP + LMAS M16	18	18	128	192	24	60
AT-HP + LMAS M20	24	22	160	240	30	90
AT-HP + LMAS M24	28	26	192	288	36	140

Spacing, edge distances and member thickness - Concrete

Art. nr.	Spacing, edge distance and member thickness - Concrete									
	Effective embedment depth (8d) [$h_{ef,8d}$] [mm]	Characteristic spacing for $h_{ef,8d}$ [$S_{cr,N}$] [mm]	Characteristic edge distance for $h_{ef,8d}$ [$c_{cr,N}$] [mm]	Min. member thickness for $h_{ef,8d}$ [h_{min}] [mm]	Effective embedment depth (12d) [$h_{ef,12d}$] [mm]	Characteristic spacing for $h_{ef,12d}$ [$S_{cr,N}$] [mm]	Characteristic edge distance for $h_{ef,12d}$ [$c_{cr,N}$] [mm]	Min. member thickness for $h_{ef,12d}$ [h_{min}] [mm]	Min. spacing [S_{min}] [mm]	Min. edge distance [C_{min}] [mm]
AT-HP + LMAS M8	64	192	96	100	96	288	144	100	40	40
AT-HP + LMAS M10	80	240	120	110	120	360	180	150	50	50
AT-HP + LMAS M12	96	288	144	126	144	432	216	174	60	60
AT-HP + LMAS M16	128	384	192	158	192	576	288	222	80	80
AT-HP + LMAS M20	160	480	240	190	240	720	360	270	100	100
AT-HP + LMAS M24	192	576	288	222	288	864	432	318	120	120

Installation parameters – Rebar

Art. nr.	Installation parameters - Rebar		
	Ø drilling [d_0] [mm]	Drilling depth (8d) [h_0=h_{ef}=8d] [mm]	Drilling depth (12d) [h_0=h_{ef}=12d] [mm]
AT-HP + Ø8	12	64	96
AT-HP + Ø10	14	80	120
AT-HP + Ø12	16	96	144
AT-HP + Ø14	18	112	168
AT-HP + Ø16	20	128	192
AT-HP + Ø20	25	160	240
AT-HP + Ø25	32	200	300

Spacing, edge distances and member thickness – Rebar

Art. nr.	Spacing, edge distance and member thickness - Rebar									
	Effective embedment depth (8d) [$h_{ef,8d}$] [mm]	Characteristic spacing for $h_{ef,8d}$ [$S_{cr,N}$] [mm]	Characteristic edge distance for $h_{ef,8d}$ [$c_{cr,N}$] [mm]	Min. member thickness for $h_{ef,8d}$ [h_{min}] [mm]	Effective embedment depth (12d) [$h_{ef,12d}$] [mm]	Characteristic spacing for $h_{ef,12d}$ [$S_{cr,N}$] [mm]	Characteristic edge distance for $h_{ef,12d}$ [$c_{cr,N}$] [mm]	Min. member thickness for $h_{ef,12d}$ [h_{min}] [mm]	Min. spacing [S_{min}] [mm]	Min. edge distance [C_{min}] [mm]
AT-HP + Ø8	64	192	96	100	96	288	144	100	40	40
AT-HP + Ø10	80	240	120	110	120	360	180	150	50	50
AT-HP + Ø12	96	288	144	126	144	432	216	174	60	60
AT-HP + Ø14	112	336	168	148	168	504	252	204	70	70
AT-HP + Ø16	128	384	192	168	192	576	288	232	80	80
AT-HP + Ø20	160	480	240	210	240	720	360	290	100	100
AT-HP + Ø25	200	600	300	264	300	900	450	364	125	125

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